ION AUDIO LLC

Application
For
Certification
(FCC ID: Y4O-IPA57A)

Portable Sound System with AM/FM Radio for iPOD

Model: iPA57
Additional Model: TAILGATER BT (BLUETOOTH)

2.4GHz Transceiver

Report No.: SZ12050570-1

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 [10-1-11]

Prepared and Checked by:	Approved by:
Sign on file	 Digitally signed by Billy Li Location: Intertek Testing Services
Chris Chen Engineer	Billy Li Supervisor Date: 25 July, 2012

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LIST OF EXHIBITS

INTERTEK TESTING SERVICES

MEASUREMENT/TECHNICAL REPORT

ION AUDIO LLC - MODEL: iPA57
Additional Model: TAILGATER BT (BLUETOOTH)

FCC ID: Y4O-IPA57A

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 [10-1-11 Edition] provision.

Report prepared by:

Billy Li
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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 speaker for mp3 player, CD player, iPhone, iPAD, or any smartphone devices that supports either 1/8" Aux input or A2DP Bluetooth technology. In general, the audio input signal is sent from an audio source such as mp3 player, or iPAD through Aux connection, or Bluetooth pairing to the speaker amplifier. The EUT was operated from a full charged battery (rechargeable 12V Lead-acid battery) and charged by AC 120V/60Hz.

Antenna Type: Integral antenna

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

The Model: TAILGATER BT (BLUETOOTH) is the same as the Model: iPA57 in hardware aspect. The difference in model number serves as marketing strategy.

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 the Portable Sound System with AM/FM Radio for iPOD which has Bluetooth function, and there is no corresponding unit for certification.

1.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.4 (2009). 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. Kejiyuan Branch** and located at 6F, D Block, Huahan Building, Langshan Road, Nanshan District, Shenzhen, P. R. China. This test facility and site measurement data have been fully placed on file with the FCC(Registration Number: 242492).

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 C63.4 (2009).

The EUT was powered by a full charged battery (rechargeable 12V Lead-acid battery) and charged by AC 120V/60Hz during the test and only the worst data was reported in this report.

All packets DH1, DH3 & DH5 mode in all modulation type GFSK, π/4 –DQPSK and 8-DPSK were 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.

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 and all cables were insulated, if required, from the ground plane by up to 12 mm of insulating material. 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 radiated and conducted testing was designed to exercise the various system components in a manner similar to a typical use. The worst case configuration is used in all specified testing.

The parameters of test software setting:
During the test, Channel and power controlling software provided by the applicant was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the application and is going to be fixed on the firmware of the end product.

2.3 Special Accessories

N/A.

2.4 Equipment Modification

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

No modifications were installed by Intertek Testing Services Shenzhen Ltd Kejiyuan 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	Manufacturer	Model No.
iPhone	Apple	A1303
iPod	Apple	A1367
Microphone	Keen	Unshielded, Length 320cm
Apple Dock connector to USB cable	Apple	Unshielded, Length 280cm
Audio IN Line	Keen	Unshielded, Length 300cm

EXHIBIT 3

EMISSION RESULTS

3.0 **Emission Results**

Data is included 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.

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
73.165 MHz

Judgement: Passed by 19.7 dB

TEST PERSONNEL:

Sign on file

Chris Chen, Engineer
Typed/Printed Name

25 July, 2012
Date

Applicant: ION AUDIO LLC Date of Test: 25 July, 2012
Model: iPA57
Sample: 1/1
Worst Case Operating Mode: Transmit with charging

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	62.960	26.6	20.0	5.9	12.5	40.0	-27.5
Horizontal	323.900	25.3	20.0	15.9	21.2	46.0	-24.8
Horizontal	407.840	25.9	20.0	17.5	23.4	46.0	-22.6
Vertical	61.040	32.3	20.0	6.3	18.6	40.0	-21.4
Vertical	73.165	34.7	20.0	5.6	20.3	40.0	-19.7
Vertical	263.770	29.5	20.0	13.5	23.0	46.0	-23.0

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
4804.000 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 16.6 dB

TEST PERSONNEL:

Sign on file

Chris Chen, Engineer
Typed/Printed Name

25 July, 2012
Date

Applicant: ION AUDIO LLC Date of Test: 25 July, 2012
Model: iPA57
Sample: 1/1
Worst Case Operating Mode: Transmit with charging

Table 2

Radiated Emissions

(2402.000MHz)

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)
Vertical	2402.000	101.1	36.7	28.5	92.9	114.0	-21.1
Vertical	4804.000	65.6	36.7	28.5	57.4	74.0	-16.6
Vertical	7206.000	57.2	36.1	33.1	54.2	74.0	-19.8

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Average Factor (-dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
Vertical	2402.000	101.1	36.7	28.5	30.1	62.8	94.0	-31.2
Vertical	4804.000	65.6	36.7	28.5	30.1	27.3	54.0	-26.7
Vertical	7206.000	57.2	36.1	33.1	30.1	24.1	54.0	-29.9

Notes: 1. Peak Detector Data unless otherwise stated.

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: Chris Chen

Applicant: ION AUDIO LLC
Model: iPA57
Sample: 1/1
Worst Case Operating Mode: Transmit with charging

Date of Test: 25 July, 2012

Table 3

Radiated Emissions

(2441.000MHz)

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)
Vertical	2441.000	101.4	36.7	28.5	93.2	114.0	-20.8
Vertical	4882.000	58.8	36.7	28.5	50.6	74.0	-23.4
Vertical	7323.000	58.8	36.1	33.1	55.8	74.0	-18.2

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Average Factor (-dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
Vertical	2441.000	101.4	36.7	28.5	30.1	63.1	94.0	-30.9
Vertical	4882.000	58.8	36.7	28.5	30.1	20.5	54.0	-33.5
Vertical	7323.000	58.8	36.1	33.1	30.1	25.7	54.0	-28.3

Notes: 1. Peak Detector Data unless otherwise stated.

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: Chris Chen

Applicant: ION AUDIO LLC Date of Test: 25 July, 2012
Model: iPA57
Sample: 1/1
Worst Case Operating Mode: Transmit with charging

Table 4

Radiated Emissions

(2480.000MHz)

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
Vertical	2480.000	102.6	36.7	28.6	94.5	114.0	-19.5
Vertical	4960.000	62.3	36.7	28.6	54.2	74.0	-19.8
Vertical	7440.000	57.9	36.1	33.4	55.2	74.0	-18.8

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Average Factor (-dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
Vertical	2480.000	102.6	36.7	28.6	30.1	64.4	94.0	-29.6
Vertical	4960.000	62.3	36.7	28.6	30.1	24.1	54.0	-29.9
Vertical	7440.000	57.9	36.1	33.4	30.1	25.1	54.0	-28.9

Notes: 1. Peak Detector Data unless otherwise stated.

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: Chris Chen

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 Level- Conducted Configuration
at
24.038 MHz

Judgement: Passed by 12.9 dB margin

TEST PERSONNEL:

Sign on file

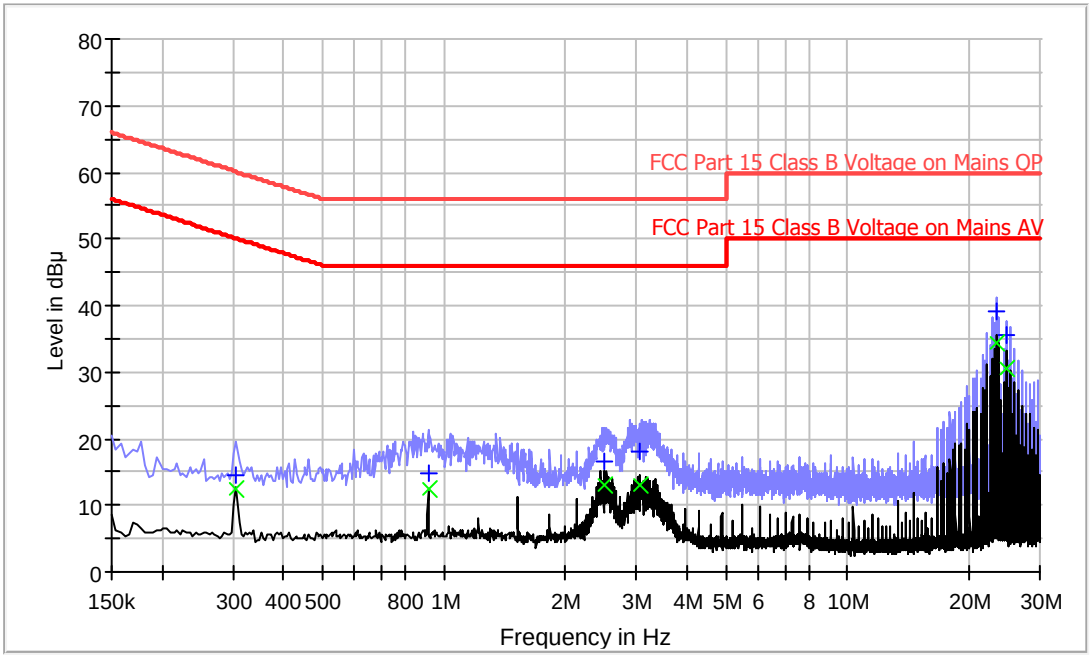
Chris Chen, Engineer
Typed/Printed Name

25 July, 2012
Date

Applicant: ION AUDIO LLC
Model: iPA57
Sample: 1/1
Worst Case Operating Mode: Transmit with charging

Date of Test: 25 July, 2012

Conducted Emission Test FCC Part 15



Result Table QP

Frequency (MHz)	QuasiPeak (dB µ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.306	14.5	L1	9.6	45.6	60.1
0.914	14.7	L1	9.7	41.3	56.0
2.494	16.5	L1	9.7	39.5	56.0
3.046	18.2	L1	9.7	37.8	56.0
23.466	39.0	L1	10.6	21.0	60.0
24.686	35.4	L1	10.6	24.6	60.0

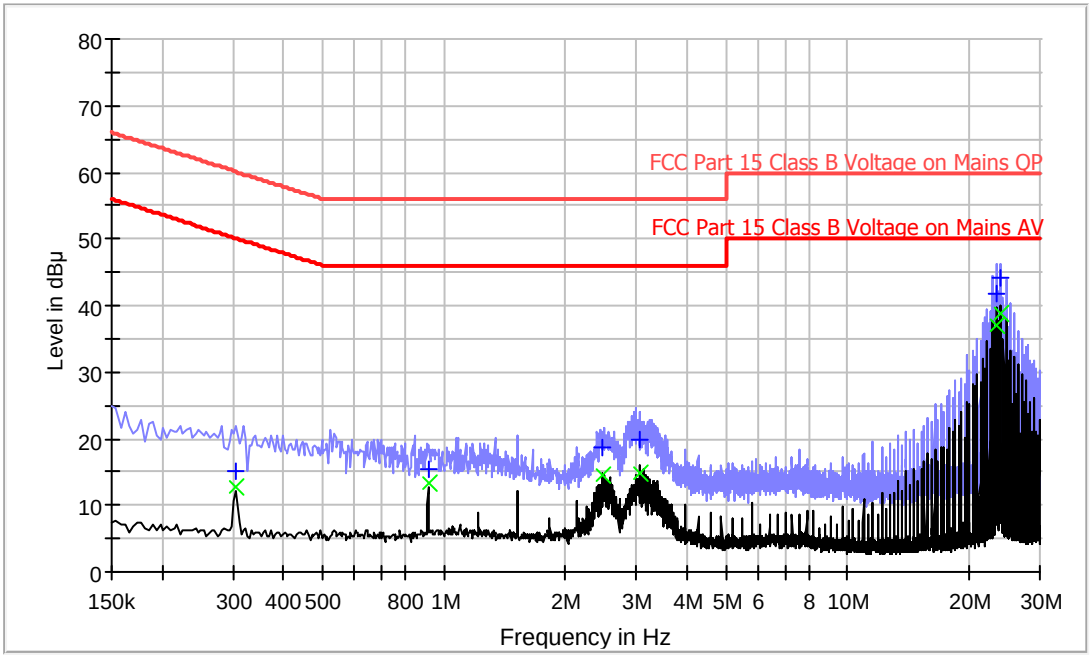
Result Table AV

Frequency (MHz)	Average (dB µ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.306	12.6	L1	9.6	37.5	50.1
0.914	12.3	L1	9.7	33.7	46.0
2.494	13.1	L1	9.7	32.9	46.0
3.046	12.9	L1	9.7	33.1	46.0
23.466	34.4	L1	10.6	15.6	50.0
24.686	33.6	L1	10.6	16.7	50.0

Applicant: ION AUDIO LLC
Model: iPA57
Sample: 1/1
Worst Case Operating Mode: Transmit with charging

Date of Test: 25 July, 2012

Conducted Emission Test FCC Part 15



Result Table QP

Frequency (MHz)	QuasiPeak (dB µ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.306	14.3	N	9.6	45.8	60.1
0.924	15.2	N	9.6	40.8	56.0
2.568	18.9	N	9.6	37.1	56.0
3.078	18.7	N	9.7	37.3	56.0
23.584	42.5	N	10.6	17.5	60.0
24.038	44.2	N	10.6	15.8	60.0

Result Table AV

Frequency (MHz)	Average (dB µ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.306	12.4	N	9.6	37.7	50.1
0.924	13.5	N	9.6	32.5	46.0
2.568	14.8	N	9.6	31.2	46.0
3.078	13.9	N	9.7	32.1	46.0
23.584	36.7	N	10.6	13.3	50.0
24.038	37.1	N	10.6	12.9	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 2402MHz:

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

= 92.90 dBµv/m-46.74 dB
= 46.16 dBµv/m

(ii) Upper channel 2480MHz:

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

= 94.50 dBµv/m-52.40 dB
= 42.10 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. The effective period (T_{eff}) is approximately 625µs for Bluetooth. With a resolution bandwidth (3dB) of 1MHz, so the pulse desensitivity factor is 0dB.

8.3 Transmitter Duty Cycle Calculation, FCC Rule 15.35(b, c)

Based on the Bluetooth Specification, transmitter ON time is independent of packet type (DH1, DH3 and DH5) and packet length (single-slot and multi-slot). The maximum transmitter ON time for the Bluetooth is 625µs. The Bluetooth Version is 2.1 plus EDR

Each TX and RX time slot is 625µs in length. A TDD scheme is used where master and slave alternately transmit. For one period for a pseudo-random hopping through all 79 RF channels, for DH5:

Time of 1 hopset (5 TX slots + 1 RX slot) = 0.625 ms x 6 = 3.75 ms

Time of 1 cycle =3.75 ms x 79 = 296.25 ms

Average factor = 20 log (3.125 / 100) = -30.1 dB

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 C63.4 - 2009.

the EUT and all cables were insulated, if required, from the ground plane by up to 12 mm of insulating material. 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 adjust 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 C63.4 - 2009.

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.

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.

EXHIBIT 9

TEST EQUIPMENT LIST

9.0 Test Equipment List

Equipment No.	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due Date
SZ061-03	BiConiLog Antenna	ETS	3142C	00066460	30-Jun-12	30-Jun-13
SZ185-01	EMI Receiver	R&S	ESCI	100547	11-Mar-12	11-Mar-13
SZ061-08	Horn Antenna	ETS	3115	00092346	11-Mar-12	11-Mar-13
SZ061-06	Active Loop Antenna	Electro-Metrics	EM-6876	217	11-Mar-12	11-Mar-13
SZ056-03	Spectrum Analyzer	R&S	FSP 30	101148	11-Mar-12	11-Mar-13
SZ181-04	Preamplifier	Agilent	8449B	3008A02474	11-Mar-12	11-Mar-13
SZ188-01	Anechoic Chamber	ETS	RFD-F/A-100	4102	15-Dec-11	15-Dec-12
SZ062-02	RF Cable	RADIALL	RG 213U	--	11-Mar-12	11-Mar-13
SZ062-06	RF Cable	RADIALL	0.04-26.5GHz	--	11-Mar-12	11-Mar-13
SZ062-12	RF Cable	RADIALL	0.04-26.5GHz	--	11-Mar-12	11-Mar-13
SZ067-04	Notch Filter	Micro-Tronics	BRM50702-02	--	17-Mar-12	17-Sep-12
SZ185-02	EMI Test Receiver	R&S	ESCI	100692	12-Nov-11	12-Nov-12
SZ187-01	Two-Line V-Network	R&S	ENV216	100072	12-Nov-11	12-Nov-12
SZ187-02	Two-Line V-Network	R&S	ENV216	100073	12-Nov-11	12-Nov-12
SZ188-03	Shielding Room	ETS	RFD-100	4100	16-Sep-10	16-Sep-13