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EMC COMPLIANCE REPORT
Certification Test Report
In accordance with:
CFR47 FCC Part 15, Subpart C, 15.247

Adherium (NZ) Limited

NF0107

Hailie for GSK pMDI

FCC ID: PN2-MDI1

REPORT: E2202-1514-5 Rev 1
DATE: November, 2022



**WORLD RECOGNISED
ACCREDITATION**

Accreditation Number: 18553
Accredited for compliance with ISO/IEC 17025 - Testing

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Certificate of Compliance

Certification Compliance Report

EMC Bayswater Test Report: E2202-1514-5 Rev 1
Issue Date: November, 2022

Test Sample(s): Hailie for GSK pMDI
Model No: NF0107
Serial No: Beta 03, Beta 29
FCC ID: PN2-MDI1

Customer Details: Mr. Igbal Syre
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Test Specification: CFR47 FCC Part 15, Subpart C, 15.247

| | | |
|-------------------------|---|-----------------|
| Results Summary: | 15.203 - Antenna requirement | Complied |
| | 15.247 (a) (2) - 6dB Bandwidth | Complied |
| | 15.247 (b)(3) – Maximum Output Power | Complied |
| | 15.247 (d) - Out-of-Band Emissions -- 100kHz, -20dBc | Complied |
| | 15.247 (d) - Emissions on the Band edge | Complied |
| | 15.247 (d), 15.209 – Radiated emissions in Restricted bands | Complied |
| | 15.247 (e) - Power Spectral Density | Complied |
| | 15.247 (i) - Radio frequency hazard | Complied |

Test Date(s): 22nd February to 7th March 2022

**Test House
(Issued By)** EMC Bayswater Pty Ltd
18/88 Merrindale Drive
Croydon South
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Australia

FCC Accredited Test Firm Registration number: 527798
FCC Accredited Test Firm Designation number: AU0004

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This is to certify that the necessary measurements were made by EMC Bayswater Pty Ltd, and that the Adherium (NZ) Limited, NF0107, Hailie for GSK pMDI, has been tested in accordance with requirements contained in the appropriate commission regulations.

Prepared by:



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Approved by:



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02/11/2022 16:53

Date

EMC Compliance Report for Adherium (NZ) Limited

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1. Introduction

Electromagnetic Compatibility (EMC) tests were performed on a Adherium (NZ) Limited, NF0107, Hailie for GSK pMDI in accordance with the requirements of Title 47 of the standard CFR47 FCC Part 15, Subpart C, 15.247.

2. Test Report Revision History

| ISSUE | DATE | Description | AUTHORISED BY |
|-------------------|------------|--|-------------------------------------|
| E2202-1514-5 | 2022-09-29 | Original | Neville Liyanapatabendige (Manager) |
| E2202-1514-5 Rev1 | 2022-11-02 | <ul style="list-style-type: none"> Updated the customer's address Corrected the antenna gain per customer request. | Neville Liyanapatabendige (Manager) |

3. Report Information

EMC Bayswater Pty Ltd reports apply only to the specific samples tested under the stated test conditions. All samples tested were in good operating condition throughout the entire test program unless otherwise stated. EMC Bayswater Pty Ltd does not in any way guarantee the later performance of the product/equipment. It is the manufacturer's responsibility to ensure that additional production units of the tested model are manufactured with identical electrical and mechanical components. EMC Bayswater Pty Ltd shall have no liability for any deductions, inference or generalisations drawn by the clients or others from EMC Bayswater Pty Ltd issued reports. This report shall not be used to claim, constitute or imply product endorsement by EMC Bayswater Pty Ltd. This report shall not be reproduced except in full (with the exception of the certificate on page 2) without the written approval of EMC Bayswater Pty Ltd. This document may be altered or revised by EMC Bayswater Pty Ltd personnel only, and shall be noted in the revision section of the document. Any alteration of this document not carried out by EMC Bayswater Pty Ltd will nullify the document.

4. Summary of Results

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

| FCC Part 15C sections | Test | Result |
|-----------------------|---|------------------------|
| 15.203 | Antenna Requirement | Complied ^{#1} |
| 15.247 (a) (2) | 6dB Bandwidth | Complied by 1kHz |
| 15.247 (b)(3) | Maximum Peak Output Power | Complied by 37.9dB |
| 15.247 (d) | Out-of-Band Emissions - – 100kHz, -20dBc | Complied by 22.9dB |
| 15.247 (d)- | Emissions on the Band edge | Complied by 23.1dB |
| 15.247 (d), 15.209 | Radiated emissions in Restricted bands | Complied by 13.6dB |
| 15.247 (e) | Power Spectral Density | Complied by 26.26dB |
| | Occupied Bandwidth (99% Emission Bandwidth) | 937kHz |

^{#1}The Antenna is permanently attached, internal to the device

Table 1: Summary of test results

5. Product Sample Details

5.1. EUT Description

The EUT (Equipment Under Test), as supplied by the client, is described as follows:

| | | |
|-----------------------|--|---|
| Product: | Hailie for GSK pMDI | |
| Model No: | NF0107 | |
| Variant: | None | |
| Serial No: | Beta 03, Beta 29 | |
| Firmware Version: | GSK_PMDI_EMCRFTEST_V8.7.dev_B60361.hex | |
| Software Version: | SoftDevice S112 v6.1.1 | |
| Dimensions: | 37mm x 40mm x 68mm (Length x Width x Height) | |
| Weight: | 37g | |
| Power Specifications: | Battery Powered 1 x CR2032 coin cell and 1 x CR1620 3.0V coin cell | |
| Transmitter details: | Description: | nRF52832-QFAA-R7 |
| | Type: | Bluetooth Low Energy |
| | Modulation: | GFSK |
| | Channels: | 40 channels with 2 MHz spacing (3 advertising channels/37 data channels). |
| | Max power: | 0 dBm |
| | Antenna: | Custom PCB trace antenna on flex tail |
| | Customer declared Antenna Gain: | -9.2dBi |

(Customer supplied product information)

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

5.2. Product description

The EUT (Equipment Under Test) has been described by the customer as follows:

“The Hathaway product has two variants – Hathaway Short (NF0107) and Hathaway Tall (NF0108). The device is a small hand-held battery-powered electronic module which an inhaler is inserted into.

The product variations are to be used with a short and tall inhaler respectively. It reminds the user when medication is due and logs when medication is taken.

It is powered by two-coin cell batteries and can transfer log data via Bluetooth Low Energy (BLE) for later analysis by a health professional.”

(Customer supplied product description information)

The highest fundamental frequency generated or used within the EUT, or the highest frequency at which it operates as specified by the customer is 2480MHz (BLE IC).

5.3. Support Equipment

| | | |
|----------------------|----------------|-------------------------------|
| Support Equipment: 1 | Description: | Inhaler |
| | Manufacturer: | gsk |
| | Model: | Not stated |
| | Serial number: | Not Stated |
| Support Equipment: 2 | Description: | Laptop |
| | Manufacturer: | Acer |
| | Model No: | N19Q8 |
| | Serial No: | None Stated |
| | Software: | Smartinhaler Test Application |

5.4. Product operating modes

“Deep Sleep mode

Device is in deep sleep with all peripherals disabled. This mode is used for long term storage to minimise energy consumption.

Normal operating mode

The standard operating mode with all sub-systems functional. The device is in idle state until movement is detected. Inhaler presence, actuation detection, ambient temperature and flow systems then start sampling. Event logs are created and saved when one of many events is detected. When required, the device can be connected to via BLE and the companion app and event logs downloaded.”

(Customer supplied product operating mode information)

5.5. Product operating mode for testing

The customer described the products normal operation modes as the following:

“Device transmits constantly at maximum TX power with modulation at the lowest, middle, and highest channels. The User Button is used to change between the modes.”

(Customer supplied product operating mode for testing information)

5.6. Configuration

The EUT was either configured by the customer or configured using the customer’s instructions.

The device was connected to an external power supply as the internal battery cannot sustain extended periods of high current draw. The GSK inhaler was present (except for Conducted method testing). The device transmitted at maximum TX power at the lowest, middle and highest TX frequencies. The User Button is used to change between the channels.

Customer supplied a sample with a temporary SMA connector for Conducted method testing (with a SMA connector soldered (after the antenna matching network) in place of the antenna. The onboard PCB trace antenna was disconnected).

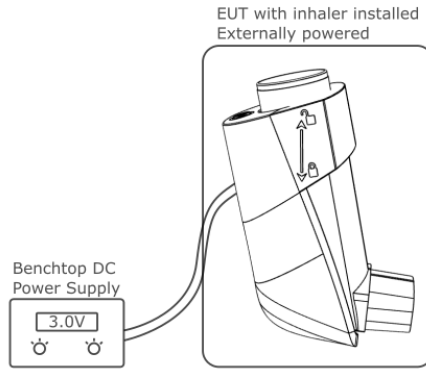


Figure 1: Block diagram of EUT test configuration – Radiated Method

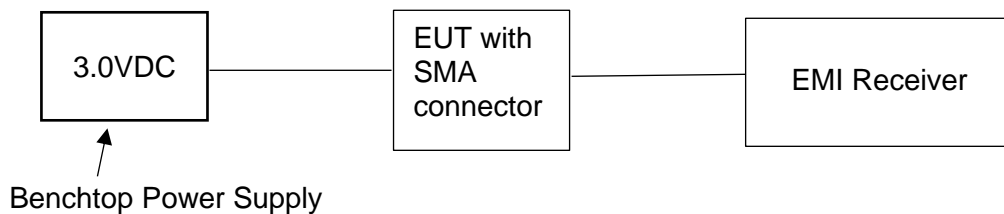


Figure 2: Block diagram of EUT test configuration – Conducted Method

5.7. Modifications

EMC Bayswater Pty Ltd did not modify the EUT.

6. Test Facility & Equipment

6.1. Test Facility

Tests were performed at the indoor Open Area Test Site (iOATS) at EMC Bayswater Pty Ltd, located at 18/88 Merrindale Drive, Croydon South, Victoria, 3136, Australia.

EMC Bayswater Pty Ltd FCC Test Firm registration number is 527798.

EMC Bayswater Pty Ltd FCC Test Firm Designation number is AU0004.

6.2. Test Equipment

Refer to Appendix A for the measurement instrument list.

7. Referenced Standards

CFR47 FCC Part 15, Subpart C, 15.247

CFR47 FCC Part 15, Subpart B

ANSI C63.10 - 2013

American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices

ANSI C63.4 - 2014

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.

FCC KDB - 558074 D01 15.247 Meas Guidance v05r02

8. Referenced Documents

Planet Innovation Test Plan

Document Title: Hathaway EMC Test Plan

Doc No: 494_1074

Version: 01

Date: 10-Feb-2022

9. Antenna Requirement – FCC Part 15.203

9.1. Requirements

As per section 15.203 of CFR47 FCC Part 15, Subpart C, 15.247:

- An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

9.2. Result

The EUT uses permanent, internally attached antenna which is etched into the PCB. Therefore the EUT complied with the antenna requirements of CFR47 FCC Part 15, Subpart C, 15.247 Section 15.203.

11.6dB Bandwidth – FCC 15.247 (a) (2)

11.1.Test Procedure

The 6dB Bandwidth was performed in accordance with the section 11.8 of ANSI C63.10 - 2013.

6dB Bandwidth measurements were performed at the antenna port (Conducted method). The transmitter output was connected to a spectrum analyzer through a suitable attenuator. The spectrum analyser was tuned to the fundamental (transmit frequency) of the transmitter bottom, centre and top channels 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 resultant bandwidth measurement was recorded.

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

11.2.Limits

Applicable only to systems using digital modulation techniques:

| Transmit operating frequency (MHz) | Minimum 6dB Bandwidth (kHz) |
|------------------------------------|-----------------------------|
| 2400 – 2483.5 | 500 |

Table 2: 6dB Bandwidth

11.3.Test Results

6dB Bandwidth measurements are tabulated below:

(Refer to graphs in Appendix C.1)

| Transmit operating frequency (MHz) | Measured 6dB Bandwidth (kHz) | Minimum 6dB Bandwidth (kHz) | Margin (kHz) | Comment |
|------------------------------------|------------------------------|-----------------------------|--------------|----------|
| 2402 (Bottom) | 501 | 500 | +1 | Complied |
| 2440 (Middle) | 504 | 500 | +4 | Complied |
| 2480 (Top) | 504 | 500 | +4 | Complied |

Table 3: Results for 6dB Bandwidth

The measurement uncertainty was calculated as follows:

| Measurement Parameter | Calculated measurement uncertainty |
|-----------------------|------------------------------------|
| Operating Frequency | ±10.5kHz |
| Bandwidth | ±14.96kHz |

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: | 24°C |
| Humidity: | 50% |
| Atmospheric pressure: | 1016hPa |

Table 4: Climatic conditions

Notes: The minimum required 500kHz 6dB Bandwidth requirements were satisfied by at least 1kHz.

The transmitter was continuously transmitting in modulated transmit mode.

Assessment: The EUT complied with the 6dB Bandwidth requirements of CFR47 FCC Part 15, Subpart C, 15.247 (a)(2).

12. Occupied Channel Bandwidth (99% Emission Bandwidth)

12.1. Test Procedure

The 99% emission Bandwidth was performed in accordance with the section 6.9.3 of ANSI C63.10 - 2013.

99% Emission Bandwidth measurements were performed at at the antenna port (Conducted method). The transmitter output was connected to a spectrum analyzer through a suitable attenuator. The spectrum analyzer centre frequency was tuned to the fundamental (transmit frequency) of the transmitter with the span of the analyzer was set to capture all products of the modulation process, including the emission skirts. The resolution bandwidth (RBW) was set to 1% to 5% of the occupied bandwidth and video bandwidth (VBW) was set to three times the RBW.

A peak detector, maxhold function (worst case) was used to measure the occupied bandwidth, using the built-in 99% occupied bandwidth measurement function of the receiver. The resultant bandwidth measurement was recorded.

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

12.2. Requirements

No limits are defined in CFR47 FCC Part 15, Subpart C, 15.247.

12.3. Test Results

Occupied Bandwidth measurements are tabulated below:

(Refer to graph in Appendix C.7)

| Transmit Operating Frequency (MHz) | 99%BW Lower Frequency (MHz) | 99%BW Upper Frequency (MHz) | Occupied Channel Bandwidth (kHz) |
|------------------------------------|-----------------------------|-----------------------------|----------------------------------|
| 2402 (Lowest Channel) | 2401.593 | 2402.530 | 937.2 |
| 2440 (Middle Channel) | 2439.602 | 2440.52 | 924.0 |
| 2480 (Highest Channel) | 2479.601 | 2480.527 | 925.2 |

Table 5: Occupied Bandwidth

The measurement uncertainty was calculated as follows:

| Measurement Parameter | Calculated measurement uncertainty |
|-----------------------|------------------------------------|
| Operating Frequency | ±10.5kHz |
| Bandwidth | ±14.96kHz |

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: | 24°C |
| Humidity: | 54% |
| Atmospheric pressure: | 1016hPa |

Table 6: Climatic conditions

Comments: The transmitter was tested with modulation applied

Assessment: The measured Occupied bandwidth (99% Emission Bandwidth) is 937 kHz (informative only).

13. Maximum Peak Output Power – FCC 15.247 (b)(3)

13.1. Test Procedure

Conducted Method:

The conducted output power measurements were performed in accordance with the section 11.9.1 of ANSI C63.10 - 2013.

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 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. 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.

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

13.2. Limits

For systems using digital modulation techniques:

| Transmit operating frequency (MHz) | Peak Power (W) | Peak Power (dBm) | e.i.r.p (W) | e.i.r.p (dBm) |
|------------------------------------|----------------|------------------|-------------|---------------|
| 2400 – 2483.5 | 1 | 30 | 4 | 36 |

Table 7: Limits – Transmitter maximum peak output power

13.3. Test Results

The worst-case maximum output power measurements are tabulated below:

(Refer to plots Appendix C.2)

| Channel | Frequency (MHz) | Peak Power (dBm) | Limit (dBm) | Margin (dB) | Result |
|---------|-----------------|------------------|-------------|-------------|----------|
| Bottom | 2402 | -7.9 | 30.0 | -37.9* | Complied |
| Middle | 2440 | -8.8 | 30.0 | -38.8 | Complied |
| Top | 2480 | -9.7 | 30.0 | -39.7 | Complied |

**Worst-case emissions*

Table 8: Results for Maximum Peak Conducted Output Power – Conducted Method

The measurement uncertainty was calculated at ± 1.4 dB. 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°C |
| Humidity: | 54% |
| Atmospheric pressure: | 1016.0hPa |

Table 9: Climatic Conditions

Notes: The transmitter maximum output power was below the specified limit for the specified operating frequency.

The transmitter was continuously transmitting in modulated transmit mode

Assessment: The EUT complied with the Transmitter Maximum Peak output power requirements of CFR47 FCC Part 15, Subpart C, 15.247 (b)(3).

14. Radiated emissions in Restricted bands – 15.247 (d), 15.209

14.1. Requirements

As per section 15.247(d) of 47 CFR Part 15 Subpart C:

- Radiated emissions which fall in the restricted bands, as defined in section 15.205(a) of 47 CFR Part 15 Subpart C, must also comply with the radiated emission limits specified in section 15.209(a) of 47 CFR Part 15 Subpart C (see §15.205(c) of 47 CFR Part 15 Subpart C)..

As per section 47 CFR Part 15 Subpart C section 15.209 (Radiated emissions, general requirements) the EUT is required to meet the limits that permit the highest field strength of the following table for the radiated emissions which fall in the restricted bands, as defined in section 15.205(a) of 47 CFR Part 15 Subpart C:

| Frequency Range (MHz) | Limits at 3m (dB μ V/m) |
|--|-----------------------------|
| 0.009 to 0.490 | 128.5 to 93.8 |
| 0.490 to 1.705 | 73.8 to 62.9 |
| 1.705 to 30.0 | 69.5 |
| 30.0 to 88 | 40.0 |
| 88.0 to 216.0 | 43.5 |
| 216.0 to 960.0 | 46.0 |
| Above 960 | 54.0 |
| NOTE: The lower limit shall apply at the transition frequency. | |

Note 1: as per CFR FCC Part 15 section 15.209 (d) The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector

Note 2: as per CFR FCC Part 15.35 (b) 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. Unless otherwise specified, e.g., see §§15.250, 15.252, 15.253(d), 15.255, 15.256, and 15.509 through 15.519 of this part, the limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit applicable to the equipment under test. 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.

Table 10: Limits for Radiated Spurious Emissions at distance of 3m – Restricted Bands

14.2. Test Procedure

The Radiated Emissions were performed in accordance with the section 11.12 of ANSI C63.10 - 2013.

Radiated Emissions were measured 3 metres (from 9kHz to 25GHz) 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 (9kHz to 1GHz) and 1.5m (1GHz to 25GHz) above the ground plane.

In the frequency range of 9kHz to 30MHz, an Active loop antenna was used. For X (Parallel), Y (Perpendicular) and Z (Ground-Parallel) antenna polarizations, the peak detector was set to MAX-HOLD and the range selected continuously scanned. The measuring antenna was positioned at 1m fixed height, and the turntable slowly rotated. The peak preview measurements were performed with a resolution bandwidth of 200Hz (9kHz to 150kHz), 9kHz (150kHz to 30MHz) and a video bandwidth of 30kHz. Peak emissions that exceeded the limit or were close to the applicable limit were investigated further. The frequency of each emission was then accurately determined. Each emission of interest was then in-turn maximised by using the turntable to rotate the EUT through 360 degrees to find the worst-case emission arrangement. Quasi peak measurements were then performed using a measuring time of no less than 15 seconds. The final quasi-peak measurements were performed using a receiver bandwidth of 6dB and a resolution bandwidth of 200Hz (9kHz to 150kHz) and 9kHz (150kHz to 30MHz).

In the frequency range of 30MHz to 1GHz, a Biconilog antenna was used. For both horizontal and vertical antenna polarizations, the peak detector was set to MAX-HOLD and the range selected continuously scanned. The measuring antenna was positioned at 4 different fixed height positions and the turntable slowly rotated. The peak preview measurements were performed with a resolution bandwidth of 120kHz and a video bandwidth of 300kHz. Peak emissions that exceeded the limit or were close to the applicable limit were investigated further. The frequency of each emission was then accurately determined. Each emission of interest was then in-turn maximised by using the turntable to rotate the EUT through 360 degrees and varying the height of the antenna between 1 and 4 metres to find the worst-case emission arrangement. Quasi peak measurements were then performed using a measuring time of no less than 15 seconds. The final quasi-peak measurements were performed using a receiver bandwidth of 6dB and a resolution bandwidth of 120kHz.

In the frequency range 1.0GHz to 25GHz a Horn antenna was used and an area of 3m x 3m was covered between the antenna and the EUT using RF absorbing material with a rated attenuation more than 20dB over the frequency range. The height of the horn antenna was varied using the antenna bore-sighting technique and the turntable slowly rotated to maximise the emissions. For both horizontal and vertical antenna polarizations, the Peak and Average preview measurements were performed with a resolution bandwidth of 1 MHz and a video bandwidth of 3MHz. Peak and average emissions that exceeded the applicable limit or were close to the applicable limit were investigated further. Each emission of interest was then in-turn maximised by using the turntable to rotate the EUT through 360 degrees and the antenna height varied (if applicable, using the antenna bore-sighting technique) to find the worst-case emission arrangement. Peak and CISPR Average measurements were then performed using a

measuring time of no less than 15 seconds, the maximum emission level in the observed duration was recorded as the final result. The final peak and CISPR Average measurements were performed using a receiver bandwidth of 6dB and a resolution bandwidth of 1 MHz. Peak and Average measurements were performed at spot frequencies where the peak or average emission was close to, or exceeded the applicable limit line with the EUT rotation and antenna height varied (if applicable, using the antenna bore-sighting technique) to produce the highest emission.

Plots of the accumulated measurement data for both horizontal and vertical antenna polarizations, including all transducer and other measuring system correction factors were produced using commercially available compliant software (as listed in the test equipment list of this report).

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

14.3. Test Results

Transmitter Spurious Emissions measurements are detailed as follows:

(Refer to graphs in Appendix C.4)

| Operating Channel: Bottom, Middle and Top | | | | |
|---|---|----------------------------|--|------------------|
| Measurement Antenna Polarisation | Frequency (MHz) | Result peak (dB μ V/m) | Limit Quasi-peak/ Average (dB μ V/m) | Delta limit (dB) |
| X | Peak preview emissions >20dB below limit or no significant emissions above the noise floor observed | | | |
| Y | Peak preview emissions >20dB below limit or no significant emissions above the noise floor observed | | | |
| Z | Peak preview emissions >20dB below limit or no significant emissions above the noise floor observed | | | |

Table 11: Transmitter Spurious Emissions – 9kHz to 30MHz

| Operating Channel: Bottom, Middle and Top | | | | |
|---|---|----------------------------------|---------------------------------|------------------|
| Measurement Antenna Polarisation | Frequency (MHz) | Result Quasi-peak (dB μ V/m) | Limit Quasi-peak (dB μ V/m) | Delta limit (dB) |
| Horizontal | Peak preview emissions >20dB below limit or no significant emissions above the noise floor observed | | | |
| Vertical | | | | |

Table 12: Transmitter Spurious Emissions – 30MHz to 1GHz

| Operating Channel: Bottom, (2402MHz) | | | | | | | | |
|--------------------------------------|--|-----------------------|----------------------|------------------|----------------------|-----------------------|----------------------|------------------|
| Measurement Antenna Polarisation | Peak Measurements | | | | Average Measurements | | | |
| | Frequency (MHz) | Result (dB μ V/m) | Limit (dB μ V/m) | Delta Limit (dB) | Frequency (MHz) | Result (dB μ V/m) | Limit (dB μ V/m) | Delta Limit (dB) |
| Horizontal | Peak emissions were not above the measurements system noise floor or at least 20dB below the limit | | | | 2210.040 | 29.1 | 54.0 | -24.9 |
| | | | | | 2274.000 | 40.4 | 54.0 | -13.6* |
| | | | | | 4804.080 | 32.6 | 54.0 | -21.4 |
| Vertical | Peak emissions were not above the measurements system noise floor or at least 20dB below the limit | | | | 2274.000 | 38.3 | 54.0 | -15.7 |
| | | | | | 2338.220 | 27.0 | 54.0 | -27.0 |
| | | | | | 5408.880 | 31.9 | 54.0 | -22.1 |

**Worst-case emissions*

Table 13: Transmitter Spurious Emissions – 1GHz to 25GHz

| Operating Channel: Middle, (2440MHz) | | | | | | | | |
|--------------------------------------|--|-----------------------|----------------------|------------------|----------------------|-----------------------|----------------------|------------------|
| Measurement Antenna Polarisation | Peak Measurements | | | | Average Measurements | | | |
| | Frequency (MHz) | Result (dB μ V/m) | Limit (dB μ V/m) | Delta Limit (dB) | Frequency (MHz) | Result (dB μ V/m) | Limit (dB μ V/m) | Delta Limit (dB) |
| Horizontal | Peak emissions were not above the measurements system noise floor or at least 20dB below the limit | | | | 2248.000 | 30.4 | 54.0 | -23.6 |
| | | | | | 2311.960 | 37.6 | 54.0 | -16.4 |
| | | | | | 4880.160 | 37.9 | 54.0 | -16.1* |
| | | | | | 7320.640 | 35.6 | 54.0 | -18.4 |
| Vertical | Peak emissions were not above the measurements system noise floor or at least 20dB below the limit | | | | 2248.000 | 30.1 | 54.0 | -23.9 |
| | | | | | 2312.220 | 36.6 | 54.0 | -17.4 |
| | | | | | 4879.920 | 36.4 | 54.0 | -17.6 |
| | | | | | 7319.680 | 35.9 | 54.0 | -18.0 |

**Worst-case emission*

Table 14: Transmitter Spurious Emissions – 1GHz to 25GHz

| Operating Channel: Top, (2480MHz) | | | | | | | | |
|-----------------------------------|--|-----------------|----------------|------------------|----------------------|-----------------|----------------|------------------|
| Measurement Antenna Polarisation | Peak Measurements | | | | Average Measurements | | | |
| | Frequency (MHz) | Result (dBµV/m) | Limit (dBµV/m) | Delta Limit (dB) | Frequency (MHz) | Result (dBµV/m) | Limit (dBµV/m) | Delta Limit (dB) |
| Horizontal | Peak emissions were not above the measurements system noise floor or at least 20dB below the limit | | | | 2288.040 | 28.5 | 54.0 | -25.5 |
| | | | | | 2352.000 | 35.7 | 54.0 | -18.3 |
| | | | | | 4960.320 | 39.4 | 54.0 | -14.6* |
| | | | | | 7440.400 | 38.3 | 54.0 | -15.7 |
| Vertical | Peak emissions were not above the measurements system noise floor or at least 20dB below the limit | | | | 2288.040 | 27.9 | 54.0 | -26.1 |
| | | | | | 2352.000 | 34.1 | 54.0 | -19.9 |
| | | | | | 4959.600 | 36.0 | 54.0 | -18.0 |
| | | | | | 7439.680 | 38.9 | 54.0 | -15.1 |

**Worst-case emissions*

Table 15: Transmitter Spurious Emissions – 1GHz to 25GHz

The measurement uncertainty was calculated as follows:

| Measurement frequency range | Calculated measurement uncertainty |
|-----------------------------|------------------------------------|
| 30MHz to 1GHz | ±4.65dB |
| 1GHz to 6GHz | ±4.83dB |
| 6GHz to 18GHz | ±4.49dB |
| 18GHz to 26.5GHz | ±4.46dB |

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: | 24 to 25°C |
| Humidity: | 44 to 56% |
| Atmospheric pressure: | 1012.2 to 1020.5 hPa |

Table 16: Climatic conditions

Calculation: The above results are based upon the following calculation:

$$E = V_{QP/PK/AV} + AF - G_{Amp} + L_C$$

Where:

$$\begin{aligned} E &= \text{E-field in dB}\mu\text{V/m} \\ V_{QP/PK/A} &= \text{Measured Voltage (Quasi Peak, Peak or Average)} \\ &\quad \text{in dB}\mu\text{V} \\ AF &= \text{Antenna Factor in dB(/m)} \\ L_C &= \text{Cable and attenuator Loss in dB} \\ G_{Amp} &= \text{Pre Amplifier Voltage Gain in dB} \end{aligned}$$

Example calculation:

$$\begin{aligned} E &= V_{PK} + AF - G_{Amp} + L_C \\ E &= 30\text{dB}\mu\text{V} + 12\text{dB/m} - 0\text{dB} + 2.3\text{dB} \\ E &= 44.3 \text{ dB}\mu\text{V/m} \end{aligned}$$

Notes: All Transmitter Radiated spurious emissions in restricted bands measurements were below the specified limits.

Radiated Emissions measurements were made up to the 10th harmonic.

The transmitter was continuously transmitting in modulated transmit mode.

Assessment: The EUT complied with the Radiated emissions in Restricted bands requirements of CFR47 FCC Part 15, Subpart C, 15.247 (d).

15. Out of Band emissions (100kHz, -20dBc) - FCC 15.247 (d)

15.1. Test Procedure

The Out of band emissions in non-restricted bands were performed in accordance with the section 11.11 of ANSI C63.10 – 2013.

Measurements were performed at the antenna port.

The EUT was placed inside a shielded chamber. The transmitter output was connected to a spectrum analyzer through a suitable attenuator (Conducted method). The out of band emissions were measured by spectrum analyzer with 100kHz RBW and 300kHz VBW using the peak detector. All measuring system correction factors (attenuators and cables) were used to get a true measurement.

Reference and emission level measurements were performed as per section 11.11.2 and 11.11.3 of ANSI ANSI C63.10 - 2013.

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

15.2. Limits

As per section 15.247(d) of 47 CFR Part 15 Subpart C:

- 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 section 15.247 of 47 CFR Part 15 Subpart C, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in section 15.209(a) of 47 CFR Part 15 Subpart C is not required. In addition, radiated emissions which fall in the restricted bands, as defined in section 15.205(a) of 47 CFR Part 15 Subpart C, must also comply with the radiated emission limits specified in section 15.209(a) of 47 CFR Part 15 Subpart C (see §15.205(c) of 47 CFR Part 15 Subpart C).

The measured highest fundamental channel PSD in 100kHz was -8.6dBm

| Frequency Range (MHz) | Limits (dBm) |
|-----------------------|--------------|
| 30MHz and 25GHz | -28.6 |

Table 17: Limits for Unwanted Emissions - -20dBc (Non-restricted bands)

15.3. Test Results

Unwanted emissions measurements are detailed as follows:

| Channel | Frequency (MHz) | Measured Level (dBm) | Limit (dBm) | Delta limit (dB) |
|---------|---|----------------------|-------------|------------------|
| Bottom | 2274.000 | -51.5 | -28.6 | -22.9* |
| | 2338.133 | -59.4 | -28.6 | -30.8 |
| | 2530.132 | -57.3 | -28.6 | -28.7 |
| | 4804.453 | -58.8 | -28.6 | -30.2 |
| | Peak emissions >20dB below limit or no significant emissions above the noise floor observed | | | |
| Middle | 2312.000 | -52.1 | -28.6 | -23.5 |
| | 2376.133 | -59.3 | -28.6 | -30.7 |
| | 2568.000 | -57.8 | -28.6 | -29.2 |
| | 4879.733 | -58.9 | -28.6 | -30.3 |
| | Peak preview emissions >20dB below limit or no significant emissions above the noise floor observed | | | |
| Top | 2352.133 | -52.8 | -28.6 | -24.2 |
| | 2416.000 | -59.9 | -28.6 | -31.3 |
| | 2608.000 | -58.0 | -28.6 | -29.4 |
| | 4960.533 | -58.4 | -28.6 | -29.8 |
| | 7439.666 | -59.1 | -28.6 | -30.5 |
| | Peak preview emissions >20dB below limit or no significant emissions above the noise floor observed | | | |

**Worst-case emissions*

Table 18: Transmitter Out of Band emissions - -20dBc/100kHz

The measurement uncertainty was calculated as follows:

| Measurement frequency range | Calculated measurement uncertainty |
|-----------------------------|------------------------------------|
| 30MHz to 25GHz | ±1.4dB |

The reported uncertainty is an expanded uncertainty calculated using a coverage factor of $k=2$ which gives a level of confidence of approximately 95%.

Notes: All Transmitter Out of Band emissions measurements were below the specified limits (-20dBc).

Radiated measurements were made up to the 10th harmonic.

The transmitter was continuously transmitting in modulated transmit mode.

Assessment: The EUT complied with the Out of Band emissions (100kHz, -20dBc) requirements of CFR47 FCC Part 15, Subpart C, 15.247 (d).

16. Emissions on the Band edge – FCC 15.247 (d)

16.1. Test Procedure

The Band edge Measurement (100kHz, -20dB from fc & Restricted bands) was performed in accordance with the section 11.11, 11.12 and 11.13 of ANSI C63.10 – 2013.

Conducted measurements were performed within 2 MHz of the authorised lower band-edge.

At the lowest channel, 99% Occupied Band Width of the fundamental channel emission was within 2 MHz of the authorised Lower band edge therefore Marker-delta method was used. Unwanted emission at the lower band-edge were performed as per section 6.10.4 of ANSI C63.10 - 2013. At authorised-band band edge where the requiring band-edge emission attenuation is -20dB in a 100kHz bandwidth relative to the highest fundamental channel PSD in 100kHz. Radiated peak measurements were performed as per as section 6.10.4 of ANSI C63.10 - 2013.

The higher end of the band-edge was in restricted-band therefore measurements were performed as per section 6.10.5 of ANSI C63.10 - 2013. The FCC 15.209 limits are applicable to emission in restricted-band band-edge

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

16.2. Limits

Band edge in Non-restricted Bands

As per CFR47 FCC Part 15, Subpart C, 15.247 (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.

The measured highest fundamental channel PSD in 100kHz was -8.6dBm

| Band edge Frequencies | Limits (dBm) |
|-----------------------|--------------|
| Lower Edge (2402MHz) | -28.6 |

Table 19: Limits for Band edge - -20dBc (Non-restricted bands)

Band edge in Restricted Bands

As per CFR47 FCC Part 15, Subpart C, 15.247 (d) and 15.209 (Transmitter emission limits) the EUT is required to meet the limits that permit the highest field strength of the following table for the radiated emissions which fall in the restricted bands, as defined in section 15.205(a) of 47 CFR Part 15 Subpart C :

| Band edge Frequencies | Limits at 3m (dB μ V/m) |
|-----------------------|-----------------------------|
| 2483.5MHz to 2485.5 | 54.0 |

Note 1: as per CFR FCC Part 15.35 (b), The emission limits shown in the above table are based on measurements employing an average detector.

Table 20: Limits for Radiated Spurious Emissions at distance of 3m – Restricted Bands.

16.3. Test Results

Band edge measurements are detailed as follows:

(Refer to graphs in Appendix C.2)

| Operating Channel: Bottom (2402MHz) | | | |
|-------------------------------------|--|---|------------------|
| Frequency (MHz) | Result Radiated Peak Power Spectral Density (dBm/100kHz) | Limit Radiated Peak Power Spectral Density (dBm/100kHz) | Delta limit (dB) |
| 2399.999 | -59.7 | -28.6 | -31.1 |

Table 21: Transmitter Emissions on the Band edge - Low end

| Operating Channel: Top (2480MHz) | | | | | | | | |
|----------------------------------|-------------------|-----------------------|----------------------|------------------|----------------------|-----------------------|----------------------|------------------|
| Measurement Antenna Polarisation | Peak Measurements | | | | Average Measurements | | | |
| | Frequency (MHz) | Result (dB μ V/m) | Limit (dB μ V/m) | Delta Limit (dB) | Frequency (MHz) | Result (dB μ V/m) | Limit (dB μ V/m) | Delta Limit (dB) |
| Horizontal | 2483.608 | 39.6 | 74.0 | -34.4 | 2483.6 | 30.1 | 54.0 | -23.9 |
| | 2484.624 | 37.3 | 74.0 | -36.7 | 2484.6 | 30.9 | 54.0 | -23.1* |
| | 2484.744 | 39.1 | 74.0 | -34.9 | 2484.7 | 29.2 | 54.0 | -24.8 |
| | 2485.472 | 37.1 | 74.0 | -36.9 | 2485.4 | 30.3 | 54.0 | -23.7 |
| Vertical | 2483.512 | 39.2 | 74.0 | -34.8 | 2483.5 | 30.2 | 54.0 | -23.8 |
| | 2484.456 | 39.7 | 74.0 | -34.3* | 2484.4 | 30.0 | 54.0 | -24.0 |
| | 2484.128 | 38.2 | 74.0 | -35.8 | 2484.1 | 31.4 | 54.0 | -22.6 |
| | 2485.272 | 36.7 | 74.0 | -37.3 | 2485.2 | 31.2 | 54.0 | -22.8 |

*Worst-case emissions

Table 22: Transmitter Emissions on the Band edge - High end

The measurement uncertainty was calculated as follows:

| Measurement frequency range | Calculated measurement uncertainty |
|-----------------------------|------------------------------------|
| Radiated (1GHz to 6GHz) | ± 4.83 dB |
| Conducted (1GHz to 6GHz) | ± 1.4 dB |

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 25°C |
| Humidity: | 50 to 54% |
| Atmospheric pressure: | 1016 to 1018hPa |

Table 23: Climatic conditions

Calculation: The above results are based upon the following calculation:

$$E = V_{QP/PK/AV} + AF - G_{Amp} + L_C$$

Where:

$$E = \text{E-field in dB}\mu\text{V/m}$$

$$V_{QP/PK/AV} = \text{Measured Voltage (Quasi Peak, Peak or Average) in dB}\mu\text{V}$$

$$AF = \text{Antenna Factor in dB(/m)}$$

$$L_C = \text{Cable and attenuator Loss in dB}$$

$$G_{Amp} = \text{Pre Amplifier Voltage Gain in dB}$$

Example calculation:

$$E = V_{PK} + AF - G_{Amp} + L_C$$

$$E = 30\text{dB}\mu\text{V} + 12\text{dB/m} - 0\text{dB} + 2.3\text{dB}$$

$$E = 44.3 \text{ dB}\mu\text{V/m}$$

Notes: All Band edge measurements were below the specified limits.

The transmitter was continuously transmitting in modulated transmit mode.

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

17. Power Spectral Density – FCC 15.247 (e)

17.1. Test Procedure

The Power Spectral Density was performed in accordance with the section 11.10 of ANSI C63.10 - 2013.

The transmitter output was connected to a spectrum analyzer through a suitable attenuator (Conducted method). 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 in Annex C for views of the test configuration)

17.2. 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 CFR47 FCC Part 15, Subpart C, 15.247 (e). 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 |
|------------------------------------|-----------|
| 2400 – 2483.5 | 8dBm/3kHz |

Table 24: Power Spectral Density limits

17.3. Test Results

Power Spectral Density measurements are tabulated below:

(Refer to graphs in Appendix C.10)

| Channel | Frequency (MHz) | Measured Power (dBm) | Limit (dBm/3kHz) | Margin (dB) | Result |
|---------|-----------------|----------------------|------------------|-------------|----------|
| Bottom | 2402.212 | -18.3 | 8.0 | -26.3* | Complied |
| Middle | 2440.066 | -19.0 | 8.0 | -27.0 | Complied |
| Top | 2480.078 | -20.1 | 8.0 | -28.1 | Complied |

Table 25: Results for Power Spectral Density

The measurement uncertainty was calculated at ± 1.4 dB. 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°C |
| Humidity: | 54% |
| Atmospheric pressure: | 1016hPa |

Table 26: Climatic conditions

Notes: All Power Spectral Density measurements were below the specified limits.

The transmitter was supplied by the customer to be continuously transmitting in modulated transmit mode.

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

18. Conclusion

The Adherium (NZ) Limited, NF0107, Hailie for GSK pMDI complied with the applicable requirements of CFR47 FCC Part 15, Subpart C, 15.247.

Appendix A – Test Equipment

| Inv | Equipment | Make | Model No. | Serial No. | Calibration | | |
|---|---|--------------------|------------|----------------|-------------|--------|------|
| | | | | | Interval | Due | Type |
| Transmitter Maximum EIRP, Power Spectral Density, 6dB Bandwidth and Band-edge – Conducted Method | | | | | | | |
| 1217 | Analyser, EMI Receiver | Rohde & Schwarz | ESU40 | 100182 | 1 year | May-22 | E |
| 1092 | ATTENUATOR, 6dB, 2W | Fairview Microwave | SA26B-06 | 1092 | 2 years | Jan-24 | I |
| 1155 | Hygrometer, Temp, Humidity | DigiTech | QM7312 | - | 2 years | Jul-23 | I |
| 0666 | Enclosure, Semi-Anechoic, No 1 | RFI Industries | S800 iOATS | 1229 | 2.5 years | Jul-22 | I |
| Radiated Emissions | | | | | | | |
| 1217 | ANALYSER, EMI Receiver | Rohde & Schwarz | ESU40 | 100182 | 1 year | May-22 | E |
| 0935 | ANTENNA, Biconilog | Sunol Sciences | JB5 | A071106 | 2 years | Feb-23 | E |
| 0718 | ATTENUATOR, 6dB | JFW | 50FPE-006 | N/A | 3 years | Jan-23 | I |
| 0633 | ANTENNA, Double Ridge Horn | EMCO | 3115 | 9712-5369 | 3 years | Aug-24 | I |
| 0559 | PRE-AMP, Microwave, 18GHz | Miteq | AFS8 | 605305 | 1 year | Mar-22 | I |
| 1193 | Standard Gain Horn Antenna - 5.85GHz to 8.2GHz | A.H. Systems, inc | SAS-584 | 186 | 1 year | May-22 | E |
| 1194 | Standard Gain Horn Antenna - 8.2GHz to 12.4GHz | A.H. Systems, inc | SAS-585 | 224 | 1 year | May-22 | E |
| 1195 | Standard Gain Horn Antenna - 12.4GHz to 18.0GHz | A.H. Systems, inc | SAS-586 | 195 | 1 year | May-22 | E |
| 1196 | Standard Gain Horn Antenna - 18.0GHz to 26.5GHz | A.H. Systems, inc | SAS-587 | 181 | 1 year | Apr-22 | E |
| 0932 | CONTROLLER, Position | Sunol Sciences | SC104V-3 | 081006-1 | N/A | N/A | V |
| 0933 | TURNTABLE | Sunol Sciences | SM46C | 081006-2 | N/A | N/A | V |
| 0934 | MAST, Antenna | Sunol Sciences | TLT2 | 081006-5 | N/A | N/A | V |
| 1143 | CABLE, Coax, Sucoflex 104PA | Huber + Suhner | 84287041 | SN MY058/4PA | 1 year | Jan-23 | I |
| 1145 | CABLE, Coax, Sucoflex 104PA | Huber + Suhner | 84279564 | SN MY056/4PA | 1 year | Jan-23 | I |
| 1238 | CABLE, Coax, Sucoflex 126 E | Huber + Suhner | 10422876 | 8000495/126E | 1 year | Jan-23 | I |
| 1155 | Hygrometer, Temp, Humidity | DigiTech | QM7312 | - | 2 years | Jul-23 | I |
| 0666 | Enclosure, Semi-Anechoic, No 1 | RFI Industries | S800 iOATS | 1229 | 2.5 years | Jul-22 | I |
| SW007 | EMC Measurement Software | Rohde & Schwarz | EMC 32 | Version 8.53.0 | N/A | N/A | N/A |

V: Verification of operation against an internal reference
 I: Internal calibration against a traceable standard
 E: External calibration by a NATA endorsed facility
 N/A: Not Applicable

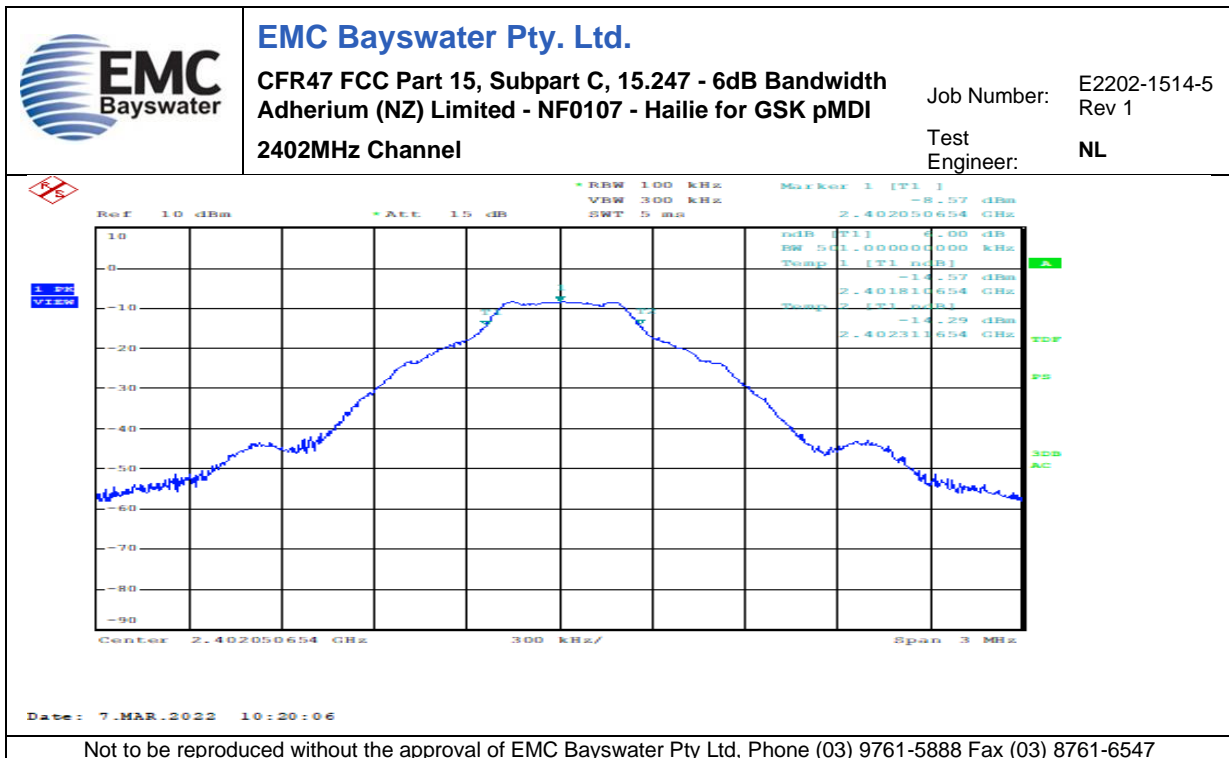
Appendix B – Photographs

| Annex | Number | Photograph Description |
|-------|--------|--|
| A | 1 | EUT - External views |
| A | 2 | |
| A | 3 | |
| A | 4 | |
| A | 5 | |
| A | 6 | |
| A | 7 | EUT – View of sample with temporary DC power supply connection – Radiated method testing |
| A | 8 | Support Equipment – Inhaler |
| B | 1 | EUT - Internal views |
| B | 2 | |
| B | 3 | |
| B | 4 | |
| B | 5 | |
| B | 6 | |
| B | 7 | |
| B | 8 | EUT – View of the PCB trace antenna |
| B | 9 | EUT – View of the sample with DC external power supply connection. |
| B | 10 | EUT – View of the sample with temporary SMA antenna port connector and DC external power supply connection for Conducted method testing. |
| C | 1 | Radiated measurements – EUT X Orientation |
| C | 2 | Radiated measurements – EUT Y Orientation |
| C | 3 | Radiated measurements – EUT Z Orientation |
| C | 4 | Radiated measurements – 9kHz to 30MHz – X Antenna orientation |
| C | 5 | Radiated measurements – 9kHz to 30MHz – Y Antenna orientation |
| C | 6 | Radiated measurements – 9kHz to 30MHz – Z Antenna orientation |
| C | 7 | Radiated measurements – below 1GHz |
| C | 8 | Radiated measurements – above 1GHz |
| C | 9 | Conducted measurements |

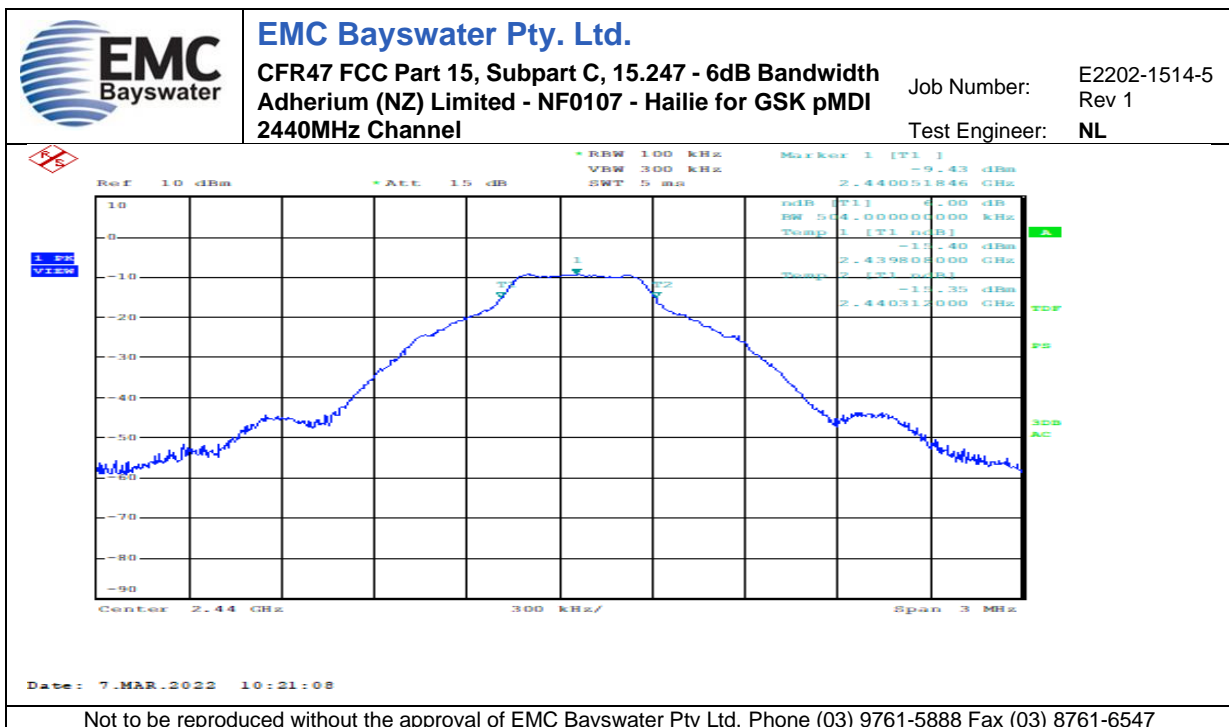
| | |
|--|--|
| EUT External Photographs | EMC Bayswater Test Report E2202-1514-5 Rev 1 Annex A |
| EUT Internal Photographs | EMC Bayswater Test Report E2202-1514-5 Rev 1 Annex B |
| EUT Orientations & Test Configurations Photographs | EMC Bayswater Test Report E2202-1514-5 Rev 1 Annex C |

Appendix C.1 – Measurement Graphs –6dB Bandwidth - 15.247 (a) (2)

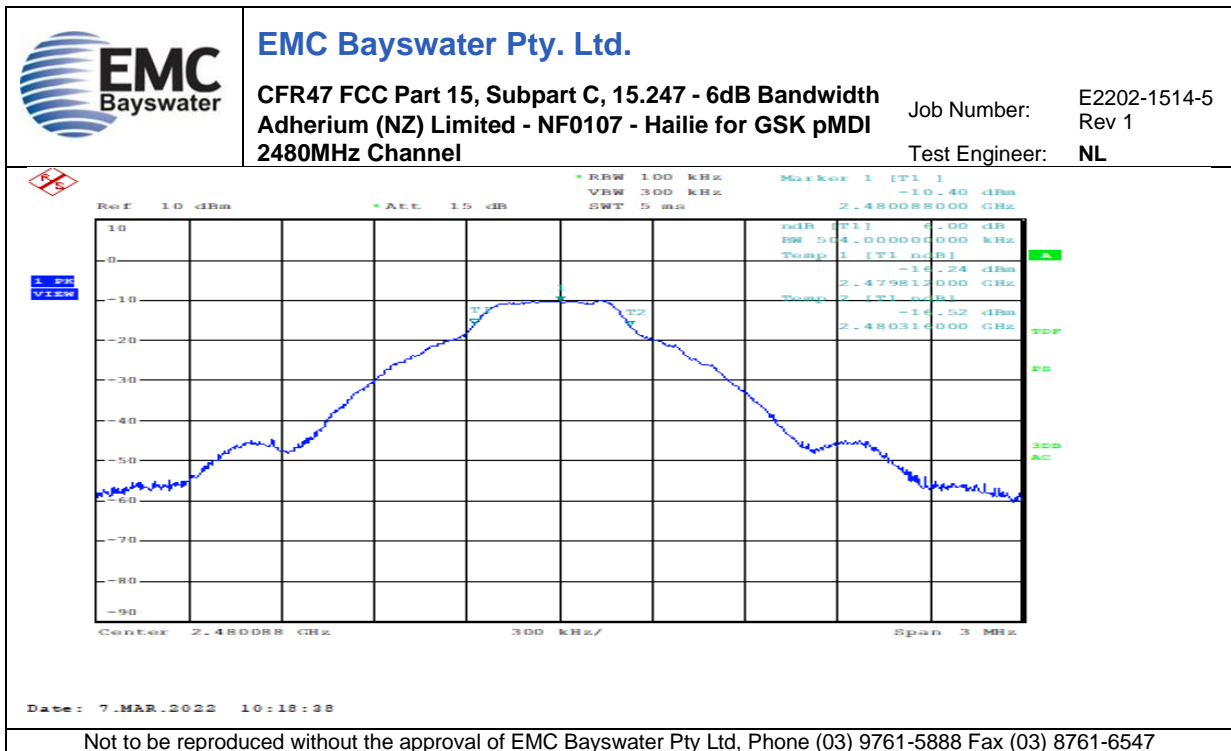
| No. | Test | Graph Description |
|-----|---------------|-------------------|
| 1 | 6dB Bandwidth | 2402MHz Channel |
| 2 | | 2440MHz Channel |
| 3 | | 2480MHz Channel |



Graph 1



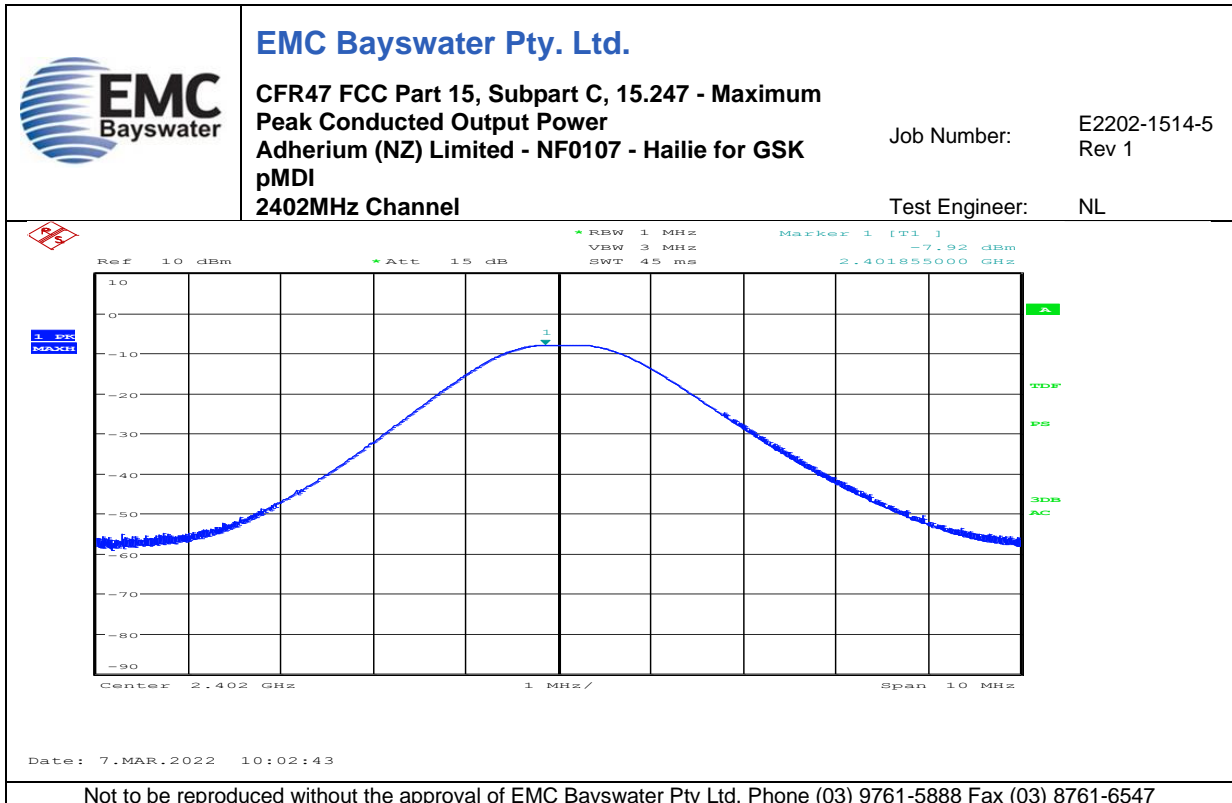
Graph 2



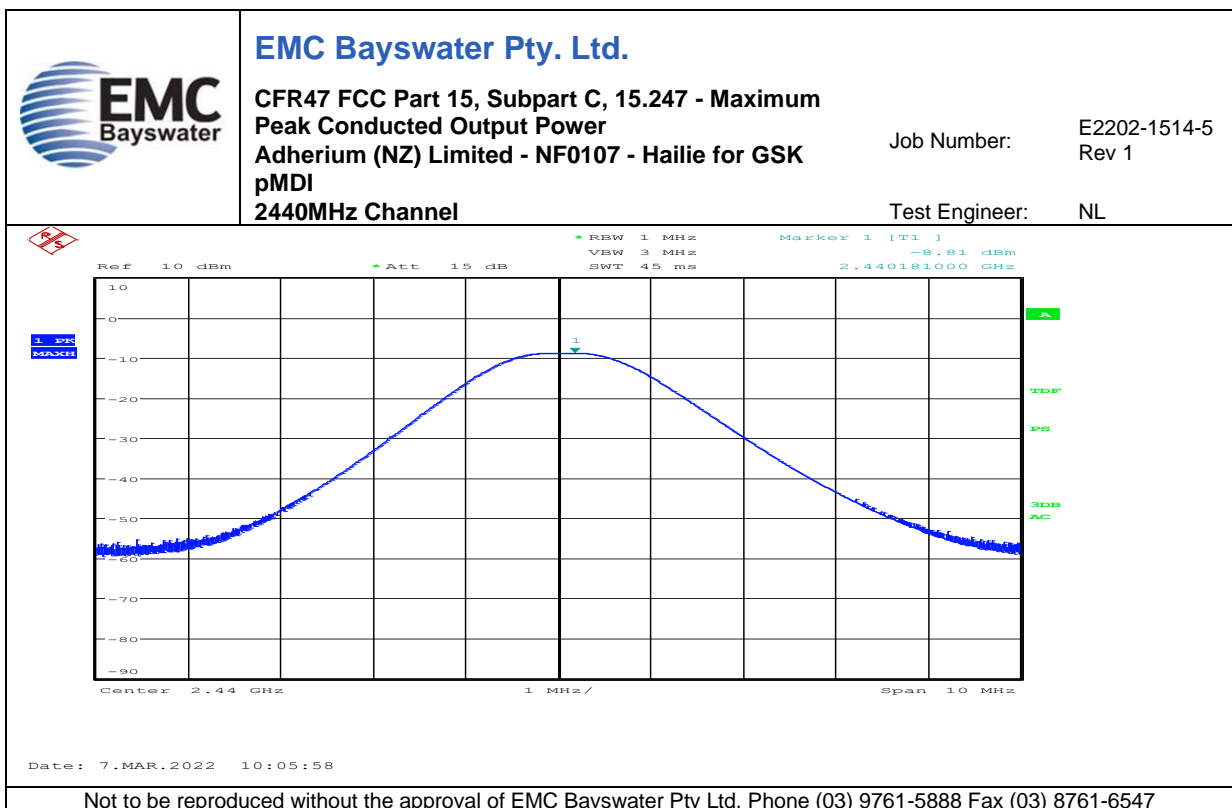
Graph 3

Appendix C.2 – Measurement Graphs – Maximum Peak Conducted Output Power - 15.247 (b)(3)

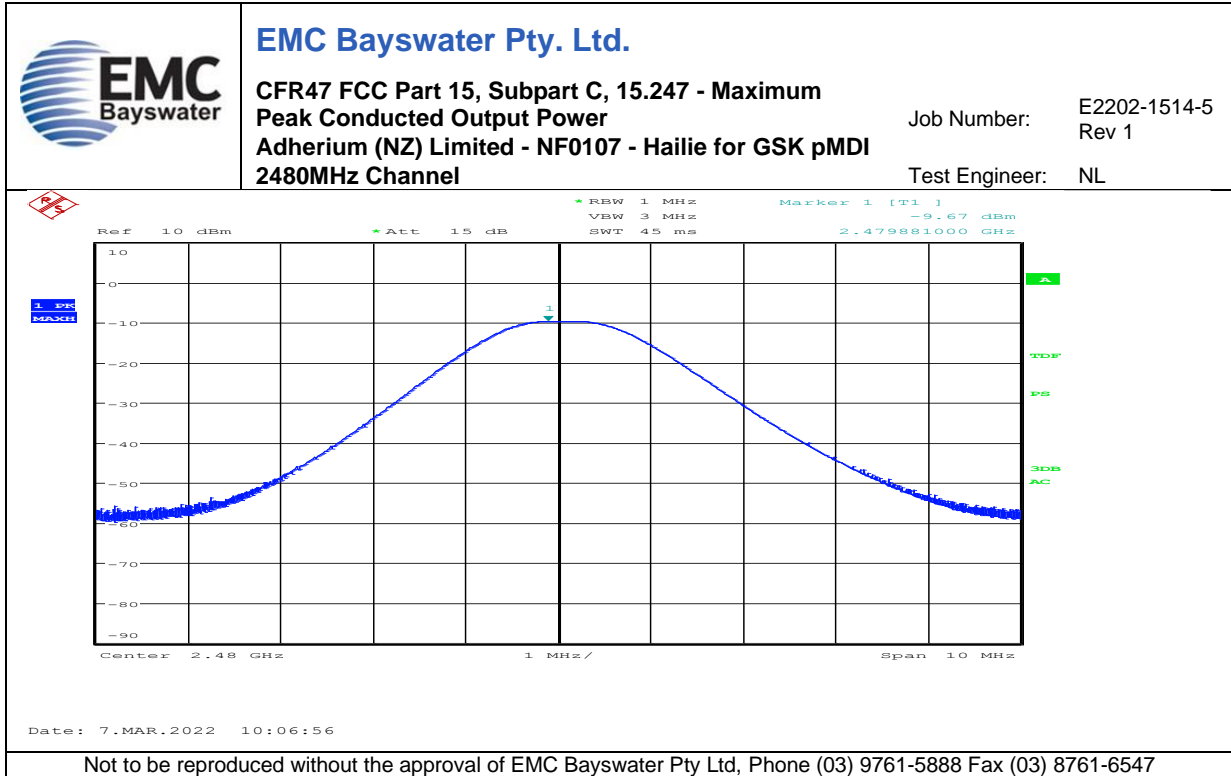
| No. | Test | Graph Description |
|-----|-------------------------------------|-------------------|
| 4 | Maximum Peak Conducted Output Power | 2402MHz Channel |
| 5 | | 2440MHz Channel |
| 6 | | 2480MHz Channel |



Graph 4



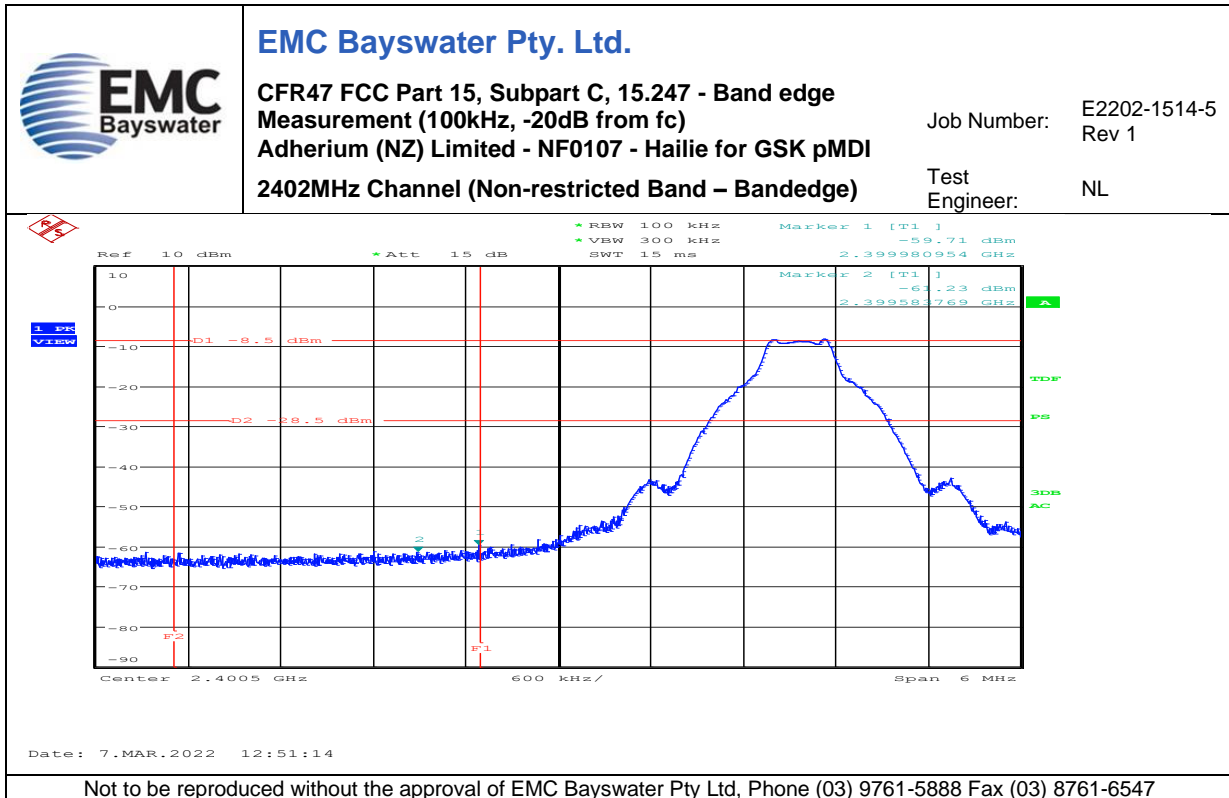
Graph 5



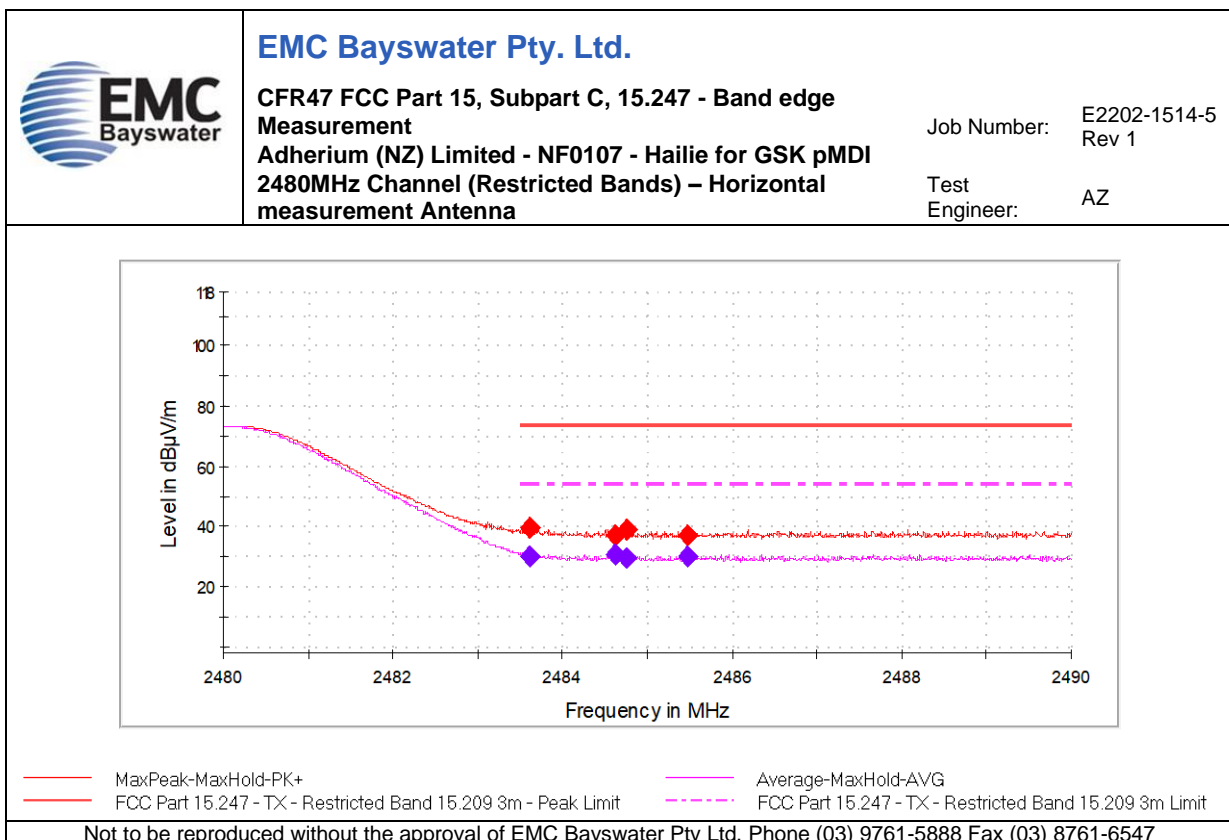
Graph 6

Appendix C.3 – Measurement Graphs – Band Edge - 15.247 (d)-

| No. | Test | Graph Description |
|-----|-----------------------|---|
| 7 | Band edge Measurement | 2402MHz Channel (Non-restricted Band – Bandedge) |
| 8 | Band edge Measurement | 2480MHz Channel (Restricted Bands) – Horizontal measurement Antenna |
| 9 | | 2480MHz Channel (Restricted Bands) – Vertical measurement Antenna |

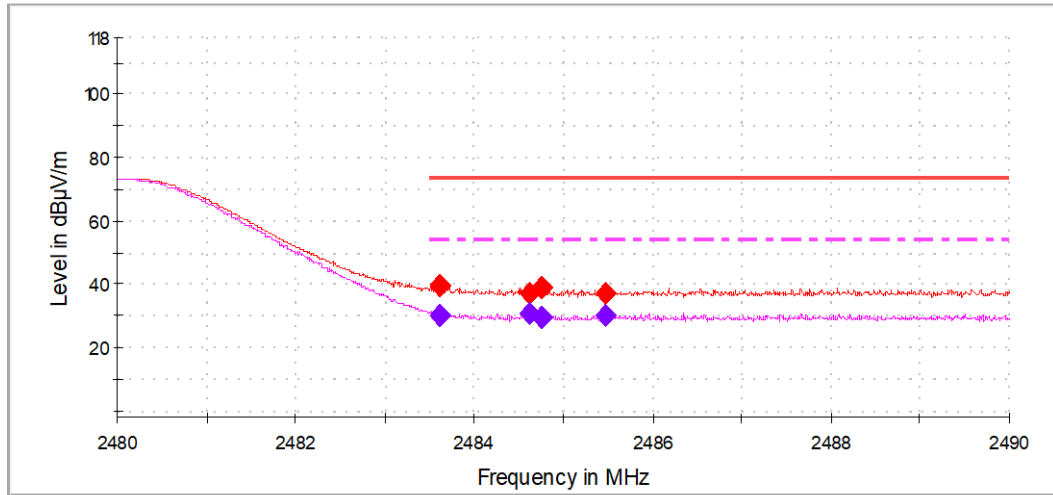


Graph 7



Graph 8

| | | |
|---|--|---|
|  | EMC Bayswater Pty. Ltd. | |
| | CFR47 FCC Part 15, Subpart C, 15.247 - Band edge Measurement Adherium (NZ) Limited - NF0107 - Hailie for GSK pMDI 2480MHz Channel (Restricted Bands) – Vertical measurement Antenna | Job Number: E2202-1514-5 Rev 1 Test Engineer: AZ |



— MaxPeak-MaxHold-PK+ - - - Average-MaxHold-AVG
— FCC Part 15.247 - TX - Restricted Band 15.209 3m - Peak Limit - - - FCC Part 15.247 - TX - Restricted Band 15.209 3m Limit

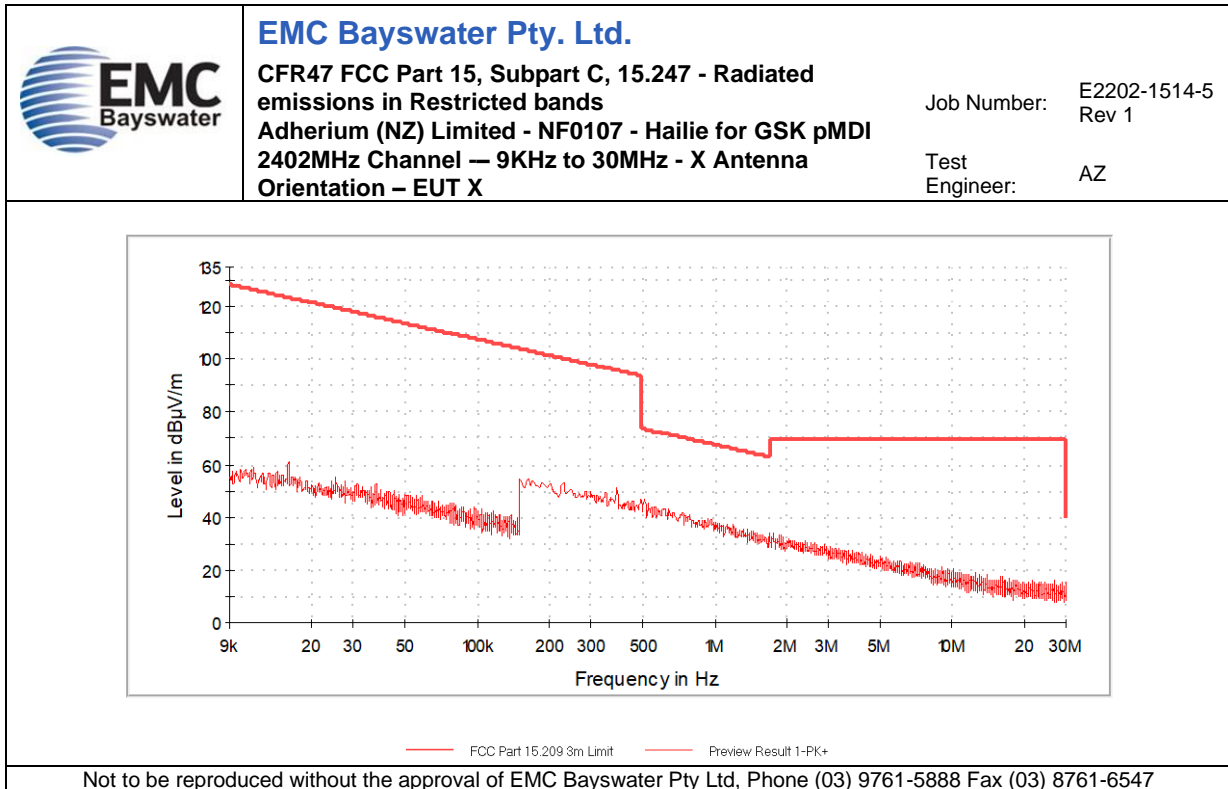
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Graph 9

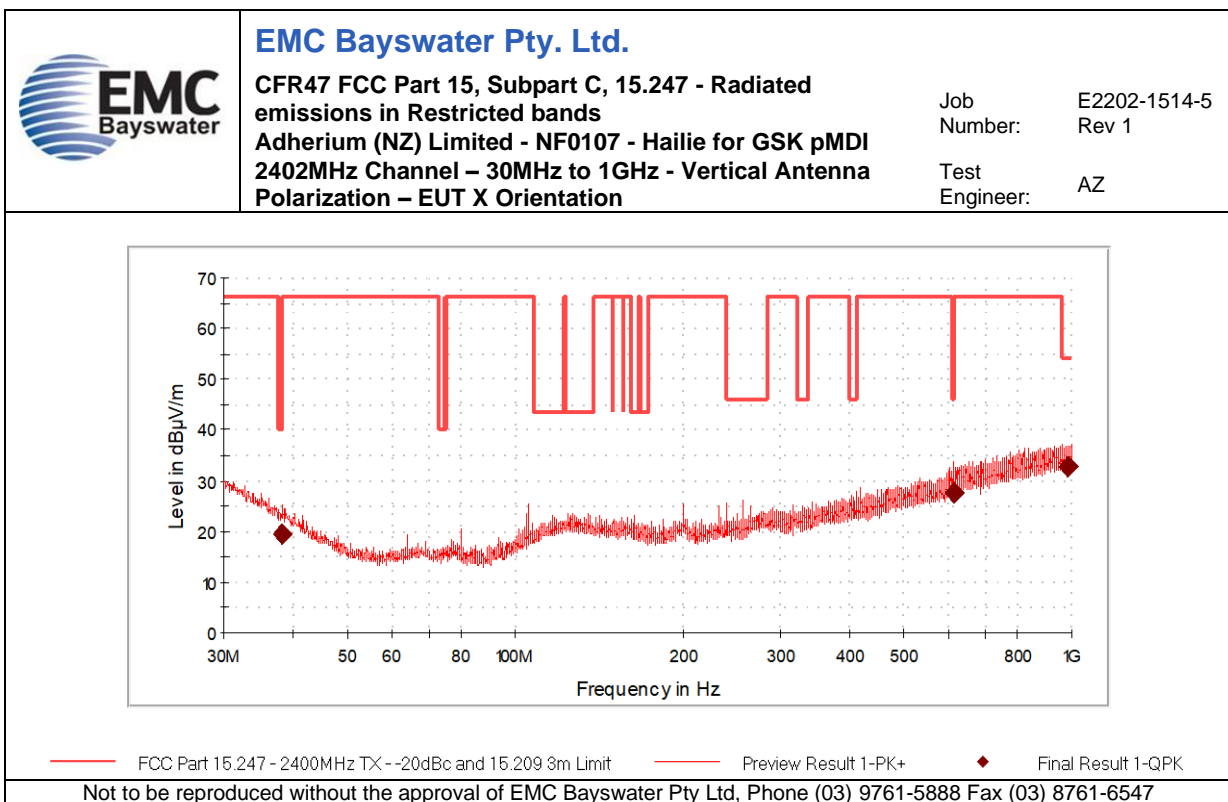
**Appendix C.4 – Measurement Graphs – Radiated emissions in Restricted bands
– FCC 15.247 (d), 15.209**

| No. | Test | Graph Description |
|-----|--|-------------------|
| 10 | Radiated emissions in Restricted bands 2402MHz Channel | 9kHz to 30MHz |
| 11 | | 30MHz to 1GHz |
| 12 | | 1GHz to 6GHz |
| 13 | | 5.8GHz to 8.2GHz |
| 14 | | 8.2GHz to 12.4GHz |
| 15 | | 12.4GHz to 18GHz |
| 16 | | 18GHz to 25GHz |
| 17 | Radiated emissions in Restricted bands 2440MHz Channel | 9kHz to 30MHz |
| 18 | | 30MHz to 1GHz |
| 19 | | 1GHz to 6GHz |
| 20 | | 5.8GHz to 8.2GHz |
| 21 | | 8.2GHz to 12.4GHz |
| 22 | | 12.4GHz to 18GHz |
| 23 | | 18GHz to 25GHz |
| 24 | Radiated emissions in Restricted bands 2440MHz Channel | 9kHz to 30MHz |
| 25 | | 30MHz to 1GHz |
| 26 | | 1GHz to 6GHz |
| 27 | | 5.8GHz to 8.2GHz |
| 28 | | 8.2GHz to 12.4GHz |
| 29 | | 12.4GHz to 18GHz |
| 30 | | 18GHz to 25GHz |

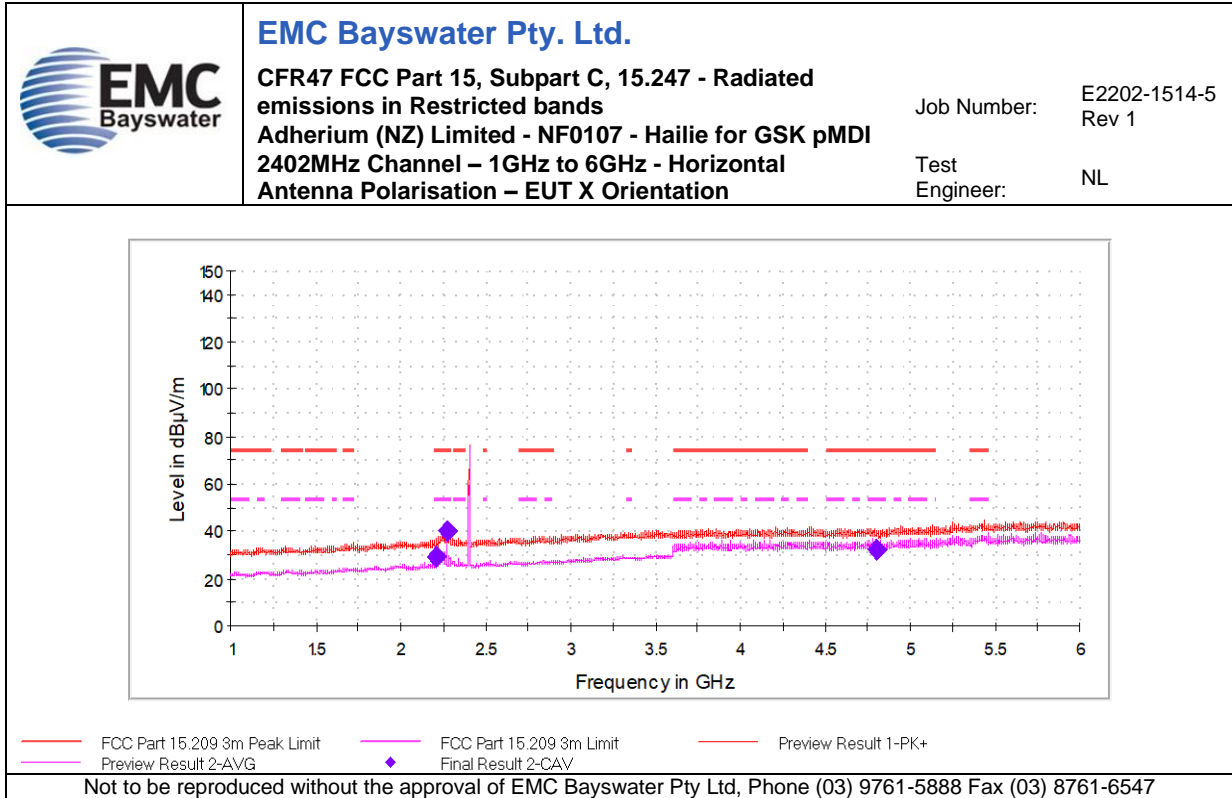
Note: Only worst-case graphs are presented



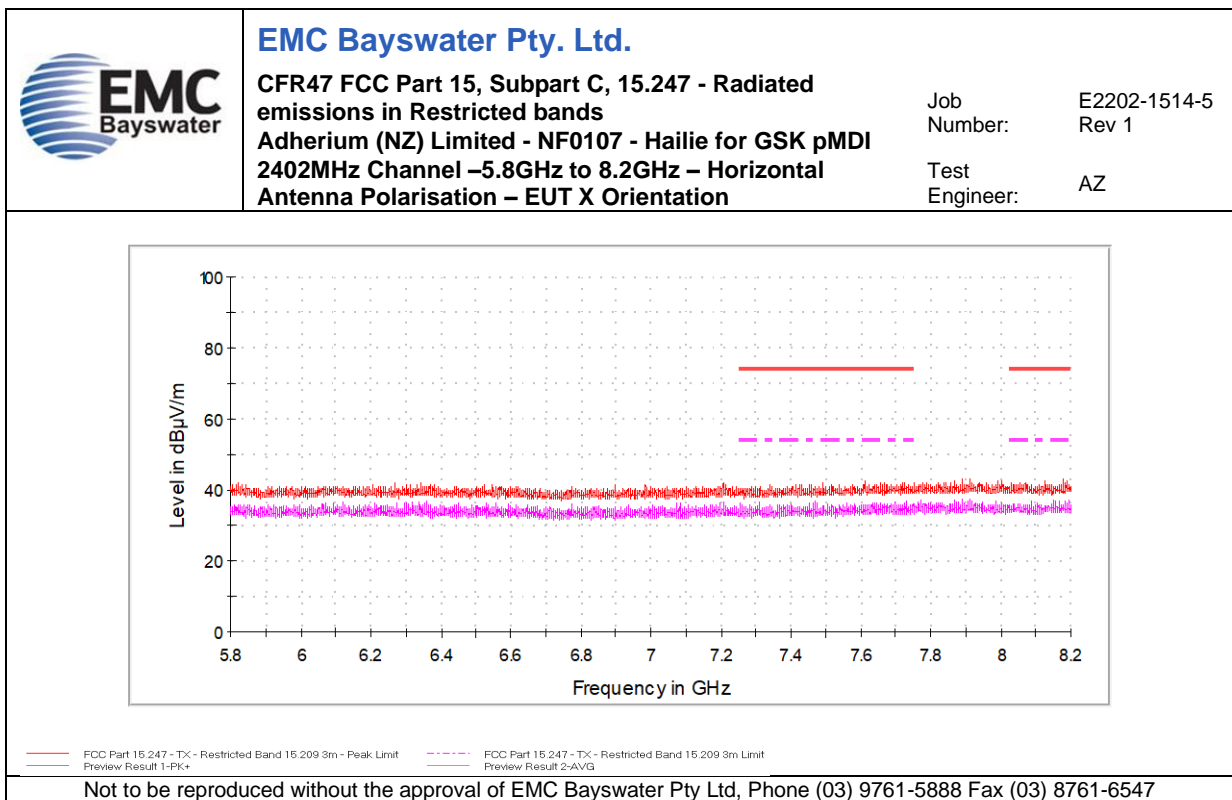
Graph 10



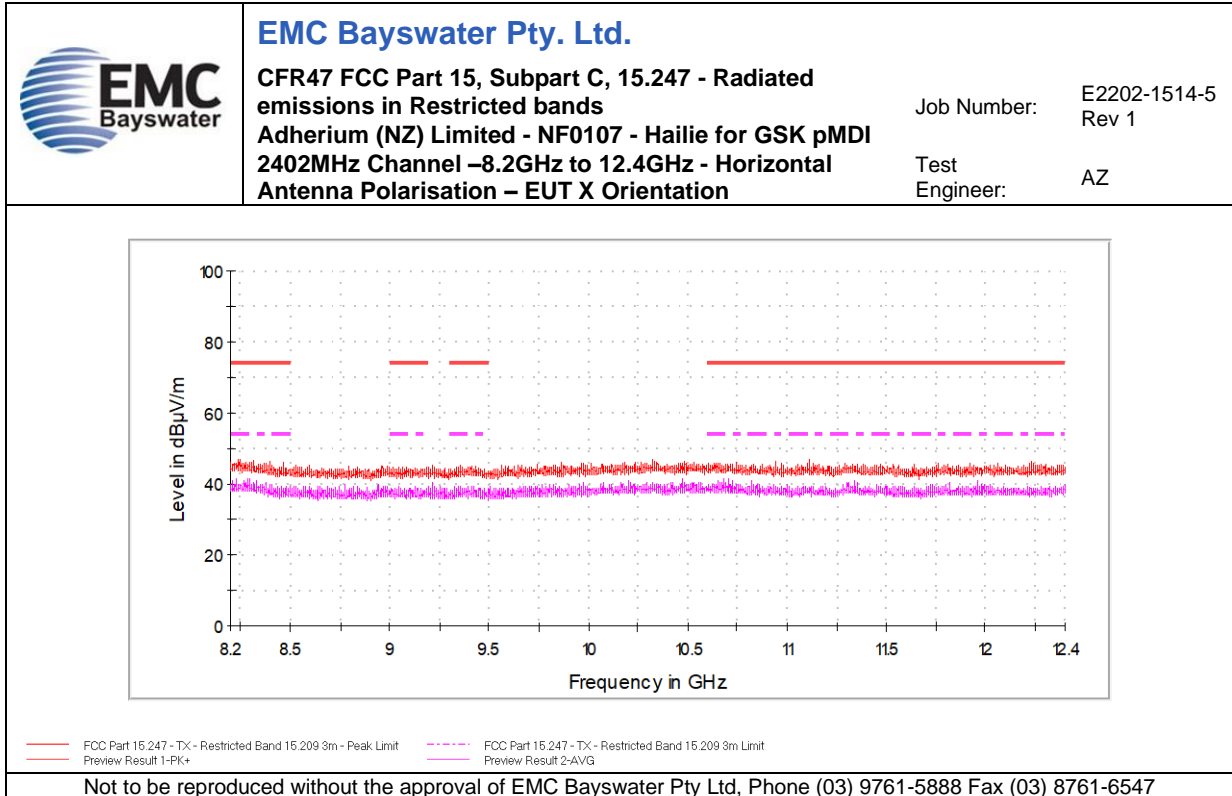
Graph 11



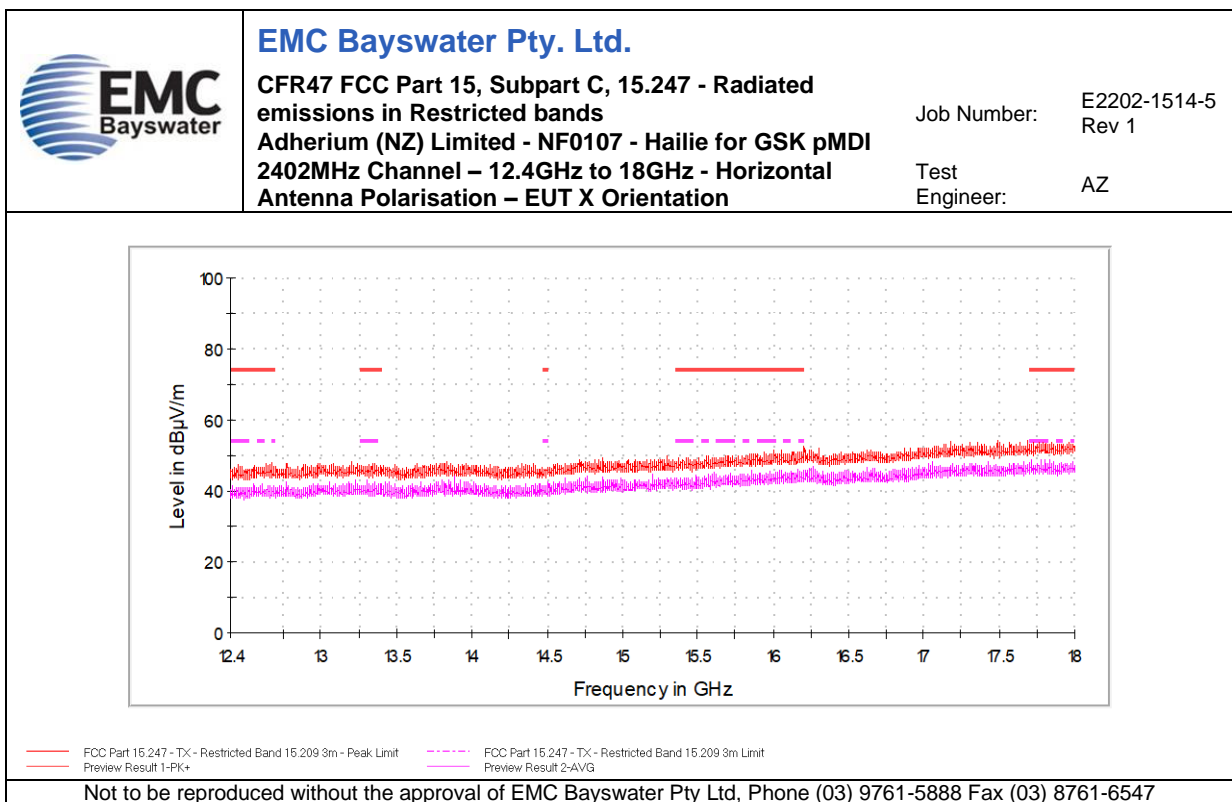
Graph 12



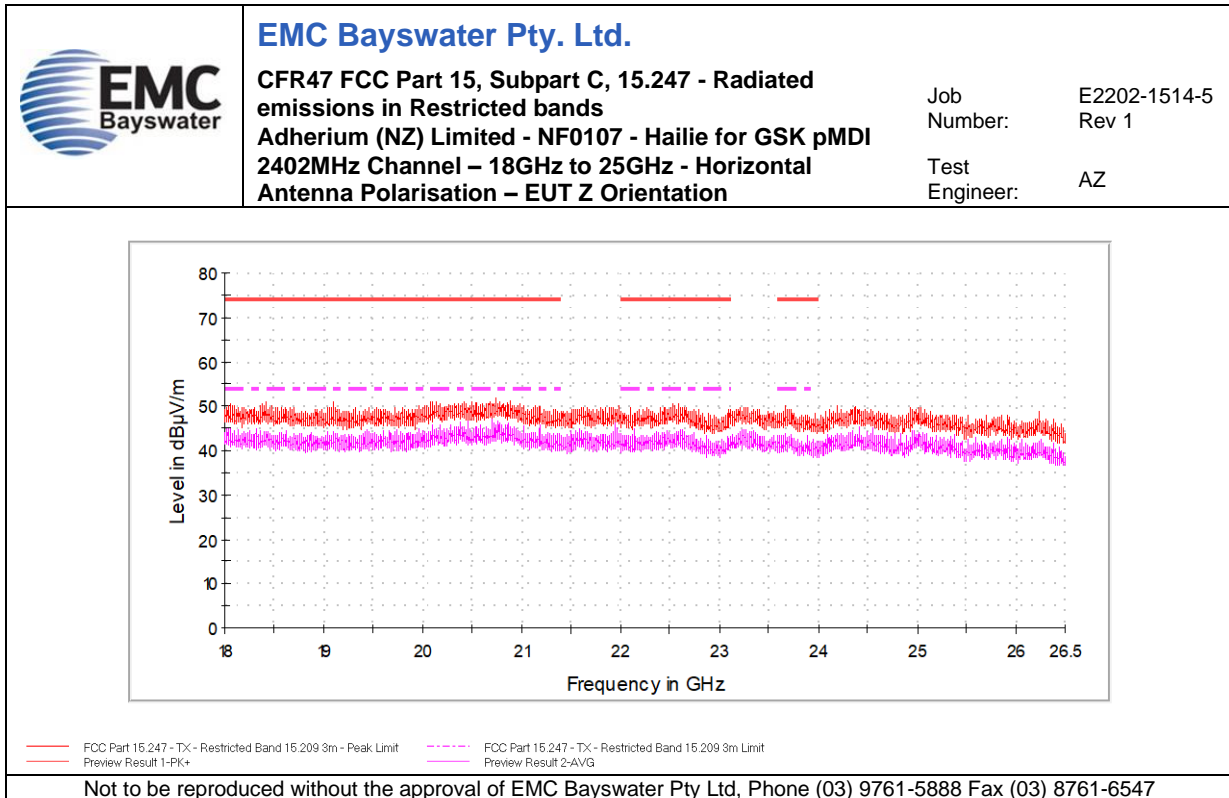
Graph 13



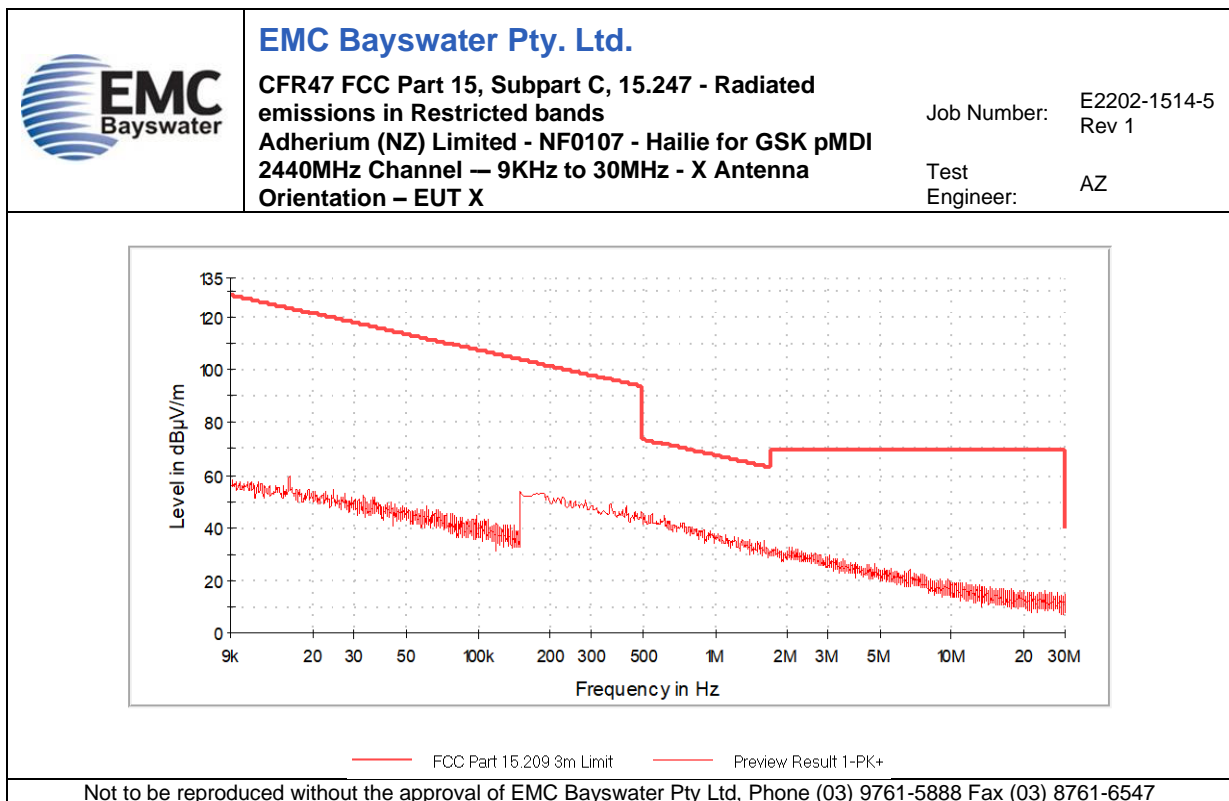
Graph 14



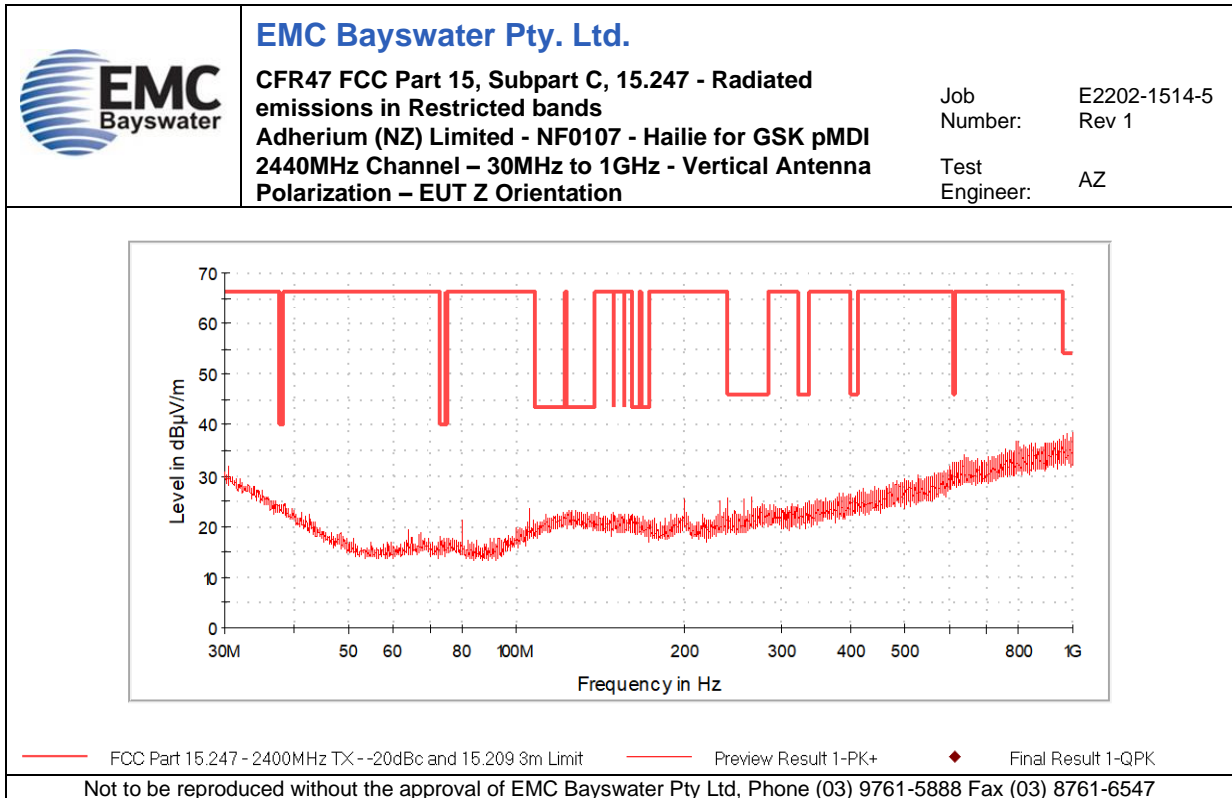
Graph 15



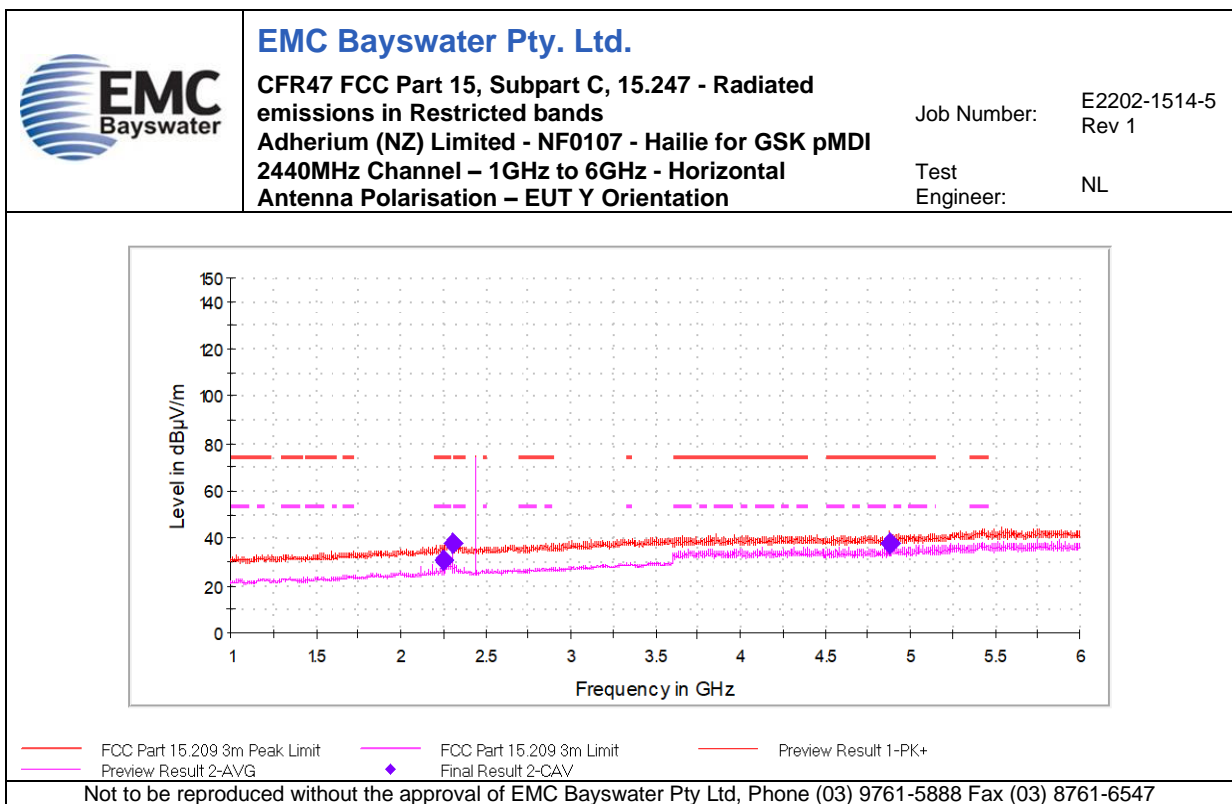
Graph 16



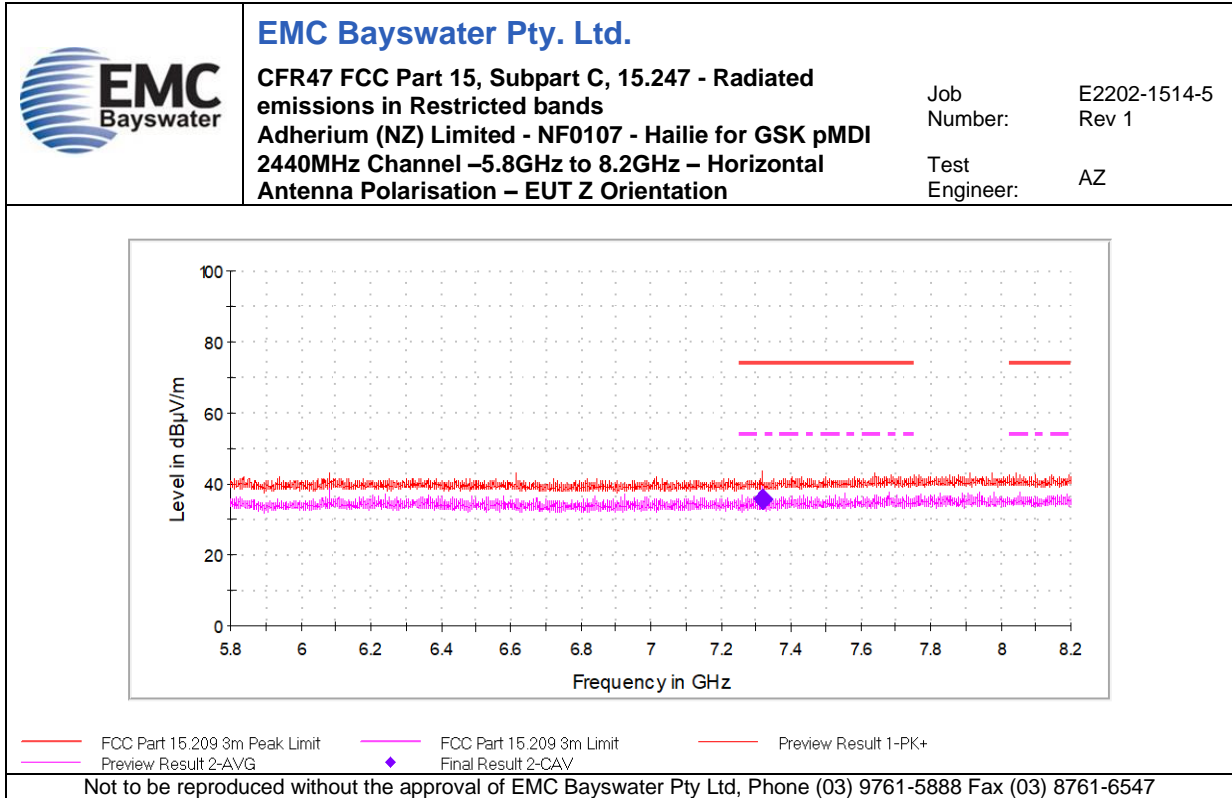
Graph 17



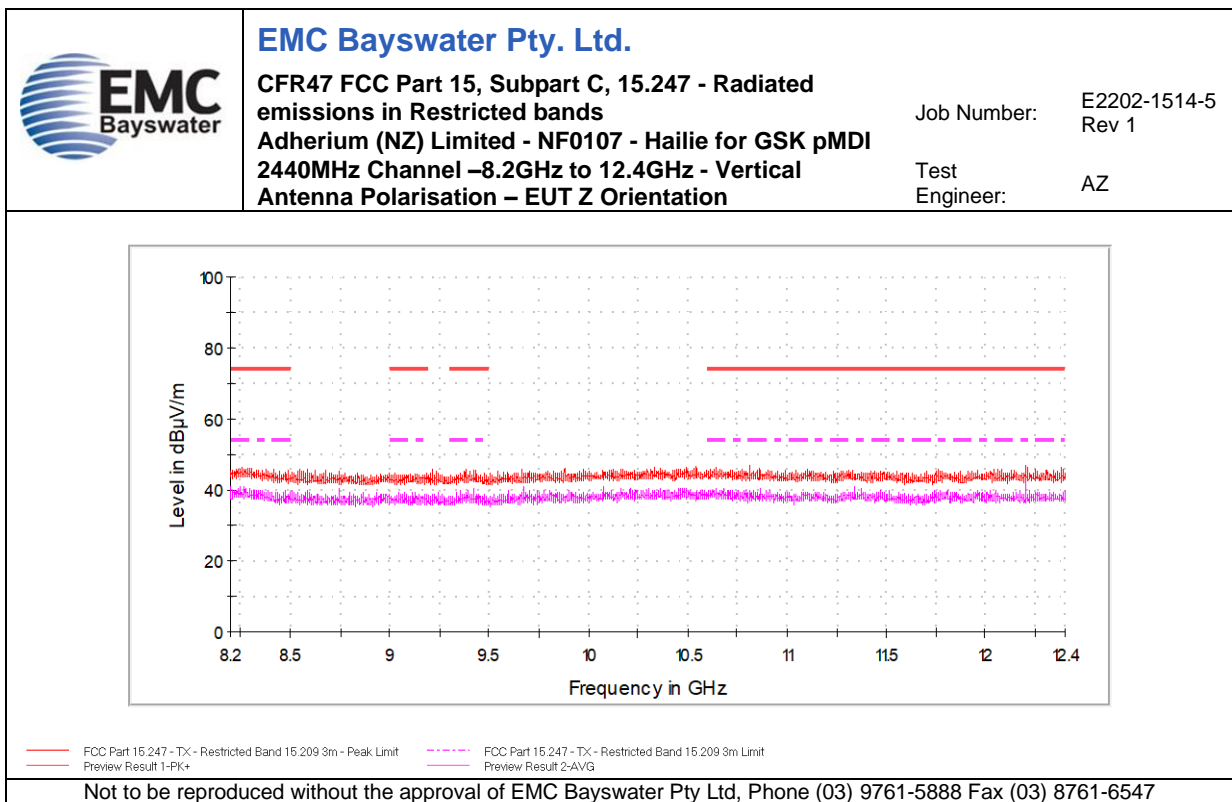
Graph 18



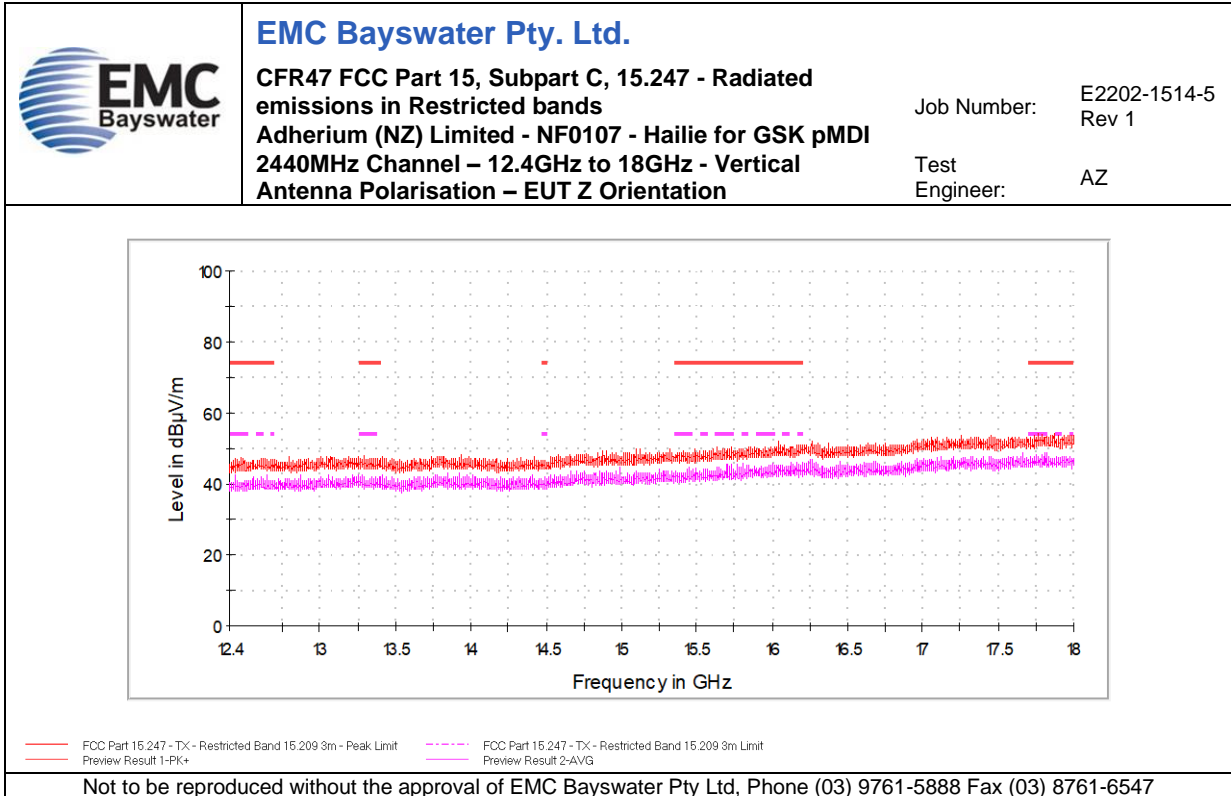
Graph 19



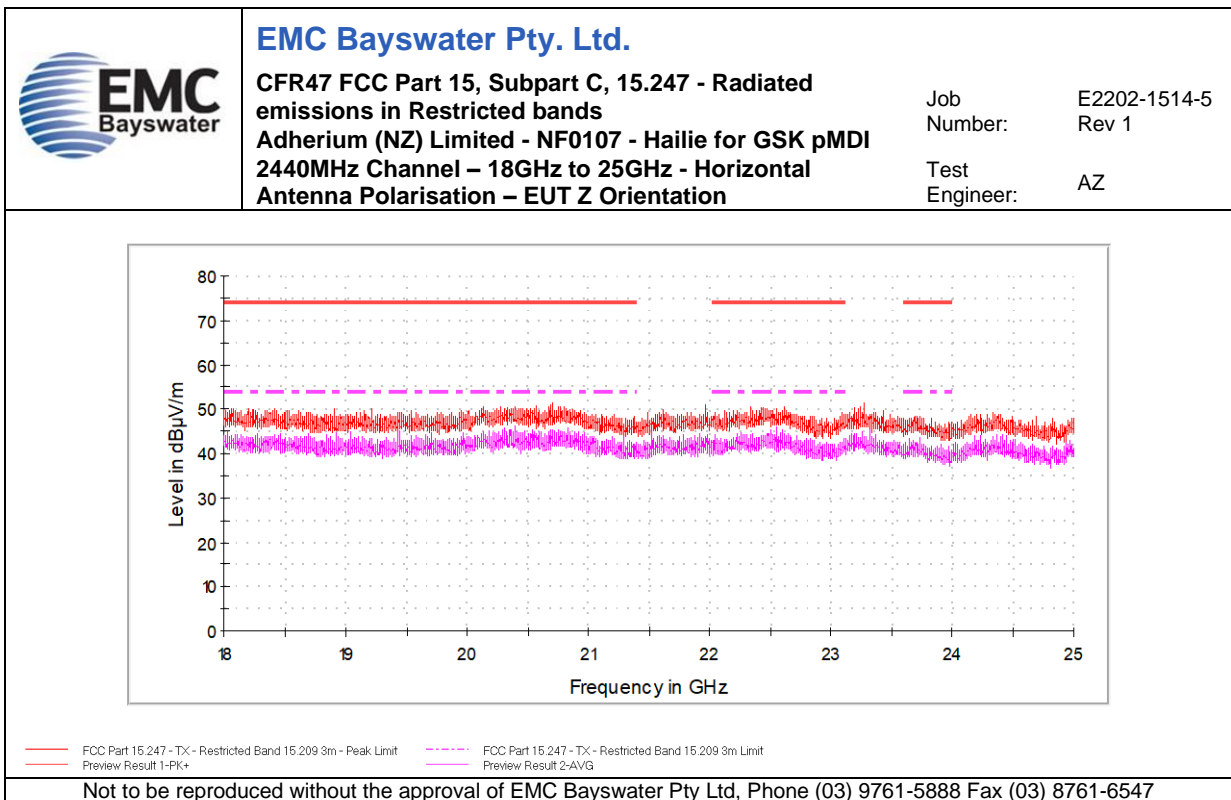
Graph 20



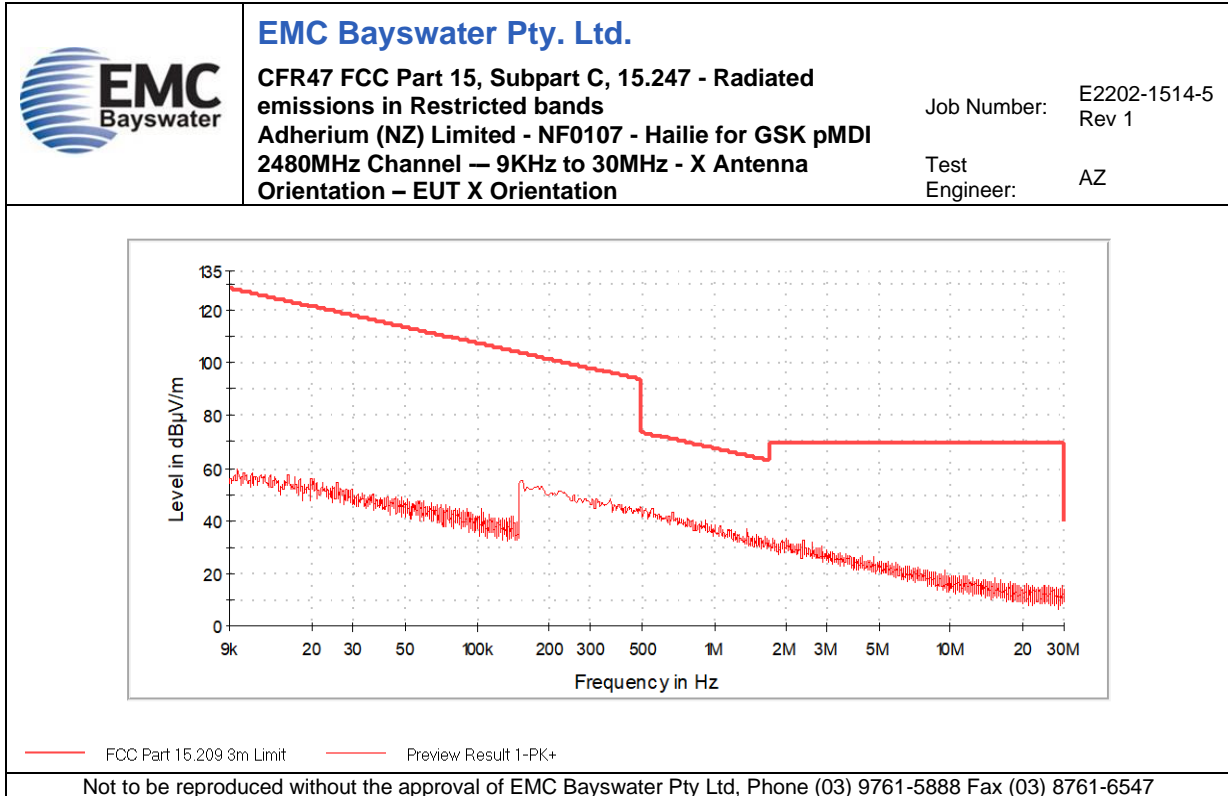
Graph 21



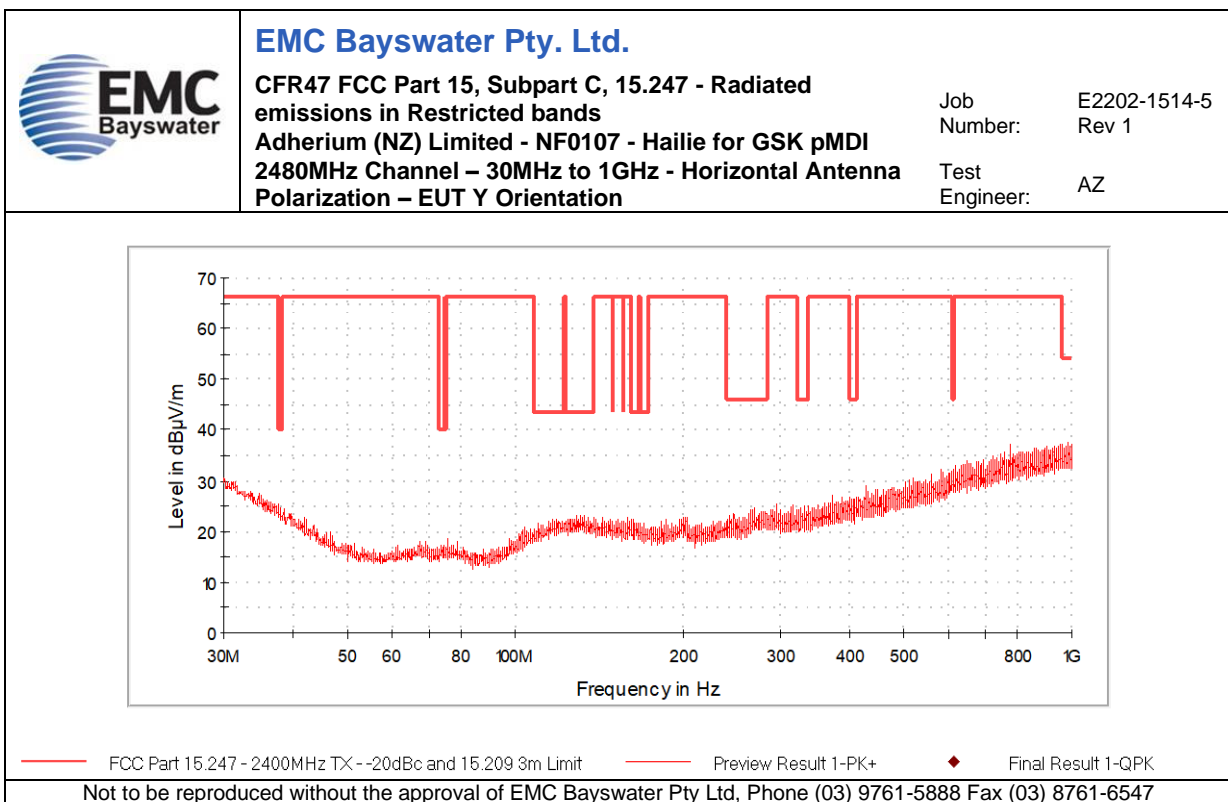
Graph 22



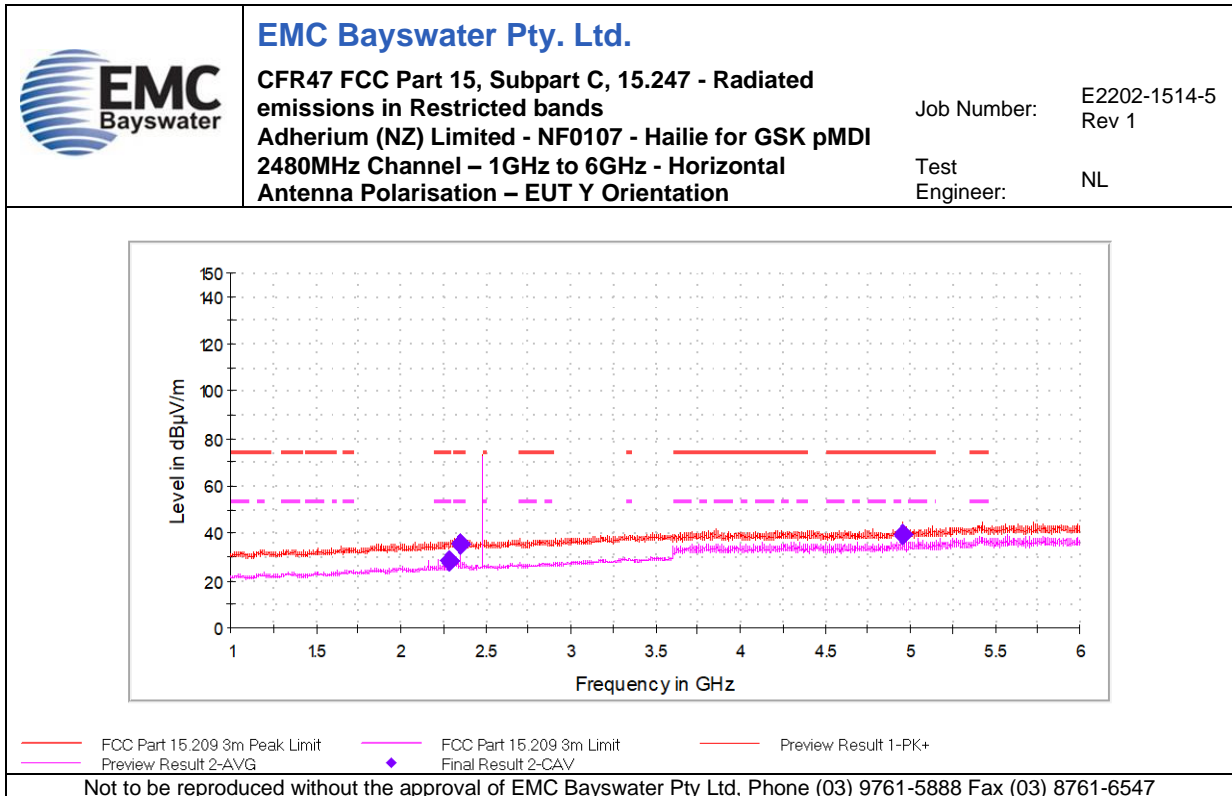
Graph 23



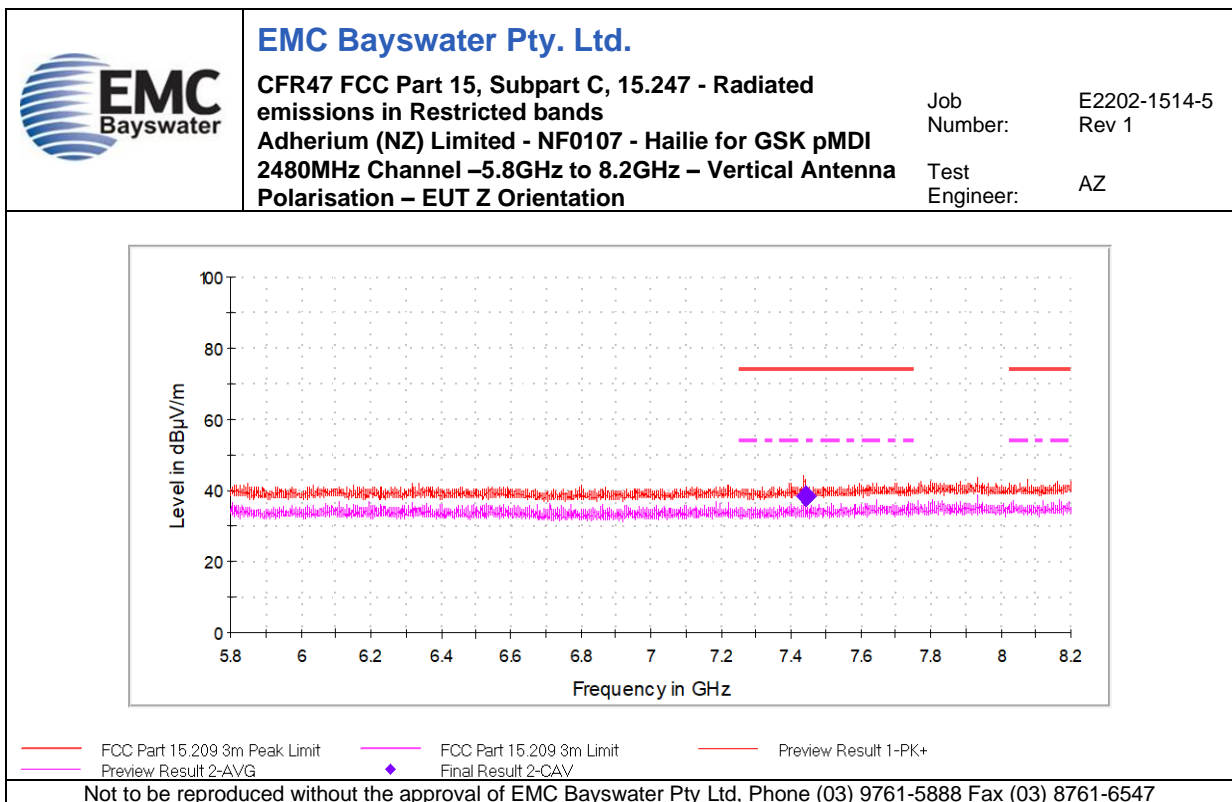
Graph 24



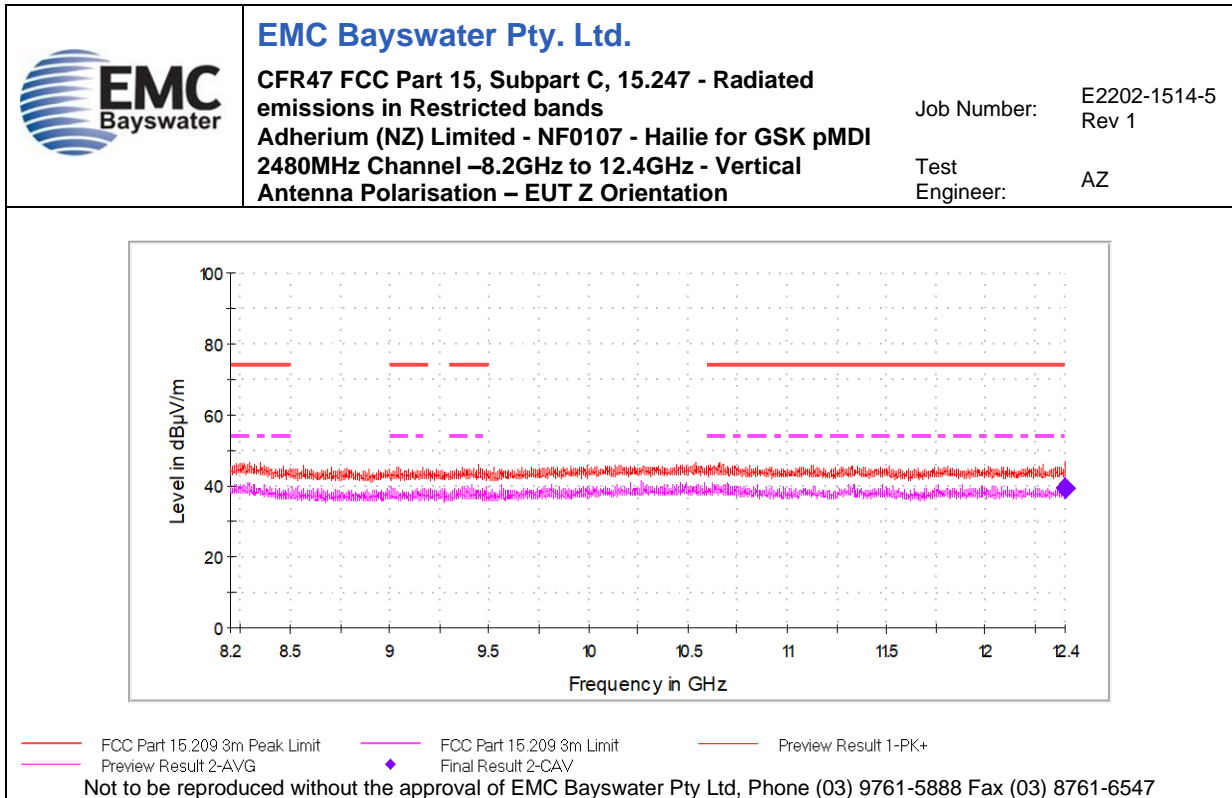
Graph 25



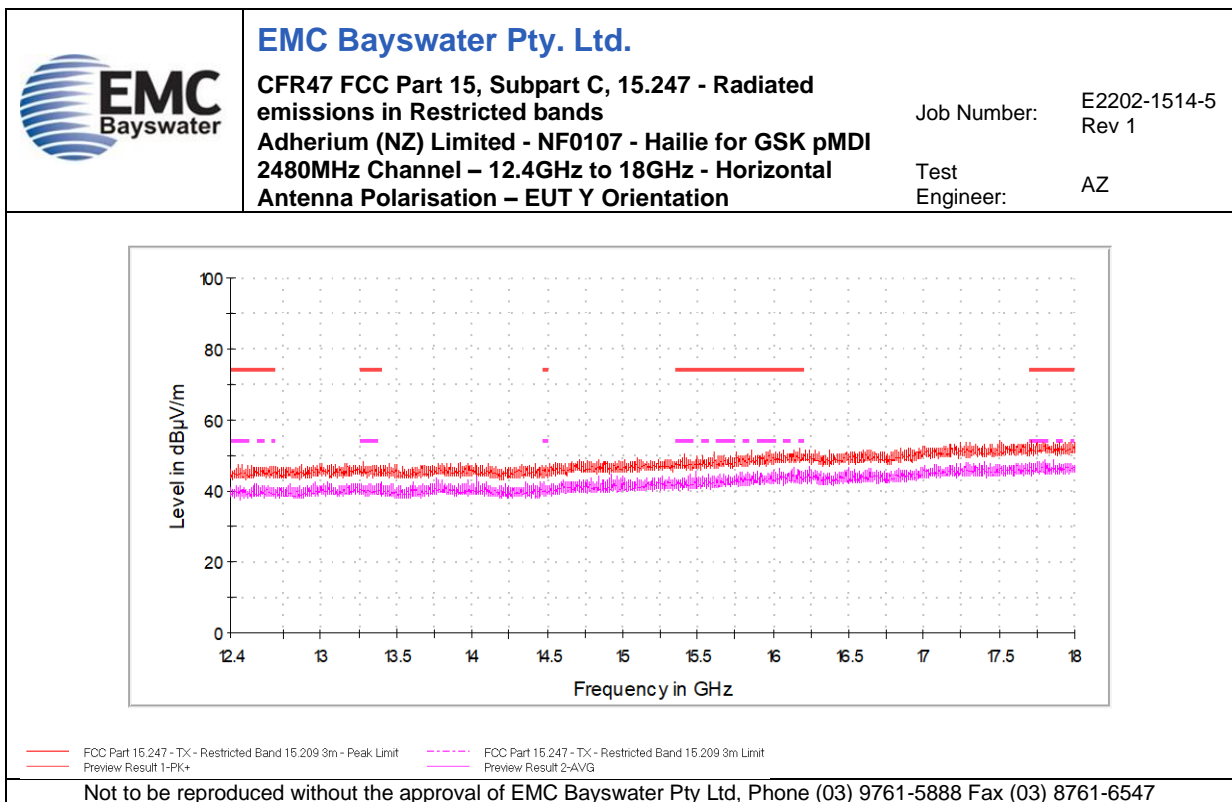
Graph 26



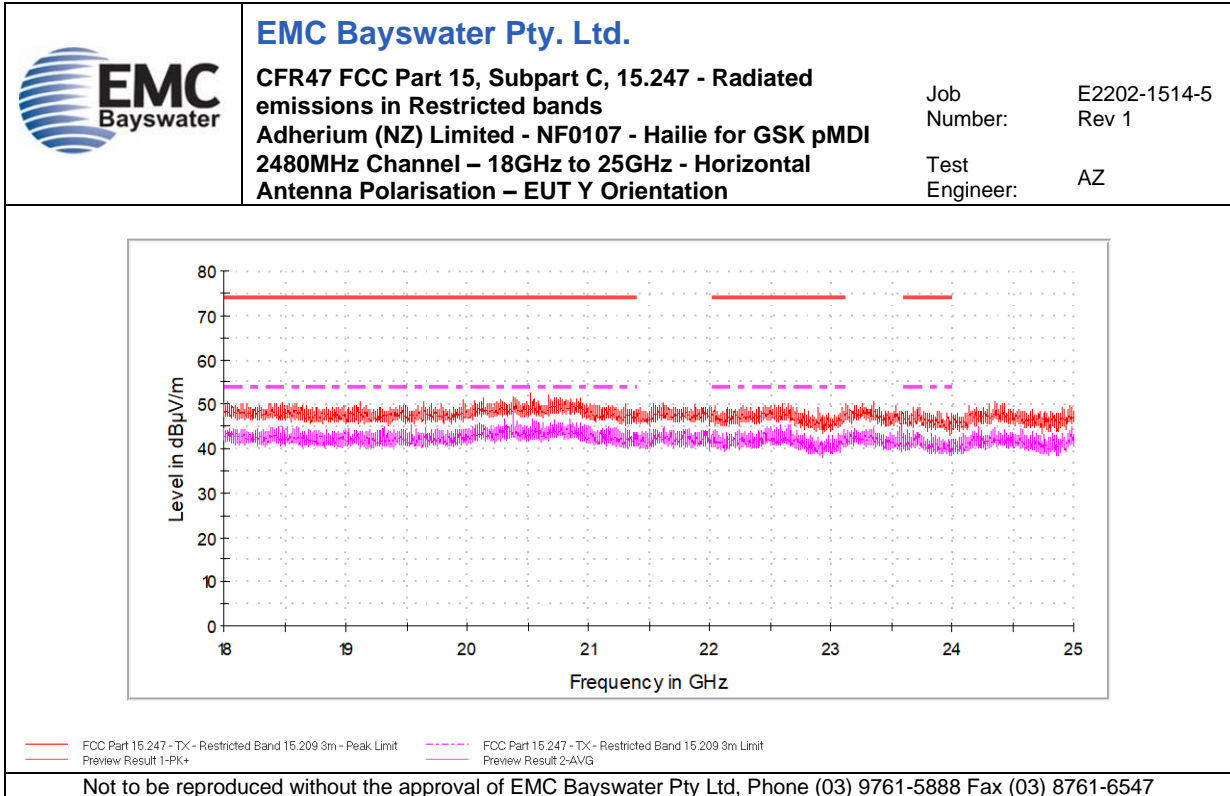
Graph 27



Graph 28



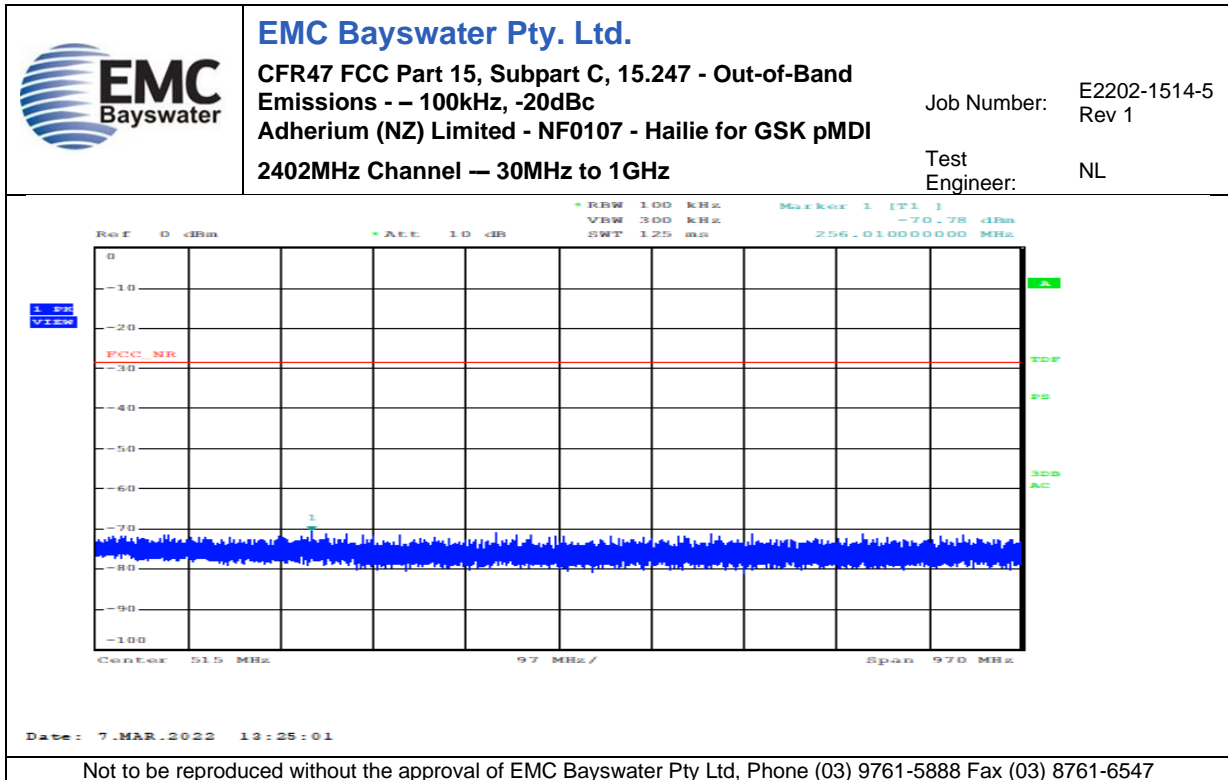
Graph 29



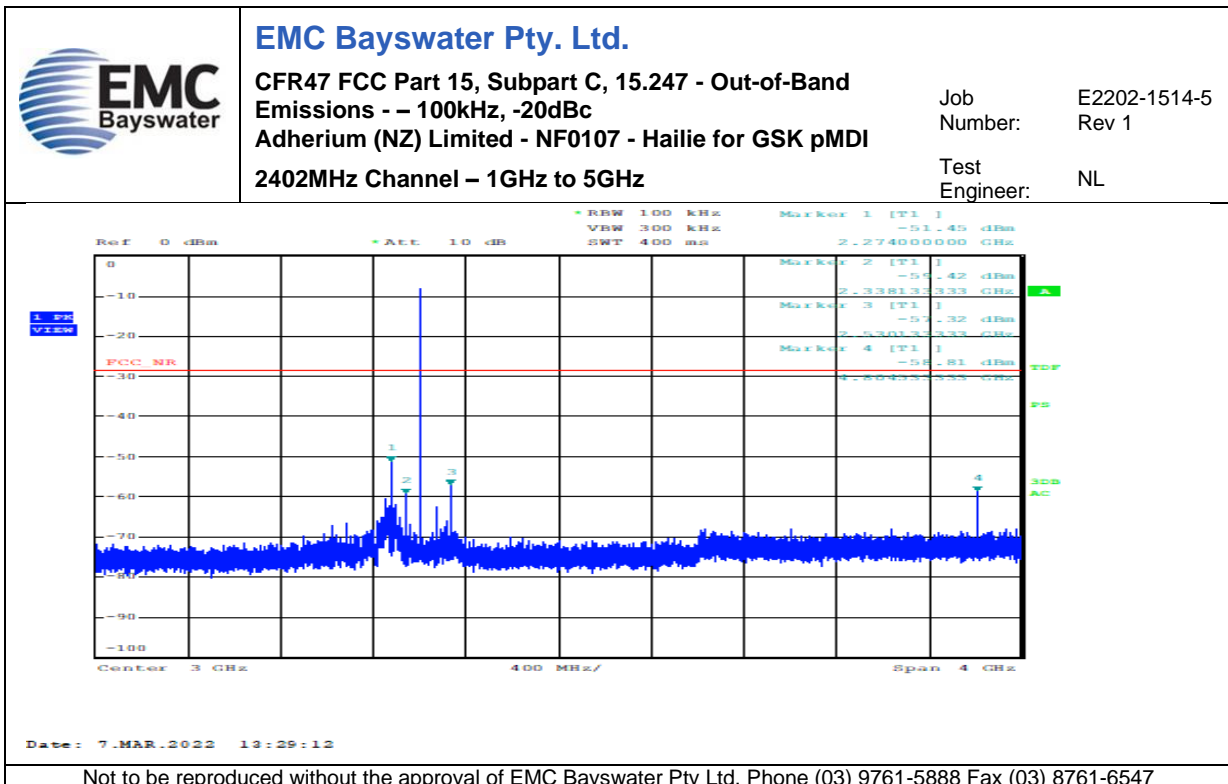
Graph 30

Appendix C.5 – Out-of-Band Emissions – 100kHz, -20dBc – FCC 15.247(d)

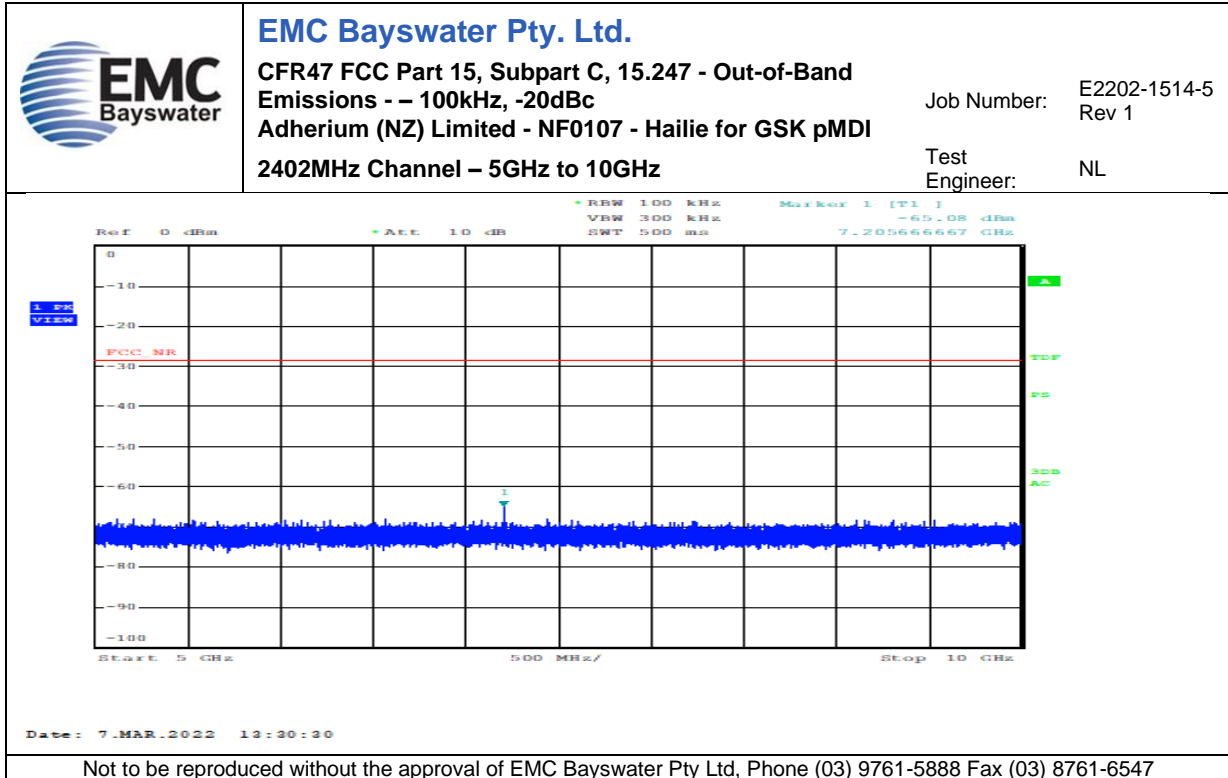
| No. | Test | Graph Description |
|-----|---|-------------------|
| 31 | Out-of-Band Emissions -- 100kHz, -20dBc 2402MHz Channel | 30MHz to 1GHz |
| 32 | | 1GHz to 5GHz |
| 33 | | 5GHz to 10GHz |
| 34 | | 10GHz to 15GHz |
| 35 | | 15GHz to 25GHz |
| 36 | Out-of-Band Emissions -- 100kHz, -20dBc 2440MHz Channel | 30MHz to 1GHz |
| 37 | | 1GHz to 5GHz |
| 38 | | 5GHz to 10GHz |
| 39 | | 10GHz to 15GHz |
| 40 | | 15GHz to 25GHz |
| 41 | Out-of-Band Emissions -- 100kHz, -20dBc 2440MHz Channel | 30MHz to 1GHz |
| 42 | | 1GHz to 5GHz |
| 43 | | 5GHz to 10GHz |
| 44 | | 10GHz to 15GHz |
| 45 | | 15GHz to 25GHz |



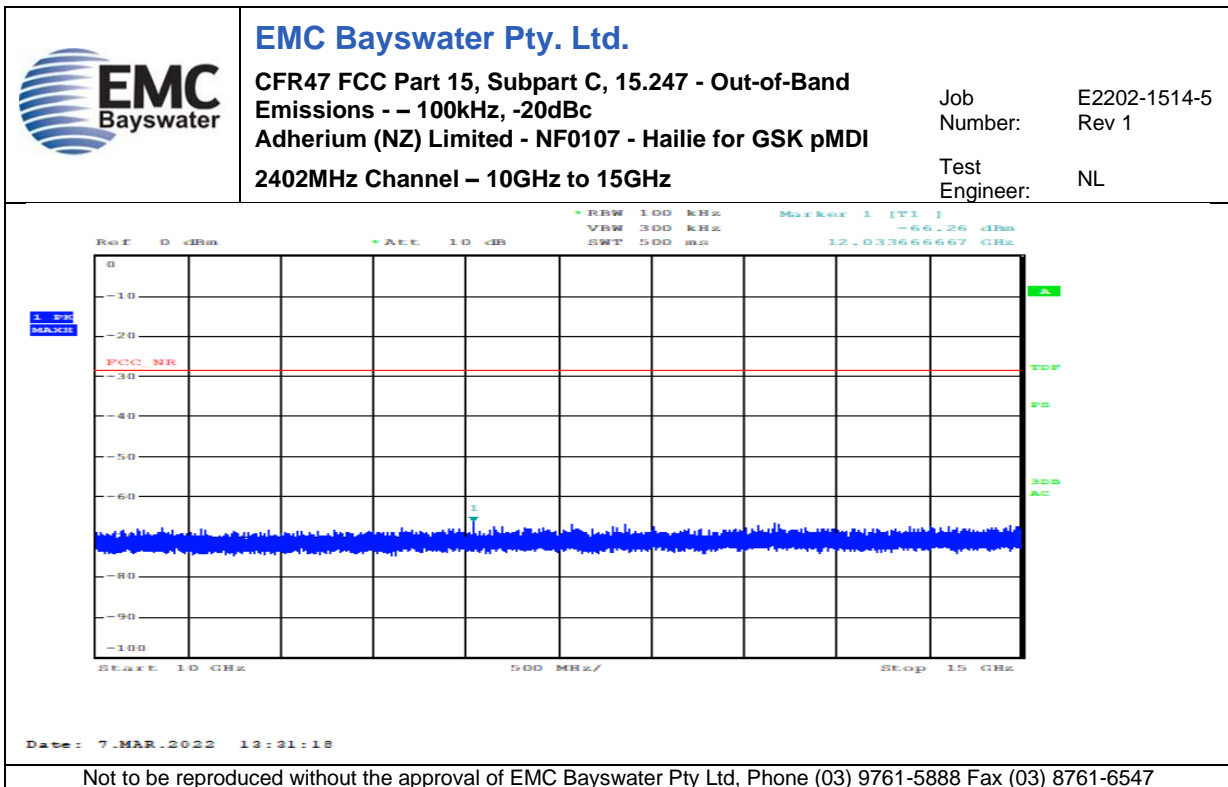
Graph 31



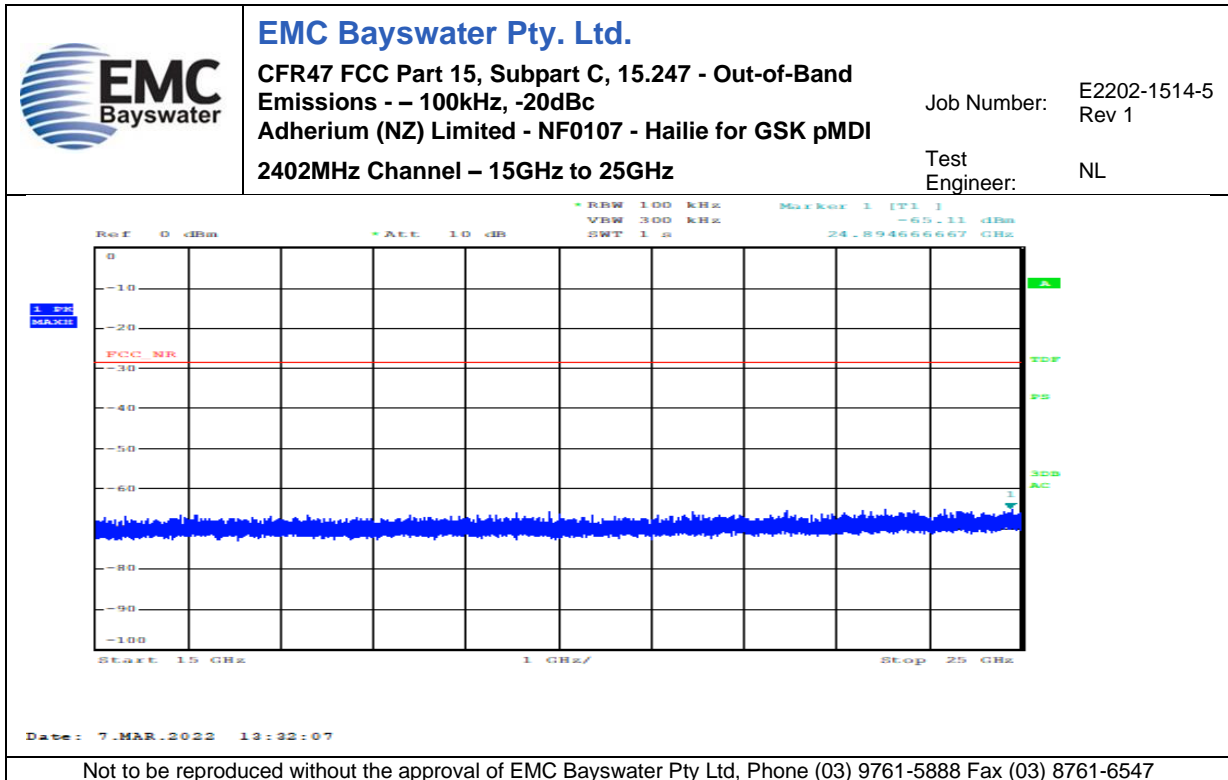
Graph 32



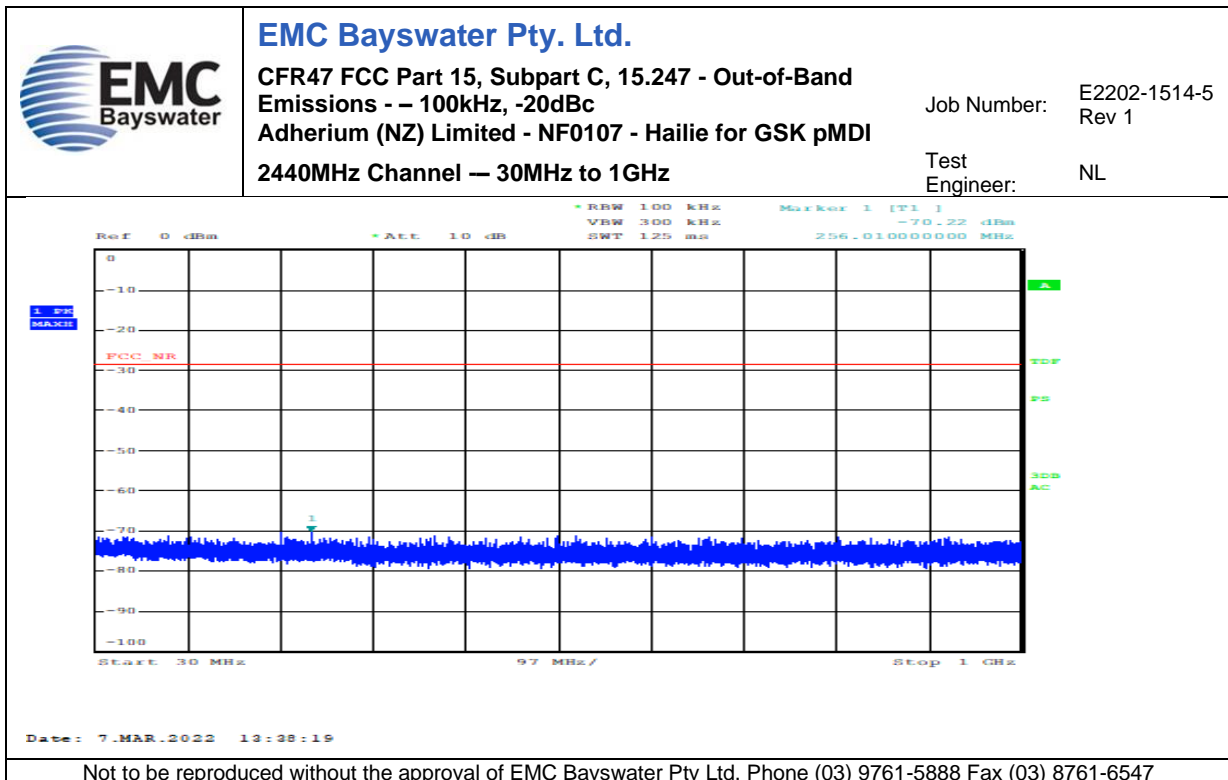
Graph 33



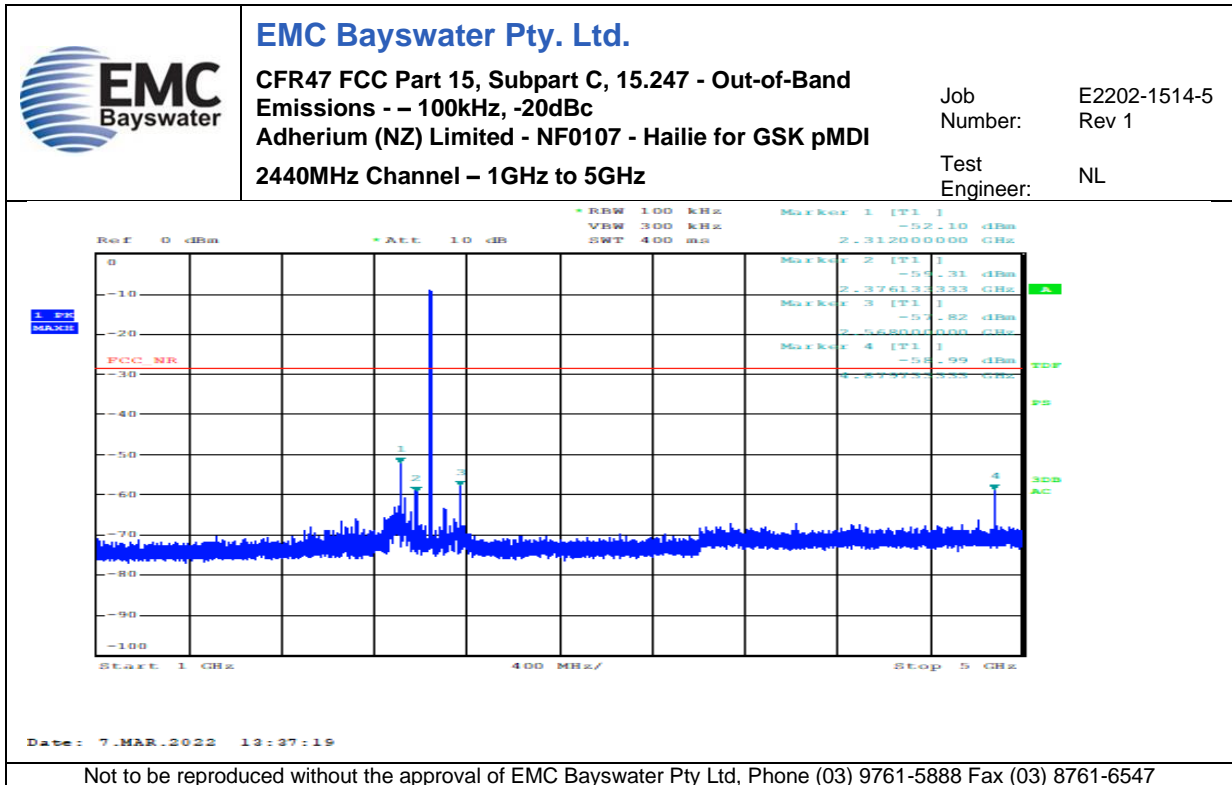
Graph 34



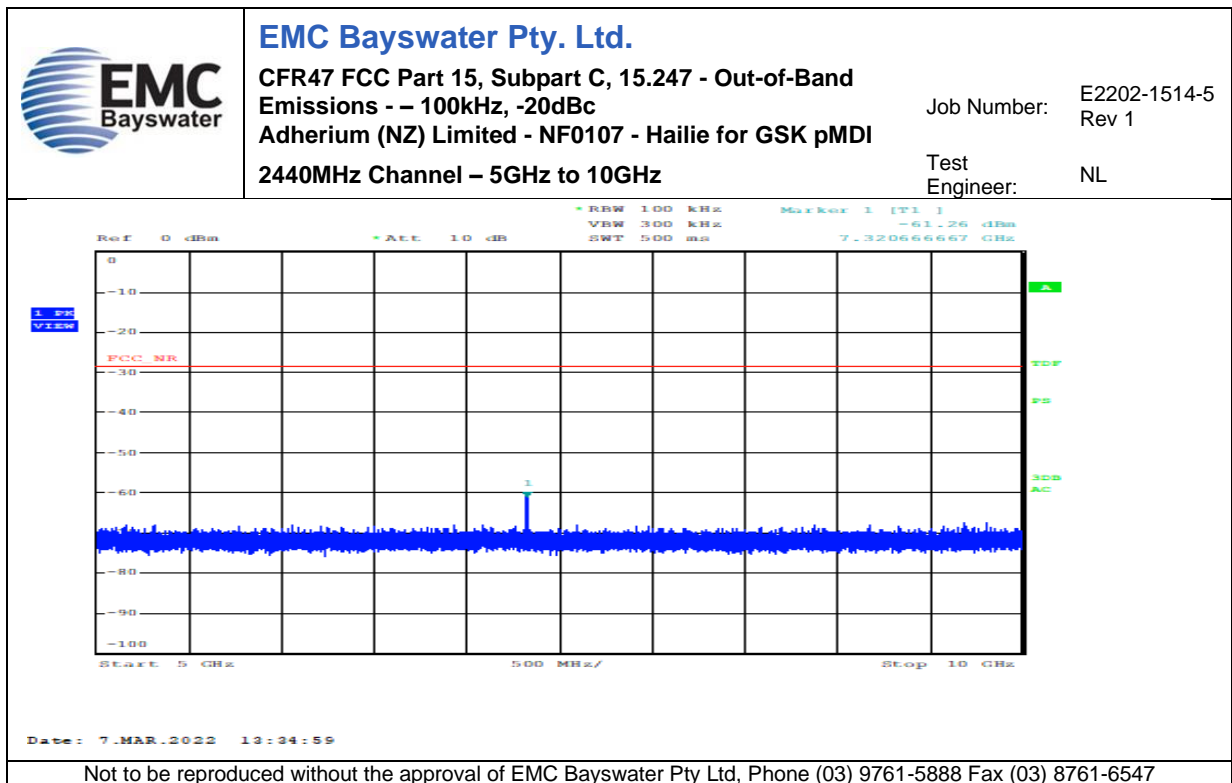
Graph 35



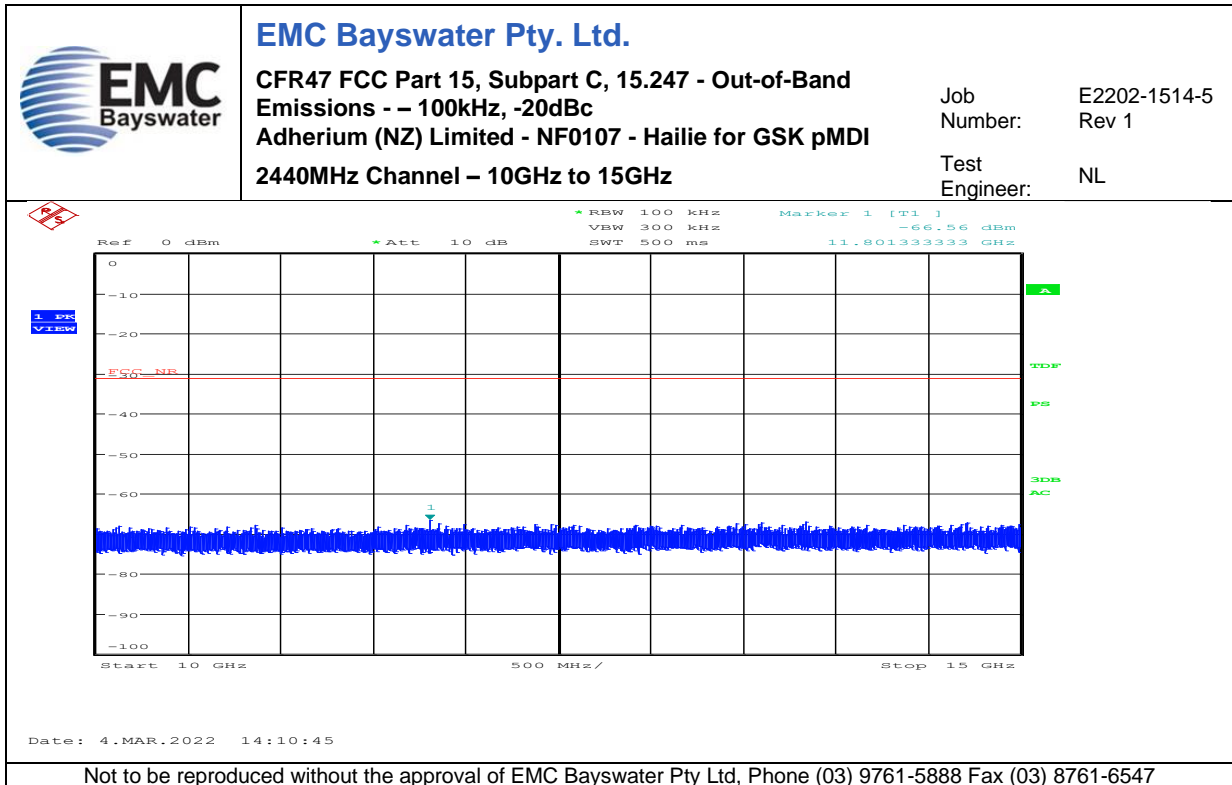
Graph 36



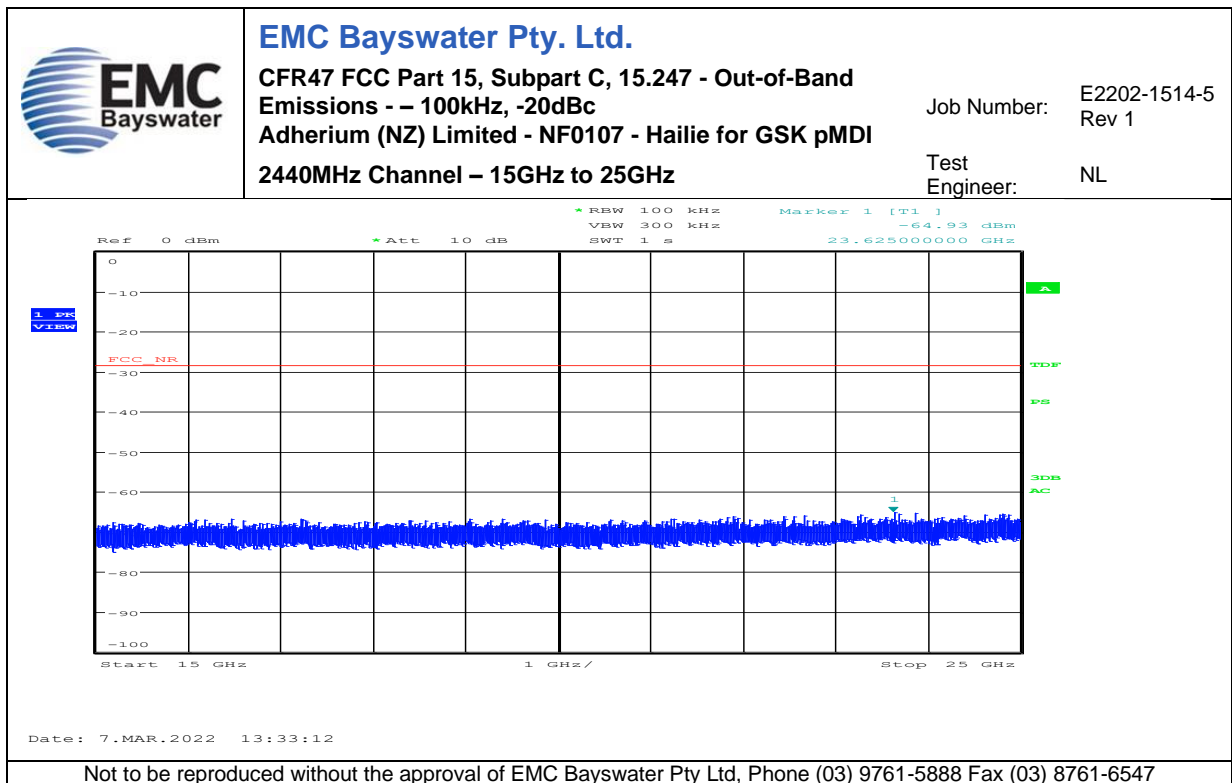
Graph 37



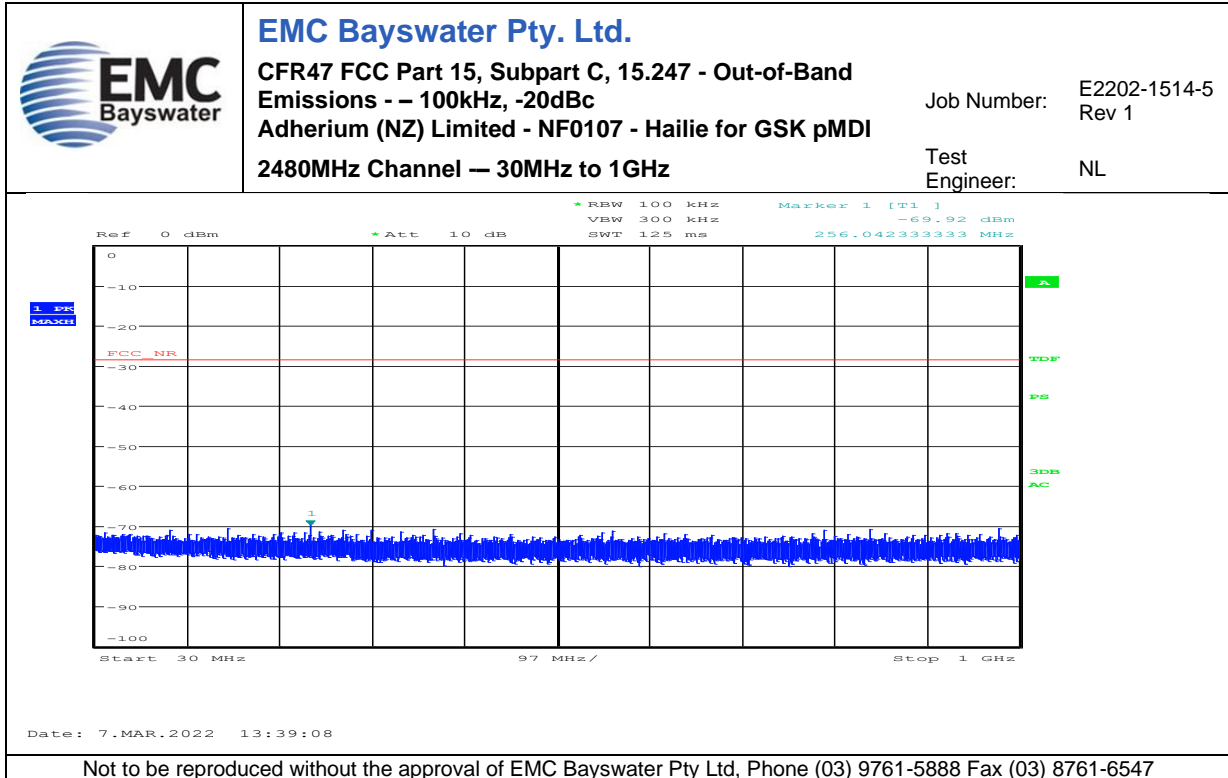
Graph 38



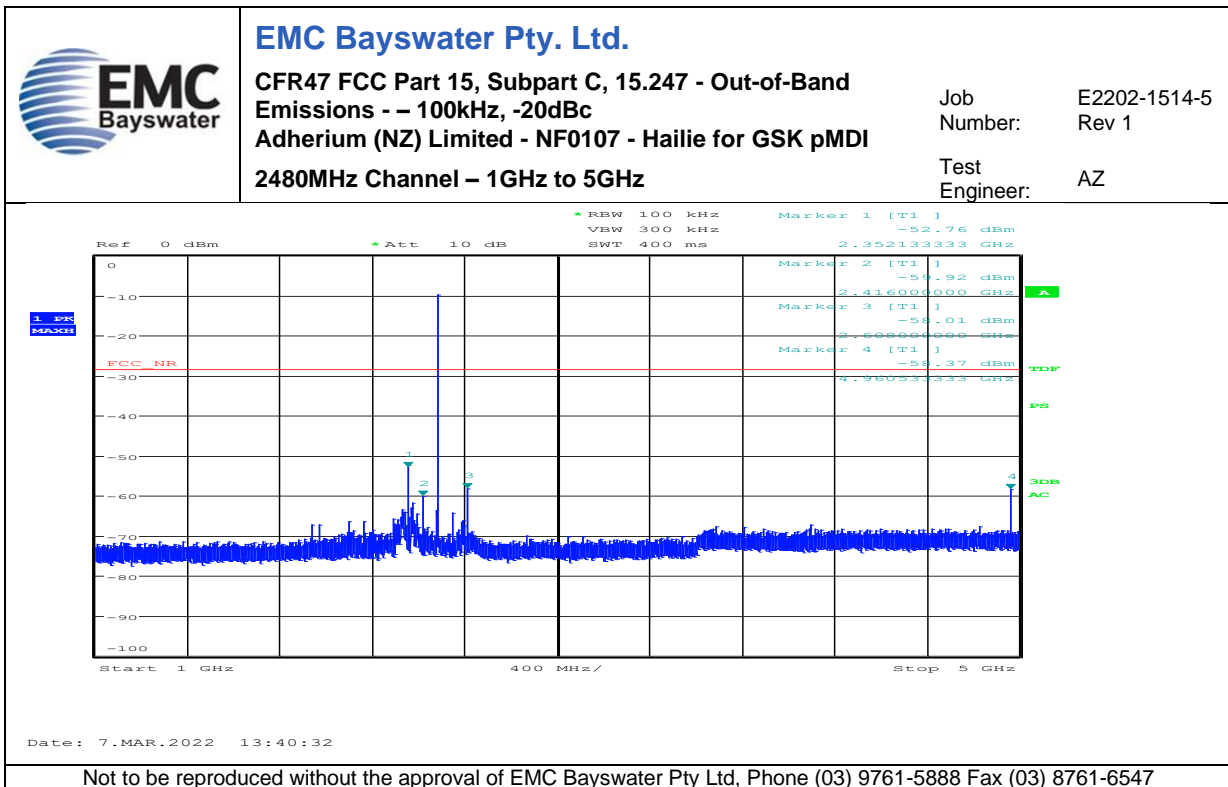
Graph 39



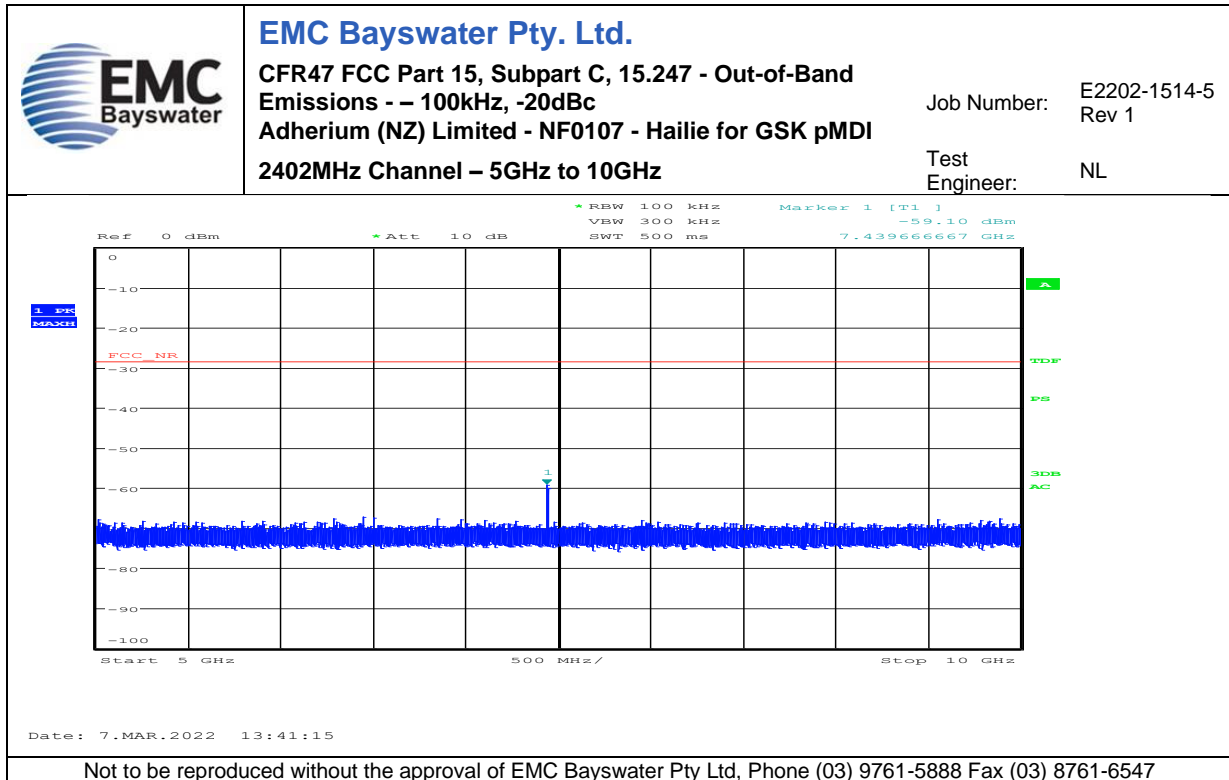
Graph 40



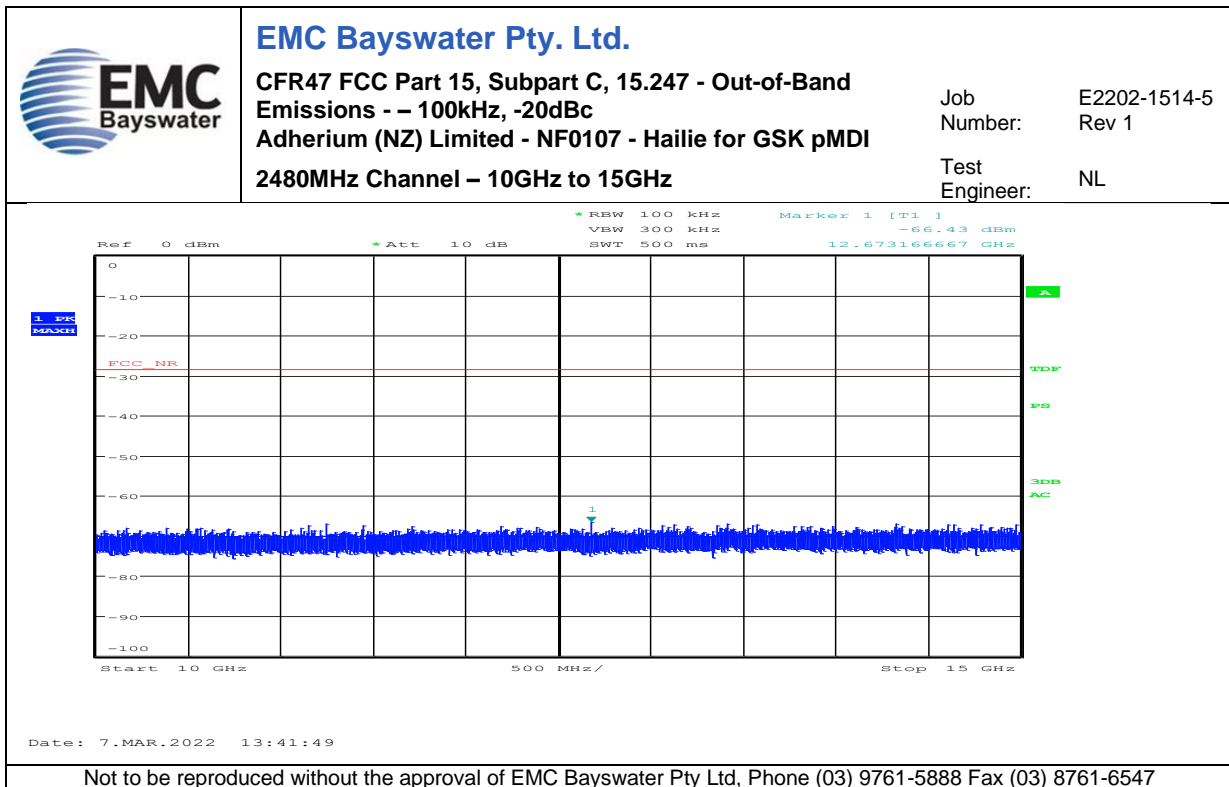
Graph 41



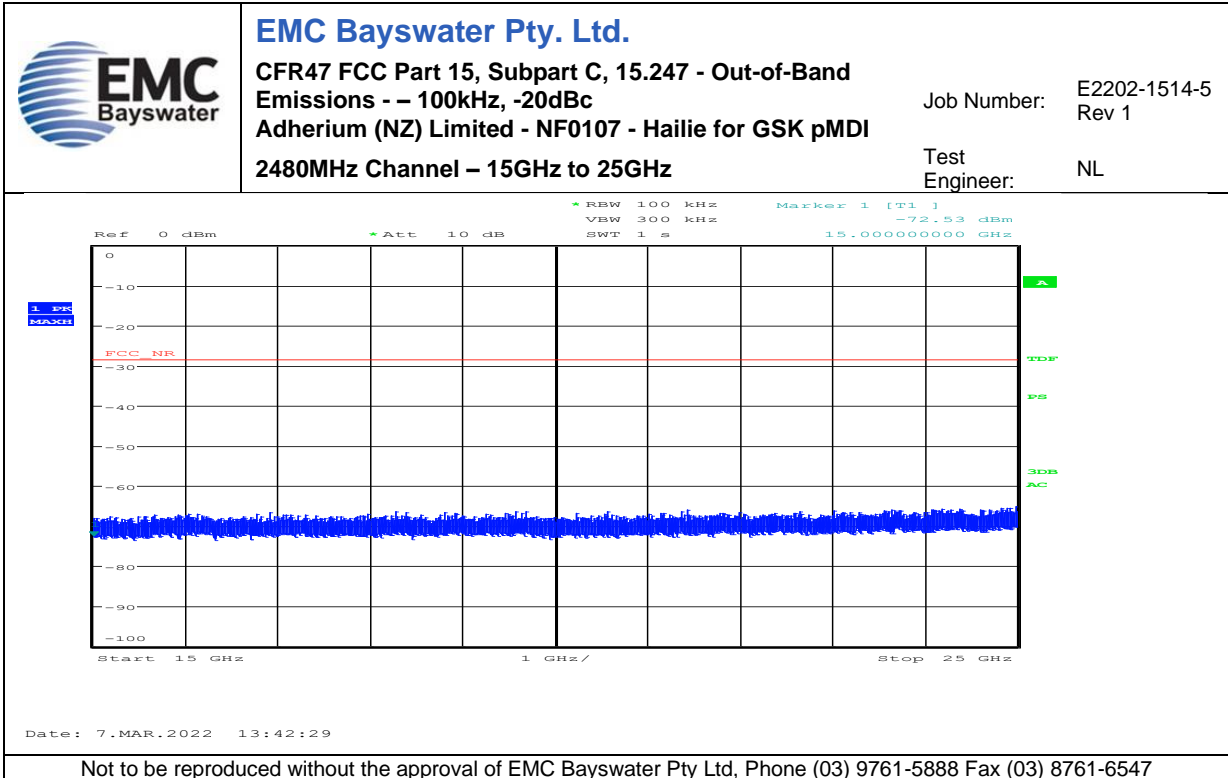
Graph 42



Graph 43



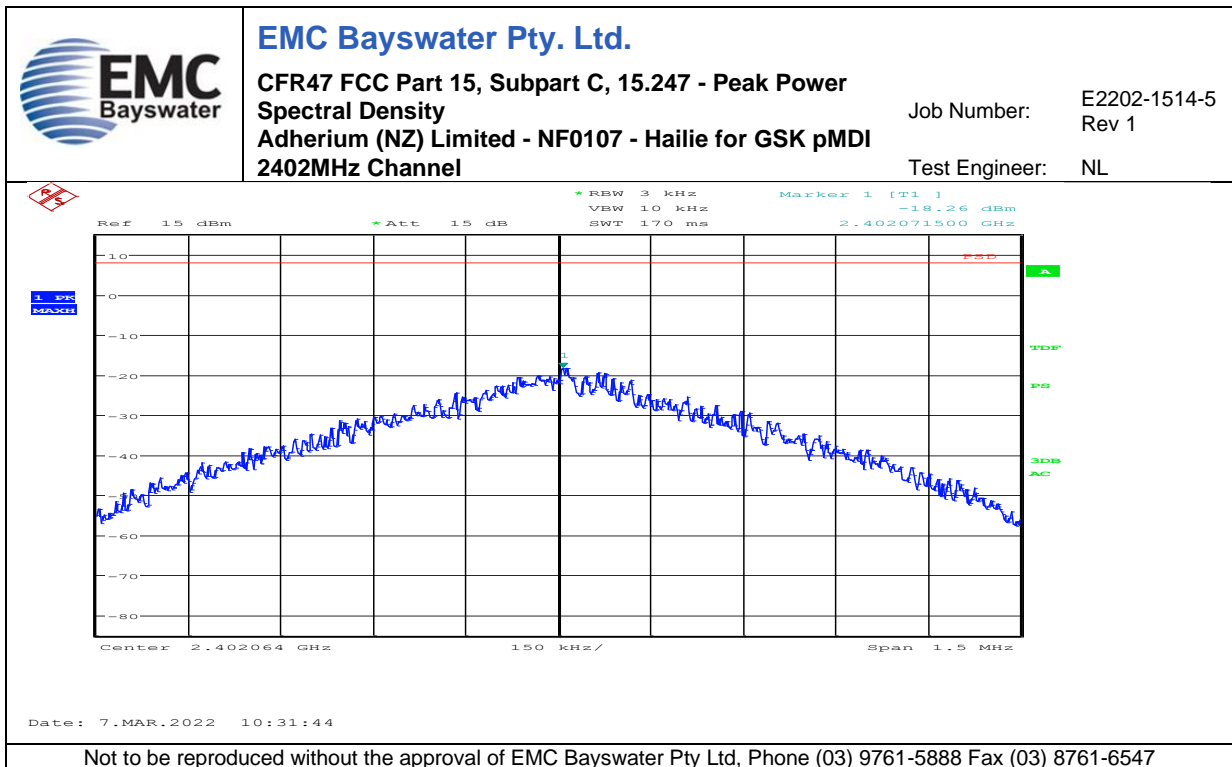
Graph 44



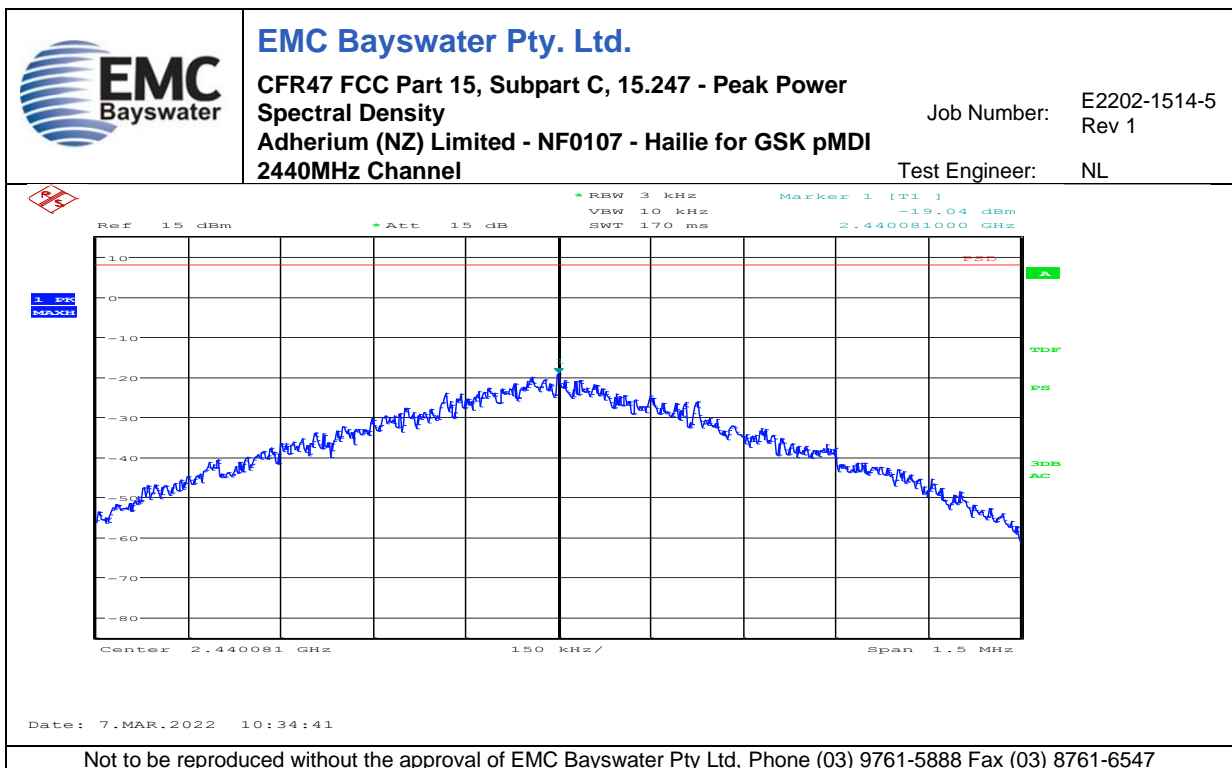
Graph 45

Appendix C.6 – Measurement Graphs – Power Spectral Density – FCC 15.247 (e)

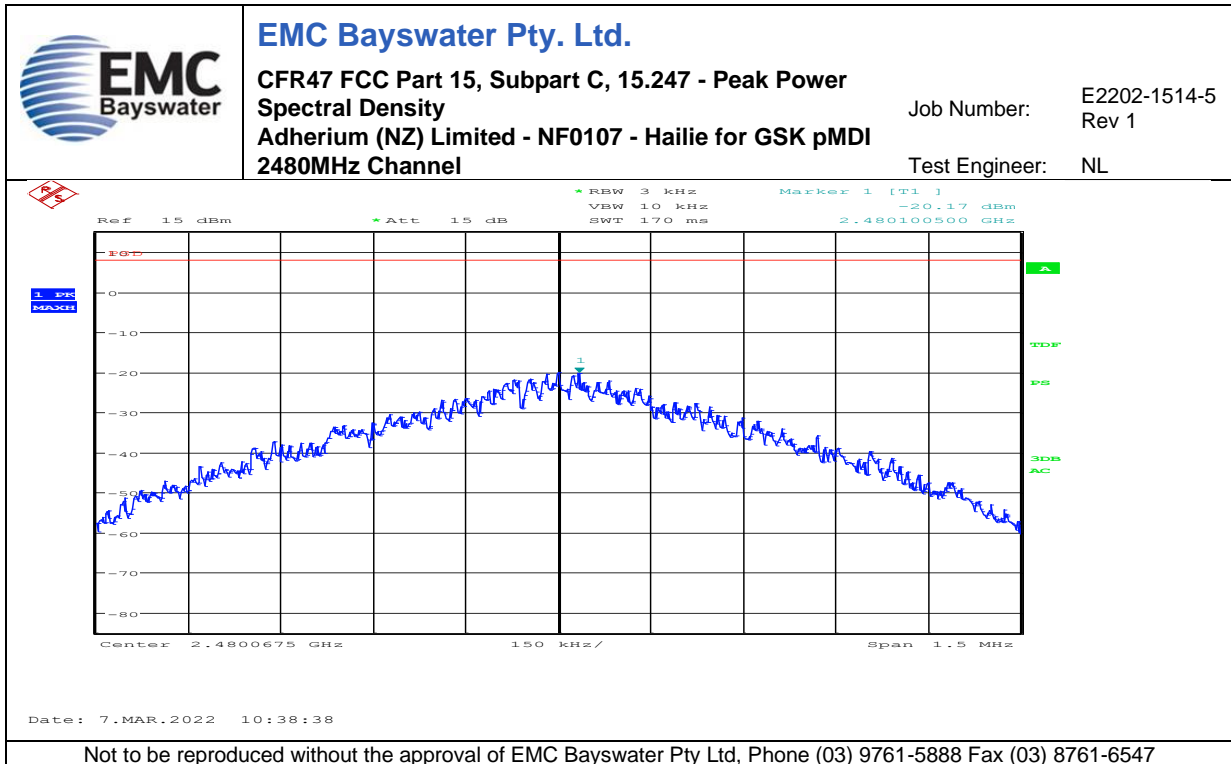
| No. | Test | Graph Description |
|-----|------------------------|-------------------|
| 46 | Power Spectral Density | 2402MHz Channel |
| 47 | | 2440MHz Channel |
| 48 | | 2480MHz Channel |



Graph 46



Graph 47

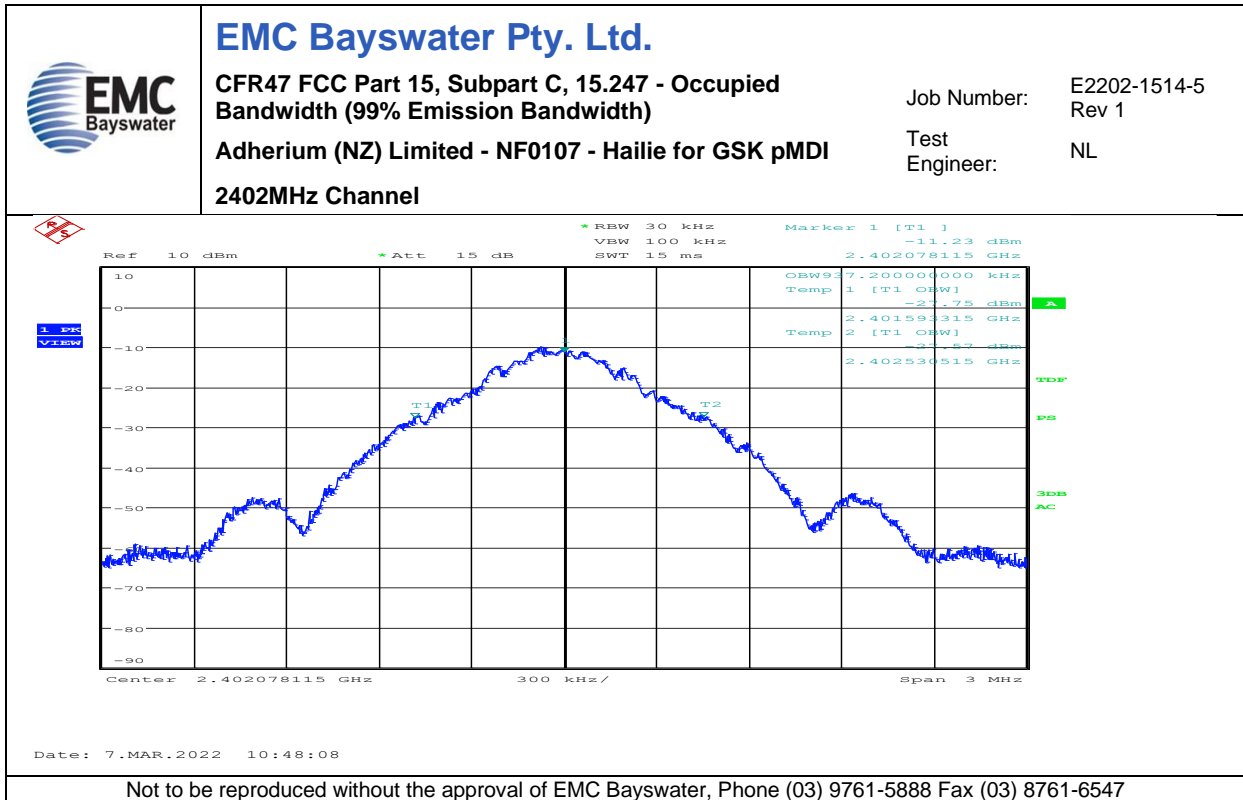


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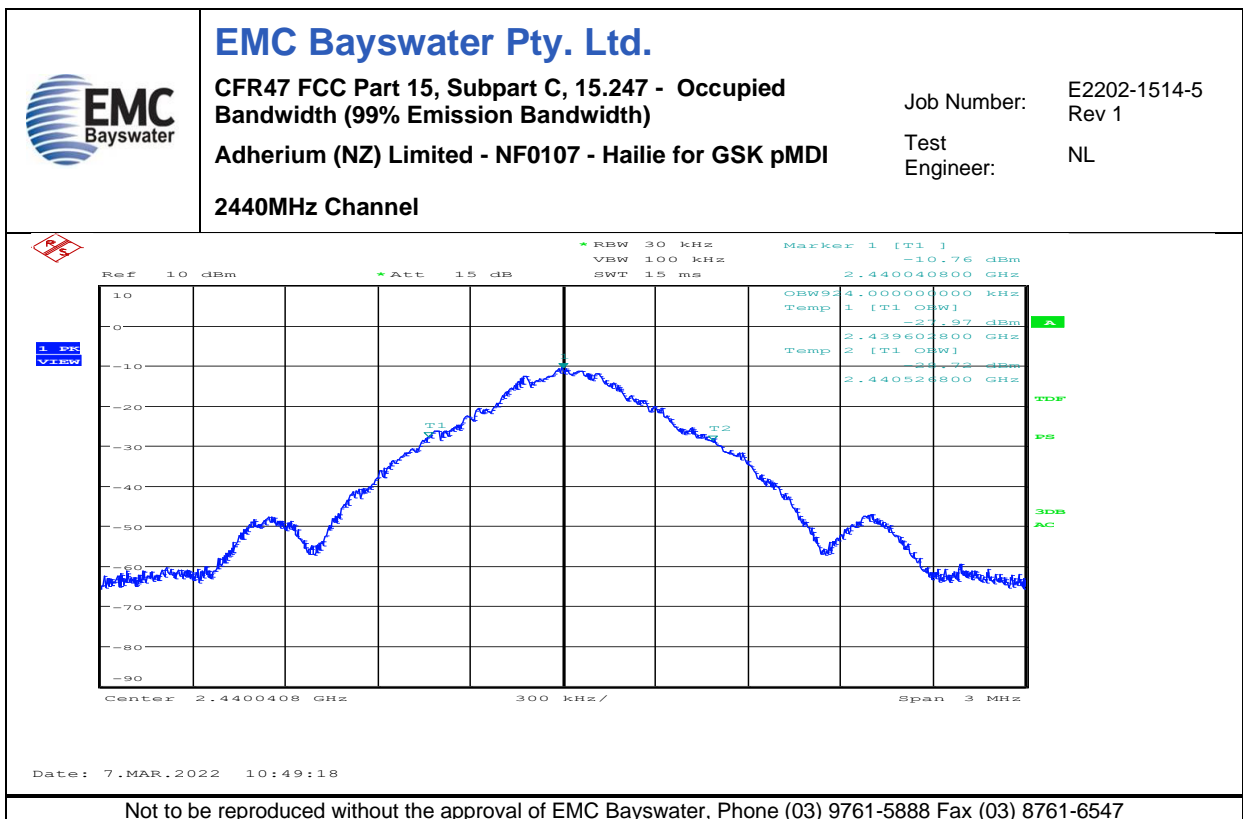
Graph 48

Appendix C.7 – Occupied Bandwidth (99% Emission Bandwidth)

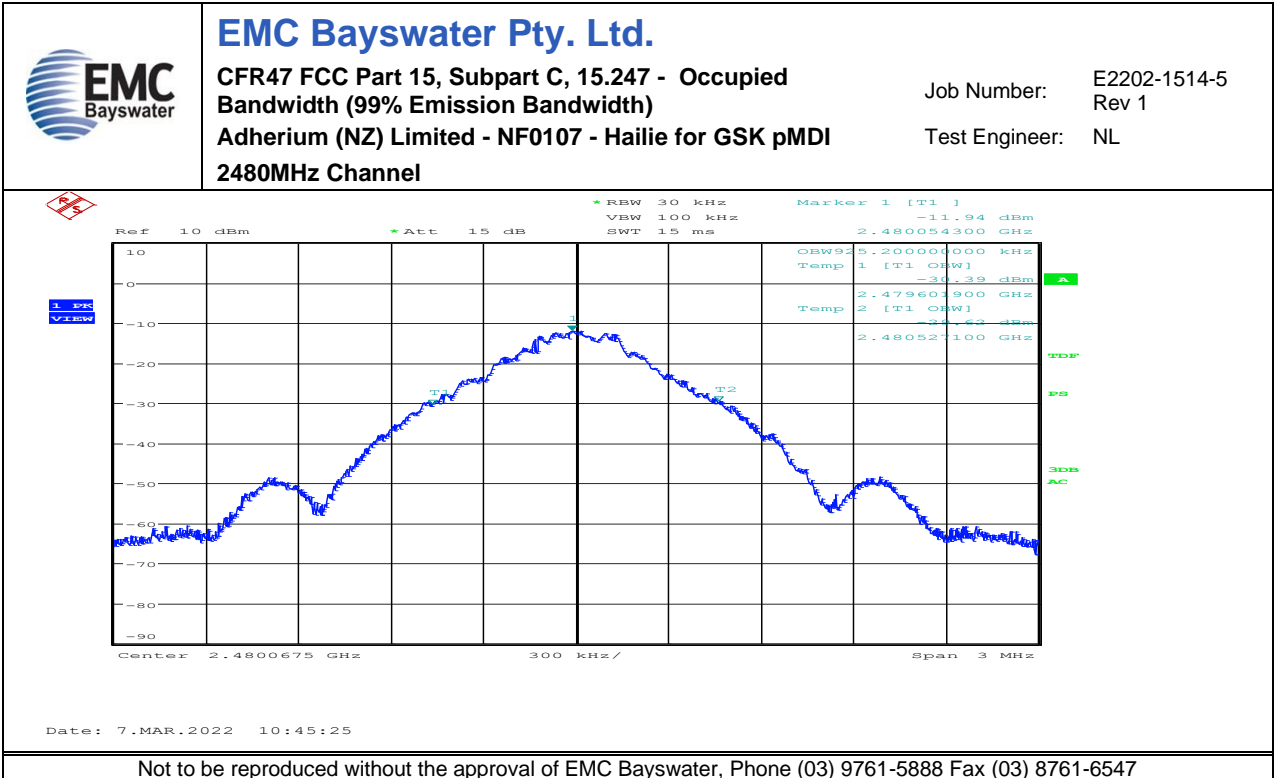
| No. | Test | Graph Description |
|-----|---|-------------------|
| 49 | Occupied Bandwidth (99% Emission Bandwidth) | 2402MHz Channel |
| 50 | | 2440MHz Channel |
| 51 | | 2480MHz Channel |



Graph 49



Graph 50



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Graph 51