

## TEST REPORT

**Report Number: HK11060197-2**

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

WiFi Gateway

**FCC ID: EW780-7597-00**

**IC: 1135B-80759700**

Prepared and Checked by:



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July 06, 2011

Approved by:



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July 06, 2011

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### GENERAL INFORMATION

<b>Applicant Name:</b>	VTech Telecommunications Ltd.
<b>Applicant Address:</b>	23/F, Tai Ping Industrial Centre, Block 1, 57 Ting Kok Road, Tai Po, Hong Kong.
<b>FCC Specification Standard:</b>	FCC Part 15, October 1, 2009 Edition
<b>FCC ID:</b>	EW780-7597-00
<b>FCC Model(s):</b>	MP252WDNB
<b>IC Specification Standard:</b>	RSS-210 Issue 8, December 2010 RSS-Gen Issue 3, December 2010 RSS-102 Issue 4, March 2010
<b>IC:</b>	1135B-80759700
<b>IC Model(s):</b>	MP252WDNB
<b>Type of EUT:</b>	Digital Transmission System
<b>Description of EUT:</b>	WiFi Gateway
<b>Serial Number:</b>	N/A
<b>Sample Receipt Date:</b>	May 23, 2011
<b>Date of Test:</b>	May 23 to June 30, 2011
<b>Report Date:</b>	July 06, 2011
<b>Environmental Conditions:</b>	Temperature: +10 to 40°C Humidity: 10 to 90%

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**EXHIBIT 1  
SUMMARY OF TEST RESULTS & STATEMENT OF COMPLIANCE**

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### 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.

### 1.1 Statement of Compliance

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

FCC Part 15: 2009  
RSS-210 Issue 8, December 2010  
RSS-Gen Issue 3, December 2010  
RSS-102 Issue 4, March 2010

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**EXHIBIT 2  
GENERAL DESCRIPTION**

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### 2.0 General Description

#### 2.1 Product Description

The MP252WDNB is a WiFi Gateway. For 802.11b mode, it operates at frequency range of 2412.000MHz to 2462.000MHz with 11 channels. Only antenna 0 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. Only antenna 0 transmits via Orthogonal Frequency Division Multiplexing (OFDM) modulation. Maximum bit rate can be up to 54Mbps. For 802.11n (with 20MHz bandwidth) mode, it operates at frequency range of 2412.000MHz to 2462.000MHz with 11 channels. Antenna 0 or 1 transmits via Orthogonal Frequency Division Multiplexing (OFDM) modulation. Maximum bit rate can support up to 150Mbps. For 802.11n (with 40MHz bandwidth) mode, it operates at frequency range of 2422.000MHz to 2452.000MHz with 7 channels. Both Antenna 0 and 1 transmit simultaneously via Orthogonal Frequency Division Multiplexing (OFDM) modulation. Maximum bit rate can be up to 300Mbps. The EUT is powered by an adaptor 100-240VAC to 12VDC 2000mA and/or 12VDC backup battery.

The antenna(s) used in the EUT are integral, and the test sample is a prototype.

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

Connection between the device and the telephone network is accomplished through the use of USOC RJ11C in the 2-wire loop calling central office line.

#### 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, 2<sup>nd</sup> Floor, and 5<sup>th</sup> 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.

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**EXHIBIT 3  
SYSTEM TEST CONFIGURATION**



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### **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 EUT was powered by a 100-240VAC to 12VDC 2000mA adaptor and/or 12VDC backup battery.

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.

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### 3.1 Justification - Cont'd

Detector function for radiated emissions was in peak mode. Average readings, when required, were taken by measuring the duty cycle of the equipment under test and subtracting the corresponding amount in dB from the measured peak readings. A detailed description for the calculation of the average factor can be found in Section 4.6.3.

Determination of pulse desensitization was made according to *Hewlett Packard Application Note 150-2, Spectrum Analysis... Pulsed RF*. The effective period (Teff) was referred to Exhibit 4.6.3. With the resolution bandwidth 1MHz and spectrum analyzer IF bandwidth 3dB, the pulse desensitization factor was 0dB.

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 were 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.

The Base Unit has two antennas for different Wifi version:

- 802.11b/g: Use Ant 0 only for transmission;
- 802.11n (20MHz Bandwidth): Select Ant 0 or Ant 1 for transmission. Both antennas have been tested. Worst case is reported only;
- 802.11n (40MHz Bandwidth): Both antennas are using for transmission.

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

The base unit also has 2 antennas for DECT 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.

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### 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 description are listed below.

- (1) An AC adaptor (100-240VAC to 12VDC 2000mA, Model: S024EU1200200) (Supplied by Client)

#### Description of Accessories:

- (1) Backup Battery: 12VDC battery pack (Supplied by Client)
- (2) Handset Unit, Model: MP252WDNB, FCC ID: EW780-7597-00 (Supplied by Client)
- (3) Extra Charger Unit, Model: MP252WDNB (Supplied by Client)
- (4) 2 x Simple Corded Phone, Model: AS7402, Brand: Uniden (Supplied by Intertek)
- (5) TP-LINK Router, Model: TL-R402M, S/N: 08329805932 (Supplied by Intertek)
- (6) Lenovo Notebook, Model: T61, S/N: L3-CF468, DoC Product (Supplied by Intertek)
- (7) Smartdrive External Hard Disk, Model: HD3-SU2FW, S/N: 0800261, DoC Product (Supplied by Intertek)
- (8) ADSL Modem, Model: Veritas992, S/N: ADS-020001001 (Supplied by Client)
- (9) 2 x USB Memory Stick, Brand: SanDisk (Supplied by Intertek)
- (10) 2 x 3m Telephone Line (Supplied by Intertek)
- (11) 1 x USB cable with 0.7 meter long (Supplied by Intertek)
- (12) 1 x 1394 cable with 0.8 meter long (Supplied by Intertek)
- (13) 4 x LAN cable with 1 meter long (Supplied by Intertek)
- (14) 1 x RJ11 ADSL cable with 1.2 meter long (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.

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**EXHIBIT 4  
TEST RESULTS**

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### 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(DSSS, 11Mbps) Antenna Gain = 2dBi		
Frequency (MHz)	Output in dBm	Output in mWatt
Low Channel: 2412MHz	19.58	90.78
Middle Channel: 2437MHz	20.12	102.80
High Channel: 2462MHz	20.40	109.65

dBm max. output level = 20.40 dBm

IEEE 802.11g(OFDM, 54Mbps) Antenna Gain = 2dBi		
Frequency (MHz)	Output in dBm	Output in mWatt
Low Channel: 2412MHz	24.50	281.84
Middle Channel: 2437MHz	24.78	300.61
High Channel: 2462MHz	24.84	304.79

dBm max. output level = 24.84 dBm

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### 4.1 Maximum Conducted Output Power at Antenna Terminals - Continued

IEEE 802.11n(OFDM, 150Mbps), 20MHz bandwidth, Antenna Gain = 2dBi		
Frequency (MHz)	Output in dBm	Output in mWatt
Low Channel: 2412MHz	22.76	188.80
Middle Channel: 2437MHz	22.93	196.34
High Channel: 2462MHz	22.78	189.67

dBm max. output level = 22.93 dBm

IEEE 802.11n(OFDM, 300Mbps), 40MHz bandwidth, * Antenna Gain = 5dBi						
Frequency (MHz)	Antenna 0		Antenna1		Total	
	Output in dBm	Output in mWatt	Output in dBm	Output in mWatt	Output in dBm	Output in mWatt
Low Channel: 2422MHz	22.93	196.34	22.54	179.47	25.75	375.81
Middle Channel: 2437MHz	23.12	205.12	22.95	197.24	26.05	402.36
High Channel: 2452MHz	23.52	224.91	23.11	204.64	26.33	429.55

Note: For MIMO system in this mode, total power is calculated by adding individual measured data of two antennas.

dBm max. output level = 26.33 dBm

Cable loss : 0.5 dB External Attenuation : 10 dB

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

\* Remark: In MIMO, two WiFi Antenna are correlated, directional gain  
 $= G_{Ant} + 10\log(N)dBi = 2 + 10\log(2) = 5dBi$

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### 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(DSSS, 11Mbps)		
Frequency (MHz)		6dB Bandwidth (kHz)
Low Channel:	2412MHz	11280
Middle Channel:	2437MHz	11280
High Channel:	2462MHz	11240

IEEE 802.11g(OFDM, 54Mbps)		
Frequency (MHz)		6 dB Bandwidth (kHz)
Low Channel:	2412MHz	16560
Middle Channel:	2437MHz	16520
High Channel:	2462MHz	16520

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### 4.2 Minimum 6dB RF Bandwidth - Continued

IEEE 802.11n(OFDM, 150Mbps), 20MHz bandwidth		
Frequency (MHz)		6dB Bandwidth (kHz)
Low Channel:	2412MHz	17200
Middle Channel:	2437MHz	17200
High Channel:	2462MHz	17440

IEEE 802.11n(OFDM, 300Mbps) 40MHz bandwidth			
Frequency (MHz)		6 dB Bandwidth (kHz)	
		Antenna 0	Antenna 1
Low Channel:	2422MHz	36480	36240
Middle Channel:	2437MHz	36480	36240
High Channel:	2452MHz	36160	35280

Limits: at least 500kHz

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



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### 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(DSSS, 11Mbps)	
Frequency (MHz)	Power Density (dBm/3kHz)
Low Channel: 2412 MHz	-7.60
Middle Channel: 2437 MHz	-6.88
High Channel: 2462 MHz	-6.66

Frequency Span = 1.5MHz

Sweep Time = Frequency Span/3kHz  
= 500 seconds

Cable Loss: 0.5 dB

Max. Peak Power Density (at 2462MHz) = -6.66dBm/3kHz

Limit:  
8dBm/ 3kHz

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### 4.3 Maximum Power Density – Continued:

IEEE 802.11g(OFDM, 54Mbps)	
Frequency (MHz)	Power Density (dBm/3kHz)
Low Channel: 2412 MHz	-13.02
Middle Channel: 2437 MHz	-12.23
High Channel: 2462 MHz	-11.89

Frequency Span = 1.5MHz

Sweep Time = Frequency Span/3kHz  
= 500 seconds

Cable Loss: 0.5 dB

Max. Peak Power Density (at 2462MHz) = -11.89dBm/3kHz

Limit:  
8dBm/ 3kHz

IEEE 802.11n(OFDM, 150Mbps), 20M Bandwidth	
Frequency (MHz)	Power Density (dBm/3kHz)
Low Channel: 2412 MHz	-13.74
Middle Channel: 2437 MHz	-12.97
High Channel: 2462 MHz	-12.84

Frequency Span = 1.5MHz

Sweep Time = Frequency Span/3kHz  
= 500 seconds

Cable Loss: 0.5 dB

Max. Peak Power Density (at 2462MHz) = -12.84dBm/3kHz

Limit:  
8dBm/ 3kHz

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### 4.3 Maximum Power Density – Continued:

IEEE 802.11n(OFDM, 300Mbps), 40M Bandwidth				
Frequency (MHz)	Power Density (dBm/3kHz)			
	Antenna 0	Power Density +10log (2)	Antenna 1	Power Density +10log (2)
Low Channel: 2422 MHz	-16.96	-13.96	-16.83	-13.83
Middle Channel: 2437 MHz	-16.64	-13.64	-15.08	-12.08
High Channel: 2452 MHz	-15.97	-12.97	-14.24	-11.24

Note: For MIMO system, the quantity  $10 \log(N)$  dB is added to each spectrum value before comparing to the emission limit.

Frequency Span = 1.5MHz

Sweep Time = Frequency Span/3kHz  
= 500 seconds

Cable Loss: 0.5 dB

Max. Peak Power Density (at 2452MHz) = -11.24dBm/3kHz

Limit:  
8dBm/ 3kHz

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

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### 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

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### 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 dB $\mu$ V/m  
                    RA = Receiver Amplitude (including preamplifier) in dB $\mu$ V  
                    CF = Cable Attenuation Factor in dB  
                    AF = Antenna Factor in dB  
                    AG = Amplifier Gain in dB

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 dB $\mu$ V/m  
                    RR = RA - AG in dB $\mu$ V  
                    LF = CF + AF in dB

Assume a receiver reading of 52.0 dB $\mu$ V is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted, giving a field strength of 32 dB $\mu$ V/m. This value in dB $\mu$ V/m was converted to its corresponding level in  $\mu$ V/m.

RA = 52.0 dB $\mu$ V	
AF = 7.4 dB	RR = 23.0 dB $\mu$ V
CF = 1.6 dB	LF = 9.0 dB
AG = 29.0 dB	
FS = RR + LF	
FS = 23 + 9 = 32 dB $\mu$ V/m	

Level in  $\mu$ V/m = Common Antilogarithm [(32 dB $\mu$ V/m)/20] = 39.8  $\mu$ V/m

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### 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.

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### 4.6.1 Radiated Emission Configuration Photograph

Worst Case Restricted Band Radiated Emission  
at

2483.500 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 1-16 list the significant emission frequencies, the limit and the margin of compliance.

Judgement -

Passed by 0.2 dB margin compare with average limit

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Mode: TX-Channel 01

Table 1  
IEEE 802.11b(DSSS, 11Mbps), ANT 0

### Radiated Emission Data

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Average Limit at 3m (dB $\mu$ V/m)	Margin (dB)
<b><i>H</i></b>	<b><i>4824.000</i></b>	<b><i>49.0</i></b>	<b><i>33</i></b>	<b><i>34.9</i></b>	<b><i>50.9</i></b>	<b><i>54.0</i></b>	<b><i>-3.1</i></b>
<b><i>H</i></b>	<b><i>12060.000</i></b>	<b><i>41.7</i></b>	<b><i>33</i></b>	<b><i>40.5</i></b>	<b><i>49.2</i></b>	<b><i>54.0</i></b>	<b><i>-4.8</i></b>
<b><i>H</i></b>	<b><i>14472.000</i></b>	<b><i>41.5</i></b>	<b><i>33</i></b>	<b><i>40.0</i></b>	<b><i>48.5</i></b>	<b><i>54.0</i></b>	<b><i>-5.5</i></b>

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Average Limit at 3m (dB $\mu$ V/m)	Margin (dB)
<b><i>H</i></b>	<b><i>4824.000</i></b>	<b><i>49.0</i></b>	<b><i>33</i></b>	<b><i>34.9</i></b>	<b><i>50.9</i></b>	<b><i>74.0</i></b>	<b><i>-23.1</i></b>
<b><i>H</i></b>	<b><i>12060.000</i></b>	<b><i>41.7</i></b>	<b><i>33</i></b>	<b><i>40.5</i></b>	<b><i>49.2</i></b>	<b><i>74.0</i></b>	<b><i>-24.8</i></b>
<b><i>H</i></b>	<b><i>14472.000</i></b>	<b><i>41.5</i></b>	<b><i>33</i></b>	<b><i>40.0</i></b>	<b><i>48.5</i></b>	<b><i>74.0</i></b>	<b><i>-25.5</i></b>

- 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-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
  3. Negative value in the margin column shows emission below limit.
  4. Horn antenna is used for the emission over 1000MHz.
  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.



## INTERTEK TESTING SERVICES

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Mode: TX-Channel 06

Table 2  
IEEE 802.11b(DSSS, 11Mbps), ANT 0

### Radiated Emission Data

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Average Limit at 3m (dB $\mu$ V/m)	Margin (dB)
<b><i>H</i></b>	<b><i>4874.000</i></b>	<b><i>48.7</i></b>	<b><i>33</i></b>	<b><i>34.9</i></b>	<b><i>50.6</i></b>	<b><i>54.0</i></b>	<b><i>-3.4</i></b>
<b><i>H</i></b>	<b><i>7311.000</i></b>	<b><i>45.5</i></b>	<b><i>33</i></b>	<b><i>37.9</i></b>	<b><i>50.4</i></b>	<b><i>54.0</i></b>	<b><i>-3.6</i></b>
<b><i>H</i></b>	<b><i>12185.000</i></b>	<b><i>41.9</i></b>	<b><i>33</i></b>	<b><i>40.5</i></b>	<b><i>49.4</i></b>	<b><i>54.0</i></b>	<b><i>-4.6</i></b>

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m-Peak (dB $\mu$ V/m)	Peak Limit at 3m (dB $\mu$ V/m)	Margin (dB)
<b><i>H</i></b>	<b><i>4874.000</i></b>	<b><i>48.7</i></b>	<b><i>33</i></b>	<b><i>34.9</i></b>	<b><i>50.6</i></b>	<b><i>74.0</i></b>	<b><i>-23.4</i></b>
<b><i>H</i></b>	<b><i>7311.000</i></b>	<b><i>45.5</i></b>	<b><i>33</i></b>	<b><i>37.9</i></b>	<b><i>50.4</i></b>	<b><i>74.0</i></b>	<b><i>-23.6</i></b>
<b><i>H</i></b>	<b><i>12185.000</i></b>	<b><i>41.9</i></b>	<b><i>33</i></b>	<b><i>40.5</i></b>	<b><i>49.4</i></b>	<b><i>74.0</i></b>	<b><i>-24.6</i></b>

- 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-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
  3. Negative value in the margin column shows emission below limit.
  4. Horn antenna is used for the emission over 1000MHz.
  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.

## INTERTEK TESTING SERVICES

Mode: TX-Channel 11

Table 3  
IEEE 802.11b(DSSS, 11Mbps), ANT 0

### Radiated Emission Data

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Average Limit at 3m (dB $\mu$ V/m)	Margin (dB)
<b><i>H</i></b>	<b><i>4924.000</i></b>	<b><i>48.5</i></b>	<b><i>33</i></b>	<b><i>34.9</i></b>	<b><i>50.4</i></b>	<b><i>54.0</i></b>	<b><i>-3.6</i></b>
<b><i>H</i></b>	<b><i>7386.000</i></b>	<b><i>45.4</i></b>	<b><i>33</i></b>	<b><i>37.9</i></b>	<b><i>50.3</i></b>	<b><i>54.0</i></b>	<b><i>-3.7</i></b>
<b><i>H</i></b>	<b><i>12310.000</i></b>	<b><i>41.9</i></b>	<b><i>33</i></b>	<b><i>40.5</i></b>	<b><i>49.4</i></b>	<b><i>54.0</i></b>	<b><i>-4.6</i></b>

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m- Peak (dB $\mu$ V/m)	Peak Limit at 3m (dB $\mu$ V/m)	Margin (dB)
<b><i>H</i></b>	<b><i>2483.500</i></b>	<b><i>69.4</i></b>	<b><i>33</i></b>	<b><i>29.4</i></b>	<b><i>65.8</i></b>	<b><i>74.0</i></b>	<b><i>-8.2</i></b>
<b><i>H</i></b>	<b><i>4924.000</i></b>	<b><i>48.5</i></b>	<b><i>33</i></b>	<b><i>34.9</i></b>	<b><i>50.4</i></b>	<b><i>74.0</i></b>	<b><i>-23.6</i></b>
<b><i>H</i></b>	<b><i>7386.000</i></b>	<b><i>45.4</i></b>	<b><i>33</i></b>	<b><i>37.9</i></b>	<b><i>50.3</i></b>	<b><i>74.0</i></b>	<b><i>-23.7</i></b>
<b><i>H</i></b>	<b><i>12310.000</i></b>	<b><i>41.9</i></b>	<b><i>33</i></b>	<b><i>40.5</i></b>	<b><i>49.4</i></b>	<b><i>74.0</i></b>	<b><i>-24.6</i></b>

Remark: Peak detector is used for the emission measurement.

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dB $\mu$ V/m)	Average Limit at 3m (dB $\mu$ V/m)	Margin (dB)
<b><i>H</i></b>	<b><i>2483.500</i></b>	<b><i>57.4</i></b>	<b><i>33</i></b>	<b><i>29.4</i></b>	<b><i>53.8</i></b>	<b><i>54.0</i></b>	<b><i>-0.2</i></b>

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

- NOTES:
- 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.
  - Negative value in the margin column shows emission below limit.
  - Horn antenna is used for the emission over 1000MHz.
  - 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.

## INTERTEK TESTING SERVICES

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Mode: Talk

Table 4  
IEEE 802.11b(DSSS, 11Mbps)(ADSL), ANT 0

### Radiated Emission Data

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-amp (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Limit at 3m (dB $\mu$ V/m)	Margin (dB)
<i>V</i>	<i>75.000</i>	<i>41.4</i>	<i>16</i>	<i>6.0</i>	<i>31.4</i>	<i>40.0</i>	<i>-8.6</i>
<i>V</i>	<i>125.000</i>	<i>43.3</i>	<i>16</i>	<i>14.0</i>	<i>41.3</i>	<i>43.5</i>	<i>-2.2</i>
<i>H</i>	<i>150.000</i>	<i>36.5</i>	<i>16</i>	<i>14.0</i>	<i>34.5</i>	<i>43.5</i>	<i>-9.0</i>
<i>H</i>	<i>166.505</i>	<i>39.0</i>	<i>16</i>	<i>17.0</i>	<i>40.0</i>	<i>43.5</i>	<i>-3.5</i>
<i>H</i>	<i>166.675</i>	<i>36.3</i>	<i>16</i>	<i>17.0</i>	<i>37.3</i>	<i>43.5</i>	<i>-6.2</i>
H	175.000	36.3	16	19.0	39.3	43.5	-4.2
H	199.995	41.8	16	16.0	41.8	43.5	-1.7
H	225.003	35.4	16	18.0	37.4	46.0	-8.6
<i>H</i>	<i>250.000</i>	<i>38.5</i>	<i>16</i>	<i>20.0</i>	<i>42.5</i>	<i>46.0</i>	<i>-3.5</i>
<i>H</i>	<i>275.000</i>	<i>36.8</i>	<i>16</i>	<i>22.0</i>	<i>42.8</i>	<i>46.0</i>	<i>-3.2</i>
H	300.002	31.9	16	22.0	37.9	46.0	-8.1
<i>H</i>	<i>325.000</i>	<i>29.5</i>	<i>16</i>	<i>24.0</i>	<i>37.5</i>	<i>46.0</i>	<i>-8.5</i>
<i>H</i>	<i>333.330</i>	<i>26.6</i>	<i>16</i>	<i>24.0</i>	<i>34.6</i>	<i>46.0</i>	<i>-11.4</i>
H	350.002	31.0	16	24.0	39.0	46.0	-7.0
H	374.997	37.0	16	24.0	45.0	46.0	-1.0
H	400.015	34.9	16	24.0	42.9	46.0	-3.1
<i>H</i>	<i>450.000</i>	<i>27.5</i>	<i>16</i>	<i>26.0</i>	<i>37.5</i>	<i>46.0</i>	<i>-8.5</i>
H	500.003	28.6	16	26.0	38.6	46.0	-7.4
H	666.694	24.5	16	29.0	37.5	46.0	-8.5

- NOTES:
1. Simultaneous operation of SIP call conference through ADSL or WAN, WiFi transmission, PC online, and USB data transferring 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-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.
  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.

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## INTERTEK TESTING SERVICES

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Mode: TX-Channel 01

Table 5  
IEEE 802.11g(OFDM, 54Mbps), ANT 0

### Radiated Emission Data

Polari- zation	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Average Limit at 3m (dB $\mu$ V/m)	Margin (dB)
<b><i>H</i></b>	<b><i>4824.000</i></b>	<b><i>48.7</i></b>	<b><i>33</i></b>	<b><i>34.9</i></b>	<b><i>50.6</i></b>	<b><i>54.0</i></b>	<b><i>-3.4</i></b>
<b><i>H</i></b>	<b><i>12060.000</i></b>	<b><i>42.1</i></b>	<b><i>33</i></b>	<b><i>40.5</i></b>	<b><i>49.6</i></b>	<b><i>54.0</i></b>	<b><i>-4.4</i></b>
<b><i>H</i></b>	<b><i>14472.000</i></b>	<b><i>42.2</i></b>	<b><i>33</i></b>	<b><i>40.0</i></b>	<b><i>49.2</i></b>	<b><i>54.0</i></b>	<b><i>-4.8</i></b>

Polari- zation	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m- Peak (dB $\mu$ V/m)	Peak Limit at 3m (dB $\mu$ V/m)	Margin (dB)
<b><i>H</i></b>	<b><i>4824.000</i></b>	<b><i>48.7</i></b>	<b><i>33</i></b>	<b><i>34.9</i></b>	<b><i>50.6</i></b>	<b><i>74.0</i></b>	<b><i>-23.4</i></b>
<b><i>H</i></b>	<b><i>12060.000</i></b>	<b><i>42.1</i></b>	<b><i>33</i></b>	<b><i>40.5</i></b>	<b><i>49.6</i></b>	<b><i>74.0</i></b>	<b><i>-24.4</i></b>
<b><i>H</i></b>	<b><i>14472.000</i></b>	<b><i>42.2</i></b>	<b><i>33</i></b>	<b><i>40.0</i></b>	<b><i>49.2</i></b>	<b><i>74.0</i></b>	<b><i>-24.8</i></b>

- 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-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
  3. Negative value in the margin column shows emission below limit.
  4. Horn antenna is used for the emission over 1000MHz.
  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.

## INTERTEK TESTING SERVICES

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Mode: TX-Channel 06

Table 6  
IEEE 802.11g (OFDM, 54Mbps), ANT 0

### Radiated Emission Data

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Average Limit at 3m (dB $\mu$ V/m)	Margin (dB)
<b>H</b>	<b>4874.000</b>	<b>48.5</b>	<b>33</b>	<b>34.9</b>	<b>50.4</b>	<b>54.0</b>	<b>-3.6</b>
<b>H</b>	<b>7311.000</b>	<b>45.4</b>	<b>33</b>	<b>37.9</b>	<b>50.3</b>	<b>54.0</b>	<b>-3.7</b>
<b>H</b>	<b>12185.000</b>	<b>41.8</b>	<b>33</b>	<b>40.5</b>	<b>49.3</b>	<b>54.0</b>	<b>-4.7</b>

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m-Peak (dB $\mu$ V/m)	Peak Limit at 3m (dB $\mu$ V/m)	Margin (dB)
<b>H</b>	<b>4874.000</b>	<b>48.5</b>	<b>33</b>	<b>34.9</b>	<b>50.4</b>	<b>74.0</b>	<b>-23.6</b>
<b>H</b>	<b>7311.000</b>	<b>45.4</b>	<b>33</b>	<b>37.9</b>	<b>50.3</b>	<b>74.0</b>	<b>-23.7</b>
<b>H</b>	<b>12185.000</b>	<b>41.8</b>	<b>33</b>	<b>40.5</b>	<b>49.3</b>	<b>74.0</b>	<b>-24.7</b>

- 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-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
  3. Negative value in the margin column shows emission below limit.
  4. Horn antenna is used for the emission over 1000MHz.
  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.

## INTERTEK TESTING SERVICES

Mode: TX-Channel 11

Table 7  
IEEE 802.11g(OFDM, 54Mbps), ANT 0

### Radiated Emission Data

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Average Limit at 3m (dB $\mu$ V/m)	Margin (dB)
<b><i>H</i></b>	<b><i>4924.000</i></b>	<b><i>48.4</i></b>	<b><i>33</i></b>	<b><i>34.9</i></b>	<b><i>50.3</i></b>	<b><i>54.0</i></b>	<b><i>-3.7</i></b>
<b><i>H</i></b>	<b><i>7386.000</i></b>	<b><i>45.4</i></b>	<b><i>33</i></b>	<b><i>37.9</i></b>	<b><i>50.3</i></b>	<b><i>54.0</i></b>	<b><i>-3.7</i></b>
<b><i>H</i></b>	<b><i>12310.000</i></b>	<b><i>41.8</i></b>	<b><i>33</i></b>	<b><i>40.5</i></b>	<b><i>49.3</i></b>	<b><i>54.0</i></b>	<b><i>-4.7</i></b>

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m- Peak (dB $\mu$ V/m)	Peak Limit at 3m (dB $\mu$ V/m)	Margin (dB)
<b><i>H</i></b>	<b><i>2483.500</i></b>	<b><i>69.4</i></b>	<b><i>33</i></b>	<b><i>29.4</i></b>	<b><i>65.8</i></b>	<b><i>74.0</i></b>	<b><i>-8.2</i></b>
<b><i>H</i></b>	<b><i>4924.000</i></b>	<b><i>48.4</i></b>	<b><i>33</i></b>	<b><i>34.9</i></b>	<b><i>50.3</i></b>	<b><i>74.0</i></b>	<b><i>-23.7</i></b>
<b><i>H</i></b>	<b><i>7386.000</i></b>	<b><i>45.4</i></b>	<b><i>33</i></b>	<b><i>37.9</i></b>	<b><i>50.3</i></b>	<b><i>74.0</i></b>	<b><i>-23.7</i></b>
<b><i>H</i></b>	<b><i>12310.000</i></b>	<b><i>41.8</i></b>	<b><i>33</i></b>	<b><i>40.5</i></b>	<b><i>49.3</i></b>	<b><i>74.0</i></b>	<b><i>-24.7</i></b>

Remark: Peak detector is used for the emission measurement.

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dB $\mu$ V/m)	Average Limit at 3m (dB $\mu$ V/m)	Margin (dB)
<b><i>H</i></b>	<b><i>2483.500</i></b>	<b><i>57.2</i></b>	<b><i>33</i></b>	<b><i>29.4</i></b>	<b><i>53.6</i></b>	<b><i>54.0</i></b>	<b><i>-0.4</i></b>

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

- NOTES:
- 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.
  - Negative value in the margin column shows emission below limit.
  - Horn antenna is used for the emission over 1000MHz.
  - 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.

## INTERTEK TESTING SERVICES

Mode: Talk

Table 8  
IEEE 802.11g(OFDM, 54Mbps)(ADSL), ANT 0

### 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)
<b>V</b>	<b>75.000</b>	<b>41.8</b>	<b>16</b>	<b>6.0</b>	<b>31.8</b>	<b>40.0</b>	<b>-8.2</b>
<b>V</b>	<b>125.000</b>	<b>43.1</b>	<b>16</b>	<b>14.0</b>	<b>41.1</b>	<b>43.5</b>	<b>-2.4</b>
<b>H</b>	<b>150.000</b>	<b>36.2</b>	<b>16</b>	<b>14.0</b>	<b>34.2</b>	<b>43.5</b>	<b>-9.3</b>
<b>H</b>	<b>166.505</b>	<b>39.3</b>	<b>16</b>	<b>17.0</b>	<b>40.3</b>	<b>43.5</b>	<b>-3.2</b>
<b>H</b>	<b>166.675</b>	<b>36.5</b>	<b>16</b>	<b>17.0</b>	<b>37.5</b>	<b>43.5</b>	<b>-6.0</b>
H	175.000	35.4	16	19.0	38.4	43.5	-5.1
H	199.995	41.4	16	16.0	41.4	43.5	-2.1
H	225.003	34.5	16	18.0	36.5	46.0	-9.5
<b>H</b>	<b>250.000</b>	<b>39.2</b>	<b>16</b>	<b>20.0</b>	<b>43.2</b>	<b>46.0</b>	<b>-2.8</b>
<b>H</b>	<b>275.000</b>	<b>37.9</b>	<b>16</b>	<b>22.0</b>	<b>43.9</b>	<b>46.0</b>	<b>-2.1</b>
H	300.002	31.2	16	22.0	37.2	46.0	-8.8
<b>H</b>	<b>325.000</b>	<b>29.4</b>	<b>16</b>	<b>24.0</b>	<b>37.4</b>	<b>46.0</b>	<b>-8.6</b>
<b>H</b>	<b>333.330</b>	<b>26.7</b>	<b>16</b>	<b>24.0</b>	<b>34.7</b>	<b>46.0</b>	<b>-11.3</b>
H	350.002	39.9	16	24.0	39.3	46.0	-6.7
H	374.997	36.8	16	24.0	44.8	46.0	-1.2
<b>H</b>	<b>400.015</b>	<b>34.7</b>	<b>16</b>	<b>24.0</b>	<b>42.7</b>	<b>46.0</b>	<b>-3.3</b>
H	450.000	27.4	16	26.0	37.4	46.0	-8.6
H	500.003	28.5	16	26.0	38.5	46.0	-7.5
H	666.694	25.1	16	29.0	38.1	46.0	-7.9

- NOTES: 1. Simultaneous operation of SIP call conference through ADSL or WAN, WiFi transmission, PC online, and USB data transferring 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-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.
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.

## INTERTEK TESTING SERVICES

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Mode: TX-Channel 00

Table 9  
IEEE 802.11n(OFDM, 150Mbps), 20MHz Bandwidth, ANT 1

### Radiated Emission Data

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Average Limit at 3m (dB $\mu$ V/m)	Margin (dB)
<b><i>H</i></b>	<b><i>4824.000</i></b>	<b><i>48.3</i></b>	<b><i>33</i></b>	<b><i>34.9</i></b>	<b><i>50.2</i></b>	<b><i>54.0</i></b>	<b><i>-3.8</i></b>
<b><i>H</i></b>	<b><i>12060.000</i></b>	<b><i>41.9</i></b>	<b><i>33</i></b>	<b><i>40.5</i></b>	<b><i>49.4</i></b>	<b><i>54.0</i></b>	<b><i>-4.6</i></b>
<b><i>H</i></b>	<b><i>14472.000</i></b>	<b><i>41.5</i></b>	<b><i>33</i></b>	<b><i>40.0</i></b>	<b><i>48.5</i></b>	<b><i>54.0</i></b>	<b><i>-5.5</i></b>

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m-Peak (dB $\mu$ V/m)	Peak Limit at 3m (dB $\mu$ V/m)	Margin (dB)
<b><i>H</i></b>	<b><i>4824.000</i></b>	<b><i>48.3</i></b>	<b><i>33</i></b>	<b><i>34.9</i></b>	<b><i>50.2</i></b>	<b><i>74.0</i></b>	<b><i>-23.8</i></b>
<b><i>H</i></b>	<b><i>12060.000</i></b>	<b><i>41.9</i></b>	<b><i>33</i></b>	<b><i>40.5</i></b>	<b><i>49.4</i></b>	<b><i>74.0</i></b>	<b><i>-24.6</i></b>
<b><i>H</i></b>	<b><i>14472.000</i></b>	<b><i>41.5</i></b>	<b><i>33</i></b>	<b><i>40.0</i></b>	<b><i>48.5</i></b>	<b><i>74.0</i></b>	<b><i>-25.5</i></b>

- 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-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
  3. Negative value in the margin column shows emission below limit.
  4. Horn antenna is used for the emission over 1000MHz.
  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.



## INTERTEK TESTING SERVICES

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Mode: TX-Channel 06

Table 10  
IEEE 802.11n(OFDM, 150Mbps), 20MHz Bandwidth, ANT 1

### Radiated Emission Data

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)
<b><i>H</i></b>	<b><i>4874.000</i></b>	<b><i>48.5</i></b>	<b><i>33</i></b>	<b><i>34.9</i></b>	<b><i>50.4</i></b>	<b><i>54.0</i></b>	<b><i>-3.6</i></b>
<b><i>H</i></b>	<b><i>7311.000</i></b>	<b><i>45.7</i></b>	<b><i>33</i></b>	<b><i>37.9</i></b>	<b><i>50.6</i></b>	<b><i>54.0</i></b>	<b><i>-3.4</i></b>
<b><i>H</i></b>	<b><i>12185.000</i></b>	<b><i>41.9</i></b>	<b><i>33</i></b>	<b><i>40.5</i></b>	<b><i>49.4</i></b>	<b><i>54.0</i></b>	<b><i>-4.6</i></b>

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m-Peak (dBμV/m)	Peak Limit at 3m (dBμV/m)	Margin (dB)
<b><i>H</i></b>	<b><i>4874.000</i></b>	<b><i>48.5</i></b>	<b><i>33</i></b>	<b><i>34.9</i></b>	<b><i>50.4</i></b>	<b><i>74.0</i></b>	<b><i>-23.6</i></b>
<b><i>H</i></b>	<b><i>7311.000</i></b>	<b><i>45.7</i></b>	<b><i>33</i></b>	<b><i>37.9</i></b>	<b><i>50.6</i></b>	<b><i>74.0</i></b>	<b><i>-23.4</i></b>
<b><i>H</i></b>	<b><i>12185.000</i></b>	<b><i>41.9</i></b>	<b><i>33</i></b>	<b><i>40.5</i></b>	<b><i>49.4</i></b>	<b><i>74.0</i></b>	<b><i>-24.6</i></b>

- 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-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
  3. Negative value in the margin column shows emission below limit.
  4. Horn antenna is used for the emission over 1000MHz.
  5. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 Section 15.205.

## INTERTEK TESTING SERVICES

Mode: TX-Channel 11

Table 11  
IEEE 802.11n(OFDM, 150Mbps), 20MHz Bandwidth, ANT 1

### Radiated Emission Data

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Average Limit at 3m (dB $\mu$ V/m)	Margin (dB)
<i>H</i>	<b>4924.000</b>	<b>48.4</b>	<b>33</b>	<b>34.9</b>	<b>50.3</b>	<b>54.0</b>	<b>-3.7</b>
<i>H</i>	<b>7386.000</b>	<b>45.5</b>	<b>33</b>	<b>37.9</b>	<b>50.4</b>	<b>54.0</b>	<b>-3.6</b>
<i>H</i>	<b>12310.000</b>	<b>42.1</b>	<b>33</b>	<b>40.5</b>	<b>49.6</b>	<b>54.0</b>	<b>-4.4</b>

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m-Peak (dB $\mu$ V/m)	Peak Limit at 3m (dB $\mu$ V/m)	Margin (dB)
<i>H</i>	<b>2483.500</b>	<b>68.8</b>	<b>33</b>	<b>29.4</b>	<b>65.2</b>	<b>74.0</b>	<b>-8.8</b>
<i>H</i>	<b>4924.000</b>	<b>48.4</b>	<b>33</b>	<b>34.9</b>	<b>50.3</b>	<b>74.0</b>	<b>-23.7</b>
<i>H</i>	<b>7386.000</b>	<b>45.5</b>	<b>33</b>	<b>37.9</b>	<b>50.4</b>	<b>74.0</b>	<b>-23.6</b>
<i>H</i>	<b>12310.000</b>	<b>42.1</b>	<b>33</b>	<b>40.5</b>	<b>49.6</b>	<b>74.0</b>	<b>-24.4</b>

Remark: Peak detector is used for the emission measurement.

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dB $\mu$ V/m)	Average Limit at 3m (dB $\mu$ V/m)	Margin (dB)
<i>H</i>	<b>2483.500</b>	<b>57.1</b>	<b>33</b>	<b>29.4</b>	<b>53.5</b>	<b>54.0</b>	<b>-0.5</b>

Remark: Video-average Method 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.

## INTERTEK TESTING SERVICES

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Mode: TX-Channel 03

Table 12  
IEEE 802.11n(OFDM, 300Mbps) , 40MHz Bandwidth, MIMO

### Radiated Emission Data

Polari- zation	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Average Limit at 3m (dB $\mu$ V/m)	Margin (dB)
<b><i>H</i></b>	<b><i>4844.000</i></b>	<b><i>48.5</i></b>	<b><i>33</i></b>	<b><i>34.9</i></b>	<b><i>50.4</i></b>	<b><i>54.0</i></b>	<b><i>-3.6</i></b>
<b><i>H</i></b>	<b><i>7266.000</i></b>	<b><i>45.3</i></b>	<b><i>33</i></b>	<b><i>37.9</i></b>	<b><i>50.2</i></b>	<b><i>54.0</i></b>	<b><i>-3.8</i></b>
<b><i>H</i></b>	<b><i>12110.000</i></b>	<b><i>41.7</i></b>	<b><i>33</i></b>	<b><i>40.5</i></b>	<b><i>49.2</i></b>	<b><i>54.0</i></b>	<b><i>-4.8</i></b>

Polari- zation	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m-Peak (dB $\mu$ V/m)	Peak Limit at 3m (dB $\mu$ V/m)	Margin (dB)
<b><i>H</i></b>	<b><i>4844.000</i></b>	<b><i>48.5</i></b>	<b><i>33</i></b>	<b><i>34.9</i></b>	<b><i>50.4</i></b>	<b><i>74.0</i></b>	<b><i>-23.6</i></b>
<b><i>H</i></b>	<b><i>7266.000</i></b>	<b><i>45.3</i></b>	<b><i>33</i></b>	<b><i>37.9</i></b>	<b><i>50.2</i></b>	<b><i>74.0</i></b>	<b><i>-23.8</i></b>
<b><i>H</i></b>	<b><i>12110.000</i></b>	<b><i>41.7</i></b>	<b><i>33</i></b>	<b><i>40.5</i></b>	<b><i>49.2</i></b>	<b><i>74.0</i></b>	<b><i>-24.8</i></b>

- 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-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
  3. Negative value in the margin column shows emission below limit.
  4. Horn antenna is used for the emission over 1000MHz.
  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.
  6. Two antennas were operating during the test.

## INTERTEK TESTING SERVICES

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Mode: TX-Channel 06

Table 13  
IEEE 802.11n(OFDM, 300Mbps), 40MHz Bandwidth, MIMO

### Radiated Emission Data

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)
<b><i>H</i></b>	<b><i>4874.000</i></b>	<b><i>48.4</i></b>	<b><i>33</i></b>	<b><i>34.9</i></b>	<b><i>50.3</i></b>	<b><i>54.0</i></b>	<b><i>-3.7</i></b>
<b><i>H</i></b>	<b><i>7311.000</i></b>	<b><i>45.0</i></b>	<b><i>33</i></b>	<b><i>37.9</i></b>	<b><i>49.9</i></b>	<b><i>54.0</i></b>	<b><i>-4.1</i></b>
<b><i>H</i></b>	<b><i>12185.000</i></b>	<b><i>41.5</i></b>	<b><i>33</i></b>	<b><i>40.5</i></b>	<b><i>49.0</i></b>	<b><i>54.0</i></b>	<b><i>-5.0</i></b>

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m-Peak (dBμV/m)	Peak Limit at 3m (dBμV/m)	Margin (dB)
<b><i>H</i></b>	<b><i>4874.000</i></b>	<b><i>48.4</i></b>	<b><i>33</i></b>	<b><i>34.9</i></b>	<b><i>50.3</i></b>	<b><i>74.0</i></b>	<b><i>-23.7</i></b>
<b><i>H</i></b>	<b><i>7311.000</i></b>	<b><i>45.0</i></b>	<b><i>33</i></b>	<b><i>37.9</i></b>	<b><i>49.9</i></b>	<b><i>74.0</i></b>	<b><i>-24.1</i></b>
<b><i>H</i></b>	<b><i>12185.000</i></b>	<b><i>41.5</i></b>	<b><i>33</i></b>	<b><i>40.5</i></b>	<b><i>49.0</i></b>	<b><i>74.0</i></b>	<b><i>-25.0</i></b>

- 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-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
  3. Negative value in the margin column shows emission below limit.
  4. Horn antenna is used for the emission over 1000MHz.
  5. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 Section 15.205.
  6. Two antennas were operating during the test.

## INTERTEK TESTING SERVICES

Mode: TX-Channel 09

Table 14  
IEEE 802.11n(OFDM, 300Mbps), 40MHz Bandwidth, MIMO

### Radiated Emission Data

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Average Limit at 3m (dB $\mu$ V/m)	Margin (dB)
<b>H</b>	<b>4904.000</b>	<b>48.3</b>	<b>33</b>	<b>34.9</b>	<b>50.2</b>	<b>54.0</b>	<b>-3.8</b>
<b>H</b>	<b>7356.000</b>	<b>45.2</b>	<b>33</b>	<b>37.9</b>	<b>50.1</b>	<b>54.0</b>	<b>-3.9</b>
<b>H</b>	<b>12260.000</b>	<b>41.7</b>	<b>33</b>	<b>40.5</b>	<b>49.2</b>	<b>54.0</b>	<b>-4.8</b>

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m-Peak (dB $\mu$ V/m)	Peak Limit at 3m (dB $\mu$ V/m)	Margin (dB)
<b>H</b>	<b>2483.500</b>	<b>66.4</b>	<b>33</b>	<b>29.4</b>	<b>62.8</b>	<b>74.0</b>	<b>-11.2</b>
<b>H</b>	<b>4904.000</b>	<b>48.3</b>	<b>33</b>	<b>34.9</b>	<b>50.2</b>	<b>74.0</b>	<b>-23.8</b>
<b>H</b>	<b>7356.000</b>	<b>45.2</b>	<b>33</b>	<b>37.9</b>	<b>50.1</b>	<b>74.0</b>	<b>-23.9</b>
<b>H</b>	<b>12260.000</b>	<b>41.7</b>	<b>33</b>	<b>40.5</b>	<b>49.2</b>	<b>74.0</b>	<b>-24.8</b>

Remark: Peak detector is used for the emission measurement.

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dB $\mu$ V/m)	Average Limit at 3m (dB $\mu$ V/m)	Margin (dB)
<b>H</b>	<b>2483.500</b>	<b>52.5</b>	<b>33</b>	<b>29.4</b>	<b>48.9</b>	<b>54.0</b>	<b>-5.1</b>

Remark: Video-average Method 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.
  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.
  6. Two antennas were operating during the test.

## INTERTEK TESTING SERVICES

Mode: Talk

Table 15  
IEEE 802.11n(OFDM, 300Mbps) (ADSL), MIMO

### Radiated Emission Data

Polari- zation	Frequency (MHz)	Reading (dB $\mu$ V)	Pre- amp (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Limit at 3m (dB $\mu$ V/m)	Margin (dB)
<b>V</b>	<b>75.000</b>	<b>41.3</b>	<b>16</b>	<b>6.0</b>	<b>31.3</b>	<b>40.0</b>	<b>-8.7</b>
<b>V</b>	<b>125.000</b>	<b>43.5</b>	<b>16</b>	<b>14.0</b>	<b>41.5</b>	<b>43.5</b>	<b>-2.0</b>
<b>H</b>	<b>150.000</b>	<b>35.3</b>	<b>16</b>	<b>14.0</b>	<b>33.3</b>	<b>43.5</b>	<b>-10.2</b>
<b>H</b>	<b>166.505</b>	<b>38.1</b>	<b>16</b>	<b>17.0</b>	<b>39.1</b>	<b>43.5</b>	<b>-4.4</b>
<b>H</b>	<b>166.675</b>	<b>35.9</b>	<b>16</b>	<b>17.0</b>	<b>36.9</b>	<b>43.5</b>	<b>-6.6</b>
H	175.000	35.7	16	19.0	38.7	43.5	-4.8
H	199.995	41.1	16	16.0	41.1	43.5	-2.4
H	225.003	35.8	16	18.0	37.8	46.0	-8.2
<b>H</b>	<b>250.000</b>	<b>38.3</b>	<b>16</b>	<b>20.0</b>	<b>42.3</b>	<b>46.0</b>	<b>-3.7</b>
<b>H</b>	<b>275.000</b>	<b>35.7</b>	<b>16</b>	<b>22.0</b>	<b>41.7</b>	<b>46.0</b>	<b>-4.3</b>
H	300.002	31.7	16	22.0	37.7	46.0	-8.3
<b>H</b>	<b>325.000</b>	<b>28.4</b>	<b>16</b>	<b>24.0</b>	<b>36.4</b>	<b>46.0</b>	<b>-9.6</b>
<b>H</b>	<b>333.330</b>	<b>25.7</b>	<b>16</b>	<b>24.0</b>	<b>33.7</b>	<b>46.0</b>	<b>-12.3</b>
H	350.002	29.4	16	24.0	37.4	46.0	-8.6
H	374.997	36.8	16	24.0	44.8	46.0	-1.2
<b>H</b>	<b>400.015</b>	<b>34.4</b>	<b>16</b>	<b>24.0</b>	<b>42.4</b>	<b>46.0</b>	<b>-3.6</b>
H	450.000	26.1	16	26.0	36.1	46.0	-9.9
H	500.003	29.1	16	26.0	39.1	46.0	-6.9
H	666.694	22.7	16	29.0	35.7	46.0	-10.3

- NOTES:
1. Simultaneous operation of SIP call conference through ADSL or WAN, WiFi transmission, PC online, and USB data transferring 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-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.
  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.
  6. Two antennas were operating during the test.

## INTERTEK TESTING SERVICES

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Mode: Handset Charging in Base

Table 16

### Radiated Emission Data

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-amp (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Limit at 3m (dB $\mu$ V/m)	Margin (dB)
V	33.375	39.6	16	10.0	33.6	40.0	-6.4
V	66.750	40.9	16	9.0	33.9	40.0	-6.1
H	100.125	38.5	16	12.0	34.5	43.5	-9.0
H	133.500	36.6	16	14.0	34.6	43.5	-8.9
H	166.875	33.2	16	17.0	34.2	43.5	-9.3
H	200.250	39.6	16	16.0	39.6	43.5	-3.9
H	233.625	36.2	16	19.0	39.2	46.0	-6.8
H	267.000	31.2	16	21.0	36.2	46.0	-9.8
H	300.375	25.4	16	22.0	31.4	46.0	-14.6
H	367.125	26.3	16	24.0	34.3	46.0	-11.7
H	433.875	25.0	16	25.0	34.0	46.0	-12.0

- 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-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
  3. Negative value in the margin column shows emission below limit.
  4. 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.

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## INTERTEK TESTING SERVICES

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Mode: Handset Charging in Charger

Table 17

### Radiated Emission Data

Polarization	Frequency (MHz)	Reading (dBuV)	Pre-amp (dB)	Antenna Factor (dB)	Net at 3m (dBuV/m)	Limit at 3m (dBuV/m)	Margin (dB)
V	33.850	38.4	16	10.0	32.4	40.0	-7.6
V	38.420	37.4	16	10.0	31.4	40.0	-8.6
V	43.950	37.1	16	10.0	31.1	40.0	-8.9
V	48.500	35.4	16	11.0	30.4	40.0	-9.6
V	53.950	35.6	16	11.0	30.6	40.0	-9.4
V	58.400	35.5	16	11.0	30.5	40.0	-9.5

- 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-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
  3. Negative value in the margin column shows emission below limit.
  4. 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.



## INTERTEK TESTING SERVICES

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### 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 18-21 list the significant emission frequencies, the limit and the margin of compliance.

Judgement : Passed by 13.1 dB margin

## INTERTEK TESTING SERVICES

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Mode: Receiving – Middle Channel

Table 18  
IEEE 802.11b (DSSS, 11Mbps), ANT 0

### Radiated Emissions Data

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-amp (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Limit at 3m (dB $\mu$ V/m)	Margin (dB)
V	3249.330	41.9	33	31.9	40.8	54.0	-13.2
V	6498.660	36.7	33	36.9	40.6	54.0	-13.4
V	9747.990	33.0	33	40.4	40.4	54.0	-13.6
V	12997.320	31.2	33	41.7	39.9	54.0	-14.1
V	16246.650	32.4	33	40.2	39.6	54.0	-14.4

#### 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-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna is used for the emission over 1000MHz.

## INTERTEK TESTING SERVICES

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Mode: Receiving – Middle Channel

Table 19  
IEEE 802.11g(OFDM, 54Mbps), ANT 0

### Radiated Emissions Data

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-amp (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Limit at 3m (dB $\mu$ V/m)	Margin (dB)
V	3249.330	42.0	33	31.9	40.9	54.0	-13.1
V	6498.660	36.7	33	36.9	40.6	54.0	-13.4
V	9747.990	33.0	33	40.4	40.4	54.0	-13.6
V	12997.320	30.9	33	41.7	39.6	54.0	-14.4
V	16246.650	32.2	33	40.2	39.4	54.0	-14.6

#### 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-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna is used for the emission over 1000MHz.

---

## INTERTEK TESTING SERVICES

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Mode: Receiving – Middle Channel

Table 20  
IEEE 802.11n(OFDM, 150Mbps), 20MHz Bandwidth, ANT 1

### Radiated Emissions Data

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-amp (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Limit at 3m (dB $\mu$ V/m)	Margin (dB)
V	3249.330	41.9	33	31.9	40.8	54.0	-13.2
V	6498.660	36.7	33	36.9	40.6	54.0	-13.4
V	9747.990	32.6	33	40.4	40.0	54.0	-14.0
V	12997.320	31.1	33	41.7	39.8	54.0	-14.2
V	16246.650	32.5	33	40.2	39.7	54.0	-14.3

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-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna is used for the emission over 1000MHz.

---

## INTERTEK TESTING SERVICES

---

Mode: Receiving – Middle Channel

Table 21  
IEEE 802.11n(OFDM, 300Mbps), 40MHz Bandwidth, MIMO

### Radiated Emissions Data

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-amp (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Limit at 3m (dB $\mu$ V/m)	Margin (dB)
V	3249.330	41.9	33	31.9	40.8	54.0	-13.2
V	6498.660	36.7	33	36.9	40.6	54.0	-13.4
V	9747.990	32.8	33	40.4	40.2	54.0	-13.8
V	12997.320	31.1	33	41.7	39.8	54.0	-14.2
V	16246.650	32.4	33	40.2	39.6	54.0	-14.4

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-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna is used for the emission over 1000MHz.
5. Two antennas were operating during the test.

## INTERTEK TESTING SERVICES

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### 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

0.470 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 1.28 dB margin compare with average limit

# INTERTEK TESTING SERVICES

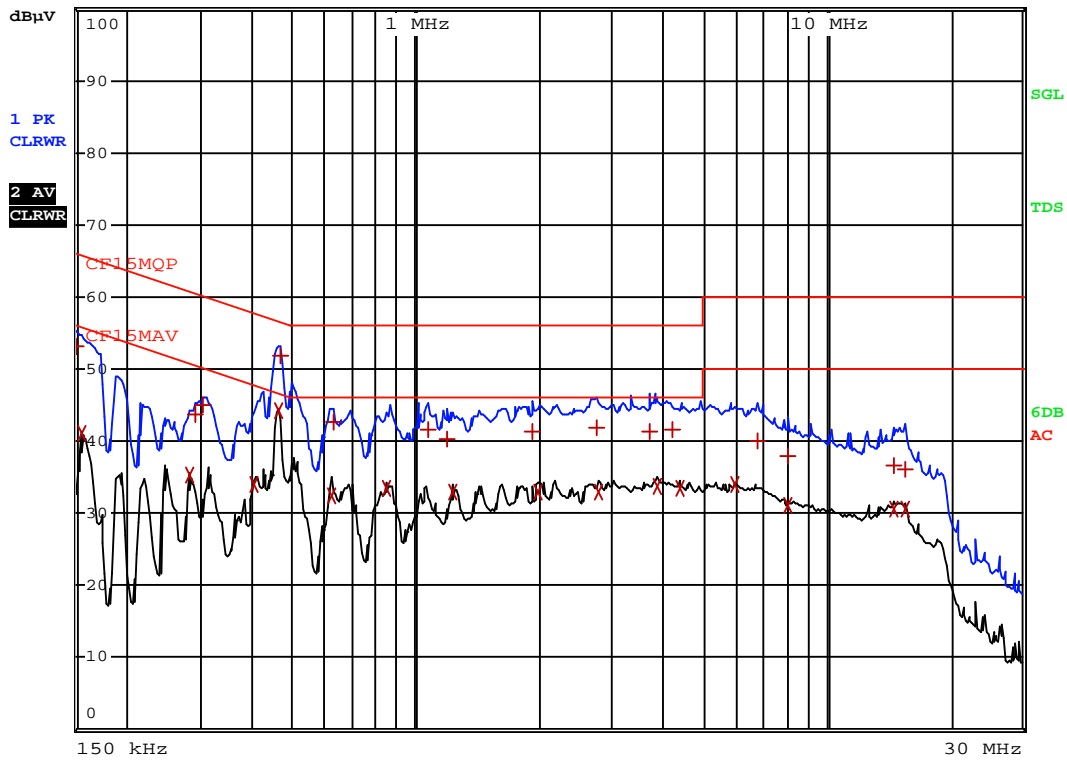
Model No.: MP252WDNB

Worst Case: SIP Call Ringing (thru WAN)+ Wifi + PC Online+ USB Data Transfer  
EUT's AC Mains



RBW 9 kHz  
MT 1 s

Att 10 dB AUTO PREAMP OFF



Date: 3.JUN.2011 19:51:23

# INTERTEK TESTING SERVICES

Model No.: MP252WDNB

Worst Case: SIP Call Ringing (thru WAN)+ Wifi + PC Online+ USB Data Transfer  
EUT's AC Mains

## EDIT PEAK LIST (Final Measurement Results)

Trace1: CF15MQP

Trace2: CF15MAV

Trace3: ---

	TRACE	FREQUENCY	LEVEL	dB $\mu$ V	DELTA	LIMIT	dB
1	Quasi Peak	150 kHz	53.15	L1	-12.84		
2	CISPR Average	154.5 kHz	40.95	N	-14.79		
2	CISPR Average	280.5 kHz	35.43	L1	-15.37		
1	Quasi Peak	289.5 kHz	43.76	L1	-16.77		
1	Quasi Peak	307.5 kHz	45.12	N	-14.91		
2	CISPR Average	402 kHz	34.02	N	-13.78		
2	CISPR Average	460.5 kHz	44.33	L1	-2.34		
1	Quasi Peak	465 kHz	51.95	N	-4.65		
2	CISPR Average	622.5 kHz	32.36	L1	-13.63		
1	Quasi Peak	627 kHz	42.58	L1	-13.42		
2	CISPR Average	852 kHz	33.48	L1	-12.51		
1	Quasi Peak	1.077 MHz	41.70	N	-14.29		
1	Quasi Peak	1.194 MHz	40.24	N	-15.75		
2	CISPR Average	1.2345 MHz	32.97	L1	-13.02		
1	Quasi Peak	1.9275 MHz	41.21	L1	-14.78		
2	CISPR Average	1.977 MHz	32.91	L1	-13.08		
1	Quasi Peak	2.751 MHz	41.94	L1	-14.05		
2	CISPR Average	2.796 MHz	32.89	L1	-13.10		
1	Quasi Peak	3.7095 MHz	41.22	L1	-14.77		
2	CISPR Average	3.8805 MHz	33.82	N	-12.17		

Date: 3.JUN.2011 19:50:52



## INTERTEK TESTING SERVICES

Model No.: MP252WDNB

Worst Case: SIP Call Ringing (thru WAN)+ Wifi + PC Online+ USB Data Transfer  
EUT's AC Mains

### EDIT PEAK LIST (Final Measurement Results)

Trace1: CF15MQP

Trace2: CF15MAV

Trace3: ---

	TRACE	FREQUENCY	LEVEL dB $\mu$ V	DELTA LIMIT dB
1	Quasi Peak	4.209 MHz	41.55 L1	-14.44
2	CISPR Average	4.416 MHz	33.47 N	-12.52
2	CISPR Average	6.0135 MHz	33.95 N	-16.04
1	Quasi Peak	6.81 MHz	40.08 L1	-19.91
2	CISPR Average	8.0385 MHz	31.07 N	-18.92
1	Quasi Peak	8.043 MHz	37.93 L1	-22.06
1	Quasi Peak	14.577 MHz	36.54 L1	-23.45
2	CISPR Average	14.604 MHz	30.56 L1	-19.43
2	CISPR Average	15.5985 MHz	30.58 L1	-19.42
1	Quasi Peak	15.612 MHz	35.97 L1	-24.02

Date: 3.JUN.2011 19:51:14

# INTERTEK TESTING SERVICES

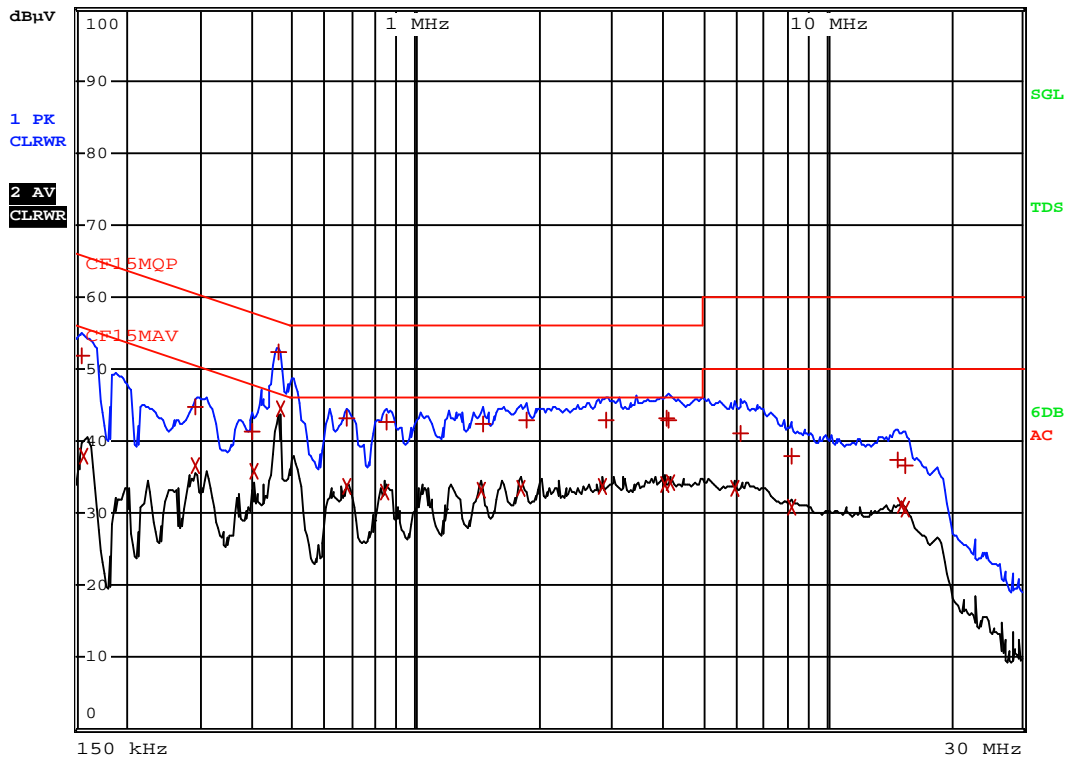
Model No.: MP252WDNB

Worst Case: SIP Call Conference (thru WAN)+ Wifi + PC Online+ USB Data Transfer  
EUT's AC Mains



RBW 9 kHz  
MT 1 s

Att 10 dB AUTO PREAMP OFF



Date: 3.JUN.2011 19:39:04

# INTERTEK TESTING SERVICES

Model No.: MP252WDNB

Worst Case: SIP Call Conference (thru WAN)+ Wifi + PC Online+ USB Data Transfer  
EUT's AC Mains

## EDIT PEAK LIST (Final Measurement Results)

Trace1: CF15MQP

Trace2: CF15MAV

Trace3: ---

	TRACE	FREQUENCY	LEVEL dBμV	DELTA LIMIT dB
1	Quasi Peak	154.5 kHz	51.72 L1	-14.03
2	CISPR Average	159 kHz	37.84 N	-17.66
2	CISPR Average	289.5 kHz	36.57 L1	-13.96
1	Quasi Peak	289.5 kHz	44.87 L1	-15.66
1	Quasi Peak	397.5 kHz	41.31 L1	-16.58
2	CISPR Average	402 kHz	35.78 N	-12.02
1	Quasi Peak	460.5 kHz	52.23 L1	-4.44
2	CISPR Average	465 kHz	44.44 N	-2.15
2	CISPR Average	681 kHz	33.69 L1	-12.30
1	Quasi Peak	681 kHz	43.17 L1	-12.82
2	CISPR Average	843 kHz	32.85 L1	-13.14
1	Quasi Peak	852 kHz	42.63 N	-13.36
2	CISPR Average	1.437 MHz	33.19 L1	-12.80
1	Quasi Peak	1.455 MHz	42.49 L1	-13.50
2	CISPR Average	1.797 MHz	33.58 L1	-12.41
1	Quasi Peak	1.8645 MHz	42.83 L1	-13.16
2	CISPR Average	2.8545 MHz	33.70 L1	-12.29
1	Quasi Peak	2.8995 MHz	42.78 L1	-13.21
2	CISPR Average	4.065 MHz	34.11 L1	-11.88
1	Quasi Peak	4.0695 MHz	43.19 L1	-12.80

Date: 3.JUN.2011 19:38:39

## INTERTEK TESTING SERVICES

Model No.: MP252WDNB

Worst Case: SIP Call Conference (thru WAN)+ Wifi + PC Online+ USB Data Transfer  
EUT's AC Mains

### EDIT PEAK LIST (Final Measurement Results)

Trace1: CF15MQP

Trace2: CF15MAV

Trace3: ---

	TRACE	FREQUENCY	LEVEL dB $\mu$ V	DELTA LIMIT dB
1	Quasi Peak	4.119 MHz	42.95 L1	-13.04
2	CISPR Average	4.1955 MHz	34.34 L1	-11.65
2	CISPR Average	5.9955 MHz	33.51 N	-16.48
1	Quasi Peak	6.1845 MHz	41.15 N	-18.84
2	CISPR Average	8.2005 MHz	30.82 N	-19.17
1	Quasi Peak	8.2005 MHz	37.95 L1	-22.04
1	Quasi Peak	14.865 MHz	37.50 L1	-22.49
2	CISPR Average	15.2385 MHz	31.16 L1	-18.83
1	Quasi Peak	15.477 MHz	36.72 L1	-23.27
2	CISPR Average	15.558 MHz	30.66 L1	-19.34

Date: 3.JUN.2011 19:38:49

# INTERTEK TESTING SERVICES

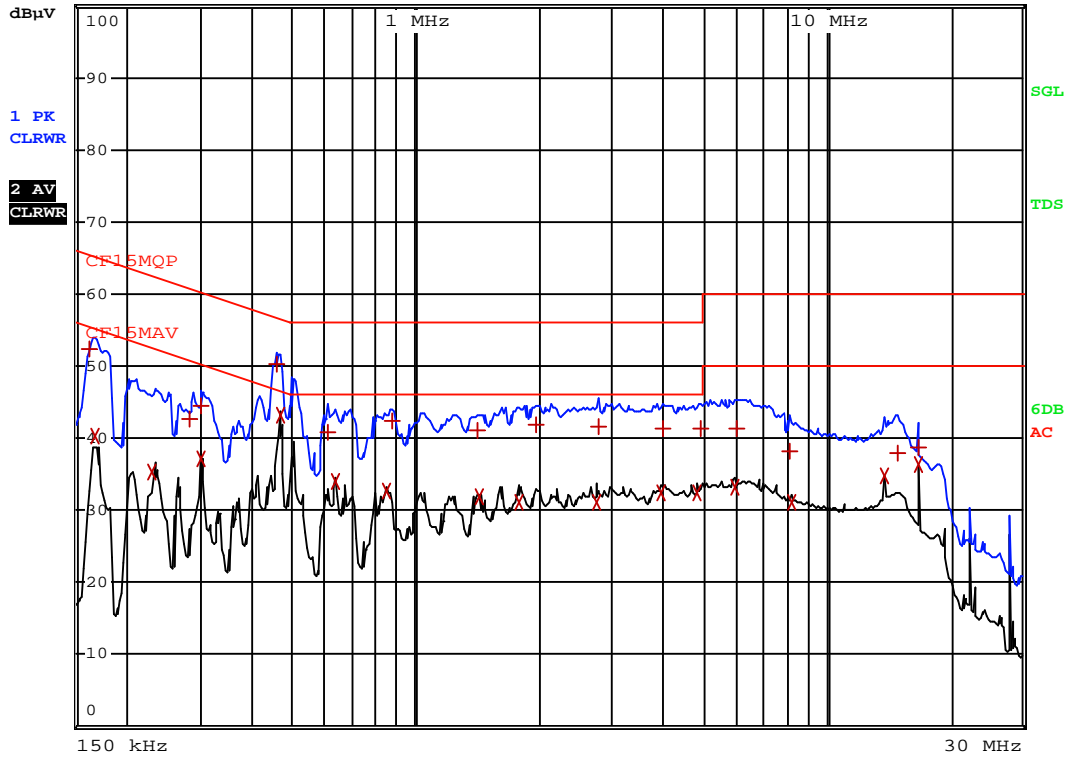
Model No.: MP252WDNB

Worst Case: SIP Call Conference (thru ADSL)+ Wifi + PC Online+ USB Data Transfer  
EUT's AC Mains



RBW 9 kHz  
MT 1 s

Att 10 dB AUTO PREAMP OFF



Date: 3.JUN.2011 19:06:06

# INTERTEK TESTING SERVICES

Model No.: MP252WDNB

Worst Case: SIP Call Conference (thru ADSL)+ Wifi + PC Online+ USB Data Transfer  
EUT's AC Mains

## EDIT PEAK LIST (Final Measurement Results)

Trace1: CF15MQP

Trace2: CF15MAV

Trace3: ---

	TRACE	FREQUENCY	LEVEL dB $\mu$ V	DELTA LIMIT dB
1	Quasi Peak	163.5 kHz	52.43 N	-12.84
2	CISPR Average	168 kHz	40.18 L1	-14.87
2	CISPR Average	231 kHz	35.36 N	-17.04
1	Quasi Peak	285 kHz	42.62 L1	-18.04
2	CISPR Average	298.5 kHz	37.02 L1	-13.25
1	Quasi Peak	298.5 kHz	44.50 L1	-15.78
1	Quasi Peak	456 kHz	50.26 L1	-6.49
2	CISPR Average	465 kHz	43.04 N	-3.55
1	Quasi Peak	609 kHz	40.90 L1	-15.09
2	CISPR Average	636 kHz	34.09 L1	-11.90
2	CISPR Average	852 kHz	32.65 L1	-13.34
1	Quasi Peak	879 kHz	42.27 N	-13.72
1	Quasi Peak	1.419 MHz	41.09 L1	-14.90
2	CISPR Average	1.4235 MHz	31.95 L1	-14.04
2	CISPR Average	1.779 MHz	31.04 N	-14.95
1	Quasi Peak	1.9725 MHz	41.73 L1	-14.26
2	CISPR Average	2.7645 MHz	31.05 N	-14.94
1	Quasi Peak	2.778 MHz	41.62 L1	-14.37
2	CISPR Average	3.957 MHz	32.36 N	-13.63
1	Quasi Peak	3.9975 MHz	41.32 N	-14.68

Date: 3.JUN.2011 19:05:40

# INTERTEK TESTING SERVICES

Model No.: MP252WDNB

Worst Case: SIP Call Conference (thru ADSL)+ Wifi + PC Online+ USB Data Transfer  
EUT's AC Mains

## EDIT PEAK LIST (Final Measurement Results)

Trace1: CF15MQP

Trace2: CF15MAV

Trace3: ---

	TRACE	FREQUENCY	LEVEL dB $\mu$ V	DELTA LIMIT dB
2	CISPR Average	4.866 MHz	32.50 N	-13.49
1	Quasi Peak	4.9695 MHz	41.24 N	-14.75
2	CISPR Average	5.982 MHz	33.14 L1	-16.85
1	Quasi Peak	6.045 MHz	41.21 L1	-18.78
1	Quasi Peak	8.133 MHz	38.13 N	-21.86
2	CISPR Average	8.2275 MHz	31.03 N	-18.96
2	CISPR Average	13.8885 MHz	34.74 N	-15.25
1	Quasi Peak	14.8425 MHz	37.82 L1	-22.17
2	CISPR Average	16.665 MHz	36.48 N	-13.51
1	Quasi Peak	16.665 MHz	38.73 L1	-21.26

Date: 3.JUN.2011 19:05:57

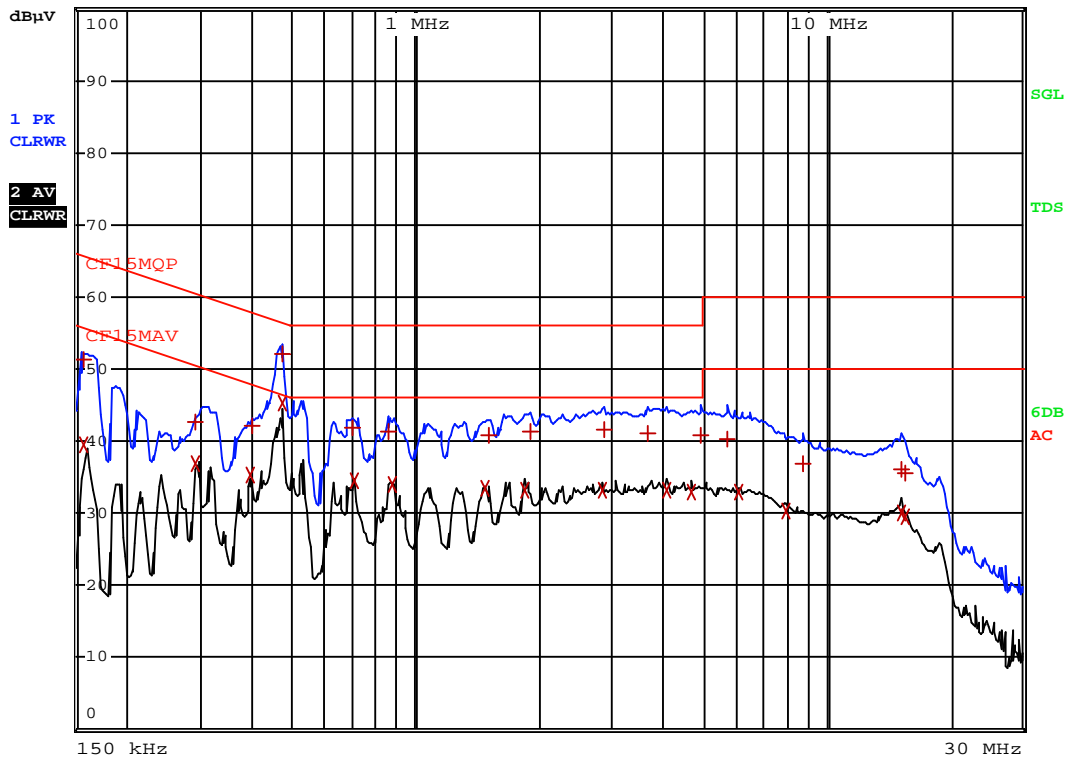
# INTERTEK TESTING SERVICES

Model No.: MP252WDNB  
Worst Case: Standby  
EUT's AC Mains



RBW 9 kHz  
MT 1 s

Att 10 dB AUTO PREAMP OFF



Date: 3.JUN.2011 20:58:46



# INTERTEK TESTING SERVICES

Model No.: MP252WDNB  
Worst Case: Standby  
EUT's AC Mains

## EDIT PEAK LIST (Final Measurement Results)

Trace1:	CF15MQP			
Trace2:	CF15MAV			
Trace3:	---			
	TRACE	FREQUENCY	LEVEL dBμV	DELTA LIMIT dB
1	Quasi Peak	159 kHz	51.21 L1	-14.30
2	CISPR Average	159 kHz	39.56 N	-15.95
2	CISPR Average	289.5 kHz	36.90 L1	-13.63
1	Quasi Peak	289.5 kHz	42.75 L1	-17.78
2	CISPR Average	393 kHz	35.17 L1	-12.82
1	Quasi Peak	397.5 kHz	42.21 L1	-15.68
2	CISPR Average	469.5 kHz	45.23 L1	-1.28
1	Quasi Peak	469.5 kHz	52.21 L1	-4.30
1	Quasi Peak	703.5 kHz	41.81 N	-14.18
2	CISPR Average	708 kHz	34.52 N	-11.47
1	Quasi Peak	861 kHz	41.34 N	-14.65
2	CISPR Average	879 kHz	33.99 N	-12.00
2	CISPR Average	1.482 MHz	33.43 L1	-12.56
1	Quasi Peak	1.5045 MHz	40.89 L1	-15.10
2	CISPR Average	1.842 MHz	33.26 L1	-12.73
1	Quasi Peak	1.9095 MHz	41.25 L1	-14.74
2	CISPR Average	2.859 MHz	33.29 L1	-12.70
1	Quasi Peak	2.8905 MHz	41.72 L1	-14.27
1	Quasi Peak	3.6825 MHz	41.03 N	-14.96
2	CISPR Average	4.0695 MHz	33.30 L1	-12.69

Date: 3.JUN.2011 20:58:26

# INTERTEK TESTING SERVICES

Model No.: MP252WDNB  
Worst Case: Standby  
EUT's AC Mains

## EDIT PEAK LIST (Final Measurement Results)

Trace1:	CF15MQP				
Trace2:	CF15MAV				
Trace3:	---				
	TRACE	FREQUENCY	LEVEL dB $\mu$ V		DELTA LIMIT dB
2	CISPR Average	4.677 MHz	32.96 L1		-13.03
1	Quasi Peak	4.938 MHz	40.75 L1		-15.24
1	Quasi Peak	5.73 MHz	40.24 L1		-19.75
2	CISPR Average	6.108 MHz	32.99 L1		-17.00
2	CISPR Average	8.0025 MHz	30.39 L1		-19.60
1	Quasi Peak	8.7765 MHz	36.83 N		-23.16
2	CISPR Average	15.2205 MHz	29.93 L1		-20.06
1	Quasi Peak	15.2295 MHz	36.05 L1		-23.95
2	CISPR Average	15.4725 MHz	29.46 L1		-20.53
1	Quasi Peak	15.477 MHz	35.58 L1		-24.41

Date: 3.JUN.2011 20:58:38

## INTERTEK TESTING SERVICES

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### 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

**INTERTEK TESTING SERVICES**

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**EXHIBIT 5  
EQUIPMENT LIST**

## INTERTEK TESTING SERVICES

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### 5.0 Equipment List

#### 1) Radiated Emissions Test

Equipment	Biconical Antenna	Log Periodic Antenna	Double Ridged Guide Antenna	Spectrum Analyzer
Registration No.	EW-0954	EW-0446	EW-1015	EW-2188
Manufacturer	EMCO	EMCO	EMCO	AGILENTTECH
Model No.	3104C	3146	3115	E4407B
Calibration Date	Apr. 14, 2010	Apr. 26, 2010	Feb. 09, 2010	Dec. 27, 2010
Calibration Due Date	Oct. 14, 2011	Oct. 26, 2011	Aug. 09, 2011	Dec. 31, 2011

Equipment	EMI Test Receiver	Spectrum Analyzer	Broad-Band Horn Antenna with frequency range 14G - 40GHz
Registration No.	EW-2500	EW-2253	EW-1679
Manufacturer	R&S	R&S	SCHWARZBECK
Model No.	ESCI	FSP40	BBHA9170
Calibration Date	Jan. 25, 2011	Nov. 23, 2010	Mar. 03, 2011
Calibration Due Date	Jan. 25, 2012	Nov. 23, 2011	Sep. 03, 2012

#### 2) Conducted Emissions Test

Equipment	Artificial Mains Network	EMI Test Receiver	LISN	Pulse Limiter
Registration No.	EW-2501	EW-2666	EW-0192	EW-0698
Manufacturer	R&S	R&S	R&S	R&S
Model No.	ENV-216	ESCI7	ESH3-Z5	ESH3-Z2
Calibration Date	Mar. 30, 2011	Oct. 12, 2010	Nov.30, 2010	Mar.11, 2011
Calibration Due Date	Mar. 30, 2012	Oct. 12, 2011	Nov.30, 2011	Mar.11, 2012

#### 3) Conductive Measurement Test

Equipment	Spectrum Analyzer
Registration No.	EW-2253
Manufacturer	R&S
Model No.	FSP40
Calibration Date	Nov. 23, 2010
Calibration Due Date	Nov. 23, 2011

**END OF TEST REPORT**