Bluestem Brands Inc

Application
For
Certification

FCC ID: 2ANXWNN6CR

GuruGear 2.4G wireless mouse

Model: H-ML45

Brand Name: GuruGear

2.4GHz Transceiver

Report No.: 170925003SZN-001

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	Digitally signed by Kidd Yang Location: Intertek Testing Services
Damon Wang *Engineer*	*Kidd Yang* *Senior Project Engineer* *Date: 12 October 2017*

TRF No.: FCC 15C_TX_c

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LIST OF EXHIBITS

MEASUREMENT/TECHNICAL REPORT

Bluestem Brands Inc

Model: H-ML45

FCC ID: 2ANXWNN6CR

This report concerns (check one:) Original Grant X Class II Change _____

Equipment Type: DXX - Part 15 Low Power Communication Device Transmitter

Deferred grant requested per 47 CFR 0.457(d)(1)(ii)? Yes _____ No X

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 X

If no, assumed Part 15, Subpart C for intentional radiator – the new 47 CFR [10-1-16 Edition] provision.

Report prepared by:

Damon Wang
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Exhibit type	File Description	Filename
Test Report	Test Report	report.pdf
Test Setup Photo	Radiated Emission	radiated photos.pdf
Test Setup Photo	Conducted Emission	conducted photos.pdf
Test Report	Bandedge Plot	bandedge.pdf
Test Report	20dB BW Plot	bw.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
Cover Letter	Letter of Agency	agency.pdf

EXHIBIT 1

GENERAL DESCRIPTION

1.0 General Description

1.1 Product Description

The equipment under test (EUT) is a GuruGear 2.4G wireless mouse with 2.4G wireless function operating in 2402.65-2480.65MHz. The EUT is powered by DC5V via USB host unit. For more detail information pls. refer to the user manual.

Antenna type: Integral antenna
Modulation Type: GFSK

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

1.2 Related Submittal(s) Grants

This is an application for certification of a transceiver for GuruGear 2.4G wireless mouse, and related report for FCC DOC is subjected to report number: 170925003SZN-002.

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1.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.10 (2013). 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.

1.4 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, Shangkeng Community, Guanhu Subdistrict, Longhua District, Shenzhen, P.R. China. This test facility and site measurement data have been fully placed on file with the FCC (Registration Number: CN1188).

EXHIBIT 2

SYSTEM TEST CONFIGURATION

2.0 System Test Configuration

2.1 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 DC5V from USB port via PC with input of AC120V, 60Hz during the test. Only the worst data was reported in this report.

For maximizing emissions below 30 MHz, the EUT was rotated through 360°, the centre of the loop antenna was placed 1 meter above the ground, and the antenna polarization was changed. For maximizing emission at and above 30 MHz, 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 report in Exhibit 3.0.

The rear of unit shall be 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.

2.2 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.

2.3 Special Accessories

No special accessory attached.

2.4 Equipment Modification

Any modifications installed previous to testing by Bluestem Brands Inc 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.

2.5 Measurement Uncertainty

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

2.6 Support Equipment List and Description

Description	Manufacture	Model No.
Laptop	HP	Compaq 2510p
Hard disk	TOSHIBA	UHYBS-004G-BL
USB Cable	N/A	Unshielded, 80cm
RJ45 Cable	N/A	Unshielded, 5.0m
2.4GHz Wireless Mouse	SHENZHEN VIEW SECU TECH CO., LIMITED	H-ML45

EXHIBIT 3

EMISSION RESULTS

3.0 Emission Results

Data is included worst-case configuration (the configuration which resulted in the highest emission levels).

3.1 Radiated Test Results

A sample calculation, configuration photographs and data tables of the emissions are included.

3.1.1 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 + AV

Where FS = Field Strength in dBµV/m
RA = Receiver Amplitude (including preamplifier) in dBµV
CF = Cable Attenuation Factor in dB
AF = Antenna Factor in dB
AG = Amplifier Gain in dB
PD = Pulse Desensitization in dB
AV = Average Factor 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 + AV

Assume a receiver reading of 62.0 dBµV 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, and the resultant average factor was -10 dB. The net field strength for comparison to the appropriate emission limit is 32 dBµV/m. This value in dBµV/m was converted to its corresponding level in µV/m.

RA = 62.0 dBµV
AF = 7.4 dB
CF = 1.6 dB
AG = 29.0 dB
PD = 0 dB
AV = -10 dB
FS = 62 + 7.4 + 1.6 - 29 + 0 + (-10) = 32 dBµV/m

Level in µV/m = Common Antilogarithm [(32 dBµV/m)/20] = 39.8 µV/m

3.1.2 Radiated Emission Configuration Photograph

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

3.1.3 Radiated Emissions

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
32.910 MHz

Judgement: Passed by 13.7 dB

TEST PERSONNEL:

Sign on file

Damon Wang, Engineer
Typed/Printed Name

26 September 2017
Date

Applicant: Bluestem Brands Inc
Date of Test: 26 September 2017
Model: H-ML45
Sample: 1/1
Worst Case Operating Mode: Transmitting

Table 1

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	81.895	18.8	20.0	14.9	13.7	40.0	-26.3
Horizontal	303.540	29.3	20.0	17.4	26.7	46.0	-19.3
Horizontal	393.265	17.8	20.0	27.7	25.5	46.0	-20.5
Vertical	32.910	38.0	20.0	8.3	26.3	40.0	-13.7
Vertical	151.735	27.2	20.0	13.0	20.2	43.5	-23.3
Vertical	665.350	34.2	20.0	17.3	31.5	46.0	-14.5

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.

3.1.4 Transmitter Spurious Emissions (Radiated)

Worst Case Radiated Emission
at
4883.300 MHz

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

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.

Judgement: Passed by 7.5 dB

TEST PERSONNEL:

Sign on file

Damon Wang, Engineer
Typed/Printed Name

26 September 2017
Date

Applicant: Bluestem Brands Inc
Date of Test: 26 September 2017
Model: H-ML45
Sample: 1/1
Worst Case Operating Mode: Transmitting

Table 2

Radiated Emissions

(2402.650MHz)

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	2402.650	90.1	36.7	28.5	81.9	114.0	-32.1
Horizontal	4805.300	54.8	36.7	35.0	53.1	74.0	-20.9
Horizontal	7207.950	55.8	36.1	37.0	56.7	74.0	-17.3

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	2402.650	89.5	36.7	28.5	81.3	94.0	-12.7
Horizontal	4805.300	47.8	36.7	35.0	46.1	54.0	-7.9
Horizontal	7207.950	41.3	36.1	37.0	42.2	54.0	-11.8

Notes: 1. Peak detector is used for the emission measurement (RBW=1MHz / VBW=3MHz for Peak value, and RBW=1MHz / VBW=10Hz for Average value; RBW=3MHz is used for fundamental emission measurement).

2. All measurements were made at 3 meter. Harmonic 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 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. Horn antenna is used for the emission over 1000MHz.

Test Engineer: Damon Wang

Applicant: Bluestem Brands Inc
Date of Test: 26 September 2017
Model: H-ML45
Sample: 1/1
Worst Case Operating Mode: Transmitting

Table 3

Radiated Emissions

(2441.650MHz)

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	2441.650	91.3	36.7	28.5	83.1	114.0	-30.9
Horizontal	4883.300	55.3	36.7	35.0	53.6	74.0	-20.4
Horizontal	7324.950	56.0	36.1	37.0	56.9	74.0	-17.1

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	2441.650	90.4	36.7	28.5	82.2	94.0	-11.8
Horizontal	4883.300	48.2	36.7	35.0	46.5	54.0	-7.5
Horizontal	7324.950	41.5	36.1	37.0	42.4	54.0	-11.6

Notes:
1. Peak detector is used for the emission measurement (RBW=1MHz / VBW=3MHz for Peak value, and RBW=1MHz / VBW=10Hz for Average value; RBW=3MHz is used for fundamental emission measurement).

2. All measurements were made at 3 meter. Harmonic 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 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. Horn antenna is used for the emission over 1000MHz.

Test Engineer: Damon Wang

Applicant: Bluestem Brands Inc
Date of Test: 26 September 2017
Model: H-ML45
Sample: 1/1
Worst Case Operating Mode: Transmitting

Table 4

Radiated Emissions

(2480.650MHz)

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	2480.650	90.9	36.7	28.3	82.5	114.0	-31.5
Horizontal	4961.300	54.6	36.7	35.3	53.2	74.0	-20.8
Horizontal	7441.950	55.9	36.1	37.0	56.8	74.0	-17.2

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	2480.650	90.3	36.7	28.3	81.9	94.0	-12.1
Horizontal	4961.300	47.4	36.7	35.3	46.0	54.0	-8.0
Horizontal	7441.950	41.4	36.1	37.0	42.3	54.0	-11.7

Notes:
1. Peak detector is used for the emission measurement (RBW=1MHz / VBW=3MHz for Peak value, and RBW=1MHz / VBW=10Hz for Average value; RBW=3MHz is used for fundamental emission measurement).

2. All measurements were made at 3 meter. Harmonic 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 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. Horn antenna is used for the emission over 1000MHz.

Test Engineer: Damon Wang

3.2 Conducted Emission at Mains Terminal

3.2.1 Conducted Emissions Configuration Photograph

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

3.2.2 Conducted Emissions

Worst Case Conducted Configuration
At

0.178 MHz

Judgement: Passed by 10.0 dB margin

TEST PERSONNEL:

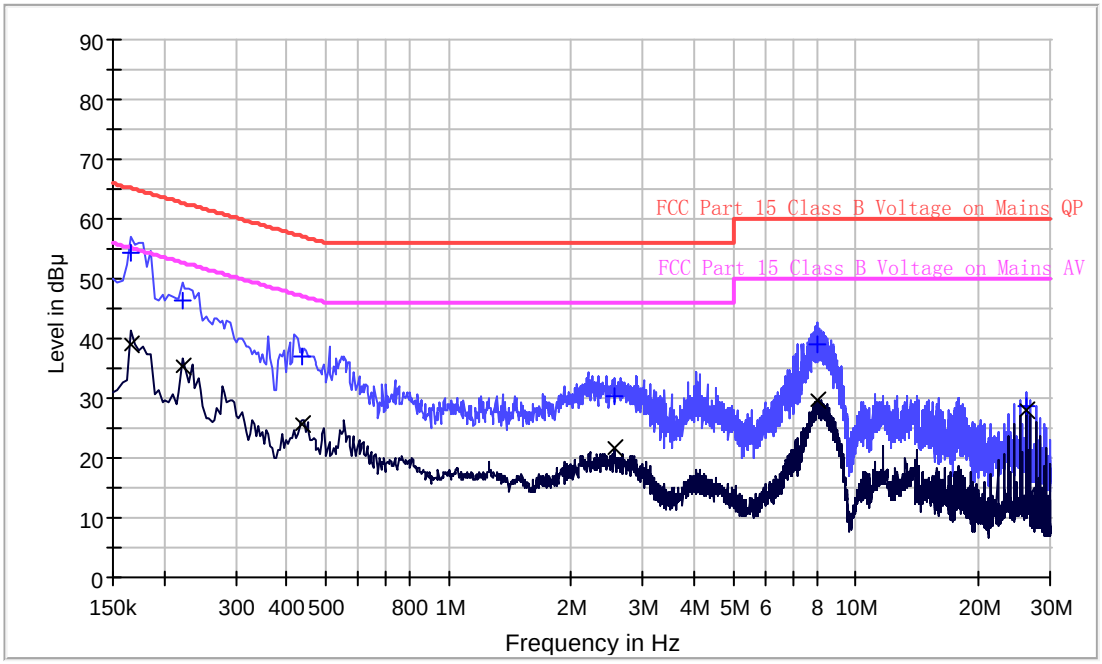
Sign on file

Damon Wang Engineer
Typed/Printed Name

26 September 2017
Date

Applicant: Bluestem Brands Inc
Date of Test: 26 September 2017
Model: H-ML45
Sample: 1/1
Worst Case Operating Mode: Wireless Link
Phase: Live

Conducted Emission Test - FCC



Result Table QP

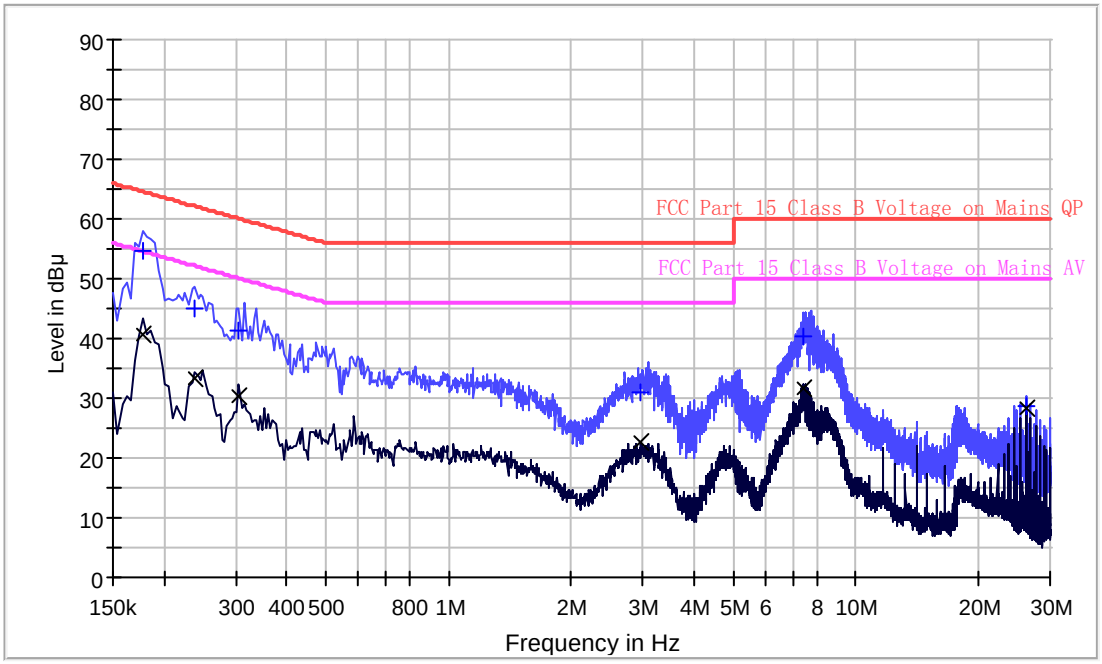
Frequency (MHz)	QuasiPeak (dB¦ÌV)	Line	Corr. (dB)	Margin (dB)	Limit (dB¦ÌV)
0.166000	54.5	L1	9.6	10.7	65.2
0.222000	46.4	L1	9.7	16.3	62.7
0.438000	37.0	L1	9.7	20.1	57.1
2.558000	30.2	L1	9.7	25.8	56.0
8.066000	39.0	L1	9.9	21.0	60.0
26.114000	28.7	L1	10.7	31.3	60.0

Result Table AV

Frequency (MHz)	Average (dB¦ÌV)	Line	Corr. (dB)	Margin (dB)	Limit (dB¦ÌV)
0.166000	39.0	L1	9.6	16.2	55.2
0.222000	35.3	L1	9.7	17.4	52.7
0.438000	25.8	L1	9.7	21.3	47.1
2.558000	21.6	L1	9.7	24.4	46.0
8.066000	29.8	L1	9.9	20.2	50.0
26.114000	28.0	L1	10.7	22.0	50.0

Applicant: Bluestem Brands Inc
Date of Test: 26 September 2017
Model: H-ML45
Sample: 1/1
Worst Case Operating Mode: Wireless Link
Phase: Neutral

Conducted Emission Test - FCC



Result Table QP

Frequency (MHz)	QuasiPeak (dB¦ÌV)	Line	Corr. (dB)	Margin (dB)	Limit (dB¦ÌV)
0.178000	54.6	N	9.7	10.0	64.6
0.238000	45.0	N	9.7	17.2	62.2
0.306000	41.3	N	9.7	18.8	60.1
2.970000	31.1	N	9.8	24.9	56.0
7.462000	40.2	N	9.9	19.8	60.0
26.114000	28.5	N	10.7	31.5	60.0

Result Table AV

Frequency (MHz)	Average (dB¦ÌV)	Line	Corr. (dB)	Margin (dB)	Limit (dB¦ÌV)
0.178000	40.8	N	9.7	13.8	54.6
0.238000	33.3	N	9.7	18.9	52.2
0.306000	30.2	N	9.7	19.9	50.1
2.970000	22.7	N	9.8	23.3	46.0
7.462000	31.7	N	9.9	18.3	50.0
26.114000	28.4	N	10.7	21.6	50.0

EXHIBIT 4

EQUIPMENT PHOTOGRAPHS

4.0 Equipment Photographs

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

EXHIBIT 5

PRODUCT LABELLING

5.0 Product Labelling

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

EXHIBIT 6

TECHNICAL SPECIFICATIONS

6.0 Technical Specifications

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

EXHIBIT 7

INSTRUCTION MANUAL

7.0 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.

EXHIBIT 8

MISCELLANEOUS INFORMATION

8.0 Miscellaneous Information

This miscellaneous information includes details of the measured bandedge, the test procedure and calculation of factor such as pulse desensitization.

8.1 Bandedge Plot

For electronic filing, the plot shows the fundamental emission when modulated is saved with filename: bandedge.pdf. From the plot, the field strength of any emissions outside of the specified frequency band are attenuated to the general radiated emission limits in section 15.209. It fulfils the requirement of 15.249(d).

Peak Measurement

Bandedge compliance is determined by applying marker-delta method, i.e (Bandedge Plot).

(i) Lower channel 2402.650MHz:

Peak Resultant field strength = Fundamental emissions (peak value) – delta from the bandedge plot

= 81.9 dBµv/m-33.8 dB
= 48.1 dBµv/m

(ii) Upper channel 2480.650MHz:

Peak Resultant field strength = Fundamental emissions (peak value) – delta from the bandedge plot

= 82.5 dBµv/m-38.3 dB
= 44.2 dBµv/m

The resultant field strength meets the general radiated emission limit in section 15.209, which does not exceed 74dBµv/m (Peak Limit) and 54dBµv/m (Average Limit).

8.1 Bandedge Plot (cont'd)

Pursuant to FCC part 15 Section 15.215(c), the 20dB bandwidth of the emission was contained within the frequency band designated (mentioned as above) which the EUT operated. The effects, if any, from frequency sweeping, frequency hopping, other modulation techniques and frequency stability over excepted variations in temperature and supply voltage were considered.

Figure 8.1 Bandwidth

8.2 Discussion of Pulse Desensitization

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

8.3 Transmitter Duty Cycle Calculation, 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.

8.4 Emissions Test Procedures

The following is a description of the test procedure used by Intertek Testing Services in the measurements of transmitters operating under Part 15, Subpart C rules.

The test set-up and procedures described below are designed to meet the requirements of ANSI C63.10 - 2013.

The transmitting equipment under test (EUT) is placed on a styrene turntable which is four feet in diameter, up to 1GHz 0.8m and above 1GHz 1.5m in height above the ground plane. During the radiated emissions test, the turntable is rotated and any cables leaving the EUT are manipulated to find the configuration resulting in maximum emissions. The EUT is adjusting through all three orthogonal axes to obtain maximum emission levels. The antenna height and polarization are varied during the testing to search for maximum signal levels.

Detector function for radiated emissions is in peak mode. Average readings, when required, are taken by measuring the duty cycle of the equipment under test and subtracting the corresponding amount in dB from the measured peak readings.

The frequency range scanned is from the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or 40 GHz, whichever is lower.

Detector function for conducted emissions is in QP & AV mode and IFBW setting is 9 kHz from the frequency band 150 kHz to 30MHz.

8.4 Emissions Test Procedures (cont'd)

The EUT is warmed up for 15 minutes prior to the test.

AC power to the unit is varied from 85% to 115% nominal and variation in the fundamental emission field strength is recorded. If battery powered, a new, fully charged battery is used.

Conducted measurements are made as described in ANSI C63.10 - 2013.

The IF bandwidth used for measurement of radiated signal strength was 10 kHz for emission below 30 MHz and 120 kHz for emission from 30 MHz to 1000 MHz. Where pulsed transmissions of short enough pulse duration warrant, a greater bandwidth is selected according to the recommendations of Hewlett Packard Application Note 150-2. Above 1000 MHz, a resolution bandwidth of 1 MHz is used (RBW 3MHz used for fundamental emission).

Transmitter measurements are normally conducted at a measurement distance of three meters. However, to assure low enough noise floor in the restricted bands and above 1 GHz, signals are acquired at a distance of one meter or less. All measurements are extrapolated to three meters using inverse scaling, but those measurements taken at a closer distance are so marked.

EXHIBIT9

TEST EQUIPMENT LIST

9.0 Test Equipment List

Equipment No.	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due Date
SZ061-12	BiConiLog Antenna	ETS	3142E	00166158	20-Sep-2017	20-Sep-2018
SZ185-01	EMI Receiver	R&S	ESCI	100547	9-Feb-2017	9-Feb-2018
SZ061-08	Horn Antenna	ETS	3115	00092346	27-Oct-2016	27-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	7-Jul-2017	7-Jul-2018
SZ056-06	Signal Analyzer	R&S	FSV 40	101101	9-Feb-2017	9-Feb-2018
SZ181-04	Preamplifier	Agilent	8449B	3008A02474	16-Apr-2016	16-Apr-2018
SZ188-01	Anechoic Chamber	ETS	RFD-F/A-100	4102	8-Jul-2017	8-Jan-2018
SZ062-02	RF Cable	RADIALL	RG 213U	--	10-Jul-2017	10-Jan-2018
SZ062-05	RF Cable	RADIALL	0.04-26.5GHz	--	11-Sep-2017	11-Mar-2018
SZ062-12	RF Cable	RADIALL	0.04-26.5GHz	--	14-Jun-2017	14-Jun-2018
SZ067-04	Notch Filter	Micro-Tronics	BRM50702-02	--	1-Nov-2016	1-Nov-2017
SZ185-02	EMI Test Receiver	R&S	ESCI	100692	1-Nov-2016	1-Nov-2017
SZ187-01	Two-Line V-Network	R&S	ENV216	100072	12-Jul-2017	12-Jul-2018
SZ188-03	Shielding Room	ETS	RFD-100	4100	17-Aug-2016	17-Aug-2018