TEST REPORT

Report Number: HK11090333-2(R1)

Application
for
Original Grant of 47 CFR Part 15: 2010 Certification
New Family of RSS-210 Issue 8:2010 Equipment Certification

Cordless Handset with WiFi

FCC ID: VLJ80-8388-00

IC: 4522A-80838800

This report supersedes previous report with report number(s) HK11090333-2 dated March 16, 2012

Prepared and Checked by:

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April 24, 2012

GENERAL INFORMATION

Applicant Name:	Binatone Electronics International Limited
Applicant Address:	Floor 23A, 9 Des Voeux Road West, Sheung Wan, Hong Kong.
FCC Specification Standard:	FCC Part 15, October 1, 2010 Edition
FCC ID:	VLJ80-8388-00
FCC Model(s):	HS1101, MBP2000PU
IC Specification Standard:	RSS-210 Issue 8, December 2010 RSS-Gen Issue 3, December 2010 RSS-102 Issue 4, March 2010
IC:	4522A-80838800
IC Model(s):	HS1101, MBP2000PU
Type of EUT:	Digital Transmission System
Description of EUT:	Cordless Handset with WiFi
Serial Number:	N/A
Sample Receipt Date:	September 07, 2011
Date of Test:	September 07-26, 2011, March 13-14, 2012
Report Date:	April 24, 2012
Environmental Conditions:	Temperature: +10 to 40°C Humidity: 10 to 90%

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EXHIBIT 1
SUMMARY OF TEST RESULTS & STATEMENT OF COMPLIANCE

1.0 Summary of Test Results

Test Items	FCC Part 15 Section	RSS-210/ RSS-Gen# Section	Results	Details see section
Antenna Requirement	15.203	7.1.2#	Pass	2.1
Max. Conducted Output Power	15.247(b)(3)&(4)	A8.4(4)	Pass	4.1
Min. 6dB RF Bandwidth	15.247(a)(2)	A8.2(a)	Pass	4.2
Max. Power Density	15.247(e)	A8.2(b)	Pass	4.3
Out of Band Antenna Conducted Emission	15.247(d)	A8.5	Pass	4.4
Radiated Emission in Restricted Bands and Spurious Emissions	15.247(d) & 15.109	A8.5	Pass	4.6
Radiated Emission from Receiver	N/A	2.3	Pass	4.7
AC Power Line Conducted Emission	15.207 & 15.107	7.2.4#	Pass	4.8
Radio Frequency Radiation Exposure	15.247(i)	RSS-102	Pass	4.9 4.10

Note: 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 expected variations in temperature and supply voltage were considered.

4.0 Statement of Compliance

The equipment under test is found to be complying with the following standards:

FCC Part 15, October 1, 2010 Edition
RSS-210 Issue 8, December 2010
RSS-Gen Issue 3, December 2010
RSS-102 Issue 4, March 2010

EXHIBIT 2
GENERAL DESCRIPTION

2.0 General Description

2.1 Product Description

The MBP2000PU is a Cordless Handset with WiFi. For 802.11b mode, it operates at frequency range of 2412.000MHz to 2462.000MHz with 11 channels. It transmits via direct-sequence spread spectrum (DSSS) modulation. Maximum bit rate can be up to 11Mbps. For 802.11g mode, it operates at frequency range of 2412.000MHz to 2462.000MHz with 11 channels. It transmits via Orthogonal Frequency Division Multiplexing (OFDM) modulation. Maximum bit rate can be up to 54Mbps. For 802.11n mode, it operates at frequency range of 2412.000MHz to 2462.000MHz with 11 channels. It transmits via Orthogonal Frequency Division Multiplexing (OFDM) modulation. Maximum bit rate can support up to 65Mbps. The Handset is powered by a "Li-ion" type rechargeable battery pack (3.7V 910mAh) with/without charging by PC or handset's USB adaptor 100-240VAC to 5VDC 1000mA.

The antenna used in the EUT is integral, and the test sample is a prototype.

For FCC and IC, The Model(s): HS1101 is the same as the Model: MBP2000PU in electronics/electrical designs, including software & firmware, PCB layout and construction design/Physical design/Enclosure. The only differences between these models are model number and package configuration (HS1101 doesn't include Handset's USB adaptor for Handset's battery charging) to be sold for marketing purpose.

The circuit description is attached in the Appendix and saved with filename: descri.pdf.

2.2 Test Methodology

Both AC power line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.4 (2003). Preliminary radiated scans and all radiated measurements were performed in Open Area Test Sites. All Radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the "**Justification Section**" of this Application. Antenna port conducted measurements were performed according to KDB Publication No. 558074. All other measurements were made in accordance with the procedures in 47 CFR Part 2.

2.3 Test Facility

The open area test site, AC Power Line conducted measurement facility, and antenna port conducted measurement facility used to collect the radiated data, AC Power Line conducted data, and conductive data are at Roof Top, 2nd Floor, and 5th Floor respectively of Intertek Testing Services Hong Kong Ltd., which is located at Garment Centre, 576 Castle Peak Road, Kowloon, Hong Kong. This test facility and site measurement data have been fully placed on file with the FCC and the Industry Canada.

EXHIBIT 3
SYSTEM TEST CONFIGURATION

3.0 System Test Configuration

3.1 Justification

For radiated emissions testing, the equipment under test (EUT) was setup to transmit under normal mode. Care was taken to ensure proper power supply voltages during testing. During testing, all cables (if any) were manipulated to produce worst case emissions.

The handset was powered by a "Li-ion" type rechargeable battery pack (3.7V 910mAh) with/without charging by PC or handset's USB adaptor (100-240VAC to 5VDC 1000mA).

For the measurements, the EUT was attached to a plastic stand if necessary and placed on the wooden turntable. If the EUT attached to peripherals, they were connected and operational (as typical as possible).

The signal was maximized through rotation and placement in the three orthogonal axes. The antenna height and polarization were varied during the search for maximum signal level. The antenna height was varied from 1 to 4 meters. Radiated emissions were taken at three meters unless the signal level was too low for measurement at that distance. If necessary, a pre-amplifier was used and/or the test was conducted at a closer distance.

For any intentional radiator powered by AC power line, measurements of the radiated signal level of the fundamental frequency component of the emission was performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage.

For transmitter radiated measurement, the spectrum analyzer resolution bandwidth was 100 kHz for frequencies below 1000 MHz. The resolution bandwidth was 1 MHz for frequencies above 1000 MHz.

For receiver radiated measurement, the spectrum analyzer resolution bandwidth was 1MHz for measurement above 1GHz while 100kHz for measurement from 30MHz to 1GHz.

Radiated emission measurement for transmitter were performed 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 to 40 GHz, whichever is lower. Receiver was performed from 30MHz to the fifth harmonic of the highest frequency or 40GHz, whichever is lower.

Emission that are directly caused by digital circuits in the transmit path and transmitter portion were measured, and the limit are according to FCC Part 15 Section 15.109.

3.1 Justification - Cont'd

Detector function for radiated emissions was in peak mode.

The EUT along with its peripherals were placed on a 1.0m(W)x1.5m(L) and 0.8m in height wooden table and the EUT was adjusted to maintain a 0.4 meter space from a vertical reference plane. The EUT power cord connected to one LISN (Line impedance stabilization network), which provided 50ohm coupling impedance for measuring instrument. Meanwhile, the peripheral or support equipment power cords connected to a separate LISN. The ac power for all LISNs was obtained from the same power source. The LISN housing, measuring instrument case, reference ground plane, and vertical ground plane were bounded together. The excess power cable between the EUT and the LISN was bundled. Power cords of non-EUT equipment (peripherals) were not bundled. AC power cords of peripheral equipments draped over the rear edge of the table, and routed them down onto the floor of the ac powerline conducted emission test site to the second LISN.

All connecting cables of EUT and peripherals were manipulated to find the maximum emission.

Different data rates in different WiFi version have been tested. Worst case is reported only.

The EUT also has one antenna for DECT transmission and one antenna for WiFi transmission. Both individual WiFi transmission and simultaneous transmission of WiFi and DECT were checked. When investigating simultaneous transmission, no new emissions were found.

All relevant operation modes have been tested, and the worst case data is included in this report.

3.2 EUT Exercising Software

The EUT exercise program (if any) used during radiated and conducted testing was designed to exercise the various system components in a manner similar to a typical use.

3.3 Details of EUT and Description of Accessories

Details of EUT:

An AC adaptor and/or a battery (provided with the unit) were used to power the device. Their descriptions are listed below.

(4) A "Li-ion" type rechargeable battery pack (3.7V, 910mAh) (Supplied by Client)
(4) A USB adaptor (100-240VAC to 5VDC 1000mA, Model: S006MU0500100) (Supplied by Client)

Description of Accessories:

(4) Telephone Headset with 0.7m long (Supplied by Client)
(4) Smartdrive External HardDisk, Model: HD3-SU2FW, S/N: 0800261, Doc Product (Supplied by Intertek)
(4) Micro-SD card (Supplied by Intertek)
(4) Lenovo Notebook, Model: T61, S/N: L3-CF468, DoC Product (Supplied by Intertek)
(4) Lenovo Notebook, Model: SL500, S/N: ML-DXMM3, DoC Product (Supplied by Intertek)
(4) 1 x 3m Telephone Line (Supplied by Intertek)
(4) 1 x 1m Telephone Line with Termination (Supplied by Intertek)
(4) 1 x USB cable with 1 meter long (Supplied by Intertek)
(4) 1 x 1394 cable with 0.7 meter long (Supplied by Intertek)
(4) 1 x USB cable with 0.8 meter long (Supplied by Intertek)
(4) Telephone Line Simulator, Model: TLS-5C-01, S/N: 059355 (Supplied by Intertek)
(4) Base Unit, Model: MBP2000PU, FCC ID: VLJ80-8388-00 (Supplied by Client)
(4) TP-LINK Router, Model: TL-R402M, S/N: 08329805932 (Supplied by Intertek)

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.

EXHIBIT 4
TEST RESULTS

4.0 **Test Results**

4.1 Maximum Conducted Output Power at Antenna Terminals

☒ The antenna power of the EUT was connected to the input of a power meter. Power was read directly and cable loss correction was added to the reading to obtain power at the EUT antenna terminals.

☐ The antenna port of the EUT was connected to the input of a spectrum analyzer. The analyzer was set for RBW>20dB bandwidth and power was read directly in dBm. External attenuation and cable loss were compensated for using the OFFSET function of the analyser.

IEEE 802.11b, Antenna Gain = 2dBi		
Frequency (MHz)	(Peak) Output in dBm	(Peak) Output in mW
Low Channel: 2412MHz	15.83	38.3
Middle Channel: 2437MHz	15.83	38.3
High Channel: 2462MHz	15.81	38.3

Frequency (MHz)	(Average) Output in dBm	(Average) Output in mW
Low Channel: 2412MHz	13.20	20.9
Middle Channel: 2437MHz	13.11	20.5
High Channel: 2462MHz	12.96	19.8

dBm max. output level = 15.83 dBm

IEEE 802.11g, Antenna Gain = 2dBi		
Frequency (MHz)	(Peak) Output in dBm	(Peak) Output in mW
Low Channel: 2412MHz	21.31	135.2
Middle Channel: 2437MHz	20.79	119.9
High Channel: 2462MHz	20.99	125.6

Frequency (MHz)	(Average) Output in dBm	(Average) Output in mW
Low Channel: 2412MHz	11.43	13.9
Middle Channel: 2437MHz	10.83	12.1
High Channel: 2462MHz	10.89	12.3

dBm max. output level = 21.31 dBm

4.1 Maximum Conducted Output Power at Antenna Terminals - Continued

IEEE 802.11n, Antenna Gain = 2dBi		
Frequency (MHz)	(Peak) Output in dBm	(Peak) Output in mW
Low Channel: 2412MHz	19.19	83.0
Middle Channel: 2437MHz	18.80	75.9
High Channel: 2462MHz	18.94	78.3

Frequency (MHz)	(Average) Output in dBm	(Average) Output in mW
Low Channel: 2412MHz	9.01	8.0
Middle Channel: 2437MHz	8.65	7.3
High Channel: 2462MHz	8.87	7.7

dBm max. output level = 19.19 dBm

Cable loss : 0.5 dB External Attenuation : N/A

Cable loss, external attenuation: ☒ included in OFFSET function
☐ added to SA raw reading

Limits:
☒ 1W (30dBm) for antennas with gains of 6dBi or less

☐ ___W (___dBm) for antennas with gains more than 6dBi

4.2 Minimum 6dB RF Bandwidth

The antenna port of the EUT was connected to the input of a spectrum analyzer. Analyzer RES BW was set to 100kHz. 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 6dB lower than PEAK level. The 6dB bandwidth was determined from where the channel output spectrum intersected the display line.

IEEE 802.11b		
Frequency (MHz)		6dB Bandwidth (kHz)
Low Channel:	2412MHz	10040
Middle Channel:	2437MHz	10160
High Channel:	2462MHz	10120

IEEE 802.11g		
Frequency (MHz)		6 dB Bandwidth (kHz)
Low Channel:	2412MHz	16520
Middle Channel:	2437MHz	16600
High Channel:	2462MHz	16560

IEEE 802.11n		
Frequency (MHz)		6dB Bandwidth (kHz)
Low Channel:	2412MHz	17680
Middle Channel:	2437MHz	17400
High Channel:	2462MHz	17600

Limits: at least 500kHz

The plots of 6dB RF bandwidth are attached in the Appendix and saved with filename: 6dB.pdf

4.3 Maximum Power Density

The spectrum analyzer RES BW was set to 3kHz. In order to look for a peak, the START and STOP frequencies were set to the band edges of the maximum output passband. If there is no clear maximum amplitude in any given portion of the band, it may be necessary to make measurements at a number of bands defined by several START and STOP frequency pairs.

Antenna output of the EUT was coupled directly to spectrum analyzer; if an external attenuator and/or cable was used, these losses are added to the analyzer raw readings.

IEEE 802.11b	
Frequency (MHz)	Power Density (dBm/3kHz)
Low Channel: 2412 MHz	-9.47
Middle Channel: 2437 MHz	-10.60
High Channel: 2462 MHz	-11.84

Frequency Span = 1.5MHz

Sweep Time = Frequency Span/3kHz
= 500 seconds

Cable Loss: 0.5 dB

Max. Peak Power Density (at 2462MHz) = -9.47dBm/3kHz

Limit:
8dBm/ 3kHz

4.3 Maximum Power Density – Continued:

IEEE 802.11g	
Frequency (MHz)	Power Density (dBm/3kHz)
Low Channel: 2412 MHz	-11.16
Middle Channel: 2437 MHz	-14.94
High Channel: 2462 MHz	-15.42

Frequency Span = 1.5MHz

Sweep Time = Frequency Span/3kHz
= 500 seconds

Cable Loss: 0.5 dB

Max. Peak Power Density (at 2462MHz) = -11.16dBm/3kHz

Limit:
8dBm/ 3kHz

IEEE 802.11n	
Frequency (MHz)	Power Density (dBm/3kHz)
Low Channel: 2412 MHz	-13.64
Middle Channel: 2437 MHz	-15.05
High Channel: 2462 MHz	-16.28

Frequency Span = 1.5MHz

Sweep Time = Frequency Span/3kHz
= 500 seconds

Cable Loss: 0.5 dB

Max. Peak Power Density (at 2462MHz) = -13.64dBm/3kHz

Limit:
8dBm/ 3kHz

The plots of number of power density are attached in the Appendix and saved with filename: maxpd.pdf

4.4 Out of Band Conducted Emissions

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 20 dB below that of the maximum in-band 100 kHz emission.

Limits:
All spurious emission and up to the tenth harmonic was measured and they were found to be at least 20 dB below the highest level of the desired power in the passband.

The plots of out of band conducted emissions are attached in the Appendix and saved with filenames: obantcon.pdf

4.5 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CF - AG

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

In the following table(s), the reading shown on the data table reflects the preamplifier gain. An example for the calculations in the following table is as follows:-

FS = RR + LF

where FS = Field Strength in dBμV/m
RR = RA - AG in dBμV
LF = CF + AF in dB

Assume a receiver reading of 52.0 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, giving a field strength of 32 dBμV/m. This value in dBμV/m was converted to its corresponding level in μV/m.

RA = 52.0 dBμV
AF = 7.4 dB
CF = 1.6 dB
AG = 29.0 dB
FS = RR + LF
FS = 23 + 9 = 32 dBμV/m

RR = 23.0 dBμV
LF = 9.0 dB

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

4.6 Transmitter Radiated Emissions in Restricted Bands and Spurious Emissions

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.

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

4.6.1 Radiated Emission Configuration Photograph

Worst Case Restricted Band Radiated Emission
at

2390.000 MHz

The worst case radiated emission configuration photographs are attached in the Appendix and saved with filename: config photos.pdf

4.6.2 Radiated Emission Data

The data in tables 1-15 list the significant emission frequencies, the limit and the margin of compliance.

Judgement -

Passed by 2.5 dB margin compare with average limit

Mode: TX-Channel 01

Table 1
IEEE 802.11b

Radiated Emission Data

Polari-zation	Frequency	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBuV/m)	Average Limit at 3m (dBuV/m)	Margin (dB)
V	***2390.000***	***53.5***	***33***	***29.4***	***49.9***	***54.0***	***-4.1***
V	***4824.000***	***37.3***	***33***	***34.9***	***39.2***	***54.0***	***-14.8***
H	***12060.000***	***30.2***	***33***	***40.5***	***37.7***	***54.0***	***-16.3***
H	***14472.000***	***30.1***	***33***	***40.0***	***37.1***	***54.0***	***-16.9***

Remark: Video-average Method is used for the emission measurement.

Polari-zation	Frequency	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBuV/m)	Peak Limit at 3m (dBuV/m)	Margin (dB)
V	***2390.000***	***68.6***	***33***	***29.4***	***65.0***	***74.0***	***-9.0***
V	***4824.000***	***49.3***	***33***	***34.9***	***51.2***	***74.0***	***-22.8***
H	***12060.000***	***42.1***	***33***	***40.5***	***49.6***	***74.0***	***-24.4***
H	***14472.000***	***42.2***	***33***	***40.0***	***49.2***	***74.0***	***-24.8***

Remark: Peak detector is used for the emission measurement.

NOTES:
1. 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.
2. Negative value in the margin column shows emission below limit.
3. Horn antenna is used for the emission over 1000MHz.
4. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 Section 15.205 / RSS-210 Section 2.2.

Mode: TX-Channel 06

Table 2
IEEE 802.11b

Radiated Emission Data

Polari-zation	Frequency	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBuV/m)	Average Limit at 3m (dBuV/m)	Margin (dB)
V	***4874.000***	***37.1***	***33***	***34.9***	***39.0***	***54.0***	***-15.0***
H	***7311.000***	***32.7***	***33***	***37.9***	***37.6***	***54.0***	***-16.4***
H	***12185.000***	***29.9***	***33***	***40.5***	***37.4***	***54.0***	***-16.6***

Remark: Video-average Method is used for the emission measurement.

Polari-zation	Frequency	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBuV/m)	Peak Limit at 3m (dBuV/m)	Margin (dB)
V	***4874.000***	***49.2***	***33***	***34.9***	***51.1***	***74.0***	***-22.9***
H	***7311.000***	***44.5***	***33***	***37.9***	***49.4***	***74.0***	***-24.6***
H	***12185.000***	***41.8***	***33***	***40.5***	***49.3***	***74.0***	***-24.7***

Remark: Peak detector is used for the emission measurement.

NOTES:
1. 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.
2. Negative value in the margin column shows emission below limit.
3. Horn antenna is used for the emission over 1000MHz.
4. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 Section 15.205 / RSS-210 Section 2.2.

Mode: TX-Channel 11

Table 3
IEEE 802.11b
Radiated Emission Data

Polari-zation	Frequency	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBuV/m)	Average Limit at 3m (dBuV/m)	Margin (dB)
V	***2483.500***	***50.2***	***33***	***29.4***	***46.6***	***54.0***	***-7.4***
V	***4924.000***	***37.1***	***33***	***34.9***	***39.0***	***54.0***	***-15.0***
H	***7386.000***	***32.7***	***33***	***37.9***	***37.6***	***54.0***	***-16.4***
H	***12310.000***	***30.0***	***33***	***40.5***	***37.5***	***54.0***	***-16.5***

Remark: Video-average Method is used for the emission measurement.

Polari-zation	Frequency	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBuV/m)	Peak Limit at 3m (dBuV/m)	Margin (dB)
V	***2483.500***	***63.2***	***33***	***29.4***	***59.6***	***74.0***	***-14.4***
V	***4924.000***	***49.1***	***33***	***34.9***	***51.0***	***74.0***	***-23.0***
H	***7386.000***	***44.9***	***33***	***37.9***	***49.8***	***74.0***	***-24.2***
H	***12310.000***	***42.2***	***33***	***40.5***	***49.7***	***74.0***	***-24.3***

Remark: Peak detector is used for the emission measurement.

NOTES:
1. 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.
2. Negative value in the margin column shows emission below limit.
3. Horn antenna is used for the emission over 1000MHz.
4. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 Section 15.205 / RSS-210 Section 2.2.

Mode: TX-Channel 01

Table 4
IEEE 802.11g

Radiated Emission Data

Polari-zation	Frequency	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBuV/m)	Average Limit at 3m (dBuV/m)	Margin (dB)
V	***2390.000***	***55.1***	***33***	***29.4***	***51.5***	***54.0***	***-2.5***
V	***4824.000***	***39.5***	***33***	***34.9***	***41.4***	***54.0***	***-12.6***
H	***12060.000***	***29.1***	***33***	***40.5***	***36.6***	***54.0***	***-17.4***
H	***14472.000***	***30.0***	***33***	***40.0***	***37.0***	***54.0***	***-17.0***

Remark: Video-average Method is used for the emission measurement.

Polari-zation	Frequency	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBuV/m)	Peak Limit at 3m (dBuV/m)	Margin (dB)
V	***2390.000***	***73.5***	***33***	***29.4***	***69.9***	***74.0***	***-4.1***
V	***4824.000***	***51.5***	***33***	***34.9***	***53.4***	***74.0***	***-20.6***
H	***12060.000***	***41.1***	***33***	***40.5***	***48.6***	***74.0***	***-25.4***
H	***14472.000***	***41.9***	***33***	***40.0***	***48.9***	***74.0***	***-25.1***

Remark: Peak detector is used for the emission measurement.

NOTES:
1. 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.
2. Negative value in the margin column shows emission below limit.
3. Horn antenna is used for the emission over 1000MHz.
4. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 Section 15.205 / RSS-210 Section 2.2.

Mode: TX-Channel 06

Table 5
IEEE 802.11g

Radiated Emission Data

Polari-zation	Frequency	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBuV/m)	Average Limit at 3m (dBuV/m)	Margin (dB)
V	***4874.000***	***39.8***	***33***	***34.9***	***41.7***	***54.0***	***-12.3***
H	***7311.000***	***33.4***	***33***	***37.9***	***38.3***	***54.0***	***-15.7***
H	***12185.000***	***29.3***	***33***	***40.5***	***36.8***	***54.0***	***-17.2***

Remark: Video-average Method is used for the emission measurement.

Polari-zation	Frequency	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBuV/m)	Peak Limit at 3m (dBuV/m)	Margin (dB)
V	***4874.000***	***51.1***	***33***	***34.9***	***53.0***	***74.0***	***-21.0***
H	***7311.000***	***45.3***	***33***	***37.9***	***50.2***	***74.0***	***-23.8***
H	***12185.000***	***41.3***	***33***	***40.5***	***48.8***	***74.0***	***-25.2***

Remark: Peak detector is used for the emission measurement.

NOTES:
1. 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.
2. Negative value in the margin column shows emission below limit.
3. Horn antenna is used for the emission over 1000MHz.
4. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 Section 15.205 / RSS-210 Section 2.2.

Mode: TX-Channel 11

Table 6
IEEE 802.11g

Radiated Emission Data

Polari-zation	Frequency	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBuV/m)	Average Limit at 3m (dBuV/m)	Margin (dB)
V	***2483.500***	***53.3***	***33***	***29.4***	***49.7***	***54.0***	***-4.3***
V	***4924.000***	***39.5***	***33***	***34.9***	***41.4***	***54.0***	***-12.6***
H	***7386.000***	***33.1***	***33***	***37.9***	***38.0***	***54.0***	***-16.0***
H	***12310.000***	***29.4***	***33***	***40.5***	***36.9***	***54.0***	***-17.1***

Remark: Video-average Method is used for the emission measurement.

Polari-zation	Frequency	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBuV/m)	Peak Limit at 3m (dBuV/m)	Margin (dB)
V	***2483.500***	***69.3***	***33***	***29.4***	***65.7***	***74.0***	***-8.3***
V	***4924.000***	***51.3***	***33***	***34.9***	***53.2***	***74.0***	***-20.8***
H	***7386.000***	***45.2***	***33***	***37.9***	***50.1***	***74.0***	***-23.9***
H	***12310.000***	***41.4***	***33***	***40.5***	***48.9***	***74.0***	***-25.1***

Remark: Peak detector is used for the emission measurement.

NOTES:
1. 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.
2. Negative value in the margin column shows emission below limit.
3. Horn antenna is used for the emission over 1000MHz.
4. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 Section 15.205 / RSS-210 Section 2.2.

Mode: TX-Channel 01

Table 7
IEEE 802.11n
Radiated Emission Data

Polari-zation	Frequency	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBuV/m)	Average Limit at 3m (dBuV/m)	Margin (dB)
V	***2390.000***	***53.6***	***33***	***29.4***	***50.0***	***54.0***	***-4.0***
V	***4824.000***	***40.0***	***33***	***34.9***	***41.9***	***54.0***	***-12.1***
H	***12060.000***	***29.0***	***33***	***40.5***	***36.5***	***54.0***	***-17.5***
H	***14472.000***	***29.6***	***33***	***40.0***	***36.6***	***54.0***	***-17.4***

Remark: Video-average Method is used for the emission measurement.

Polari-zation	Frequency	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBuV/m)	Peak Limit at 3m (dBuV/m)	Margin (dB)
V	***2390.000***	***70.0***	***33***	***29.4***	***66.4***	***74.0***	***-7.6***
V	***4824.000***	***50.1***	***33***	***34.9***	***52.0***	***74.0***	***-22.0***
H	***12060.000***	***41.0***	***33***	***40.5***	***48.5***	***74.0***	***-25.5***
H	***14472.000***	***41.7***	***33***	***40.0***	***48.7***	***74.0***	***-25.3***

Remark: Peak detector is used for the emission measurement.

NOTES:
1. 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.
2. Negative value in the margin column shows emission below limit.
3. Horn antenna is used for the emission over 1000MHz.
4. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 Section 15.205 / RSS-210 Section 2.2.

Mode: TX-Channel 06

Table 8
IEEE 802.11n

Radiated Emission Data

Polari-zation	Frequency	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBuV/m)	Average Limit at 3m (dBuV/m)	Margin (dB)
V	***4874.000***	***37.6***	***33***	***34.9***	***39.5***	***54.0***	***-14.5***
H	***7311.000***	***34.0***	***33***	***37.9***	***38.9***	***54.0***	***-15.1***
H	***12185.000***	***29.2***	***33***	***40.5***	***36.7***	***54.0***	***-17.3***

Remark: Video-average Method is used for the emission measurement.

Polari-zation	Frequency	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBuV/m)	Peak Limit at 3m (dBuV/m)	Margin (dB)
V	***4874.000***	***50.1***	***33***	***34.9***	***52.0***	***74.0***	***-22.0***
H	***7311.000***	***45.8***	***33***	***37.9***	***50.7***	***74.0***	***-23.3***
H	***12185.000***	***41.3***	***33***	***40.5***	***48.8***	***74.0***	***-25.2***

Remark: Peak detector is used for the emission measurement.

NOTES:
1. 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.
2. Negative value in the margin column shows emission below limit.
3. Horn antenna is used for the emission over 1000MHz.
4. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 Section 15.205 / RSS-210 Section 2.2.

Mode: TX-Channel 11

Table 9
IEEE 802.11n
Radiated Emission Data

Polari-zation	Frequency	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBuV/m)	Average Limit at 3m (dBuV/m)	Margin (dB)
V	***2483.500***	***52.1***	***33***	***29.4***	***48.5***	***54.0***	***-5.5***
V	***4924.000***	***38.2***	***33***	***34.9***	***40.1***	***54.0***	***-13.9***
H	***7386.000***	***33.5***	***33***	***37.9***	***38.4***	***54.0***	***-15.6***
H	***12310.000***	***29.1***	***33***	***40.5***	***36.6***	***54.0***	***-17.4***

Remark: Video-average Method is used for the emission measurement.

Polari-zation	Frequency	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBuV/m)	Peak Limit at 3m (dBuV/m)	Margin (dB)
V	***2483.500***	***65.1***	***33***	***29.4***	***61.5***	***74.0***	***-12.5***
V	***4924.000***	***49.8***	***33***	***34.9***	***51.7***	***74.0***	***-22.3***
H	***7386.000***	***46.0***	***33***	***37.9***	***50.9***	***74.0***	***-23.1***
H	***12310.000***	***41.4***	***33***	***40.5***	***48.9***	***74.0***	***-25.1***

Remark: Peak detector is used for the emission measurement.

NOTES:
1. 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.
2. Negative value in the margin column shows emission below limit.
3. Horn antenna is used for the emission over 1000MHz.
4. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 Section 15.205 / RSS-210 Section 2.2.

Mode: WiFi + Handset Talk (with Headset) + USB Data Transfer to PC

Table 10

Radiated Emission Data

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-amp (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
V	88.000	42.4	16	9.0	35.4	40.0	-4.6
V	96.002	37.8	16	12.0	33.8	43.5	-9.7
H	144.006	36.6	16	14.0	34.6	43.5	-8.9
H	184.006	30.8	16	20.0	34.8	43.5	-8.7
H	192.008	34.9	16	16.0	34.9	43.5	-8.6
H	216.009	39.0	16	17.0	40.0	46.0	-6.0
H	***240.016***	***40.1***	***16***	***19.0***	***43.1***	***46.0***	***-2.9***
H	***264.054***	***29.9***	***16***	***21.0***	***34.9***	***46.0***	***-11.1***
H	288.014	28.8	16	22.0	34.8	46.0	-11.2
H	336.029	30.2	16	24.0	38.2	46.0	-7.8
H	344.038	30.6	16	24.0	38.6	46.0	-7.4
H	360.042	30.8	16	24.0	38.8	46.0	-7.2
H	376.039	30.4	16	24.0	38.4	46.0	-7.6
H	***408.054***	***29.4***	***16***	***24.0***	***37.4***	***46.0***	***-8.6***
H	432.056	25.8	16	25.0	34.8	46.0	-11.2
H	528.059	23.5	16	27.0	34.5	46.0	-11.5

NOTES:
1. Simultaneous operation of handset talk (with DECT transmission), WiFi transmission, and USB data transferring to PC are operating during the emission measurement.

2. Peak detector is used for the emission measurement.

3. All measurements were made at 3 meters. Radiated emissions not detected at the 3-met er 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.

4. Negative value in the margin column shows emission below limit.

5. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 Section 15.205 / RSS-210 Section 2.2.

Mode: WiFi + Video Playing (with Headset)

Table 11

Radiated Emission Data

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-amp (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
V	88.000	42.6	16	9.0	35.6	40.0	-4.4
V	96.002	37.9	16	12.0	33.9	43.5	-9.6
H	144.006	36.6	16	14.0	34.6	43.5	-8.9
H	184.006	30.8	16	20.0	34.8	43.5	-8.7
H	192.008	34.9	16	16.0	34.9	43.5	-8.6
H	216.009	38.8	16	17.0	39.8	46.0	-6.2
H	***240.016***	***40.0***	***16***	***19.0***	***43.0***	***46.0***	***-3.0***
H	***264.052***	***29.5***	***16***	***21.0***	***34.5***	***46.0***	***-11.5***
H	288.014	28.8	16	22.0	34.8	46.0	-11.2
H	336.029	30.4	16	24.0	38.4	46.0	-7.6
H	344.038	30.5	16	24.0	38.5	46.0	-7.5
H	360.042	30.9	16	24.0	38.9	46.0	-7.1
H	376.039	30.2	16	24.0	38.2	46.0	-7.8
H	***408.054***	***29.5***	***16***	***24.0***	***37.5***	***46.0***	***-8.5***
H	432.056	25.8	16	25.0	34.8	46.0	-11.2
H	528.059	23.8	16	27.0	34.8	46.0	-11.2

NOTES: 1. Peak detector is used for the emission measurement.

2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-met er 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. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 Section 15.205 / RSS-210 Section 2.2.

Mode: WiFi + Video Playing (without Headset) and Charging in Base Unit

Table 12

Radiated Emission Data

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-amp (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
V	88.001	42.8	16	9.0	35.8	43.5	-7.7
V	96.001	37.6	16	12.0	33.6	43.5	-9.9
H	144.006	36.5	16	14.0	34.5	43.5	-9.0
H	184.006	30.6	16	20.0	34.6	43.5	-8.9
H	192.009	34.8	16	16.0	34.8	43.5	-8.7
H	216.004	33.9	16	17.0	34.9	46.0	-11.1
H	***240.026***	***37.6***	***16***	***19.0***	***40.6***	***46.0***	***-5.4***
H	***264.008***	***29.5***	***16***	***21.0***	***34.5***	***46.0***	***-11.5***
H	288.014	28.9	16	22.0	34.9	46.0	-11.1
H	336.026	30.6	16	24.0	38.6	46.0	-7.4
H	344.038	30.5	16	24.0	38.5	46.0	-7.5
H	360.042	31.6	16	24.0	39.6	46.0	-6.4
H	376.039	31.8	16	24.0	39.8	46.0	-6.2
H	***408.054***	***32.8***	***16***	***24.0***	***40.8***	***46.0***	***-5.2***
H	432.056	25.9	16	25.0	34.9	46.0	-11.1
H	528.059	23.6	16	27.0	34.6	46.0	-11.4

NOTES: 1. Peak detector is used for the emission measurement.

2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-met er 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. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 Section 15.205 / RSS-210 Section 2.2.

Mode: WiFi+ Camera Recording (without Headset) and Charging in Base and by PC

Table 13

Radiated Emission Data

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-amp (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
V	88.001	42.8	16	9.0	35.8	43.5	-7.7
V	96.002	37.4	16	12.0	33.4	43.5	-10.1
H	144.006	36.1	16	14.0	34.1	43.5	-9.4
H	184.008	30.9	16	20.0	34.9	43.5	-8.6
H	192.009	34.8	16	16.0	34.8	43.5	-8.7
H	216.014	34.1	16	17.0	35.1	46.0	-10.9
H	***240.016***	***36.2***	***16***	***19.0***	***39.2***	***46.0***	***-6.8***
H	***264.032***	***29.5***	***16***	***21.0***	***34.5***	***46.0***	***-11.5***
H	336.014	30.5	16	24.0	38.5	46.0	-7.5
H	344.038	30.5	16	24.0	38.5	46.0	-7.5
H	360.042	31.6	16	24.0	39.6	46.0	-6.4
H	376.039	31.4	16	24.0	39.4	46.0	-6.6
H	***408.062***	***32.4***	***16***	***24.0***	***40.4***	***46.0***	***-5.6***
H	432.054	26.6	16	25.0	35.6	46.0	-10.4
H	528.059	24.1	16	27.0	35.1	46.0	-10.9

NOTES: 1. Peak detector is used for the emission measurement.

2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-met er 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. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 Section 15.205 / RSS-210 Section 2.2.

Mode: WiFi+ Answer Machine Recording (without Headset) and Charging in Base Unit + USB Data Transfer to PC

Table 14

Radiated Emission Data

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-amp (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
V	88.001	40.9	16	9.0	33.9	43.5	-9.6
V	96.001	37.4	16	12.0	33.4	43.5	-10.1
H	144.005	36.8	16	14.0	34.8	43.5	-8.7
H	184.006	30.9	16	20.0	34.9	43.5	-8.6
H	192.009	34.6	16	16.0	34.6	43.5	-8.9
H	***240.000***	***37.6***	***16***	***19.0***	***40.6***	***46.0***	***-5.4***
H	***264.009***	***30.1***	***16***	***21.0***	***35.1***	***46.0***	***-10.9***
H	298.016	29.2	16	22.0	35.2	46.0	-10.8
H	336.026	30.4	16	24.0	38.4	46.0	-7.6
H	392.046	25.9	16	25.0	34.9	46.0	-11.1
H	432.045	26.1	16	25.0	35.1	46.0	-10.9
H	528.056	24.0	16	27.0	35.0	46.0	-11.0

NOTES: 1. Peak detector is used for the emission measurement.

2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-met er 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. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 Section 15.205 / RSS-210 Section 2.2.

Mode: WiFi+ Handset (without Headset) Charging in Base Unit and PC + USB Data Transfer to PC

Table 15

Radiated Emission Data

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-amp (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
V	48.001	38.9	16	11.0	33.9	40.0	-6.1
H	88.100	42.4	16	9.0	35.4	43.5	-8.1
H	***120.000***	***37.2***	***16***	***14.0***	***35.2***	***43.5***	***-8.3***
H	144.000	36.1	16	14.0	34.1	43.5	-9.4
H	184.008	30.8	16	20.0	34.8	43.5	-8.7
H	216.000	33.8	16	17.0	34.8	43.5	-8.7
H	***240.016***	***34.6***	***16***	***19.0***	***37.6***	***46.0***	***-8.4***
H	***264.032***	***29.9***	***16***	***21.0***	***34.9***	***46.0***	***-11.1***
H	336.014	30.4	16	24.0	38.4	46.0	-7.6
H	344.038	30.2	16	24.0	38.2	46.0	-7.8
H	360.042	30.6	16	24.0	38.6	46.0	-7.4
H	376.039	31.2	16	24.0	39.2	46.0	-6.8
H	***408.062***	***32.0***	***16***	***24.0***	***40.0***	***46.0***	***-6.0***
H	432.054	26.4	16	25.0	35.4	46.0	-10.6
H	528.059	24.2	16	27.0	35.2	46.0	-10.8

NOTES: 1. Peak detector is used for the emission measurement.

2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-met er 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. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 Section 15.205 / RSS-210 Section 2.2.

4.7 Radiated Emissions from Receiver

4.7.1 Radiated Emission Configuration Photograph

Worst Case Radiated Emission
at

3249.330 MHz

The worst case radiated emission configuration photographs are attached in the Appendix and saved with filename: config photos.pdf

4.7.2 Radiated Emission Data

The data in tables 16-18 list the significant emission frequencies, the limit and the margin of compliance.

Judgement : Passed by 8.0 dB margin

Mode: Receiving – Middle Channel

Table 16
IEEE 802.11b (DSSS)

Radiated Emissions Data

Polari-zation	Frequency (MHz)	Reading (dBuV)	Pre-amp (dB)	Antenna Factor (dB)	Net at 3m (dBuV/m)	Limit at 3m (dBuV/m)	Margin (dB)
V	3249.330	47.1	33	31.9	46.0	54.0	-8.0
V	6498.660	41.9	33	36.9	45.8	54.0	-8.2
V	9747.990	36.6	33	40.4	44.0	54.0	-10.0
V	12997.320	35.4	33	41.7	44.1	54.0	-9.9
V	16246.650	36.6	33	40.2	43.8	54.0	-10.2

NOTES:

4. Peak detector is used for the emission measurement.

4. 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.

4. Negative value in the margin column shows emission below limit.

4. Horn antenna is used for the emission over 1000MHz.

Mode: Receiving – Middle Channel

Table 17
IEEE 802.11g(OFDM)

Radiated Emissions Data

Polari-zation	Frequency (MHz)	Reading (dBuV)	Pre-amp (dB)	Antenna Factor (dB)	Net at 3m (dBuV/m)	Limit at 3m (dBuV/m)	Margin (dB)
V	3249.330	46.9	33	31.9	45.8	54.0	-8.2
V	6498.660	41.7	33	36.9	45.6	54.0	-8.4
V	9747.990	36.6	33	40.4	44.0	54.0	-10.0
V	12997.320	35.2	33	41.7	43.9	54.0	-10.1
V	16246.650	36.3	33	40.2	43.5	54.0	-10.5

NOTES:

4. Peak detector is used for the emission measurement.

4. 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.

4. Negative value in the margin column shows emission below limit.

4. Horn antenna is used for the emission over 1000MHz.

Mode: Receiving – Middle Channel

Table 18
IEEE 802.11n(OFDM)

Radiated Emissions Data

Polari-zation	Frequency (MHz)	Reading (dBuV)	Pre-amp (dB)	Antenna Factor (dB)	Net at 3m (dBuV/m)	Limit at 3m (dBuV/m)	Margin (dB)
V	3249.330	47.0	33	31.9	45.9	54.0	-8.1
V	6498.660	41.8	33	36.9	45.7	54.0	-8.3
V	9747.990	36.8	33	40.4	44.2	54.0	-9.8
V	12997.320	35.1	33	41.7	43.8	54.0	-10.2
V	16246.650	36.2	33	40.2	43.4	54.0	-10.6

NOTES:

4. Peak detector is used for the emission measurement.

4. 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.

4. Negative value in the margin column shows emission below limit.

4. Horn antenna is used for the emission over 1000MHz.

4.8 AC Power Line Conducted Emission

☐ Not applicable – EUT is only powered by battery for operation.

☒ EUT connects to AC power line. Emission Data is listed in following pages.

☐ Base Unit connects to AC power line and has transmission. Handset connects to AC power line but has no transmission. Emission Data of Base Unit is listed in following pages.

4.8.1 AC Power Line Conducted Emission Configuration Photograph

Worst Case Line-Conducted Configuration
at

0.434 MHz

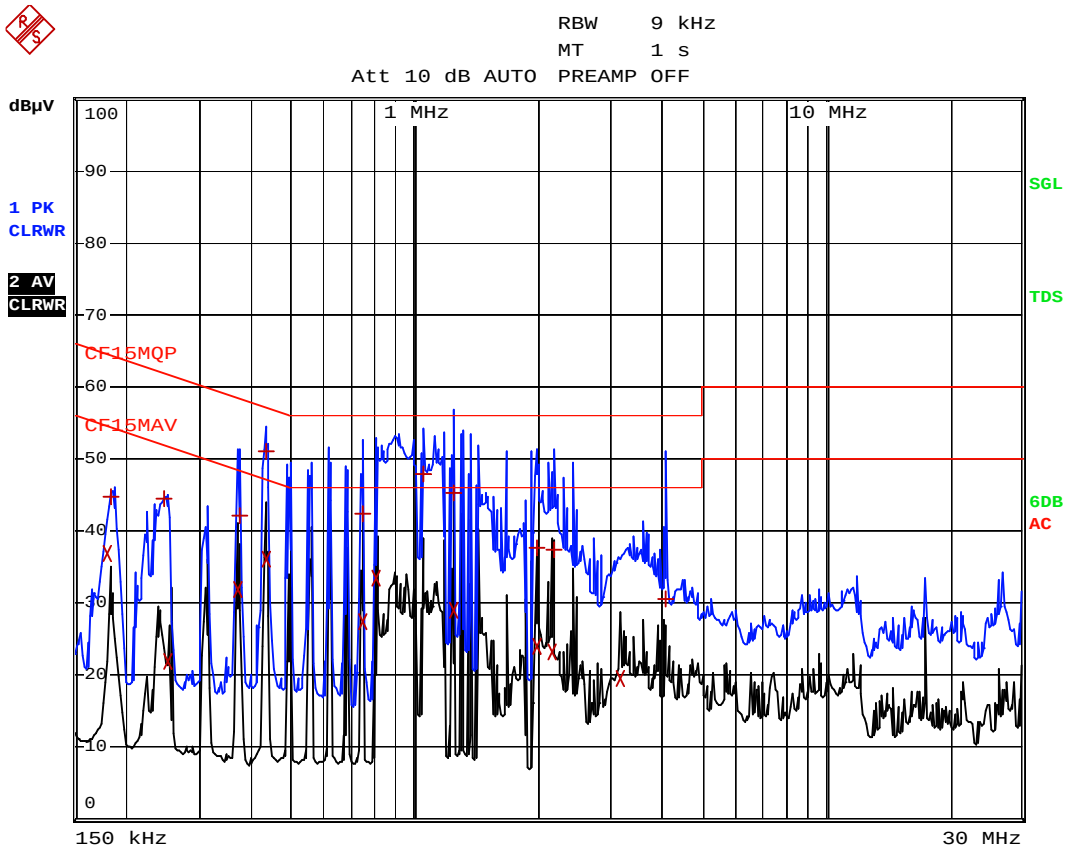
The worst case line conducted configuration photographs are attached in the Appendix and saved with filename: config photos.pdf

4.8.2 AC Power Line Conducted Emission Data

The plot(s) and data in the following pages list the significant emission frequencies, the limit and the margin of compliance

Passed by 6.04 dB margin compare with quasi-peak limit

Model No.: MBP2000PU
Worst Case: Ringing and Charging in Base Unit + USB Data Transfer + WiFi Mode
Base's AC Mains



Date: 23.SEP.2011 18:59:41

Model No.: MBP2000PU
Worst Case: Ringing and Charging in Base Unit + USB Data Transfer + WiFi Mode
Base's AC Mains

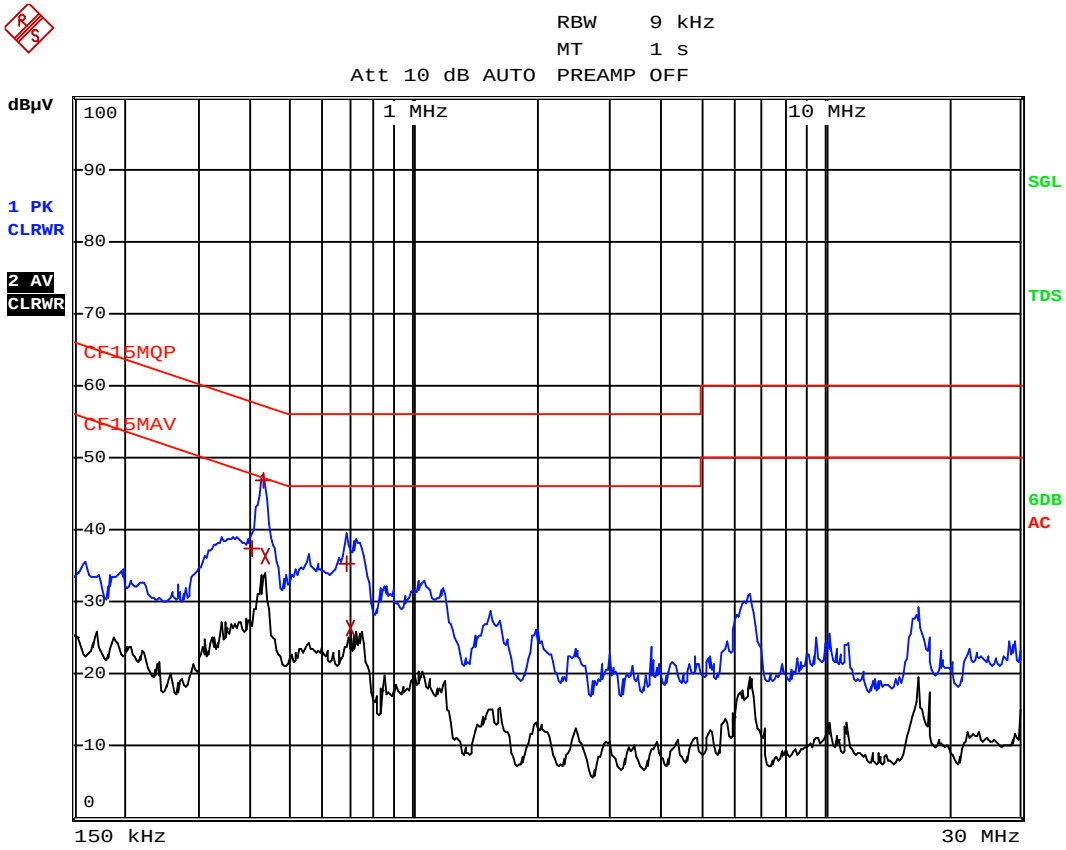
EDIT PEAK LIST (Final Measurement Results)

Trace1: CF15MQP
Trace2: CF15MAV
Trace3: ---

	TRACE	FREQUENCY	LEVEL dBµV		DELTA LIMIT dB
2	CISPR Average	181.5 kHz	36.84	L1 gnd	-17.56
1	Quasi Peak	186 kHz	44.71	L1 gnd	-19.49
1	Quasi Peak	249 kHz	44.56	L1 gnd	-17.22
2	CISPR Average	253.5 kHz	21.82	N gnd	-29.81
2	CISPR Average	370.5 kHz	31.88	N gnd	-16.60
1	Quasi Peak	375 kHz	42.13	L1 gnd	-16.26
1	Quasi Peak	433.5 kHz	51.14	L1 gnd	-6.04
2	CISPR Average	433.5 kHz	36.05	L1 gnd	-11.13
1	Quasi Peak	748.5 kHz	42.45	L1 gnd	-13.54
2	CISPR Average	748.5 kHz	27.38	L1 gnd	-18.61
2	CISPR Average	807 kHz	33.43	N gnd	-12.56
1	Quasi Peak	1.0545 MHz	47.79	N gnd	-8.20
1	Quasi Peak	1.2435 MHz	45.16	N gnd	-10.83
2	CISPR Average	1.2435 MHz	29.09	N gnd	-16.90
2	CISPR Average	1.986 MHz	24.10	N gnd	-21.89
1	Quasi Peak	1.9905 MHz	37.73	N gnd	-18.26
2	CISPR Average	2.1705 MHz	23.19	L1 gnd	-22.80
1	Quasi Peak	2.175 MHz	37.36	N gnd	-18.63
2	CISPR Average	3.165 MHz	19.66	L1 gnd	-26.33
1	Quasi Peak	4.0695 MHz	30.46	L1 gnd	-25.54

Date: 23.SEP.2011 18:58:05

Model No.: MBP2000PU
Worst Case: Answer Machine Recording and Charging in Base Unit +USB Data Transfer + WiFi Mode
Base's AC Mains



Date: 8.SEP.2011 21:04:23

Model No.: MBP2000PU
Worst Case: Answer Machine Recording and Charging in Base Unit +USB Data Transfer + WiFi Mode
Base's AC Mains

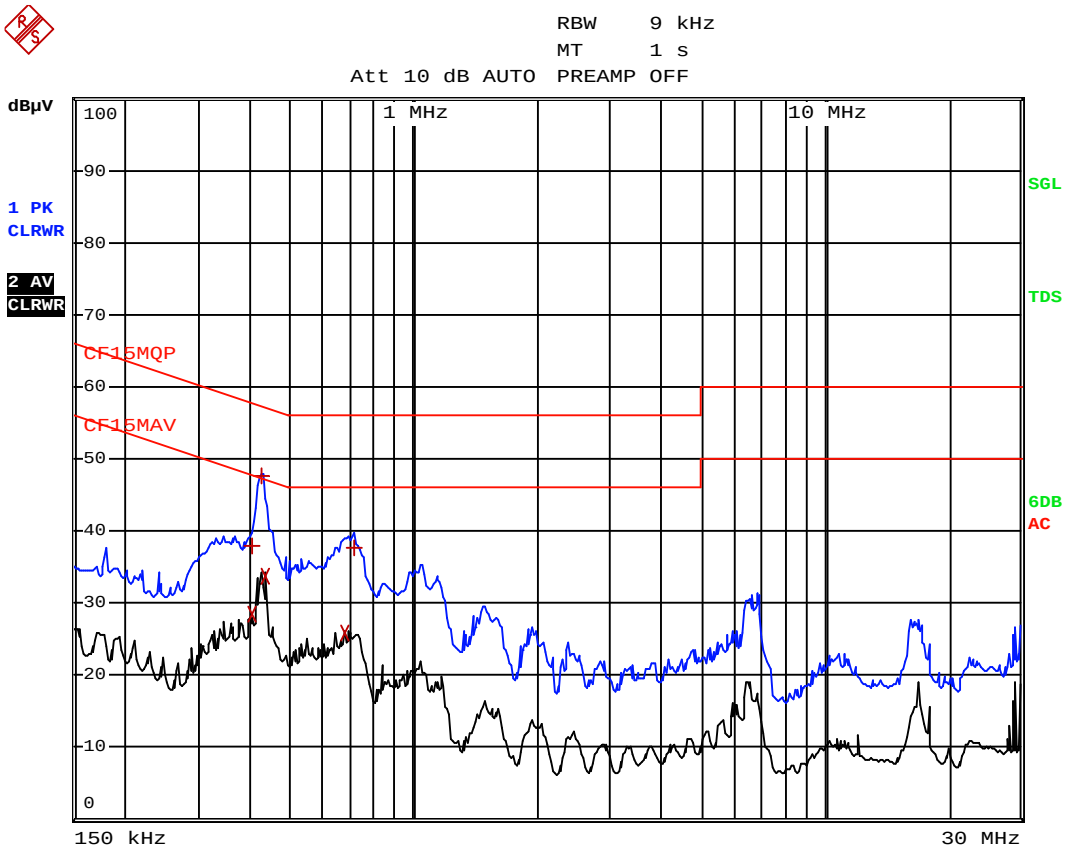
EDIT PEAK LIST (Final Measurement Results)

Trace1: CF15MQP
Trace2: CF15MAV
Trace3: ---

TRACE		FREQUENCY	LEVEL dBµV		DELTA LIMIT dB
1	Quasi Peak	402 kHz	37.48	L1	-20.32
1	Quasi Peak	429 kHz	46.95	N	-10.31
2	CISPR Average	433.5 kHz	36.42	N	-10.76
1	Quasi Peak	685.5 kHz	35.35	N	-20.64
2	CISPR Average	703.5 kHz	26.44	N	-19.55

Date: 8.SEP.2011 21:04:14

Model No.: MBP2000PU
Worst Case: Base Unit On-Line + WiFi Mode
Base's AC Mains



Date: 8.SEP.2011 19:11:30

Model No.: MBP2000PU
Worst Case: Base Unit On-Line + WiFi Mode
Base's AC Mains

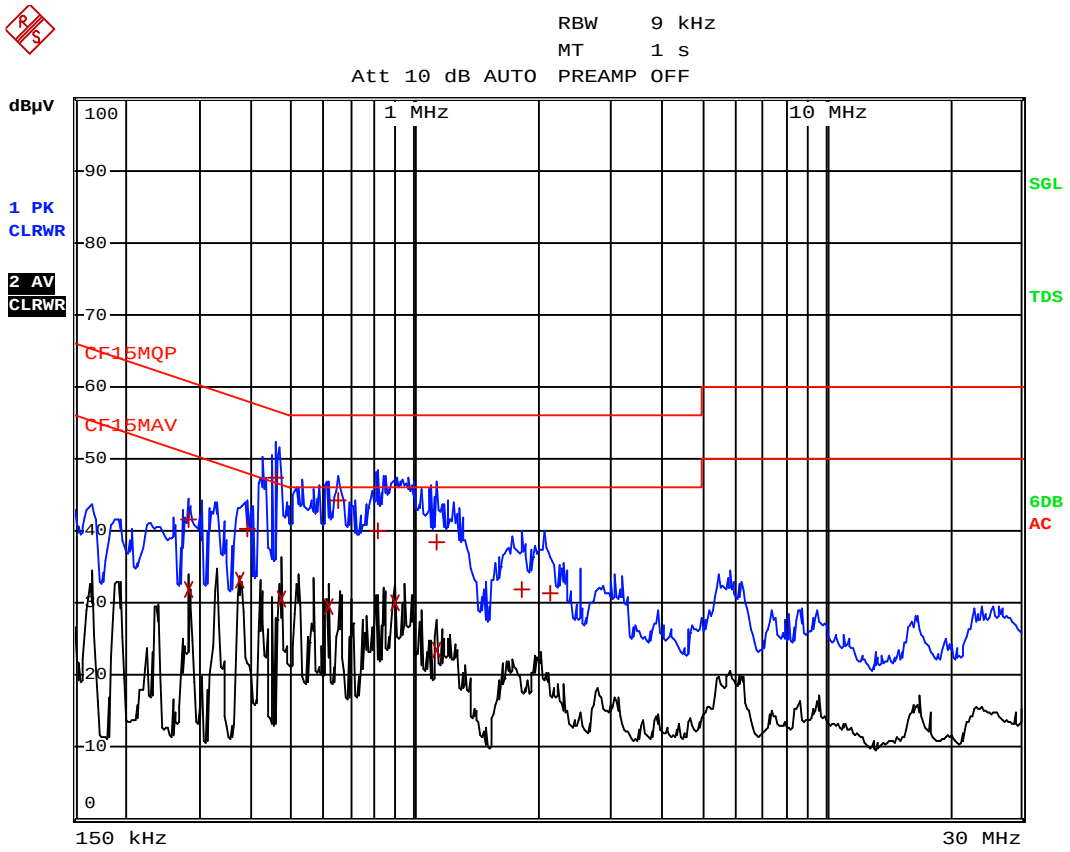
EDIT PEAK LIST (Final Measurement Results)

Trace1: CF15MQP
Trace2: CF15MAV
Trace3: ---

	TRACE	FREQUENCY	LEVEL dBµV		DELTA LIMIT dB
1	Quasi Peak	424.5 kHz	47.55	N	-9.80
2	CISPR Average	433.5 kHz	33.61	N	-13.56
1	Quasi Peak	717 kHz	37.69	N	-18.30
2	CISPR Average	402 kHz	28.48	L1	-19.33
1	Quasi Peak	402 kHz	37.84	N	-19.96
2	CISPR Average	681 kHz	25.96	N	-20.03

Date: 8.SEP.2011 19:11:22

Model No.: MBP2000PU
Worst Case: Video Playing and Charging in Base Unit + WiFi Mode
Base's AC Mains



Date: 8.SEP.2011 21:10:39

Model No.: MBP2000PU
Worst Case: Video Playing and Charging in Base Unit + WiFi Mode
Base's AC Mains

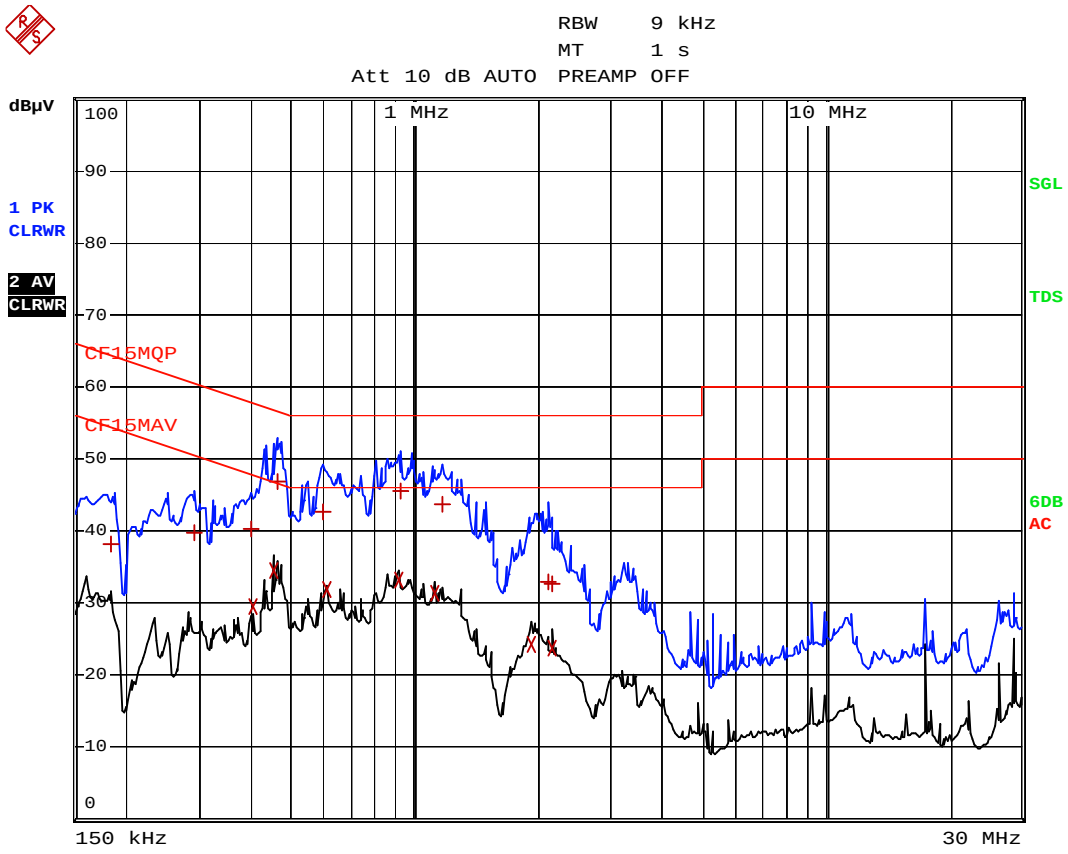
EDIT PEAK LIST (Final Measurement Results)

Trace1: CF15MQP
Trace2: CF15MAV
Trace3: ---

	TRACE	FREQUENCY	LEVEL dBµV		DELTA LIMIT dB
1	Quasi Peak	280.5 kHz	41.57	L1	-19.22
2	CISPR Average	280.5 kHz	31.95	L1	-18.84
2	CISPR Average	375 kHz	33.20	L1	-15.19
1	Quasi Peak	388.5 kHz	40.21	N	-17.87
1	Quasi Peak	456 kHz	47.31	L1	-9.44
2	CISPR Average	474 kHz	30.51	L1	-15.92
2	CISPR Average	613.5 kHz	29.41	L1	-16.58
1	Quasi Peak	649.5 kHz	44.21	N	-11.78
1	Quasi Peak	816 kHz	39.93	N	-16.06
2	CISPR Average	892.5 kHz	30.15	L1	-15.84
1	Quasi Peak	1.1355 MHz	38.40	L1	-17.59
2	CISPR Average	1.1355 MHz	23.59	N	-22.40
1	Quasi Peak	1.8195 MHz	31.78	N	-24.21
1	Quasi Peak	2.1345 MHz	31.47	N	-24.52

Date: 8.SEP.2011 21:10:32

Model No.: MBP2000PU
Worst Case: Charging in Base Unit and by PC+ Camera Recording + WiFi Mode
Base's AC Mains



Date: 23.SEP.2011 19:13:53

Model No.: MBP2000PU
Worst Case: Charging in Base Unit and by PC+ Camera Recording + WiFi Mode
Base's AC Mains

EDIT PEAK LIST (Final Measurement Results)

Trace1: CF15MQP
Trace2: CF15MAV
Trace3: ---

	TRACE	FREQUENCY	LEVEL dBµV		DELTA LIMIT dB
1	Quasi Peak	186 kHz	38.19	L1 gnd	-26.02
1	Quasi Peak	289.5 kHz	39.79	L1 gnd	-20.74
1	Quasi Peak	397.5 kHz	40.18	L1 gnd	-17.72
2	CISPR Average	402 kHz	29.50	L1 gnd	-18.30
2	CISPR Average	451.5 kHz	34.52	L1 gnd	-12.32
1	Quasi Peak	460.5 kHz	46.88	L1 gnd	-9.79
1	Quasi Peak	595.5 kHz	42.77	N gnd	-13.22
2	CISPR Average	609 kHz	31.90	N gnd	-14.09
2	CISPR Average	915 kHz	33.29	N gnd	-12.70
1	Quasi Peak	919.5 kHz	45.50	N gnd	-10.49
2	CISPR Average	1.113 MHz	31.37	N gnd	-14.62
1	Quasi Peak	1.167 MHz	43.65	N gnd	-12.34
2	CISPR Average	1.9185 MHz	24.40	L1 gnd	-21.59
1	Quasi Peak	2.1075 MHz	32.82	N gnd	-23.17
2	CISPR Average	2.1525 MHz	23.72	L1 gnd	-22.27
1	Quasi Peak	2.166 MHz	32.73	N gnd	-23.26

Date: 23.SEP.2011 19:13:37

4.9 Radio Frequency Radiation Exposure

EUT is subject to the radio frequency exposure requirements specified in FCC Rule §§ 1.1307. It shall be considered to operate in a “general population / uncontrolled” environment.

☐ Output power is less than the applicable low threshold from SAR evaluation. The evaluation calculation results are saved as filename: RF exposure info.pdf

☐ EUT was evaluated for Maximum Permissible Exposure (MPE) evaluation compliance according to OET Bulletin 65, Supplement C (Edition 01-01). The evaluation calculation results are attached in the Appendix and saved as filename: RF exposure info.pdf

☒ EUT was evaluated for Specific Absorption Rate (SAR) evaluation compliance according to OET Bulletin 65, Supplement C (Edition 01-01). It is in compliance with the SAR evaluation requirements. A SAR test report was submitted at same time and saved as SAR Report.pdf

4.10 Radio Frequency Exposure Compliance

The Routine RF Exposure Evaluation, Routine SAR Evaluation and Declaration of RF Exposure Compliance are saved as filename: RF exposure.pdf

EXHIBIT 5
EQUIPMENT LIST

5.0 **Equipment List**

1) Radiated Emissions Test

Equipment	Biconical Antenna		Log Periodic Antenna		EMI Test Receiver	
Registration No.	EW-0954		EW-0446		EW-2500	
Manufacturer	EMCO		EMCO		R&S	
Model No.	3104C		3146		ESCI	
Calibration Date	Apr. 14, 2010	Oct. 18, 2011	Apr. 26, 2010,	Oct. 31, 2011	Jan. 25, 2011	Feb. 24, 2012
Calibration Due Date	Oct. 14, 2011	Apr. 18, 2013	Oct. 26, 2011,	Apr. 30. 2013	Jan. 25, 2012	Feb. 24, 2013

Equipment	Spectrum Analyzer		Broad-Band Horn Antenna	Double Ridged Guide Antenna (1GHz - 18GHz)
Registration No.	EW-2253	EW-2188	EW-1133	EW-1679
Manufacturer	R&S	AGILENTTEH	EMCO	SCHWARZBECK
Model No.	FSP40	E4407B	3115	BBHA9170
Calibration Date	Nov.23, 2010	Sep. 26, 2011	Mar. 02, 2011	Mar.03, 2011
Calibration Due Date	Nov.23, 2011	Sep. 26, 2012	Sep. 02, 2012	Sep.03, 2012

2) Conducted Emissions Test

Equipment	EMI Test Receiver	Artificial Mains Network	Artificial Mains
Registration No.	EW-2251	EW-2501	EW-0192
Manufacturer	R&S	R&S	R&S
Model No.	ESCI	ENV-216	ESH3-Z5
Calibration Date	May 06, 2011	Mar. 30, 2011	Nov. 30, 2010
Calibration Due Date	May 06, 2012	Mar. 30, 2012	Feb. 29, 2012

Equipment	Pulse Limiter	
Registration No.	EW-0698	EW-0700
Manufacturer	R&S	R&S
Model No.	ESH3-Z2	ESH3-Z2
Calibration Date	Mar.11, 2011	Dec. 28. 2010
Calibration Due Date	Mar.11, 2012	Jun. 28, 2012

3) Conductive Measurement Test

Equipment	Spectrum Analyzer	RF Power Sensor		RF Power Meter	
Registration No.	EW-2466	EW-2270a		EW-2270b	
Manufacturer	R&S	AGILENTTECH		AGILENTTECH	
Model No.	FSP30	N1921A		N1911A	
Calibration Date	Apr. 11, 2011	Dec. 03, 2010	Feb. 14, 2012	Dec. 03, 2010	Feb. 14, 2012
Calibration Due Date	Apr. 11, 2012	Dec. 03, 2011	Feb. 14, 2013	Dec. 03, 2011	Feb. 14, 2013

END OF TEST REPORT