Shenzhen Honeycomb Technologies Company Limited

Application
For
Certification

FCC ID: 2AAUWHRF24A13AN

RF 2.4G Module

Model: HRF24A13AN

2.4GHz Transceiver Module

Report No.: 130806015SZN-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 [10-1-12]

Prepared and Checked by:	Approved by:
Sign on file	Digitally signed by Robert Li Location: Intertek Testing Services
Jenner Liu Testing Engineer	Robert Li Project Engineer Date: August 26, 2013

TRF No.: FCC 15C_TX_b

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LIST OF EXHIBITS

MEASUREMENT/TECHNICAL REPORT

Shenzhen Honeycomb Technologies Company Limited - MODEL: HRF24A13AN

FCC ID: 2AAUWHRF24A13AN

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 [10-1-12 Edition] provision.

Report prepared by:

Jenner Liu
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Test Report	Test Report	report.pdf
Test Setup Photo	Radiated Emission	radiated photos.pdf
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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	Letter of Agency	agency.pdf
Cover Letter	Module Approval Letter	module approval letter.pdf
Cover Letter	Certification of Agreement	agreement.pdf

EXHIBIT 1

GENERAL DESCRIPTION

1.0 General Description

1.1 Product Description

The equipment under test (EUT) is a RF 2.4G Module operating at 2.4GHz band. The EUT can be powered by DC 2.4V - DC 3.6V (3.3V typical). For more detailed information please refer to the user manual.

Antenna Type: Integral antenna

Modulation Type: OQPSK

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 RF 2.4G Module Approval, 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 DC 2.4V - DC 3.6V (3.3V typical) through Laptop during the test.

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 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 accessories used.

2.4 Equipment Modification

Any modifications installed previous to testing by Shenzhen Honeycomb Technologies Company Limited 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.
Laptop	HP	Compaq 2510p
USB Cable	N/A	Unshielded, 122cm
Hard disk	**Smart.drive**	**HD3-SU2FW**
1394 Line	**Smart.drive**	Unshielded, **180cm**
USB Line	**Smart.drive**	Unshielded, **120cm**
Fix Board	N/A	N/A

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
47.945 MHz

Judgement: Passed by 8.8 dB

TEST PERSONNEL:

Sign on file

Jenner Liu, Testing Engineer
Typed/Printed Name

August 26, 2013
Date

Applicant: Shenzhen Honeycomb Technologies Company Limited
Date of Test: August 26, 2013
Model: HRF24A13AN
Sample: 1/1
Worst Case Operating Mode: Transmit

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	132.756	38.6	20.0	7.7	26.3	43.5	-17.2
Horizontal	261.179	40.7	20.0	13.9	34.6	46.0	-11.4
Horizontal	929.190	31.1	20.0	23.7	34.8	46.0	-11.2
Vertical	47.945	45.2	20.0	6.0	31.2	40.0	-8.8
Vertical	132.820	42.6	20.0	7.7	30.3	43.5	-13.2
Vertical	260.860	34.2	20.0	13.9	28.1	46.0	-17.9

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
9760.000 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 12.1 dB

TEST PERSONNEL:

Sign on file

Jenner Liu, Testing Engineer
Typed/Printed Name

August 26, 2013
Date

Applicant: Shenzhen Honeycomb Technologies Company Limited
Date of Test: August 26, 2013
Model: HRF24A13AN
Sample: 1/1
Worst Case Operating Mode: Transmit

Table 2

Radiated Emissions

(2405MHz)

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	2405.000	110.3	36.7	28.1	101.7	114.0	-12.3
Horizontal	4810.000	61.7	36.7	32.8	57.8	74.0	-16.2
Horizontal	7215.000	55.2	36.1	36.5	55.6	74.0	-18.4
Horizontal	9620.000	55.0	36.2	37.0	55.8	74.0	-18.2

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	2405.000	82.5	36.7	28.1	73.9	94.0	-20.1
Horizontal	4810.000	44.6	36.7	32.8	40.7	54.0	-13.3
Horizontal	7215.000	39.6	36.1	36.5	40.0	54.0	-14.0
Horizontal	9620.000	39.7	36.2	37.0	40.5	54.0	-13.5

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: Jenner Liu

Applicant: Shenzhen Honeycomb Technologies Company Limited
Date of Test: August 26, 2013
Model: HRF24A13AN
Sample: 1/1
Worst Case Operating Mode: Transmit

Table 3

Radiated Emissions

(2440MHz)

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	2440.000	107.6	36.7	28.1	99.0	114.0	-15.0
Horizontal	4880.000	57.5	36.7	32.8	53.6	74.0	-20.4
Horizontal	7320.000	54.4	36.1	36.5	54.8	74.0	-19.2
Horizontal	9760.000	56.2	36.2	37.0	57.0	74.0	-17.0

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	2440.000	81.2	36.7	28.1	72.6	94.0	-21.4
Horizontal	4880.000	42.1	36.7	32.8	38.2	54.0	-15.8
Horizontal	7320.000	39.0	36.1	36.5	39.4	54.0	-14.6
Horizontal	9760.000	41.1	36.2	37.0	41.9	54.0	-12.1

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: Jenner Liu

Applicant: Shenzhen Honeycomb Technologies Company Limited
Date of Test: August 26, 2013
Model: HRF24A13AN
Sample: 1/1
Worst Case Operating Mode: Transmit

Table 4

Radiated Emissions

(2475MHz)

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	2475.000	106.9	36.7	28.1	98.3	114.0	-15.7
Horizontal	4950.000	51.2	36.7	35.5	50.0	74.0	-24.0
Horizontal	7425.000	53.6	36.1	37.2	54.7	74.0	-19.3
Horizontal	9900.000	50.9	36.3	38.9	53.5	74.0	-20.5

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	2475.000	80.9	36.7	28.1	72.3	94.0	-21.7
Horizontal	4950.000	37.6	36.7	35.5	36.4	54.0	-17.6
Horizontal	7425.000	38.8	36.1	37.2	39.9	54.0	-14.1
Horizontal	9900.000	36.3	36.3	38.9	38.9	54.0	-15.1

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: Jenner Liu

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

0.606 MHz

Judgement: Passed by 22.5 dB margin

TEST PERSONNEL:

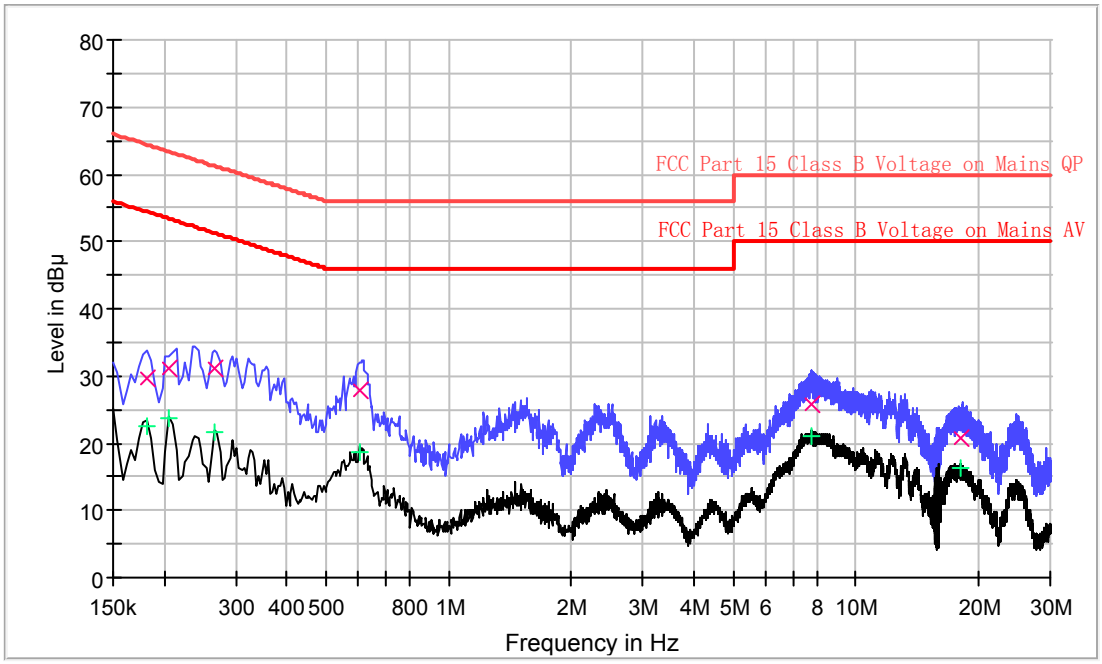
Sign on file

Jenner Liu, Testing Engineer
Typed/Printed Name

August 26, 2013
Date

Applicant: Shenzhen Honeycomb Technologies Company Limited
Date of Test: August 26, 2013
Model: HRF24A13AN
Sample: 1/1
Worst Case Operating Mode: Transmit with 2405MHz
Phase: Live

Conducted Emission Test – FCC



Result Table QP

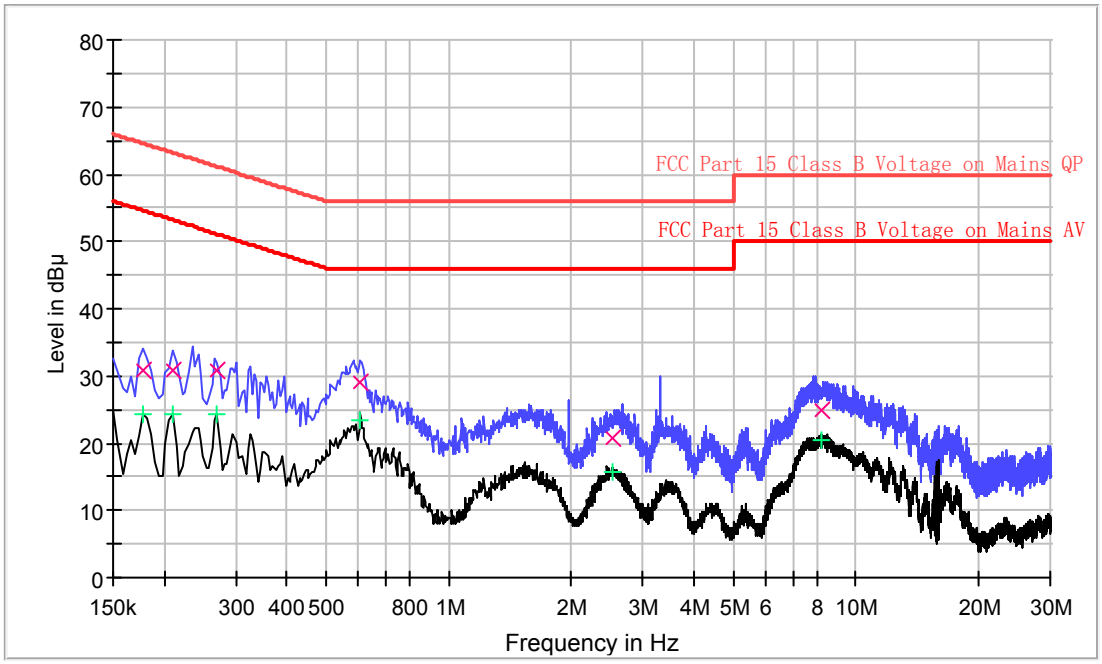
Frequency (MHz)	QuasiPeak (dB µ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.182	29.7	L1	9.7	34.7	64.4
0.206	31.2	L1	9.7	32.2	63.4
0.266	31.2	L1	9.7	30.0	61.2
0.602	27.9	L1	9.7	28.1	56.0
7.770	25.8	L1	10.0	34.2	60.0
18.034	20.8	L1	10.1	39.2	60.0

Result Table AV

Frequency (MHz)	Average (dB µ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.182	22.5	L1	9.7	31.9	54.4
0.206	23.7	L1	9.7	29.7	53.4
0.266	21.6	L1	9.7	29.6	51.2
0.602	18.8	L1	9.7	27.2	46.0
7.770	20.9	L1	10.0	29.1	50.0
18.034	16.2	L1	10.1	33.8	50.0

Applicant: Shenzhen Honeycomb Technologies Company Limited
Date of Test: August 26, 2013
Model: HRF24A13AN
Sample: 1/1
Worst Case Operating Mode: Transmit with 2405MHz
Phase: Neutral

Conducted Emission Test – FCC



Result Table QP

Frequency (MHz)	QuasiPeak (dB µ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.178	30.9	N	10.2	33.7	64.6
0.210	30.7	N	10.2	32.5	63.2
0.270	30.7	N	10.2	30.4	61.1
0.606	29.1	N	10.2	26.9	56.0
2.530	20.7	N	10.3	35.3	56.0
8.246	24.9	N	10.5	35.1	60.0

Result Table AV

Frequency (MHz)	Average (dB µ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.178	24.2	N	10.2	30.4	54.6
0.210	24.4	N	10.2	28.8	53.2
0.270	24.4	N	10.2	26.7	51.1
0.606	23.5	N	10.2	22.5	46.0
2.530	15.7	N	10.3	30.3	46.0
8.246	20.5	N	10.5	29.5	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 and Average Measurement

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

(i) Lower channel 2405MHz:

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

= 101.7 dBµV/m-38.8 dB
= 62.9 dBµV/m

Average Resultant field strength = Fundamental emissions (average value) – delta from the bandedge plot

= 73.9 dBµV/m-38.8 dB
= 35.1 dBµV/m

(ii) Upper channel 2475MHz:

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

= 98.3 dBµV/m-48.3 dB
= 50.0 dBµV/m

Average Resultant field strength = Fundamental emissions (average value) – delta from the bandedge plot

= 72.3 dBµV/m-48.3 dB
= 24.0 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 C63.4 - 2009.

The transmitting equipment under test (EUT) is placed on a wooden turntable which is four feet in diameter and approximately one meter 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 adjusted 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

CONFIDENTIALITY REQUEST

9.0 Confidentiality Request

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

EXHIBIT 10

MODULE APPROVAL LETTER

10.0 Module Approval Letter

For electronic filing, the module approval letter of the tested EUT is saved with filename: module approval letter.pdf.

EXHIBIT 11
TEST EQUIPMENT LIST

11.0 Test Equipment List

Equipment No.	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due Date
SZ061-03	BiConiLog Antenna	ETS	3142C	00066460	29-Jun-13	29-Jun-14
SZ185-01	EMI Receiver	R&S	ESCI	100547	12-Mar-13	12-Mar-14
SZ061-07	Pyramidal Horn Antenna	ETS	3160-09	00083067	20-Jul-13	20-Jan-14
SZ061-08	Horn Antenna	ETS	3115	00092346	03-Nov-12	03-Nov-13
SZ061-06	Active Loop Antenna	Electro-Metrics	EM-6876	217	13-May-13	13-May-14
SZ056-03	Spectrum Analyzer	R&S	FSP 30	101148	12-Mar-13	12-Mar-14
SZ181-04	Preamplifier	Agilent	8449B	3008A02474	12-Mar-13	12-Mar-14
SZ188-01	Anechoic Chamber	ETS	RFD-F/A-100	4102	02-Mar-13	02-Mar-14
SZ062-02	RF Cable	RADIALL	RG 213U	--	20-Jul-13	20-Jan-14
SZ062-05	RF Cable	RADIALL	0.04-26.5GHz	--	22-Apr-13	22-Oct-13
SZ062-12	RF Cable	RADIALL	0.04-26.5GHz	--	22-Apr-13	22-Oct-13
SZ067-04	Notch Filter	Micro-Tronics	BRM50702-02	--	21-May-13	21-May-14
SZ185-02	EMI Test Receiver	R&S	ESCI	100692	05-Nov-12	05-Nov-13
SZ187-01	Two-Line V-Network	R&S	ENV216	100072	05-Nov-12	05-Nov-13
SZ187-02	Two-Line V-Network	R&S	ENV216	100073	05-Nov-12	05-Nov-13
SZ188-03	Shielding Room	ETS	RFD-100	4100	10-Sep-12	10-Sep-13