Juniper Systems, Inc.

BC04 in Archer

June 03, 2008

Report No. JUNI0002

Report Prepared By

www.nwemc.com
1-888-EMI-CERT

EMC Test Report

NORTHWEST EMC

22975 NW Evergreen Parkway
Suite 400
Hillsboro, Oregon 97124

Certificate of Test

Issue Date: June 03, 2008
Juniper Systems, Inc.
Model: BC04 in Archer

Emissions			
Test Description	**Specification**	**Test Method**	**Pass/Fail**
Spurious Radiated Emissions	FCC 15.247 (DTS):2007	ANSI C63.4:2003 KDB No. 558074	**Pass**
Output Power	FCC 15.247 (DTS):2007	ANSI C63.4:2003 KDB No. 558074	**Pass**
AC Powerline Conducted Emissions	FCC 15.207:2007	ANSI C63.4:2003	**Pass**
Band Edge Compliance	FCC 15.247 (DTS):2007	ANSI C63.4:2003 KDB No. 558074	**Pass**
Occupied Bandwidth	FCC 15.247 (FHSS):2007	ANSI C63.4:2003 DA 00-705:2000	**Pass**
Power Spectral Density	FCC 15.247 (DTS):2007	ANSI C63.4:2003 KDB No. 558074	**Pass**
Spurious Conducted Emissions	FCC 15.247 (DTS):2007	ANSI C63.4:2003 KDB No. 558074	**Pass**

Modifications made to the product
See the Modifications section of this report

Test Facility

The measurement facility used to collect the data is located at:

Northwest EMC, Inc.
22975 NW Evergreen Parkway, Suite 400
Hillsboro, OR 97124

Phone: (503) 844-4066 Fax: 844-3826

This site has been fully described in a report filed with and accepted by the FCC (Federal Communications Commission) and Industry Canada (Site Filing #3496A).

Approved By:
Ethan Schoonover, Sultan Lab Manager

NVLAP Lab Code: 200630-0

This report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government of the United States of America.

Product compliance is the responsibility of the client, therefore the tests and equipment modes of operation represented in this report were agreed upon by the client, prior to testing. This Report may only be duplicated in its entirety. The results of this test pertain only to the sample(s) tested. The specific description is noted in each of the individual sections of the test report supporting this certificate of test.

Revision Number	Description	Date	Page Number
00	None		

Accreditations and Authorizations

FCC: Accredited by NVLAP for performance of FCC radio, digital, and ISM device testing. Our Open Area Test Sites, certification chambers, and conducted measurement facilities have been fully described in reports filed with the FCC and accepted by the FCC in letters maintained in our files. Northwest EMC has been accredited by ANSI to ISO / IEC Guide 65 as a product certifier. We have been designated by the FCC as a Telecommunications Certification Body (TCB). This allows Northwest EMC to certify transmitters to FCC specifications in accordance with 47 CFR 2.960 and 2.962.

NVLAP: Northwest EMC, Inc. is accredited under the United States Department of Commerce, National Institute of Standards and Technology, and National Voluntary Laboratory Accreditation Program for satisfactory compliance with the requirements of ISO/IEC 17025 for Testing Laboratories. The NVLAP accreditation encompasses Electromagnetic Compatibility Testing in accordance with the European Union EMC Directive 2004/108/EC, and ANSI C63.4. Additionally, Northwest EMC is accredited by NVLAP to perform radio testing in accordance with the European Union R&TTE Directive 1999/5/EEC, the requirements of FCC, and the RSS radio standards for Industry Canada.

NVLAP LAB CODE 200629-0
NVLAP LAB CODE 200630-0
NVLAP LAB CODE 200676-0
NVLAP LAB CODE 200761-0

Industry Canada: Accredited by NVLAP for performance of Industry Canada RSS and ICES testing. Our Open Area Test Sites and certification chambers comply with RSS 212, Issue 1 (Provisional) and have been filed with Industry Canada and accepted. Northwest EMC has been accredited by ANSI to ISO / IEC Guide 65 as a product certifier. We have been designated by NIST and recognized by Industry Canada as a Certification Body (CB) per the APEC Mutual Recognition Arrangement (MRA). This allows Northwest EMC to certify transmitters to Industry Canada technical requirements.

CAB: Designated by NIST and validated by the European Commission as a Conformity Assessment Body (CAB) to conduct tests and approve products to the EMC directive and transmitters to the R&TTE directive, as described in the U.S. - EU Mutual Recognition Agreement.

TÜV Product Service: Included in TUV Product Service Group's Listing of Recognized Laboratories. It qualifies in connection with the TUV Certification after Recognition of Agent's Testing Program for the product categories and/or standards shown in TUV's current Listing of CARAT Laboratories, available from TUV. A certificate was issued to represent that this laboratory continues to meet TUV's CARAT Program requirements. Certificate No. USA0604C.

TÜV Rheinland: Authorized to carryout EMC tests by order and under supervision of TÜV Rheinland. This authorization is based on "Conditions for EMC-Subcontractors" of November 1992.

NEMKO: Assessed and accredited by NEMKO (Norwegian testing and certification body) for European emissions and immunity testing. As a result of NEMKO's laboratory assessment, they will accept test results from Northwest EMC, Inc. for product certification (Authorization No. ELA 119).

Australia/New Zealand: The National Association of Testing Authorities (NATA), Australia has been appointed by the ACA as an accreditation body to accredit test laboratories and competent bodies for EMC standards. Accredited test reports or assessments by competent bodies must carry the NATA logo. Test reports made by an overseas laboratory that has been accredited for the relevant standards by an overseas accreditation body that has a Mutual Recognition Agreement (MRA) with NATA are also accepted as technical grounds for product conformity. The report should be endorsed with the respective logo of the accreditation body (NVLAP).

VCCI: Accepted as an Associate Member to the VCCI, Acceptance No. 564. Conducted and radiated measurement facilities have been registered in accordance with Regulations for Voluntary Control Measures, Article 8. *(Registration Numbers. - Hillsboro: C-1071, R-1025, C-2687, T-289, and R-2318, Irvine: R-1943, C-2766, and T-298, Sultan: R-871, C-1784, and T-294).*

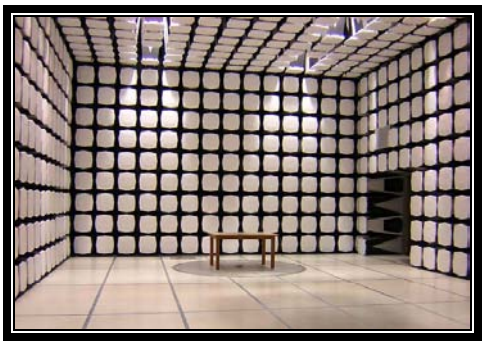
BSMI: Northwest EMC has been designated by NIST and validated by C-Taipei (BSMI) as a CAB to conduct tests as described in the APEC Mutual Recognition Agreement. License No.SL2-IN-E-1017.

GOST: Northwest EMC, Inc. has been assessed and accredited by the Russian Certification bodies Certinform VNIINMASH, CERTINFO, SAMTES, and Federal CHEC, to perform EMC and Hygienic testing for Information Technology Products. As a result of their laboratory assessment, they will accept test results from Northwest EMC, Inc. for product certification

MIC: Northwest EMC, Inc is a CAB designated by MRA partners and recognized by Korea. (*Assigned Lab Numbers: Hillsboro: US0017, Irvine: US0158, Sultan: US0157)*

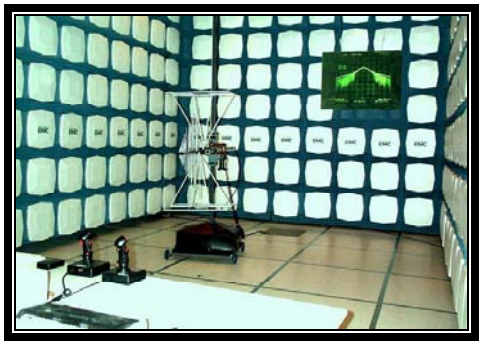
SCOPE

For details on the Scopes of our Accreditations, please visit:
http://www.nwemc.com/accreditations/



California – Orange County Facility
Labs OC01 – OC13

41 Tesla Ave. Irvine, CA 92618
(888) 364-2378 Fax: (503) 844-3826



Oregon – Evergreen Facility
Labs EV01 – EV11

22975 NW Evergreen Pkwy. Suite 400 Hillsboro, OR 97124
(503) 844-4066 Fax: (503) 844-3826

Washington – Sultan Facility
Labs SU01 – SU07

14128 339th Ave. SE Sultan, WA 98294
(888) 364-2378

Party Requesting the Test

Company Name:	Juniper Systems, Inc.
Address:	1132 West 1700 North
City, State, Zip:	Logan, UT 84321
Test Requested By:	Kent Campbell
Model:	BC04 in Archer
First Date of Test:	April 29, 2008
Last Date of Test:	May 1, 2008
Receipt Date of Samples:	April 29, 2008
Equipment Design Stage:	Prototype
Equipment Condition:	No Damage

Information Provided by the Party Requesting the Test

Functional Description of the EUT (Equipment Under Test):
The Archer is a ruggedized PDA that will contain the Socket Bluetooth module, BC04. The radio is Bluetooth 2.0+EDR.

Testing Objective:
Seeking an original limited modular approval of the BC04 in the Archer PDA.

CONFIGURATION 1 JUNI0002

Software/Firmware Running during test	
Description	**Version**
BlueTest	Unknown
SerialPassThru	Unknown

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Bluetooth module	Socket Communications	BC04	Unknown
Host PDA	Juniper Systems, Inc.	Archer	Unknown

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Laptop	Dell	PP01X	TW-04K420-12961-1AK-0706
AC Adapter 1	Phihong	PSM11R-120	P72200509A1
AC Adapter 2	Dell	ADP-70EB	TH-0K8302-17971-4B8-KZ0G

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
Serial	Yes	1.4m	No	Host PDA	USB to Serial Adapter
USB	Yes	0.2m	No	USB to Serial Adapter	Laptop
DC	No	1.4m	Yes	Host PDA	AC Adapter 1
DC	No	1.4m	Yes	Laptop	AC Adapter 2
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

CONFIGURATION 2 JUNI0002

Software/Firmware Running during test	
Description	**Version**
BlueTest	Unknown
SerialPassThru	Unknown

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Bluetooth module	Socket Communications	BC04	Unknown
Host PDA	Juniper Systems, Inc.	Archer	Unknown

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
AC Adapter 1	Phihong	PSM11R-120	P72200509A1

Remote Equipment Outside of Test Setup Boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Laptop	Dell	PP01X	TW-04K420-12961-1AK-0706
AC Adapter 2	Dell	ADP-70EB	TH-0K8302-17971-4B8-KZ0G

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
Serial	Yes	1.4m	No	Host PDA	USB to Serial Adapter
DC	No	1.4m	Yes	Host PDA	AC Adapter 1
DC	No	1.4m	Yes	Laptop	AC Adapter 2
USB	Yes	1.0m	Yes	Host PDA	Unterminated
USB	Yes	3.0m	No	USB to Serial Adapter	Laptop
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

CONFIGURATION 4 JUNI0002

Software/Firmware Running during test	
Description	**Version**
BlueTest	Unknown
SerialPassThru	Unknown
Northwest EMC Test Software	1.1
Active Sync	4.5

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Bluetooth module	Socket Communications	BC04	Unknown
Host PDA	Juniper Systems, Inc.	Archer	Unknown

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
AC Adapter 1	Phihong	PSM11R-120	P72200509A1
Desktop PC	Gateway	E-series	Unknown
Monitor	Gateway	EV500A	15017G101238
Mouse	Logitech, Inc.	M-S69	HCA22709026
Keyboard	Gateway	E06150US021-C	Q0125B1747
Parallel Printer	Hewlett Packard	C2642E	TH92N1R4JR
AC Adapter 3	Hewlett Packard	C2175A	9100-5124

Remote Equipment Outside of Test Setup Boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Laptop	Dell	PP01X	TW-04K420-12961-1AK-0706
AC Adapter 2	Dell	ADP-70EB	TH-0K8302-17971-4B8-KZ0G

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
Serial	Yes	1.4m	No	Host PDA	USB to Serial Adapter
DC	No	1.4m	Yes	Host PDA	AC Adapter 1
DC	No	1.4m	Yes	Laptop	AC Adapter 2
USB	Yes	1.0m	Yes	Host PDA	Desktop PC
Video	Yes	1.2m	Yes	Monitor	Desktop PC
Mouse	No	1.4m	No	Mouse	Desktop PC
Keybaord	No	1.4m	No	Keyboard	Desktop PC
Parallel	Yes	1.2m	No	Printer	Desktop PC
DC	No	1.2m	No	Printer	AC Adapter 3
AC	No	0.8m	No	AC Adapter 3	AC Mains
AC	No	1.8m	No	Desktop PC	AC Mains
AC	No	1.8m	No	Monitor	AC Mains
USB	Yes	0.2m	No	USB to serial adapter	Desktop PC
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

Equipment modifications					
Item	Date	Test	Modification	Note	Disposition of EUT
1	4/29/2008	Band Edge Compliance	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
2	4/29/2008	Occupied Bandwidth	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
3	4/29/2008	Output Power	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
4	4/29/2008	Power Spectral Density	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
5	4/29/2008	Spurious Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
6	4/30/2008	Spurious Radiated Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
7	5/1/2008	AC Powerline Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

Spurious Radiated Emissions

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

MODES OF OPERATION
GFSK, DH5
pi/4-DQPSK, 2DH5
8DPSK, 3DH5

MODES OF OPERATION
Low channel, 2402MHz
Mid channel, 2441MHz
High channel, 2480MHz

POWER SETTINGS INVESTIGATED
120VAC/60Hz

FREQUENCY RANGE INVESTIGATED			
Start Frequency	30 MHz	Stop Frequency	26 GHz

SAMPLE CALCULATIONS
Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

TEST EQUIPMENT					
Description	Manufacturer	Model	ID	Last Cal.	Interval
High Pass Filter	Micro-Tronics	HPM50111	HFO	1/16/2008	13
EV01 Cables		Bilog Cables	EVA	10/23/2007	13
Pre-Amplifier	Miteq	AM-1616-1000	AOL	5/19/2008	13
Antenna, Biconilog	EMCO	3141	AXE	1/15/2008	24
EV01 Cables		Double Ridge Horn Cables	EVB	1/3/2008	13
Pre-Amplifier	Miteq	AMF-4D-010100-24-10P	APW	1/3/2008	13
Antenna, Horn	EMCO	3115	AHC	8/24/2006	24
EV01 Cables		Standard Gain Horns Cables	EVF	10/23/2007	13
Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVD	6/22/2007	13
Antenna, Horn	ETS	3160-08	AHV	NCR	0
EV01 Cables		18-26GHz Standard Gain Horn Cable	EVD	7/25/2007	13
Pre-Amplifier	Miteq	JSD4-18002600-26-8P	APU	7/25/2007	13
Antenna, Horn	EMCO	3160-09	AHG	NCR	0
Spectrum Analyzer	Agilent	E4446A	AAT	12/7/2007	13

MEASUREMENT BANDWIDTHS				
	Frequency Range	**Peak Data**	**Quasi-Peak Data**	**Average Data**
	(MHz)	**(kHz)**	**(kHz)**	**(kHz)**
	0.01 - 0.15	1.0	0.2	0.2
	0.15 - 30.0	10.0	9.0	9.0
	30.0 - 1000	100.0	120.0	120.0
	Above 1000	1000.0	N/A	1000.0
Measurements were made using the bandwidths and detectors specified. No video filter was used.				

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

The highest gain of each type of antenna to be used with the EUT was tested. The EUT was configured for low, mid, and high band transmit frequencies. For each configuration, the spectrum was scanned throughout the specified range. In addition, measurements were made in the restricted bands to verify compliance. While scanning, emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and the EUT antenna in three orthogonal axis, and adjusting measurement antenna height and polarization, and manipulating the EUT antenna in 3 orthogonal planes (per ANSI C63.4:2003). A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

NORTHWEST
EMC

Duty Cycle

PSA 2007.05.07
EMI 2006.11.29

EUT:	BC04 in Archer			**Work Order:**	JUNI0002
Serial Number:	Unknown			**Date:**	04/30/08
Customer:	Juniper Systems, Inc.			**Temperature:**	22°C
Attendees:	None			**Humidity:**	28%
Project:	None			**Barometric Pres.:**	1021.3mb
Tested by:	Holly Ashkannejhad	**Power:**	120VAC/60Hz	**Job Site:**	EV01

TEST SPECIFICATIONS	Test Method
FCC 15.247 (DTS):2007	ANSI C63.4:2003, KDB No. 558074

TEST PARAMETERS			
Antenna Height(s) (m)	1 - 4	Test Distance (m)	3

COMMENTS

Duty cycle = on time/ 100 msec = (2.8333)/100 = 0.02833. Duty cycle correction factor = 20*log(duty cycle) = 20*log(0.765) = -30.96 dB

EUT OPERATING MODES

Bluetooth, GFSK, DH5, hopping over 2400-2483.5MHz

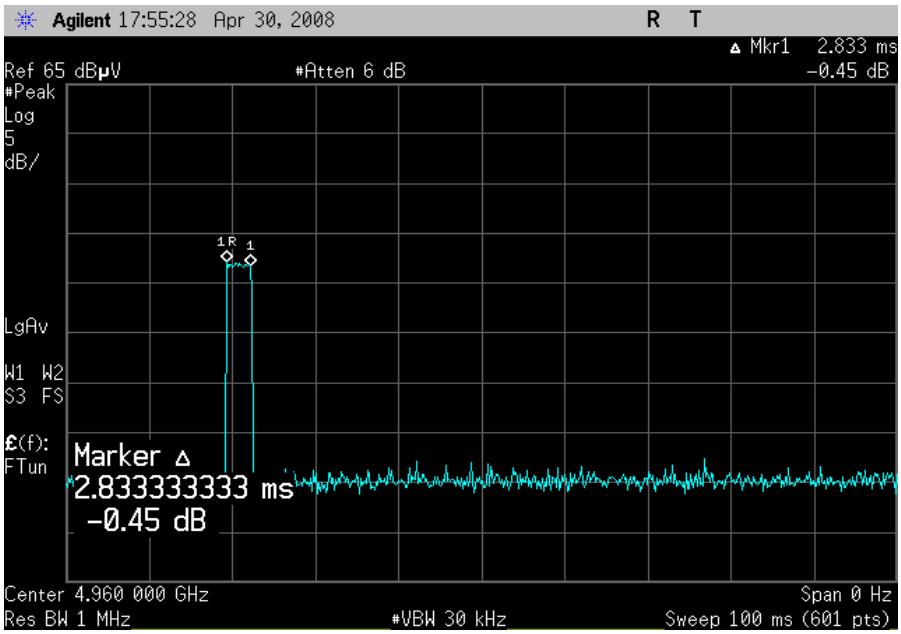
DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	5
Configuration #	2
Results	Evaluation

Signature Holly Ashkannejhad

GFSK, DH5



NORTHWEST EMC

Spurious Radiated Emissions

PSA 2007.05.07
EMI 2006.11.29

EUT:	BC04 in Archer	Work Order:	JUNI0002
Serial Number:	Unknown	Date:	04/30/08
Customer:	Juniper Systems, Inc.	Temperature:	22°C
Attendees:	None	Humidity:	28%
Project:	None	Barometric Pres.:	1021.3mb
Tested by:	Holly Ashkannejhad	Power: 120VAC/60Hz	Job Site: EV01

TEST SPECIFICATIONS	Test Method
FCC 15.247 (DTS):2007	ANSI C63.4:2003, KDB No. 558074

TEST PARAMETERS			
Antenna Height(s) (m)	1 - 4	Test Distance (m)	3

COMMENTS

None

EUT OPERATING MODES

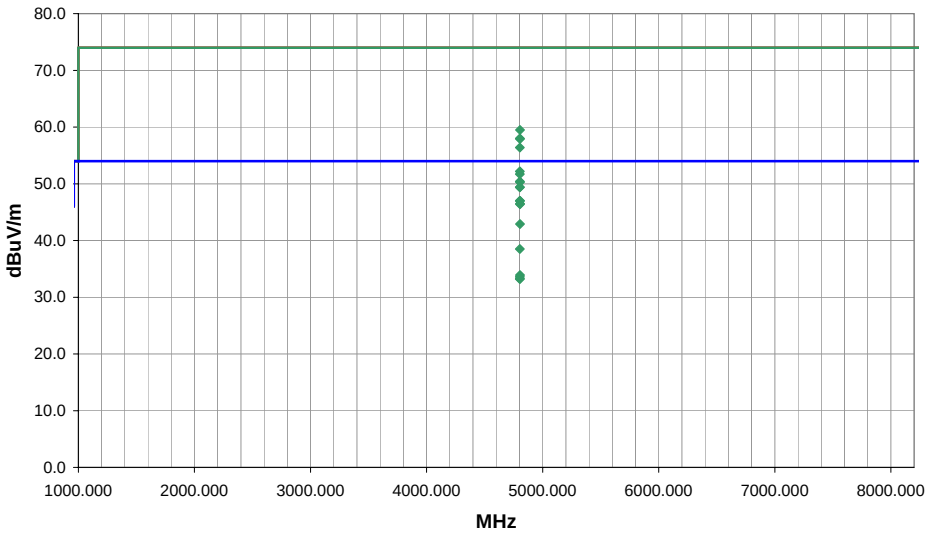
Transmitting Bluetooth, low channel, 2402MHz

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	1
Configuration #	2
Results	Pass

Signature Holly Ashkannejhad



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments
4803.988	42.1	10.1	32.0	1.0	3.0	0.0	V-Horn	AV	0.0	52.2	54.0	-1.8	GFSK, DH5, EUT horizontal
4804.010	40.3	10.1	356.0	1.1	3.0	0.0	V-Horn	AV	0.0	50.4	54.0	-3.6	GFSK, DH5, EUT vertical
4804.053	40.2	10.1	20.0	1.1	3.0	0.0	V-Horn	AV	0.0	50.3	54.0	-3.7	GFSK, DH5, EUT on side
4803.923	39.3	10.1	308.0	1.4	3.0	0.0	H-Horn	AV	0.0	49.4	54.0	-4.6	GFSK, DH5, EUT vertical
4804.042	32.8	10.1	281.0	1.4	3.0	0.0	H-Horn	AV	0.0	42.9	54.0	-11.1	GFSK, DH5, EUT horizontal
4804.090	49.4	10.1	32.0	1.0	3.0	0.0	V-Horn	PK	0.0	59.5	74.0	-14.5	GFSK, DH5, EUT horizontal
4804.012	28.4	10.1	351.0	1.4	3.0	0.0	H-Horn	AV	0.0	38.5	54.0	-15.5	GFSK, DH5, EUT on side
4803.803	47.9	10.1	20.0	1.1	3.0	0.0	V-Horn	PK	0.0	58.0	74.0	-16.0	GFSK, DH5, EUT on side
4804.048	47.8	10.1	356.0	1.1	3.0	0.0	V-Horn	PK	0.0	57.9	74.0	-16.1	GFSK, DH5, EUT vertical
4803.778	46.3	10.1	308.0	1.4	3.0	0.0	H-Horn	PK	0.0	56.4	74.0	-17.6	GFSK, DH5, EUT vertical
4804.220	23.8	10.1	39.0	1.0	3.0	0.0	V-Horn	AV	0.0	33.9	54.0	-20.1	pi/4-DQPSK, 2DH5, EUT horizontal
4803.818	23.5	10.1	29.0	1.0	3.0	0.0	V-Horn	AV	0.0	33.6	54.0	-20.4	8DPSK, 3DH5, EUT horizontal
4803.830	23.2	10.1	48.0	1.3	3.0	0.0	H-Horn	AV	0.0	33.3	54.0	-20.7	pi/4-DQPSK, 2DH5, EUT vertical
4803.750	23.1	10.1	334.0	1.3	3.0	0.0	H-Horn	AV	0.0	33.2	54.0	-20.8	8DPSK, 3DH5, EUT vertical
4803.760	41.6	10.1	281.0	1.4	3.0	0.0	H-Horn	PK	0.0	51.7	74.0	-22.3	GFSK, DH5, EUT horizontal
4803.500	39.3	10.1	351.0	1.4	3.0	0.0	H-Horn	PK	0.0	49.4	74.0	-24.6	GFSK, DH5, EUT on side
4803.343	36.9	10.1	39.0	1.0	3.0	0.0	V-Horn	PK	0.0	47.0	74.0	-27.0	pi/4-DQPSK, 2DH5, EUT horizontal
4804.182	36.9	10.1	29.0	1.0	3.0	0.0	V-Horn	PK	0.0	47.0	74.0	-27.0	8DPSK, 3DH5, EUT horizontal
4804.415	36.4	10.1	334.0	1.3	3.0	0.0	H-Horn	PK	0.0	46.5	74.0	-27.5	8DPSK, 3DH5, EUT vertical
4804.212	36.3	10.1	48.0	1.3	3.0	0.0	H-Horn	PK	0.0	46.4	74.0	-27.6	pi/4-DQPSK, 2DH5, EUT vertical

NORTHWEST EMC

Spurious Radiated Emissions

PSA 2007.05.07
EMI 2006.11.29

EUT:	BC04 in Archer	Work Order:	JUNI0002
Serial Number:	Unknown	Date:	04/30/08
Customer:	Juniper Systems, Inc.	Temperature:	22°C
Attendees:	None	Humidity:	28%
Project:	None	Barometric Pres.:	1021.3mb
Tested by:	Holly Ashkannejhad	Power: 120VAC/60Hz	Job Site: EV01

TEST SPECIFICATIONS	Test Method
FCC 15.247 (DTS):2007	ANSI C63.4:2003, KDB No. 558074

TEST PARAMETERS

Antenna Height(s) (m)	1 - 4	Test Distance (m)	3

COMMENTS

None

EUT OPERATING MODES

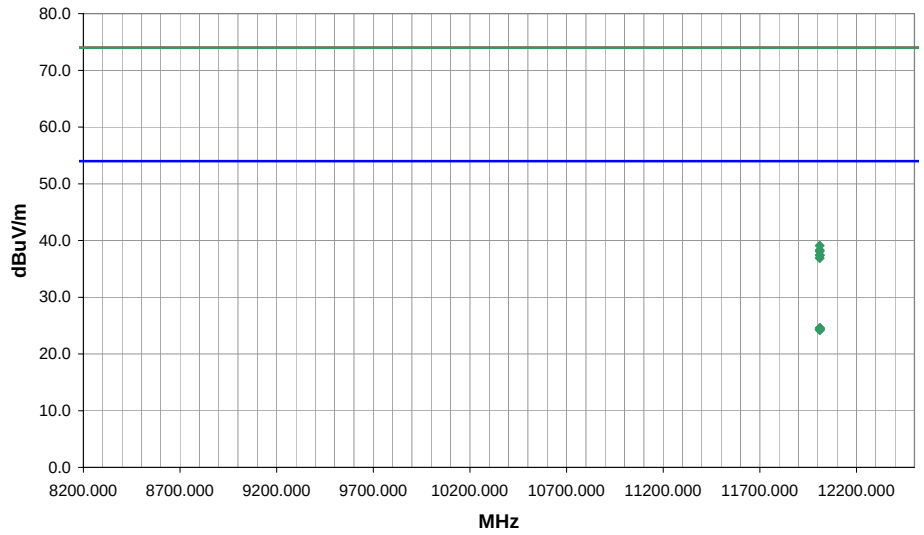
Transmitting Bluetooth, low channel, 2402MHz

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	2
Configuration #	2
Results	Pass

Signature Holly Ashkannejhad



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments
12010.820	30.7	-6.1	313.0	1.0	3.0	0.0	V-Horn	AV	0.0	24.6	54.0	-29.4	8DPSK, 3DH5, EUT horizontal
12010.080	30.6	-6.1	31.0	1.0	3.0	0.0	H-Horn	AV	0.0	24.5	54.0	-29.5	pi/4-DQPSK, 2DH5, EUT vertical
12010.800	30.6	-6.1	104.0	1.0	3.0	0.0	H-Horn	AV	0.0	24.5	54.0	-29.5	8DPSK, 3DH5, EUT vertical
12009.970	30.4	-6.1	187.0	1.0	3.0	0.0	V-Horn	AV	0.0	24.3	54.0	-29.7	pi/4-DQPSK, 2DH5, EUT horizontal
12010.090	30.4	-6.1	174.0	1.0	3.0	0.0	V-Horn	AV	0.0	24.3	54.0	-29.7	GFSK, DH5, EUT horizontal
12010.800	30.3	-6.1	70.0	1.0	3.0	0.0	H-Horn	AV	0.0	24.2	54.0	-29.8	GFSK, DH5, EUT vertical
12009.520	45.2	-6.1	313.0	1.0	3.0	0.0	V-Horn	PK	0.0	39.1	74.0	-34.9	8DPSK, 3DH5, EUT horizontal
12009.530	44.4	-6.1	174.0	1.0	3.0	0.0	V-Horn	PK	0.0	38.3	74.0	-35.7	GFSK, DH5, EUT horizontal
12009.680	44.2	-6.1	104.0	1.0	3.0	0.0	H-Horn	PK	0.0	38.1	74.0	-35.9	8DPSK, 3DH5, EUT vertical
12010.170	43.5	-6.1	31.0	1.0	3.0	0.0	H-Horn	PK	0.0	37.4	74.0	-36.6	pi/4-DQPSK, 2DH5, EUT vertical
12010.380	43.5	-6.1	187.0	1.0	3.0	0.0	V-Horn	PK	0.0	37.4	74.0	-36.6	pi/4-DQPSK, 2DH5, EUT horizontal
12010.100	43.0	-6.1	70.0	1.0	3.0	0.0	H-Horn	PK	0.0	36.9	74.0	-37.1	GFSK, DH5, EUT vertical

NORTHWEST EMC

Spurious Radiated Emissions

PSA 2007.05.07
EMI 2006.11.29

EUT:	BC04 in Archer	Work Order:	JUNI0002
Serial Number:	Unknown	Date:	04/30/08
Customer:	Juniper Systems, Inc.	Temperature:	22°C
Attendees:	None	Humidity:	28%
Project:	None	Barometric Pres.:	1021.3mb
Tested by:	Holly Ashkannejhad	Power: 120VAC/60Hz	Job Site: EV01

TEST SPECIFICATIONS	Test Method
FCC 15.247 (DTS):2007	ANSI C63.4:2003, KDB No. 558074

TEST PARAMETERS			
Antenna Height(s) (m)	1 - 4	Test Distance (m)	3

COMMENTS

None

EUT OPERATING MODES

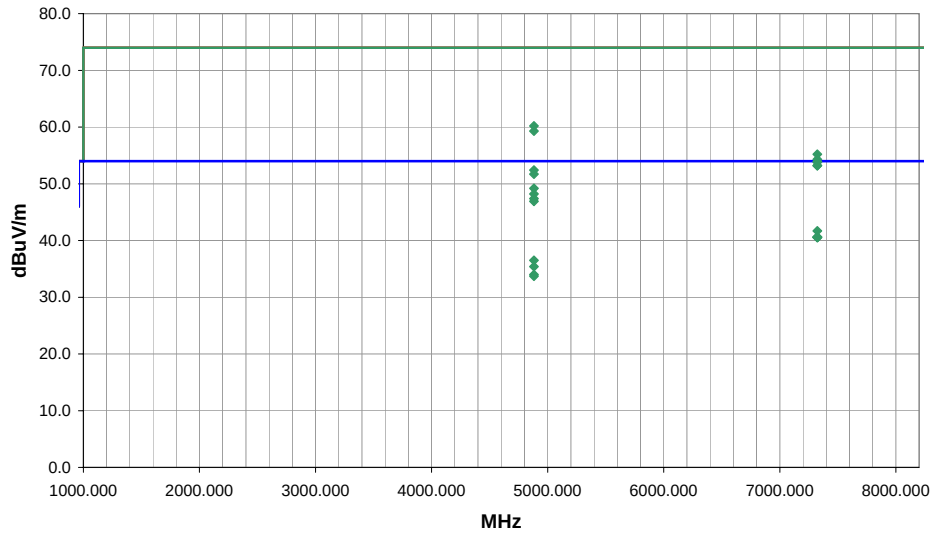
Transmitting Bluetooth, mid channel, 2441MHz

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	3
Configuration #	2
Results	Pass

Signature Holly Ashkannejhad



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments
4881.910	41.9	10.5	30.0	1.0	3.0	0.0	V-Horn	AV	0.0	52.4	54.0	-1.6	GFSK, DH5, EUT horizontal
4881.955	41.2	10.5	150.0	1.0	3.0	0.0	H-Horn	AV	0.0	51.7	54.0	-2.3	GFSK, DH5, EUT vertical
7323.020	24.6	17.1	194.0	1.0	3.0	0.0	V-Horn	AV	0.0	41.7	54.0	-12.3	GFSK, DH5, EUT horizontal
7322.802	23.5	17.1	219.0	1.0	3.0	0.0	V-Horn	AV	0.0	40.6	54.0	-13.4	pi/4-DQPSK, 2DH5, EUT horizontal
7322.803	23.5	17.1	339.0	3.3	3.0	0.0	H-Horn	AV	0.0	40.6	54.0	-13.4	pi/4-DQPSK, 2DH5, EUT vertical
7323.042	23.5	17.1	272.0	3.4	3.0	0.0	H-Horn	AV	0.0	40.6	54.0	-13.4	GFSK, DH5, EUT vertical
7323.245	23.5	17.1	170.0	1.1	3.0	0.0	V-Horn	AV	0.0	40.6	54.0	-13.4	8DPSK, 3DH5, EUT horizontal
7323.328	23.4	17.1	223.0	3.3	3.0	0.0	H-Horn	AV	0.0	40.5	54.0	-13.5	8DPSK, 3DH5, EUT vertical
4881.848	49.7	10.5	30.0	1.0	3.0	0.0	V-Horn	PK	0.0	60.2	74.0	-13.8	GFSK, DH5, EUT horizontal
4882.165	48.8	10.5	150.0	1.0	3.0	0.0	H-Horn	PK	0.0	59.3	74.0	-14.7	GFSK, DH5, EUT vertical
4882.075	26.0	10.5	20.0	1.0	3.0	0.0	V-Horn	AV	0.0	36.5	54.0	-17.5	8DPSK, 3DH5, EUT horizontal
4882.023	24.9	10.5	12.0	1.0	3.0	0.0	V-Horn	AV	0.0	35.4	54.0	-18.6	pi/4-DQPSK, 2DH5, EUT horizontal
7323.473	38.1	17.1	194.0	1.0	3.0	0.0	V-Horn	PK	0.0	55.2	74.0	-18.8	GFSK, DH5, EUT horizontal
7322.843	37.2	17.1	272.0	3.4	3.0	0.0	H-Horn	PK	0.0	54.3	74.0	-19.7	GFSK, DH5, EUT vertical
4882.100	23.5	10.5	355.0	1.0	3.0	0.0	H-Horn	AV	0.0	34.0	54.0	-20.0	8DPSK, 3DH5, EUT vertical
7323.145	36.8	17.1	219.0	1.0	3.0	0.0	V-Horn	PK	0.0	53.9	74.0	-20.1	pi/4-DQPSK, 2DH5, EUT horizontal
7322.775	36.7	17.1	223.0	3.3	3.0	0.0	H-Horn	PK	0.0	53.8	74.0	-20.2	8DPSK, 3DH5, EUT vertical
4881.833	23.2	10.5	316.0	1.0	3.0	0.0	H-Horn	AV	0.0	33.7	54.0	-20.3	pi/4-DQPSK, 2DH5, EUT vertical
7323.433	36.1	17.1	339.0	3.3	3.0	0.0	H-Horn	PK	0.0	53.2	74.0	-20.8	pi/4-DQPSK, 2DH5, EUT vertical
7323.463	36.1	17.1	170.0	1.1	3.0	0.0	V-Horn	PK	0.0	53.2	74.0	-20.8	8DPSK, 3DH5, EUT horizontal

NORTHWEST EMC

Spurious Radiated Emissions

PSA 2007.05.07
EMI 2006.11.29

EUT:	BC04 in Archer	Work Order:	JUNI0002
Serial Number:	Unknown	Date:	04/30/08
Customer:	Juniper Systems, Inc.	Temperature:	22°C
Attendees:	None	Humidity:	28%
Project:	None	Barometric Pres.:	1021.3mb
Tested by:	Holly Ashkannejhad	Power: 120VAC/60Hz	Job Site: EV01

TEST SPECIFICATIONS	Test Method
FCC 15.247 (DTS):2007	ANSI C63.4:2003, KDB No. 558074

TEST PARAMETERS			
Antenna Height(s) (m)	1 - 4	Test Distance (m)	3

COMMENTS

None

EUT OPERATING MODES

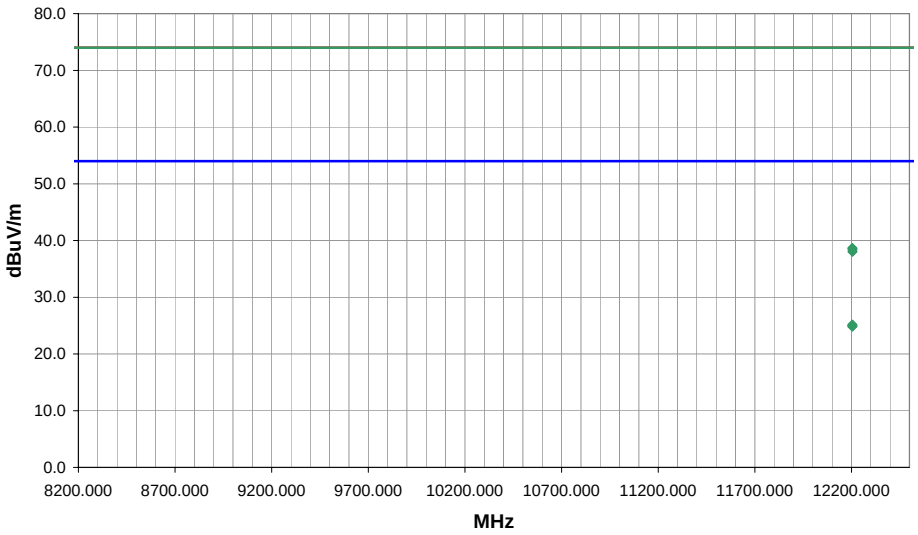
Transmitting Bluetooth, mid channel, 2441MHz

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	4
Configuration #	2
Results	Pass

Signature Holly Ashkannejhad



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments
12204.240	29.9	-4.7	140.0	1.0	3.0	0.0	H-Horn	AV	0.0	25.2	54.0	-28.8	GFSK, DH5, EUT vertical
12205.250	29.8	-4.7	126.0	1.0	3.0	0.0	H-Horn	AV	0.0	25.1	54.0	-28.9	8DPSK, 3DH5, EUT horizontal
12204.380	29.7	-4.7	352.0	1.0	3.0	0.0	V-Horn	AV	0.0	25.0	54.0	-29.0	8DPSK, 3DH5, EUT horizontal
12205.030	29.6	-4.7	170.0	1.0	3.0	0.0	V-Horn	AV	0.0	24.9	54.0	-29.1	GFSK, DH5, EUT horizontal
12205.050	29.6	-4.7	340.0	1.0	3.0	0.0	H-Horn	AV	0.0	24.9	54.0	-29.1	pi/4-DQPSK, 2DH5, EUT vertical
12204.700	29.5	-4.7	23.0	1.0	3.0	0.0	V-Horn	AV	0.0	24.8	54.0	-29.2	pi/4-DQPSK, 2DH5, EUT horizontal
12204.670	43.4	-4.7	140.0	1.0	3.0	0.0	H-Horn	PK	0.0	38.7	74.0	-35.3	GFSK, DH5, EUT vertical
12205.050	43.3	-4.7	340.0	1.0	3.0	0.0	H-Horn	PK	0.0	38.6	74.0	-35.4	pi/4-DQPSK, 2DH5, EUT vertical
12204.930	43.2	-4.7	170.0	1.0	3.0	0.0	V-Horn	PK	0.0	38.5	74.0	-35.5	GFSK, DH5, EUT horizontal
12204.990	43.1	-4.7	23.0	1.0	3.0	0.0	V-Horn	PK	0.0	38.4	74.0	-35.6	pi/4-DQPSK, 2DH5, EUT horizontal
12204.930	42.8	-4.7	126.0	1.0	3.0	0.0	H-Horn	PK	0.0	38.1	74.0	-35.9	8DPSK, 3DH5, EUT horizontal
12205.280	42.7	-4.7	352.0	1.0	3.0	0.0	V-Horn	PK	0.0	38.0	74.0	-36.0	8DPSK, 3DH5, EUT horizontal

NORTHWEST EMC

Spurious Radiated Emissions

PSA 2007.05.07
EMI 2006.11.29

EUT:	BC04 in Archer	Work Order:	JUNI0002
Serial Number:	Unknown	Date:	04/30/08
Customer:	Juniper Systems, Inc.	Temperature:	22°C
Attendees:	None	Humidity:	28%
Project:	None	Barometric Pres.:	1021.3mb
Tested by:	Holly Ashkannejhad	Power: 120VAC/60Hz	Job Site: EV01

TEST SPECIFICATIONS	Test Method
FCC 15.247 (DTS):2007	ANSI C63.4:2003, KDB No. 558074

TEST PARAMETERS			
Antenna Height(s) (m)	1 - 4	Test Distance (m)	3

COMMENTS

Duty cycle correction factor included.

EUT OPERATING MODES

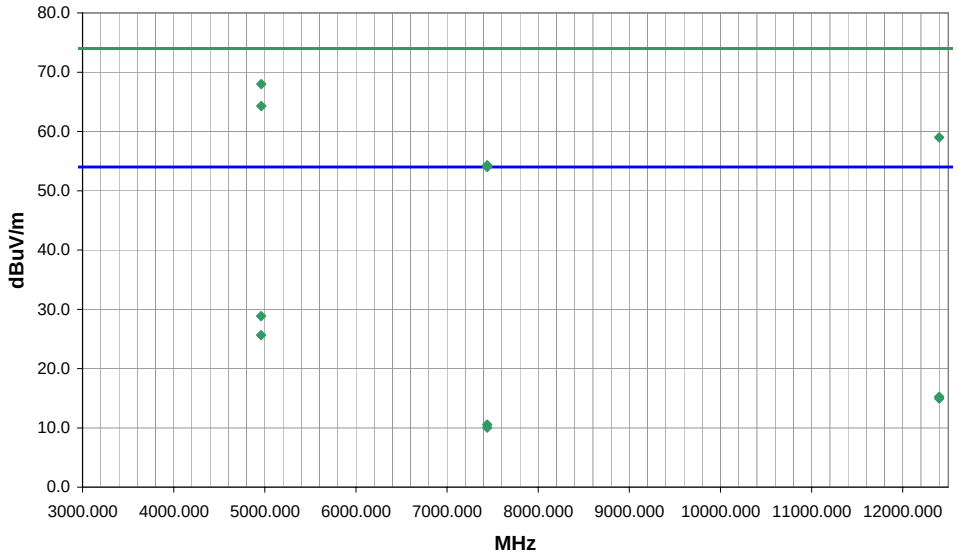
Transmitting Bluetooth, high channel, 2480MHz

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	5
Configuration #	2
Results	Pass

Signature Holly Ashkannejhad



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Duty Cycle Correction Factor	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments
4960.243	57.0	11.0	30.0	1.0	0.0	0.0	V-Horn	PK	0.0	68.0	74.0	-6.0	GFSK, DH5, EUT horizontal
4960.447	53.3	11.0	150.0	1.0	0.0	0.0	H-Horn	PK	0.0	64.3	74.0	-9.7	GFSK, DH5, EUT vertical
12399.570	37.3	21.7	143.0	1.3	0.0	0.0	V-Horn	PK	0.0	59.0	74.0	-15.0	GFSK, DH5, EUT horizontal
12622.000	36.8	21.7	318.0	2.7	0.0	0.0	H-Horn	PK	0.0	58.5	74.0	-15.5	GFSK, DH5, EUT vertical
7439.520	36.6	17.7	359.0	1.8	0.0	0.0	V-Horn	PK	0.0	54.3	74.0	-19.7	GFSK, DH5, EUT horizontal
7439.977	36.3	17.7	96.0	1.0	0.0	0.0	H-Horn	PK	0.0	54.0	74.0	-20.0	GFSK, DH5, EUT vertical
4959.927	48.8	11.0	30.0	1.0	31.0	0.0	V-Horn	AV	0.0	28.8	54.0	-25.2	GFSK, DH5, EUT horizontal
4959.965	45.6	11.0	150.0	1.0	31.0	0.0	H-Horn	AV	0.0	25.6	54.0	-28.4	GFSK, DH5, EUT vertical
12399.830	23.7	22.5	318.0	2.7	31.0	0.0	H-Horn	AV	0.0	15.2	54.0	-38.8	GFSK, DH5, EUT vertical
12399.400	24.2	21.7	143.0	1.3	31.0	0.0	V-Horn	AV	0.0	14.9	54.0	-39.1	GFSK, DH5, EUT horizontal
7439.948	23.8	17.7	359.0	1.8	31.0	0.0	V-Horn	AV	0.0	10.5	54.0	-43.5	GFSK, DH5, EUT horizontal
7440.227	23.3	17.7	96.0	1.0	31.0	0.0	H-Horn	AV	0.0	10.0	54.0	-44.0	GFSK, DH5, EUT vertical

NORTHWEST EMC

Spurious Radiated Emissions

PSA 2007.05.07
EMI 2006.11.29

EUT:	BC04 in Archer	Work Order:	JUNI0002
Serial Number:	Unknown	Date:	04/30/08
Customer:	Juniper Systems, Inc.	Temperature:	22
Attendees:	None	Humidity:	27%
Project:	None	Barometric Pres.:	1021.3
Tested by:	Holly Ashkannejhad	Power: 120VAC/60Hz	Job Site: EV01

TEST SPECIFICATIONS	Test Method
FCC 15.247 (DTS):2007	ANSI C63.4:2003, KDB No. 558074

TEST PARAMETERS			
Antenna Height(s) (m)	1 - 4	Test Distance (m)	3

COMMENTS

None

EUT OPERATING MODES

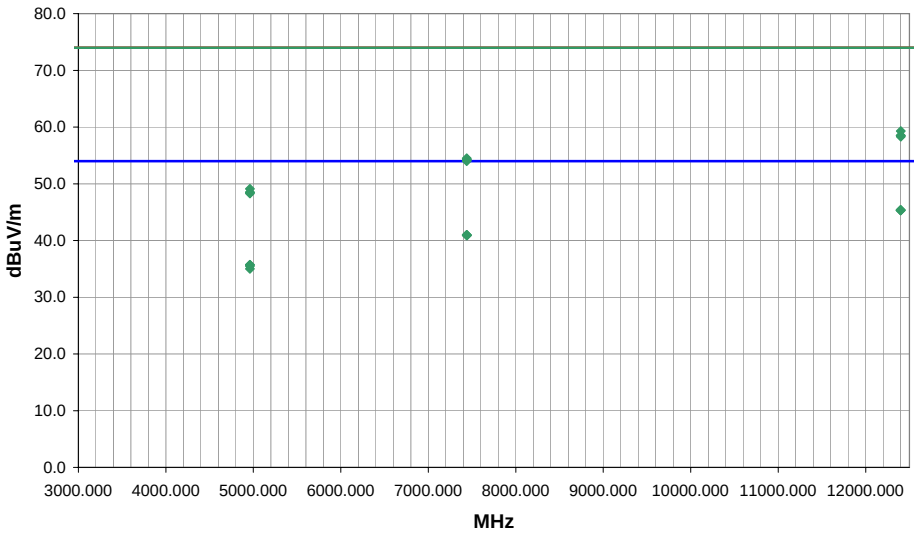
Transmitting Bluetooth, high channel, 2480MHz

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	6
Configuration #	2
Results	Pass

Signature Holly Ashkannejhad



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments
12399.470	23.7	21.7	230.0	1.9	3.0	0.0	V-Horn	AV	0.0	45.4	54.0	-8.6	pi/4-DQPSK, 2DH5, EUT horizontal
12400.030	23.7	21.7	302.0	1.9	3.0	0.0	V-Horn	AV	0.0	45.4	54.0	-8.6	8DPSK, 3DH5, EUT horizontal
12399.750	23.6	21.7	62.0	1.0	3.0	0.0	H-Horn	AV	0.0	45.3	54.0	-8.7	pi/4-DQPSK, 2DH5, EUT vertical
12399.870	23.6	21.7	292.0	1.0	3.0	0.0	H-Horn	AV	0.0	45.3	54.0	-8.7	8DPSK, 3DH5, EUT vertical
7439.314	23.3	17.7	18.0	1.9	3.0	0.0	H-Horn	AV	0.0	41.0	54.0	-13.0	8DPSK, 3DH5, EUT vertical
7439.832	23.3	17.7	93.0	1.0	3.0	0.0	V-Horn	AV	0.0	41.0	54.0	-13.0	pi/4-DQPSK, 2DH5, EUT horizontal
7440.174	23.2	17.7	263.0	1.0	3.0	0.0	H-Horn	AV	0.0	40.9	54.0	-13.1	pi/4-DQPSK, 2DH5, EUT vertical
7440.393	23.2	17.7	251.0	1.0	3.0	0.0	V-Horn	AV	0.0	40.9	54.0	-13.1	8DPSK, 3DH5, EUT horizontal
12400.470	37.6	21.7	230.0	1.9	3.0	0.0	V-Horn	PK	0.0	59.3	74.0	-14.7	pi/4-DQPSK, 2DH5, EUT horizontal
12399.680	36.8	21.7	302.0	1.9	3.0	0.0	V-Horn	PK	0.0	58.5	74.0	-15.5	8DPSK, 3DH5, EUT horizontal
12400.370	36.8	21.7	292.0	1.0	3.0	0.0	H-Horn	PK	0.0	58.5	74.0	-15.5	8DPSK, 3DH5, EUT vertical
12400.330	36.6	21.7	62.0	1.0	3.0	0.0	H-Horn	PK	0.0	58.3	74.0	-15.7	pi/4-DQPSK, 2DH5, EUT vertical
4959.937	24.7	11.0	11.0	1.0	3.0	0.0	V-Horn	AV	0.0	35.7	54.0	-18.3	pi/4-DQPSK, 2DH5, EUT horizontal
4959.986	24.7	11.0	34.0	1.0	3.0	0.0	V-Horn	AV	0.0	35.7	54.0	-18.3	8DPSK, 3DH5, EUT horizontal
4959.925	24.5	11.0	152.0	1.0	3.0	0.0	H-Horn	AV	0.0	35.5	54.0	-18.5	
4960.088	24.0	11.0	144.0	1.0	3.0	0.0	H-Horn	AV	0.0	35.0	54.0	-19.0	pi/4-DQPSK, 2DH5, EUT vertical
7439.578	36.8	17.7	93.0	1.0	3.0	0.0	V-Horn	PK	0.0	54.5	74.0	-19.5	pi/4-DQPSK, 2DH5, EUT horizontal
7440.293	36.6	17.7	263.0	1.0	3.0	0.0	H-Horn	PK	0.0	54.3	74.0	-19.7	pi/4-DQPSK, 2DH5, EUT vertical
7440.097	36.5	17.7	18.0	1.9	3.0	0.0	H-Horn	PK	0.0	54.2	74.0	-19.8	8DPSK, 3DH5, EUT vertical
7439.500	36.3	17.7	251.0	1.0	3.0	0.0	V-Horn	PK	0.0	54.0	74.0	-20.0	8DPSK, 3DH5, EUT horizontal

NORTHWEST EMC

Spurious Radiated Emissions

PSA 2007.05.07
EMI 2006.11.29

EUT:	BC04 in Archer	Work Order:	JUNI0002
Serial Number:	Unknown	Date:	04/30/08
Customer:	Juniper Systems, Inc.	Temperature:	22°C
Attendees:	None	Humidity:	28%
Project:	None	Barometric Pres.:	1021.3mb
Tested by:	Holly Ashkannejhad	Power: 120VAC/60Hz	Job Site: EV01

TEST SPECIFICATIONS	Test Method
FCC 15.247 (DTS):2007	ANSI C63.4:2003, KDB No. 558074

TEST PARAMETERS			
Antenna Height(s) (m)	1 - 4	Test Distance (m)	3

COMMENTS

None

EUT OPERATING MODES

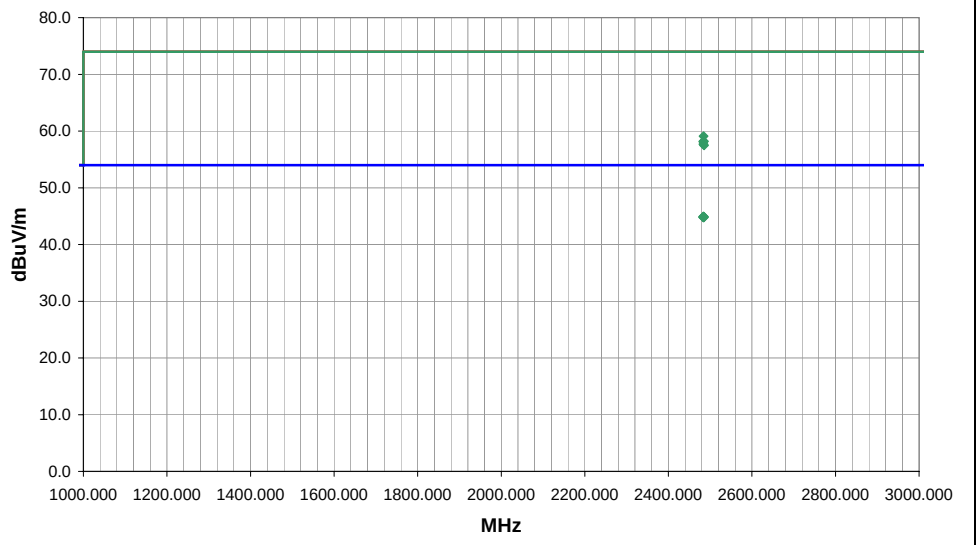
Transmitting Bluetooth, high channel, 2480MHz

DEVIATIONS FROM TEST STANDARD

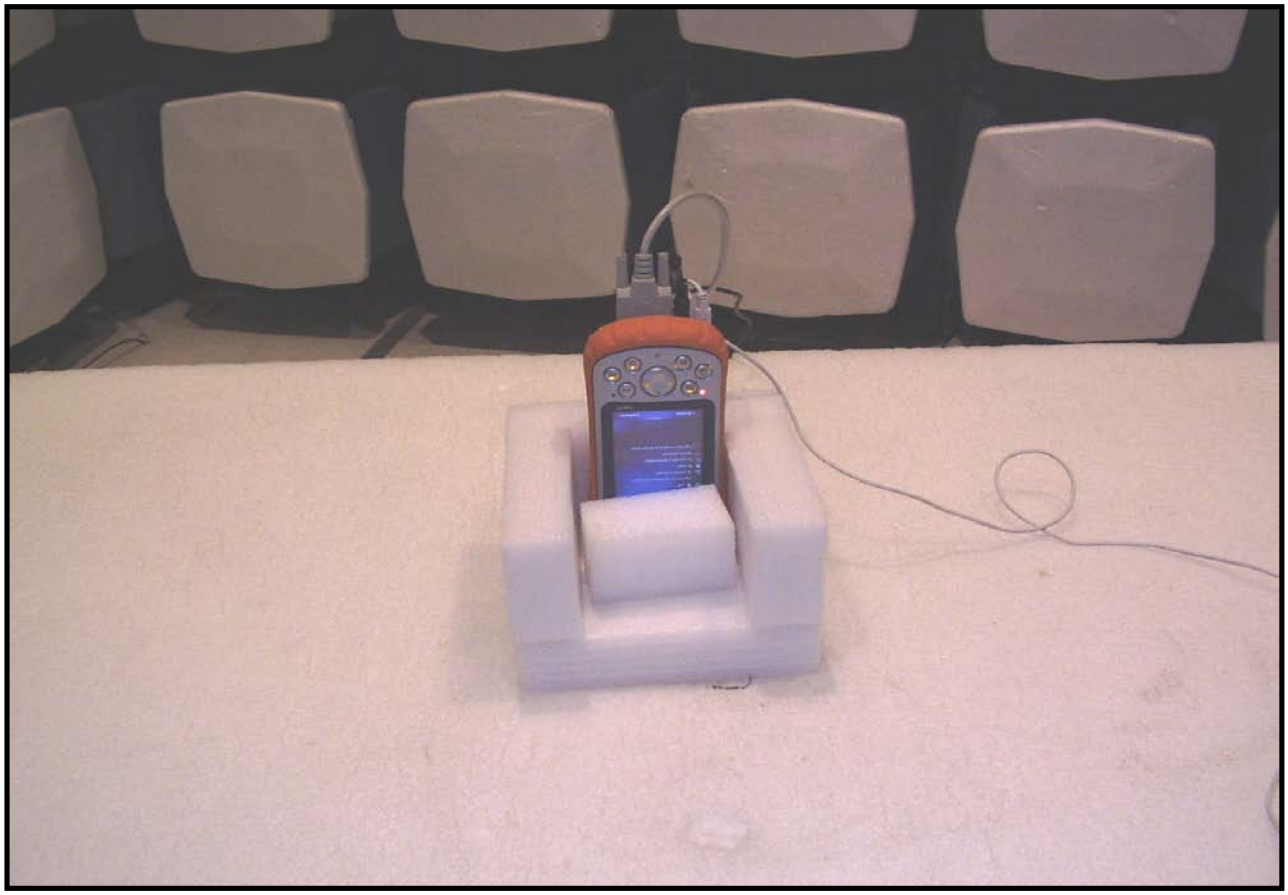
No deviations.

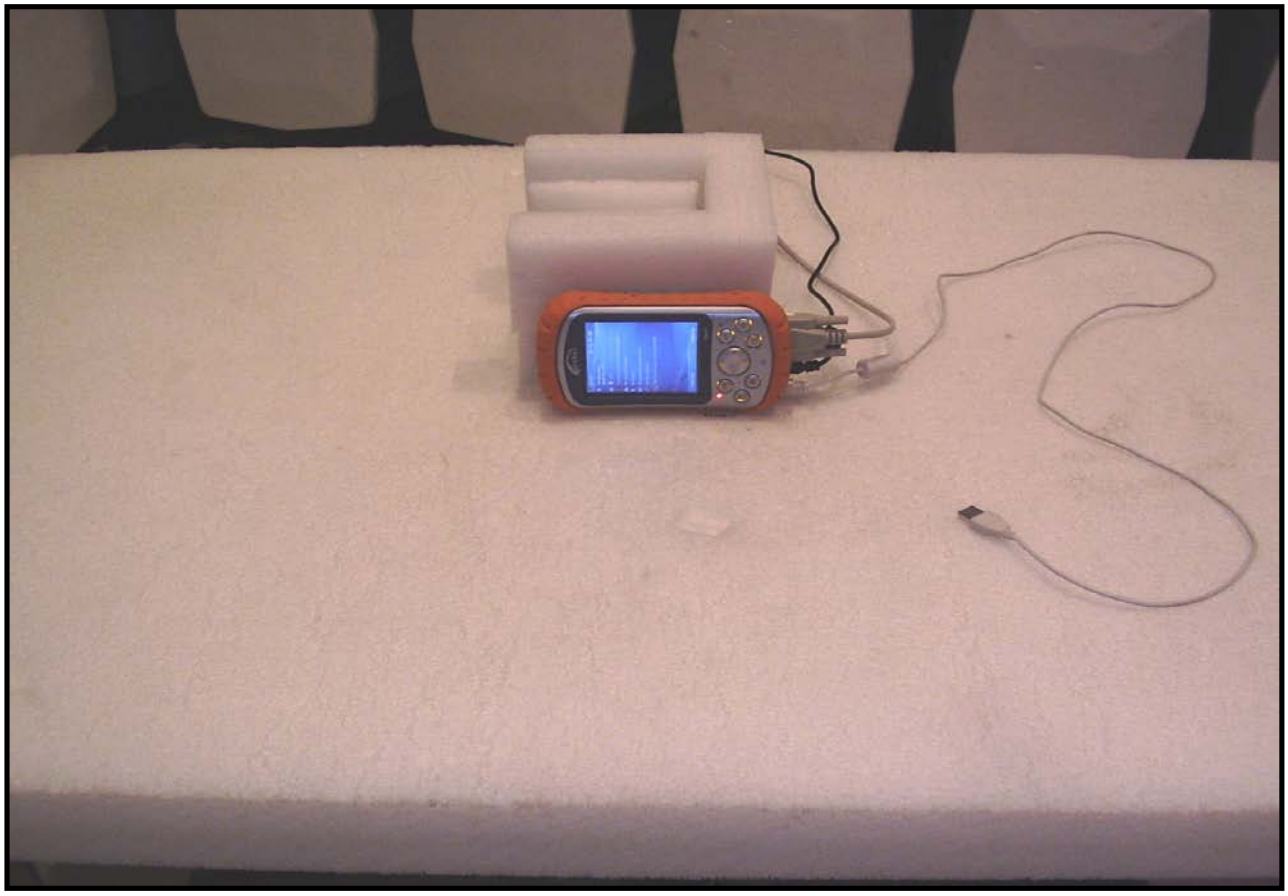
Run #	7
Configuration #	2
Results	Pass

Signature Holly Ashkannejhad



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments
2483.547	22.7	2.2	48.0	1.0	3.0	20.0	V-Horn	AV	0.0	44.9	54.0	-9.1	8DPSK, 3DH5, EUT horizontal
2484.103	22.7	2.2	325.0	1.0	3.0	20.0	H-Horn	AV	0.0	44.9	54.0	-9.1	GFSK, DH5, EUT vertical
2484.600	22.7	2.2	276.0	3.1	3.0	20.0	H-Horn	AV	0.0	44.9	54.0	-9.1	pi/4-DQPSK, 2DH5, EUT vertical
2483.850	22.6	2.2	20.0	1.0	3.0	20.0	V-Horn	AV	0.0	44.8	54.0	-9.2	GFSK, DH5, EUT horizontal
2483.597	22.6	2.2	354.0	1.0	3.0	20.0	V-Horn	AV	0.0	44.8	54.0	-9.2	pi/4-DQPSK, 2DH5, EUT horizontal
2485.147	22.6	2.2	204.0	3.1	3.0	20.0	H-Horn	AV	0.0	44.8	54.0	-9.2	8DPSK, 3DH5, EUT vertical
2484.250	36.9	2.2	325.0	1.0	3.0	20.0	H-Horn	PK	0.0	59.1	74.0	-14.9	GFSK, DH5, EUT vertical
2483.713	36.0	2.2	276.0	3.1	3.0	20.0	H-Horn	PK	0.0	58.2	74.0	-15.8	pi/4-DQPSK, 2DH5, EUT vertical
2485.130	36.0	2.2	354.0	1.0	3.0	20.0	V-Horn	PK	0.0	58.2	74.0	-15.8	pi/4-DQPSK, 2DH5, EUT horizontal
2483.883	35.9	2.2	204.0	3.1	3.0	20.0	H-Horn	PK	0.0	58.1	74.0	-15.9	8DPSK, 3DH5, EUT vertical
2483.830	35.5	2.2	20.0	1.0	3.0	20.0	V-Horn	PK	0.0	57.7	74.0	-16.3	GFSK, DH5, EUT horizontal
2485.423	35.3	2.2	48.0	1.0	3.0	20.0	V-Horn	PK	0.0	57.5	74.0	-16.5	8DPSK, 3DH5, EUT horizontal





Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	6/8/2007	13
Spectrum Analyzer	Agilent	E4446A	AAY	12/18/2007	12

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

The occupied bandwidth was measured with the EUT set to low, medium, and high transmit frequencies. The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting in a no hop mode at its maximum data rate for each of the three different modulations available.

NORTHWEST EMC

Occupied Bandwidth

XMit 2007.06.13

EUT:	BC04 in Archer			Work Order:	JUNI0002
Serial Number:	Unknown			Date:	04/29/08
Customer:	Juniper Systems, Inc.			Temperature:	22°C
Attendees:	None			Humidity:	31%
Project:	None			Barometric Pres.:	1013
Tested by:	Holly Ashkannejhad	Power:	12DC via 120VAC/60Hz	Job Site:	EV06

TEST SPECIFICATIONS	Test Method
FCC 15.247 (FHSS):2007	ANSI C63.4:2003 DA 00-705:2000

COMMENTS

None

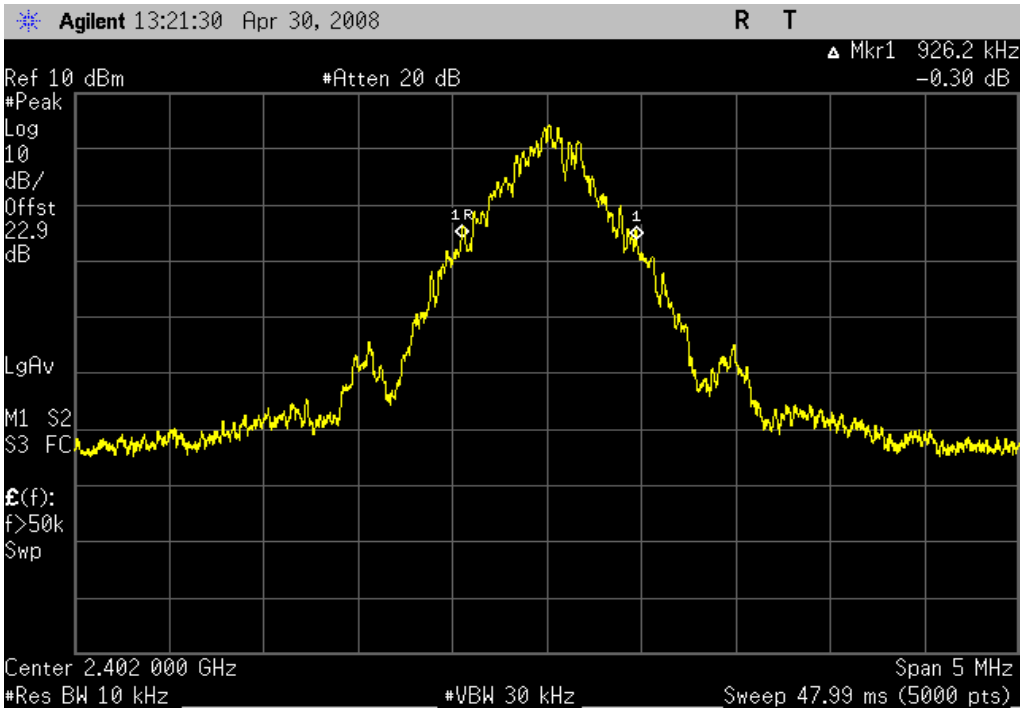
DEVIATIONS FROM TEST STANDARD

No deviations

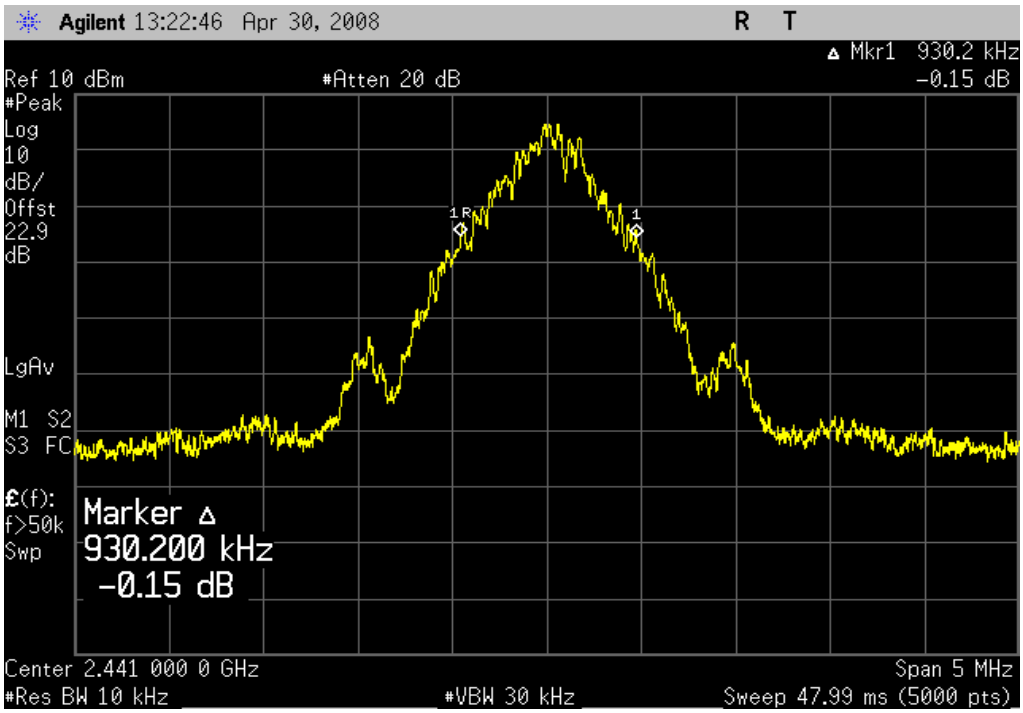
Configuration #	1	Signature

	Value	Limit	Results
Bluetooth, GFSK, DH5			
Low channel, 2402MHz	926.2 kHz	1.5 MHz	Pass
Mid channel, 2441MHz	930.2 kHz	1.5MHz	Pass
High channel, 2480MHz	936.2 kHz	1.5 MHz	Pass
Bluetooth, pi/4-DQPSK, 2DH5			
Low channel, 2402MHz	1.1842 MHz	1.5MHz	Pass
Mid channel, 2441MHz	1.1952 MHz	1.5 MHz	Pass
High channel, 2480MHz	1.2182 MHz	1.5MHz	Pass
Bluetooth, 8DPSK, 3DH5			
Low channel, 2402MHz	1.2332 MHz	1.5 MHz	Pass
Mid channel, 2441MHz	1.2372 MHz	1.5MHz	Pass
High channel, 2480MHz	1.2332 MHz	1.5 MHz	Pass

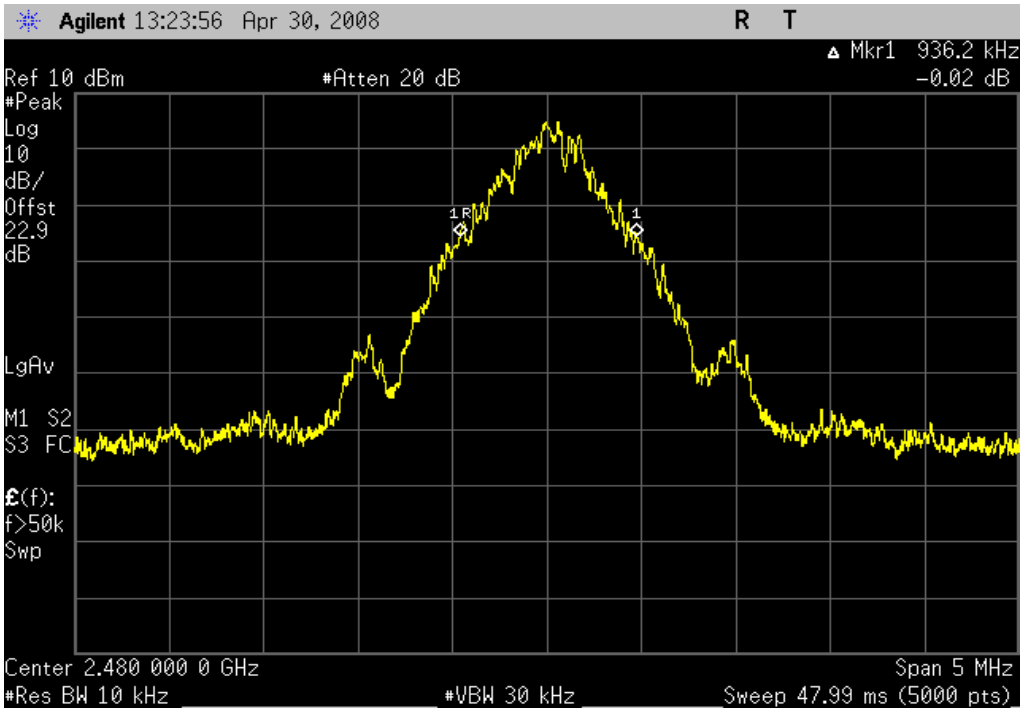
Bluetooth, GFSK, DH5, Low channel, 2402MHz					
Result:	Pass	**Value:**	926.2 kHz	**Limit:**	1.5 MHz



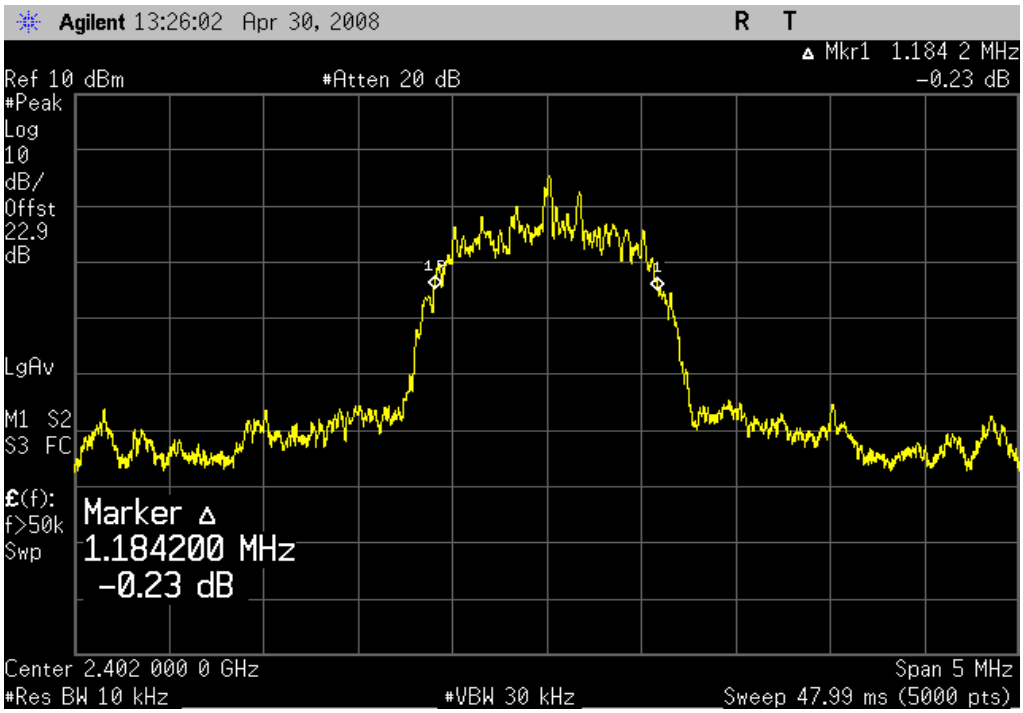
Bluetooth, GFSK, DH5, Mid channel, 2441MHz					
Result:	Pass	**Value:**	930.2 kHz	**Limit:**	1.5MHz



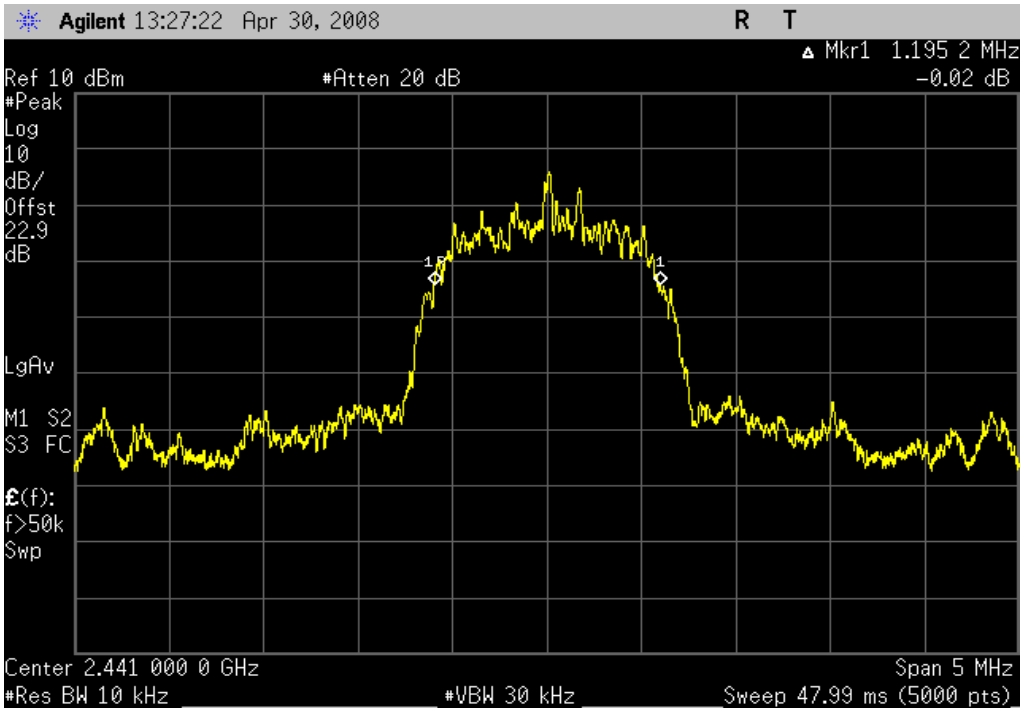
Bluetooth, GFSK, DH5, High channel, 2480MHz					
Result:	Pass	**Value:**	936.2 kHz	**Limit:**	1.5 MHz



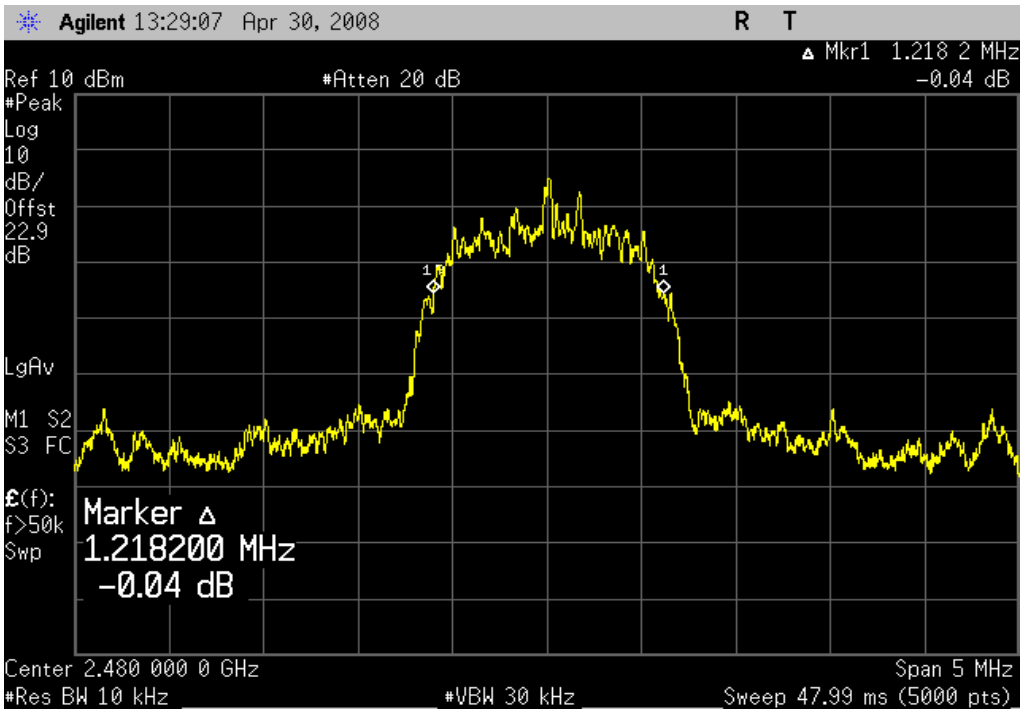
Bluetooth, pi/4-DQPSK, 2DH5, Low channel, 2402MHz					
Result:	Pass	**Value:**	1.1842 MHz	**Limit:**	1.5MHz



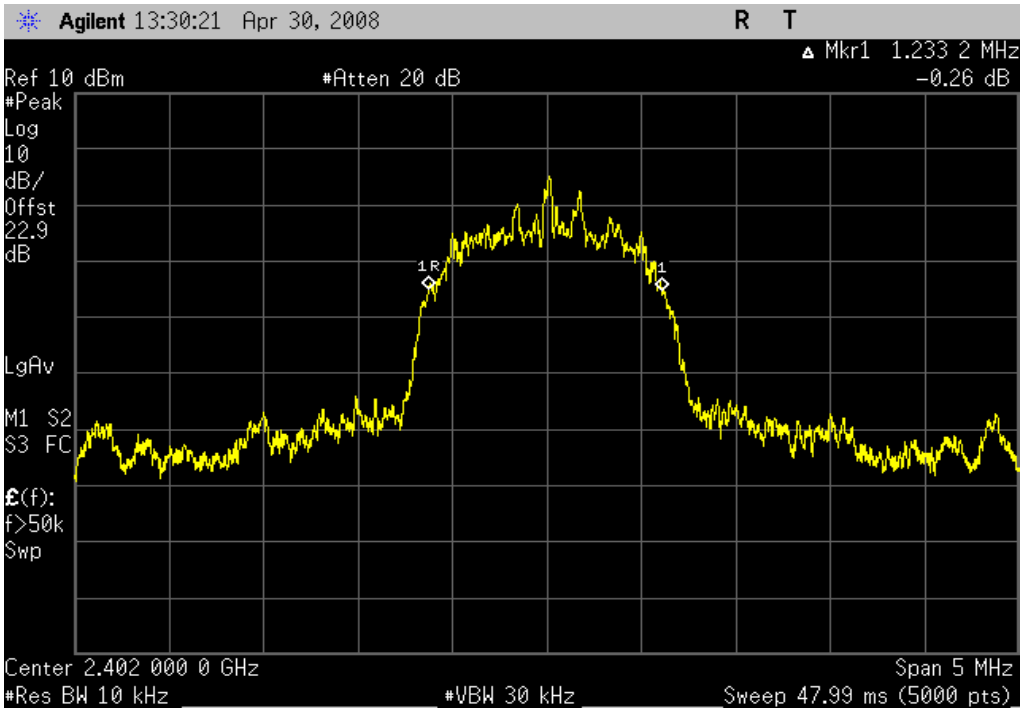
Bluetooth, pi/4-DQPSK, 2DH5, Mid channel, 2441MHz					
Result:	Pass	**Value:**	1.1952 MHz	**Limit:**	1.5 MHz



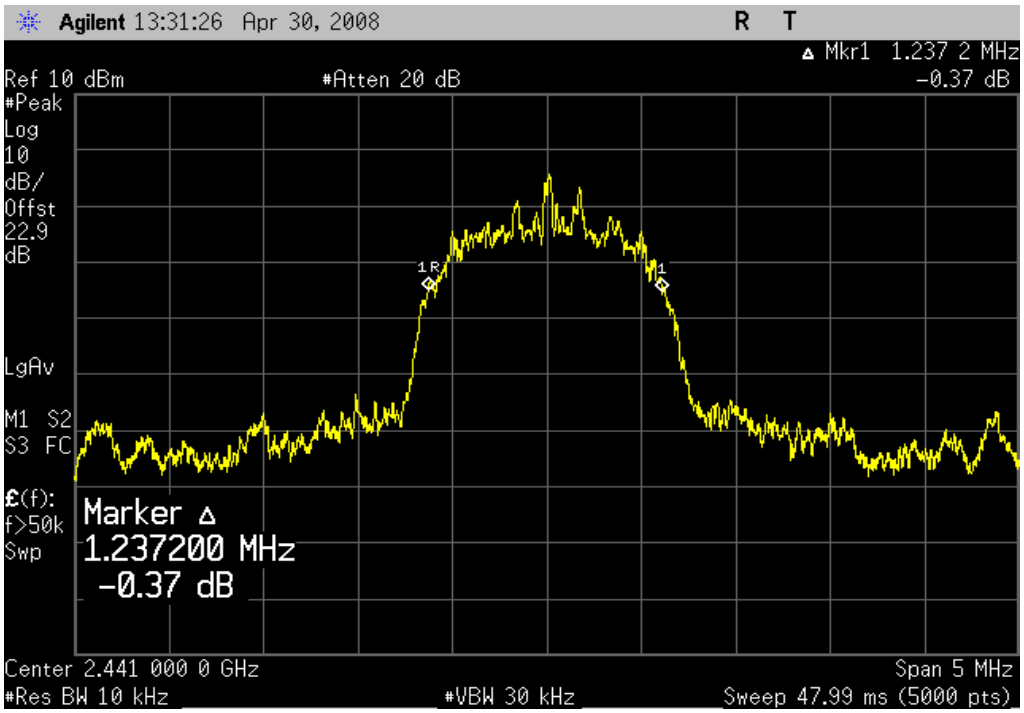
Bluetooth, pi/4-DQPSK, 2DH5, High channel, 2480MHz					
Result:	Pass	**Value:**	1.2182 MHz	**Limit:**	1.5MHz



Bluetooth, 8DPSK, 3DH5, Low channel, 2402MHz					
Result:	Pass	**Value:**	1.2332 MHz	**Limit:**	1.5 MHz

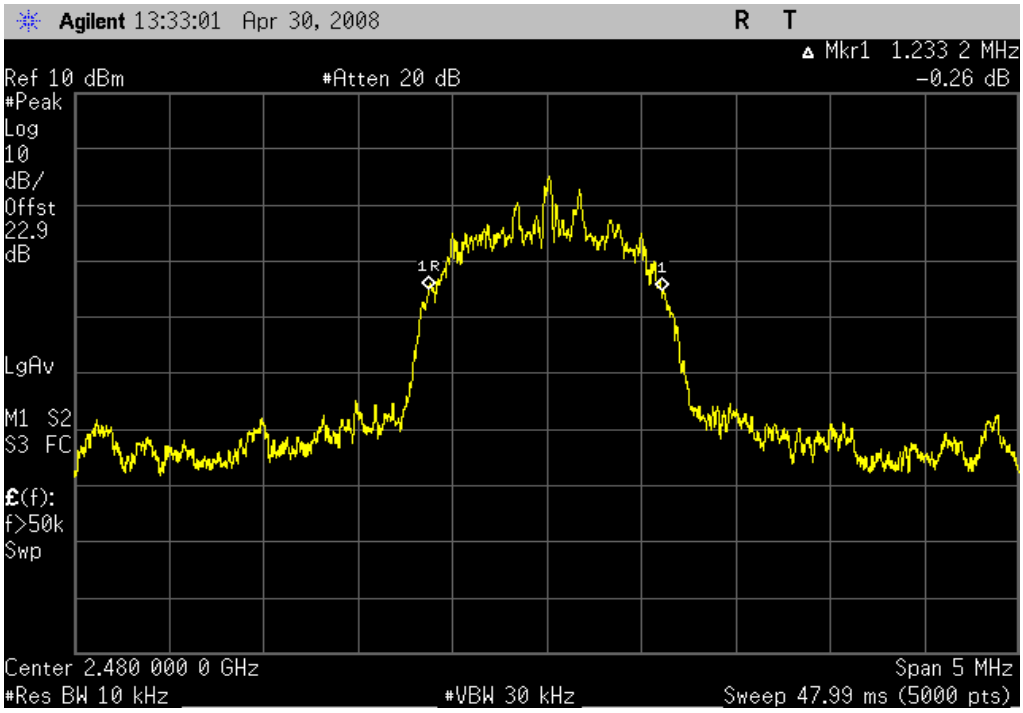


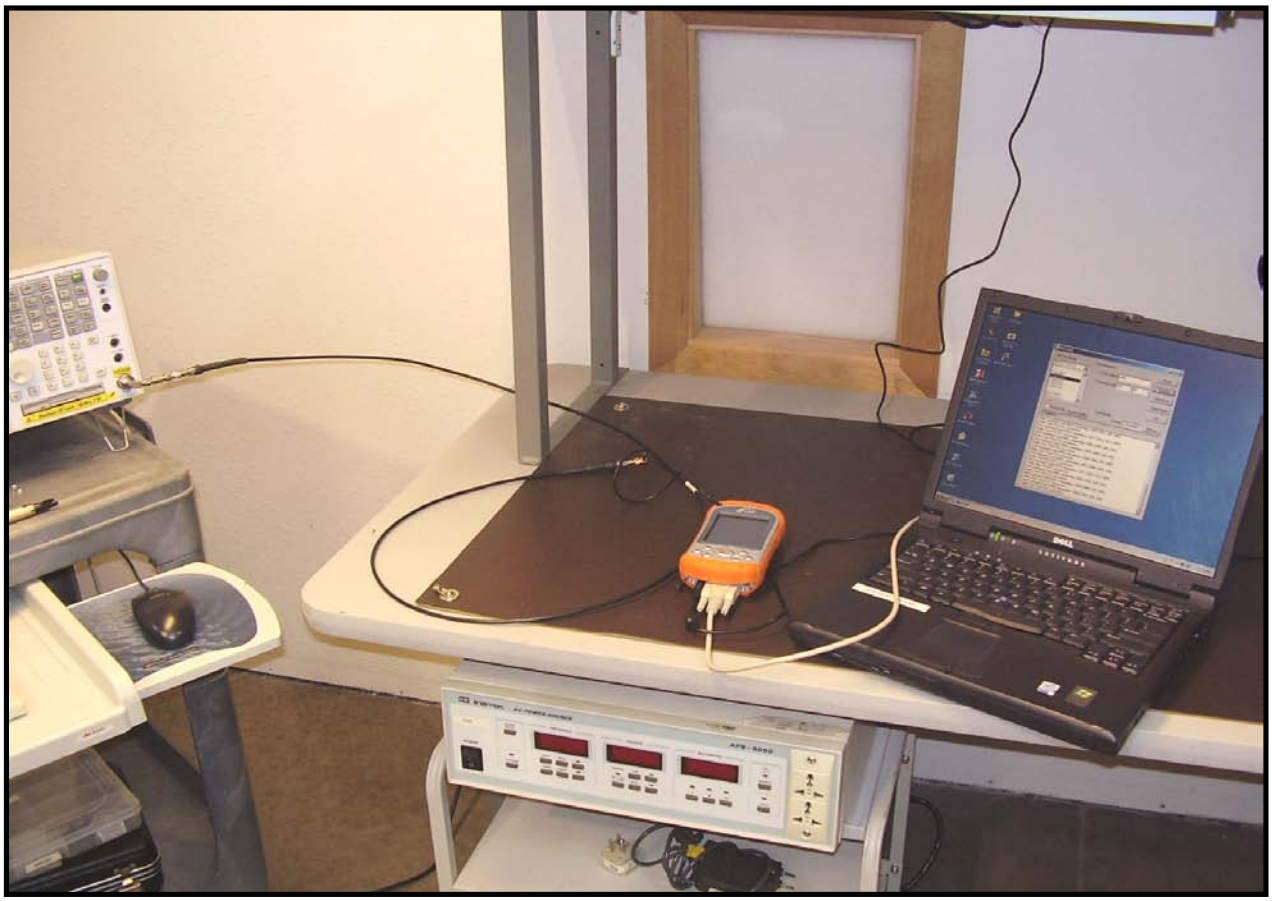
Bluetooth, 8DPSK, 3DH5, Mid channel, 2441MHz					
Result:	Pass	**Value:**	1.2372 MHz	**Limit:**	1.5MHz



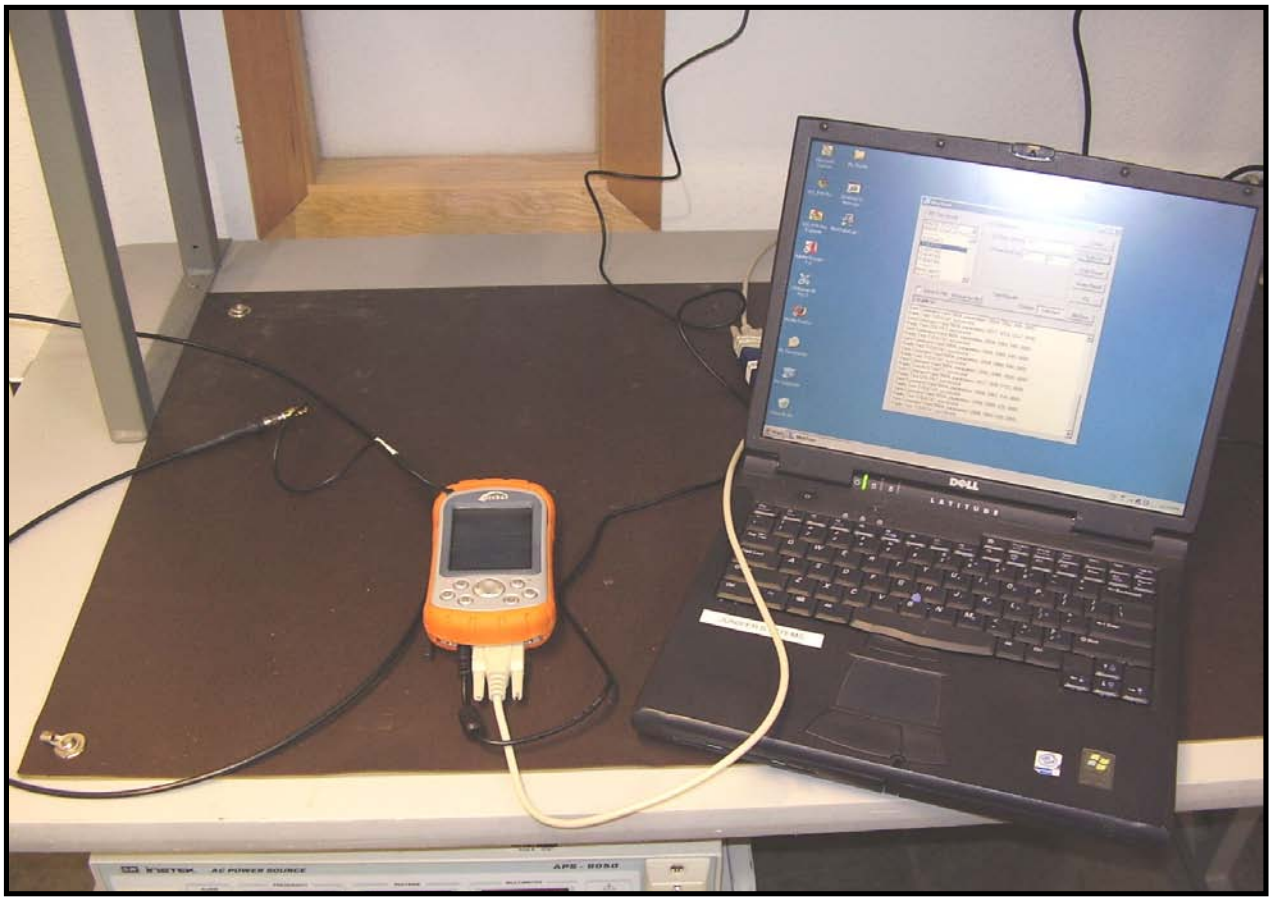
Occupied Bandwidth

Bluetooth, 8DPSK, 3DH5, High channel, 2480MHz					
Result:	Pass	**Value:**	1.2332 MHz	**Limit:**	1.5 MHz





Occupied Bandwidth



Output Power

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	6/8/2007	13
Spectrum Analyzer	Agilent	E4446A	AAY	12/18/2007	12

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

The peak output power was measured with the EUT set to low, medium, and high transmit frequencies. The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. . The EUT was transmitting in a no hop mode at its maximum data rate for each of the three different modulations available.

De Facto EIRP Limit: Per 47 CFR 15.247 (b)(1-3), the EUT meets the de facto EIRP limit of +36dBm.

NORTHWEST EMC

Output Power

XMit 2007.06.13

EUT:	BC04 in Archer			**Work Order:**	JUNI0002
Serial Number:	Unknown			**Date:**	04/29/08
Customer:	Juniper Systems, Inc.			**Temperature:**	22°C
Attendees:	None			**Humidity:**	31%
Project:	None			**Barometric Pres.:**	1013mb
Tested by:	Holly Ashkannejhad	**Power:**	12DC via 120VAC/60Hz	**Job Site:**	EV06

TEST SPECIFICATIONS	Test Method
FCC 15.247 (DTS):2007	ANSI C63.4:2003 KDB No. 558074

COMMENTS

None

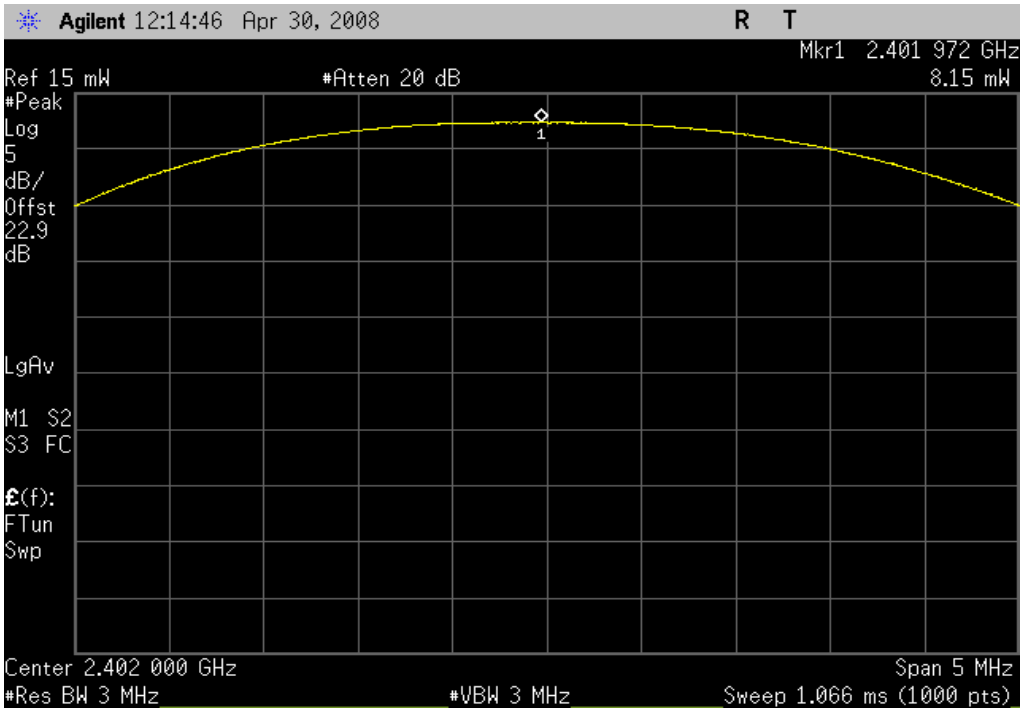
DEVIATIONS FROM TEST STANDARD

No Deviations

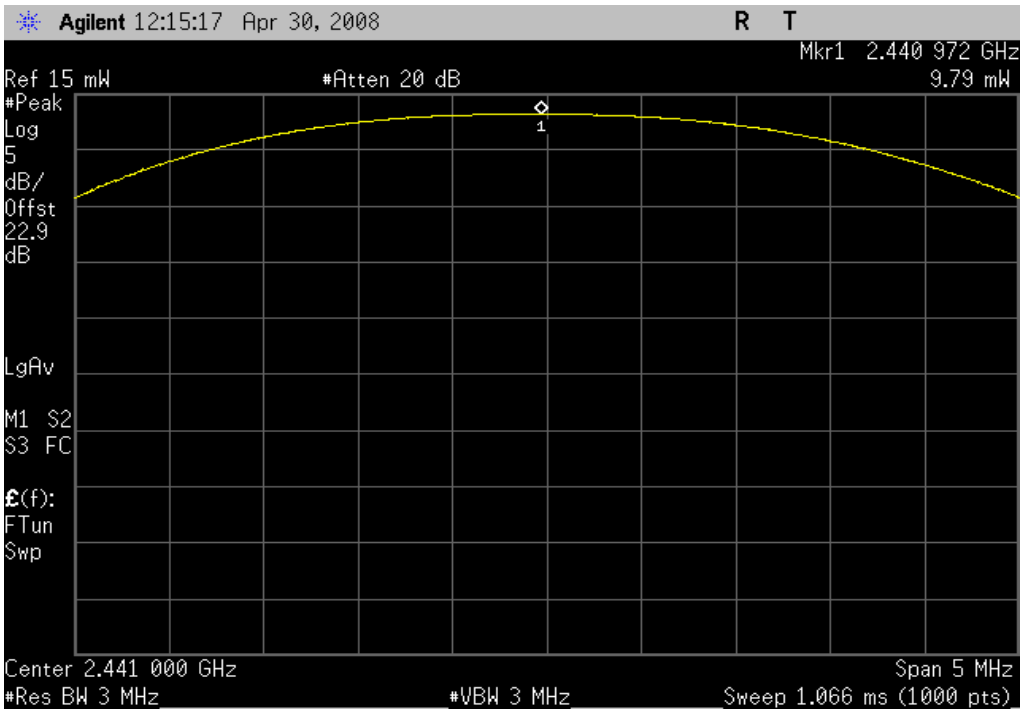
Configuration #	1	Signature Holly Ashkannejhad

	Value	Limit	Results
Bluetooth, GFSK, DH5			
Low channel, 2402MHz	8.15 mW	1 Watt	Pass
Mid channel, 2441MHz	9.79 mW	1 Watt	Pass
High channel 2480MHz	10.58 mW	1 Watt	Pass
Bluetooth, pi/4-DQPSK, 2DH5			
Low channel, 2402MHz	1.13 mW	1 Watt	Pass
Mid channel, 2441MHz	1.30 mW	1 Watt	Pass
High channel 2480MHz	1.10 mW	1 Watt	Pass
Bluetooth, 8DPSK, 3DH5			
Low channel, 2402MHz	1.19 mW	1 Watt	Pass
Mid channel, 2441MHz	1.35 mW	1 Watt	Pass
High channel 2480MHz	1.19 mW	1 Watt	Pass

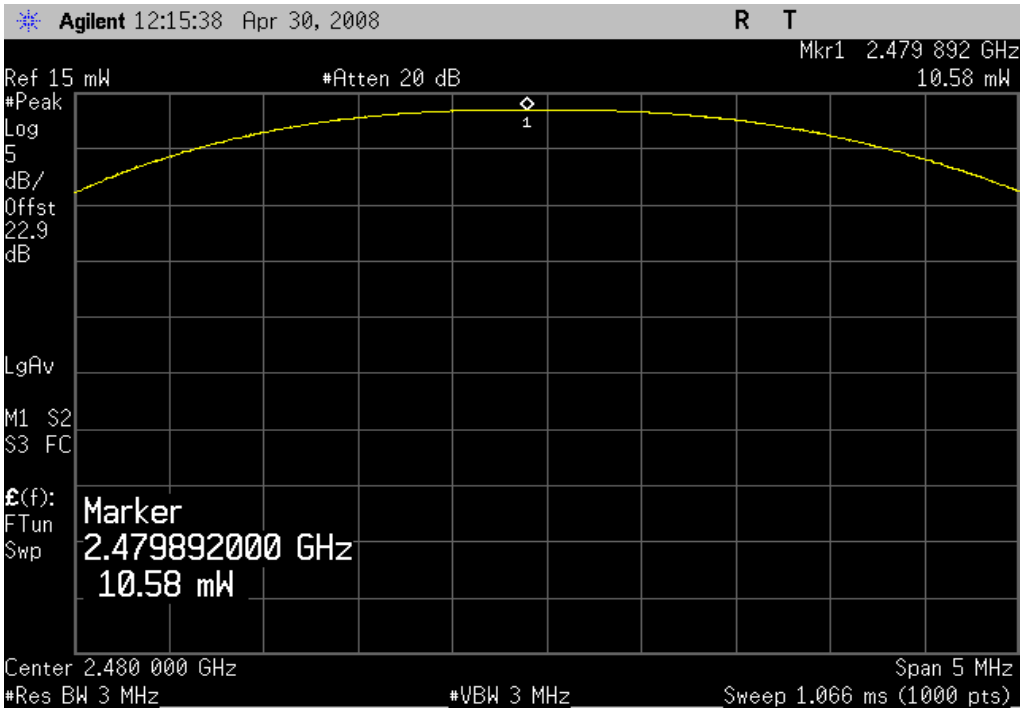
Bluetooth, GFSK, DH5, Low channel, 2402MHz					
Result:	Pass	**Value:**	8.15 mW	**Limit:**	1 Watt



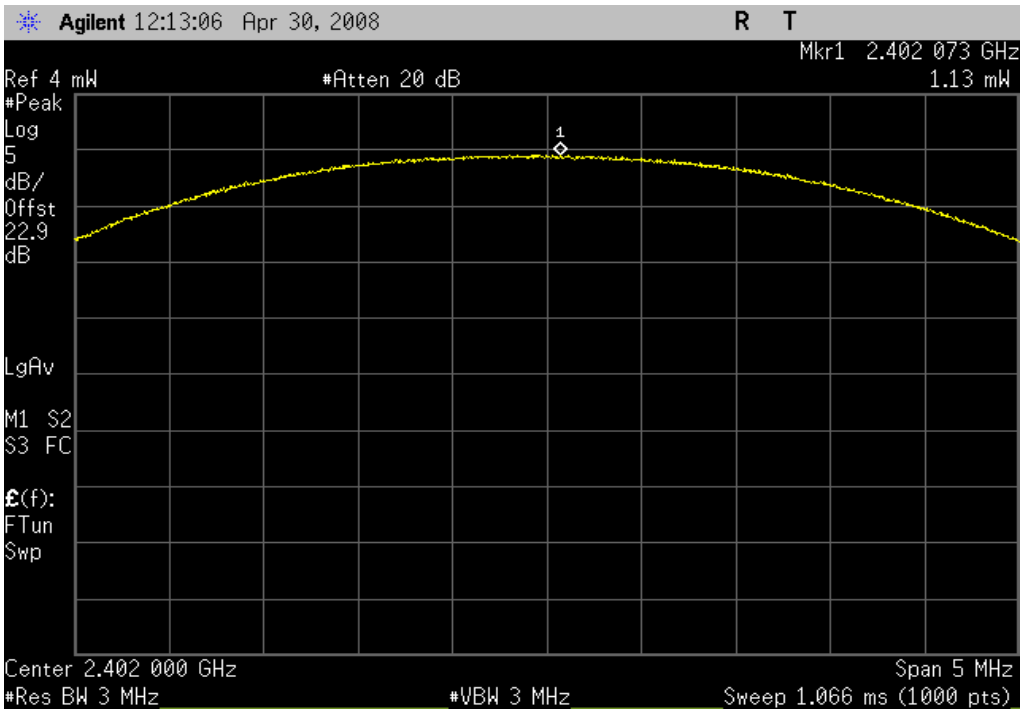
Bluetooth, GFSK, DH5, Mid channel, 2441MHz					
Result:	Pass	**Value:**	9.79 mW	**Limit:**	1 Watt



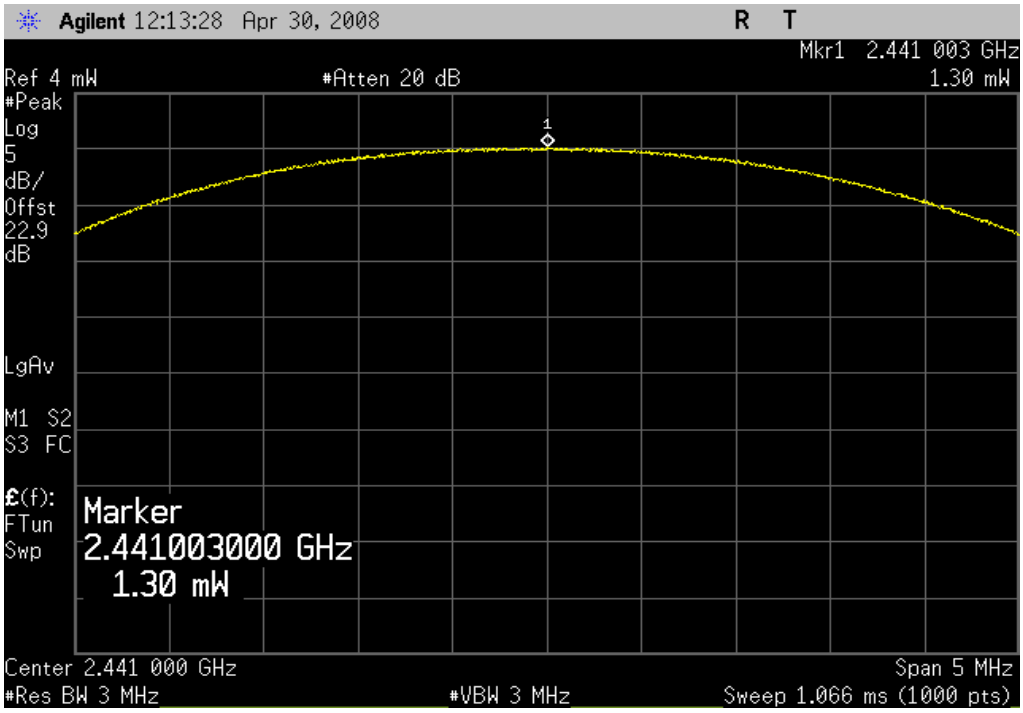
Bluetooth, GFSK, DH5, High channel 2480MHz					
Result:	Pass	**Value:**	10.58 mW	**Limit:**	1 Watt



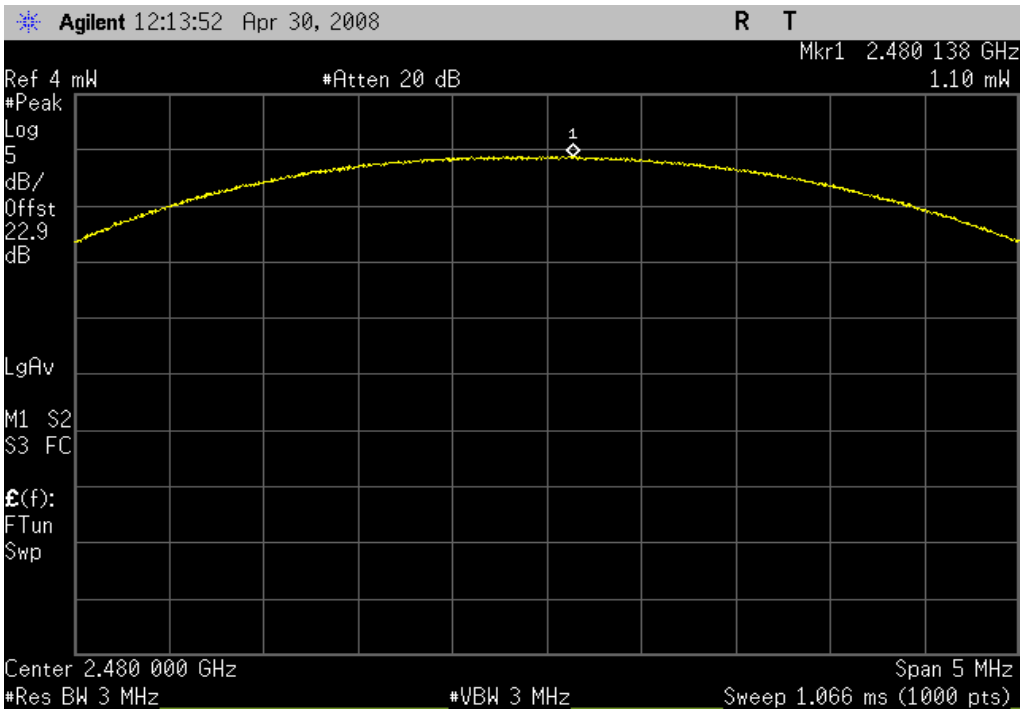
Bluetooth, pi/4-DQPSK, 2DH5, Low channel, 2402MHz					
Result:	Pass	**Value:**	1.13 mW	**Limit:**	1 Watt



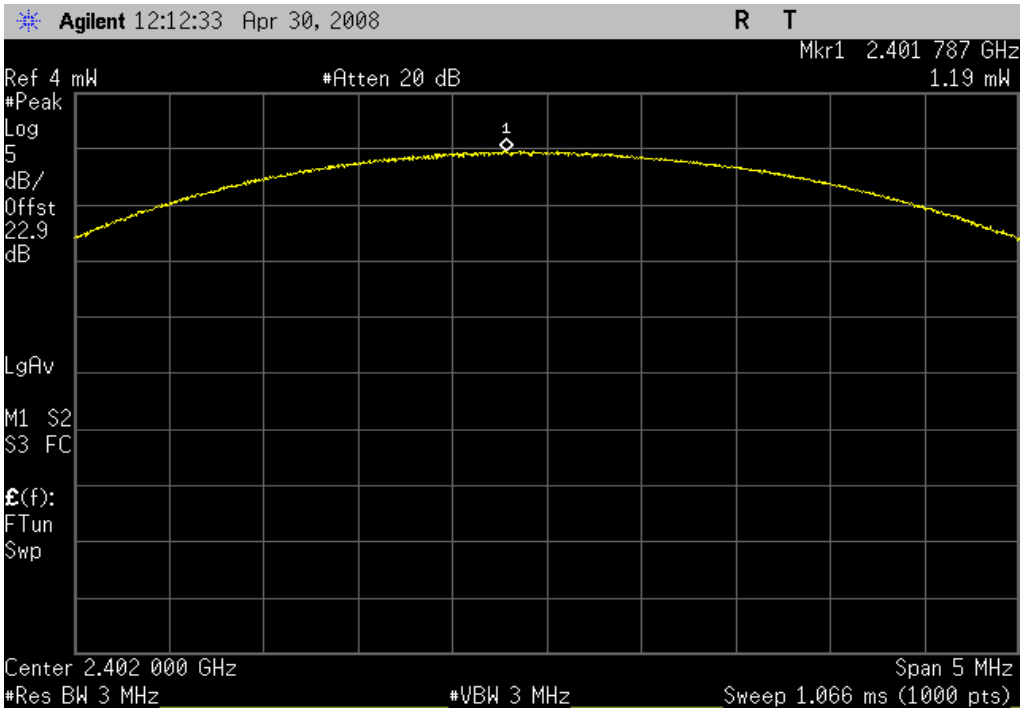
Bluetooth, pi/4-DQPSK, 2DH5, Mid channel, 2441MHz					
Result:	Pass	**Value:**	1.30 mW	**Limit:**	1 Watt



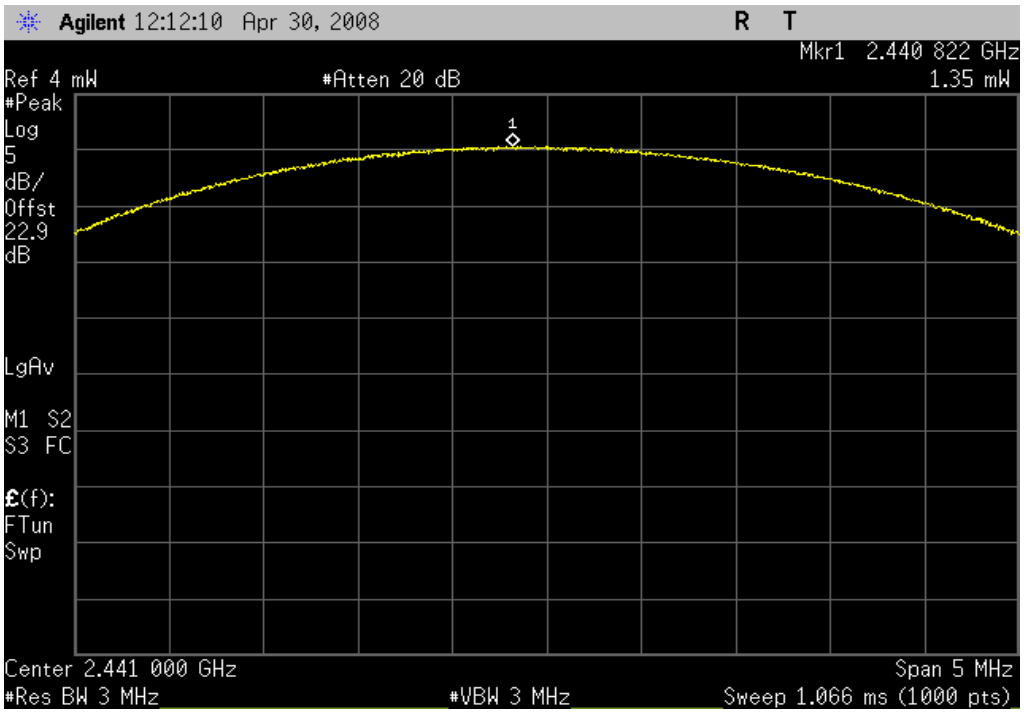
Bluetooth, pi/4-DQPSK, 2DH5, High channel 2480MHz					
Result:	Pass	**Value:**	1.10 mW	**Limit:**	1 Watt



Bluetooth, 8DPSK, 3DH5, Low channel, 2402MHz					
Result:	Pass	**Value:**	1.19 mW	**Limit:**	1 Watt

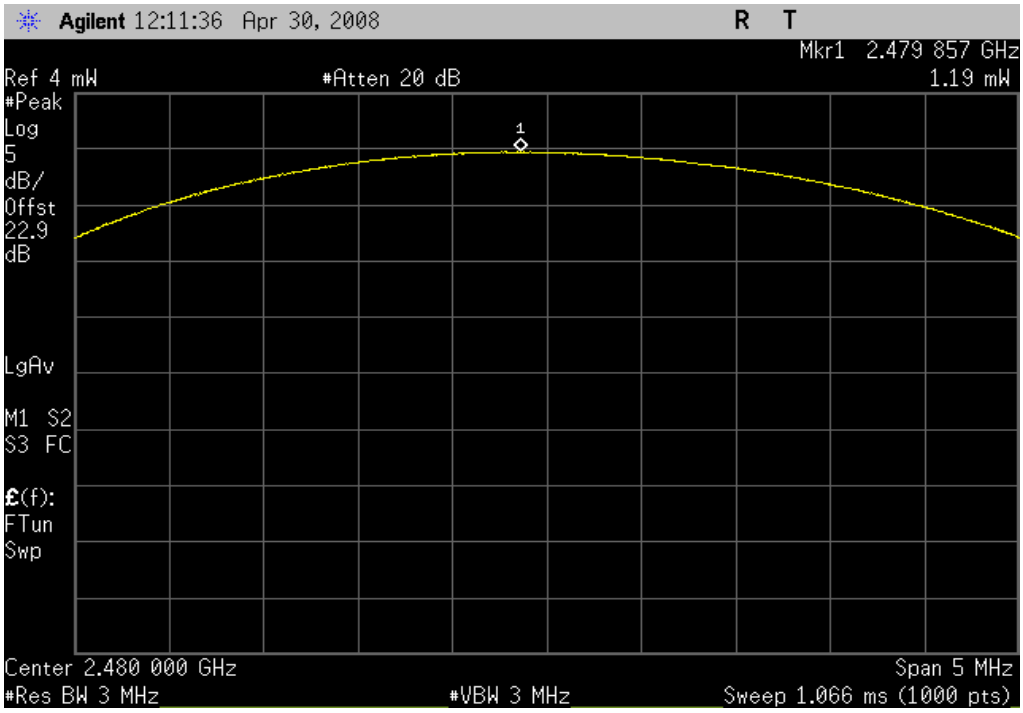


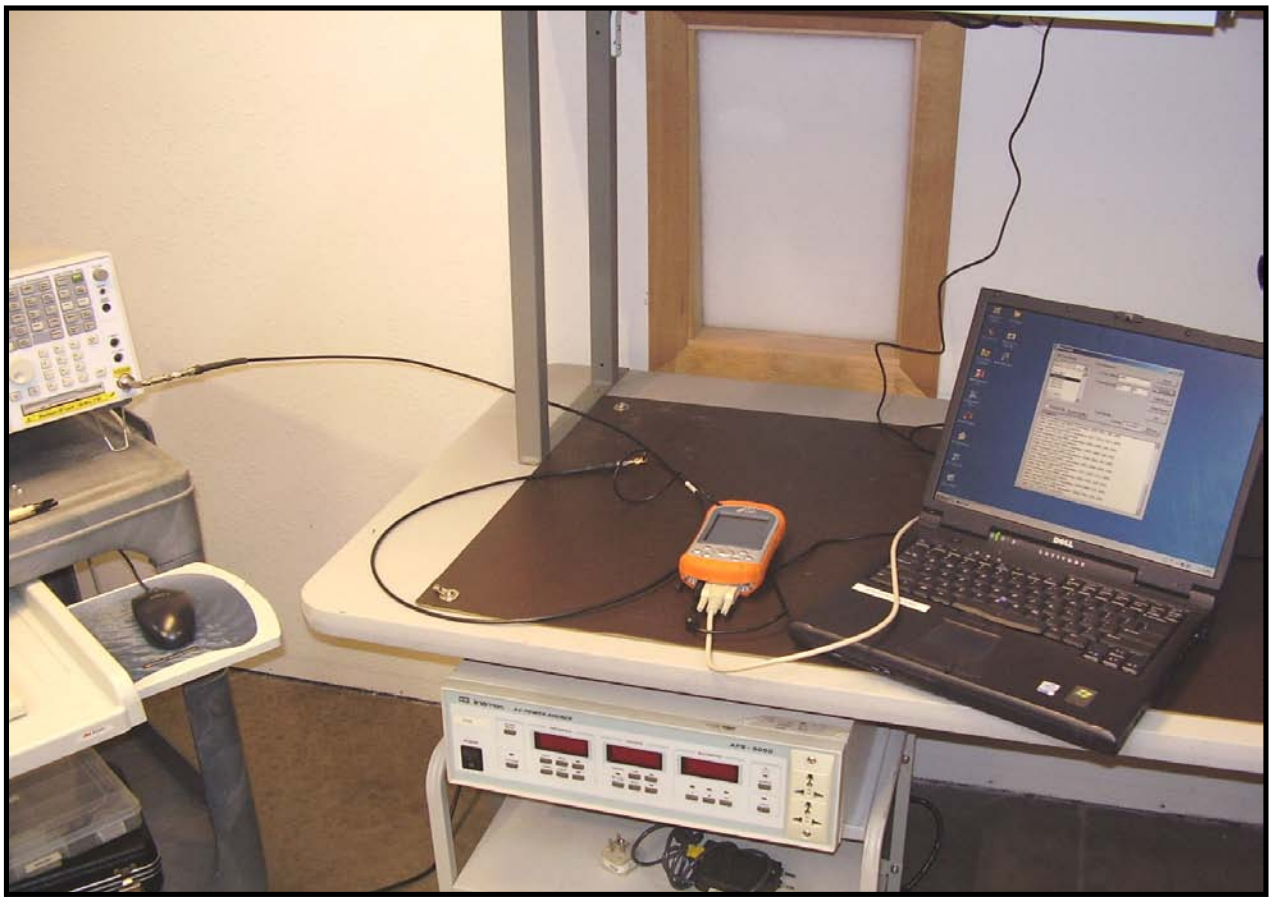
Bluetooth, 8DPSK, 3DH5, Mid channel, 2441MHz					
Result:	Pass	**Value:**	1.35 mW	**Limit:**	1 Watt

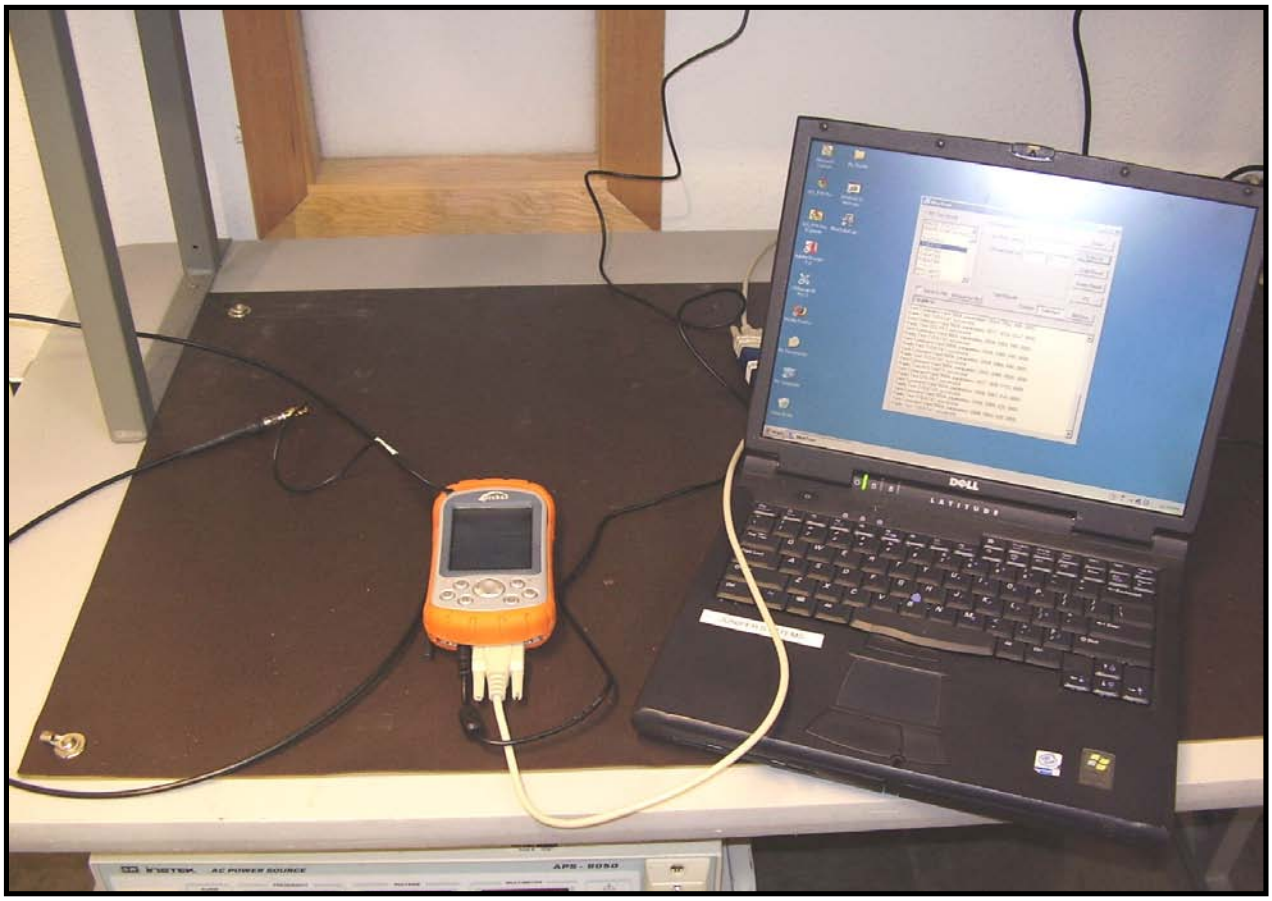


Output Power

Bluetooth, 8DPSK, 3DH5, High channel 2480MHz					
Result:	Pass	**Value:**	1.19 mW	**Limit:**	1 Watt






DELL
LATITUDE

Bandedge Compliance

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	6/8/2007	13
Spectrum Analyzer	Agilent	E4446A	AAY	12/18/2007	12

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

The requirements of FCC 15.247(d) for emissions at least 20dB below the carrier in any 100kHz bandwidth outside the allowable band was measured with the EUT set to low and high transmit frequencies. The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The channels closest to the band edges were selected. The spectrum was scanned across each band edge from 10 MHz below the band edge to 10 MHz above the band edge.

The EUT was transmitting at its maximum data rate using all three types of modulations available in Bluetooth EDR.

NORTHWEST EMC

Bandedge Compliance

XMit 2007.06.13

EUT:	BC04 in Archer			Work Order:	JUNI0002
Serial Number:	Unknown			Date:	04/29/08
Customer:	Juniper Systems, Inc.			Temperature:	22°C
Attendees:	None			Humidity:	31%
Project:	None			Barometric Pres.:	1013
Tested by:	Holly Ashkannejhad	Power:	12DC via 120VAC/60Hz	Job Site:	EV06

TEST SPECIFICATIONS	Test Method
FCC 15.247 (DTS):2007	ANSI C63.4:2003 KDB No. 558074

COMMENTS

None

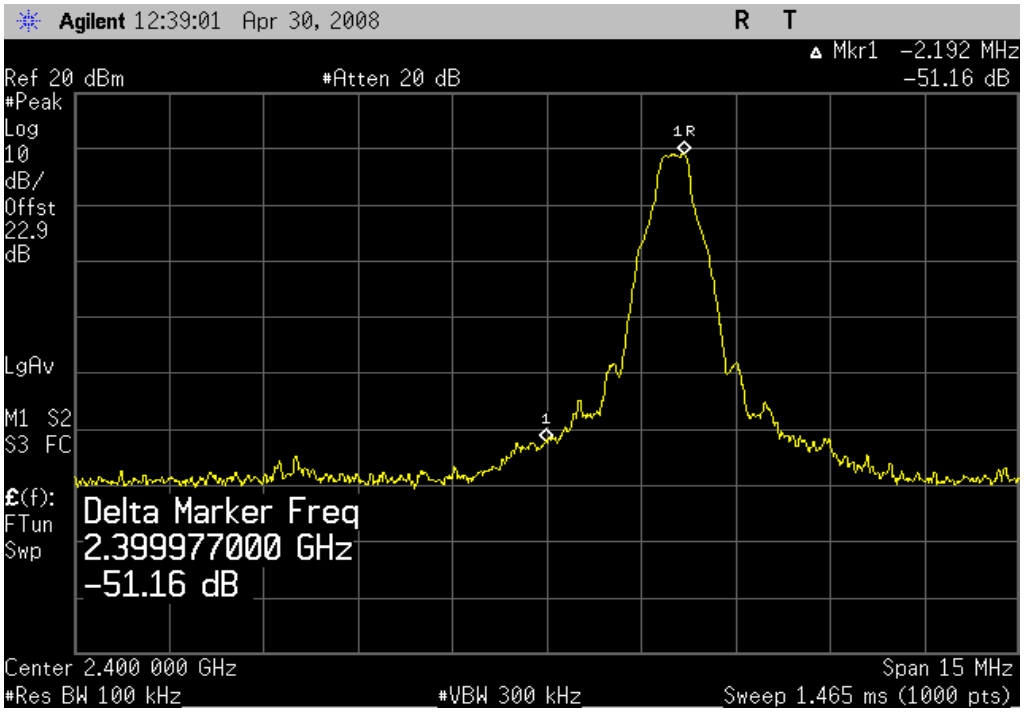
DEVIATIONS FROM TEST STANDARD

No Deviations

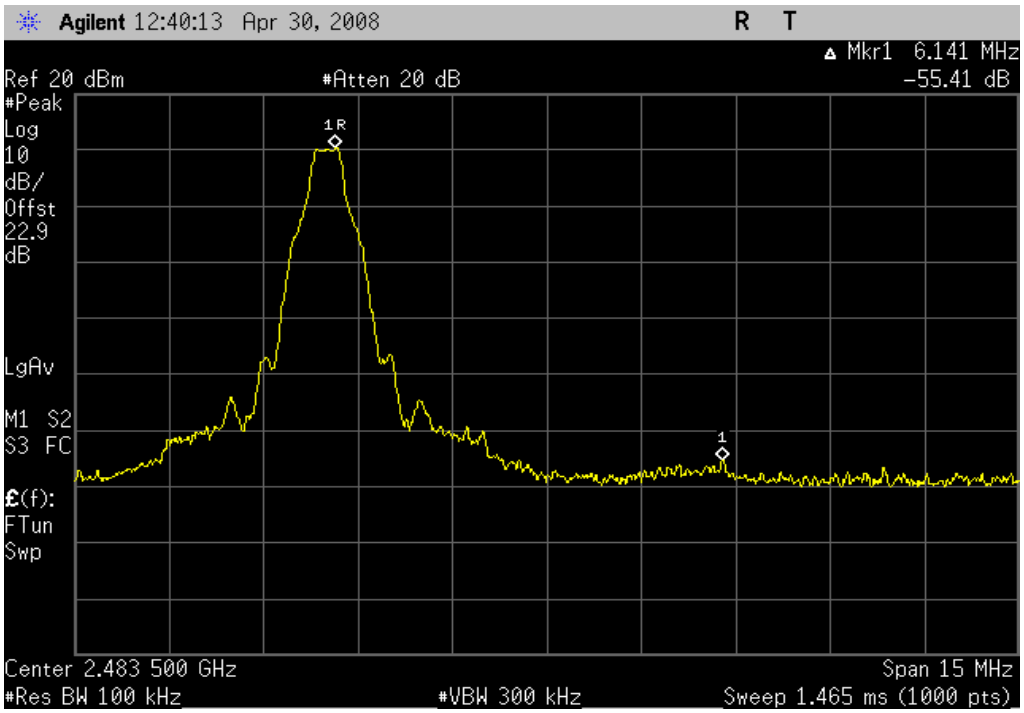
Configuration #	1	Signature Holly Ashkannejhad

	Value	Limit	Results
Bluetooth, GFSK, DH5			
Low channel, 2402MHz	-51.16 dBc	≤ -20 dBc	Pass
High channel, 2480MHz	-55.41 dBc	≤ -20 dBc	Pass
Bluetooth, pi/4-DQPSK, 2DH5			
Low channel, 2402MHz	-39.17 dBc	≤ -20 dBc	Pass
High channel, 2480MHz	-47.17 dBc	≤ -20 dBc	Pass
Bluetooth, 8DPSK, 3DH5			
Low channel, 2402MHz	-39.33 dBc	≤ -20 dBc	Pass
High channel, 2480MHz	-48.48 dBc	≤ -20 dBc	Pass

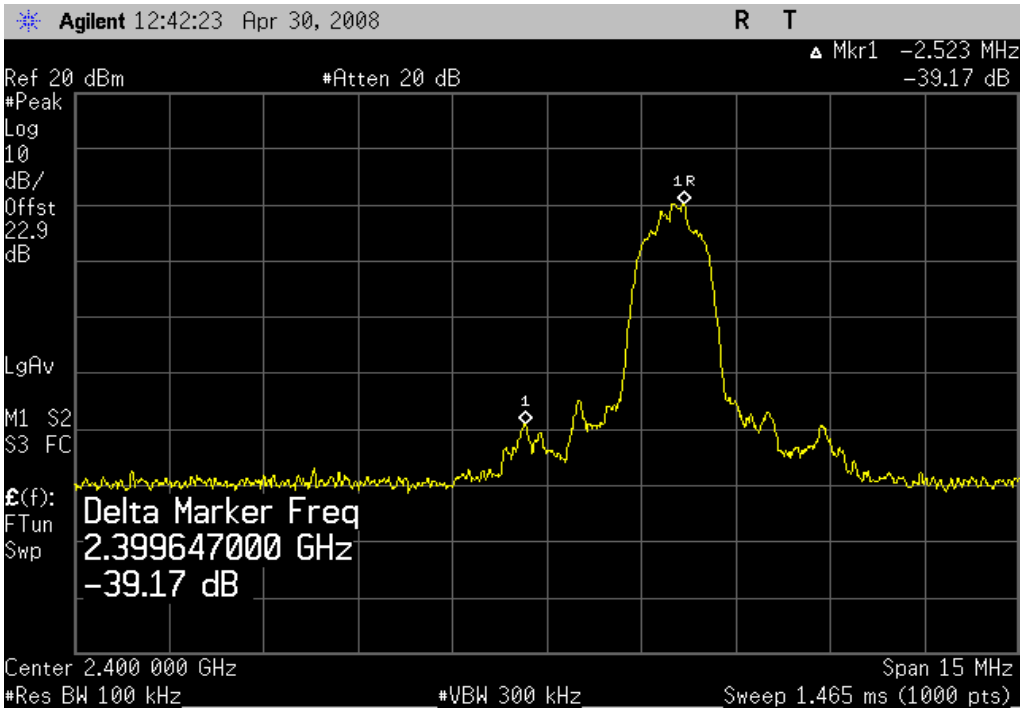
Bluetooth, GFSK, DH5, Low channel, 2402MHz					
Result:	Pass	**Value:**	-51.16 dBc	**Limit:**	≤ -20 dBc



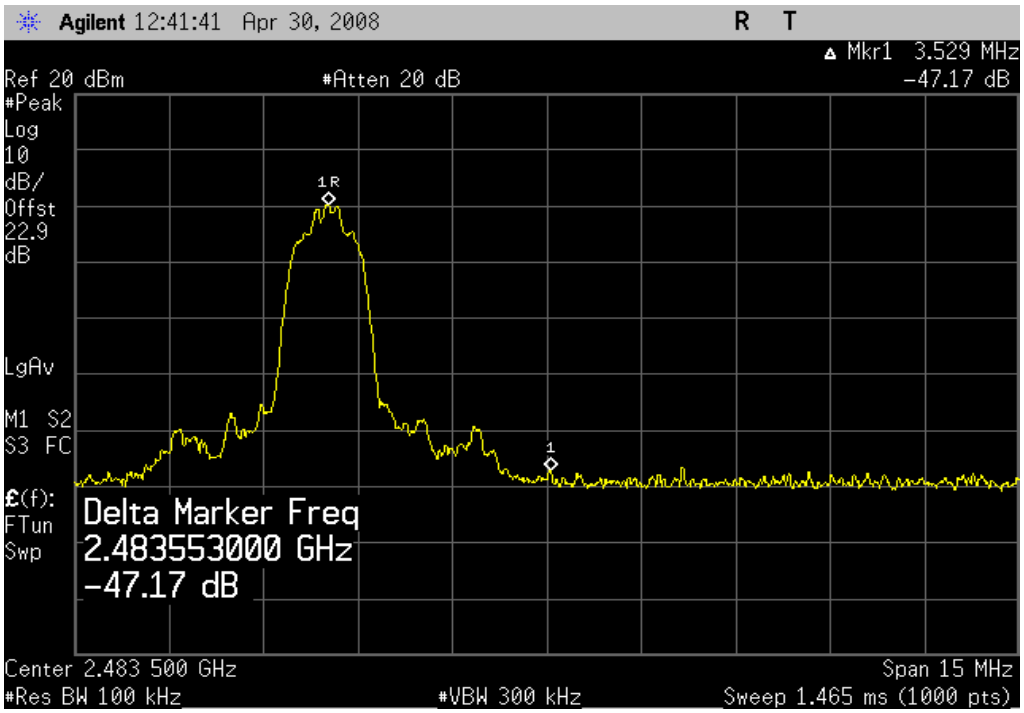
Bluetooth, GFSK, DH5, High channel, 2480MHz					
Result:	Pass	**Value:**	-55.41 dBc	**Limit:**	≤ -20 dBc



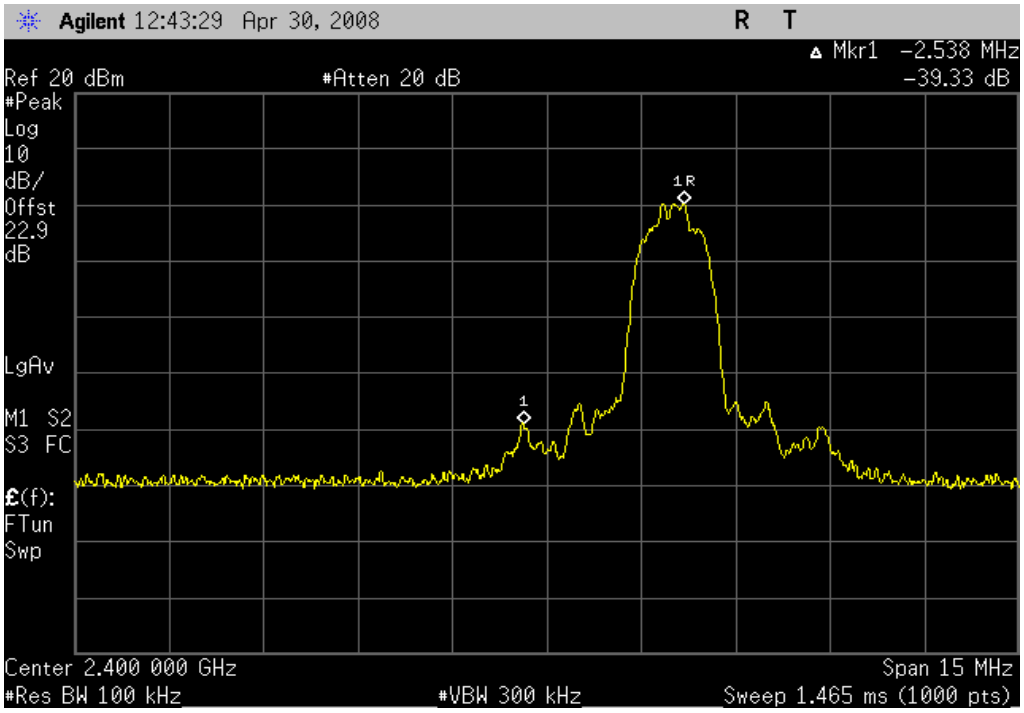
Bluetooth, pi/4-DQPSK, 2DH5, Low channel, 2402MHz					
Result:	Pass	**Value:**	-39.17 dBc	**Limit:**	≤ -20 dBc



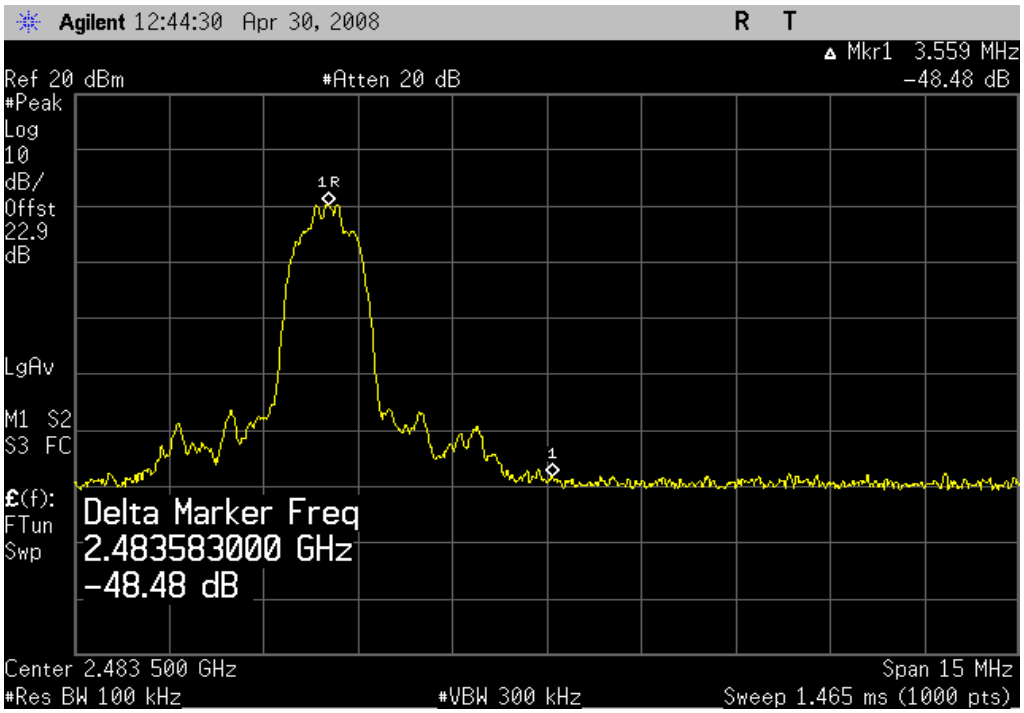
Bluetooth, pi/4-DQPSK, 2DH5, High channel, 2480MHz					
Result:	Pass	**Value:**	-47.17 dBc	**Limit:**	≤ -20 dBc

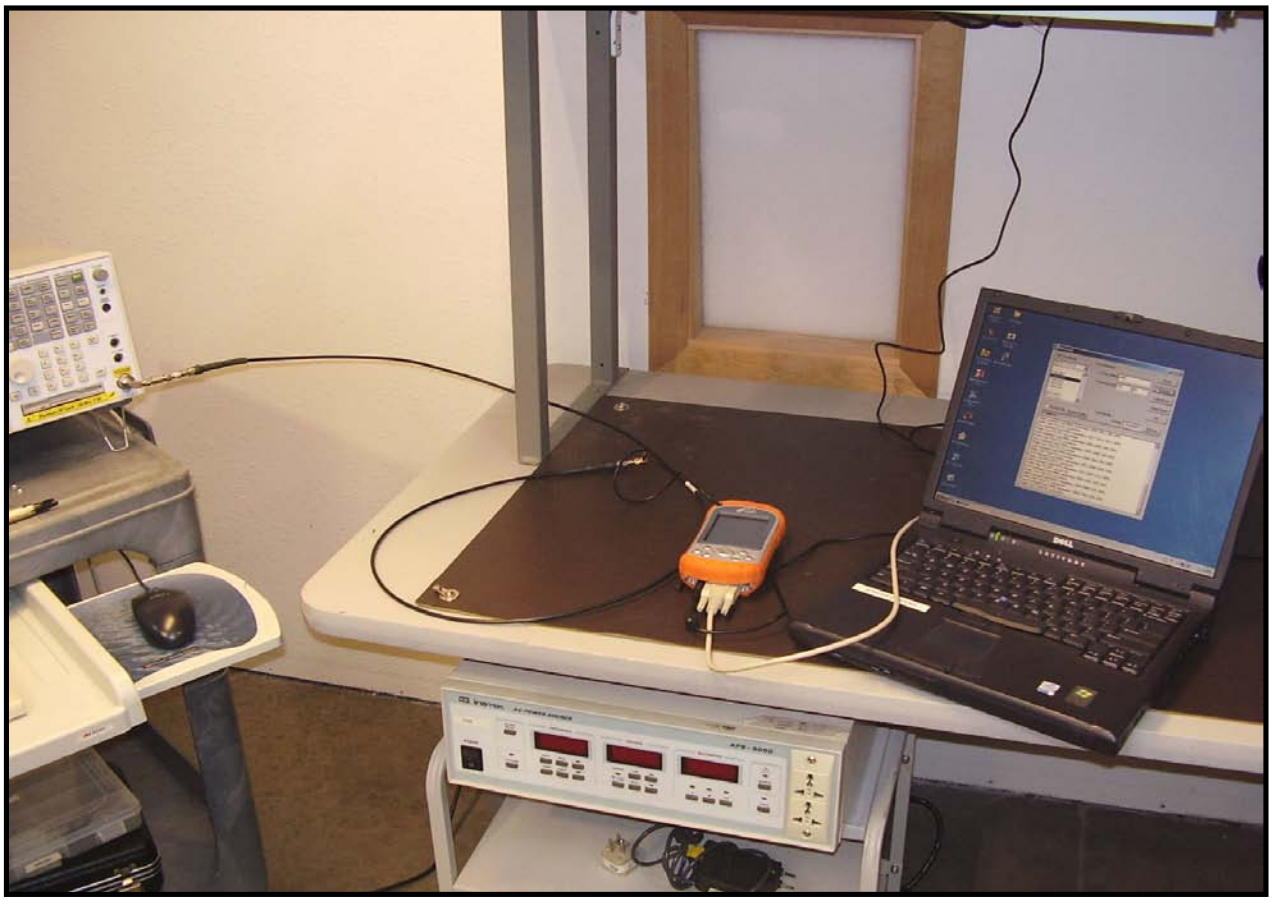


Bluetooth, 8DPSK, 3DH5, Low channel, 2402MHz					
Result:	Pass	**Value:**	-39.33 dBc	**Limit:**	≤ -20 dBc

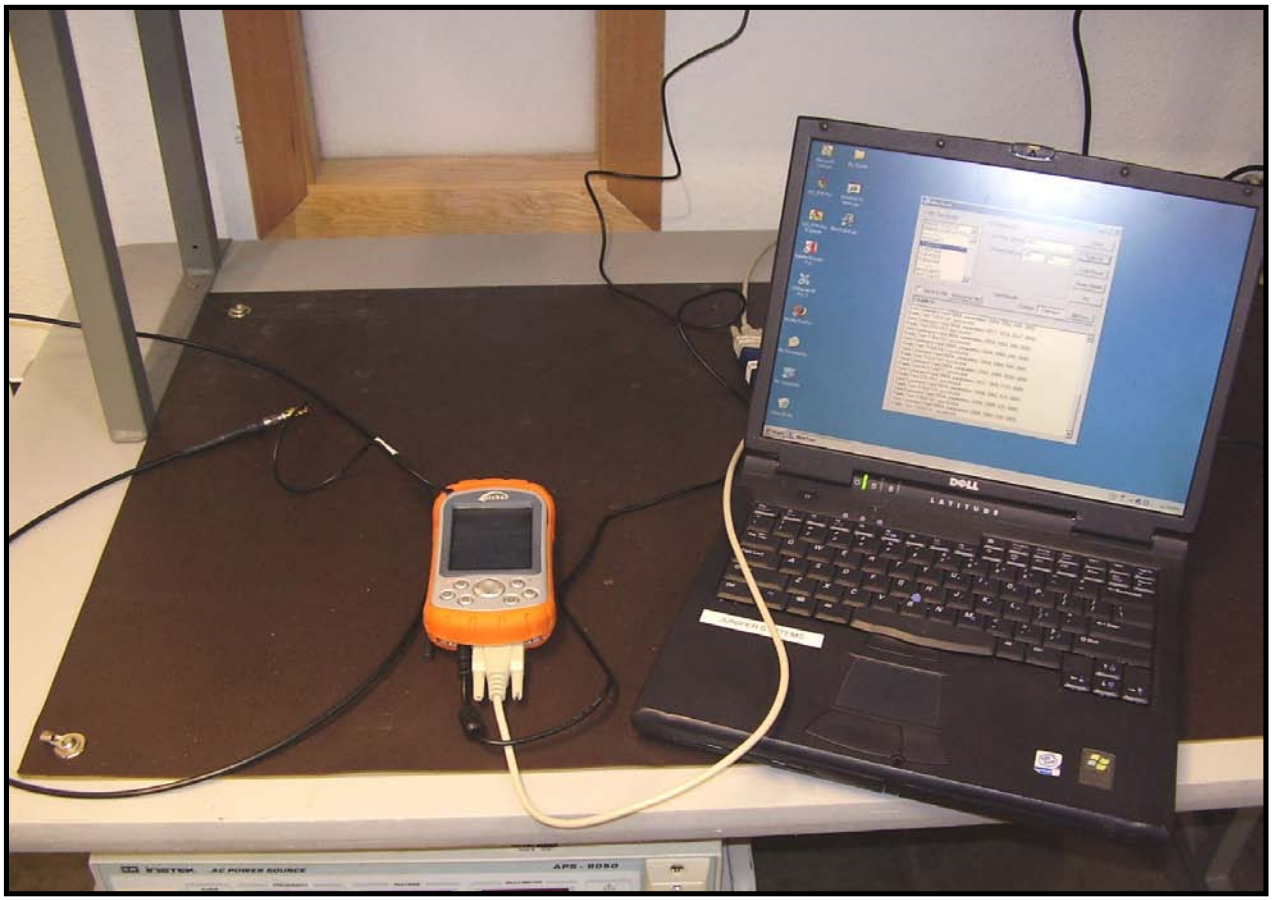


Bluetooth, 8DPSK, 3DH5, High channel, 2480MHz					
Result:	Pass	**Value:**	-48.48 dBc	**Limit:**	≤ -20 dBc





Bandedge Compliance



Spurious Conducted Emissions

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	6/8/2007	13
Spectrum Analyzer	Agilent	E4446A	AAY	12/18/2007	12

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

The spurious RF conducted emissions were measured with the EUT set to low, medium, and high transmit frequencies. The measurements were made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at its maximum data rate using direct sequence modulation. For each transmit frequency, the spectrum was scanned throughout the specified frequency range.

NORTHWEST EMC

Spurious Conducted Emissions

XMit 2007.06.13

EUT:	BC04 in Archer			**Work Order:**	INMC0462
Serial Number:	Unknown			**Date:**	04/29/08
Customer:	Juniper Systems, Inc.			**Temperature:**	22°C
Attendees:	None			**Humidity:**	31%
Project:	None			**Barometric Pres.:**	1013
Tested by:	Holly Ashkannejhad	**Power:**	12DC via 120VAC/60Hz	**Job Site:**	EV06

TEST SPECIFICATIONS	Test Method
FCC 15.247 (DTS):2007	ANSI C63.4:2003 KDB No. 558074

COMMENTS

None

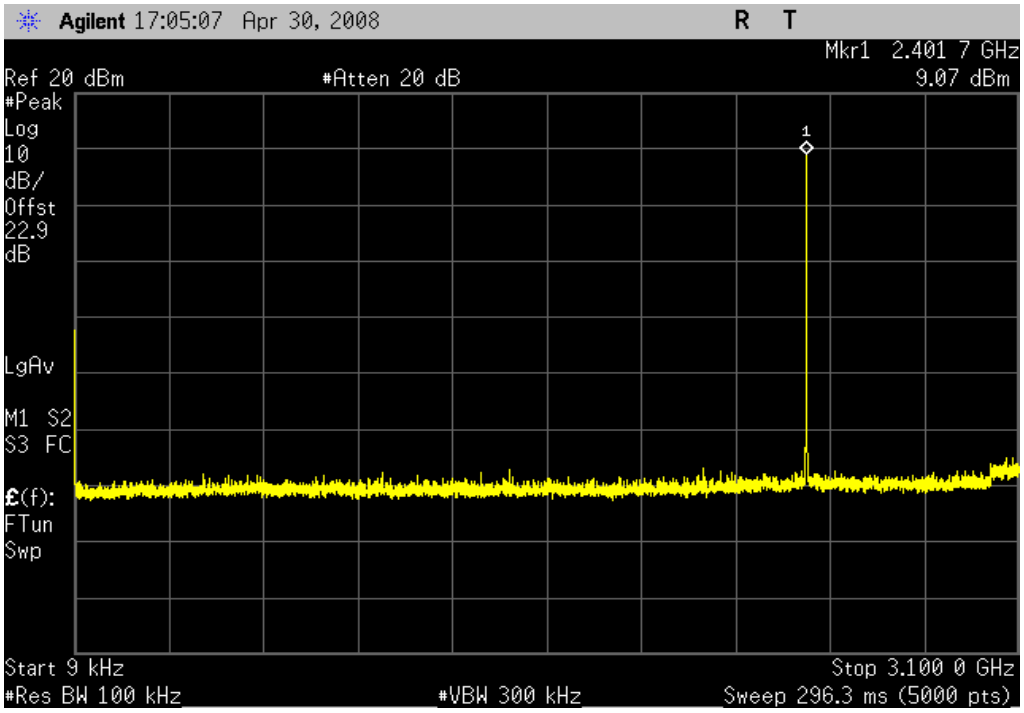
DEVIATIONS FROM TEST STANDARD

No Deviations

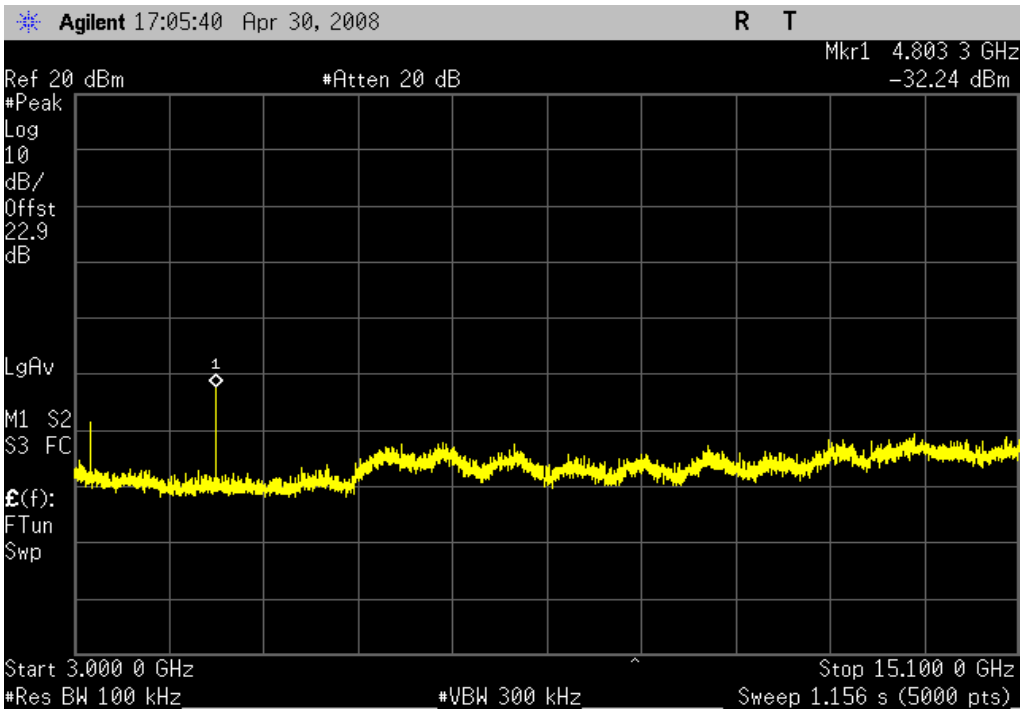
Configuration #	1	Signature Holly Ashkannejhad

		Value	Limit	Results
Bluetooth, GFSK, DH5				
	Low channel, 2402MHz			
	9 kHz - 3.1 GHz	≤ -40 dBc	≤ -20 dBc	Pass
	3 GHz - 15.1 GHz	≤ -40 dBc	≤ -20 dBc	Pass
	15 GHz - 26 GHz	≤ -40 dBc	≤ -20 dBc	Pass
	Mid channel, 2441MHz			
	9 kHz - 3.1 GHz	≤ -40 dBc	≤ -20 dBc	Pass
	3 GHz - 15.1 GHz	≤ -40 dBc	≤ -20 dBc	Pass
	15 GHz - 26 GHz	≤ -40 dBc	≤ -20 dBc	Pass
	High channel, 2480MHz			
	9 kHz - 3.1 GHz	≤ -40 dBc	≤ -20 dBc	Pass
	3 GHz - 15.1 GHz	≤ -40 dBc	≤ -20 dBc	Pass
	15 GHz - 26 GHz	≤ -40 dBc	≤ -20 dBc	Pass
Bluetooth, pi/4-DQPSK, 2DH5				
	Low channel, 2402MHz			
	9 kHz - 3.1 GHz	≤ -35 dBc	≤ -20 dBc	Pass
	3 GHz - 15.1 GHz	≤ -35 dBc	≤ -20 dBc	Pass
	15 GHz - 26 GHz	≤ -35 dBc	≤ -20 dBc	Pass
	Mid channel, 2441MHz			
	9 kHz - 3.1 GHz	≤ -35 dBc	≤ -20 dBc	Pass
	3 GHz - 15.1 GHz	≤ -35 dBc	≤ -20 dBc	Pass
	15 GHz - 26 GHz	≤ -35 dBc	≤ -20 dBc	Pass
	High channel, 2480MHz			
	9 kHz - 3.1 GHz	≤ -35 dBc	≤ -20 dBc	Pass
	3 GHz - 15.1 GHz	≤ -35 dBc	≤ -20 dBc	Pass
	15 GHz - 26 GHz	≤ -35 dBc	≤ -20 dBc	Pass
Bluetooth, 8DPSK, 3DH5				
	Low channel, 2402MHz			
	9 kHz - 3.1 GHz	≤ -35 dBc	≤ -20 dBc	Pass
	3 GHz - 15.1 GHz	≤ -35 dBc	≤ -20 dBc	Pass
	15 GHz - 26 GHz	≤ -35 dBc	≤ -20 dBc	Pass
	Mid channel, 2441MHz			
	9 kHz - 3.1 GHz	≤ -35 dBc	≤ -20 dBc	Pass
	3 GHz - 15.1 GHz	≤ -35 dBc	≤ -20 dBc	Pass
	15 GHz - 26 GHz	≤ -35 dBc	≤ -20 dBc	Pass
	High channel, 2480MHz			
	9 kHz - 3.1 GHz	≤ -35 dBc	≤ -20 dBc	Pass
	3 GHz - 15.1 GHz	≤ -35 dBc	≤ -20 dBc	Pass
	15 GHz - 26 GHz	≤ -35 dBc	≤ -20 dBc	Pass

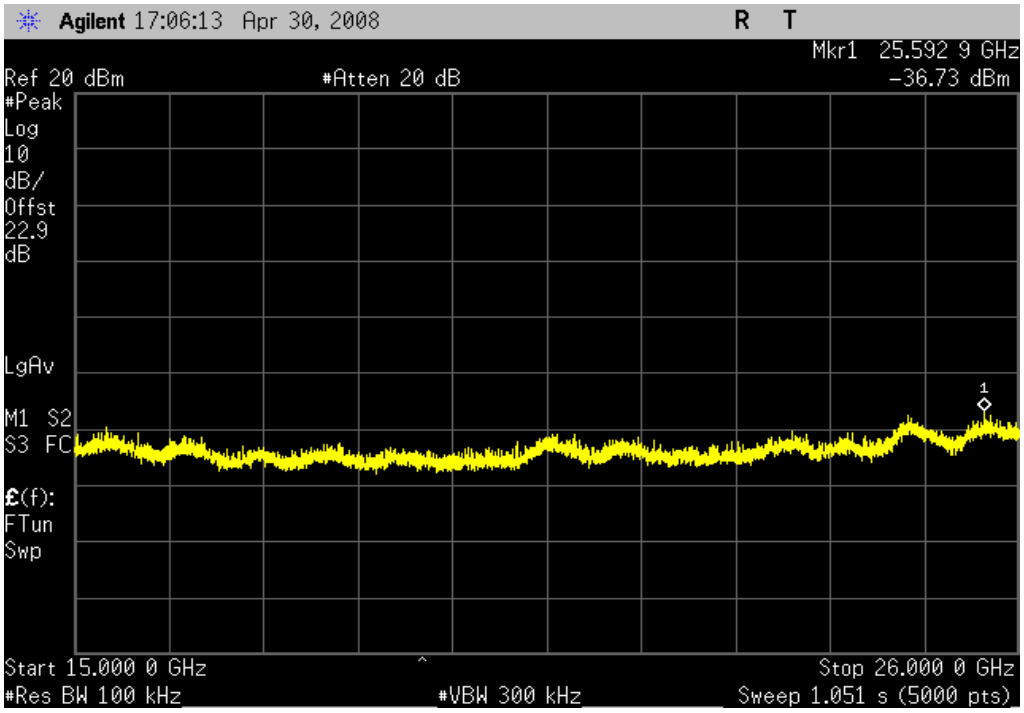
Bluetooth, GFSK, DH5, Low channel, 2402MHz, 9 kHz - 3.1 GHz					
Result:	Pass	**Value:**	≤ -40 dBc	**Limit:**	≤ -20 dBc



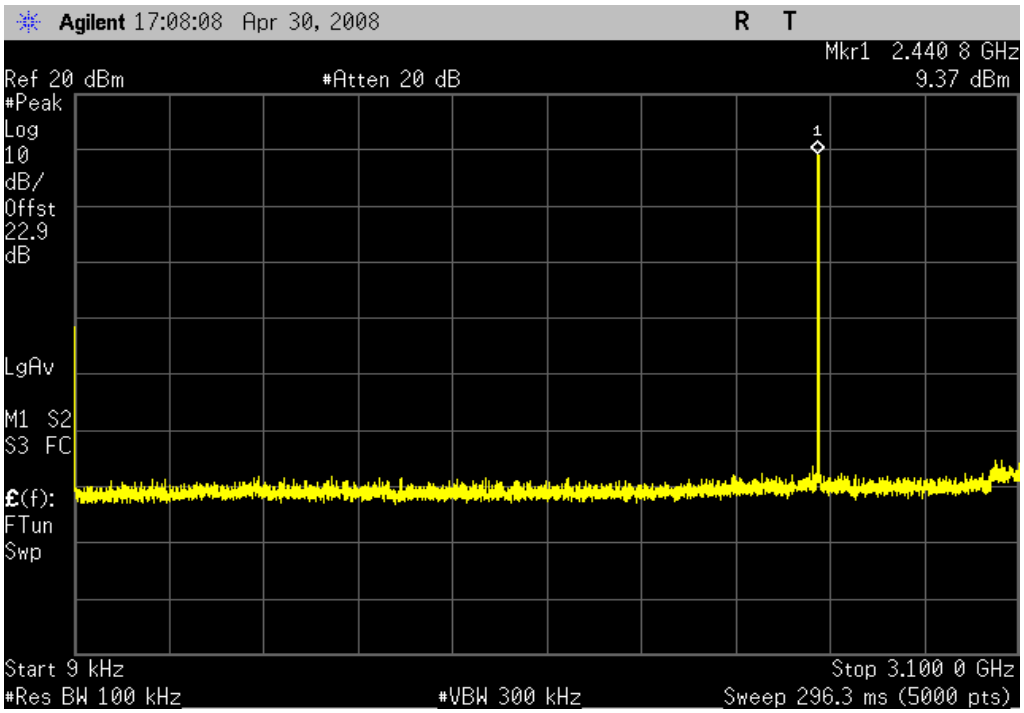
Bluetooth, GFSK, DH5, Low channel, 2402MHz, 3 GHz - 15.1 GHz					
Result:	Pass	**Value:**	≤ -40 dBc	**Limit:**	≤ -20 dBc



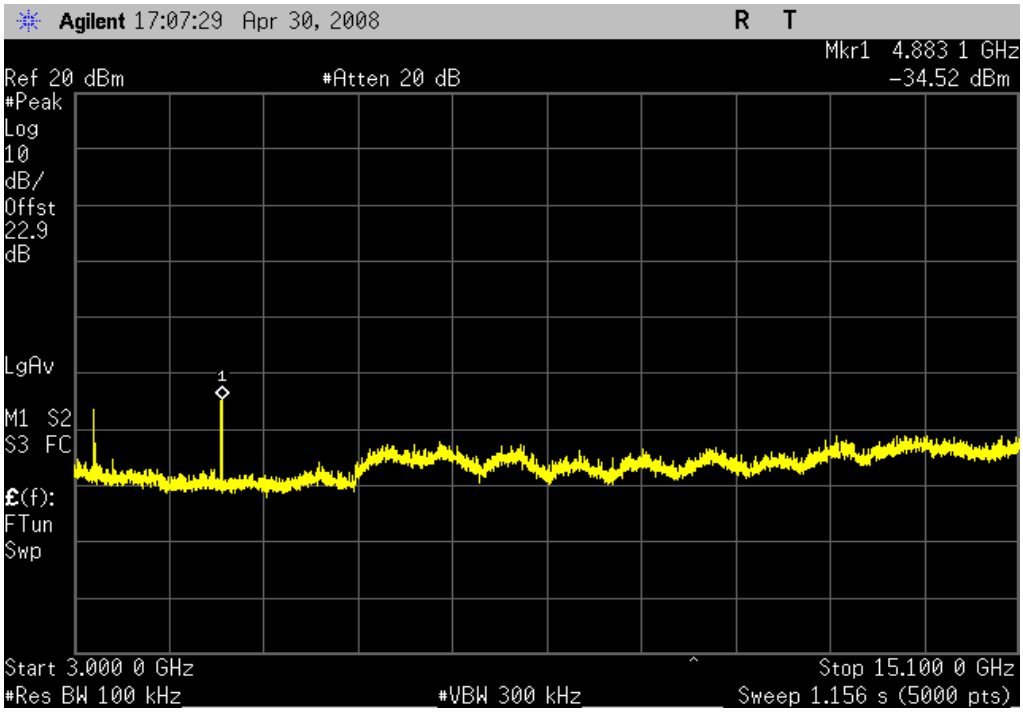
Bluetooth, GFSK, DH5, Low channel, 2402MHz, 15 GHz - 26 GHz					
Result:	Pass	**Value:**	≤ -40 dBc	**Limit:**	≤ -20 dBc



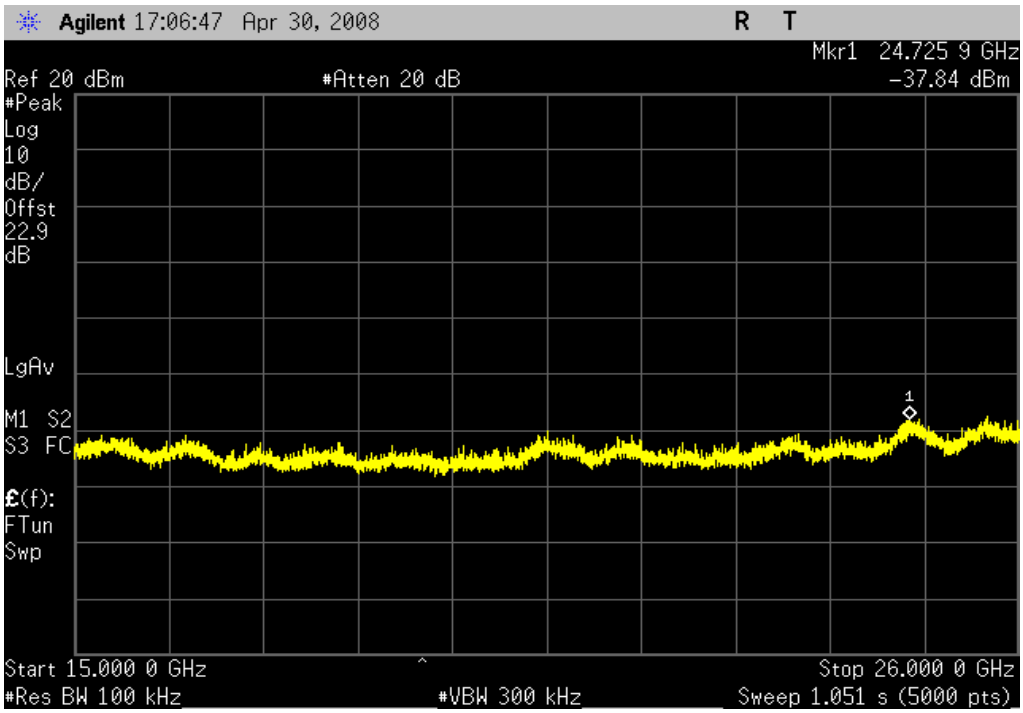
Bluetooth, GFSK, DH5, Mid channel, 2441MHz, 9 kHz - 3.1 GHz					
Result:	Pass	**Value:**	≤ -40 dBc	**Limit:**	≤ -20 dBc



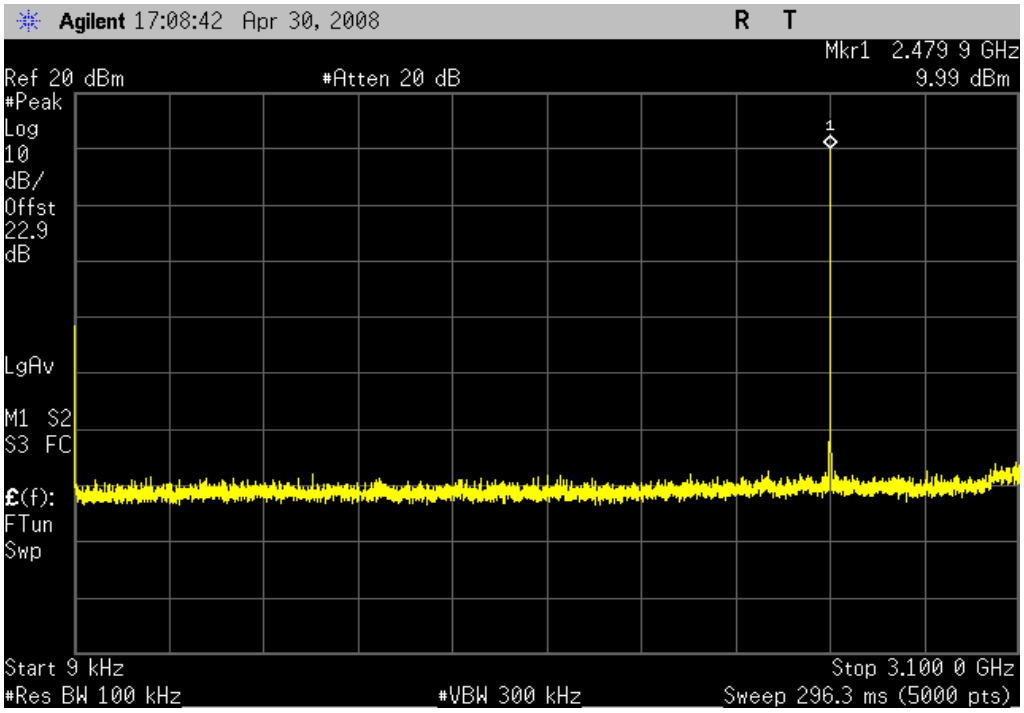
Bluetooth, GFSK, DH5, Mid channel, 2441MHz, 3 GHz - 15.1 GHz					
Result:	Pass	**Value:**	≤ -40 dBc	**Limit:**	≤ -20 dBc



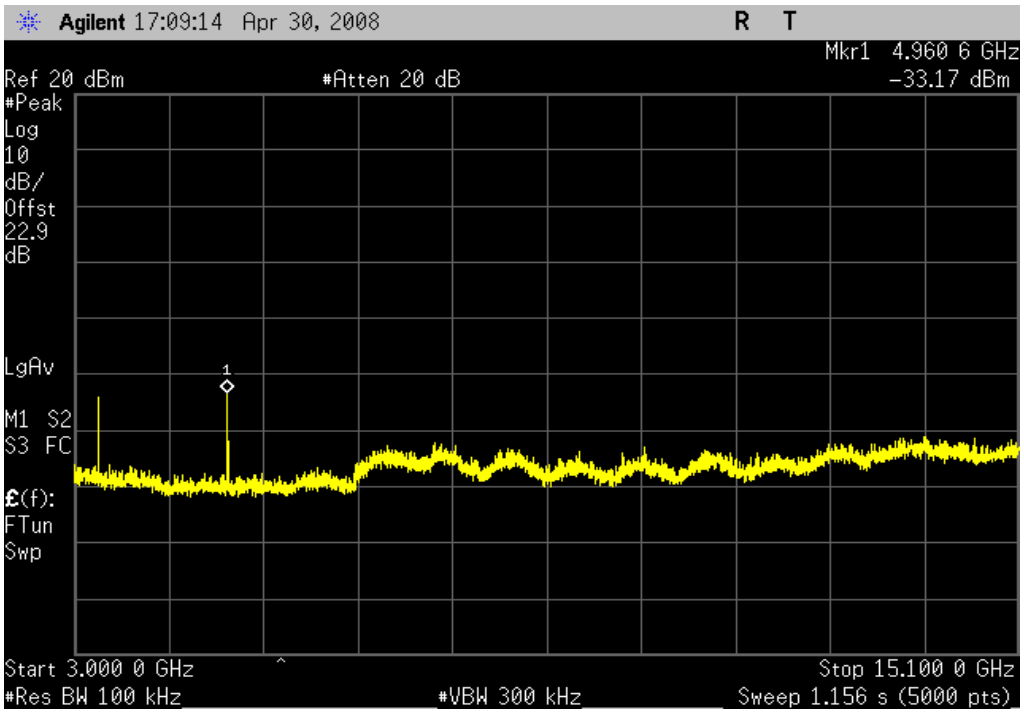
Bluetooth, GFSK, DH5, Mid channel, 2441MHz, 15 GHz - 26 GHz					
Result:	Pass	**Value:**	≤ -40 dBc	**Limit:**	≤ -20 dBc



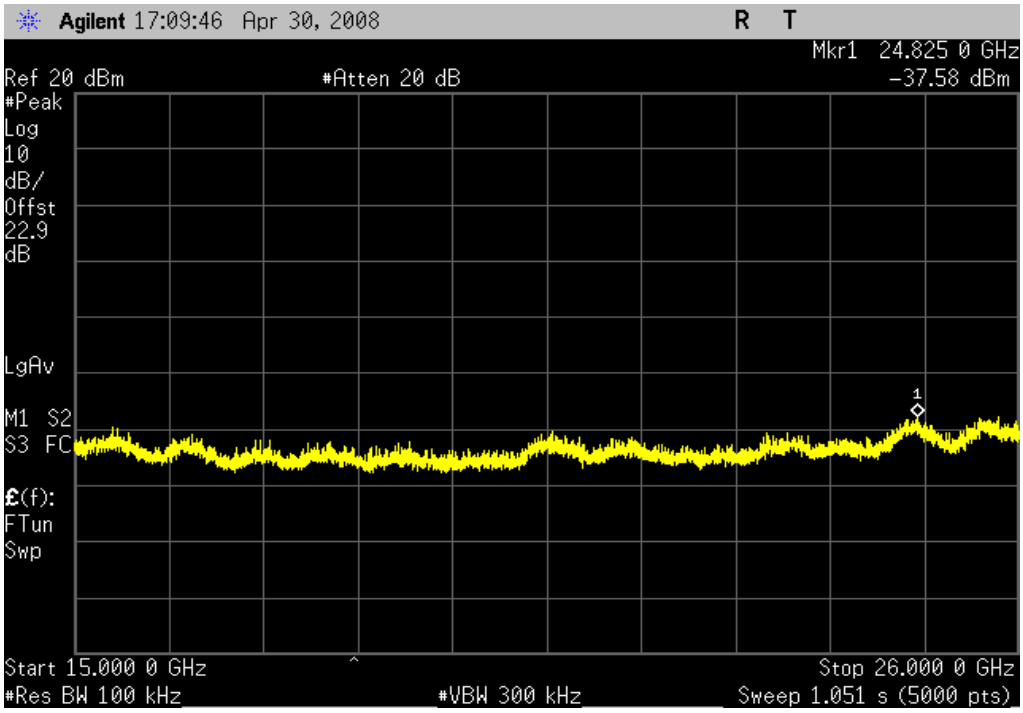
Bluetooth, GFSK, DH5, High channel, 2480MHz, 9 kHz - 3.1 GHz					
Result:	Pass	**Value:**	≤ -40 dBc	**Limit:**	≤ -20 dBc



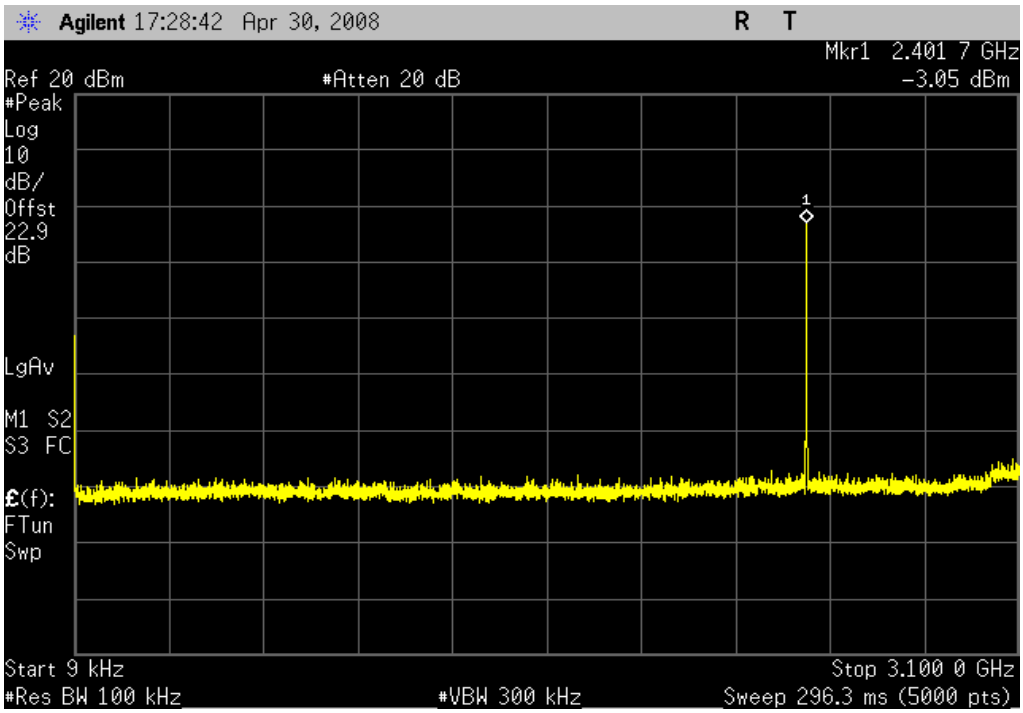
Bluetooth, GFSK, DH5, High channel, 2480MHz, 3 GHz - 15.1 GHz					
Result:	Pass	**Value:**	≤ -40 dBc	**Limit:**	≤ -20 dBc



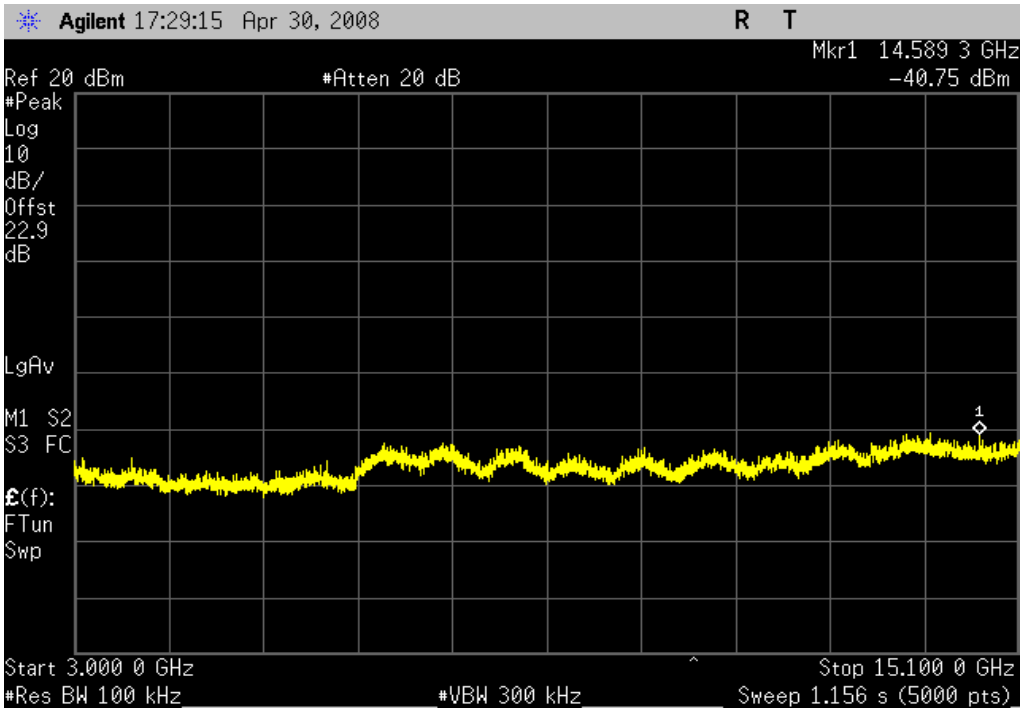
Bluetooth, GFSK, DH5, High channel, 2480MHz, 15 GHz - 26 GHz					
Result:	Pass	**Value:**	≤ -40 dBc	**Limit:**	≤ -20 dBc



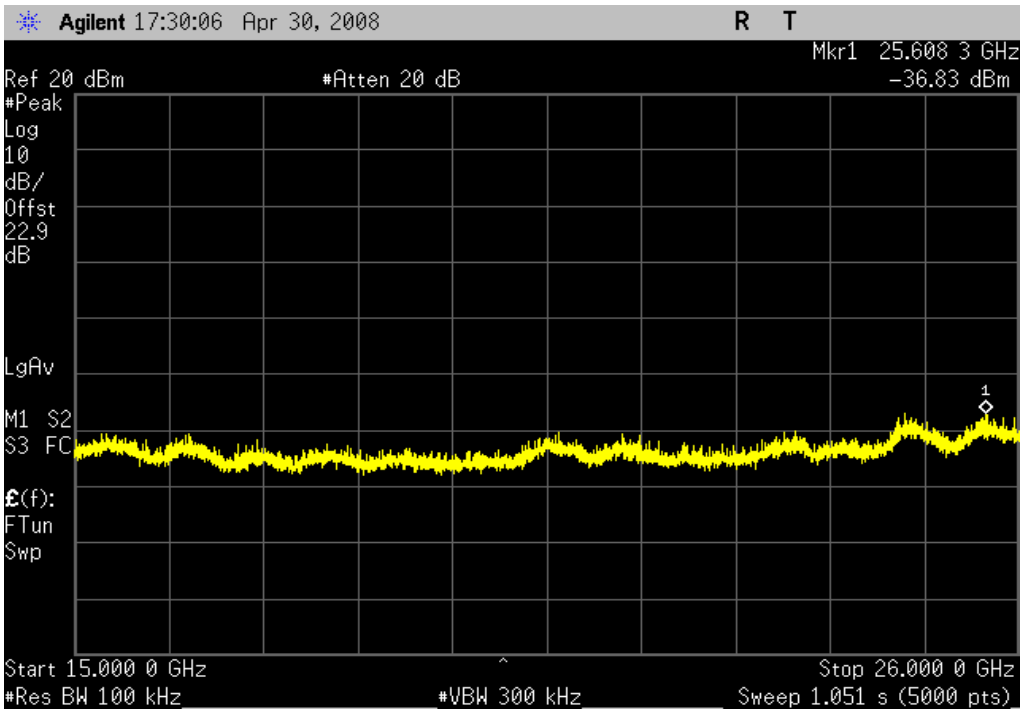
Bluetooth, pi/4-DQPSK, 2DH5, Low channel, 2402MHz, 9 kHz - 3.1 GHz					
Result:	Pass	**Value:**	≤ -35 dBc	**Limit:**	≤ -20 dBc



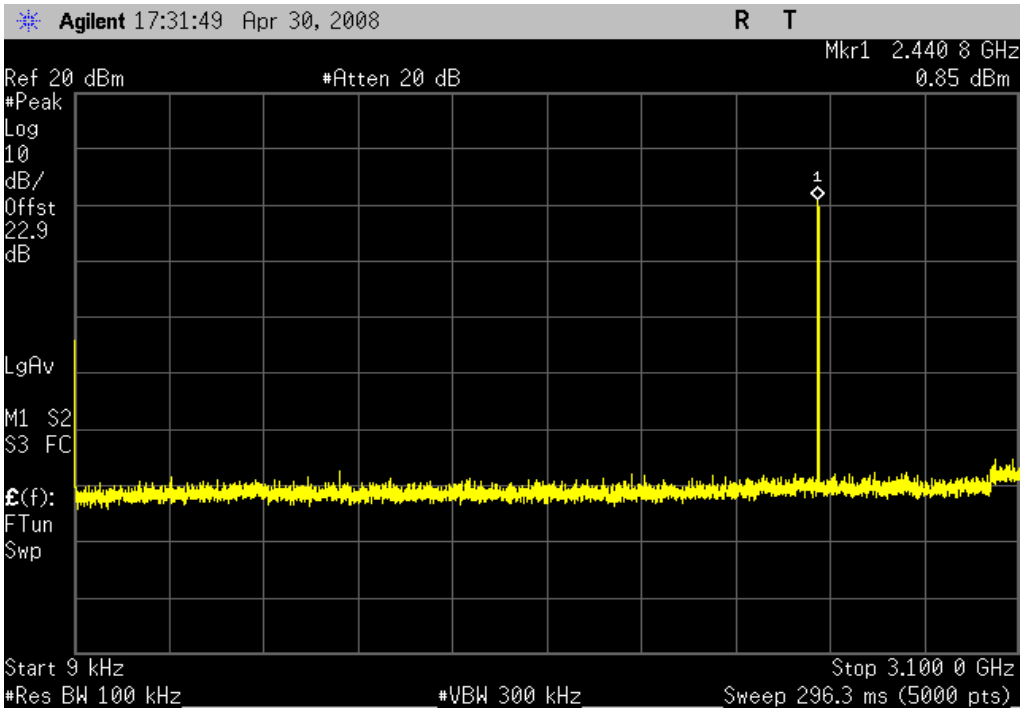
Bluetooth, pi/4-DQPSK, 2DH5, Low channel, 2402MHz, 3 GHz - 15.1 GHz					
Result:	Pass	**Value:**	≤ -35 dBc	**Limit:**	≤ -20 dBc



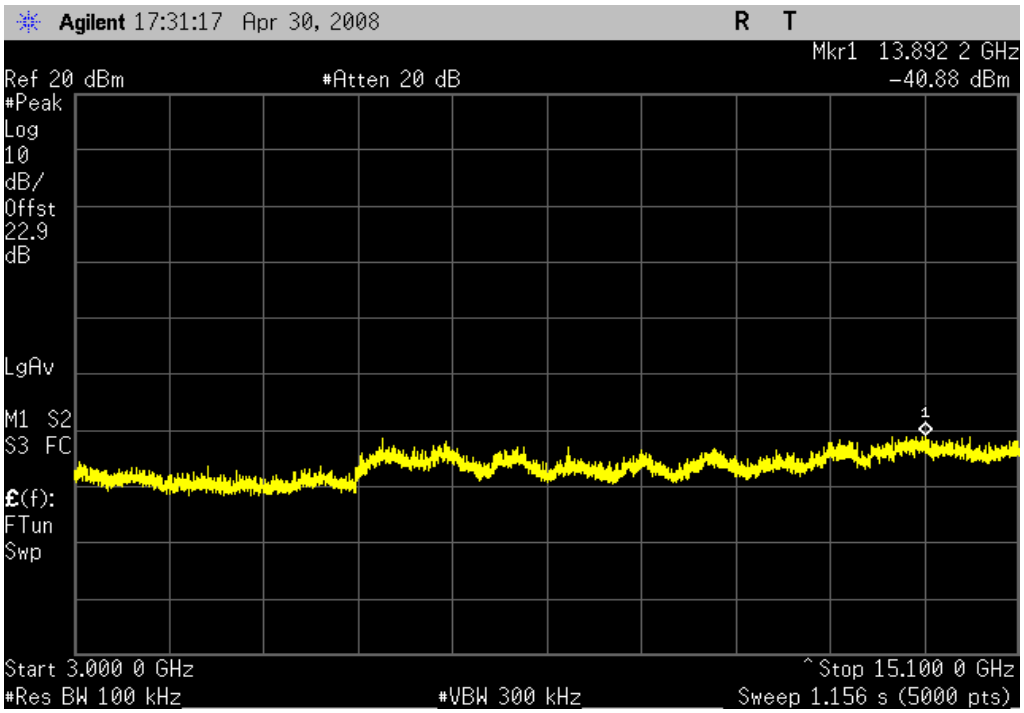
Bluetooth, pi/4-DQPSK, 2DH5, Low channel, 2402MHz, 15 GHz - 26 GHz					
Result:	Pass	**Value:**	≤ -35 dBc	**Limit:**	≤ -20 dBc



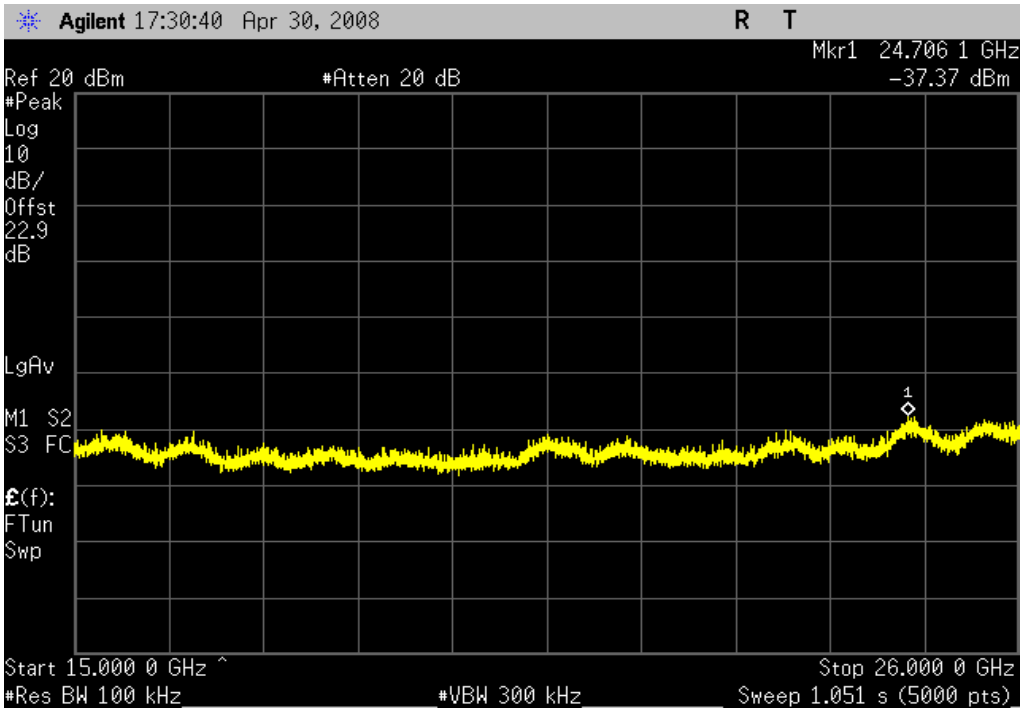
Bluetooth, pi/4-DQPSK, 2DH5, Mid channel, 2441MHz, 9 kHz - 3.1 GHz					
Result:	Pass	**Value:**	≤ -35 dBc	**Limit:**	≤ -20 dBc



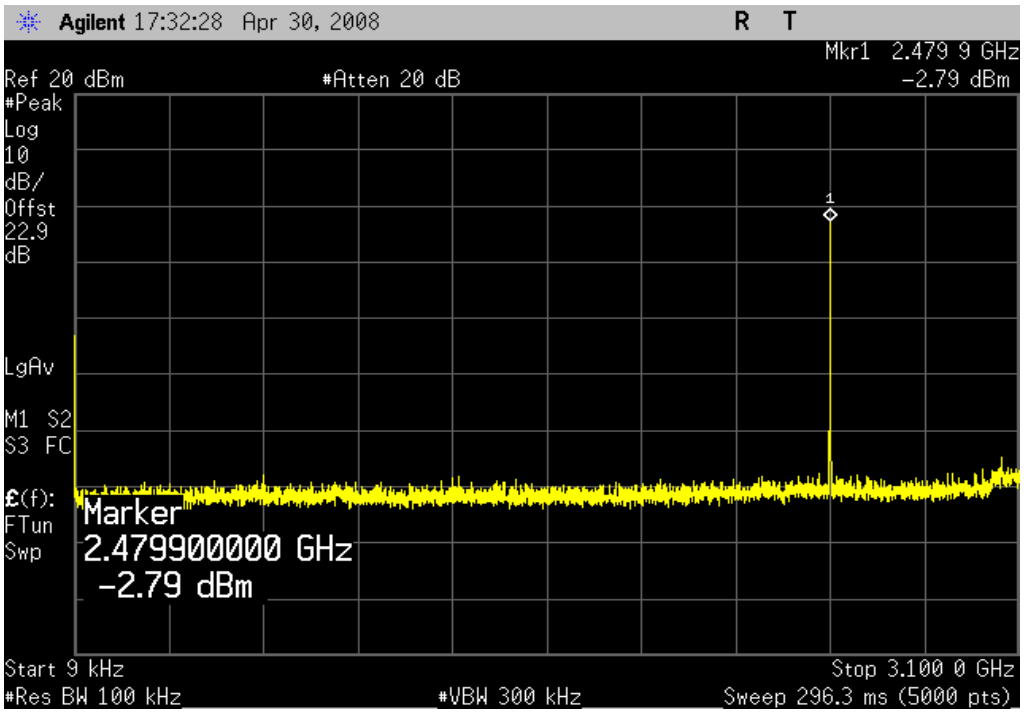
Bluetooth, pi/4-DQPSK, 2DH5, Mid channel, 2441MHz, 3 GHz - 15.1 GHz					
Result:	Pass	**Value:**	≤ -35 dBc	**Limit:**	≤ -20 dBc



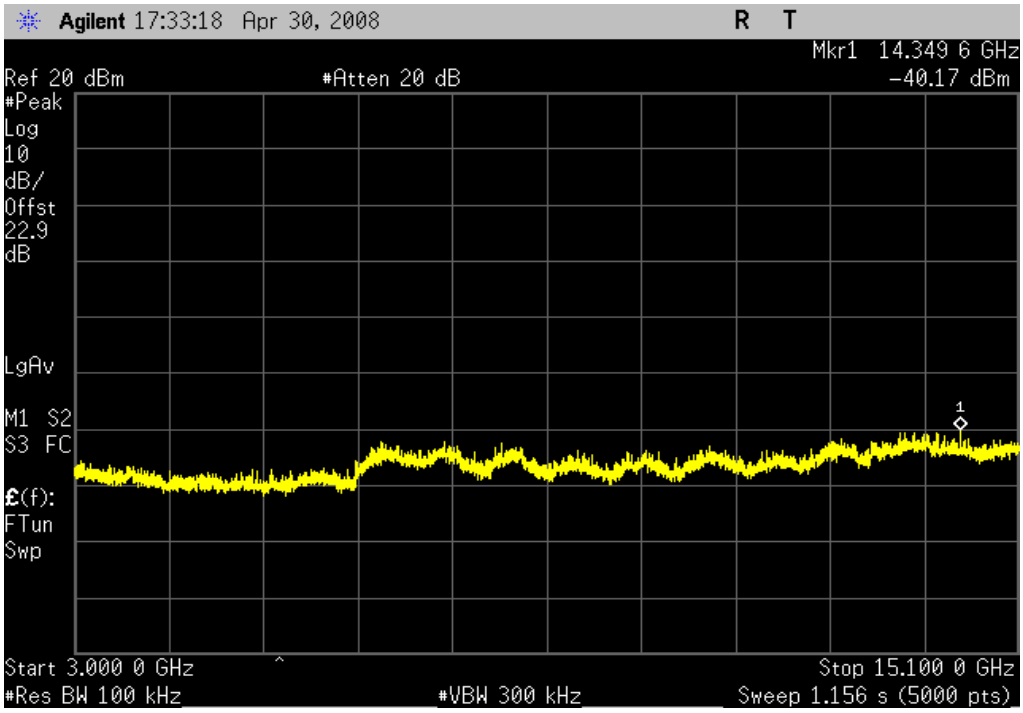
Bluetooth, pi/4-DQPSK, 2DH5, Mid channel, 2441MHz, 15 GHz - 26 GHz					
Result:	Pass	**Value:**	≤ -35 dBc	**Limit:**	≤ -20 dBc



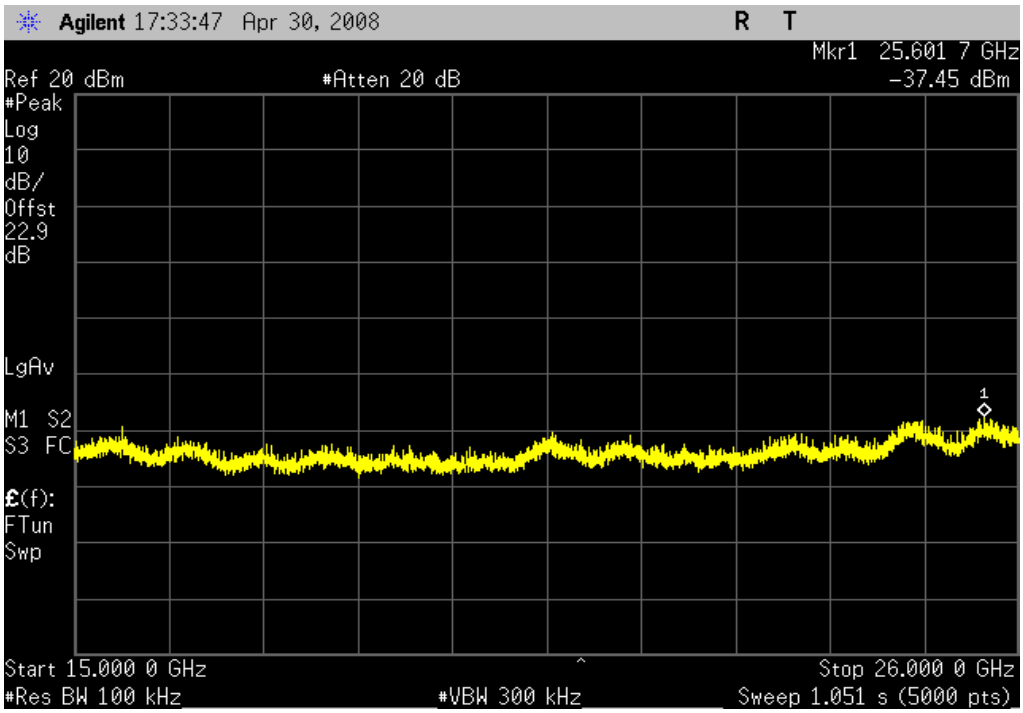
Bluetooth, pi/4-DQPSK, 2DH5, High channel, 2480MHz, 9 kHz - 3.1 GHz					
Result:	Pass	**Value:**	≤ -35 dBc	**Limit:**	≤ -20 dBc



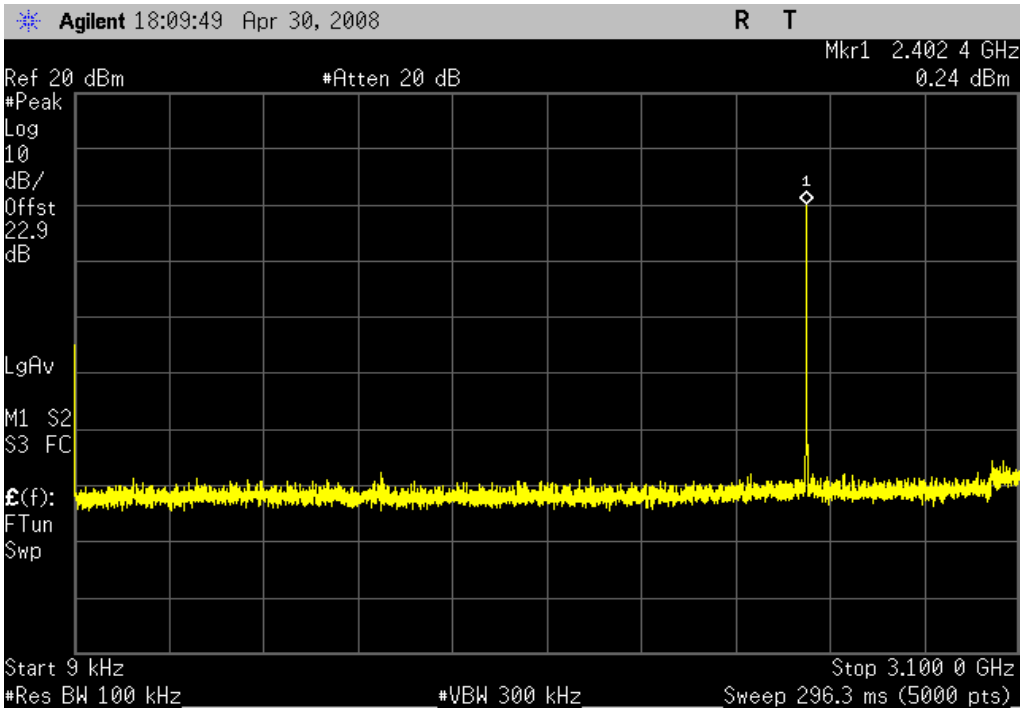
Bluetooth, pi/4-DQPSK, 2DH5, High channel, 2480MHz, 3 GHz - 15.1 GHz					
Result:	Pass	**Value:**	≤ -35 dBc	**Limit:**	≤ -20 dBc



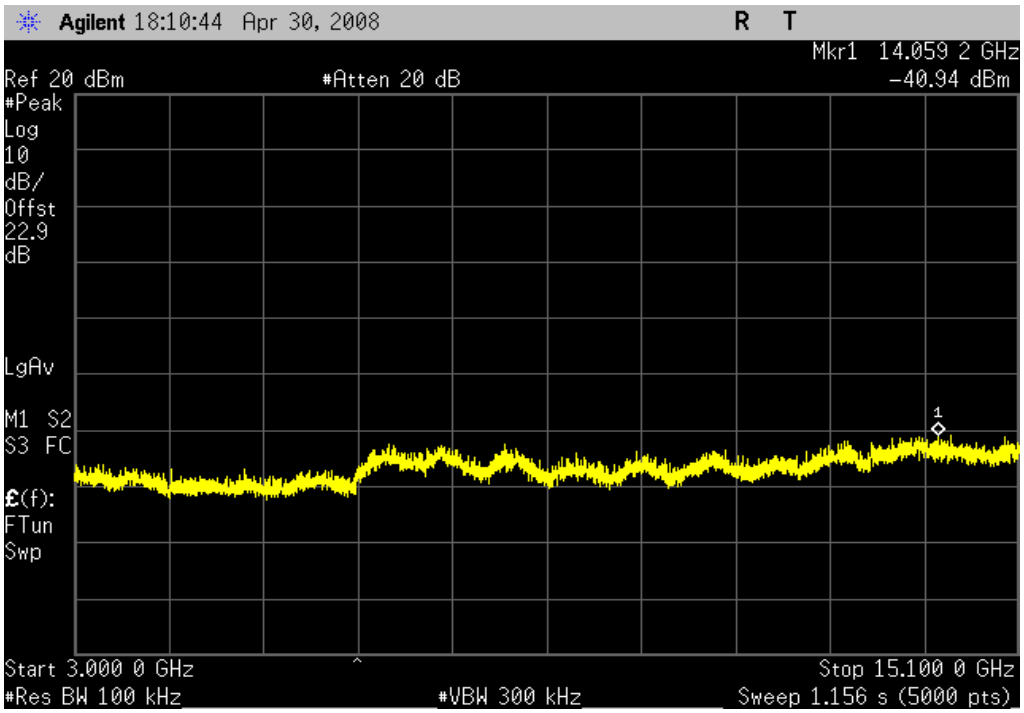
Bluetooth, pi/4-DQPSK, 2DH5, High channel, 2480MHz, 15 GHz - 26 GHz					
Result:	Pass	**Value:**	≤ -35 dBc	**Limit:**	≤ -20 dBc



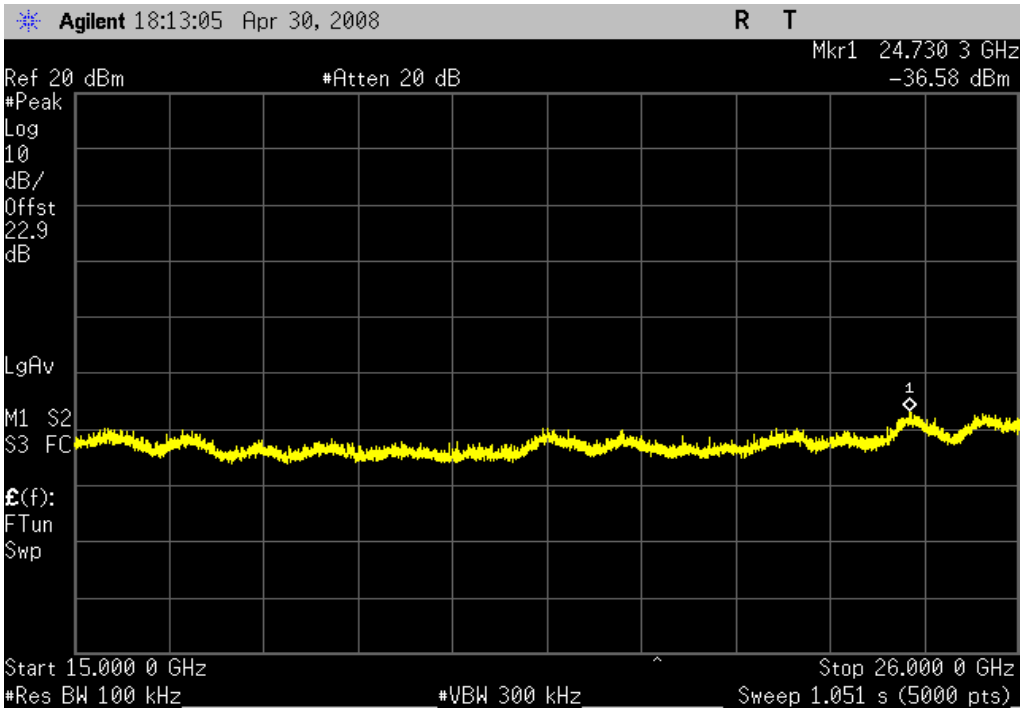
Bluetooth, 8DPSK, 3DH5, Low channel, 2402MHz, 9 kHz - 3.1 GHz					
Result:	Pass	**Value:**	≤ -35 dBc	**Limit:**	≤ -20 dBc



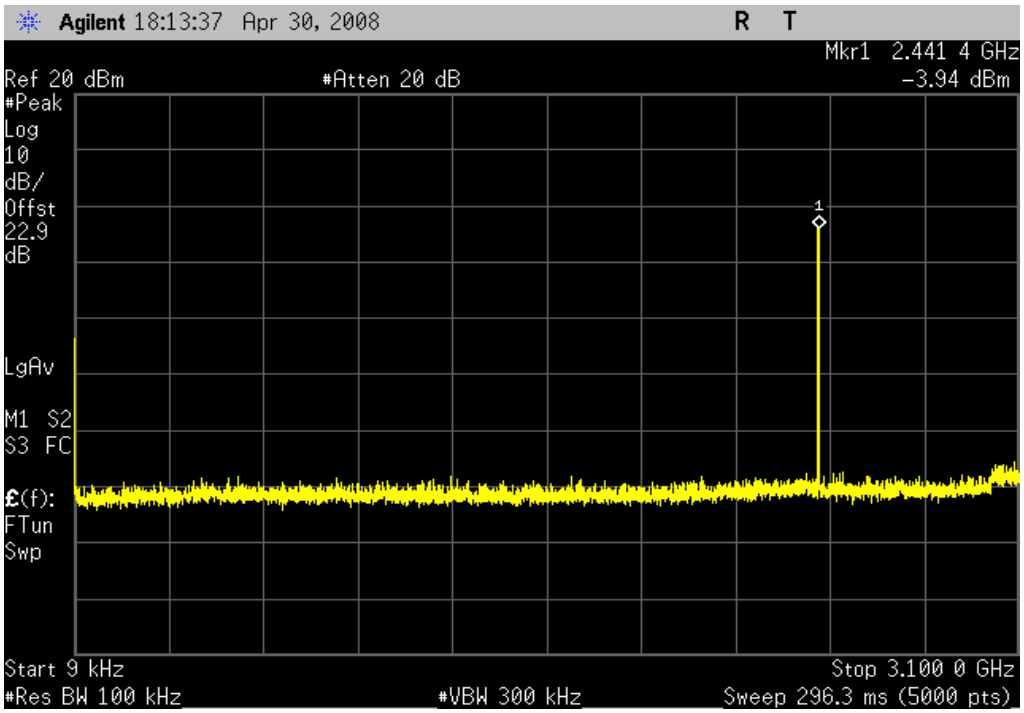
Bluetooth, 8DPSK, 3DH5, Low channel, 2402MHz, 3 GHz - 15.1 GHz					
Result:	Pass	**Value:**	≤ -35 dBc	**Limit:**	≤ -20 dBc



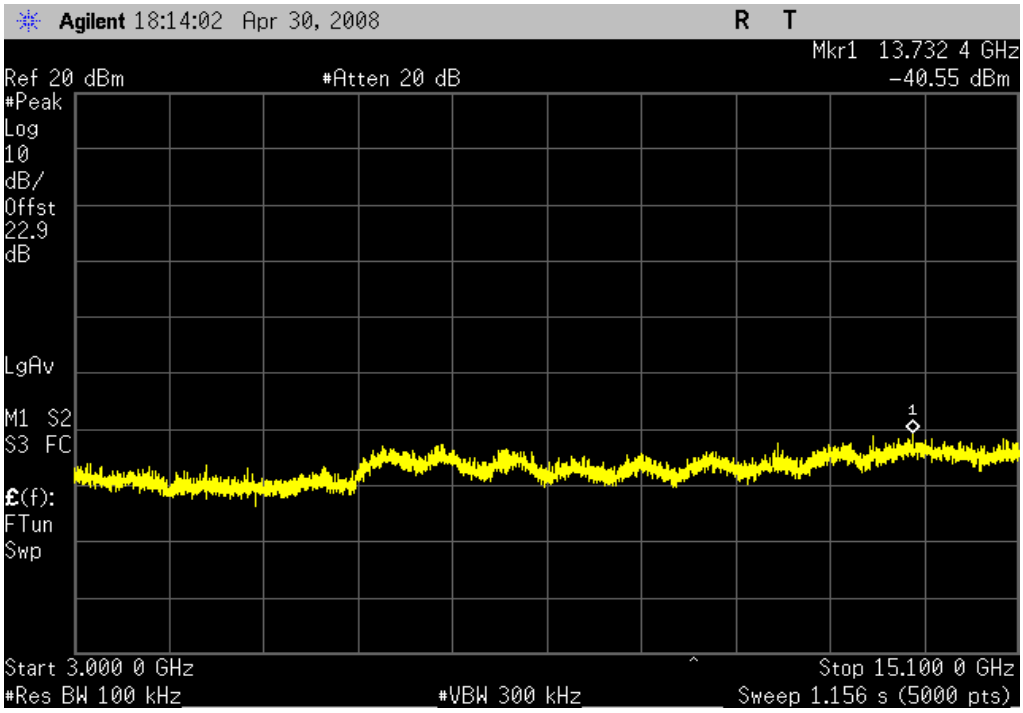
Bluetooth, 8DPSK, 3DH5, Low channel, 2402MHz, 15 GHz - 26 GHz					
Result:	Pass	**Value:**	≤ -35 dBc	**Limit:**	≤ -20 dBc



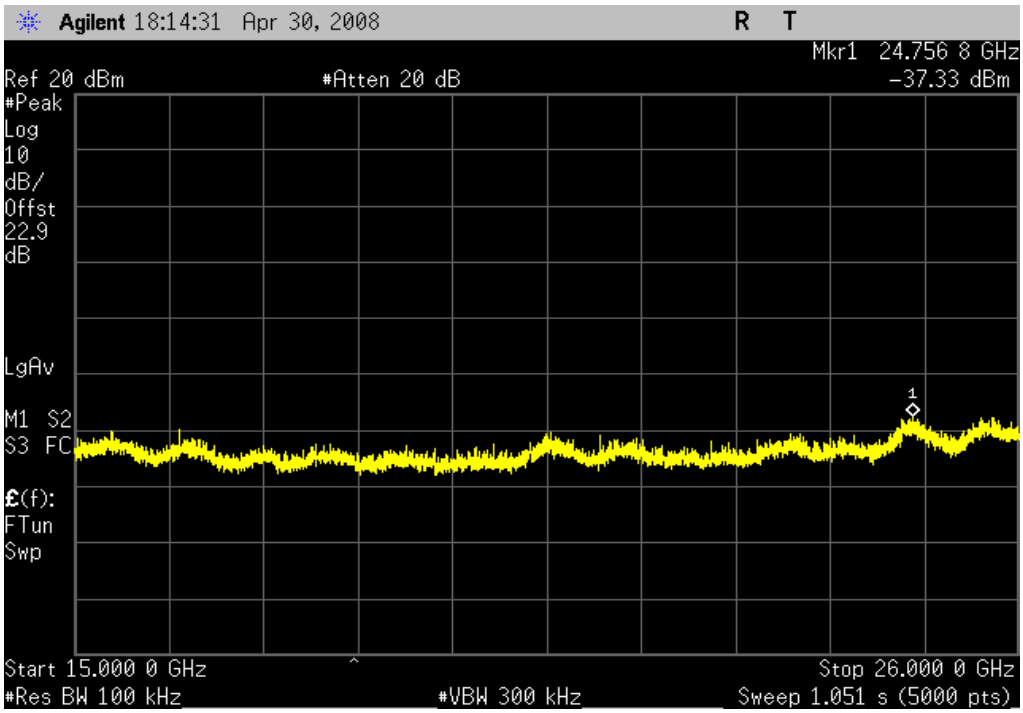
Bluetooth, 8DPSK, 3DH5, Mid channel, 2441MHz, 9 kHz - 3.1 GHz					
Result:	Pass	**Value:**	≤ -35 dBc	**Limit:**	≤ -20 dBc



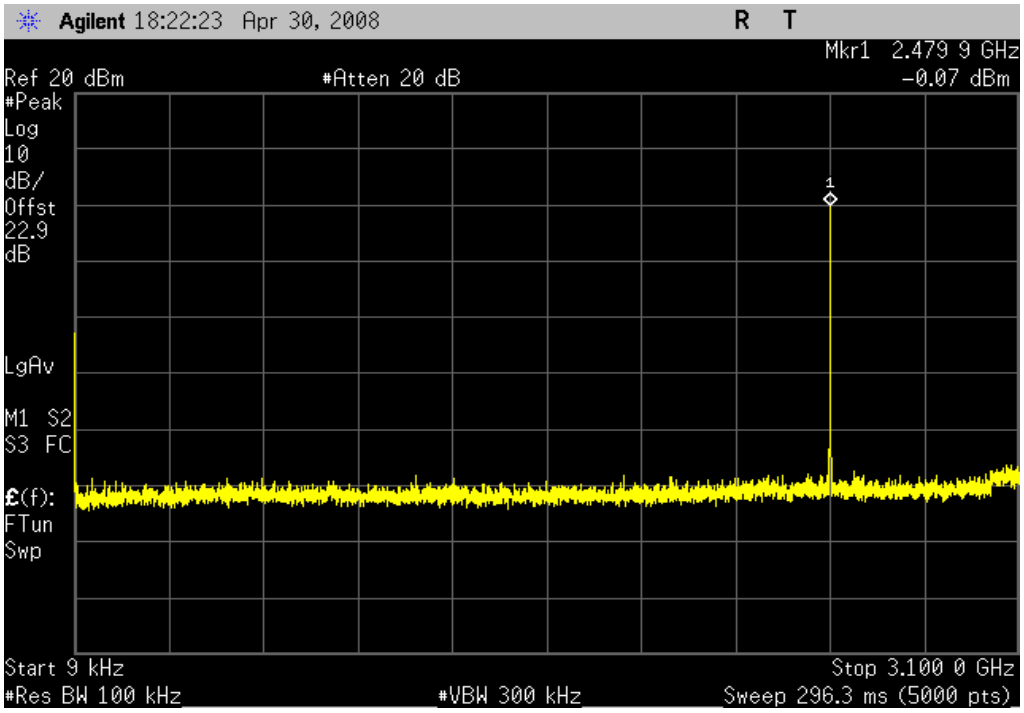
Bluetooth, 8DPSK, 3DH5, Mid channel, 2441MHz, 3 GHz - 15.1 GHz					
Result:	Pass	**Value:**	≤ -35 dBc	**Limit:**	≤ -20 dBc



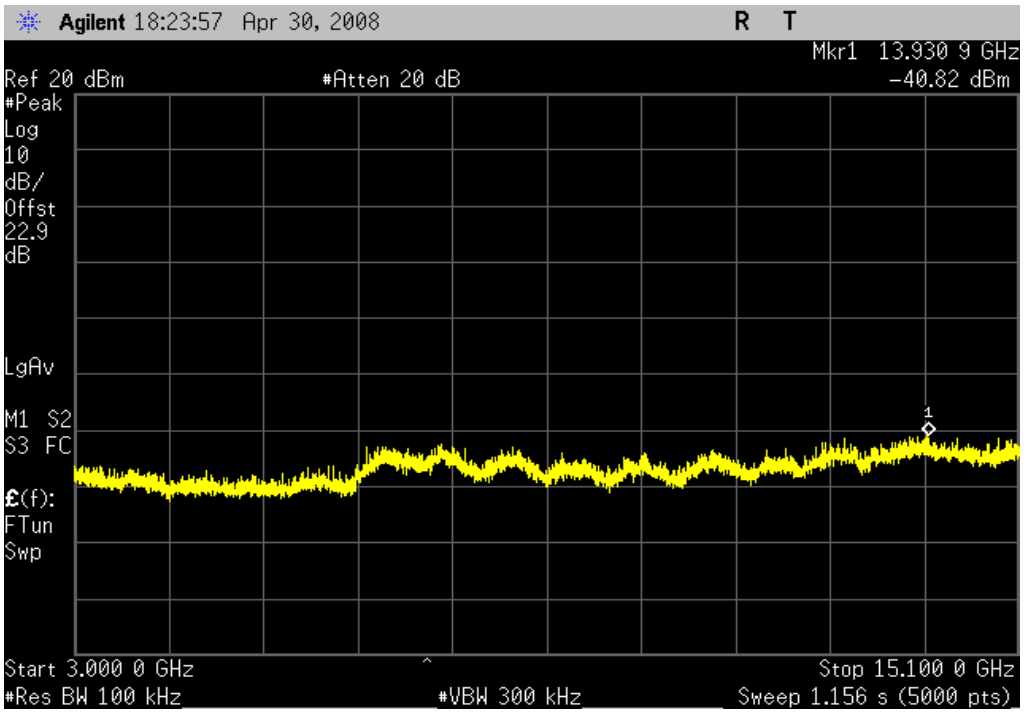
Bluetooth, 8DPSK, 3DH5, Mid channel, 2441MHz, 15 GHz - 26 GHz					
Result:	Pass	**Value:**	≤ -35 dBc	**Limit:**	≤ -20 dBc



Bluetooth, 8DPSK, 3DH5, High channel, 2480MHz, 9 kHz - 3.1 GHz					
Result:	Pass	**Value:**	≤ -35 dBc	**Limit:**	≤ -20 dBc

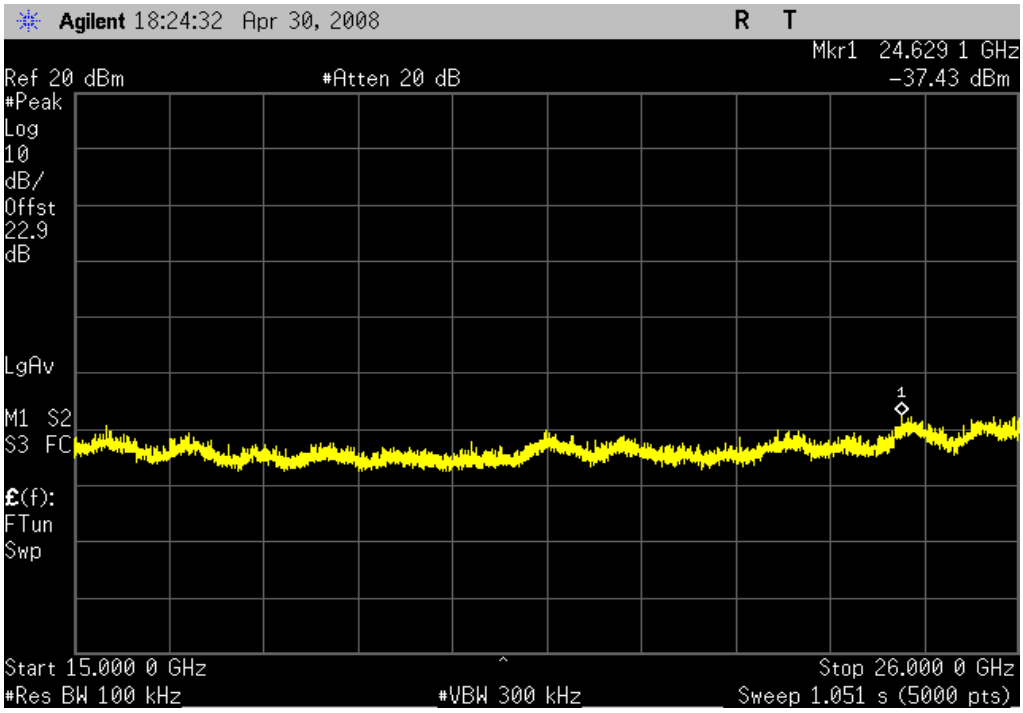


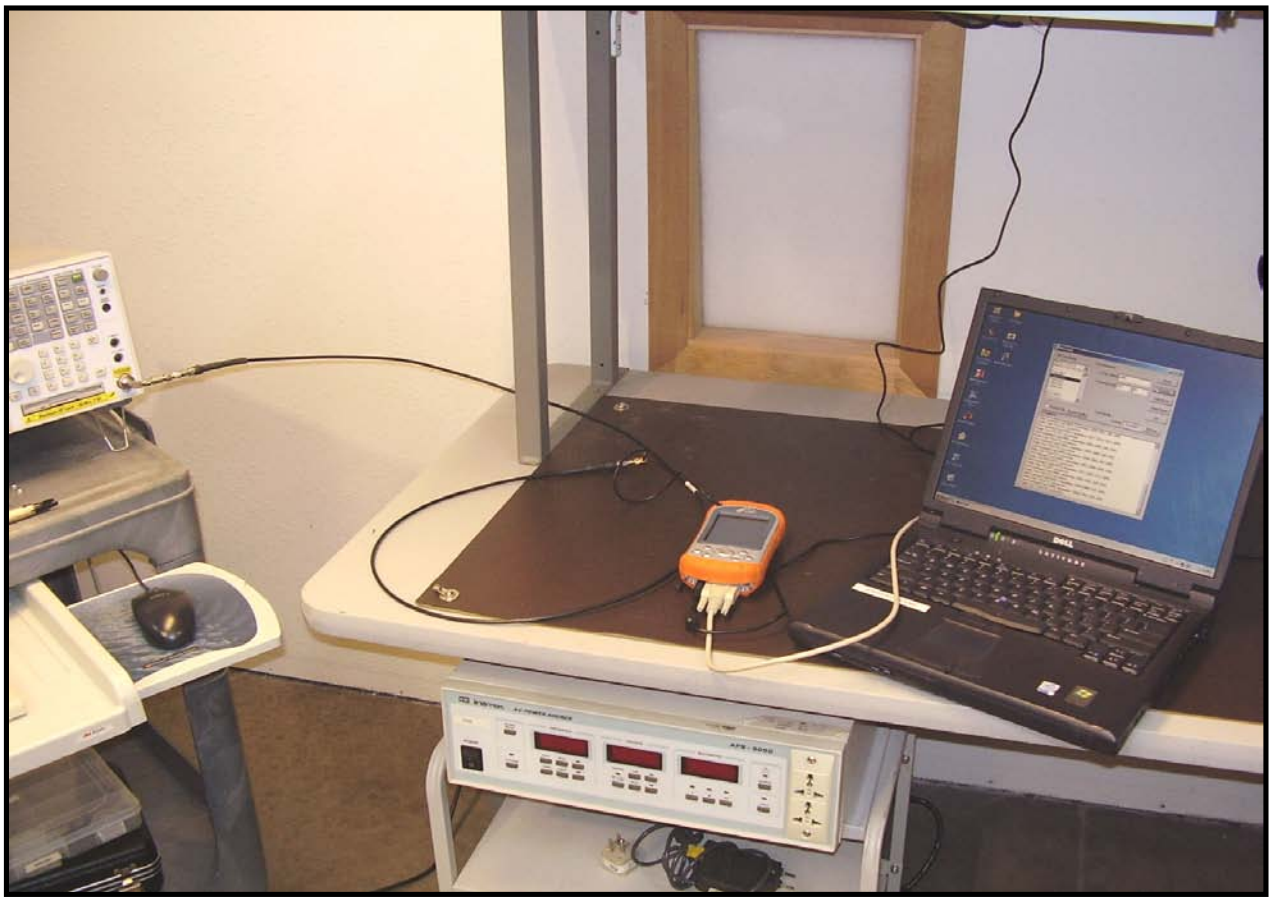
Bluetooth, 8DPSK, 3DH5, High channel, 2480MHz, 3 GHz - 15.1 GHz					
Result:	Pass	**Value:**	≤ -35 dBc	**Limit:**	≤ -20 dBc

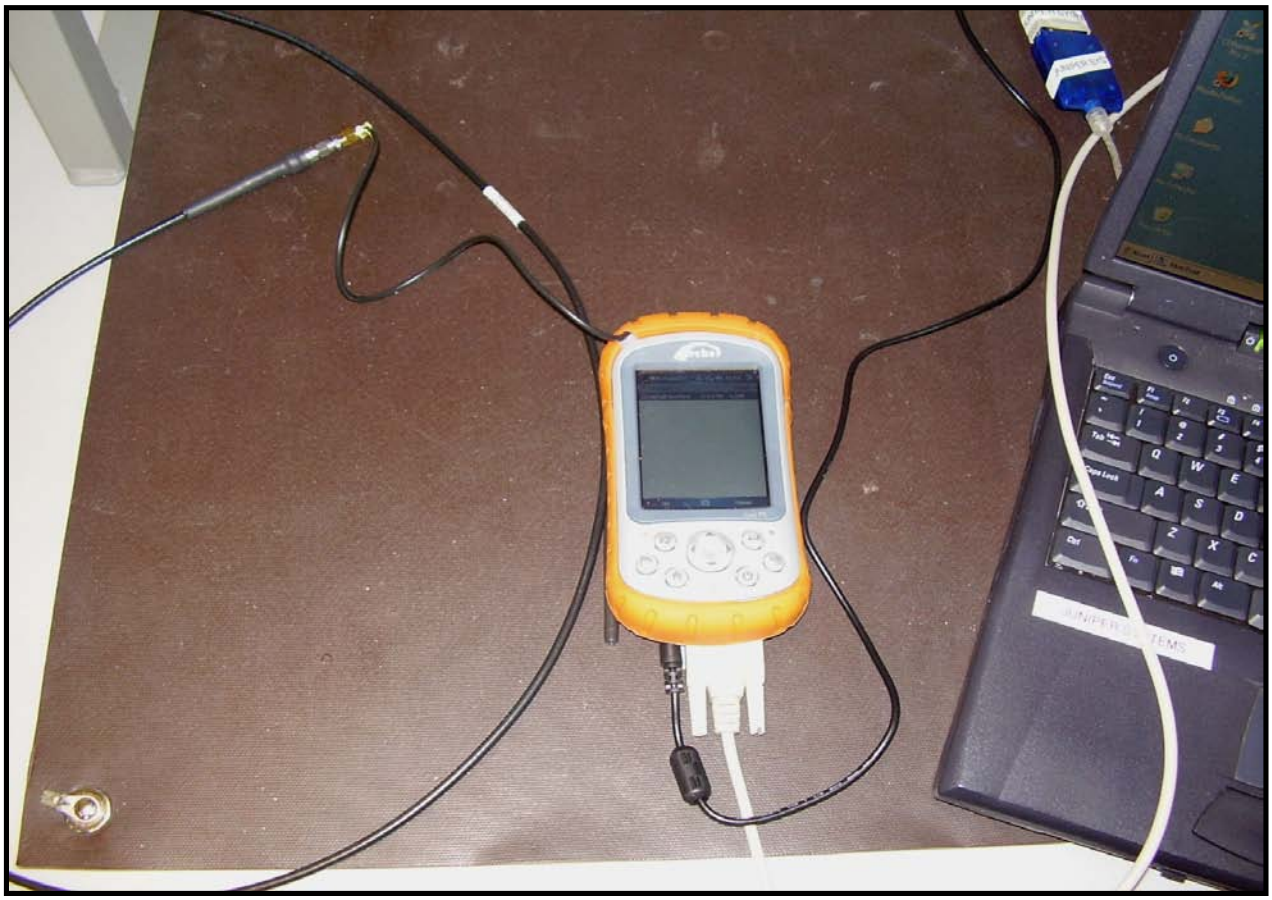


Spurious Conducted Emissions

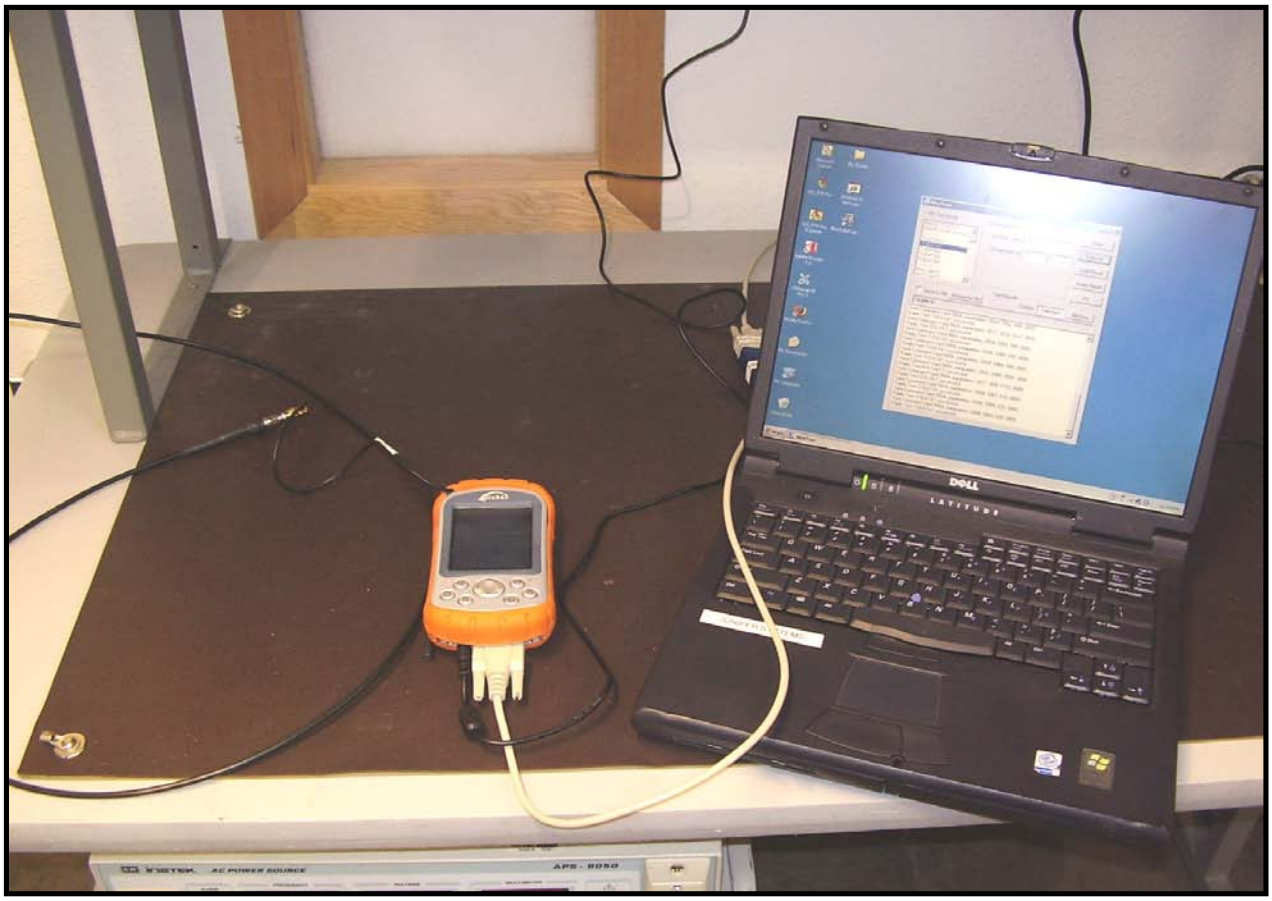
Bluetooth, 8DPSK, 3DH5, High channel, 2480MHz, 15 GHz - 26 GHz					
Result:	Pass	**Value:**	≤ -35 dBc	**Limit:**	≤ -20 dBc







Spurious Conducted Emissions



Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	6/8/2007	13
Spectrum Analyzer	Agilent	E4446A	AAY	12/18/2007	12

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

The peak power spectral density measurements were measured with the EUT set to low, mid, and high transmit frequencies. The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at its maximum data rate using direct sequence modulation. Per the procedure outlined in FCC 97-114, the spectrum analyzer was used as follows:

> The emission peak(s) were located and zoom in on within the passband. The resolution bandwidth was set to 3 kHz, the video bandwidth was set to greater than or equal to the resolution bandwidth. The sweep speed was set equal to the span divided by 3 kHz (sweep = (SPAN/3 kHz)). For example, given a span of 1.5 MHz, the sweep should be 1.5 x 10^6 ÷ 3 x 10^3 = 500 seconds. External attenuation was used and added to the reading. The following FCC procedure was used for modifying the power spectral density measurements:

"If the spectrum line spacing cannot be resolved on the available spectrum analyzer, the noise density function on most modern conventional spectrum analyzers will directly measure the noise power density normalized to a 1 Hz noise power bandwidth. Add 34.8 dB for correction to 3 kHz."

NORTHWEST EMC

Power Spectral Density

XMit 2007.06.13

EUT:	BC04 in Archer			**Work Order:**	JUNI0002
Serial Number:	Unknown			**Date:**	04/29/08
Customer:	Juniper Systems, Inc.			**Temperature:**	22°C
Attendees:	None			**Humidity:**	31%
Project:	None			**Barometric Pres.:**	1013
Tested by:	Holly Ashkannejhad	**Power:**	12DC via 120VAC/60Hz	**Job Site:**	EV06

TEST SPECIFICATIONS	Test Method
FCC 15.247 (DTS):2007	ANSI C63.4:2003 KDB No. 558074

COMMENTS

None

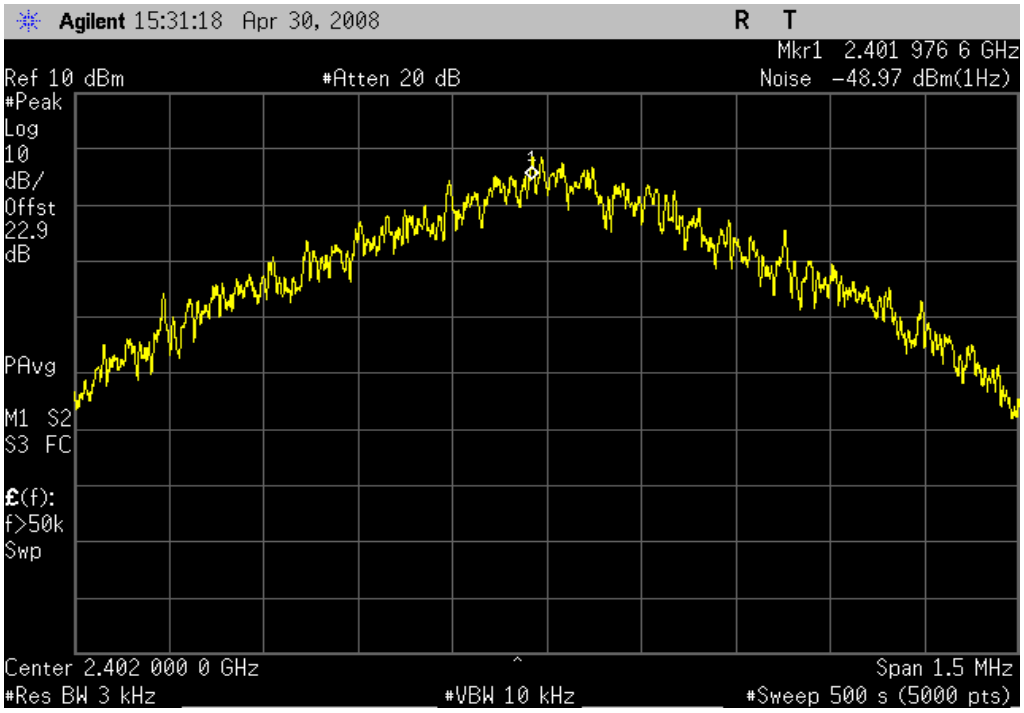
DEVIATIONS FROM TEST STANDARD

No Deviations

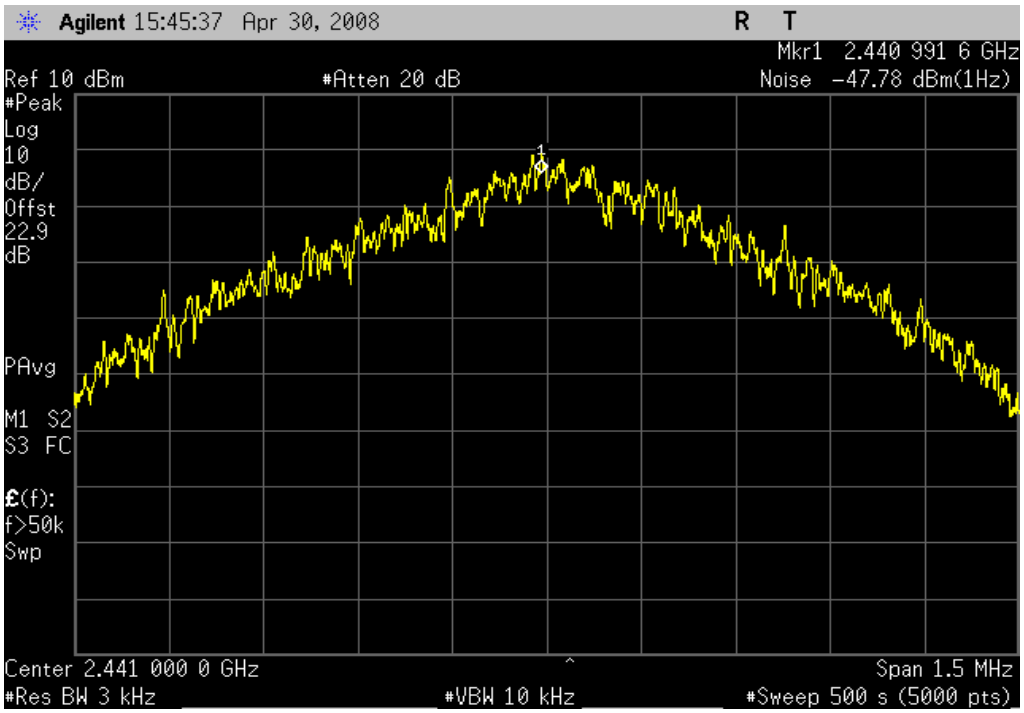
Configuration #	1	Signature Holly Ashkannejhad

	Value	Limit	Results
Bluetooth, GFSK, DH5			
Low channel, 2402MHz	-13.97 dBm / 3 kHz	8 dBm / 3 kHz	Pass
Mid channel, 2441MHz	-12.78 dBm / 3 kHz	8 dBm / 3 kHz	Pass
High channel, 2480MHz	-12.3 dBm / 3 kHz	8 dBm / 3 kHz	Pass
Bluetooth, pi/4 -DQPSK, 2DH5			
Low channel, 2402MHz	-25.19 dBm / 3 kHz	8 dBm / 3 kHz	Pass
Mid channel, 2441MHz	-24.89 dBm / 3 kHz	8 dBm / 3 kHz	Pass
High channel, 2480MHz	-25.56 dBm / 3 kHz	8 dBm / 3 kHz	Pass
Bluetooth, 8DPSK, 3DH5			
Low channel, 2402MHz	-26.0 dBm / 3 kHz	8 dBm / 3 kHz	Pass
Mid channel, 2441MHz	-25.47 dBm / 3 kHz	8 dBm / 3 kHz	Pass
High channel, 2480MHz	-25.71 dBm / 3 kHz	8 dBm / 3 kHz	Pass

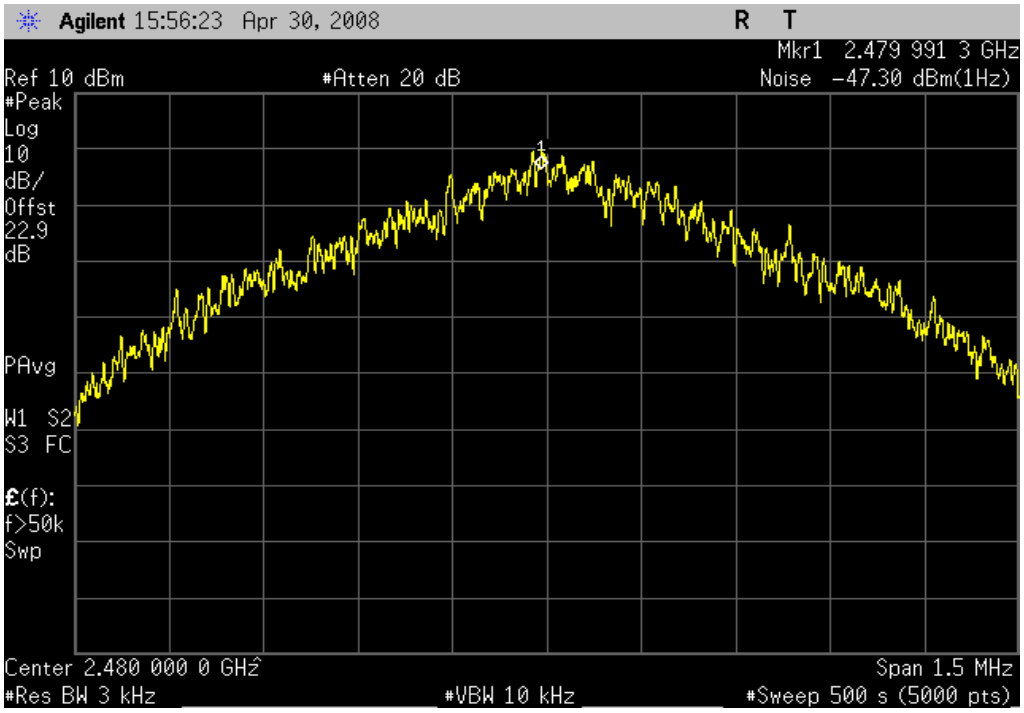
Bluetooth, GFSK, DH5, Low channel, 2402MHz					
Result:	Pass	**Value:**	-13.97 dBm / 3 kHz	**Limit:**	8 dBm / 3 kHz



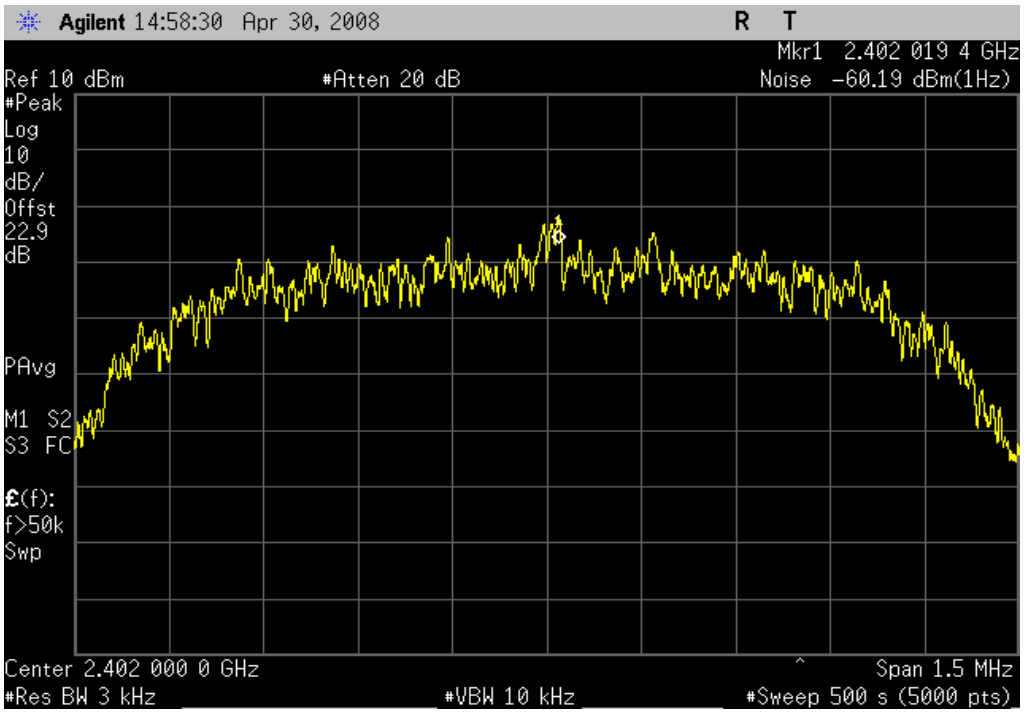
Bluetooth, GFSK, DH5, Mid channel, 2441MHz					
Result:	Pass	**Value:**	-12.78 dBm / 3 kHz	**Limit:**	8 dBm / 3 kHz



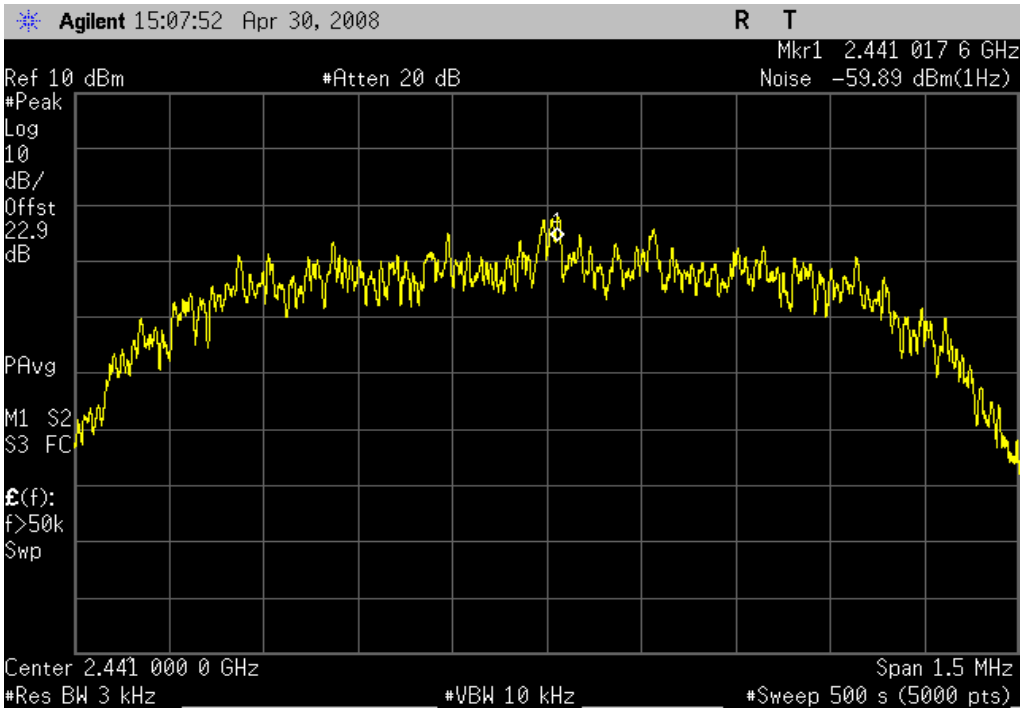
Bluetooth, GFSK, DH5, High channel, 2480MHz					
Result:	Pass	**Value:**	-12.3 dBm / 3 kHz	**Limit:**	8 dBm / 3 kHz



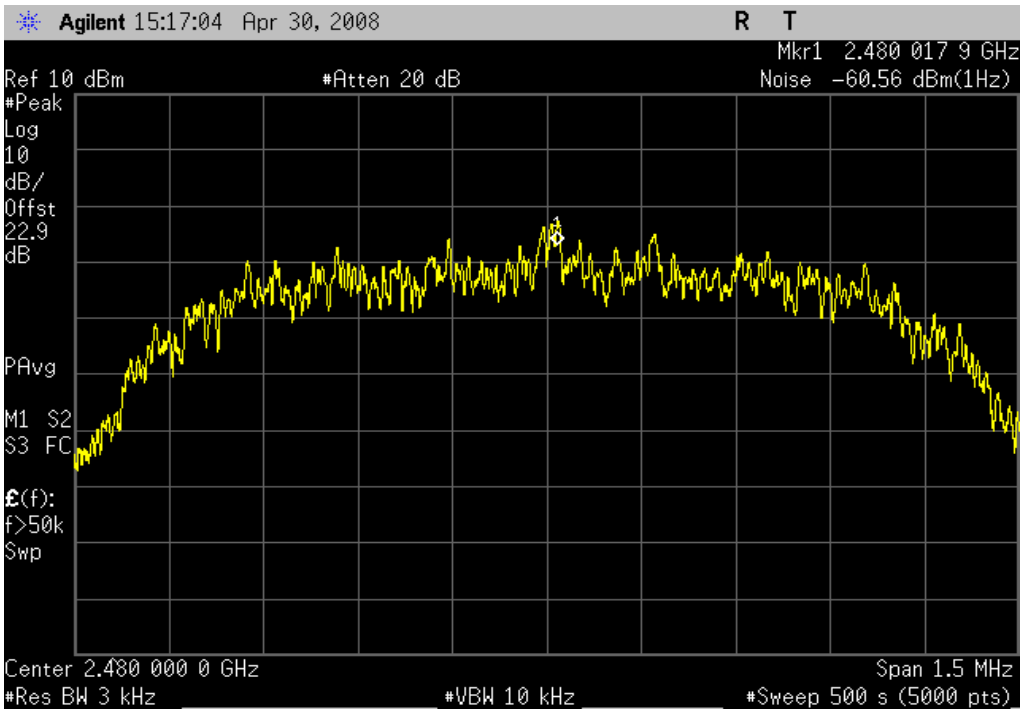
Bluetooth, pi/4 -DQPSK, 2DH5, Low channel, 2402MHz					
Result:	Pass	**Value:**	-25.19 dBm / 3 kHz	**Limit:**	8 dBm / 3 kHz



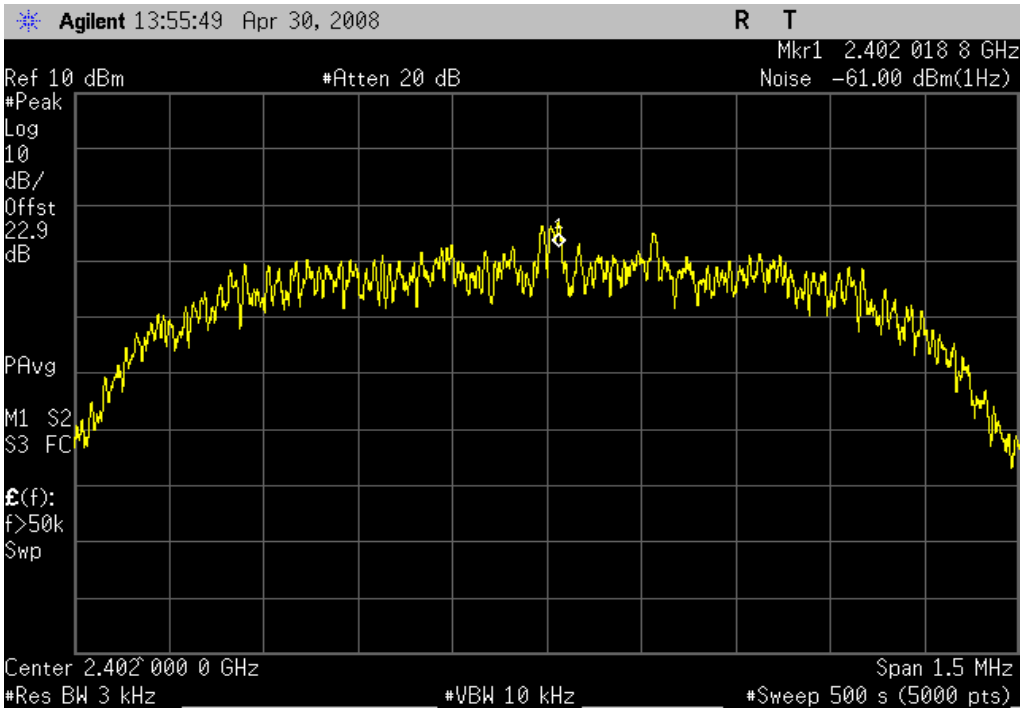
Bluetooth, pi/4 -DQPSK, 2DH5, Mid channel, 2441MHz					
Result:	Pass	**Value:**	-24.89 dBm / 3 kHz	**Limit:**	8 dBm / 3 kHz



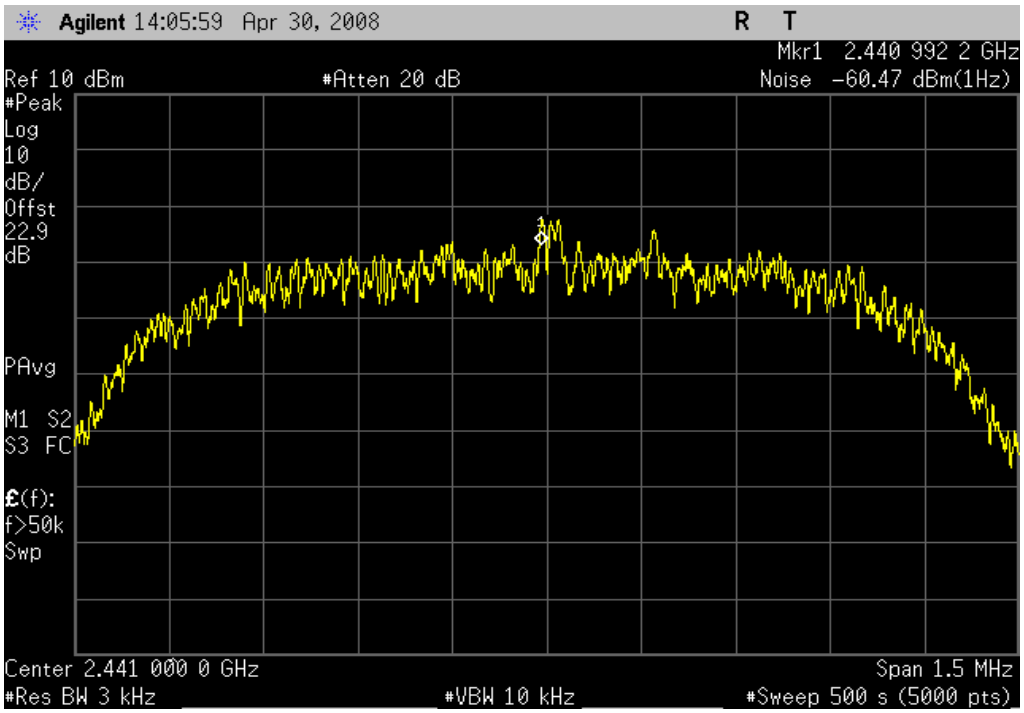
Bluetooth, pi/4 -DQPSK, 2DH5, High channel, 2480MHz					
Result:	Pass	**Value:**	-25.56 dBm / 3 kHz	**Limit:**	8 dBm / 3 kHz



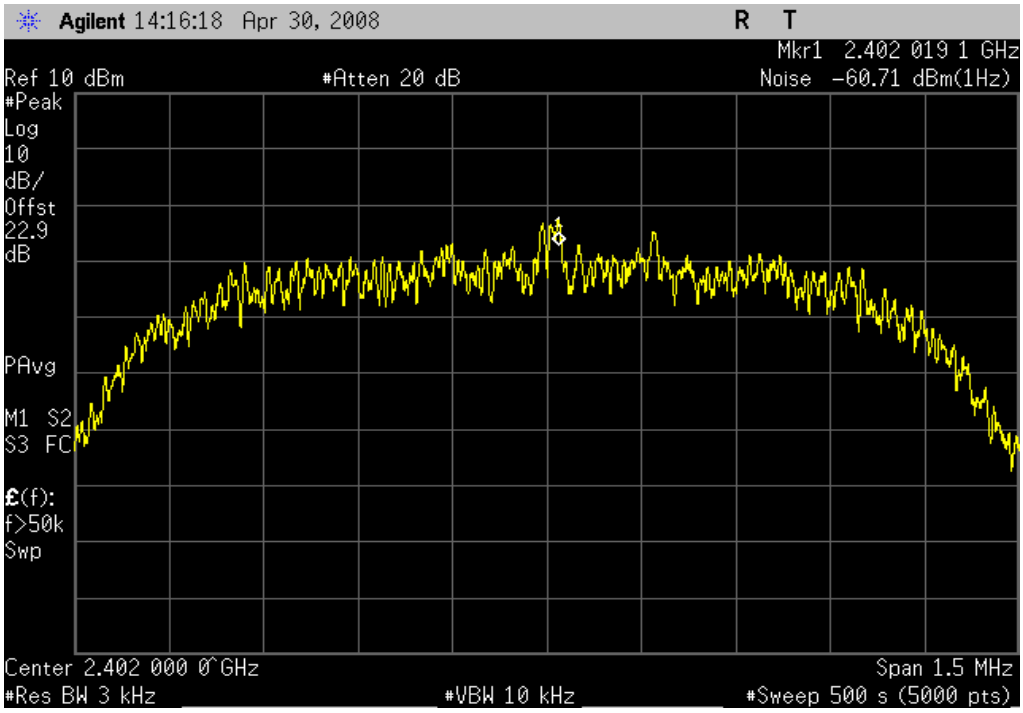
Bluetooth, 8DPSK, 3DH5, Low channel, 2402MHz					
Result:	Pass	**Value:**	-26.0 dBm / 3 kHz	**Limit:**	8 dBm / 3 kHz

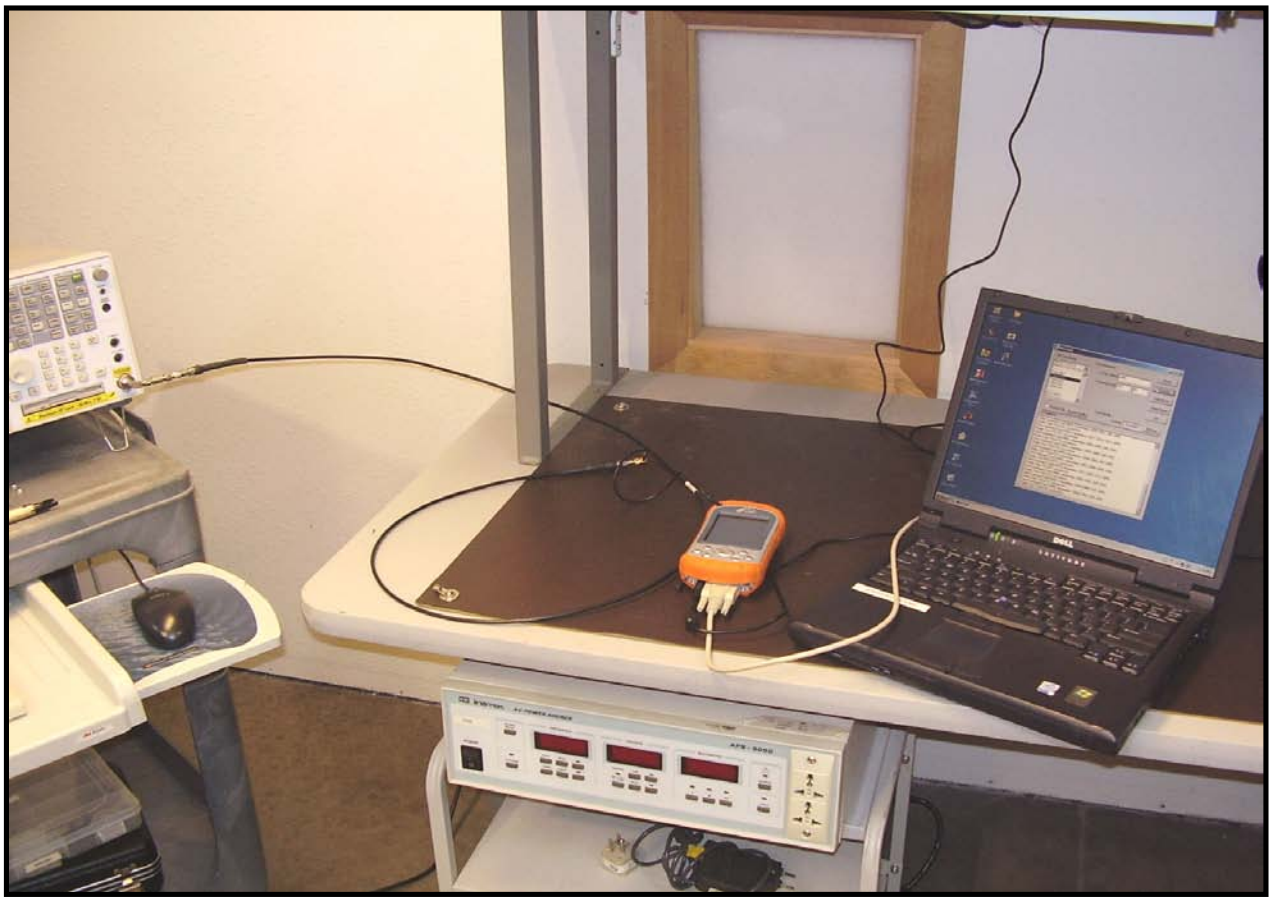


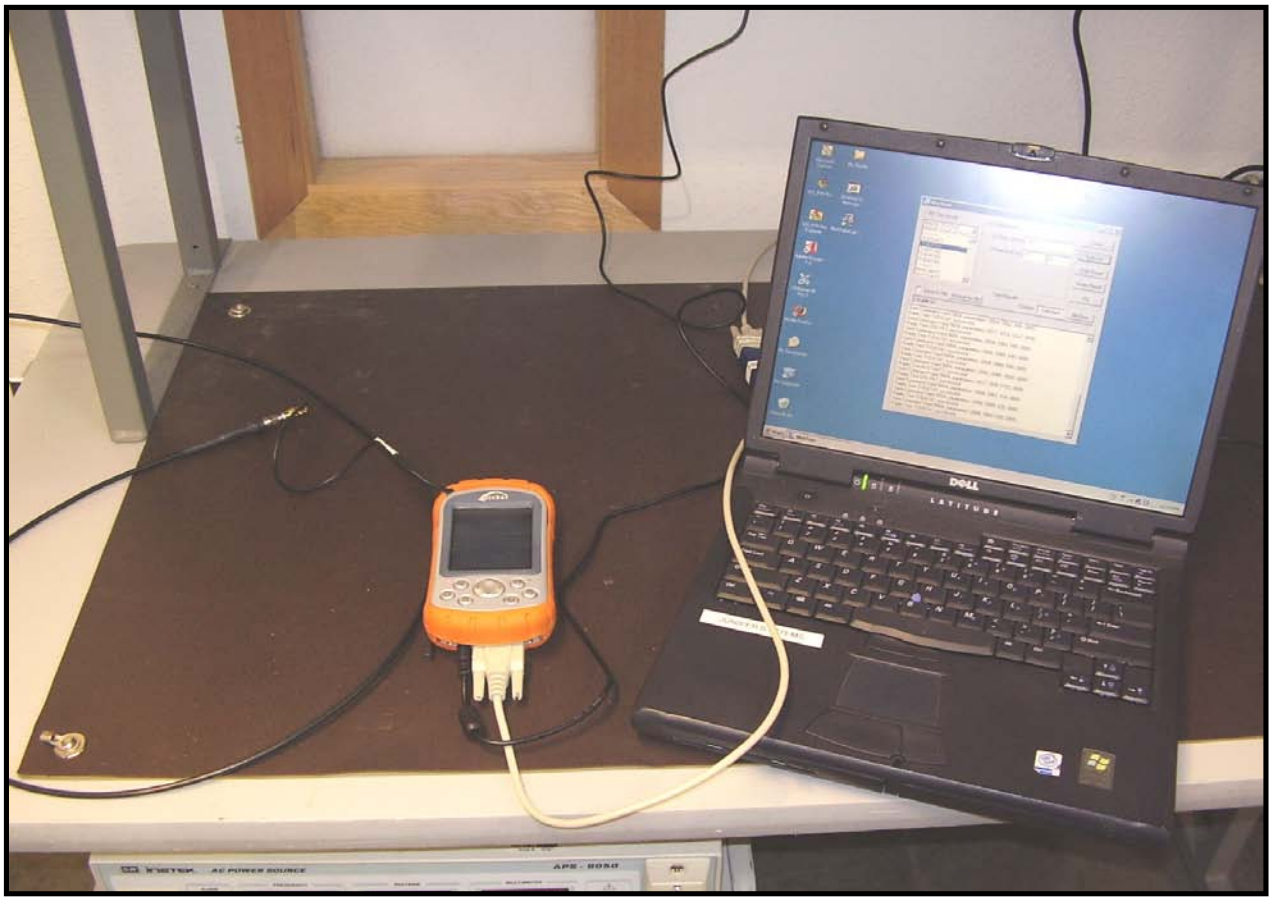
Bluetooth, 8DPSK, 3DH5, Mid channel, 2441MHz					
Result:	Pass	**Value:**	-25.47 dBm / 3 kHz	**Limit:**	8 dBm / 3 kHz



Bluetooth, 8DPSK, 3DH5, High channel, 2480MHz					
Result:	Pass	**Value:**	-25.71 dBm / 3 kHz	**Limit:**	8 dBm / 3 kHz






DELL
LATITUDE

AC POWERLINE CONDUCTED EMISSIONS

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

MODES OF OPERATION

8DPSK , 3DH5, High Channel 2480MHz.
8DPSK , 3DH5, Mid Channel 2441MHz.
8DPSK , 3DH5, Low Channel 2402MHz.

POWER SETTINGS INVESTIGATED

120VAC/60Hz

CONFIGURATIONS INVESTIGATED

JUNI0002 - 2) Spurious emissions

SAMPLE CALCULATIONS

Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
LISN	Solar	9252-50-R-24-BNC	LIR	1/4/2008	13 mo
LISN	Solar	9252-50-R-24-BNC	LIP	1/4/2008	13 mo
Attenuator	Coaxicom	66702 2910-20	RBR	5/25/2007	13 mo
High Pass Filter	T.T.E.	7766	HFG	2/5/2008	13 mo
EV07 Cables		Conducted Cables	EVG	4/17/2007	13 mo
Receiver	Rohde & Schwartz	ESCI	ARG	12/7/2007	13 mo

MEASUREMENT BANDWIDTHS

	Frequency Range (MHz)	Peak Data (kHz)	Quasi-Peak Data (kHz)	Average Data (kHz)
	0.01 - 0.15	1.0	0.2	0.2
	0.15 - 30.0	10.0	9.0	9.0
	30.0 - 1000	100.0	120.0	120.0
	Above 1000	1000.0	N/A	1000.0

Measurements were made using the bandwidths and detectors specified. No video filter was used.

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

Using the mode of operation and configuration noted within this report, conducted emissions tests were performed. The frequency range investigated (scanned), is also noted in this report. Conducted power line measurements are made, unless otherwise specified, over the frequency range from 150 kHz to 30 MHz to determine the line-to-ground radio-noise voltage that is conducted from the EUT power-input terminals that are directly (or indirectly via separate transformer or power supplies) connected to a public power network. Equipment is tested with power cords that are normally used or that have electrical or shielding characteristics that are the same as those cords normally used. Typically those measurements are made using a LISN (Line Impedance Stabilization Network), the 50ohm measuring port is terminated by a 50ohm EMI meter or a 50ohm resistive load. All 50ohm measuring ports of the LISN are terminated by 50ohm.

NORTHWEST

EMC AC POWERLINE CONDUCTED EMISSIONS

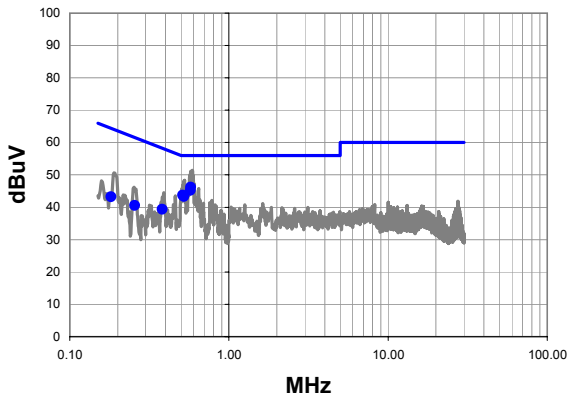
Version 2008.1.21
PSA-ESCI 2008.02.20

Work Order:	JUNI0002	**Date:**	05/01/08	
Project:	None	**Temperature:**	23°C	
Job Site:	EV07	**Humidity:**	27	
Serial Number:	Unknown	**Barometric Pres.:**	1021.3mb	**Tested by:** David DiVergigelis
EUT:	BC04 in Archer			
Configuration:	2 - Spurious emissions			
Customer:	Juniper Systems, Inc.			
Attendees:	None			
EUT Power:	120VAC/60Hz			
Operating Mode:	8DPSK , 3DH5, Low Channel 2402MHz.			
Deviations:	No deviations.			
Comments:	None			

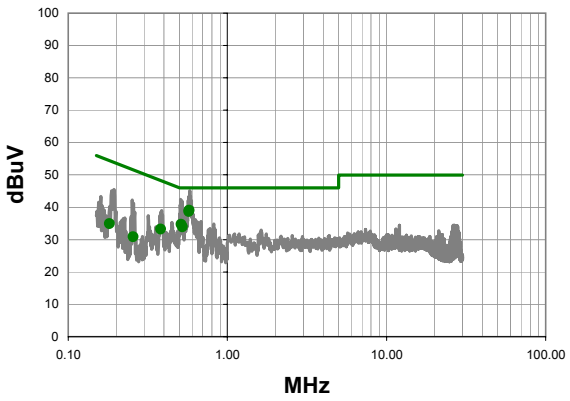
Test Specifications	**Class B**	**Test Method**
FCC 15.207:2007		ANSI C63.4:2003

Run #	1	**Line:**	High Line	**Ext. Attenuation:**	20	**Results**	Pass

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.576	25.4	20.8	46.2	56.0	-9.8
0.572	24.4	20.8	45.2	56.0	-10.8
0.513	22.9	20.8	43.7	56.0	-12.3
0.521	22.5	20.8	43.3	56.0	-12.7
0.382	18.5	20.9	39.4	58.2	-18.8
0.256	19.6	21.0	40.6	61.6	-21.0
0.182	21.9	21.4	43.3	64.4	-21.1

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.576	18.3	20.8	39.1	46.0	-6.9
0.572	17.9	20.8	38.7	46.0	-7.3
0.513	13.9	20.8	34.7	46.0	-11.3
0.521	13.1	20.8	33.9	46.0	-12.1
0.382	12.3	20.9	33.2	48.2	-15.0
0.182	13.6	21.4	35.0	54.4	-19.4
0.256	9.9	21.0	30.9	51.6	-20.7

NORTHWEST

EMC AC POWERLINE CONDUCTED EMISSIONS

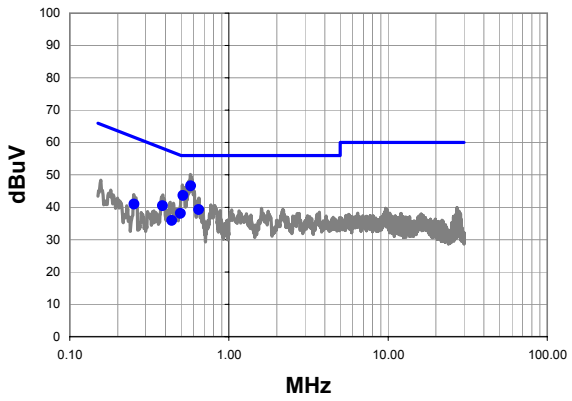
Version 2008.1.21
PSA-ESCI 2008.02.20

Work Order:	JUNI0002	**Date:**	05/01/08		
Project:	None	**Temperature:**	23°C		
Job Site:	EV07	**Humidity:**	27		
Serial Number:	Unknown	**Barometric Pres.:**	1021.3mb	**Tested by:**	David DiVergigelis
EUT:	BC04 in Archer				
Configuration:	2 - Spurious emissions				
Customer:	Juniper Systems, Inc.				
Attendees:	None				
EUT Power:	120VAC/60Hz				
Operating Mode:	8DPSK , 3DH5, Low Channel 2402MHz.				
Deviations:	No deviations.				
Comments:	None				

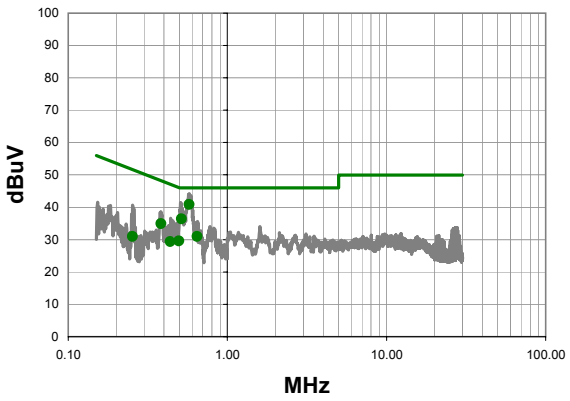
Test Specifications	**Class B**	**Test Method**
FCC 15.207:2007		ANSI C63.4:2003

Run #	2	**Line:**	Neutral	**Ext. Attenuation:**	20	**Results**	Pass

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.575	25.8	20.8	46.6	56.0	-9.4
0.515	22.8	20.8	43.6	56.0	-12.4
0.646	18.5	20.7	39.2	56.0	-16.8
0.383	19.6	20.9	40.5	58.2	-17.7
0.497	17.3	20.8	38.1	56.0	-17.9
0.254	20.0	21.0	41.0	61.6	-20.7
0.437	15.1	20.9	36.0	57.1	-21.2

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.575	20.1	20.8	40.9	46.0	-5.1
0.515	15.6	20.8	36.4	46.0	-9.6
0.383	14.0	20.9	34.9	48.2	-13.3
0.646	10.2	20.7	30.9	46.0	-15.1
0.497	8.8	20.8	29.6	46.0	-16.4
0.437	8.5	20.9	29.4	47.1	-17.8
0.254	10.0	21.0	31.0	51.6	-20.7

NORTHWEST

EMC AC POWERLINE CONDUCTED EMISSIONS

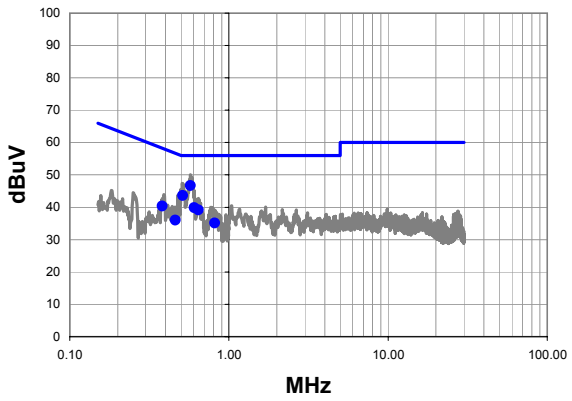
Version 2008.1.21
PSA-ESCI 2008.02.20

Work Order:	JUNI0002	**Date:**	05/01/08		
Project:	None	**Temperature:**	23°C		
Job Site:	EV07	**Humidity:**	27		
Serial Number:	Unknown	**Barometric Pres.:**	1021.3mb	**Tested by:**	David DiVergigelis
EUT:	BC04 in Archer				
Configuration:	2 - Spurious emissions				
Customer:	Juniper Systems, Inc.				
Attendees:	None				
EUT Power:	120VAC/60Hz				
Operating Mode:	8DPSK , 3DH5, Mid Channel 2441MHz.				
Deviations:	No deviations.				
Comments:	None				

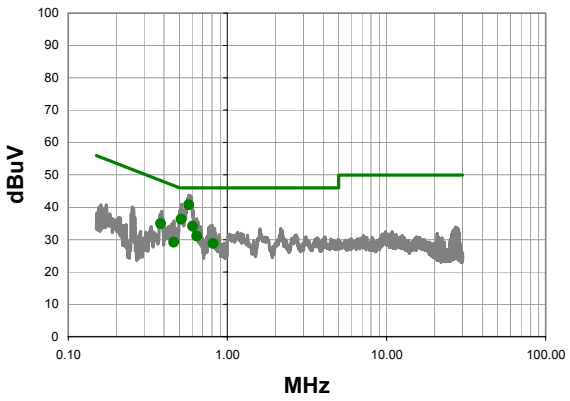
Test Specifications	**Class B**	**Test Method**
FCC 15.207:2007		ANSI C63.4:2003

Run #	3	**Line:**	Neutral	**Ext. Attenuation:**	20	**Results**	Pass

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.573	25.9	20.8	46.7	56.0	-9.3
0.512	22.8	20.8	43.6	56.0	-12.4
0.606	19.1	20.7	39.8	56.0	-16.2
0.644	18.4	20.7	39.1	56.0	-16.9
0.382	19.5	20.9	40.4	58.2	-17.8
0.461	15.2	20.8	36.0	56.7	-20.6
0.816	14.5	20.6	35.1	56.0	-20.9

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.573	20.0	20.8	40.8	46.0	-5.2
0.512	15.5	20.8	36.3	46.0	-9.7
0.606	13.4	20.7	34.1	46.0	-11.9
0.382	14.0	20.9	34.9	48.2	-13.3
0.644	10.3	20.7	31.0	46.0	-15.0
0.816	8.2	20.6	28.8	46.0	-17.2
0.461	8.3	20.8	29.1	46.7	-17.5

NORTHWEST

EMC AC POWERLINE CONDUCTED EMISSIONS

Version 2008.1.21
PSA-ESCI 2008.02.20

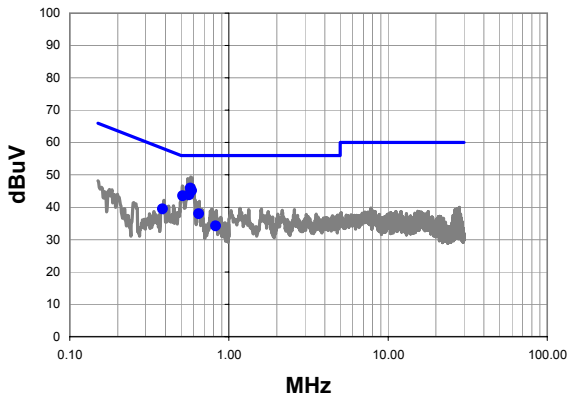
Work Order:	JUNI0002	**Date:**	05/01/08		
Project:	None	**Temperature:**	23°C		
Job Site:	EV07	**Humidity:**	27		
Serial Number:	Unknown	**Barometric Pres.:**	1021.3mb	**Tested by:**	David DiVergigelis

EUT:	BC04 in Archer
Configuration:	2 - Spurious emissions
Customer:	Juniper Systems, Inc.
Attendees:	None
EUT Power:	120VAC/60Hz
Operating Mode:	8DPSK , 3DH5, Mid Channel 2441MHz.
Deviations:	No deviations.
Comments:	None

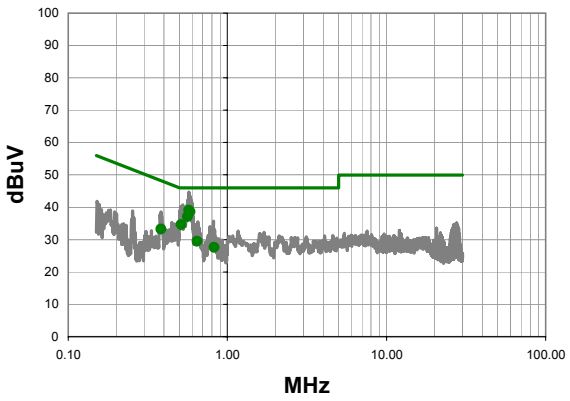
Test Specifications	**Class B**	**Test Method**
FCC 15.207:2007		ANSI C63.4:2003

Run #	4	**Line:**	High Line	**Ext. Attenuation:**	20	**Results**	Pass

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.573	25.1	20.8	45.9	56.0	-10.1
0.583	24.3	20.8	45.1	56.0	-10.9
0.563	23.0	20.8	43.8	56.0	-12.2
0.512	22.7	20.8	43.5	56.0	-12.5
0.645	17.3	20.7	38.0	56.0	-18.0
0.383	18.6	20.9	39.5	58.2	-18.7
0.824	13.6	20.6	34.2	56.0	-21.8

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.573	18.3	20.8	39.1	46.0	-6.9
0.583	17.8	20.8	38.6	46.0	-7.4
0.563	16.3	20.8	37.1	46.0	-8.9
0.512	13.8	20.8	34.6	46.0	-11.4
0.383	12.3	20.9	33.2	48.2	-15.0
0.645	8.8	20.7	29.5	46.0	-16.5
0.824	7.0	20.6	27.6	46.0	-18.4

NORTHWEST

EMC AC POWERLINE CONDUCTED EMISSIONS

Version 2008.1.21
PSA-ESCI 2008.02.20

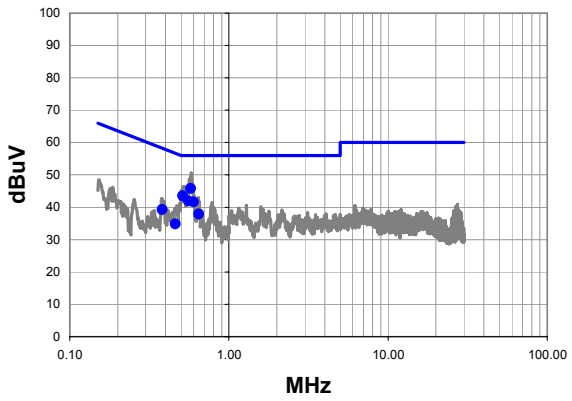
Work Order:	JUNI0002	**Date:**	05/01/08		
Project:	None	**Temperature:**	23°C		
Job Site:	EV07	**Humidity:**	27		
Serial Number:	Unknown	**Barometric Pres.:**	1021.3mb	**Tested by:**	David DiVergigelis

EUT:	BC04 in Archer
Configuration:	2 - Spurious emissions
Customer:	Juniper Systems, Inc.
Attendees:	None
EUT Power:	120VAC/60Hz
Operating Mode:	8DPSK , 3DH5, High Channel 2480MHz.
Deviations:	No deviations.
Comments:	None

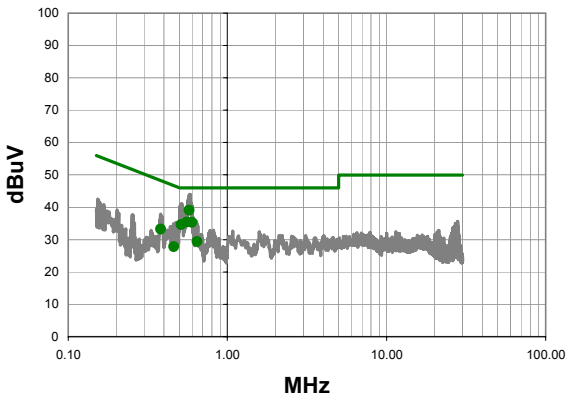
Test Specifications	**Class B**	**Test Method**
FCC 15.207:2007		ANSI C63.4:2003

Run #	5	**Line:**	High Line	**Ext. Attenuation:**	20	**Results**	Pass

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.576	25.0	20.8	45.8	56.0	-10.2
0.513	22.7	20.8	43.5	56.0	-12.5
0.556	21.2	20.8	42.0	56.0	-14.0
0.599	20.9	20.8	41.7	56.0	-14.3
0.646	17.2	20.7	37.9	56.0	-18.1
0.381	18.4	20.9	39.3	58.3	-19.0
0.461	14.0	20.8	34.8	56.7	-21.8

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.576	18.3	20.8	39.1	46.0	-6.9
0.556	14.6	20.8	35.4	46.0	-10.6
0.599	14.6	20.8	35.4	46.0	-10.6
0.513	13.8	20.8	34.6	46.0	-11.4
0.381	12.3	20.9	33.2	48.3	-15.1
0.646	8.7	20.7	29.4	46.0	-16.6
0.461	7.0	20.8	27.8	46.7	-18.8

NORTHWEST

EMC AC POWERLINE CONDUCTED EMISSIONS

Version 2008.1.21
PSA-ESCI 2008.02.20

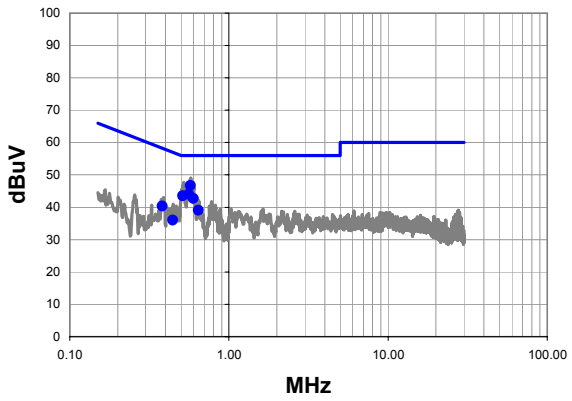
Work Order:	JUNI0002	**Date:**	05/01/08		
Project:	None	**Temperature:**	23°C		
Job Site:	EV07	**Humidity:**	27		
Serial Number:	Unknown	**Barometric Pres.:**	1021.3mb	**Tested by:**	David DiVergigelis

EUT:	BC04 in Archer
Configuration:	2 - Spurious emissions
Customer:	Juniper Systems, Inc.
Attendees:	None
EUT Power:	120VAC/60Hz
Operating Mode:	8DPSK , 3DH5, High Channel 2480MHz.
Deviations:	No deviations.
Comments:	None

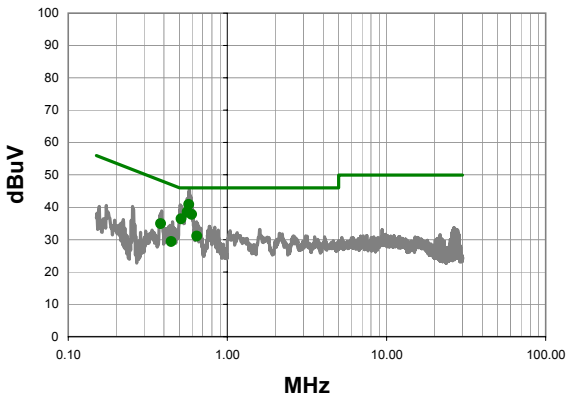
Test Specifications	**Class B**	**Test Method**
FCC 15.207:2007		ANSI C63.4:2003

Run #	6	**Line:**	Neutral	**Ext. Attenuation:**	20	**Results**	Pass

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit

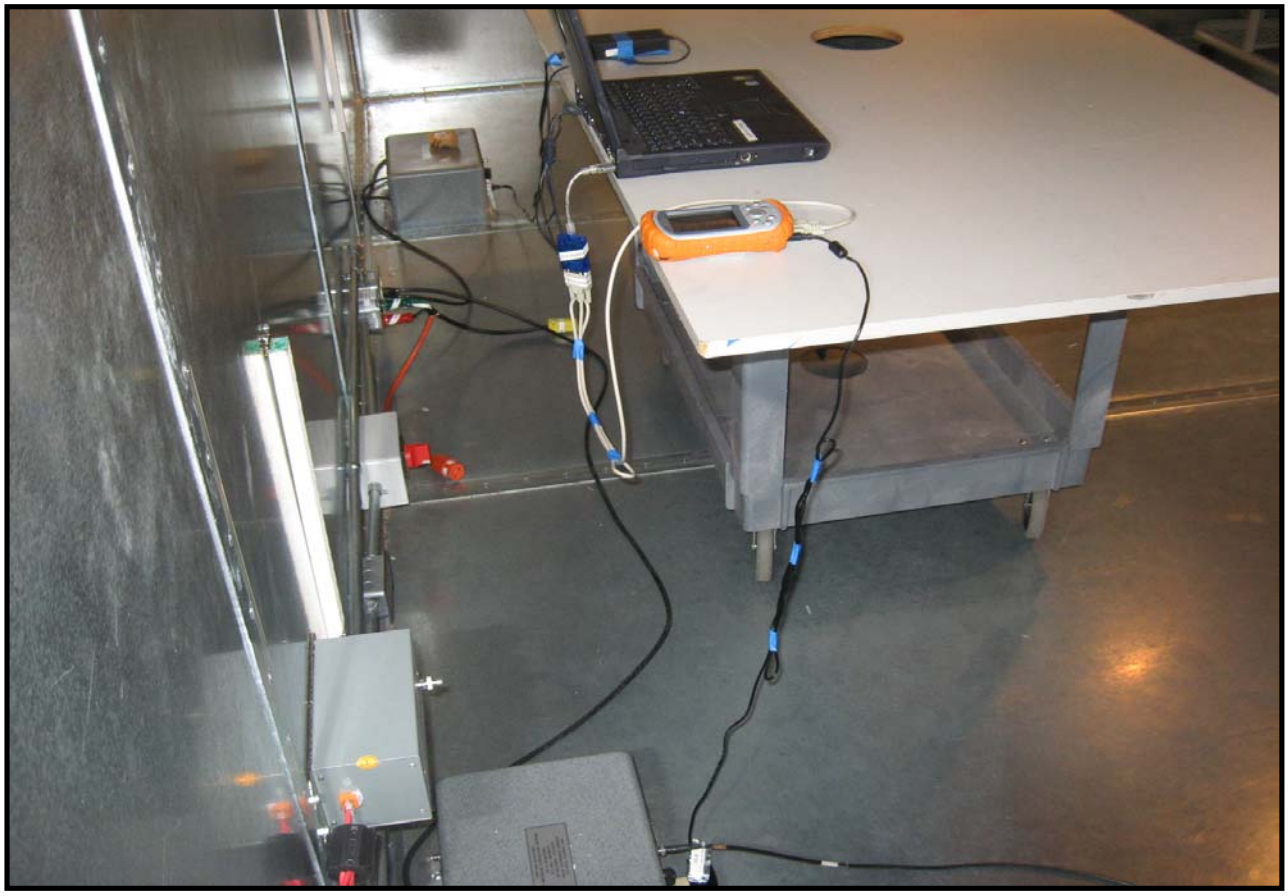


Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.573	25.9	20.8	46.7	56.0	-9.3
0.560	23.2	20.8	44.0	56.0	-12.0
0.513	22.7	20.8	43.5	56.0	-12.5
0.597	22.0	20.8	42.8	56.0	-13.2
0.644	18.3	20.7	39.0	56.0	-17.0
0.382	19.5	20.9	40.4	58.2	-17.8
0.445	15.2	20.8	36.0	57.0	-20.9

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.573	20.1	20.8	40.9	46.0	-5.1
0.560	17.7	20.8	38.5	46.0	-7.5
0.597	17.0	20.8	37.8	46.0	-8.2
0.513	15.6	20.8	36.4	46.0	-9.6
0.382	14.0	20.9	34.9	48.2	-13.3
0.644	10.3	20.7	31.0	46.0	-15.0
0.445	8.5	20.8	29.3	47.0	-17.6



BLUETOOTH APPROVALS

FCC Procedure Received from Joe Dichoso on 2-15-02

The following exhibit indicates the FCC Spread Spectrum requirements in Section 15.247 for devices meeting the Bluetooth Specifications in the 2.4 GHz band as of February 2001 operating in the USA. The purpose of this exhibit is to help expedite the approval process for Bluetooth devices. This exhibit provides items that vary for each device and also provides a list of items that are common to Bluetooth devices that explains the remaining requirements. The list of common items can be submitted for each application for equipment authorization. This exhibit only specifies requirements in Section 15.247, requirements in other rule Sections for intentional radiators such as in Section 15.203 or 15.207 must be also be addressed. A Bluetooth device is a FHSS transmitter in the data mode and applies as a Hybrid spread spectrum device in the acquisition mode.

For each individual device, the following items, 1-7 will vary from one device to another and must be submitted.

1) The occupied bandwidth in Section 15.247(a)(1)(ii).
2) Conducted output power specified in Section 15.247(b)(1).
3) EIRP limit in Section 15.247(b)(3).
4) RF safety requirement in Section 15.247(b)(4)
5) Spurious emission limits in Section 15.247(c).
6) Processing gain and requirements for Hybrids in Section 15.247(f) in the acquisition mode.
7) Power spectral density requirement in Section 15.247(f) in the acquisition mode.

For all devices, the following items, 1-12, are common to all Bluetooth devices and will not vary from one device to another. This list can be copied into the filing.

1 Output power and channel separation of a Bluetooth device in the different operating modes:

The different operating modes (data-mode, acquisition-mode) of a Bluetooth device don't influence the output power and the channel spacing. There is only one transmitter which is driven by identical input parameters concerning these two parameters.
Only a different hopping sequence will be used. For this reason, the RF parameters in one op-mode is sufficient.

2 Frequency range of a Bluetooth device:

The maximum frequency of the device is: **2402 – 2480 M**Hz.
This is according the Bluetooth Core Specification V 1.0B (+ critical errata) for devices which will be operated in the USA. Other frequency ranges (e.g. for Spain, France, Japan) which are allowed according the Core Specification must **not be** supported by the device.

3 Co-ordination of the hopping sequence in data mode to avoid simultaneous occupancy by multiple transmitters:

Bluetooth units which want to communicate with other units must be organized in a structure called piconet. This piconet consist of max. 8 Bluetooth units. One unit is the master the other seven are the slaves. The master co-ordinates frequency occupation in this piconet for all units. As the master hop sequence is derived from it's BD address which is unique for every Bluetooth device, additional masters intending to establish new piconets will always use different hop sequences.

4 Example of a hopping sequence in data mode:

Example of a 79 hopping sequence in data mode:
40, 21, 44, 23, 42, 53, 46, 55, 48, 33, 52, 35, 50, 65, 54, 67,
56, 37, 60, 39, 58, 69, 62, 71, 64, 25, 68, 27, 66, 57, 70, 59,
72, 29, 76, 31, 74, 61, 78, 63, 01, 41, 05, 43, 03, 73, 07, 75,
09, 45, 13, 47, 11, 77, 15, 00, 64, 49, 66, 53, 68, 02, 70, 06,
01, 51, 03, 55, 05, 04

5 Equally average use of frequencies in data mode and short transmissions:

The generation of the hopping sequence in connection mode depends essentially on two input values:
1. LAP/UAP of the master of the connection
2. Internal master clock

The LAP (lower address part) are the 24 LSB's of the 48 BD_ADDRESS. The BD_ADDRESS is an unambiguous number of every Bluetooth unit. The UAP (upper address part) are the 24 MSB's of the 48 BD_ADDRESS. The internal clock of a Bluetooth unit is derived from a free running clock which is never adjusted and is never turned off. For synchronization with other units, only the offsets are used. It has no relation to the time of the day. Its resolution is at least half the RX/TX slot length of 312.5 µs. The clock has a cycle of about one day (23h30). In most case it is implemented as 28 bit counter. For the deriving of the hopping sequence the entire LAP (24 bits), 4 LSB's (4 bits) (Input 1) and the 27 MSB's of the clock (Input 2) are used. With this input values different mathematical procedures (permutations, additions, XOR-operations) are performed to generate the sequence. This will be done at the beginning of every new transmission.
Regarding short transmissions, the Bluetooth system has the following behavior:
The first connection between the two devices is established, a hopping sequence is generated. For transmitting the wanted data, the complete hopping sequence is not used and the connection ends. The second connection will be established. A new hopping sequence is generated. Due to the fact that the Bluetooth clock has a different value, because the period between the two transmission is longer (and it cannot be shorter) than the minimum resolution of the clock (312.5 µs). The hopping sequence will always differ from the first one.

6 Receiver input bandwidth, synchronization and repeated single or multiple packets:

The input bandwidth of the receiver is 1 MHz.
In every connection, one Bluetooth device is the master and the other one is the slave. The master determines the hopping sequence (see chapter 5). The slave follows this sequence. Both devices shift between RX and TX time slot according to the clock of the master. Additionally the type of connection (e.g. single or multi-slot packet) is set up at the beginning of the connection. The master adapts its hopping frequency and its TX/RX timing is according to the packet type of the connection. Also, the slave of the connection uses these settings. Repeating of a packet has no influence on the hopping sequence. The hopping sequence generated by the master of the connection will be followed in any case. That means, a repeated packet will not be send on the same frequency, it is send on the next frequency of the hopping sequence

7 Dwell time in data mode

The dwell time of 0.3797s within a 30 second period in data mode is independent from the packet type (packet length). The calculation for a 30 second period is a follows:
Dwell time = time slot length * hop rate / number of hopping channels *30s
Example for a DH1 packet (with a maximum length of one time slot)
Dwell time = 625 µs * 1600 1/s / 79 * 30s = 0.3797s (in a 30s period)

For multi-slot packet the hopping is reduced according to the length of the packet.
Example for a DH5 packet (with a maximum length of five time slots)
Dwell time = 5 * 625 µs * 1600 * 1/5 *1/s / 79 * 30s = 0.3797s (in a 30s period)
This is according the Bluetooth Core Specification V 1.0B (+ critical errata) for all Bluetooth devices. Therefore, all Bluetooth devices **comply** with the FCC dwell time requirement in the data mode.
This was checked during the Bluetooth Qualification tests.
The Dwell time in hybrid mode is approximately 2.6 mS (in a 12.8s period)

8 Channel Separation in hybrid mode

The nominal channel spacing of the Bluetooth system is 1Mhz independent of the operating mode.
The maximum “initial carrier frequency tolerance” which is allowed for Bluetooth is fcenter = 75 kHz.
This was checked during the Bluetooth Qualification tests (Test Case: TRM/CA/07-E) for three frequencies (2402, 2441, 2480 MHz).

9 Derivation and examples for a hopping sequence in hybrid mode

For the generation of the inquiry and page hop sequences the same procedures as described for the data mode are used (see item 5), but this time with different input vectors:
**For the inquiry hop sequence, a predefined fixed address is always used. This results in the same 32 frequencies used by all devices doing an inquiry but every time with a different start frequency and phase in this sequence.
**For the page hop sequence, the device address of the paged unit is used as the input vector. This results in the use of a subset of 32 frequencies which is specific for that initial state of the connection establishment between the two units. A page to different devices would result in a different subset of 32 frequencies.
So it is ensured that also in hybrid mode, the frequency is used equally on average.
Example of a hopping sequence in inquiry mode:
48, 50, 09, 13, 52, 54,41, 45, 56, 58, 11, 15, 60, 62, 43, 47, 00, 02, 64, 68, 04, 06, 17, 21, 08, 10, 66, 70, 12, 14, 19, 23
Example of a hopping sequence in paging mode:
08, 57, 68, 70, 51, 02, 42, 40, 04, 61, 44, 46, 63, 14, 50, 48, 16, 65, 52, 54, 67, 18, 58, 56, 20, 53, 60, 62, 55, 06, 66, 64

10 Receiver input bandwidth and synchronization in hybrid mode:

The receiver input bandwidth is the same as in the data mode (1 MHz). When two Bluetooth devices establish contact for the first time, one device sends an inquiry access code and the other device is scanning for this inquiry access code. If two devices have been connected previously and want to start a new transmission, a similar procedure takes place. The only difference is, instead of the inquiry access code, a special access code, derived from the BD_ADDRESS of the paged device will be, will be sent by the master of this connection. Due to the fact that both units have been connected before (in the inquiry procedure) the paging unit has timing and frequency information about the page scan of the paged unit. For this reason the time to establish the connection is reduced.

11 Spread rate / data rate of the direct sequence signal

The Spread rate / Data rate in inquiry and paging mode can be defined via the access code. The access code is the only criterion for the system to check if there is a valid transmission or not. If you regard the presence of a valid access code as one bit of information, and compare it with the length of the access code of 68 bits, the Spread rate / Data rate will be 68/1.

12 Spurious emission in hybrid mode

The Dwell in hybrid mode is shorter than in data mode. For this reason the spurious emissions average level in data mode is worst case. The spurious emissions peak level is the same for both modes.