



PCTEST ENGINEERING LABORATORY, INC.

7185 Oakland Mills Road, Columbia, MD 21046 USA

Tel. 410.290.6652 / Fax 410.290.6654

<http://www.pctest.com>



MEASUREMENT REPORT FCC PART 15.249

Applicant Name:

Shark Dreams, LLC
555 Fayetteville Street, Suite 300
Raleigh, NC 27601-3034

Date of Testing:

11/28-12/12/2017

Test Site/Location:

PCTEST Lab. Columbia, MD, USA

Test Report Serial No.:

1M1711240301-01.2AN25

FCC ID:	2AN25-LIVIT1
APPLICANT:	Shark Dreams LLC

Application Type:	Certification
Model:	LIVIT1
EUT Type:	Prescription Medication Monitor
Frequency Range:	2402 – 2480MHz
FCC Classification:	Low Power Communications Device Transmitter (DXX)
FCC Rule Part(s):	Part 15 Subpart C (15.249)
Test Procedure(s):	ANSI C63.10-2013

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.10-2013. Test results reported herein relate only to the item(s) tested.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.



Randy Ortanez
President



FCC ID: 2AN25-LIVIT1	PCTEST Engineering Laboratory, Inc.		MEASUREMENT REPORT (CERTIFICATION)	SHARK DREAMS	Approved by: Quality Manager
Test Report S/N: 1M1711240301-01.2AN25	Test Dates: 11/28-12/12/2017	EUT Type: Prescription Medication Monitor			Page 1 of 25

T A B L E O F C O N T E N T S

1.0	INTRODUCTION	3
1.1	Scope	3
1.2	PCTEST Test Location	3
1.3	Test Facility / Accreditations	3
2.0	PRODUCT INFORMATION.....	4
2.1	Equipment Description	4
2.2	Device Capabilities.....	4
2.3	Test Configuration	4
2.4	EMI Suppression Device(s)/Modifications	4
3.0	DESCRIPTION OF TESTS	5
3.1	Evaluation Procedure	5
3.2	Radiated Emissions.....	5
3.3	Environmental Conditions.....	5
4.0	ANTENNA REQUIREMENTS	6
5.0	MEASUREMENT UNCERTAINTY	7
6.0	TEST EQUIPMENT CALIBRATION DATA	8
7.0	TEST RESULTS.....	9
7.1	Summary	9
7.2	Occupied Bandwidth Measurement.....	10
7.3	Transmitter Output Power Measurement.....	12
7.4	Fundamental Field Strength Level Measurement.....	14
7.5	Radiated Spurious Emission Measurements.....	15
7.6	Radiated Spurious Emissions Measurements – Below 1GHz	21
8.0	CONCLUSION.....	25

FCC ID: 2AN25-LIVIT1		MEASUREMENT REPORT (CERTIFICATION)	SHARKDREAMS	Approved by: Quality Manager
Test Report S/N: 1M1711240301-01.2AN25	Test Dates: 11/28-12/12/2017	EUT Type: Prescription Medication Monitor		Page 2 of 25

1.0 INTRODUCTION

1.1 Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Innovation, Science and Economic Development Canada.

1.2 PCTEST Test Location

These measurement tests were conducted at the PCTEST Engineering Laboratory, Inc. facility located at 7185 Oakland Mills Road, Columbia, MD 21046. The measurement facility is compliant with the test site requirements specified in ANSI C63.4-2014.

1.3 Test Facility / Accreditations

Measurements were performed at PCTEST Engineering Lab located in Columbia, MD 21046, U.S.A.

- PCTEST is an ISO 17025-2005 accredited test facility under the American Association for Laboratory Accreditation (A2LA) with Certificate number 2041.01 for Specific Absorption Rate (SAR), Hearing Aid Compatibility (HAC) testing, where applicable, and Electromagnetic Compatibility (EMC) testing for FCC and Innovation, Science, and Economic Development Canada rules.
- PCTEST TCB is a Telecommunication Certification Body (TCB) accredited to ISO/IEC 17065-2012 by A2LA (Certificate number 2041.03) in all scopes of FCC Rules and ISED Standards (RSS).
- PCTEST facility is a registered (22831) test laboratory with the site description on file with ISED.

FCC ID: 2AN25-LIVIT1	 PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SHARK DREAMS	Approved by: Quality Manager
Test Report S/N: 1M1711240301-01.2AN25	Test Dates: 11/28-12/12/2017	EUT Type: Prescription Medication Monitor		Page 3 of 25

2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Shark Dreams LLC FCC ID: 2AN25-LIVIT1**. The test data contained in this report pertains only to the emissions due to the EUT's Bluetooth (LE) transmitter.

Test Device Serial No.: 21NOV-1

2.2 Device Capabilities

This device contains the following capabilities:

Bluetooth (LE)

Ch.	Frequency (MHz)
37	2402
38	2426
39	2480

Table 2-1. Frequency/ Channel Operations

2.3 Test Configuration

The EUT was tested per the guidance of ANSI C63.10-2013. ANSI C63.10-2013 was used to reference the appropriate EUT setup for radiated spurious emissions testing. See Section 3.2 for radiated emissions test setups

2.4 EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and no modifications were made during testing.

FCC ID: 2AN25-LIVIT1	 PCTEST Engineering Laboratory, Inc.	MEASUREMENT REPORT (CERTIFICATION)	SHARK DREAMS	Approved by: Quality Manager
Test Report S/N: 1M1711240301-01.2AN25	Test Dates: 11/28-12/12/2017	EUT Type: Prescription Medication Monitor		Page 4 of 25

3.0 DESCRIPTION OF TESTS

3.1 Evaluation Procedure

The measurement procedure described in the American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices (ANSI C63.10-2013) was used in the measurement of the EUT.

Deviation from measurement procedure.....None

3.2 Radiated Emissions

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. The test site inside the chamber is a 6m x 5.2m elliptical, obstruction-free area in accordance with Figure 5.7 of Clause 5 in ANSI C63.4-2014. Absorbers are arranged on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections for measurements above 1GHz. An 80cm tall test table made of Styrodur is placed on top of the turn table. For measurements above 1GHz, an additional Styrodur pedestal is placed on top of the test table to bring the total table height to 1.5m.

For all measurements, the spectrum was scanned through all EUT azimuths and from 1 to 4 meter receive antenna height using a broadband antenna from 30MHz up to the upper frequency shown in 15.33(b)(1) depending on the highest frequency generated or used in the device or on which the device operates or tunes. For frequencies above 1GHz, linearly polarized double ridge horn antennas were used. For frequencies below 30MHz, a calibrated loop antenna was used. When exploratory measurements were necessary, they were performed at 1 meter test distance inside the semi-anechoic chamber using broadband antennas, broadband amplifiers, and spectrum analyzers to determine the frequencies and modes producing the maximum emissions. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The test set-up was placed on top of the 1 x 1.5 meter table. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Appropriate precaution was taken to ensure that all emissions from the EUT were maximized and investigated. The system configuration, mode of operation, turntable azimuth, and receive antenna height was noted for each frequency found.

Final measurements were made in the semi-anechoic chamber using calibrated, linearly polarized broadband and horn antennas. The test setup was configured to the setup that produced the worst case emissions. The spectrum analyzer was set to investigate all frequencies required for testing to compare the highest radiated disturbances with respect to the specified limits. The turntable containing the EUT was rotated through 360 degrees and the height of the receive antenna was varied 1 to 4 meters and stopped at the azimuth and height producing the maximum emission. Each emission was maximized by changing the orientation of the EUT through three orthogonal planes and changing the polarity of the receive antenna, whichever produced the worst-case emissions.

3.3 Environmental Conditions

The temperature is controlled within range of 15°C to 35°C. The relative humidity is controlled within range of 10% to 75%. The atmospheric pressure is monitored within the range 86-106kPa (860-1060mbar).

FCC ID: 2AN25-LIVIT1	 MEASUREMENT REPORT (CERTIFICATION)		SHARKDREAMS	Approved by: Quality Manager
Test Report S/N: 1M1711240301-01.2AN25	Test Dates: 11/28-12/12/2017	EUT Type: Prescription Medication Monitor		Page 5 of 25

4.0 ANTENNA REQUIREMENTS

Excerpt from §15.203 of the FCC Rules/Regulations:

"An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section."

- The antennas of the EUT are **permanently attached**.
- There are no provisions for connection to an external antenna.

Conclusion:

The EUT complies with the requirement of §15.203.

FCC ID: 2AN25-LIVIT1	 PCTEST ENGINEERING LABORATORY, INC.		MEASUREMENT REPORT (CERTIFICATION)	SHARK DREAMS	Approved by: Quality Manager
Test Report S/N: 1M1711240301-01.2AN25	Test Dates: 11/28-12/12/2017	EUT Type: Prescription Medication Monitor			Page 6 of 25

5.0 MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.10-2013. All measurement uncertainty values are shown with a coverage factor of $k = 2$ to indicate a 95% level of confidence. The measurement uncertainty shown below meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Contribution	Expanded Uncertainty (\pm dB)
Conducted Bench Top Measurements	1.13
Line Conducted Disturbance	3.09
Radiated Disturbance (<1GHz)	4.98
Radiated Disturbance (>1GHz)	5.07
Radiated Disturbance (>18GHz)	5.09

FCC ID: 2AN25-LIVIT1	 MEASUREMENT REPORT (CERTIFICATION)		SHARKDREAMS	Approved by: Quality Manager
Test Report S/N: 1M1711240301-01.2AN25	Test Dates: 11/28-12/12/2017	EUT Type: Prescription Medication Monitor	Page 7 of 25	

6.0 TEST EQUIPMENT CALIBRATION DATA

Test Equipment Calibration is traceable to the National Institute of Standards and Technology (NIST). Measurements antennas used during testing were calibrated in accordance to the requirements of ANSI C63.5-2017.

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
-	RE1	Radiated Emissions Cable Set (UHF/EHF)	6/21/2017	Annual	6/21/2018	RE1
-	WL40-1	Conducted Cable Set (40GHz)	6/14/2017	Annual	6/14/2018	WL40-1
Agilent	N9020A	MXA Signal Analyzer	12/28/2016	Annual	12/28/2017	US46470561
COM-Power	AL-130R	Active Loop Antenna	6/5/2017	Annual	6/5/2018	121085
Emco	3115	Horn Antenna (1-18GHz)	3/10/2016	Biennial	3/10/2018	9704-5182
EMCO	3160-09	Small Horn (18 - 26.5GHz)	8/23/2016	Biennial	8/23/2018	135427
Huber+Suhner	Sucoflex 102A	40GHz Radiated Cable	5/19/2017	Annual	5/19/2018	251425001
Rohde & Schwarz	ESU26	EMI Test Receiver (26.5GHz)	4/19/2017	Annual	4/19/2018	100342
Rohde & Schwarz	FSW67	Signal / Spectrum Analyzer	8/11/2017	Annual	8/11/2018	103200
Rohde & Schwarz	SFUNIT-Rx	Shielded Filter Unit	7/3/2017	Annual	7/3/2018	102134
Rohde & Schwarz	TS-PR26	18-26.5 GHz Pre-Amplifier	5/11/2017	Annual	5/11/2018	100040
Rohde & Schwarz	TS-PR8	Preamplifier-Antenna SYS; 30MHz-8GHz	10/19/2017	Annual	10/19/2018	102324
Sunol	DRH-118	Horn Antenna (1-18GHz)	8/11/2017	Biennial	8/11/2019	A050307
Sunol Sciences	JB6	JB6 Antenna	9/27/2016	Biennial	9/27/2018	A082816

Table 6-1. Annual Test Equipment Calibration Schedule

FCC ID: 2AN25-LIVIT1	 MEASUREMENT REPORT (CERTIFICATION)		SHARKDREAMS	Approved by: Quality Manager
Test Report S/N: 1M1711240301-01.2AN25	Test Dates: 11/28-12/12/2017	EUT Type: Prescription Medication Monitor	Page 8 of 25	

7.0 TEST RESULTS

7.1 Summary

Company Name: Shark Dreams
 FCC ID: 2AN25-LIVIT1
 Method/System: Low Power Communications Device Transmitter (DXX)
 Number of Channels: 3

FCC Part Section(s)	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
2.1049	RSS-Gen [6.6]	Occupied Bandwidth	N/A	CONDUCTED	PASS	Section 7.2
2.1046	RSS-Gen [6.12]	Transmitter Output Power	N/A		PASS	Section 7.3
15.249(a)(e)	RSS-210 [B.10]	Fundamental Field Strength Level	< 50 mV/m	RADIATED	PASS	Section 7.4
15.249(a)(e)	RSS-210 [B.10]	Harmonic Field Strength Level	< 500 μ V/m		PASS	Section 7.5
15.205, 15.209, 15.249(d)(e)	RSS-Gen [8.9]	General Field Strength Limits (Restricted Bands and Radiated Emission Limits)	< 15.209 limits or 50dB below the level of the fundamental (RSS-Gen [8.9])		PASS	Sections 7.5, 7.6

Table 7-1. Summary of Test Results

Notes:

- 1) All modes of operation were investigated. The test results shown in the following sections represent the worst case emissions.
- 2) For radiated band edge, automated test software was used to measure emissions and capture the corresponding plots necessary to show compliance. The measurement software utilized is PCTEST "Chamber Automation," Version 1.1.5.
- 3) All antenna port conducted emissions testing was performed on a test bench with the antenna port of the EUT connected to the spectrum analyzer through calibrated cables, attenuators, and couplers.

FCC ID: 2AN25-LIVIT1		MEASUREMENT REPORT (CERTIFICATION)	SHARK DREAMS	Approved by: Quality Manager
Test Report S/N: 1M1711240301-01.2AN25	Test Dates: 11/28-12/12/2017	EUT Type: Prescription Medication Monitor		Page 9 of 25

7.2 Occupied Bandwidth Measurement

§2.1049; RSS-Gen (6.6)

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured. The spectrum analyzers' "occupied bandwidth" measurement function was used to record the occupied bandwidth.

Frequency [MHz]	Data Rate [Mbps]	Channel No.	Bluetooth Mode	Measured Bandwidth [MHz]
2402	1.0	37	LE	1.0951
2440	1.0	38	LE	1.0914
2480	1.0	39	LE	1.0905

Table 7-2. Occupied Bandwidth Measurement

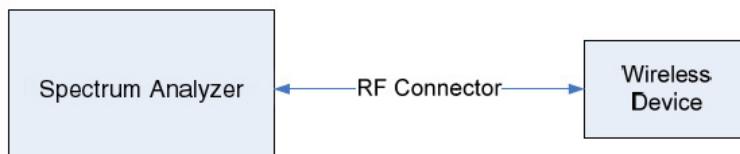
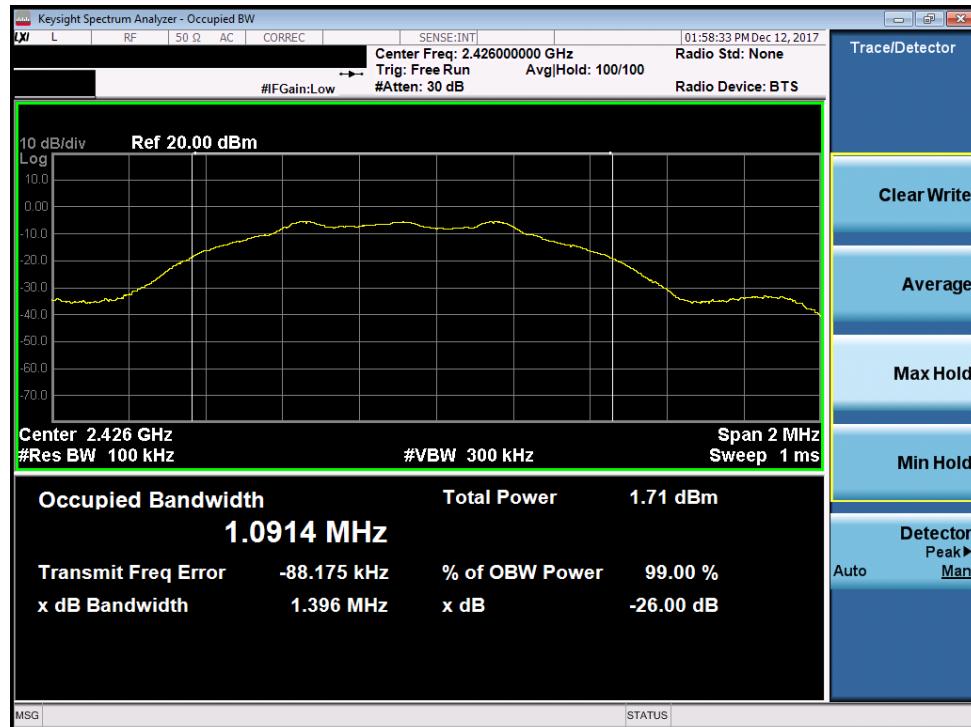


Figure 7-1. Test Instrument & Measurement Setup



Plot 7-1. Occupied Bandwidth Plot (BTLE – Ch. 37)

FCC ID: 2AN25-LIVIT1		MEASUREMENT REPORT (CERTIFICATION)	SHARKDREAMS	Approved by: Quality Manager
Test Report S/N: 1M1711240301-01.2AN25	Test Dates: 11/28-12/12/2017	EUT Type: Prescription Medication Monitor		Page 10 of 25



Plot 7-2. Occupied Bandwidth Plot (BTLE – Ch. 38)



Plot 7-3. Occupied Bandwidth Plot (BTLE – Ch. 39)

FCC ID: 2AN25-LIVIT1		MEASUREMENT REPORT (CERTIFICATION)	SHARK DREAMS	Approved by: Quality Manager
Test Report S/N: 1M1711240301-01.2AN25	Test Dates: 11/28-12/12/2017	EUT Type: Prescription Medication Monitor		Page 11 of 25

7.3 Transmitter Output Power Measurement

§2.1046; RSS-Gen (6.12)

The transmitter antenna terminal of the EUT is connected to the input of a spectrum analyzer. Measurements are made while the EUT is operating at maximum power and at the appropriate frequencies.

Frequency [MHz]	Data Rate [Mbps]	Channel No.	Bluetooth Mode	Peak Conducted Power	
				[dBm]	[mW]
2402	1.0	37	LE	-4.75	0.335
2440	1.0	38	LE	-4.47	0.357
2480	1.0	39	LE	-3.22	0.476

Table 7-3. Conducted Output Power Measurement

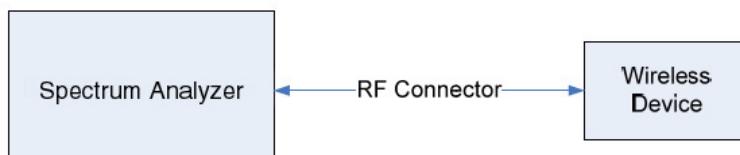
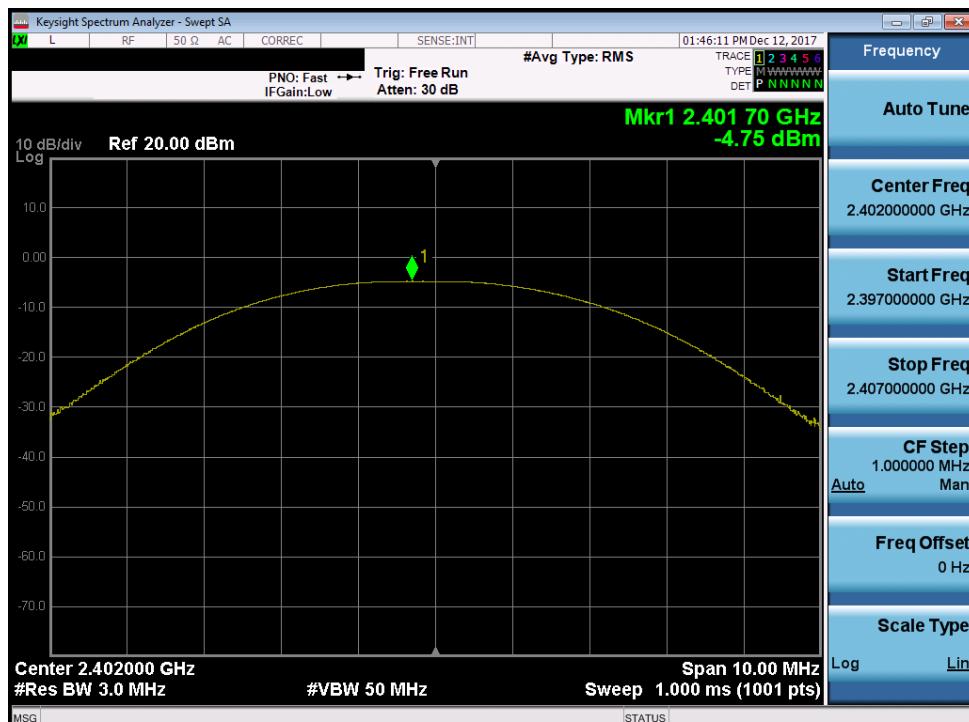
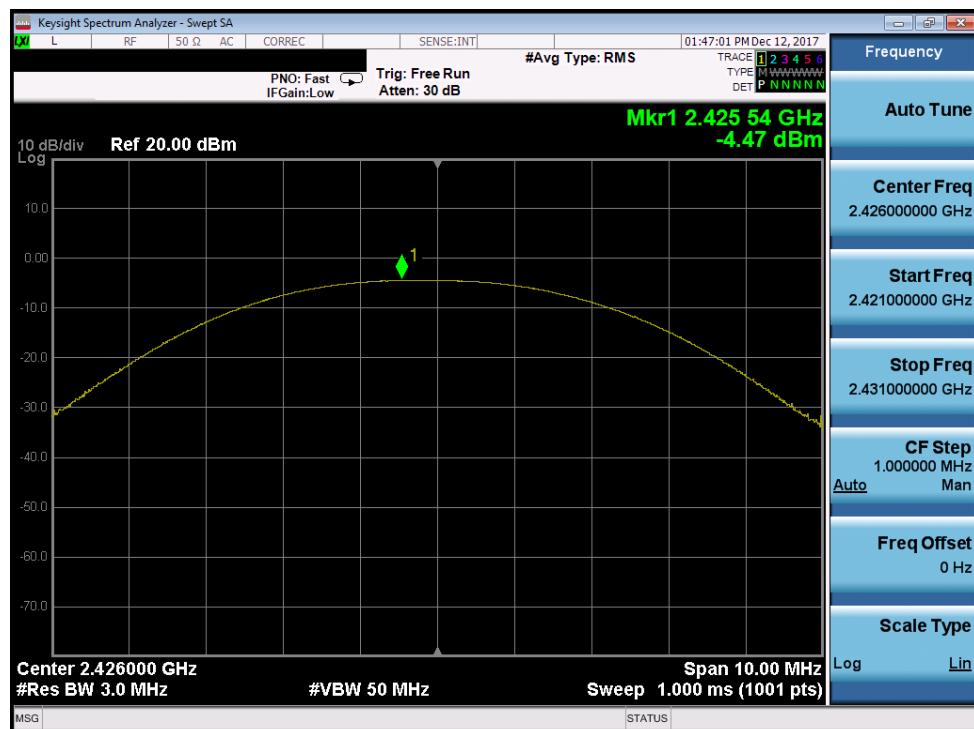


Figure 7-2. Test Instrument & Measurement Setup

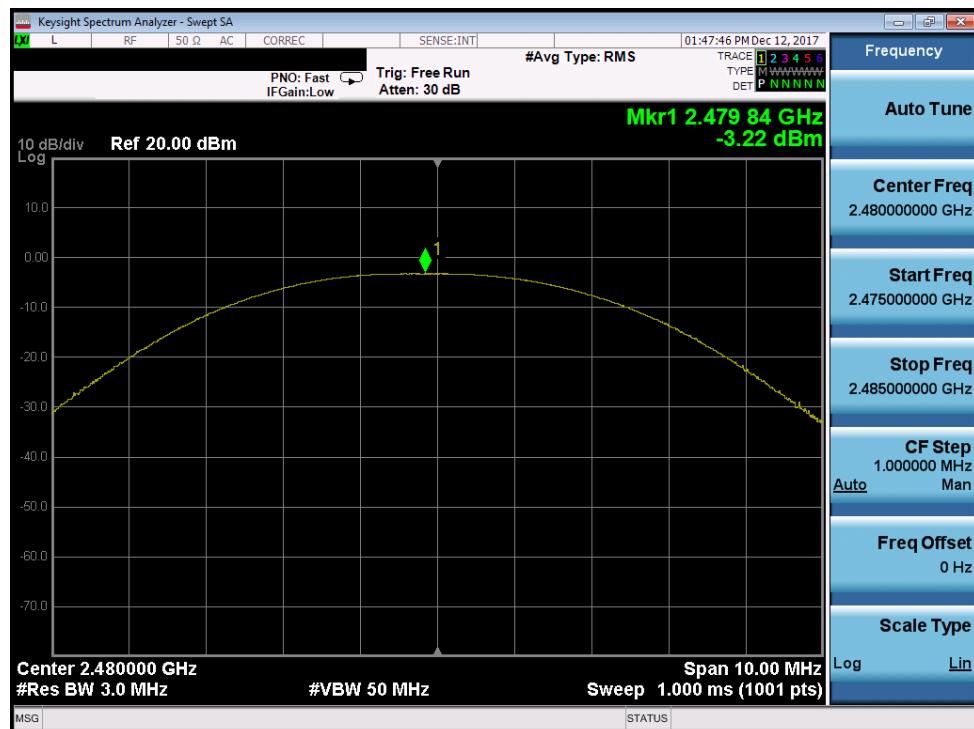


Plot 7-4. Peak Power Plot (BTLE – Ch. 37)

FCC ID: 2AN25-LIVIT1		MEASUREMENT REPORT (CERTIFICATION)	SHARKDREAMS	Approved by: Quality Manager
Test Report S/N: 1M1711240301-01.2AN25	Test Dates: 11/28-12/2017	EUT Type: Prescription Medication Monitor		Page 12 of 25



Plot 7-5. Peak Power Plot (BTLE – Ch. 38)



Plot 7-6. Peak Power Plot (BTLE – Ch. 39)

FCC ID: 2AN25-LIVIT1	 MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1711240301-01.2AN25	Test Dates: 11/28-12/12/2017	EUT Type: Prescription Medication Monitor		Page 13 of 25

7.4 Fundamental Field Strength Level Measurement

§15.249(a)(e); RSS-210 (B.10)

Measurement is made while the EUT is operating in non-hopping transmission mode. The field strengths shown below were measured using a spectrum analyzer. Peak field strength measurements are performed in the analyzers' swept spectrum mode using a peak detector with RBW = 3MHz and VBW \geq RBW.

The maximum permissible average field strength level is 50mV/m (93.98dB μ V/m). The maximum permissible peak field strength level is 500mV/m (113.98 dB μ V/m).

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]
2402.00	Peak	H	367	187	-29.38	6.87	84.49	93.98	-9.49
2426.00	Peak	H	279	155	-25.01	7.12	89.11	93.98	-4.87
2480.00	Peak	H	175	170	-29.97	6.53	83.56	93.98	-10.42

Table 7-4. Field Strength Measurements

FCC ID: 2AN25-LIVIT1	 MEASUREMENT REPORT (CERTIFICATION)			SHARKDREAMS	Approved by: Quality Manager
Test Report S/N: 1M1711240301-01.2AN25	Test Dates: 11/28-12/12/2017	EUT Type: Prescription Medication Monitor			

7.5 Radiated Spurious Emission Measurements

§15.205 §15.209 §15.249 (d)(e); RSS-210 (B.10), RSS-Gen (8.9)

Frequency	Field Strength [μ V/m]	Measured Distance [Meters]
0.009 – 0.490 MHz	2400/F (kHz)	300
0.490 – 1.705 MHz	24000/F (kHz)	30
1.705 – 30.00 MHz	30	30
30.00 – 88.00 MHz	100	3
88.00 – 216.0 MHz	150	3
216.0 – 960.0 MHz	200	3
Above 960.0 MHz	500	3

Table 7-5. Radiated Limits

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

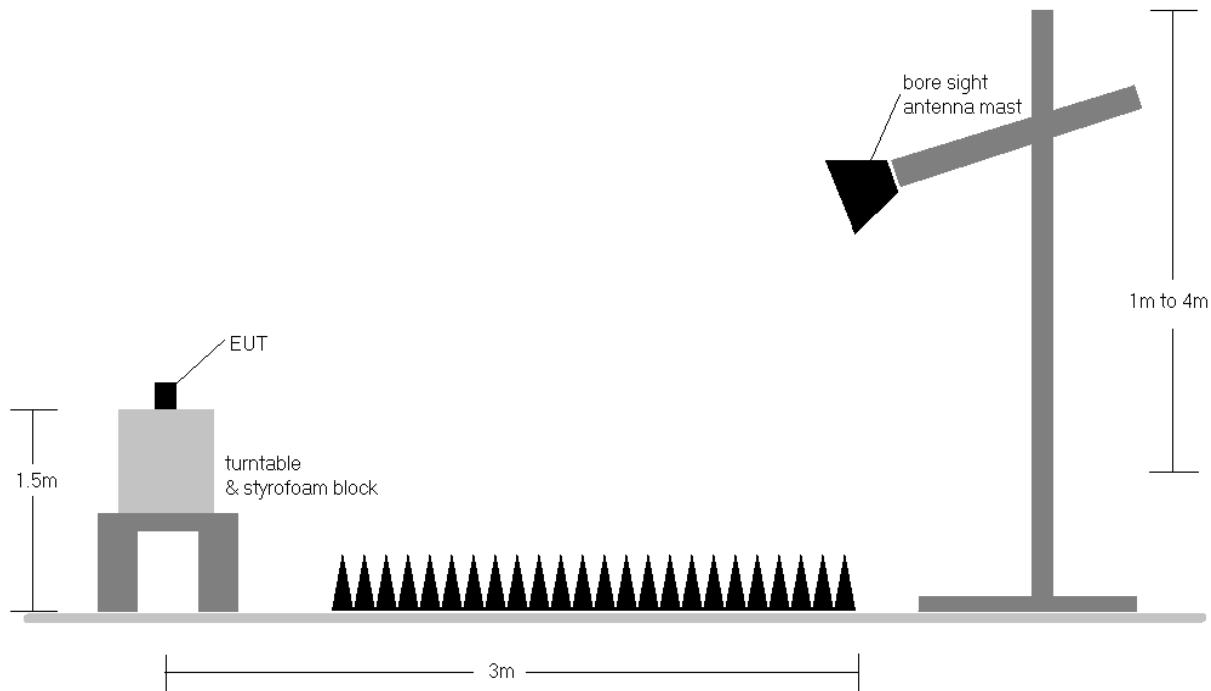


Figure 7-3. Radiated Test Setup

FCC ID: 2AN25-LIVIT1		MEASUREMENT REPORT (CERTIFICATION)	SHARKDREAMS	Approved by: Quality Manager
Test Report S/N: 1M1711240301-01.2AN25	Test Dates: 11/28-12/12/2017	EUT Type: Prescription Medication Monitor		Page 15 of 25

Sample Calculation

- Pk. Field Strength Level [$\text{dB}_{\mu\text{V/m}}$] = Analyzer Level [dBm] + 107 + AFCL [dB/m]
- AFCL [dB/m] = Antenna Factor [dB/m] + Cable Loss [dB]
- Margin [dB] = Field Strength Level [$\text{dB}_{\mu\text{V/m}}$] – Limit [$\text{dB}_{\mu\text{V/m}}$]

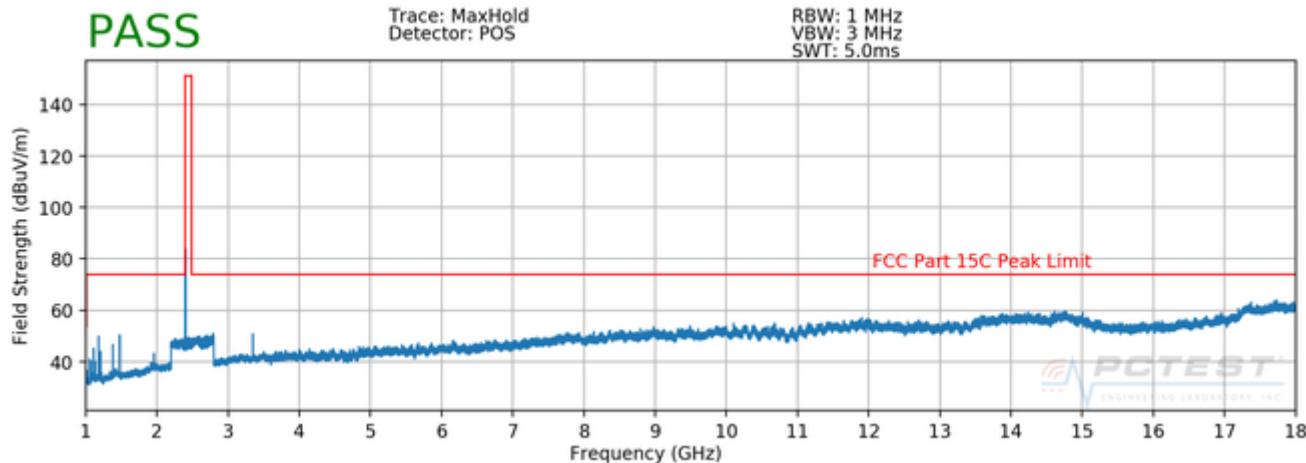
Test Notes

1. The spectrum is measured from 9kHz to the 10th harmonic and the worst-case emissions are reported. There were no non-harmonic emissions detected whose levels were within 20dB of the applicable limits so only harmonic emissions data is shown in this section.
2. All emissions lying in restricted bands specified in §15.205 and Section 8.10 of RSS-Gen are below the limit shown in Table 7-5. Per 15.249(d) and RSS-210 (B.10), the radiated emissions limits from 15.209 and RSS-Gen Section 8.10 were used since they were less than the limit of 50dB of attenuation from the measured fundamental field strength level.
3. Peak measurements > 1GHz using RBW = 1MHz and VBW = 3MHz.
4. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
5. This unit was tested with its standard battery.
6. The "-" shown in the following RSE tables are used to denote a noise floor measurement.
7. All emissions were found to be at noise floor levels. As such, only peak measurements were taken and compared with the average radiated spurious emission limit to demonstrate compliance.

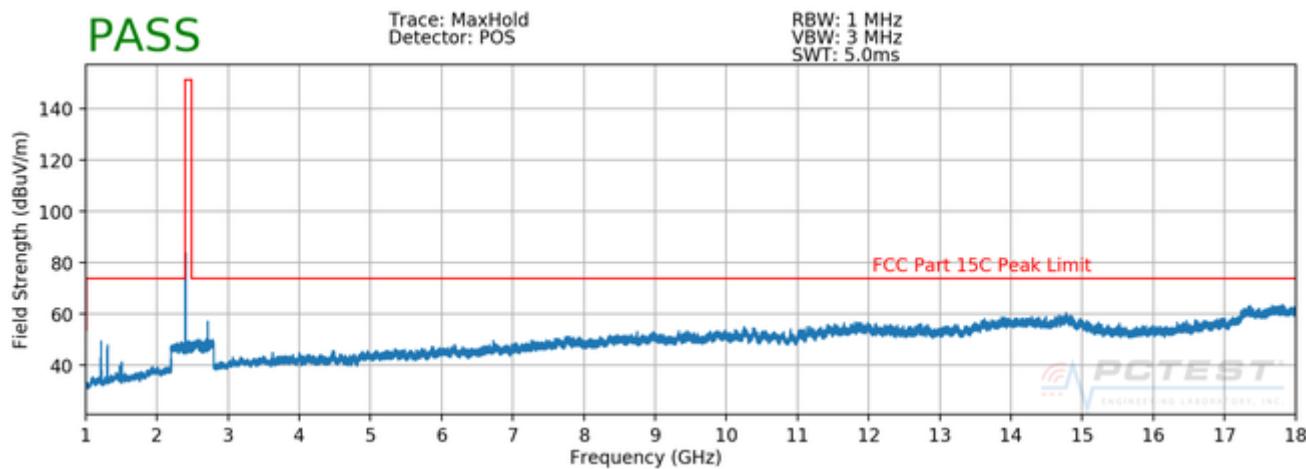
FCC ID: 2AN25-LIVIT1	 MEASUREMENT REPORT (CERTIFICATION)		SHARK DREAMS	Approved by: Quality Manager
Test Report S/N: 1M1711240301-01.2AN25	Test Dates: 11/28-12/12/2017	EUT Type: Prescription Medication Monitor		Page 16 of 25

Radiated Spurious Emission Measurements

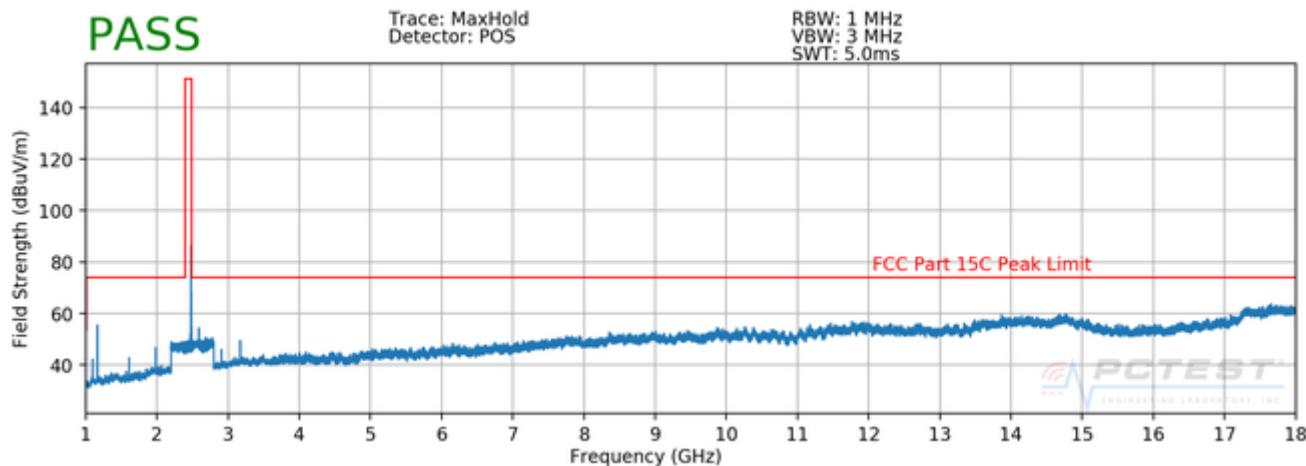
§15.205 §15.209 §15.247 (d); RSS-Gen [8.9]



Plot 7-7. Radiated Spurious Plot above 1GHz (Low Channel, Ant. Pol. H)

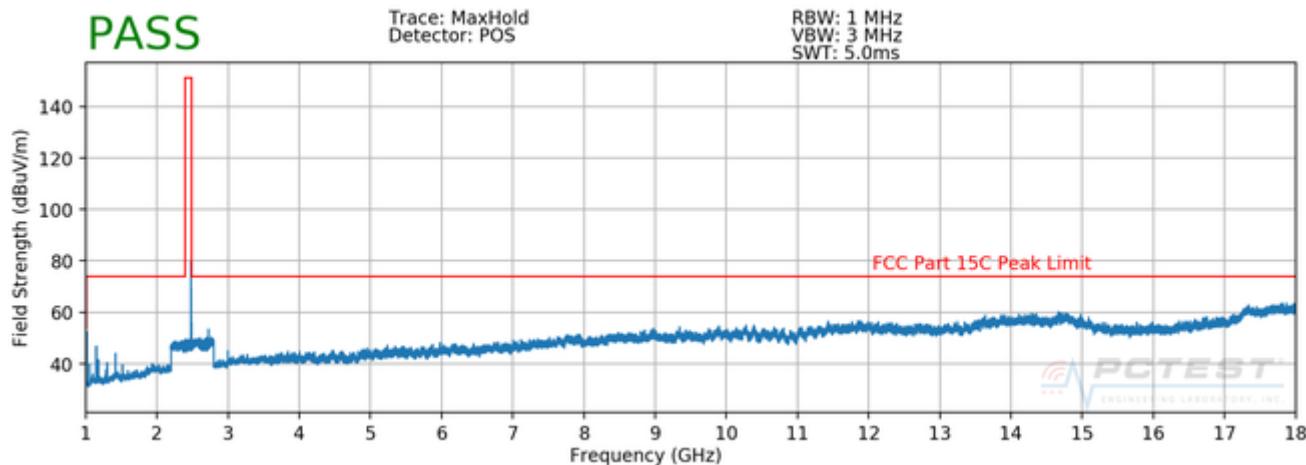


Plot 7-8. Radiated Spurious Plot above 1GHz (Low Channel, Ant. Pol. V)

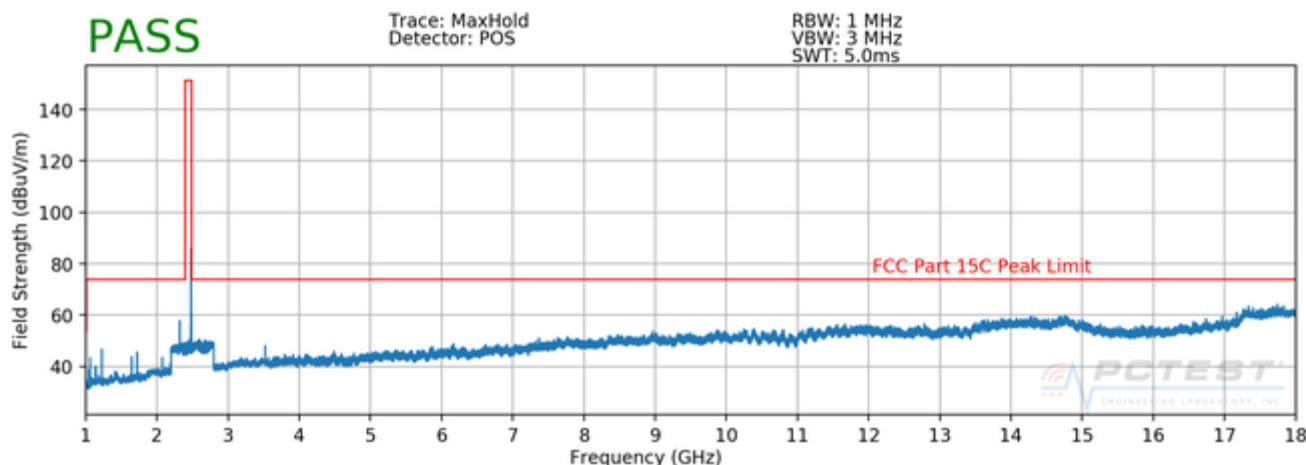


Plot 7-9. Radiated Spurious Plot above 1GHz (Mid Channel, Ant. Pol. H)

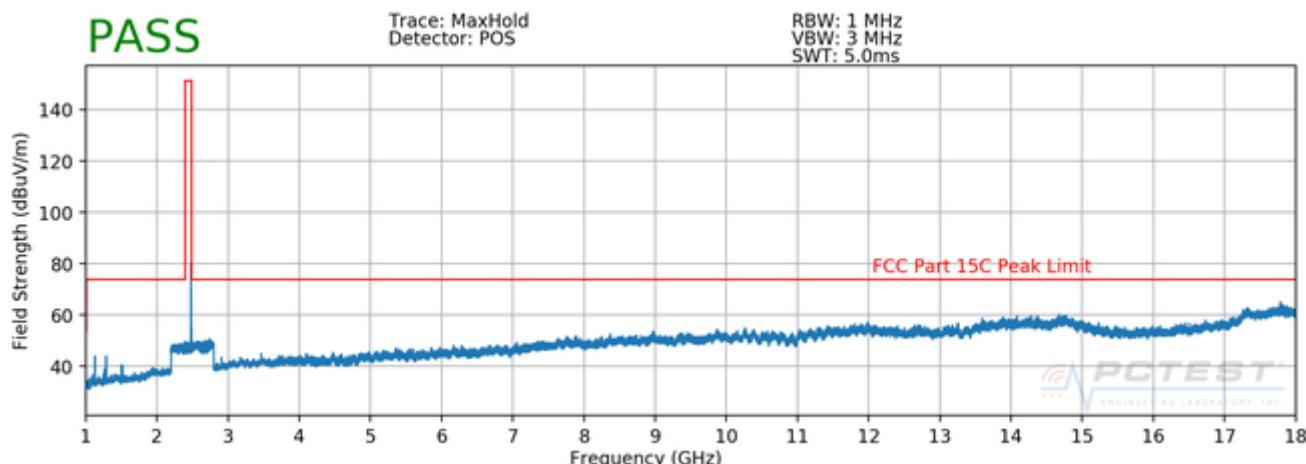
FCC ID: 2AN25-LIVIT1		MEASUREMENT REPORT (CERTIFICATION)	SHARKDREAMS	Approved by: Quality Manager
Test Report S/N: 1M1711240301-01.2AN25	Test Dates: 11/28-12/12/2017	EUT Type: Prescription Medication Monitor		Page 17 of 25



Plot 7-10. Radiated Spurious Plot above 1GHz (Mid Channel, Ant. Pol. V)



Plot 7-11. Radiated Spurious Plot above 1GHz (High Channel, Ant. Pol. H)



Plot 7-12. Radiated Spurious Plot above 1GHz (High Channel, Ant. Pol. V)

FCC ID: 2AN25-LIVIT1		MEASUREMENT REPORT (CERTIFICATION)	SHARKDREAMS	Approved by: Quality Manager
Test Report S/N: 1M1711240301-01.2AN25	Test Dates: 11/28-12/12/2017	EUT Type: Prescription Medication Monitor		Page 18 of 25

Radiated Spurious Emission Measurements

§15.205 §15.209 §15.249 (d)(e); RSS-210 (B.10), RSS-Gen (8.9)

Worst Case Mode: Bluetooth LE
 Measurement Distance: 3 Meters
 Operating Frequency: 2402MHz
 Channel: 37

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]
4804.00	Peak	V	-	-	-64.73	2.41	44.68	53.98	-9.30
12010.00	Peak	V	-	-	-72.80	16.34	50.54	53.98	-3.44

Table 7-6. Radiated Measurements

Worst Case Mode: Bluetooth LE
 Measurement Distance: 3 Meters
 Operating Frequency: 2426MHz
 Channel: 38

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]
4852.00	Peak	V	-	-	-65.36	3.95	45.59	53.98	-8.39
7278.00	Peak	V	-	-	-65.52	9.07	50.55	53.98	-3.43
12130.00	Peak	V	-	-	-72.41	15.84	50.43	53.98	-3.55

Table 7-7. Radiated Measurements

FCC ID: 2AN25-LIVIT1	MEASUREMENT REPORT (CERTIFICATION)			SHARKDREAMS	Approved by: Quality Manager
Test Report S/N: 1M1711240301-01.2AN25	Test Dates: 11/28-12/12/2017	EUT Type: Prescription Medication Monitor			

Radiated Spurious Emission Measurements

§15.205 §15.209 §15.249 (d)(e); RSS-210 (B.10), RSS-Gen (8.9)

Worst Case Mode:	Bluetooth LE
Measurement Distance:	3 Meters
Operating Frequency:	2480MHz
Channel:	39

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]
4960.00	Peak	V	-	-	-66.38	4.93	45.55	53.98	-8.42
7440.00	Peak	V	-	-	-66.91	8.96	49.05	53.98	-4.93
12400.00	Peak	V	-	-	-72.91	16.09	50.18	53.98	-3.80

Table 7-8. Radiated Measurements

FCC ID: 2AN25-LIVIT1	 MEASUREMENT REPORT (CERTIFICATION)			SHARKDREAMS	Approved by: Quality Manager
Test Report S/N: 1M1711240301-01.2AN25	Test Dates: 11/28-12/12/2017	EUT Type: Prescription Medication Monitor			

7.6 Radiated Spurious Emissions Measurements – Below 1GHz

§15.209; RSS-Gen [8.9]

Test Overview and Limit

All out of band radiated spurious emissions are measured with a spectrum analyzer connected to a receive antenna while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates and modes were investigated for radiated spurious emissions. Only the radiated emissions of the configuration that produced the worst case emissions are reported in this section.

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR and Table 6 of RSS-Gen (8.10) must not exceed the limits shown in Table 7-9 per Section 15.209 and RSS-Gen (8.9).

Frequency	Field Strength [μ V/m]	Measured Distance [Meters]
0.009 – 0.490 MHz	2400/F (kHz)	300
0.490 – 1.705 MHz	24000/F (kHz)	30
1.705 – 30.00 MHz	30	30
30.00 – 88.00 MHz	100	3
88.00 – 216.0 MHz	150	3
216.0 – 960.0 MHz	200	3
Above 960.0 MHz	500	3

Table 7-9. Radiated Limits

Test Procedures Used

ANSI C63.10-2013

Test Settings

Quasi-Peak Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 120kHz (for emissions from 30MHz – 1GHz)
3. Detector = quasi-peak
4. Sweep time = auto couple
5. Trace mode = max hold
6. Trace was allowed to stabilize

FCC ID: 2AN25-LIVIT1	 PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SHARKDREAMS	Approved by: Quality Manager
Test Report S/N: 1M1711240301-01.2AN25	Test Dates: 11/28-12/12/2017	EUT Type: Prescription Medication Monitor		Page 21 of 25

Test Setup

The EUT and measurement equipment were set up as shown in the diagrams below.

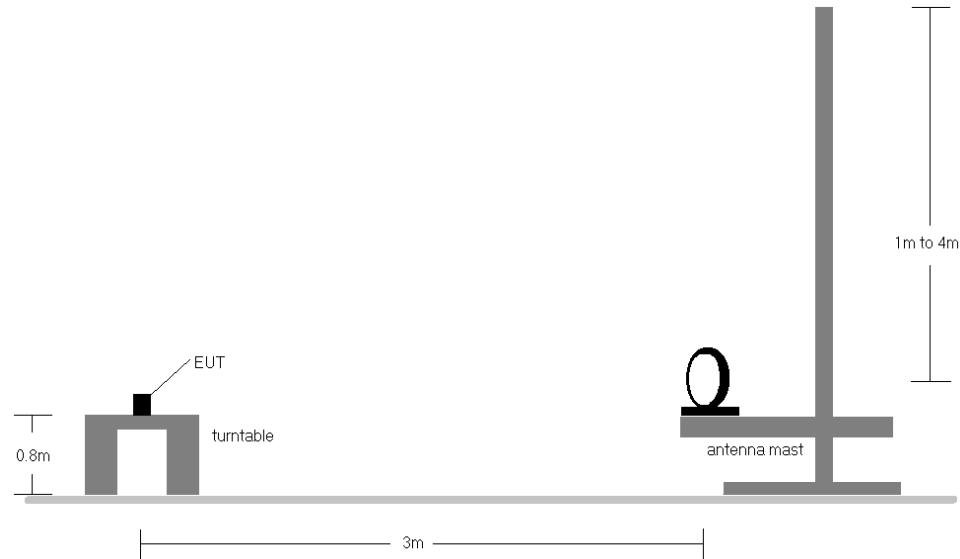


Figure 7-4. Radiated Test Setup < 30Mhz

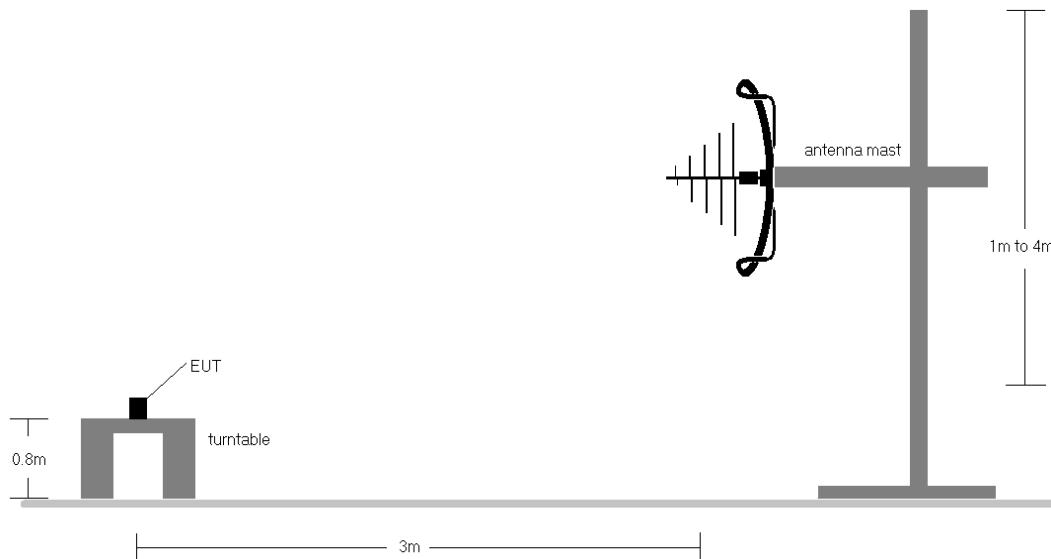


Figure 7-5. Radiated Test Setup < 1GHz

FCC ID: 2AN25-LIVIT1	 MEASUREMENT REPORT (CERTIFICATION)		SHARKDREAMS	Approved by: Quality Manager
Test Report S/N: 1M1711240301-01.2AN25	Test Dates: 11/28-12/12/2017	EUT Type: Prescription Medication Monitor		Page 22 of 25

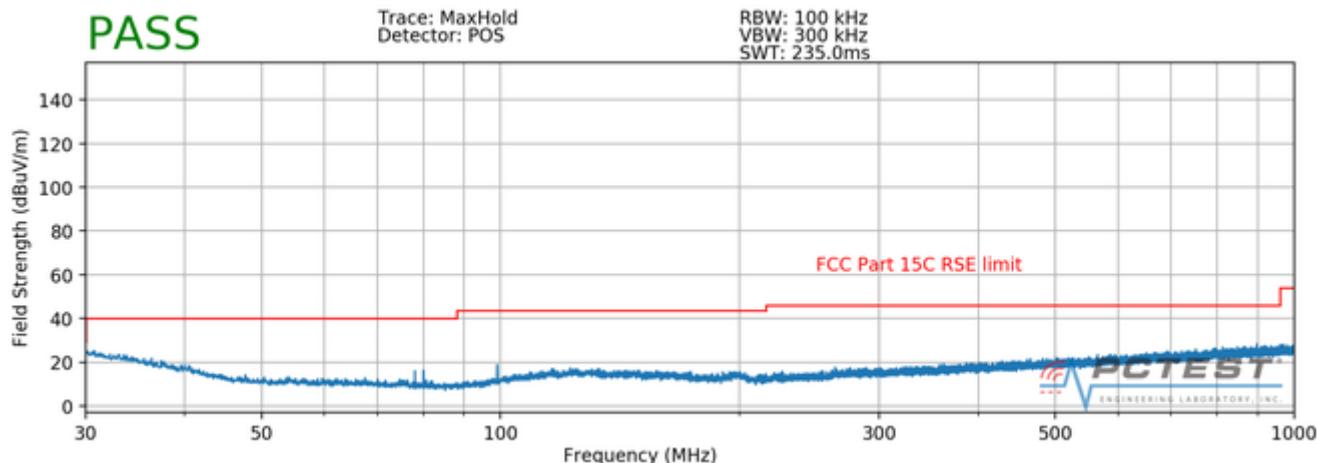
Test Notes

1. All emissions lying in restricted bands specified in §15.205 and RSS-Gen (8.10) are below the limit shown in Table 7-9.
2. The broadband receive antenna is manipulated through vertical and horizontal polarizations during the tests. The EUT is manipulated through three orthogonal planes.
3. This unit was tested with its standard battery.
4. The spectrum is investigated using a peak detector and final measurements are recorded using CISPR quasi peak detector. The worst-case emissions are reported however emissions whose levels were not within 20dB of the respective limits were not reported.
5. Emissions were measured at a 3 meter test distance.
6. Emissions are investigated while operating on the center channel of the mode, band, and modulation that produced the worst case results during the transmitter spurious emissions testing.
7. No spurious emissions were detected within 20dB of the limit below 30MHz.
8. The results recorded using the broadband antenna is known to correlate with the results obtained by using a tuned dipole with an acceptable degree of accuracy. The VSWR for the measurement antenna was found to be less than 2:1.
9. The wide spectrum spurious emissions plots shown on the following pages are used only for the purpose of emission identification. There were no emissions detected in the 30MHz – 1GHz frequency range, as shown in the subsequent plots.

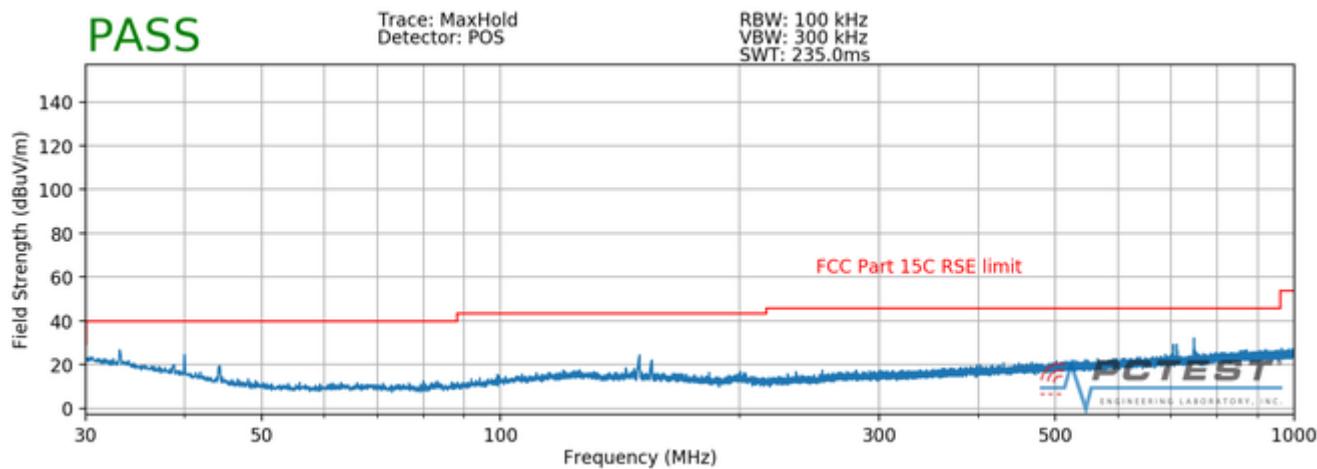
FCC ID: 2AN25-LIVIT1	 MEASUREMENT REPORT (CERTIFICATION)		SHARKDREAMS	Approved by: Quality Manager
Test Report S/N: 1M1711240301-01.2AN25	Test Dates: 11/28-12/12/2017	EUT Type: Prescription Medication Monitor		Page 23 of 25

Radiated Spurious Emissions Measurements (Below 1GHz)

§15.209; RSS-Gen [8.9]



Plot 7-13. Radiated Spurious Plot below 1GHz (Pol. H)



Plot 7-14. Radiated Spurious Plot below 1GHz (Pol. V)

FCC ID: 2AN25-LIVIT1		MEASUREMENT REPORT (CERTIFICATION)	SHARK DREAMS	Approved by: Quality Manager
Test Report S/N: 1M1711240301-01.2AN25	Test Dates: 11/28-12/12/2017	EUT Type: Prescription Medication Monitor		Page 24 of 25

8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Shark Dreams LLC Prescription Medication Monitor FCC ID: 2AN25-LIVIT1** is compliant with Part 15 Subpart C (15.249) of the FCC Rules.

FCC ID: 2AN25-LIVIT1	 MEASUREMENT REPORT (CERTIFICATION)		SHARK DREAMS	Approved by: Quality Manager
Test Report S/N: 1M1711240301-01.2AN25	Test Dates: 11/28-12/12/2017	EUT Type: Prescription Medication Monitor		Page 25 of 25