



Design. Create. Certify. *Connect.*



TESTING CERT #1255.01

W66 N220 Commerce Court • Cedarburg, WI 53012

Phone: 262.375.4400 • Fax: 262.375.4248

[www.lsr.com](http://www.lsr.com)

**TEST REPORT # 315155 A**  
**LSR Job #: C-2240**

Compliance Testing of:  
Quietyme STONE

Test Date(s):  
August 20<sup>th</sup> – September 22<sup>nd</sup> 2015.

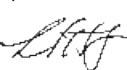
Prepared For:  
Attention: Robert Baddeley  
Quietyme, Inc.  
W2288 County Hwy E  
Neshkoro, WI 54960

This Test Report is issued under the Authority of:  
Khairul Aidi Zainal, Engineering Manager – Test Services.

Signature: 

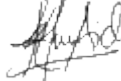
Date: 9-29-15

Test Report Reviewed by:  
Mike Hintzke, EMC Engineer

Signature: 

Date: 9-29-15

Project Engineer:  
Khairul Aidi Zainal, Engineering Manager – Test Services.

Signature: 

Date: 9-23-15

This Test Report may not be reproduced, except in full, without written approval of LS Research, LLC.

# TABLE OF CONTENTS

EXHIBIT 1. INTRODUCTION.....	4
1.1 - Scope.....	4
1.2 – Normative References.....	4
1.3 - LS Research, LLC Test Facility .....	5
1.4 – Location of Testing .....	5
1.5 – Test Equipment Utilized.....	5
EXHIBIT 2. PERFORMANCE ASSESSMENT .....	6
2.1 – Client Information .....	6
2.2 - Equipment Under Test (EUT) Information .....	6
2.3 - Associated Antenna Description.....	6
2.4 - EUT'S Technical Specifications.....	7
2.5 - Product Description .....	9
EXHIBIT 3. EUT OPERATING CONDITIONS & CONFIGURATIONS DURING TESTS .....	10
3.1 - Climate Test Conditions .....	10
3.2 - Applicability & Summary of EMC Emission Test Results .....	10
3.3 - Modifications Incorporated In The EUT For Compliance Purposes.....	10
3.4 - Deviations & Exclusions From Test Specifications .....	10
EXHIBIT 4. DECLARATION OF CONFORMITY .....	11
EXHIBIT 5. UNWANTED EMISSIONS INTO THE RESTRICTED FREQUENCY BANDS.....	12
5.1 - Test Setup.....	12
5.2 - Test Procedure.....	12
5.3 - Test Equipment Utilized .....	13
5.4 - Test Results .....	13
5.5 - Calculation of Radiated Emissions Limits and reported data. ....	14
5.6 - Data: .....	15
5.7 – Screen Captures. ....	17
EXHIBIT 6. CONDUCTED EMISSIONS TEST, AC POWER LINE.....	21
6.1 Test Setup.....	21
6.2 Test Procedure.....	21
6.3 Test Equipment Utilized.....	21
6.4 Test Results .....	21
EXHIBIT 7. OCCUPIED BANDWIDTH.....	26

Prepared For: Quietyme, Inc.	Model #: STONE 16	Report #: 315155 A
EUT: Quietyme STONE	Serial #: Radiated: Rev 6 Board #3, Rev 6 Board #6 Conducted: Rev 6 Board #1	LSR Job #: C-2240

7.1 - Limits.....	26
7.2 - Method of Measurements.....	26
7.3 - Test Data .....	27
7.4 – Screen Captures .....	27
EXHIBIT 8. BAND EDGE MEASUREMENTS .....	29
8.1 - Method of Measurements.....	29
8.2. Band edge screen captures.....	29
EXHIBIT 9. POWER OUTPUT (CONDUCTED): 15.247(b) .....	32
9.1 - Method of Measurements.....	32
9.2 - Test Data .....	32
9.3 – Screen Captures. ....	33
EXHIBIT 10. CONDUCTED SPURIOUS EMISSIONS: 15.247(d) .....	34
10.1 - Limits.....	34
10.2 – Conducted Harmonic And Spurious RF Measurements.....	34
Measurement procedure used was FCC OET KDB 558074 D01 Measurement Guidance v03r03 section 11.....	34
10.3 - Test Data .....	35
EXHIBIT 11. POWER SPECTRAL DENSITIES: 15.247(e) .....	41
11.1 Limits .....	41
11.2 Test Data .....	42
11.3 Screen Captures – Power Spectral Density .....	42
EXHIBIT 12. FREQUENCY STABILITY OVER VOLTAGE VARIATIONS .....	44
APPENDIX A – Test Equipment List.....	45
APPENDIX B – Test Standards: CURRENT PUBLICATION DATES RADIO .....	46
APPENDIX C - Uncertainty Statement .....	47

Prepared For: Quietyme, Inc.	Model #: STONE 16	Report #: 315155 A
EUT: Quietyme STONE	Serial #: Radiated: Rev 6 Board #3, Rev 6 Board #6 Conducted: Rev 6 Board #1	LSR Job #: C-2240

# EXHIBIT 1. INTRODUCTION

## 1.1 - Scope

References:	FCC Part 15, Subpart C, Section 15.247 RSS GEN issue 4 and RSS 247 issue 1
Title:	FCC : Telecommunication – Code of Federal Regulations, CFR 47, Part 15. IC : Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices
Purpose of Test:	To gain FCC and IC Certification Authorization for Low- Power License-Exempt Transmitters.
Test Procedures:	FCC KDB 558074 D01 DTS Measurement Guidance v03r03 ANSI C63.10

## 1.2 – Normative References

Publication	Year	Title
FCC CFR Parts 0-15	2015	Code of Federal Regulations – Telecommunications
ANSI C63.4	2014	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.
RSS-247 Issue 1	2015	Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices
RSS-GEN Issue 4	2014	General Requirements and Information for the Certification of Radio Apparatus
ANSI C63.10	2013	American National Standard for Testing Unlicensed Wireless Devices
FCC KDB 558074 D01 DTS Measurement Guidance v03r03	2015	Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247

Prepared For: Quietyme, Inc.	Model #: STONE 16	Report #: 315155 A
EUT: Quietyme STONE	Serial #: Radiated: Rev 6 Board #3, Rev 6 Board #6 Conducted: Rev 6 Board #1	LSR Job #: C-2240

### **1.3 - LS Research, LLC Test Facility**

LS Research, LLC is accredited by A2LA (American Association for Laboratory Accreditation) as conforming to ISO/IEC 17025, 2005 "General Requirements for the Competence of Calibration and Testing Laboratories".

LS Research, LLC's scope of accreditation includes all test methods listed herein, unless otherwise noted. Accreditation status can be verified at A2LA's web site: [www.a2la2.net](http://www.a2la2.net).

### **1.4 - Location of Testing**

All testing was performed at the following location utilizing the facilities listed below, unless otherwise noted.

LS Research, LLC  
W66 N220 Commerce Court  
Cedarburg, Wisconsin, 53012 USA,

List of Facilities Located at LS Research, LLC:

Semi-Anechoic Chamber

### **1.5 - Test Equipment Utilized**

A complete list of equipment utilized in testing is provided in Appendix A of this test report. Calibration dates are indicated in Appendix A. All test equipment is calibrated by a calibration laboratory accredited to the requirements of ISO/IEC 17025, and traceable to the SI standard.

Prepared For: Quietyme, Inc.	Model #: STONE 16	Report #: 315155 A
EUT: Quietyme STONE	Serial #: Radiated: Rev 6 Board #3, Rev 6 Board #6 Conducted: Rev 6 Board #1	LSR Job #: C-2240

## EXHIBIT 2. PERFORMANCE ASSESSMENT

### 2.1 – Client Information

Manufacturer Name:	Quietyme, Inc.
Address:	W2288 County Hwy E. Neshkoro, WI 54960
Contact Name:	Robert Baddeley

### 2.2 - Equipment Under Test (EUT) Information

The following information has been supplied by the applicant.

Product Name:	Quietyme STONE
Model Number:	STONE 16
Serial Number:	REV 6 Boards #3 and #6: Radiated measurements REV6 Board #1: Conducted measurements

### 2.3 - Associated Antenna Description

The antenna associated with the EUT is a PCB inverted F trace antenna.

Prepared For: Quietyme, Inc.	Model #: STONE 16	Report #: 315155 A
EUT: Quietyme STONE	Serial #: Radiated: Rev 6 Board #3, Rev 6 Board #6 Conducted: Rev 6 Board #1	LSR Job #: C-2240

## 2.4 - EUT'S Technical Specifications

EUT Frequency Range (in MHz)	2405MHz – 2475MHz
RF Power in Watts (Conducted measurement)	
Minimum:	0.00214
Maximum:	0.00224
Conducted Output Power (in dBm)	3.5
Field Strength at 3 meters (Maximum)	Not Applicable
99% Bandwidth (MHz)	2.61
Type of Modulation	O-QPSK
DTS Bandwidth -6dB BW (MHz)	1.64
Transmitter Spurious (worst case) at 3 meters	50.8dB $\mu$ V/m at 7320MHz (Peak)
Frequency Tolerance %, Hz, ppm	Better than 100 ppm
Microprocessor/Transceiver Model #	Microprocessor + Transceiver: CC2531
Antenna Information	
Detachable/non-detachable	Non-detachable
Type	PCB inverted F trace antenna
EUT will be operated under FCC Rule Part(s)	Title 47 part 15.247
EUT will be operated under RSS Rule Part(s)	RSS 247
Modular Filing	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Portable or Mobile?	portable

Prepared For: Quietyme, Inc.	Model #: STONE 16	Report #: 315155 A
EUT: Quietyme STONE	Serial #: Radiated: Rev 6 Board #3, Rev 6 Board #6 Conducted: Rev 6 Board #1	LSR Job #: C-2240

**RF Technical Information:**

Type of Evaluation (check one)		SAR Evaluation: Device Used in the Vicinity of the Human Head
		SAR Evaluation: Body-worn Device
	X	RF Evaluation

The EUT was evaluated against the SAR test exclusion threshold listed in KDB 447498 D01 General RF Exposure Guidance v05r02, section 4.3 (1). The EUT was found to be compliant with the SAR exclusion threshold, 1-g extremity, for 100MHz to 6000MHz.

Frequency = 2.440GHz  
ERP (dBm) = 3.5dBm  
ERP (mW)= 2.24 milliwatt  
Minimum separation distance = 5mm

$$\frac{[2.2\text{mw}/5\text{mm}]}{[2.48\text{GHz}]} = 0.7 \leq 3$$

Excluded from SAR testing at use case distance less than and equal to 5mm.

When evaluated against RSS 102 issue 5 section 2.5, table 1:

Frequency = 2.405GHz  
Field strength = 100.8dBμV/m at 3m  
EIRP (dBm) = 100.8-95.2 = 5.6dBm  
EIRP (mW)= 3.63 milliwatt

SAR exclusion threshold at 2405MHz is 4.24mW therefore the EUT excluded from SAR testing at use case distance less than and equal to 5mm.

Prepared For: Quietyme, Inc.	Model #: STONE 16	Report #: 315155 A
EUT: Quietyme STONE	Serial #: Radiated: Rev 6 Board #3, Rev 6 Board #6 Conducted: Rev 6 Board #1	LSR Job #: C-2240



## **2.5 - Product Description**

The Quietyme Stone 16 fulfills multiple needs for the Quietyme ecosystem. The primary two uses are as the coordinator and routers for a mesh network within an environment (home, hotel, apartment complex, industrial, etc.). In a typical installation, there will be a single device programmed as a coordinator, and 1 to 100 devices programmed as routers and installed throughout a site. Stone 16 is revision 1.6 of the Stone product.

Prepared For: Quietyme, Inc.	Model #: STONE 16	Report #: 315155 A
EUT: Quietyme STONE	Serial #: Radiated: Rev 6 Board #3, Rev 6 Board #6 Conducted: Rev 6 Board #1	LSR Job #: C-2240

## EXHIBIT 3. EUT OPERATING CONDITIONS & CONFIGURATIONS DURING TESTS

### 3.1 - Climate Test Conditions

Temperature:	70 -71° F
Humidity:	32-42%
Pressure:	728-741mmHg

### 3.2 - Applicability & Summary of EMC Emission Test Results

FCC and IC Paragraph	Test Requirements	Compliance (Yes/No)
FCC : 15.207 IC : RSS GEN sect. 7.2.2	Power Line Conducted Emissions Measurements	Yes
FCC : 15.247 (a)(1) IC : RSS 210 A8.1 (a)	20 dB Bandwidth	Yes
FCC : 15.247(b) & 1.1310 IC : RSS 247 5.4	Maximum Output Power	Yes
FCC : 15.247(i), 1.1307, 1.1310, 2.1091 & 2.1093 IC : RSS 102	RF Exposure Limit	Yes
FCC :15.247(d) IC : RSS 247 5.5	RF Conducted Spurious Emissions at the Transmitter Antenna Terminal	Yes
FCC:15.247 (a)(2) IC: RSS 247 5.2	6 dB Bandwidth of a Digital Modulation System	Yes
FCC:15.247 (d) IC: RSS 247 5.2	Power Spectral Density of a Digital Modulation System	Yes
FCC : 15.247(c), 15.209 & 15.205 IC : RSS GEN	Transmitter Radiated Emissions	Yes

### 3.3 - Modifications Incorporated In The EUT For Compliance Purposes

☒ None ☐ Yes (explain below)

### 3.4 - Deviations & Exclusions From Test Specifications

☒ None ☐ Yes (explain below)

Prepared For: Quietyme, Inc.	Model #: STONE 16	Report #: 315155 A
EUT: Quietyme STONE	Serial #: Radiated: Rev 6 Board #3, Rev 6 Board #6 Conducted: Rev 6 Board #1	LSR Job #: C-2240

## EXHIBIT 4. DECLARATION OF CONFORMITY

The EUT was found to MEET the requirements as described within the specification of FCC Title 47, CFR Part 15.247, and Industry Canada RSS-247, Issue 1.

*Note: If some emissions are seen to be within 3 dB of their respective limits; as these levels are within the tolerances of the test equipment and site employed, there is a possibility that this unit, or a similar unit selected out of production may not meet the required limit specification if tested by another agency.*

LS Research, LLC certifies that the data contained herein was taken under conditions that meet or exceed the requirements of the test specifications. The results in this Test Report apply only to the item(s) tested on the above-specified dates. Any modifications made to the EUT subsequent to the indicated test date(s) will invalidate the data herein, and void this certification.

Prepared For: Quietyme, Inc.	Model #: STONE 16	Report #: 315155 A
EUT: Quietyme STONE	Serial #: Radiated: Rev 6 Board #3, Rev 6 Board #6 Conducted: Rev 6 Board #1	LSR Job #: C-2240

## EXHIBIT 5. UNWANTED EMISSIONS INTO THE RESTRICTED FREQUENCY BANDS.

### **5.1 - Test Setup**

The test setup was assembled in accordance with Title 47, CFR FCC Part 15, RSS GEN and ANSI C63.10-2013. The EUT was placed on an 80cm high non-conductive pedestal below 1 GHz and 150cm non-conductive pedestal above 1 GHz, centered on a flush mounted turntable inside a 3 meter Semi-Anechoic, FCC listed Chamber. The EUT was operated in continuous transmit mode for final testing using power as provided by a generic AC to DC power supply. The unit has the capability to operate on 3 channels, controllable via an HP Stream 7 tablet (SN:CNU445B99C) running **SmartRF™ Studio 7**.

The applicable limits apply at a 3 meter distance. The calculations to determine these limits are detailed in the following pages. Please refer to Appendix A for a complete list of test equipment. The test sample was operated on one of three (3) standard channels to comply with FCC Part 15.31(m).

### **5.2 - Test Procedure**

Radiated RF measurements were performed on the EUT in a 3 meter Semi-Anechoic, FCC listed Chamber. The frequency range from 30 MHz to 25000 MHz was scanned and investigated. The radiated RF emission levels were manually noted at the various fixed degree settings of azimuth on the turntable and antenna height. The EUT was placed on a non-conductive pedestal in the 3 meter Semi-Anechoic Chamber, with the antenna mast placed such that the antenna was 3 meters from the EUT. A Biconical Antenna was used to measure emissions from 30 MHz to 200 MHz, and a Log Periodic Antenna was used to measure emissions from 200 MHz to 1000 MHz. A Double-Ridged Waveguide Horn Antenna was used from 1 GHz to 18 GHz while a standard gain horn antenna was used in the 18 GHz to 25 GHz range. The maximum radiated RF emissions between 30MHz to 25 GHz were found by raising and lowering the sense antenna between 1 and 4 meters in height, using both horizontal and vertical antenna polarities.

The EUT was positioned in 3 orthogonal orientations. In addition, the EUT was tested in:

1. EUT powered via Generic AC/DC adapter.
2. EUT powered via rechargeable battery.

Prepared For: Quietyme, Inc.	Model #: STONE 16	Report #: 315155 A
EUT: Quietyme STONE	Serial #: Radiated: Rev 6 Board #3, Rev 6 Board #6 Conducted: Rev 6 Board #1	LSR Job #: C-2240

### **5.3 - Test Equipment Utilized**

A list of the test equipment and antennas utilized for the Radiated Emissions test can be found in Appendix A. This list includes calibration information and equipment descriptions. All equipment is calibrated and used according to the operation manuals supplied by the manufacturers. All calibrations of the antennas used were performed at a calibration laboratory accredited to ISO 17025, and are traceable to the SI standard. In addition, the Connecting Cables were measured for losses using a calibrated Signal Generator and an EMI Receiver. The resulting correction factors and the cable loss factors from these calibrations were entered into the EMI Receiver database. As a result, the data taken from the EMI Receiver accounts for the antenna correction factor as well as cable loss or other corrections, and can therefore be entered into the database as a corrected meter reading. The EMI Receiver was operated with a resolution bandwidth of 120 kHz for measurements below 1 GHz (video bandwidth of 300 kHz), and a bandwidth of 1 MHz for measurements above 1 GHz (video bandwidth of 1 MHz).

### **5.4 - Test Results**

The EUT was found to **MEET** the Radiated Emissions requirements of Title 47 CFR, FCC Part 15.247 and Canada RSS-247, Issue 1, for a DTS transmitter. The frequencies with significant RF signal strength were recorded and plotted as shown in the Data Charts and Graphs.

Prepared For: Quietyme, Inc.	Model #: STONE 16	Report #: 315155 A
EUT: Quietyme STONE	Serial #: Radiated: Rev 6 Board #3, Rev 6 Board #6 Conducted: Rev 6 Board #1	LSR Job #: C-2240

## **5.5 - Calculation of Radiated Emissions Limits and reported data.**

### **Reported data:**

For both fundamental and spurious emissions measurement, the data reported includes all necessary correction factors. These correction factors are loaded onto the EMI receiver when measurements are performed.

**Reported Measurement data = Raw receiver measurement (dB $\mu$ V/m) + Antenna correction Factor + Cable factor (dB) + Miscellaneous factors when applicable (dB) – amplification factor when applicable (dB).**

### **Generic example of reported data at 200 MHz:**

**Reported Measurement data = 18.2 (raw receiver measurement ) + 15.8 (antenna factor) + 1.45 (cable factor) = 35.45 (dB $\mu$ V/m).**

As specified in 15.247 (d), radiated emissions that fall within the restricted band described in 15.205(c), must comply with the general emissions limit.

The following table depicts the general radiated emission limits above 30 MHz. These limits are obtained from Title 47 CFR, Part 15.209, for radiated emissions measurements. These limits were applied to any signals found in the 15.205 restricted bands. The mentioned limits correspond to those limits listed in RSS GEN.

Frequency (MHz)	3 m Limit $\mu$ V/m	3 m Limit (dB $\mu$ V/m)	1 m Limit (dB $\mu$ V/m)
30-88	100	40.0	-
88-216	150	43.5	-
216-960	200	46.0	-
960-40,000	500	54.0	63.5

Sample conversion of field strength ( $\mu$ V/m to dB $\mu$ V/m):

$\text{dB}\mu\text{V/m} = 20 \log_{10} (100) = 40 \text{ dB}\mu\text{V/m}$  (from 30-88 MHz)

**Per KDB 558074 section 10, an EIRP measurement can be converted to field strength using this relationship:**

$\text{EIRP} = E$  (electric field strength in dB $\mu$ V/m) + 20log(d)-104.8

$E = \text{EIRP} - 20\log(d) + 104.8$

Sample conversion:

For EIRP = -56.6 dBm,

$E$  (dB $\mu$ V/m) = -56.6 – 20log(3m) +104.8 = 38.7 dB $\mu$ V/m

For EIRP = -60.9 dBm,

$E$  (dB $\mu$ V/m) = -60.9 – 20log(3m) + 104.8 = 34.4 dB $\mu$ V/m

Prepared For: Quietyme, Inc.	Model #: STONE 16	Report #: 315155 A
EUT: Quietyme STONE	Serial #: Radiated: Rev 6 Board #3, Rev 6 Board #6 Conducted: Rev 6 Board #1	LSR Job #: C-2240

## 5.6 - Data:

Manufacturer:	Quietyme, Inc.					
Date(s) of Test:	8/25/15 – 9/1/15					
Project Engineer(s):	Khairul Aidi Zainal					
Test Engineer(s):	Khairul Aidi Zainal					
Voltage:	5VDC via generic AC/DC adapter and rechargeable battery					
Operation Mode:	continuous transmit, modulated					
Environmental Conditions in the Lab:	Temperature: 70° F Relative Humidity: 32%					
EUT Power:	X	5VDC via AC/DC adapter		3 Phase ____VAC		
	X	Battery		Other: Bench DC Supply		
EUT Placement:	X	80cm non-conductive pedestal	X	150cm non-conductive pedestal		
EUT Test Location:	X	3 Meter Semi-Anechoic FCC Listed Chamber		3/10m OATS		
Measurements:		Pre-Compliance		Preliminary	X	Final
Detectors Used:	X	Peak	X	Quasi-Peak	X	Average

DATA PRESENTED ON THE NEXT PAGE

Prepared For: Quietyme, Inc.	Model #: STONE 16	Report #: 315155 A
EUT: Quietyme STONE	Serial #: Radiated: Rev 6 Board #3, Rev 6 Board #6 Conducted: Rev 6 Board #1	LSR Job #: C-2240

A. EUT powered via AC/DC adapter

Frequency (MHz)	Ant	EUT	Height (cm)	Azimuth (°)	Peak (dBuV/m)	Q.Peak (dBuV/m)	Average (dBuV/m)	Peak limit (dBuV/m)	Q.Peak limit (dBuV/m)	Average limit (dBuV/m)	Peak margin (dB)	Q.Peak margin (dB)	Average margin (dB)	Notes
4810.0	H	S	106.4	340	44.5	N/A	39.1	74.0	N/A	54.0	29.5	N/A	14.9	
4880.0	H	S	241.1	340	44.2	N/A	38.7	74.0	N/A	54.0	29.8	N/A	15.3	
7320.0	H	V	245.0	50	50.8	N/A	43.9	74.0	N/A	54.0	23.2	N/A	10.1	
4950.0	H	V	280.9	39	43.2	N/A	38.4	74.0	N/A	54.0	30.8	N/A	15.6	
7425.0	H	V	264.9	41	50.0	N/A	42.6	74.0	N/A	54.0	24.0	N/A	11.4	
40.0	H	V	100.0	0	28.3	23.4	15.5	N/A	40.0	N/A	N/A	16.6	N/A	NOTE 1
100.0	H	V	100.0	0	26.1	20.3	12.8	N/A	43.0	N/A	N/A	22.7	N/A	NOTE 1
75.6	V	V	100.0	170	30.8	22.6	12.6	N/A	40.0	N/A	N/A	17.4	N/A	
51.9	V	V	100.0	336	29.1	23.0	14.0	N/A	40.0	N/A	N/A	17.0	N/A	
300.0	H	H	100.0	0	24.1	18.2	10.3	N/A	46.0	N/A	N/A	27.8	N/A	NOTE 1
800.0	H	V	100.0	0	29.8	25.1	17.3	N/A	46.0	N/A	N/A	20.9	N/A	NOTE 1
900.0	V	V	100.0	0	31.6	26.2	18.4	N/A	46.0	N/A	N/A	19.8	N/A	NOTE 1

B. EUT powered via rechargeable battery

Frequency (MHz)	Ant	EUT	Height (cm)	Azimuth (°)	Peak (dBuV/m)	Q.Peak (dBuV/m)	Average (dBuV/m)	Peak limit (dBuV/m)	Q.Peak limit (dBuV/m)	Average limit (dBuV/m)	Peak margin (dB)	Q.Peak margin (dB)	Average margin (dB)	Notes
4880.0	V	F	100.0	322	45.3	N/A	40.2	74.0	N/A	54.0	28.7	N/A	13.8	
7320.0	H	V	235.7	24	50.5	N/A	43.0	74.0	N/A	54.0	23.5	N/A	11.0	
7425.0	H	V	233.9	39	50.3	N/A	42.6	74.0	N/A	54.0	23.7	N/A	11.4	
4810.0	V	F	131.0	330	46.0	N/A	40.6	74.0	N/A	54.0	28.0	N/A	13.4	
4950.0	V	F	100.0	317	45.0	N/A	39.3	74.0	N/A	54.0	29.0	N/A	14.7	

Notes:

1. Measurement of system noise floor
2. H: Horizontal, V: Vertical, S: Side, F: Flat.
3. Refer to exhibit 5.5 on explanation of how data is reported.

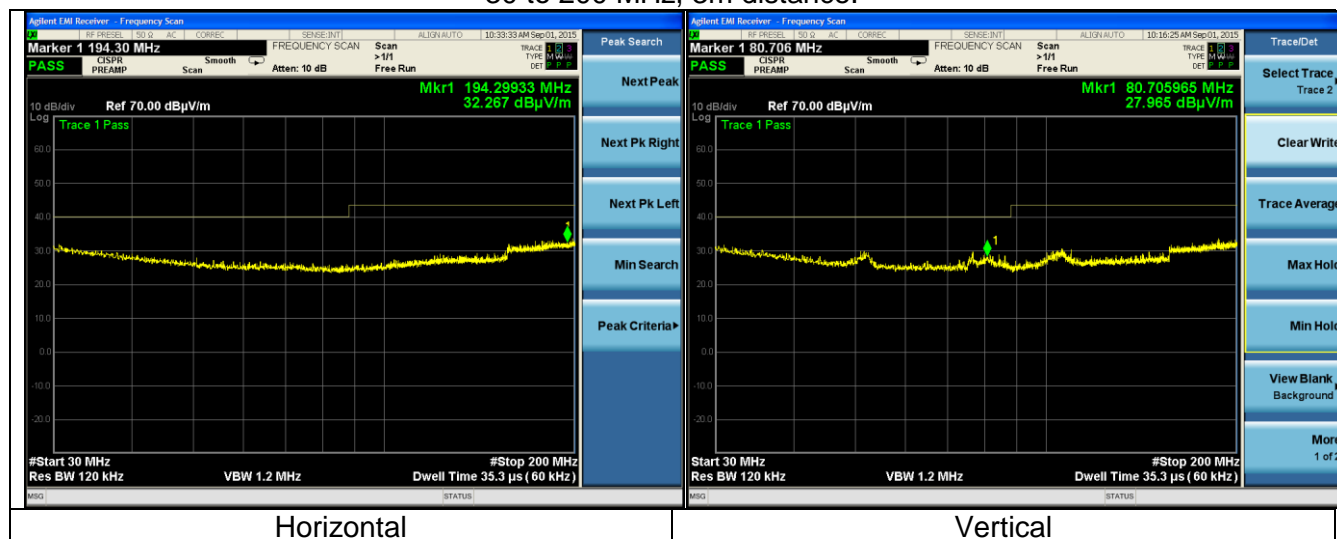
Prepared For: Quietyme, Inc.	Model #: STONE 16	Report #: 315155 A
EUT: Quietyme STONE	Serial #: Radiated: Rev 6 Board #3, Rev 6 Board #6 Conducted: Rev 6 Board #1	LSR Job #: C-2240



## 5.7 – Screen Captures.

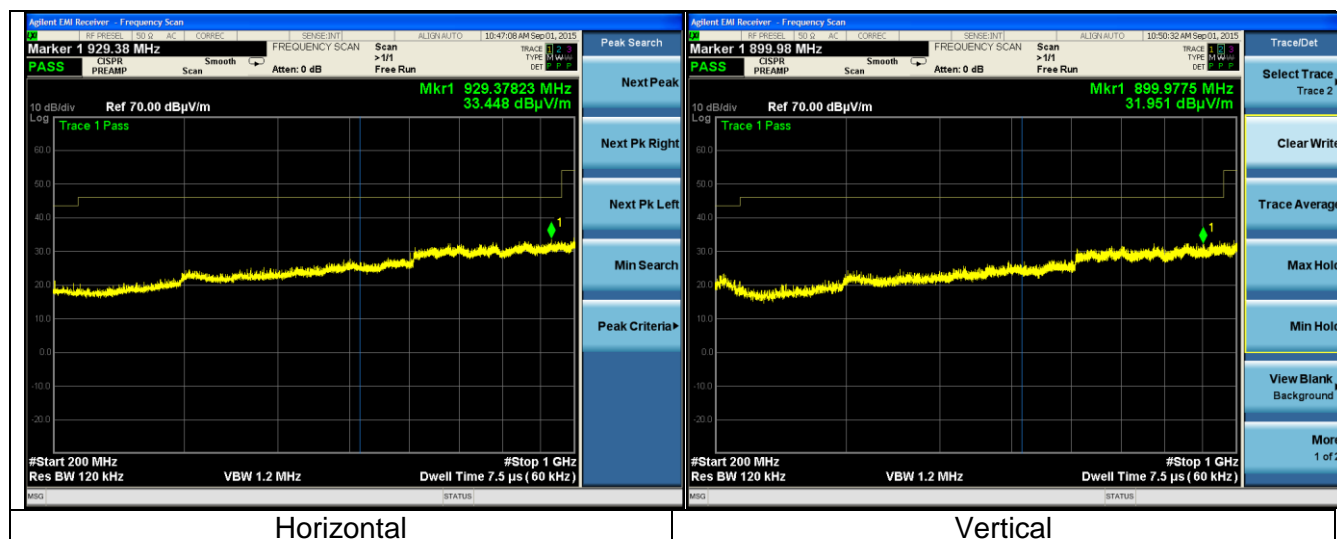
The screen captures below are those using the Peak detector of the analyzer. In addition, the screen captures presented are those which were deemed to be an appropriate representation of the spectrum scan.

30 to 200 MHz, 3m distance.



Plot presented above is of worst case, which is when EUT powered by generic AC/DC adapter.

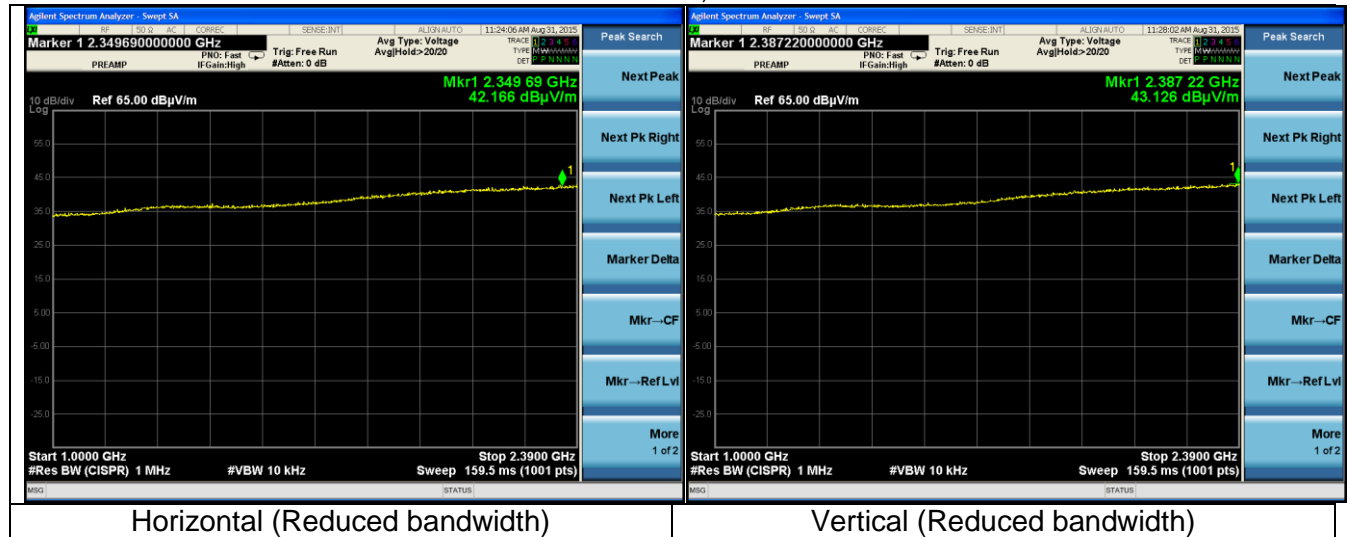
200 to 1000 MHz, 3m distance.



Plot presented above is of worst case, which is when EUT powered by generic AC/DC adapter.

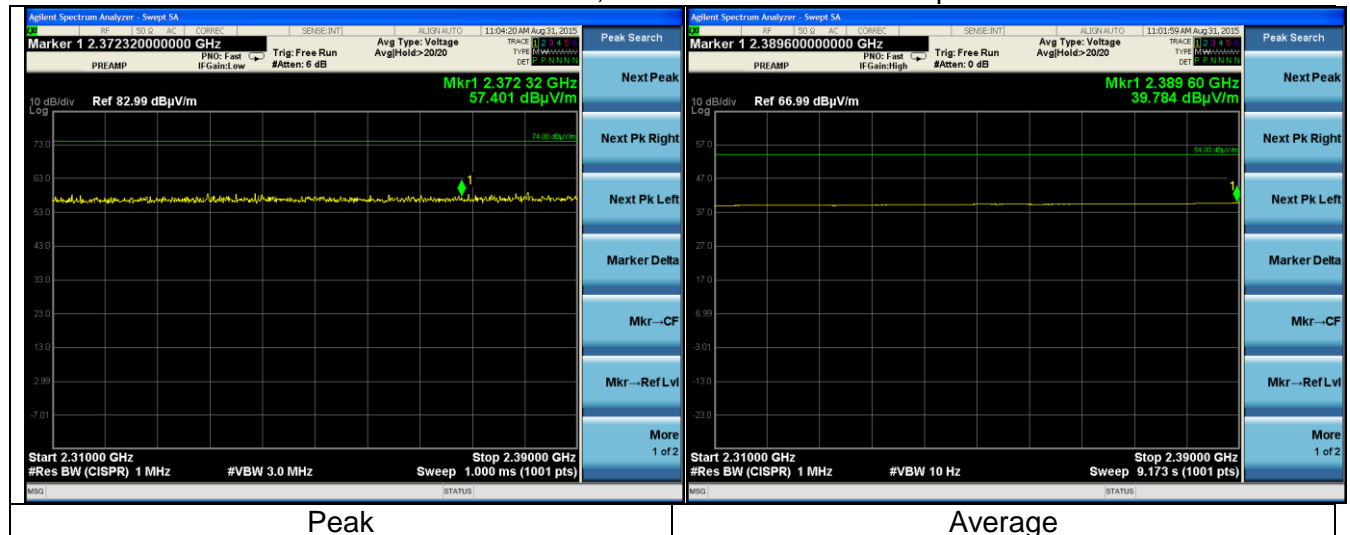
Prepared For: Quietyme, Inc.	Model #: STONE 16	Report #: 315155 A
EUT: Quietyme STONE	Serial #: Radiated: Rev 6 Board #3, Rev 6 Board #6 Conducted: Rev 6 Board #1	LSR Job #: C-2240

1000 to 2390 MHz, 3m distance.



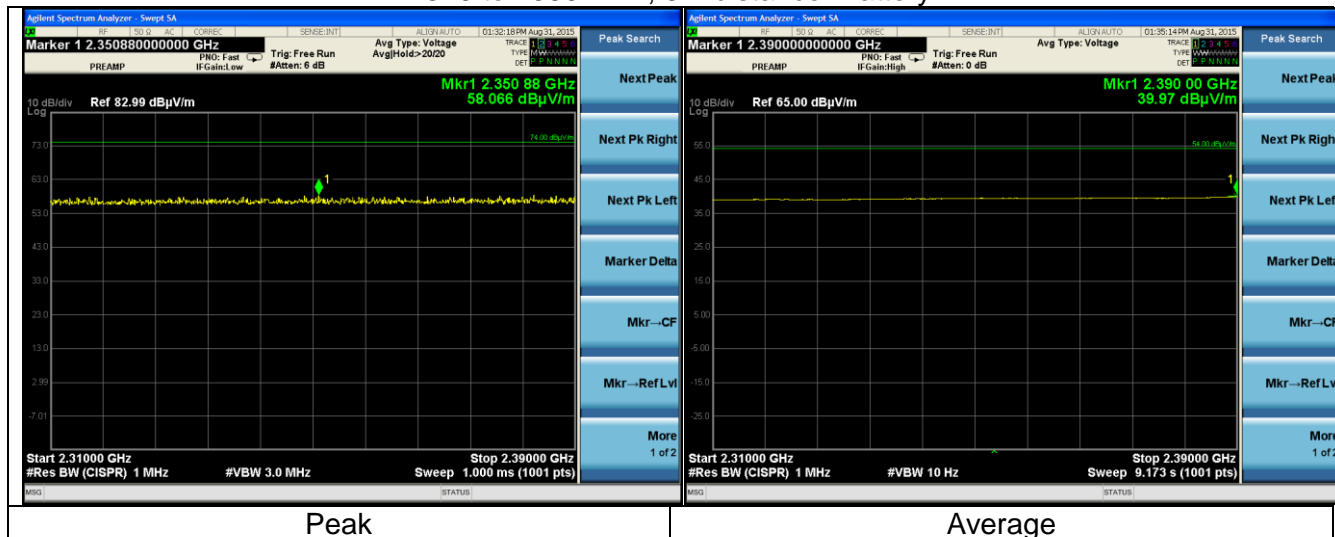
Plot presented above is of worst case, which is when EUT powered by generic AC/DC adapter.

2310 to 2390 MHz, 3m distance: AC/DC adapter

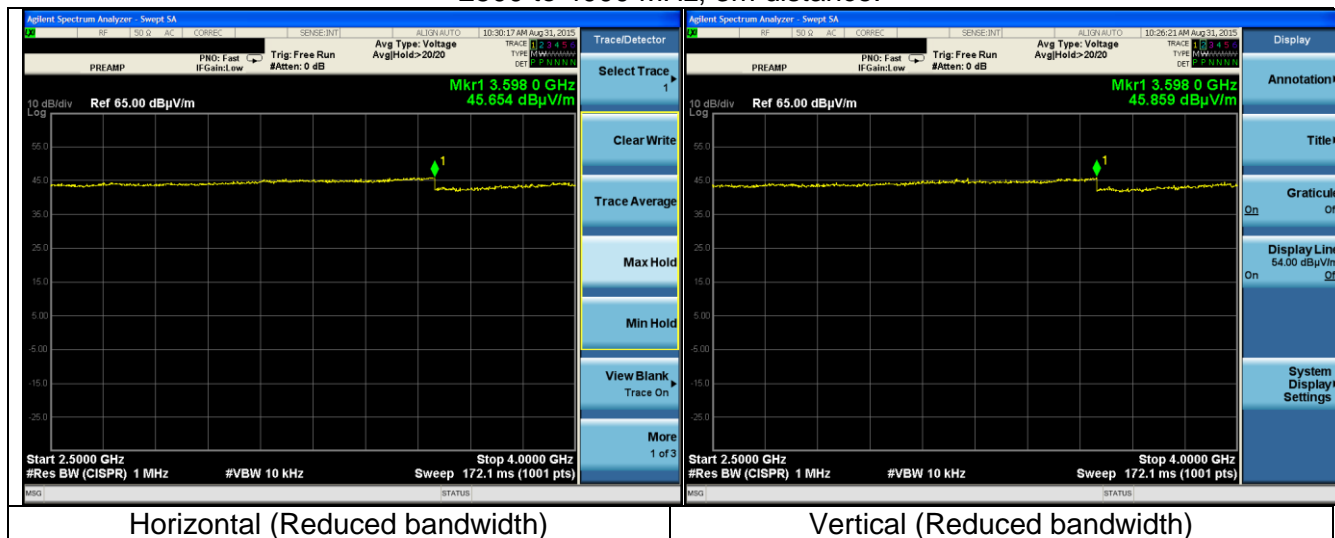


Prepared For: Quietyme, Inc.	Model #: STONE 16	Report #: 315155 A
EUT: Quietyme STONE	Serial #: Radiated: Rev 6 Board #3, Rev 6 Board #6 Conducted: Rev 6 Board #1	LSR Job #: C-2240

### 2310 to 2390 MHz, 3m distance: Battery



### 2500 to 4000 MHz, 3m distance.

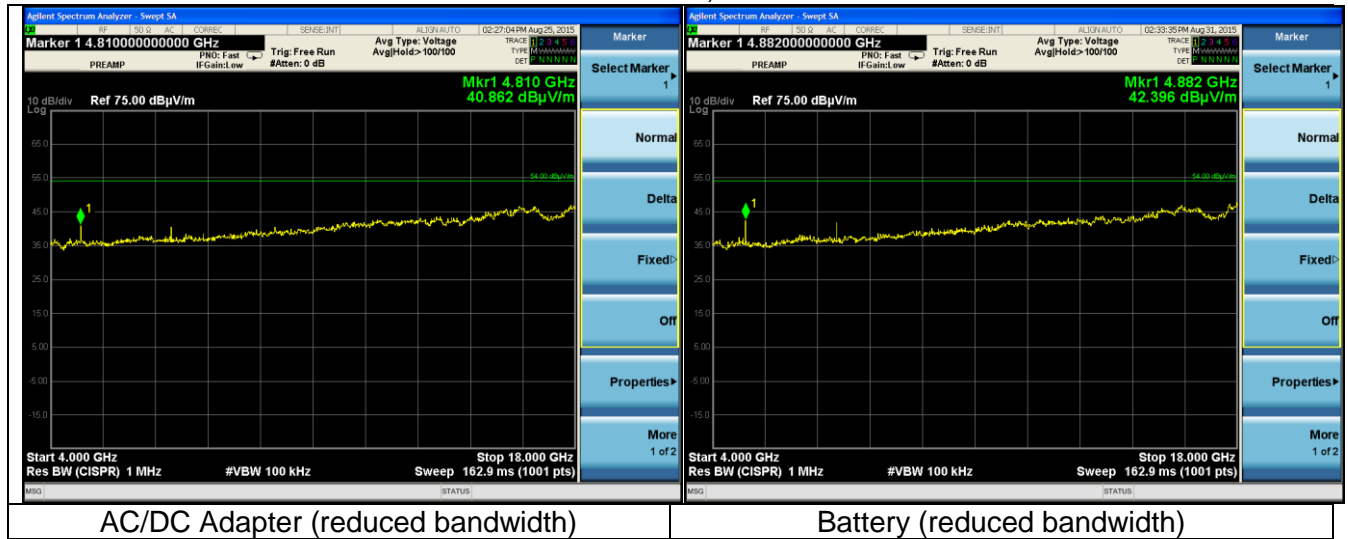


Plot presented above is of worst case, which is when EUT powered by generic AC/DC adapter.

*Note: The range 2483.5 to 2500 MHz is in section 8 of this report (Band-edges).*

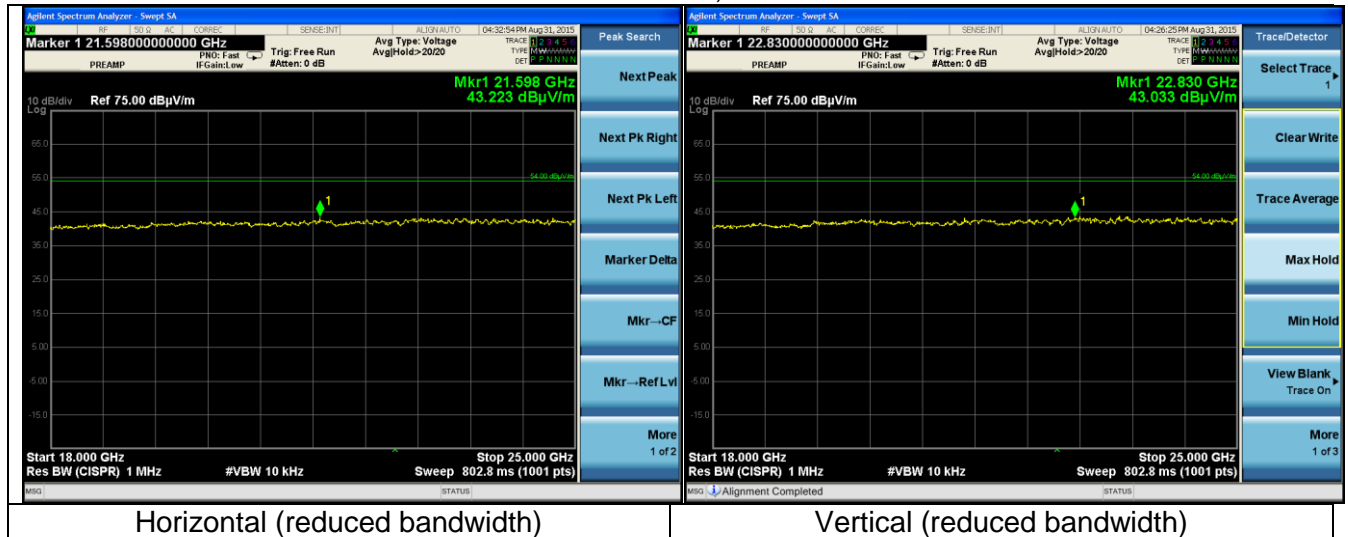
Prepared For: Quietyme, Inc.	Model #: STONE 16	Report #: 315155 A
EUT: Quietyme STONE	Serial #: Radiated: Rev 6 Board #3, Rev 6 Board #6 Conducted: Rev 6 Board #1	LSR Job #: C-2240

4000 to 18000 MHz, 3m distance.



The plots do not represent emissions that have been maximized.

18000 to 25000 MHz, 3m distance.



Plot presented above is of worst case, which is when EUT powered by generic AC/DC adapter.

Prepared For: Quietyme, Inc.	Model #: STONE 16	Report #: 315155 A
EUT: Quietyme STONE	Serial #: Radiated: Rev 6 Board #3, Rev 6 Board #6 Conducted: Rev 6 Board #1	LSR Job #: C-2240

## EXHIBIT 6. CONDUCTED EMISSIONS TEST, AC POWER LINE

### 6.1 Test Setup

The test area and setup are in accordance with ANSI C63.4 and with Title 47 CFR, FCC Part 15, Industry Canada RSS GEN. The EUT was placed on a non-conductive table, with a height of 80 cm above the reference ground plane. The power supply was then plugged into a 50Ω (ohm), Line Impedance Stabilization Network (LISN). The AC power supply of 120V was provided via an appropriate broadband EMI Filter, and then to the LISN line input. Final readings were then taken and recorded. After the EUT was setup and connected to the LISN, the RF Sampling Port of the EMI receiver System. The LISN used has the ability to terminate the unused port with a 50Ω (ohm) load when switched to either L1 (line) or L2 (neutral).

The EUT was powered via a generic AC/DC adapter

### 6.2 Test Procedure

The EUT was investigated in continuous modulated transmit mode for this portion of the testing. The appropriate frequency range and bandwidths were selected on the EMI Receiver, and measurements were made. The bandwidth used for these measurements is 9 kHz, as specified in CISPR 16-1, Section 1, Table 1, for Quasi-Peak and Average detectors in the frequency range of 150 kHz to 30 MHz. Final readings were then taken and recorded.

### 6.3 Test Equipment Utilized

A list of the test equipment and accessories utilized for the Conducted Emissions test is provided in Appendix A. This list includes calibration information and equipment descriptions. All equipment is calibrated and used according to the operation manuals supplied by the manufacturers. Calibrations of the LISN and Limiter were performed at an IEC/ISO 17025 accredited calibration laboratory, traceable to the SI standard. All cables are calibrated and checked periodically for conformance. The emissions are measured on the EMI System, which has automatic correction for all factors stored in memory and allows direct readings to be taken.

### 6.4 Test Results

The EUT was found to **MEET** the Conducted Emission requirements of FCC Part 15.207 and RSS GEN 7.2.4 for Conducted Emissions for an Intentional Radiator. See the Data Charts and Graphs for more details of the test results.

Prepared For: Quietyme, Inc.	Model #: STONE 16	Report #: 315155 A
EUT: Quietyme STONE	Serial #: Radiated: Rev 6 Board #3, Rev 6 Board #6 Conducted: Rev 6 Board #1	LSR Job #: C-2240

## 6.5 FCC Limits of Conducted Emissions at the AC Mains Ports

Frequency Range (MHz)	Class B Limits (dBμV)		Measuring Bandwidth
	Quasi-Peak	Average	
0.150 -0.50 *	66-56	56-46	RBW = 9 kHz VBW ≥ 9 kHz for QP VBW = 1 Hz for Average
0.5 – 5.0	56	46	
5.0 – 30	60	50	
* The limit decreases linearly with the logarithm of the frequency in this range.			

Prepared For: Quietyme, Inc.	Model #: STONE 16	Report #: 315155 A
EUT: Quietyme STONE	Serial #: Radiated: Rev 6 Board #3, Rev 6 Board #6 Conducted: Rev 6 Board #1	LSR Job #: C-2240

## 6.6

### CONDUCTED EMISSIONS TEST DATA CHART

Frequency Range inspected: 150 KHz to 30 MHz

Manufacturer:	Quietyme, Inc.				
Date(s) of Test:	9/22/15				
Project Engineer:	Khairul Aidi Zainal				
Test Engineer:	Peter Feilen				
Voltage:	120 VAC				
Operation Mode:	Continuous transmit, modulated				
Environmental Conditions in the Lab:	Temperature: 71° F Relative Humidity: 40%				
Test Location:	X	AC Mains Test area			Chamber
EUT Placed On:	X	40cm from Vertical Ground Plane			10cm Spacers
	X	80cm above Ground Plane			Other:
Measurements:		Pre-Compliance		Preliminary	X Final
Detectors Used:		Peak	X	Quasi-Peak	X Average

#### 120VAC, 60Hz

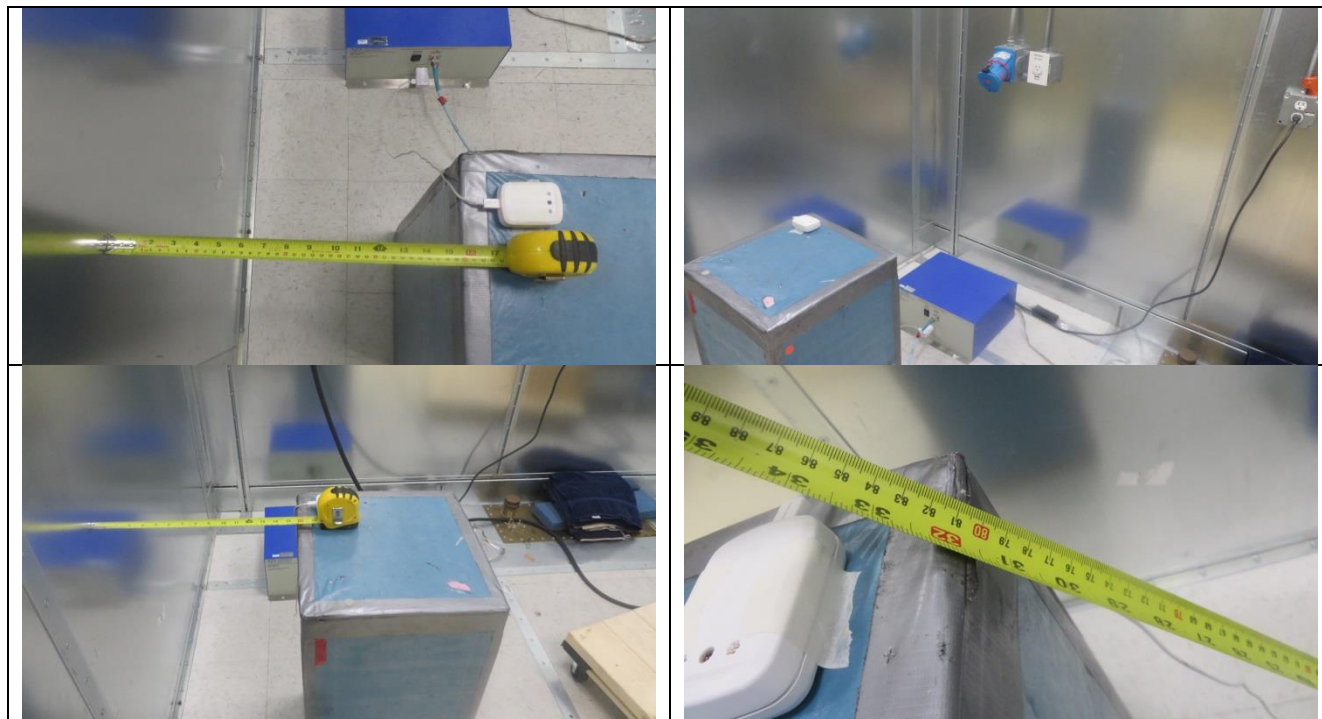
Frequency (MHz)	Line	Quasi-Peak			Average		
		Q-Peak Reading (dBμV)	Q-Peak Limit (dBμV)	Quasi-Peak Margin (dB)	Average Reading (dBμV)	Average Limit (dBμV)	Average Margin (dB)
0.154	1	43.0	65.8	22.8	32.6	55.8	23.2
0.217	1	40.6	62.9	22.3	30.1	52.9	22.8
0.555	1	31.2	56.0	24.8	22.6	46.0	23.4
0.163	2	33.8	65.3	31.5	22.6	55.3	32.7
0.214	2	31.7	63.0	31.3	20.8	53.0	32.2
0.554	2	30.6	56.0	25.4	21.0	46.0	25.0
0.150	2	34.3	66.0	31.7	22.9	56.0	33.1

#### Notes:

- 1) The emissions listed are characteristic of the power supply used and not that of the transmitter. Changing transmit channels did not change the emissions.

Prepared For: Quietyme, Inc.	Model #: STONE 16	Report #: 315155 A
EUT: Quietyme STONE	Serial #: Radiated: Rev 6 Board #3, Rev 6 Board #6 Conducted: Rev 6 Board #1	LSR Job #: C-2240

## 6.7 Test Setup Photo(s) – Conducted Emissions Test



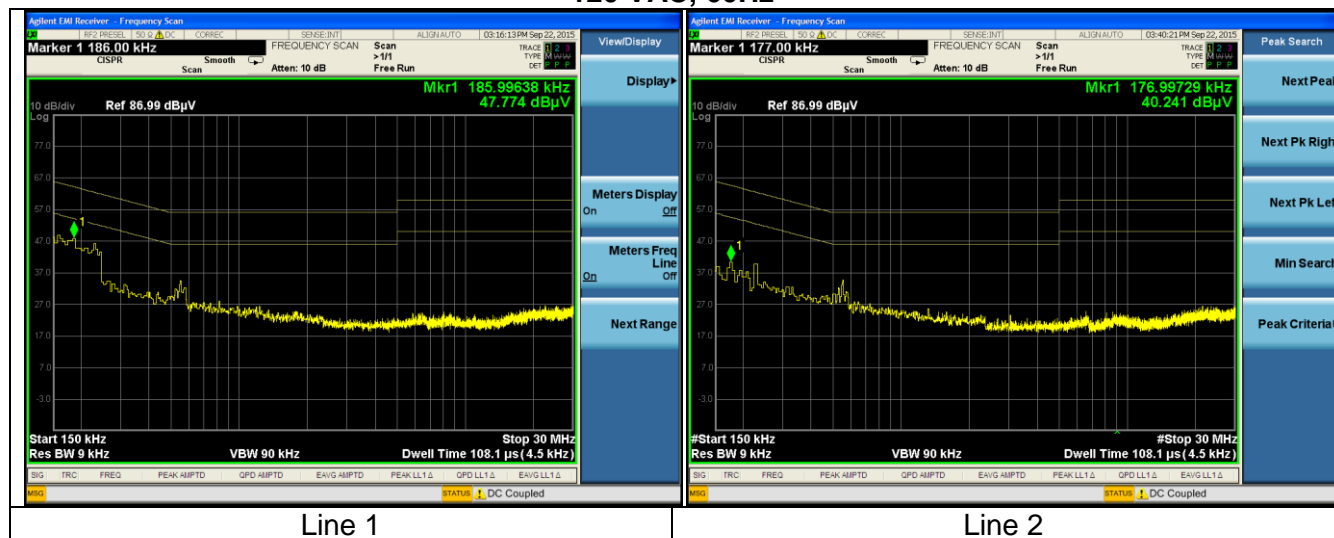
Prepared For: Quietyme, Inc.	Model #: STONE 16	Report #: 315155 A
EUT: Quietyme STONE	Serial #: Radiated: Rev 6 Board #3, Rev 6 Board #6 Conducted: Rev 6 Board #1	LSR Job #: C-2240



## 6.8 Screen Captures – Conducted Emissions Test

These screen captures represent Peak Emissions. For conducted emission measurements, both a Quasi-Peak detector function and an Average detector function are utilized.

120 VAC, 60Hz



Prepared For: Quietyme, Inc.	Model #: STONE 16	Report #: 315155 A
EUT: Quietyme STONE	Serial #: Radiated: Rev 6 Board #3, Rev 6 Board #6 Conducted: Rev 6 Board #1	LSR Job #: C-2240

## EXHIBIT 7. OCCUPIED BANDWIDTH

Test Engineer(s): Khairul Aidi Zainal

### **7.1 - Limits**

For a DTS system operating in the 2400 to 2483.5 MHz band, the 6dB emission bandwidth limit is 500 kHz.

### **7.2 - Method of Measurements**

For this portion of the tests, a direct measurement of the transmitted signal was performed at the antenna port of the EUT, via a cable connection to a spectrum analyzer. An attenuator was placed in series with the cable to protect the spectrum analyzer. The loss from the cable and the attenuator were added on the analyzer as gain offset settings there by allowing direct measurements, without the need for any further corrections. The EUT was configured to run in a continuous transmit mode, while being supplied with typical data as a modulation source. A bandwidth measurement function that is built into the spectrum analyzer was used to measure the 20dB/emission bandwidth while the 6dB bandwidth was measured using **FCC OET KDB 558074 section 8 option2**.

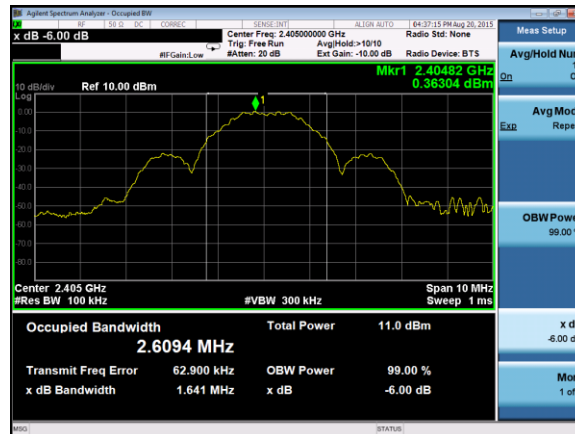
Prepared For: Quietyme, Inc.	Model #: STONE 16	Report #: 315155 A
EUT: Quietyme STONE	Serial #: Radiated: Rev 6 Board #3, Rev 6 Board #6 Conducted: Rev 6 Board #1	LSR Job #: C-2240

## 7.3 - Test Data

Channel (MHz)	6dB Bandwidth (kHz)	99% Bandwidth (MHz)	6dB Bandwidth minimum limit (kHz)
2405	1641.0	2.61	500.0
2440	1640.0	2.61	500.0
2475	1639.0	2.61	500.0

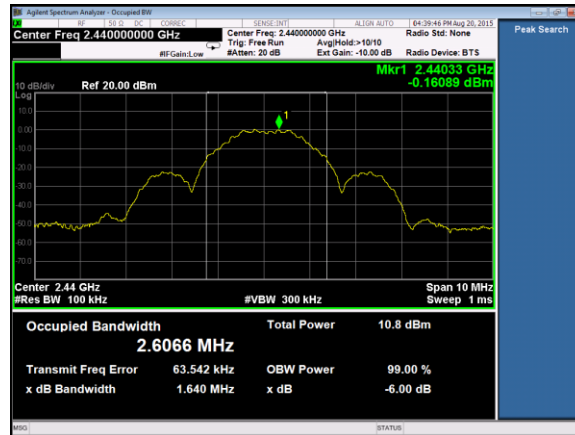
## 7.4 – Screen Captures

Low Channel

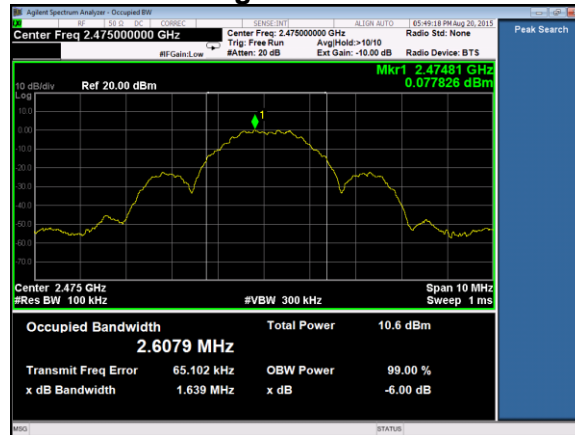


Prepared For: Quietyme, Inc.	Model #: STONE 16	Report #: 315155 A
EUT: Quietyme STONE	Serial #: Radiated: Rev 6 Board #3, Rev 6 Board #6 Conducted: Rev 6 Board #1	LSR Job #: C-2240

## Middle Channel



## High Channel



Prepared For: Quietyme, Inc.	Model #: STONE 16	Report #: 315155 A
EUT: Quietyme STONE	Serial #: Radiated: Rev 6 Board #3, Rev 6 Board #6 Conducted: Rev 6 Board #1	LSR Job #: C-2240

## EXHIBIT 8. BAND EDGE MEASUREMENTS

Test Engineer(s): Aidi Zainal

### **8.1 - Method of Measurements**

FCC 15.247 require a measurement of spurious emission levels at the restricted band to be compliant to the general emissions limit, in particular at the Band-Edges where the intentional radiator operates. The EUT was operated in continuous transmit mode with continuous modulation, with internally generated data as the modulating source. The EUT was operated at the lowest channel for the investigation of the lower Band-Edge, and at the highest channel for the investigation of the higher Band-Edge.

The Band-edge measurements were performed conducted (100kHz bandwidth) and radiated. The measurement of band-edge was performed to satisfy FCC 15.247(d).

**Per FCC KDB 558074 D01 Measurement Guidance v03r03 (section 11)**, conducted measurements were performed with 100 kHz bandwidth for all emissions outside of the band of operation. Emissions in the restricted band, a bandwidth of 120kHz (below 1000MHz) and 1MHz (above 1000MHz) were used in accordance with C63.4 and was performed radiated.

For both conducted and radiated measurements, correction factors and the cable loss factors were entered into the EMI Receiver database. **As a result, the plots taken from the EMI Receiver accounts for all applicable correction factor as well as cable loss, and can therefore be entered into the database as a corrected meter reading.**

### **8.2. Band edge screen captures.**

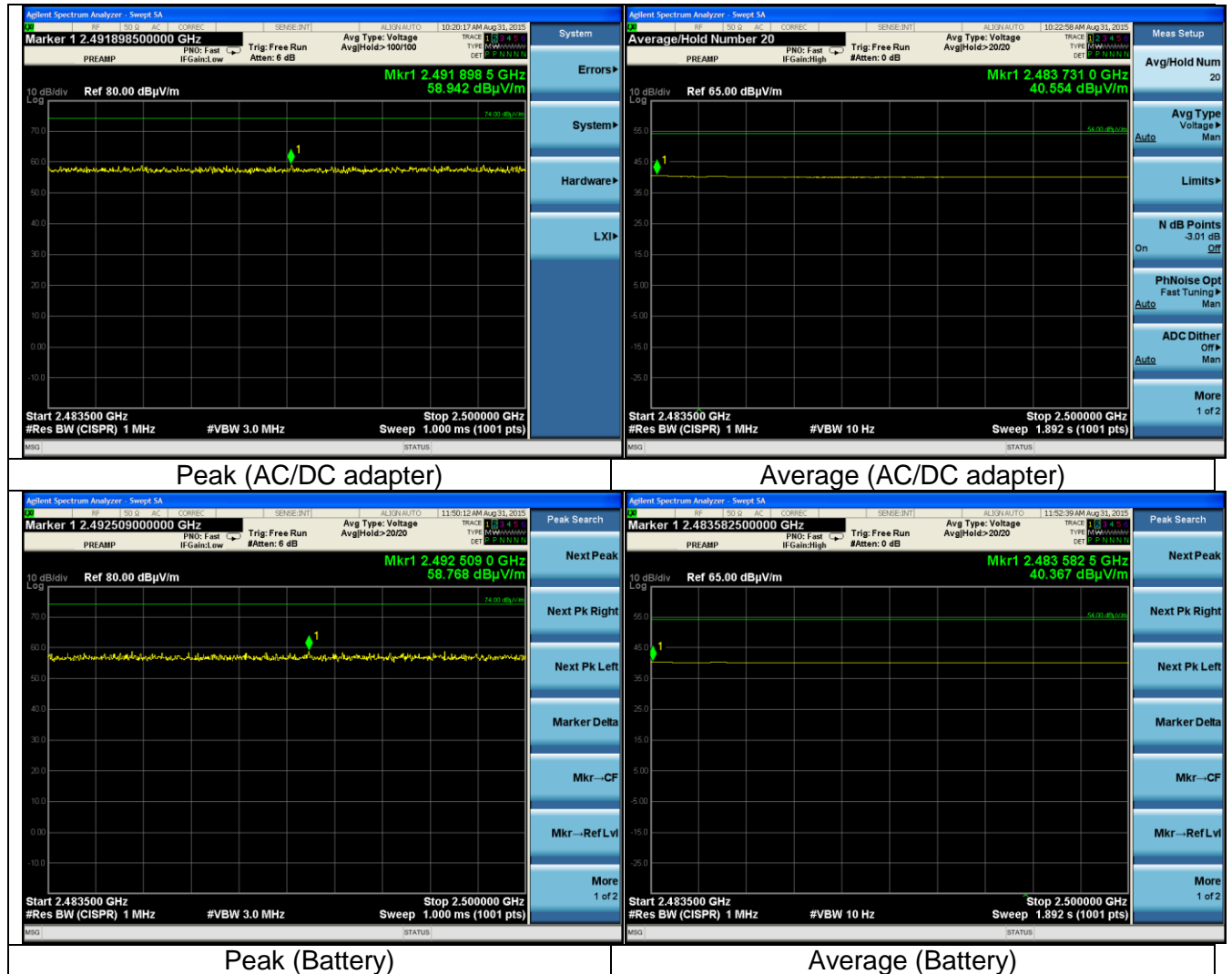
The data presented below are samples selected from the various data rates and channels tested.

Prepared For: Quietyme, Inc.	Model #: STONE 16	Report #: 315155 A
EUT: Quietyme STONE	Serial #: Radiated: Rev 6 Board #3, Rev 6 Board #6 Conducted: Rev 6 Board #1	LSR Job #: C-2240

## Band-edge in Restricted Band

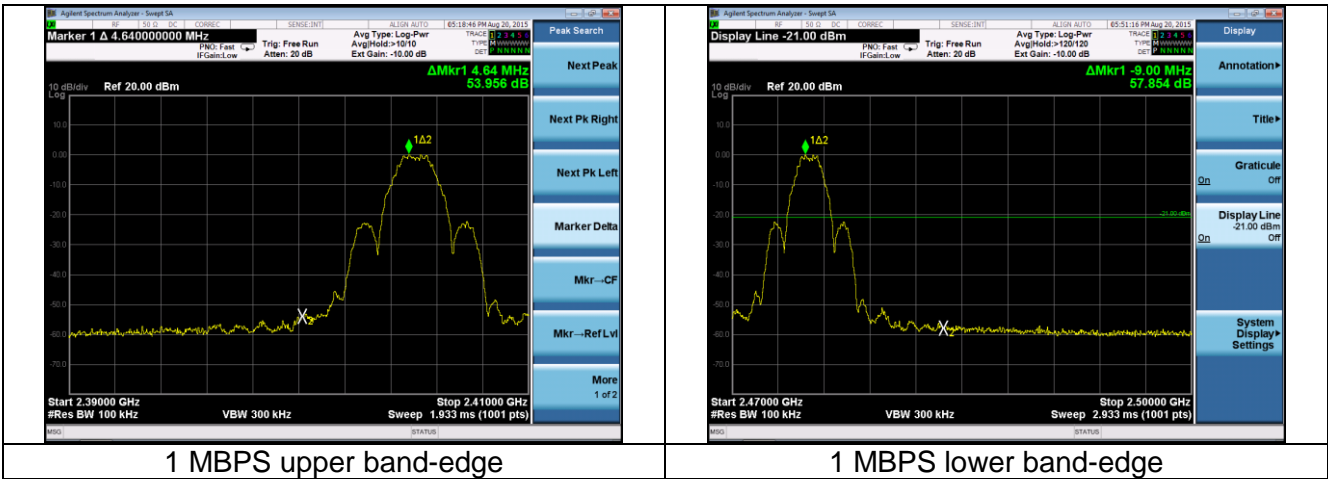
Radiated Band-edge in Restricted Band:

2483.5 to 2500 MHz Restricted band



Prepared For: Quietyme, Inc.	Model #: STONE 16	Report #: 315155 A
EUT: Quietyme STONE	Serial #: Radiated: Rev 6 Board #3, Rev 6 Board #6 Conducted: Rev 6 Board #1	LSR Job #: C-2240

Band-edge in 100kHz bandwidth.



Prepared For: Quietyme, Inc.	Model #: STONE 16	Report #: 315155 A
EUT: Quietyme STONE	Serial #: Radiated: Rev 6 Board #3, Rev 6 Board #6 Conducted: Rev 6 Board #1	LSR Job #: C-2240

## EXHIBIT 9. POWER OUTPUT (CONDUCTED): 15.247(b)

Test Engineer(s): Khairul Aidi Zainal

### **9.1 - Method of Measurements**

The conducted RF output power of the EUT was measured at the antenna port using a short RF cable along with an attenuator as protection for the spectrum analyzer. The loss from the cable and the attenuator were added on the analyzer as gain offset settings there by allowing direct measurements without the need for any further corrections. The unit was configured to run in a continuous transmit mode, while being supplied with typical data as a modulation source.

**Measurement procedure used was FCC OET KDB 558074 D01 Measurement Guidance v03r03 section 9.1.1**

### **9.2 - Test Data**

The data reported includes all necessary correction factors. These correction factors are loaded onto the EMI receiver when measurements are performed.

**Reported Measurement data = Raw receiver measurement (dBm) + Cable factor (dB) + Miscellaneous factors when applicable (dB).**

**Generic example of reported data at 2440 MHz:**

**Reported Measurement data = 8.55 (raw receiver measurement in dBm) + 0.85 (cable factor in dB) = 9.4 (dBm).**

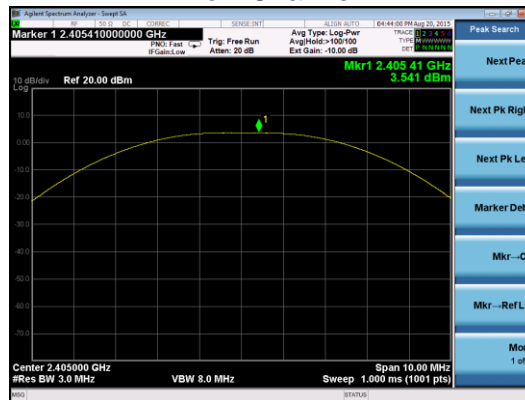
Channel (MHz)	Peak Conducted Power (dBm)	Power Limit (dBm)	Power margin (dB)
2405	3.5	30.0	26.5
2440	3.5	30.0	26.5
2475	3.3	30.0	26.7

Prepared For: Quietyme, Inc.	Model #: STONE 16	Report #: 315155 A
EUT: Quietyme STONE	Serial #: Radiated: Rev 6 Board #3, Rev 6 Board #6 Conducted: Rev 6 Board #1	LSR Job #: C-2240

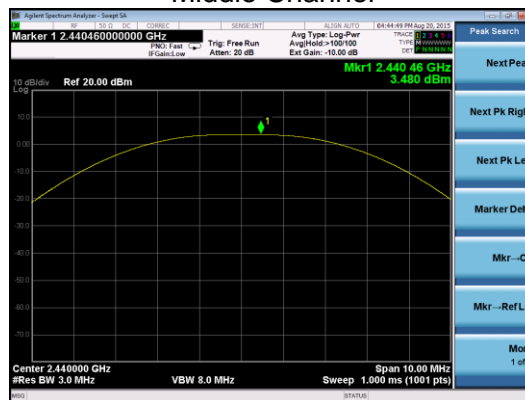


## 9.3 – Screen Captures.

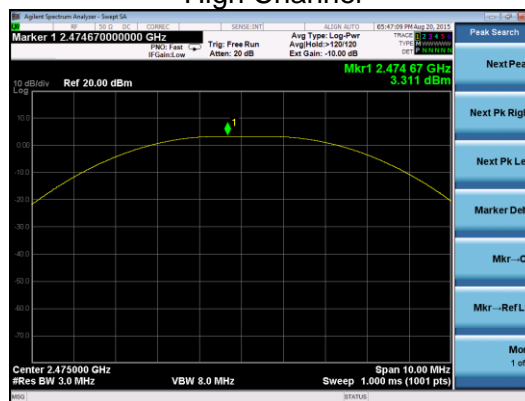
Low Channel



Middle Channel



High Channel



Prepared For: Quietyme, Inc.	Model #: STONE 16	Report #: 315155 A
EUT: Quietyme STONE	Serial #: Radiated: Rev 6 Board #3, Rev 6 Board #6 Conducted: Rev 6 Board #1	LSR Job #: C-2240

## EXHIBIT 10. CONDUCTED SPURIOUS EMISSIONS: 15.247(d)

Test Engineer(s): Khairul Aidi Zainal

### **10.1 - Limits**

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 db below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

### **10.2 - Conducted Harmonic And Spurious RF Measurements**

FCC Part 15.247(d) and IC RSS 210 A8.5 both require a measurement of conducted harmonic and spurious RF emission levels, as reference to the carrier level when measured in a 100 kHz bandwidth. For this test, the spurious and harmonic RF emissions from the EUT were measured at the EUT antenna port using a short RF cable along with an attenuator as protection for the spectrum analyzer. The loss from the cable and the attenuator were added on the analyzer as gain offset settings, thereby allowing direct readings of the measurements made without the need for any further corrections. A spectrum analyzer was used with the resolution bandwidth set to 100 kHz for this portion of the tests. The unit was configured to run in a continuous transmit mode, while being supplied with typical data as a modulation source. The spectrum analyzer was used with measurements from a peak detector presented in the chart below. Screen captures were acquired and any noticeable spurious and harmonic signals were identified and measured.

**Measurement procedure used was FCC OET KDB 558074 D01 Measurement Guidance v03r03 section 11.**

The data reported includes all necessary correction factors. These correction factors are loaded onto the EMI receiver when measurements are performed.

**Reported Measurement data = Raw receiver measurement (dBm) + Cable factor (dB) + Miscellaneous factors when applicable (dB).**

#### **Generic example of reported data at 2440 MHz:**

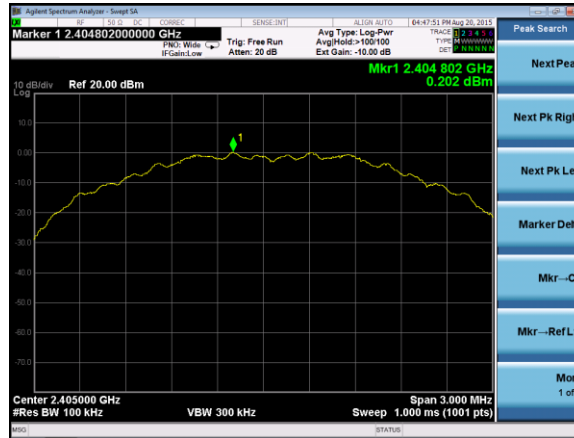
**Reported Measurement data = 8.55 (raw receiver measurement in dBm) + 0.85 (cable factor in dB) = 9.4 (dBm).**

Prepared For: Quietyme, Inc.	Model #: STONE 16	Report #: 315155 A
EUT: Quietyme STONE	Serial #: Radiated: Rev 6 Board #3, Rev 6 Board #6 Conducted: Rev 6 Board #1	LSR Job #: C-2240

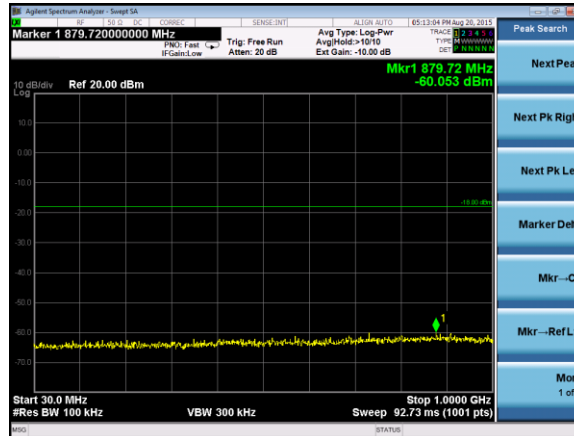
## 10.3 - Test Data

The data presented below are samples selected from the various data rates and channels tested.

Low Channel fundamental in 100 kHz:

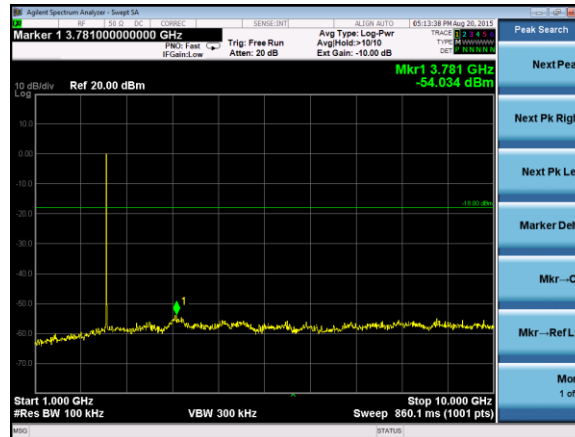


30MHz to 1000MHz



Prepared For: Quietyme, Inc.	Model #: STONE 16	Report #: 315155 A
EUT: Quietyme STONE	Serial #: Radiated: Rev 6 Board #3, Rev 6 Board #6 Conducted: Rev 6 Board #1	LSR Job #: C-2240

## 1000MHz to 10000MHz

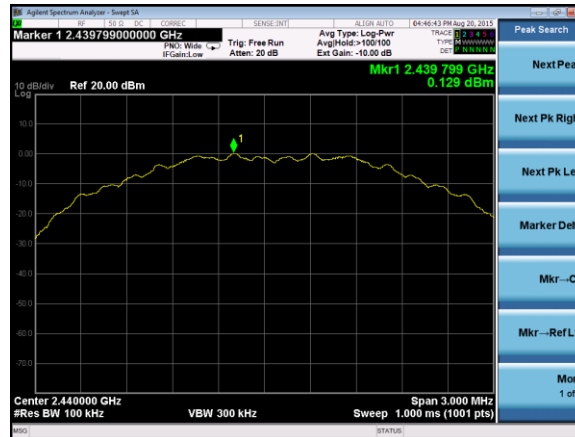


## 10000 to 25000MHz

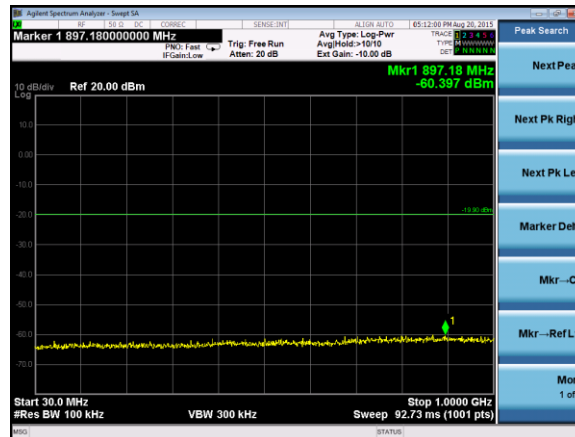


Prepared For: Quietyme, Inc.	Model #: STONE 16	Report #: 315155 A
EUT: Quietyme STONE	Serial #: Radiated: Rev 6 Board #3, Rev 6 Board #6 Conducted: Rev 6 Board #1	LSR Job #: C-2240

Middle Channel fundamental in 100 kHz:



30MHz to 1000MHz

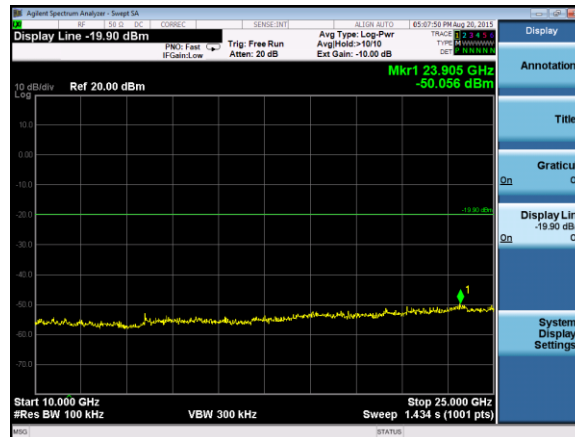


Prepared For: Quietyme, Inc.	Model #: STONE 16	Report #: 315155 A
EUT: Quietyme STONE	Serial #: Radiated: Rev 6 Board #3, Rev 6 Board #6 Conducted: Rev 6 Board #1	LSR Job #: C-2240

## 1000MHz to 10000MHz

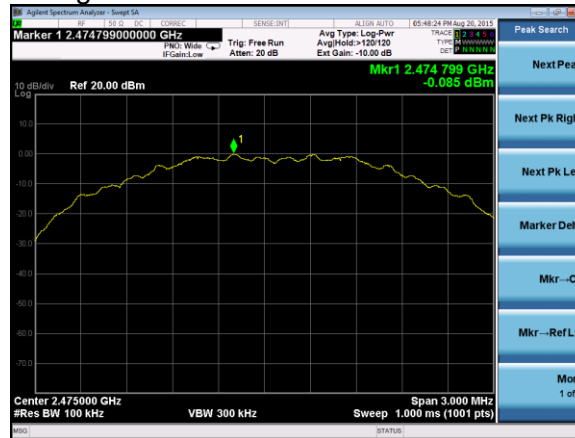


## 10000MHz to 25000MHz

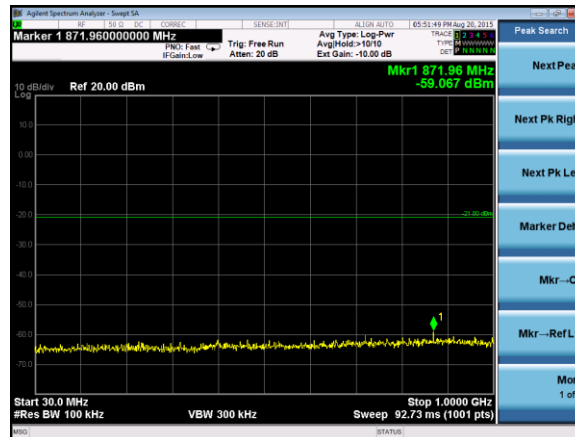


Prepared For: Quietyme, Inc.	Model #: STONE 16	Report #: 315155 A
EUT: Quietyme STONE	Serial #: Radiated: Rev 6 Board #3, Rev 6 Board #6 Conducted: Rev 6 Board #1	LSR Job #: C-2240

## High Channel fundamental in 100 kHz:

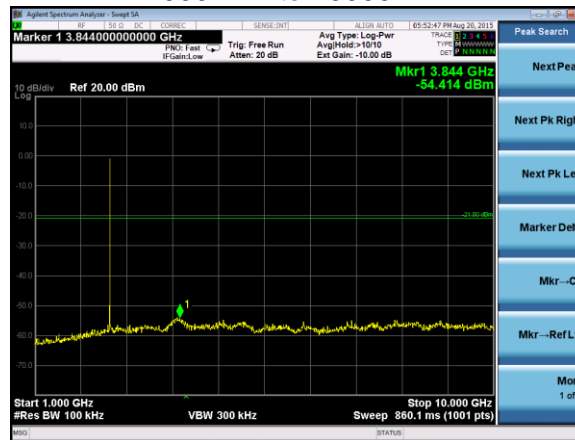


## 30MHz to 1000MHz



Prepared For: Quietyme, Inc.	Model #: STONE 16	Report #: 315155 A
EUT: Quietyme STONE	Serial #: Radiated: Rev 6 Board #3, Rev 6 Board #6 Conducted: Rev 6 Board #1	LSR Job #: C-2240

### 1000MHz to 10000MHz



### 10000MHz to 25000MHz



Prepared For: Quietyme, Inc.	Model #: STONE 16	Report #: 315155 A
EUT: Quietyme STONE	Serial #: Radiated: Rev 6 Board #3, Rev 6 Board #6 Conducted: Rev 6 Board #1	LSR Job #: C-2240



## EXHIBIT 11. POWER SPECTRAL DENSITIES: 15.247(e)

### **11.1 Limits**

For digitally modulate systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

In accordance with FCC Part 15.247(e) and RSS 210 A8.2(b), the peak power spectral density should not exceed +8 dBm in any 3 kHz band. This measurement was performed along with the conducted power output readings performed as described in previous sections. The peak output frequency for each representative frequency was scanned, with a narrow bandwidth, and reduced sweep, and a power density measurement was performed.

**Measurement procedure used was FCC OET KDB 558074 D01 Measurement Guidance v03r03 section 10.1.**

The data reported includes all necessary correction factors. These correction factors are loaded onto the EMI receiver when measurements are performed.

**Reported Measurement data = Raw receiver measurement (dBm) + Cable factor (dB) + Miscellaneous factors when applicable (dB).**

**Generic example of reported data at 2440 MHz:**

**Reported Measurement data = 8.55 (raw receiver measurement in dBm ) + 0.85 (cable factor in dB) = 9.4 (dBm).**

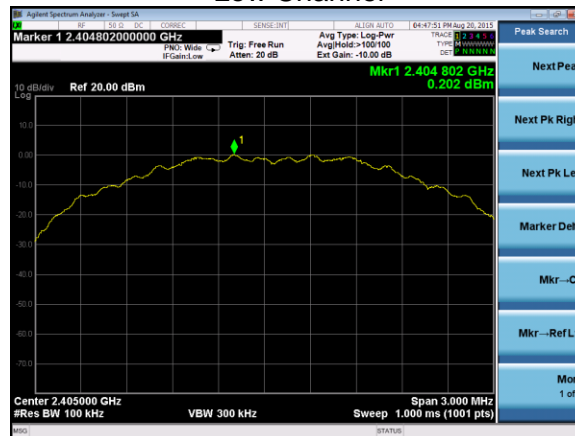
Prepared For: Quietyme, Inc.	Model #: STONE 16	Report #: 315155 A
EUT: Quietyme STONE	Serial #: Radiated: Rev 6 Board #3, Rev 6 Board #6 Conducted: Rev 6 Board #1	LSR Job #: C-2240

## 11.2 Test Data

Channel (MHz)	Peak PSD in 100kHz (dBm)	PSD in 3kHz limit(dBm)	PSD margin (dBm)
2405	0.2	8.0	7.8
2440	0.1	8.0	7.9
2475	-0.1	8.0	8.1

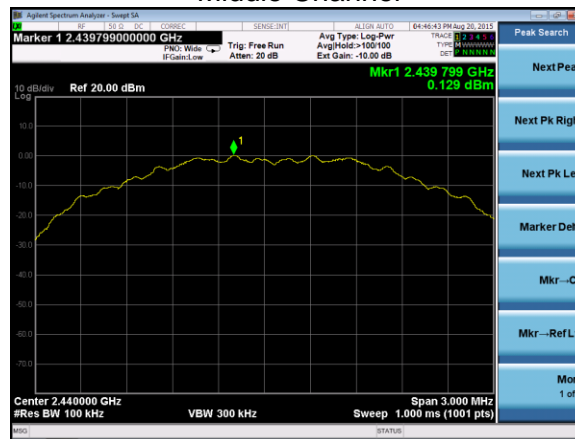
## 11.3 Screen Captures – Power Spectral Density

Low Channel

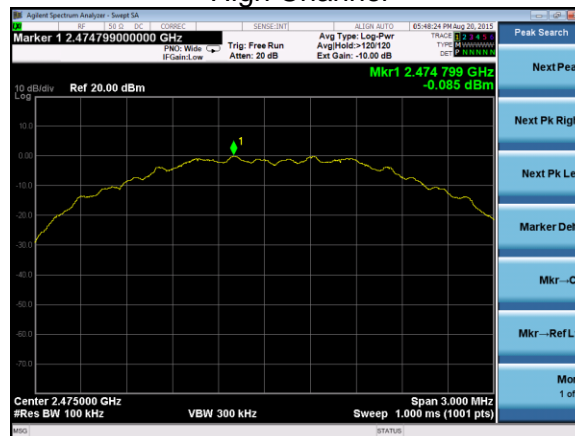


Prepared For: Quietyme, Inc.	Model #: STONE 16	Report #: 315155 A
EUT: Quietyme STONE	Serial #: Radiated: Rev 6 Board #3, Rev 6 Board #6 Conducted: Rev 6 Board #1	LSR Job #: C-2240

### Middle Channel



### High Channel



Prepared For: Quietyme, Inc.	Model #: STONE 16	Report #: 315155 A
EUT: Quietyme STONE	Serial #: Radiated: Rev 6 Board #3, Rev 6 Board #6 Conducted: Rev 6 Board #1	LSR Job #: C-2240

## EXHIBIT 12. FREQUENCY STABILITY OVER VOLTAGE VARIATIONS

Test Engineer(s): Khairul Aidi Zainal

The frequency stability of the device was examined as a function of the input voltage available to the EUT. A Spectrum Analyzer was used to measure the RF output power and frequency at the appropriate frequency markers. Power was supplied by an external bench-type DC power supply via a modified micro USB cable and was varied  $\pm 15\%$  from the nominal.

The power was then cycled On/Off to observe system response. No unusual response was observed, the emission characteristics were well behaved, and the system returned to the same state of operation as before the power cycle.

	4.25VDC	5.0VDC	5.75VDC	
	FREQUENCY (Hz)	FREQUENCY (Hz)	FREQUENCY (Hz)	FREQ DRIFT (Hz)
LOW CHANNEL	2405052031	2405052766	2405052351	735
MID CHANNEL	2440052833	2440052965	2440052839	132
HIGH CHANNEL	2475053608	2475053769	2475053667	161

Prepared For: Quietyme, Inc.	Model #: STONE 16	Report #: 315155 A
EUT: Quietyme STONE	Serial #: Radiated: Rev 6 Board #3, Rev 6 Board #6 Conducted: Rev 6 Board #1	LSR Job #: C-2240

## APPENDIX A – Test Equipment List



Date : 23-Sep-2015

Type Test : AC Mains

Job # : C-2240

Prepared By: Aidi

Customer : Quietyme

Quote #: 315155

No.	Asset #	Description	Manufacturer	Model #	Serial #	Cal Date	Cal Due Date	Equipment Status
1	EE 960088	8GHz MXE Spectrum Analyzer	Agilent	N9038A	MY51210138	1/9/2015	1/9/2016	Active Calibration
2	EE 960162	LISN - 15A	COM-POWER	LI-215A	191969	7/24/2015	7/24/2016	Active Calibration



Date : 23-Sep-2015

Type Test : Radiated Emissions and conducted measurement

Job # : C-2240

Prepared By: Aidi

Customer : Quietyme

Quote #: 315155

No.	Asset #	Description	Manufacturer	Model #	Serial #	Cal Date	Cal Due Date	Equipment Status
1	EE 960085	N9038A MXE 26.5GHz Receiver	Agilent	N9038A	MY51210148	5/6/2015	5/6/2016	Active Calibration
2	EE 960087	44GHz EXA Spectrum Analyzer	Agilent	N9010A	MY53400296	12/11/2014	12/11/2015	Active Calibration
3	AA 960005	Biconical Antenna	EMCO	93110B	9601-2280	8/6/2015	8/6/2016	Active Calibration
4	AA 960078	Log Periodic Antenna	EMCO	93146	9701-4855	1/19/2015	1/19/2016	Active Calibration
5	AA 960158	Double Ridge Horn Antenna	ETS Lindgren	3117	109300	7/9/2015	7/9/2016	Active Calibration
6	EE 960159	0.8 - 21GHz LNA	Mini-Circuits	ZVA-213X-S+	740411007	7/9/2015	7/9/2016	Active Calibration
7	AA 960143	Phaseflex	Gore	EKD01D01048.0	5546519	6/26/2015	6/26/2017	Active Calibration
8	AA 960144	Phaseflex	Gore	EKD01D010720	5800373	Verification	Verification	System
9	EE 960125	SMA Cable	MegaPhase	NC19-S1S1-236	1GVT4 14032106 001	3/6/2015	3/6/2016	Active Verification

Prepared For: Quietyme, Inc.	Model #: STONE 16	Report #: 315155 A
EUT: Quietyme STONE	Serial #: Radiated: Rev 6 Board #3, Rev 6 Board #6 Conducted: Rev 6 Board #1	LSR Job #: C-2240

## **APPENDIX B – Test Standards: CURRENT PUBLICATION DATES RADIO**

<b>STANDARD #</b>	<b>DATE</b>	<b>Am. 1</b>	<b>Am. 2</b>
ANSI C63.4	2014		
ANSI C63.10	2013		
FCC 47 CFR, Parts 0-15, 18, 90, 95	2015		
RSS GEN	2014		
RSS 247	2015		

Prepared For: Quietyme, Inc.	Model #: STONE 16	Report #: 315155 A
EUT: Quietyme STONE	Serial #: Radiated: Rev 6 Board #3, Rev 6 Board #6 Conducted: Rev 6 Board #1	LSR Job #: C-2240

## **APPENDIX C - Uncertainty Statement**

***Table of Expanded Uncertainty Values, (K=2) for Specified Measurements***

<b><i>Measurement Type</i></b>	<b><i>Particular Configuration</i></b>	<b><i>Uncertainty Values</i></b>
<i>Radiated Emissions</i>	<i>3 – Meter chamber, Biconical Antenna</i>	<i>4.82 dB</i>
<i>Radiated Emissions</i>	<i>3-Meter Chamber, Log Periodic Antenna</i>	<i>4.88 dB</i>
<i>Radiated Emissions</i>	<i>3-Meter Chamber, Horn Antenna</i>	<i>4.85 dB</i>
<i>Radiated Emissions</i>	<i>10-Meter OATS, Biconical Antenna</i>	<i>4.32 dB</i>
<i>Radiated Emissions</i>	<i>10-Meter OATS, Log Periodic Antenna</i>	<i>3.63 dB</i>
<i>Absolute Conducted Emissions</i>	<i>Agilent PSA/ESA Series</i>	<i>1.38 dB</i>
<i>AC Line Conducted Emissions</i>	<i>Shielded Room/EMCO LISN</i>	<i>3.20 dB</i>
<i>Radiated Immunity</i>	<i>3 Volts/Meter in 3-Meter Chamber</i>	<i>2.05 Volts/Meter</i>
<i>Conducted Immunity</i>	<i>3 Volts level</i>	<i>2.33 V</i>
<i>EFT Burst, Surge, VDI</i>	<i>230 VAC</i>	<i>54.4 V</i>
<i>ESD Immunity</i>	<i>Discharge at 15kV</i>	<i>3200 V</i>
<i>Temperature/Humidity</i>	<i>Thermo-hygrometer</i>	<i>0.64° / 2.88 %RH</i>

<b>Prepared For: Quietyme, Inc.</b>	<b>Model #: STONE 16</b>	<b>Report #: 315155 A</b>
<b>EUT: Quietyme STONE</b>	<b>Serial #: Radiated: Rev 6 Board #3, Rev 6 Board #6 Conducted: Rev 6 Board #1</b>	<b>LSR Job #: C-2240</b>