

FCC PART 15 SUBPART B & SUBPART C SECTION 15.247

&

RSS 247, RSS GEN TEST REPORT

for

PHYN PLUS SMART WATER ASSISTANT**MODEL: PHYPF001**

Prepared for

PHYN LLC
1855 DEL AMO BLVD
TORRANCE, CA 90501

Prepared by: _____

TOREY OLIVER

Reviewed by: _____

MATT HARRISON

COMPATIBLE ELECTRONICS INC.
20621 PASCAL WAY
LAKE FOREST, CALIFORNIA 92630
(949) 587-0400DATE: NOVEMBER 3rd, 2017

	REPORT BODY	APPENDICES					TOTAL
		A	B	C	D	E	
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**Brea Division**
114 Olinda Drive
Brea, CA 92823
(714) 579-0500**Agoura Division**
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600**Silverado Division**
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700**Lake Forest Division**
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

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1	Conducted Emissions Test Setup
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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: Phyn Plus Smart Water Assistant
Model: PHYPF001
S/N: None

Product Description: The EUT is a water sensing technology that provides leak protection and itemized water consumption for the entire home from a single installation point. When a water fixture is opened and closed, its valve generates a unique pressure wave that propagates throughout the home's plumbing system. Phyn Plus observes these pressure transients or waveforms, classifies them into fixture usage events, and measures the amount of water being used with an on-board flow meter. An added benefit of the flow detection technology is the ability to detect leaks, from small drips to catastrophic pipe bursts. The Pro unit offers the ultimate ability to turn off the water remotely when/if a small or catastrophic leak is detected.

Modifications: The EUT was not modified in order to comply with specifications.

Manufacturer: Phyn LLC
1855 Del Amo Blvd
Torrance, CA 90501

Test Dates: October 11-27 & 30, 2017
November 1-3, 2017

Test Specifications Covered by Accreditation:



EMI requirements

CFR Title 47, Part 15 Subpart B Sections 15.107, 15.109, & 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.



Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Conducted RF Emissions, 150 kHz - 30 MHz	Complies with the limits of CFR Title 47 Part 15 Subpart B Section 15.107 and Subpart C Section 15.207 and RSS GEN
2	Radiated RF Emissions & Harmonics, 9 kHz – 25,000 MHz	Complies with the limits of CFR Title 47 Part 15 Subpart B Section 15.109 and 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
8	Occupied Bandwidth	Complies with RSS 247 & RSS GEN



1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the Phyn Plus Smart Water Assistant Model: PHYPF001. 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 B sections 15.107, 15.109, & Part 15 Subpart C sections 15.205, 15.207, 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

Phyn LLC

Lorenzo Villanueva

Compatible Electronics Inc.

Torey Oliver
Jorge Reyes
Matt Harrison

Test Engineer
Advanced Project Engineer
Lab Manager

2.4 Date Test Sample was Received

The test sample was received on October 11th, 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
ICES-003 Issue 6	Information Technology Equipment (Including Digital Apparatus) — Limits and Methods of Measurement
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 Phyn Plus Smart Water Assistant Model: PHYPF001 (EUT) was setup in a tabletop configuration. The EUT is connected to a power supply. The cable that is not terminated is used for programming the intentional radiator. The EUT was continuously transmitting a data stream during transmit tests and continuously receiving during receiver tests. The EUT was checked in all axes and the worst case was the Z-axis. The EUT has two intentional radiators. These radiators consist of BLE and WIFI. The WIFI mode has two antennas. The WIFI antennas do not transmit simultaneously. The WIFI was tested in four different modes. These modes are 802.11a, b, g, and n. 802.11n was tested using both 20MHz and 40MHz bandwidth. The EUT was checked with both radios operating simultaneously. The EUT was also tested with copper pipe to check for the worst-case configuration. The worst case was testing the radios individually without copper pipe.

The voltage was varied $\pm 15\%$ and the transmitting signal amplitude and frequency did not vary.

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 Cable Construction and Termination

Cable 1

This is a 2 meter, braid shielded, cable that connects the EUT to the laptop (for programming only). The cable has a USB Type-C connector at the Laptop end and is hardwired at the EUT end of the cable. The cable was bundled to a length of 1 meter. The shield of the cable was terminated at both ends of the cable.

Cable 2

This is a 3 meter, unshielded, cable that connects the EUT to the AC mains. The cable has a US Male Plug at the AC mains end and is hardwired at the EUT end 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	PHYN PLUS SMART WATER ASSISTANT(EUT)	PHYN LLC	PHYPF001	NONE
2	LAPTOP	HP	HSTNN-DA24	NONE
3	LAPTOP POWER SUPPLY	HP	WORKSTATION Z BOOK	NONE



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
Power Sensor	ETS Lindgren	7002-006	00151018	10/1/2016	10/1/2018
Antenna, Loop	Com Power	AL-130	121049	2/9/2017	2/9/2018
Antenna, CombiLog	Com Power	AC-220	003	5/19/2016	5/19/2018
Antenna, Horn 1-18GHz	Com Power	AH-118	071250	5/16/2016	5/16/2018
Antenna, Horn 18-26 GHz	Com Power	AH-826	081033	NCR	NCR
Pre-Amp, 1-18GHz	Com Power	PAM-118A	551033	5/17/2016	5/17/2018
Pre-Amp, 18-40GHz	Com Power	PA-840	181289	6/16/2016	6/16/2018
High Pass Filter	AMTI Microwave Circuits	H3G020G4	481230	6/4/2016	6/4/2018
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
Variable Power Supply	Chroma	61511	615114800078	2/18/2016	2/18/2018
LISN	Com-Power	LI-215	191944	5/18/2017	5/18/2018



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}	$U_{lab} = 2 u_c(y)$
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

The EUT was programmed to be in the WIFI Mode. There is a total of 11 channels. The low channel is at 2412 MHz, mid channel is at 2437 MHz, and the high channel is at 2462 MHz. There is approximately 5 MHz separation between channels and the EUT uses QPSK modulation.

	WIFI
Channel 1	2412 MHz
Channel 2	2417 MHz
Channel 3	2422 MHz
Channel 4	2427 MHz
Channel 5	2432 MHz
Channel 6	2437 MHz
Channel 7	2442 MHz
Channel 8	2447 MHz
Channel 9	2452 MHz
Channel 10	2457 MHz
Channel 11	2462 MHz

7.2 Antenna

The EUT has three antennas. Two are internal and one external.

7.3 Software

BLE-STACK V2.2.1 supports Bluetooth 4.2 for CC2640/CC2650/CC1350 build date 10/28/2016 used from <http://www.ti.com/tool/ble-stack> but has been moved to Amazon S3

WiFi firmware v11387 bill date sept 2017 location amazon S3



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*

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. 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.

Test Results:

The EUT complies with the limits of CFR Title 47 Part 15 Subpart B section 15.107 & Subpart C sections 15.207 and RSS GEN.



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. Amplifiers were used to increase the sensitivity of the instrument. A Preamplifier 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 25000	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 B section 15.109 & 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 power meter. 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

There were no deviations from the test procedure.

10. CONCLUSIONS

The Phyn Plus Smart Water Assistant Model: PHYPF001 meets all of the relevant specification requirements defined in the Code of Federal Regulations Title 47, Part 15 Subpart B sections 15.107, 15.109, & Subpart C sections 15.205, 15.207, 15.209, 15.247, RSS GEN & RSS 247.



APPENDIX A***LABORATORY ACCREDITATIONS AND
RECOGNITIONS***

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

LABORATORY ACCREDITATIONS AND RECOGNITIONS



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 Numbers: 2154C-1 & 2154C-5



Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

APPENDIX B

MODIFICATIONS TO THE EUT



Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

MODIFICATIONS TO THE EUT

There were no modifications made during testing.



APPENDIX C***ADDITIONAL MODELS COVERED
UNDER THIS REPORT***

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST

Phyn Plus Smart Water Assistant
Model: PHYPF001
S/N: None

No additional models were tested.



Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

APPENDIX D***DIAGRAMS, FACTORS, AND CHARTS***

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

FIGURE 1: CONDUCTED EMISSIONS TEST SETUP

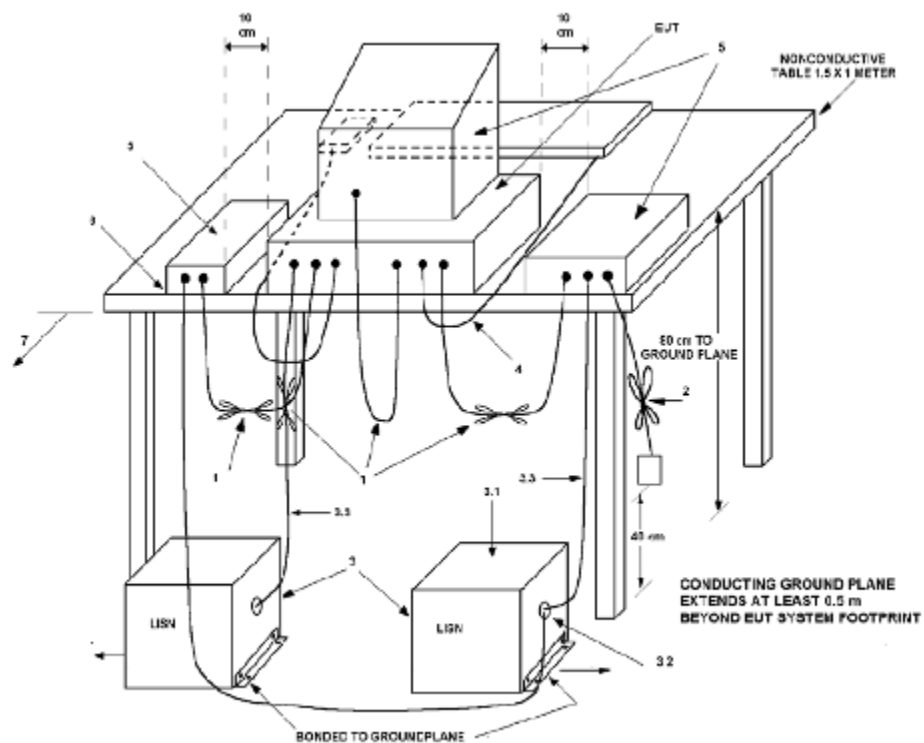


FIGURE 2: PLOT MAP AND LAYOUT OF TEST SITE BELOW 1GHZ

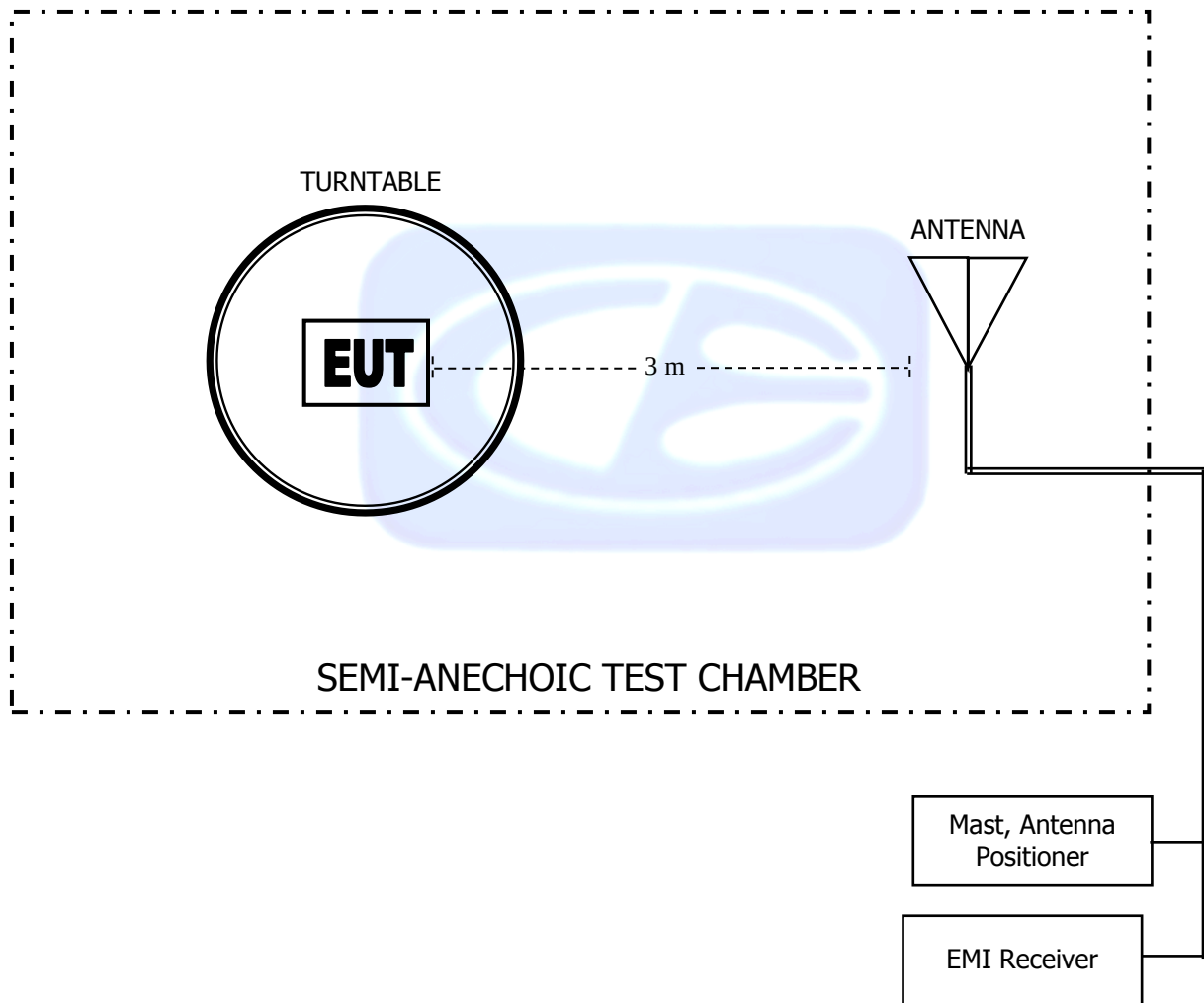
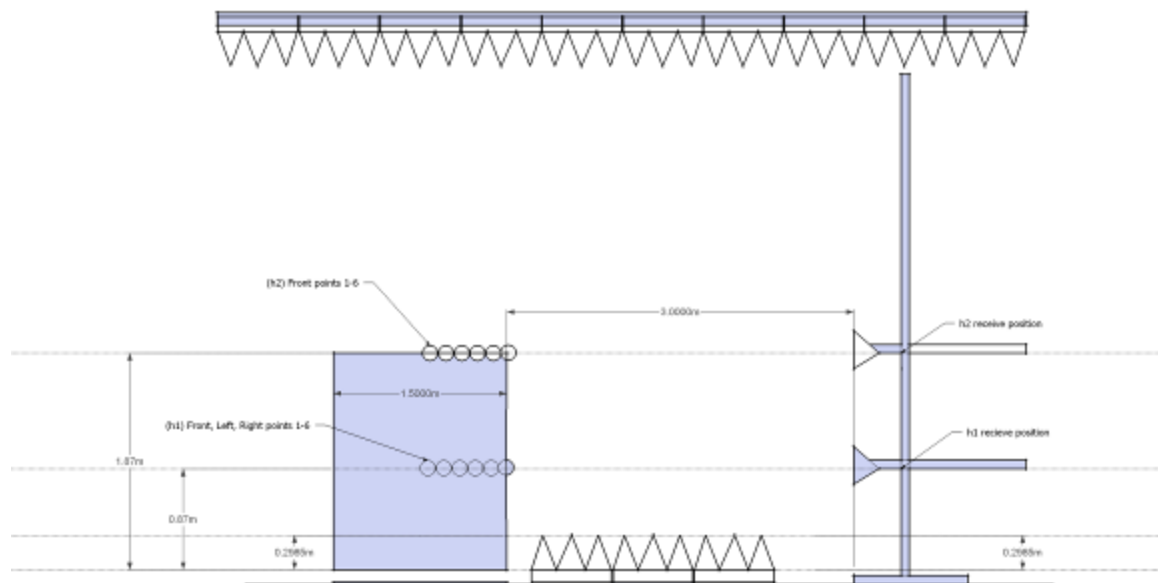


FIGURE 3: PLOT MAP AND LAYOUT OF TEST SITE ABOVE 1GHZ



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 16, 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



COM-POWER PA-840**18-40 GHz PREAMPLIFIER****S/N: 181289****CALIBRATION DUE: JUNE 16, 2018**

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
18000	29.4	31500	28.2
19000	28.8	32000	28.6
20000	30.5	32500	28.8
21000	31.4	33000	28.2
22000	31.2	33500	27.7
23000	30.1	34000	27.2
24000	30.3	34500	28.2
25000	29.8	35000	27.3
26000	30.5	35500	27.2
26500	30.7	36000	27.2
27000	30.8	36500	27.5
27500	30.2	37000	27.0
28000	30.1	37500	26.7
28500	30.2	38000	26.2
29000	30.1	38500	26.5
29500	29.8	39000	26.3
30000	29.2	39500	26.9
30500	28.4	40000	27.6
31000	29.8		



APPENDIX E
***RADIATED SPURIOUS EMISSIONS
DATA SHEETS***

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

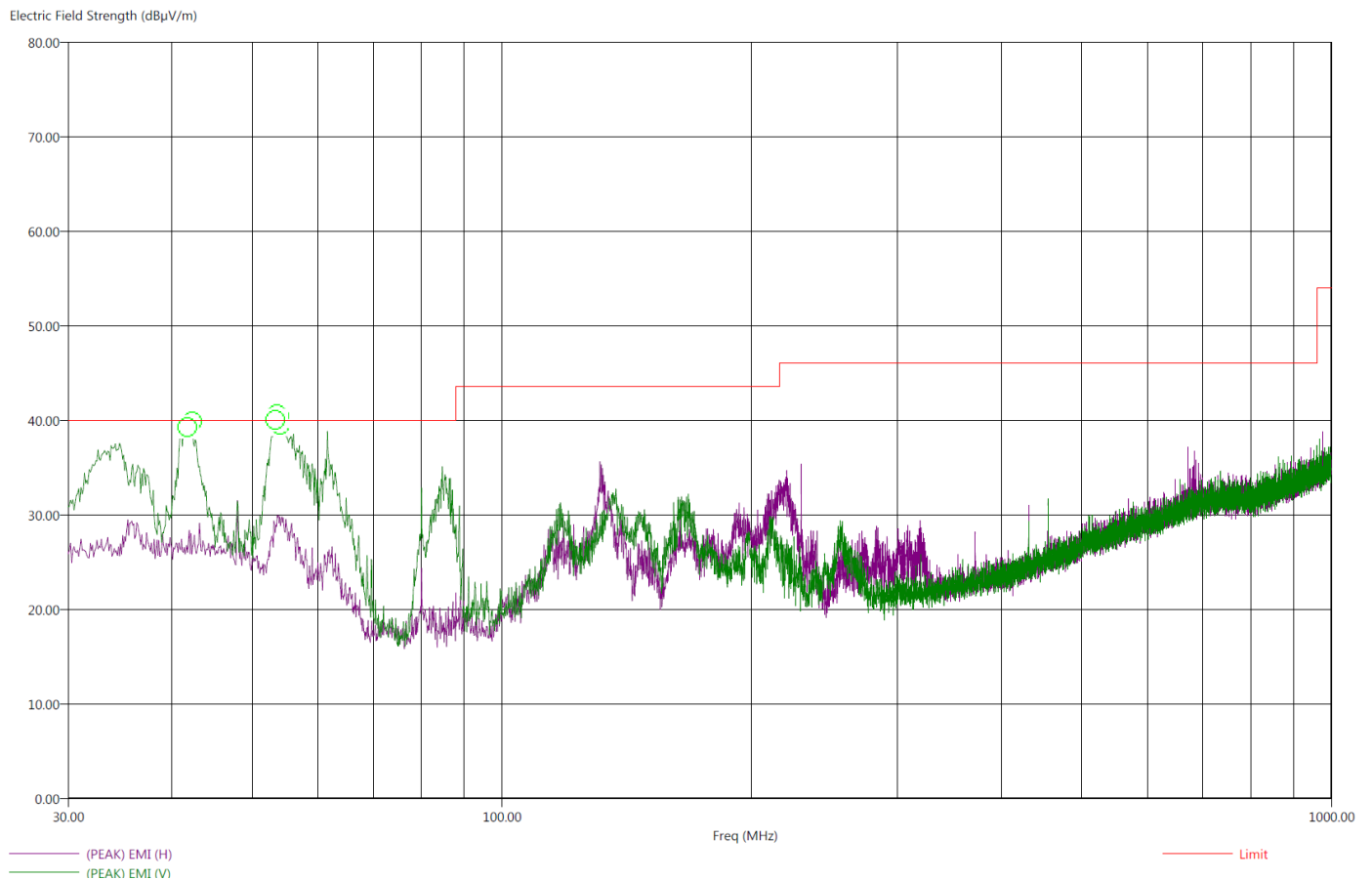
Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

Title: FCC 15.209
File: Radiated Pre-Scan 30-1000Mhz mid_channel.set
Operator: Jorge Reyes
EUT Type: Phyn Plus
EUT Condition: The EUT is constantly transmitting 802.11n (20 MHz) at 2437 MHz.
Comments: Antenna 2
Z-Axis.
Temp: 73f
Hum: 49%
120V 60Hz

10/17/2017 3:34:15 PM
Sequence: Preliminary Scan

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

This was the worst case mode and channel.

There were no radiated emissions besides the fundamental and harmonics found between 9kHz-30 MHz or 1GHz-25GHz.



Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

Title: FCC 15.209
File: Radiated Final 30-1000Mhz mid_channel.set
Operator: Jorge Reyes
EUT Type: Phyn Plus
EUT Condition: The EUT is constantly transmitting 802.11n (20 MHz) at 2437 MHz.
Comments: Antenna 2
Z-Axis.
Temp: 73f
Hum: 49%
120V 60Hz

10/17/2017 3:55:04 PM
Sequence: Final Measurements

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)
41.80	-1.74	38.26	41.16	40.00	V	106.75	101.52	24.01	0.52
42.30	-2.79	37.21	39.71	40.00	V	219.25	106.29	24.04	0.53
53.30	-2.12	37.88	40.52	40.00	V	88.25	109.58	21.36	0.64
53.60	-1.95	38.05	41.03	40.00	V	33.75	103.88	21.23	0.65
53.90	-0.96	39.04	41.69	40.00	V	13.50	106.35	21.17	0.65
54.10	-2.05	37.95	40.56	40.00	V	0.00	99.41	21.12	0.65

This was the worst case mode and channel.

There were no radiated emissions besides the fundamental and harmonics found between 9kHz-30 MHz or 1GHz-25GHz.



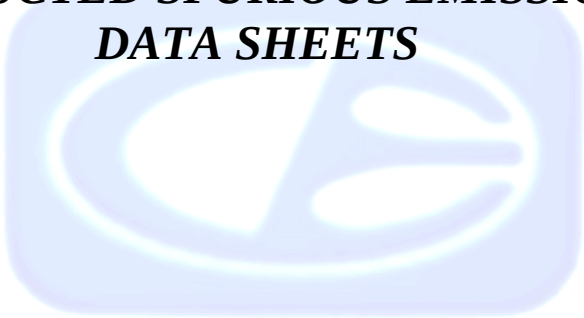
Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
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CONDUCTED SPURIOUS EMISSIONS DATA SHEETS



Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

Title: FCC 15.207

10/23/2017 9:11:30 AM

File: Conducted Pre-Line 120.set

Sequence: Preliminary Scan

Operator: Jorge Reyes

EUT Type: Phyn Plus Smart Water Assistant / PHYPF001

EUT Condition: The EUT is constantly transmitting 802.11b at 2437 MHz.

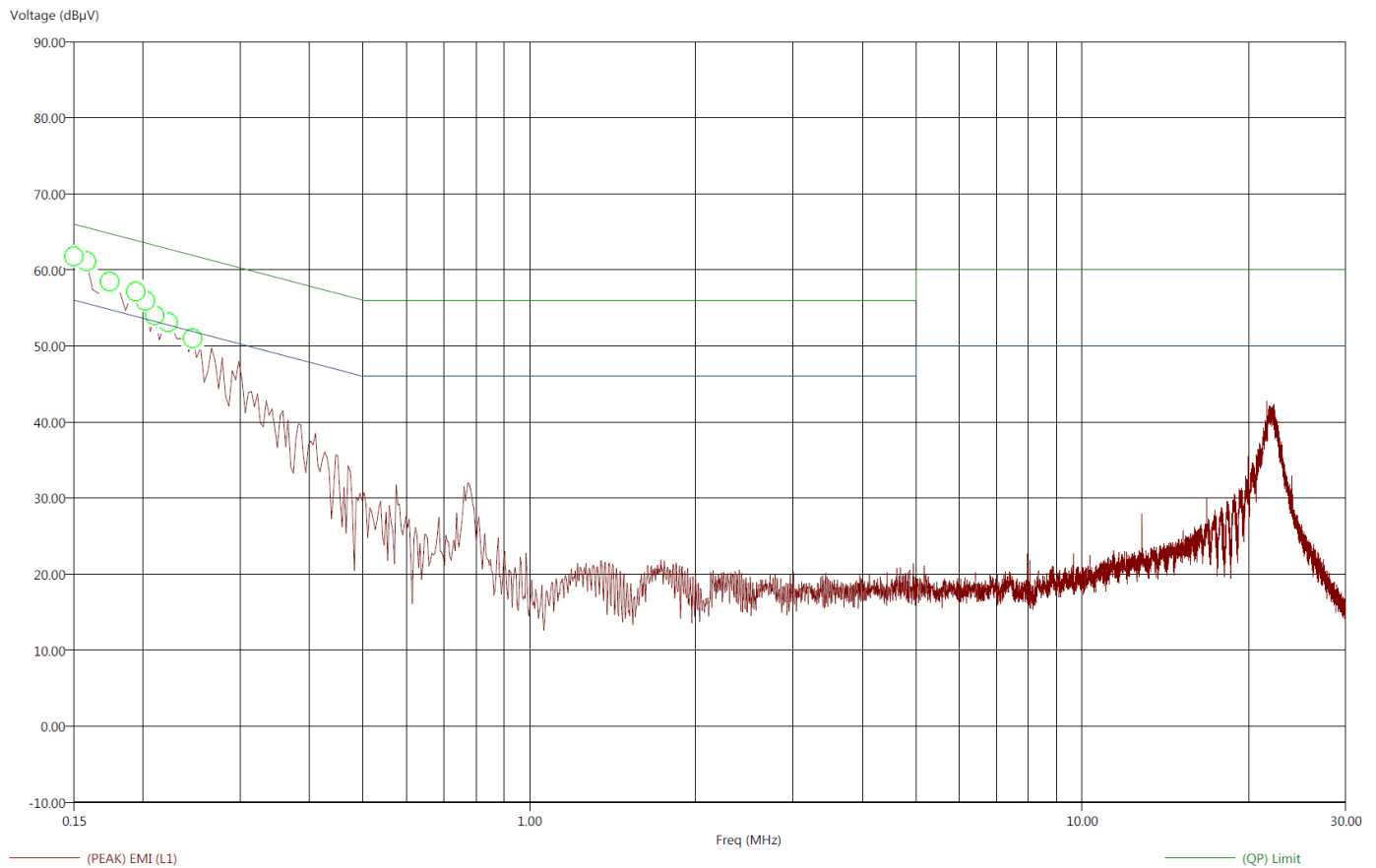
Comments: Antenna 1

Z-Axis.

Temp: 73f

Hum: 49%

120V 60Hz

Compatible Electronics, Inc. FAC-3 (Lab P)***This was the worst case mode and channel.*****Brea Division**
114 Olinda Drive
Brea, CA 92823
(714) 579-0500**Agoura Division**
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600**Silverado Division**
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700**Lake Forest Division**
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

Title: FCC 15.207

10/23/2017 9:16:16 AM

File: Conducted Final-Line 120.set

Sequence: Final Measurements

Operator: Jorge Reyes

EUT Type: Phyn Plus Smart Water Assistant / PHYPF001

EUT Condition: The EUT is constantly transmitting 802.11b at 2437 MHz.

Comments: Antenna 1

Z-Axis.

Temp: 73f

Hum: 49%

120V 60Hz

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

Freq (MHz)	(AVG) Margin AVL (dB)	(QP) Margin AVL (dB)	(AVG) EMI (dBμV)	(QP) EMI (dBμV)	(PEAK) EMI (dBμV)	(AVG) Limit (dBμV)	(QP) Limit (dBμV)	Transducer(dB)	Cable(dB)
0.15	-15.99	-5.98	40.01	60.02	63.99	56.00	66.00	0.44	0.01
0.16	-16.17	-7.18	39.39	58.39	62.77	55.57	65.57	0.41	0.01
0.17	-16.67	-7.95	38.09	56.82	60.80	54.77	64.77	0.37	0.01
0.19	-19.44	-9.97	34.43	53.89	58.51	53.86	63.86	0.32	0.01
0.20	-20.92	-10.60	32.61	52.92	56.76	53.53	63.53	0.30	0.01
0.21	-22.29	-13.77	30.91	49.44	53.99	53.21	63.21	0.28	0.01

This was the worst case mode and channel.**Brea Division**
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Brea, CA 92823
(714) 579-0500**Agoura Division**
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600**Silverado Division**
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700**Lake Forest Division**
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

Title: FCC 15.207

10/23/2017 9:19:31 AM

File: Conducted Pre-Neutral 120.set

Sequence: Preliminary Scan

Operator: Jorge Reyes

EUT Type: Phyn Plus Smart Water Assistant / PHYPF001

EUT Condition: The EUT is constantly transmitting 802.11b at 2437 MHz.

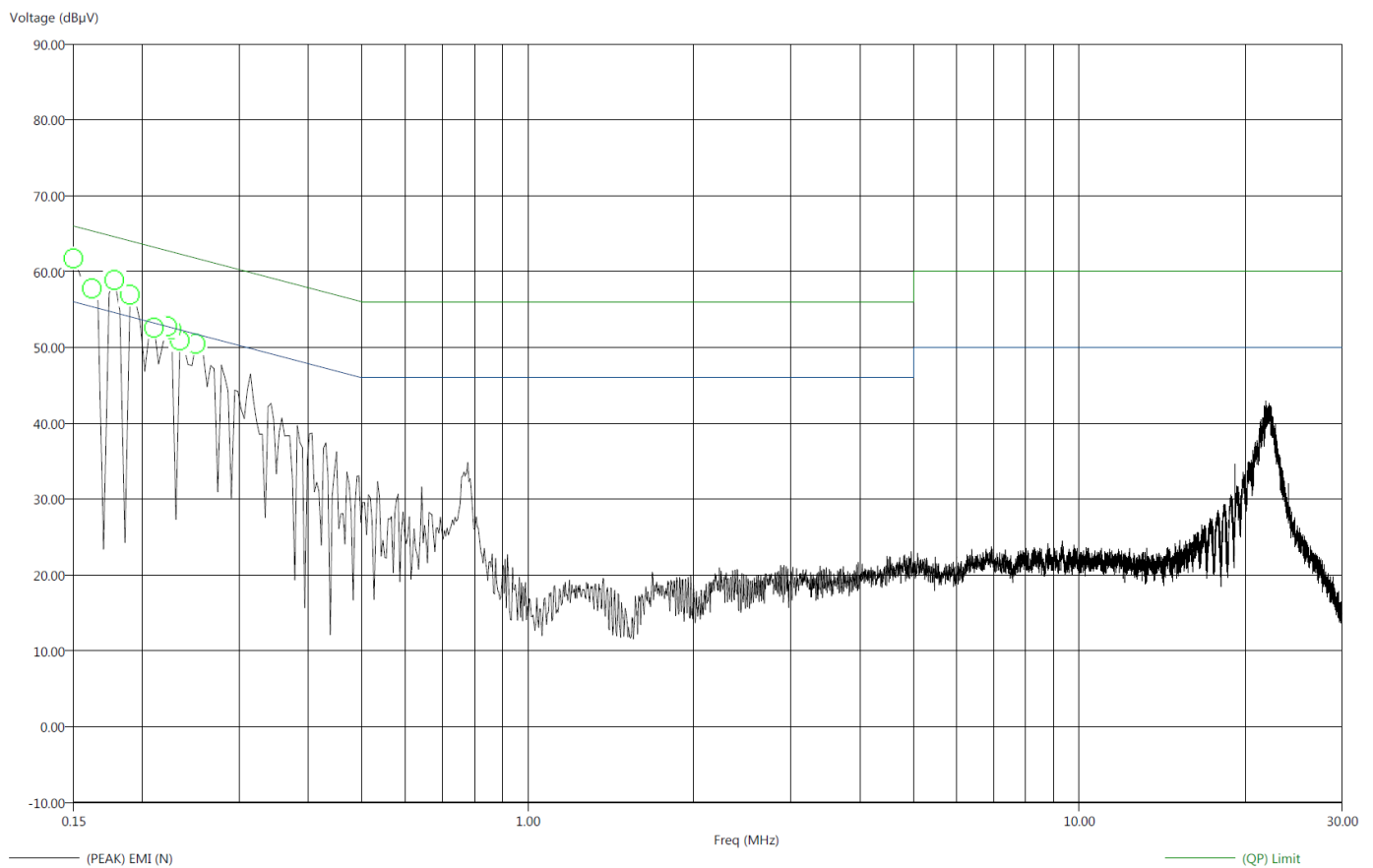
Comments: Antenna 1

Z-Axis.

Temp: 73f

Hum: 49%

120V 60Hz

Compatible Electronics, Inc. FAC-3 (Lab P)***This was the worst case mode and channel.*****Brea Division**
114 Olinda Drive
Brea, CA 92823
(714) 579-0500**Agoura Division**
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600**Silverado Division**
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700**Lake Forest Division**
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

Title: FCC 15.207

10/23/2017 9:24:57 AM

File: Conducted Final-Neutral 120.set

Sequence: Final Measurements

Operator: Jorge Reyes

EUT Type: Phyn Plus Smart Water Assistant / PHYPF001

EUT Condition: The EUT is constantly transmitting 802.11b at 2437 MHz.

Comments: Antenna 1

Z-Axis.

Temp: 73f

Hum: 49%

120V 60Hz

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

Freq (MHz)	(AVG) Margin AVL (dB)	(QP) Margin AVL (dB)	(AVG) EMI (dBμV)	(QP) EMI (dBμV)	(PEAK) EMI (dBμV)	(AVG) Limit (dBμV)	(QP) Limit (dBμV)	Transducer(dB)	Cable(dB)
0.15	-17.09	-6.62	38.91	59.38	62.79	56.00	66.00	0.44	0.01
0.16	-20.50	-11.59	34.86	53.77	59.28	55.36	65.36	0.40	0.01
0.18	-18.06	-8.55	36.52	56.03	58.66	54.58	64.58	0.36	0.01
0.19	-22.74	-12.23	31.30	51.81	56.22	54.04	64.04	0.33	0.01
0.21	-22.19	-14.00	31.01	49.21	53.04	53.21	63.21	0.28	0.01
0.22	-20.87	-12.71	31.88	50.03	54.17	52.74	62.74	0.25	0.01
0.23	-22.37	-13.16	30.23	49.44	54.42	52.60	62.60	0.24	0.01
0.23	-22.16	-13.65	30.15	48.66	52.75	52.31	62.31	0.23	0.01
0.25	-21.74	-14.95	30.02	46.80	50.50	51.76	61.76	0.19	0.01

This was the worst case mode and channel.**Brea Division**
114 Olinda Drive
Brea, CA 92823
(714) 579-0500**Agoura Division**
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600**Silverado Division**
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700**Lake Forest Division**
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

***DTS BANDWIDTH
DATA SHEETS***

802.11b

ANTENNA 1



Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

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19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

DTS BANDWIDTH

FCC 15.247

Company: Phyn LLC
EUT: Leak Detector
Model: PHYPF001
Mode: 802.11b
Antenna: 1

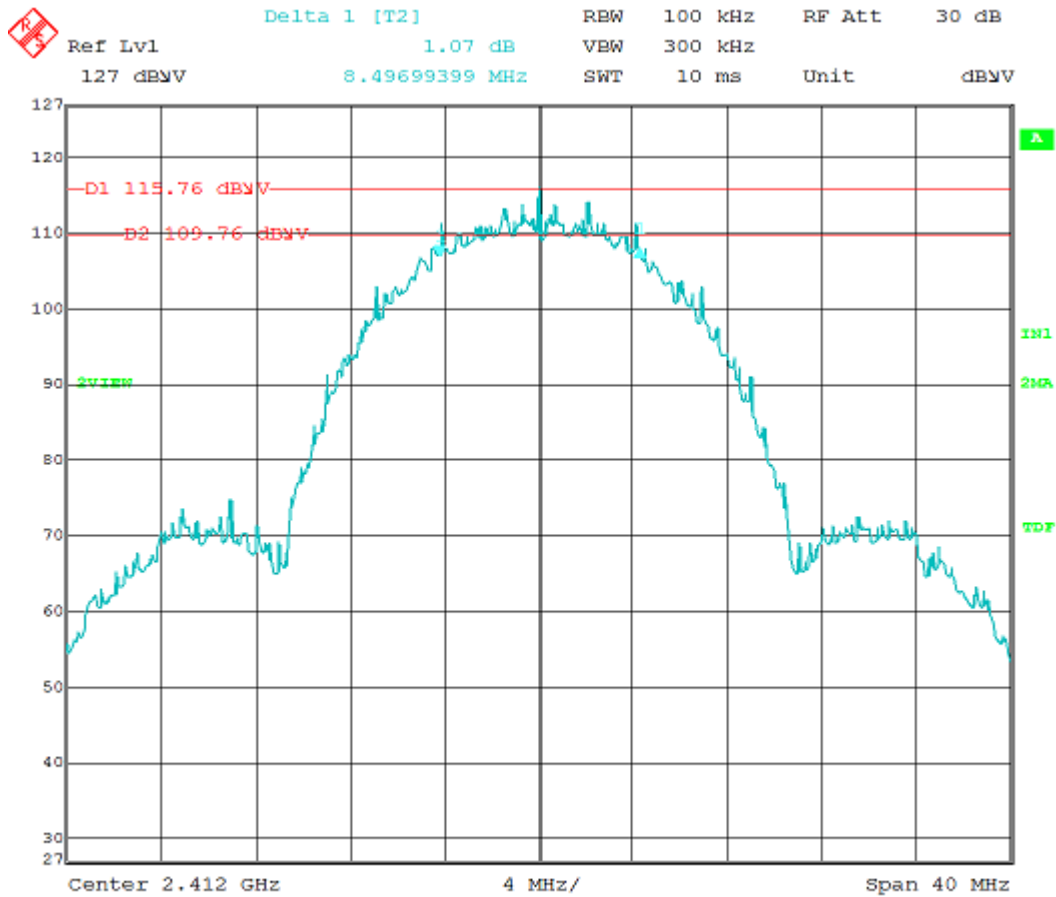
Date: 1/29/2018
Lab: P
Test Eng: Torey Oliver

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

DTS Bandwidth

Freq. (MHz)	Measured BW (kHz)	Limit (Min) (kHz)	Margin (kHz)	Peak / QP / Avg	Comments
2412	8496.99	500.00	7996.99	Peak	
2437	8496.99	500.00	7996.99	Peak	
2462	8496.99	500.00	7996.99	Peak	





Comment A: DTS Bandwidth 2412 MHz

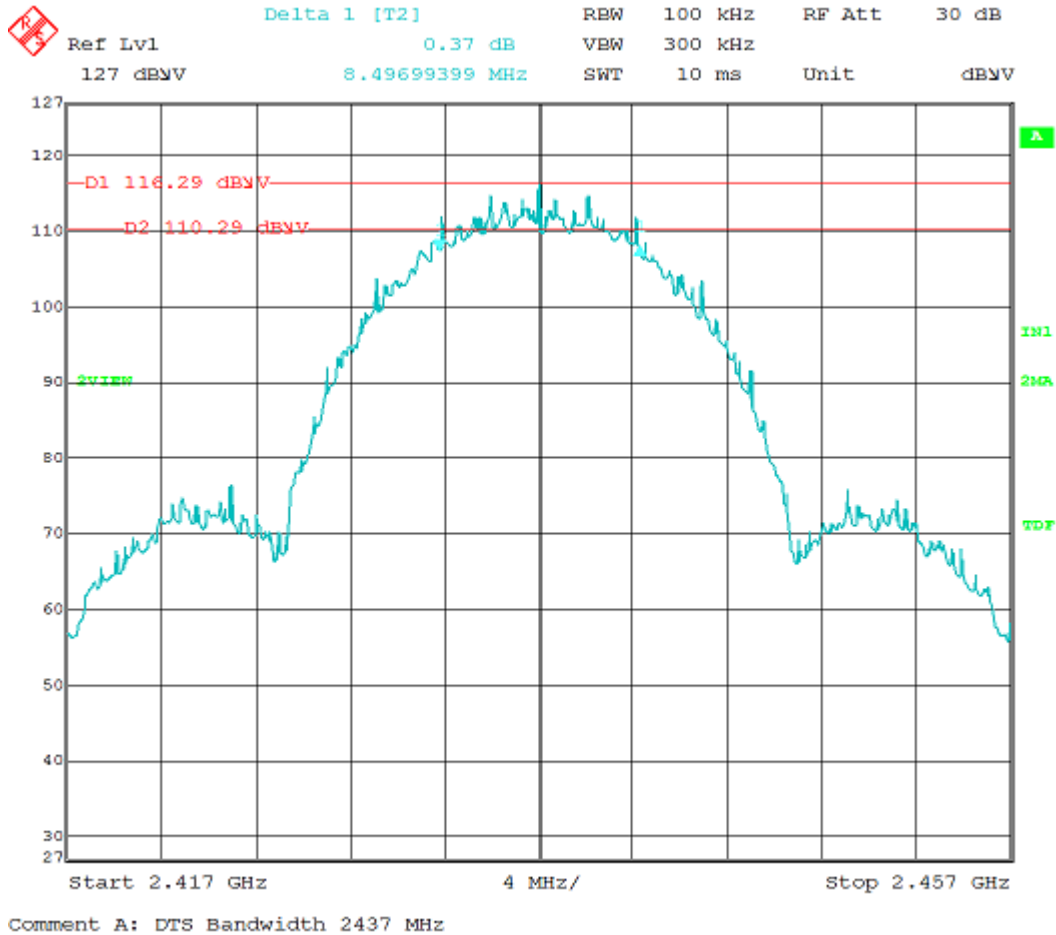


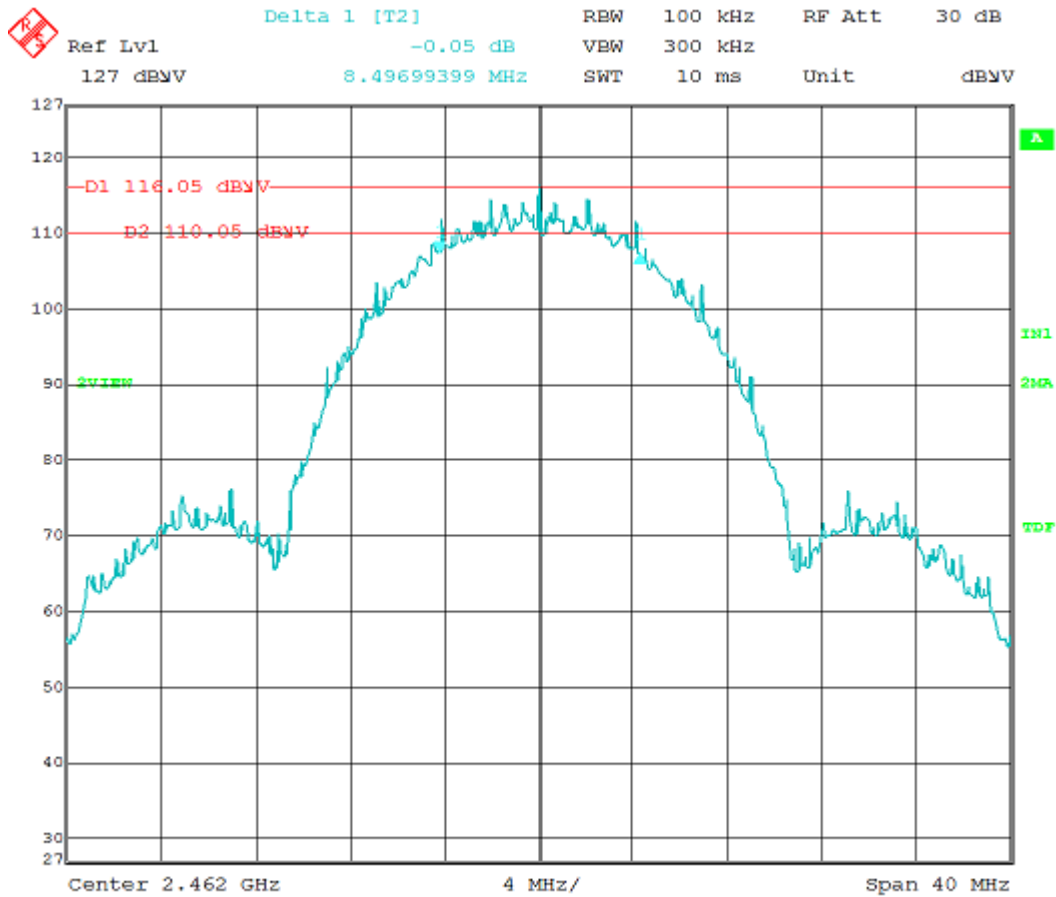
Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
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Lake Forest Division
20621 Pascal Way
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(949) 587-0400





Comment A: DTS Bandwidth 2462 MHz



Brea Division
114 Olinda Drive
Brea, CA 92823
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Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
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(949) 587-0400

***DTS BANDWIDTH
DATA SHEETS***

802.11b

ANTENNA 2



Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

DTS BANDWIDTH

FCC 15.247

Company: Phyn LLC
EUT: Leak Detector
Model: PHYPF001
Mode: 802.11b
Antenna: 2

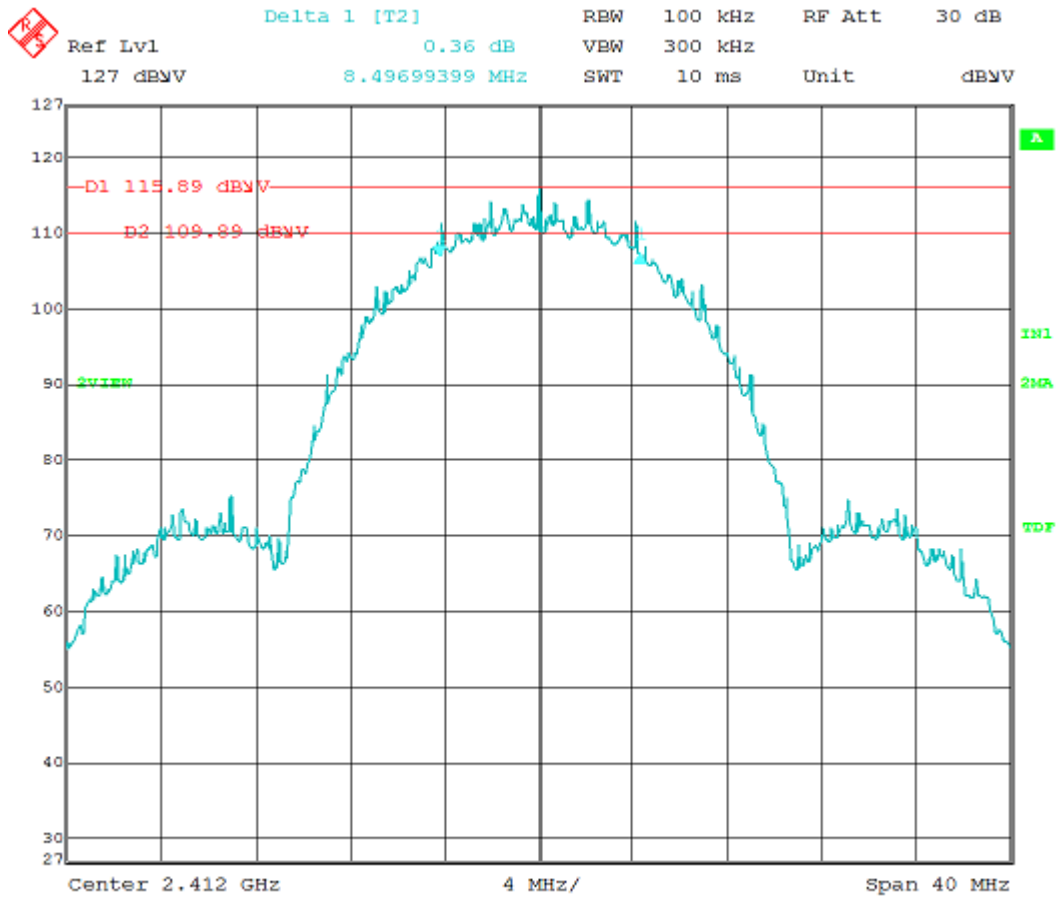
Date: 1/29/2018
Lab: P
Test Eng: Torey Oliver

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

DTS Bandwidth

Freq. (MHz)	Measured BW (kHz)	Limit (Min) (kHz)	Margin (kHz)	Peak / QP / Avg	Comments
2412	8496.99	500.00	7996.99	Peak	
2437	8496.99	500.00	7996.99	Peak	
2462	8496.99	500.00	7996.99	Peak	





Comment A: DTS Bandwidth 2412 MHz

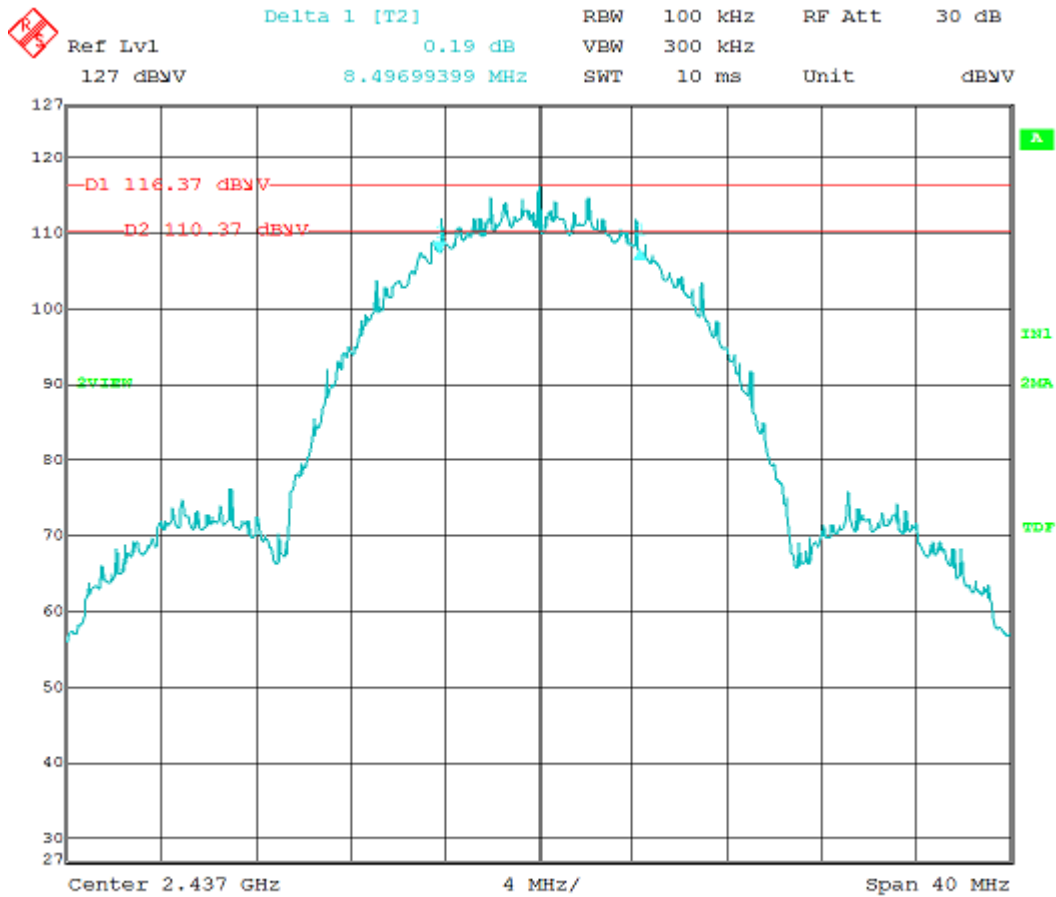


Brea Division
114 Olinda Drive
Brea, CA 92823
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Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

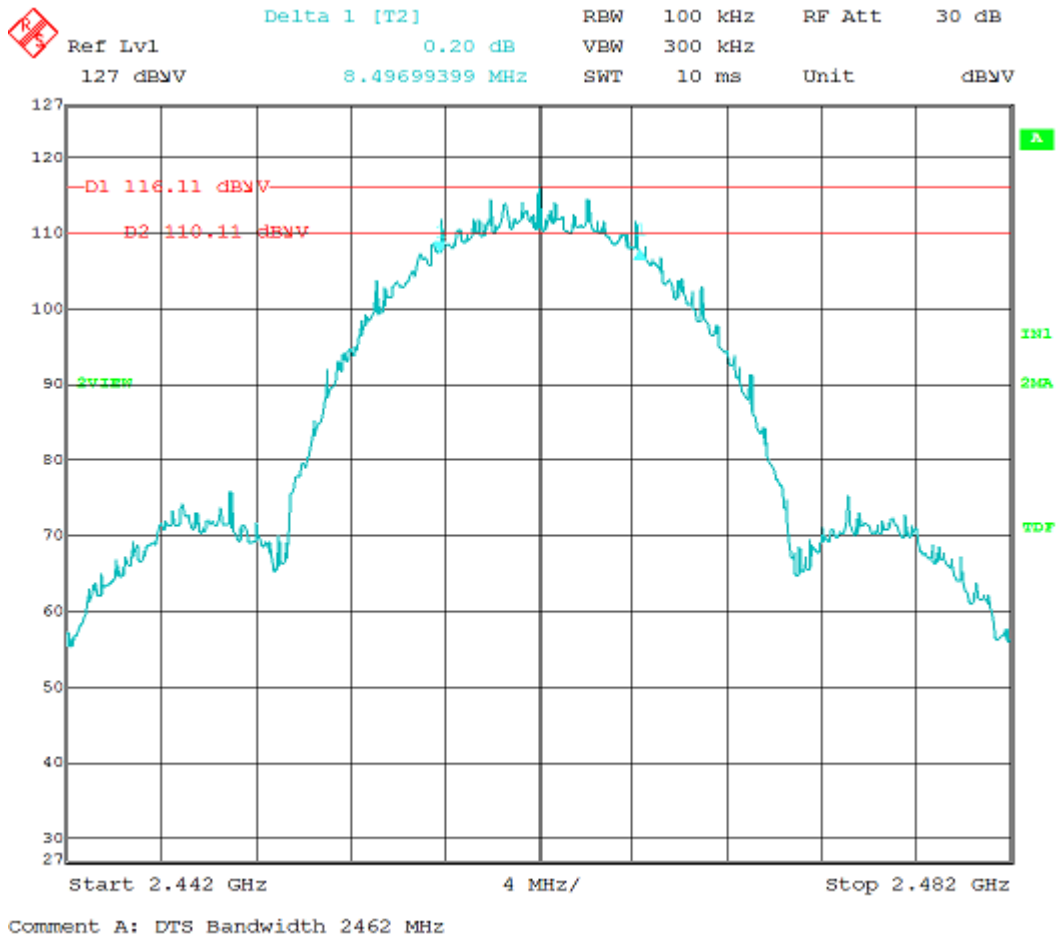
Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400



Comment A: DTS Bandwidth 2437 MHz





***DTS BANDWIDTH
DATA SHEETS***

802.11g

ANTENNA 1



Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

DTS BANDWIDTH

FCC 15.247

Company: Phyn LLC
EUT: Leak Detector
Model: PHYPF001
Mode: 802.11g
Antenna: 1

Date: 1/29/2018
Lab: P
Test Eng: Torey Oliver

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

DTS Bandwidth

Freq. (MHz)	Measured BW (kHz)	Limit (Min) (kHz)	Margin (kHz)	Peak / QP / Avg	Comments
2412	16513.03	500.00	16013.03	Peak	
2437	16513.03	500.00	16013.03	Peak	
2462	16513.03	500.00	16013.03	Peak	

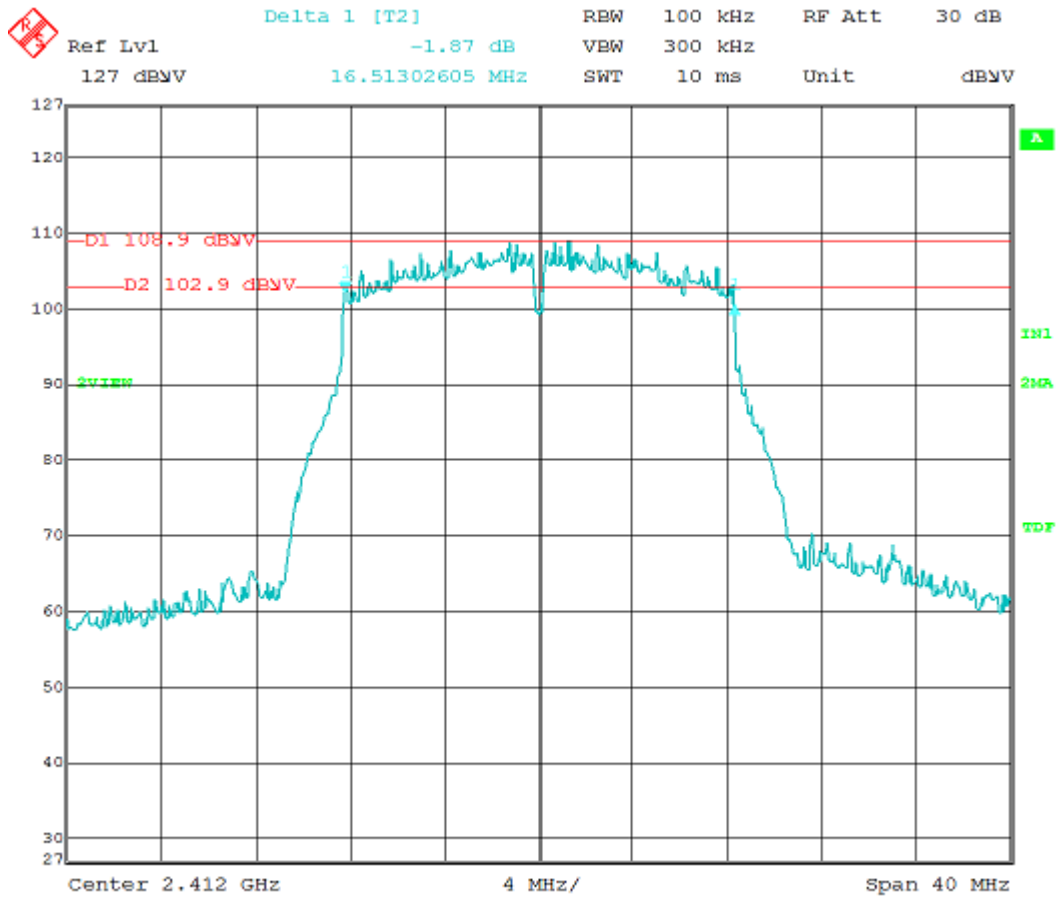


Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
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(818) 597-0600

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(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400



Comment A: DTS Bandwidth 2412 MHz

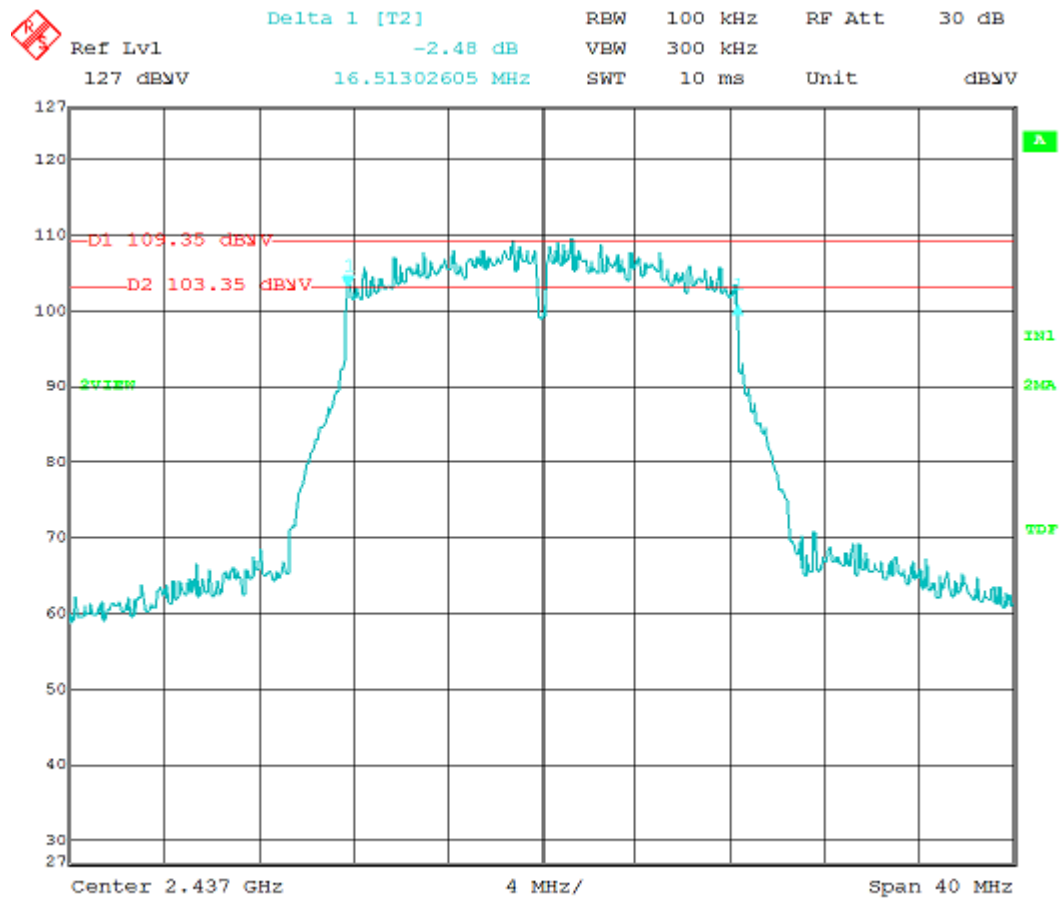


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114 Olinda Drive
Brea, CA 92823
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Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

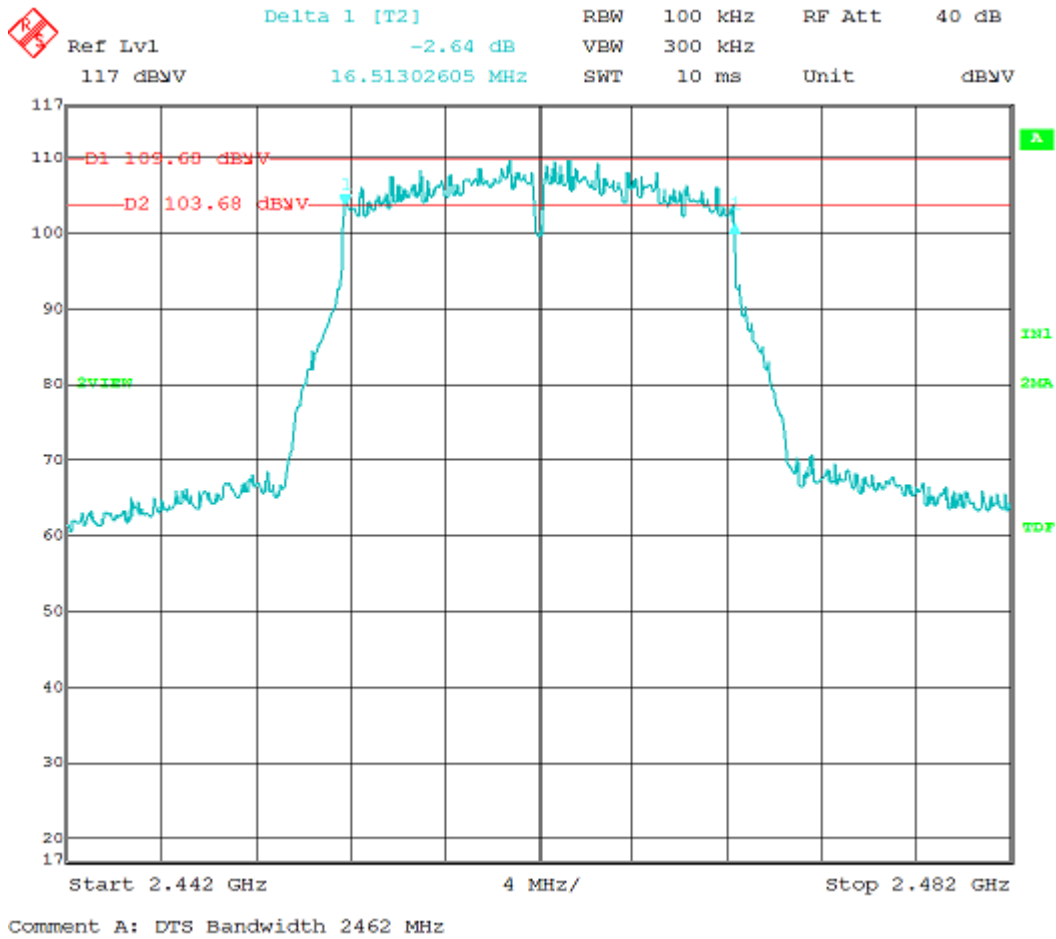
Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400



Comment A: DTS Bandwidth 2437 MHz





***DTS BANDWIDTH
DATA SHEETS***

802.11g

ANTENNA 2



Brea Division
114 Olinda Drive
Brea, CA 92823
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Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

DTS BANDWIDTH

FCC 15.247

Company: Phyn LLC
EUT: Leak Detector
Model: PHYPF001
Mode: 802.11g
Antenna: 2

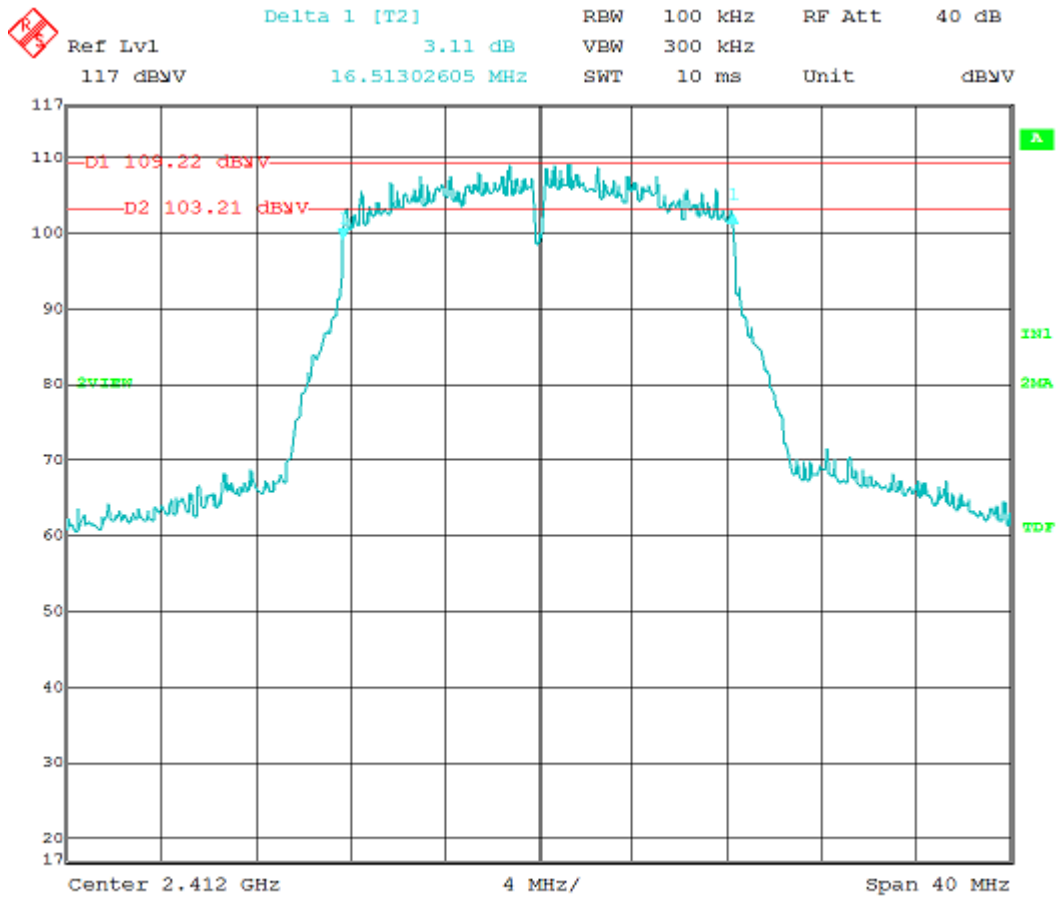
Date: 1/29/2018
Lab: P
Test Eng: Torey Oliver

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

DTS Bandwidth

Freq. (MHz)	Measured BW (kHz)	Limit (Min) (kHz)	Margin (kHz)	Peak / QP / Avg	Comments
2412	16513.03	500.00	16013.03	Peak	
2437	16513.03	500.00	16013.03	Peak	
2462	16513.03	500.00	16013.03	Peak	





Comment A: DTS Bandwidth 2412 MHz

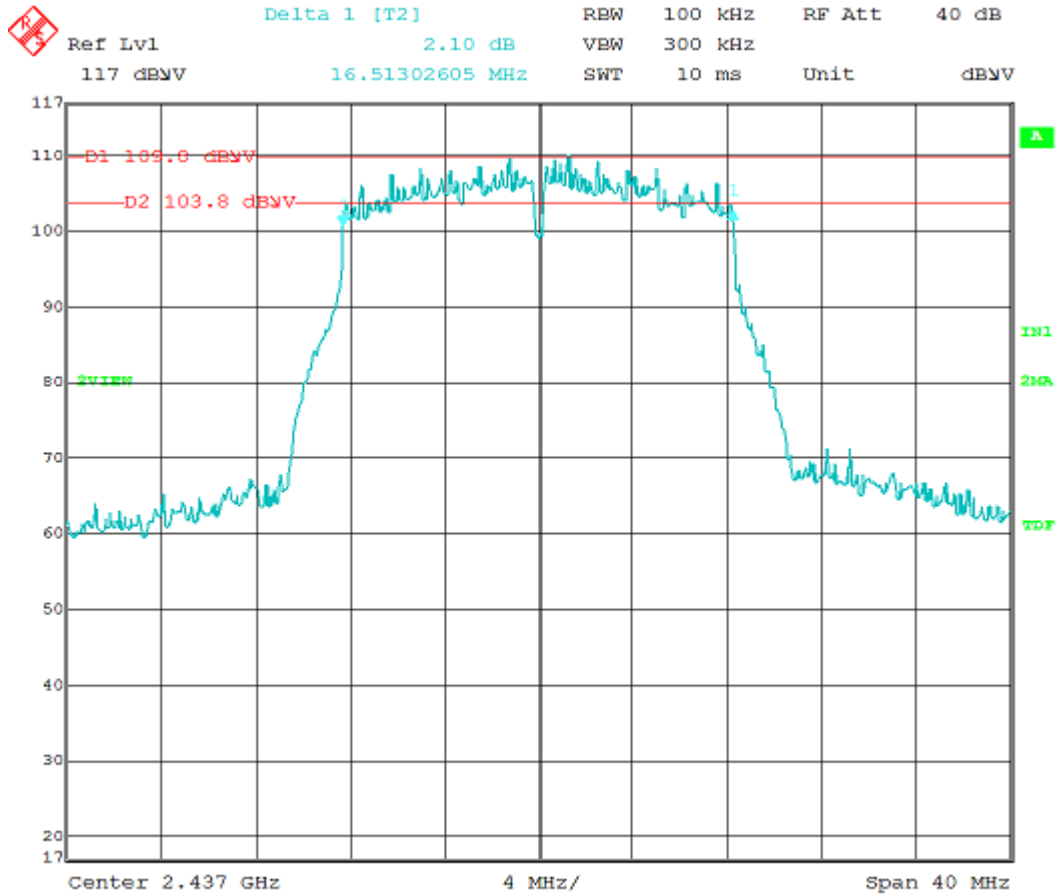


Brea Division
114 Olinda Drive
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Agoura Division
2337 Troutdale Drive
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(818) 597-0600

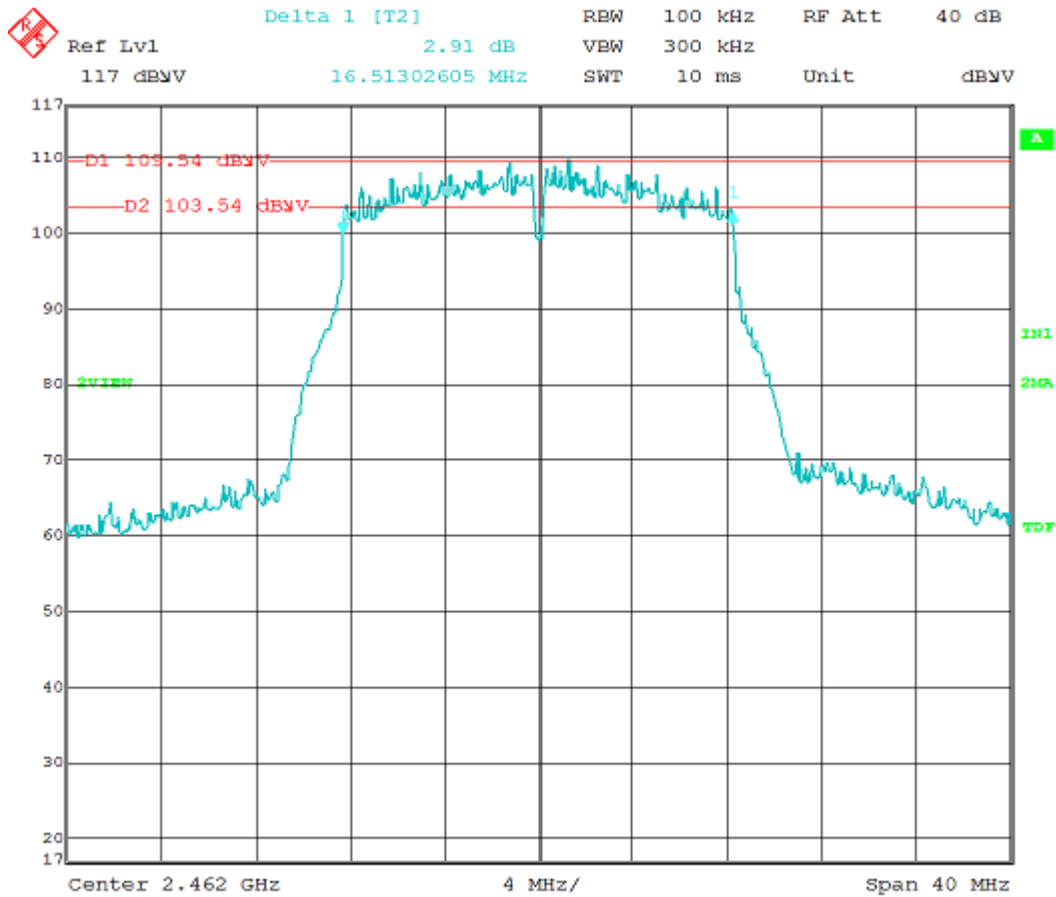
Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400



Comment A: DTS Bandwidth 2437 MHz





Comment A: DTS Bandwidth 2462 MHz



***DTS BANDWIDTH
DATA SHEETS***

802.11n (20MHz)

ANTENNA 1



Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

DTS BANDWIDTH

FCC 15.247

Company: Phyn LLC
EUT: Leak Detector
Model: PHYPF001
Mode: 802.11n
Antenna: 1

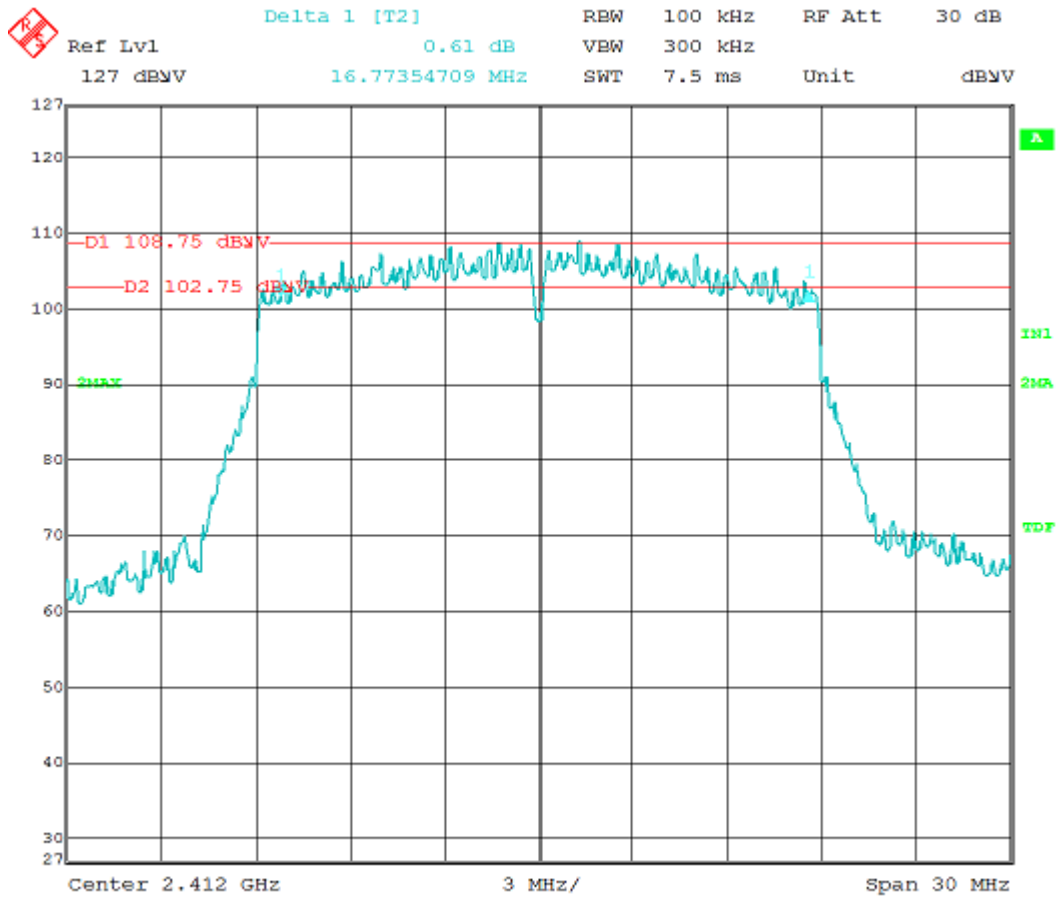
Date: 1/29/2018
Lab: P
Test Eng: Torey Oliver

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

DTS Bandwidth

Freq. (MHz)	Measured BW (kHz)	Limit (Min) (kHz)	Margin (kHz)	Peak / QP / Avg	Comments
2412	16773.55	500.00	16273.55	Peak	
2437	17074.15	500.00	16574.15	Peak	
2462	17374.75	500.00	16874.75	Peak	





Comment A: DTS Bandwidth 2412 MHz

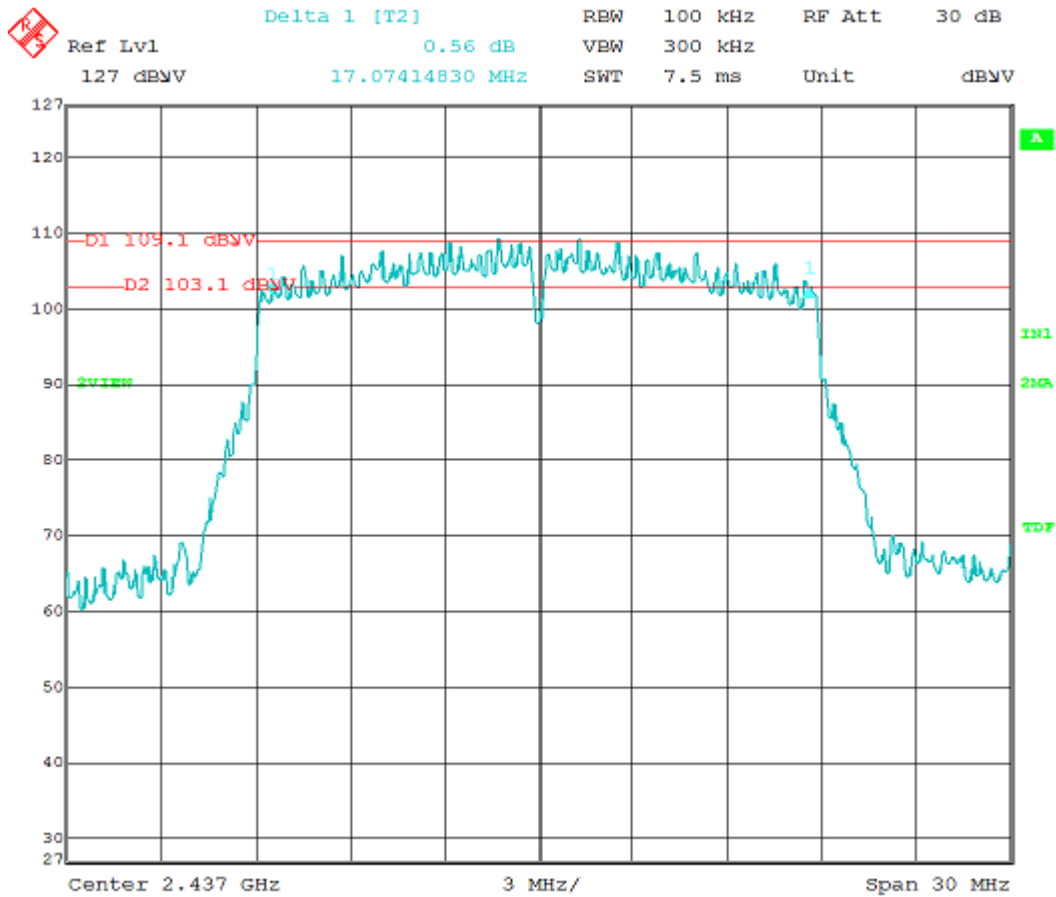


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(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

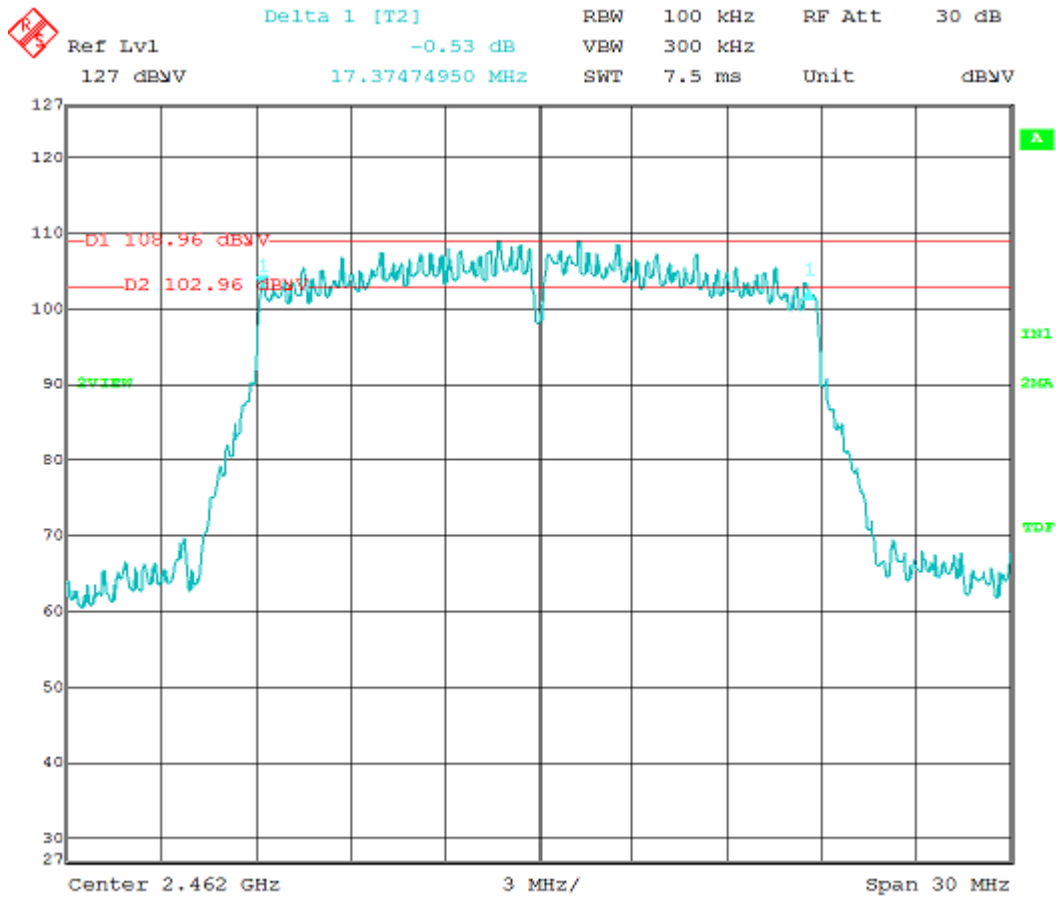
Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400



Comment A: DTS Bandwidth 2437 MHz





Comment A: DTS Bandwidth 2462 MHz



***DTS BANDWIDTH
DATA SHEETS***

802.11n (20MHz)

ANTENNA 2



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19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

DTS BANDWIDTH

FCC 15.247

Company: Phyn LLC
EUT: Leak Detector
Model: PHYPF001
Mode: 802.11n
Antenna: 2

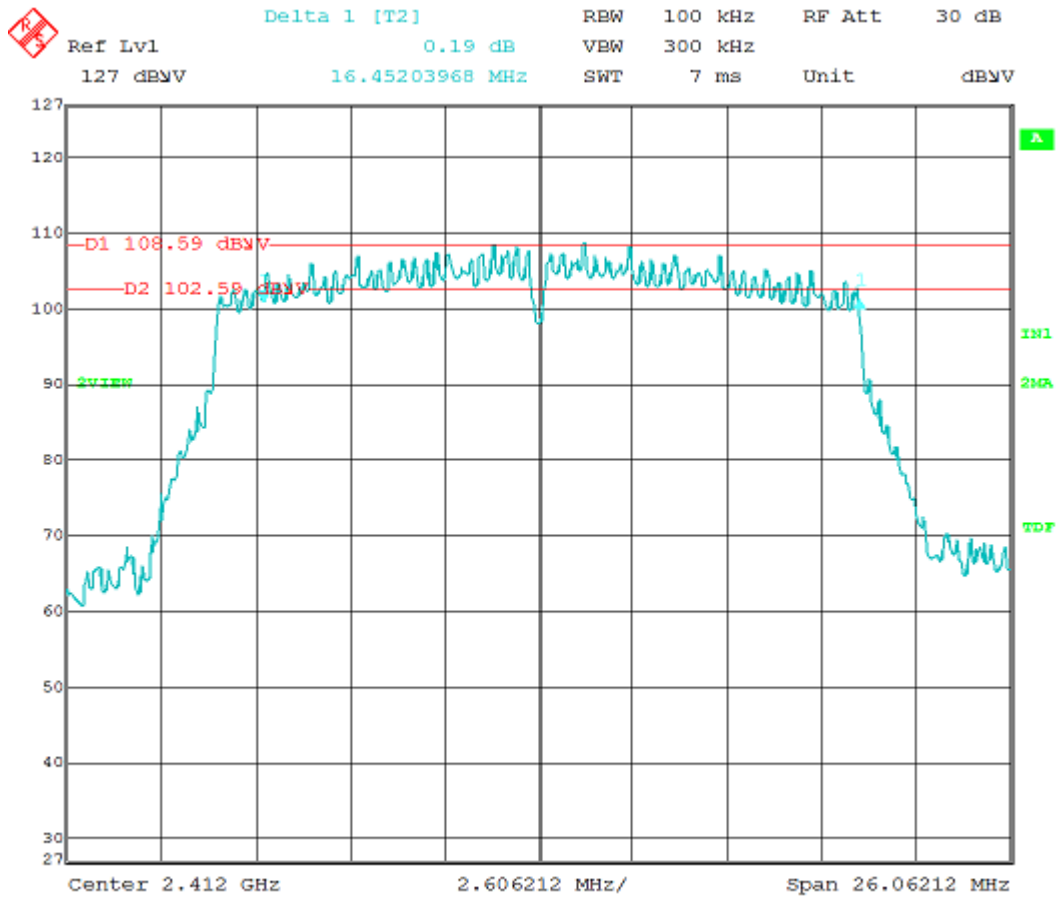
Date: 1/29/2018
Lab: P
Test Eng: Torey Oliver

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

DTS Bandwidth

Freq. (MHz)	Measured BW (kHz)	Limit (Min) (kHz)	Margin (kHz)	Peak / QP / Avg	Comments
2412	16452.04	500.00	15952.04	Peak	
2437	17026.56	500.00	16526.56	Peak	
2462	17026.56	500.00	16526.56	Peak	





Comment A: DTS Bandwidth 2412 MHz

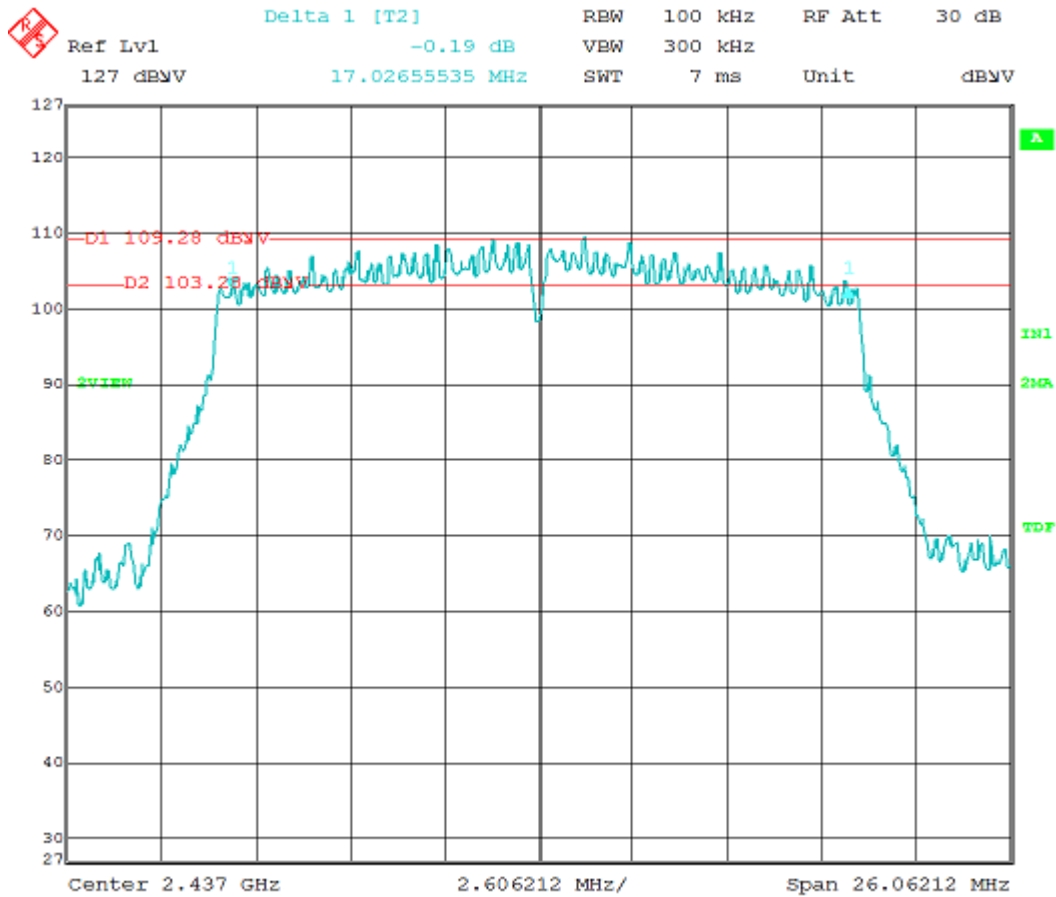


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Agoura, CA 91301
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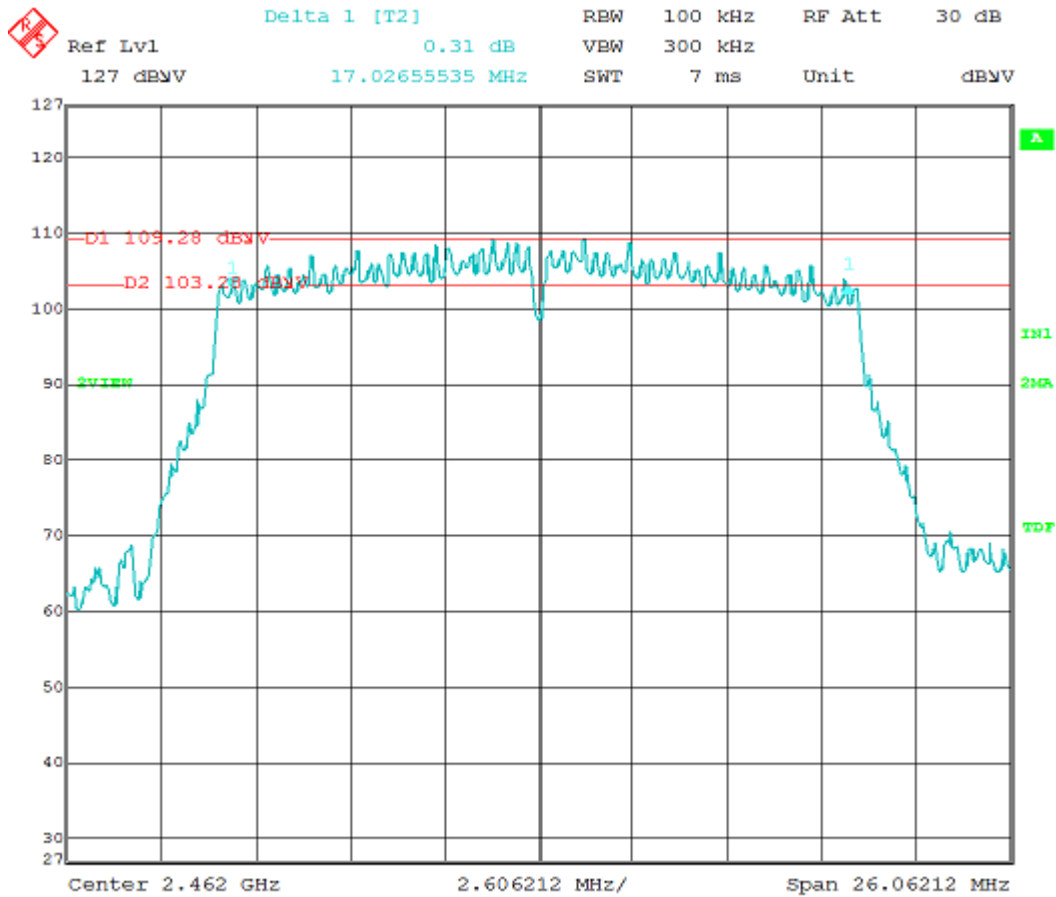
Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400



Comment A: DTS Bandwidth 2437 MHz





Comment A: DTS Bandwidth 2462 MHz



***DTS BANDWIDTH
DATA SHEETS***

802.11n (40MHz)

ANTENNA 1



DTS BANDWIDTH

FCC 15.247

Company: Phyn LLC
EUT: Leak Detector
Model: PHYPF001
Mode: 802.11n
Antenna: 1

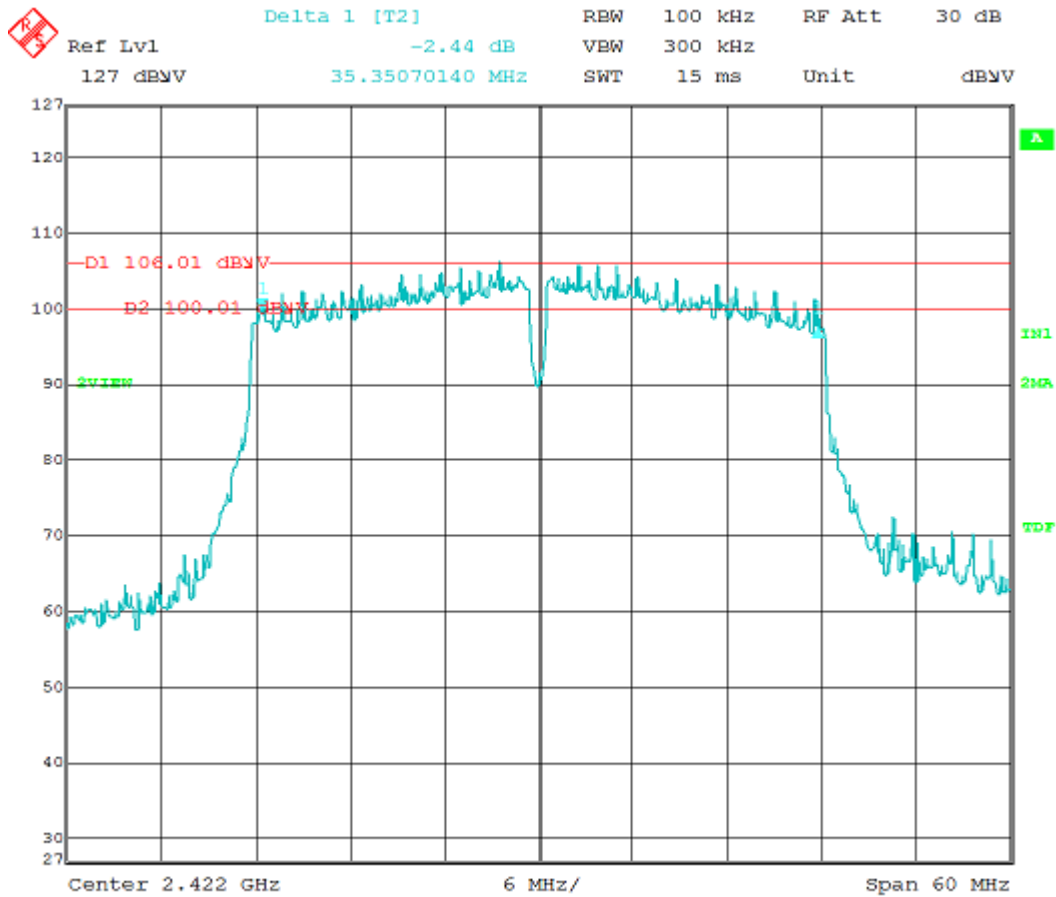
Date: 1/29/2018
Lab: P
Test Eng: Torey Oliver

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

DTS Bandwidth

Freq. (MHz)	Measured BW (kHz)	Limit (Min) (kHz)	Margin (kHz)	Peak / QP / Avg	Comments
2422	35350.70	500.00	34850.70	Peak	
2437	35470.94	500.00	34970.94	Peak	
2452	35470.94	500.00	34970.94	Peak	





Comment A: DTS Bandwidth 2422 MHz

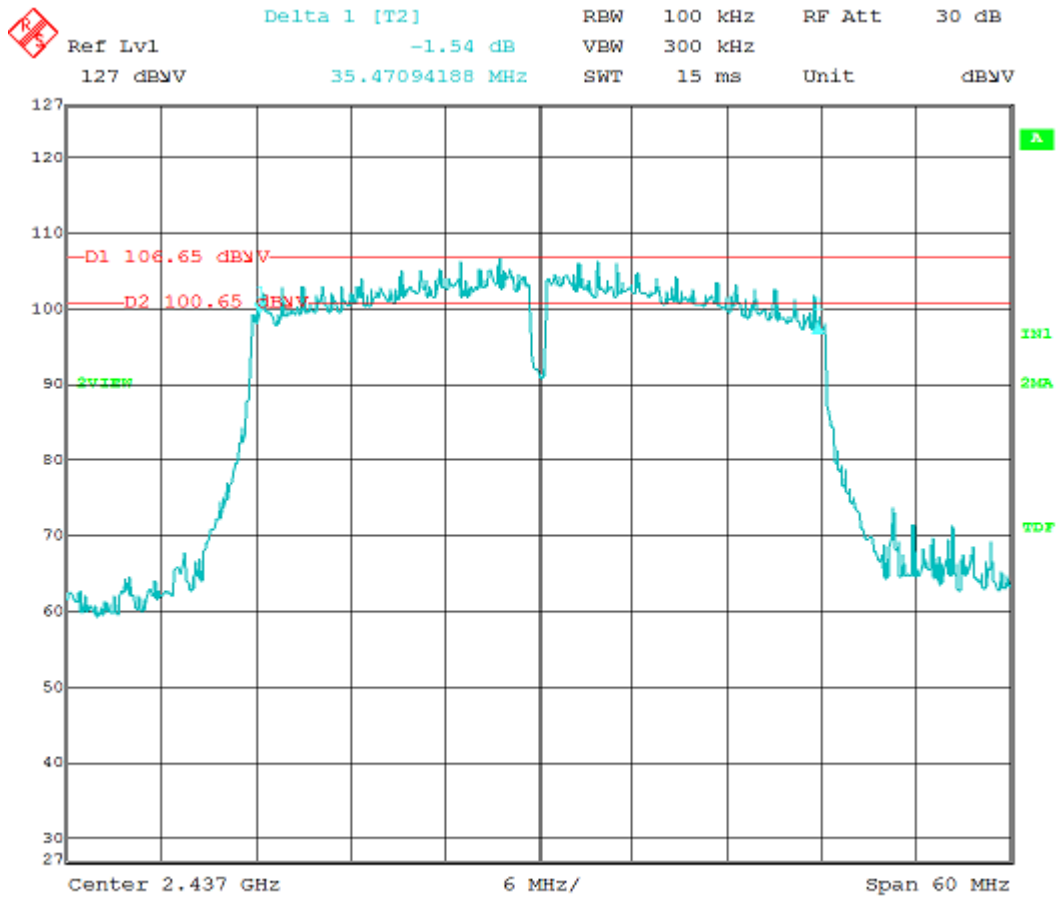


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Comment A: DTS Bandwidth 2437 MHz

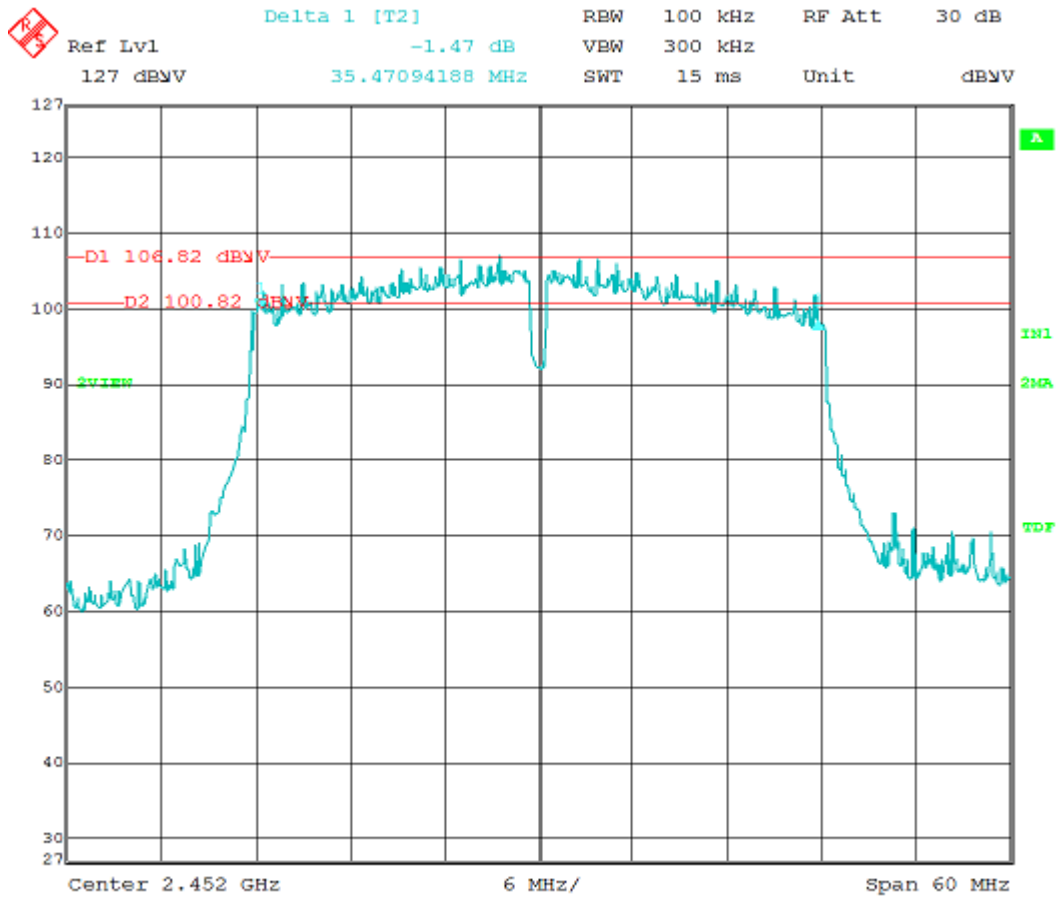


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Comment A: DTS Bandwidth 2452 MHz



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***DTS BANDWIDTH
DATA SHEETS***

802.11n (40MHz)

ANTENNA 2



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Lake Forest Division
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DTS BANDWIDTH

FCC 15.247

Company: Phyn LLC
EUT: Leak Detector
Model: PHYPF001
Mode: 802.11n
Antenna: 2

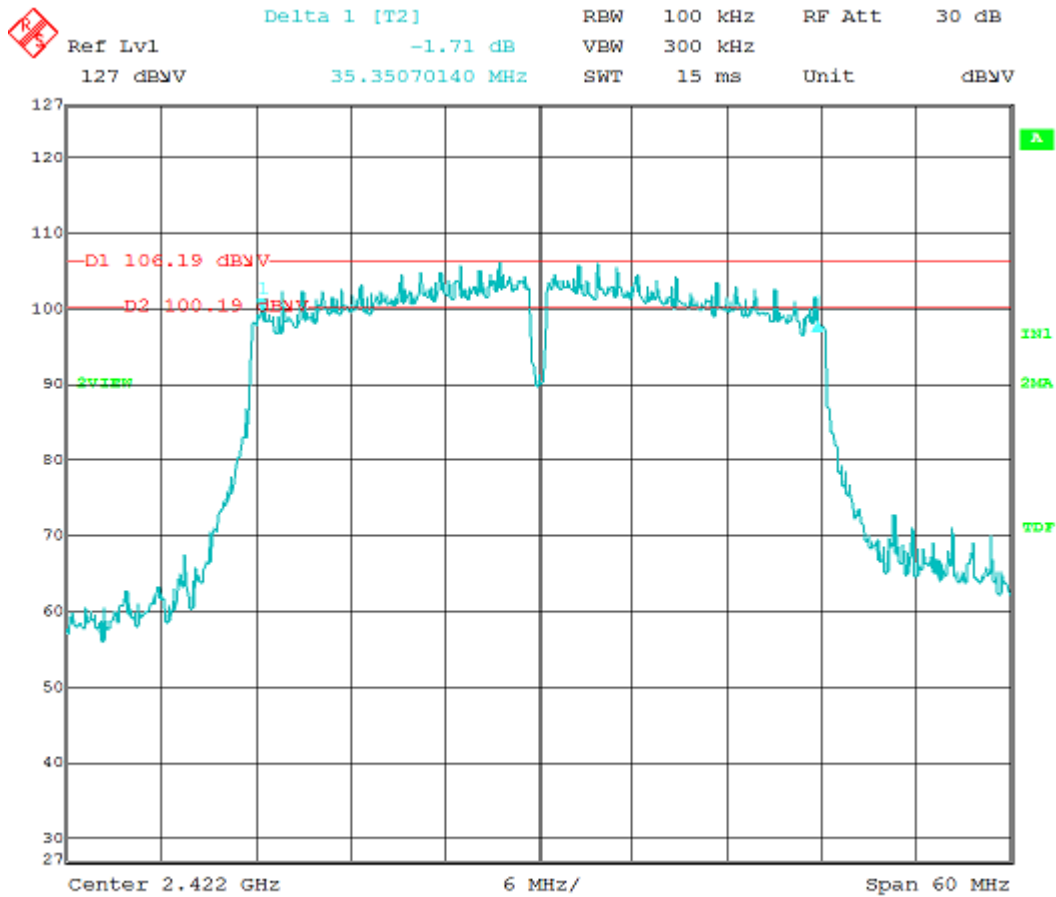
Date: 1/29/2018
Lab: P
Test Eng: Torey Oliver

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

DTS Bandwidth

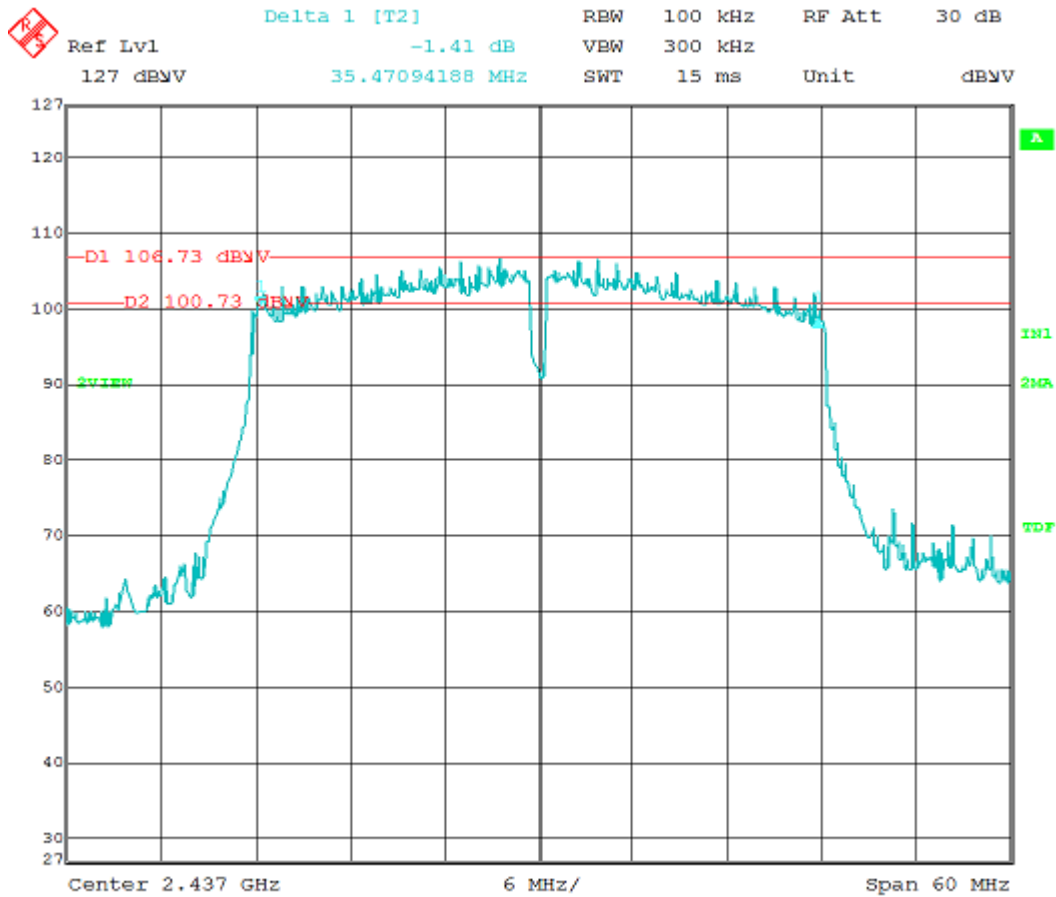
Freq. (MHz)	Measured BW (kHz)	Limit (Min) (kHz)	Margin (kHz)	Peak / QP / Avg	Comments
2422	35350.70	500.00	34850.70	Peak	
2437	35470.94	500.00	34970.94	Peak	
2452	35470.94	500.00	34970.94	Peak	





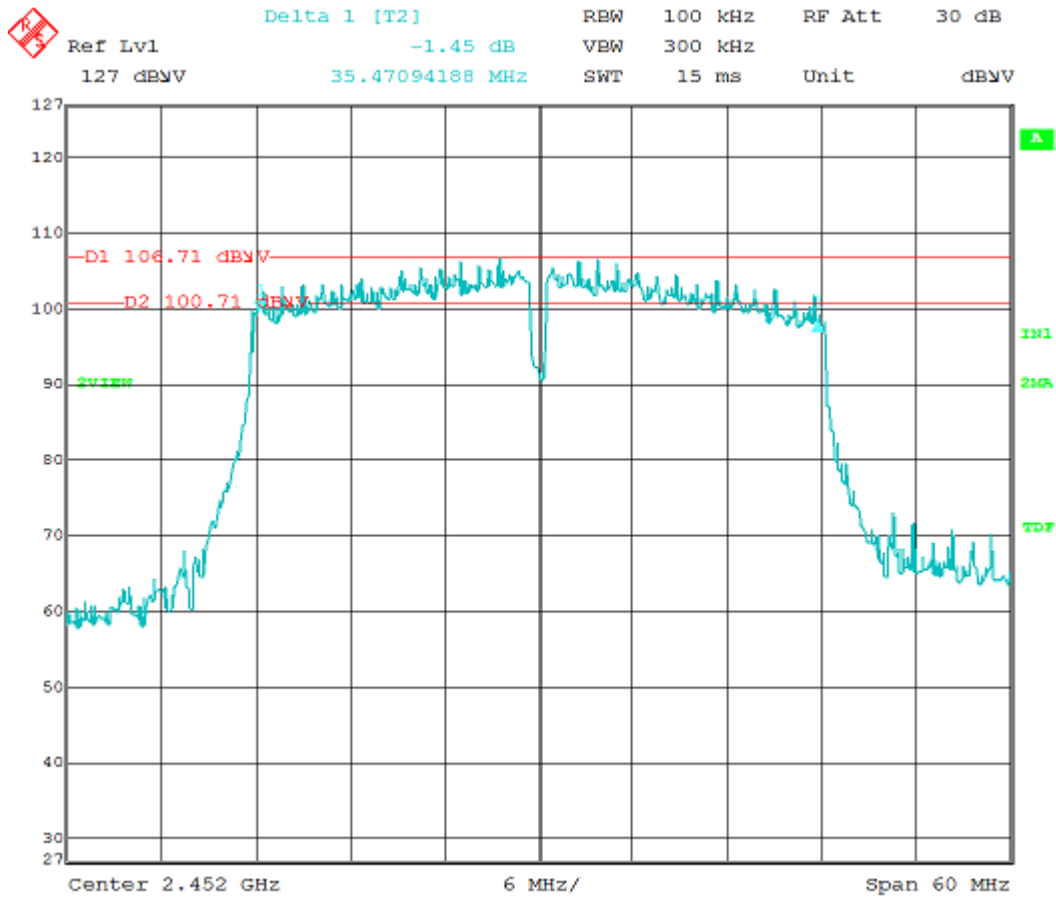
Comment A: DTS Bandwidth 2422 MHz





Comment A: DTS Bandwidth 2437 MHz





Comment A: DTS Bandwidth 2452 MHz



MAXIMUM PEAK CONDUCTED OUTPUT POWER***DATA SHEETS******802.11b******ANTENNA 1***

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(949) 589-0700**Lake Forest Division**
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

MAXIMUM PEAK CONDUCTED OUTPUT POWER

FCC 15.247

Company: Phyn LLC
EUT: Leak Detector
Model: PHYPF001
Mode: 802.11b
Antenna: 1

Date: 10/25/2017
Lab: P
Test ENG: Jorge Reyes

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

Freq. (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Peak / QP / Avg	Comments
2412	17.49	30.00	-12.51	Peak	
2437	17.73	30.00	-12.27	Peak	
2462	17.48	30.00	-12.52	Peak	



MAXIMUM PEAK CONDUCTED OUTPUT POWER***DATA SHEETS******802.11b******ANTENNA 2***

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(949) 589-0700**Lake Forest Division**
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(949) 587-0400

MAXIMUM PEAK CONDUCTED OUTPUT POWER

FCC 15.247

Company: Phyn LLC
EUT: Leak Detector
Model: PHYPF001
Mode: 802.11b
Antenna: 2

Date: 10/23/2017
Lab: P
Test ENG: Jorge Reyes

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

Freq. (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Peak / QP / Avg	Comments
2412	17.35	30.00	-12.65	Peak	
2437	17.60	30.00	-12.40	Peak	
2462	17.48	30.00	-12.52	Peak	



MAXIMUM PEAK CONDUCTED OUTPUT POWER***DATA SHEETS******802.11g******ANTENNA 1***

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Lake Forest Division
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(949) 587-0400

MAXIMUM PEAK CONDUCTED OUTPUT POWER

FCC 15.247

Company: Phyn LLC
EUT: Leak Detector
Model: PHYPF001
Mode: 802.11g
Antenna: 1

Date: 10/25/2017
Lab: P
Test ENG: Jorge Reyes

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

Freq. (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Peak / QP / Avg	Comments
2412	16.27	30.00	-13.73	Peak	
2437	16.71	30.00	-13.29	Peak	
2462	16.71	30.00	-13.29	Peak	



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MAXIMUM PEAK CONDUCTED OUTPUT POWER
DATA SHEETS***802.11g******ANTENNA 2***

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(949) 589-0700**Lake Forest Division**
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

MAXIMUM PEAK CONDUCTED OUTPUT POWER

FCC 15.247

Company: Phyn LLC
EUT: Leak Detector
Model: PHYPF001
Mode: 802.11g
Antenna: 2

Date: 10/16/2017
Lab: P
Test ENG: Jorge Reyes

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

Freq. (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Peak / QP / Avg	Comments
2412	15.93	30.00	-14.07	Peak	
2437	16.39	30.00	-13.61	Peak	
2462	16.49	30.00	-13.51	Peak	



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Lake Forest Division
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MAXIMUM PEAK CONDUCTED OUTPUT POWER***DATA SHEETS******802.11n (20 MHz)******ANTENNA 1***

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500**Agoura Division**
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600**Silverado Division**
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700**Lake Forest Division**
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

MAXIMUM PEAK CONDUCTED OUTPUT POWER

FCC 15.247

Company: Phyn LLC
EUT: Leak Detector
Model: PHYPF001
Mode: 802.11n
Antenna: 1

Date: 10/25/2017
Lab: P
Test ENG: Jorge Reyes

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

Freq. (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Peak / QP / Avg	Comments
2412	15.33	30.00	-14.67	Peak	
2437	16.15	30.00	-13.85	Peak	
2462	16.05	30.00	-13.95	Peak	



MAXIMUM PEAK CONDUCTED OUTPUT POWER***DATA SHEETS******802.11n (20 MHz)******ANTENNA 2***

Brea Division
114 Olinda Drive
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(714) 579-0500**Agoura Division**
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600**Silverado Division**
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700**Lake Forest Division**
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

MAXIMUM PEAK CONDUCTED OUTPUT POWER

FCC 15.247

Company: Phyn LLC
EUT: Leak Detector
Model: PHYPF001
Mode: 802.11n
Antenna: 2

Date: 10/25/2017
Lab: P
Test ENG: Jorge Reyes

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

Freq. (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Peak / QP / Avg	Comments
2412	15.71	30.00	-14.29	Peak	
2437	15.93	30.00	-14.07	Peak	
2462	16.39	30.00	-13.61	Peak	



MAXIMUM PEAK CONDUCTED OUTPUT POWER
DATA SHEETS***802.11n (40 MHz)******ANTENNA 1***

MAXIMUM PEAK CONDUCTED OUTPUT POWER

FCC 15.247

Company: Phyn LLC
EUT: Leak Detector
Model: PHYPF001
Mode: 802.11n
Antenna: 1

Date: 10/25/2017
Lab: P
Test ENG: Jorge Reyes

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

Freq. (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Peak / QP / Avg	Comments
2422	13.08	30.00	-16.92	Peak	
2437	13.64	30.00	-16.36	Peak	
2452	13.48	30.00	-16.52	Peak	



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Lake Forest Division
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MAXIMUM PEAK CONDUCTED OUTPUT POWER***DATA SHEETS******802.11n (40 MHz)******ANTENNA 2***

Brea Division
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Brea, CA 92823
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Agoura Division
2337 Troutdale Drive
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Silverado Division
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Lake Forest Division
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(949) 587-0400

MAXIMUM PEAK CONDUCTED OUTPUT POWER

FCC 15.247

Company: Phyn LLC
EUT: Leak Detector
Model: PHYPF001
Mode: 802.11n
Antenna: 2

Date: 10/25/2017
Lab: P
Test ENG: Jorge Reyes

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

Freq. (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Peak / QP / Avg	Comments
2422	13.08	30.00	-16.92	Peak	
2437	13.32	30.00	-16.68	Peak	
2452	13.48	30.00	-16.52	Peak	



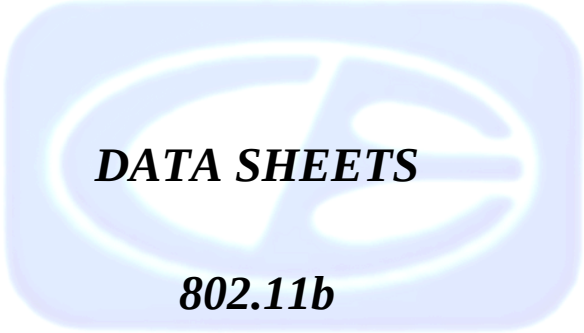
Brea Division
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Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

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***MAXIMUM PEAK POWER SPECTRAL DENSITY LEVEL IN THE
FUNDAMENTAL EMISSION***



DATA SHEETS

802.11b

ANTENNA 1



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Agoura Division
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(949) 589-0700

Lake Forest Division
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(949) 587-0400

POWER SPECTRAL DENSITY

FCC 15.247

Company: Phyn LLC
EUT: Leak Detector
Model: PHYPF001
Mode: 802.11b
Antenna: 1

Date: 1/29/2018
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
2412	5.04	8.00	-2.96	Peak	
2437	6.87	8.00	-1.13	Peak	
2462	6.38	8.00	-1.62	Peak	

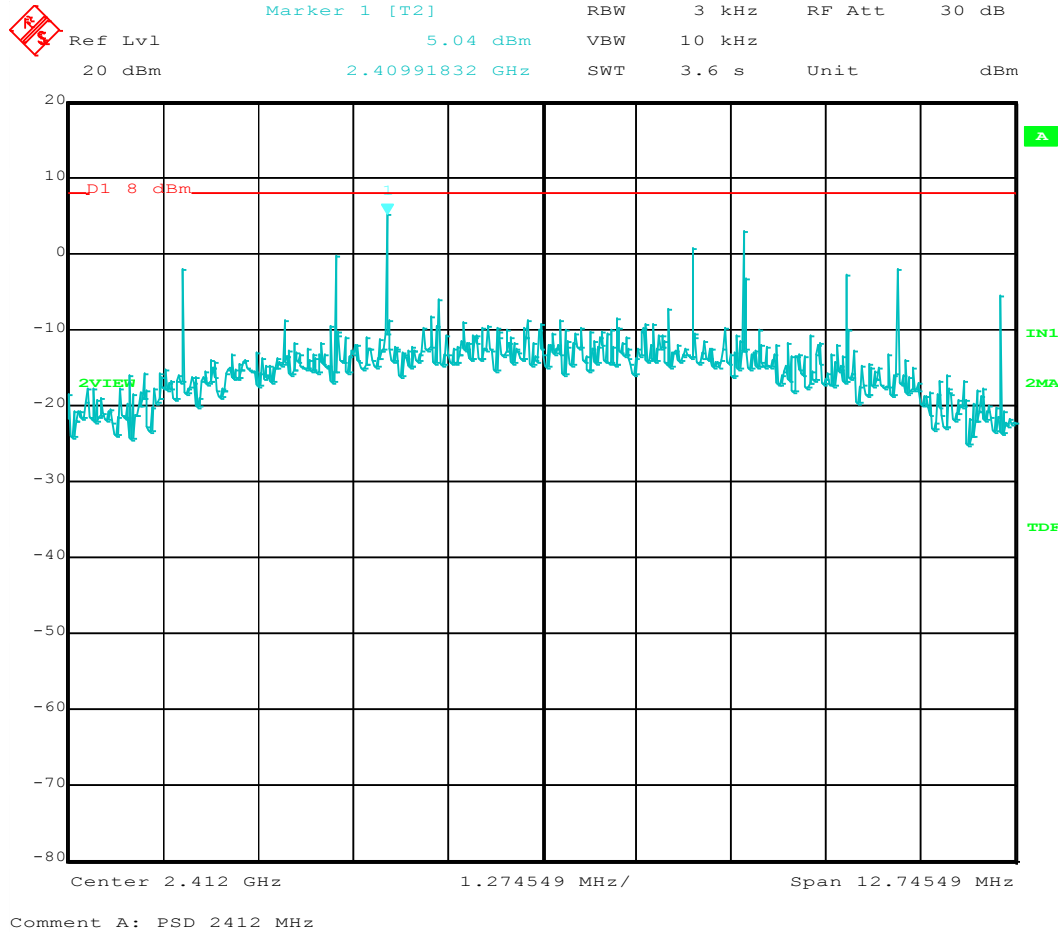


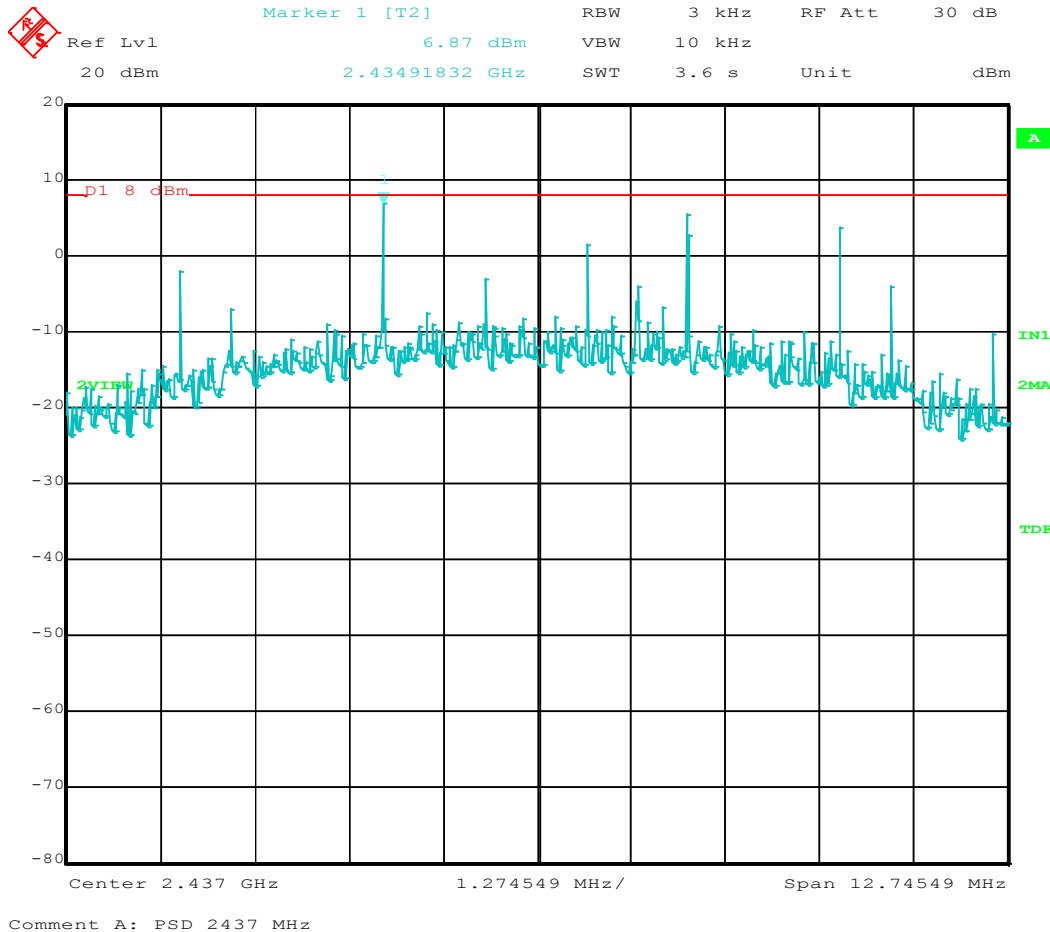
Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

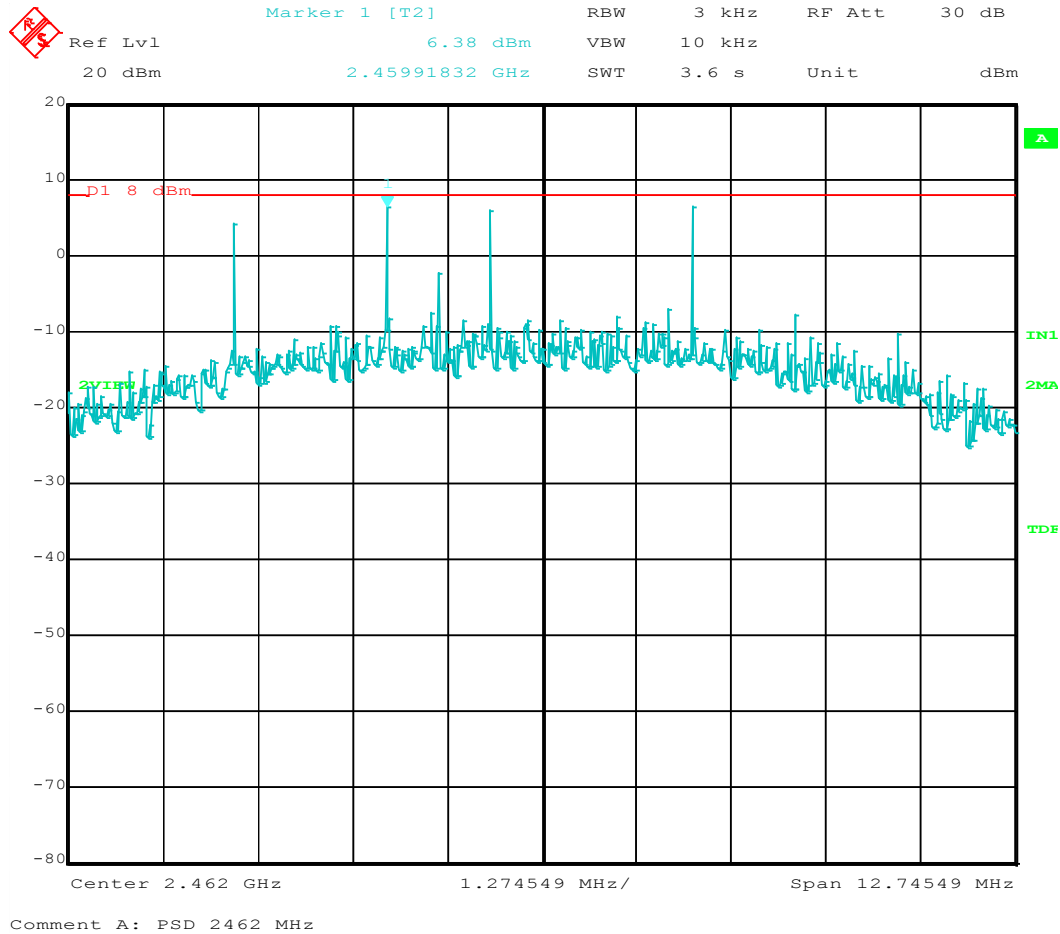
Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

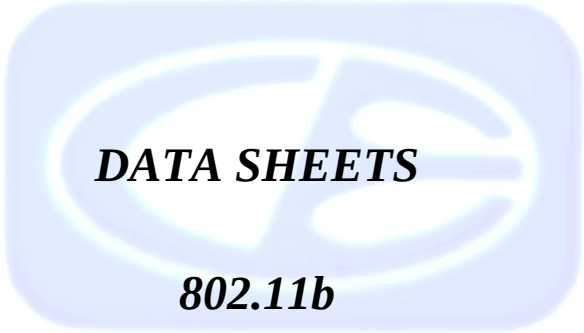
Lake Forest Division
20621 Pascal Way
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(949) 587-0400







***MAXIMUM PEAK POWER SPECTRAL DENSITY LEVEL IN THE
FUNDAMENTAL EMISSION***



DATA SHEETS

802.11b

ANTENNA 2



POWER SPECTRAL DENSITY

FCC 15.247

Company: Phyn LLC
EUT: Leak Detector
Model: PHYPF001
Mode: 802.11b
Antenna: 2

Date: 1/29/2018
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
2412	6.34	8.00	-1.66	Peak	
2437	5.25	8.00	-2.75	Peak	
2462	6.19	8.00	-1.81	Peak	

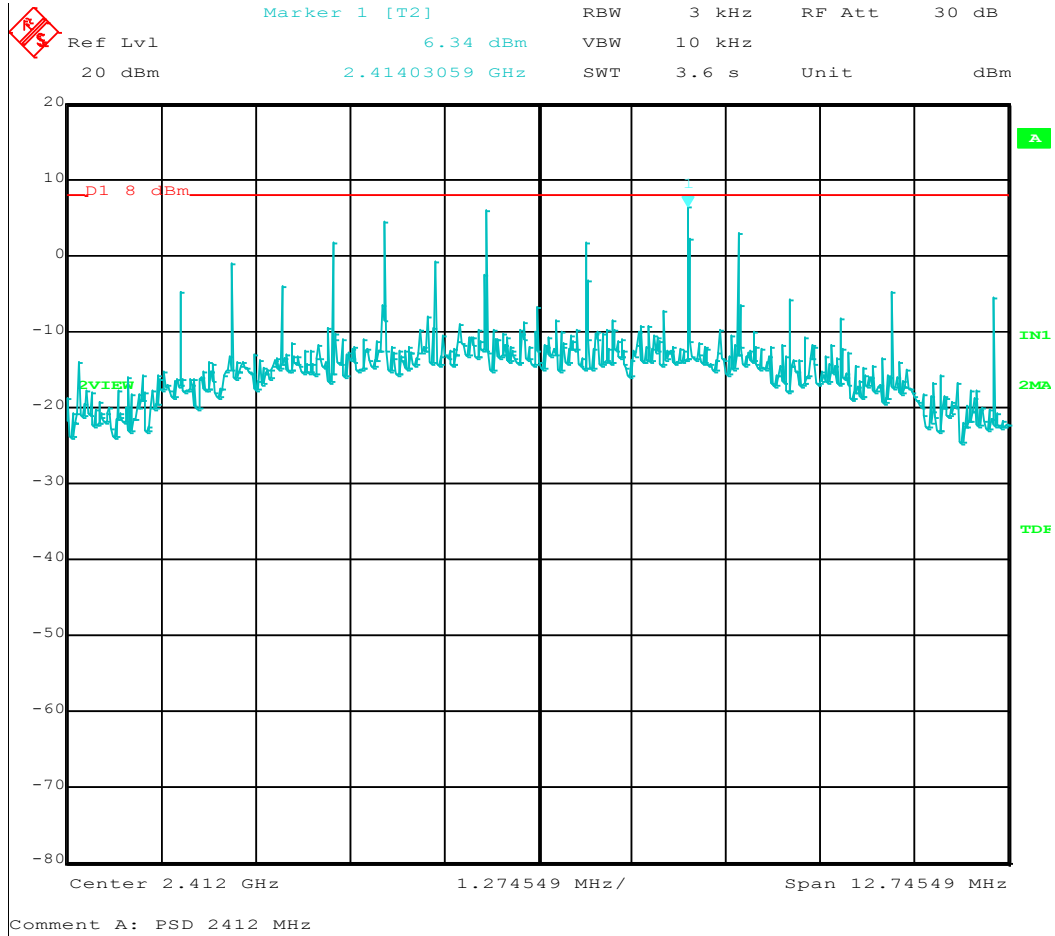


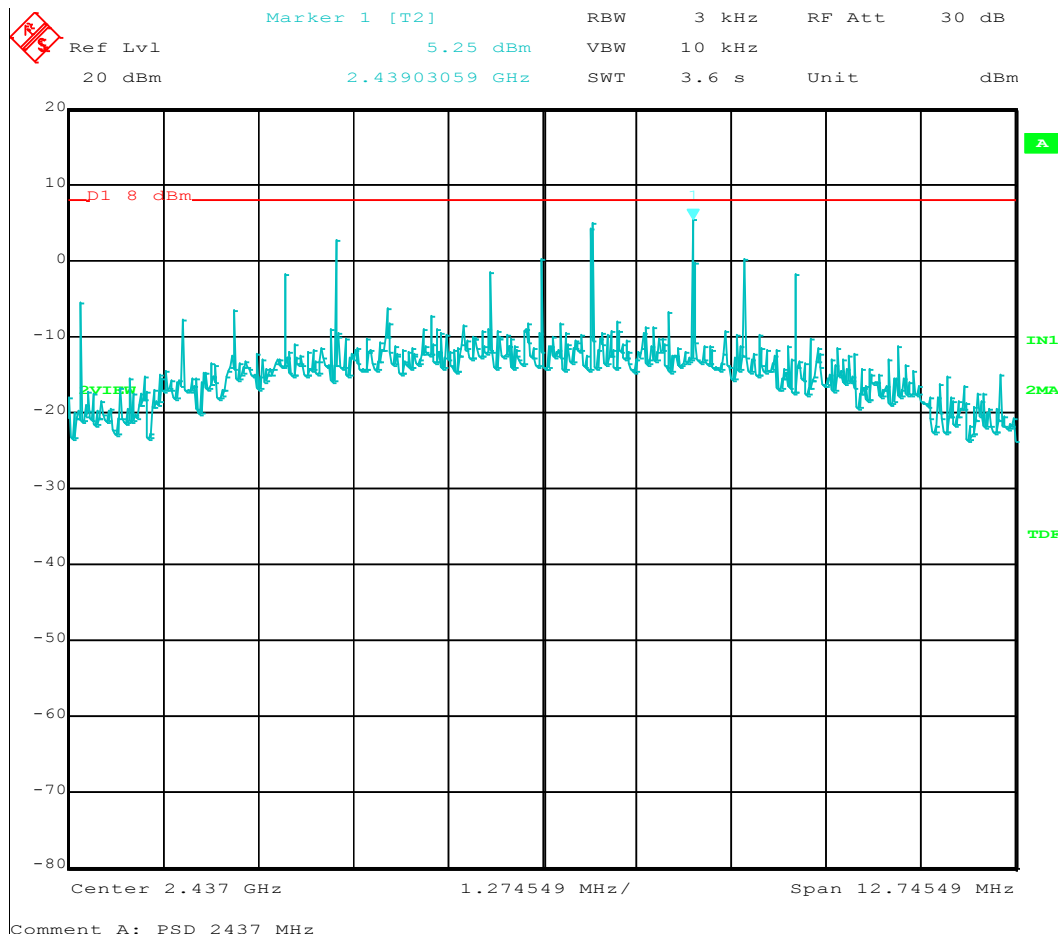
Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

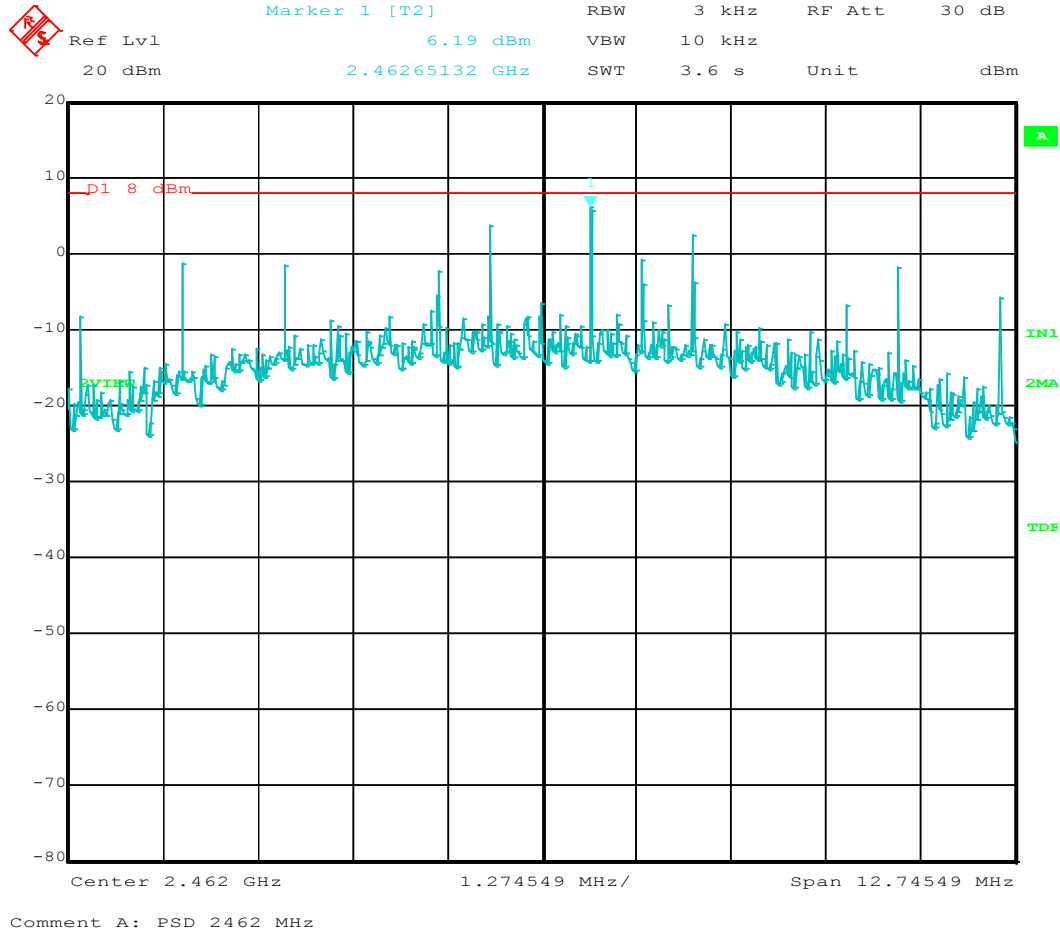
Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

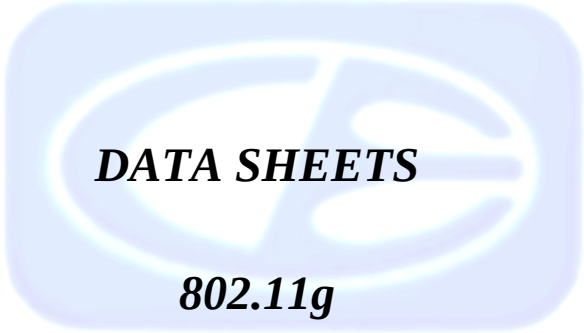
Lake Forest Division
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Lake Forest, CA 92630
(949) 587-0400







***MAXIMUM PEAK POWER SPECTRAL DENSITY LEVEL IN THE
FUNDAMENTAL EMISSION***



DATA SHEETS

802.11g

ANTENNA 1



POWER SPECTRAL DENSITY

FCC 15.247

Company: Phyn LLC
EUT: Leak Detector
Model: PHYPF001
Mode: 802.11g
Antenna: 1

Date: 1/29/2018
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
2412	2.37	8.00	-5.63	Peak	
2437	2.77	8.00	-5.23	Peak	
2462	2.63	8.00	-5.37	Peak	

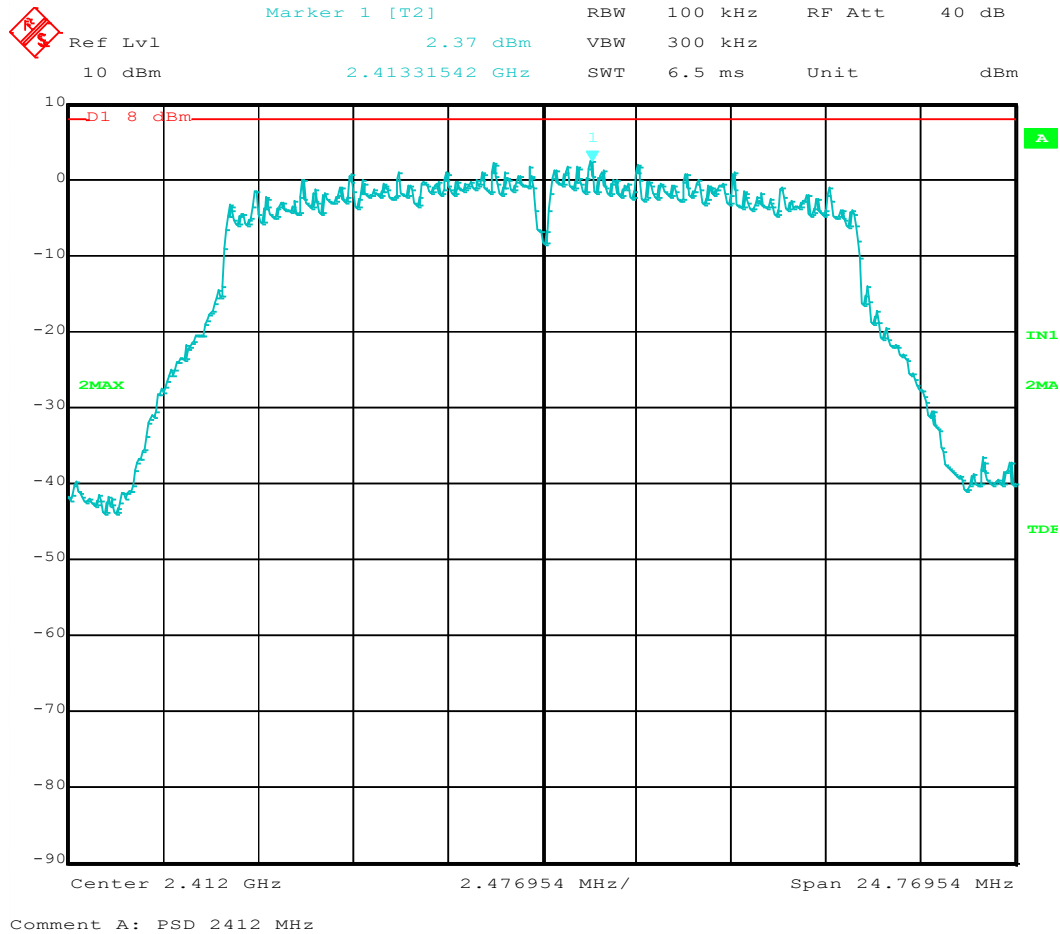


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(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

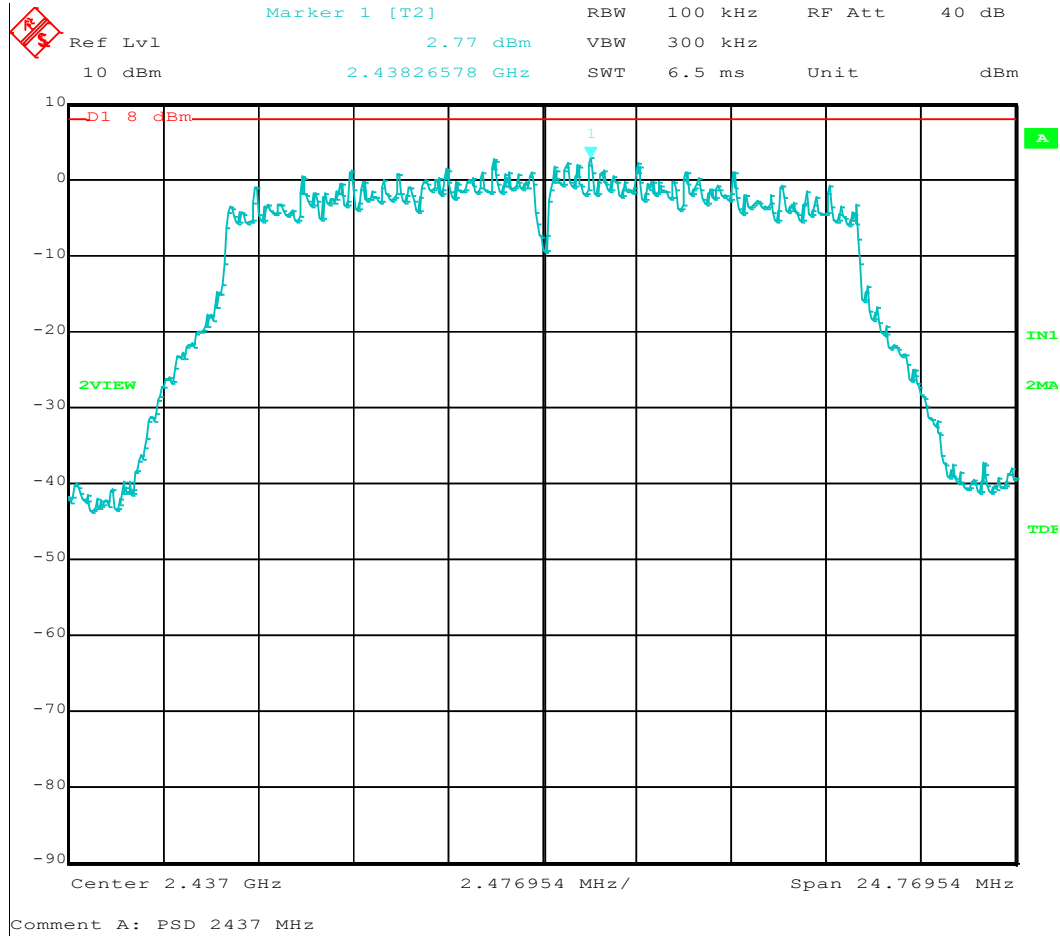


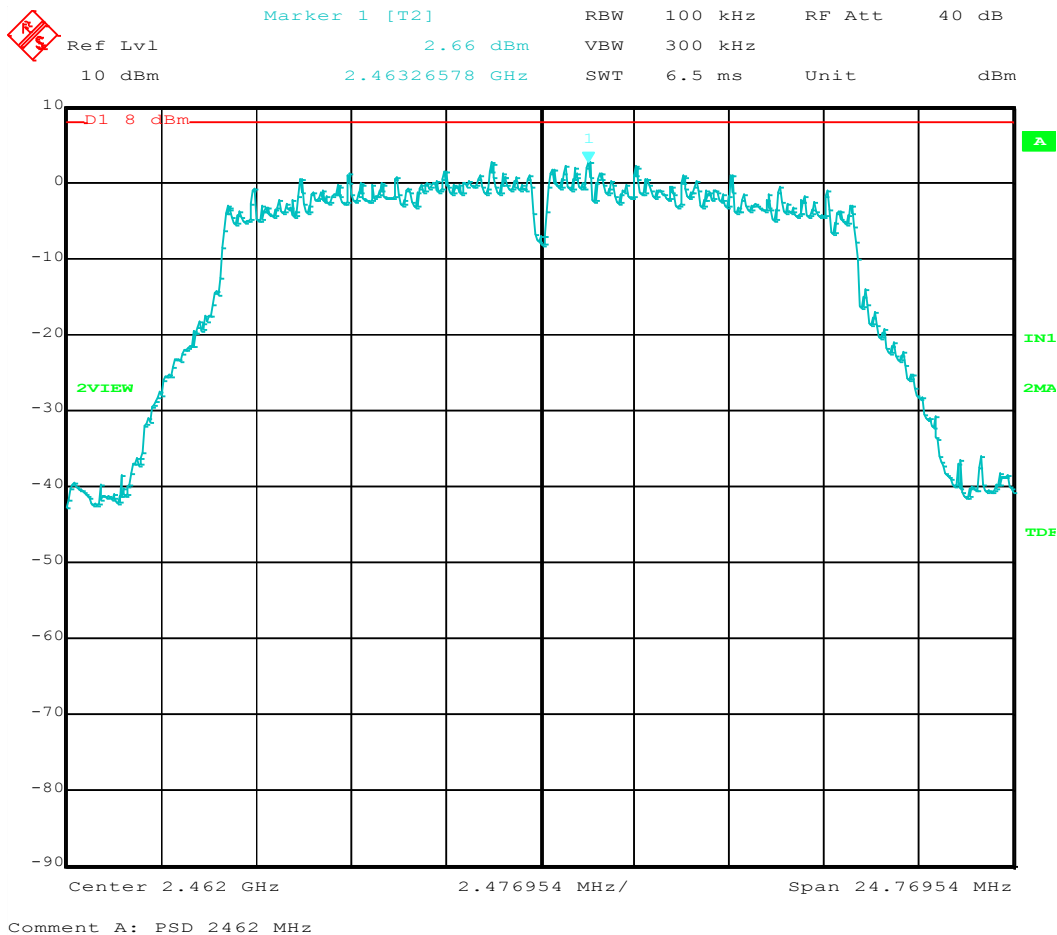
Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

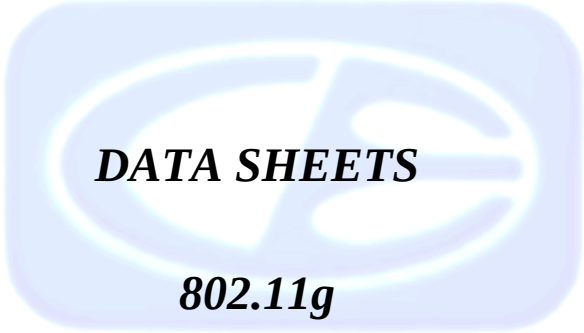
Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400





***MAXIMUM PEAK POWER SPECTRAL DENSITY LEVEL IN THE
FUNDAMENTAL EMISSION***



DATA SHEETS

802.11g

ANTENNA 2



POWER SPECTRAL DENSITY

FCC 15.247

Company: Phyn LLC
EUT: Leak Detector
Model: PHYPF001
Mode: 802.11g
Antenna: 2

Date: 1/29/2018
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
2412	2.38	8.00	-5.62	Peak	
2437	2.71	8.00	-5.29	Peak	
2462	2.58	8.00	-5.42	Peak	

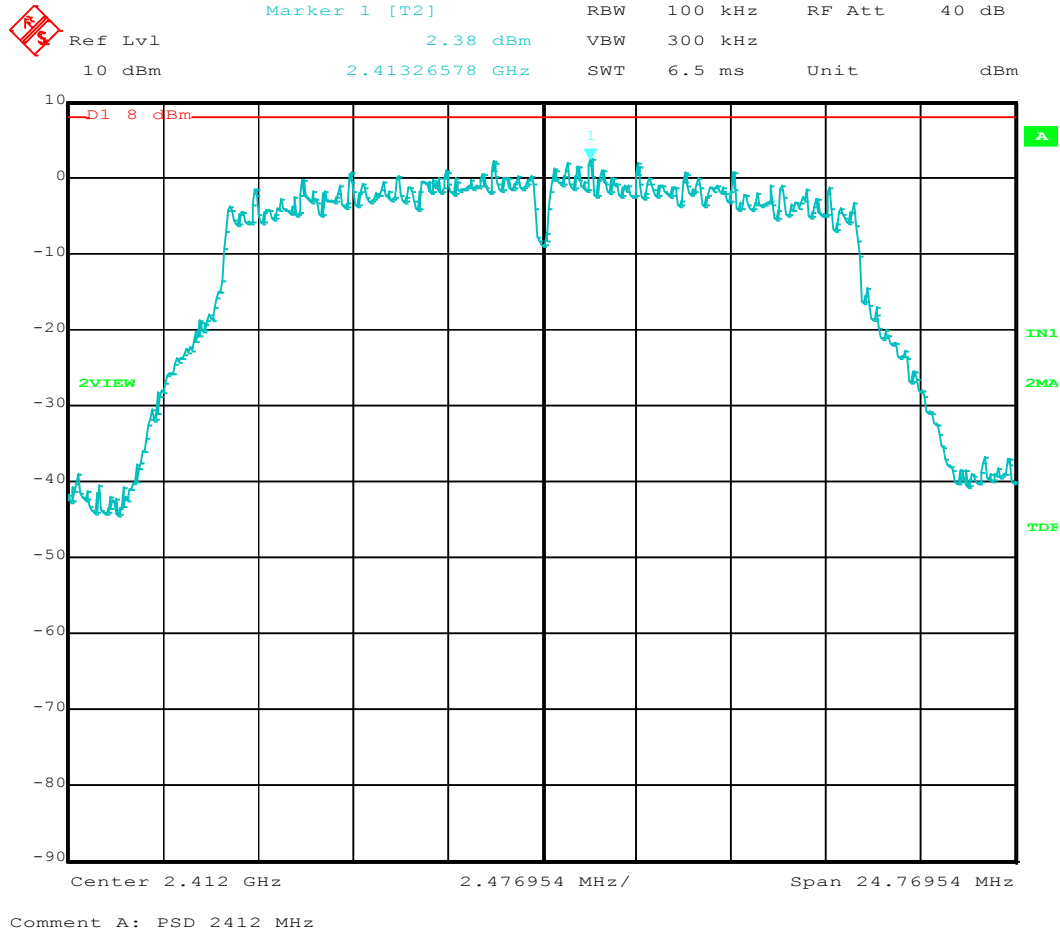


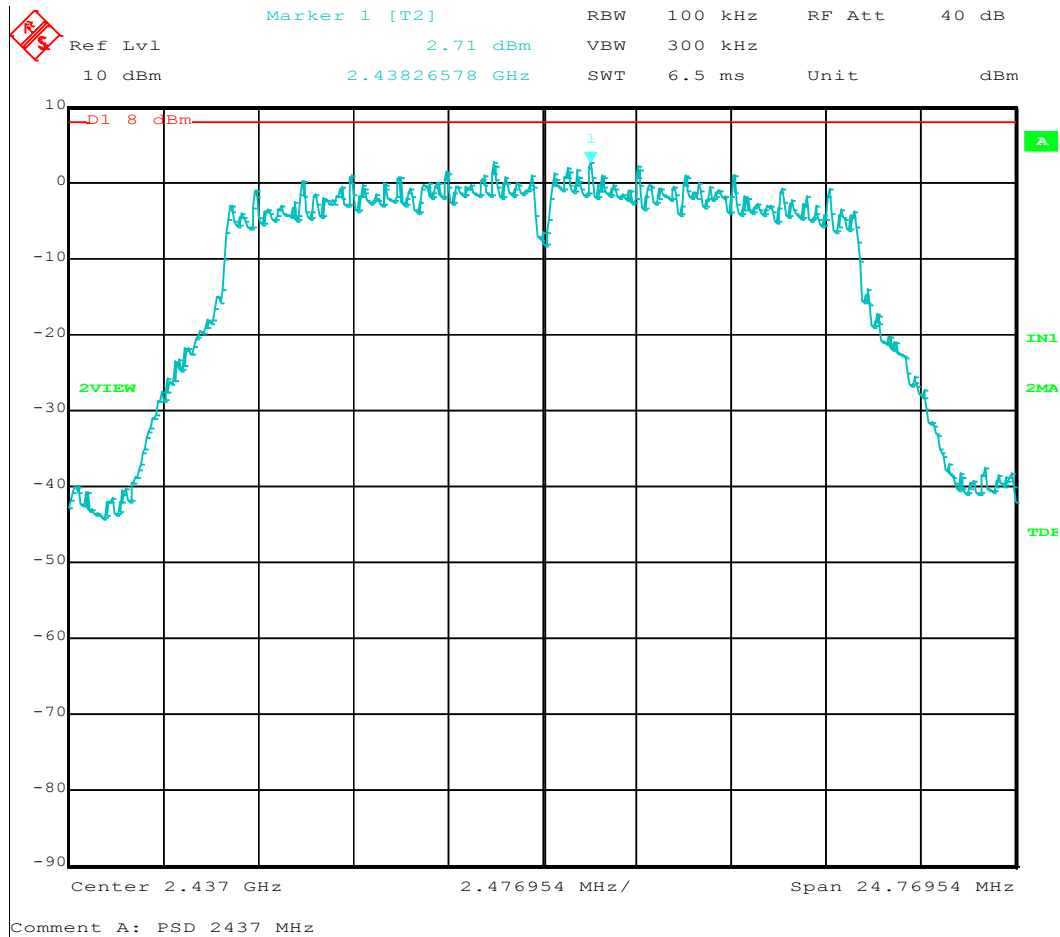
Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

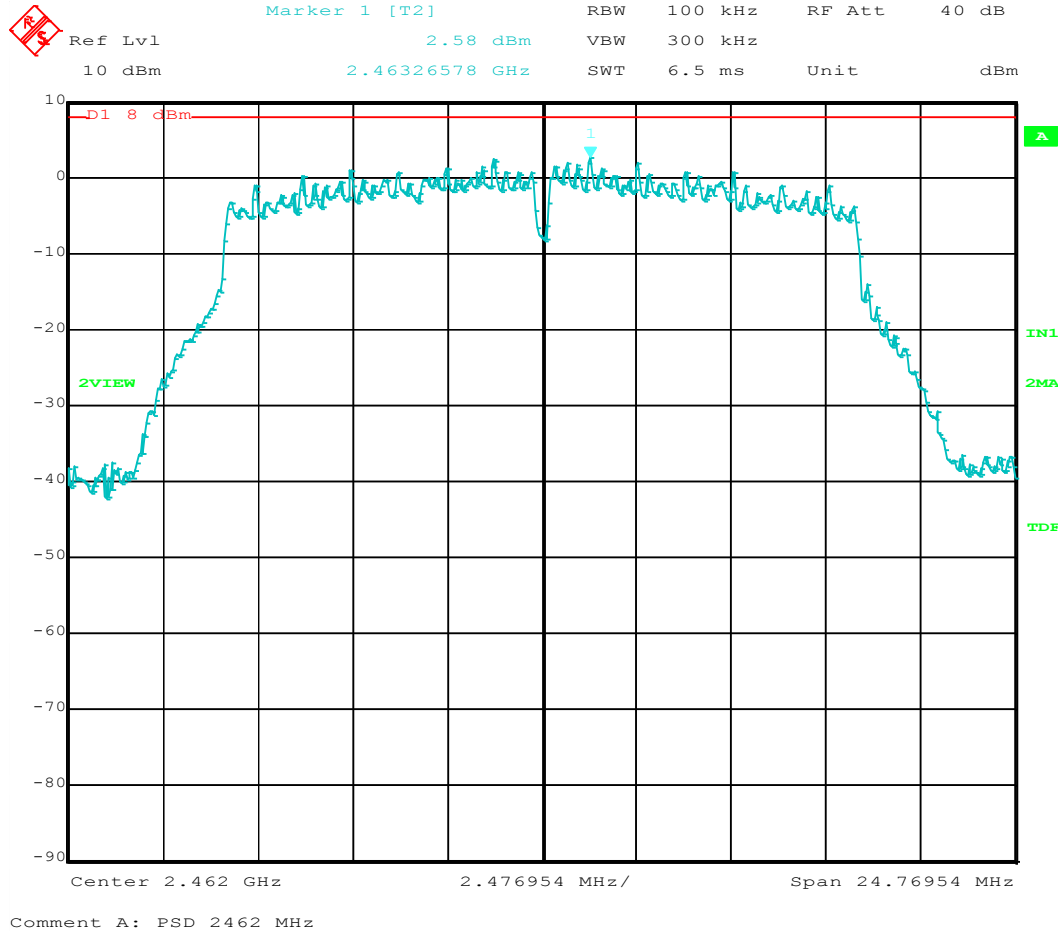
Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

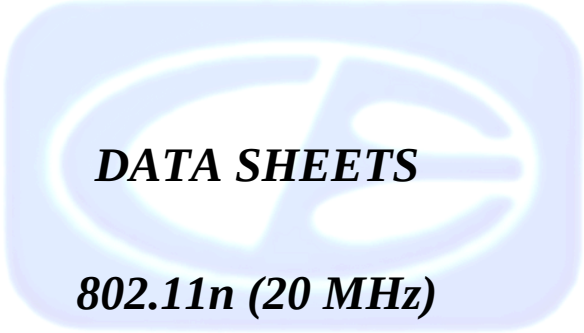
Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400







***MAXIMUM PEAK POWER SPECTRAL DENSITY LEVEL IN THE
FUNDAMENTAL EMISSION***



DATA SHEETS

802.11n (20 MHz)

ANTENNA 1



POWER SPECTRAL DENSITY

FCC 15.247

Company: Phyn LLC
EUT: Leak Detector
Model: PHYPF001
Mode: 802.11n
Antenna: 1

Date: 1/29/2018
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
2412	1.71	8.00	-6.29	Peak	
2437	2.36	8.00	-5.64	Peak	
2462	1.97	8.00	-6.03	Peak	

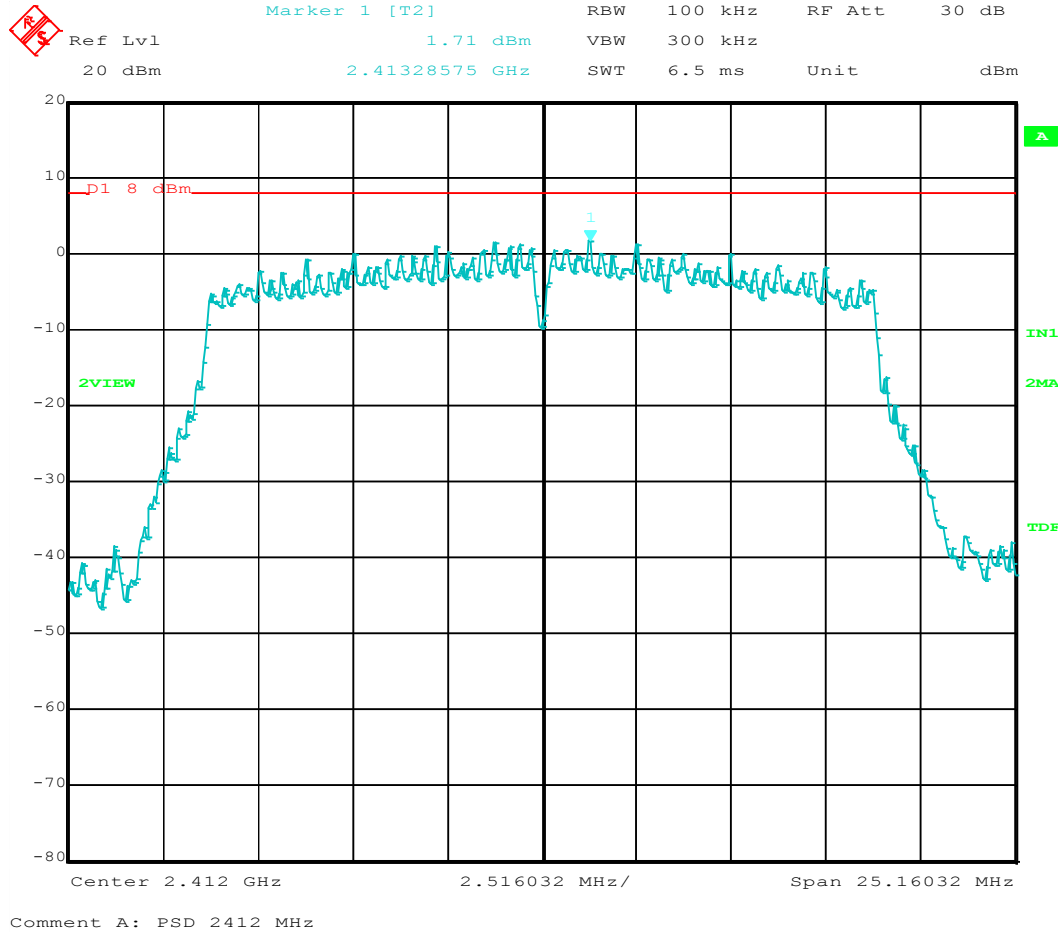


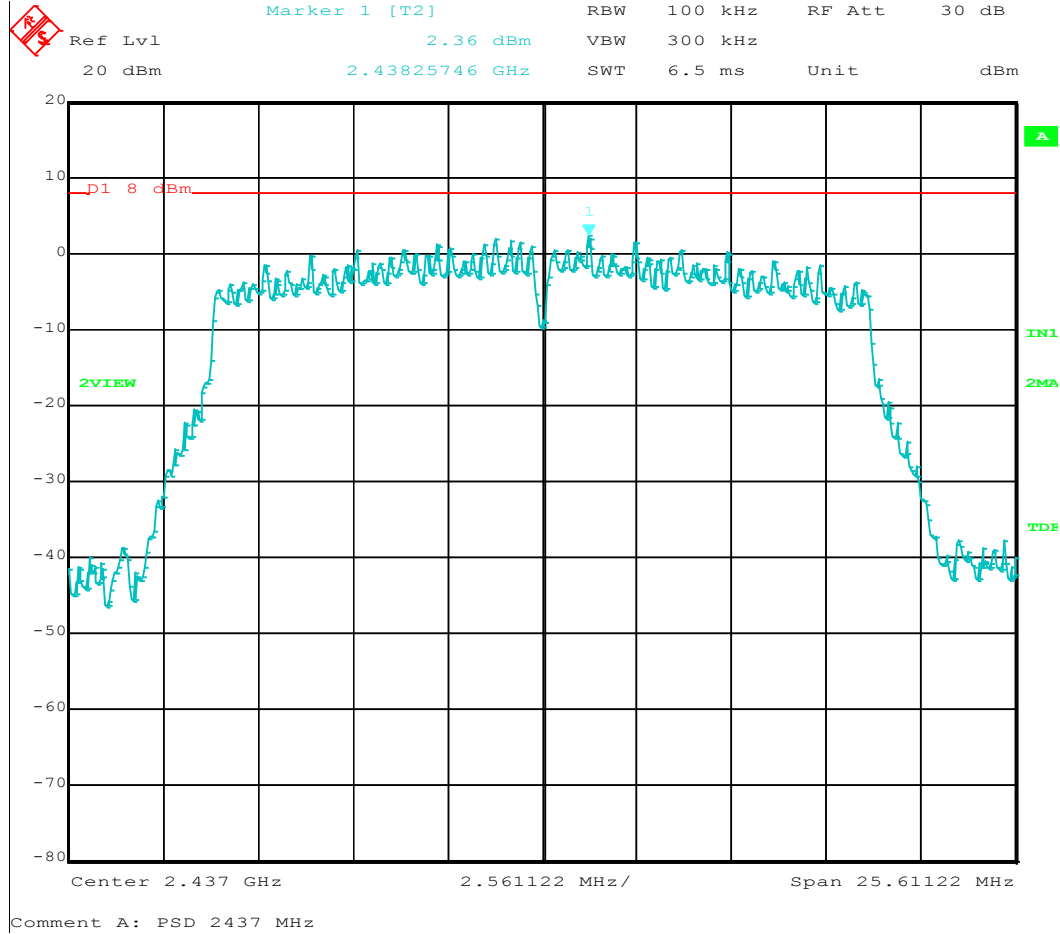
Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

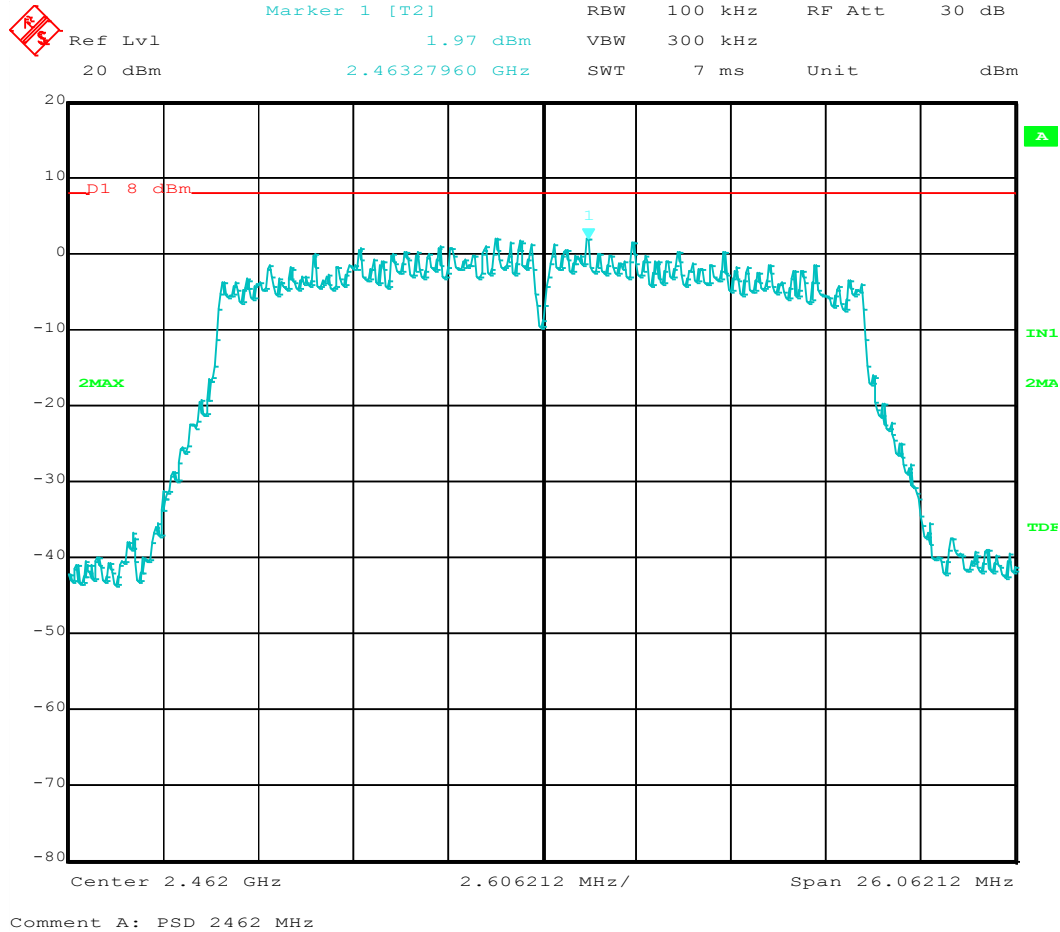
Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

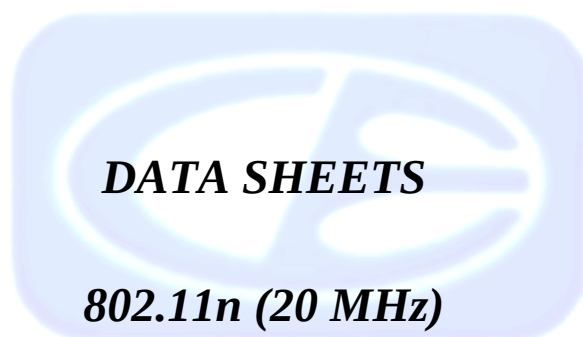
Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400







***MAXIMUM PEAK POWER SPECTRAL DENSITY LEVEL IN THE
FUNDAMENTAL EMISSION***



ANTENNA 2



POWER SPECTRAL DENSITY

FCC 15.247

Company: Phyn LLC
EUT: Leak Detector
Model: PHYPF001
Mode: 802.11n
Antenna: 2

Date: 1/29/2018
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
2412	1.74	8.00	-6.26	Peak	
2437	2.46	8.00	-5.54	Peak	
2462	1.97	8.00	-6.03	Peak	

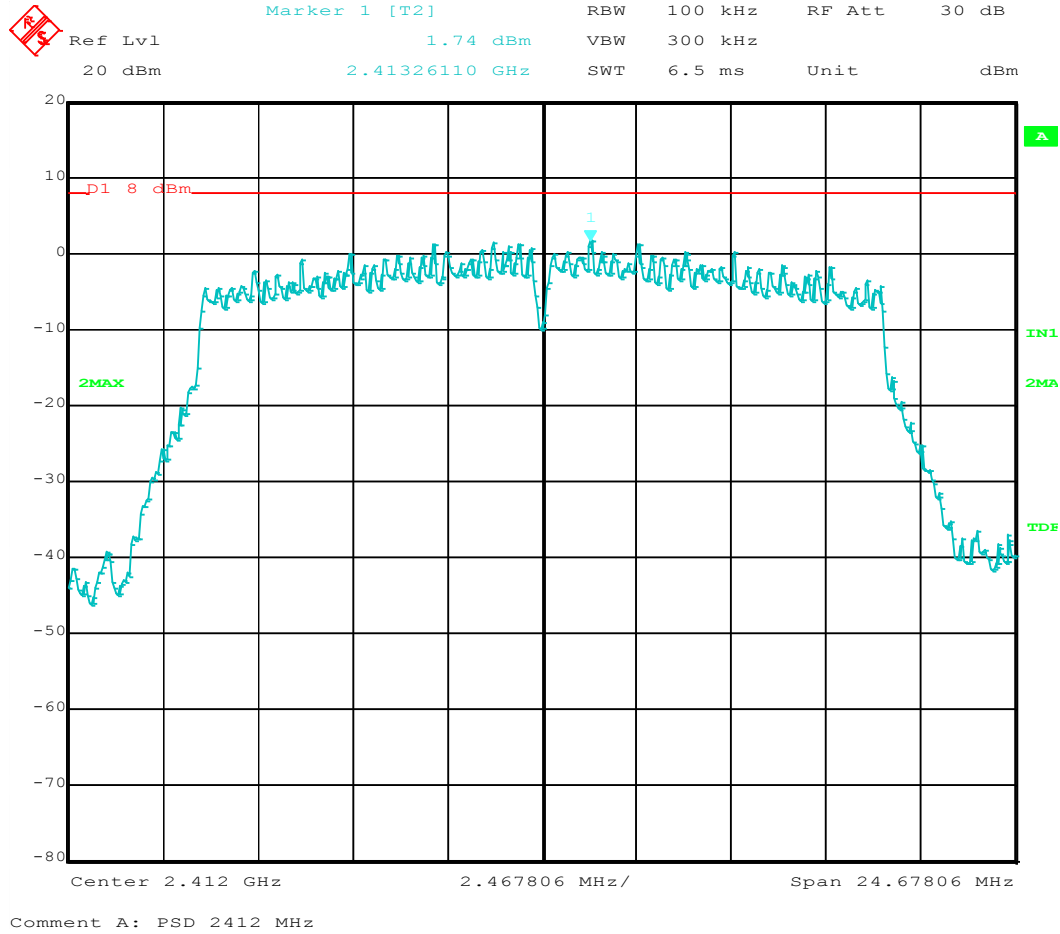


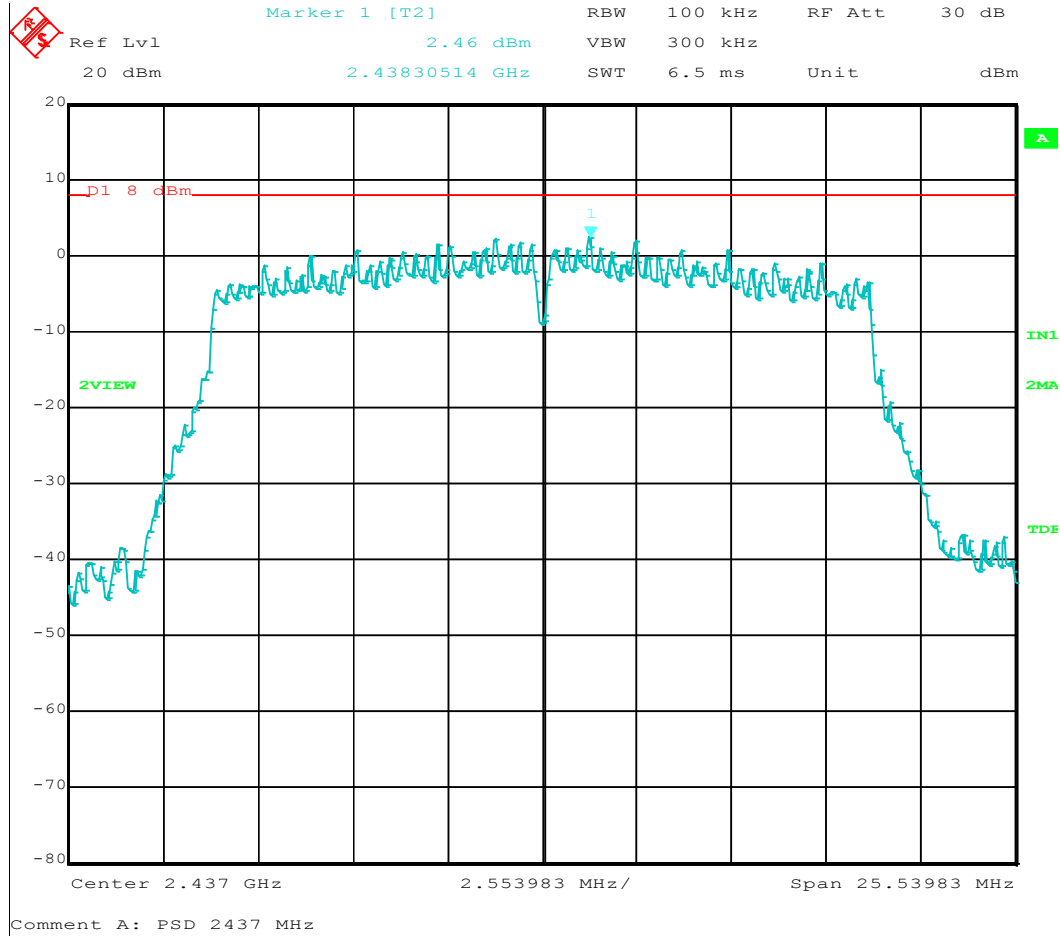
Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

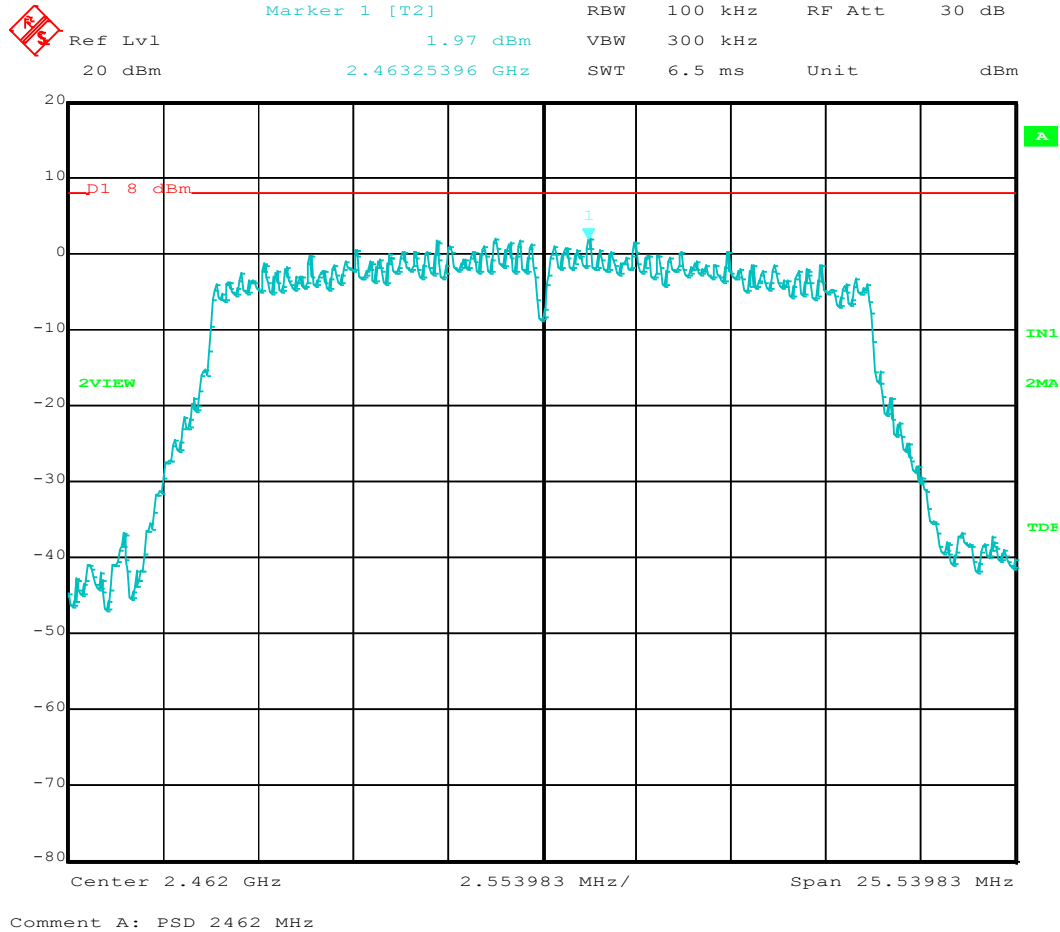
Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

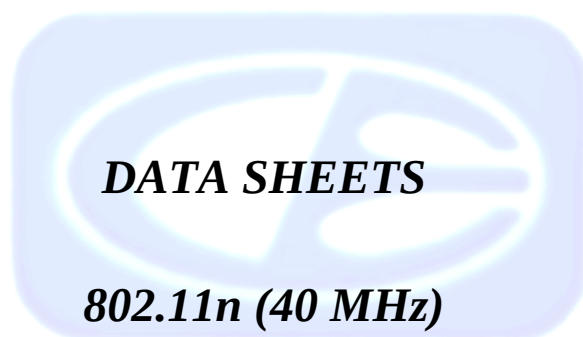
Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400







***MAXIMUM PEAK POWER SPECTRAL DENSITY LEVEL IN THE
FUNDAMENTAL EMISSION***



ANTENNA 1



POWER SPECTRAL DENSITY

FCC 15.247

Company: Phyn LLC
EUT: Leak Detector
Model: PHYPF001
Mode: 802.11n
Antenna: 1

Date: 1/29/2018
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
2422	-0.78	8.00	-8.78	Peak	
2437	-0.25	8.00	-8.25	Peak	
2452	-0.19	8.00	-8.19	Peak	

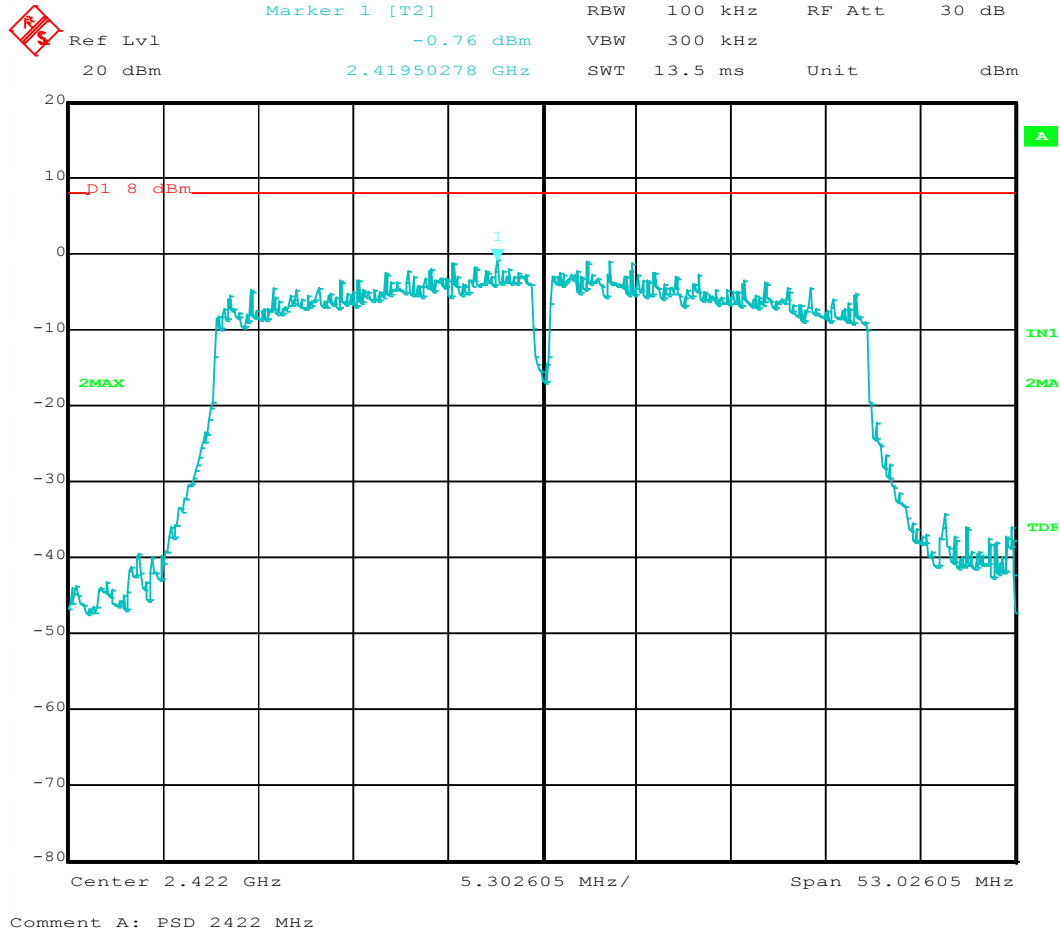


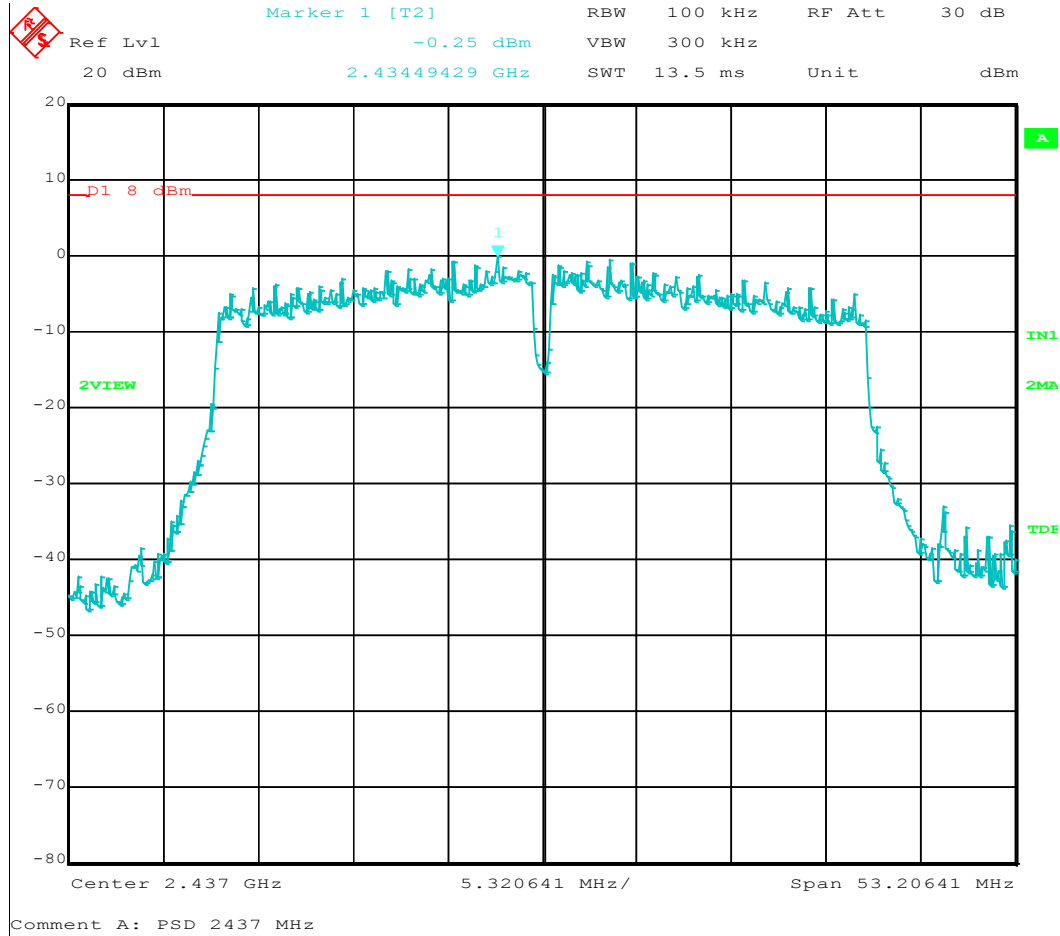
Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

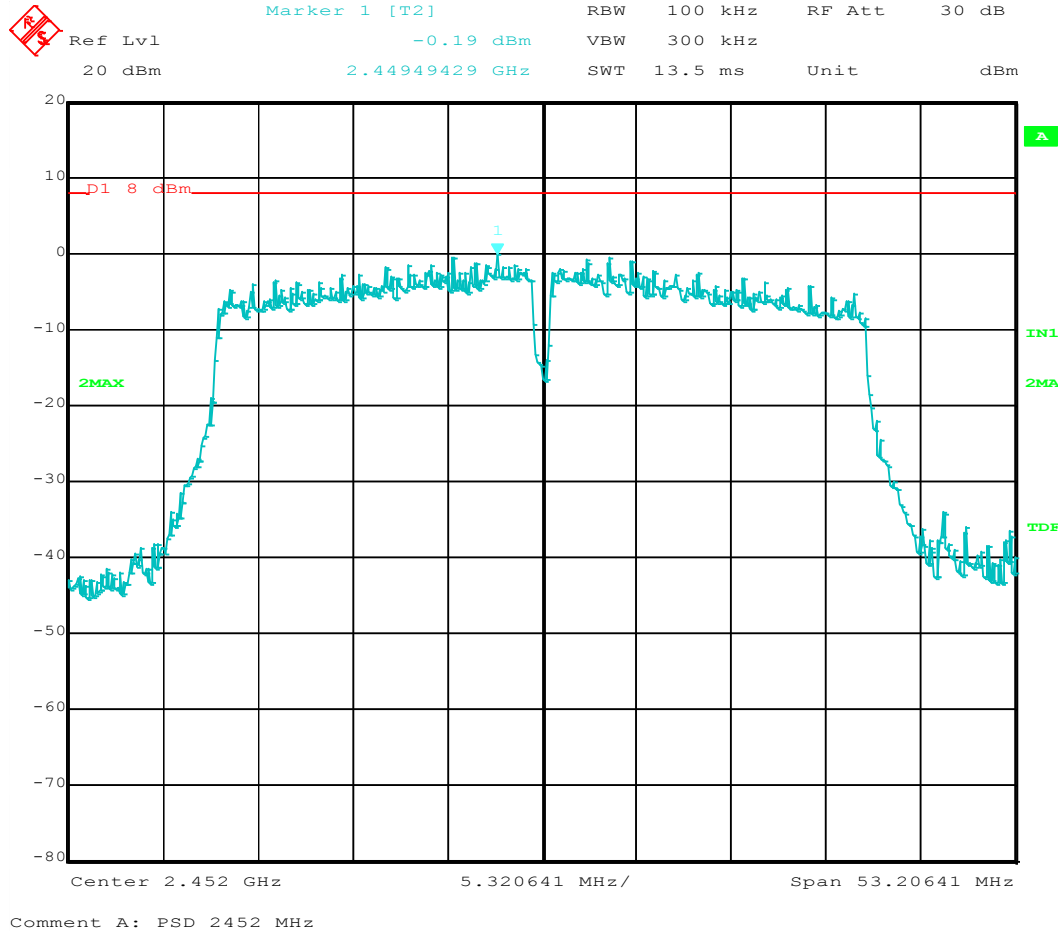
Agoura Division
2337 Troutdale Drive
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Silverado Division
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(949) 589-0700

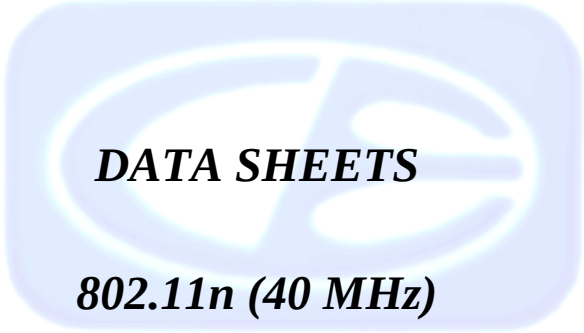
Lake Forest Division
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***MAXIMUM PEAK POWER SPECTRAL DENSITY LEVEL IN THE
FUNDAMENTAL EMISSION***



DATA SHEETS

802.11n (40 MHz)

ANTENNA 2

