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Report On

FCC and Industry Canada Testing of the
Frontier Silicon Ltd Venice 6.5

In accordance with FCC CFR 47 Part 15C, Industry Canada RSS-210
and Industry Canada RSS-GEN

COMMERCIAL-IN-CONFIDENCE

FCC ID: YYX-HA-FS2026-F5

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July 2012



Product Service

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July 2012

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Mark Jenkins
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DATED

06 July 2012

This report has been up-issued to Issue 3 to correct the application form.

ENGINEERING STATEMENT

The measurements shown in this report were made in accordance with the procedures described on test pages. All reported testing was carried out on a sample equipment to demonstrate limited compliance with FCC CFR 47 Part 15C, Industry Canada RSS-210 and Industry Canada RSS-GEN. The sample tested was found to comply with the requirements defined in the applied rules.

Test Engineer(s);

G Lawler

B Airs





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SECTION 1

REPORT SUMMARY

FCC and Industry Canada Testing of the
Frontier Silicon Ltd Venice 6.5
In accordance with FCC CFR 47 Part 15C, Industry Canada RSS-210 and Industry Canada
RSS-GEN



Product Service

1.1 INTRODUCTION

The information contained in this report is intended to show verification of the FCC and Industry Canada Testing of the Frontier Silicon Ltd Venice 6.5 to the requirements of FCC CFR 47 Part 15C, Industry Canada RSS-210 and Industry Canada RSS-GEN.

Objective	To perform FCC and Industry Canada Testing to determine the Equipment Under Test's (EUT's) compliance with the Test Specification, for the series of tests carried out.
Manufacturer	Frontier Silicon Ltd
Model Number(s)	Venice 6.5
Serial Number(s)	1) Conducted PIFA Sample, S/N: RAD103037 on Test Jig S/N: RAD103234 2) External Antenna Radiated Sample, S/N: RAD103021 on Test Jig S/N: RAD103235 3) Radiated PIFA Sample, S/N: RAD103045 on Test Jig, S/N: RAD103235
Number of Samples Tested	3
Test Specification/Issue/Date	FCC CFR 47 Part 15C (2011) Industry Canada RSS-210 (2010) Industry Canada RSS-GEN (2010)
Incoming Release Date	Application Form 29 May 2012
Disposal Reference Number Date	Held Pending Disposal Not Applicable Not Applicable
Order Number Date	FS021247 17 February 2012
Start of Test	29 February 2012
Finish of Test	9 April 2012
Name of Engineer(s)	G Lawler B Airs
Related Document(s)	ANSI C63.10: 2009



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1.2 BRIEF SUMMARY OF RESULTS

A brief summary of the tests carried out in accordance with FCC CFR 47 Part 15C, Industry Canada RSS-210 and Industry Canada RSS-GEN is shown below.

Section	Spec Clause			Test Description	Result	Comments/Base Standard
	FCC	RSS-210	RSS-Gen			
802.11(b)						
2.1	15.207	-	7.2.4	AC Line Conducted Emissions	Pass	
2.2	15.247 (b)(3)	A8.4 (2)	-	Maximum Peak Conducted Output Power	Pass	
2.3	15.247 (b)(4)	A8.4 (4)	-	EIRP Peak Power	Pass	
2.4	15.247 (d)	A8.5	2.2	Spurious and Band Edge Emissions	Pass	
2.5	15.247 (e)	-	-	Power Spectral Density	Pass	
2.6	15.247 (2)	-	-	6dB Bandwidth	Pass	
802.11(g)						
2.2	15.247 (b)(3)	A8.4 (2)	-	Maximum Peak Conducted Output Power	Pass	
2.3	15.247 (b)(4)	A8.4 (4)	-	EIRP Peak Power	Pass	
2.4	15.247 (d)	A8.5	2.2	Spurious and Band Edge Emissions	Pass	
2.5	15.247 (e)	-	-	Power Spectral Density	Pass	
2.6	15.247 (2)	-	-	6dB Bandwidth	Pass	
802.11(n)						
2.4	15.247 (d)	A8.5	2.2	Spurious and Band Edge Emissions	Pass	



Product Service

Section	Spec Clause			Test Description	Result	Comments/Base Standard
	FCC	RSS-210	RSS-Gen			
802.11(n) - 2.4 GHz 20 MHz BW						
2.2	15.247 (b)(3)	A8.4 (2)	-	Maximum Peak Conducted Output Power	Pass	
2.3	15.247 (b)(4)	A8.4 (4)	-	EIRP Peak Power	Pass	
2.4	15.247 (d)	A8.5	2.2	Spurious and Band Edge Emissions	Pass	
2.5	15.247 (e)	-	-	Power Spectral Density	Pass	
2.6	15.247 (2)	-	-	6dB Bandwidth	Pass	
802.11(n) - 2.4 GHz, 40 MHz BW						
2.2	15.247 (b)(3)	A8.4 (2)	-	Maximum Peak Conducted Output Power	Pass	
2.3	15.247 (b)(4)	A8.4 (4)	-	EIRP Peak Power	Pass	
2.4	15.247 (d)	A8.5	2.2	Spurious and Band Edge Emissions	Pass	
2.5	15.247 (e)	-	-	Power Spectral Density	Pass	
2.6	15.247 (2)	-	-	6dB Bandwidth	Pass	
802.11(b) - External Antenna						
2.3	15.247 (b)(4)	A8.4 (4)	-	EIRP Peak Power	Pass	
802.11(g) - External Antenna						
2.3	15.247 (b)(4)	A8.4 (4)	-	EIRP Peak Power	Pass	
802.11(n) - 2.4 GHz 20 MHz BW - External Antenna						
2.3	15.247 (b)(4)	A8.4 (4)	-	EIRP Peak Power	Pass	
802.11(n) - 2.4 GHz 40 MHz BW - External Antenna						
2.3	15.247 (b)(4)	A8.4 (4)	-	EIRP Peak Power	Pass	



Product Service

1.3 APPLICATION FORM

EQUIPMENT DESCRIPTION	
Model Name/Number	Venice 6.5
Part Number	HA-FS2026-F5xxxx ('FCC variant , 'x' depends on customer variant e.g.HA-FS2026-F50008) and HA-FS2026-05xxxx ('ETSI variant , 'x' depends on customer variant e.g.HA-FS2026-050008)
FCC ID (if applicable)	YYX-HA-FS2026-F5
Industry Canada ID (if applicable)	
Technical Description (Please provide a brief description of the intended use of the equipment)	The Venice 6.5 is a radio module supporting Internet Radio (WiFi or Ethernet), Networked Audio Streaming (WiFi Ethernet), iPod/iPhone/iPad Control and DAB/DAB+/FM-RDS reception when installed in a consumer audio product.

EXTREME TEMPERATURE RANGE over which the equipment is to be type tested	
<input type="checkbox"/> -20°C to +55°C	
<input checked="" type="checkbox"/> Other (2)	
<input type="checkbox"/> Not applicable (no extreme temperature testing required)	
Extreme temperature range for the host(s):	0degC to +70degC

- (2) The equipment shall be tested over the following temperature ranges :
- a) 0°C to +35°C for equipment for indoor use only, or intended for used in areas where the temperature is controlled within this range.
 - b) Over the extremes of the temperature range(s) of the declared host equipment(s) in case of plug-in radio devices.

TYPE OF ANTENNA	
<input checked="" type="checkbox"/> Integral	
Temporary RF connector provided:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<input checked="" type="checkbox"/> Antenna connector	
<input type="checkbox"/> Number of antenna assembly(ies) submitted	2
Gain of the antenna intended for normal use:	
4.0 dBi for assembly identified as	Onboard PIFA antenna
1.5 dBi for assembly identified as	integral External Antenna (Kinnsun 6604313035-200
dBi for assembly identified as	
dBi for assembly identified as	

TRANSMITTER TECHNICAL CHARACTERISTICS		
TRANSMITTER OPERATING FREQUENCY RANGE(S)		
	FCC and/or Industry Canada	EU
Bluetooth	to MHz	to MHz
WLAN	2400 to 2483.5 MHz	2400 to 2483.5 MHz
FCC and/or Industry Canada (only)		
Highest Internally Generated Frequency 2483.5 MHz		



SPREAD SPECTRUM PARAMETERS			
<input type="checkbox"/> Bluetooth			
FHSS: Channel <input type="checkbox"/> 79 Other	EDR <input type="checkbox"/> Yes <input type="checkbox"/> No		
Medium Access Protocol (Customer Declaration)			
<input checked="" type="checkbox"/> WLAN			
IEEE 802.11(b) – DSSS <input checked="" type="checkbox"/>			
IEEE 802.11(g) – OFDM <input checked="" type="checkbox"/>			
IEEE 802.11(n) – OFDM <input checked="" type="checkbox"/>			
Supported Spatial Streams	2.4 GHz	5GHz	
Transmitter (Tx)			
Receiver (Rx)			
GI (Guard Interval) <input checked="" type="checkbox"/> 800 ns <input checked="" type="checkbox"/> 400 ns			
Band Width <input checked="" type="checkbox"/> 20 MHz <input checked="" type="checkbox"/> 40 MHz			
<input type="checkbox"/> Other Technology			
<input type="checkbox"/> Direct Sequence <input type="checkbox"/> Frequency Hopping <input type="checkbox"/> Combined <input type="checkbox"/> Other			
DSSS	Chip Sequence Length	bit	
	Spectrum Width	MHz	
FHSS	Total Number of Hops		
	Dwell Time	ms	
	Bandwidth Per Hop	MHz	
	Maximum Separation of Hops	MHz for ETSI EN 300 328	
Other			
Medium Access Protocol (Customer Declaration)			
"We have implemented IEEE 802.11 (b/g/n) protocol which satisfies the medium access protocol requirement of EN 300 328".			



TRANSMITTER POWER CHARACTERISTICS			
Bluetooth			
Maximum Rated Transmitter Output			
Effective radiated power (for equipment with antenna connector)			W
Effective radiated power (for equipment with integral antenna)			W
Minimum Rated Transmitter Output			
Effective radiated power (for equipment with antenna connector)			W
Effective radiated power (for equipment with integral antenna)			W
Is transmitter intended for :			
Continuous duty		<input type="checkbox"/> Yes <input type="checkbox"/> No	
Intermittent duty		<input type="checkbox"/> Yes <input type="checkbox"/> No	
If intermittent state DUTY CYCLE			
Transmitter ON	seconds	Transmitter OFF	minutes
Is continuous operation possible for testing purposes?			
		<input type="checkbox"/> Yes <input type="checkbox"/> No	
Is transmitter output power variable:			
		<input type="checkbox"/> Yes <input type="checkbox"/> No	
State during the test:			
Transmitter duty cycle	Tx on	Seconds	Tx Off
			Seconds
Duty cycle (Tx on /(Tx on +Tx off))			
		%	
<input type="checkbox"/> Continuously variable		<input type="checkbox"/> Stepped	
	dB per step		
WLAN			
Maximum Rated Transmitter Output			
Effective radiated power (for equipment with antenna connector)			W
Effective radiated power (for equipment with integral antenna)		0.1	W
Minimum Rated Transmitter Output			
Effective radiated power (for equipment with antenna connector)			W
Effective radiated power (for equipment with integral antenna)		0.003	W
Is transmitter intended for :			
Continuous duty		<input type="checkbox"/> Yes <input type="checkbox"/> No	
Intermittent duty		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
If intermittent state DUTY CYCLE			
Transmitter ON	seconds	Transmitter OFF	minutes
Is continuous operation possible for testing purposes?			
		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Is transmitter output power variable:			
		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
State during the test:			
Transmitter duty cycle	Tx on	Seconds	Tx Off
			Seconds
Duty cycle (Tx on /(Tx on +Tx off))			
		%	
<input type="checkbox"/> Continuously variable		<input checked="" type="checkbox"/> Stepped	
	1 dB per step		



Product Service

TRANSMITTER POWER SOURCE (3)				
<input checked="" type="checkbox"/> Common power source for transmitter and receiver				
<input type="checkbox"/> AC mains				
AC supply frequency	(Hz)	State voltage VAC	Max Current	Hz
<input type="checkbox"/> Single phase		<input type="checkbox"/> Three phase		
And / Or				
<input checked="" type="checkbox"/> External DC supply				
Nominal voltage	4V, 3.3V and 1.2V	Max Current	A	
Extreme upper voltage	4.2, 3.47, 1.26	Extreme lower voltage	3.8, 3.14, 1.14	
Battery				
<input type="checkbox"/> Nickel Cadmium				
<input type="checkbox"/> Lead acid (Vehicle regulated)				
<input type="checkbox"/> Alkaline				
<input type="checkbox"/> Lithium				
<input type="checkbox"/> Other Details :				
Volts nominal.				
End point voltage as quoted by equipment manufacturer				V

(3) If a transmitter and receiver use the same power source, this should be declared. In such cases only the box for the transmitter power source should be filled in.

AUTOMATIC EQUIPMENT SWITCH OFF	
If the equipment is designed to automatically switch off at a predetermined voltage level which is higher or lower in value than the battery minimum and minimum calculated values this shall be clearly stated.	
<input type="checkbox"/> Applies	V cut-off voltage
<input checked="" type="checkbox"/> Does not apply	



Product Service

RECEIVER POWER SOURCE (4)				
<input type="checkbox"/> AC mains		State voltage		
AC supply frequency	(Hz)	VAC	Max Current	Hz
<input type="checkbox"/> Single phase		<input type="checkbox"/> Three phase		
And / Or				
<input type="checkbox"/> External DC supply				
Nominal voltage		Max Current		A
Extreme upper voltage		Extreme lower voltage		
Battery				
<input type="checkbox"/> Nickel Cadmium				
<input type="checkbox"/> Lead acid (Vehicle regulated)				
<input type="checkbox"/> Alkaline				
<input type="checkbox"/> Lithium				
<input type="checkbox"/> Other Details :				
	Volts nominal.			
End point voltage as quoted by equipment manufacturer				V

(4) If a transmitter and receiver use the same power source, this should be declared. In such cases only the box for the transmitter power source should be filled in.

AUTOMATIC EQUIPMENT SWITCH OFF	
If the equipment is designed to automatically switch off at a predetermined voltage level which is higher or lower in value than the battery minimum and minimum calculated values this shall be clearly stated.	
<input type="checkbox"/> Applies	V cut-off voltage
<input type="checkbox"/> Does not apply	

I hereby declare that I am entitled to sign on behalf of the applicant and that the information supplied is correct and complete.

Signature:  Name: Abdul Wahed Dewan
 Position held: Principal RF Engineer Date: 29 May 2012



Product Service

1.4 PRODUCT INFORMATION

1.4.1 Technical Description

The Equipment Under Test (EUT) was a Frontier Silicon Ltd Venice 6.5. A full technical description can be found in the manufacturer's documentation.

1.5 TEST CONDITIONS

For all tests the EUT was set up in accordance with the relevant test standard and to represent typical operating conditions. Tests were applied with the EUT situated in a shielded enclosure.

The EUT was powered from a 4V, 3.3V and 1.2V DC supply.

FCC Accreditation
90987 Octagon House, Fareham Test Laboratory

Industry Canada Accreditation
IC2932B-1 Octagon House, Fareham Test Laboratory

1.6 DEVIATIONS FROM THE STANDARD

No deviations from the applicable test standard or test plan were made during testing.

1.7 MODIFICATION RECORD

Modification 0 - No modifications were made to the test sample during testing.



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SECTION 2

TEST DETAILS

FCC and Industry Canada Testing of the
Frontier Silicon Ltd Venice 6.5
In accordance with FCC CFR 47 Part 15C, Industry Canada RSS-210 and Industry Canada
RSS-GEN



Product Service

2.1 AC LINE CONDUCTED EMISSIONS

2.1.1 Specification Reference

FCC CFR 47 Part 15, Clause 15.207
Industry Canada RSS-GEN, Clause 7.2.4

2.1.2 Equipment Under Test and Modification State

Venice 6.5 S/N: RAD1030457 on Test Jig S/N: RAD103235 - Modification State 0

2.1.3 Date of Test

9 April 2012

2.1.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.1.5 Test Procedure

The EUT is set up on a test table 800mm above a horizontal ground plane. A vertical ground plane is also required and is placed 400mm from the EUT. Where a EUT is floor standing it will be stood on but insulated from the ground plane by up to 12mm.

The EUT is powered through a Line Impedance Stabilisation Network (LISN) which is bonded to the ground plane. The EUT is located so that the distance between the EUT and the LISN is no less than 800mm. Where possible the cable between the mains input of the EUT and the LISN is 1m. Where this is not possible the cable is non inductively bundled with the bundle not exceeding 400mm in length.

A preliminary profile of the Conducted Emissions is obtained over the frequency range 150kHz to 30MHz. Any points of interest are noted for formal measurements.

During formal measurements, the measuring receiver is tuned to the emission of interest where Quasi – Peak and Average measurements are performed in a 9kHz Video and Resolution Bandwidth.

2.1.6 Environmental Conditions

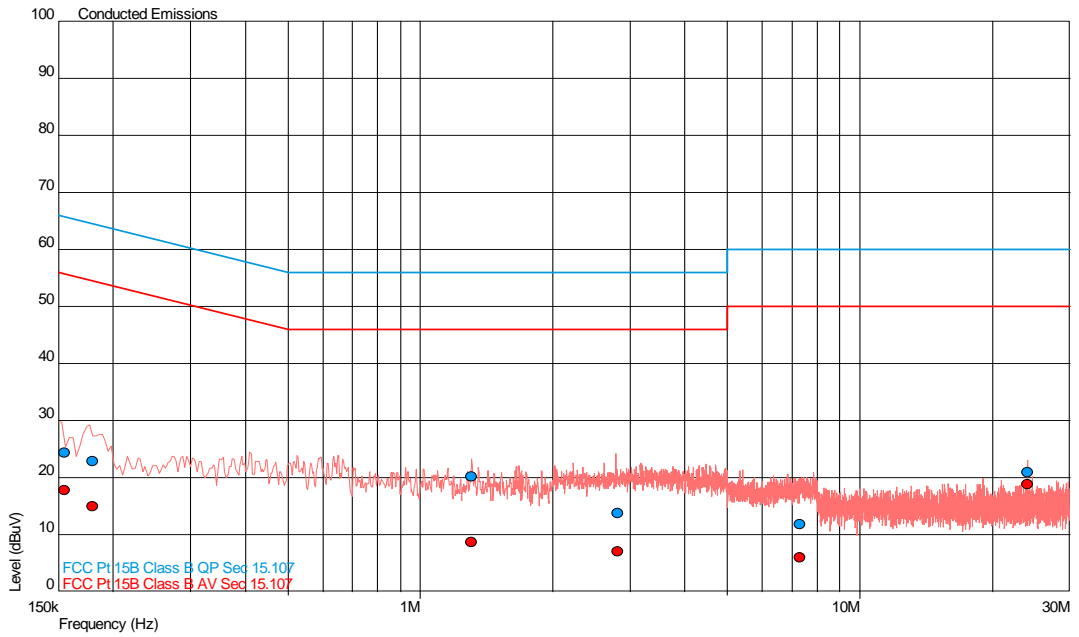
Ambient Temperature	23.3°C
Relative Humidity	31.0%



2.1.7 Test Results

802.11(b)

Live Line

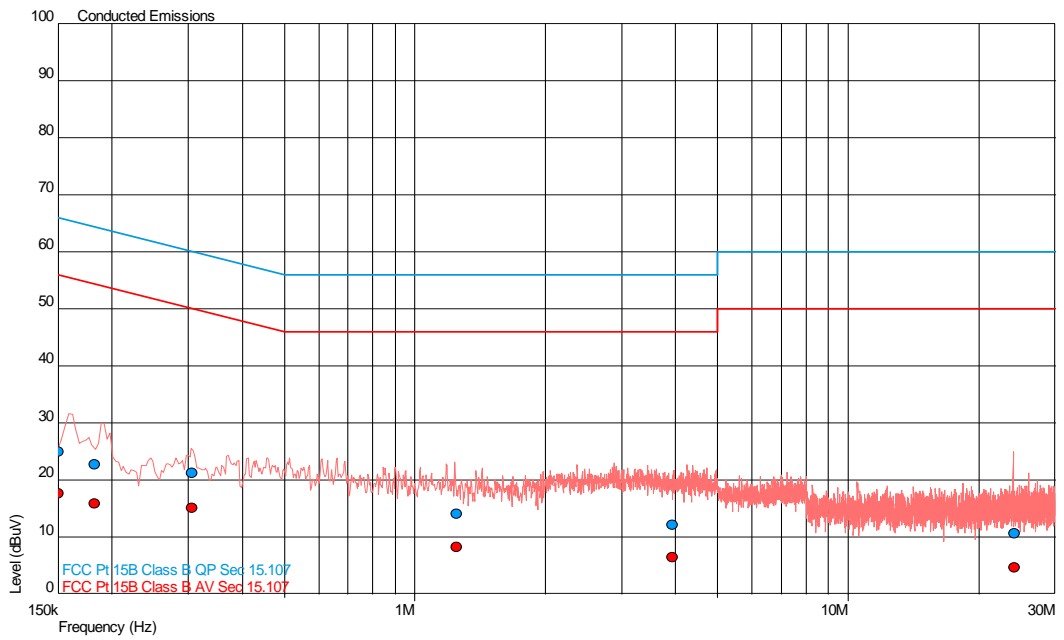


Frequency (MHz)	QP Level (dBμV)	QP Limit (dBμV)	QP Margin (dBμV)	AV Level (dBμV)	AV Limit (dBμV)	AV Margin (dBμV)
0.155	24.4	65.7	-41.3	17.8	55.7	-37.9
0.180	22.8	64.5	-41.7	15.0	54.5	-39.5
1.307	20.2	56.0	-35.8	8.7	46.0	-37.3
2.805	13.7	56.0	-42.3	7.2	46.0	-38.8
7.307	11.9	60.0	-48.1	6.1	50.0	-43.9
24.001	21.0	60.0	-39.0	18.8	50.0	-31.2



Product Service

Neutral Line



Frequency (MHz)	QP Level (dBµV)	QP Limit (dBµV)	QP Margin (dBµV)	AV Level (dBµV)	AV Limit (dBµV)	AV Margin (dBµV)
0.150	25.0	66.0	-41.0	17.7	56.0	0.150
0.182	22.8	64.4	-41.6	15.8	54.4	0.182
0.306	21.3	60.1	-38.8	15.1	50.1	0.306
1.251	14.1	56.0	-41.9	8.2	46.0	1.251
3.934	12.2	56.0	-43.8	6.5	46.0	3.934
24.222	10.6	60.0	-49.4	4.7	50.0	24.222



2.2 MAXIMUM PEAK CONDUCTED OUTPUT POWER

2.2.1 Specification Reference

FCC CFR 47 Part 15C, Clause 15.247 (b)(3)
Industry Canada RSS-210, Clause A8.4 (2)

2.2.2 Equipment Under Test and Modification State

Venice 6.5 S/N: RAD103037 on Test Jig S/N: RAD103234- Modification State 0

2.2.3 Date of Test

5 March 2012, 9 March 2012 & 12 March 2012

2.2.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.2.5 Test Procedure

The EUT was transmitted at maximum power via a cable to the Peak Power Analyser. The Analyser settings were adjusted to display the resultant trace on screen and a reference level offset was entered to account for the measurement path loss. The measurement bandwidth was set according to the signal being measured and the peak and average levels were recorded.

2.2.6 Environmental Conditions

Ambient Temperature	23.1 - 25.1°C
Relative Humidity	19.3 - 31.0%



Product Service

2.2.7 Test Results

802.11(b)

4V, 3.3V and 1.2V DC Supply

Modulation Data Rate (Mbps)	Maximum Peak Conducted Output Power					
	dBm			mW		
	2412 MHz	2437 MHz	2462 MHz	2412 MHz	2437 MHz	2462 MHz
1	15.18	15.93	15.36	32.96	39.17	34.36
2	15.18	15.87	15.32	32.96	38.64	34.04
5.5	15.18	15.84	15.17	32.96	32.37	32.88
11	15.37	15.68	15.42	34.43	36.98	34.83

Limit Clause

The maximum peak conducted output power of the intentional radiator shall not exceed the following:

For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non overlapping hopping channels, and all frequency hopping systems in the 5725-5850MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt.



Product Service

802.11(g)

4V, 3.3V and 1.2V DC Supply

Modulation Data Rate (Mbps)	Maximum Peak Conducted Output Power					
	dBm			mW		
	2412 MHz	2437 MHz	2462 MHz	2412 MHz	2437 MHz	2462 MHz
6	22.27	22.71	22.76	168.65	186.64	188.80
9	22.47	22.62	22.69	176.60	182.81	185.78
12	22.38	22.57	22.70	172.98	172.98	180.72
18	22.19	22.34	22.30	165.58	171.39	169.82
24	22.53	22.73	22.86	179.06	187.50	193.20
36	22.68	22.64	22.72	185.35	183.65	187.07
48	21.86	21.60	21.99	153.46	144.55	158.12
54	23.09	22.33	23.27	203.70	171.00	212.32

Limit Clause

The maximum peak conducted output power of the intentional radiator shall not exceed the following:

For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non overlapping hopping channels, and all frequency hopping systems in the 5725-5850MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt.



Product Service

802.11(n) - 2.4 GHz 20 MHz BW

4V, 3.3V and 1.2V DC Supply

Modulation Data Rate (Mbps)	Maximum Peak Conducted Output Power					
	dBm			mW		
	2412 MHz	2437 MHz	2462 MHz	2412 MHz	2437 MHz	2462 MHz
7.20	22.44	22.70	22.72	175.39	186.21	187.07
14.40	22.21	22.47	22.65	166.34	176.60	184.08
21.70	22.45	22.41	22.47	175.79	174.18	176.60
28.90	22.50	22.33	22.46	177.83	171.00	176.20
43.30	22.50	22.49	22.46	177.83	177.42	176.20
57.80	22.47	21.25	22.48	176.60	133.35	177.01
65.00	22.44	21.56	22.50	175.39	143.22	177.83
72.20	22.44	22.70	22.47	175.39	186.21	176.60

Limit Clause

The maximum peak conducted output power of the intentional radiator shall not exceed the following:

For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non overlapping hopping channels, and all frequency hopping systems in the 5725-5850MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt.

802.11(n) - 2.4 GHz, 40 MHz BW

4V, 3.3V and 1.2V DC Supply

Modulation Data Rate (Mbps)	Maximum Peak Conducted Output Power					
	dBm			mW		
	2422 MHz	2437 MHz	2452 MHz	2422 MHz	2437 MHz	2452 MHz
15.00	23.43	23.36	23.49	220.29	216.77	223.36
30.00	22.54	22.76	22.46	179.47	188.80	176.20
45.00	22.83	22.76	22.76	191.87	188.80	188.80
60.00	22.97	22.99	23.07	198.15	199.07	202.77
90.00	22.46	22.65	22.69	176.20	184.08	185.78
120.00	22.50	21.49	22.73	177.83	140.93	187.50
135.00	22.84	21.57	23.16	192.31	143.55	207.01
150.00	22.96	21.55	23.02	197.70	142.89	200.45

Limit Clause

The maximum peak conducted output power of the intentional radiator shall not exceed the following:

For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non overlapping hopping channels, and all frequency hopping systems in the 5725-5850MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt.



2.3 EIRP PEAK POWER

2.3.1 Specification Reference

FCC CFR 47 Part 15C, Clause 15.247 (b)(4)
Industry Canada RSS-210, Clause A8.4 (4)

2.3.2 Equipment Under Test and Modification State

Venice 6.5 S/N: RAD103021 on Test Jig S/N: RAD103235 - Modification State 0
Venice 6.5 S/N: RAD103045 on Test Jig S/N: RAD103235 - Modification State 0

2.3.3 Date of Test

5 March 2012 & 9 April 2012

2.3.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.3.5 Test Procedure

The EUT was transmitted at maximum power via a cable to the Peak Power Analyser. The Analyser settings were adjusted to display the resultant trace on screen and a reference level offset was entered to account for the measurement path loss. The measurement bandwidth was set according to the signal being measured and the peak and average levels were recorded.

2.3.6 Environmental Conditions

Ambient Temperature	19.8 - 24.0°C
Relative Humidity	25.0 - 31.0%



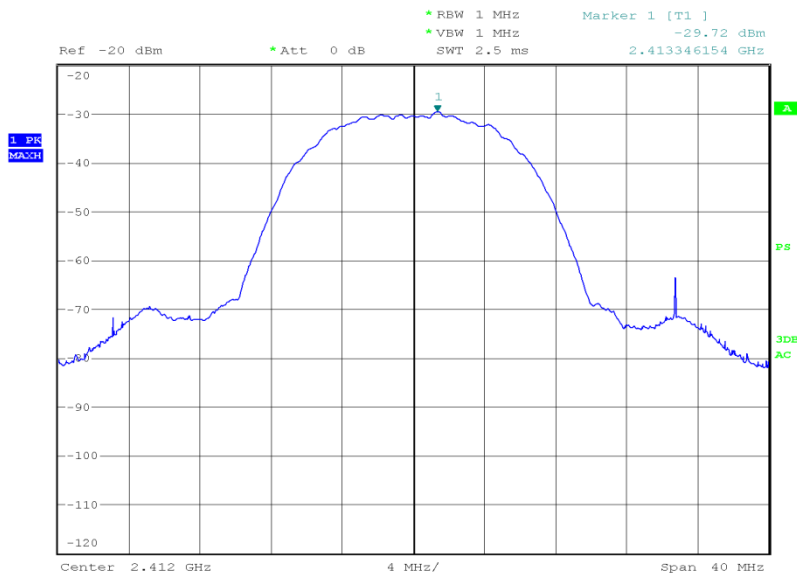
2.3.7 Test Results

802.11(b) – Onboard PIFA Antenna

4V, 3.3V and 1.2V DC Supply

2412 MHz

EIRP (dBm)	EIRP (mW)
17.22	52.72



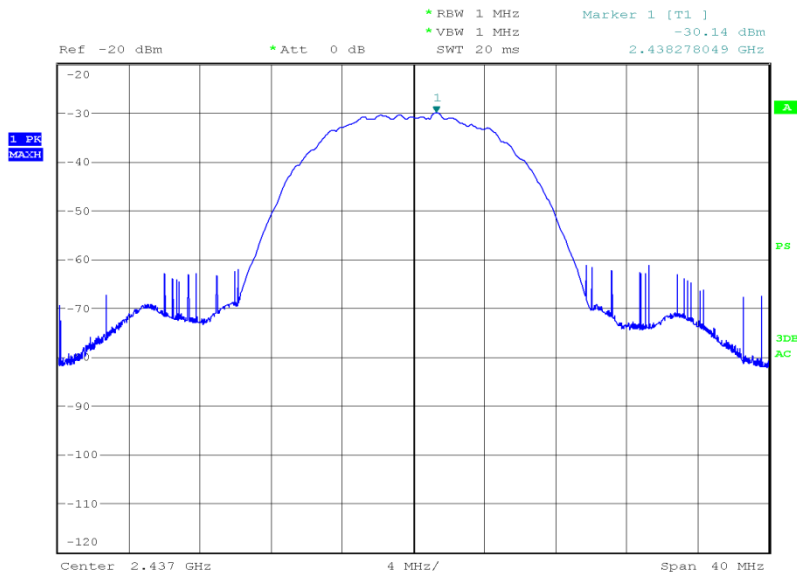
Date: 4.MAR.2012 08:15:13



Product Service

2437 MHz

EIRP (dBm)	EIRP (mW)
17.36	54.45



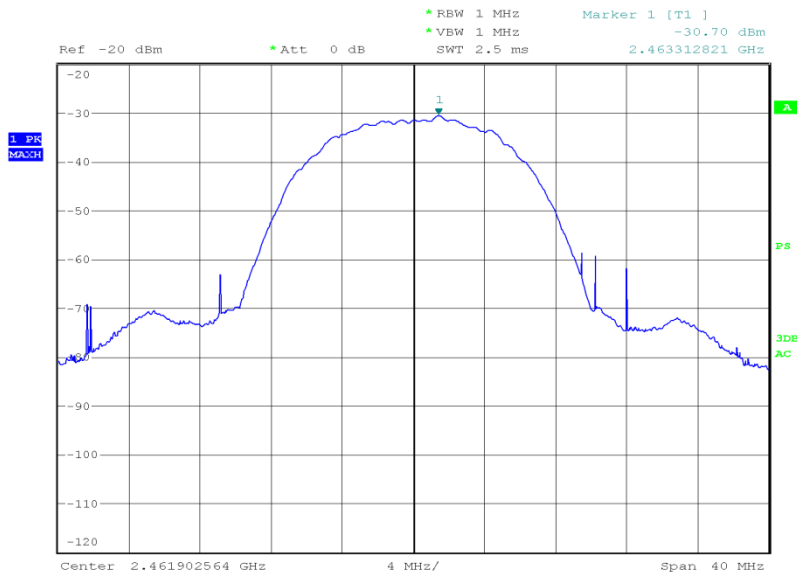
Date: 4.MAR.2012 09:33:32



Product Service

2462 MHz

EIRP (dBm)	EIRP (mW)
16.13	41.02



Date: 4.MAR.2012 09:00:32

Limit

Limit EIRP (dBm)	Limit EIRP(mW)
36.0	4000



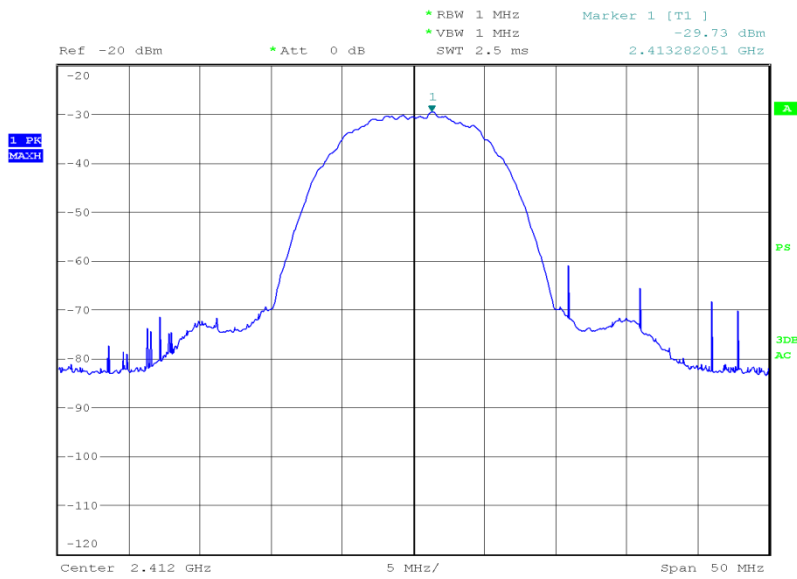
Product Service

802.11(b) - External Antenna

4V, 3.3V and 1.2V DC Supply

2412 MHz

EIRP (dBm)	EIRP (mW)
18.67	73.62



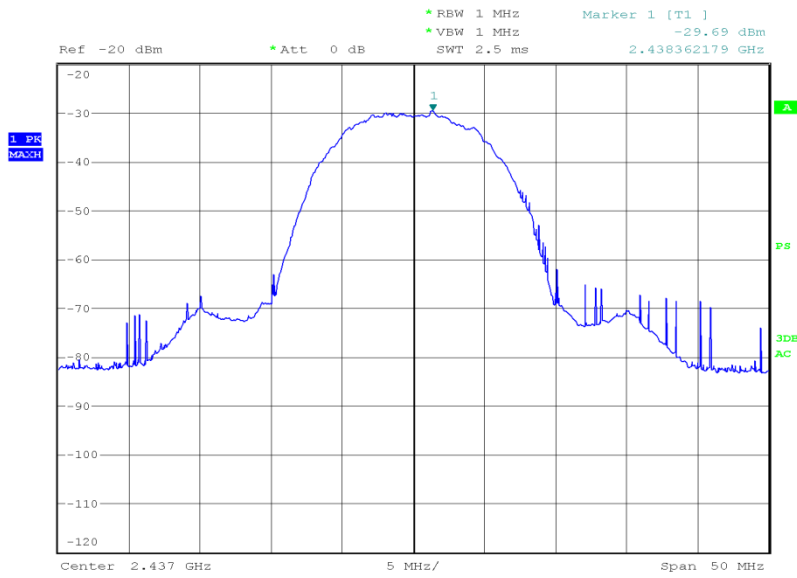
Date: 9.APR.2012 13:07:30



Product Service

2437 MHz

EIRP (dBm)	EIRP (mW)
18.32	67.90



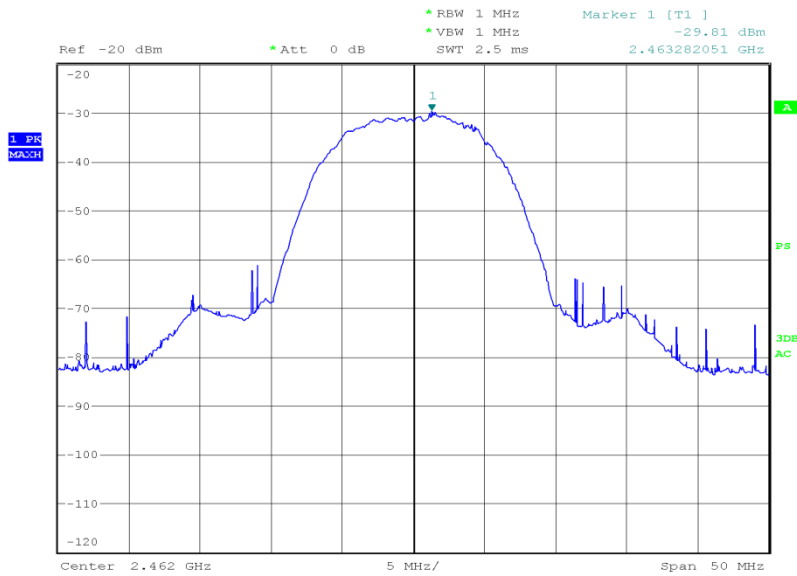
Date: 9.APR.2012 13:09:58



Product Service

2462 MHz

EIRP (dBm)	EIRP (mW)
18.11	64.71



Date: 9.APR.2012 13:11:53

Limit

Limit EIRP (dBm)	Limit EIRP(mW)
36.0	4000



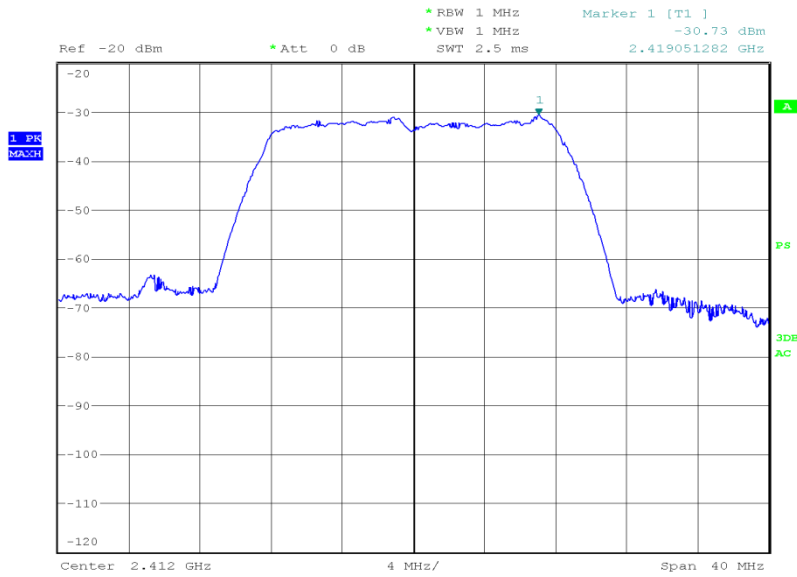
Product Service

802.11(g) – Onboard PIFA Antenna

4V, 3.3V and 1.2V DC Supply

2412 MHz

EIRP (dBm)	EIRP (mW)
21.91	155.24

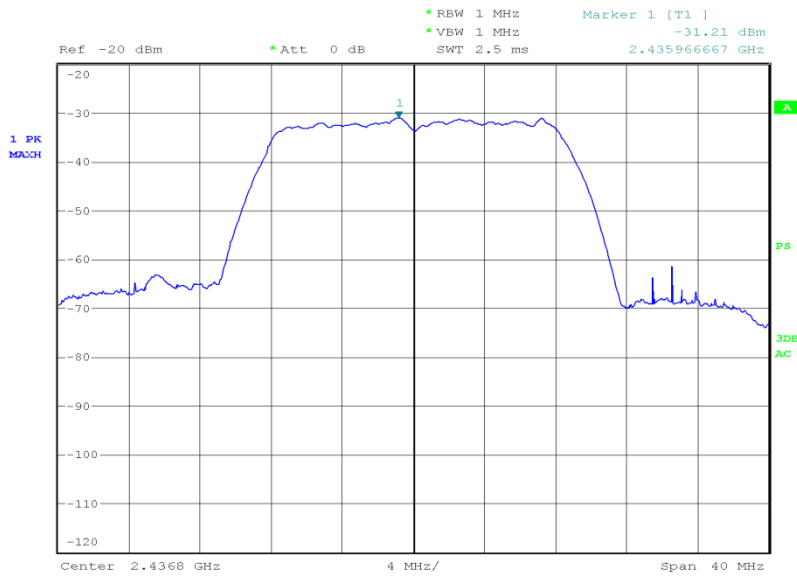


Date: 29.FEB.2012 21:52:18



2437 MHz

EIRP (dBm)	EIRP (mW)
21.39	137.72



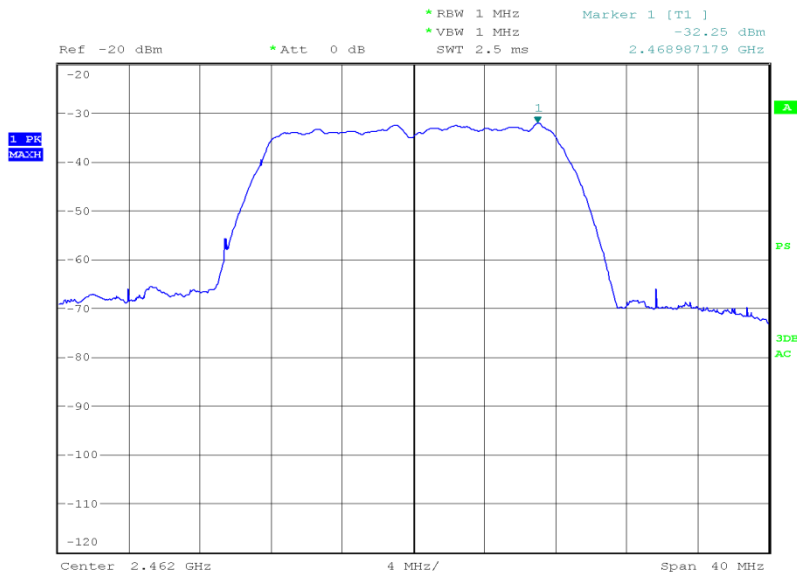
Date: 29.FEB.2012 22:00:22



Product Service

2462 MHz

EIRP (dBm)	EIRP (mW)
19.96	99.08



Date: 29.FEB.2012 22:40:45

Limit

Limit EIRP (dBm)	Limit EIRP(mW)
36.0	4000



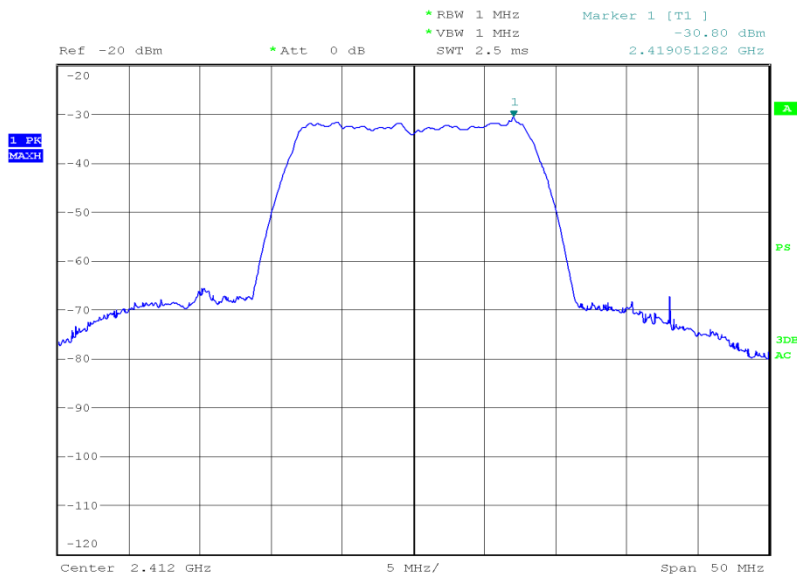
Product Service

802.11(g) - External Antenna

4V, 3.3V and 1.2V DC Supply

2412 MHz

EIRP (dBm)	EIRP (mW)
24.36	272.90



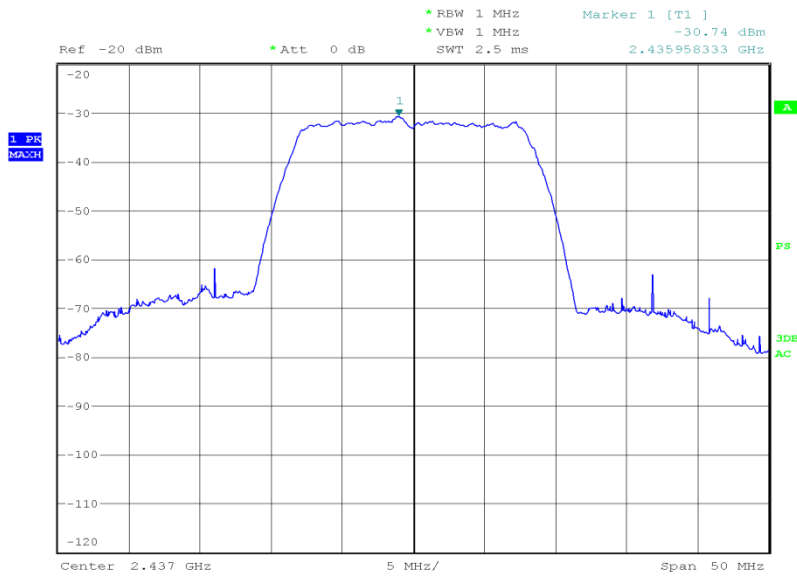
Date: 9.APR.2012 13:13:46



Product Service

2437 MHz

EIRP (dBm)	EIRP (mW)
23.84	242.10



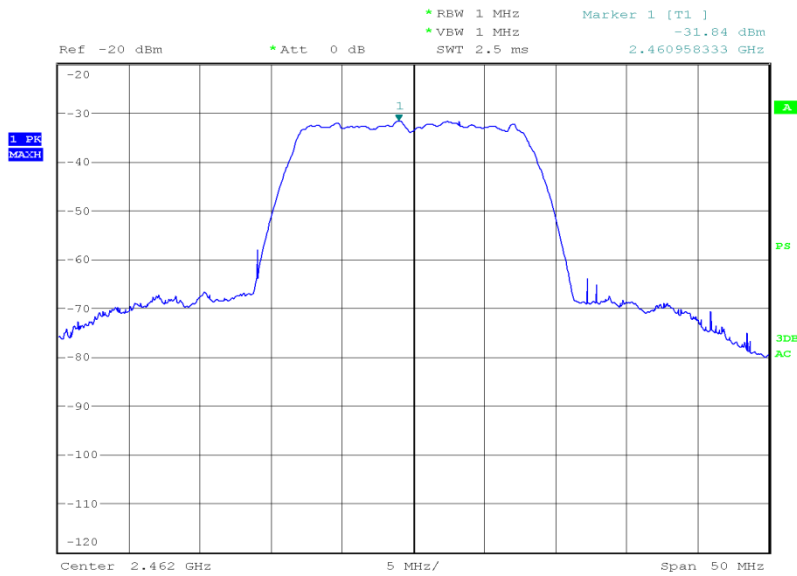
Date: 9.APR.2012 13:16:31



Product Service

2462 MHz

EIRP (dBm)	EIRP (mW)
22.75	188.36



Date: 9.APR.2012 13:22:18

Limit

Limit EIRP (dBm)	Limit EIRP(mW)
36.0	4000



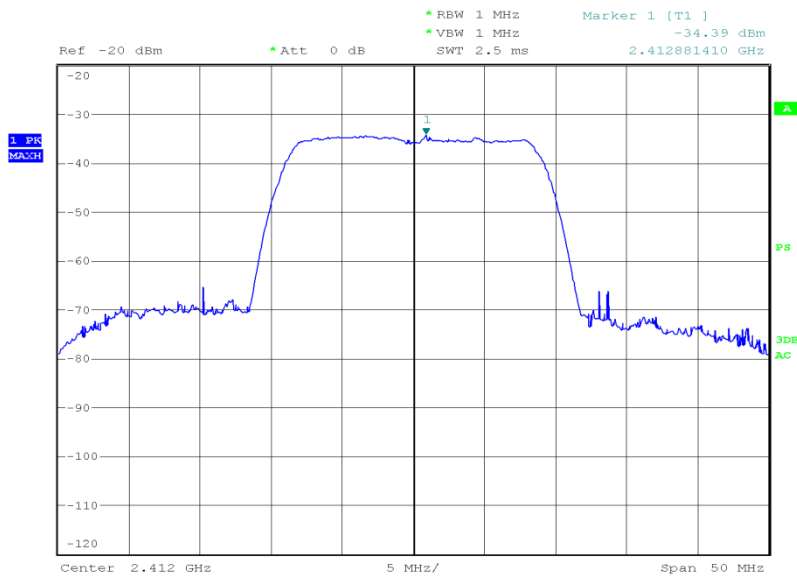
Product Service

802.11(n) - 2.4 GHz 20 MHz BW - External Antenna

4V, 3.3V and 1.2V DC Supply

2412 MHz

EIRP (dBm)	EIRP (mW)
21.62	145.21



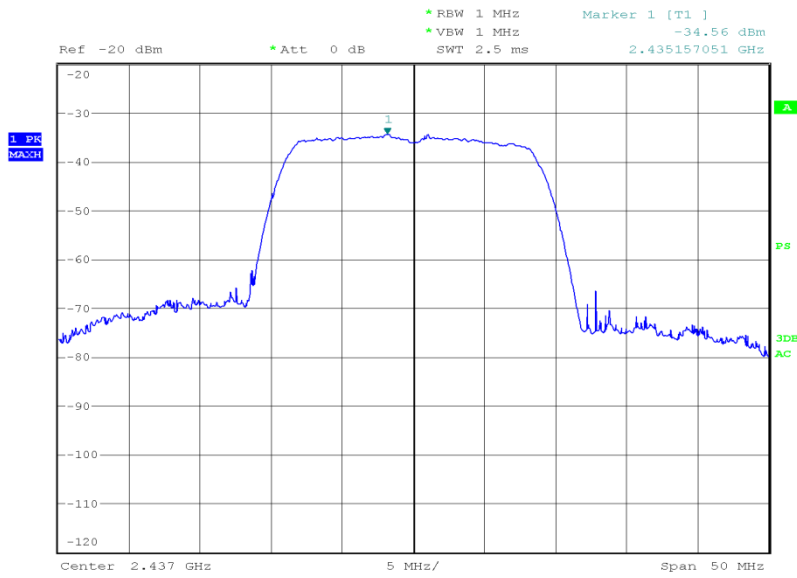
Date: 9.APR.2012 13:24:15



Product Service

2437 MHz

EIRP (dBm)	EIRP (mW)
20.79	119.95



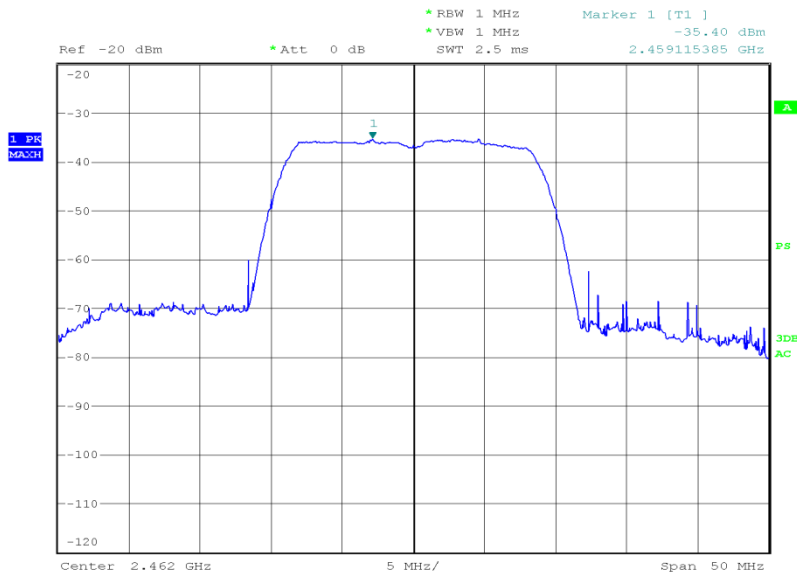
Date: 9.APR.2012 13:28:47



Product Service

2462 MHz

EIRP (dBm)	EIRP (mW)
19.79	95.28



Date: 9.APR.2012 13:31:06

Limit

Limit EIRP (dBm)	Limit EIRP(mW)
36.0	4000



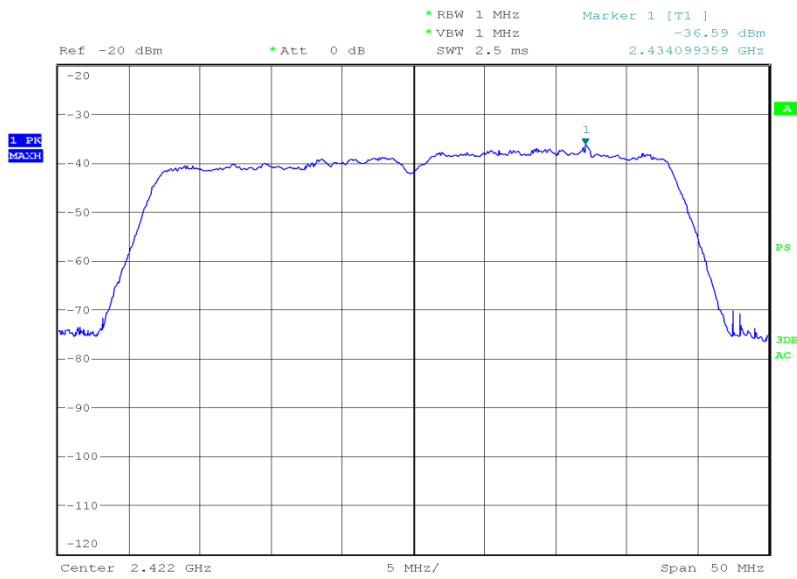
Product Service

802.11(n) - 2.4 GHz 40 MHz BW - External Antenna

4V, 3.3V and 1.2V DC Supply

2422 MHz

EIRP (dBm)	EIRP (mW)
20.76	119.12



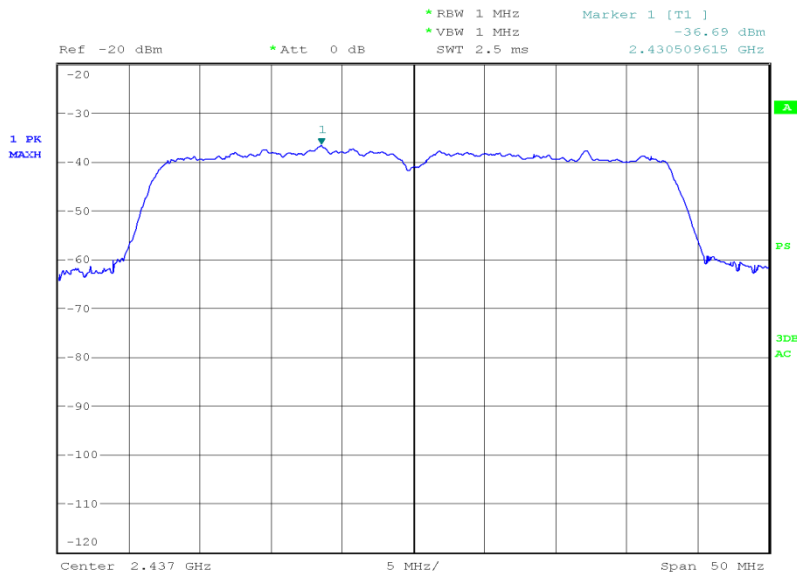
Date: 9.APR.2012 12:56:50



Product Service

2437 MHz

EIRP (dBm)	EIRP (mW)
20.50	112.20



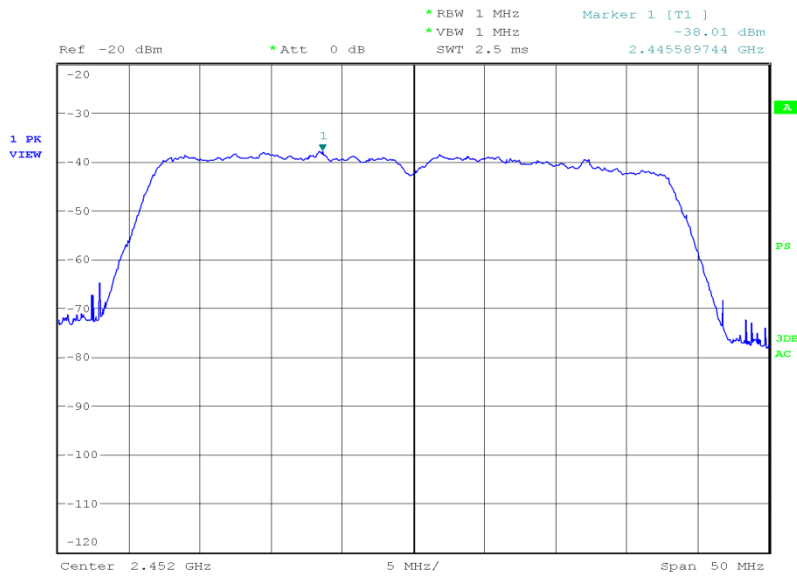
Date: 9.APR.2012 12:53:30



Product Service

2452 MHz

EIRP (dBm)	EIRP (mW)
18.08	64.29



Date: 9.APR.2012 13:03:20

Limit

Limit EIRP (dBm)	Limit EIRP(mW)
36.0	4000



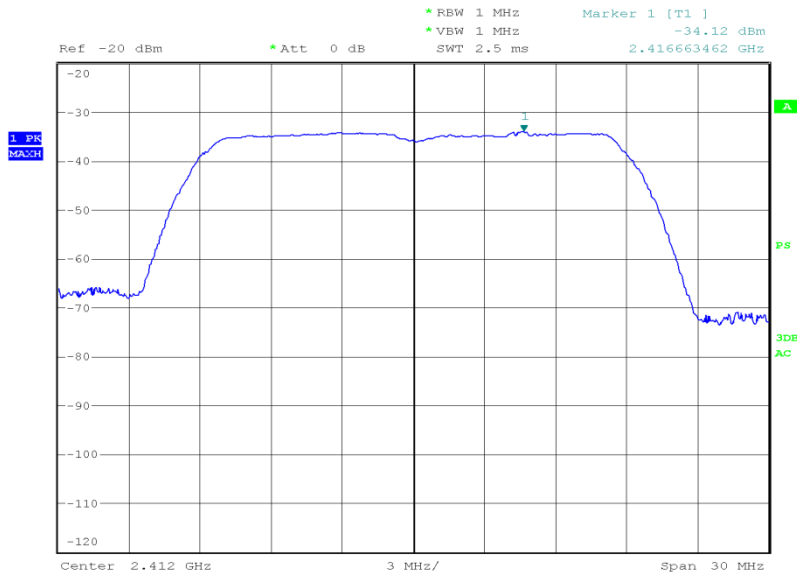
Product Service

802.11(n) - 2.4 GHz 20 MHz BW – Onboard PIFA Antenna

4V, 3.3V and 1.2V DC Supply

2412 MHz

EIRP (dBm)	EIRP (mW)
19.69	93.11



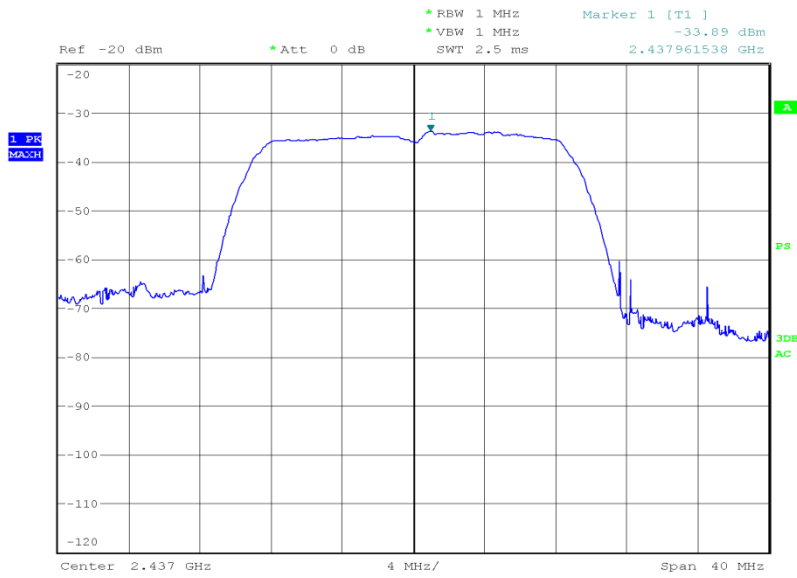
Date: 29.FEB.2012 19:58:44



Product Service

2437 MHz

EIRP (dBm)	EIRP (mW)
18.75	74.99



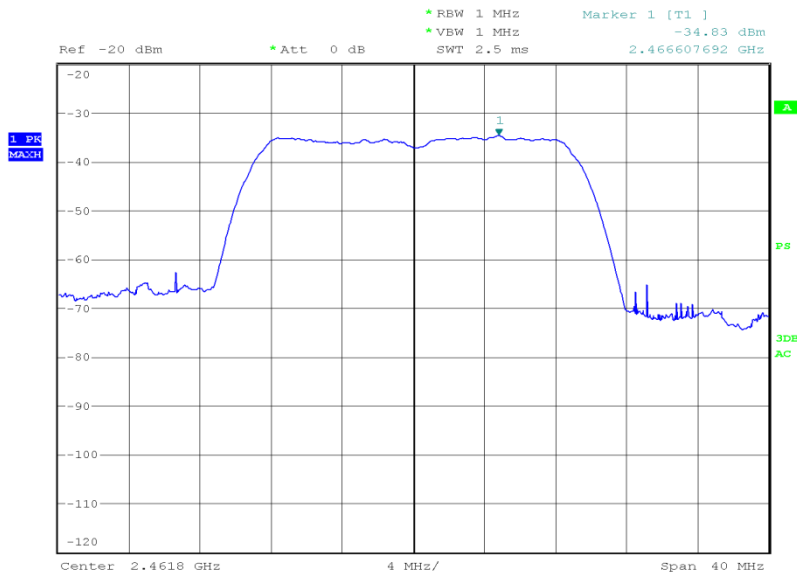
Date: 29.FEB.2012 20:33:43



Product Service

2462 MHz

EIRP (dBm)	EIRP (mW)
16.95	49.55



Date: 29.FEB.2012 20:48:55

Limit

Limit EIRP (dBm)	Limit EIRP(mW)
36.0	4000



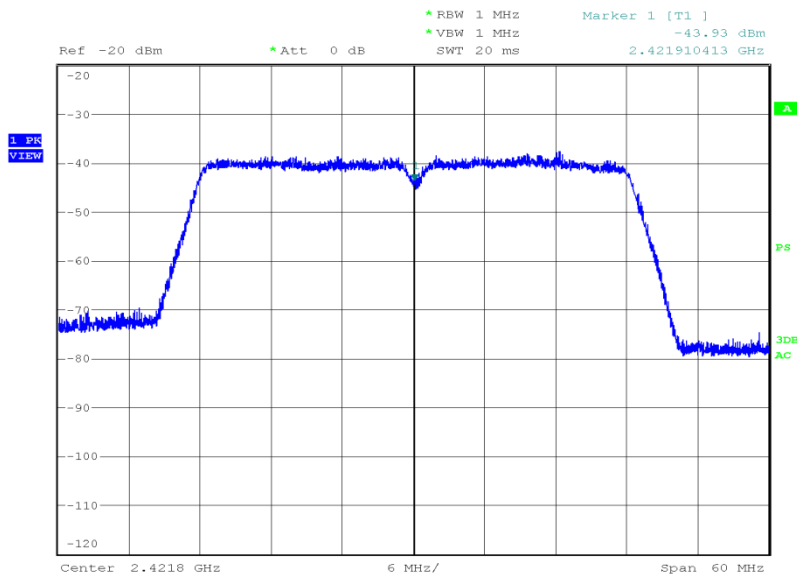
Product Service

802.11(n) - 2.4 GHz, 40 MHz BW – Onboard PIFA Antenna

4V, 3.3V and 1.2V DC Supply

2422 MHz

EIRP (dBm)	EIRP (mW)
18.55	71.61



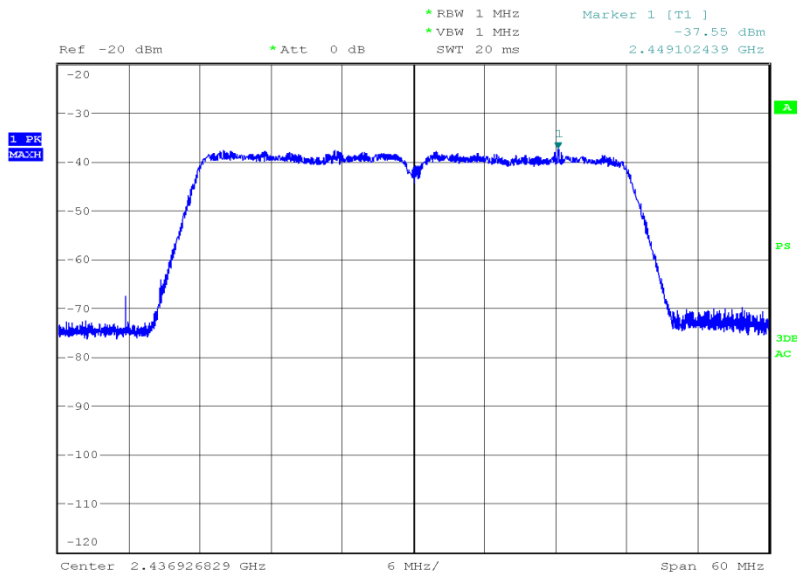
Date: 4.MAR.2012 10:00:15



Product Service

2437 MHz

EIRP (dBm)	EIRP (mW)
19.26	84.33



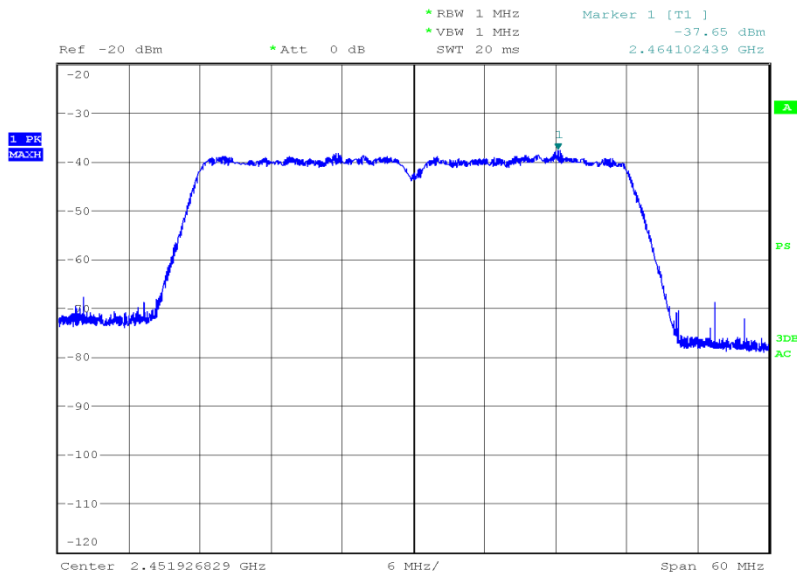
Date: 4.MAR.2012 10:38:18



Product Service

2452 MHz

EIRP (dBm)	EIRP (mW)
18.41	69.34



Date: 4.MAR.2012 11:02:55

Limit

Limit EIRP (dBm)	Limit EIRP(mW)
36.0	4000



Product Service

2.4 SPURIOUS AND BAND EDGE EMISSIONS

2.4.1 Specification Reference

FCC CFR 47 Part 15C, Clause 15.247 (d)
Industry Canada RSS-210, Clause A8.5
Industry Canada RSS-GEN, Clause 2.2

2.4.2 Equipment Under Test and Modification State

Venice 6.5 S/N: RAD103037 on Test Jig S/N: RAD103234- Modification State 0
Venice 6.5 S/N: RAD103045 on Test Jig, S/N: RAD103235 - Modification State 0

2.4.3 Date of Test

29 February 2012, 4 March 2012, 5 March 2012, 6 March 2012, 14 March 2012 & 15 March 2012

2.4.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.4.5 Test Procedure

The band edge measurements were performed in accordance with ANSI C63.10, Clause 6.9.3. The results were analysed to ensure compliance with restricted bands. The EUT was set to the lowest and highest operating frequencies.

2.4.6 Environmental Conditions

Ambient Temperature	19.6 - 25.3°C
Relative Humidity	25.0 - 35.0%



Product Service

2.4.7 Test Results

802.11(b)

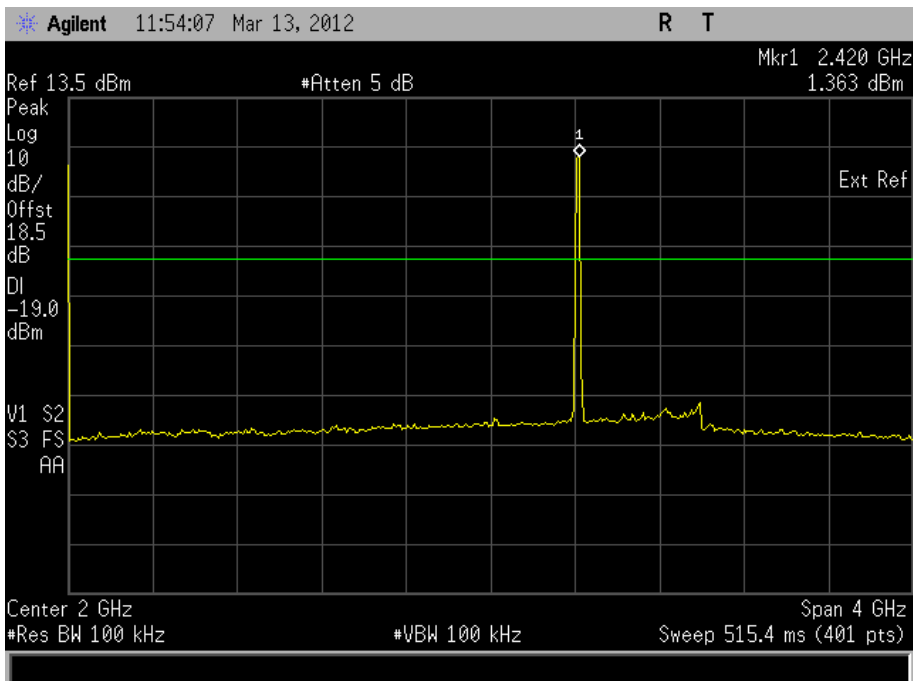
4V, 3.3V and 1.2V DC Supply

Spurious Conducted Emissions

2412 MHz

11 Mbps

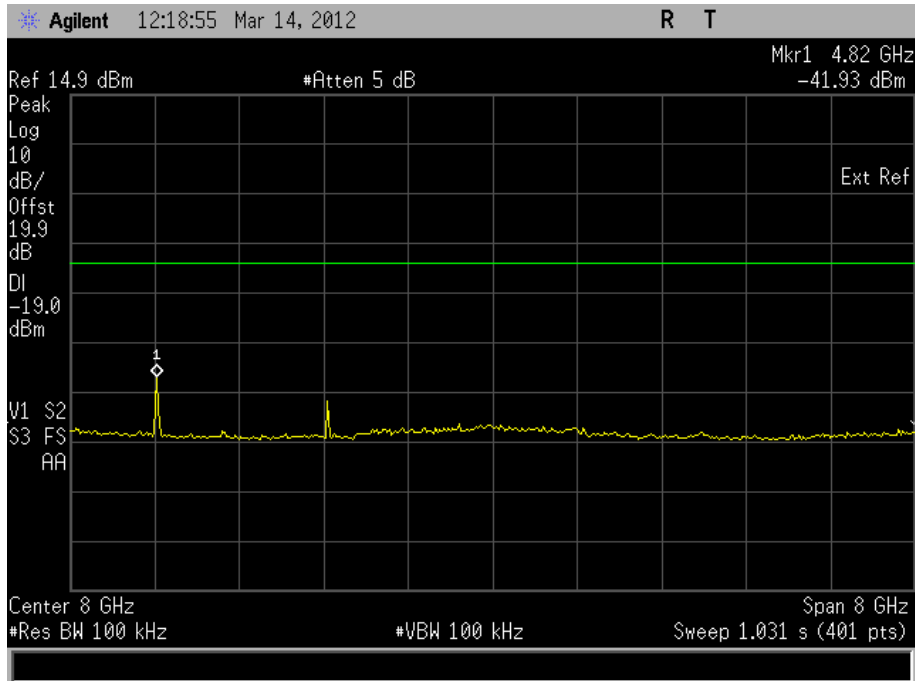
9 kHz to 4 GHz



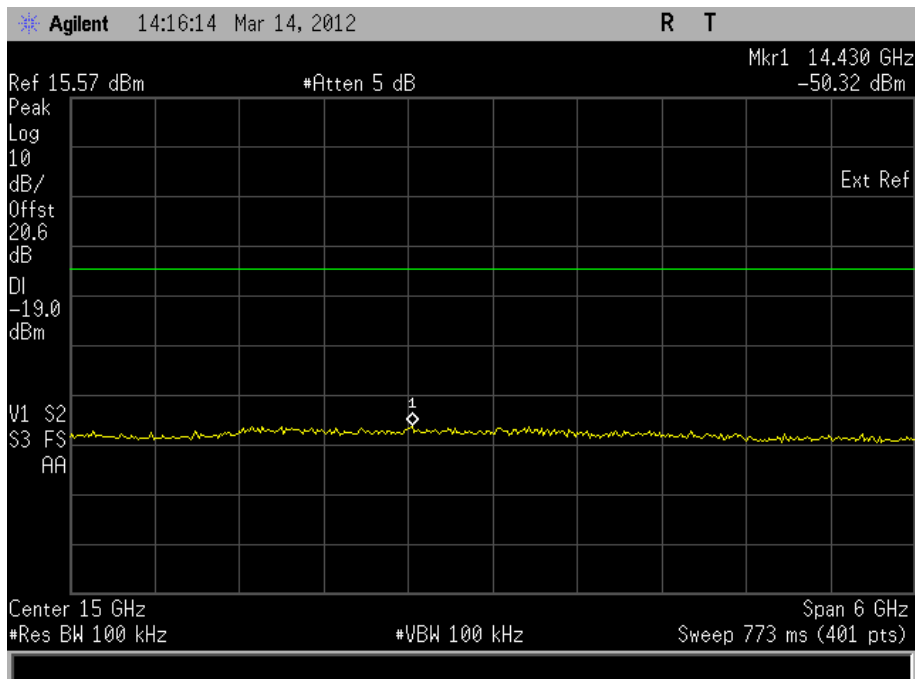


Product Service

4 GHz to 12 GHz



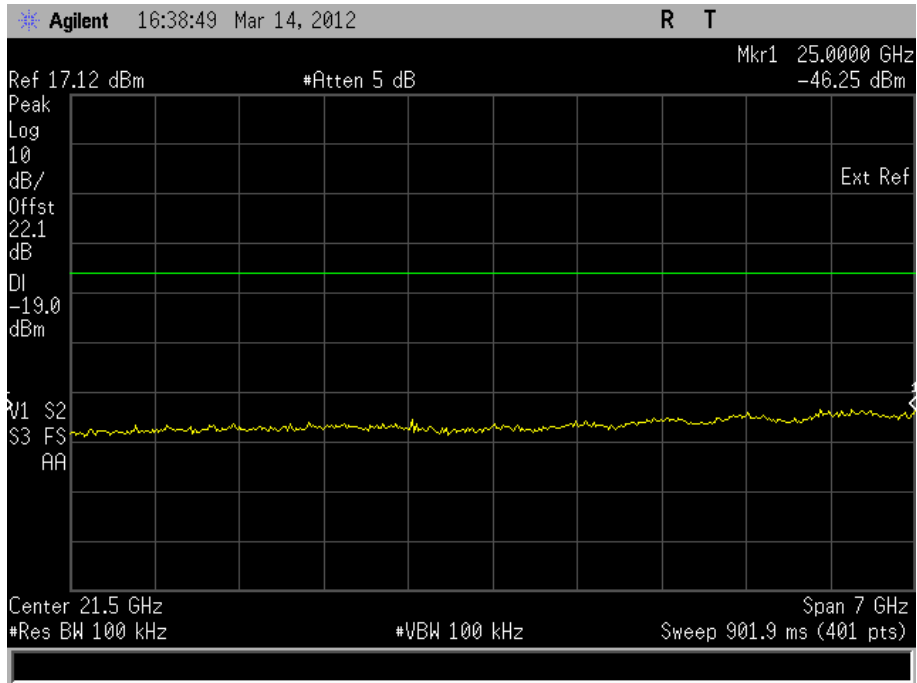
12 GHz to 18 GHz





Product Service

18 GHz to 25 GHz

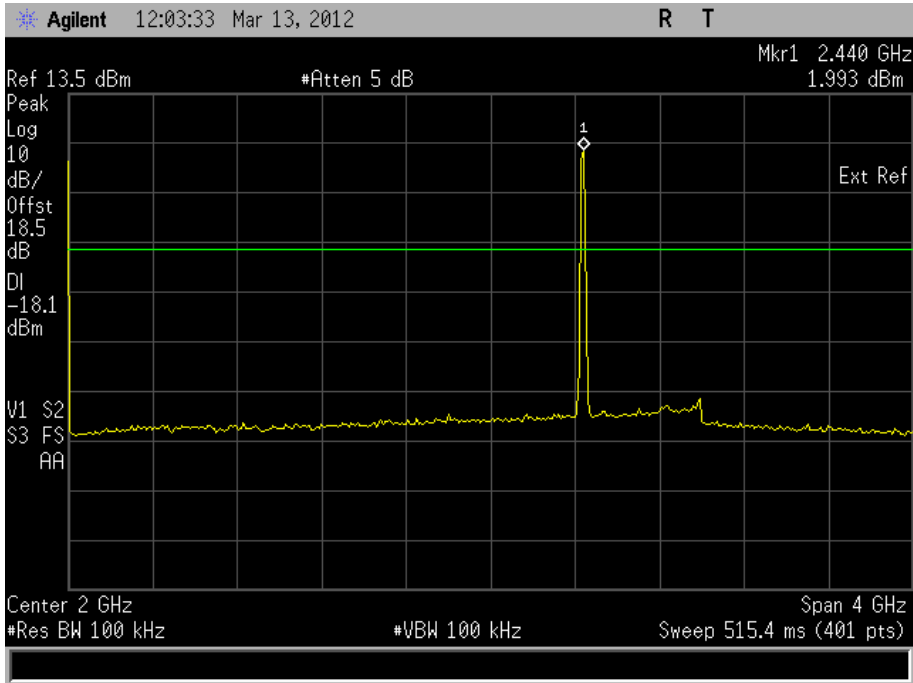




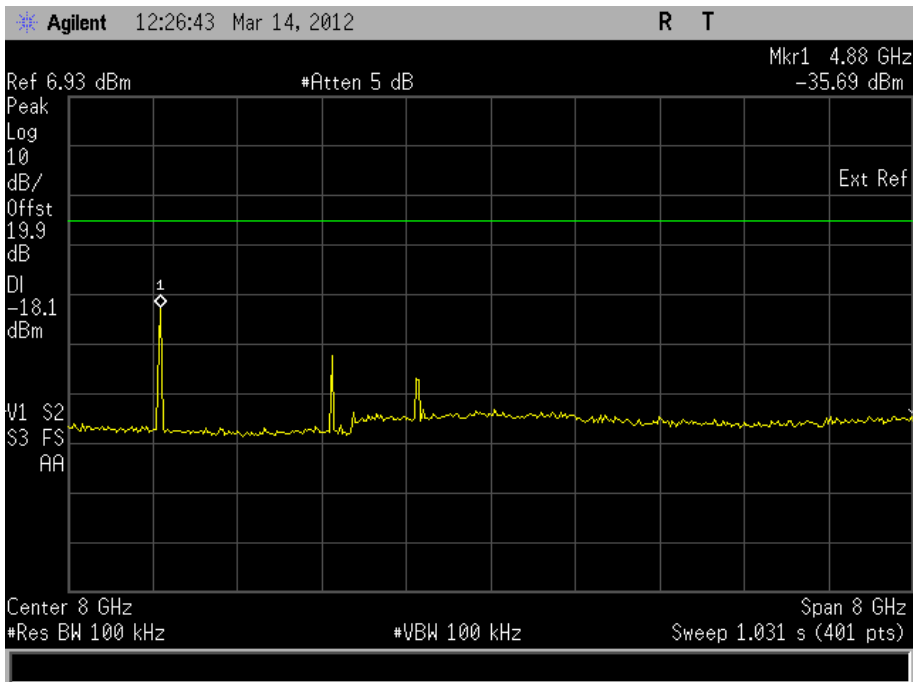
Product Service

2437 MHz

9 kHz to 4 GHz



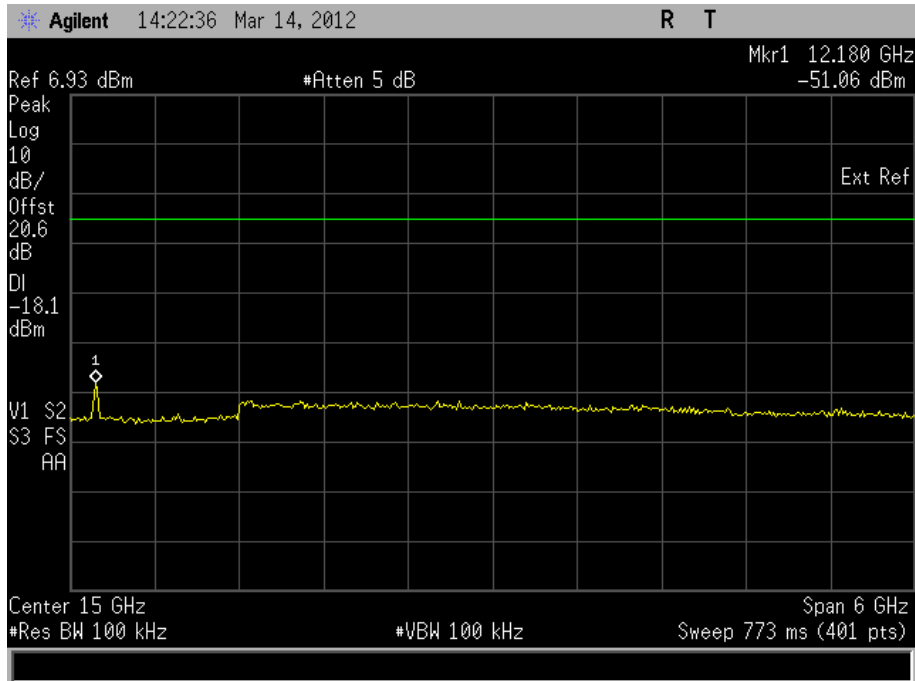
4 GHz to 12 GHz



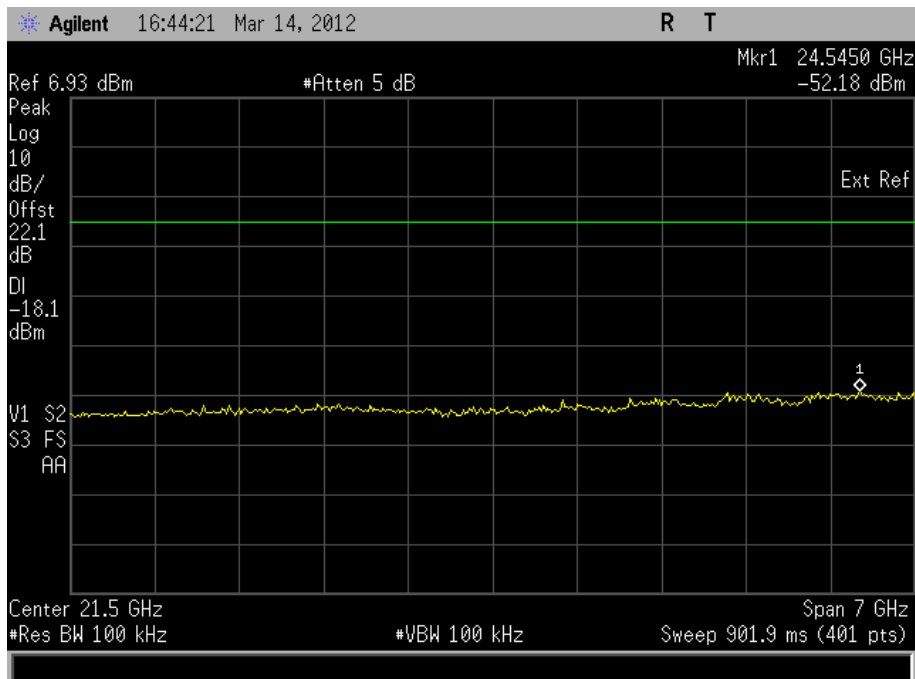


Product Service

12 GHz to 18 GHz



18 GHz to 25 GHz

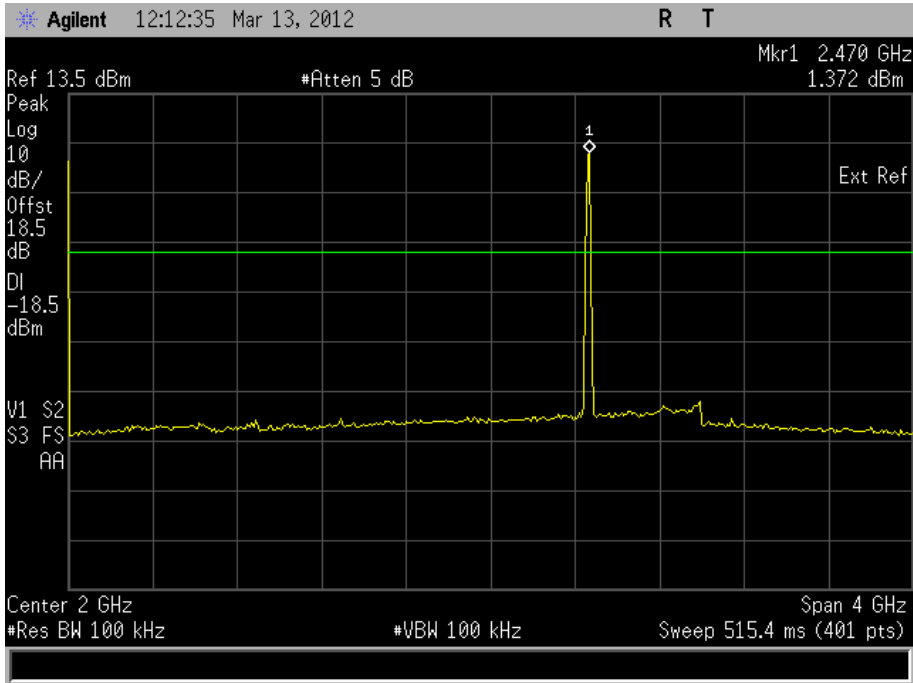




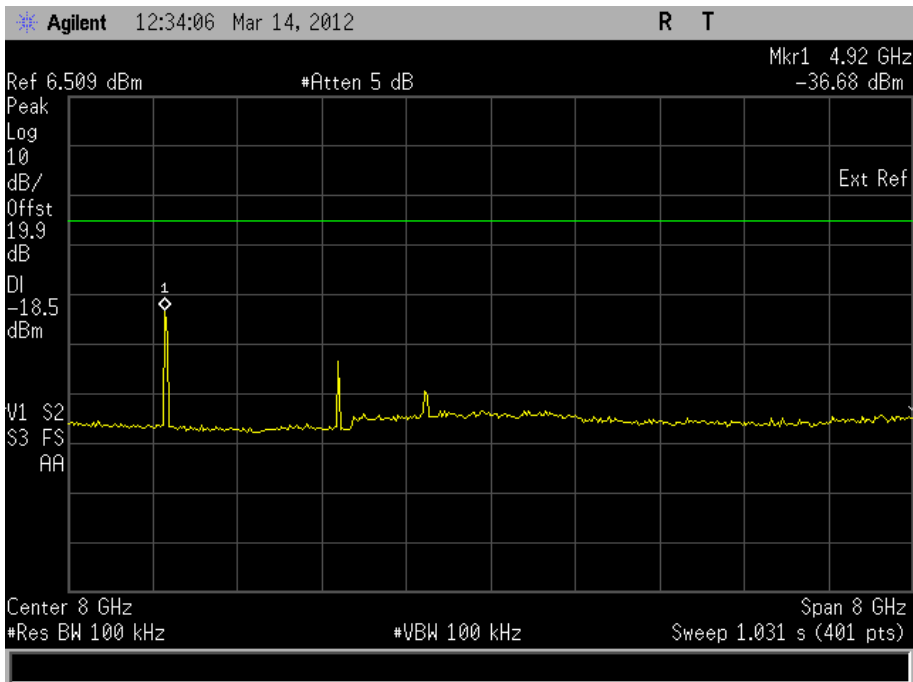
Product Service

2462 MHz

9 kHz to 4 GHz



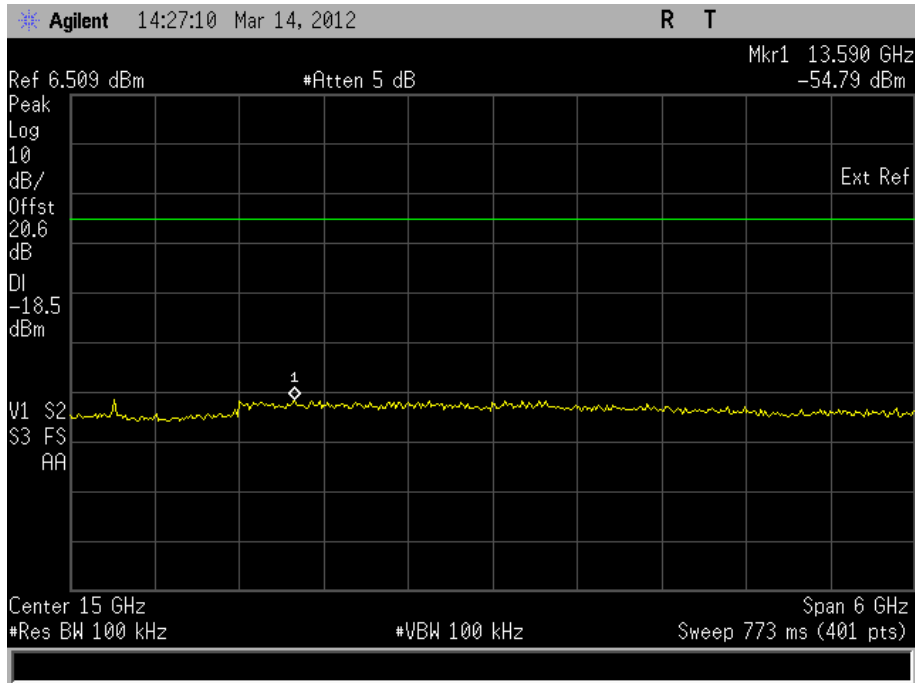
4 GHz to 12 GHz



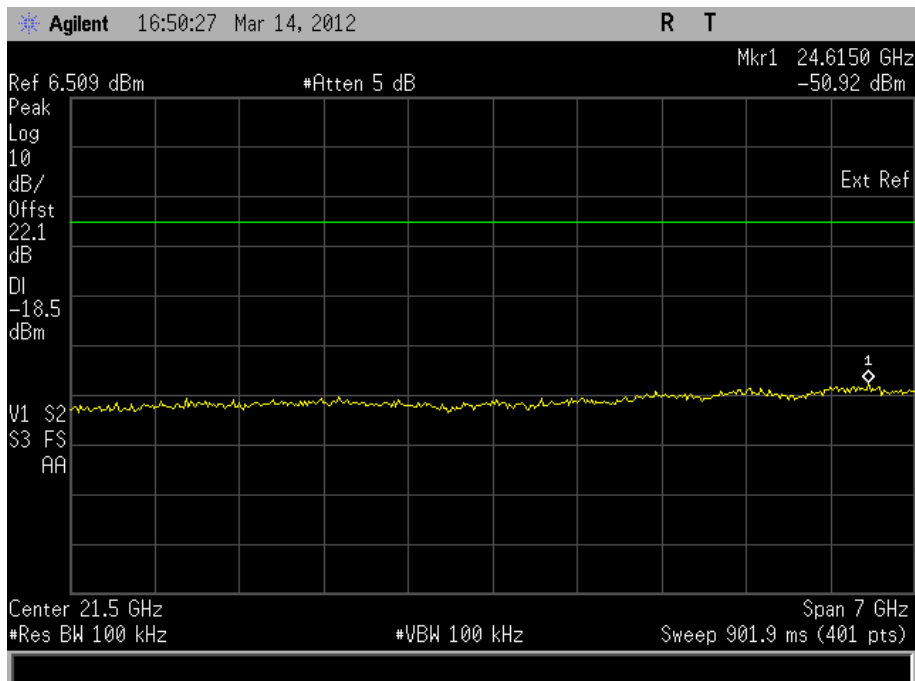


Product Service

12 GHz to 18 GHz



18 GHz to 25 GHz





Product Service

Limit Clause

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

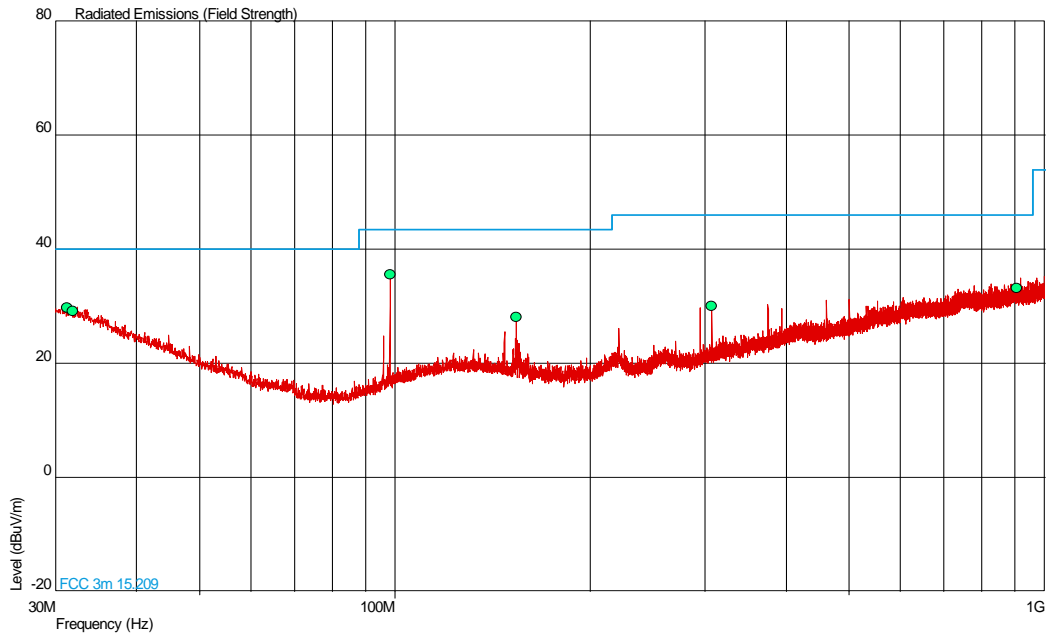
If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval the attenuation required shall be 30 dB instead of 20 dB.



Spurious Radiated Emissions

2412 MHz

30 MHz to 1 GHz

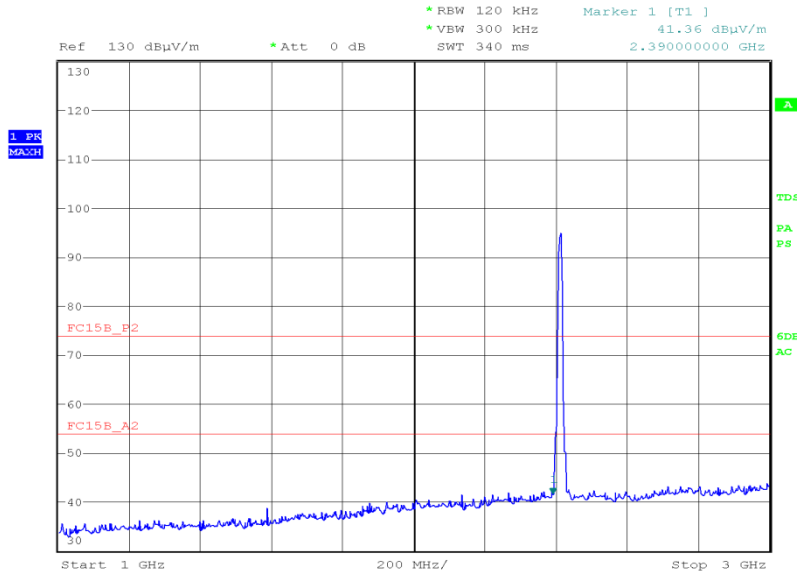


Frequency (MHz)	QP Level (dB μ V/m)	QP Level (μ V/m)	QP Limit (dB μ V/m)	QP Limit (μ V/m)	QP Margin (dB μ V/m)	QP Margin (μ V/m)	Angle (Deg)	Height (m)	Polarity
31.329	29.8	30.9	40.0	100	-10.2	69.1	48	1.00	Vertical
31.953	29.2	28.8	40.0	100	-10.8	71.2	187	1.00	Vertical
98.305	35.6	60.3	43.5	150	-7.9	89.7	38	1.00	Vertical
153.598	28.1	25.4	43.5	150	-15.4	124.6	143	1.00	Vertical
307.224	30.1	32.0	46.0	200	-15.9	168.0	351	1.00	Horizontal
907.149	33.2	45.7	46.0	200	-12.8	154.3	0	1.00	Vertical



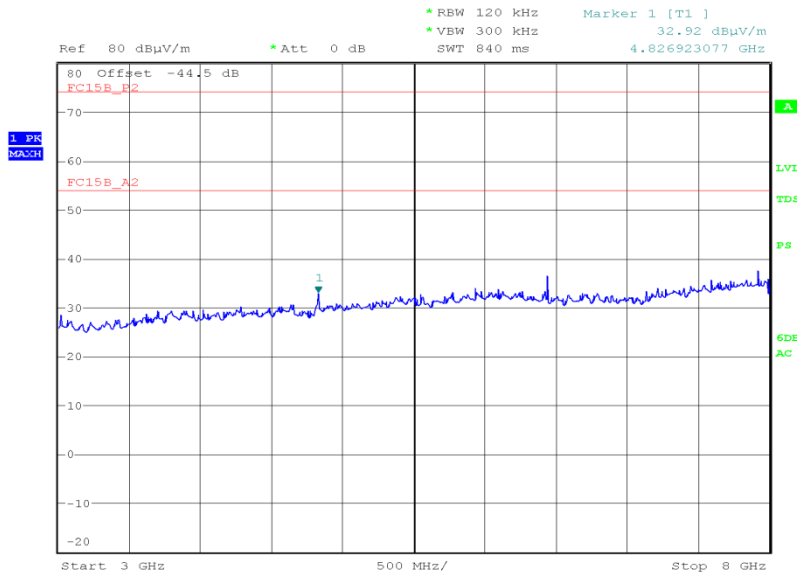
Product Service

1 GHz to 3 GHz



Date: 4.MAR.2012 08:25:14

3 GHz to 8 GHz

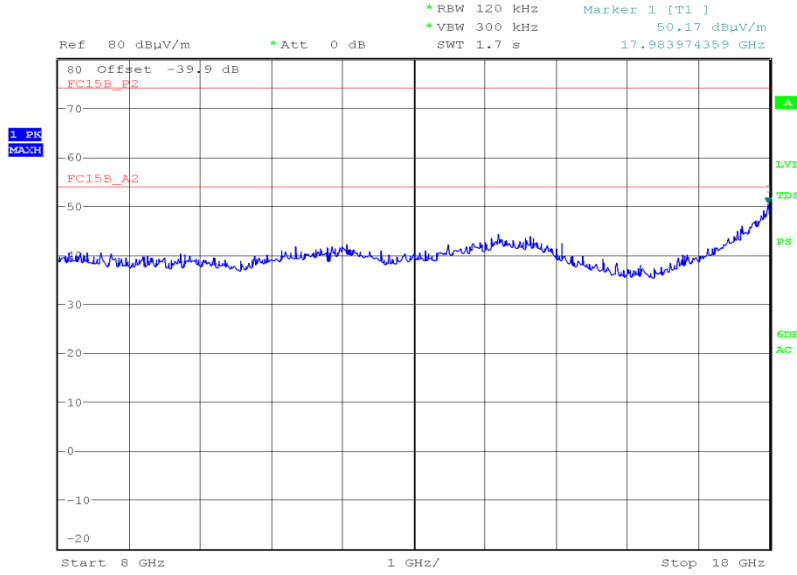


Date: 4.MAR.2012 12:33:31



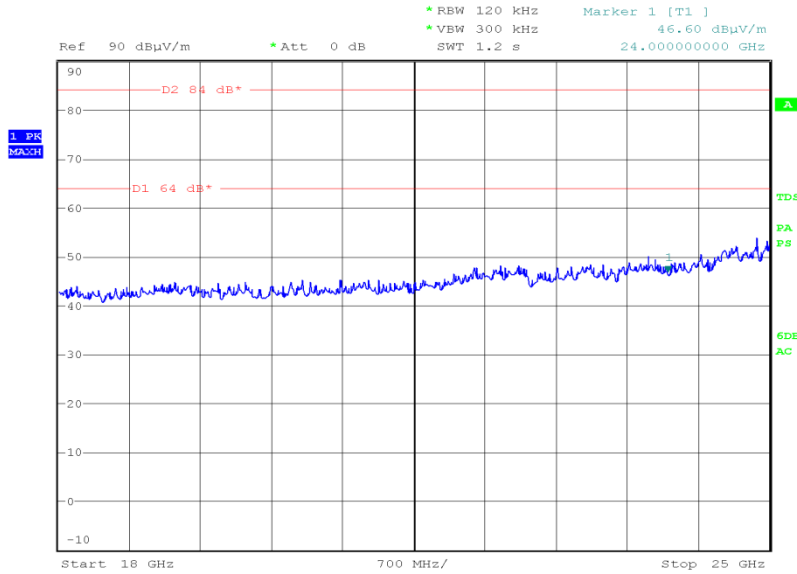
Product Service

8 GHz to 18 GHz



Date: 4.MAR.2012 15:33:12

18 GHz to 25 GHz



Date: 6.MAR.2012 22:06:32

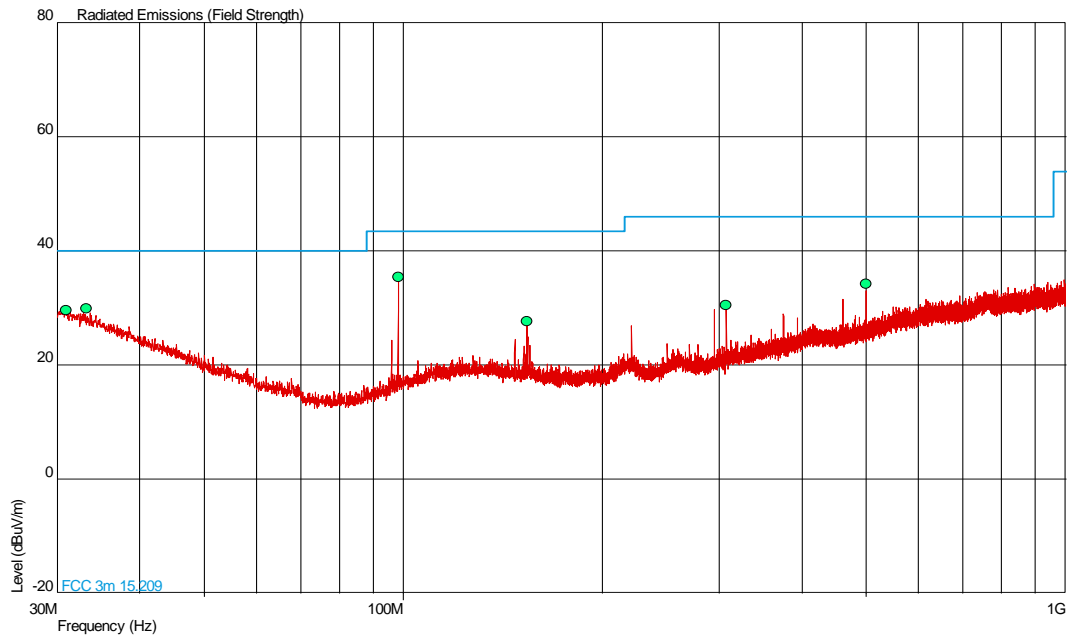
Limit

Peak (dBμV/m)	Average (dBμV/m)
74.0	54.0



2437 MHz

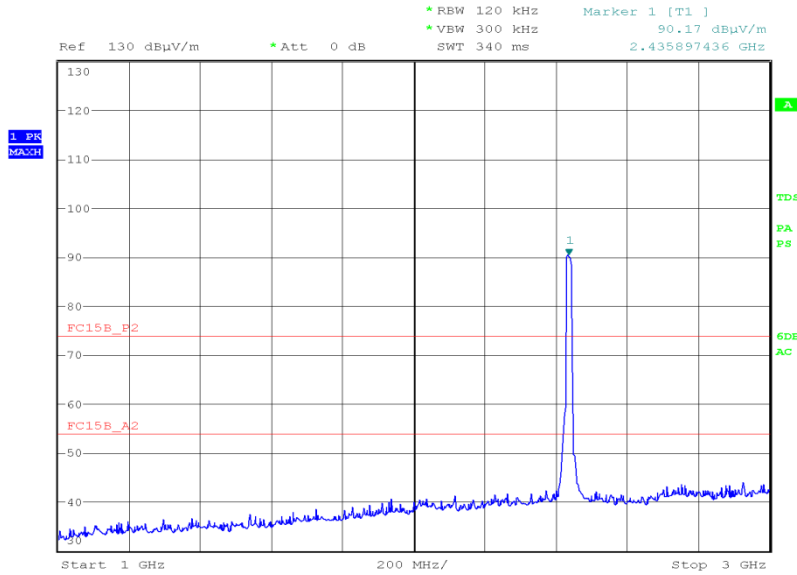
30 MHz to 1 GHz



Frequency (MHz)	QP Level (dBµV/m)	QP Level (µV/m)	QP Limit (dBµV/m)	QP Limit (µV/m)	QP Margin (dBµV/m)	QP Margin (µV/m)	Angle (Deg)	Height (m)	Polarity
30.962	29.7	30.5	40.0	100	69.5	-10.3	224	1.00	Vertical
33.284	29.9	31.3	40.0	100	68.7	-10.1	23	1.00	Horizontal
98.301	35.4	58.9	43.5	150	91.1	-8.1	103	1.00	Vertical
153.596	27.7	24.3	43.5	150	125.7	-15.8	127	1.00	Vertical
307.208	30.6	33.9	46.0	200	166.1	-15.4	356	1.00	Horizontal
500.046	34.2	51.3	46.0	200	148.7	-11.8	171	1.25	Vertical

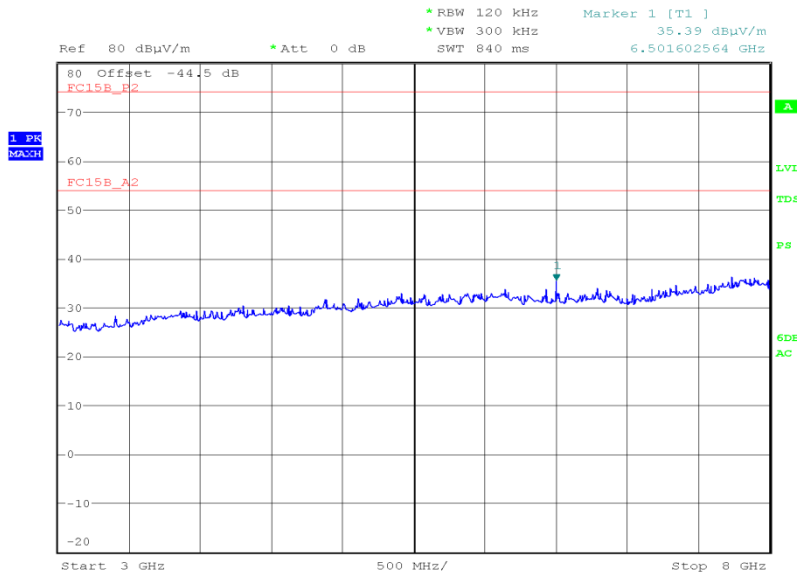


1 GHz to 3 GHz



Date: 29.FEB.2012 22:07:52

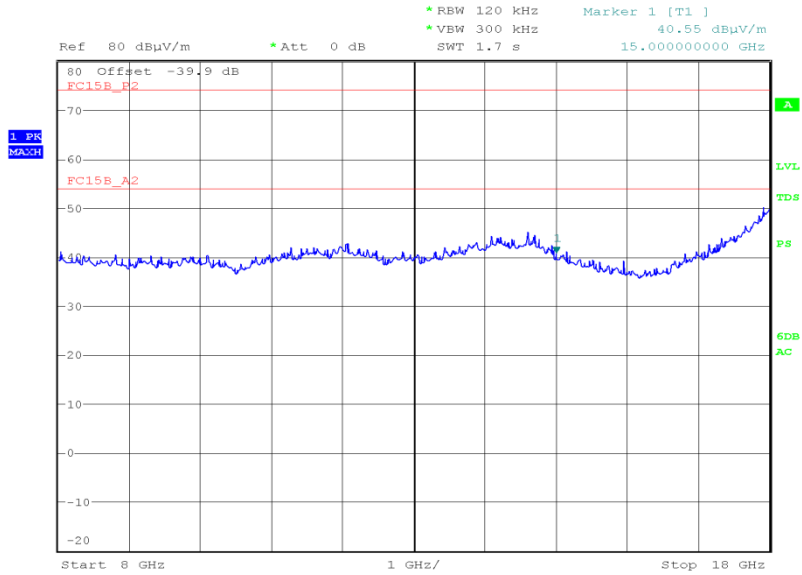
3 GHz to 8 GHz



Date: 4.MAR.2012 13:25:58

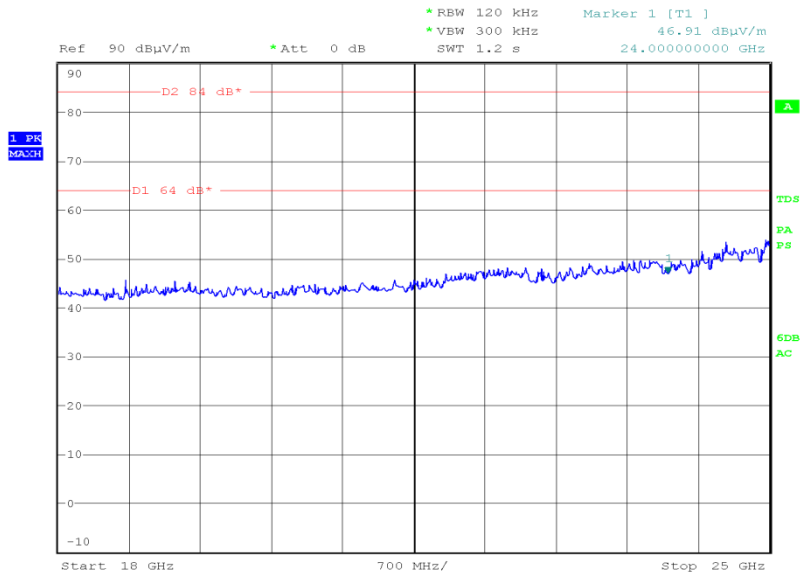


8 GHz to 18 GHz



Date: 4.MAR.2012 14:47:18

18 GHz to 25 GHz



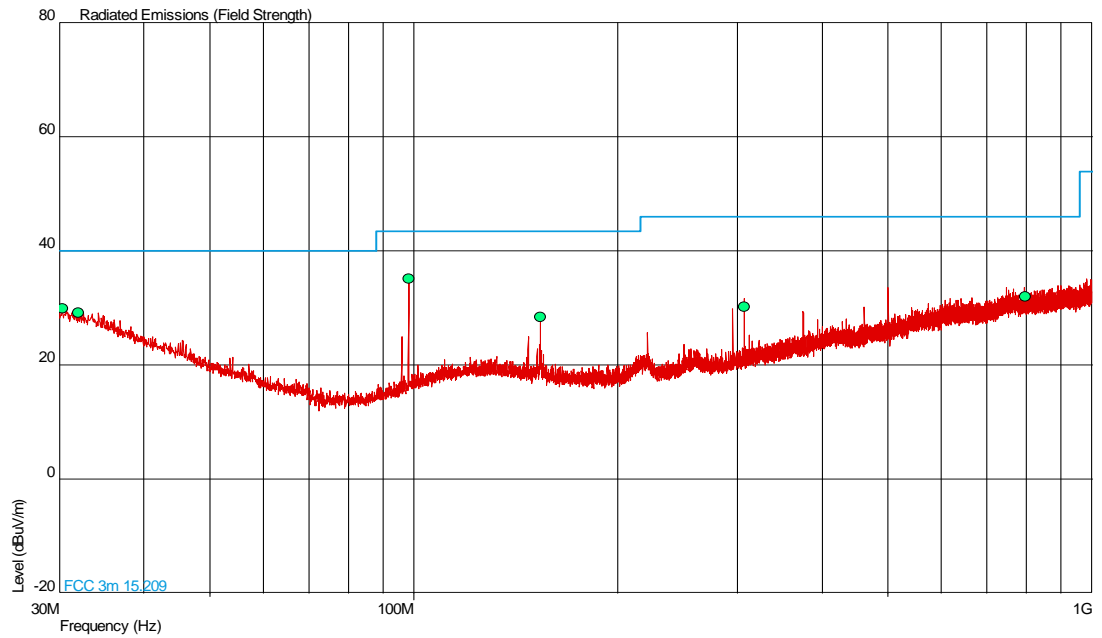
Date: 6.MAR.2012 21:09:40



Product Service

2462 MHz

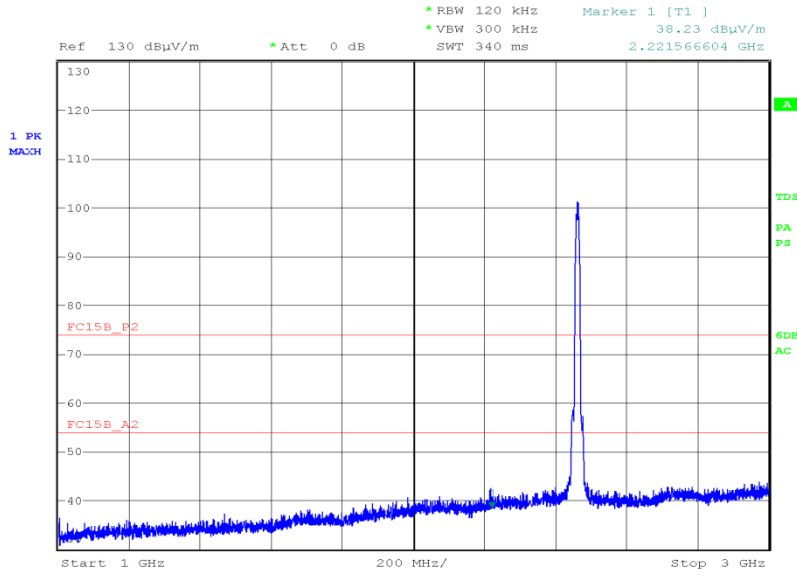
30 MHz to 1 GHz



Frequency (MHz)	QP Level (dBµV/m)	QP Level (µV/m)	QP Limit (dBµV/m)	QP Limit (µV/m)	QP Margin (dBµV/m)	QP Margin (µV/m)	Angle (Deg)	Height (m)	Polarity
30.320	29.9	31.3	40.0	100	-10.1	68.7	288	1.00	Horizontal
32.073	29.2	28.8	40.0	100	-10.8	71.2	20	1.00	Vertical
98.301	35.2	57.5	43.5	150	-8.3	92.5	357	1.00	Vertical
153.598	28.4	26.3	43.5	150	-15.1	123.7	69	1.08	Vertical
307.188	30.2	32.4	46.0	200	-15.8	167.6	360	1.03	Horizontal
796.106	32.1	40.3	46.0	200	-13.9	159.7	125	1.00	Horizontal

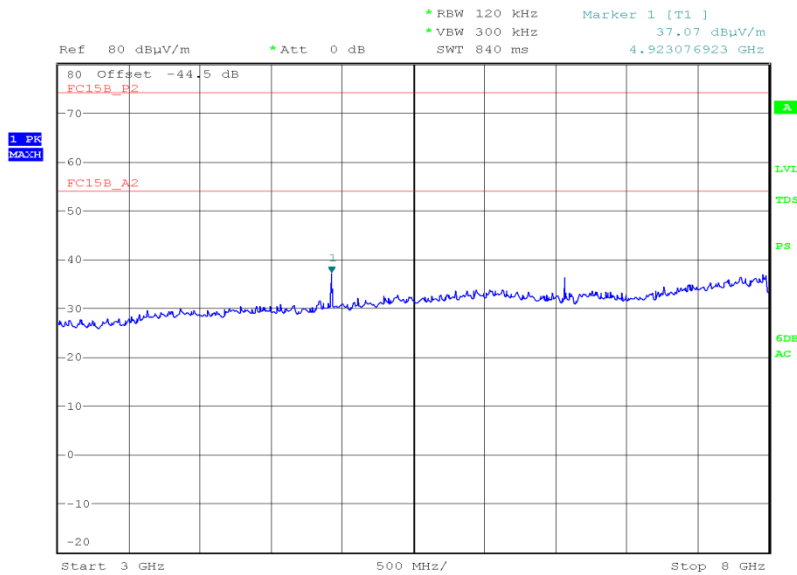


1 GHz to 3 GHz



Date: 4.MAR.2012 09:16:08

3 GHz to 8 GHz

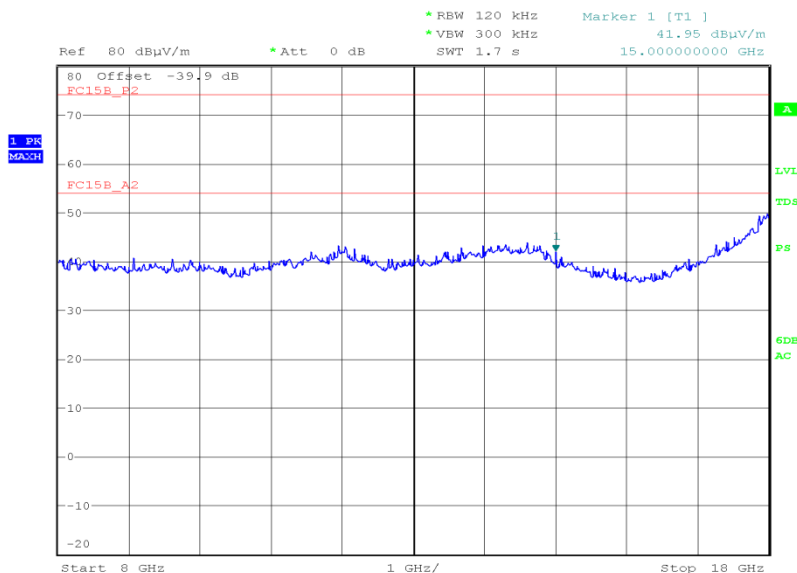


Date: 4.MAR.2012 12:54:40



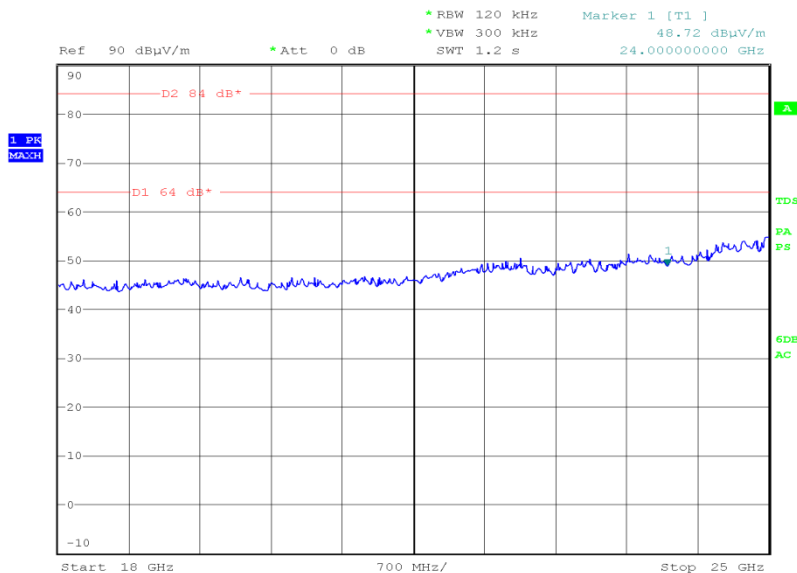
Product Service

8 GHz to 18 GHz



Date: 4.MAR.2012 15:58:11

18 GHz to 25 GHz



Date: 6.MAR.2012 22:30:35

Limit

Peak (dBuV/m)	Average (dBuV/m)
74.0	54.0

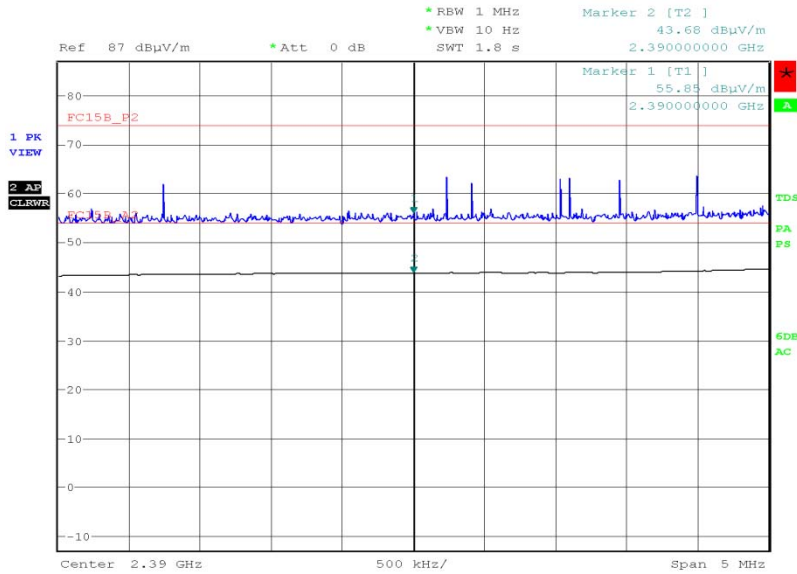


Product Service

Band Edge Emissions

2412 MHz

Polarisation	Final Peak (dBµV/m)	Final Average (dBµV/m)
Horizontal	55.85	43.68

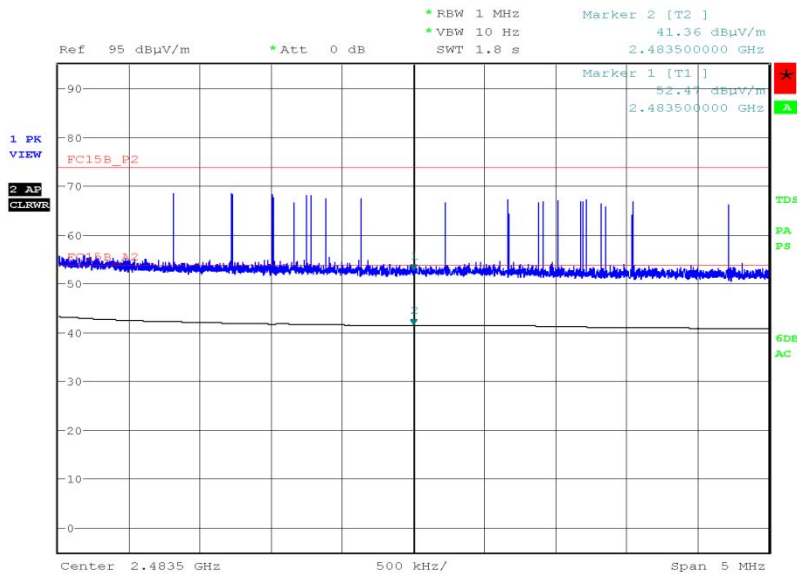


Date: 4.MAR.2012 08:20:03



2462 MHz

Polarisation	Final Peak (dBµV/m)	Final Average (dBµV/m)
Horizontal	52.47	41.36



Date: 4.MAR.2012 09:14:21

Limit

Peak (dBµV/m)	Average (dBµV/m)
74.0	54.0



Product Service

802.11(g)

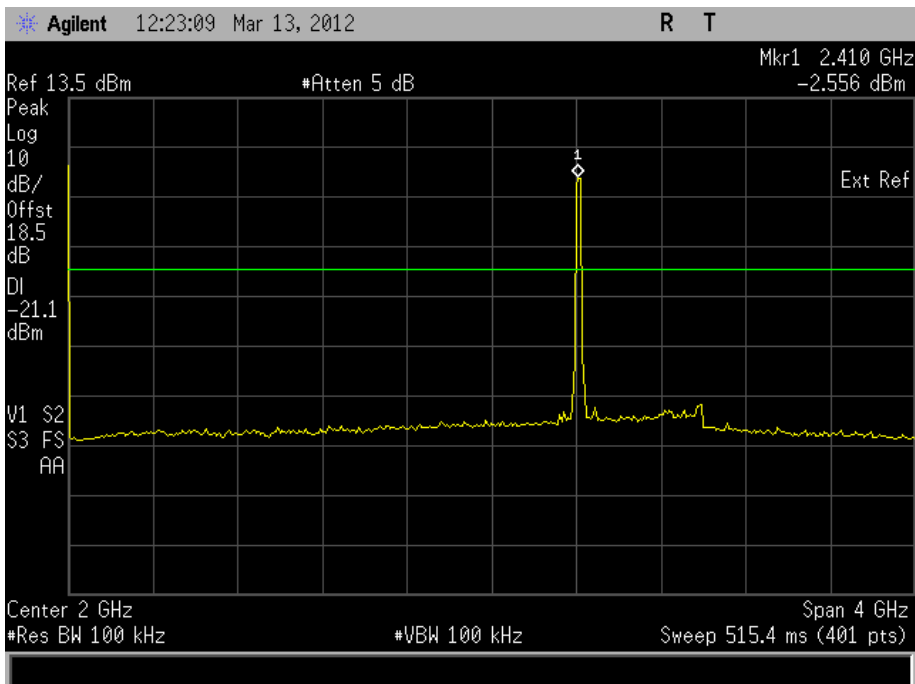
4V, 3.3V and 1.2V DC Supply

Spurious Conducted Emissions

2412 MHz

36 Mbps

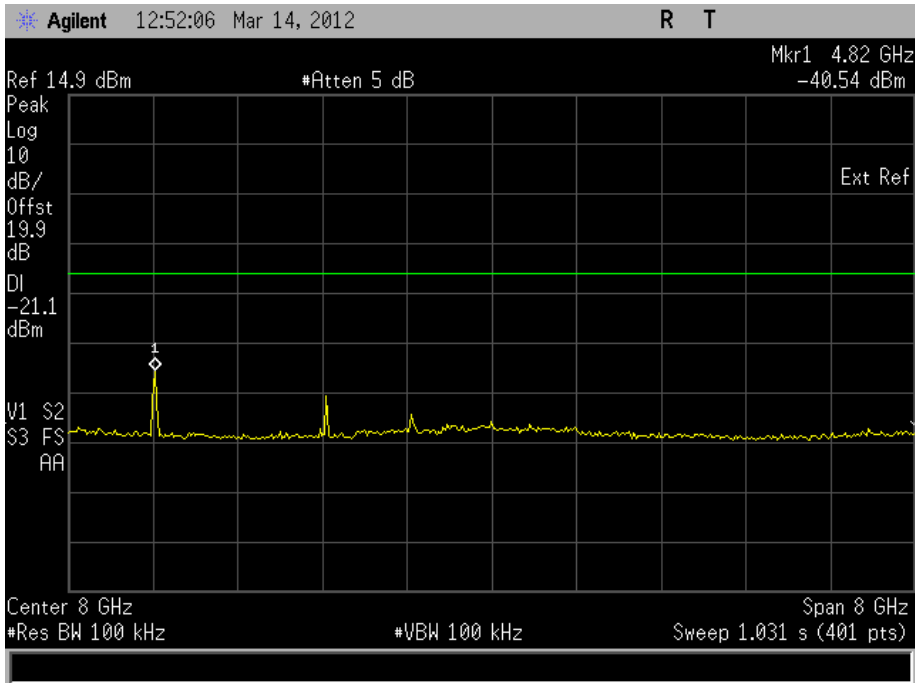
9 kHz to 4 GHz



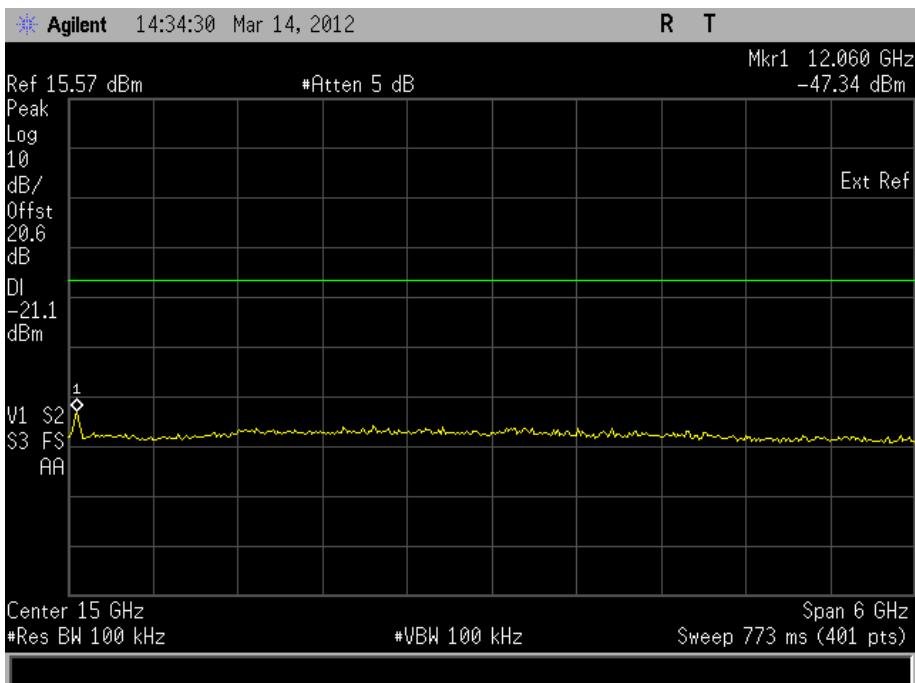


Product Service

4 GHz to 12 GHz



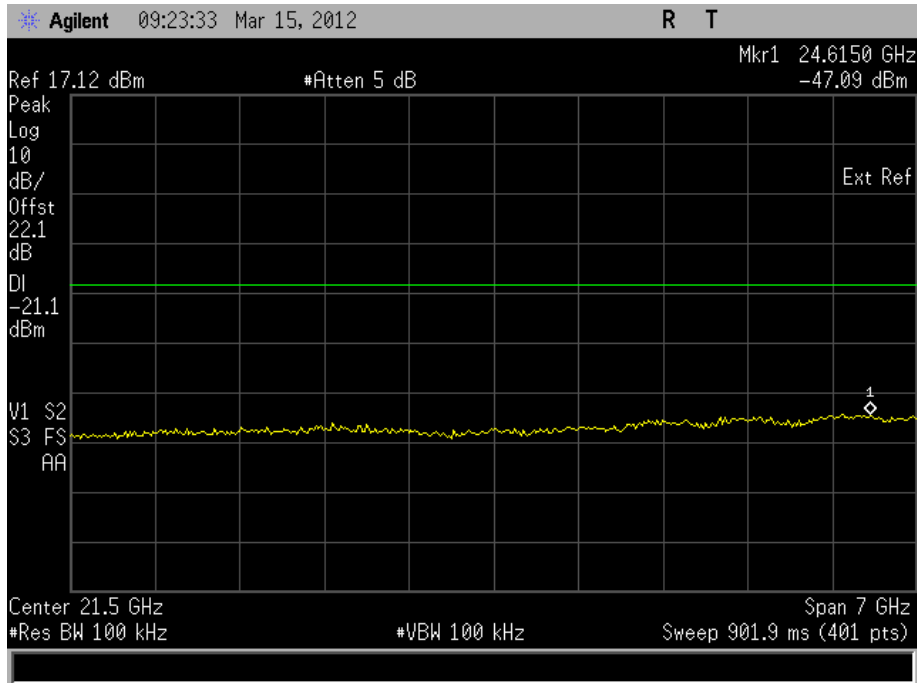
12 GHz to 18 GHz





Product Service

18 GHz to 25 GHz

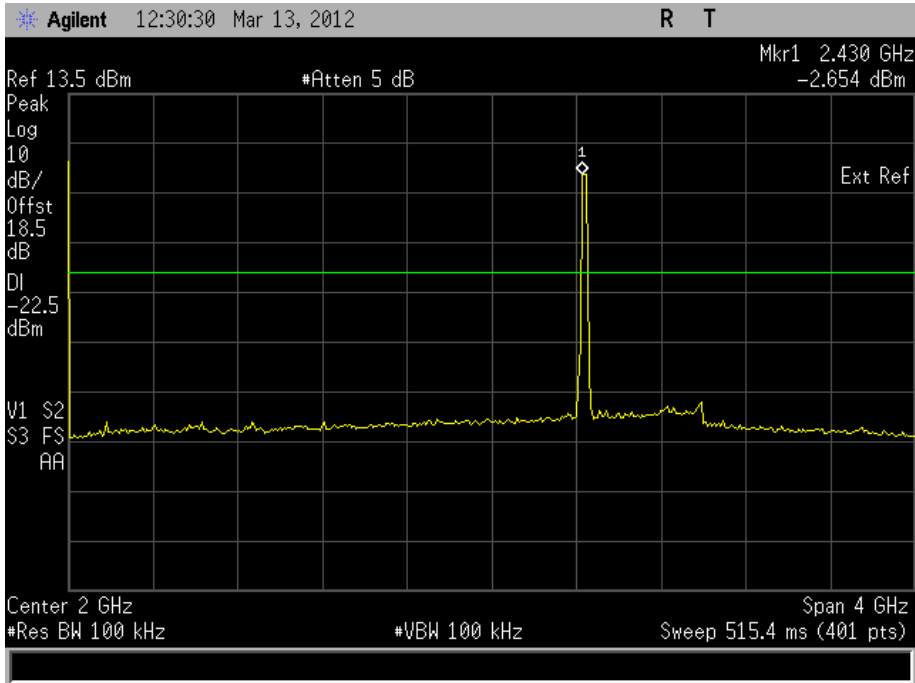




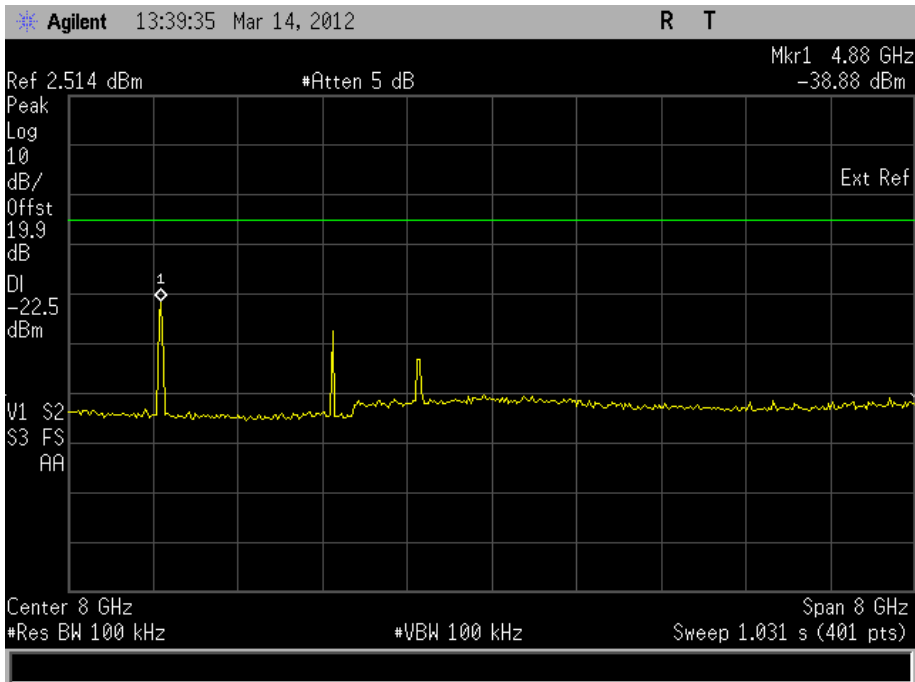
Product Service

2437 MHz

9 kHz to 4 GHz



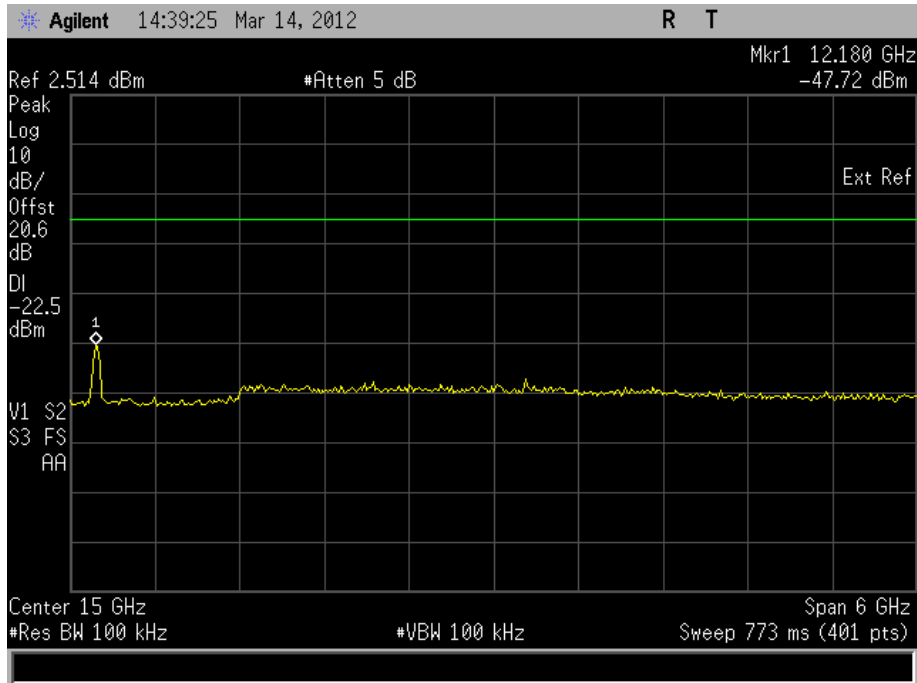
4 GHz to 12 GHz



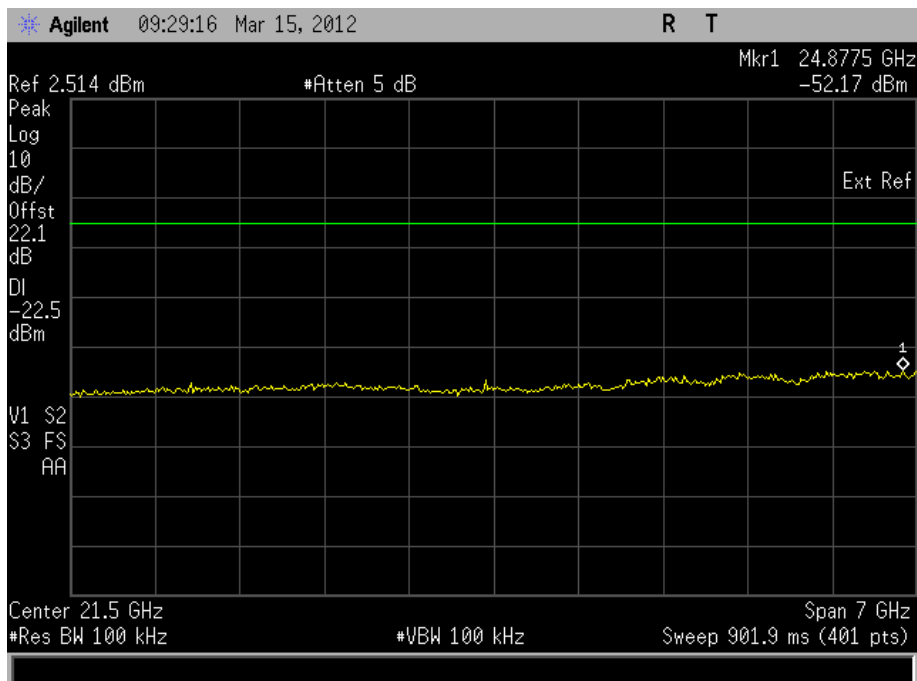


Product Service

12 GHz to 18 GHz



18 GHz to 25 GHz

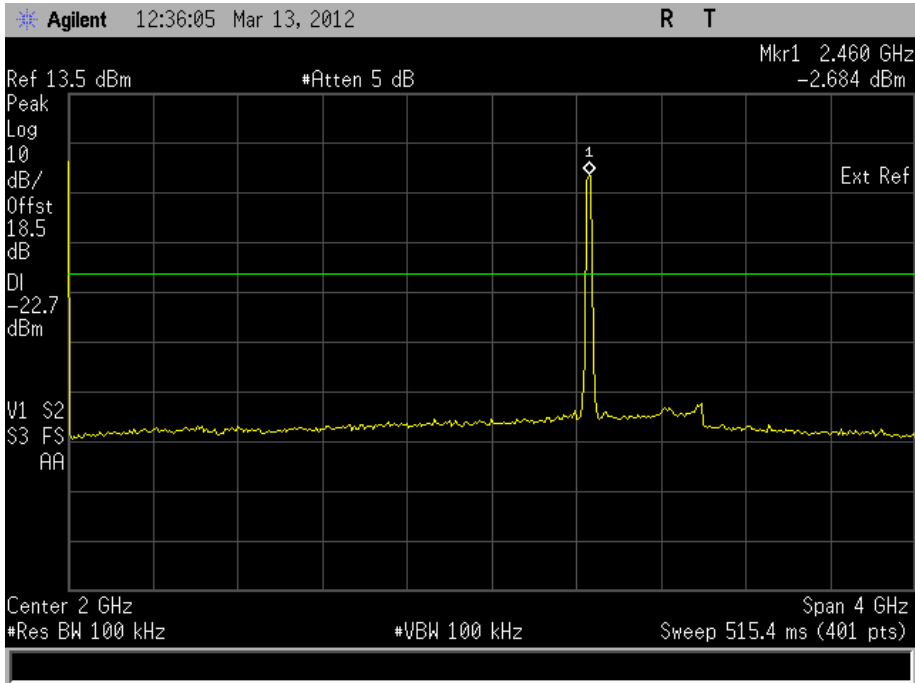




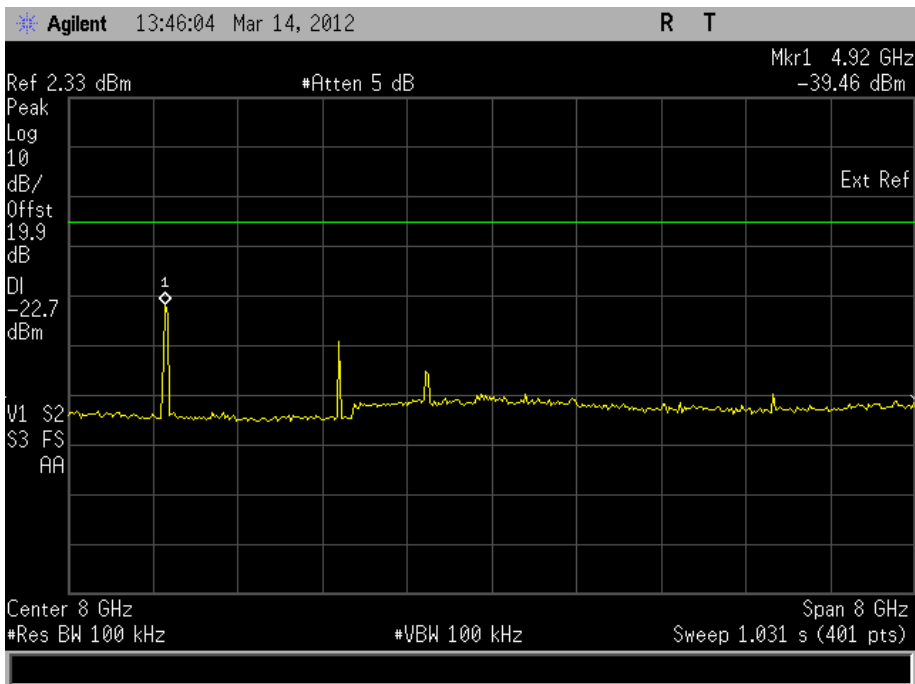
Product Service

2462 MHz

9 kHz to 4 GHz



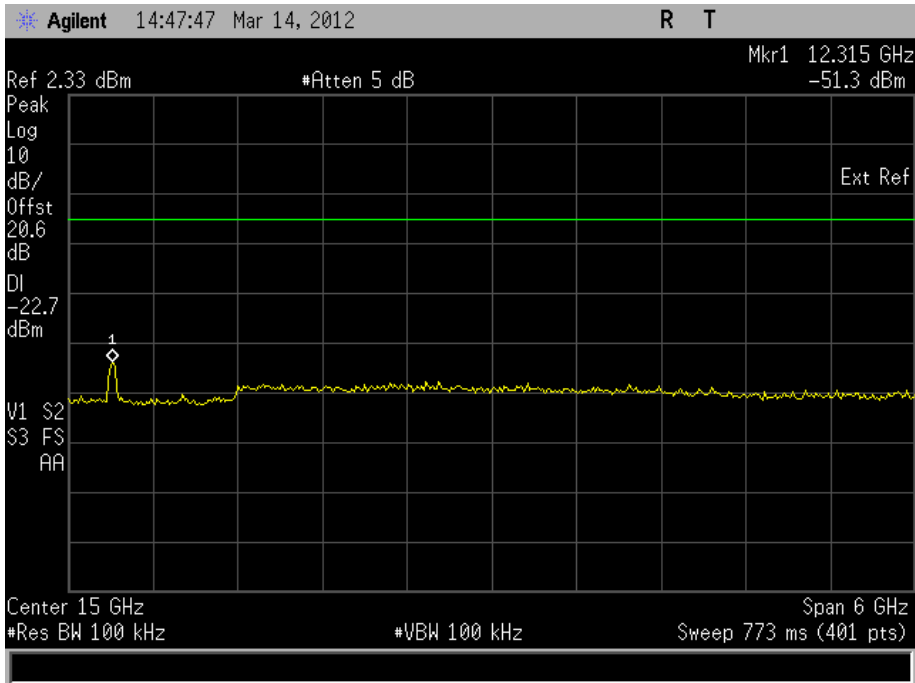
4 GHz to 12 GHz



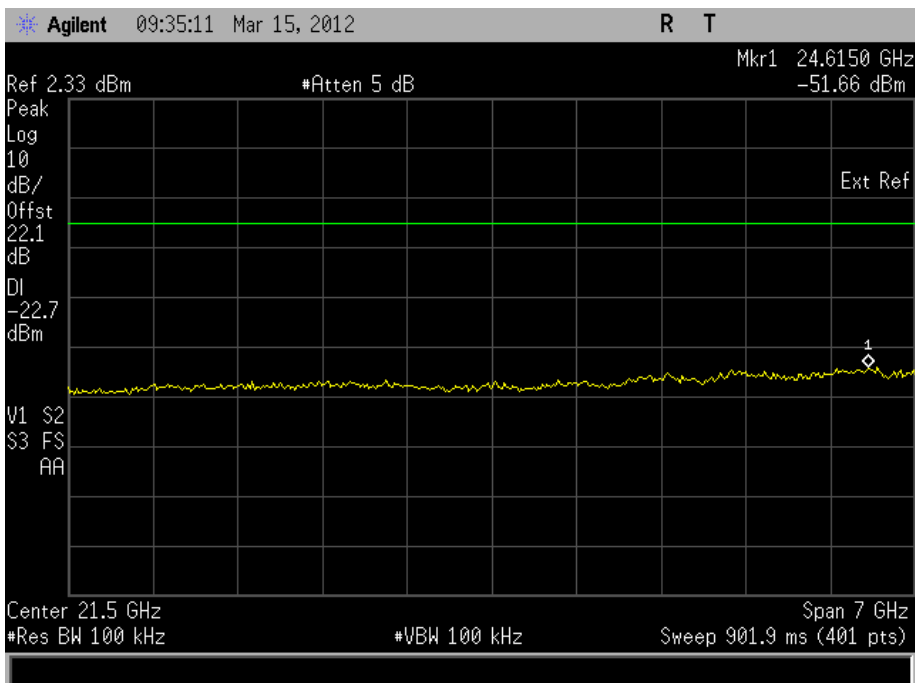


Product Service

12 GHz to 18 GHz



18 GHz to 25 GHz





Product Service

Limit Clause

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval the attenuation required shall be 30 dB instead of 20 dB.

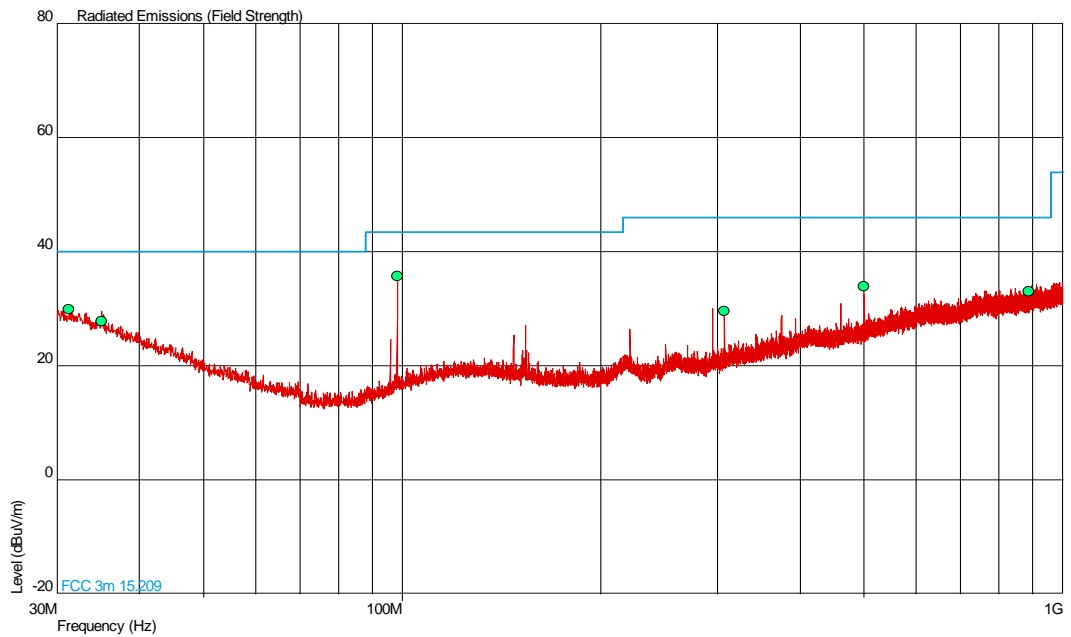


Product Service

Spurious Radiated Emissions

2412 MHz

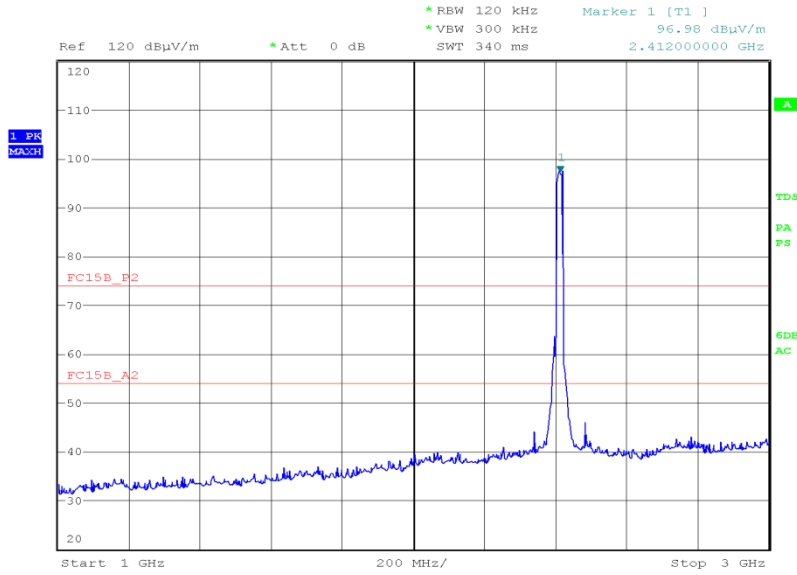
30 MHz to 1 GHz



Frequency (MHz)	QP Level (dBµV/m)	QP Level (µV/m)	QP Limit (dBµV/m)	QP Limit (µV/m)	QP Margin (dBµV/m)	QP Margin (µV/m)	Angle (Deg)	Height (m)	Polarity
31.260	30.0	31.6	40.0	100	-10.0	68.4	332	1.00	Vertical
35.031	27.9	24.8	40.0	100	-12.1	75.2	126	2.61	Horizontal
98.312	35.8	61.7	43.5	150	-7.7	88.3	41	1.00	Vertical
307.213	29.7	30.5	46.0	200	-16.3	169.5	323	1.00	Horizontal
500.062	34.0	50.1	46.0	200	-12.0	149.9	172	1.08	Vertical
888.411	33.1	45.2	46.0	200	-12.9	154.8	360	1.00	Vertical

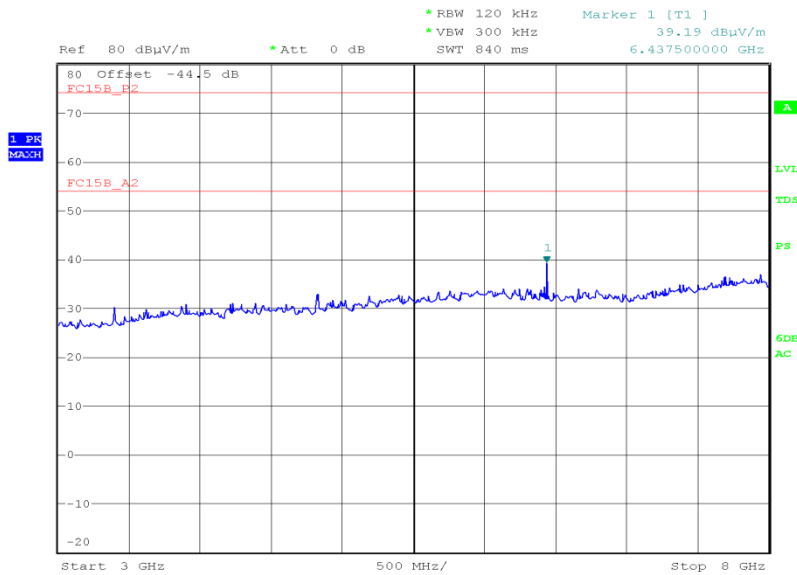


1 GHz to 3 GHz



Date: 29.FEB.2012 21:21:08

3 GHz to 8 GHz

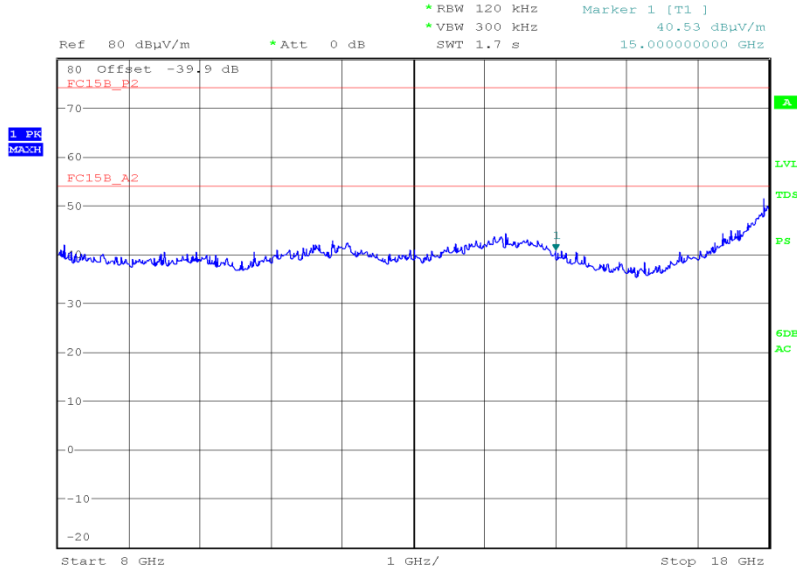


Date: 4.MAR.2012 13:06:58



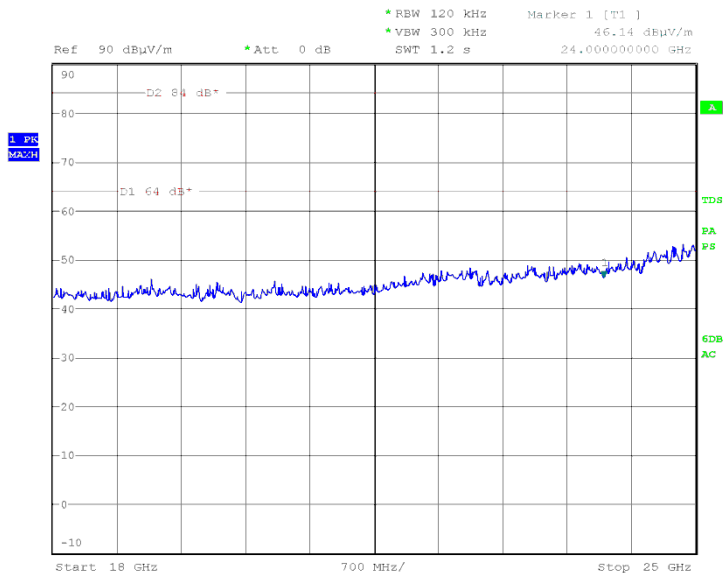
Product Service

8 GHz to 18 GHz



Date: 4.MAR.2012 15:18:39

18 GHz to 25 GHz

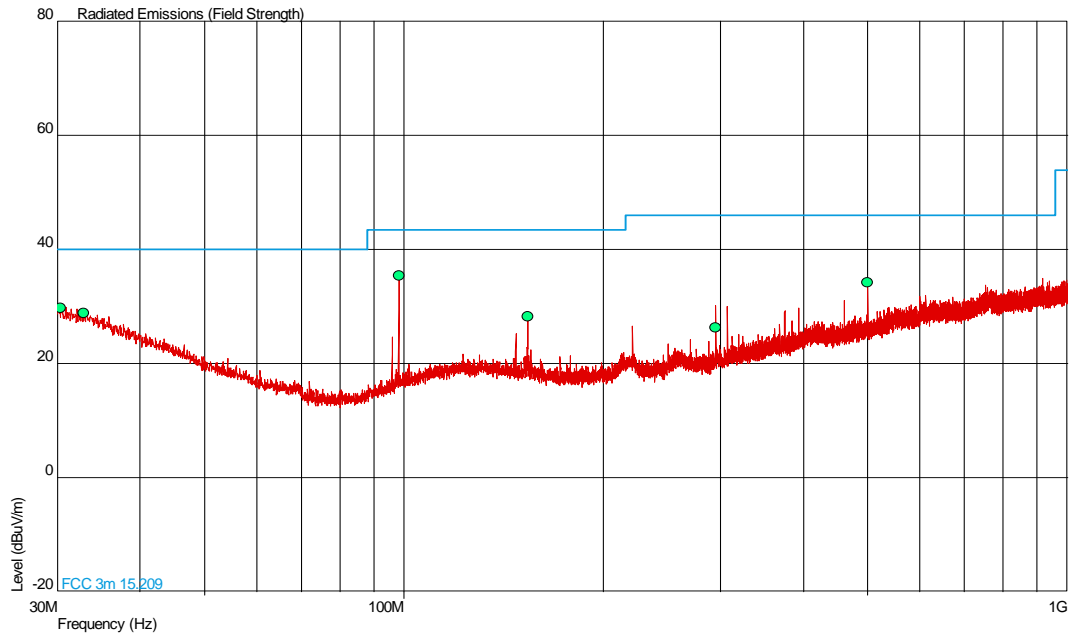


Date: 6.MAR.2012 20:59:18



2437 MHz

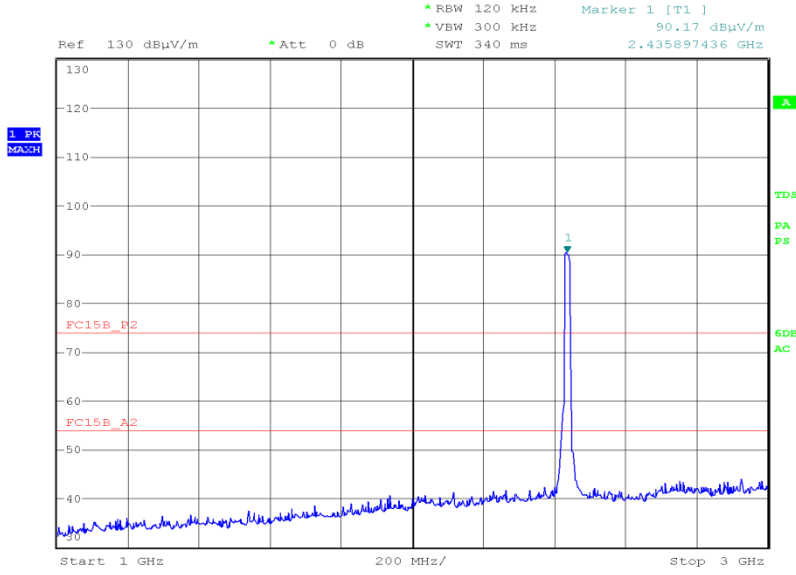
30 MHz to 1 GHz



Frequency (MHz)	QP Level (dBµV/m)	QP Level (µV/m)	QP Limit (dBµV/m)	QP Limit (µV/m)	QP Margin (dBµV/m)	QP Margin (µV/m)	Angle (Deg)	Height (m)	Polarity
30.400	29.8	30.9	40.0	100	-10.2	69.1	341	1.00	Vertical
32.898	28.9	27.9	40.0	100	-11.1	72.1	242	1.00	Vertical
98.315	35.4	58.9	43.5	150	-8.1	91.1	63	1.00	Vertical
153.612	28.3	26.0	43.5	150	-15.2	124.0	68	1.00	Vertical
294.917	26.3	20.7	46.0	200	-19.7	179.3	189	1.00	Vertical
500.038	34.2	51.3	46.0	200	-11.8	148.7	166	1.03	Vertical

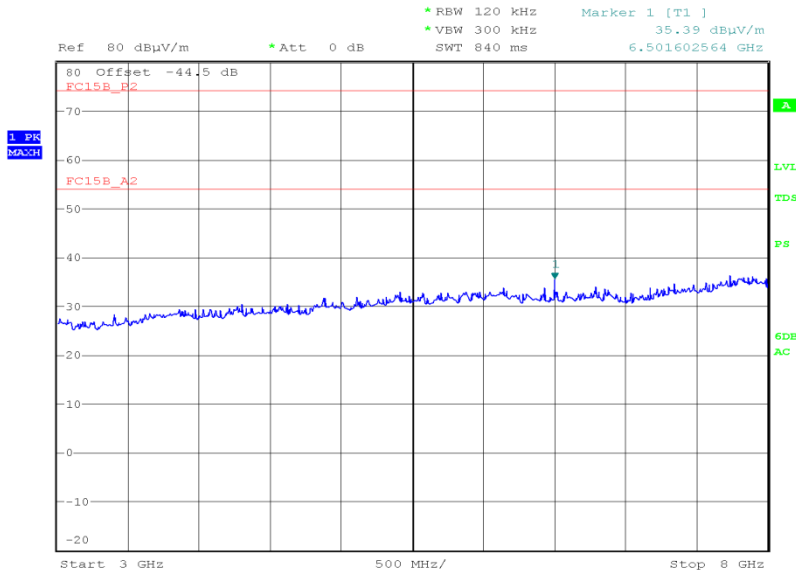


1 GHz to 3 GHz



Date: 29.FEB.2012 22:07:52

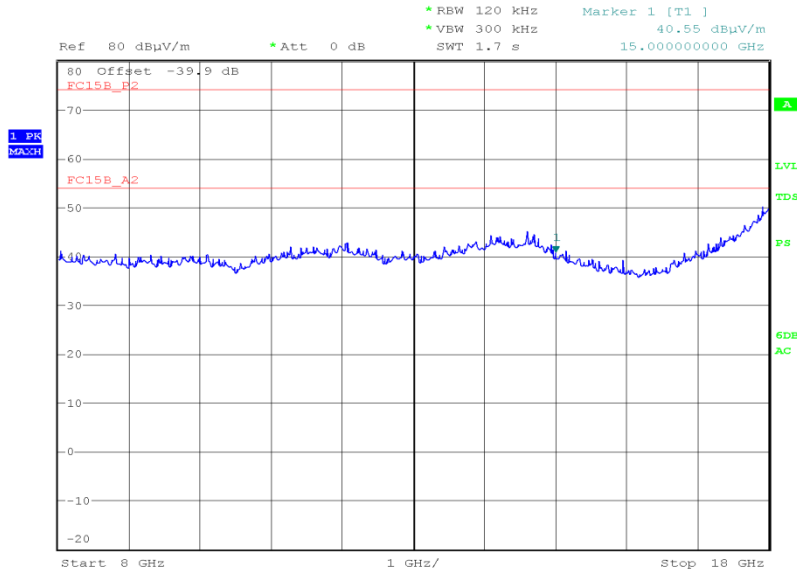
3 GHz to 8 GHz



Date: 4.MAR.2012 13:25:58

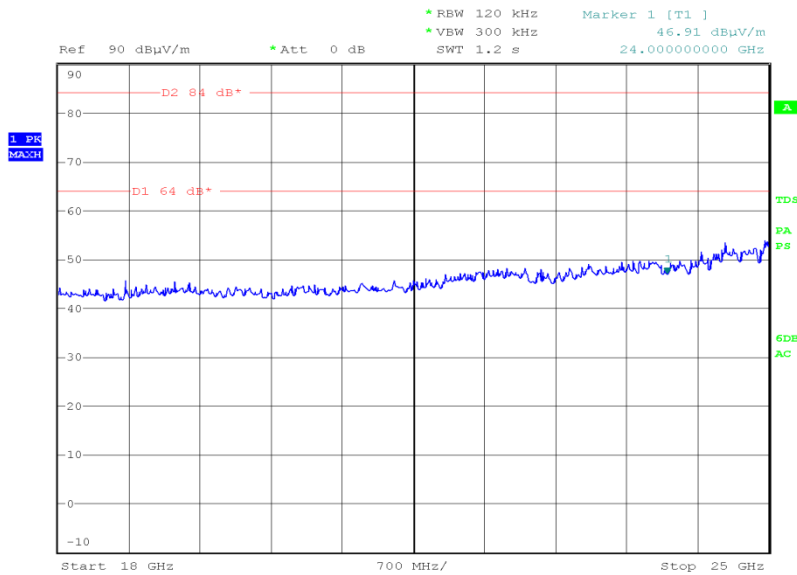


8 GHz to 18 GHz



Date: 4.MAR.2012 14:47:18

18 GHz to 25 GHz



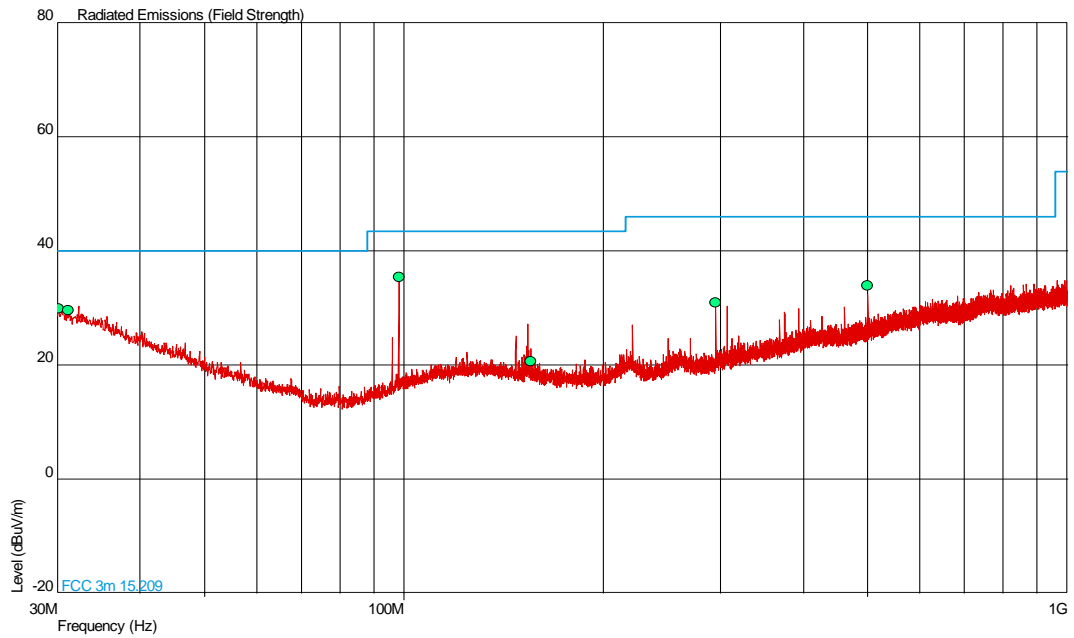
Date: 6.MAR.2012 21:09:40



Product Service

2462 MHz

30 MHz to 1 GHz

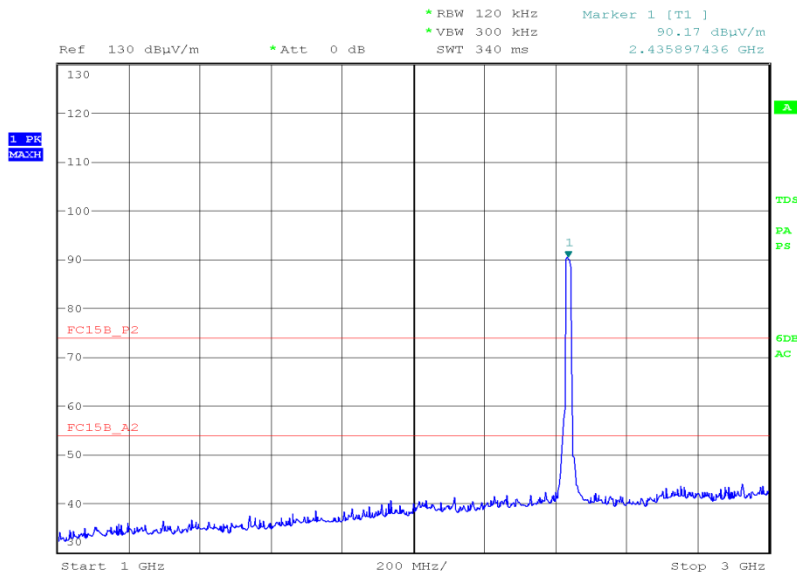


Frequency (MHz)	QP Level (dBµV/m)	QP Level (µV/m)	QP Limit (dBµV/m)	QP Limit (µV/m)	QP Margin (dBµV/m)	QP Margin (µV/m)	Angle (Deg)	Height (m)	Polarity
30.182	30.0	31.6	40.0	100	-10.0	68.4	94	1.00	Horizontal
31.141	29.7	30.5	40.0	100	-10.3	69.5	330	1.00	Horizontal
98.310	35.5	59.6	43.5	150	-8.0	90.4	14	1.00	Vertical
155.177	20.7	10.8	43.5	150	-22.8	139.2	59	1.00	Vertical
294.901	30.9	35.1	46.0	200	-15.1	164.9	338	1.00	Horizontal
500.030	33.9	49.5	46.0	200	-12.1	150.5	171	1.00	Vertical



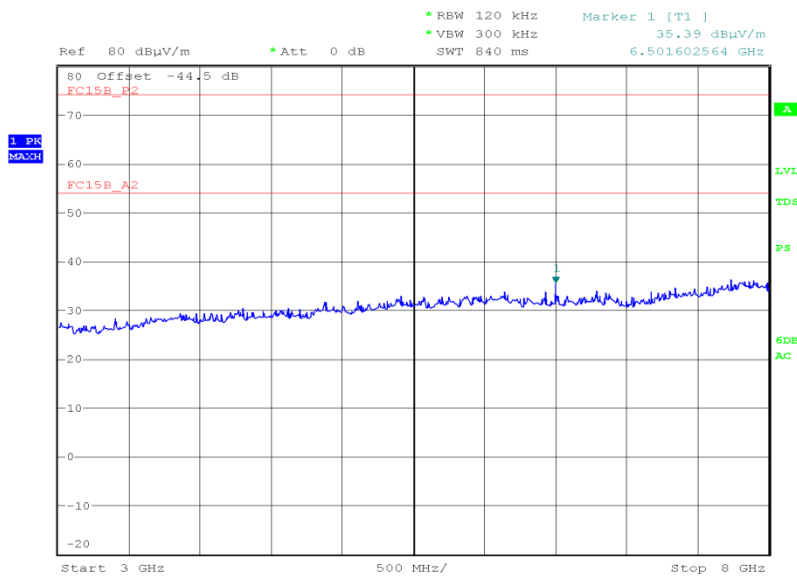
Product Service

1 GHz to 3 GHz



Date: 29.FEB.2012 22:07:52

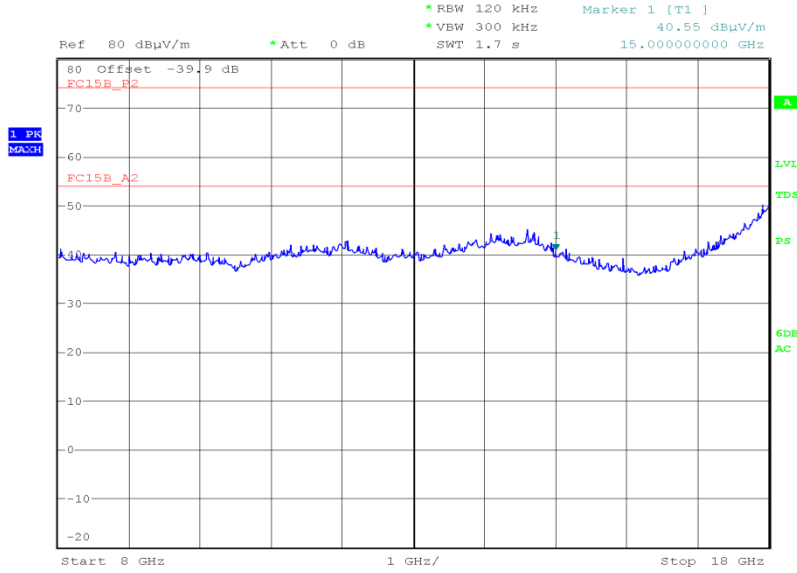
3 GHz to 8 GHz



Date: 4.MAR.2012 13:25:58

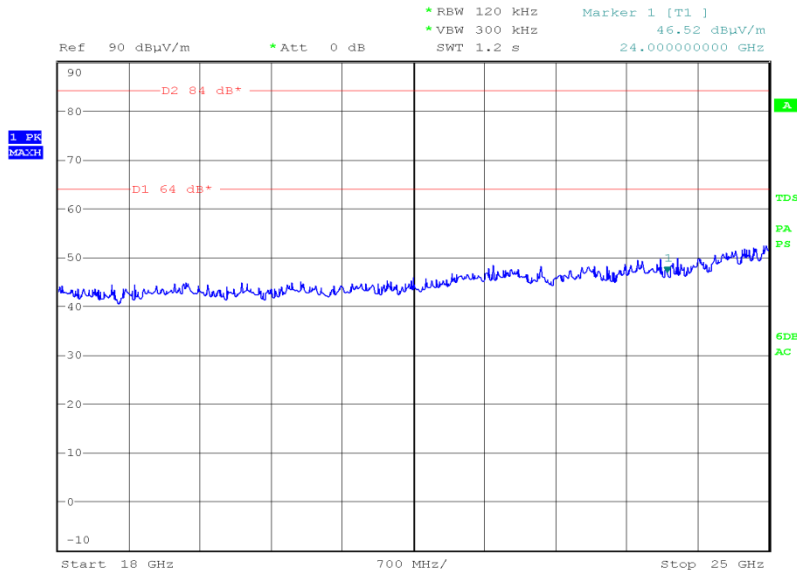


8 GHz to 18 GHz



Date: 4.MAR.2012 14:47:18

18 GHz to 25 GHz



Date: 6.MAR.2012 21:29:35

Limit

Peak (dB μ V/m)	Average (dB μ V/m)
74.0	54.0

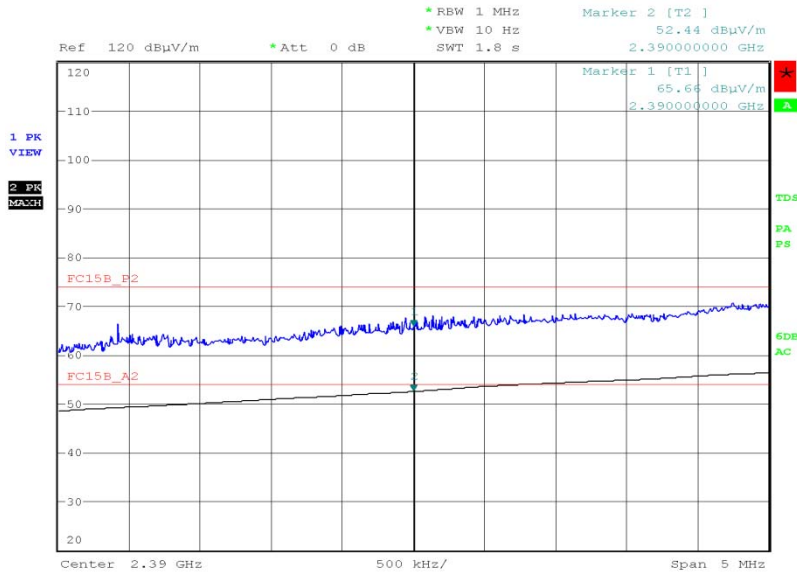


Product Service

Band Edge Emissions

2412 MHz

Polarisation	Final Peak (dBµV/m)	Final Average (dBµV/m)
Horizontal	65.66	52.44

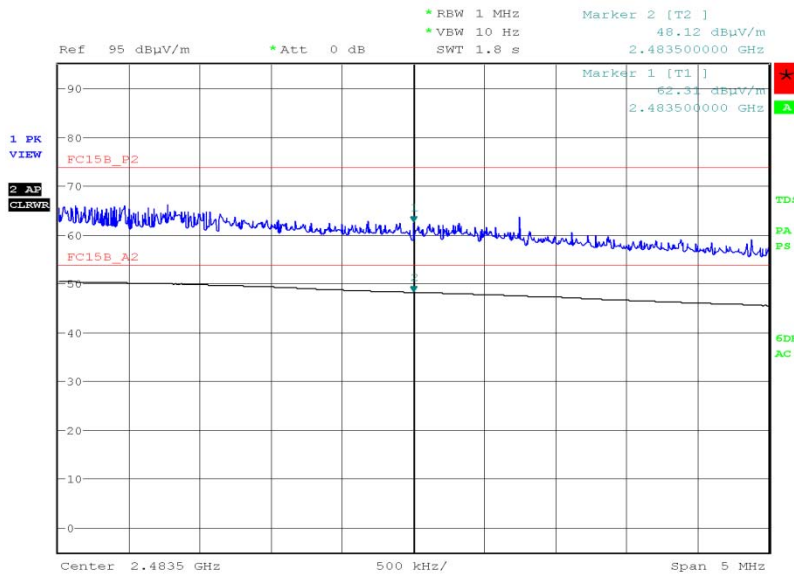


Date: 29.FEB.2012 21:48:51



2462 MHz

Polarisation	Final Peak (dBµV/m)	Final Average (dBµV/m)
Horizontal	62.31	48.12



Date: 29.FEB.2012 22:28:03

Limit

Peak (dBµV/m)	Average (dBµV/m)
74.0	54.0



Product Service

802.11(n)

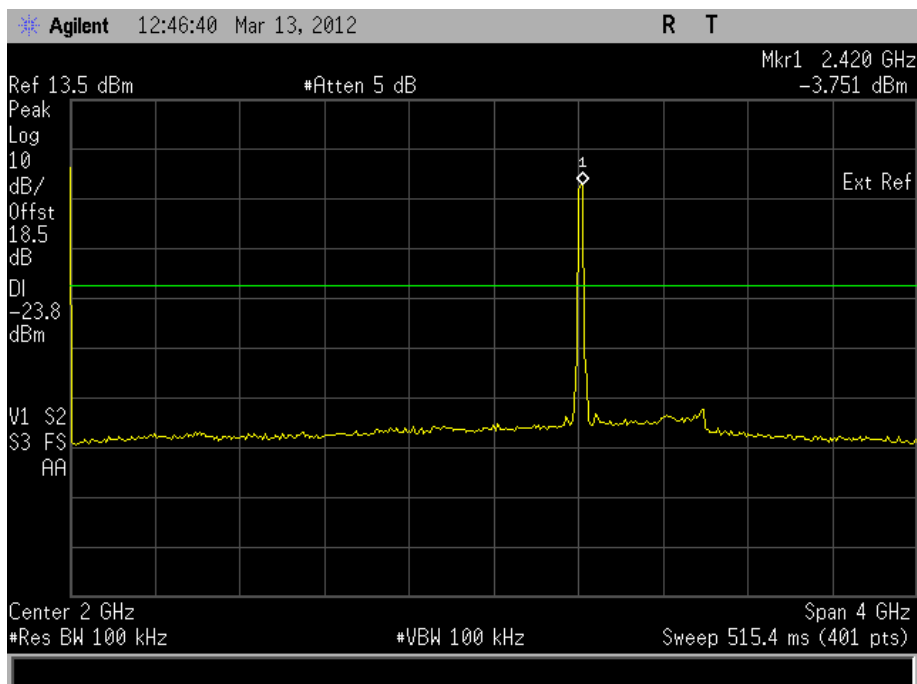
4V, 3.3V and 1.2V DC Supply

Spurious Conducted Emissions

2412 MHz

14.4 Mbps

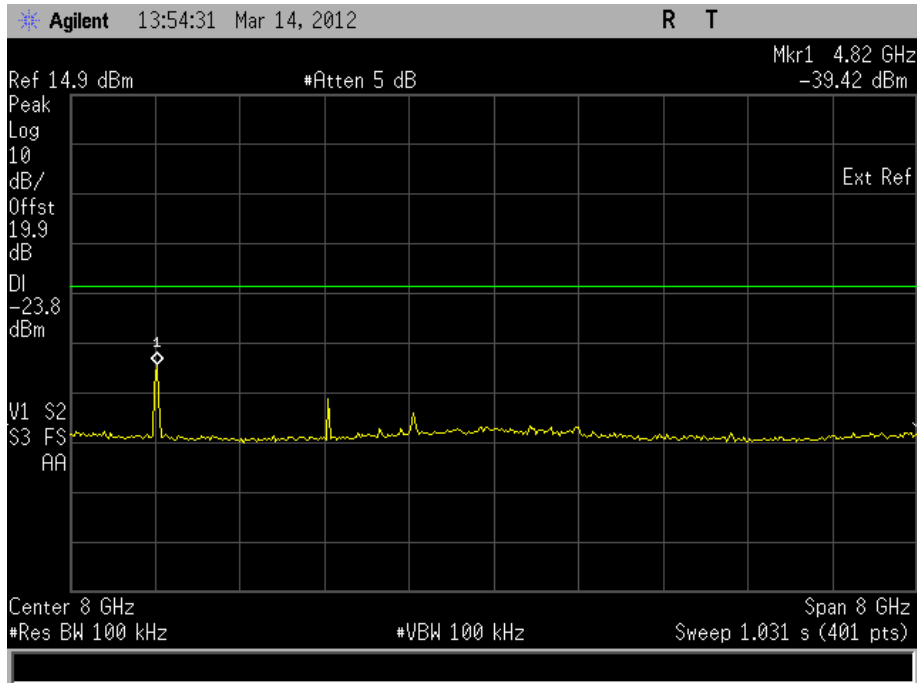
9 kHz to 4 GHz



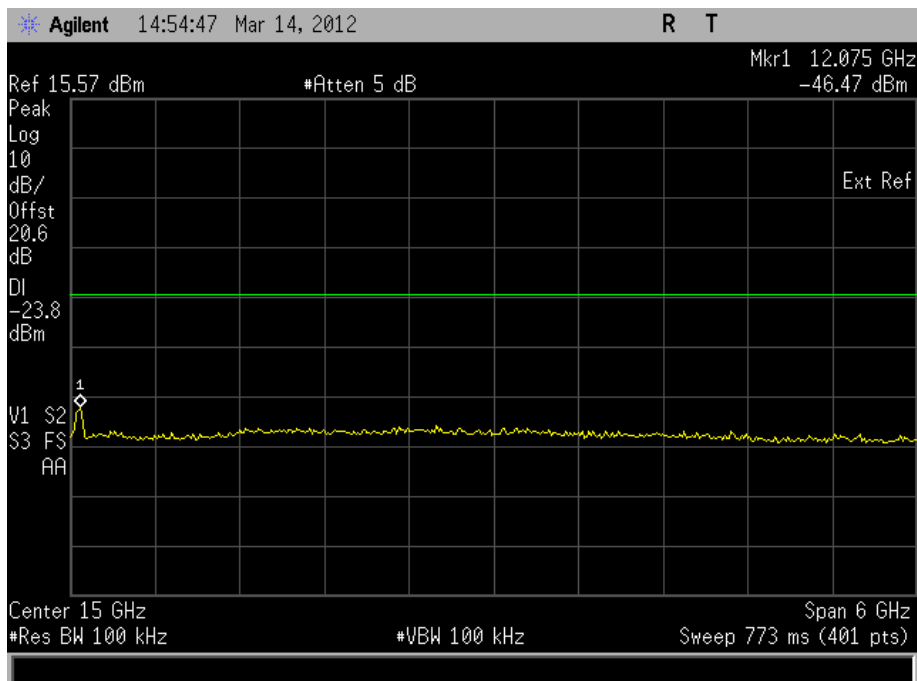


Product Service

4 GHz to 12 GHz



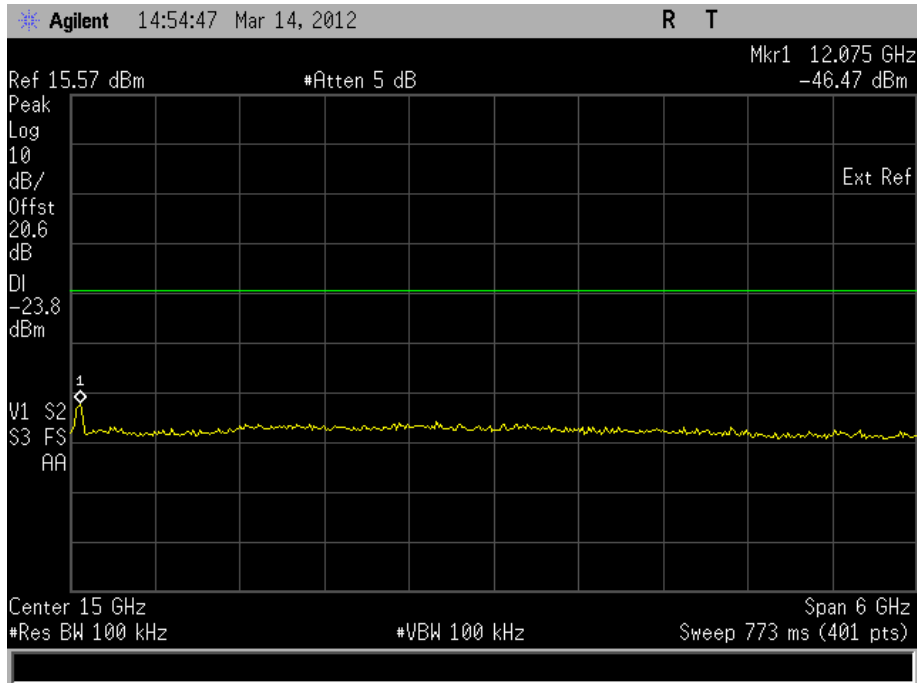
12 GHz to 18 GHz





Product Service

18 GHz to 25 GHz

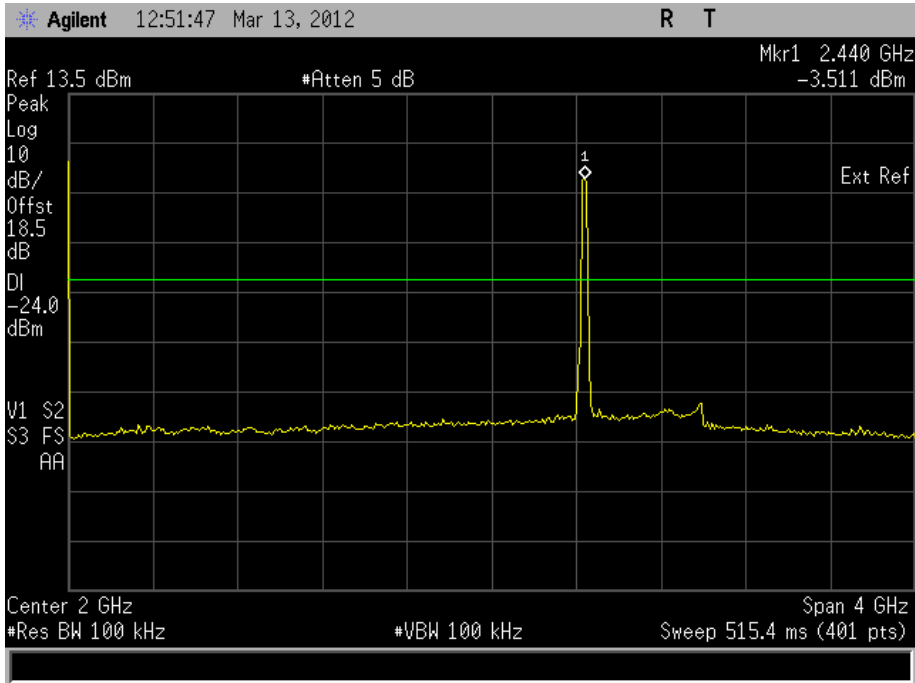




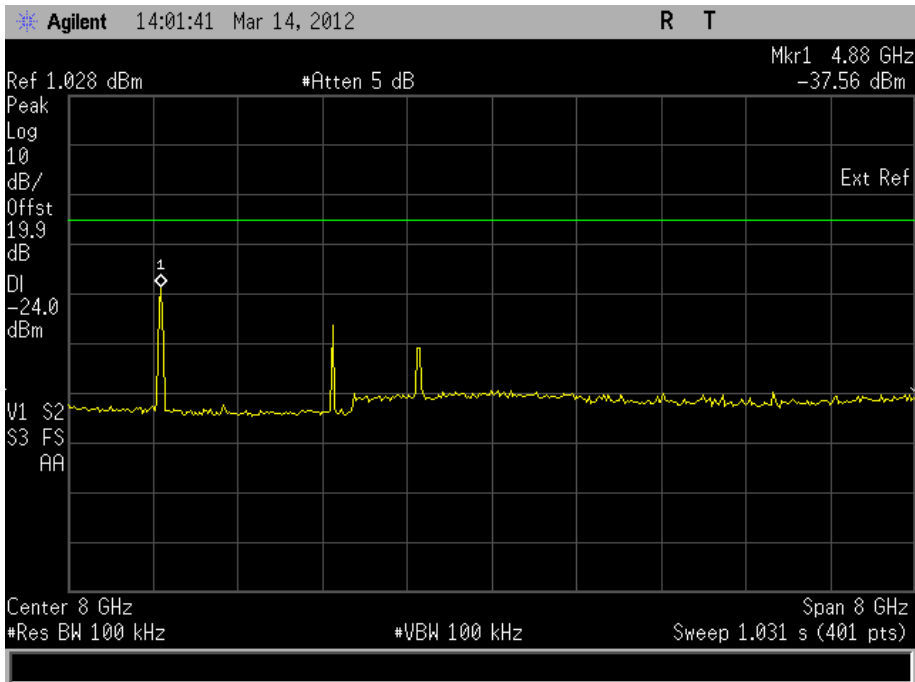
Product Service

2437 MHz

9 kHz to 4 GHz



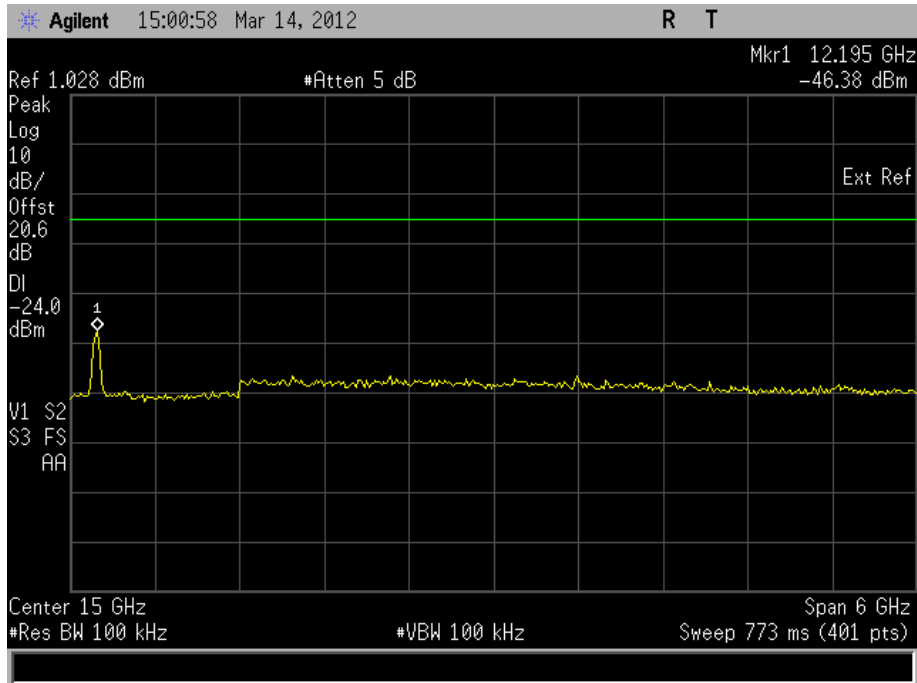
4 GHz to 12 GHz



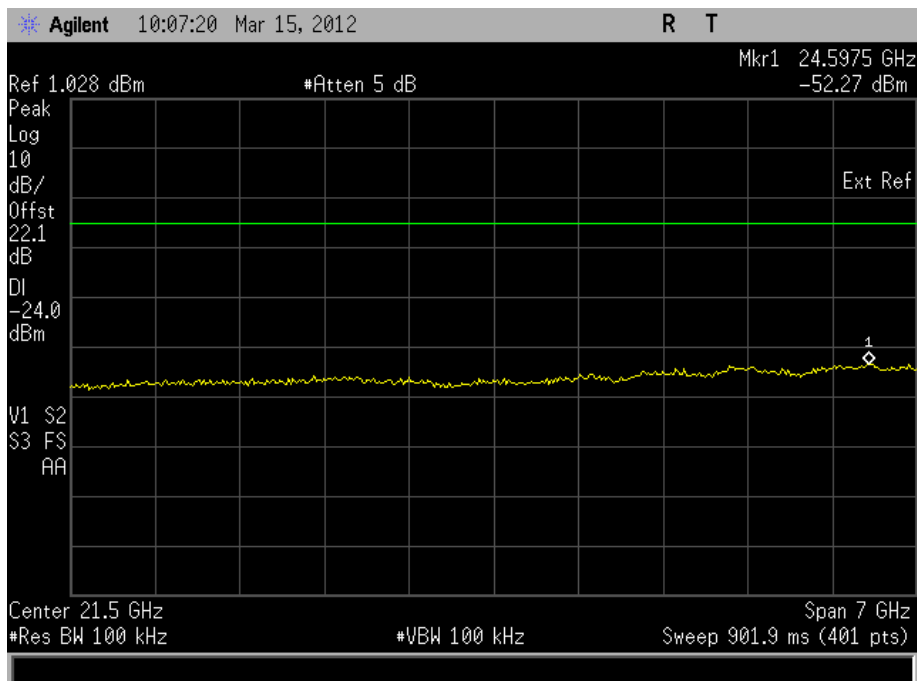


Product Service

12 GHz to 18 GHz



18 GHz to 25 GHz

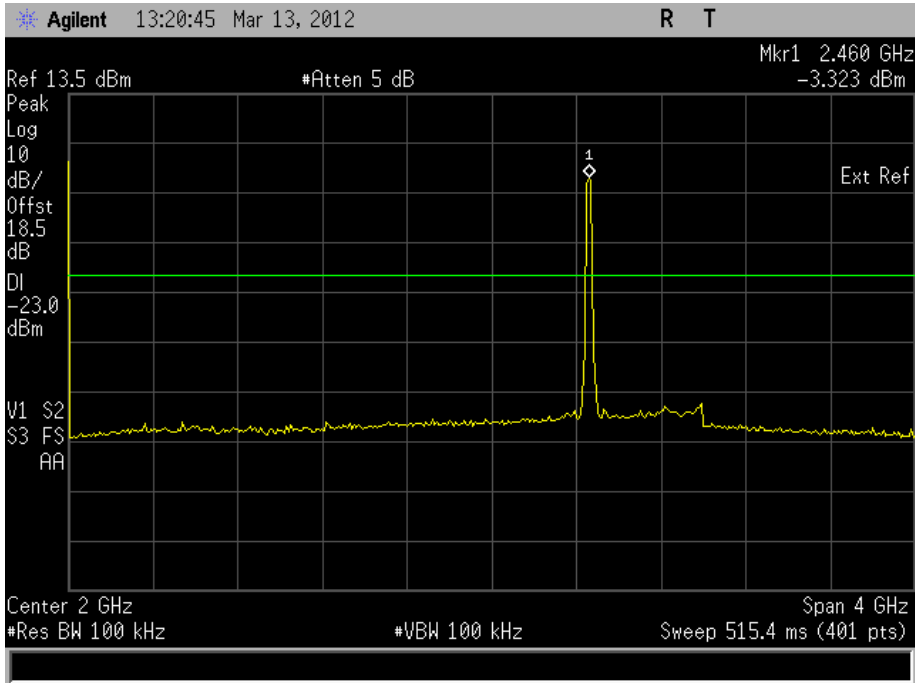




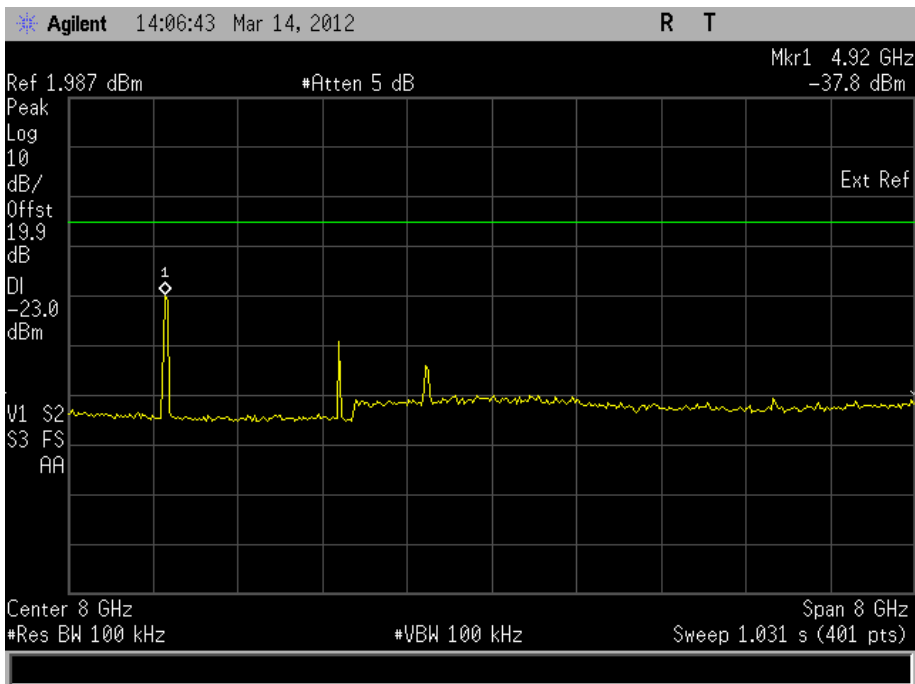
Product Service

2462 MHz

9 kHz to 4 GHz



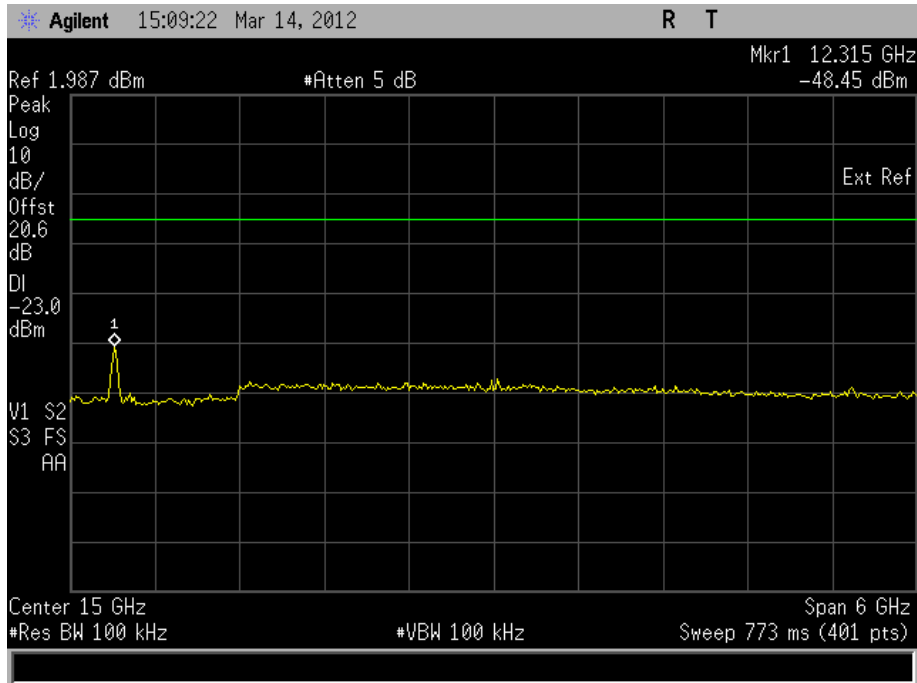
4 GHz to 12 GHz



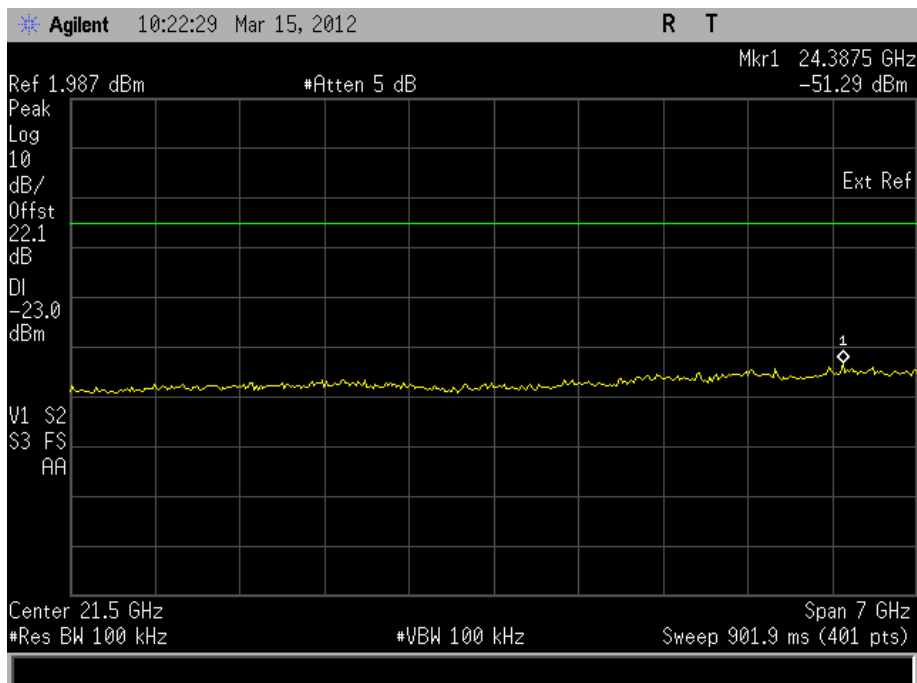


Product Service

12 GHz to 18 GHz



18 GHz to 25 GHz





Product Service

Limit Clause

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval the attenuation required shall be 30 dB instead of 20 dB.

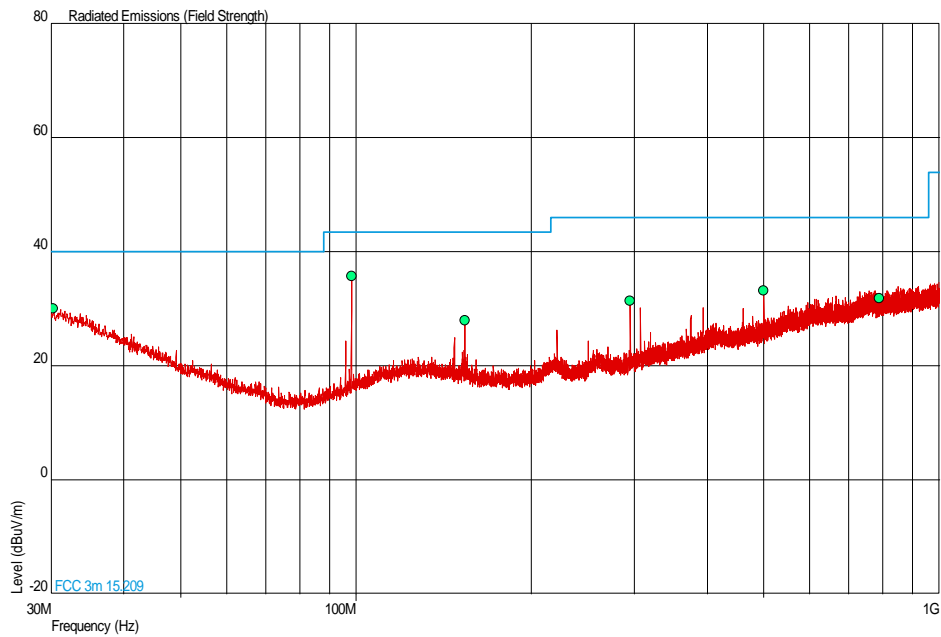


Product Service

Spurious Radiated Emissions

2412 MHz

30 MHz to 1 GHz

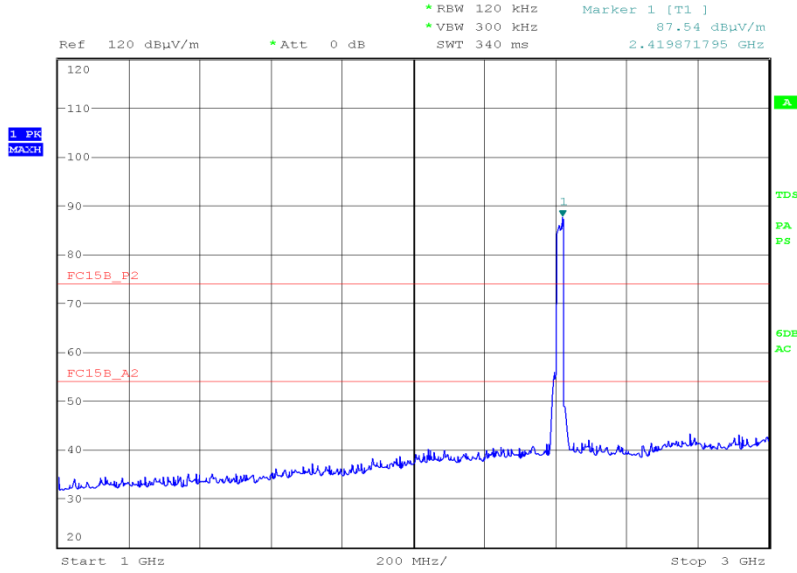


Frequency (MHz)	QP Level (dBµV/m)	QP Level (µV/m)	QP Limit (dBµV/m)	QP Limit (µV/m)	QP Margin (dBµV/m)	QP Margin (µV/m)	Angle (Deg)	Height (m)	Polarity
30.249	30.0	31.6	40.0	100	-10.0	68.4	49	1.00	Vertical
98.297	35.8	61.7	43.5	150	-7.7	88.3	95	1.00	Vertical
153.601	27.9	24.8	43.5	150	-15.6	125.2	25	1.00	Vertical
294.920	31.5	37.6	46.0	150	-14.5	112.4	186	1.00	Horizontal
500.069	33.2	45.7	46.0	200	-12.8	154.3	166	1.00	Vertical
790.212	31.9	39.4	46.0	200	-14.1	160.6	360	1.00	Vertical



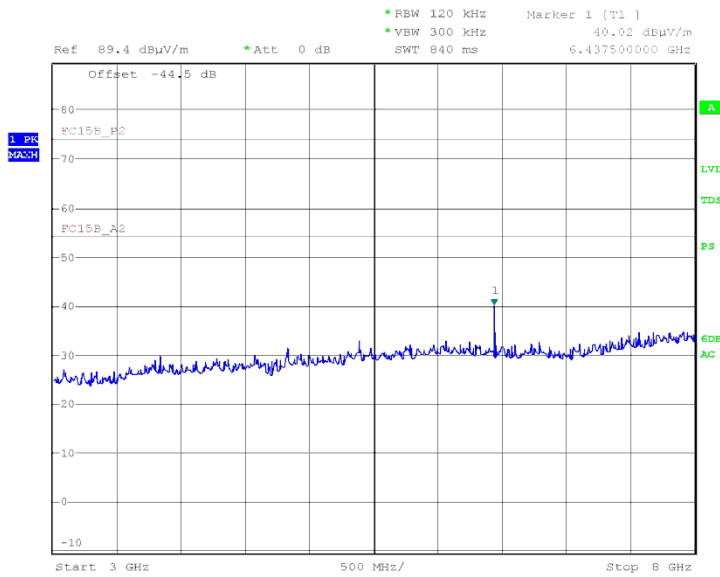
Product Service

1 GHz to 3 GHz



Date: 29.FEB.2012 20:11:15

3 GHz to 8 GHz

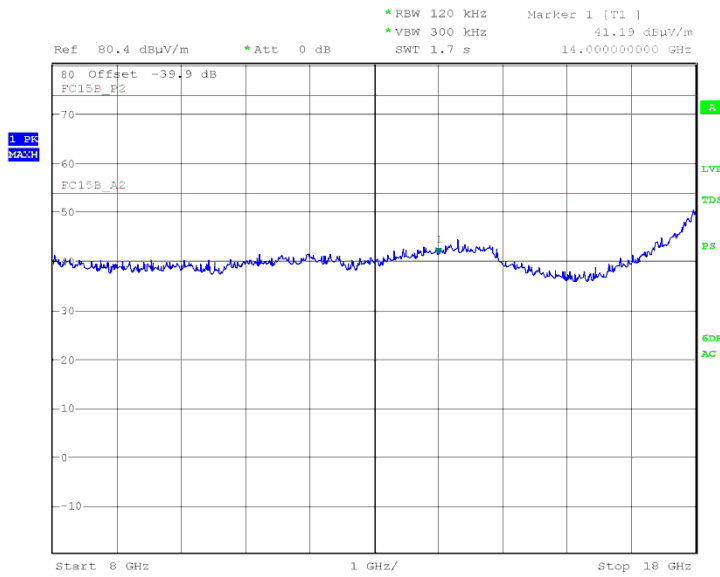


Date: 6.MAR.2012 18:04:30



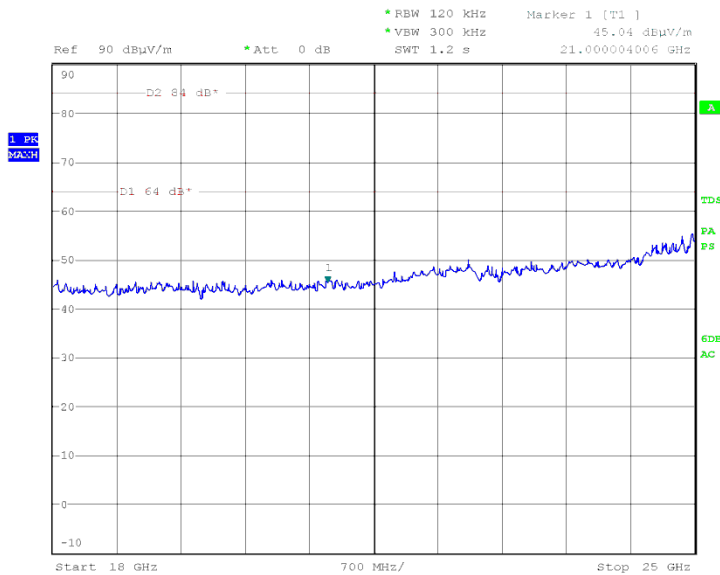
Product Service

8 GHz to 18 GHz



Date: 6.MAR.2012 19:20:32

18 GHz to 25 GHz



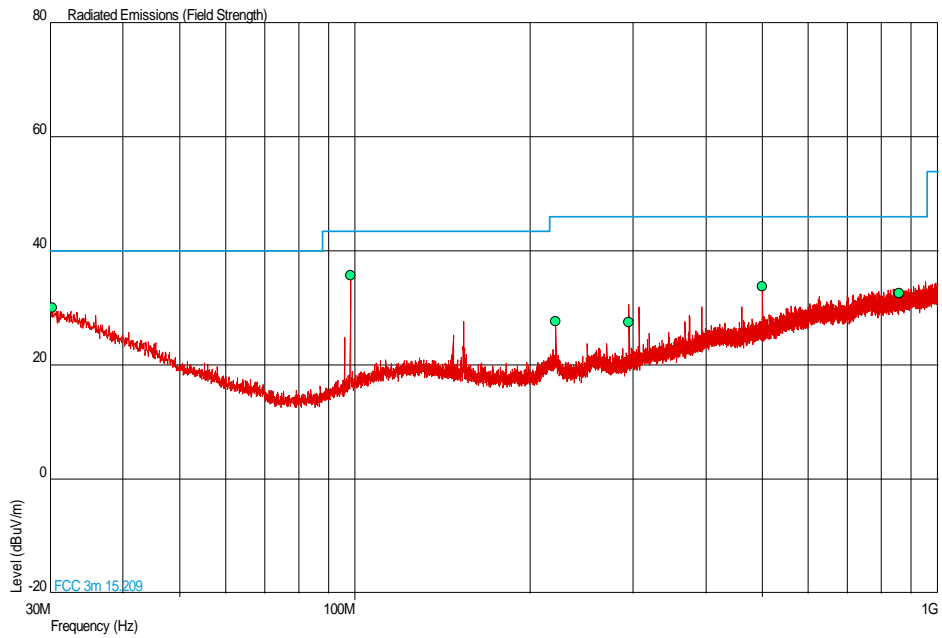
Date: 6.MAR.2012 19:53:15



Product Service

2437 MHz

30 MHz to 1 GHz

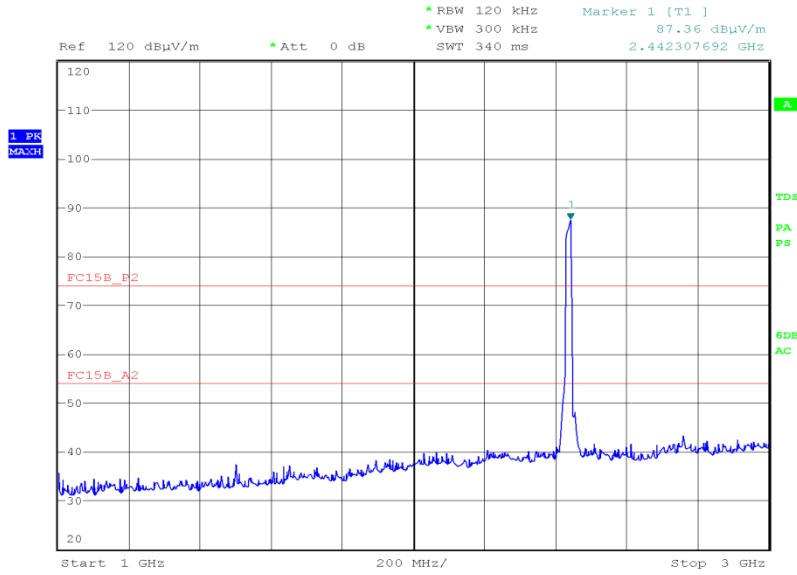


Frequency (MHz)	QP Level (dBµV/m)	QP Level (µV/m)	QP Limit (dBµV/m)	QP Limit (µV/m)	QP Margin (dBµV/m)	QP Margin (µV/m)	Angle (Deg)	Height (m)	Polarity
30.241	30.1	32.0	40.0	100	-9.9	68.0	360	1.00	Horizontal
98.301	35.8	61.7	43.5	150	-7.7	88.3	45	1.00	Vertical
221.179	27.7	24.3	46.0	200	-18.3	175.7	93	1.00	Vertical
294.898	27.5	23.7	46.0	200	-18.5	176.3	184	1.00	Vertical
500.054	33.8	49.0	46.0	200	-12.2	151.0	157	1.00	Vertical
858.893	32.6	42.7	46.0	200	-13.4	157.3	229	1.00	Horizontal



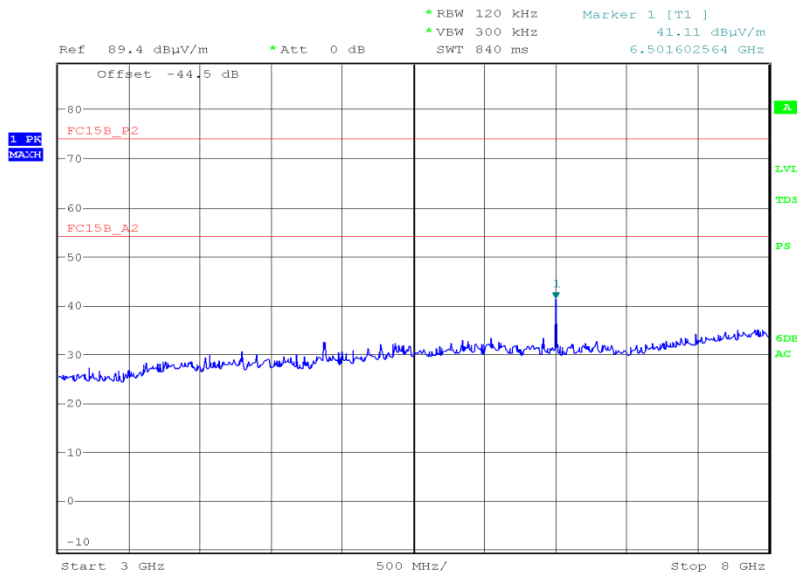
Product Service

1 GHz to 3 GHz



Date: 29.FEB.2012 20:23:06

3 GHz to 8 GHz

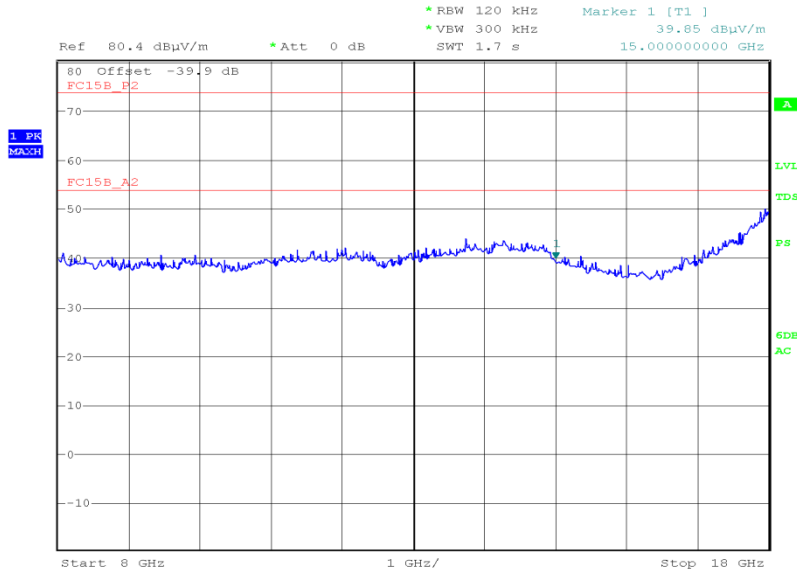


Date: 6.MAR.2012 18:10:24



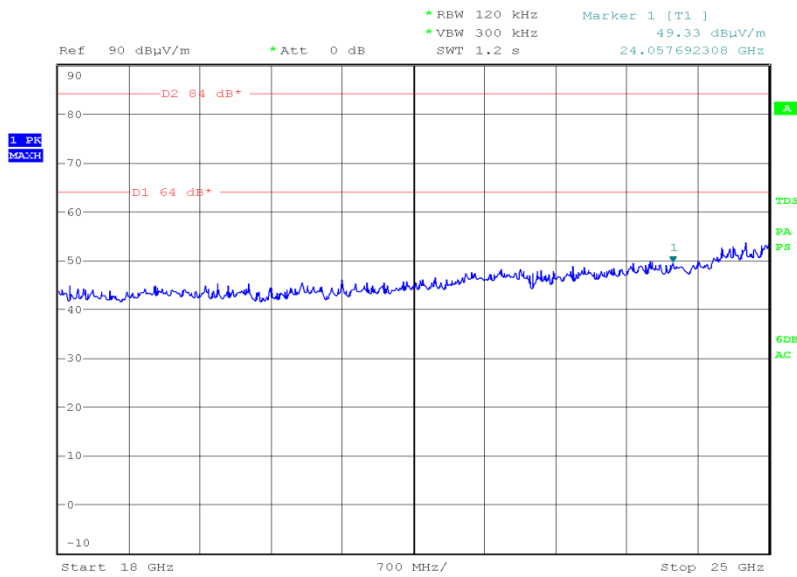
Product Service

8 GHz to 18 GHz



Date: 6.MAR.2012 19:03:30

18 GHz to 25 GHz

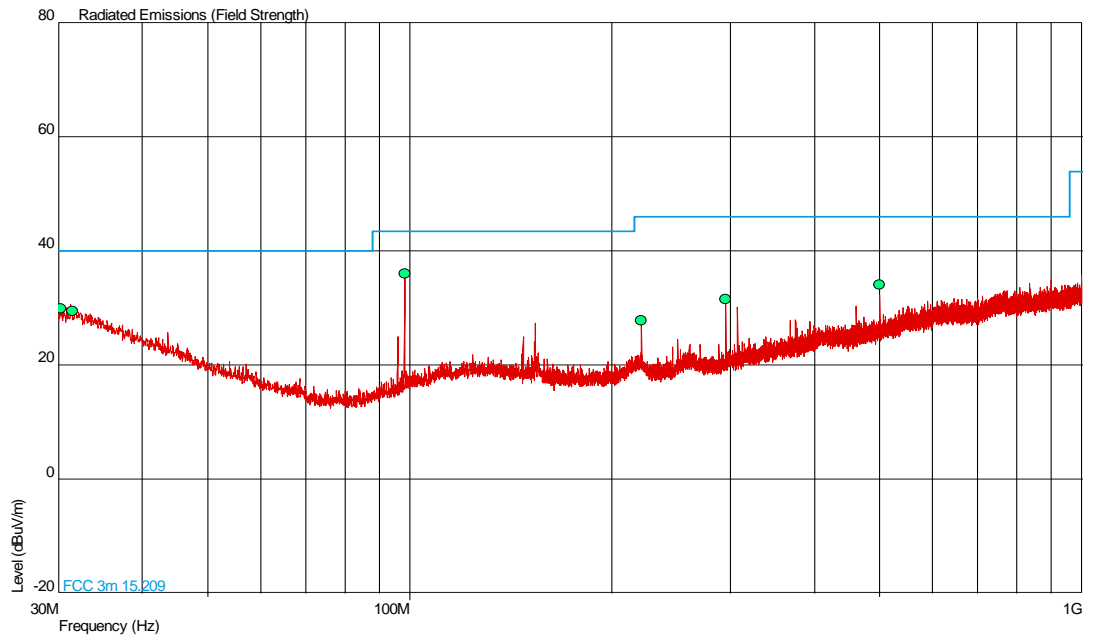


Date: 6.MAR.2012 20:04:55



2462 MHz

30 MHz to 1 GHz

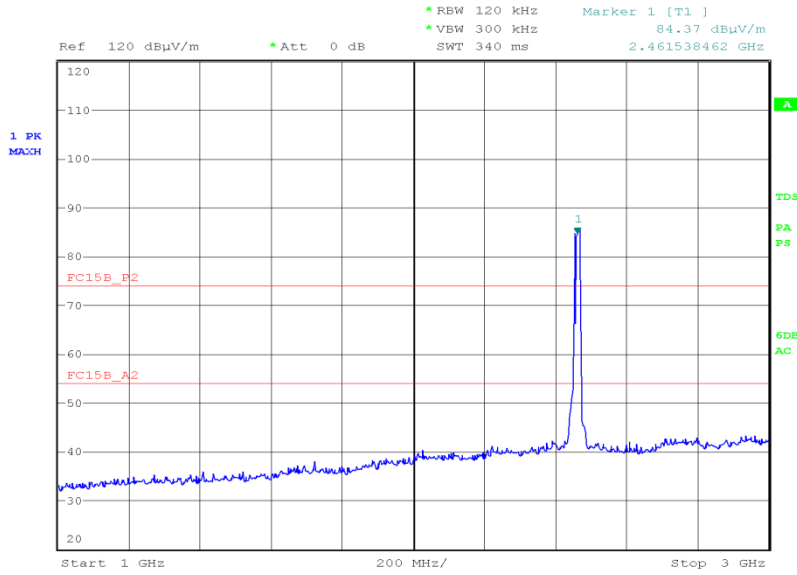


Frequency (MHz)	QP Level (dBµV/m)	QP Level (µV/m)	QP Limit (dBµV/m)	QP Limit (µV/m)	QP Margin (dBµV/m)	QP Margin (µV/m)	Angle (Deg)	Height (m)	Polarity
30.272	29.9	31.3	40.0	100	-10.1	68.7	354	1.00	Vertical
31.462	29.4	29.5	40.0	100	-10.6	70.5	159	1.00	Horizontal
98.310	36.0	63.1	43.5	150	-7.5	86.9	356	1.00	Vertical
221.179	27.8	24.5	46.0	200	-18.2	175.5	79	1.00	Vertical
294.915	31.6	38.0	46.0	200	-14.4	162.0	360	1.00	Horizontal
500.038	34.2	51.3	46.0	200	-11.8	148.7	165	1.15	Vertical



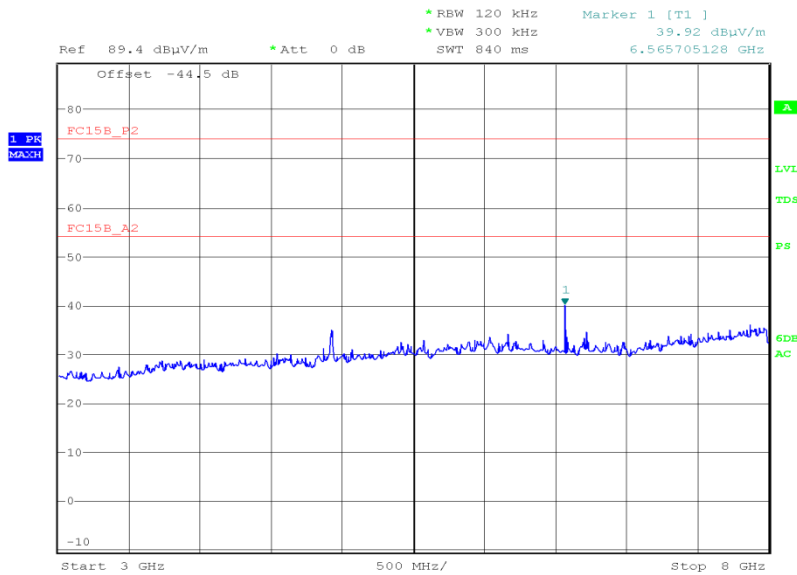
Product Service

1 GHz to 3 GHz



Date: 29.FEB.2012 20:58:23

3 GHz to 8 GHz

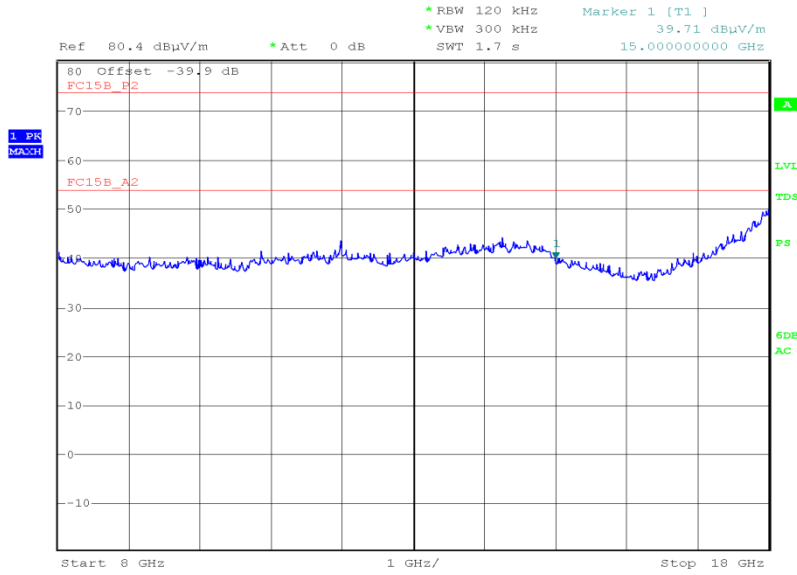


Date: 6.MAR.2012 18:21:03



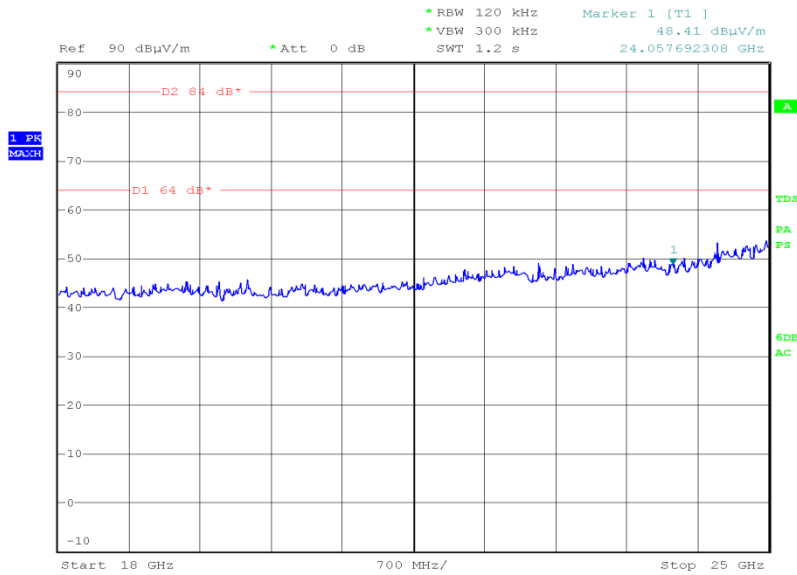
Product Service

8 GHz to 18 GHz



Date: 6.MAR.2012 18:46:38

18 GHz to 25 GHz



Date: 6.MAR.2012 20:20:32

Limit

Peak (dBμV/m)	Average (dBμV/m)
74.0	54.0



Product Service

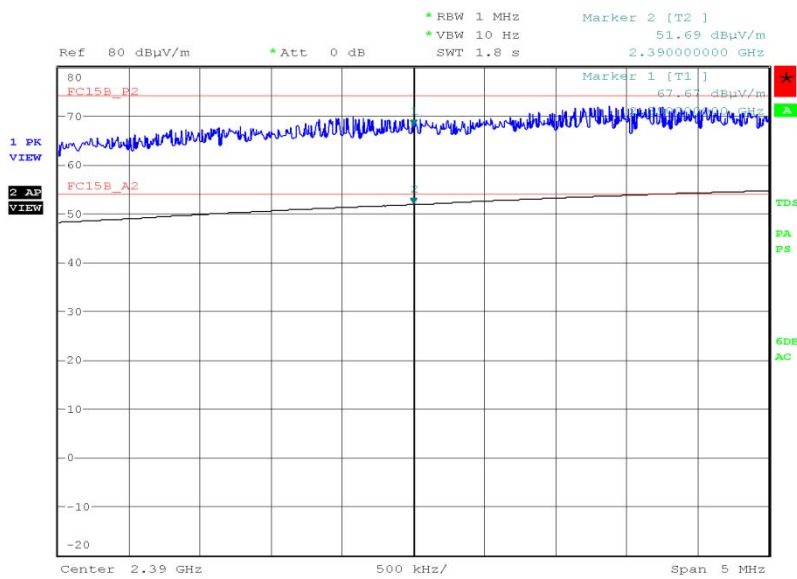
802.11(n) - 2.4 GHz 20 MHz BW

4V, 3.3V and 1.2V DC Supply

Band Edge Emissions

2412 MHz

Polarisation	Final Peak (dBµV/m)	Final Average (dBµV/m)
Horizontal	67.67	51.69

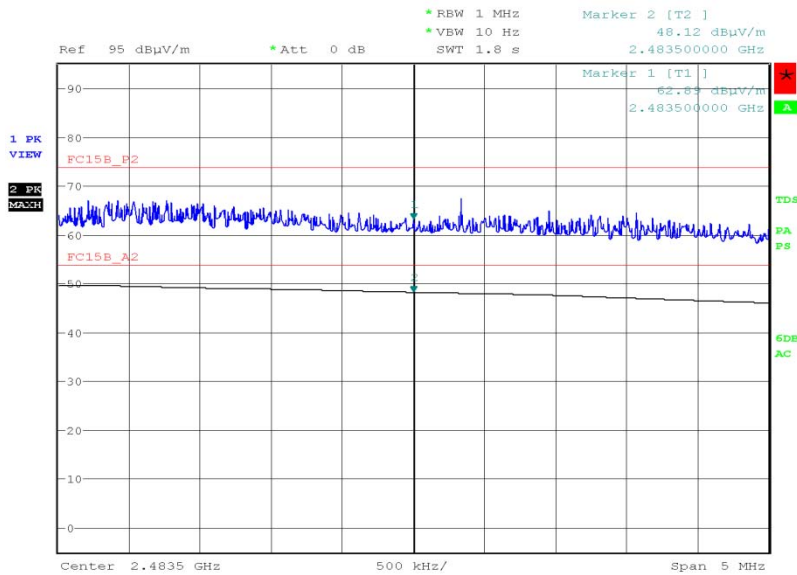


Date: 29.FEB.2012 20:01:12



2462 MHz

Polarisation	Final Peak (dBµV/m)	Final Average (dBµV/m)
Horizontal	62.89	48.12



Date: 29.FEB.2012 20:53:10

Limit

Peak (dBµV/m)	Average (dBµV/m)
74.0	54.0



Product Service

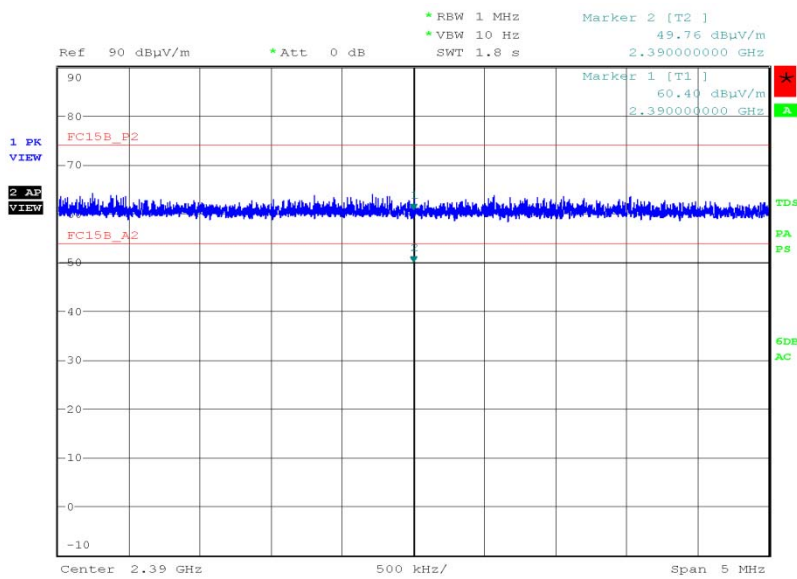
802.11(n) - 2.4 GHz, 40 MHz BW

4V, 3.3V and 1.2V DC Supply

Band Edge Emissions

2422 MHz

Polarisation	Final Peak (dBµV/m)	Final Average (dBµV/m)
Horizontal	60.40	49.76

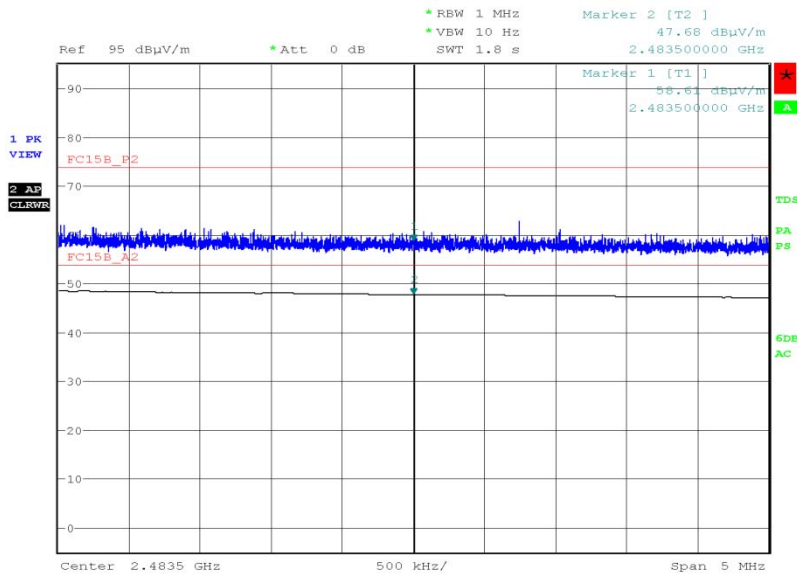


Date: 4.MAR.2012 10:04:56



2452 MHz

Polarisation	Final Peak (dBµV/m)	Final Average (dBµV/m)
Horizontal	58.61	47.68



Date: 4.MAR.2012 11:07:43

Limit

Peak (dBµV/m)	Average (dBµV/m)
74.0	54.0



2.5 POWER SPECTRAL DENSITY

2.5.1 Specification Reference

FCC CFR 47 Part 15C, Clause 15.247 (e)

2.5.2 Equipment Under Test and Modification State

Venice 6.5 S/N: RAD103037 on Test Jig S/N: RAD103234- Modification State 0
Venice 6.5 S/N: RAD103045 on Test Jig, S/N: RAD103235 - Modification State 0

2.5.3 Date of Test

6 March 2012, 7 March 2012 & 12 March 2012

2.5.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.5.5 Test Procedure

The EUT was connected to a spectrum analyser via a 10 dB attenuator. The path loss was measured between the EUT and the spectrum analyser and entered as a reference level offset. The trace was set to max hold and using a peak detector the maximum response was established. With the spectrum analyser RBW at 3 kHz and VBW at 10 kHz, the power spectral density in a 3 kHz bandwidth was measured.

2.5.6 Environmental Conditions

Ambient Temperature	23.1 - 25.1°C
Relative Humidity	21.5 - 34.5%



Product Service

2.5.7 Test Results

802.11(b)

4V, 3.3V and 1.2V DC Supply

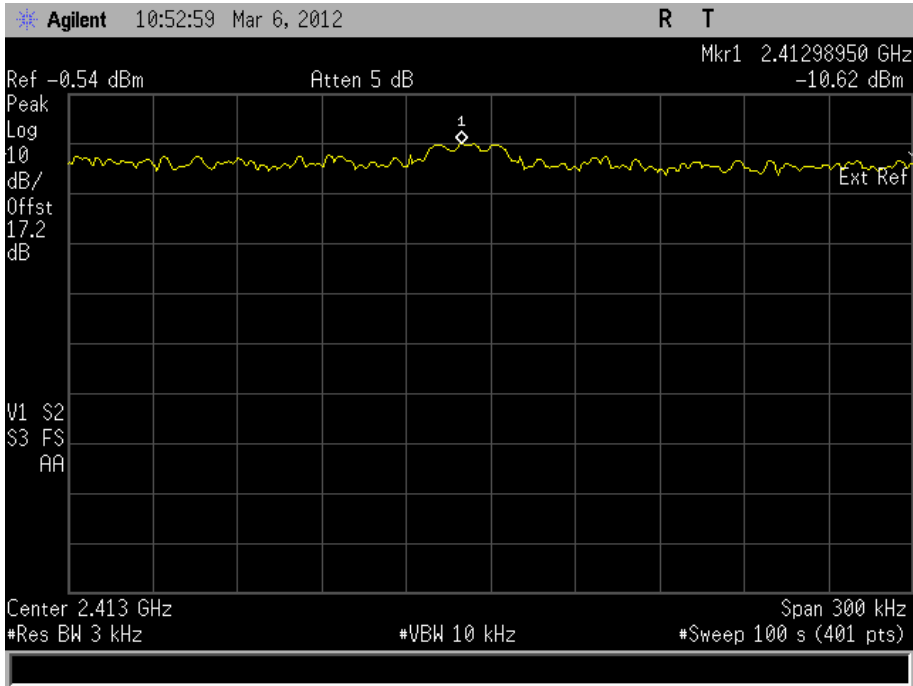
Frequency (MHz)	Data Rate (Mbps)	Power Spectral Density in 3 kHz Bands
2412 MHz	1	-10.62
	2	-11.25
	5	-11.83
	11	-13.16
2437 MHz	1	-10.12
	2	-10.66
	5	-11.21
	11	-12.83
2462 MHz	1	-10.88
	2	-11.32
	5	-11.82
	11	-13.56



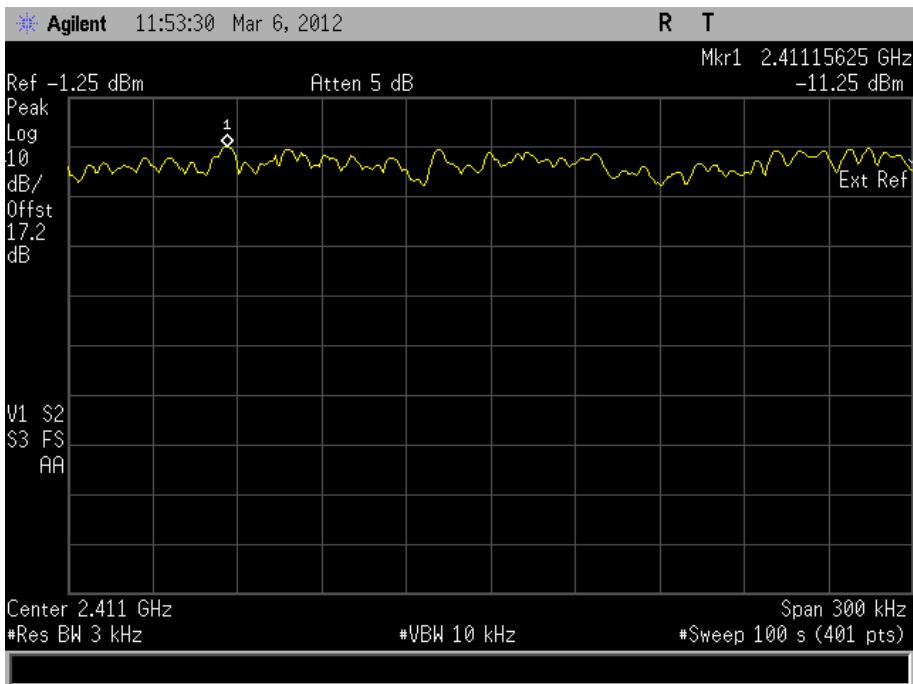
Product Service

2412 MHz

1 Mbps



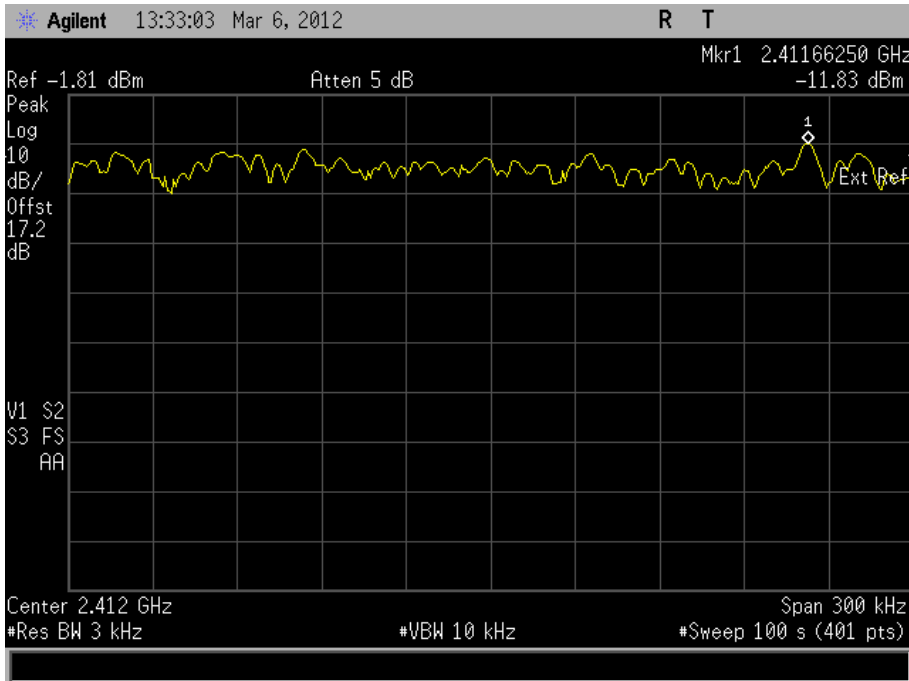
2 Mbps



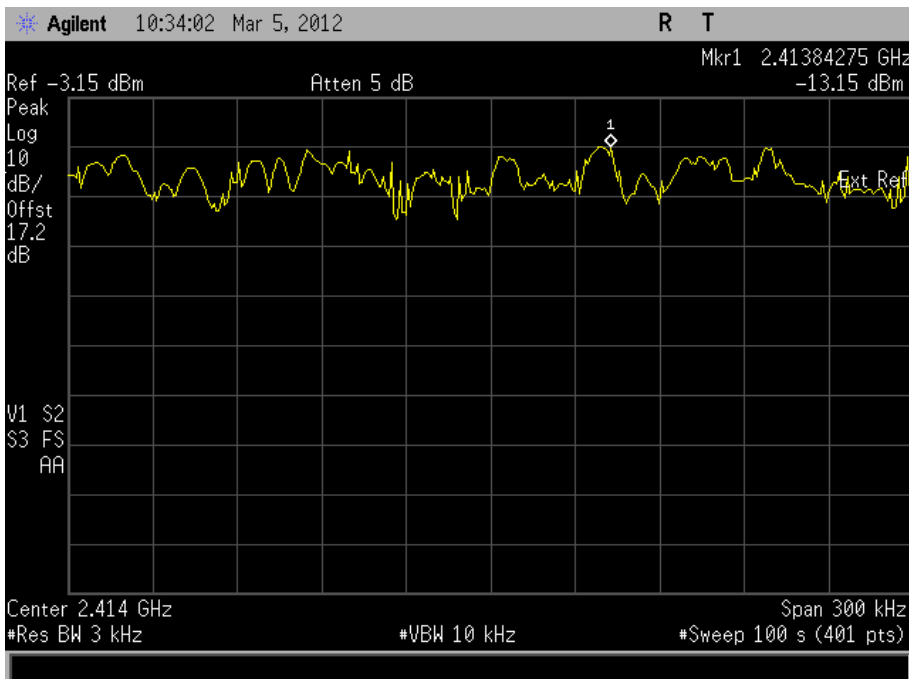


Product Service

5.5 Mbps



11 Mbps

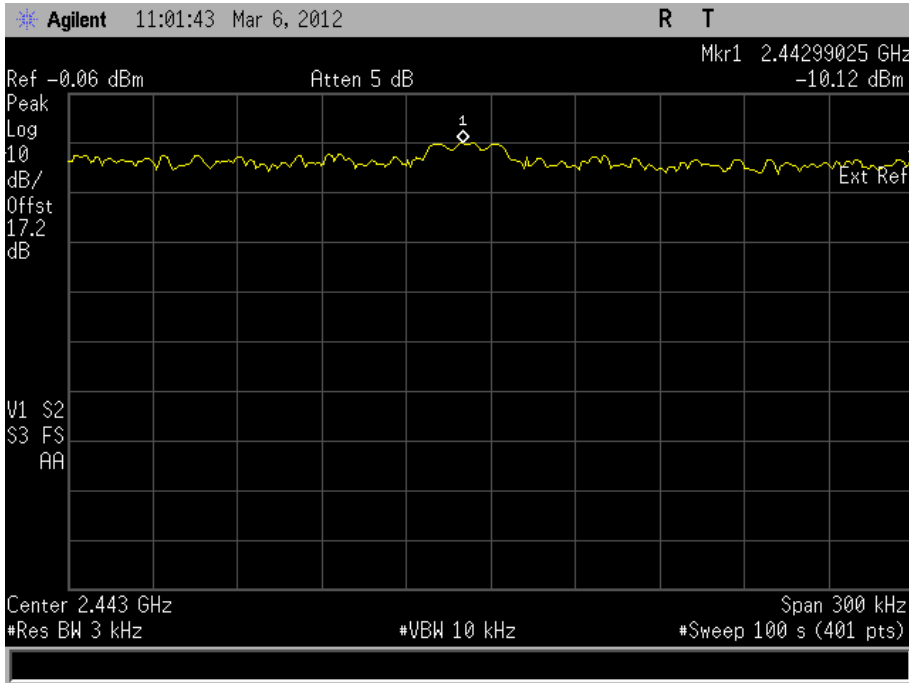




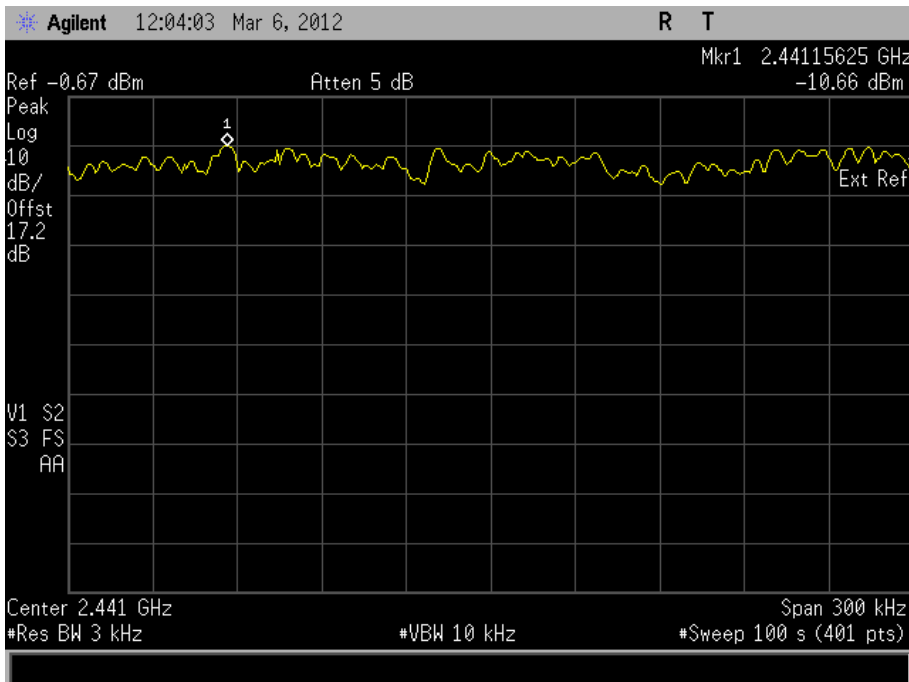
Product Service

2437 MHz

1 Mbps



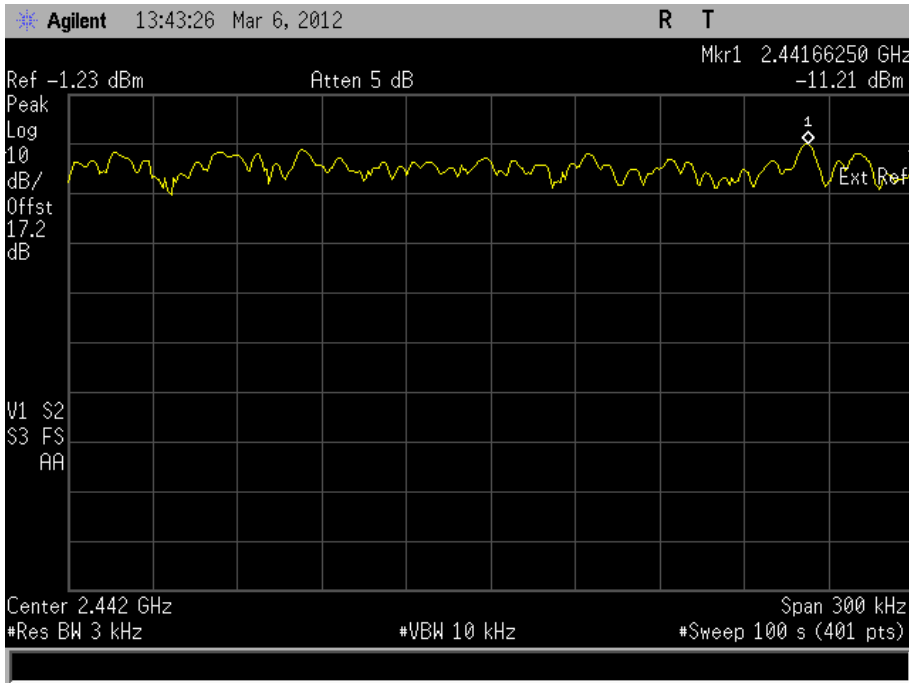
2 Mbps



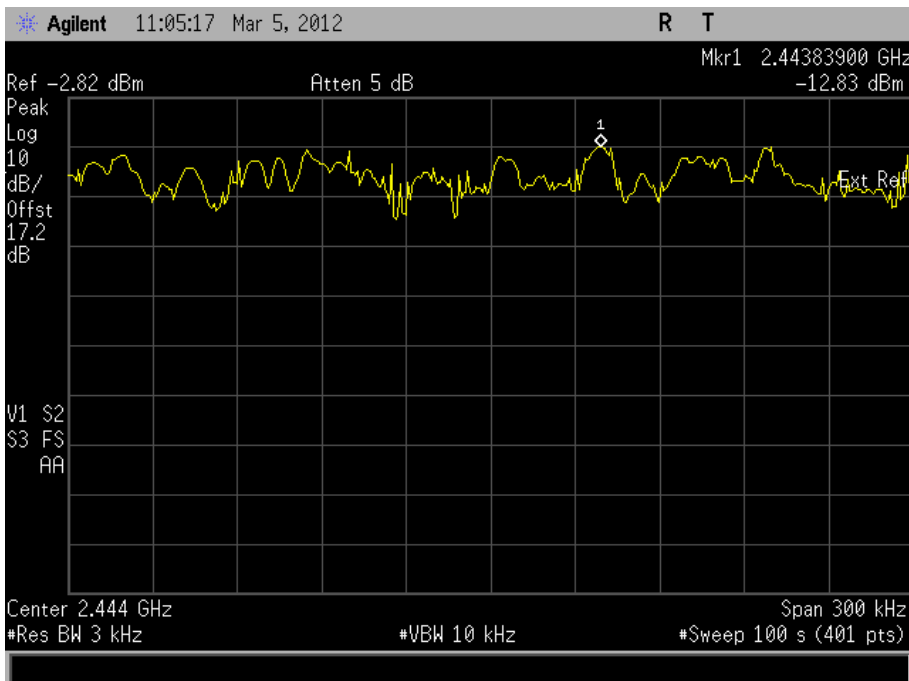


Product Service

5.5 Mbps



11 Mbps

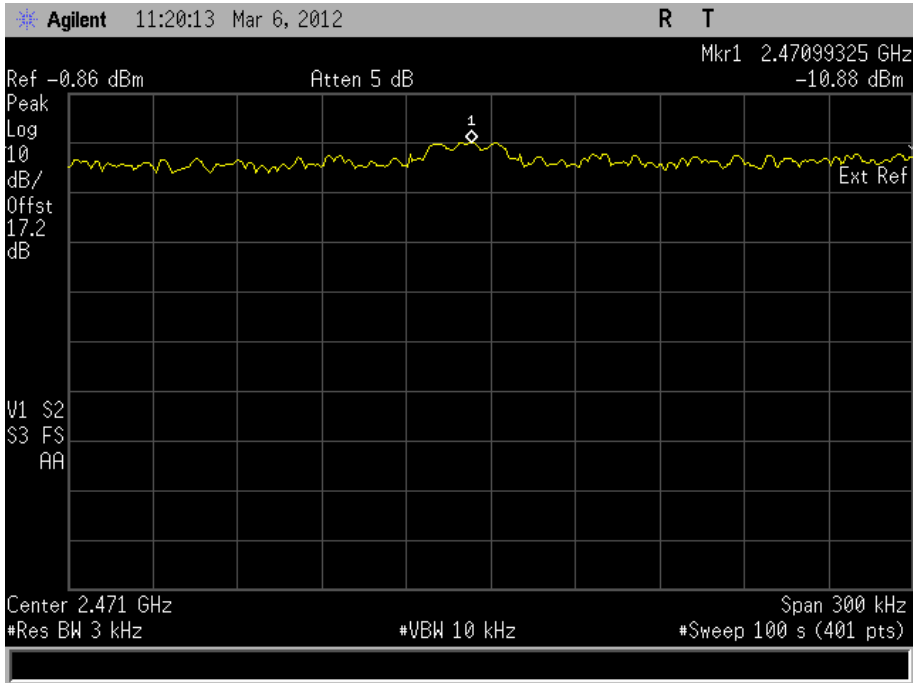




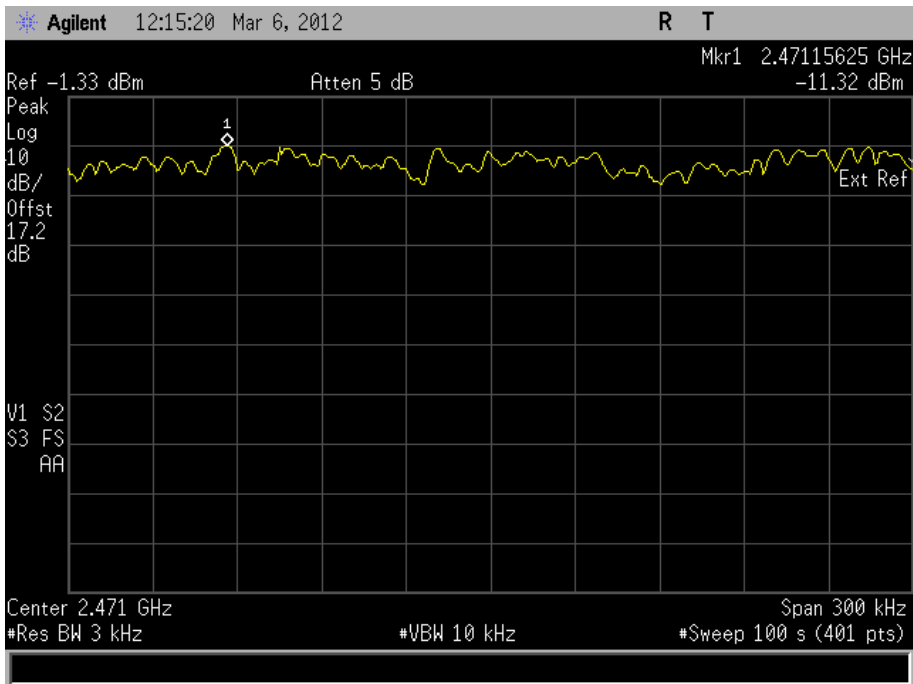
Product Service

2462 MHz

1 Mbps



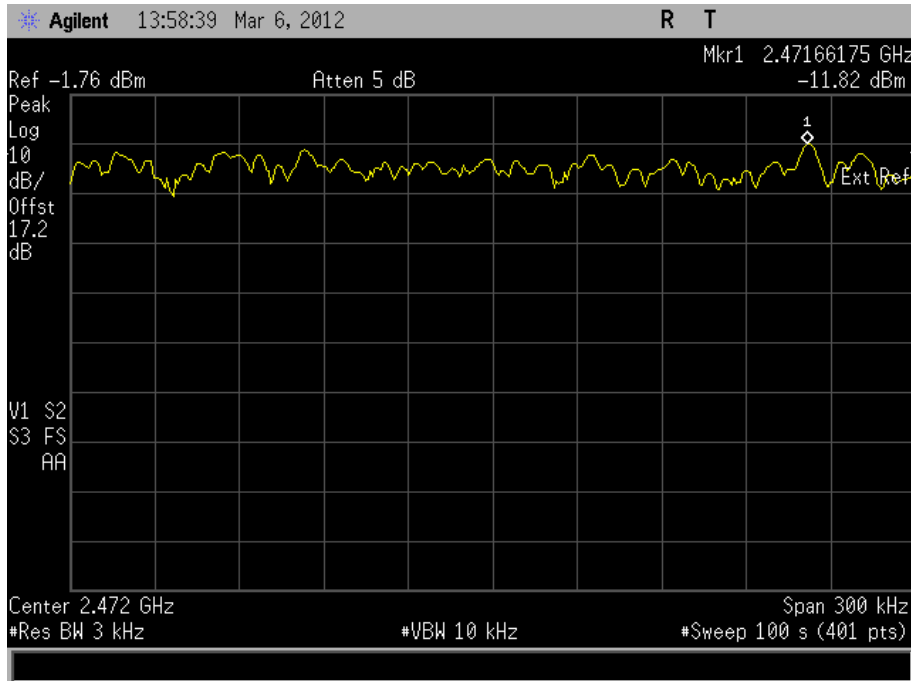
2 Mbps



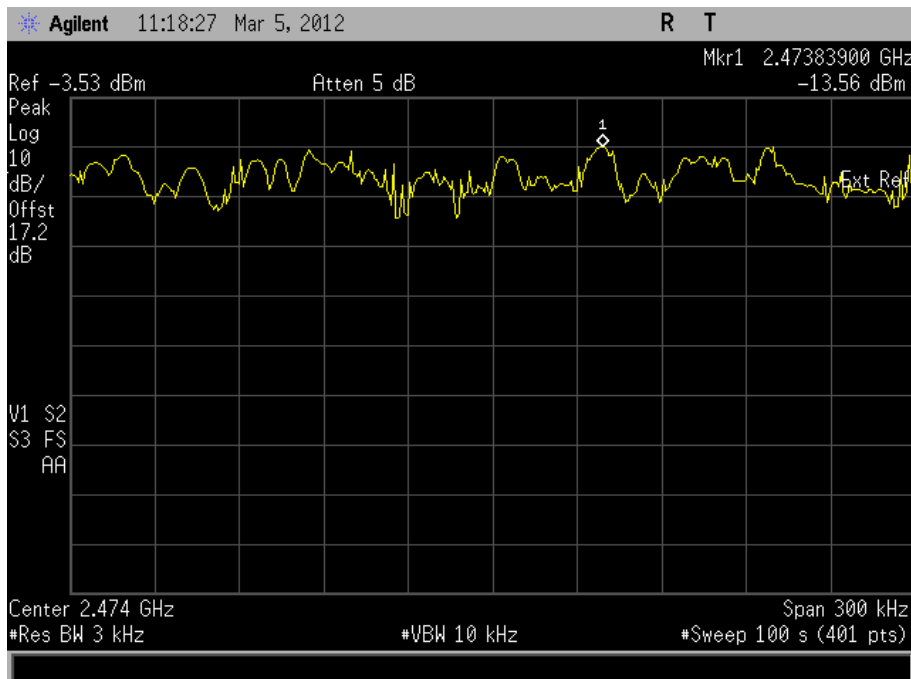


Product Service

5.5 Mbps



11 Mbps



Limit Clause

The minimum 6 dB Bandwidth shall be at least 500 kHz.



Product Service

802.11(g)

4V, 3.3V and 1.2V DC Supply

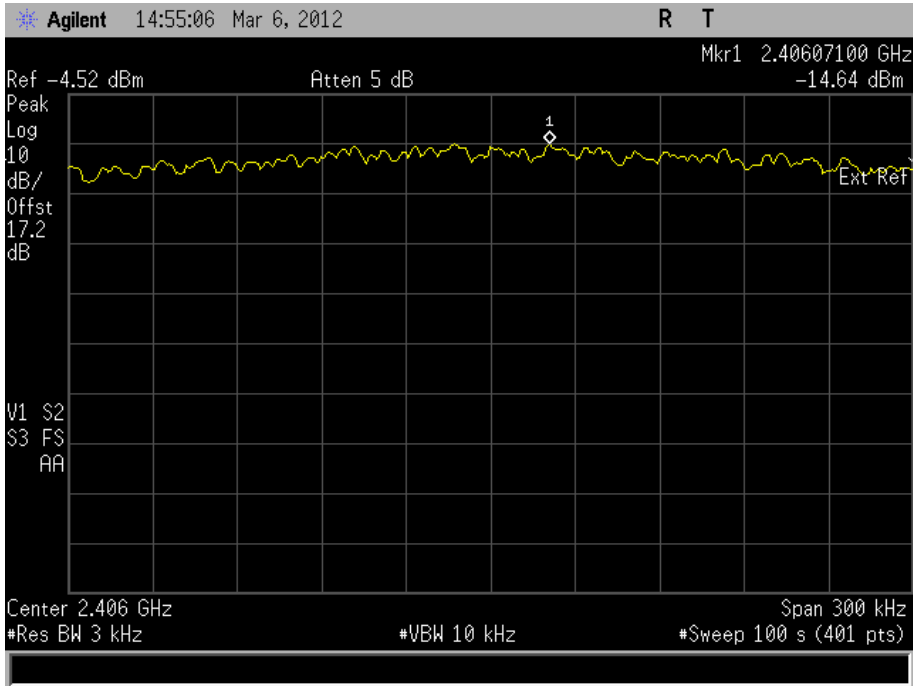
Frequency (MHz)	Data Rate (Mbps)	Power Spectral Density in 3 kHz Bands
2412 MHz	6	-14.64
	9	-15.55
	12	-14.53
	18	-14.79
	24	-15.71
	36	-14.96
	48	-14.08
	54	-12.35
2437 MHz	6	-13.52
	9	-14.24
	12	-14.96
	18	-14.93
	24	-15.66
	36	-14.84
	48	-13.75
	54	-13.30
2462 MHz	6	-14.42
	9	-13.80
	12	-16.00
	18	-14.95
	24	-15.96
	36	-14.19
	48	-14.00
	54	-13.96



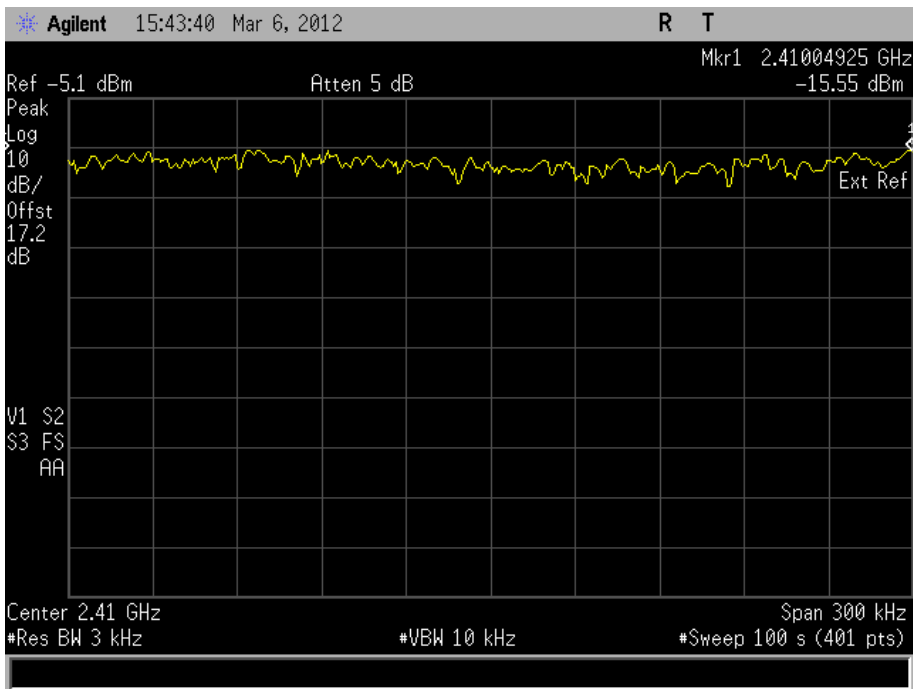
Product Service

2412 MHz

6 Mbps



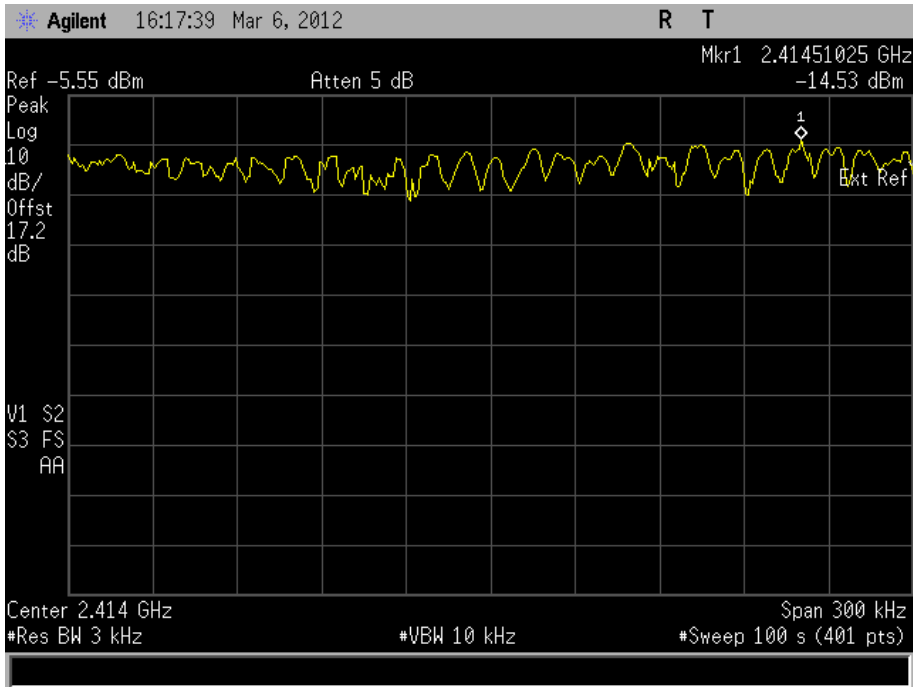
9 Mbps



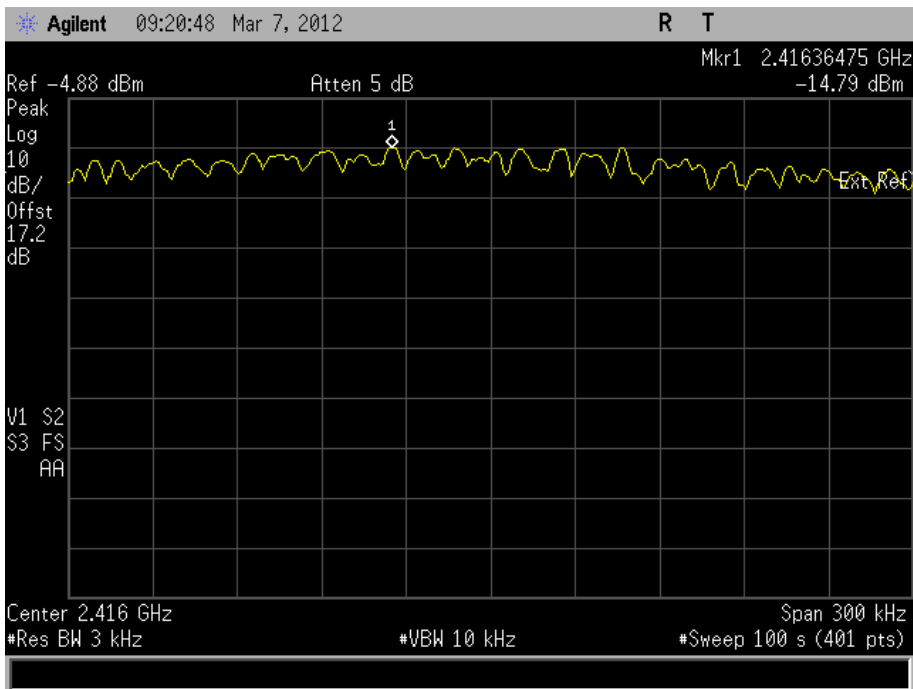


Product Service

12 Mbps



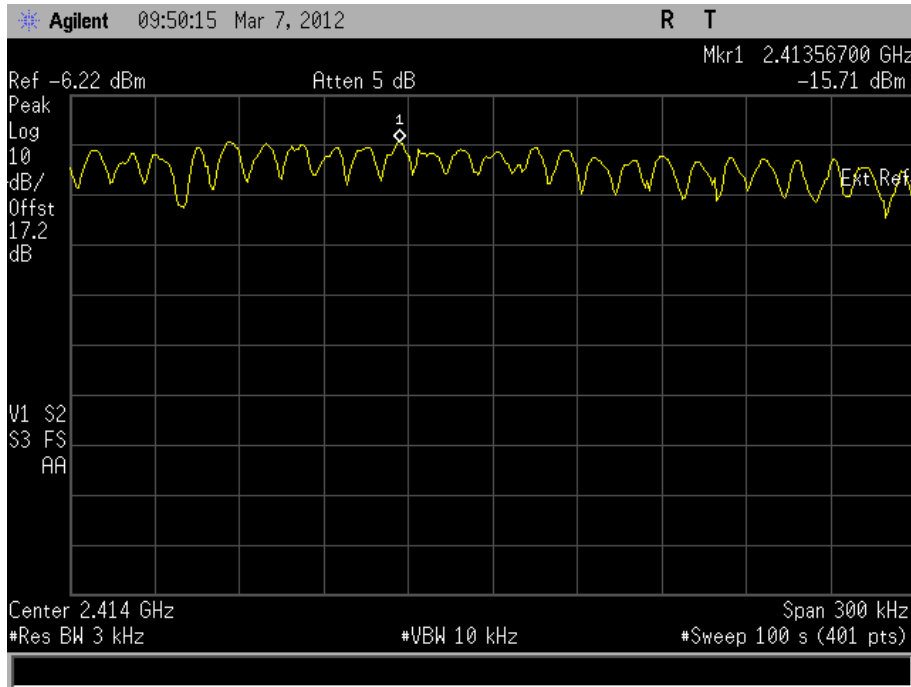
18 Mbps



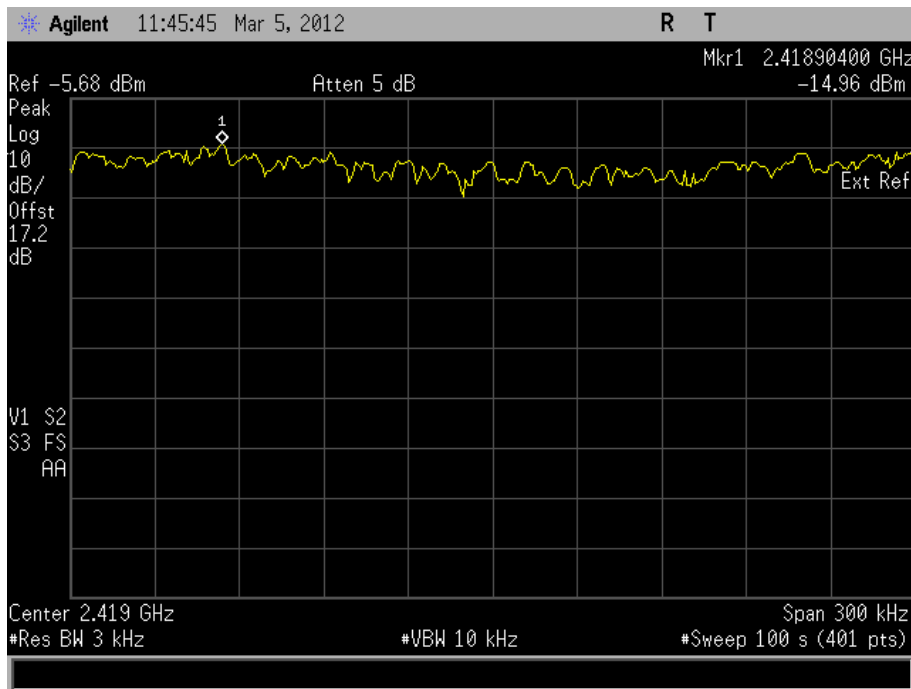


Product Service

24 Mbps



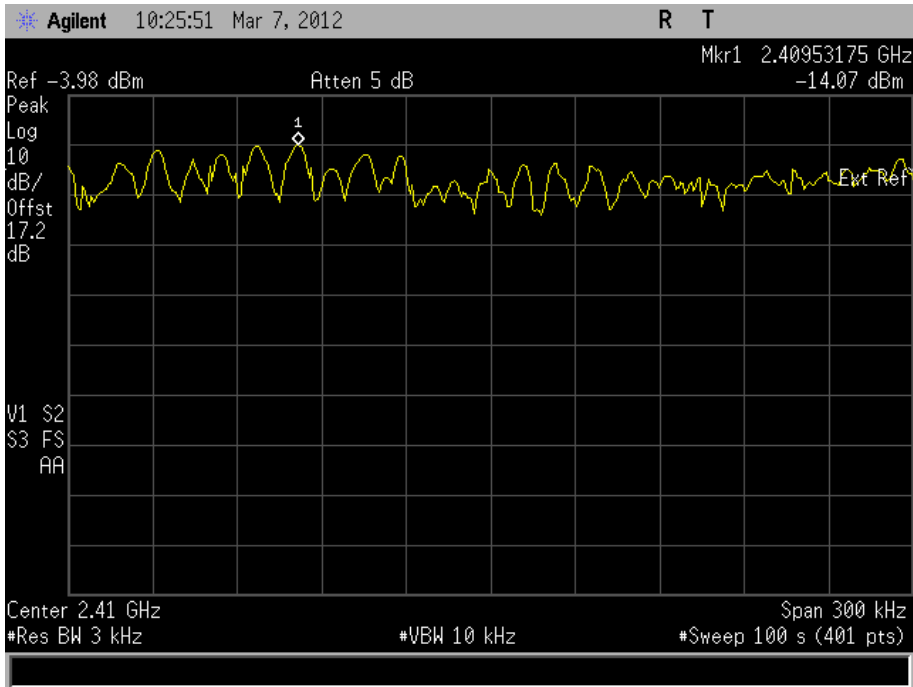
36 Mbps



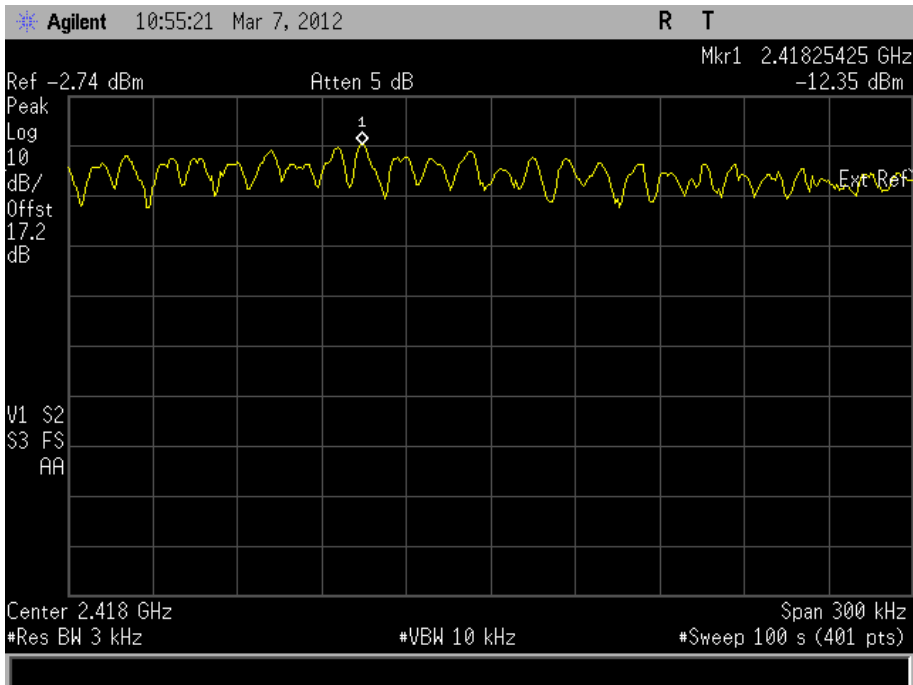


Product Service

48 Mbps



54 Mbps

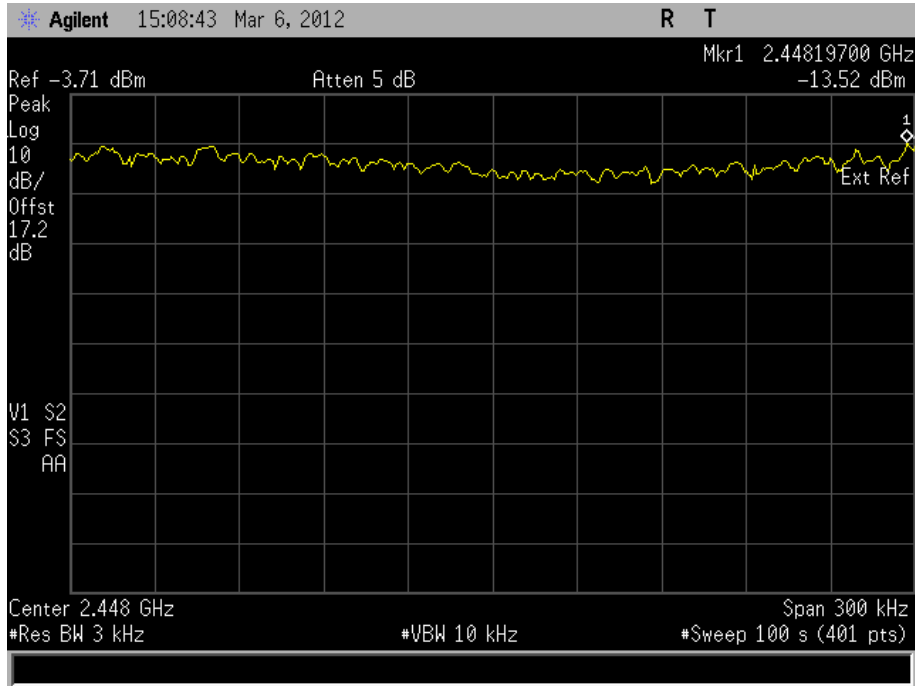




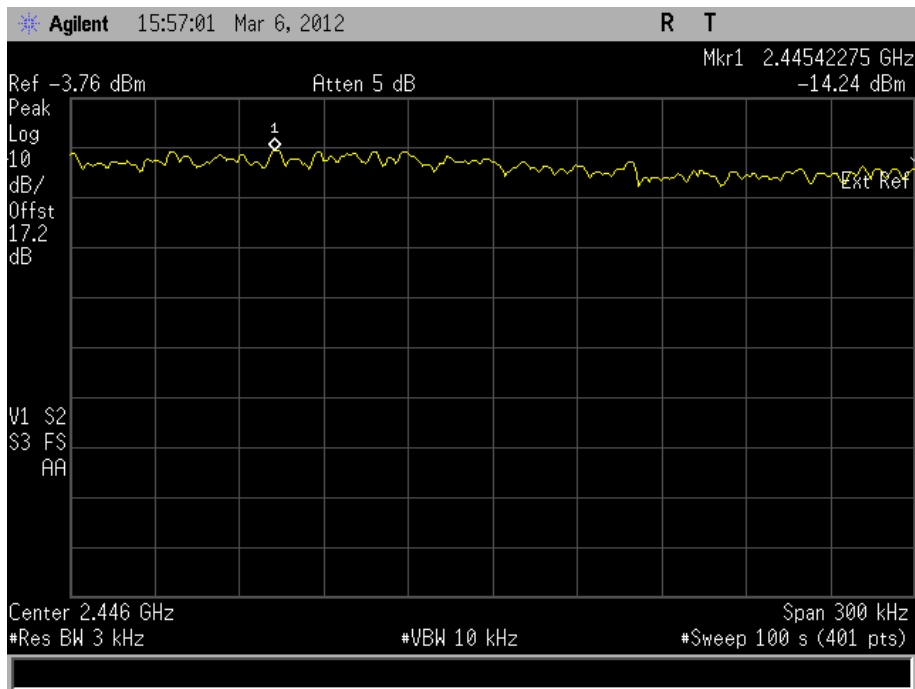
Product Service

2437 MHz

6 Mbps



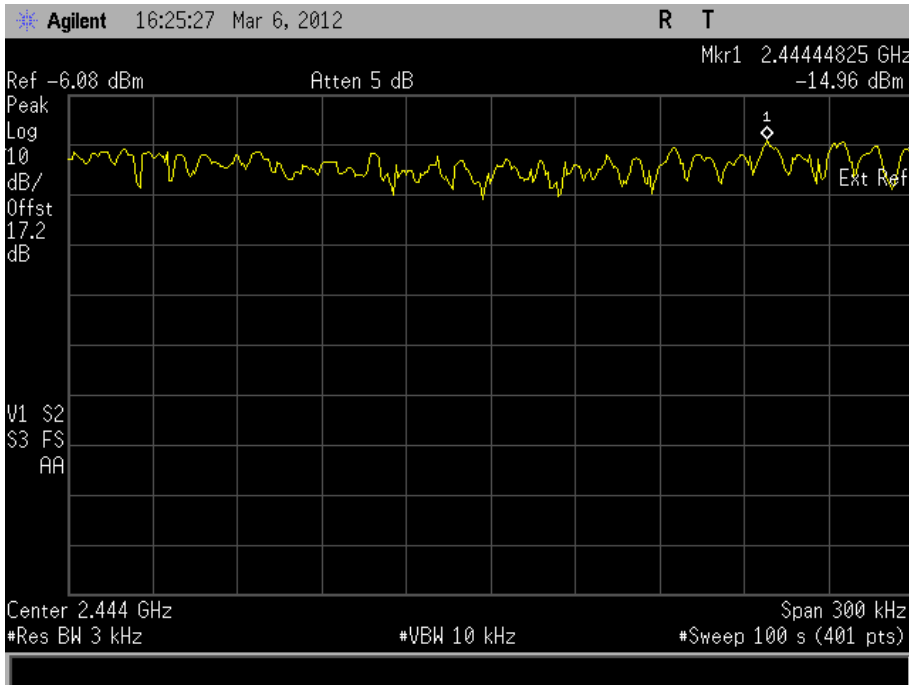
9 Mbps



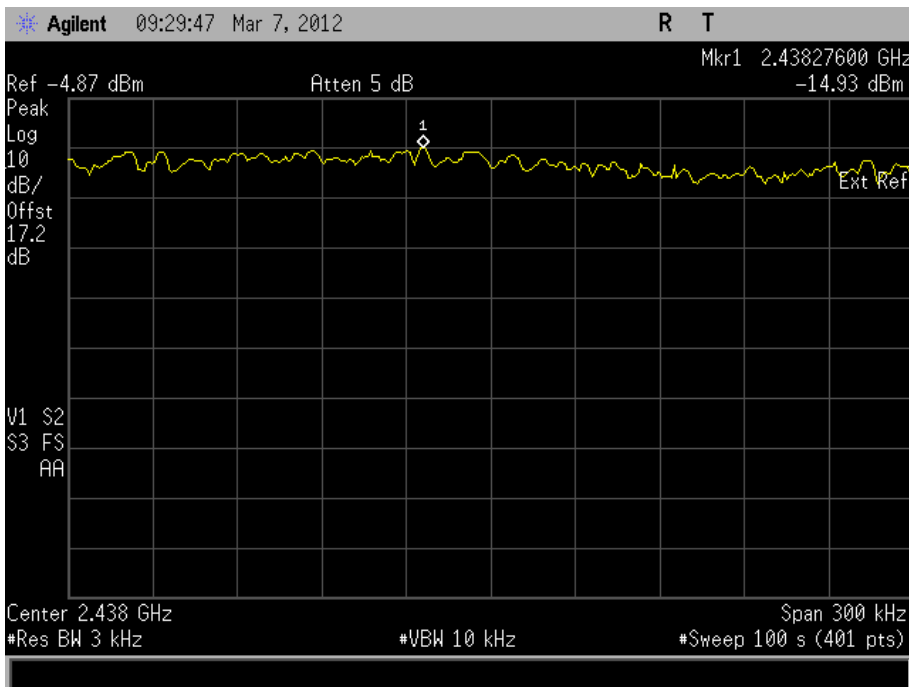


Product Service

12 Mbps



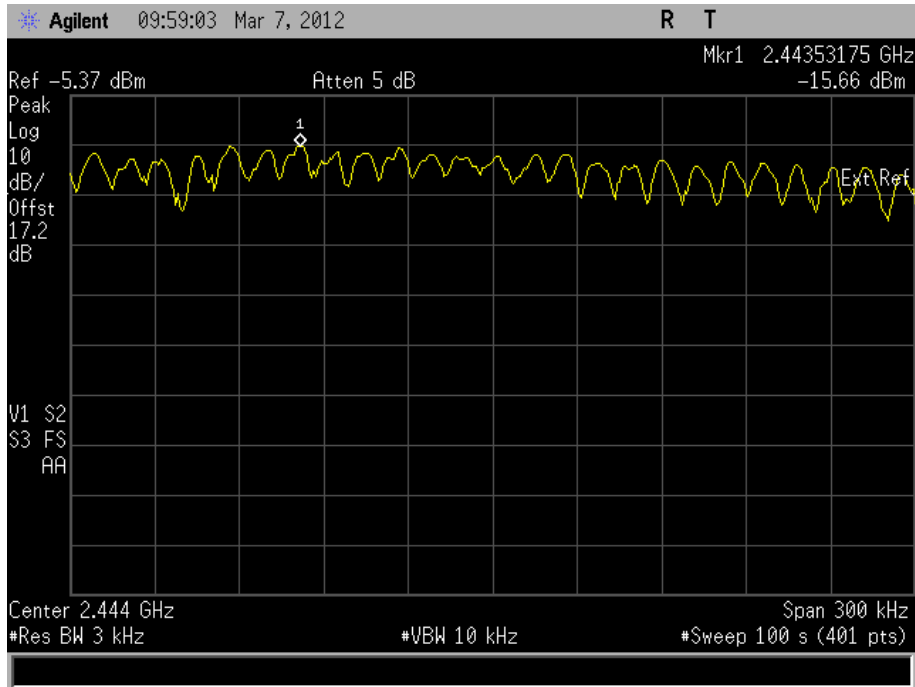
18 Mbps



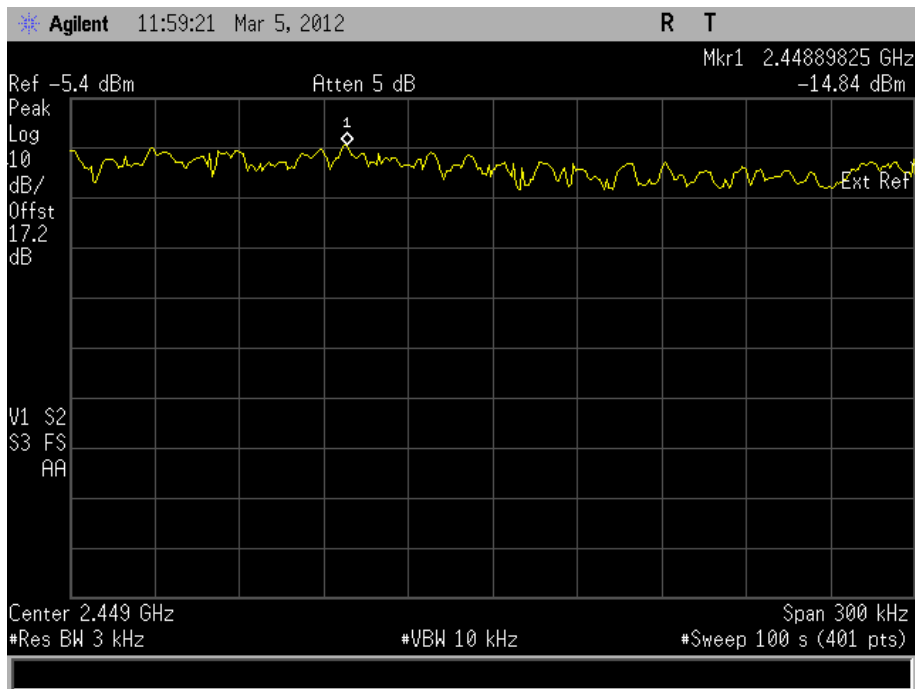


Product Service

24 Mbps



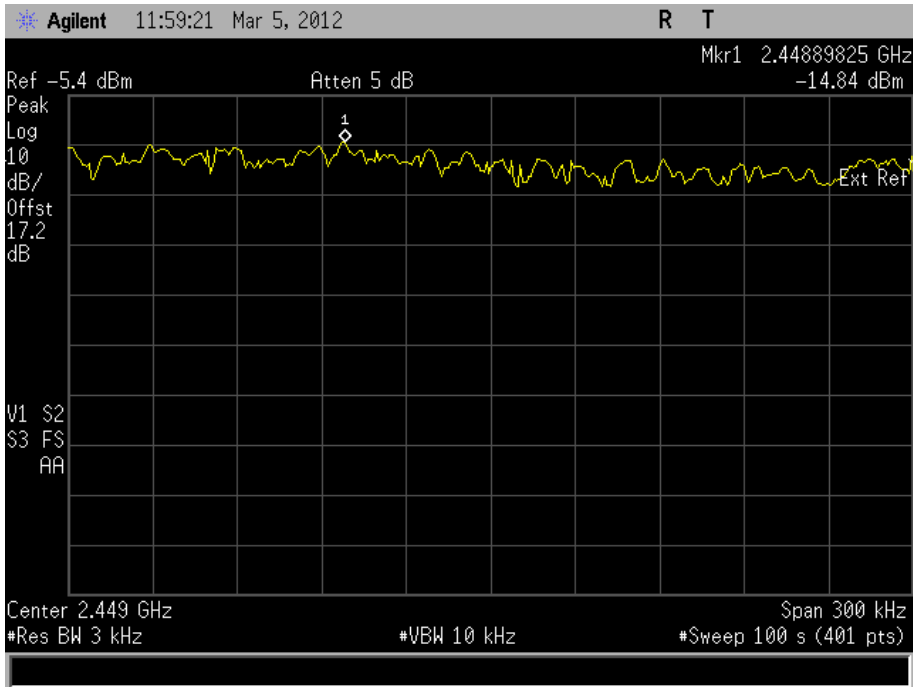
36 Mbps



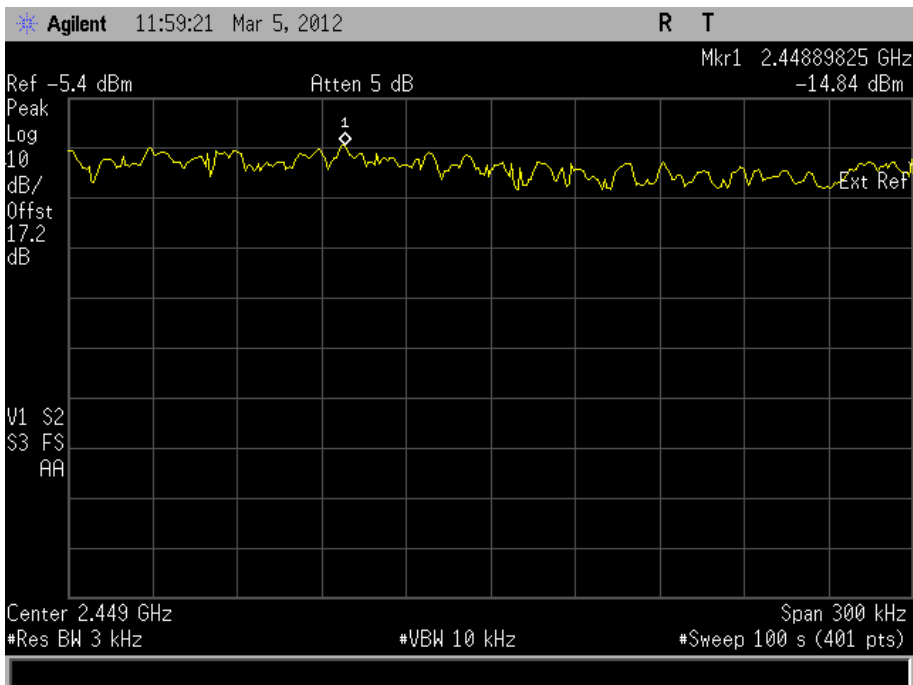


Product Service

48 Mbps



54 Mbps

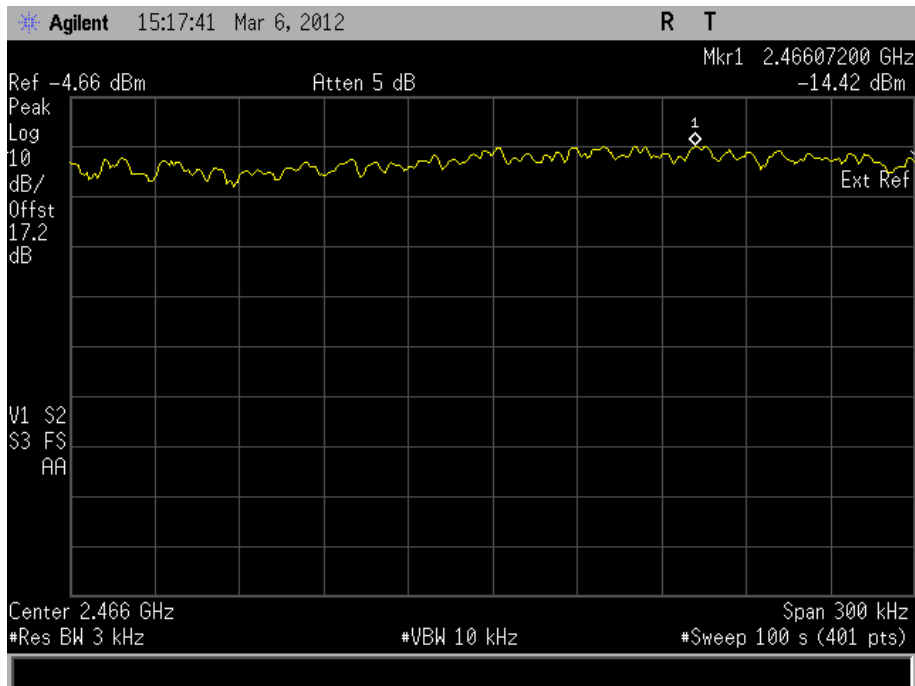




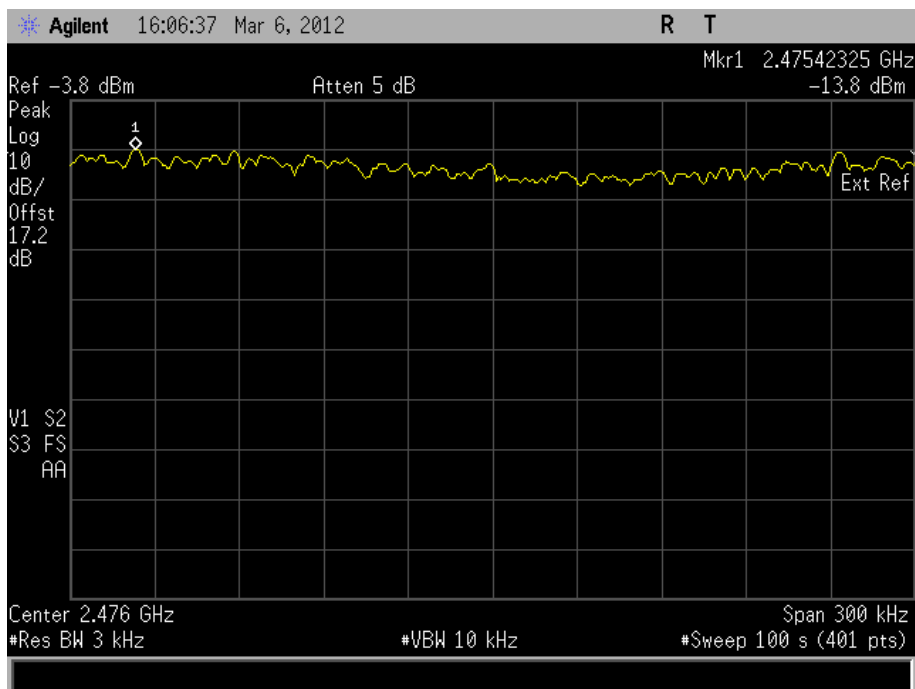
Product Service

2462 MHz

6 Mbps



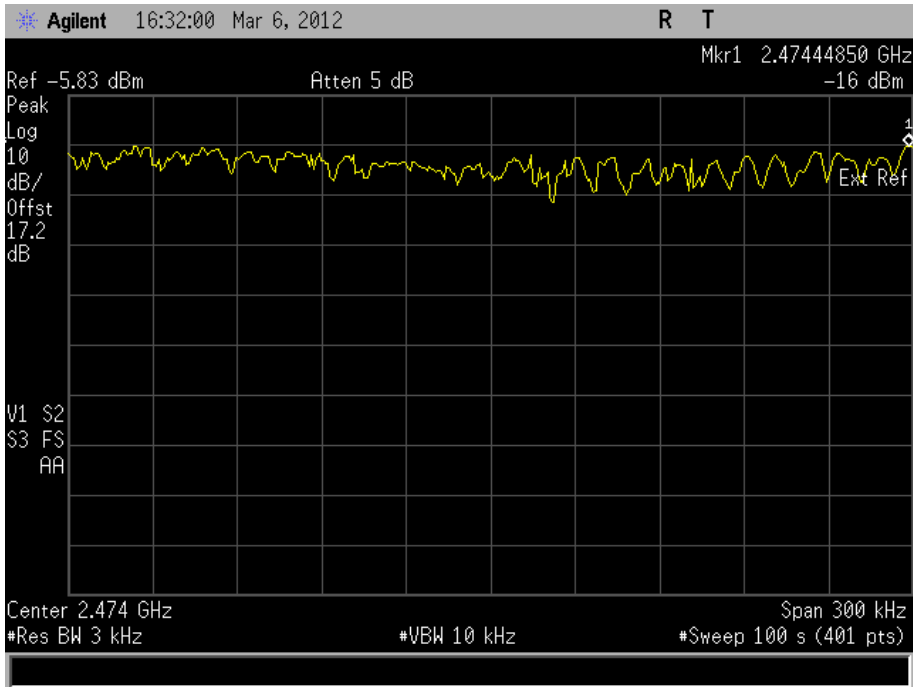
9 Mbps



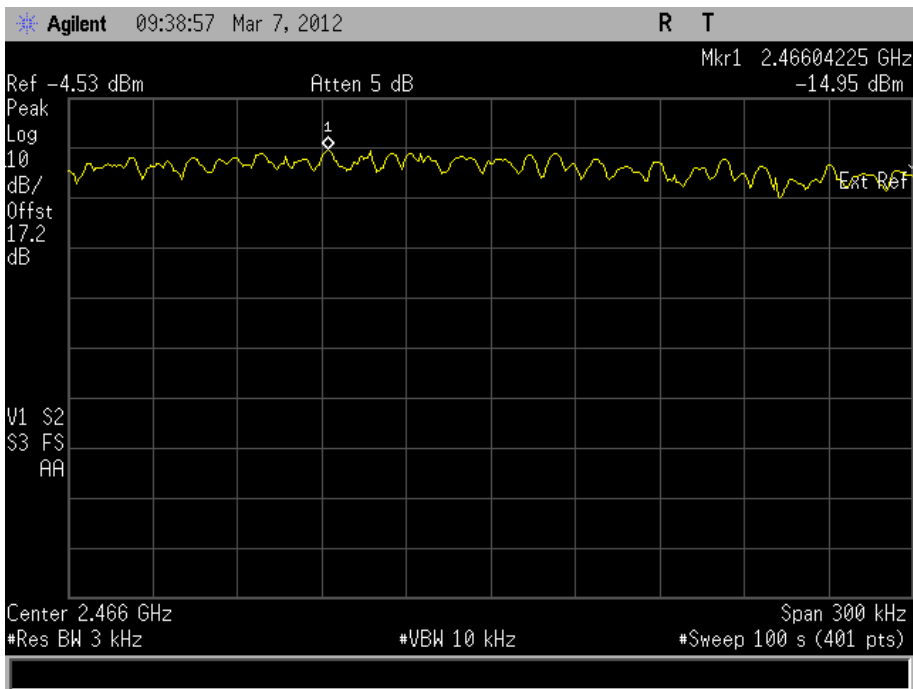


Product Service

12 Mbps



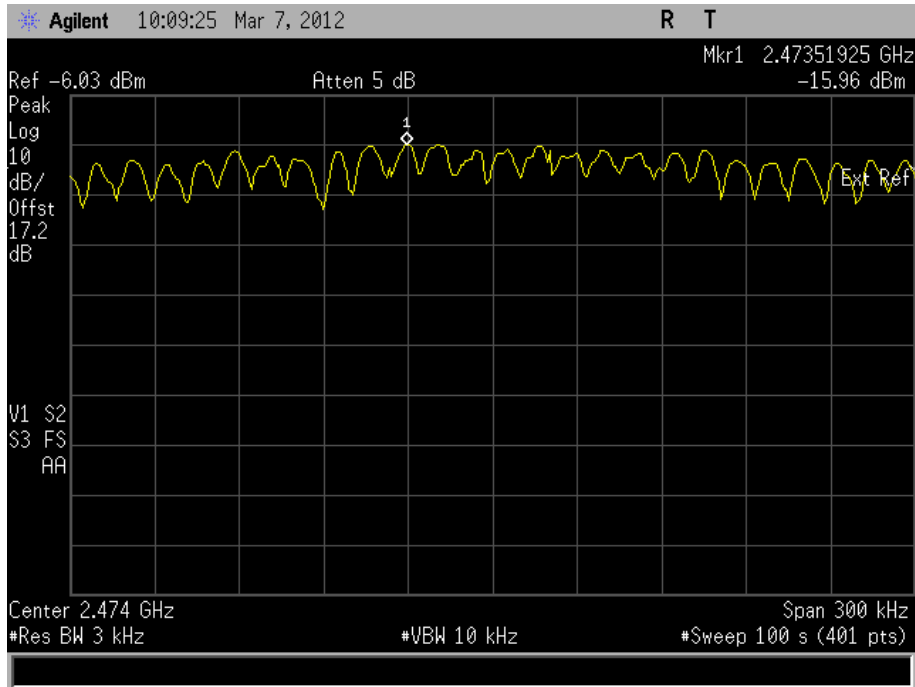
18 Mbps



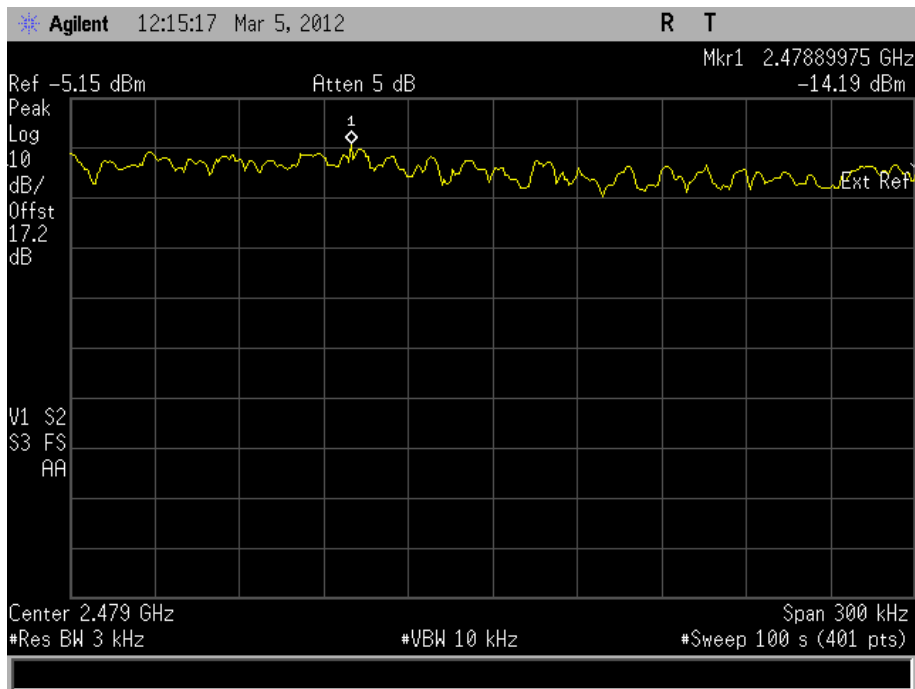


Product Service

24 Mbps



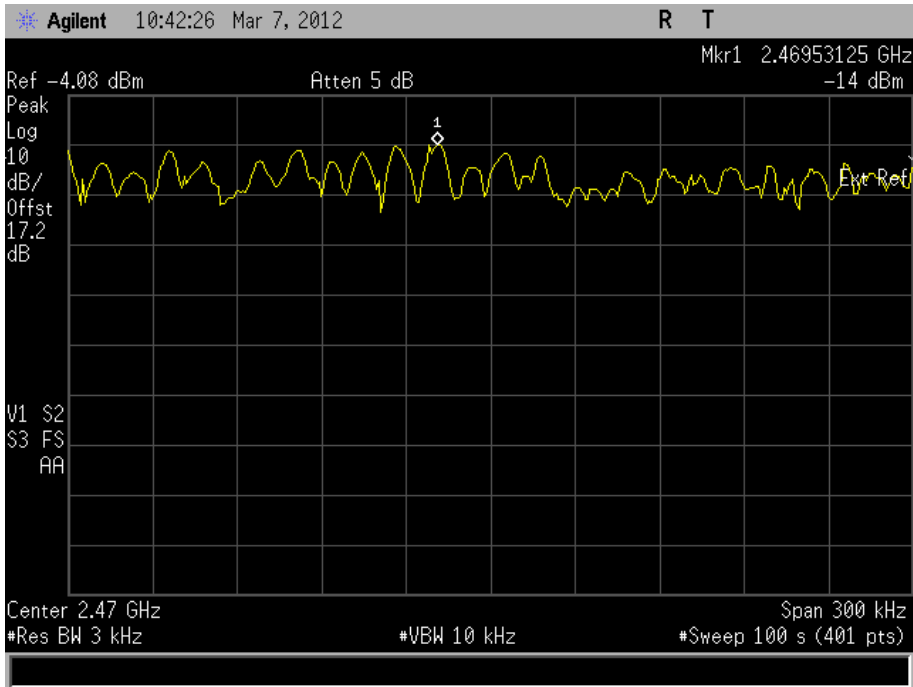
36 Mbps



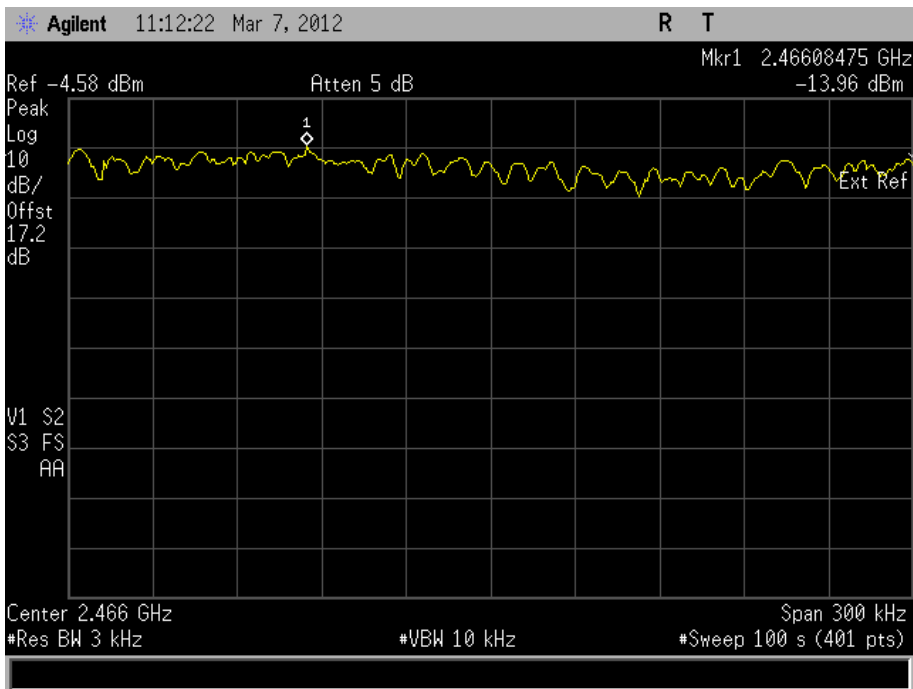


Product Service

48 Mbps



54 Mbps



Limit Clause

The minimum 6 dB Bandwidth shall be at least 500 kHz.



Product Service

802.11(n) - 2.4 GHz 20 MHz BW

4V, 3.3V and 1.2V DC Supply

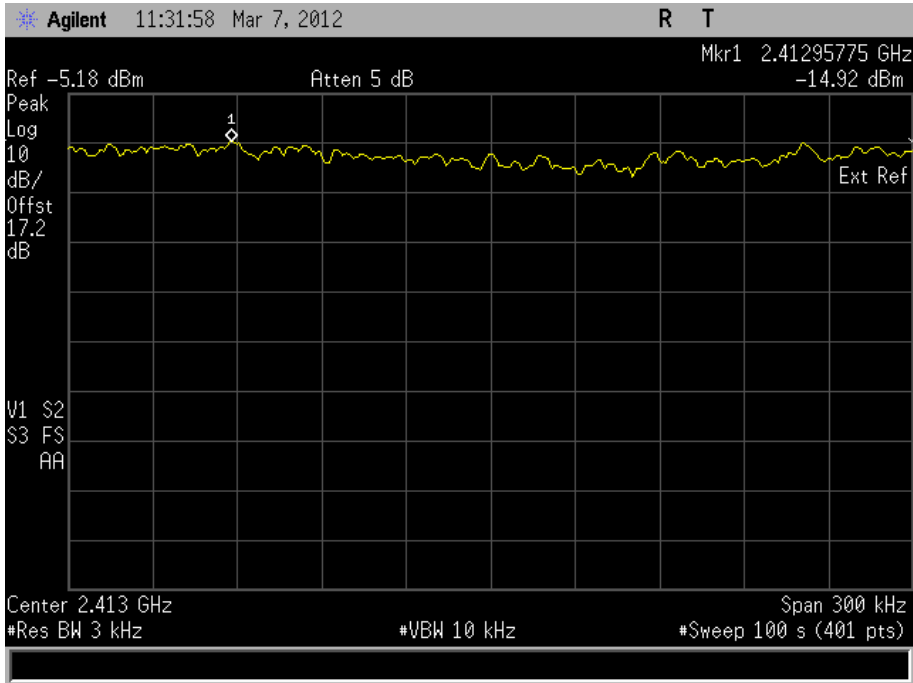
Frequency (MHz)	Data Rate (Mbps)	Power Spectral Density in 3 kHz Bands
2412 MHz	7.20	-14.92
	14.40	-14.19
	21.70	-14.29
	28.90	-14.47
	43.30	-15.04
	57.80	-12.70
	65.00	-14.24
	72.20	-14.83
2437 MHz	7.20	-15.02
	14.40	-14.07
	21.70	-14.98
	28.90	-15.07
	43.30	-14.46
	57.80	-13.57
	65.00	-14.86
	72.20	-14.84
2462 MHz	7.20	-14.85
	14.40	-14.79
	21.70	-12.73
	28.90	-14.54
	43.30	-14.26
	57.80	-15.16
	65.00	-15.11
	72.20	-14.74



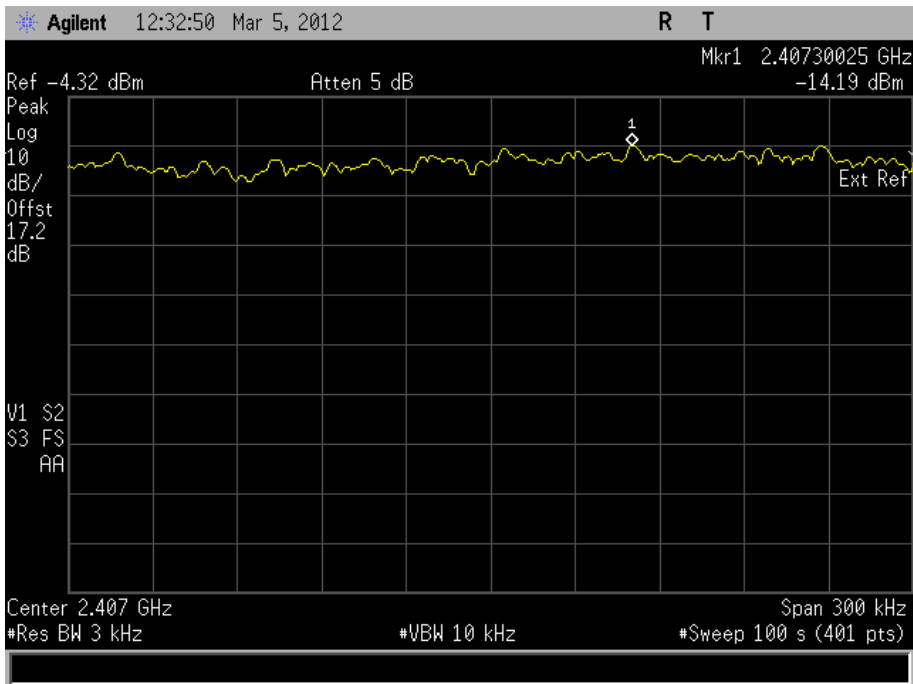
Product Service

2412 MHz

6.5 Mbps



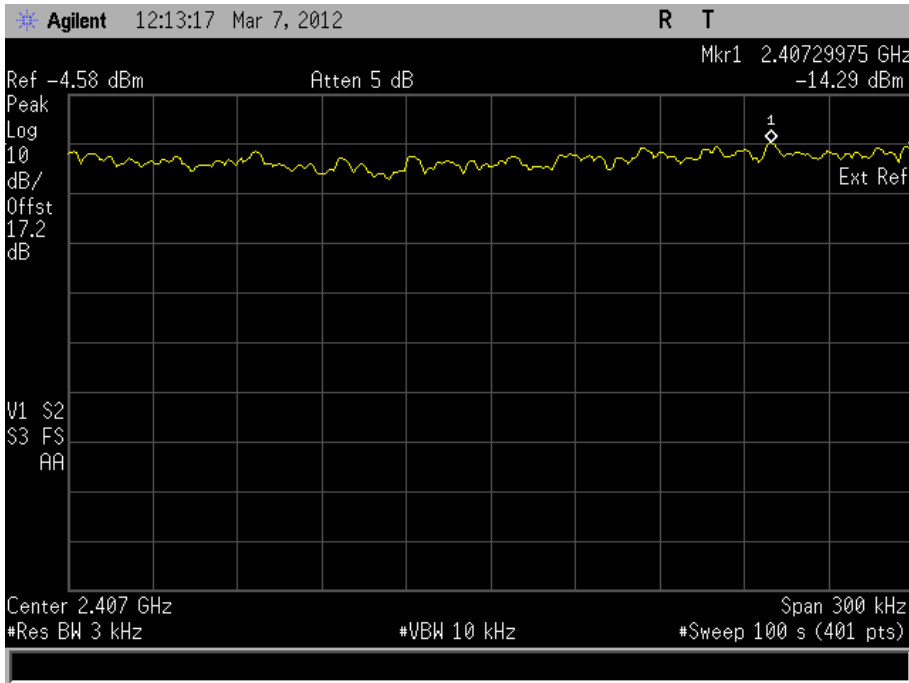
13 Mbps



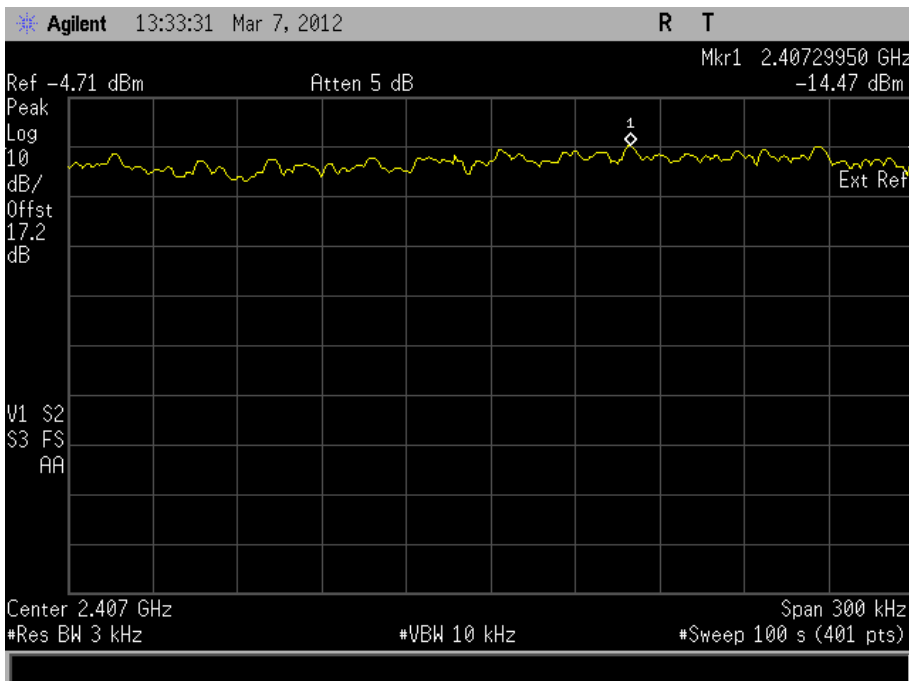


Product Service

19.5 Mbps



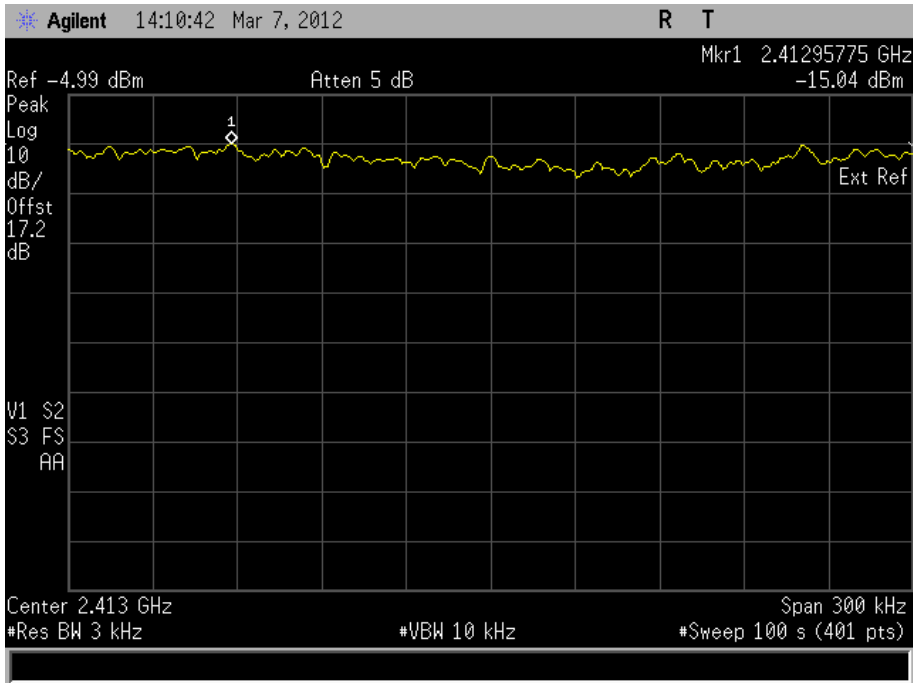
26 Mbps



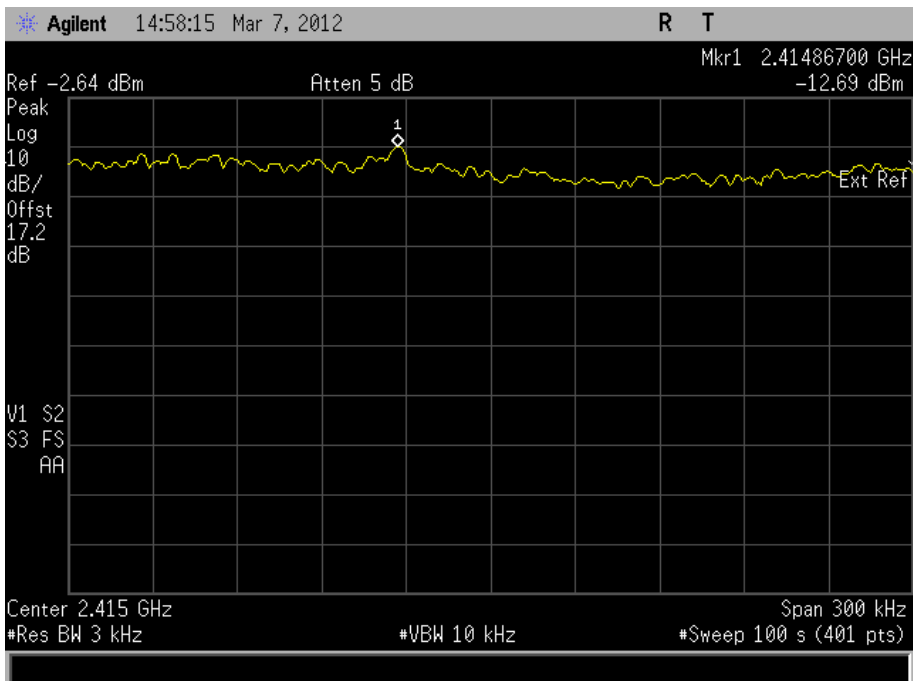


Product Service

39 Mbps



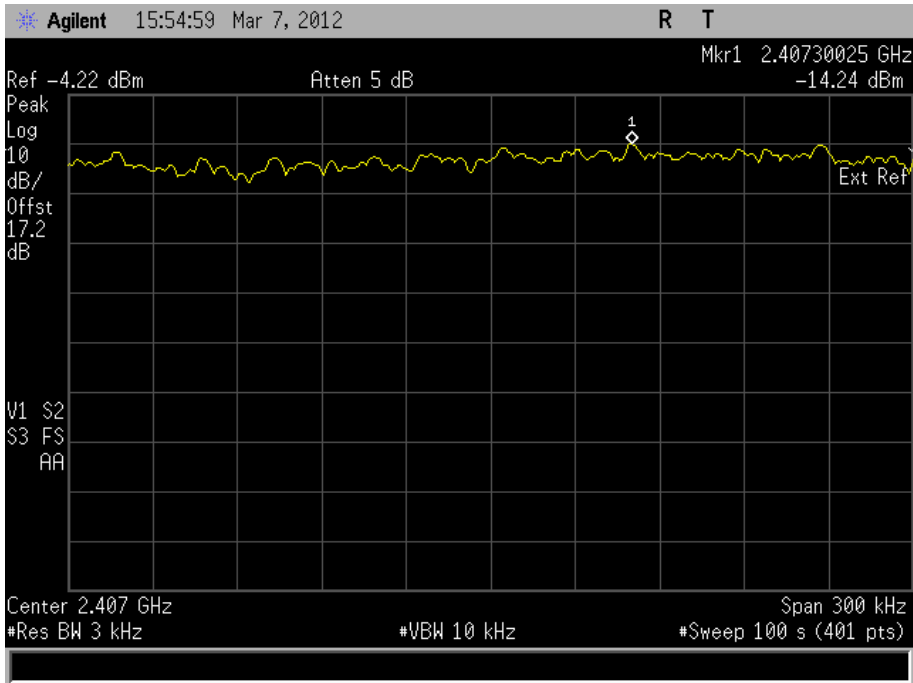
52 Mbps



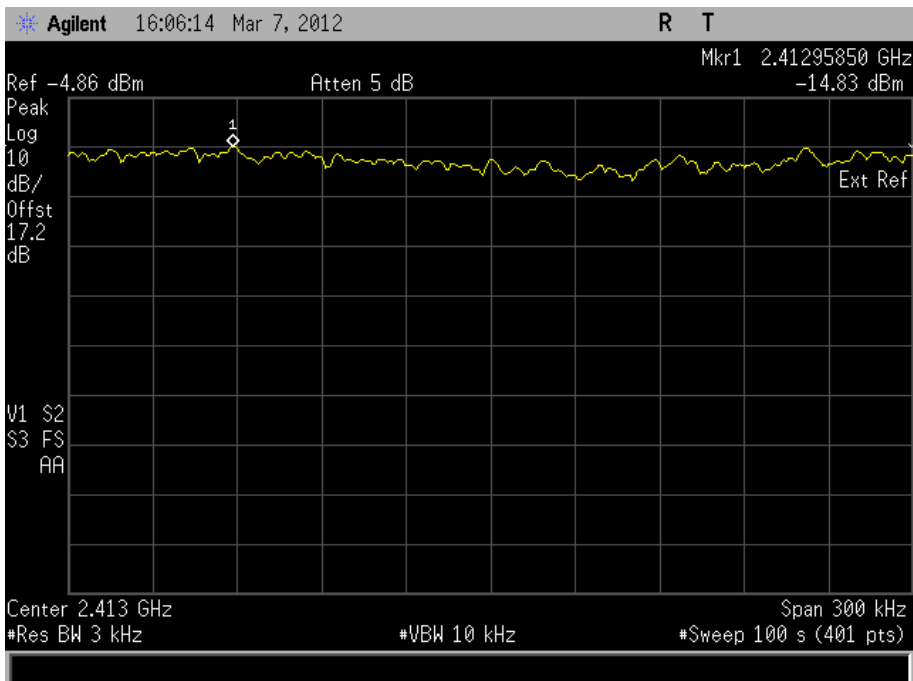


Product Service

58.5 Mbps



65 Mbps

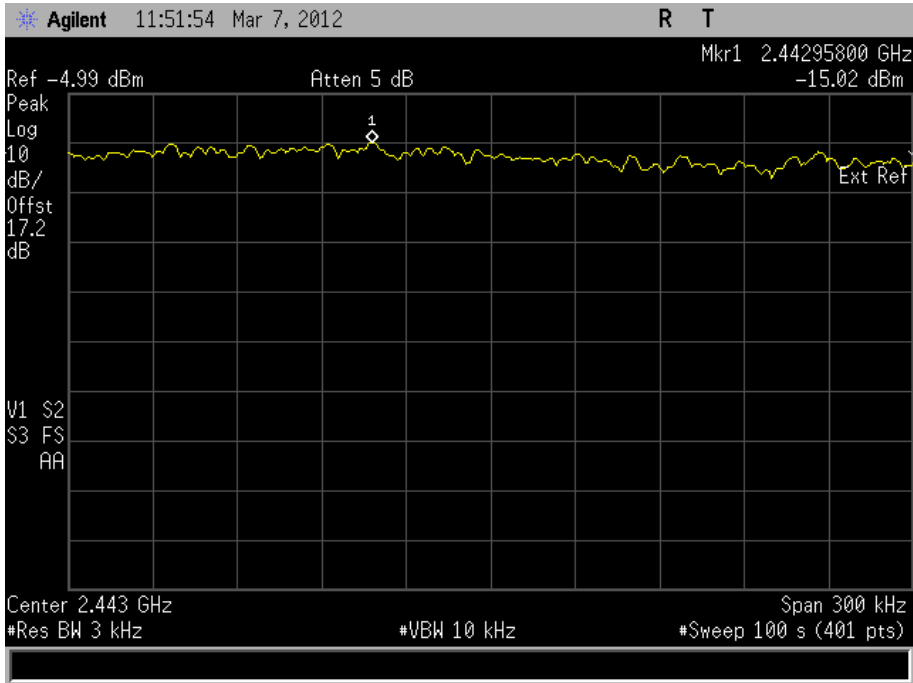




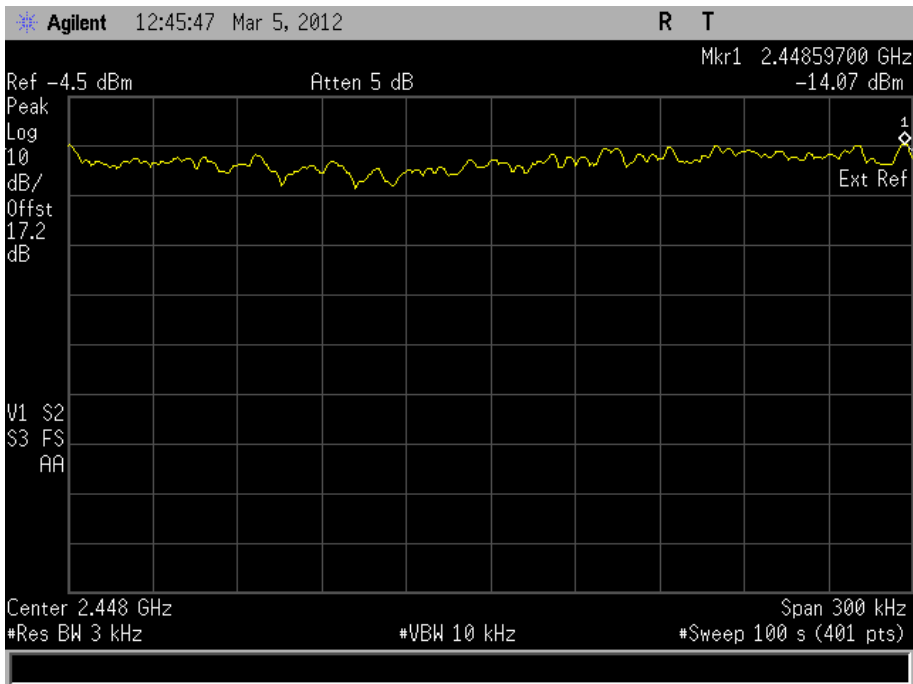
Product Service

2437 MHz

6.5 Mbps



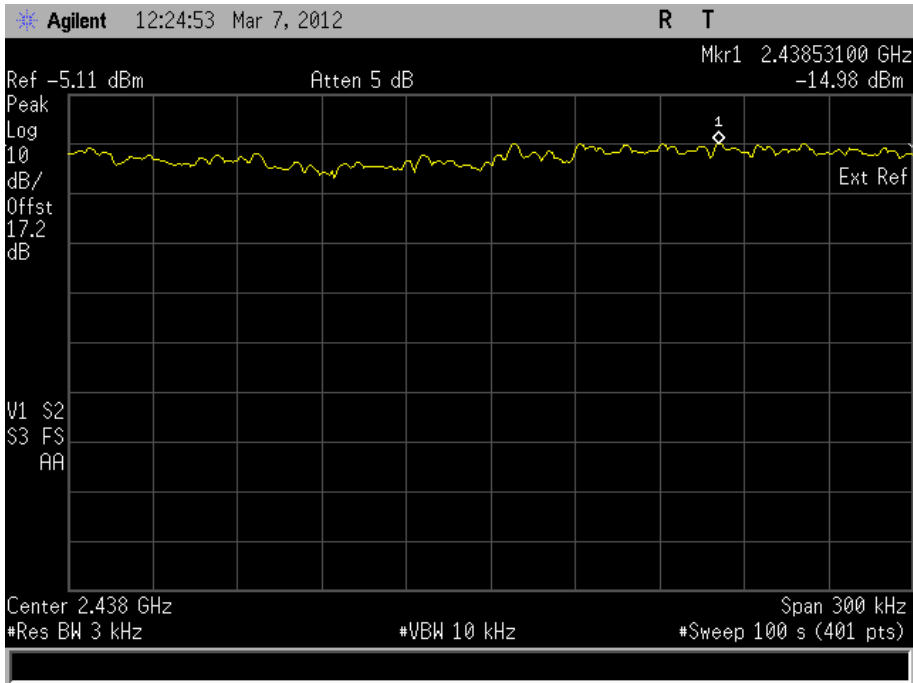
13 Mbps



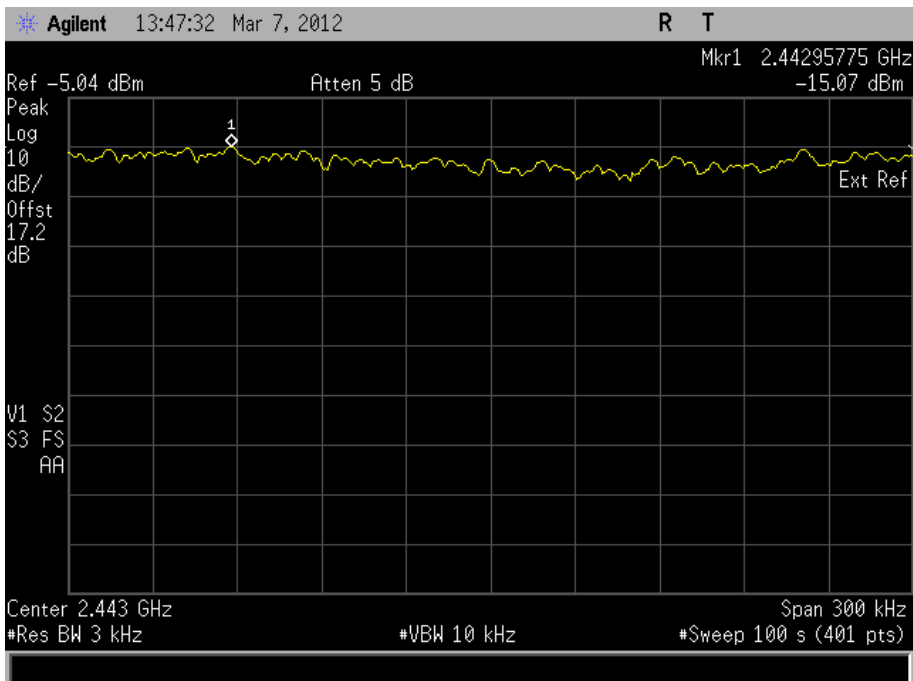


Product Service

19.5 Mbps



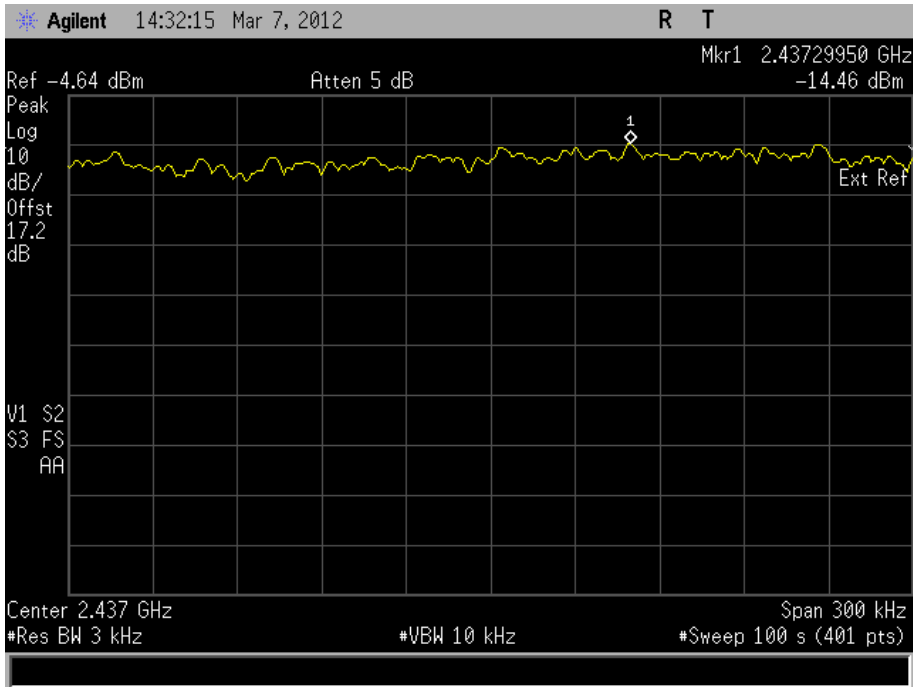
26 Mbps



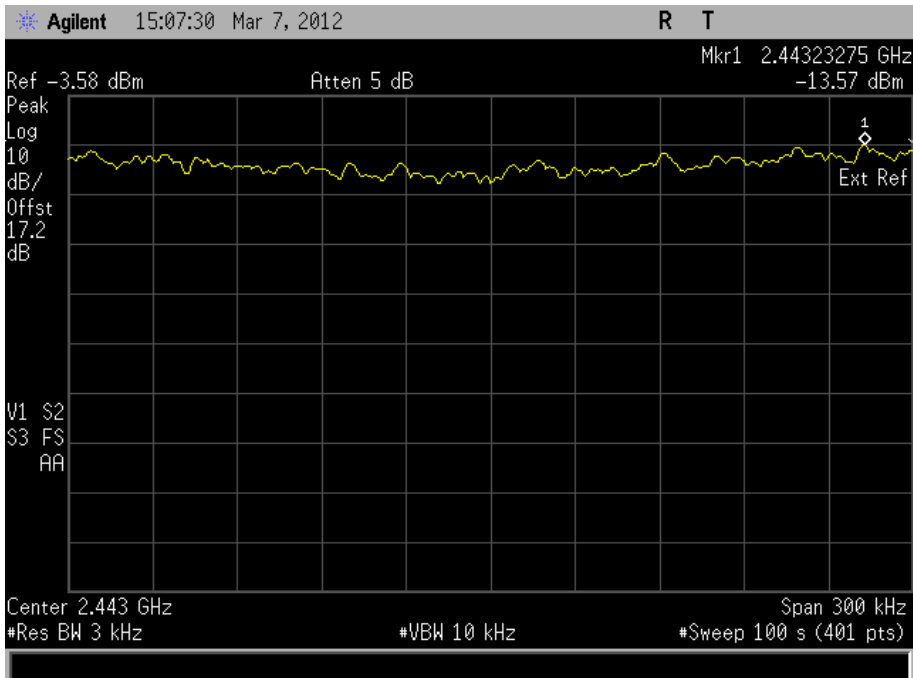


Product Service

39 Mbps



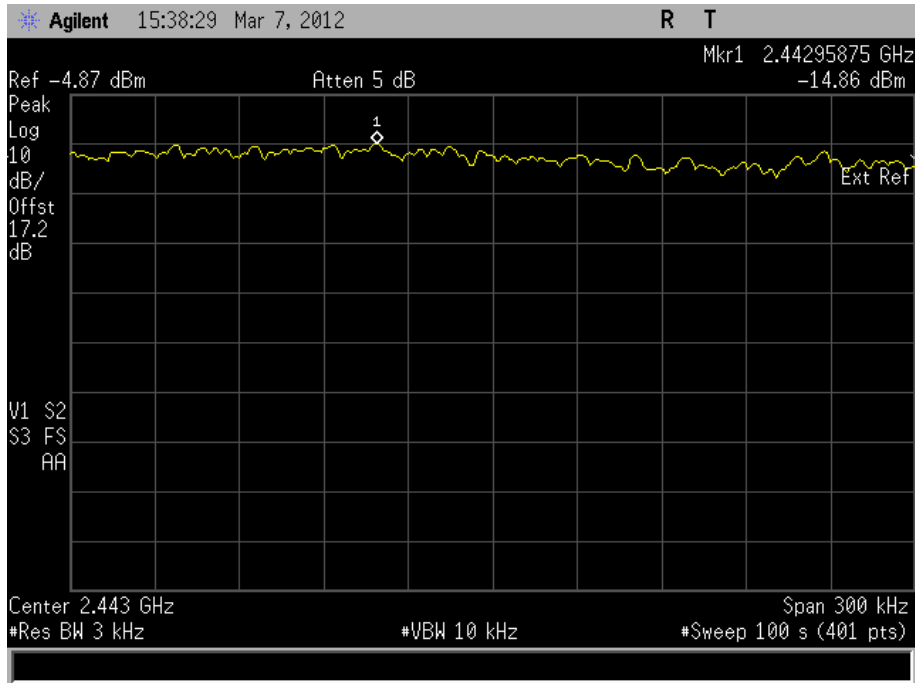
52 Mbps



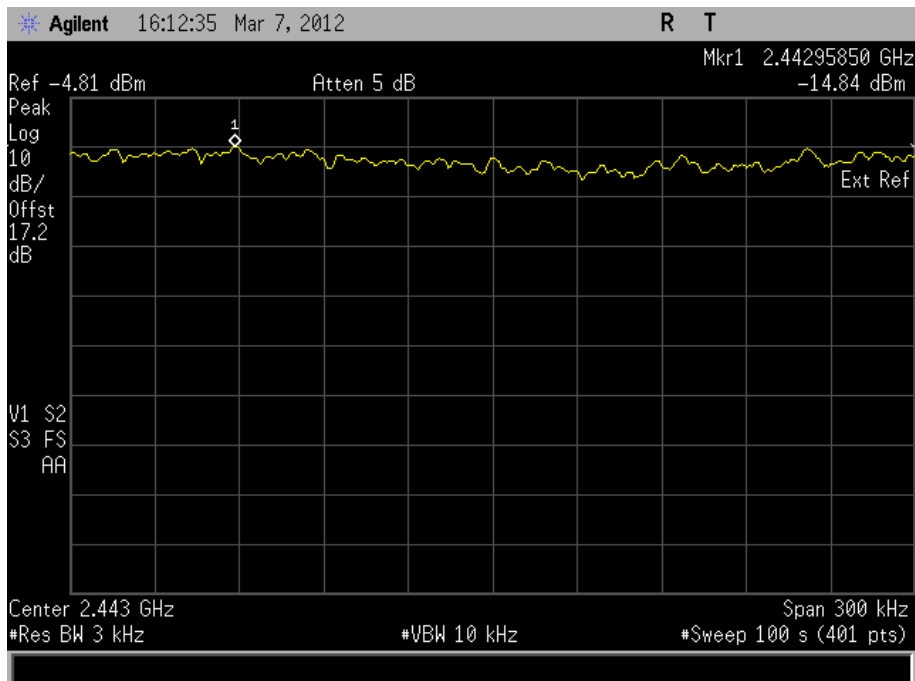


Product Service

58.5 Mbps



65 Mbps

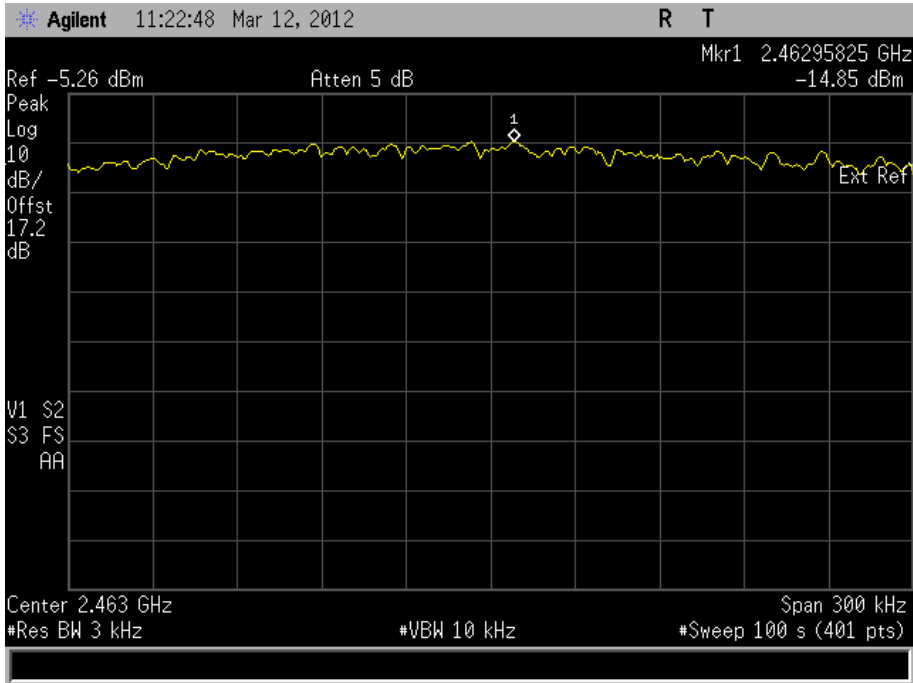




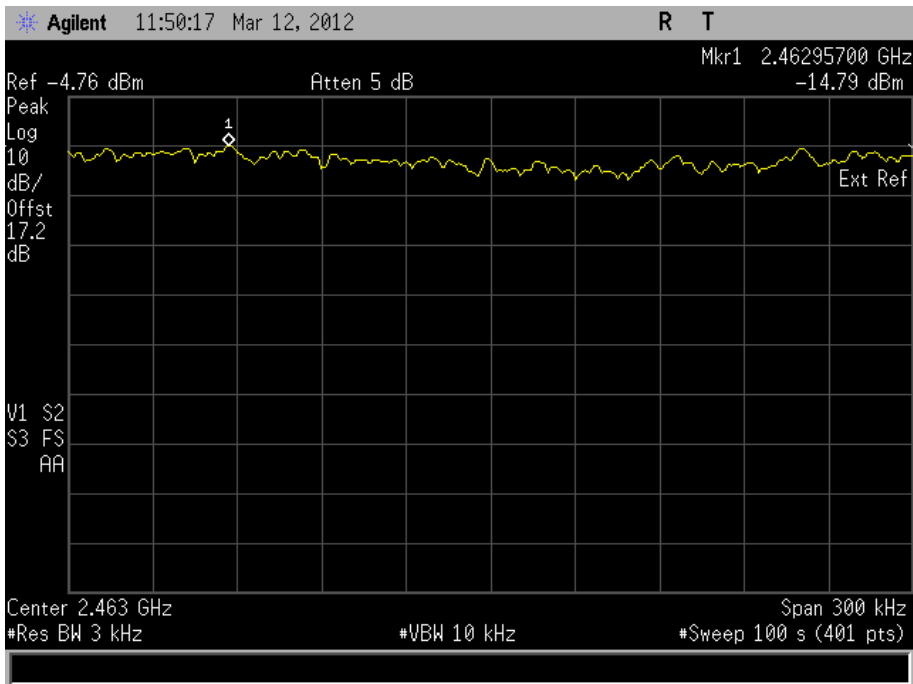
Product Service

2462 MHz

6.5 Mbps



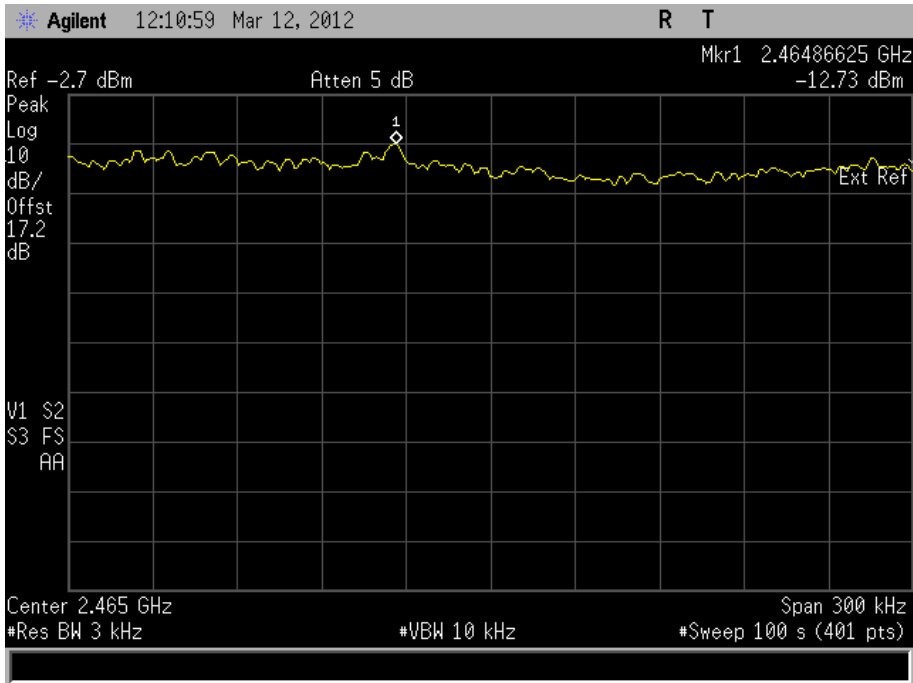
13 Mbps



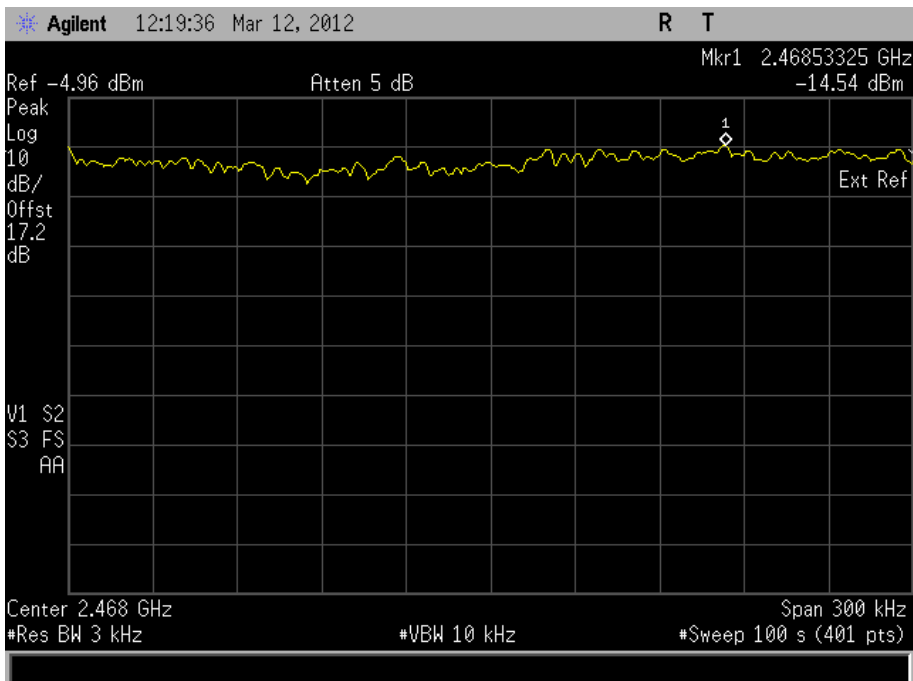


Product Service

19.5 Mbps



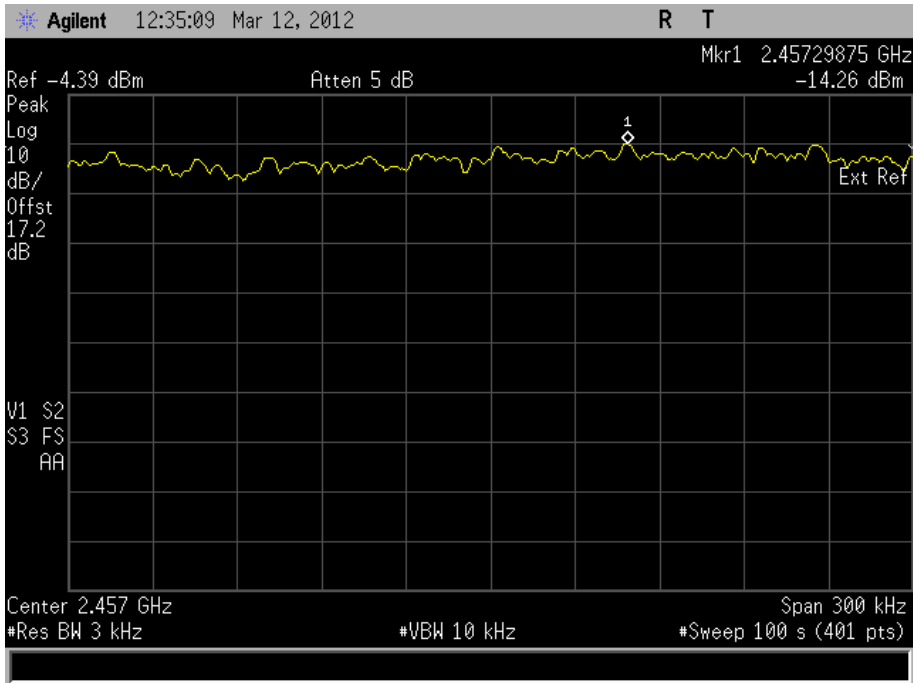
26 Mbps



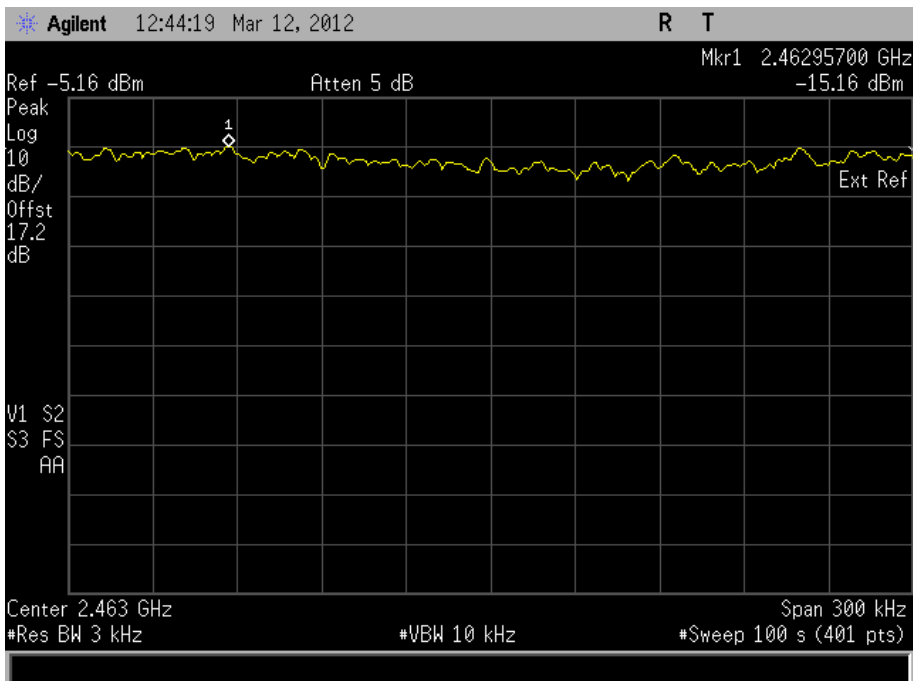


Product Service

39 Mbps



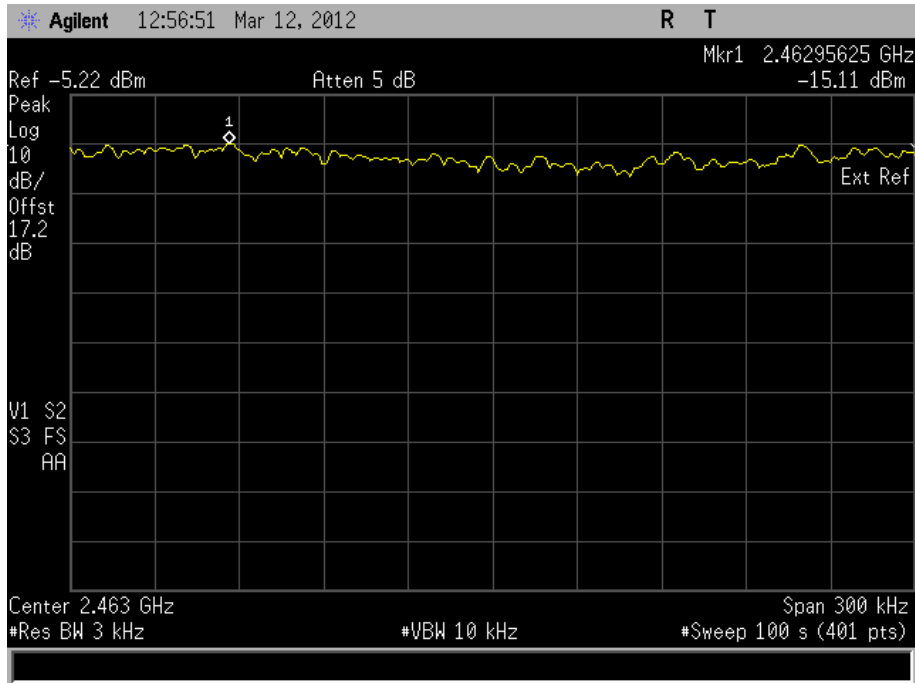
52 Mbps



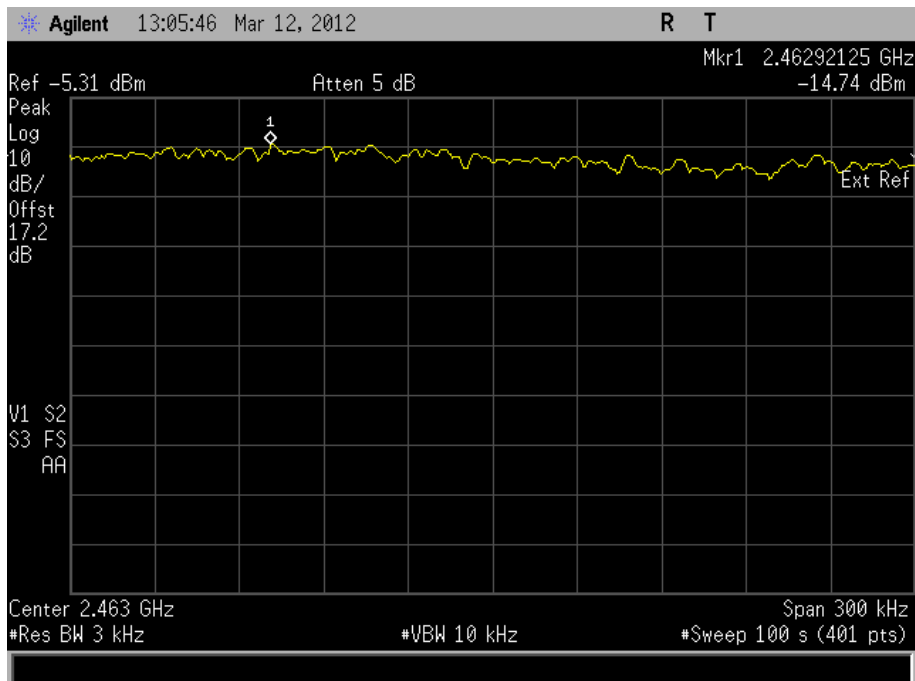


Product Service

58.5 Mbps



65 Mbps



Limit Clause

The minimum 6 dB Bandwidth shall be at least 500 kHz.



Product Service

802.11(n) - 2.4 GHz, 40 MHz BW

4V, 3.3V and 1.2V DC Supply

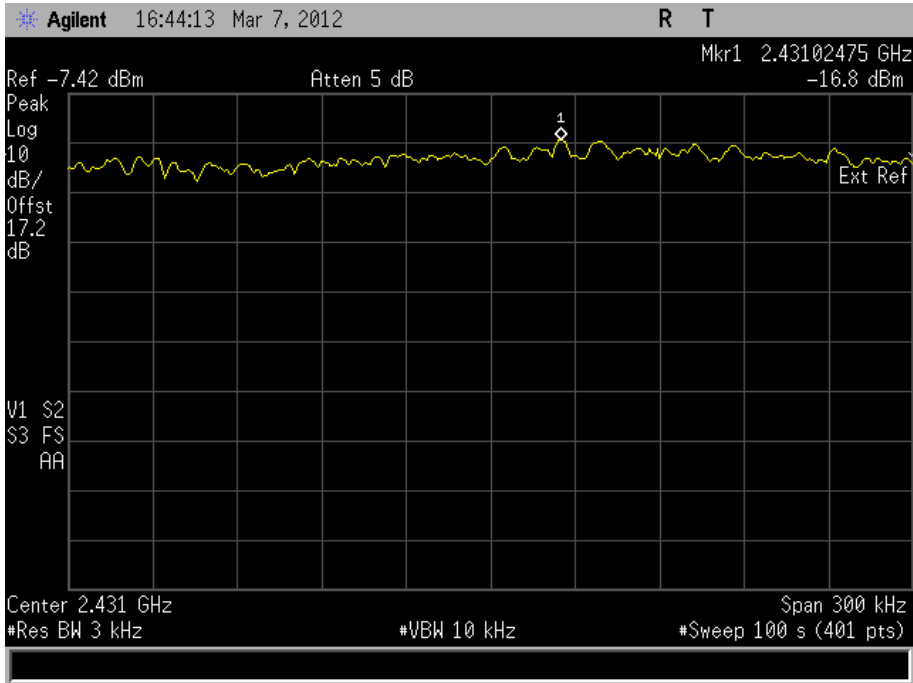
Frequency (MHz)	Data Rate (Mbps)	Power Spectral Density in 3 kHz Bands
2422 MHz	15.00	-16.80
	30.00	-17.59
	45.00	-15.75
	60.00	-17.86
	90.00	-16.68
	120.00	-18.20
	135.00	-17.29
	150.00	-18.16
2437 MHz	15.00	-15.82
	30.00	-17.25
	45.00	-15.38
	60.00	-17.37
	90.00	-17.62
	120.00	-18.50
	135.00	-17.33
	150.00	-16.94
2452 MHz	15.00	-17.08
	30.00	-17.62
	45.00	-15.39
	60.00	-17.31
	90.00	-17.76
	120.00	-18.35
	135.00	-16.59
	150.00	-17.05



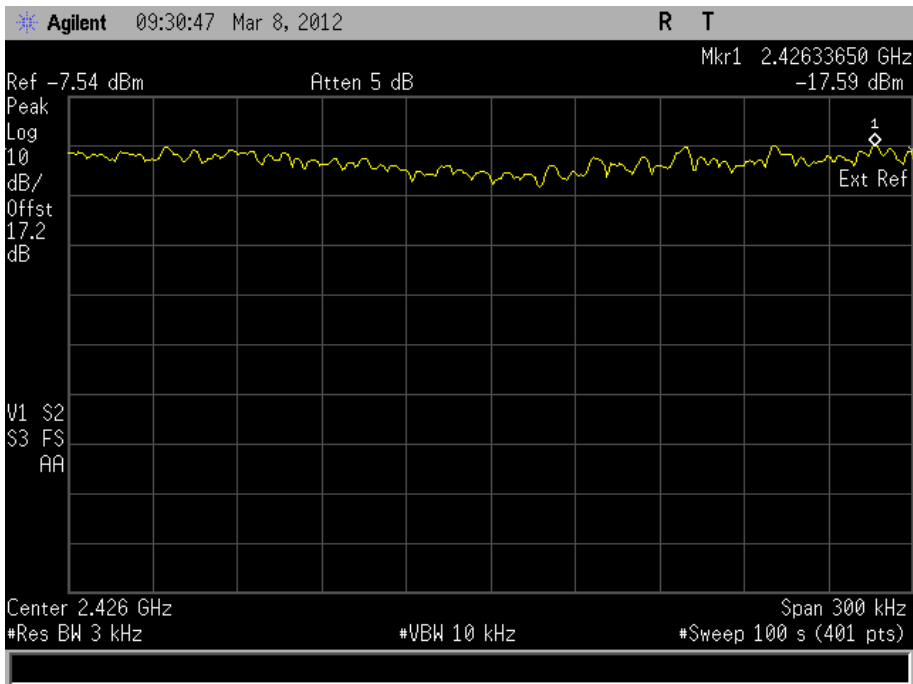
Product Service

2422 MHz

6.5 Mbps



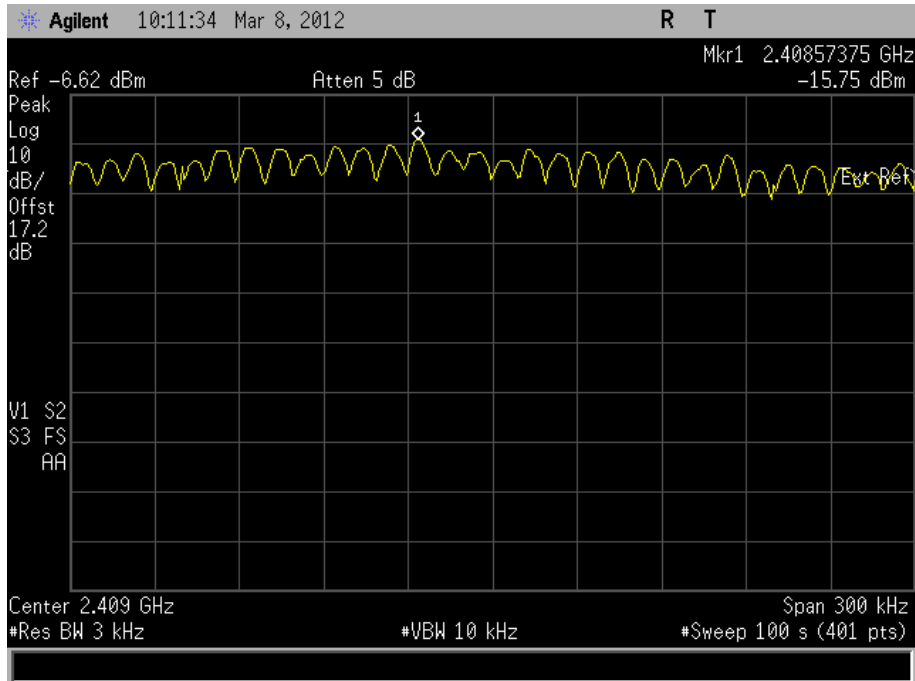
13 Mbps



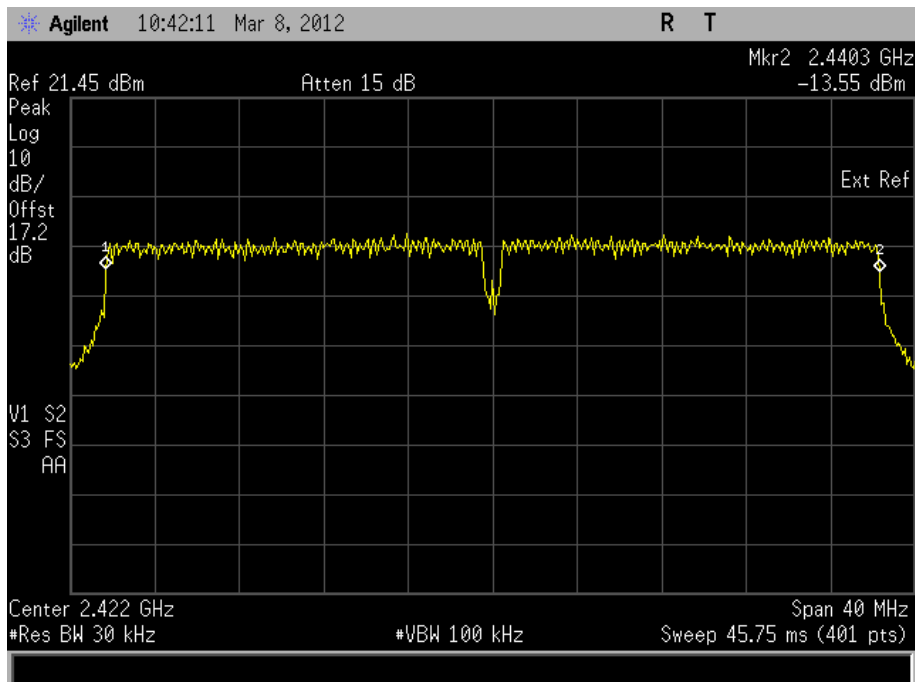


Product Service

19.5 Mbps



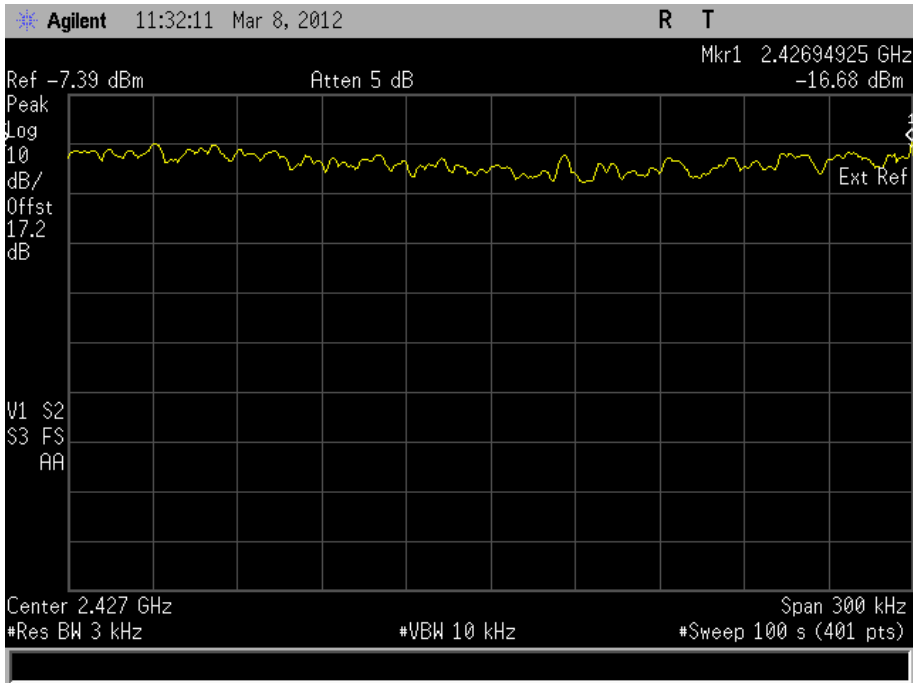
26 Mbps



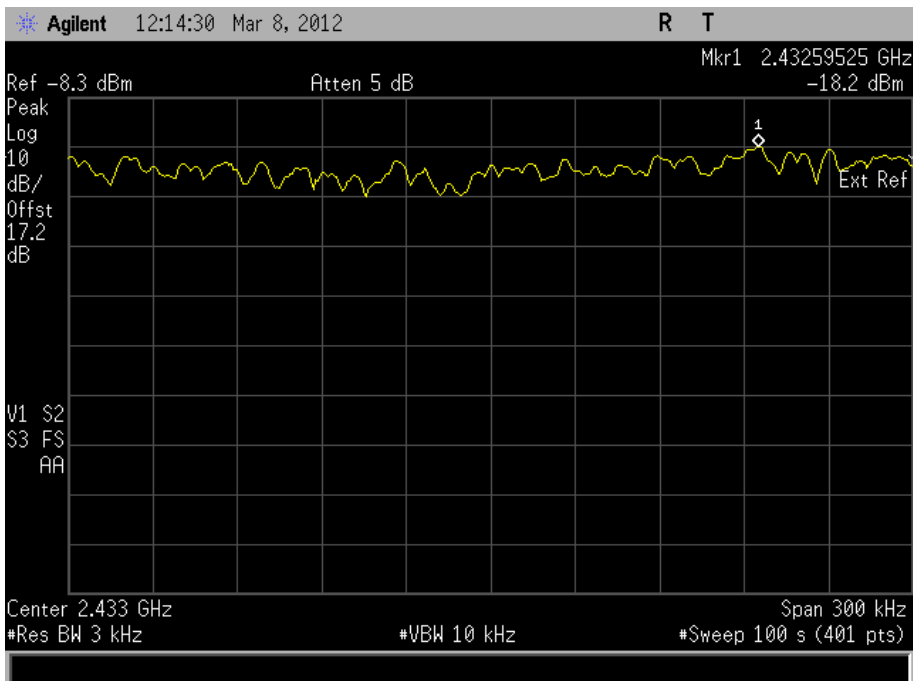


Product Service

39 Mbps



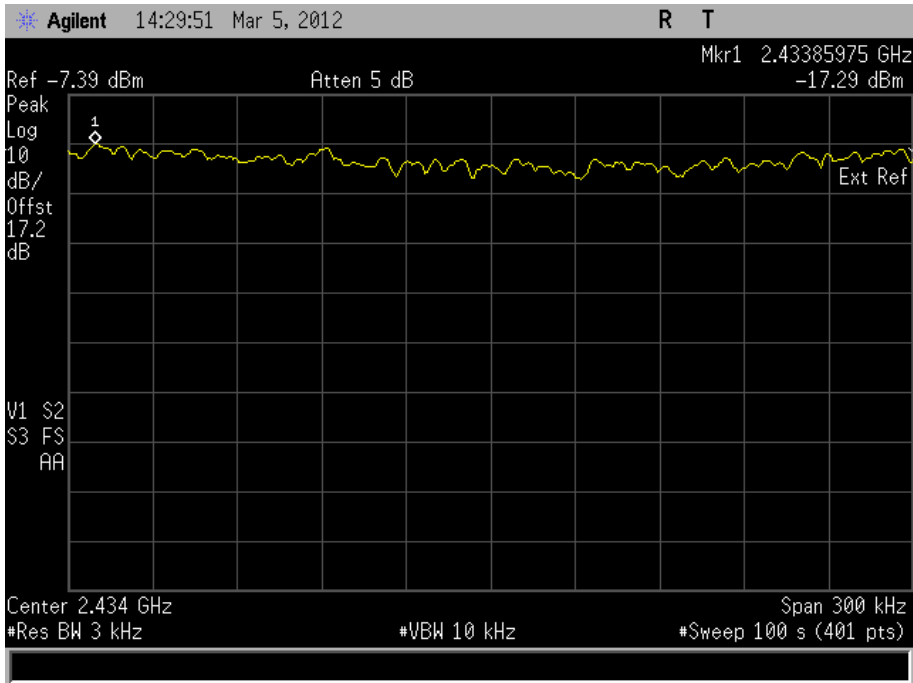
52 Mbps



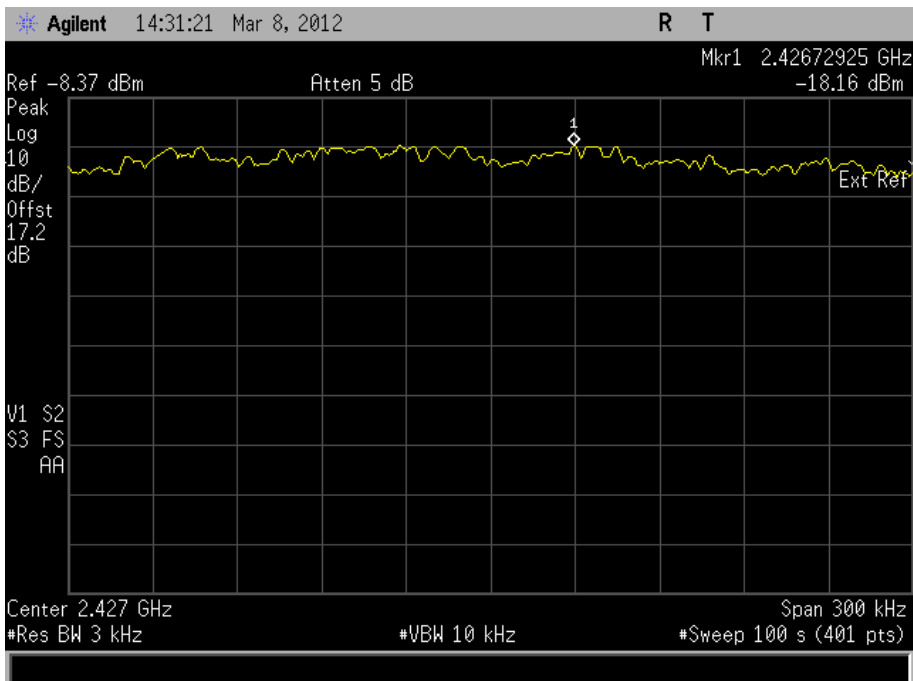


Product Service

58.5 Mbps



65 Mbps

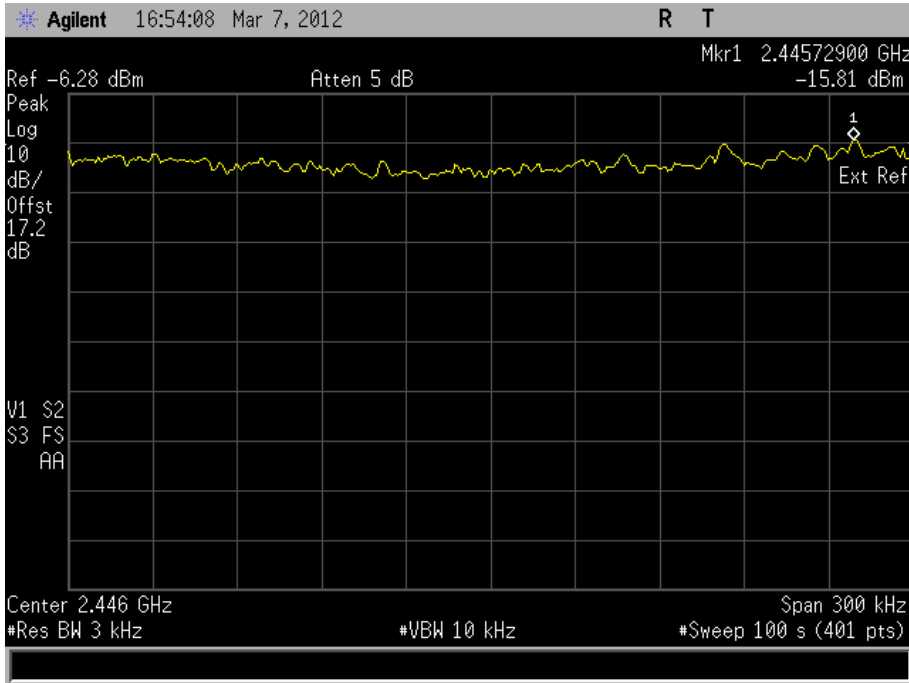




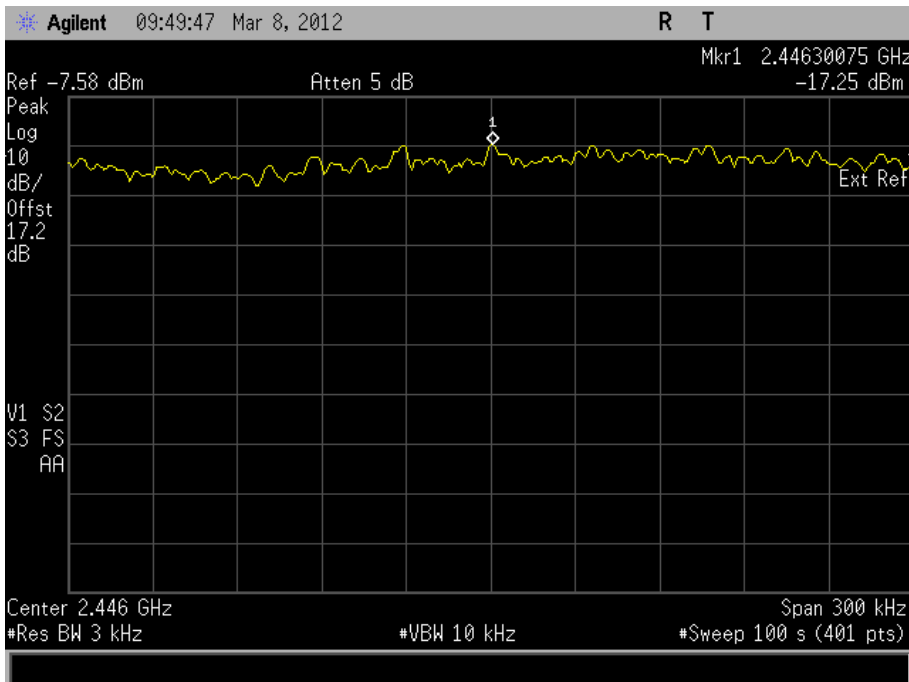
Product Service

2437 MHz

6.5 Mbps



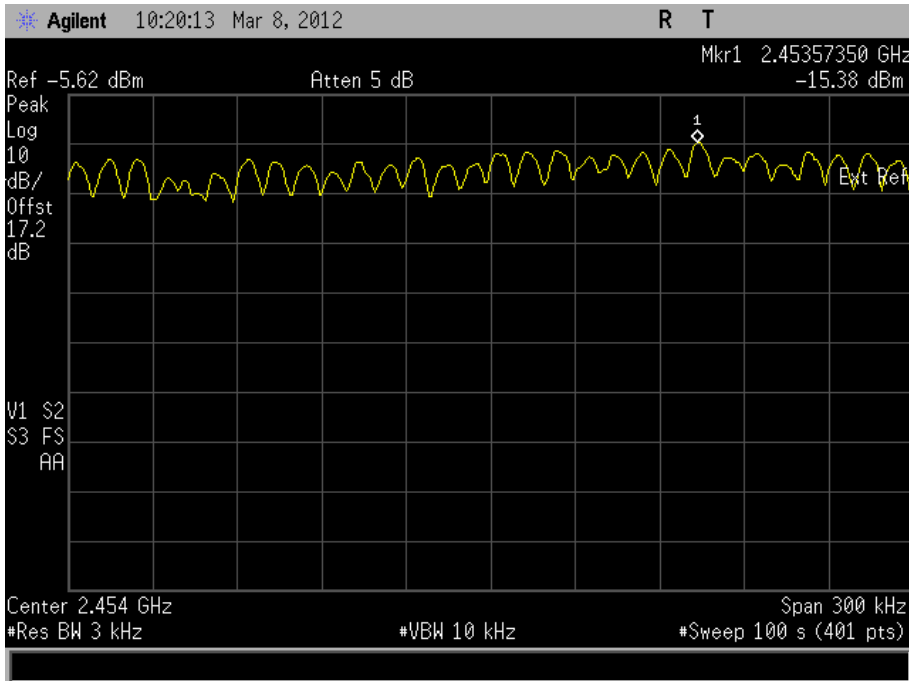
13 Mbps



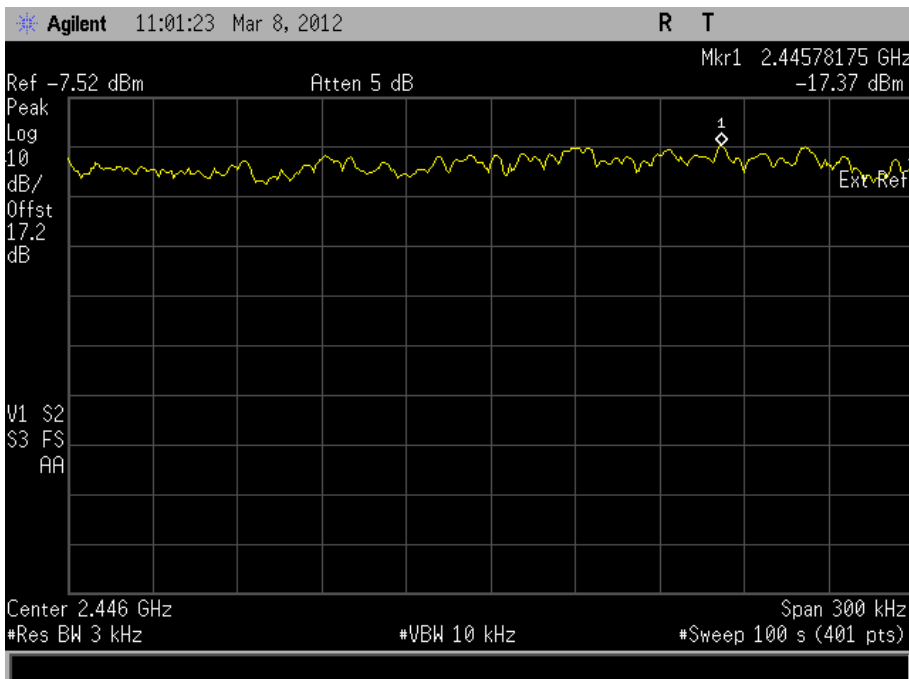


Product Service

19.5 Mbps



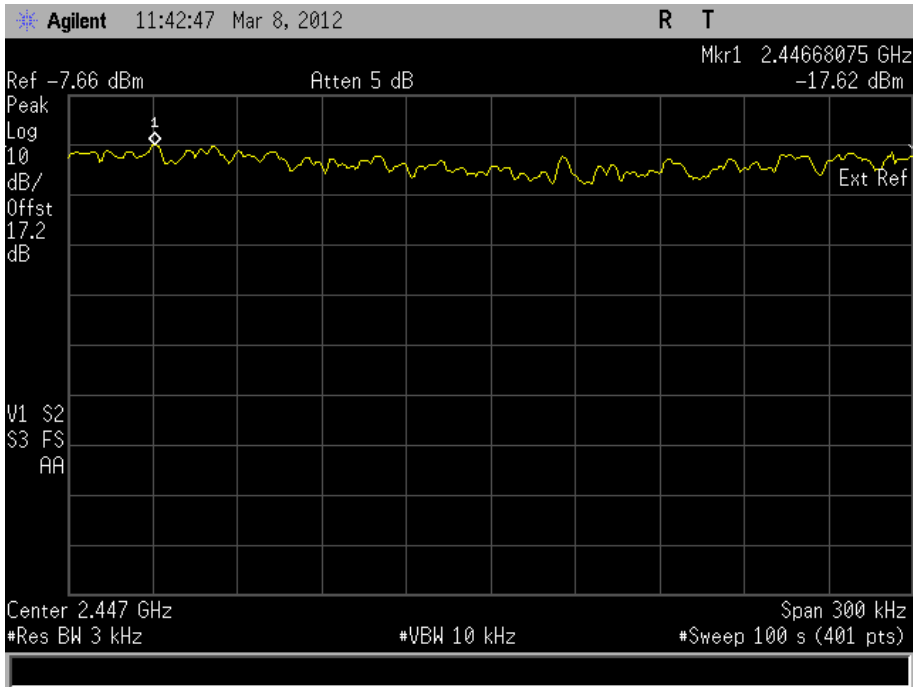
26 Mbps



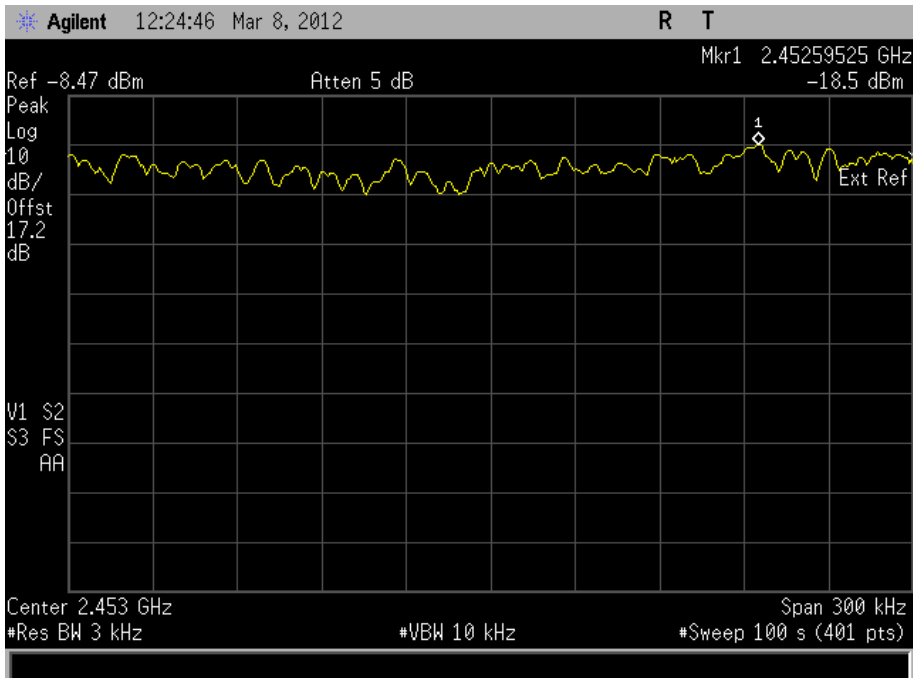


Product Service

39 Mbps



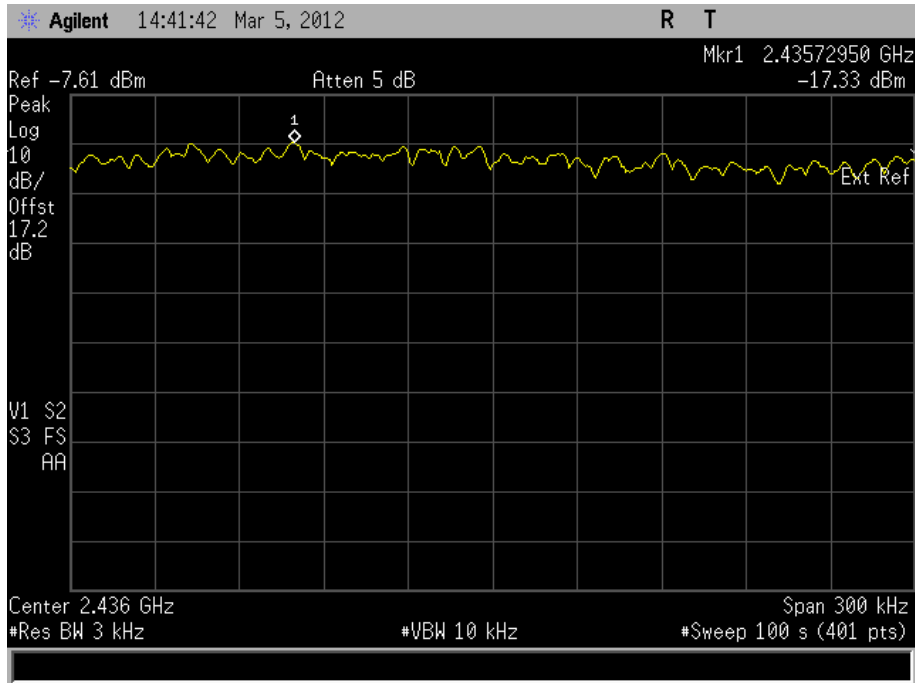
52 Mbps



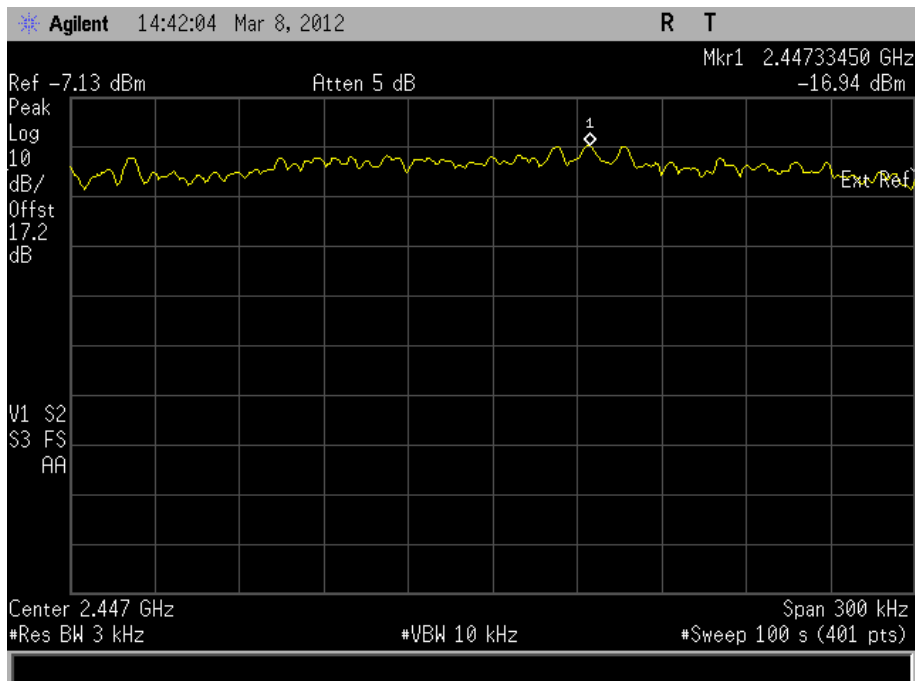


Product Service

58.5 Mbps



65 Mbps

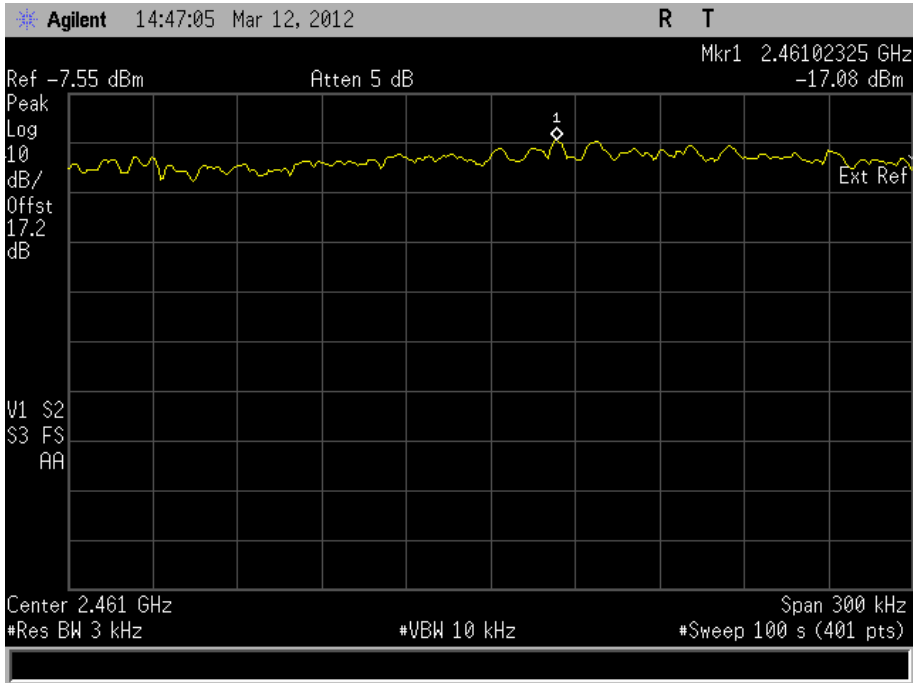




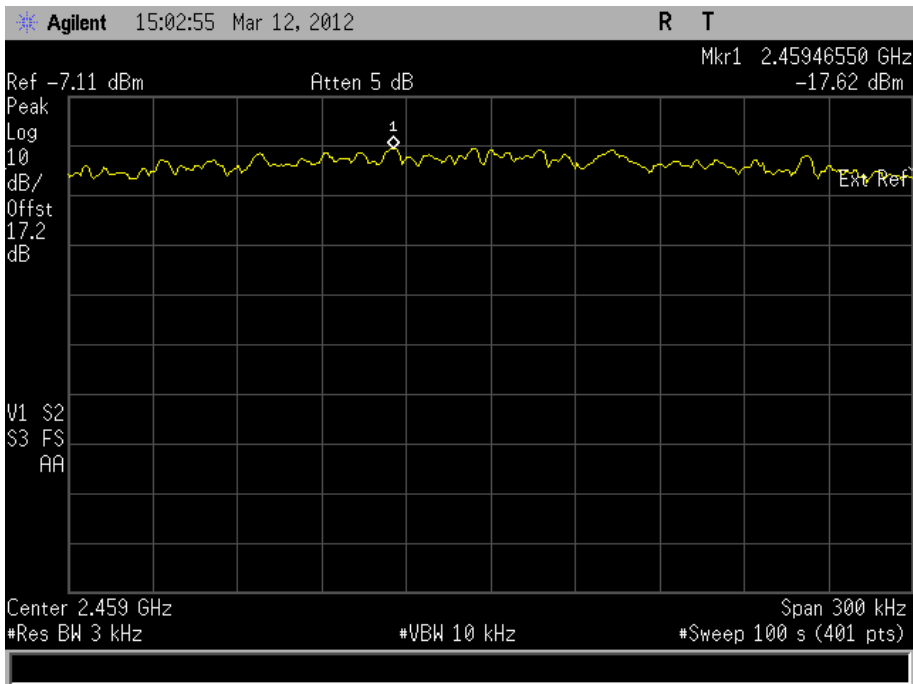
Product Service

2452 MHz

6.5 Mbps



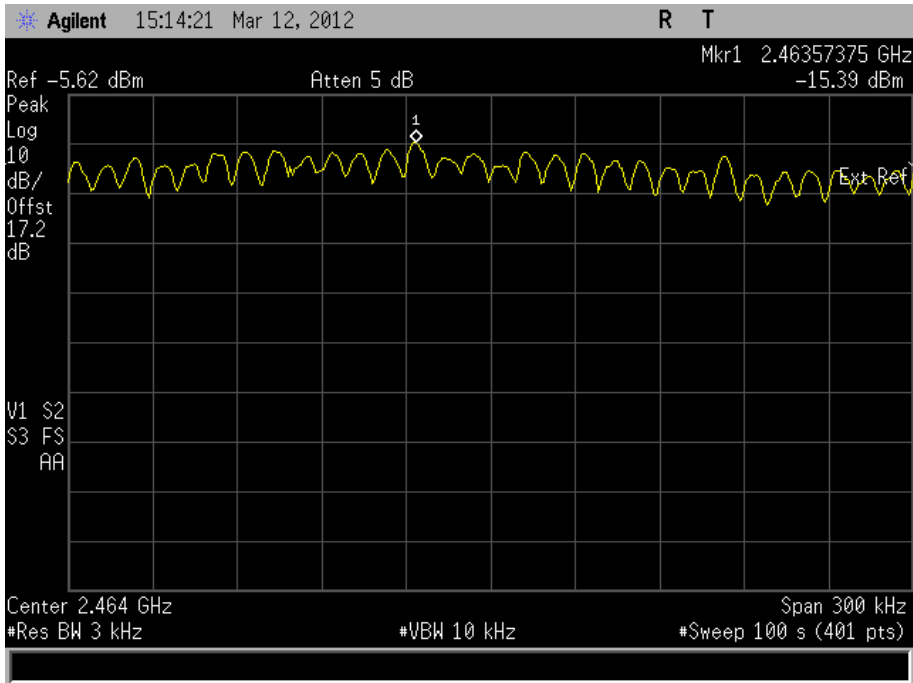
13 Mbps



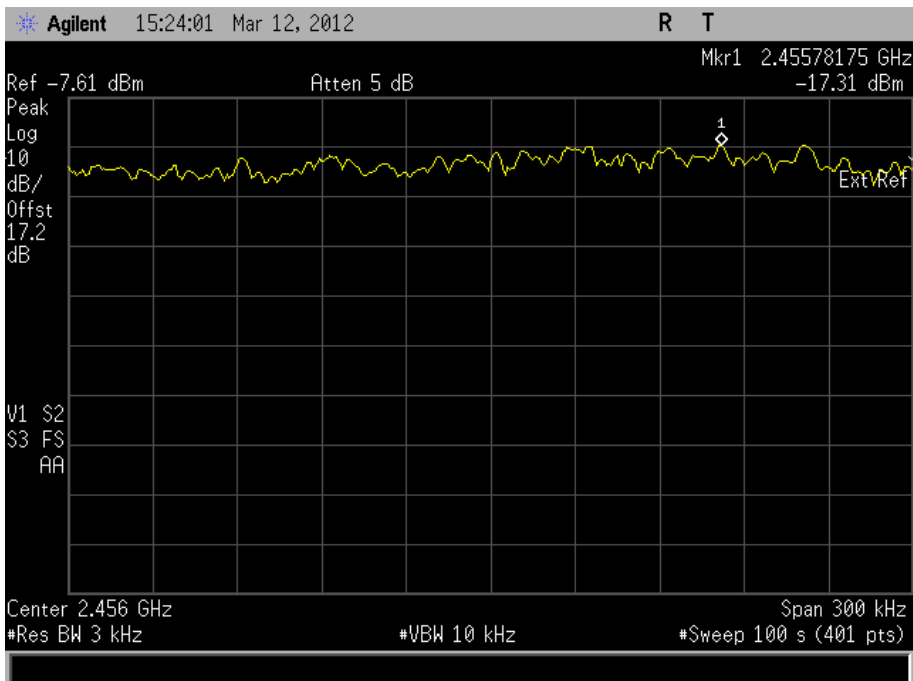


Product Service

19.5 Mbps



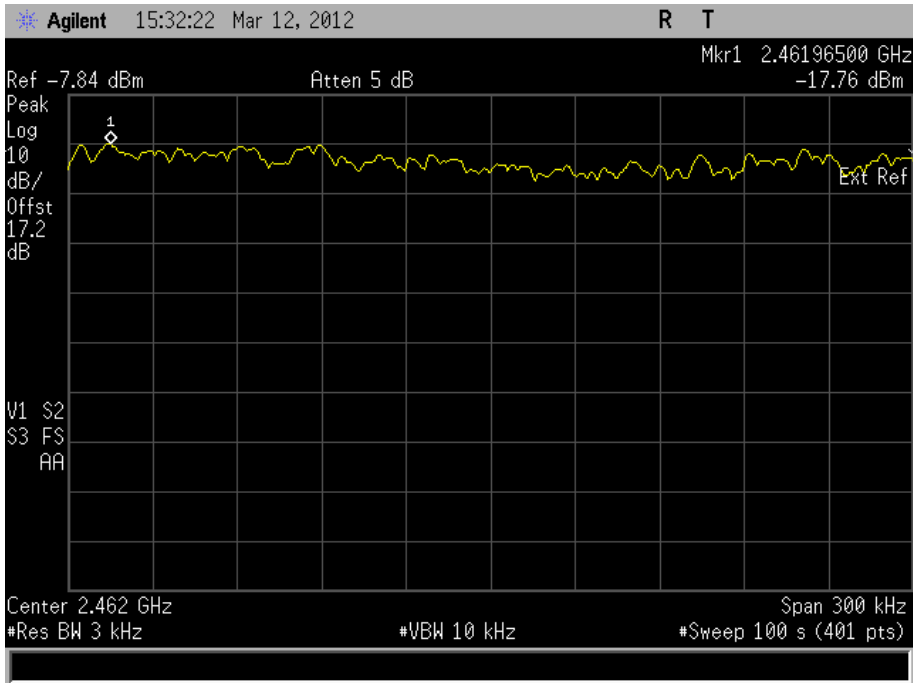
26 Mbps



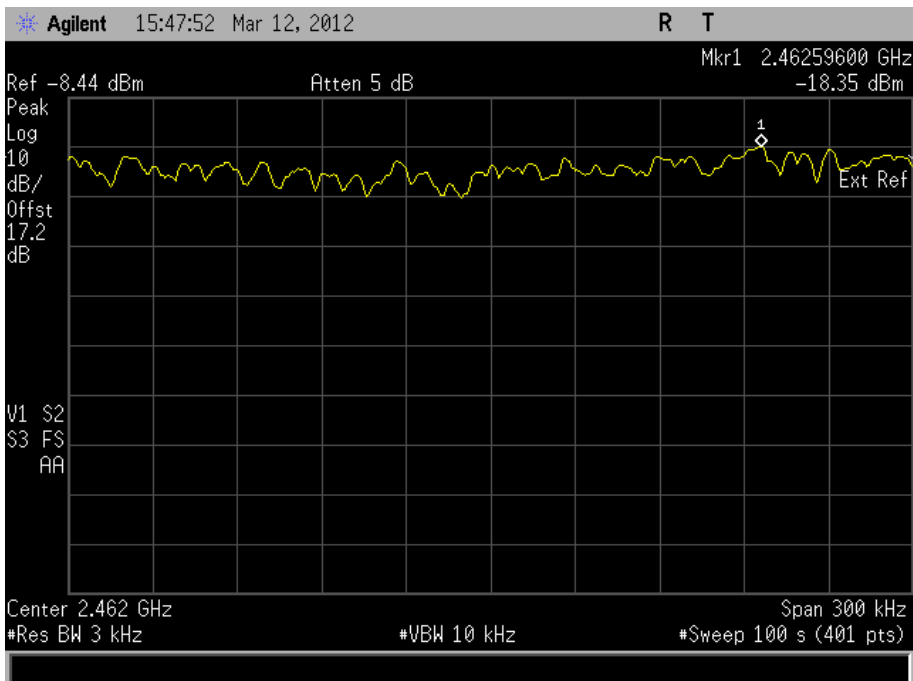


Product Service

39 Mbps



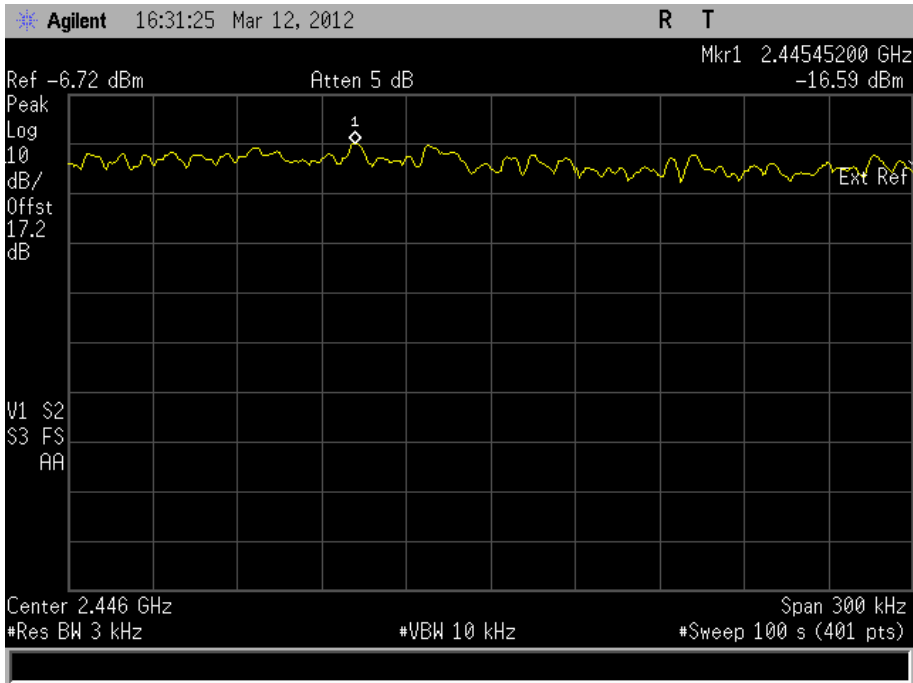
52 Mbps



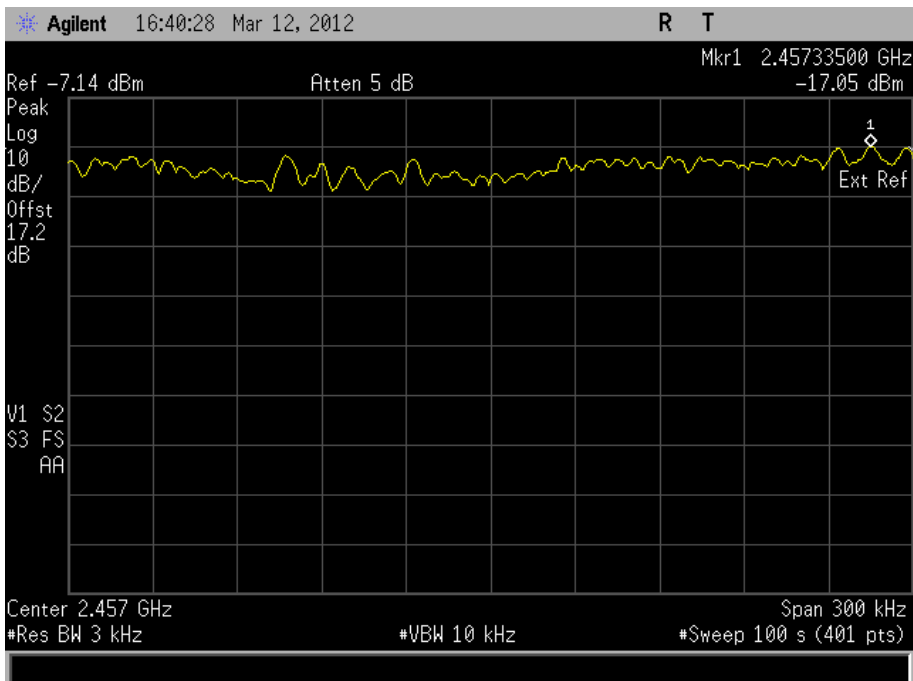


Product Service

58.5 Mbps



65 Mbps



Limit Clause

The minimum 6 dB Bandwidth shall be at least 500 kHz.



Product Service

2.6 6dB BANDWIDTH

2.6.1 Specification Reference

FCC CFR 47 Part 15C, Clause 15.247 (2)

2.6.2 Equipment Under Test and Modification State

Venice 6.5 S/N: RAD103037 on Test Jig S/N: RAD103234- Modification State 0
Venice 6.5 S/N: RAD103045 on Test Jig, S/N: RAD103235 - Modification State 0

2.6.3 Date of Test

5 March 2012, 6 March 2012, 7 March 2012 & 12 March 2012

2.6.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.6.5 Test Procedure

The EUT was transmitted at maximum power via a cable to the Spectrum Analyser. The Analyser settings were adjusted to display the resultant trace on screen. The peak point of the trace was measured and the markers positioned to give the -6dBc points of the displayed spectrum.

2.6.6 Environmental Conditions

Ambient Temperature	23.1 - 25.1°C
Relative Humidity	17.6 - 34.5%



Product Service

2.6.7 Test Results

802.11(b)

4V, 3.3V and 1.2V DC Supply

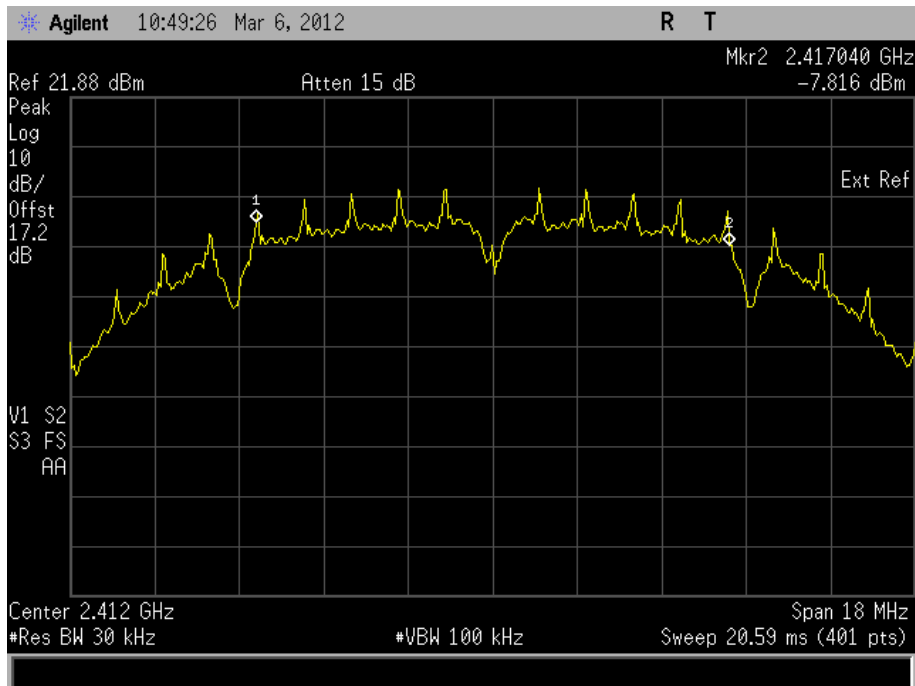
Frequency (MHz)	Data Rate (Mbps)	6dB Bandwidth (kHz)
2412 MHz	1	10080
	2	10125
	5	10260
	11	9630
2437 MHz	1	10125
	2	10125
	5	10260
	11	9630
2462 MHz	1	10125
	2	10125
	5	10080
	11	9630



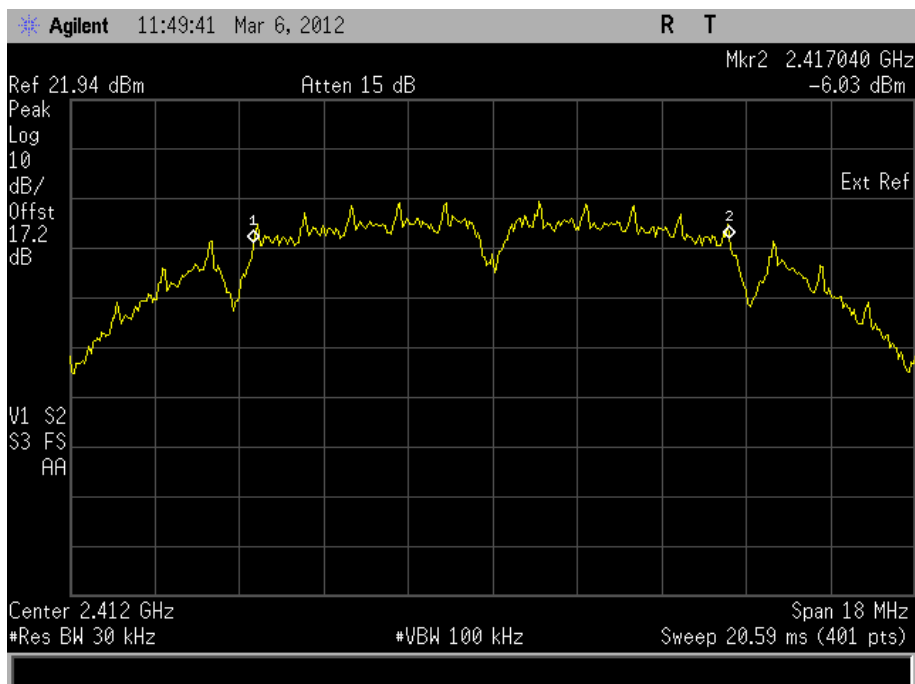
Product Service

2412 MHz

1 Mbps



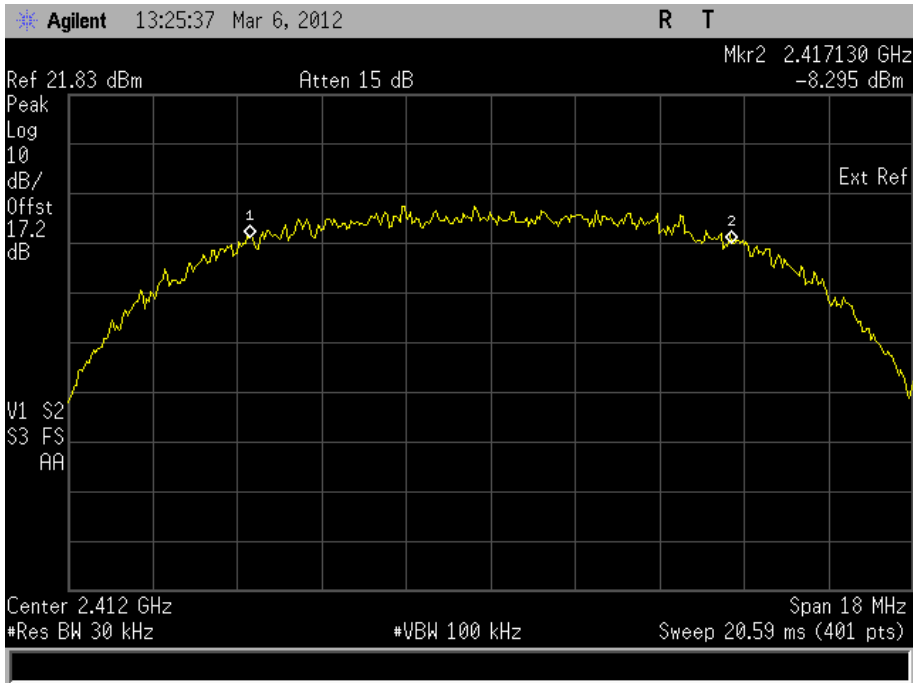
2 Mbps



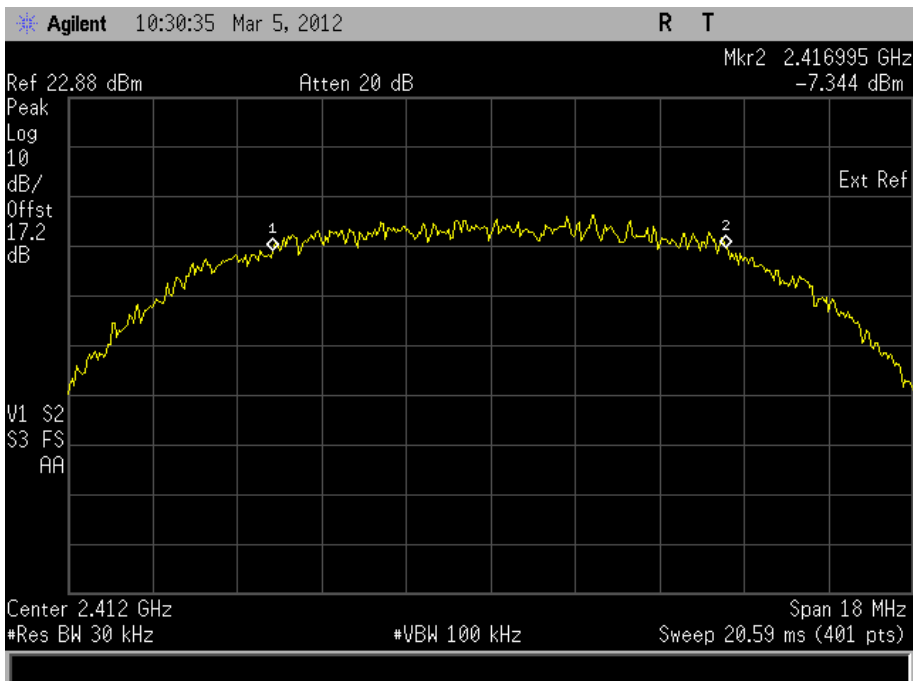


Product Service

5.5 Mbps



11 Mbps

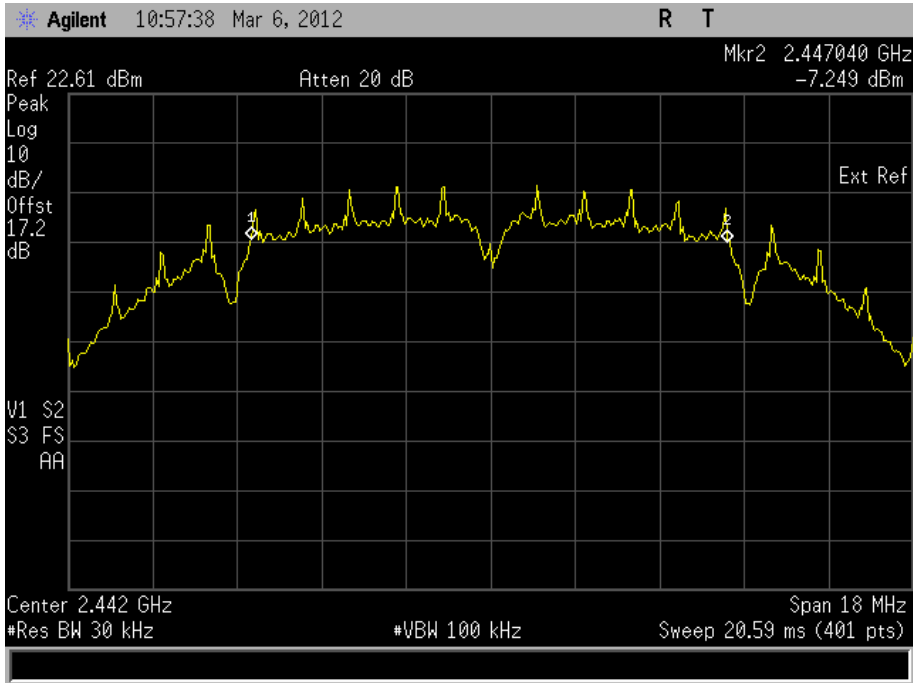




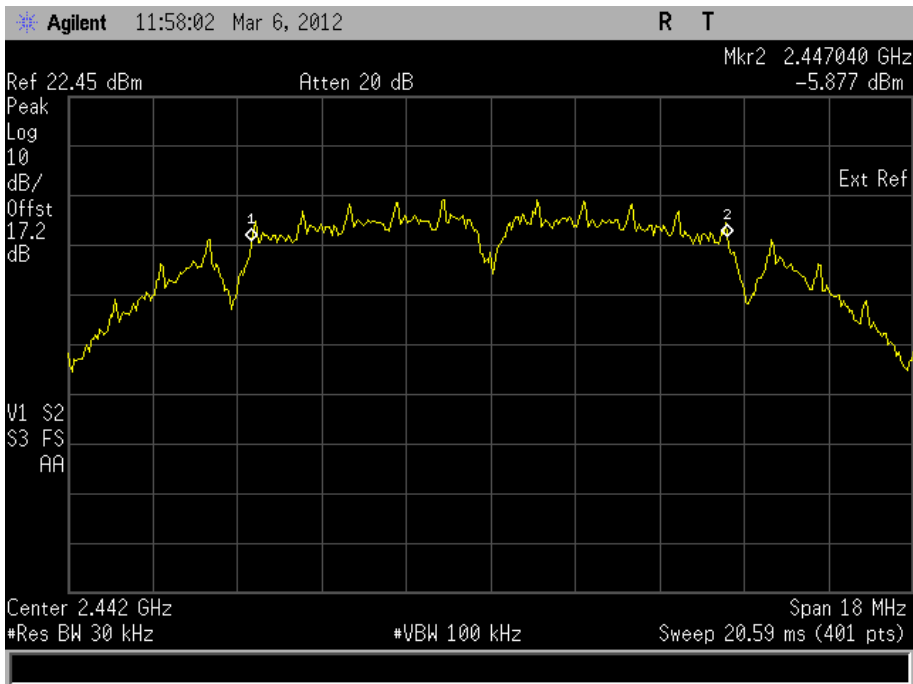
Product Service

2437 MHz

1 Mbps



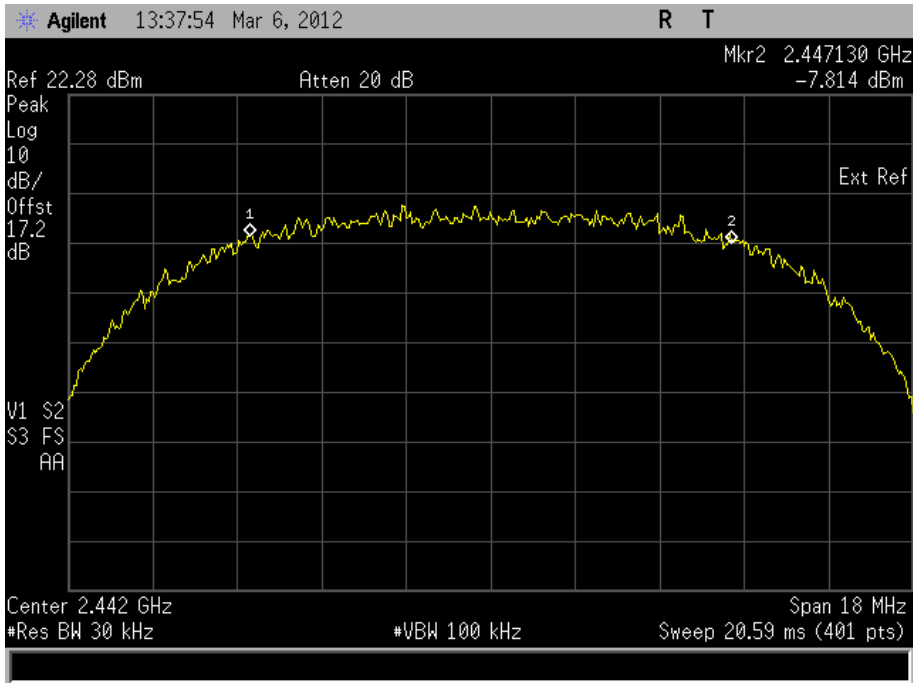
2 Mbps



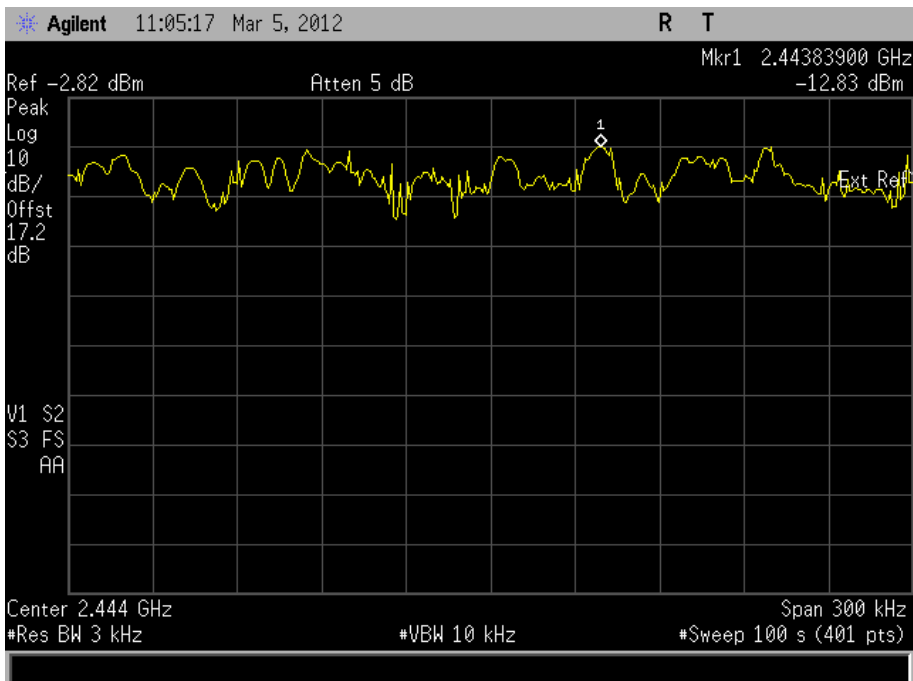


Product Service

5.5 Mbps



11 Mbps

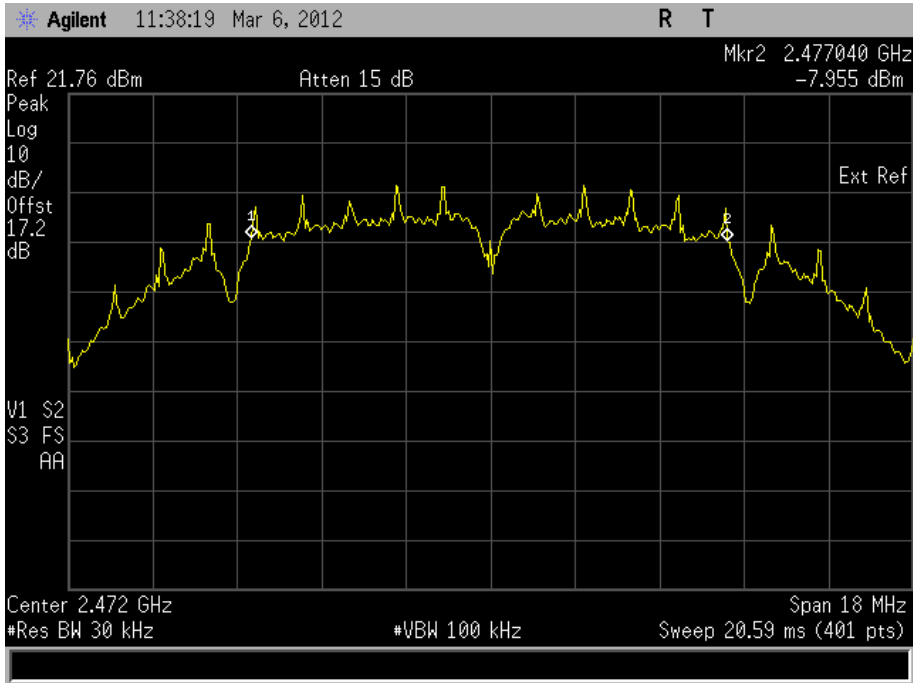




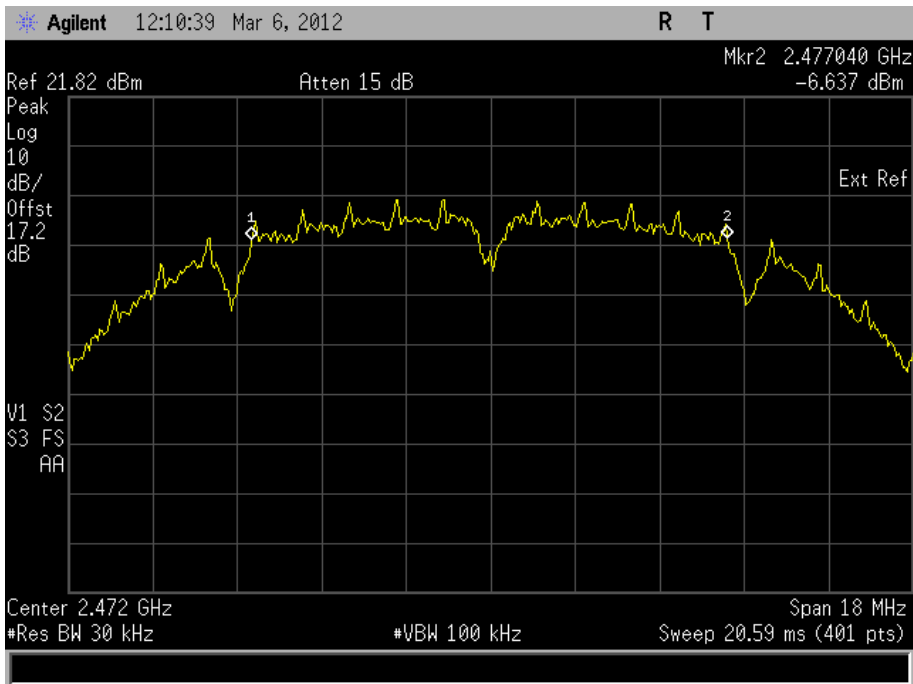
Product Service

2462 MHz

1 Mbps

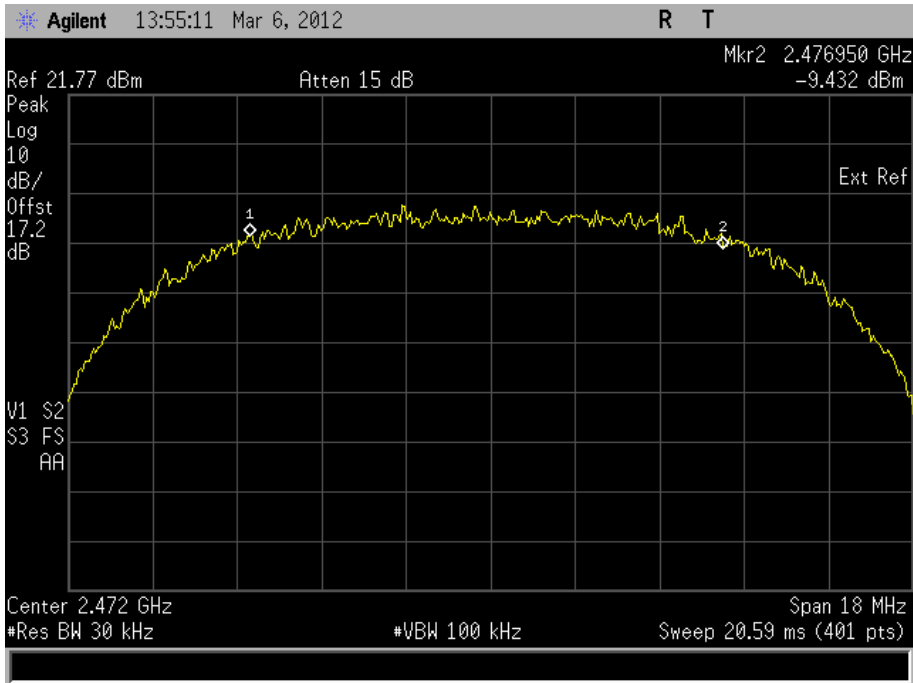


2 Mbps

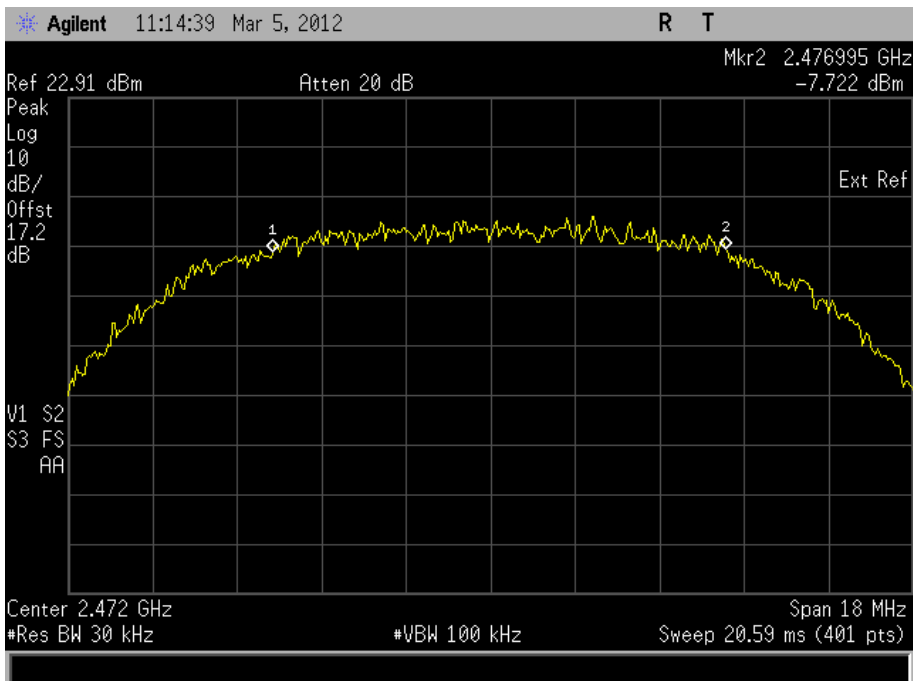




5.5 Mbps



11 Mbps



Limit Clause

The minimum 6 dB Bandwidth shall be at least 500 kHz.



Product Service

802.11(g)

4V, 3.3V and 1.2V DC Supply

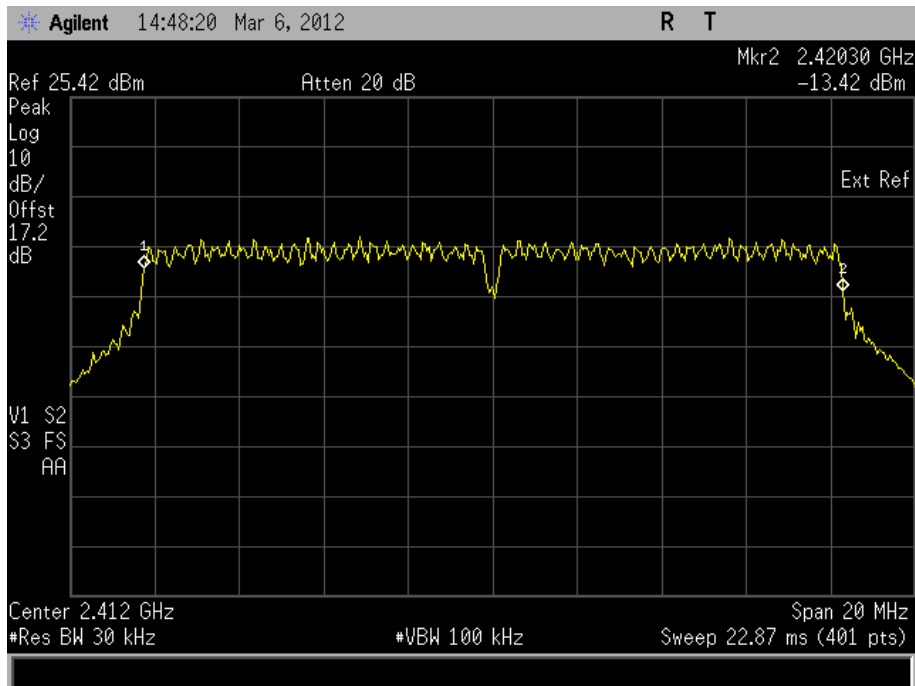
Frequency (MHz)	Data Rate (Mbps)	6dB Bandwidth (kHz)
2412 MHz	6	16550
	9	16600
	12	16600
	18	16600
	24	16550
	36	16550
	48	16600
	54	16600
2437 MHz	6	16550
	9	16600
	12	16600
	18	16600
	24	16550
	36	16550
	48	16550
	54	16600
2462 MHz	6	16550
	9	16600
	12	16600
	18	16600
	24	16550
	36	16550
	48	16550
	54	16600



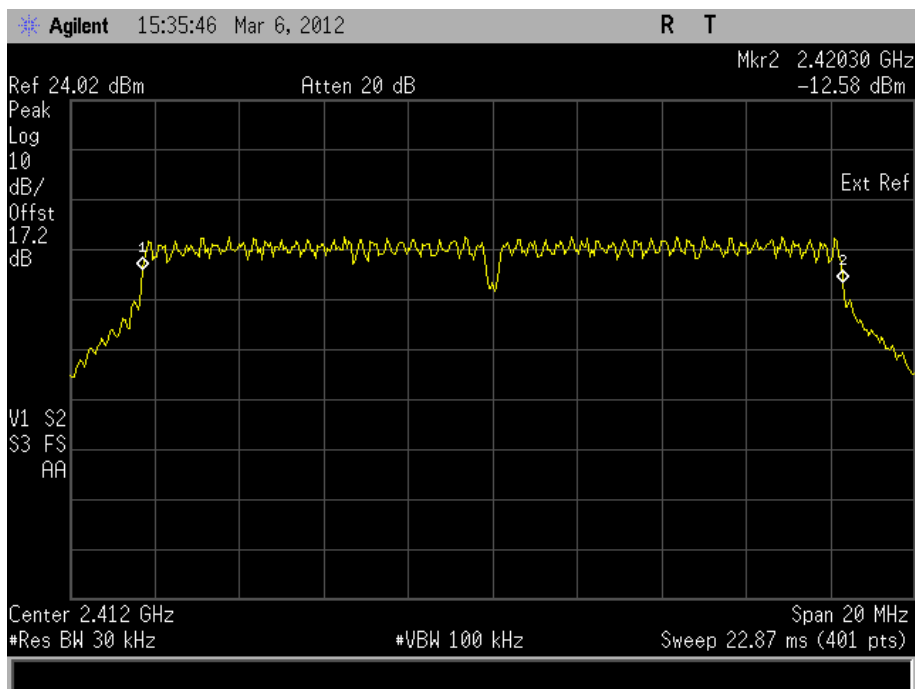
Product Service

2412 MHz

6 Mbps



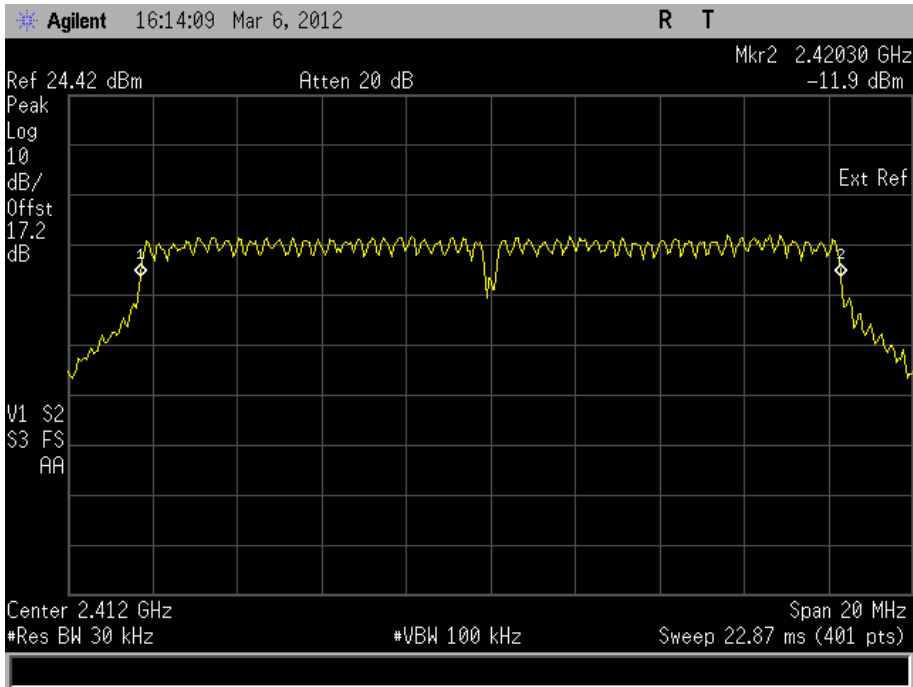
9 Mbps



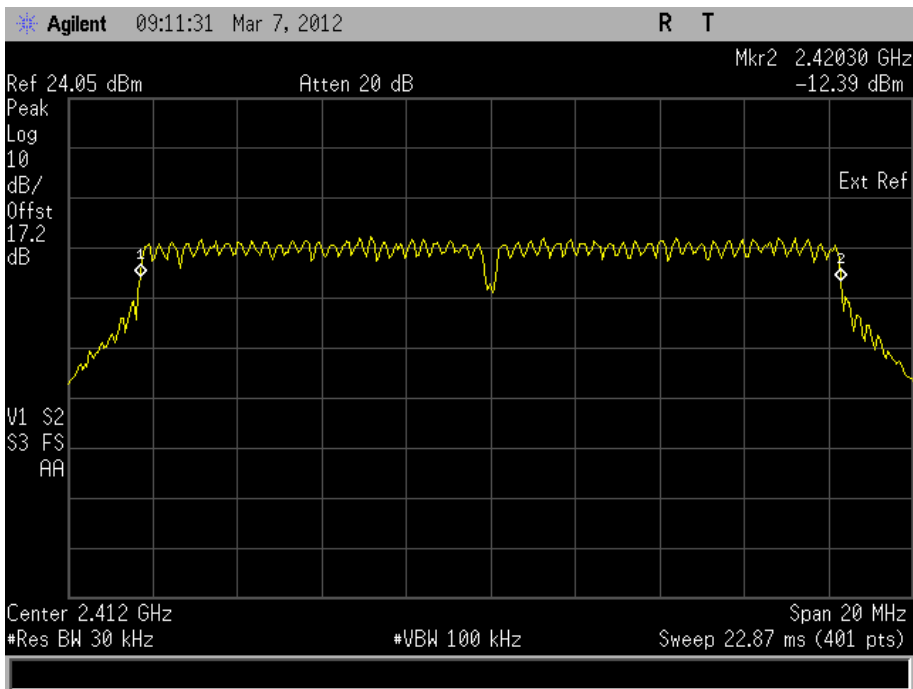


Product Service

12 Mbps



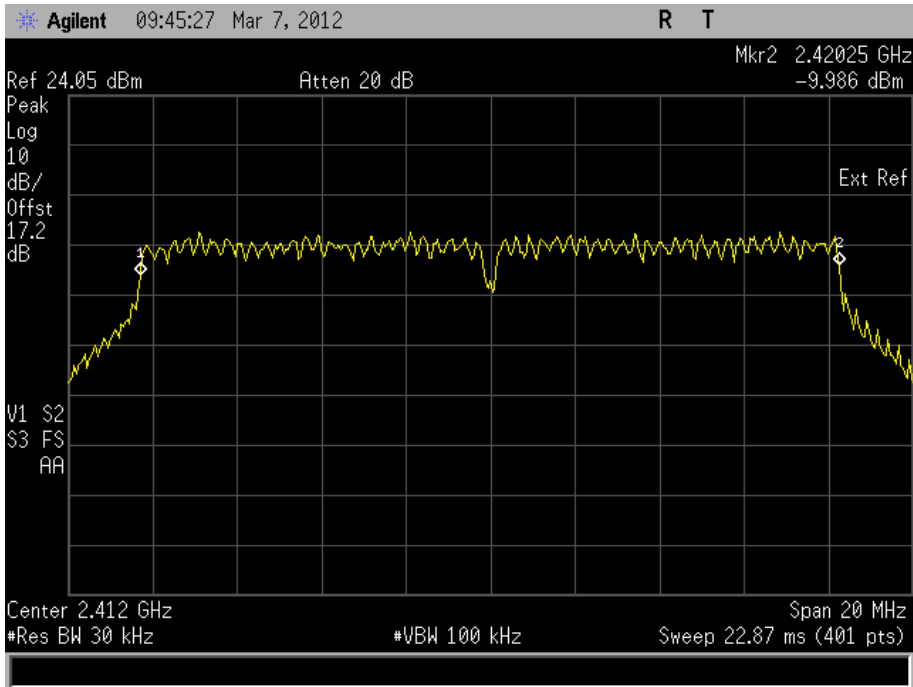
18 Mbps



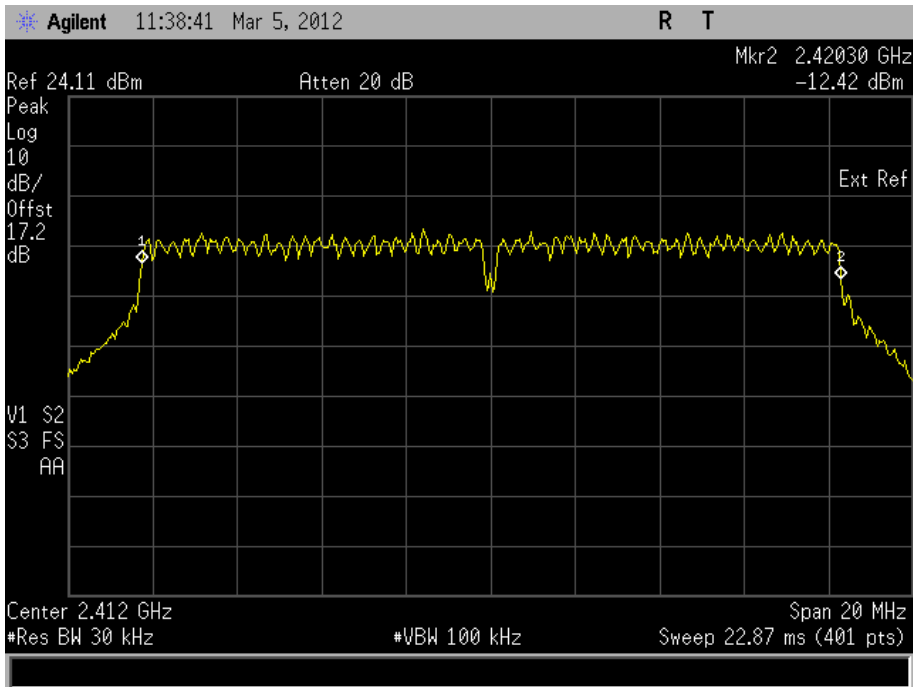


Product Service

24 Mbps



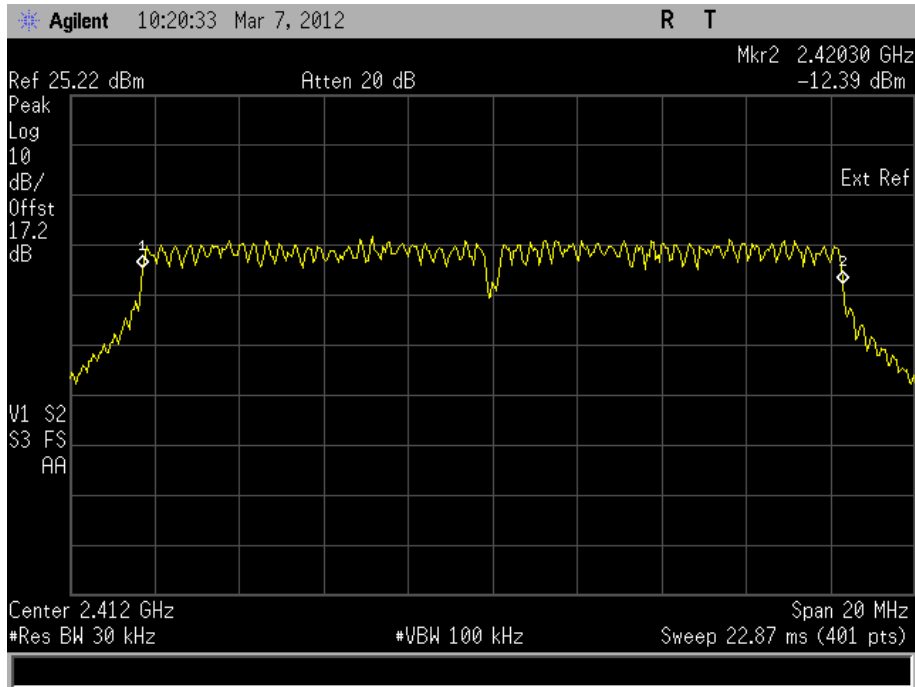
36 Mbps



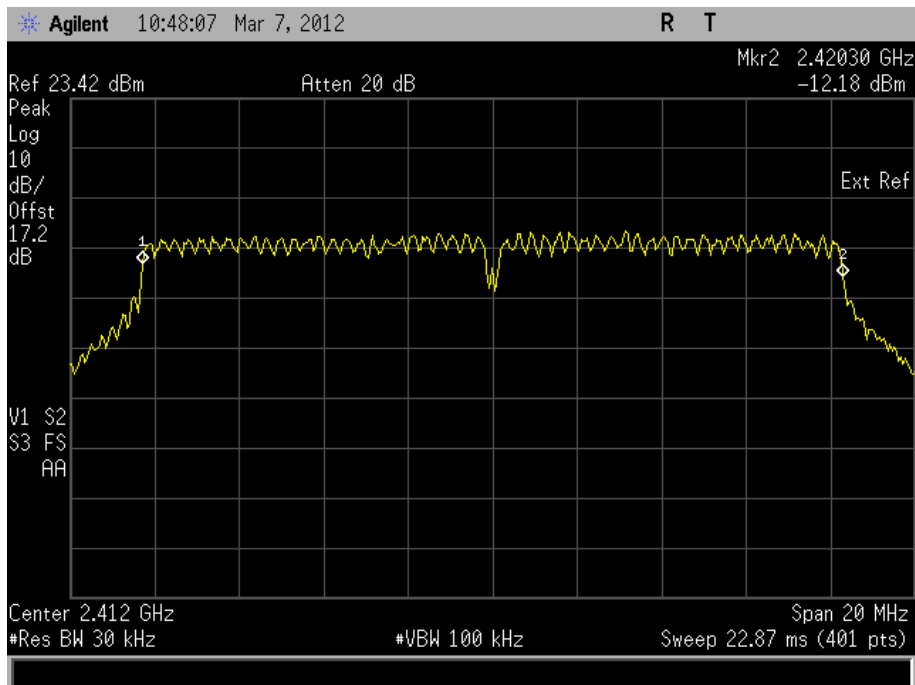


Product Service

48 Mbps



54 Mbps

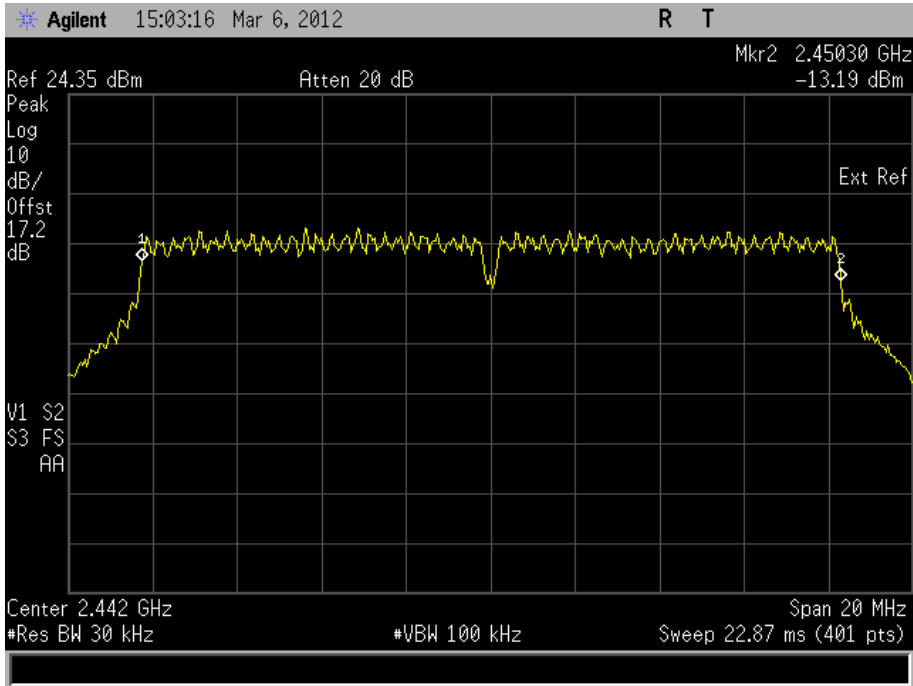




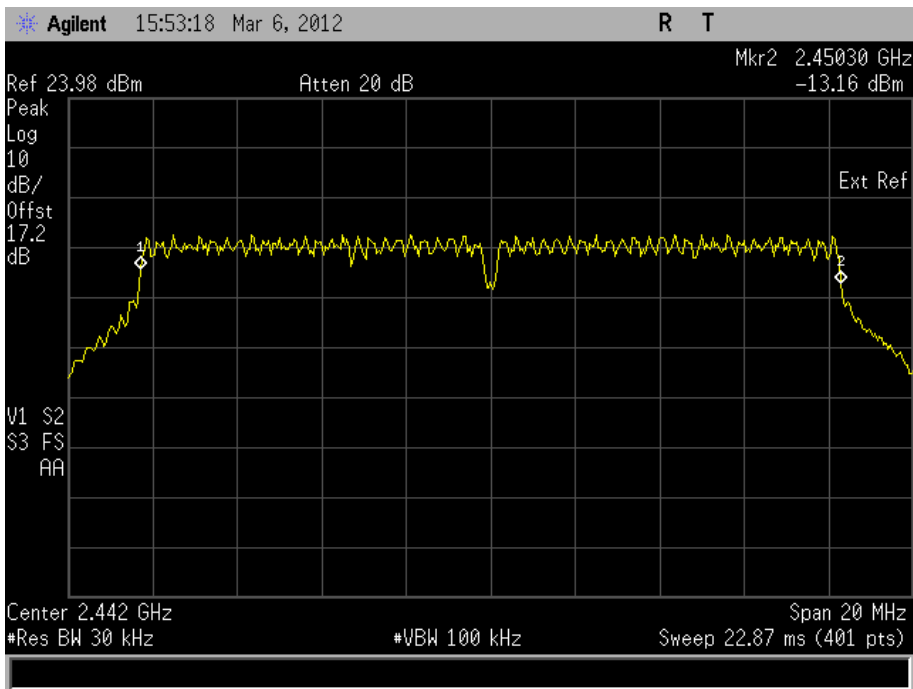
Product Service

2437 MHz

6 Mbps



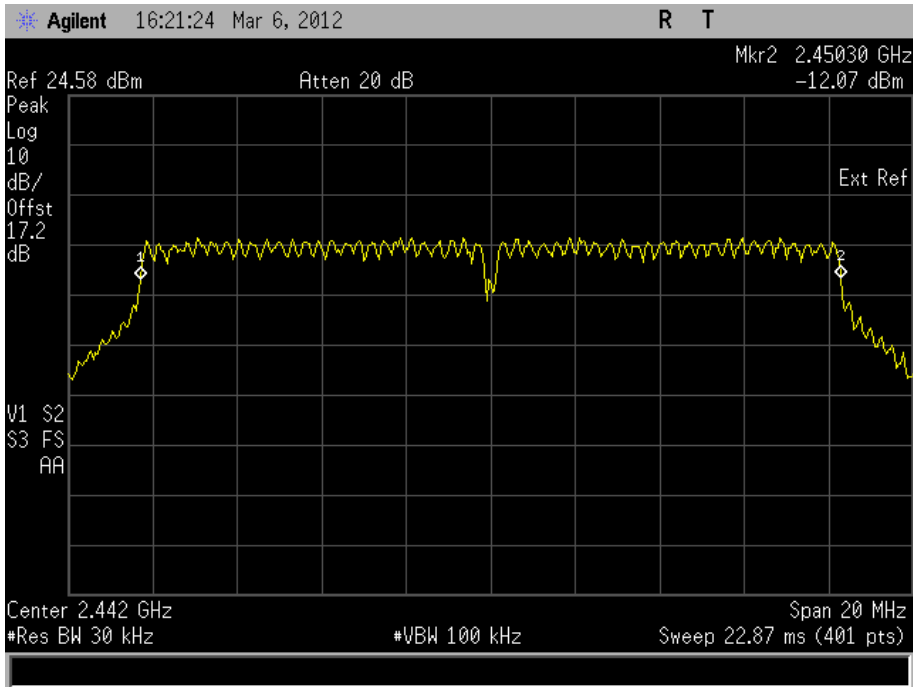
9 Mbps



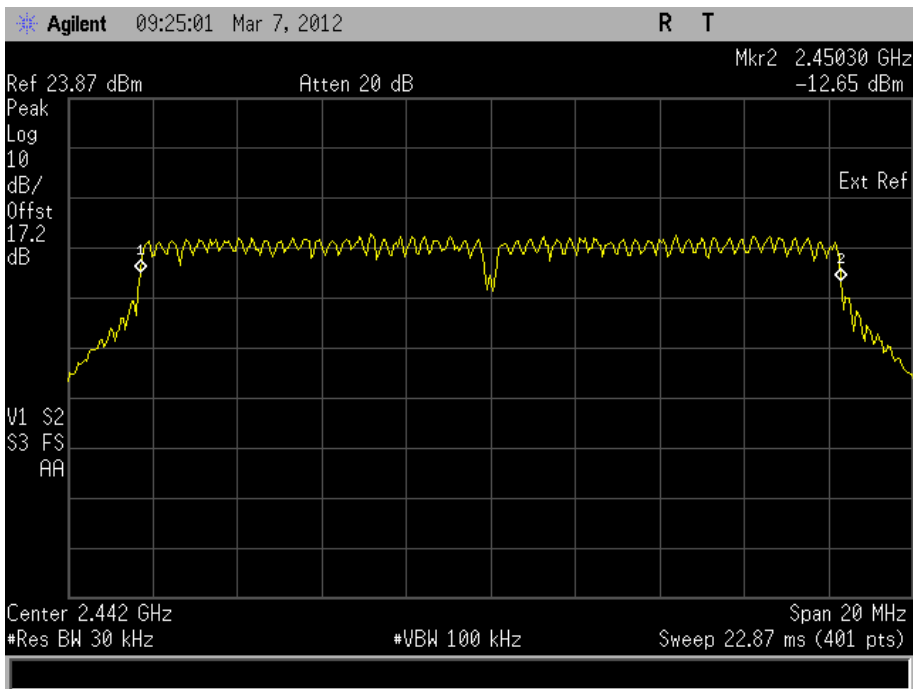


Product Service

12 Mbps



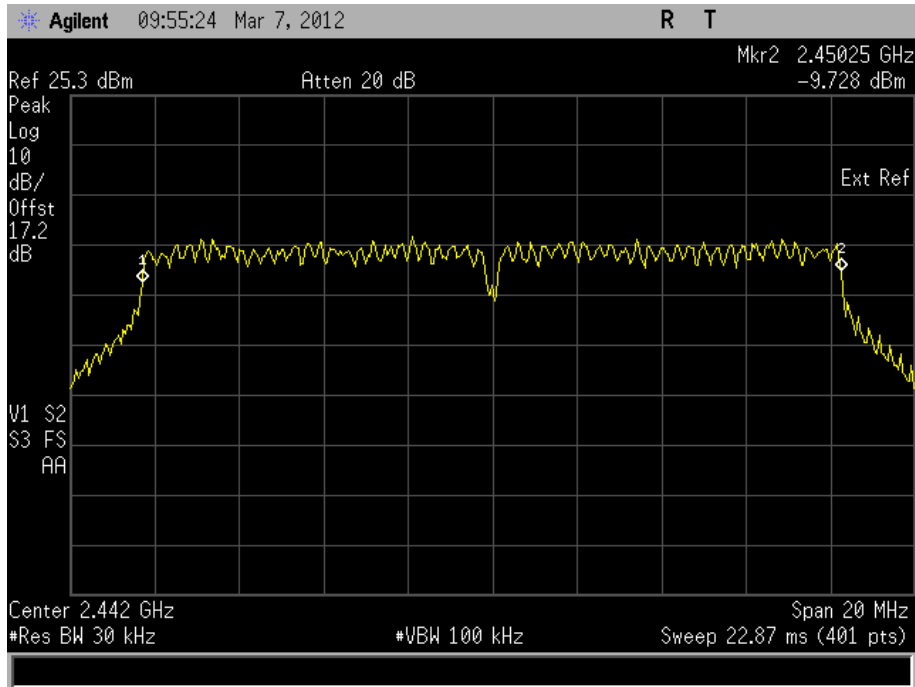
18 Mbps



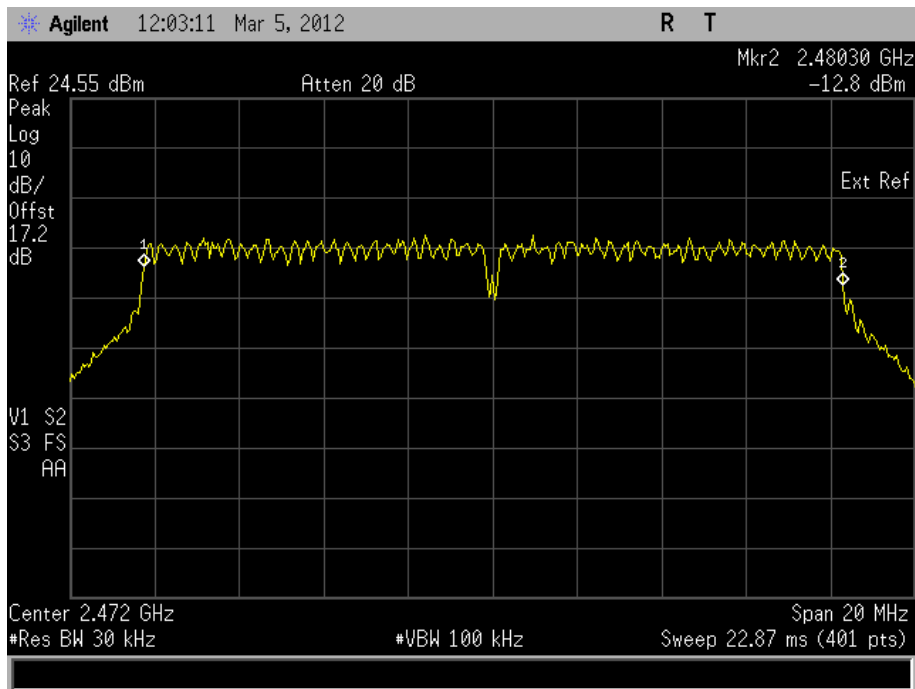


Product Service

24 Mbps



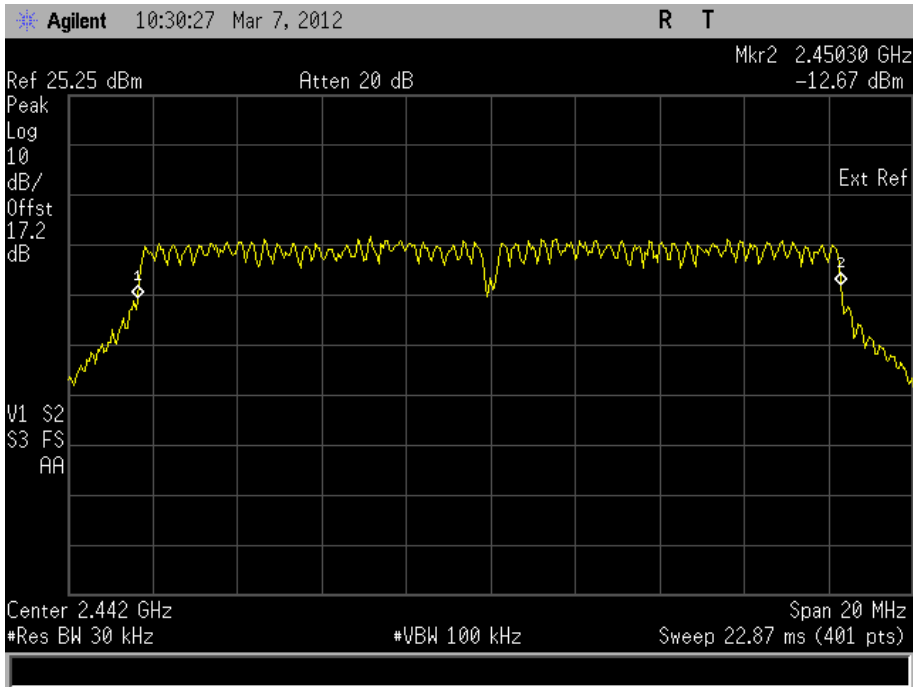
36 Mbps



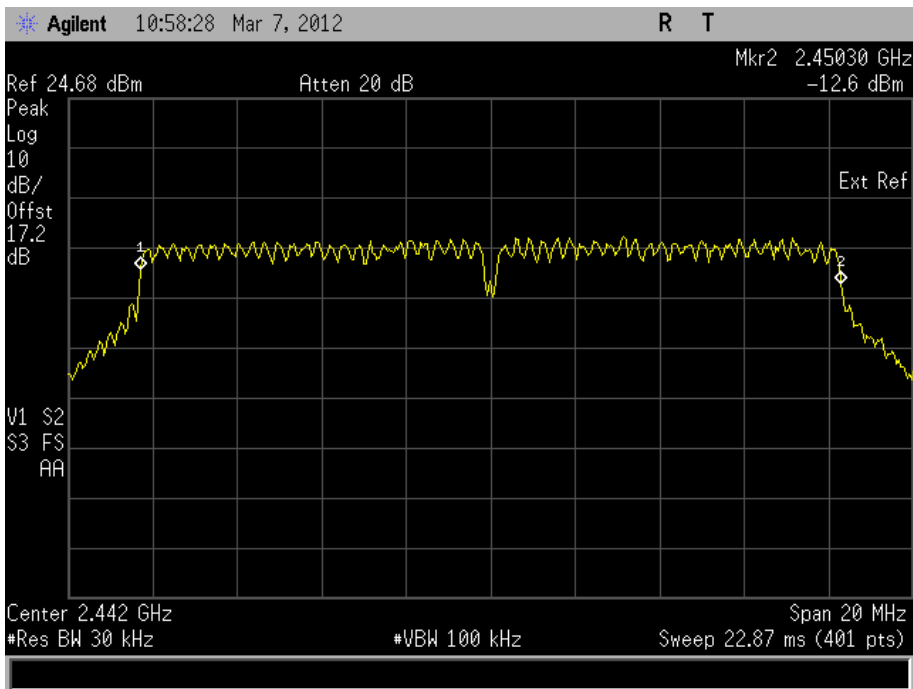


Product Service

48 Mbps



54 Mbps

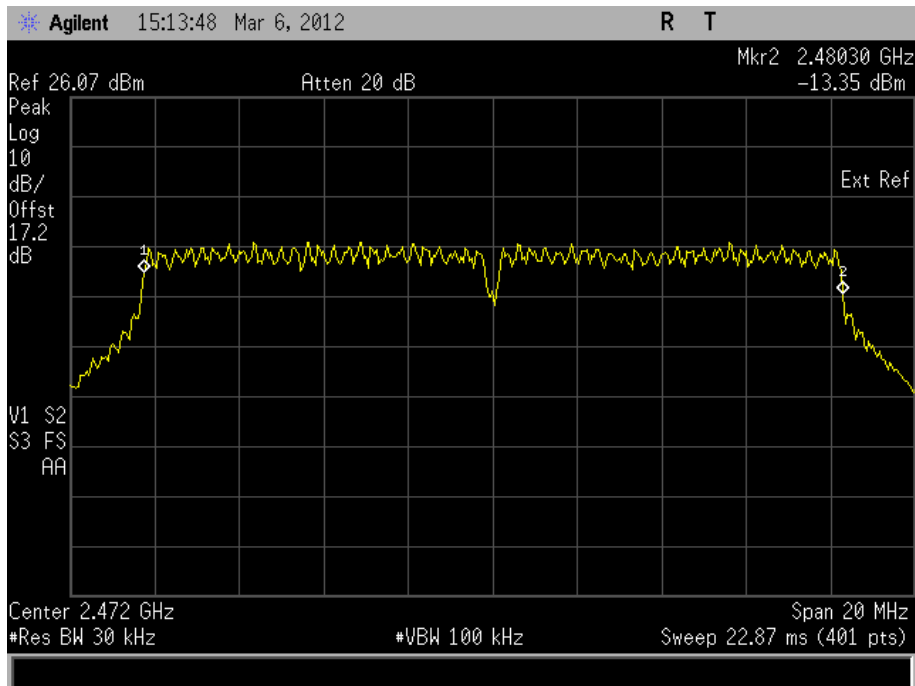




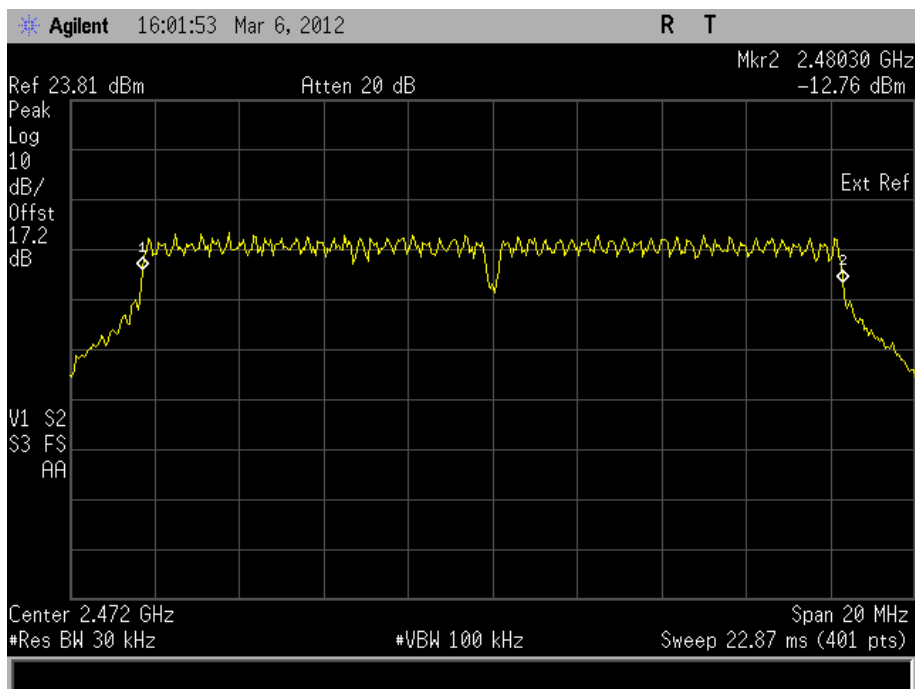
Product Service

2462 MHz

6 Mbps



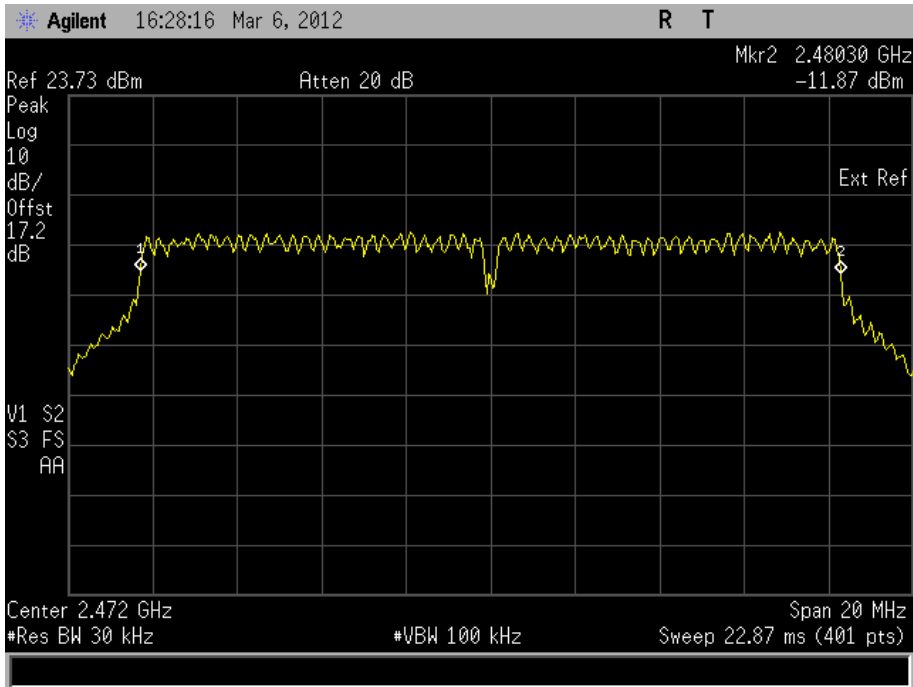
9 Mbps



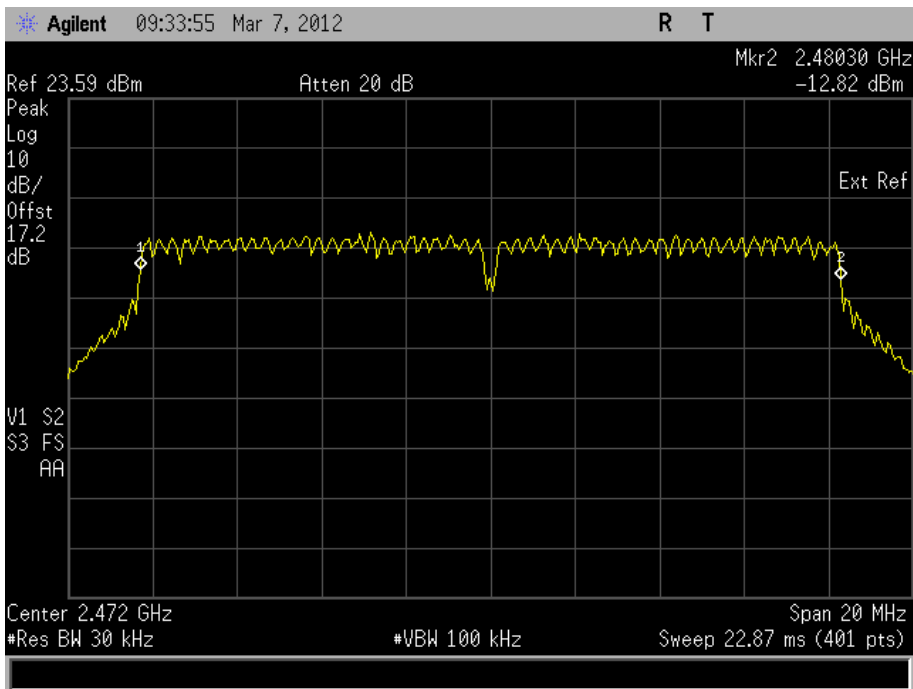


Product Service

12 Mbps



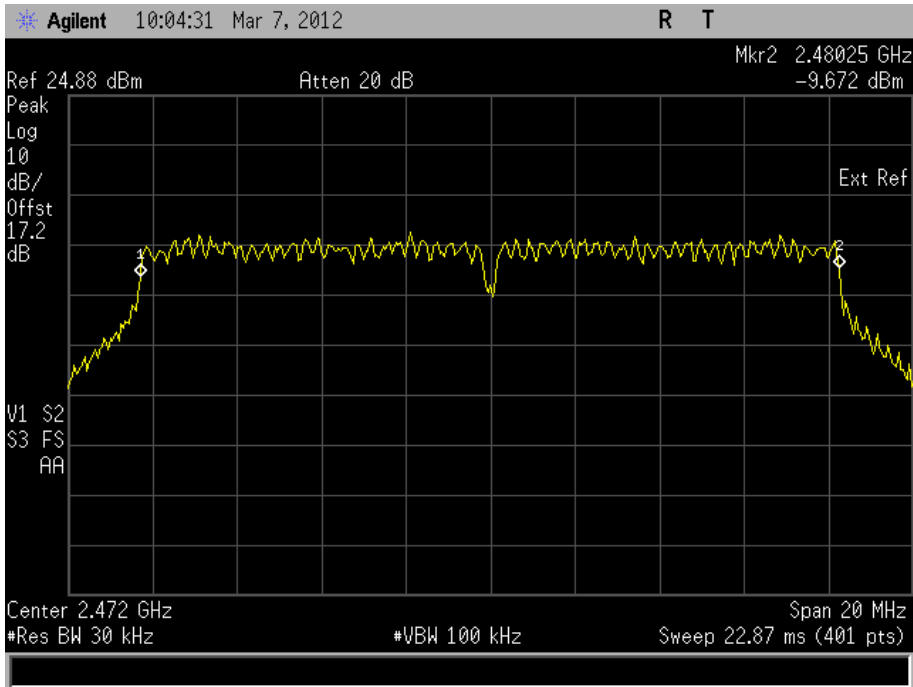
18 Mbps



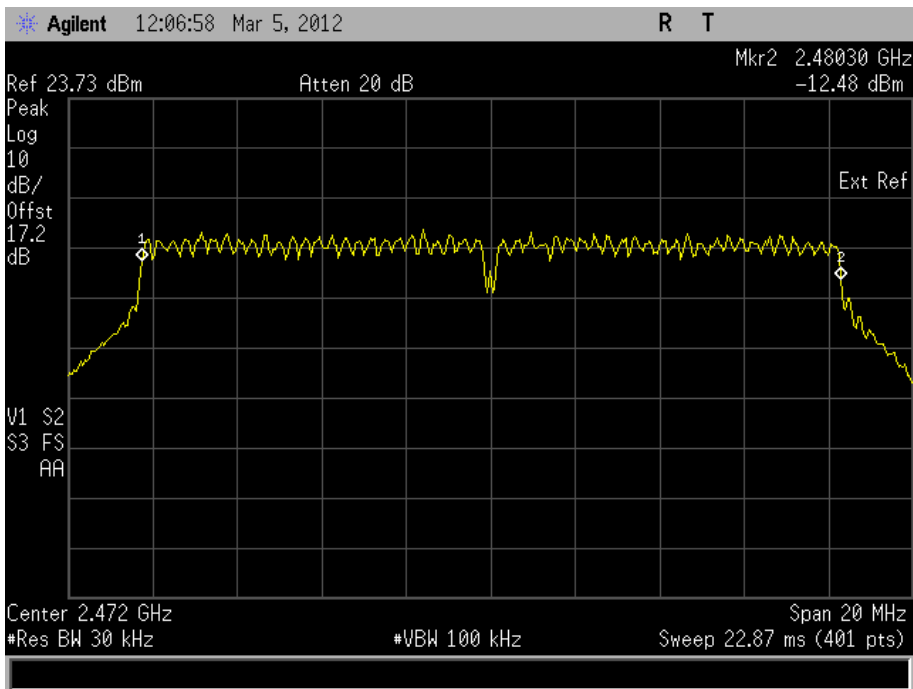


Product Service

24 Mbps



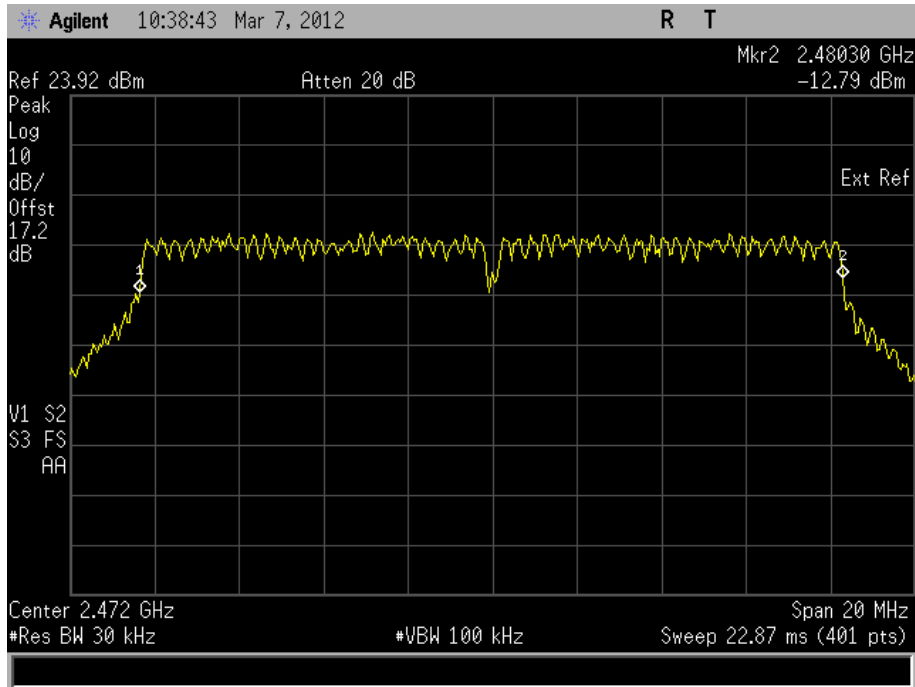
36 Mbps



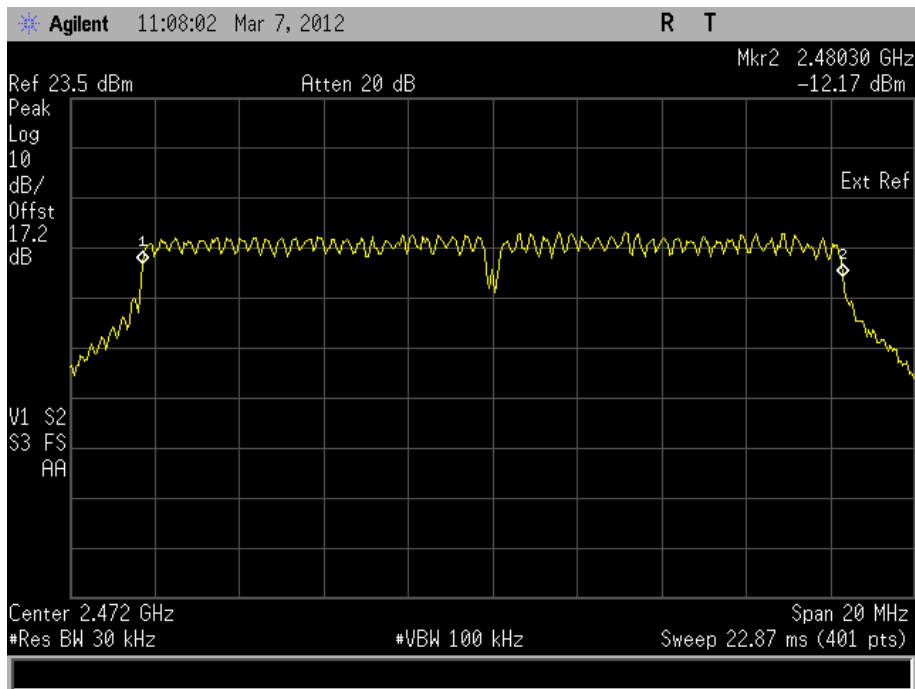


Product Service

48 Mbps



54 Mbps



Limit Clause

The minimum 6 dB Bandwidth shall be at least 500 kHz.



Product Service

802.11(n) - 2.4 GHz 20 MHz BW

4V, 3.3V and 1.2V DC Supply

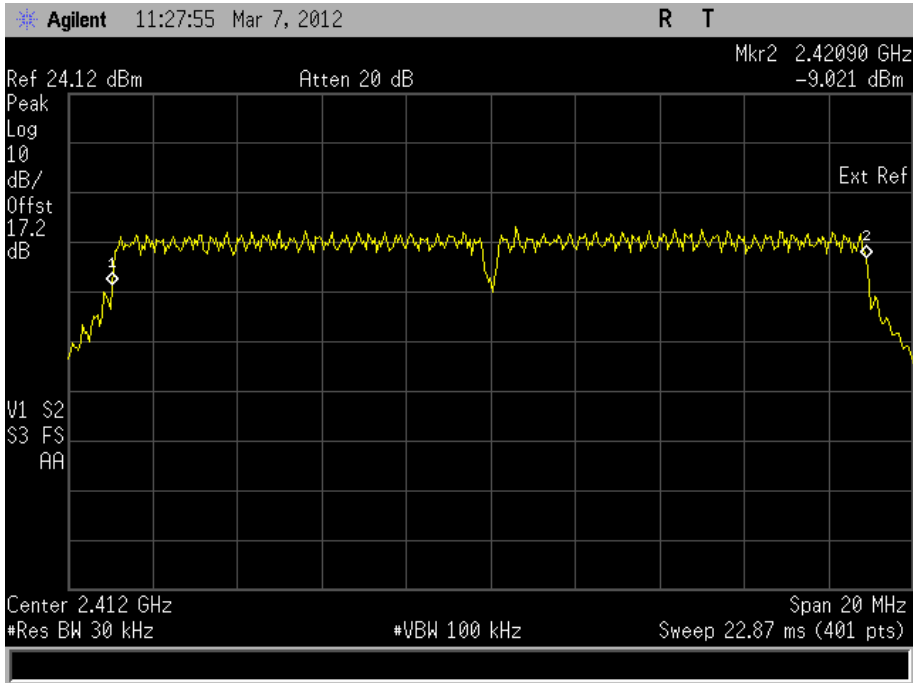
Frequency (MHz)	Data Rate (Mbps)	6dB Bandwidth (kHz)
2412 MHz	7.20	17850
	14.40	17900
	21.70	17900
	28.90	17850
	43.30	17900
	57.80	17900
	65.00	17900
	72.20	17900
2437 MHz	7.20	17850
	14.40	17900
	21.70	17900
	28.90	17900
	43.30	17900
	57.80	17900
	65.00	17900
	72.20	17900
2462 MHz	7.20	17900
	14.40	17850
	21.70	17850
	28.90	17850
	43.30	17850
	57.80	17850
	65.00	17850
	72.20	17850



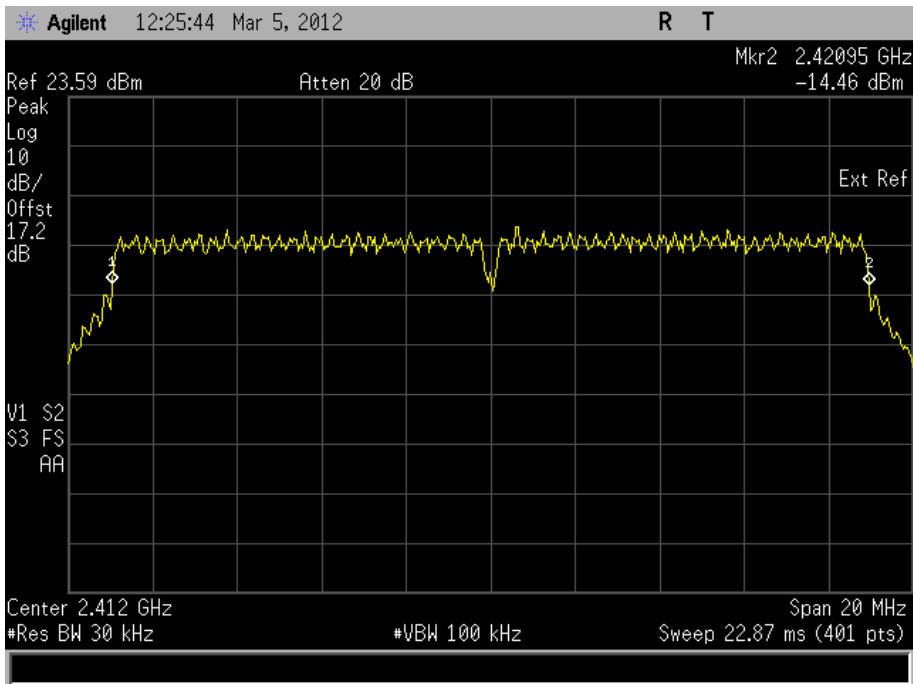
Product Service

2412 MHz

6.5 Mbps



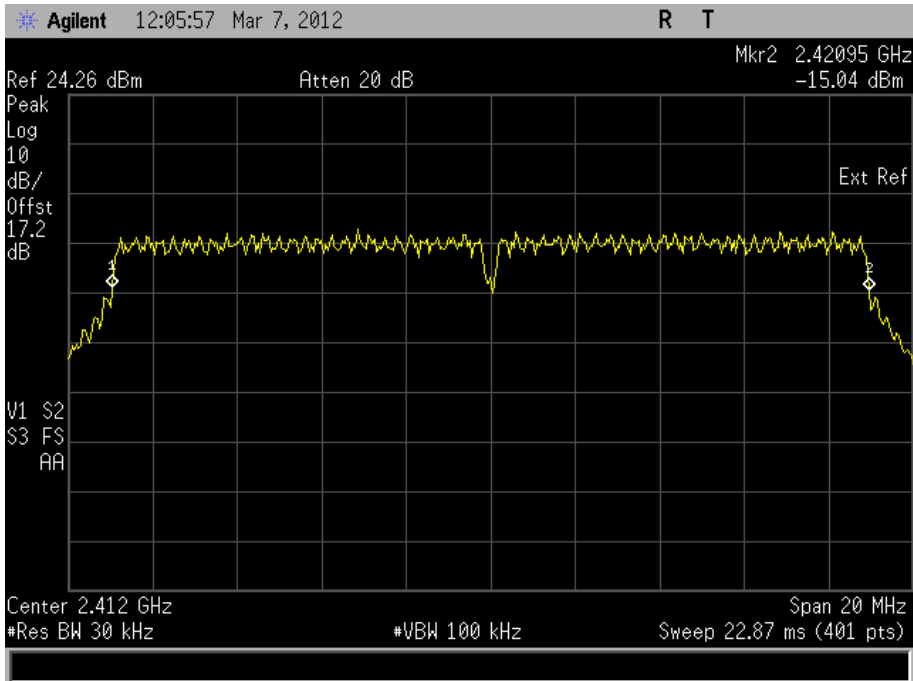
13 Mbps



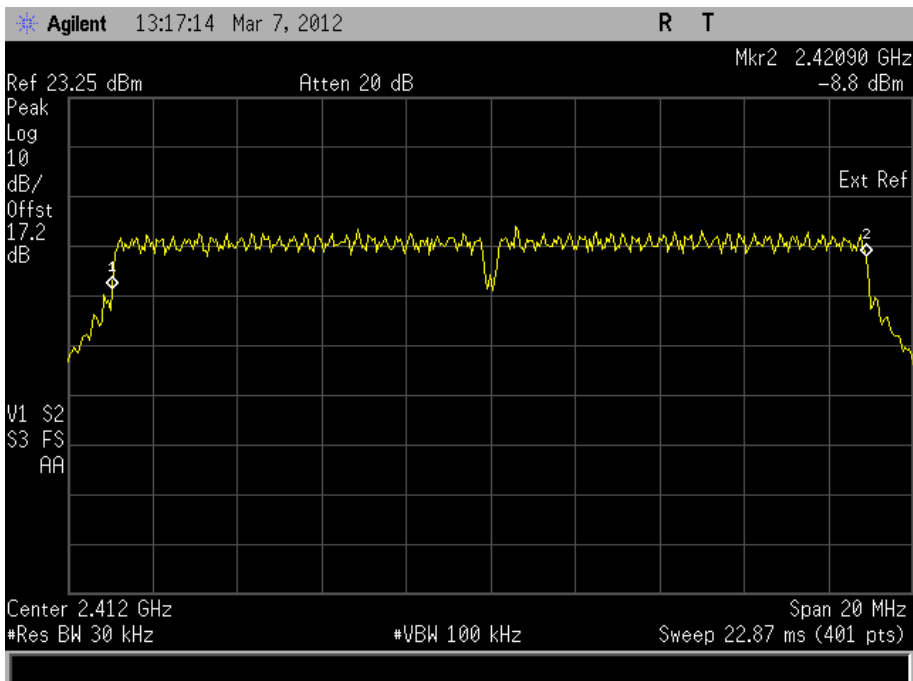


Product Service

19.5 Mbps



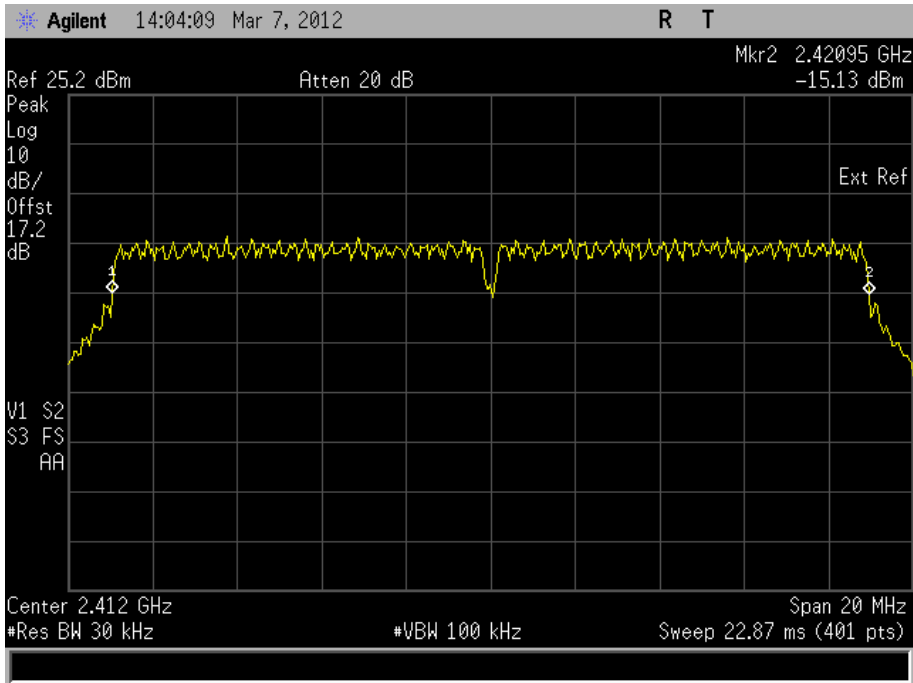
26 Mbps



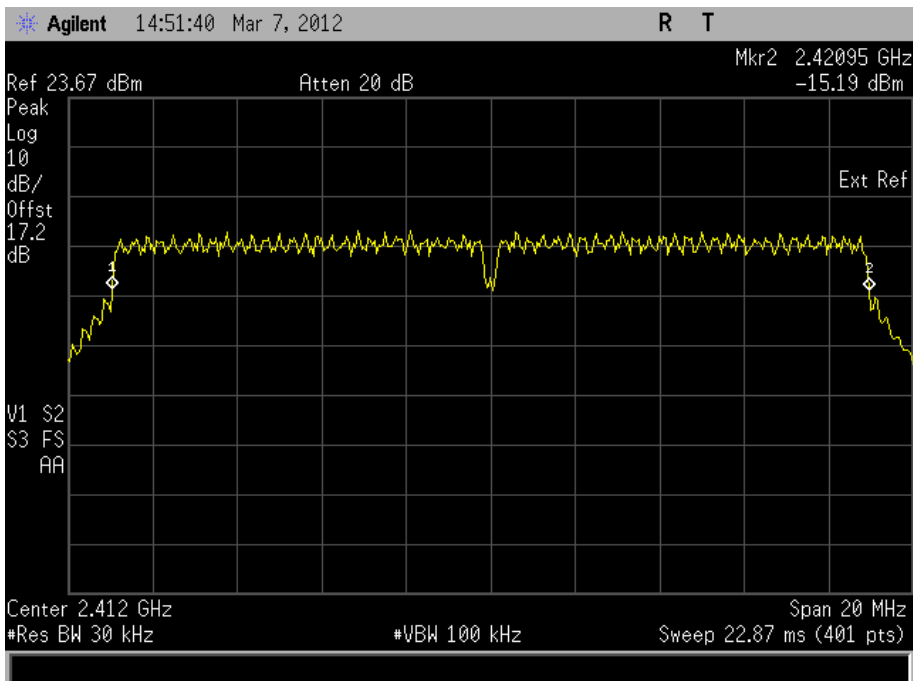


Product Service

39 Mbps



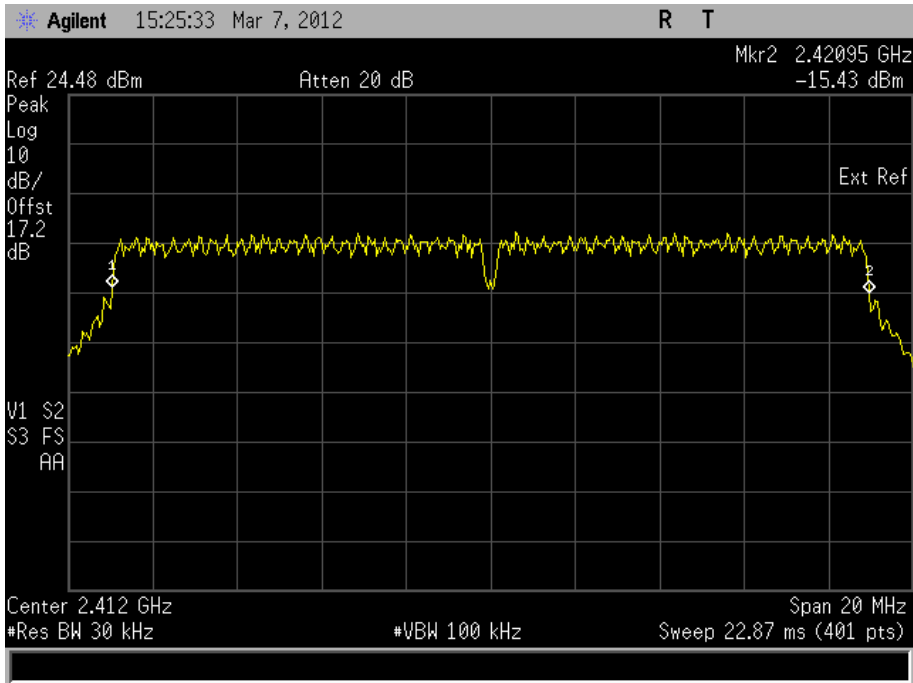
52 Mbps



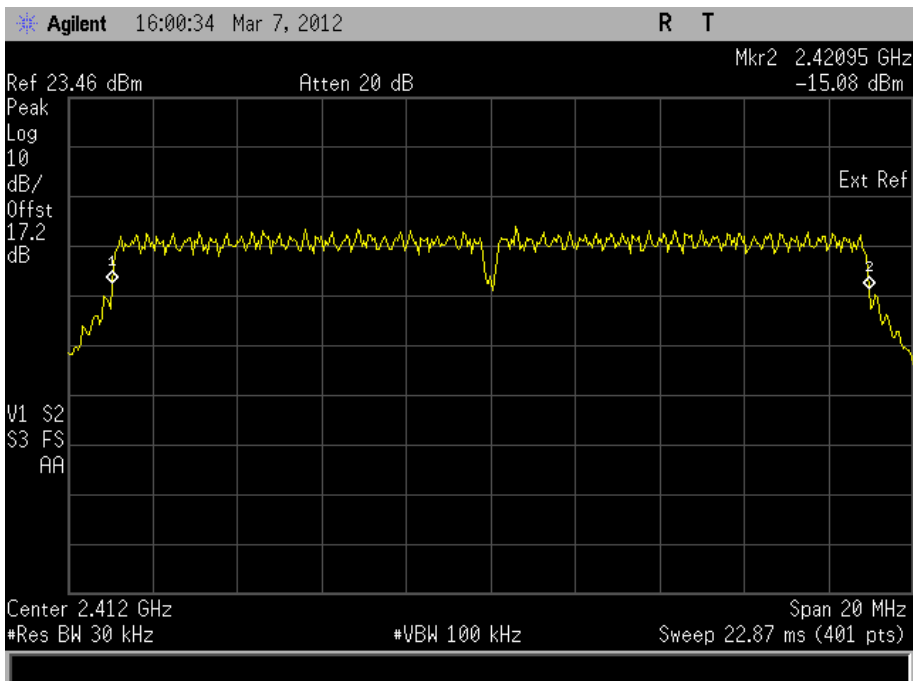


Product Service

58.5 Mbps



65 Mbps

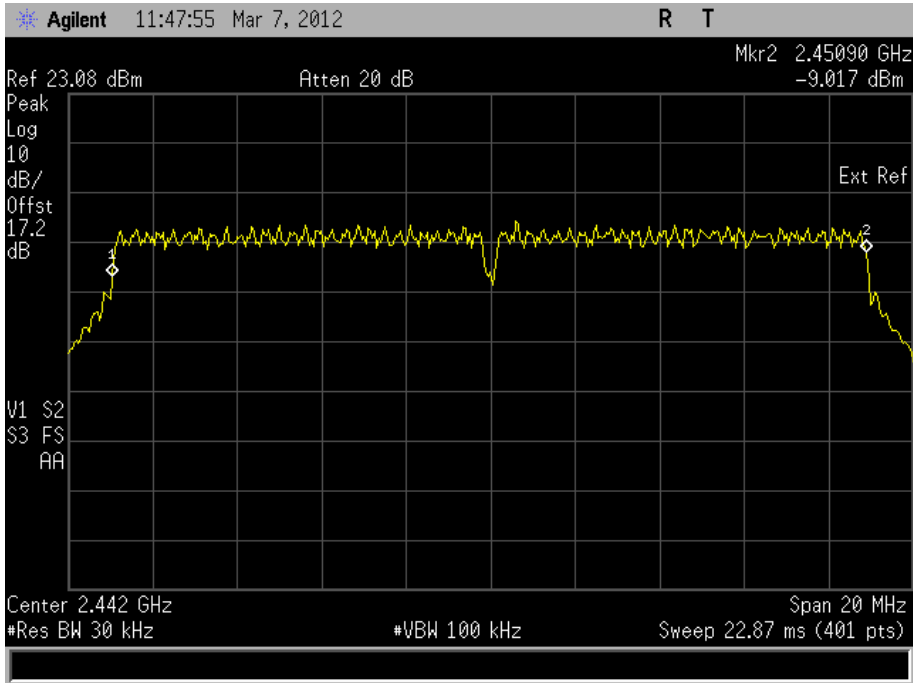




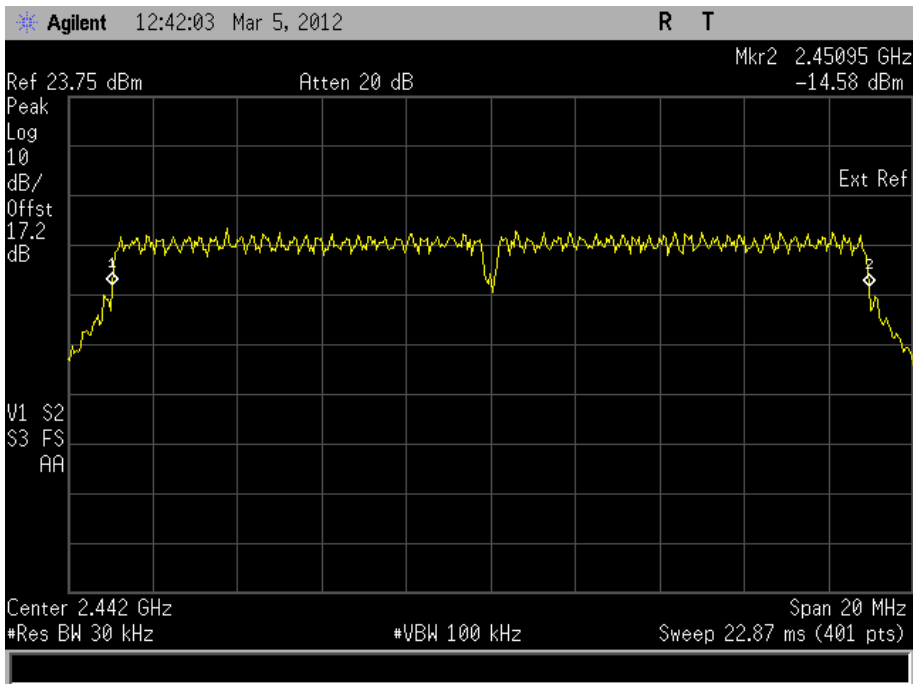
Product Service

2437 MHz

6.5 Mbps



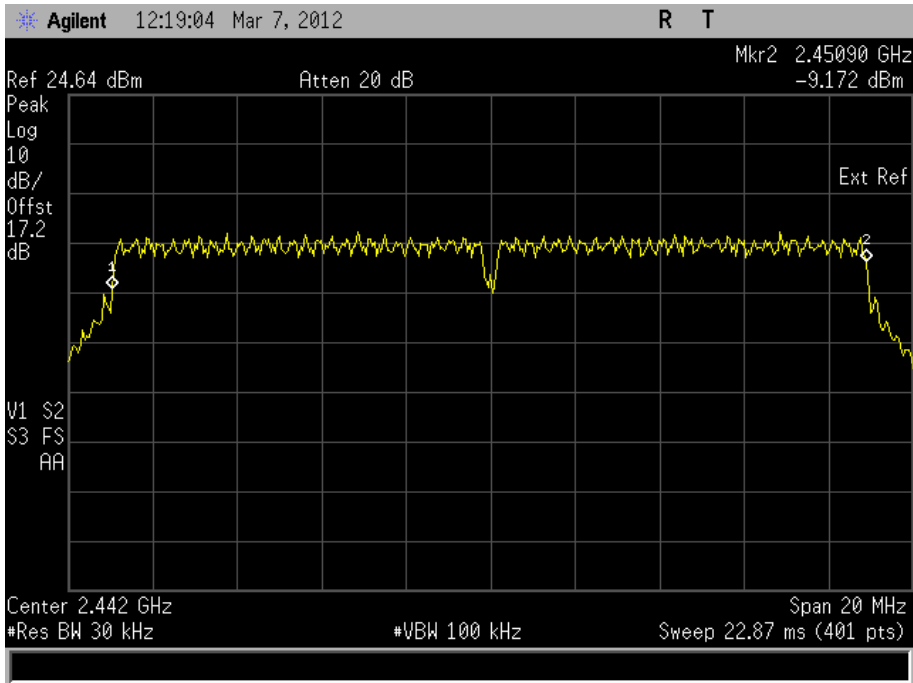
13 Mbps



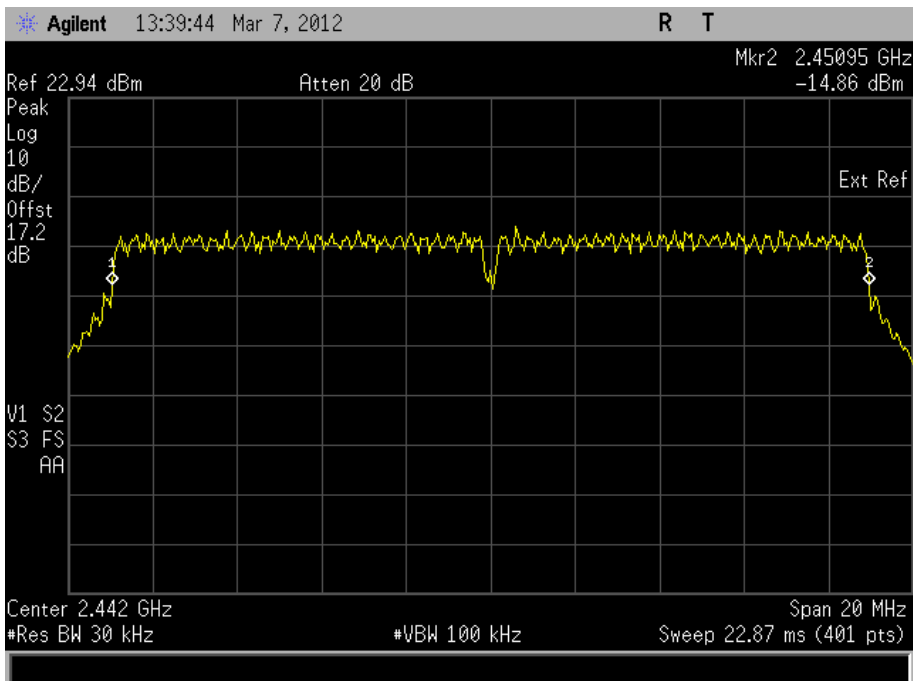


Product Service

19.5 Mbps



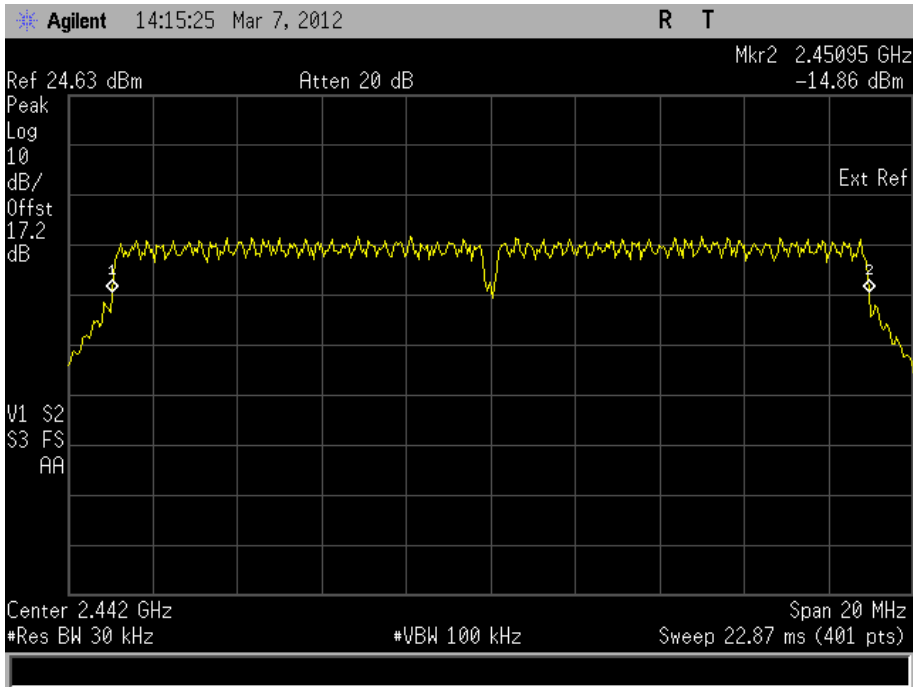
26 Mbps



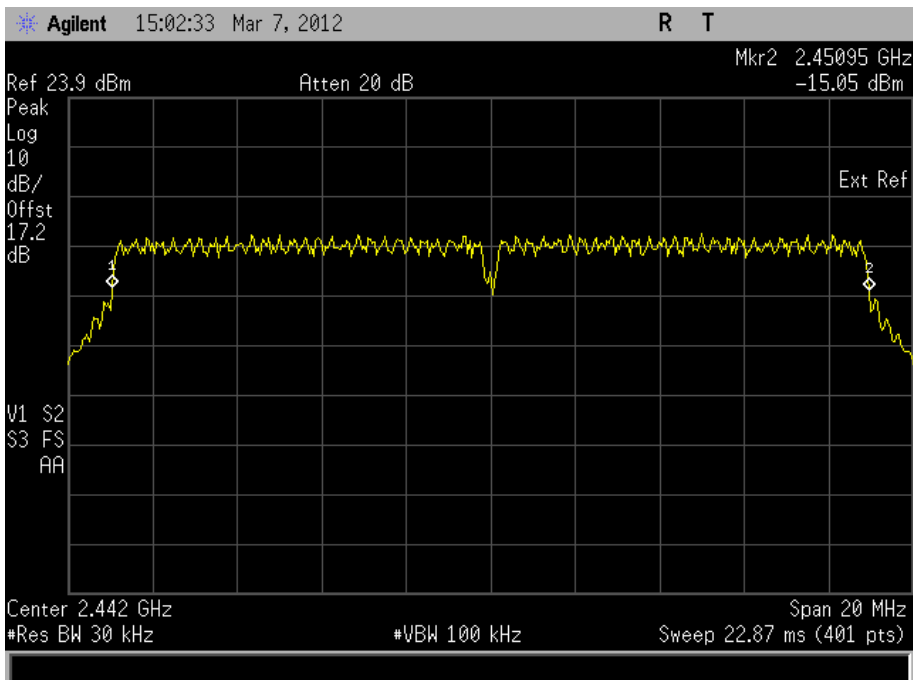


Product Service

39 Mbps



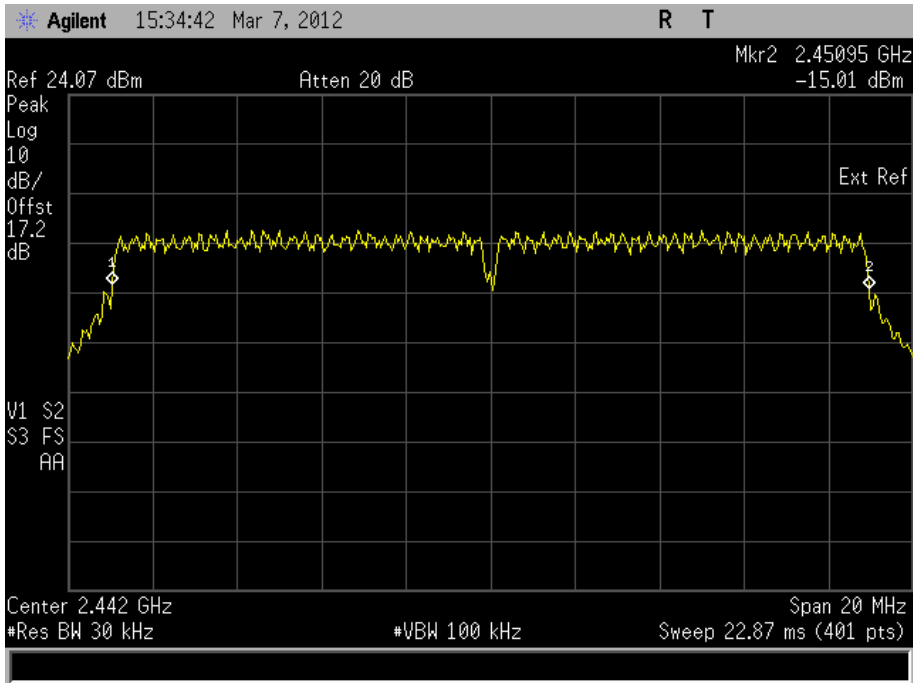
52 Mbps



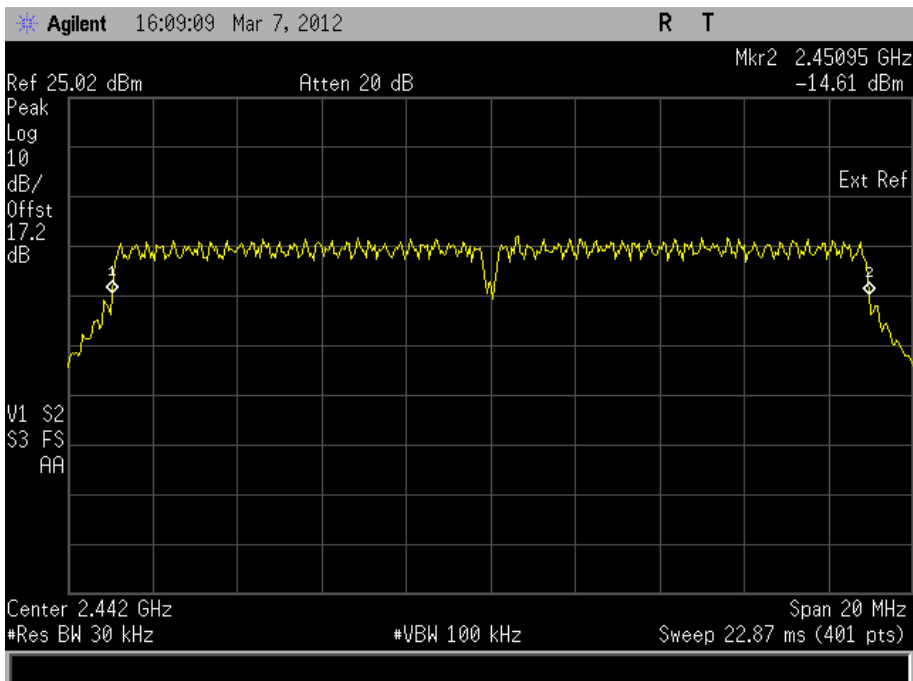


Product Service

58.5 Mbps



65 Mbps

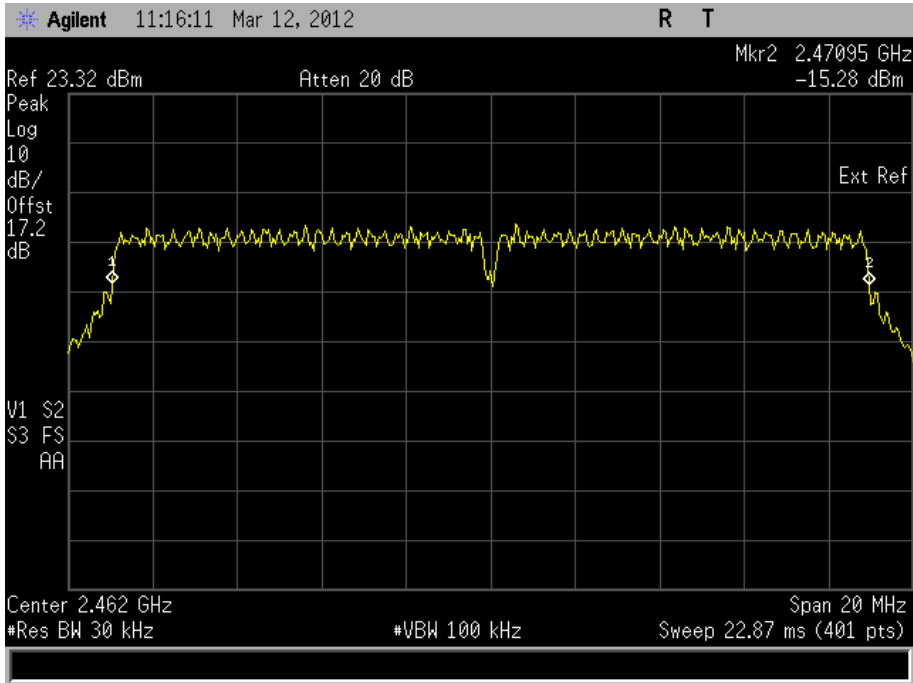




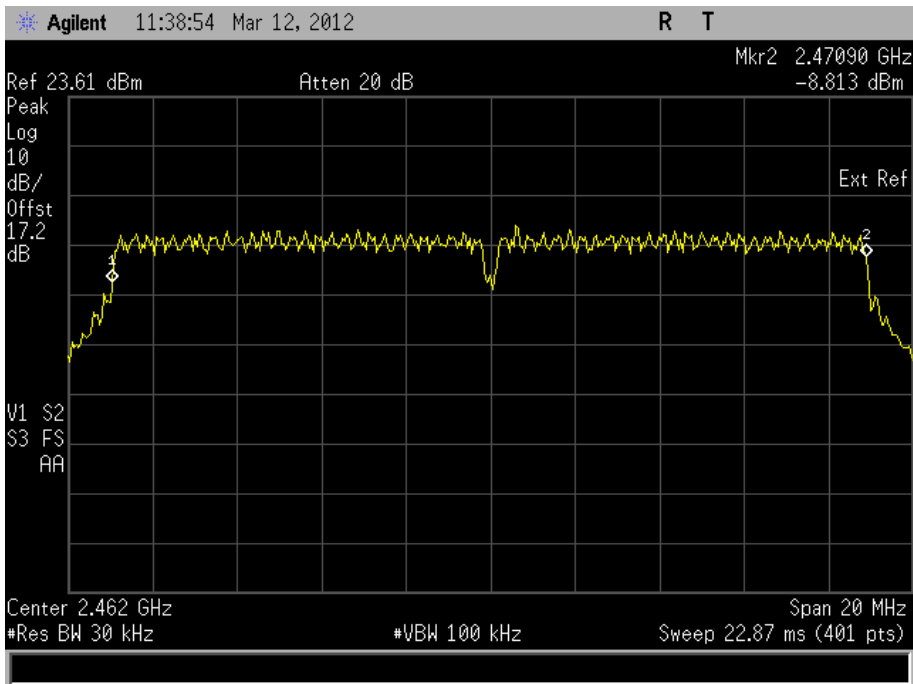
Product Service

2462 MHz

6.5 Mbps



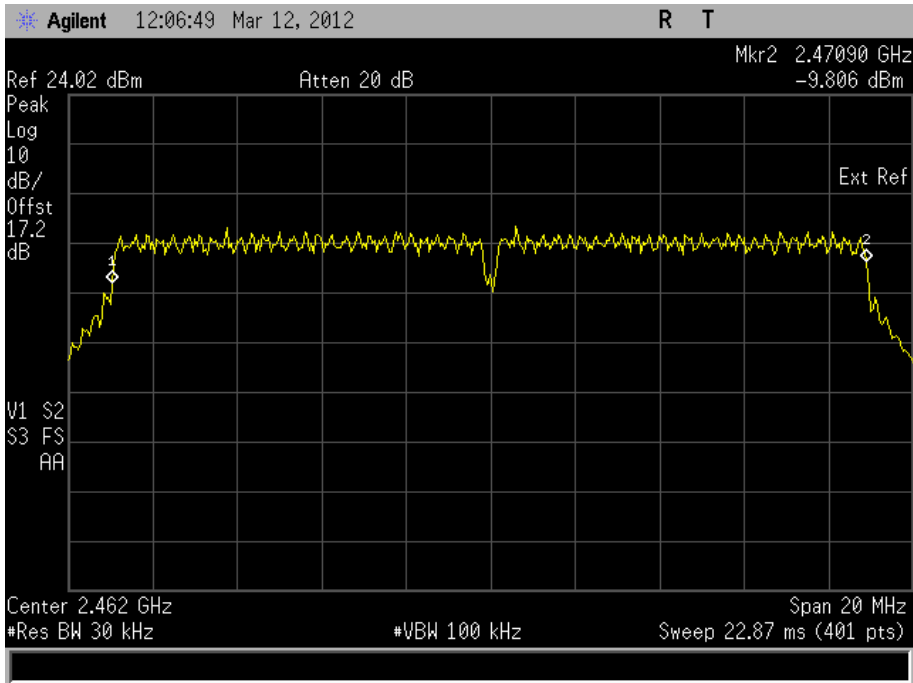
13 Mbps



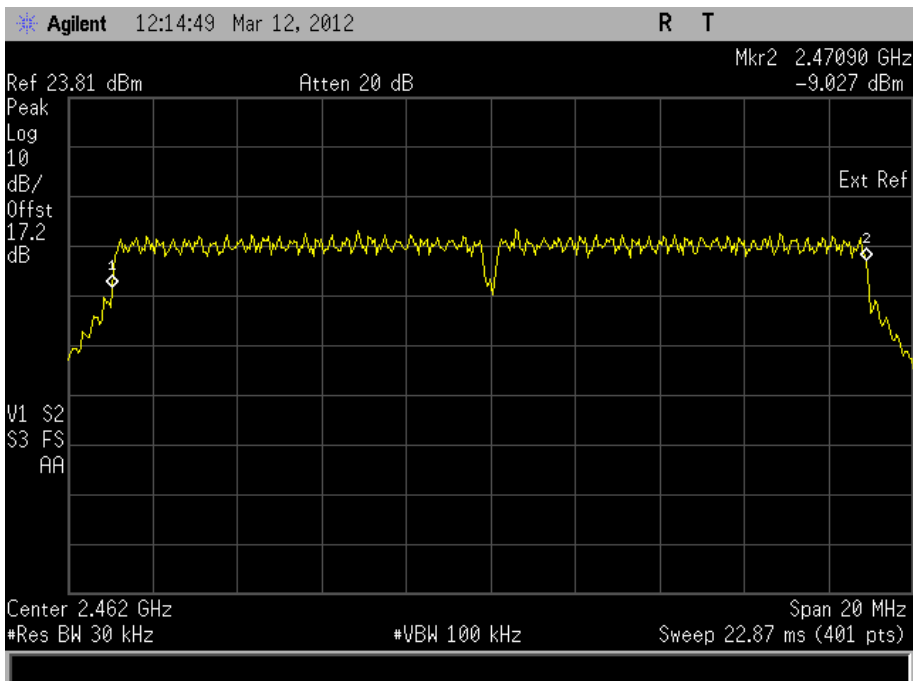


Product Service

19.5 Mbps



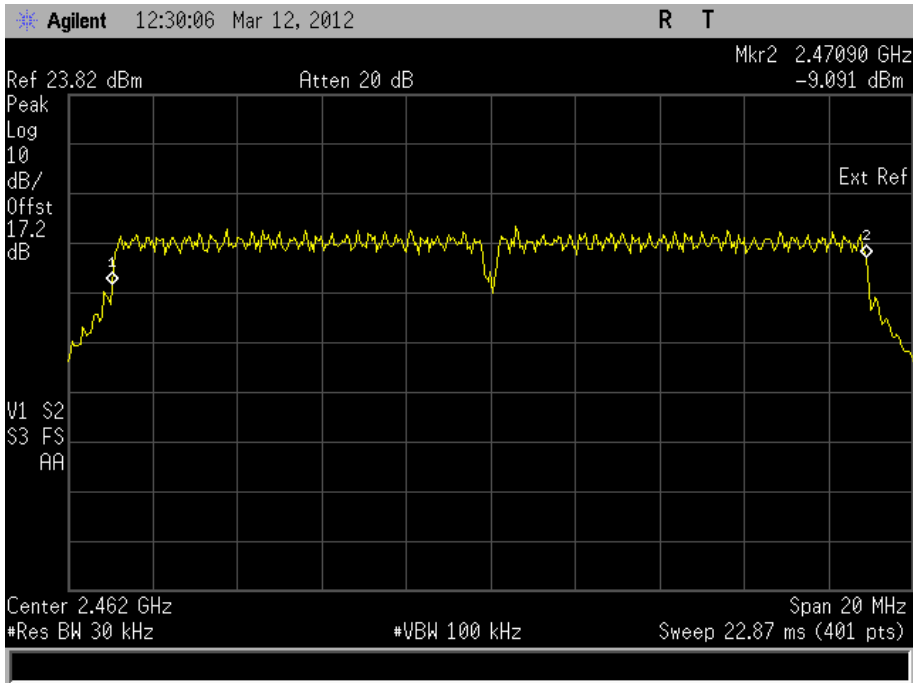
26 Mbps



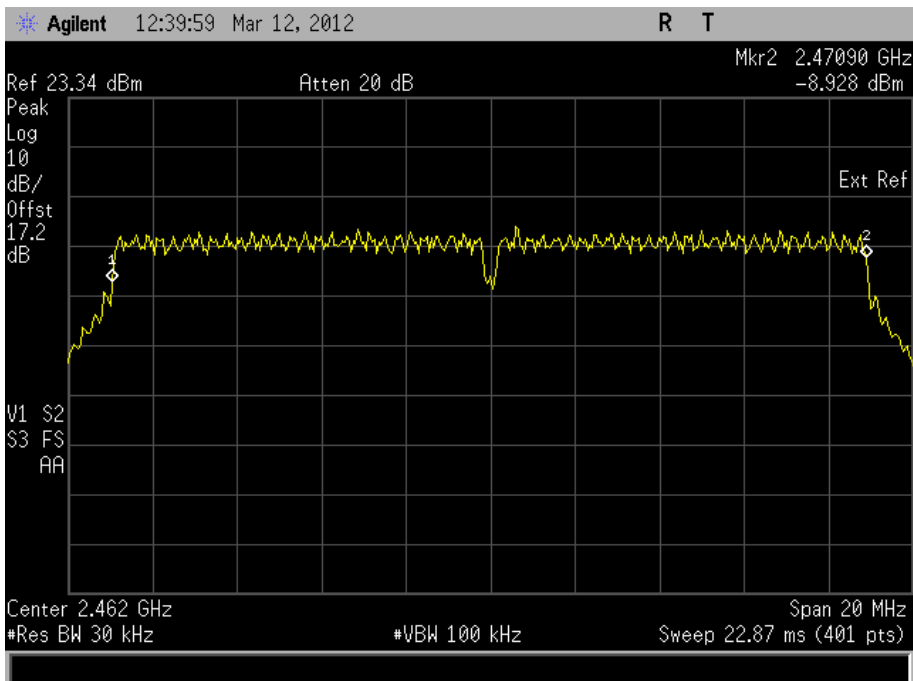


Product Service

39 Mbps



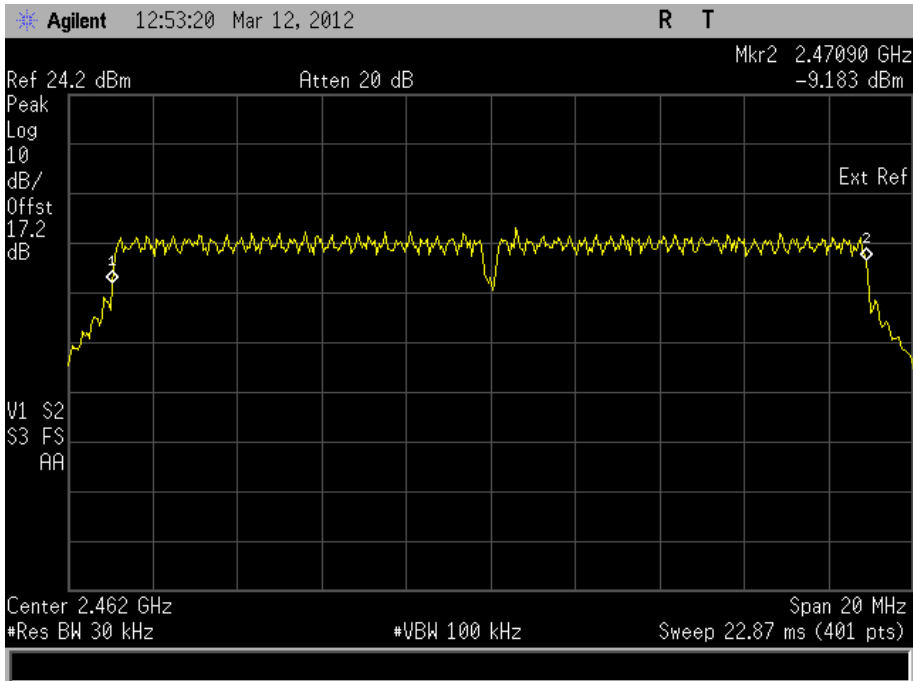
52 Mbps



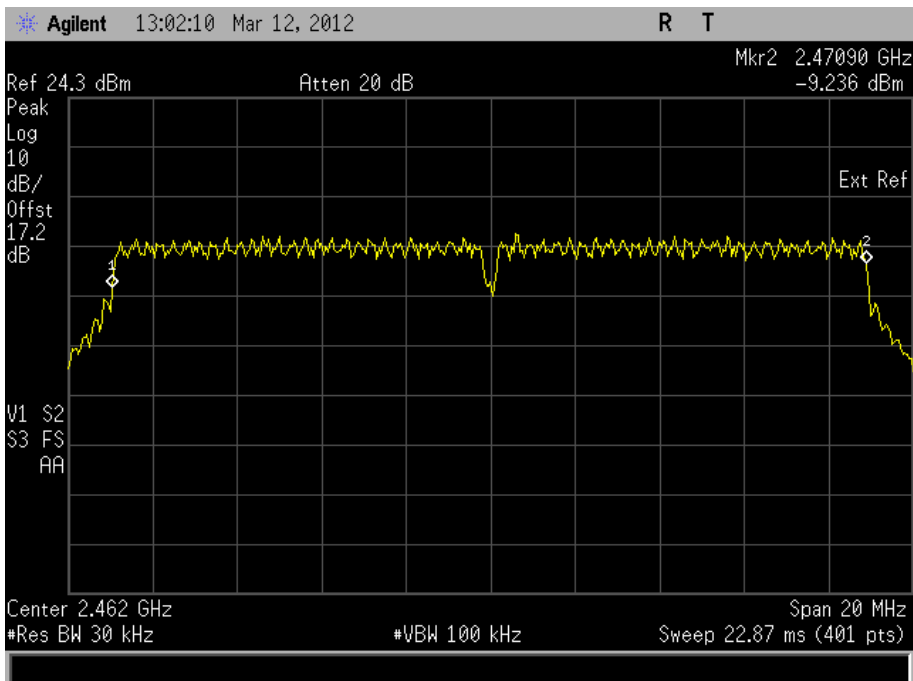


Product Service

58.5 Mbps



65 Mbps



Limit Clause

The minimum 6 dB Bandwidth shall be at least 500 kHz.



Product Service

802.11(n) - 2.4 GHz, 40 MHz BW

4V, 3.3V and 1.2V DC Supply

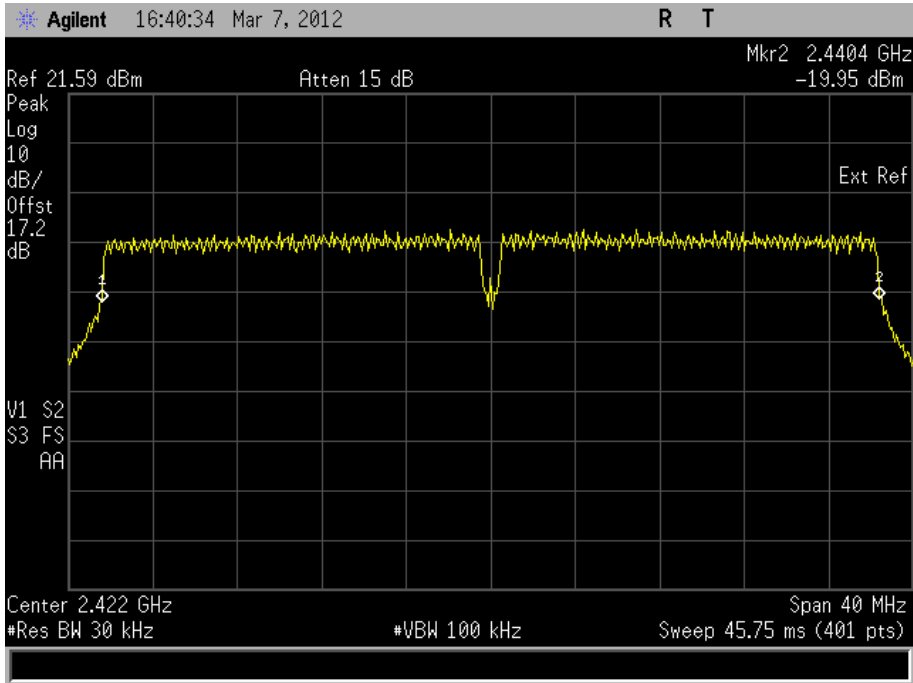
Frequency (MHz)	Data Rate (Mbps)	6dB Bandwidth (kHz)
2422 MHz	15.00	36800
	30.00	36600
	45.00	36600
	60.00	36600
	90.00	36600
	120.00	36600
	135.00	36700
	150.00	36600
2437 MHz	15.00	36700
	30.00	36600
	45.00	36600
	60.00	36600
	90.00	36600
	120.00	36600
	135.00	36700
	150.00	36600
2452 MHz	15.00	36700
	30.00	36700
	45.00	36600
	60.00	36600
	90.00	36700
	120.00	36600
	135.00	36700
	150.00	36600



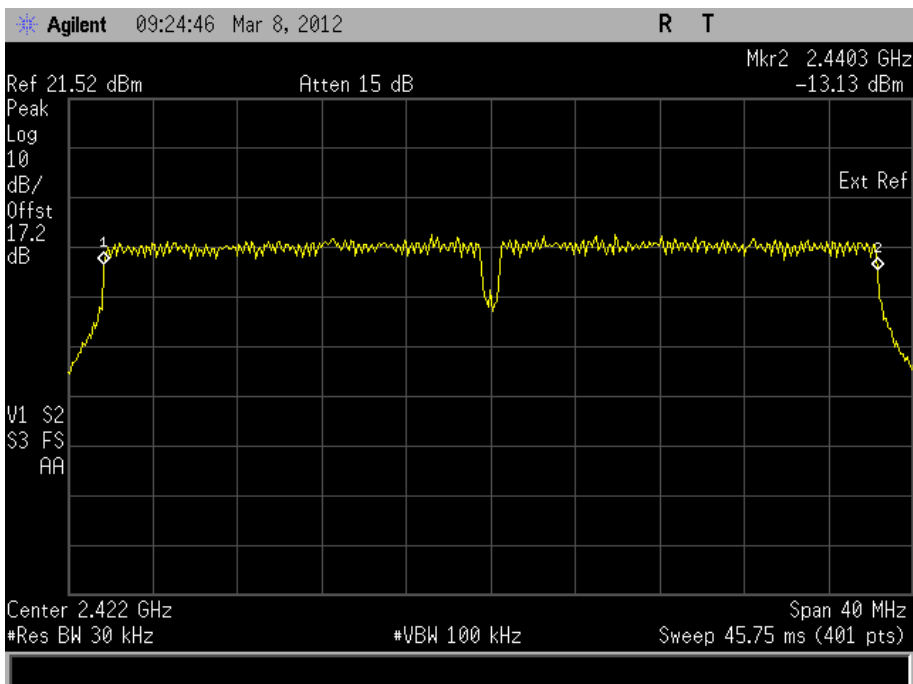
Product Service

2422 MHz

6.5 Mbps



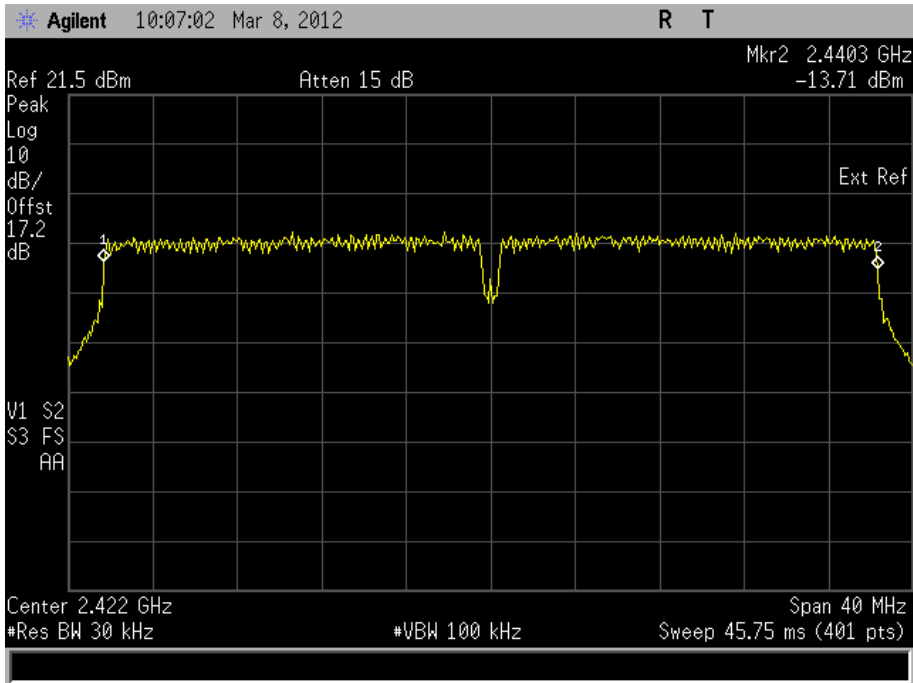
13 Mbps



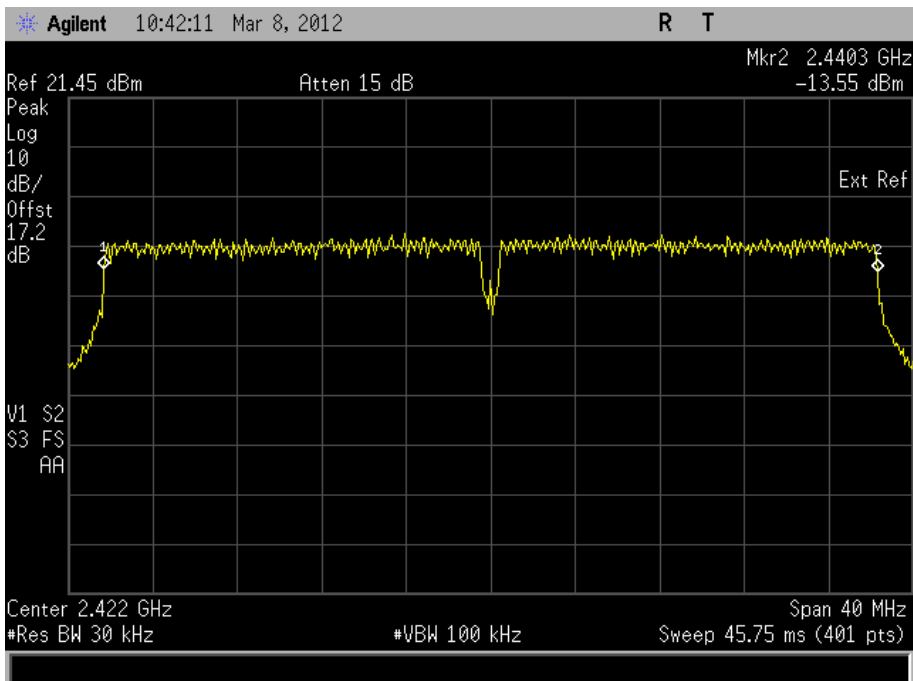


Product Service

19.5 Mbps



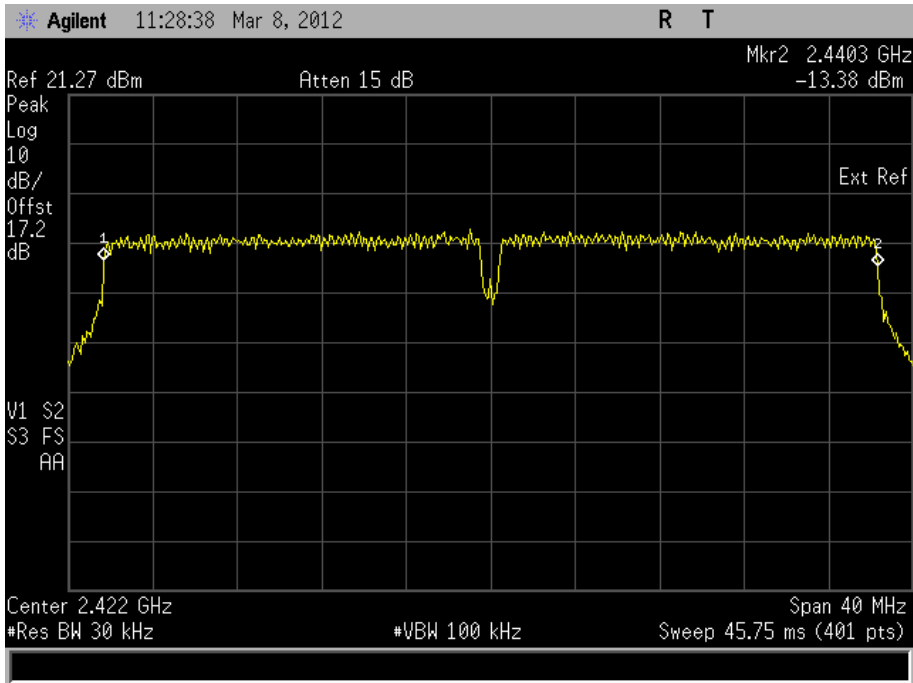
26 Mbps



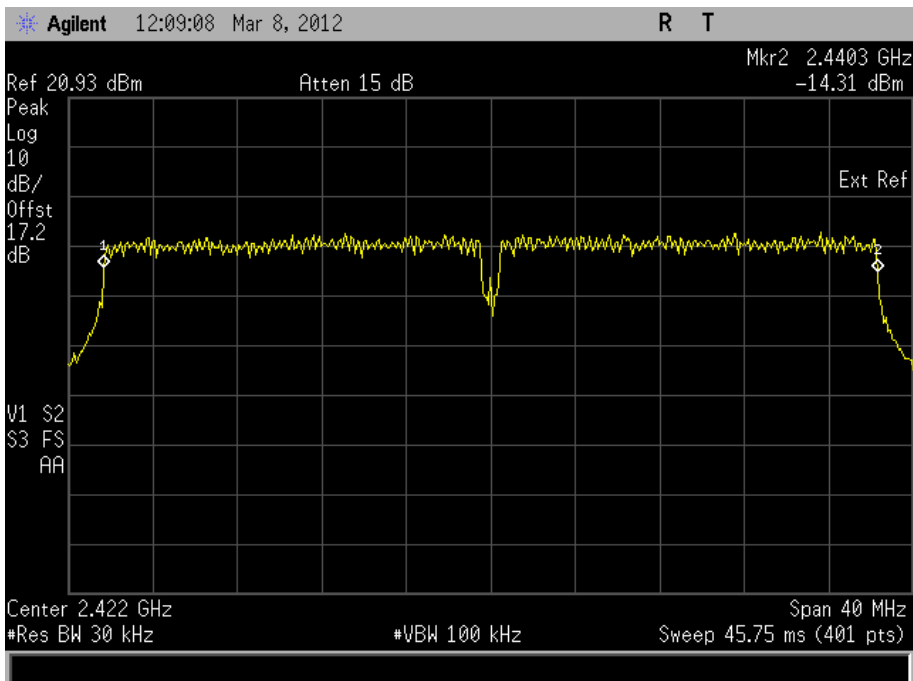


Product Service

39 Mbps



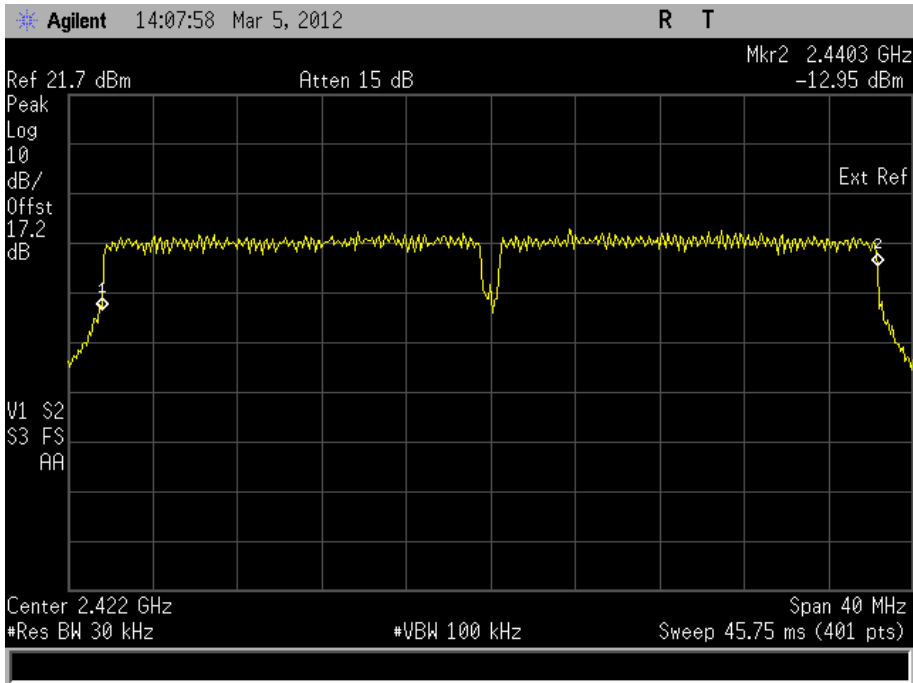
52 Mbps



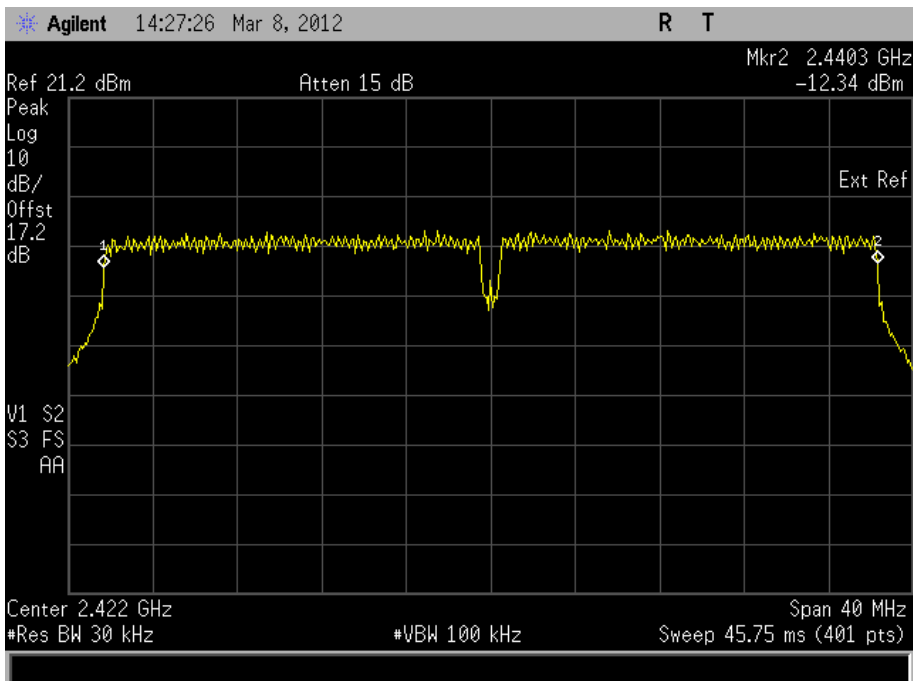


Product Service

58.5 Mbps



65 Mbps

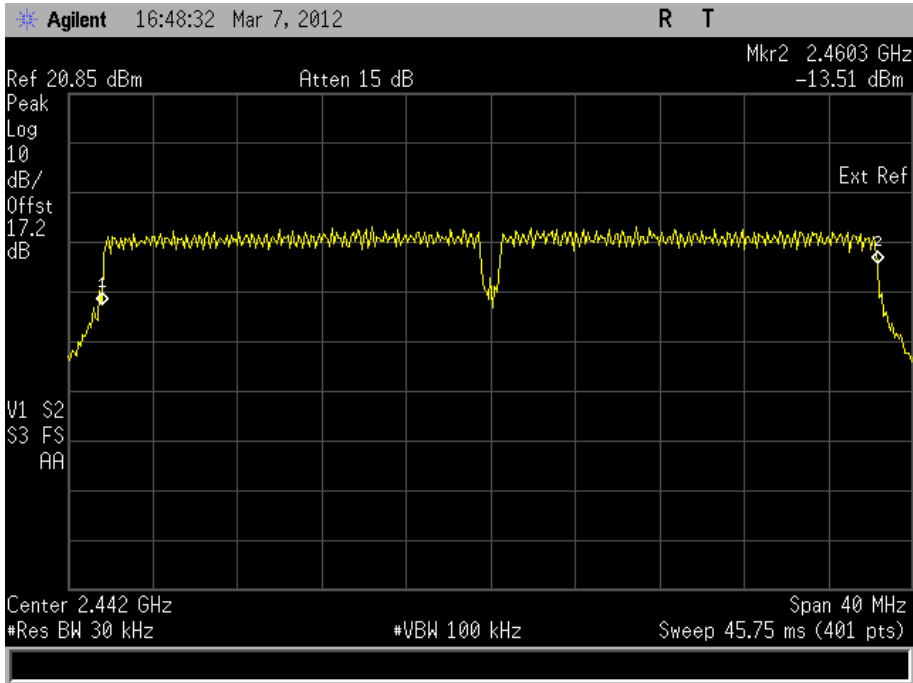




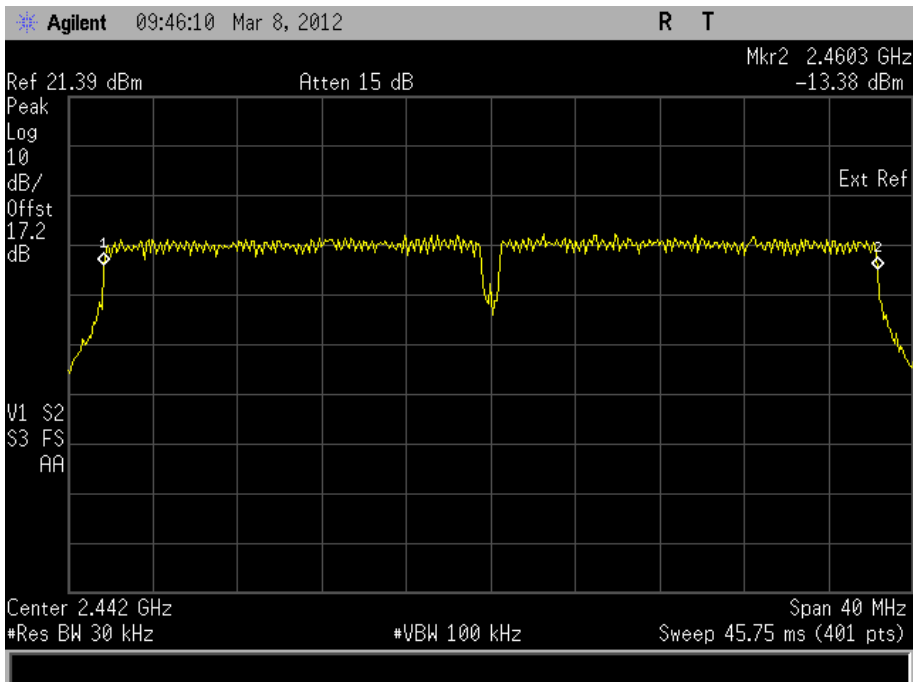
Product Service

2437 MHz

6.5 Mbps



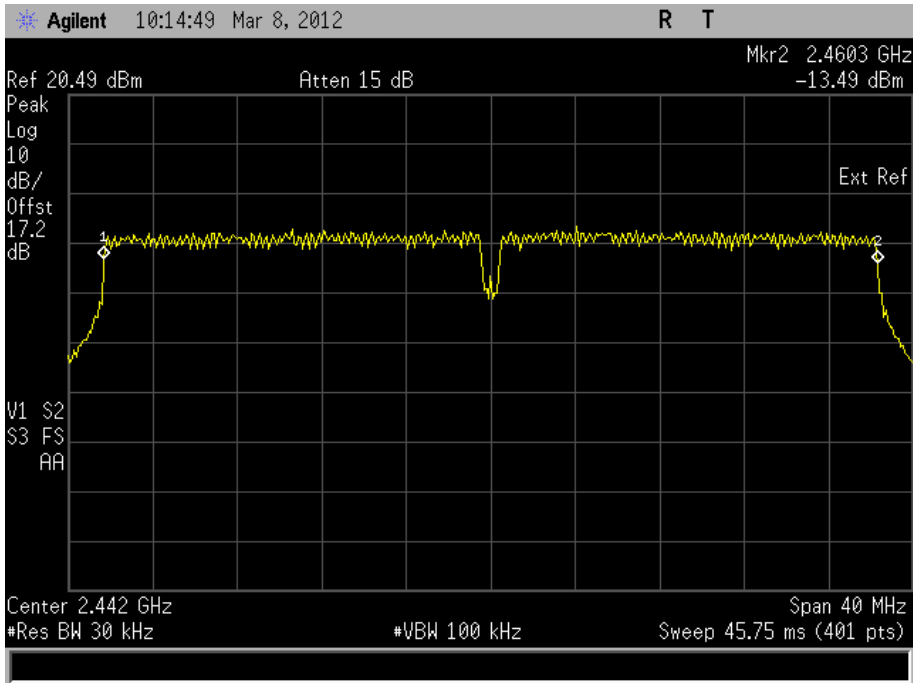
13 Mbps



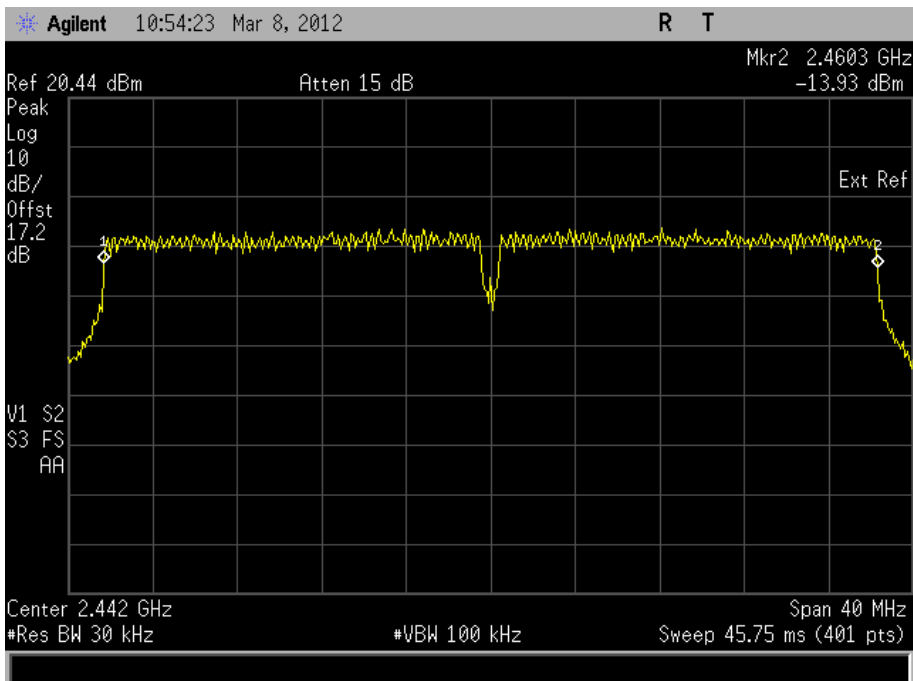


Product Service

19.5 Mbps



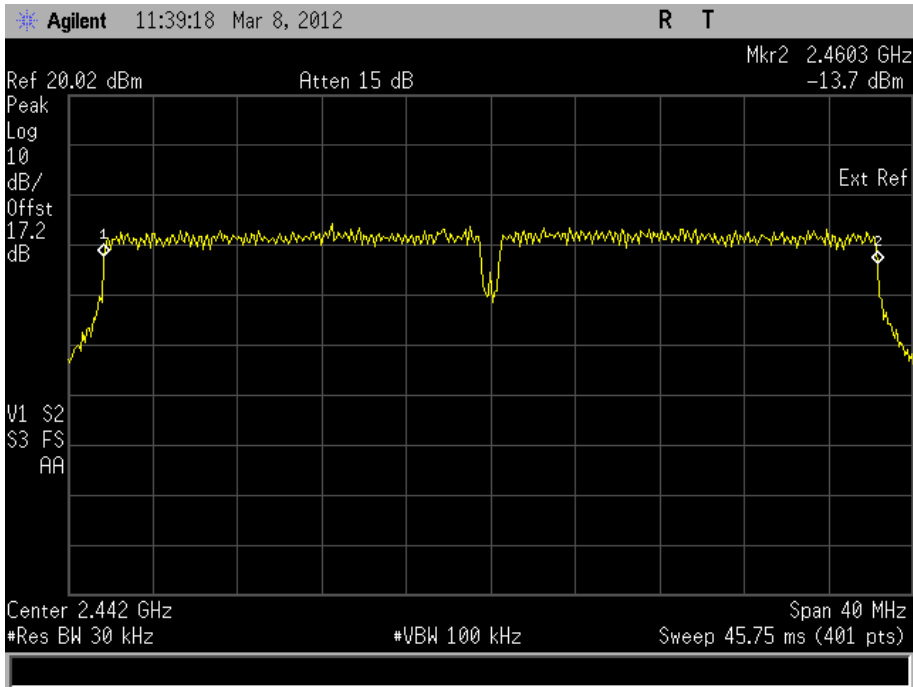
26 Mbps



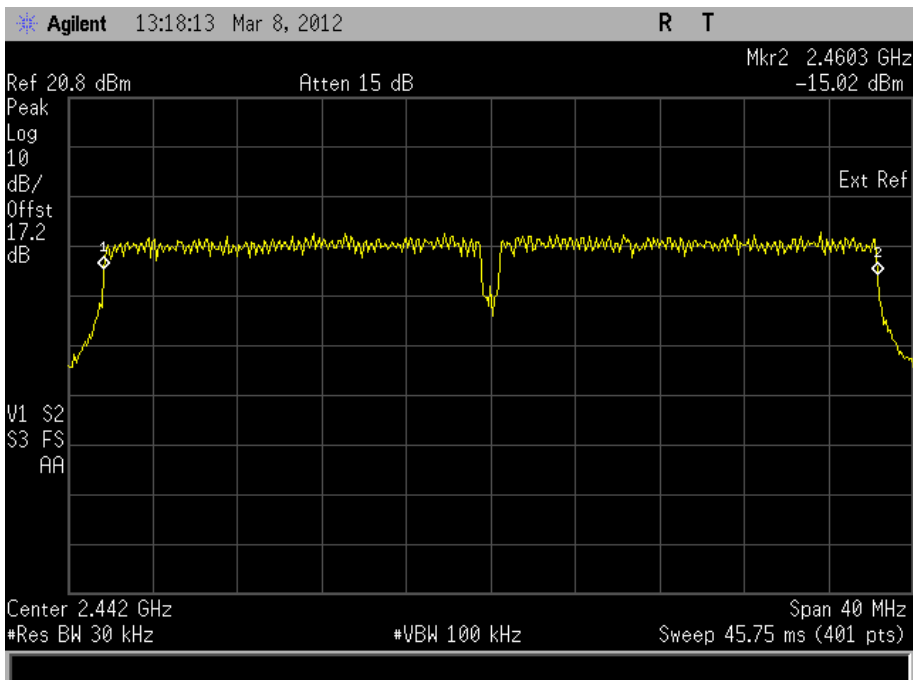


Product Service

39 Mbps



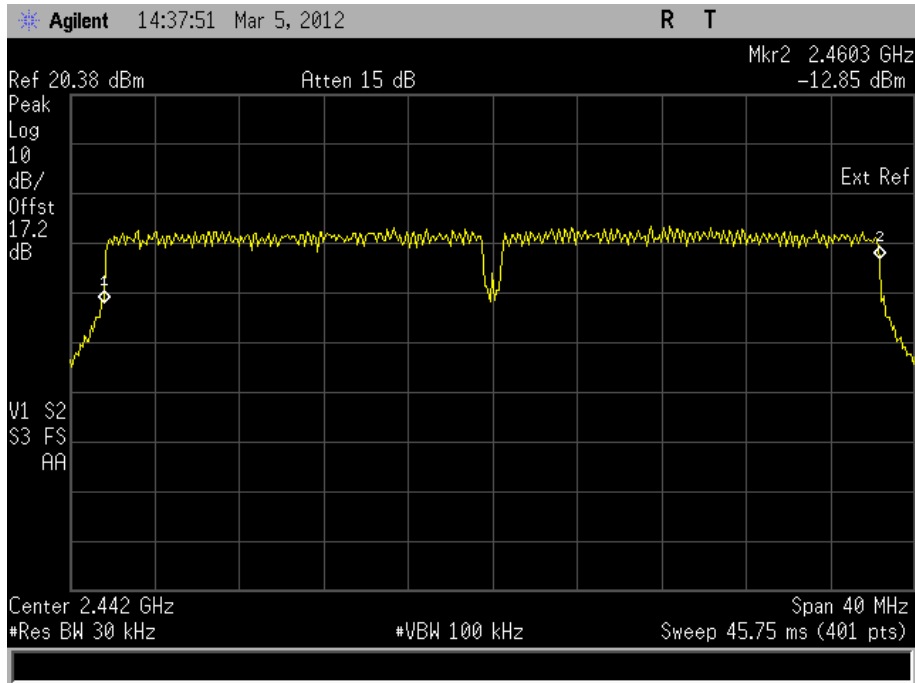
52 Mbps



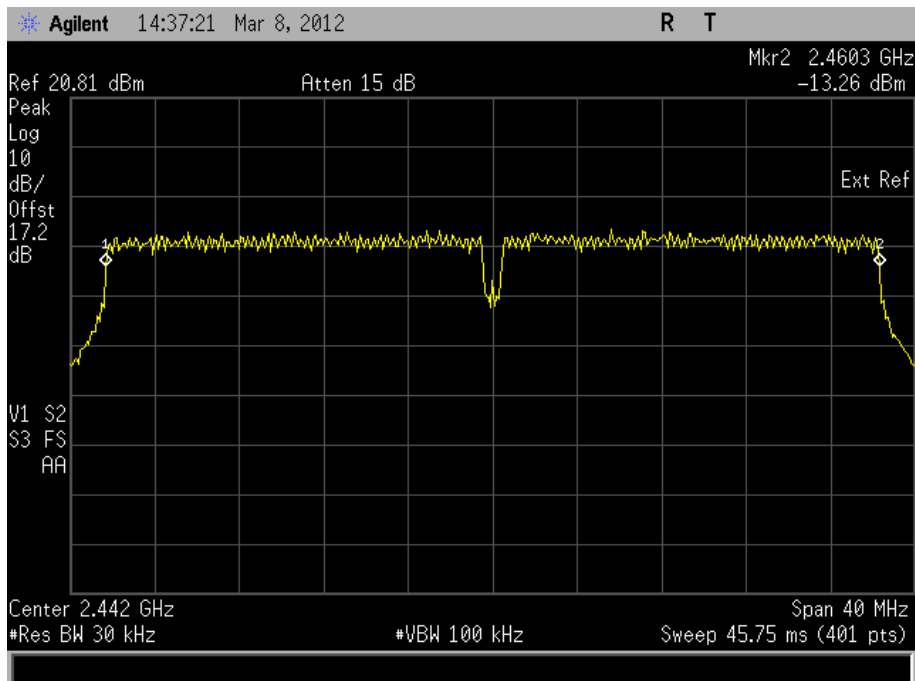


Product Service

58.5 Mbps



65 Mbps

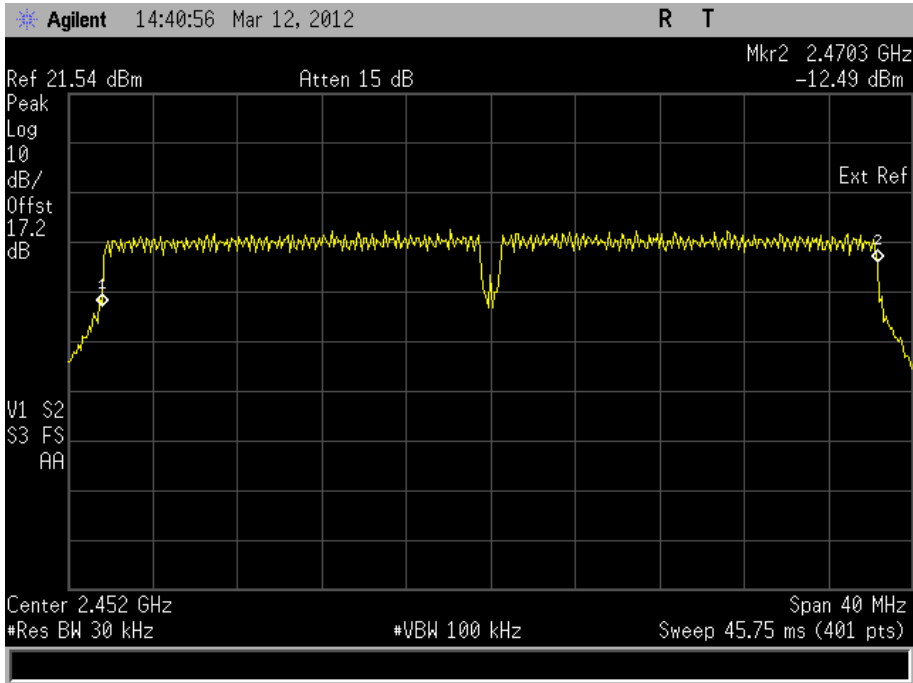




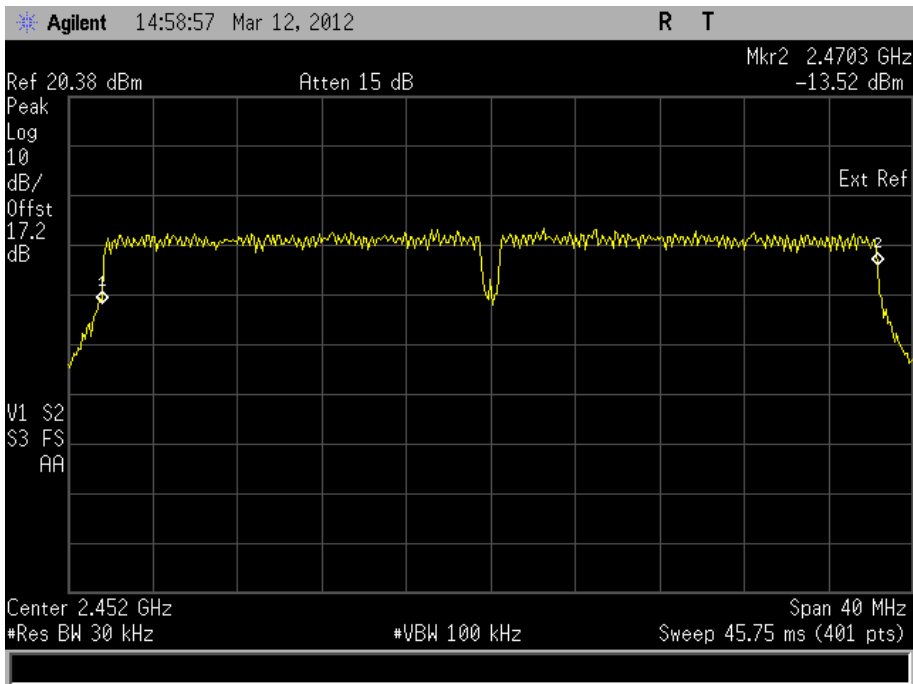
Product Service

2452 MHz

6.5 Mbps



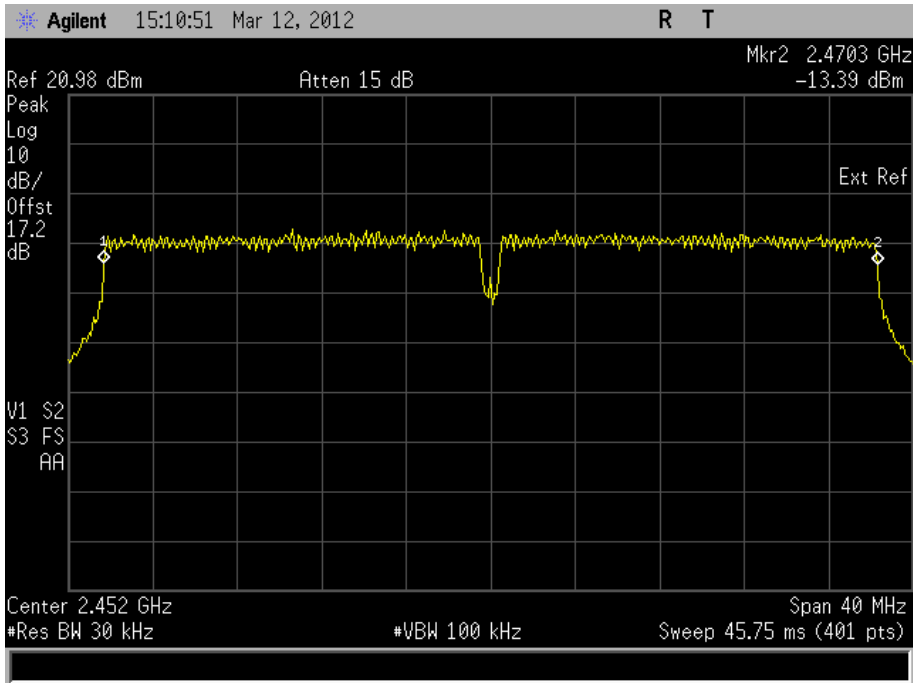
13 Mbps



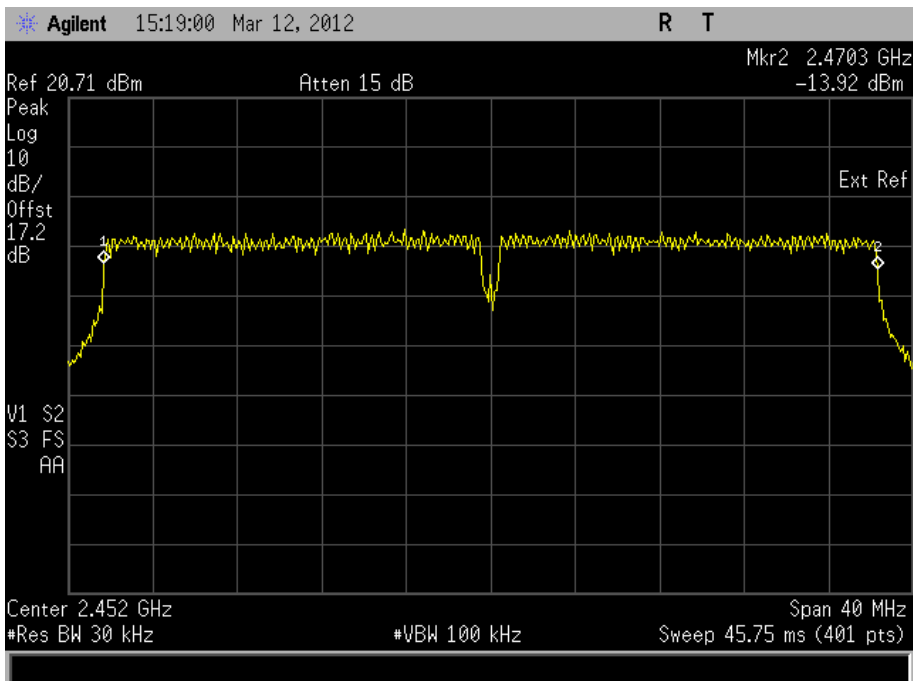


Product Service

19.5 Mbps



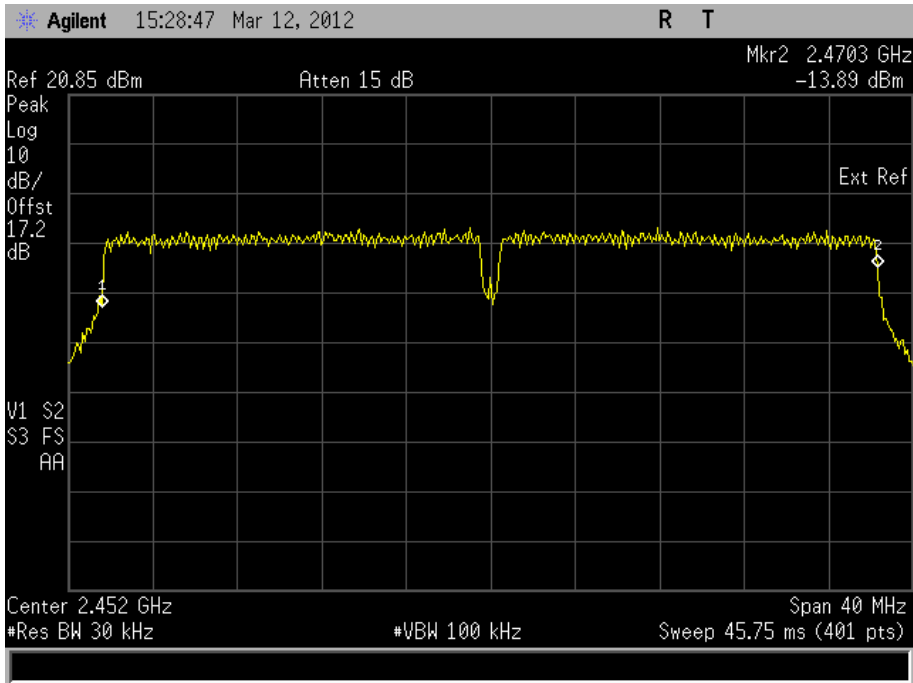
26 Mbps



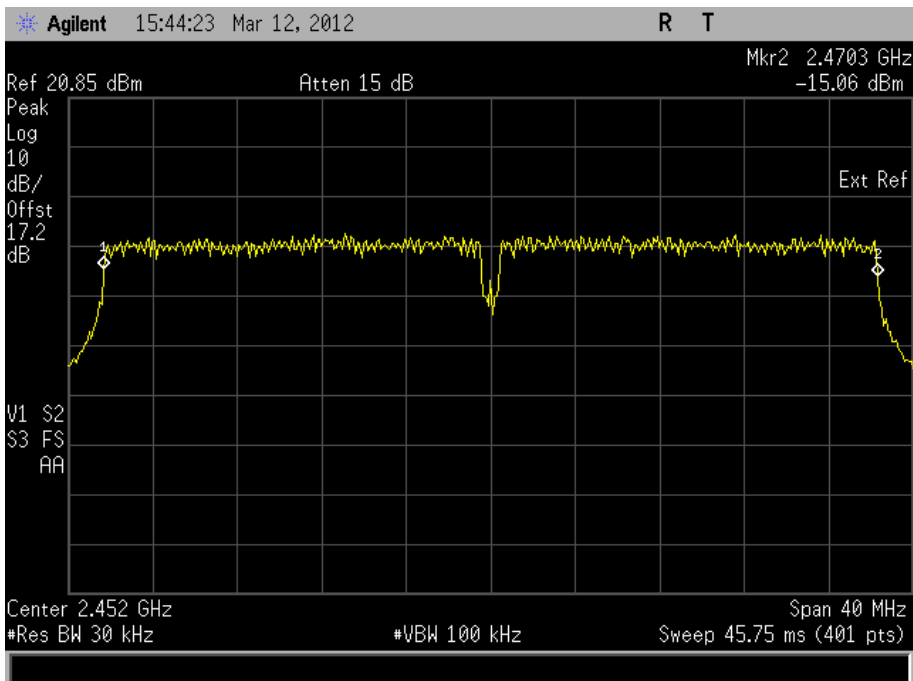


Product Service

39 Mbps



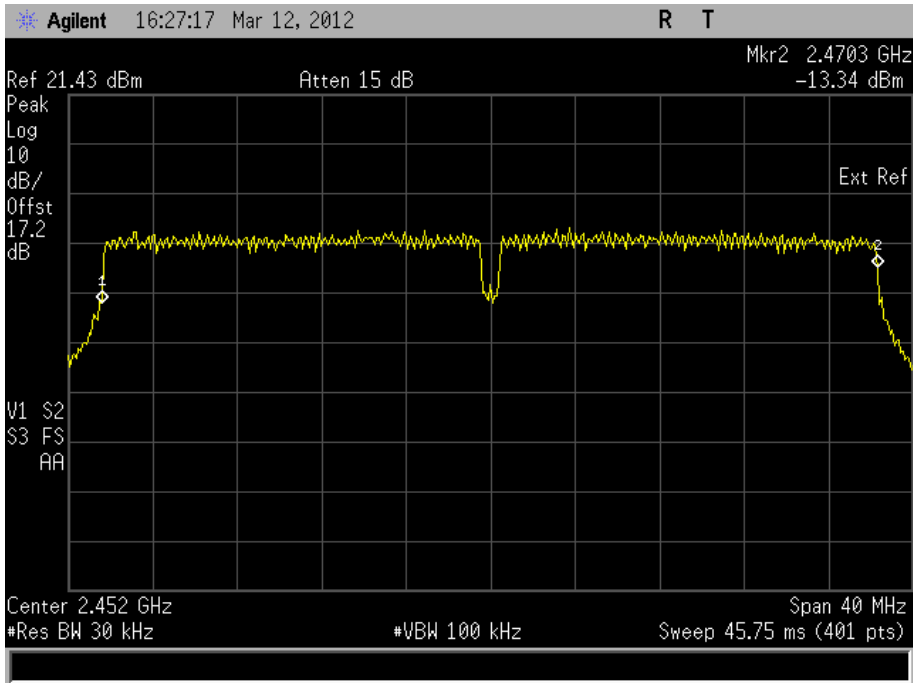
52 Mbps



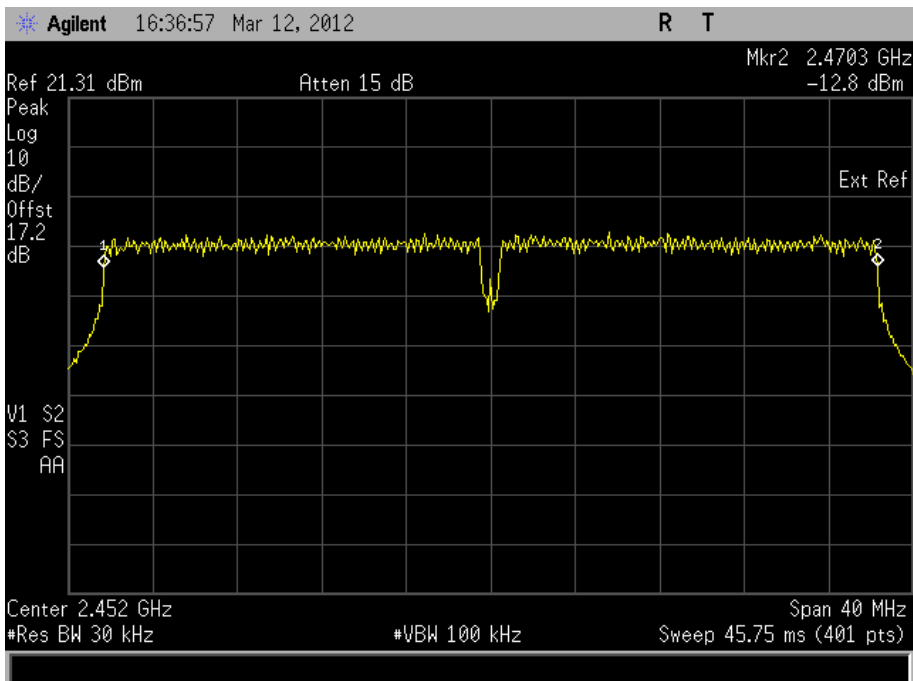


Product Service

58.5 Mbps



65 Mbps



Limit Clause

The minimum 6 dB Bandwidth shall be at least 500 kHz.



Product Service

SECTION 3

TEST EQUIPMENT USED



3.1 TEST EQUIPMENT USED

List of absolute measuring and other principal items of test equipment.

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
Section 2.1 - AC Line Conducted Emissions					
LISN (1 Phase)	Chase	MN 2050	336	12	23-Mar-2013
Transient Limiter	Hewlett Packard	11947A	1032	12	22-Jun-2012
Screened Room (5)	Rainford	Rainford	1545	36	3-Feb-2014
EMI Test Receiver	Rohde & Schwarz	ESU40	3506	12	29-Sep-2012
7m Armoured RF Cable	SSI Cable Corp.	1501-13-13-7m WA(-)	3600	-	TU
Section 2.2 - Maximum Peak Conducted Output Power					
Antenna (Double Ridge Guide)	EMCO	3115	34	12	22-Jul-2012
Spectrum Analyser	Rohde & Schwarz	FSEM	37	12	18-Apr-2012
Dual Power Supply Unit	Thurlby	PL320	288	-	TU
Dual programable power supply	Thurlby	T-1000	418	-	TU
Power Splitter	Weinschel	1506A	606	12	19-Dec-2012
Power Supply Unit	Farnell	D302T	609	-	O/P Mon
Rubidium Standard	Rohde & Schwarz	XRSM	1316	12	13-Sep-2012
Screened Room (8)	Rainford	Rainford	1548	-	TU
DC Power Supply Unit	Farnell	LT30-2	2116	-	TU
Hygrometer	Rotronic	I-1000	2882	12	5-Aug-2012
Hygrometer	Rotronic	I-1000	2891	12	3-May-2012
Antenna (DRG Horn)	ETS-LINDGREN	3115	3125	12	27-Apr-2012
Signal Generator: 10MHz to 20GHz	Rohde & Schwarz	SMR20	3475	12	20-Dec-2012
'3.5mm' - '3.5mm' RF Cable (1m)	Rhophase	3PS-1803-1000-3PS	3697	12	27-Jan-2013
DC - 12.4 GHz 10 dB Attenuator	Suhner	6810.17.A	3965	12	24-Jun-2012
P-Series Power Meter	Agilent	N1911A	3981	12	12-Sep-2012
50 MHz-18 GHz Wideband Power Sensor	Agilent	N1921A	3983	12	12-Sep-2012
Section 2.3 – EIRP Peak Power					
Peak Power Analyser	Hewlett Packard	8990A	107	12	10-Feb-2013
Antenna (Double Ridge Guide, 1GHz-18GHz)	EMCO	3115	234	12	8-Dec-2012
Antenna (Double Ridge Guide, 1GHz-18GHz)	EMCO	3115	235	12	14-Nov-2012
Screened Room (5)	Rainford	Rainford	1545	36	3-Feb-2014
Signal Generator (1GHz to 40GHz)	Rohde & Schwarz	SMR40	1589	12	11-Nov-2012
Mast Controller	Inn-Co GmbH	CO 1000	1606	-	TU
Power Sensor	Hewlett Packard	84812A	2743	-	TU
Signal Generator (10MHz to 40GHz)	Rohde & Schwarz	SMR40	3171	12	22-Aug-2012
EMI Test Receiver	Rohde & Schwarz	ESU40	3506	12	29-Sep-2012
7m Armoured RF Cable	SSI Cable Corp.	1501-13-13-7m WA(-)	3600	-	TU
'3.5mm' - '3.5mm' RF Cable (2m)	Rhophase	3PS-1803-2000-3PS	3703	-	TU
9m RF Cable (N Type)	Rhophase	NPS-2303-9000-NPS	3791	12	26-Aug-2012
Tilt Antenna Mast	maturo GmbH	TAM 4.0-P	3916	-	TU
Mast Controller	maturo GmbH	NCD	3917	-	TU



Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
Section 2.4 - Spurious and Band Edge Emissions					
30V/5A Power Supply	Farnell	L30-5	191	-	O/P Mon
Antenna (Double Ridge Guide)	Link Microtek Ltd	AM180HA-K-TU2	230	24	13-Sep-2013
Antenna (Double Ridge Guide, 1GHz-18GHz)	EMCO	3115	235	12	14-Nov-2012
Dual Power Supply Unit	Thurlby	PL320	288	-	TU
Dual programable power supply	Thurlby	T-1000	418	-	TU
Filter (High Pass)	Lorch	SHP7-7000-SR	566	12	20-Feb-2013
Power Supply Unit	Farnell	D302T	609	-	O/P Mon
Spectrum Analyser	Hewlett Packard	E4407B	1154	12	28-Jun-2012
Rubidium Standard	Rohde & Schwarz	XSRM	1316	12	13-Sep-2012
Antenna (Double Ridge Guide)	Q-Par Angus Ltd	QSH 180K	1511	24	2-Aug-2012
Pre-Amplifier	Phase One	PS04-0086	1533	12	20-Sep-2012
Pre-Amplifier	Phase One	PSO4-0087	1534	12	26-Sep-2012
Screened Room (5)	Rainford	Rainford	1545	36	3-Feb-2014
Signal Generator (1GHz to 40GHz)	Rohde & Schwarz	SMR40	1589	12	11-Nov-2012
Mast Controller	Inn-Co GmbH	CO 1000	1606	-	TU
Test Receiver	Rohde & Schwarz	ESIB40	1934	12	25-Oct-2012
DC Power Supply Unit	Farnell	LT30-2	2116	-	TU
Cable (2m, SMA-SMA)	Reynolds	262-0248-2000	2400	12	TU
High Pass Filter (4GHz)	RLC Electronics	F-100-4000-5-R	2773	12	20-Sep-2012
Hygrometer	Rotronic	I-1000	2891	12	3-May-2012
Antenna (Bilog)	Chase	CBL6143	2904	24	12-May-2013
Attenuator (20dB, 20W)	Weinschel	1	3032	12	TU
Signal Generator (10MHz to 40GHz)	Rohde & Schwarz	SMR40	3171	12	22-Aug-2012
EMI Test Receiver	Rohde & Schwarz	ESU40	3506	12	29-Sep-2012
Signal Analyser	Rohde & Schwarz	FSQ 26	3545	12	21-Apr-2012
3 GHz High Pass Filter	K&L Microwave	11SH10-3000/X18000-O/O	3552	12	14-Apr-2012
'2.92mm' - '2.92mm' RF Cable (2m)	Rhophase	KPS-1503-2000-KPS	3694	12	TU
'2.92mm' - '2.92mm' RF Cable (2m)	Rhophase	KPS-1503-2000-KPS	3695	12	TU
'3.5mm' - '3.5mm' RF Cable (1m)	Rhophase	3PS-1803-1000-3PS	3697	12	27-Jan-2013
'3.5mm' - '3.5mm' RF Cable (2m)	Rhophase	3PS-1803-2000-3PS	3703	-	TU
9m RF Cable (N Type)	Rhophase	NPS-2303-9000-NPS	3791	12	26-Aug-2012
Tilt Antenna Mast	matur GmbH	TAM 4.0-P	3916	-	TU
Mast Controller	matur GmbH	NCD	3917	-	TU
Low Noise Amplifier	Wright Technologies	APS04-0085	3969	12	8-Jul-2012
Section 2.5 - Power Spectral Density					
Dual programable power supply	Thurlby	T-1000	418	-	TU
Power Splitter	Weinschel	1506A	606	12	19-Dec-2012
Power Supply Unit	Farnell	D302T	609	-	O/P Mon
Spectrum Analyser	Hewlett Packard	E4407B	1154	12	28-Jun-2012
GPS Frequency Standard	Rapco	GPS-804/3	1312	6	13-Mar-2012
Hygrometer	Rotronic	I-1000	2891	12	3-May-2012
'3.5mm' - '3.5mm' RF Cable (1m)	Rhophase	3PS-1803-1000-3PS	3697	12	27-Jan-2013
DC - 12.4 GHz 10 dB Attenuator	Suhner	6810.17.A	3965	12	24-Jun-2012



Product Service

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
Section 2.6 - 6dB Bandwidth					
Dual programable power supply	Thurlby	T-1000	418	-	TU
Power Splitter	Weinschel	1506A	606	12	19-Dec-2012
Power Supply Unit	Farnell	D302T	609	-	O/P Mon
Spectrum Analyser	Hewlett Packard	E4407B	1154	12	28-Jun-2012
GPS Frequency Standard	Rapco	GPS-804/3	1312	6	13-Mar-2012
Hygrometer	Rotronic	I-1000	2891	12	3-May-2012
'3.5mm' - '3.5mm' RF Cable (1m)	Rhophase	3PS-1803-1000-3PS	3697	12	27-Jan-2013
DC - 12.4 GHz 10 dB Attenuator	Suhner	6810.17.A	3965	12	24-Jun-2012

TU – Traceability Unscheduled

O/P MON – Output Monitored with Calibrated Equipment



3.2 MEASUREMENT UNCERTAINTY

For a 95% confidence level, the measurement uncertainties for defined systems are:-

Test Discipline	MU
EIRP Peak Power	30MHz to 1GHz: ± 5.1 dB 1GHz to 40GHz: ± 6.3 dB
Spurious and Band Edge Emissions	30MHz to 1GHz: ± 5.1 dB 1GHz to 40GHz: ± 6.3 dB
6dB Bandwidth	± 212.114 kHz
Power Spectral Density	± 3.0 dB
Maximum Peak Conducted Output Power	± 0.70 dB
AC Line Conducted Emissions	± 3.2 dB



Product Service

SECTION 4

ACCREDITATION, DISCLAIMERS AND COPYRIGHT



Product Service

4.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT



This report relates only to the actual item/items tested.

Our UKAS Accreditation does not cover opinions and interpretations and any expressed are outside the scope of our UKAS Accreditation.

Results of tests not covered by our UKAS Accreditation Schedule are marked NUA
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