Radio Intentional EMC Test Report: EDCS-1425026

For
DX70 Bluetooth Module

FCC ID: LDKDX700976
IC ID: 2461B-DX700976

Against the following Specifications :
47 CFR 15.247, 15.205, 15.209
and
RSS-210 Issue 8, RSS-Gen Issue 3

Cisco Systems
EMC Laboratory
170 West Tasman Drive
San Jose, CA 95134

Author: Danh Le
Approved By: Dilip Patel
Title: Regulatory Compliance Manager

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Section 1: Overview

Test Summary

The samples were assessed against the tests detailed in section 3 under the requirements of the following standards:

Emissions:
CFR47 Part 15.247
RSS-210 Issue 8
RSS-Gen Issue 3

Testing Notes:

Measurements were made in accordance with:

1) FCC docket #:DA 00-0705:2000 (Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems).
2) ANSI C63.10:2009 (American National Standard for Testing Unlicensed Wireless Devices).

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Section 2: Assessment Information

2.1 General

This report must not be used to claim product certification, approval, or endorsement by A2LA, NIST, or any agency of the federal Government.

With regard to this assessment, the following points should be noted:

a) The results contained in this report relate only to the items tested and were obtained in the period between the date of the initial assessment and the date of issue of the report. Manufactured products will not necessarily give identical results, due to production tolerances and measurement uncertainties.

b) The apparatus was set up and exercised using the configuration and modes of operation defined in this report only.

c) Where relevant, the apparatus was only assessed using the susceptibility criteria defined in this report and the Test Assessment Plan (TAP).

d) All testing was performed under the following environmental conditions:

Temperature	15°C to 35°C (54°F to 95°F)
Atmospheric Pressure	860mbar to 1060mbar (25.4" to 31.3")
Humidity	10% to 75*%

e) All AC testing was performed at one or more of the following supply voltages:
110V (+/-10%) 60Hz

f) Cisco Systems, Inc. is accredited by the American Association for Laboratory Accreditation (A2LA). The scope of accreditation, certificate number 1178-01 is referenced in appendix C, along with further details.

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2.2 Start Date of Testing

02-March-2014

2.3 Report Issue Date

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2.4 Testing facilities

This assessment was performed by:

Testing Laboratory

Cisco Systems, Inc.,
170 West Tasman Drive
San Jose, CA 95134,
USA

Registration Numbers for Industry Canada

Cisco System Site	Site Identifier
Building P, 10m Chamber	Company #: 4624-2
Building P, 5m Chamber	Company #: 4624-1
Building N, 5m Chamber	Company #: 6111
Building I, 5m Chamber	Company #: 6112

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2.5 Equipment Assessed (EUT)

DX70

2.6 EUT Description

The DX70 is the next generation 1080p Video Endpoint with key expansion module support. This new generation of desktop phone incorporates an Android based operating system. Three USB ports, one micro OTG USB port, one higher powered USB-proprietary connector combination (AUX) and one standard USB Port. Support HDMI with a maximum external resolution of 1920 x 1200, also includes a single 3.5mm headset jack.

WiFi (802.11 A/B/G/N) & Bluetooth 3.0 capabilities (Bluetooth operating at ver 2.1 + EDR)

Murata module, LBEH1ZNSXC-526, supports for 802.11/a/b/g/n + Bluetooth 3.0 module

SDIO interface to WLAN – Omap4 SD host controller port 5

PCM (McBSP1) interface to Bluetooth

WiFi + BT chip - Marvell 88W8787

Clocks – 38.4MHz 20ppm for main clock, 32.768KHz sleep clock

Supports 802.11i security standard

Coexistence between WiFi and BT with one antenna to both connected to the 2.4GHz radios

Single antenna for 2.4 and 5GHz bands with diplex inside the module

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2.7 Scope of Assessment

Tests have been performed in accordance with the relevant Test and Assessment Plan (TAP), a copy of which is contained in Appendix F of this report, and the relevant Cisco Systems, Inc. radio test procedures (EDCS-420238). This test report may not cover all of the tests highlighted in the test plan.

2.8 Units of Measurement

The units of measurements defined in the appendices are reported in specific terms, which are test dependent. Where radiated measurements are concerned these are defined at a particular distance. Basic voltage measurements are defined in units of [dBuV]

As an example, the basic calculation for all measurements is as follows:

Emission level [dBuV] = Indicated voltage level [dBuV] + Cable Loss [dB] + Other correction factors [dB]

The combinations of correction factors are dependent upon the exact test configurations [see test equipment lists for further details] and may include:-

Antenna Factors, Pre Amplifier Gain, LISN Loss, Pulse Limiter Loss and Filter Insertion Loss..

Note: to convert the results from dBuV/m to uV/m use the following formula:-

Level in uV/m = Common Antilogarithm [(X dBuV/m)/20] = Y uV/m

Measurement Uncertainty Values

voltage and power measurements	**± 2 dB**
conducted EIRP measurements	**± 1.4 dB**
radiated measurements	**± 3.2 dB**
frequency measurements	**± 2.4 10-7**
temperature measurements	**± 0.54º.**
humidity measurements	**± 2.3%**
DC and low frequency measurements	**± 2.5%.**

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2.9 Report Template Control No.

EDCS#703456

Section 3: Result Summary

3.1 Results Summary Table

Conducted emissions

Basic Standard	Technical Requirements / Details	Result
FCC 15.247 (b) (1) RSS-210 A8.4 (2)	**Max. Peak Conducted Output Power**: For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watt.	Pass
FCC 15.247 (a) (1) RSS-210 A8.1 (b)	**Carrier Separation**: For frequency hopping systems according to a hopping channel carrier frequencies that are separated by 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW	Pass
FCC 15.247 (a) (1) RSS-210 A8.1 (a)	**20 dB Bandwidth**: The bandwidth of a frequency hopping channel is the – 20 dB emission bandwidth, measured with the hopping stopped, between upper and lower frequency from top carrier (dBc) down.	Reference
FCC 15.247 (a) (iii) RSS-210 A8.1 (d)	**No. of Hopping Frequencies / Time Occupancy**: Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.	Pass

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FCC 15.247(d), RSS-210 A8.5	**Spurious Emissions / Band-Edge::** In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digital modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.	Pass
FCC 15.247 (d), FCC 15.205 (a), RSS-210 A8.5 RSS-Gen 7.2.2	**Restricted band**: Unwanted emissions falling within the restricted bands, as defined in FCC 15.205 (a) and RSS-Gen 7.2.2 must also comply with the radiated emission limits specified in FCC 15.209 (a) and RSS-Gen 7.2.5.	Pass

Radiated Emissions (General requirements)

Basic Standard	Technical Requirements / Details	Result
FCC 15.209 (a) RSS-Gen 7.2.5	**TX Spurious Emissions:** Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the filed strength limits table in this section.	Pass
RSS-Gen 4.10	**RX Spurious Emissions:** Spurious emissions from the receivers shall not exceed the radiated limits of receiver spurious emissions shown in table 2 in section 6.1.	Pass
FCC 15.207 RSS-Gen 7.2.4	**AC conducted Emissions:** Except when the requirements applicable to a given device state otherwise, for any radio apparatus equipped to operate from the public utility AC power supply, either directly or indirectly (such as with a battery charger), the radio frequency voltage of emissions conducted back onto the AC power lines in the frequency range of 0.15 MHz to 30 MHz shall not exceed the limits shown in the table in these sections. The more stringent limit applies at the frequency range boundaries.	Pass

* MPE calculation is recorded in a separate report

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Section 4: Sample Details

Note: Each sample was evaluated to ensure that its condition was suitable to be used as a test sample prior to the commencement of testing. During preliminary testing all three planes (X, Y & Z) were evaluated to determine "Worst Case". The data collected determine that the orientation used for this report was demined "Worst Case".

4.1 Sample Details

Sample Number	Equipment Details	Serial Number	Part Number
S01	DX70	FOC 1814NHX6	74-12818-01 02

The following antennas were evaluated as part of this testing process. The antennas listed reflect the maximum gain allowed for each family type of antenna:

Fixed internal Amphenol Dual Band Antenna, Gain = 4.61dBi (no external antenna can be used)

4.2 System Details

System #	Description	Samples
1	Bluetooth Radio Test Sample	S01

4.3 Accessories

Sample	Description	Manufacturer	Model Name (#)	Serial Number
1	AC/DC Power Adaptor	Liteon	PA-1600-2A-LF	LIT17441J9L

4.4 Mode of Operation Details

Mode#	Description	Comments
1	Bluetooth Test Mode	System is connected to the MT8852B Bluetooth Tester and placed in either continuous TX Mode or Duty Cycle Mode with Hopping Function Turned ON or OFF per test requirements.

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4.5 Test Mode, Modulation and Data Packet Type Description

Test Mode	Modulation	Data Packet
A	GFSK	DH5
B	π/4-DQPSK	2-H5
C	8-DPSK	3-DH5
Note1: Table above represents the worst case scenarios for all modulation and data packet type combinations.		

4.5.1 Test Mode and worst case Determination

Item	Test Item	Test Mode	Test Frequency (MHz)
A.1	20 dB Bandwidth	A, B & C	2441
A.2	Peak Conducted Output Power	All available modulation and packet type	2402, 2441, 2480
Worst Case		Mode C (Note: 1)	
A.3	Channel Separation	Any with hopping enable	2441, 2442
A.4	Number of Channels	Any with hopping enable	2402 – 2483.5
A.5	Dwell Time	A, B & C	2441
A.6	Average Time Occupancy	A, B & C w/ hopping enable	
A.7	Band-Edge	A, B & C	2402, 2480
A.8	Out of Band Conducted Emissions	C	2402, 2441, 2480
A.9	Restricted Band	C	2402, 2441, 2480
A.10	TX Radiated Emissions	C	2402, 2441,2480
A.11	RX Radiated Emissions (per IC requirement)	Receive / Idle	--------
A.12	RX/TX Conducted Emissions	Receive / Transmit	2441
Note1: Worst case is determined as the combination of modulation and packet type with the highest output power.			

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Section 5: Modifications

5.1 Sample Modifications Performed During Assessment

No modifications were performed during assessment.

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Appendix A: Formal Test Results

A.1 20dB and 99% Bandwidth

Occupied bandwidth (99%). The frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission.

20 dB bandwidth. The frequency bandwidth between two points, one below the carrier center frequency and such that, one above the carrier frequency at 20 dB mark relative to the peak power level of the fundamental.

Measurement Procedure

In accordance with KDB Publication DA 00-705

Test Data Table

Frequency (MHz)	20dB BW (MHz)	99% BW (MHz)	Modulation Type	Packet Type
2.402	0.996	0.896	GFSK	DH5
2.402	0.914	0.842	π/4-DQPSK	2-DH5
2.402	1.33	1.19	8-DPSK	3-DH5
2.441	1.04	0.89	GFSK	DH5
2.441	1.33	1.19	π/4-DQPSK	2-DH5
2.441	1.36	1.20	8-DPSK	3-DH5
2.480	1.01	0.91	GFSK	DH5
2.480	1.36	1.20	π/4-DQPSK	2-DH5
2.480	1.30	1.19	8-DPSK	3-DH5

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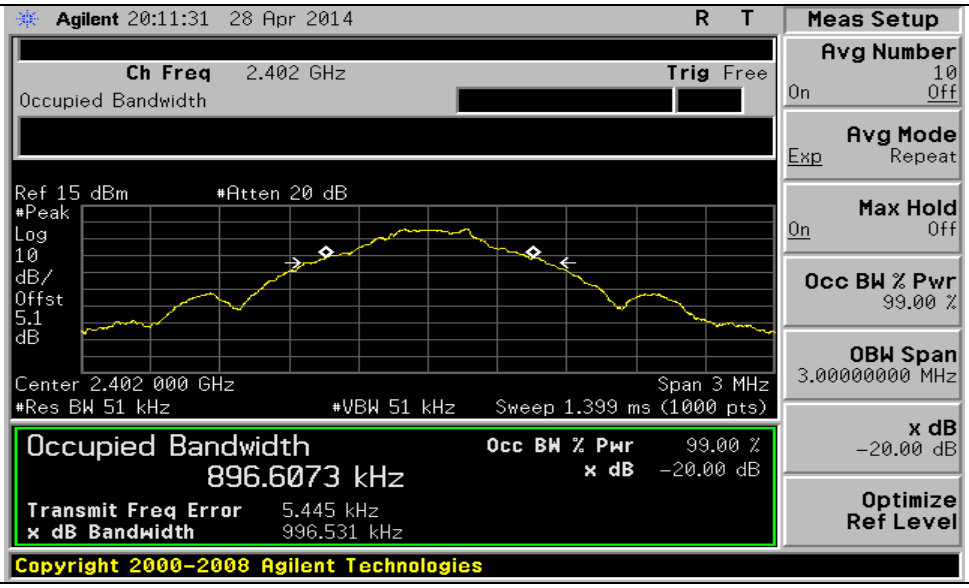
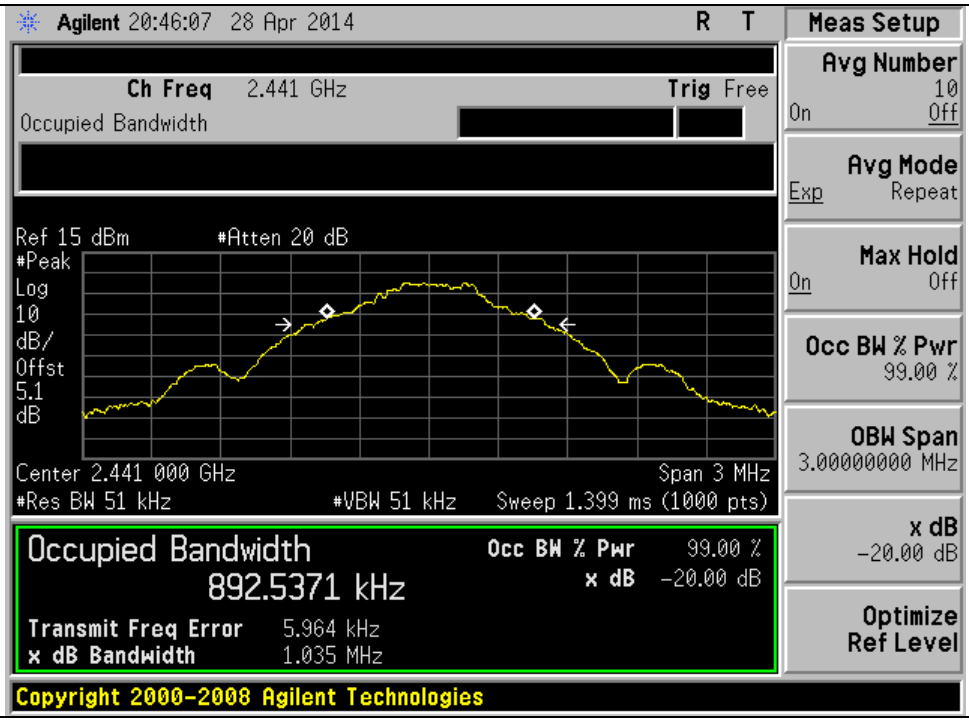
Graphical Test Results



Title: **20dB & 99% Bandwidth Ch 0: 2402MHz with GFSK modulation (DH5 Packet)**



Title: **20dB & 99% Bandwidth Ch 39: 2441MHz with GFSK modulation (DH5 Packet)**

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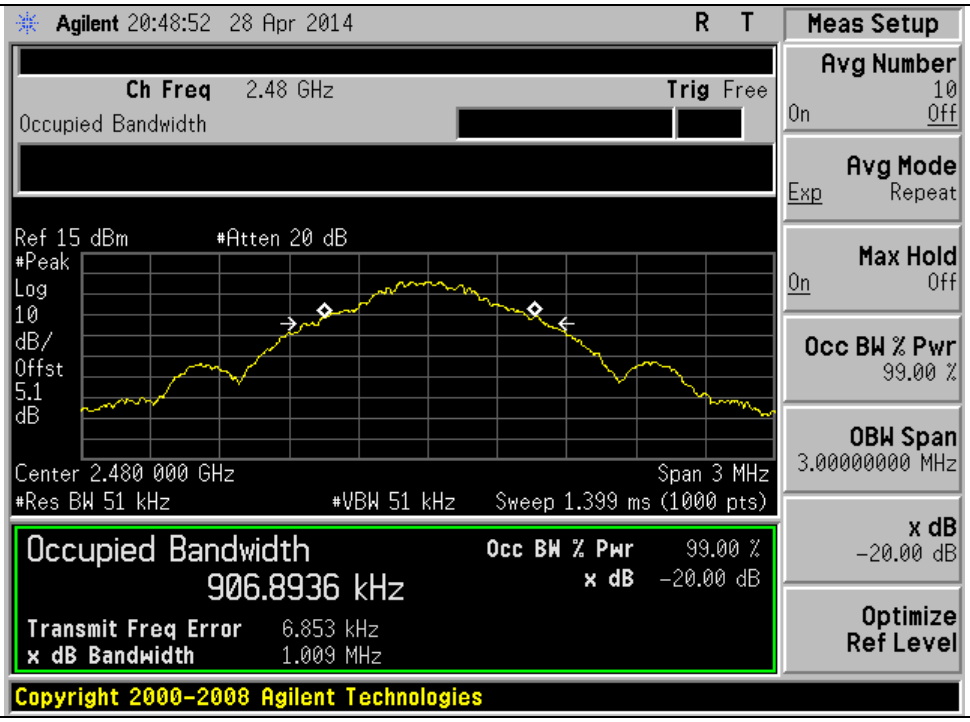
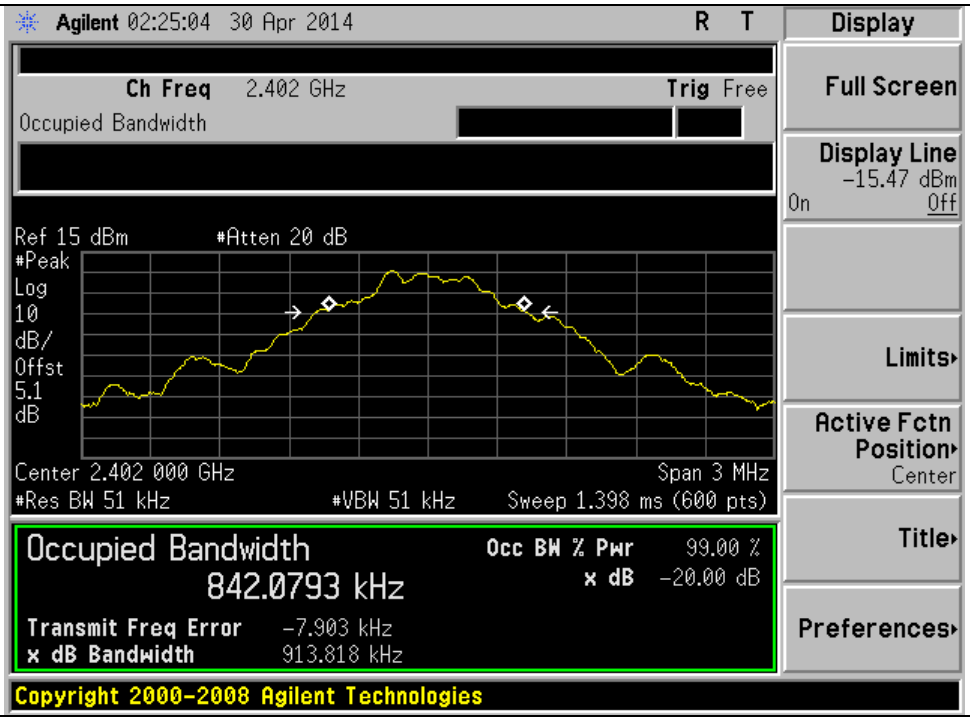
Graphical Test Results



Title: **20dB & 99% Bandwidth Ch 78: 2480MHz with GFSK modulation (DH5 Packet)**



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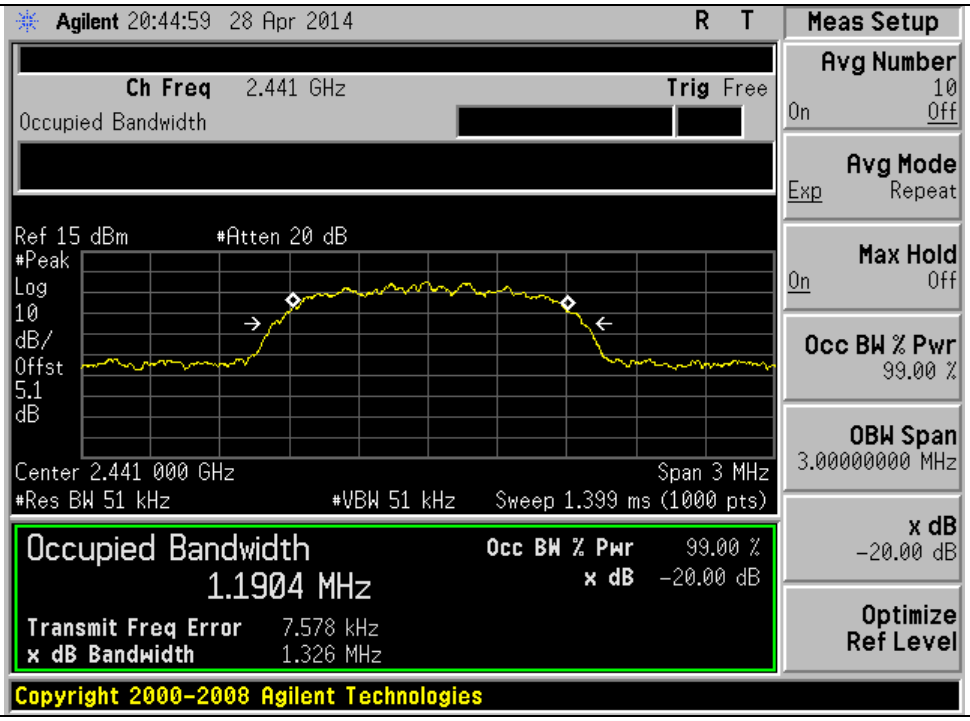
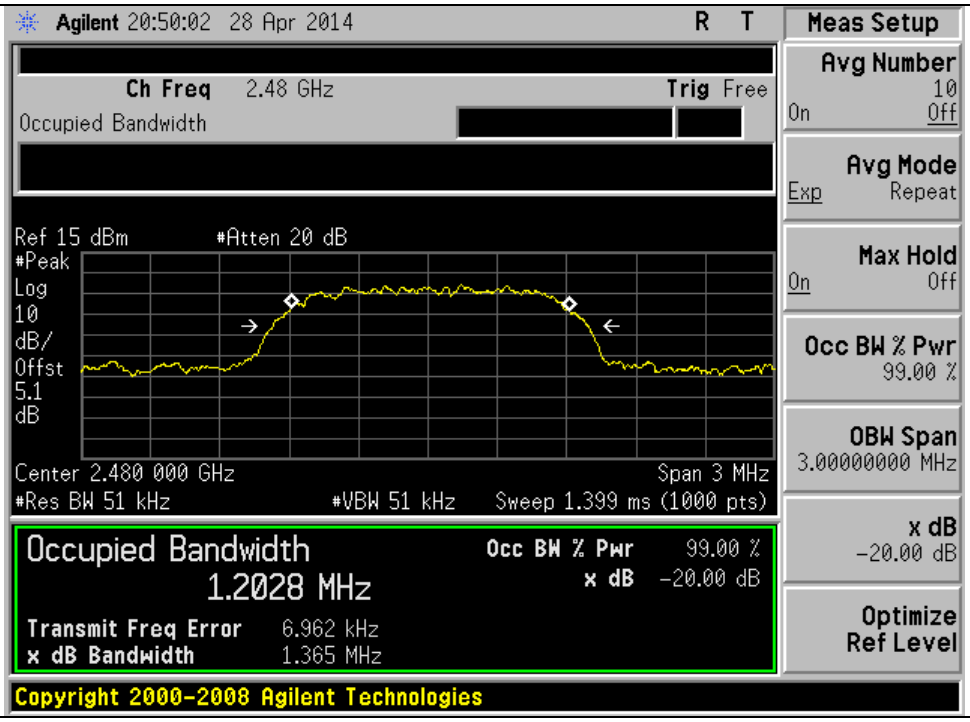
Title: **20dB & 99% Bandwidth Ch 0: 2402MHz with π/4DQPSK modulation (2-DH5 Packet)**

Graphical Test Results



Title: **20dB & 99% Bandwidth Ch 39: 2441MHz with π/4DQPSK modulation (2-DH5 Packet)**



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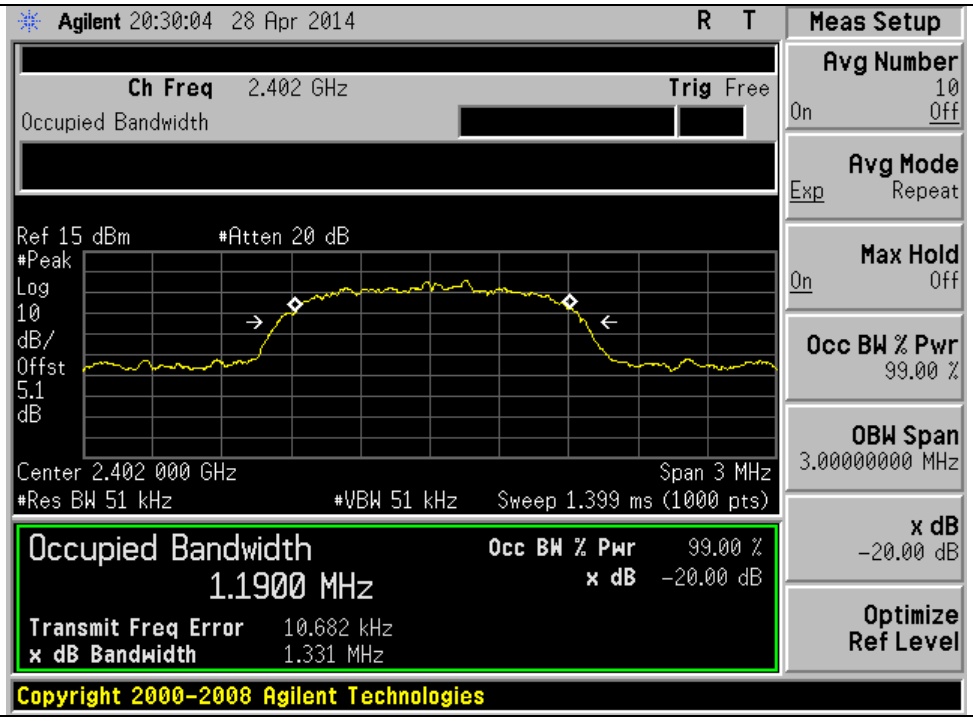
Title: **20dB & 99% Bandwidth Ch 78: 2480MHz with π/4DQPSK modulation (2-DH5 Packet)**

Graphical Test Results



Title: **20dB & 99% Bandwidth Ch 0: 2402MHz with 8-DPSK modulation (3-DH5 Packet)**

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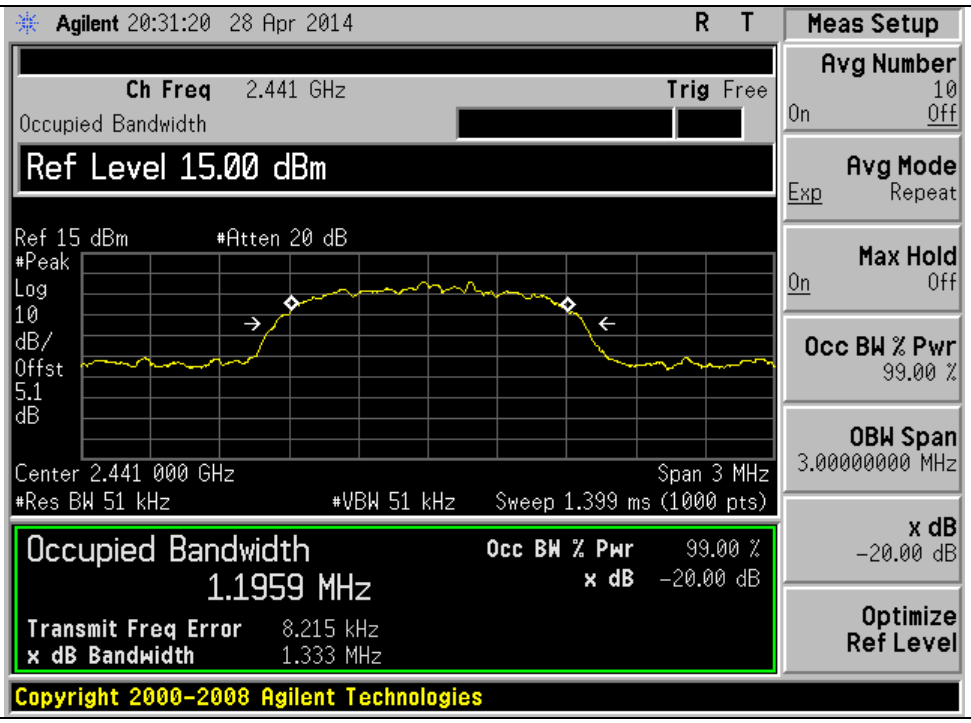
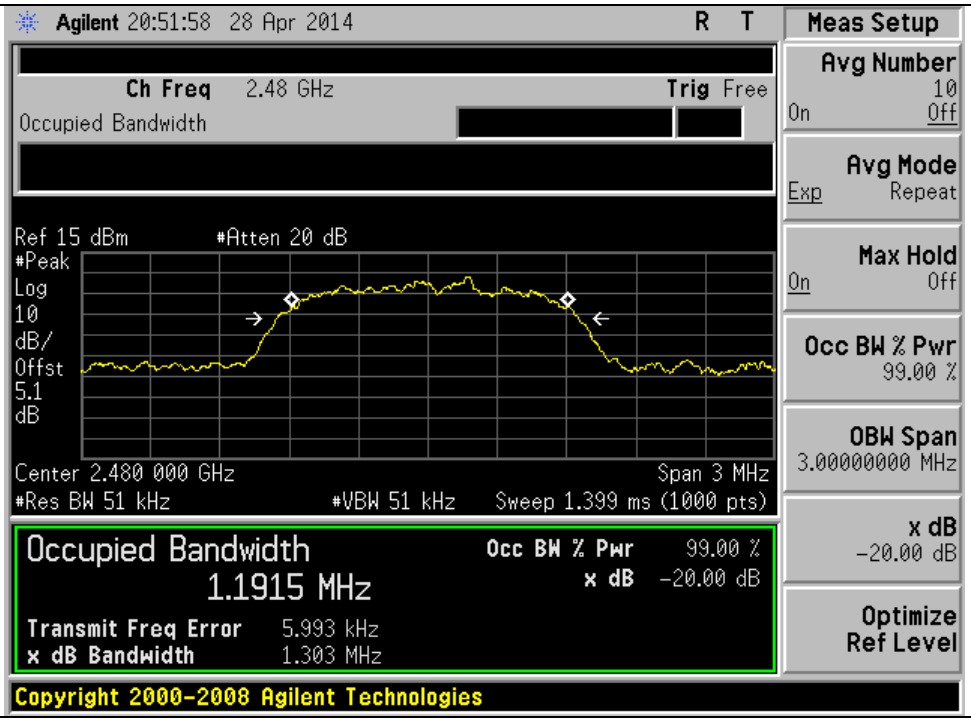


Title: **20dB & 99% Bandwidth Ch 39: 2441MHz with 8-DPSK modulation (3-DH5 Packet)**

Graphical Test Results



Title: **20dB Bandwidth Ch 78: 2480MHz with 8-DPSK modulation (3-DH5 Packet)**

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A.2 Maximum Conducted Output Power

15.247 & RSS-210 A8.4:

The maximum peak conducted output power of the intentional radiator for system using frequency hopping systems in the 2400-2483.5MHz band shall not exceed 1 Watt (30dBm). If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Measurement Procedure

In accordance with KDB Publication DA 00-705

Test Data Table

Frequencies (MHz)	Modulation	Data rate (Mbps)	Packet Type	Peak Output Power (dBm)	Limits (dBm)	Results
2402	GSFK	1 Mbps	DH1	1.83	30	Pass
2402	GSFK	1 Mbps	DH3	1.85	30	Pass
2402	GSFK	1 Mbps	DH5	1.88	30	Pass
2402	π/4-DQPSK	2 Mbps	2-DH1	3.87	30	Pass
2402	π/4-DQPSK	2 Mbps	2-DH3	3.90	30	Pass
2402	π/4-DQPSK	2 Mbps	2-DH5	3.90	30	Pass
2402	8-DPSK	3 Mbps	3-DH1	4.24	30	Pass
2402	8-DPSK	3 Mbps	3-DH3	4.25	30	Pass
2402	8-DPSK	3 Mbps	3-DH5	4.22	30	Pass
2441	GSFK	1 Mbps	DH1	1.36	30	Pass
2441	GSFK	1 Mbps	DH3	1.35	30	Pass
2441	GSFK	1 Mbps	DH5	1.32	30	Pass
2441	π/4-DQPSK	2 Mbps	2-DH1	4.24	30	Pass
2441	π/4-DQPSK	2 Mbps	2-DH3	4.27	30	Pass
2441	π/4-DQPSK	2 Mbps	2-DH5	4.31	30	Pass
2441	8-DPSK	3 Mbps	3-DH1	4.60	30	Pass
2441	8-DPSK	3 Mbps	3-DH3	4.61	30	Pass
2441	8-DPSK	3 Mbps	3-DH5	4.63	30	Pass
2480	GSFK	1 Mbps	DH1	2.44	30	Pass
2480	GSFK	1 Mbps	DH3	2.45	30	Pass
2480	GSFK	1 Mbps	DH5	2.46	30	Pass
2480	π/4-DQPSK	2 Mbps	2-DH1	5.16	30	Pass
2480	π/4-DQPSK	2 Mbps	2-DH3	5.19	30	Pass
2480	π/4-DQPSK	2 Mbps	2-DH5	5.12	30	Pass
2480	8-DPSK	3 Mbps	3-DH1	5.44	30	Pass
2480	8-DPSK	3 Mbps	3-DH3	5.55	30	Pass
2480	8-DPSK	3 Mbps	3-DH5	5.57	30	Pass

Graphical Test Results

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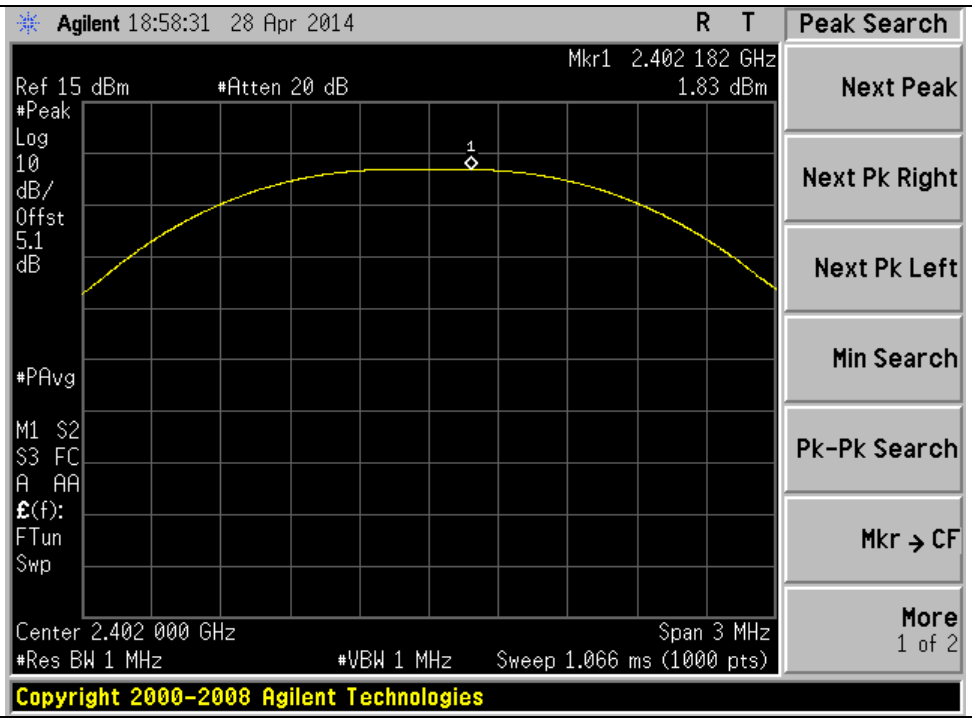
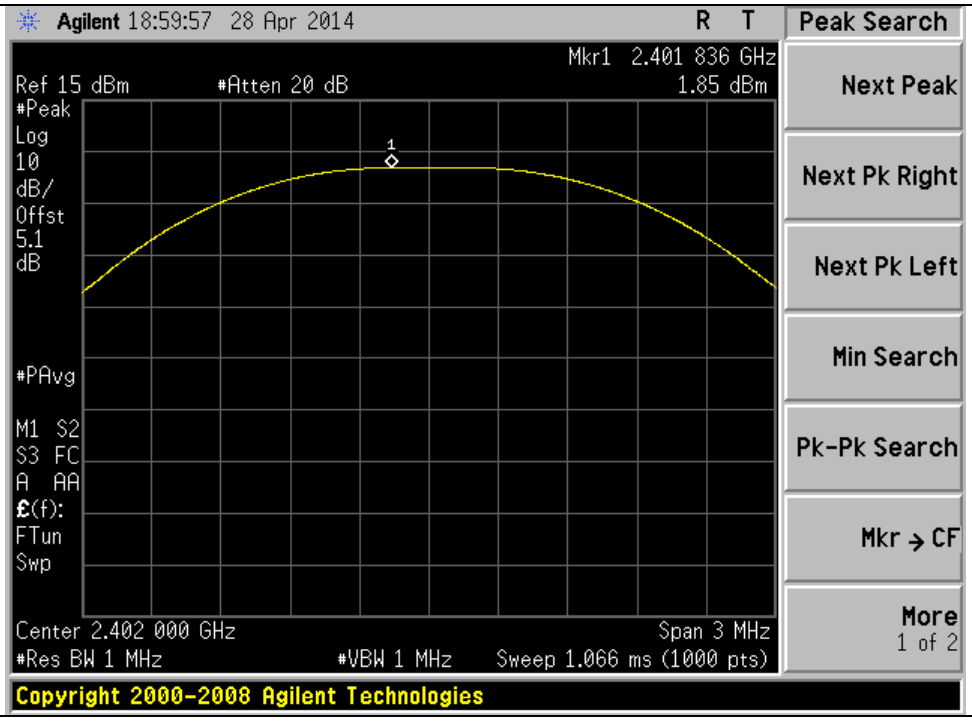


Title: Peak Output Power Ch 0: 2402MHz with GFSK modulation / DH1 packet type



Title: Peak Output Power Ch 0: 2402MHz with GFSK modulation (DH3 packet type)

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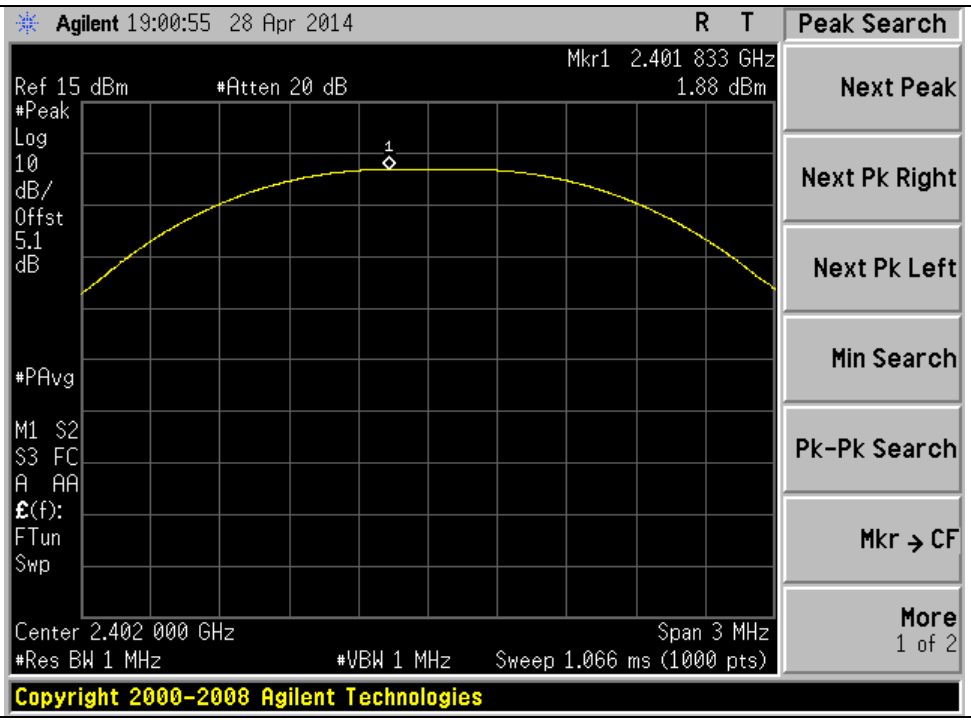
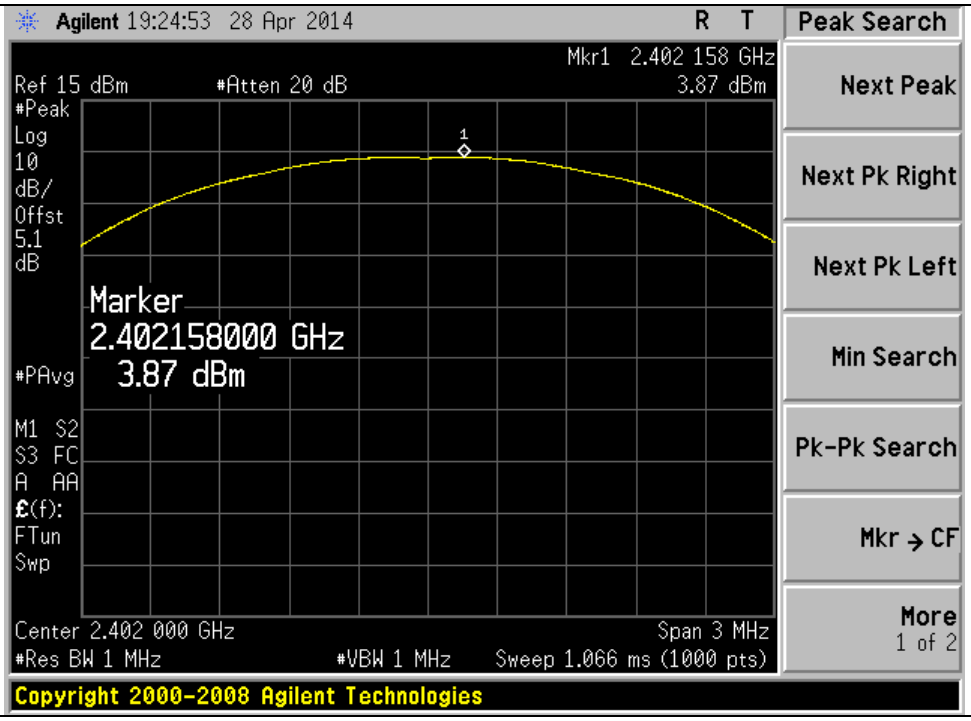


Title: Peak Output Power Ch 0: 2402MHz with GFSK modulation (DH5 packet type)



Title: Peak Output Power Ch 0: 2402MHz with π/4-DQPSK modulation (2-DH1 packet)

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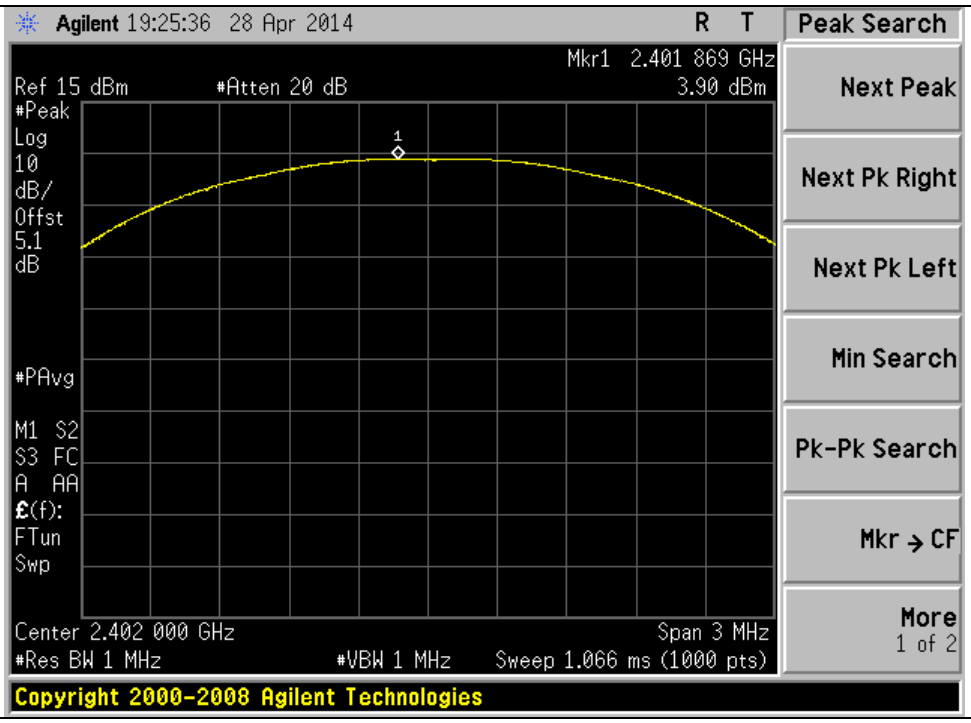
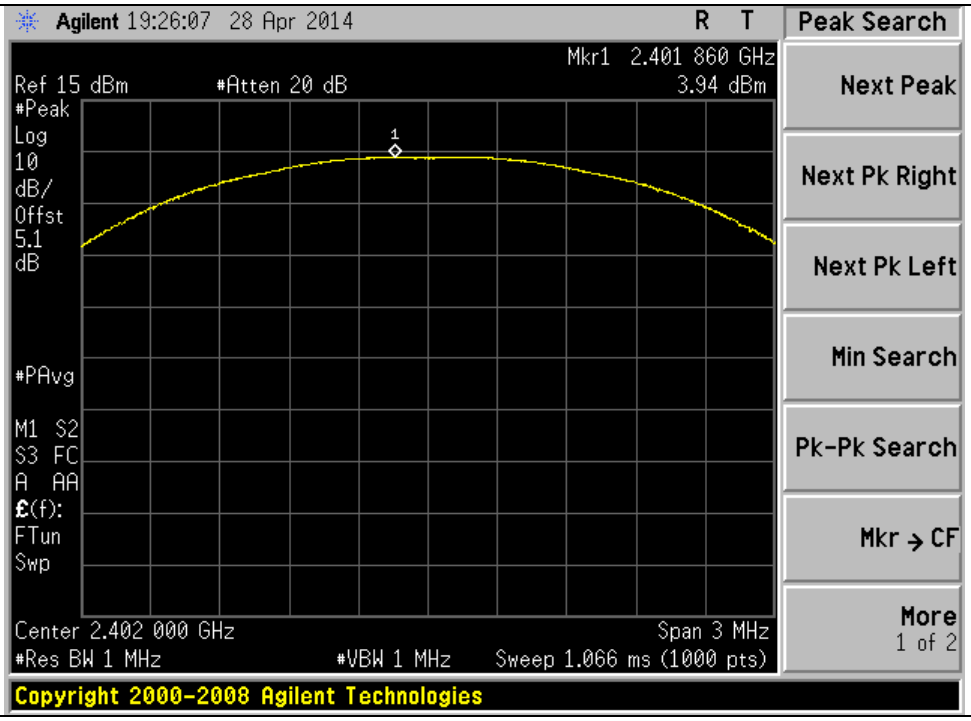


Title: **Peak Output Power Ch 0: 2402MHz with π/4-DQPSK modulation (2-DH3 packet)**



Title: **Peak Output Power Ch 0: 2402MHz with π/4-DQPSK modulation (2-DH5 packet)**

Graphical Test Results

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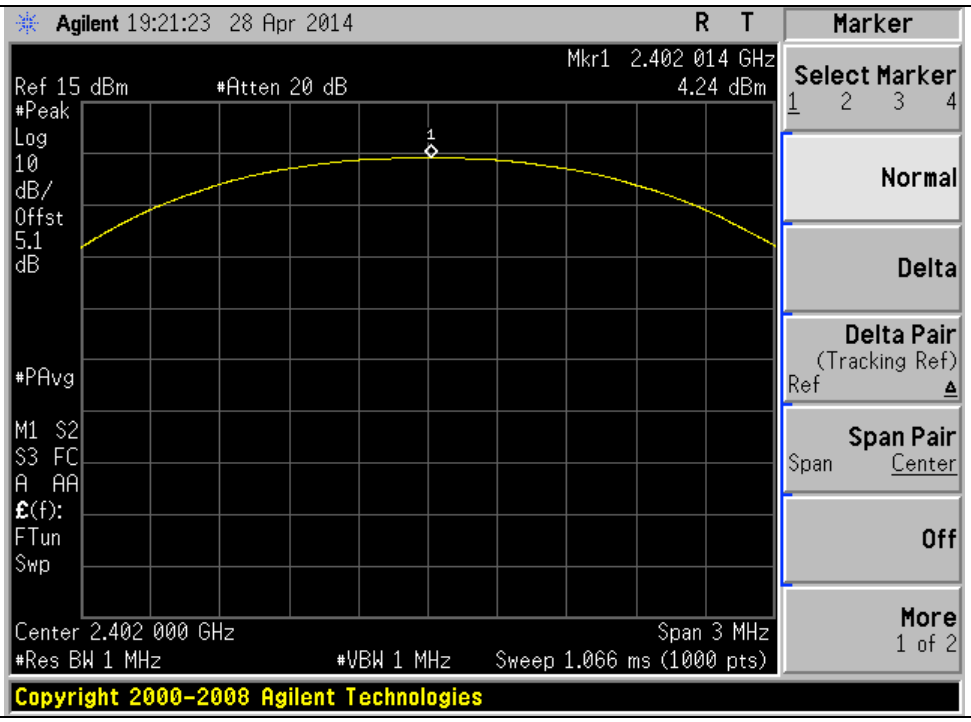
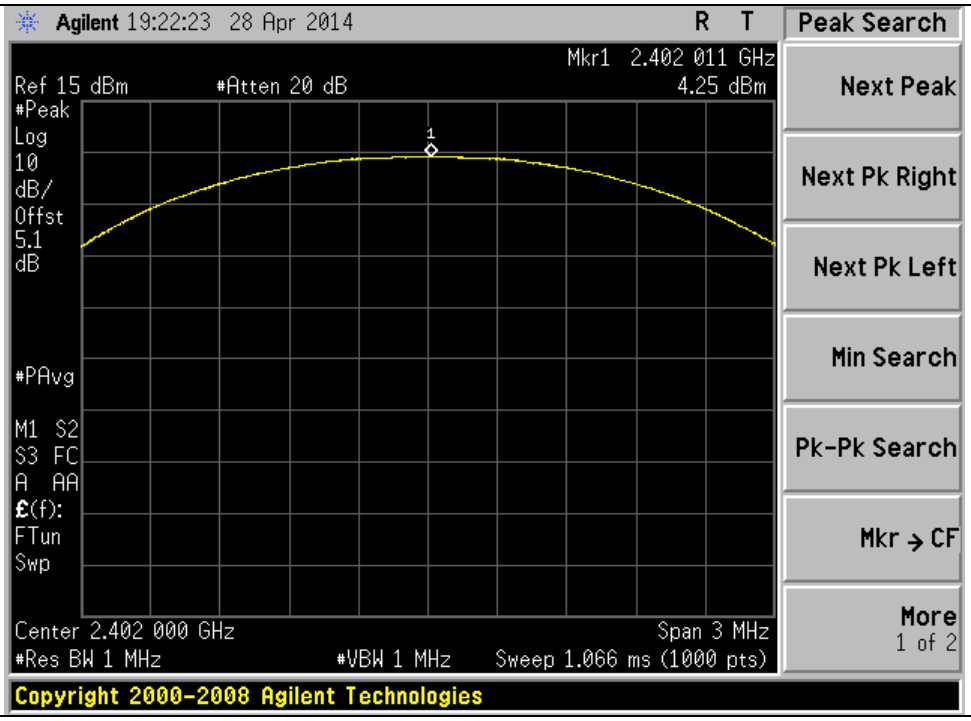


Title: Peak Output Power Ch 0: 2402MHz with 8-DPSK modulation (3-DH1 packet)



Title: Peak Output Power Ch 0: 2402MHz with 8-DPSK modulation (3-DH3 packet)

Graphical Test Results

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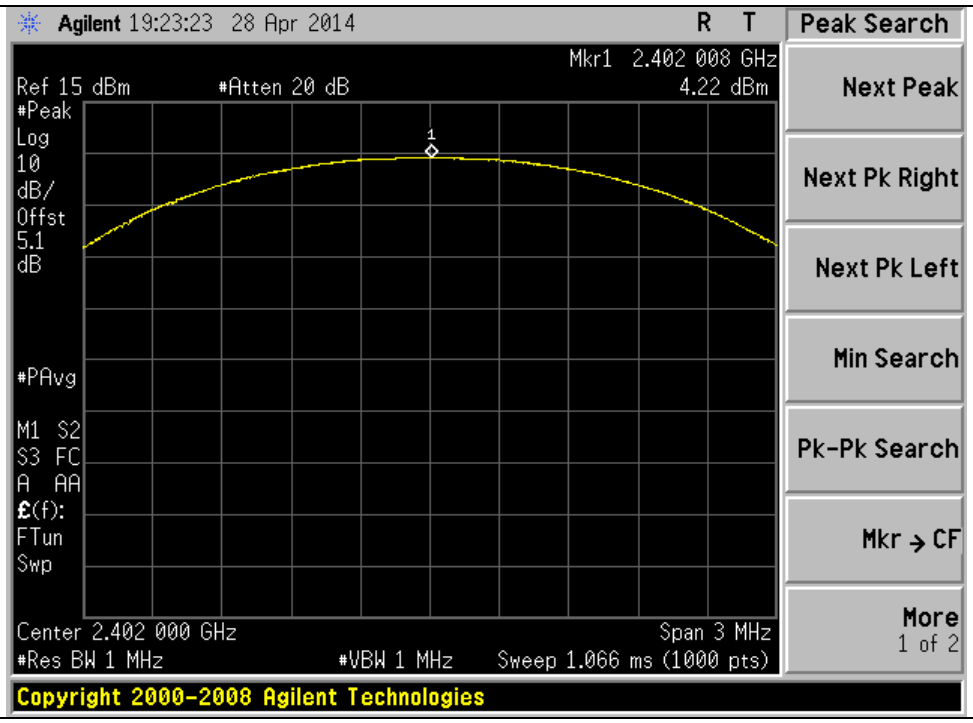
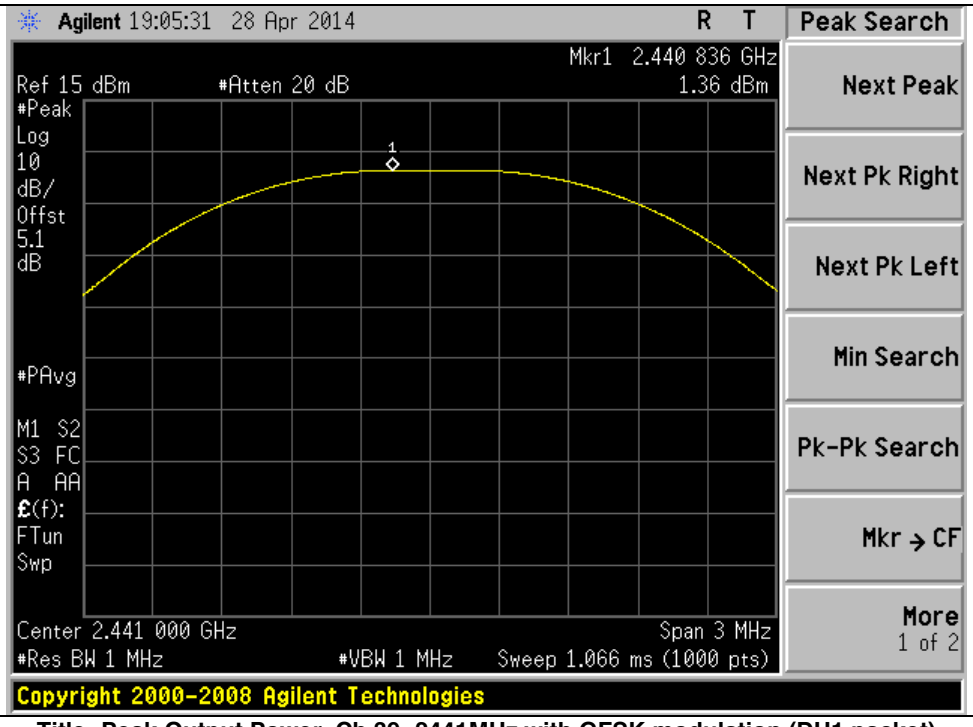


Title: Peak Output Power Ch 0: 2402MHz with 8-DPSK modulation (3-DH5 packet)



Title: Peak Output Power Ch 39: 2441MHz with GFSK modulation (DH1 packet)

Graphical Test Results

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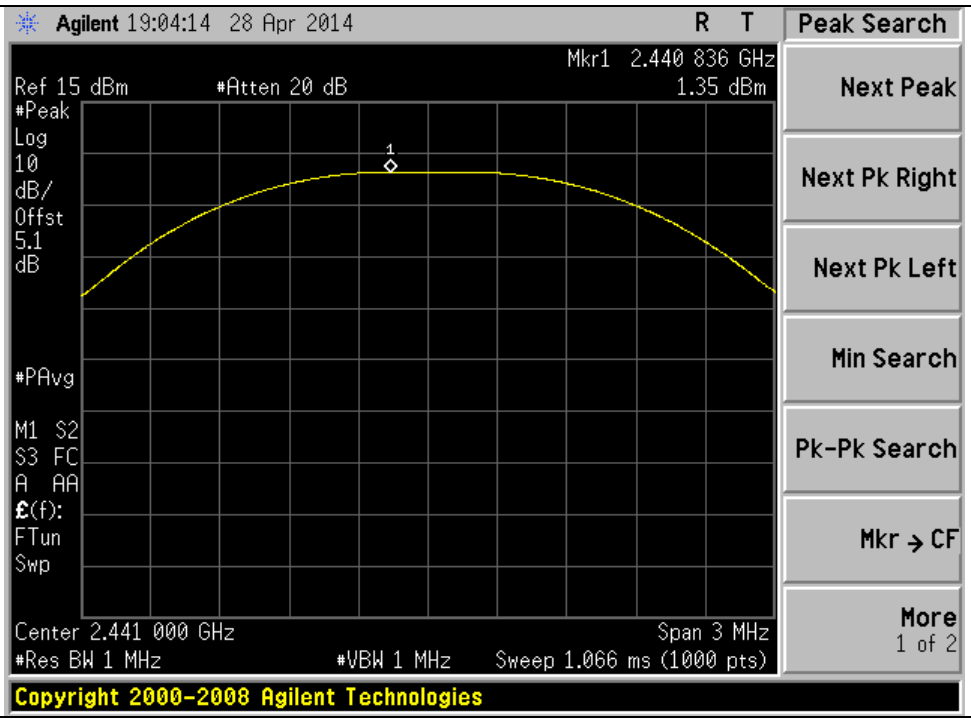
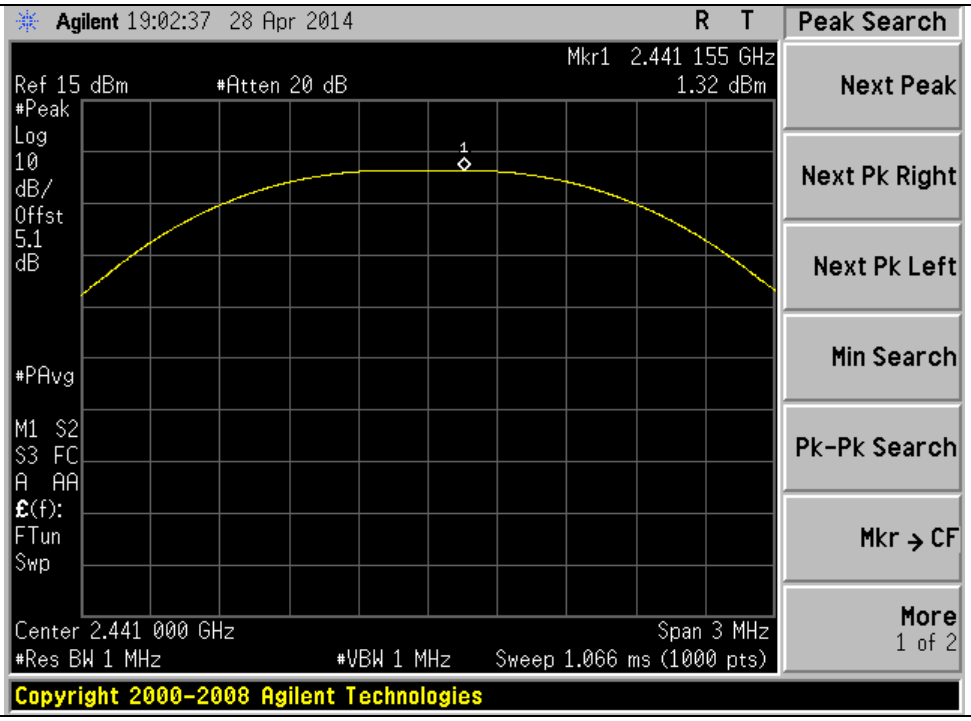


Title: Peak Output Power Ch 39: 2441MHz with π/4-DQPSK modulation (DH3 packet type)



Title: Peak Output Power Ch 39: 2441MHz with π/4-DQPSK modulation (DH5 packet)

Graphical Test Results

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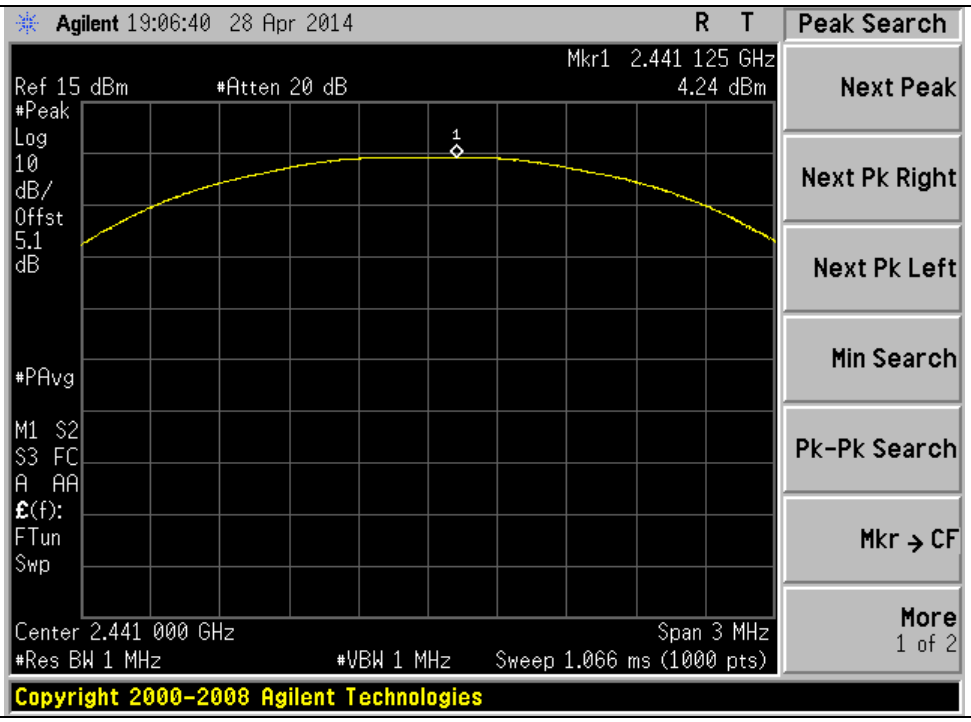
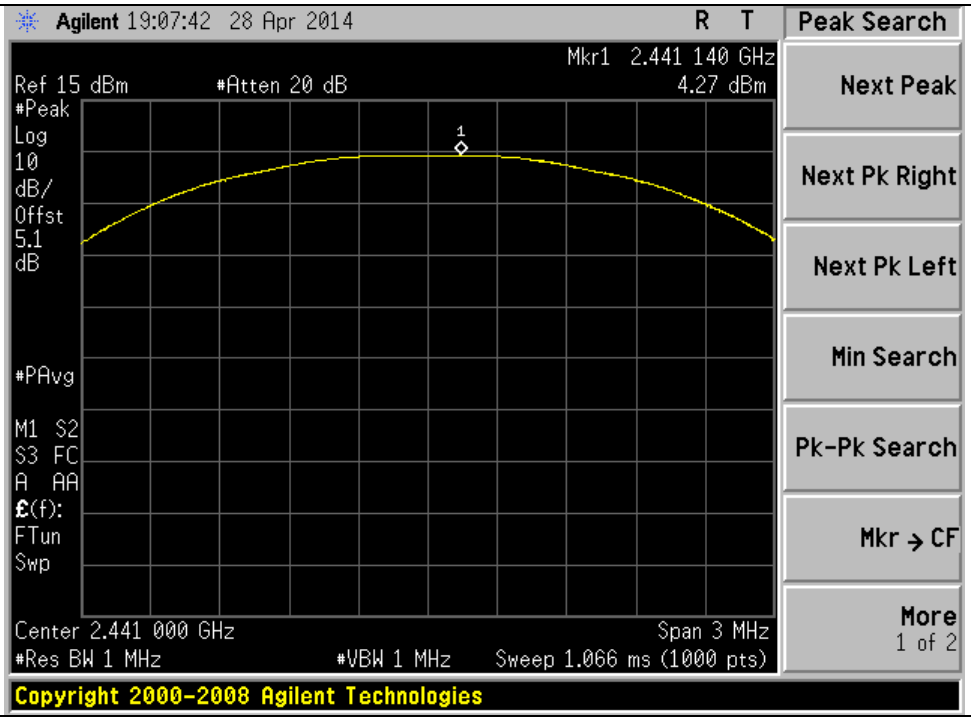


Title: Peak Output Power Ch 39: 2441MHz with π/4-DQPSK modulation (2-DH1 packet)



Title: Peak Output Power Ch 39: 2441MHz with π/4-DQPSK modulation (2-DH3 packet)

Graphical Test Results

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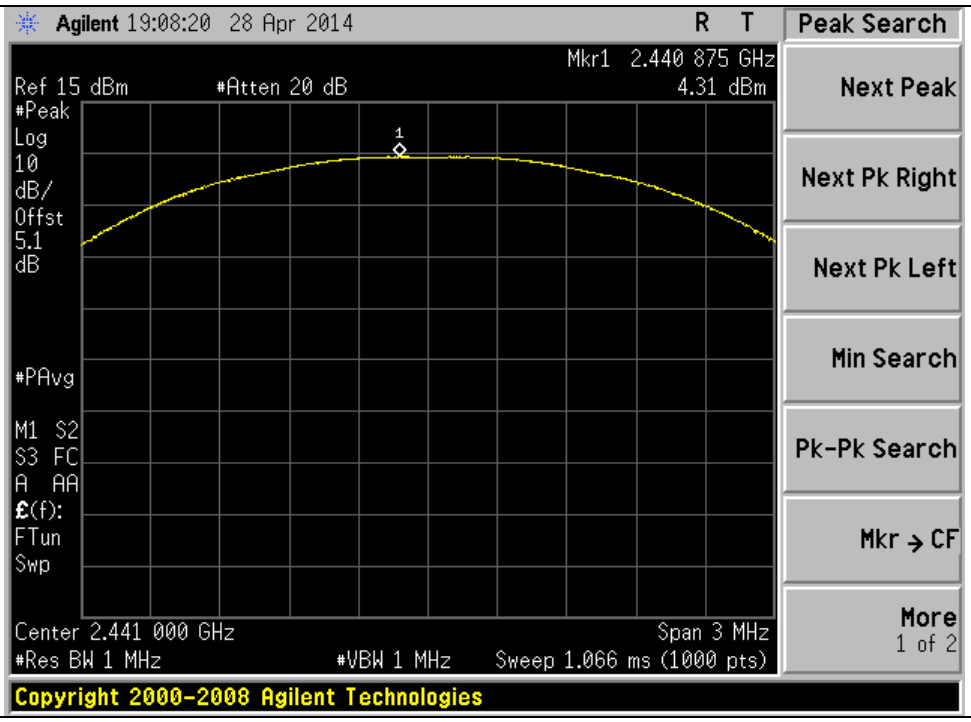
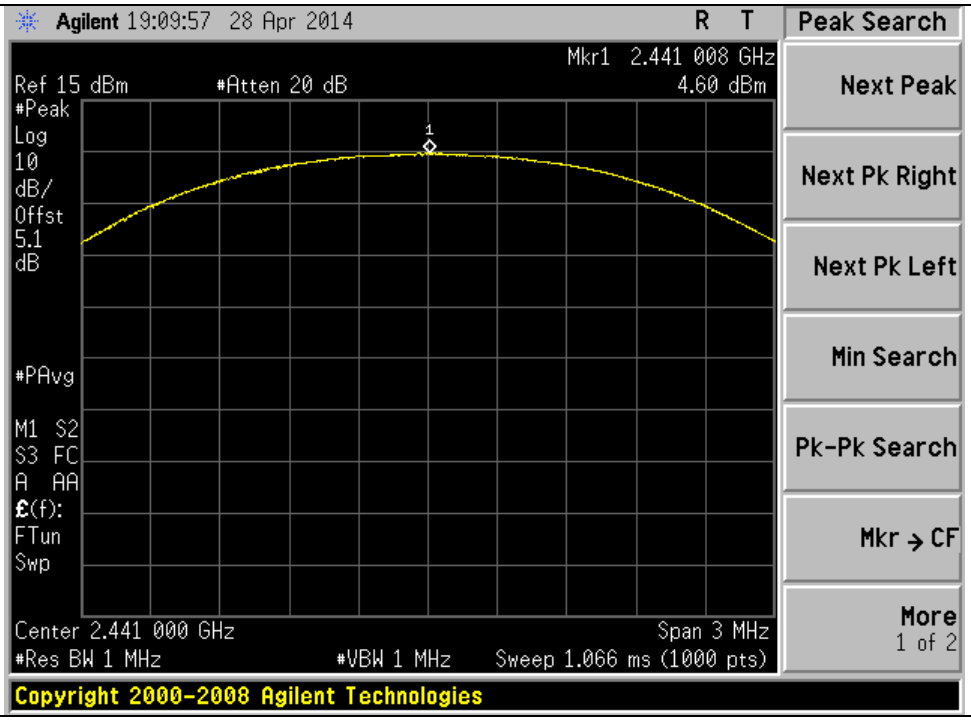


Title: **Peak Output Power Ch 39: 2441MHz with π/4-DQPSK modulation (2-DH5 packet)**



Title: **Peak Output Power Ch 39: 2441MHz with 8-DPSK modulation (3-DH1 packet)**

Graphical Test Results

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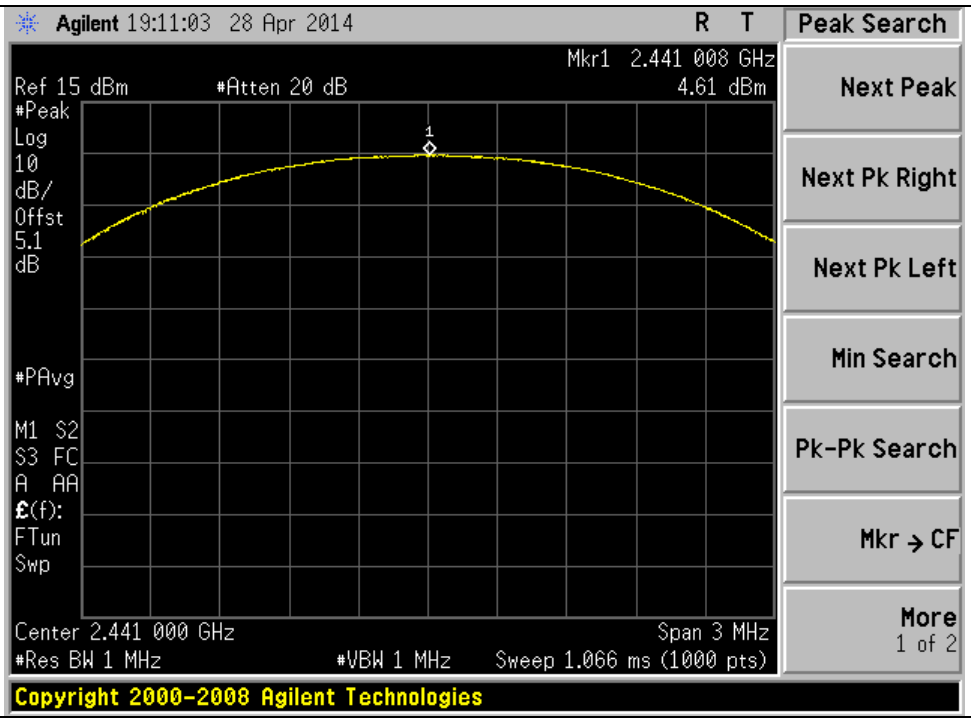
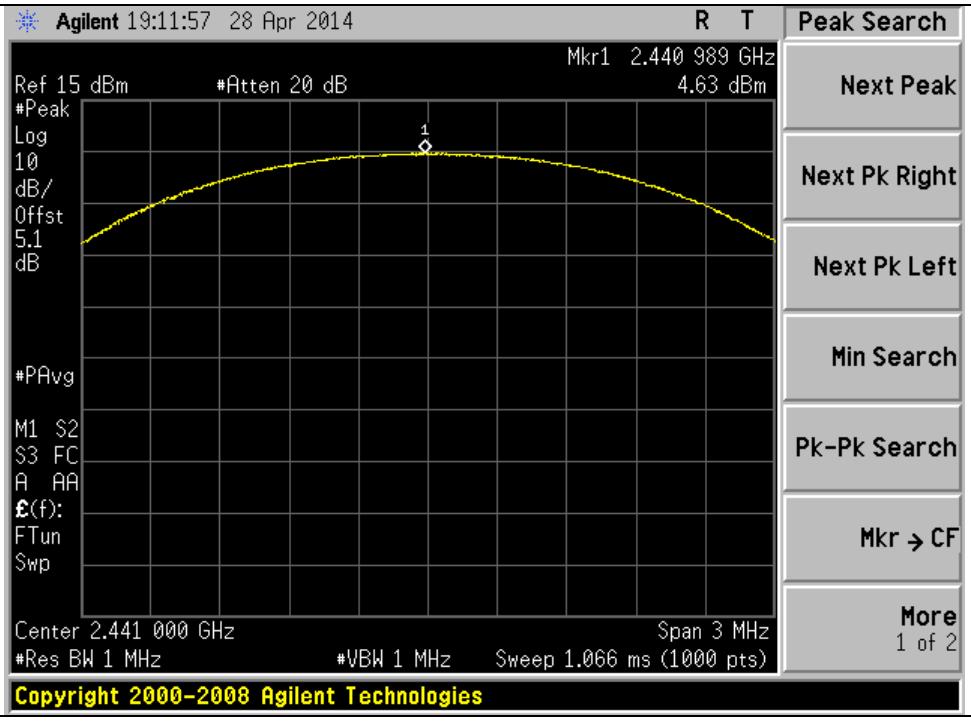


Title: **Peak Output Power Ch 39: 2441MHz with 8DPSK modulation (3-DH3 packet)**



Title: **Peak Output Power Ch 39: 2441MHz with 8DPSK modulation (3-DH5 packet)**

Graphical Test Results

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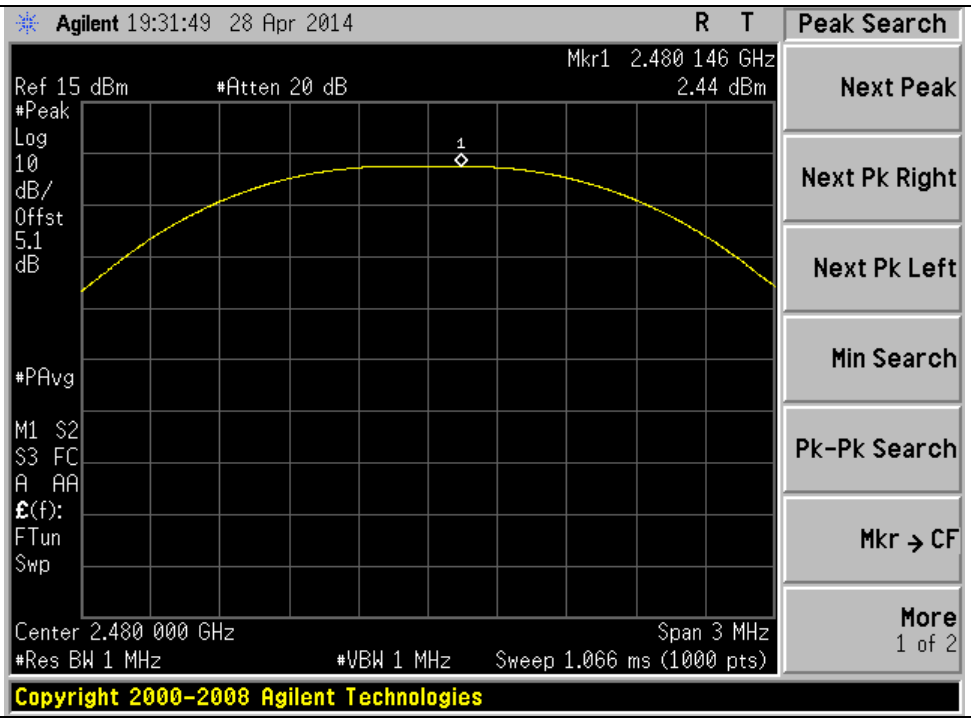
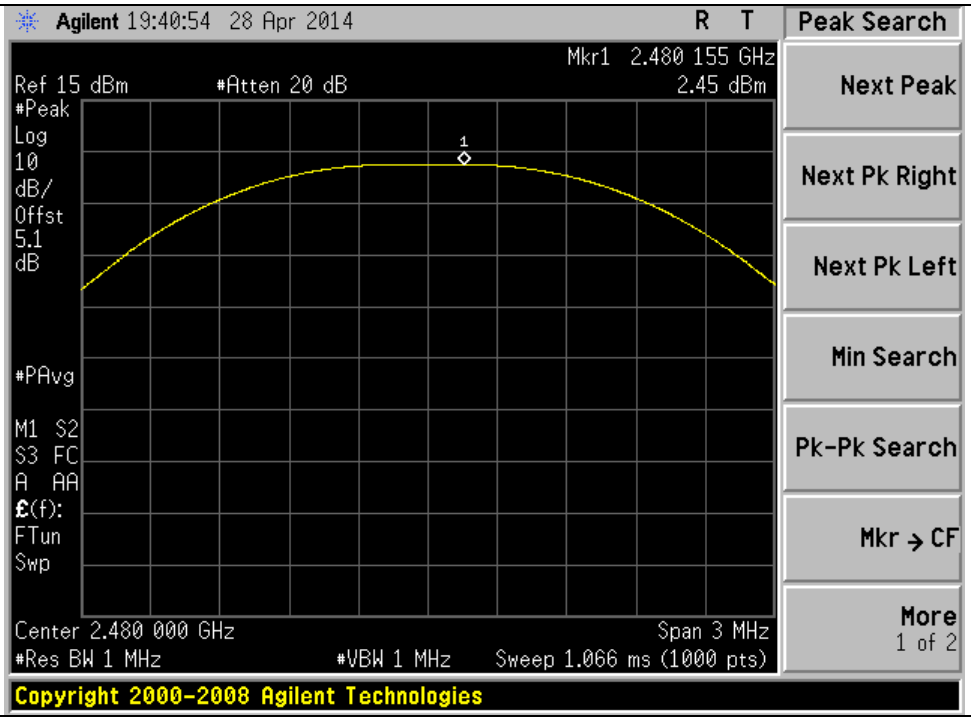


Title: **Peak Output Power Ch 78: 2480MHz with GFSK modulation (DH1 packet)**



Title: **Peak Output Power Ch 78: 2480MHz with GFSK modulation (DH3 packet)**

Graphical Test Results

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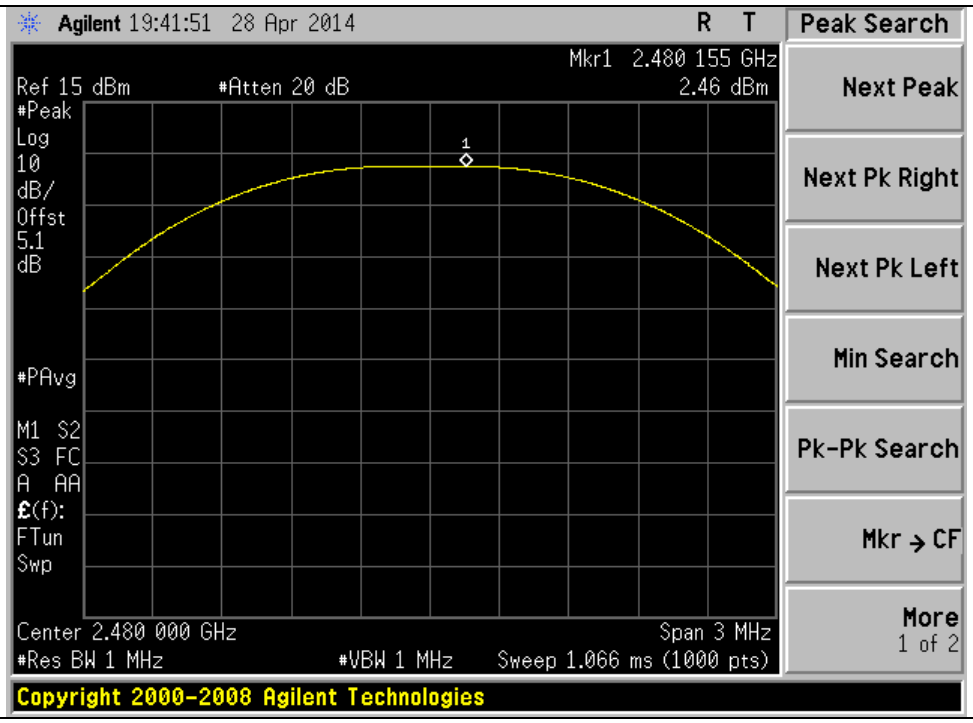
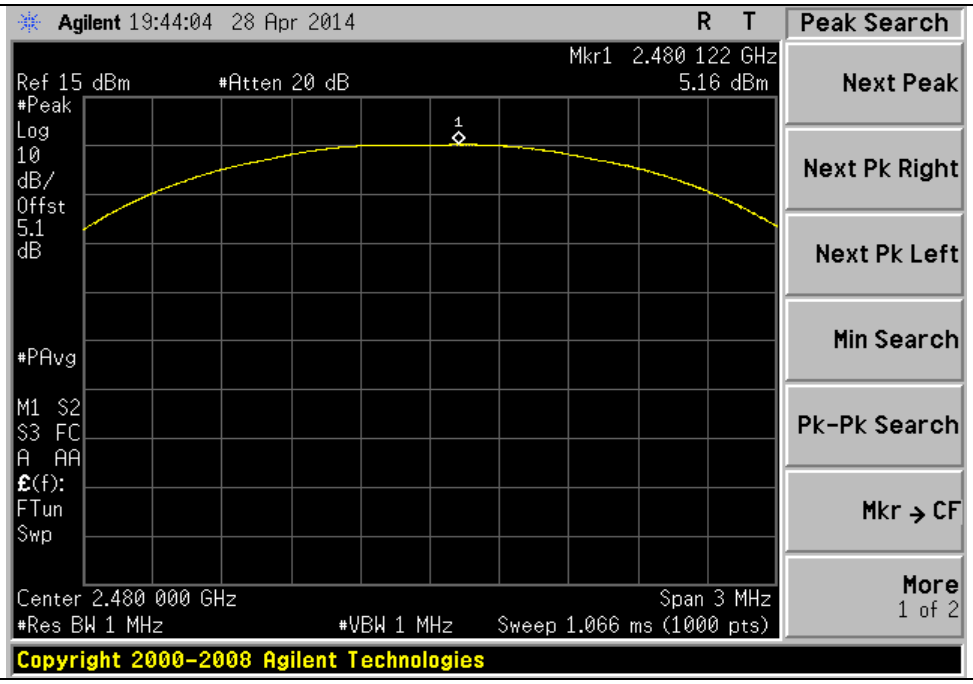


Title: **Peak Output Power Ch 78: 2480MHz with GFSK modulation (DH5 packet)**



Title: **Peak Output Power Ch 78: 2480MHz with π/4-DQPSK modulation (2-DH1 packet)**

Graphical Test Results

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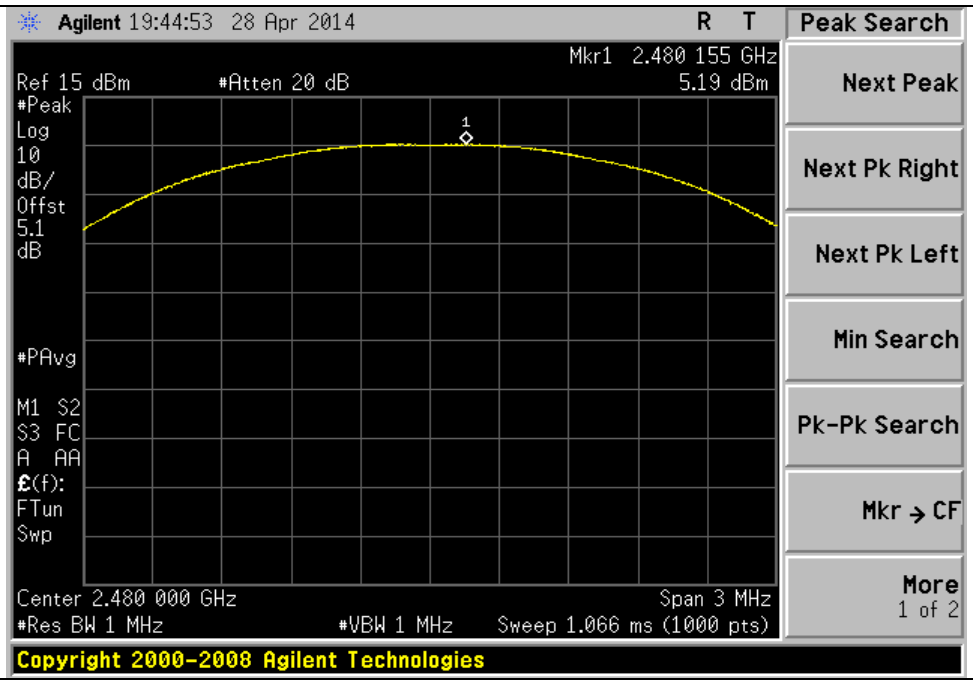
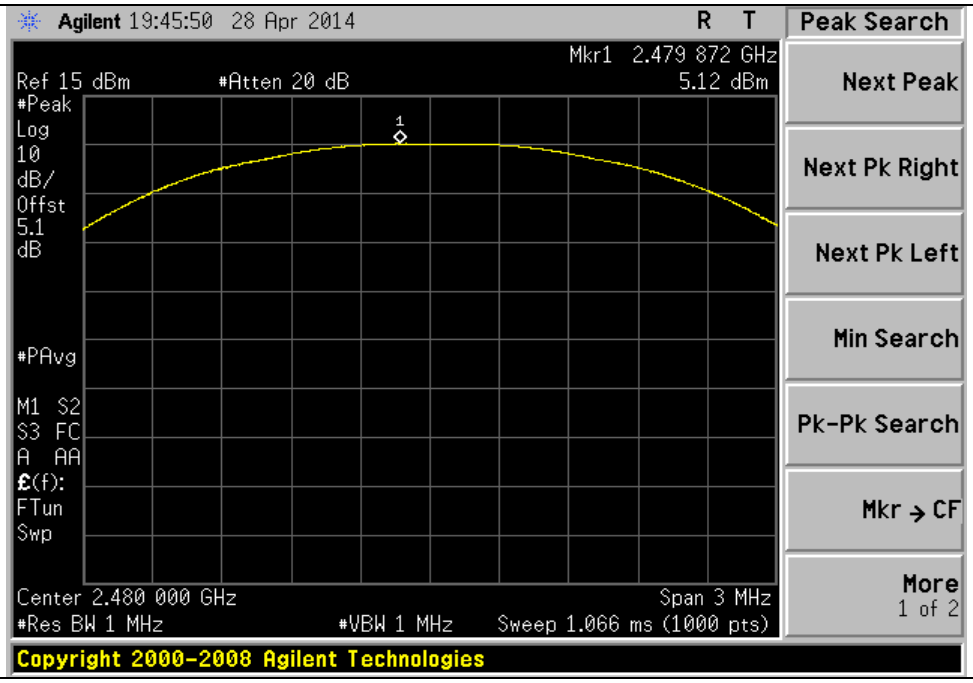


Title: **Peak Output Power Ch 78: 2480MHz with π/4-DQPSK modulation (2-DH3 packet)**



Title: **Peak Output Power Ch 78: 2480MHz with π/4-DQPSK modulation (2-DH5 packet)**

Graphical Test Results

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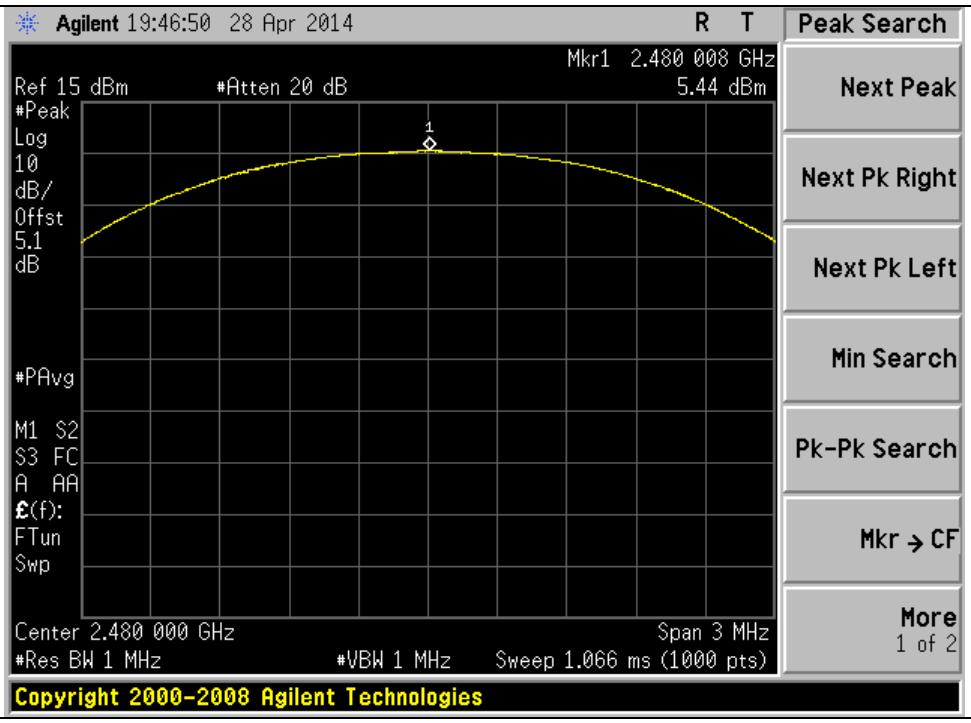
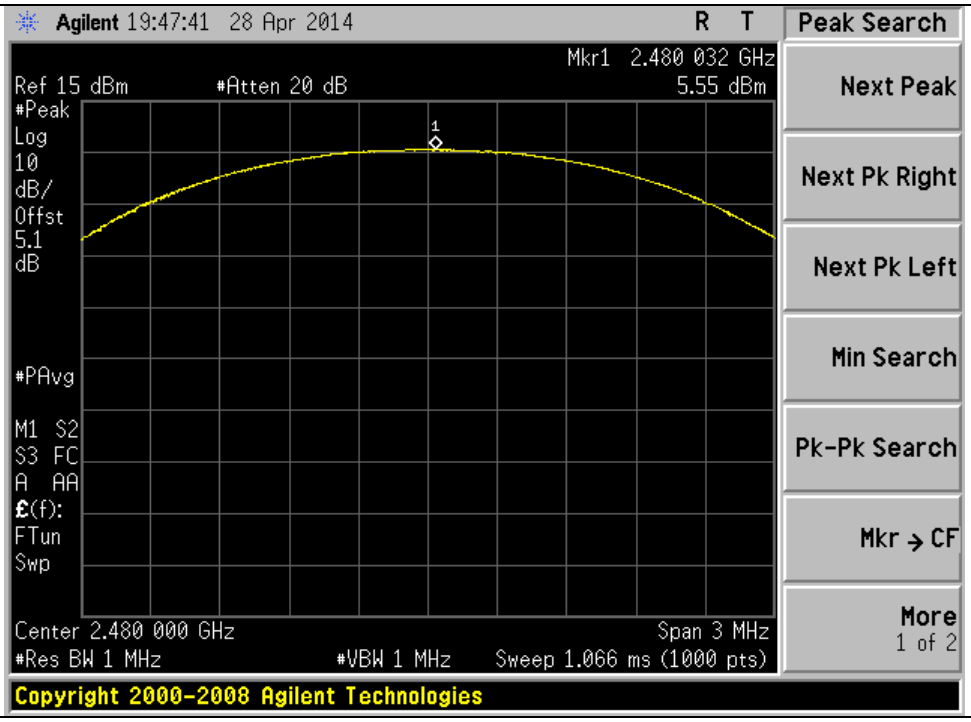


Title: **Peak Output Power Ch 78: 2480MHz with 8-DPSK modulation (3-DH1 packet)**



Title: **Peak Output Power Ch 78: 2480MHz with 8-DPSK modulation (3-DH3 packet)**

Graphical Test Results

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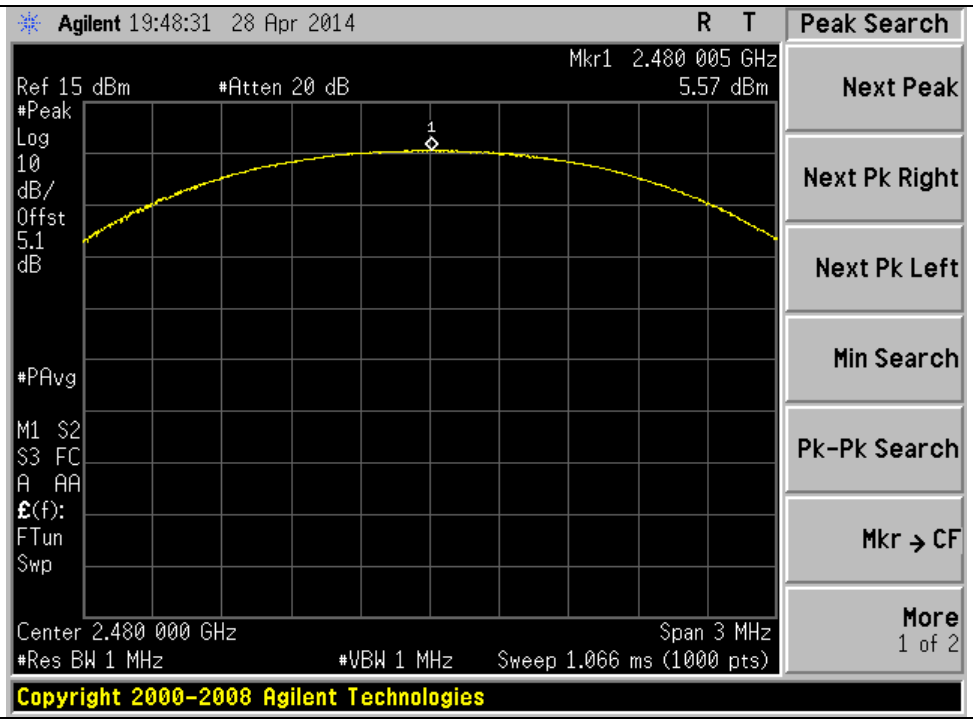

Title: **Peak Output Power Ch 78: 2480MHz with 8-DPSK modulation (3-DH5 packet)**

Overall Result: PASS

Measurement procedure as per KDB Publication DA 00-705

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A.3 Carrier Frequency Separation

15.247 & RSS-210 A8.1:

For frequency hopping systems operating in the 2400-2483.5MHz band may have hopping channel frequencies that are separated by 25kHz or two-thirds of the 20dB bandwidth of the hopping channel, whichever is greater, provided the system operates with an output power no greater than 0.125W.

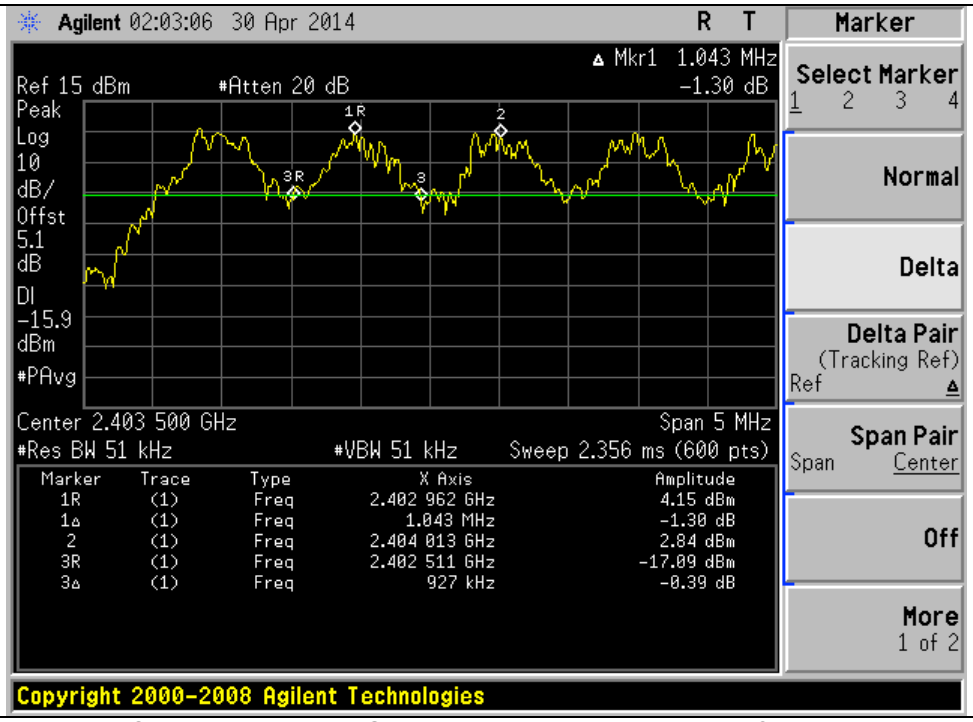
Measurement Procedure

In accordance with KDB Publication DA 00-705

Test Data Table

Frequency (MHz)	Carrier Frequency Separation (KHz)	Limits (KHz)	Results
2440 & 2441	1043.00	⅔ of 20 dB BW	Pass

Graphical Test Results



Title: **Carrier Frequency Separation between 2441 MHz & 2442 MHz**

Overall Result: PASS

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A.4 Number of Hopping Frequencies

15.247 & RSS-210 A8.1:

Frequency hopping systems operating in the band 2400-2483.5MHz shall use at least 15 hopping channels.

Measurement Procedure

In accordance with KDB Publication DA 00-705

Test Data Table

Frequency (MHz)	Total No. of Channels	Limits	Results
2400 – 2483.5	79	≥ 15	Pass
Total number of hopping frequencies in the 2400-2483.5MHz Band = 79 Channels			

Overall Result: PASS

Measurement procedure as per KDB Publication DA 00-705

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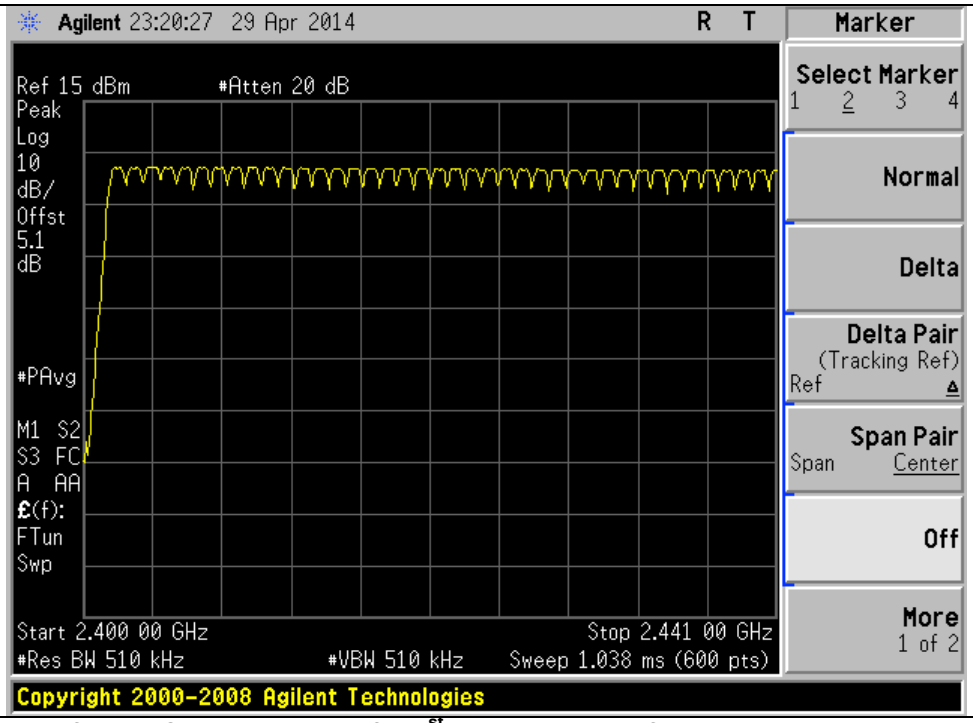
Graphical Test Results



Title: **Total No. of Hops Channels = 39.5 for 1st segment in the frequency range 2400-2440MHz**

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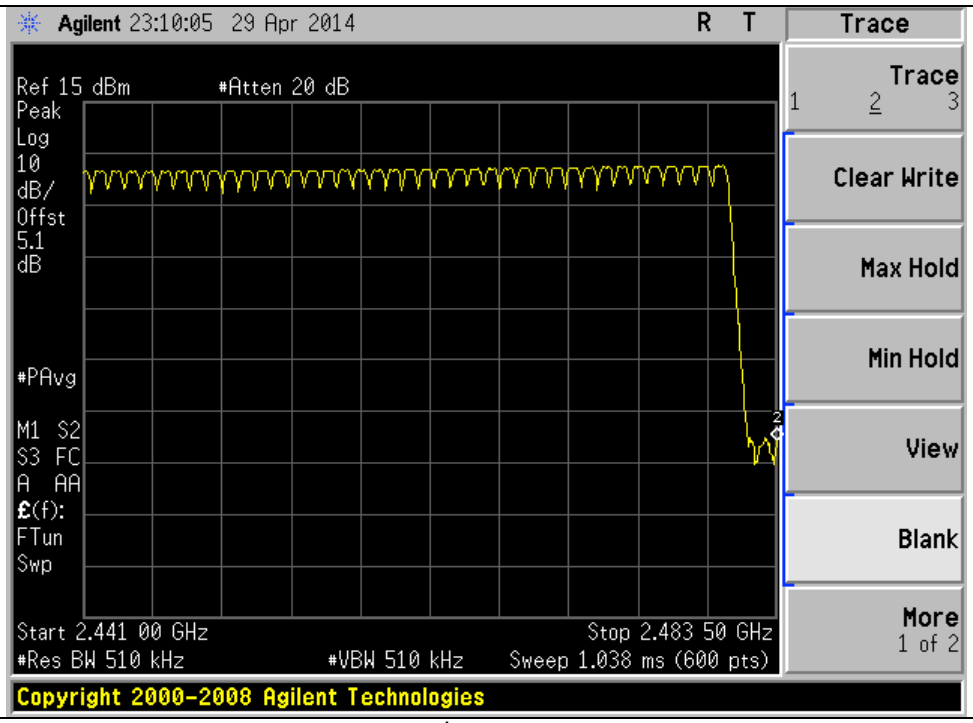

Title: **Total No. of Hops Channels = 39.5 for 2nd segment in the frequency range 2400-2440MHz**

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A.5 & A.6 Dwell Time and Average Time of Occupancy

15.247 & RSS-210 A8.1:

Frequency hopping systems operating in the band 2400-2483.5MHz shall use at least 15 hopping channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

Measurement Procedure

In accordance with KDB Publication DA 00-705

Sample of calculation:

The total sweep time is 0.4(79) = 31.6 seconds.
Due to many numbers of hops in the 31.6s sweep, reducing the sweep time to 5 s to have more visible number of hops, count the number of hops and multiply by 6.32. The total number of hops will be multiplied by the measured time of one pulse.

Example: Number of Hops in 5s = 50. Total Number of Hops in 31.6s = 50(6.32) = 316
Single Pulse Width = 0.001s. Time of Occupancy = 316 (0.001) = 0.316s

Calculation:

Packet Type: DH1
DH1 Dwell Time = **0.385 ms**
Total bins in 5 s = 50
Max. allowed time = 0.4 s x No. of available channels = 0.4s x 79 = 31.6s
Total bins in 31.6s = 50 (in 5s) x 6.32 = 316 bin
Total time occupancy (in 31.6s) = 316 x 0.385ms = **121.6ms** or .122s < .4 s

Packet Type: DH3
DH3 Dwell Time = **1.623 ms**
Total bins in 5s = 20
Max. allowed time = 0.4s x No. of available channels = 0.4s x 79 = 31.6s
Total bins in 31.6s = 20 (in 5s) x 6.32 = 126.4
Total time occupancy (in 31.6s) = 126.4 x 1.623ms = **205.15ms** or .**205s** < .4s

Packet Type: DH5
DH5 Dwell Time = **2.845 ms**
Total bins in 5s = 13
Max. allowed time = 0.4s x No. of available channels = 0.4 s x 79 = 31.6s
Total bins in 31.6s = 13 (in 5s) x 6.32 = 82.2 bins
Total time occupancy (in 31.6s) = 82.2 x 2.845ms = **233.8ms** or .**234**s < .4s

Packet Type: 2-DH1
2-DH1 Dwell Time = **0.400ms**
Total bins in 5 s = 49

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Max. allowed time = 0.4 s x No. of available channels = 0.4s x 79 = 31.6s
Total bins in 31.6s = 49 (in 5s) x 6.32 = 309.7
Total time occupancy (in 31.6s) = 309.7 x 0.400ms = **123.9ms** or **.124s** < .4s

Calculation (continue):

Packet Type: 2-DH3
2-DH3 Dwell Time = **1.633ms**
Total bins in 5 s = 20
Max. allowed time = 0.4 s x No. of available channels = 0.4s x 79 = 31.6s
Total bins in 31.6s = 20 (in 5s) x 6.32 = 126.4
Total time occupancy (in 31.6s) = 126.4 x 1.63ms = **206.4ms** or **.206s < .4s**

Packet Type: 2-DH5
2-DH5 Dwell Time = **2.867ms**
Total bins in 5 s = 14
Max. allowed time = 0.4 s x No. of available channels = 0.4s x 79 = 31.6s
Total bins in 31.6s = 13 (in 5s) x 6.32 = 82.2 bins
Total time occupancy (in 31.6s) = 82.2 x 2.867ms = **235.6ms** or **.236s < .4s**

Packet Type: 3-DH1
3-DH1 Dwell Time = **0.400ms**
Total bins in 5 s = 48
Max. allowed time = 0.4 s x No. of available channels = 0.4s x 79 = 31.6s
Total bins in 31.6s = 48 (in 5s) x 6.32 = 303.4
Total time occupancy (in 31.6s) = 303.4 x 0.400ms = **121.3ms** or **.121s** < **.4s**

Packet Type: 3-DH3
3-DH3 Dwell Time = **1.633 ms**
Total bins in 5 s = 17
Max. allowed time = 0.4 s x No. of available channels = 0.4s x 79 = 31.6s
Total bins in 31.6s = 20 (in 5s) x 6.32 = 126.4
Total time occupancy (in 31.6s) = 126.4 x 1.633ms = **206.4ms** or **.206s < .4s**

Packet Type: 3-DH5
3-DH5 Dwell Time = **2.900 ms**
Total bins in 5 s = 12
Max. allowed time = 0.4 s x No. of available channels = 0.4s x 79 = 31.6s
Total bins in 31.6s = 14 (in 5s) x 6.32 = 88.48 bins
Total time occupancy (in 31.6s) = 88.5 x 2.90ms = **256.6ms** or **.257s < .4s**

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Test Data

Frequency (MHz)	Packet Type	Dwell Time (ms)	Time Occupancy (ms)	Limits (ms)	Results
2441	DH1	0.383	122	400	Pass
2441	DH3	1.623	205	400	Pass
2441	DH5	2.845	234	400	Pass
2441	2-DH1	0.400	124	400	Pass
2441	2-DH3	1.633	206	400	Pass
2441	2-DH5	2.867	236	400	Pass
2441	3-DH1	0.400	121	400	Pass
2441	3-DH3	1.633	206	400	Pass
2441	3-DH5	2.900	257	400	Pass

Overall Result: PASS

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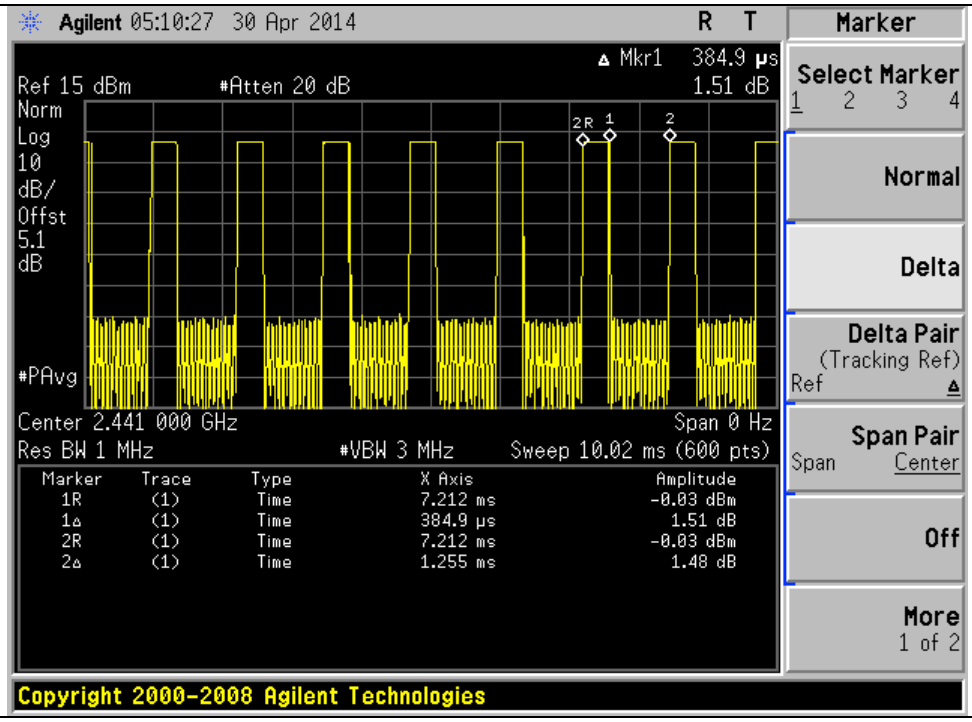
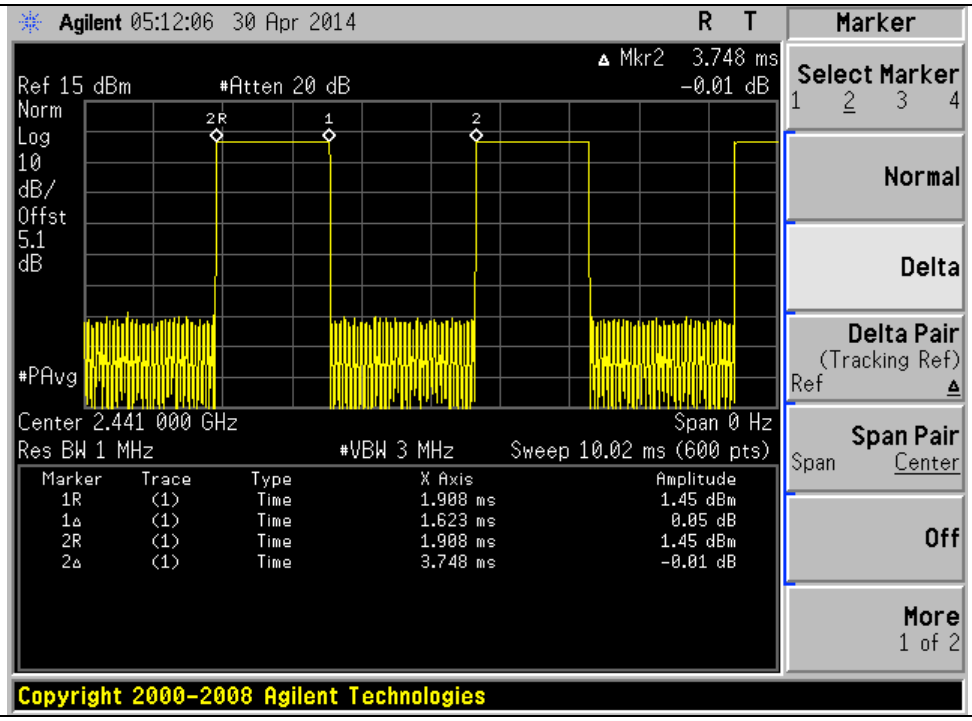
Graphical Test Results



Title: **2441MHz Dwell Time with DH1 packet**



Title: **2441MHz Dwell Time with DH3 packet**

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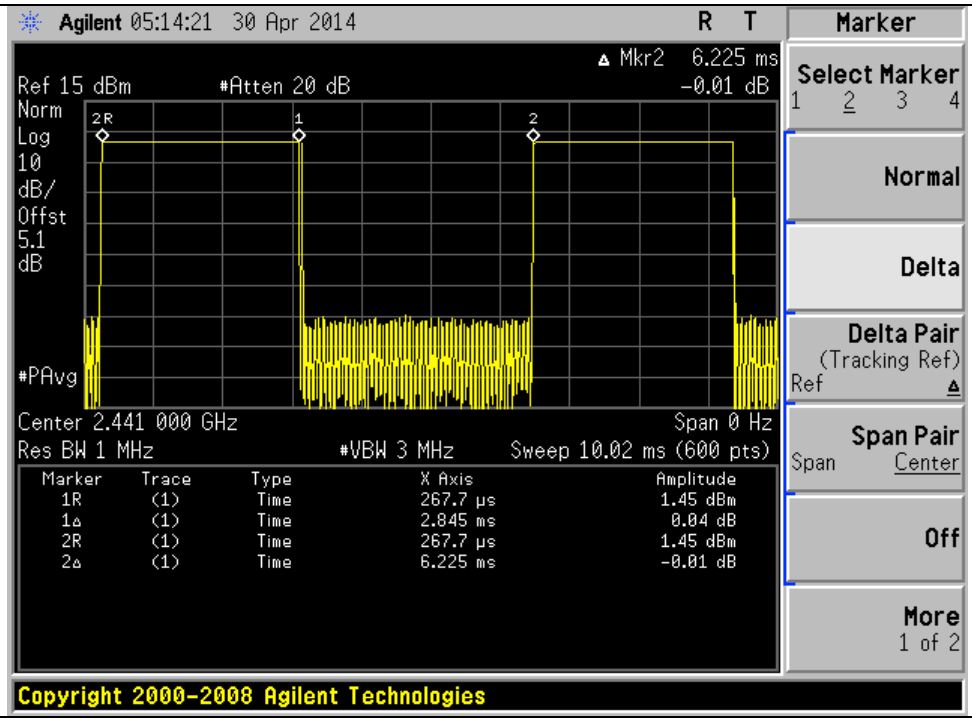
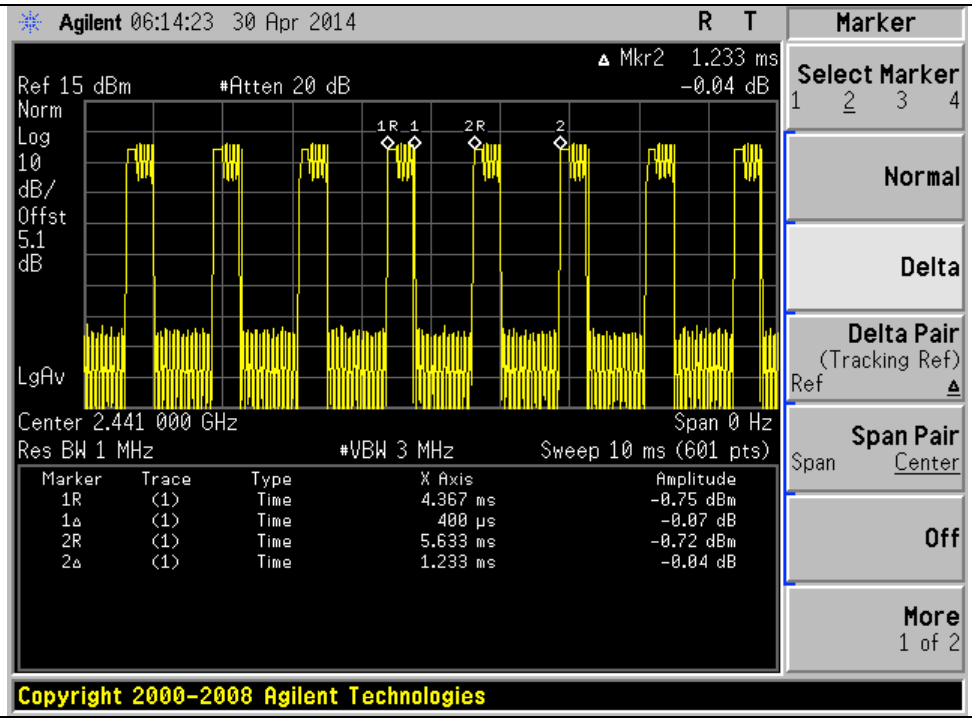
Graphical Test Results



Title: **2441MHz Dwell Time with DH5 packet**



Title: **2441MHz Dwell Time with 2-DH1 packet**

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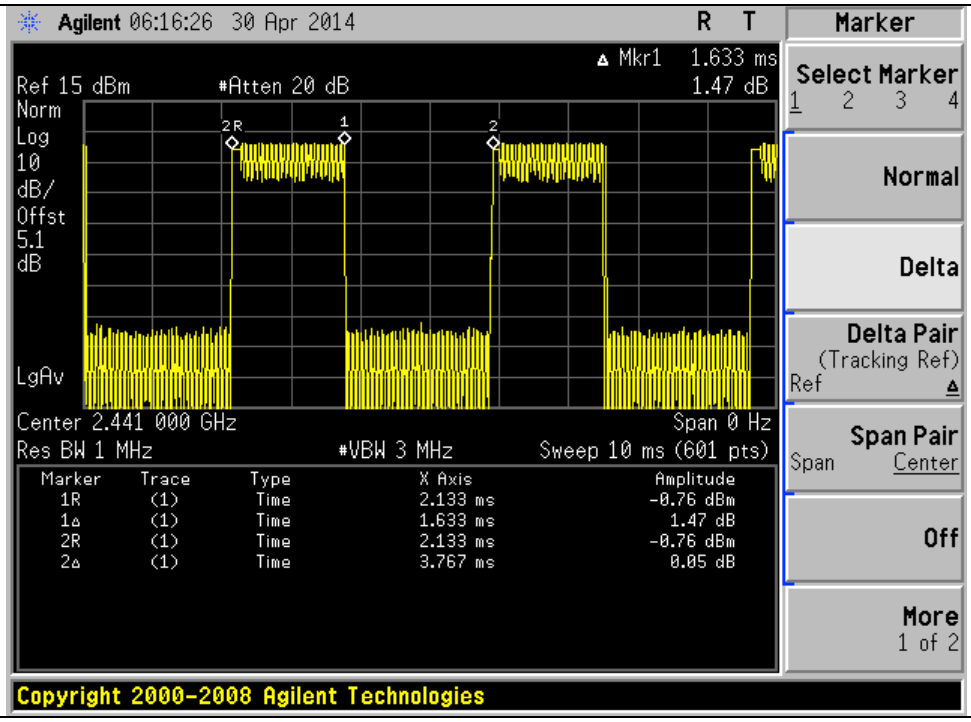
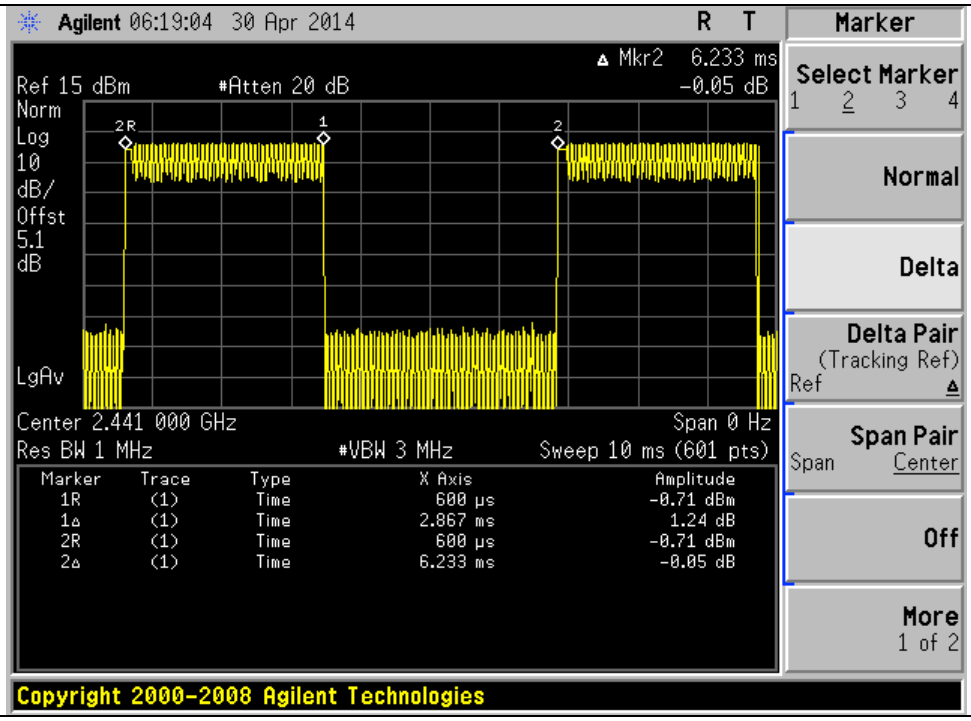
Graphical Test Results



Title: **2441MHz Dwell Time with 2-DH3 packet**



Title: **2441MHz Dwell Time with 2-DH5 packet**

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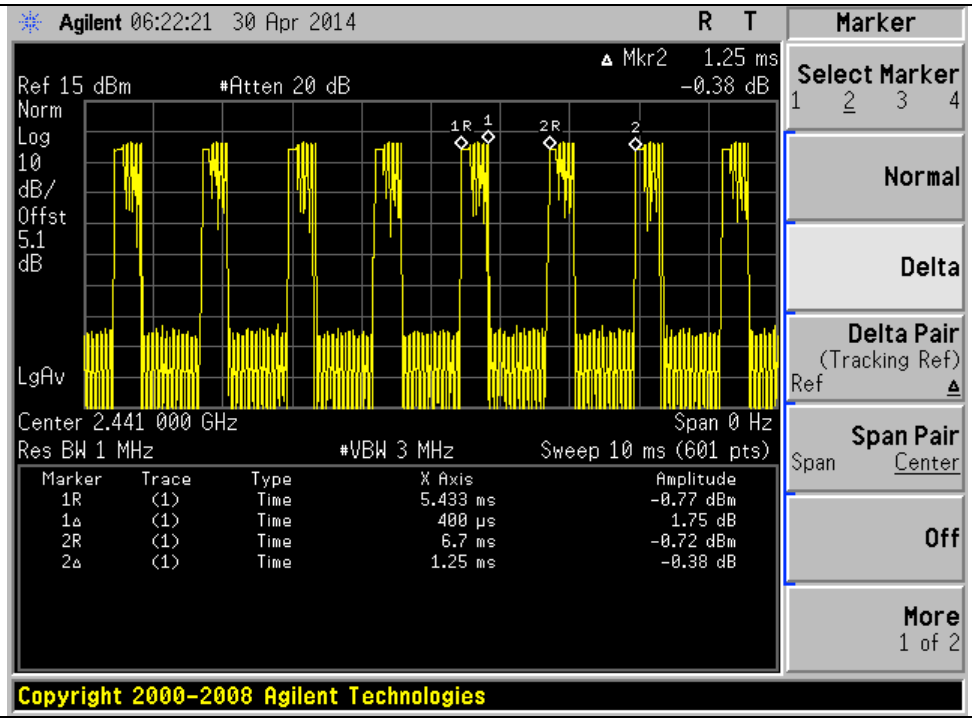
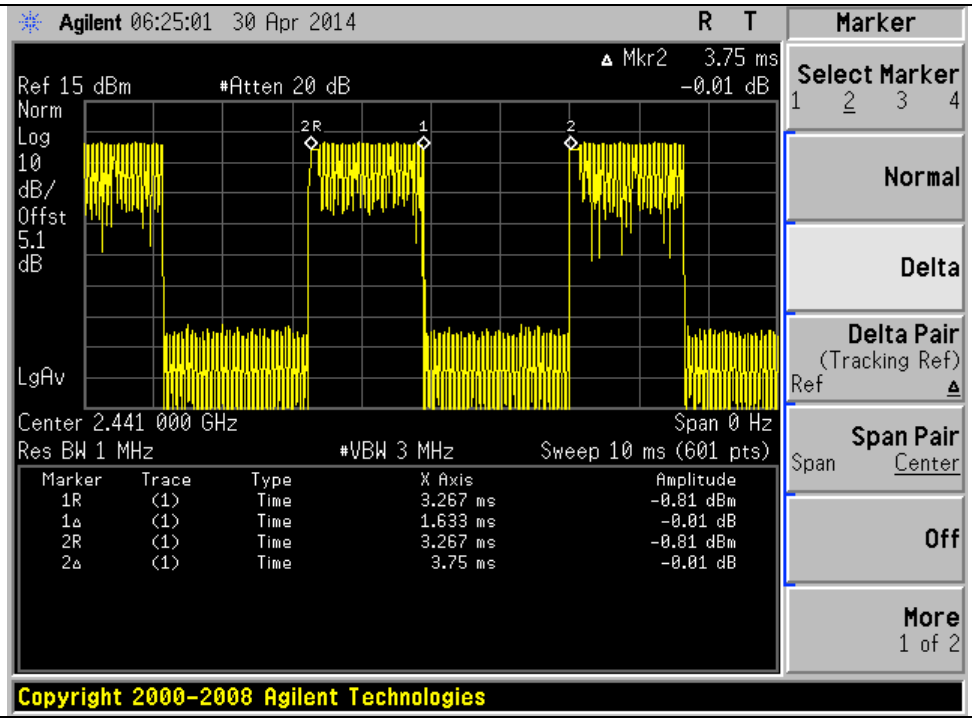
Graphical Test Results



Title: **2441MHz Dwell Time with 3-DH1 packet**



Title: **2441MHz Dwell Time with 3-DH3 packet**

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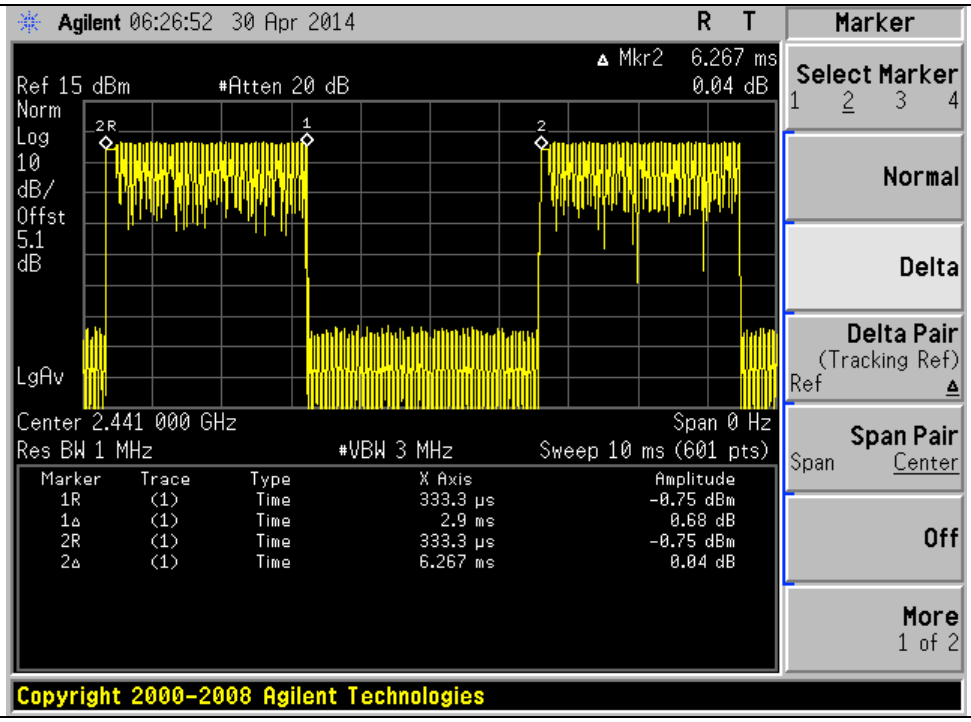
Graphical Test Results



Title: **2441MHz Dwell Time with 3-DH5 packet**

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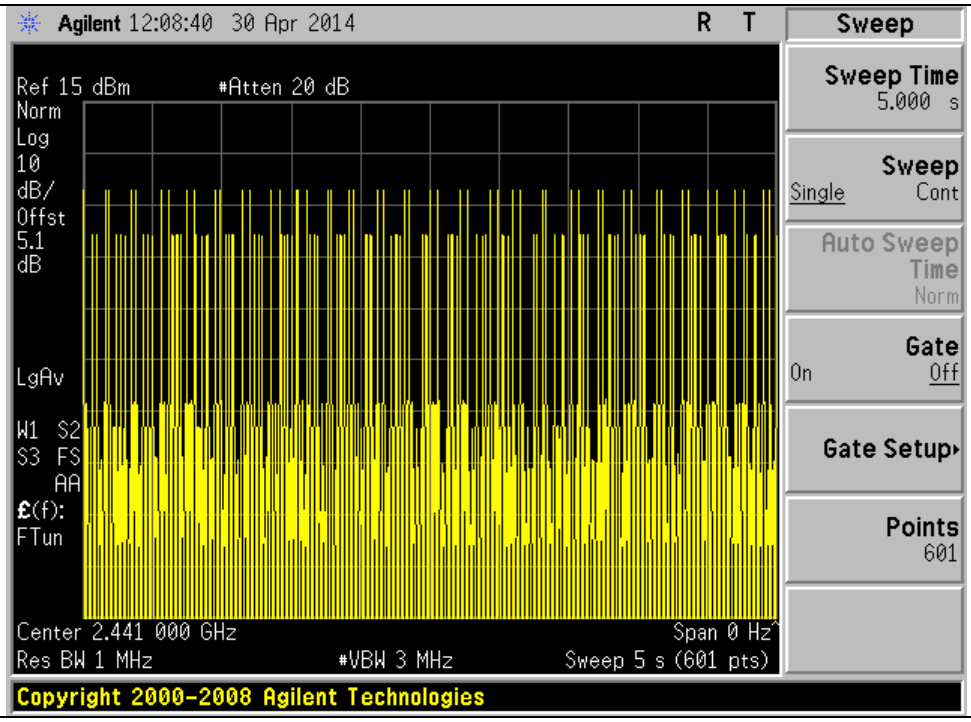
Graphical Test Results



Title: **Time Occupancy in 5s with DH1 packet; Total bins in 5s = 50**

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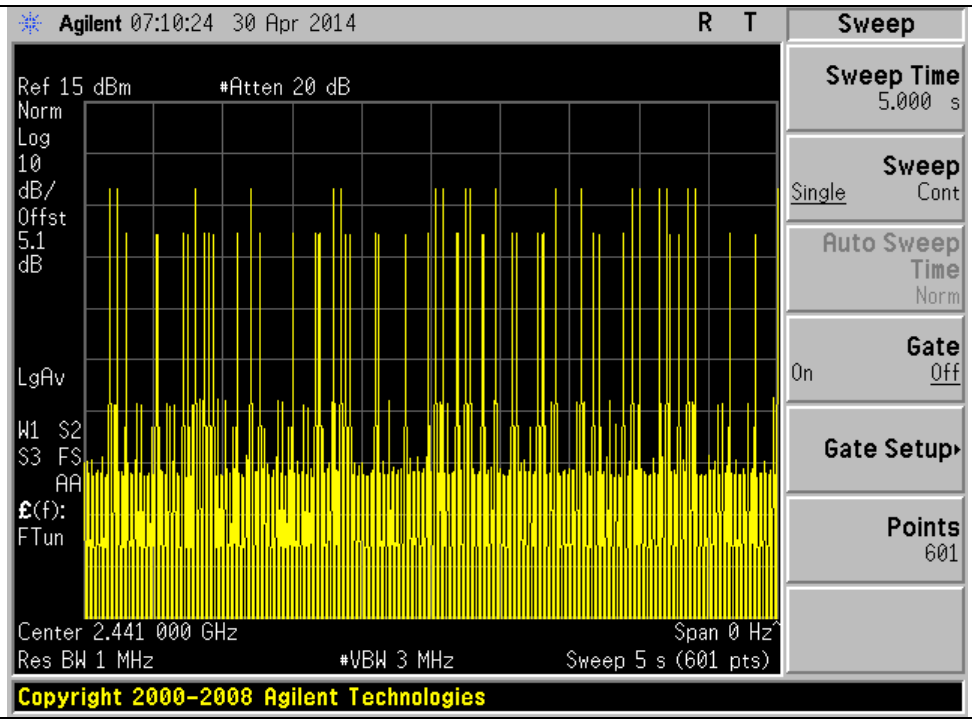
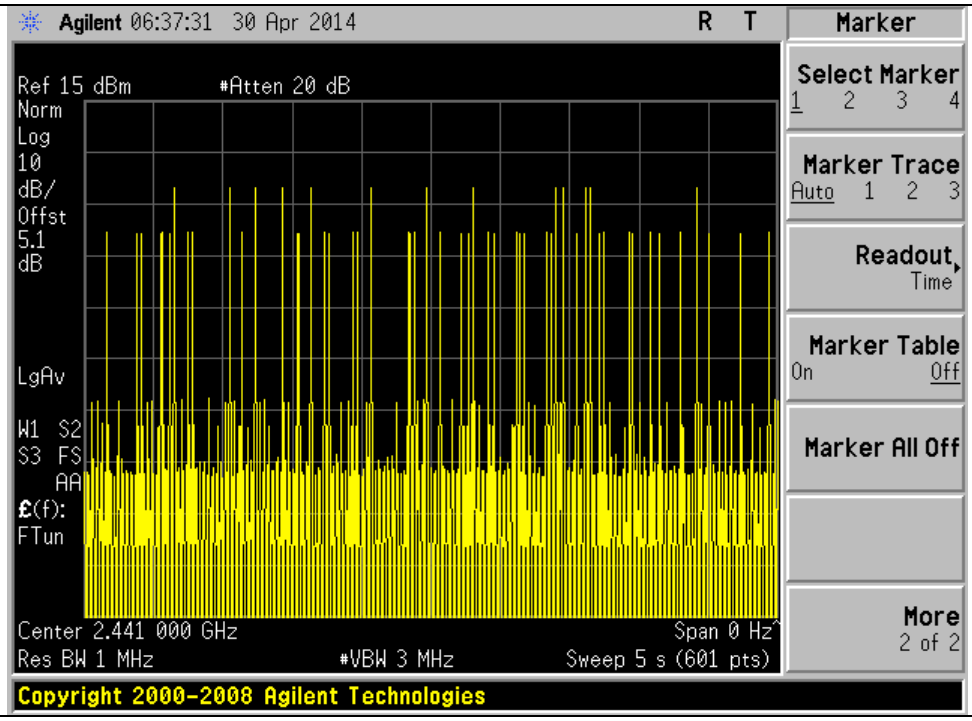


Title: **Time Occupancy in 5s with DH3 packet; Total bins in 5s = 20**

Graphical Test Results



Title: **Time Occupancy in 5s with DH5 packet; Total bins in 5s = 13**

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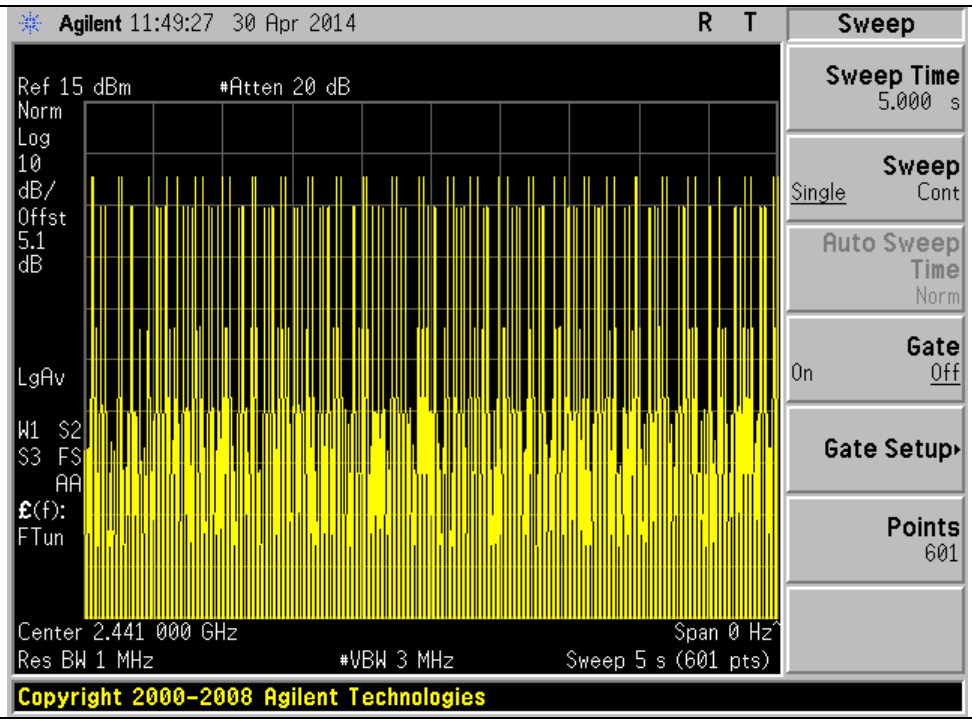
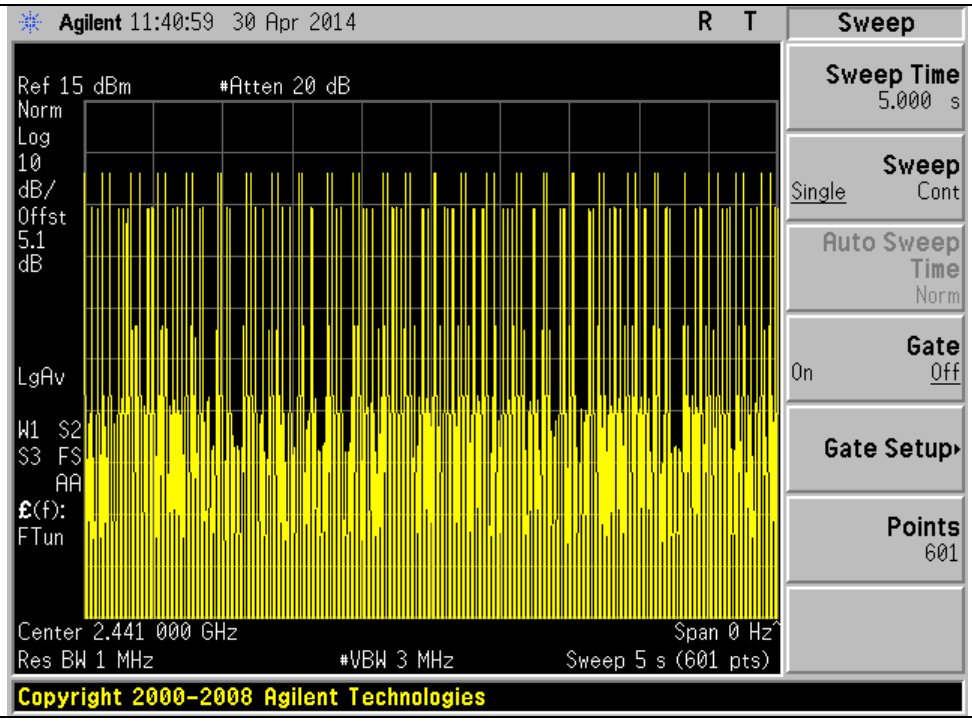


Title: **Time Occupancy in 5s with 2-DH1 packet; Total bins in 5s = 49**

Graphical Test Results



Title: **Time Occupancy in 5s with 3-DH1 packet; Total bins in 5s = 48**

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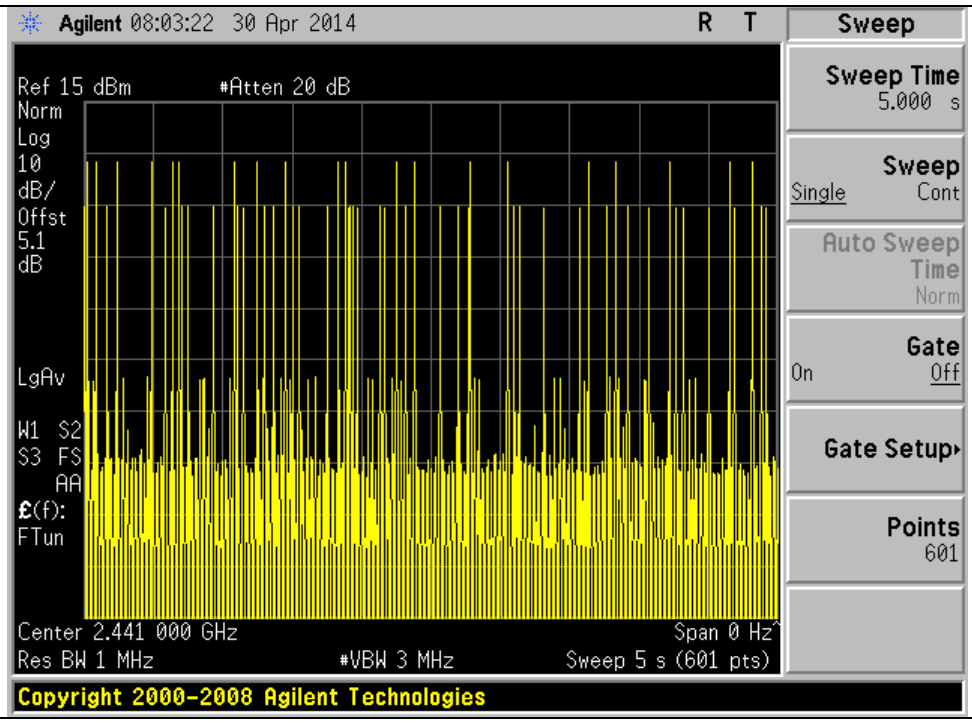

Title: **Time Occupancy in 5s with 3-DH3 packet; Total bins in 5s = 20**

Graphical Test Results

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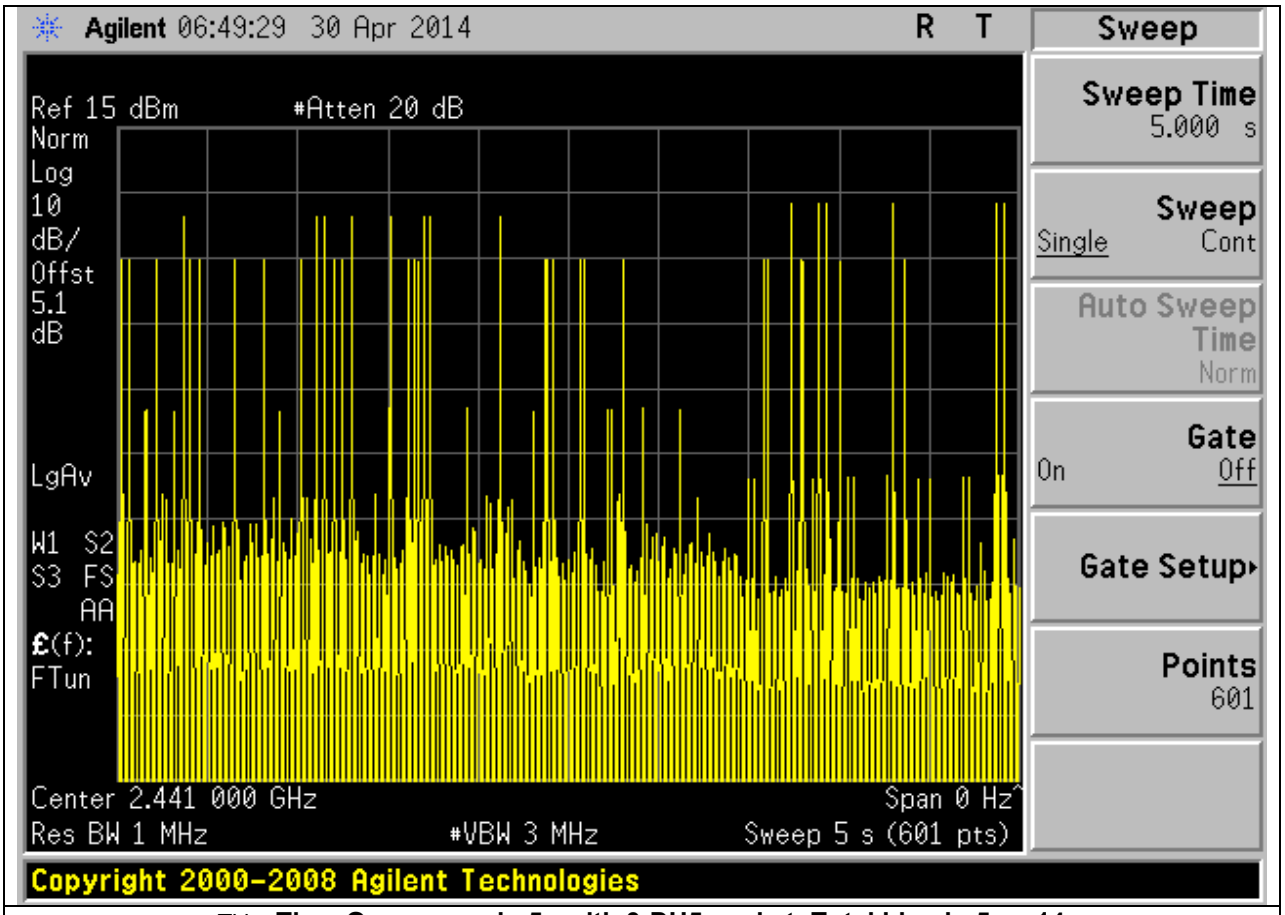

Title: **Time Occupancy in 5s with 3-DH5 packet; Total bins in 5s = 14**

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A.7 Conducted Band Edge

15.247 (d) & RSS-210 A8.5:

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

Measurement Procedure
In accordance with KDB Publication DA 00-705

Overall Result: PASS

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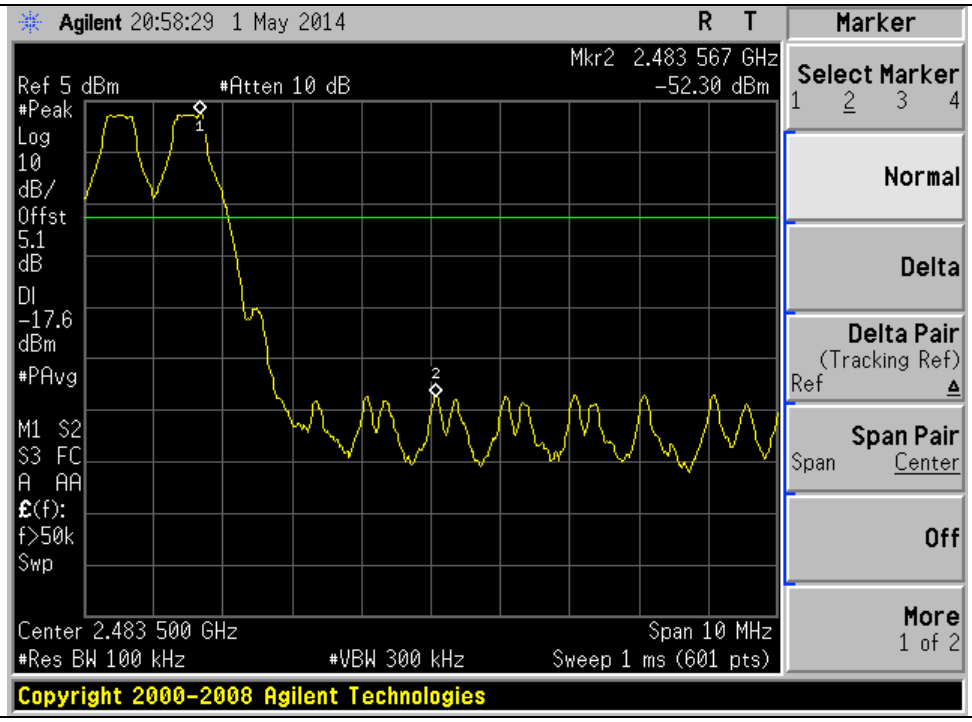
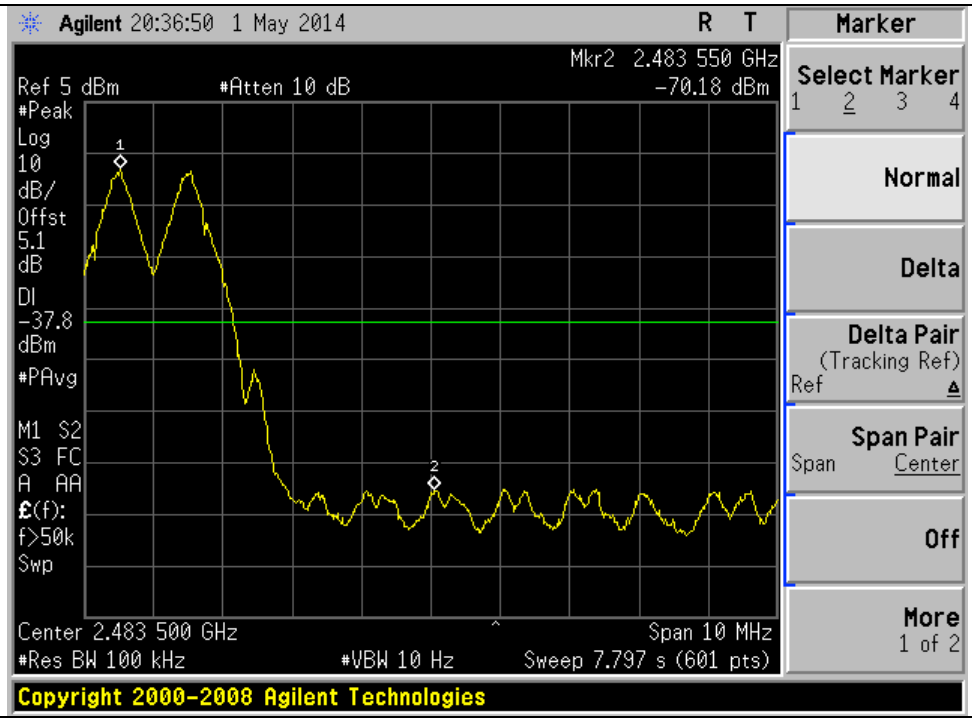
Graphical Test Results



Title: **Upper Band Edge Peak -Hopping function on with GFSK modulation (DH5)**



Title: **Upper Band Edge Average -Hopping function on with GFSK modulation (DH5)**

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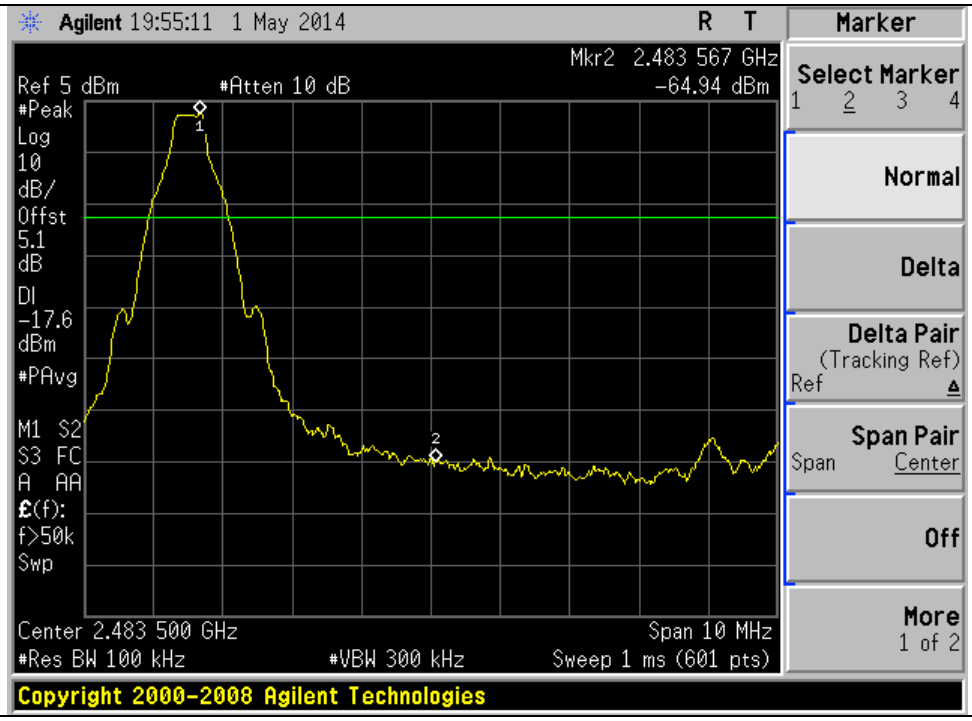
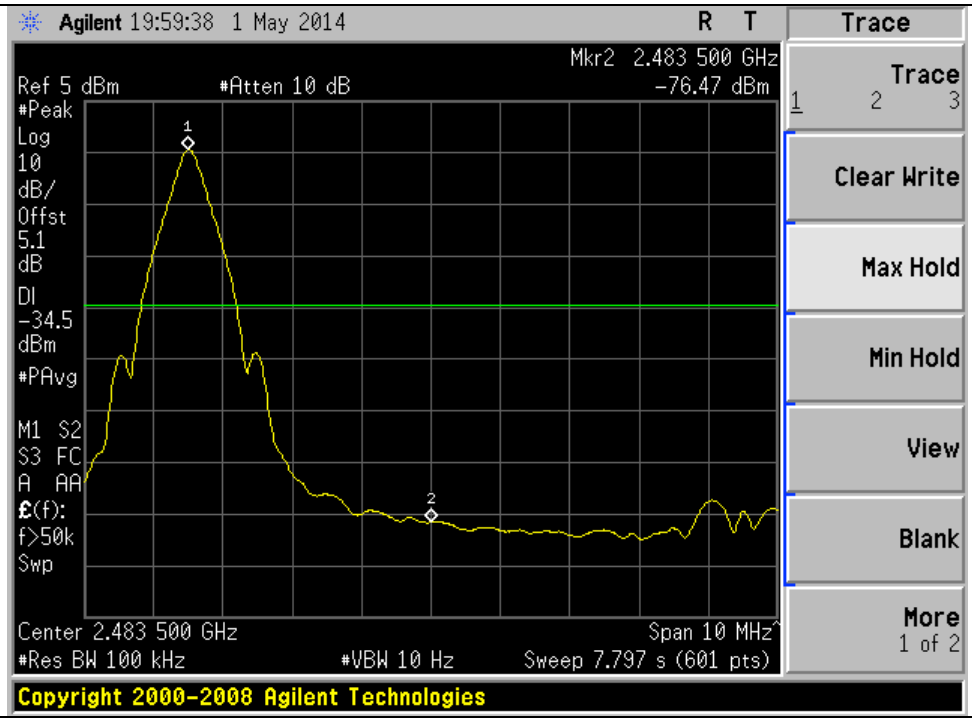
Graphical Test Results



Title: **Upper Band Edge Peak -Hopping function off with GFSK modulation (DH5)**



Title: **Upper Band Edge Average -Hopping function off with GFSK modulation (DH5)**

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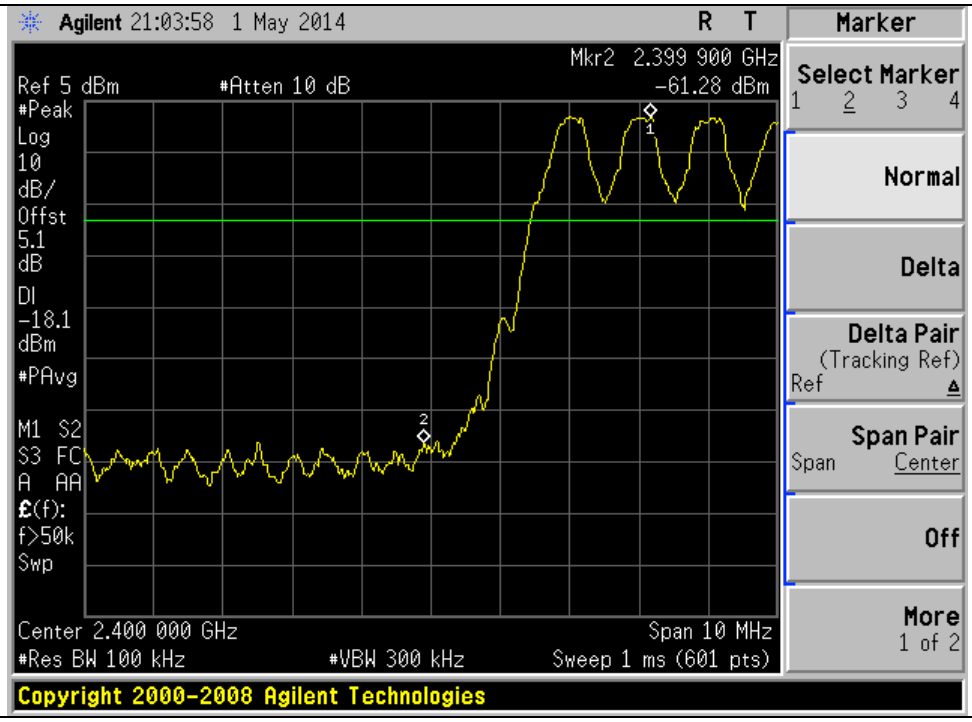
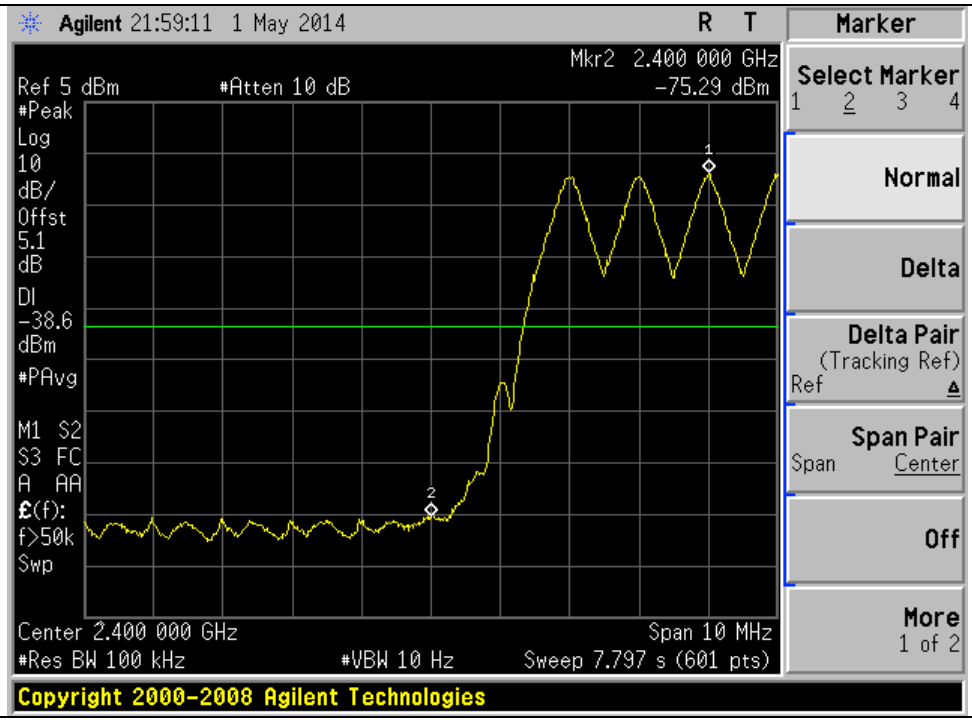
Graphical Test Results



Title: **Lower Band Edge Peak -Hopping function on with GFSK modulation (DH5)**



Title: **Lower Band Edge Average -Hopping function on with GFSK modulation (DH5)**

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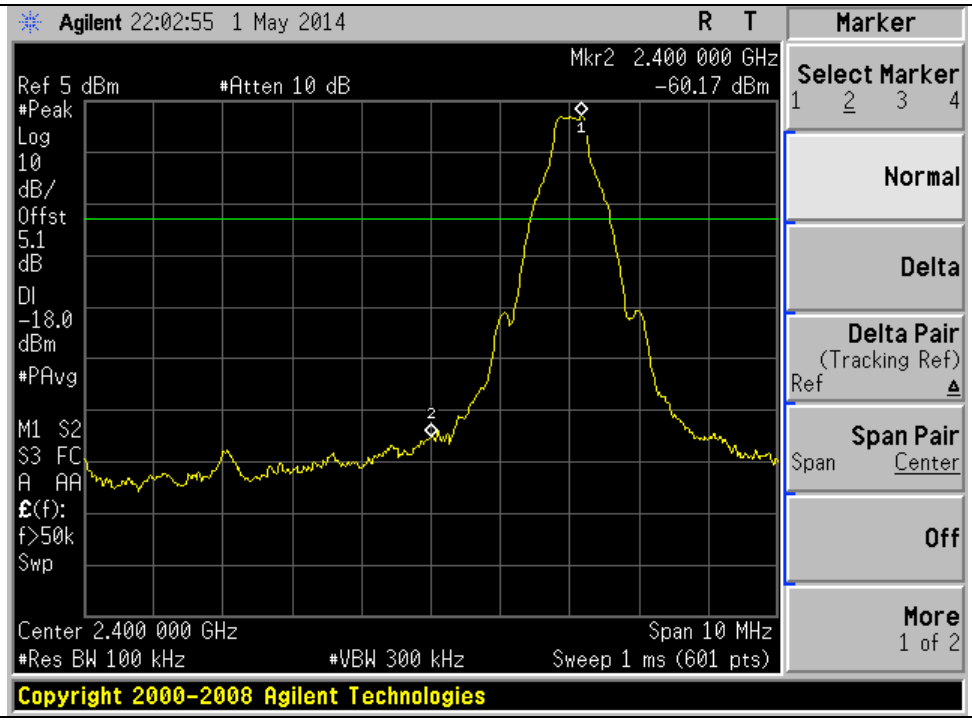
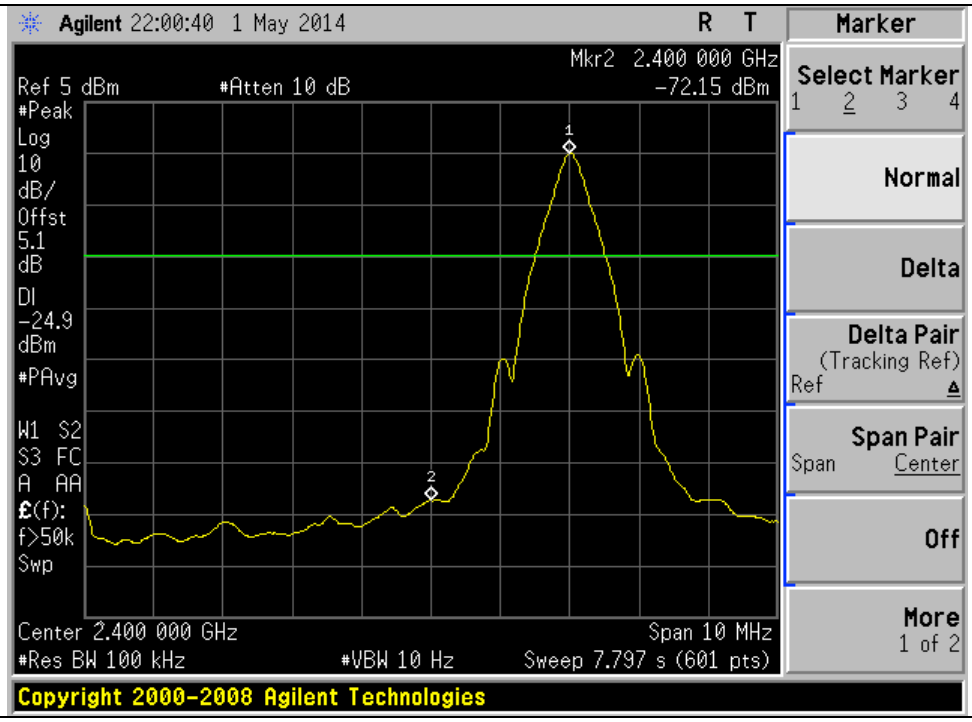
Graphical Test Results



Title: **Lower Band Edge Peak -Hopping function off with GFSK modulation (DH5)**



Title: **Lower Band Edge Average -Hopping function off with GFSK modulation (DH5)**

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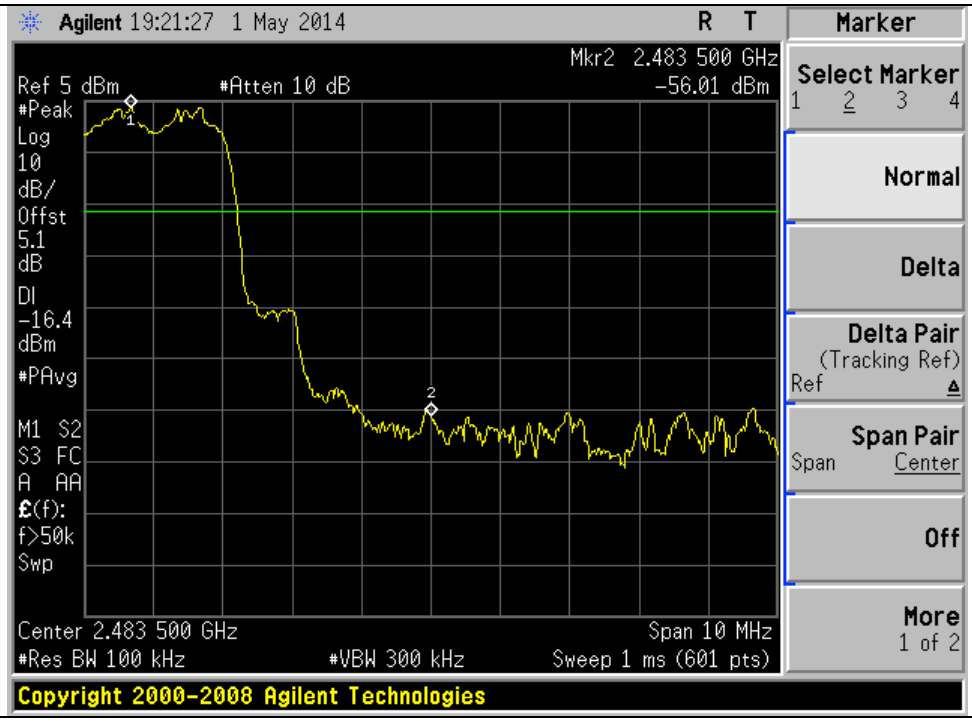
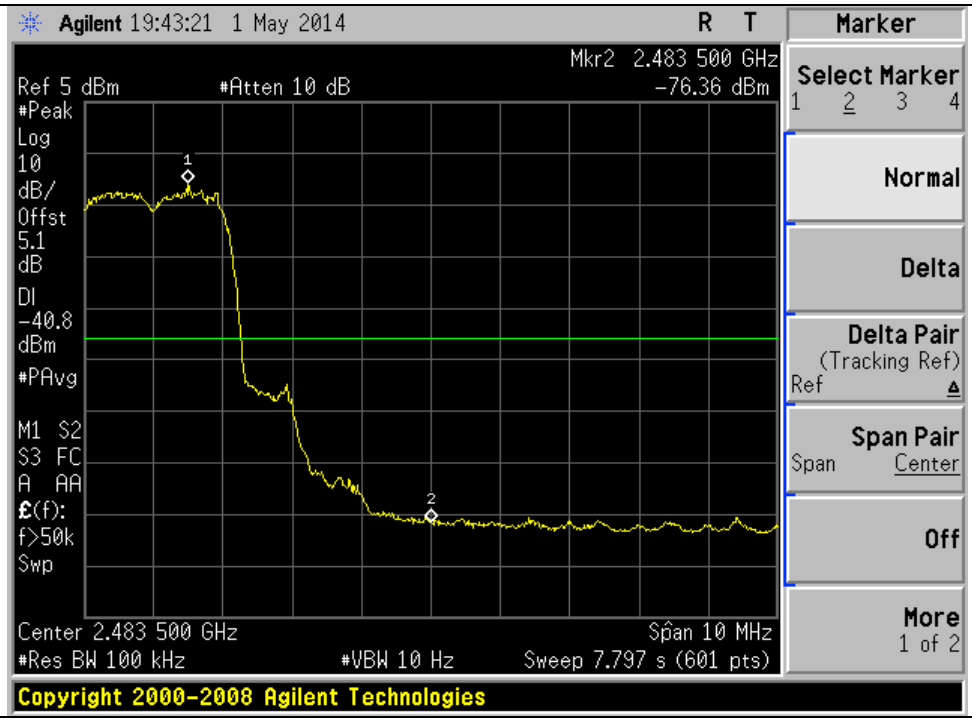
Graphical Test Results



Title: **Upper Band Edge Peak -Hopping function on with π/4DQPSK modulation (2-DH5)**



Title: **Upper Band Edge Average -Hopping function on with π/4DQPSK modulation (2-DH5)**

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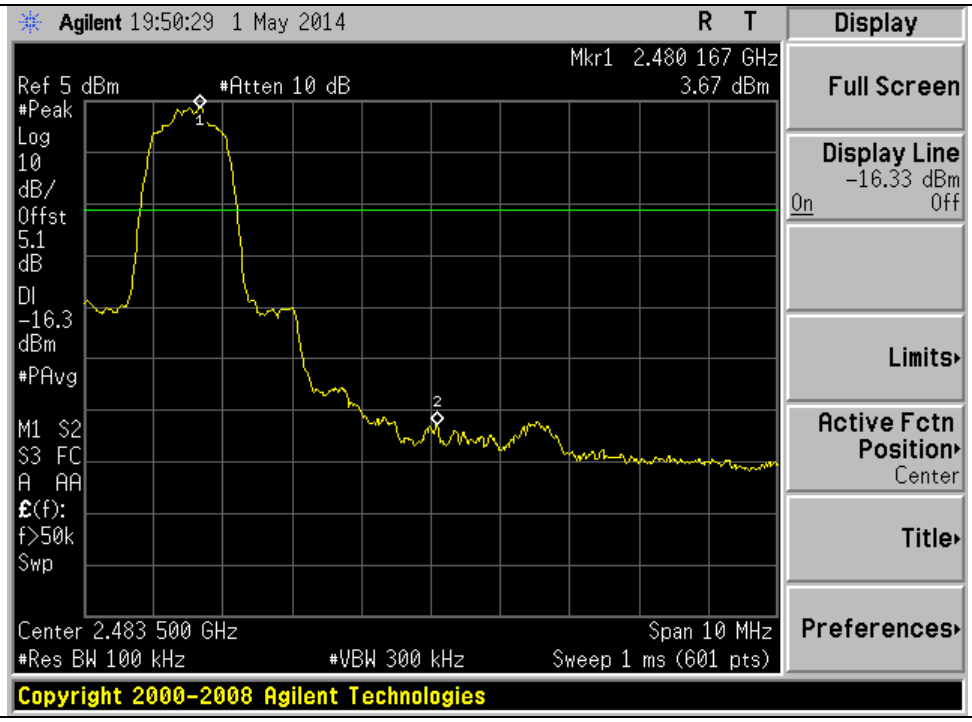
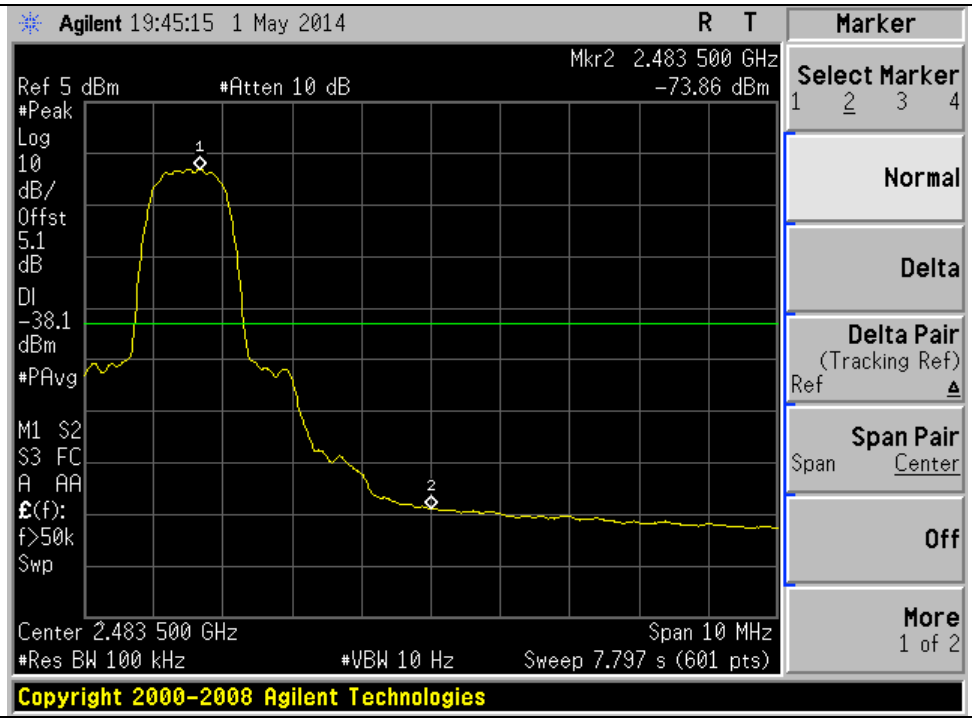
Graphical Test Results



Title: **Upper Band Edge Peak -Hopping function off with π/4DQPSK modulation (2-DH5)**



Title: **Upper Band Edge Average -Hopping function off with π/4DQPSK modulation (2-DH5)**

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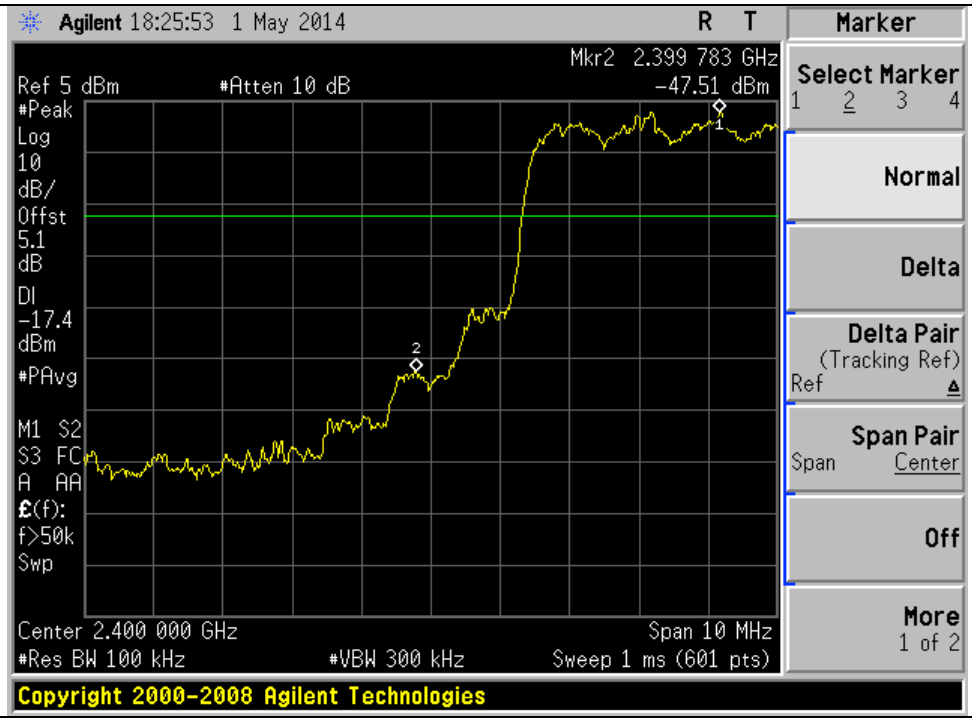
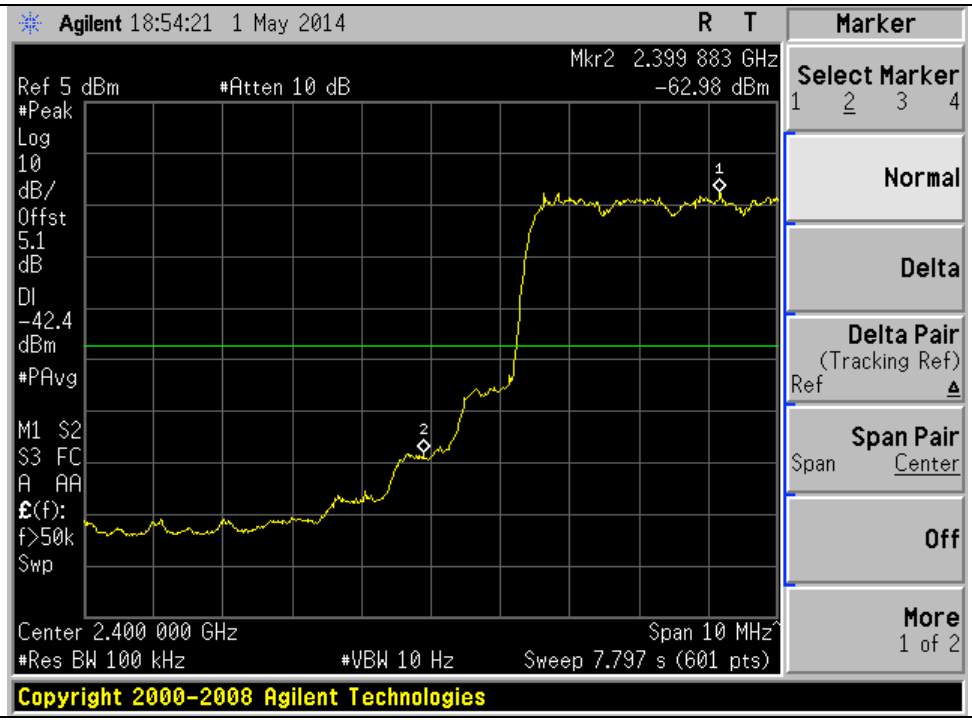
Graphical Test Results



Title: **Lower Band Edge Peak -Hopping function on with π/4DQPSK modulation (2-DH5)**



Title: **Lower Band Edge Average -Hopping function on with π/4DQPSK modulation (2-DH5)**

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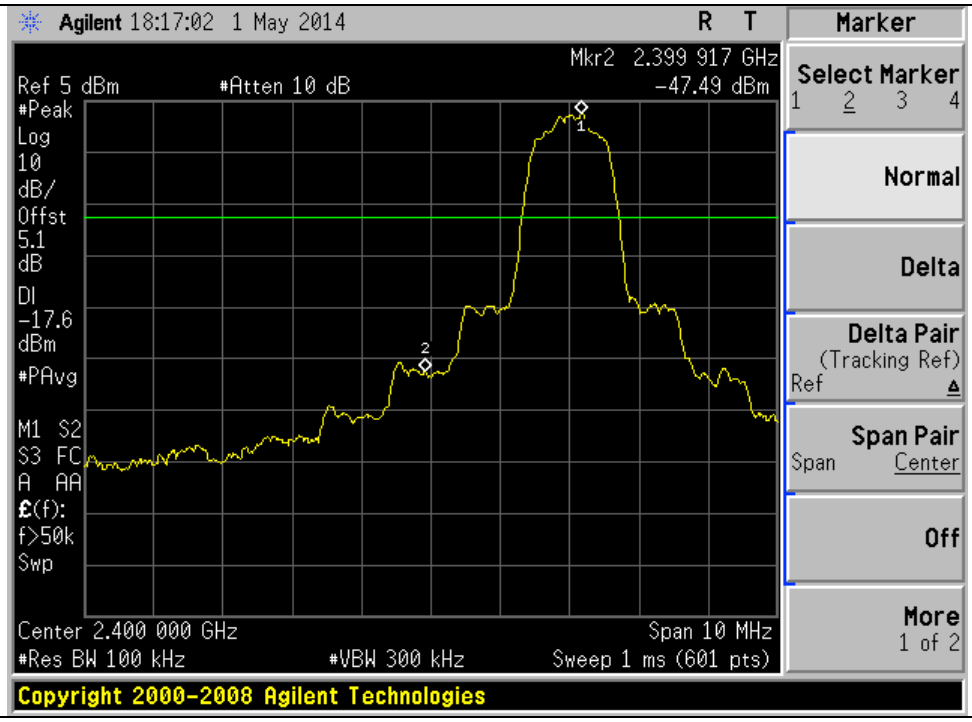
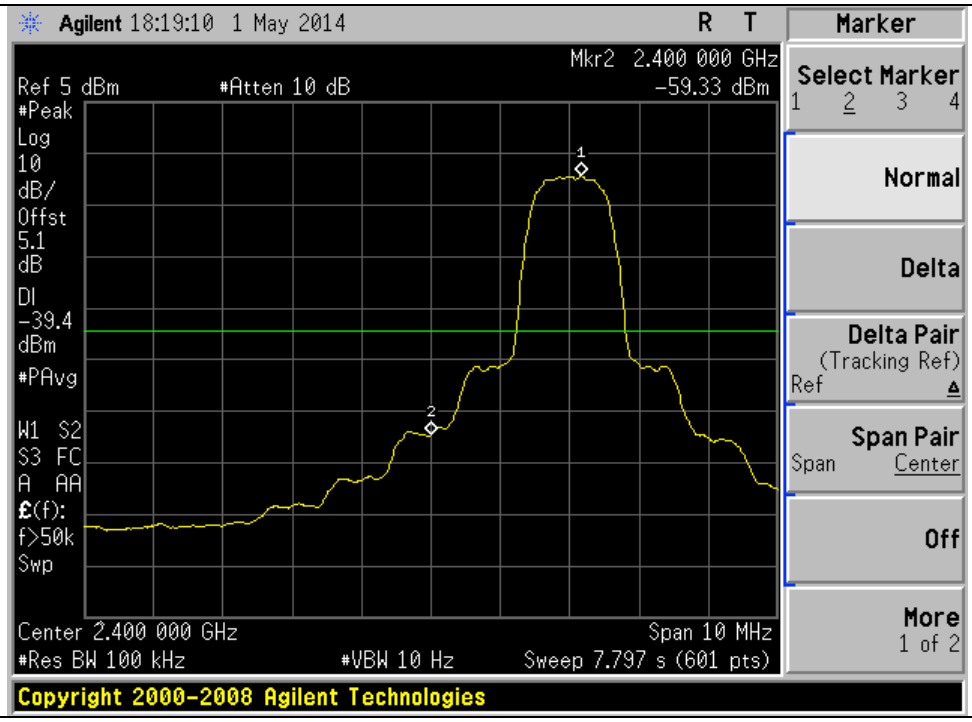
Graphical Test Results



Title: **Lower Band Edge Peak -Hopping function off with π/4DQPSK modulation (2-DH5)**



Title: **Lower Band Edge Average -Hopping function off with π/4DQPSK modulation (2-DH5)**

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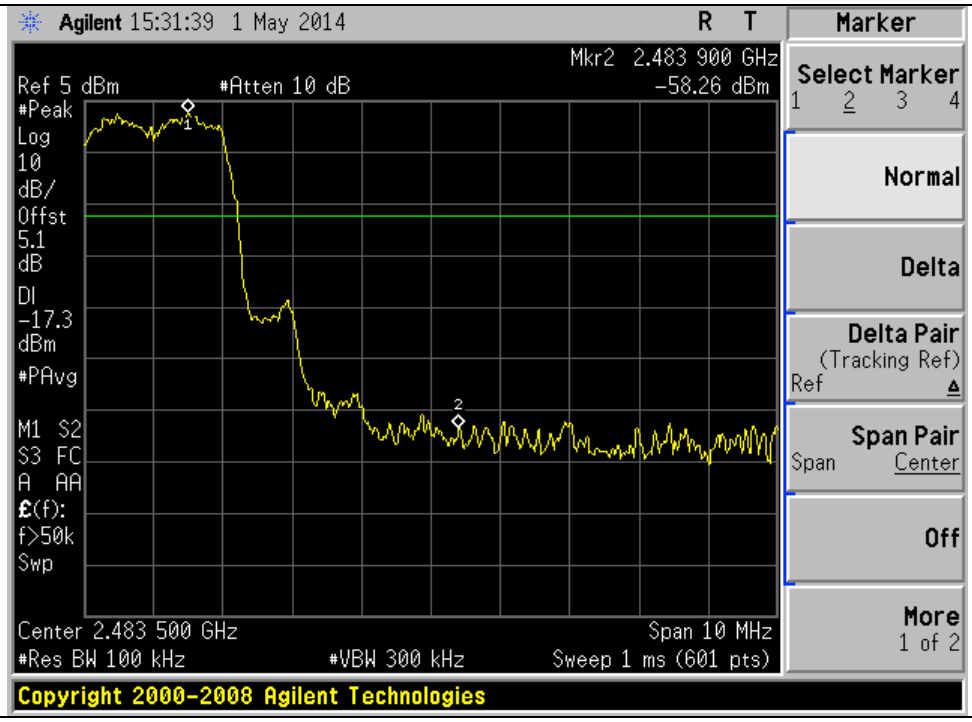
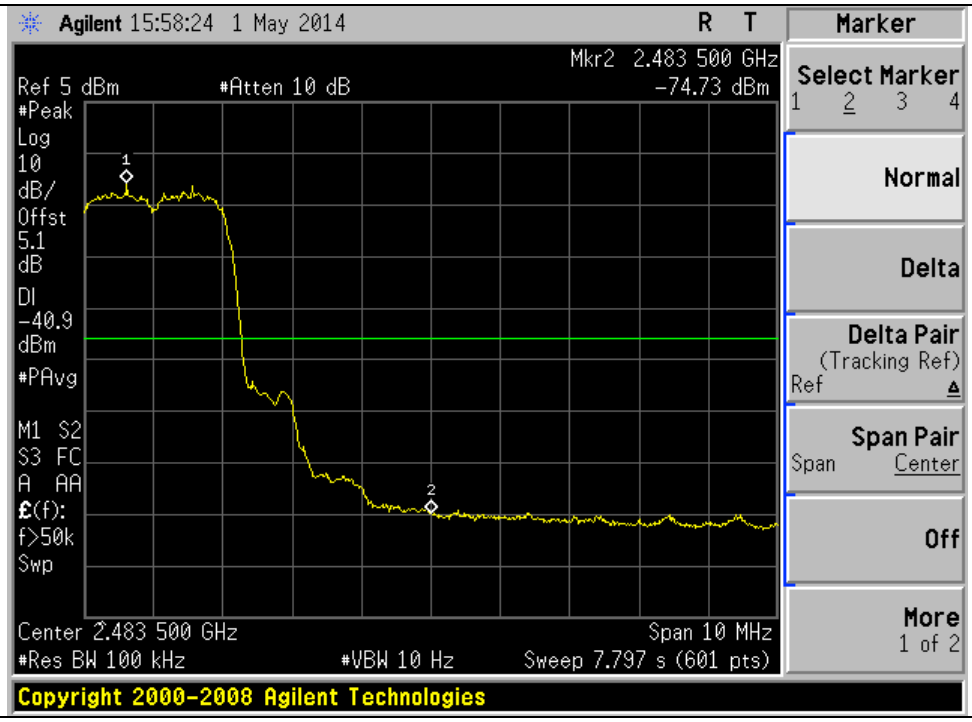
Graphical Test Results



Title: **Upper Band Edge Peak –Hopping function on with 8DPSK modulation (3-DH5)**



Title: **Upper Band Edge Average –Hopping function on with 8DPSK modulation (3-DH5)**

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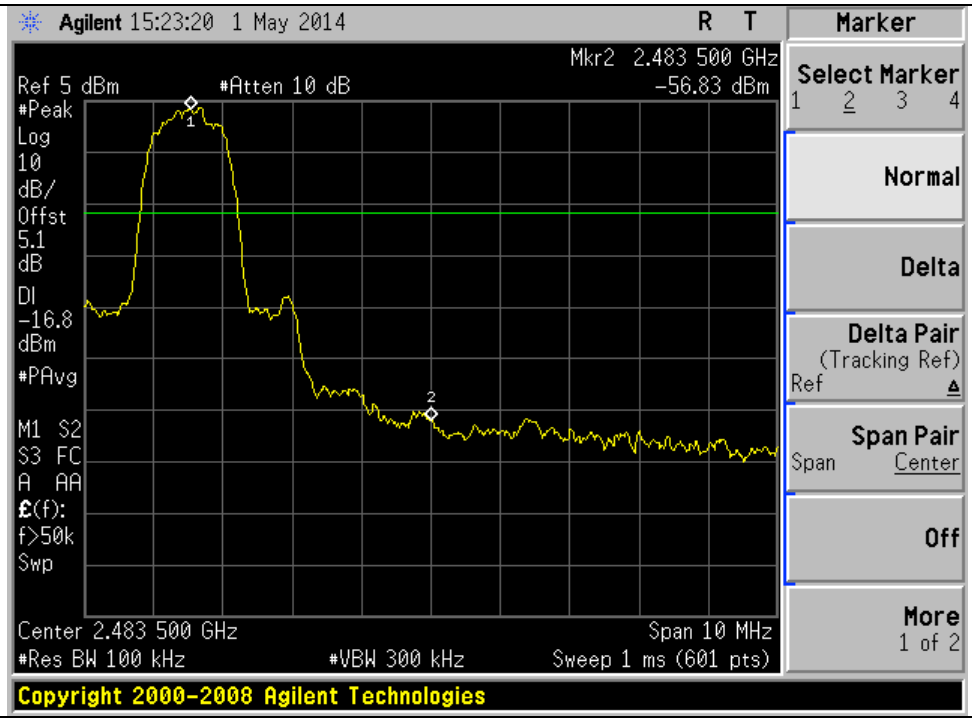
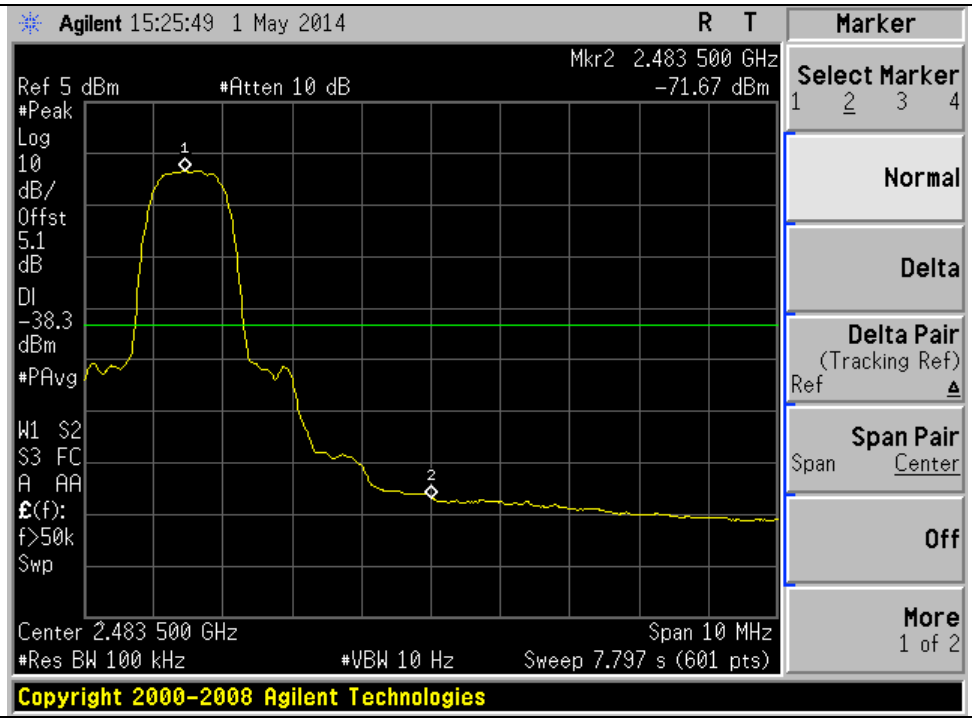
Graphical Test Results



Title: **Upper Band Edge Peak -Hopping function off with 8DPSK modulation (3-DH5)**



Title: **Upper Band Edge Average Hopping function off with 8DPSK modulation (3-DH5)**

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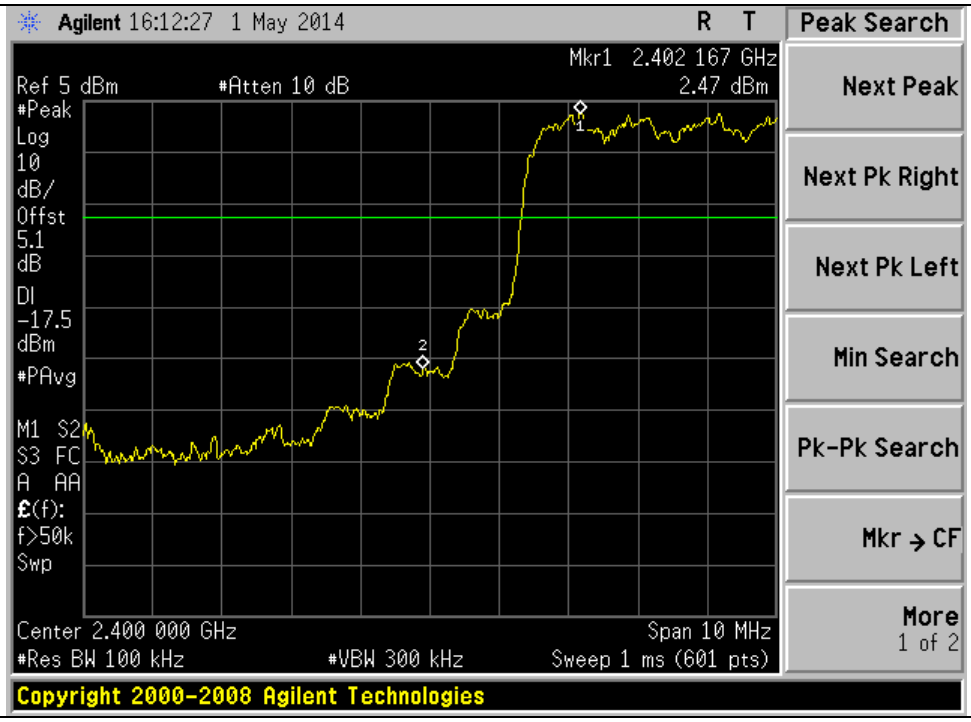
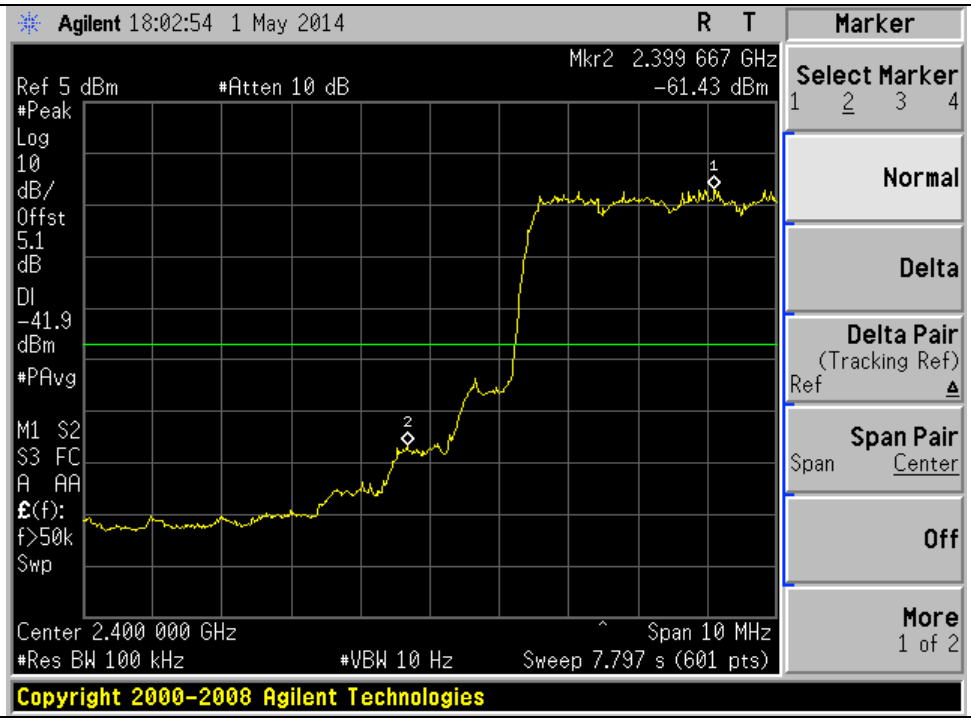
Graphical Test Results



Title: **Lower Band Edge Peak -Hopping function on with 8DPSK modulation (3-DH5)**



Title: **Lower Band Edge Average -Hopping function on with 8DPSK modulation (3-DH5)**

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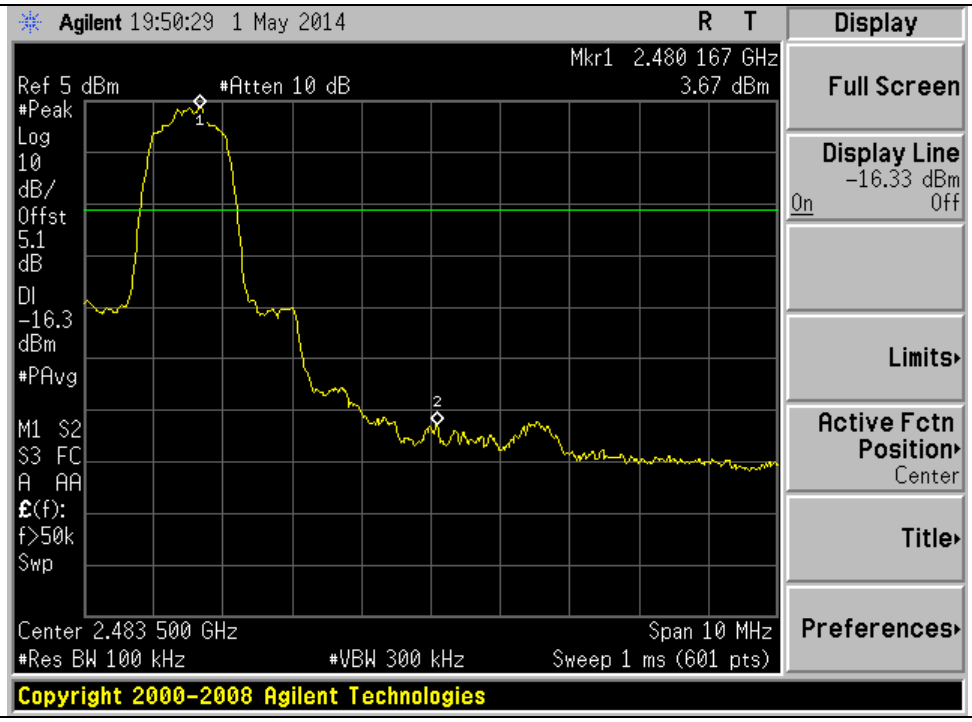
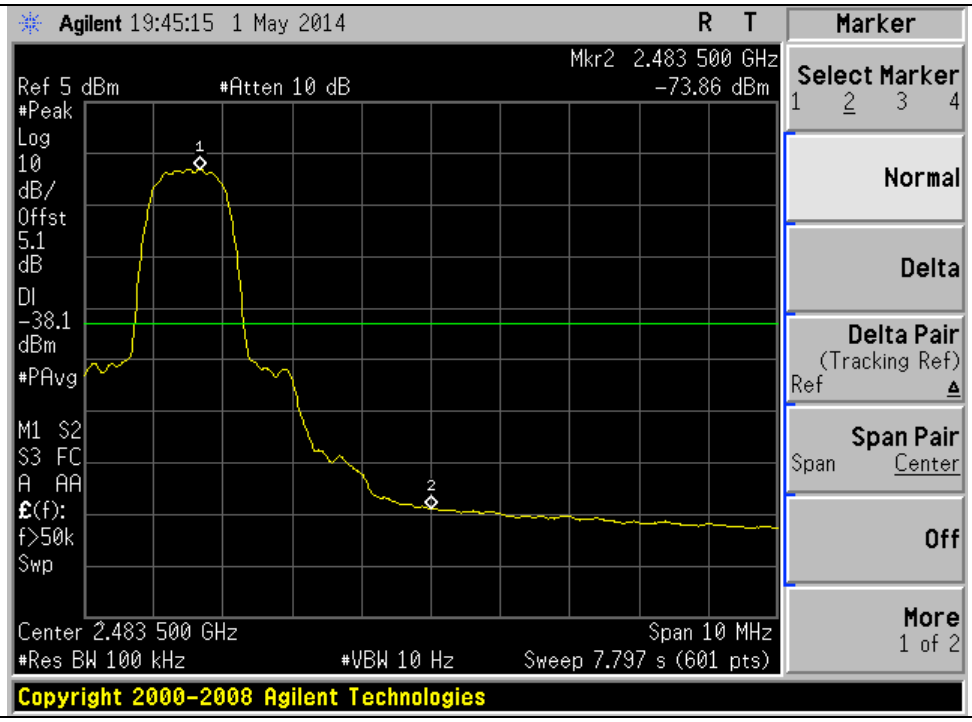
Graphical Test Results



Title: **Lower Band Edge Peak -Hopping function off with 8DPSK modulation (3-DH5)**



Title: **Lower Band Edge Average -Hopping function off with 8DPSK modulation (3-DH5)**

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A.8 Conducted Spurious Emissions

15.247 (d) & RSS-210 A8.5:

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

Measurement Procedure

In accordance with KDB Publication DA 00-705

Test Results Table

Test Mode: C **Test Channel: 0 (2402 MHz)**							
Frequency (GHz)	**Raw (dBm)**	**C.F (dB)**	**Calculated Lvl (dBm)**	**Detector**	**Limit -20dBc (dBm)**	**Margin (dBm)**	**Results (Pass/Fail)**
0.085	-73.30	0.5	-72.8	Pk	-25.0	-47.8	Pass
0.825	-56.51	3.9	-52.6	Pk	-25.0	-27.6	Pass
7.210	-66.12	7.1	-59.0	Pk	-25.0	-34.0	Pass

Test Mode: C **Test Channel: 39 (2441 MHz)**							
Frequency (GHz)	**Raw (dBm)**	**C.F (dB)**	**Calculated Lvl (dBm)**	**Detector**	**Limit -20dBc (dBm)**	**Margin (dBm)**	**Results (Pass/Fail)**
0.088	-72.89	0.5	-72.39	Pk	-24.8	-47.59	Pass
0.833	-72.36	3.9	-68.46	Pk	-24.8	-43.66	Pass
7.330	-71.29	8.6	-62.69	Pk	-24.8	-37.89	Pass

Test Mode: C **Test Channel: 78 (2441 MHz)**							
Frequency (GHz)	**Raw (dBm)**	**C.F (dB)**	**Calculated Lvl (dBm)**	**Detector**	**Limit -20dBc (dBm)**	**Margin (dBm)**	**Results (Pass/Fail)**
0.083	-72.88	0.5	-72.38	Pk	-23.9	-48.48	Pass
0.825	-60.15	3.9	-56.25	Pk	-23.9	-32.35	Pass
7.435	-73.13	7.3	-65.83	Pk	-23.9	-41.93	Pass

Note: Correction factors = splitter loss + cables loss

Graphical Test Results

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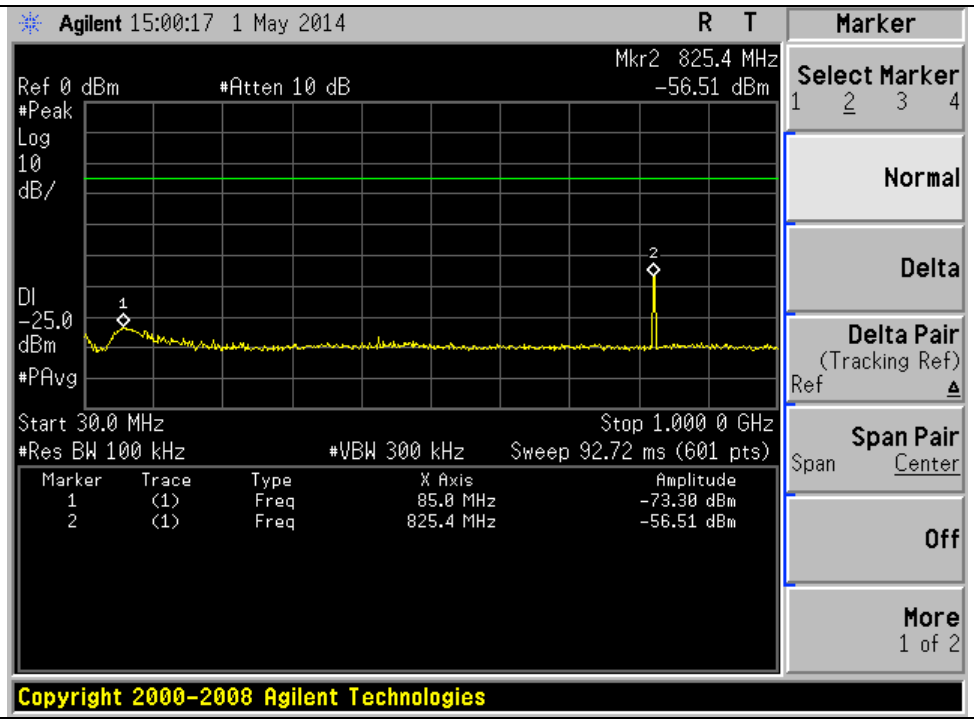
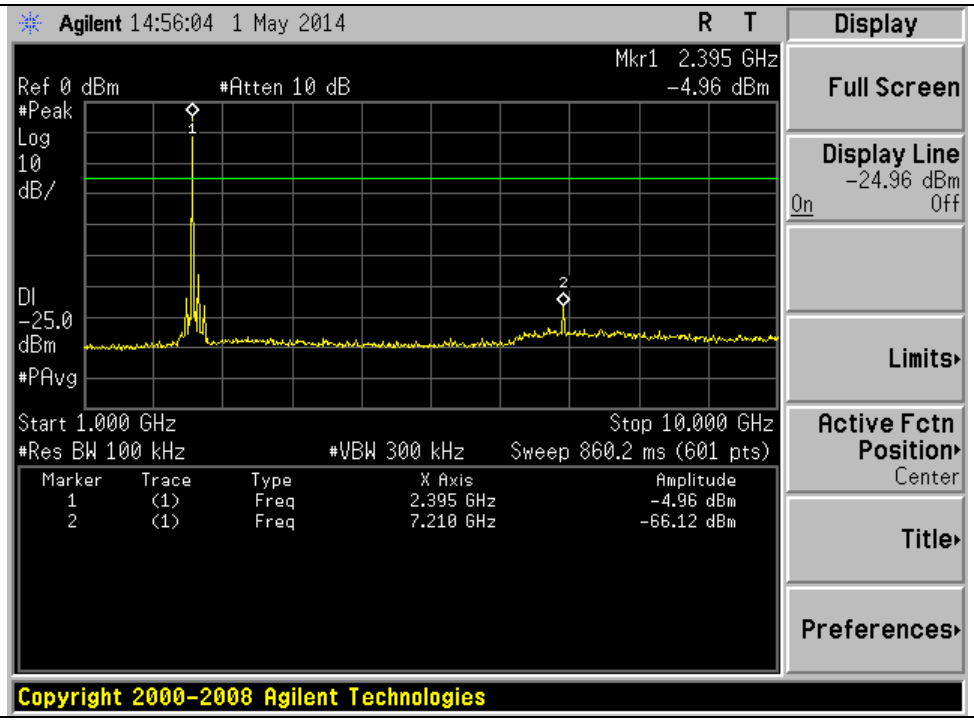


Title: **Ch0 = 2402 MHz Conducted EMI (30 MHz – 1.0 GHz) with 8-DPSK modulation (3-DH5 packet)**



Title: **Ch0 = 2402 MHz Conducted EMI (1.0 GHz – 10.0 GHz) with 8-DPSK modulation (3-DH5 packet)**

Graphical Test Results

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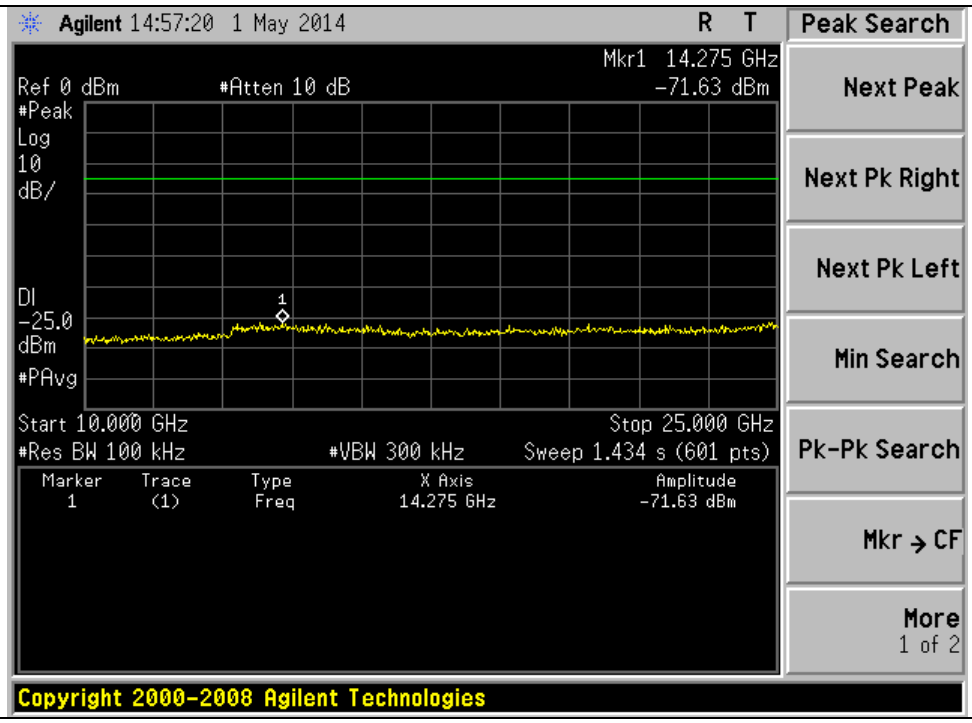
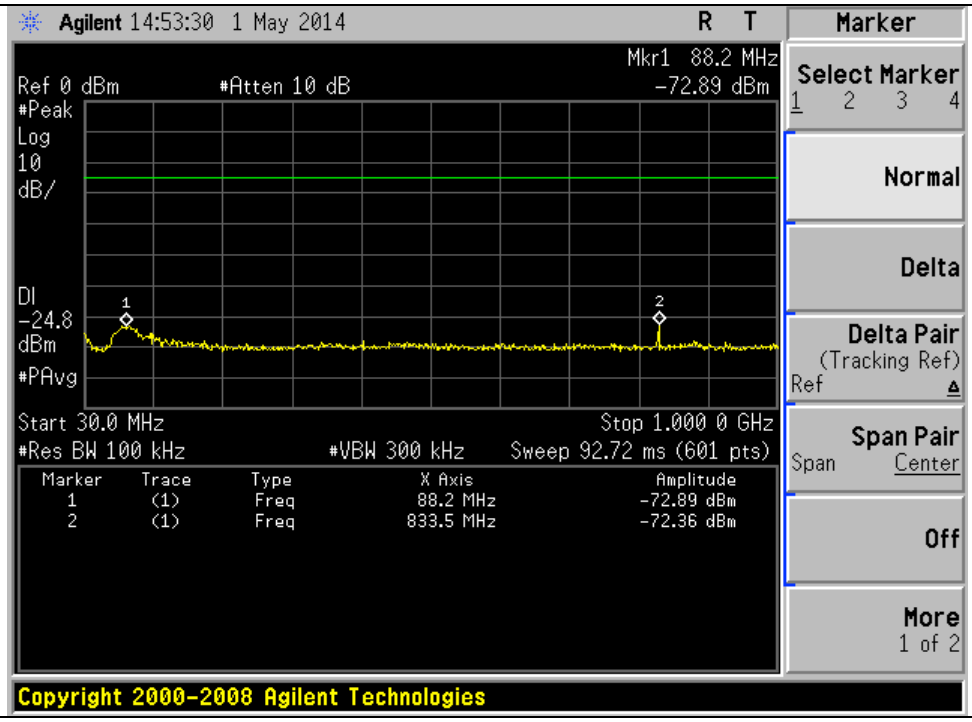


Title: **Ch0 = 2402 MHz Conducted EMI (10.0 GHz – 25.0 GHz) with 8-DPSK modulation (3-DH5 packet)**



Title: **Ch39 = 2441 MHz Conducted EMI (30 MHz – 1.0 GHz) with 8-DPSK modulation (3-DH5 packet)**

Graphical Test Results

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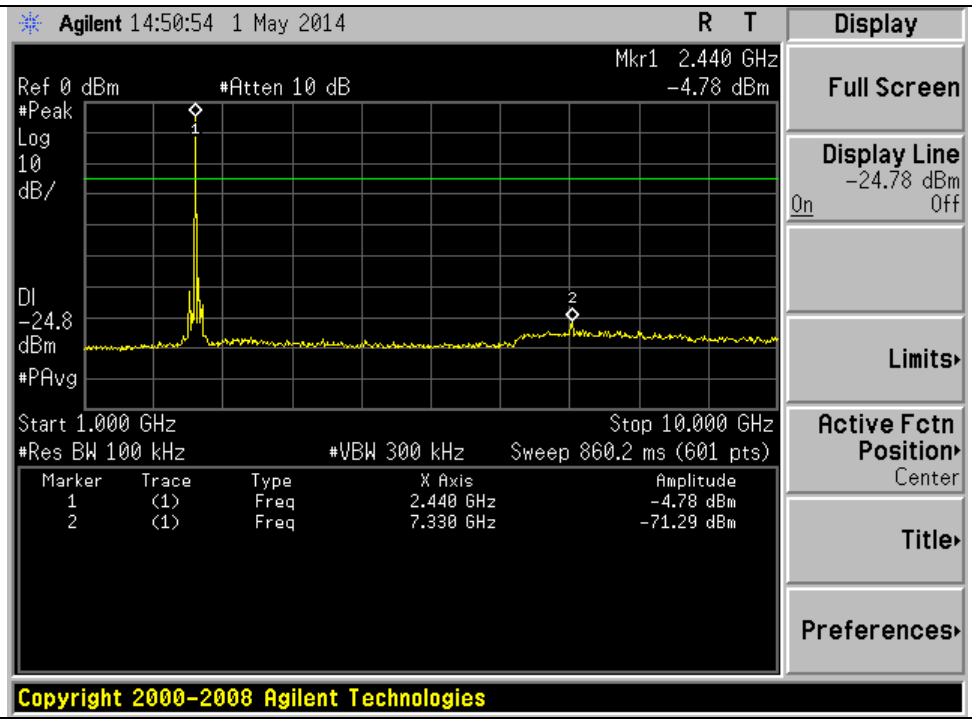
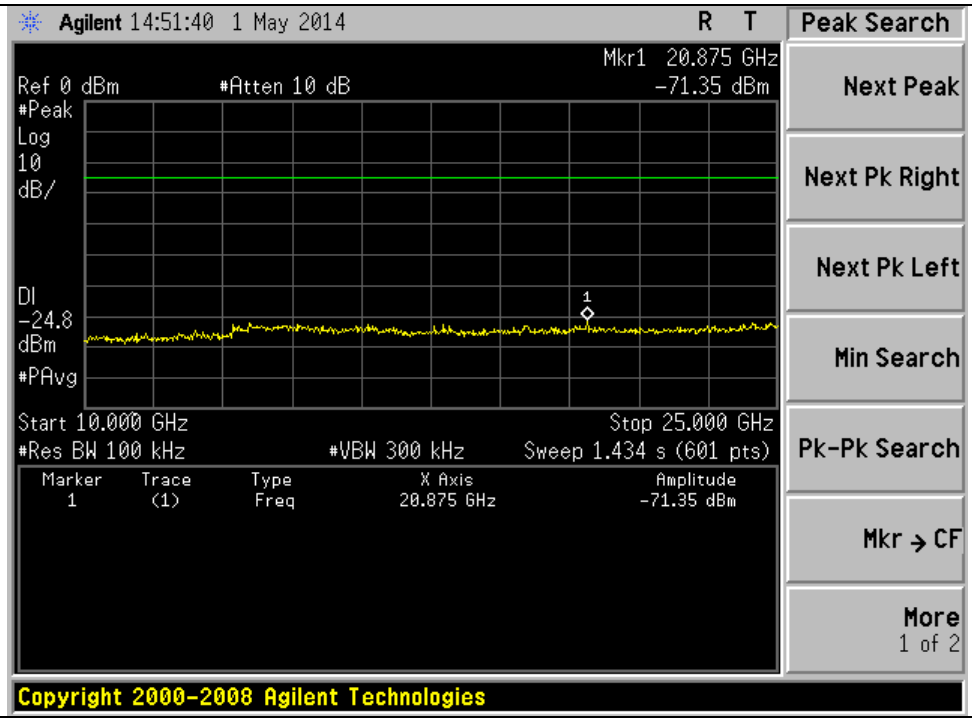


Title: **Ch39 = 2441 MHz Conducted EMI (1.0 GHz – 10.0 GHz) with 8-DPSK modulation (3-DH5 packet)**



Title: **Ch39 = 2441 MHz Conducted EMI (10 GHz – 25 GHz) with 8-DPSK modulation (3-DH5 packet)**

Graphical Test Results

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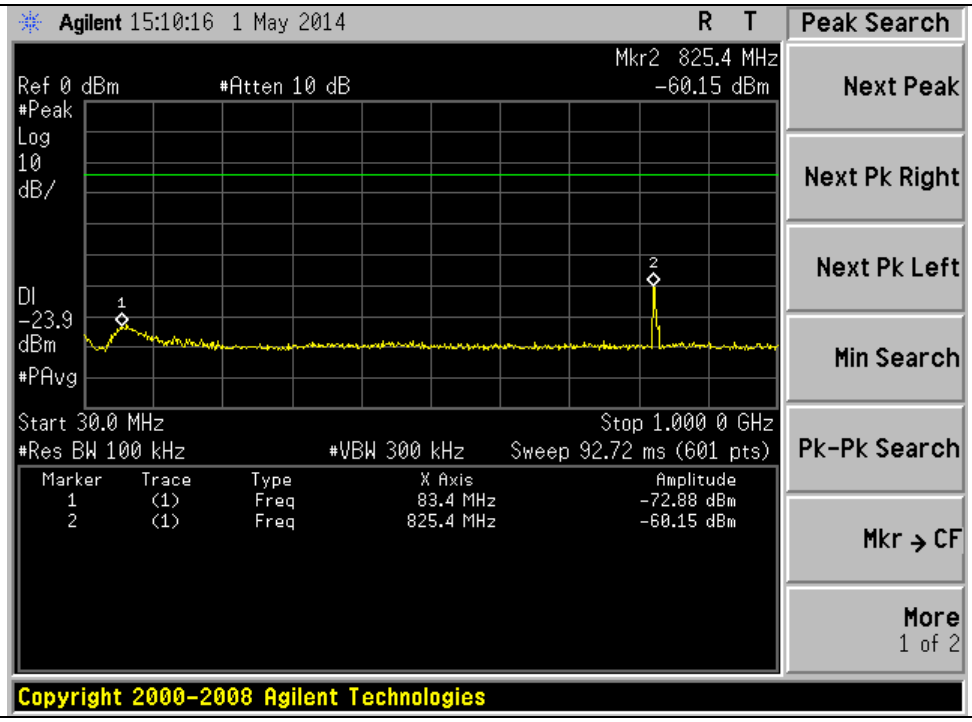
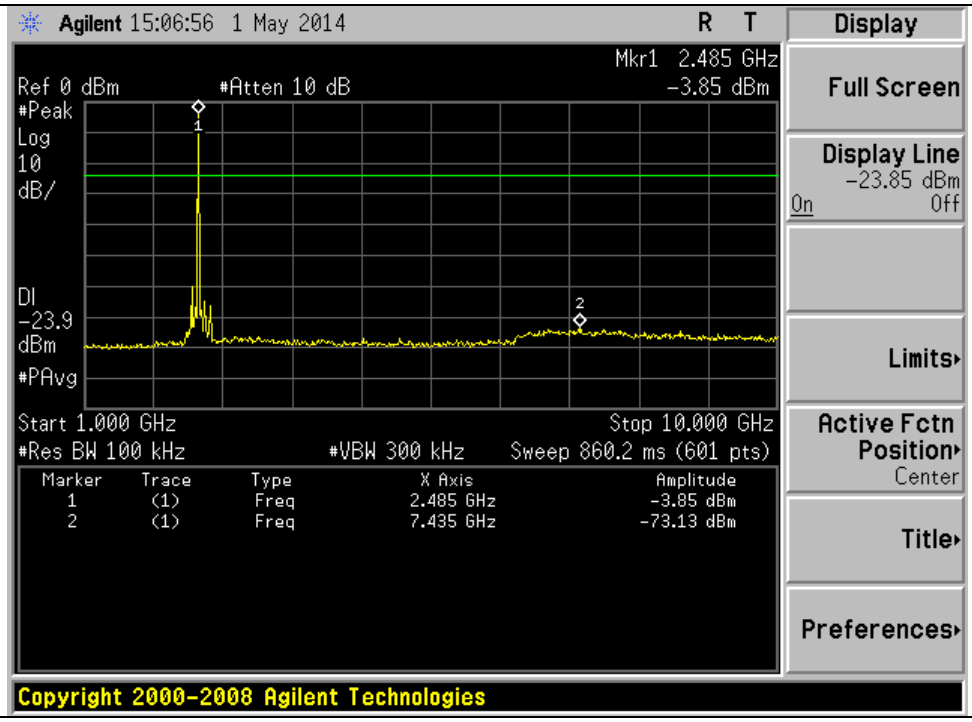


Title: **Ch78 = 2480 MHz Conducted EMI (30 MHz – 1.0 GHz) with 8-DPSK modulation (3-DH5 packet)**



Title: **Ch78 = 2480 MHz Conducted EMI (1 GHz – 10.0 GHz) with 8-DPSK modulation (3-DH5 packet)**

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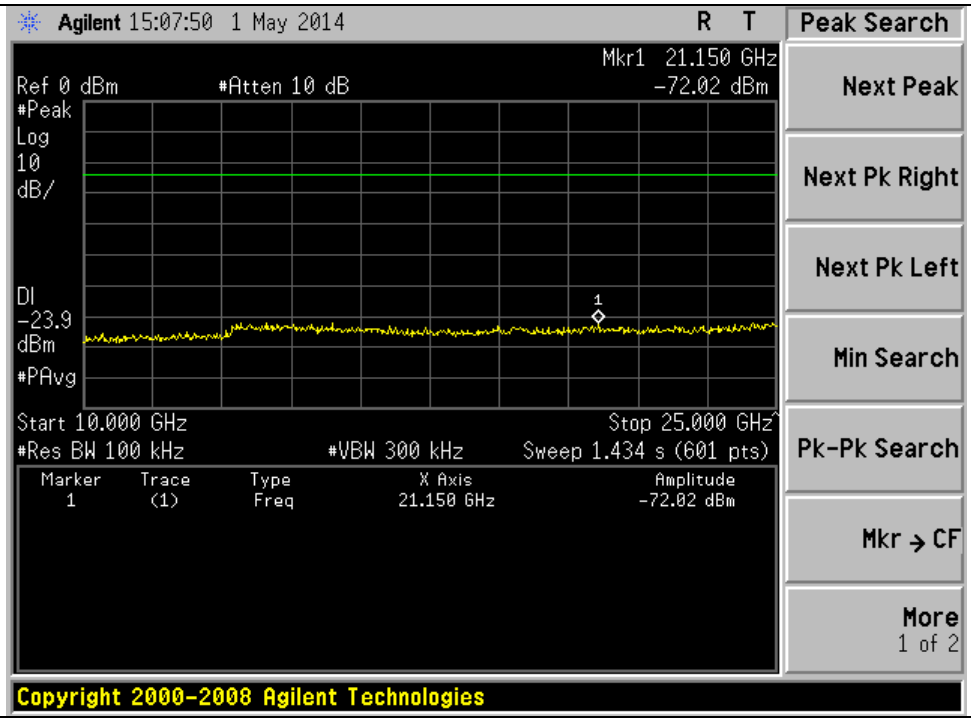
Graphical Test Results



Title: **Ch78 = 2480 MHz Conducted EMI (10 GHz – 25 GHz) with 8-DPSK modulation (3-DH5 packet)**

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A.11 Receiver Spurious Emissions

RSS-Gen section 4.10 & 6.1

The receiver shall be operated in the normal receive mode near the mid-point of the band in which the receiver is designed to operate.

For either method, the search for spurious emissions shall be from the lowest frequency internally generated or used in the receiver (e.g. local oscillator frequency, intermediate or carrier frequency), Or 30 MHz, whichever is higher, to at least 3 times the highest tuneable or local oscillator frequency whichever is higher, without exceeding 40 GHz.

For emissions below 1000 MHz, measurements shall be performed using a CISPR quasi-peak detector and the related measurement bandwidth. As an alternative to CISPR quasi-peak measurement, compliance with the emission limit can be demonstrated using measuring equipment employing a peak detector function properly adjusted for factors such as pulse desensitization as required, with an equal or greater measurement bandwidth relative to the applicable CISPR quasi-peak bandwidth.

Above 1000 MHz, measurements shall be performed using an average detector with a minimum resolution bandwidth of 1 MHz.

Spurious emissions from receivers shall not exceed the radiated limits shown in the table 2 in section 6.1 of RSS-Gen.

Measurement Procedure

In accordance with ANSI C63.10:2009

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Test Result Tables for RX Spurious Emissions:

Subtest Number: 166092 - 3	**Subtest Date:** 04-May-2014
Engineer	Jose Aguirre
Lab Information	Building P, 5m Anechoic
Subtest Title	Receiver Spurious Emissions
Frequency Range	30 MHz -1.0 GHz (QP)
Environmental Conditions:	
Temperature: (59 to 95)F	75F
Humidity: (10 to 75)%:	35%
Comments on the above Test Results	RX Channel

Frequency (MHz)	Raw (dBuV)	Cab Loss (dB)	AF (dB)	Level (dBuV)	Detector	Polarity	Height (cm)	Azt (Deg)	Limit (dBuV)	Margin (dB)	Results Pass /Fail	Comments
30.579	14.8	0.5	19.9	35.2	Qp	V	108	79	40	-4.8	Pass	RX
44.243	19.4	0.6	10.8	30.9	Qp	V	125	20	40	-9.1	Pass	RX
900.074	9.7	3	22.4	35.1	Qp	H	141	134	46	-10.9	Pass	RX
203.708	20.4	1.4	11.4	33.2	Qp	H	104	40	43.5	-10.3	Pass	RX
280.283	18.6	1.7	13.4	33.7	Qp	V	186	360	46	-12.3	Pass	RX
428.738	7.2	2.1	16.6	25.8	Qp	V	105	237	46	-20.2	Pass	RX

Subtest Number: 166092 - 2	**Subtest Date:** 03-May-2014
Engineer	Jose Aguirre
Lab Information	Building P, 5m Anechoic
Subtest Title	Receiver Spurious Emissions
Frequency Range	1 GHz -18 GHz (Peak)
Environmental Conditions:	
Temperature: (59 to 95)F	75F
Humidity: (10 to 75)%:	40%
Comments on the above Test Results	RX Channel

Frequency (MHz)	Raw (dBuV)	Cab Loss (dB)	AF (dB)	Level (dBuV)	Detector	Polarity	Height (cm)	Azt (Deg)	Limit (dBuV)	Margin (dB)	Results Pass /Fail	Comments
1110.5	46.3	3.4	-8.4	41.3	Pk	H	100	180	74	-32.7	Pass	RX
4882.225	40.6	7.5	-4.1	44.1	Pk	V	100	201	74	-29.9	Pass	RX
7323.552	38.6	9.5	1.4	49.4	Pk	H	115	180	74	-24.6	Pass	RX
9763.777	37.6	11.2	4.2	53.1	Pk	H	115	180	74	-20.9	Pass	RX
12205.17	37.6	12.7	4.2	54.6	Pk	H	115	180	74	-19.4	Pass	RX

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Test Result Tables for RX Spurious Emissions:

Subtest Number: 166092 - 1	**Subtest Date:** 03-May-2014
Engineer	Jose Aguirre
Lab Information	Building P, 5m Anechoic
Subtest Title	Receiver Spurious Emissions 1GHz -18GHz.
Frequency Range	1.0 GHz - 18.0 GHz (Average)
Environmental Conditions:	
Temperature: (59 to 95)F	75F
Humidity: (10 to 75)%:	40%
Comments on the above Test Results	RX Channel

Frequency (MHz)	Raw (dBuV)	Cab Loss (dB)	AF (dB)	Level (dBuV)	Detector	Polarity	Height (cm)	Azt (Deg)	Limit (dBuV)	Margin (dB)	Results Pass /Fail	Comments
1000	35.9	3.2	-9.7	29.4	Av	V	101	360	54	-24.6	Pass	RX
1110.5	31.3	3.4	-8.4	26.3	Av	H	100	180	54	-27.7	Pass	RX
1398.979	34	3.8	-7.6	30.1	Av	V	101	360	54	-23.9	Pass	RX
4882.225	28.7	7.5	-4.1	32.2	Av	V	100	201	54	-21.8	Pass	RX
7323.552	26.9	9.5	1.4	37.8	Av	H	115	180	54	-16.2	Pass	RX
9763.777	24.8	11.2	4.2	40.2	Av	H	115	180	54	-13.8	Pass	RX
12205.17	25.8	12.7	4.2	42.8	Av	H	115	180	54	-11.2	Pass	RX

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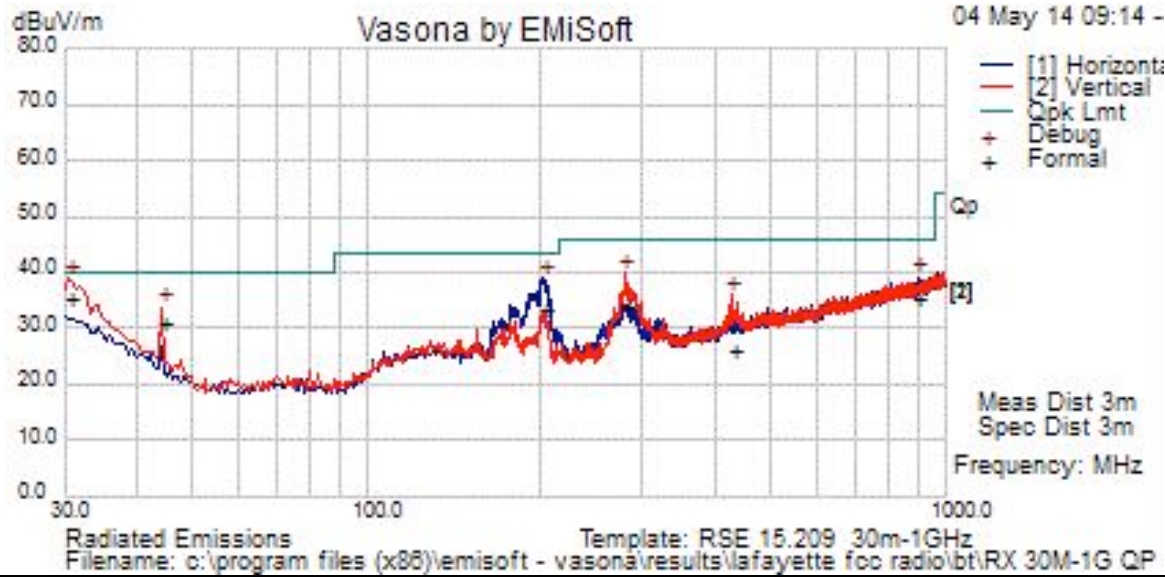
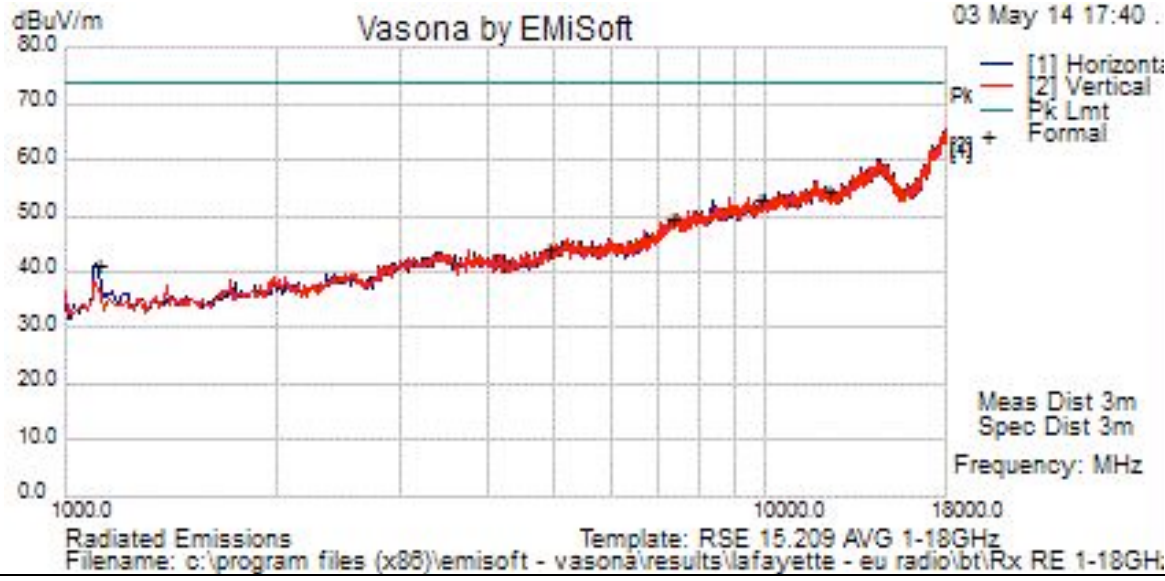
RX Spurious Emissions Graphical Test Results:

Note that the data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements



Title: **RX Spurious Emissions from 30MHz - 1GHz (Quasi-Peak)**



Title: **RX Spurious Emissions from 1GHz – 18 GHz (Peak)**

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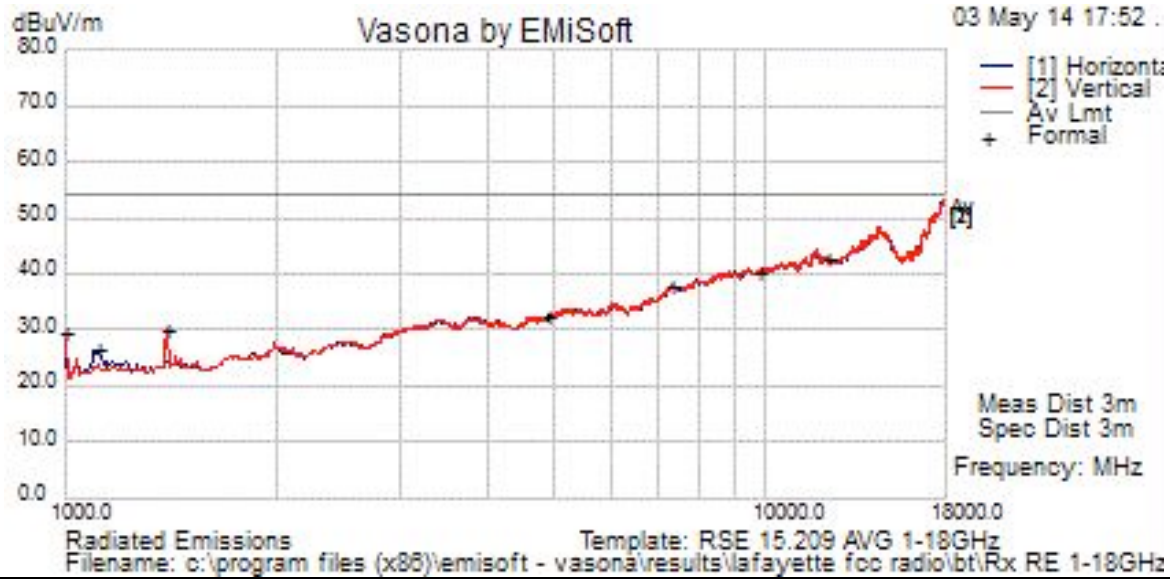
Graphical Test Results (Continue)



Title: **RX Spurious Emissions from 1 GHz - 18GHz**

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A.9 & A.10 Transmitter Radiated Spurious / Harmonics Emissions / Restricted band

15.205 / RSS-210 2.7
Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section15.205(c)).

Environmental Conditions:
Temperature: 70°F - 73 °F
Humidity: 35% - 44%

Measurement Procedure

In accordance with ANSI C63.10:2009

Using Vasona, configure the spectrum analyzer as shown below (be sure to enter all losses between the transmitter output and the spectrum analyzer). Place the radio in continuous transmit mode.

Below 1GHz

Span:	30 MHz – 1 GHz
Attenuation:	10 dB
Sweep Time:	Coupled
Resolution Bandwidth:	120 KHz
Video Bandwidth:	300 KHz
Detector:	Peak / Quasi-Peak

Above 1GHz

Span:	1 GHz – 18 GHz
Attenuation:	10 dB
Sweep Time:	Coupled
Resolution Bandwidth:	1MHz
Video Bandwidth:	1 MHz for peak, 10 Hz for average
Detector:	Peak

Terminate the access Point RF ports with 50 ohm loads.

Maximize Turntable (find worst case table angle), Maximize Antenna (find worst case height)

Save 2 plots: 1) Average Plot (Vertical and Horizontal), Limit= 54dBuV/m @3m
2) Peak plot (Vertical and Horizontal), Limit = 74dBuV/m @3m

This report represents the worst case data for all supported operating modes and antennas. System was evaluated up to 26 GHz but there were no measurable emissions above 18 GHz.

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Note1: A Notch Filter was used during formal testing from 1 – 18 GHz to help prevent the front end of the analyzer from over loading. The Notch filters used are designed to suppress TX fundamental frequency but do not effect harmonics of the fundamental frequency from being measured

Note2: The data displayed on the plots detailed in this appendix were measured using a 'Peak Detector'. Please refer to the results table for the detectors used during formal measurements

No measurable emissions above 18GHz

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Test Result Tables for TX Spurious Emissions:

Subtest Number: 166052 - 4				**Subtest Date:** 04-May-2014								
Engineer				Jose Aguirre								
Lab Information				Building P, 5m Anechoic								
Subtest Title				Transmitter Spurious Emissions								
Frequency Range				30.0 MHz - 1.0 GHz								
Comments on the above Test Results				TX Channel 0 (2402 MHz) – Test mode: C (Quasi-Peak)								
Environmental Conditions:												
(59 to 95)F				73 F								
(10 to 75)%:				35 %								
Frequency (MHz)	**Raw (dBuV)**	**Cab Loss (dB)**	**AF (dB)**	**Level (dBuV)**	**Detector**	**Polarity**	**Height (cm)**	**Azt (Deg)**	**Limit (dBuV)**	**Margin (dB)**	**Results Pass /Fail**	**Comments**
30.485	-1.7	0.5	20	18.8	Qp	V	255	4	40	-21.2	Pass	TX / Ch 0
201.69	21.4	1.4	12	34.8	Qp	H	152	2	43.5	-8.6	Pass	TX / Ch 0
279.29	17.8	1.7	13.4	32.8	Qp	V	174	30	46	-13.2	Pass	TX / Ch 0
44.245	19.4	0.6	10.8	30.8	Qp	V	115	6	40	-9.2	Pass	Tx / Ch 0
900.074	1.8	3	22.4	27.2	Qp	H	200	10	46	-18.8	Pass	TX / Ch 0
427.7	1.1	2.1	16.6	19.8	Qp	V	235	40	46	-26.2	Pass	TX / Ch 0

Subtest Number: 166052 - 6				**Subtest Date:** 04-May-2014								
Engineer				Jose Aguirre								
Lab Information				Building P, 5m Anechoic								
Subtest Title				Transmitter Spurious Emissions								
Frequency Range				30 MHz - 1.0 GHz								
Comments on the above Test Results				TX Channel 39 (2441 MHz) – Test Mode: C (Quasi-Pk)								
Environmental Conditions:												
Temperature: (59 to 95)F				73F								
Humidity: (10 to 75)%:				35%								
Frequency (MHz)	**Raw (dBuV)**	**Cab Loss (dB)**	**AF (dB)**	**Level (dBuV)**	**Detector**	**Polarity**	**Height (cm)**	**Azt (Deg)**	**Limit (dBuV)**	**Margin (dB)**	**Results Pass /Fail**	**Comments**
31.886	15.7	0.5	19	35.2	Qp	V	110	85	40	-4.8	Pass	TX / Ch 39
44.221	19.4	0.7	10.8	30.9	Qp	V	127	22	40	-9.1	Pass	TX / Ch 39
900.019	9.7	3	22.4	35.1	Qp	H	144	133	46	-10.9	Pass	TX / Ch 39
203.293	20.2	1.4	11.5	33.2	Qp	H	100	50	43.5	-10.3	Pass	TX / Ch 39
281.223	18.7	1.7	13.4	33.7	Qp	V	190	360	46	-12.3	Pass	TX / Ch 39
431.011	7.1	2.1	16.6	25.8	Qp	V	110	235	46	-20.2	Pass	TX / Ch 39

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TX Spurious Emissions Test Result Tables:

Subtest Number: 166052 - 5	**Subtest Date:** 03-May-2014
Engineer	Jose Aguirre
Lab Information	Building P, 5m Anechoic
Subtest Title	Transmitter Spurious Emissions
Frequency Range	30 MHz – 1 GHz
Comments on the above Test Results	TX Channel 78 (2480 MHz) – Test Mode: C (Quasi-Pk)
Environmental Conditions:	
Temperature: (59 to 95)F	73F
Humidity: (10 to 75)%:	35%

Frequency (MHz)	Raw (dBuV)	Cab Loss (dB)	AF (dB)	Level (dBuV)	Detector	Polarity	Height (cm)	Azt (Deg)	Limit (dBuV)	Margin (dB)	Results Pass /Fail	Comments
203.708	19.5	1.4	11.4	32.4	Qp	H	132	324	43.5	-11.1	Pass	TX / Ch 78
44.243	19.6	0.6	10.8	31.1	Qp	V	114	354	40	-8.9	Pass	TX / Ch 78
280.283	18.5	1.7	13.4	33.6	Qp	V	179	351	46	-12.4	Pass	TX / Ch 78
900.074	10.3	3	22.4	35.7	Qp	H	135	128	46	-10.3	Pass	Tx / Ch 78
30.579	15.1	0.5	19.9	35.5	Qp	V	100	68	40	-4.5	Pass	TX / Ch 78
428.738	4.5	2.1	16.6	23.2	Qp	V	136	190	46	-22.8	Pass	TX / Ch 78

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TX Spurious Emissions Test Result Tables:

Subtest Number: 166052 - 1	**Subtest Date:** 03-May-2014
Engineer	Jose Aguirre
Lab Information	Building P, 5m Anechoic
Subtest Title	Transmitter Spurious Emissions
Frequency Range	1 GHz – 18 GHz
Comments on the above Test Results	TX Channel 0 (2402 MHz) – Test Mode: C (Peak)
Environmental Conditions:	
Temperature: (59 to 95)F	70F
Humidity: (10 to 75)%:	44%

Frequency (MHz)	Raw (dBuV)	Cab Loss (dB)	AF (dB)	Level (dBuV)	Detector	Polarity	Height (cm)	Azt (Deg)	Limit (dBuV)	Margin (dB)	Results Pass /Fail	Comments
4804	41.2	7.4	-4.3	44.4	Pk	H	180	125	74	-29.6	Pass	TX / Ch 0
7206	39.1	9.4	0.7	49.1	Pk	H	180	125	74	-24.9	Pass	TX / Ch 0
9608	37.1	11.2	3.5	51.8	Pk	H	180	125	74	-22.2	Pass	TX / Ch 0
12010	40.5	12.6	4.2	57.3	Pk	H	180	125	74	-16.7	Pass	Tx / Ch 0
14412	38	14.2	7	59.3	Pk	H	180	125	74	-14.7	Pass	TX / Ch 0
4804	40.9	7.4	-4.3	44.1	Pk	V	100	102	74	-29.9	Pass	TX / Ch 0
7206	38.7	9.4	0.7	48.7	Pk	V	100	102	74	-25.3	Pass	TX / Ch 0
9608	37.4	11.2	3.5	52.1	Pk	V	100	102	74	-21.9	Pass	Tx / Ch 0
12010	40.3	12.6	4.2	57.1	Pk	V	100	102	74	-16.9	Pass	TX / Ch 0
14412	37.9	14.2	7	59.2	Pk	V	100	102	74	-14.8	Pass	TX / Ch 0

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TX Spurious Emissions Test Result Tables:

Subtest Number: 166053 - 3	**Subtest Date:** 03-May-2014
Engineer	Jose Aguirre
Lab Information	Building P, 5m Anechoic
Subtest Title	Transmitter Spurious Emissions
Frequency Range	1 GHz – 18 GHz
Comments on the above Test Results	TX Channel 0 (2402 MHz) – Test Mode: C (Average)
Environmental Conditions:	
Temperature: (59 to 95)F	75F
Humidity: (10 to 75)%:	44%

Frequency (MHz)	Raw (dBuV)	Cab Loss (dB)	AF (dB)	Level (dBuV)	Detector	Polarity	Height (cm)	Azt (Deg)	Limit (dBuV)	Margin (dB)	Results Pass /Fail	Comments
4960	28.9	7.6	-4	32.5	Av	V	100	110	54	-21.5	Pass	TX / Ch 0
4960	29	7.6	-4	32.6	Av	H	180	122	54	-21.4	Pass	TX / Ch 0
7440	26.3	9.6	1.8	37.6	Av	V	100	110	54	-16.4	Pass	TX / Ch 0
7440	26.1	9.6	1.8	37.4	Av	H	180	122	54	-16.6	Pass	Tx / Ch 0
9920	24.8	11.3	4.5	40.6	Av	V	100	110	54	-13.4	Pass	TX / Ch 0
9920	24.9	11.3	4.5	40.7	Av	H	180	122	54	-13.3	Pass	TX / Ch 0
12400	25.8	12.9	3.6	42.3	Av	V	100	110	54	-11.7	Pass	TX / Ch 0
12400	25.8	12.9	3.6	42.3	Av	H	180	122	54	-11.7	Pass	TX / Ch 0
14880	26.2	14.3	6.2	46.7	Av	V	100	110	54	-7.3	Pass	TX / Ch 0
14880	26.1	14.3	6.2	46.6	Av	H	180	122	54	-7.4	Pass	TX / Ch 0

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TX Spurious Emissions Test Result Tables:

Subtest Number: 166052 - 2	**Subtest Date:** 03-May-2014
Engineer	Jose Aguirre
Lab Information	Building P, 5m Anechoic
Subtest Title	Transmitter Spurious Emissions
Frequency Range	1 GHz – 18 GHz
Comments on the above Test Results	TX Channel 39 (2.441 MHz) – Test Mode: C (Peak)
Environmental Conditions:	
Temperature: (59 to 95)F	70F
Humidity: (10 to 75)%:	44%

Frequency (MHz)	Raw (dBuV)	Cab Loss (dB)	AF (dB)	Level (dBuV)	Detector	Polarity	Height (cm)	Azt (Deg)	Limit (dBuV)	Margin (dB)	Results Pass /Fail	Comments
4882	40.9	7.5	-4.1	44.4	Pk	V	117	120	74	-29.6	Pass	TX / Ch 39
4882	39.8	7.5	-4.1	43.3	Pk	H	177	115	74	-30.7	Pass	TX / Ch 39
7323	39.3	9.5	1.4	50.2	Pk	V	117	120	74	-23.8	Pass	TX / Ch 39
7323	38.3	9.5	1.4	49.2	Pk	H	177	115	74	-24.8	Pass	Tx / Ch 39
9764	36.3	11.2	4.2	51.7	Pk	V	117	120	74	-22.3	Pass	TX / Ch 39
9764	36.9	11.2	4.2	52.3	Pk	H	177	115	74	-21.7	Pass	TX / Ch 39
12205	38.2	12.7	4.2	55.2	Pk	V	117	120	74	-18.8	Pass	TX / Ch 39
12205	37.6	12.7	4.2	54.6	Pk	H	177	115	74	-19.4	Pass	Tx / Ch 39
14646	41.4	14.2	6.6	62.3	Pk	V	117	120	74	-11.7	Pass	TX / Ch 39
14646	40.2	14.2	6.6	61.1	Pk	H	117	115	74	-12.9	Pass	TX / Ch 39

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TX Spurious Emissions Test Result Tables:

Subtest Number: 166053 - 2	**Subtest Date:** 03-May-2014
Engineer	Jose Aguirre
Lab Information	Building P, 5m Anechoic
Subtest Title	Transmitter Spurious Emissions
Frequency Range	1 GHz – 18 GHz
Comments on the above Test Results	TX Channel 39 (2441 MHz) – Test Mode: C (Average)
Environmental Conditions:	
Temperature: (59 to 95)F	75F
Humidity: (10 to 75)%:	40%

Frequency (MHz)	Raw (dBuV)	Cab Loss (dB)	AF (dB)	Level (dBuV)	Detector	Polarity	Height (cm)	Azt (Deg)	Limit (dBuV)	Margin (dB)	Results Pass /Fail	Comments
4882.001	29	7.5	-4.1	5 32.5	Av	V	100	115	54	-21.5	Pass	TX / Ch 39
4882.001	29	7.5	-4.1	32.5	Av	H	180	120	54	-21.5	Pass	Tx / Ch 39
7323	26.2	9.5	1.4	37.1	Av	V	100	115	54	-16.9	Pass	TX / Ch 39
7323	26.7	9.5	1.4	37.6	Av	H	180	120	54	-16.4	Pass	TX / Ch 39
9764	25.8	11.2	4.2	41.2	Av	V	100	115	54	-12.8	Pass	TX / Ch 39
9764	24.8	11.2	4.2	40.2	Av	H	180	120	54	-13.8	Pass	Tx / Ch 39
12205	26.3	12.7	4.2	43.3	Av	V	100	115	54	-10.7	Pass	TX / Ch 39
12205	25.9	12.7	4.2	42.9	Av	H	180	120	54	-11.1	Pass	TX / Ch 39
14646	27	14.2	6.6	47.9	Av	V	100	115	54	-6.1	Pass	TX / Ch 39
14646	26.3	14.2	6.6	47.2	Av	H	180	120	54	-6.8	Pass	TX / Ch 39

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TX Spurious Emissions Test Result Tables:

Subtest Number: 166052 - 3	Subtest Date: 03-May-2014
Engineer	Jose Aguirre
Lab Information	Building P, 5m Anechoic
Subtest Title	Transmitter Spurious Emissions
Frequency Range	1 GHz – 18 GHz
Comments on the above Test Results	TX Channel 78 (2480 MHz) – Test Mode: C (Peak)
Environmental Conditions:	
Temperature: (59 to 95)F	70F
Humidity: (10 to 75)%:	44%

Frequency (MHz)	Raw (dBuV)	Cab Loss (dB)	AF (dB)	Level (dBuV)	Detector	Polarity	Height (cm)	Azt (Deg)	Limit (dBuV)	Margin (dB)	Results Pass /Fail	Comments
4960	41.9	7.6	-4	45.5	Pk	V	100	110	74	-28.5	Pass	TX / Ch 78
4960	40.6	7.6	-4	44.2	Pk	H	180	122	74	-29.8	Pass	TX / Ch 78
7440	38.2	9.6	1.8	49.5	Pk	V	100	110	74	-24.5	Pass	TX / Ch 78
7440	37.4	9.6	1.8	48.7	Pk	H	180	122	74	-25.3	Pass	Tx / Ch 78
9920	34.4	11.3	4.5	50.2	Pk	V	100	110	74	-23.8	Pass	TX / Ch 78
9920	36.8	11.3	4.5	52.6	Pk	H	180	122	74	-21.4	Pass	TX / Ch 78
12400	36.6	12.9	3.6	53.1	Pk	V	100	110	74	-20.9	Pass	TX / Ch 78
12400	37.7	12.9	3.6	54.2	Pk	H	180	122	74	-19.8	Pass	TX / Ch 78
14880	39.6	14.3	6.2	60.1	Pk	V	100	110	74	-13.9	Pass	TX / Ch 78
14880	37.8	14.3	6.2	58.3	Pk	H	180	122	74	-15.7	Pass	TX / Ch 78

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TX Spurious Emissions Test Result Tables:

Subtest Number: 166053 - 1				**Subtest Date:** 03-May-2014								
Engineer				Jose Aguirre								
Lab Information				Building P, 5m Anechoic								
Subtest Title				Transmitter Spurious Emissions								
Frequency Range				1 GHz – 18 GHz								
Comments on the above Test Results				TX Channel 78 (2.480 MHz) – Test Mode: C (Average)								
Environmental Conditions:												
Temperature: (59 to 95)F				75F								
Humidity: (10 to 75)%:				40%								
Frequency (MHz)	**Raw (dBuV)**	**Cab Loss (dB)**	**AF (dB)**	**Level (dBuV)**	**Detector**	**Polarity**	**Height (cm)**	**Azt (Deg)**	**Limit (dBuV)**	**Margin (dB)**	**Results Pass /Fail**	**Comments**
4960	28.9	7.6	-4	32.5	Av	V	100	110	54	-21.5	Pass	TX / Ch 78
4960	29	7.6	-4	32.6	Av	H	180	122	54	-21.4	Pass	TX / Ch 78
7440	26.3	9.6	1.8	37.6	Av	V	100	110	54	-16.4	Pass	TX / Ch 78
7440	26.1	9.6	1.8	37.4	Av	H	180	122	54	-16.6	Pass	Tx / Ch 78
9920	24.8	11.3	4.5	40.6	Av	V	100	110	54	-13.4	Pass	TX / Ch 78
9920	24.9	11.3	4.5	40.7	Av	H	180	122	54	-13.3	Pass	TX / Ch 78
12400	25.8	12.9	3.6	42.3	Av	V	100	110	54	-11.7	Pass	TX / Ch 78
12400	25.8	12.9	3.6	42.3	Av	H	180	122	54	-11.7	Pass	TX / Ch 78
14880	26.2	14.3	6.2	46.7	Av	V	100	110	54	-7.3	Pass	TX / Ch 78
14880	26.1	14.3	6.2	46.6	Av	H	180	122	54	-7.4	Pass	TX / Ch 78

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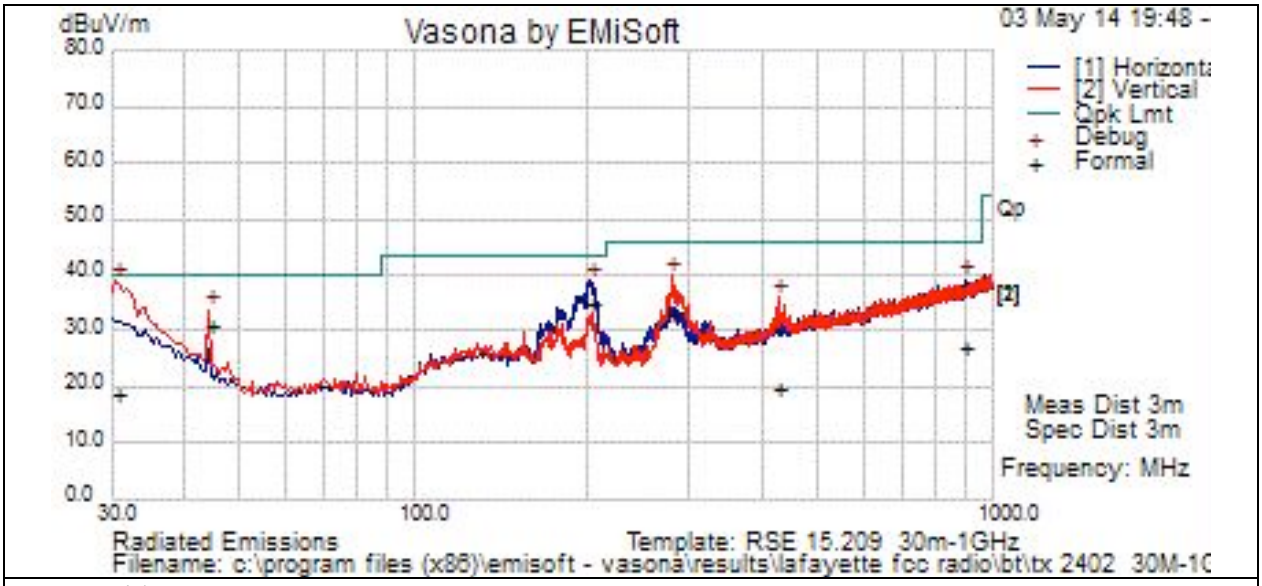
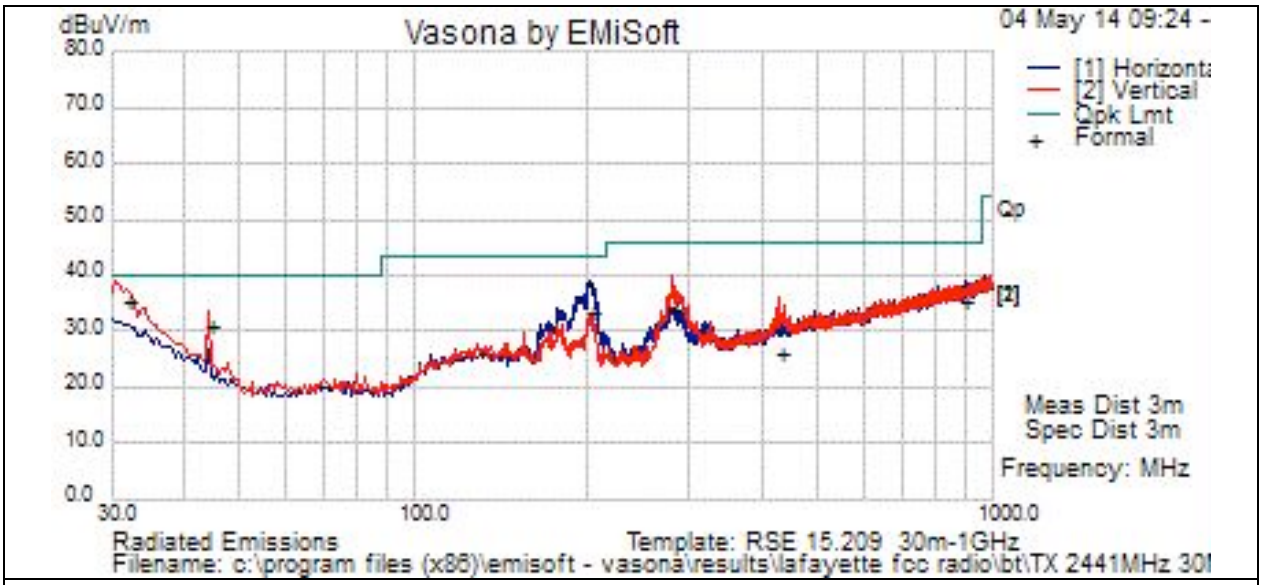
TX Spurious Emissions Graphical Test Results:



Title: **TX Spurious Emissions from 30 MHz - 1GHz – Ch 0 (2402 MHz) –Quasi-Peak**



Title: **TX Spurious Emissions from 30 MHz - 1GHz – Ch 39 (2441 MHz) –Quasi-Peak**

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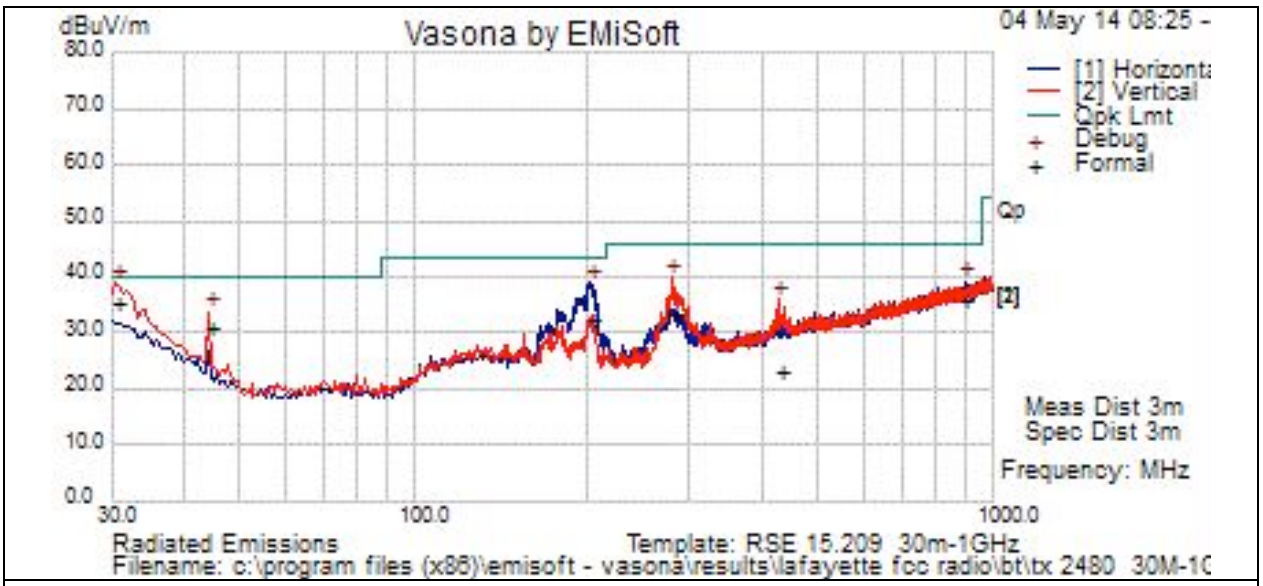
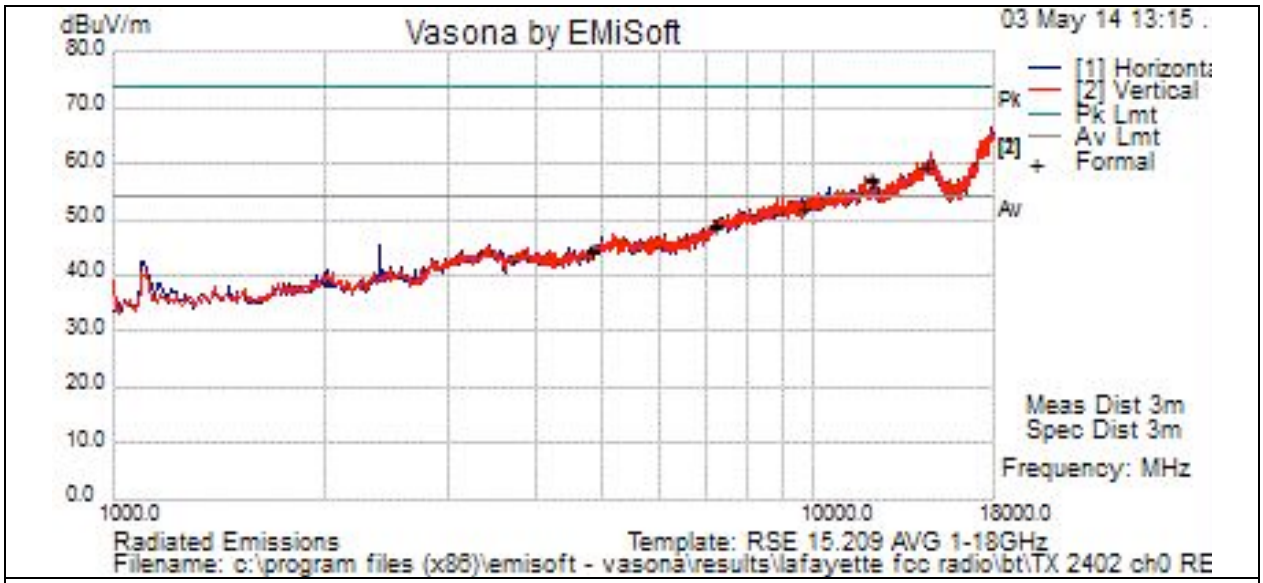
TX Spurious Emissions Graphical Test Results:



Title: **TX Spurious Emissions from 30 MHz - 1GHz – Ch 78 (2480 MHz) –Quasi-Peak**



Title: **TX Spurious Emissions from 1GHz – 18GHz – Ch 0 (2402 MHz) –Peak**

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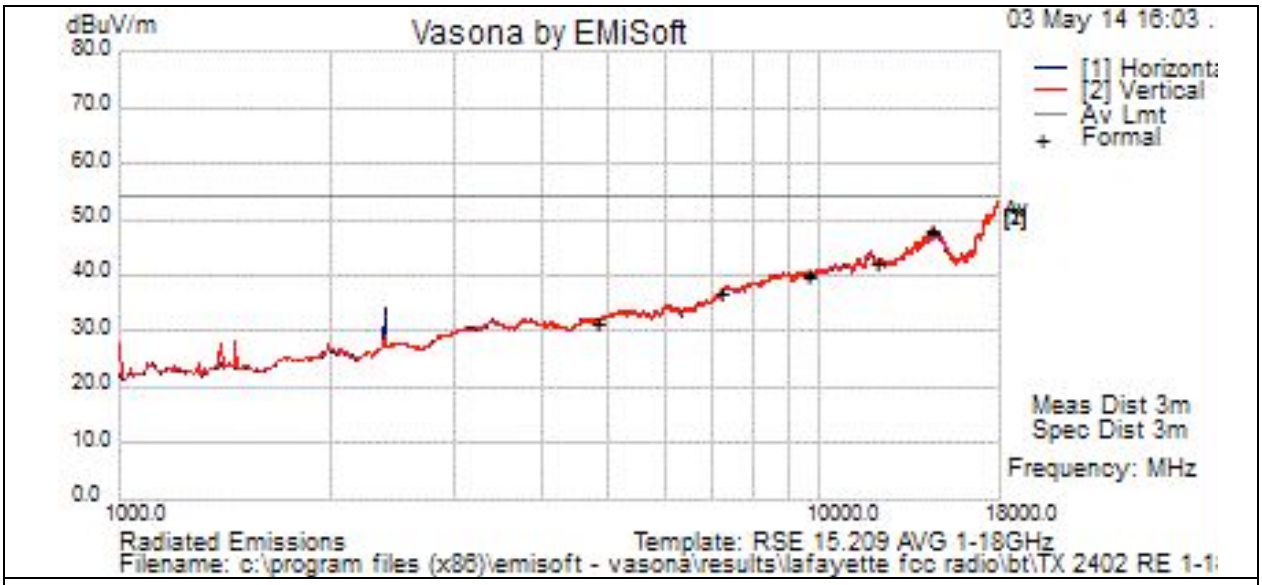
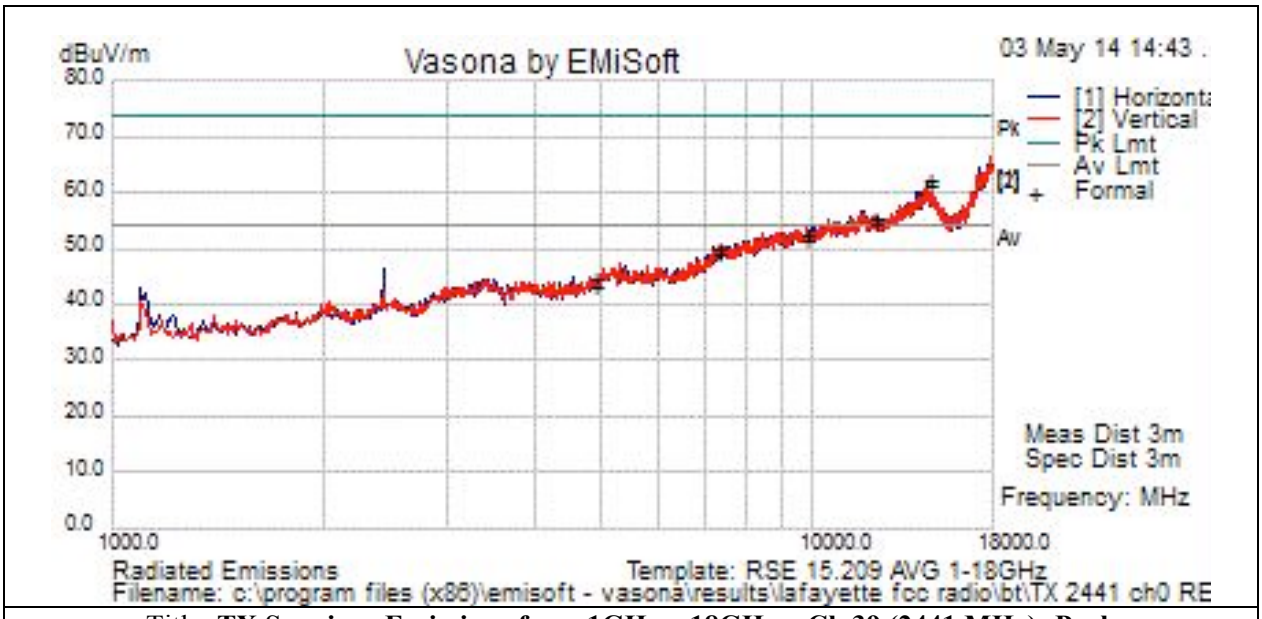
TX Spurious Emissions Graphical Test Results:



Title: **TX Spurious Emissions from 1GHz – 18GHz – Ch 0 (2402 MHz) -Average**



Title: **TX Spurious Emissions from 1GHz – 18GHz – Ch 39 (2441 MHz) -Peak**

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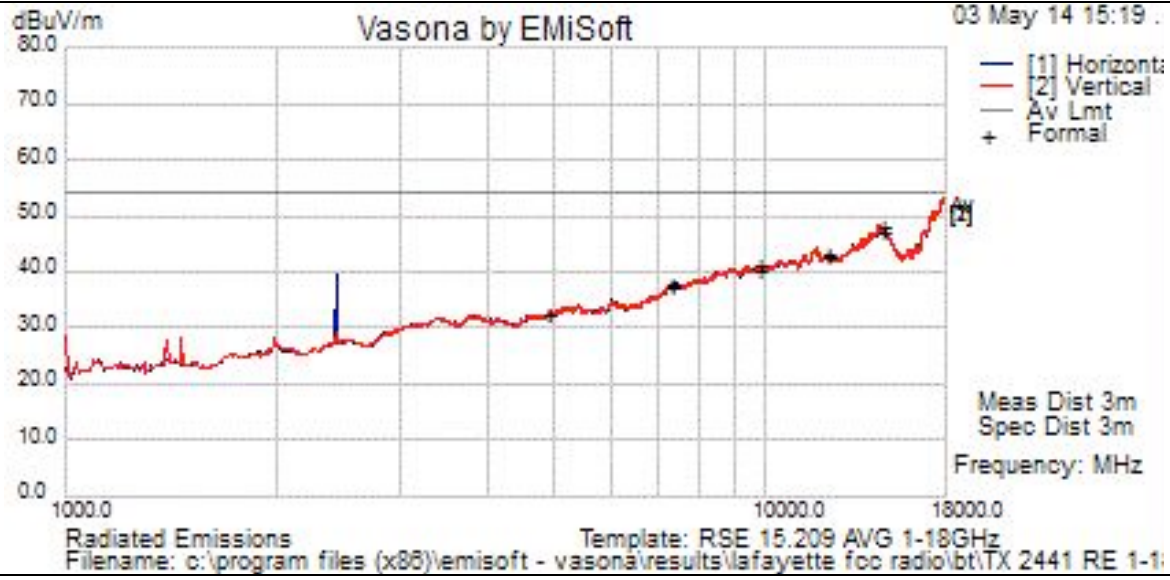
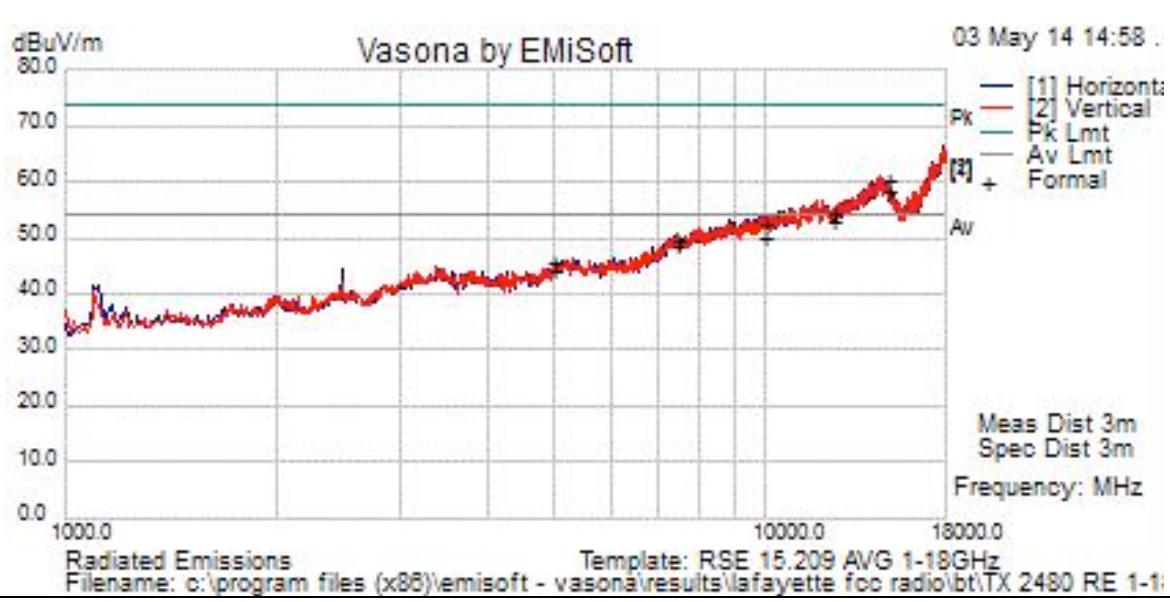
TX Spurious Emissions Graphical Test Results:



Title: **TX Spurious Emissions from 1GHz – 18GHz – Ch 39 (2441 MHz) –Average**



Title: **TX Spurious Emissions from 1GHz – 18GHz – Ch 78 (2480 MHz) -Peak**

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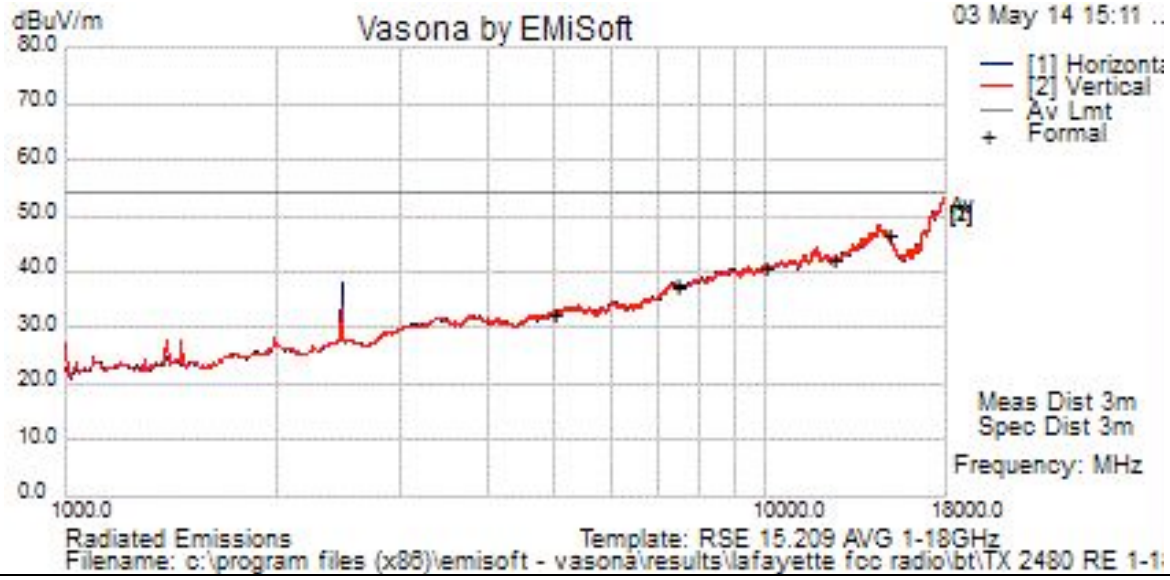
TX Spurious Emissions Graphical Test Results:



Title: **TX Spurious Emissions from 1GHz – 18GHz – Ch 78 (2480 MHz) -Average**

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A.12 AC Conducted Emissions:

FCC 15.207 (a) & RSS-Gen 7.2.4

Except when the requirements applicable to a given device state otherwise, for any radio apparatus equipped to operate from the public utility AC power supply, either directly or indirectly (such as with a battery charger), the radio frequency voltage of emissions conducted back onto the AC power lines in the frequency range of 0.15 MHz to 30 MHz shall not exceed the limits shown in the table in these sections. The more stringent limit applies at the frequency range boundaries.

Measurement Procedure
Accordance with ANSI C64.10:2009

Using Vasona, configure the spectrum analyzer as shown below (be sure to enter all losses between the transmitter output and the spectrum analyzer). Place the radio in continuous transmit mode.

Span:	150 KHz – 30 MHz
Attenuation:	10 dB
Sweep Time:	Coupled
Resolution Bandwidth:	9 KHz
Video Bandwidth:	30 KHz
Detector:	Quasi-Peak / Average

Overall Result: PASS

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Test Data Results

Subtest Number: 162054 - 2	**Subtest Date:** 30-May-2014
Engineer	Jose Aguirre
Lab Information	Building P, 10m Anechoic
Subtest Title	AC Main Conducted Emissions
Power Input	110, 60Hz (+/-20%)
Frequency Range	150 KHz - 30.0 MHz
Comments on the above Test Results	TX

Frequency (MHz)	Raw (dBuV)	Cab Loss (dB)	AF (dB)	Level (dBuV)	Detector	Line	Limit (dBuV)	Margin (dB)	Results Pass /Fail	Comments
19.961	22.7	20.3	0.2	43.2	Qp	L	60	-16.8	Pass	TX
26.665	23.1	20.6	0.3	43.9	Qp	L	60	-16.1	Pass	TX
18.219	24.5	20.3	0.2	45	Qp	L	60	-15	Pass	TX
19.29	25.1	20.3	0.2	45.7	Qp	L	60	-14.3	Pass	TX
0.192	23.1	20.9	0.1	44	Qp	L	63.9	-19.9	Pass	TX
18.637	23.4	20.3	0.2	43.9	Qp	L	60	-16.1	Pass	TX
18.219	23.2	20.3	0.2	43.7	Qp	N	60	-16.3	Pass	TX
18.637	22.2	20.3	0.2	42.7	Qp	N	60	-17.3	Pass	TX
19.29	22.4	20.3	0.2	43	Qp	N	60	-17	Pass	TX
0.192	23.4	20.9	0.1	44.3	Qp	N	63.9	-19.6	Pass	TX
19.961	21.6	20.3	0.2	42.1	Qp	N	60	-17.9	Pass	TX
26.665	20	20.6	0.3	40.8	Qp	N	60	-19.2	Pass	TX
19.961	9.9	20.3	0.2	30.4	Av	L	50	-19.6	Pass	TX
26.665	13.8	20.6	0.3	34.6	Av	L	50	-15.4	Pass	TX
18.219	12.4	20.3	0.2	32.9	Av	L	50	-17.1	Pass	TX
19.29	11.4	20.3	0.2	31.9	Av	L	50	-18.1	Pass	TX
0.192	14.1	20.9	0.1	35	Av	L	53.9	-18.9	Pass	TX
18.637	10.4	20.3	0.2	30.9	Av	L	50	-19.1	Pass	TX
18.219	13.6	20.3	0.2	34.1	Av	N	50	-15.9	Pass	TX
18.637	11	20.3	0.2	31.5	Av	N	50	-18.5	Pass	TX
19.29	11.4	20.3	0.2	32	Av	N	50	-18	Pass	TX
0.192	14.3	20.9	0.1	35.2	Av	N	53.9	-18.7	Pass	TX
19.961	9.3	20.3	0.2	29.8	Av	N	50	-20.2	Pass	TX
26.665	10.6	20.6	0.3	31.5	Av	N	50	-18.5	Pass	TX

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Test Result Table

Subtest Number: 166054 - 1	**Subtest Date:** 14-May-2014
Engineer	Jose Aguirre
Lab Information	Building P, 10m Anechoic
Subtest Title	AC Main Conducted Emissions
Power Input	110, 60Hz (+/-20%)
Frequency Range	150 KHz - 30.0 MHz
Comments on the above Test Results	RX / Idle

Frequency (MHz)	Raw (dBuV)	CabLoss (dB)	AF (dB)	Level (dBuV)	Detector	Line	Limit (dBuV)	Margin (dB)	Results Pass /Fail	Comments
18.647	24.5	20.3	0.2	45	Qp	L	60	-15	Pass	RX
0.193	24.1	20.9	0	45	Qp	L	63.9	-18.9	Pass	RX
19.27	25.6	20.3	0.2	46.1	Qp	L	60	-13.9	Pass	RX
19.888	22.5	20.3	0.2	43.1	Qp	L	60	-16.9	Pass	RX
18.209	23	20.3	0.2	43.5	Qp	L	60	-16.5	Pass	RX
26.586	21.1	20.5	0.3	41.9	Qp	L	60	-18.1	Pass	RX
26.586	17.2	20.5	0.3	38	Qp	N	60	-22	Pass	RX
19.27	21.9	20.3	0.2	42.4	Qp	N	60	-17.6	Pass	RX
18.209	22.7	20.3	0.2	43.2	Qp	N	60	-16.8	Pass	RX
0.193	23.8	20.9	0	44.7	Qp	N	63.9	-19.2	Pass	RX
18.647	23.2	20.3	0.2	43.7	Qp	N	60	-16.3	Pass	RX
19.888	21.5	20.3	0.2	42	Qp	N	60	-18	Pass	RX
18.647	11.1	20.3	0.2	31.6	Av	L	50	-18.4	Pass	RX
0.193	14.7	20.9	0	35.6	Av	L	53.9	-18.3	Pass	RX
19.27	11.4	20.3	0.2	31.9	Av	L	50	-18.1	Pass	RX
19.888	9.4	20.3	0.2	30	Av	L	50	-20	Pass	RX
18.209	9.5	20.3	0.2	29.9	Av	L	50	-20.1	Pass	RX
26.586	12.1	20.5	0.3	32.9	Av	L	50	-17.1	Pass	RX
26.586	6.5	20.5	0.3	27.3	Av	N	50	-22.7	Pass	RX
19.27	11.2	20.3	0.2	31.7	Av	N	50	-18.3	Pass	RX
18.209	10.5	20.3	0.2	31	Av	N	50	-19	Pass	RX
0.193	13.6	20.9	0	34.5	Av	N	53.9	-19.4	Pass	RX
18.647	11.3	20.3	0.2	31.8	Av	N	50	-18.2	Pass	RX
19.888	9.4	20.3	0.2	29.9	Av	N	50	-20.1	Pass	RX

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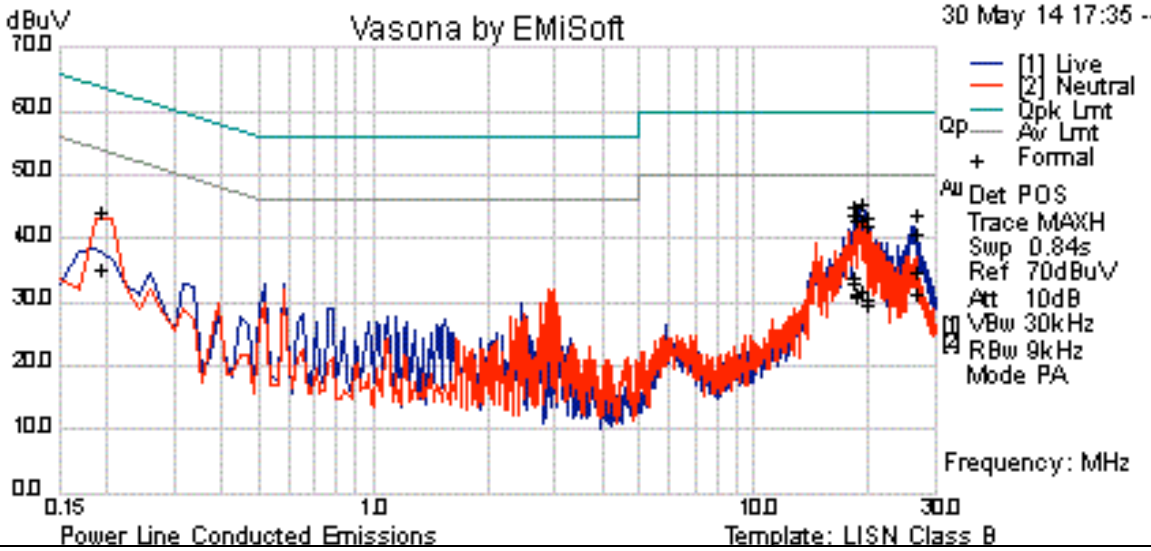
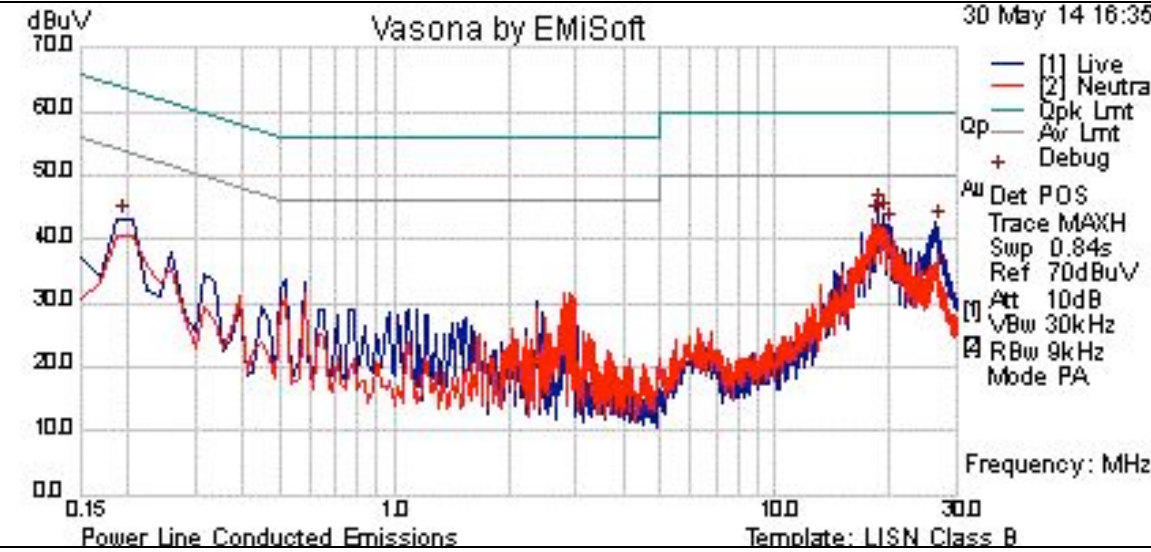
AC Conducted Emissions Graphical Test Results:



Title: **AC Conducted Emissions from 150 KHz – 30 MHz – Transmit mode**



Title: **AC Conducted Emissions from 150 KHz – 30 MHz – Receive mode**

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Appendix B: Abbreviation Key and Definitions

The following table defines abbreviations used within this test report.

Abbreviation	Description	Abbreviation	Description
EMC	Electro Magnetic Compatibility	°F	Degrees Fahrenheit
EMI	Electro Magnetic Interference	°C	Degrees Celsius
EUT	Equipment Under Test	Temp	Temperature
ITE	Information Technology Equipment	S/N	Serial Number
TAP	Test Assessment Schedule	Qty	Quantity
ESD	Electro Static Discharge	emf	Electromotive force
EFT	Electric Fast Transient	RMS	Root mean square
EDCS	Engineering Document Control System	Qp	Quasi Peak
Config	Configuration	Av	Average
CIS#	Cisco Number (unique identification number for Cisco test equipment)	Pk	Peak
Cal	Calibration	kHz	Kilohertz ($1x10^3$)
EN	European Norm	MHz	MegaHertz ($1x10^6$)
IEC	International Electro technical Commission	GHz	Gigahertz ($1x10^9$)
CISPR	International Special Committee on Radio Interference	H	Horizontal
CDN	Coupling/Decoupling Network	V	Vertical
LISN	Line Impedance Stabilization Network	dB	decibel
PE	Protective Earth	V	Volt
GND	Ground	kV	Kilovolt ($1x10^3$)
L1	Line 1	μV	Microvolt ($1x10^{-6}$)
L2	Line2	A	Amp
L3	Line 3	μA	Micro Amp ($1x10^{-6}$)
DC	Direct Current	mS	Milli Second ($1x10^{-3}$)
RAW	Uncorrected measurement value, as indicated by the measuring device	μS	Micro Second ($1x10^{-6}$)
RF	Radio Frequency	μS	Micro Second ($1x10^{-6}$)
SLCE	Signal Line Conducted Emissions	m	Meter
Meas dist	Measurement distance	Spec dist	Specification distance
N/A or NA	Not Applicable	SL	Signal Line (or Telecom Line)
P	Power Line	L	Live Line
N	Neutral Line	R	Return
S	Supply	AC	Alternating Current

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Appendix C: List of Test Equipment Used to perform the test

Equip#	Manufacturer/ Model	Description	Last Cal	Next Due	Test Item
Test Equipment used for Radiated Emissions					
CIS004882	EMC Test Systems / 3115	Double Ridged Guide Horn Antenna	28-JUN-13	28-JUN-14	A.9, A.10, A.11
CIS005691	Miteq / NSP1800-25-S1	Broadband Preamplifier (1-18GHz)	27-JAN-14	27-JAN-15	A.9, A10, A.11
CIS008448	Cisco / NSA 5m Chamber	NSA 5m Chamber	03-OCT-13	03-OCT-14	A.9, A10, A.11
CIS021117	Micro-Coax / UFB311A-0-2484-520520	RF Coaxial Cable, to 18GHz, 248.4 in	23-AUG-13	23-AUG-14	A.9, A10, A.11
CIS025658	Micro-Coax / UFB311A-1-0840-504504	RF Coaxial Cable, to 18GHz, 84 in	14-FEB-14	14-FEB-15	A.9, A10, A.11
CIS037581	ETS-Lindgren / 3117	Double Ridged Waveguide Horn Ant.	31-JUL-13	31-JUL-14	A.9, A10, A.11
CIS041935	Newport / iBTHP-5-DB9	5 inch Temp/RH/Press Sensor w/20ft	01-APR-14	01-APR-15	A.9, A10, A.11
CIS040641	Rohde & Schwarz / ESU26	EMI Test Receiver	24-JUN-13	24-JUN-14	A.9, A10, A.11
CIS047284	Huber + Suhner / Sucoflex 102E	40GHz Cable K Connector	30-MAY-13	30-MAY-14	A.11
CIS047286	Huber + Suhner / Sucoflex 102E	40GHz Cable K Connector	30-MAY-13	30-MAY-14	A.9, A.10
CIS049443	Micro-Tronics / BRM50702-02	Notch Filter, SB:2.4-2.5GHz, to 18GHz	20-MAR-14	20-MAR-15	A.9, A10, A.11
CIS049563	Huber + Suhner / Sucoflex 106A	N Type Cable 18GHz	23-AUG-13	23-AUG-14	A.9, A10, A.11
Test Equipment used for AC Mains Conducted Emissions					
CIS008375	Andrew / F4A-PNMNM	49 ft Heliax Cable	16-APR-13	16-APR-14	A.12
CIS008376	Andrew / F4A-PNMNM	30 ft Heliax Cable	24-JUN-13	24-JUN-14	A.12
CIS005707	Fischer Custom Communications / FCC-LISN-50-50	LISN	16-APR-13	16-APR-14	A.12
CIS019206	TTE / H785-150K-50-21378	High Pas Filter,Fo=150kHz	12-SEP-13	12-SEP-14	A.12
CIS008591	Fischer Custom Communications/ FCC-RFM2F-520R	LISN AC Adaptor – Std 120V outlet	16-APR-13	16-APR-14	A.12
CIS008582	Fischer Custom Communications/ FCC-RFM2F-520R	LISN AC Adaptor – Std 120V outlet	24-JUN-13	24-JUN-14	A.12
CIS030562	Micro-Coax / UFB311A-1-0950-504504	RF Coaxial Cable, to 18GHz, 95 in	26-JUN-13	26-JUN-14	A.12
CIS033649	Midwest Microwave / CSY-NMNM-14-010-FS	RF Coaxial Cable, RG-214, 10ft	16-APR-13	16-APR-14	A.12
CIS041929	Newport / iBTHP-5-DB9	5 inch Temp/RH/Press Sensor w/20ft	16-DEC-13	16-DEC-14	A.12
CIS045015	Huber + Suhner/ Sucoflex 106PA	Sucoflex N Type Black 7ft cable	30-OCT-13	30-OCT-14	A.12
CIS047300	Agilent Technologies / N9038A	MXE EMI Receiver 20Hz to 26.5 Ghz	17-DEC-13	17-DEC-14	A.12
RF Conducted at output antenna port					
CIS043023	Anritsu/ MT8852B-042	EDR Bluetooth Test Set	17-SEP-13	17-SEP-14	A.1 to A.8
CIS040514	Agilent Technologies / E4440A	Precision Spectrum Analyzer	15-NOV-13	15-NOV-14	A.1 to A.8
CIS045066	ZFSC-2-10G	Slitter	30-JAN-14	30-JAN-15	A.1 to A.8
CIS036716	RF Coaxial Cable-SMA	Radio Test Cable, SMA-SMA	18-DEC-13	18-DEC-14	A.1 to A.8
CIS036717	RF Coaxial Cable-SMA	Radio Test Cable, SMA-SMA	18-DEC-13	18-DEC-14	A.1 to A.8
CIS037552	MXGS83RK3000	Special Radio Test Adaptor Cable	03-JUL-13	03-JUL-14	A.1 to A.8

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Appendix D: Test Procedures

Measurements were made in accordance with

- FCC docket #:DA 00-0705:2000
- ANSI C63.10:2009

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