

**Monster, LLC.**

Application  
For  
Certification

**FCC ID: RJE191325**

**Monster Bluetooth Speaker**

**Model: 191325**

**Brand name: MONSTER**

**2.4GHz Transceiver**

**Report No.: 170807037SZN-003**

We hereby certify that the sample of the above item is considered to comply with the requirements of FCC Part 15, Subpart C for Intentional Radiator, mention 47 CFR [10-1-16]

Prepared and Checked by:

Approved by:

Sign on file

Damon Wang  
Engineer

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Kidd Yang  
Senior Project Engineer  
Date: August 31, 2017

- The test results reported in this test report shall refer only to the sample actually tested and shall not refer or be deemed to refer to bulk from which such a sample may be said to have been obtained.
- This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to copy or distribute this report. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results referenced from this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.
- For Terms And Conditions of the services, it can be provided upon request.
- The evaluation data of the report will be kept for 3 years from the date of issuance.

TRF no.: FCC 15C\_Tx\_c

## LIST OF EXHIBITS

### *INTRODUCTION*

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INTERTEK TESTING SERVICES

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**MEASUREMENT/TECHNICAL REPORT**

**Monster, LLC. - MODEL: 191325**

**Monster Bluetooth Speaker**

**FCC ID: RJE191325**

This report concerns (check one)    Original Grant ☒ Class II Change ☐

Equipment Type: DTS - Part 15 Digital Transmission Systems (Bluetooth LE portion)

Deferred grant requested per 47 CFR 0.457(d)(1)(ii)?    Yes ☐    No ☒

If yes, defer until :   
date

Company Name agrees to notify the Commission by:   
date

of the intended date of announcement of the product so that the grant can be issued on that date.

Transition Rules Request per 15.37?    Yes ☐    No ☒

If no, assumed Part 15, Subpart C for intentional radiator - the new 47 CFR [10-01-16 Edition] provision.

Report prepared by:

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# INTERTEK TESTING SERVICES

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## INTERTEK TESTING SERVICES

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### List of attached file

| Exhibit Type          | File Description           | Filename             |
|-----------------------|----------------------------|----------------------|
| Cover Letter          | Letter of Agency           | agency.pdf           |
| Test Report           | Test Report                | report.pdf           |
| Test Setup Photo      | Radiated Emission          | radiated photos.pdf  |
| Test Setup Photo      | Conducted Emission         | conducted photos.pdf |
| External Photo        | External Photo             | external photos.pdf  |
| Internal Photo        | Internal Photo             | internal photos.pdf  |
| Block Diagram         | Block Diagram              | block.pdf            |
| Schematics            | Circuit Diagram            | circuit.pdf          |
| Operation Description | Technical Description      | descri.pdf           |
| ID Label/Location     | Label Artwork and Location | label.pdf            |
| User Manual           | User Manual                | manual.pdf           |
| Cover Letter          | Confidentiality Letter     | request.pdf          |

# **INTERTEK TESTING SERVICES**

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## **EXHIBIT 1**

### **SUMMARY OF TEST RESULTS**

## INTERTEK TESTING SERVICES

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### 1.0 Summary of Test

**Monster, LLC. - MODEL: 191325**

**FCC ID: RJE191325**

| TEST                                   | REFERENCE    | RESULTS          |
|----------------------------------------|--------------|------------------|
| Max. Output power                      | 15.247(b)    | Pass             |
| 6 dB Bandwidth                         | 15.247(a)(2) | Pass             |
| Max. Power Density                     | 15.247(e)    | Pass             |
| Out of Band Antenna Conducted Emission | 15.247(d)    | Pass             |
| Radiated Emission in Restricted Bands  | 15.247(d)    | Pass             |
| AC Conducted Emission                  | 15.207       | Pass             |
| Antenna Requirement                    | 15.203       | Pass (See Notes) |

Notes: The EUT uses Integral Antenna which in accordance to Section 15.203 is considered sufficient to comply with the provisions of this section.

## **INTERTEK TESTING SERVICES**

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### **EXHIBIT 2**

### **GENERAL DESCRIPTION**



## INTERTEK TESTING SERVICES

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### 2.0 General Description

#### 2.1 Product Description

The equipment under test (EUT) is a Monster Bluetooth Speaker with Bluetooth function operating in 2402-2480MHz. The EUT is powered by Rechargeable battery (DC 7.4V, 2200mAh) which can be charged by USB port (DC 5V). The USB port is only use for charging purpose. The NFC tag is passive. For more detail information pls. refer to the user manual.

Bluetooth Version: 4.2 (dual-mode)

Antenna Type: Integral antenna

Antenna Gain: 0 dBi

Modulation Type: GFSK,  $\pi/4$ -DQPSK and 8-DPSK

For electronic filing, the brief circuit description is saved with filename: descri.pdf.

#### 2.2 Related Submittal(s) Grants

This is an application for certification of transceiver for Monster Bluetooth Speaker which has Bluetooth function (BLE mode), and for the classic Bluetooth mode was tested and demonstrated in report 170807037SZN-002.

## INTERTEK TESTING SERVICES

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### 2.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.10 (2013) and KDB 558074 D01 v04. Radiated emission measurement was performed in semi-anechoic chamber and conducted emission measurement was performed in shield room. For radiated emission measurement, preliminary scans were performed in the semi-anechoic chamber only to determine the worst case modes. All radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the “**Justification Section**” of this Application. All other measurements were made in accordance with the procedures in part 2 of CFR 47.

### 2.4 Test Facility

The Semi-anechoic chamber and shielding room used to collect the radiated data and conducted data are **Intertek Testing Services Shenzhen Ltd. Longhua Branch** and located at 1F/2F, Building B, QiaoAn Scientific Technology Park, Shangheng Community, Guanhu Subdistrict, Longhua District, Shenzhen, P.R. China. This test facility and site measurement data have been fully placed on file with File Number: CN1188.

**EXHIBIT 3**  
**SYSTEM TEST CONFIGURATION**

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## INTERTEK TESTING SERVICES

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### 3.0 **System Test Configuration**

#### 3.1 Justification

The system was configured for testing in a typical fashion (as a customer would normally use it), and in the confines as outlined in ANSI C63.10 (2013).

The EUT was powered by Rechargeable battery (DC 7.4V, 2200mAh) which was charged by adapter or PC with 120V/60Hz input during the test.

All packets DH1, DH3 & DH5 mode in modulation type GFSK was tested and only the worst data was reported in this report.

For maximizing emissions, the EUT was rotated through 360°, the antenna height was varied from 1 meter to 4 meters above the ground plane, and the antenna polarization was changed. This step by step procedure for maximizing emissions led to the data reported in Exhibit 3.0.

The rear of unit was flushed with the rear of the table.

The equipment under test (EUT) was configured for testing in a typical fashion (as a customer would normally use it). The EUT was placed on a turn table, which enabled the engineer to maximize emissions through its placement in the three orthogonal axes.

#### 3.2 EUT Exercising Software

The EUT exercise program (provided by client) used during testing was designed to exercise the various system components in a manner similar to a typical use.

#### 3.3 Special Accessories

No special accessory attached.

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## INTERTEK TESTING SERVICES

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### 3.4 Measurement Uncertainty

When determining of the test conclusion, the Measurement Uncertainty of test has been considered.

Uncertainty and Compliance – Unless the standard specifically states that measured values are to be extended by the measurement uncertainty in determining compliance, all compliance determinations are based on the actual measured value.

### 3.5 Equipment Modification

Any modifications installed previous to testing by Monster, LLC. will be incorporated in each production model sold / leased in the United States.

No modifications were installed by Intertek Testing Services Shenzhen Ltd. Longhua Branch.

### 3.6 Support Equipment List and Description

This product was tested in the following configuration:

| Description  | Manufacturer  | Model No.                |
|--------------|---------------|--------------------------|
| iPod         | Apple         | A1367                    |
| Aux In Cable | N/A           | Unshielded, Length 100cm |
| USB cable    | Monster, LLC. | N/A                      |
| PC           | HP            | 430                      |
| Resistance   | N/A           | 5Ω                       |
| AC Adapter   | G-TiDE        | HJ-050100                |

## **INTERTEK TESTING SERVICES**

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### **EXHIBIT 4**

### **MEASUREMENT RESULTS**

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## INTERTEK TESTING SERVICES

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Applicant: Monster, LLC.  
Date of Test: August 31, 2017  
Model: 191325

### 4.0 **Measurement Results**

#### 4.1 Maximum Conducted Output Power at Antenna Terminals, FCC Rules 15.247(b)(3):

[x] The antenna power of the EUT was connected to the input of a broadband peak RF power meter. Power was read directly and cable loss correction was added to the reading to obtain power at the EUT antenna terminals.

For antennas with gains of 6 dBi or less, maximum allowed Transmitter output is 1 watt (+30 dBm).

Packet: DH1

| Frequency (MHz)      | Output in dBm | Output in mWatt |
|----------------------|---------------|-----------------|
| Low Channel: 2402    | 6.48          | 4.45            |
| Middle Channel: 2440 | 8.28          | 6.73            |
| High Channel: 2480   | 9.02          | 7.98            |

Cable loss: 1.0 dB    External Attenuation: 0 dB

Cable loss, external attenuation has been included in OFFSET function

EUT dBm max. output level = 9.02dBm

For RF Exposure, the information is saved with filename: analysis report.pdf.

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## INTERTEK TESTING SERVICES

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Applicant: Monster, LLC.  
Date of Test: August 31, 2017  
Model: 191325

### 4.2 Minimum 6 dB RF Bandwidth, FCC Rule 15.247(a)(2):

The antenna port of the EUT was connected to the input of a spectrum analyzer. Analyzer RBW was set to 100 KHz according to FCC KDB 558074 D01 v04. For each RF output channel investigated, the spectrum analyzer center frequency was set to the channel carrier. A PEAK output reading was taken, a DISPLAY line was drawn 6 dB lower than PEAK level. The 6dB bandwidth was determined from where the channel output spectrum intersected the display line.

Limit: The 6 dB Bandwidth is at least 500 kHz.

Packet: DH1

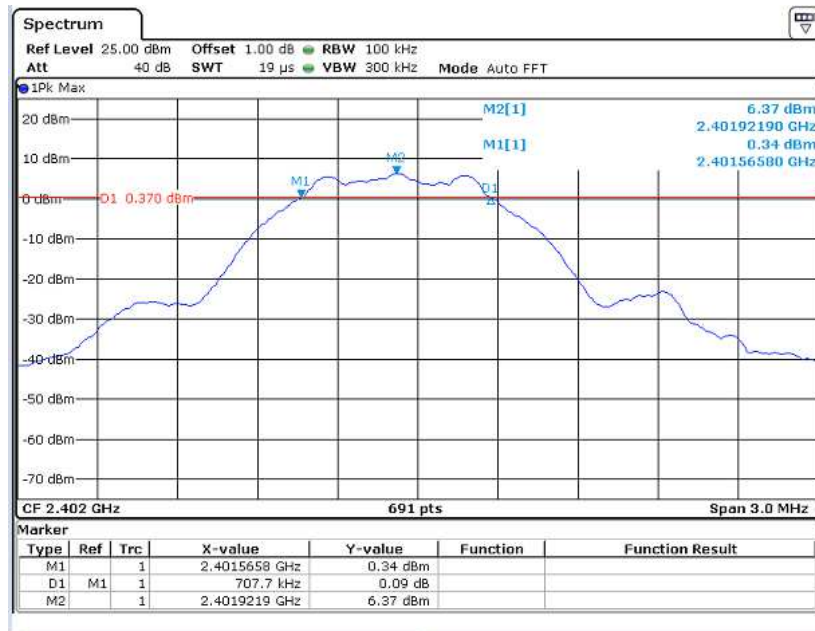
| Frequency (MHz) | 6 dB Bandwidth (KHz) |
|-----------------|----------------------|
| 2402            | 707.7                |
| 2440            | 699.0                |
| 2480            | 712.0                |

The test plots are attached as below.

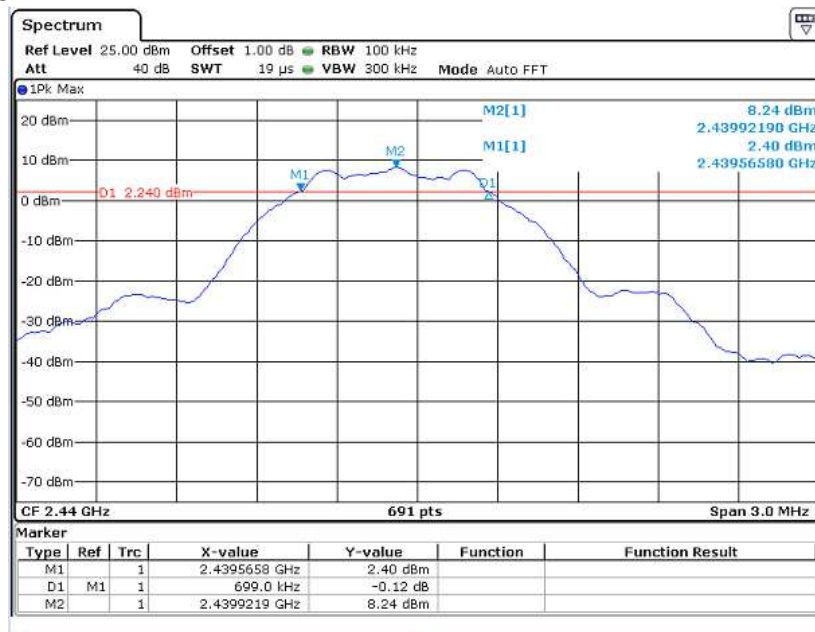


## INTERTEK TESTING SERVICES

### Low Channel



### Middle Channel



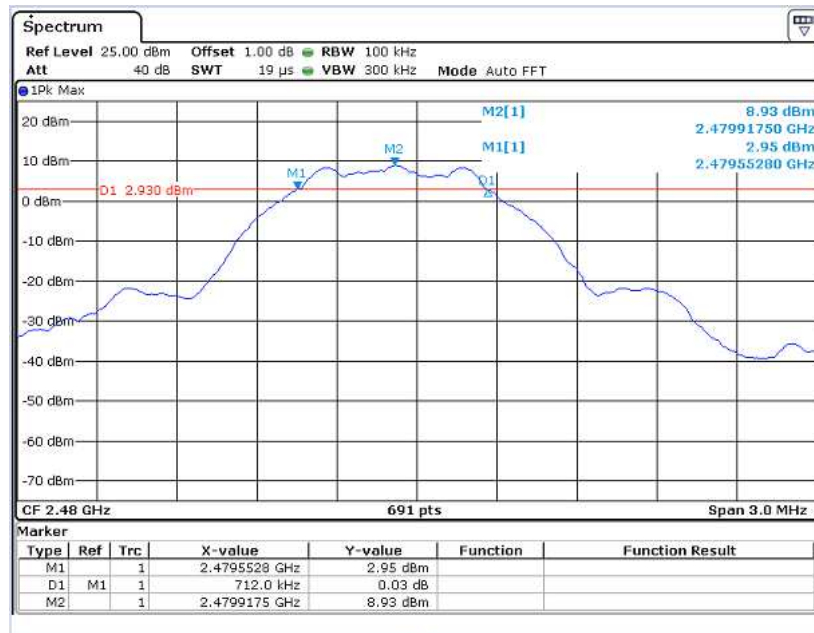
TRF No.: FCC 15C\_TX\_c

FCC ID: RJE191325

Report No.: 170807037SZN-003

## INTERTEK TESTING SERVICES

### High Channel



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## INTERTEK TESTING SERVICES

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Applicant: Monster, LLC.  
Date of Test: August 31, 2017  
Model: 191325

### 4.3 Maximum Power Density Reading, FCC Rule 15.247(e):

The Measurement Procedure PKPSD was set according to the FCC KDB 558074 D01 v04.

Antenna output of the EUT was coupled directly to spectrum analyzer; if an external attenuator and/or cable was used, these losses are compensated for with the analyzer OFFSET function.

Limit: The Power Density does not exceed 8dBm/ 3 kHz.

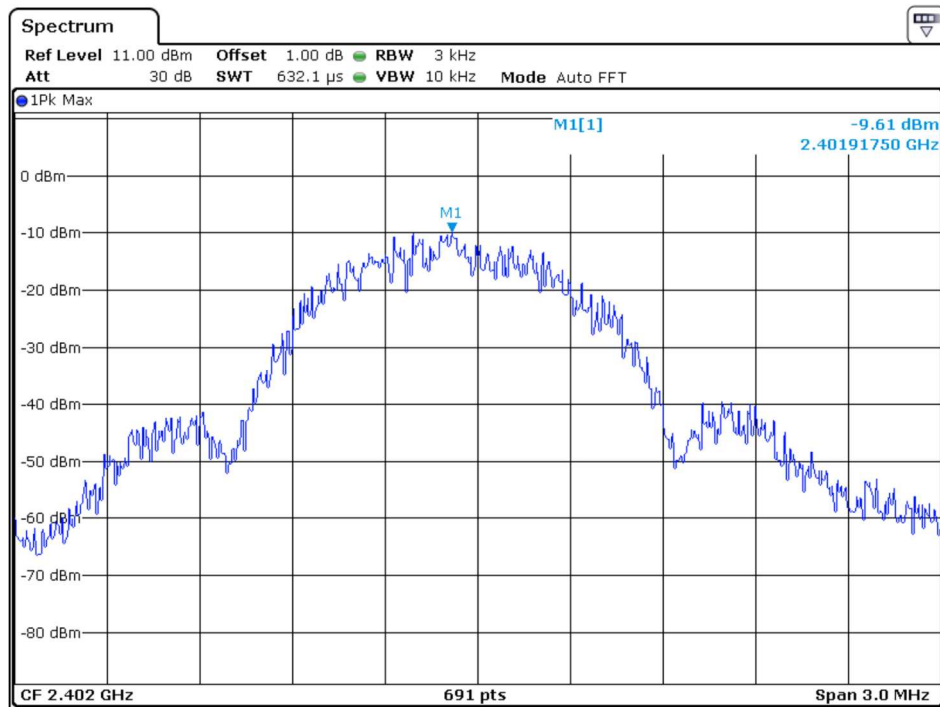
Packet: DH1

| Frequency (MHz) | Power Density with RBW 3KHz |
|-----------------|-----------------------------|
| 2402            | -9.61                       |
| 2440            | -8.90                       |
| 2480            | -7.34                       |

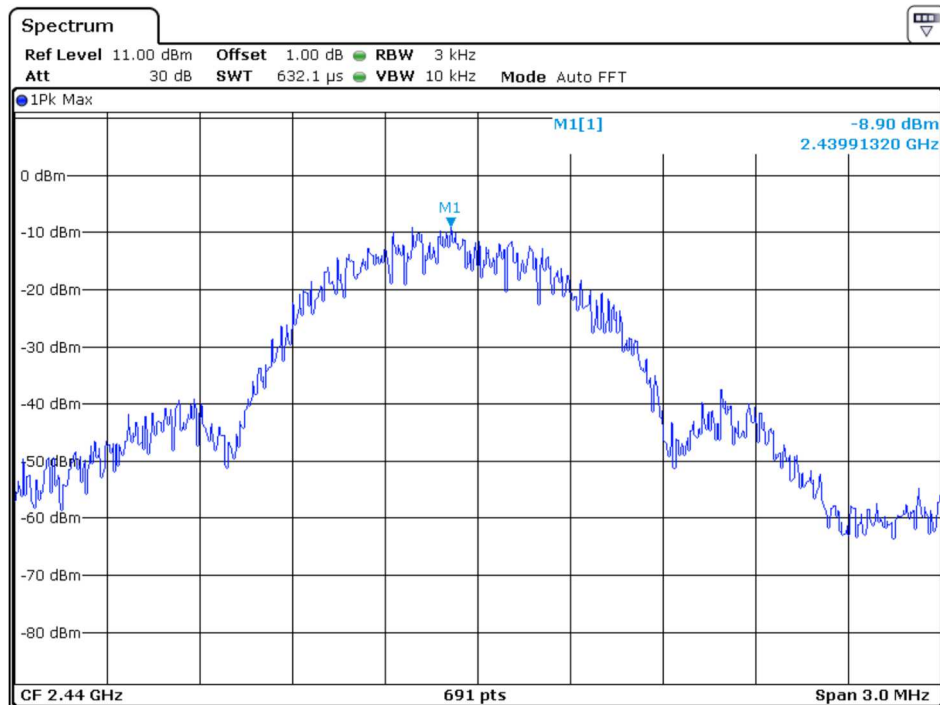
The test plots are attached as below.

## INTERTEK TESTING SERVICES

### Low Channel

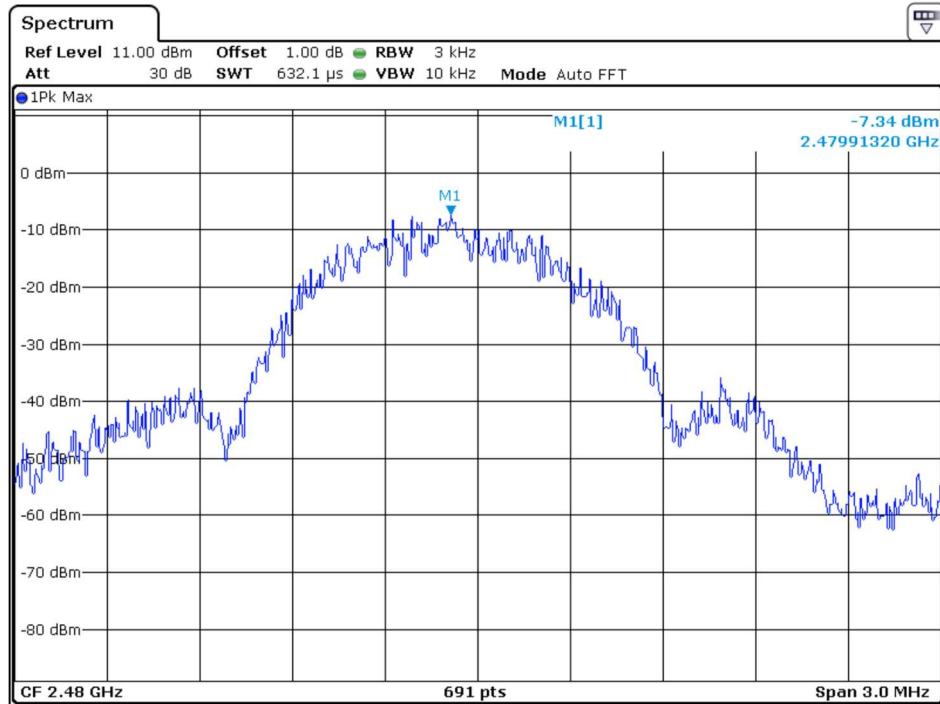


### Middle Channel



## INTERTEK TESTING SERVICES

### High Channel



## INTERTEK TESTING SERVICES

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Applicant: Monster, LLC.  
Date of Test: August 31, 2017  
Model: 191325

### 4.4 Out of Band Conducted Emissions, FCC Rule 15.247(d)

In any 100 kHz bandwidth outside the EUT passband, the RF power produced by the modulation products of the spreading sequence, the information sequence, and the carrier frequency shall be at least 20dB below that of the maximum in-band 100 kHz emission, or else shall meet the general limits for radiated emissions at frequencies outside the passband, whichever results in lower attenuation. The Measurement Procedure was set according to the FCC KDB 558074 D01 v04.

All other types of emissions from the EUT shall meet the general limits for radiated frequencies outside the passband.

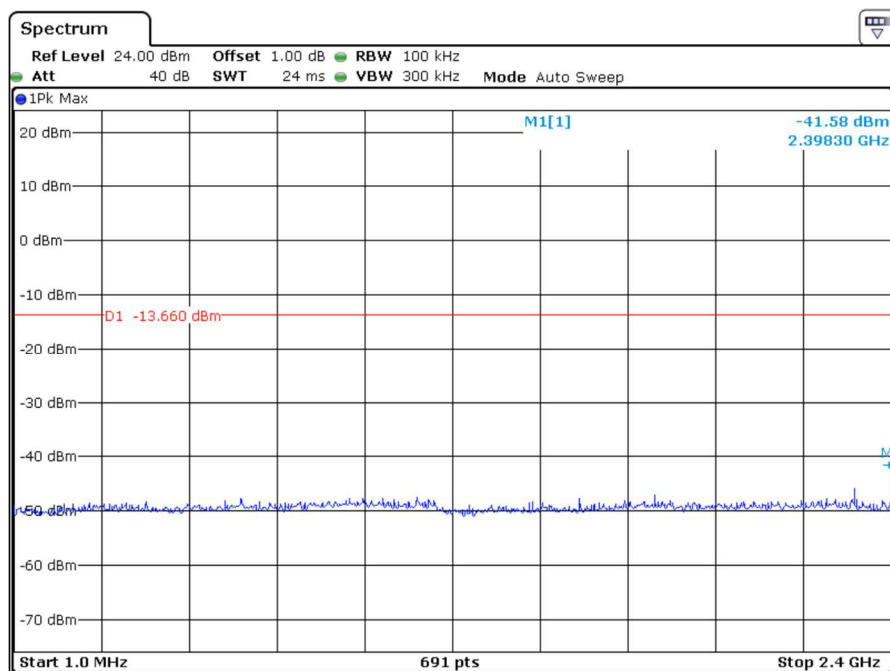
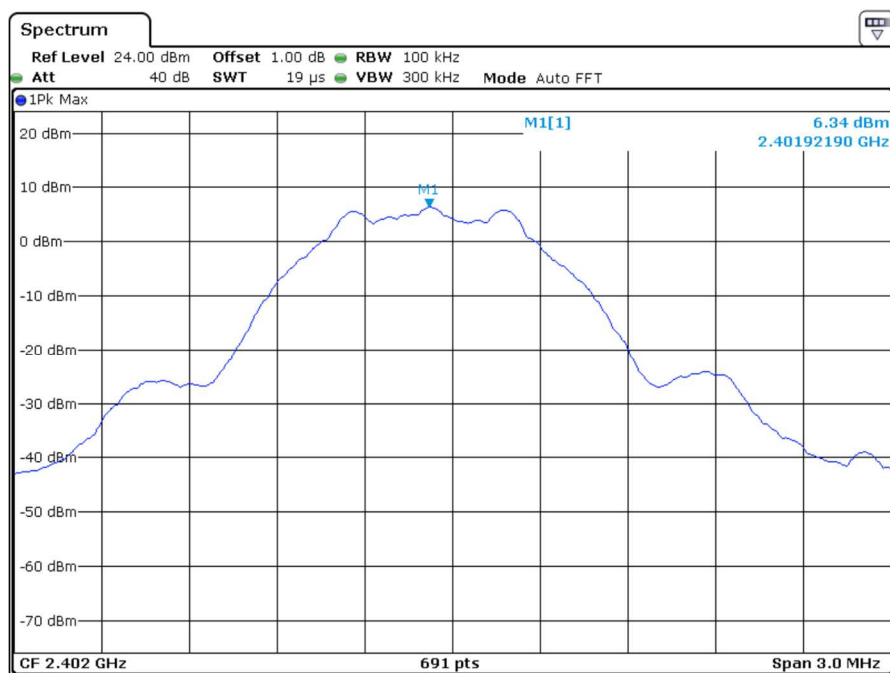
Refer to the attached test plot for out of band conducted emissions data with Packet: DH1

The test plots showed all spurious emission and up to the tenth harmonic were measured and they were found to be at least 20 dB below the highest level of the desired power in the passband.

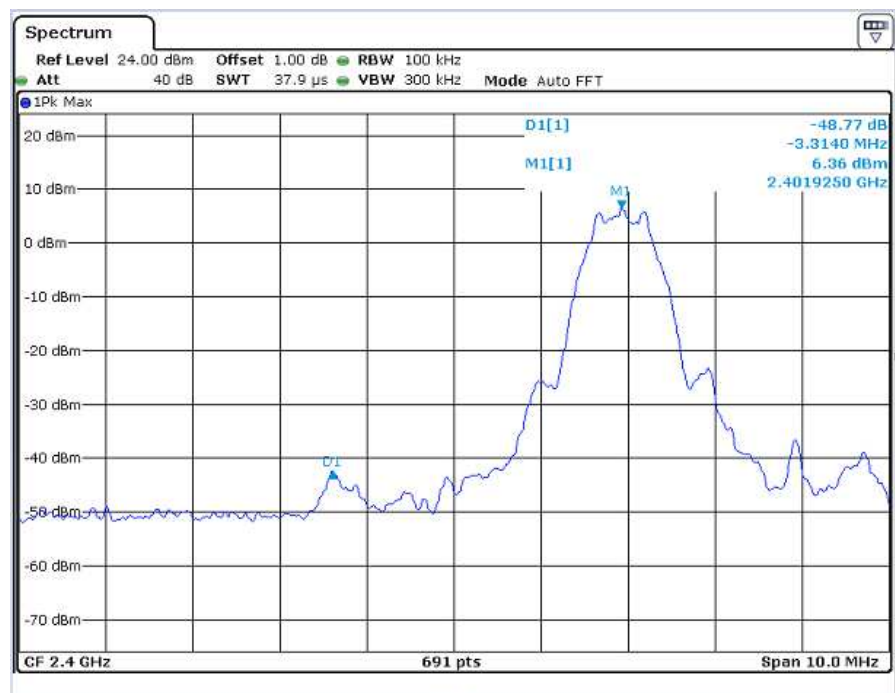
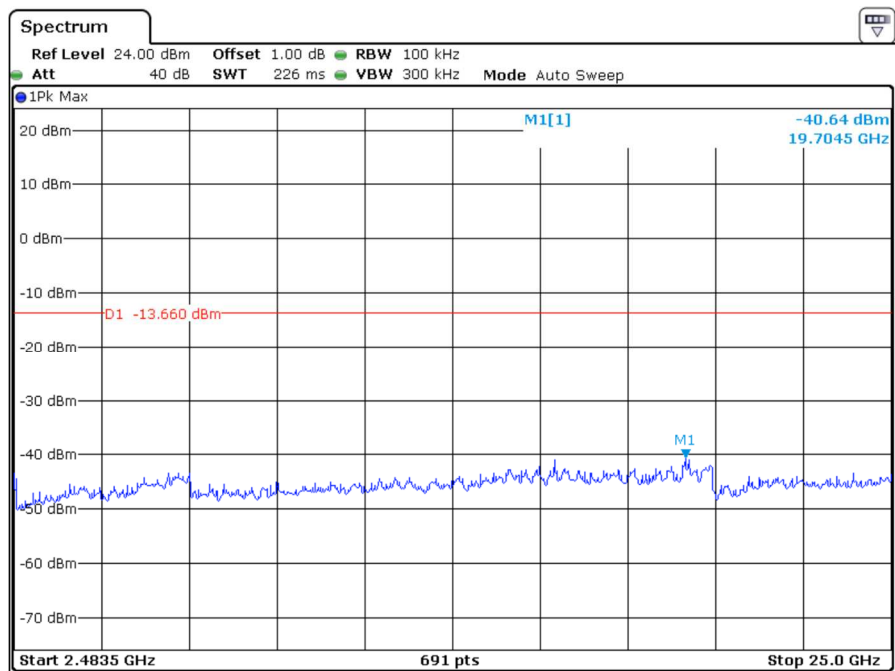
The test plots are attached as below.

## INTERTEK TESTING SERVICES

Low Channel Reference Level: 6.34dBm



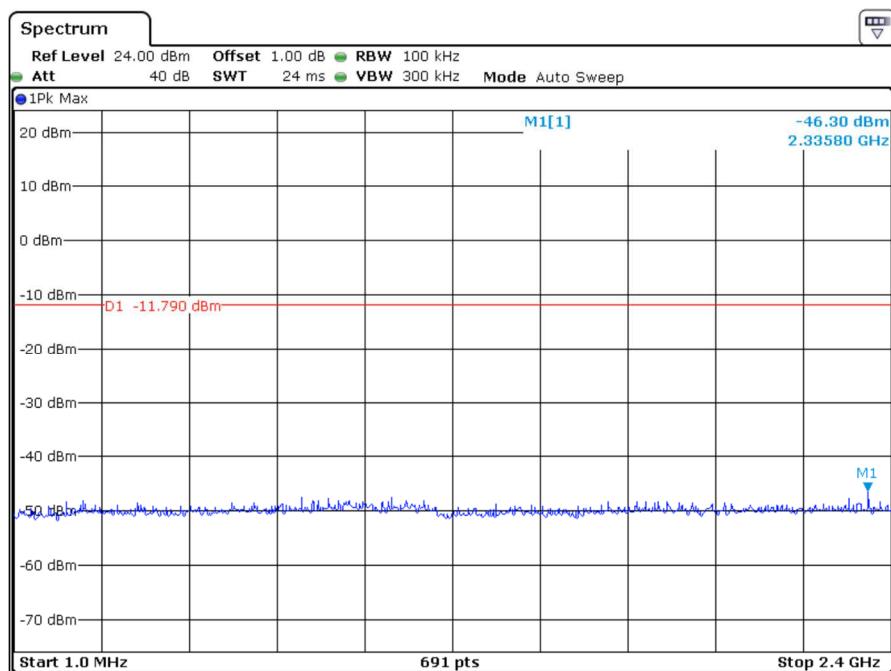
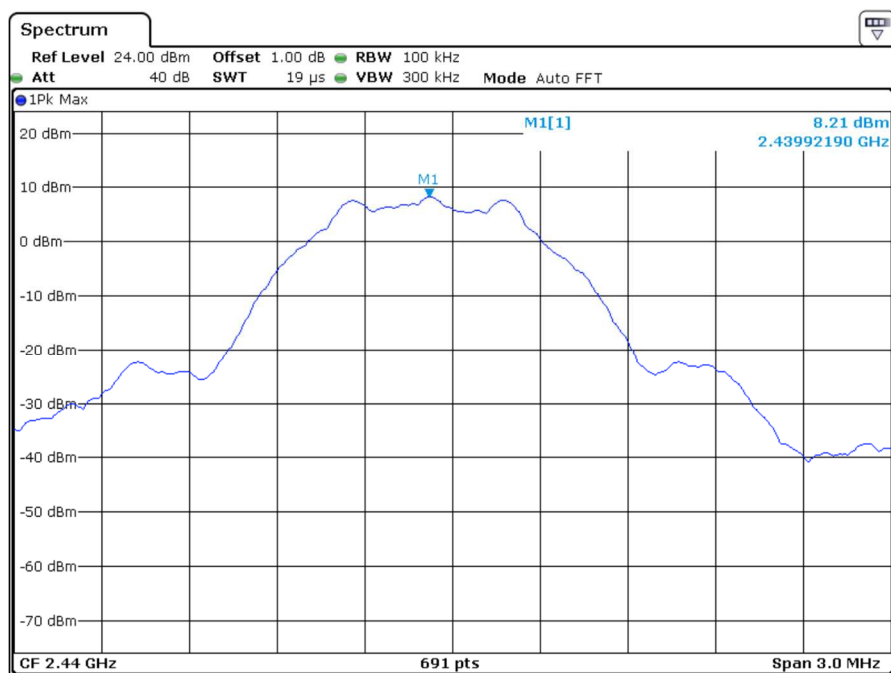
# INTERTEK TESTING SERVICES



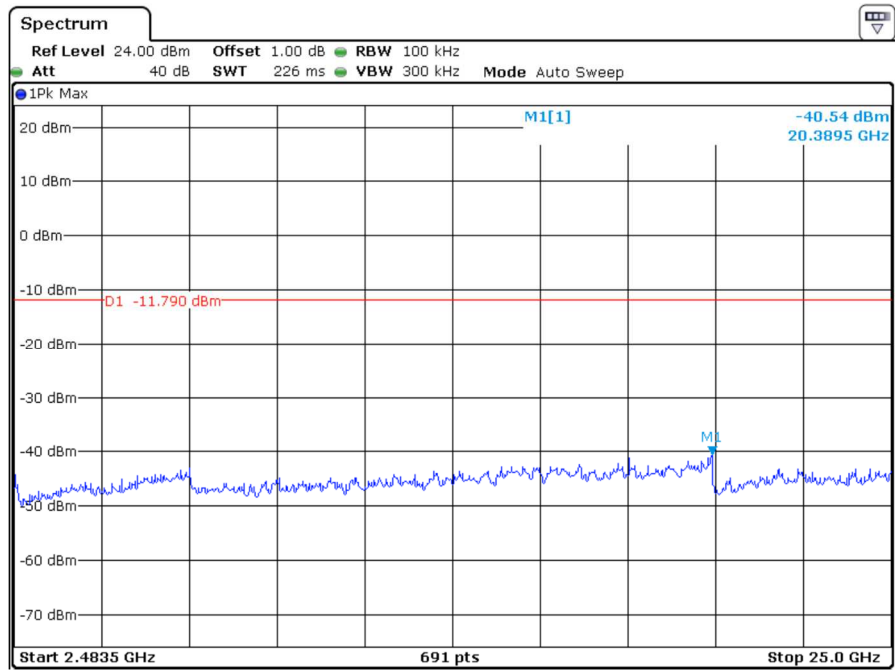


## INTERTEK TESTING SERVICES

Middle Channel Reference Level: 8.21dBm

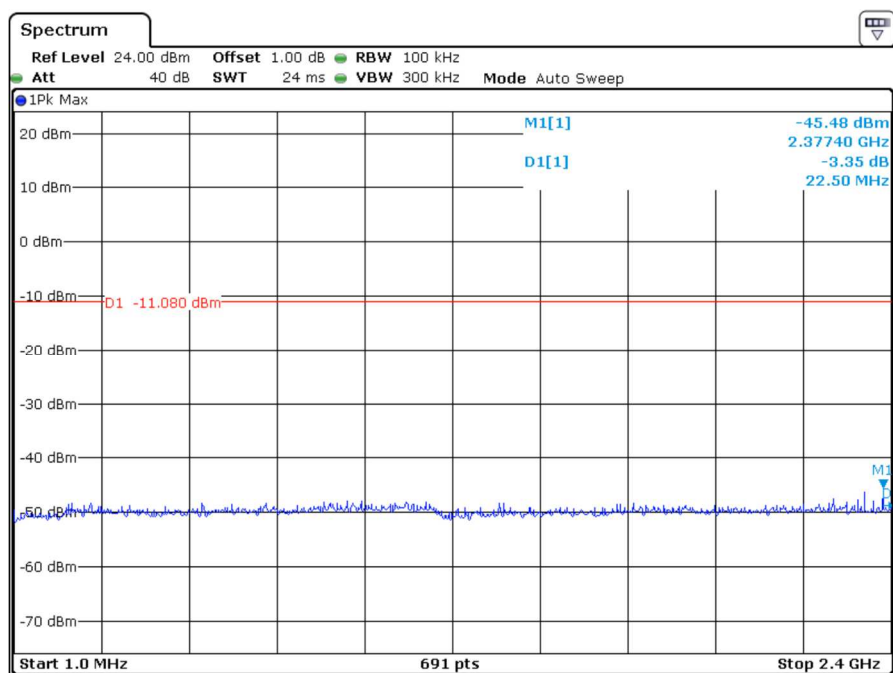
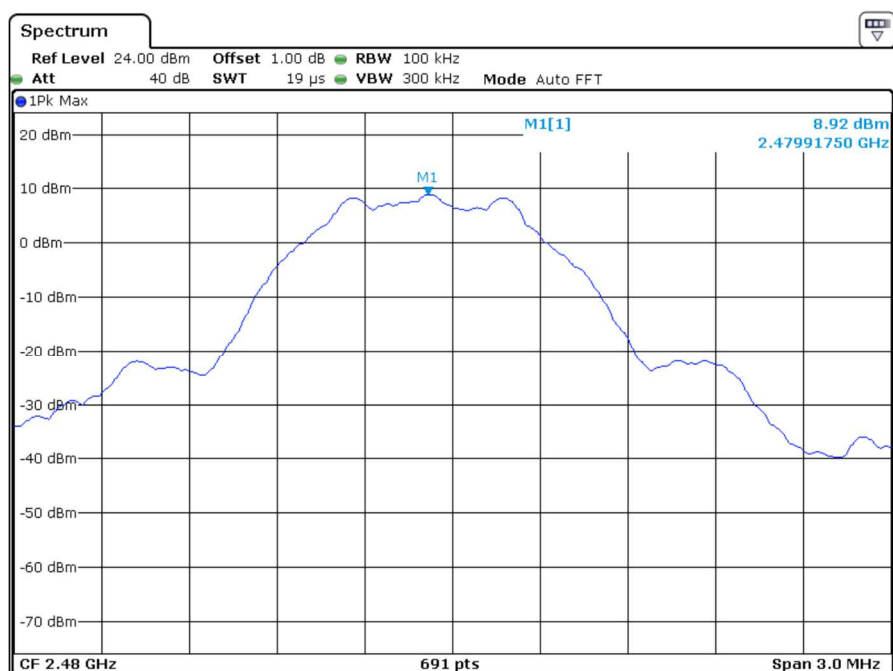


## INTERTEK TESTING SERVICES

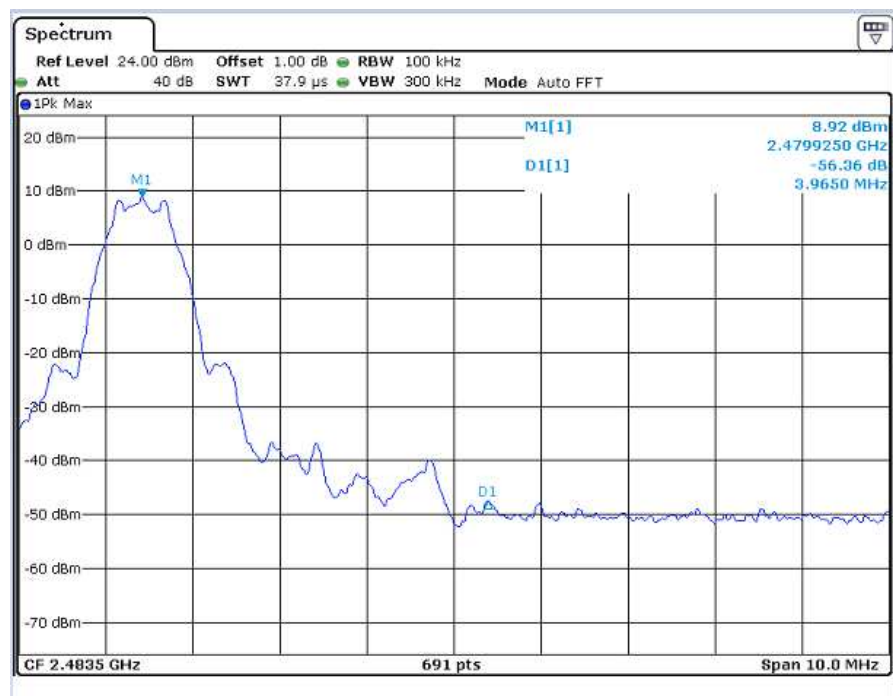
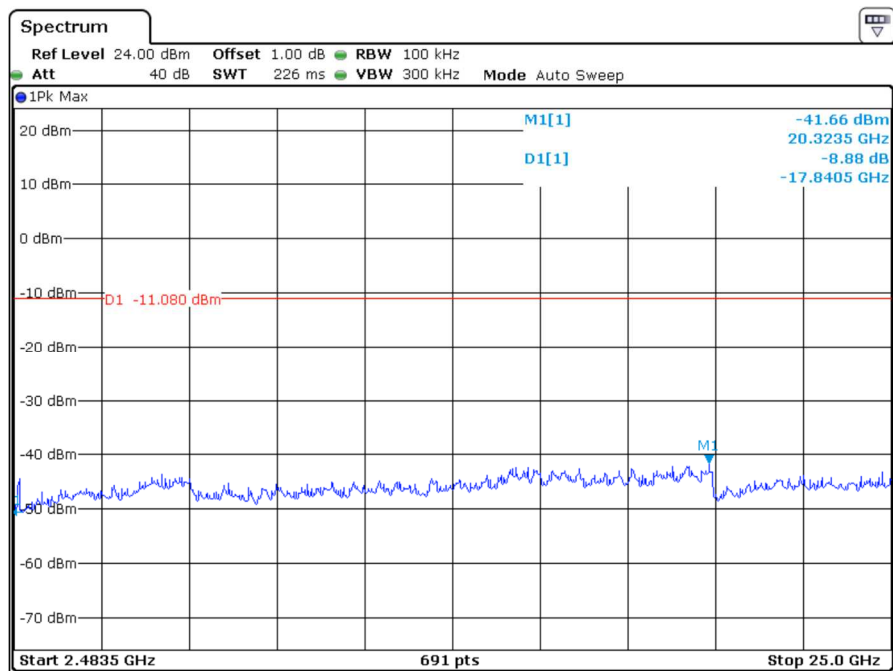


## INTERTEK TESTING SERVICES

High Channel Reference Level: 8.92dBm



## INTERTEK TESTING SERVICES



## INTERTEK TESTING SERVICES

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Applicant: Monster, LLC.  
Date of Test: August 31, 2017  
Model: 191325

### 4.5 Out of Band Radiated Emissions (for emissions in 4.4 above that are less than 20dB below carrier), FCC Rule 15.247(d):

For out of band emissions that are close to or that exceed the 20dB attenuation requirement described in the specification, radiated measurements were performed at a 3m separation distance to determine whether these emissions complied with the general radiated emission requirement.

- ☒ Not required, since all emissions are more than 20dB below fundamental  
☐ See attached data sheet

## INTERTEK TESTING SERVICES

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Applicant: Monster, LLC.  
Date of Test: August 31, 2017  
Model: 191325

### 4.6 Transmitter Radiated Emissions in Restricted Bands, FCC Rule 15.35(b), (c):

Data is included of the worst case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs and data tables of the emissions are included. All measurements were performed with peak detection unless otherwise specified.

The data on the following pages list the significant emission frequencies, the limit and the margin of compliance.

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## INTERTEK TESTING SERVICES

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Applicant: Monster, LLC.  
Date of Test: August 31, 2017  
Model: 191325

### 4.7 Field Strength Calculation

The field strength is calculated by adding the reading on the Spectrum Analyzer to the factors associated with preamplifiers (if any), antennas, cables, pulse desensitization and average factors (when specified limit is in average and measurements are made with peak detectors). A sample calculation is included below.

$$FS = RA + AF + CF - AG + PD$$

Where      FS = Field Strength in dB $\mu$ V/m  
             RA = Receiver Amplitude (including preamplifier) in dB $\mu$ V  
             CF = Cable Attenuation Factor in dB  
             AF = Antenna Factor in dB  
             AG = Amplifier Gain in dB  
             PD = Pulse Desensitization in dB

In the radiated emission table which follows, the reading shown on the data table may reflect the preamplifier gain. An example of the calculations, where the reading does not reflect the preamplifier gain, follows:

$$FS = RA + AF + CF - AG + PD$$

#### Example

Assume a receiver reading of 62.0 dB $\mu$ V is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted. The pulse desensitization factor of the spectrum analyzer was 0 dB. The net field strength for comparison to the appropriate emission limit is 42 dB $\mu$ V/m. This value in dB $\mu$ V/m was converted to its corresponding level in  $\mu$ V/m.

$$\begin{aligned} RA &= 62.0 \text{ dB}\mu\text{V} \\ AF &= 7.4 \text{ dB} \\ CF &= 1.6 \text{ dB} \\ AG &= 29.0 \text{ dB} \\ PD &= 0 \text{ dB} \\ FS &= 62 + 7.4 + 1.6 - 29 + 0 = 42 \text{ dB}\mu\text{V/m} \end{aligned}$$

$$\text{Level in mV/m} = \text{Common Antilogarithm } [(42 \text{ dB}\mu\text{V/m})/20] = 125.9 \mu\text{V/m}$$

## INTERTEK TESTING SERVICES

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### 4.7.1 Radiated Emission Configuration Photograph

For electronic filing, the worst case radiated emission configuration photograph is saved with filename: radiated photos. pdf.

### 4.7.2 Radiated Emissions- FCC section 15.209

The data on the following page lists the significant emission frequencies, the limit and the margin of compliance. Numbers with a minus sign are below the limit.

Worst Case Radiated Emission

at 51.000 MHz

Judgement: Passed by 13.8 dB

### **TEST PERSONNEL:**

*Sign on file*

Damon wang, Engineer  
*Typed/Printed Name*

August 31, 2017  
*Date*



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## INTERTEK TESTING SERVICES

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Applicant: Monster, LLC.

Date of Test: August 31, 2017

Model: 191325

Worst Case Operating Mode: Charging+BT Link

Modulation type: GFSK

### Radiated Emissions

| Polarization | Frequency<br>(MHz) | Reading<br>(dBμV) | Pre-<br>Amp<br>Gain<br>(dB) | Antenna<br>Factor<br>(dB) | Net<br>at 3m<br>(dBμV/m) | Limit<br>at 3m<br>(dBμV/m) | Margin<br>(dB) |
|--------------|--------------------|-------------------|-----------------------------|---------------------------|--------------------------|----------------------------|----------------|
|              |                    |                   |                             |                           |                          |                            |                |
| Horizontal   | 231.000            | 34.1              | 20.0                        | 10.7                      | 24.8                     | 46.0                       | -21.2          |
| Horizontal   | 264.000            | 29.0              | 20.0                        | 15.0                      | 24.0                     | 46.0                       | -22.0          |
| Horizontal   | 361.000            | 26.3              | 20.0                        | 18.5                      | 24.8                     | 46.0                       | -21.2          |
| Vertical     | 37.000             | 34.9              | 20.0                        | 11.1                      | 26.0                     | 40.0                       | -14.0          |
| Vertical     | 51.000             | 34.9              | 20.0                        | 11.3                      | 26.2                     | 40.0                       | -13.8          |
| Vertical     | 121.000            | 18.5              | 20.0                        | 25.3                      | 23.8                     | 43.5                       | -19.7          |

- NOTES: 1. Quasi-Peak detector is used except for others stated.
2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distances were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. All emissions are below the QP limit.

## INTERTEK TESTING SERVICES

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### 4.7.3 Transmitter Spurious Emissions (Radiated) - FCC section 15.209

The data on the following page lists the significant emission frequencies, the limit and the margin of compliance. Numbers with a minus sign are below the limit.

Worst Case Radiated Emission

at 7440.000 MHz

Judgement: Passed by 14.7 dB

#### **TEST PERSONNEL:**

*Sign on file*

Damon Wang, Engineer  
*Typed/Printed Name*

August 31, 2017  
*Date*

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## INTERTEK TESTING SERVICES

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Applicant: Monster, LLC.

Date of Test: August 31, 2017

Model: 191325

Mode: Packet DH1 (TX-Channel 2402MHz)

### Radiated Emissions

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Peak Limit at 3m (dBμV/m) | Margin (dB) |
|--------------|-----------------|----------------|-------------------|---------------------|--------------------|---------------------------|-------------|
| Horizontal   | *4804.000       | 57.5           | 36.1              | 34.2                | 55.6               | 74.0                      | -18.4       |
| Horizontal   | *2388.100       | 59.2           | 36.7              | 28.4                | 50.9               | 74.0                      | -23.1       |

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Average Limit at 3m (dBμV/m) | Margin (dB) |
|--------------|-----------------|----------------|-------------------|---------------------|--------------------|------------------------------|-------------|
| Horizontal   | *4804.000       | 35.0           | 36.1              | 34.2                | 33.1               | 54.0                         | -20.9       |
| Horizontal   | *2388.100       | 29.9           | 36.7              | 28.4                | 21.6               | 54.0                         | -32.4       |

- NOTES:
1. Peak detector is used for the emission measurement (RBW=1MHz, VBW=3MHz for Peak data; RBW=1MHz, VBW=10Hz for Average data).
  2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
  3. Negative value in the margin column shows emission below limit.
  4. Horn antenna used for the emission over 1000MHz.
- \* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

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## INTERTEK TESTING SERVICES

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Applicant: Monster, LLC.

Date of Test: August 31, 2017

Model: 191325

Mode: Packet DH1 (TX-Channel 2440MHz)

### Radiated Emissions

| Polarization | Frequency<br>(MHz) | Reading<br>(dBμV) | Pre-<br>Amp<br>Gain<br>(dB) | Antenna<br>Factor<br>(dB) | Net<br>at 3m<br>(dBμV/m) | Peak Limit<br>at 3m<br>(dBμV/m) | Margin<br>(dB) |
|--------------|--------------------|-------------------|-----------------------------|---------------------------|--------------------------|---------------------------------|----------------|
| Horizontal   | *4880.000          | 55.6              | 36.1                        | 34.6                      | 54.1                     | 74.0                            | -19.9          |
| Horizontal   | *7320.000          | 57.7              | 35.6                        | 37.1                      | 59.2                     | 74.0                            | -14.8          |

| Polarization | Frequency<br>(MHz) | Reading<br>(dBμV) | Pre-<br>Amp<br>Gain<br>(dB) | Antenna<br>Factor<br>(dB) | Net<br>at 3m<br>(dBμV/m) | Average Limit<br>at 3m<br>(dBμV/m) | Margin<br>(dB) |
|--------------|--------------------|-------------------|-----------------------------|---------------------------|--------------------------|------------------------------------|----------------|
| Horizontal   | *4880.000          | 34.0              | 36.1                        | 34.6                      | 32.5                     | 54.0                               | -21.5          |
| Horizontal   | *7320.000          | 36.5              | 35.6                        | 37.1                      | 38.0                     | 54.0                               | -16.0          |

- NOTES:
1. Peak detector is used for the emission measurement (RBW=1MHz, VBW=3MHz for Peak data; RBW=1MHz, VBW=10Hz for Average data).
  2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
  3. Negative value in the margin column shows emission below limit.
  4. Horn antenna used for the emission over 1000MHz.
- \* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

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## INTERTEK TESTING SERVICES

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Applicant: Monster, LLC.

Date of Test: August 31, 2017

Model: 191325

Mode: Packet DH1 (TX-Channel 2480MHz)

### Radiated Emissions

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Peak Limit at 3m (dBμV/m) | Margin (dB) |
|--------------|-----------------|----------------|-------------------|---------------------|--------------------|---------------------------|-------------|
| Horizontal   | *4960.000       | 56.9           | 36.1              | 34.6                | 55.4               | 74.0                      | -18.6       |
| Horizontal   | *7440.000       | 57.7           | 35.6              | 37.2                | 59.3               | 74.0                      | -14.7       |

| Polarization | Frequency (MHz) | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBμV/m) | Average Limit at 3m (dBμV/m) | Margin (dB) |
|--------------|-----------------|----------------|-------------------|---------------------|--------------------|------------------------------|-------------|
| Horizontal   | *4960.000       | 32.0           | 36.1              | 34.6                | 30.5               | 54.0                         | -23.5       |
| Horizontal   | *7440.000       | 34.2           | 35.6              | 37.2                | 35.8               | 54.0                         | -18.2       |

NOTES:1. Peak detector is used for the emission measurement (RBW=1MHz, VBW=3MHz for Peak data; RBW=1MHz, VBW=10Hz for Average data).

2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna used for the emission over 1000MHz.

\* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

## INTERTEK TESTING SERVICES

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### 4.8 Conducted Emission

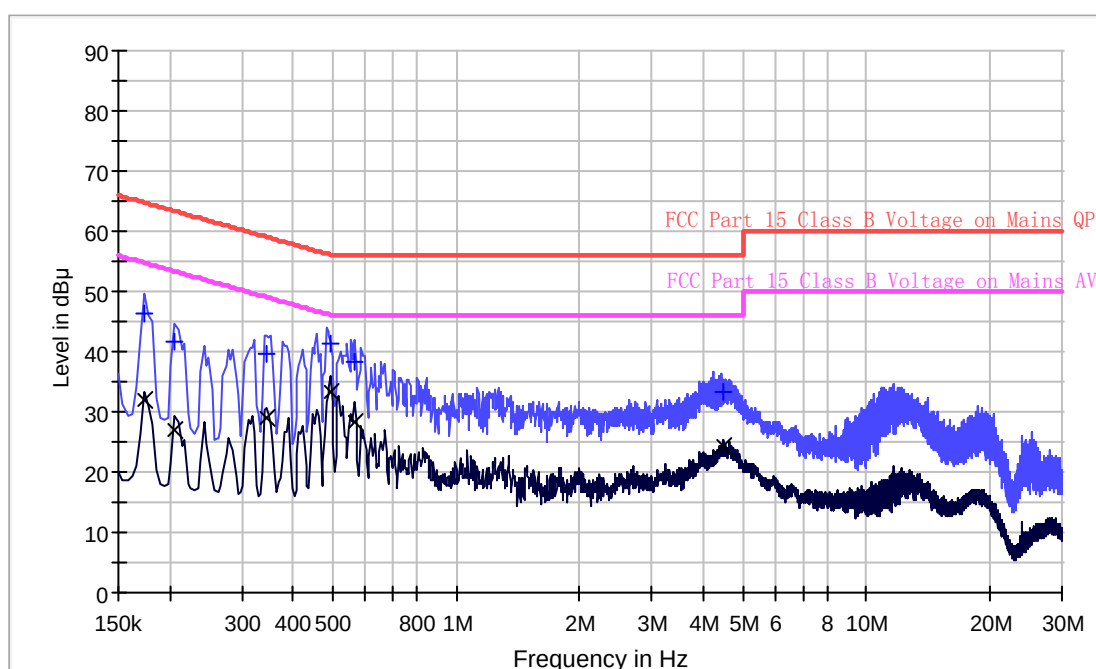
Worst Case Conducted emission at 0.494 MHz is Passed by 12.9 dB margin

For electronic filing, the worst case conducted emission configuration photograph is saved with filename: conducted photos.pdf.

## INTERTEK TESTING SERVICES

Applicant: Monster, LLC.  
Date of Test: August 31, 2017  
Model: 191325  
Worst Case Operating Mode: BT Link  
Modulation type: GFSK  
Phase: Live

### Conducted Emission Test - FCC



### Result Table QP

| Frequency (MHz) | QuasiPeak (dBμV) | Line | Corr. (dB) | Margin (dB) | Limit (dBμV) |
|-----------------|------------------|------|------------|-------------|--------------|
| 0.174000        | 46.3             | L1   | 9.7        | 18.5        | 64.8         |
| 0.206000        | 41.8             | L1   | 9.7        | 21.6        | 63.4         |
| 0.346000        | 39.7             | L1   | 9.7        | 19.4        | 59.1         |
| 0.494000        | 41.5             | L1   | 9.7        | 14.6        | 56.1         |
| 0.566000        | 38.5             | L1   | 9.7        | 17.5        | 56.0         |
| 4.494000        | 33.4             | L1   | 9.8        | 22.6        | 56.0         |

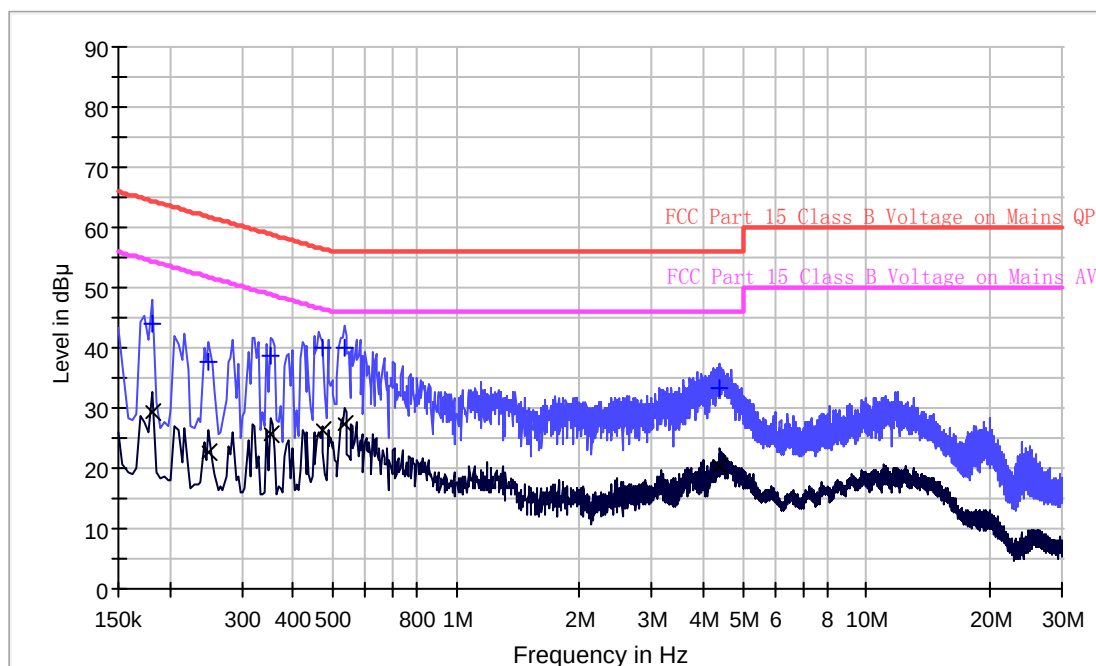
### Result Table AV

| Frequency (MHz) | Average (dBμV) | Line | Corr. (dB) | Margin (dB) | Limit (dBμV) |
|-----------------|----------------|------|------------|-------------|--------------|
| 0.174000        | 31.9           | L1   | 9.7        | 22.9        | 54.8         |
| 0.206000        | 27.1           | L1   | 9.7        | 26.3        | 53.4         |
| 0.346000        | 28.9           | L1   | 9.7        | 20.2        | 49.1         |
| 0.494000        | 33.2           | L1   | 9.7        | 12.9        | 46.1         |
| 0.566000        | 28.3           | L1   | 9.7        | 17.7        | 46.0         |
| 4.494000        | 24.5           | L1   | 9.8        | 21.5        | 46.0         |

## INTERTEK TESTING SERVICES

Applicant: Monster, LLC.  
Date of Test: August 31, 2017  
Model: 191325  
Worst Case Operating Mode: BT Link  
Modulation type: GFSK  
Phase: Neutral

### Conducted Emission Test - FCC



### Result Table QP

| Frequency (MHz) | QuasiPeak (dBμV) | Line | Corr. (dB) | Margin (dB) | Limit (dBμV) |
|-----------------|------------------|------|------------|-------------|--------------|
| 0.182000        | 44.0             | N    | 9.7        | 20.4        | 64.4         |
| 0.250000        | 37.5             | N    | 9.7        | 24.3        | 61.8         |
| 0.354000        | 38.8             | N    | 9.7        | 20.1        | 58.9         |
| 0.470000        | 40.0             | N    | 9.7        | 16.5        | 56.5         |
| 0.534000        | 40.1             | N    | 9.7        | 15.9        | 56.0         |
| 4.406000        | 33.2             | N    | 9.8        | 22.8        | 56.0         |

### Result Table AV

| Frequency (MHz) | Average (dBμV) | Line | Corr. (dB) | Margin (dB) | Limit (dBμV) |
|-----------------|----------------|------|------------|-------------|--------------|
| 0.182000        | 29.4           | N    | 9.7        | 25.0        | 54.4         |
| 0.250000        | 22.6           | N    | 9.7        | 29.2        | 51.8         |
| 0.354000        | 25.6           | N    | 9.7        | 23.3        | 48.9         |
| 0.470000        | 26.3           | N    | 9.7        | 20.2        | 46.5         |
| 0.534000        | 27.4           | N    | 9.7        | 18.6        | 46.0         |
| 4.406000        | 20.4           | N    | 9.8        | 25.6        | 46.0         |



## INTERTEK TESTING SERVICES

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Applicant: Monster, LLC.  
Date of Test: August 31, 2017  
Model: 191325

### 4.9 Radiated Emissions from Digital Section of Transceiver, FCC Ref: 15.109

- ☐ Not required - No digital part
- ☐ Test results are attached
- ☒ Included in the separated report.

## INTERTEK TESTING SERVICES

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Applicant: Monster, LLC.  
Date of Test: August 31, 2017  
Model: 191325

### 4.10 Transmitter Duty Cycle Calculation and Measurements, FCC Rule 15.35(b), (c)

The EUT antenna output port was connected to the input of the spectrum analyzer. The analyzer center frequency was set to EUT RF channel carrier. The SWEP function on the analyzer was set to ZERO SPAN. The Transmitter ON time was determined from the resultant time-amplitude display:

|   |                                                                 |
|---|-----------------------------------------------------------------|
|   | See attached spectrum analyzer chart (s) for Transmitter timing |
|   | See Transmitter timing diagram provided by manufacturer         |
| x | Not applicable, duty cycle was not used.                        |

**EXHIBIT 5**  
**EQUIPMENT PHOTOGRAPHS**

## INTERTEK TESTING SERVICES

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### 5.0 **Equipment Photographs**

For electronic filing, the photographs are saved with filename: external photos.doc & internal photos.pdf.

## **INTERTEK TESTING SERVICES**

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### **EXHIBIT 6**

### **PRODUCT LABELLING**

## INTERTEK TESTING SERVICES

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### 6.0 **Product Labelling**

For electronic filing, the FCC ID label artwork and location is saved with filename: label.pdf.

**EXHIBIT 7**  
**TECHNICAL SPECIFICATIONS**

## INTERTEK TESTING SERVICES

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### 7.0 Technical Specifications

For electronic filing, the block diagram and circuit diagram are saved with filename: block.pdf and circuit.pdf respectively.



**EXHIBIT 8**

**INSTRUCTION MANUAL**

## INTERTEK TESTING SERVICES

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### 8.0 Instruction Manual

For electronic filing, a preliminary copy of the Instruction Manual is saved with filename: manual.pdf.

This manual will be provided to the end-user with each unit sold/leased in the United States.

## **INTERTEK TESTING SERVICES**

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### **EXHIBIT 9**

### **CONFIDENTIALITY REQUEST**

## INTERTEK TESTING SERVICES

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### 9.0 Confidentiality Request

For electronic filing, the confidentiality request of the tested EUT is saved with filename: request.pdf.

## **INTERTEK TESTING SERVICES**

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### **EXHIBIT 10**

### **MISCELLANEOUS INFORMATION**

### 10.0 Discussion of Pulse Desensitization

The determination of pulse desensitivity was made in accordance with Hewlett Packard Application Note 150-2, *Spectrum Analysis ... Pulsed RF*.

Pulse desensitivity is not applicable for this device since the transmitter transmits the RF signal continuously.

**EXHIBIT 11**  
**TEST EQUIPMENT LIST**

## INTERTEK TESTING SERVICES

### 11.0 Test Equipment List

| Equipment No. | Equipment           | Manufacturer    | Model No.       | Serial No.     | Cal. Date   | Due Date    |
|---------------|---------------------|-----------------|-----------------|----------------|-------------|-------------|
| SZ182-02      | RF Power Meter      | Anritsu         | ML2496A         | 1302005        | 01-Jun-2017 | 01-Jun-2018 |
| SZ182-02-01   | Power Sensor        | Anritsu         | MA2411B         | 1207429        | 01-Jun-2017 | 01-Jun-2018 |
| SZ061-12      | BiConiLog Antenna   | ETS             | 3142E           | 00166158       | 9-Sep-2016  | 09-Sep-2017 |
| SZ185-01      | EMI Receiver        | R&S             | ESCI            | 100547         | 09-Feb-2017 | 09-Feb-2018 |
| SZ061-08      | Horn Antenna        | ETS             | 3115            | 00092346       | 12-Oct-2016 | 12-Oct-2017 |
| SZ061-06      | Active Loop Antenna | Electro-Metrics | EM-6876         | 217            | 26-May-2017 | 26-May-2018 |
| SZ056-03      | Spectrum Analyzer   | R&S             | FSP 30          | 101148         | 01-Jun-2017 | 01-Jun-2018 |
| SZ056-06      | Signal Analyzer     | R&S             | FSV 40          | 101101         | 07-Jul-2017 | 07-Jul-2018 |
| SZ181-04      | Preamplifier        | Agilent         | 8449B           | 3008A0247<br>4 | 09-Feb-2017 | 09-Feb-2018 |
| SZ188-01      | Anechoic Chamber    | ETS             | RFD-F/A-100     | 4102           | 16-Jan-2017 | 16-Jan-2019 |
| SZ062-02      | RF Cable            | RADIALL         | RG 213U         | --             | 16-Jun-2017 | 16-Jun-2018 |
| SZ062-05      | RF Cable            | RADIALL         | 0.04-26.5GHz    | --             | 16-Jun-2017 | 16-Jun-2018 |
| SZ062-12      | RF Cable            | RADIALL         | 0.04-26.5GHz    | --             | 16-Jun-2017 | 16-Jun-2018 |
| SZ067-04      | Notch Filter        | Micro-Tronics   | BRM5070<br>2-02 | --             | 14-Jun-2017 | 14-Jun-2018 |
| SZ185-02      | EMI Test Receiver   | R&S             | ESCI            | 100692         | 01-Nov-2016 | 01-Nov-2017 |
| SZ187-01      | Two-Line V-Network  | R&S             | ENV216          | 100072         | 01-Nov-2016 | 01-Nov-2017 |
| SZ188-03      | Shielding Room      | ETS             | RFD-100         | 4100           | 16-Jan-2017 | 16-Jan-2019 |
| SZ061-12      | BiConiLog Antenna   | ETS             | 3142E           | 00166158       | 9-Sep-2016  | 09-Sep-2017 |