



FCC 47CFR part 15C Test Report

**For
Jongo T6
Jongo T640**

Reference Standard: FCC 47CFR part 15C

Manufacturer: PURE

For type of equipment and serial number, refer to section 3

Report Number: **05-6938-7-13 Issue 02**

Supersedes report 05-6938-7-13 issue 01

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Certificate of Test 6938-7

The unit noted below has been tested by **R.N. Electronics Limited** and, where appropriate, conforms to the relevant subpart of FCC 47CFR Part 15. This is a certificate of test only and should not be confused with an equipment authorisation. Other standards may also apply.

Equipment:	Jongo T6
Model Number:	Jongo T640
Proposed FCC ID:	X280067
Unique Serial Number(s):	ES2-1 (radiated tests), ES3-2 (conducted tests)
Manufacturer:	PURE Imagination Technologies Home Park Industrial Estate Kings Langley Hertfordshire WD4 8LZ
Full measurement results are detailed in Report Number:	05-6938-7-13 Issue 02
Test Standards:	FCC 47CFR Part 15.247 effective date October 1st 2012 , Class DTS Intentional Radiator

NOTE:

Certain tests were not performed based upon manufacturer's declarations. For details refer to section 3 of this report.

DEVIATIONS:

Deviations from the standards have been applied. For details refer to section 4.2 of this report.

This certificate relates only to the unit tested as identified by a unique serial number and in the condition at the time it was tested. It does not relate to any other similar equipment and performance of the product before or after the test cannot be guaranteed. Whilst every effort is made to assure quality of testing, type tests are not exhaustive and although no non-conformances may be found, this doesn't exclude the possibility of unit not meeting the intentions of the standard or the requirements of the Directive, particularly under different conditions to those during testing. Any compliance statements are made reliant on (a) the application of the product and use of the assigned band being acceptable to one or more national authorities within the EU and (b) the modes of operation as instructed to us by the Customer based on their specific knowledge of the application and functionality of the EUT. Statements of compliance, where measurements were made, do not include the measurement uncertainty. The measurement uncertainty, where stated, is the expanded uncertainty based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%.

Date of Test:	28th May to 31st May, 2013
Test Engineer:	
Approved By: Managing Director	
Customer representative	

1 Contents

1	Contents.....	3
2	Equipment Under Test (EUT)	4
2.1	Equipment Specification.....	4
2.2	EUT Configurations for testing.....	4
2.3	Functional Description	5
2.4	EUT Modes	5
2.5	Emissions Configuration.....	7
3	Summary of test results	8
4	Specifications.....	9
4.1	Relevant Standards.....	9
4.2	Deviations	9
4.3	Tests at Extremes of Temperature & Voltage	9
4.4	Measurement Uncertainties	10
5	Tests, Methods and Results	11
5.1	AC power line conducted emissions	11
5.2	Radiated emissions	13
5.3	Occupied bandwidth.....	17
5.4	Maximum Peak conducted output power.....	22
5.5	Frequency tolerance	27
5.6	Duty cycle	27
5.7	Maximum Power Spectral Density	28
5.8	Band Edge Compliance.....	33
5.9	FHSS Parameters	40
6	Plots and Results	41
6.1	AC power line conducted emissions plots	41
6.2	Radiated emissions plots.....	43
6.3	6dB bandwidth / occupied bandwidth plots.....	58
6.4	Band edge compliance plots.....	76
6.5	Power spectral density plots	112
7	Explanatory Notes	130
7.1	Explanation of Table of Signals Measured	130
7.2	Explanation of limit line calculations for radiated measurements.....	131
8	Photographs.....	132
8.1	EUT Front View	132
8.2	EUT Reverse Angle	133
8.3	EUT Antenna Connector Port.....	134
8.4	EUT Display / Controls.....	135
8.5	EUT Internal Construction.....	136
8.6	EUT Chassis	140
8.7	Test set-up, spurious emissions	141
9	Signal Leads	145
10	Test Equipment Calibration list	145
11	Auxiliary equipment	146
11.1	Customer supplied Equipment	146
11.2	Supplied by RN Electronics Limited.....	146
12	Modifications	146
12.1	Modifications before test.....	146
12.2	Modifications during test.....	146
13	Compliance information.....	146
14	Description of Test Sites.....	147
15	Abbreviations and Units.....	148

2 Equipment Under Test (EUT)

2.1 Equipment Specification

Applicant	PURE Imagination Technologies Home Park Industrial Estate Kings Langley Hertfordshire WD4 8LZ
Manufacturer of EUT	PURE
Brand name of EUT	Jongo T6
Model Number of EUT	Jongo T640
Serial Number of EUT	ES2-1 (radiated tests), ES3-2 (conducted tests)
Date when equipment was received by RN Electronics	22nd May, 2013
Date of test:	28th May to 31st May, 2013
Visual description of EUT:	A plastic enclosure with two speakers on the front hidden by a removable speaker grille. The unit has a standby, mute and Volume up and down buttons on one side. On the rear are an auxiliary input port, a USB port and a mains input port. Also located on the rear are a Wi-Fi sync button and a main On/Off switch. The Wi-Fi Antenna is located internally to the enclosure.
Main function of the EUT:	Wireless music streaming via Wi-Fi or Bluetooth. N.b. Bluetooth not under test.
Height	205 mm
Width	360 mm
Depth	195 mm
Weight	6kg
Voltage	100-240V AC
Current required from above voltage source	2A

2.2 EUT Configurations for testing

General parameters	
EUT normal use position / classification	Desktop / mobile.
Choice of model(s) for type tests	Single variant
Antenna details	Wi-Fi inverted F PCB antenna
Antenna port	Integral antenna
Data port (yes/no)?	Yes
Highest signal generated in EUT	2462MHz (Wi-Fi TX channel 11)
Lowest signal generated in EUT	12MHz (USB clock)

TX parameters	
Alignment range – transmitter	2.412 - 2.462 GHz
EUT declared modulation parameters	DSSS: DBPSK; DQPSK; CCK (802.11b) OFDM: BPSK; QPSK; 16QAM; 64QAM (802.11g)
EUT declared power level	+16dBm
EUT declared signal bandwidths	20MHz
EUT declared channel spacing's	5MHz
Declared frequency stability	+/-20ppm
RX parameters	
Alignment range – receiver	2.412 - 2.462 GHz
EUT declared RX signal bandwidth	20MHz

2.3 Functional Description

Pure "Jongo T6, T640" is part of the range of Wi-Fi connected audio products. It is a wireless loudspeaker to stream audio media via use of a Wi-Fi network or via Bluetooth. The media can be steamed from a smart phone, tablet or a pc. Use of the Pure connect App on iOS/Android device is the suggested way to use the equipment. The unit can also stream audio using an integral pre-approved Bluetooth device (not under test in this report)

2.4 EUT Modes

Mode Reference	Description	Used for testing
TX Low Channel	EUT constantly transmitting with modulation at 2412MHz	Yes
TX Mid Channel	EUT constantly transmitting with modulation at 2437MHz	Yes
TX High Channel	EUT constantly transmitting with modulation at 2462MHz	Yes
TX normal	Wi-Fi or Bluetooth packet transmission of audio data	No

All Transmit modes were 100% duty cycle, modulated (except where stated otherwise), and left on the default max power setting.

The Transmit modes referred to above were checked in combination with the following table of modulation/ data rate schemes to fulfil the test requirements:-

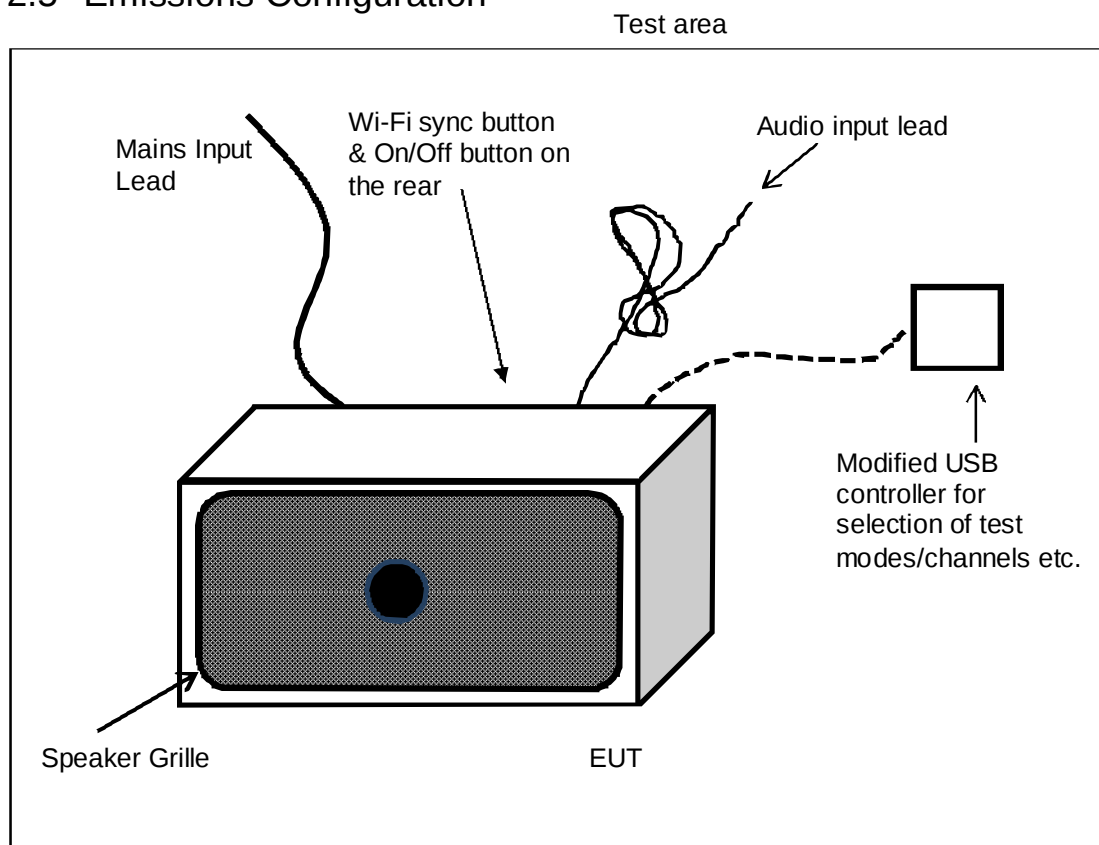
Mode	Rate
802.11B	1 Mbps
802.11B	2 Mbps
802.11B	5.5 Mbps
802.11B	11 Mbps
802.11G	6 Mbps
802.11G	9 Mbps
802.11G	12 Mbps
802.11G	18 Mbps
802.11G	24 Mbps
802.11G	36 Mbps
802.11G	48 Mbps
802.11G	54 Mbps

Description of ancillary equipment connected to the equipment under test, for the purpose of tests, can be found in Section 10.

Any modifications made to the EUT, whilst under test, can be found in Section 11.

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2.5 Emissions Configuration



The unit was powered from 110V AC @ 60Hz using the figure of 8 mains lead provided with the unit. For conducted RF tests a second unit was provided with the internal antenna unsoldered and an SMA connector fitted in its place.

The units were configured with engineering menus in software which were accessed via a specially modified USB device. This device allowed permanent transmit and receive modes of the EUT on the top, middle and bottom channels as stated within section 2.4 of this report. The transmit mode was 100% continuous with modulation and the power settings for each channel were left at the default settings (level 20) in the software.

For radiated and conducted emissions tests the unit was populated with typical peripherals. The USB port was populated with the specially modified USB device for control of the test modes. An iPhone was connected to the auxiliary audio input lead as a termination only this had no effect on the units radiated or conducted emissions profile, therefore, for radiated emissions the iPhone was removed and an unterminated lead was left attached to the unit. 2 identical units were provided for test, these were: - S/n ES2-1 for all Radiated RF TX tests (and Conducted AC emissions) and S/n ES3-2 for all Conducted RF TX tests.

A pre-approved Bluetooth USB dongle was permanently fitted inside the EUT enclosure and was powered/in operation during the course of the testing. The Bluetooth dongle was labelled FCC ID: **X2806M**.

3 Summary of test results

The **Jongo T6** was tested to the following standards: -

**FCC 47CFR Part 15.247 (effective date October 1st, 2012);
Class DTS Intentional Radiator**

Any compliance statements are made reliant on the modes of operation as instructed to us by the Manufacturer based on their specific knowledge of the application and functionality of the equipment tested. Whilst every effort is made to assure quality of testing, type tests are not exhaustive and although no non-conformances may be found, this doesn't exclude the possibility of equipment not meeting the intentions of the standard, particularly under different conditions to those during testing.

Title	Reference	Results
1. AC power line conducted emissions	FCC Part 15C §15.207	PASSED
2. Radiated emissions	FCC Part 15C §15.205, §15.209 and §15.247(d)	PASSED
3. Occupied bandwidth	FCC Part 15C §15.215(c), §15.247(a)(2)	PASSED
4. Maximum peak conducted output power	FCC Part 15C §15.247(b)	PASSED
5. Frequency tolerance	FCC Part 15C §15.215(c)	NOT APPLICABLE ¹
6. Duty cycle	FCC Part 15C §15.35(c)	NOT APPLICABLE ²
7. Power spectral density	FCC Part 15C §15.247(e)	PASSED
8. Band edge compliance	FCC Part 15C §15.205, §15.209 and §15.247	PASSED
9. FHSS parameters	FCC Part 15C §15.247(a)(1) Dwell time and Number of hopping channels Frequency separation	NOT APPLICABLE ³ NOT APPLICABLE ³

¹No limits apply, however the requirement to contain the designated bandwidth of the emission within the specified frequency band includes the frequency stability of the transmitter over expected variations in temperature and supply voltage.

² No limits apply.

³ EUT does not employ FHSS technology.

4 Specifications

4.1 Relevant Standards

The tests were performed by RN Electronics Engineer Daniel Sims who set up the tests, the test equipment, and operated it in accordance with the **R.N. Electronics Ltd** procedures manual and the basic standards listed below.

R.N. Electronics Ltd sites M and OATS are listed with the FCC. Registration Number 293246

Reference	Standard Number	Year	Description
4.1.1	FCC 47CFR15	2012	Electromagnetic compatibility and radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements
4.1.2	ANSI C63.10	2009	American National Standard for Testing Unlicensed Wireless Devices
4.1.3	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
4.1.4	KDB558074	2013	Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247

4.2 Deviations

ANSI C63-10-2009 deviations:

The reference standard ANSI C63.4-2003 was used, not the latest ANSI C63.4-2009

FCC Part 15 deviations:

None.

4.3 Tests at Extremes of Temperature & Voltage

Not Required.

N.b. for certain tests referenced to antenna port:

- ☒ A Temporary SMA Connector was soldered to the end of the Antenna RF lead (with the antenna removed) and was used for testing.
- ☐ A test fixture was used for testing.
- ☐ A temporary RF port was created for testing.
- ☐ The equipment internal Antenna was used for testing.

4.4 Measurement Uncertainties

Parameter	Uncertainty
Transmitter Tests	
Conducted RF power	$<\pm 1.0$ dB
Occupied bandwidth	± 1.9 %
Radiated RF power	± 3.5 dB
Radiated spurious emissions	30MHz - 1000MHz ± 5.1 dB
	1000MHz - 2000MHz ± 4.5 dB
	1 – 18 GHz ± 3.5 dB
	18 – 26.5 GHz ± 3.9 dB
AC power line conducted emissions	(For LISN) 150kHz to 30MHz ± 3.6 dB

5 Tests, Methods and Results

5.1 AC power line conducted emissions

5.1.1 Test Methods

Test Requirements
Test Method:

FCC Part 15C, Reference (15.207)
ANSI C63.10, Reference (6.2.)

5.1.2 Configuration of EUT

The EUT was placed on a wooden table 0.8m above the ground plane and connected to a LISN via a 1m mains cable.

Details of the Peripheral and Ancillary Equipment connected for this test is listed in section 11.

The EUT was operated in mode TX Low Channel, TX Mid Channel, and TX High Channel.

5.1.3 Test Procedure

Tests were made in accordance with FCC Part 15 using the measuring equipment noted in the 'Test Equipment' Section. Measurements were made on the live and neutral conductors using both average and quasi-peak detection.
At least 6 signals within 20dB and/or all signals within 10dB of the limit were investigated.

Tests were performed in Test Site F.

5.1.4 Test Equipment used

E150, E035, E410, E411, E412, E465

See Section 10 for more details.

5.1.5 Test results

Ambient conditions.
Temperature: 20 °C Relative humidity: 49 %

Analyser plots showing Peak values can be found in Section 6.1 of this report.

No discernible difference was noted in emissions between channels (exploratory measurements); therefore the final measurements are presented for **TX mid channel** mode only.

Table of signals measured.

Quasi-Peak and Average Live (TX MID Channel)

Signal No.	Freq (MHz)	Peak Amp (dBuV)	QP Amp (dBuV)	QP - Lim1 (dB)	AV Amp (dBuV)	AV - Lim1 (dB)
1	0.165	41.7	35.8	-29.4	29.7	-25.5
2	0.183	54.3	53.7	-10.6	51.7	-2.6
3	0.671	31.0	30.4	-25.6	29.8	-16.2
4	0.793	31.3	30.5	-25.5	29.9	-16.1
5	0.914	31.6	30.6	-25.4	29.7	-16.3
6	1.036	31.3	30.6	-25.4	29.7	-16.3

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The contents of this report, apart from the referenced ANSI C63.4-2003, are beyond the scope of UKAS Testing Laboratory No. 2360 accreditation.

7	1.402	31.0	30.4	-25.6	29.7	-16.3
8	19.969	28.3	27.1	-32.9	25.7	-24.3

Table of signals measured.

Quasi-Peak and Average Neutral (TX MID Channel)

Signal No.	Freq (MHz)	Peak Amp (dBuV)	QP Amp (dBuV)	QP - Lim1 (dB)	AV Amp (dBuV)	AV - Lim1 (dB)
1	0.183	49.9	47.9	-16.4	44.8	-9.5
2	0.305	31.9	30.9	-29.2	29.3	-20.8
3	0.549	30.4	29.0	-27.0	27.8	-18.2
4	0.671	29.9	28.9	-27.1	27.7	-18.3
5	0.793	29.5	28.5	-27.5	27.5	-18.5
6	0.915	29.4	28.4	-27.6	27.2	-18.8
7	3.561	30.0	27.3	-28.7	22.9	-23.1

These results show that the **EUT** has **PASSED** this test.

5.2 Radiated emissions

5.2.1 Test Methods

Test Requirements:
Test Method:

FCC Part 15C, Reference (15.209)
ANSI C63.4, Reference (8.)

5.2.2 Configuration of EUT

The EUT was placed on a 0.8 metres high turntable. The front edge of the EUT was initially positioned facing the antenna. The EUT was measured at a distance of 3 metres. The EUT was rotated in all three orthogonal planes.

The EUT was operated in **TX low channel**, **TX mid channel** and **TX high channel** modes.

5.2.3 Test Procedure

Tests were made in accordance with FCC Part 15 using the measuring equipment noted below.

Below 30MHz, measurements were made in a semi-anechoic chamber (pre-scan) with any final measurements required performed on an OATS without a ground plane. The antenna was placed 1m above the ground. The equipment and the antenna were rotated 360° to record the worst case emissions.

30MHz - 1GHz, measurements were made on a site listed with the FCC. The equipment was rotated 360° and the antenna scanned 1 – 4 metres in both horizontal and vertical polarisations to record the worst case emissions.

Above 1GHz, measurements were made in a semi-anechoic chamber with appropriate absorbing material for use in this range. Horn antennas were used at heights where the whole of the EUT was contained within the main beam. The EUT was rotated through 360° to record the worst case emissions.

At least 6 signals within 20dB and all signals within 10dB of the limit were investigated.

Radiated emissions tests were performed using Test Site M.

5.2.4 Test Equipment used

E268, E410, E411, E412, E429, TMS81, TMS78, TMS79, TMS81, TMS82, TMS933, N240.

See Section 10 for more details

5.2.5 Test results

Ambient conditions.

Temperature: 19-20 °C Relative humidity: 36-39 %

Analyser plots showing Peak values can be found in Section 6.2 of this report.

Note: EUT tested in a continuous transmit mode for ease of test

No discernible difference was noted in emissions between channel settings in the test ranges 150k-30MHz and 30-1000MHz (exploratory measurements); therefore final measurements are presented for **TX mid channel** mode only for these test ranges.

The 1Mbps data rate was found to yield the highest emission amplitudes and has been used for final measurements.

5.2.5.1 Below 30MHz.

Plot references for Low Frequency Radiated emissions measurements (150kHz to 30MHz)

Channel	Parallel Plots	Perpendicular Plots
Mid channel	6938-7 150k - 30 MHz Parallel Loop Mid Channel TX	6938-7 150k - 30 MHz Perpendicular Loop Mid Channel TX

5.2.5.2 30MHz - 1GHz.

Plot references for Radiated emissions measurements (30-1000MHz)

Frequency Range	Antenna Polarisation	Plot reference
30 – 300 MHz	Horizontal	6938-7 Rad 1 VHF Horiz
30 – 300 MHz	Vertical	6938-7 Rad 1 VHF Vert
300 – 1000 MHz	Horizontal	6938-7 Rad 1 UHF Horiz
300 – 1000 MHz	Vertical	6938-7 Rad 1 UHF Vert

Table of signals measured 30-1000MHz (TX Mid Chan)

Horizontal

Signal No.	Freq (MHz)	Peak Amp (dBuV)	QP Amp (dBuV)	QP - Lim1 (dB)
1	77.891	28.1	26.3	-13.7
2	108.009	31.0	27.4	-16.1
3	239.882	24.2	19.7	-26.3
4	244.083	24.8	21.1	-24.9
5	380.562	38.2	22.5	-23.5
6	387.269	38.9	30.0	-16.0
7	389.991	37.5	27.9	-18.1
8	392.640	35.7	26.7	-19.3
9	399.356	39.6	32.8	-13.2

Vertical

Signal No.	Freq (MHz)	Peak Amp (dBuV)	QP Amp (dBuV)	QP - Lim1 (dB)
1	61.201	25.8	23.3	-16.7
2	76.947	28.6	26.7	-13.3
3	399.376	38.0	31.5	-14.5
4	402.074	38.6	31.0	-15.0
5	406.101	36.8	28.5	-17.5
6	408.779	39.7	29.9	-16.1
7	417.809	30.2	26.2	-19.8

5.2.5.3 Above 1GHz.

Radio Parameters 1

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz
Mod scheme	1 MBPS
Bottom channel	2412 MHz

Results relating to Radio Parameters 1

Spurious Frequency (MHz)	Measured Peak Level (dBµV/m)	Difference to Peak Limit (dB)	Measured Average Level (dBµV/m)	Difference to Average Limit (dB)	Antenna Polarisation	EUT Polarisation
6432	46.7	-27.3	41.5	-12.5	Vertical	normal use
6432	48.6	-25.4	44.5	-9.5	Horizontal	normal use
12864	45	-29	39.1	-14.9	Horizontal	normal use
4824	50.2	-23.8	42.7	-11.3	Vertical	normal use
4824	51.2	-22.8	44.5	-9.5	Horizontal	normal use

Radio Parameters 2

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz
Mod scheme	1 MBPS
Middle channel	2437 MHz

Results relating to Radio Parameters 2

Spurious Frequency (MHz)	Measured Peak Level (dBµV/m)	Difference to Peak Limit (dB)	Measured Average Level (dBµV/m)	Difference to Average Limit (dB)	Antenna Polarisation	EUT Polarisation
6498	48.9	-25.1	44.7	-9.3	Vertical	normal use
6498	50.2	-23.8	47	-7	Horizontal	normal use
4874	48.7	-25.3	40.1	-13.9	Vertical	normal use
4874	53.8	-20.2	49.8	-4.2	Horizontal	normal use

Radio Parameters 3

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz
Mod scheme	1 MBPS
Top channel	2462 MHz

Results relating to Radio Parameters 3

Spurious Frequency (MHz)	Measured Peak Level (dBµV/m)	Difference to Peak Limit (dB)	Measured Average Level (dBµV/m)	Difference to Average Limit (dB)	Antenna Polarisation	EUT Polarisation
6565	48.4	-25.6	44	-10	Vertical	normal use
6565	50.3	-23.7	47.3	-6.7	Horizontal	normal use

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13130	43.2	-30.8	35.9	-18.1	Horizontal	normal use
4924	50.5	-23.5	43.7	-10.3	Vertical	normal use
4924	52.7	-21.3	47.7	-6.3	Horizontal	normal use

Plot Table

Frequency Range	Antenna Polarisation	Plot reference
1-2GHz	Horizontal	6938-7 1 - 2GHz Vertical Mid Channel TX
1-2GHz	Vertical	6938-7 1 - 2GHz Horizontal Mid Channel TX
2-2.7GHz	Horizontal	6938-7 2.0 - 2.7 GHz Vertical Mid Channel TX
2-2.7GHz	Vertical	6938-7 2.0 - 2.7 GHz Horizontal Mid Channel TX
2.7GHz-5GHz	Horizontal	6938-7 2.7 - 5 GHz Vertical Mid Channel TX
2.7GHz-5GHz	Vertical	6938-7 2.7 - 5 GHz Horizontal Mid Channel TX
5-6GHz	Horizontal	6938-7 5 - 6 GHz Vertical Mid Channel TX
5-6GHz	Vertical	6938-7 5 - 6 GHz Horizontal Mid Channel TX
6-7.8GHz	Horizontal	6938-7 6 - 7.8 GHz Vertical Mid Channel TX
6-7.8GHz	Vertical	6938-7 6 - 7.8 GHz Horizontal Mid Channel TX
7.8-10GHz	Horizontal	6938-7 7.8 - 10 GHz Vertical Mid Channel TX
7.8-10GHz	Vertical	6938-7 7.8 - 10 GHz Horizontal Mid Channel TX
10-12.5GHz	Horizontal	6938-7 10 - 12.5 GHz Vertical Mid Channel TX
10-12.5GHz	Vertical	6938-7 10 - 12.5 GHz Horizontal Mid Channel TX
12.5-15GHz	Horizontal	6938-7 12.5 - 15 GHz Vertical Mid Channel TX
12.5-15GHz	Vertical	6938-7 12.5 - 15 GHz Horizontal Mid Channel TX
15-18GHz	Horizontal	6938-7 15 - 18 GHz Vertical Mid Channel TX
15-18GHz	Vertical	6938-7 15 - 18 GHz Horizontal Mid Channel TX
18-20GHz	Horizontal	6938-7 18 - 20 GHz Vertical Mid Channel TX
18-20GHz	Vertical	6938-7 18 - 20 GHz Horizontal Mid Channel TX
20-22.5GHz	Horizontal	6938-7 20 - 22.5 GHz Vertical Mid Channel TX
20-22.5GHz	Vertical	6938-7 20 - 22.5 GHz Horizontal Mid Channel TX
22.5-25GHz	Horizontal	6938-7 22.5 - 25 GHz Vertical Mid Channel TX
22.5-25GHz	Vertical	6938-7 22.5 - 25 GHz Horizontal Mid Channel TX

Note: Whilst Low, Mid and High channels were tested, plots are for illustrative purposes only and only **Mid channel** plots are shown in this report.

LIMITS:

15.209 limits are applicable in the restricted bands of 15.205 with the relevant detector.
15.247(d) other emissions, outside the intentional band, must be attenuated by at least 20dB from the level of the fundamental / meet the general limits of 15.209.

N.b. the general limits of 15.209 are as drawn on the respective plots.

These show that the **EUT** has **PASSED** this test.

5.3 Occupied bandwidth

5.3.1 Test Methods

Test Requirements:
Test Method:

FCC Part 15C, Reference (15.215)
ANSI C63.10, Reference (6.9)

5.3.2 Configuration of EUT

The EUT was tested on a bench. Measurements were made at the internal RF port.
The EUT was operated in **TX low channel** and **TX mid channel** and **TX high channel** modes.

5.3.3 Test Procedure

Tests were performed using Test Site A.
Tests were made in accordance with FCC Part 15 using the measuring equipment noted below. A 100kHz RBW, 3x VBW, auto sweep time and max hold settings were used for the 6dB bandwidth.

5.3.4 Test Equipment used

E252, E533, E534, E535, E256

See Section 10 for more details.

5.3.5 Test results

Ambient conditions.
Temperature: 20 °C Relative humidity: 38 % Pressure: 100.5 mbar

Analyser plots for the 6dB bandwidth can be found in Section 6.3 of this report.

Radio Parameter 1

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz
Mod scheme	1 MBPS
Low channel	2412 MHz
Mid channel	2437 MHz
Top channel	2462 MHz

Results relating to Radio Parameters 1

	Low	Mid	High
6dB BW (MHz)	10.067	10.067	10.067
Plot reference	J6938-7, Plot 0001	J6938-7, Plot 0013	J6938-7, Plot 0025

Radio Parameter 2

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz
Mod scheme	2 MBPS

Low channel	2412 MHz
Mid channel	2437 MHz
Top channel	2462 MHz

Results relating to Radio Parameters 2

	Low	Mid	High
6dB BW (MHz)	10.08	10.067	10.09
Plot reference	J6938-7, Plot 0002	J6938-7, Plot 0014	J6938-7, Plot 0026

Radio Parameter 3

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz
Mod scheme	5.5 MBPS
Low channel	2412 MHz
Mid channel	2437 MHz
Top channel	2462 MHz

Results relating to Radio Parameters 3

	Low	Mid	High
6dB BW (MHz)	10.067	10.067	10.067
Plot reference	J6938-7, Plot 0003	J6938-7, Plot 0015	J6938-7, Plot 0027

Radio Parameter 4

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz
Mod scheme	11 MBPS
Low channel	2412 MHz
Mid channel	2437 MHz
Top channel	2462 MHz

Results relating to Radio Parameters 4

	Low	Mid	High
6dB BW (MHz)	10.08	10.055	10.055
Plot reference	J6938-7, Plot 0004	J6938-7, Plot 0016	J6938-7, Plot 0028

Radio Parameter 5

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz
Mod scheme	6 MBPS
Low channel	2412 MHz
Mid channel	2437 MHz
Top channel	2462 MHz

Results relating to Radio Parameters 5

	Low	Mid	High
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File name PURE.6938-7 ISSUE 02

The contents of this report, apart from the referenced ANSI C63.4-2003, are beyond the scope of UKAS Testing Laboratory No. 2360 accreditation.

6dB BW (MHz)	15.3	15.18	15.17
Plot reference	J6938-7, Plot 0005	J6938-7, Plot 0017	J6938-7, Plot 0029

Radio Parameter 6

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz
Mod scheme	9 MBPS
Low channel	2412 MHz
Mid channel	2437 MHz
Top channel	2462 MHz

Results relating to Radio Parameters 6

	Low	Mid	High
6dB BW (MHz)	15.17	15.17	15.17
Plot reference	J6938-7, Plot 0006	J6938-7, Plot 0018	J6938-7, Plot 0030

Radio Parameter 7

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz
Mod scheme	12 MBPS
Low channel	2412 MHz
Mid channel	2437 MHz
Top channel	2462 MHz

Results relating to Radio Parameters 7

	Low	Mid	High
6dB BW (MHz)	15.17	15.17	15.17
Plot reference	J6938-7, Plot 0007	J6938-7, Plot 0019	J6938-7, Plot 0031

Radio Parameter 8

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz
Mod scheme	18 MBPS
Low channel	2412 MHz
Mid channel	2437 MHz
Top channel	2462 MHz

Results relating to Radio Parameters 8

	Low	Mid	High
6dB BW (MHz)	15.43	15.43	15.16
Plot reference	J6938-7, Plot 0008	J6938-7, Plot 0020	J6938-7, Plot 0032

Radio Parameter 9

Band	2400-2483.5 MHz
Power level	16 dBm

File name PURE.6938-7 ISSUE 02

The contents of this report, apart from the referenced ANSI C63.4-2003, are beyond the scope of UKAS Testing Laboratory No. 2360 accreditation.

Channel spacing	5 MHz
Mod scheme	24 MBPS
Low channel	2412 MHz
Mid channel	2437 MHz
Top channel	2462 MHz

Results relating to Radio Parameters 9

	Low	Mid	High
6dB BW (MHz)	15.17	15.17	15.17
Plot reference	J6938-7, Plot 0009	J6938-7, Plot 0021	J6938-7, Plot 0033

Radio Parameter 10

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz
Mod scheme	36 MBPS
Low channel	2412 MHz
Mid channel	2437 MHz
Top channel	2462 MHz

Results relating to Radio Parameters 10

	Low	Mid	High
6dB BW (MHz)	15.85	15.85	15.82
Plot reference	J6938-7, Plot 0010	J6938-7, Plot 0022	J6938-7, Plot 0034

Radio Parameter 11

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz
Mod scheme	48 MBPS
Low channel	2412 MHz
Mid channel	2437 MHz
Top channel	2462 MHz

Results relating to Radio Parameters 11

	Low	Mid	High
6dB BW (MHz)	15.35	15.35	15.33
Plot reference	J6938-7, Plot 0011	J6938-7, Plot 0023	J6938-7, Plot 0035

Radio Parameter 12

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz
Mod scheme	54 MBPS
Low channel	2412 MHz
Mid channel	2437 MHz
Top channel	2462 MHz

File name PURE.6938-7 ISSUE 02

The contents of this report, apart from the referenced ANSI C63.4-2003, are beyond the scope of UKAS Testing Laboratory No. 2360 accreditation.

Results relating to Radio Parameters 12

	Low	Mid	High
6dB BW (MHz)	15.17	15.17	15.16
Plot reference	J6938-7, Plot 0012	J6938-7, Plot 0024	J6938-7, Plot 0036

LIMITS:

15.247(a)(2) The minimum 6dB bandwidth shall be at least 500kHz.

These results show that the EUT has **PASSED** this test.

5.4 Maximum Peak conducted output power

5.4.1 Test Methods

Test Requirements
Test Method:

FCC Part 15C, Reference (15.247)
ANSI C63.10, Reference (6.10.2.1 b))

5.4.2 Configuration of EUT

The EUT was measured on a bench using a spectrum analyser connected to the internal RF port.

The EUT was operated in TX Low Channel, TX Mid Channel and TX High Channel mode for this test.

The EUT was set to each mode and test signal in turn (see section 2.4) and highest power levels recorded.

5.4.3 Test Procedure

Tests were made in accordance with FCC Part 15 using the measuring equipment noted below.

Peak stated reading is maximum power observed using a spectrum analyser channel power function over the 6dB bandwidth + 1MHz using a 1MHz RBW, per ANSI C63.10.

Measurements were made on a test bench in site A.

5.4.4 Test Equipment used

E003, E266, E252,

See Section 10 for more details

5.4.5 Test results

Ambient conditions.

Temperature: 21 °C

Relative humidity: 40 %

Pressure: 99.5 mbar

Radio Parameter1

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz
Mod scheme	1 MBPS
Low channel	2412 MHz
Mid channel	2437 MHz
Top channel	2462 MHz

Results relating to Radio Parameters 1

Test conditions		Carrier Power (mW)		
		Low	Mid	High
Temp Ambient	Volts Nominal	20.9	23.4	22.4
Maximum TX Power observed (mW)		23.4		

Radio Parameter2

File name PURE.6938-7 ISSUE 02

The contents of this report, apart from the referenced ANSI C63.4-2003, are beyond the scope of UKAS Testing Laboratory No. 2360 accreditation.

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz
Mod scheme	2 MBPS
Low channel	2412 MHz
Mid channel	2437 MHz
Top channel	2462 MHz

Results relating to Radio Parameters 2

Test conditions		Carrier Power (mW)		
		Low	Mid	High
Temp Ambient	Volts Nominal	20.9	24.0	22.4
Maximum TX Power observed (mW)		24.0		

Radio Parameter3

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz
Mod scheme	5.5 MBPS
Low channel	2412 MHz
Mid channel	2437 MHz
Top channel	2462 MHz

Results relating to Radio Parameters 3

Test conditions		Carrier Power (mW)		
		Low	Mid	High
Temp Ambient	Volts Nominal	22.4	25.1	24.0
Maximum TX Power observed (mW)		25.1		

Radio Parameter4

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz
Mod scheme	11 MBPS
Low channel	2412 MHz
Mid channel	2437 MHz
Top channel	2462 MHz

Results relating to Radio Parameters 4

Test conditions		Carrier Power (mW)		
		Low	Mid	High
Temp Ambient	Volts Nominal	24.0	26.9	25.7
Maximum TX Power observed (mW)		26.9		

Radio Parameter5

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz

File name PURE.6938-7 ISSUE 02

The contents of this report, apart from the referenced ANSI C63.4-2003, are beyond the scope of UKAS Testing Laboratory No. 2360 accreditation.

Mod scheme	6 MBPS
Low channel	2412 MHz
Mid channel	2437 MHz
Top channel	2462 MHz

Results relating to Radio Parameters 5

Test conditions		Carrier Power (mW)		
		Low	Mid	High
Temp Ambient	Volts Nominal	22.9	24.0	22.9
Maximum TX Power observed (mW)		24.0		

Radio Parameter6

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz
Mod scheme	9 MBPS
Low channel	2412 MHz
Mid channel	2437 MHz
Top channel	2462 MHz

Results relating to Radio Parameters 6

Test conditions		Carrier Power (mW)		
		Low	Mid	High
Temp Ambient	Volts Nominal	23.4	24.5	23.4
Maximum TX Power observed (mW)		24.5		

Radio Parameter7

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz
Mod scheme	12 MBPS
Low channel	2412 MHz
Mid channel	2437 MHz
Top channel	2462 MHz

Results relating to Radio Parameters 7

Test conditions		Carrier Power (mW)		
		Low	Mid	High
Temp Ambient	Volts Nominal	20.9	21.9	20.9
Maximum TX Power observed (mW)		21.9		

Radio Parameter8

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz
Mod scheme	18 MBPS
Low channel	2412 MHz
Mid channel	2437 MHz

File name PURE.6938-7 ISSUE 02

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Top channel	2462 MHz
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Results relating to Radio Parameters 8

Test conditions		Carrier Power (mW)		
		Low	Mid	High
Temp Ambient	Volts Nominal	20.4	21.4	20.4
Maximum TX Power observed (mW)		21.4		

Radio Parameter9

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz
Mod scheme	24 MBPS
Low channel	2412 MHz
Mid channel	2437 MHz
Top channel	2462 MHz

Results relating to Radio Parameters 9

Test conditions		Carrier Power (mW)		
		Low	Mid	High
Temp Ambient	Volts Nominal	22.4	22.9	22.9
Maximum TX Power observed (mW)		22.9		

Radio Parameter10

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz
Mod scheme	36 MBPS
Low channel	2412 MHz
Mid channel	2437 MHz
Top channel	2462 MHz

Results relating to Radio Parameters 10

Test conditions		Carrier Power (mW)		
		Low	Mid	High
Temp Ambient	Volts Nominal	24.0	24.0	24.0
Maximum TX Power observed (mW)		24.0		

Radio Parameter11

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz
Mod scheme	48 MBPS
Low channel	2412 MHz
Mid channel	2437 MHz
Top channel	2462 MHz

Results relating to Radio Parameters 11

File name PURE.6938-7 ISSUE 02

The contents of this report, apart from the referenced ANSI C63.4-2003, are beyond the scope of UKAS Testing Laboratory No. 2360 accreditation.

Test conditions		Carrier Power (mW)		
		Low	Mid	High
Temp Ambient	Volts Nominal	15.1	15.5	20.9
Maximum TX Power observed (mW)		20.9		

Radio Parameter12

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz
Mod scheme	54 MBPS
Low channel	2412 MHz
Mid channel	2437 MHz
Top channel	2462 MHz

Results relating to Radio Parameters 12

Test conditions		Carrier Power (mW)		
		Low	Mid	High
Temp Ambient	Volts Nominal	15.1	15.5	20.9
Maximum TX Power observed (mW)		20.9		

LIMITS:

15.247(b)(3)

For systems using digital modulation in the 902-928, 2400-2483.5 or 5725-5850 MHz bands 1 Watt.

These results show that the EUT has **PASSED** this test.

5.5 Frequency tolerance

NOT APPLICABLE: No limits apply, however the requirement to contain the designated bandwidth of the emission within the specified frequency band includes the frequency stability of the transmitter over expected variations in temperature and supply voltage

5.6 Duty cycle

NOT APPLICABLE: There is no limit defined in the standard. It was, however, confirmed by observation that the continuous test mode provided was 100% duty.

5.7 Maximum Power Spectral Density

5.7.1 Test Methods

Test Requirements:
Test Method:

FCC Part 15C, Reference (15.247)
KDB558074, PSD Option 1

5.7.2 Configuration of EUT

The EUT was configured as for the peak conducted power test. The EUT was operated in TX Low Channel, TX Mid Channel and TX High Channel mode for this test.

5.7.3 Test Procedure

Tests were performed using Test Site A.
Tests were made in accordance with FCC Part 15 using the measuring equipment noted below. The emission from the EUT was maximised before taking any plots. PEP was recorded in the required span and bandwidth. Measurements/plots were taken with the span set to 1.5 times the measured DTS bandwidth for each modulation scheme setting.

5.7.4 Test Equipment used

E533, E534, E535, E252, E256

See Section 10 for more details.

5.7.5 Test results

Ambient conditions.

Temperature: 21°C

Relative humidity: 40%

Pressure: 99.5mbar

Radio Parameter 1

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz
Mod scheme	1 MBPS
Low channel	2412 MHz
Mid channel	2437 MHz
Top channel	2462 MHz

Results relating to Radio Parameters 1

	Low	Mid	High
Duty Cycle (%)	100	100	100
dBm per 3kHz	-9.570	-10.350	-11.230
Plot reference	J6938-7 plot 0037	J6938-7 plot 0049	J6938-7 plot 0061

Radio Parameter 2

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz
Mod scheme	2 MBPS

File name PURE.6938-7 ISSUE 02

The contents of this report, apart from the referenced ANSI C63.4-2003, are beyond the scope of UKAS Testing Laboratory No. 2360 accreditation.

Low channel	2412 MHz
Mid channel	2437 MHz
Top channel	2462 MHz

Results relating to Radio Parameters 2

	Low	Mid	High
Duty Cycle (%)	100	100	100
dBm per 3kHz	-7.460	-10.020	-8.990
Plot reference	J6938-7 plot 0038	J6938-7 plot 0050	J6938-7 plot 0062

Radio Parameter 3

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz
Mod scheme	5.5 MBPS
Low channel	2412 MHz
Mid channel	2437 MHz
Top channel	2462 MHz

Results relating to Radio Parameters 3

	Low	Mid	High
Duty Cycle (%)	100	100	100
dBm per 3kHz	-9.330	-9.540	-10.710
Plot reference	J6938-7 plot 0039	J6938-7 plot 0051	J6938-7 plot 0063

Radio Parameter 4

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz
Mod scheme	11 MBPS
Low channel	2412 MHz
Mid channel	2437 MHz
Top channel	2462 MHz

Results relating to Radio Parameters 4

	Low	Mid	High
Duty Cycle (%)	100	100	100
dBm per 3kHz	-8.630	-8.830	-10.100
Plot reference	J6938-7 plot 0040	J6938-7 plot 0052	J6938-7 plot 0064

Radio Parameter 5

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz
Mod scheme	6 MBPS
Low channel	2412 MHz
Mid channel	2437 MHz
Top channel	2462 MHz

File name PURE.6938-7 ISSUE 02

The contents of this report, apart from the referenced ANSI C63.4-2003, are beyond the scope of UKAS Testing Laboratory No. 2360 accreditation.

Results relating to Radio Parameters 5

	Low	Mid	High
Duty Cycle (%)	100	100	100
dBm per 3kHz	-7.190	-8.010	-9.100
Plot reference	J6938-7 plot 0041	J6938-7 plot 0053	J6938-7 plot 0065

Radio Parameter 6

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz
Mod scheme	9 MBPS
Low channel	2412 MHz
Mid channel	2437 MHz
Top channel	2462 MHz

Results relating to Radio Parameters 6

	Low	Mid	High
Duty Cycle (%)	100	100	100
dBm per 3kHz	-6.630	-7.370	-8.550
Plot reference	J6938-7 plot 0042	J6938-7 plot 0054	J6938-7 plot 0066

Radio Parameter 7

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz
Mod scheme	12 MBPS
Low channel	2412 MHz
Mid channel	2437 MHz
Top channel	2462 MHz

Results relating to Radio Parameters 7

	Low	Mid	High
Duty Cycle (%)	100	100	100
dBm per 3kHz	-6.260	-6.960	-8.070
Plot reference	J6938-7 plot 0043	J6938-7 plot 0055	J6938-7 plot 0067

Radio Parameter 8

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz
Mod scheme	18 MBPS
Low channel	2412 MHz
Mid channel	2437 MHz
Top channel	2462 MHz

Results relating to Radio Parameters 8

	Low	Mid	High
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File name PURE.6938-7 ISSUE 02

The contents of this report, apart from the referenced ANSI C63.4-2003, are beyond the scope of UKAS Testing Laboratory No. 2360 accreditation.

Duty Cycle (%)	100	100	100
dBm per 3kHz	-7.010	-7.730	-8.950
Plot reference	J6938-7 plot 0044	J6938-7 plot 0056	J6938-7 plot 0068

Radio Parameter 9

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz
Mod scheme	24 MBPS
Low channel	2412 MHz
Mid channel	2437 MHz
Top channel	2462 MHz

Results relating to Radio Parameters 9

	Low	Mid	High
Duty Cycle (%)	100	100	100
dBm per 3kHz	-7.040	-7.810	-8.960
Plot reference	J6938-7 plot 0045	J6938-7 plot 0057	J6938-7 plot 0069

Radio Parameter 10

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz
Mod scheme	36 MBPS
Low channel	2412 MHz
Mid channel	2437 MHz
Top channel	2462 MHz

Results relating to Radio Parameters 10

	Low	Mid	High
Duty Cycle (%)	100	100	100
dBm per 3kHz	-4.860	-5.620	-6.680
Plot reference	J6938-7 plot 0046	J6938-7 plot 0058	J6938-7 plot 0070

Radio Parameter 11

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz
Mod scheme	48 MBPS
Low channel	2412 MHz
Mid channel	2437 MHz
Top channel	2462 MHz

Results relating to Radio Parameters 11

	Low	Mid	High
Duty Cycle (%)	100	100	100
dBm per 3kHz	-5.930	-6.610	-6.360
Plot reference	J6938-7 plot 0047	J6938-7 plot 0059	J6938-7 plot 0071

File name PURE.6938-7 ISSUE 02

The contents of this report, apart from the referenced ANSI C63.4-2003, are beyond the scope of UKAS Testing Laboratory No. 2360 accreditation.

Radio Parameter 12

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz
Mod scheme	54 MBPS
Low channel	2412 MHz
Mid channel	2437 MHz
Top channel	2462 MHz

Results relating to Radio Parameters 12

	Low	Mid	High
Duty Cycle (%)	100	100	100
dBm per 3kHz	-7.130	-7.800	-7.360
Plot reference	J6938-7 plot 0048	J6938-7 plot 0060	J6938-7 plot 0072

LIMITS:

15.247(e) +8dBm/3kHz.

Any Analyser plots can be found in Section 6.5 of this report.

These results show that the EUT has **PASSED** this test.

5.8 Band Edge Compliance

5.8.1 Test Methods

Test Requirements: FCC Part 15C, Reference (15.215 and 15.247)
Test Method: ANSI C63.10-2009, Reference clause 6.9.3

5.8.2 Configuration of EUT

The EUT was placed on a 0.8 metres high turntable. The front edge of the EUT was initially positioned facing the antenna. The EUT was measured at a distance of 3 metres.

The EUT was operated in TX Low Channel and TX High Channel modes.

5.8.3 Test Procedure

Tests were made in accordance with FCC Part 15 using the measuring equipment noted below. The emission from the EUT was maximised before taking the plots.

Tests were performed using Test Site **M**.

5.8.4 Test Equipment used

E268, E410, E411, E412, TMS82, E252

See Section 10 for more details.

5.8.5 Test results

Ambient conditions.

Temperature: 19-23 °C Relative humidity: 34-38 % Pressure: 101 mbar

Analyser plots for the Band Edge Compliance can be found in Section 6.4 of this report. These show the 20dBc requirement of 15.247(d) are met at the band edges of 2400 and 2483.5 MHz. Restricted band edge plots are also shown in section 6.4.

The following tables list the field strengths observed in the adjacent restricted bands, which are required to meet the tighter 15.209 limits:

Radio Parameter 1

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz
Mod scheme	1 MBPS
Low channel	2412 MHz
Top channel	2462 MHz

Restricted Band Edge Results relating to Radio Parameters 1

	Low	High
Peak Level (dBµV/m)	62.5	60.9
Peak Plot reference	J6938-7, Band edge PK (1MRBW) Low chan 1MBPS	J6938-7, Band edge PK (1MRBW) High chan 1MBPS

File name PURE.6938-7 ISSUE 02

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Average Level (dBμV/m)	53.9	49.6
Average Plot reference	J6938-7, Band edge AVG (1MRBW) Low chan 1MBPS	J6938-7, Band edge AVG (1MRBW) High chan 1MBPS

Band Edge Results relating to Radio Parameters 1

	Low	High
Plot reference	J6938-7, Band edge PK (100kRBW) Low chan 1MBPS	J6938-7, Band edge PK (100kRBW) High chan 1MBPS

Radio Parameter 2

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz
Mod scheme	2 MBPS
Low channel	2412 MHz
Top channel	2462 MHz

Restricted Band Edge Results relating to Radio Parameters 2

	Low	High
Peak Level (dBμV/m)	63.1	61.1
Peak Plot reference	J6938-7, Band edge PK (1MRBW) Low chan 2MBPS	J6938-7, Band edge PK (1MRBW) High chan 2MBPS
Average Level (dBμV/m)	53.1	50
Average Plot reference	J6938-7, Band edge AVG (1MRBW) Low chan 2MBPS	J6938-7, Band edge AVG (1MRBW) High chan 2MBPS

Band Edge Results relating to Radio Parameters 2

	Low	High
Plot reference	J6938-7, Band edge PK (100kRBW) Low chan 2MBPS	J6938-7, Band edge PK (100kRBW) High chan 2MBPS

Radio Parameter 3

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz
Mod scheme	5.5 MBPS
Low channel	2412 MHz
Top channel	2462 MHz

Restricted Band Edge Results relating to Radio Parameters 3

	Low	High
Peak Level (dBμV/m)	62	60.3
Peak Plot reference	J6938-7, Band edge PK (1MRBW) Low chan 5.5MBPS	J6938-7, Band edge PK (1MRBW) High chan 5.5MBPS

File name PURE.6938-7 ISSUE 02

The contents of this report, apart from the referenced ANSI C63.4-2003, are beyond the scope of UKAS Testing Laboratory No. 2360 accreditation.

Average Level (dBμV/m)	52	49.4
Average Plot reference	J6938-7, Band edge AVG (1MRBW) Low chan 5.5MBPS	J6938-7, Band edge AVG (1MRBW) High chan 5.5MBPS

Band Edge Results relating to Radio Parameters 3

	Low	High
Plot reference	J6938-7, Band edge PK (100kRBW) Low chan 5.5MBPS	J6938-7, Band edge PK (100kRBW) High chan 5.5MBPS

Radio Parameter 4

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz
Mod scheme	11 MBPS
Low channel	2412 MHz
Top channel	2462 MHz

Restricted Band Edge Results relating to Radio Parameters 4

	Low	High
Peak Level (dBμV/m)	62.2	61.8
Peak Plot reference	J6938-7, Band edge PK (1MRBW) Low chan 11MBPS	J6938-7, Band edge PK (1MRBW) High chan 11MBPS
Average Level (dBμV/m)	51.9	49.4
Average Plot reference	J6938-7, Band edge AVG (1MRBW) Low chan 11MBPS	J6938-7, Band edge AVG (1MRBW) High chan 11MBPS

Band Edge Results relating to Radio Parameters 4

	Low	High
Plot reference	J6938-7, Band edge PK (100kRBW) Low chan 11MBPS	J6938-7, Band edge PK (100kRBW) High chan 11MBPS

Radio Parameter 5

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz
Mod scheme	6 MBPS
Low channel	2412 MHz
Top channel	2462 MHz

Restricted Band Edge Results relating to Radio Parameters 5

	Low	High
Peak Level (dBμV/m)	63.2	61.4
Peak Plot reference	J6938-7, Band edge PK (1MRBW) Low chan 6MBPS	J6938-7, Band edge PK (1MRBW) High chan 6MBPS

File name PURE.6938-7 ISSUE 02

The contents of this report, apart from the referenced ANSI C63.4-2003, are beyond the scope of UKAS Testing Laboratory No. 2360 accreditation.

Average Level (dBμV/m)	49.1	49.5
Average Plot reference	J6938-7, Band edge AVG (1MRBW) Low chan 6MBPS	J6938-7, Band edge AVG (1MRBW) High chan 6MBPS

Band Edge Results relating to Radio Parameters 5

	Low	High
Plot reference	J6938-7, Band edge PK (100kRBW) Low chan 6MBPS	J6938-7, Band edge PK (100kRBW) High chan 6MBPS

Radio Parameter 6

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz
Mod scheme	9 MBPS
Low channel	2412 MHz
Top channel	2462 MHz

Restricted Band Edge Results relating to Radio Parameters 6

	Low	High
Peak Level (dBμV/m)	61.6	61
Peak Plot reference	J6938-7, Band edge PK (1MRBW) Low chan 9MBPS	J6938-7, Band edge PK (1MRBW) High chan 9MBPS
Average Level (dBμV/m)	49.4	49.7
Average Plot reference	J6938-7, Band edge AVG (1MRBW) Low chan 9MBPS	J6938-7, Band edge AVG (1MRBW) High chan 9MBPS

Band Edge Results relating to Radio Parameters 6

	Low	High
Plot reference	J6938-7, Band edge PK (100kRBW) Low chan 9MBPS	J6938-7, Band edge PK (100kRBW) High chan 9MBPS

Radio Parameter 7

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz
Mod scheme	12 MBPS
Low channel	2412 MHz
Top channel	2462 MHz

Restricted Band Edge Results relating to Radio Parameters 7

	Low	High
Peak Level (dBμV/m)	62.2	61.6
Peak Plot reference	J6938-7, Band edge PK (1MRBW) Low chan 12MBPS	J6938-7, Band edge PK (1MRBW) High chan 12MBPS

File name PURE.6938-7 ISSUE 02

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Average Level (dBμV/m)	49.7	49.5
Average Plot reference	J6938-7, Band edge AVG (1MRBW) Low chan 12MBPS	J6938-7, Band edge AVG (1MRBW) High chan 12MBPS

Band Edge Results relating to Radio Parameters 7

	Low	High
Plot reference	J6938-7, Band edge PK (100kRBW) Low chan 12MBPS	J6938-7, Band edge PK (100kRBW) High chan 12MBPS

Radio Parameter 8

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz
Mod scheme	18 MBPS
Low channel	2412 MHz
Top channel	2462 MHz

Restricted Band Edge Results relating to Radio Parameters 8

	Low	High
Peak Level (dBμV/m)	61.2	61.1
Peak Plot reference	J6938-7, Band edge PK (1MRBW) Low chan 18MBPS	J6938-7, Band edge PK (1MRBW) High chan 18MBPS
Average Level (dBμV/m)	49.3	49.5
Average Plot reference	J6938-7, Band edge AVG (1MRBW) Low chan 18MBPS	J6938-7, Band edge AVG (1MRBW) High chan 18MBPS

Band Edge Results relating to Radio Parameters 8

	Low	High
Plot reference	J6938-7, Band edge PK (100kRBW) Low chan 18MBPS	J6938-7, Band edge PK (100kRBW) High chan 18MBPS

Radio Parameter 9

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz
Mod scheme	24 MBPS
Low channel	2412 MHz
Top channel	2462 MHz

Restricted Band Edge Results relating to Radio Parameters 9

	Low	High
Peak Level (dBμV/m)	62.5	62.5
Peak Plot reference	J6938-7, Band edge PK (1MRBW) Low chan 24MBPS	J6938-7, Band edge PK (1MRBW) High chan 24MBPS

File name PURE.6938-7 ISSUE 02

The contents of this report, apart from the referenced ANSI C63.4-2003, are beyond the scope of UKAS Testing Laboratory No. 2360 accreditation.

Average Level (dBμV/m)	49.2	49.5
Average Plot reference	J6938-7, Band edge AVG (1MRBW) Low chan 24MBPS	J6938-7, Band edge AVG (1MRBW) High chan 24MBPS

Band Edge Results relating to Radio Parameters 9

	Low	High
Plot reference	J6938-7, Band edge PK (100kRBW) Low chan 24MBPS	J6938-7, Band edge PK (100kRBW) High chan 24MBPS

Radio Parameter 10

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz
Mod scheme	36 MBPS
Low channel	2412 MHz
Top channel	2462 MHz

Restricted Band Edge Results relating to Radio Parameters 10

	Low	High
Peak Level (dBμV/m)	61.3	60.9
Peak Plot reference	J6938-7, Band edge PK (1MRBW) Low chan 36MBPS	J6938-7, Band edge PK (1MRBW) High chan 36MBPS
Average Level (dBμV/m)	48.9	49.5
Average Plot reference	J6938-7, Band edge AVG (1MRBW) Low chan 36MBPS	J6938-7, Band edge AVG (1MRBW) High chan 36MBPS

Band Edge Results relating to Radio Parameters 10

	Low	High
Plot reference	J6938-7, Band edge PK (100kRBW) Low chan 36MBPS	J6938-7, Band edge PK (100kRBW) High chan 36MBPS

Radio Parameter 11

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz
Mod scheme	48 MBPS
Low channel	2412 MHz
Top channel	2462 MHz

Restricted Band Edge Results relating to Radio Parameters 11

	Low	High
Peak Level (dBμV/m)	59.7	61.4
Peak Plot reference	J6938-7, Band edge PK (1MRBW) Low chan 48MBPS	J6938-7, Band edge PK (1MRBW) High chan 48MBPS

File name PURE.6938-7 ISSUE 02

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Average Level (dBμV/m)	48.2	49.3
Average Plot reference	J6938-7, Band edge AVG (1MRBW) Low chan 48MBPS	J6938-7, Band edge AVG (1MRBW) High chan 48MBPS

Band Edge Results relating to Radio Parameters 11

	Low	High
Plot reference	J6938-7, Band edge PK (100kRBW) Low chan 48MBPS	J6938-7, Band edge PK (100kRBW) High chan 48MBPS

Radio Parameter 12

Band	2400-2483.5 MHz
Power level	16 dBm
Channel spacing	5 MHz
Mod scheme	54 MBPS
Low channel	2412 MHz
Top channel	2462 MHz

Restricted Band Edge Results relating to Radio Parameters 12

	Low	High
Peak Level (dBμV/m)	61.2	62.1
Peak Plot reference	J6938-7, Band edge PK (1MRBW) Low chan 54MBPS	J6938-7, Band edge PK (1MRBW) High chan 54MBPS
Average Level (dBμV/m)	48.4	49.2
Average Plot reference	J6938-7, Band edge AVG (1MRBW) Low chan 54MBPS	J6938-7, Band edge AVG (1MRBW) High chan 54MBPS

Band Edge Results relating to Radio Parameters 12

	Low	High
Plot reference	J6938-7, Band edge PK (100kRBW) Low chan 54MBPS	J6938-7, Band edge PK (100kRBW) High chan 54MBPS

The band edge readings were performed with a peak detector (max held plot) and with the EUT set in a constant 100% transmit state.

Limits: AV = 54dBuV/m at band edges
PK = 74dBuV/m at band edges

The restricted band edges closest to the EUT frequency of 2400-2483.5MHz are 2390 & 2483.5MHz

Further wider span plots have been taken to show the fact that there are no spurious emissions above the restricted limits of 15.209.

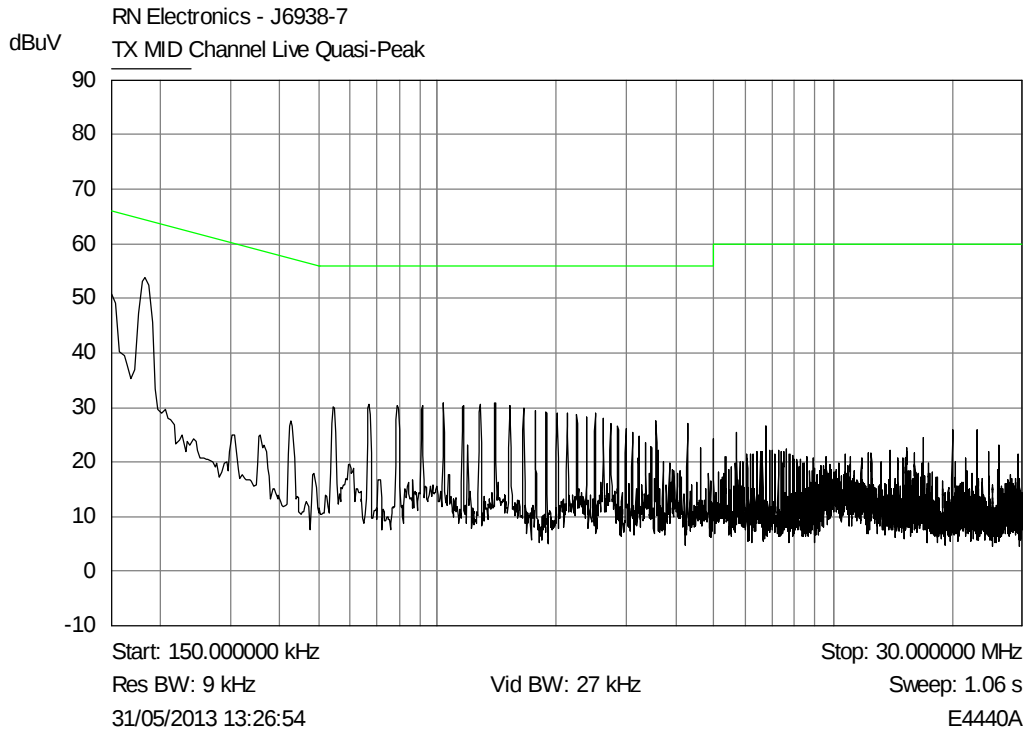
These results show that the **EUT** has **PASSED** this test.

5.9 FHSS Parameters

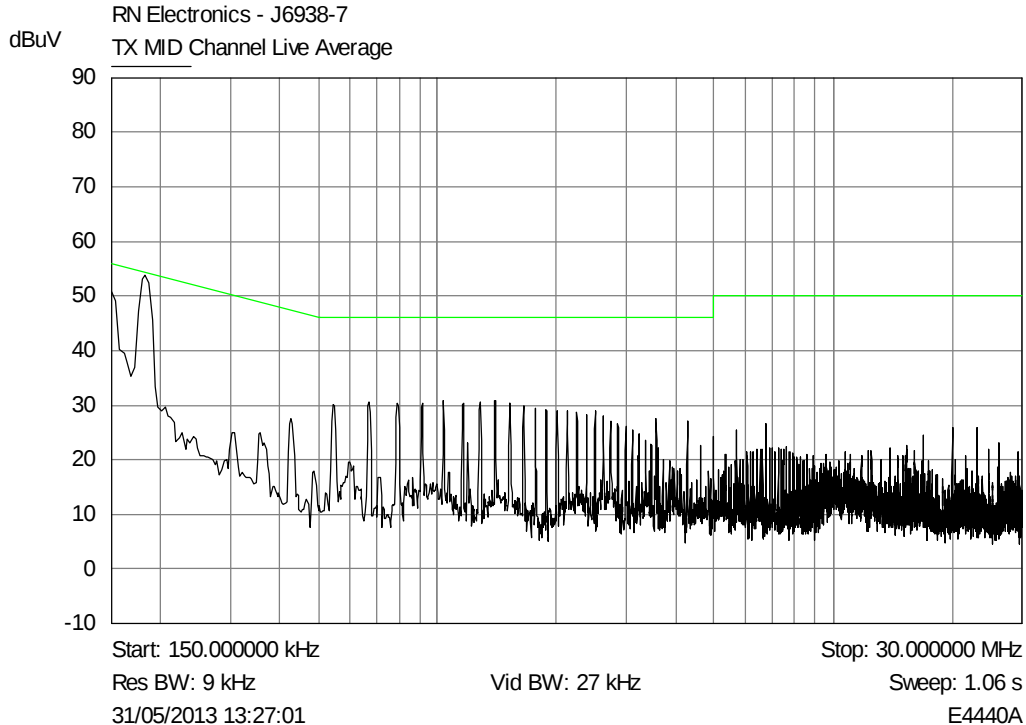
Not Applicable. EUT does not employ FHSS technology.

6 Plots and Results

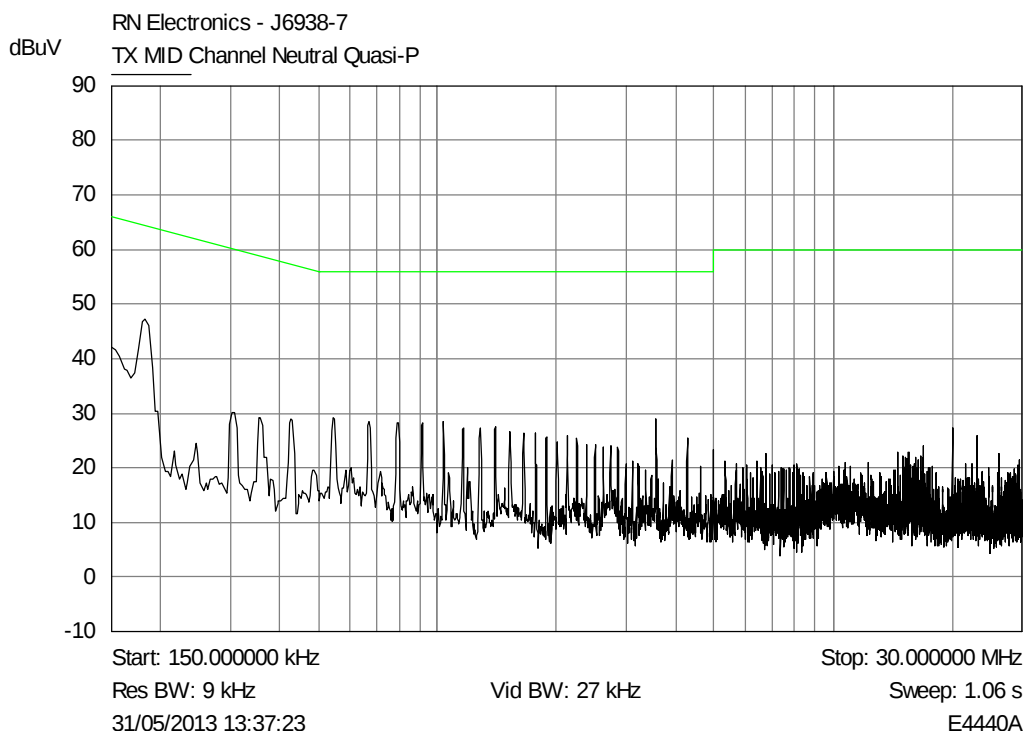
6.1 AC power line conducted emissions plots



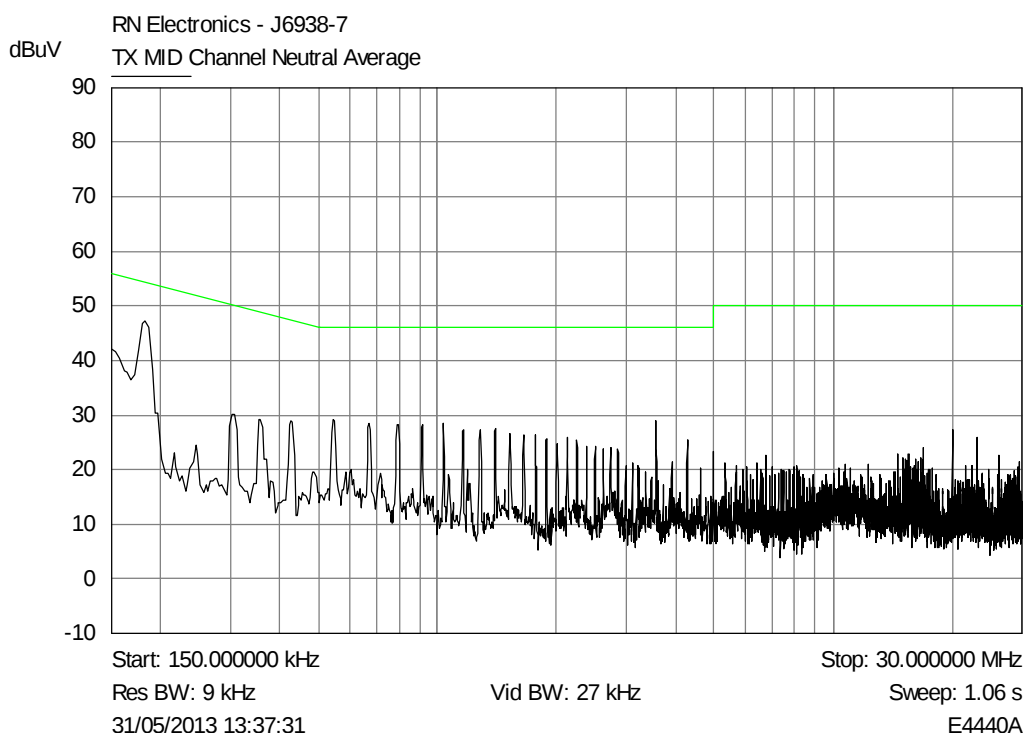
Plot of peak emissions 150kHz - 30MHz on the live terminal against the quasi-peak limit line.



Plot of peak emissions 150kHz - 30MHz on the live terminal against the average limit line.



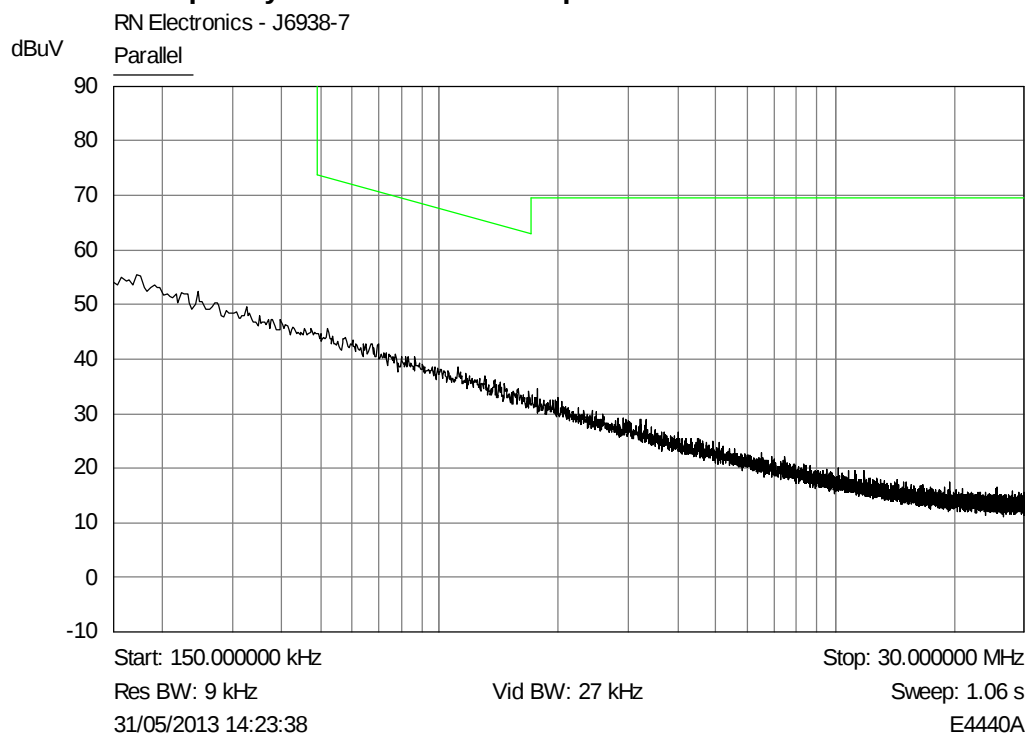
Plot of peak emissions 150kHz - 30MHz on the neutral terminal against the quasi-peak limit line.



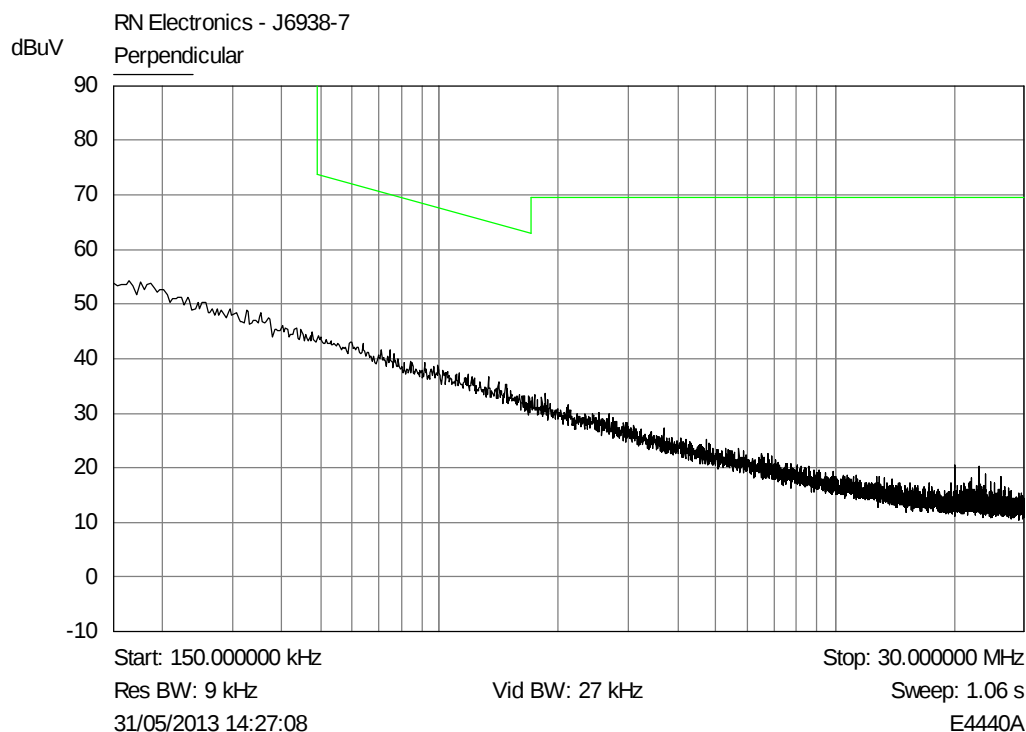
Plot of peak emissions 150kHz - 30MHz on the neutral terminal against the average limit line.

6.2 Radiated emissions plots

6.2.1 Low frequency radiated emissions plots

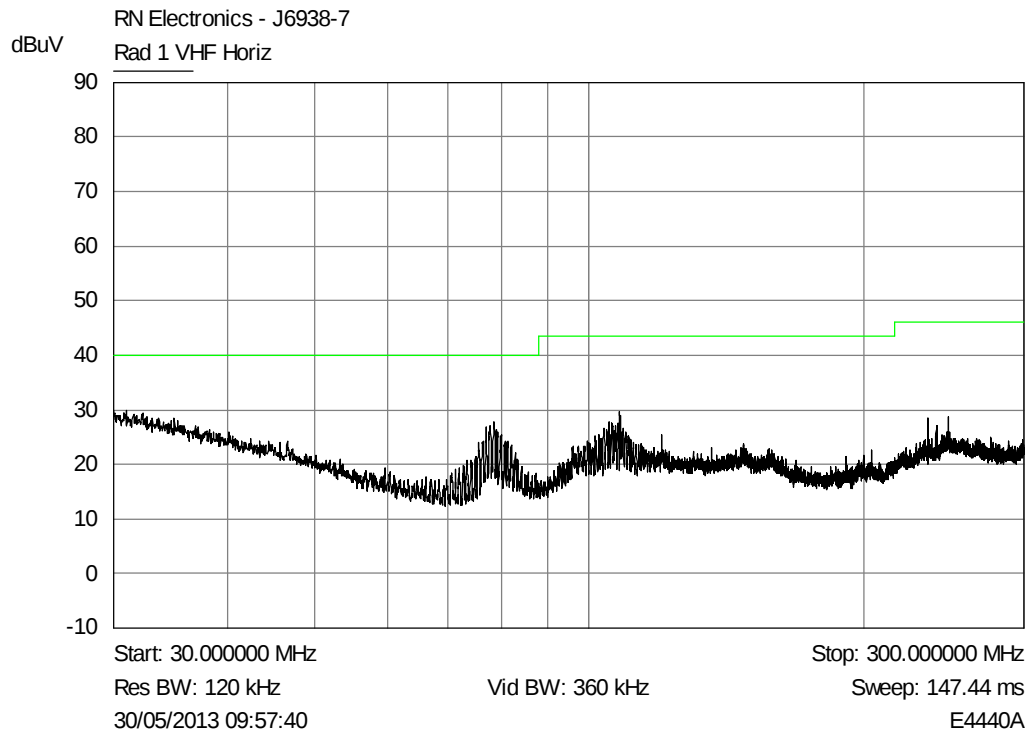


Mid channel - Parallel Plot

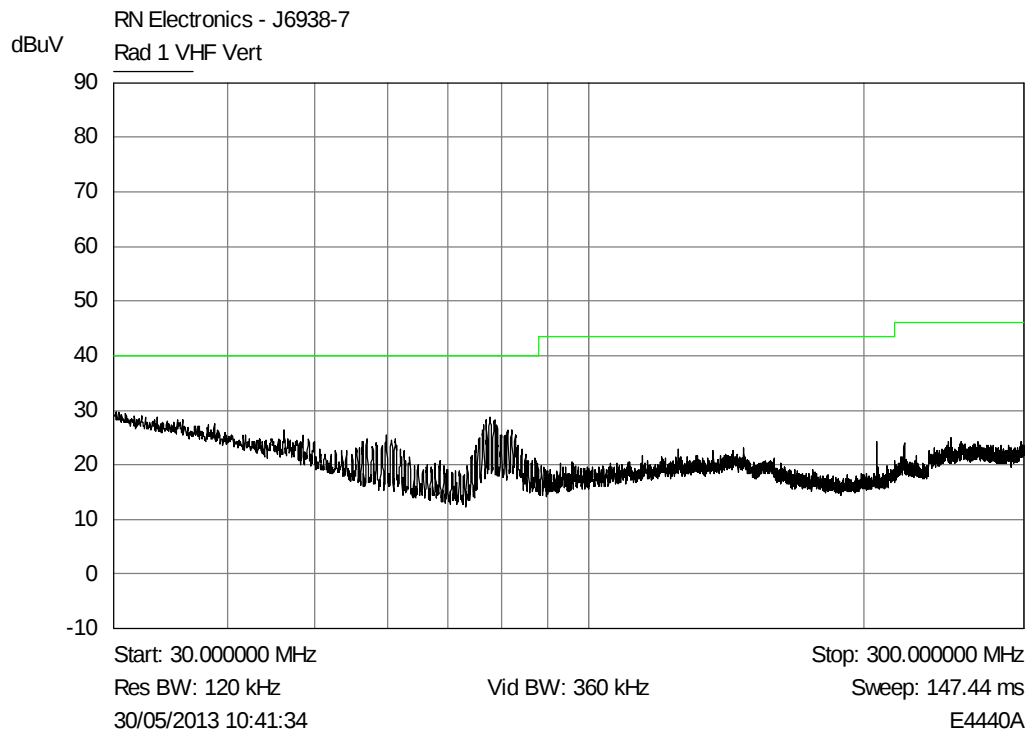


Mid channel - Perpendicular Plot

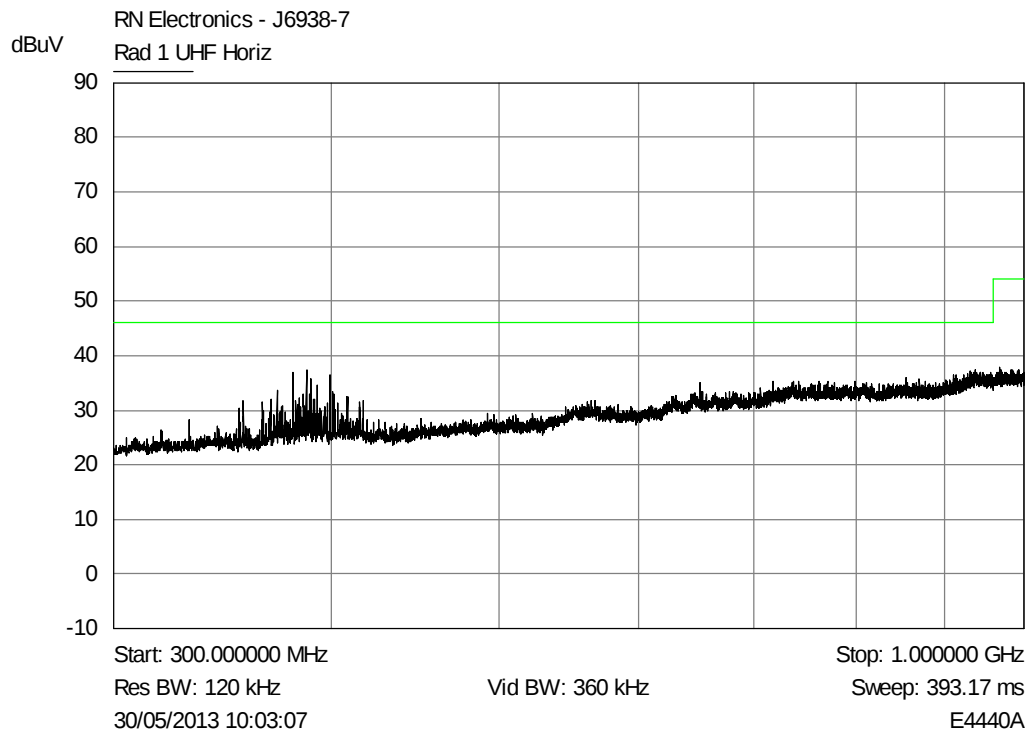
6.2.2 Radiated emissions - 30MHz - 1GHz



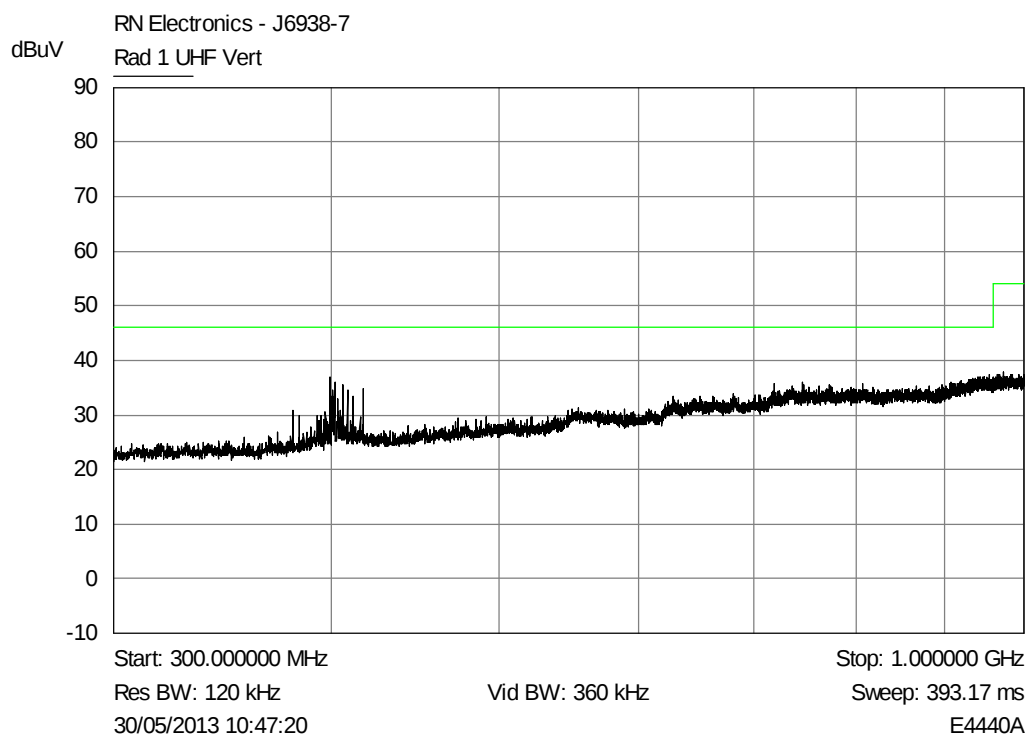
TX Mid Chan: Plot of peak horizontal emissions 30MHz - 300MHz against the quasi-peak limit line.



TX Mid Chan: Plot of peak vertical emissions 30MHz - 300MHz against the quasi-peak limit line.

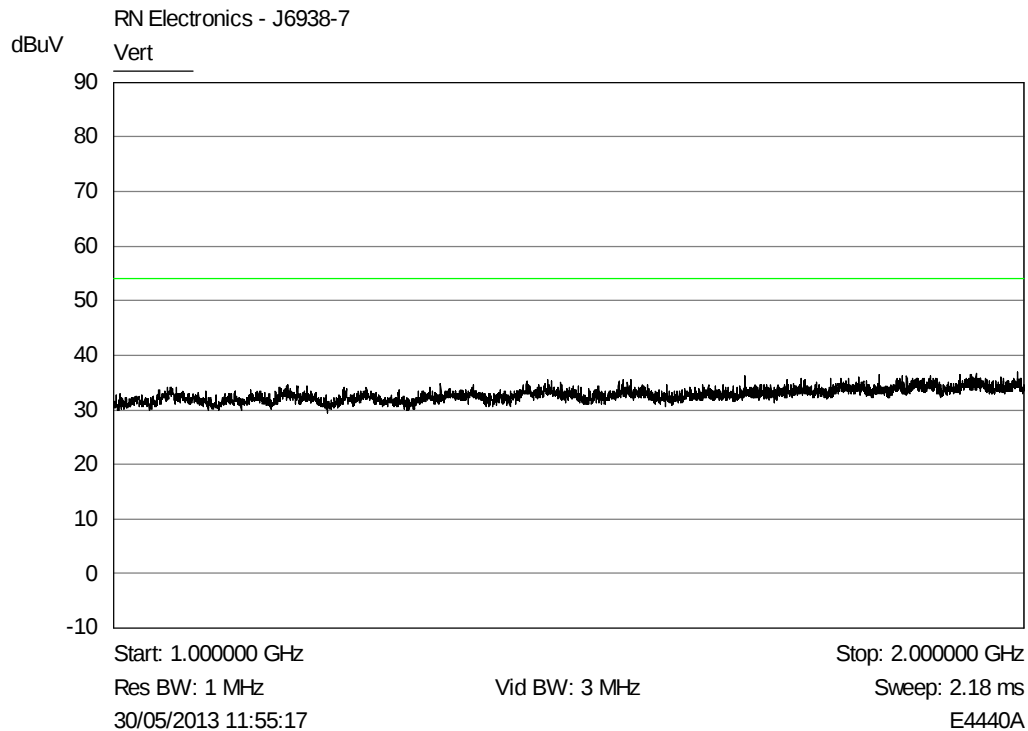


TX Mid Chan: Plot of peak horizontal emissions 300MHz - 1GHz against the quasi-peak limit line.

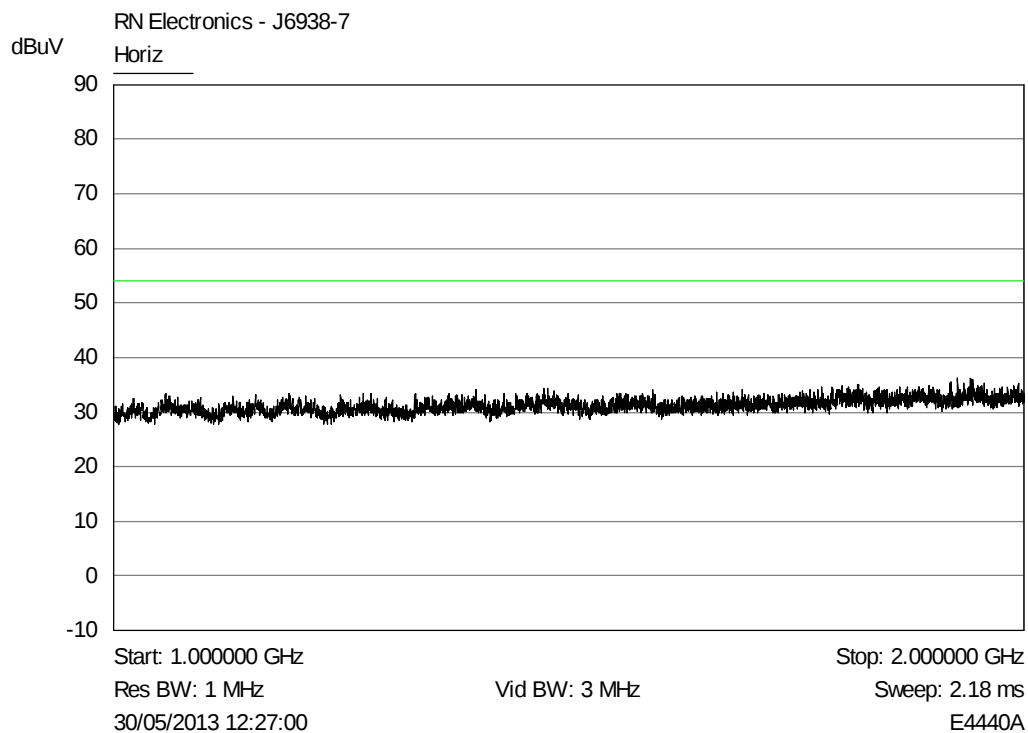


TX Mid Chan: Plot of peak vertical emissions 300MHz - 1GHz against the quasi-peak limit line.

6.2.3 Radiated emissions Plots above 1GHz



Middle channel (2437 MHz) - 1-2 GHz - Vertical



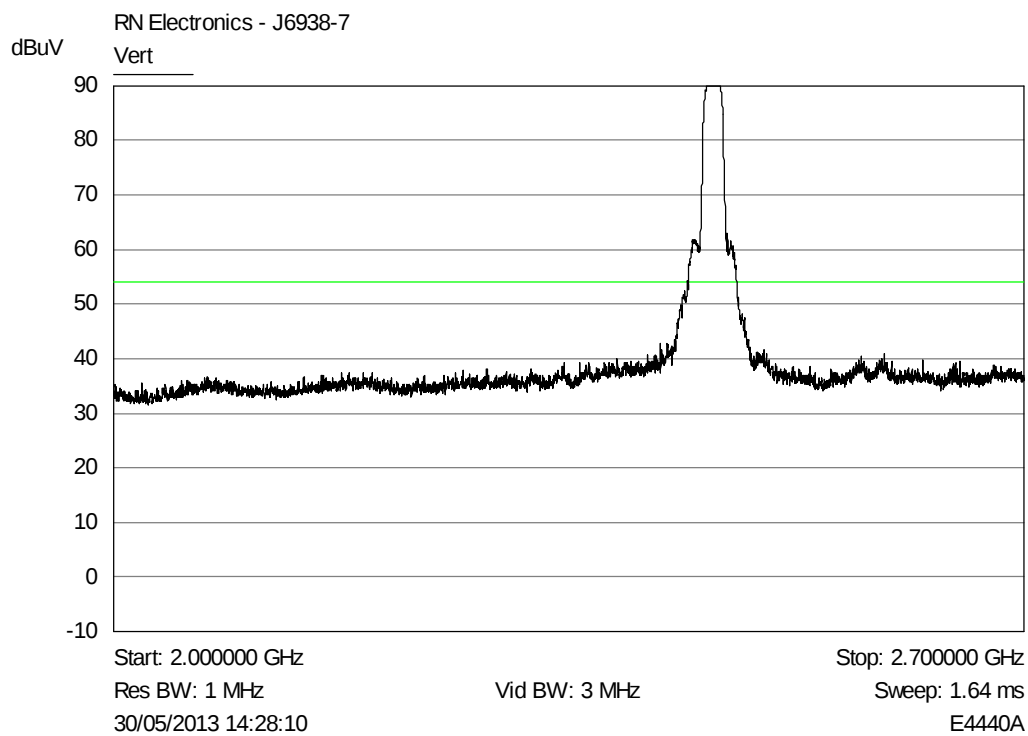
Middle channel (2437 MHz) - 1-2 GHz - Horizontal

File name PURE.6938-7 ISSUE 02

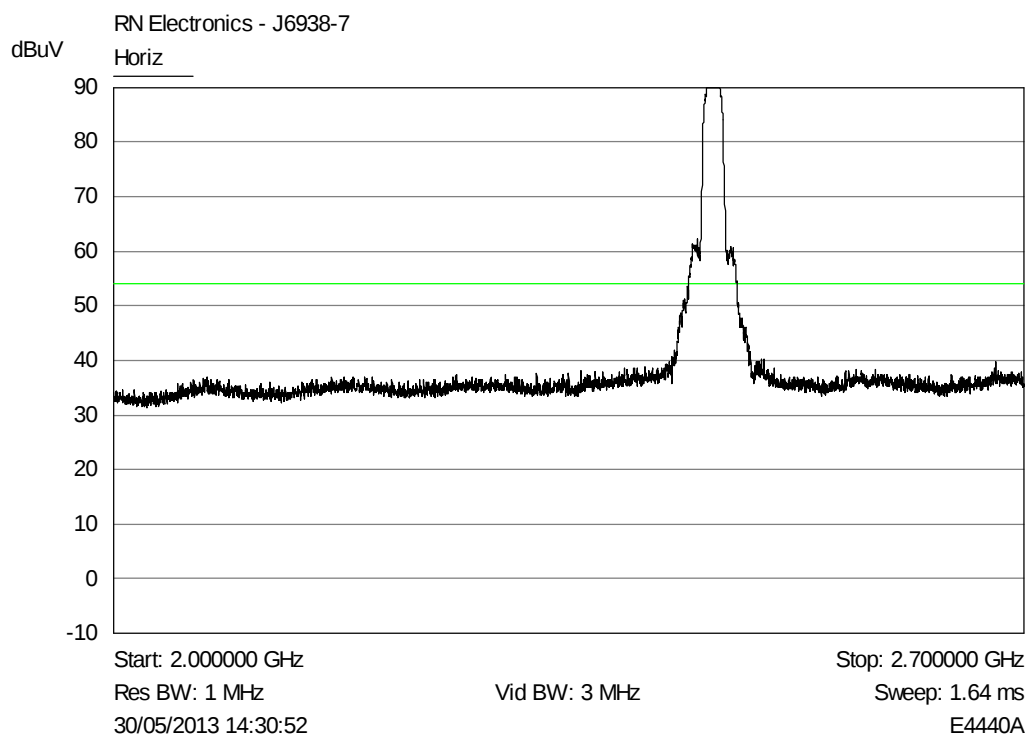
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QMF21J – 3; 47CFR15.247, RNE ISSUE 01 SEP 2012

PAGE 46 OF 148



Middle channel (2437 MHz) - 2-2.7 GHz - Vertical



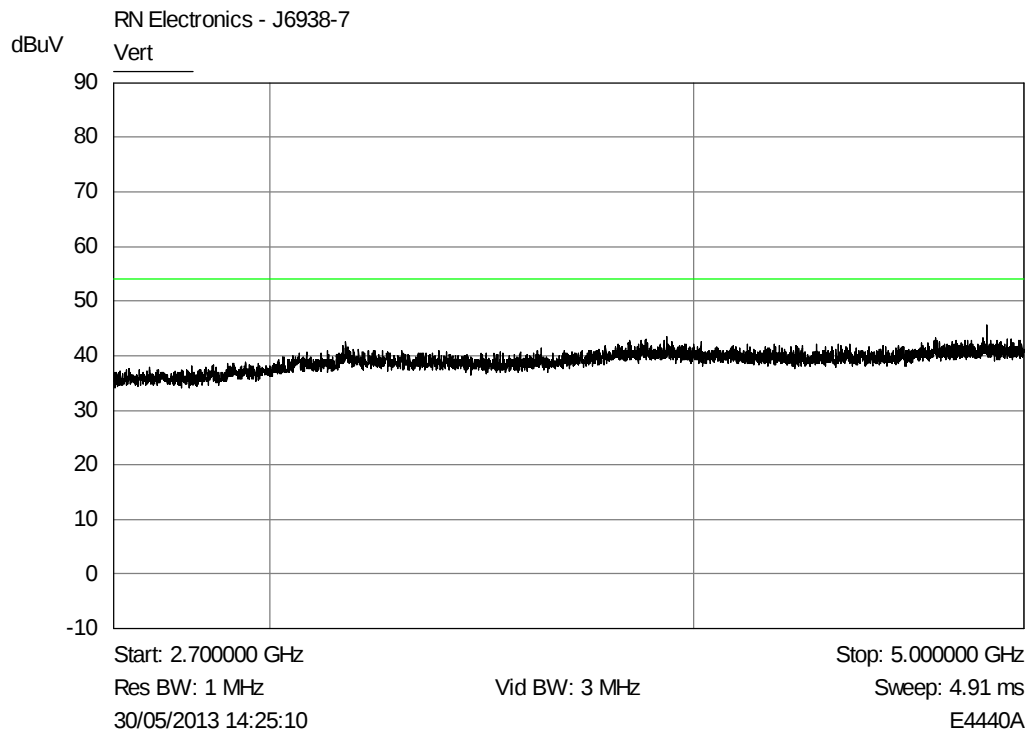
Middle channel (2437 MHz) - 2-2.7 GHz - Horizontal

File name PURE.6938-7 ISSUE 02

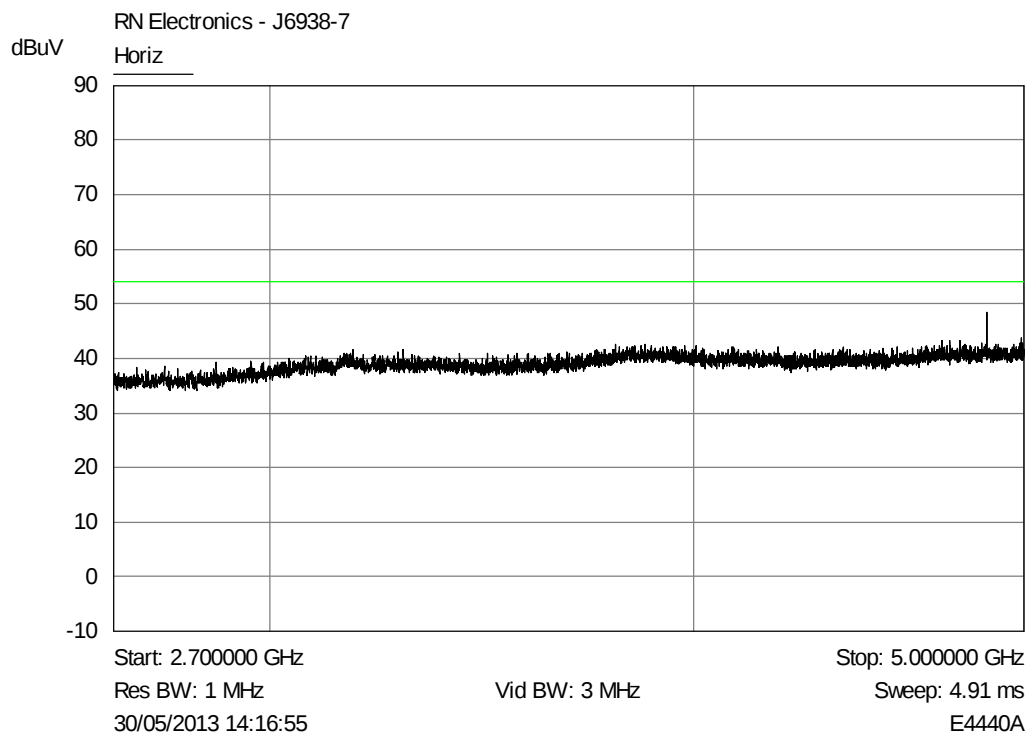
The contents of this report, apart from the referenced ANSI C63.4-2003, are beyond the scope of UKAS Testing Laboratory No. 2360 accreditation.

QMF21J – 3; 47CFR15.247, RNE ISSUE 01 SEP 2012

PAGE 47 OF 148



Middle channel (2437 MHz) - 2.7-5 GHz - Vertical



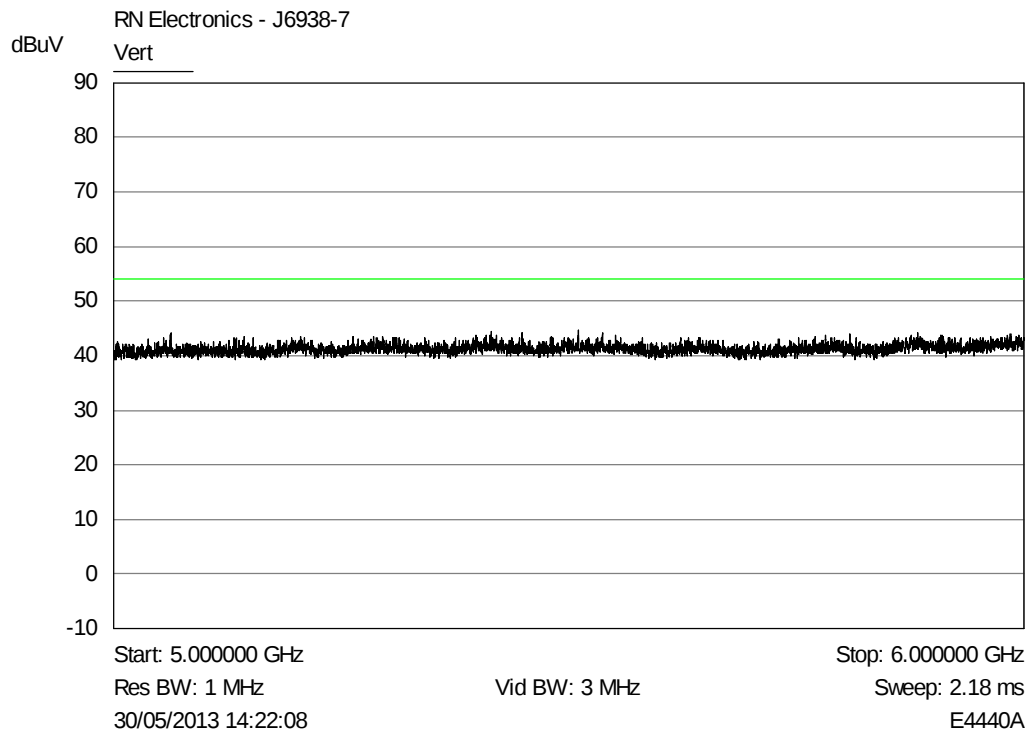
Middle channel (2437 MHz) - 2.7-5 GHz - Horizontal

File name PURE.6938-7 ISSUE 02

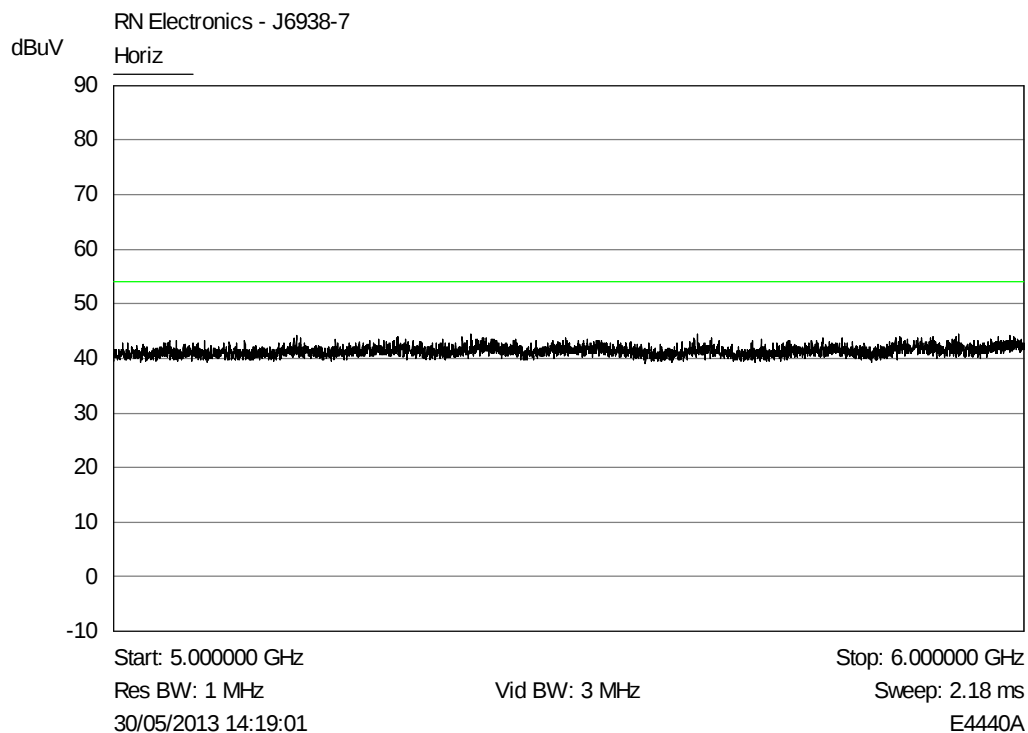
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QMF21J – 3; 47CFR15.247, RNE ISSUE 01 SEP 2012

PAGE 48 OF 148



Middle channel (2437 MHz) - 5-6 GHz - Vertical



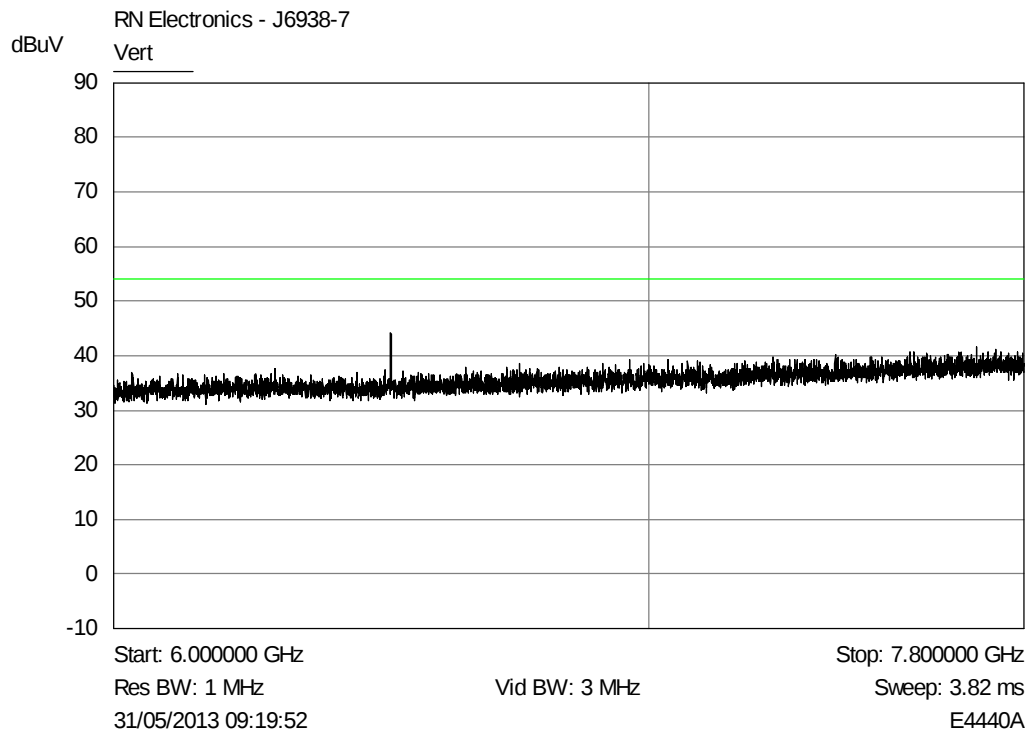
Middle channel (2437 MHz) - 5-6 GHz - Horizontal

File name PURE.6938-7 ISSUE 02

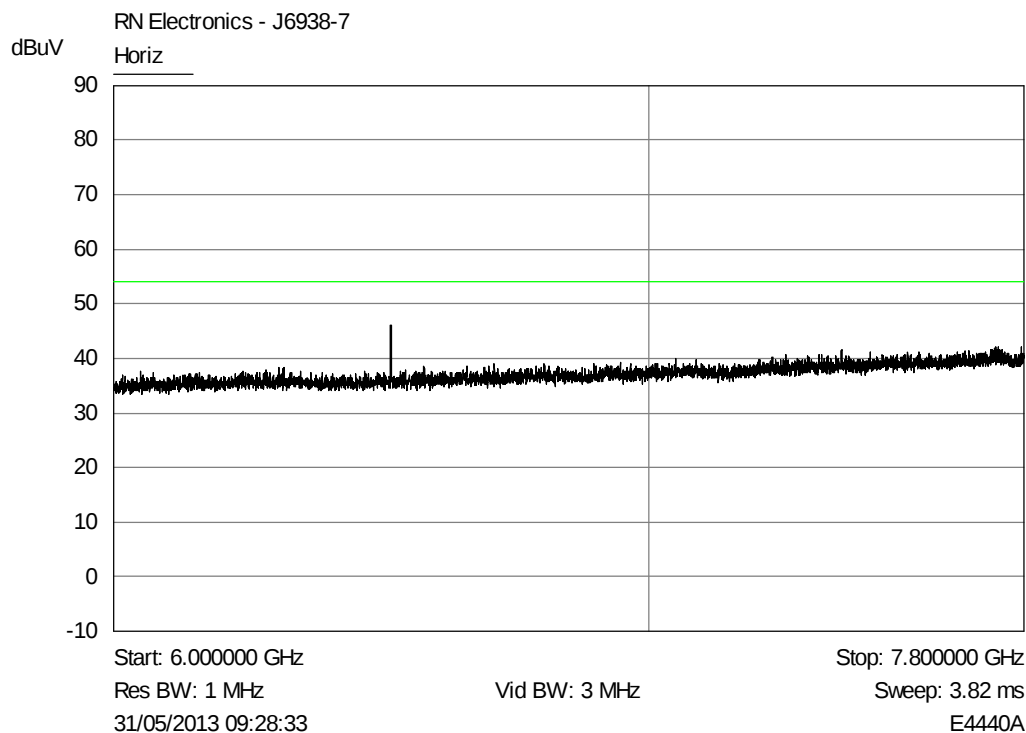
The contents of this report, apart from the referenced ANSI C63.4-2003, are beyond the scope of UKAS Testing Laboratory No. 2360 accreditation.

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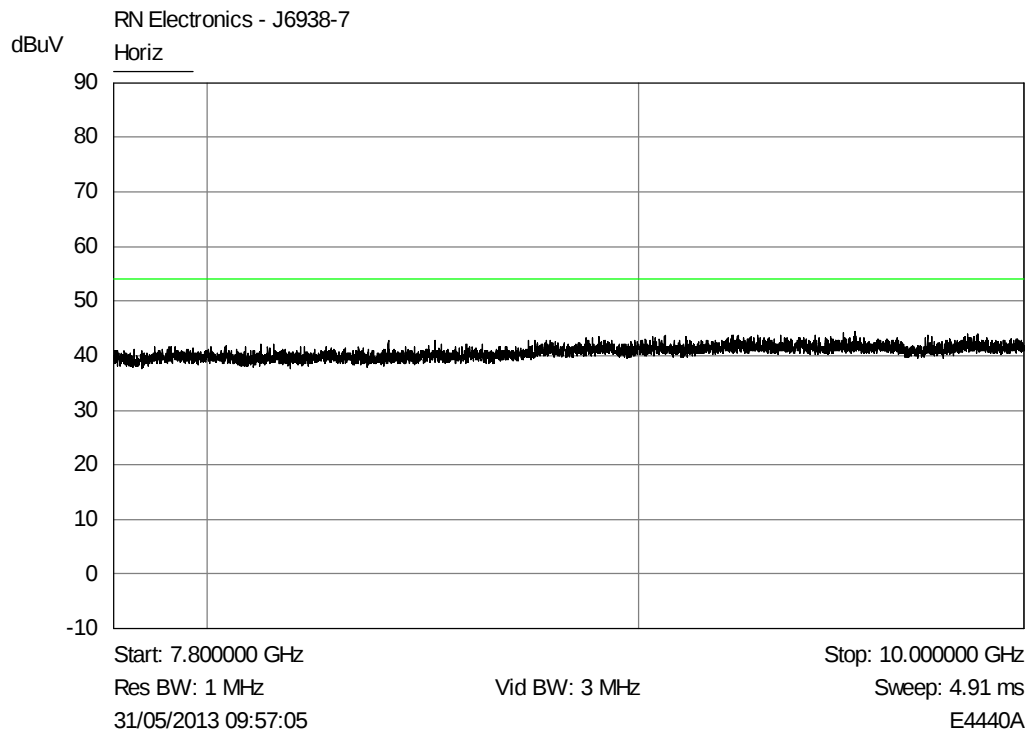
PAGE 49 OF 148



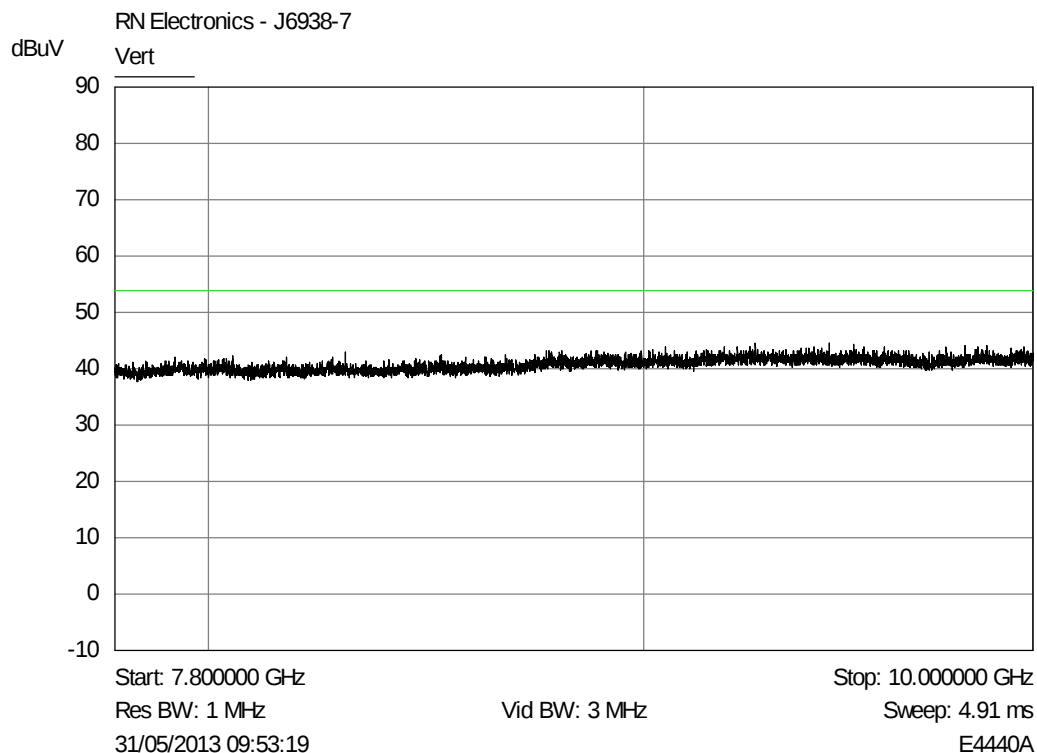
Middle channel (2437 MHz) - 6-7.8 GHz - Vertical



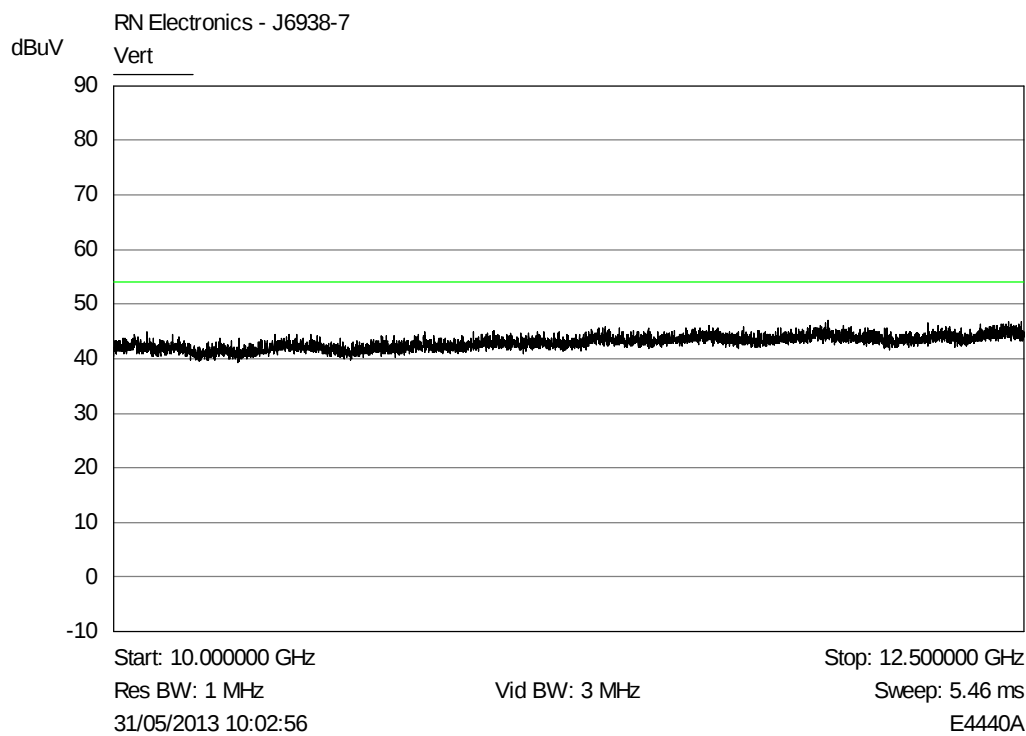
Middle channel (2437 MHz) - 6-7.8 GHz - Horizontal



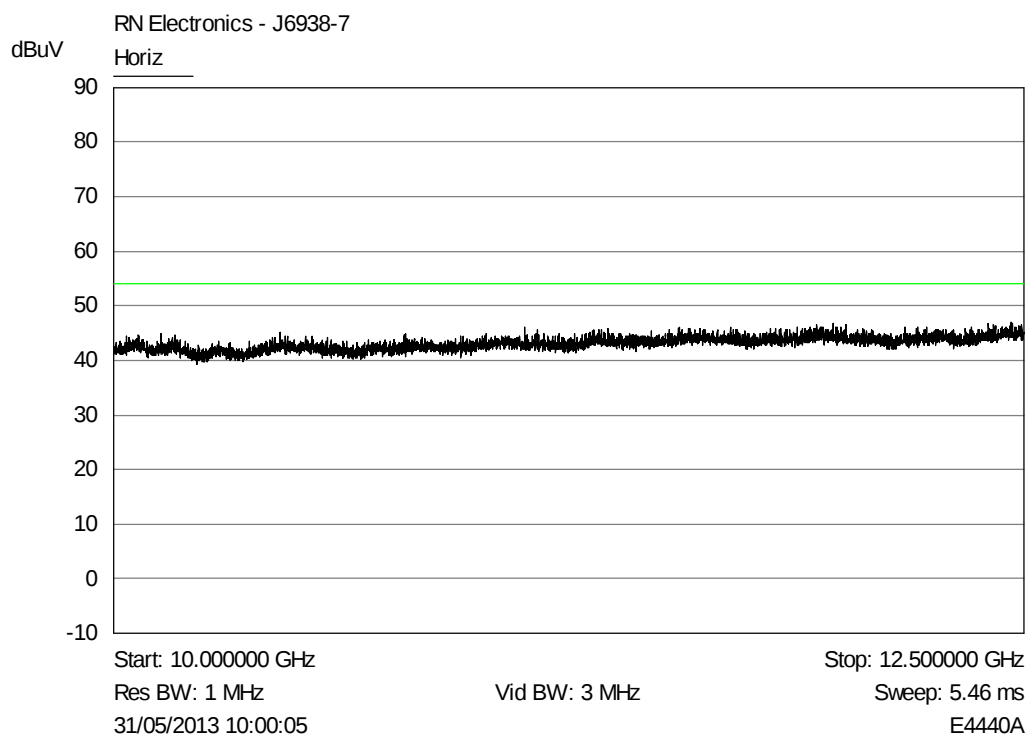
Middle channel (2437 MHz) - 7.8-10GHz – Horizontal



Middle channel (2437 MHz) - 7.8-10GHz - Vertical



Middle channel (2437 MHz) - 10-12.5GHz - Vertical



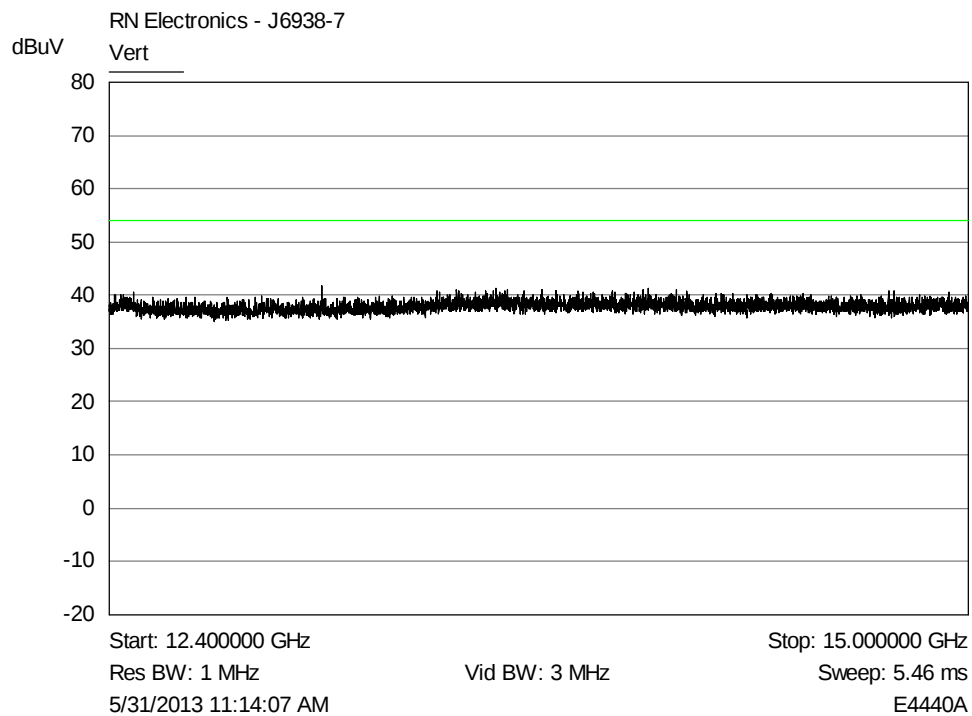
Middle channel (2437 MHz) - 10-12.5GHz - Horizontal

File name PURE.6938-7 ISSUE 02

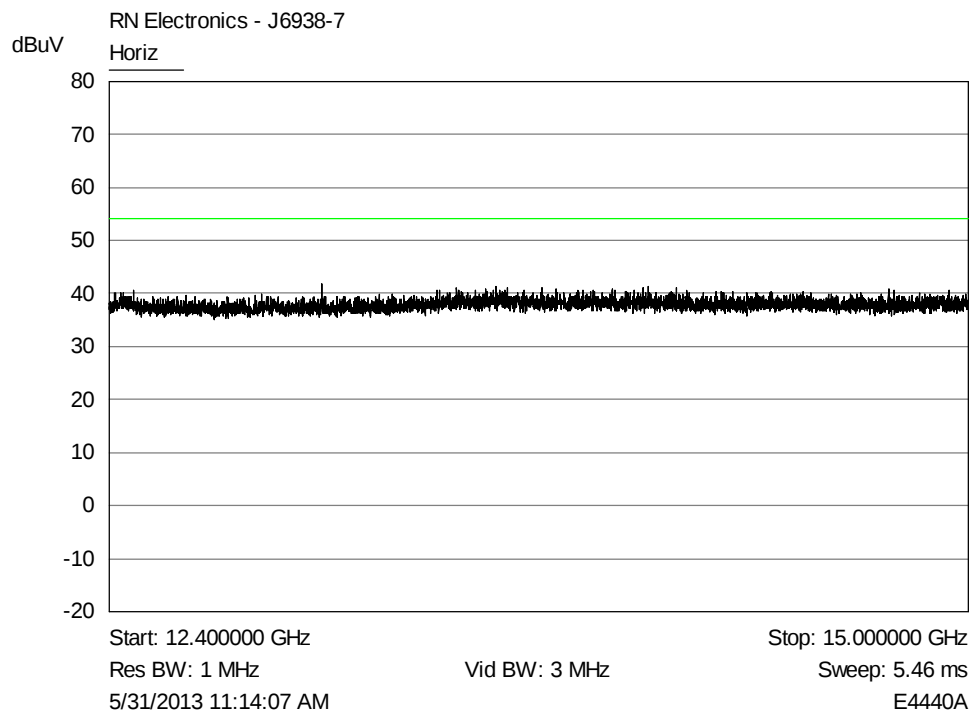
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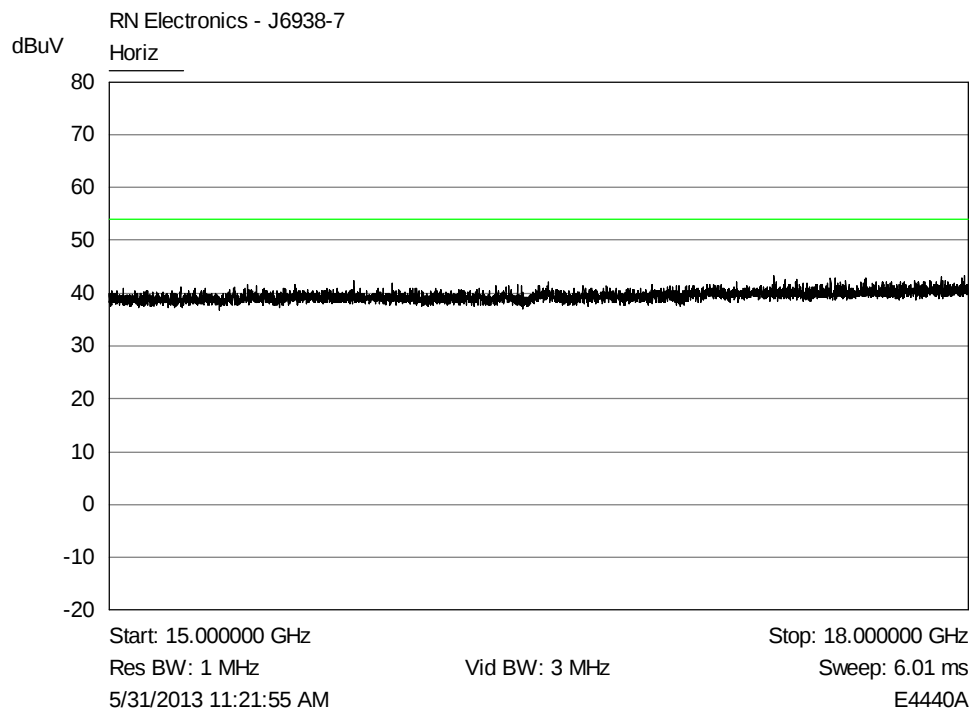
PAGE 52 OF 148



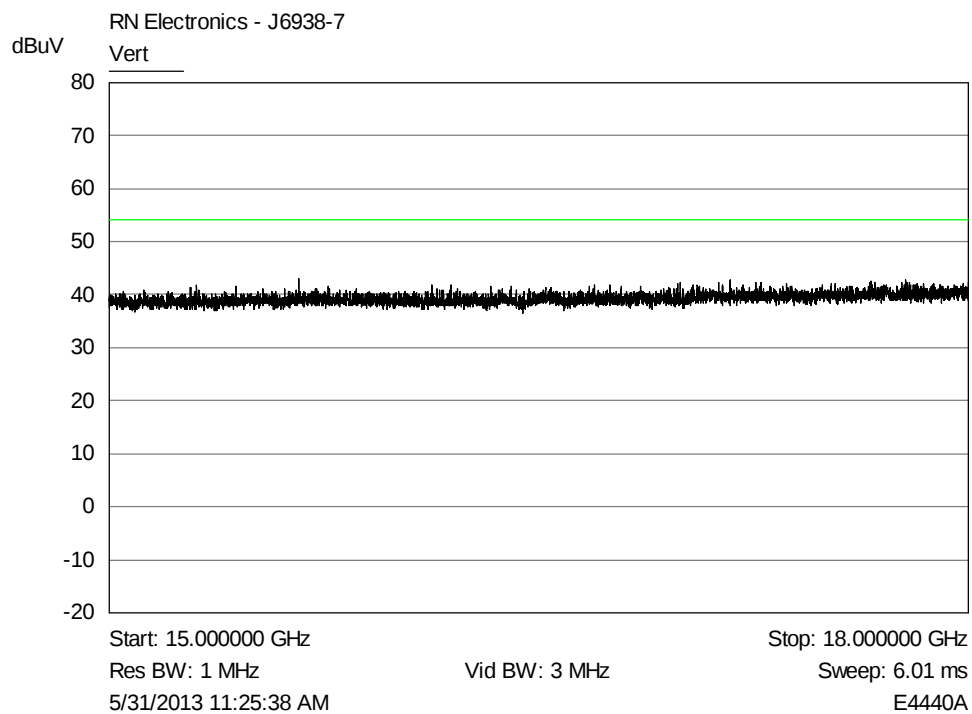
Middle channel (2437 MHz) – 12.5-15GHz - Vertical



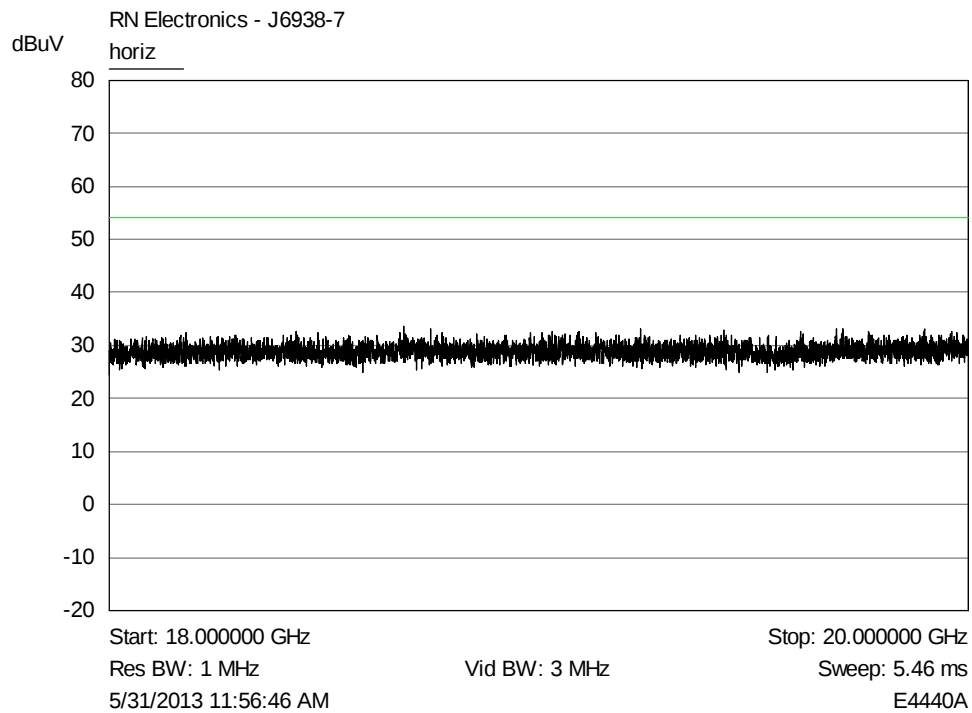
Middle channel (2437 MHz) - 12.5-15GHz – Horizontal



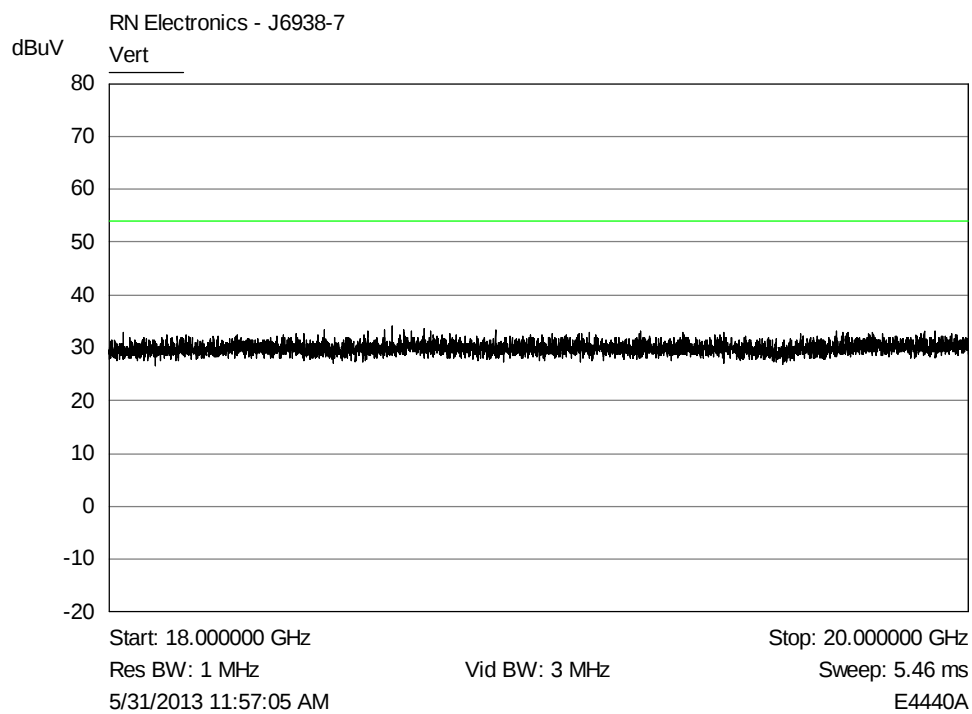
Middle channel (2437 MHz) - 15-18GHz - Horizontal



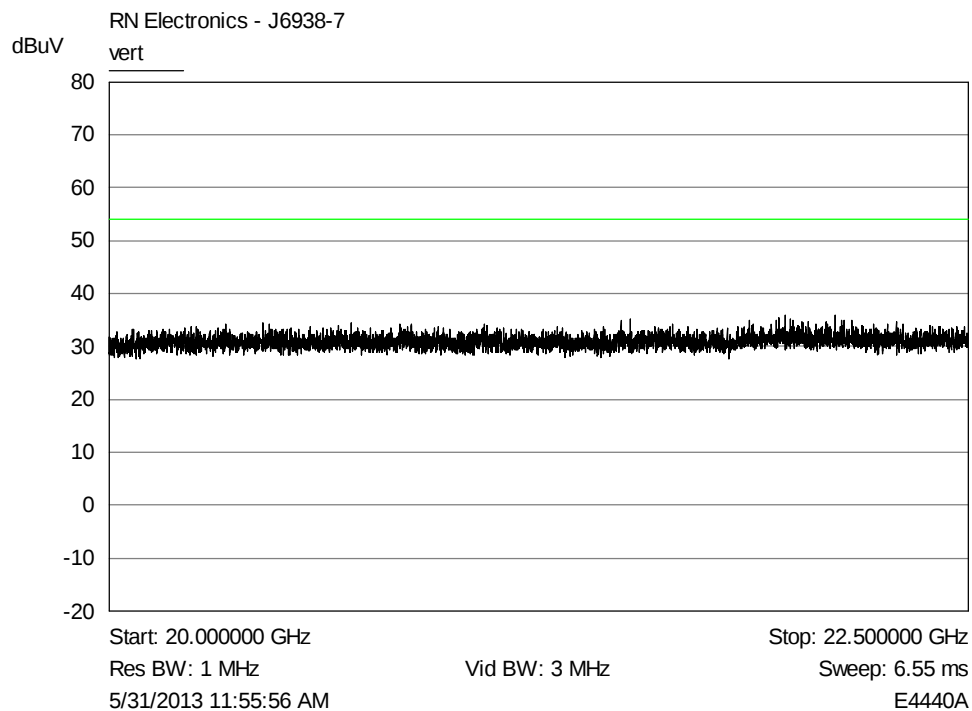
Middle channel (2437 MHz) - 15-18GHz – Vertical



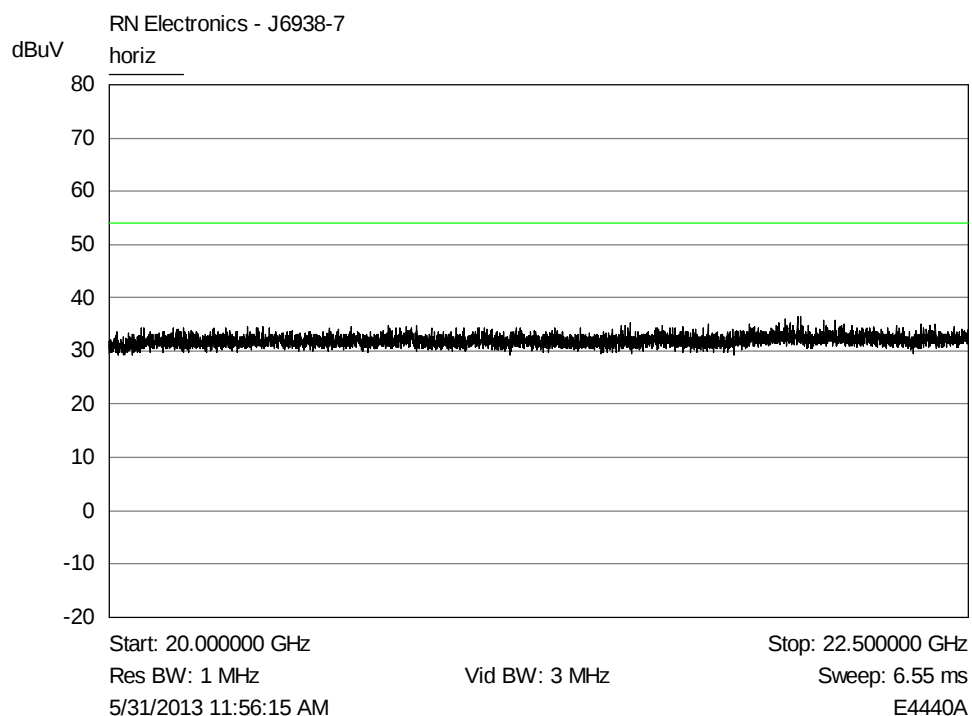
Middle channel (2437 MHz) - 18-20GHz - Horizontal



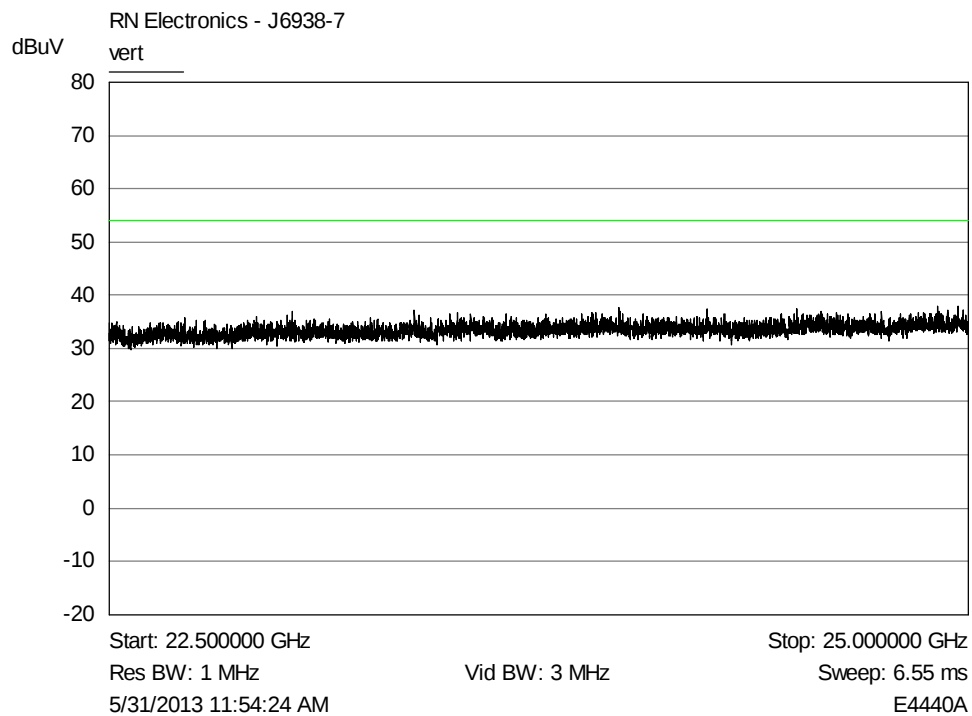
Middle channel (2437 MHz) - 18-20GHz – Vertical



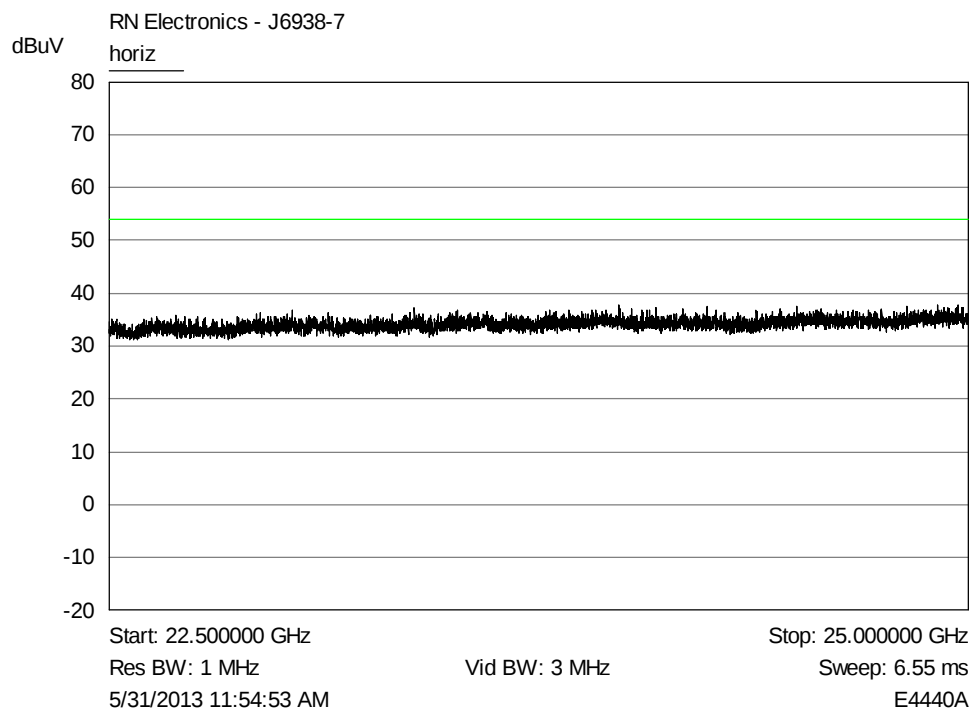
Middle channel (2437 MHz) - 20-22.5GHz - Vertical



Middle channel (2437 MHz) - 20-22.5GHz - Horizontal



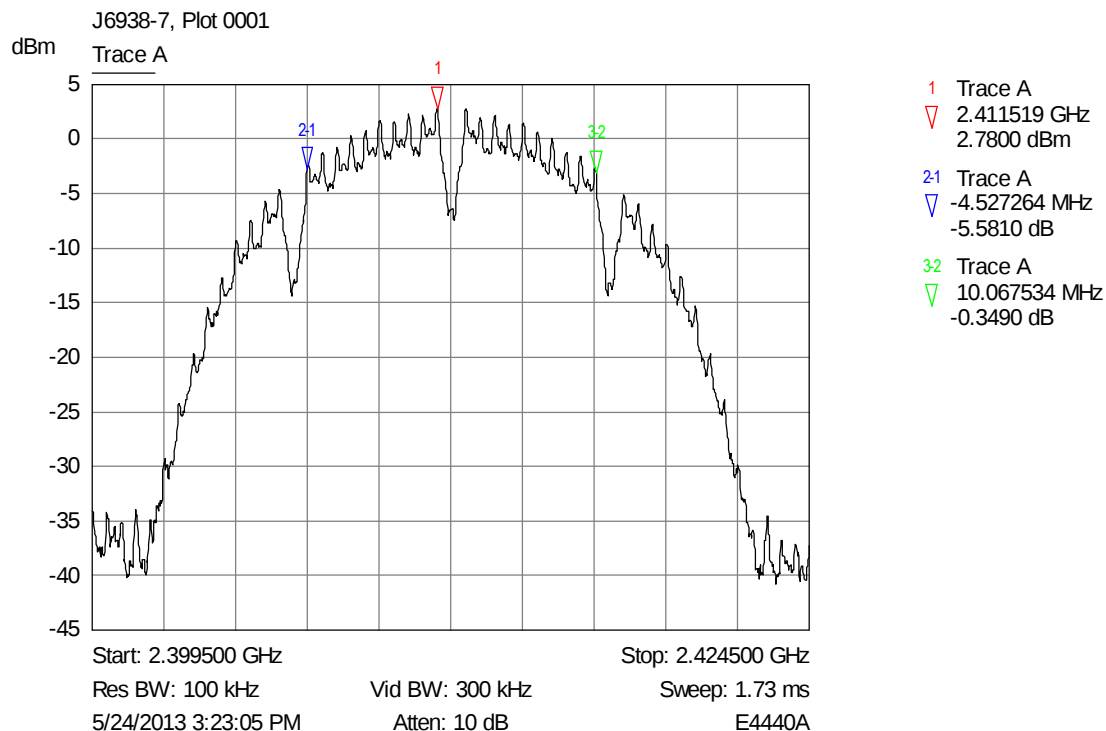
Middle channel (2437 MHz) – 22.5-25GHz - Vertical



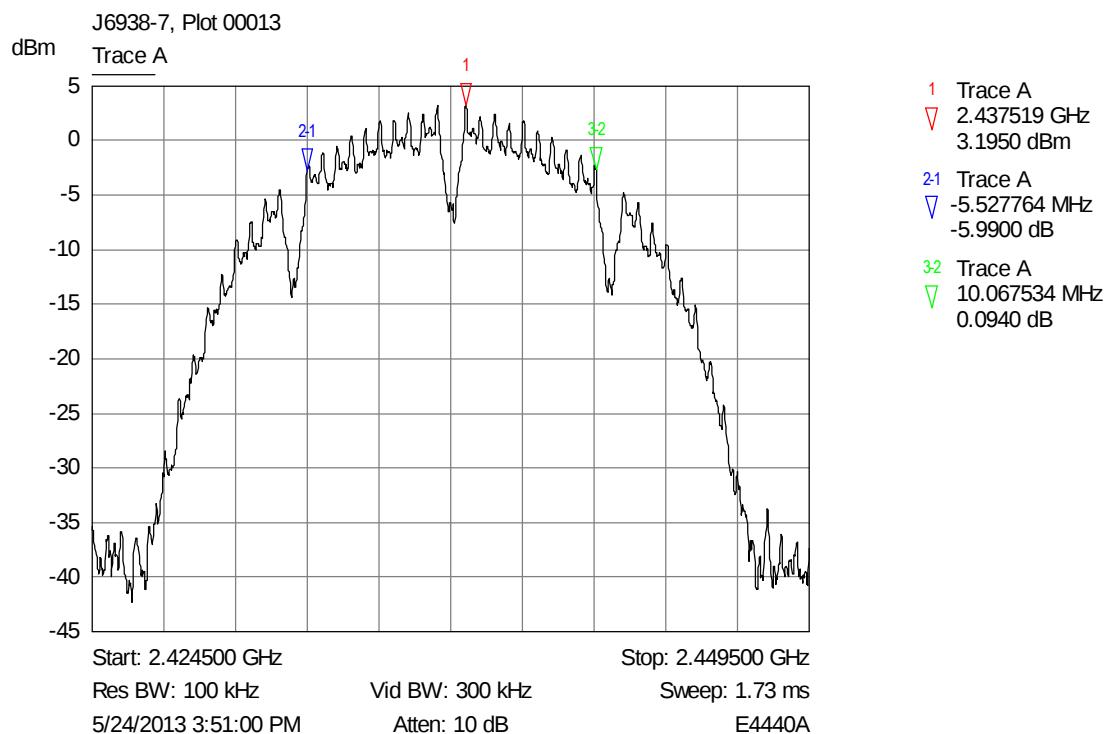
Middle channel (2437 MHz) - 22.5-25GHz - Horizontal

6.3 6dB bandwidth / occupied bandwidth plots

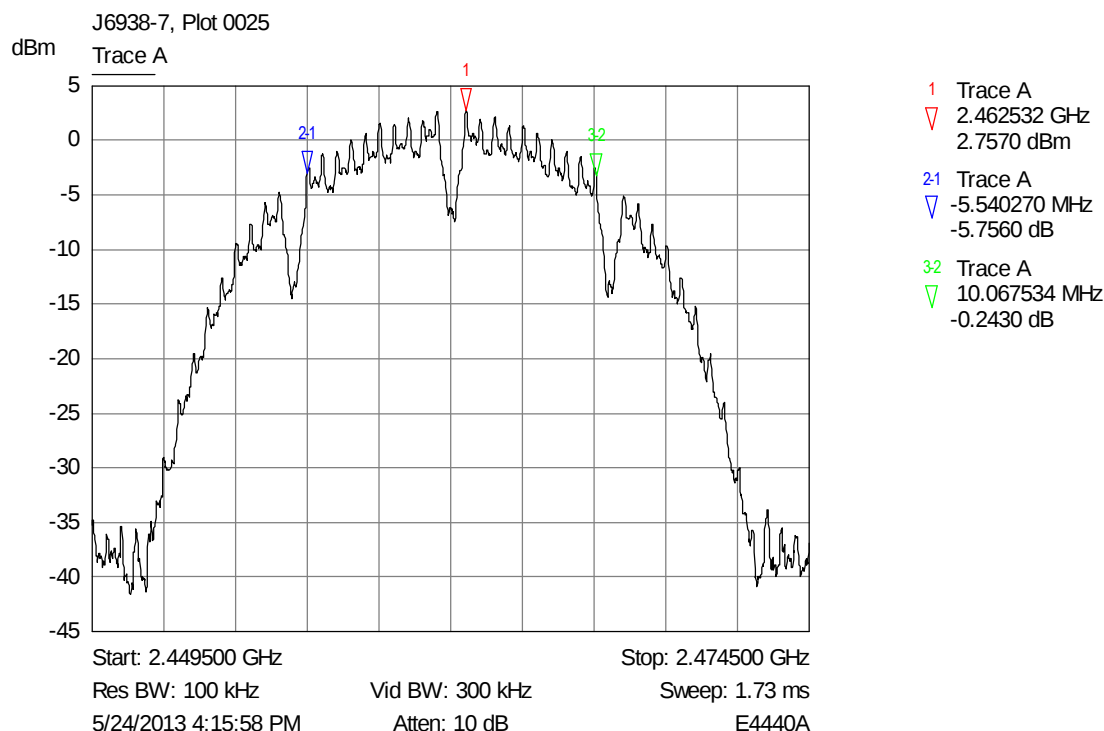
6.3.1 Plots for Band 2400-2483.5 MHz, Power 16 dBm, Spacing 5 MHz, and Modulation 1 MBPS



Low channel

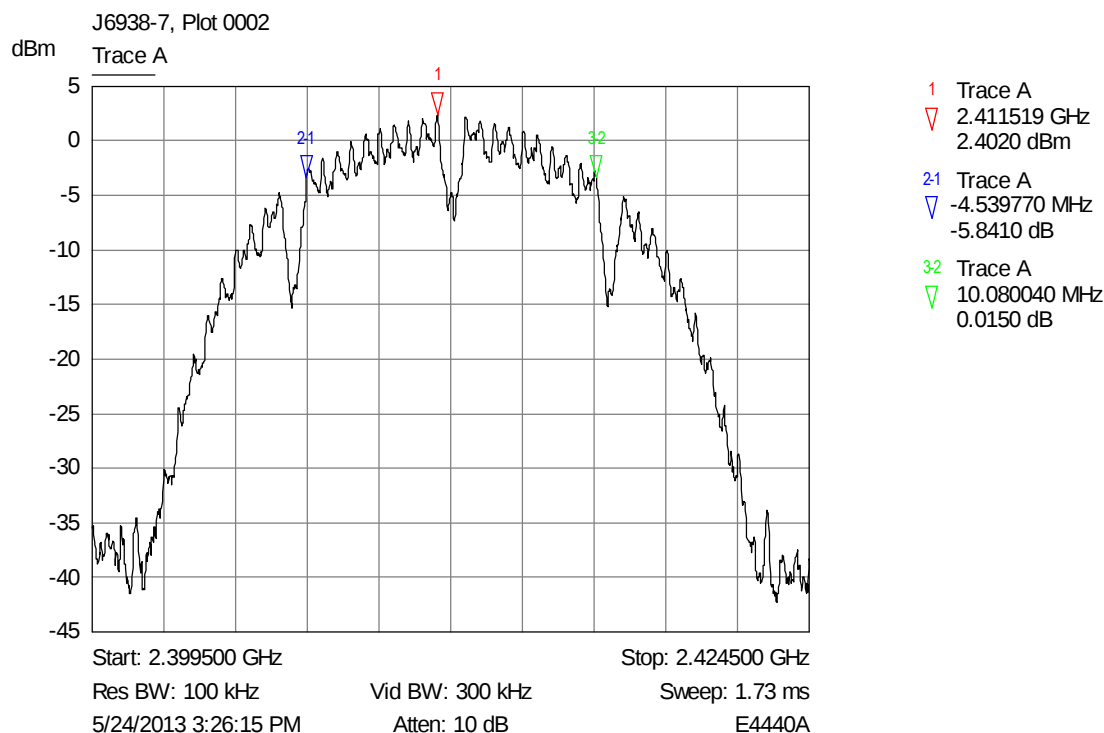


Mid channel

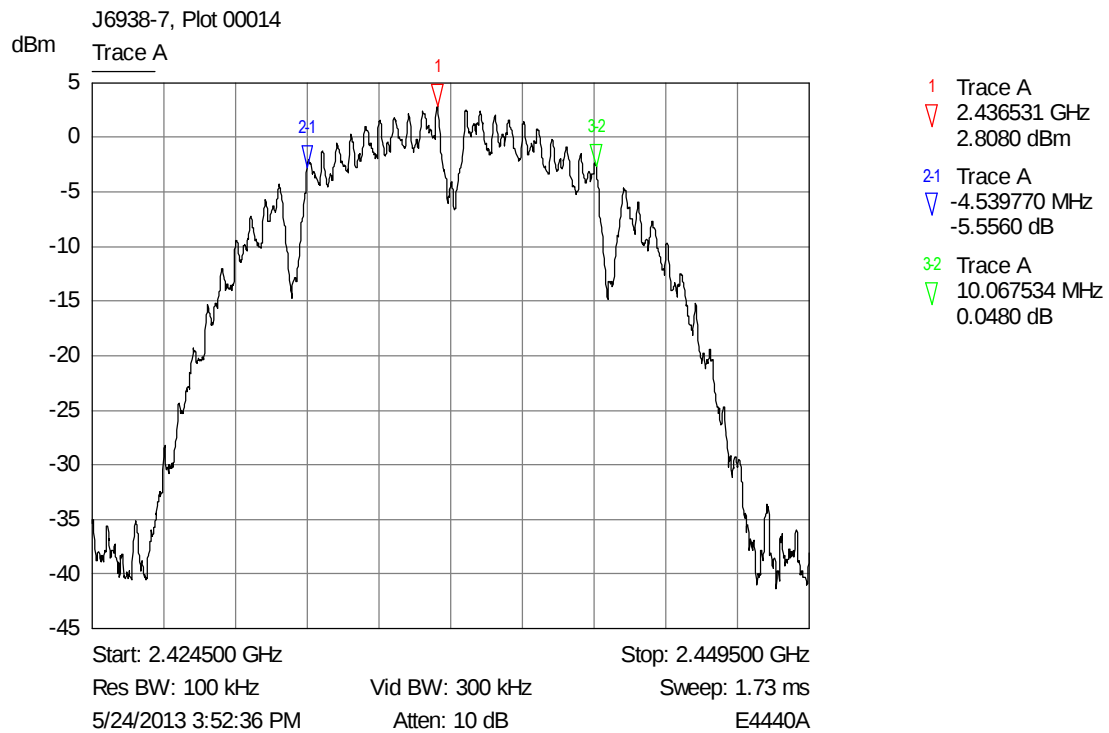


High channel

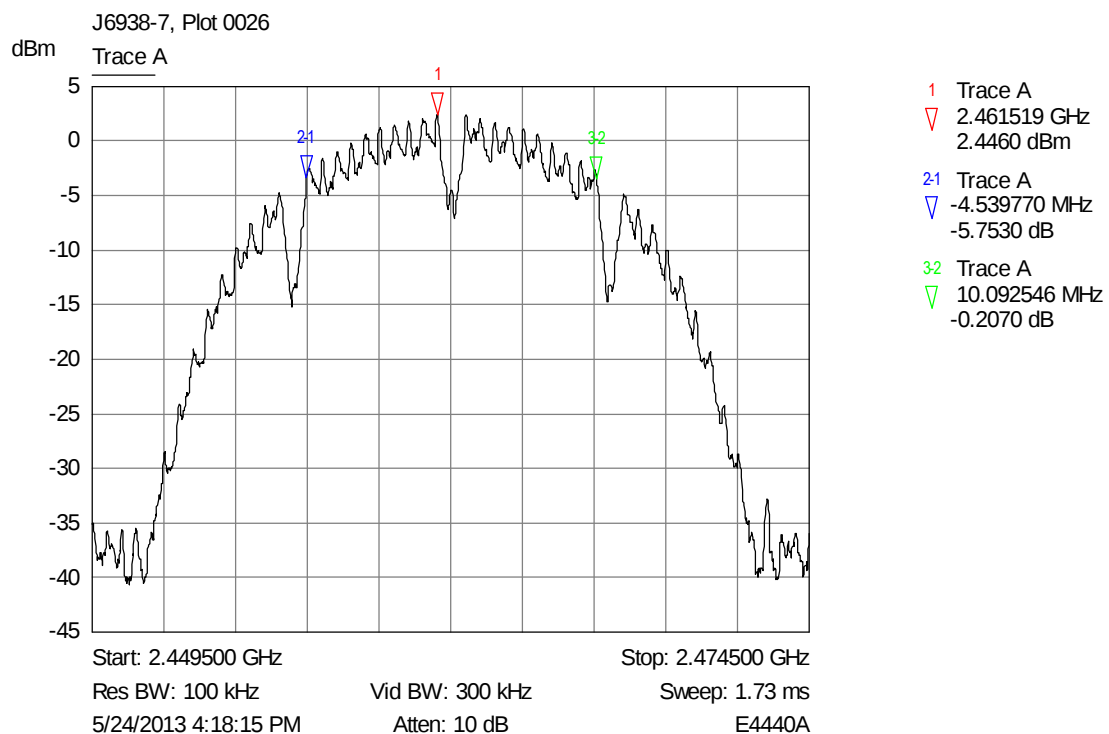
6.3.2 Plots for Band 2400-2483.5 MHz, Power 16 dBm, Spacing 5 MHz, and Modulation 2 MBPS



Low channel

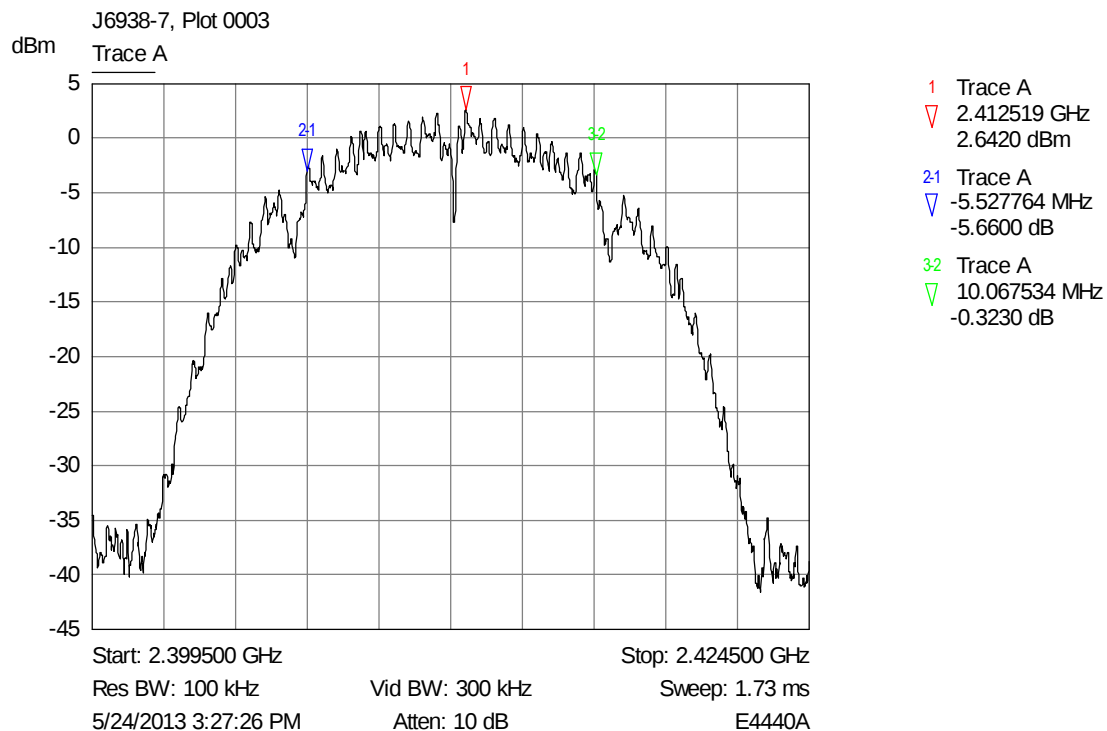


Mid channel

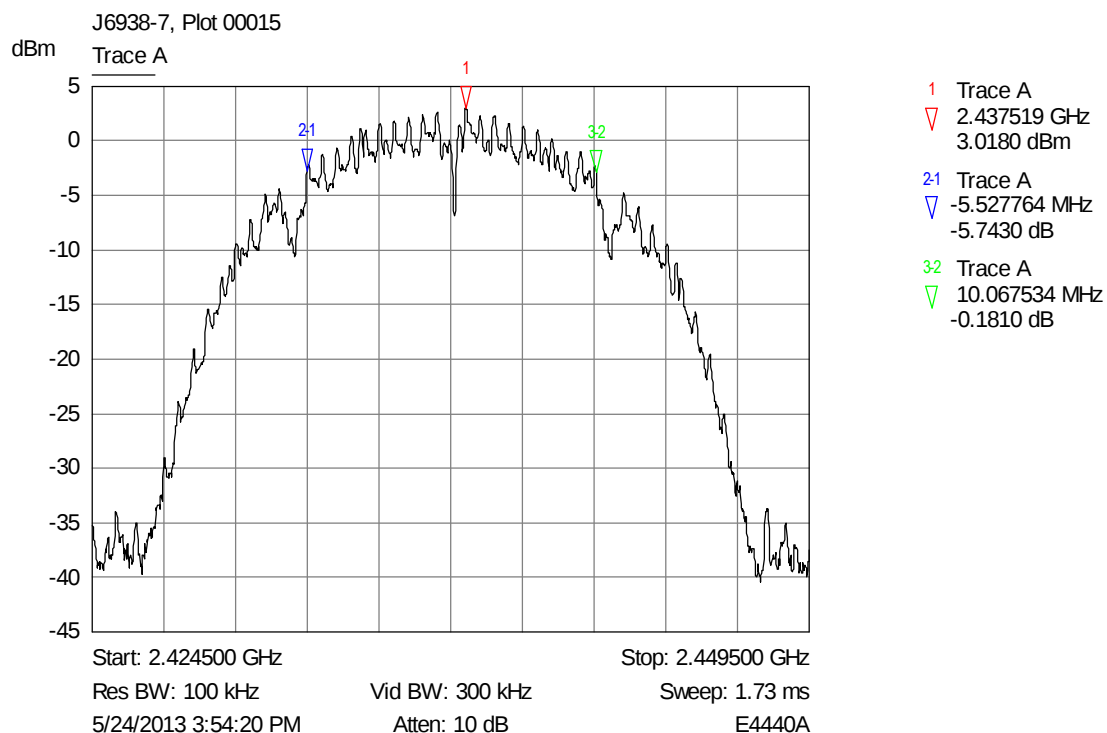


High channel

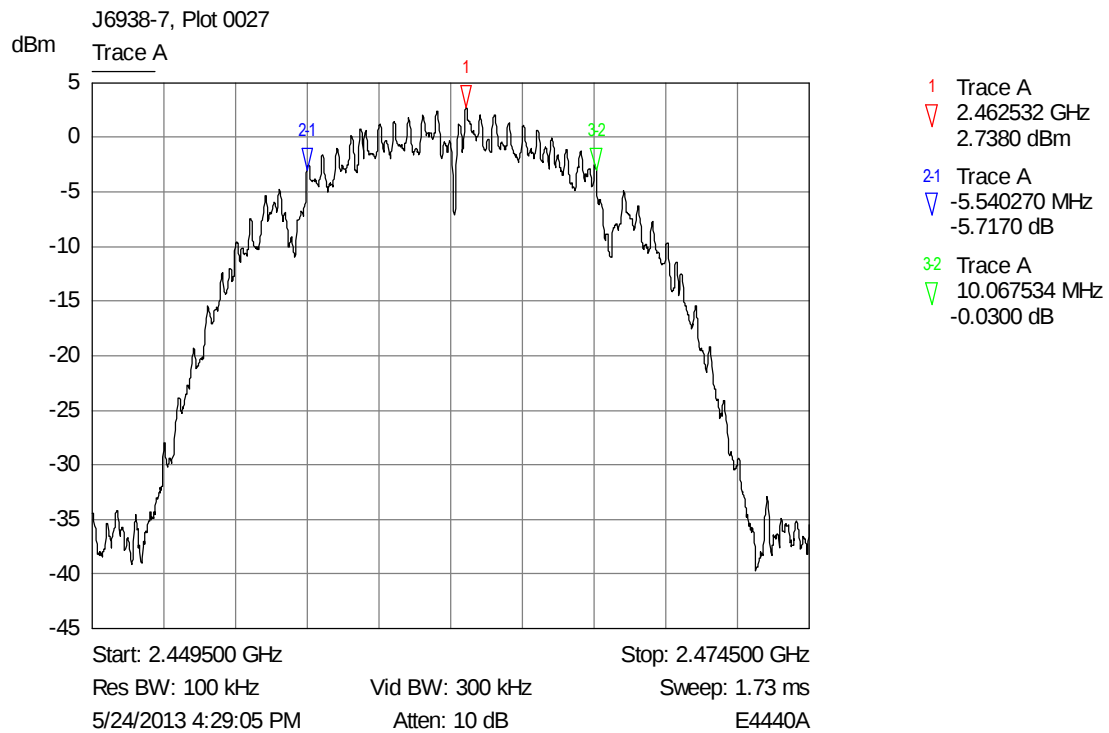
6.3.3 Plots for Band 2400-2483.5 MHz, Power 16 dBm, Spacing 5 MHz, and Modulation 5.5 MBPS



Low channel

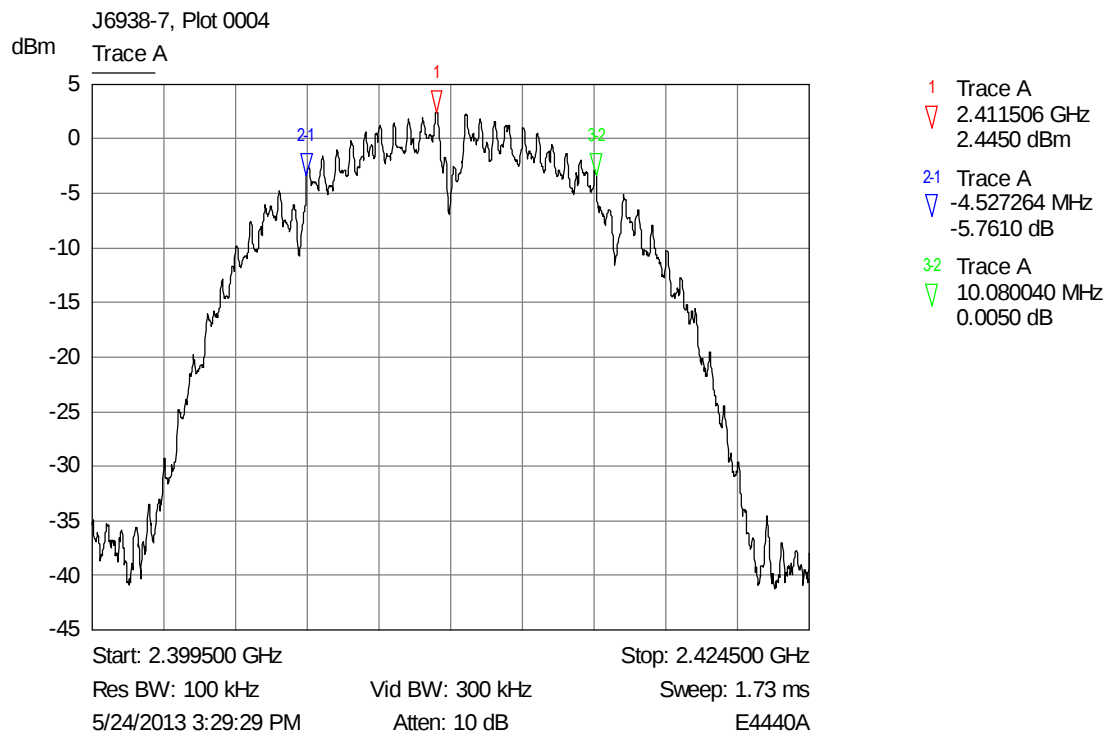


Mid channel

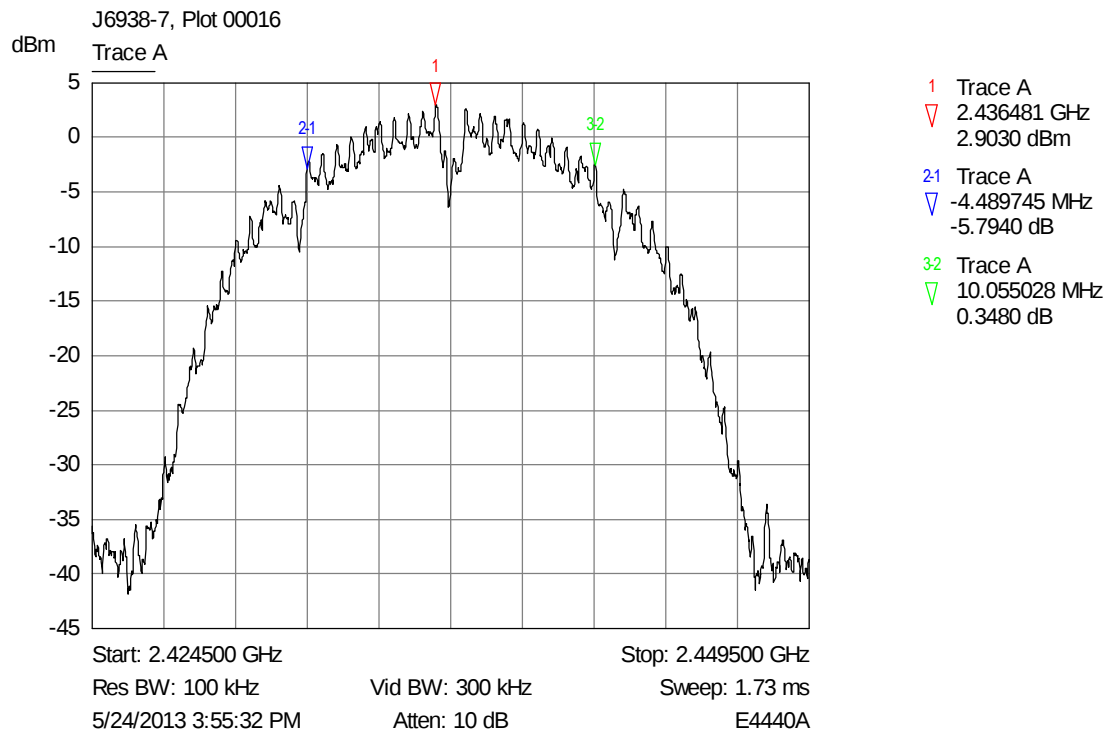


High channel

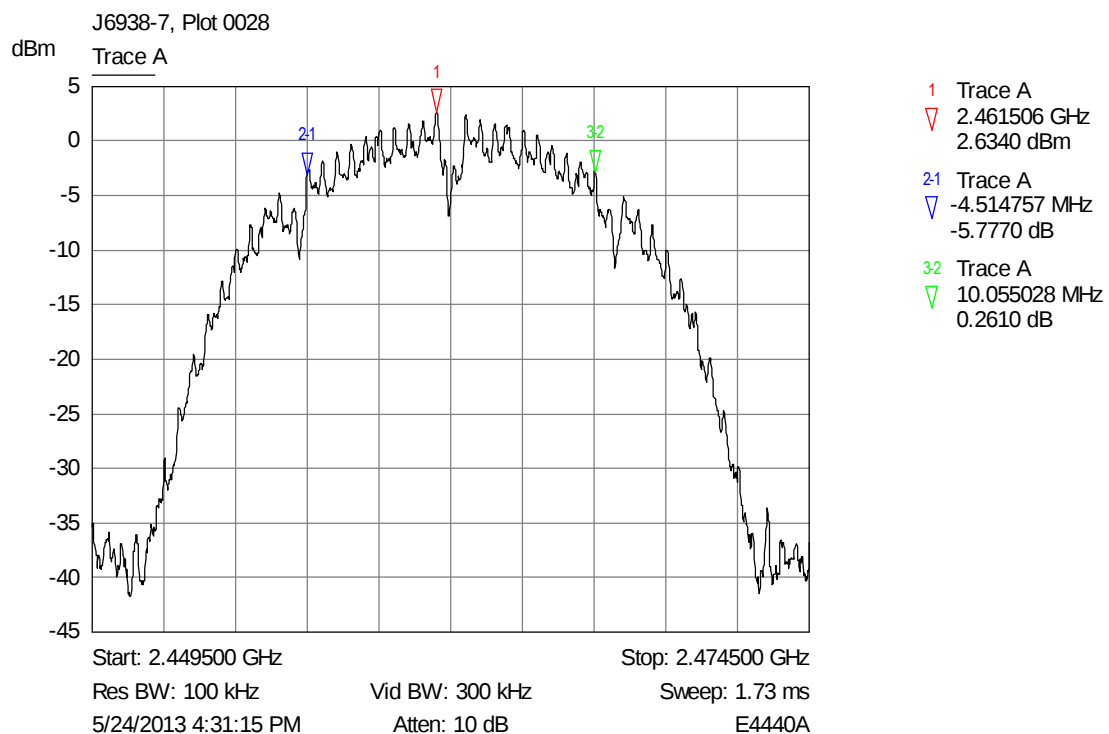
6.3.4 Plots for Band 2400-2483.5 MHz, Power 16 dBm, Spacing 5 MHz, and Modulation 11 MBPS



Low channel

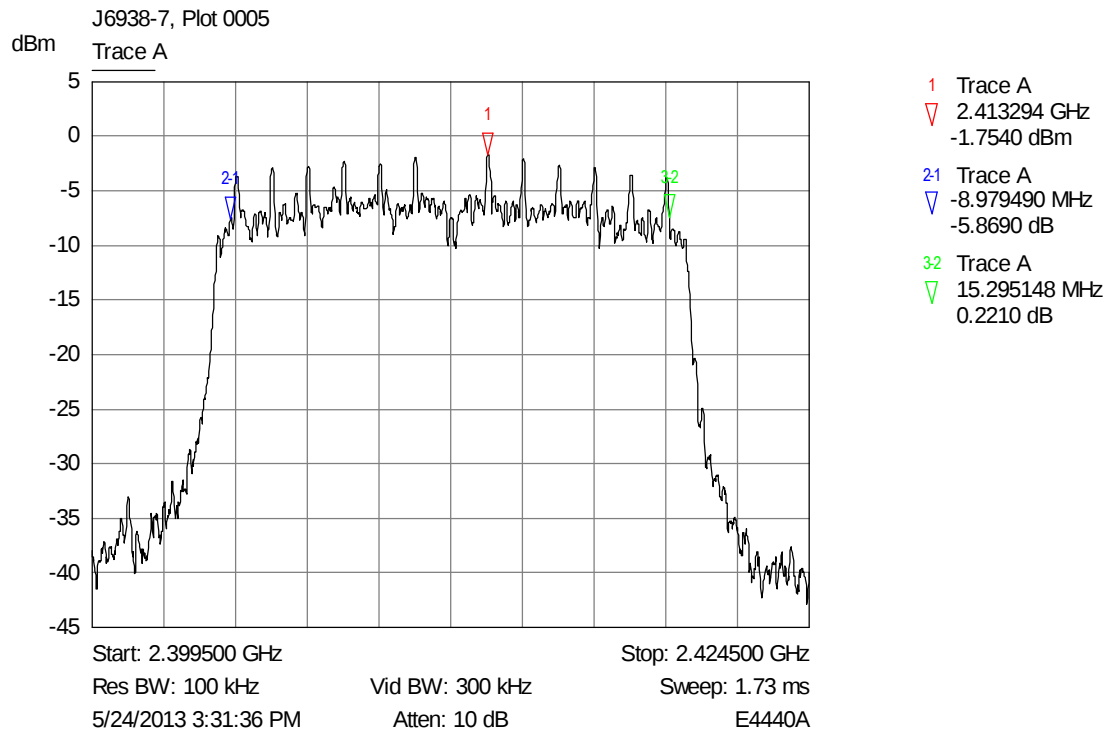


Mid channel

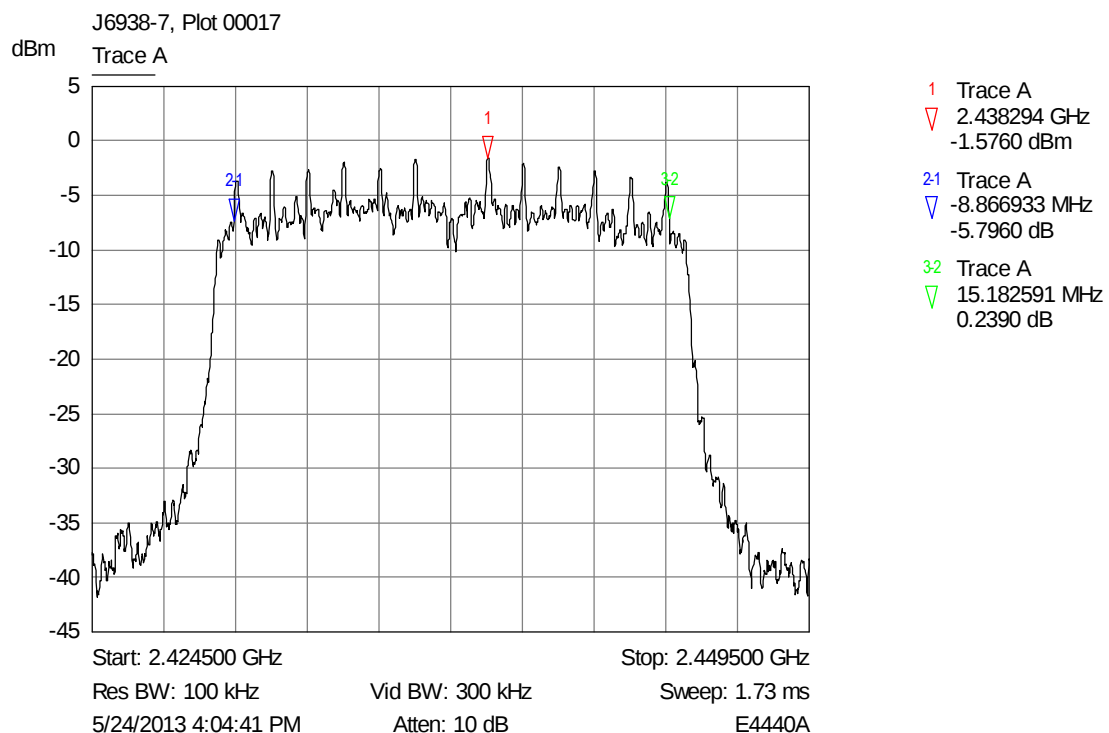


High channel

6.3.5 Plots for Band 2400-2483.5 MHz, Power 16 dBm, Spacing 5 MHz, and Modulation 6 MBPS



Low channel



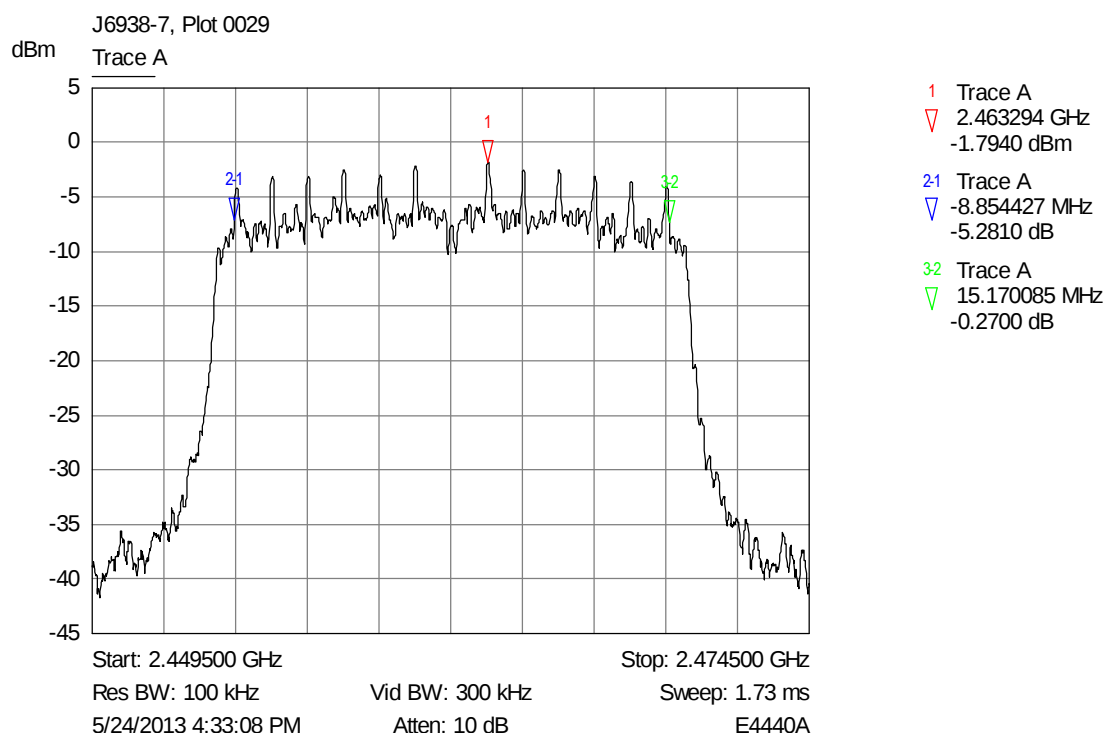
Mid channel

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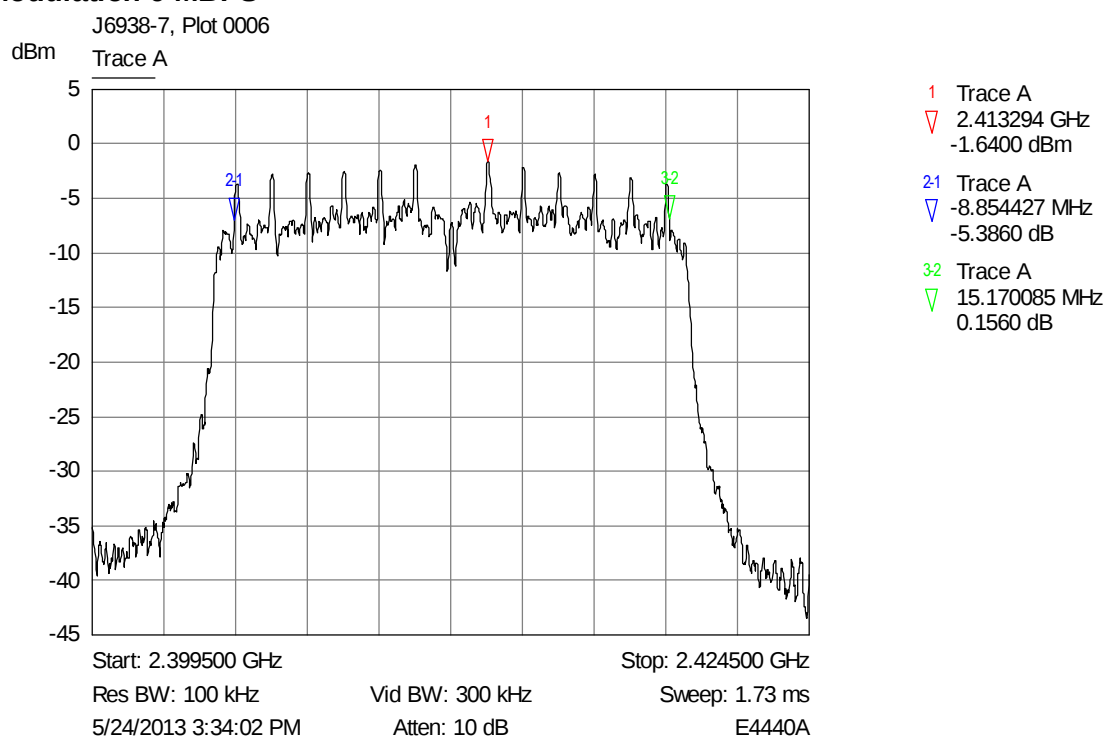
QMF21J – 3; 47CFR15.247, RNE ISSUE 01 SEP 2012

PAGE 64 OF 148

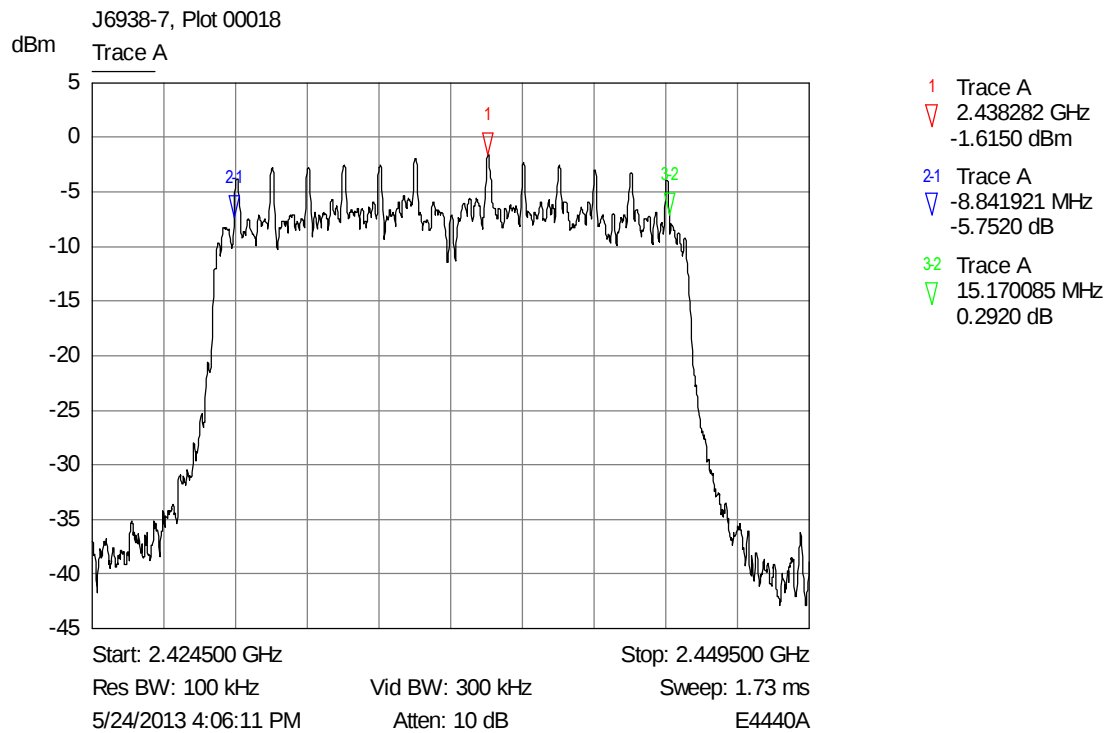


High channel

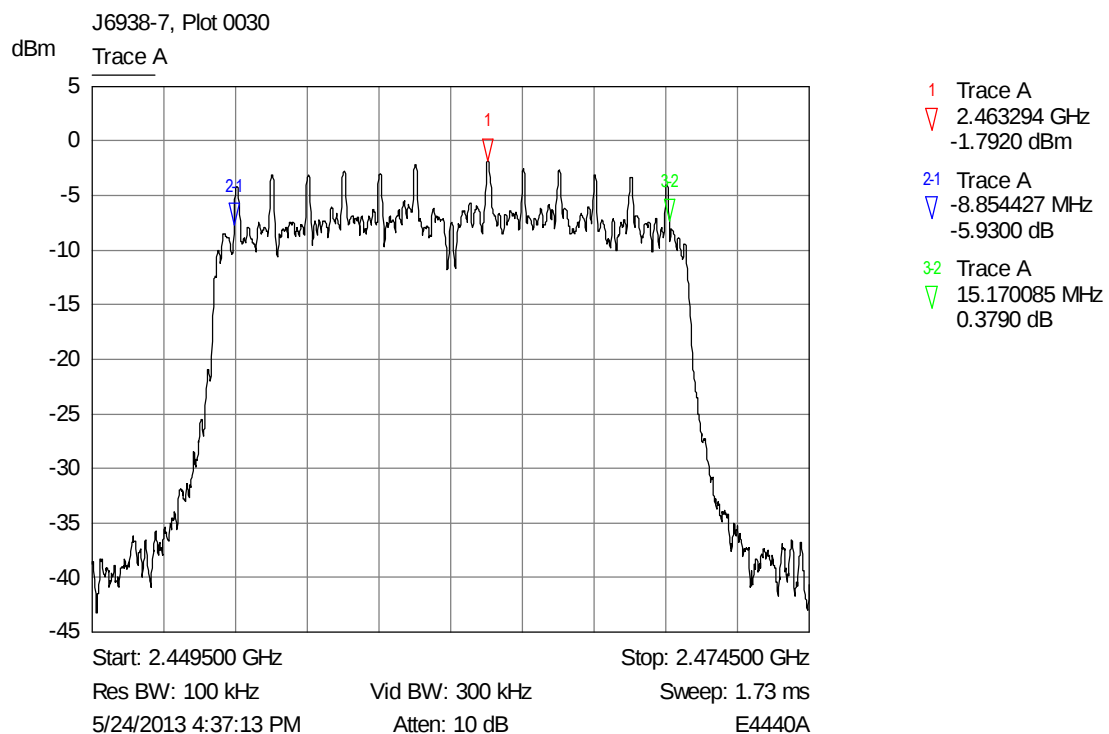
6.3.6 Plots for Band 2400-2483.5 MHz, Power 16 dBm, Spacing 5 MHz, and Modulation 9 MBPS



Low channel

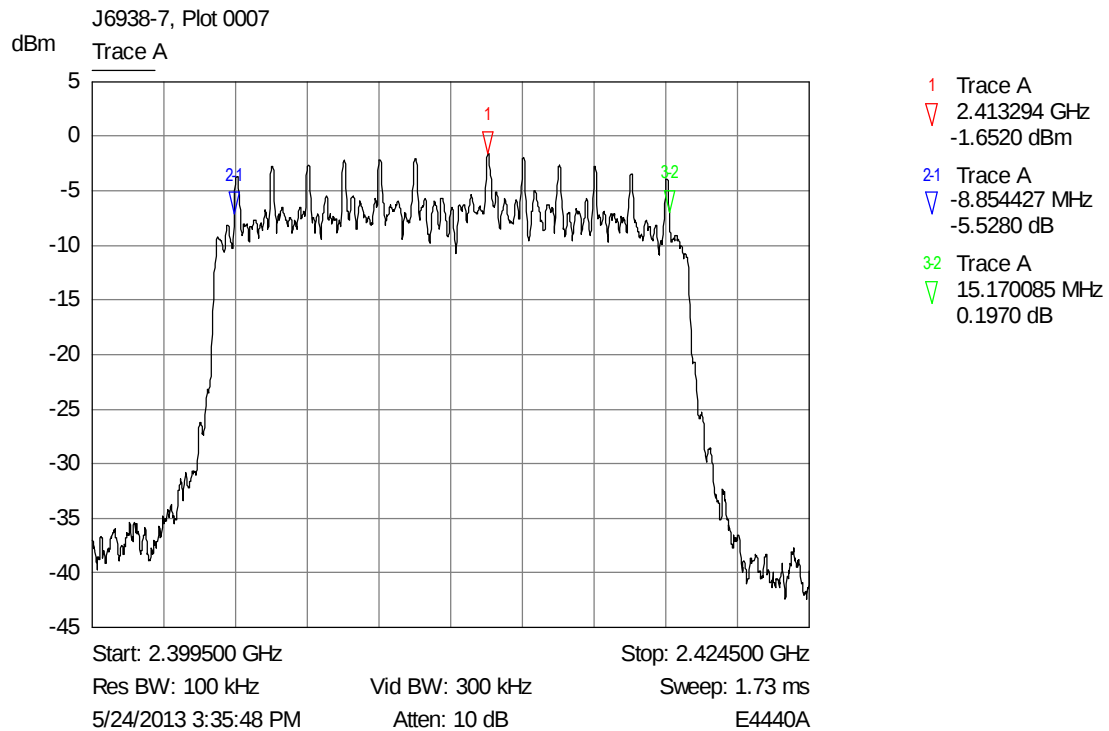


Mid channel

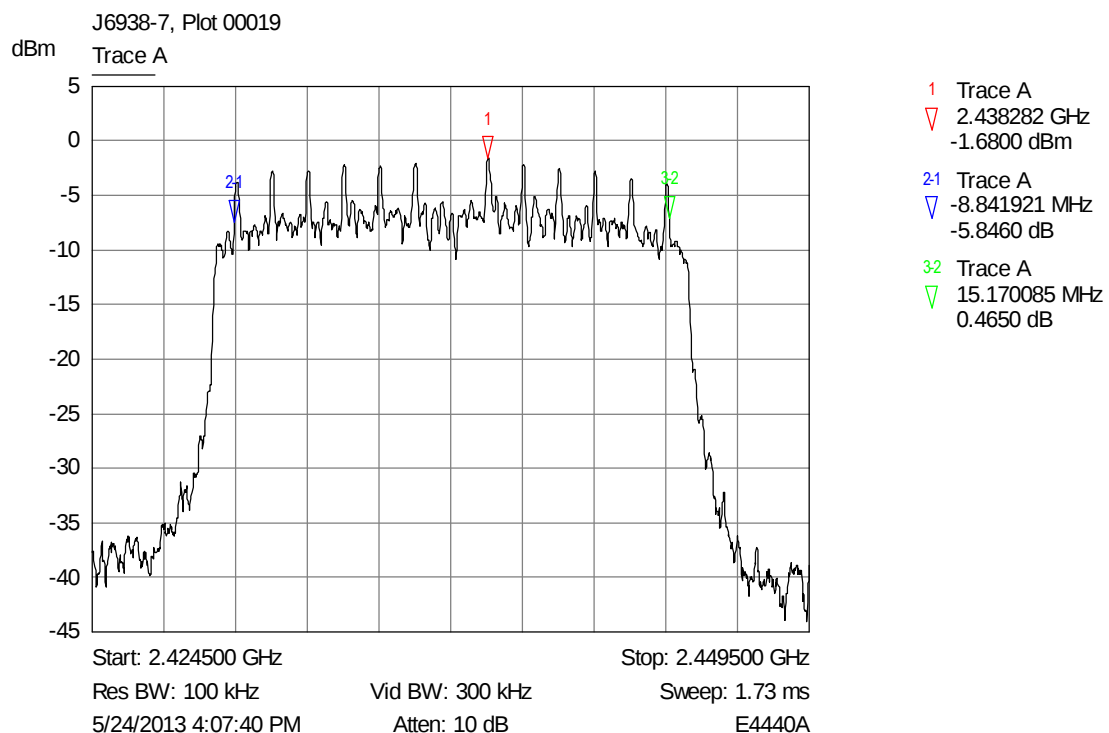


High channel

6.3.7 Plots for Band 2400-2483.5 MHz, Power 16 dBm, Spacing 5 MHz, and Modulation 12 MBPS



Low channel



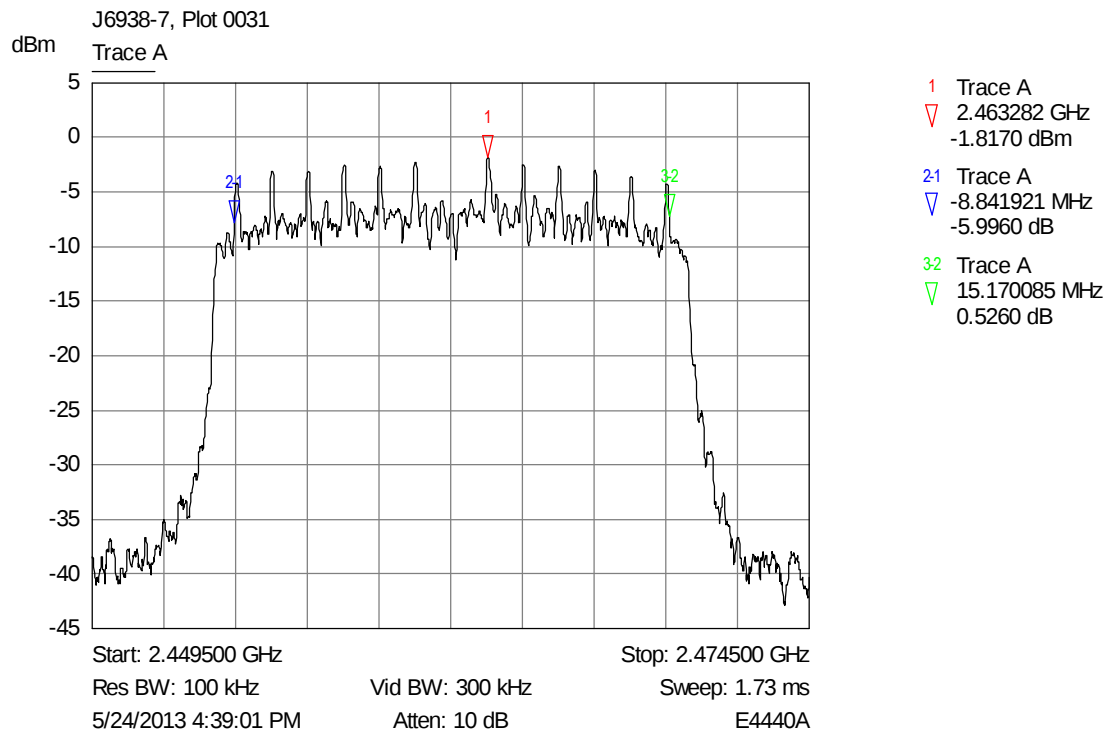
Mid channel

File name PURE.6938-7 ISSUE 02

The contents of this report, apart from the referenced ANSI C63.4-2003, are beyond the scope of UKAS Testing Laboratory No. 2360 accreditation.

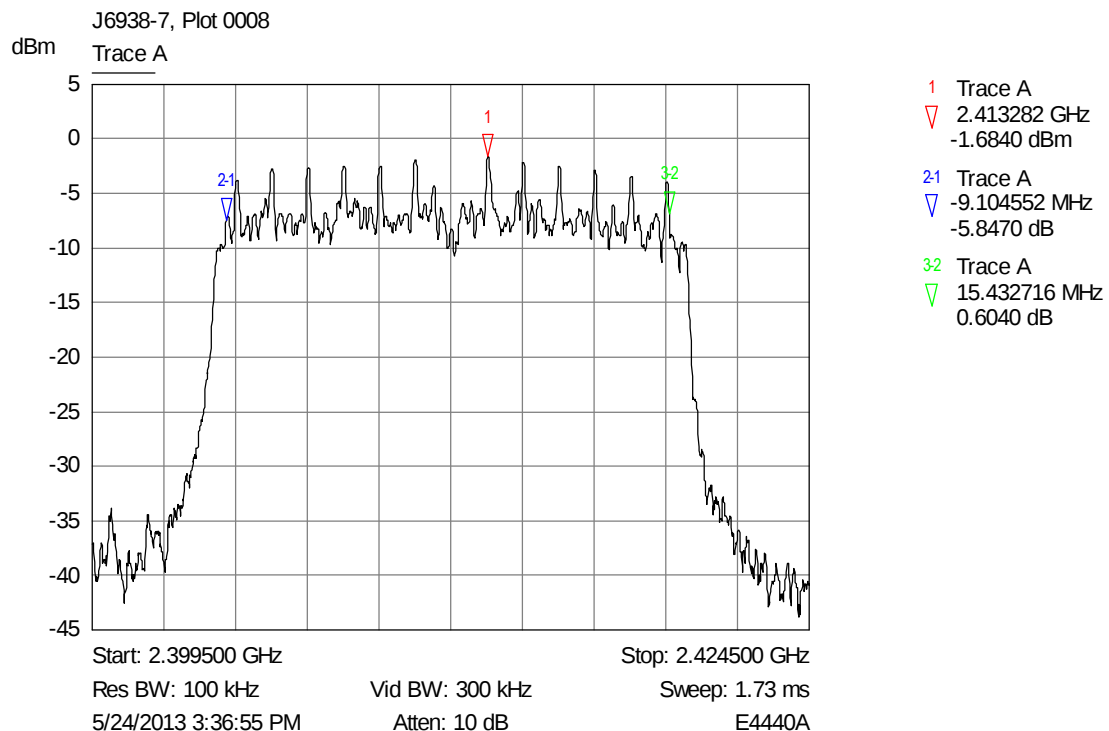
QMF21J – 3; 47CFR15.247, RNE ISSUE 01 SEP 2012

PAGE 67 OF 148

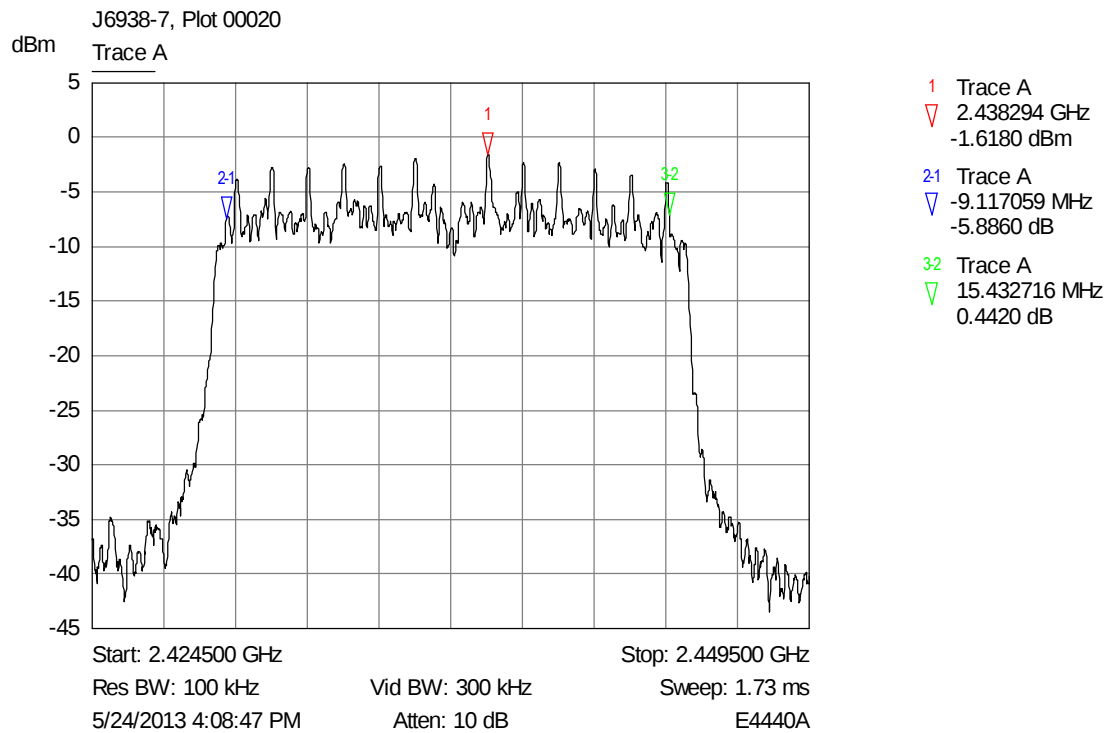


High channel

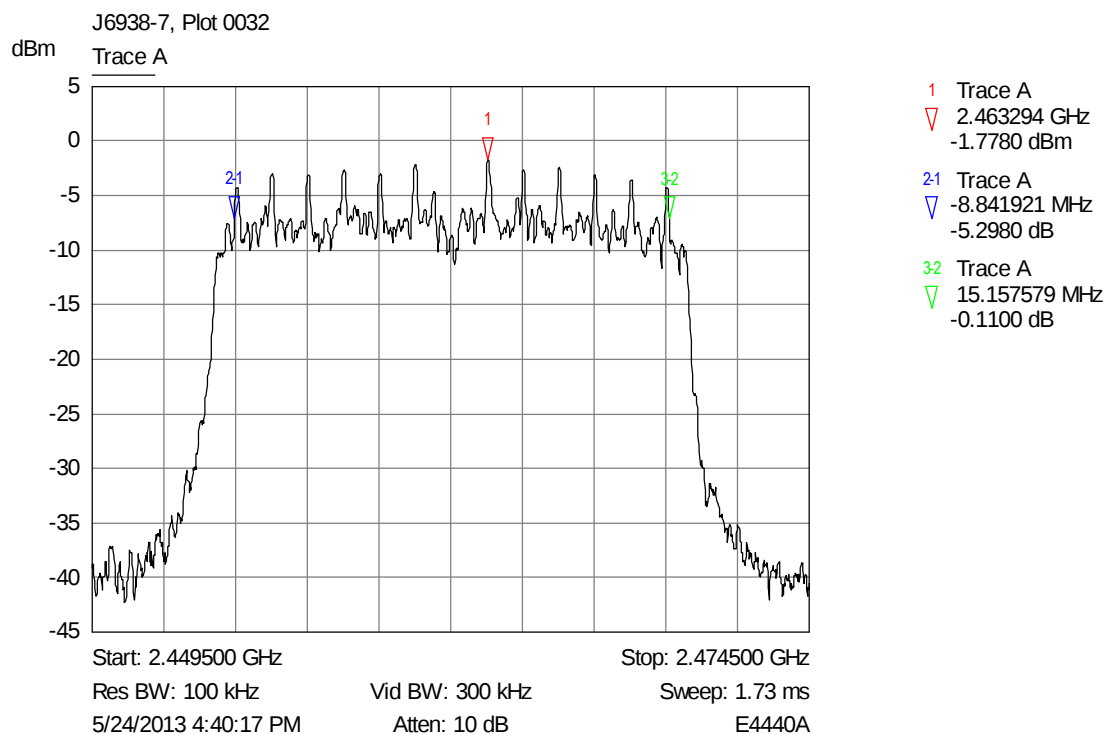
6.3.8 Plots for Band 2400-2483.5 MHz, Power 16 dBm, Spacing 5 MHz, and Modulation 18 MBPS



Low channel



Mid channel



High channel

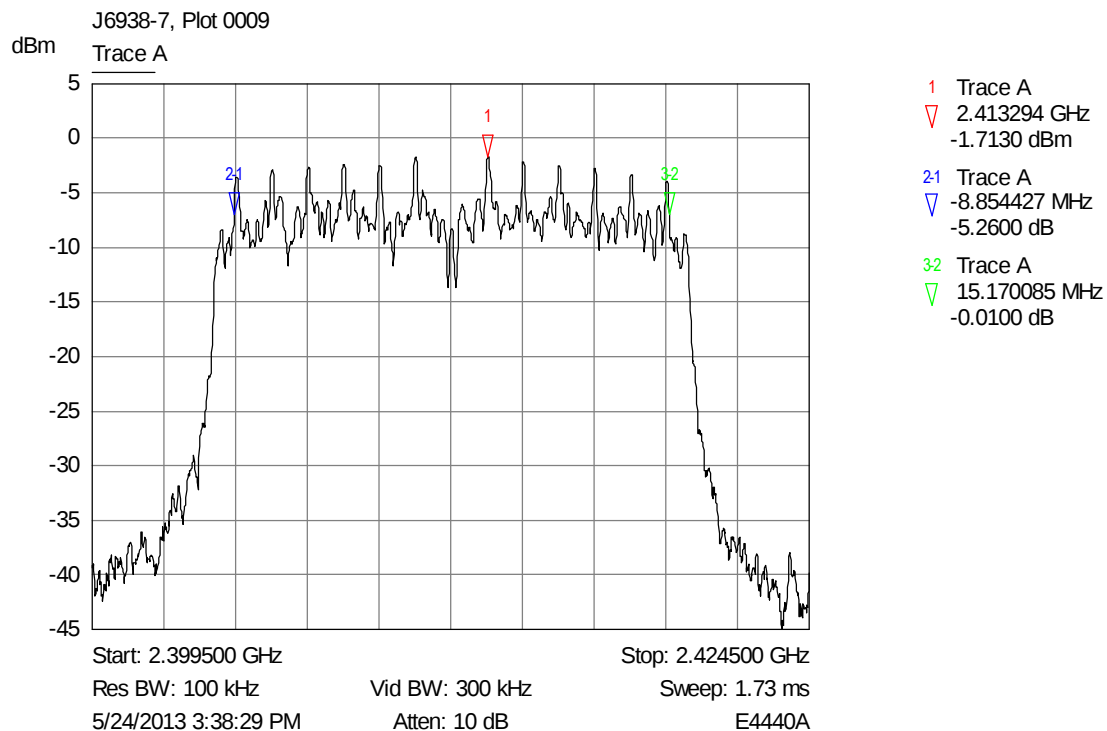
File name PURE.6938-7 ISSUE 02

The contents of this report, apart from the referenced ANSI C63.4-2003, are beyond the scope of UKAS Testing Laboratory No. 2360 accreditation.

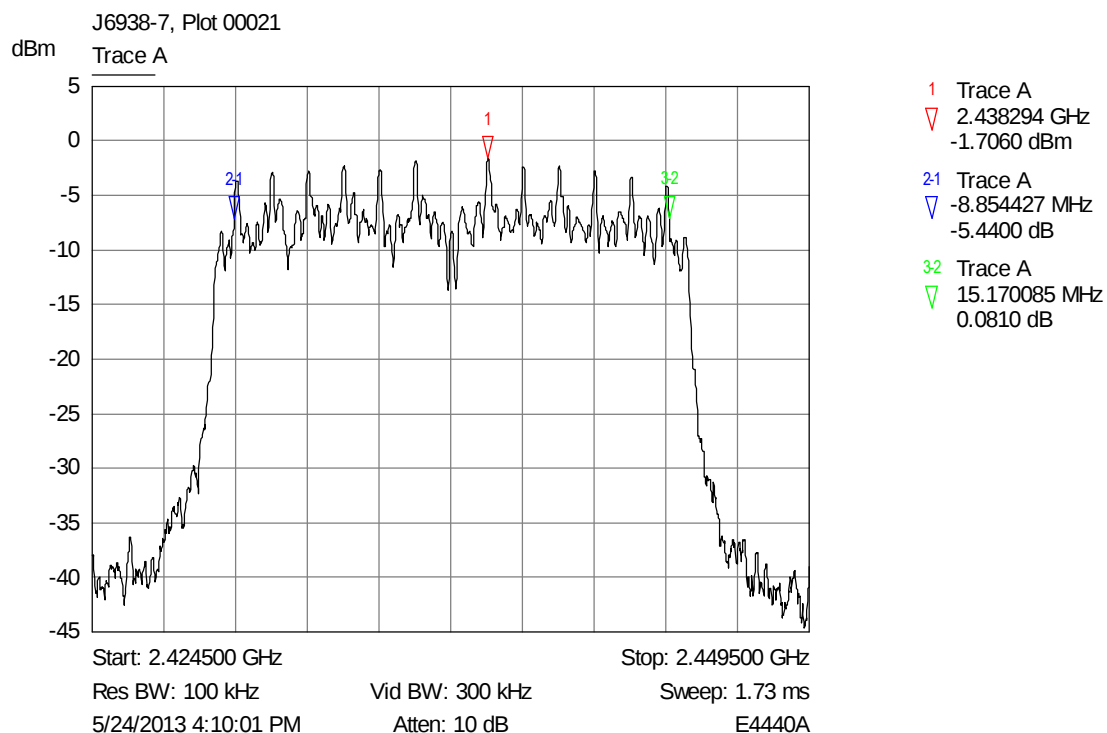
QMF21J – 3; 47CFR15.247, RNE ISSUE 01 SEP 2012

PAGE 69 OF 148

6.3.9 Plots for Band 2400-2483.5 MHz, Power 16 dBm, Spacing 5 MHz, and Modulation 24 MBPS



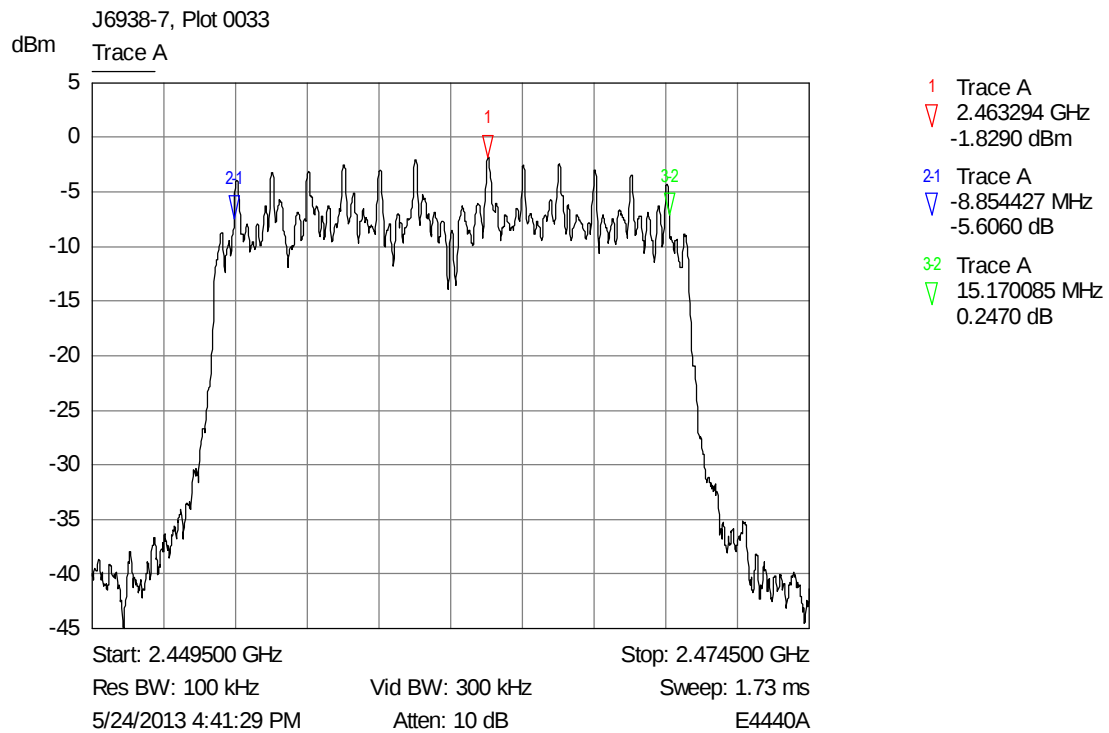
Low channel



Mid channel

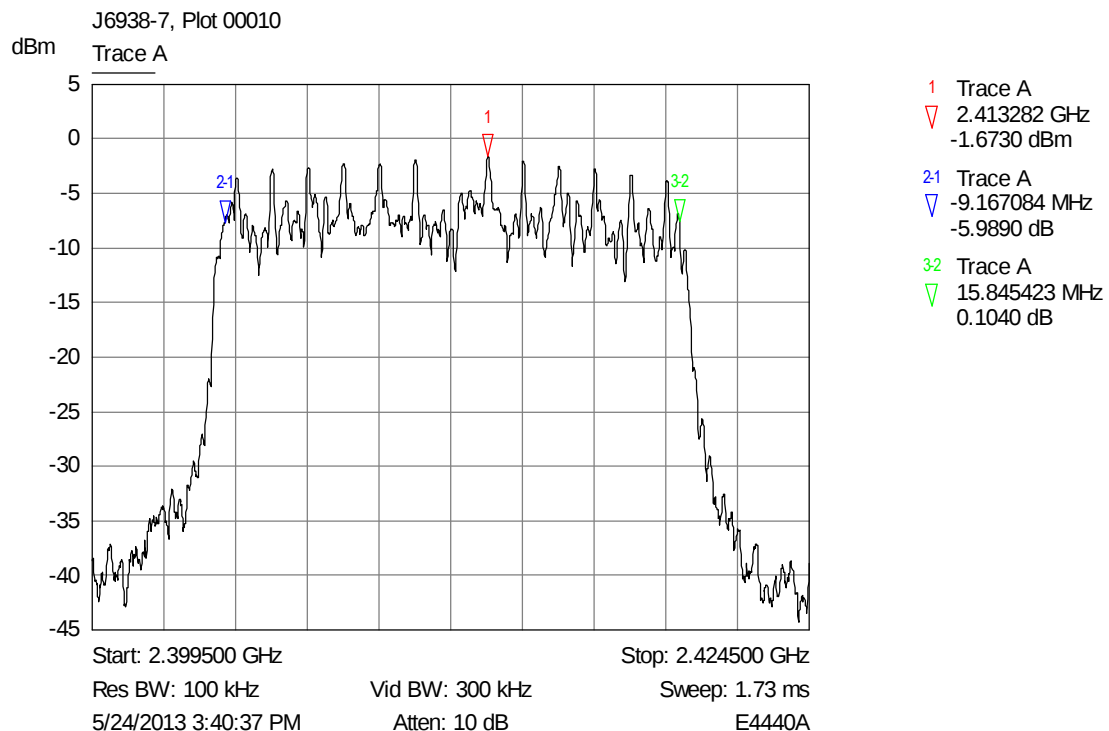
File name PURE.6938-7 ISSUE 02

The contents of this report, apart from the referenced ANSI C63.4-2003, are beyond the scope of UKAS Testing Laboratory No. 2360 accreditation.

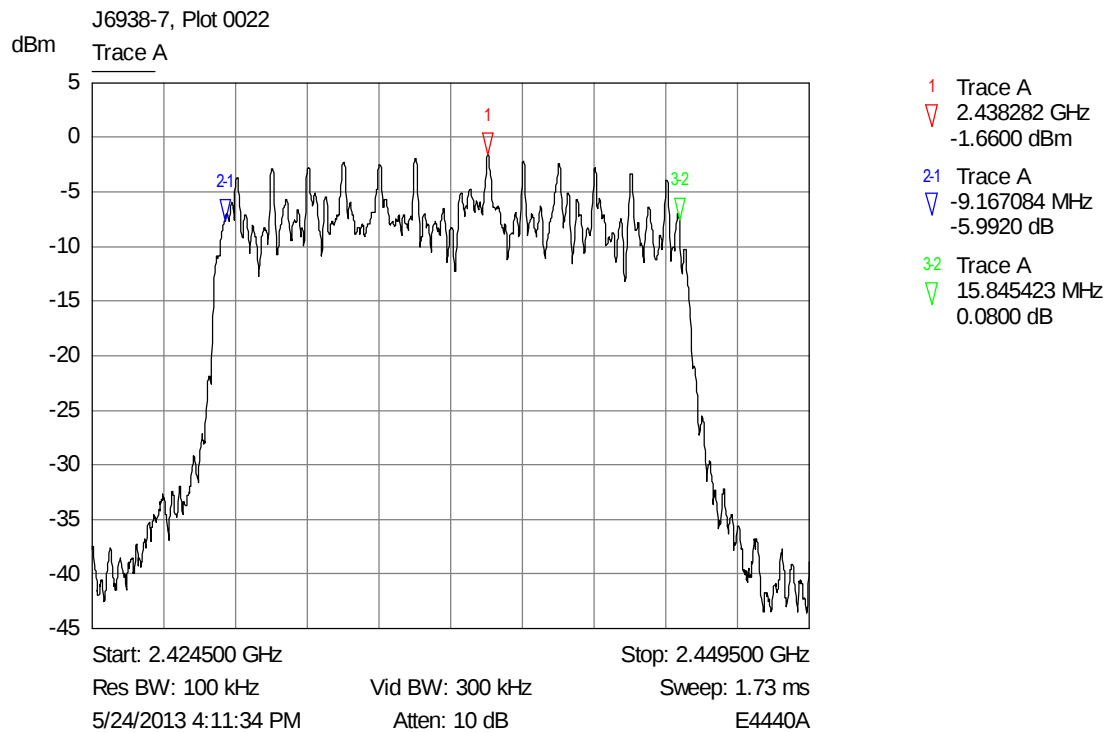


High channel

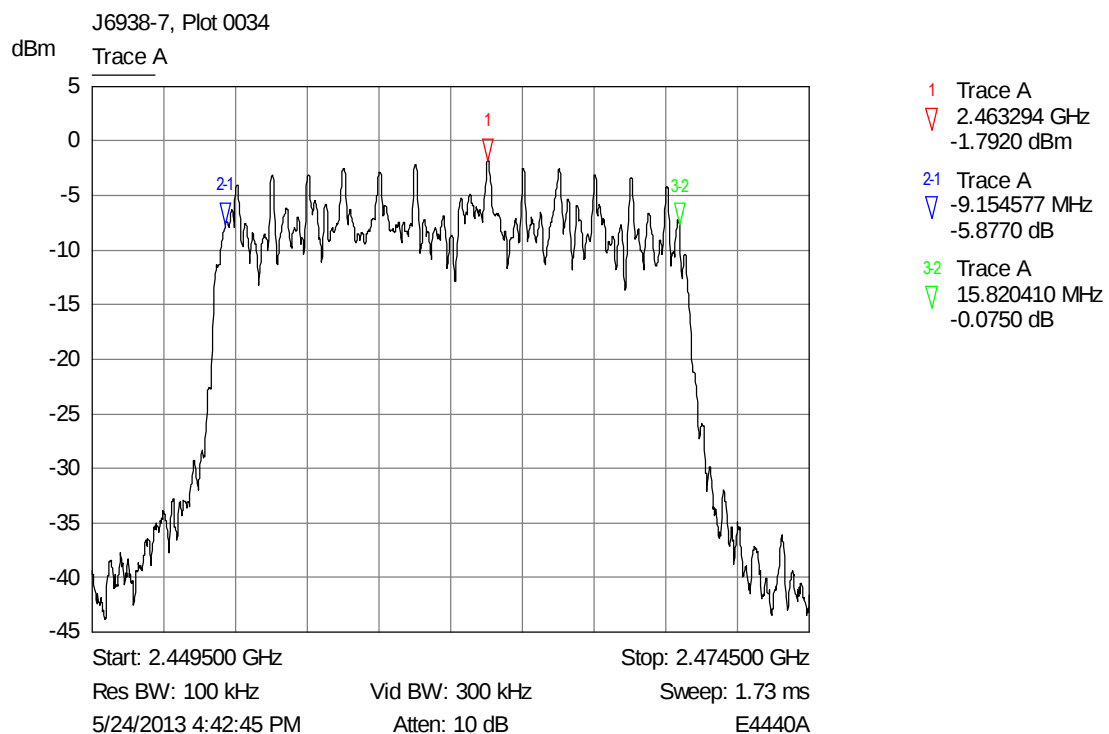
6.3.10 Plots for Band 2400-2483.5 MHz, Power 16 dBm, Spacing 5 MHz, and Modulation 36 MBPS



Low channel

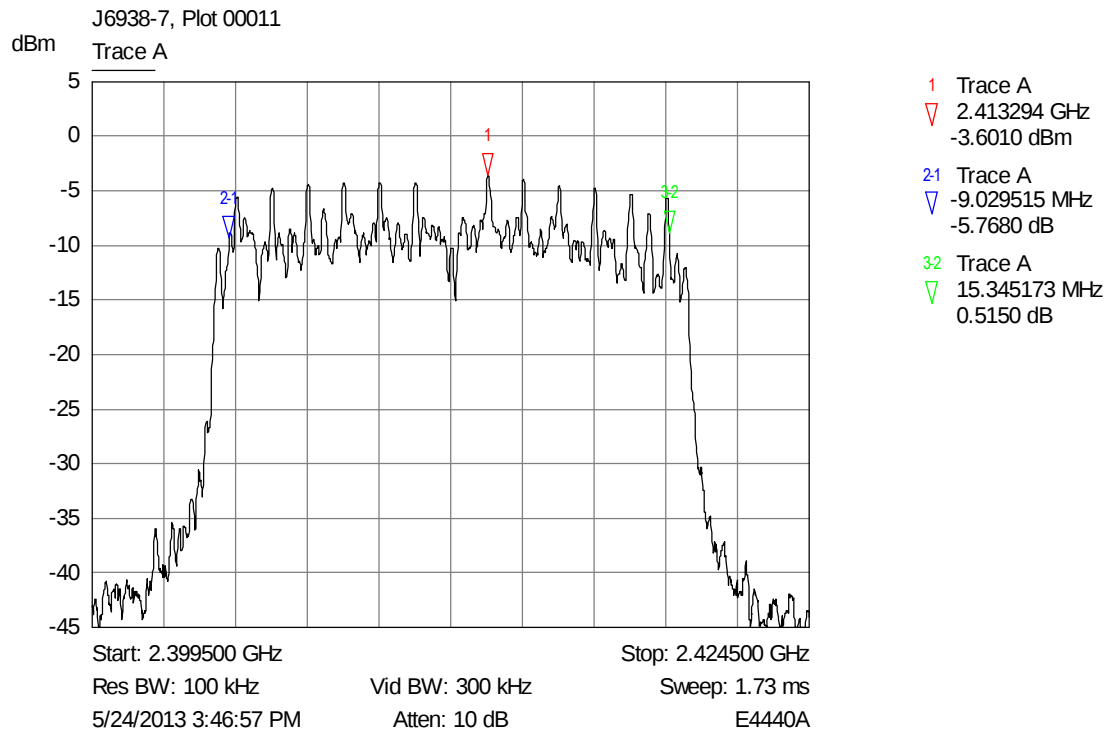


Mid channel

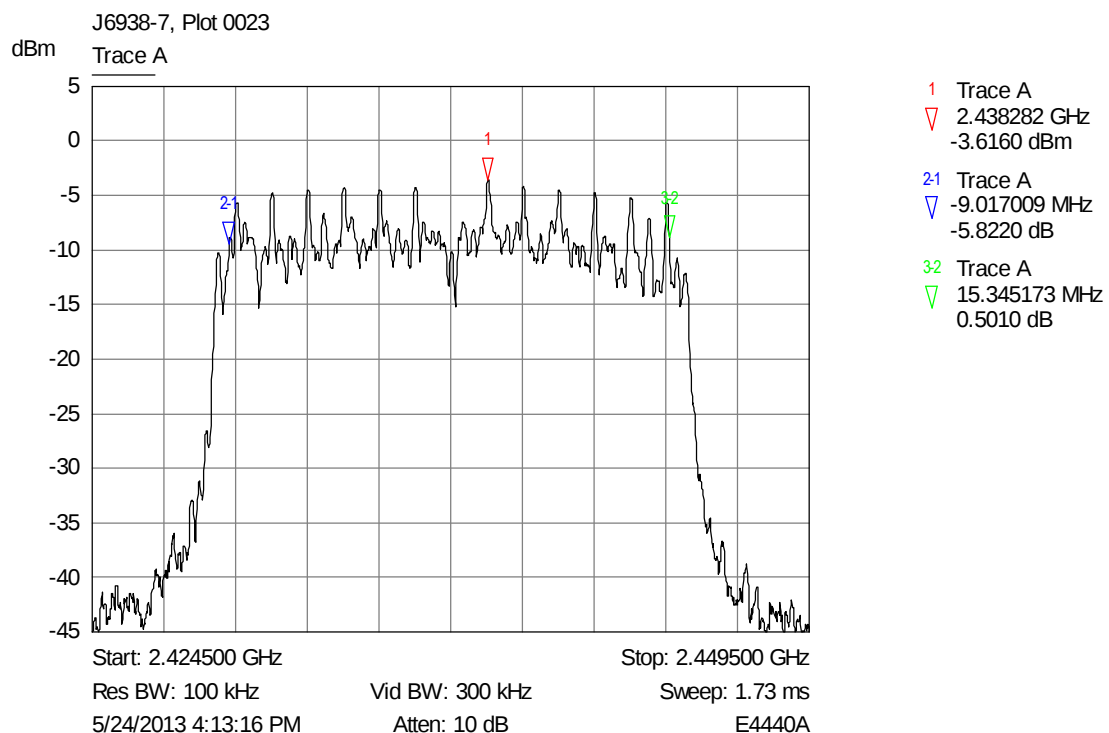


High channel

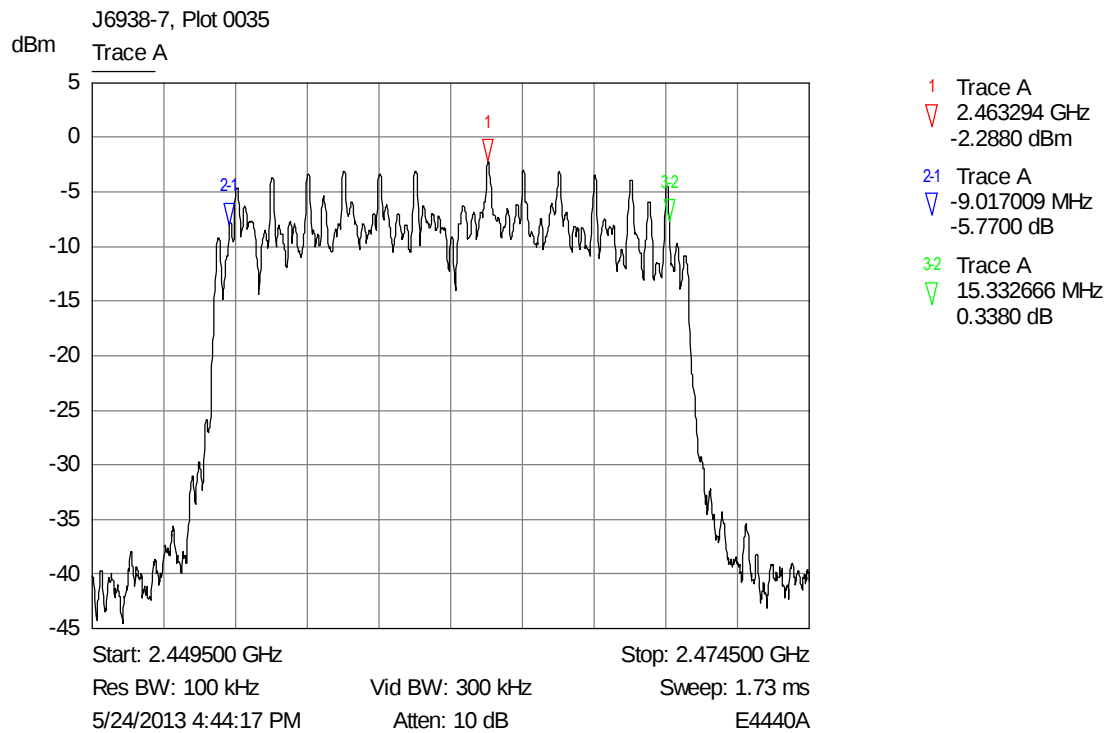
6.3.11 Plots for Band 2400-2483.5 MHz, Power 16 dBm, Spacing 5 MHz, and Modulation 48 MBPS



Low channel

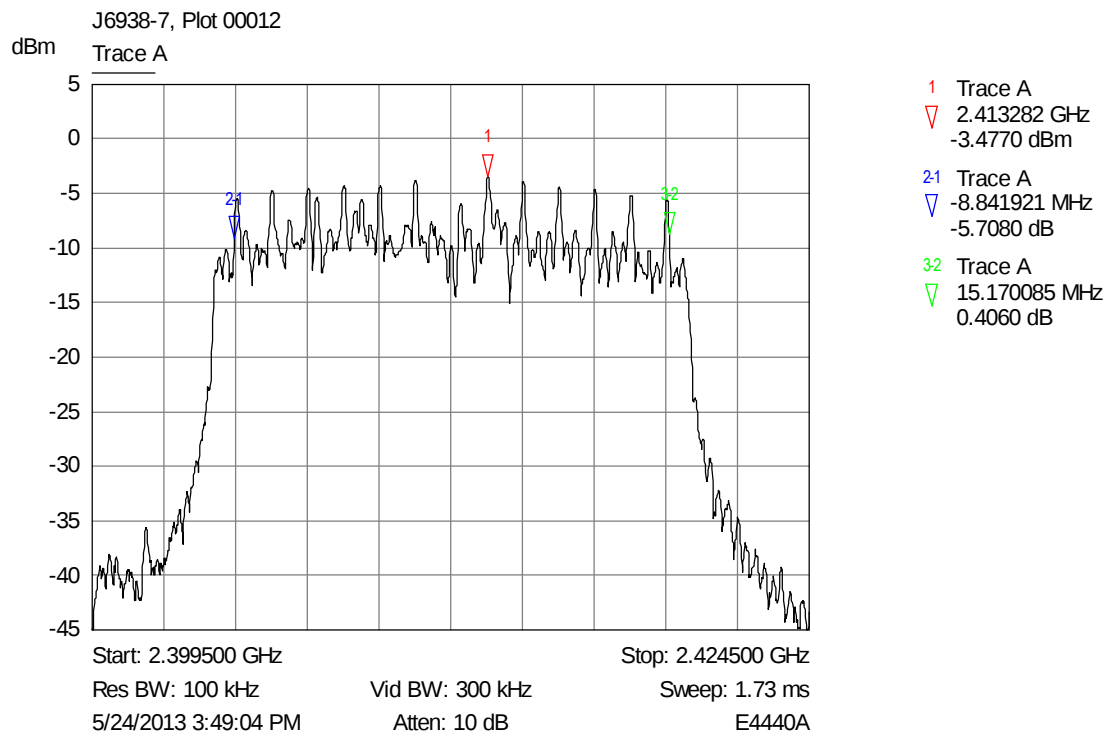


Mid channel

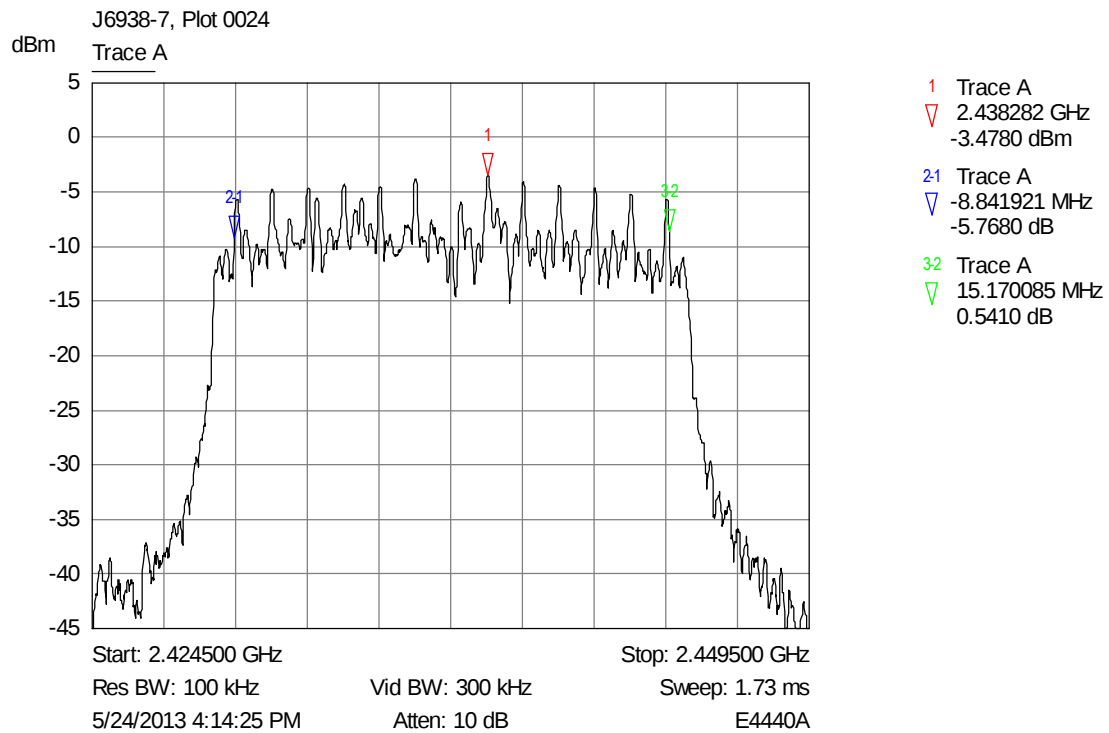


High channel

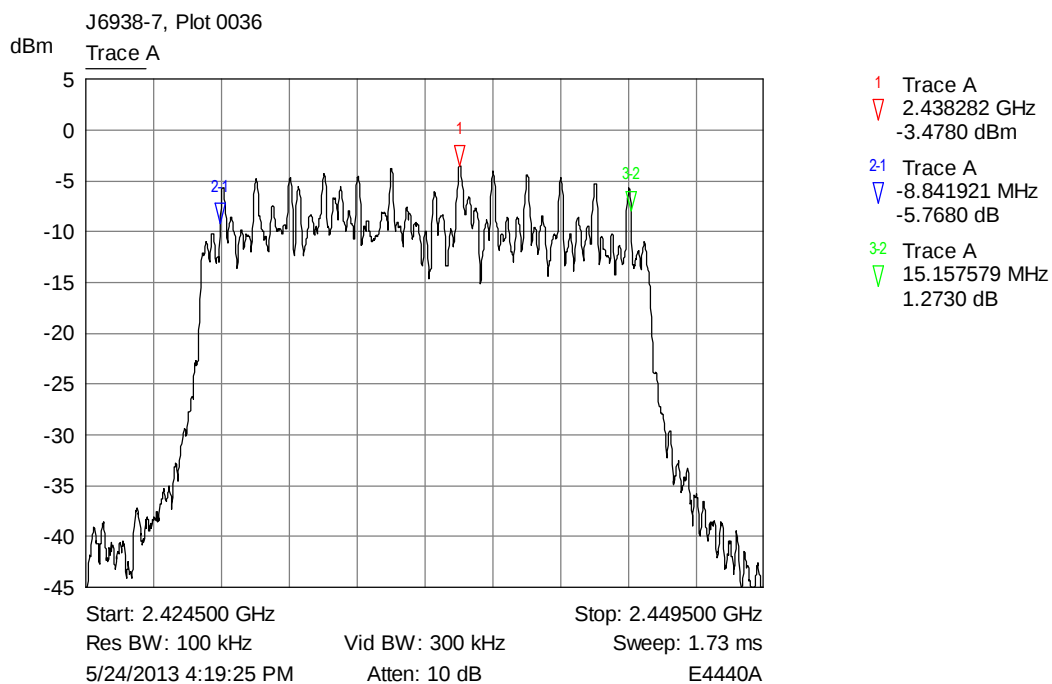
6.3.12 Plots for Band 2400-2483.5 MHz, Power 16 dBm, Spacing 5 MHz, and Modulation 54 MBPS



Low channel



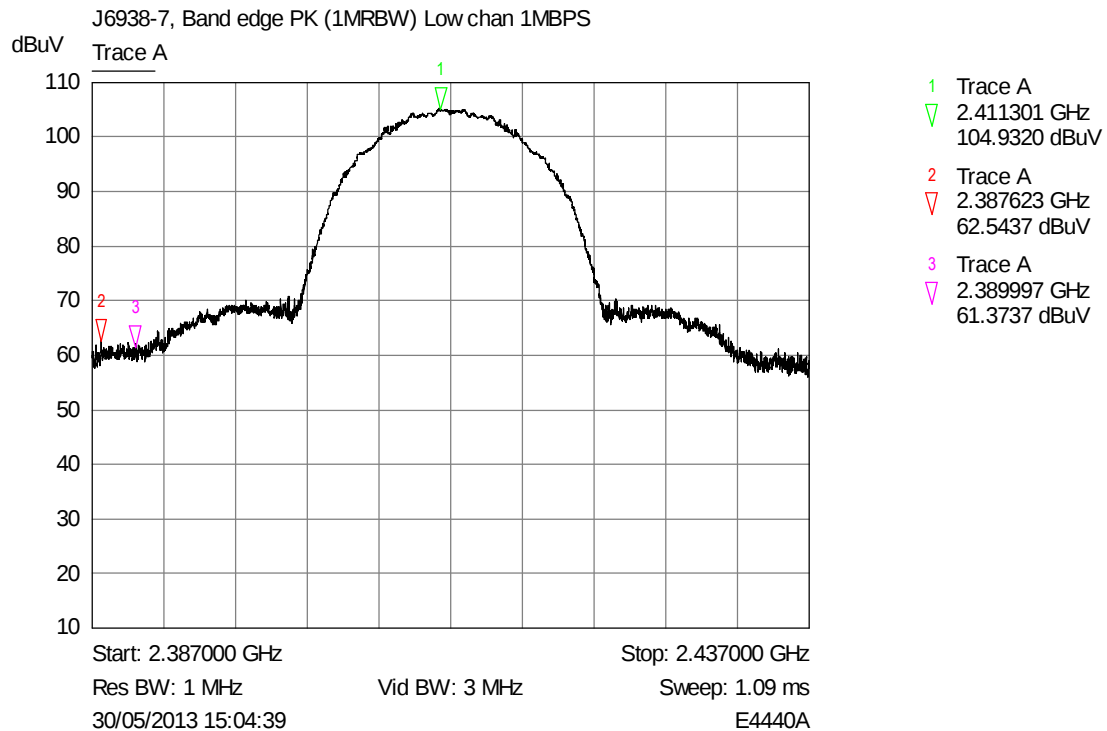
Mid channel



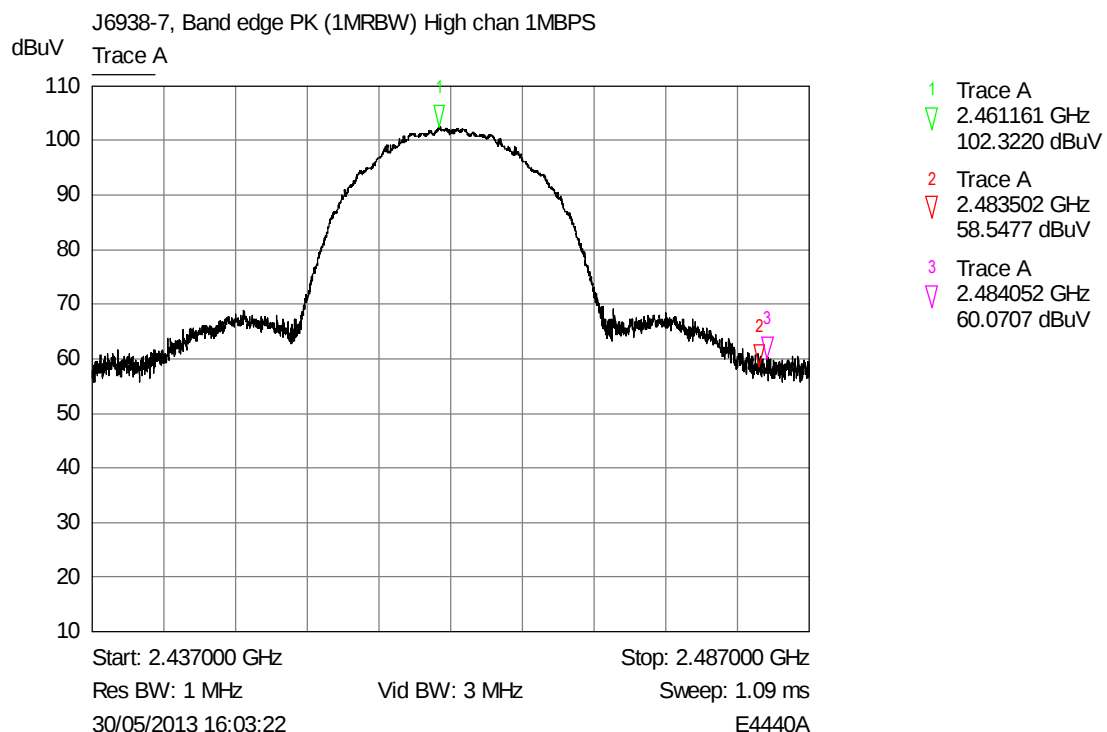
High channel

6.4 Band edge compliance plots

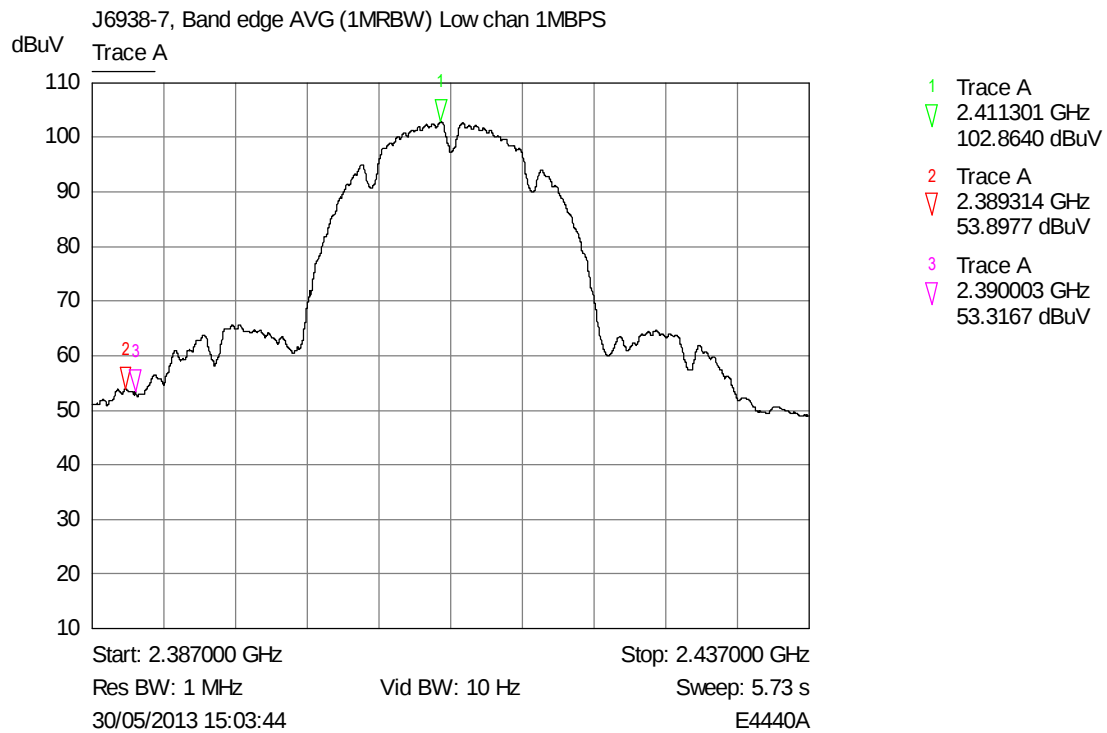
6.4.1 Plots for Band 2400-2483.5 MHz, Power 16 dBm, Spacing 5 MHz, and Modulation 1 MBPS



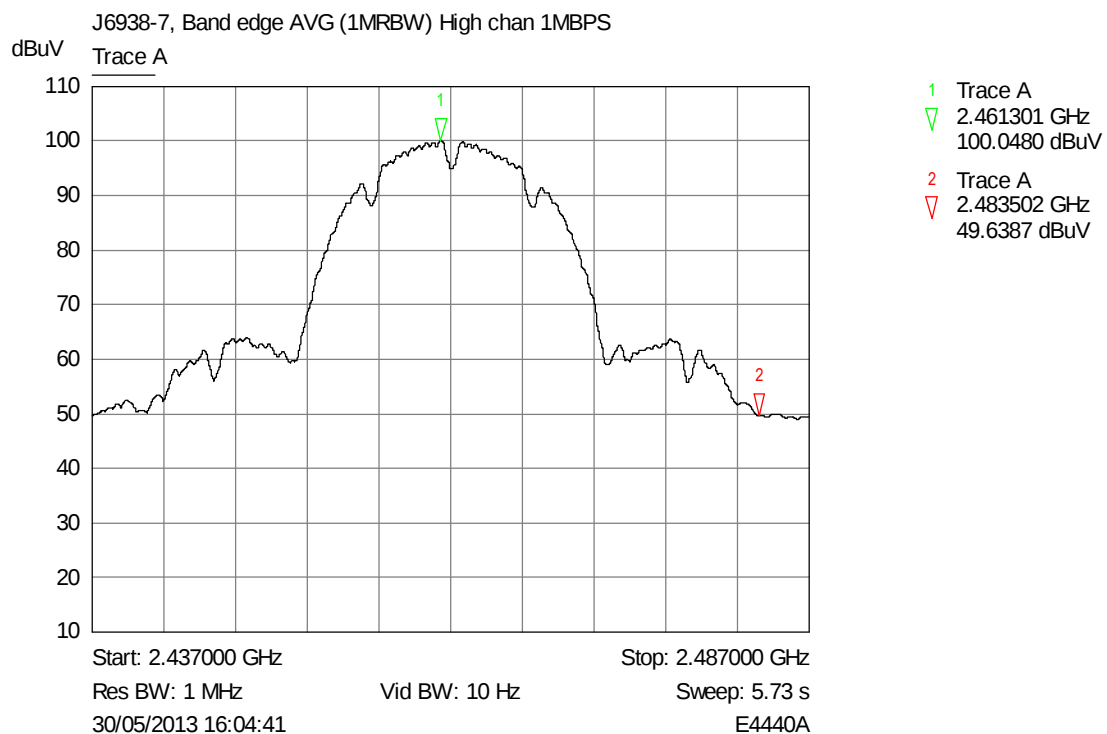
Restricted Band: Low channel Peak Plot



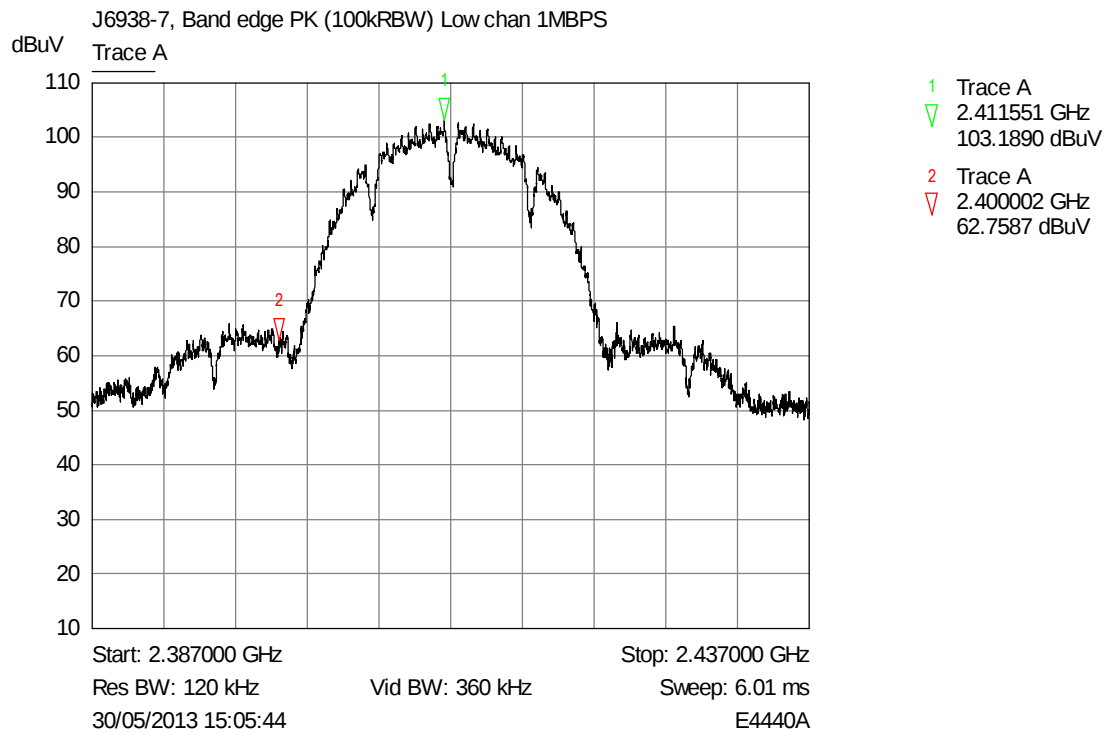
Restricted Band: High channel Peak Plot



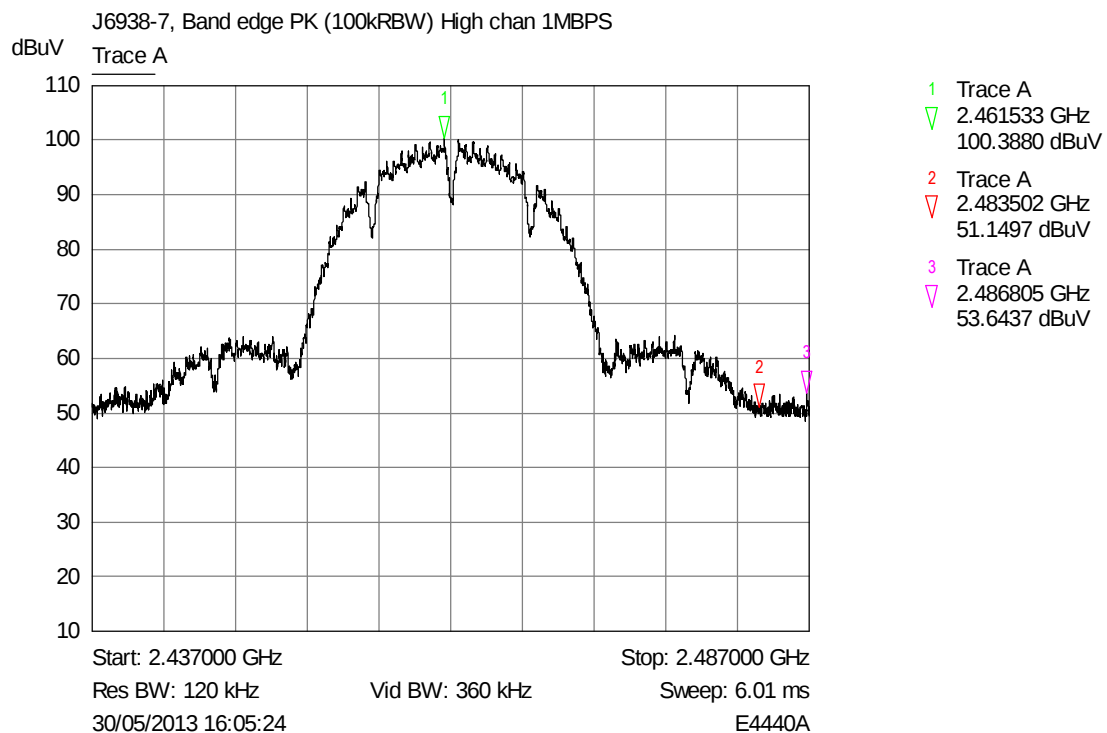
Restricted Band: Low channel Average Plot



Restricted Band: High channel Average Plot

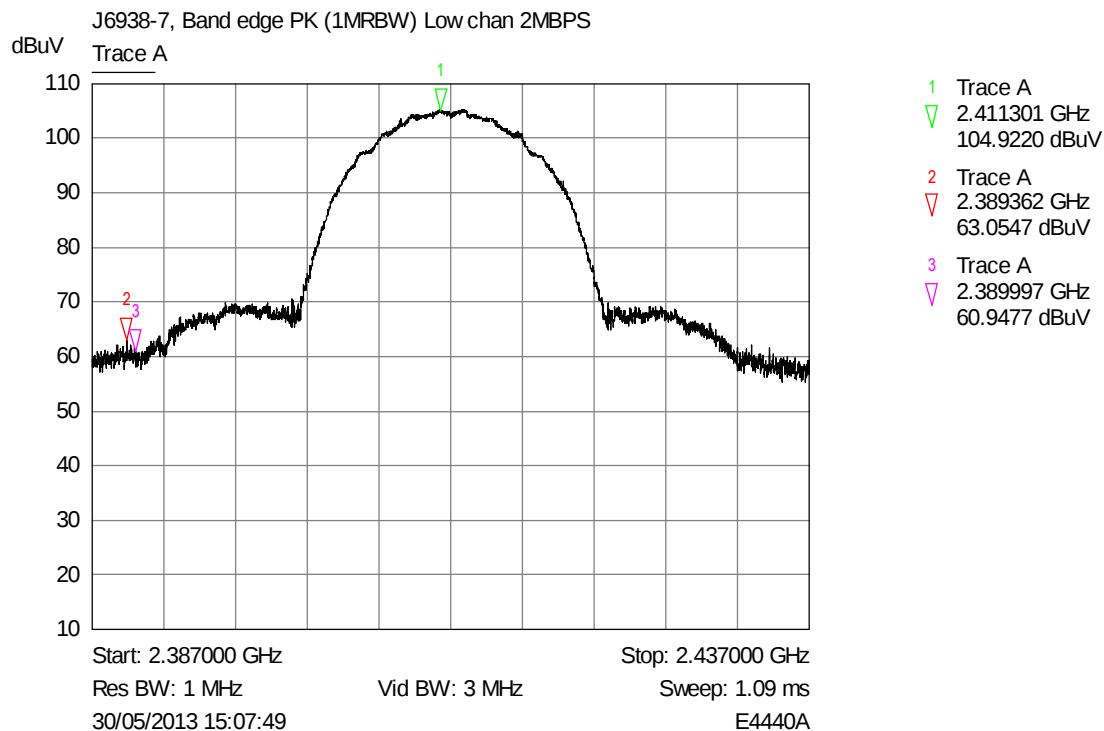


Band Edge: Low channel

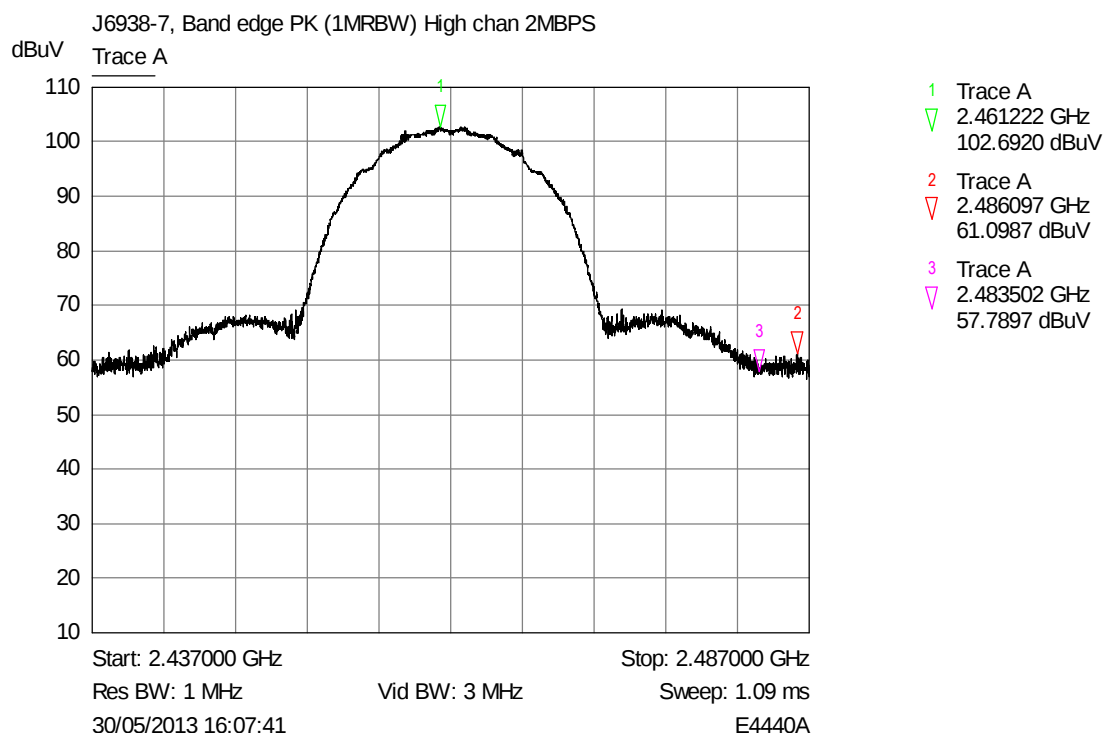


Band Edge: High channel

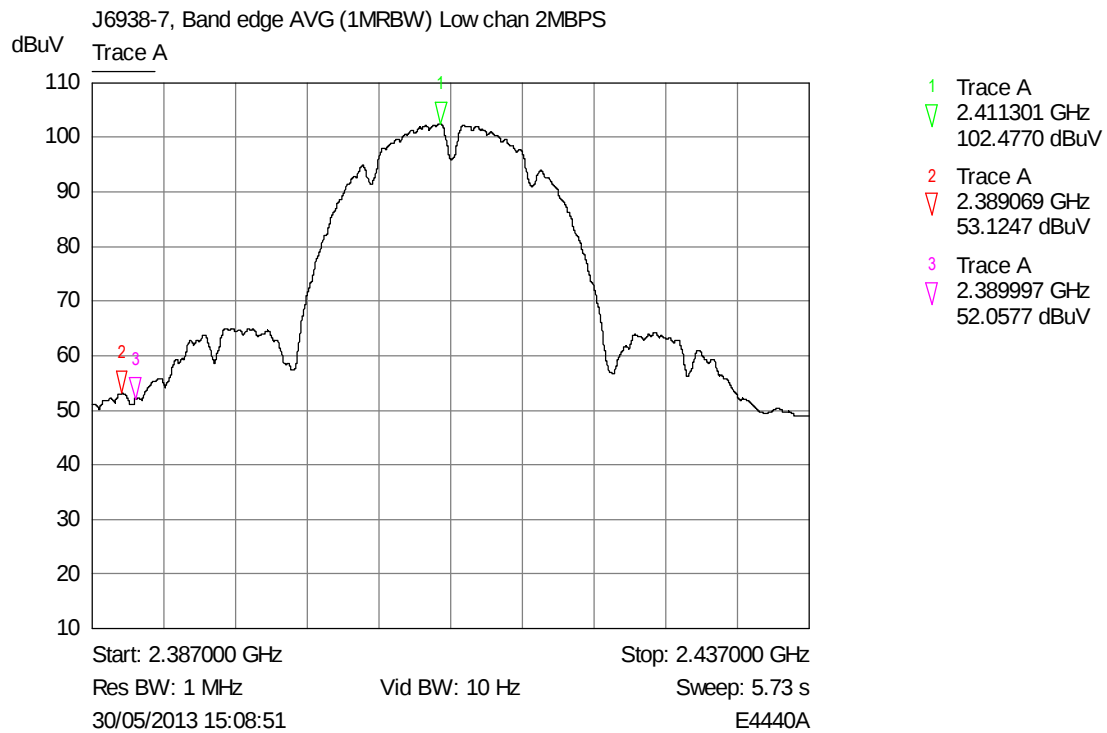
6.4.2 Plots for Band 2400-2483.5 MHz, Power 16 dBm, Spacing 5 MHz, and Modulation 2 MBPS



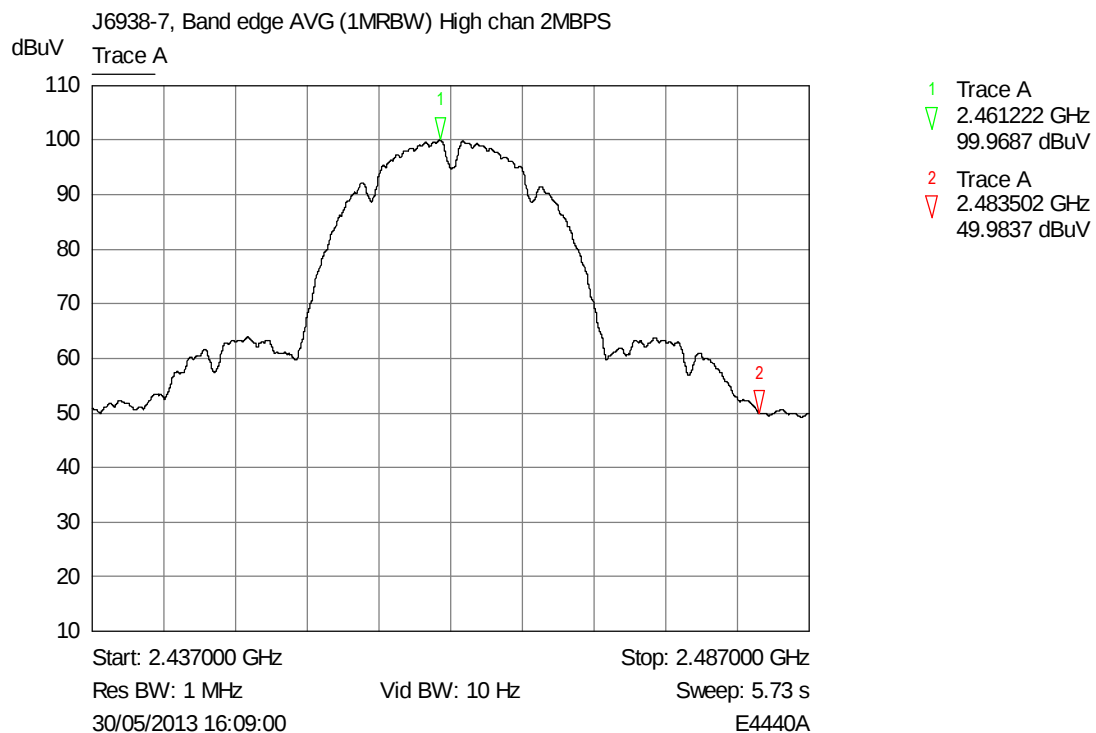
Restricted Band: Low channel Peak plot



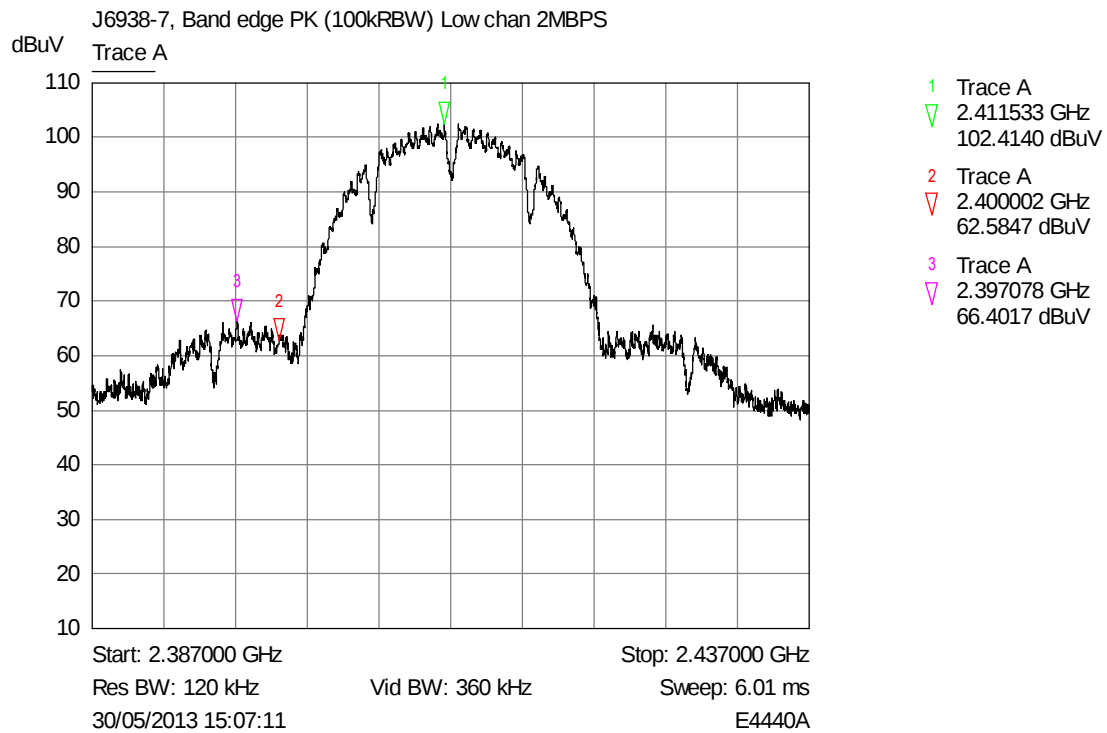
Restricted Band: High channel Peak plot



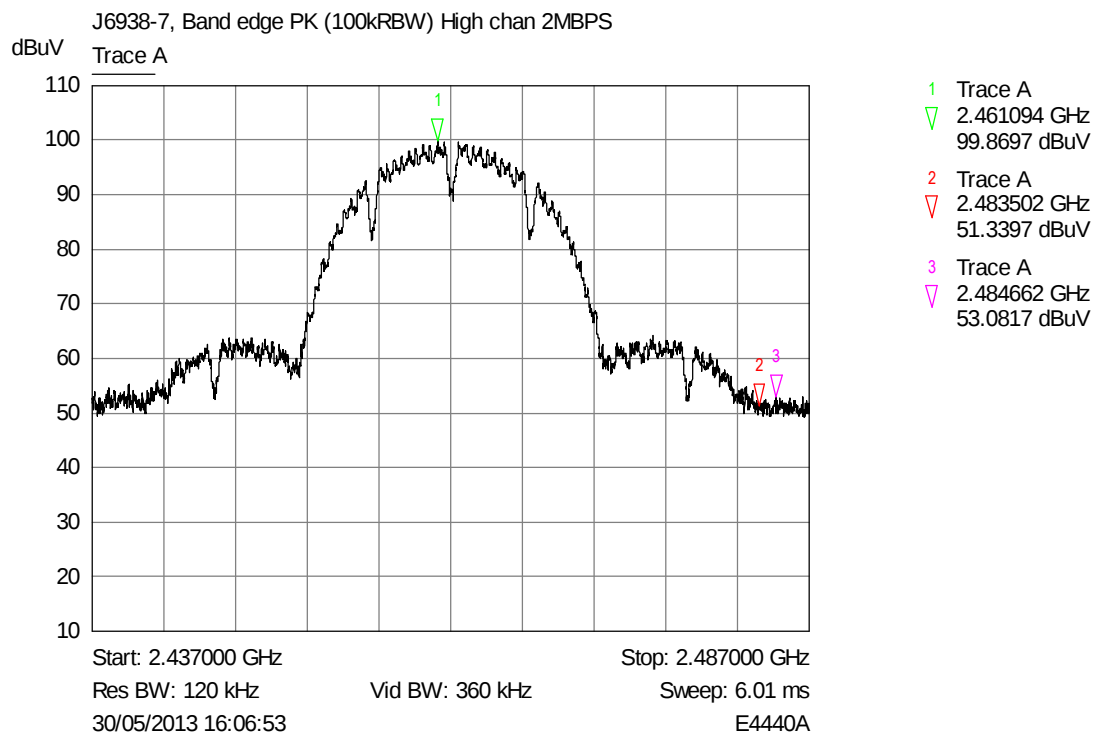
Restricted Band: Low channel Average plot



Restricted Band: High channel Average plot

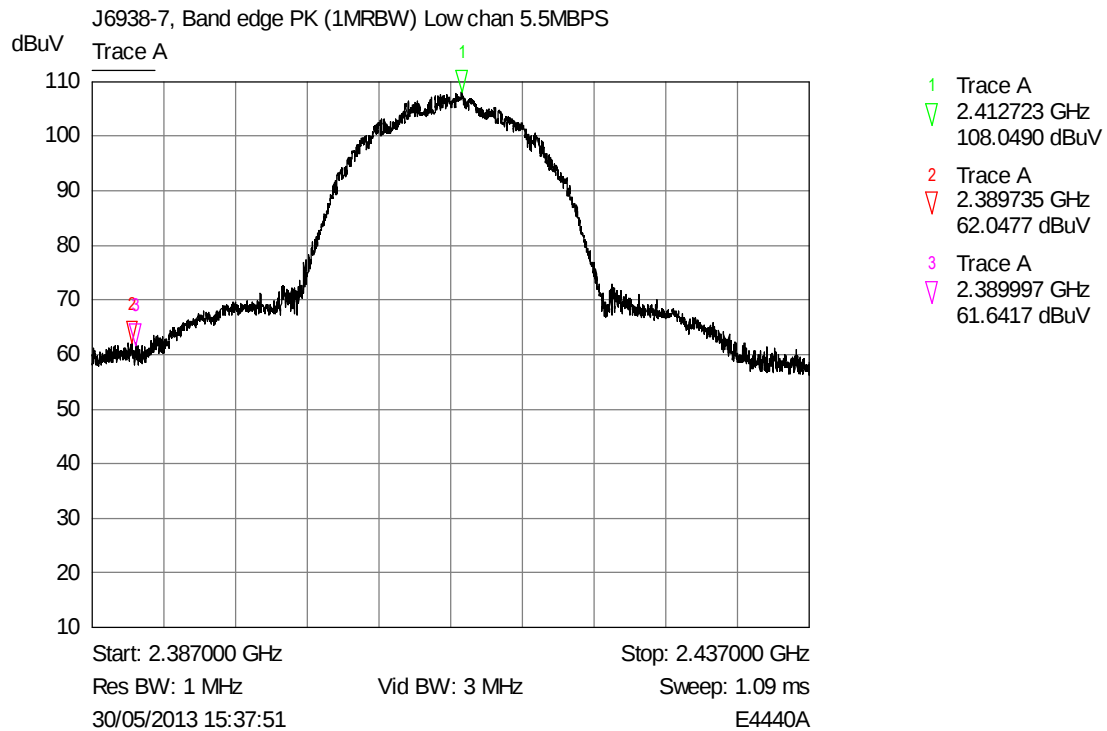


Band Edge: Low channel

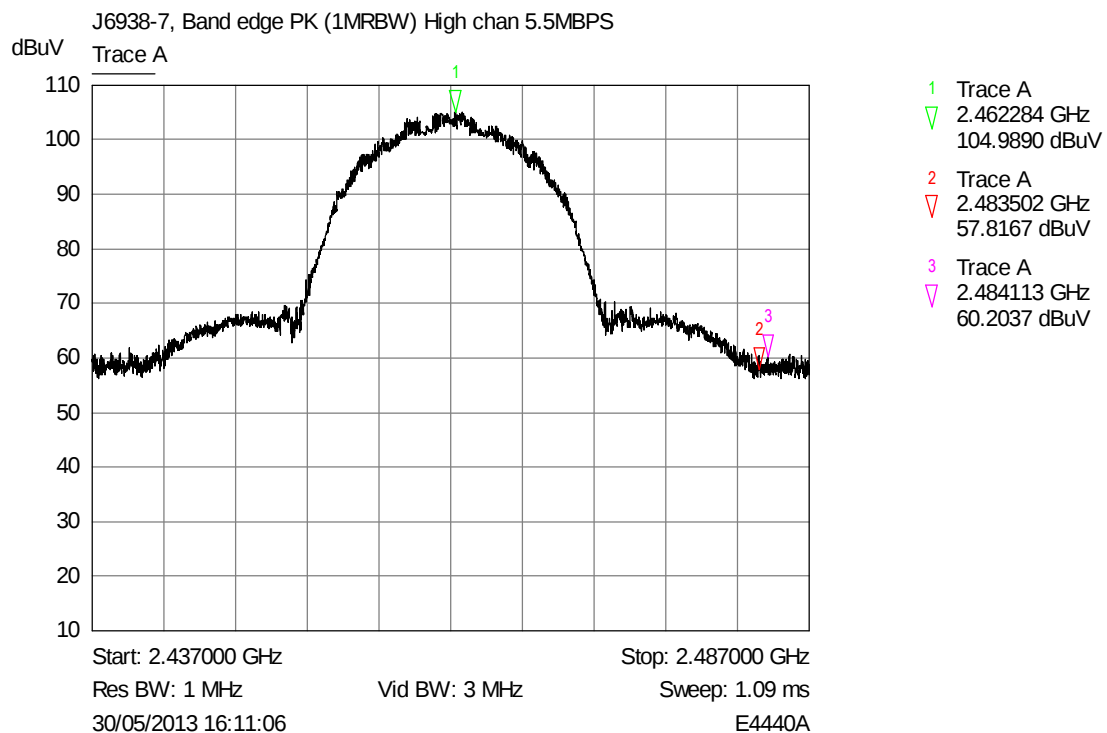


Band Edge: High channel

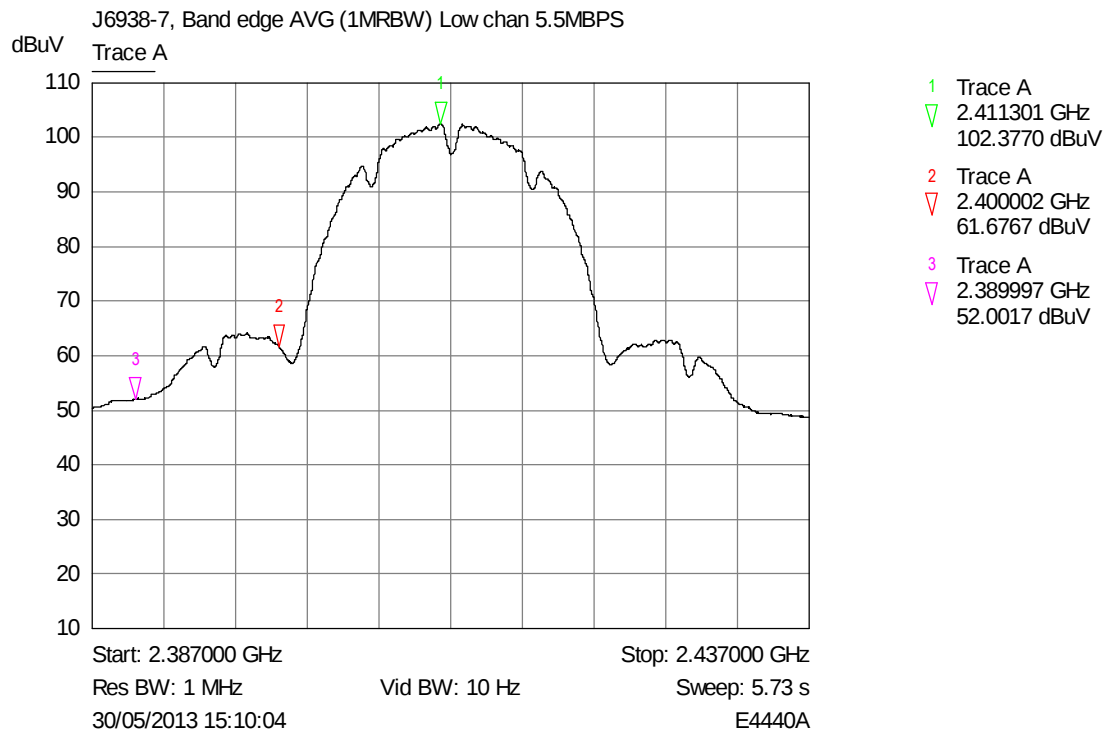
6.4.3 Plots for Band 2400-2483.5 MHz, Power 16 dBm, Spacing 5 MHz, and Modulation 5.5 MBPS



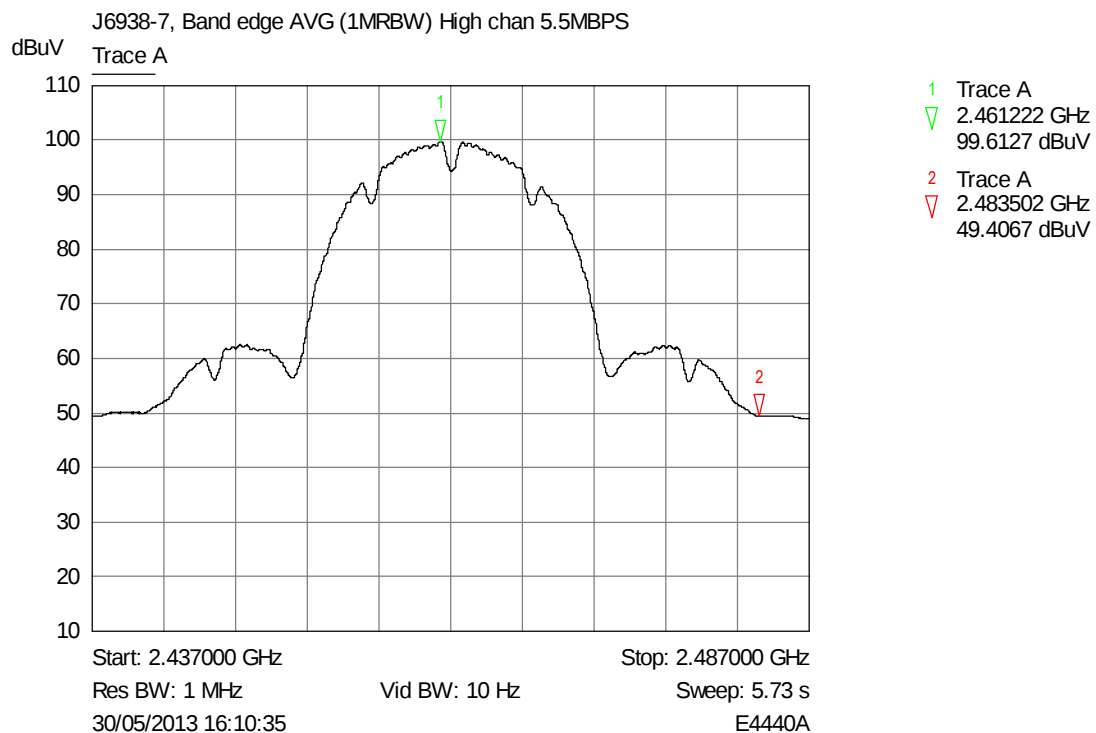
Restricted Band: Low channel Peak plot



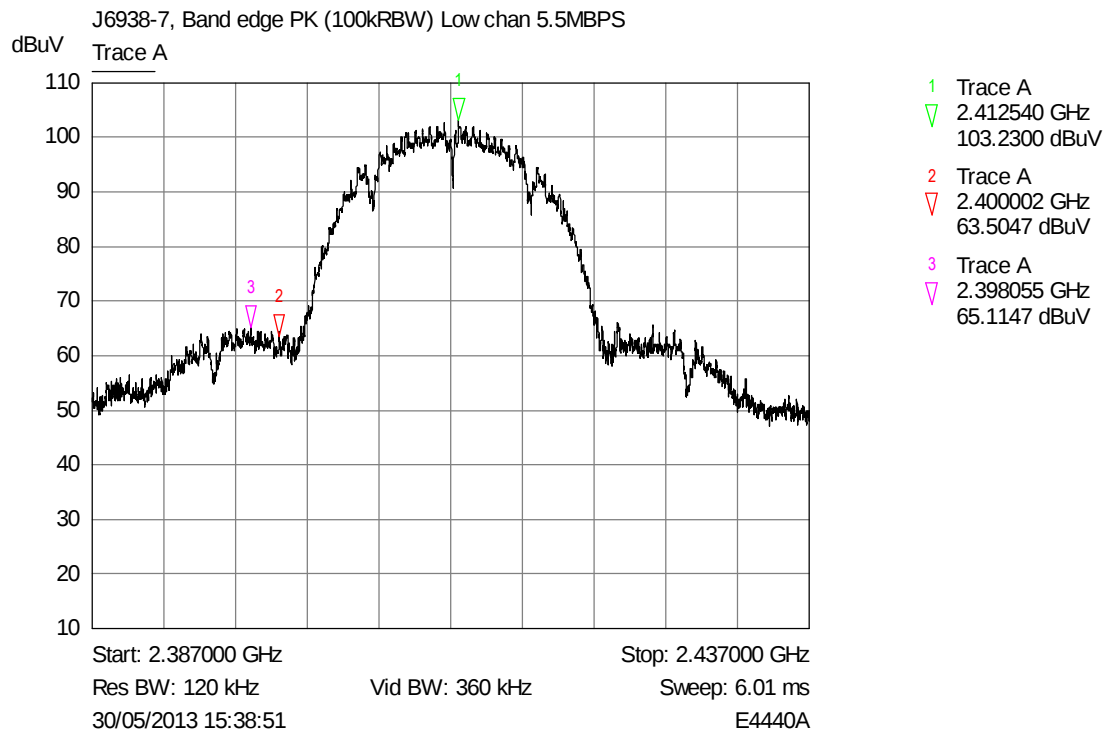
Restricted Band: High channel Peak plot



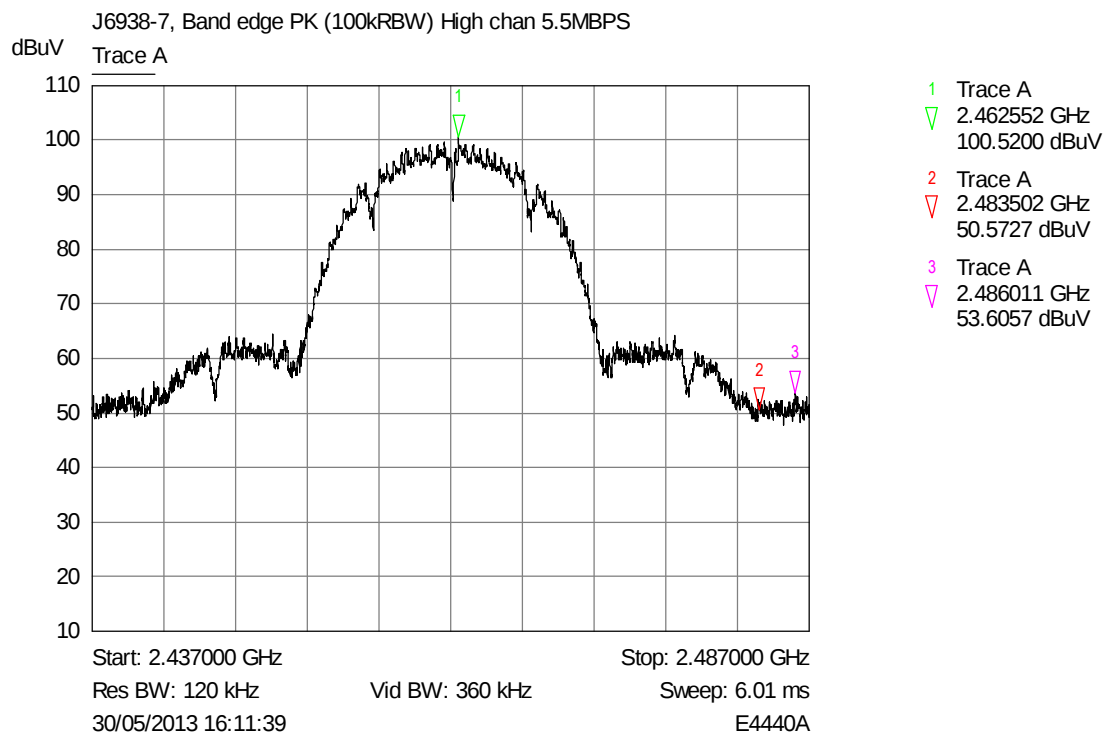
Restricted Band: Low channel Average plot



Restricted Band: High channel Average plot

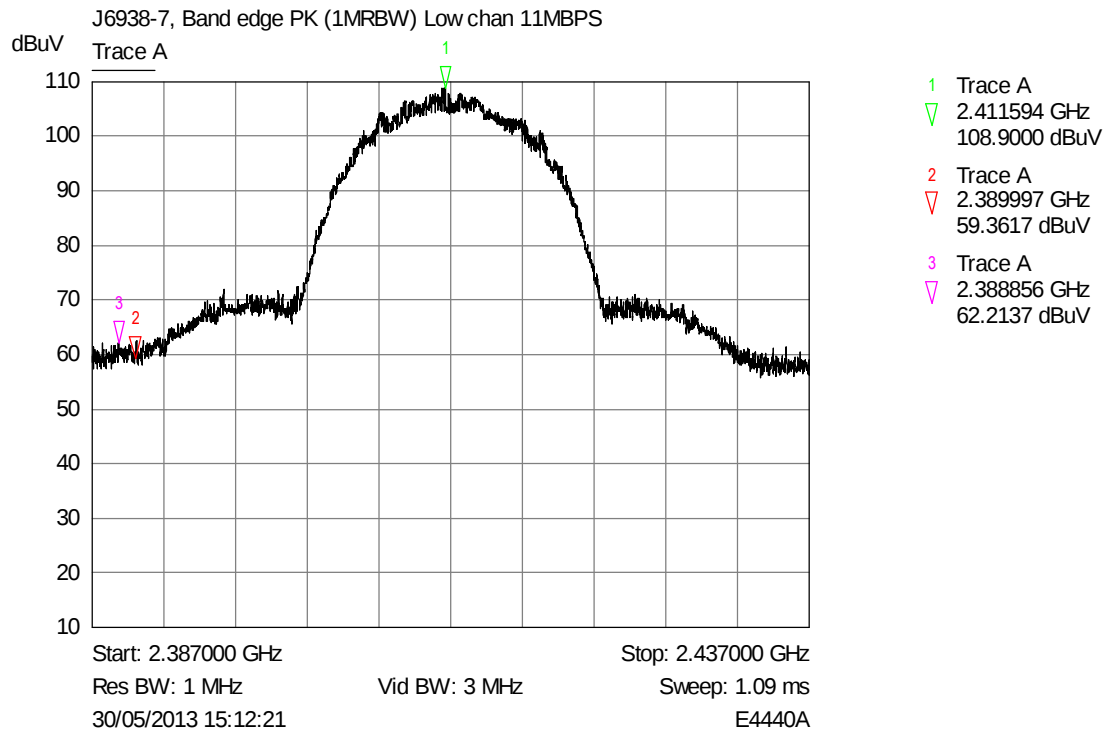


Band Edge: Low channel

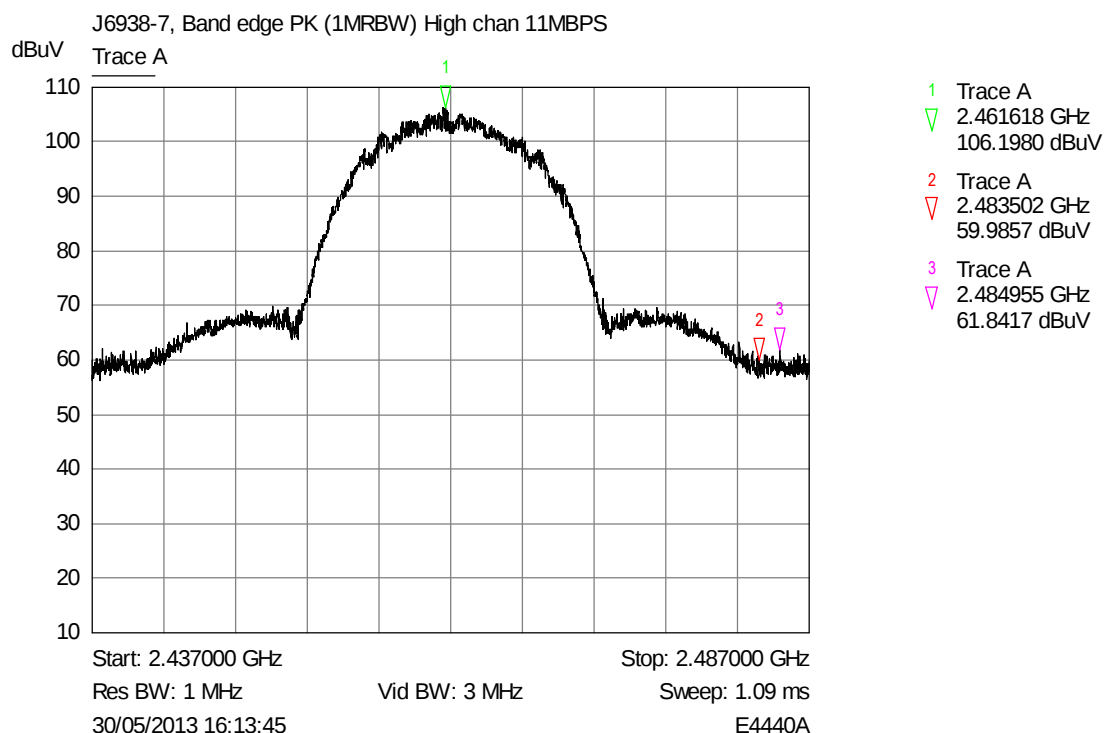


Band Edge: High channel

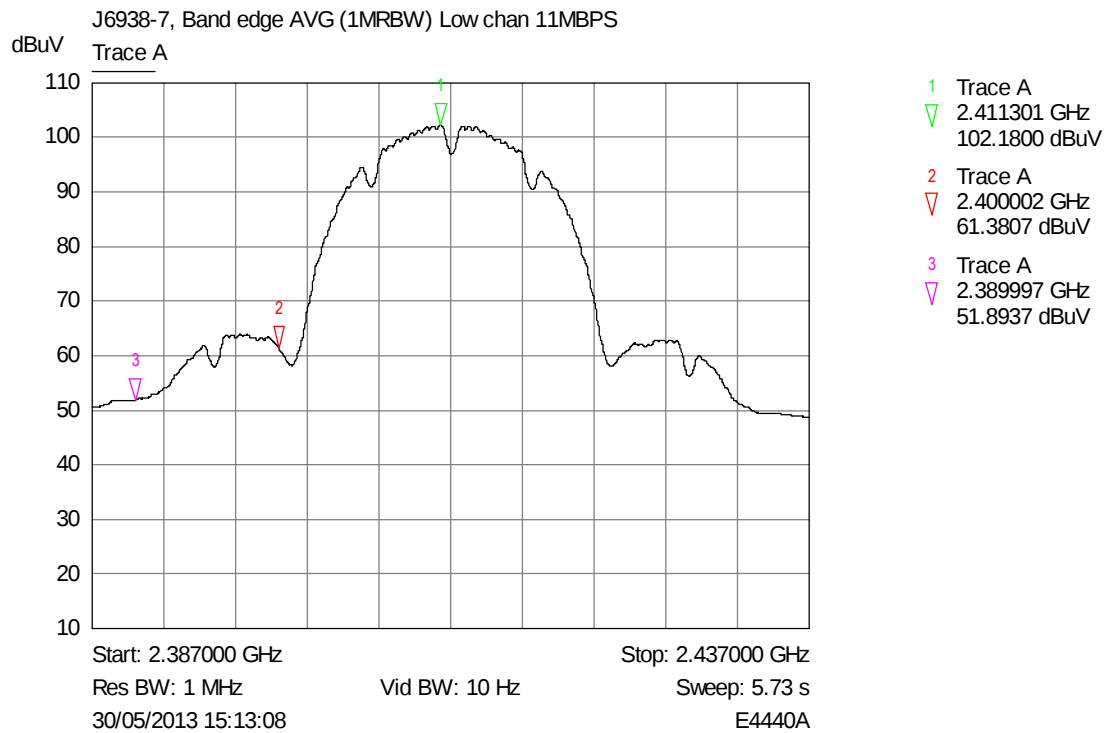
6.4.4 Plots for Band 2400-2483.5 MHz, Power 16 dBm, Spacing 5 MHz, and Modulation 11 MBPS



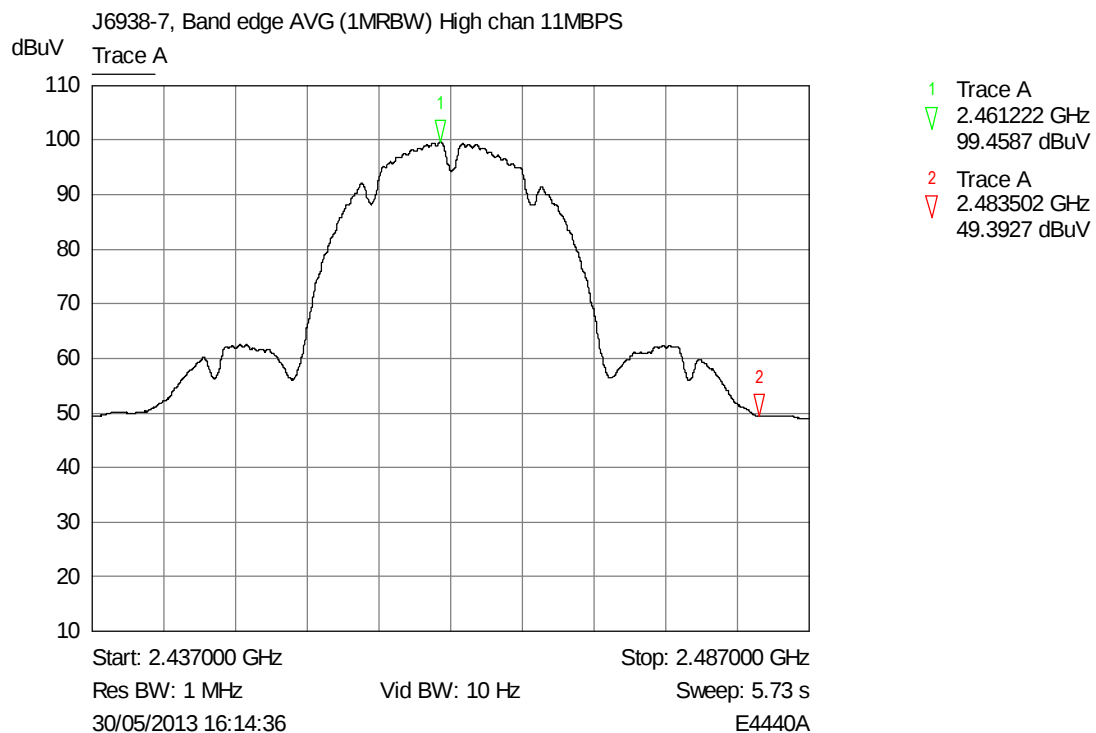
Restricted Band: Low channel Peak plot



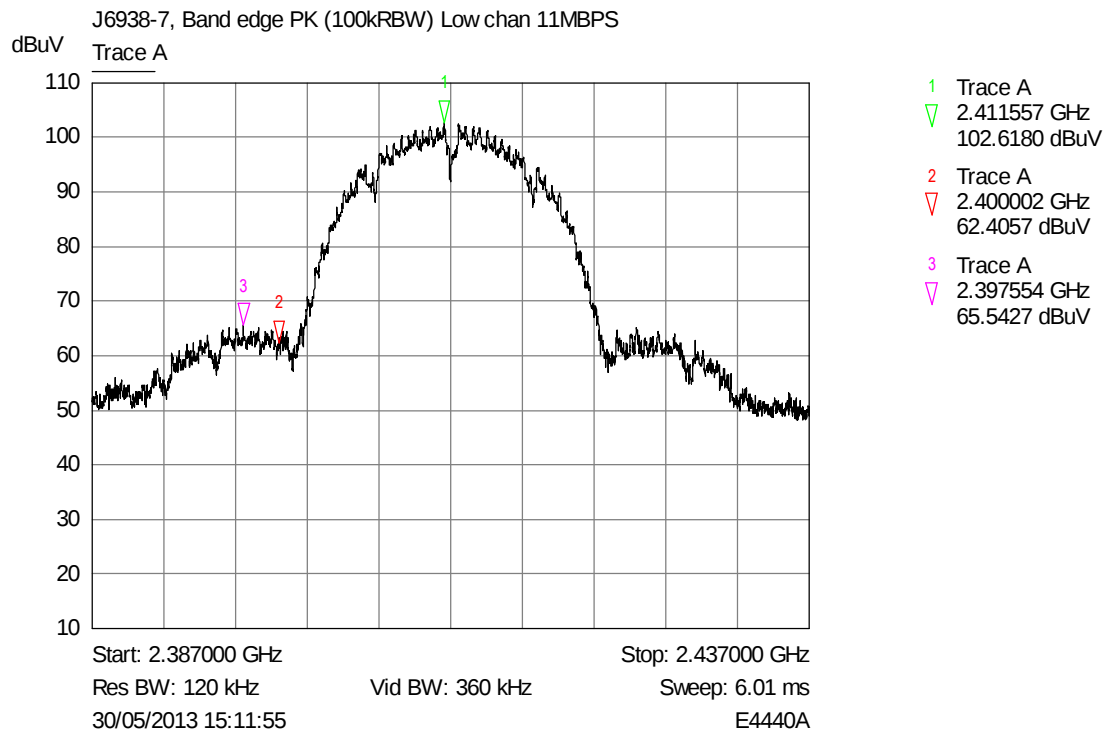
Restricted Band: High channel Peak plot



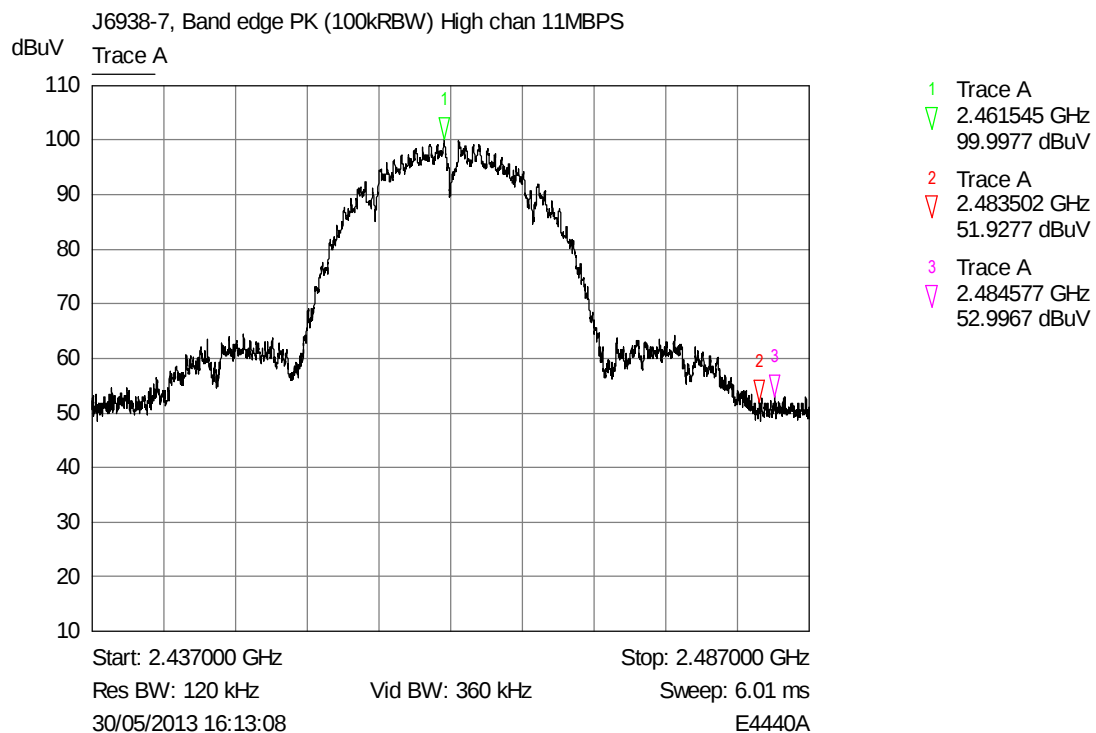
Restricted Band: Low channel Average plot



Restricted Band: High channel Average plot

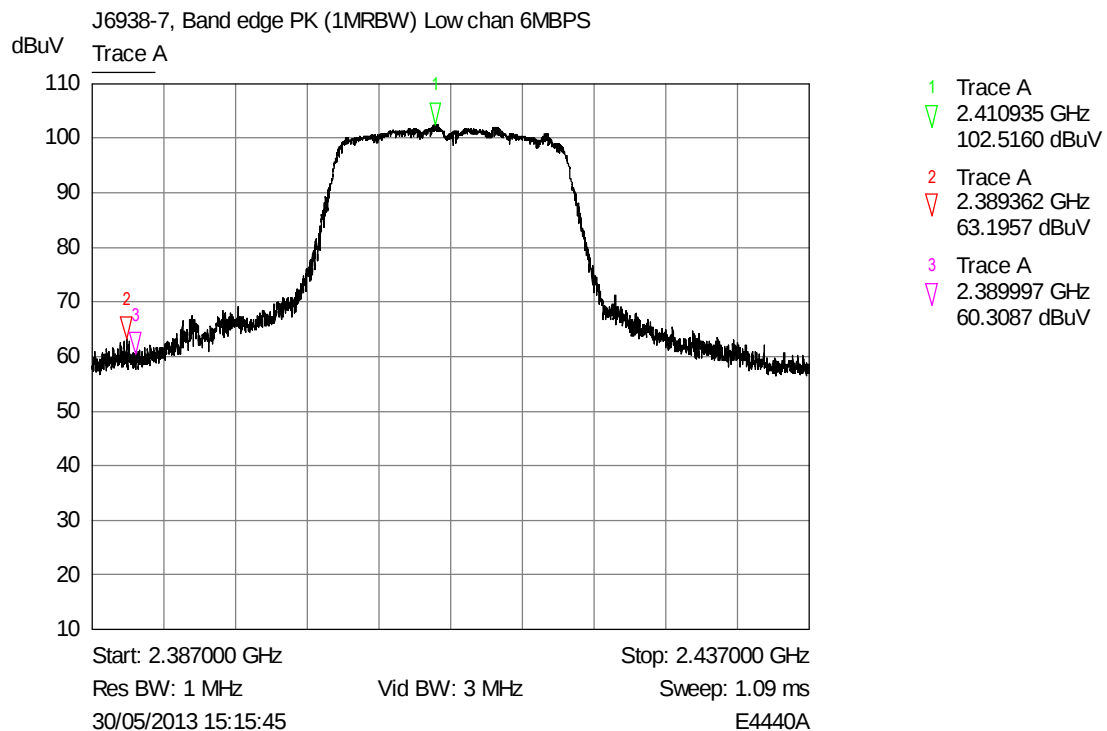


Band Edge: Low channel

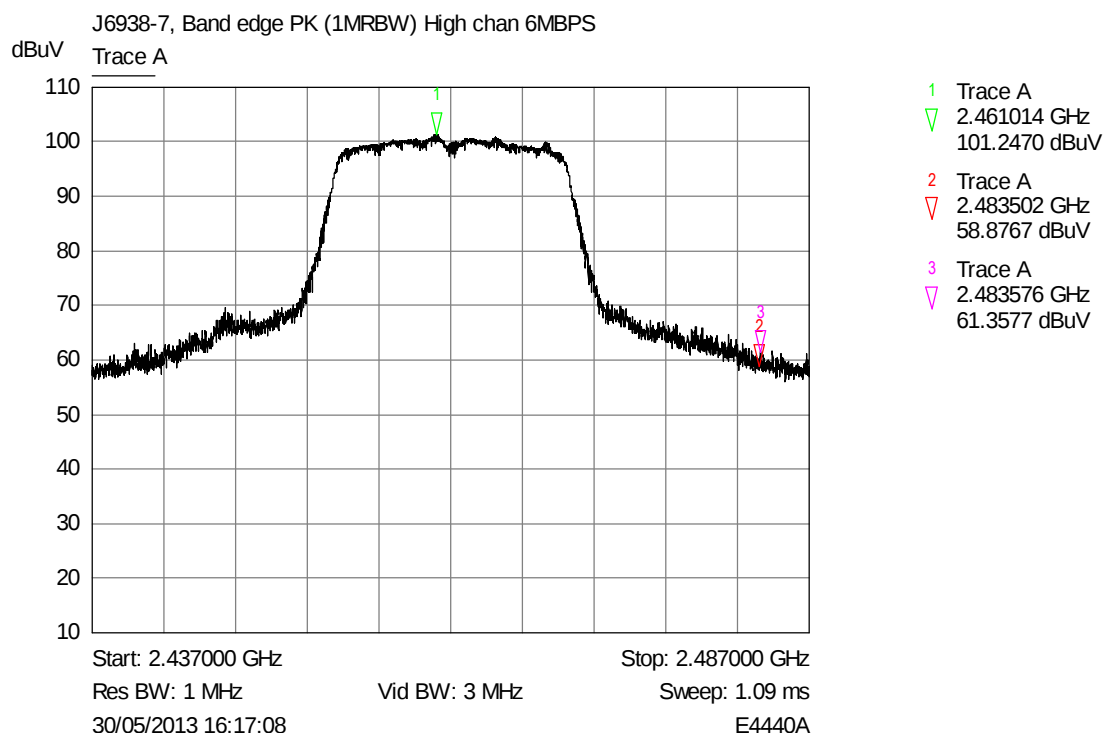


Band Edge: High channel

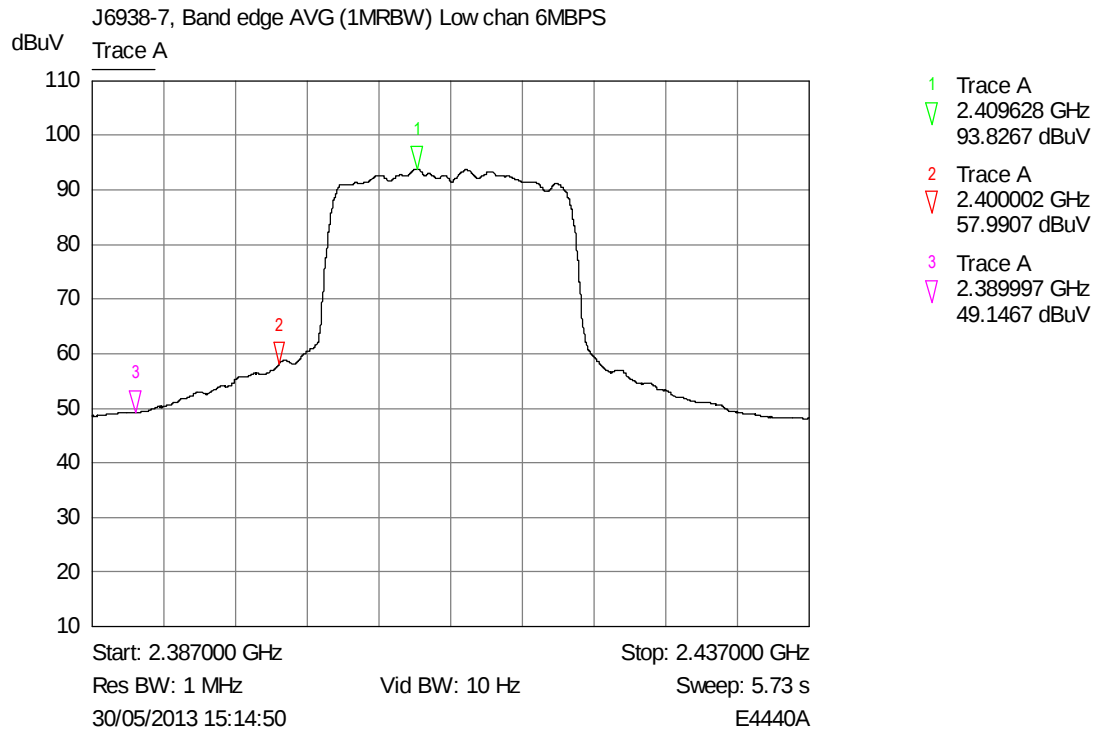
6.4.5 Plots for Band 2400-2483.5 MHz, Power 16 dBm, Spacing 5 MHz, and Modulation 6 MBPS



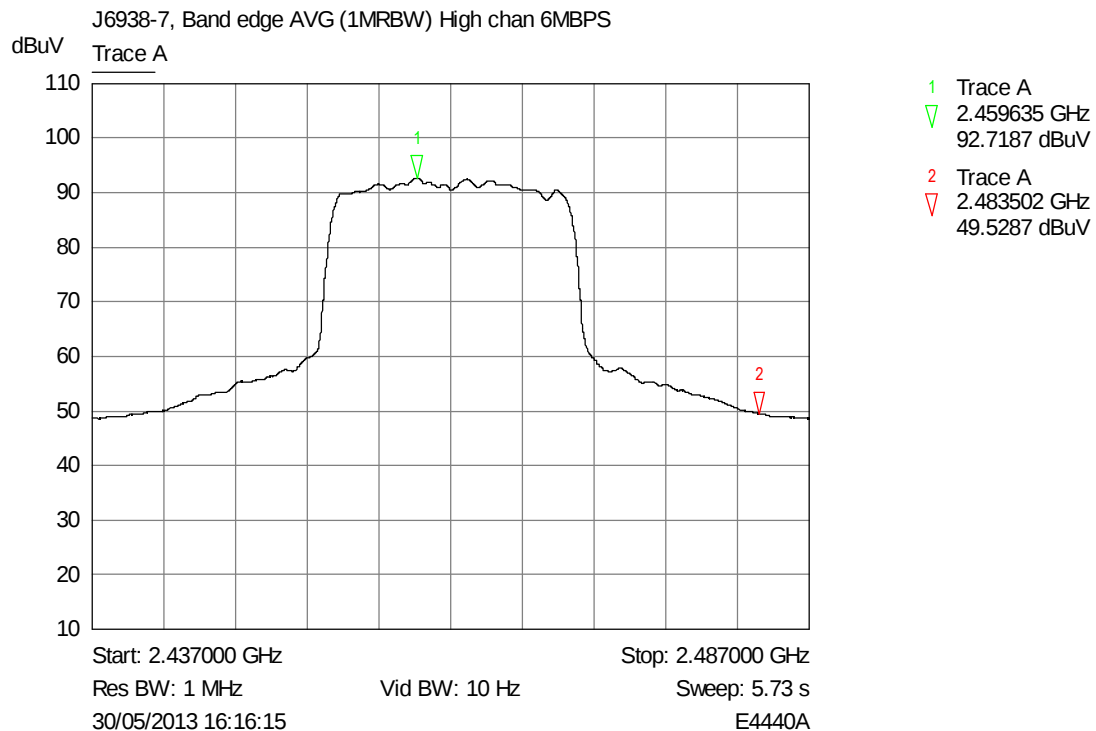
Restricted Band: Low channel Peak plot



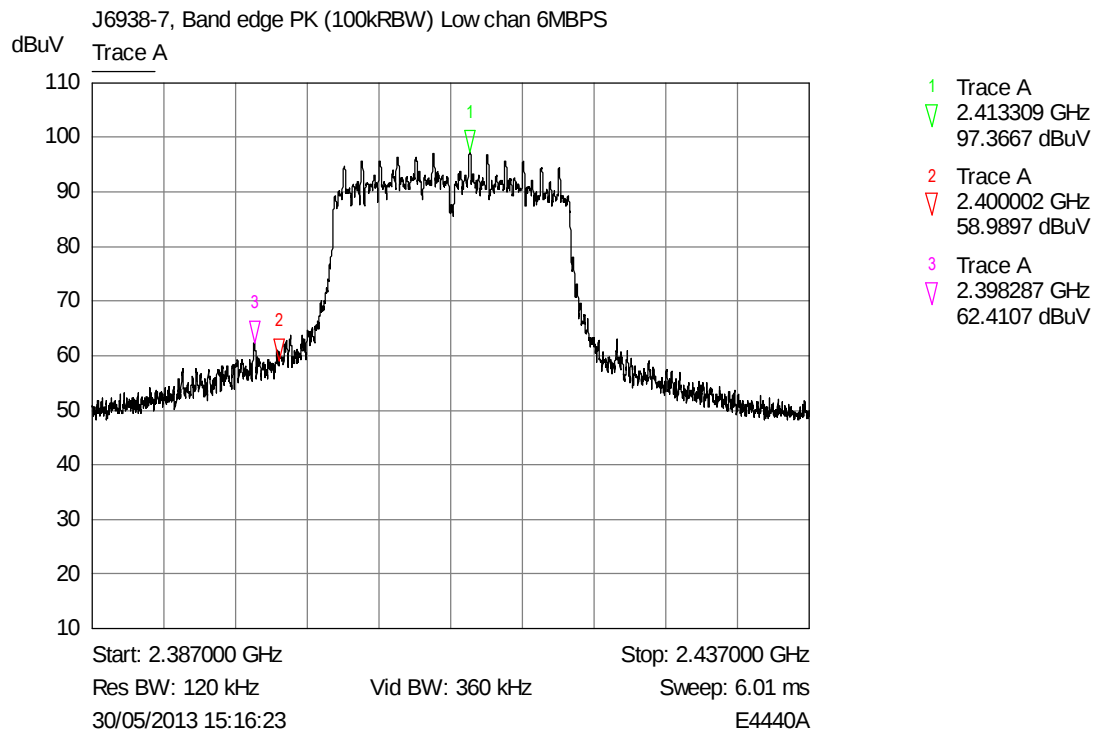
Restricted Band: High channel Peak plot



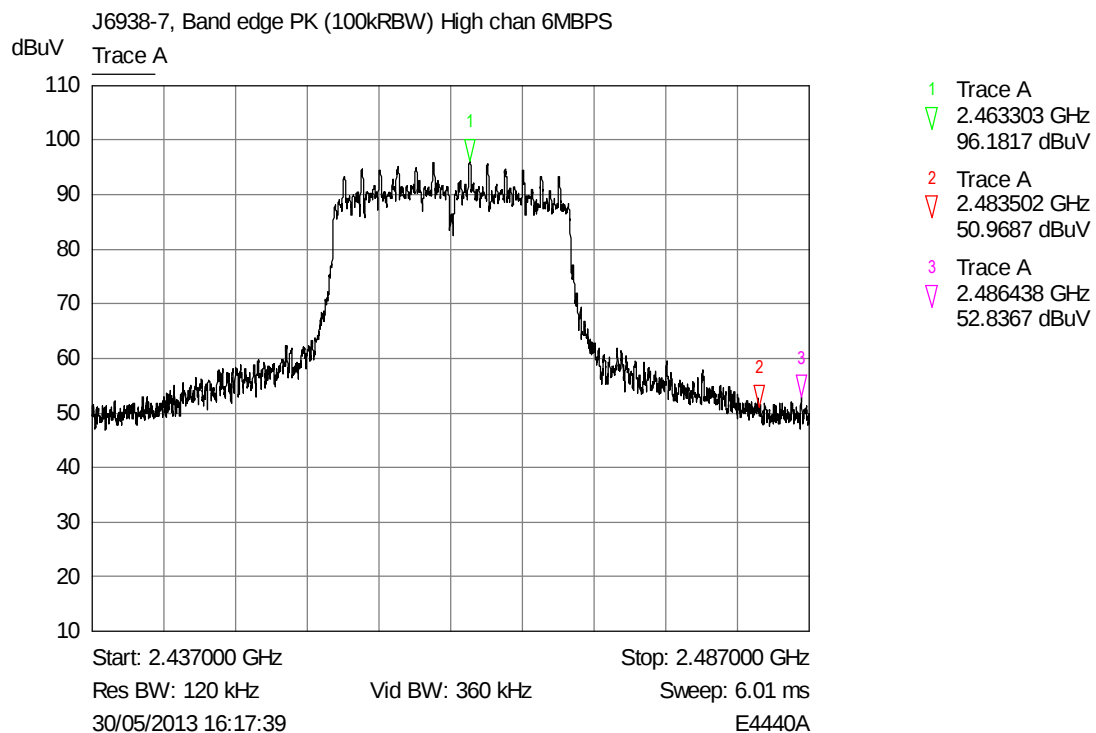
Restricted Band: Low channel Average plot



Restricted Band: High channel Average plot

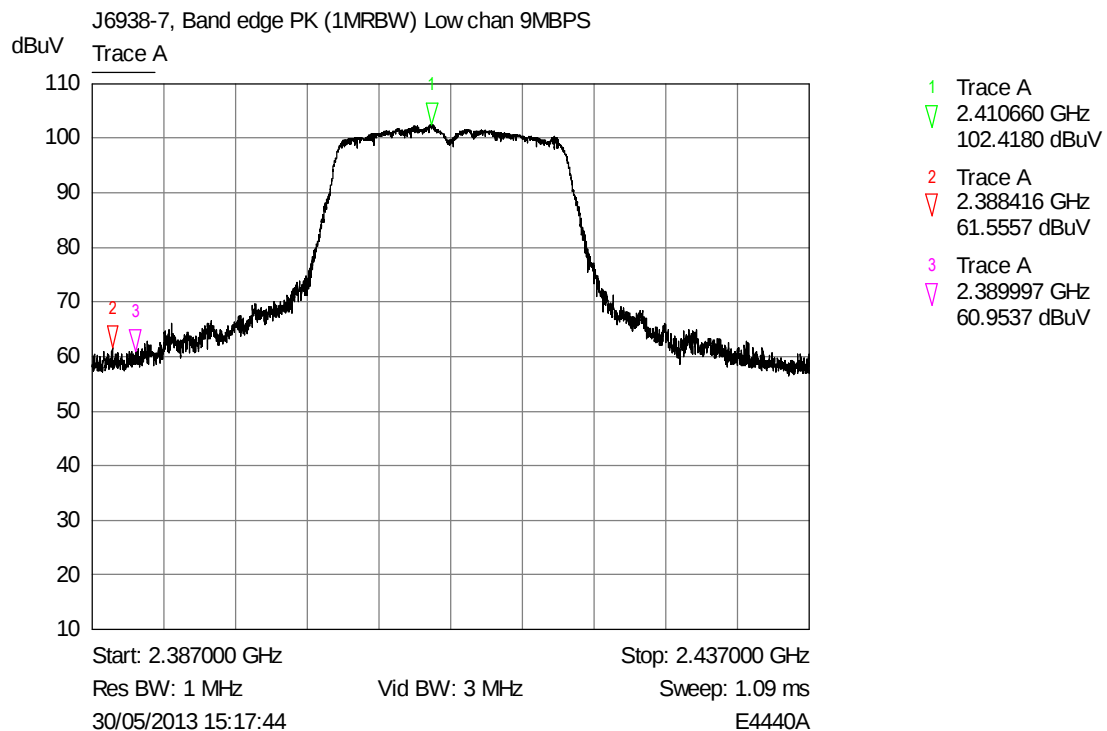


Band Edge: Low channel

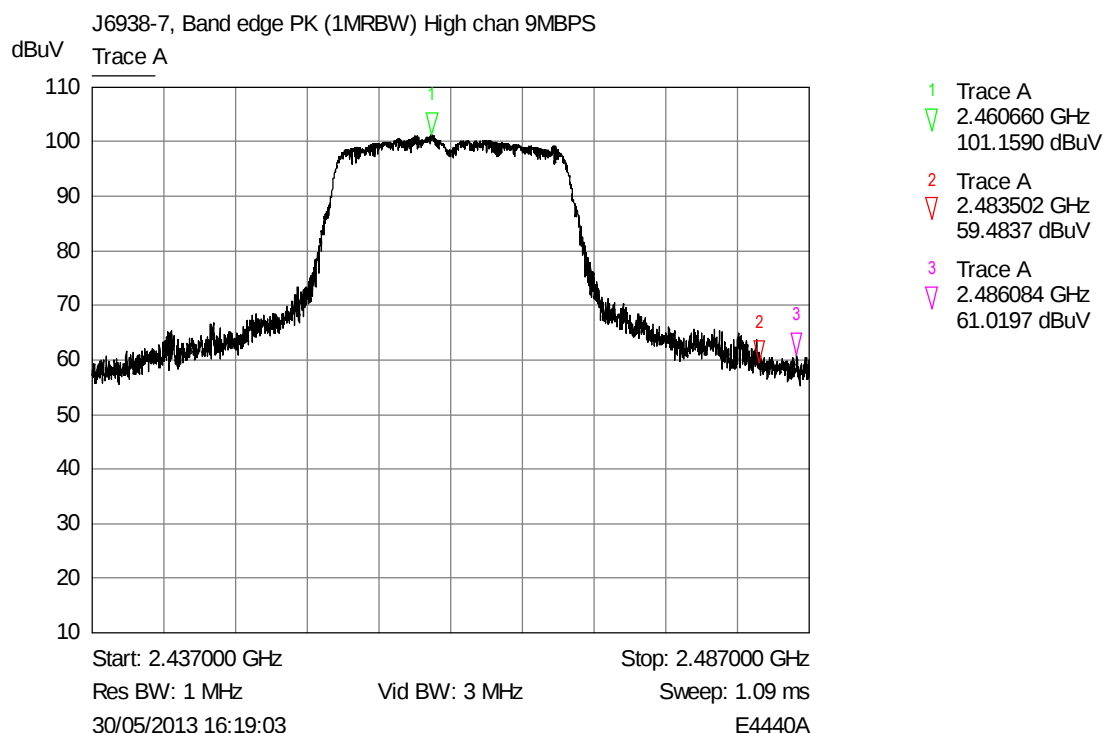


Band Edge: High channel

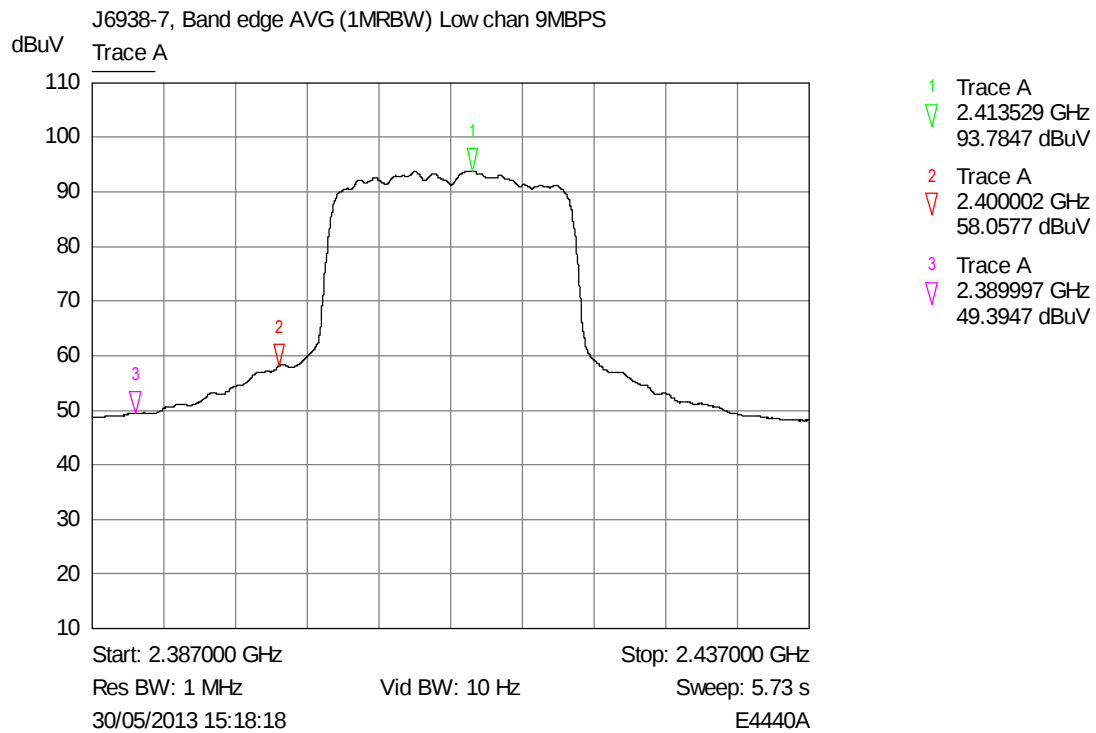
6.4.6 Plots for Band 2400-2483.5 MHz, Power 16 dBm, Spacing 5 MHz, and Modulation 9 MBPS



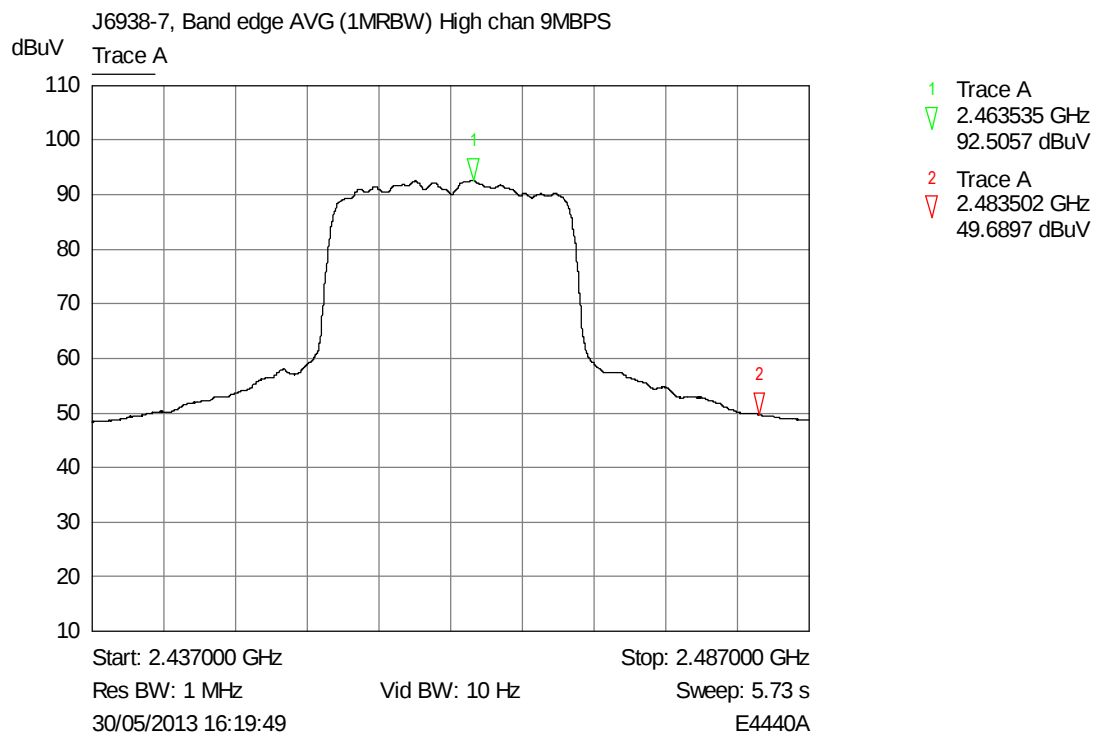
Restricted Band: Low channel Peak plot



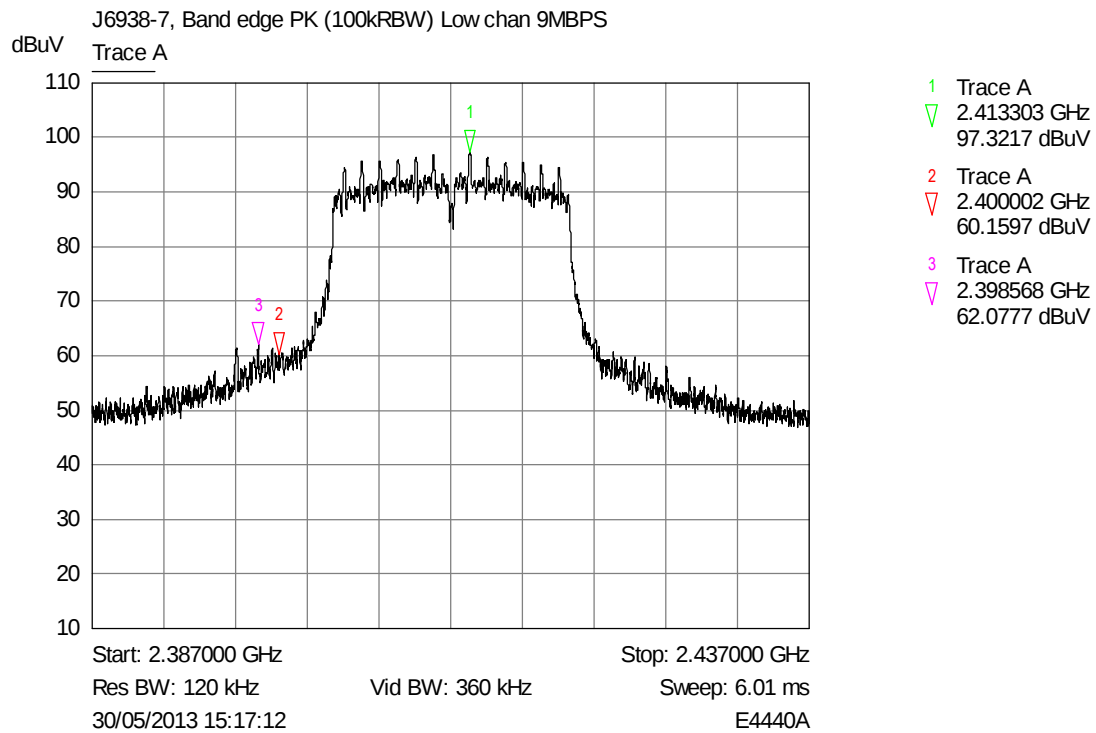
Restricted Band: High channel Peak plot



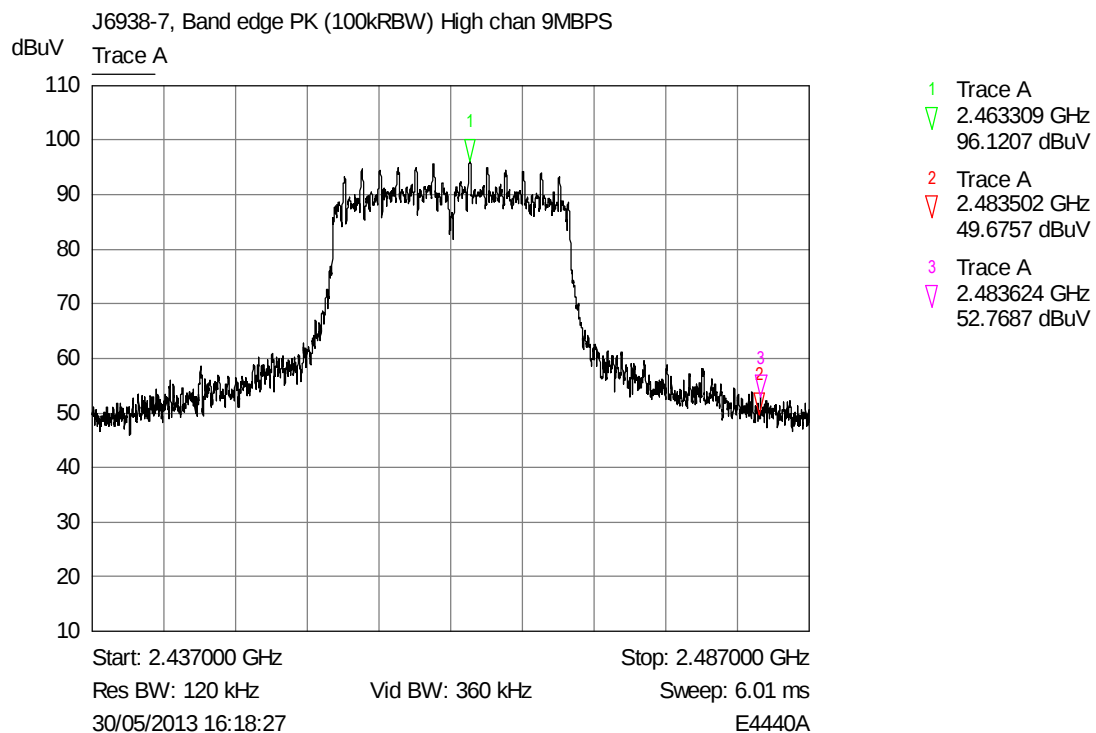
Restricted Band: Low channel Average plot



Restricted Band: High channel Average plot

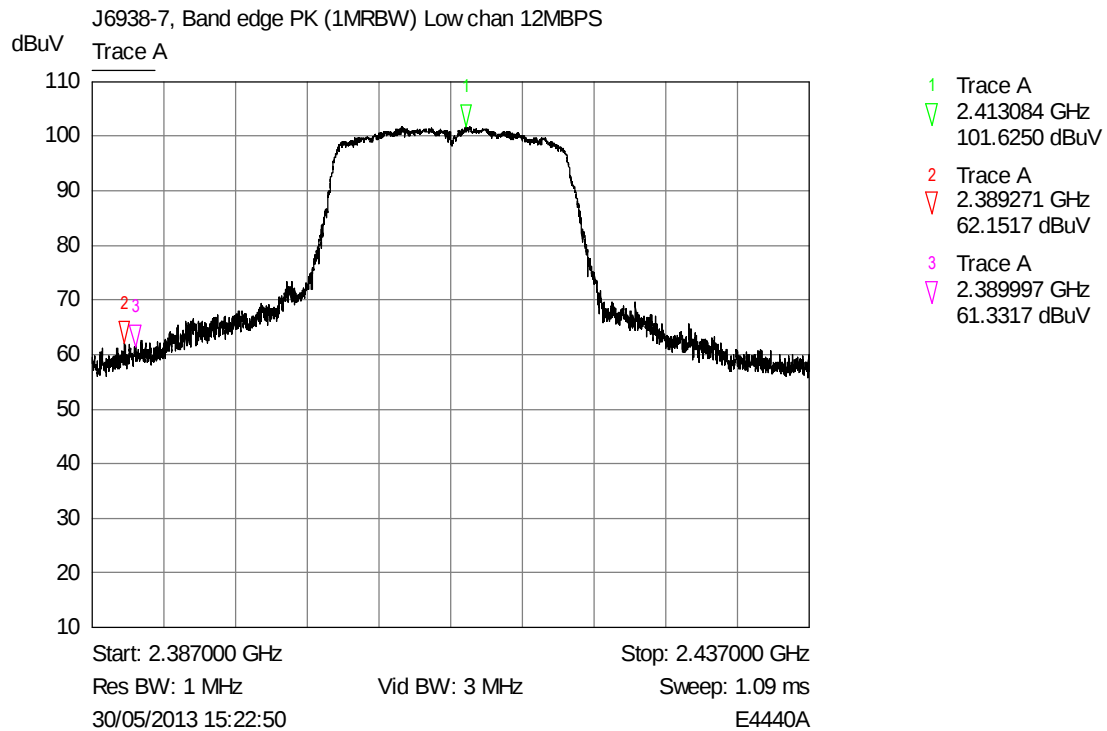


Band Edge: Low channel

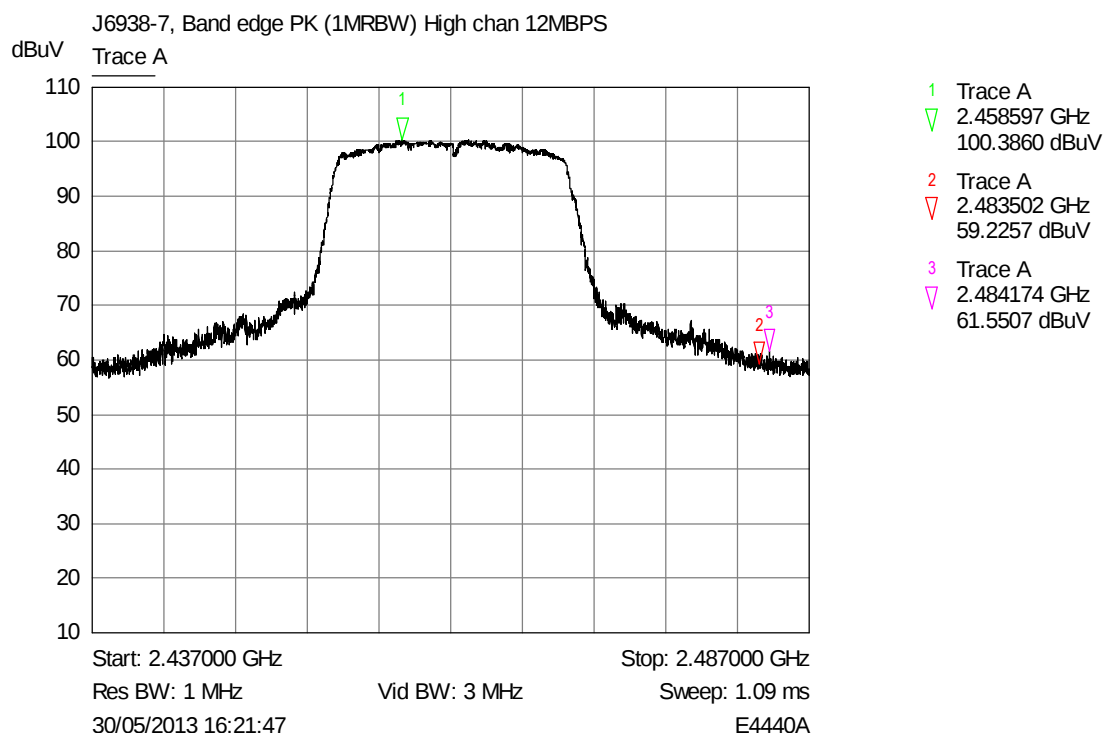


Band Edge: High channel

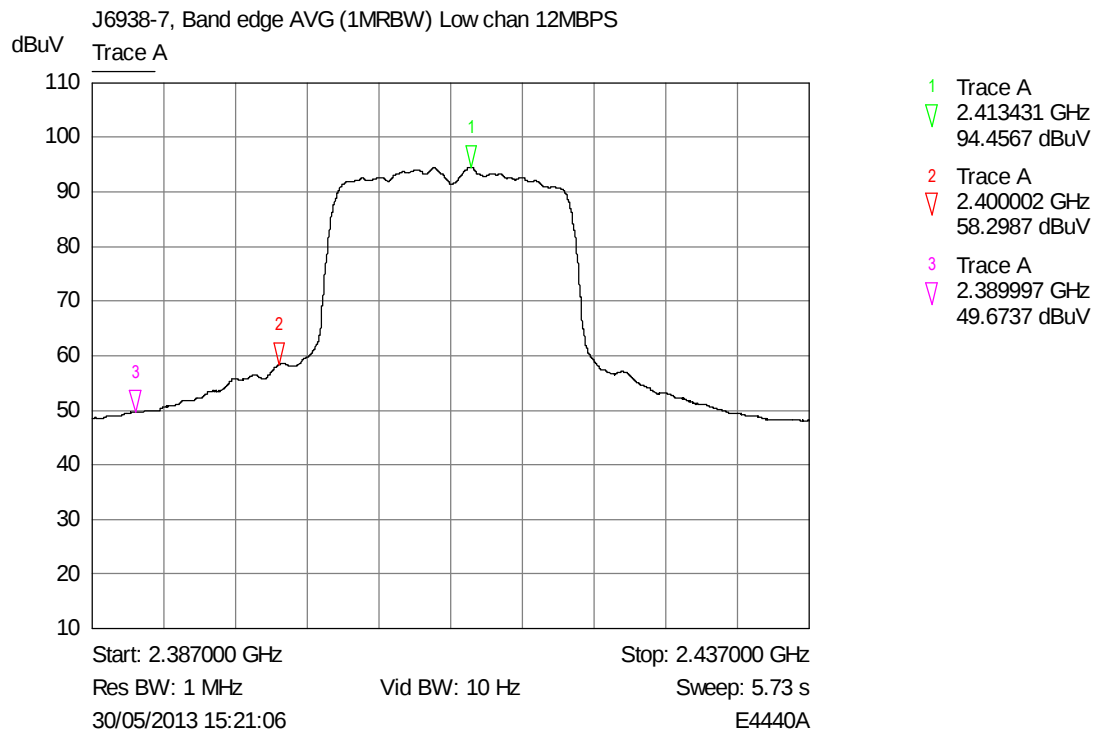
6.4.7 Plots for Band 2400-2483.5 MHz, Power 16 dBm, Spacing 5 MHz, and Modulation 12 MBPS



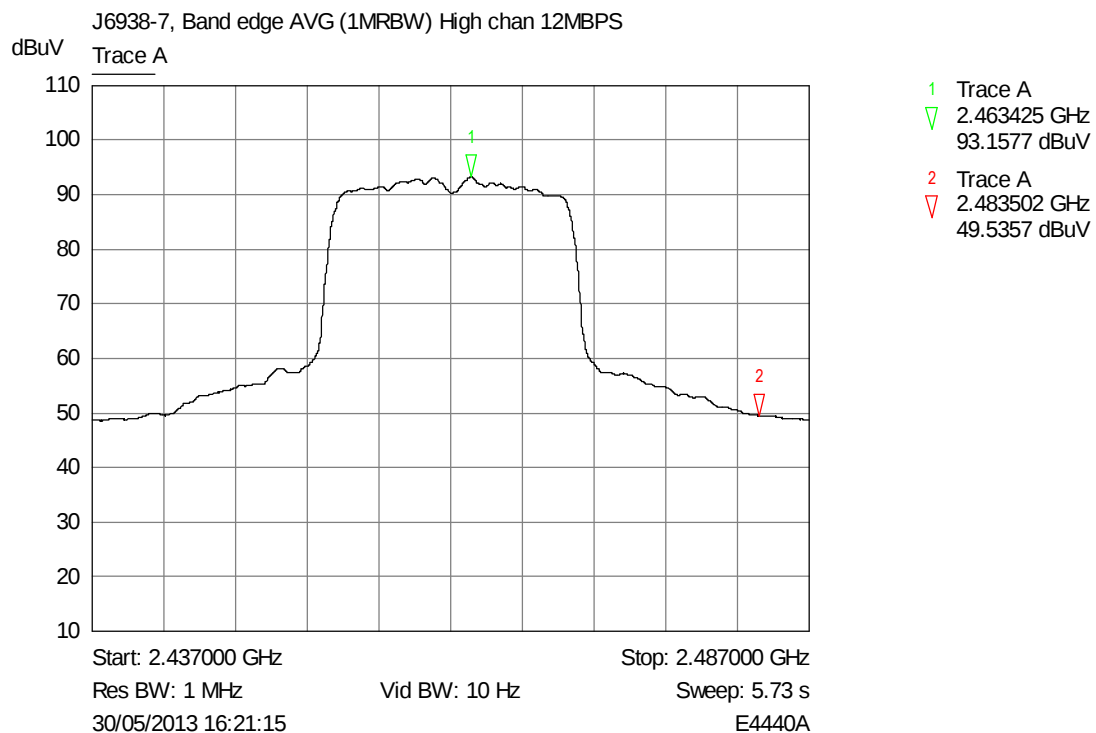
Restricted Band: Low channel Peak plot



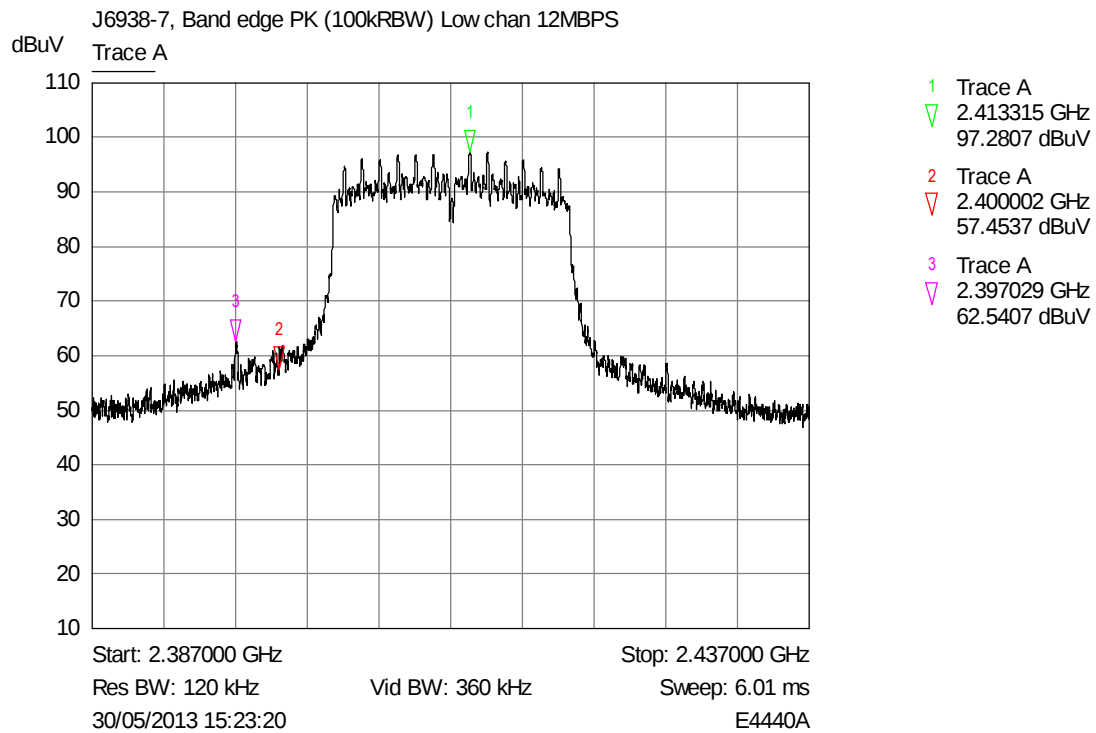
Restricted Band: High channel Peak plot



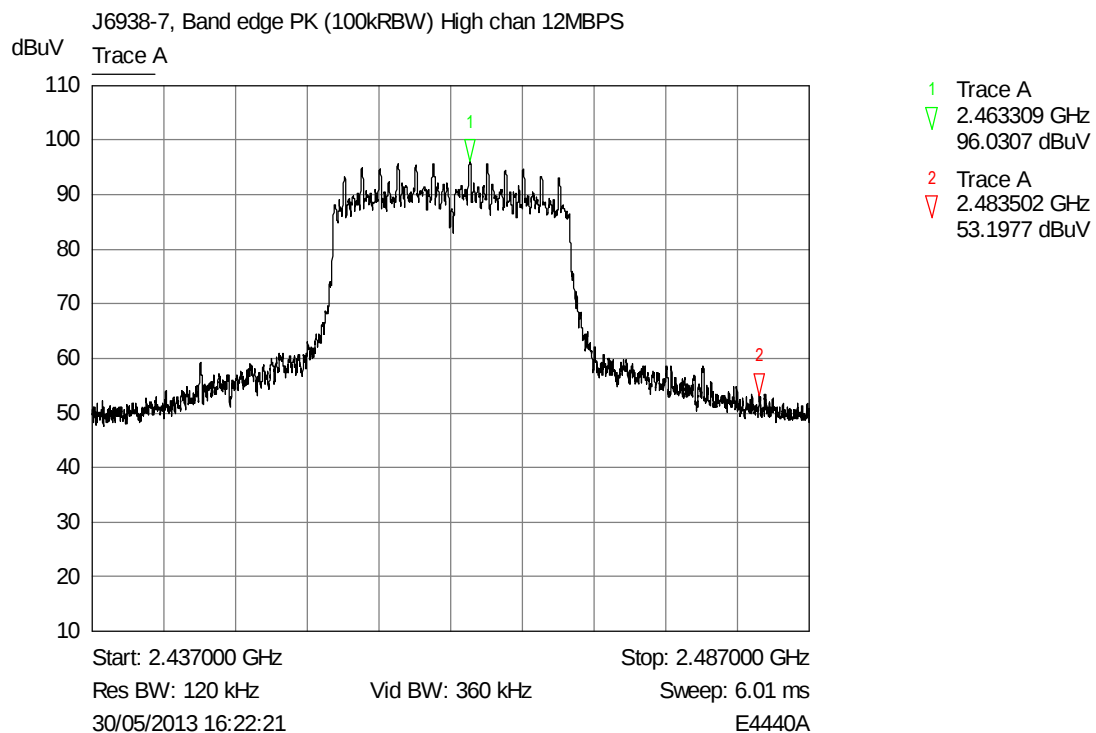
Restricted Band: Low channel Average plot



Restricted Band: High channel Average plot

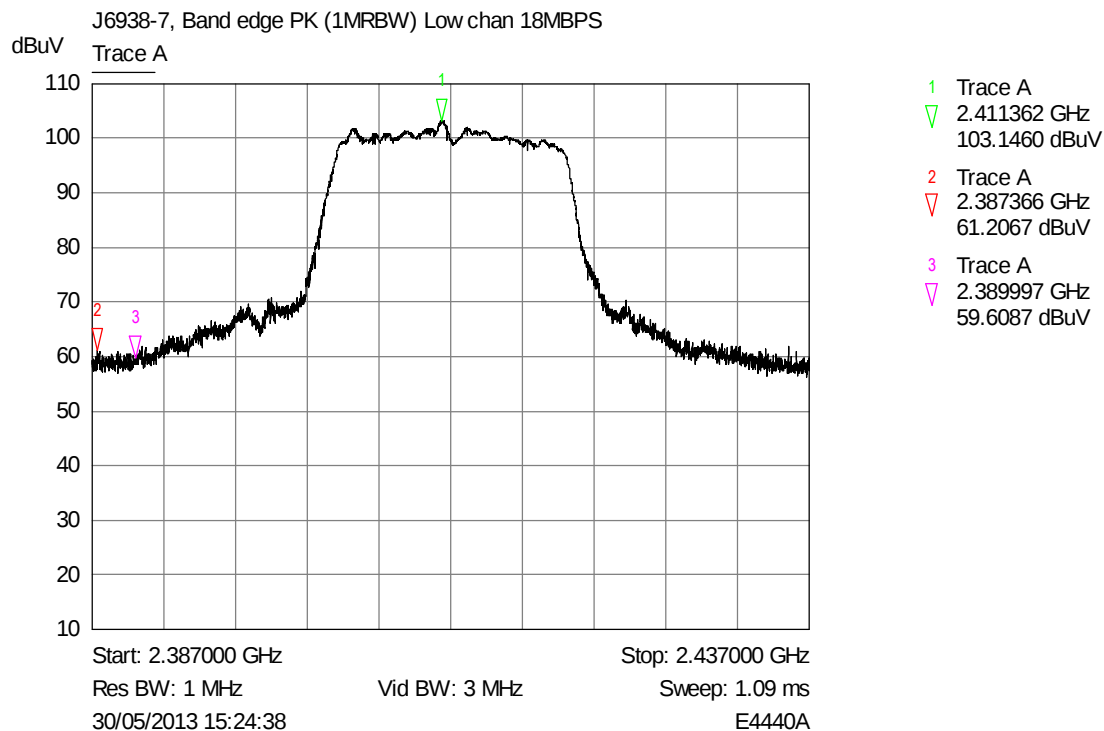


Band Edge: Low channel

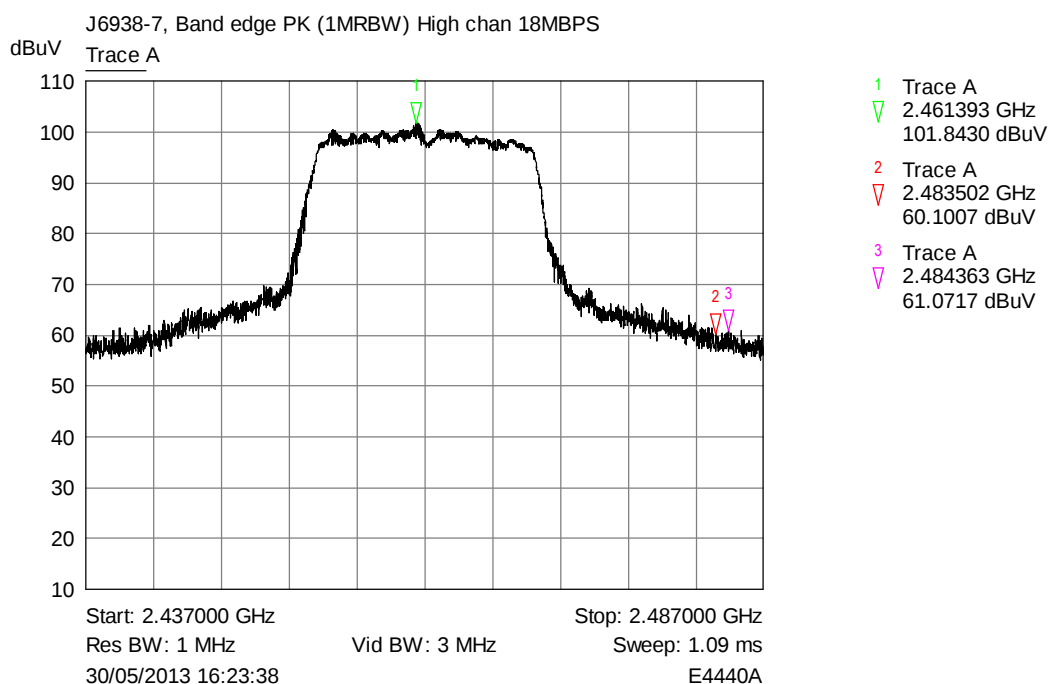


Band Edge: High channel

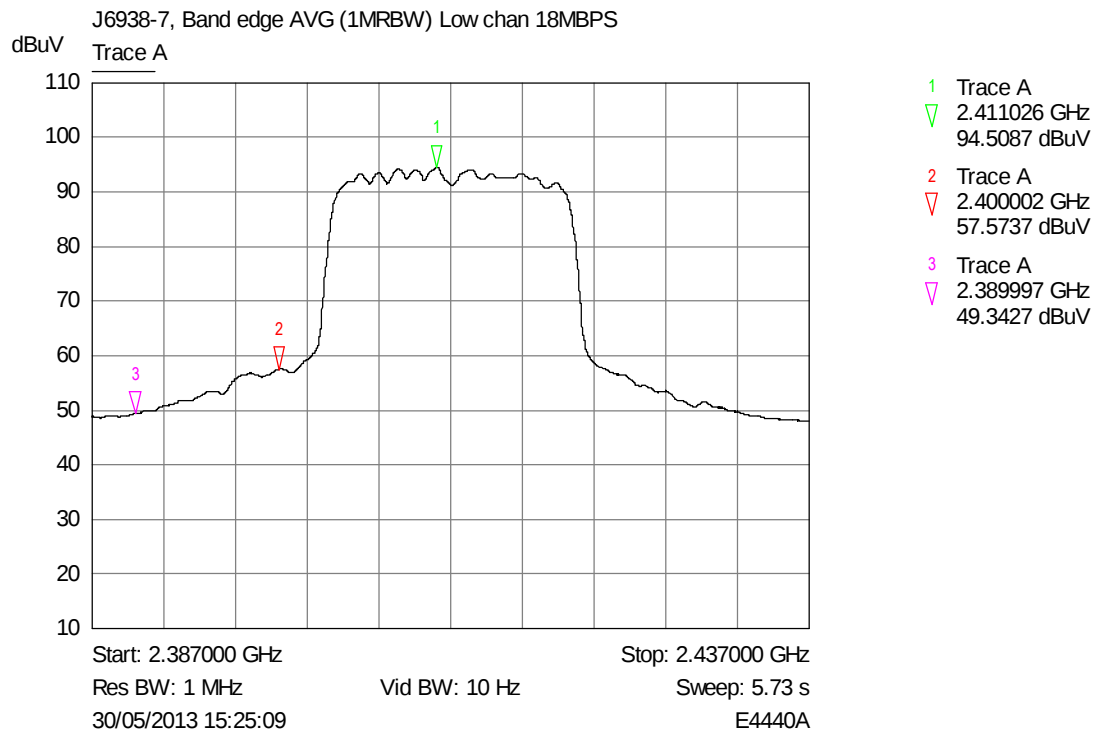
6.4.8 Plots for Band 2400-2483.5 MHz, Power 16 dBm, Spacing 5 MHz, and Modulation 18 MBPS



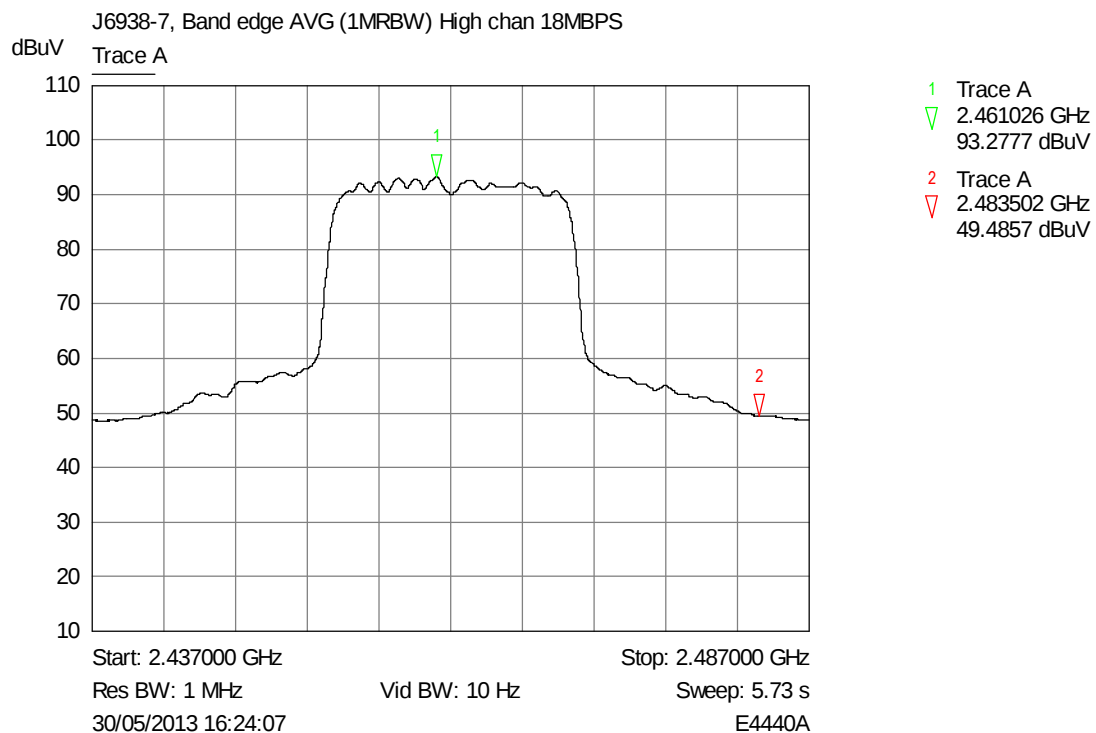
Restricted Band: Low channel Peak plot



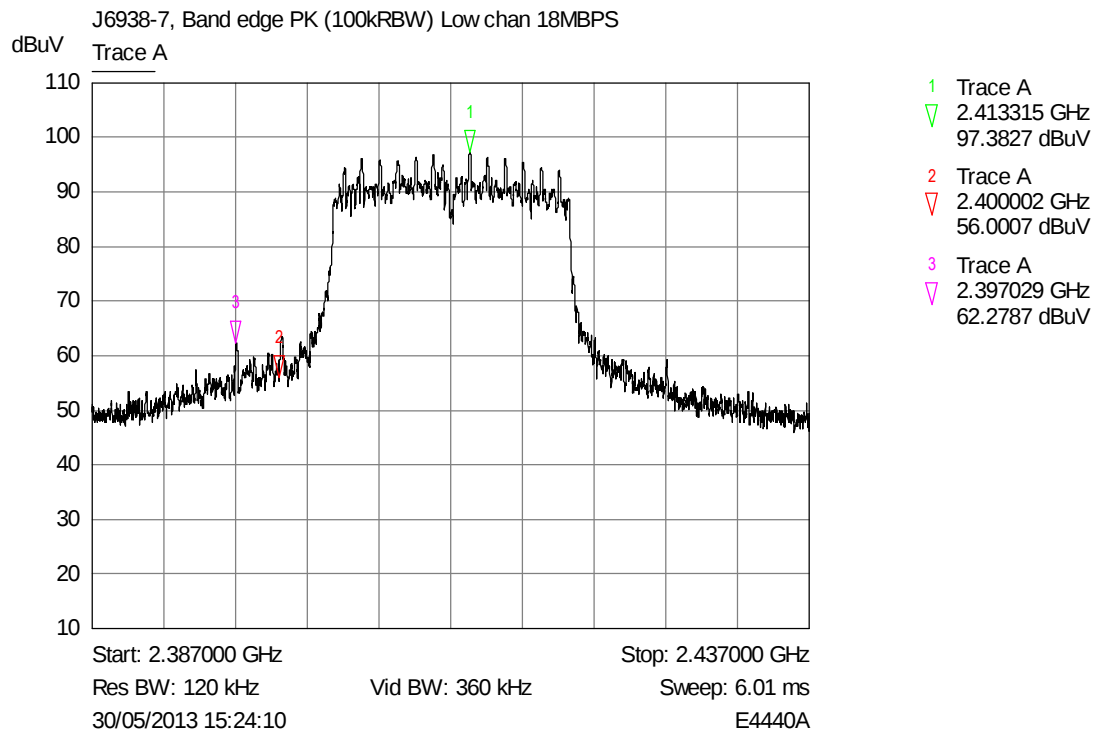
Restricted Band: High channel Peak plot



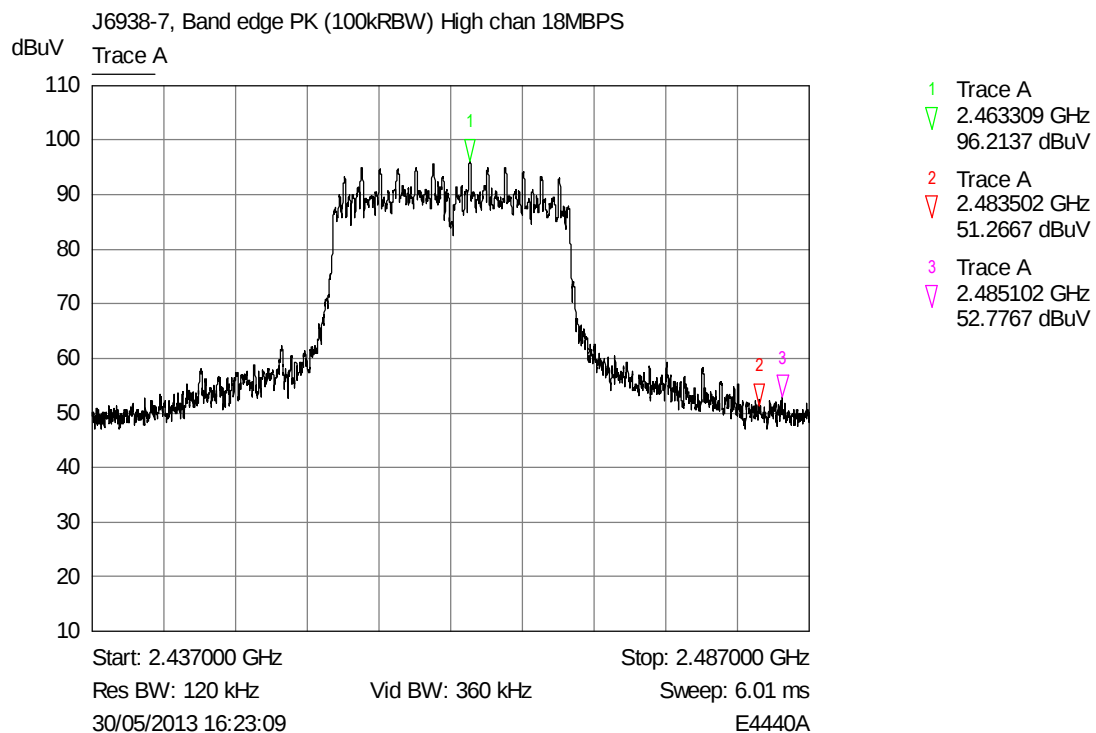
Restricted Band: Low channel Average plot



Restricted Band: High channel Average plot

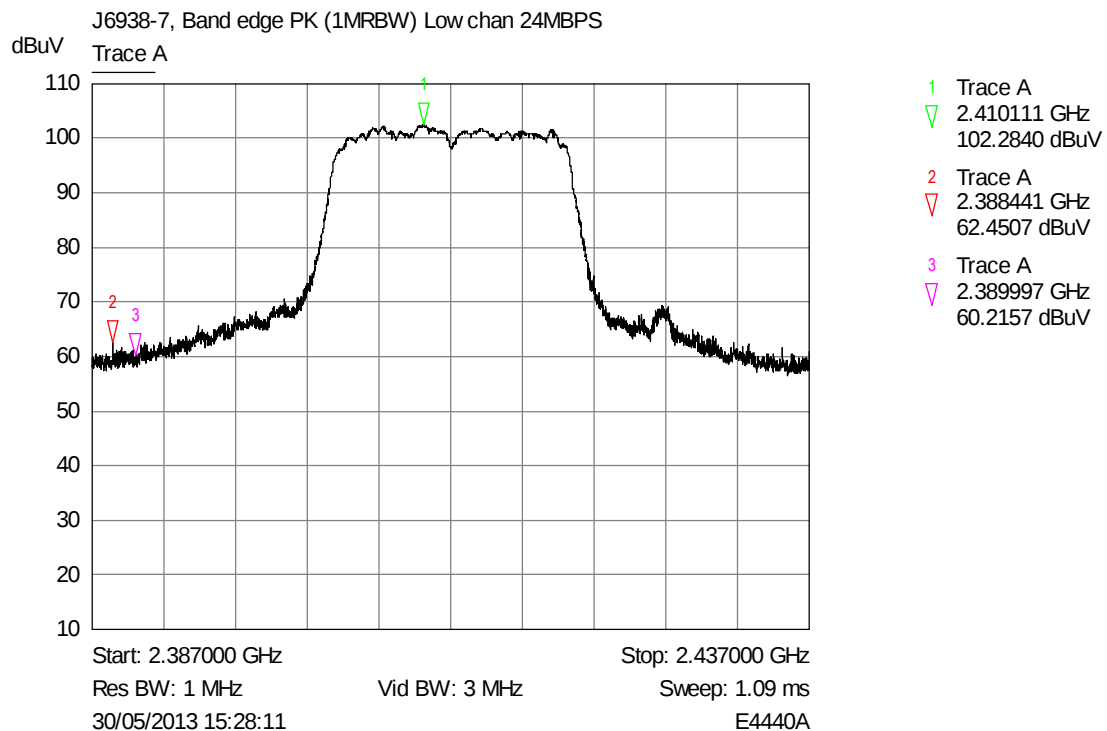


Band Edge: Low channel

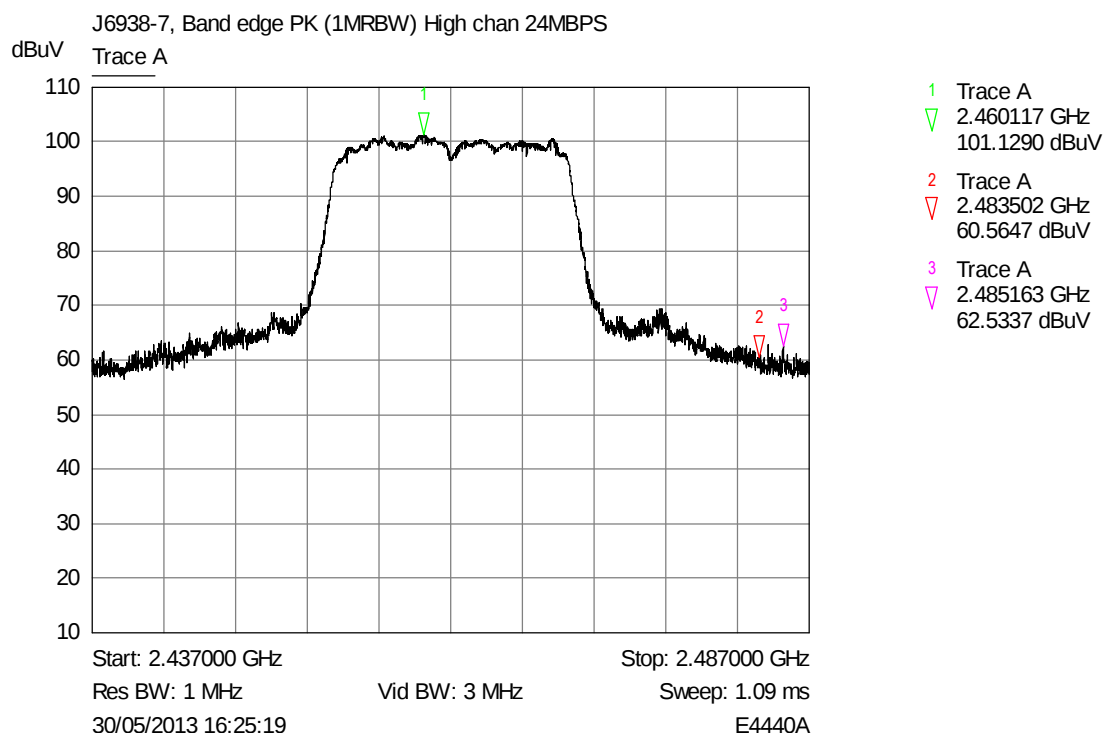


Band Edge: High channel

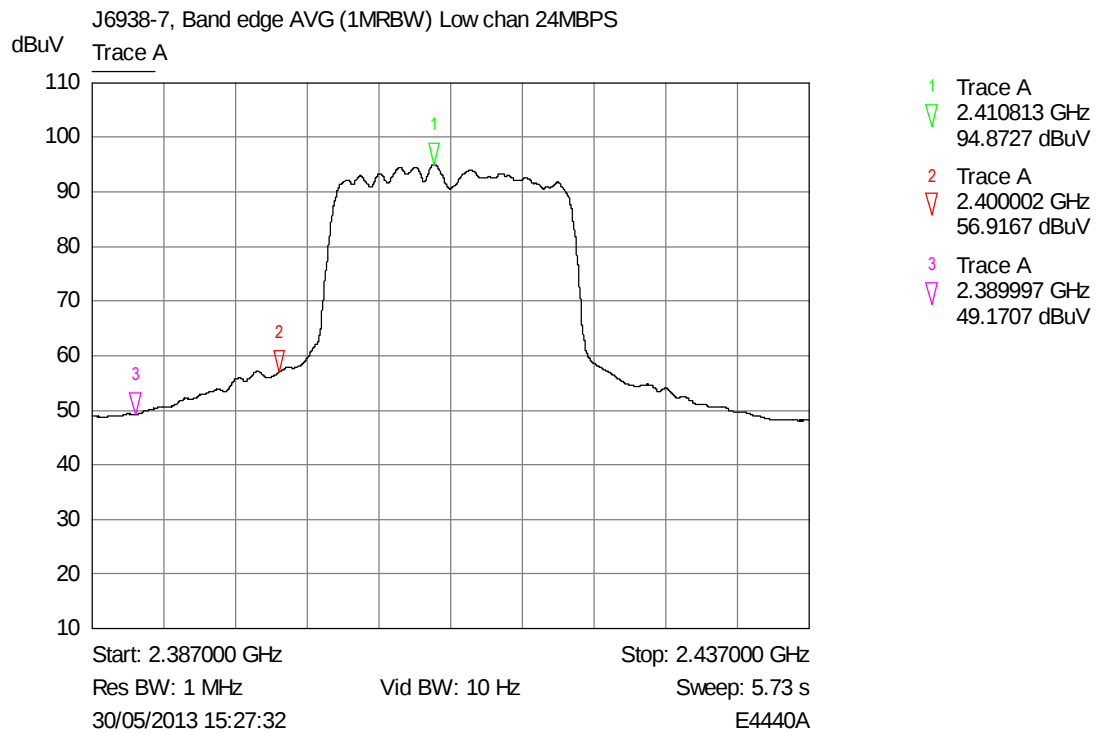
6.4.9 Plots for Band 2400-2483.5 MHz, Power 16 dBm, Spacing 5 MHz, and Modulation 24 MBPS



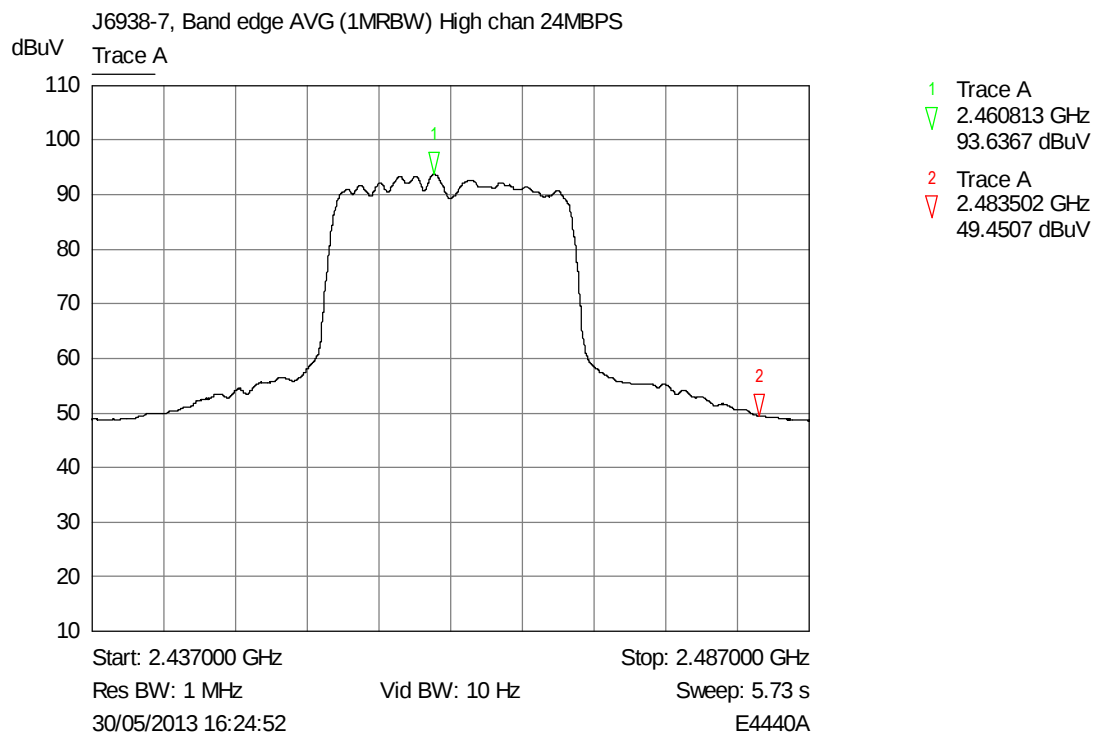
Restricted Band: Low channel Peak plot



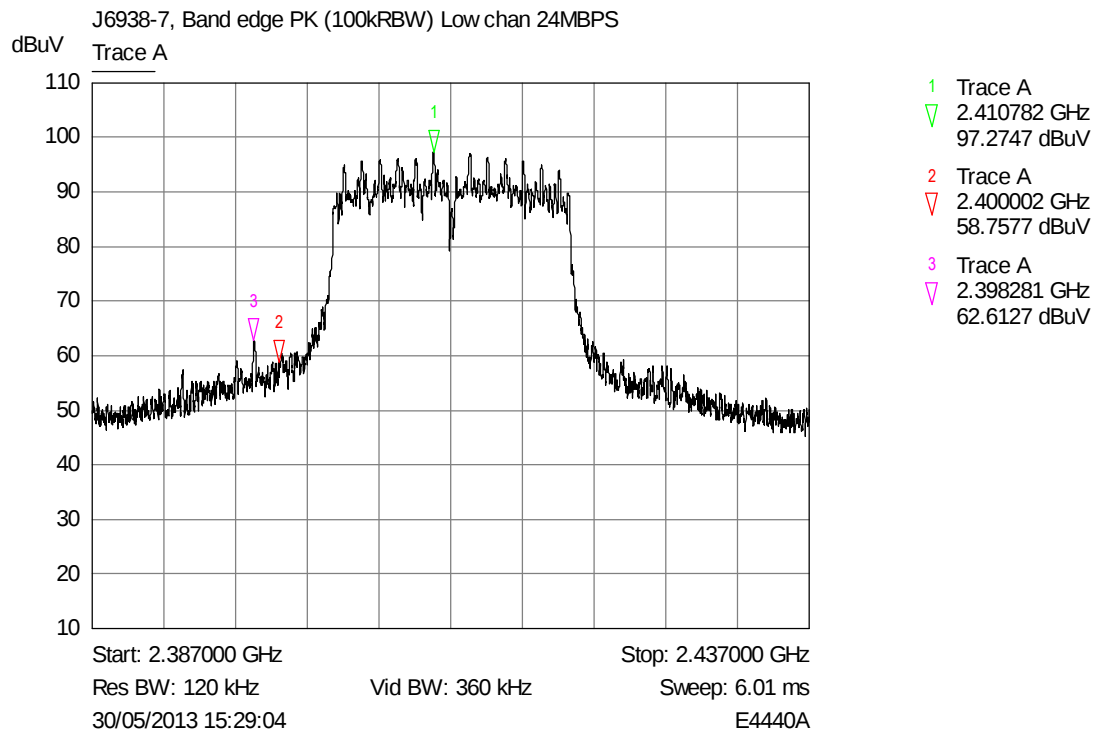
Restricted Band: High channel Peak plot



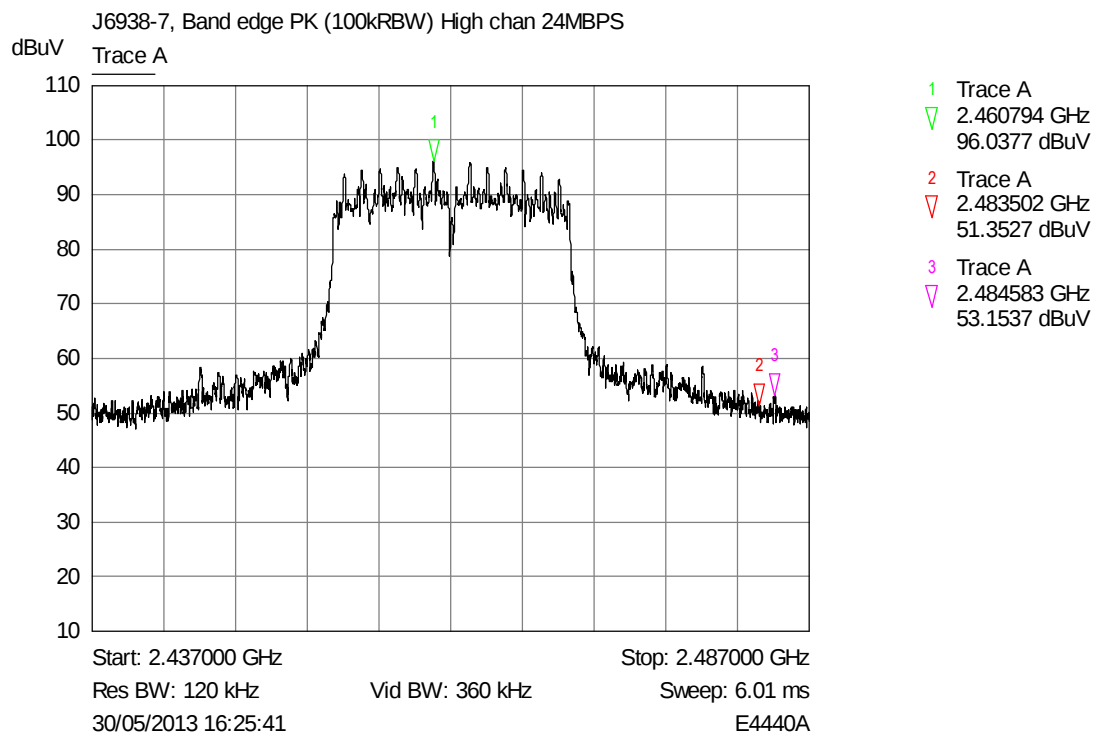
Restricted Band: Low channel Average plot



Restricted Band: High channel Average plot

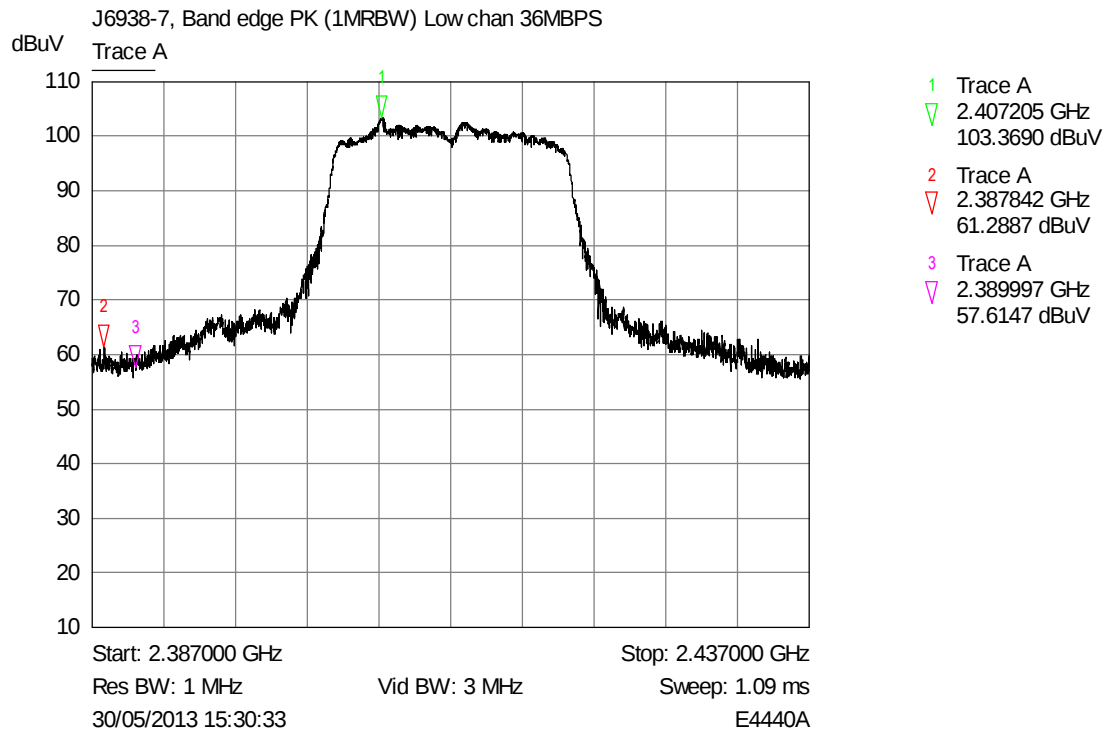


Band Edge: Low channel

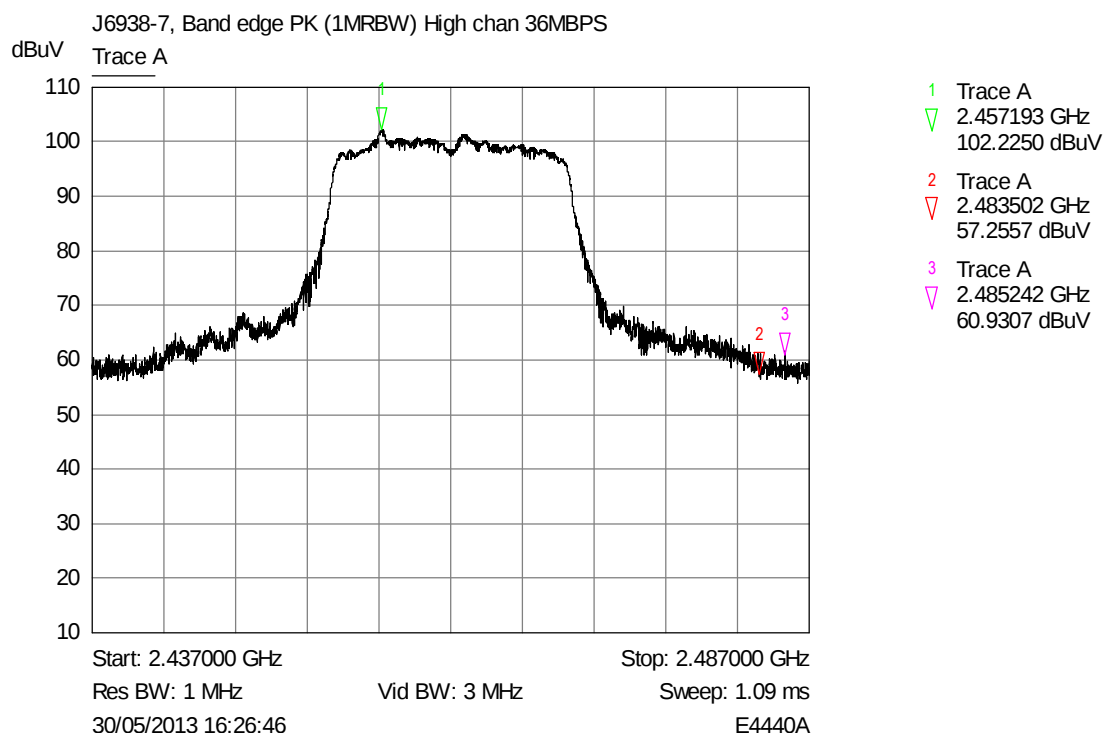


Band Edge: High channel

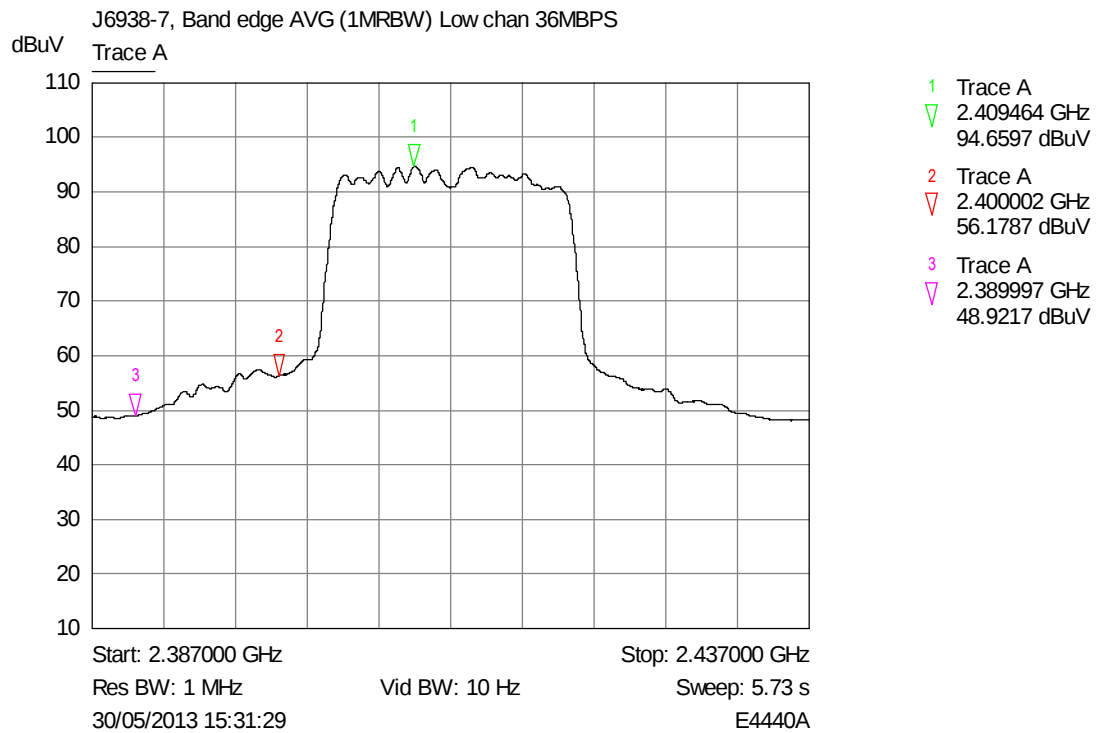
6.4.10 Plots for Band 2400-2483.5 MHz, Power 16 dBm, Spacing 5 MHz, and Modulation 36 MBPS



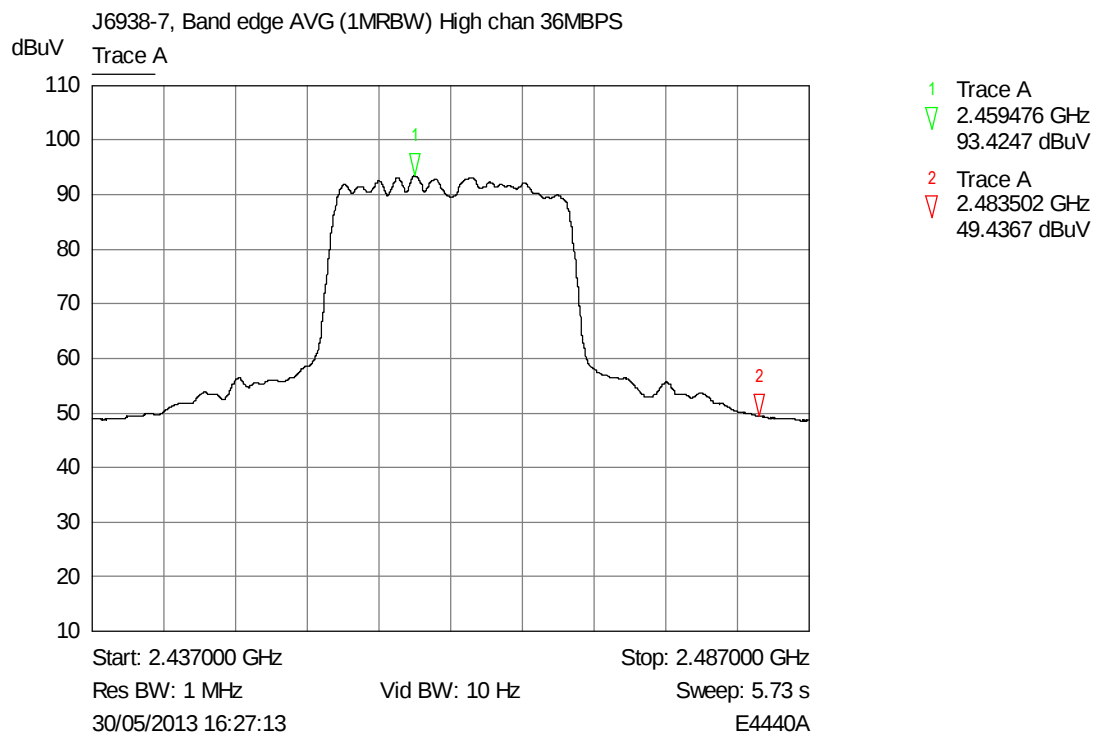
Restricted Band: Low channel Peak plot



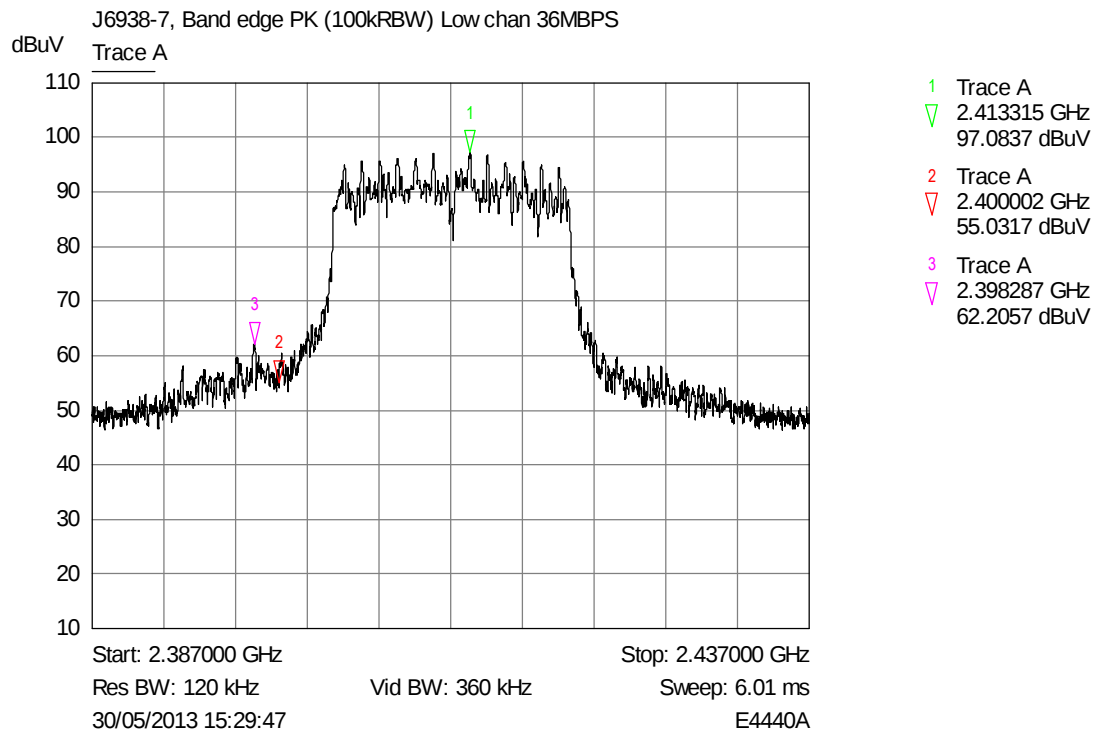
Restricted Band: High channel Peak plot



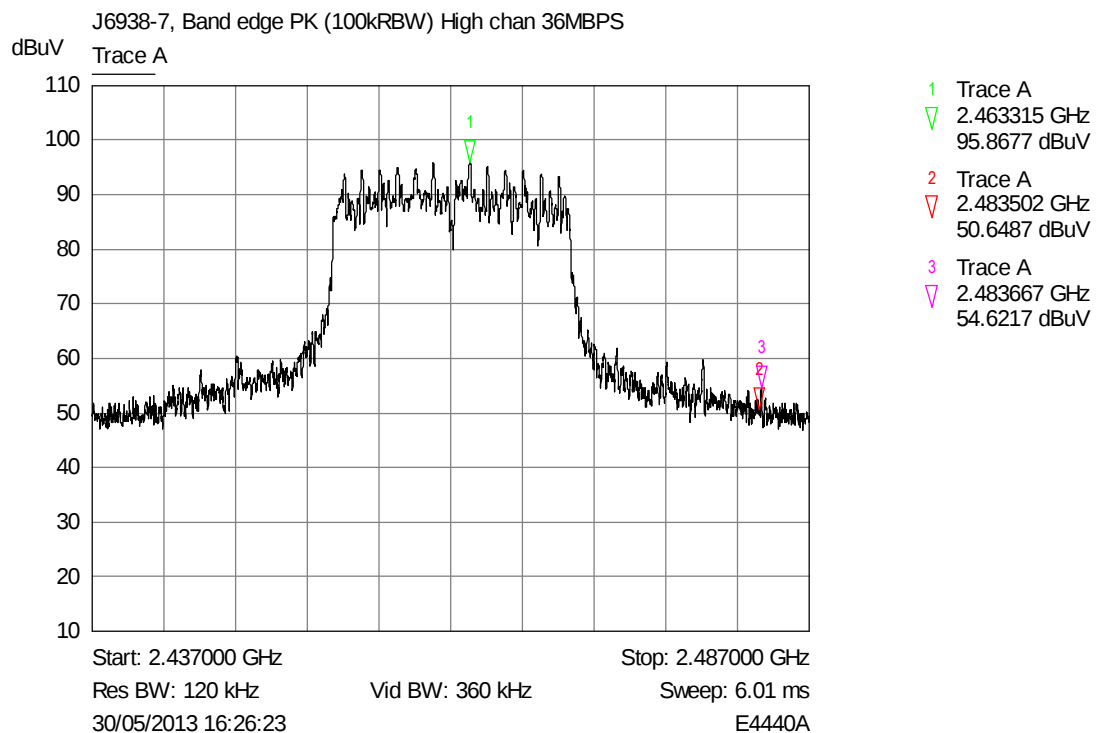
Restricted Band: Low channel Average plot



Restricted Band: High channel Average plot

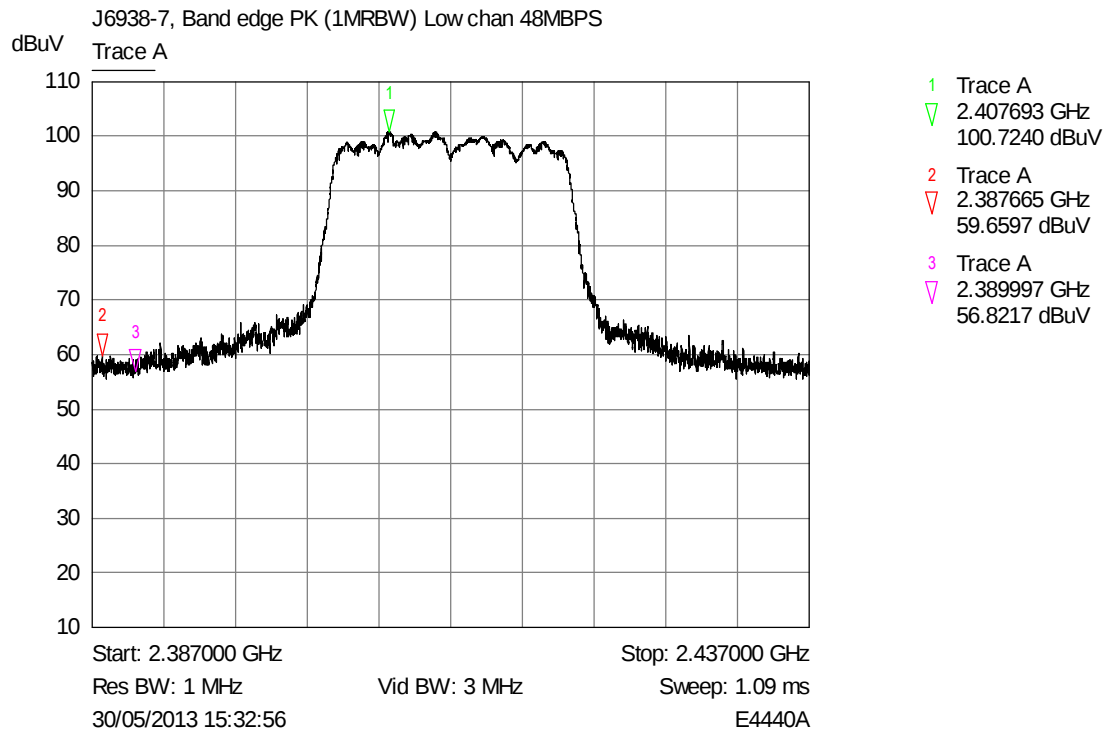


Band Edge: Low channel

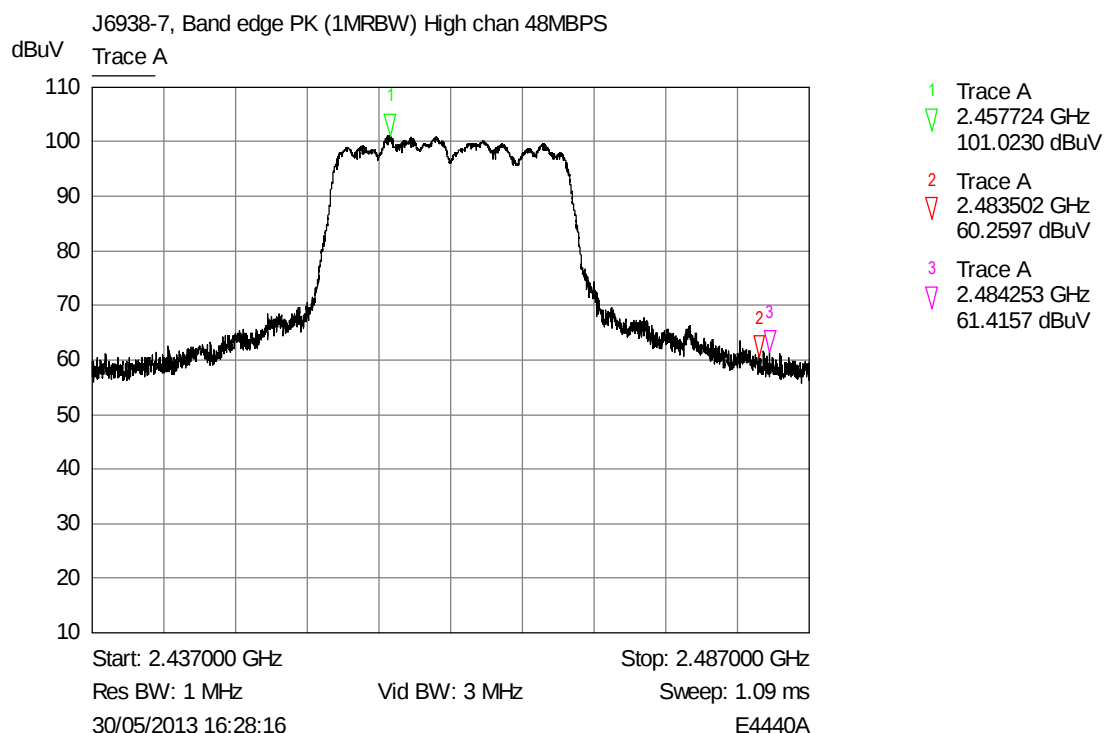


Band Edge: High channel

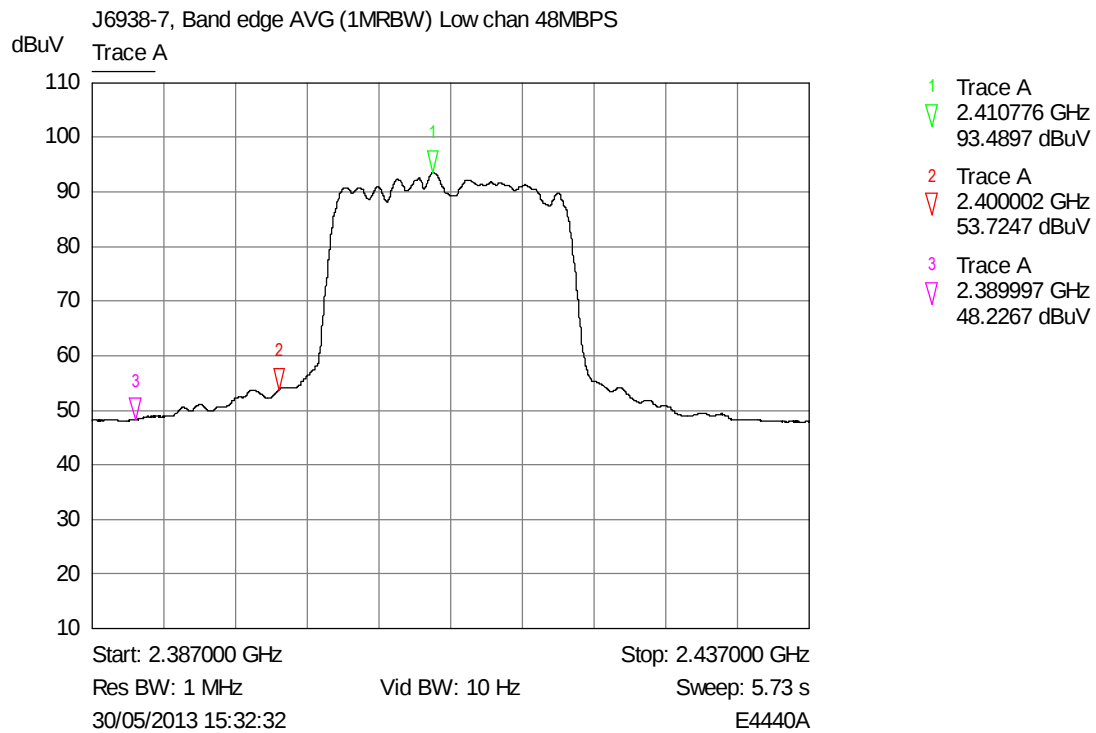
6.4.11 Plots for Band 2400-2483.5 MHz, Power 16 dBm, Spacing 5 MHz, and Modulation 48 MBPS



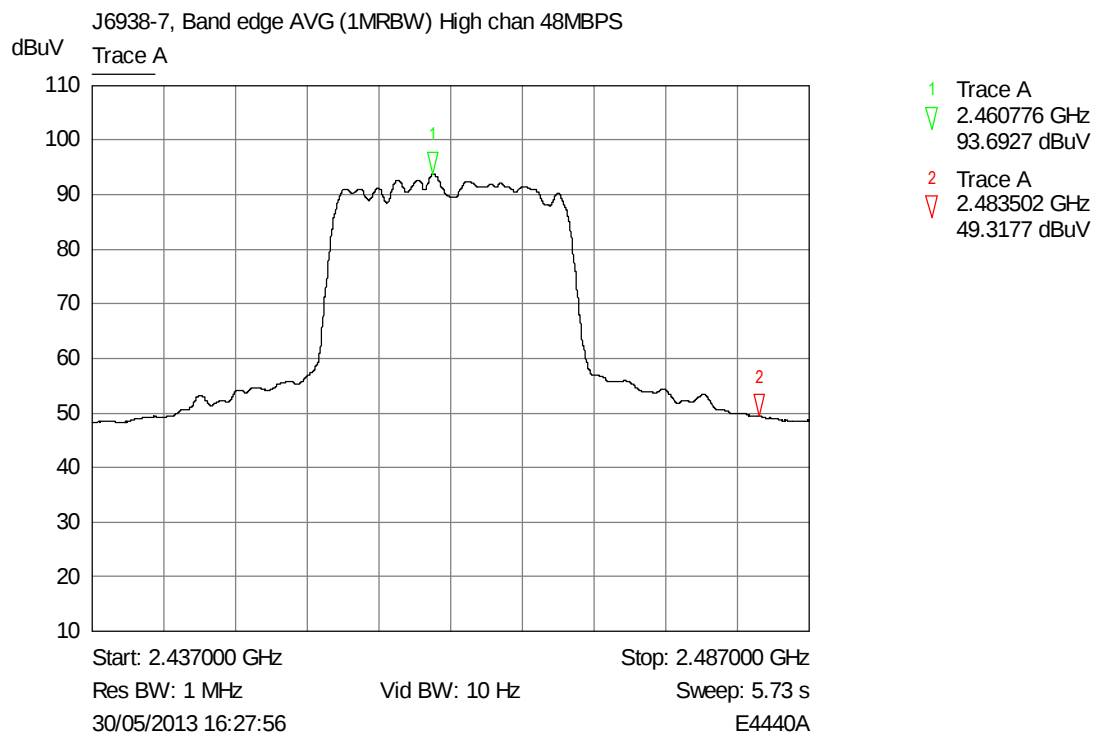
Restricted Band: Low channel Peak plot



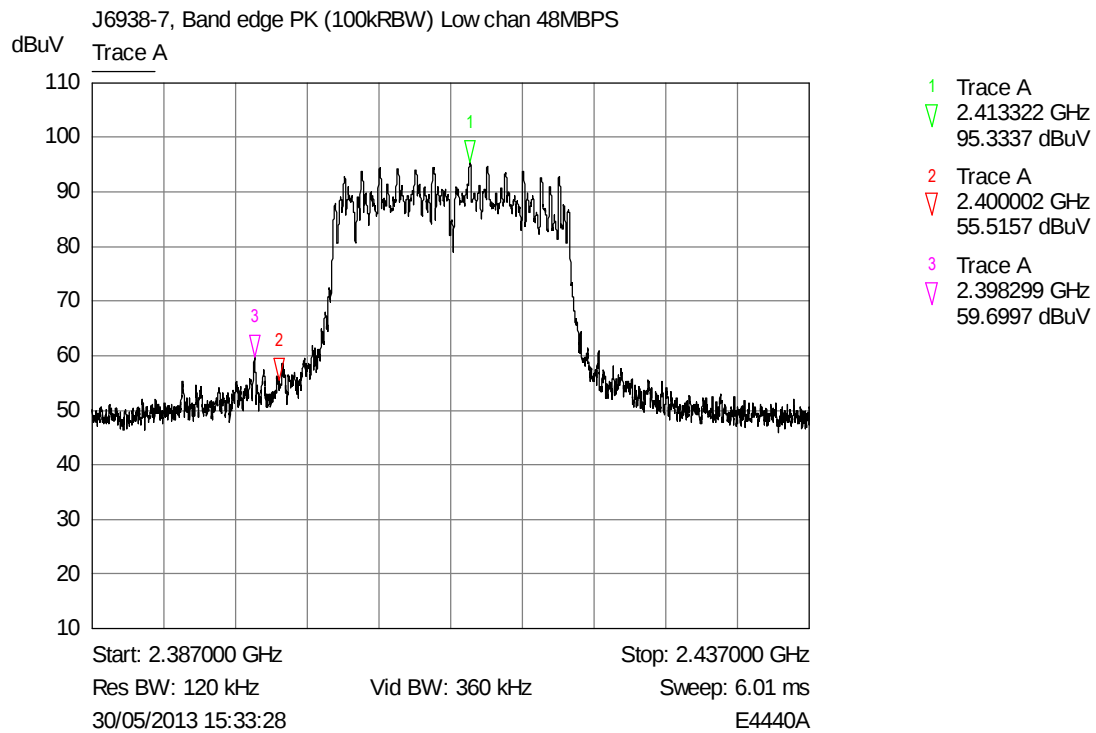
Restricted Band: High channel Peak plot



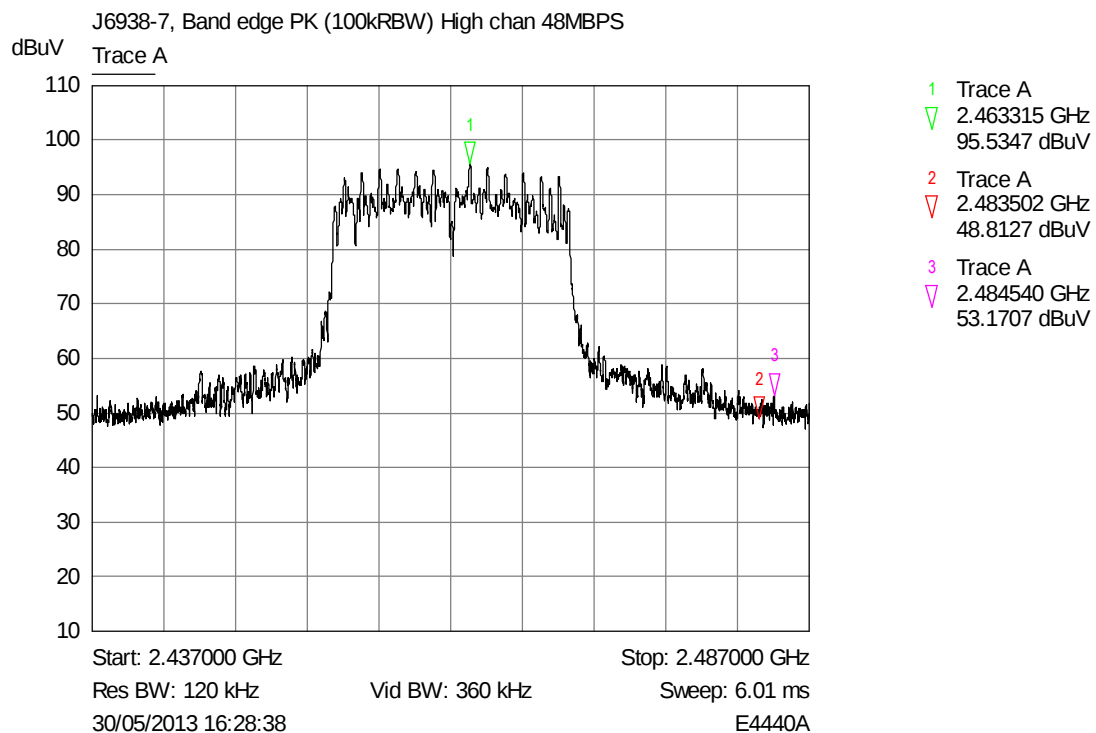
Restricted Band: Low channel Average plot



Restricted Band: High channel Average plot

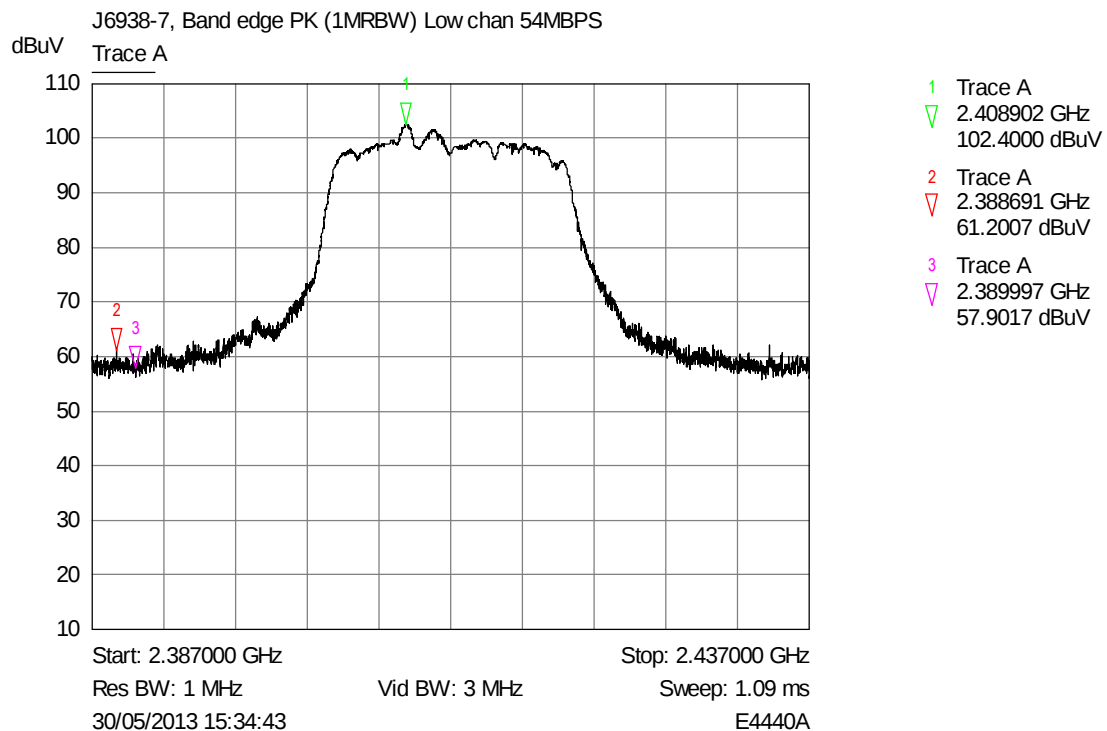


Band Edge: Low channel

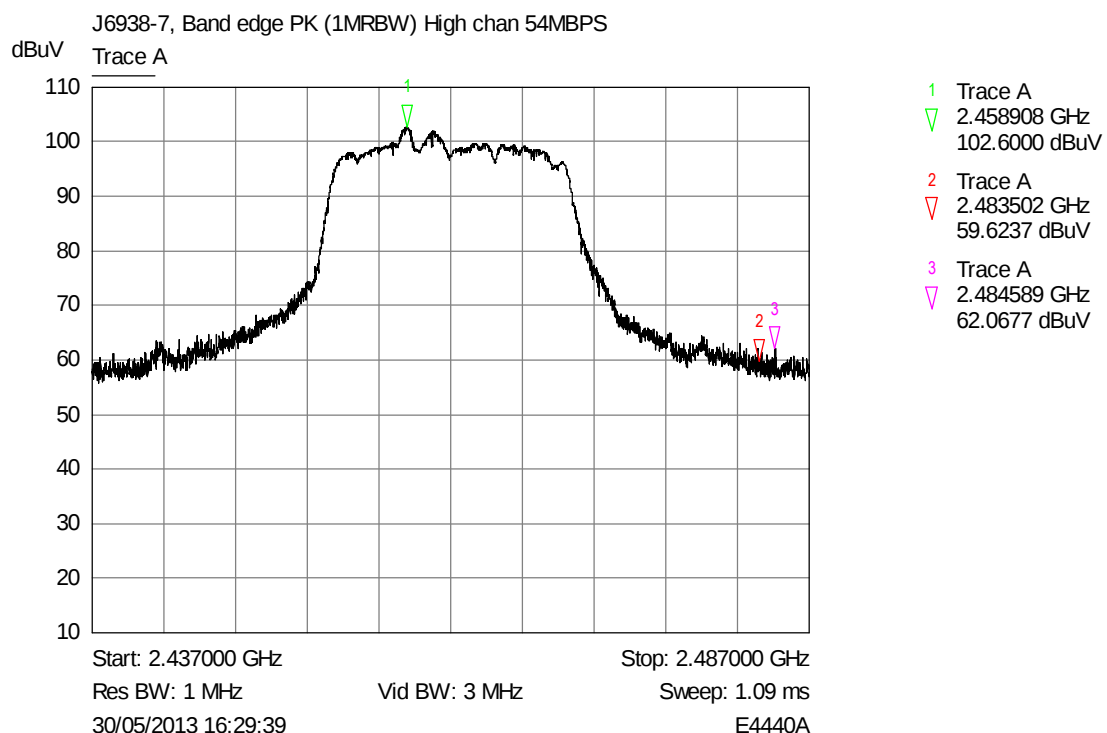


Band Edge: High channel

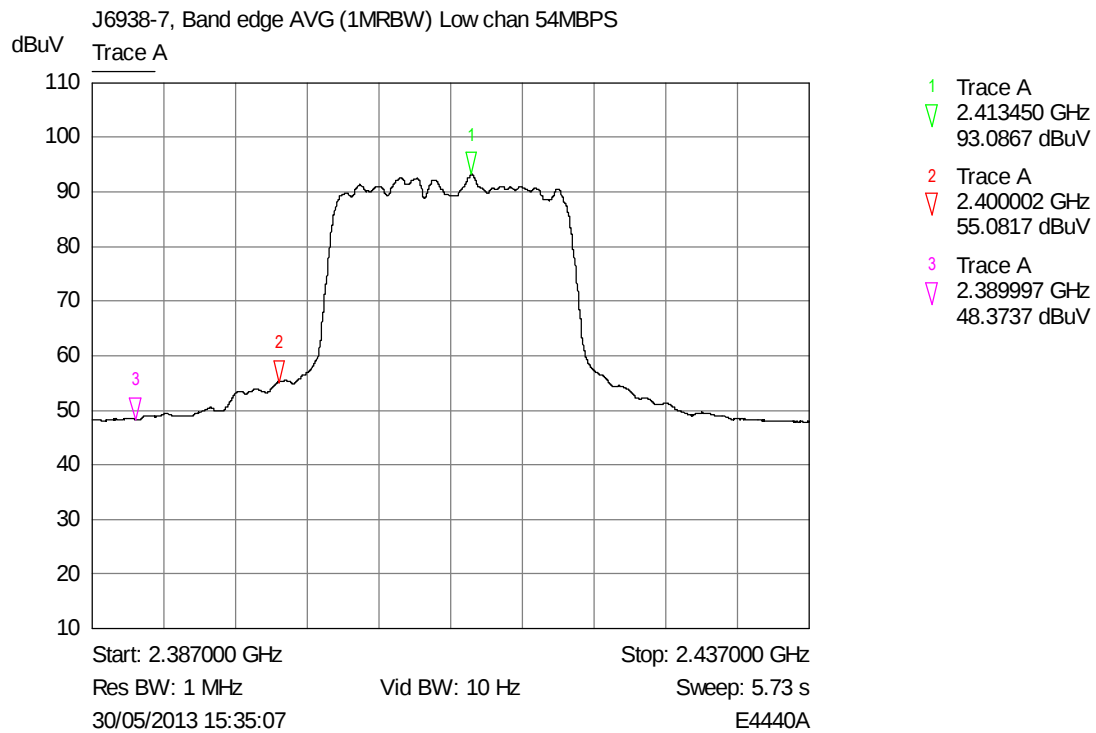
6.4.12 Plots for Band 2400-2483.5 MHz, Power 16 dBm, Spacing 5 MHz, and Modulation 54 MBPS



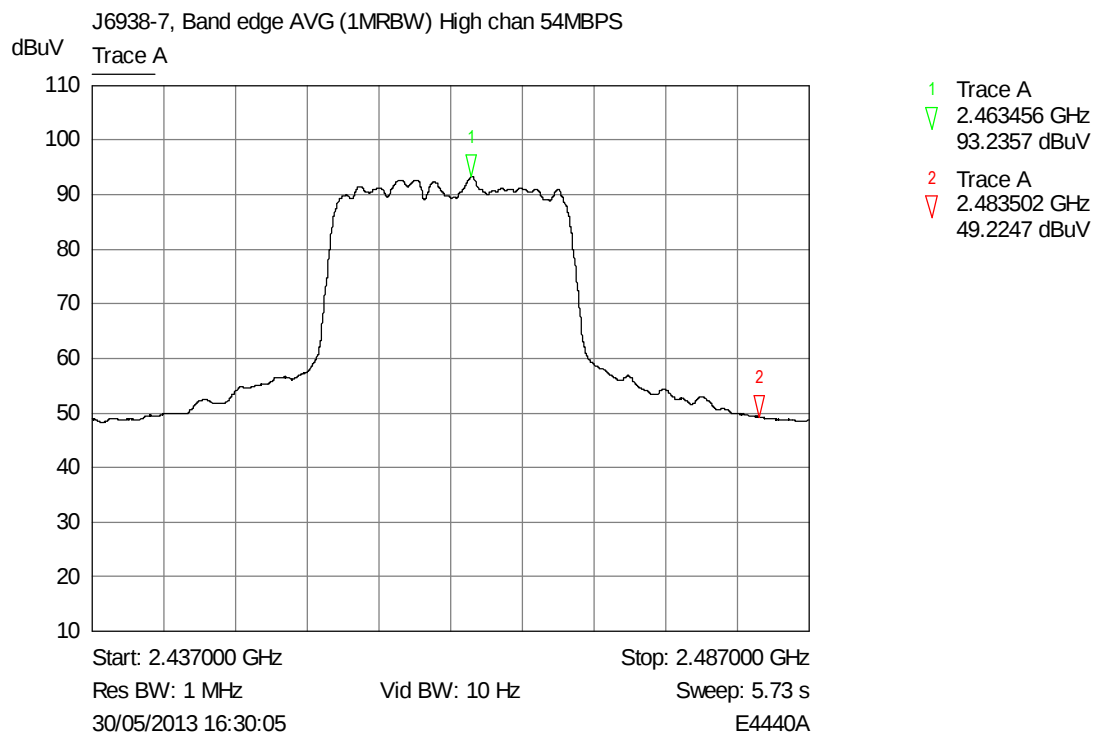
Restricted Band: Low channel Peak plot



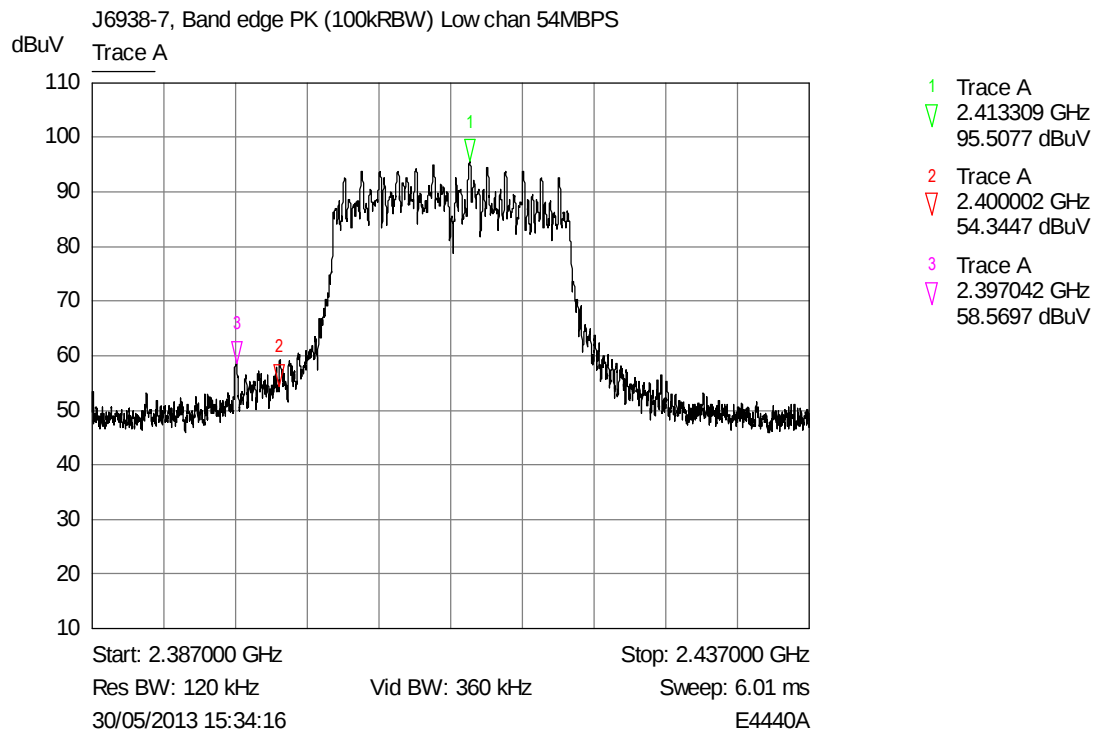
Restricted Band: High channel Peak plot



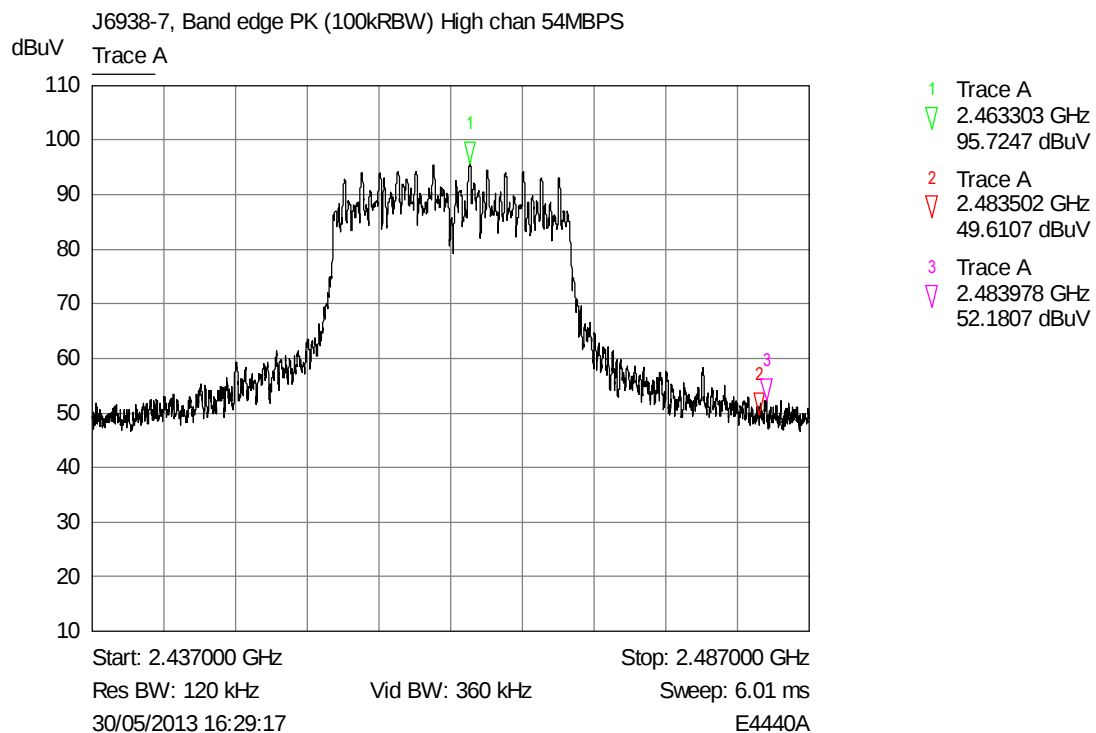
Restricted Band: Low channel Average plot



Restricted Band: High channel Average plot



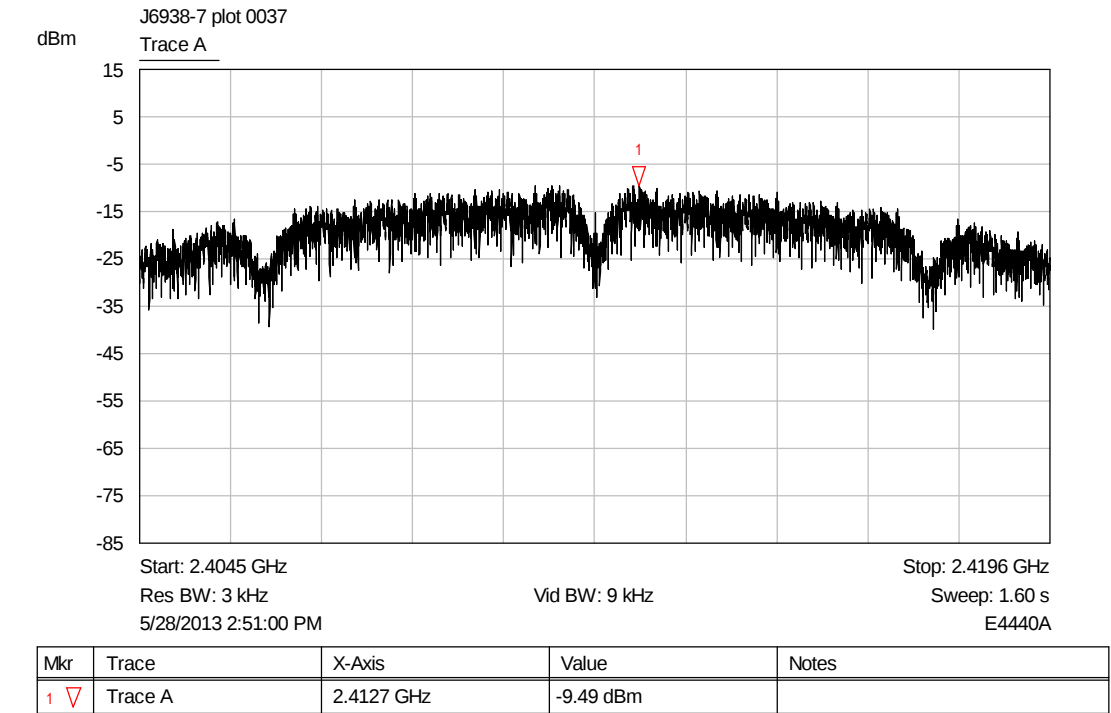
Band Edge: Low channel



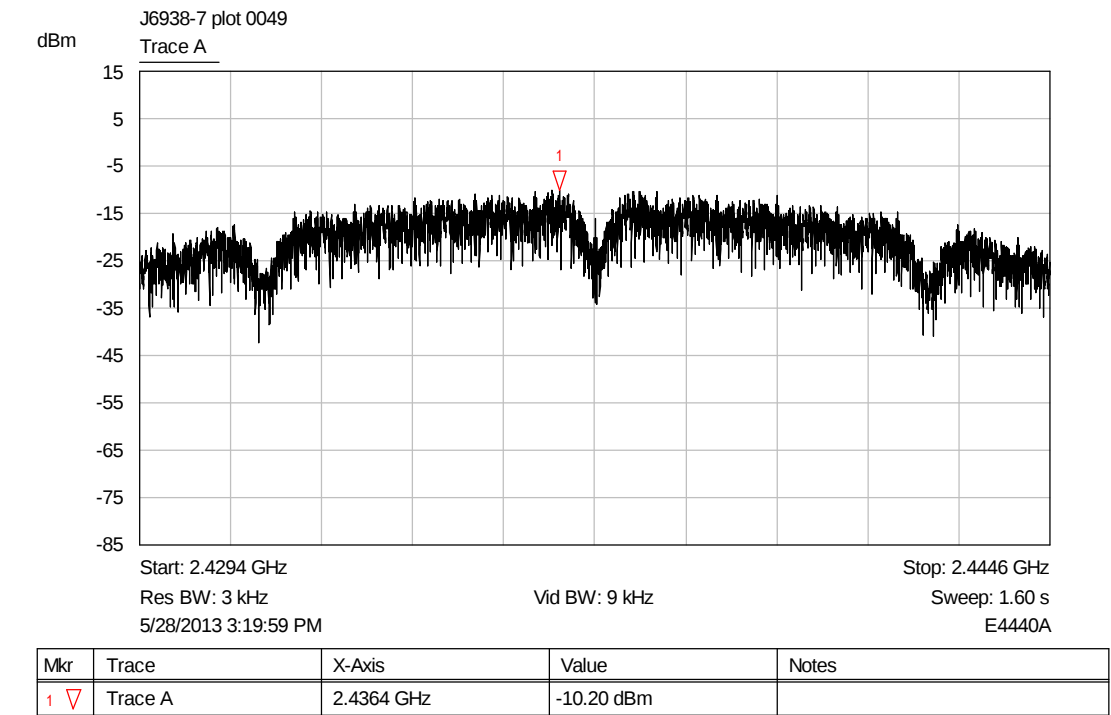
Band Edge: High channel

6.5 Power spectral density plots

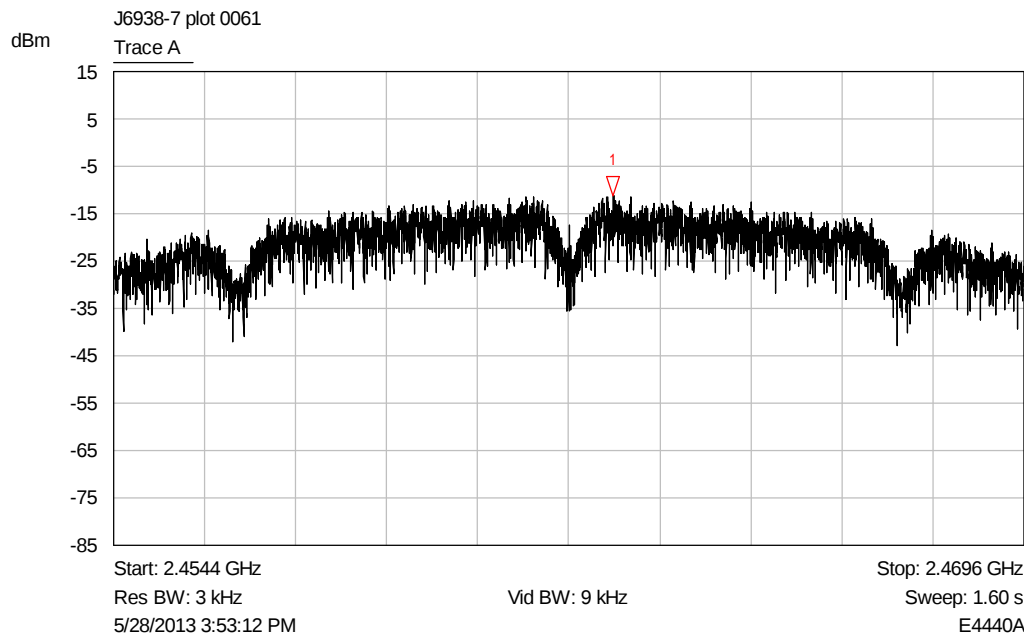
6.5.1 Plots for Band 2400-2483.5 MHz, Power 16 dBm, Spacing 5 MHz, and Modulation 1 MBPS



Low channel



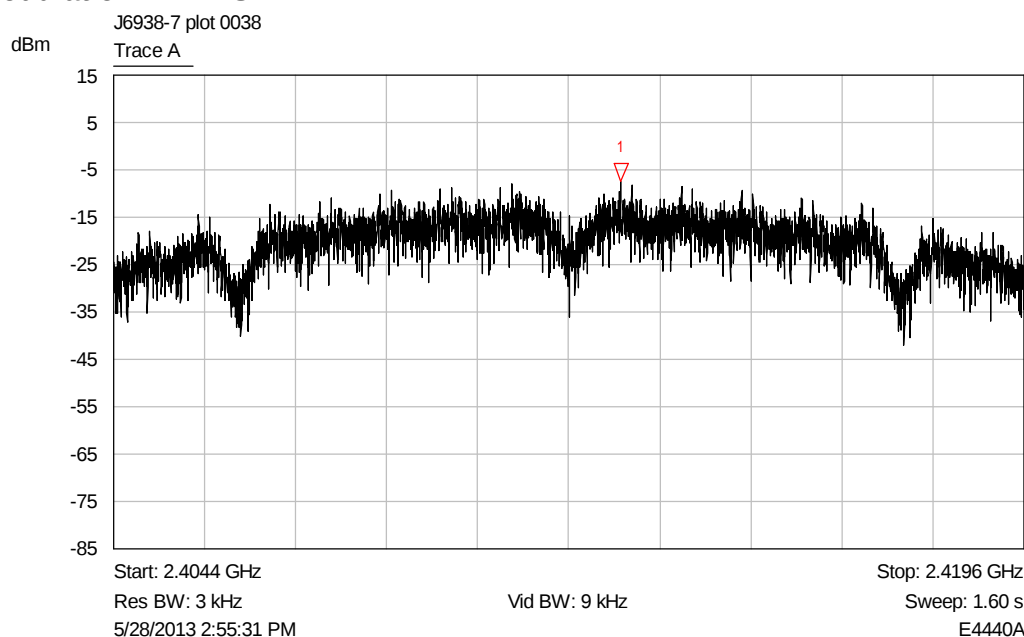
Mid channel



Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	2.4627 GHz	-11.23 dBm	

High channel

6.5.2 Plots for Band 2400-2483.5 MHz, Power 16 dBm, Spacing 5 MHz, and Modulation 2 MBPS

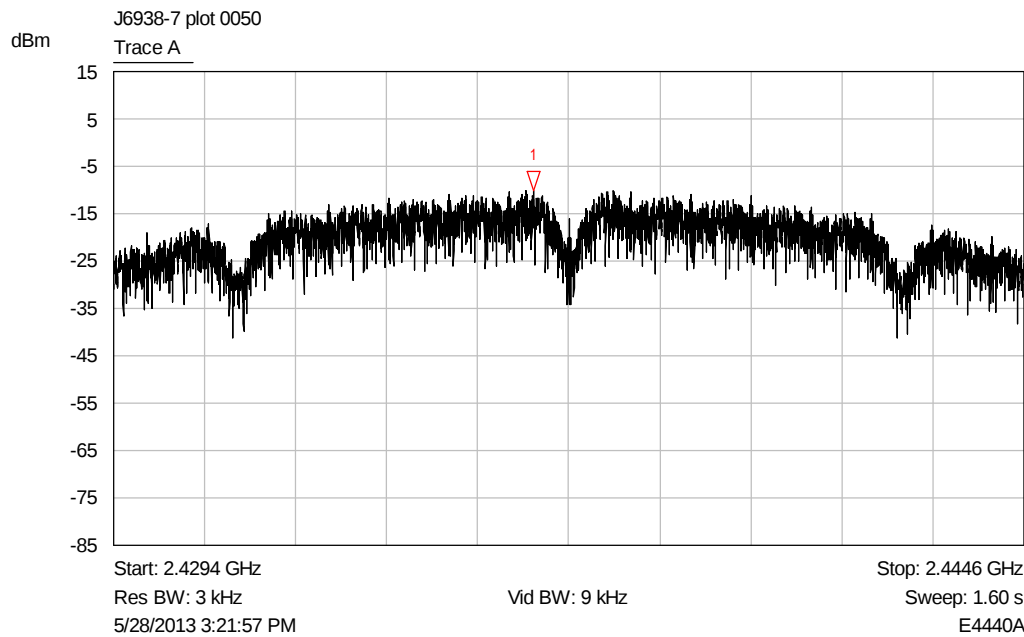


Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	2.4129 GHz	-7.46 dBm	

Low channel

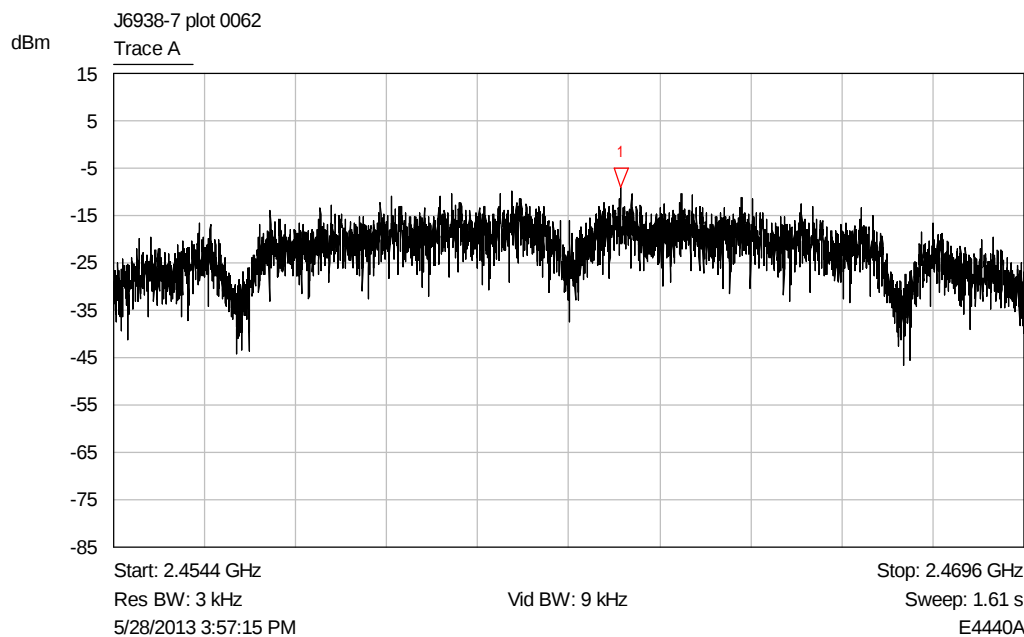
File name PURE.6938-7 ISSUE 02

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Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	2.4364 GHz	-10.02 dBm	

Mid channel



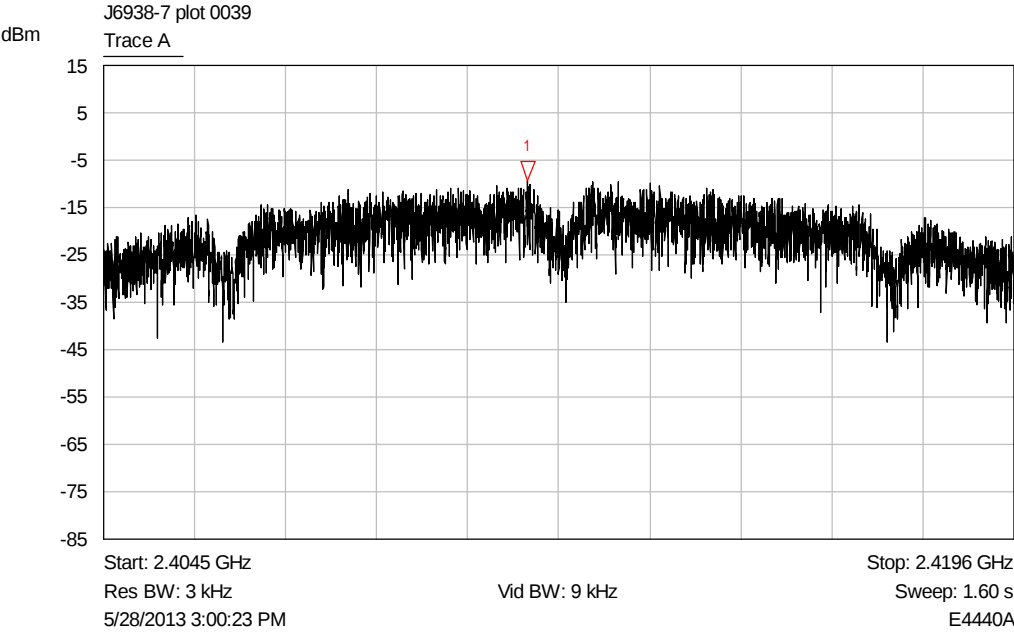
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	2.4629 GHz	-8.99 dBm	

High channel

File name PURE.6938-7 ISSUE 02

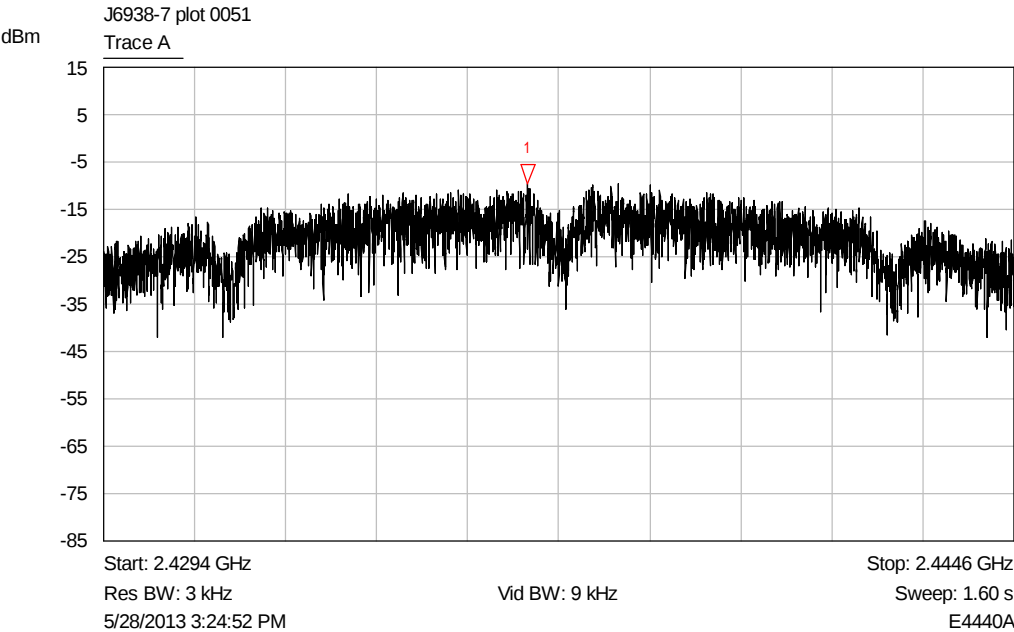
The contents of this report, apart from the referenced ANSI C63.4-2003, are beyond the scope of UKAS Testing Laboratory No. 2360 accreditation.

6.5.3 Plots for Band 2400-2483.5 MHz, Power 16 dBm, Spacing 5 MHz, and Modulation 5.5 MBPS



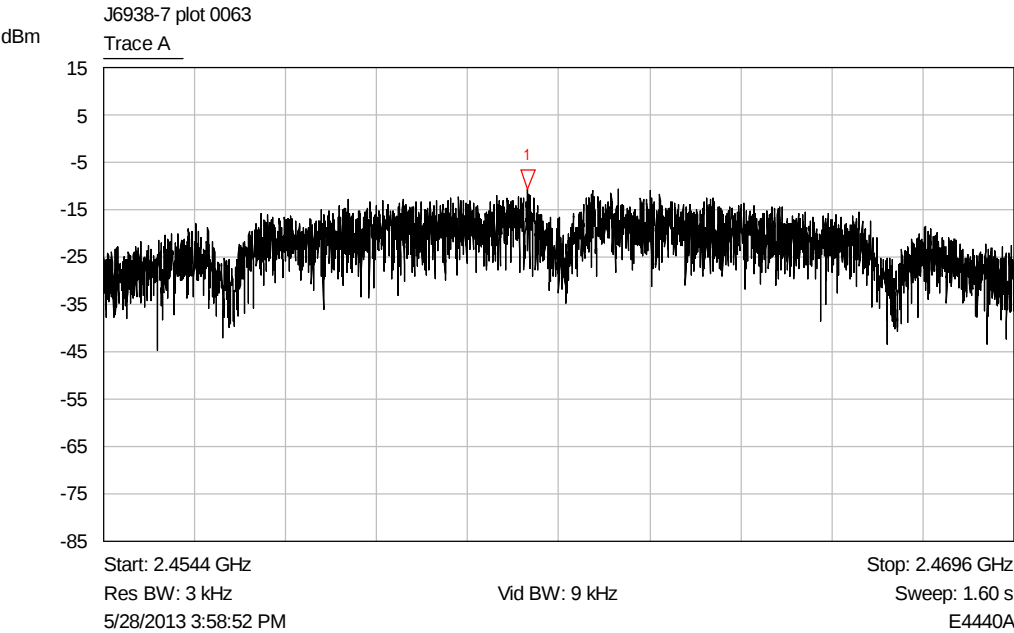
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	2.4115 GHz	-9.33 dBm	

Low channel



Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	2.4365 GHz	-9.54 dBm	

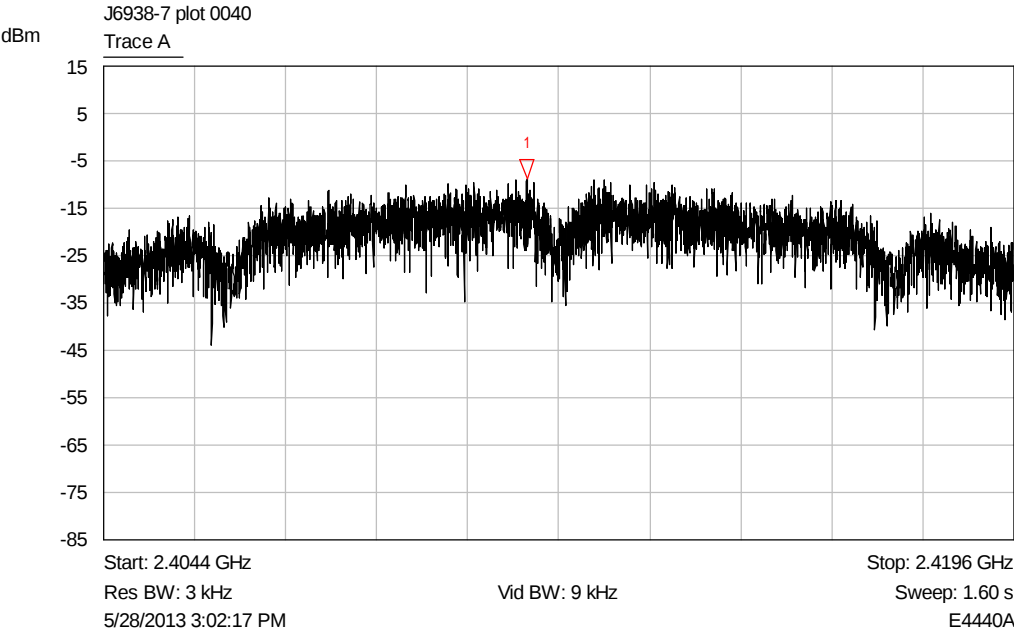
Mid channel



Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	2.4615 GHz	-10.71 dBm	

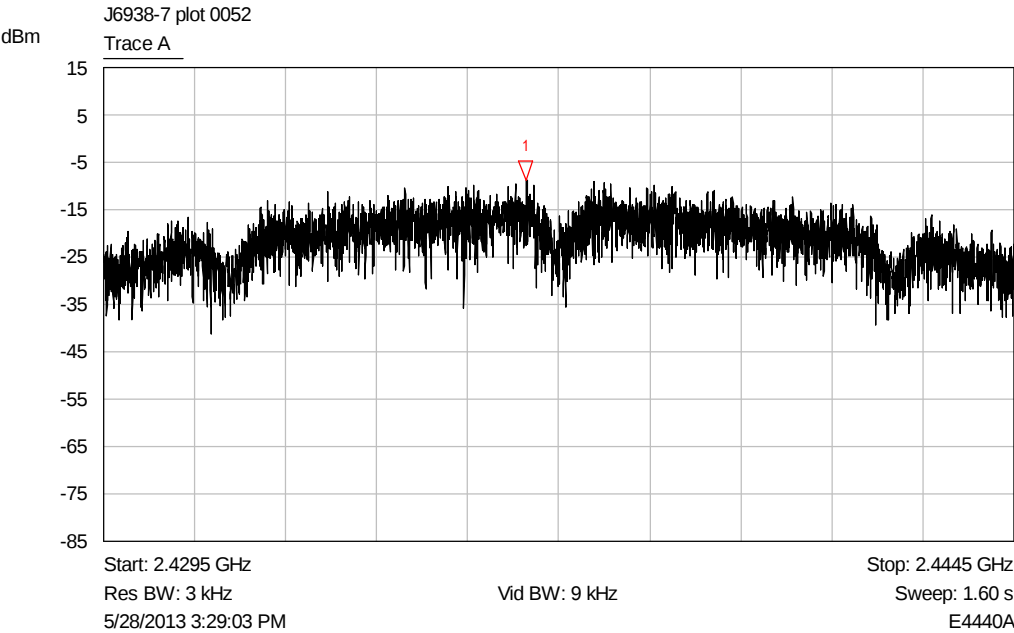
High channel

6.5.4 Plots for Band 2400-2483.5 MHz, Power 16 dBm, Spacing 5 MHz, and Modulation 11 MBPS



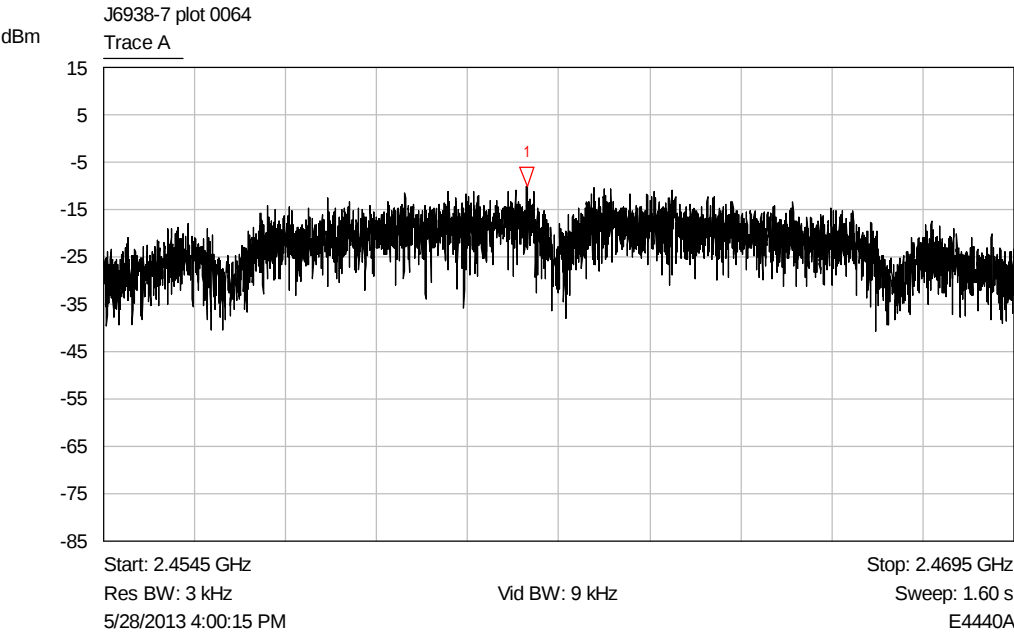
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	2.4115 GHz	-8.63 dBm	

Low channel



Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	2.4365 GHz	-8.83 dBm	

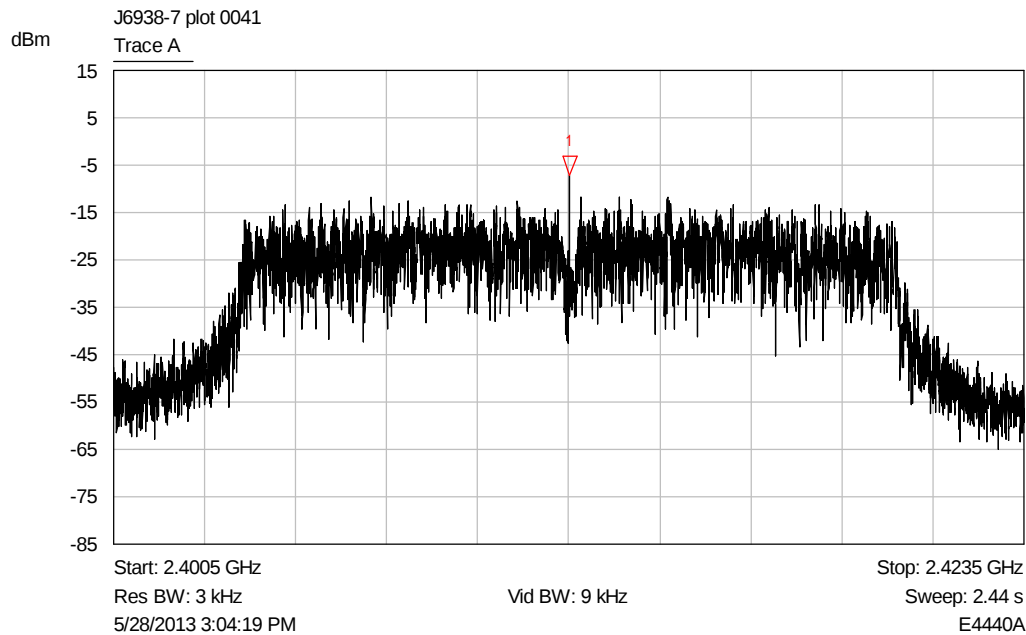
Mid channel



Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	2.4615 GHz	-10.10 dBm	

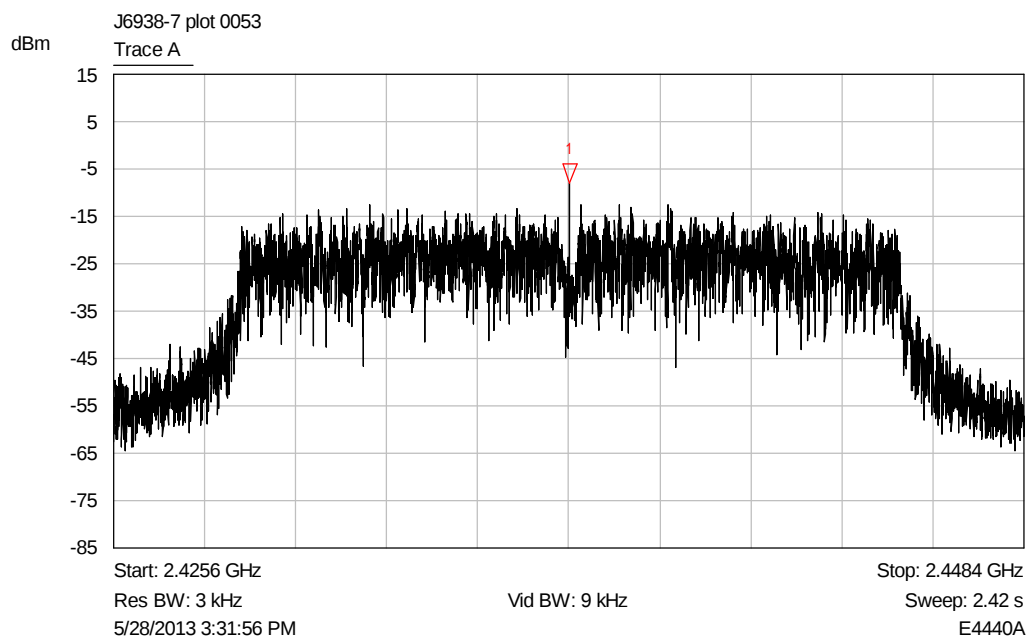
High channel

6.5.5 Plots for Band 2400-2483.5 MHz, Power 16 dBm, Spacing 5 MHz, and Modulation 6 MBPS



Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	2.4120 GHz	-7.19 dBm	

Low channel

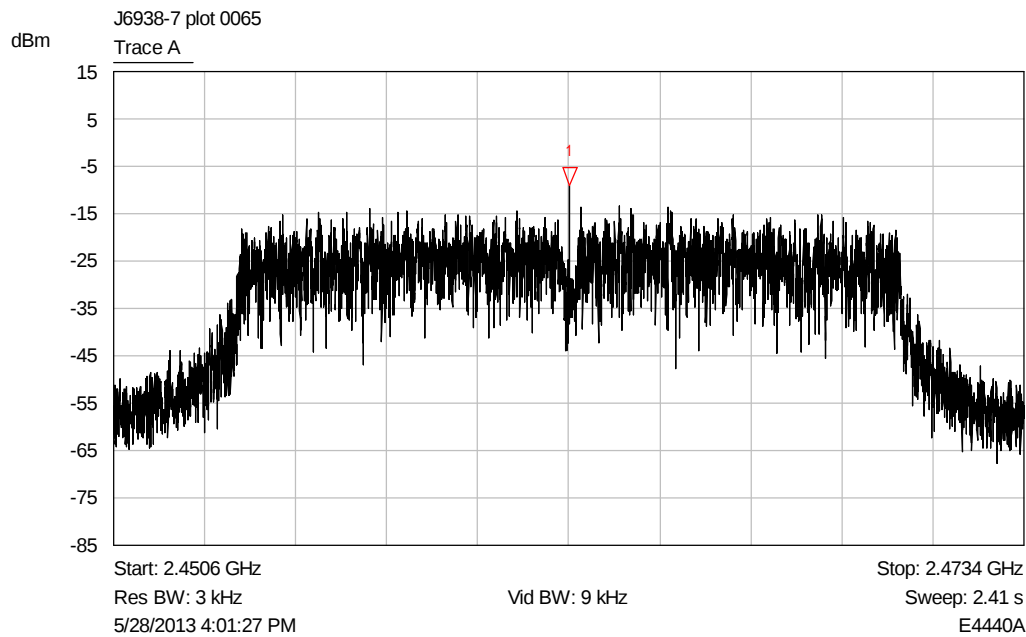


Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	2.4370 GHz	-8.01 dBm	

Mid channel

File name PURE.6938-7 ISSUE 02

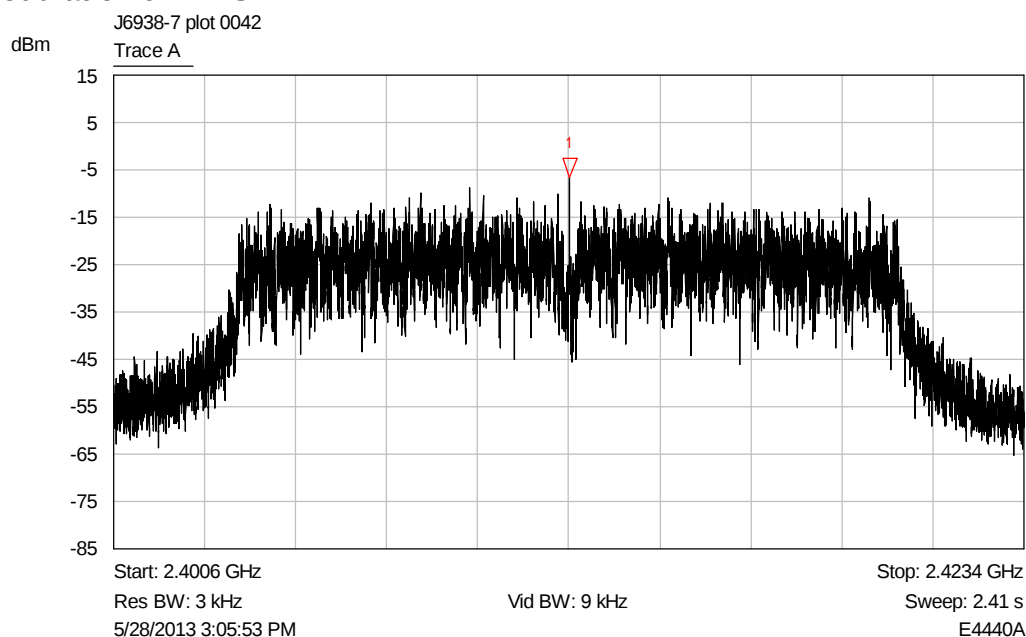
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Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	2.4620 GHz	-9.10 dBm	

High channel

6.5.6 Plots for Band 2400-2483.5 MHz, Power 16 dBm, Spacing 5 MHz, and Modulation 9 MBPS

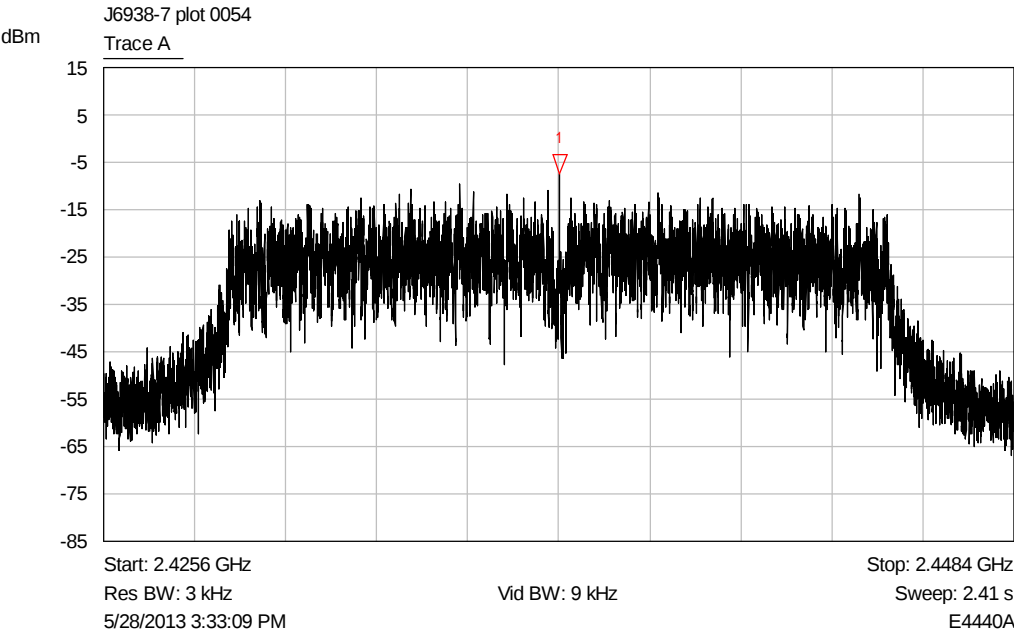


Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	2.4120 GHz	-6.63 dBm	

Low channel

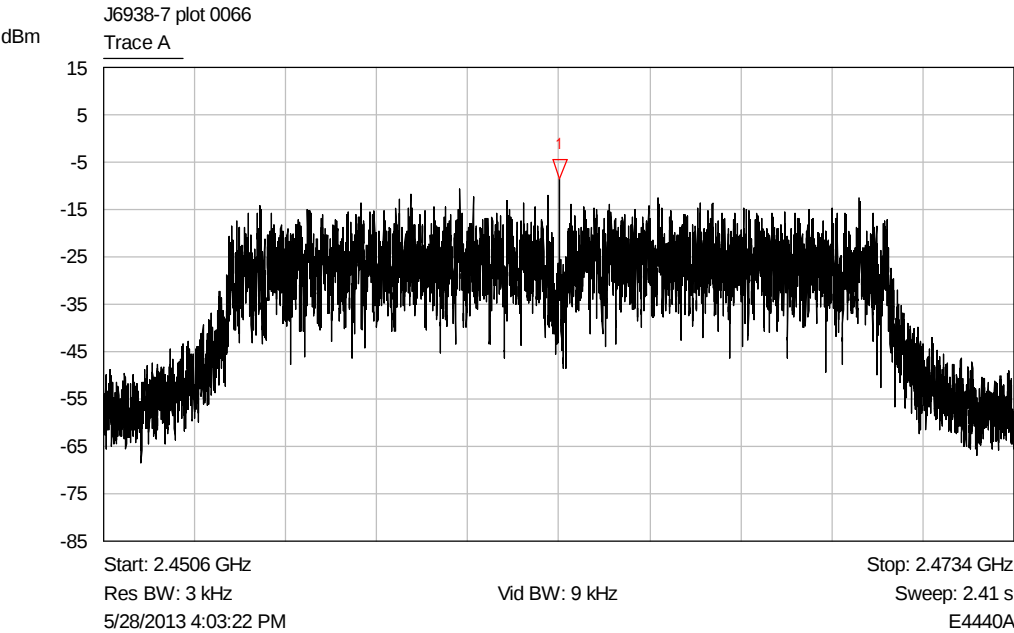
File name PURE.6938-7 ISSUE 02

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Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	2.4370 GHz	-7.37 dBm	

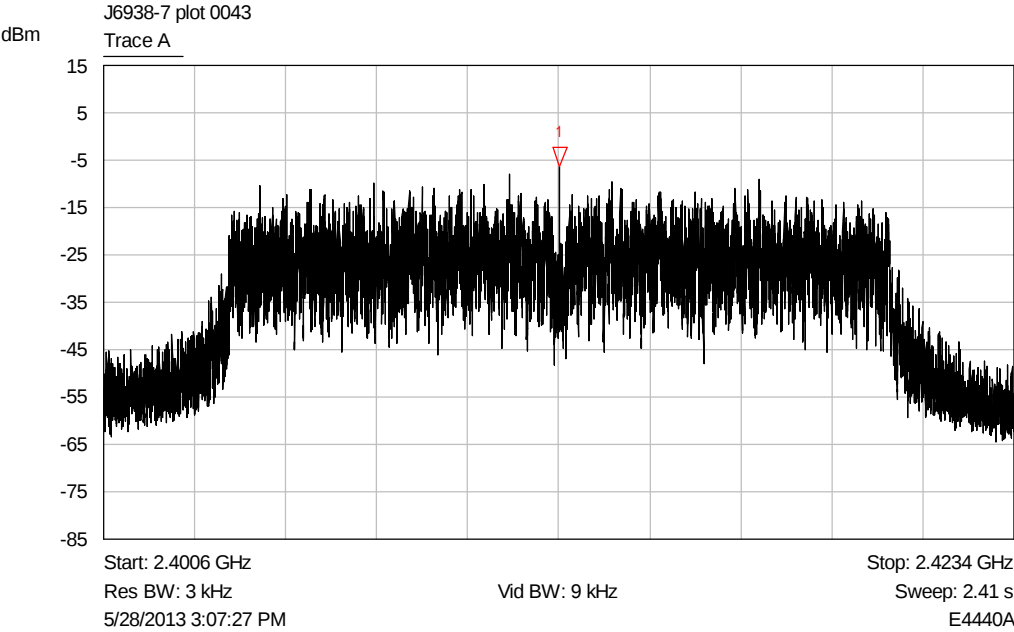
Mid channel



Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	2.4620 GHz	-8.55 dBm	

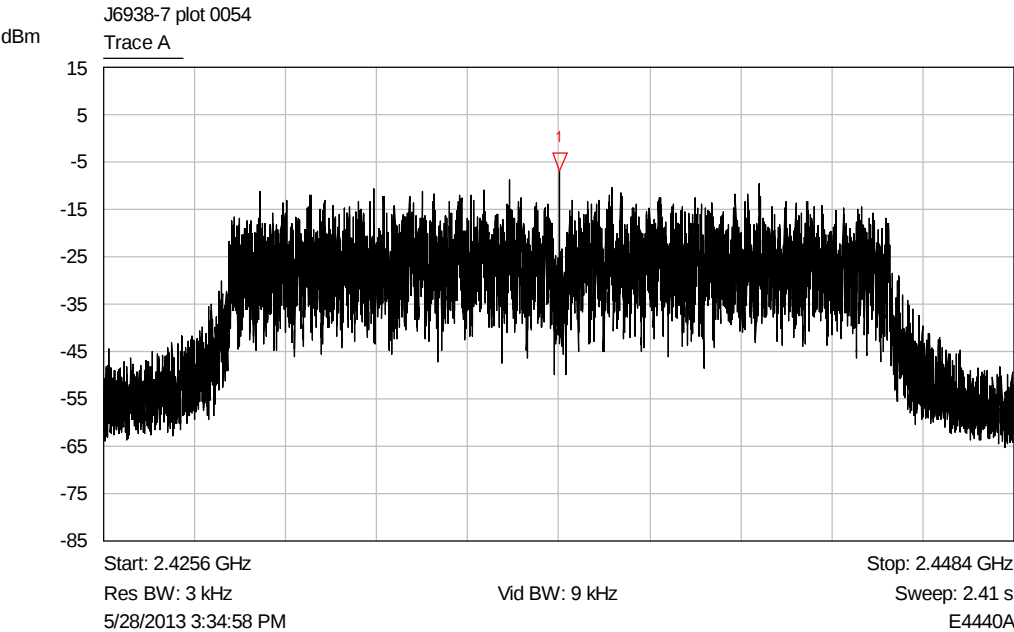
High channel

6.5.7 Plots for Band 2400-2483.5 MHz, Power 16 dBm, Spacing 5 MHz, and Modulation 12 MBPS



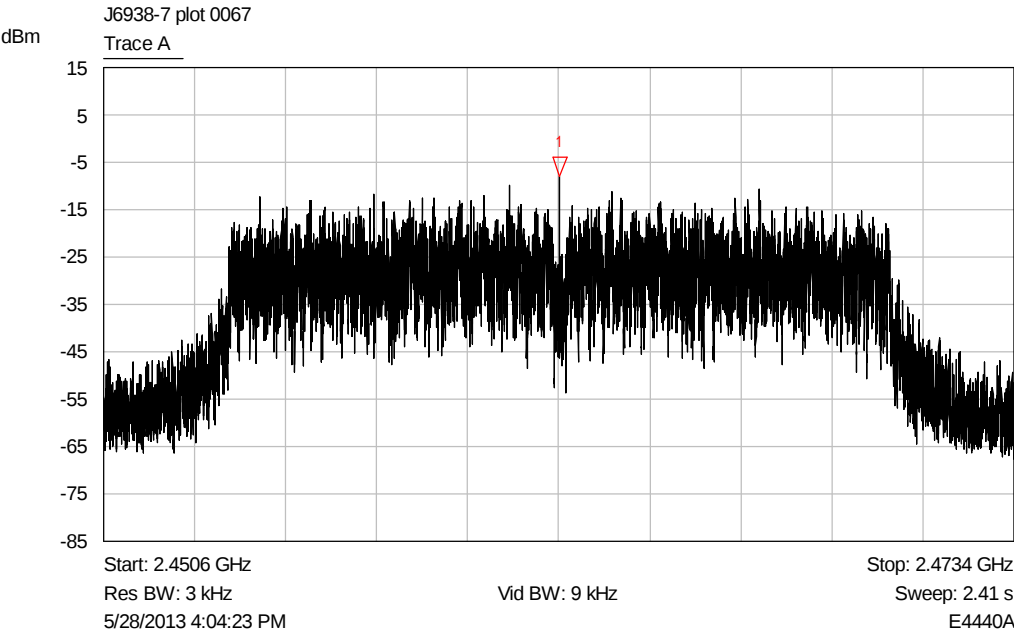
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	2.4120 GHz	-6.26 dBm	

Low channel



Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	2.4370 GHz	-6.96 dBm	

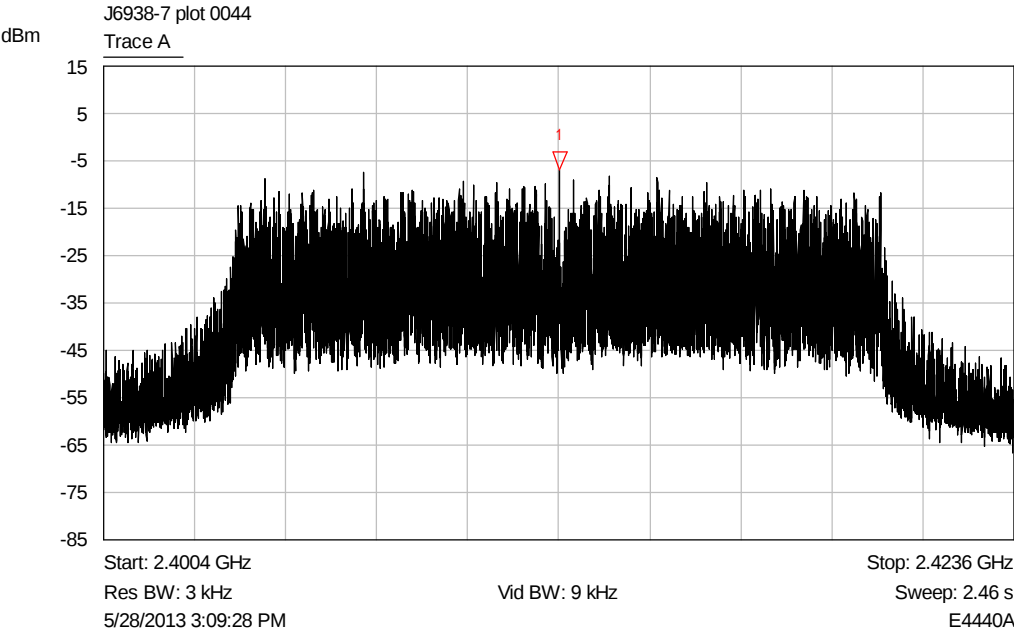
Mid channel



Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	2.4620 GHz	-8.07 dBm	

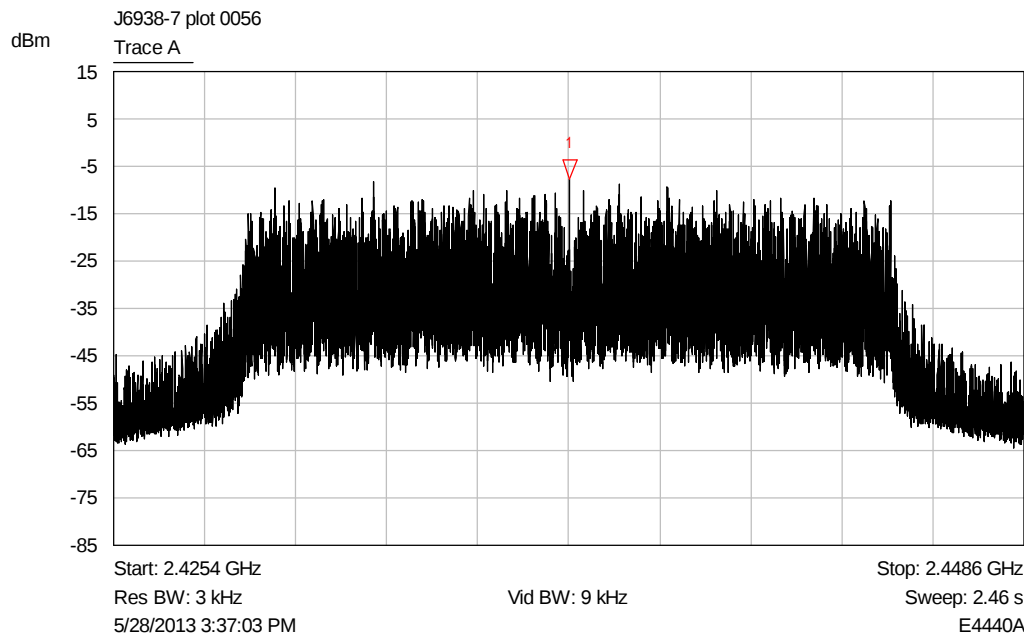
High channel

6.5.8 Plots for Band 2400-2483.5 MHz, Power 16 dBm, Spacing 5 MHz, and Modulation 18 MBPS



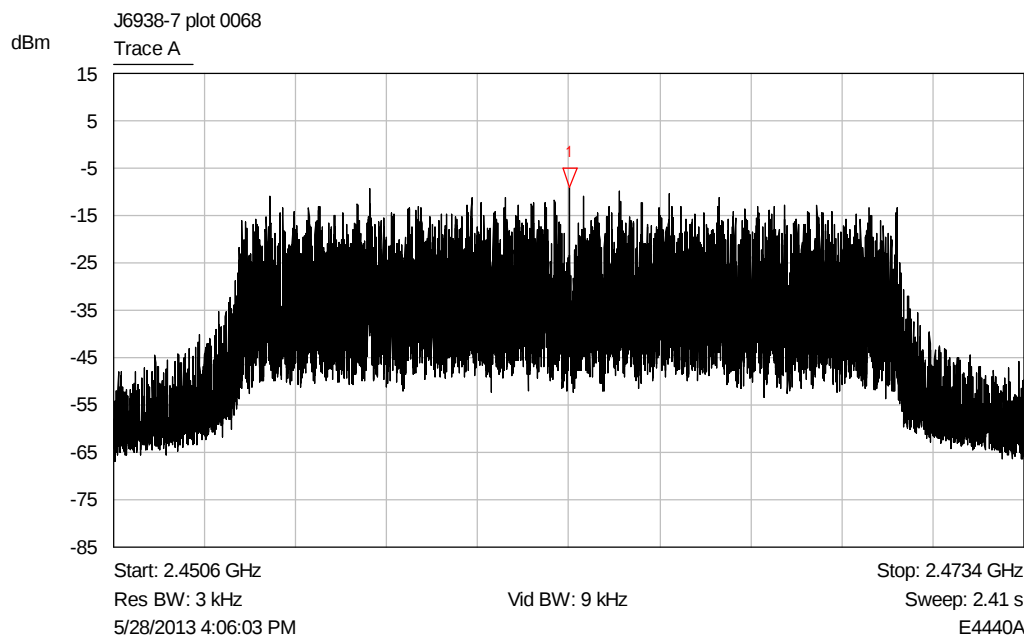
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	2.4120 GHz	-7.01 dBm	

Low channel



Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	2.4370 GHz	-7.73 dBm	

Mid channel



Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	2.4620 GHz	-8.95 dBm	

High channel

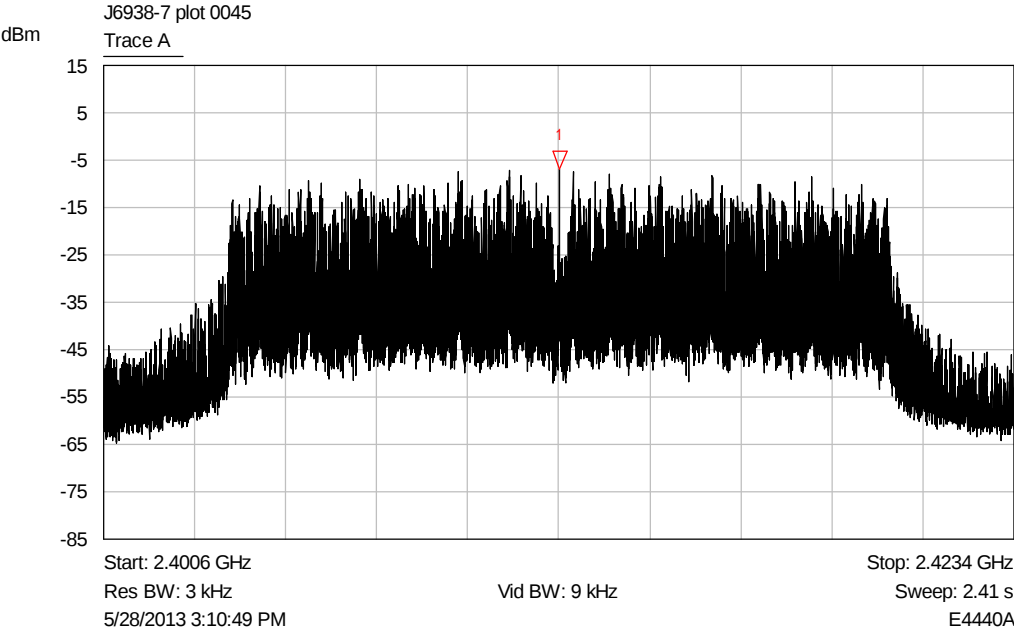
File name PURE.6938-7 ISSUE 02

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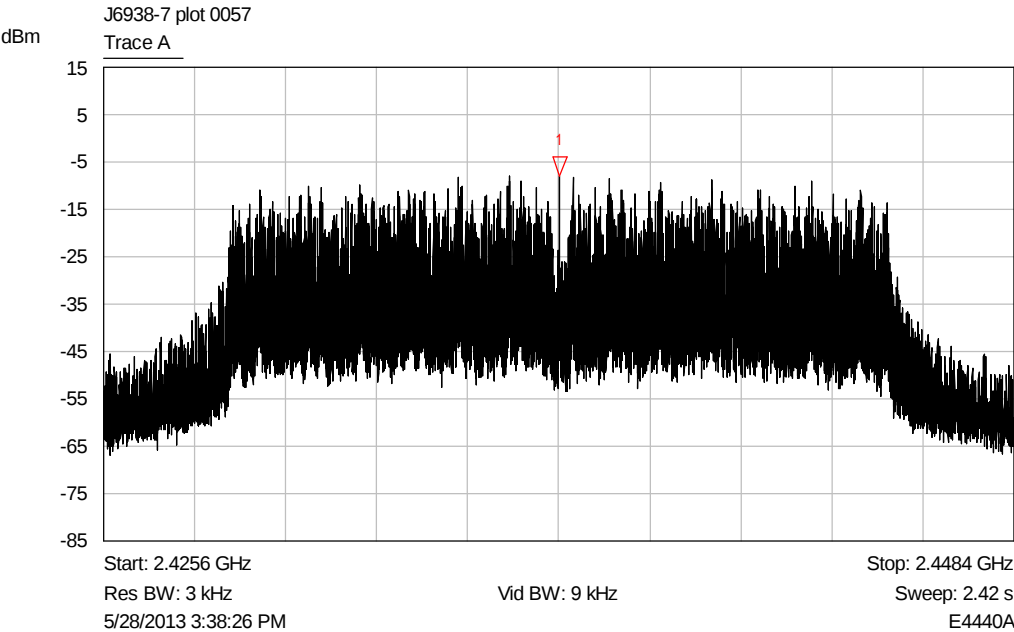
PAGE 123 OF 148

6.5.9 Plots for Band 2400-2483.5 MHz, Power 16 dBm, Spacing 5 MHz, and Modulation 24 MBPS



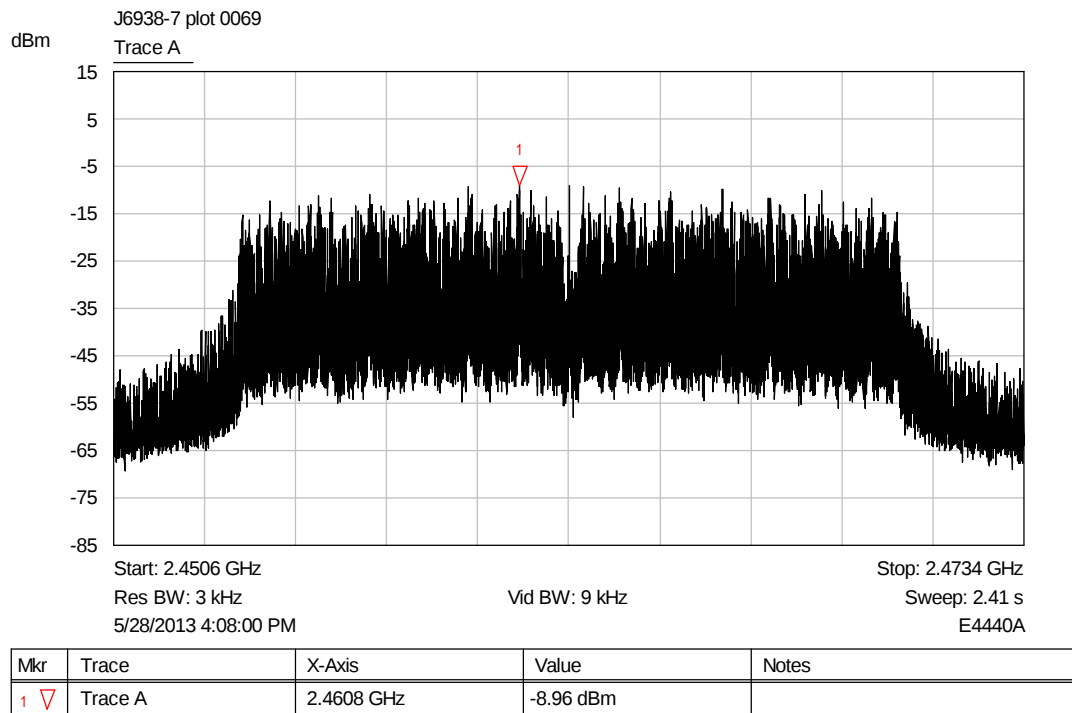
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	2.4120 GHz	-7.04 dBm	

Low channel



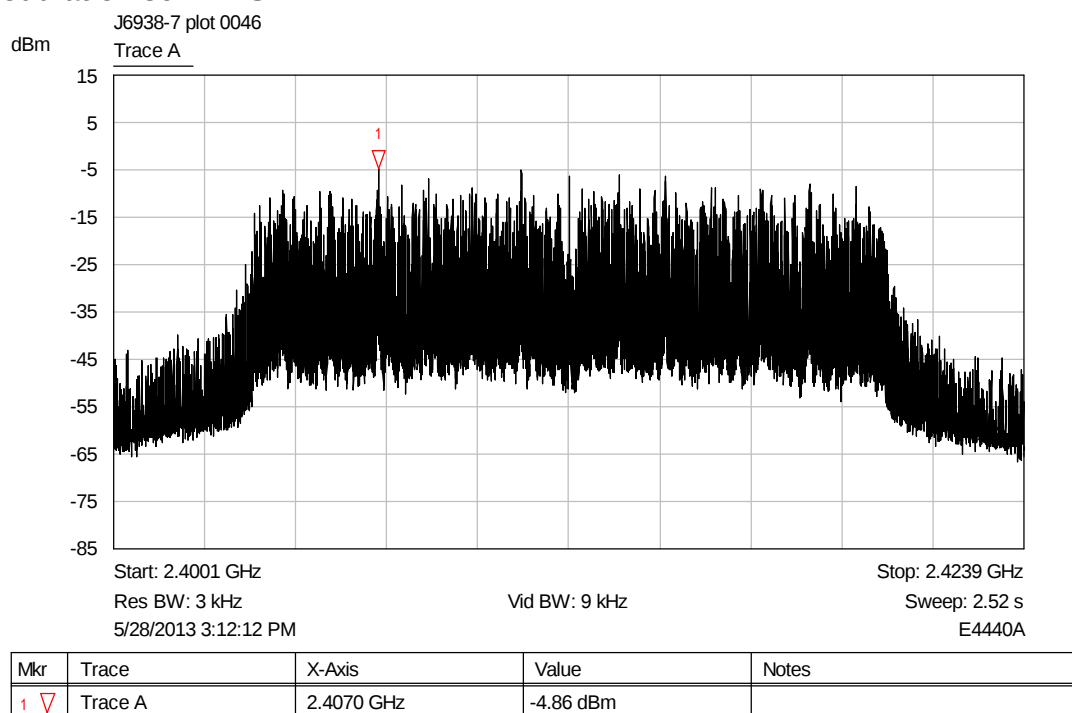
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	2.4370 GHz	-7.81 dBm	

Mid channel

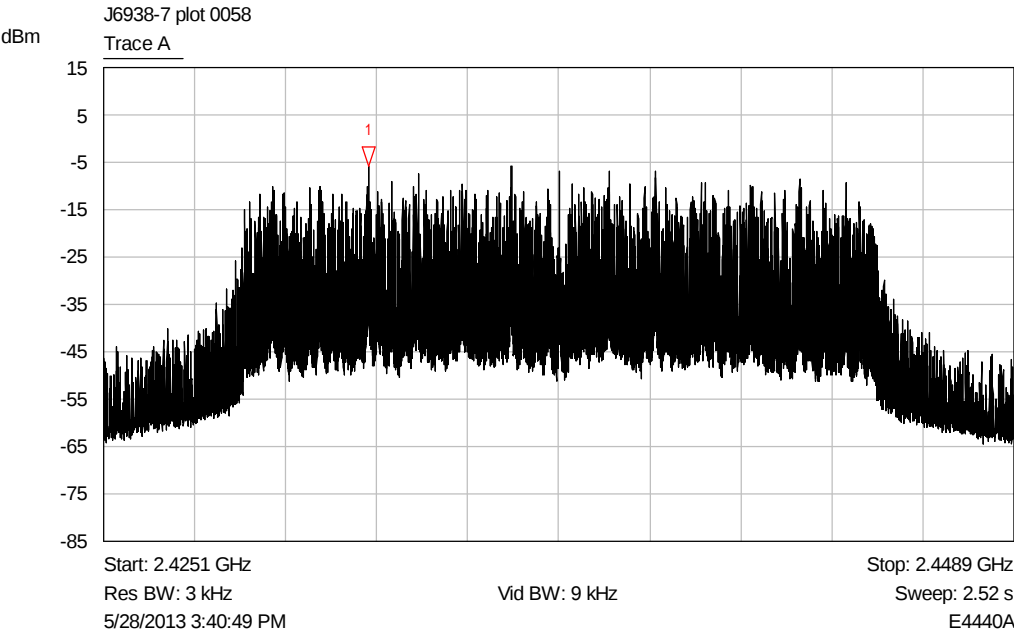


High channel

6.5.10 Plots for Band 2400-2483.5 MHz, Power 16 dBm, Spacing 5 MHz, and Modulation 36 MBPS

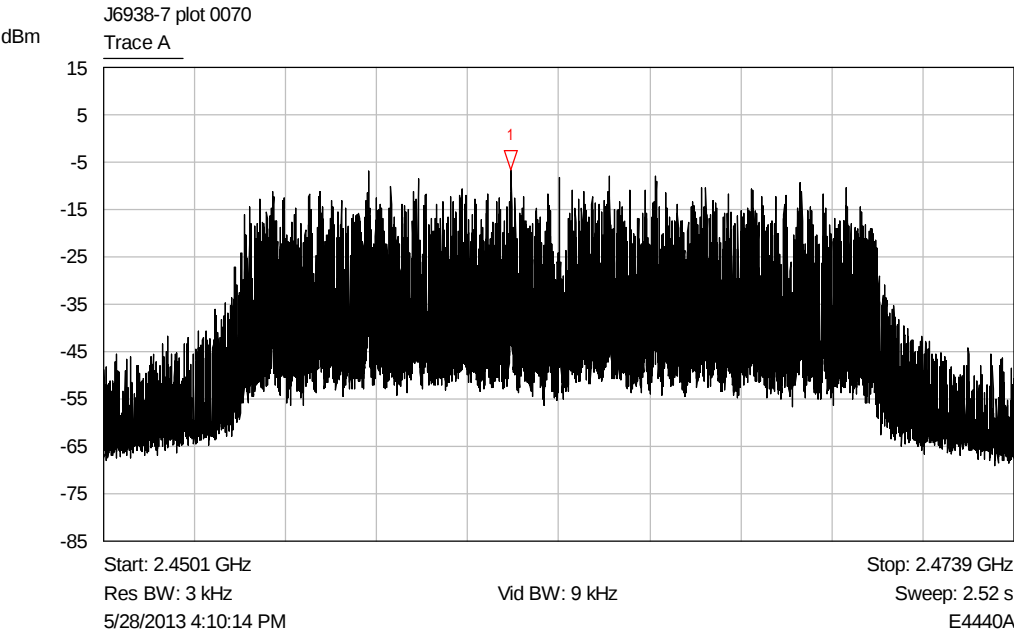


Low channel



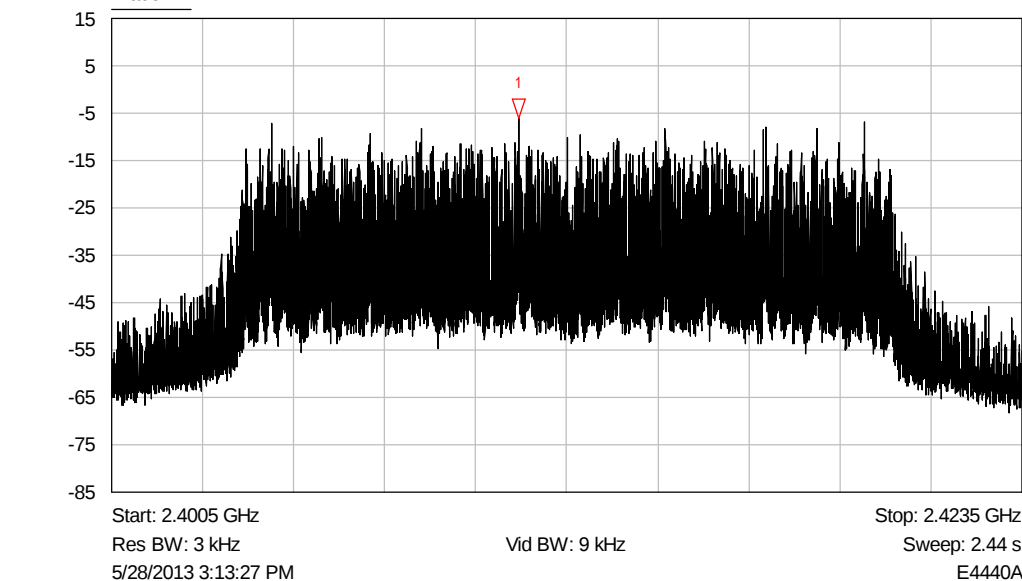
Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	2.4320 GHz	-5.62 dBm	

Mid channel



Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	2.4608 GHz	-6.68 dBm	

High channel

J6938-7 plot 0047
dBm Trace A

Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	2.4108 GHz	-5.93 dBm	

J6938-7 plot 0059

Trace A

The plot shows a spectrum with a central band of noise between -45 dBm and -15 dBm, flanked by lower noise levels. A red downward-pointing triangle marker labeled '1' is positioned at approximately -5 dBm.

dBm

15

5

-5

-15

-25

-35

-45

-55

-65

-75

-85

Start: 2.4255 GHz

Stop: 2.4485 GHz

Res BW: 3 kHz

Vid BW: 9 kHz

Sweep: 2.44 s

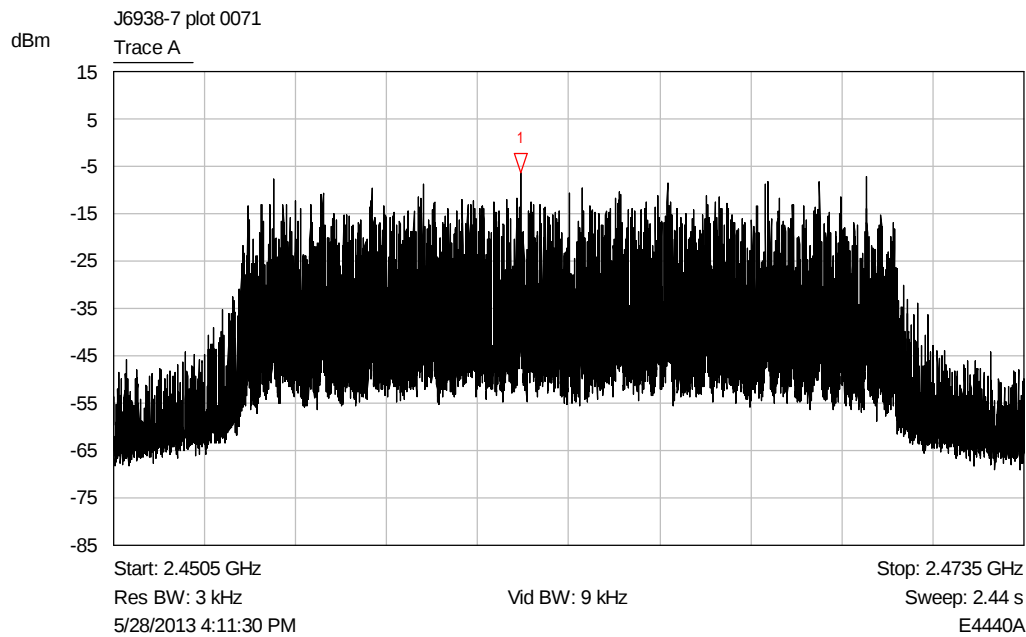
5/28/2013 3:42:25 PM

E4440A

Mkr	Trace	X-Axis	Value	Notes
1 ▾	Trace A	2.4358 GHz	-6.61 dBm	

File name PURE.6938-7 ISSUE 02

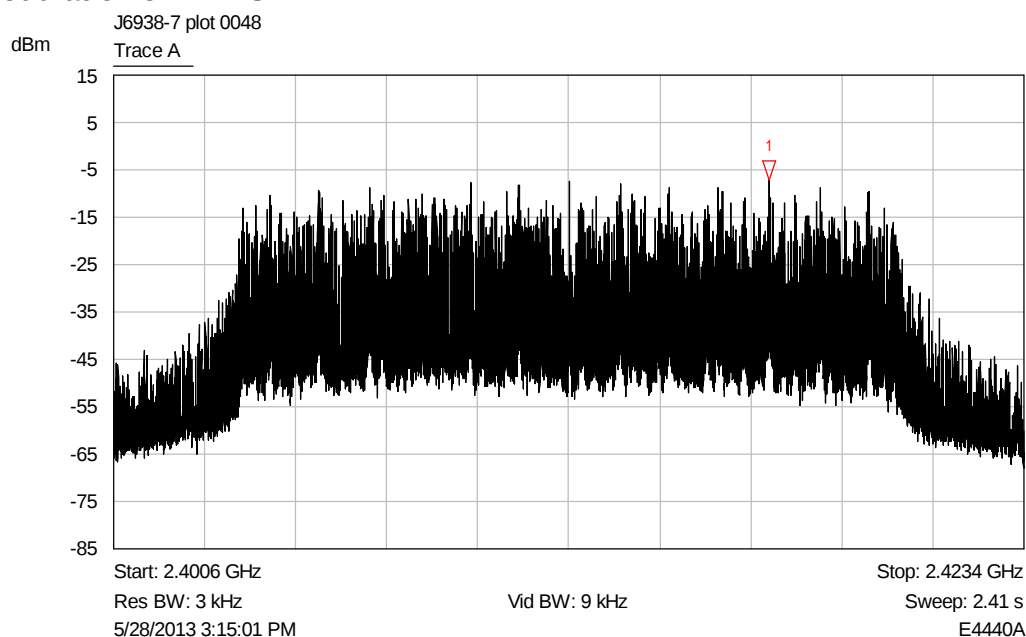
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Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	2.4608 GHz	-6.36 dBm	

High channel

6.5.12 Plots for Band 2400-2483.5 MHz, Power 16 dBm, Spacing 5 MHz, and Modulation 54 MBPS

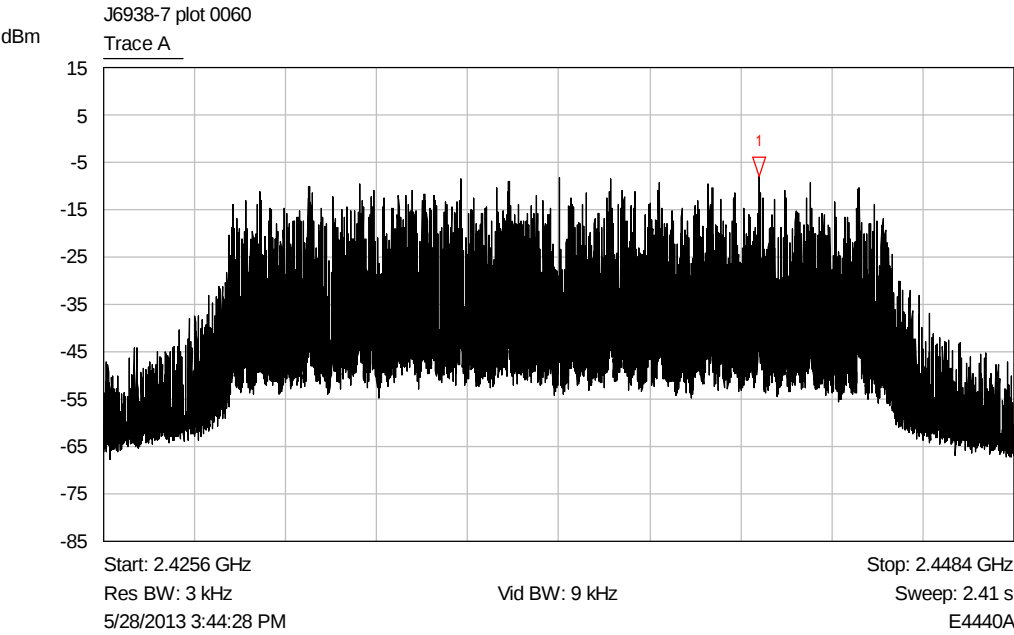


Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	2.4170 GHz	-7.13 dBm	

Low channel

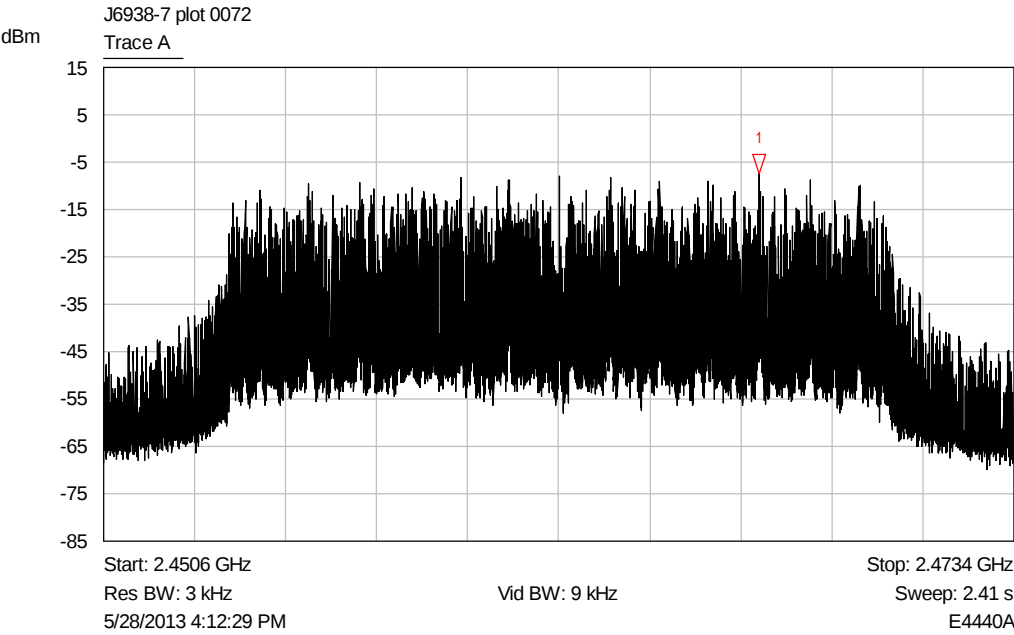
File name PURE.6938-7 ISSUE 02

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Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	2.4420 GHz	-7.80 dBm	

Mid channel



Mkr	Trace	X-Axis	Value	Notes
1 ▽	Trace A	2.4670 GHz	-7.36 dBm	

High channel

7 Explanatory Notes

7.1 Explanation of Table of Signals Measured

Measurements are made as required by the standard. These measurements are made and recorded using detectors, either peak, quasi peak or average dependant on the test. A table of results has been given following the relevant plots. This table looks similar to the one illustrated below dependant on the measurements required by the test: -

Signal No.	Freq (MHz)	Peak Amp (dB μ V)	Pk – Lim 1 (dB)	QP Amp (dB μ V)	QP - Lim1 (dB)	Av Amp (dB μ V)	Av - Lim1 (dB)
1	12345	54.9	-10.5	48.0	-12.6	37.6	-14.4

Column One - Labelled Signal No. is an incremental number that the receiver has given to each signal that has been measured.

Column Two - Labelled Freq (MHz) is the approximate frequency of the signal received.

Column Three - Labelled Peak Amp (dB μ V) is the level of received signal that was measured in dB above 1 μ V using the peak detector.

Column Four - Labelled Pk - Lim1 (dB) is the difference in level from the peak signal given to the active limit line. If this column appears in the table the peak detector measurement is required by the standard for this test. The results entered in this column indicate the signal level relative to the compliance limit required. Negative numbers indicate that the product is compliant.

Column Five - Labelled QP Amp (dB μ V) is the level of received signal that was measured in dB above 1 μ V using the quasi-peak detector.

Column Six - Labelled QP - Lim1 (dB) is the difference in level from the quasi-peak signal given to the active limit line. If this column appears in the table the quasi-peak detector measurement is required by the standard for this test. The results entered in this column indicate the signal level relative to the compliance limit required. Negative numbers indicate that the product is compliant.

Column Seven - Labelled Av Amp (dB μ V) is the level of received signal that was measured in dB above 1 μ V using the average detector.

Column Eight - Labelled Av - Lim1 (dB) is the difference in level from the average signal given to the active limit line. If this column appears in the table the average detector measurement is required by the standard for this test. The results entered in this column indicate the signal level relative to the compliance limit required. Negative numbers indicate that the product is compliant.

Only signals highlighted in red are deemed to exceed the limit of the detector required.

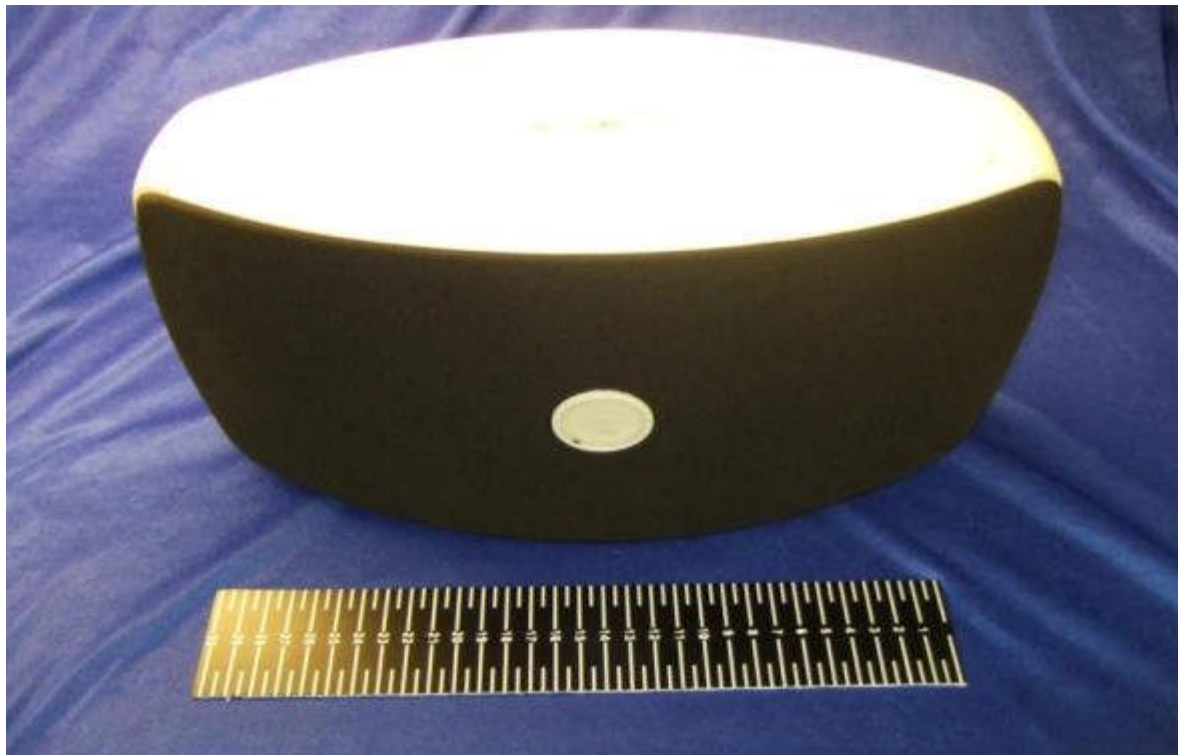
7.2 Explanation of limit line calculations for radiated measurements

The limits given in the test standard are normally expressed as absolute values (e.g. in $\mu\text{V}/\text{m}$ at a specified distance), whereas the measured values are expressed as peak, quasi peak or average values in $\text{dB}\mu\text{V}/\text{m}$ referenced to the measuring instrument inputs. RN Electronics calibrate the test set-up to account for any path losses, antenna gains, etc. so that the value read at the receiver relates directly to the absolute value required, except that it is expressed in dB relative to one microVolt and may need to take account of any alternative measuring distance used. Examples:

- (a) limit of $500 \mu\text{V}/\text{m}$ equates to $20.\log(500) = 54 \text{ dB } \mu\text{V}/\text{m}$.
- (b) limit of $300 \mu\text{V}/\text{m}$ at 10m equates to $20.\log(300 \cdot 10/3) = 60 \text{ dB } \mu\text{V}/\text{m}$ at 3m
- (c) limit of $30 \mu\text{V}/\text{m}$ at 30m, but below 30MHz, equates to $20.\log(30) + 40.\log(30/3) = 69.5 \text{ dB}\mu\text{V}/\text{m}$ at 3m, as extrapolation factor below 30MHz is 40dB/decade per 15.31(f)(2).

8 Photographs

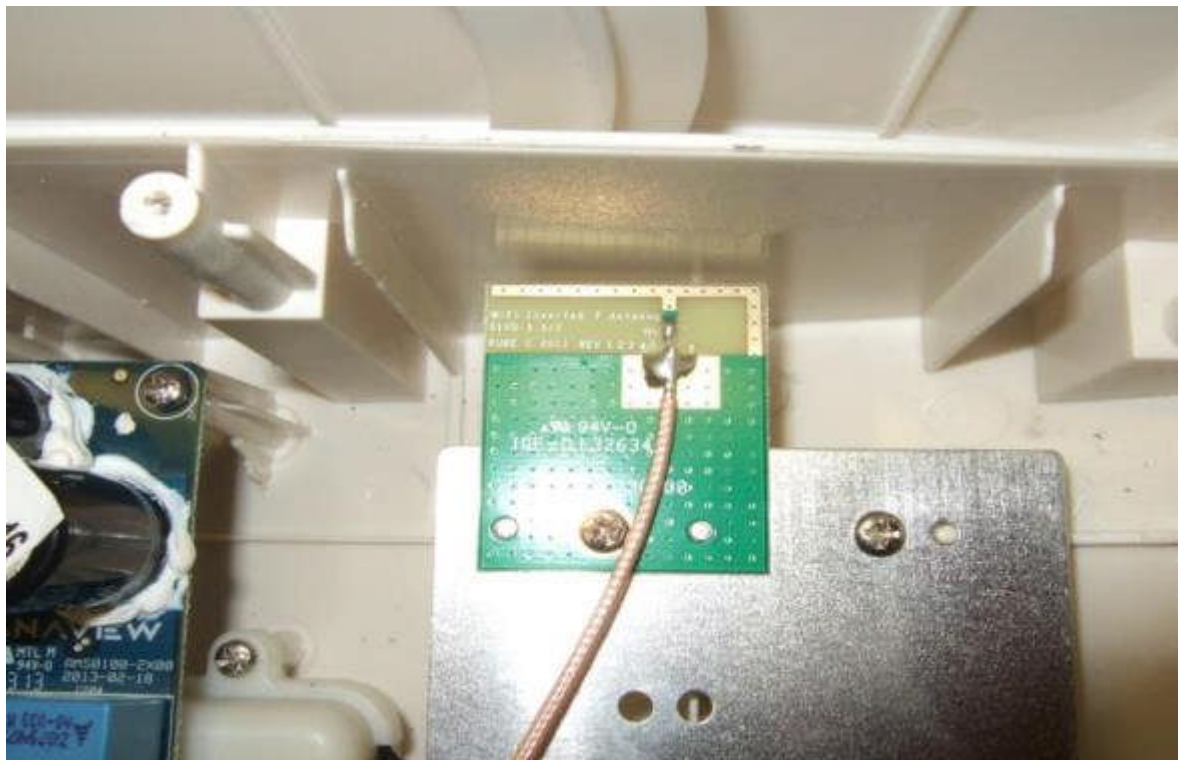
8.1 EUT Front View



8.2 EUT Reverse Angle



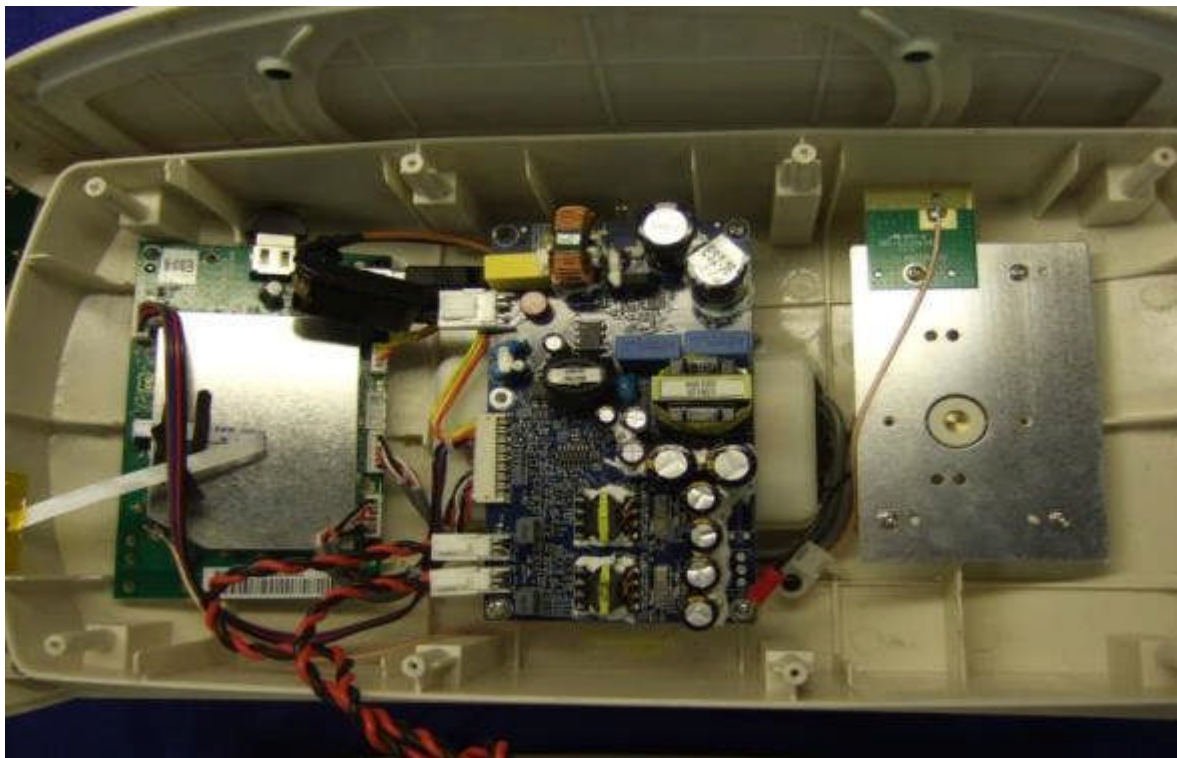
8.3 EUT Antenna Connector Port

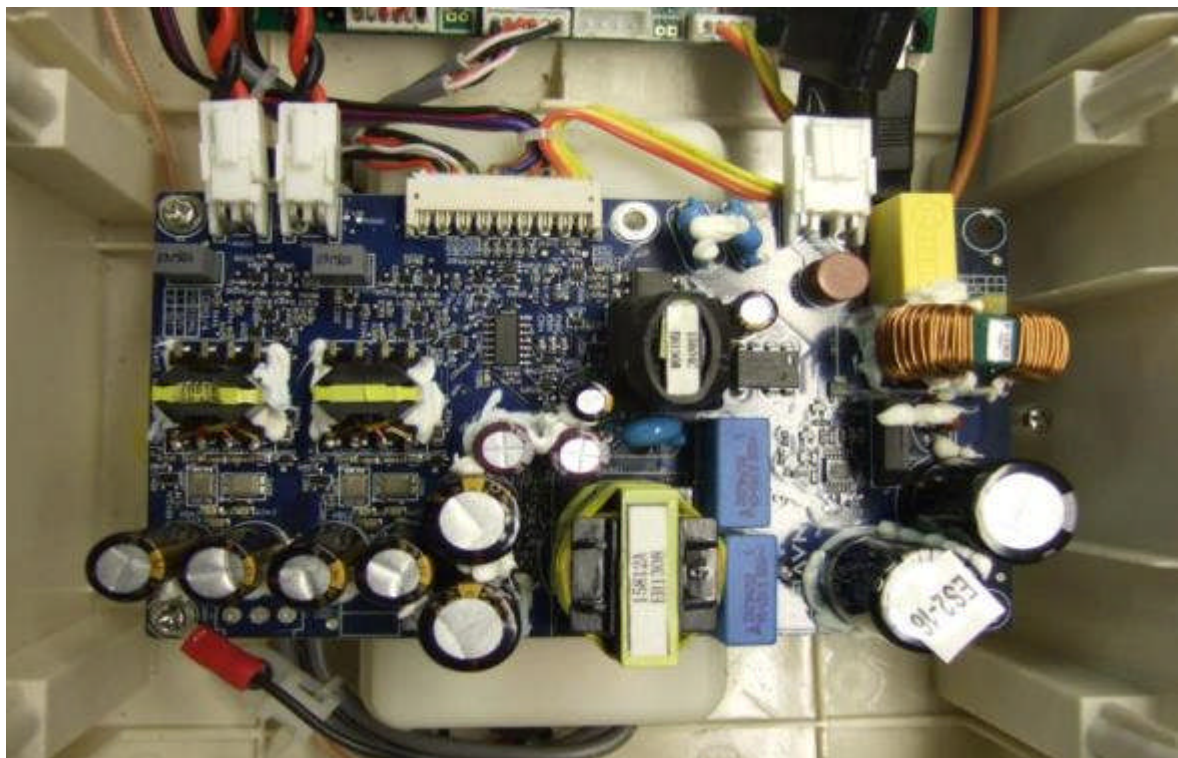


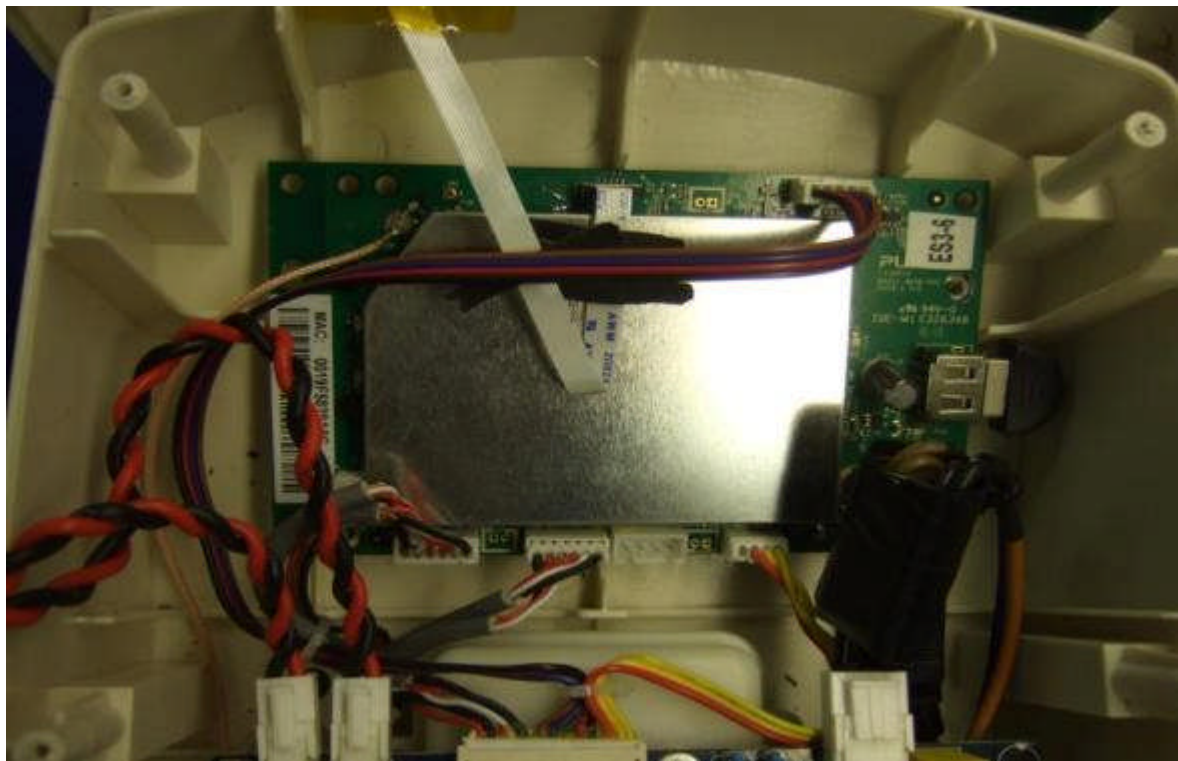
8.4 EUT Display / Controls



8.5 EUT Internal Construction





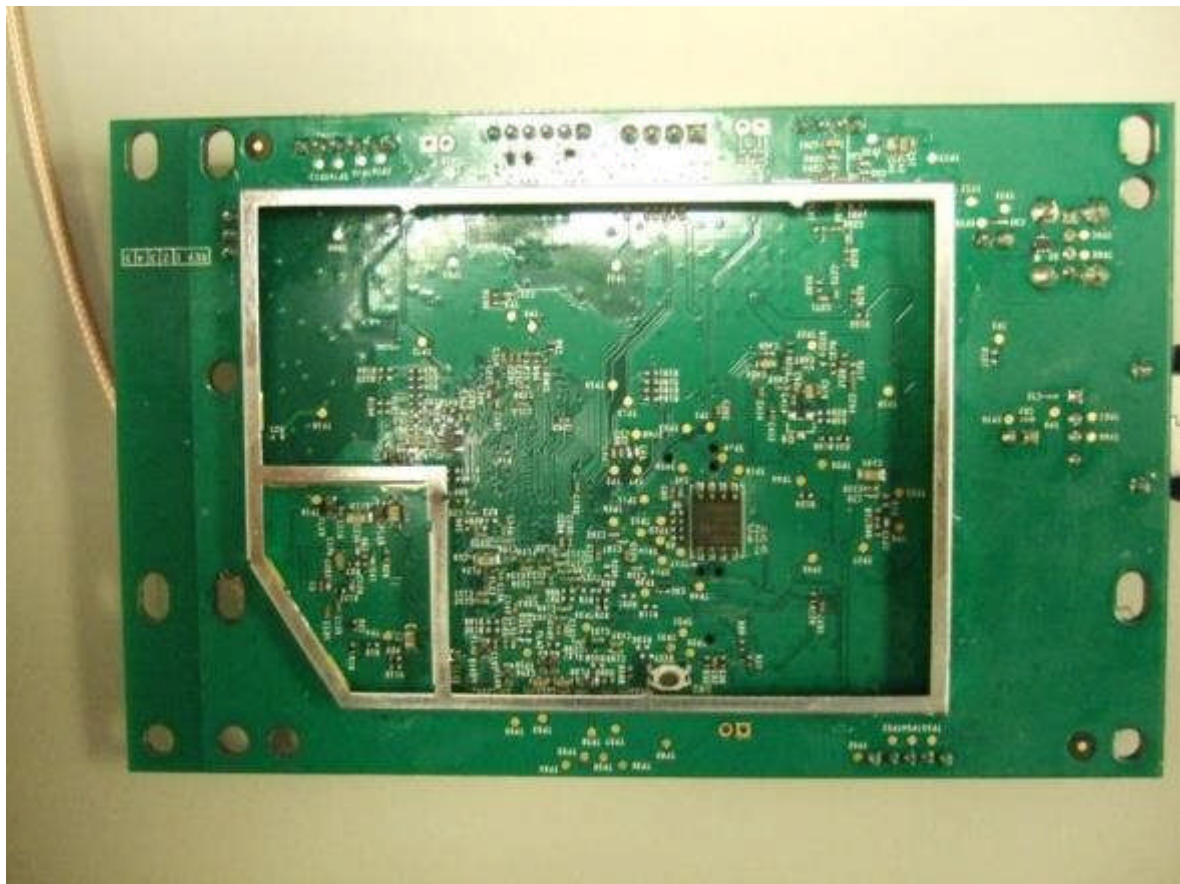


File name PURE.6938-7 ISSUE 02

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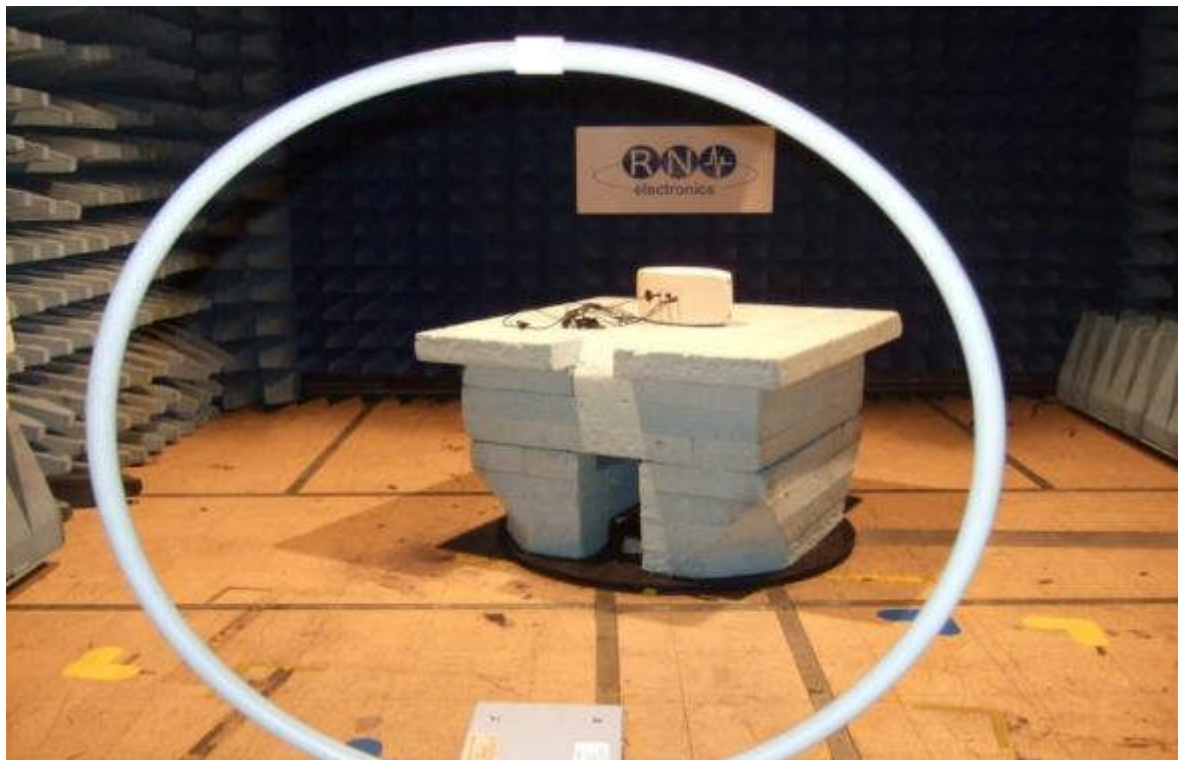
PAGE 138 OF 148



8.6 EUT Chassis



8.7 Test set-up, spurious emissions





**Photographs of the EUT as viewed from in front
of the antennae, site M.**

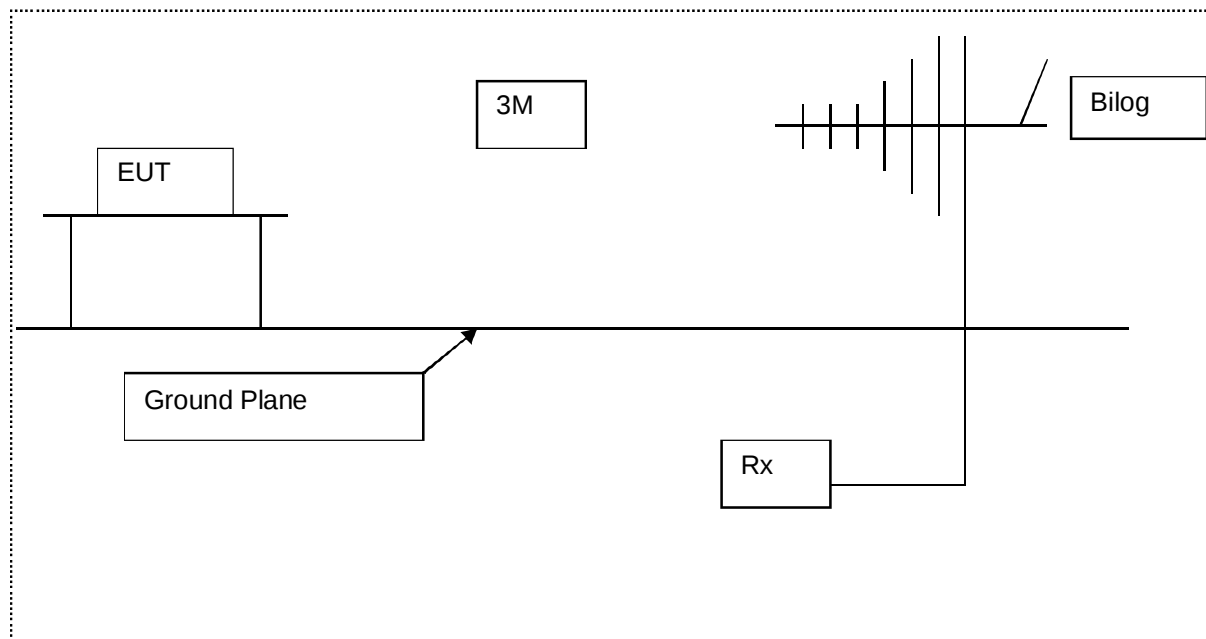


Diagram of the radiated emissions test setup.



Photograph of the EUT as viewed from screened room (AC power line conducted emissions)

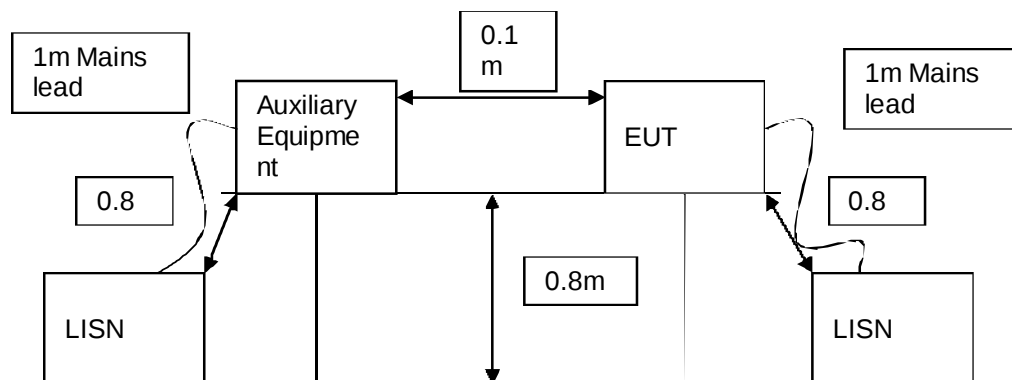


Diagram of the AC power line conducted emissions test setup.

9 Signal Leads

Port Name	Cable Type	Connected
Power Input	Figure 8 Mains	Yes
Auxiliary Input	3.5mm audio	Yes
USB	standard USB	Yes

10 Test Equipment Calibration list

The following table lists the test equipment used, last calibration date and calibration interval. All test equipment used has been maintained within the calibration requirements of **R.N. Electronics Ltd.** test facility quality system. Calibration intervals are regularly reviewed dependent on equipment manufacturer's recommendations and actual usage of the equipment.

RN No.	Model	Description	Manufacturer	Calibration date	Cal period
E003	HP8593E	Spectrum Analyser	Hewlett Packard	21/11/2012	24 months
E035	HP11947A	Transient Limiter + 10dB Atten.	Hewlett Packard	11/02/2013	6 months
E150	MN2050	LISN 13A	Chase	02/10/2012	12 months
E252	6810.19.A	10 dB Attenuator	Suhner	09/05/2013	12 months
E256	44	10 dB Attenuator	Weinschel Engineering	1/11/2012	12 months
E266	2032	5.4GHz Signal Generator	Marconi Instruments	*28/06/2012	24 months
E268	BHA 9118	1-18 GHz Horn Antenna	Schaffner	14/04/2013	24 months
E410	N5181A	3 GHz MXG Signal Generator	Agilent Technologies	26/10/2011	36 months
E411	N9039A	9 kHz - 1 GHz RF Filter Section	Agilent Technologies	18/10/2012	12 months
E412	E4440A	3 Hz - 26.5 GHz PSA	Agilent Technologies	18/10/2012	12 months
E429	-	5 Switch Filter Box 0.91 GHz - 16.3 GHz	RN Electronics	20/11/2012	12 months
E465	PCR2000LA	AC Power Supply	KIKUSUI	09/05/2013	12 months
E533	N5182A	6 GHz MXG Signal Generator	Agilent Technologies	26/02/2013	36 months
E534	E4440A	3 Hz - 26.5 GHz PSA	Agilent Technologies	22/02/2013	36 months
E535	N9039A	9 kHz - 1 GHz RF Filter Section	Agilent Technologies	22/02/2013	36 months
N240	CRT700/3/2C	100v Transformer	Unknown	N/A	N/A
TMS78	3160-08	Std Gain Horn Antenna 12.4-18 GHz	ETS Systems	*07/06/2013	24 months
TMS79	3160-09	Std Gain Horn Antenna 18-26.5 GHz	ETS Systems	*07/06/2013	24 months
TMS81	6502	Active Loop Antenna	EMCO	24/10/2012	24 months
TMS82	8449B	Pre Amplifier 1 - 26 GHz	Agilent	19/11/2012	12 months
TMS933	CBL6141A	Bilog Antenna 30MHz - 2GHz	York EMC	09/09/2010	36 months

Note: *Calibrated since test and 24 months prior, as appropriate

11 Auxiliary equipment

11.1 Customer supplied Equipment

Auxiliary equipment used for the purpose of test supplied by the above has been listed below

Item No.	Model No.	Description	Manufacturer	Serial No.
1	Highway 300Di	Modified USB controller	Pure	-

11.2 Supplied by RN Electronics Limited

Auxiliary equipment used for the purpose of test supplied by the above has been listed below

No RN Electronics supplied equipment was used.

12 Modifications

In order for the EUT to produce the results shown within this report the following modifications, if any, were implemented.

12.1 Modifications before test

There were no modifications made by R.N. Electronics Ltd before testing commenced.

12.2 Modifications during test

There were no modifications made by R.N. Electronics Ltd during testing.

13 Compliance information

Products subject to the Declaration of Conformity procedure are required to be supplied with a compliance information statement. A copy of this statement may be included here:

CERTIFIED equipment – DoC not required

N.b. the EUT USB port does not connect to a PC, hence it is not a PC peripheral either.

14 Description of Test Sites

Site A	Radio / Calibration Laboratory and anechoic chamber
Site B	Semi-anechoic chamber
Site B1	Control Room for Site B
Site C	Transient Laboratory
Site D	Screened Room (Conducted Immunity)
Site E	Screened Room (Control Room for Site D)
Site F	Screened Room (AC power line conducted Emissions) VCCI Registration No. C-2823
Site G	Screened Room (Control Room for Site H)
Site H	3m Semi-anechoic chamber (indoor OATS)
Site J	Screened Room
Site K	Screened Room (Control Room for Site M)
Site M	3m Semi-anechoic chamber (indoor OATS) FCC Registration No. 293246
Site Q	Fully-anechoic chamber
Site OATS	3m and 10m Open Area Test Site FCC Registration No. 293246 IC Registration No. 5612A-1 VCCI Registration No. R-2580
Site R	Screened Room (Conducted Immunity)
Site S	Safety Laboratory
Site T	Transient Laboratory

15 Abbreviations and Units

%	Percent	Hz	Hertz
µV	microVolts	IF	Intermediate Frequency
µW	microWatts	kHz	kiloHertz
AC	Alternating Current	LO	Local Oscillator
ALSE	Absorber Lined Screened Enclosure	mA	milliAmps
AM	Amplitude Modulation	max	maximum
Amb	Ambient	mbar	milliBars
ANSI	American National Standards Institute	MHz	MegaHertz
°C	Degrees Celsius	min	minimum
CFR	Code of Federal Regulations	mm	milliMetres
CS	Channel Spacing	ms	milliSeconds
CW	Continuous Wave	mW	milliWatts
dB	decibels	NA	Not Applicable
dBµV	decibels relative to 1µV	nom	Nominal
dBc	decibels relative to Carrier	nW	nanoWatt
dBm	decibels relative to 1mW	OATS	Open Area Test Site
DC	Direct Current	OFDM	Orthogonal Frequency Division Multiplexing
EIRP	Equivalent Isotropic Radiated Power	ppm	Parts per million
ERP	Effective Radiated Power	QAM	Quadrature Amplitude Modulation
EUT	Equipment Under Test	QPSK	Quadrature Phase Shift Keying
FCC	Federal Communications Commission	Ref	Reference
FM	Frequency Modulation	RF	Radio Frequency
FSK	Frequency Shift Keying	RTP	Room Temperature and Pressure
g	Grams	s	Seconds
GHz	GigaHertz	Tx	Transmitter
		V	Volts