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EMC COMPLIANCE REPORT

In accordance with:

CFR47 FCC Part 15, Subpart C, 15.247
CFR47 FCC Part 15, Subpart B (Class B)

Daintree Networks Pty Ltd

DT357

ZigBee RF module

REPORT: E1110-0077-2 Rev 5
DATE: December, 2011

Certificate of Compliance

EMC Bayswater Test Report: E1110-0077-2 Rev 5
Issue Date: December, 2011

Test Sample(s):	ZigBee RF module
Model No:	DT357
Serial No:	None Stated
Client Details:	Mr Dean Gray Daintree Networks Pty Ltd 1 Dalmore Drive, Caribbean Park Scoresby, Victoria, 3179 Australia
	Phone No: (03) 8320 8037 Fax No: (03) 9763 3545 e-mail: dgray@daintree.com.au
Test Specification:	CFR47 FCC Part 15, Subpart C, 15.247 CFR47 FCC Part 15, Subpart B (Class B)

Results Summary:

15.247 & 15.35 - Duty Cycle	***N/A***
15.247 b) - Maximum Peak Conducted Power	***Complied***
15.247 d) - Radiated Spurious and Harmonic Emissions	***Complied****
15.247 a) - Spectrum Bandwidth (6dB Bandwidth)	***Complied***
15.247 d) - Band Edge Measurements (100kHz -20dB)	***Complied***
15.247 d) - Band Edge Measurements (Restricted Bands)	***Complied**+*
15.247 e) - Power Spectral Density	***Complied***
15.209 - Radiated Emissions	***Complied****
15.207 - AC Power line Conducted Emissions	***Complied***

Limited testing frequency range of 25MHz to 4GHz
+Required power level reduction on the top channel (see section 11)

Test Date(s):	8th, 9th and 15th to 20th of September, 6th to 7th of October & 23rd November, 2011
Test House (Issued By)	EMC Bayswater Pty. Limited 52 Holloway Drive, Bayswater Victoria, 3153 Australia
	FCC Registration number: 419968
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This is to certify that the necessary measurements were made by the EMC Bayswater Pty Limited, and that the Daintree Networks Pty Ltd, DT357 ZigBee RF module (Serial No: None Stated), has been tested in accordance with requirements contained in the appropriate commission regulations.

Prepared by: Approved by:

December 15, 2011

Clint Finch (Principal Engineer)	Andrew Whiteford (General Manager)	Date

EMC Compliance Report
for
Daintree Networks Pty Ltd

Contents

1. Introduction

Electromagnetic Compatibility (EMC) tests were performed on a Daintree Networks Pty Ltd, DT357, ZigBee RF module in accordance with the requirements of Title 47 of the standard CFR47 FCC Part 15, Subpart C, 15.247 & CFR47 FCC Part 15, Subpart B (Class B).

2. Summary of Results

The EUT complied with applicable requirements of CFR47 FCC Part 15, Subpart C, 15.247 & CFR47 FCC Part 15, Subpart B (Class B). Worst-case results are tabled as follows:

Test	Result
Duty Cycle	N/A
Maximum Peak Conducted Power	Complied by 20.87dB
Radiated Spurious and Harmonic Emissions	Complied by at least 6dB
Spectrum Bandwidth (6dB Bandwidth)	Complied by 1080kHz
Band Edge Measurements (100kHz -20dB)	Complied by 1.80MHz
Band Edge Measurements (Restricted bands)	Complied by 0.38dB
Power Spectral Density	Complied by 17.22dB
Radiated Emissions	Complied by at least 6dB
Conducted Emissions	Complied by at least 20dB

Note: Worst-case results - With the duty cycle correction factor taken into consideration for all peak measurements

Table 1: Summary of test results

3. Product Sample, Configuration & Modifications

3.1. EUT Description

The EUT is a ZigBee module with integral antenna or an external antenna via a U.FL connector (compatible connectors are on the market under names such as IPEX, IPAX, IPX, MHF, and AMC connectors). To be used for communications to either a central unit or to other ZigBee compliant modules. The EUT is powered via a Nominal 3.0Volt DC source and has power supply regulation integrated. The EUT had shielding on the PCB of the active components (excluding the antenna). The ZigBee EUT operates over the frequency range 2.405GHz to 2.480GHz over 16 channels using 5MHz channel spacing.

The frequency for any channel can be calculated using:

$$Fc = 2405 + (5 * (\text{channel Number} - 11)$$

The channel for any frequency can be calculated using:

$$\text{Channel Number} = ((Fc - 2405)/5) + 11)$$

Where the bottom channel is Channel Number 11, Middle channel is Channel Number 18 and the Top Channel Number is 26 (Channel Numbers: **11**, 12, 13, 14, 15, 16, 17, **18**, 19, 20, 21, 22, 23, 24, 25 and **26**)

(Refer to photographs in Annex A & B for views of the EUT)

3.2. Configuration

The EUT was powered via a bench top power supply unit for all testing at a voltage of 3.0Volts DC (nominal) and for extreme voltages at 2.1VDC and 3.6VDC. The length of the power cable of the EUT was approximately 10cm (>10cm), although it was extended when required for testing purposes. For conducted emissions testing a standard AC/DC PSU with a regulator circuit was used for testing. The EUT modulation and power levels were configured via a PC (running Microsoft Windows and "EmberZnet node test 4.2.0GA" software) and a USB cable connection to the EUT.

The EUT was presented in two configurations of identical RF modules. One with a U.FL antenna connector that allowed an alternative monopole/whip antenna (2.0dBi gain) to be fitted or with no connector and a built in/integrated antenna (2.1dBi gain). For all testing the worst-case antenna (highest gain) was used in either calculations or radiated measurements.

All transmitter ON testing except for band edge measurements on the top channel were performed with the EUT operating at power level 8 (maximum power). For band edge measurements on the top band (channel 26, 2.48GHz) the EUT was programmed to operate at power level 7. For all testing the EUT operated with modulation ON at 100% duty. For standby mode/receive the EUT was on but not transmitting data.

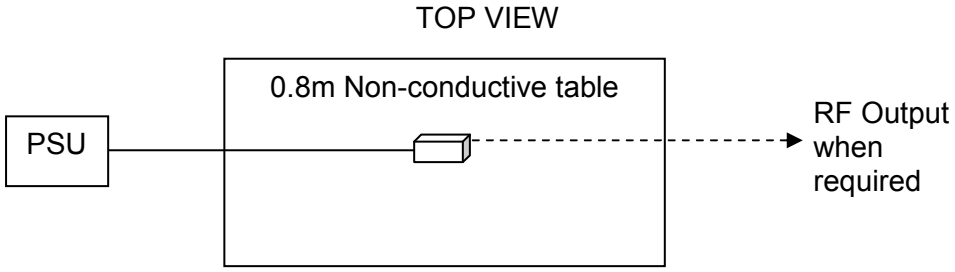


Table 2: Block diagram of EUT test configuration

3.3. Modifications

EMC Bayswater Pty Ltd did not modify the EUT.

4. Test Facility & Equipment

4.1. Test Facility

Conducted emissions & Radiated emissions measurements were taken in the indoor Open Area Test Site (iOATS) facility at EMC Bayswater Pty Ltd, located at 52 Holloway Drive, Bayswater, Victoria, Australia.

Maximum Peak Conducted Output Power, Band Edge, Power Spectral Density and Duty Cycle measurements were performed in an environmental chamber facility at EMC Bayswater Pty Ltd, located at 52 Holloway Drive, Bayswater, Victoria, Australia.

EMC Bayswater Pty Ltd FCC registration number is 419968.

4.2. Test Equipment

Refer to Appendix A for the measurement instrument list.

5. Referenced Standards

CFR47 FCC Part 15, Subpart C

CFR47 FCC Part 15, Subpart B

ANSI C63.4 - 2003
American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.

6. Duty cycle correction factor

In accordance with FCC part 15.35 corrections for the transmitter duty cycle of the emission peak with respect to the average limit may be applied. The following is extracted and amended for part 15.247.

From FCC Part 15.247:

(a) For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

(b) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

From FCC Part 15.35:

(a) Unless otherwise specified, on any frequency or frequencies above 1000 MHz, the radiated emission limits are based on the use of measurement instrumentation employing an average detector function.
Unless otherwise specified, measurements above 1000 MHz shall be performed using a minimum resolution bandwidth of 1 MHz. When average radiated emission measurements are specified in this part, including average emission measurements below 1000 MHz, there also is a limit on the peak level of the radio frequency emissions.
This peak limit applies to the total peak emission level radiated by the device, e.g. the total peak power level. Note that the use of a pulse desensitization correction factor may be needed to determine the total peak emission level. The instruction manual or application note for the measurement instrument should be consulted for determining pulse desensitization factors, as necessary.

(b) When the radiated emission limits are expressed in terms of the average value of the emission, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value. The exact method of calculating the average field strength shall be submitted with any application for certification or shall be retained in the measurement data file for equipment subject to notification or verification.

How it applies to testing in section 15.247, correction may be made to the peak level as measured, however this must be taken into account when ensuring frequency occupancy in any 100kHz band outside the allocated frequency range when measured conductively. However measuring within the restricted band must be performed using a radiated method and thusly either an average measurement or a peak measurement with a duty cycle correction factor needs to be performed.

6.1. Test Procedure

Stage 1 – Determining the number of transmissions per 100ms

The transmitter signal was coupled to the spectrum analyser via a coaxial cable and a near-field probe. The centre frequency of the spectrum analyser was adjusted to the centre of the transmitter frequency. The attenuation and reference levels were adjusted to achieve maximum dynamic range without overloading the spectrum analyser input. The span of the spectrum analyser was set to zero (0Hz), and the sweep time adjusted to 100ms. The trigger level was adjusted to allow the greatest amount of "on time" for a pulse train length less than 100ms.

Span	= 0Hz
Frequency	= Centre of transmission
RBW	= 1MHz
VBW	= 10MHz
Sweep time	= 100ms

Stage 2 – Determining the duration of each transmission

From the previous stage, the sweep time was adjusted to increase the resolution and using the delay function adjusted to centre the transmission. The normal and delta marker functions were used to display the duration/"on time" of the transmission.

Span	= 0Hz
Frequency	= Centre of transmission
RBW	= 1MHz
VBW	= 10MHz
Sweep time	= 5ms

Stage 3 – Calculation of the Duty cycle correction factor

Total time 'ON' over 100ms	= Number of transmissions per 100ms * Transmission 'ON' time
Duty cycle (On time/total time)	= Total time 'ON' /Total time measured across
Duty cycle correction factor (dB)	= 20Log (Duty cycle)

(Refer to photographs 1 & 2 in Annex C for views of the test configuration)

6.2. Limits

There are no associated limits, although when the duty cycle correction factor is applied to the peak of any transmission the maximum correction factor that can be applied is 20dB. The correction factor is applicable for fundamental measurements and additionally for measurements of emissions that are within the 100kHz bandwidth outside the allocated frequency band and for correcting peak radiated measurements. The correction must be calculated upon the worst-case scenario duty cycle possible.

6.3. Test Results

(Refer to graphs in Appendix C.1)

Measured normal operation duty cycle
Number of transmissions per 100ms= 4
Transmission 'ON' time = 0.98ms
Total time 'ON' over 100ms = 4 * 0.98ms = 3.92ms
Duty cycle (On time/total time) = 3.92ms /100ms
Duty cycle correction factor (dB) = 20Log (Duty cycle) = 20Log (0.1376) = -28.13dB

The actual worst case possible is a full data payload, with three consecutive ACK and NACK as shown below.

Full Frame/Data Payload and 3x NACK responses (For 802.15.4 devices)

On time for one frame is 32μs/byte*133bytes = 4.26ms
4 frames are transmitted for a total on time of 17ms and a duty cycle of 17% from 100ms.
Duty Cycle Correction (dB) = 20 Log (17.04ms/100ms)
Duty Cycle Correction (dB) = -15.4 dB

Thus a reduction of the Peak emission by 15.4dB to get the true average value. This is valid for equating a peak measurement to an average limit.

Comments: The calculated Duty cycle correction factor = 15.4dB as declared by the customer.

Assessment: All Peak measurements of the transmission fundamental and associated harmonics can be reduced by 15.4dB.

7. Maximum Peak Conducted Output Power

7.1. Test Procedure

The transmitter output was connected to a spectrum analyzer through a suitable attenuator. The Maximum Peak Conducted Output Power of the fundamental transmit frequency was measured using a spectrum analyzer with 3MHz RBW and 3MHz VBW using the peak detector and a suitable span to allow accurate measurement whilst capturing the full intentional transmission including side lobes. An offset for the measurement path insertion loss (attenuators and cables) was used to get a true measurement.

The EUT was tested on the top, middle and bottom channels in the worst-case data rates under normal conditions. The Peak Conducted Output Power over extreme conditions was calculated from results when the EUT was under extreme conditions, measured using a spectrum analyzer with 1MHz RBW and 3MHz VBW using the peak detector and a suitable span to allow accurate measurement whilst capturing the full intentional transmission including side lobes.

(Refer to photographs 1 & 2 in Appendix C for views of the test configuration)

7.2. Limits

Applicable only to systems using digital modulation techniques:

Transmit operating frequency (MHz)	Peak Power (dBm)
902 - 928	30
2400 – 2483.5	30
5725 - 5850	30

Table 3: Limits – Maximum Peak Conducted Output Power

7.3. Test Results

The Maximum Peak Conducted Output Power measurements are tabulated below:

(Refer to plots Appendix C.2)

Bottom Channel (2405MHz – Channel 11)

Transmit operating frequency (MHz)	Voltage	Peak Power (dBm)	Limit (dBm)	Margin (dBm)	Result
20°C	3.0	8.01	30.00	-21.99	Complied
	3.6	8.01	30.00	-21.99	Complied
	2.1	8.07	30.00	-21.93	Complied
55°C	3.0	7.15	30.00	-22.85	Complied
	3.6	7.08	30.00	-22.92	Complied
	2.1	7.08	30.00	-22.92	Complied
-20°C	3.0	9.11	30.00	-20.89	Complied
	3.6	9.07	30.00	-20.93	Complied
	2.1	**9.13**	30.00	**-20.87***	**Complied**

Table 4: Results for Maximum Peak Conducted Output Power, * Highest Conducted Peak power

Middle Channel (2440MHz – Channel 18)

Transmit operating frequency (MHz)	Voltage	Peak Power (dBm)	Limit (dBm)	Margin (dBm)	Result
55°C	3.0	7.89	30.00	-22.11	Complied
	3.6	7.91	30.00	**-22.09***	**Complied**
	2.1	7.90	30.00	-22.10	Complied
20°C	3.0	6.99	30.00	-23.01	Complied
	3.6	6.96	30.00	-23.04	Complied
	2.1	7.04	30.00	-22.96	Complied
-20°C	3.0	6.85	30.00	-23.15	Complied
	3.6	6.83	30.00	-23.17	Complied
	2.1	6.86	30.00	-23.14	Complied

Table 5: Results for Maximum Peak Conducted Output Power, * Highest Conducted Peak power

Top Channel (2480MHz – Channel 26)

Transmit operating frequency (MHz)	Voltage	Peak Power (dBm)	Limit (dBm)	Margin (dBm)	Result
55°C	3.0	7.67	30.00	-22.33	Complied
	3.6	7.64	30.00	-22.36	Complied
	2.1	7.70	30.00	-22.30	Complied
20°C	3.0	7.38	30.00	-22.62	Complied
	3.6	7.19	30.00	-22.81	Complied
	2.1	7.28	30.00	-22.72	Complied
-20°C	3.0	8.76	30.00	-21.24	Complied
	3.6	8.77	30.00	-21.23	Complied
	2.1	**8.83**	30.00	**-21.17***	**Complied**

Table 6: Results for Maximum Peak Conducted Output Power, * Highest Conducted Peak power

The measurement uncertainty was calculated at ±1.4dB. The reported uncertainty is an expanded uncertainty calculated using a coverage factor of approximately *k=2* which gives a level of confidence of approximately 95%.

Climatic Conditions	
Temperature:	20 to 24°C
Humidity:	33 to 54%

Table 7: Climatic conditions

Comments: All Maximum Peak Conducted Power measurements were below the specified limits (duty cycle correction factor was not applied).

Assessment: The EUT complied with the Maximum Peak Conducted Output Power requirements of CFR47 FCC Part 15, Subpart C, 15.247 section (b3).

8. Radiated Spurious and Harmonic Emissions

8.1. Test Procedure

Radiated Emissions were measured 3 metres (from 1.705MHz to 4GHz) away from the EUT in the iOATS (indoor Open Area Test Site) facility, which is an ANSI C63.4 compliant semi-anechoic chamber with ground plane.

The EUT was placed on a non-conductive support at a height of 0.8m above the ground plane. For both horizontal and vertical antenna polarizations (were applicable) the peak and average detectors were set to MAX-HOLD and the range selected continuously scanned. The antenna height was set at 1 metre and the turntable slowly rotated, in order to find the worst-case emission arrangement. When an emission was within 6dB of the limit further measurements were performed on each orientation of the EUT and with a varying antenna height when applicable.

The EUT was measured in the worst-case orientation and with the worst case antenna with relation to the highest fundamental as measured during investigations. This was to determine the maximum fundamental transmitter field strength with the EUT operating on the bottom, middle and top channels when the EUT was transmitting using the supplied antennas.

(Refer to photographs 1 to 6 in Annex D for views of the EUT Orientations)

Plots of the accumulated measurement data for both horizontal and vertical antenna polarizations, including all transducer correction factors, were produced.

(Refer to photographs 3 to 5 in Annex C for views of the test configurations)

8.2. Limits

As per section 15.247 Part (b-3) and section 15.209 (Radiated emissions, general requirements) the EUT is required to meet the limits that permit the highest field strength of the two sections in the following table:

Frequency Range (MHz)	Limits at 3m (dBμV/m)
1.705 to 30	69.5
30.0 to 88.0	40.0
88.0 to 216.0	43.5
216.0 to 960.0	46.0
960.0 to 2400.0	54.0
2400.0 to 2483.5 (Transmitter band)	125.0
Above 2483.5	54.0
NOTE: The lower limit shall apply at the transition frequency.	
NOTE: Additional to the average limit any peak emissions must remain less than 20dB above the average limit	

Table 8: Limits for Radiated Spurious Emissions at distance of 3m.

8.3. Test Results

Radiated Spurious Emissions measurements are tabulated below. Peak and average measurements were made at spot frequencies where the peak or average emissions were close to, or exceeded the applicable limit line.

(Refer to graphs in Appendix C.6, C.7 and C.8)

Frequency (MHz)	Result Pk (dBµV/m)	Result AV (dBµV/m)	Limit (dBµV/m)	Antenna polarisation	Delta limit (dB) PK	Delta limit (dB) AV
All significant emissions >6dB below the specified limit						

Table 9: Radiated Spurious Emissions - Bottom Channel

Frequency (MHz)	Result Pk (dBµV/m)	Result AV (dBµV/m)	Limit (dBµV/m)	Antenna polarisation	Delta limit (dB) PK	Delta limit (dB) AV
All significant emissions >6dB below the specified limit						

Table 10: Radiated Spurious Emissions - Middle Channel

Frequency (MHz)	Result Pk (dBµV/m)	Result AV (dBµV/m)	Limit (dBµV/m)	Antenna polarisation	Delta limit (dB) PK	Delta limit (dB) AV
All significant emissions >6dB below the specified limit						

Table 11: Radiated Spurious Emissions - Top Channel

The measurement uncertainty was calculated at ±4.7dB for measurements below 1GHz and ±5.3dB for measurements above 1GHz. The reported uncertainty is an expanded uncertainty calculated using a coverage factor of $k=2$ which gives a level of confidence of approximately 95%.

Climatic Conditions	
Temperature:	20 to 24°C
Humidity:	33 to 54%

Table 12: Climatic conditions

Comments: All Spurious Emissions measurements were below the permissible Spurious and general intentional radiator limits for the Average/Quasi peak detector and the peak detector emissions were below the peak limit.

The worst case configuration was determined to be with the EUT operating with the PCB vertically orientated with the PCB antenna (integrated antenna of 2.1 dBi gain). This configuration was used for all radiated emissions testing.

Assessment: The EUT complied with the Radiated Spurious and Harmonic Emissions requirements of CFR47 FCC Part 15, Subpart C, 15.247.

9. Radiated Emissions/Radiated Spurious (Receiver mode)

9.1. Test Procedure

Radiated Emissions were measured 3 metres (from 1.705MHz to 4GHz) away from the EUT in the iOATS (indoor Open Area Test Site) facility, which is an ANSI C63.4 compliant semi-anechoic chamber with ground plane.

The EUT was placed on a non-conductive support at a height of 0.8m above the ground plane. For both horizontal and vertical antenna polarizations (were applicable) the peak and average detectors were set to MAX-HOLD and the range selected continuously scanned. The antenna height was set at 1 metre and the turntable slowly rotated, in order to find the worst-case emission arrangement. When an emission was within 6dB of the limit further measurements were performed on each orientation of the EUT and with a varying antenna height when applicable.

Plots of the accumulated measurement data for both horizontal and vertical antenna polarizations, including all transducer correction factors, were produced.

(Refer to photographs 3 to 5 in Annex C for views of the test configurations)

9.2. Limits

The EUT shall meet the limits in the following table:

Frequency Range (MHz)	**Limits (dBµV/m)**
	Quasi-Peak
1.705 to 30	69.5
30 to 88	40.0
88 to 216	43.5
216 to 960	46.0
960 to 1000	53.9
Frequency Range (MHz)	**Limits (dBµV/m)**
	Average
Above 1000	53.9
NOTE The lower limit shall apply at the transition frequency.	

Table 13: Limits for Radiated Emissions at distance of 3m – Class B.

9.3. Test Results

Radiated Emissions measurements are tabulated below.

(Refer to graphs Appendix C.9)

Frequency (MHz)	Result Quasi-peak (dBμV/m)	Limit Quasi-peak (dBμV/m)	Delta limit (dB)
No emissions above the noise floor and within 10dB of the limit were observed			

Table 14: Radiated Emissions – Horizontal and Vertical Antenna Polarisations

The measurement uncertainty was calculated at ±4.7dB for measurements below 1GHz and ±5.3dB for measurements above 1GHz. The reported uncertainty is an expanded uncertainty calculated using a coverage factor of *k*=2 which gives a level of confidence of approximately 95%.

Climatic Conditions	
Temperature:	20 to 24°C
Humidity:	33 to 54%

Table 15: Climatic conditions

Comments: All Spurious Emissions measurements were below the permissible Spurious and general intentional radiator limits for the Average/Quasi peak detector and the peak detector emissions were below the peak limit.

The worst case configuration was determined to be with the EUT operating with the PCB vertically orientated with the PCB antenna (integrated antenna of 2.1 dBi gain). This configuration was used for all radiated emissions testing.

Assessment: The EUT complied with the Radiated Emissions requirements of CFR47 FCC Part 15, Subpart C, 15.247 and CFR47 FCC Part 15, Subpart B (Class B).

10. Spectrum Bandwidth (6dB Bandwidth)

10.1. Test Procedure

The transmitter output was connected to a spectrum analyzer through a suitable attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100kHz RBW and 300kHz VBW using the peak detector and a suitable span to allow accurate measurements whilst capturing the full intentional transmission including side lobes. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

The EUT was tested on the top, middle and bottom channels in the worst-case practical data rates.

(Refer to photographs 1 & 2 in Annex C for views of the test configuration)

10.2. Limits

Applicable only to systems using digital modulation techniques:

Transmit operating frequency (MHz)	Minimum 6dB Bandwidth (kHz)
902 - 928	500
2400 – 2483.5	500
5725 - 5850	500

Table 16: Spectrum bandwidth limits (6dB Bandwidth)

10.3. Test Results

Spectrum Bandwidth (6dB Bandwidth) measurements are tabulated below:

(Refer to graphs in Appendix C.4 & C.5)

Transmit operating frequency (MHz)	Measured 6dB Bandwidth (kHz)	Minimum 6dB Bandwidth (kHz)	Comment
2405.00 (Channel 11)	1610	500	Complied
2440.00 (Channel 18)	1620	500	Complied
2480.00 (Channel 26)	1580	500	Complied

Table 17: Results for spectrum bandwidth (6dB Bandwidth)

Comments: The minimum required 500kHz Spectrum Bandwidth (-6dB Bandwidth) requirements were satisfied.

Assessment: The EUT complied with the Spectrum Bandwidth (6dB Bandwidth) requirements of CFR47 FCC Part 15, Subpart C, 15.247 part (a2).

11. Band edge Measurement (100kHz, -20dB from fc & Restricted bands)

11.1. Test Procedure

Band edge measurement (100kHz, -20dB fc)
The EUT was placed inside an environmental chamber. The transmitter output was connected to a spectrum analyzer through a suitable attenuator. The –20dB down points from the peak power measured in a 100kHz bandwidth of the fundamental frequency were measured by spectrum analyzer with 100kHz RBW and 300kHz VBW using the peak detector and a suitable span to allow accurate measurements to whilst capturing the full intentional transmission including side lobes.

Band edge measurement (Restricted bands)
Radiated Emissions were measured 3 metres away from the EUT in the iOATS (indoor Open Area Test Site) facility, which is an ANSI C63.4 compliant semi-anechoic chamber with ground plane.

The EUT was placed on a non-conductive support at a height of 0.8m above the ground plane. For both horizontal and vertical antenna polarizations, the peak detector was set to MAX-HOLD and the range selected continuously scanned. The antenna height was set at 1 metre and the turntable slowly rotated, in order to find the worst-case emission arrangement. The EUT was tested in the known worst case orientation (X – with the EUT PCB vertically upright).

Plots of the accumulated measurement data for both horizontal and vertical antenna polarizations, including all transducer correction factors and applied EUT duty cycle correction factor of 15.4dB, were produced.

Additionally the EUT was placed inside an environmental chamber. The transmitter output was connected to a spectrum analyzer through a suitable attenuator. The Peak fundamental frequency in the restricted band was measured by spectrum analyzer with 1MHz RBW and 3MHz VBW using the peak detector. Correction factors for the attenuator, cable, EUT highest antenna gain and the EUT duty cycle correction factor were applied to provide a relative radiated emissions level whilst performed using a conductive method.

The fundamental operating frequency at the Fc-20dB points and the restricted band measurements were measured under normal and extreme operating conditions, detailed in the following table:

Temperature (°C)	Voltage Specification	Voltage (Volts)
55°C (Max)	1.15x	2.1*
	Nominal	3.0
	0.85x	3.6*
20°C (Room temperature)	1.15x	2.1*
	Nominal	3.0
	0.85x	3.6*
-20°C (Min)	1.15x	2.1*
	Nominal	3.0
	0.85x	3.6*

*EUT operating voltages were stated by the customer and exceeded the requirements of the standard

Table 18: Operating frequency requirements

(Refer to photographs 1, 2 and 5 in Annex C for views of the test configuration)

11.2. Limits

As per FCC section 15.247 Part (d) the EUT shall meet the requirements that in any given 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

Attenuation below the general limits specified in FCC Part 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in FCC Part 15.205(a), must also comply with the radiated emission limits specified in FCC Part 5.209(a) (see FCC Part 15.205(c)).

Transmit Frequency (MHz)	RBW/VBW	Limit
2310 to 2390	1MHz/3MHz	54dBμV/m at 3m
		74dBμV/m at antenna port**
2390 to 2400	100kHz/300kHz	-20dB fc*
2400 to 2483.5	See: Maximum Peak Conducted Output Power	
2483.5 to 2500	100kHz/300kHz	-20dB fc*
2483.5 to 2500	1MHz/3MHz	54dBμV/m at 3m
		74dBμV/m at antenna port**

*If a duty cycle averaging correction is used to determine peak power limit is –30dB fc

**Used to measure the EUT band edge conductively under extreme conditions

Table 19: Band Edge requirements

Radiated results for the restricted bands are included in the graphs in the appendix where the relevant spectrum mask limit has been applied to a 3m radiated measurement.

11.3. Test Results

The Emission bandwidth measurements are detailed as follows:

(Refer to graphs in Appendix C.4 and C.5)

Graphs 27 & 28 and 40 & 48
Radiated measurements at a 3m measuring distance with a limit of 54dBμV/m. Using a 1MHz RBW and 3MHz VBW and a PEAK detector. Worst case EUT duty cycle correction factor was applied (for averaging purposes)

Graphs 29 to 37 and 40 to 48
Conducted measurements measured at the antenna port connector with a limit of 74dBμV/m. Using a 1MHz RBW and 3MHz VBW and a PEAK detector. Worst case EUT duty cycle correction factor (for averaging purposes) and maximum EUT antenna gain correction factor were applied.

Additional conducted measurements are required to measure band edge whilst the EUT is under extreme conditions.

Radiated measurements - Bottom Channel (2405MHz – Channel 11)

RX Antenna Polarisation	-20dB point (MHz)	Limit (MHz)	Margin (MHz)	Restricted band level dBµV/m*	Limit dBµV/m @0m	Margin (dB)	Result
Horizontal	2400.00	>2400.00	0.00	39.59	54.00	-14.41	Complied
Vertical	2400.00	>2400.00	0.00	44.08	54.00	-9.92	Complied

Table 20: Band edge measurements – Bottom Channel (2405MHz)

Radiated measurements - Top Channel (2480MHz – Channel 26)

RX Antenna Polarisation	-20dB point (MHz)	Limit (MHz)	Margin (MHz)	Restricted band level dBµV/m*	Limit dBµV/m @0m	Margin (dB)	Result
Horizontal	2483.50	<2483.50	0.00	45.14	54.00	-8.86	Complied
Vertical	2483.50	<2483.50	0.00	51.34	54.00	-2.66	Complied

Table 21: Band edge measurements – Top Channel (2440MHz) * Worst case

Conducted measurements - Bottom Channel (2405MHz – Channel 11)

Temp (°C)	Voltage	-20dB point (MHz)	Limit (MHz)	Margin (MHz)	Restricted band level dBµV/m	Limit dBµV/m @0m	Margin (dB)	Result
55°C	2.1	2403.04	>2400.00	-3.04	65.83	74.00	-8.17	Complied
	3.0	2403.00	>2400.00	-3.00	66.12	74.00	-7.88	Complied
	3.6	2403.04	>2400.00	-3.04	65.61	74.00	-8.39	Complied
20°C	2.1	2403.00	>2400.00	-3.00	66.24	74.00	-7.76	Complied
	3.0	2403.00	>2400.00	-3.00	65.75	74.00	-8.25	Complied
	3.6	2403.00	>2400.00	-3.00	65.46	74.00	-8.54	Complied
-20°C	2.1	2403.00	>2400.00	**-3.00***	66.27	74.00	**-7.73***	**Complied**
	3.0	2403.00	>2400.00	-3.00	65.71	74.00	-8.29	Complied
	3.6	2403.00	>2400.00	-3.00	65.16	74.00	-8.84	Complied

Table 22: Band edge measurements – Bottom Channel (2405MHz)

Conducted measurements - Top Channel (2480MHz – Channel 26)

Temp (°C)	Voltage	-20dB point (MHz)	Limit (MHz)	Margin (MHz)	Restricted band level dBµV/m	Limit dBµV/m @0m	Margin (dB)	Result
55°C	2.1	2481.50	<2483.50	-2.00	73.15	74.00	-0.85	Complied
	3.0	2481.50	<2483.50	-2.00	73.16	74.00	-0.84	Complied
	3.6	2481.50	<2483.50	-2.00	73.12	74.00	-0.88	Complied
20°C	2.1	2481.50	<2483.50	-2.00	73.53	74.00	-0.47	Complied
	3.0	2481.50	<2483.50	-2.00	73.43	74.00	-0.57	Complied
	3.6	2481.70	<2483.50	**-1.80***	73.62	74.00	**-0.38***	**Complied**
-20°C	2.1	2481.50	<2483.50	-2.00	73.11	74.00	-0.89	Complied
	3.0	2481.50	<2483.50	-2.00	73.45	74.00	-0.55	Complied
	3.6	2481.50	<2483.50	-2.00	73.18	74.00	-0.82	Complied

Table 23: Band edge measurements – Top Channel (2440MHz) * Worst case

The frequency measurement uncertainty for Band edge Measurement (100kHz, -20dB) was calculated at ±5.7kHz. The reported uncertainty is an expanded uncertainty calculated using a coverage factor of *k=2* which gives a level of confidence of approximately 95%.

The measurement uncertainty for Band edge Measurement (Restricted Bands) was calculated at ±1.4dB. The reported uncertainty is an expanded uncertainty calculated using a coverage factor of approximately *k=2* which gives a level of confidence of approximately 95%.

Comments: Duty cycle correction factor to the Peak Conducted Output Power was not applied for any (100kHz, -20dB) measurements.

For all band edge measurements in the restricted bands the duty cycle correction factor was applied to a peak measurement.

For band edge measurements in the restricted bands on the top channel (channel 26, 2.48GHz) the EUT was operating at power level 7 (not the maximum power level).

Assessment: The EUT complied with the Band Edge requirements of CFR47 FCC Part 15, Subpart C, 15.247 (d).

12. Power Spectral Density

12.1. Test Procedure

The EUT was placed inside an environmental chamber. The transmitter output was connected to a spectrum analyzer through a suitable attenuator. The Power Spectral density was measured in a 3kHz bandwidth of the fundamental frequency by spectrum analyzer with 3kHz RBW and 30kHz VBW using the peak detector and a suitable span to allow accurate measurements whilst capturing the full intentional transmission including side lobes.

(Refer to photographs 1 & 2 in Annex C for views of the test configuration)

12.2. Limits

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

Applicable only to systems using digital modulation techniques:

Transmit operating frequency (MHz)	Limit
902 - 928	8dBm/3kHz
2400 – 2483.5	8dBm/3kHz
5725 - 5850	8dBm/3kHz

Table 24: Power Spectral Density limits

12.3. Test Results

Power Spectral Density measurements are tabulated below:
(Refer to graphs in Appendix C.10)

Transmit operating frequency (MHz)	Measured Power (dBm)	Limit (dBm/3kHz)	Margin (dB)	Comment
2405.00 (Channel 11)	-9.22	8.00	-17.22	Complied
2440.00 (Channel 18)	-9.50	8.00	-17.50	Complied
2480.00 (Channel 26)	-9.49	8.00	-17.49	Complied

Table 25: Results for Power Spectral Density

The measurement uncertainty was calculated at ±1.4dB. The reported uncertainty is an expanded uncertainty calculated using a coverage factor of approximately *k=2* which gives a level of confidence of approximately 95%.

Climatic Conditions	
Temperature:	20 to 24°C
Humidity:	33 to 54%

Table 26: Climatic conditions

Comments: All Power Spectral Density measurements were below the specified limits (duty cycle correction factor was not applied – 100% duty cycle).

Assessment: The EUT complied with the Power Spectral Density requirements of CFR47 FCC Part 15, Subpart C, 15.247 (e).

13. Conducted Emissions

13.1. Test Procedure

The EUT was positioned on a 0.4 metre high table with the mains cable connected to the power port of a LISN, located 0.8 metres away. The measuring port of the LISN was connected to the measuring receiver.

In order to avoid unwanted ambient signals, power to the LISN was supplied via power line filters fitted to the shielded enclosure wall.

The mains flexible cord, provided by the manufacturer, is required to be 0.8 metres long for these measurements. If the manufacturer supplies a non-removable power lead, in excess of 0.8 metres, the cable in excess of 0.8 metres is folded into a figure eight bundle, approximately 0.4 metres in length.

Both the active and neutral lines were measured, in turn & in transmit and receive modes.

(Refer to photographs 6 & 7 in Annex C for views of the test configuration)

13.2. Limits

The EUT shall meet the limits in the following table:

Frequency Range (MHz)	Limits (dBµV)	
	Quasi-Peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.5 to 5	56	46
5 to 30	60	50
NOTE 1 The lower limit shall apply at the transition frequencies. NOTE 2 The limit decreases linearly with the logarithm of the frequency in the range 0,15 MHz to 0,50 MHz.		

Table 27: Limits for Conducted Emissions at the mains ports of Class B equipment.

13.3. Test Results

Conducted Emissions measurements are tabulated below. Quasi-peak measurements were performed at spot frequencies where the peak emission was close to, or exceeded the applicable limit line.

(Refer to graphs in Appendix C.11)

Quasi - Peak Measurements				Average Measurements			
Frequency (MHz)	Result (dBµV)	Limit (dBµV)	Delta Limit (dB)	Frequency (MHz)	Result (dBµV)	Limit (dBµV)	Delta Limit (dB)
0.155	34.6	65.8	-31.2	0.155	16.6	55.8	-39.2
0.164	33.0	65.3	-32.3	0.164	15.0	55.3	-40.3
0.191	35.1	64.0	**-28.9***	0.348	13.8	49.0	-35.2
0.222	32.1	62.7	-30.6	0.380	9.4	48.3	-38.9
0.254	29.3	61.6	-32.3	0.411	10.3	47.6	-37.3
0.285	26.5	60.7	-34.2	0.443	15.2	47.0	**-31.8***
0.447	24.3	56.9	-32.6				

** Worst-case emissions*

Table 28: Conducted Emissions – Tx mode - Middle Channel - Active Line

Quasi - Peak Measurements				Average Measurements			
Frequency (MHz)	Result (dBµV)	Limit (dBµV)	Delta Limit (dB)	Frequency (MHz)	Result (dBµV)	Limit (dBµV)	Delta Limit (dB)
0.159	38.4	65.5	**-27.1***	0.159	17.0	55.5	-38.5
0.191	34.9	64.0	-29.1	0.191	16.8	54.0	-37.2
0.222	31.9	62.7	-30.8	0.222	16.4	52.7	-36.3
0.254	29.0	61.6	-32.6	0.254	15.7	51.6	-35.9
0.416	20.7	57.5	-36.8	0.411	14.4	47.6	-33.2
0.447	25.9	56.9	-31.0	0.447	17.0	46.9	**-29.9***

**Worst-case emissions*

Table 29: Conducted Emissions – Tx mode - Middle Channel - Neutral Line

Quasi - Peak Measurements				Average Measurements			
Frequency (MHz)	Result (dBµV)	Limit (dBµV)	Delta Limit (dB)	Frequency (MHz)	Result (dBµV)	Limit (dBµV)	Delta Limit (dB)
0.159	38.2	65.5	**-27.3***	0.159	15.7	55.5	-39.8
0.191	34.2	64.0	-29.8	0.191	15.2	54.0	-38.8
0.254	28.2	61.6	-33.4	0.285	13.8	50.7	-36.9
0.285	25.6	60.7	-35.1	0.348	10.3	49.0	-38.7
0.348	21.2	59.0	-37.8	0.416	8.4	47.5	-39.1
0.443	24.3	57.0	-32.7	0.443	12.9	47.0	**-34.1***

** Worst-case emissions*

Table 30: Conducted Emissions – Rx mode - Middle Channel - Active Line

Quasi - Peak Measurements				Average Measurements			
Frequency (MHz)	**Result (dBµV)**	**Limit (dBµV)**	**Delta Limit (dB)**	**Frequency (MHz)**	**Result (dBµV)**	**Limit (dBµV)**	**Delta Limit (dB)**
0.159	36.8	65.5	**-28.7***	0.191	14.7	54.0	-39.3
0.191	33.3	64.0	-30.7	0.222	14.7	52.7	-38.0
0.222	30.4	62.7	-32.3	0.254	13.9	51.6	-37.7
0.254	27.6	61.6	-34.0	0.411	12.6	47.6	-35.0
0.285	24.8	60.7	-35.9	0.447	14.7	46.9	**-32.2***
0.447	24.9	56.9	-32.0	0.479	13.5	46.4	-32.9
				0.510	7.8	46.0	-38.2

**Worst-case emissions*

Table 31: Conducted Emissions – Rx mode - Middle Channel - Neutral Line

The measurement uncertainty was calculated at ±3.1dB. The reported uncertainty is an expanded uncertainty calculated using a coverage factor of *k=2* which gives a level of confidence of approximately 95%.

Climatic Conditions	
Temperature:	20 to 24°C
Humidity:	33 to 54%

Table 32: Climatic conditions

Comments: Conducted Emissions measurements were below the Class B limit.

The customer specified that only the nominal 115VAC at 60Hz was to be tested.

Assessment: The EUT complied with the Conducted Emissions requirements of CFR47 FCC Part 15, Subpart C, 15.247.

14. Conclusion

The Daintree Networks Pty Ltd, DT357, ZigBee RF module complied with the applicable requirements of CFR47 FCC Part 15, Subpart C, 15.247 & CFR47 FCC Part 15, Subpart B (Class B).

Appendix A – Test Equipment

Inv	Equipment	Make	Model No.	Serial No.	Calibration	
					Due	Type
818	EMI Receiver	Rohde & Schwarz	ESIB 40	100295	Jul 12	E
954	EMI Receiver	Rohde & Schwarz	ESCI	100196	Apr 12	E
A231	Loop Antenna	EMCO	6502	9311-2801	Oct 12	E*
935	Biconilog Antenna	Sunol Sciences	JB5	A07116	Nov 12	E
209	Horn antenna	EMCO	3115	9712-5369	Jul 12	I
666	indoor OATS	RFI Industries	S800 iOATS	1229	Feb 12	I
932	Mast & Turntable Controller	Sunol Sciences	SC104V-3	081006-1	N/A	V
934	Antenna Mast	Sunol Sciences	TLT2	-	N/A	V
933	Turntable	Sunol Sciences	SM46C	081006-2	N/A	V
793	CABLE, Coax, Multiflex MF141	Huber+Suhner	84025724/1806	C351	Mar 12	I
812	CABLE, Coax, Multiflex MF141	Huber+Suhner	84025730/1806	C354	Mar 12	I
795	CABLE, Coax, Multiflex MF141	Huber & Suhner	84025732/1806	C322	Mar 12	I
734	PRE-AMP, Broadband, LoNoise, 30dB	Amplifier Research	LN1000A	311602	Jan 12	I
559	PRE-AMP, uWave, 0.2-18GHz	Miteq	AFS8	605305	May 12	I
950	Environmental Chamber	TPS	TJR	0702000083	Jan 12	I
714	6dB Attenuator	JFW	50HF-020N	None stated	Oct 12	I
119	Power Supply	Topward	TPS-2000	856975	N/A	V
47	LISN, Single Phase	EMCO	3850/2	9010-1005	Aug 11	E
44	LIMITER, Transient, 9k-200M	Hewlett Packard	11947A	2820A00132	Jan 12	I

V: Verification of operation against an internal reference
I: Internal calibration against a NATA traceable standard
E: External calibration by a NATA endorsed facility
N/A: Not Applicable
**Property of EMC Technologies (Internally calibrated equipment)*

Appendix B – Photographs

Annex	Number	Photograph Description
A	1	EUT – Internal view – RF shield removed
B	1	EUT – PCB view 1 – With U.FL antenna connector
B	2	EUT – PCB view 2 – With Integral antenna
B	3	EUT – PCB view 3 – Rear of PCB with connecting flying leads attached
B	4	EUT – PCB view 4 – Rear of PCB with connecting flying leads removed
B	5	EUT – PCB view 5 – With Integral antenna - LHS
B	6	EUT – PCB view 6 – With Integral antenna - RHS
B	7	External antenna
B	8	
C	1	Environmental /bench measurement set-up
C	2	
C	3	Radiated measurements – Setup below 30MHz
C	4	Radiated measurements – Setup 25MHz to GHz
C	5	Radiated measurements – Setup above 1GHz
C	6	Conducted emissions – Setup
C	7	AC/DC PSU – Output of AC/DC PSU to EUT (regulator circuit)
D	1	Radiated measurements – EUT X Orientation – External antenna
D	2	Radiated measurements – EUT Y Orientation – External antenna
D	3	Radiated measurements – EUT Z Orientation – External antenna
D	4	Radiated measurements – EUT X Orientation – Internal antenna
D	5	Radiated measurements – EUT Y Orientation – Internal antenna
D	6	Radiated measurements – EUT Z Orientation – Internal antenna
D	6	Radiated measurements – EUT Z Orientation – Internal antenna

Please note all photographs are in separate documents - Annexes (A to D):

EUT Internal Photographs - EMC Bayswater Test Report E1110-0077-2 Annex A
EUT External Photographs - EMC Bayswater Test Report E1110-0077-2 Annex B
Test set-up Photographs - EMC Bayswater Test Report E1110-0077-2 Annex C Rev 1
EUT Orientations Photographs - EMC Bayswater Test Report E1110-0077-2 Annex D

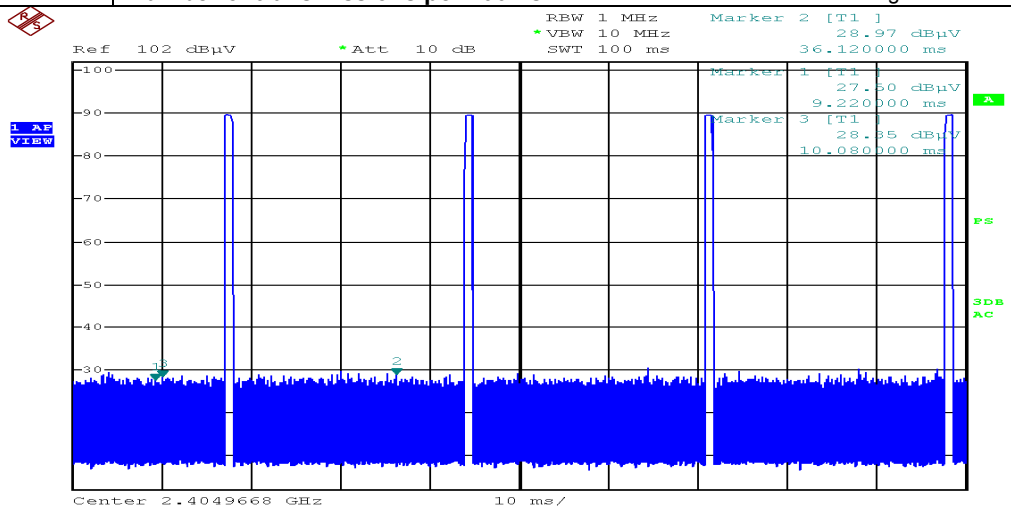
Appendix C.1 – Measurement Graphs – Duty Cycle Correction Factor

No.	Test	Graph Description
1	Duty cycle correction factor	Number of Tx's per 100ms
2		Duration of Tx

EMC Bayswater Pty. Ltd.

Duty cycle correction
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Number of transmissions per 100ms

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF



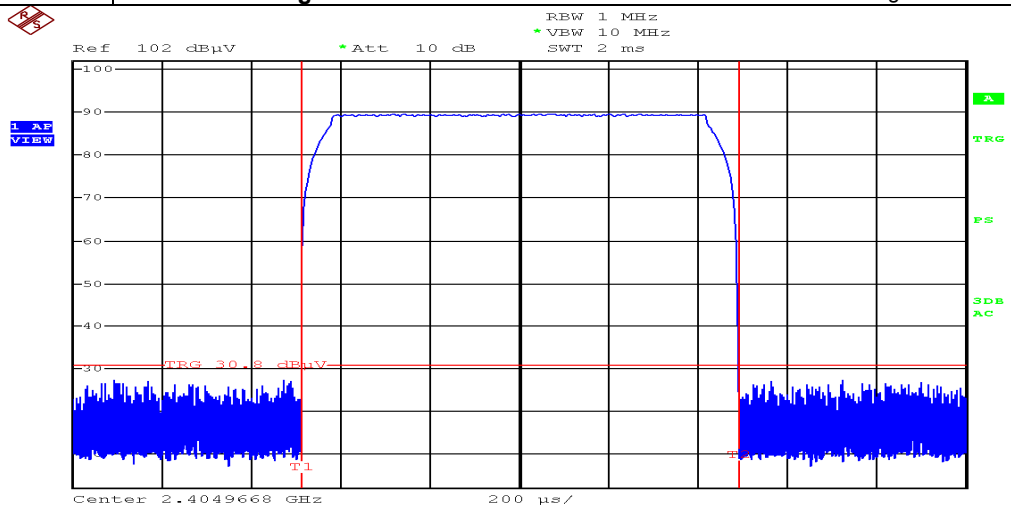
Date: 18.AUG.2011 17:28:59

Graph 1

EMC Bayswater Pty. Ltd.

Duty cycle correction
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Duration of single transmission - 980ms

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF



Date: 18.AUG.2011 17:48:42

Graph 2

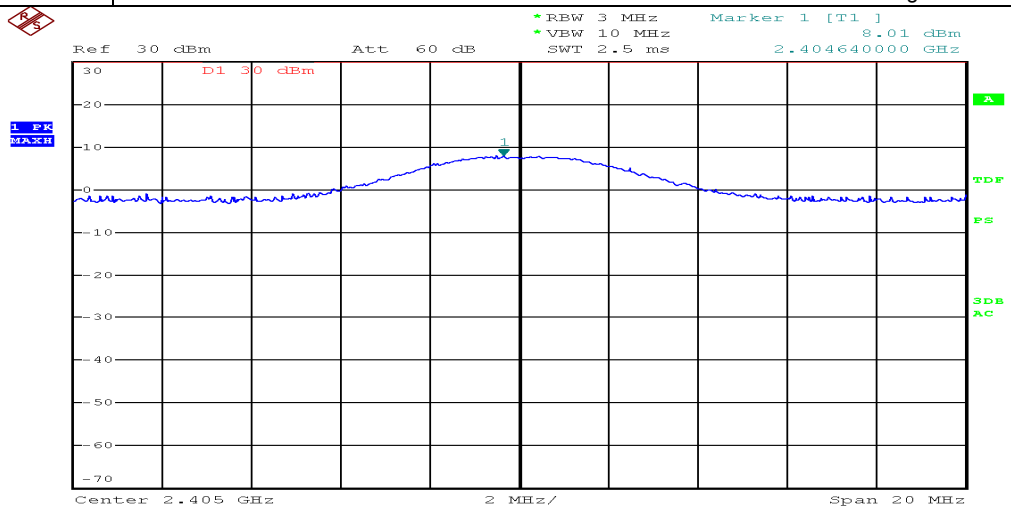
Appendix C.2 – Measurement Graphs – Maximum Peak Conducted Output Power

No.	Test	Graph Description
3	Maximum Peak Conducted Output Power	Bottom Channel
4		Middle Channel
5		Top Channel

EMC Bayswater Pty. Ltd.

Maximum Peak Conducted Output Power
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Bottom Channel

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

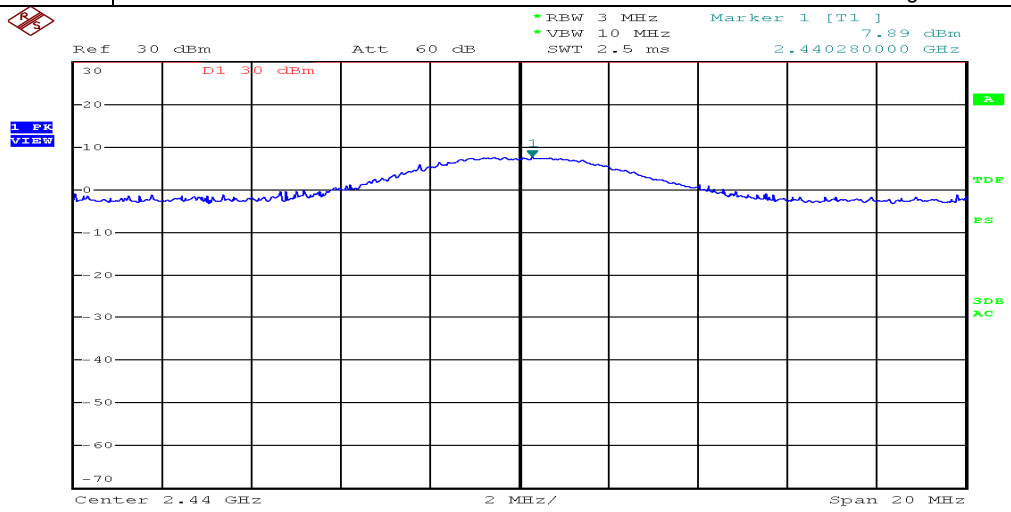


Graph 3

EMC Bayswater Pty. Ltd.

Maximum Peak Conducted Output Power
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Middle Channel

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

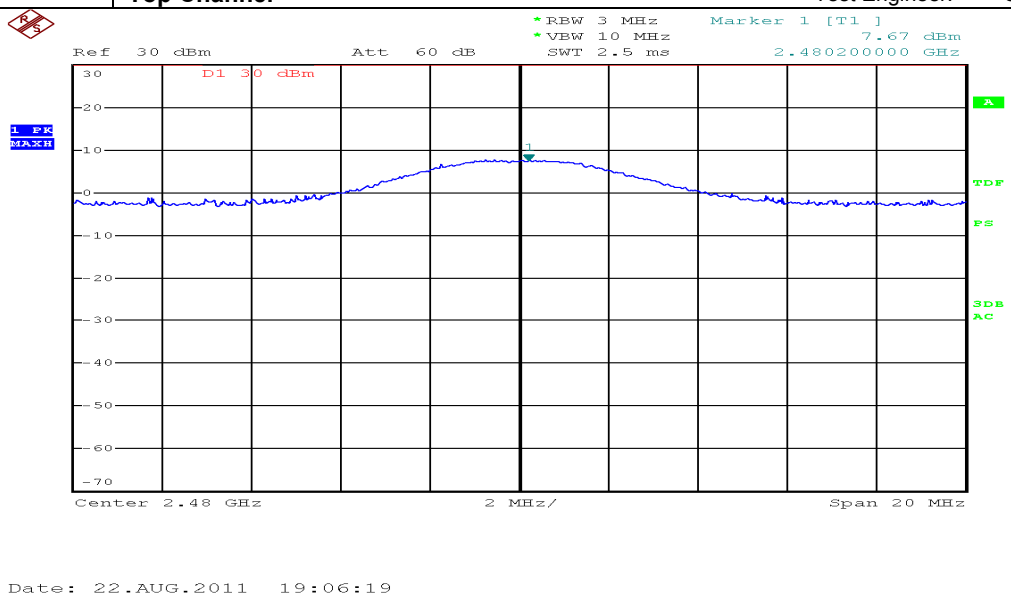


Graph 4

EMC Bayswater Pty. Ltd.

Maximum Peak Conducted Output Power
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Top Channel

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF



Graph 5

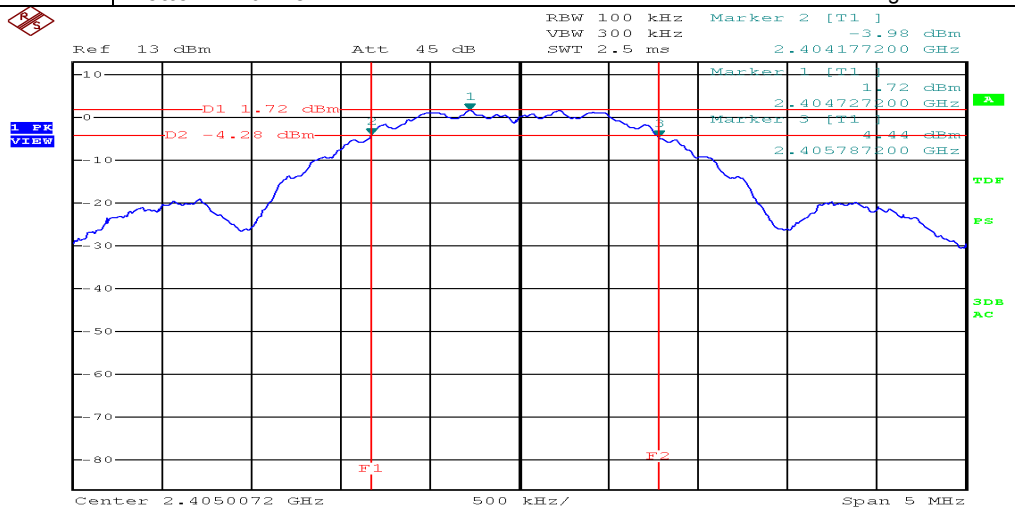
Appendix C.3 – Measurement Graphs – Spectrum Bandwidth (6dB Bandwidth)

No.	Test	Graph Description
6	Spectrum Bandwidth (6dB Bandwidth)	Bottom Channel
7		Middle Channel
8		Top Channel

EMC Bayswater Pty. Ltd.

Spectrum Bandwidth (6dB Bandwidth)
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Bottom Channel

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

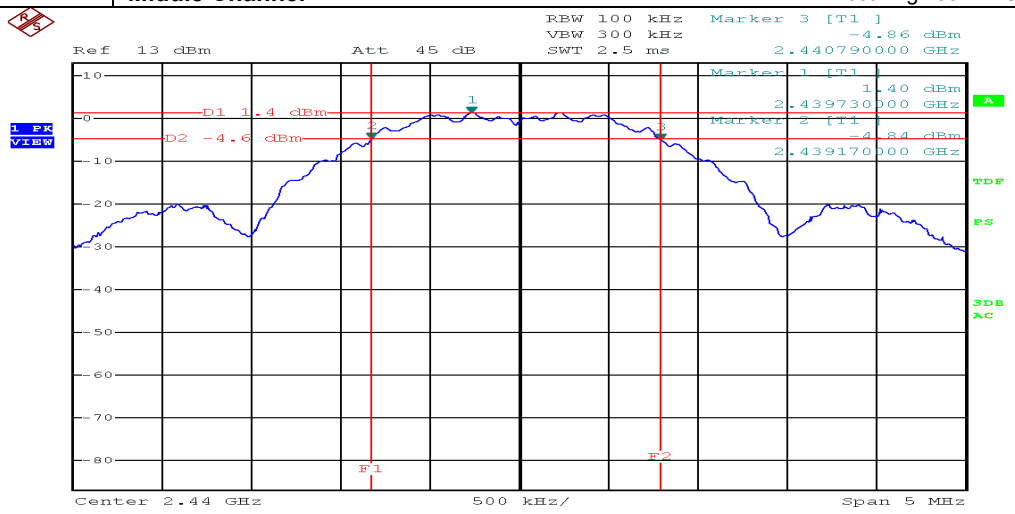


Graph 6

EMC Bayswater Pty. Ltd.

Spectrum Bandwidth (6dB Bandwidth)
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Middle Channel

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

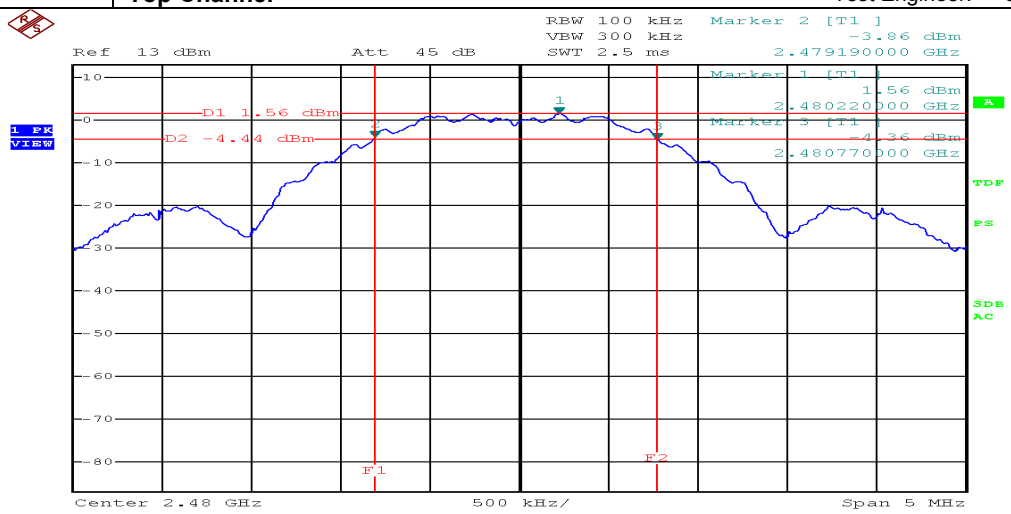


Graph 7

EMC Bayswater Pty. Ltd.

Spectrum Bandwidth (6dB Bandwidth)
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Top Channel

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF



Graph 8

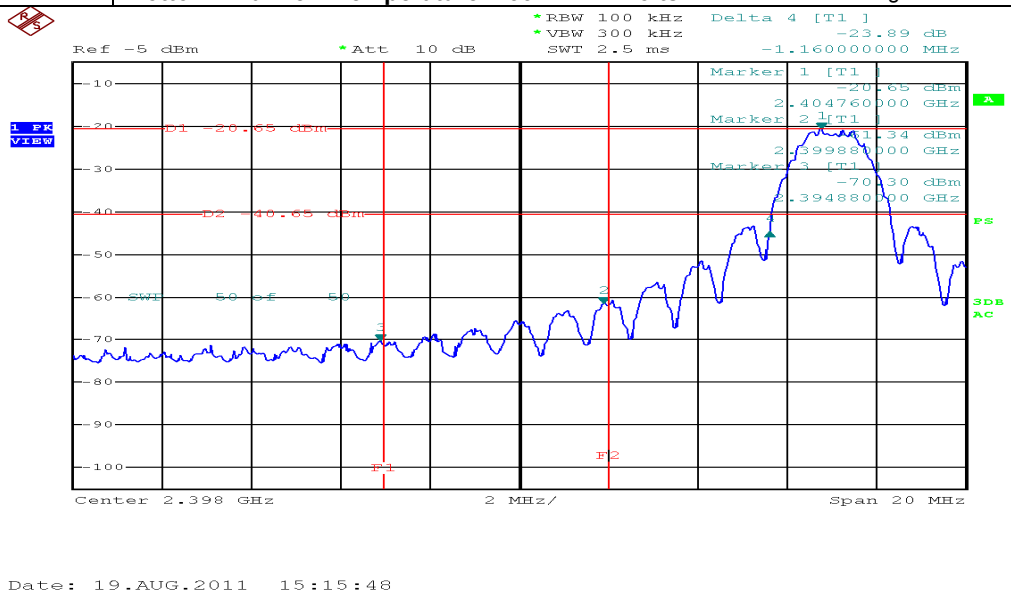
Appendix C.4 – Measurement Graphs – Band Edge (100kHz, -20dB from fc)

No.	Test	Graph Description
9	Band edge Measurement (100kHz, -20dB from fc) Bottom Channel Temperature = 55°C	2.1 Volts
10		3.0 Volts
11		3.6 Volts
12	Band edge Measurement (100kHz, -20dB from fc) Bottom Channel Temperature = 20°C	2.1 Volts
13		3.0 Volts
14		3.6 Volts
15	Band edge Measurement (100kHz, -20dB from fc) Bottom Channel Temperature = -20°C	2.1 Volts
16		3.0 Volts
17		3.6 Volts
18	Band edge Measurement (100kHz, -20dB from fc) Top Channel Temperature = 55°C	2.1 Volts
19		3.0 Volts
20		3.6 Volts
21	Band edge Measurement (100kHz, -20dB from fc) Top Channel Temperature = 20°C	2.1 Volts
22		3.0 Volts
23		3.6 Volts
24	Band edge Measurement (100kHz, -20dB from fc) Top Channel Temperature = -20°C	2.1 Volts
25		3.0 Volts
26		3.6 Volts

EMC Bayswater Pty. Ltd.

Band edge Measurement (100kHz, -20dB from fc)
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Bottom Channel - Temperature = 55°C – 2.1Volts

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

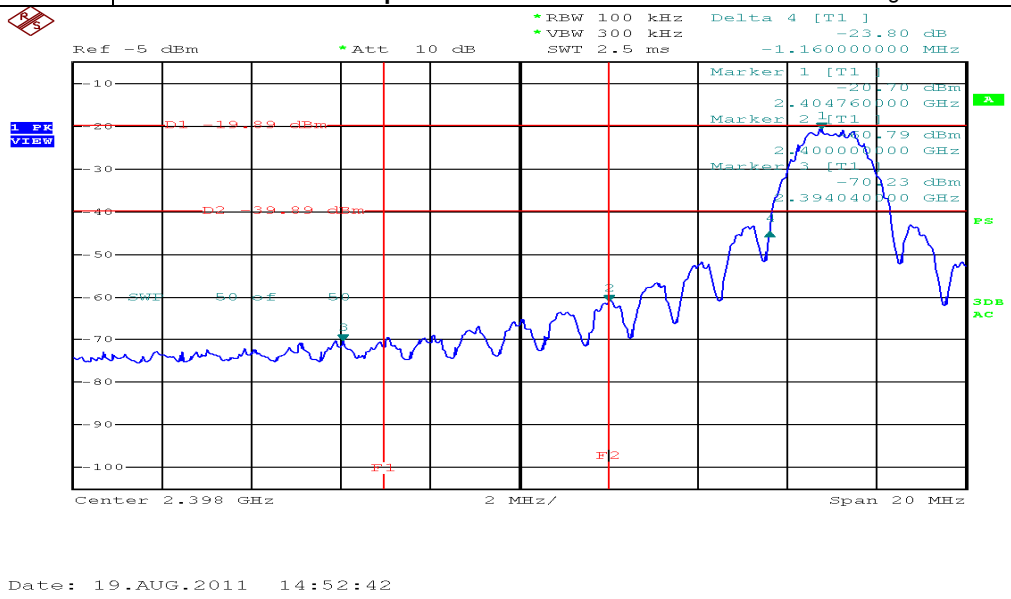


Graph 9

EMC Bayswater Pty. Ltd.

Band edge Measurement (100kHz, -20dB from fc)
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Bottom Channel - Temperature = 55°C – 3.0Volts

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

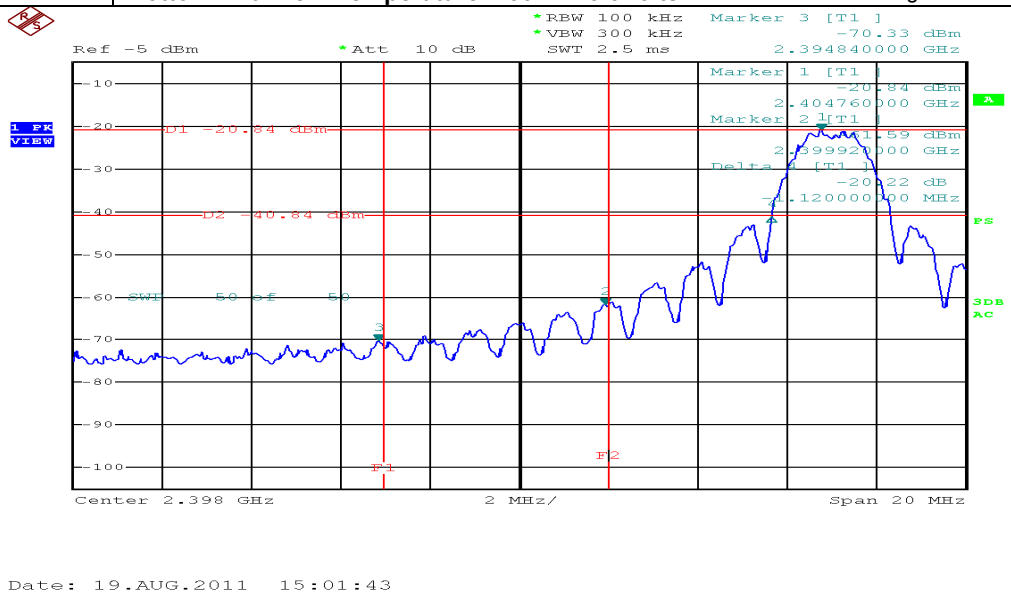


Graph 10

EMC Bayswater Pty. Ltd.

Band edge Measurement (100kHz, -20dB from fc)
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Bottom Channel - Temperature = 55°C – 3.6Volts

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

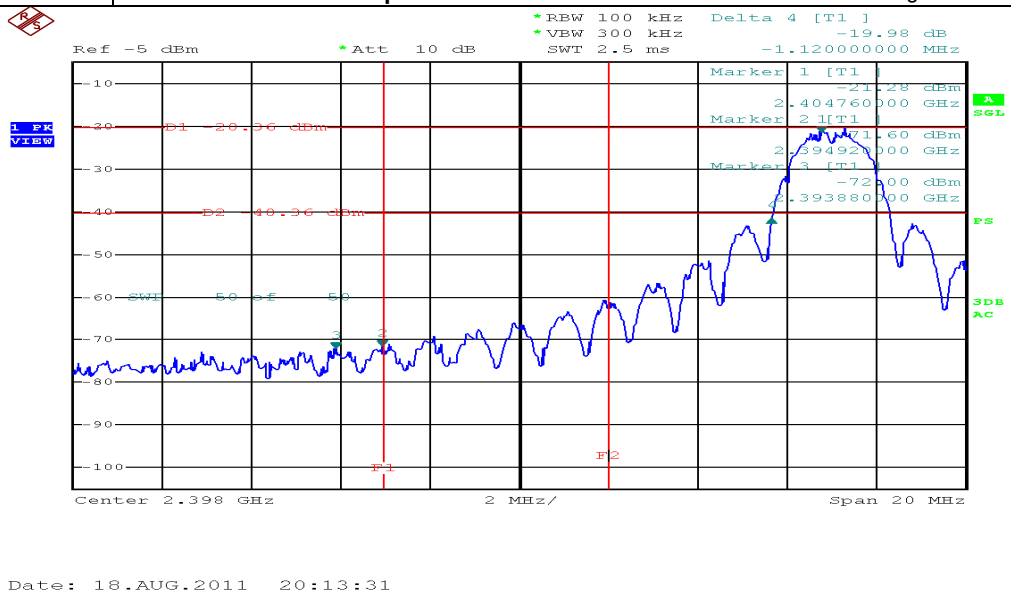


Graph 11

EMC Bayswater Pty. Ltd.

Band edge Measurement (100kHz, -20dB from fc)
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Bottom Channel - Temperature = 20°C – 2.1Volts

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

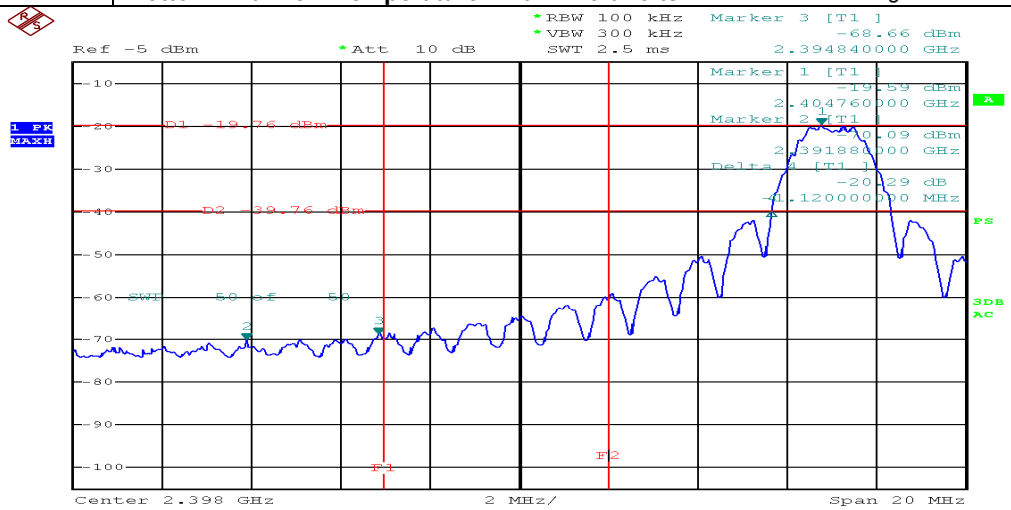


Graph 12

EMC Bayswater Pty. Ltd.

Band edge Measurement (100kHz, -20dB from fc)
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Bottom Channel - Temperature = 20°C – 3.0Volts

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

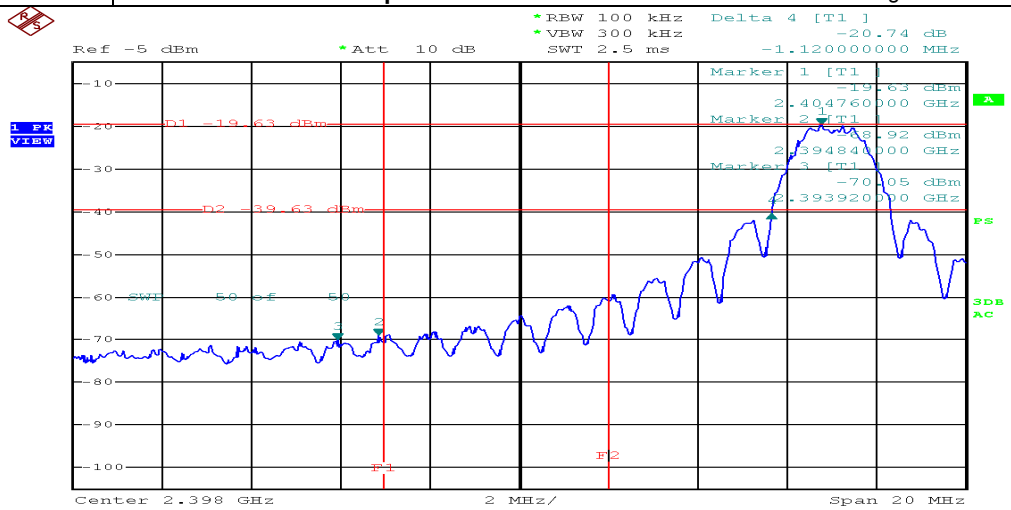


Graph 13

EMC Bayswater Pty. Ltd.

Band edge Measurement (100kHz, -20dB from fc)
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Bottom Channel - Temperature = 20°C – 3.6Volts

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

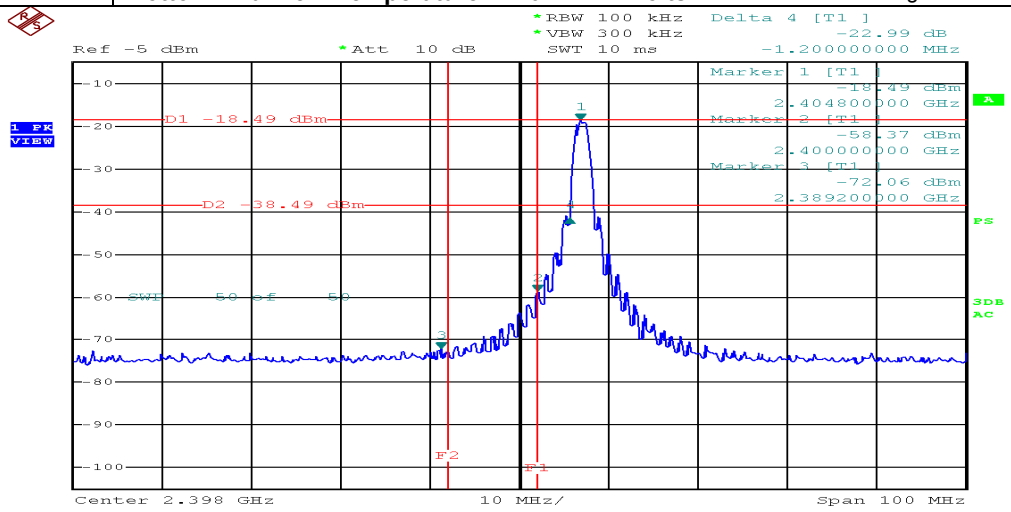


Graph 14

EMC Bayswater Pty. Ltd.

Band edge Measurement (100kHz, -20dB from fc)
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Bottom Channel - Temperature = -20°C – 2.1Volts

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF



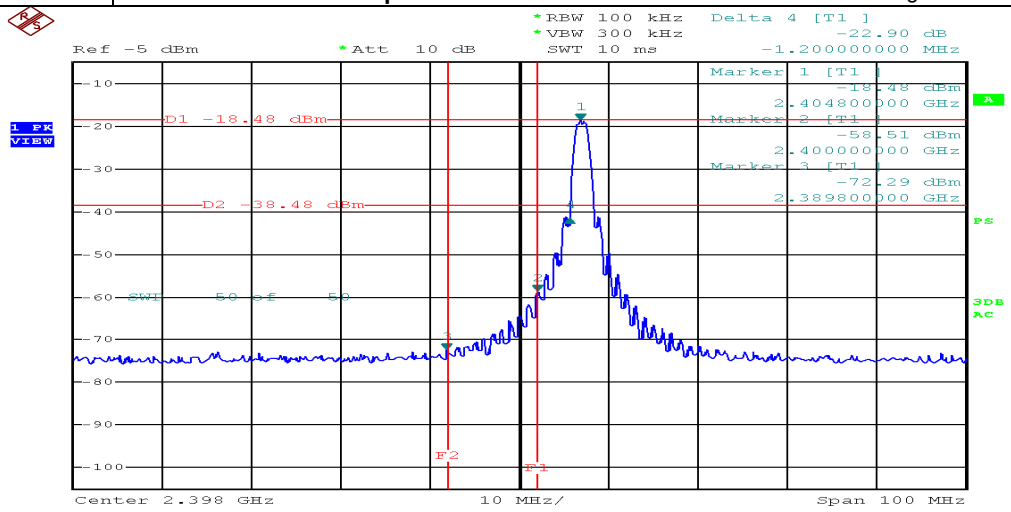
Date: 19.AUG.2011 19:04:56

Graph 15

EMC Bayswater Pty. Ltd.

Band edge Measurement (100kHz, -20dB from fc)
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Bottom Channel - Temperature = -20°C – 3.0Volts

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF



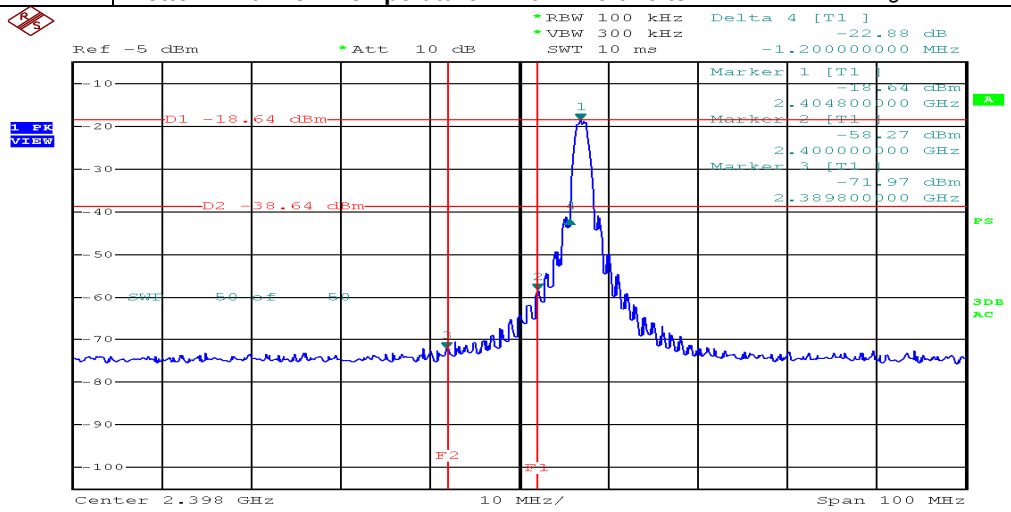
Date: 19.AUG.2011 19:09:25

Graph 16

EMC Bayswater Pty. Ltd.

Band edge Measurement (100kHz, -20dB from fc)
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Bottom Channel - Temperature = -20°C – 3.6Volts

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

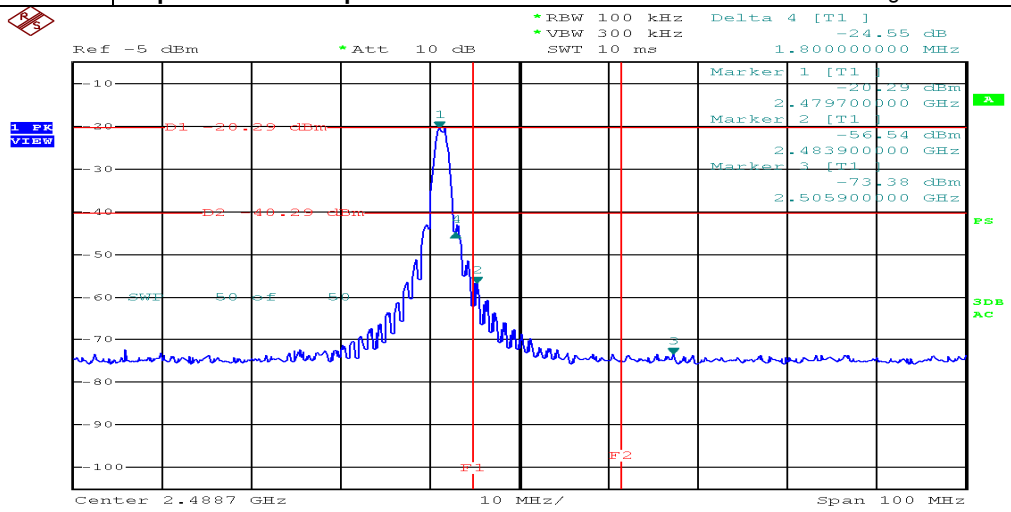


Graph 17

EMC Bayswater Pty. Ltd.

Band edge Measurement (100kHz, -20dB from fc)
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Top Channel - Temperature = 55°C – 2.1Volts

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

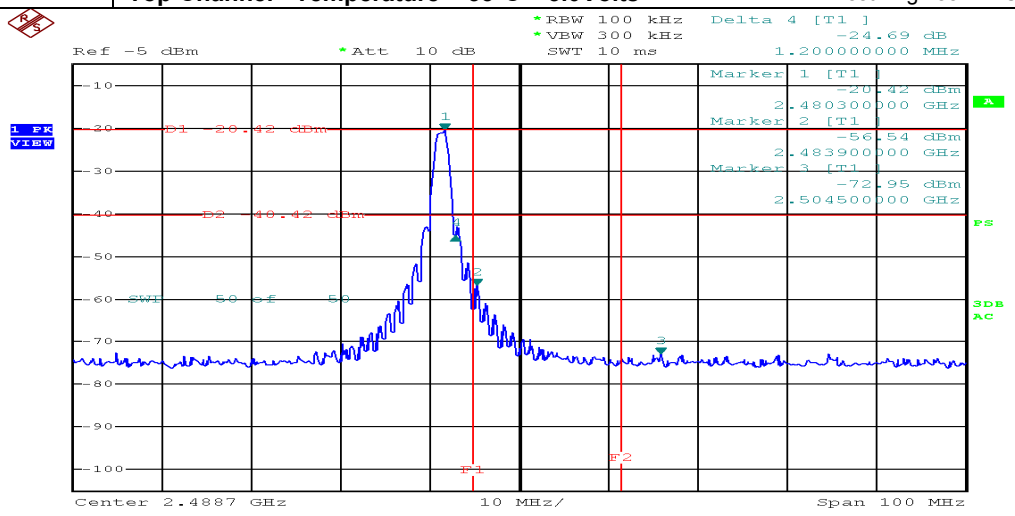


Graph 18

EMC Bayswater Pty. Ltd.

Band edge Measurement (100kHz, -20dB from fc)
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Top Channel - Temperature = 55ºC – 3.0Volts

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF



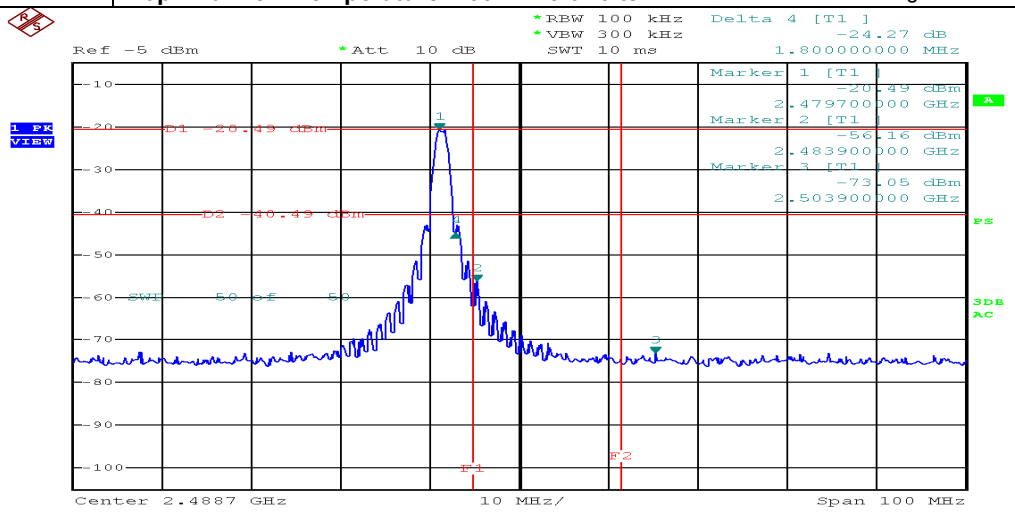
Date: 22.AUG.2011 15:03:56

Graph 19

EMC Bayswater Pty. Ltd.

Band edge Measurement (100kHz, -20dB from fc)
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Top Channel - Temperature = 55ºC – 3.6Volts

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF



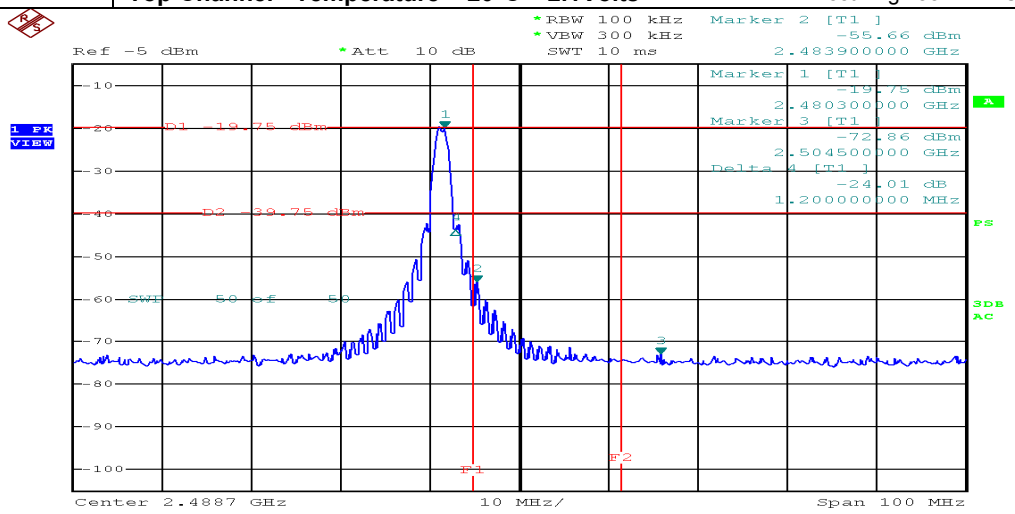
Date: 22.AUG.2011 15:16:59

Graph 20

EMC Bayswater Pty. Ltd.

Band edge Measurement (100kHz, -20dB from fc)
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Top Channel - Temperature = 20ºC – 2.1Volts

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

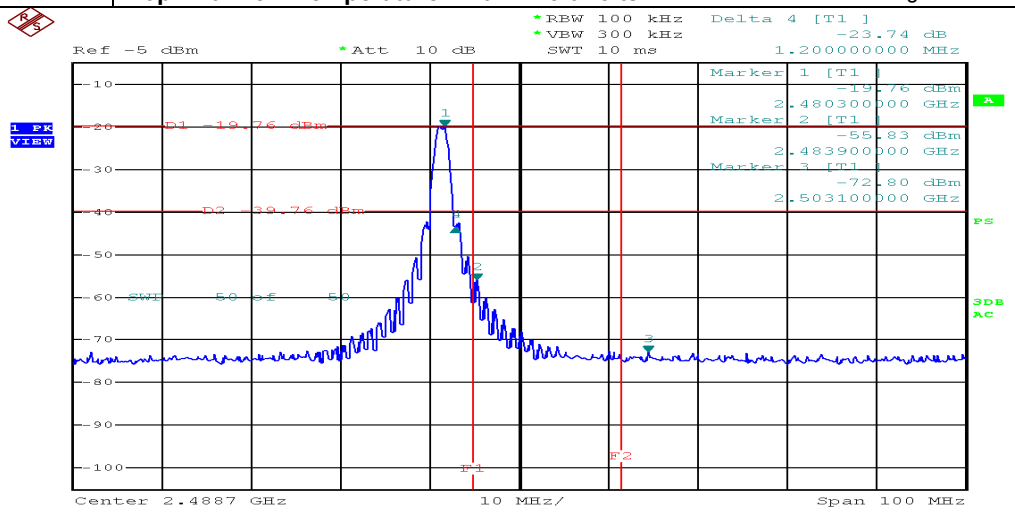


Graph 21

EMC Bayswater Pty. Ltd.

Band edge Measurement (100kHz, -20dB from fc)
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Top Channel - Temperature = 20ºC – 3.0Volts

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

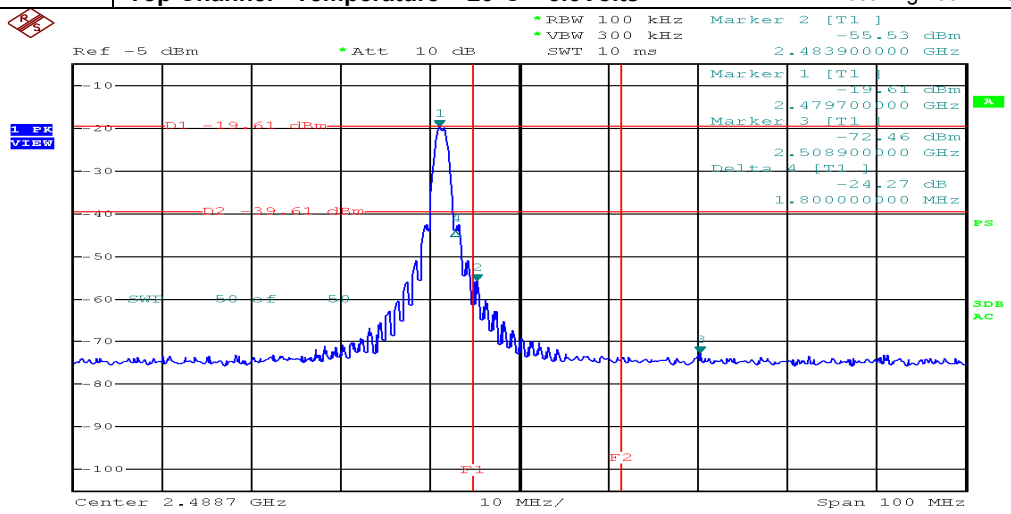


Graph 22

EMC Bayswater Pty. Ltd.

Band edge Measurement (100kHz, -20dB from fc)
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Top Channel - Temperature = 20°C – 3.6Volts

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

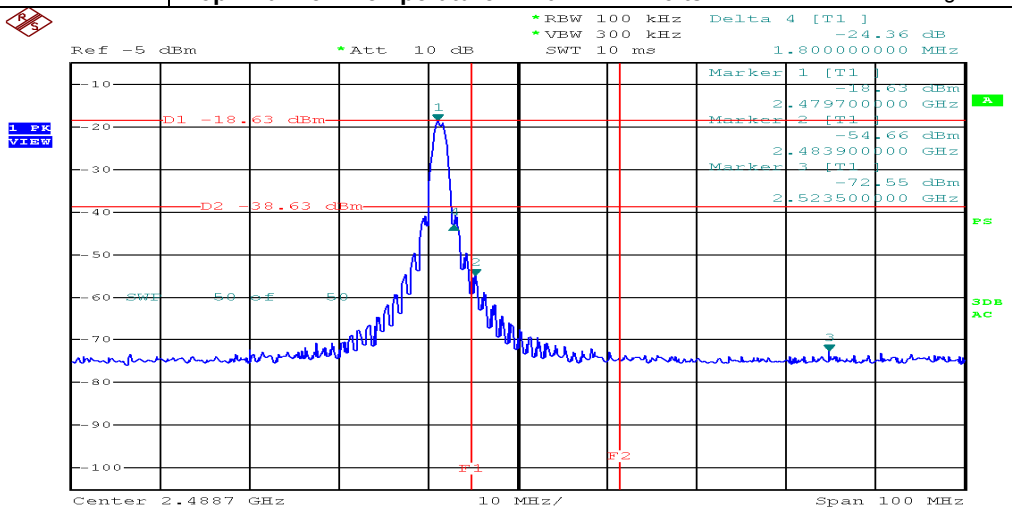


Graph 23

EMC Bayswater Pty. Ltd.

Band edge Measurement (100kHz, -20dB from fc)
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Top Channel - Temperature = -20°C – 2.1Volts

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

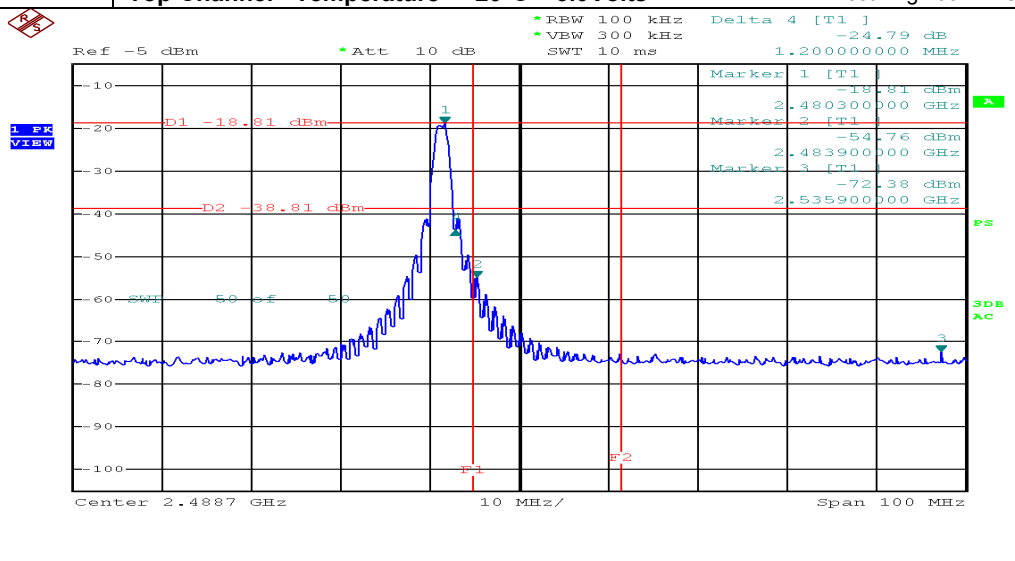


Graph 24

EMC Bayswater Pty. Ltd.

Band edge Measurement (100kHz, -20dB from fc)
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Top Channel - Temperature = -20°C – 3.0Volts

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

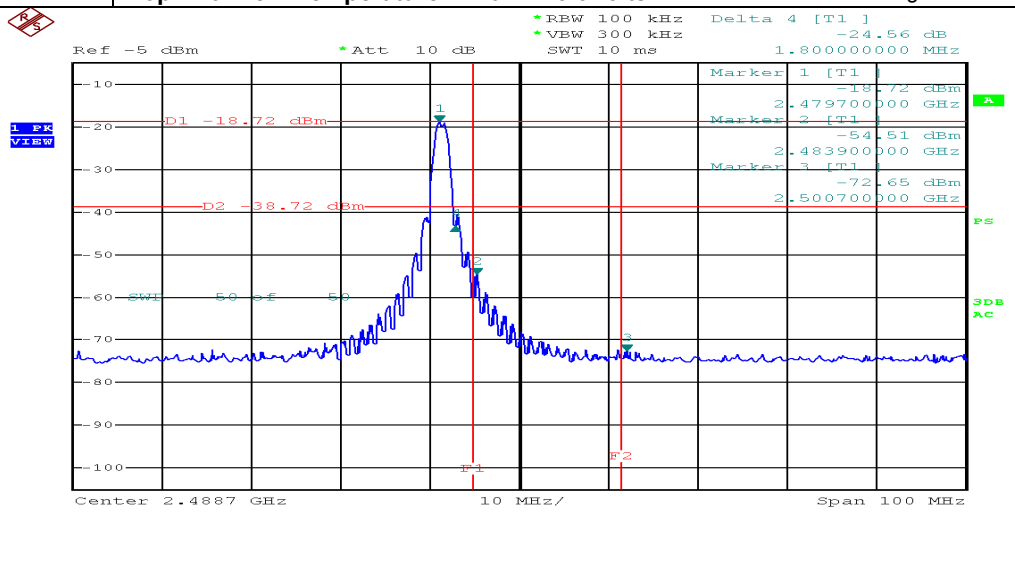


Graph 25

EMC Bayswater Pty. Ltd.

Band edge Measurement (100kHz, -20dB from fc)
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Top Channel - Temperature = -20°C – 3.6Volts

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF



Graph 26

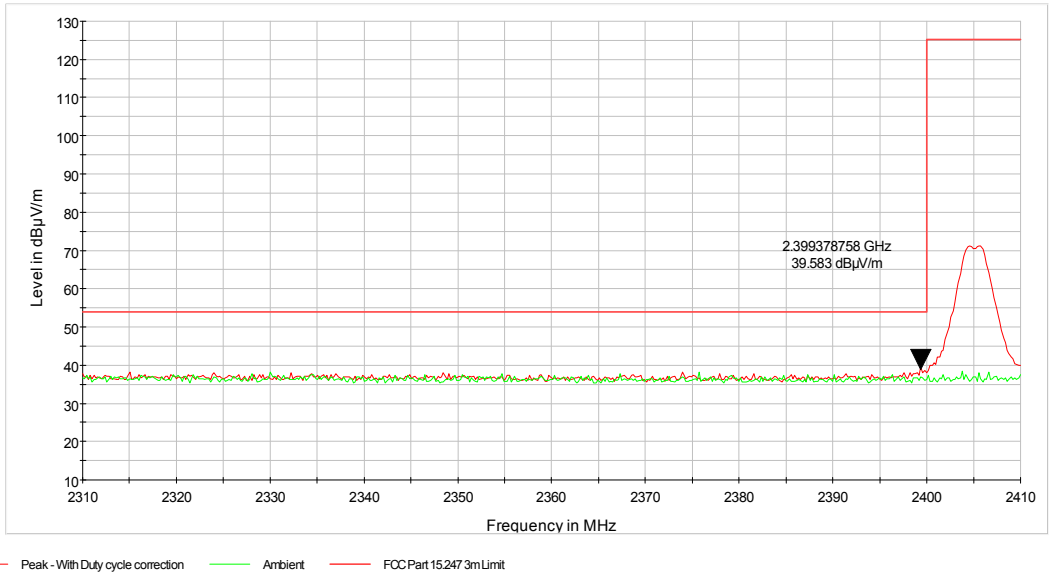
Appendix C.5 – Measurement Graphs – Band Edge (Restricted bands)

No.	Test	Graph Description
27	Radiated (Restricted Bands) Band edge Measurement Bottom Channel	Horizontal antenna polarisation
28		Vertical antenna polarisation
29	Conducted Band edge Measurement (Restricted Bands) Bottom Channel Temperature = 55°C	2.1 Volts
30		3.0 Volts
31		3.6 Volts
32	Conducted Band edge Measurement (Restricted Bands) Bottom Channel Temperature = 20°C	2.1 Volts
33		3.0 Volts
34		3.6 Volts
35	Conducted Band edge Measurement (Restricted Bands) Bottom Channel Temperature = -20°C	2.1 Volts
36		3.0 Volts
37		3.6 Volts
38	Radiated (Restricted Bands) Band edge Measurement Bottom Channel	Horizontal antenna polarisation
39		Vertical antenna polarisation
40	Conducted Band edge Measurement (Restricted Bands) Top Channel Temperature = 55°C	2.1 Volts
41		3.0 Volts
42		3.6 Volts
43	Conducted Band edge Measurement (Restricted Bands) Top Channel Temperature = 20°C	2.1 Volts
44		3.0 Volts
45		3.6 Volts
46	Conducted Band edge Measurement (Restricted Bands) Top Channel Temperature = -20°C	2.1 Volts
47		3.0 Volts
48		3.6 Volts

EMC Bayswater Pty. Ltd.

Band edge Measurement (Restricted Bands)
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Bottom Channel – Horizontal Antenna Polarisation

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

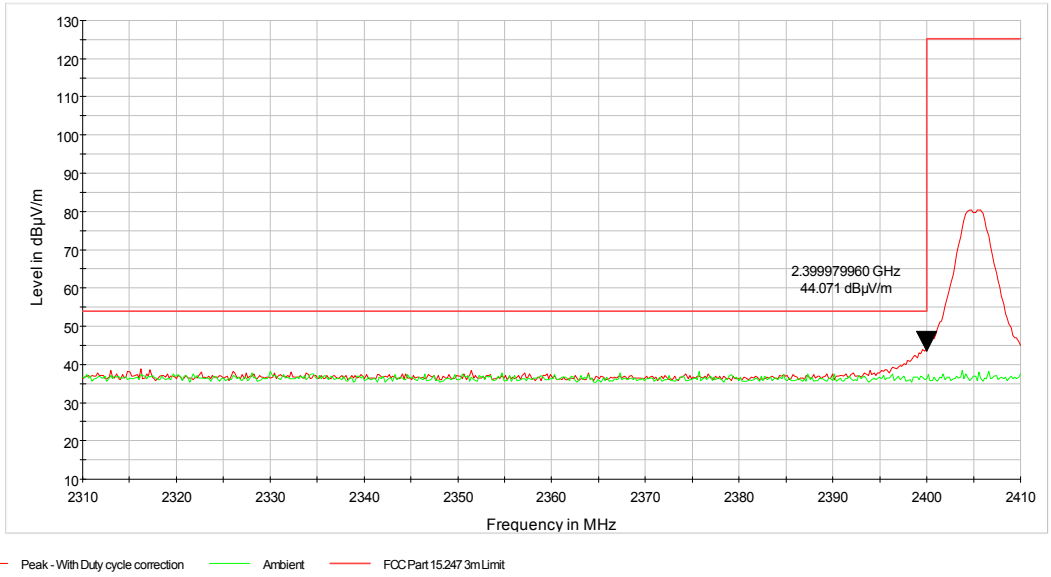


Graph 27

EMC Bayswater Pty. Ltd.

Band edge Measurement (Restricted Bands)
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Bottom Channel – Vertical Antenna Polarisation

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

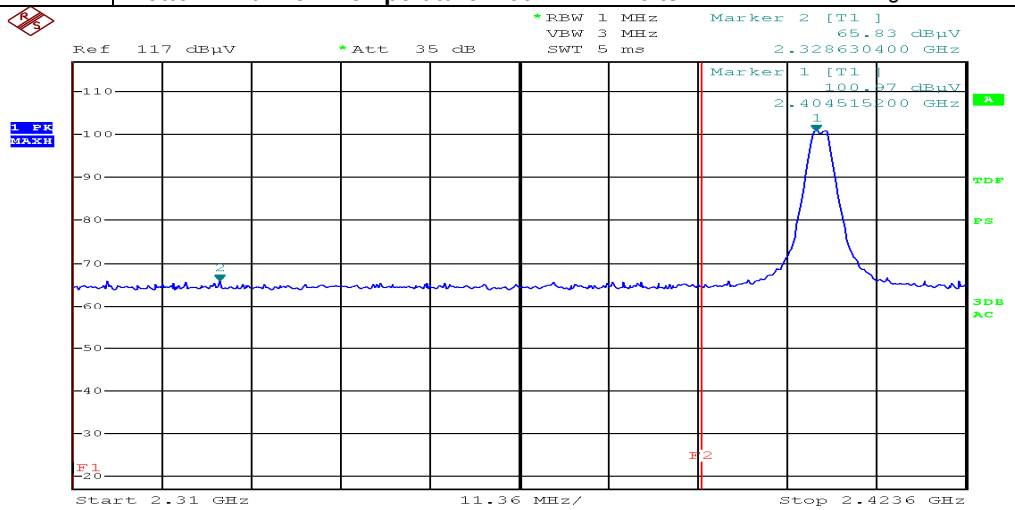


Graph 28

EMC Bayswater Pty. Ltd.

Band edge Measurement (Restricted Bands)
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Bottom Channel - Temperature = 55°C – 2.1Volts

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF



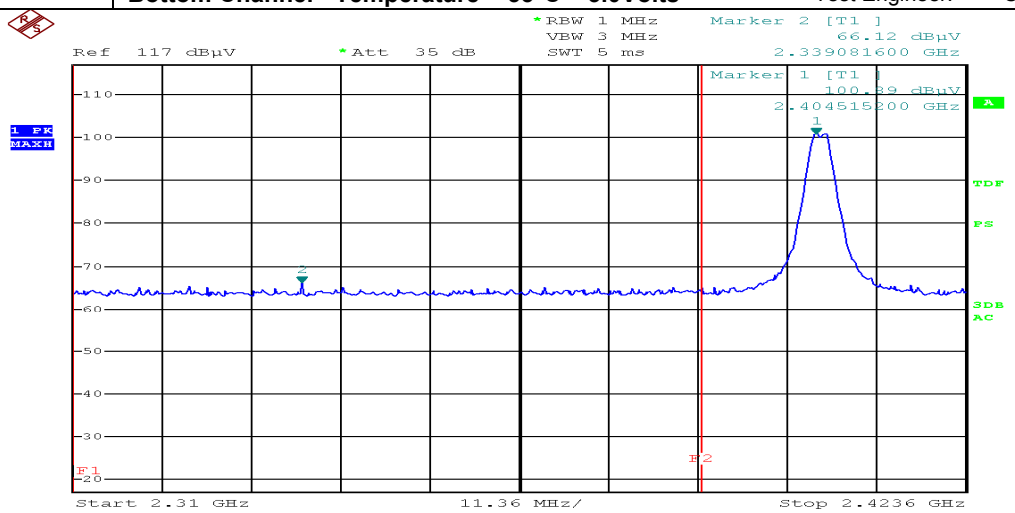
Date: 7.OCT.2011 16:22:38

Graph 29

EMC Bayswater Pty. Ltd.

Band edge Measurement (Restricted Bands)
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Bottom Channel - Temperature = 55°C – 3.0Volts

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF



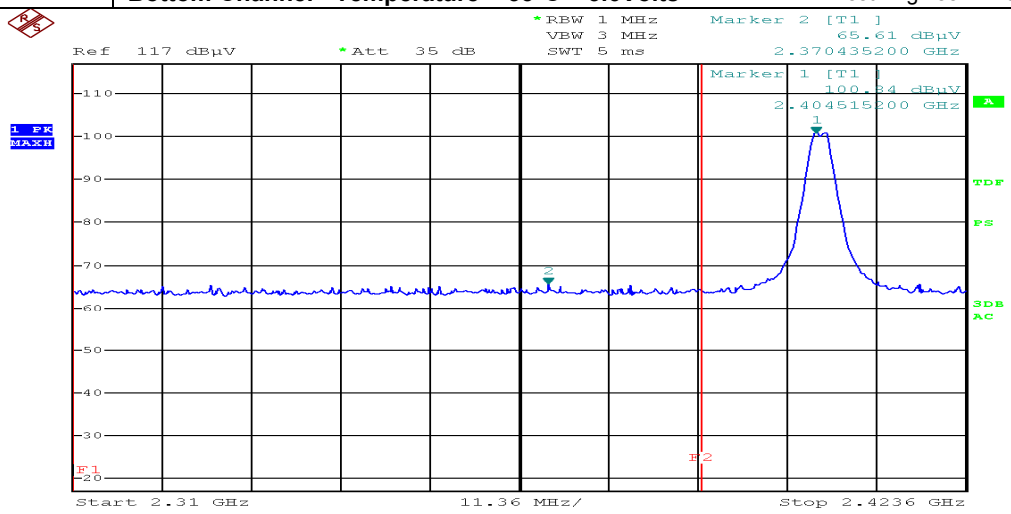
Date: 7.OCT.2011 16:23:58

Graph 30

EMC Bayswater Pty. Ltd.

Band edge Measurement (Restricted Bands)
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Bottom Channel - Temperature = 55ºC – 3.6Volts

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

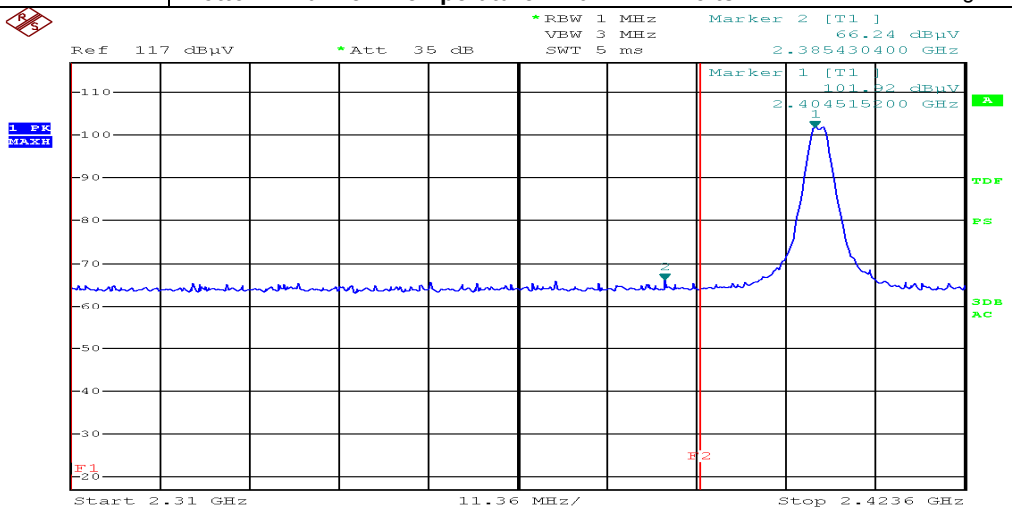


Graph 31

EMC Bayswater Pty. Ltd.

Band edge Measurement (Restricted Bands)
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Bottom Channel - Temperature = 20ºC – 2.1Volts

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

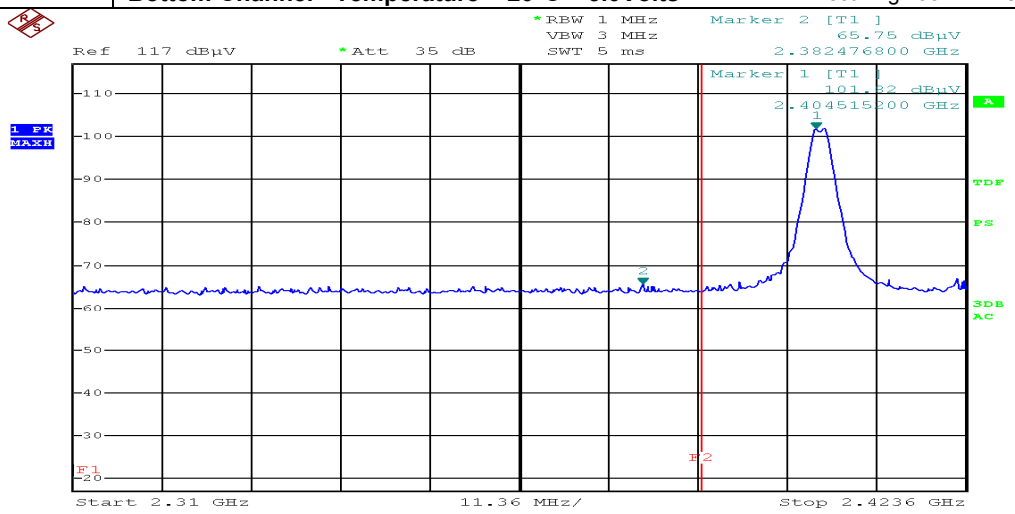


Graph 32

EMC Bayswater Pty. Ltd.

Band edge Measurement (Restricted Bands)
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Bottom Channel - Temperature = 20°C – 3.0Volts

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF



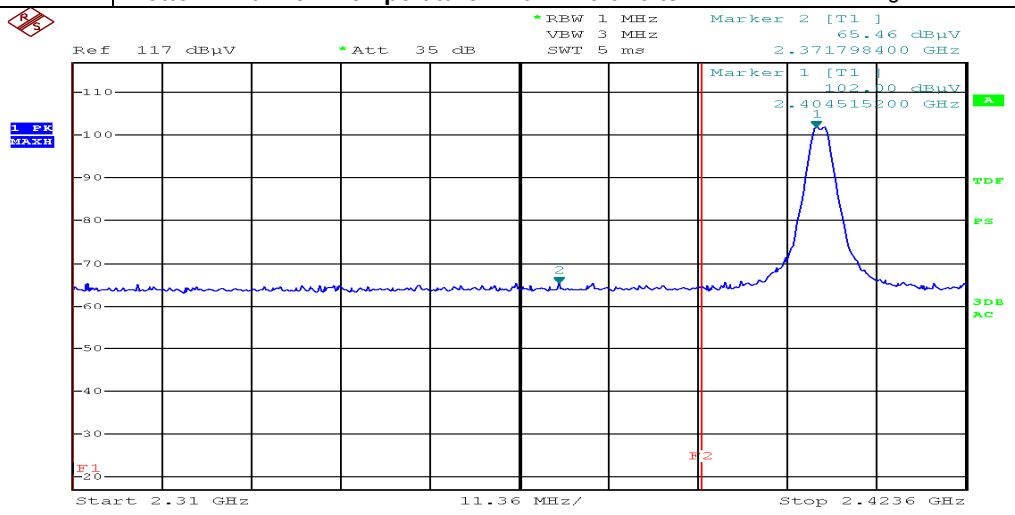
Date: 7.OCT.2011 16:32:41

Graph 33

EMC Bayswater Pty. Ltd.

Band edge Measurement (Restricted Bands)
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Bottom Channel - Temperature = 20°C – 3.6Volts

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF



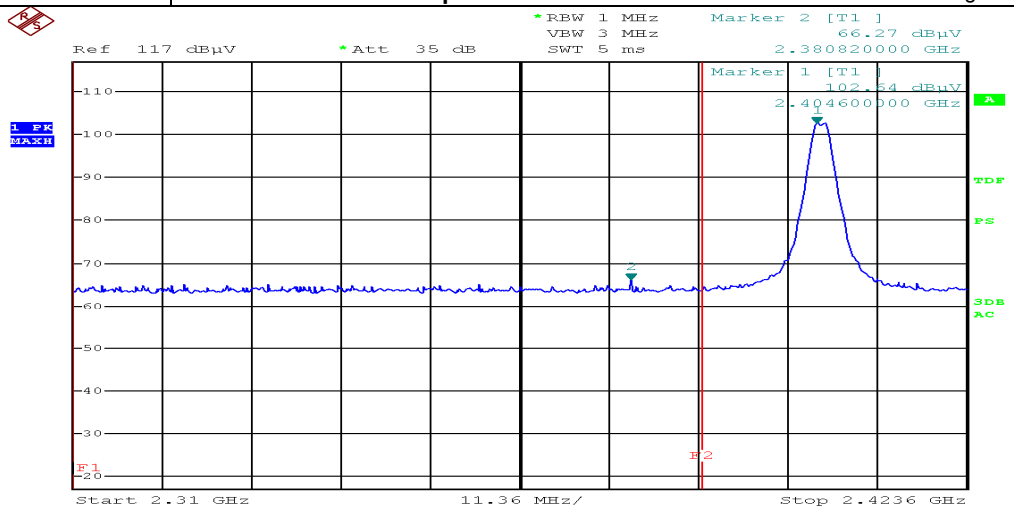
Date: 7.OCT.2011 16:37:55

Graph 34

EMC Bayswater Pty. Ltd.

Band edge Measurement (Restricted Bands)
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Bottom Channel - Temperature = -20°C – 2.1Volts

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

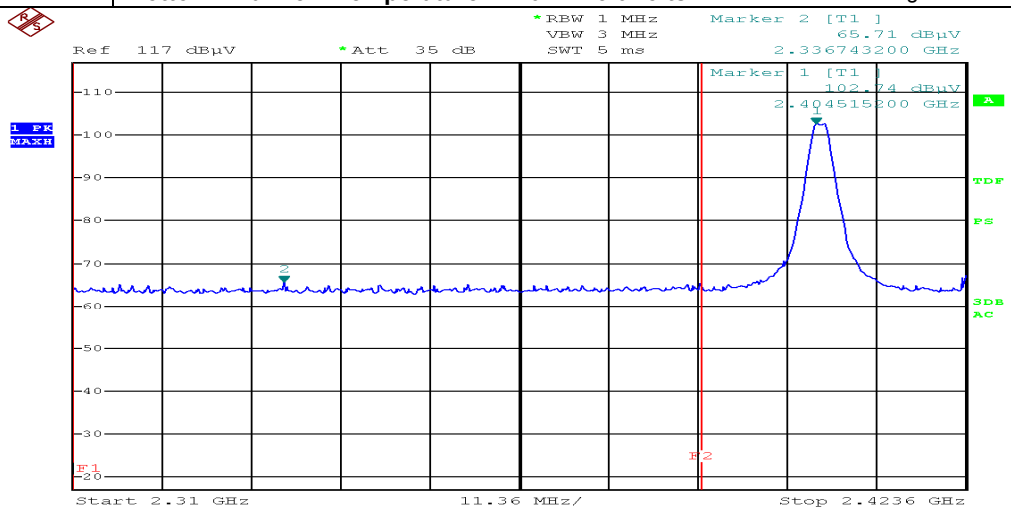


Graph 35

EMC Bayswater Pty. Ltd.

Band edge Measurement (Restricted Bands)
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Bottom Channel - Temperature = -20°C – 3.0Volts

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

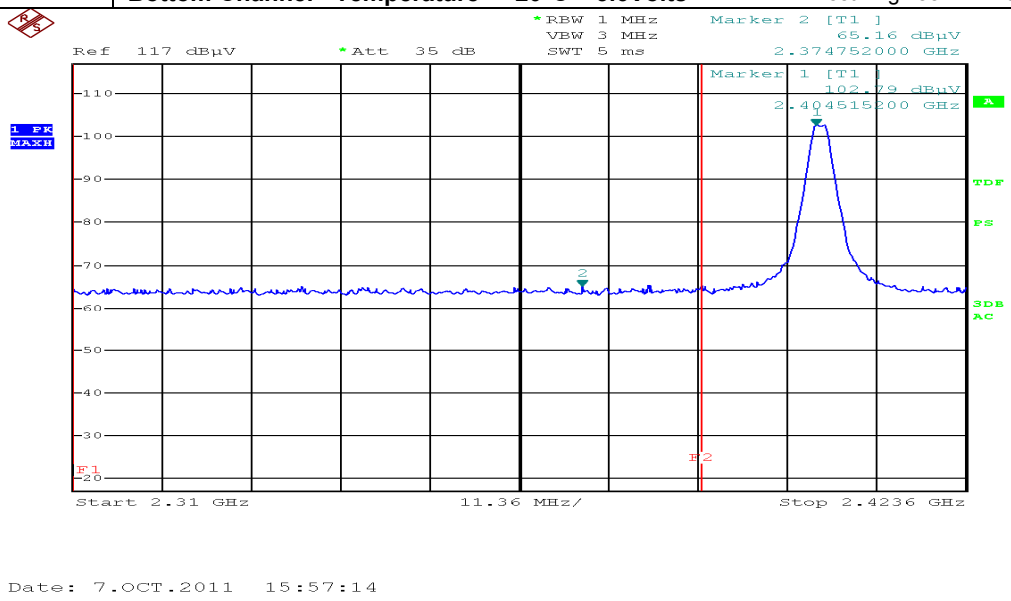


Graph 36

EMC Bayswater Pty. Ltd.

Band edge Measurement (Restricted Bands)
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Bottom Channel - Temperature = -20°C – 3.6Volts

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

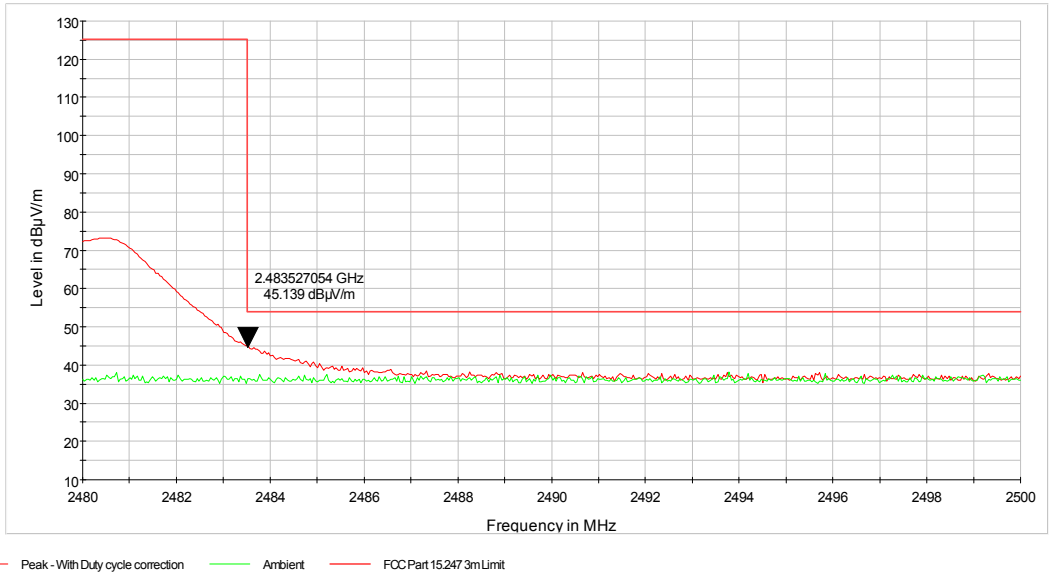


Graph 37

EMC Bayswater Pty. Ltd.

Band edge Measurement (Restricted Bands)
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Top Channel – Horizontal antenna polarisation

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

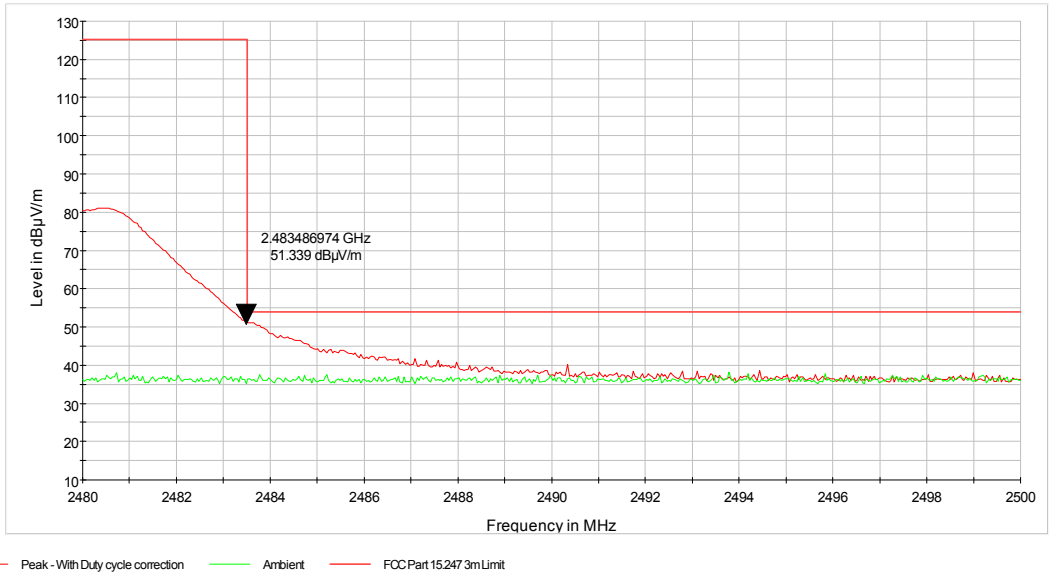


Graph 38

EMC Bayswater Pty. Ltd.

Band edge Measurement (Restricted Bands)
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Top Channel – Vertical antenna polarisation

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

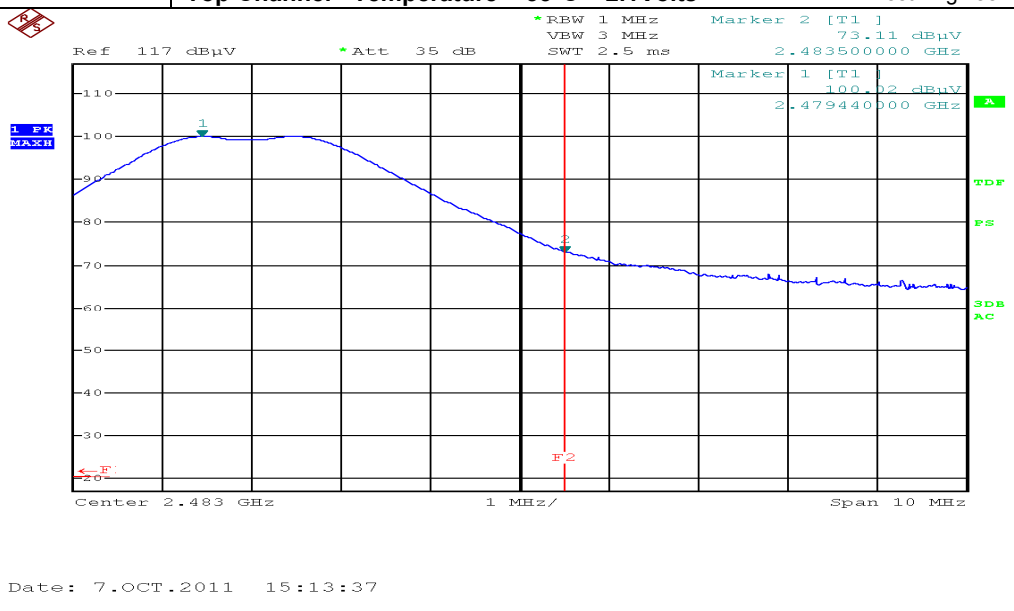


Graph 39

EMC Bayswater Pty. Ltd.

Band edge Measurement (Restricted Bands)
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Top Channel - Temperature = 55ºC – 2.1Volts

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

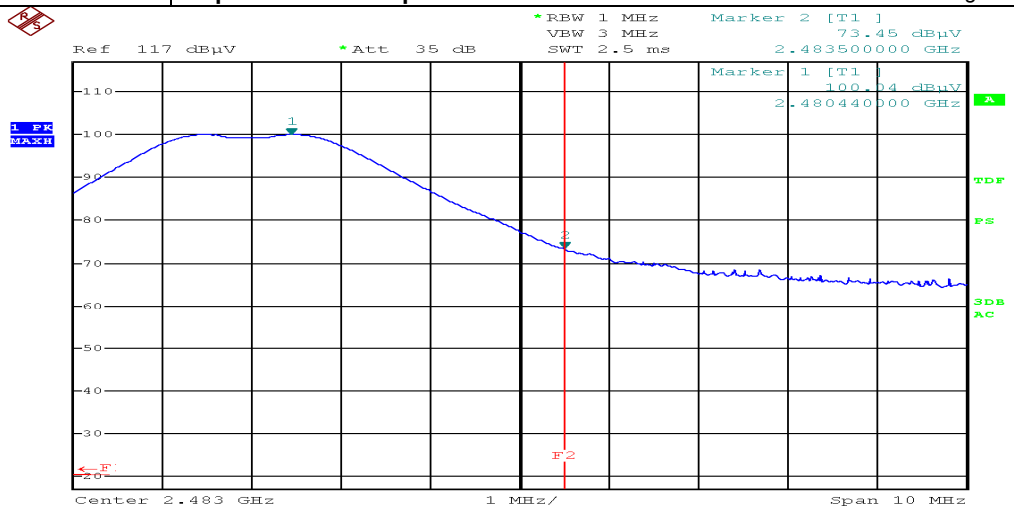


Graph 40

EMC Bayswater Pty. Ltd.

Band edge Measurement (Restricted Bands)
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Top Channel - Temperature = 55ºC – 3.0Volts

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF



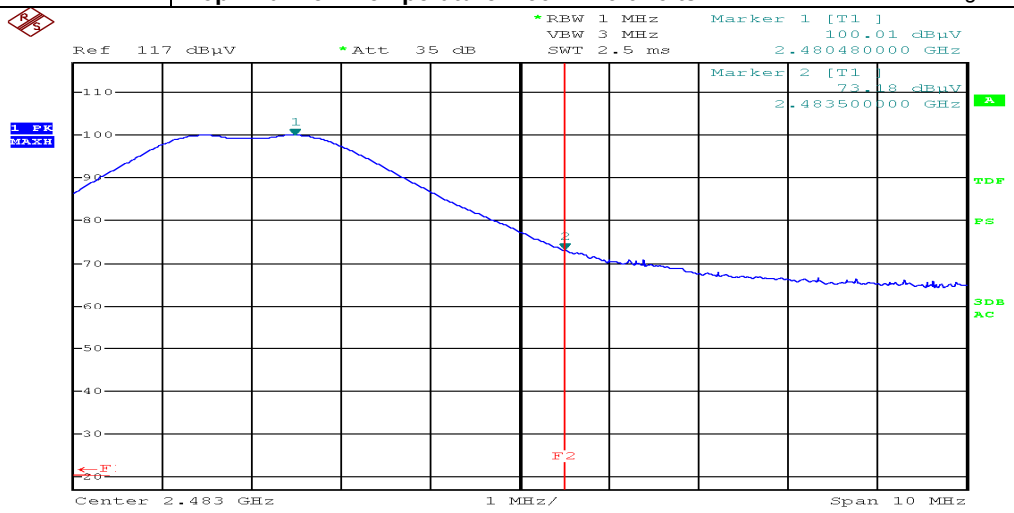
Date: 7.OCT.2011 15:16:51

Graph 41

EMC Bayswater Pty. Ltd.

Band edge Measurement (Restricted Bands)
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Top Channel - Temperature = 55ºC – 3.6Volts

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF



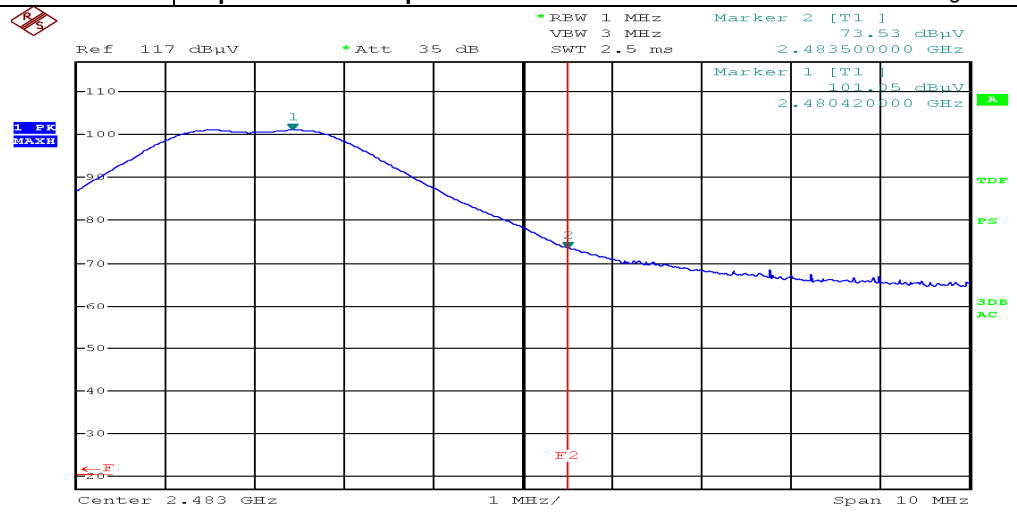
Date: 7.OCT.2011 15:10:58

Graph 42

EMC Bayswater Pty. Ltd.

Band edge Measurement (Restricted Bands)
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Top Channel - Temperature = 20ºC – 2.1Volts

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF



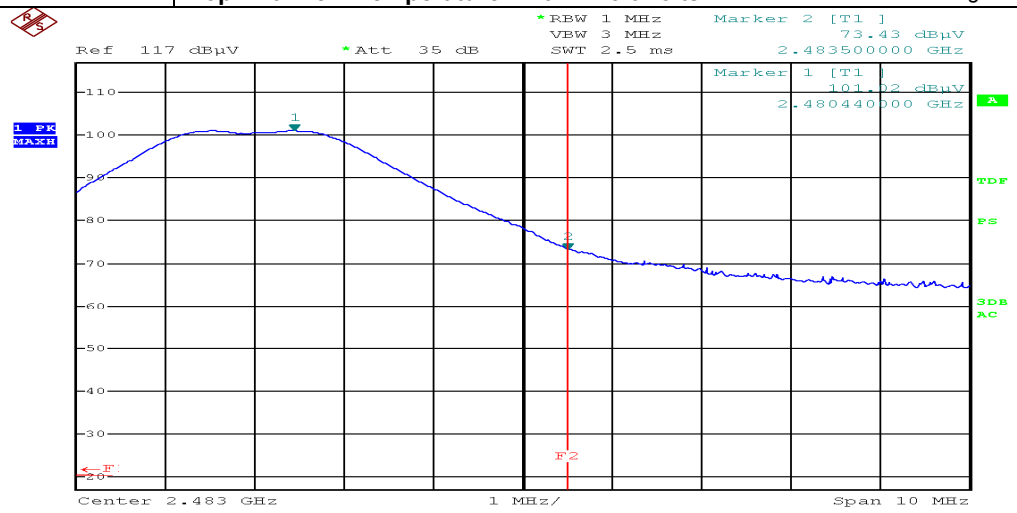
Date: 7.OCT.2011 15:35:07

Graph 43

EMC Bayswater Pty. Ltd.

Band edge Measurement (Restricted Bands)
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Top Channel - Temperature = 20ºC – 3.0Volts

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF



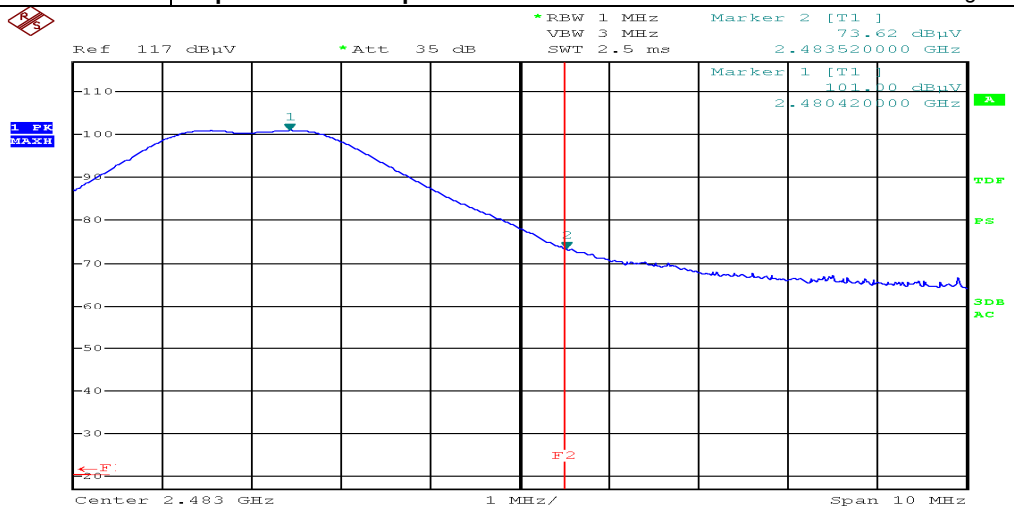
Date: 7.OCT.2011 15:36:48

Graph 44

EMC Bayswater Pty. Ltd.

Band edge Measurement (Restricted Bands)
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Top Channel - Temperature = 20°C – 3.6Volts

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF



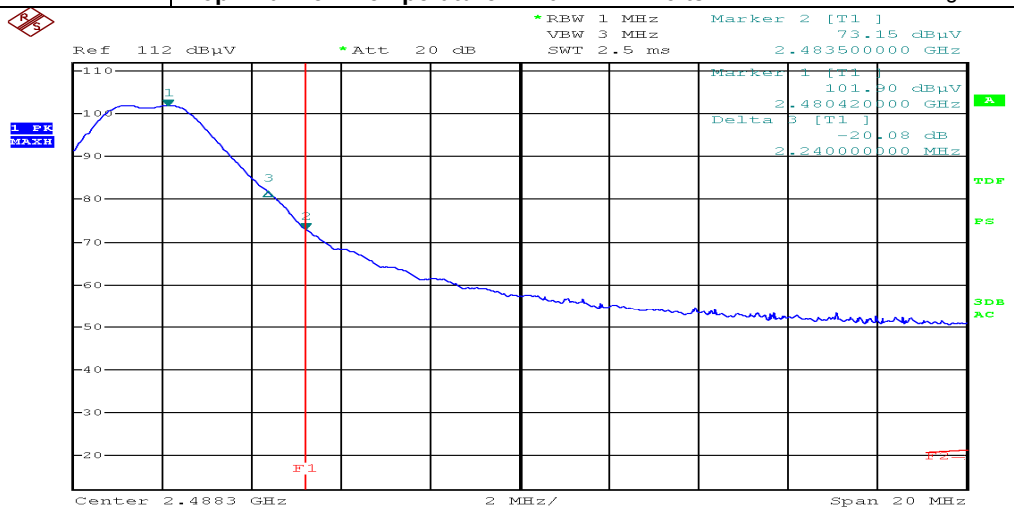
Date: 7.OCT.2011 15:38:40

Graph 45

EMC Bayswater Pty. Ltd.

Band edge Measurement (Restricted Bands)
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Top Channel - Temperature = -20°C – 2.1Volts

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF



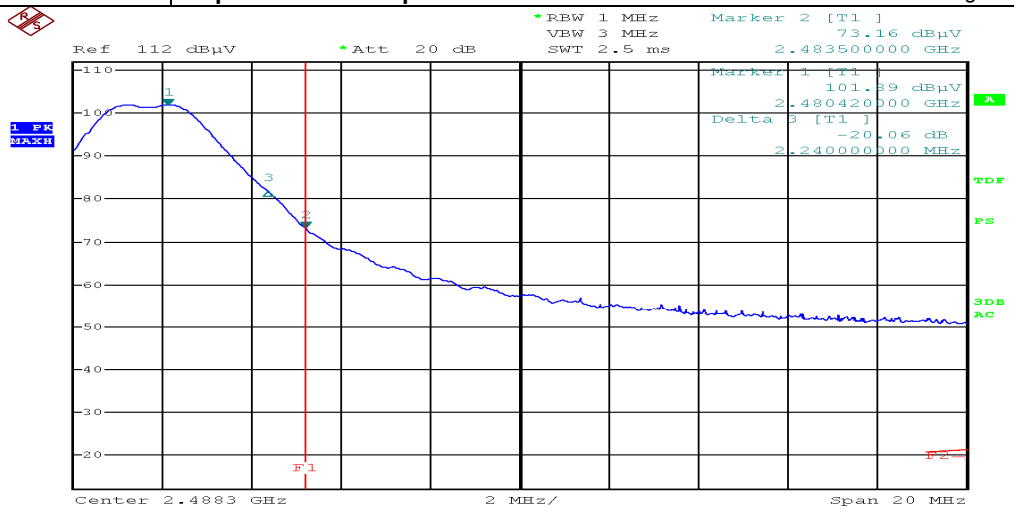
Date: 7.OCT.2011 13:45:48

Graph 46

EMC Bayswater Pty. Ltd.

Band edge Measurement (Restricted Bands)
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Top Channel - Temperature = -20°C – 3.0Volts

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

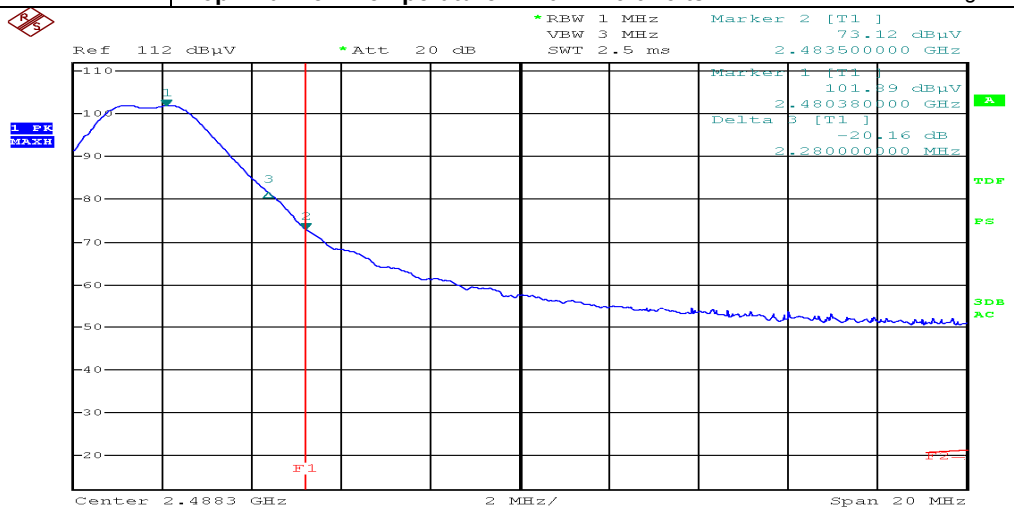


Graph 47

EMC Bayswater Pty. Ltd.

Band edge Measurement (Restricted Bands)
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Top Channel - Temperature = -20°C – 3.6Volts

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF



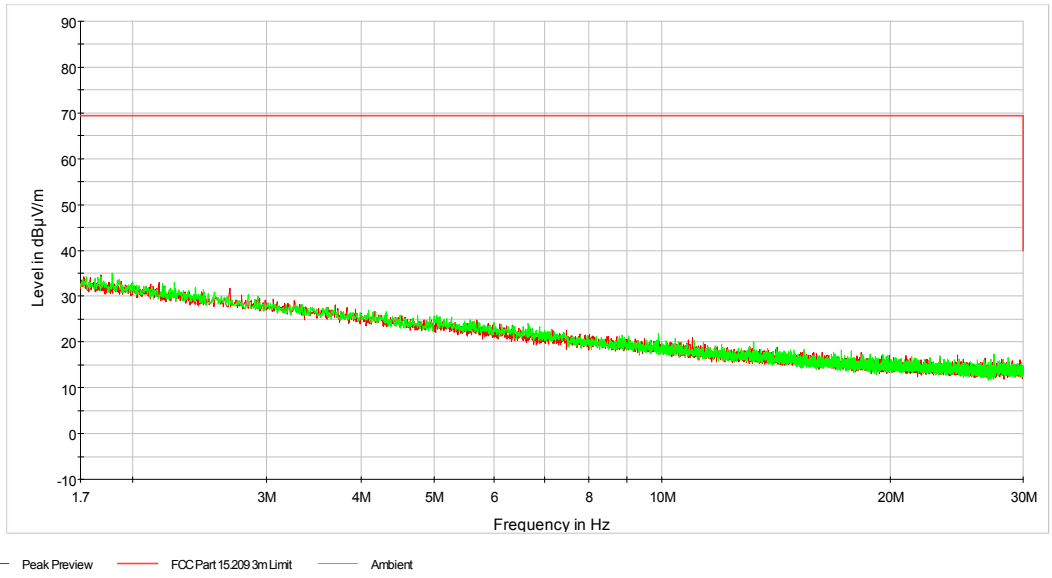
Graph 48

Appendix C.6 – Measurement Graphs – Spurious Emissions – Bottom Channel

No.	Test	Graph Description
49	Radiated Spurious and Harmonic Emissions – Tx – Bottom Channel – X Orientation	1.705MHz to 30MHz – Vertical antenna
50		25MHz to 1GHz – Horizontal Antenna
51		25MHz to 1GHz – Vertical Antenna
52		1GHz to 2GHz – Horizontal Antenna
53		1GHz to 2GHz – Vertical Antenna
54		2GHz to 3GHz – Horizontal Antenna
55		2GHz to 3GHz – Vertical Antenna
56		3GHz to 4GHz – Horizontal Antenna
57		3GHz to 4GHz – Vertical Antenna

EMC Bayswater Pty. Ltd.

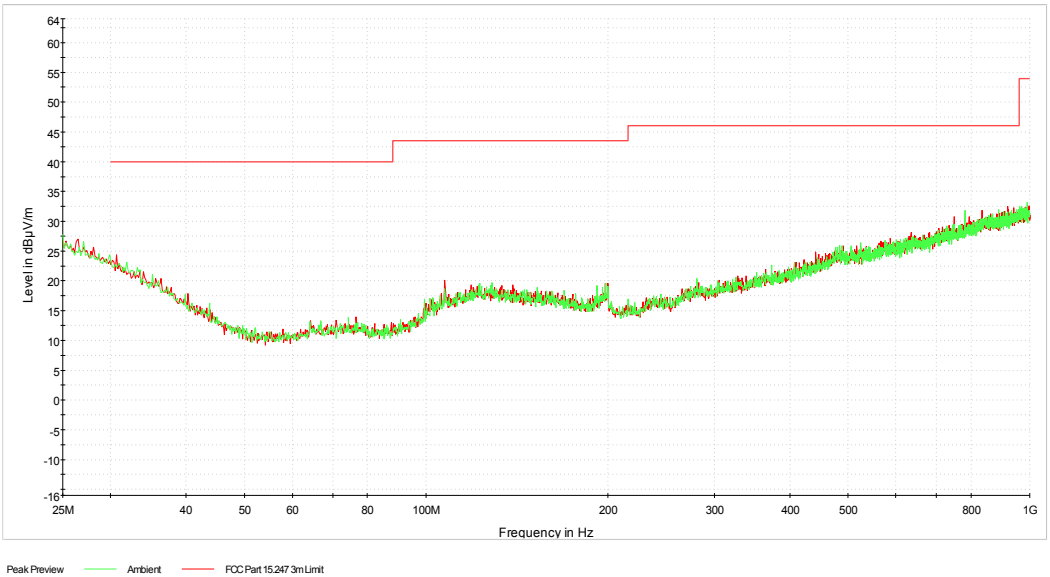
Radiated Spurious and Harmonic Emissions – Tx- Int Ant Job Number: E1110-0077-2 Rev 5
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Bottom Channel – 1.705MHz to 30MHz - Vertical Antenna Test Engineer: CNF



Graph 49

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions – Tx- Int Ant Job Number: E1110-0077-2 Rev 5
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Bottom Channel – 25MHz to 1GHz - Horizontal Antenna Test Engineer: CNF



Graph 50

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Tx- Int Ant
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Bottom Channel – 25MHz to 1GHz - Vertical Antenna

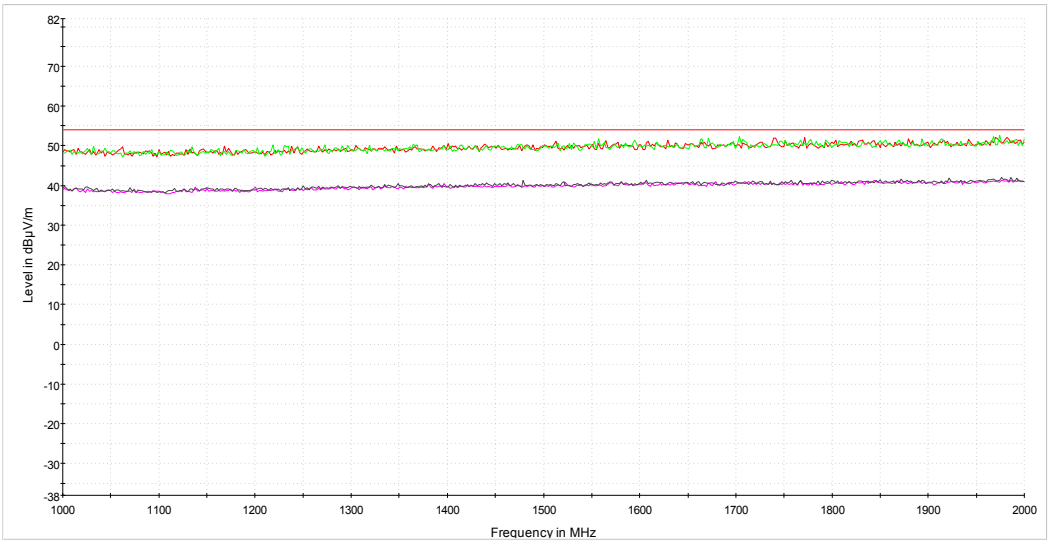
Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

Graph 51

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Tx- Int Ant
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Bottom Channel –1GHz to 2GHz - Horizontal Antenna

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

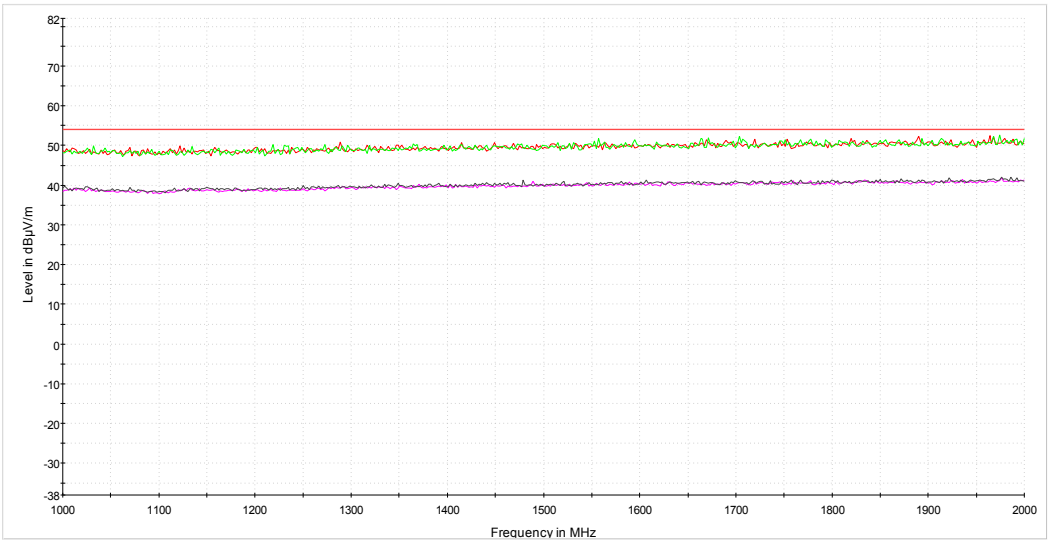


Graph 52

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Tx- Int Ant
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Bottom Channel –1GHz to 2GHz - Vertical Antenna

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

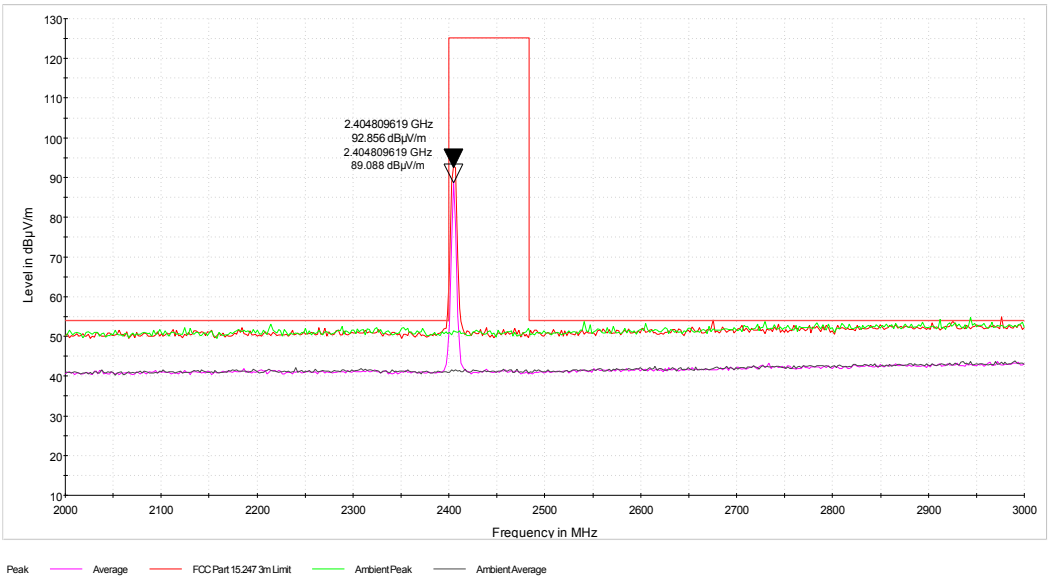


Graph 53

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Tx- Int Ant
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Bottom Channel – 2GHz to 3GHz - Horizontal Antenna

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

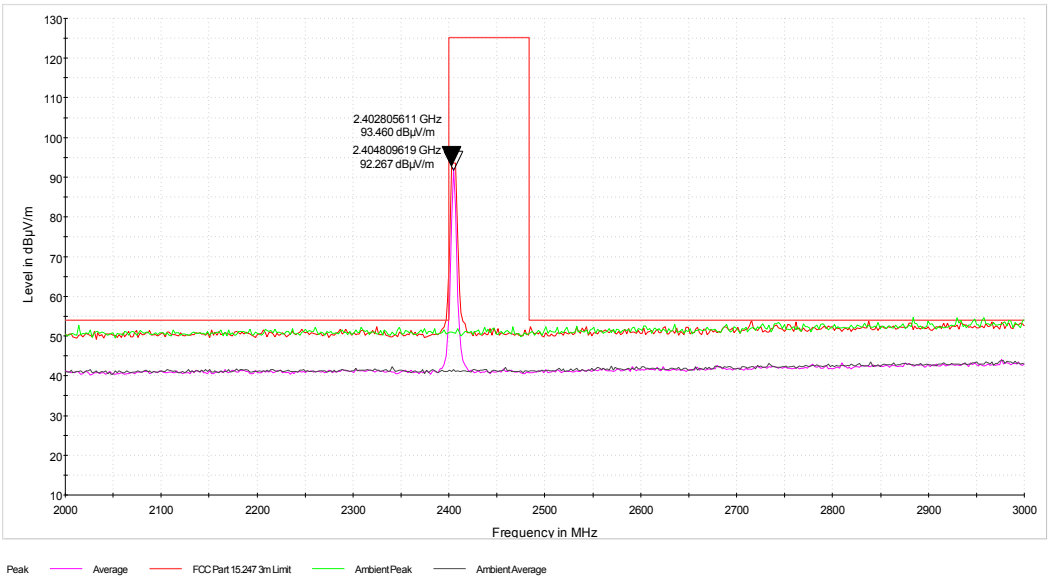


Graph 54

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Tx- Int Ant
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Bottom Channel – 2GHz to 3GHz - Vertical Antenna

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

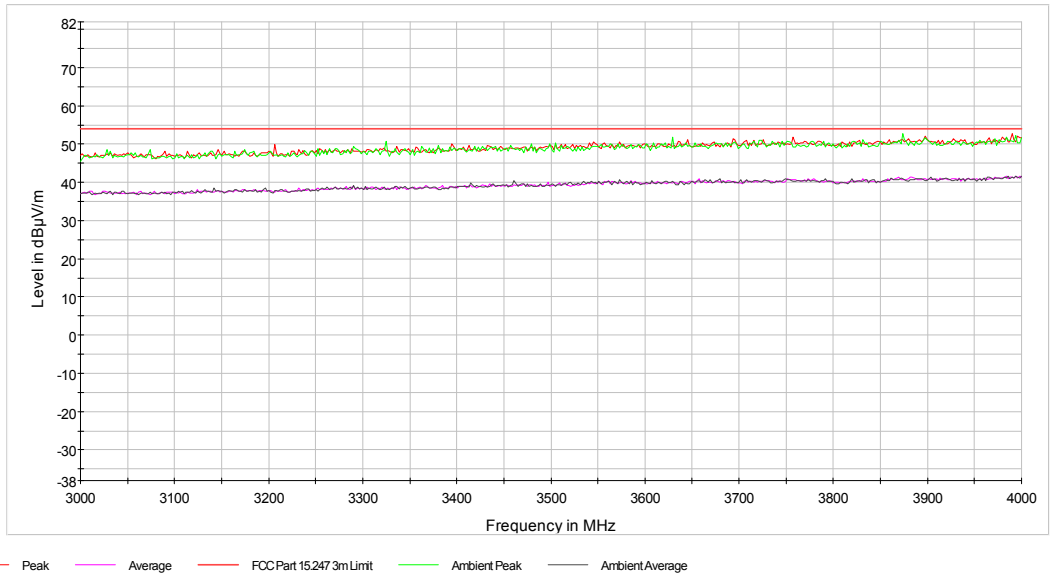


Graph 55

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Tx
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Bottom Channel – 3GHz to 4GHz - Horizontal Antenna

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

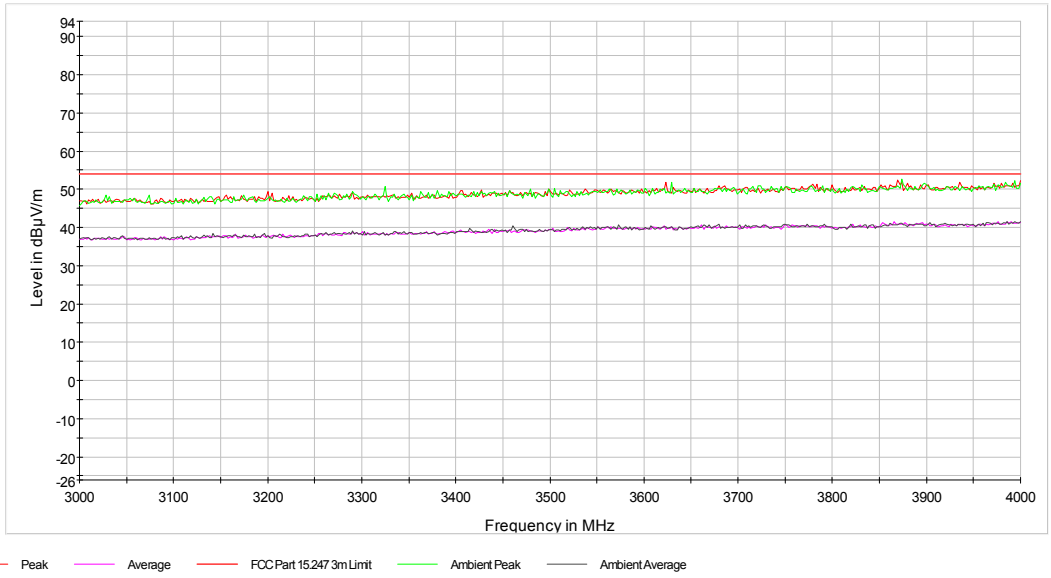


Graph 56

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Tx
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Bottom Channel – 3GHz to 4GHz - Vertical Antenna

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF



Graph 57

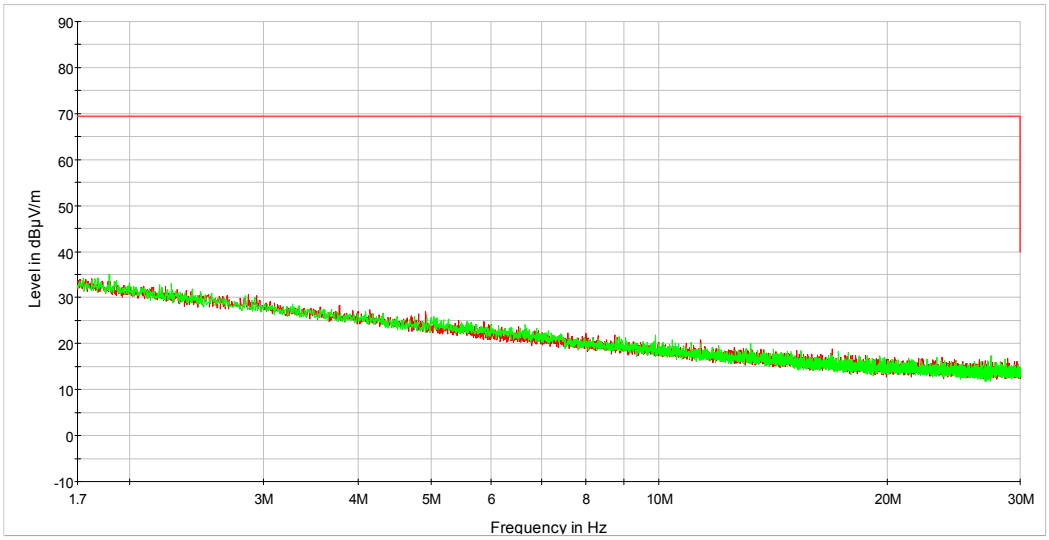
Appendix C.7 – Measurement Graphs – Spurious Emissions – Middle Channel

No.	Test	Graph Description
58	Radiated Spurious and Harmonic Emissions – Tx – Middle Channel – X Orientation	1.705MHz to 30MHz – Vertical antenna
59		25MHz to 1GHz – Horizontal Antenna
60		25MHz to 1GHz – Vertical Antenna
61		1GHz to 2GHz – Horizontal Antenna
62		1GHz to 2GHz – Vertical Antenna
63		2GHz to 3GHz – Horizontal Antenna
64		2GHz to 3GHz – Vertical Antenna
65		3GHz to 4GHz – Horizontal Antenna
66		3GHz to 4GHz – Vertical Antenna

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Tx
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Middle Channel – 1.705MHz to 30MHz - Vertical Antenna

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF



Graph 58

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Tx
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Middle Channel – 25MHz to 1GHz - Horizontal Antenna

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

Graph 59

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Tx
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Middle Channel – 25MHz to 1GHz - Vertical Antenna

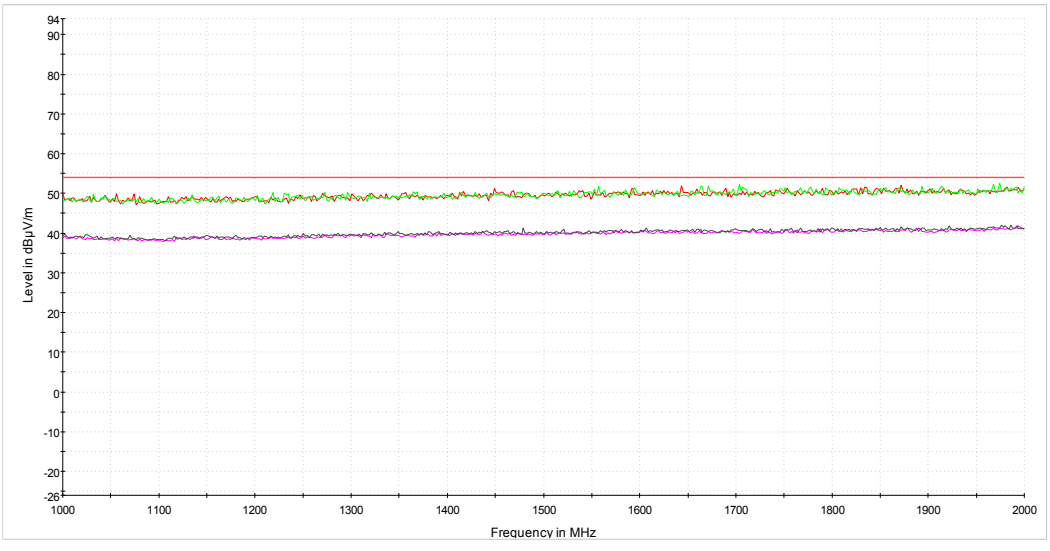
Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

Graph 60

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Tx
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Middle Channel – 1GHz to 2GHz - Horizontal Antenna

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

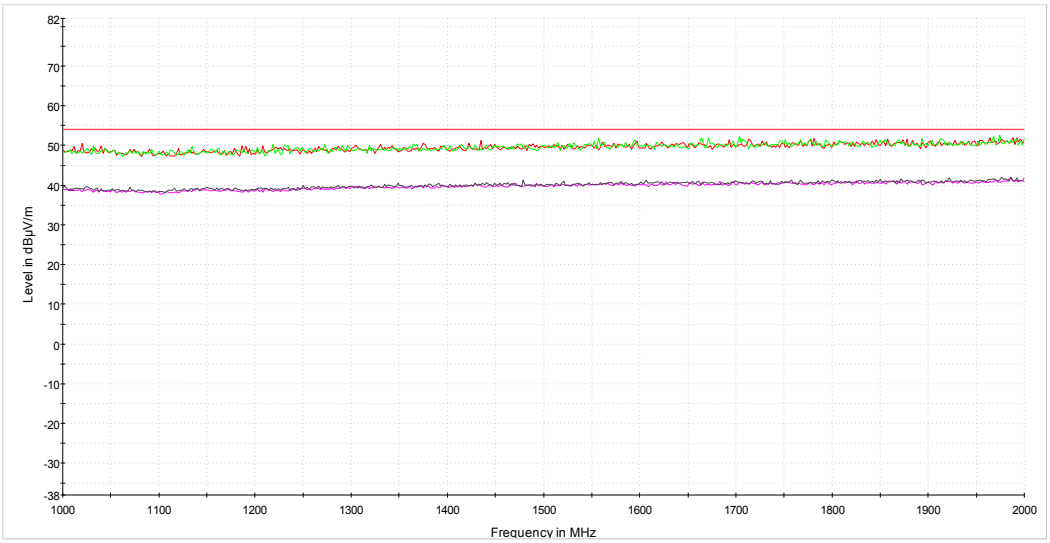


Graph 61

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Tx
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Middle Channel – 1GHz to 2GHz - Vertical Antenna

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

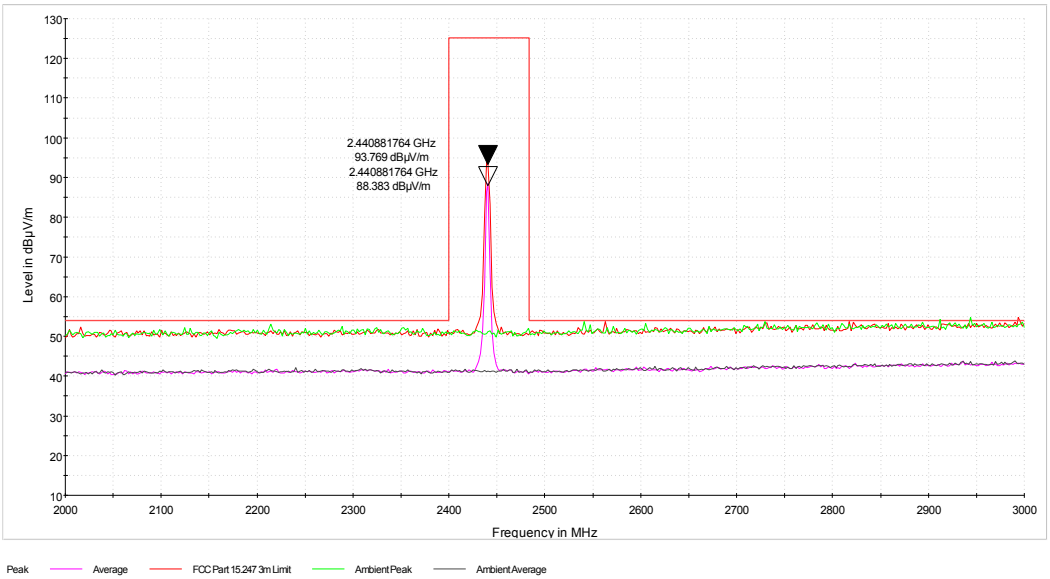


Graph 62

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Tx
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Middle Channel – 2GHz to 3GHz - Horizontal Antenna

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

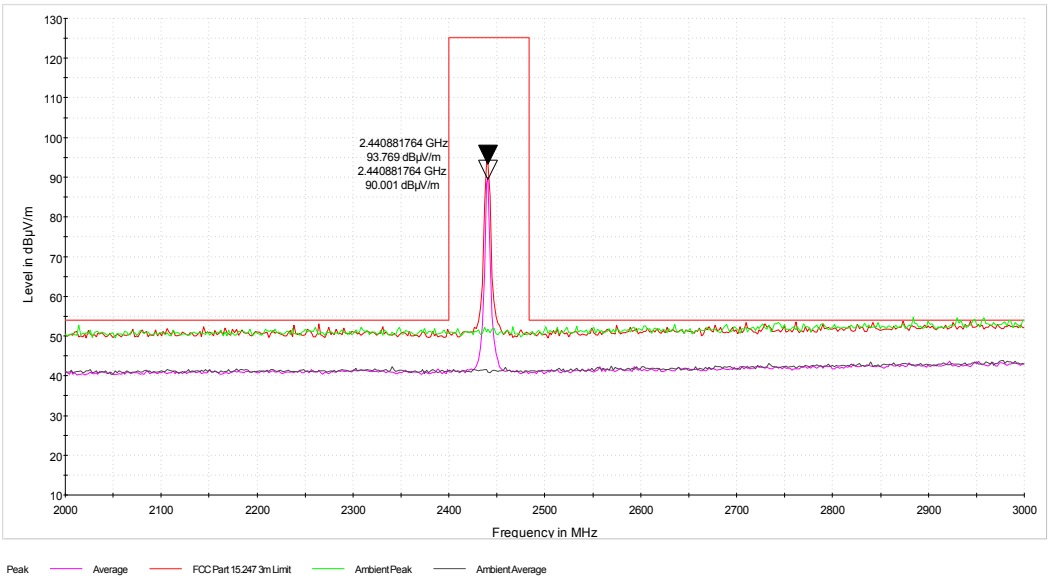


Graph 63

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Tx
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Middle Channel – 2GHz to 3GHz - Vertical Antenna

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

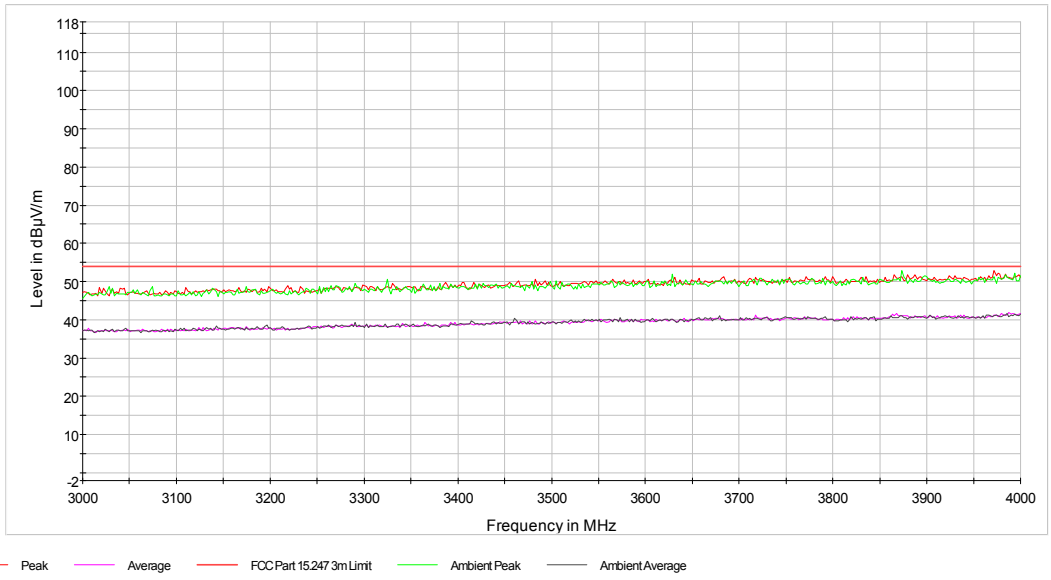


Graph 64

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Tx
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Middle Channel – 3GHz to 4GHz - Horizontal Antenna

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

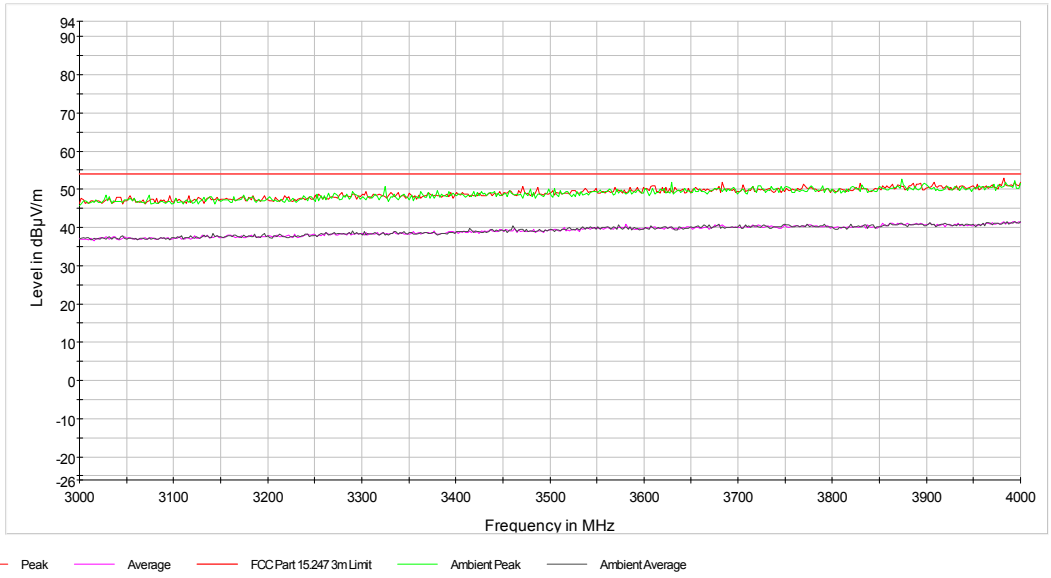


Graph 65

R EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Tx
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Middle Channel – 3GHz to 4GHz - Vertical Antenna

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF



Graph 66

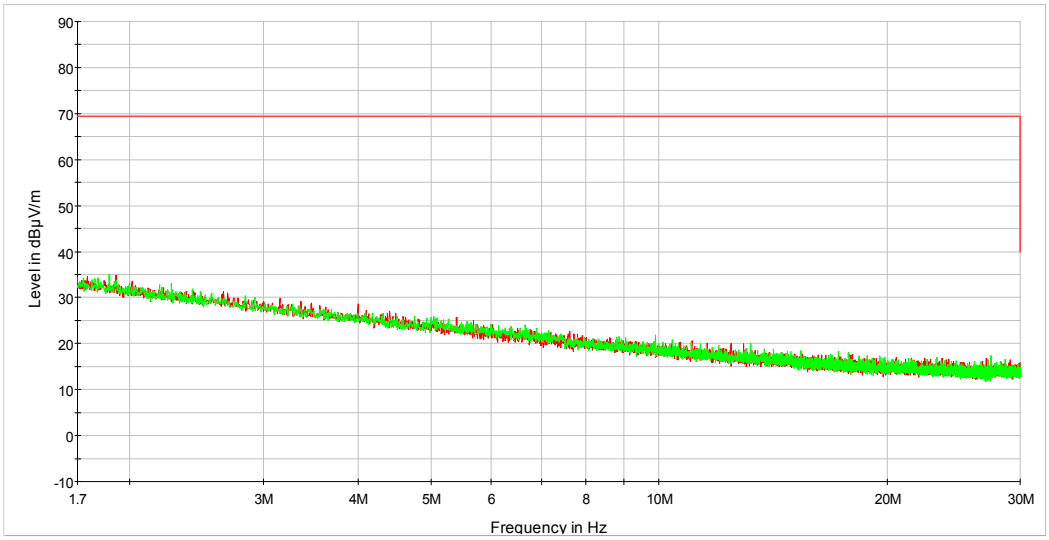
Appendix C.8 – Measurement Graphs – Spurious Emissions – Top Channel

No.	Test	Graph Description
67	Radiated Spurious and Harmonic Emissions – Tx – Top Channel – X Orientation	1.705MHz to 30MHz – Vertical antenna
68		25MHz to 1GHz – Horizontal Antenna
69		25MHz to 1GHz – Vertical Antenna
70		1GHz to 2GHz – Horizontal Antenna
71		1GHz to 2GHz – Vertical Antenna
72		2GHz to 3GHz – Horizontal Antenna
73		2GHz to 3GHz – Vertical Antenna
74		3GHz to 4GHz – Horizontal Antenna
75		3GHz to 4GHz – Vertical Antenna

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Tx
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Top Channel – 1.705MHz to 30MHz - Vertical Antenna

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

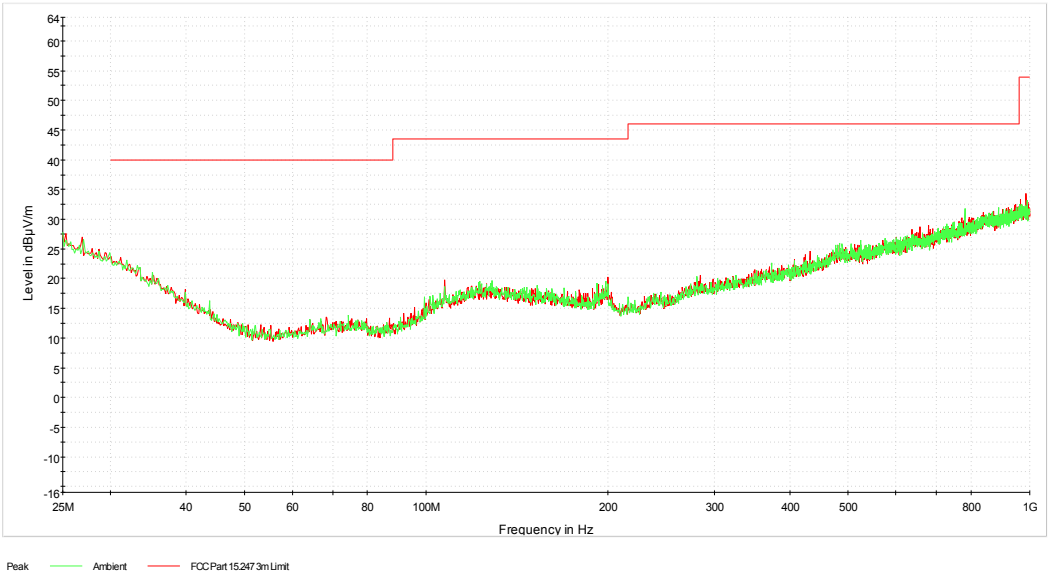


Graph 67

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Tx
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Top Channel – 25MHz to 1GHz - Horizontal Antenna

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF



Graph 68

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Tx
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Top Channel – 25MHz to 1GHz - Vertical Antenna

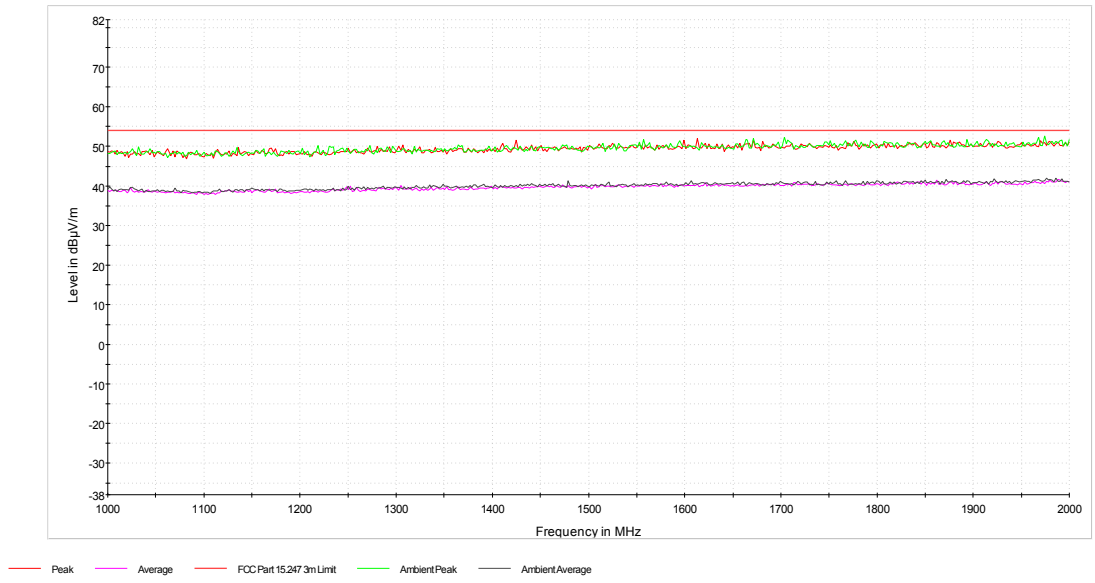
Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

Graph 69

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Tx
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Top Channel – 1GHz to 2GHz - Horizontal Antenna

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

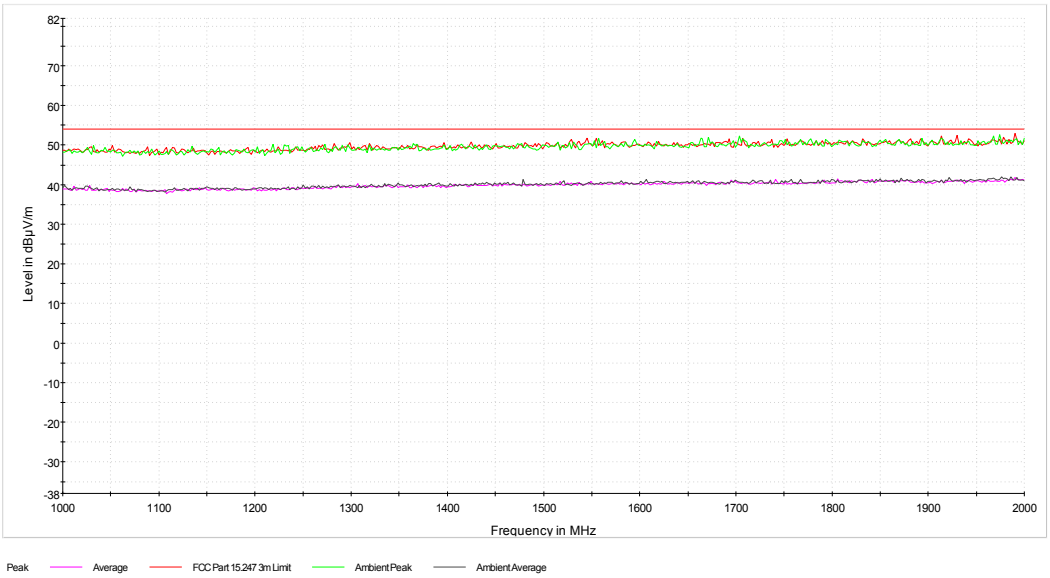


Graph 70

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Tx
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Top Channel – 1GHz to 2GHz - Vertical Antenna

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

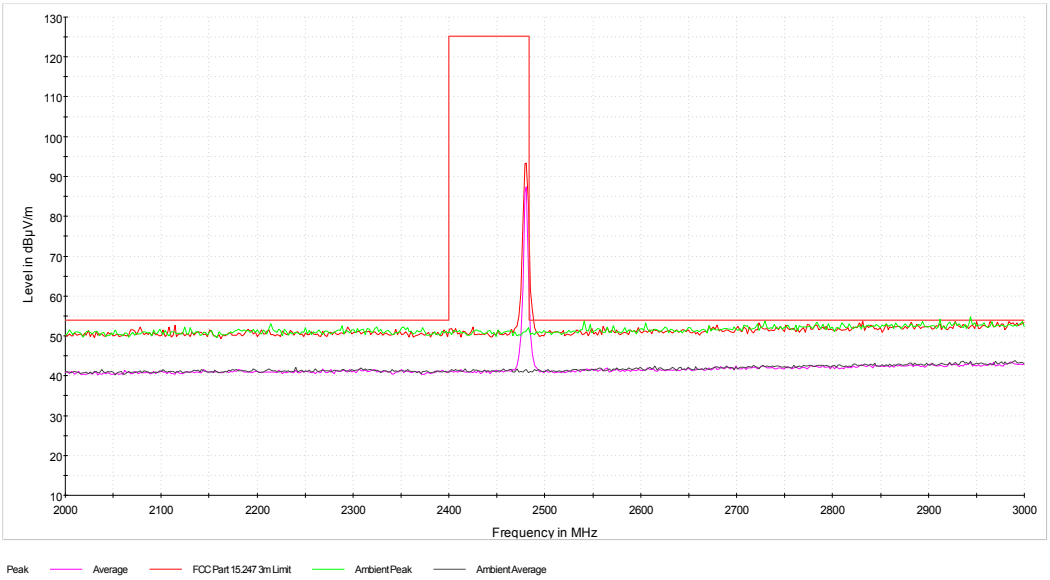


Graph 71

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Tx
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Top Channel – 2GHz to 3GHz - Horizontal Antenna

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

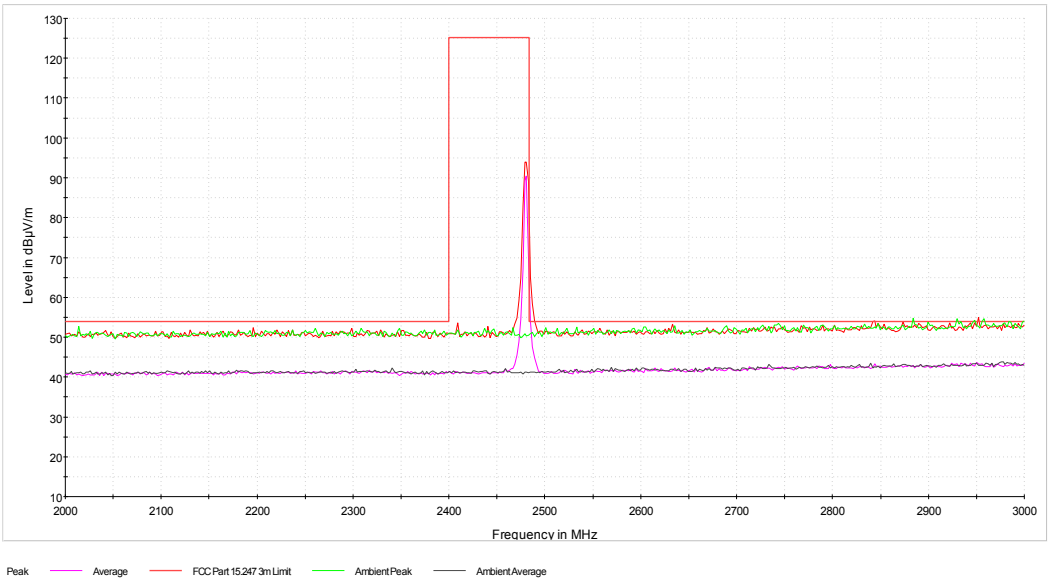


Graph 72

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Tx
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Top Channel – 2GHz to 3GHz - Vertical Antenna

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

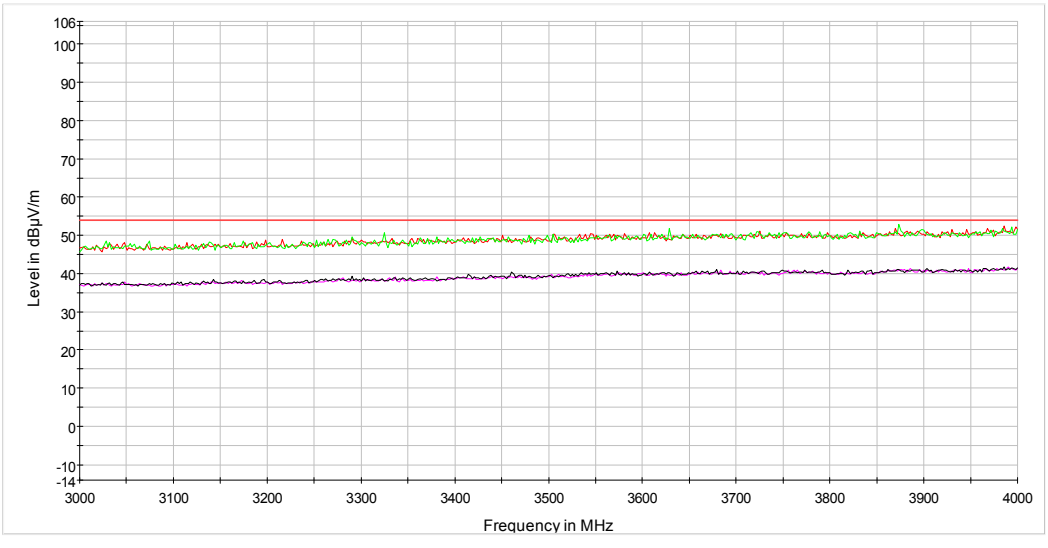


Graph 73

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Tx
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Top Channel – 3GHz to 4GHz - Horizontal Antenna

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

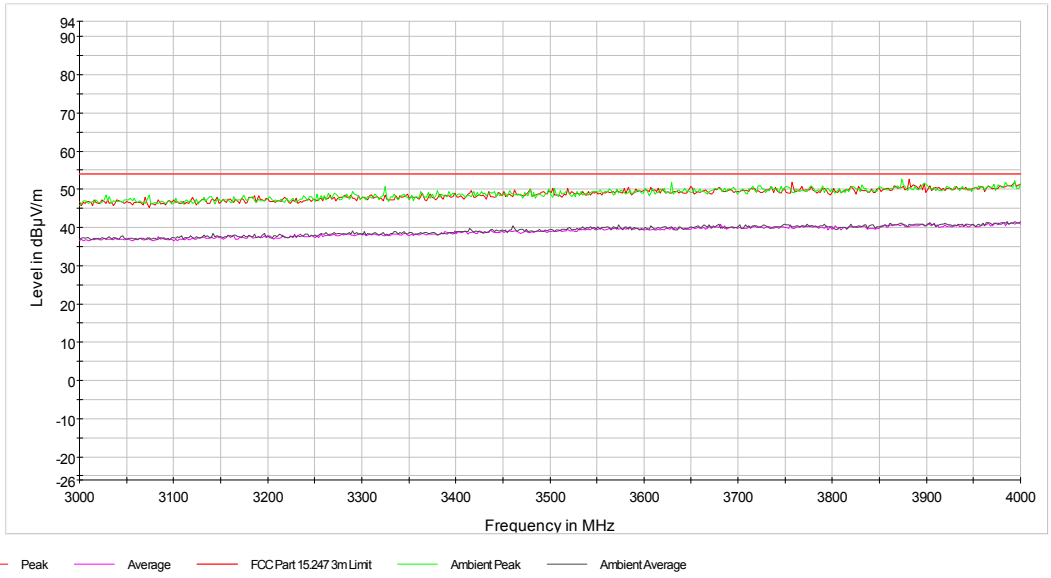


Graph 74

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Tx
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Top Channel – 3GHz to 4GHz - Vertical Antenna

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF



Graph 75

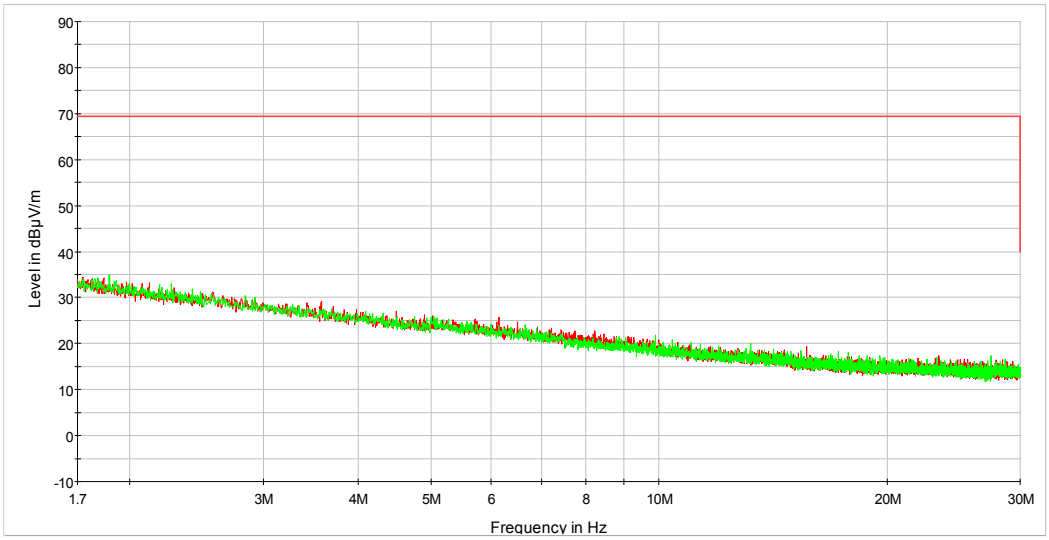
Appendix C.9 – Measurement Graphs – Spurious Emissions – Standby mode

No.	Test	Graph Description
76	Radiated Emissions/Radiated Spurious and Harmonic Emissions – Standby/Idle/Rx Channel – X Orientation	1.705MHz to 30MHz – Vertical antenna
77		25MHz to 1GHz – Horizontal Antenna
78		25MHz to 1GHz – Vertical Antenna
79		1GHz to 2GHz – Horizontal Antenna
80		1GHz to 2GHz – Vertical Antenna
81		2GHz to 3GHz – Horizontal Antenna
82		2GHz to 3GHz – Vertical Antenna
83		3GHz to 4GHz – Horizontal Antenna
84		3GHz to 4GHz – Vertical Antenna

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Idle/Rx
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Middle Channel – 1.705MHz to 30MHz - Vertical Antenna

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF



Graph 76

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Idle/Rx
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Middle Channel – 25MHz to 1GHz - Horizontal Antenna

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

Graph 77

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Idle/Rx
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Middle Channel – 25MHz to 1GHz - Vertical Antenna

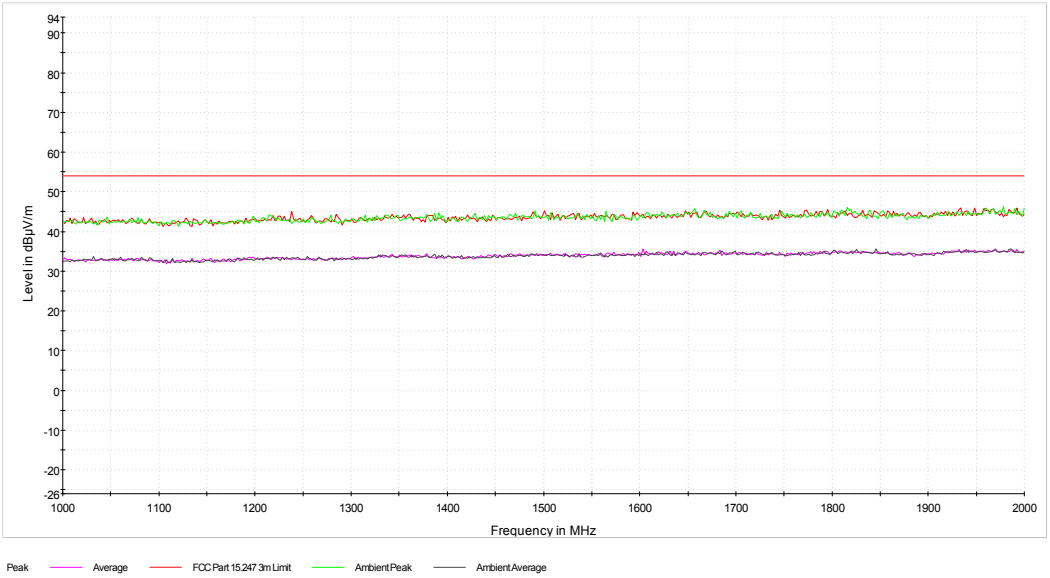
Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

Graph 78

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Idle/Rx
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Middle Channel – 1GHz to 2GHz - Horizontal Antenna

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

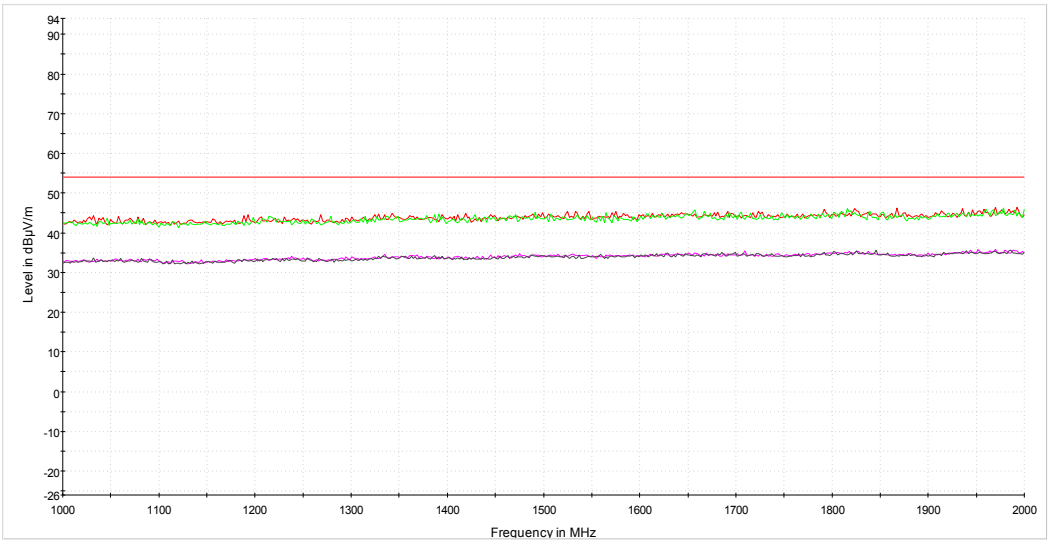


Graph 79

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Idle/Rx
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Middle Channel – 1GHz to 2GHz - Vertical Antenna

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

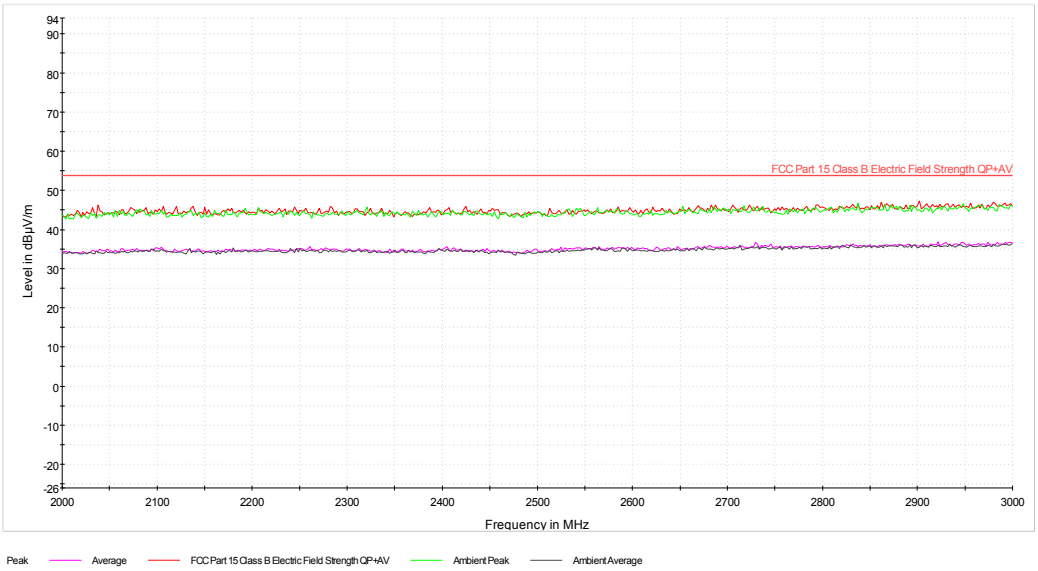


Graph 80

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Idle/Rx
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Middle Channel – 2GHz to 3GHz - Horizontal Antenna

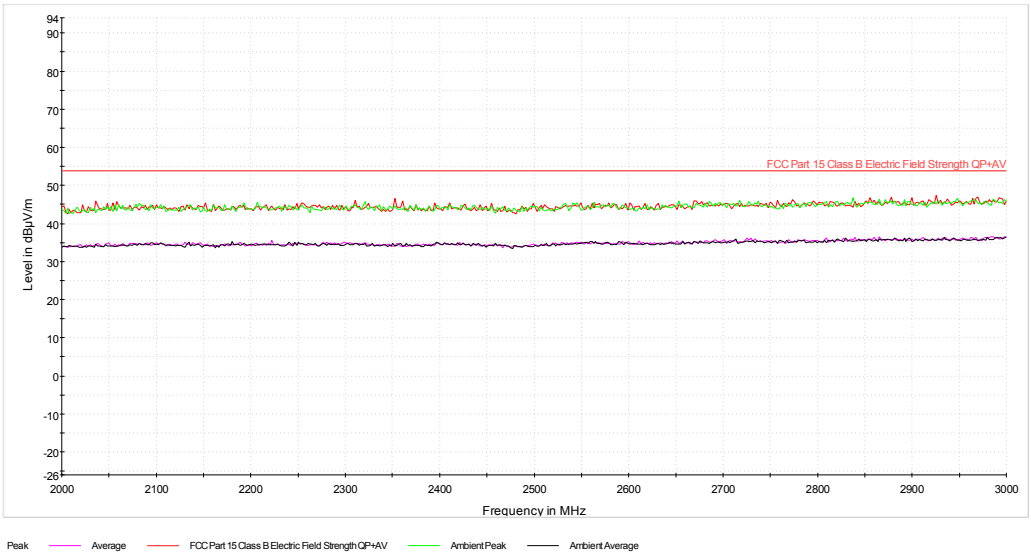
Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF



Graph 81

EMC Bayswater Pty. Ltd.

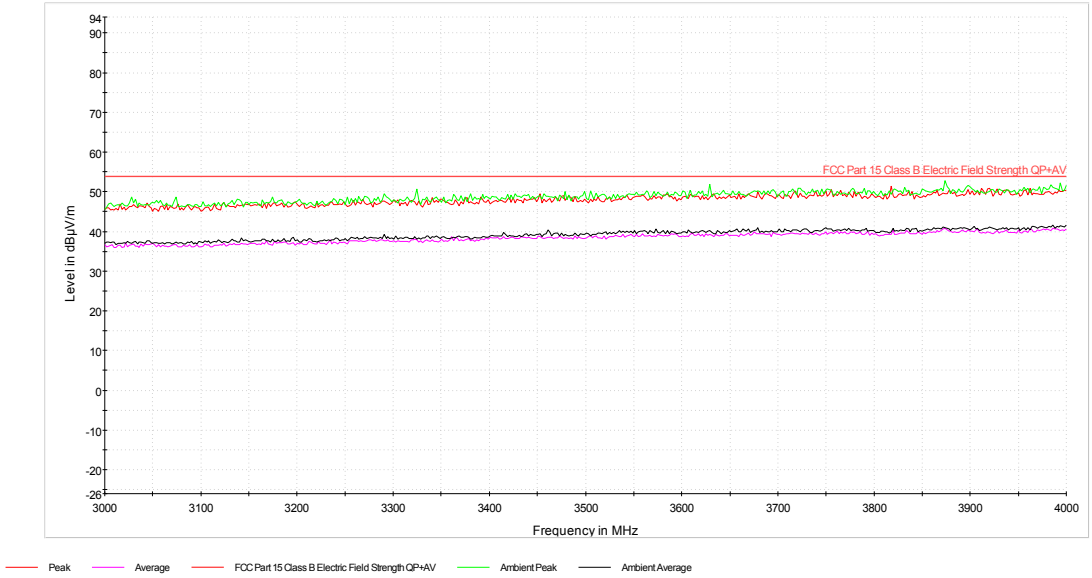
Radiated Spurious and Harmonic Emissions - Idle/Rx Job Number: E1110-0077-2 Rev 5
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Middle Channel – 2GHz to 3GHz - Vertical Antenna Test Engineer: CNF



Graph 82

EMC Bayswater Pty. Ltd.

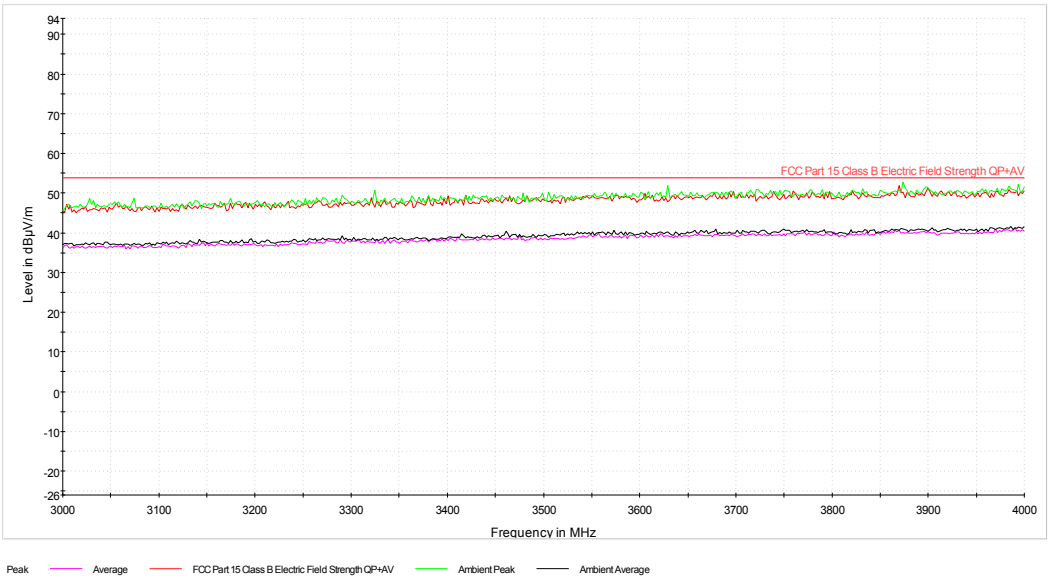
Radiated Spurious and Harmonic Emissions - Idle/Rx Job Number: E1110-0077-2 Rev 5
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Middle Channel – 3GHz to 4GHz - Horizontal Antenna Test Engineer: CNF



Graph 83

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Idle/Rx Job Number: E1110-0077-2 Rev 5
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Middle Channel – 3GHz to 4GHz - Vertical Antenna Test Engineer: CNF



Graph 84

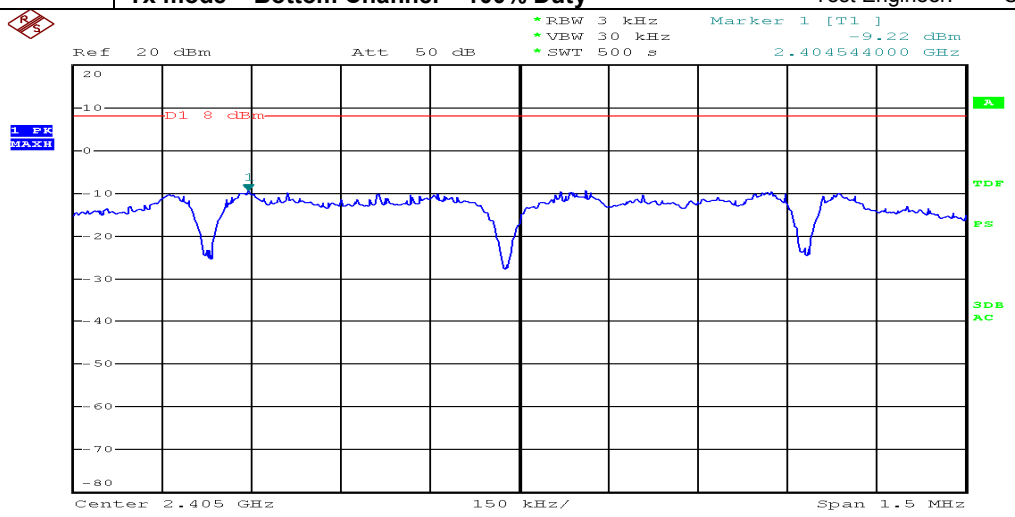
Appendix C.10 – Measurement Graphs – Power Spectral Density

No.	Test	Graph Description
85	Power Spectral Density	Tx mode – Bottom Channel – 100% Duty
86		Tx mode – Middle Channel – 100% Duty
87		Tx mode – Top Channel – 100% Duty Line

EMC Bayswater Pty. Ltd.

Power Spectral Density
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Tx mode – Bottom Channel – 100% Duty

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

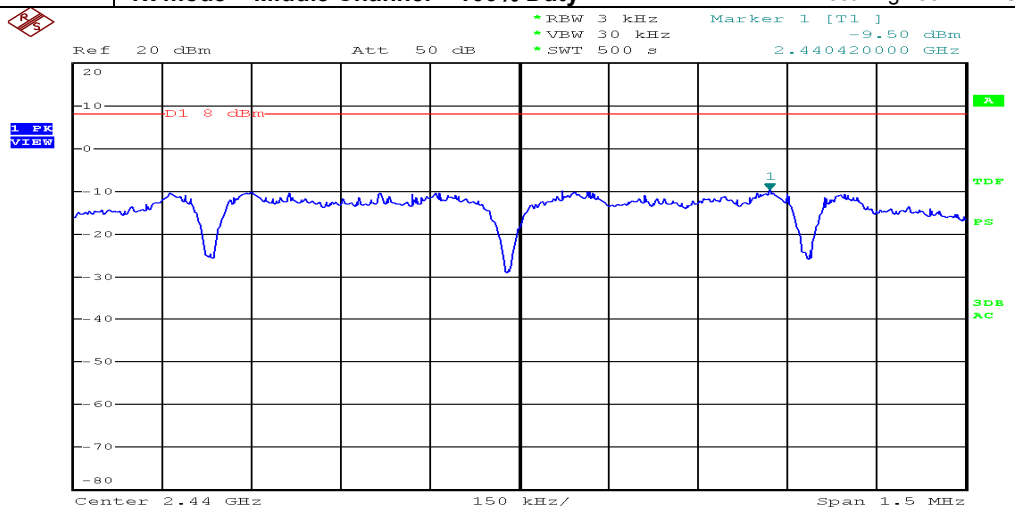


Graph 85

EMC Bayswater Pty. Ltd.

Power Spectral Density
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Tx mode – Middle Channel – 100% Duty

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

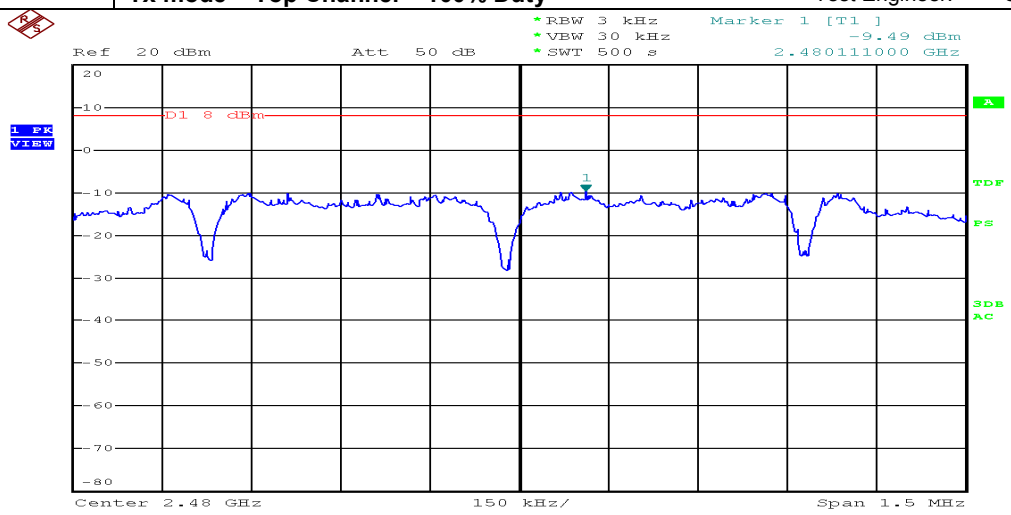


Graph 86

EMC Bayswater Pty. Ltd.

Power Spectral Density
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Tx mode – Top Channel – 100% Duty

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF



Graph 87

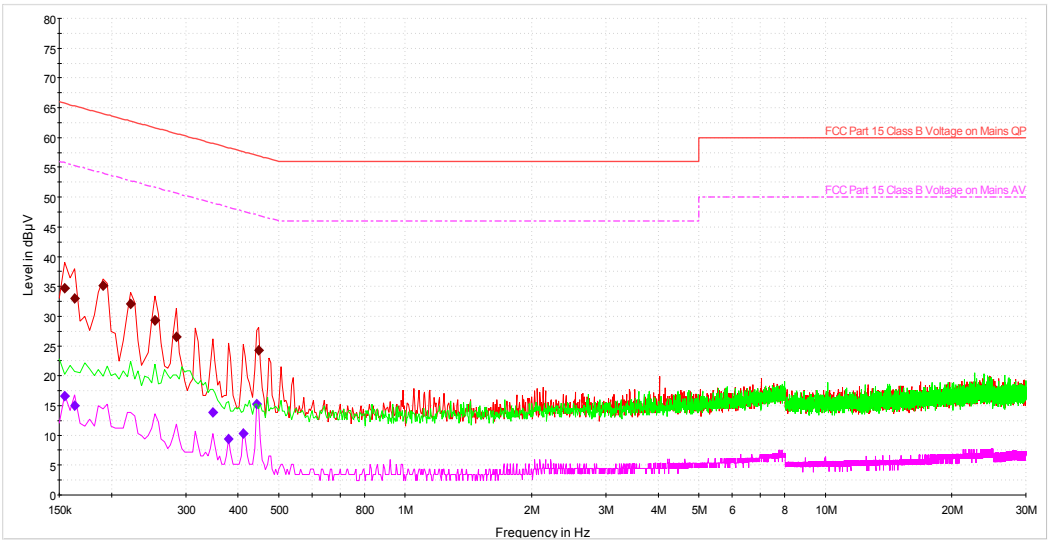
Appendix C.11 – Measurement Graphs – Conducted Emissions

No.	Test	Graph Description
88	Conducted Emissions	Tx mode – Middle Channel – Active Line
89		Tx mode – Middle Channel – Neutral Line
90		Rx mode – Middle Channel – Active Line
91		Rx mode – Middle Channel – Neutral Line

EMC Bayswater Pty. Ltd.

Conducted Emissions – TX mode
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Middle Channel – Active Line

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

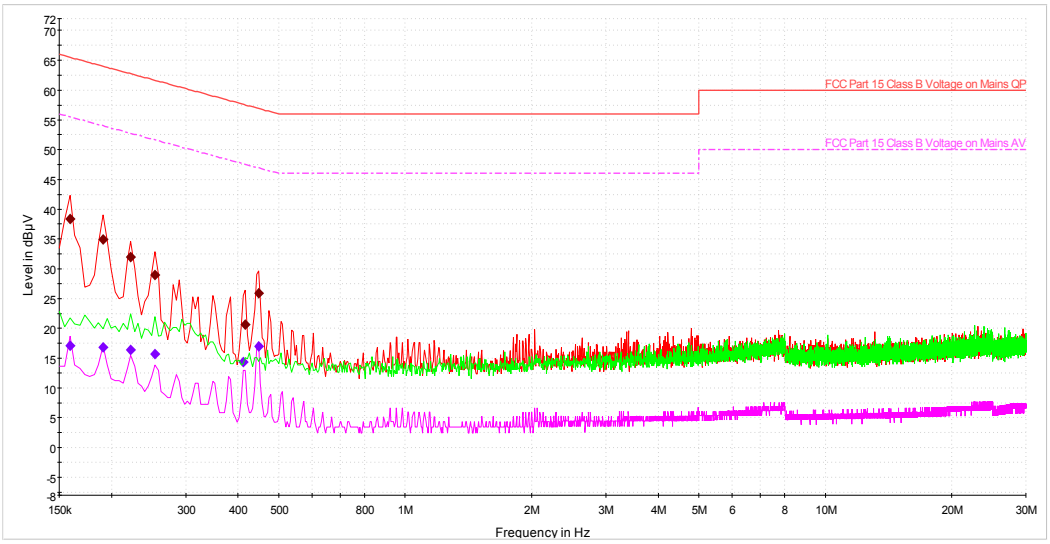


Graph 88

EMC Bayswater Pty. Ltd.

Conducted Emissions – TX mode
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Middle Channel – Neutral Line

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

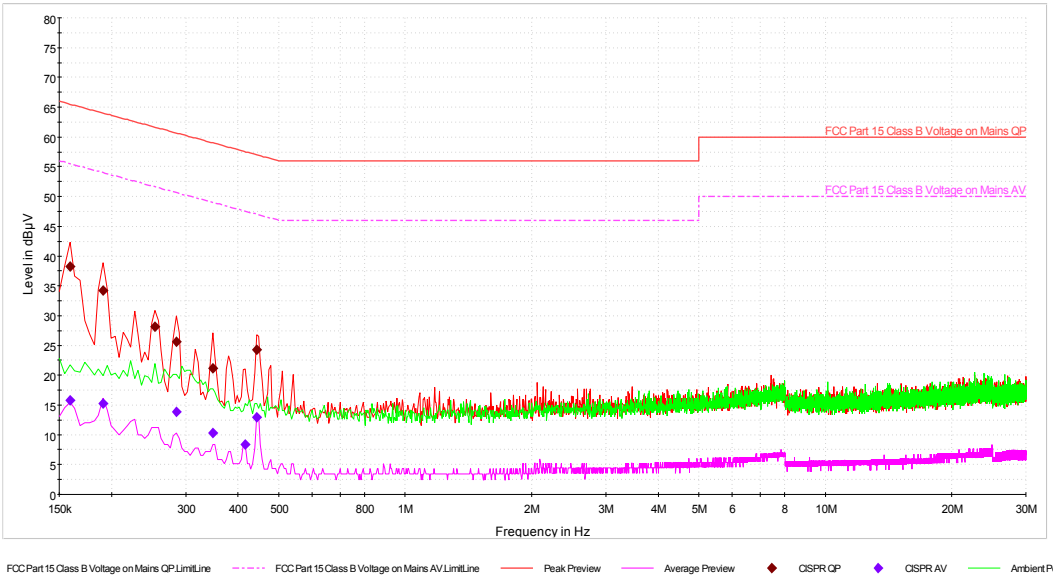


Graph 89

EMC Bayswater Pty. Ltd.

Conducted Emissions – RX mode
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Middle Channel – Active Line

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

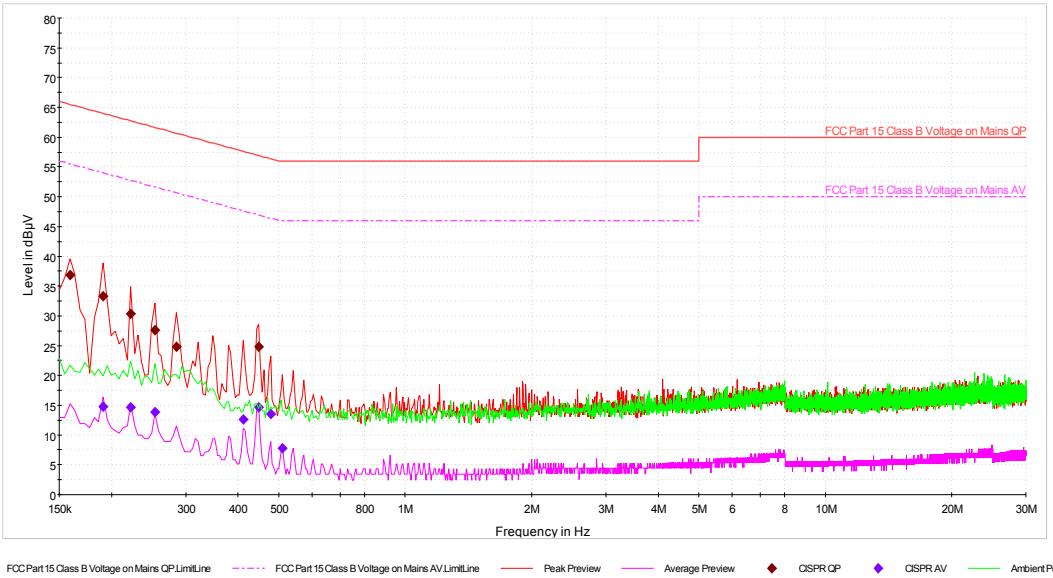


Graph 90

EMC Bayswater Pty. Ltd.

Conducted Emissions – RX mode
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Middle Channel – Neutral Line

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF



Graph 91

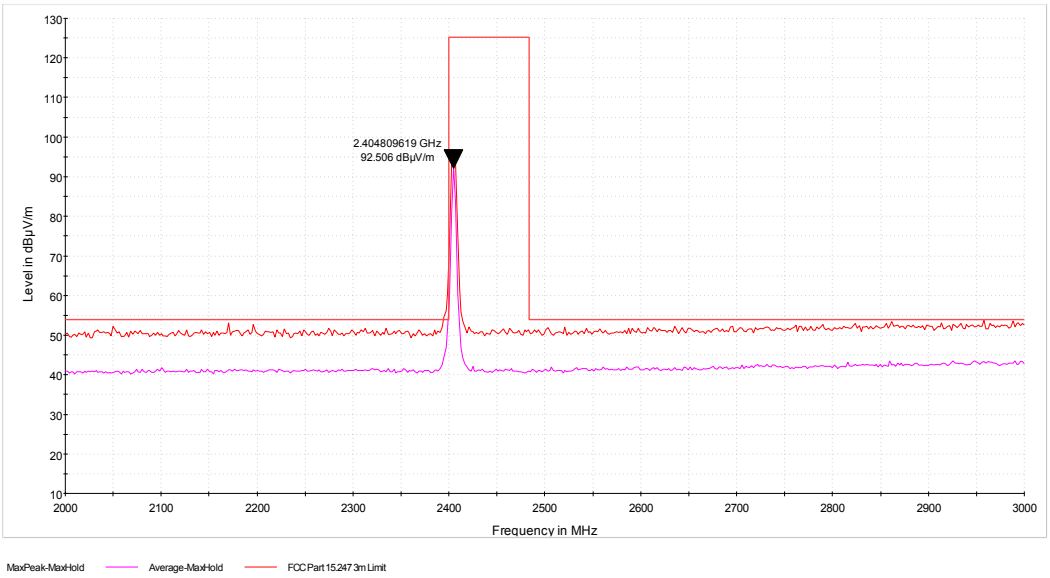
Appendix C.12 – Measurement Graphs – Internal Antenna - Y Orientation

No.	Test	Graph Description
92	Radiated Spurious and Harmonic Emissions – Tx - 2GHz to 3GHz – Y Orientation	Bottom Channel – Horizontal Antenna
93		Bottom Channel – Vertical Antenna
94		Middle Channel – Horizontal Antenna
95		Middle Channel – Vertical Antenna
96		Top Channel – Horizontal Antenna
97		Top Channel – Vertical Antenna

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Tx- Int Ant
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Bottom Channel – 2GHz to 3GHz - Horizontal Antenna - Y

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

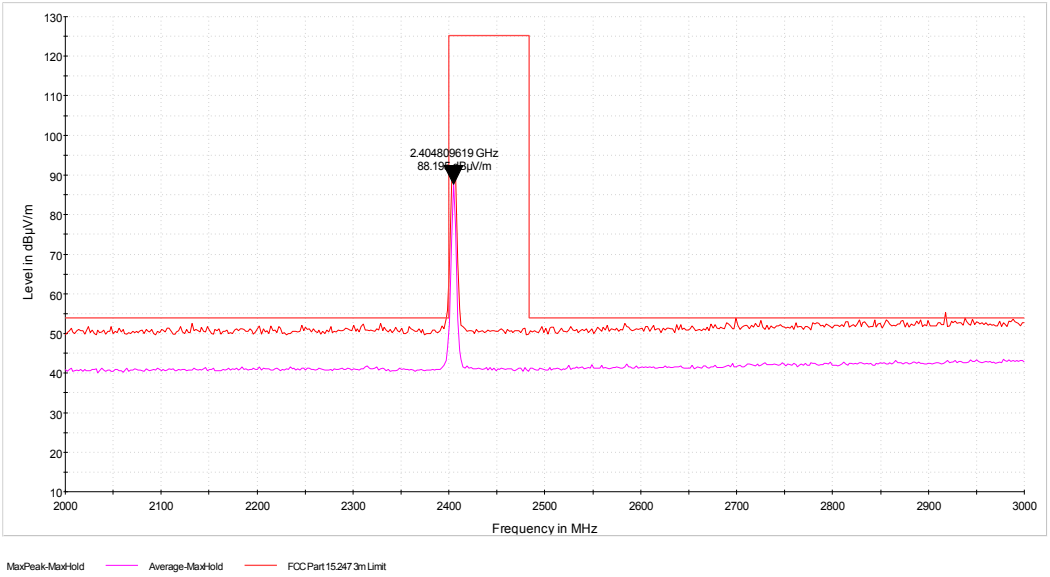


Graph 92

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Tx- Int Ant
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Bottom Channel – 2GHz to 3GHz - Vertical Antenna - Y

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

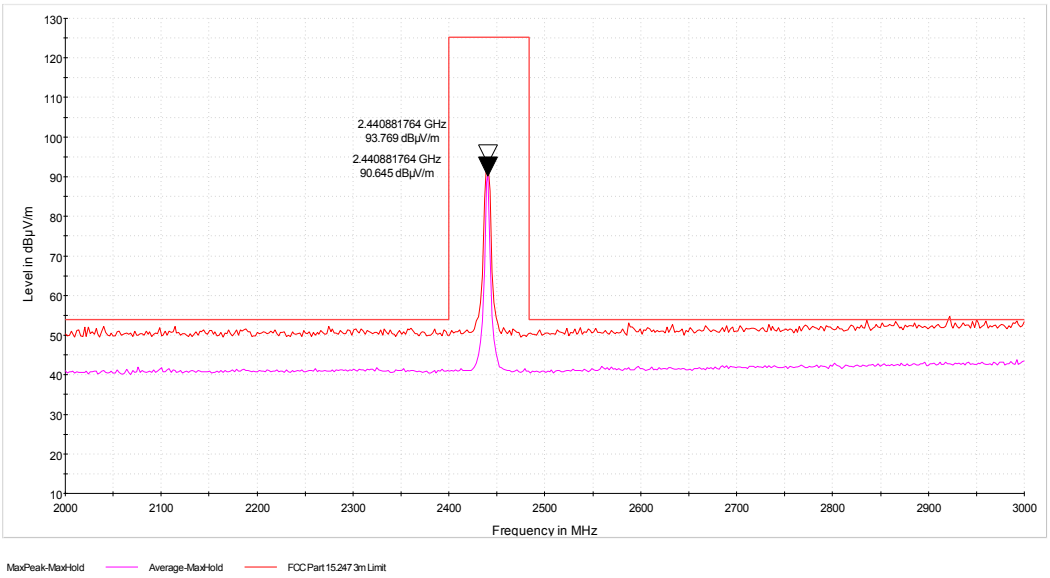


Graph 93

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Tx- Int Ant
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Middle Channel – 2GHz to 3GHz - Horizontal Antenna - Y

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

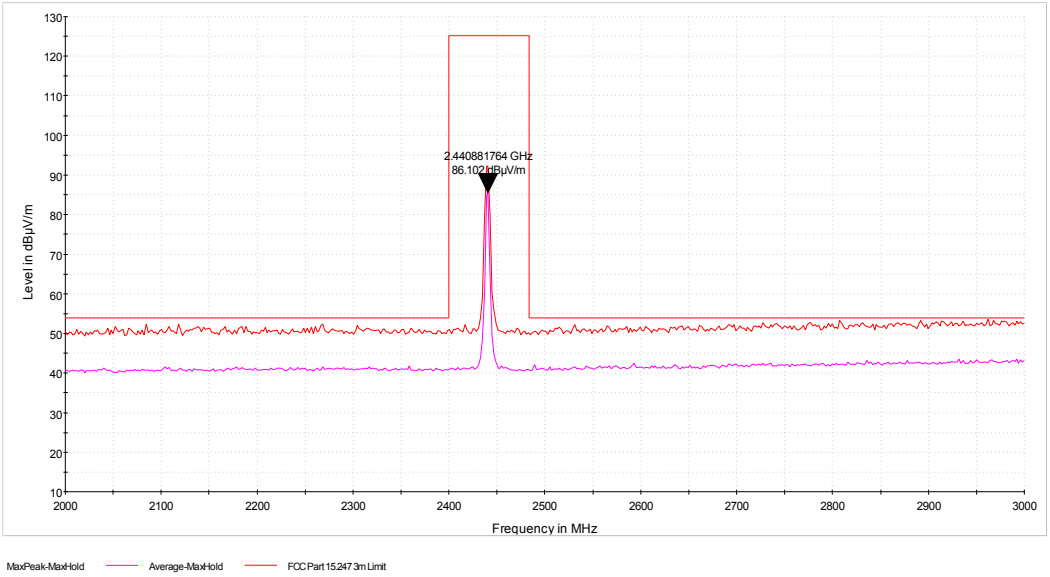


Graph 94

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Tx- Int Ant
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Middle Channel – 2GHz to 3GHz - Vertical Antenna - Y

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

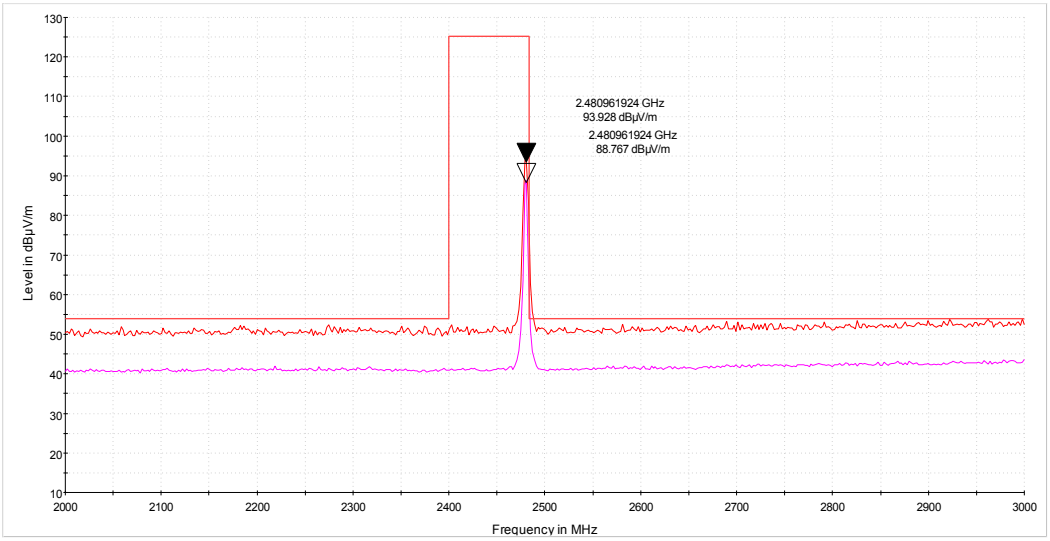


Graph 95

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Tx- Int Ant
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Top Channel – 2GHz to 3GHz - Horizontal Antenna - Y

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

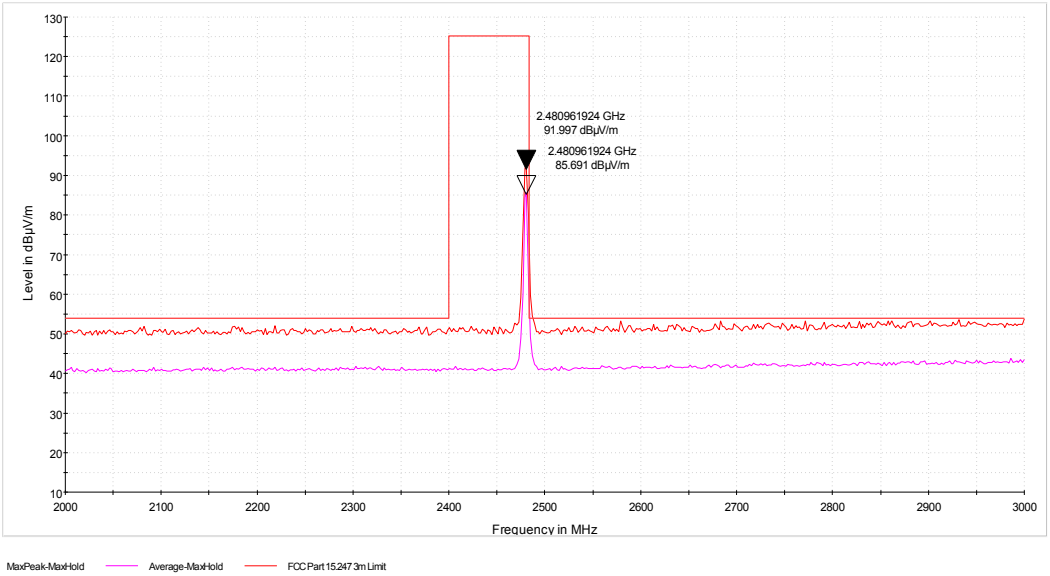


Graph 96

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Tx- Int Ant
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Top Channel – 2GHz to 3GHz - Vertical Antenna - Y

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF



Graph 97

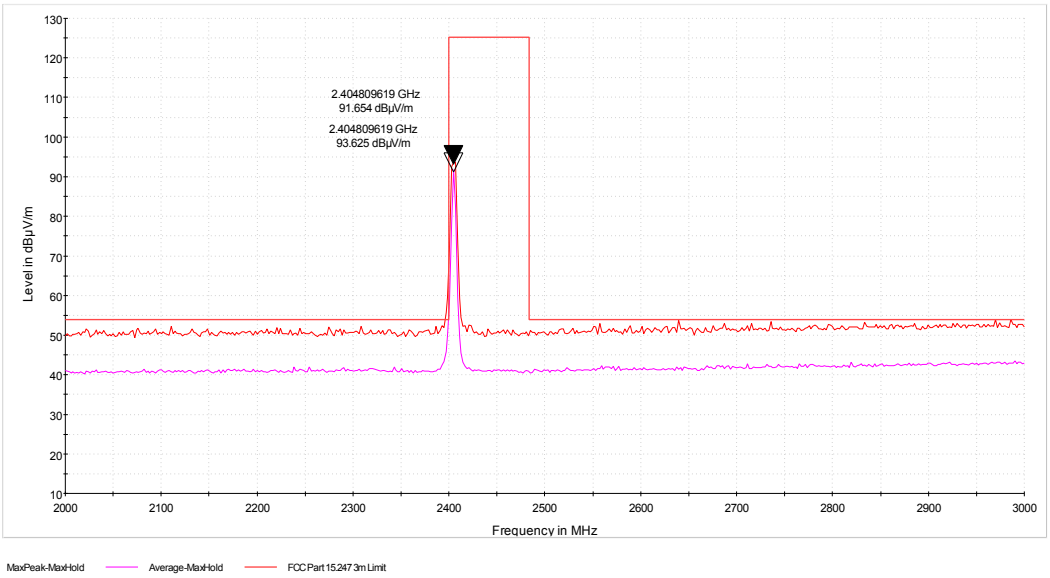
Appendix C.13 – Measurement Graphs – Internal Antenna - Z Orientation

No.	Test	Graph Description
98	Radiated Spurious and Harmonic Emissions – Tx - 2GHz to 3GHz – Z Orientation	Bottom Channel – Horizontal Antenna
99		Bottom Channel – Vertical Antenna
100		Middle Channel – Horizontal Antenna
101		Middle Channel – Vertical Antenna
102		Top Channel – Horizontal Antenna
103		Top Channel – Vertical Antenna

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Tx- Int Ant
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Bottom Channel – 2GHz to 3GHz - Horizontal Antenna - Z

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

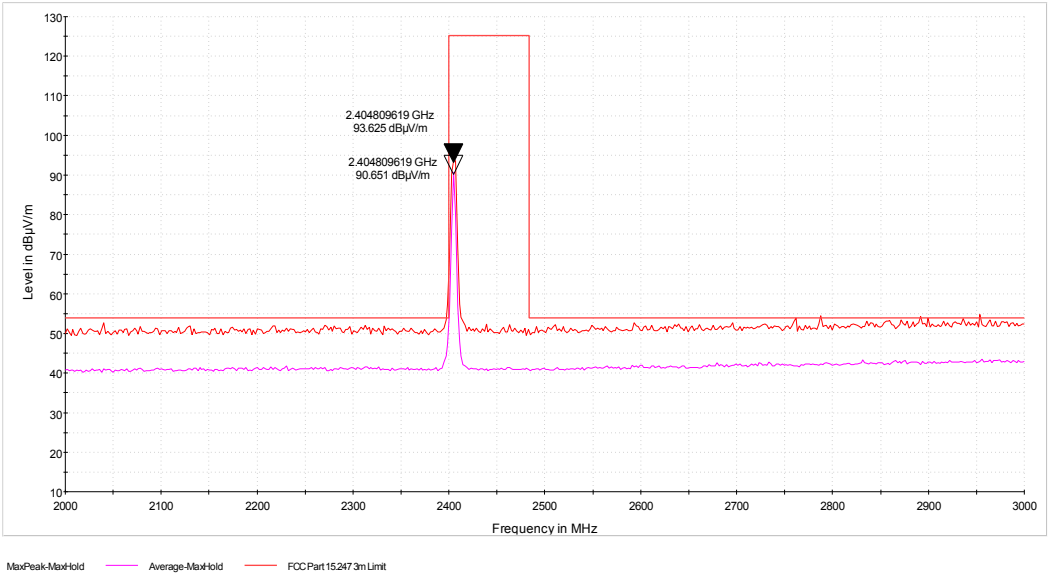


Graph 98

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Tx- Int Ant
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Bottom Channel – 2GHz to 3GHz - Vertical Antenna - Z

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

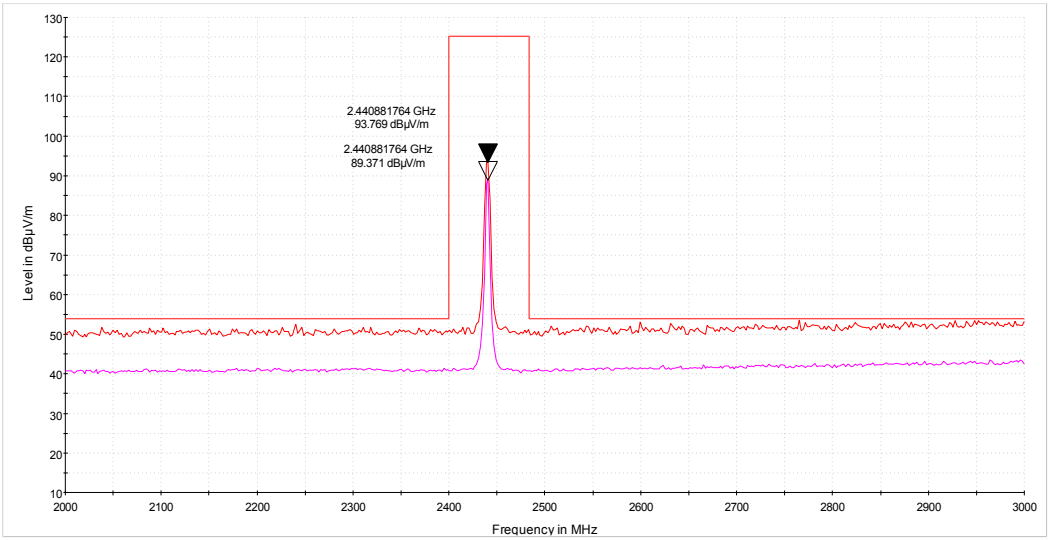


Graph 99

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Tx- Int Ant
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Middle Channel – 2GHz to 3GHz - Horizontal Antenna - Z

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

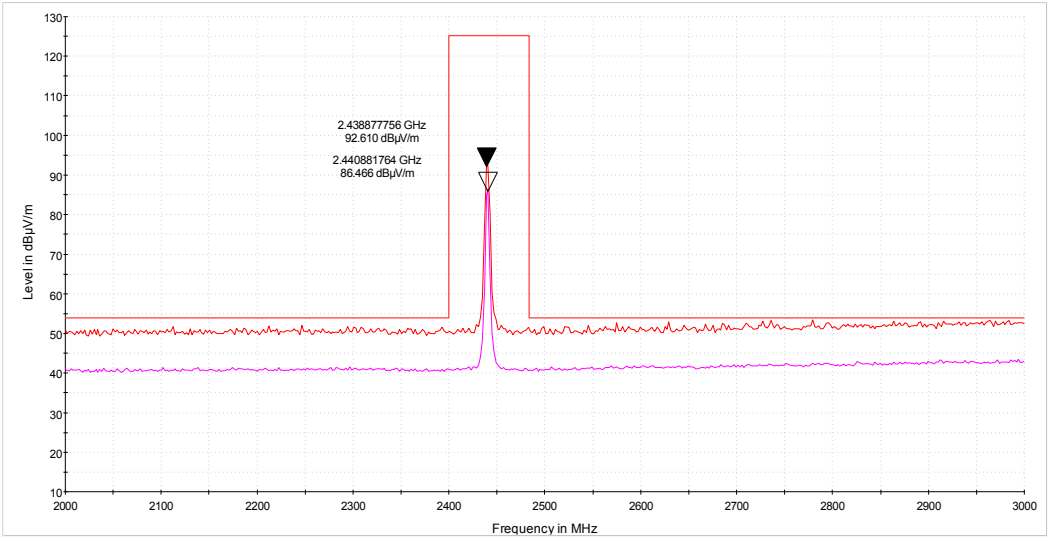


Graph 100

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Tx- Int Ant
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Middle Channel – 2GHz to 3GHz - Vertical Antenna - Z

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

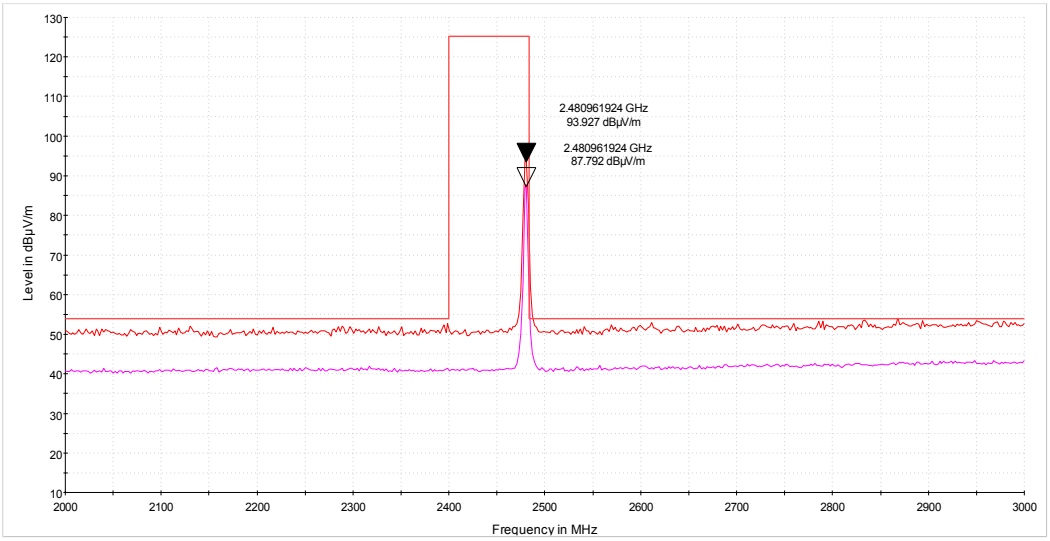


Graph 101

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Tx- Int Ant
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Top Channel – 2GHz to 3GHz - Horizontal Antenna - Z

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

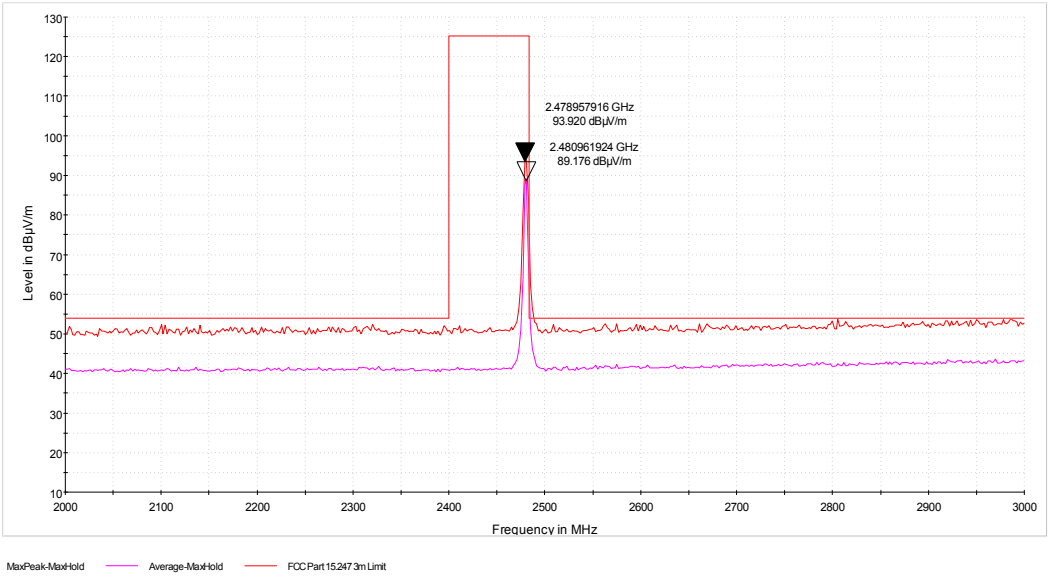


Graph 102

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Tx- Int Ant
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Top Channel – 2GHz to 3GHz - Vertical Antenna - Z

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF



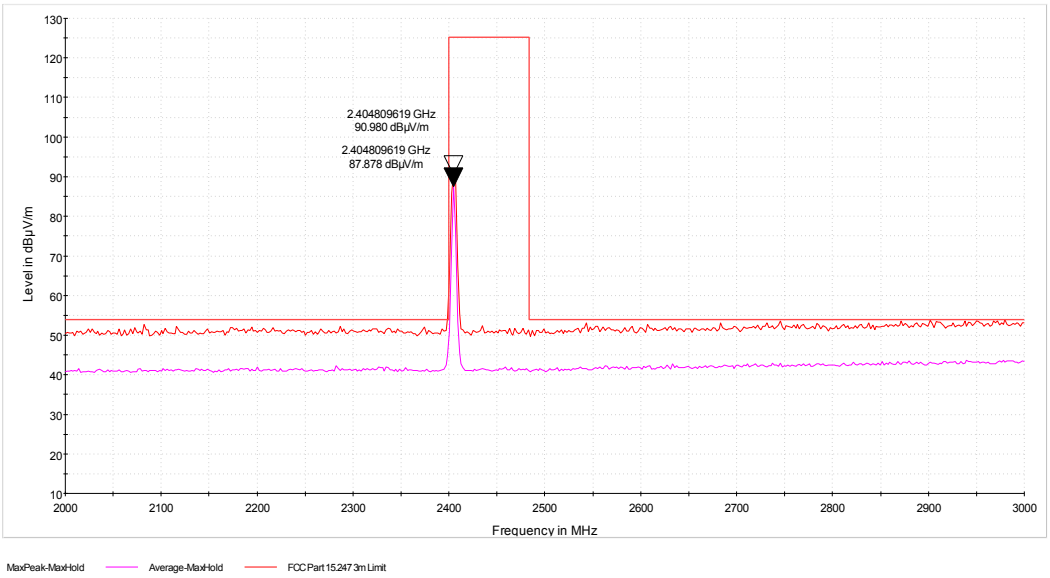
Graph 103

Appendix C.14 – Measurement Graphs – External Antenna - X Orientation

No.	Test	Graph Description
104	Radiated Spurious and Harmonic Emissions – Tx - 2GHz to 3GHz – X Orientation External Antenna	Bottom Channel – Horizontal Antenna
105		Bottom Channel – Vertical Antenna
106		Middle Channel – Horizontal Antenna
107		Middle Channel – Vertical Antenna
108		Top Channel – Horizontal Antenna
109		Top Channel – Vertical Antenna

EMC Bayswater Pty. Ltd.

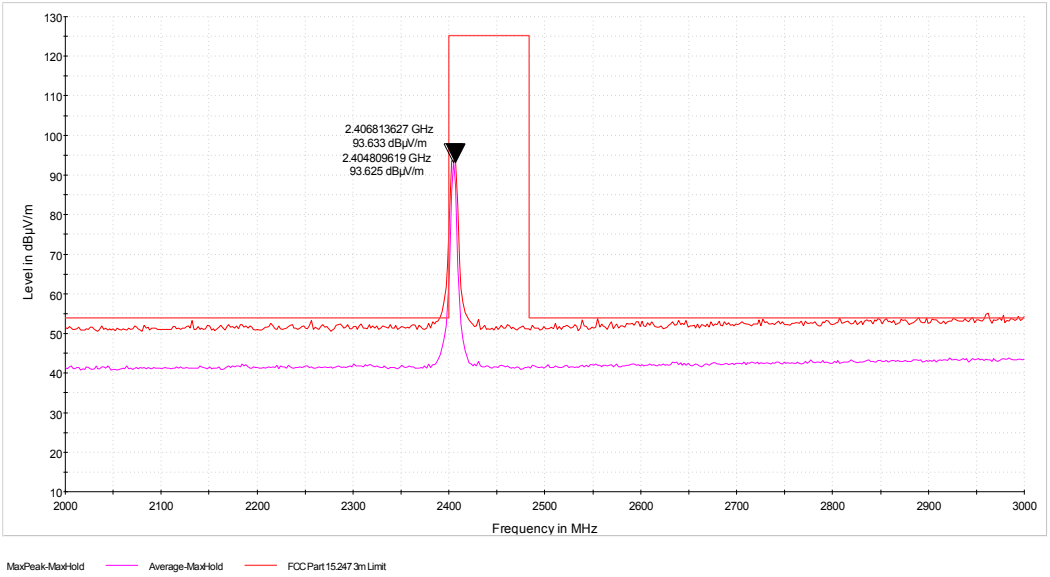
Radiated Spurious and Harmonic Emissions - Tx- Ext Ant Job Number: E1110-0077-2 Rev 5
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Bottom Channel – 2GHz to 3GHz - Horizontal Antenna - X Test Engineer: CNF



Graph 104

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Tx- Ext Ant Job Number: E1110-0077-2 Rev 5
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Bottom Channel – 2GHz to 3GHz - Vertical Antenna - X Test Engineer: CNF

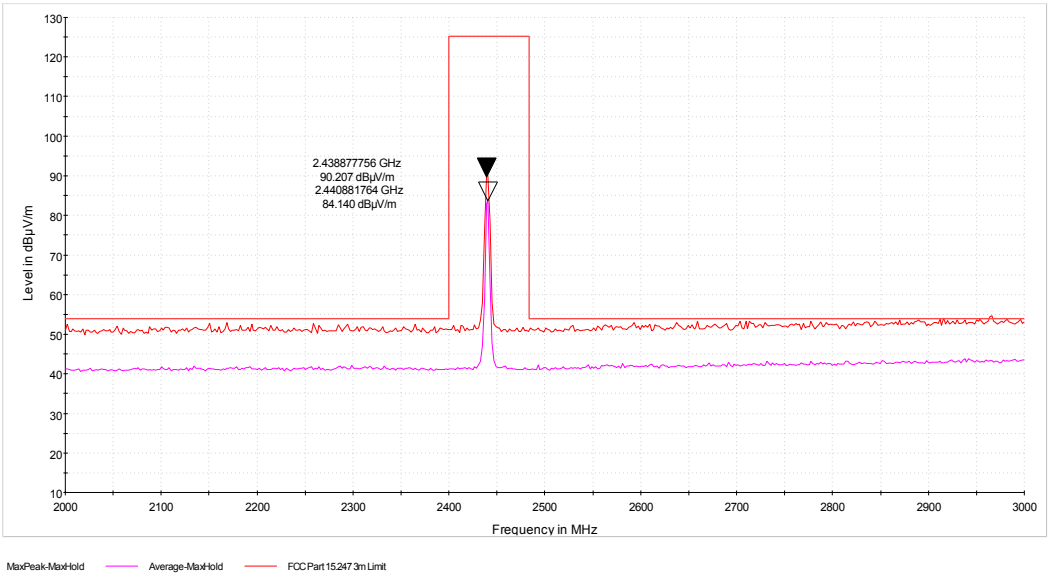


Graph 105

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Tx- Ext Ant
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Middle Channel – 2GHz to 3GHz - Horizontal Antenna - X

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

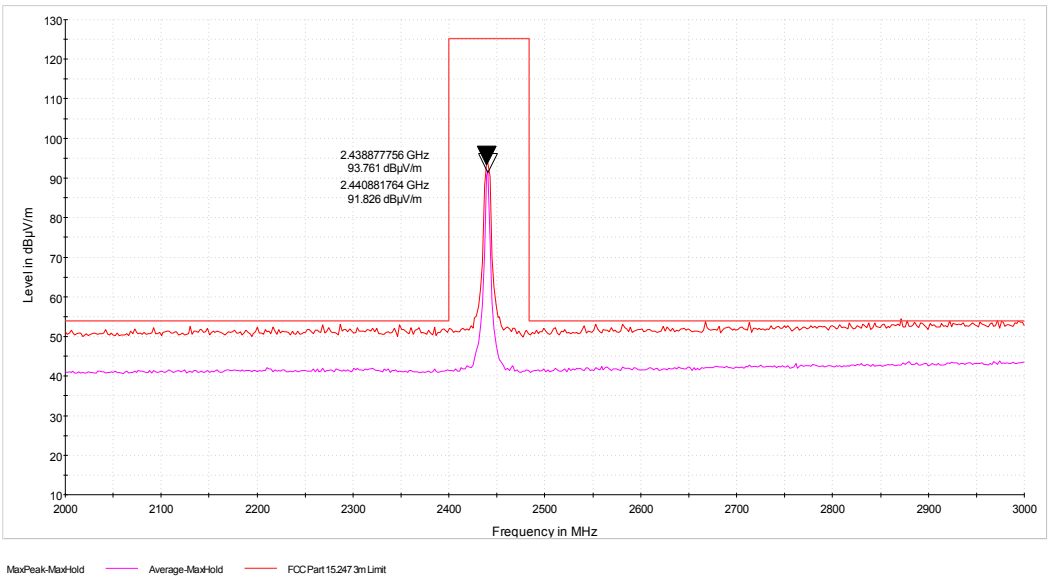


Graph 106

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Tx- Ext Ant
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Middle Channel – 2GHz to 3GHz - Vertical Antenna - X

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

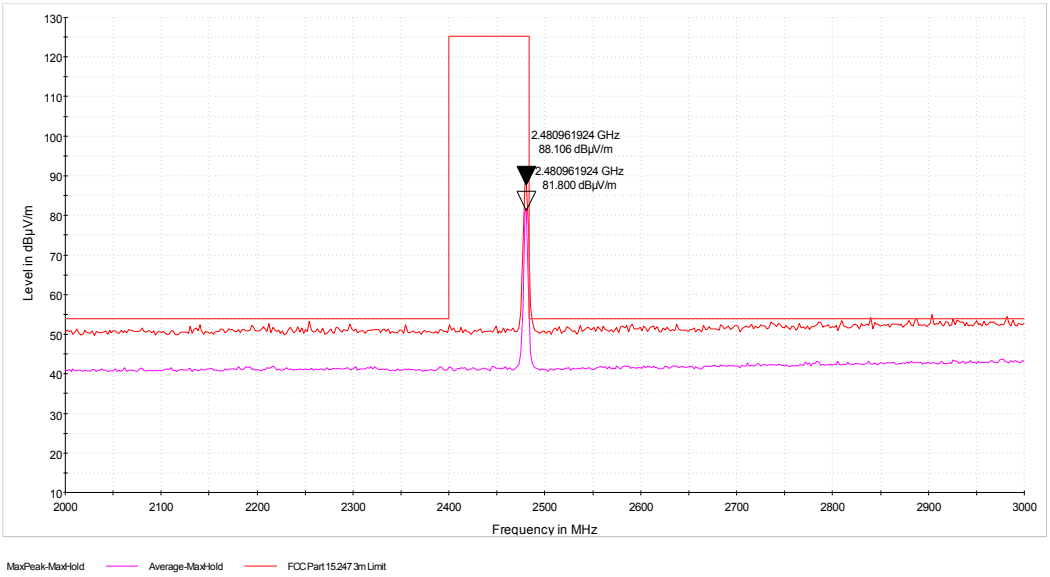


Graph 107

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Tx- Ext Ant
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Top Channel – 2GHz to 3GHz - Horizontal Antenna - X

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

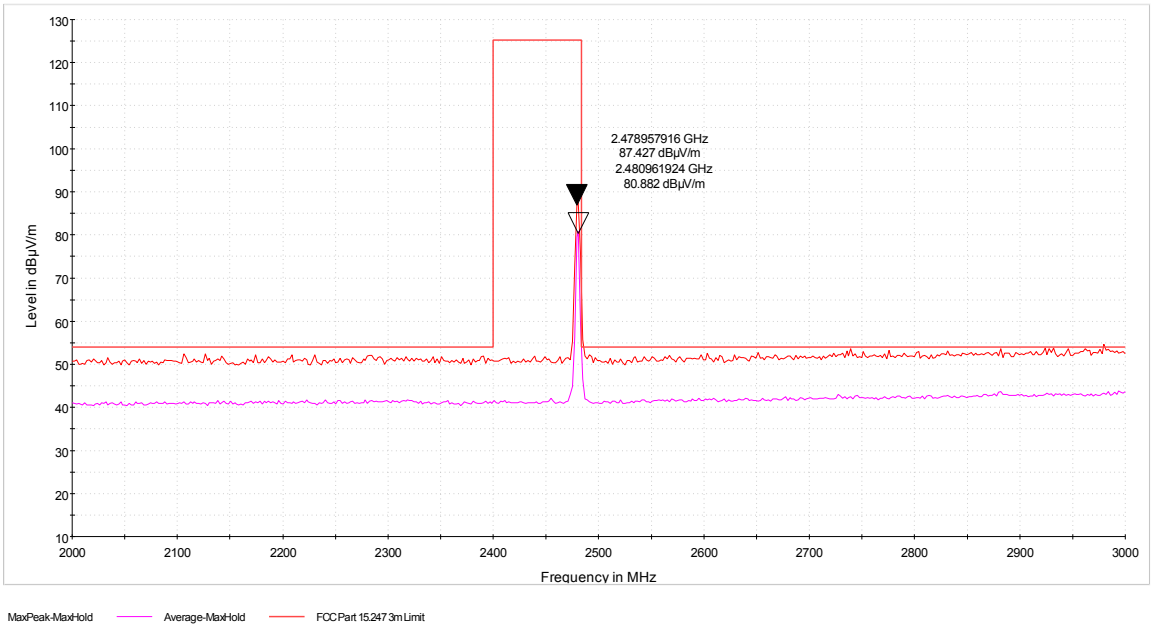


Graph 108

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Tx- Ext Ant
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Top Channel – 2GHz to 3GHz - Vertical Antenna - X

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF



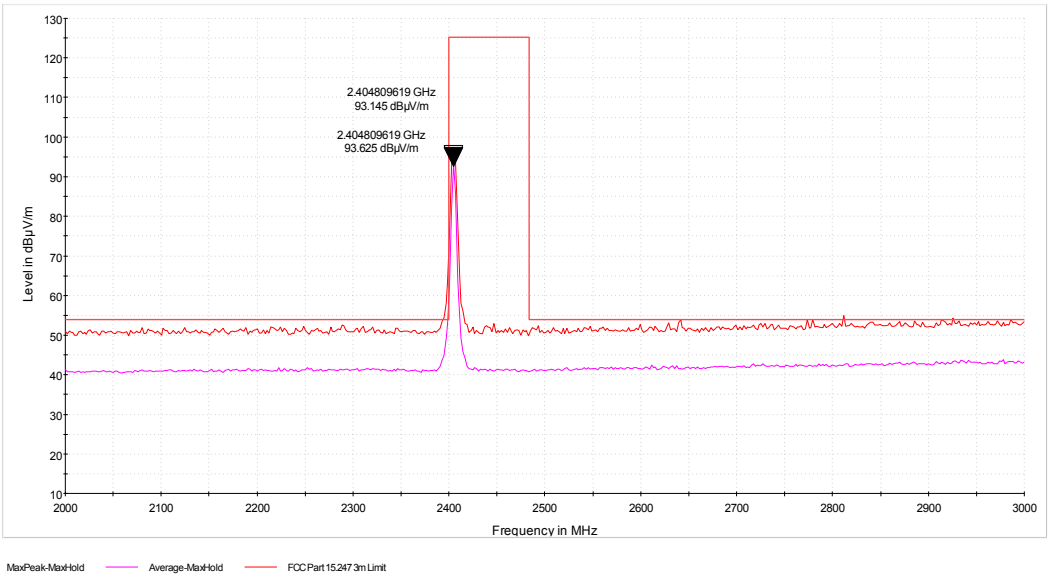
Graph 109

Appendix C.15 – Measurement Graphs – External Antenna - Y Orientation

No.	Test	Graph Description
110	Radiated Spurious and Harmonic Emissions – Tx - 2GHz to 3GHz – Y Orientation External Antenna	Bottom Channel – Horizontal Antenna
111		Bottom Channel – Vertical Antenna
112		Middle Channel – Horizontal Antenna
113		Middle Channel – Vertical Antenna
114		Top Channel – Horizontal Antenna
115		Top Channel – Vertical Antenna

EMC Bayswater Pty. Ltd.

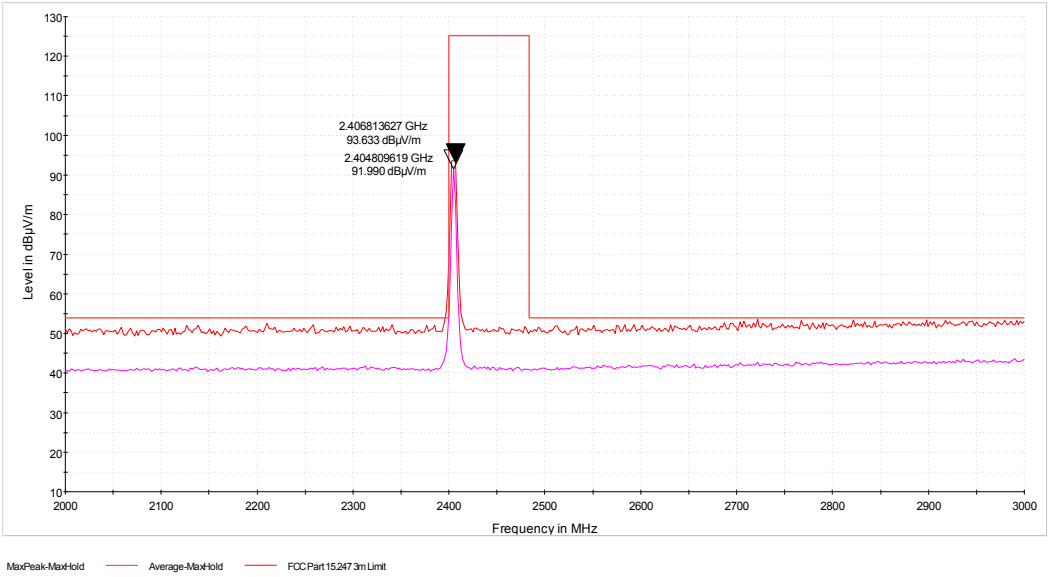
Radiated Spurious and Harmonic Emissions - Tx- Ext Ant Job Number: E1110-0077-2 Rev 5
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Bottom Channel – 2GHz to 3GHz - Horizontal Antenna - Y Test Engineer: CNF



Graph 110

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Tx- Ext Ant Job Number: E1110-0077-2 Rev 5
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Bottom Channel – 2GHz to 3GHz - Vertical Antenna - Y Test Engineer: CNF

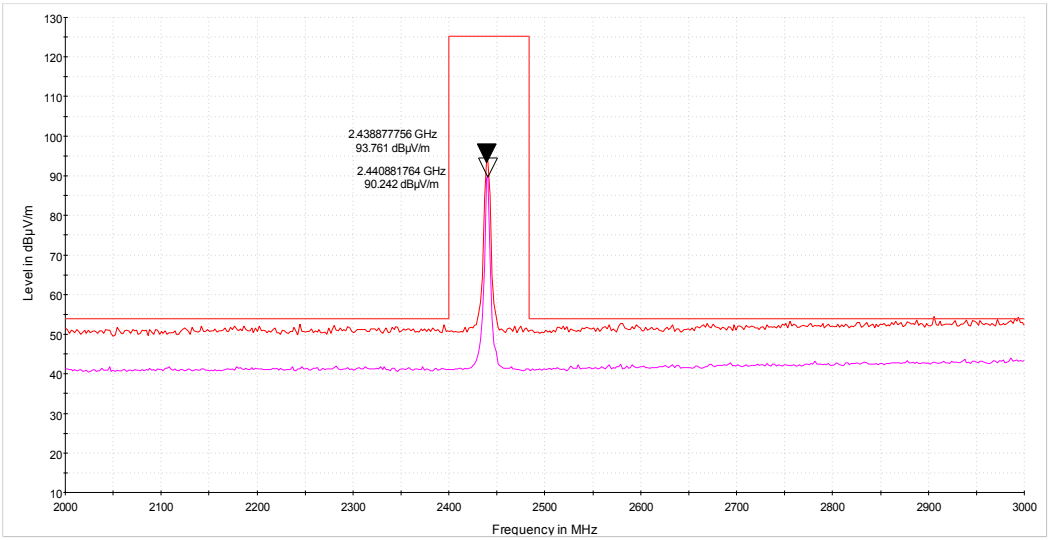


Graph 111

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Tx- Ext Ant
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Middle Channel – 2GHz to 3GHz - Horizontal Antenna - Y

Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF

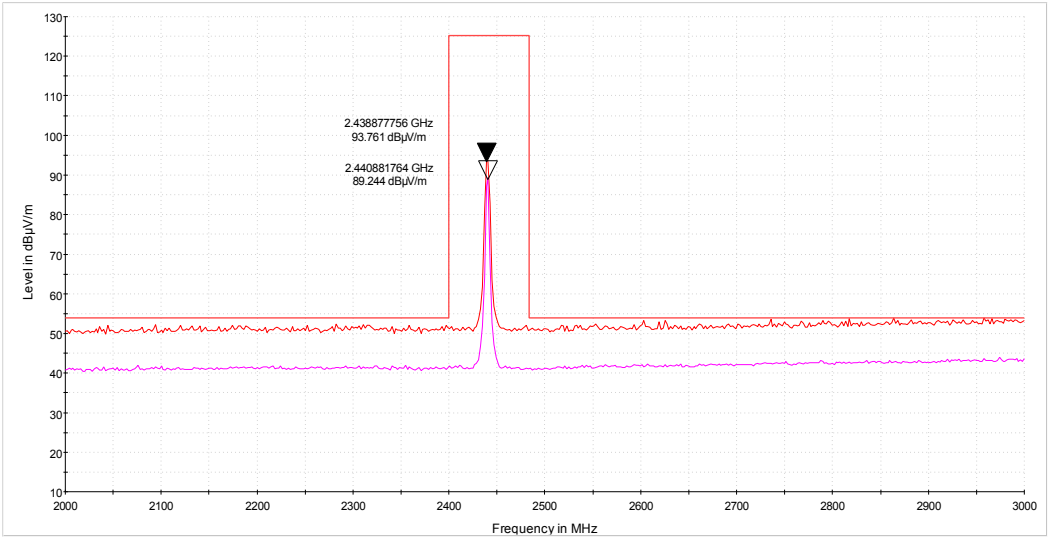


Graph 112

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Tx- Ext Ant
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Middle Channel – 2GHz to 3GHz - Vertical Antenna - Y

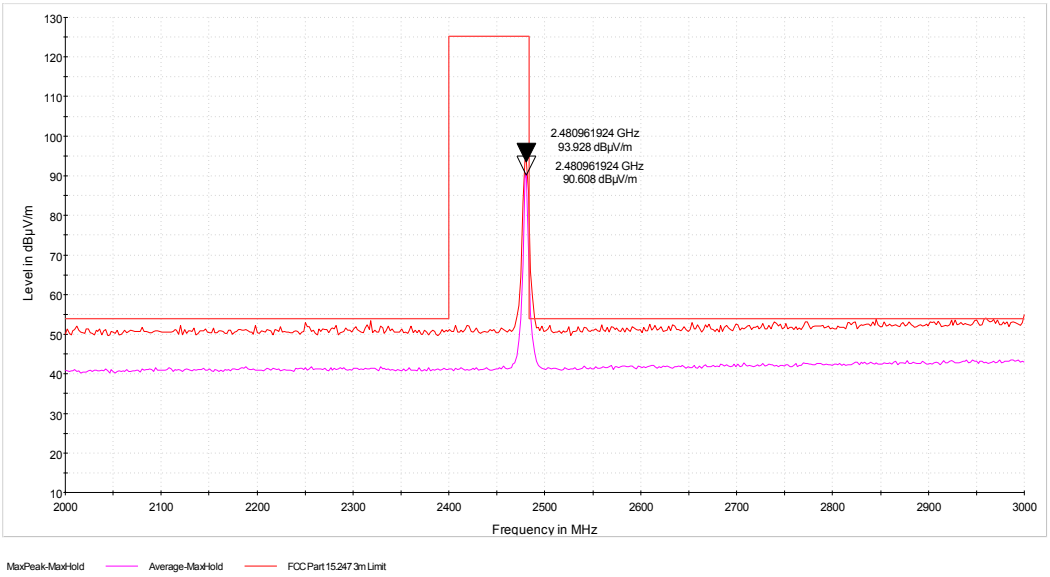
Job Number: E1110-0077-2 Rev 5
Test Engineer: CNF



Graph 113

EMC Bayswater Pty. Ltd.

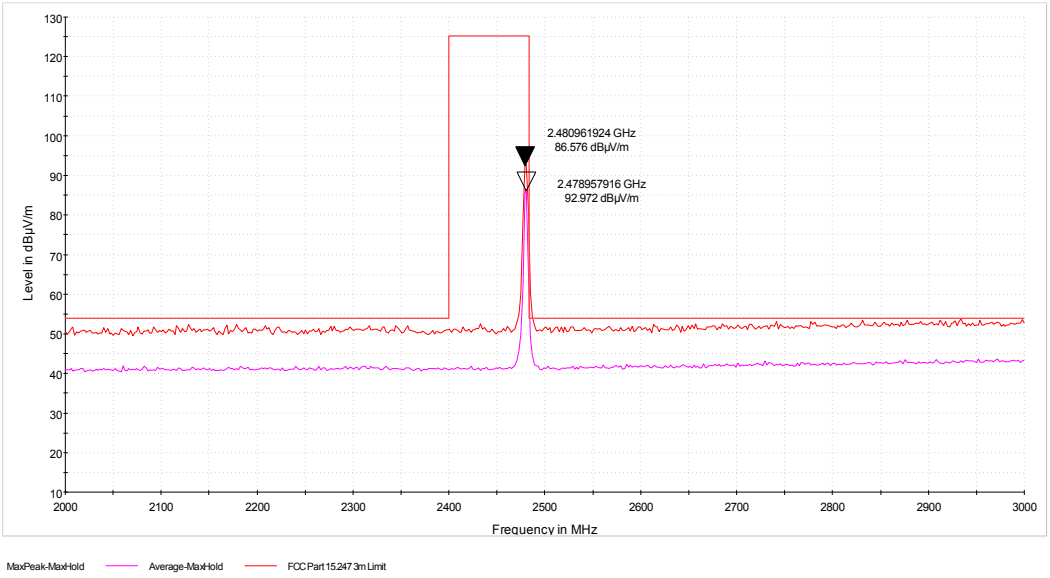
Radiated Spurious and Harmonic Emissions - Tx- Ext Ant Job Number: E1110-0077-2 Rev 5
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Top Channel – 2GHz to 3GHz - Horizontal Antenna - Y Test Engineer: CNF



Graph 114

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Tx- Ext Ant Job Number: E1110-0077-2 Rev 5
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Top Channel – 2GHz to 3GHz - Vertical Antenna - Y Test Engineer: CNF



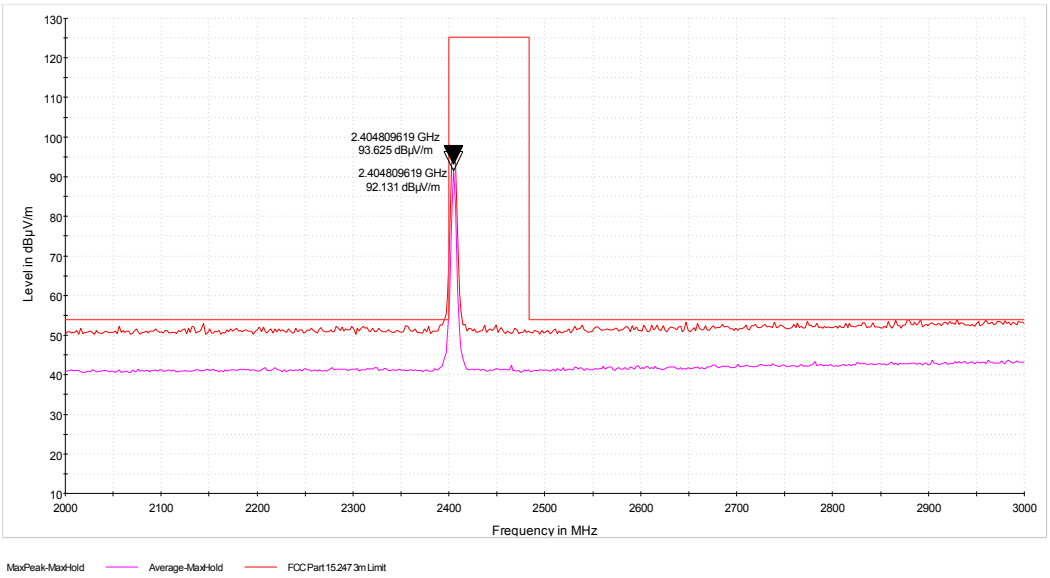
Graph 115

Appendix C.16 – Measurement Graphs – External Antenna - Z Orientation

No.	Test	Graph Description
116	Radiated Spurious and Harmonic Emissions – Tx - 2GHz to 3GHz – Z Orientation External Antenna	Bottom Channel – Horizontal Antenna
117		Bottom Channel – Vertical Antenna
118		Middle Channel – Horizontal Antenna
119		Middle Channel – Vertical Antenna
120		Top Channel – Horizontal Antenna
121		Top Channel – Vertical Antenna

EMC Bayswater Pty. Ltd.

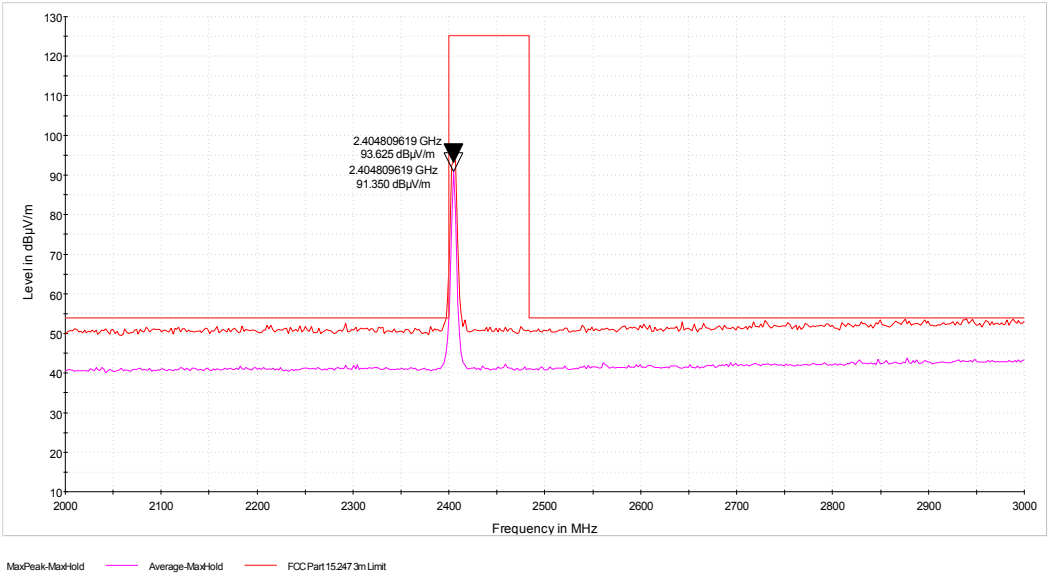
Radiated Spurious and Harmonic Emissions - Tx- Ext Ant Job Number: E1110-0077-2 Rev 5
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Bottom Channel – 2GHz to 3GHz - Horizontal Antenna - Z Test Engineer: CNF



Graph 116

EMC Bayswater Pty. Ltd.

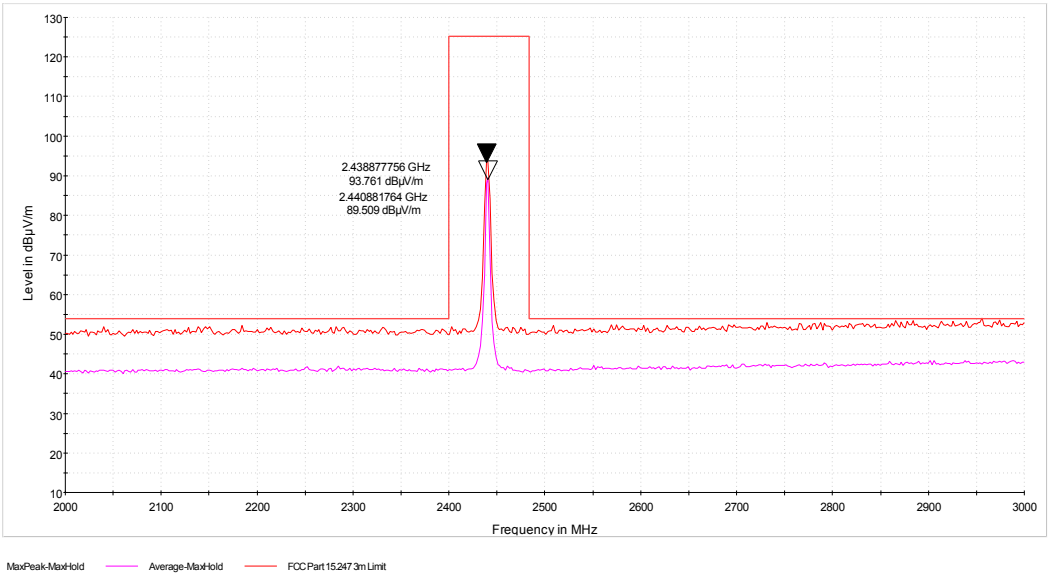
Radiated Spurious and Harmonic Emissions - Tx- Ext Ant Job Number: E1110-0077-2 Rev 5
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Bottom Channel – 2GHz to 3GHz - Vertical Antenna - Z Test Engineer: CNF



Graph 117

EMC Bayswater Pty. Ltd.

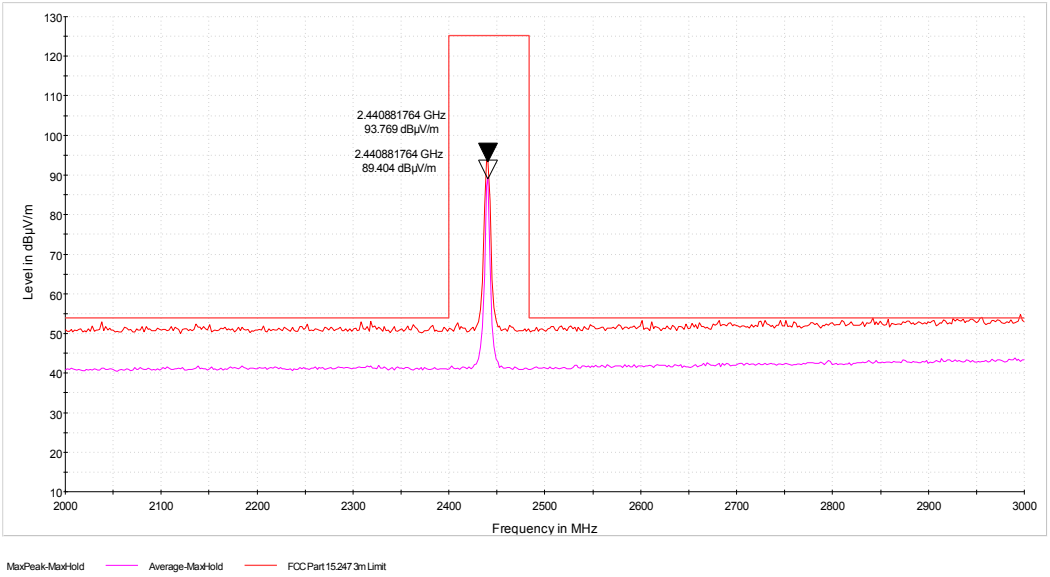
Radiated Spurious and Harmonic Emissions - Tx- Ext Ant Job Number: E1110-0077-2 Rev 5
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Middle Channel – 2GHz to 3GHz - Horizontal Antenna - Z Test Engineer: CNF



Graph 118

EMC Bayswater Pty. Ltd.

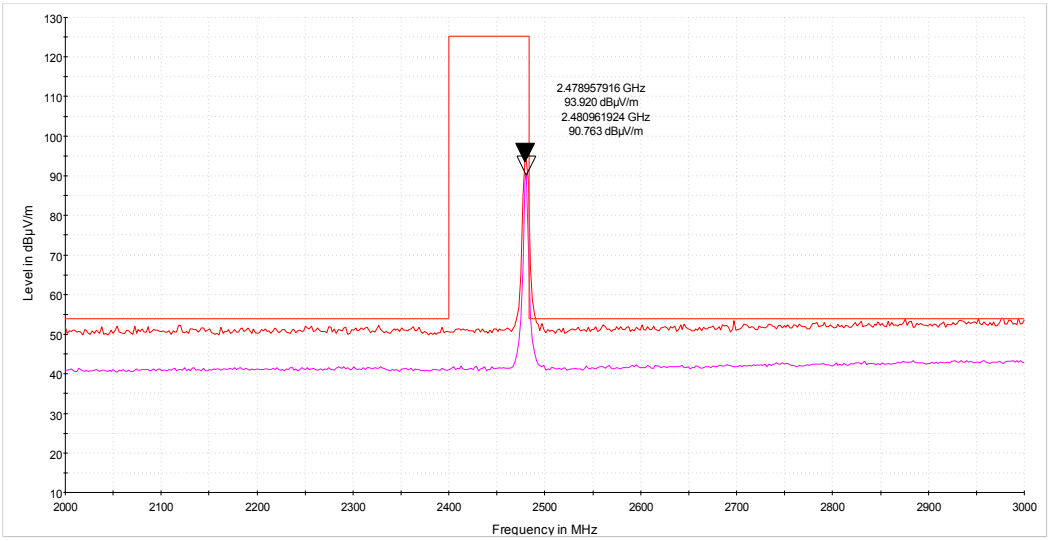
Radiated Spurious and Harmonic Emissions - Tx- Ext Ant Job Number: E1110-0077-2 Rev 5
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Middle Channel – 2GHz to 3GHz - Vertical Antenna - Z Test Engineer: CNF



Graph 119

EMC Bayswater Pty. Ltd.

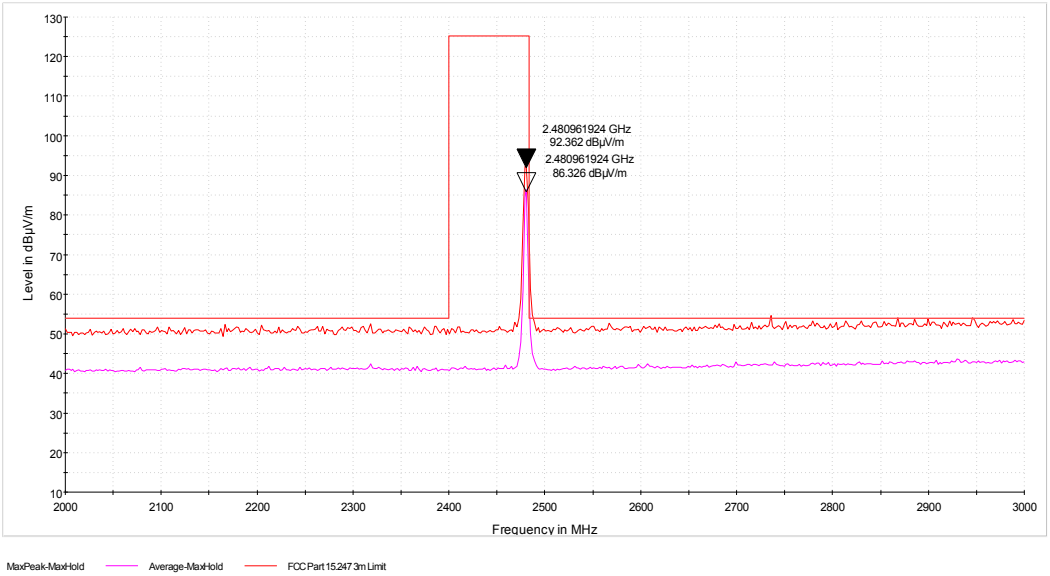
Radiated Spurious and Harmonic Emissions - Tx- Ext Ant Job Number: E1110-0077-2 Rev 5
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Top Channel – 2GHz to 3GHz - Horizontal Antenna - Z Test Engineer: CNF



Graph 120

EMC Bayswater Pty. Ltd.

Radiated Spurious and Harmonic Emissions - Tx- Ext Ant Job Number: E1110-0077-2 Rev 5
Daintree Networks Pty Ltd - DT357 - ZigBee RF module
Top Channel – 2GHz to 3GHz - Vertical Antenna - Z Test Engineer: CNF



Graph 121