TEST REPORT

Report Number: 14090632HKG-002

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

(WiFi Base Unit)

FCC ID: AL8ENSEMBLE

IC: 1186C-ENSEMBLE

Test Engineer:

Signed on File
Leung Chiu Kuen, Stanley
Engineer

Approved by:

Digitally signed by Nip Ming Fung, Melvin
Location: Intertek Testing Services Hong Kong Ltd

Nip Ming Fung, Melvin
Assistant Manager
December 12, 2014

GENERAL INFORMATION

FCC Applicant Name:	Plantronics, Inc.
FCC Applicant Address:	345 Encinal Street, Santa Cruz, CA 95060, USA
IC Applicant Name:	Clarity, A Division of Plantronics, Inc.
IC Applicant Address:	6131 Preservation Drive, Chattanooga, TN 37416 USA
FCC Specification Standard:	FCC Part 15, October 1, 2012 Edition
FCC ID:	AL8ENSEMBLE
FCC Model(s):	ENSEMBLE
IC Specification Standard:	RSS-210 Issue 8, December 2010 RSS-Gen Issue 3, December 2010
IC:	1186C-ENSEMBLE
IC Model(s):	ENSEMBLE
Type of EUT:	Unlicensed Personal Communications Service Devices
Description of EUT:	1.9GHz Digital Modulation DECT with Caller-ID, Speakerphone, Digital Answering Machine, color touch screen, internet and WiFi features - Base Unit
Serial Number:	N/A
Sample Receipt Date:	September 15, 2014
Date of Test:	August 22, 2014 to September 27,2014
Report Date:	December 12, 2014
Environmental Conditions:	Temperature: +10 to 40°C Humidity: 10 to 90%

Table of Contents

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), 15.209 & 15.109	A8.5	Pass	4.6
AC Power Line Conducted Emission	15.207 & 15.107	7.2.4#	Pass	4.7

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, October 1, 2012 Edition
RSS-210 Issue 8, December 2010
RSS-Gen Issue 3, December 2010

EXHIBIT 2
GENERAL DESCRIPTION

2.0 General Description

2.1 Product Description

The ENSEMBLE is a 1.9GHz Digital Modulation DECT with Caller-ID, Speakerphone, Digital Answering Machine, color touch screen, internet and WiFi features - Base Unit.

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.

The EUT is power by a an adaptor 100-240VAC to 12VDC 1.5A.

The antenna(s) used in the EUT is Integral.

The circuit description is 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 (2009). 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 ANSI C63.10 (2009) and KDB Publication No. 558074 D01 v03r02 (05-June-2014). All other measurements were made in accordance with the procedures in RSS-Gen Issue 3 (2010).

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 Workshop No.3 G/F, World-Wide Industrial Centre, 43-47 Shan Mei Street, Fo Tan, Shatin, New Territories, 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 continuously to simplify the measurement methodology. 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 is power by a 100-240VAC to 12VDC 1.5A adaptor.

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.

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.

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 15.209. Digital circuitry used to control additional functions other than the operation of the transmitter are subject to FCC Part 15 Section 15.109 Limits.

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 4.2.3.

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 powers 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 power line 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 have been tested. Worst case is reported only.

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

All data rates were tested under normal mode of WiFi. Only the worst-case data is shown in the report for DSSS and OFDM

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 (provided with the unit) was used to power the device. Their description are listed below.

(1) An AC adaptor (100-240VAC to 12VDC 1.5A, Model: T1215U003, Brand: CLARiTY) (Supplied by Client)

Description of Accessories:

(1) 1m Telephone Line with Termination (Supplied by Intertek)
(2) 1x CAT5 LAN cable 3m long (Supplied by Intertek)
(3) Telephone Headset, Model: M110, Brand: PLANTRONICS (Supplied by Intertek)
(4) Neckloop, Model: CE-30, Brand: CLARiTY (Supplied by Client)
(5) TP-LINK Wireless Router, Model: C7, FCCID: 7E7C7V2 (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 port of the EUT was connected to the input of a spectrum analyzer.

☒ External attenuation and cable loss were compensated for using the OFFSET function of the analyser. The measurement procedure 9.1.2 was used.

☐ The EUT should be configured to transmit continuously (at a minimum duty cycle of 98%) at full power over the measurement duration. The measurement procedure AVG1 was used.

IEEE 802.11b (DSSS, 1 Mbps) Antenna Gain = 0 dBi		
Frequency (MHz)	Output in dBm	Output in mWatt
Low Channel: 2412	16.98	49.9
Middle Channel: 2437	16.97	49.8
High Channel: 2462	17.62	57.8

IEEE 802.11g (OFDM, 54 Mbps) Antenna Gain = 0 dBi		
Frequency (MHz)	Output in dBm	Output in mWatt
Low Channel: 2412	23.00	199.5
Middle Channel: 2437	22.10	162.2
High Channel: 2462	22.40	173.8

4.1 Maximum Conducted Output Power at Antenna Terminals – Cont'd

Cable loss : 0.3 dB External Attenuation : 20 dB

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

IEEE 802.11b (DSSS, 1 Mbps)
dBm max. output level = 17.62 dBm

IEEE 802.11g (OFDM, 54 Mbps)
dBm max. output level = 23.0 dBm

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. The EBW measurement procedure was used. 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.

For Industry Canada, the 99% occupied bandwidth was measured, and the procedure under the section 4.6.1 of RSS-GEN was used.

IEEE 802.11b (DSSS, 1 Mbps)	
Frequency (MHz)	6dB Bandwidth (kHz)
Low Channel: 2412	10120
Middle Channel: 2437	9760
High Channel: 2462	10040

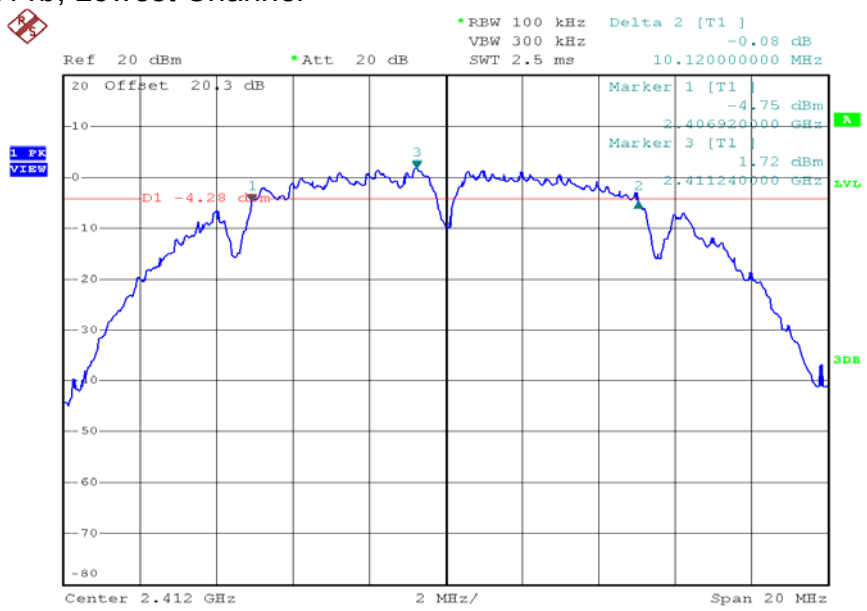
IEEE 802.11g (OFDM, 54 Mbps)	
Frequency (MHz)	6dB Bandwidth (kHz)
Low Channel: 2412	16520
Middle Channel: 2437	16680
High Channel: 2462	16640

Limits
6 dB bandwidth shall be at least 500kHz

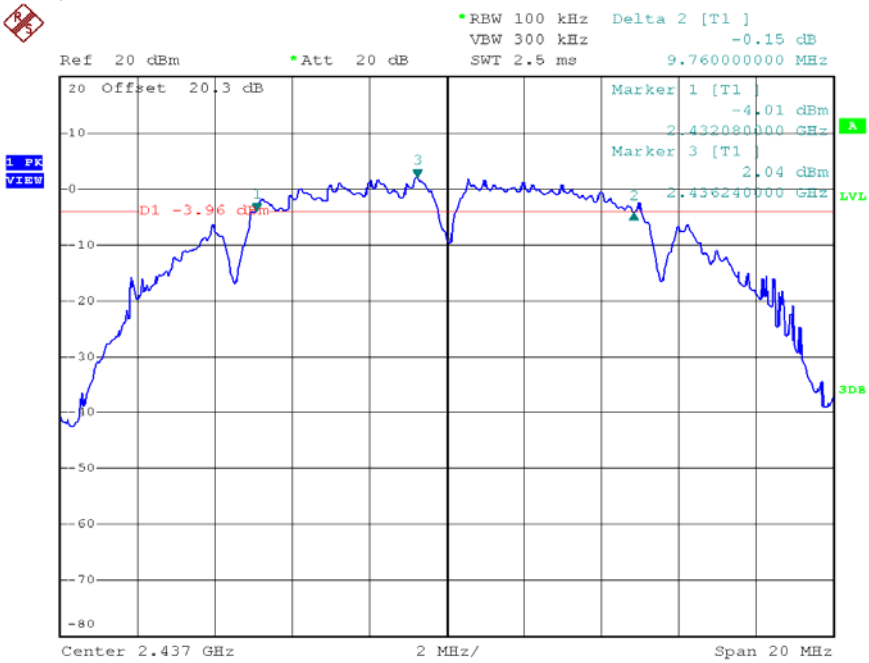
The plots of 6dB RF bandwidth and occupied bandwidth are saved as below.

Plots of 6dB RF bandwidth

802.11b, Lowest Channel

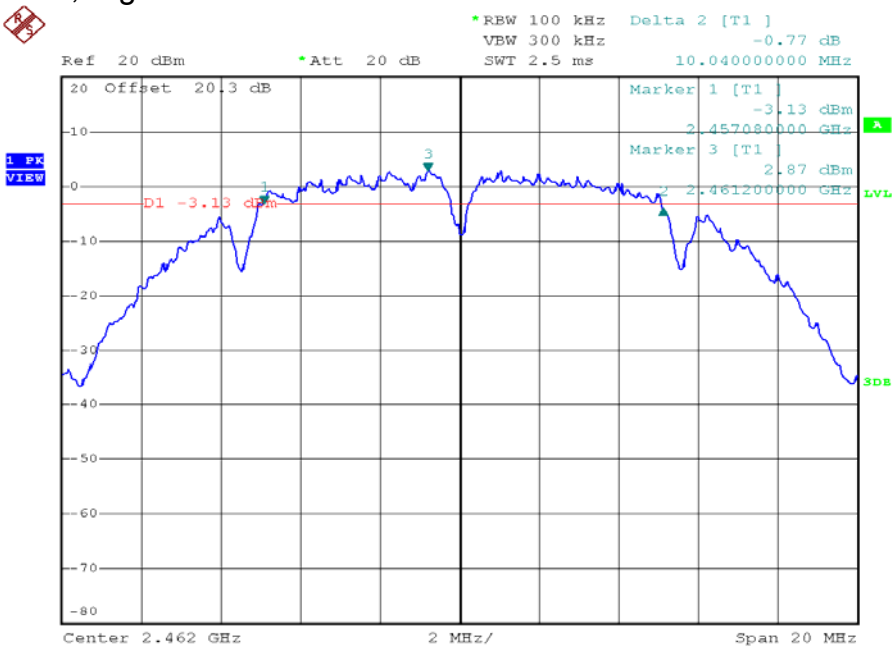


802.11b, Middle Channel



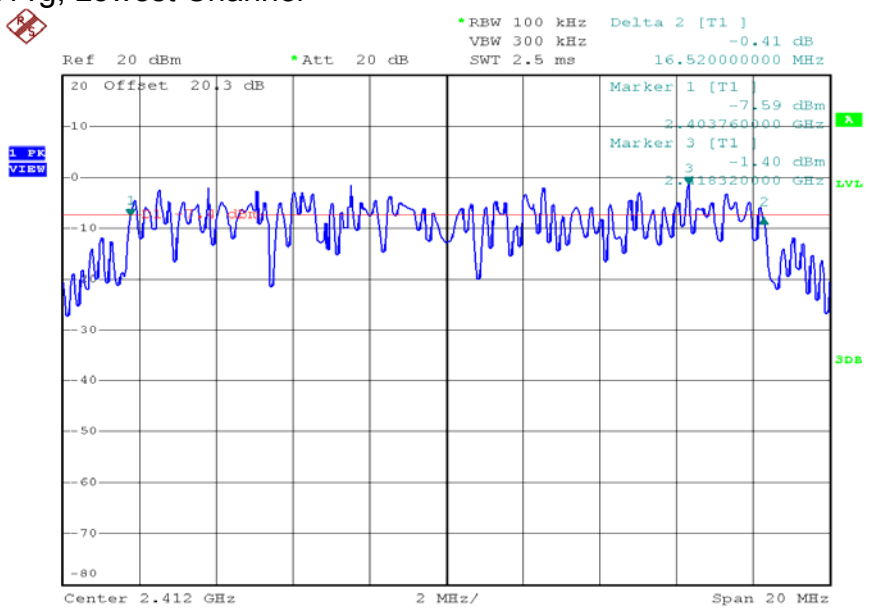
Plots of 6dB RF bandwidth

802.11b, Highest Channel

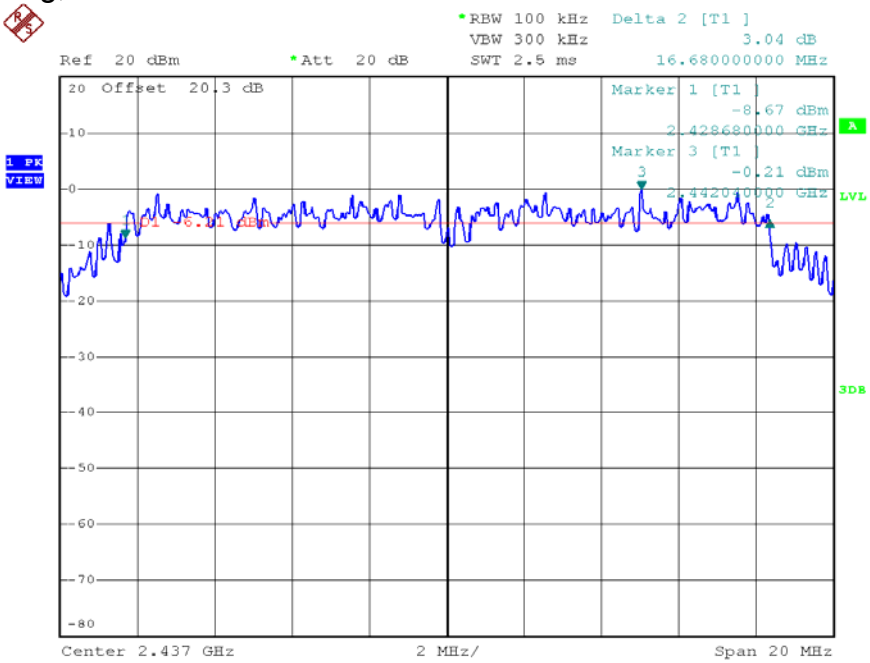


Plots of 6dB RF bandwidth

802.11g, Lowest Channel

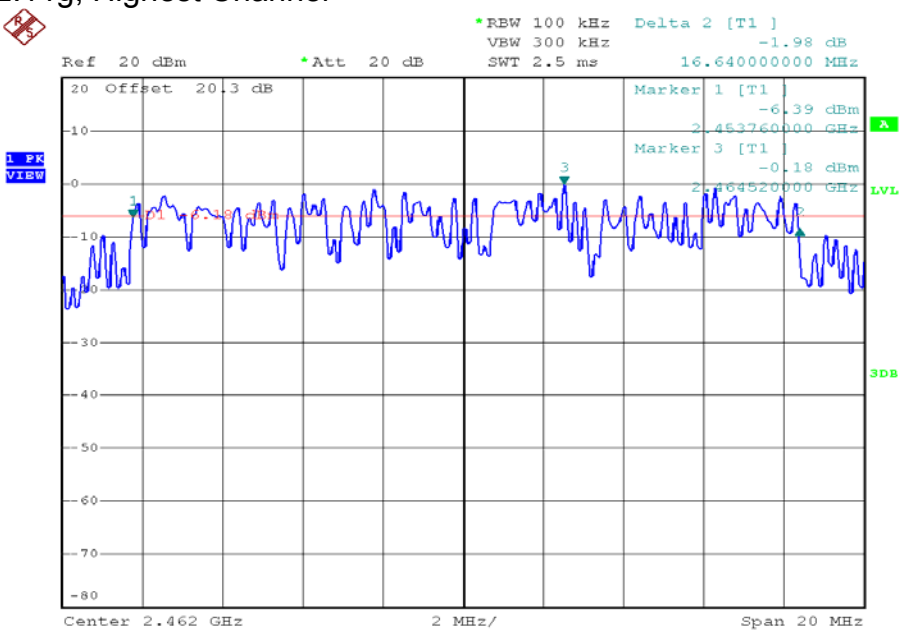


802.11g, Middle Channel



Plots of 6dB RF bandwidth

802.11g, Highest Channel



4.3 Maximum Power Spectral Density

Antenna output of the EUT was coupled directly to spectrum analyzer. The measurement procedure 10.2 PKPSD was used. If an external attenuator and/or cable was used, these losses are compensated for using the OFFSET function of the analyser.

IEEE 802.11b (DSSS, 0 Mbps)	
Frequency (MHz)	PSD in 100kHz (dBm)
Low Channel: 2412	1.58
Middle Channel: 2437	1.65
High Channel: 2462	2.20

IEEE 802.11g (OFDM, 0 Mbps)	
Frequency (MHz)	PSD in 100kHz (dBm)
Low Channel: 2412	-1.22
Middle Channel: 2437	-0.40
High Channel: 2462	-4.07

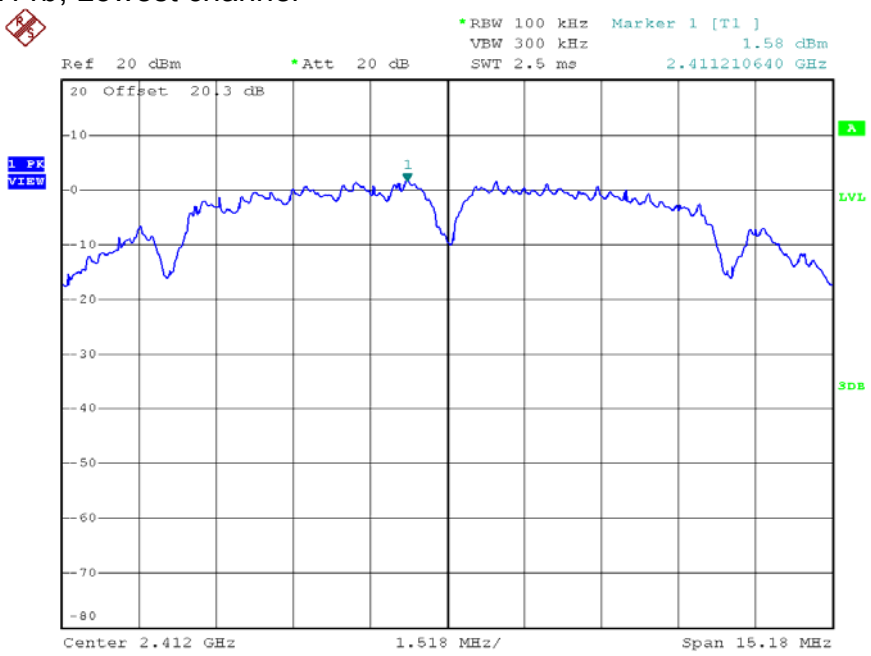
Cable Loss: 0.3 dB

Limit:
8dBm

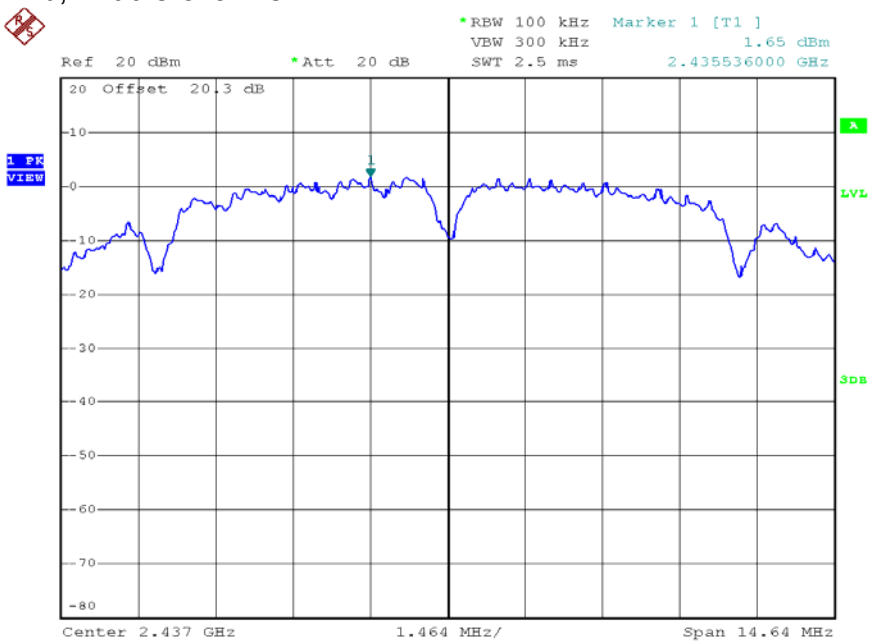
The plots of n power spectral density are as below.

Plots of power spectral density

802.11b, Lowest channel

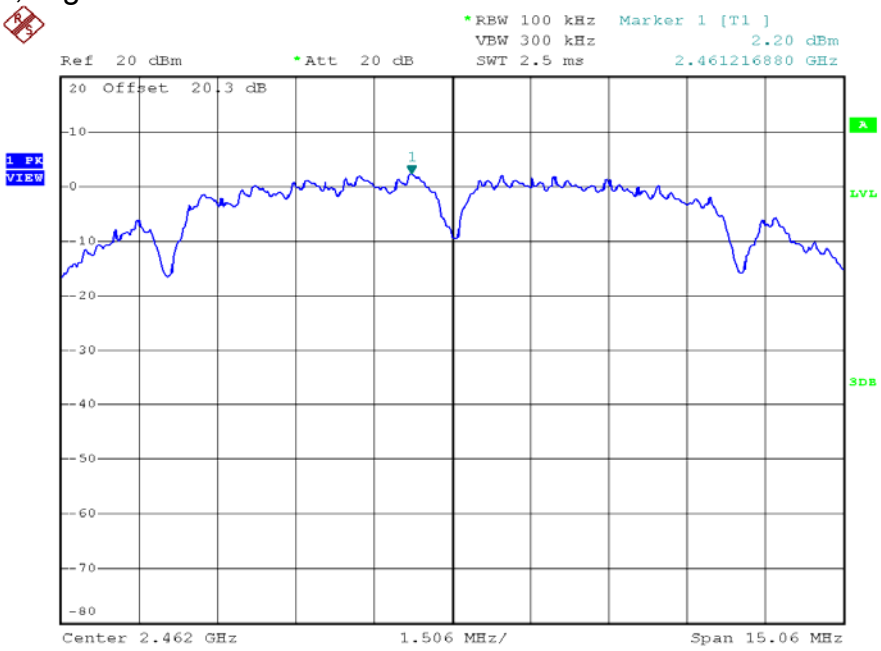


802.11b, Middle channel



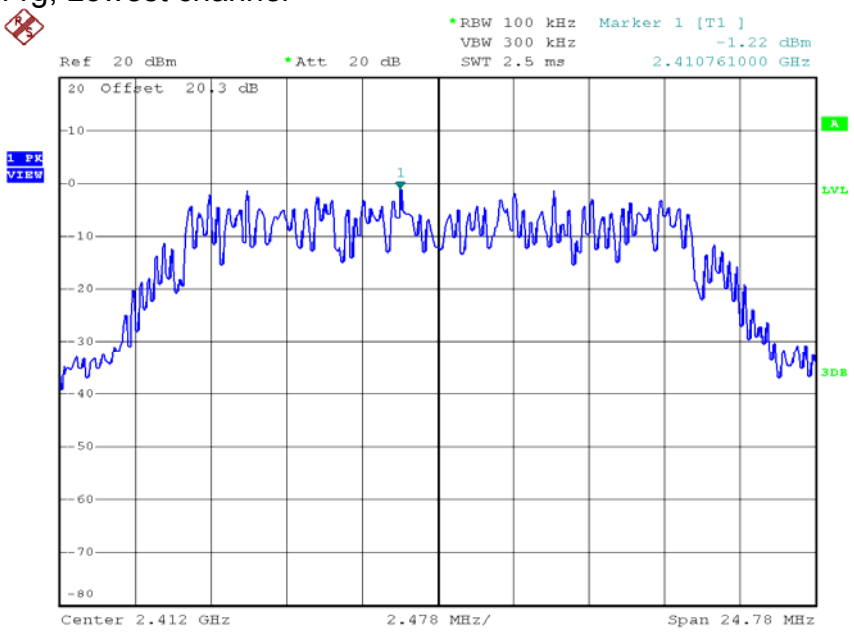
Plots of power spectral density

802.11b, Highest channel

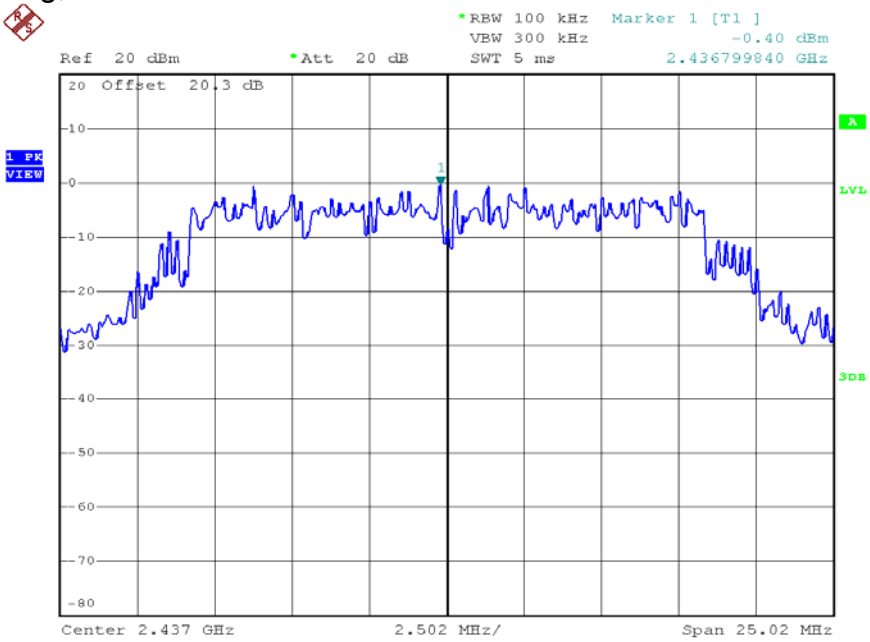


Plots of power spectral density

802.11g, Lowest channel

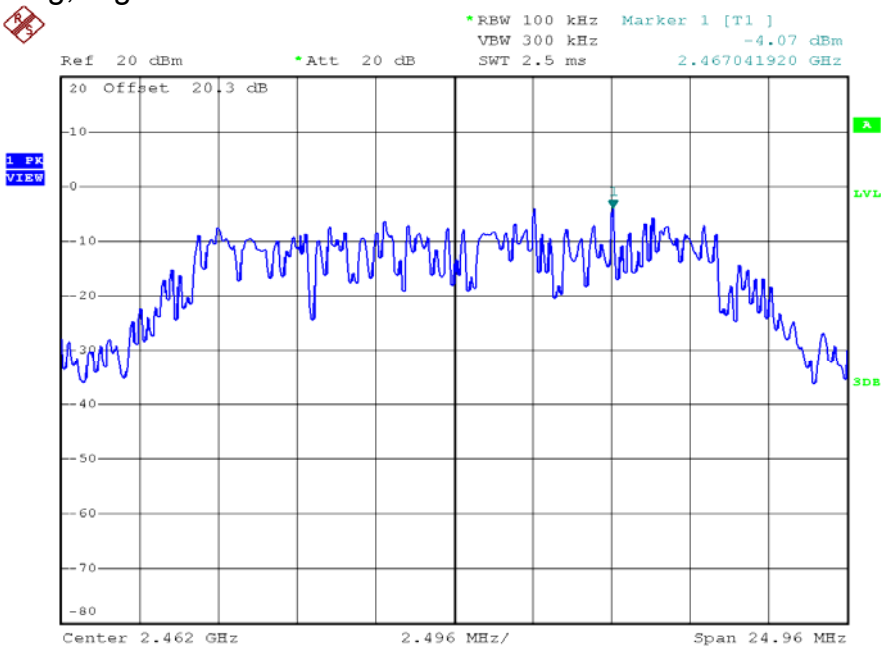


802.11g, Middle channel



Plots of power spectral density

802.11g, Highest channel



4.4 Out of Band Conducted Emissions

RBW was set to 1MHz rather than 100KHz in order to increase the measurement speed.

The display line (in red) shown in the following plots denotes the limit at 20dB below maximum measured in-band peak PSD level in 100KHz bandwidth. The traces in the following plots are measured with 1MHz RBW but not 100KHz in measurement range from 10MHz to 2GHz and 2.8GHz to 25GHz.

The measurement procedures under sections 11 of KDB558074 were used.

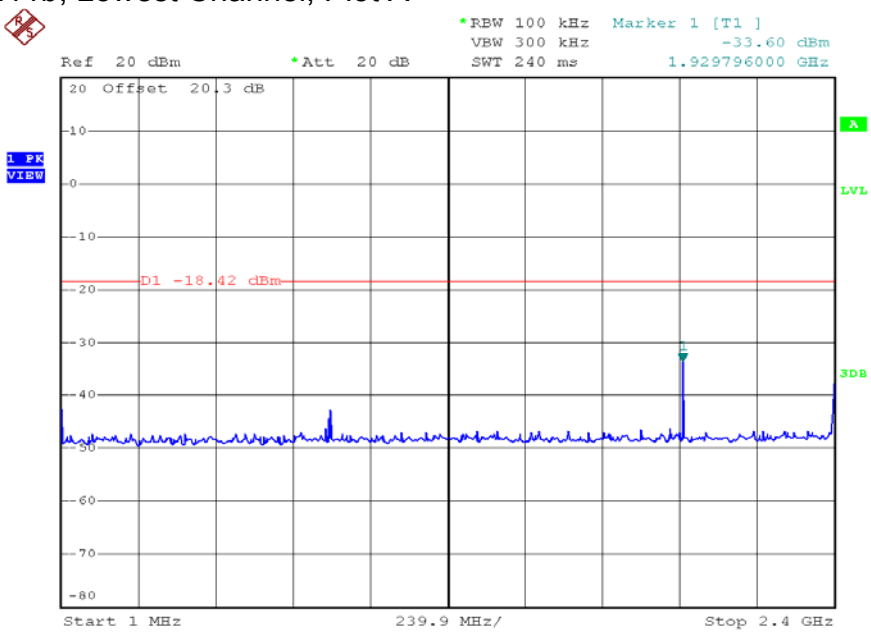
Furthermore, delta measurement technique for measuring bandedge emissions was incorporated in the test of the edge at 2483.5MHz.

Limits:
All spurious emission and up to the tenth harmonic was measured and they were found to be at least 20 dB below the maximum measured in-band peak PSD level.

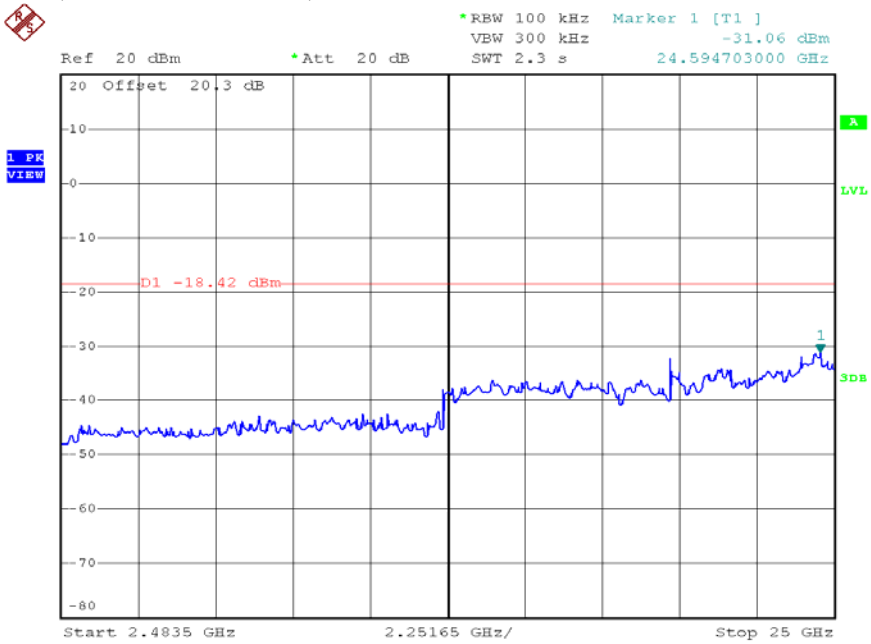
The plots of out of band conducted emissions and bandedge are as below.

Plots of out of band conducted emissions

802.11b, Lowest Channel, Plot A

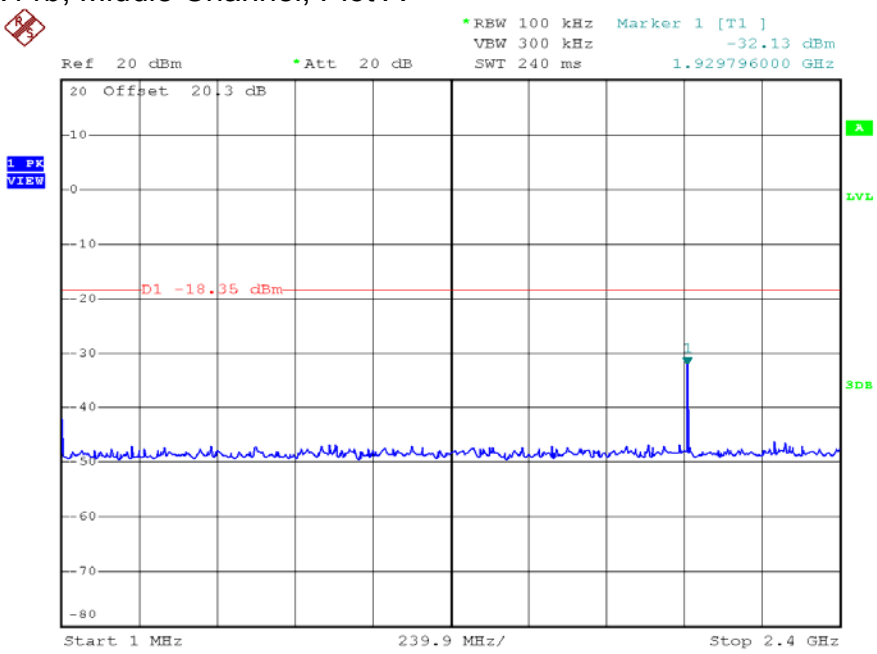


802.11b, Lowest Channel, Plot B

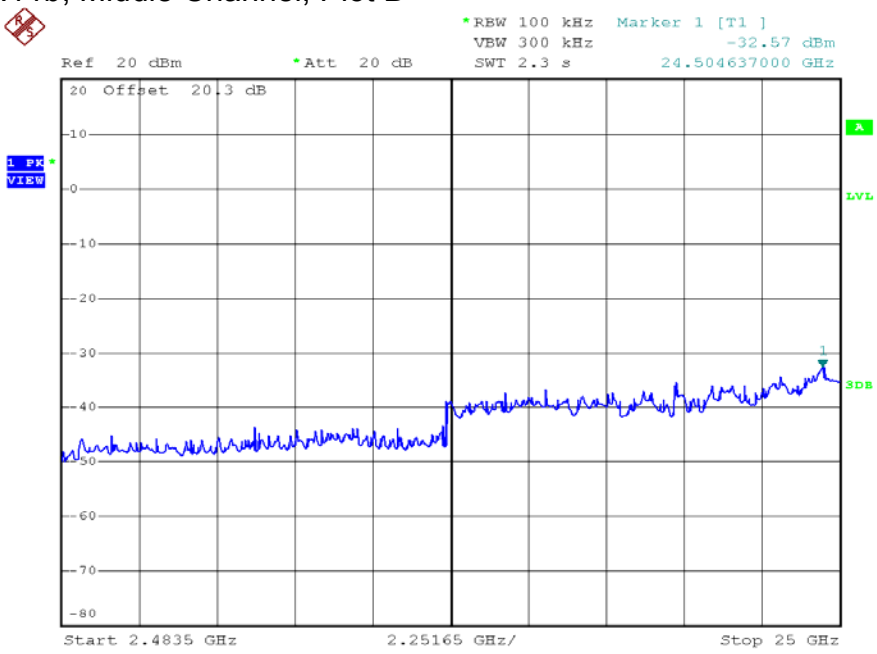


Plots of out of band conducted emissions

802.11b, Middle Channel, Plot A

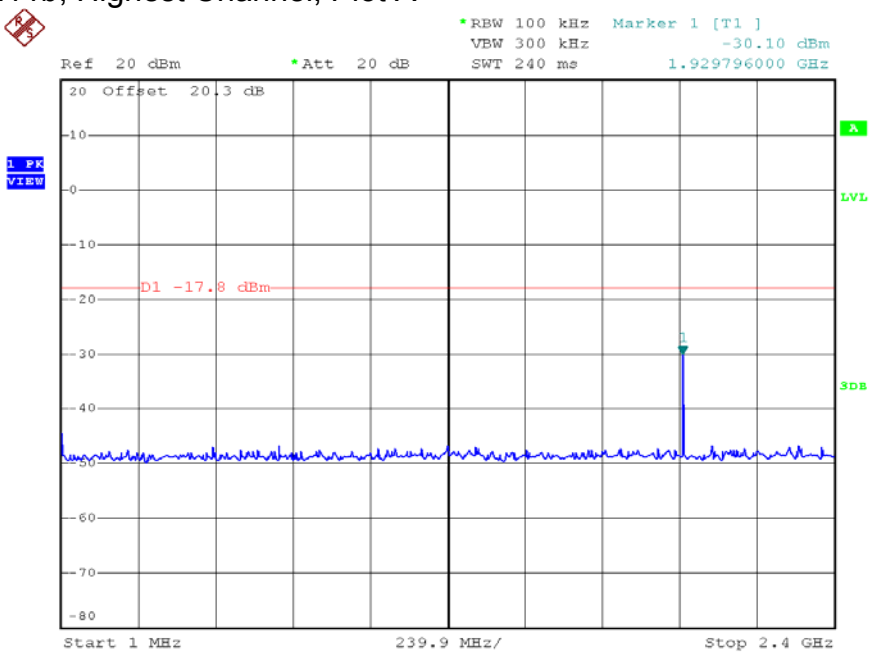


802.11b, Middle Channel, Plot B

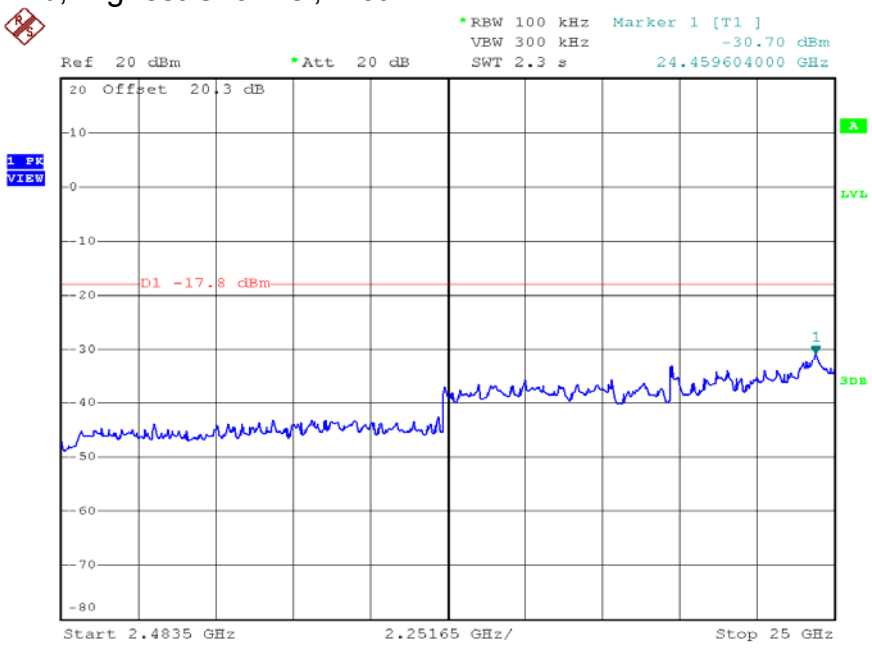


Plots of out of band conducted emissions

802.11b, Highest Channel, Plot A

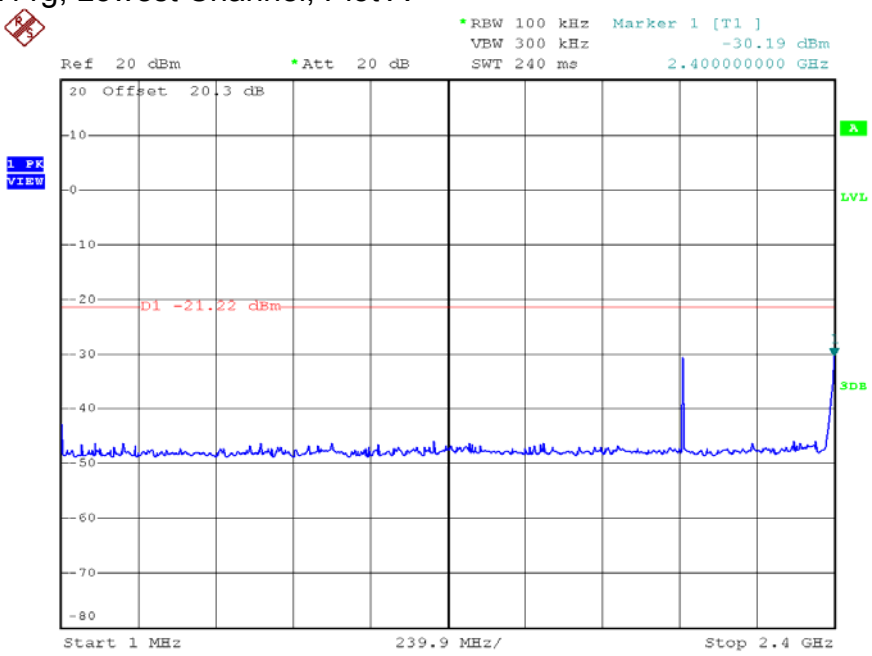


802.11b, Highest Channel, Plot B

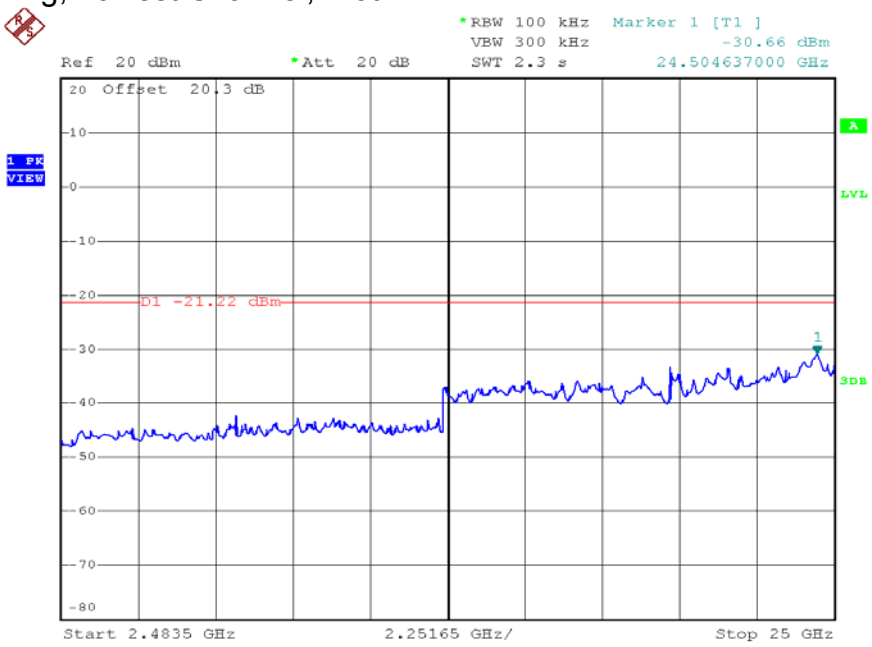


Plots of out of band conducted emissions

802.11g, Lowest Channel, Plot A

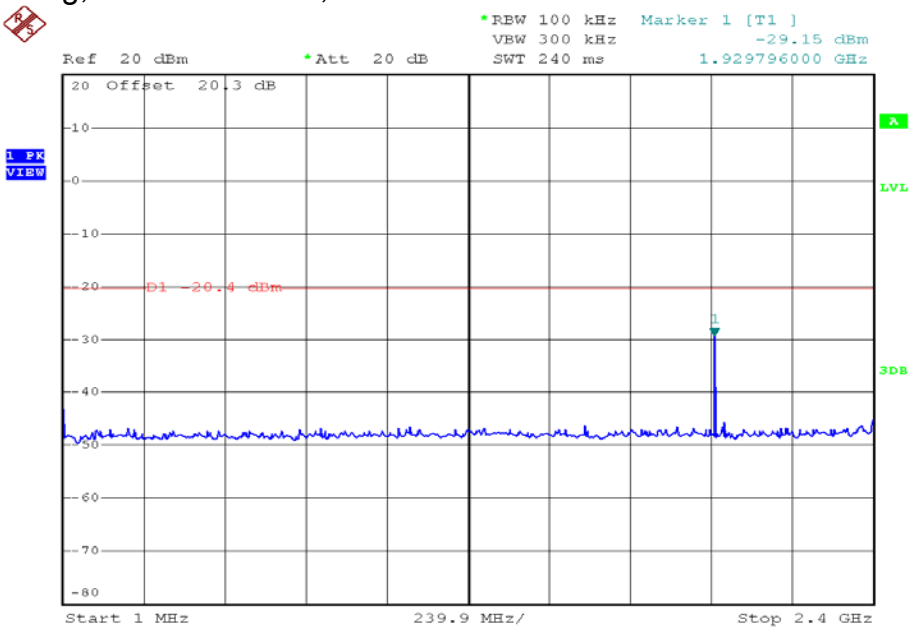


802.11g, Lowest Channel, Plot B

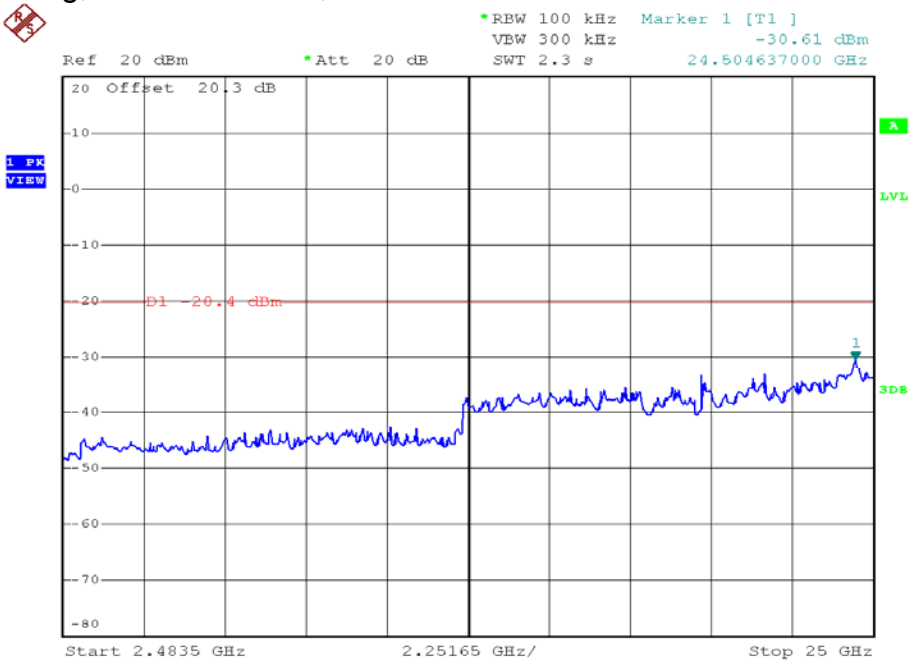


Plots of out of band conducted emissions

802.11g, Middle Channel, Plot A

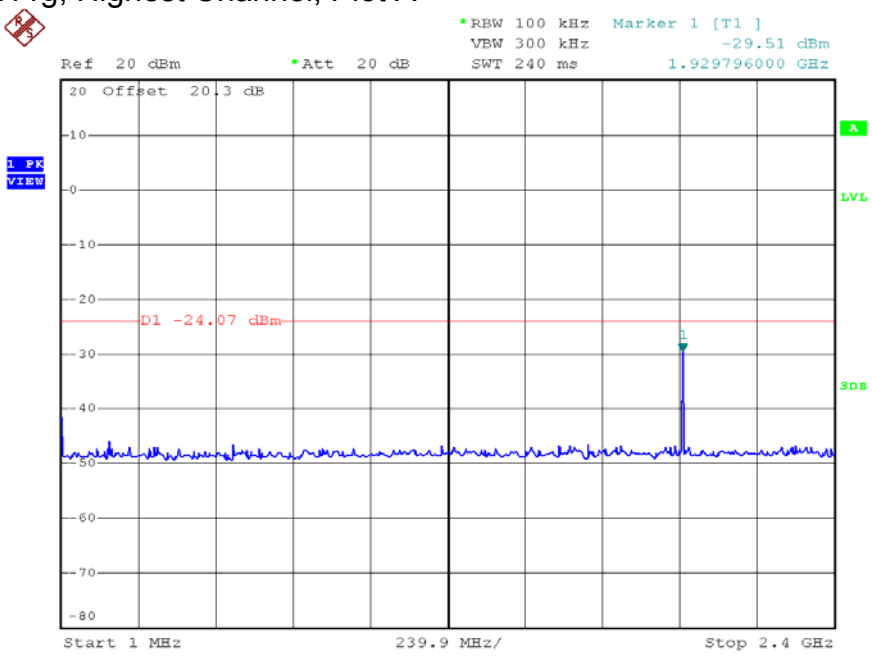


802.11g, Middle Channel, Plot B

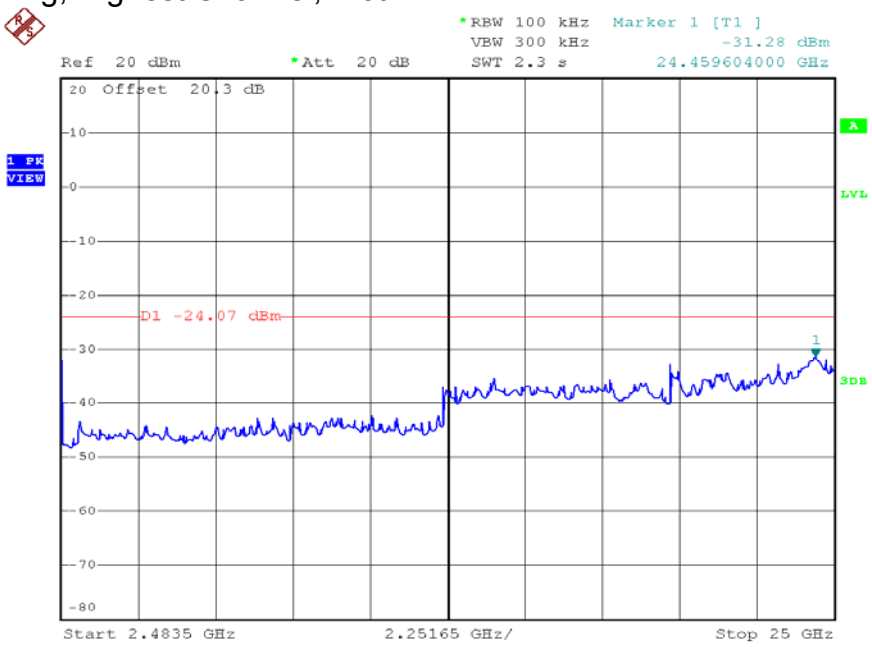


Plots of out of band conducted emissions

802.11g, Highest Channel, Plot A



802.11g, Highest Channel, Plot B



4.5 Field Strength Calculation

The field strength is calculated by adding the reading on the Spectrum Analyzer to the factors associated with preamplifiers (if any), antennas, cables, pulse desensitization and average factors (when specified limit is in average and measurements are made with peak detectors). A sample calculation is included below.

FS = RA + AF + CF - AG + PD + AV

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

In the radiated emission table which follows, the reading shown on the data table may reflect the preamplifier gain. An example of the calculations, where the reading does not reflect the preamplifier gain, follows:

FS = RA + AF + CF - AG + PD + AV

Example
Assume a receiver reading of 62.0 dBμV is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29.0 dB is subtracted. The pulse desensitization factor of the spectrum analyzer is 0.0 dB, and the resultant average factor is -10.0 dB. The net field strength for comparison to the appropriate emission limit is 32.0 dBμV/m. This value in dBμV/m is converted to its corresponding level in μV/m.

RA = 62.0 dBμV
AF = 7.4 dB
CF = 1.6 dB
AG = 29.0 dB
PD = 0.0 dB
AV = -10 dB

FS = 62.0 + 7.4 + 1.6 – 29.0 + 0.0 + (-10.0) = 32.0 dBμV/m

Level in μV/m = Common Antilogarithm [(32.0 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

14472 MHz

The worst case radiated emission configuration photographs are saved with filename: config photos.pdf

4.6.2 Radiated Emission Data

The data in tables 1-7 list the significant emission frequencies, the limit and the margin of compliance.

Judgement -

Passed by 0.6 dB margin compare with average limit

Mode: TX-Channel 01

Table 1
IEEE 802.11b (DSSS, 1 Mbps)

Radiated Emission Data

Polari-zation	Frequency	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - average (dBuV/m)	Average Limit at 3m (dBuV/m)	Margin (dB)
H	***2390.000***	***51.7***	***33***	***29.4***	***48.1***	***54.0***	***-5.9***
H	***4824.000***	***37.7***	***33***	***34.9***	***39.6***	***54.0***	***-14.4***
H	***12060.000***	***43.1***	***33***	***40.5***	***50.6***	***54.0***	***-3.4***
H	***14472.000***	***46.4***	***33***	***40.0***	***53.4***	***54.0***	***-0.6***

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)
H	***2390.000***	***63.8***	***33***	***29.4***	***60.2***	***74.0***	***-13.8***
H	***4824.000***	***48.6***	***33***	***34.9***	***50.5***	***74.0***	***-23.5***
H	***12060.000***	***55.7***	***33***	***40.5***	***63.2***	***74.0***	***-10.8***
H	***14472.000***	***57.0***	***33***	***40.0***	***64.0***	***74.0***	***-10.0***

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. 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.

Mode: TX-Channel 06

Table 2
IEEE 802.11b (DSSS, 1 Mbps)

Radiated Emission Data

Polari-zation	Frequency	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - average (dBuV/m)	Average Limit at 3m (dBuV/m)	Margin (dB)
H	***4874.000***	***37.8***	***33***	***34.9***	***39.7***	***54.0***	***-14.3***
H	***7311.000***	***40.9***	***33***	***37.9***	***45.8***	***54.0***	***-8.2***
H	***12185.000***	***42.9***	***33***	***40.5***	***50.4***	***54.0***	***-3.6***

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)
H	***4874.000***	***48.5***	***33***	***34.9***	***50.4***	***74.0***	***-23.6***
H	***7311.000***	***50.7***	***33***	***37.9***	***55.6***	***74.0***	***-18.4***
H	***12185.000***	***56.1***	***33***	***40.5***	***63.6***	***74.0***	***-10.4***

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. 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 (DSSS, 1 Mbps)

Radiated Emission Data

Polari-zation	Frequency	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - average (dBuV/m)	Average Limit at 3m (dBuV/m)	Margin (dB)
H	***2483.500***	***51.7***	***33***	***29.4***	***48.1***	***54.0***	***-5.9***
H	***4924.000***	***37.9***	***33***	***34.9***	***39.8***	***54.0***	***-14.2***
H	***7386.000***	***40.4***	***33***	***37.9***	***45.3***	***54.0***	***-8.7***
H	***12310.000***	***43.0***	***33***	***40.5***	***50.5***	***54.0***	***-3.5***

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)
H	***2483.500***	***63.6***	***33***	***29.4***	***60.0***	***74.0***	***-14.0***
H	***4924.000***	***49.0***	***33***	***34.9***	***50.9***	***74.0***	***-23.1***
H	***7386.000***	***50.8***	***33***	***37.9***	***55.7***	***74.0***	***-18.3***
H	***12310.000***	***56.4***	***33***	***40.5***	***63.9***	***74.0***	***-10.1***

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.

Mode: TX-Channel 01

Table 4
IEEE 802.11g (OFDM, 54 Mbps)

Radiated Emission Data

Polari-zation	Frequency	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - average (dBuV/m)	Average Limit at 3m (dBuV/m)	Margin (dB)
H	***2390.000***	***55.9***	***33***	***29.4***	***52.3***	***54.0***	***-1.7***
H	***4824.000***	***37.6***	***33***	***34.9***	***39.5***	***54.0***	***-14.5***
H	***12060.000***	***44.3***	***33***	***40.5***	***51.8***	***54.0***	***-2.2***
H	***14472.000***	***46.3***	***33***	***40.0***	***53.3***	***54.0***	***-0.7***

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)
H	***2390.000***	***71.1***	***33***	***29.4***	***67.5***	***74.0***	***-6.5***
H	***4824.000***	***50.3***	***33***	***34.9***	***52.2***	***74.0***	***-21.8***
H	***12060.000***	***55.5***	***33***	***40.5***	***63.0***	***74.0***	***-11.0***
H	***14472.000***	***57.4***	***33***	***40.0***	***64.4***	***74.0***	***-9.6***

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.

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

7. 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 (OFDM, 54 Mbps)

Radiated Emission Data

Polari-zation	Frequency	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - average (dBuV/m)	Average Limit at 3m (dBuV/m)	Margin (dB)
H	***4874.000***	***37.5***	***33***	***34.9***	***39.4***	***54.0***	***-14.6***
H	***7311.000***	***40.3***	***33***	***37.9***	***45.2***	***54.0***	***-8.8***
H	***12185.000***	***44.1***	***33***	***40.5***	***51.6***	***54.0***	***-2.4***

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)
H	***4874.000***	***50.2***	***33***	***34.9***	***52.1***	***74.0***	***-21.9***
H	***7311.000***	***50.4***	***33***	***37.9***	***55.3***	***74.0***	***-18.7***
H	***12185.000***	***55.3***	***33***	***40.5***	***62.8***	***74.0***	***-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-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.

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

7. 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 (OFDM, 54 Mbps)

Radiated Emission Data

Polari-zation	Frequency	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - average (dBuV/m)	Average Limit at 3m (dBuV/m)	Margin (dB)
H	***2483.500***	***55.0***	***33***	***29.4***	***51.4***	***54.0***	***-2.6***
H	***4924.000***	***37.7***	***33***	***34.9***	***39.6***	***54.0***	***-14.4***
H	***7386.000***	***40.7***	***33***	***37.9***	***45.6***	***54.0***	***-8.4***
H	***12310.000***	***44.7***	***33***	***40.5***	***52.2***	***54.0***	***-1.8***

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)
H	***2483.500***	***72.1***	***33***	***29.4***	***68.5***	***74.0***	***-5.5***
H	***4924.000***	***50.1***	***33***	***34.9***	***52.0***	***74.0***	***-22.0***
H	***7386.000***	***50.2***	***33***	***37.9***	***55.1***	***74.0***	***-18.9***
H	***12310.000***	***55.7***	***33***	***40.5***	***63.2***	***74.0***	***-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-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.

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

7. 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 Transmission, Screen ON

Table 7

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)
H	***163.496***	***38.5***	***16***	***17.0***	***39.5***	***43.5***	***-4.0***
H	186.412	41.0	16	16.0	41.0	43.5	-2.5
V	225.160	37.3	16	18.0	39.3	46.0	-6.7
V	***274.160***	***32.5***	***16***	***22.0***	***38.5***	***46.0***	***-7.5***
H	300.020	35.8	16	22.0	41.8	46.0	-4.2
H	375.055	36.3	16	24.0	44.3	46.0	-1.7
V	448.760	33.6	16	26.0	43.6	46.0	-2.4
H	524.420	31.0	16	27.0	42.0	46.0	-4.0

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.

4.6.3 Transmitter Duty Cycle Calculation

Not applicable – No average factor is required.

4.7 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.

4.7.1 AC Power Line Conducted Emission Configuration Photograph

Worst Case Line-Conducted Configuration
at

0.357 MHz

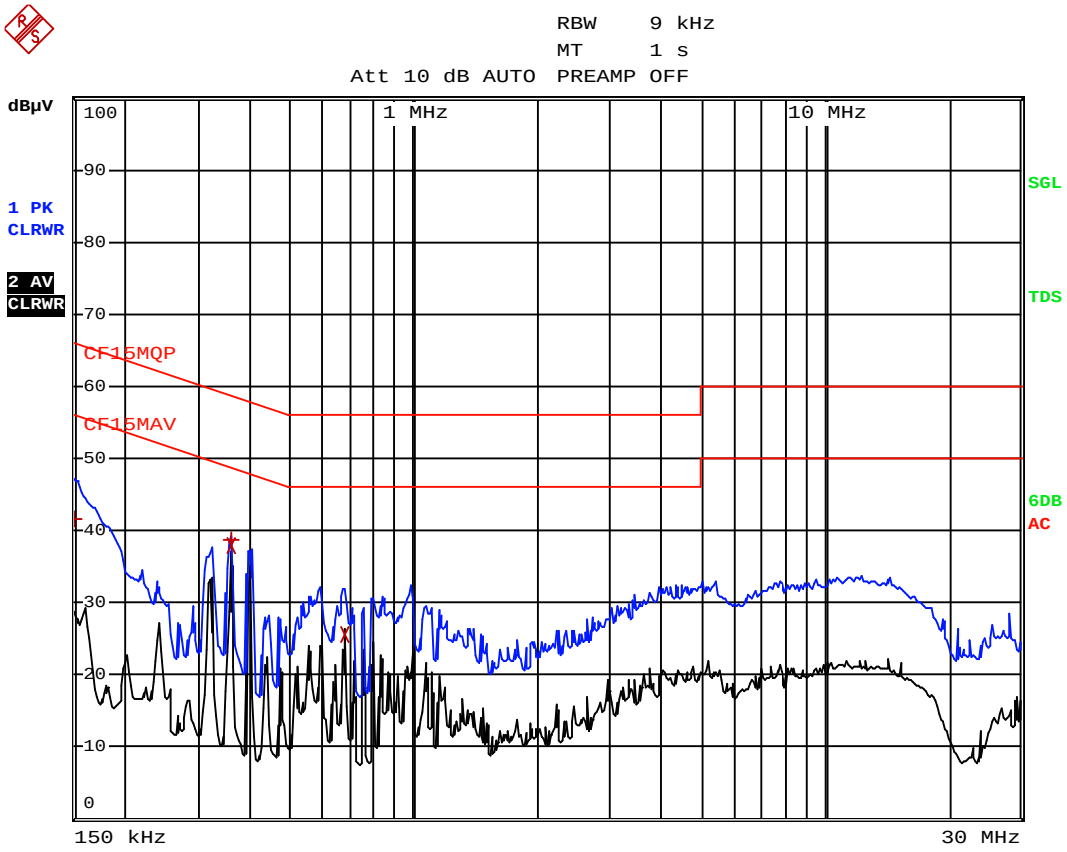
The worst case line conducted configuration photographs are attached in the Appendix and saved with filename: config photos.pdf

4.7.2 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 10.99dB dB margin compare with average limit

Worst Case: WiFi Transmission and DECT Talk



Date: 22.AUG.2014 08:44:37

Worst Case: WiFi Transmission and DECT Talk

EDIT PEAK LIST (Final Measurement Results)

Trace1: CF15MQP
Trace2: CF15MAV
Trace3: ---

	TRACE	FREQUENCY	LEVEL dBµV		DELTA LIMIT dB
1	Quasi Peak	150 kHz	41.57	N	-24.42
1	Quasi Peak	357 kHz	38.67	N	-20.12
2	CISPR Average	357 kHz	37.80	N	-10.99
2	CISPR Average	676.5 kHz	25.67	L1	-20.32

Date: 22.AUG.2014 08:44:08

EXHIBIT 5
EQUIPMENT LIST

5.0 **Equipment List**

1) Radiated Emissions Test

Equipment	Biconical Antenna	Log Periodic Antenna	Double Ridged Guide Antenna
Registration No.	EW-0571	EW-0572	EW-1133
Manufacturer	EMCO	EMCO	EMCO
Model No.	3104C	3146	3115
Calibration Date	Nov. 1, 2013	Jun. 26, 2013	Apr. 30, 2014
Calibration Due Date	May 1, 2015	Dec. 26, 2014	Oct. 30, 2015

Equipment	EMI Test Receiver	Spectrum Analyzer	Broad Band Horn Antenna
Registration No.	EW-2251	EW-2253	EW-1679
Manufacturer	R&S	R&S	SCHWARZBECK
Model No.	ESCI	FSP40	BBHA9170
Calibration Date	Nov. 20, 2013	May. 08, 2014	Apr. 30, 2014
Calibration Due Date	Nov. 20, 2014	May. 08, 2015	Oct. 30, 2015

2) Conducted Emissions Test

Equipment	EMI Test Receiver	LISN
Registration No.	EW-2251	EW-2501
Manufacturer	R&S	R&S
Model No.	ESCI	ENV-216
Calibration Date	Nov. 20, 2013	Dec. 25, 2013
Calibration Due Date	Nov. 20, 2014	Nov. 30, 2014

3) Conductive Measurement Test

Equipment	Spectrum Analyzer	Power Meter with Power Sensor (N1921A)	Digital Multimeter
Registration No.	EW-2253	EW-2270	EW-1810
Manufacturer	R&S	Agilent Tech	FLUKE
Model No.	FSP40	N1911A	189
Calibration Date	May. 08, 2014	Dec. 20, 2013	Dec. 19, 2013
Calibration Due Date	May. 08, 2015	Dec. 20, 2014	Jan. 14, 2015

END OF TEST REPORT