

Test of Wavion WBSn-2450 Wireless LAN Access
Point

To: FCC 47 CFR Part 15.247 & IC RSS-210

Test Report Serial No.: WAVI02-U1 Rev A



TEST REPORT

FROM



Test of Wavion WBSn-2450-OS/-SO Wireless LAN Access Point

to

To FCC 47 CFR Part 15.247 & IC RSS-210

Test Report Serial No.: WAVI02-U1 Rev A

Note: this report contains data with regard to the 2400 to 2483.5 MHz and 5725 to 5850 MHz operational modes of the Wavion WBSn-2450 wireless LAN access point.

This report supersedes: NONE

Applicant: Wavion Ltd
15 Hamada Street
Yoqneam Illit
Israel 20692

Product Function: Wireless LAN Access Point

Copy No: pdf Issue Date: 30th March 2012

This Test Report is Issued Under the Authority of:

MiCOM Labs, Inc.

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TEST CERTIFICATE #2381.01

MiCOM Labs is an ISO 17025 Accredited Testing Laboratory



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ACCREDITATION, LISTINGS & RECOGNITION

TESTING ACCREDITATION

MiCOM Labs, Inc. is an accredited Electrical testing laboratory per the international standard EN ISO/IEC 17025. The company is accredited by the American Association for Laboratory Accreditation (A2LA) www.a2la.org test laboratory number 2381.01. MiCOM Labs test schedule is available at the following URL; <http://www.a2la.org/scopepdf/2381-01.pdf>



The American Association for Laboratory Accreditation

Accredited Laboratory

A2LA has accredited

MICOM LABS

Pleasanton, CA

for technical competence in the field of

Electrical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *General Requirements for the Competence of Testing and Calibration Laboratories*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated 8 January 2009).

Presented this 27th day of March 2012.



President & CEO
For the Accreditation Council
Certificate Number 2381.01
Valid to November 30, 2013

For the tests or types of tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.

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RECOGNITION

MiCOM Labs, Inc has widely recognized Electrical testing capabilities. Our international recognition includes Conformity Assessment Body designation by APEC MRA** countries. Our test reports are widely accepted for global type approvals.

Country	Recognition Body	Status	Phase	Identification No.
USA	Federal Communications Commission (FCC)	TCB	-	Listing #: 102167
Canada	Industry Canada (IC)	FCB	APEC MRA 2	Listing #: 4143A-2
Japan	MIC (Ministry of Internal Affairs and Communication)	CAB	APEC MRA 2	210
	VCCI	--	--	No. 2959
Europe	European Commission	NB	EU MRA	NB 2280
Australia	Australian Communications and Media Authority (ACMA)	CAB	APEC MRA 1	US0159
Hong Kong	Office of the Telecommunication Authority (OFTA)	CAB	APEC MRA 1	
Korea	Ministry of Information and Communication Radio Research Laboratory (RRL)	CAB	APEC MRA 1	
Singapore	Infocomm Development Authority (IDA)	CAB	APEC MRA 1	
Taiwan	National Communications Commission (NCC) Bureau of Standards, Metrology and Inspection (BSMI)	CAB	APEC MRA 1	
Vietnam	Ministry of Communication (MIC)	CAB	APEC MRA 1	

**APEC MRA – Asia Pacific Economic Community Mutual Recognition Agreement.

Is a recognition agreement under which test lab is accredited to regulatory standards of the APEC member countries.

Phase I - recognition for product testing

Phase II – recognition for both product testing and certification

N/A – Not Applicable

**EU MRA – European Union Mutual Recognition Agreement.

Is a recognition agreement under which test lab is accredited to regulatory standards of the EU member countries.

**NB – Notified Body

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PRODUCT CERTIFICATION

MiCOM Labs, Inc. is an accredited Product Certification Body per the international standard EN ISO/IEC Guide 65. The company is accredited by the American Association for Laboratory Accreditation (A2LA) www.a2la.org test laboratory number 2381.02. MiCOM Labs test schedule is available at the following URL; <http://www.a2la.org/scopepdf/2381-02.pdf>



The American Association for Laboratory Accreditation

Accredited Product Certification Body

A2LA has accredited

MICOM LABS

Pleasanton, CA

for technical competence as a

Product Certification Body

This product certification body is accredited in accordance with the recognized International Standard ISO/IEC Guide 65:1996 *General requirements for bodies operating product certification systems*. This accreditation demonstrates technical competence for a defined scope and the operation of a quality management system.

Presented this 27th day of March 2012.



President & CEO
For the Accreditation Council
Certificate Number 2381.02
Valid to November 30, 2013

For the product certification schemes to which this accreditation applies, please refer to the organization's Product Certification Scope of Accreditation

USA Telecommunication Certification Body (TCB) - TCB Identifier – US0159

Industry Canada Certification Body - CAB Identifier – US0159

European Notified Body - Notified Body Identifier - 2280

Japan – Recognized Certification Body (RCB) - RCB Identifier - 210

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DOCUMENT HISTORY

Document History		
Revision	Date	Comments
Draft		
Rev A	30 th March 2012	Initial release.

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1. TEST RESULT CERTIFICATE

Manufacturer:	Wavion Ltd 15 Hamada Street Yoqneam Illit Israel 20692	Tested By:	MiCOM Labs, Inc. 440 Boulder Court Suite 200 Pleasanton California, 94566, USA
EUT:	802.11a/b/g/n Wireless LAN Access Point	Telephone:	+1 925 462 0304
Model:	WBSn-2450-OS/-SO	Fax:	+1 925 462 0306
S/N's:	1153R00131565, 1206R00144608, 1153R00131566		
Test Date(s):	16th to 25th February 2012	Website:	www.micomlabs.com

STANDARD(S)	TEST RESULTS
FCC 47 CFR Part 15.247 & IC RSS-210	EQUIPMENT COMPLIES

MiCOM Labs, Inc. tested the equipment mentioned in accordance with the requirements set forth in the above standards. Test results indicate that the equipment tested is capable of demonstrating compliance with the requirements as documented within this report.

Notes:

1. This document reports conditions under which testing was conducted and the results of testing performed.
2. Details of test methods used have been recorded and kept on file by the laboratory.
3. Test results apply only to the item(s) tested.

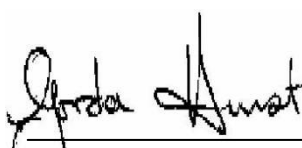
Approved & Released for MiCOM Labs, Inc. by:



TEST CERTIFICATE #2381.01



Graeme Grieve
Quality Manager MiCOM Labs,



Gordon Hurst
President & CEO MiCOM Labs, Inc.

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2. REFERENCES AND MEASUREMENT UNCERTAINTY

2.1. Normative References

REF.	PUBLICATION	YEAR	TITLE
i.	FCC 47 CFR Part 15, Subpart C	2010	Title 47: Telecommunication PART 15—RADIO FREQUENCY DEVICES Subpart C—Intentional Radiators
ii.	RSS-210 Annex 8	2010	Radio Standards Specification 210, Issue 8, Low-power License-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment
iii.	FCC OET KDB 662911	4 th April 2011	Emissions Testing of Transmitters with Multiple Outputs in the Same Band
iv.	DA 00-705	2000	FCC DA 00-705 "Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems" released March 30, 2000
v.	RSS-GEN	2010	Radio Standards Specification-Gen, Issue 3, General Requirements and Information for the Certification of Radiocommunication Equipment
vi.	FCC 47 CFR Part 15, Subpart B	2010	47 CFR Part 15, SubPart B; Unintentional Radiators
vii.	ICES-003	2004	Spectrum Management and Telecommunications Policy Interference-Causing Equipment Standard Digital Apparatus; Issue 4
viii.	ANSI C63.4	2009	American National Standards for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
ix.	CISPR 22/ EN 55022	2008 2006+A1:2007	Limits and Methods of Measurements of Radio Disturbance Characteristics of Information Technology Equipment
x.	M 3003	Edition 1 Dec. 1997	Expression of Uncertainty and Confidence in Measurements
xi.	LAB34	Edition 1 Aug 2002	The expression of uncertainty in EMC Testing
xii.	ETSI TR 100 028	2001	Parts 1 and 2 Electromagnetic compatibility and Radio Spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics
xiii.	A2LA	9th June 2010	Reference to A2LA Accreditation Status – A2LA Advertising Policy

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2.2. Test and Uncertainty Procedures

Conducted and radiated emission measurements were conducted in accordance with American National Standards Institute ANSI C63.4, listed in the Normative References section of this report.

Measurement uncertainty figures are calculated in accordance with ETSI TR 100 028 Parts 1 and 2.

Measurement uncertainties stated are based on a standard uncertainty multiplied by a coverage factor $k = 2$, providing a level of confidence of approximately 95 % in accordance with UKAS document M 3003 listed in the Normative References section of this report.



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3. PRODUCT DETAILS AND TEST CONFIGURATIONS

3.1. Technical Details

Details	Description		
Purpose:	Test of the Wavion WBSn-2450-OS/-SO Wireless LAN Access Point to FCC Part 15.247 and Industry Canada RSS-210 regulations.		
Applicant:	Wavion Ltd 15 Hamada Street Yotneam Illit, Israel 20692		
Manufacturer:	As applicant.		
Laboratory performing the tests:	MiCOM Labs, Inc. 440 Boulder Court, Suite 200 Pleasanton, California 94566 USA		
Test report reference number:	WAVI02-U1 Rev A		
Date EUT received:	8 th February 2012		
Standard(s) applied:	FCC 47 CFR Part 15.247 & IC RSS-210		
Dates of test (from - to):	16th to 25th February 2012		
No of Units Tested:	3		
Type of Equipment:	802.11a/b/g/n Wireless Access Point, 3x3 Spatial Multiplexing MIMO configuration		
Manufacturers Trade Name:	Wireless Access Point		
Model(s):	WBSn-2450-OS/-SO		
Location for use:	Indoor/Outdoor		
Declared Frequency Range(s):	2400 - 2483.5 MHz; 5725 - 5850 MHz		
Software Release	NART		
Type of Modulation:	Per 802.11 –CCK, BPSK, QPSK, DSSS, OFDM		
Declared Nominal Average Output Power:	<table><tr><td><u>2.4 GHz</u> 802.11b: +28 dBm 802.11g:Leg. +28 dBm 802.11 n HT-20: +28 dBm 802.11 n HT-40: +28 dBm</td><td><u>5.8 GHz</u> 802.11a: +28 dBm 802.11 n HT-20: +28 dBm 802.11n HT-40: +28 dBm</td></tr></table>	<u>2.4 GHz</u> 802.11b: +28 dBm 802.11g:Leg. +28 dBm 802.11 n HT-20: +28 dBm 802.11 n HT-40: +28 dBm	<u>5.8 GHz</u> 802.11a: +28 dBm 802.11 n HT-20: +28 dBm 802.11n HT-40: +28 dBm
<u>2.4 GHz</u> 802.11b: +28 dBm 802.11g:Leg. +28 dBm 802.11 n HT-20: +28 dBm 802.11 n HT-40: +28 dBm	<u>5.8 GHz</u> 802.11a: +28 dBm 802.11 n HT-20: +28 dBm 802.11n HT-40: +28 dBm		
EUT Modes of Operation:	Legacy 802.11a/b/g, 802.11n HT-20, HT-40		
Transmit/Receive Operation:	Time Division Duplex		
Rated Input Voltage and Current:	POE 55 Vdc		
Operating Temperature Range:	Declared range -40° to +55°C		

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ITU Emission Designator:	2400 – 2483.5 MHz 802.11b	17M2G1D
	2400 – 2483.5 MHz 802.11g	27M9D1D
	2400 – 2483.5 MHz 802.11n – HT-20	27M8D1D
	2400 – 2483.5 MHz 802.11n – HT-40	51M3D1D
	5725 – 5850 MHz 802.11a, 5 MHz	4M3D1D
	5725 – 5850 MHz 802.11a, 10 MHz	13M1D1D
	5725 – 5850 MHz 802.11a	34M5D1D
	5725 – 5850 MHz 802.11n – HT-20	35M3D1D
	5725 – 5850 MHz 802.11n – HT-40	69M9D1D
Frequency Stability:	±20 ppm max	
Equipment Dimensions:	38cm x 14cm x 43.5cm (Excluding Antenna's)	
Weight:	3.75 Kg	
Primary function of equipment:	Outdoor WiFi.	

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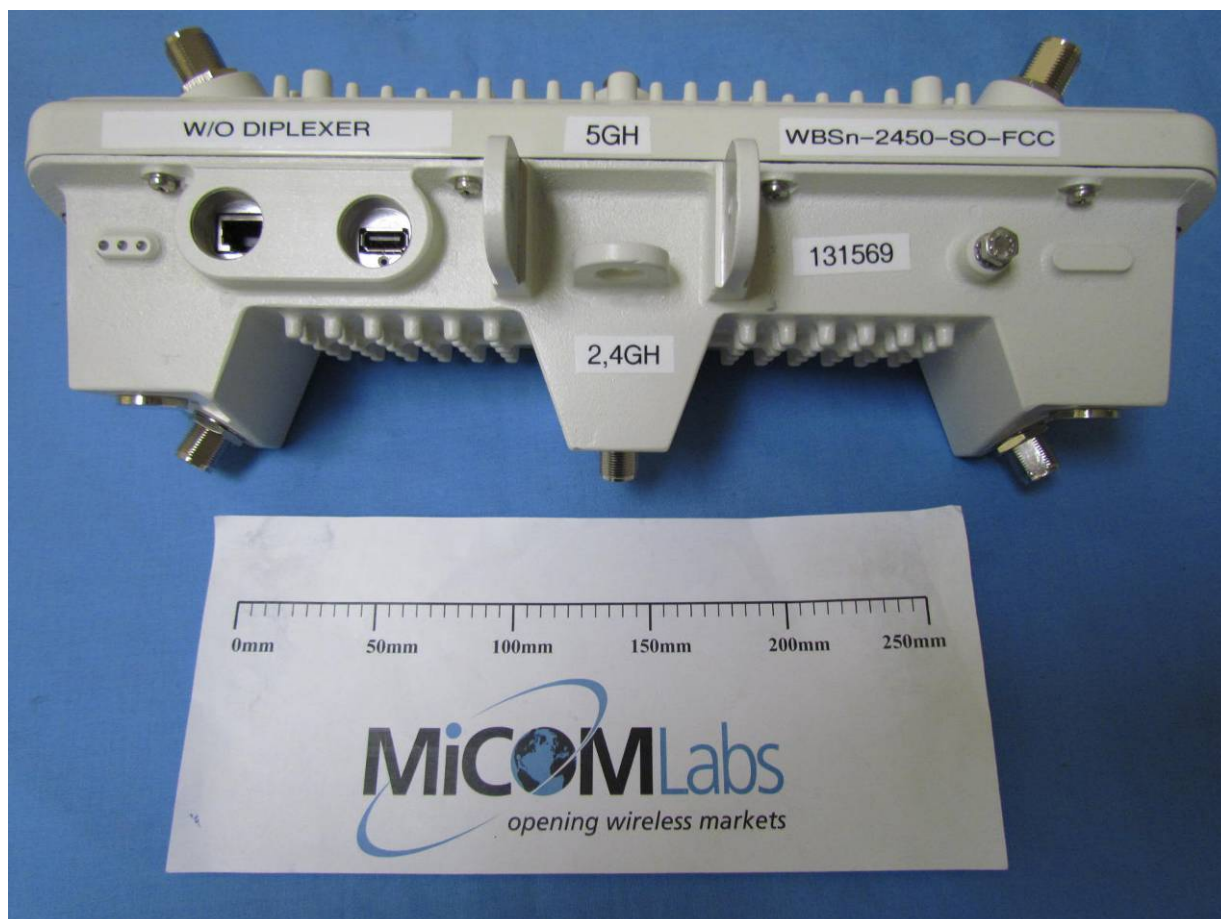
3.2. Scope of Test Program

The scope of the test program was to test the Wavion WBSn-2450-OS/-SO Wireless LAN Access Point 3x3 Spatial Multiplexing MIMO configurations in the frequency ranges 2400 - 2483.5 MHz and 5725 – 5850 MHz for compliance against FCC 47 CFR Part 15.247 and Industry Canada RSS-210 specifications.

Models	Manufacturers Statement of Model Differences
WBSn-2450 Series	
WBSn-2450-SO	Sector antenna on 2.4 GHz (under the Radom), Omni antenna on 5.x GHz
WBSn-2450-OS	Omni antenna on 2.4 GHz and Sector antenna on 5.x GHz (under the Radom)

As model differences were restricted to antenna types model WBSn-2450-SO was chosen to prove compliance.

Wavion Ltd
WBSn-2450-SO 802.11 a/b/g/n Wireless Access Point



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Wavion Ltd
WBSn-2450-SO 802.11 a/b/g/n Wireless Access Point



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3.3. Equipment Model(s) and Serial Number(s)

Type (EUT/Support)	Equipment Description (Including Brand Name)	Mfr	Model No.	Serial No.
EUT	802.11a/b/g/n Wireless Access Point	Wavion	WBSn-2450-SO	Conducted only 131569
EUT	802.11a/b/g/n Wireless Access Point	Wavion	WBSn-2450-O	Conducted & Radiated 1206R00144608
EUT	802.11a/b/g/n Wireless Access Point	Wavion	WBSn-2450-S	Radiated only 1153R00131566
Support	POE	PhiHong	POE61U-560DG	--
Support	Laptop PC	IBM	Thinkpad	None

NOTE: full testing was completed on the WBSn-2450-O (conducted & radiated) with verification testing (6 dB & 99% Bandwidth + Peak Output Power) completed on the SO device. The WBSn-2450-S Sector unit was used for radiated emission testing only.

3.4. Antenna Details

Antenna Type:	Manufacturer	Model No.	Type	Gain (dBi)	Frequency Range (MHz)
External	MTI Wireless edge Ltd	MT-952021	Omni	7.4	2400 – 2483.5
Integral	Wavion	None	Sector	12.0	2400 – 2483.5
External	MTI Wireless edge Ltd	MT-952021	Omni	8.5	4,900 - 5,900
Integral	Wavion	None	Sector	14.0	4,900 - 5,900

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3.5. Cabling and I/O Ports

Number and type of I/O ports

1. 1 x 10/100/1000 Ethernet, includes POE (+55 Vdc)

3.6. Test Configurations

Testing was performed to determine the highest power level versus bit rate. The variant with the highest power was used to exercise the product.

Operational Mode(s) (802.11a/b/g/n)	Variant	Data Rate with Highest Power	Frequencies (MHz)
b	Legacy	1 MBit/s	2,412
g	Legacy	6 MBit/s	2,437
n	HT-20	6.5 (MCS 0)	2,462
	HT-40	13.5 (MCS 0)	2,422 2,437 2,452
a, 5 MHz	Legacy	6 MBit/s	5,730.5 5,790.5 5,845.5
a, 10 MHz	Legacy	6 MBit/s	5,735 5,790 5,840
a, 20 MHz	Legacy	6 MBit/s	5,745 5,785
n	HT-20	6.5 (MCS 0)	5,825
	HT-40	13.5 (MCS 0)	5,755 5,795

Legacy – data rates for 802.11abg products

Results for the above configurations are provided in this report.



Antenna Test Configurations for Radiated Emissions

Results for the following configurations are provided in this report.

2,400 – 2483.5 MHz

5,725 – 5850 MHz

15.247	
802.11b	b SE 2412
	b SE 2437
	b SE 2462
	BE b 2390
	BE b 2483.5
802.11g	g SE 2412
	g SE 2437
	g SE 2462
	BE g 2390
	BE g 2483.5
802.11n HT-20	n HT-20 SE 2412
	n HT-20 SE 2437
	n HT-20 SE 2462
	BE n HT-20 2390
	BE n HT-20 2483.5
802.11n HT-40	n HT-40 SE 2422
	n HT-40 SE 2437
	n HT-40 SE 2452
	BE n HT-40 2390
	BE n HT-40 2483.5

15.247	
802.11a, 5 MHz	a SE 5730.5
	a SE 5790.5
	a SE 5845.5
	BE a 5460
802.11a, 10 MHz	a SE 5735
	a SE 5790
	a SE 5840
	BE a 5460
802.11a, 20 MHz	a SE 5745
	a SE 5785
	a SE 5825
	BE a 5460
802.11n HT-20	n HT-20 SE 5745
	n HT-20 SE 5785
	n HT-20 SE 5825
	BE HT-20 5460
802.11n HT-40	n HT-40 SE 5755
	n HT-40 SE 5785
	n HT-40 SE 5815
	BE HT-40 5460



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3.7. Equipment Modifications

The following modifications were required to bring the equipment into compliance:

NONE

3.8. Deviations from the Test Standard

The following deviations from the test standard were required in order to complete the test program:

1. NONE

3.9. Subcontracted Testing or Third Party Data

1. NONE

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4. TEST SUMMARY

List of Measurements

The following table represents the list of measurements required under the **FCC CFR47 Part 15.247** and **Industry Canada RSS-210** and **Industry Canada RSS-Gen**.

Section(s)	Test Items	Description	Condition	Result	Test Report Section
15.247(a)(2) A8.2(1) 4.4	6 dB and 99 % Bandwidths	≥500 kHz	Conducted	Complies	5.1.1
15.247(b)(3) 15.31(e) A8.4(4)	Peak Output Power Voltage Variation	Shall not exceed 1W Variation of supply voltage 85 % -115 %	Conducted	Complies	5.1.2
15.247(e) A8.2	Peak Power Spectral Density	Shall not be greater than +8 dBm in any 3 kHz band	Conducted	Complies	5.1.3
15.247(i) 5.5	Maximum Permissible Exposure	Exposure to radio frequency energy levels	Conducted	Complies	5.1.4
15.247(d) 15.205 / 15.209 A8.5 2.2 4.7	Spurious Emissions	The radiated emission in any 100 kHz of out-band shall be at least 20 dB below the highest in-band spectral density	Conducted	Complies	5.1.5

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List of Measurements (continued)

The following table represents the list of measurements required under the **FCC CFR47 Part 15.247**, **Industry Canada RSS-210**, and **Industry Canada RSS-Gen**.

Section(s)	Test Items	Description	Condition	Result	Test Report Section
15.247(d) 15.205 / 15.209 A8.5 2.2 2.6 4.7	Radiated Emissions	Restricted Bands	Radiated	Complies	5.1.6
	Transmitter Radiated Spurious Emissions	Emissions above 1 GHz		Complies	5.1.6.1
	Radiated Band Edge	Band-edge results Peak Emissions		Complies	5.1.6.2.
	Receiver Radiated Spurious Emissions	Emissions above 1 GHz		Complies	5.1.6.3
Industry Canada only RSS-Gen §4.10, §6					
15.205 / 15.209 2.2	Radiated Spurious Emissions	Emissions <1 GHz (30M-1 GHz)	Radiated	Complies	5.1.6.4
15.207 7.2.2	AC Wireline Conducted Emissions 150 kHz–30 MHz	Conducted Emissions	Conducted	Complies	5.1.7

Note 1: Test results reported in this document relate only to the items tested

Note 2: The required tests demonstrated compliance as per client declaration of test configuration, monitoring methodology and associated pass/fail criteria

Note 3: Section 3.7 Equipment Modifications highlights the equipment modifications that were required to bring the product into compliance with the above test matrix

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5. TEST RESULTS

5.1. Device Characteristics

5.1.1. 6 dB and 99 % Bandwidth

FCC, Part 15 Subpart C §15.247(a)(2)

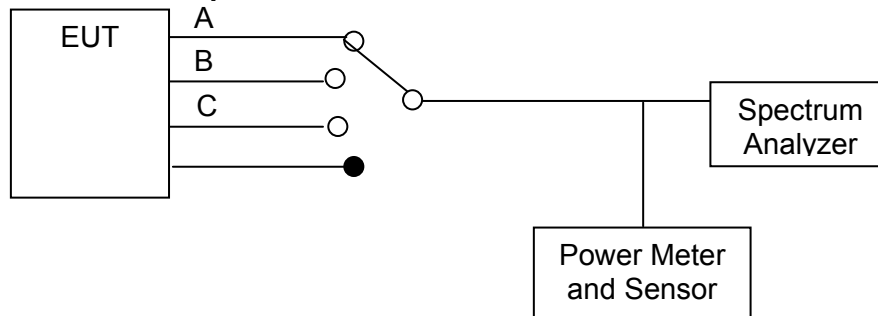
Industry Canada RSS-210 §A8.2

Industry Canada RSS-Gen §4.4

Test Procedure

The bandwidth at 6 dB and 99 % is measured with a spectrum analyzer connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate center frequency.

Test Measurement Set up



Measurement set up for 6 dB and 99 % bandwidth test

Measurement Results for 6 dB & 99% Bandwidth

Ambient conditions.

Temperature: 17 to 23 °C

Relative humidity: 31 to 57 %

Pressure: 999 to 1012 mbar

Radio Parameters

Duty Cycle: 100%

Output: Modulated Carrier

Power: Default, Maximum Power

Test s/w: ART



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Measurement Results for 6 dB Operational Bandwidth(s) Ambient conditions.

Temperature: 17 to 23 °C Relative humidity: 31 to 57 % Pressure: 999 to 1012 mbar

TABLE OF RESULTS – 802.11b Legacy

Test Conditions:	15.247 (a)(2)	Rel. Humidity (%):	35	to	42
Variant:	802.11b	Ambient Temp. (°C):	19	to	22
TPC:	HIGH	Pressure (mBars):	998	to	1003
Modulation:	ON	Duty Cycle (%):	100		
Beam Forming Gain (Y):	N/A dB	Antenna Gain:	0		dBi
Applied Voltage:	48.00 Vdc				
Notes 1:					
Notes 2:					

6 dB Bandwidth

Test Frequency	6 dB Bandwidth				Minimum 6dB Bandwidth Limit		Margin
	MHz						
MHz	a	b	c	d	kHz	MHz	MHz
2412.000	9.699000	10.100000	10.180000	--	500	0.5	-9.199000
2437.000	10.100000	10.180000	10.180000	--			-9.600000
2462.000	9.619000	9.138000	9.619000	--			-8.638000

99% Bandwidth

Test Frequency	99 % Bandwidth						
	MHz						
MHz	a	b	c	d			
2412.000	13.547000	14.028000	13.707000	--			
2437.000	13.868000	14.028000	14.028000	--			
2462.000	13.547000	13.467000	13.627000	--			

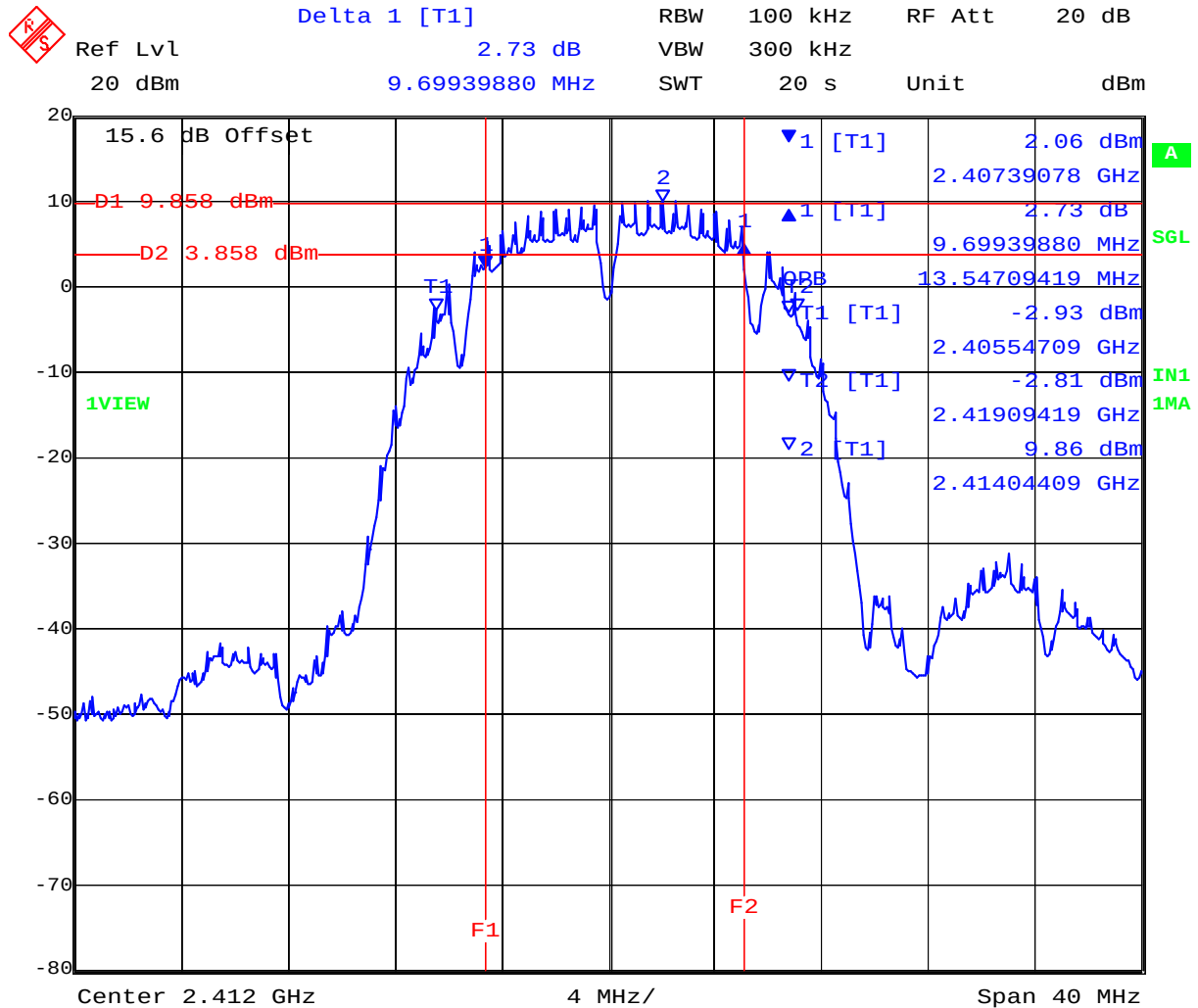
Measurement uncertainty:	±2.81 dB
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PORT A 2,412 MHz 802.11b Legacy 6 dB and 99% Bandwidth



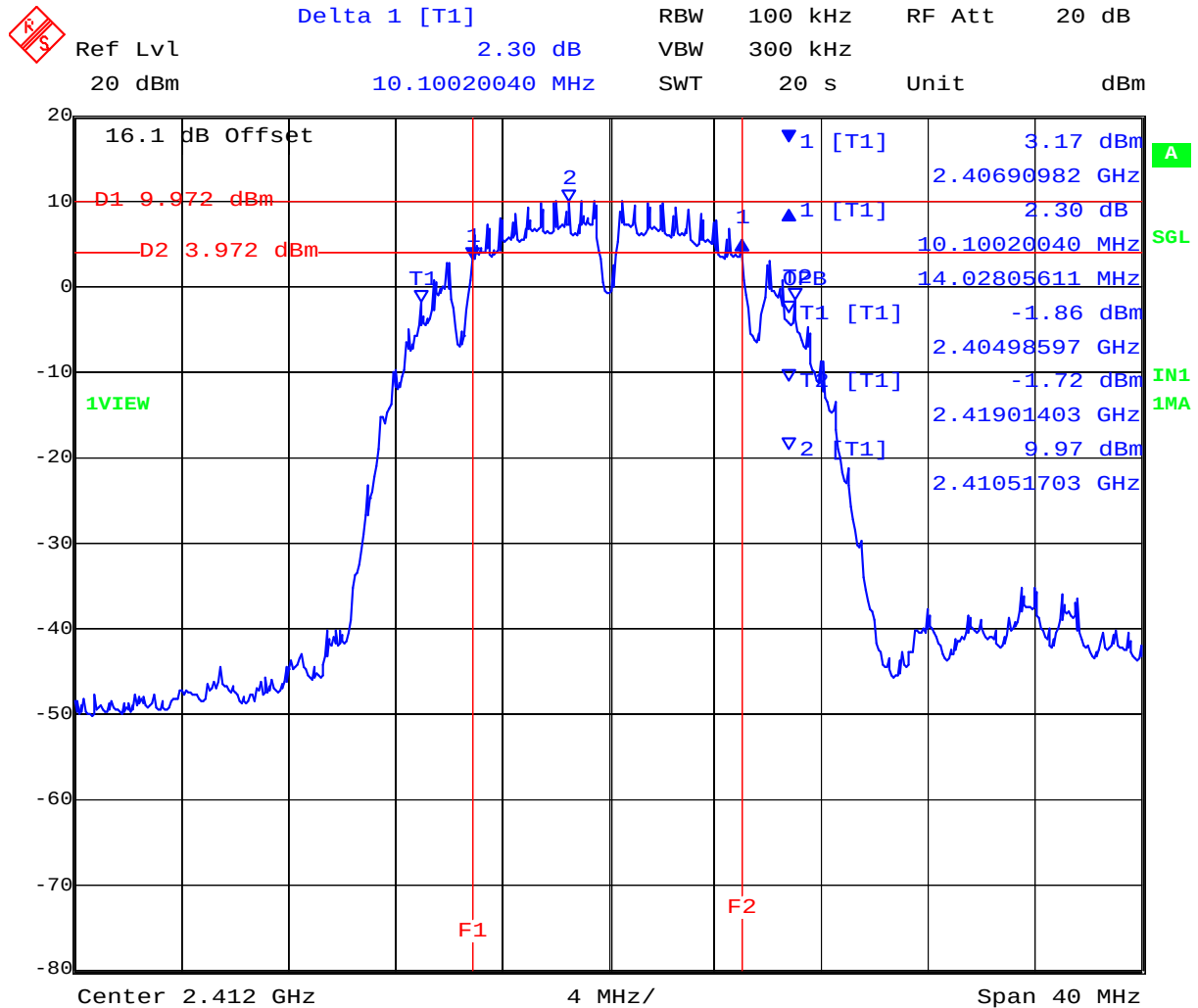
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PORT B 2,412 MHz 802.11b Legacy 6 dB and 99% Bandwidth



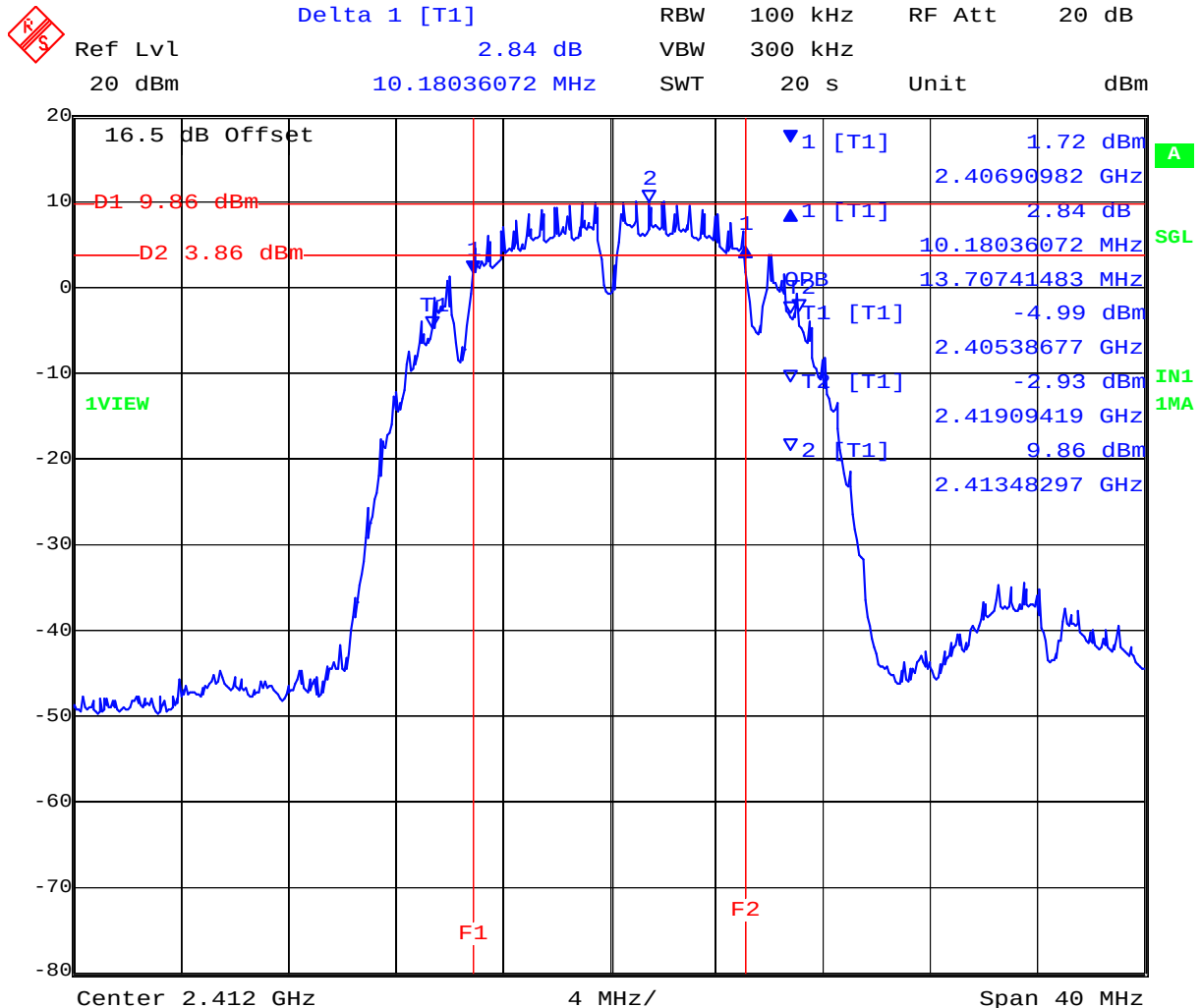
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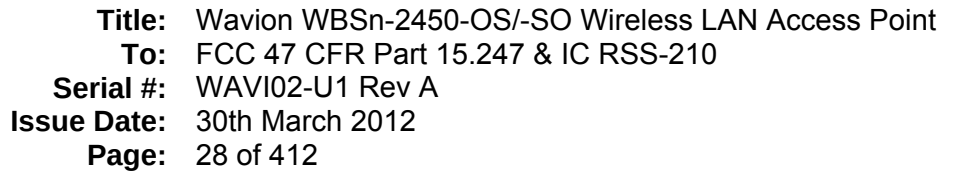
Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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PORT C 2,412 MHz 802.11b Legacy 6 dB and 99% Bandwidth



Date: 17.FEB.2012 17:05:33

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Ref Lvl 20 dBm Delta 1 [T1] 2.70 dB RBW 100 kHz RF Att 20 dB VBW 300 kHz Unit dBm SWT 20 s

15.6 dB Offset

D1 9.616 dBm D2 3.616 dBm

1VIEW

1 [T1] 2.76 dBm 2.43190982 GHz

2 [T1] 2.70 dB 10.10020040 MHz

OPB 13.86773547 MHz

2 [T1] -4.19 dBm 2.43006613 GHz

2 [T1] -4.71 dBm 2.44393387 GHz

2 [T1] 9.62 dBm 2.43599800 GHz

F1 F2

Center 2.437 GHz 4 MHz/ Span 40 MHz

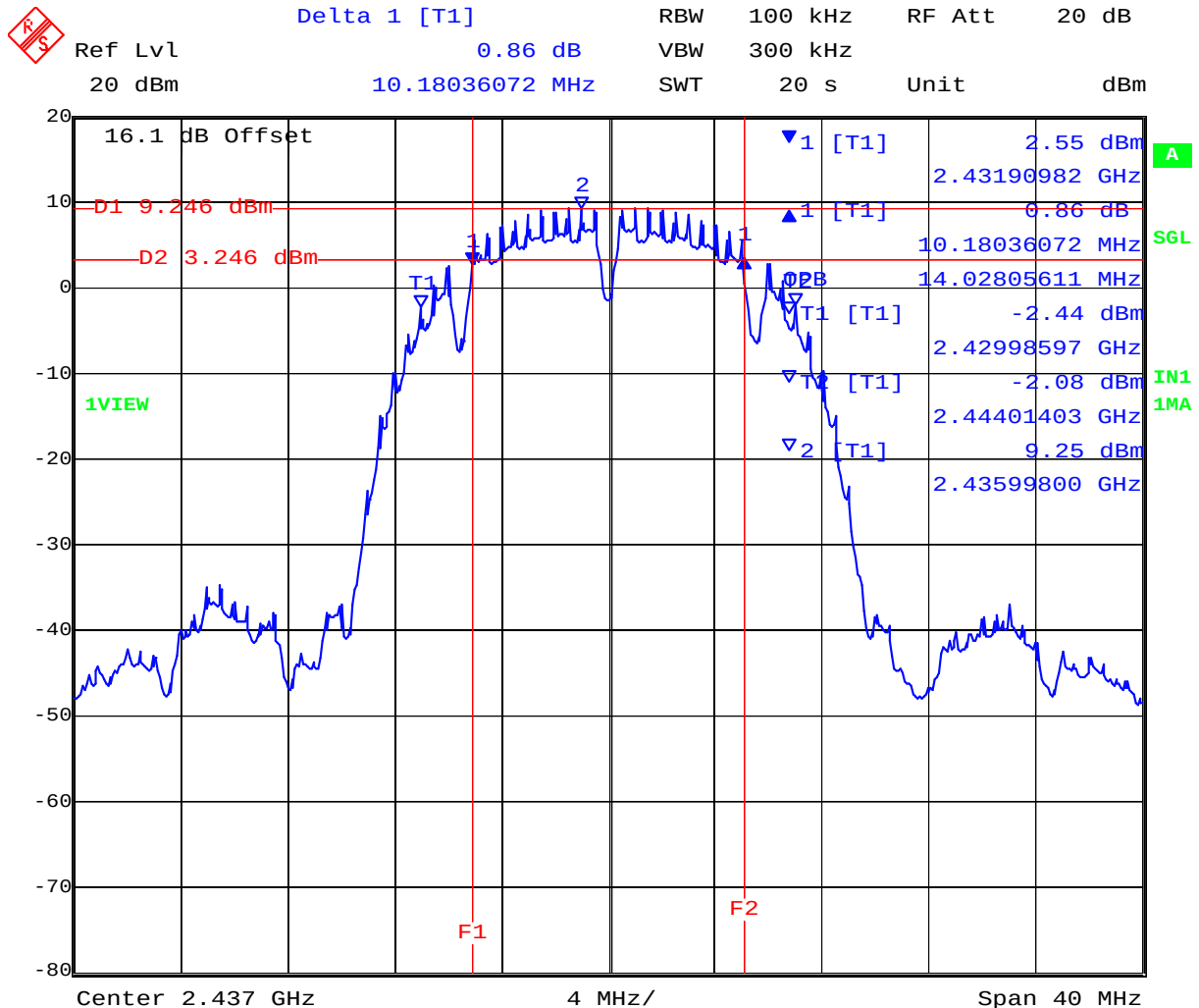
Date: 17.FEB.2012 18:08:20

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PORT B 2,437 MHz 802.11b Legacy 6 dB and 99% Bandwidth



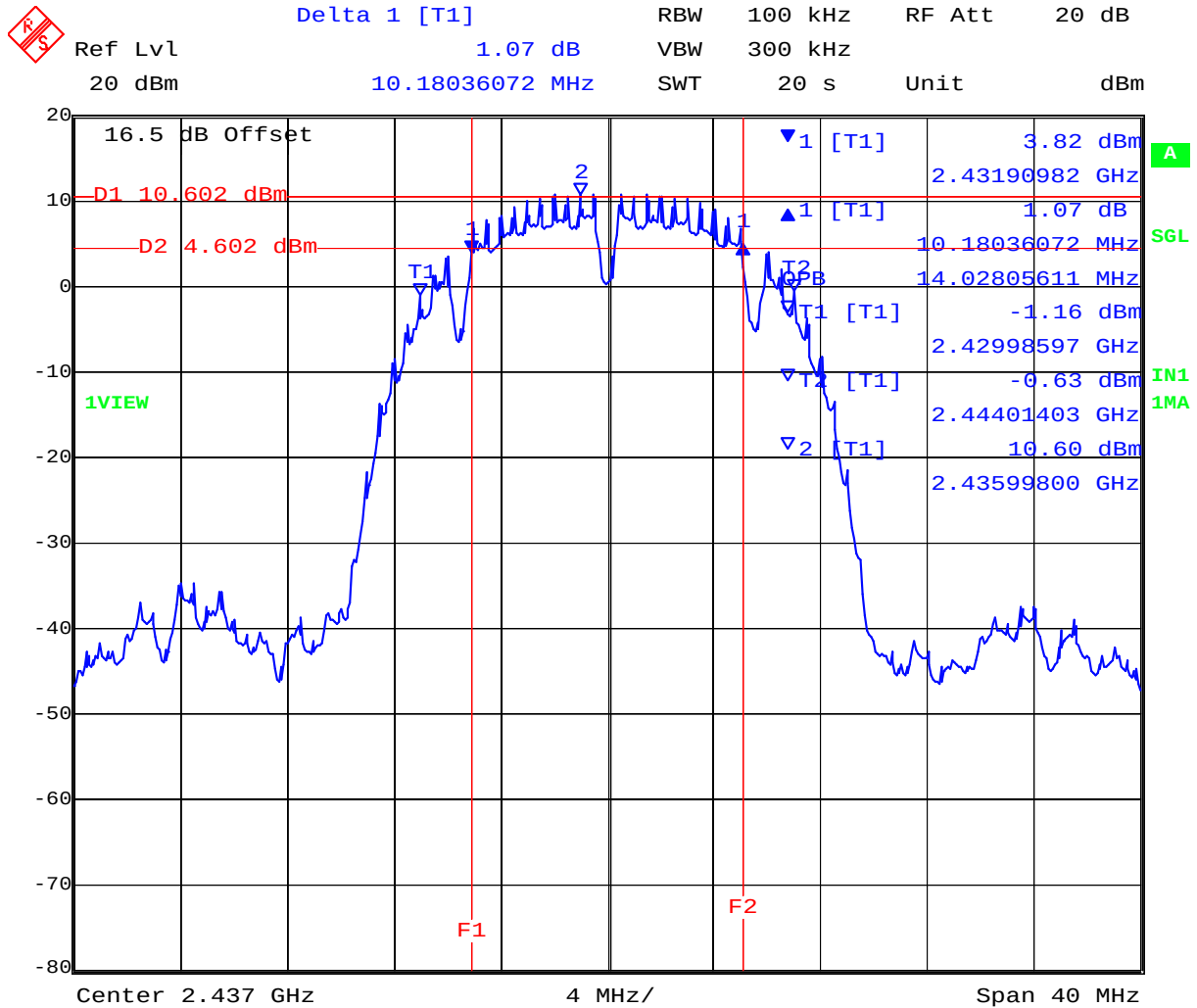
Date: 17.FEB.2012 18:09:26

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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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PORT C 2,437 MHz 802.11b Legacy 6 dB and 99% Bandwidth



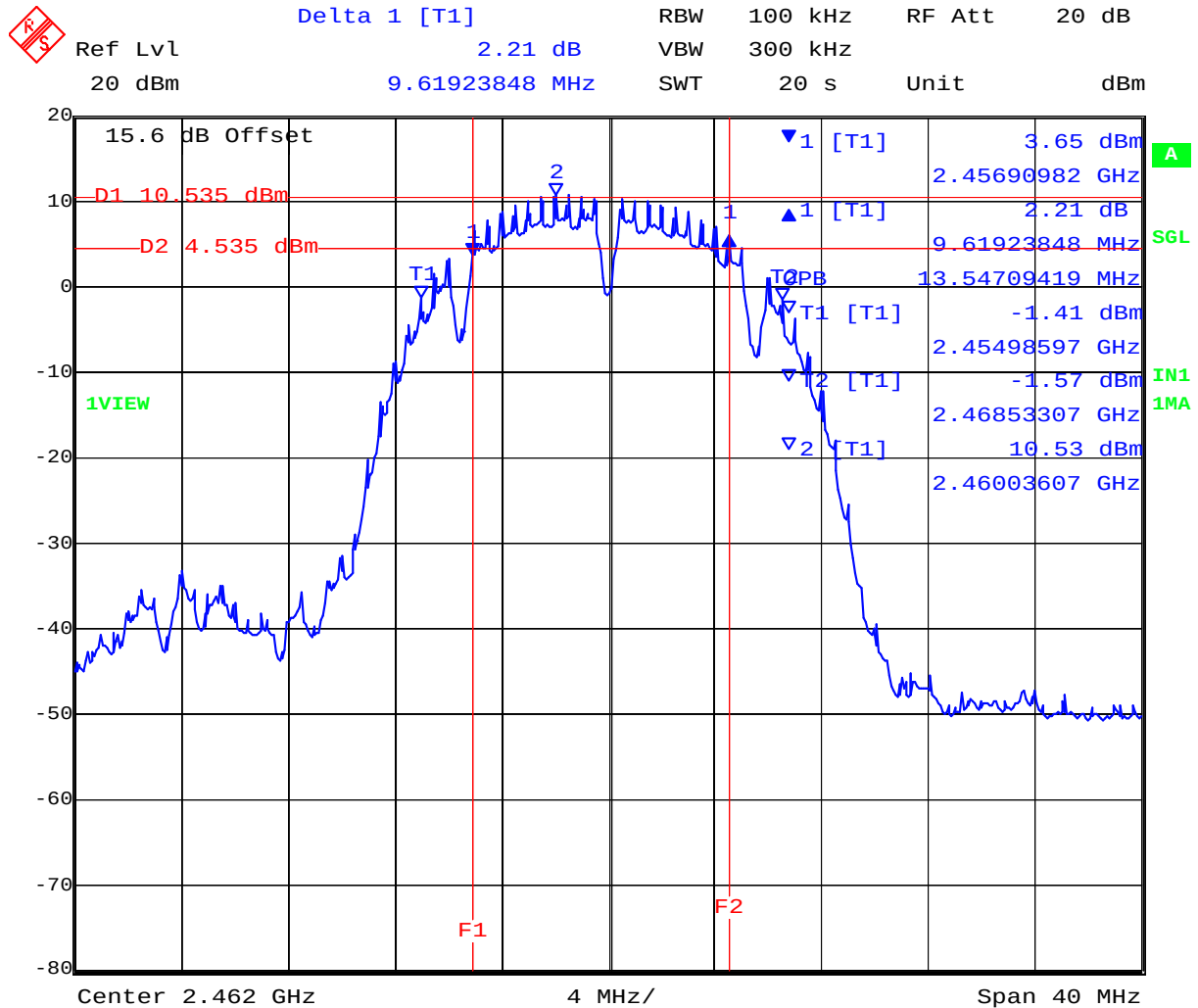
Date: 17.FEB.2012 18:10:28

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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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PORT A 2,462 MHz 802.11b Legacy 6 dB and 99% Bandwidth



Date: 17.FEB.2012 18:38:42

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PORT B 2,462 MHz 802.11b Legacy 6 dB and 99% Bandwidth



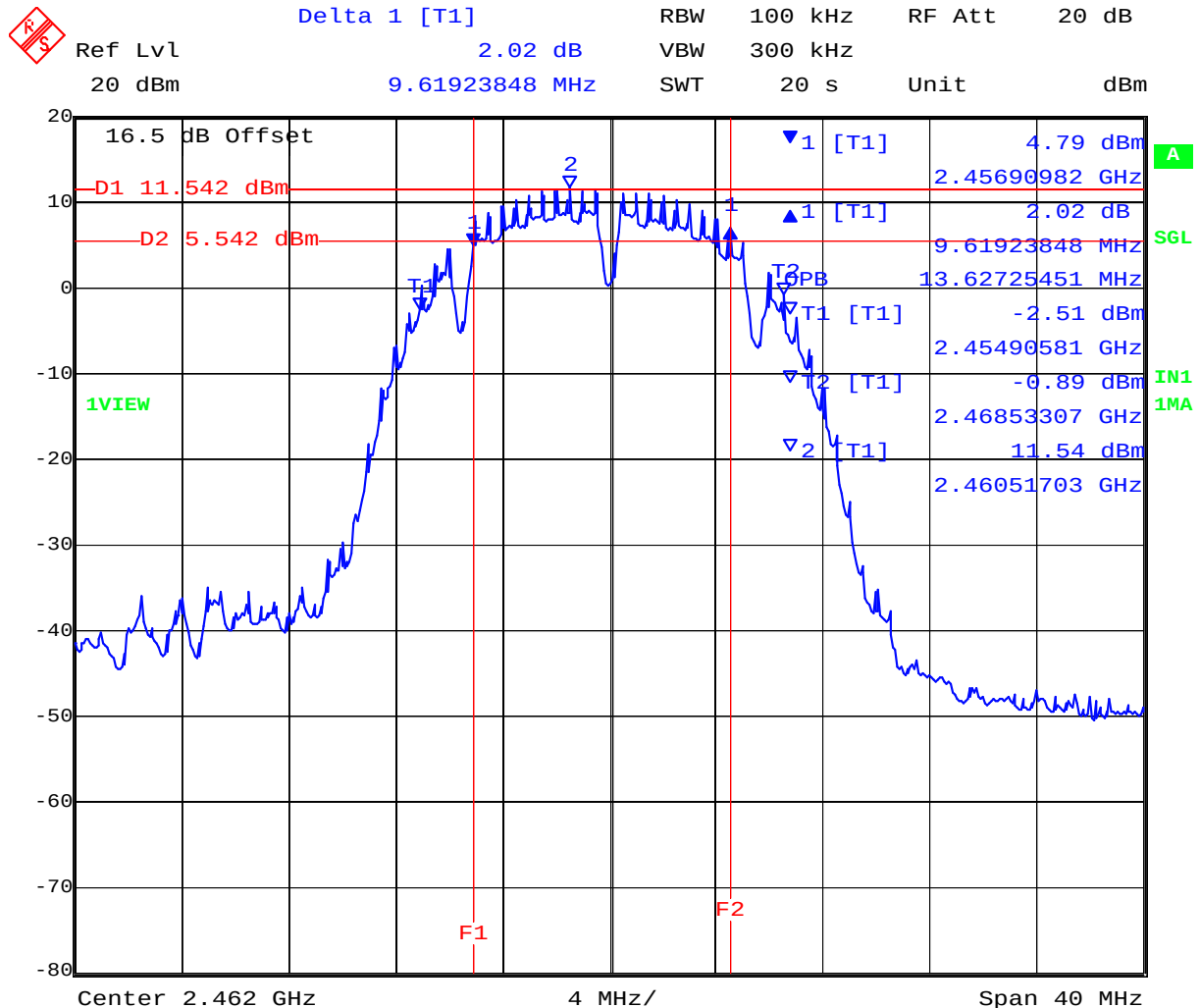
Date: 17.FEB.2012 18:39:48

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PORT C 2,462 MHz 802.11b Legacy 6 dB and 99% Bandwidth



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TABLE OF RESULTS – 802.11g Legacy

Test Conditions:	15.247 (a)(2)	Rel. Humidity (%):	35 to 42
Variant:	802.11g	Ambient Temp. (°C):	19 to 22
TPC:	HIGH	Pressure (mBars):	998 to 1003
Modulation:	ON	Duty Cycle (%):	100
Beam Forming Gain (Y):	N/A dB	Antenna Gain:	0 dBi
Applied Voltage:	48.00 Vdc		
Notes 1:			
Notes 2:			

6 dB Bandwidth

Test Frequency	6 dB Bandwidth				Minimum 6dB Bandwidth Limit		Margin
	MHz						
MHz	a	b	c	d	kHz	MHz	MHz
2412.000	15.872000	16.593000	16.513000	--	500	0.5	-15.372000
2437.000	16.593000	16.593000	16.593000	--			-16.093000
2462.000	16.513000	15.872000	15.952000	--			-15.372000

99% Bandwidth

Test Frequency	99 % Bandwidth						
	MHz						
MHz	a	b	c	d			
2412.000	18.437000	20.040000	19.238000	--			
2437.000	17.234000	17.395000	17.796000	--			
2462.000	18.277000	21.082000	20.040000	--			

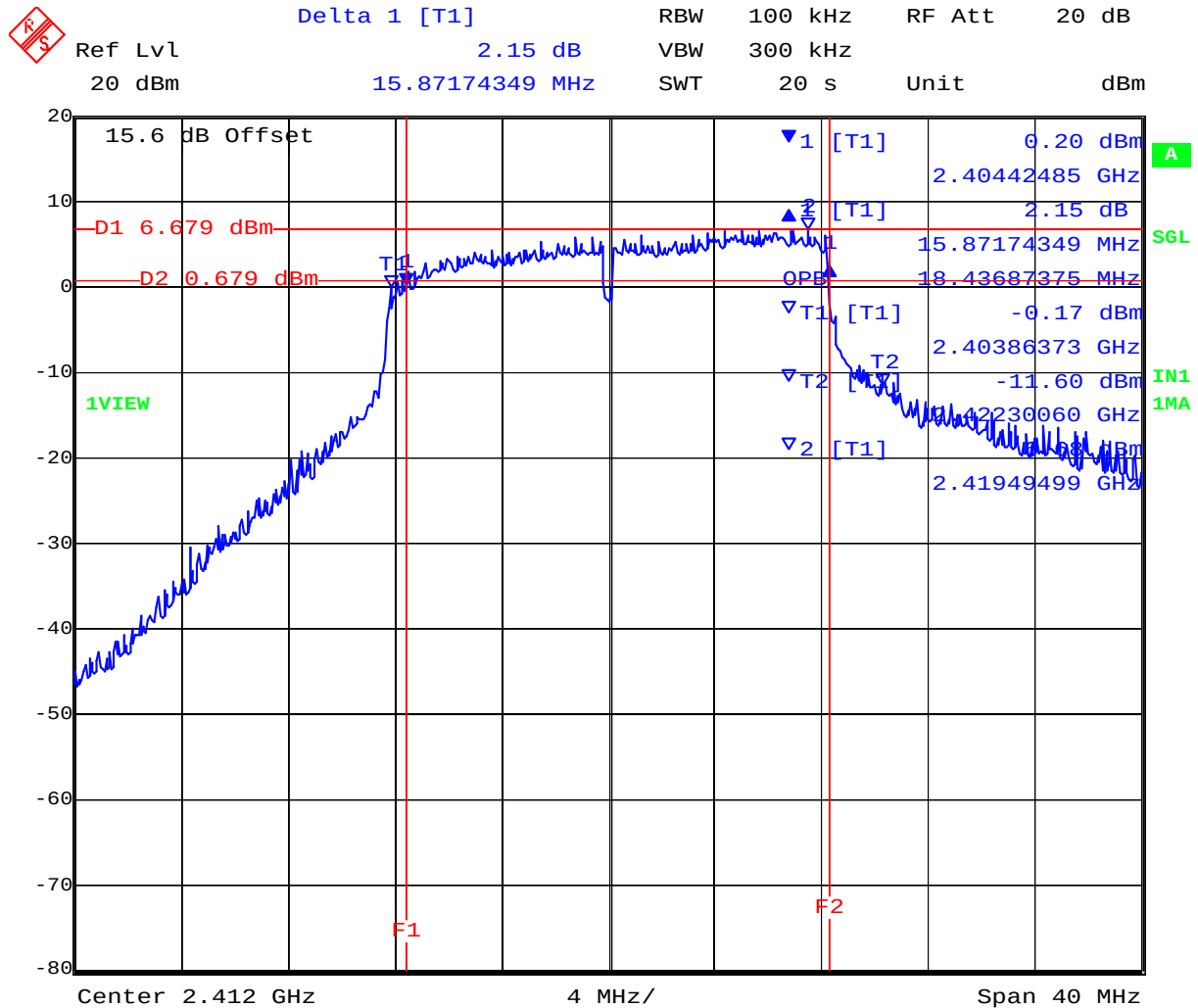
Measurement uncertainty:	±2.81 dB
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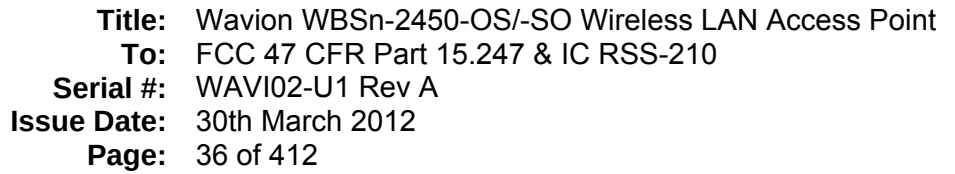
Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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PORT A 2,412 MHz 802.11g Legacy 6 dB and 99% Bandwidth



Date: 17.FEB.2012 15:12:09

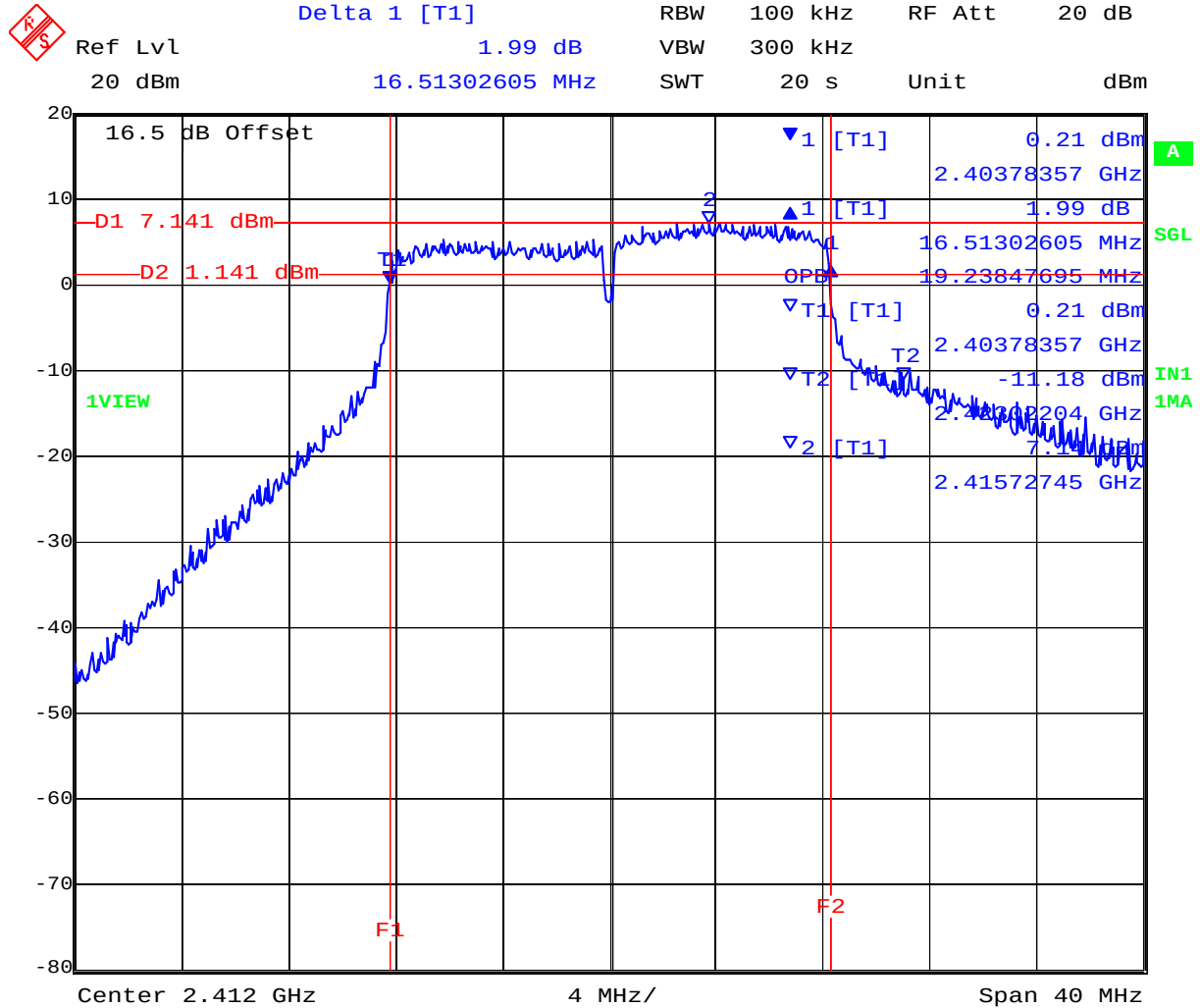
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PORT C 2,412 MHz 802.11g Legacy 6 dB and 99% Bandwidth



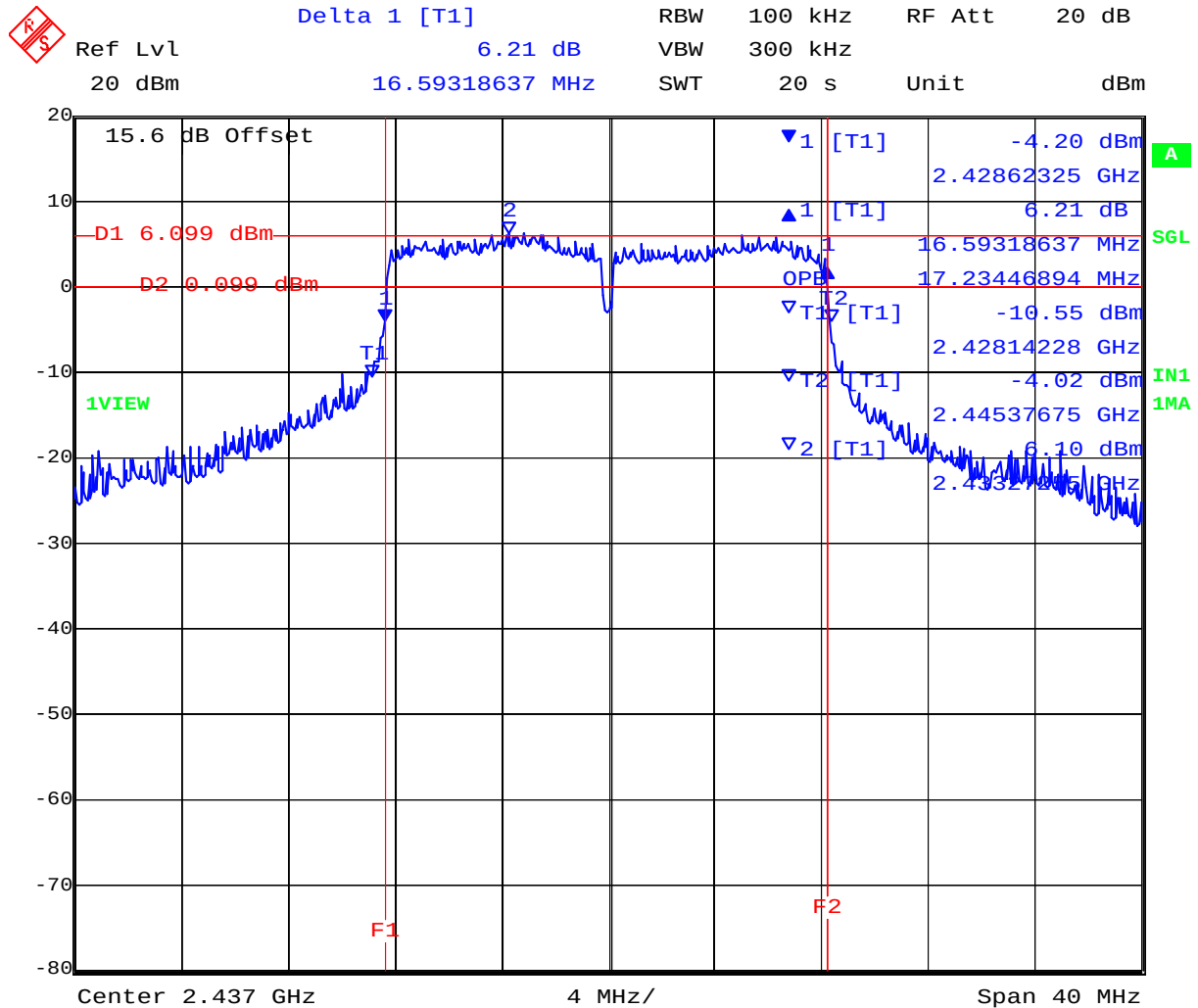
Date: 17.FEB.2012 15:14:17

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PORT A 2,437 MHz 802.11g Legacy 6 dB and 99% Bandwidth



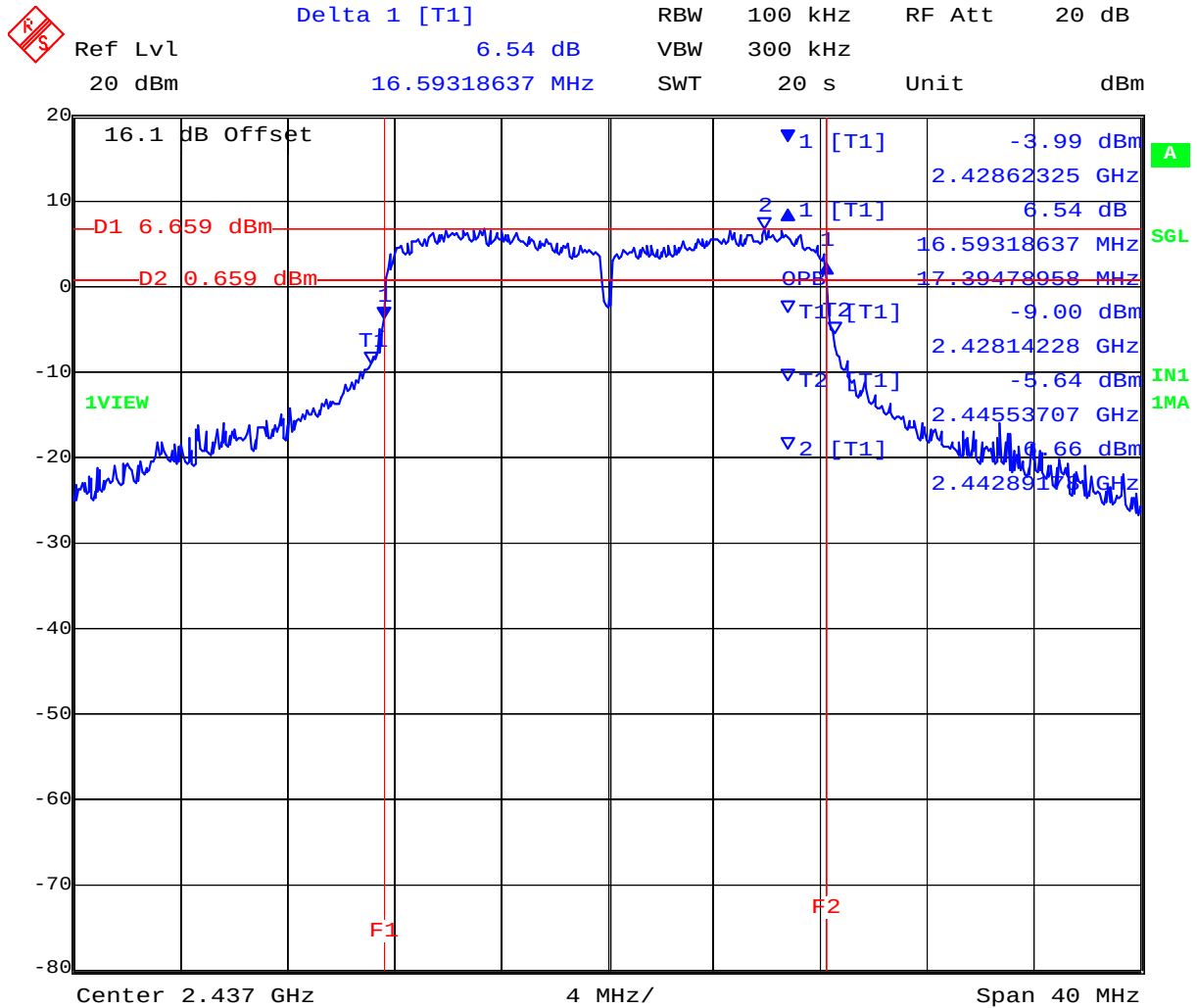
Date: 17.FEB.2012 15:45:12

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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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PORT B 2,437 MHz 802.11g Legacy 6 dB and 99% Bandwidth



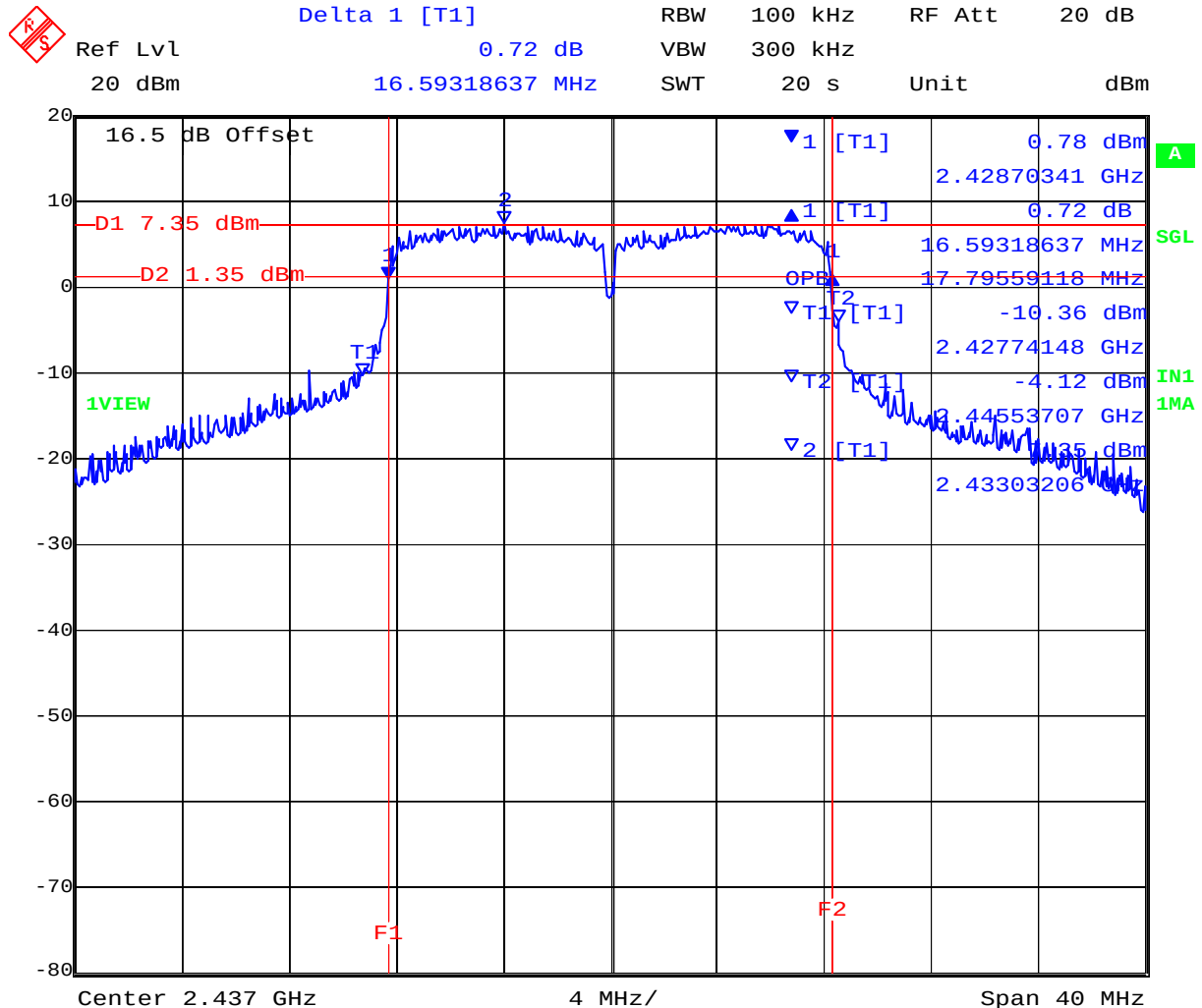
Date: 17.FEB.2012 15:46:18

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PORT C 2,437 MHz 802.11g Legacy 6 dB and 99% Bandwidth



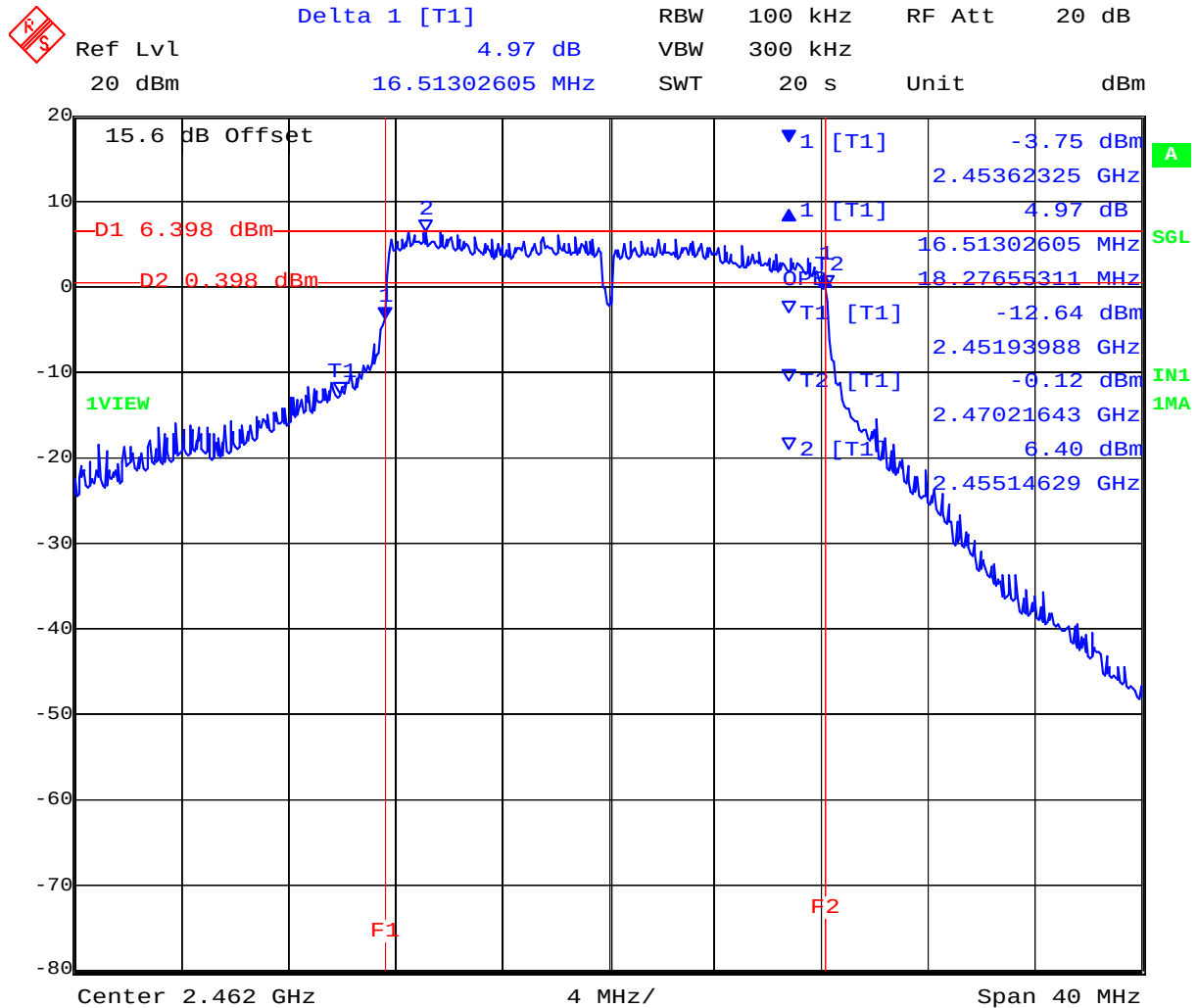
Date: 17.FEB.2012 15:47:21

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PORT A 2,462 MHz 802.11g Legacy 6 dB and 99% Bandwidth



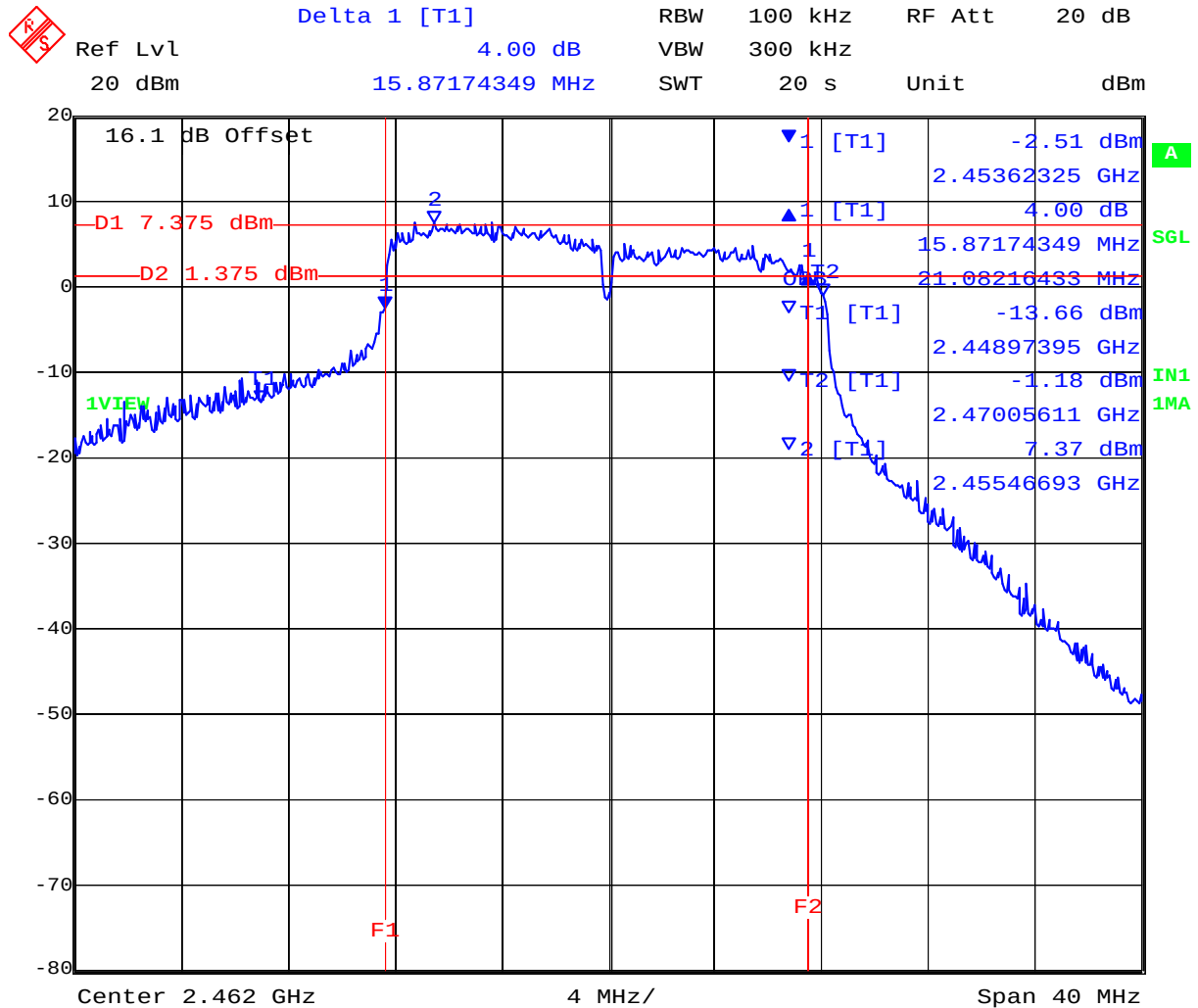
Date: 17.FEB.2012 16:23:23

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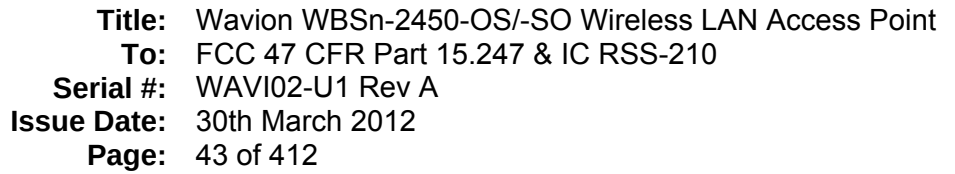
Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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PORT B 2,462 MHz 802.11g Legacy 6 dB and 99% Bandwidth



Date: 17.FEB.2012 16:24:29

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TABLE OF RESULTS – 802.11n HT-20 Legacy

Test Conditions:	15.247 (a)(2)	Rel. Humidity (%):	35 to 42
Variant:	802.11n HT-20	Ambient Temp. (°C):	19 to 22
TPC:	HIGH	Pressure (mBars):	998 to 1003
Modulation:	ON	Duty Cycle (%):	100
Beam Forming Gain (Y):	N/A dB	Antenna Gain:	0 dBi
Applied Voltage:	48.00 Vdc		
Notes 1:			
Notes 2:			

6 dB Bandwidth

Test Frequency	6 dB Bandwidth				Minimum 6dB Bandwidth Limit		Margin
	MHz						
MHz	a	b	c	d	kHz	MHz	MHz
2412.000	16.754000	17.796000	17.796000	--	500	0.5	-16.254000
2437.000	17.876000	17.796000	17.796000	--			-17.296000
2462.000	17.395000	15.872000	16.593000	--			-15.372000

99% Bandwidth

Test Frequency	99 % Bandwidth						
	MHz						
MHz	a	b	c	d			
2412.000	22.525000	24.930000	24.369000	--			
2437.000	33.747000	32.946000	33.988000	--			
2462.000	26.934000	27.335000	27.174000	--			

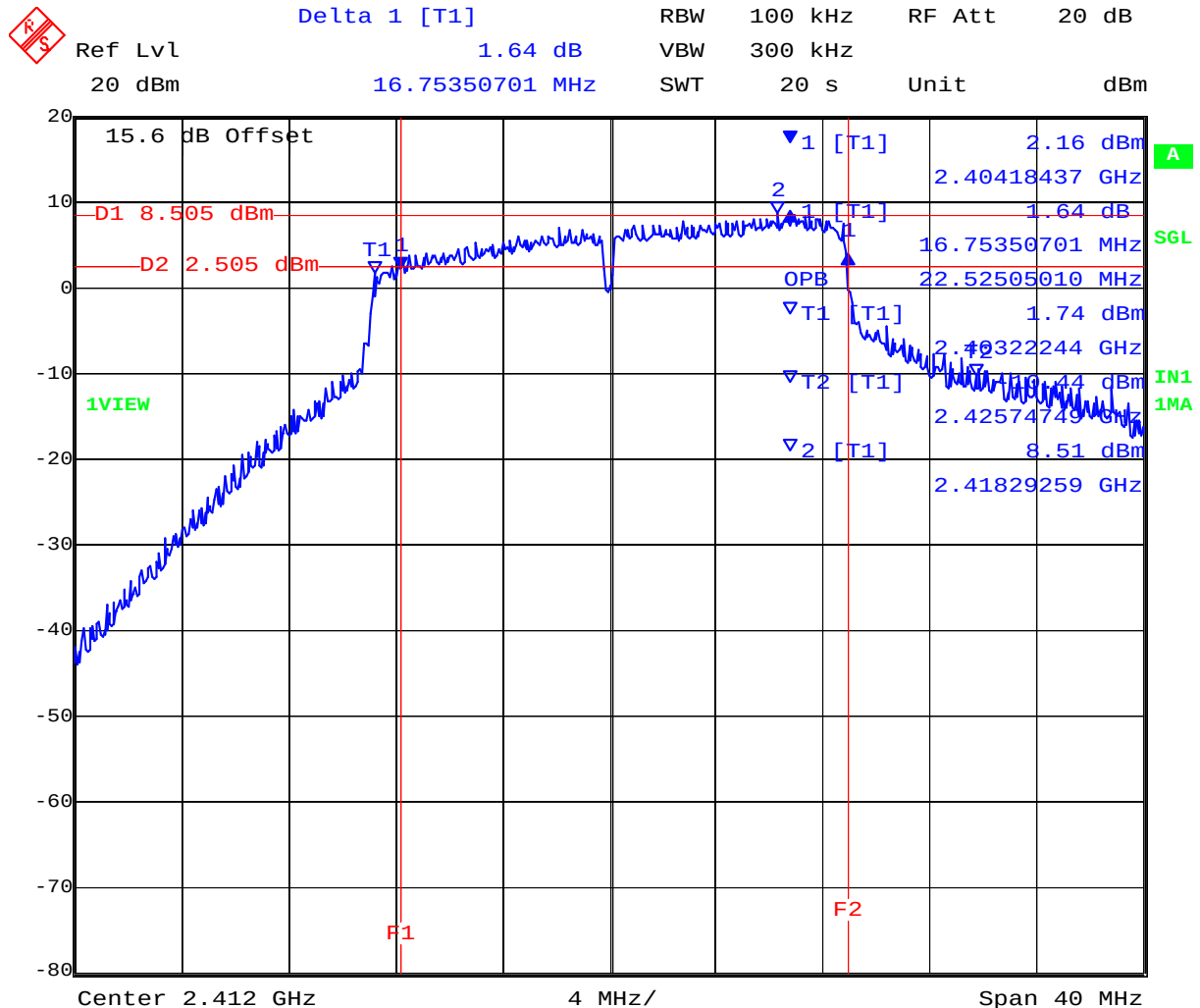
Measurement uncertainty:	±2.81 dB
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PORT A 2,412 MHz 802.11n HT-20 Legacy 6 dB and 99% Bandwidth



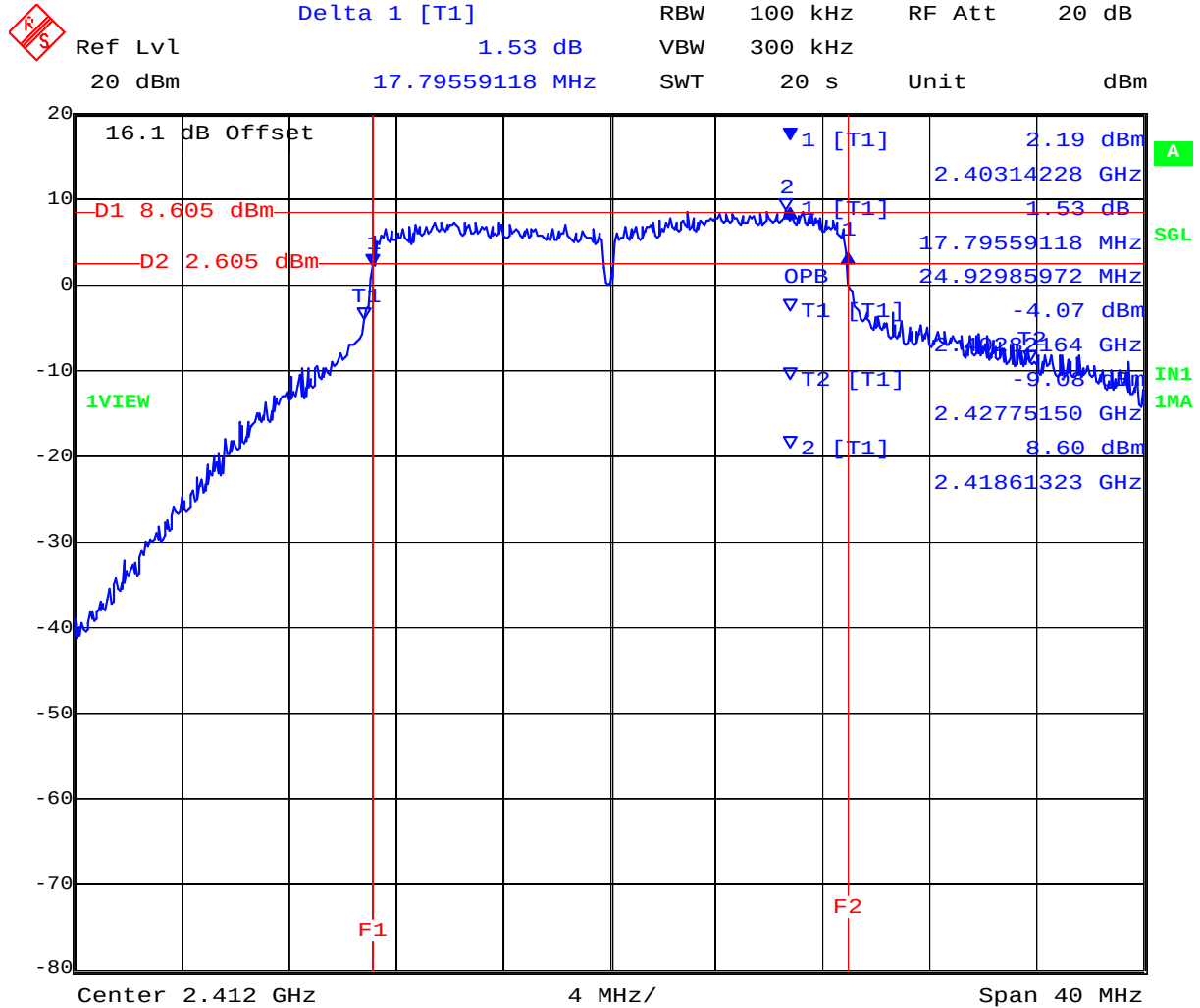
Date: 17.FEB.2012 11:45:21

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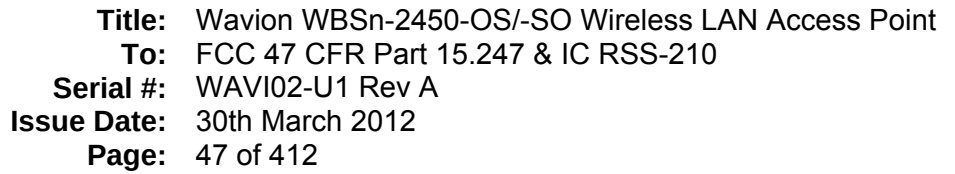
Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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PORT B 2,412 MHz 802.11n HT-20 Legacy 6 dB and 99% Bandwidth

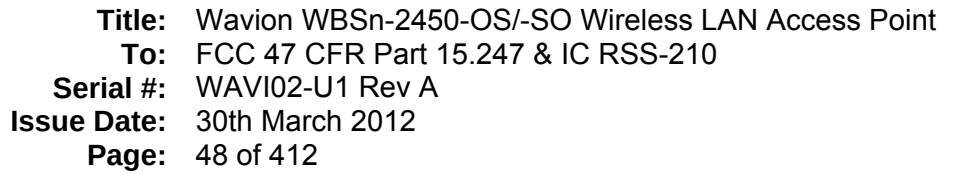


Date: 17.FEB.2012 11:46:24

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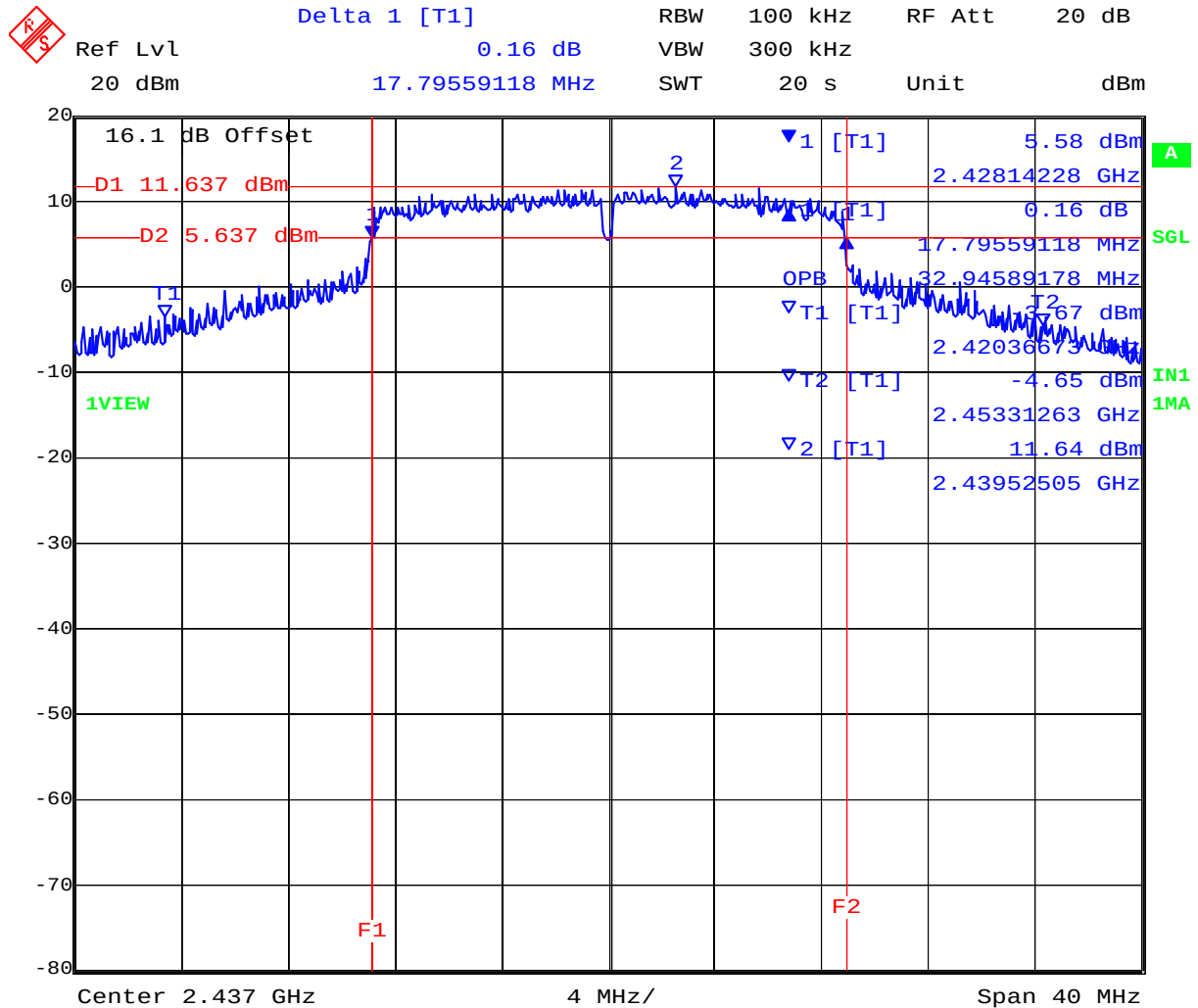
[illegible]

MiCOM Labs, 440 Boulder Court, Suite 200, Pleasanton, CA 94566 USA, Phone: 925.462.0304, Fax: 925.462.0306, www.micomlabs.com



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PORT B 2,437 MHz 802.11n HT-20 Legacy 6 dB and 99% Bandwidth



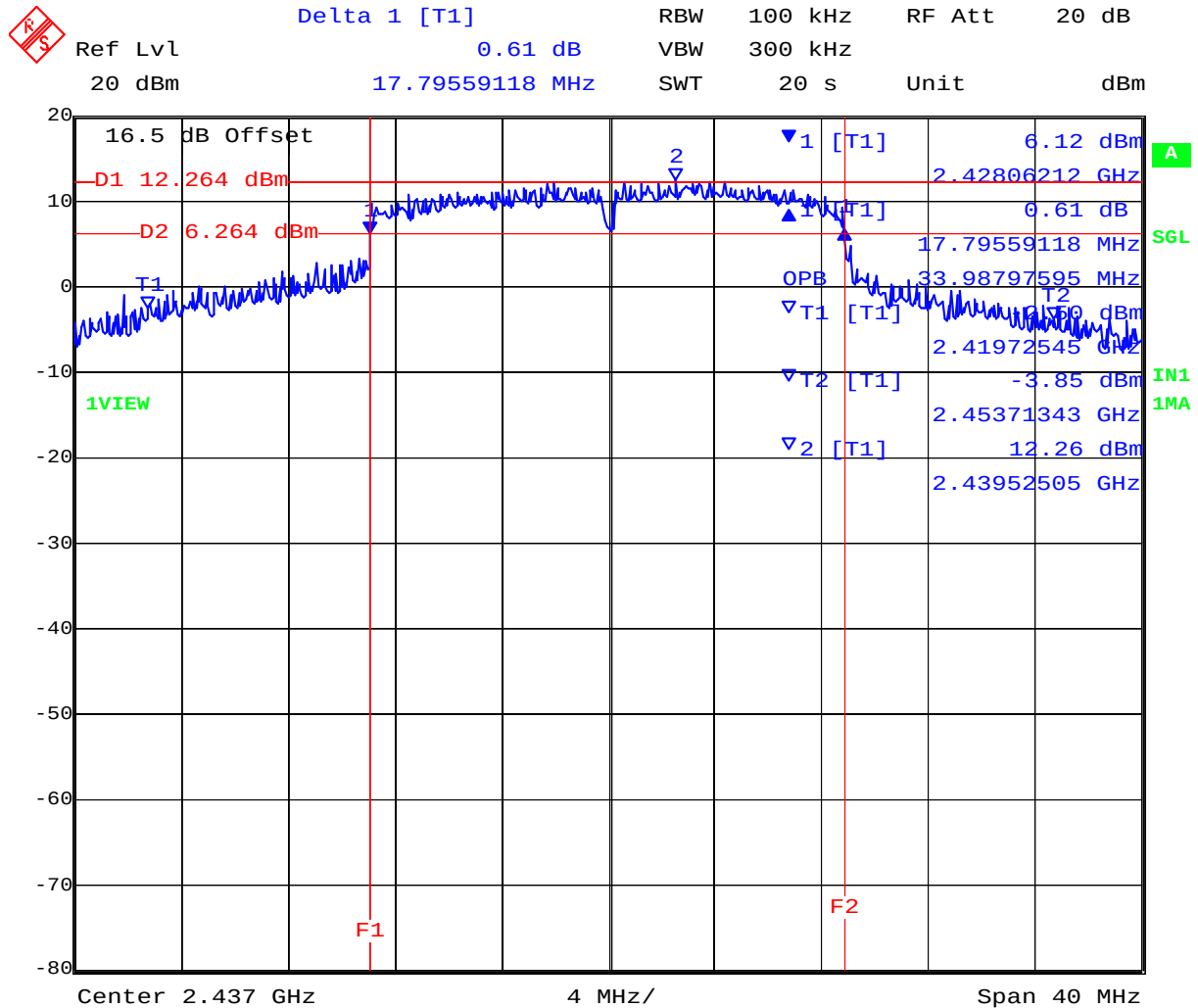
Date: 17.FEB.2012 12:21:01

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PORT C 2,437 MHz 802.11n HT-20 Legacy 6 dB and 99% Bandwidth



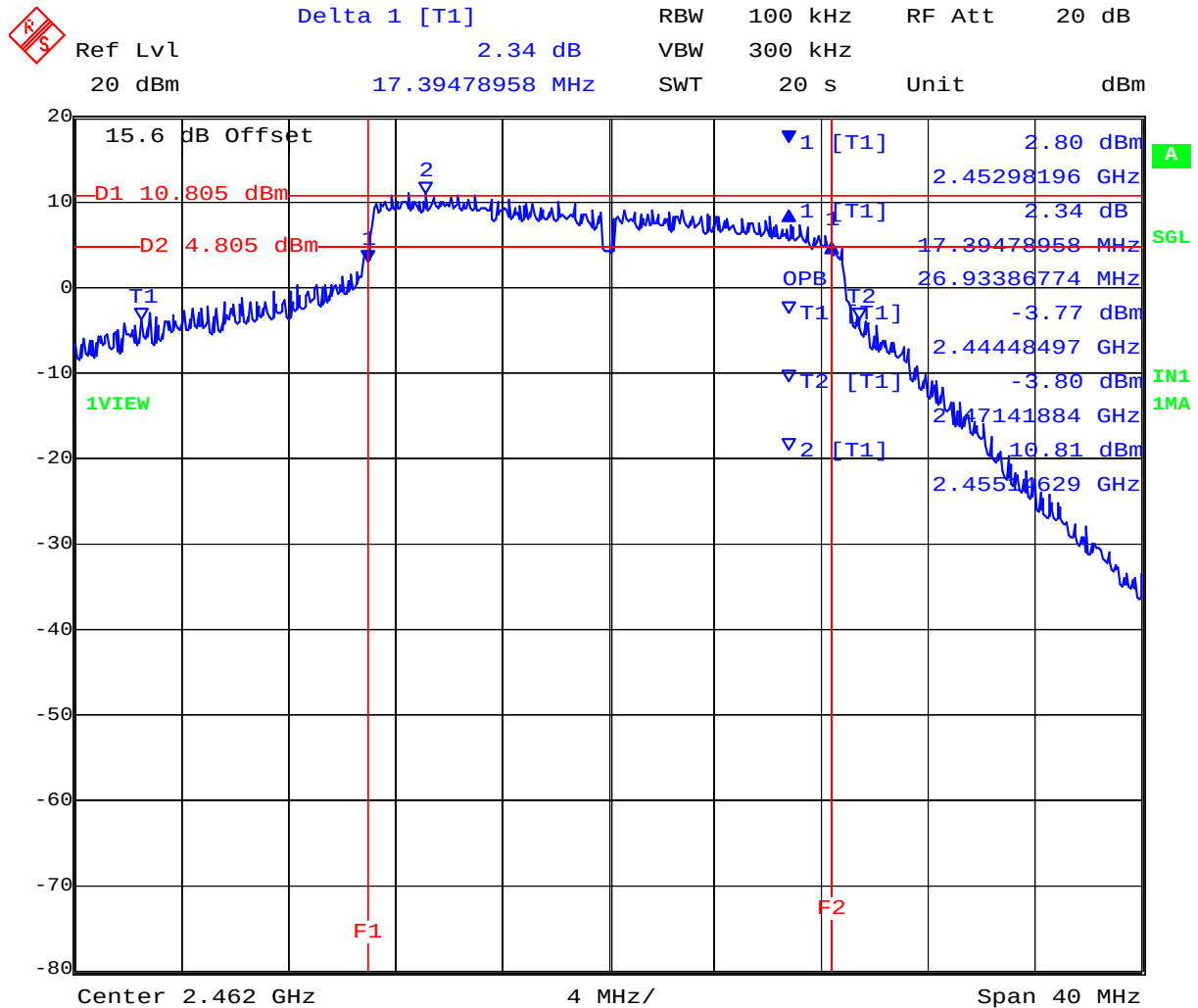
Date: 17.FEB.2012 12:22:04

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PORT A 2,462 MHz 802.11n HT-20 Legacy 6 dB and 99% Bandwidth



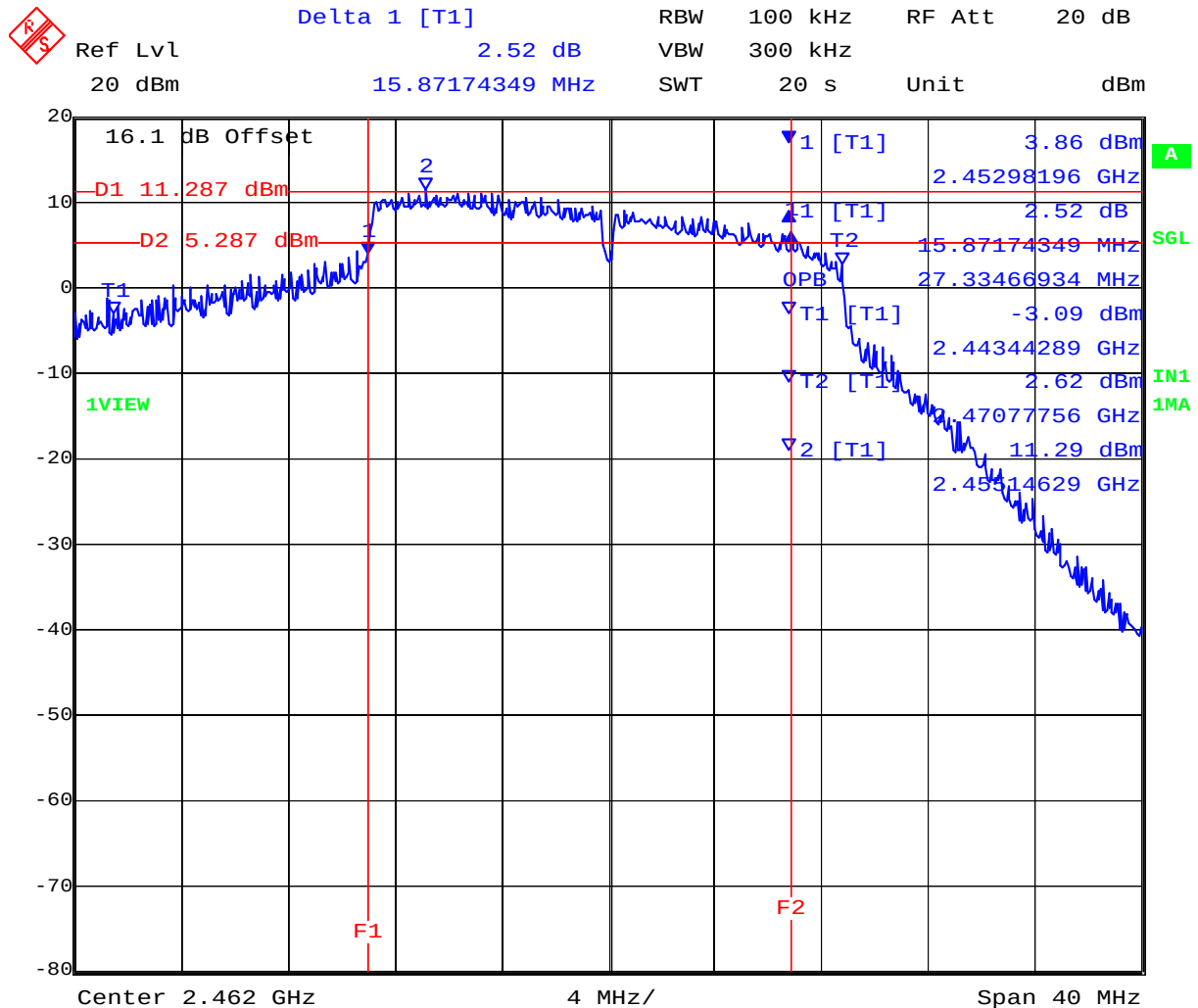
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PORT B 2,462 MHz 802.11n HT-20 Legacy 6 dB and 99% Bandwidth



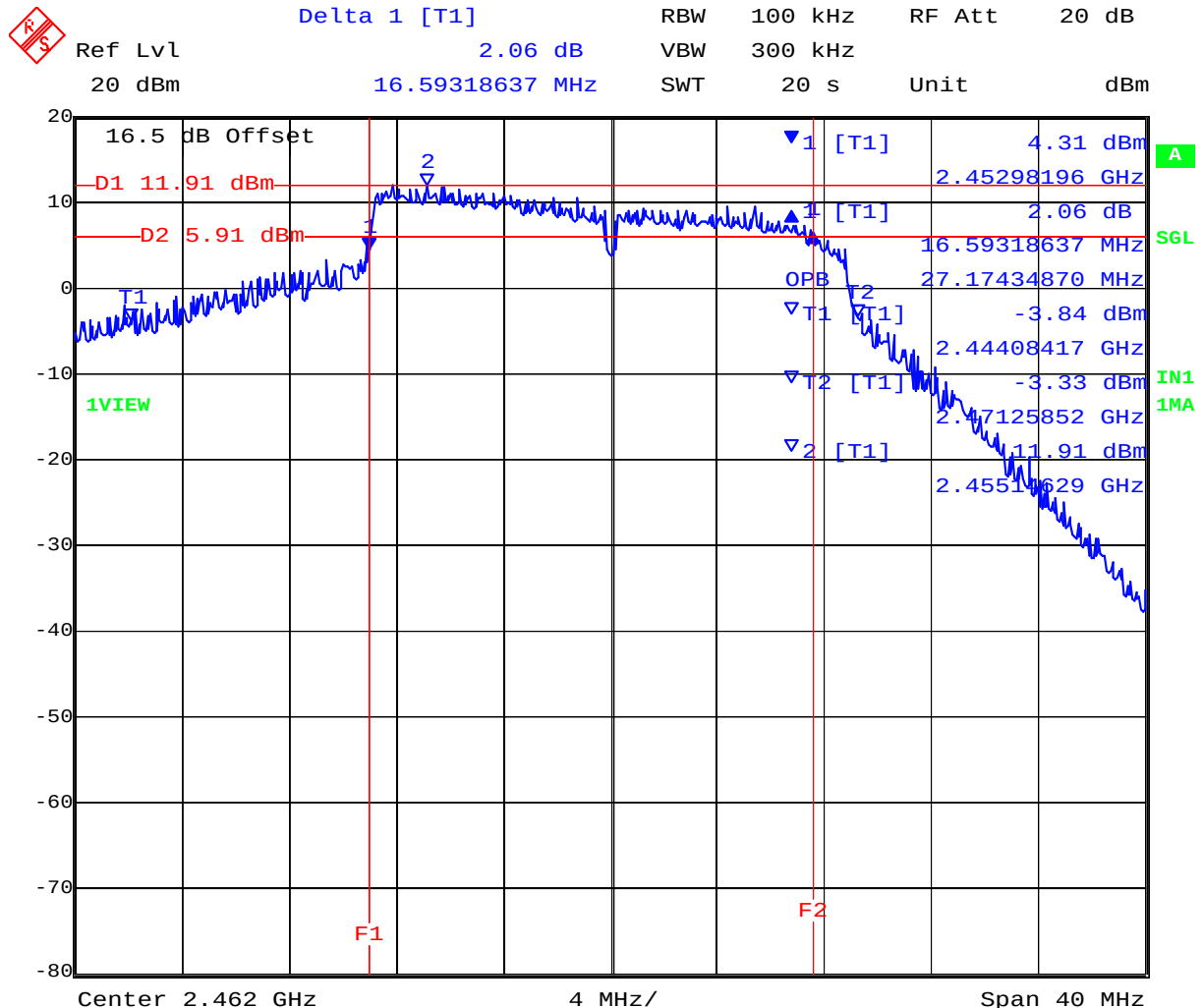
Date: 17.FEB.2012 12:53:49

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To: FCC 47 CFR Part 15.247 & IC RSS-210
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PORT C 2,462 MHz 802.11n HT-20 Legacy 6 dB and 99% Bandwidth



Date: 17.FEB.2012 12:54:53

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TABLE OF RESULTS – 802.11n HT-40 Legacy

Test Conditions:	15.247 (a)(2)	Rel. Humidity (%):	35	to	42
Variant:	802.11n HT-40	Ambient Temp. (°C):	19	to	22
TPC:	HIGH	Pressure (mBars):	998	to	1003
Modulation:	ON	Duty Cycle (%):	100		
Beam Forming Gain (Y):	N/A dB	Antenna Gain:	0 dBi		
Applied Voltage:	48.00 Vdc				
Notes 1:					
Notes 2:					

6 dB Bandwidth

Test Frequency	6 dB Bandwidth				Minimum 6dB Bandwidth Limit		Margin
	MHz						
MHz	a	b	c	d	kHz	MHz	MHz
2422.000	36.072000	36.553000	36.072000	--	500	0.5	-35.572000
2437.000	36.553000	36.874000	36.553000	--			-36.053000
2452.000	35.431000	35.431000	36.072000	--			-34.931000

99% Bandwidth

Test Frequency	99 % Bandwidth						
	MHz						
MHz	a	b	c	d			
2422.000	47.134000	45.691000	48.096000	--			
2437.000	57.074000	57.074000	56.914000	--			
2452.000	53.547000	52.906000	53.226000	--			

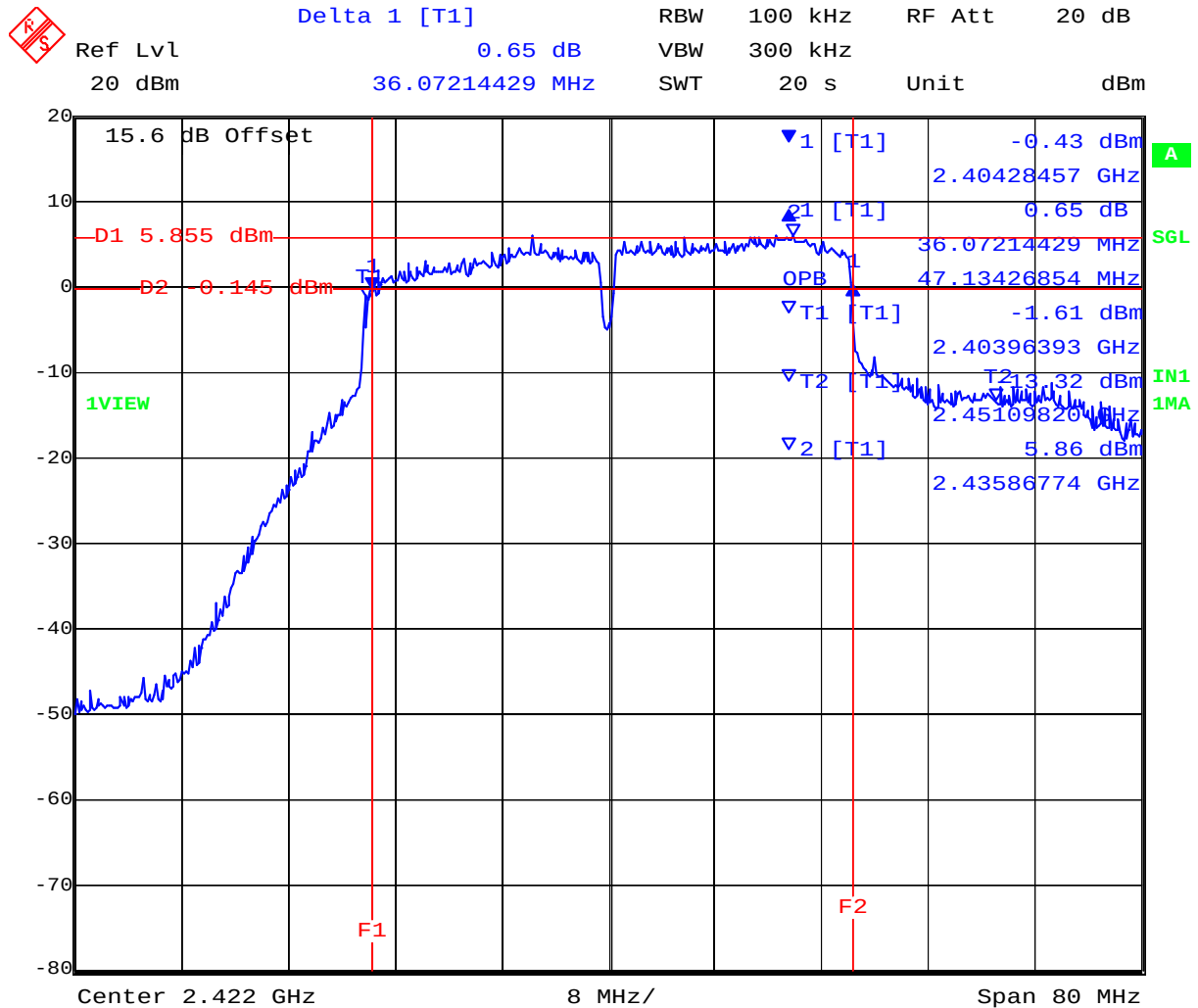
Measurement uncertainty:	±2.81 dB
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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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PORT A 2,422 MHz 802.11n HT-40 Legacy 6 dB and 99% Bandwidth



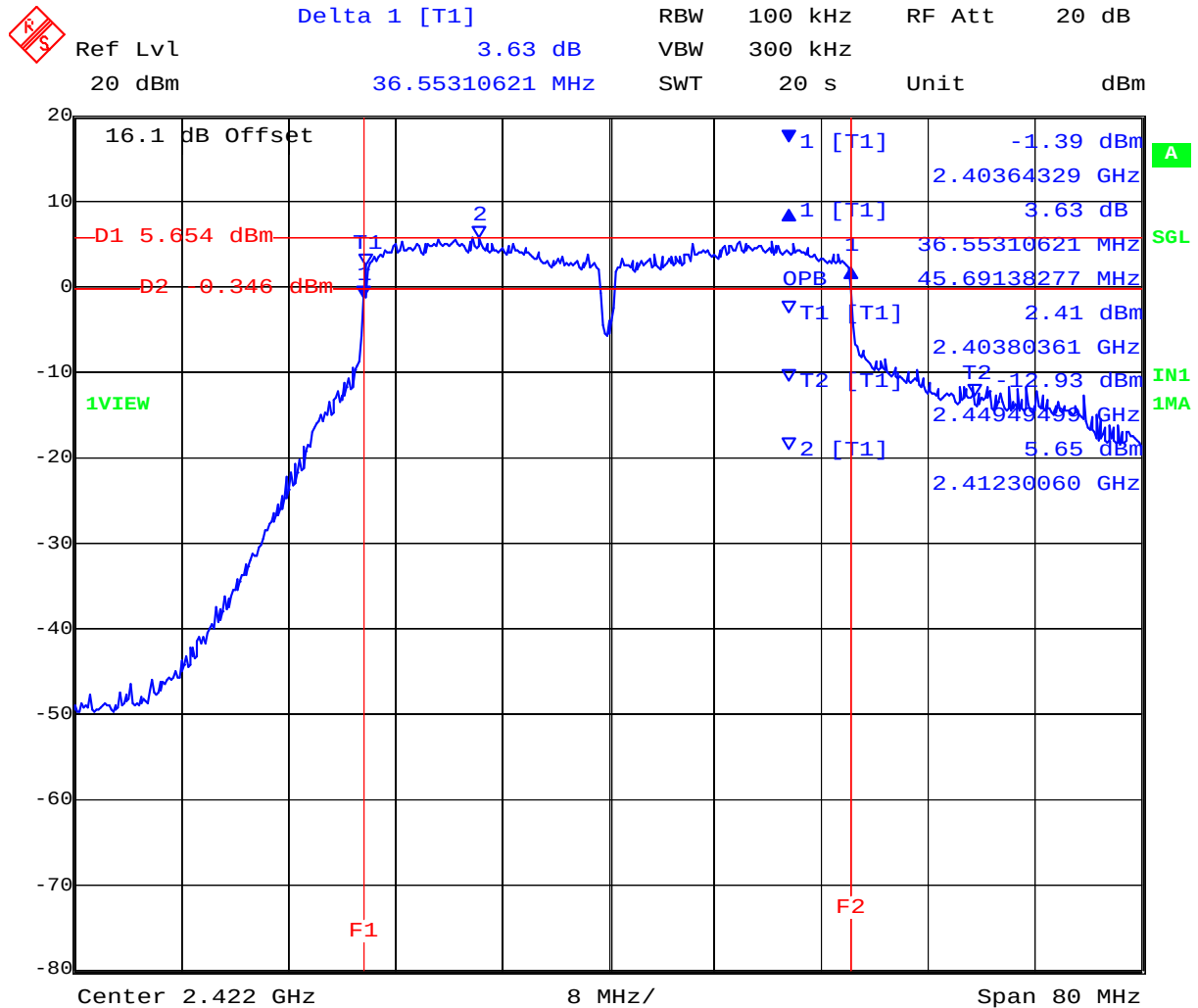
Date: 17.FEB.2012 13:30:00

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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
Serial #: WAVI02-U1 Rev A
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PORT B 2,422 MHz 802.11n HT-40 Legacy 6 dB and 99% Bandwidth



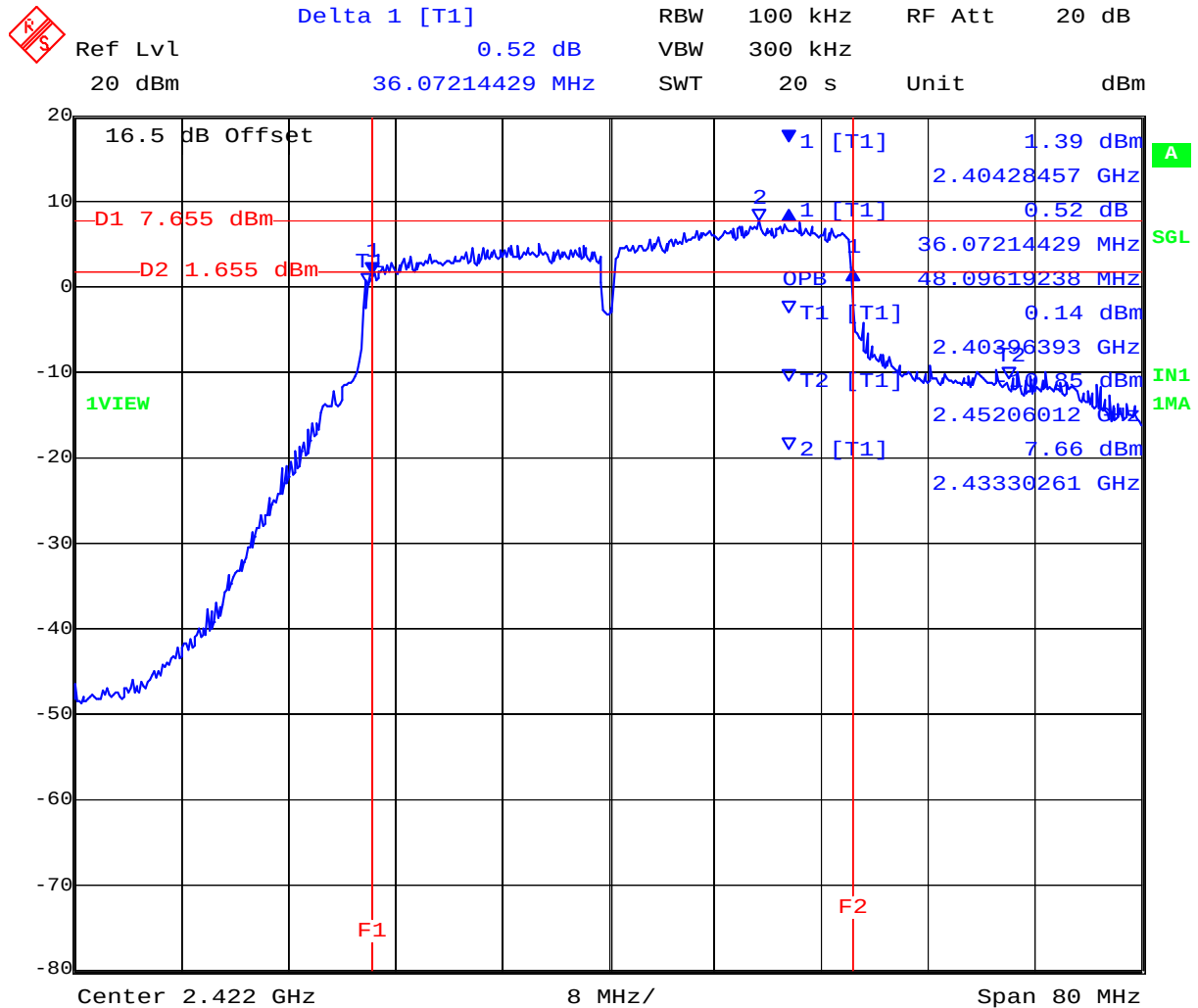
Date: 17.FEB.2012 13:31:04

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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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PORT C 2,422 MHz 802.11n HT-40 Legacy 6 dB and 99% Bandwidth



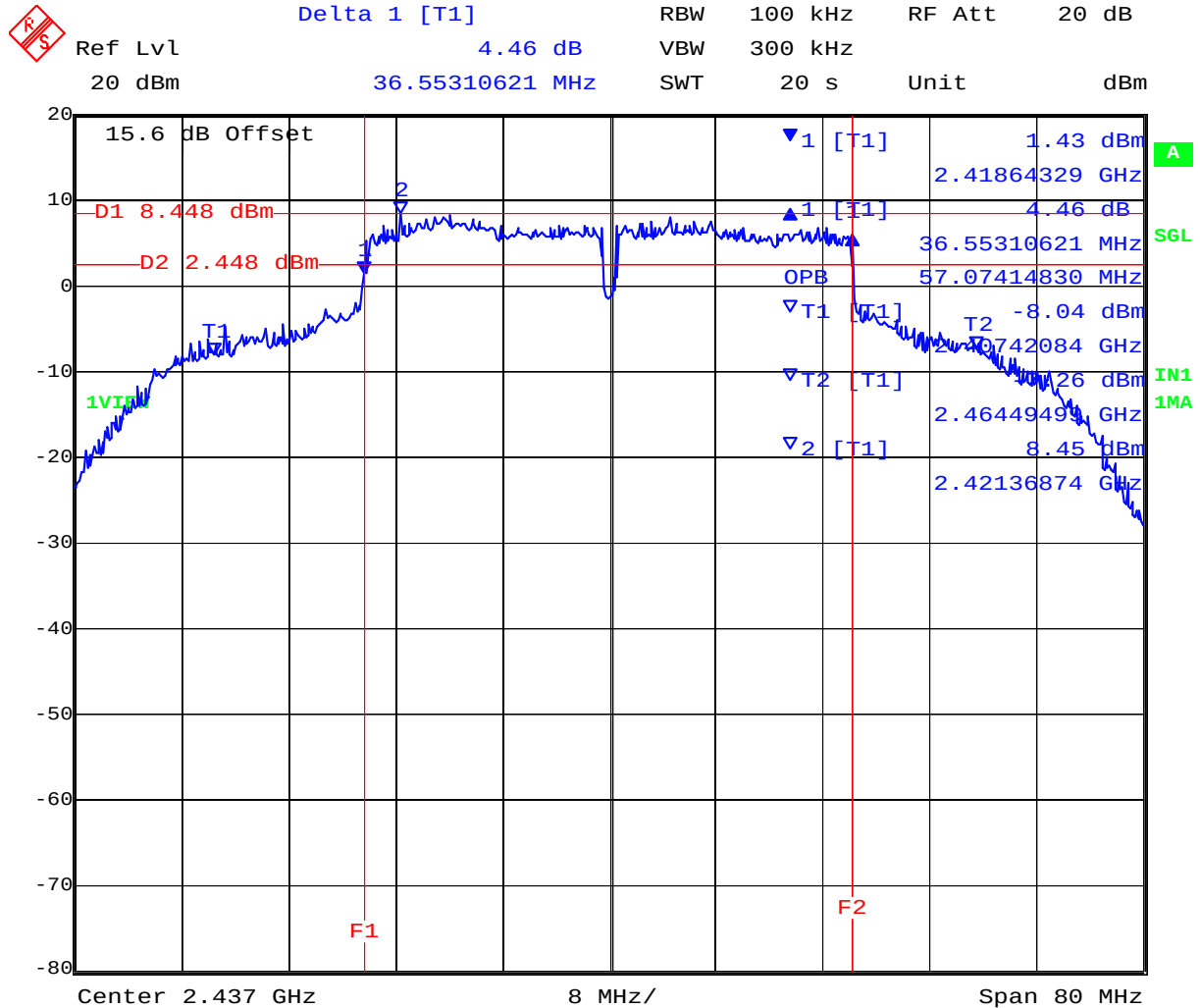
Date: 17.FEB.2012 13:32:08

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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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PORT A 2,437 MHz 802.11n HT-40 Legacy 6 dB and 99% Bandwidth



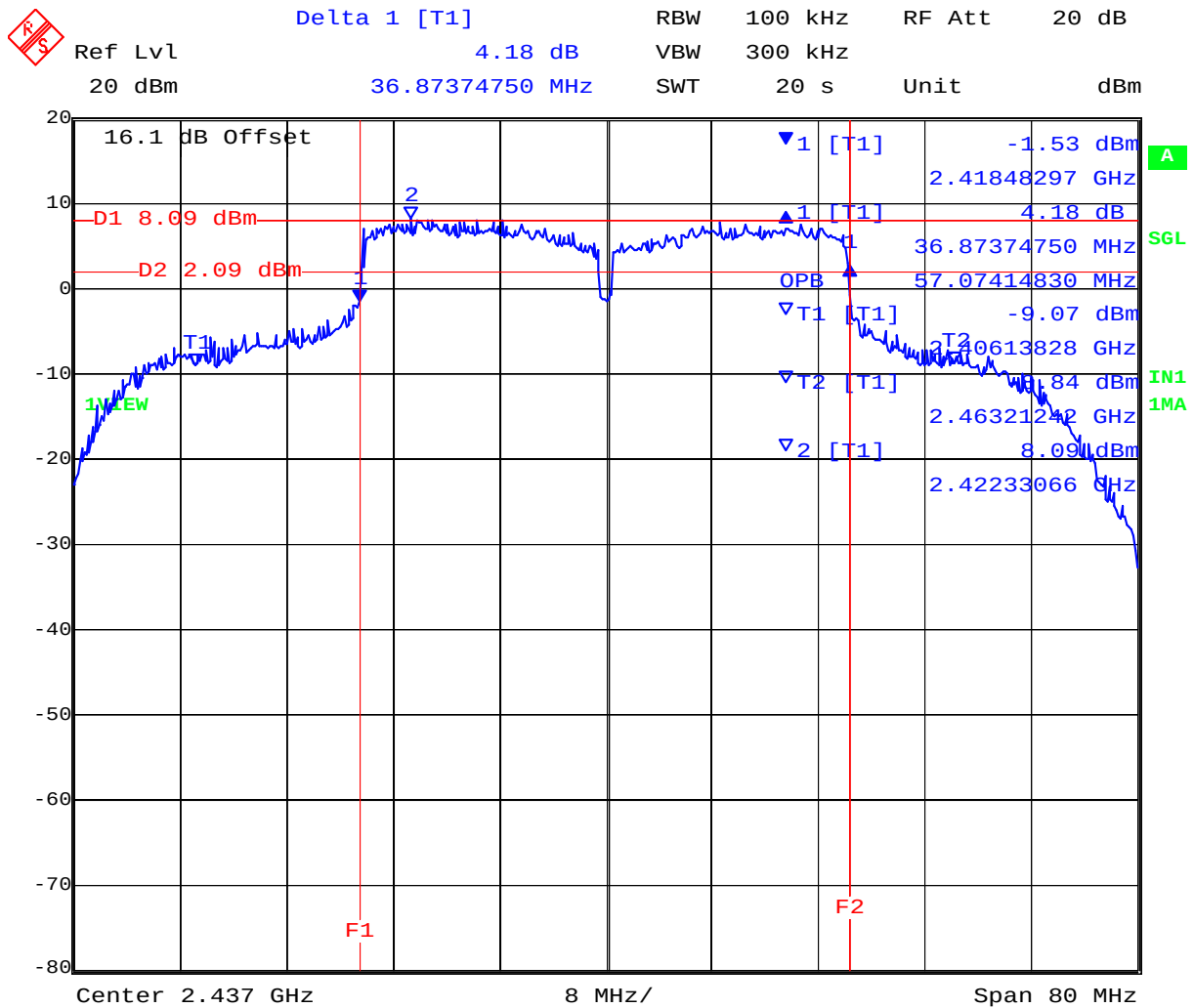
Date: 17.FEB.2012 14:03:53

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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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PORT B 2,437 MHz 802.11n HT-40 Legacy 6 dB and 99% Bandwidth



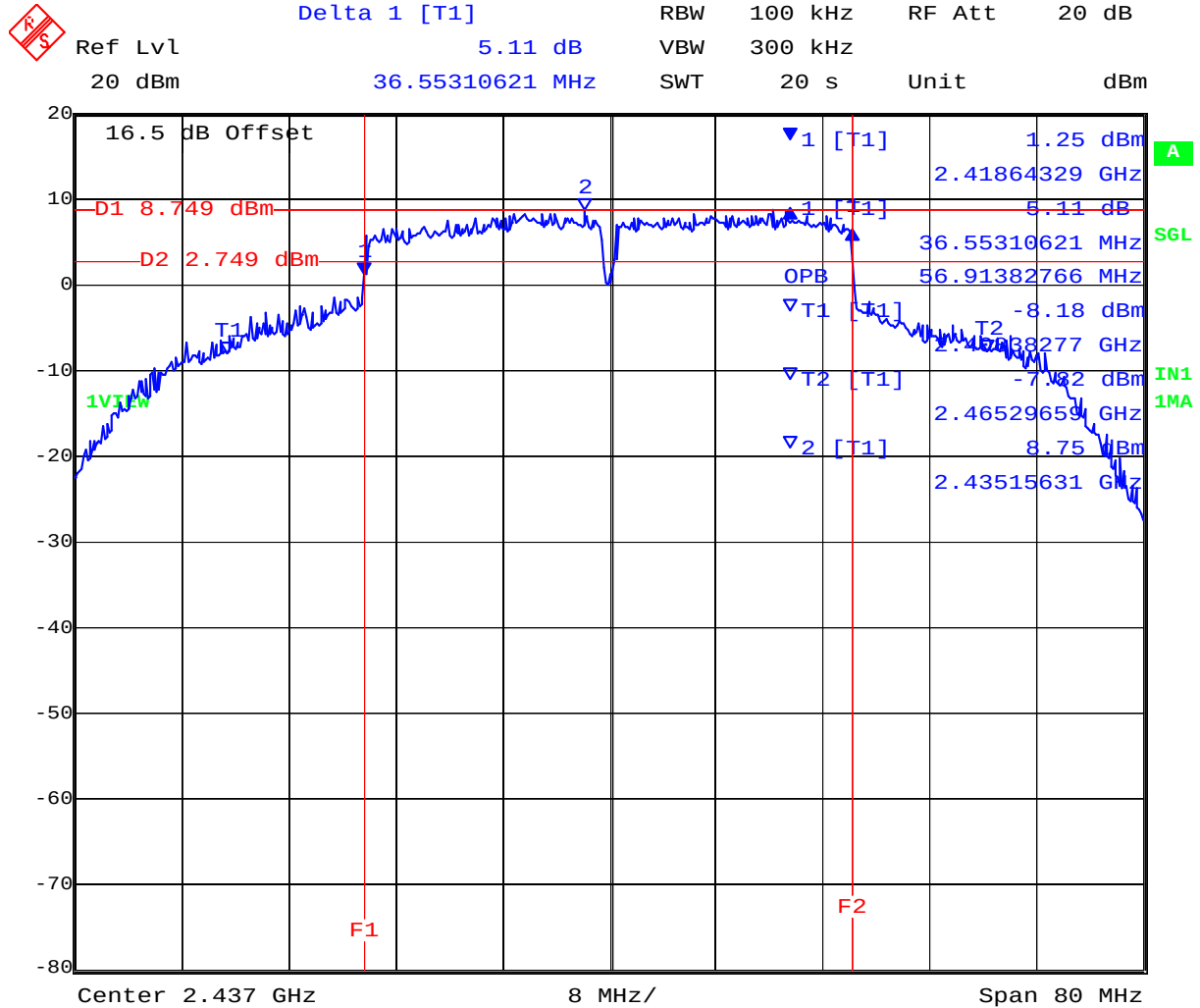
Date: 17.FEB.2012 14:04:57

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PORT C 2,437 MHz 802.11n HT-40 Legacy 6 dB and 99% Bandwidth



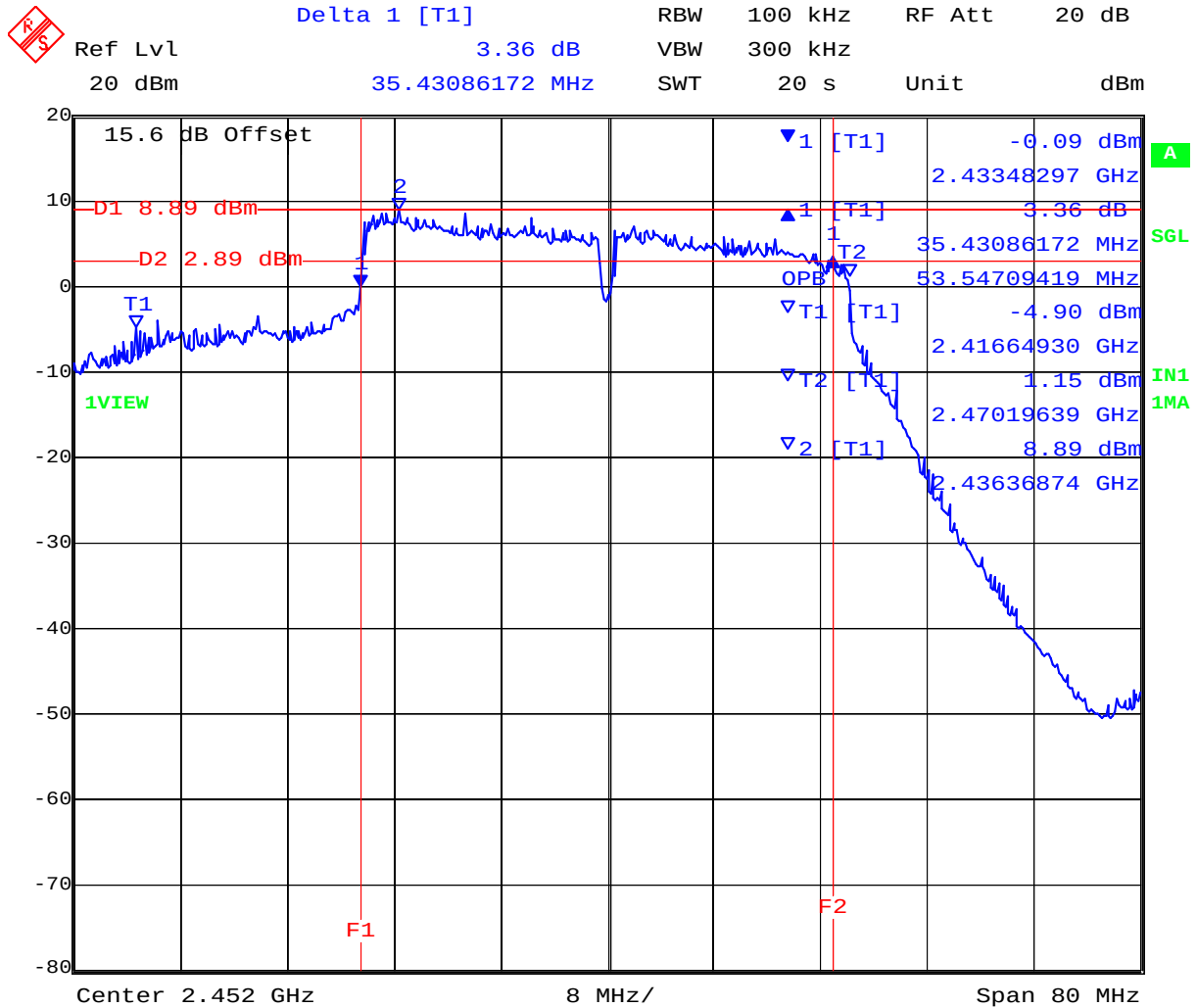
Date: 17.FEB.2012 14:06:00

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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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Serial #: WAVI02-U1 Rev A
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PORT A 2,452 MHz 802.11n HT-40 Legacy 6 dB and 99% Bandwidth



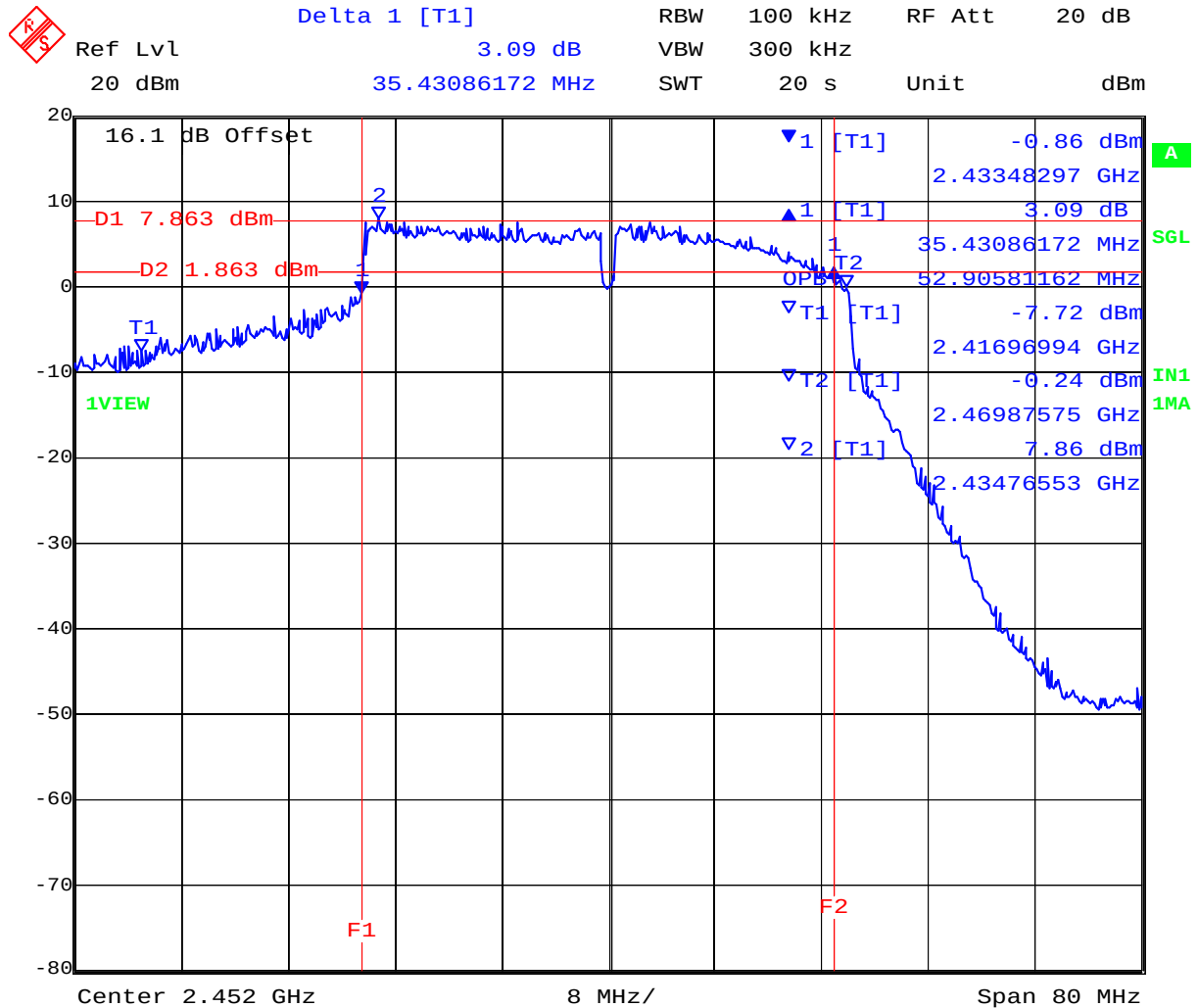
Date: 17.FEB.2012 14:33:09

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PORT B 2,452 MHz 802.11n HT-40 Legacy 6 dB and 99% Bandwidth



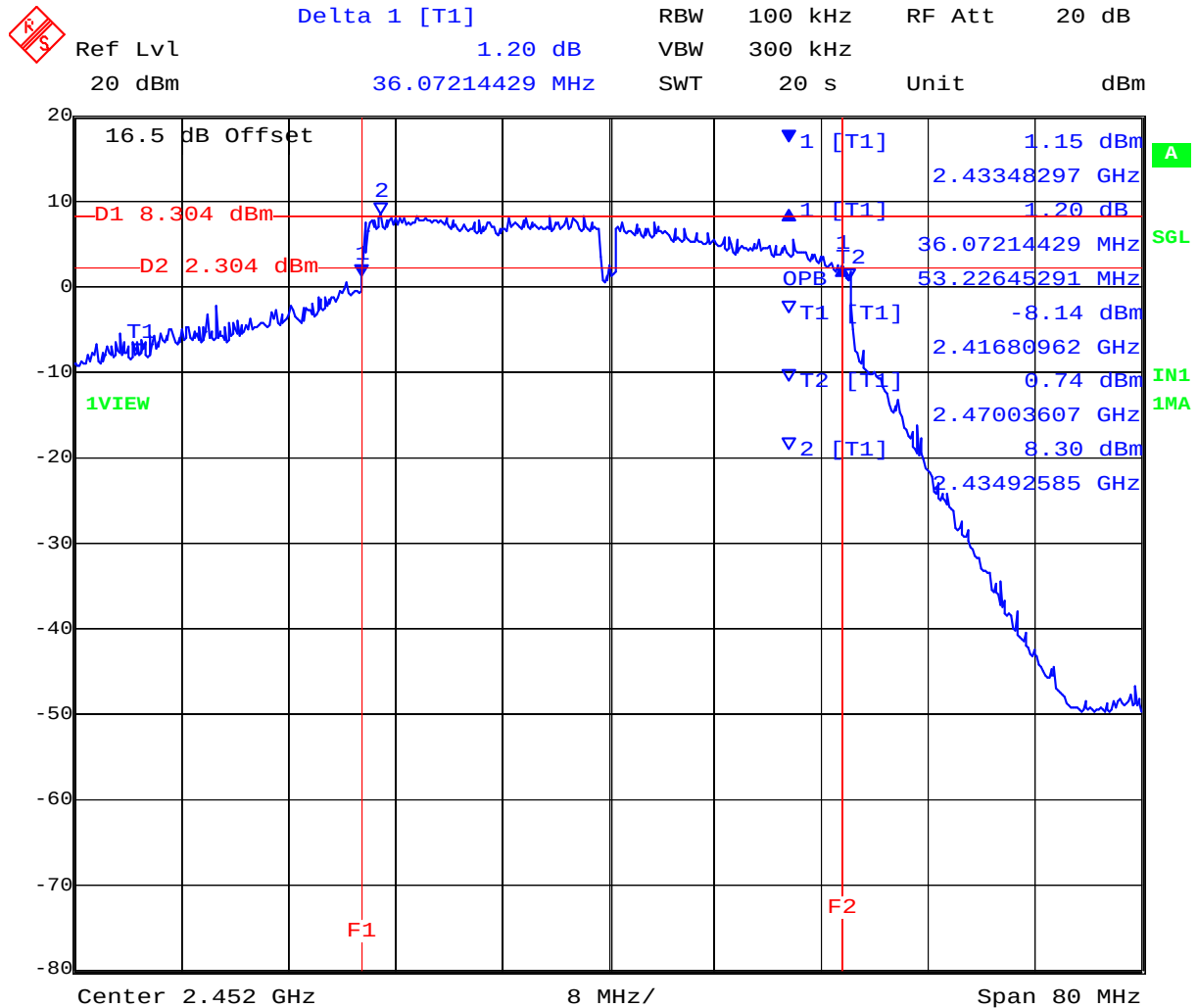
Date: 17.FEB.2012 14:34:15

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PORT C 2,452 MHz 802.11n HT-40 Legacy 6 dB and 99% Bandwidth



Date: 17.FEB.2012 14:35:18

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5.8 GHz

TABLE OF RESULTS – 802.11a – Legacy 5 MHz, 6 MBit/s

Test Conditions:	15.247 (a)(2)	Rel. Humidity (%):	35	to	42
Variant:	802.11a, 5 MHz	Ambient Temp. (°C):	19	to	22
TPC:	HIGH	Pressure (mBars):	998	to	1003
Modulation:	ON	Duty Cycle (%):	100		
Beam Forming Gain (Y):	N/A dB	Antenna Gain:	N/A		dBi
Applied Voltage:	48.00 Vdc				
Notes 1:					
Notes 2:					

6 dB Bandwidth

Test Frequency	6 dB Bandwidth				Minimum 6dB Bandwidth Limit		Margin
	MHz						
MHz	a	b	c	d	kHz	MHz	MHz
5730.500	4.168000	4.168000	4.148000	--	500	0.5	-3.648000
5790.500	4.148000	4.148000	4.148000	--			-3.648000
5845.500	4.168000	4.168000	4.168000	--			-3.668000

99% Bandwidth

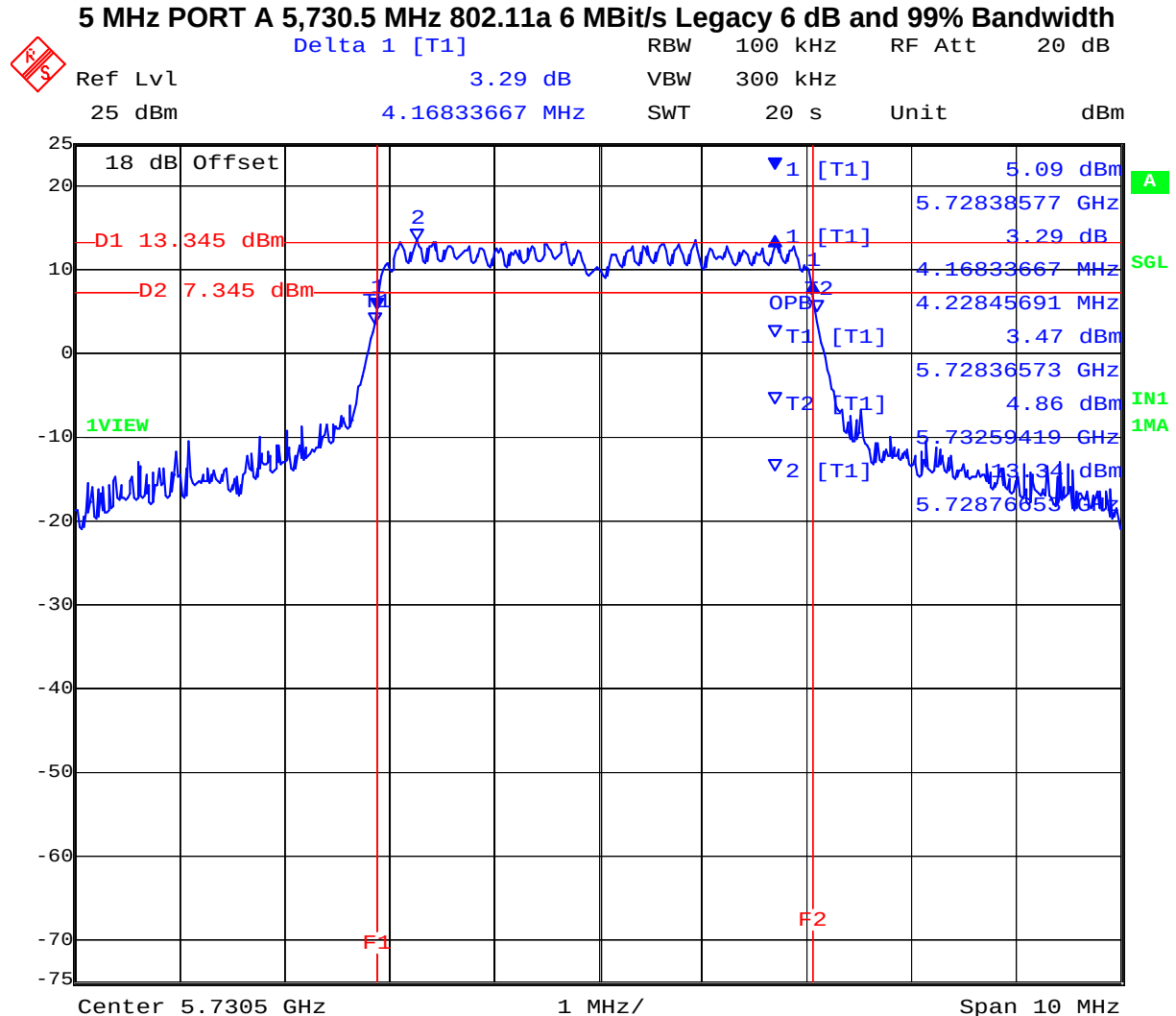
Test Frequency	99 % Bandwidth						
	MHz						
MHz	a	b	c	d			
5730.500	4.228000	4.228000	4.228000	--			
5790.500	4.228000	4.208000	4.208000	--			
5845.500	4.248000	4.208000	4.329000	--			

Measurement uncertainty:	±2.81 dB
---------------------------------	----------

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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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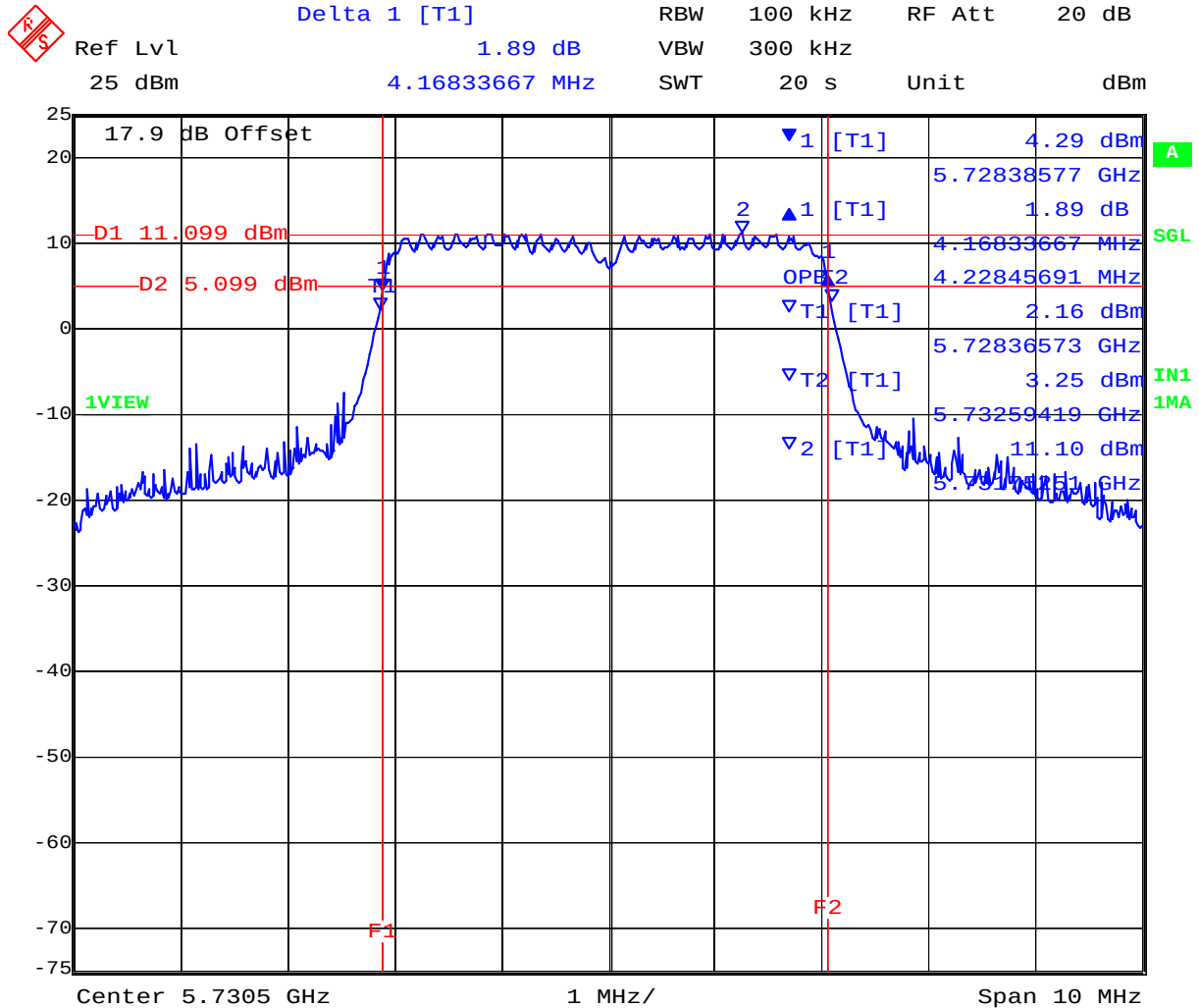
Date: 16.MAR.2012 16:58:54

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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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5 MHz PORT B 5,730.5 MHz 802.11a 6 MBit/s Legacy 6 dB and 99% Bandwidth

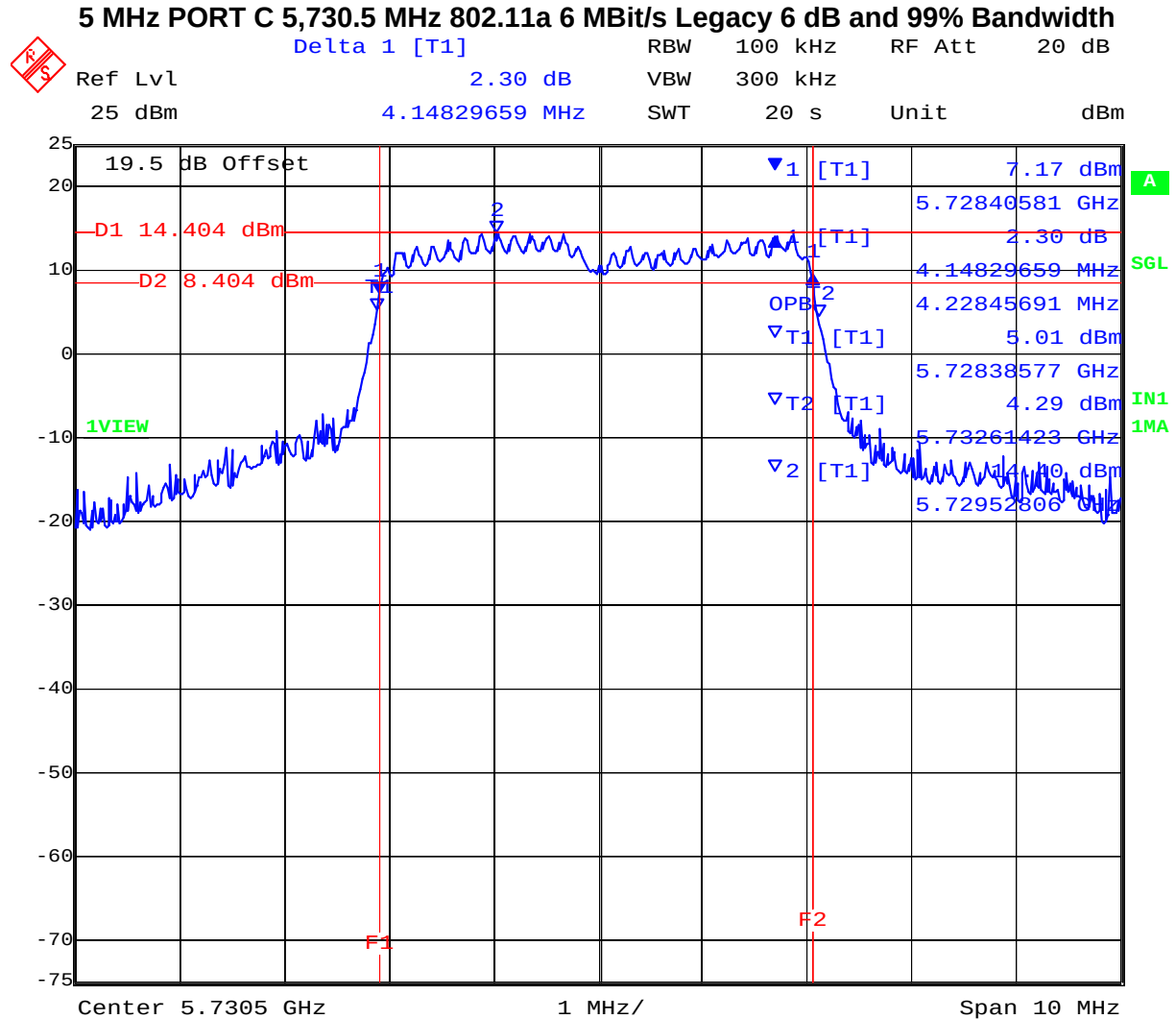


Date: 16.MAR.2012 16:59:59

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To: FCC 47 CFR Part 15.247 & IC RSS-210
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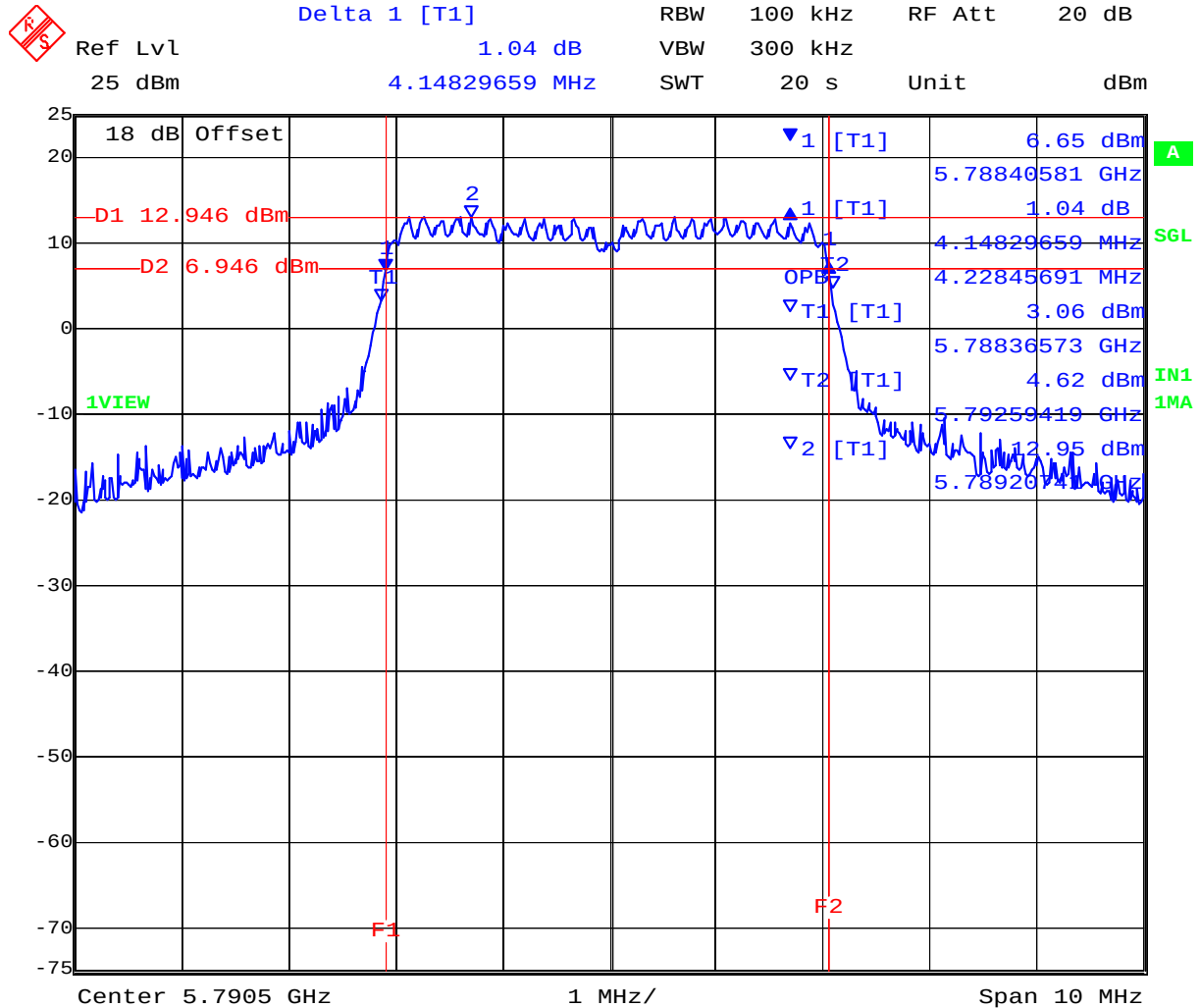
Date: 16.MAR.2012 17:01:02

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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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5 MHz PORT A 5,790.5 MHz 802.11a 6 MBit/s Legacy 6 dB and 99% Bandwidth

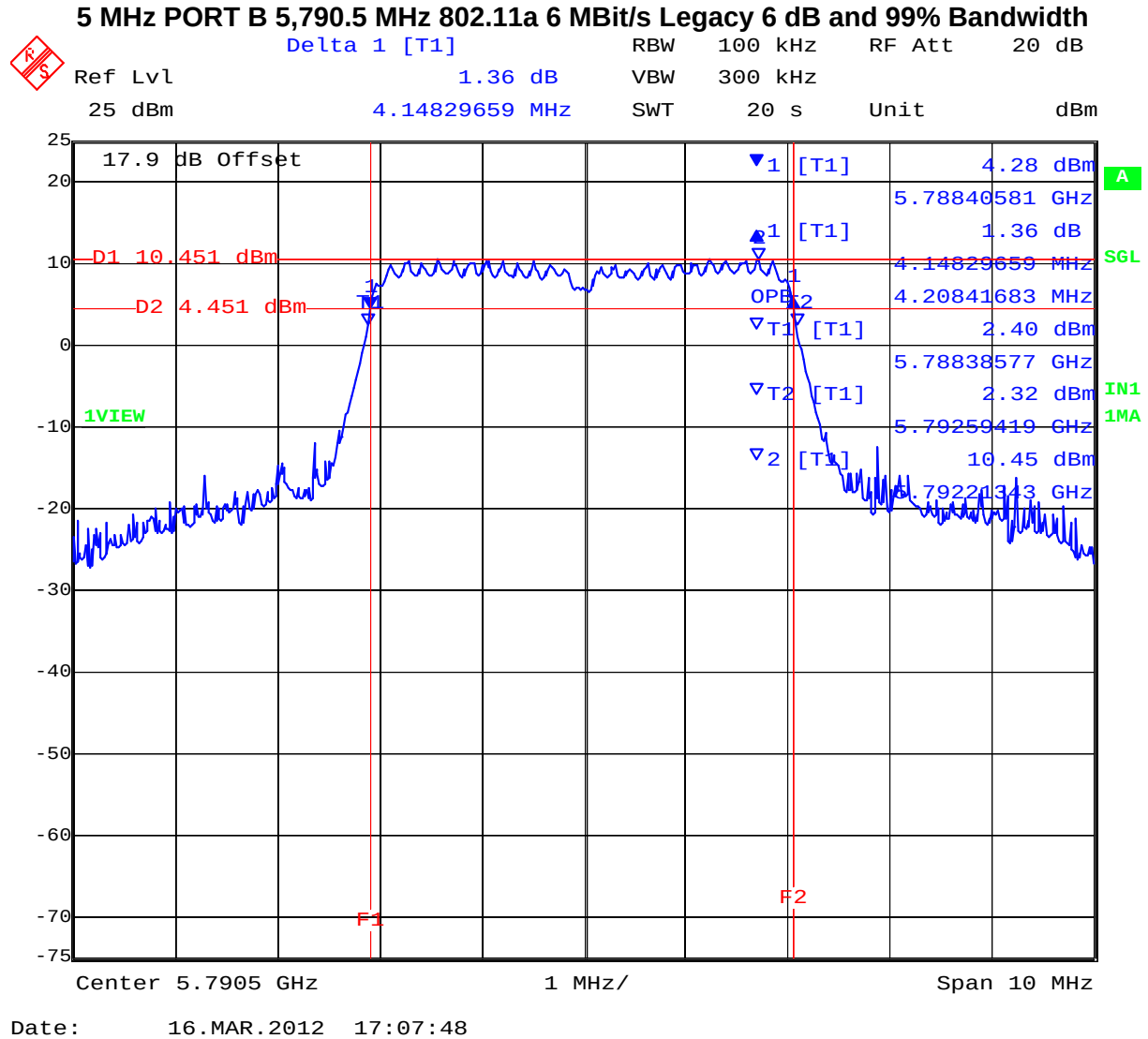


Date: 16.MAR.2012 17:06:43

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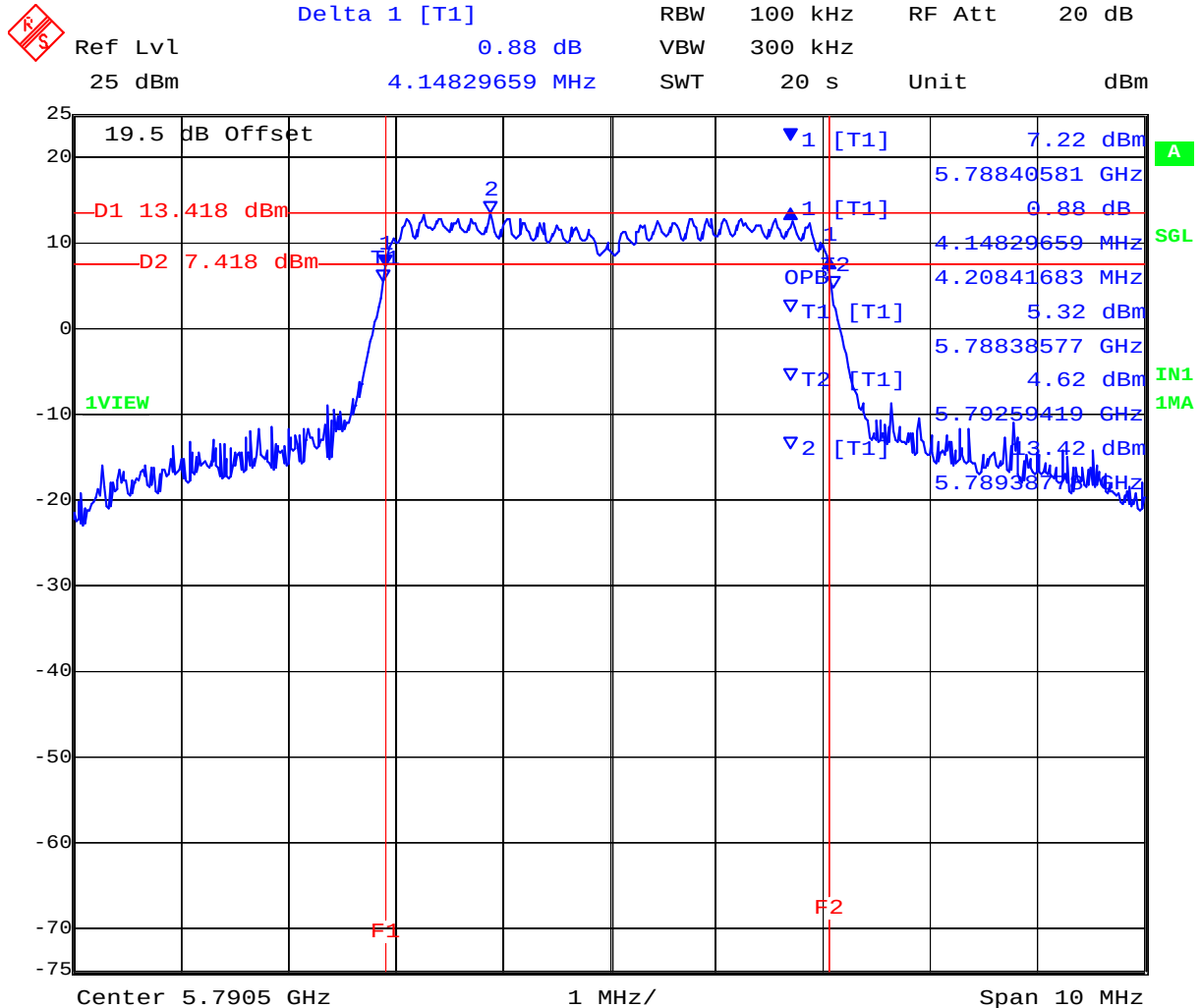


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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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5 MHz PORT C 5,790.5 MHz 802.11a 6 MBit/s Legacy 6 dB and 99% Bandwidth

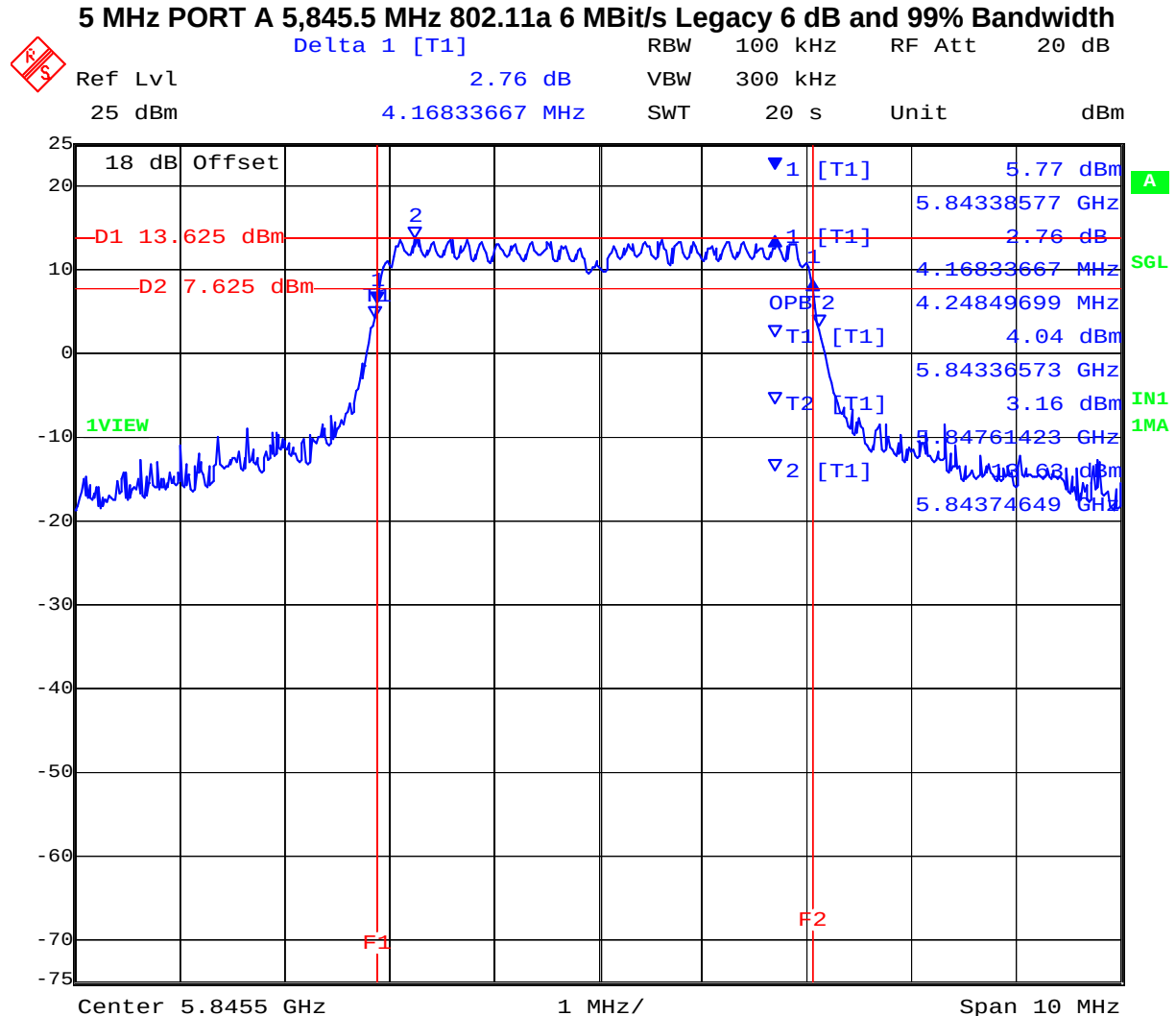


Date: 16.MAR.2012 17:08:51

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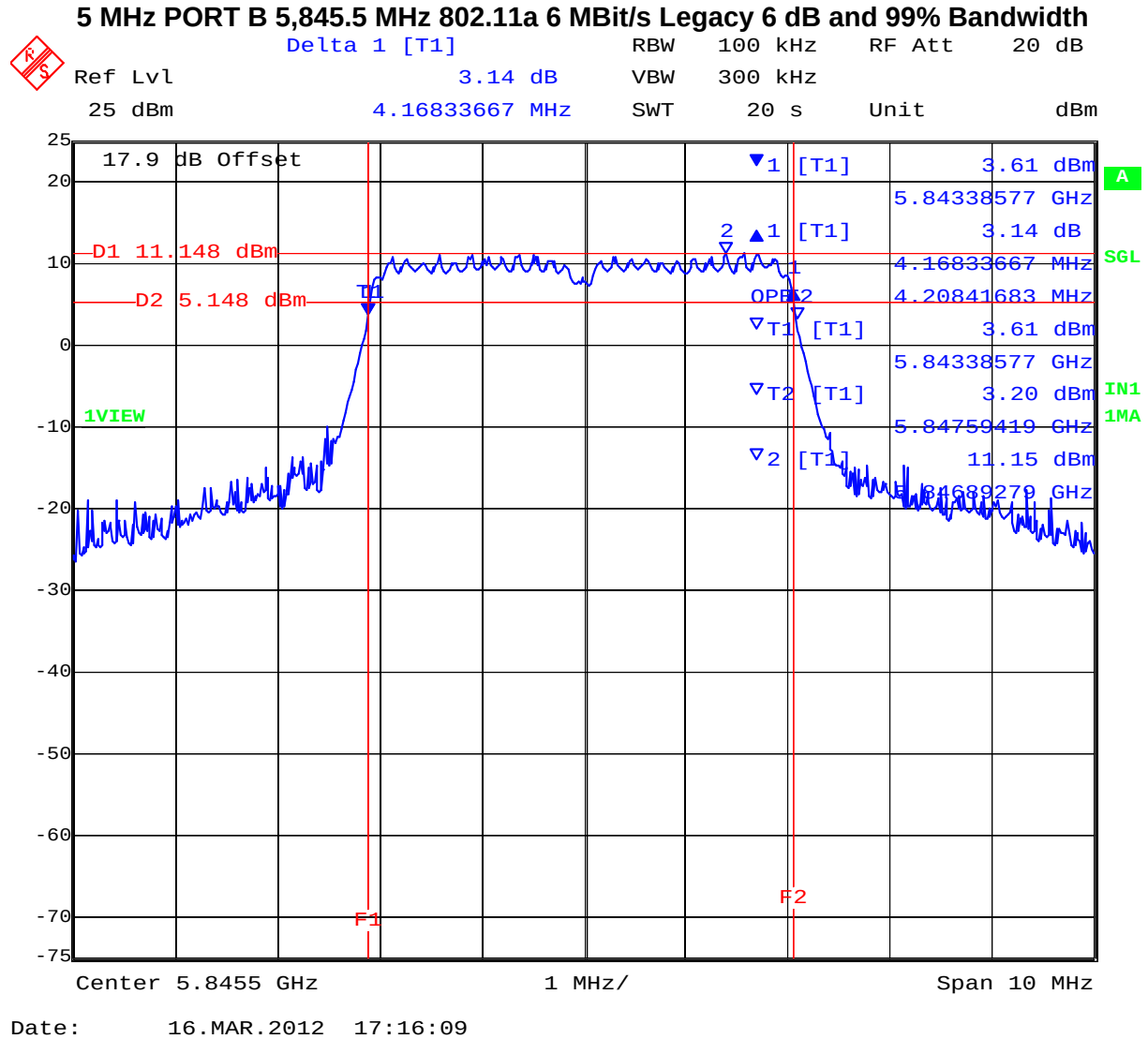


Date: 16.MAR.2012 17:15:05

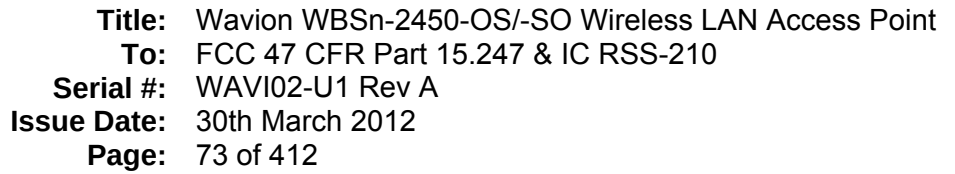
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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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TABLE OF RESULTS – 802.11a – Legacy 10 MHz, 6 MBit/s

Test Conditions:	15.247 (a)(2)	Rel. Humidity (%):	35	to	42
Variant:	802.11a, 10 MHz	Ambient Temp. (°C):	19	to	22
TPC:	HIGH	Pressure (mBars):	998	to	1003
Modulation:	ON	Duty Cycle (%):	100		
Beam Forming Gain (Y):	N/A dB	Antenna Gain:	0 dBi		
Applied Voltage:	48.00 Vdc				
Notes 1:					
Notes 2:					

6 dB Bandwidth

Test Frequency	6 dB Bandwidth				Minimum 6dB Bandwidth Limit		Margin
	MHz						
MHz	a	b	c	d	kHz	MHz	MHz
5735.000	8.297000	8.297000	8.297000	--	500	0.5	-7.797000
5790.000	8.297000	8.297000	8.257000	--			-7.757000
5840.000	8.257000	8.297000	8.297000	--			-7.757000

99% Bandwidth

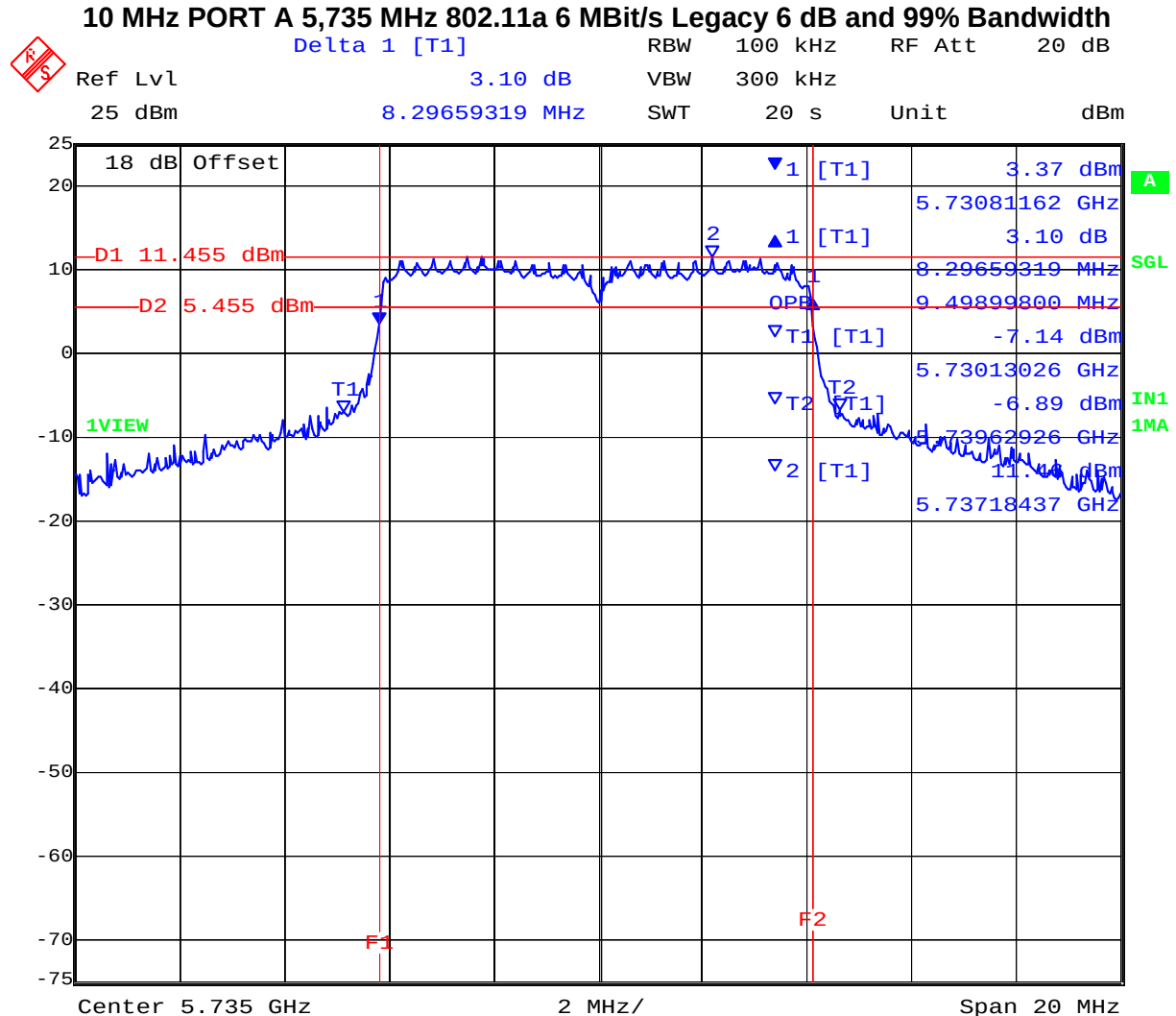
99 % Bandwidth							
Test Frequency	MHz						
MHz	a	b	c	d			
5735.000	9.499000	8.778000	9.058000	--			
5790.000	10.782000	9.138000	10.862000	--			
5840.000	12.465000	9.098000	13.066000	--			

Measurement uncertainty:	±2.81 dB
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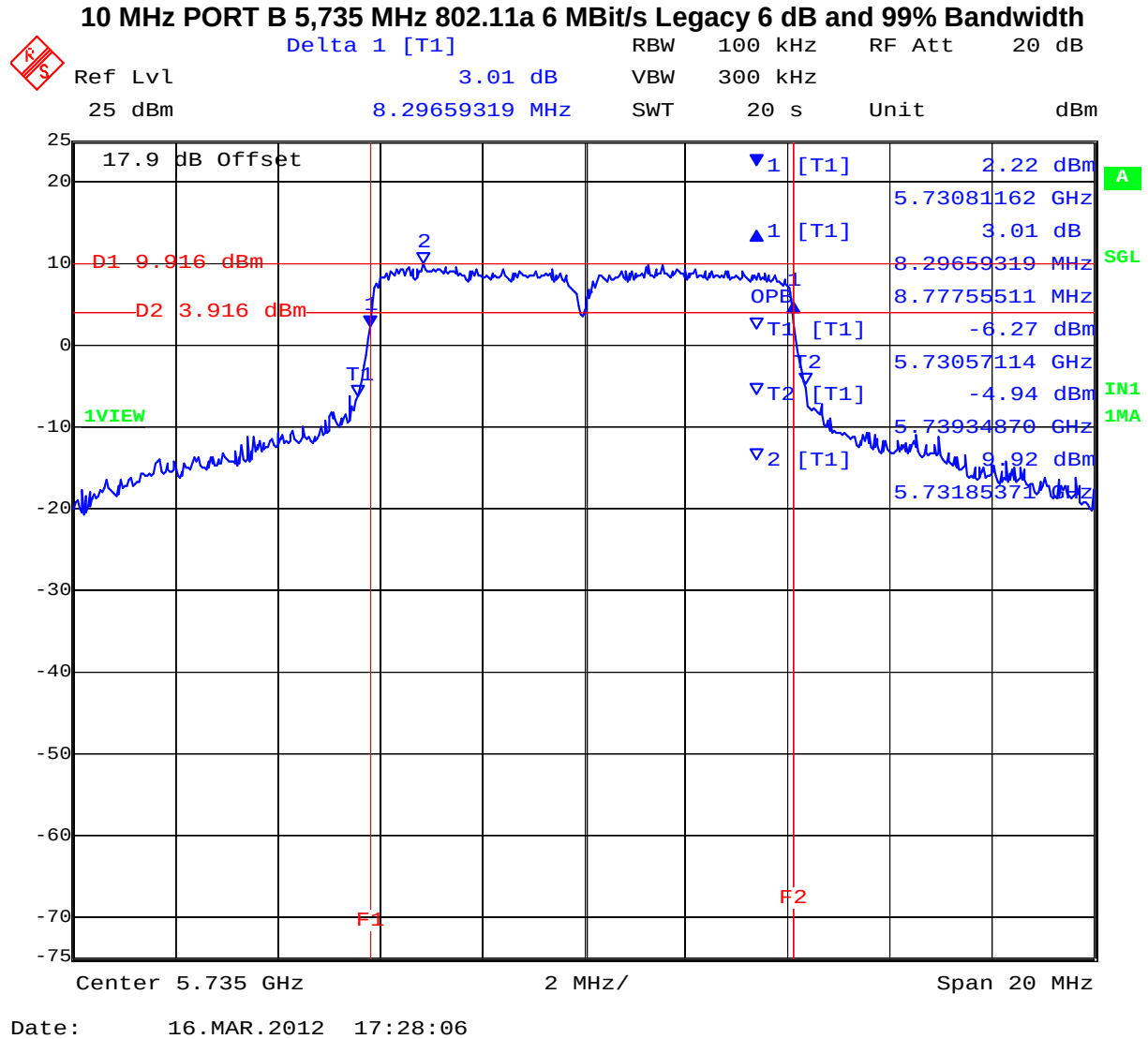


Date: 16.MAR.2012 17:27:00

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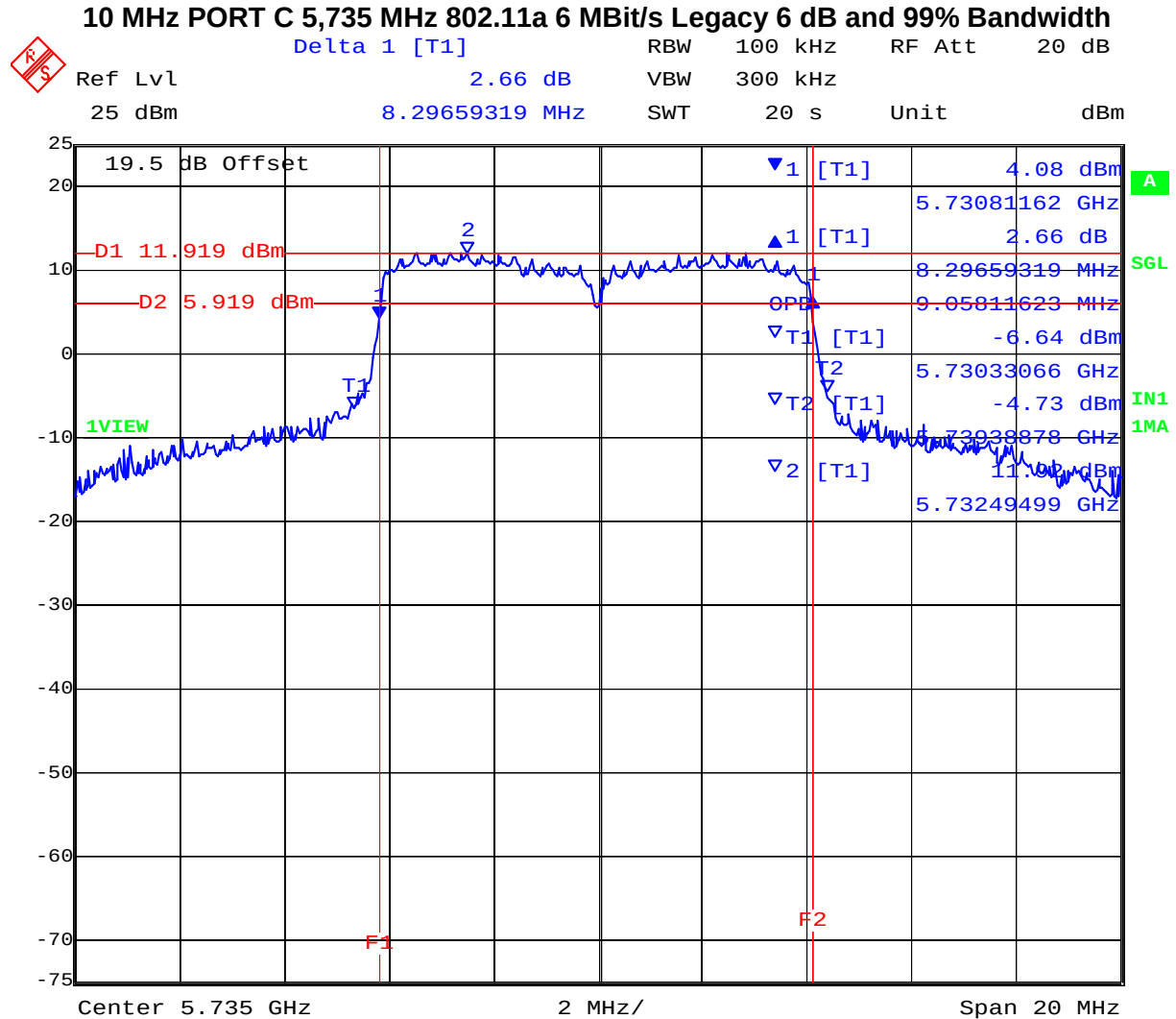
Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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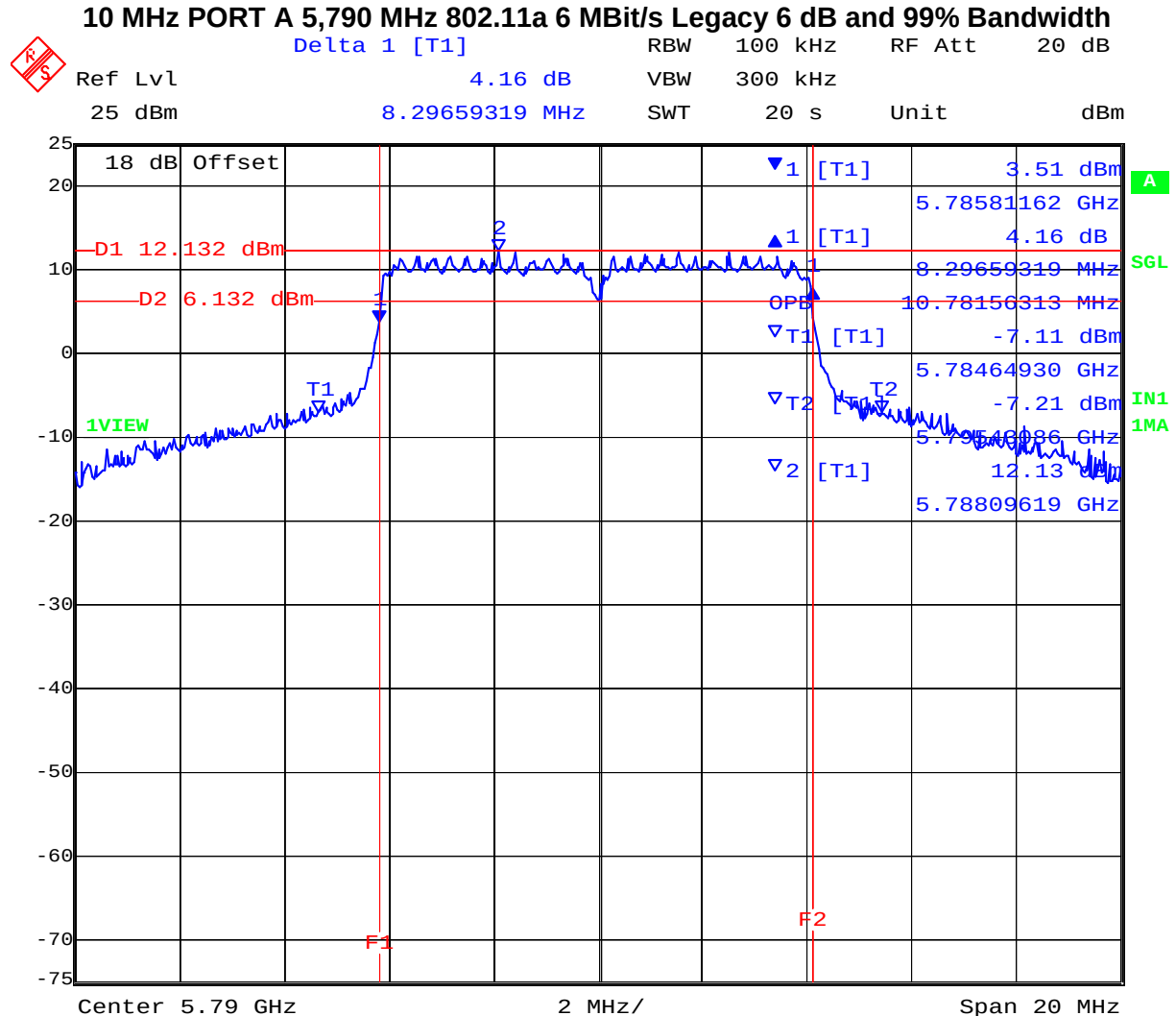


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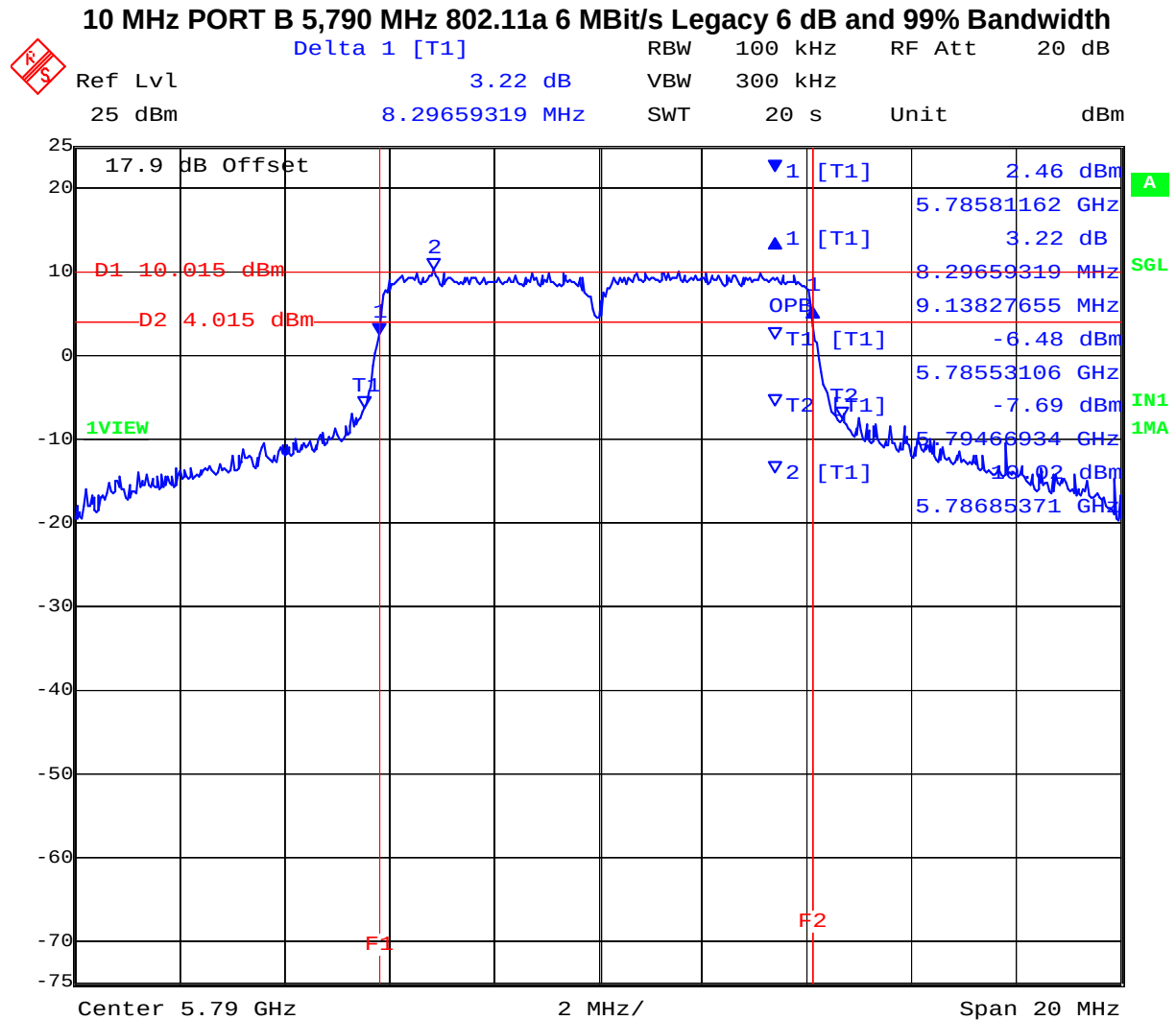


Date: 16.MAR.2012 17:31:37

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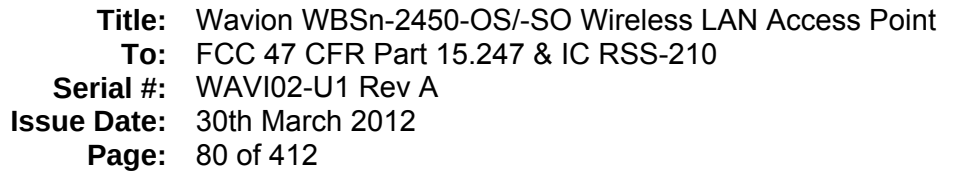


Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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Date: 16.MAR.2012 17:32:43

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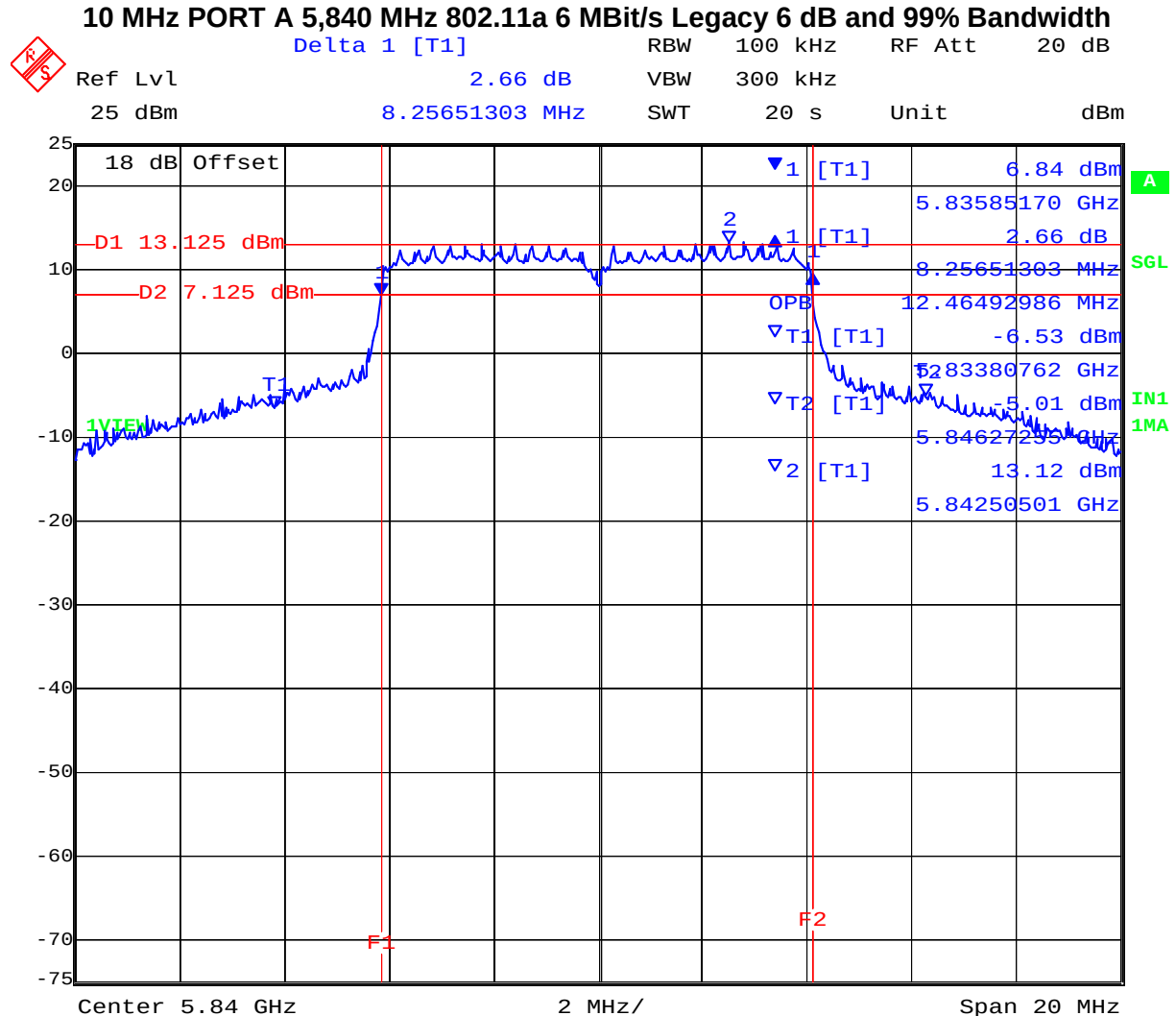
Ref Lvl 25 dBm
 Delta 1 [T1] 2.48 dB
 RBW 100 kHz
 VBW 300 kHz
 RF Att 20 dB
 Unit dBm
 19.5 dB Offset
 D1 12.482 dBm
 D2 6.482 dBm
 1VIEW
 T1
 T2
 F1
 F2
 Center 5.79 GHz
 2 MHz/
 Span 20 MHz
 5.91 dBm
 5.78585170 GHz
 2.48 dB
 8.25651303 MHz
 10.86172345 MHz
 -6.32 dBm
 5.78448898 GHz
 -7.77 dBm
 5.79564870 GHz
 12.48 dBm
 5.78749499 GHz
 A
 SGL
 IN1
 1MA

Date: 16.MAR.2012 17:33:46

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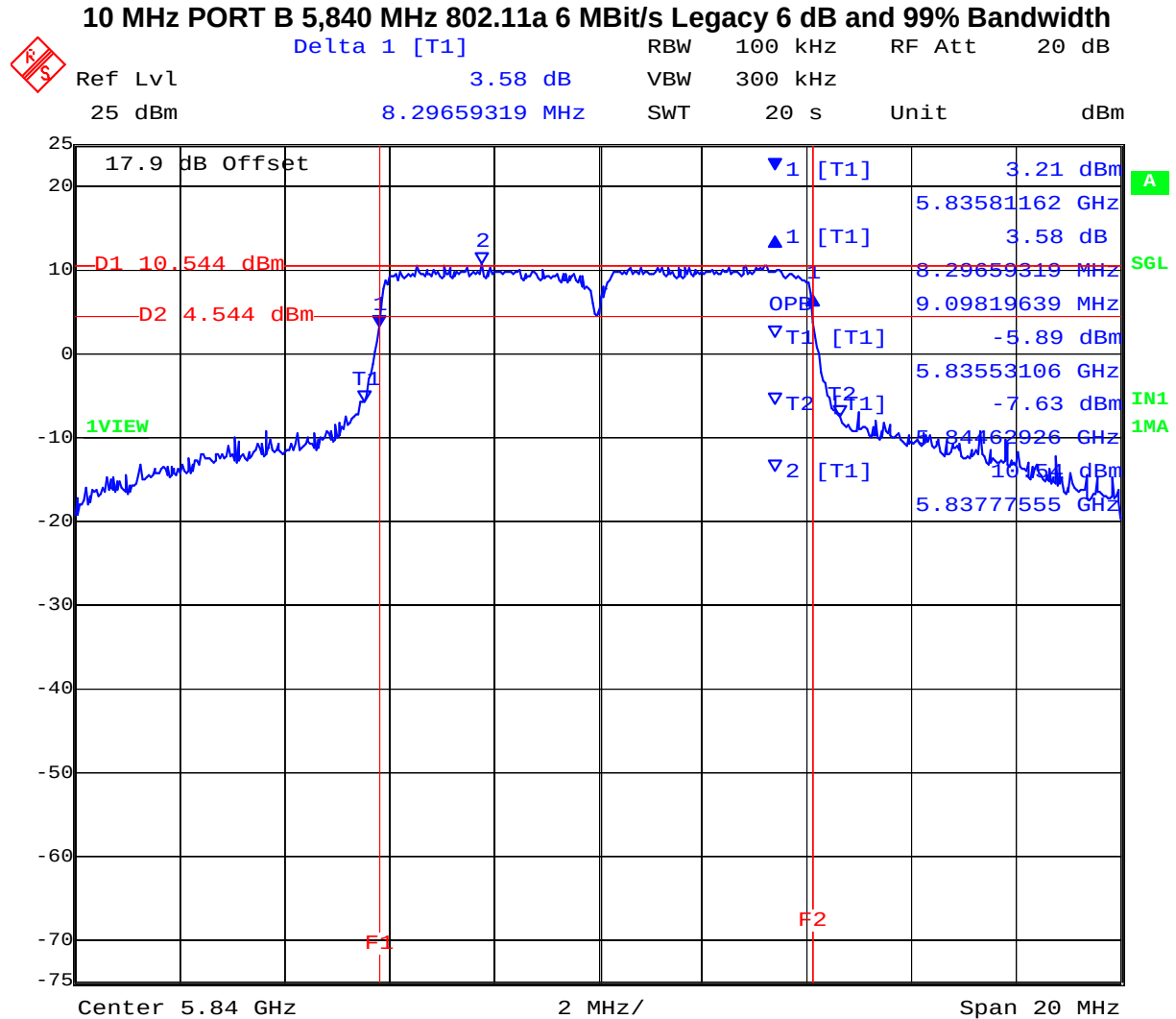


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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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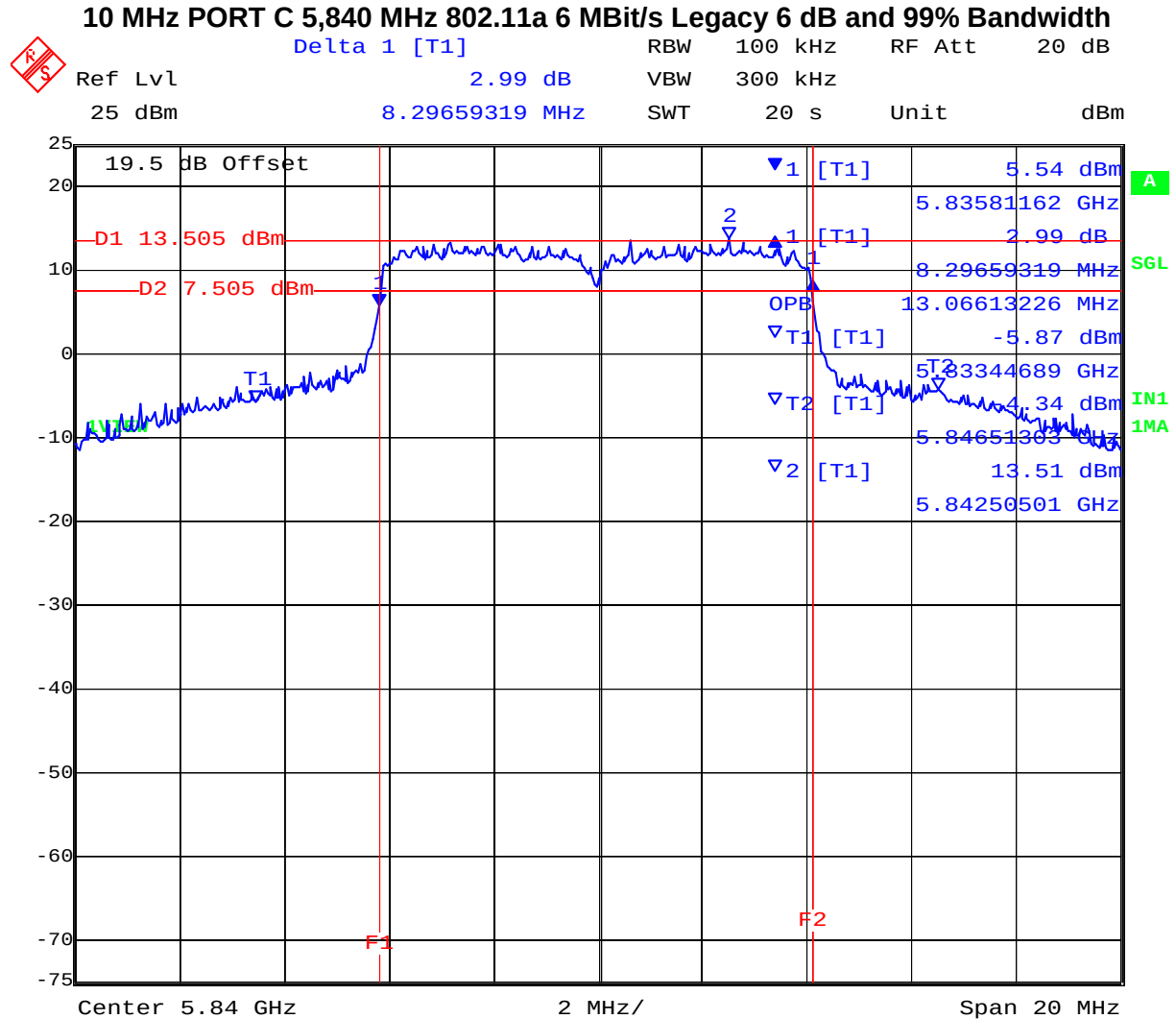


Date: 16.MAR.2012 17:37:44

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Date: 16.MAR.2012 17:38:46

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TABLE OF RESULTS – 802.11a – Legacy 20 MHz

Test Conditions:	15.247 (a)(2)	Rel. Humidity (%):	35	to	42
Variant:	802.11a	Ambient Temp. (°C):	19	to	22
TPC:	HIGH	Pressure (mBars):	998	to	1003
Modulation:	ON	Duty Cycle (%):	100		
Beam Forming Gain (Y):	N/A dB	Antenna Gain:	0 dBi		
Applied Voltage:	48.00 Vdc				
Notes 1:					
Notes 2:					

6 dB Bandwidth

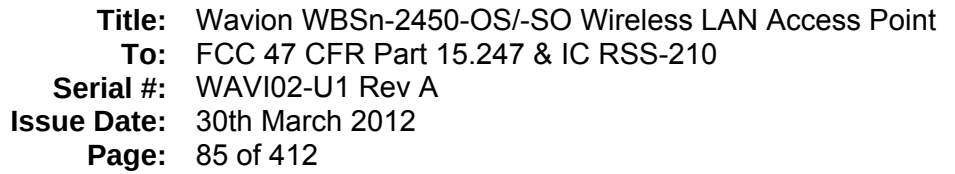
Test Frequency	6 dB Bandwidth				Minimum 6dB Bandwidth Limit		Margin
	MHz						
MHz	a	b	c	d	kHz	MHz	MHz
5745.000	16.593000	16.673000	16.673000	--	500	0.5	-16.093000
5785.000	16.593000	16.673000	16.673000	--			-16.093000
5825.000	16.593000	16.673000	16.673000	--			-16.093000

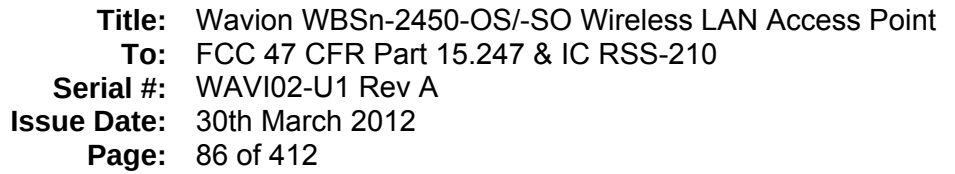
99% Bandwidth

Test Frequency	99 % Bandwidth						
	MHz						
MHz	a	b	c	d			
5745.000	16.834000	22.846000	19.238000	--			
5785.000	16.914000	17.876000	17.074000	--			
5825.000	16.754000	17.395000	17.395000	--			

Measurement uncertainty:	±2.81 dB
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Ref Lvl 17.9 dBm Delta 1 [T1] 4.05 dB RBW 100 kHz RF Att 10 dB VBW 300 kHz Unit dBm

17.9 dB Offset

▼1 [T1] -1.97 dBm 5.73662325 GHz

▼2 [T1] 7.14 dBm 5.74039078 GHz

▼T1 [T1] -10.47 dBm 5.73341683 GHz

▼T2 [T1] -9.84 dBm 5.75626289 GHz

OPB 22.84569138 MHz

D1 7.144 dBm

D2 1.144 dBm

T1

T2

F1

F2

Center 5.745 GHz 4 MHz/ Span 40 MHz

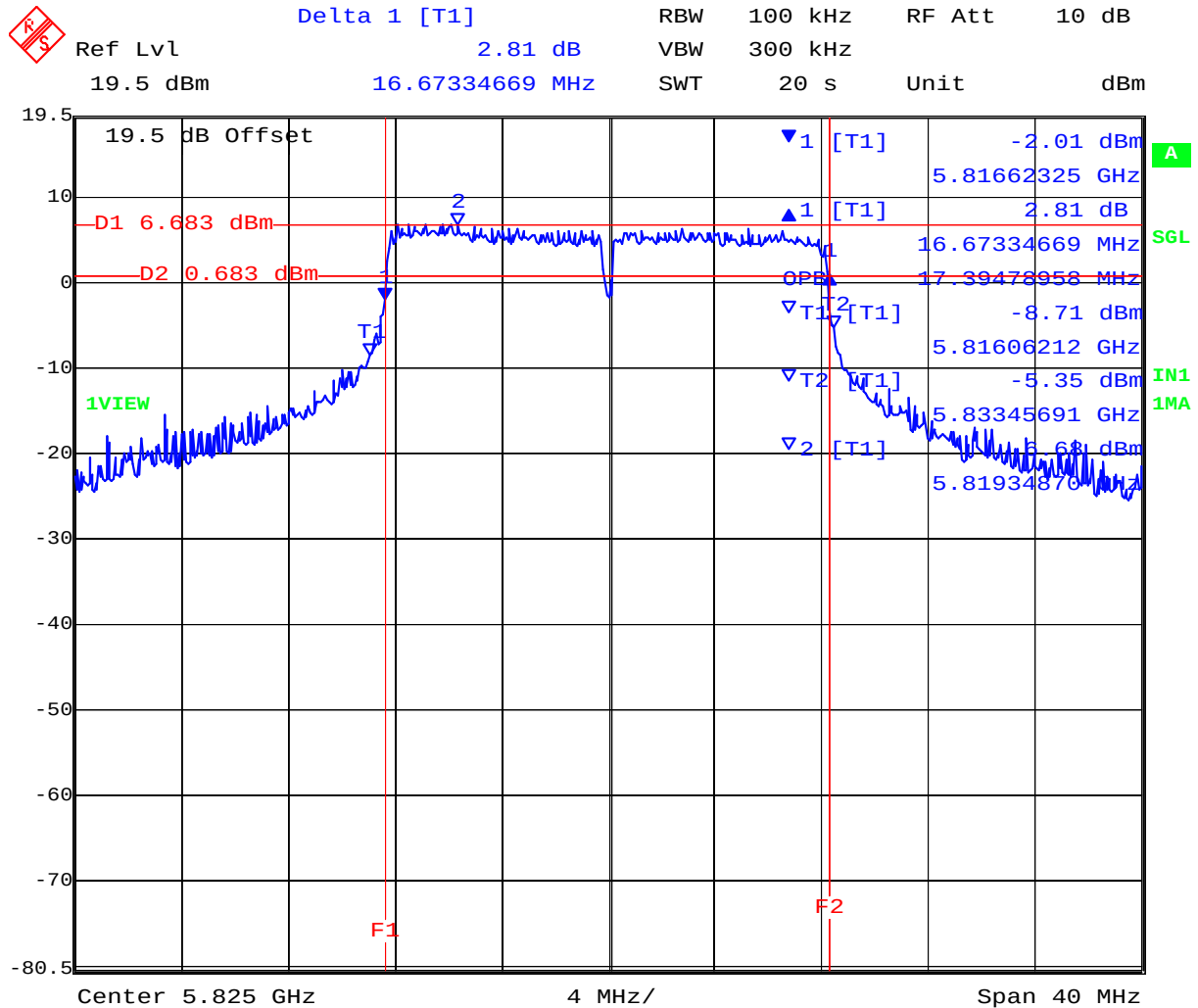
Date: 17.FEB.2012 20:05:37

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PORT C 5,745 MHz 802.11a Legacy 6 dB and 99% Bandwidth



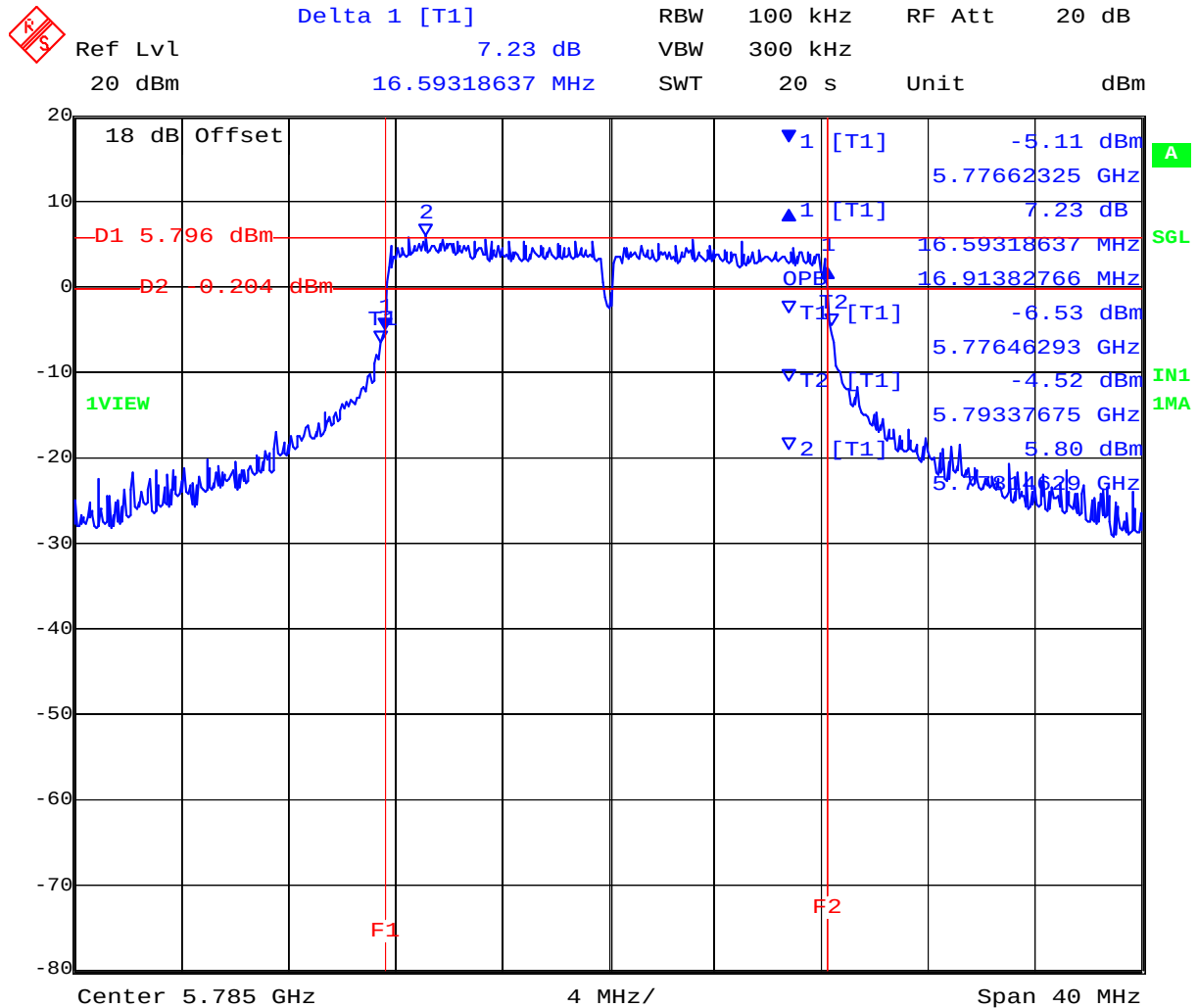
Date: 18.FEB.2012 08:30:32

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PORT A 5,785 MHz 802.11a Legacy 6 dB and 99% Bandwidth



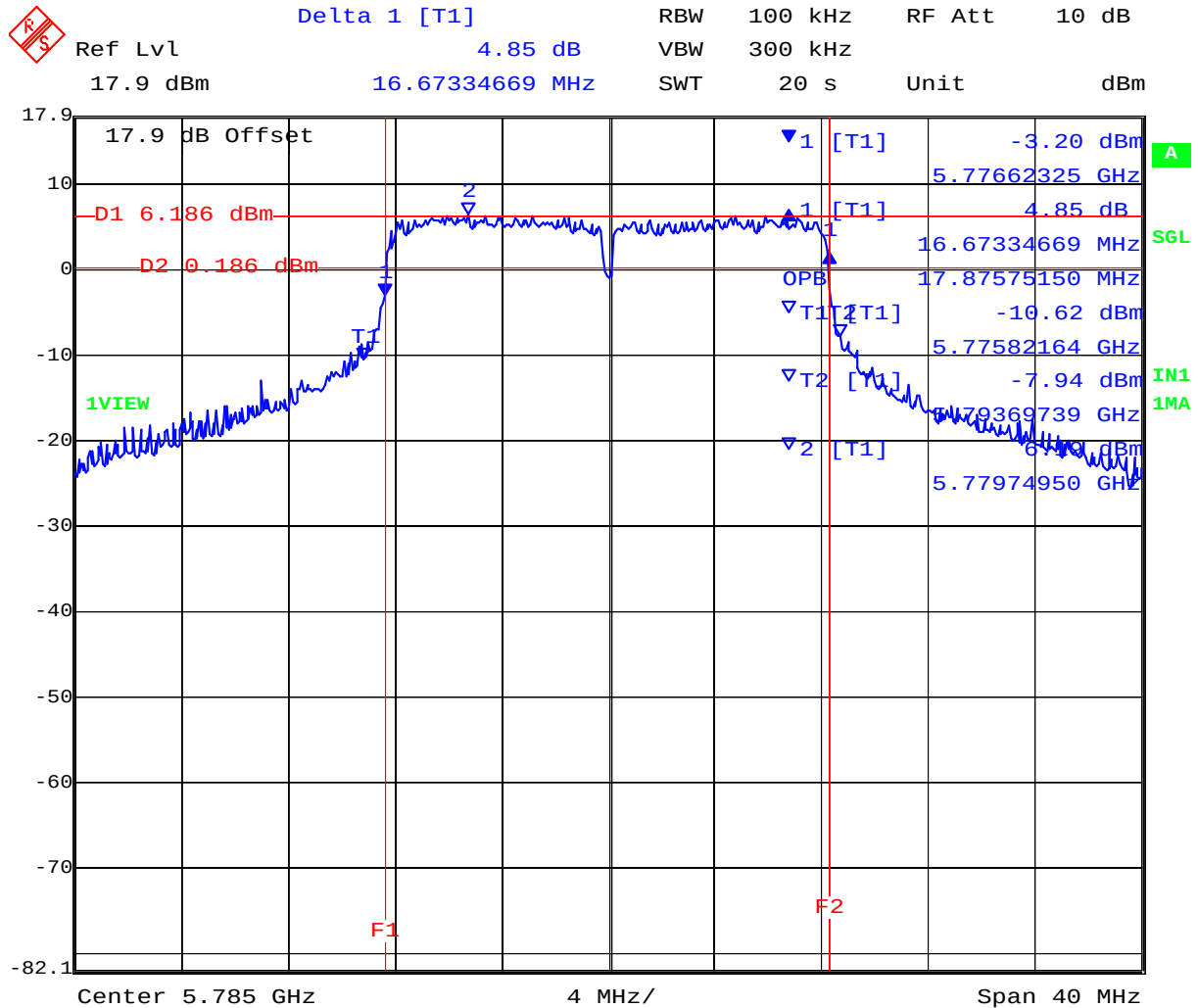
Date: 18.FEB.2012 07:59:34

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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
Serial #: WAVI02-U1 Rev A
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PORT B 5,785 MHz 802.11a Legacy 6 dB and 99% Bandwidth



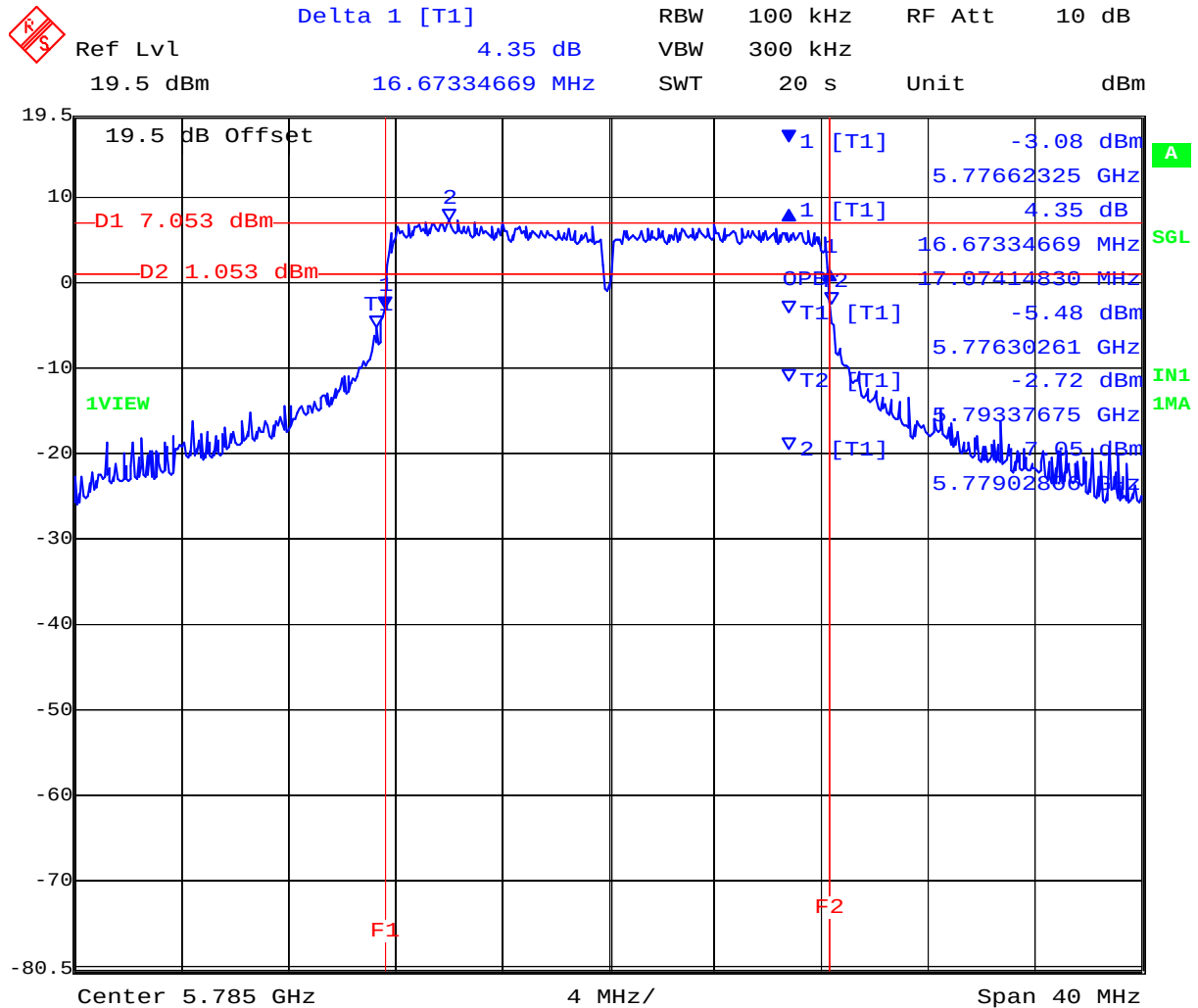
Date: 18.FEB.2012 08:00:40

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PORT C 5,785 MHz 802.11a Legacy 6 dB and 99% Bandwidth



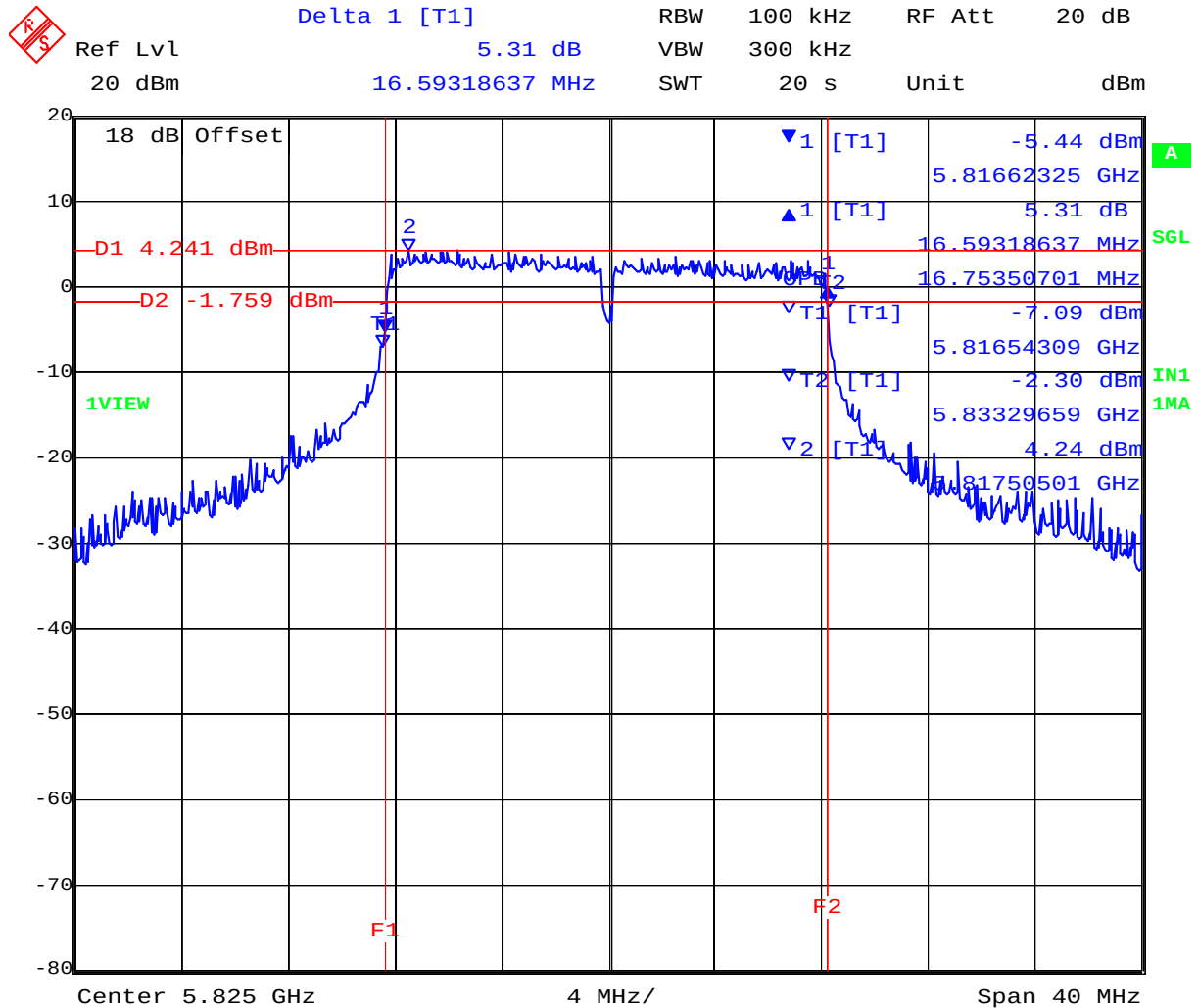
Date: 18.FEB.2012 08:01:43

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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
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PORT A 5,825 MHz 802.11a Legacy 6 dB and 99% Bandwidth



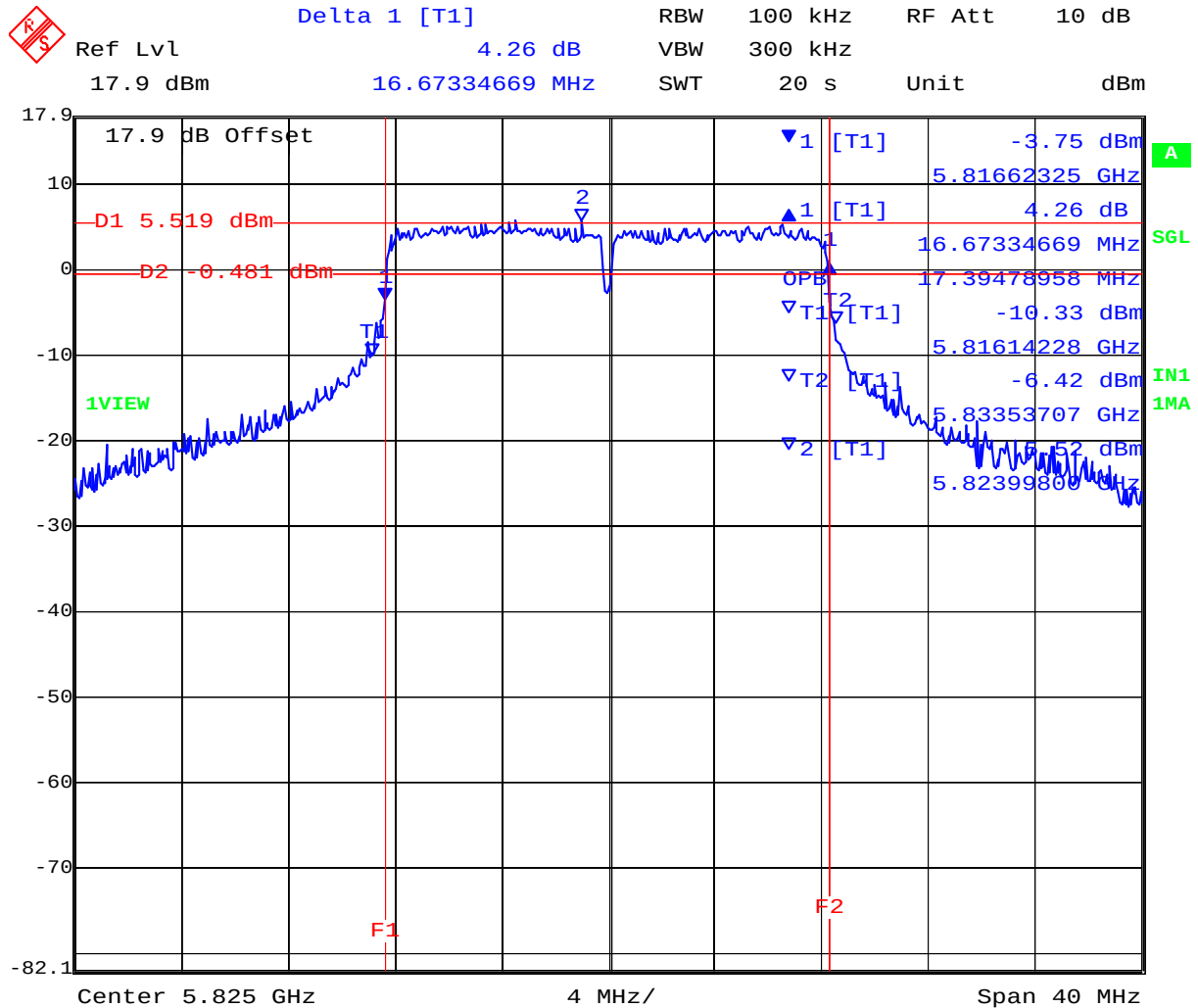
Date: 18.FEB.2012 08:28:24

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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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PORT B 5,825 MHz 802.11a Legacy 6 dB and 99% Bandwidth



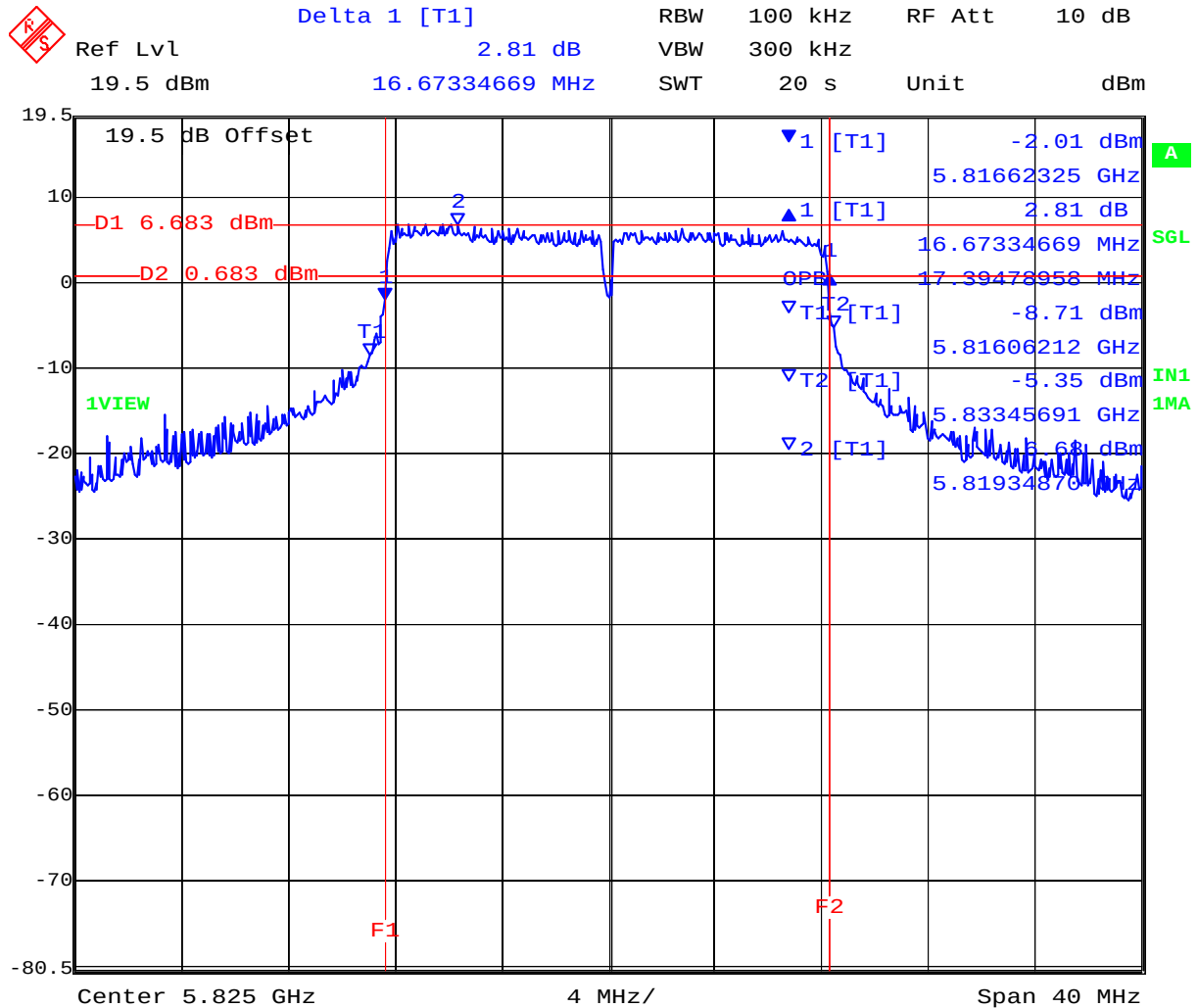
Date: 18.FEB.2012 08:29:29

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PORT C 5,825 MHz 802.11a Legacy 6 dB and 99% Bandwidth



Date: 18.FEB.2012 08:30:32

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To: FCC 47 CFR Part 15.247 & IC RSS-210
Serial #: WAVI02-U1 Rev A
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TABLE OF RESULTS – 802.11n HT-20

Test Conditions:	15.247 (a)(2)	Rel. Humidity (%):	35	to	42
Variant:	802.11n HT-20	Ambient Temp. (°C):	19	to	22
TPC:	HIGH	Pressure (mBars):	998	to	1003
Modulation:	ON	Duty Cycle (%):	100		
Beam Forming Gain (Y):	N/A dB	Antenna Gain:	0		dBi
Applied Voltage:	48.00 Vdc				
Notes 1:					
Notes 2:					

6 dB Bandwidth

Test Frequency	6 dB Bandwidth				Minimum 6dB Bandwidth Limit		Margin
	MHz						
MHz	a	b	c	d	kHz	MHz	MHz
5745.000	17.876000	17.956000	17.956000	--	500	0.5	-17.376000
5785.000	17.956000	17.956000	17.956000	--			-17.456000
5825.000	17.876000	17.956000	17.876000	--			-17.376000

99% Bandwidth

Test Frequency	99 % Bandwidth						
	MHz						
MHz	a	b	c	d			
5745.000	27.255000	33.427000	32.064000	--			
5785.000	26.613000	30.381000	27.575000	--			
5825.000	29.579000	30.782000	29.659000	--			

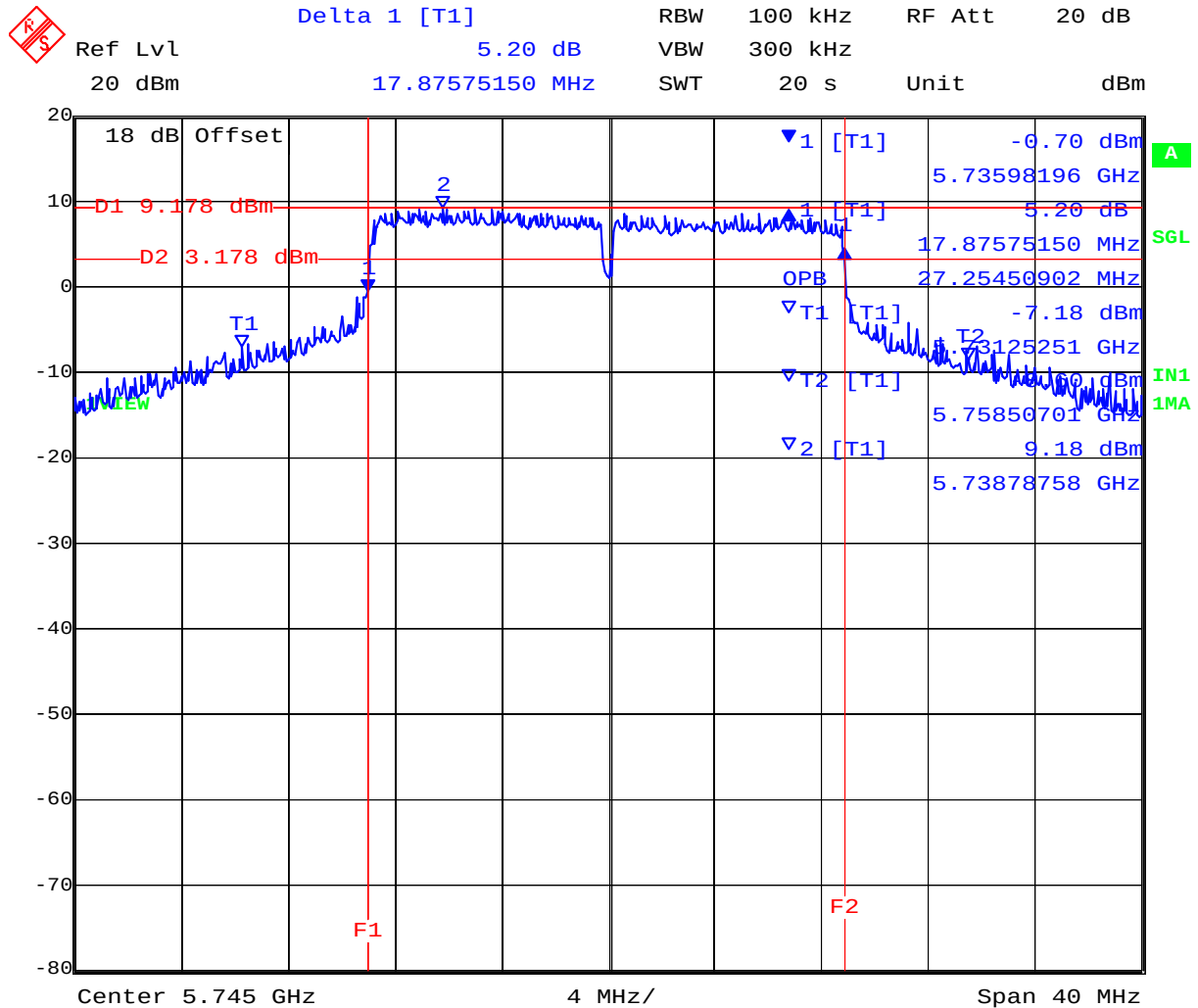
Measurement uncertainty:	±2.81 dB
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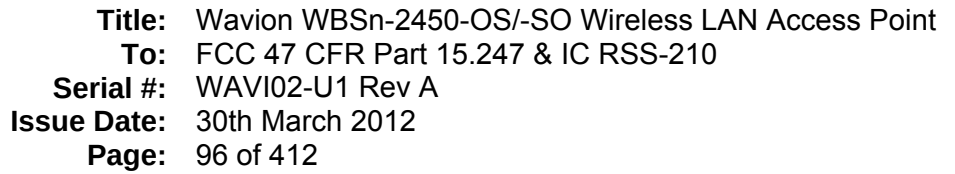
Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
Serial #: WAVI02-U1 Rev A
Issue Date: 30th March 2012
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PORT A 5,745 MHz 802.11n HT-20 6 dB and 99% Bandwidth



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Delta 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl 2.99 dB VBW 300 kHz
 17.9 dBm 17.95591182 MHz SWT 20 s Unit dBm

17.9 dB Offset
 D1 9.95 dBm
 D2 3.95 dBm
 T1
 1VIEW
 1
 2
 1 [T1]
 1.55 dBm
 5.73598196 GHz
 2.99 dB
 17.95591182 MHz
 SGL
 OPB 33.42685371 MHz
 T2
 1.596 dBm
 5.72828657 GHz
 IN1
 1MA
 1 [T1]
 -5.80 dBm
 5.76171343 GHz
 2 [T1]
 9.95 dBm
 5.73974950 GHz
 F1
 F2
 Center 5.745 GHz 4 MHz/
 Span 40 MHz

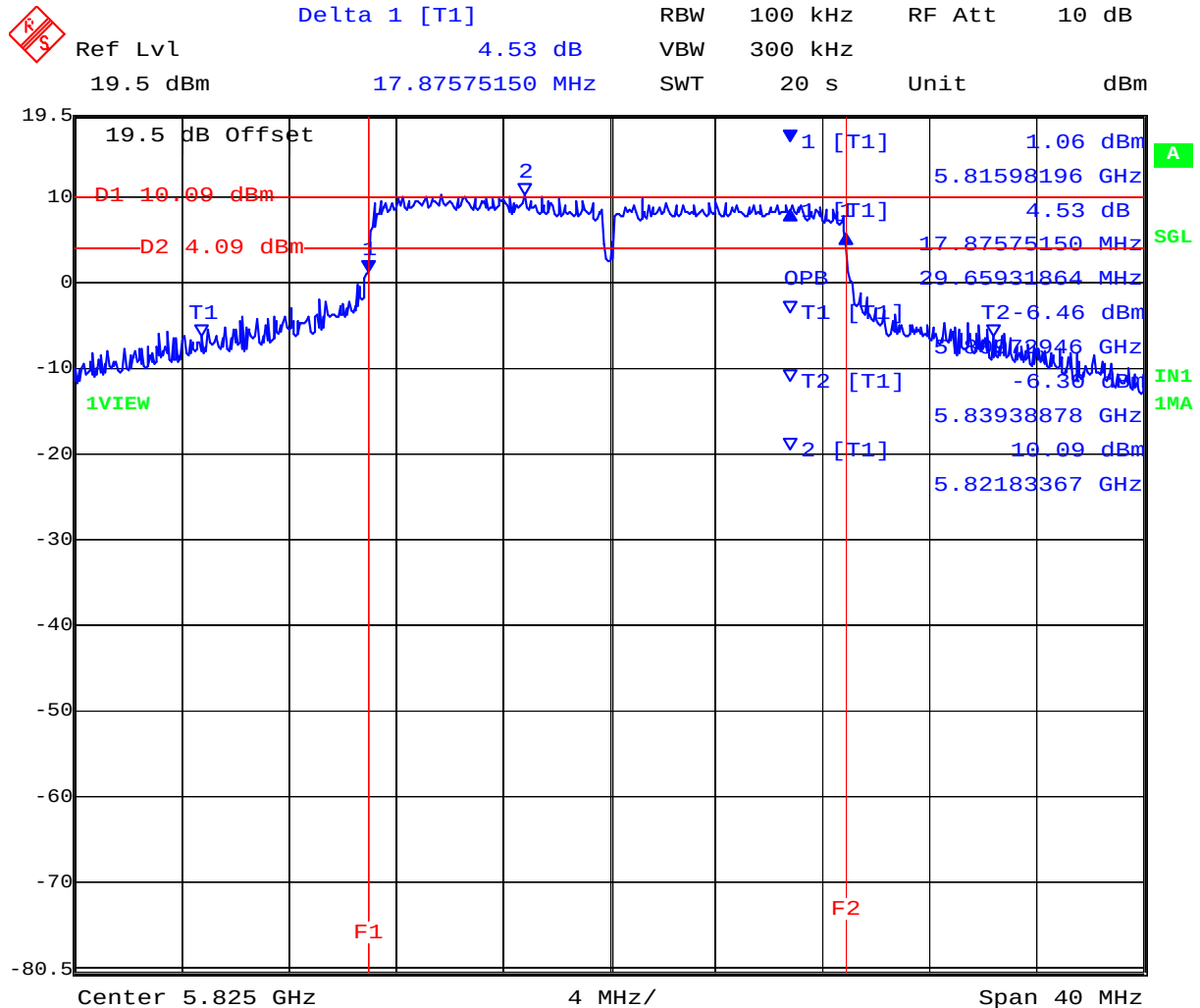
Date: 18.FEB.2012 09:11:33

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PORT C 5,745 MHz 802.11n HT-20 6 dB and 99% Bandwidth



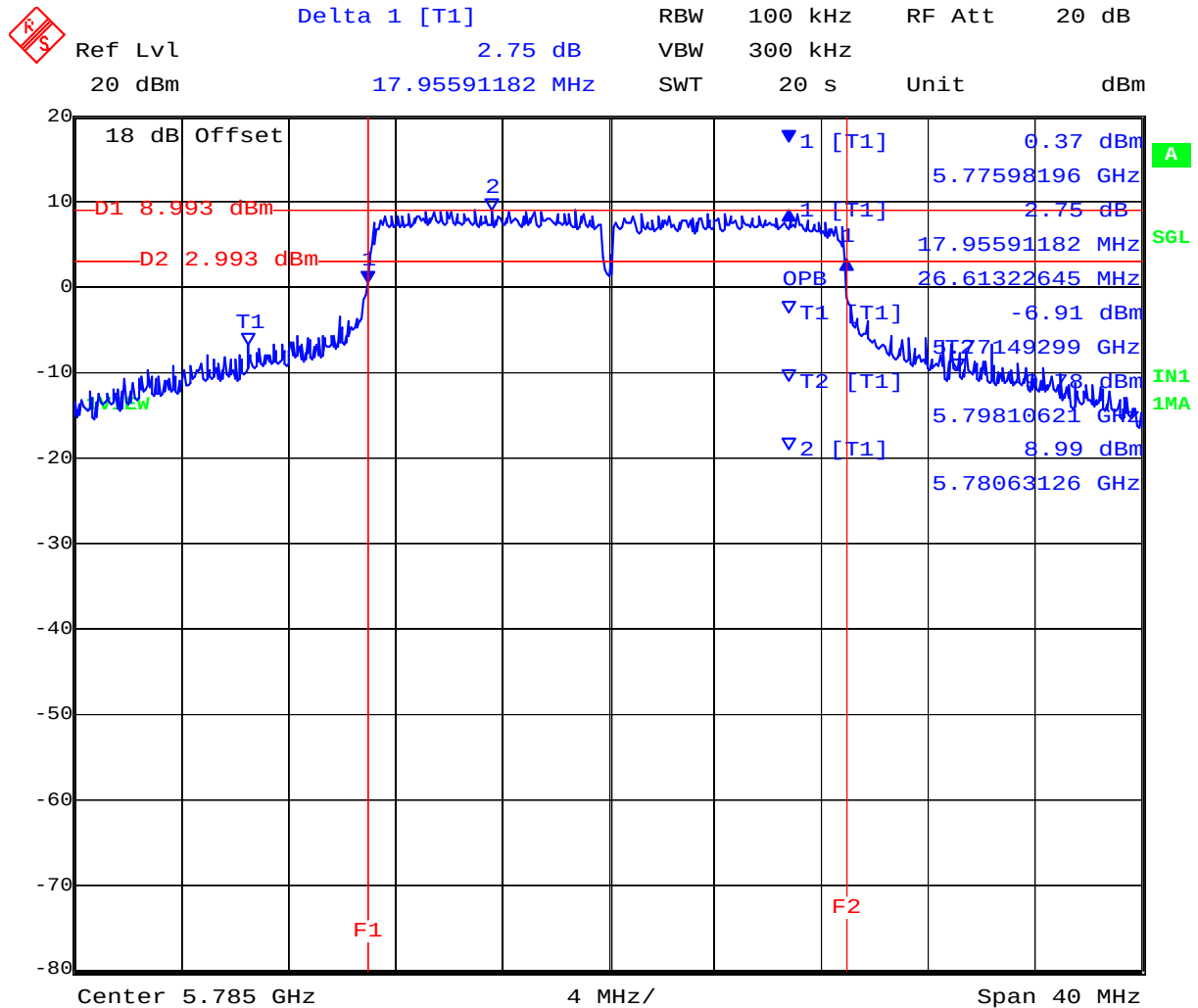
Date: 18.FEB.2012 10:15:31

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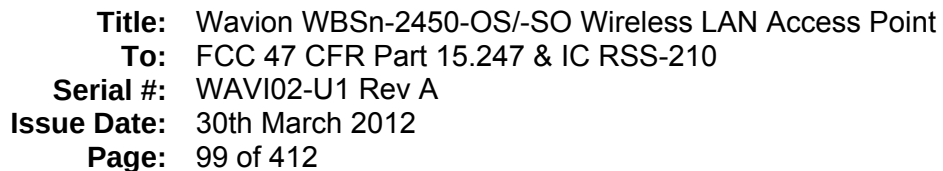
Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
Serial #: WAVI02-U1 Rev A
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PORT A 5,785 MHz 802.11n HT-20 6 dB and 99% Bandwidth



Date: 18.FEB.2012 09:43:27

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[illegible]

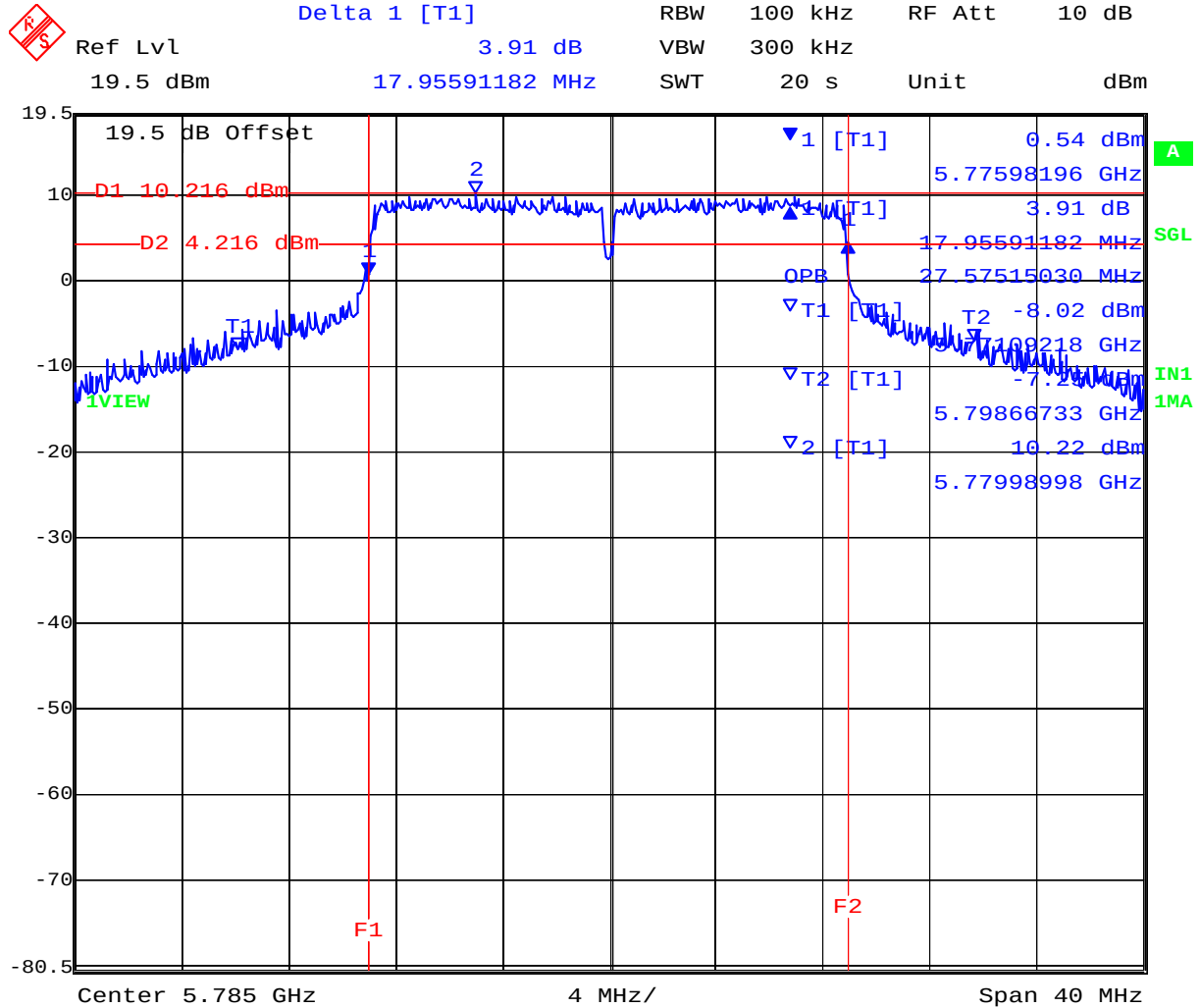
Date: 18.FEB.2012 09:44:32

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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
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Issue Date: 30th March 2012
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PORT C 5,785 MHz 802.11n HT-20 6 dB and 99% Bandwidth



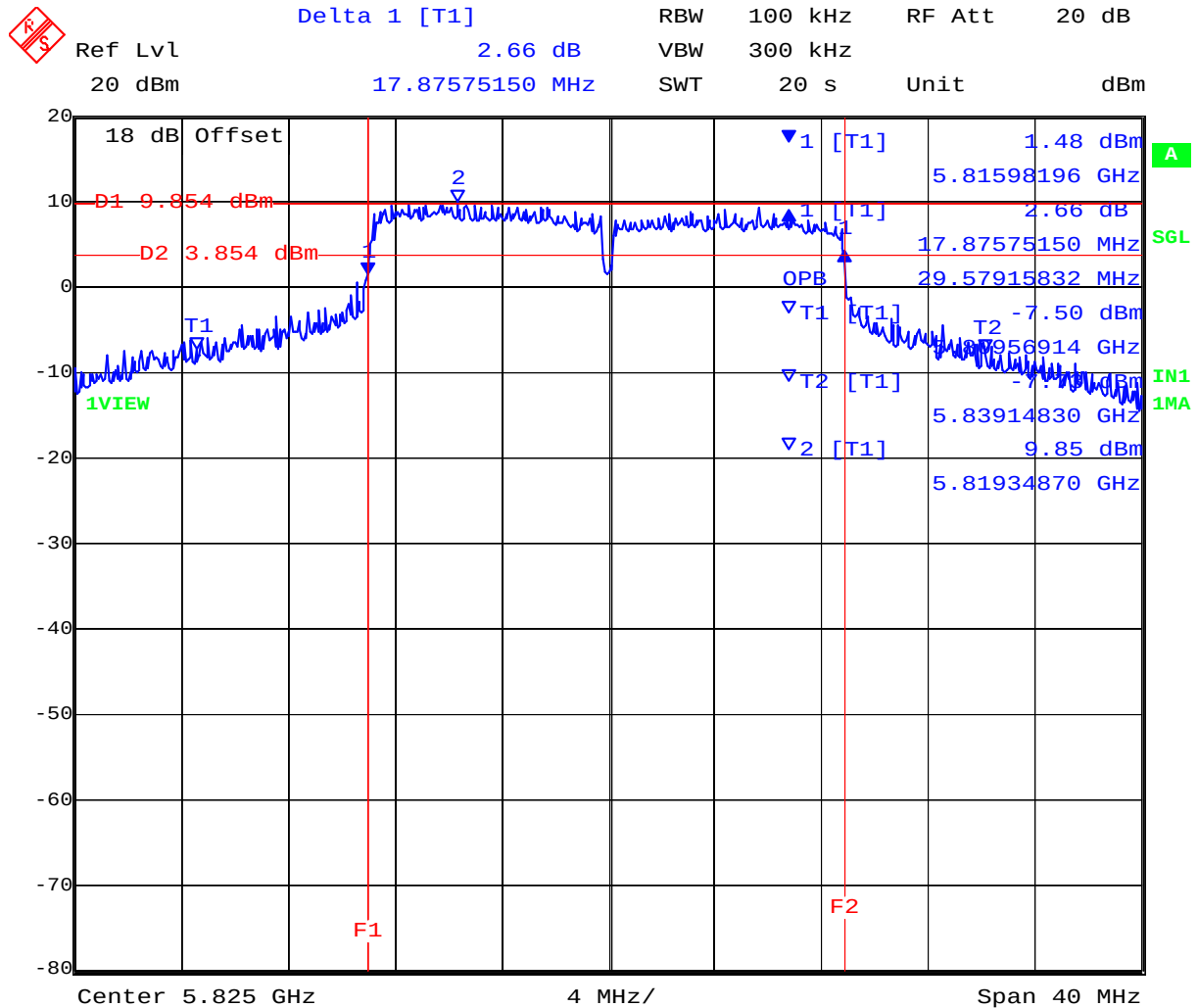
Date: 18.FEB.2012 09:45:35

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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
Serial #: WAVI02-U1 Rev A
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PORT A 5,825 MHz 802.11n HT-20 6 dB and 99% Bandwidth



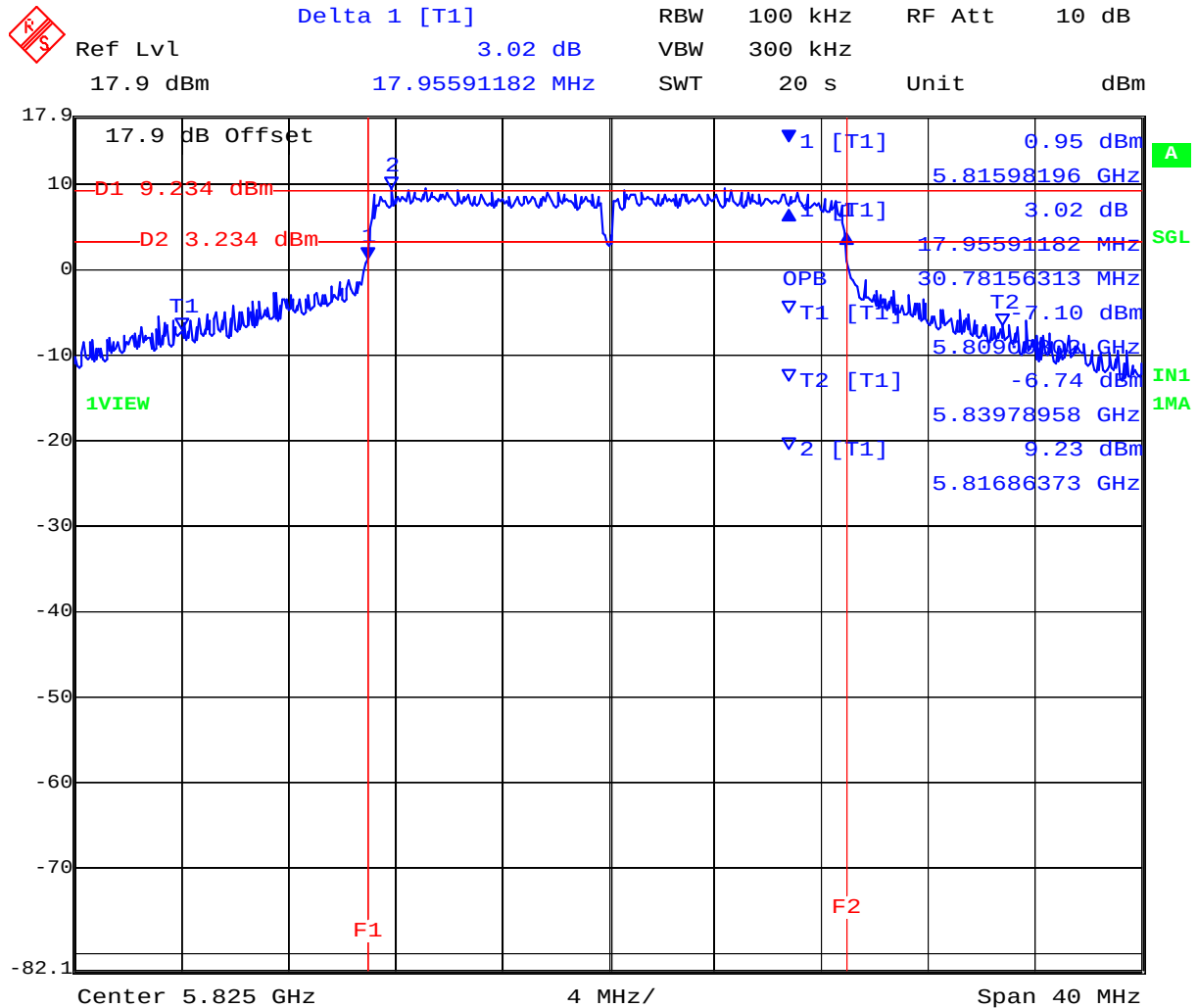
Date: 18.FEB.2012 10:13:21

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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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PORT B 5,825 MHz 802.11n HT-20 6 dB and 99% Bandwidth



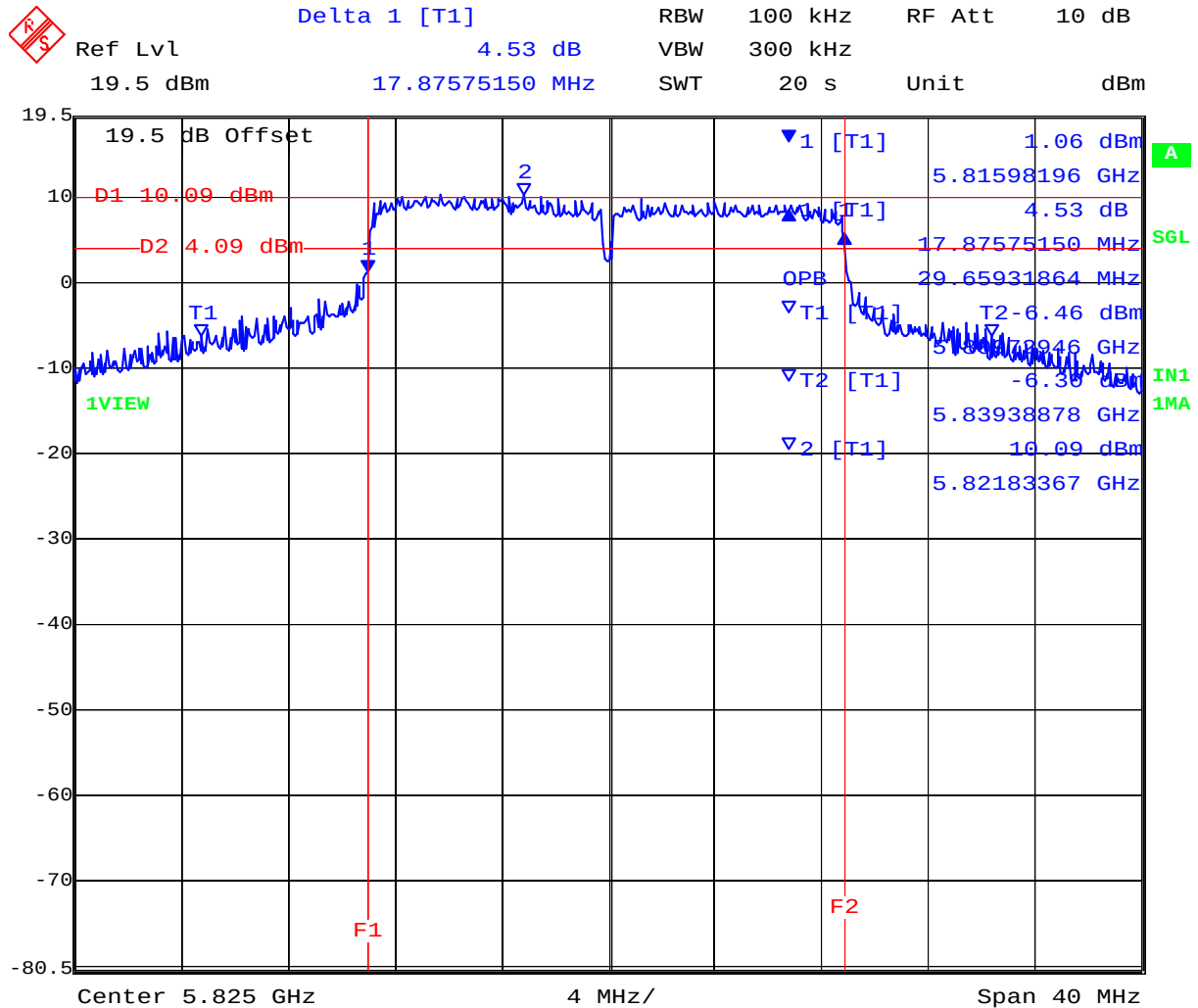
Date: 18.FEB.2012 10:14:28

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To: FCC 47 CFR Part 15.247 & IC RSS-210
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PORT C 5,825 MHz 802.11n HT-20 6 dB and 99% Bandwidth



Date: 18.FEB.2012 10:15:31

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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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TABLE OF RESULTS – 802.11n - HT-40

Test Conditions:	15.247 (a)(2)	Rel. Humidity (%):	35	to	42
Variant:	802.11n HT-40	Ambient Temp. (°C):	19	to	22
TPC:	HIGH	Pressure (mBars):	998	to	1003
Modulation:	ON	Duty Cycle (%):	100		
Beam Forming Gain (Y):	N/A dB	Antenna Gain:	0		dBi
Applied Voltage:	48.00 Vdc				
Notes 1:					
Notes 2:					

6 dB Bandwidth

6 dB Bandwidth							
Test Frequency	6 dB Bandwidth				Minimum 6dB Bandwidth Limit		Margin
	MHz						
MHz	a	b	c	d	kHz	MHz	MHz
5755.000	36.713000	36.874000	36.713000	--	500	0.5	-36.213000
5795.000	36.713000	36.874000	36.713000	--			-36.213000

99% Bandwidth

Test Frequency	99 % Bandwidth						
	MHz						
MHz	a	b	c	d			
5755.000	36.553000	45.852000	37.996000	--			
5795.000	43.768000	57.234000	48.737000	--			

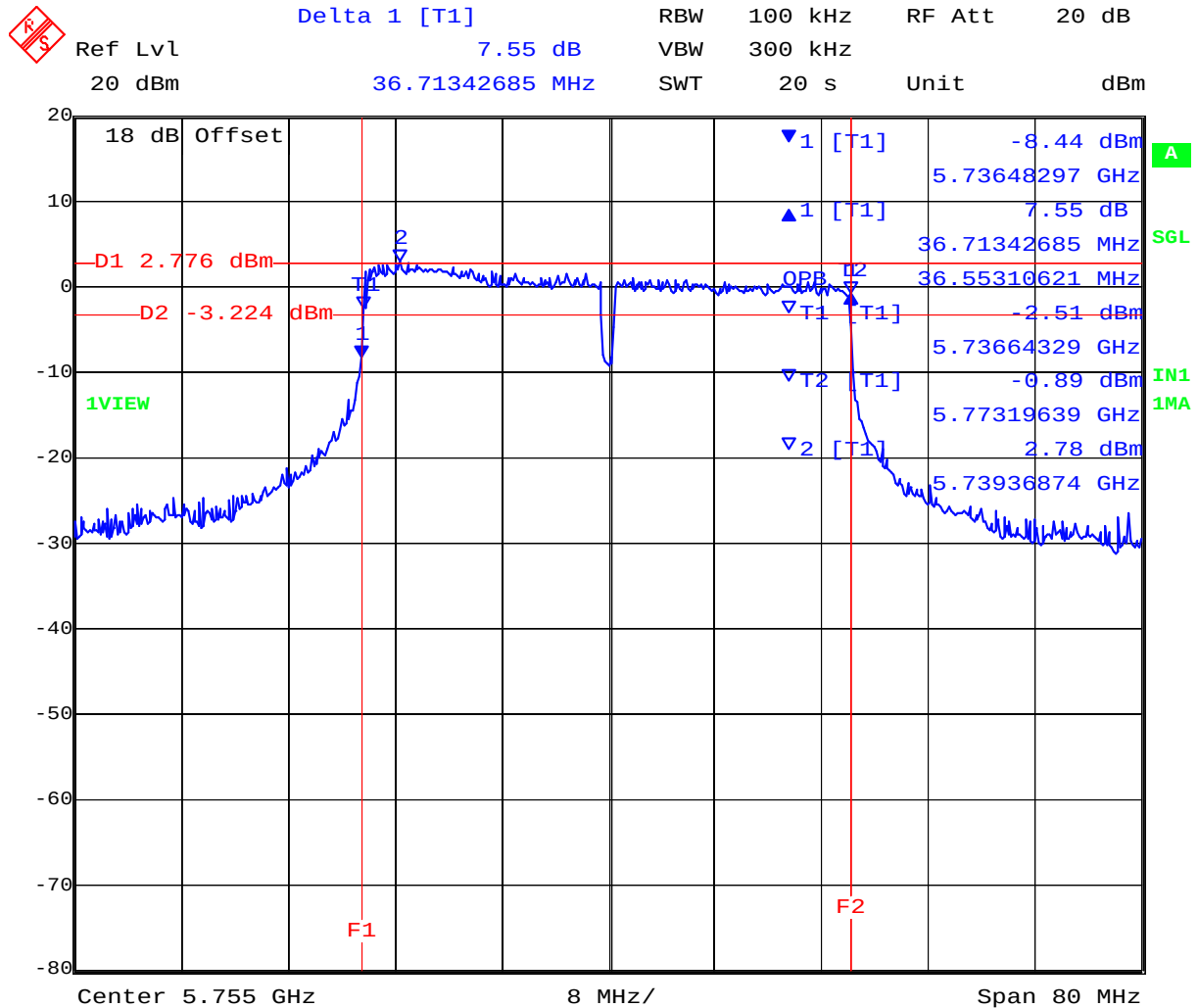
Measurement uncertainty:	±2.81 dB
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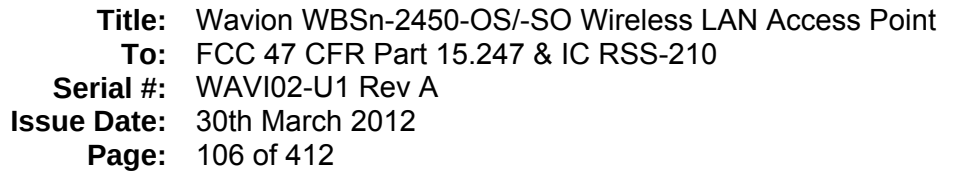
Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
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PORTA 5,755 MHz 802.11n HT-40 6 dB and 99% Bandwidth



Date: 18.FEB.2012 11:15:18

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Ref Lvl 17.9 dBm Delta 1 [T1] 4.58 dB RBW 100 kHz RF Att 10 dB VBW 300 kHz Unit dBm

17.9 dB Offset

D1 4.256 dBm D2 -1.744 dBm

1VIEV

IN1 1MA

▼1 [T1] -5.99 dBm 5.73648297 GHz

▲1 [T1] 4.58 dB 36.87374750 MHz

OPB 45.85170341 MHz

▽T1 [T1] -15.62 dBm 5.73071142 GHz

▽T2 [T1] -14.44 dBm 5.74193387 GHz

▽2 [T1] -4.26 dBm 5.74193387 GHz

F1 F2

Center 5.755 GHz 8 MHz/ Span 80 MHz

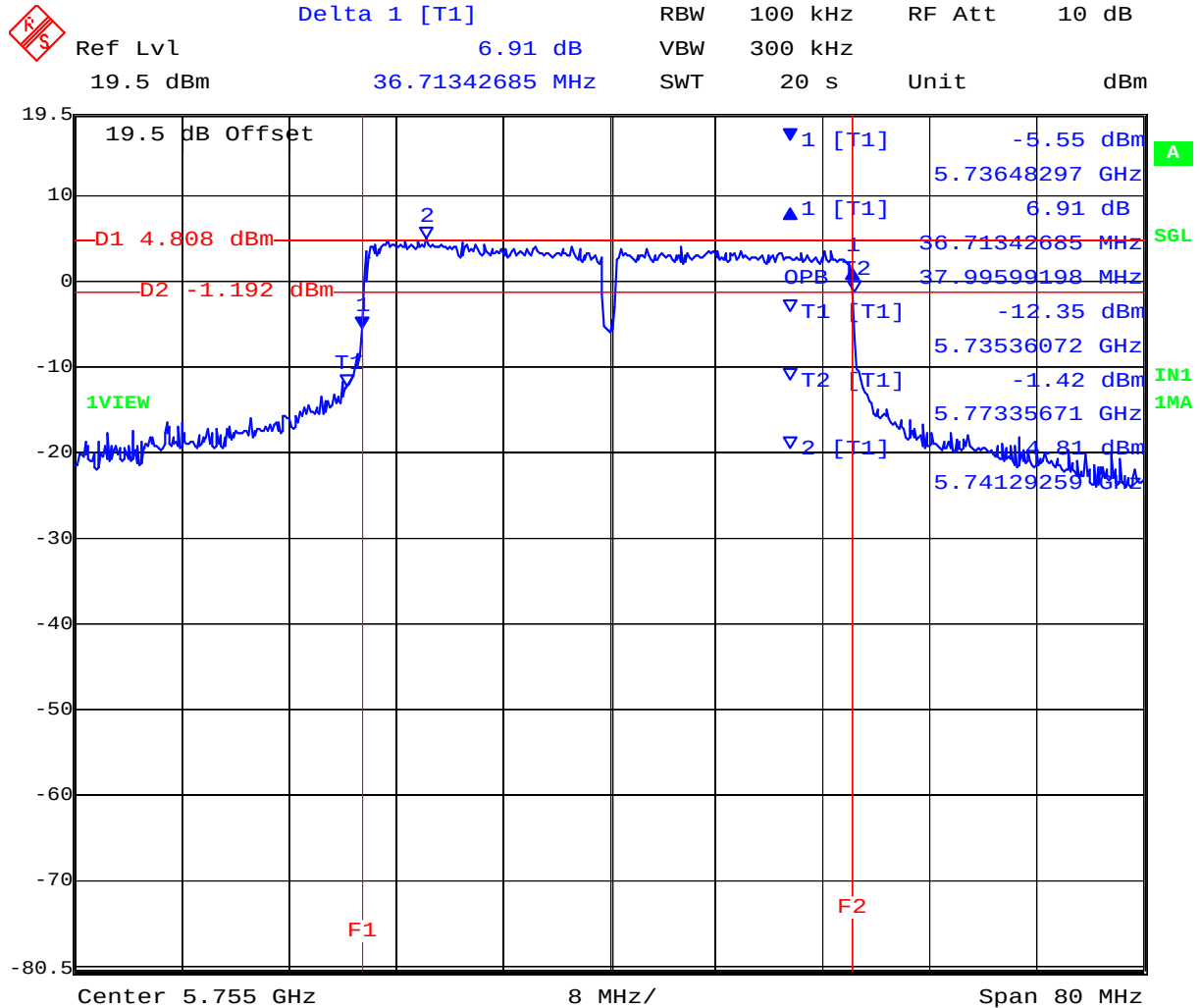
Date: 18.FEB.2012 11:16:24

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PORT C 5,755 MHz 802.11n HT-40 6 dB and 99% Bandwidth



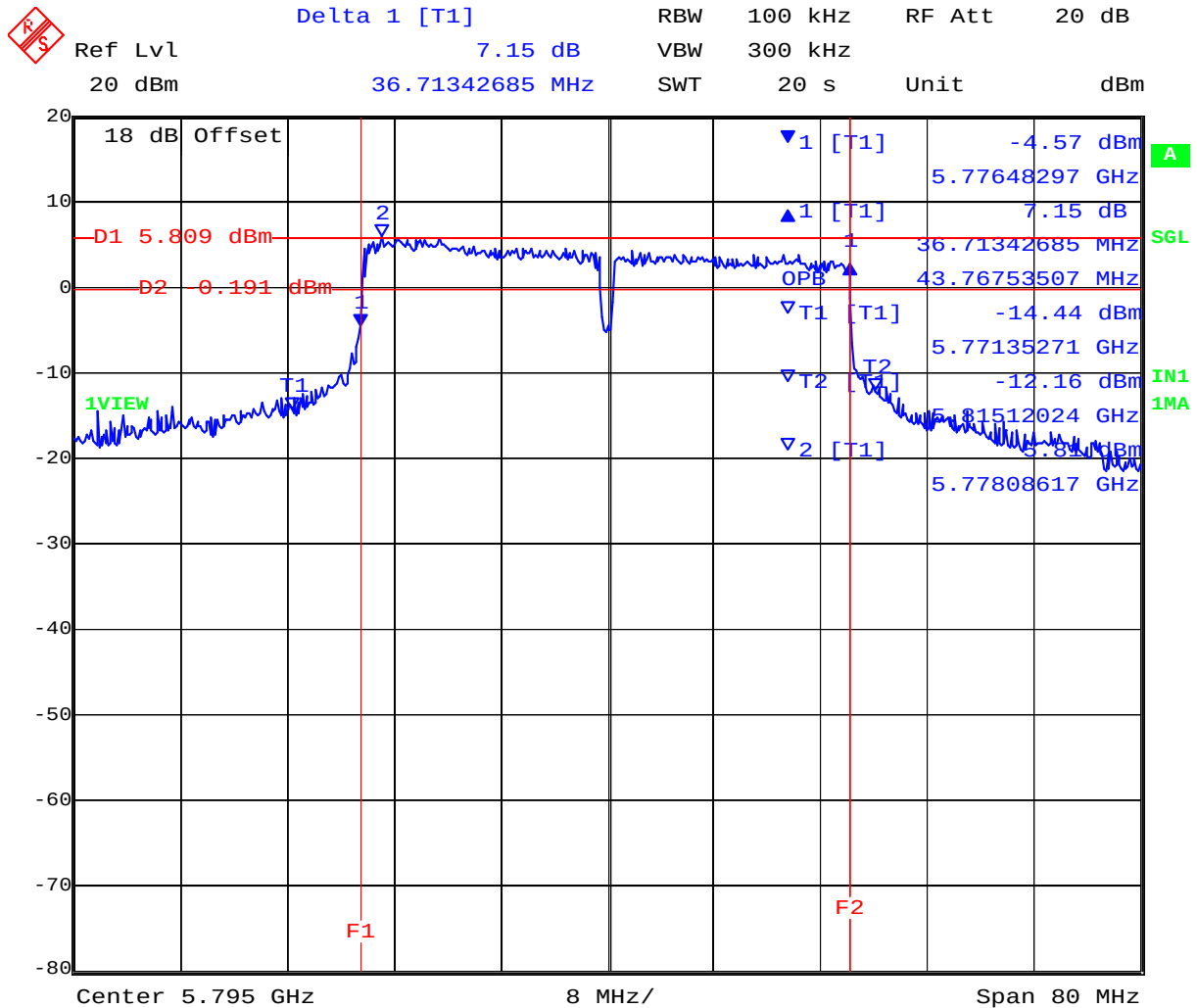
Date: 18.FEB.2012 11:17:25

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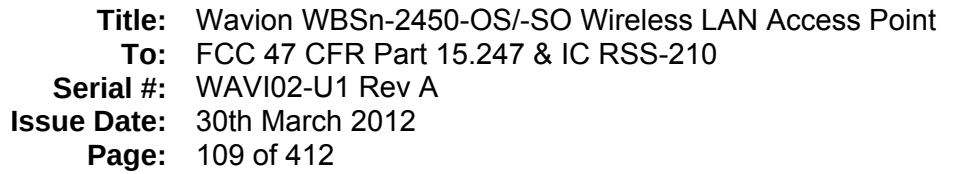
Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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PORT A 5,795 MHz 802.11n HT-40 6 dB and 99% Bandwidth

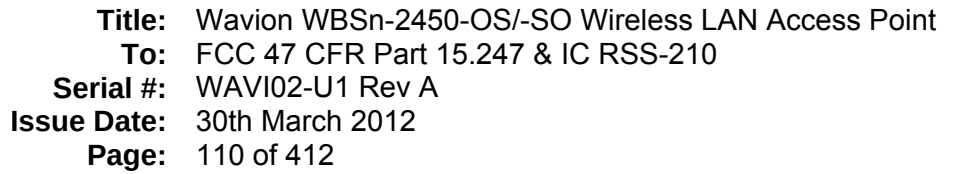


Date: 18.FEB.2012 12:00:21

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Date: 18.FEB.2012 12:01:27



Delta 1 [T1] 6.78 dB
 Ref Lvl 19.5 dBm
 RBW 100 kHz
 VBW 300 kHz
 RF Att 10 dB
 Unit dBm
 SWT 20 s

19.5 dB Offset
 D1 6.962 dBm
 D2 0.962 dBm
 T1
 T2
 OPB
 T1
 T2
 T1
 T2
 T1
 T2

-3.73 dBm
 5.77648297 GHz
 6.78 dB
 36.71342685 MHz
 48.73747495 MHz
 -11.68 dBm
 5.76782565 GHz
 -12.34 dBm
 5.81000000 GHz
 6.96 dBm
 5.77872745 GHz

F1
 F2

Center 5.795 GHz
 8 MHz/
 Span 80 MHz

Date: 18.FEB.2012 12:02:30

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Specification

Limits

§15.247 (a)(2) & RSS-210 §A8.2(1)

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

§ IC RSS-Gen 4.4.1 Occupied Bandwidth When an occupied bandwidth value is not specified in the applicable RSS, the transmitted signal bandwidth to be reported is to be its 99% emission bandwidth, as calculated or measured.

§ IC RSS-Gen 4.4.2 6 dB Bandwidth Where indicated, the 6 dB bandwidth is measured at the points when the spectral density of the signal is 6 dB down from the in-band spectral density of the modulated signal, with the transmitter modulated by a representative signal.

Laboratory Measurement Uncertainty for Spectrum Measurement

Measurement uncertainty	±2.81 dB
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Traceability

Method	Test Equipment Used
Measurements were made per work instruction WI-03 'Measurement of RF Spectrum Mask'	0158, 0287, 0252, 0313, 0314, 0070, 0116, 0117

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5.1.2. Peak Output Power

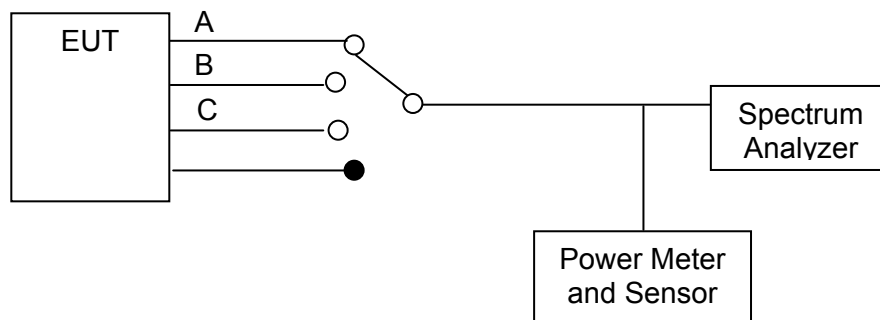
FCC, Part 15 Subpart C §15.247(b)(3), §15.31(e)

Industry Canada RSS-210 §A8.4(4)

Test Procedure

The transmitter terminal of EUT was connected to the input of the spectrum analyzer set to measure peak power. The resolution filter bandwidth was set to 6 dB, peak detector selected and the analyzer built-in power function was used to measure peak power over the 99 % bandwidth.

Test Measurement Set up



Measurement set up for Transmitter Peak Output Power

Ambient conditions.

Temperature: 17 to 23 °C Relative humidity: 31 to 57 % Pressure: 999 to 1012 mbar

Radio Parameters

Duty Cycle: 100%

Output: Modulated Carrier

Power: Maximum Default Power

EIRP Calculated Power = A + G + 10 log (1/x) dBm

A = Total Power [$10 \log_{10} (10^{a/10} + 10^{b/10} + 10^{c/10})$], G = Antenna Gain,
x = Duty Cycle

NOTE: KDB 662911 was implemented for In-band power measurements. The measure and sum technique was implemented in all cases.



5.1.2.1. Limits Peak Output Power

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

(3) For systems using digital modulation in the 2400–2483.5 MHz, and band: 1 Watt. As an alternative to a peak power measurement, compliance with the 1 Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the *maximum conducted output power* is the highest total transmit power occurring in any mode.

(4) The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c), if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(i) Systems operating in the 2400–2483.5 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum peak output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

(ii) Systems operating in the 5725–5850 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted output power.

(iii) Fixed, point-to-point operation, as used in paragraphs (b)(3)(i) of this section, excludes the use of point-to-multipoint systems, omni-directional applications, and multiple co-located intentional radiators transmitting the same information. The operator of the spread spectrum intentional radiator or, if the equipment is professionally installed, the installer is responsible for ensuring that the system is used exclusively for fixed, point-to-point operations. The instruction manual furnished with the intentional radiator shall contain language in the installation instructions informing the operator and the installer of this responsibility.

(c) Operation with directional antenna gains greater than 6 dBi.

(1) Fixed point-to-point operation:

(i) Systems operating in the 2400–2483.5 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.



(ii) Systems operating in the 5725–5850 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted output power.

(iii) Fixed, point-to-point operation, as used in paragraphs (c)(1)(i) of this section, excludes the use of point-to-multipoint systems, omni-directional applications, and multiple co-located intentional radiators transmitting the same information. The operator of the spread spectrum or digitally modulated intentional radiator or, if the equipment is professionally installed, the installer is responsible for ensuring that the system is used exclusively for fixed, point-to-point operations. The instruction manual furnished with the intentional radiator shall contain language in the installation instructions informing the operator and the installer of this responsibility.

(2) In addition to the provisions in paragraphs (b)(3), (b)(4) and (c)(1)(i) of this section, transmitters operating in the 2400–2483.5 MHz band that emit multiple directional beams, simultaneously or sequentially, for the purpose of directing signals to individual receivers or to groups of receivers provided the emissions comply with the following:

(i) Different information must be transmitted to each receiver.

(ii) If the transmitter employs an antenna system that emits multiple directional beams but does not do emit multiple directional beams simultaneously, the total output power conducted to the array or arrays that comprise the device, i.e., the sum of the power supplied to all antennas, antenna elements, staves, etc. and summed across all carriers or frequency channels, shall not exceed the limit specified in paragraph (b)(3) of this section, as applicable. However, the total conducted output power shall be reduced by 1 dB below the specified limits for each 3 dB that the directional gain of the antenna/antenna array exceeds 6 dBi. The directional antenna gain shall be computed as follows:

(A) The directional gain shall be calculated as the sum of $10 \log$ (number of array elements or staves) plus the directional gain of the element or stave having the highest gain.

(B) A lower value for the directional gain than that calculated in paragraph (c)(2)(ii)(A) of this section will be accepted if sufficient evidence is presented, e.g., due to shading of the array or coherence loss in the beam-forming.

(iii) If a transmitter employs an antenna that operates simultaneously on multiple directional beams using the same or different frequency channels, the power supplied to each emission beam is subject to the power limit specified in paragraph (c)(2)(ii) of this section. If transmitted beams overlap, the power shall be reduced to ensure that their aggregate power does not exceed the limit specified in paragraph (c)(2)(ii) of this section. In addition, the aggregate power transmitted simultaneously on all beams shall not exceed the limit specified in paragraph (c)(2)(ii) of this section by more than 8 dB.

(iv) Transmitters that emit a single directional beam shall operate under the provisions of paragraph (c)(1) of this section.



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WBSn-2450 - 802.11a/b/g/n Wireless Access Point, 3x3 Spatial Multiplexing MIMO configuration

2.4 GHz Operation

Antenna	Gain (dBi)	Maximum Total Conducted Peak Power (dBm)	
		Total	Per Chain
OMNI	7.4	+28.0	+23.23
SECTOR	12.0	+26.4	+21.63

Per chain value = Maximum Total Conducted Peak Power – 4.77 dB

5.8 GHz Operation

Antenna	Gain (dBi)	Maximum Total Conducted Peak Power (dBm)	
		Total	Per Chain
OMNI	8.5	+30.0	+25.23
SECTOR	14.0	+30.0	+25.23

Per chain value = Maximum Total Conducted Peak Power – 4.77 dB

Power Reduction Required

It was found that power reduction was required on some operational modes. The following matrix takes this criteria into consideration and reports both individual chain power and total summed power for the reduced levels where required.

Output power measurements were performed on the OMNI (N-Type connector) device. Assumption: both the OMNI and SECTOR (integral antenna) power settings were identical.



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5.1.2.2. 2.4 GHz 802.11b

TABLE OF RESULTS – 802.11b – Legacy OMNI ANTENNA MEASUREMENT RESULTS

Test Conditions:	15.247 (b)	Rel. Humidity (%):	35	to	42
Variant:	802.11b	Ambient Temp. (°C):	19	to	22
TPC:	HIGH	Pressure (mBars):	998	to	1003
Modulation:	ON	Duty Cycle (%):	100		
Beam Forming Gain (Y):	N/A dB	Antenna Gain:	7.4 dBi		
Applied Voltage:	48.00 Vdc				
Notes 1:					
Notes 2:					

Test Frequency	Measured Peak Power				Total Power (dBm)		Limit	Margin
	RF Port (dBm)							
MHz	a	b	c	d	Combined	Calculated	dBm	dB
2412	21.47	21.62	21.44	--	N/A	26.28	28.00	-1.72
2437	21.87	21.55	21.68	--	N/A	26.47	28.00	-1.53
2462	21.84	21.23	21.74	--	N/A	26.38	28.00	-1.62

Measurement uncertainty:	±1.33 dB
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SECTOR ANTENNA MEASUREMENT RESULTS

Test Conditions:	15.247 (b)	Rel. Humidity (%):	35	to	42
Variant:	802.11b	Ambient Temp. (°C):	19	to	22
TPC:	HIGH	Pressure (mBars):	998	to	1003
Modulation:	ON	Duty Cycle (%):	100		
Beam Forming Gain (Y):	N/A dB	Antenna Gain:	12 dBi		
Applied Voltage:	48.00 Vdc				
Notes 1:					
Notes 2:					

Test Frequency	Measured Peak Power				Total Power (dBm)		Limit	Margin
	RF Port (dBm)							
MHz	a	b	c	d	Combined	Calculated	dBm	dB
2412	19.95	19.79	19.55	--	N/A	24.54	26.40	-1.86
2437	21.24	21.12	20.55	--	N/A	25.75	26.40	-0.65
2462	20.32	21.21	20.39	--	N/A	25.43	26.40	-0.97

Measurement uncertainty:	±1.33 dB
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5.1.2.3. 2.4 GHz 802.11g

TABLE OF RESULTS – 802.11g – Legacy OMNI ANTENNA MEASUREMENT RESULTS

Test Conditions:	15.247 (b)	Rel. Humidity (%):	35	to	42
Variant:	802.11g	Ambient Temp. (°C):	19	to	22
TPC:	HIGH	Pressure (mBars):	998	to	1003
Modulation:	ON	Duty Cycle (%):	100		
Beam Forming Gain (Y):	N/A dB	Antenna Gain:	7.4 dBi		
Applied Voltage:	48.00 Vdc				
Notes 1:					
Notes 2:					

Test Frequency	Measured Peak Power				Total Power (dBm)		Limit	Margin
	RF Port (dBm)							
MHz	a	b	c	d	Combined	Calculated	dBm	dB
2412	20.55	20.69	20.29	--	N/A	25.28	28.00	-2.72
2437	20.53	20.79	21.88	--	N/A	25.88	28.00	-2.12
2462	20.92	20.75	20.99	--	N/A	25.66	28.00	-2.34

Measurement uncertainty:	±1.33 dB
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SECTOR ANTENNA MEASUREMENT RESULTS

Test Conditions:	15.247 (b)	Rel. Humidity (%):	35	to	42
Variant:	802.11g	Ambient Temp. (°C):	19	to	22
TPC:	HIGH	Pressure (mBars):	998	to	1003
Modulation:	ON	Duty Cycle (%):	100		
Beam Forming Gain (Y):	N/A dB	Antenna Gain:	12 dBi		
Applied Voltage:	48.00 Vdc				
Notes 1:					
Notes 2:					

Test Frequency	Measured Peak Power				Total Power (dBm)		Limit	Margin
	RF Port (dBm)							
MHz	a	b	c	d	Combined	Calculated	dBm	dB
2412	20.97	21.33	20.32	--	N/A	25.66	26.40	-0.74
2437	21.41	21.01	20.51	--	N/A	25.76	26.40	-0.64
2462	20.97	21.23	20.79	--	N/A	25.77	26.40	-0.63

Measurement uncertainty:	±1.33 dB
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5.1.2.4. 2.4 GHz 802.11n HT-20

TABLE OF RESULTS – 802.11n – HT-20 OMNI ANTENNA MEASUREMENT RESULTS

Test Conditions:	15.247 (b)	Rel. Humidity (%):	35	to	42
Variant:	802.11n HT-20	Ambient Temp. (°C):	19	to	22
TPC:	HIGH	Pressure (mBars):	998	to	1003
Modulation:	ON	Duty Cycle (%):	100		
Beam Forming Gain (Y):	N/A dB	Antenna Gain:	7.4 dBi		
Applied Voltage:	48.00 Vdc				
Notes 1:					
Notes 2:					

Test Frequency	Measured Peak Power				Total Power (dBm)		Limit	Margin
	RF Port (dBm)							
MHz	a	b	c	d	Combined	Calculated	dBm	dB
2412	21.03	20.87	20.43	--	N/A	25.56	28.00	-2.44
2437	21.02	20.79	21.52	--	N/A	25.89	28.00	-2.11
2462	21.19	21.55	21.29	--	N/A	26.12	28.00	-1.88

Measurement uncertainty:	±1.33 dB
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SECTOR ANTENNA MEASUREMENT RESULTS

Test Conditions:	15.247 (b)	Rel. Humidity (%):	35	to	42
Variant:	802.11n HT-20	Ambient Temp. (°C):	19	to	22
TPC:	HIGH	Pressure (mBars):	998	to	1003
Modulation:	ON	Duty Cycle (%):	100		
Beam Forming Gain (Y):	N/A dB	Antenna Gain:	12 dBi		
Applied Voltage:	48.00 Vdc				
Notes 1:					
Notes 2:					

Test Frequency	Measured Peak Power				Total Power (dBm)		Limit	Margin
	RF Port (dBm)							
MHz	a	b	c	d	Combined	Calculated	dBm	dB
2412	21.09	20.78	20.89	--	N/A	25.69	26.40	-0.71
2437	20.99	21.18	20.76	--	N/A	25.75	26.40	-0.65
2462	20.31	20.88	20.56	--	N/A	25.36	26.40	-1.04

Measurement uncertainty:	±1.33 dB
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5.1.2.5. 2.4 GHz 802.11n HT-40

TABLE OF RESULTS – 802.11n – HT-40 OMNI ANTENNA MEASUREMENT RESULTS

Test Conditions:	15.247 (b)	Rel. Humidity (%):	35	to	42
Variant:	802.11n HT-40	Ambient Temp. (°C):	19	to	22
TPC:	HIGH	Pressure (mBars):	998	to	1003
Modulation:	ON	Duty Cycle (%):	100		
Beam Forming Gain (Y):	N/A dB	Antenna Gain:	7.4 dBi		
Applied Voltage:	48.00 Vdc				
Notes 1:					
Notes 2:					

Test Frequency	Measured Peak Power				Total Power (dBm)		Limit	Margin
	RF Port (dBm)				Combined	Calculated		
MHz	a	b	c	d			dBm	dB
2422	21.79	21.58	21.79	--	N/A	26.49	28.00	-1.51
2437	21.74	21.88	21.33	--	N/A	26.43	28.00	-1.57
2452	21.19	20.92	20.79	--	N/A	25.74	28.00	-2.26

Measurement uncertainty:	±1.33 dB
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SECTOR ANTENNA MEASUREMENT RESULTS

Test Conditions:	15.247 (b)	Rel. Humidity (%):	35	to	42
Variant:	802.11n HT-40	Ambient Temp. (°C):	19	to	22
TPC:	HIGH	Pressure (mBars):	998	to	1003
Modulation:	ON	Duty Cycle (%):	100		
Beam Forming Gain (Y):	N/A dB	Antenna Gain:	12 dBi		
Applied Voltage:	48.00 Vdc				
Notes 1:					
Notes 2:					

Test Frequency	Measured Peak Power				Total Power (dBm)		Limit	Margin
	RF Port (dBm)				Combined	Calculated		
MHz	a	b	c	d			dBm	dB
2422	21.75	21.09	21.01	--	N/A	26.07	26.40	-0.33
2437	21.23	20.79	21.31	--	N/A	25.89	26.40	-0.51
2452	20.47	20.77	20.65	--	N/A	25.40	26.40	-1.00

Measurement uncertainty:	±1.33 dB
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5.1.2.6. 5.8 GHz 802.11a 5 MHz

TABLE OF RESULTS – 802.11a – Legacy 5 MHz OMNI ANTENNA MEASUREMENT RESULTS

Test Conditions:	15.247 (b)	Rel. Humidity (%):	35	to	42
Variant:	802.11a	Ambient Temp. (°C):	19	to	22
TPC:	HIGH	Pressure (mBars):	998	to	1003
Modulation:	ON	Duty Cycle (%):	100		
Beam Forming Gain (Y):	N/A dB	Antenna Gain:	8.5 dBi		
Applied Voltage:	48.00 Vdc				
Notes 1:					
Notes 2:					

Test Frequency	Measured Peak Power				Total Power (dBm)		Limit	Margin
	RF Port (dBm)							
MHz	a	b	c	d	Combined	Calculated	dBm	dB
5730.5	17.91	16.83	18.91	--	N/A	22.74	30.00	-7.26
5790.5	17.89	16.11	18.25	--	N/A	22.28	30.00	-7.72
5845.5	18.22	16.51	18.55	--	N/A	22.62	30.00	-7.38

Measurement uncertainty:	±1.33 dB
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SECTOR ANTENNA MEASUREMENT RESULTS

Test Conditions:	15.247 (b)	Rel. Humidity (%):	35	to	42
Variant:	802.11a	Ambient Temp. (°C):	19	to	22
TPC:	HIGH	Pressure (mBars):	998	to	1003
Modulation:	ON	Duty Cycle (%):	100		
Beam Forming Gain (Y):	N/A dB	Antenna Gain:	14 dBi		
Applied Voltage:	48.00 Vdc				
Notes 1:					
Notes 2:					

Test Frequency	Measured Peak Power				Total Power (dBm)		Limit	Margin
	RF Port (dBm)							
MHz	a	b	c	d	Combined	Calculated	dBm	dB
5730.5	17.91	16.83	18.91	--	N/A	22.74	30.00	-7.26
5790.5	17.89	16.11	18.25	--	N/A	22.28	30.00	-7.72
5845.5	18.63	16.87	19.57	--	N/A	23.27	30.00	-6.73

Measurement uncertainty:	±1.33 dB
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5.1.2.7. 5.8 GHz 802.11a 10 MHz

TABLE OF RESULTS – 802.11a – Legacy 10 MHz OMNI ANTENNA MEASUREMENT RESULTS

Test Conditions:	15.247 (b)	Rel. Humidity (%):	35	to	42
Variant:	802.11a	Ambient Temp. (°C):	19	to	22
TPC:	HIGH	Pressure (mBars):	998	to	1003
Modulation:	ON	Duty Cycle (%):	100		
Beam Forming Gain (Y):	N/A dB	Antenna Gain:	8.5 dBi		
Applied Voltage:	48.00 Vdc				
Notes 1:					
Notes 2:					

Test Frequency	Measured Peak Power				Total Power (dBm)		Limit	Margin
	RF Port (dBm)							
MHz	a	b	c	d	Combined	Calculated	dBm	dB
5735	20.26	19.25	21.27	--	N/A	25.11	30.00	-4.89
5790	21.10	19.85	21.68	--	N/A	25.71	30.00	-4.29
5840	21.82	20.22	22.51	--	N/A	26.39	30.00	-3.61

Measurement uncertainty:	±1.33 dB
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SECTOR ANTENNA MEASUREMENT RESULTS

Test Conditions:	15.247 (b)	Rel. Humidity (%):	35	to	42
Variant:	802.11a	Ambient Temp. (°C):	19	to	22
TPC:	HIGH	Pressure (mBars):	998	to	1003
Modulation:	ON	Duty Cycle (%):	100		
Beam Forming Gain (Y):	N/A dB	Antenna Gain:	14 dBi		
Applied Voltage:	48.00 Vdc				
Notes 1:					
Notes 2:					

Test Frequency	Measured Peak Power				Total Power (dBm)		Limit	Margin
	RF Port (dBm)							
MHz	a	b	c	d	Combined	Calculated	dBm	dB
5735.0	20.26	19.25	21.27	--	N/A	25.11	30.00	-4.89
5790.0	21.10	19.85	21.68	--	N/A	25.71	30.00	-4.29
5840.0	22.18	20.54	22.71	--	N/A	26.68	30.00	-3.32

Measurement uncertainty:	±1.33 dB
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5.1.2.8. 5.8 GHz 802.11a

TABLE OF RESULTS – 802.11a – Legacy 20 MHz OMNI ANTENNA MEASUREMENT RESULTS

Test Conditions:	15.247 (b)	Rel. Humidity (%):	35	to	42
Variant:	802.11a	Ambient Temp. (°C):	19	to	22
TPC:	HIGH	Pressure (mBars):	998	to	1003
Modulation:	ON	Duty Cycle (%):	100		
Beam Forming Gain (Y):	N/A dB	Antenna Gain:	8.5 dBi		
Applied Voltage:	48.00 Vdc				
Notes 1:					
Notes 2:					

Test Frequency	Measured Peak Power				Total Power (dBm)		Limit	Margin
	RF Port (dBm)							
MHz	a	b	c	d	Combined	Calculated	dBm	dB
5745	21.92	21.11	22.79	--	N/A	26.77	30.00	-3.23
5785	22.87	22.01	23.58	--	N/A	27.64	30.00	-2.36
5825	22.87	21.66	22.98	--	N/A	27.43	30.00	-2.57

Measurement uncertainty:	±1.33 dB
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SECTOR ANTENNA MEASUREMENT RESULTS

Test Conditions:	15.247 (b)	Rel. Humidity (%):	35	to	42
Variant:	802.11a	Ambient Temp. (°C):	19	to	22
TPC:	HIGH	Pressure (mBars):	998	to	1003
Modulation:	ON	Duty Cycle (%):	100		
Beam Forming Gain (Y):	N/A dB	Antenna Gain:	14 dBi		
Applied Voltage:	48.00 Vdc				
Notes 1:					
Notes 2:					

Test Frequency	Measured Peak Power				Total Power (dBm)		Limit	Margin
	RF Port (dBm)							
MHz	a	b	c	d	Combined	Calculated	dBm	dB
5745	21.24	20.96	23.14	--	N/A	26.66	30.00	-3.34
5785	22.41	21.88	23.13	--	N/A	27.27	30.00	-2.73
5825	22.19	20.56	22.89	--	N/A	26.76	30.00	-3.24

Measurement uncertainty:	±1.33 dB
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5.1.2.9. 5.8 GHz 802.11n HT-20

TABLE OF RESULTS – 802.11n – HT-20 OMNI ANTENNA MEASUREMENT RESULTS

Test Conditions:	15.247 (b)	Rel. Humidity (%):	35	to	42
Variant:	802.11n HT-20	Ambient Temp. (°C):	19	to	22
TPC:	HIGH	Pressure (mBars):	998	to	1003
Modulation:	ON	Duty Cycle (%):	100		
Beam Forming Gain (Y):	N/A dB	Antenna Gain:	8.5 dBi		
Applied Voltage:	48.00 Vdc				
Notes 1:					
Notes 2:					

Test Frequency	Measured Peak Power				Total Power (dBm)		Limit	Margin
	RF Port (dBm)							
MHz	a	b	c	d	Combined	Calculated	dBm	dB
5745	21.15	20.46	21.98	--	N/A	26.01	30.00	-3.99
5785	22.68	22.31	23.96	--	N/A	27.81	30.00	-2.19
5825	22.79	20.41	23.21	--	N/A	27.07	30.00	-2.93

Measurement uncertainty:	±1.33 dB
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SECTOR ANTENNA MEASUREMENT RESULTS

Test Conditions:	15.247 (b)	Rel. Humidity (%):	35	to	42
Variant:	802.11n HT-20	Ambient Temp. (°C):	19	to	22
TPC:	HIGH	Pressure (mBars):	998	to	1003
Modulation:	ON	Duty Cycle (%):	100		
Beam Forming Gain (Y):	N/A dB	Antenna Gain:	14 dBi		
Applied Voltage:	48.00 Vdc				
Notes 1:					
Notes 2:					

Test Frequency	Measured Peak Power				Total Power (dBm)		Limit	Margin
	RF Port (dBm)							
MHz	a	b	c	d	Combined	Calculated	dBm	dB
5745	20.56	20.43	21.99	--	N/A	25.82	30.00	-4.18
5785	22.31	21.98	22.93	--	N/A	27.20	30.00	-2.80
5825	22.72	20.17	22.69	--	N/A	26.78	30.00	-3.22

Measurement uncertainty:	±1.33 dB
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5.1.2.10.5.8 GHz 802.11n HT-40

TABLE OF RESULTS – 802.11n – HT-40 OMNI ANTENNA MEASUREMENT RESULTS

Test Conditions:	15.247 (b)	Rel. Humidity (%):	35	to	42
Variant:	802.11n HT-40	Ambient Temp. (°C):	19	to	22
TPC:	HIGH	Pressure (mBars):	998	to	1003
Modulation:	ON	Duty Cycle (%):	100		
Beam Forming Gain (Y):	N/A dB	Antenna Gain:	8.5 dBi		
Applied Voltage:	48.00 Vdc				
Notes 1:					
Notes 2:					

Test Frequency	Measured Peak Power				Total Power (dBm)		Limit	Margin
	RF Port (dBm)							
MHz	a	b	c	d	Combined	Calculated	dBm	dB
5755	17.56	18.33	19.12	--	N/A	23.15	30.00	-6.85
5795	22.78	21.95	23.79	--	N/A	27.68	30.00	-2.32

Measurement uncertainty:	±1.33 dB
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SECTOR ANTENNA MEASUREMENT RESULTS

Test Conditions:	15.247 (b)	Rel. Humidity (%):	35	to	42
Variant:	802.11n HT-40	Ambient Temp. (°C):	19	to	22
TPC:	HIGH	Pressure (mBars):	998	to	1003
Modulation:	ON	Duty Cycle (%):	100		
Beam Forming Gain (Y):	N/A dB	Antenna Gain:	14 dBi		
Applied Voltage:	48.00 Vdc				
Notes 1:					
Notes 2:					

Test Frequency	Measured Peak Power				Total Power (dBm)		Limit	Margin
	RF Port (dBm)							
MHz	a	b	c	d	Combined	Calculated	dBm	dB
5755	17.87	18.23	19.82	--	N/A	23.50	30.00	-6.50
5795	22.56	21.62	23.44	--	N/A	26.78	30.00	-3.22

Measurement uncertainty:	±1.33 dB
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Specification

Limits

§15.247 (b) The maximum peak output power of the intentional radiator shall not exceed the following:

§15.247 (b) (3) For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz bands: 1.0 watt.

15.247 (b) (4) The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

15.247 (c) Operation with directional antenna gains greater than 6 dBi.

(1) Fixed point-to-point operation:

(i) Systems operating in the 2400–2483.5 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

(ii) Systems operating in the 5725–5850 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted output power.

§15.31 (e) For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage. For battery operated equipment, the equipment tests shall be performed using a new battery.

§ RSS-210 A8.4(4) For systems employing digital modulation techniques operating in the 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz bands the maximum peak conducted power shall not exceed 1 watt.



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Laboratory Measurement Uncertainty for Power Measurements

Measurement uncertainty	± 1.33 dB
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Traceability

Method	Test Equipment Used
Measurements were made per work instruction WI-01 'Measuring RF Output Power'	0158, 0287, 0252, 0313, 0314, 0070, 0116, 0117

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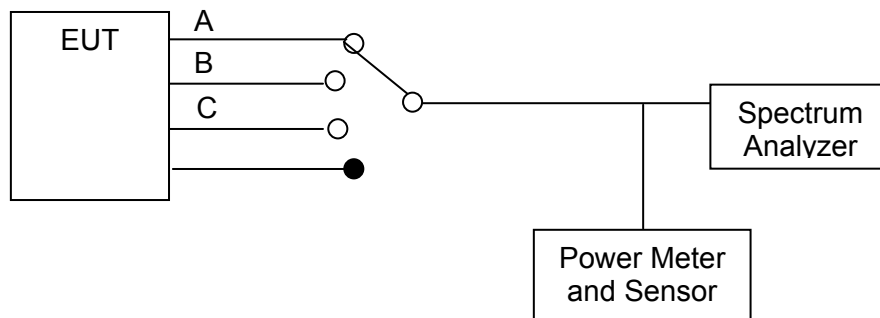
5.1.3. Peak Power Spectral Density

FCC, Part 15 Subpart C §15.247(e)
Industry Canada RSS-210 §A8.2

Test Procedure

The transmitter output was connected to a spectrum analyzer and the maximum level in a 3 kHz bandwidth was measured. A peak value was found over the full emission bandwidth and the frequency span reduced to obtain enhanced resolution. Sweep time $\geq$ span / 3 kHz with video averaging turned off. The Peak Power Spectral Density is the highest level found across the emission in a 3 kHz resolution bandwidth.

Test Measurement Set up



Measurement set up for Peak Power Spectral Density

Measurement Results for Peak Power Spectral Density

Ambient conditions.

Temperature: 17 to 23 °C Relative humidity: 31 to 57 % Pressure: 999 to 1012 mbar

Radio Parameters

Duty Cycle: 100%

Output: Modulated Carrier

Power: Maximum Default Power

NOTE: KDB 662911 was implemented for In-band power spectral density (PSD) measurements. Option (2) Measure and add 10 log (N) dB was implemented



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Peak Power Spectral Density

TABLE OF RESULTS – 802.11b

Test Conditions:	15.247 (e)	Rel. Humidity (%):	35	to	42
Variant:	802.11b	Ambient Temp. (°C):	19	to	22
TPC:	HIGH	Pressure (mBars):	998	to	1003
Modulation:	ON	Duty Cycle (%):	100		
Beam Forming Gain (Y):	N/A dB	Antenna Gain:			
Applied Voltage:	48.00 Vdc	Antenna Ports (N):	3		
Notes 1:					
Notes 2:					

Test Frequency	Measured Power Density				Correction factor	Σ Power Spectral Density	Limit	Margin
	RF Port (dBm)							
MHz	a	b	c	d	10Log(N)	dBm	dBm	dB
2412	1.43	0.61	2.05	--	4.77	6.82	3.23	-1.18
2437	1.16	0.71	0.72	--	4.77	5.93	3.23	-2.07
2462	0.33	0.75	0.38	--	4.77	5.52	3.23	-2.48

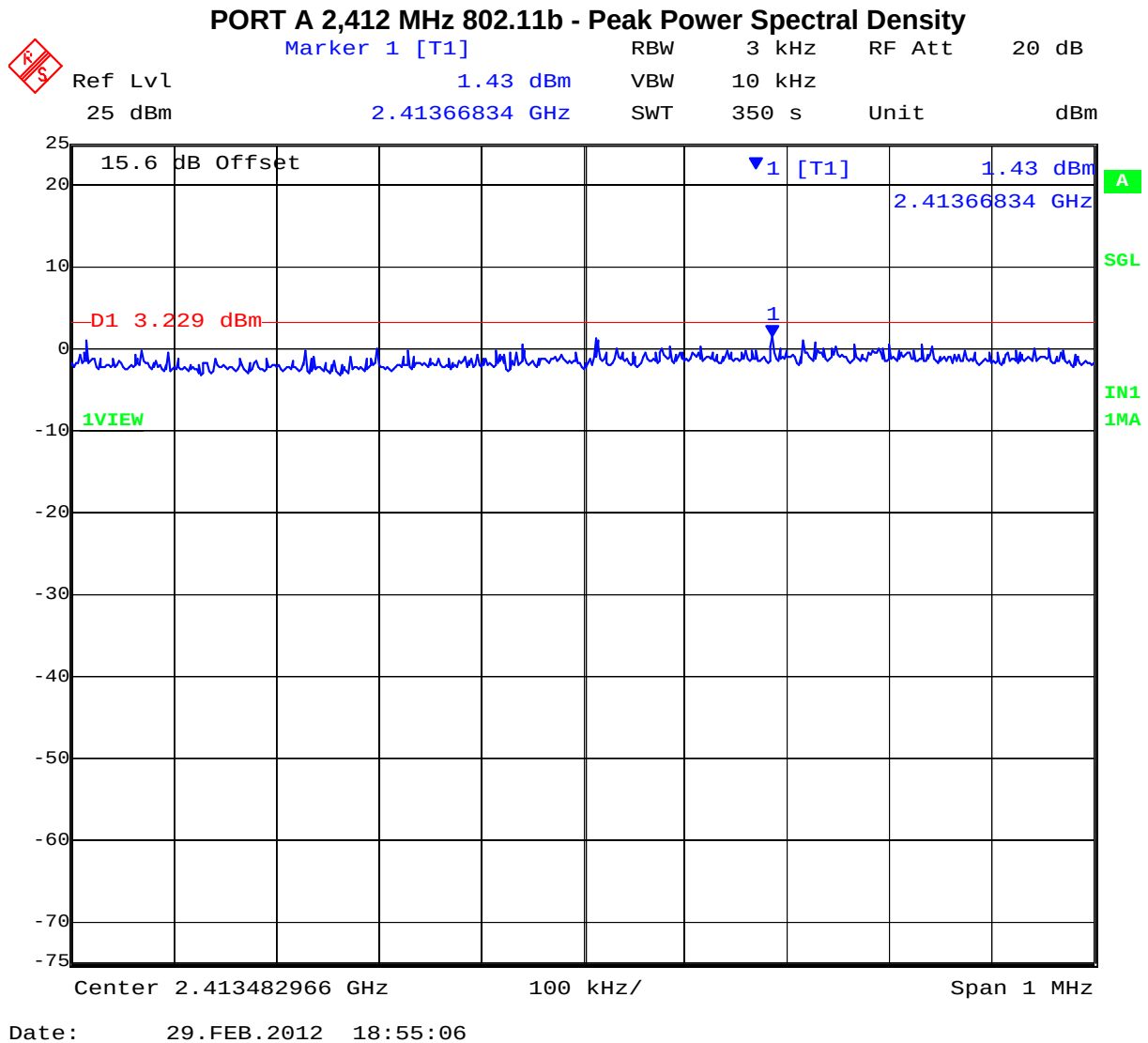
Measurement uncertainty:	± 1.33 dB
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NOTE: above margin is calculated from the highest Power Density returned from Chain A or B or C

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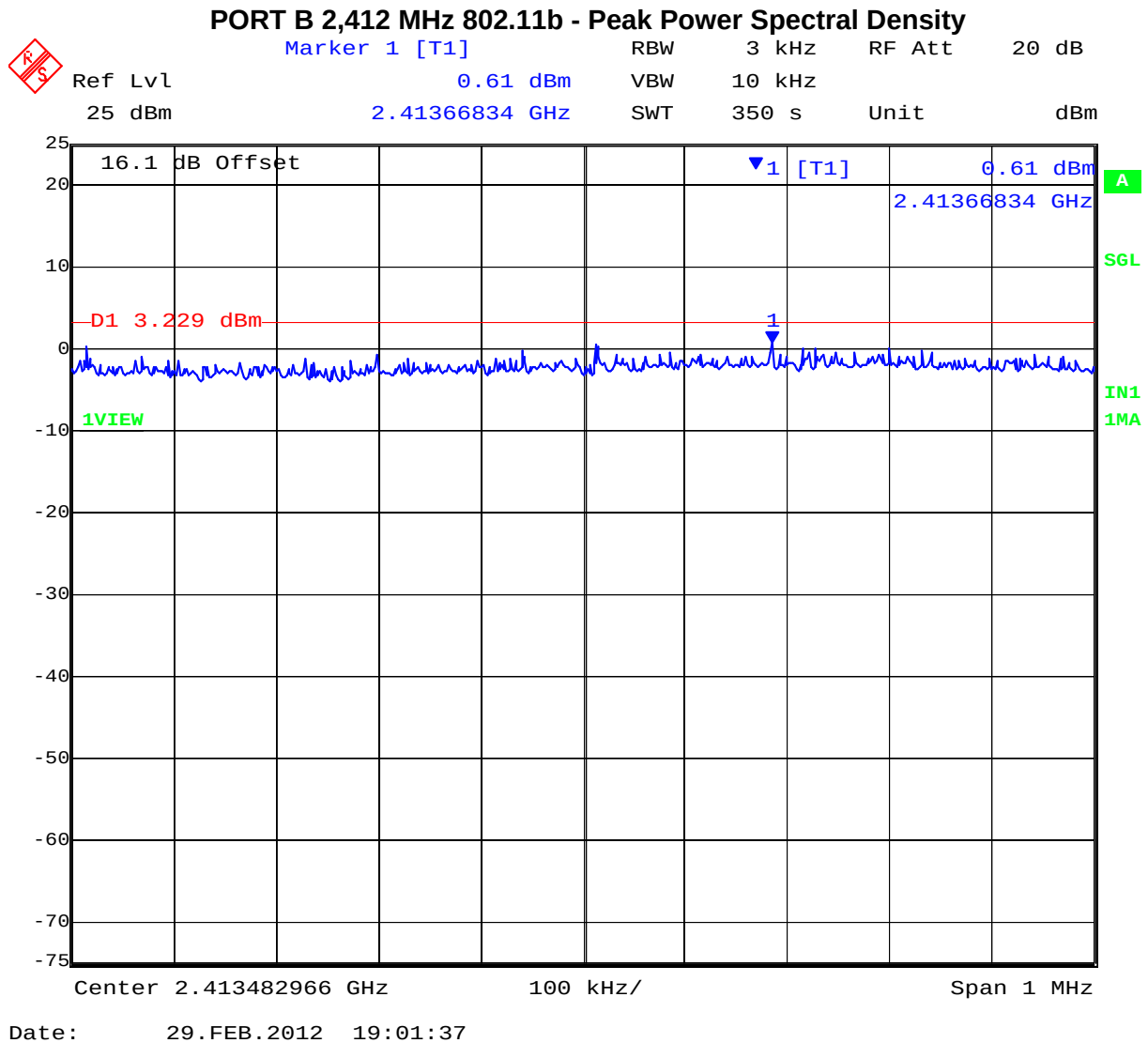
Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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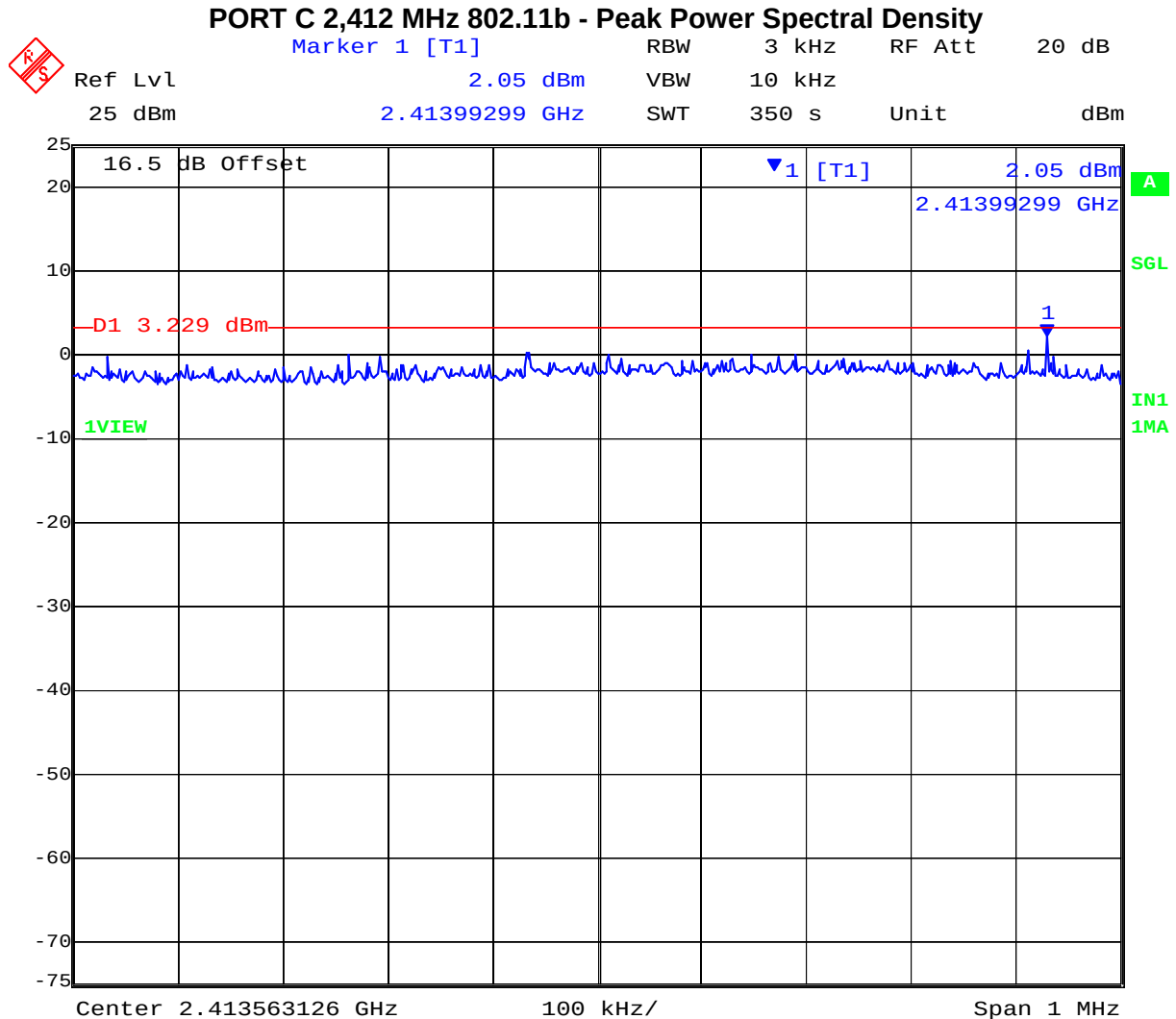
Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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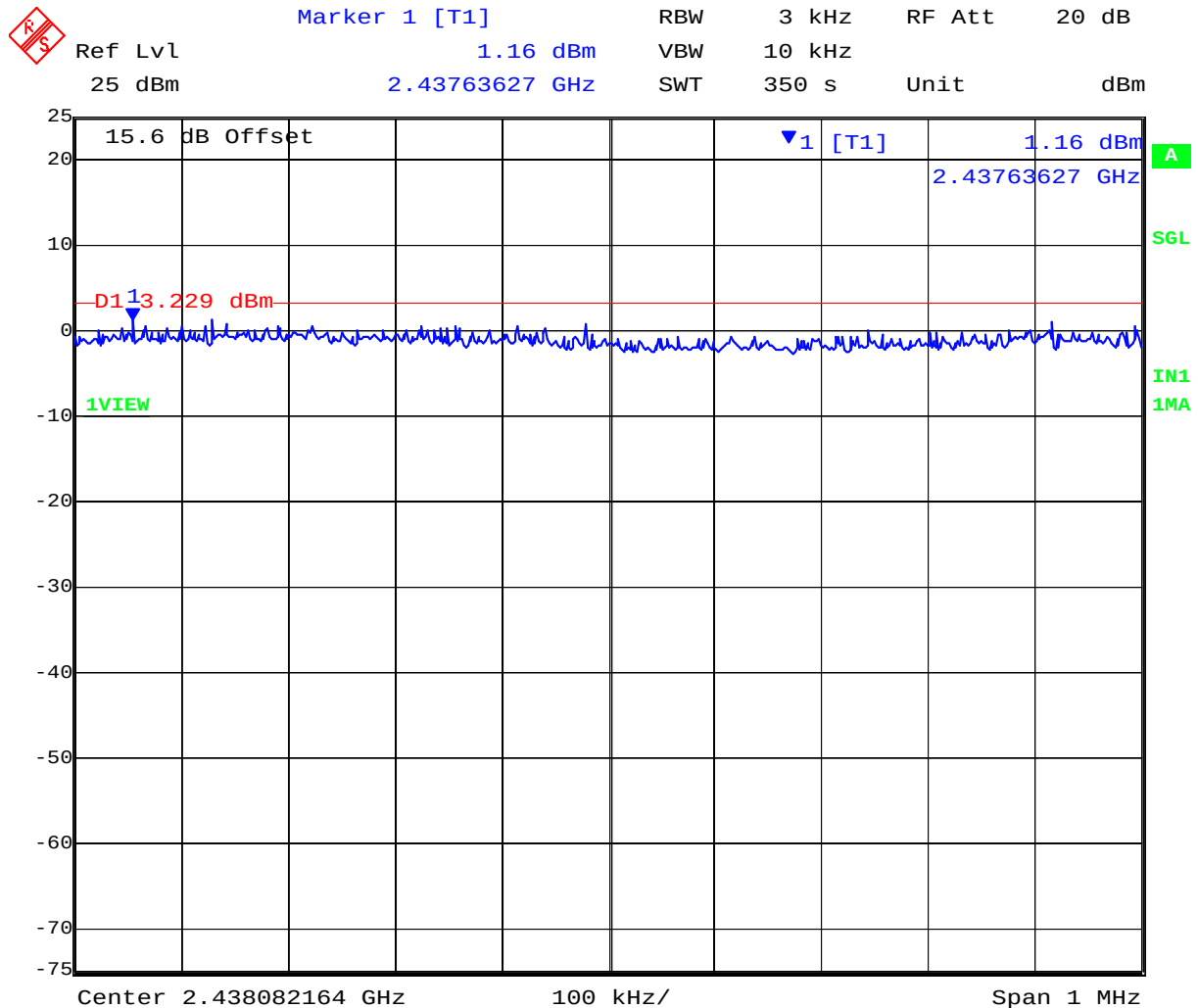
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PORT A 2,437 MHz 802.11b - Peak Power Spectral Density



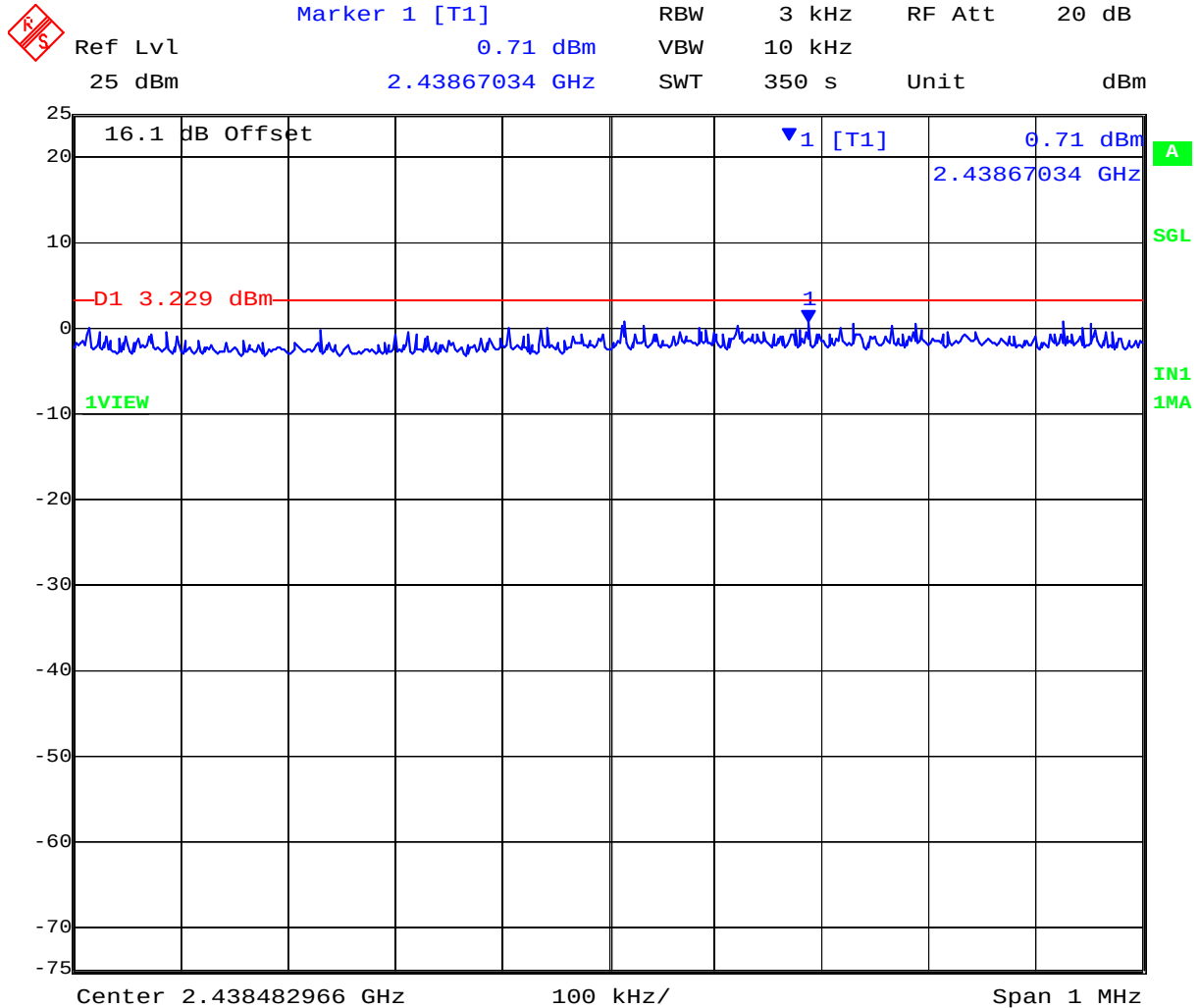
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PORT B 2,437 MHz 802.11b - Peak Power Spectral Density



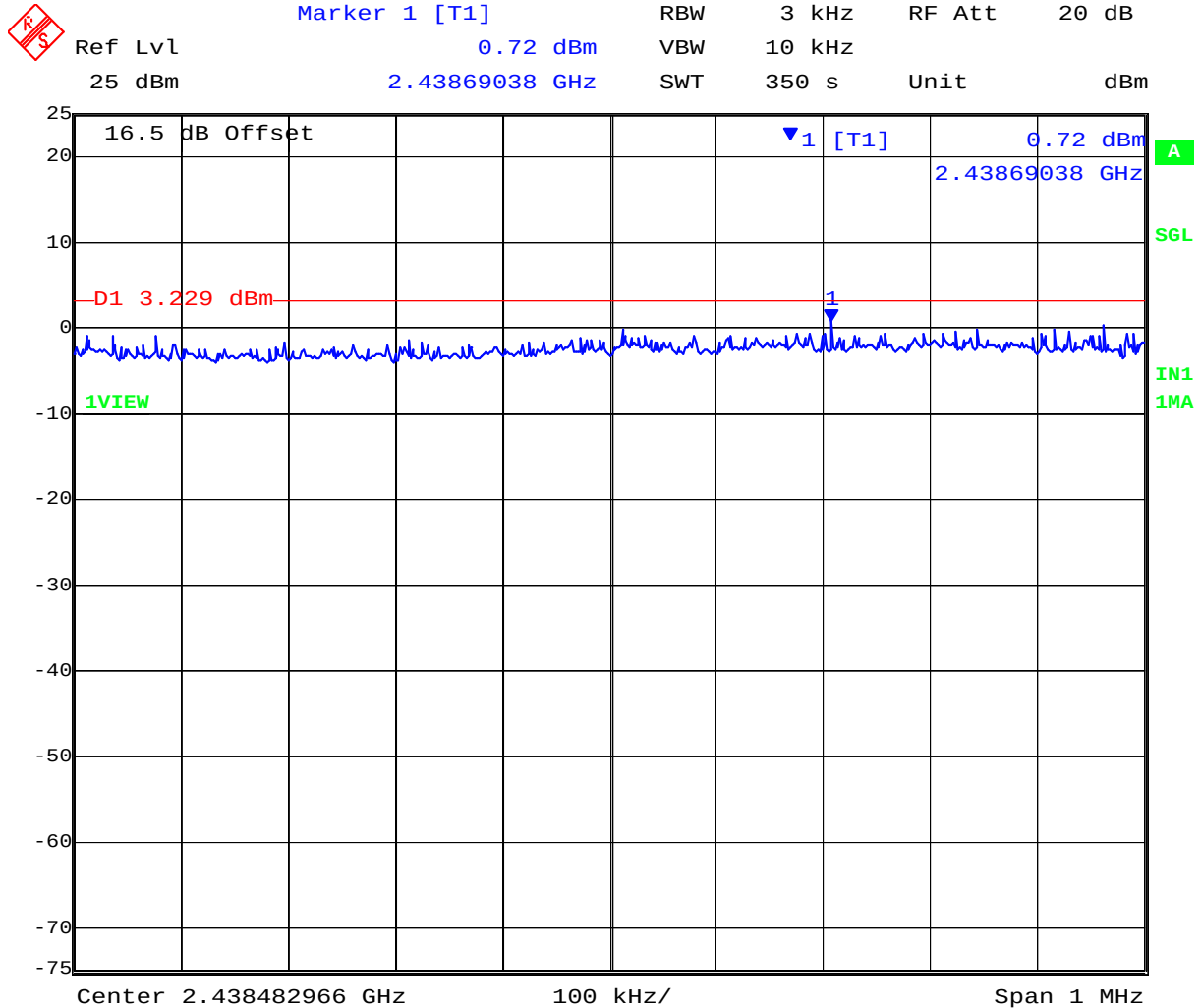
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PORT C 2,437 MHz 802.11b - Peak Power Spectral Density



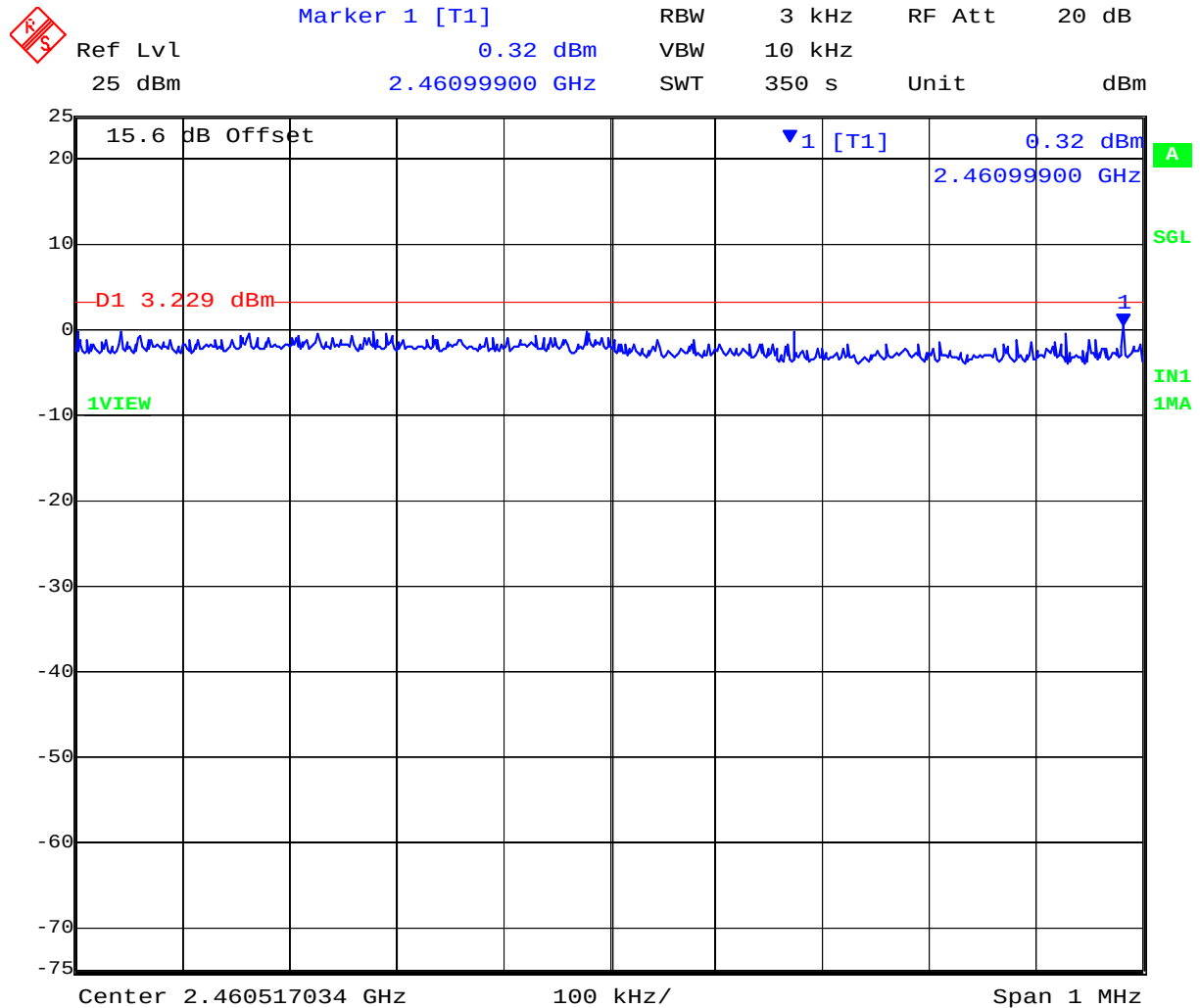
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PORT A 2,462 MHz 802.11b - Peak Power Spectral Density

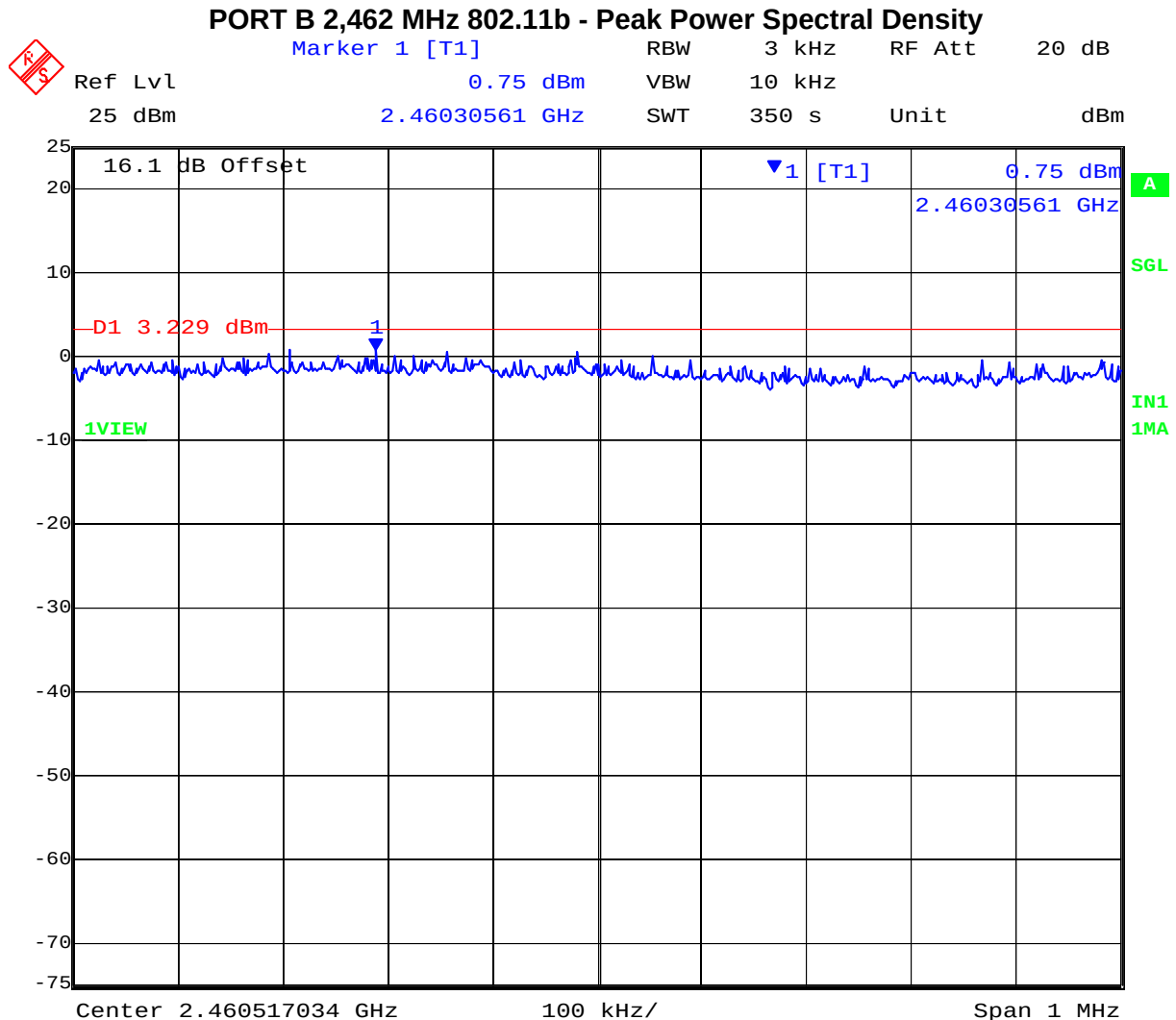


Date: 29.FEB.2012 19:15:47

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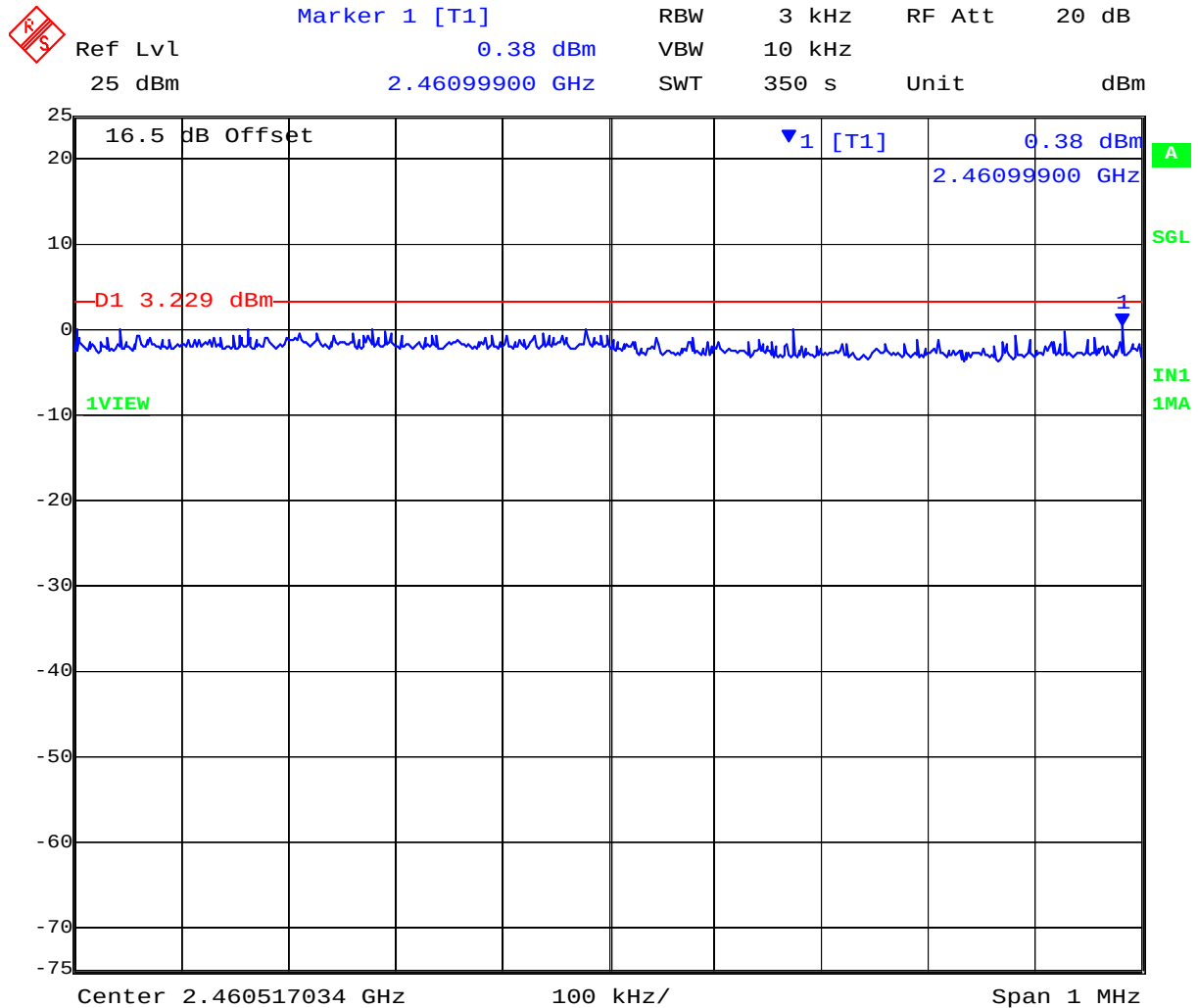
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PORT C 2,462 MHz 802.11b - Peak Power Spectral Density



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Peak Power Spectral Density

TABLE OF RESULTS – 802.11g Legacy

Test Conditions:	15.247 (e)	Rel. Humidity (%):	35	to	42
Variant:	802.11g	Ambient Temp. (°C):	19	to	22
TPC:	HIGH	Pressure (mBars):	998	to	1003
Modulation:	ON	Duty Cycle (%):	100		
Beam Forming Gain (Y):	N/A dB	Antenna Gain:			
Applied Voltage:	48.00 Vdc	Antenna Ports (N):	3		
Notes 1:					
Notes 2:					

Test Frequency	Measured Power Density				Correction factor	Σ Power Spectral Density	Limit	Margin
	RF Port (dBm)							
MHz	a	b	c	d	10Log(N)	dBm	dBm	dB
2412	0.48	-0.80	-0.86	--	4.77	5.25	3.23	-2.75
2437	-0.73	-2.21	-0.41	--	4.77	4.36	3.23	-3.64
2462	-0.98	-0.82	0.06	--	4.77	4.84	3.23	-3.17

Measurement uncertainty:	± 1.33 dB
---------------------------------	---------------

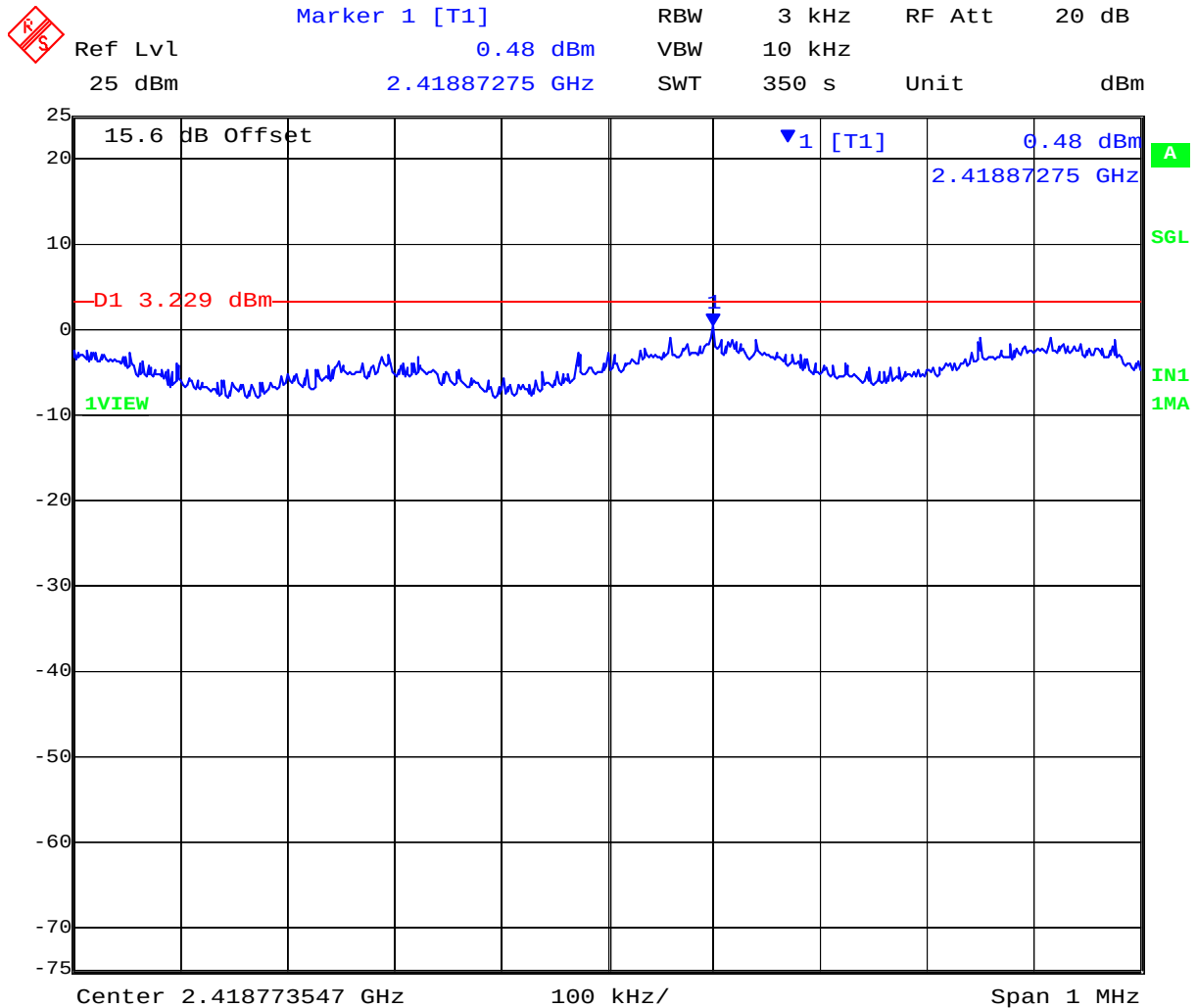
NOTE: above margin is calculated from the highest Power Density returned from Chain A or B or C

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PORT A 2,412 MHz 802.11g Legacy - Peak Power Spectral Density

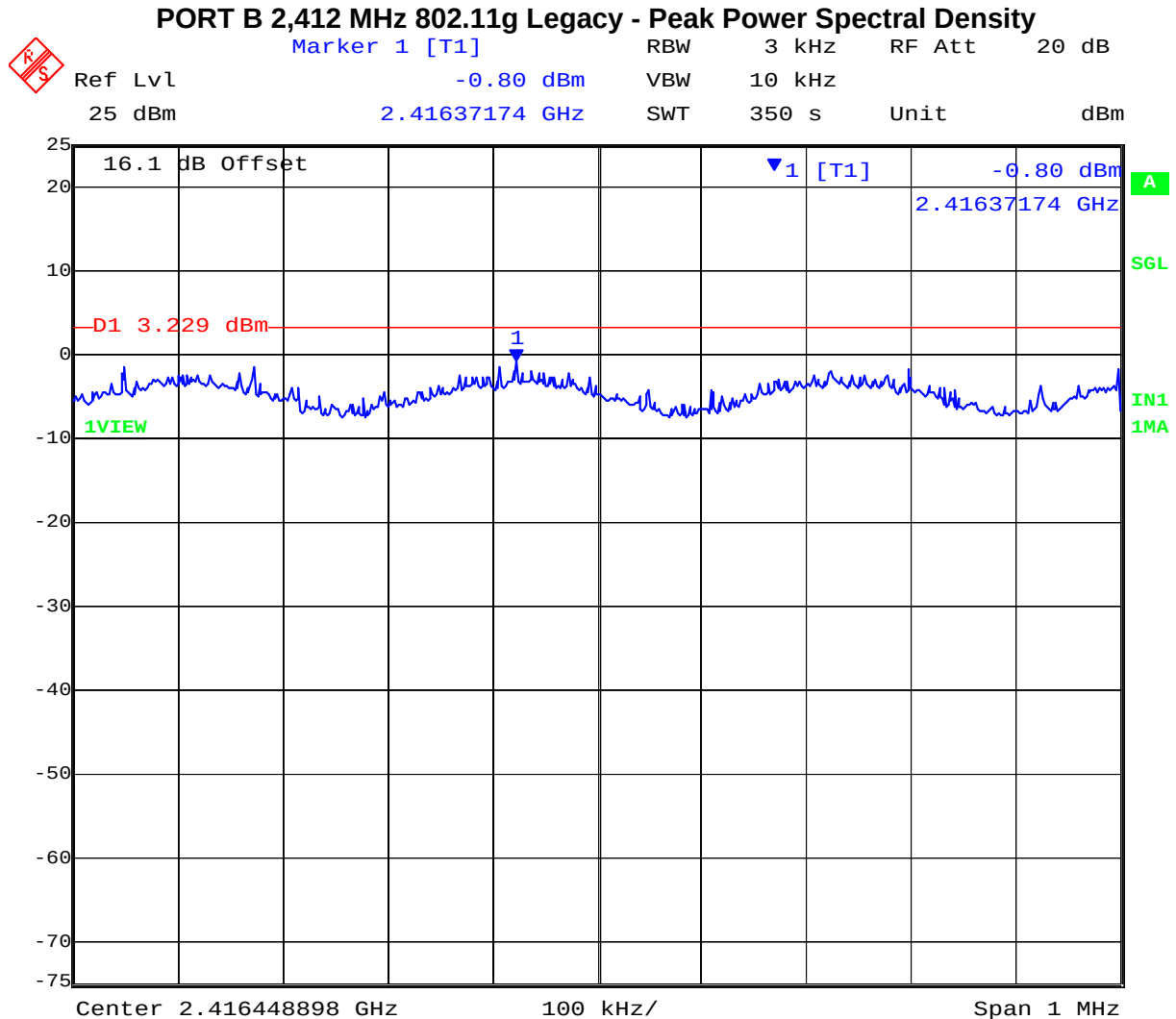


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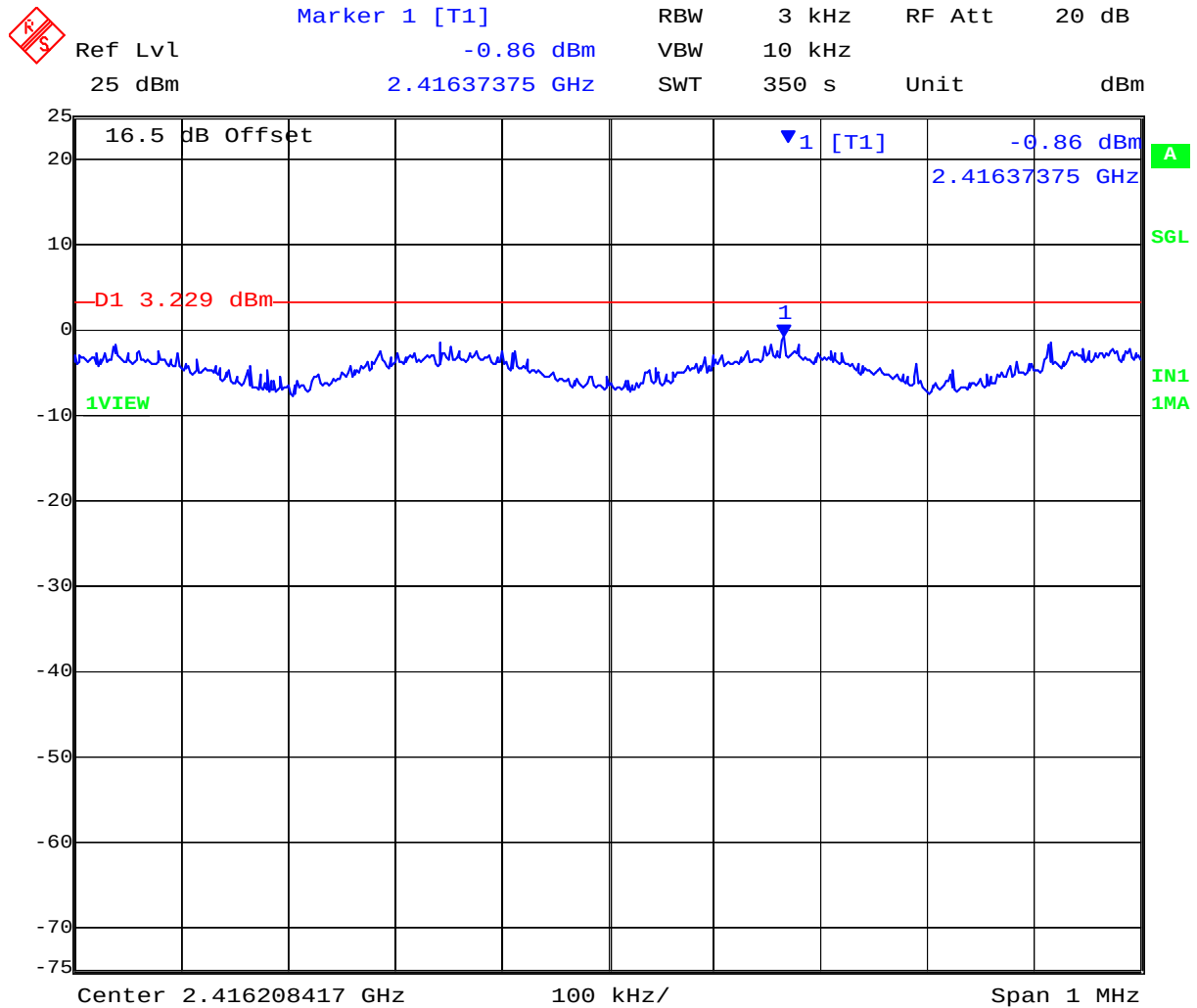
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PORT C 2,412 MHz 802.11g Legacy - Peak Power Spectral Density



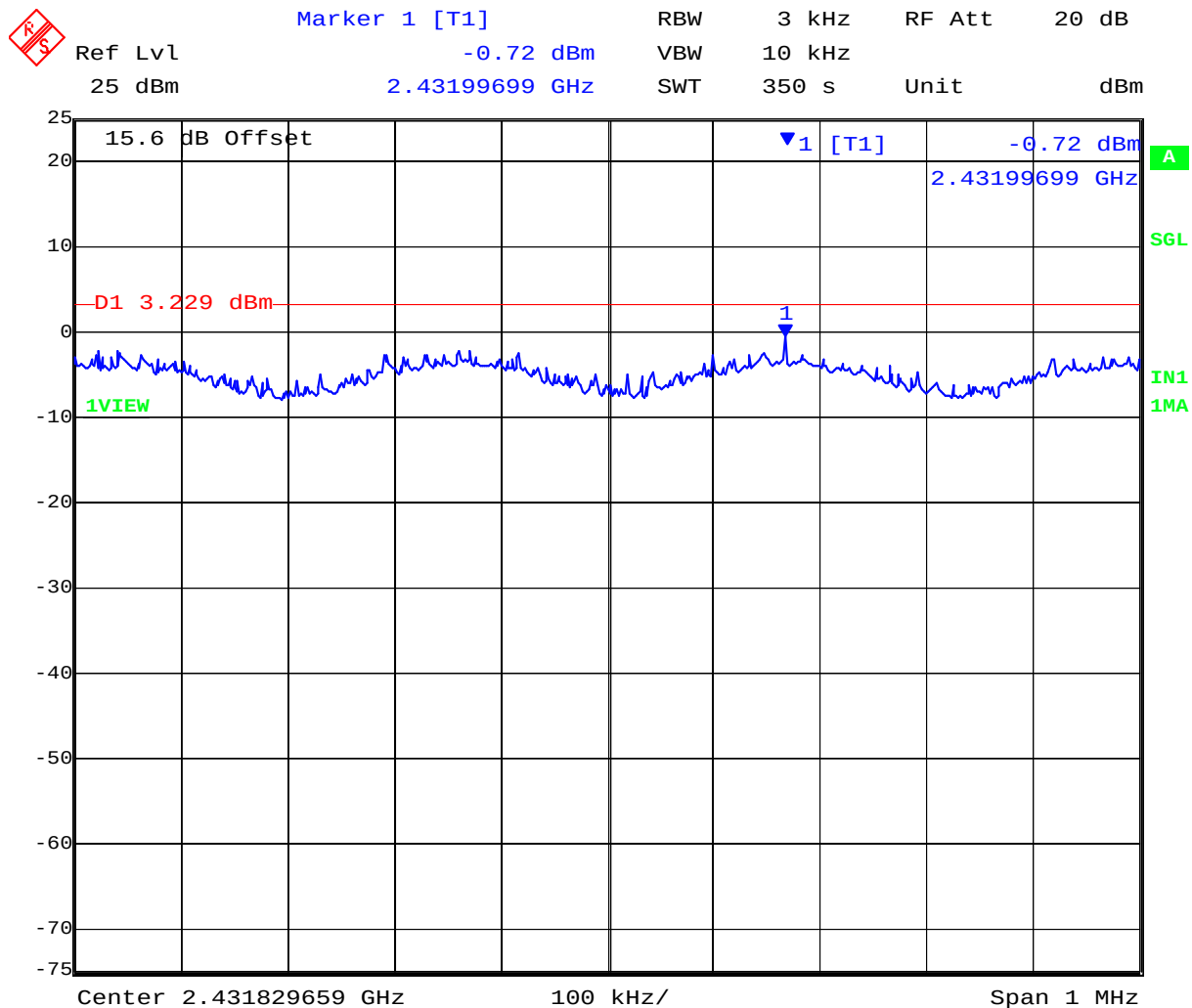
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PORT A 2,437 MHz 802.11g Legacy - Peak Power Spectral Density



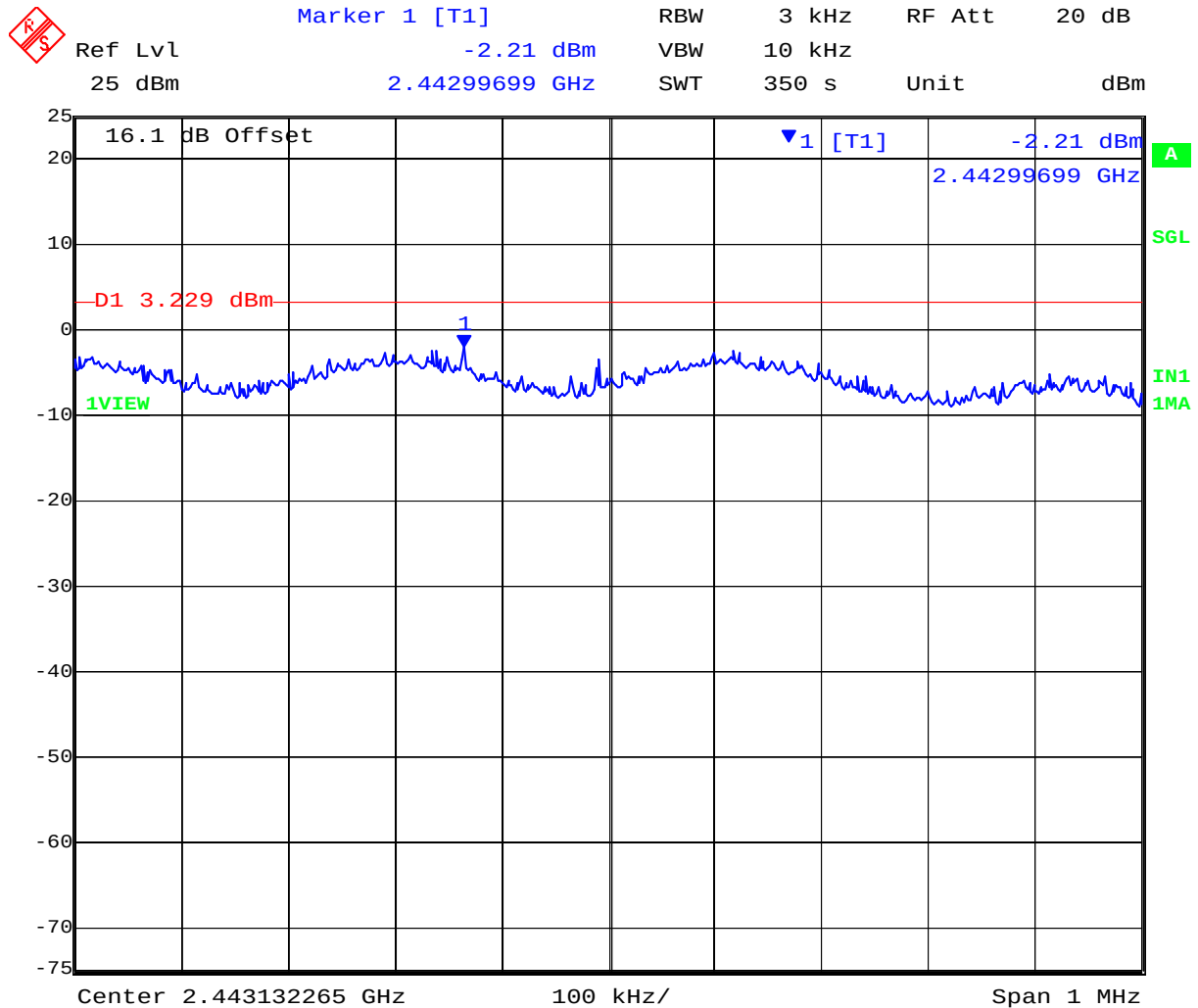
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PORT B 2,437 MHz 802.11g Legacy - Peak Power Spectral Density



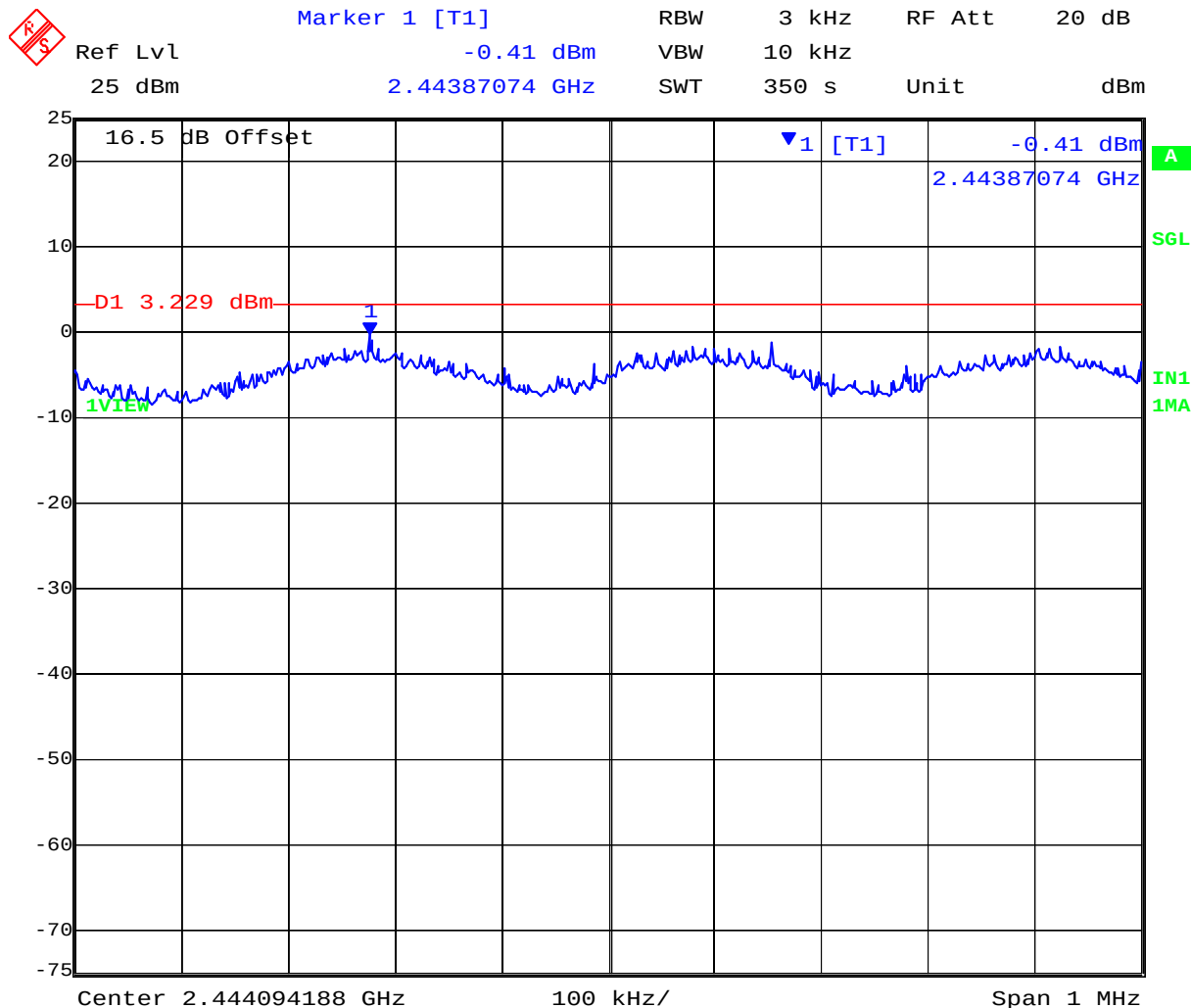
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PORT C 2,437 MHz 802.11g Legacy - Peak Power Spectral Density



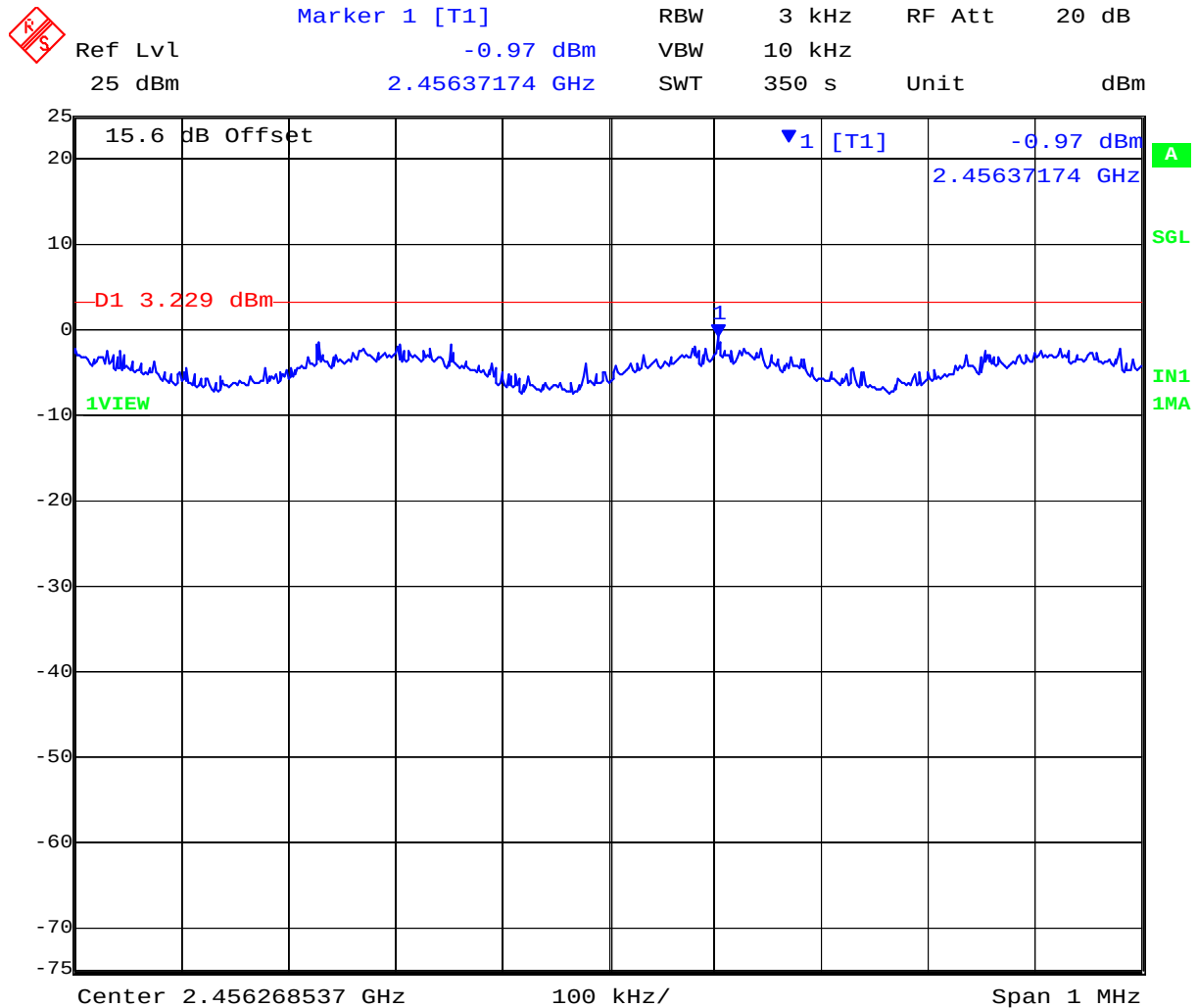
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PORT A 2,462 MHz 802.11g Legacy - Peak Power Spectral Density



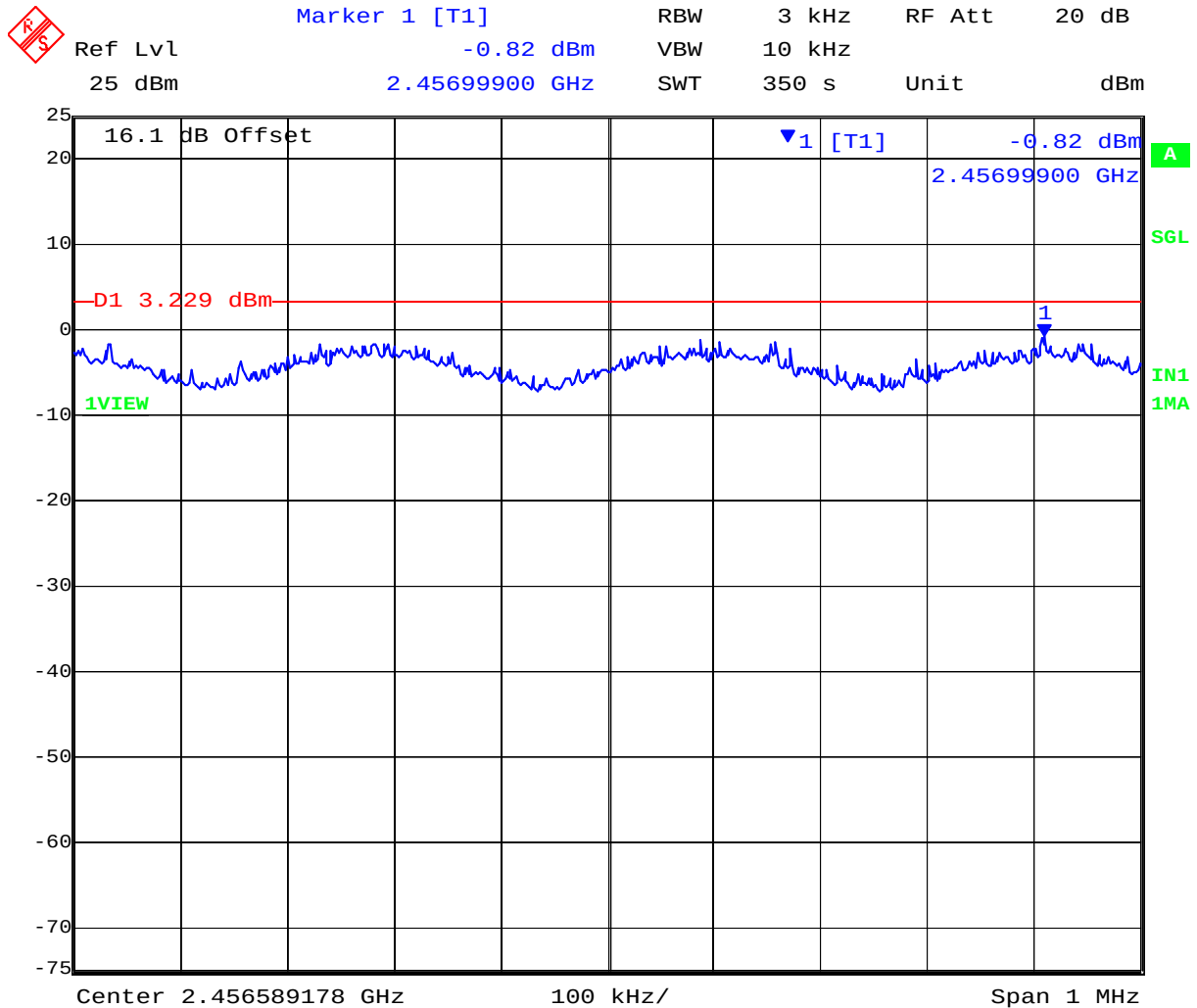
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PORT B 2,462 MHz 802.11g Legacy - Peak Power Spectral Density



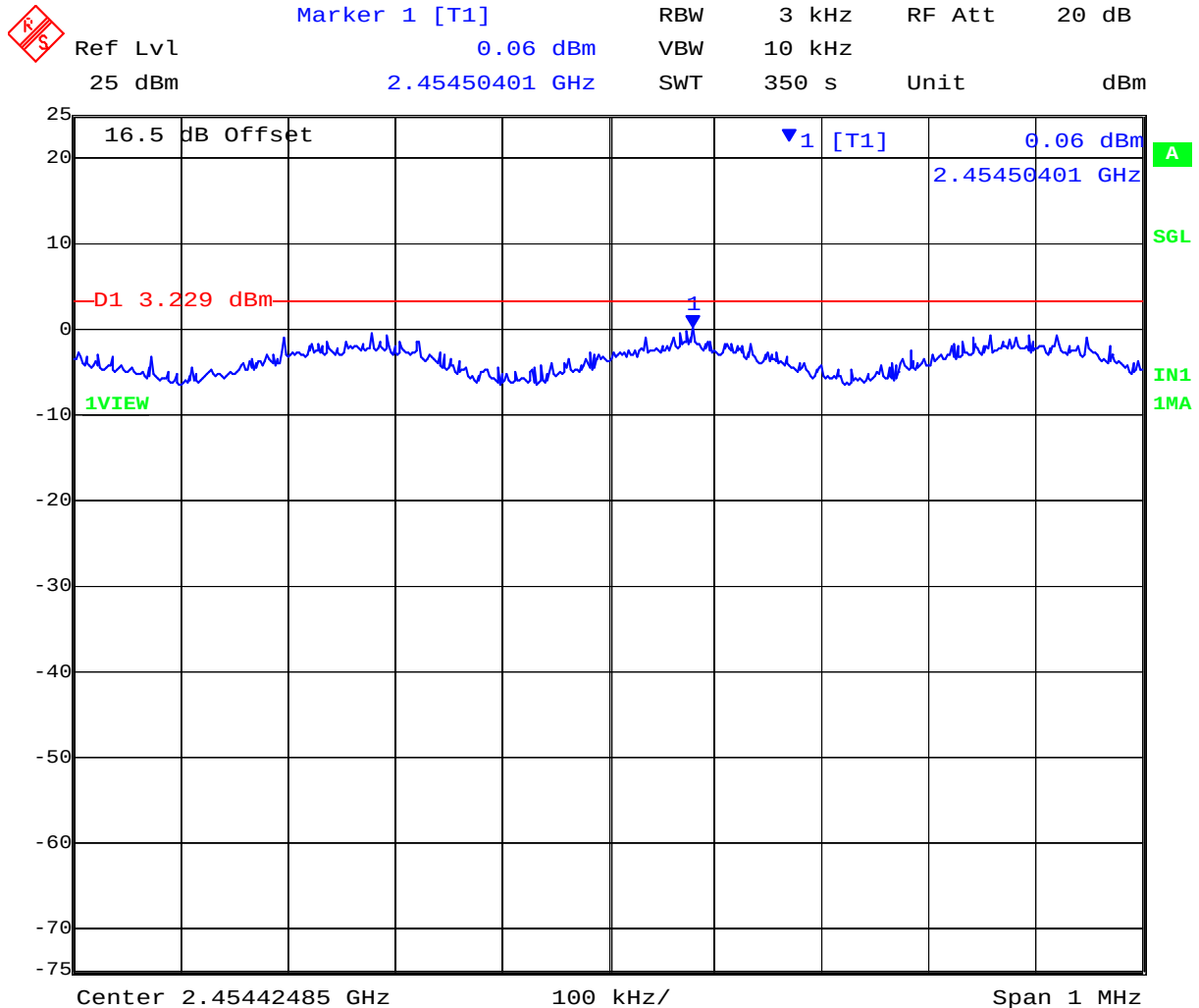
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PORT C 2,462 MHz 802.11g Legacy - Peak Power Spectral Density



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Peak Power Spectral Density

TABLE OF RESULTS – 802.11n HT-20

Test Conditions:	15.247 (e)	Rel. Humidity (%):	35	to	42
Variant:	802.11n HT-20	Ambient Temp. (°C):	19	to	22
TPC:	HIGH	Pressure (mBars):	998	to	1003
Modulation:	ON	Duty Cycle (%):	100		
Beam Forming Gain (Y):	N/A dB	Antenna Gain:			
Applied Voltage:	48.00 Vdc	Antenna Ports (N):	3		
Notes 1:					
Notes 2:					

Test Frequency	Measured Power Density				Correction factor	Peak Power Spectral Density	Limit	Margin
	RF Port (dBm)							
MHz	a	b	c	d	10Log(N)	dBm	dBm	dB
2412	-1.97	-1.49	-2.55	--	4.77	3.29	3.23	-4.72
2437	-2.41	-2.16	-2.29	--	4.77	2.61	3.23	-5.39
2462	-1.79	-0.25	-1.05	--	4.77	4.53	3.23	-3.48

Measurement uncertainty:	± 1.33 dB
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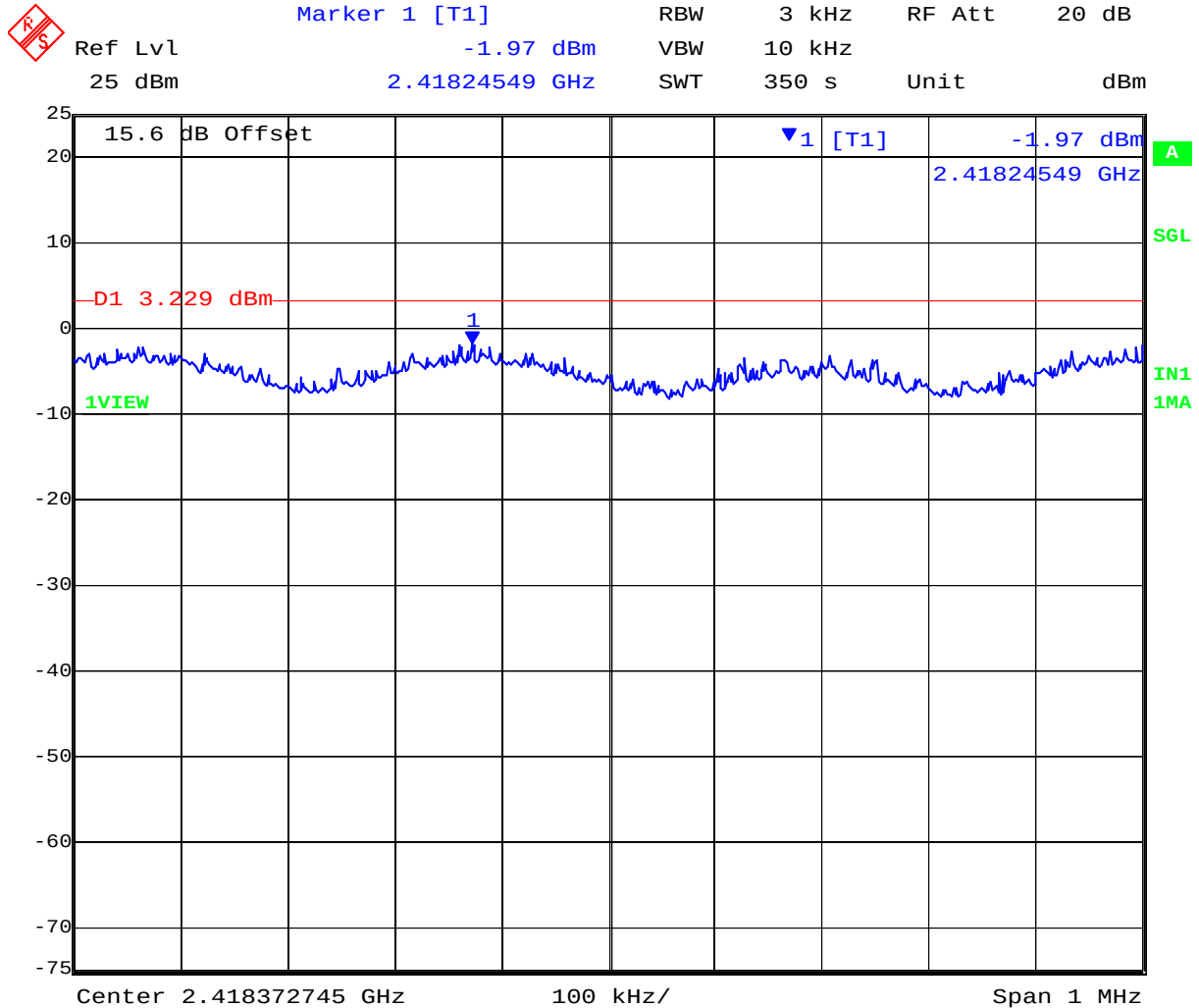
NOTE: above margin is calculated from the highest Power Density returned from Chain A or B or C

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PORT A 2,412 MHz 802.11n HT-20 - Peak Power Spectral Density



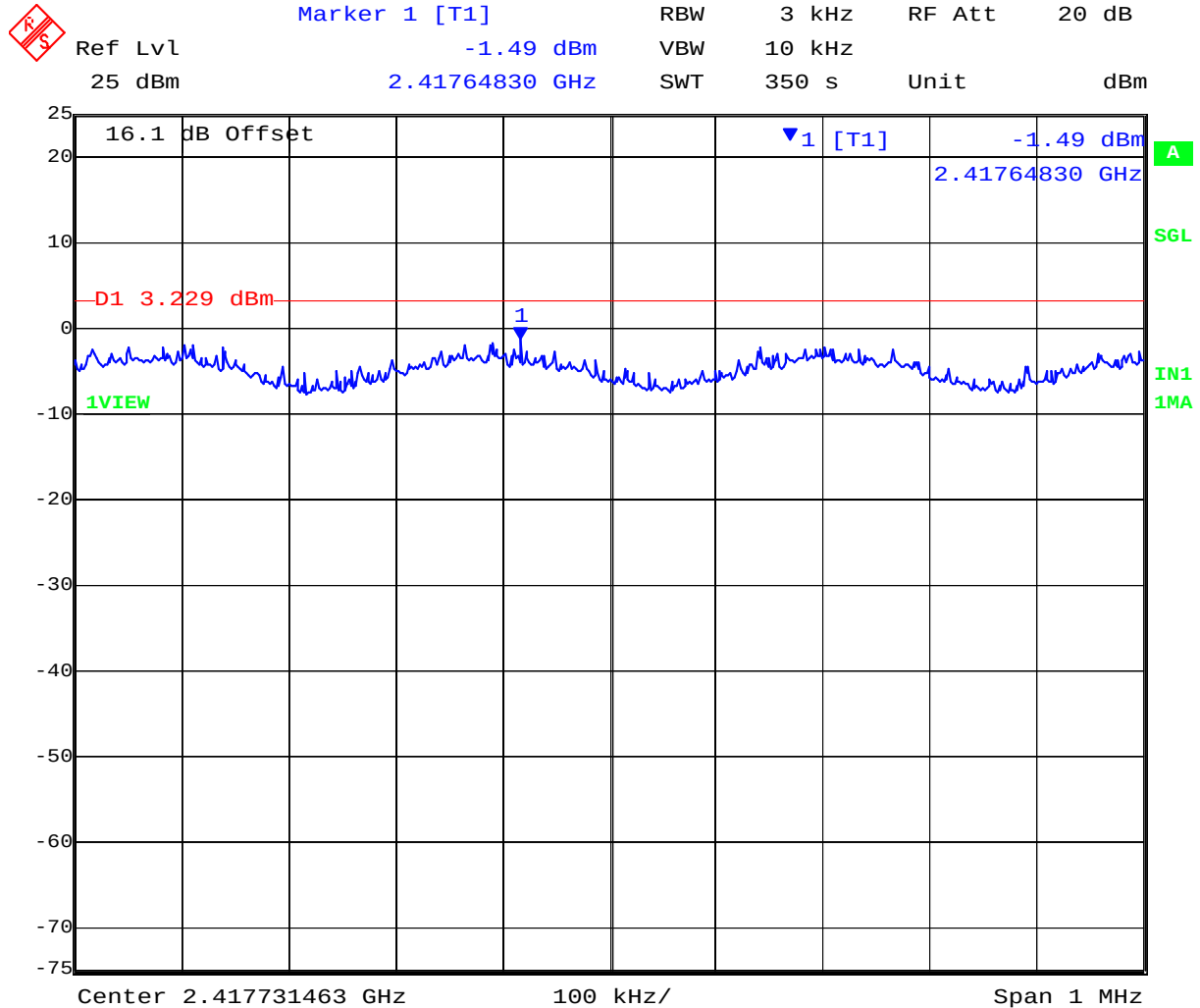
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PORT B 2,412 MHz 802.11n HT-20 - Peak Power Spectral Density



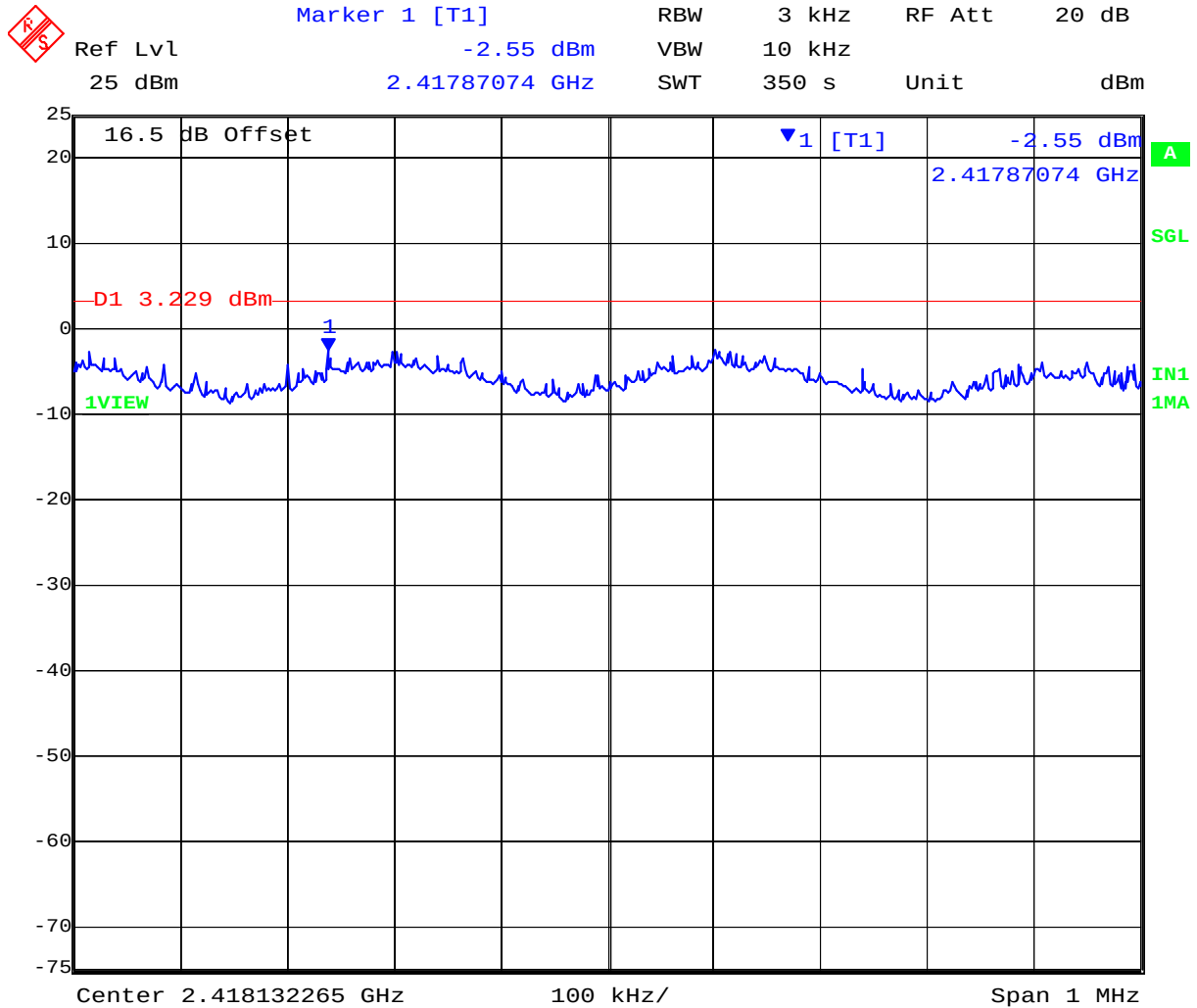
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PORT C 2,412 MHz 802.11n HT-20 - Peak Power Spectral Density



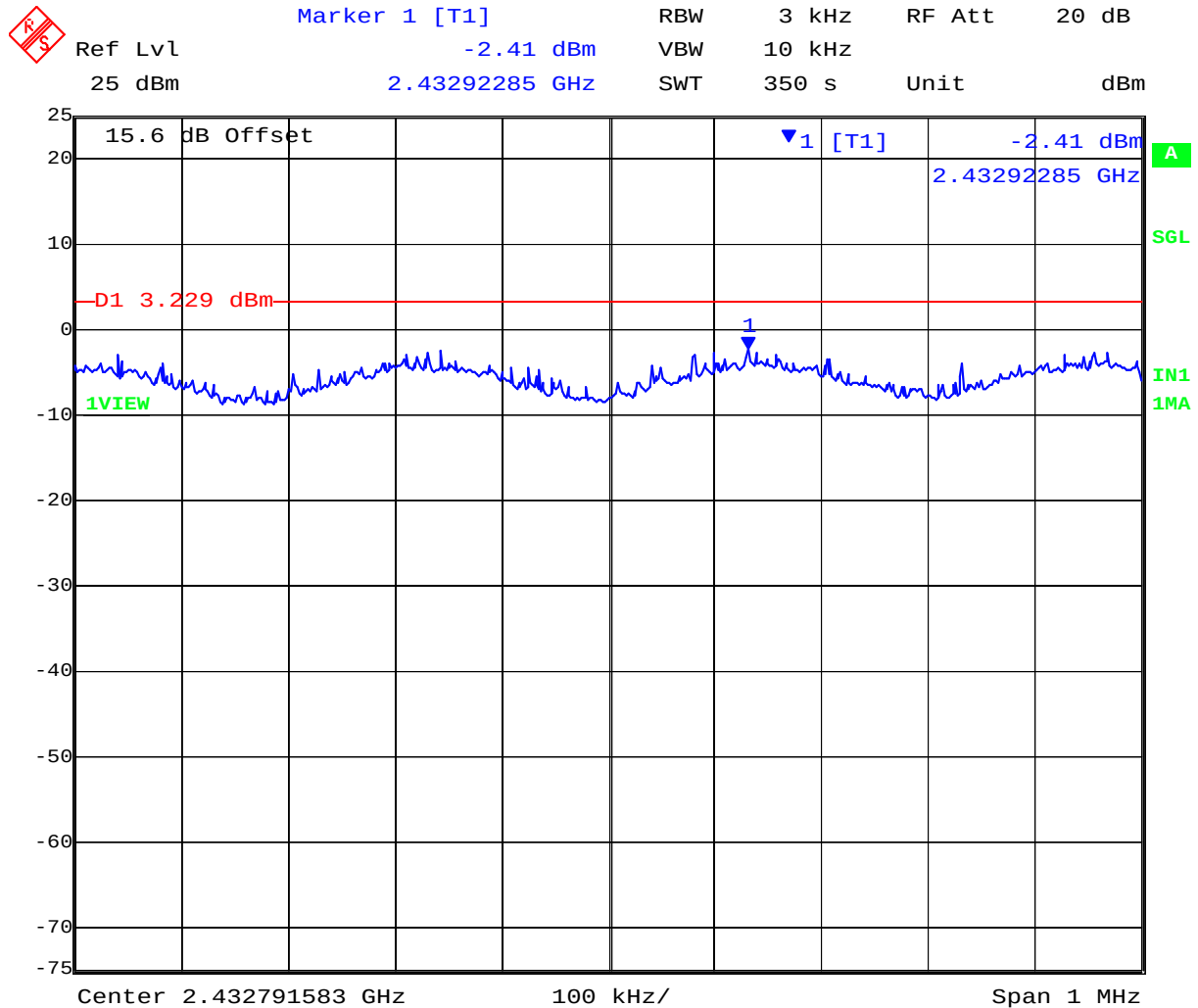
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PORT A 2,437 MHz 802.11n HT-20 - Peak Power Spectral Density



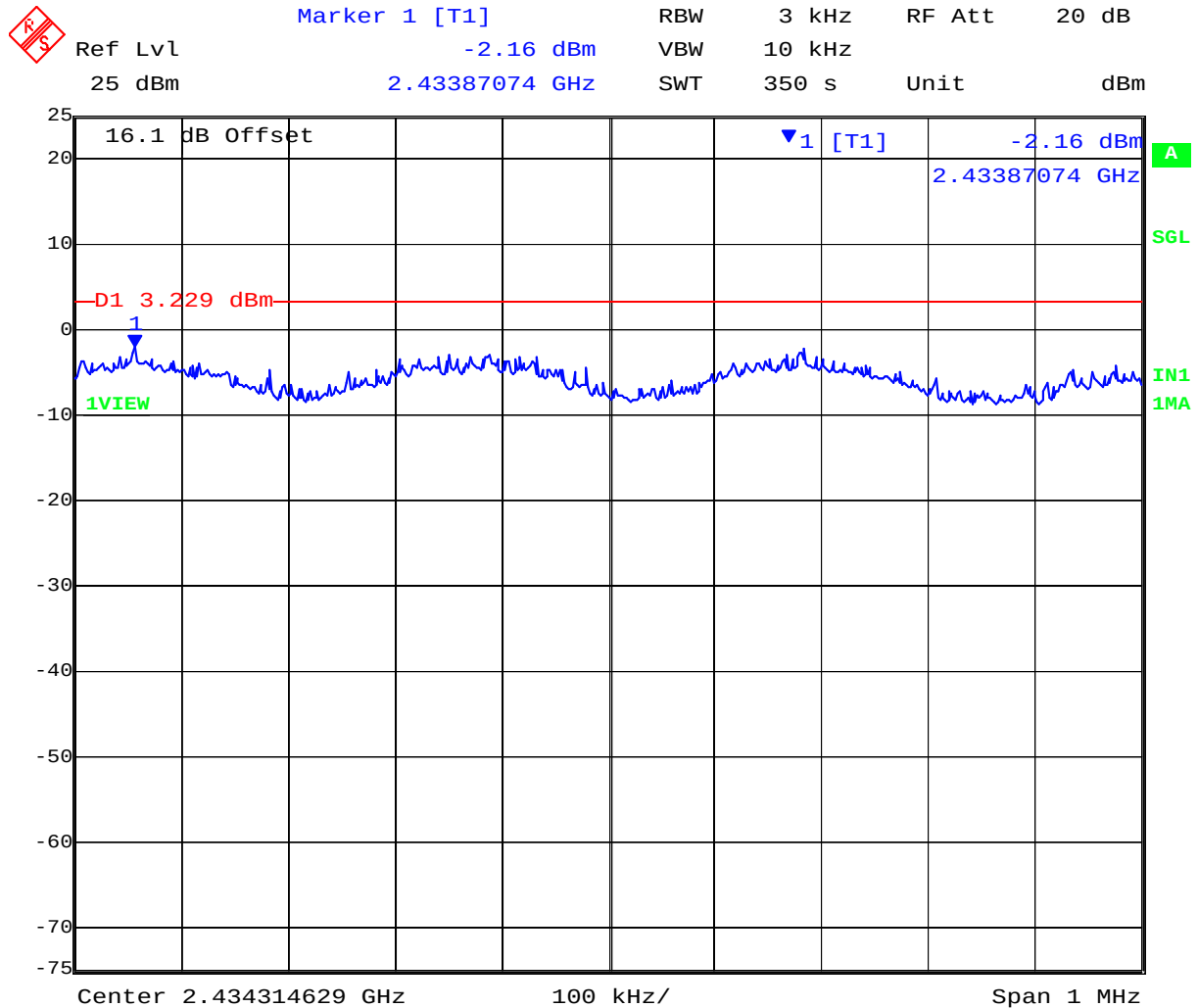
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PORT B 2,437 MHz 802.11n HT-20 - Peak Power Spectral Density



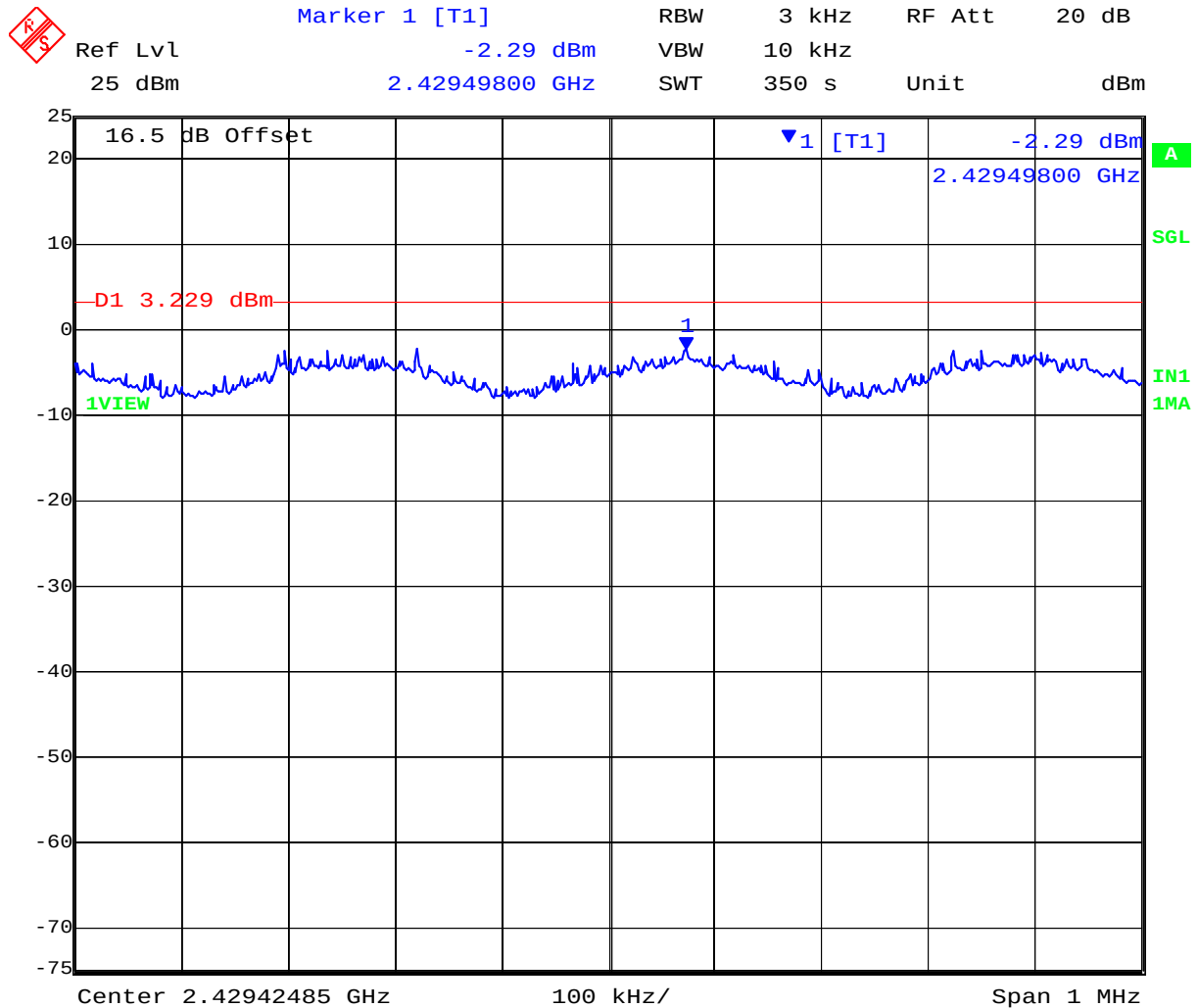
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PORT C 2,437 MHz 802.11n HT-20 - Peak Power Spectral Density



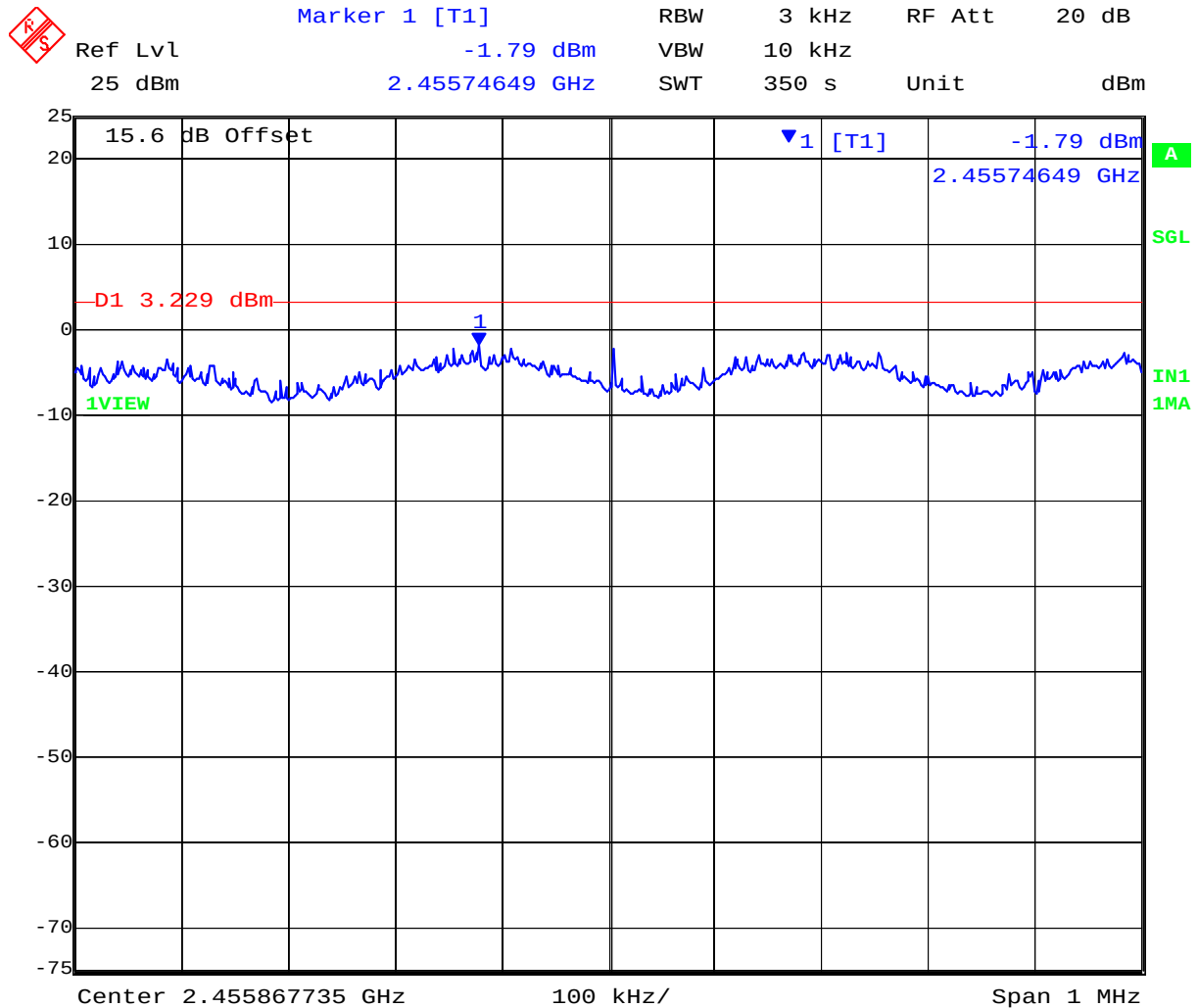
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PORT A 2,462 MHz 802.11n HT-20 - Peak Power Spectral Density



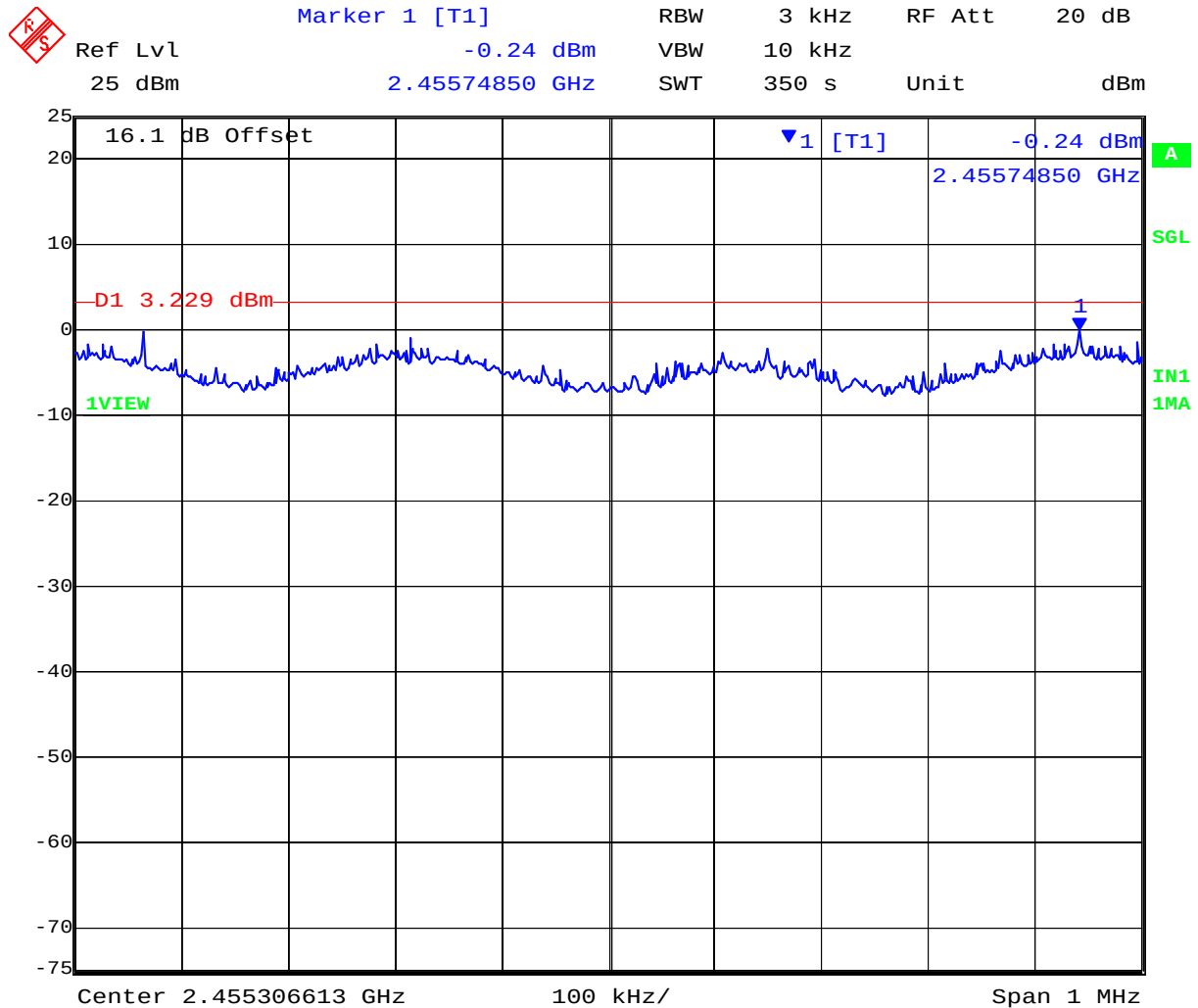
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PORT B 2,462 MHz 802.11n HT-20 - Peak Power Spectral Density



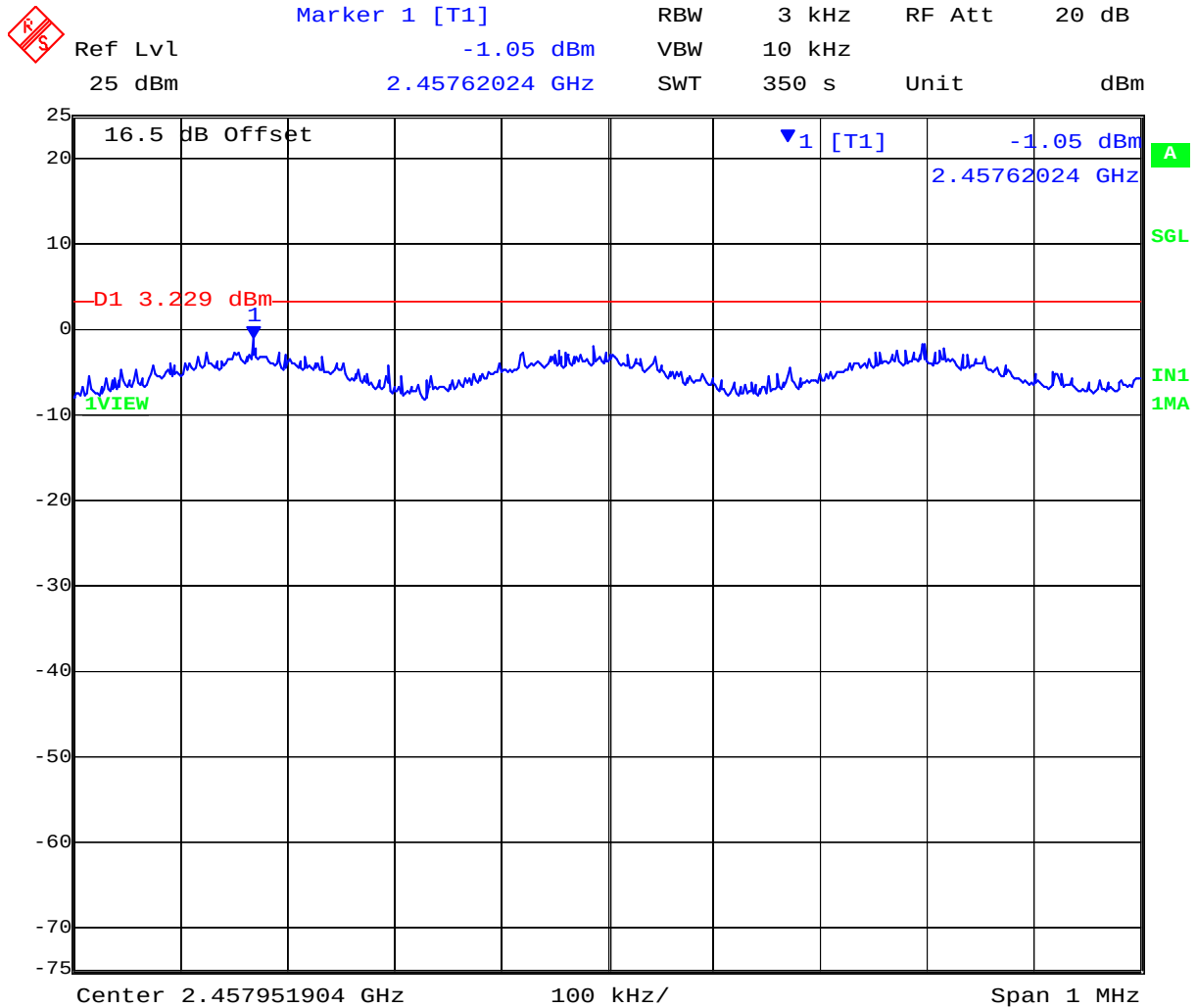
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PORT C 2,462 MHz 802.11n HT-20 - Peak Power Spectral Density



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Peak Power Spectral Density

TABLE OF RESULTS – 802.11n HT-40

Test Conditions:	15.247 (e)	Rel. Humidity (%):	35	to	42
Variant:	802.11n HT-40	Ambient Temp. (°C):	19	to	22
TPC:	HIGH	Pressure (mBars):	998	to	1003
Modulation:	ON	Duty Cycle (%):	100		
Beam Forming Gain (Y):	N/A dB	Antenna Gain:			
Applied Voltage:	48.00 Vdc	Antenna Ports (N):	3		
Notes 1:					
Notes 2:					

Test Frequency	Measured Power Density				Correction factor	Peak Power Spectral Density	Limit	Margin
	RF Port (dBm)							
MHz	a	b	c	d	10Log(N)	dBm	dBm	dB
2422	-4.47	-2.84	-4.50	--	4.77	1.93	3.23	-6.07
2437	-3.26	-4.61	-3.99	--	4.77	1.52	3.23	-6.49
2452	-4.69	-4.06	-3.92	--	4.77	0.86	3.23	-7.15

Measurement uncertainty:	± 1.33 dB
---------------------------------	-----------

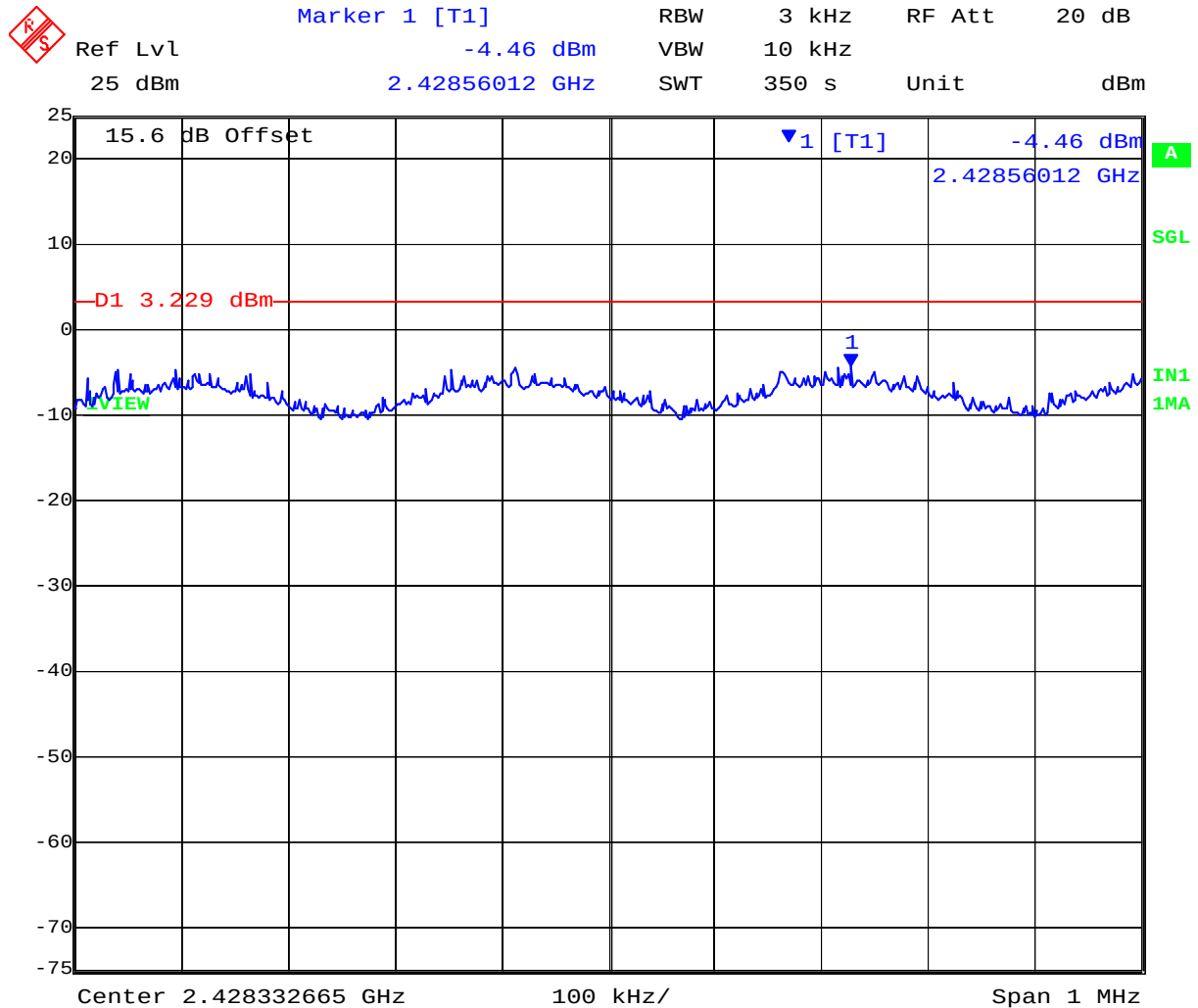
NOTE: above margin is calculated from the highest Power Density returned from Chain A or B or C

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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
Serial #: WAVI02-U1 Rev A
Issue Date: 30th March 2012
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PORT A 2,422 MHz 802.11n HT-40 - Peak Power Spectral Density



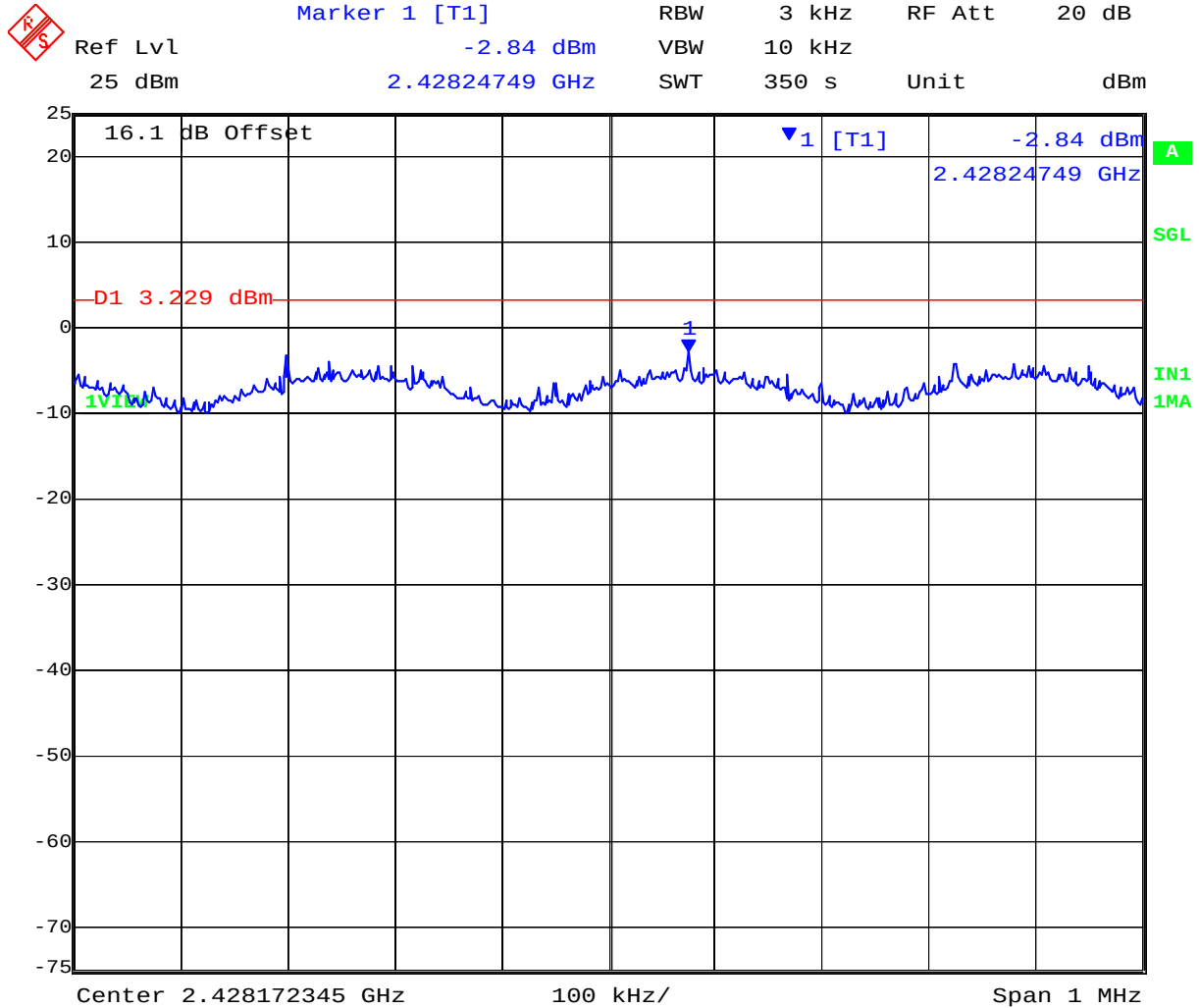
Date: 29.FEB.2012 16:58:36

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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
Serial #: WAVI02-U1 Rev A
Issue Date: 30th March 2012
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PORT B 2,422 MHz 802.11n HT-40 - Peak Power Spectral Density



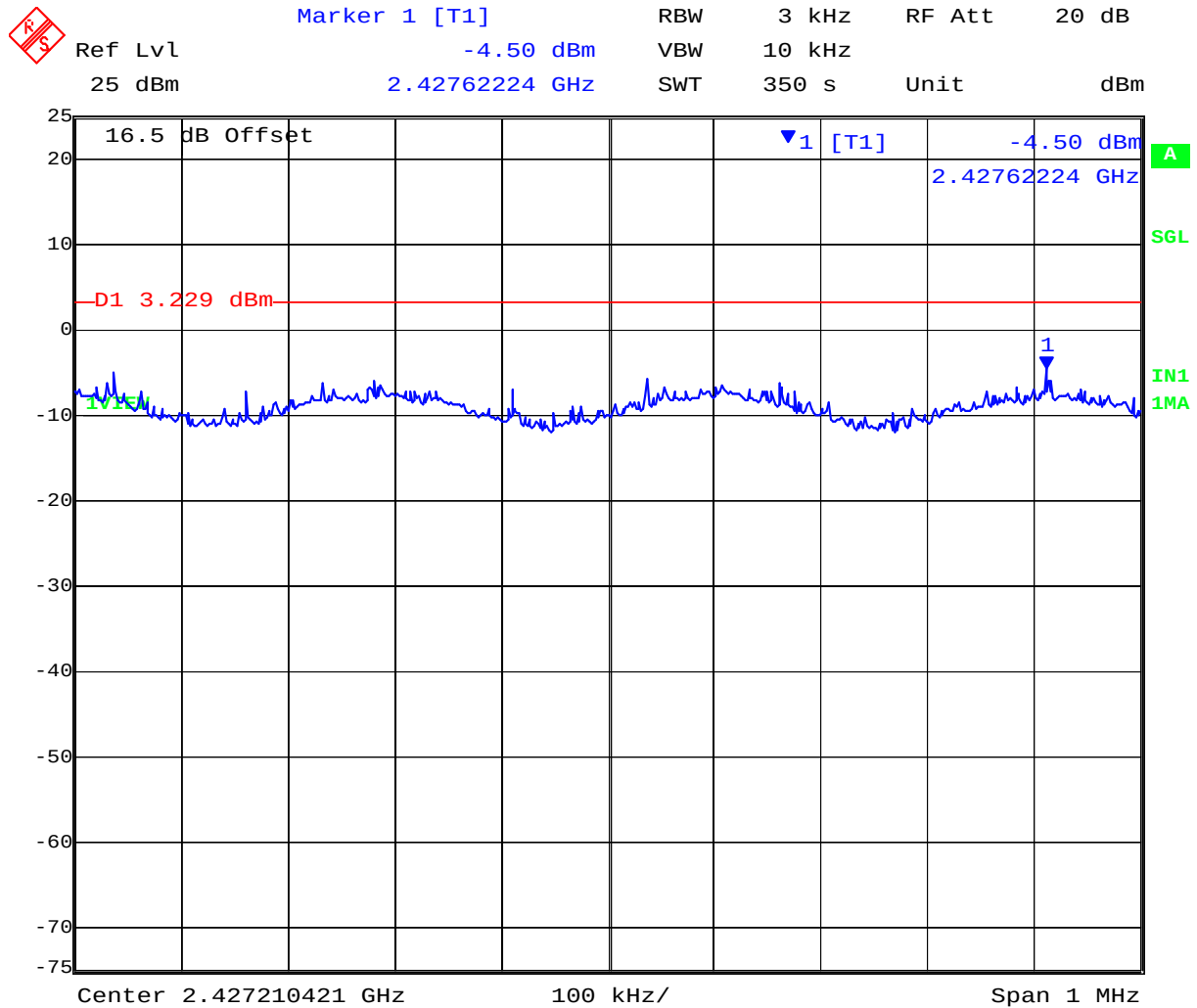
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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
Serial #: WAVI02-U1 Rev A
Issue Date: 30th March 2012
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PORT C 2,422 MHz 802.11n HT-40 - Peak Power Spectral Density



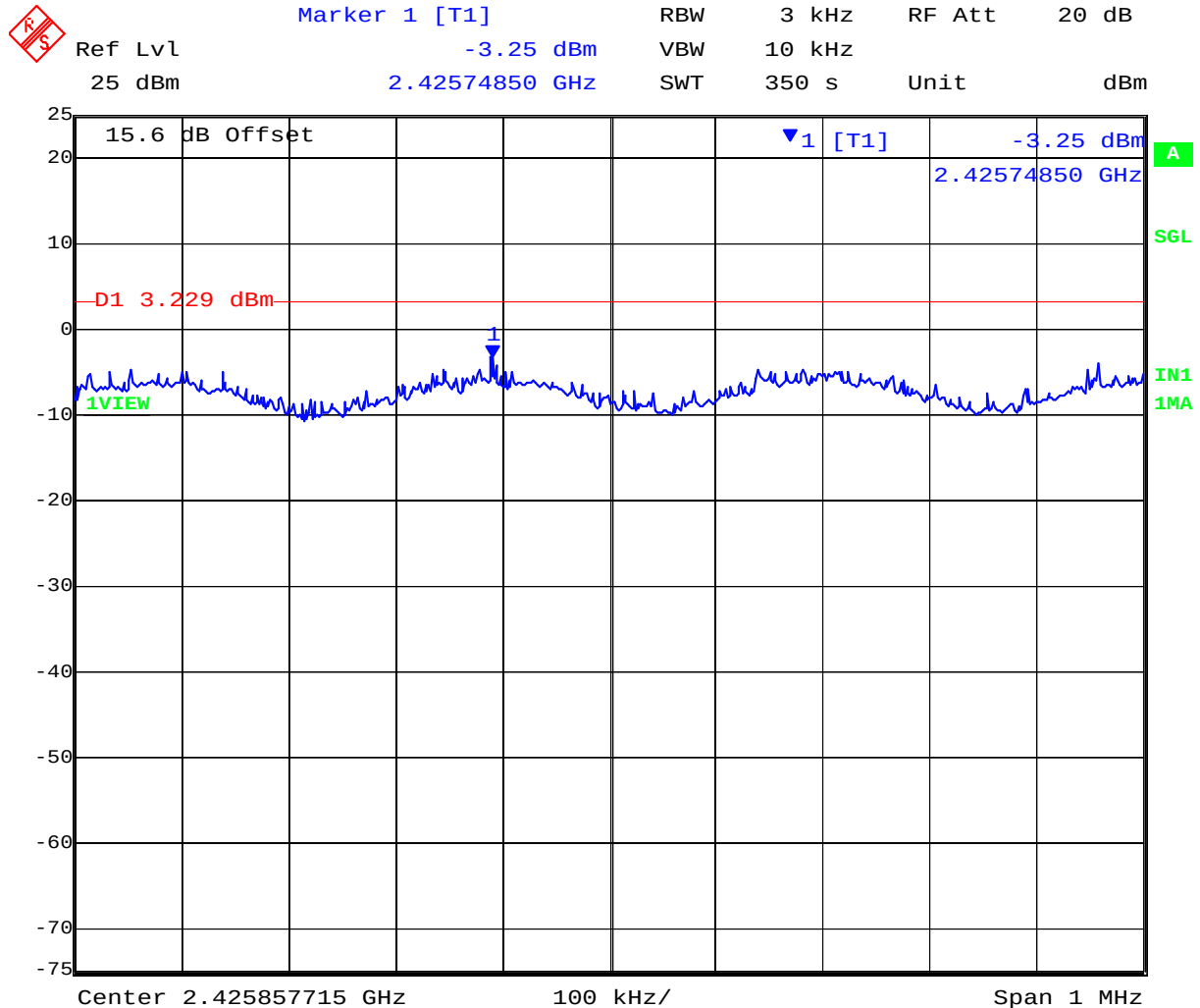
Date: 29.FEB.2012 17:11:36

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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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Serial #: WAVI02-U1 Rev A
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PORT A 2,437 MHz 802.11n HT-40 - Peak Power Spectral Density



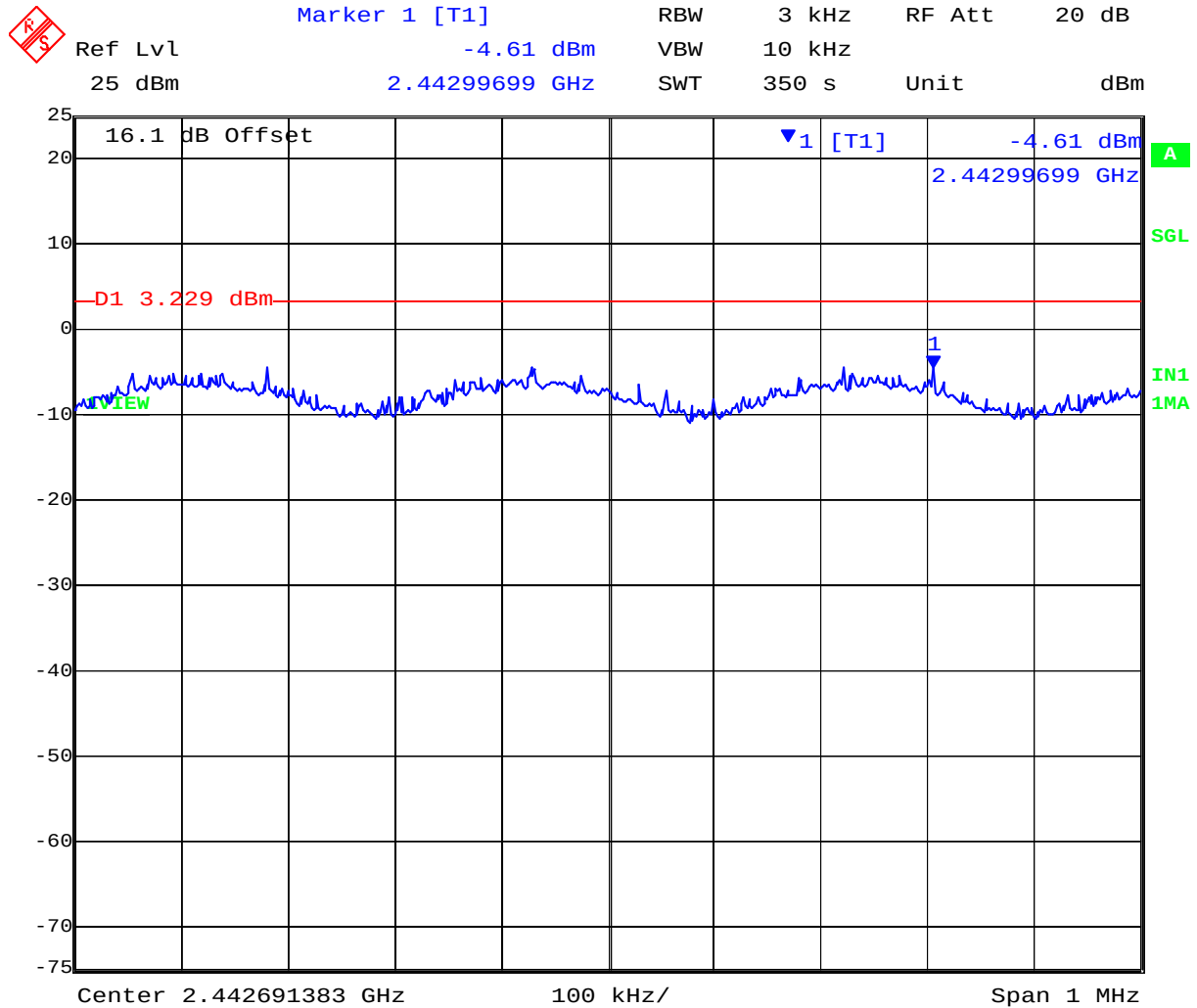
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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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Serial #: WAVI02-U1 Rev A
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PORT B 2,437 MHz 802.11n HT-40 - Peak Power Spectral Density



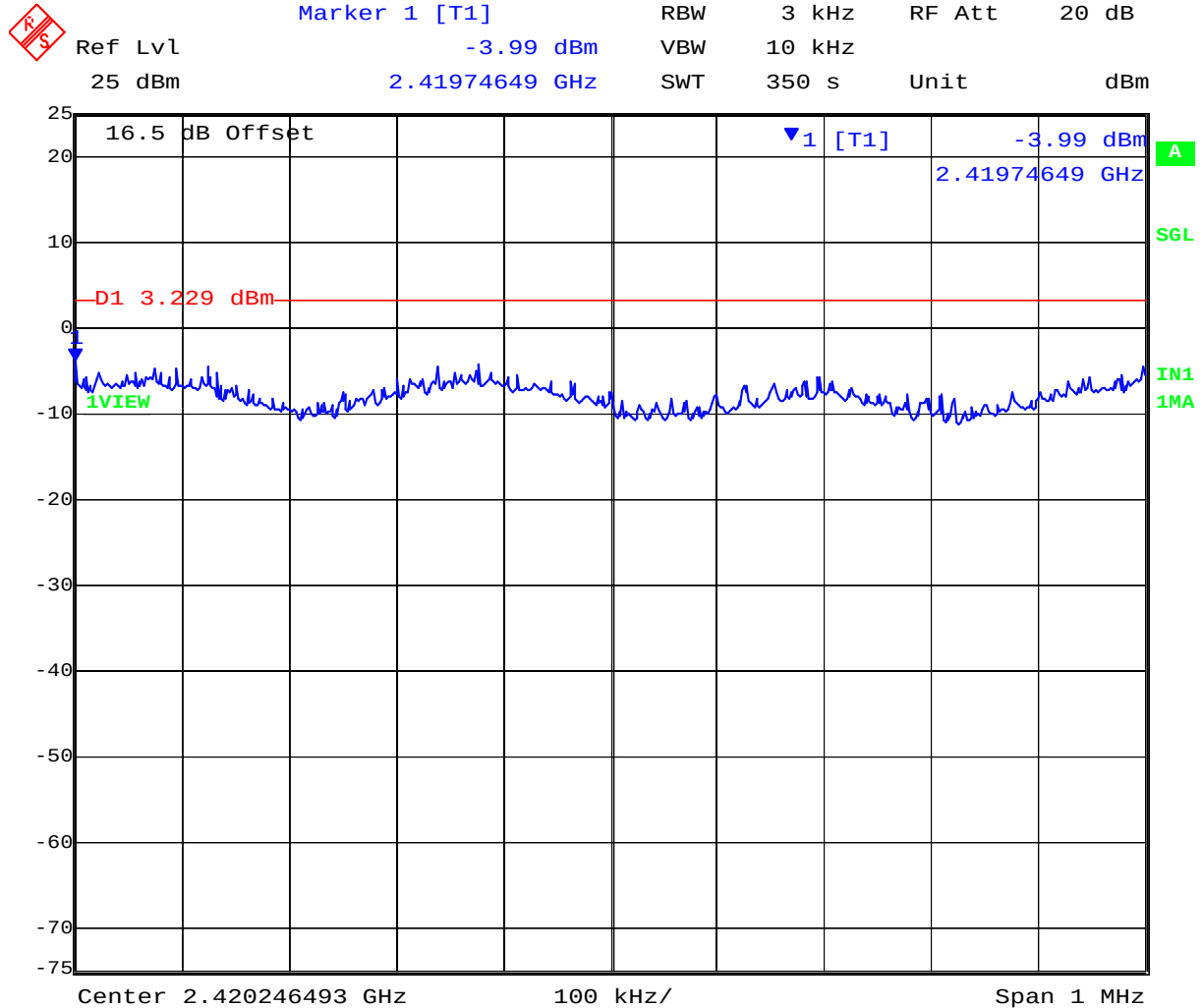
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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
Serial #: WAVI02-U1 Rev A
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PORT C 2,437 MHz 802.11n HT-40 - Peak Power Spectral Density



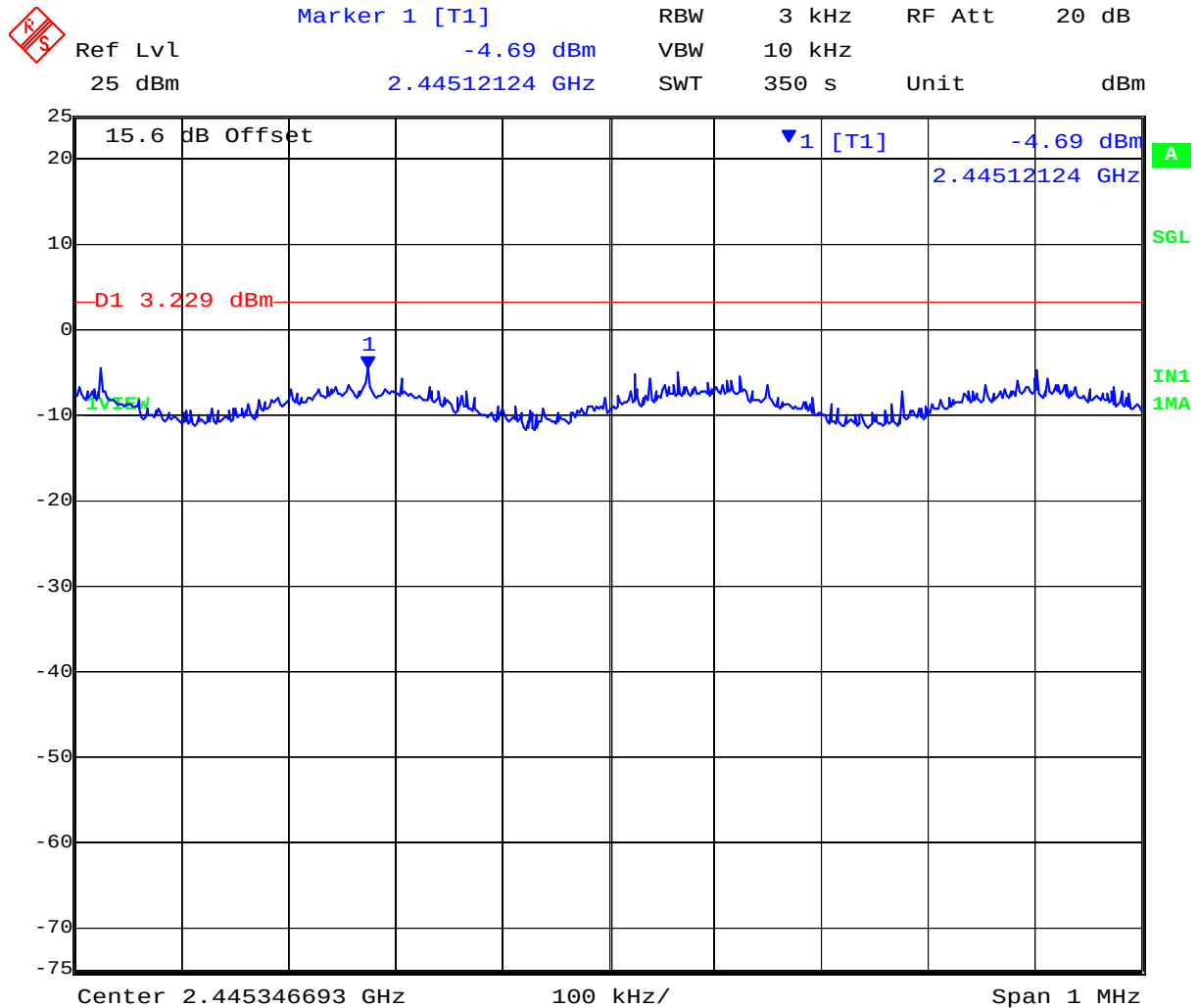
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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
Serial #: WAVI02-U1 Rev A
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PORT A 2,452 MHz 802.11n HT-40 - Peak Power Spectral Density



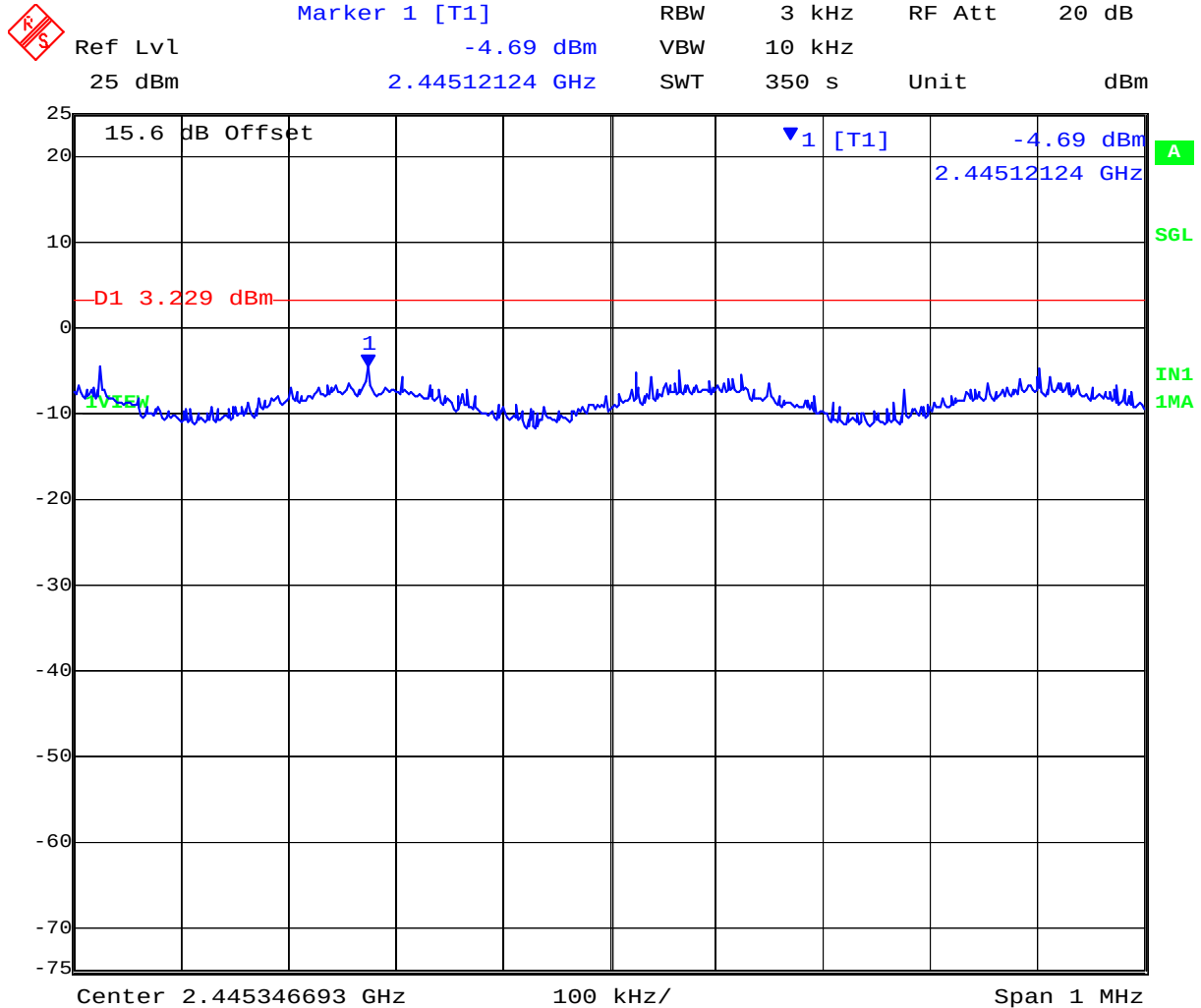
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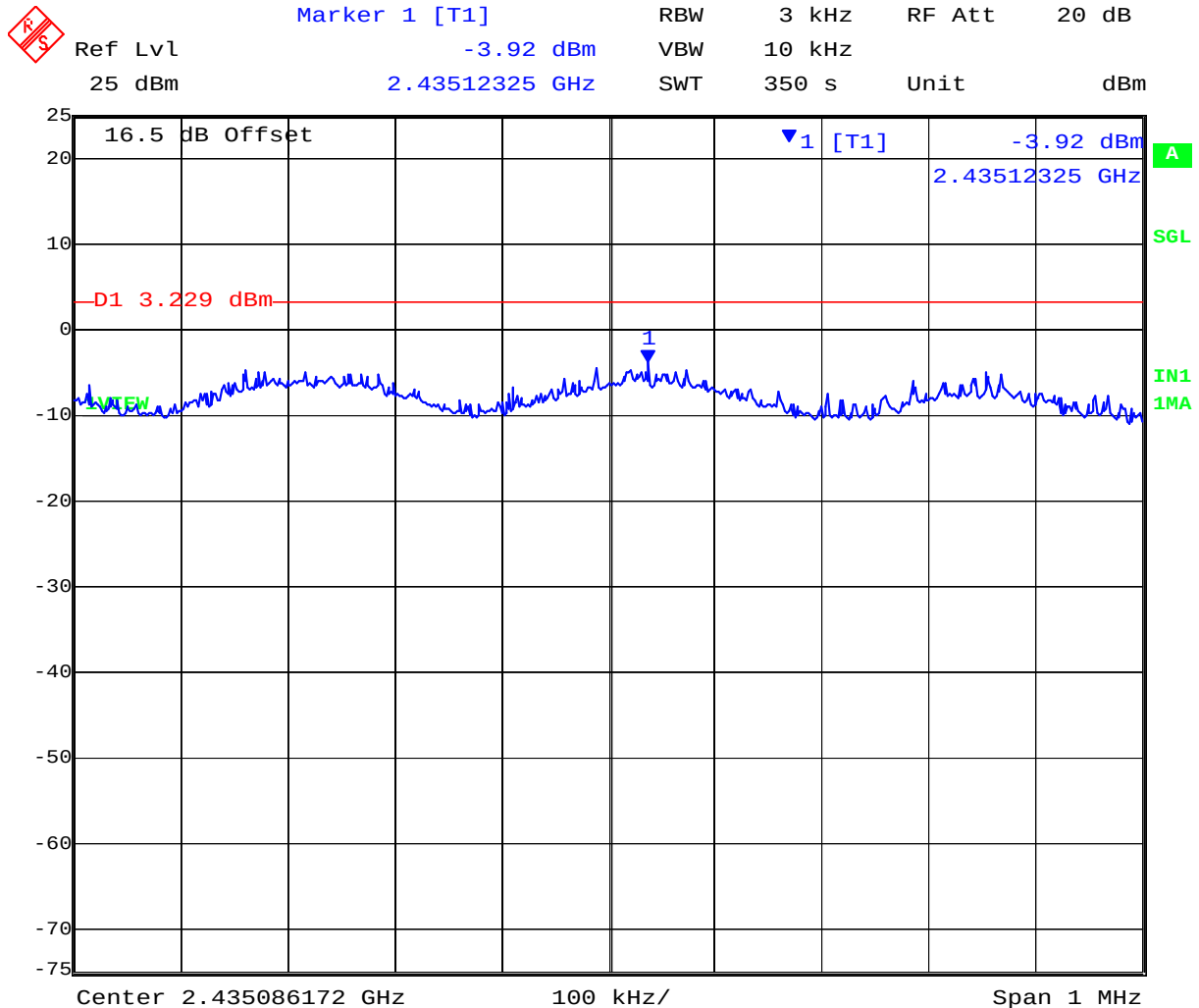
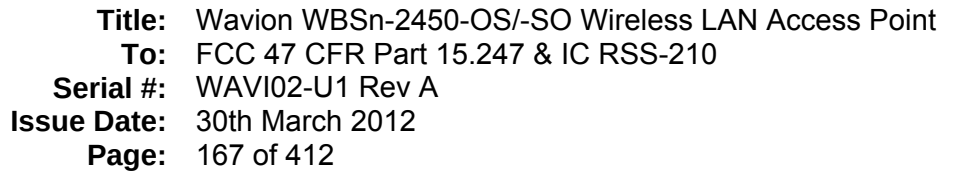
Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
Serial #: WAVI02-U1 Rev A
Issue Date: 30th March 2012
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PORT B 2,452 MHz 802.11n HT-40 - Peak Power Spectral Density



Date: 29.FEB.2012 18:01:45

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Date: 29.FEB.2012 18:14:48

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To: FCC 47 CFR Part 15.247 & IC RSS-210
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5.8 GHz

TABLE OF RESULTS – 802.11a Legacy 5 MHz, 6 MBit/s

Test Conditions:	15.247 (e)	Rel. Humidity (%):	35	to	42
Variant:	802.11a, 5 MHz	Ambient Temp. (°C):	19	to	22
TPC:	HIGH	Pressure (mBars):	998	to	1003
Modulation:	ON	Duty Cycle (%):	100		
Beam Forming Gain (Y):	N/A dB	Antenna Gain:	N/A		dBi
Applied Voltage:	48.00 Vdc	Antenna Ports (N):	3		
Notes 1:					
Notes 2:					

Test Frequency	Measured Power Density				Correction factor	Maximum Peak Power Spectral Density	Limit	Margin
	RF Port (dBm)							
MHz	a	b	c	d	10Log(N)	dBm	dBm	dB
5730.500	2.36	3.20	1.85	--	4.77	3.20	3.23	-0.03
5790.500	-0.01	0.03	1.91	--	4.77	1.91	3.23	-1.32
5845.500	0.86	-2.03	0.13	--	4.77	0.86	3.23	-2.37

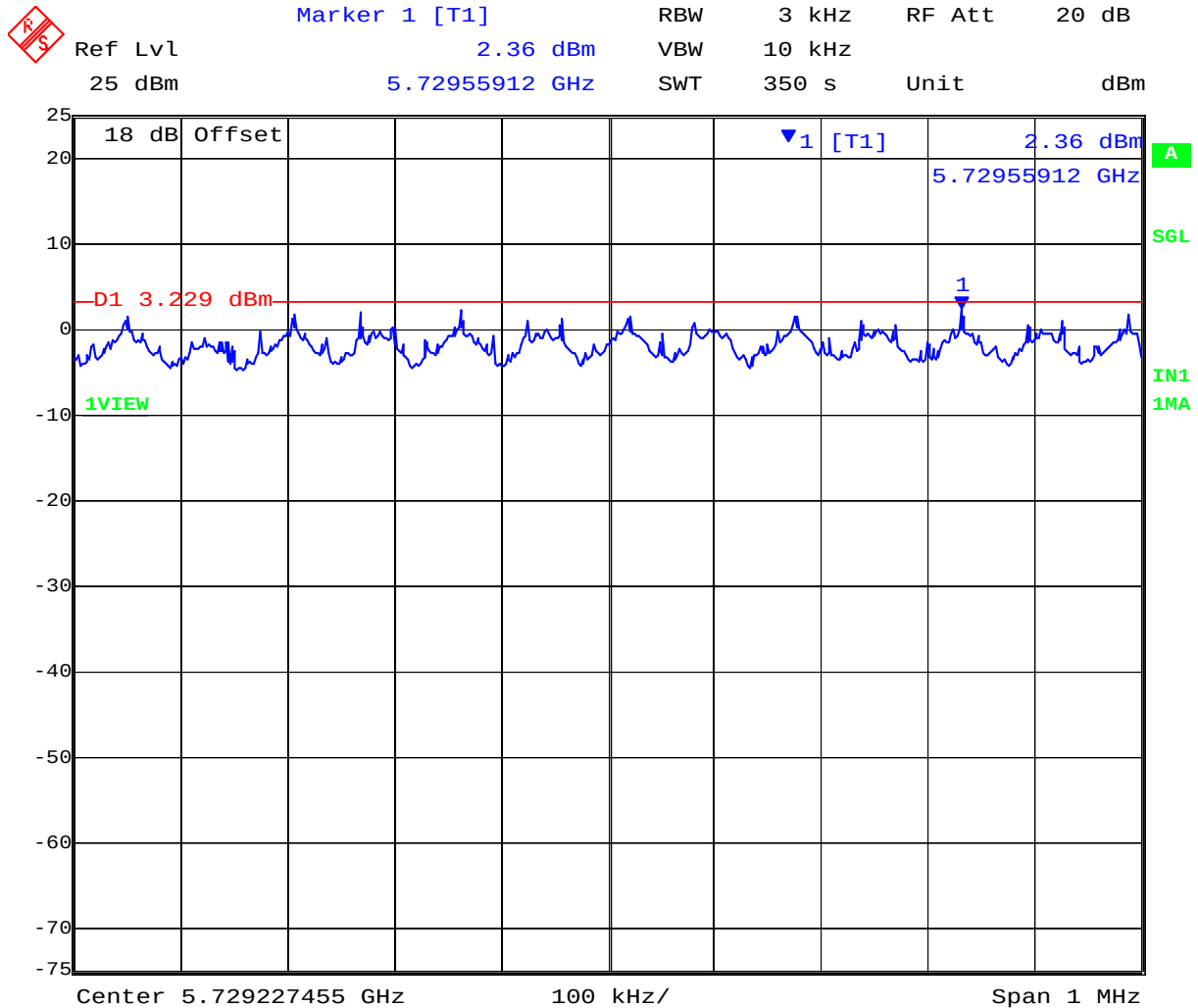
Measurement uncertainty:	± 1.33 dB
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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
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5 MHz PORT A 5,730.5 MHz 802.11a 6 MBits - Peak Power Spectral Density



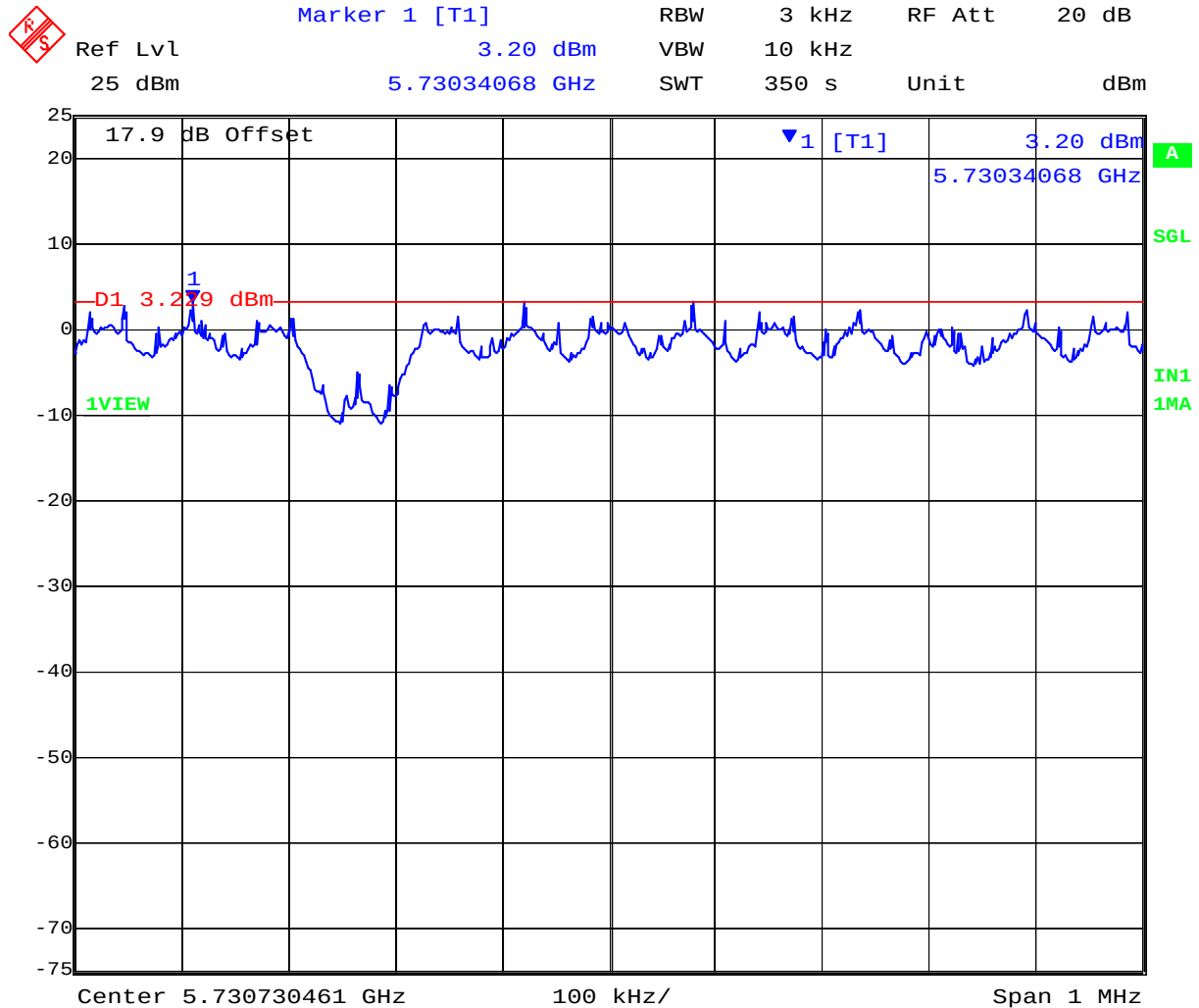
Date: 16.MAR.2012 11:05:17

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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
Serial #: WAVI02-U1 Rev A
Issue Date: 30th March 2012
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5 MHz PORT B 5,730.5 MHz 802.11a 6 MBits - Peak Power Spectral Density



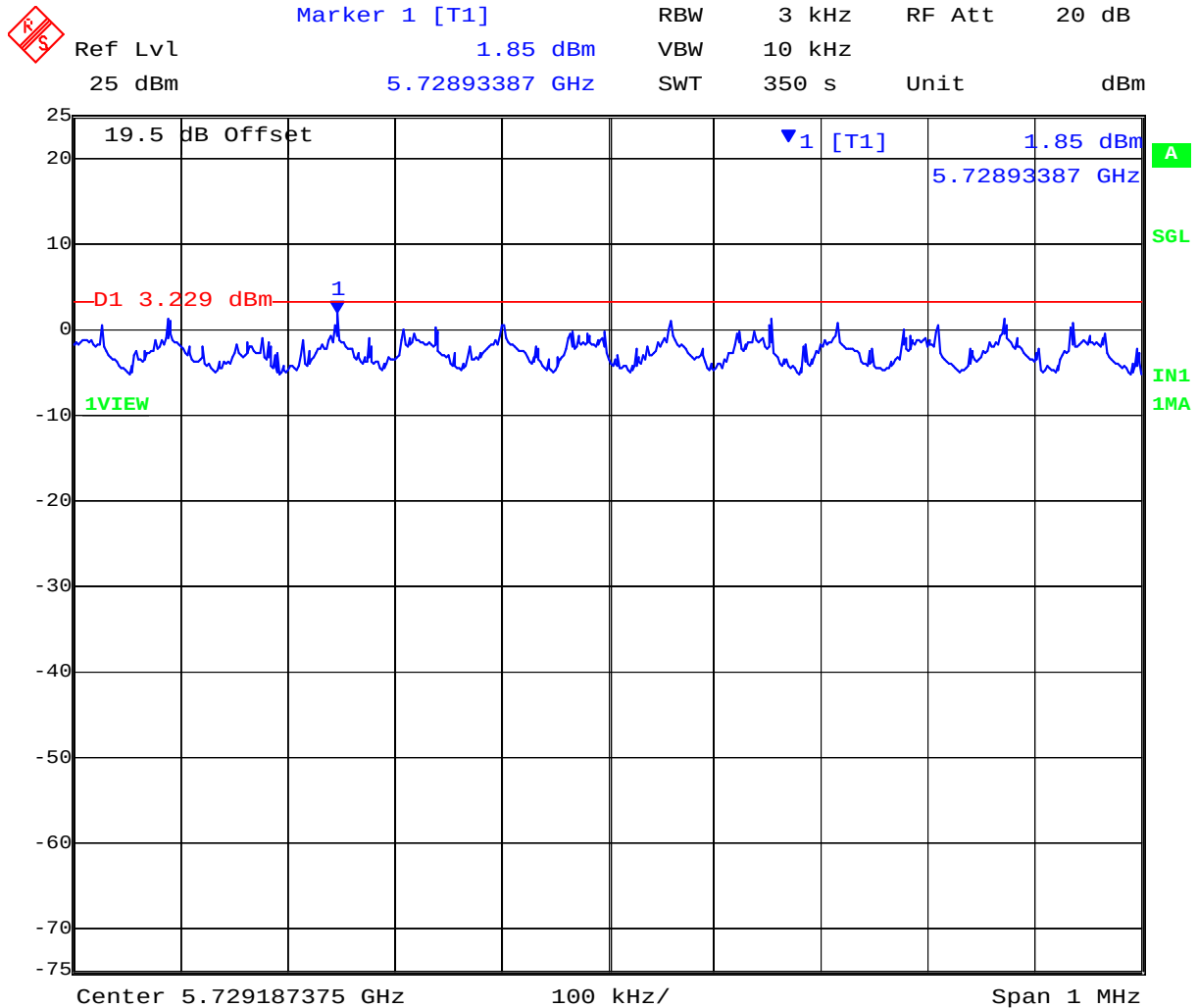
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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
Serial #: WAVI02-U1 Rev A
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5 MHz PORT C 5,730.5 MHz 802.11a 6 MBits - Peak Power Spectral Density



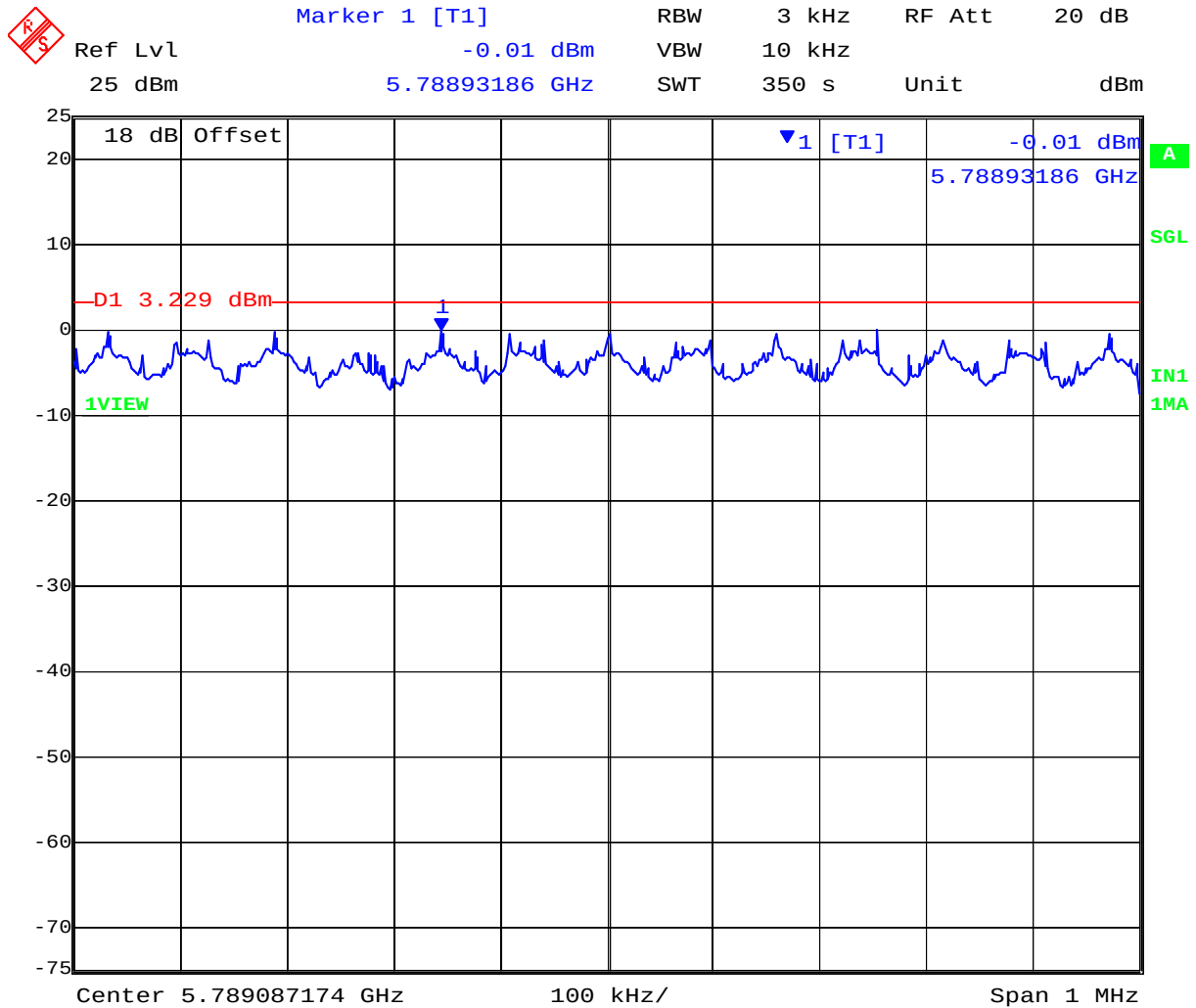
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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
Serial #: WAVI02-U1 Rev A
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5 MHz PORT A 5,790.5 MHz 802.11a 6 MBits - Peak Power Spectral Density



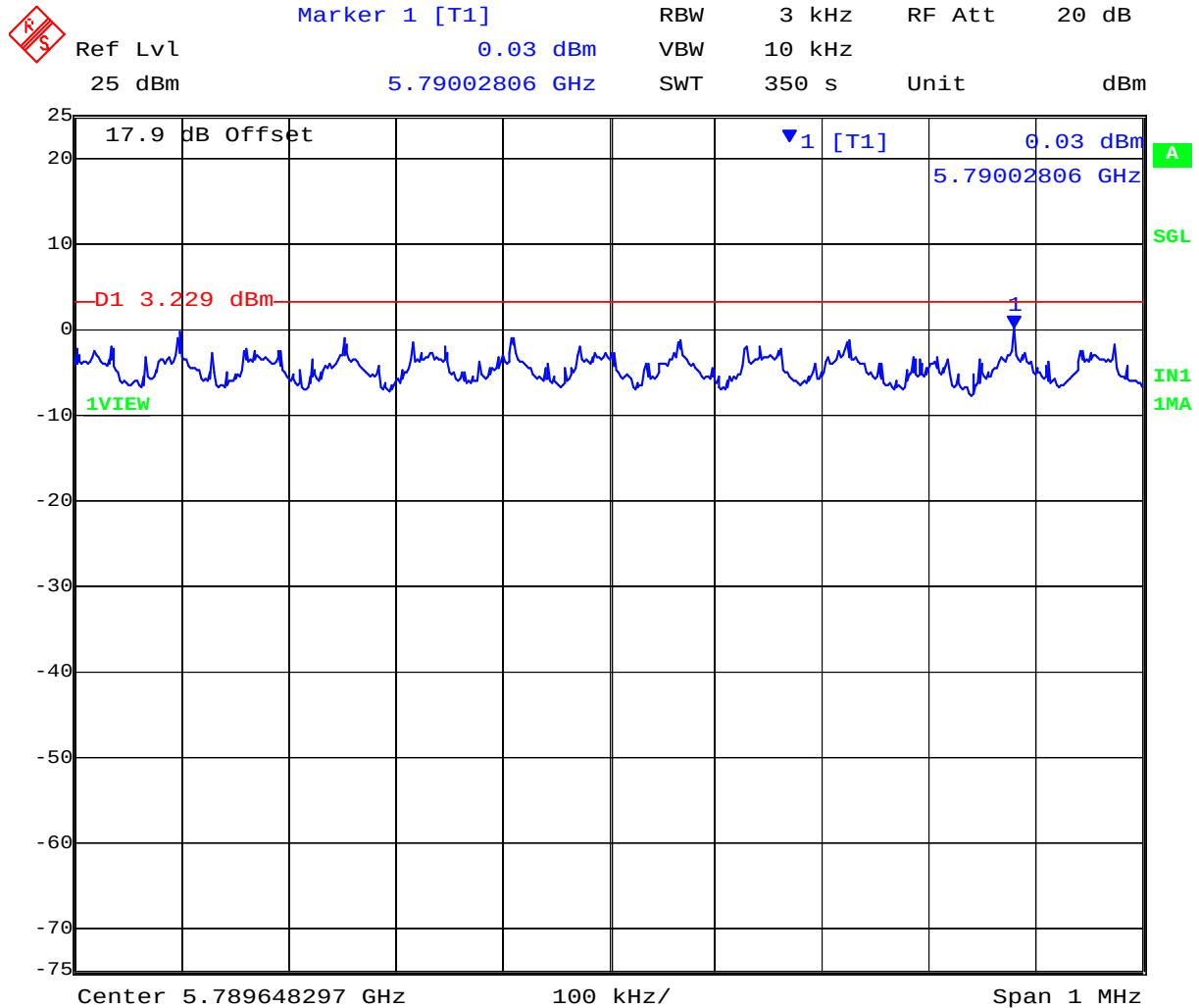
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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
Serial #: WAVI02-U1 Rev A
Issue Date: 30th March 2012
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5 MHz PORT B 5,790.5 MHz 802.11a 6 MBits - Peak Power Spectral Density



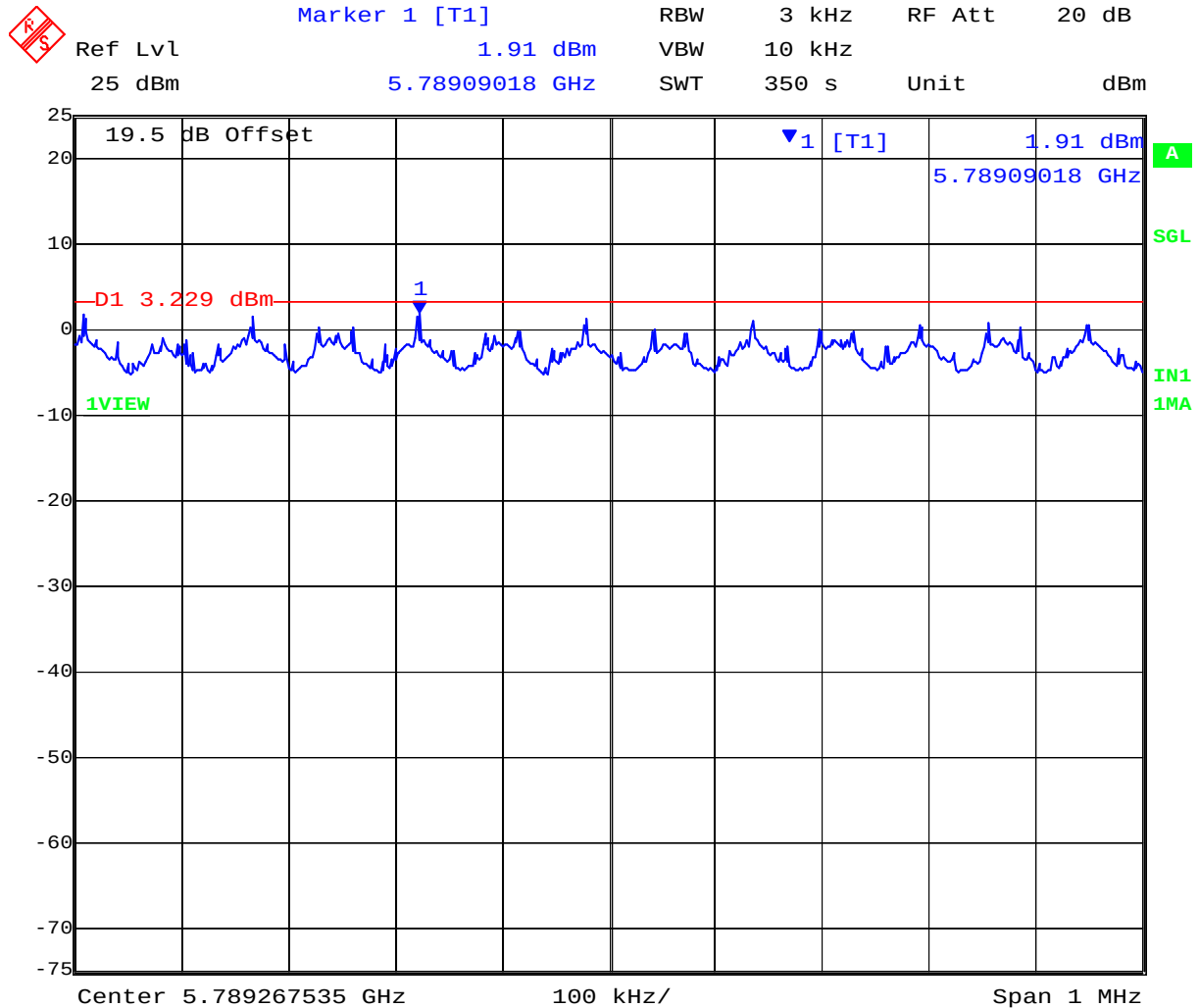
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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
Serial #: WAVI02-U1 Rev A
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5 MHz PORT C 5,790.5 MHz 802.11a 6 MBits - Peak Power Spectral Density



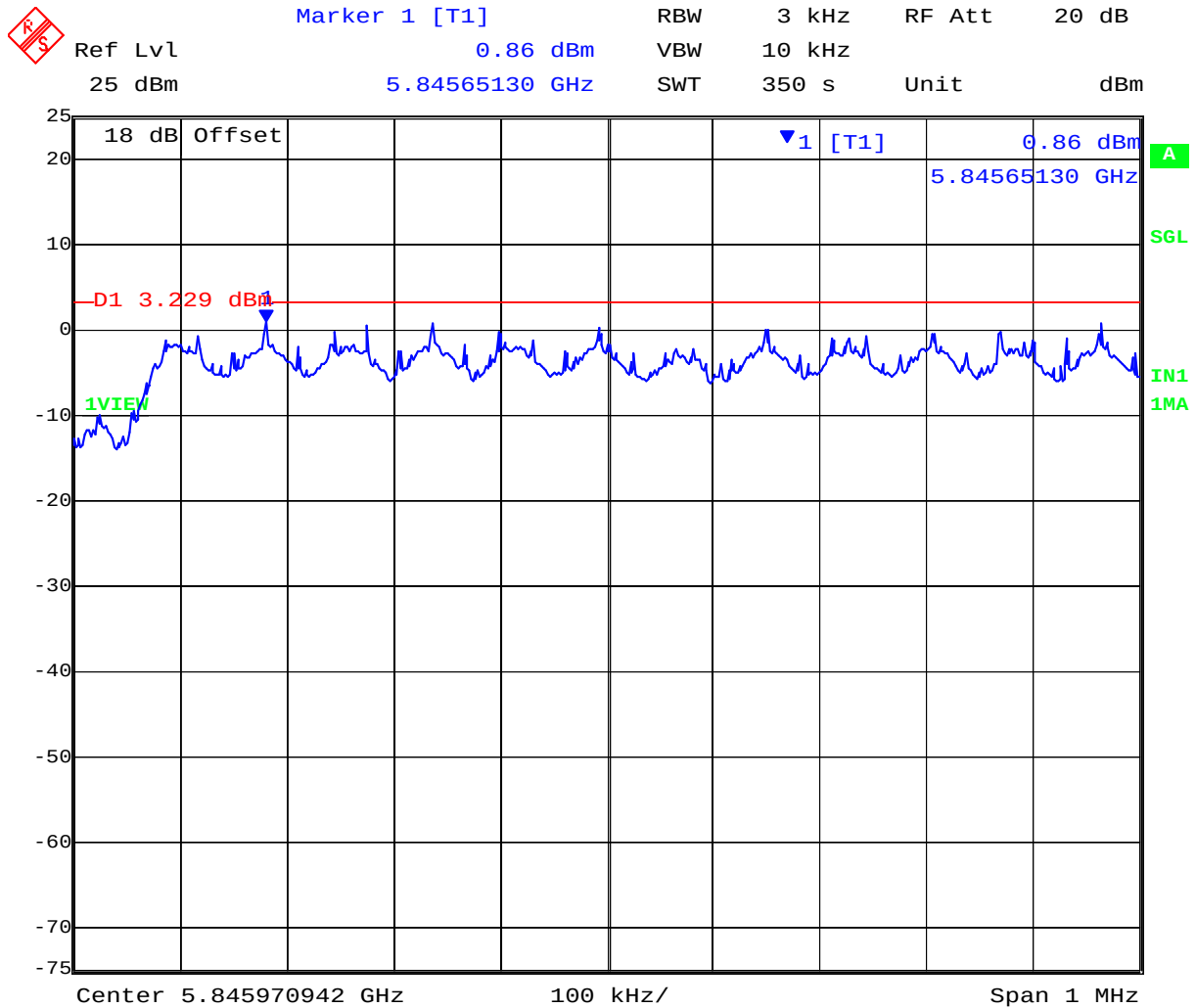
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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
Serial #: WAVI02-U1 Rev A
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5 MHz PORT A 5,845.5 MHz 802.11a 6 MBits - Peak Power Spectral Density



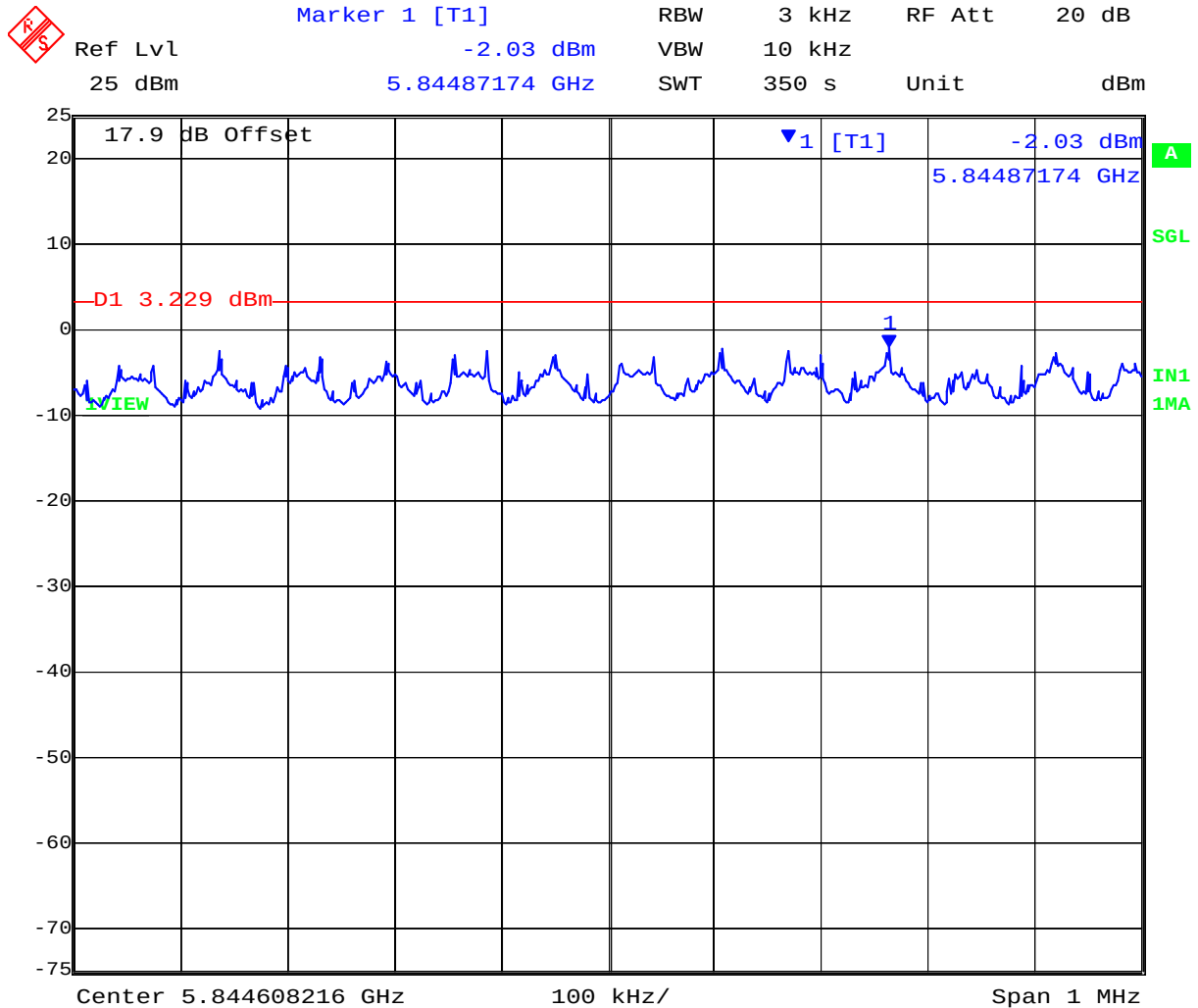
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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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5 MHz PORT B 5,845.5 MHz 802.11a 6 MBits - Peak Power Spectral Density



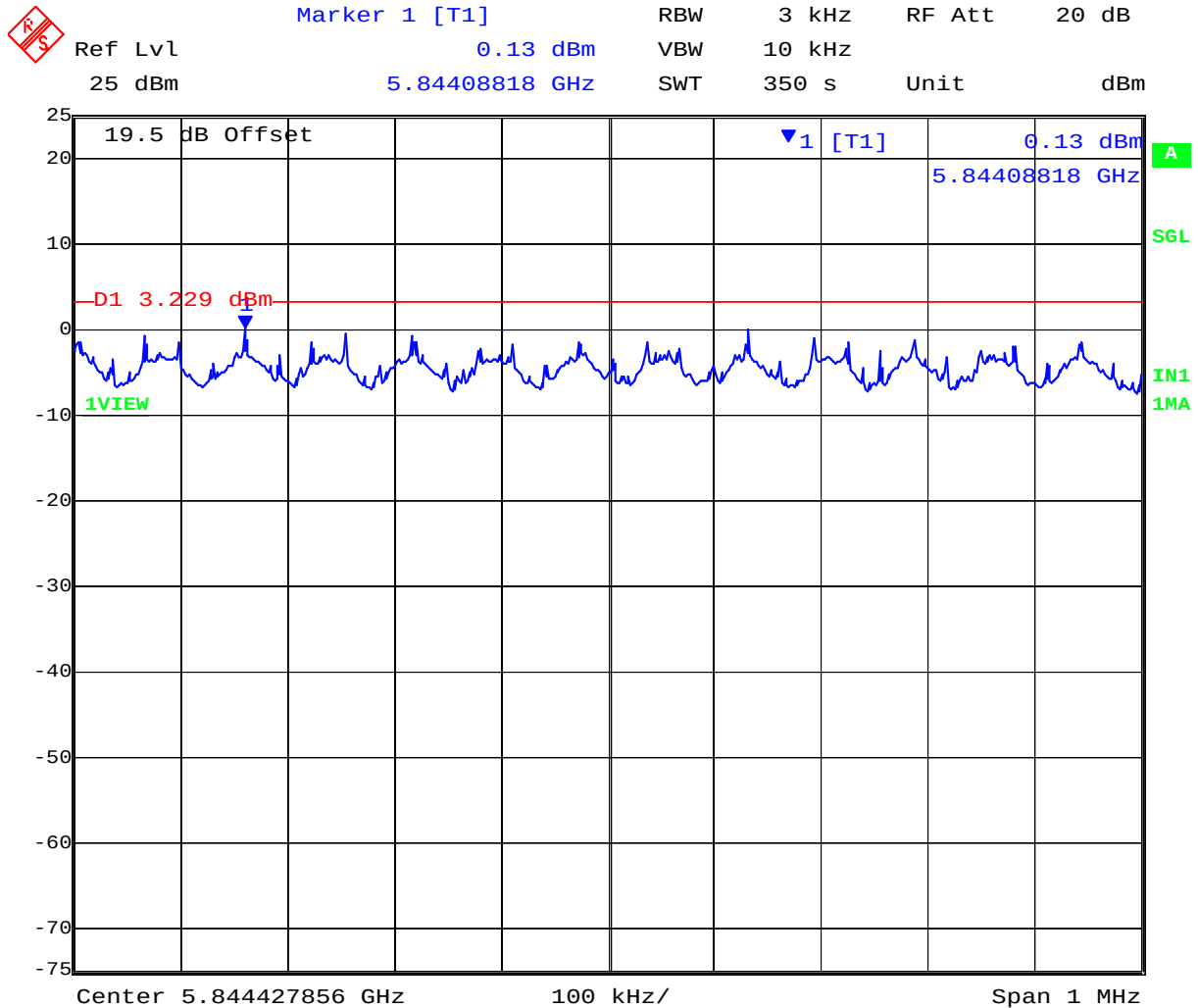
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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
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5 MHz PORT C 5,845.5 MHz 802.11a 6 MBits - Peak Power Spectral Density



Date: 16.MAR.2012 12:30:41

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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
Serial #: WAVI02-U1 Rev A
Issue Date: 30th March 2012
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TABLE OF RESULTS – 802.11a Legacy 10 MHz, 6 MBit/s

Test Conditions:	15.247 (e)	Rel. Humidity (%):	35	to	42
Variant:	802.11a, 10 MHz	Ambient Temp. (°C):	19	to	22
TPC:	HIGH	Pressure (mBars):	998	to	1003
Modulation:	ON	Duty Cycle (%):	100		
Beam Forming Gain (Y):	N/A	dB	Antenna Gain:	N/A	dBi
Applied Voltage:	48.00	Vdc	Antenna Ports (N):	3	
Notes 1:					
Notes 2:					

Test Frequency	Measured Power Density				Correction factor	Maximum Peak Power Spectral Density	Limit	Margin
	RF Port (dBm)							
MHz	a	b	c	d	10Log(N)	dBm	dBm	dB
5735.000	1.52	1.61	1.42	--	4.77	1.61	3.23	-1.62
5790.000	1.53	1.00	2.87	--	4.77	2.87	3.23	-0.36
5840.000	2.04	0.75	1.78	--	4.77	2.04	3.23	-1.19

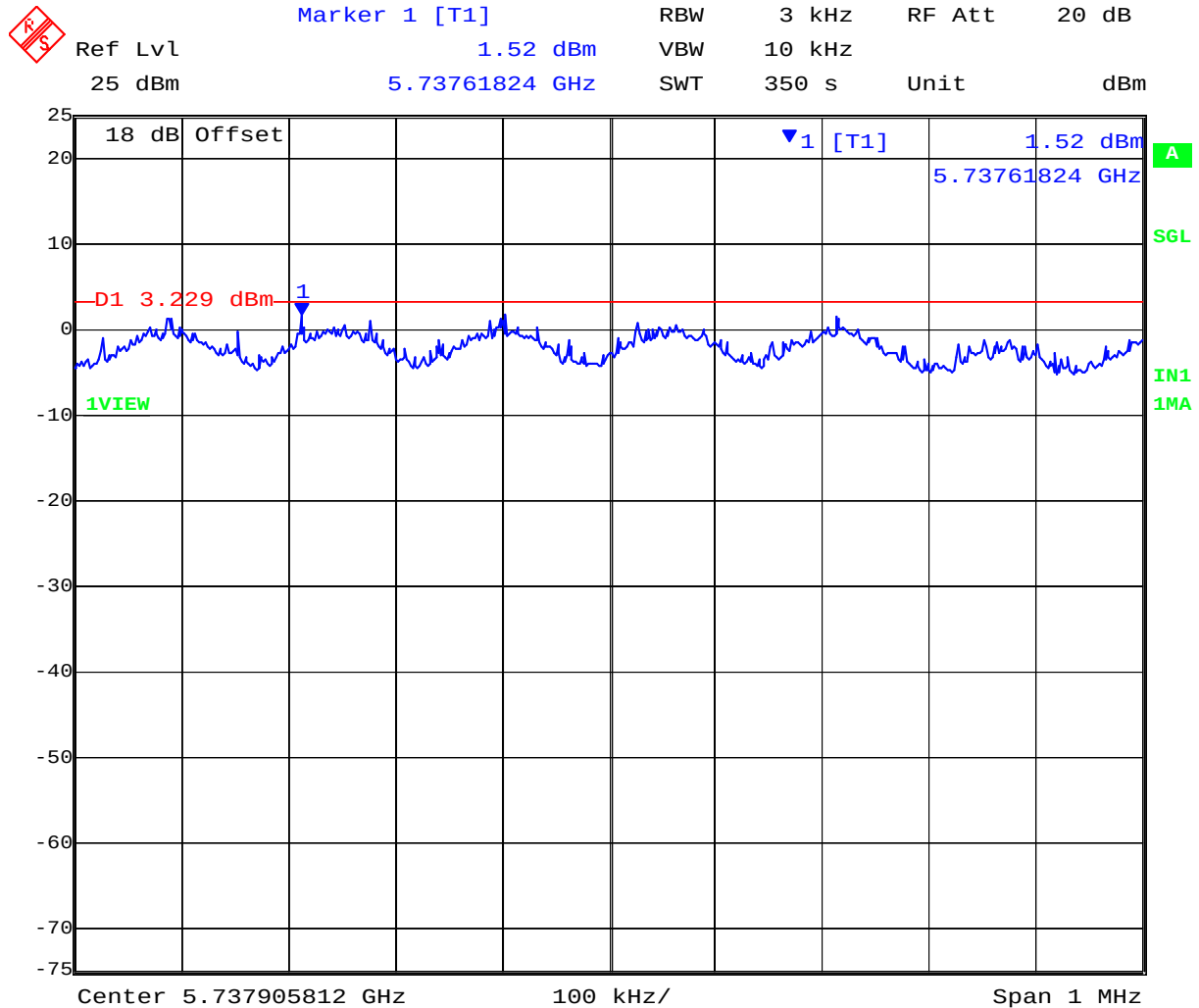
Measurement uncertainty:	± 1.33 dB
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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
Serial #: WAVI02-U1 Rev A
Issue Date: 30th March 2012
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10 MHz PORT A 5,735 MHz 802.11a 6 Mbits - Peak Power Spectral Density



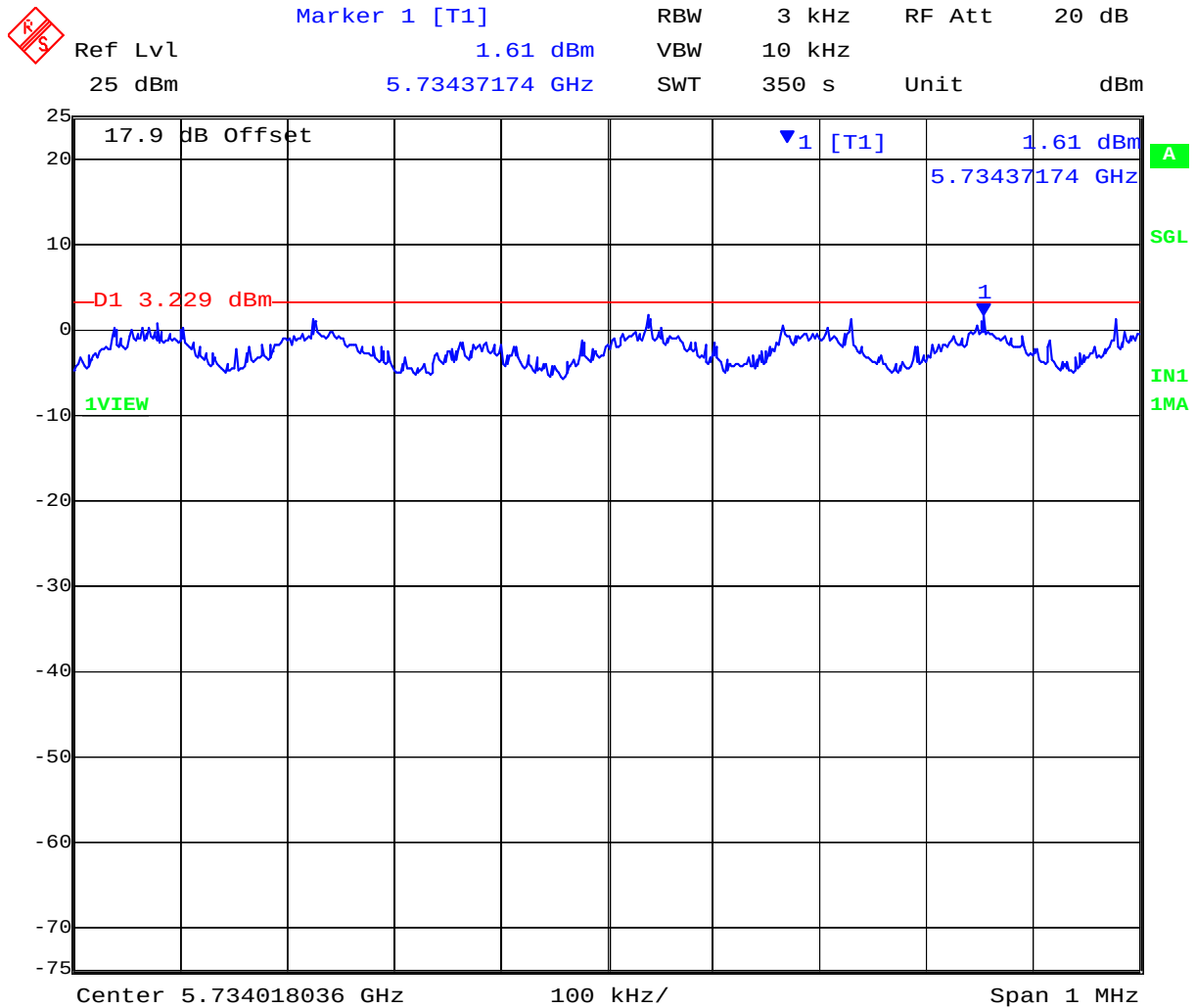
Date: 16.MAR.2012 14:36:17

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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
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Issue Date: 30th March 2012
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10 MHz PORT B 5,735 MHz 802.11a 6 MBits - Peak Power Spectral Density



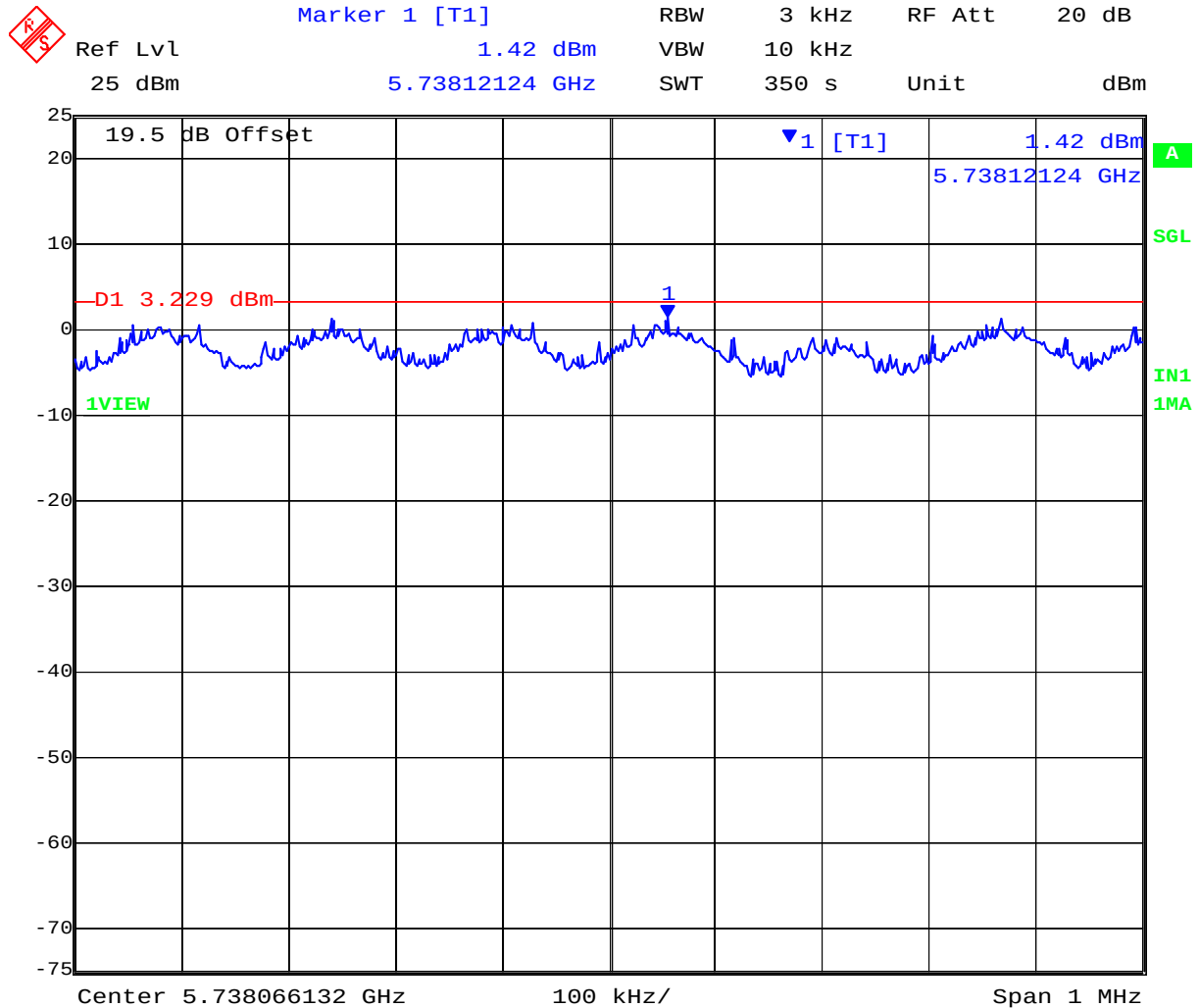
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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
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10 MHz PORT C 5,735 MHz 802.11a 6 Mbits - Peak Power Spectral Density



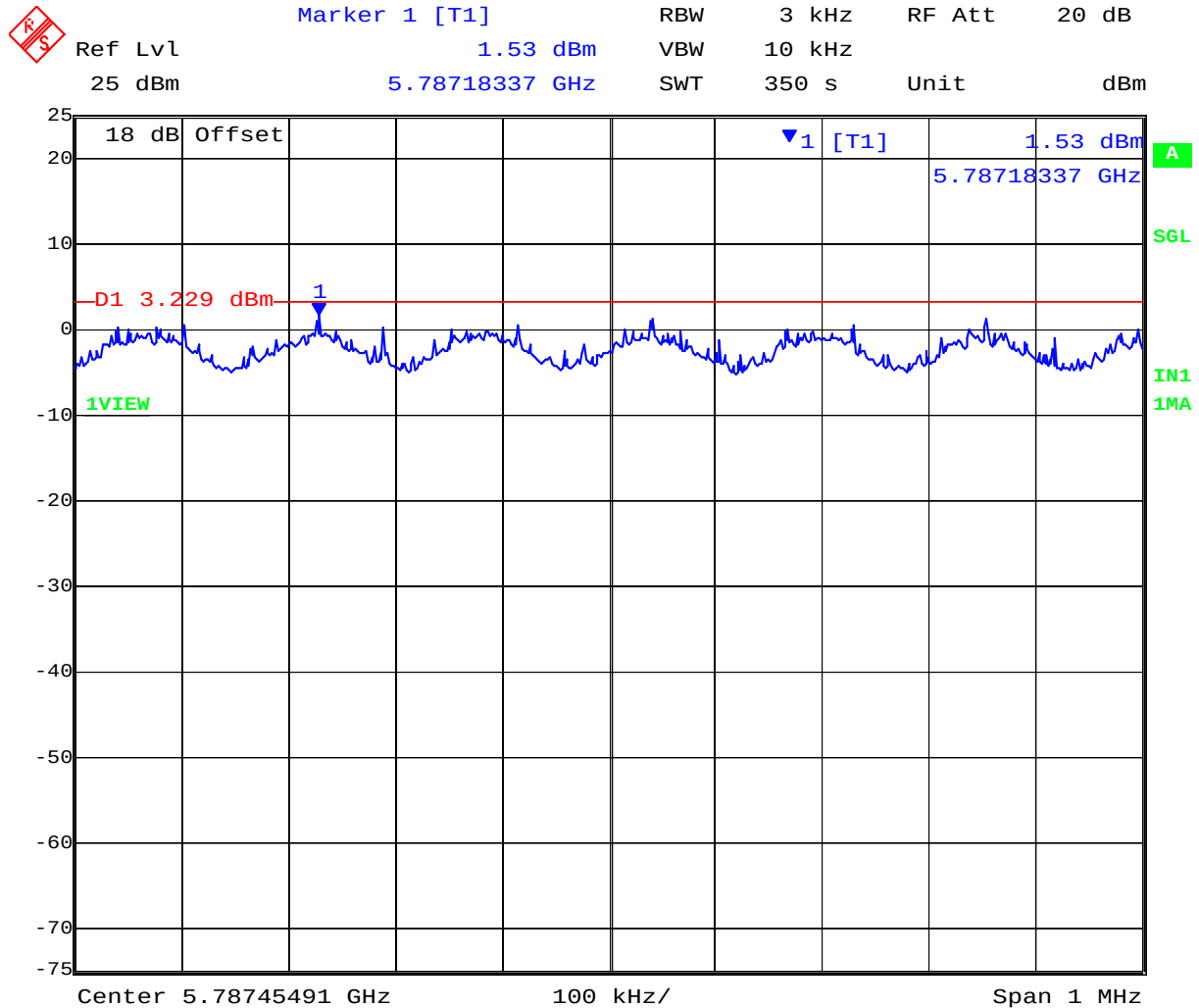
Date: 16.MAR.2012 14:49:18

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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
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10 MHz PORT A 5,790 MHz 802.11a 6 MBits - Peak Power Spectral Density



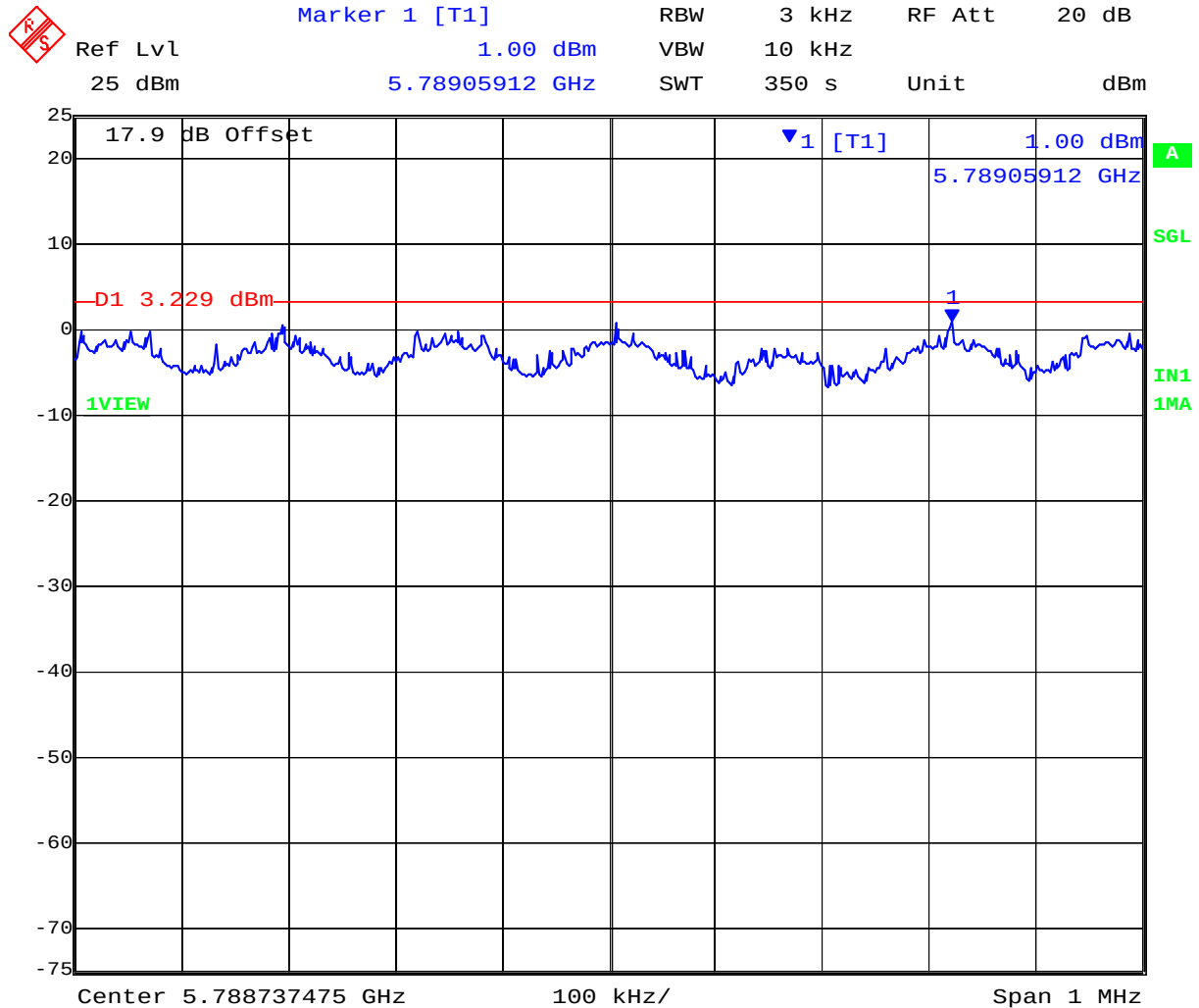
Date: 16.MAR.2012 15:05:48

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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
Serial #: WAVI02-U1 Rev A
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10 MHz PORT B 5,790 MHz 802.11a 6 Mbits - Peak Power Spectral Density



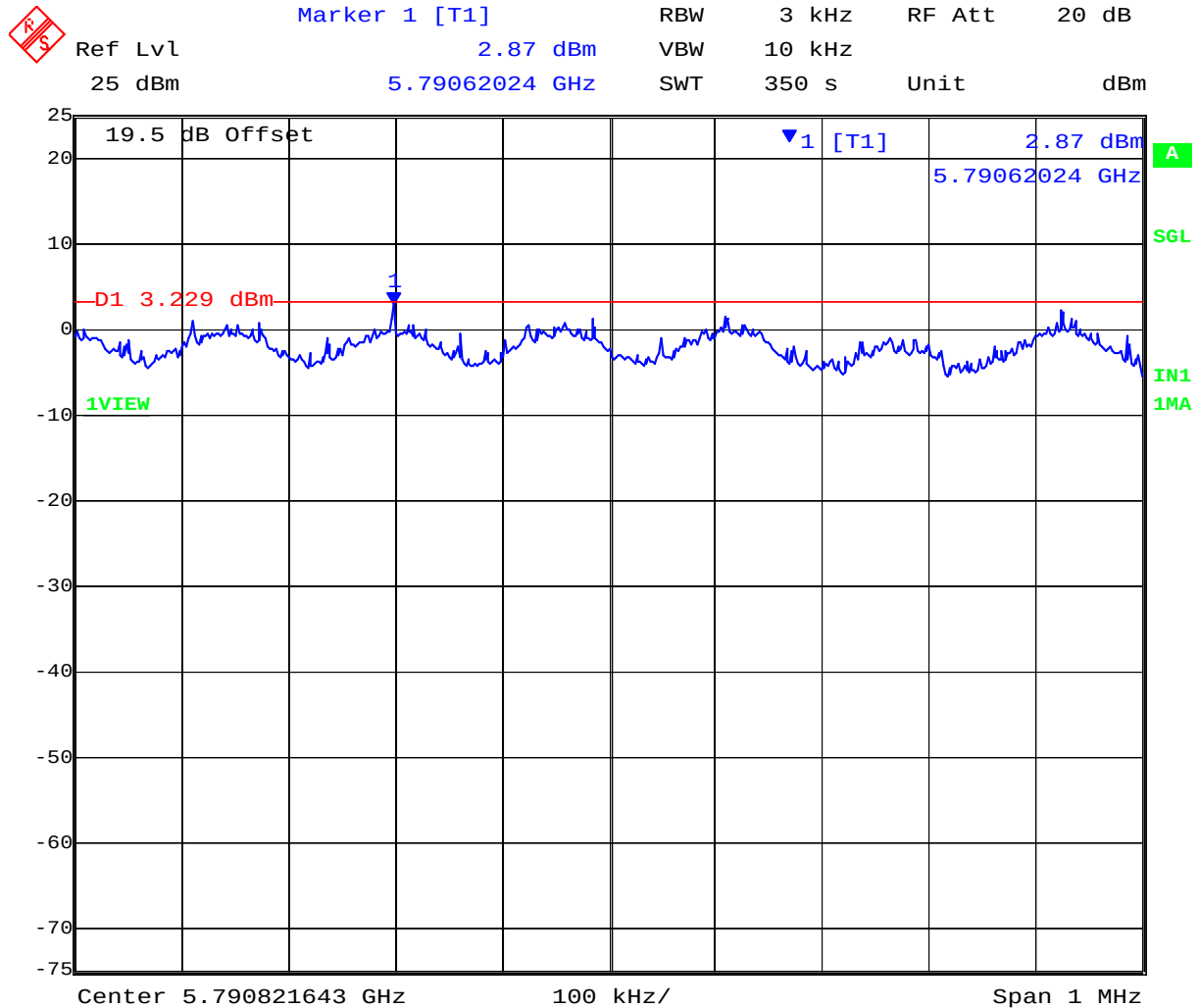
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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
Serial #: WAVI02-U1 Rev A
Issue Date: 30th March 2012
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10 MHz PORT C 5,790 MHz 802.11a 6 Mbits - Peak Power Spectral Density



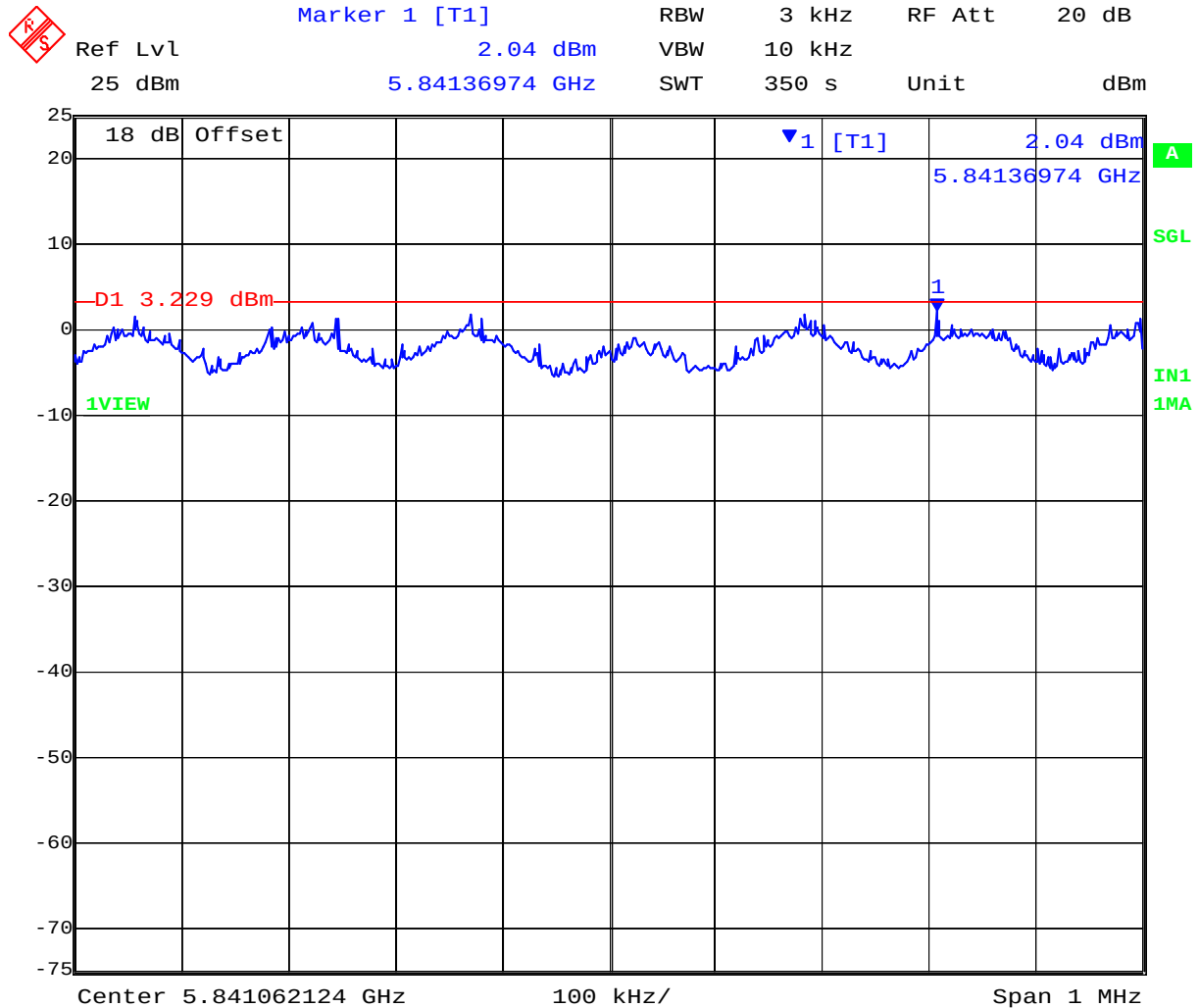
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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
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10 MHz PORT A 5,840 MHz 802.11a 6 Mbits - Peak Power Spectral Density



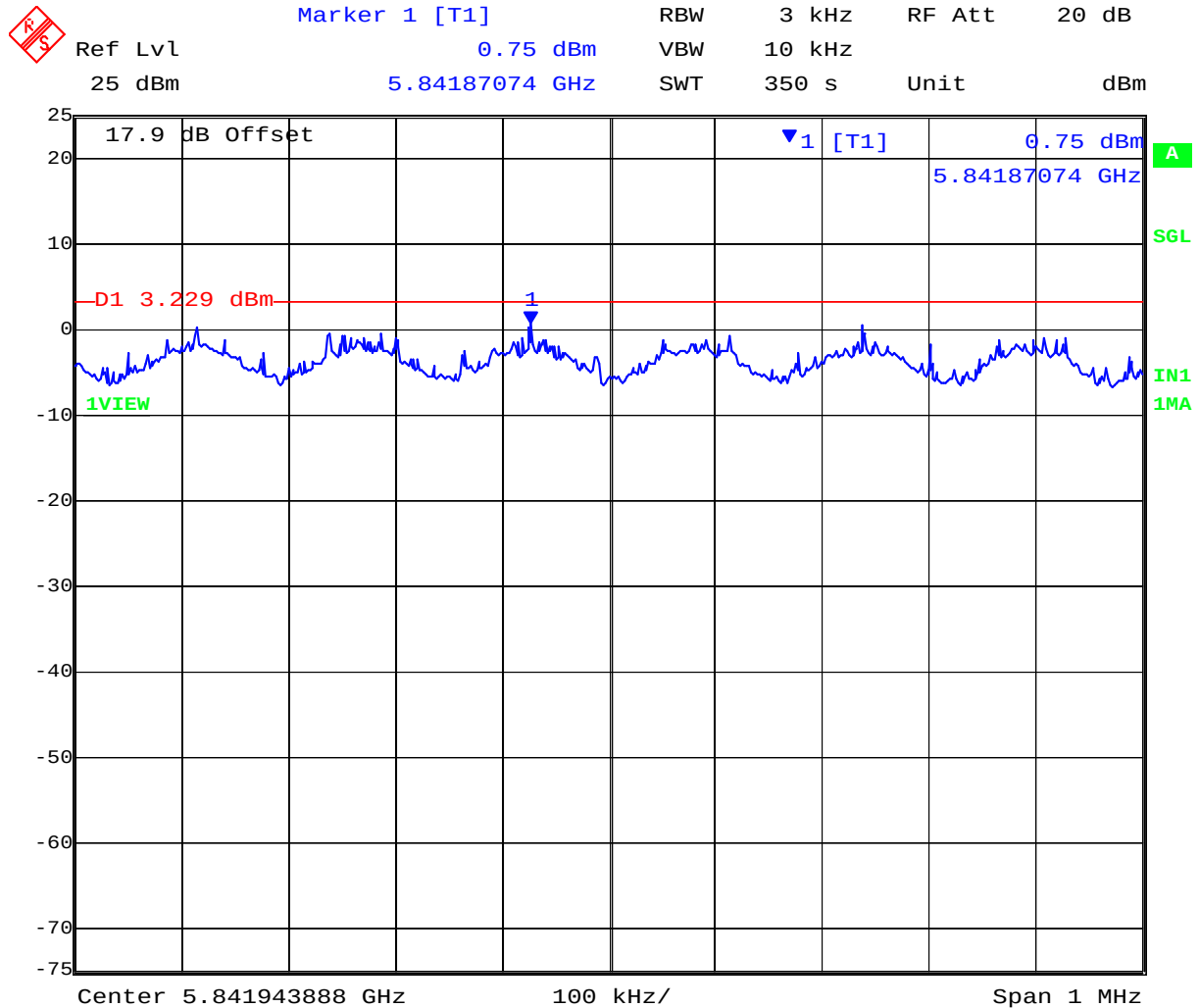
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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
Serial #: WAVI02-U1 Rev A
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10 MHz PORT B 5,840 MHz 802.11a 6 Mbits - Peak Power Spectral Density



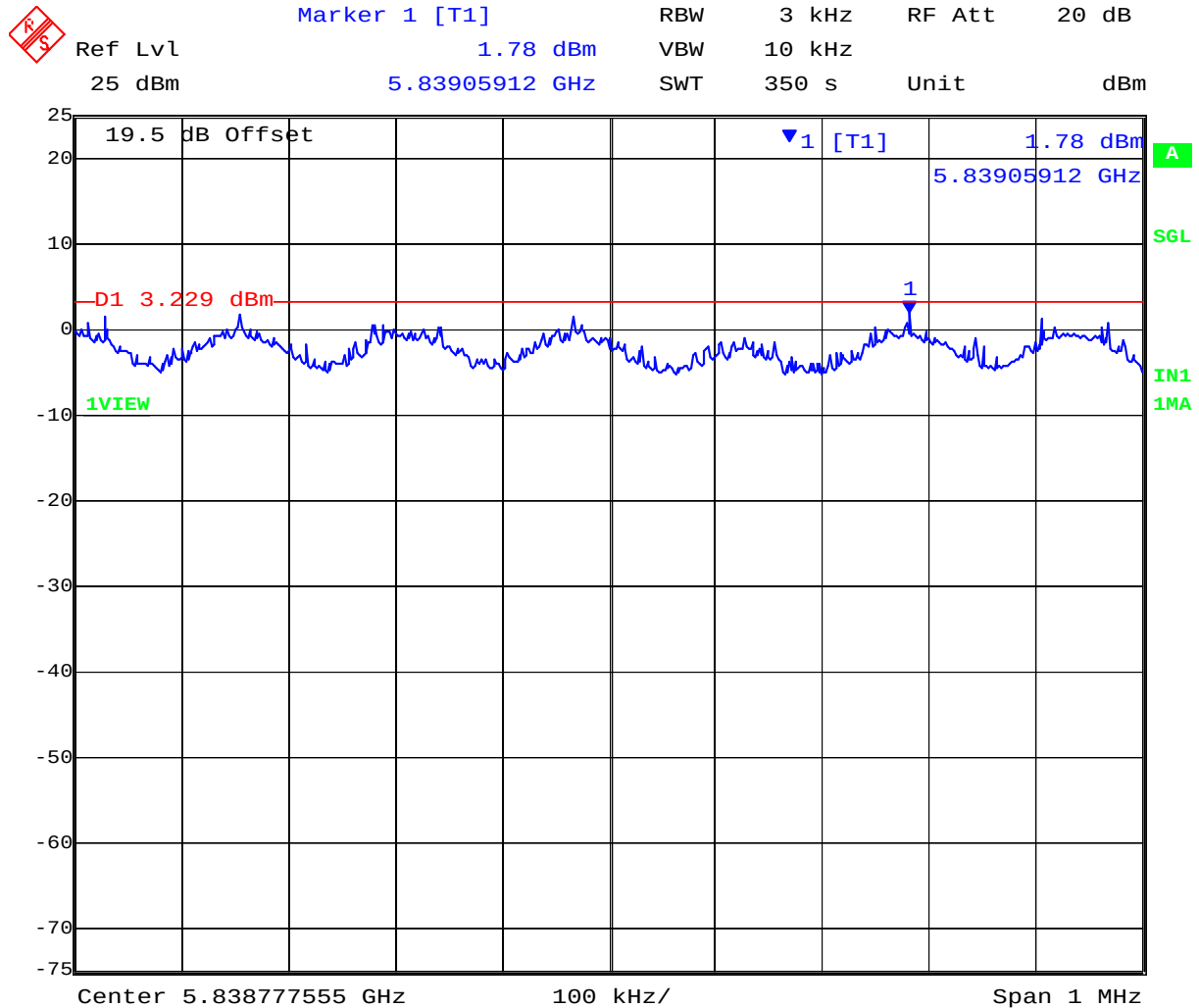
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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
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10 MHz PORT C 5,840 MHz 802.11a 6 Mbits - Peak Power Spectral Density



Date: 16.MAR.2012 16:04:01

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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
Serial #: WAVI02-U1 Rev A
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TABLE OF RESULTS – 802.11a Legacy 20 MHz

Test Conditions:	15.247 (e)	Rel. Humidity (%):	35	to	42
Variant:	802.11a	Ambient Temp. (°C):	19	to	22
TPC:	HIGH	Pressure (mBars):	998	to	1003
Modulation:	ON	Duty Cycle (%):	100		
Beam Forming Gain (Y):	N/A dB	Antenna Gain:			
Applied Voltage:	48.00 Vdc	Antenna Ports (N):	3		
Notes 1:					
Notes 2:					

Test Frequency	Measured Power Density				Correction factor	Σ Power Spectral Density	Limit	Margin
	RF Port (dBm)							
MHz	a	b	c	d	10Log(N)	dBm	dBm	dB
5745	-0.63	-1.09	1.17	--	4.77	5.94	3.23	-2.06
5785	0.56	-1.84	1.92	--	4.77	6.69	3.23	-1.31
5825	-0.43	-2.98	0.11	--	4.77	4.88	3.23	-3.12

Measurement uncertainty:	± 1.33 dB
---------------------------------	-----------

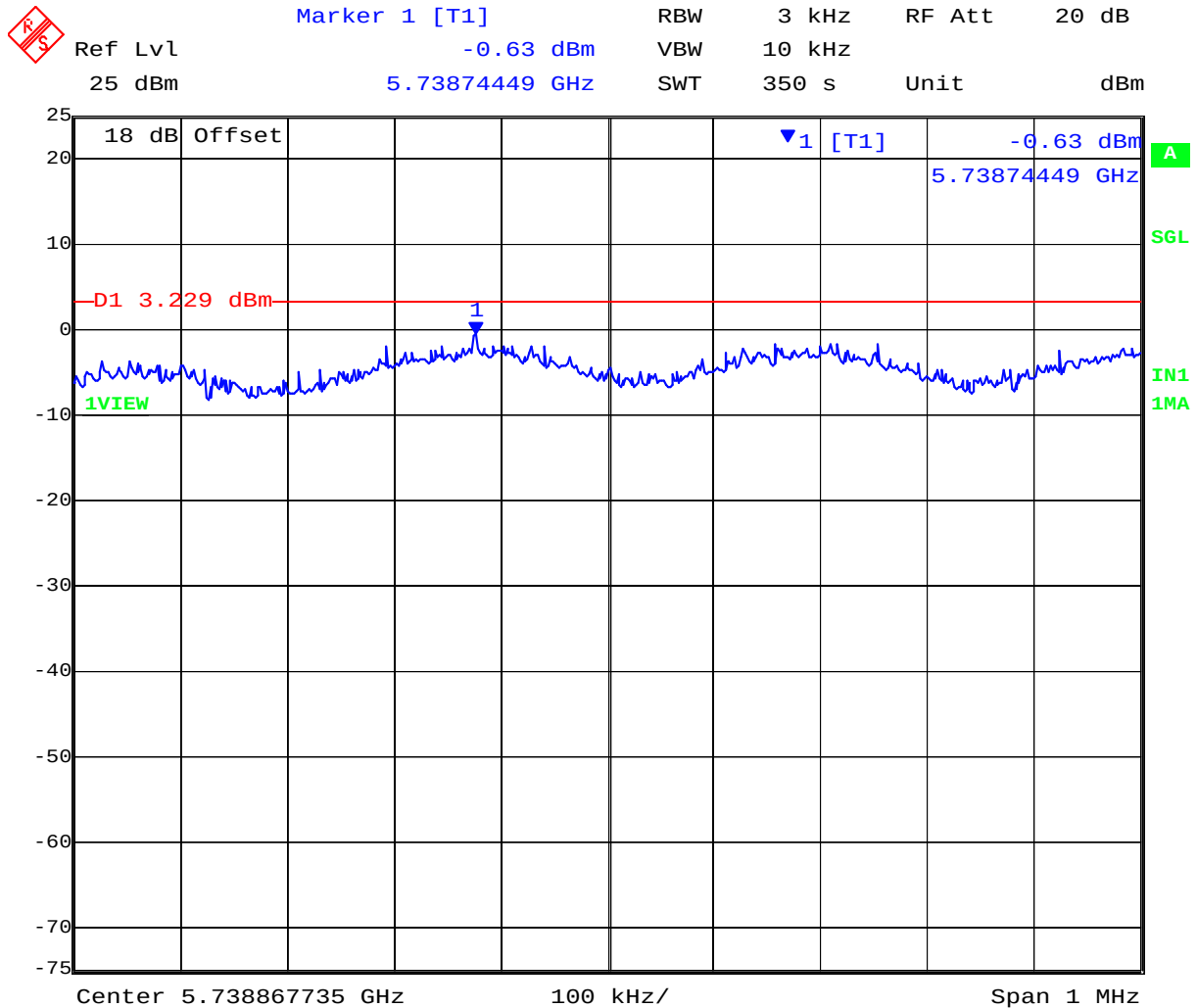
NOTE: above margin is calculated from the highest Power Density returned from Chain A or B or C

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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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PORT A 5,745 MHz 802.11a Legacy - Peak Power Spectral Density



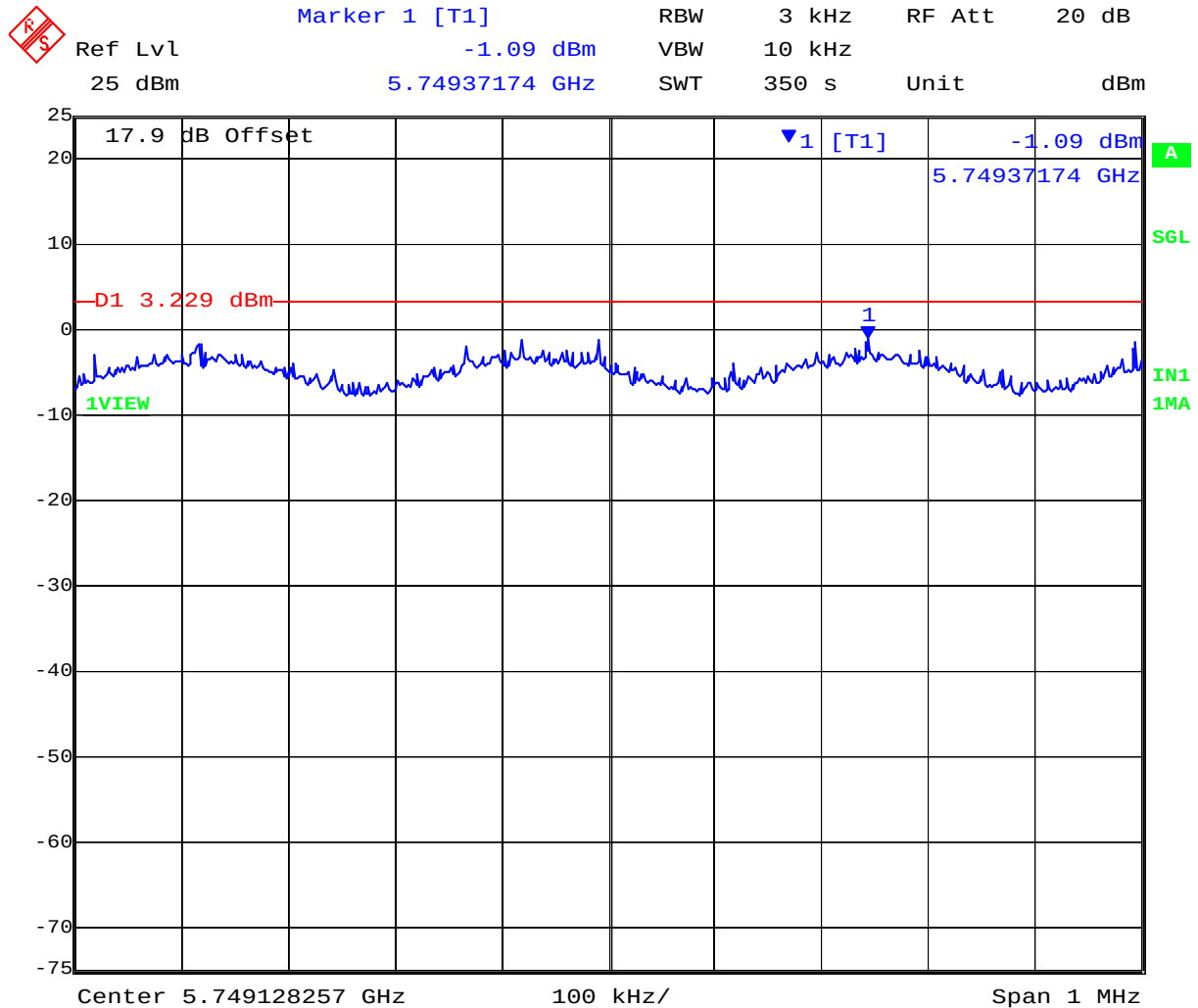
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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
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PORT B 5,745 MHz 802.11a Legacy - Peak Power Spectral Density



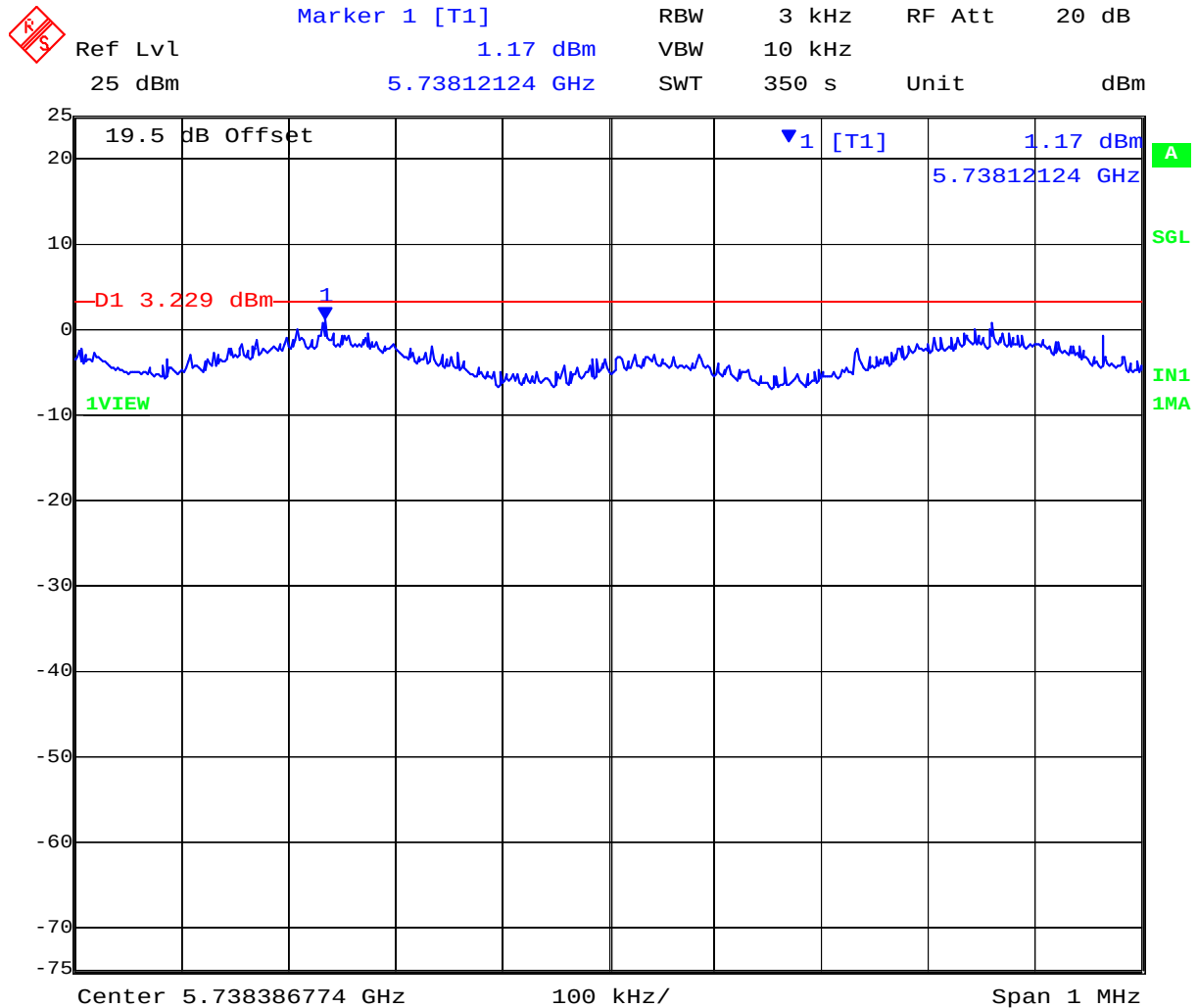
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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
Serial #: WAVI02-U1 Rev A
Issue Date: 30th March 2012
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PORT C 5,745 MHz 802.11a Legacy - Peak Power Spectral Density



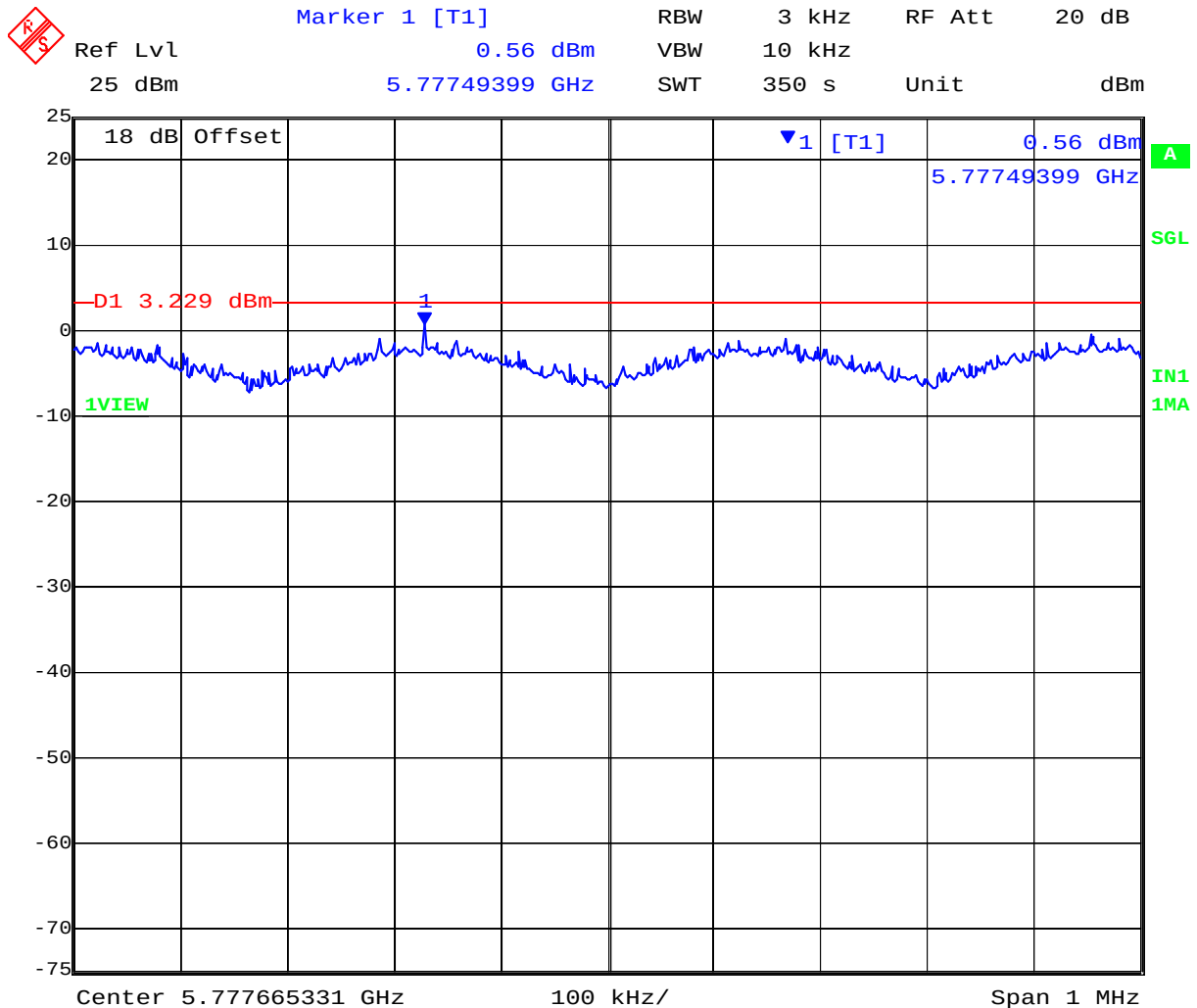
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PORT A 5,785 MHz 802.11a Legacy - Peak Power Spectral Density



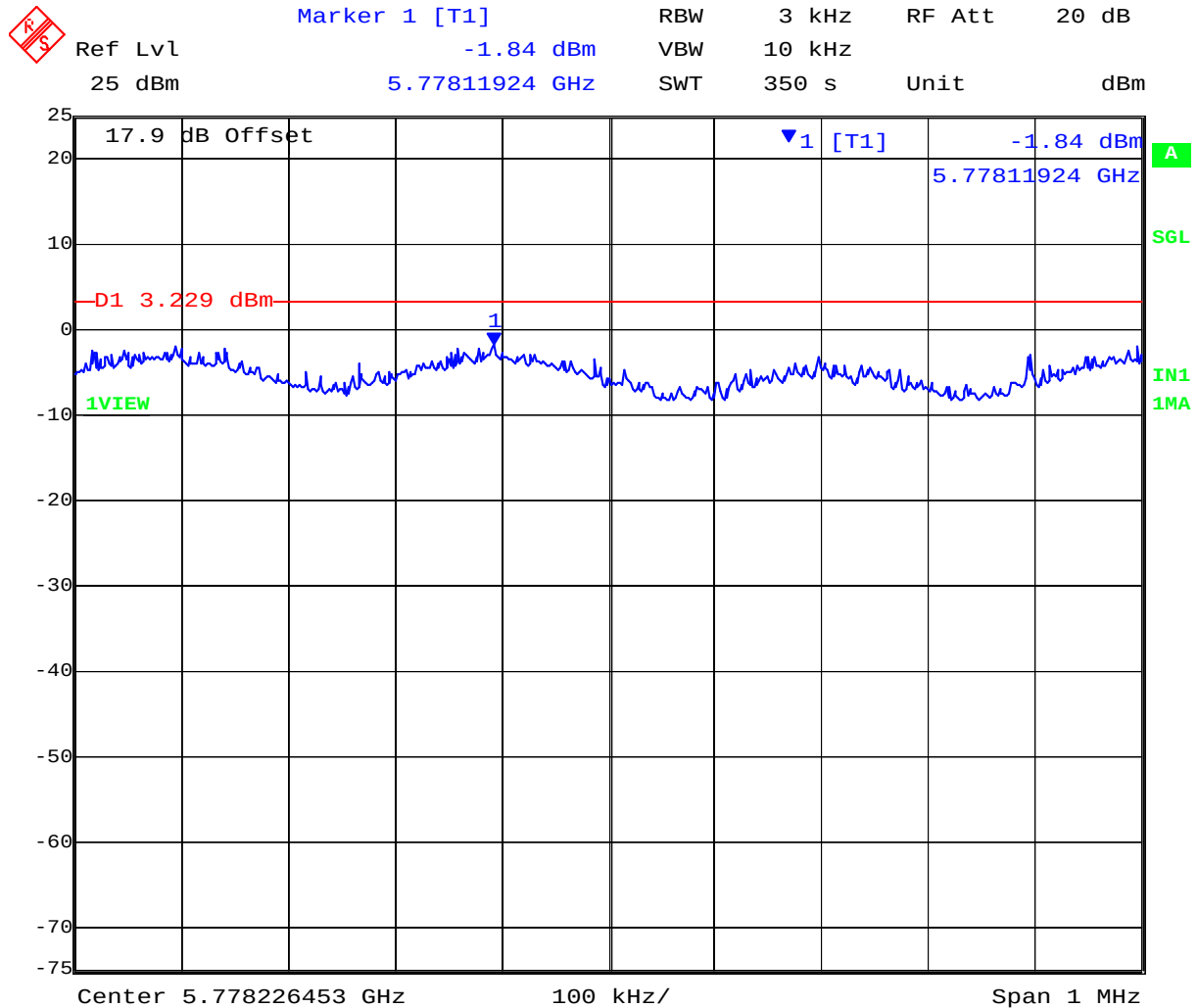
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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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PORT B 5,785 MHz 802.11a Legacy - Peak Power Spectral Density



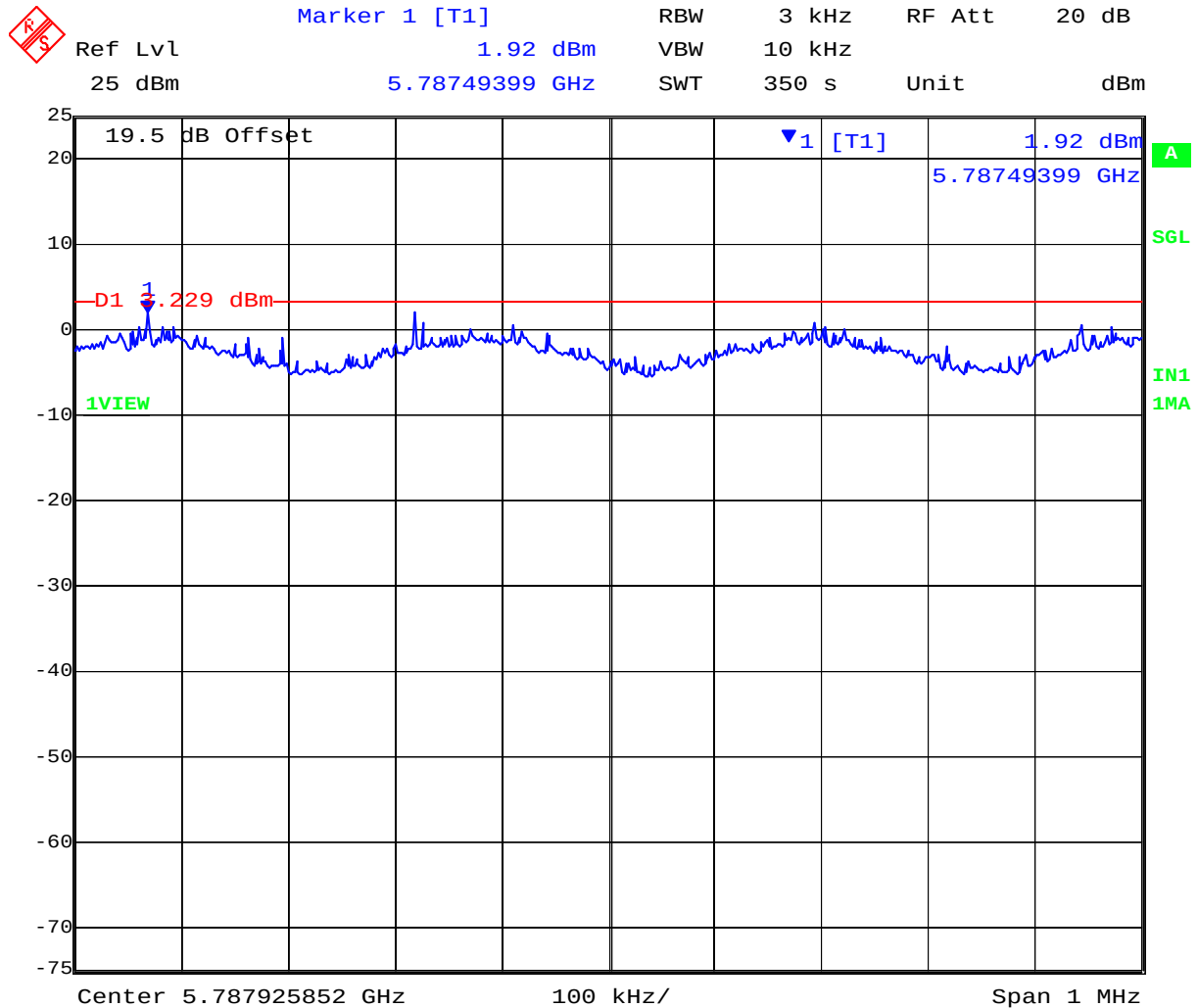
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PORT C 5,785 MHz 802.11a Legacy - Peak Power Spectral Density



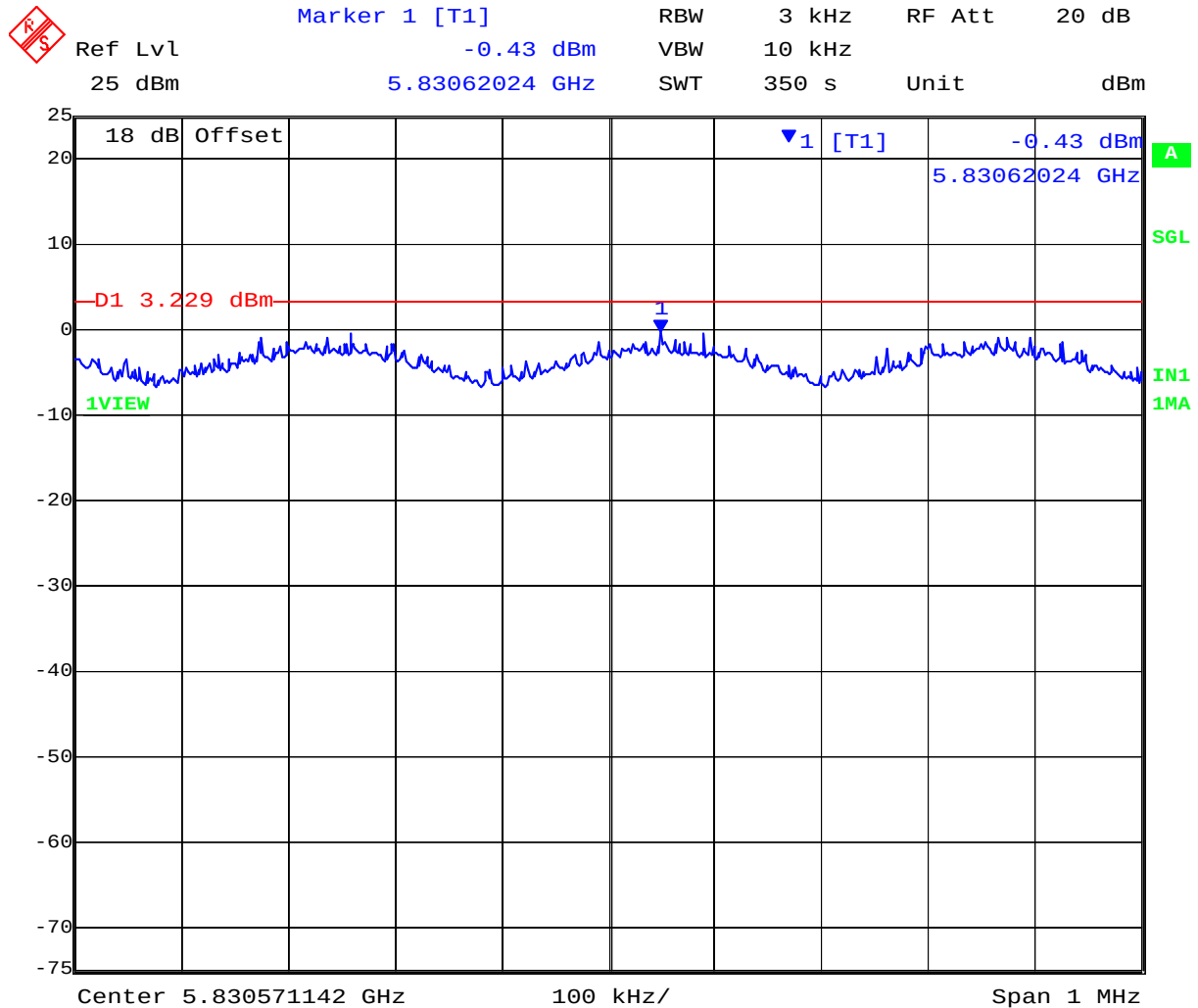
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PORT A 5,825 MHz 802.11a Legacy - Peak Power Spectral Density



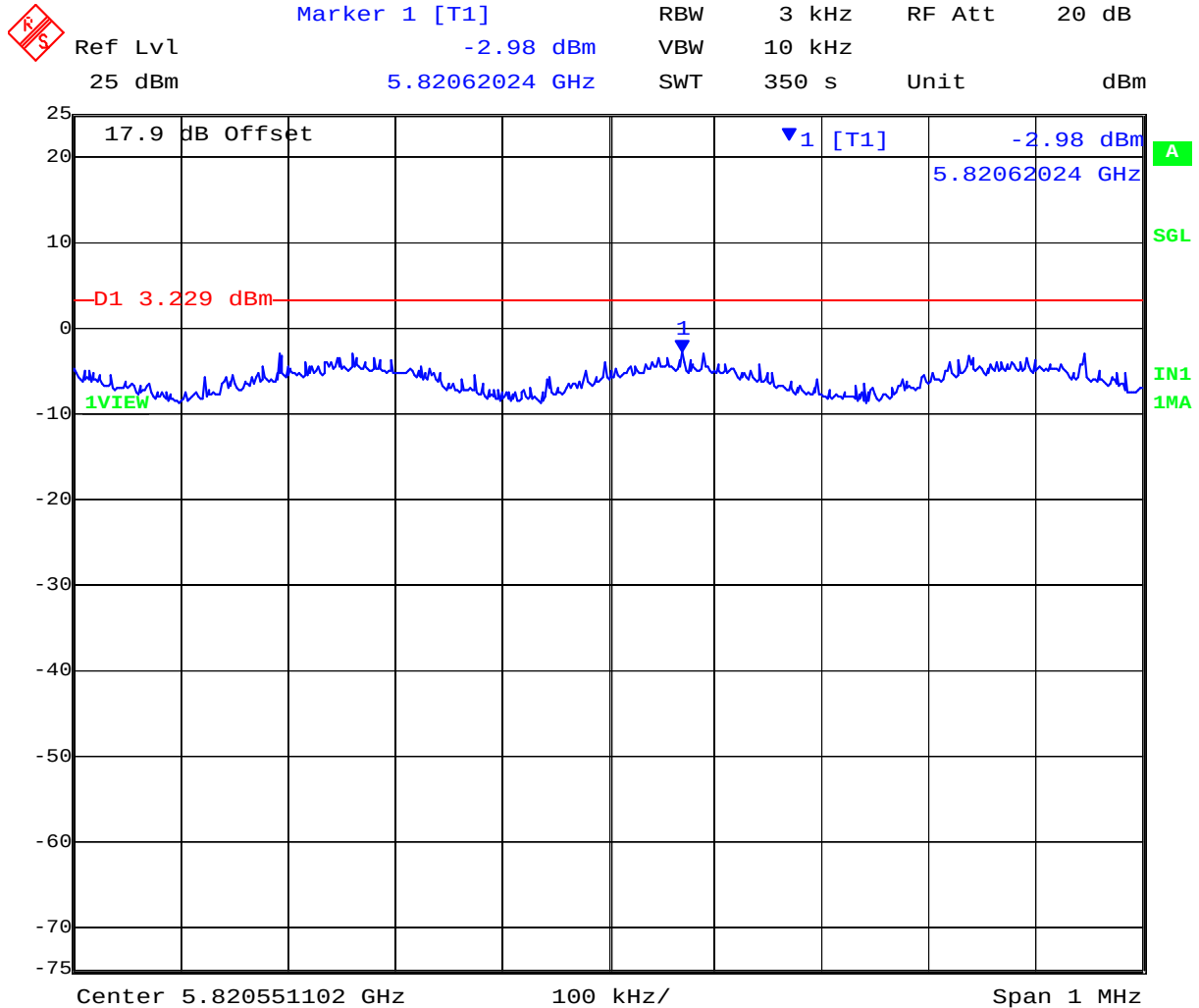
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PORT B 5,825 MHz 802.11a Legacy - Peak Power Spectral Density



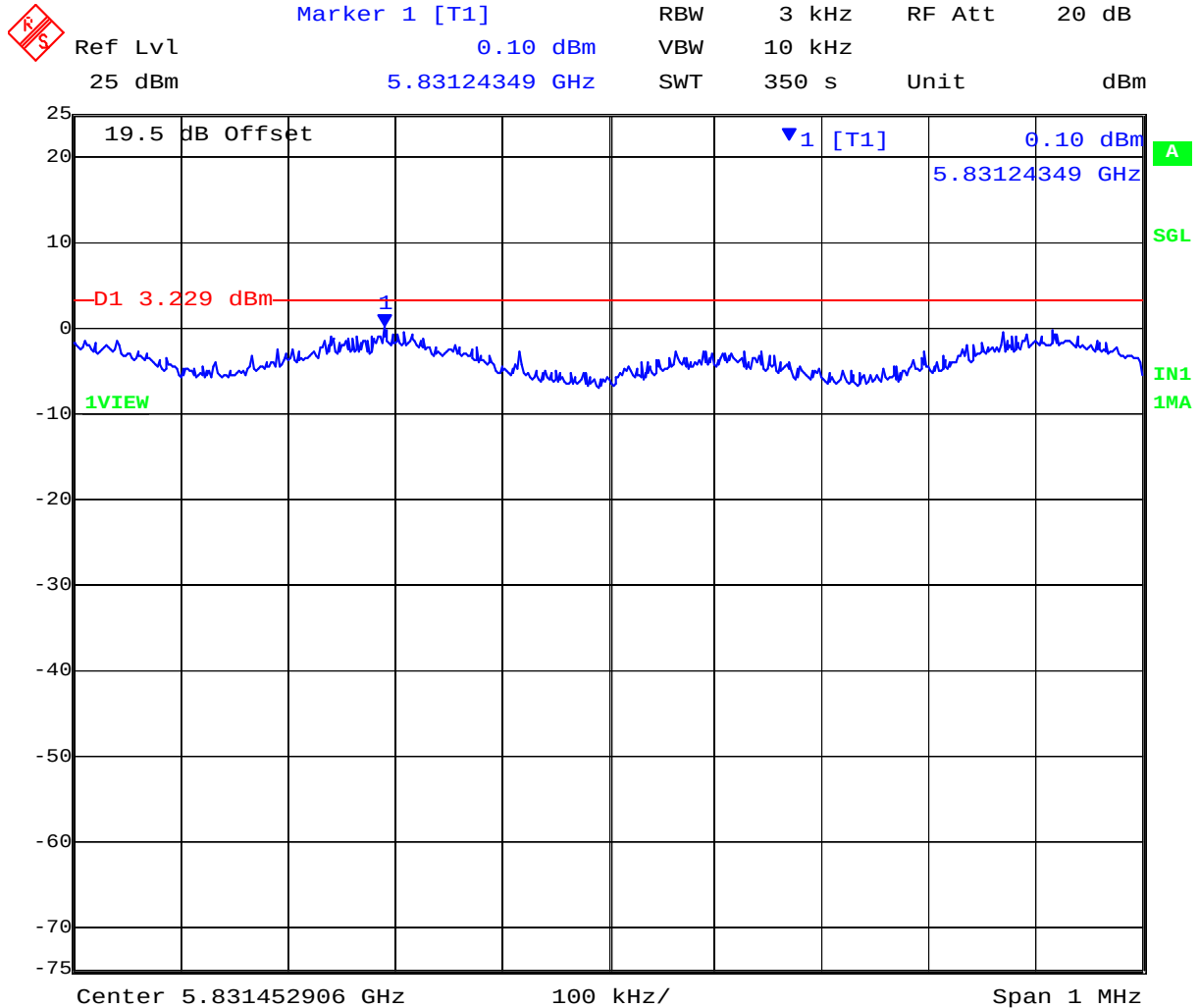
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PORT C 5,825 MHz 802.11a Legacy - Peak Power Spectral Density



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TABLE OF RESULTS – 802.11n HT-20

Test Conditions:	15.247 (e)	Rel. Humidity (%):	35	to	42
Variant:	802.11n HT-20	Ambient Temp. (°C):	19	to	22
TPC:	HIGH	Pressure (mBars):	998	to	1003
Modulation:	ON	Duty Cycle (%):	100		
Beam Forming Gain (Y):	N/A dB	Antenna Gain:			
Applied Voltage:	48.00 Vdc	Antenna Ports (N):	3		
Notes 1:					
Notes 2:					

Test Frequency	Measured Power Density				Correction factor	Σ Power Spectral Density	Limit	Margin
	RF Port (dBm)							
MHz	a	b	c	d	10Log(N)	dBm	dBm	dB
5745	-1.50	-2.04	-0.06	--	4.77	4.71	3.23	-3.29
5785	-0.17	-1.84	1.10	--	4.77	5.87	3.23	-2.13
5825	0.08	-2.28	-0.37	--	4.77	4.85	3.23	-3.28

Measurement uncertainty:	± 1.33 dB
---------------------------------	---------------

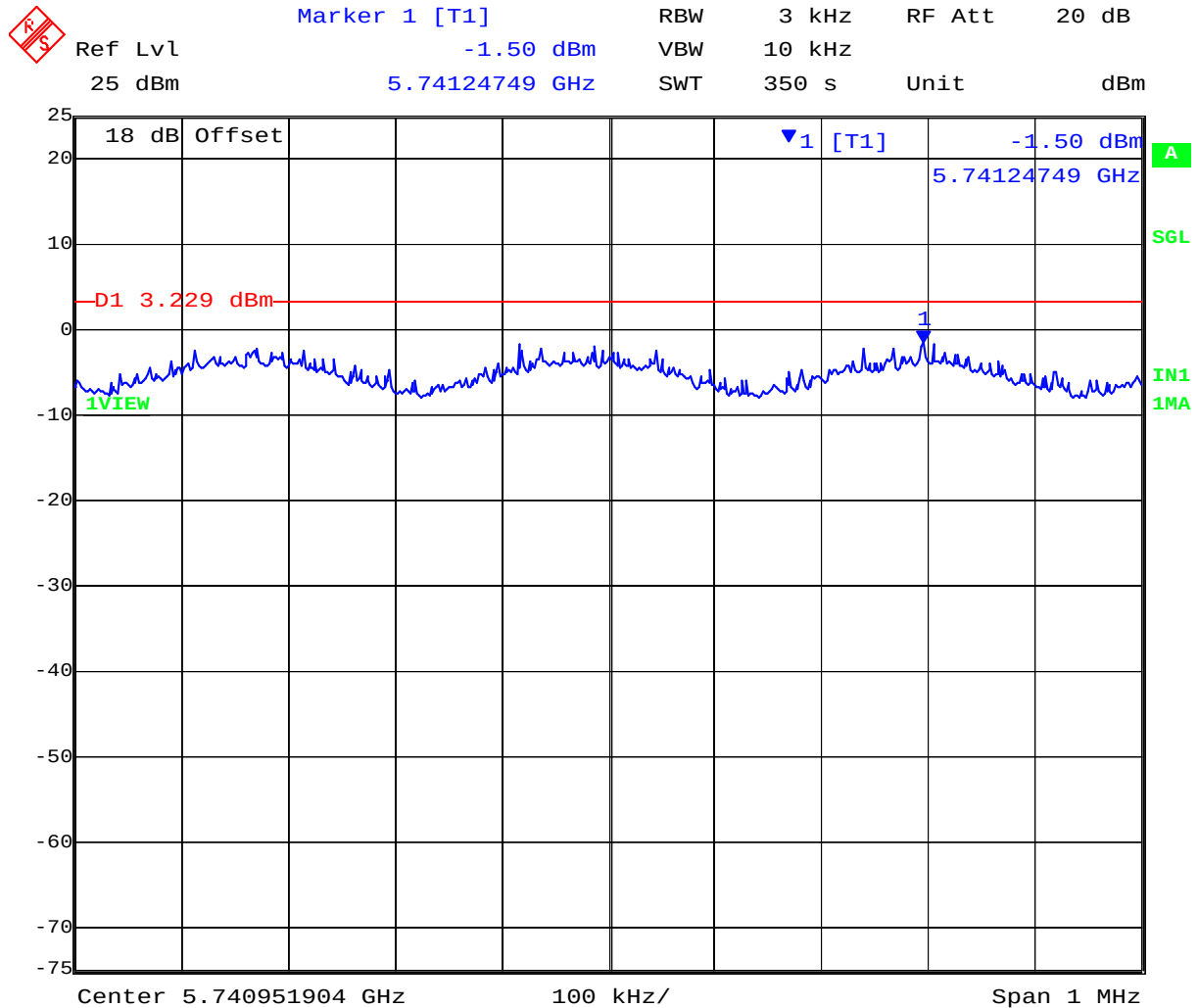
NOTE: above margin is calculated from the highest Power Density returned from Chain A or B or C

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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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PORT A 5,745 MHz 802.11n HT-20 - Peak Power Spectral Density



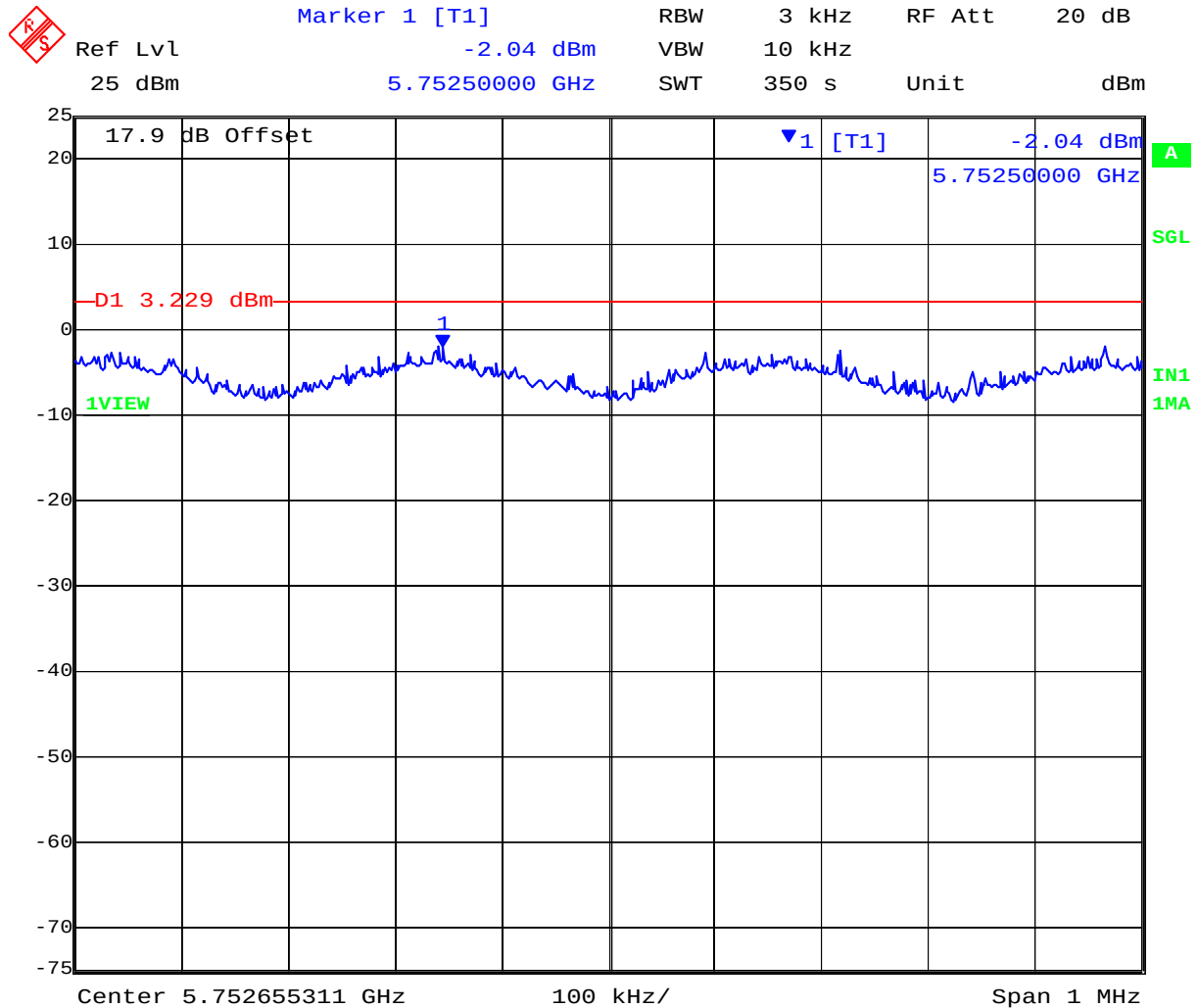
Date: 28.FEB.2012 13:48:55

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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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PORT B 5,745 MHz 802.11n HT-20 - Peak Power Spectral Density



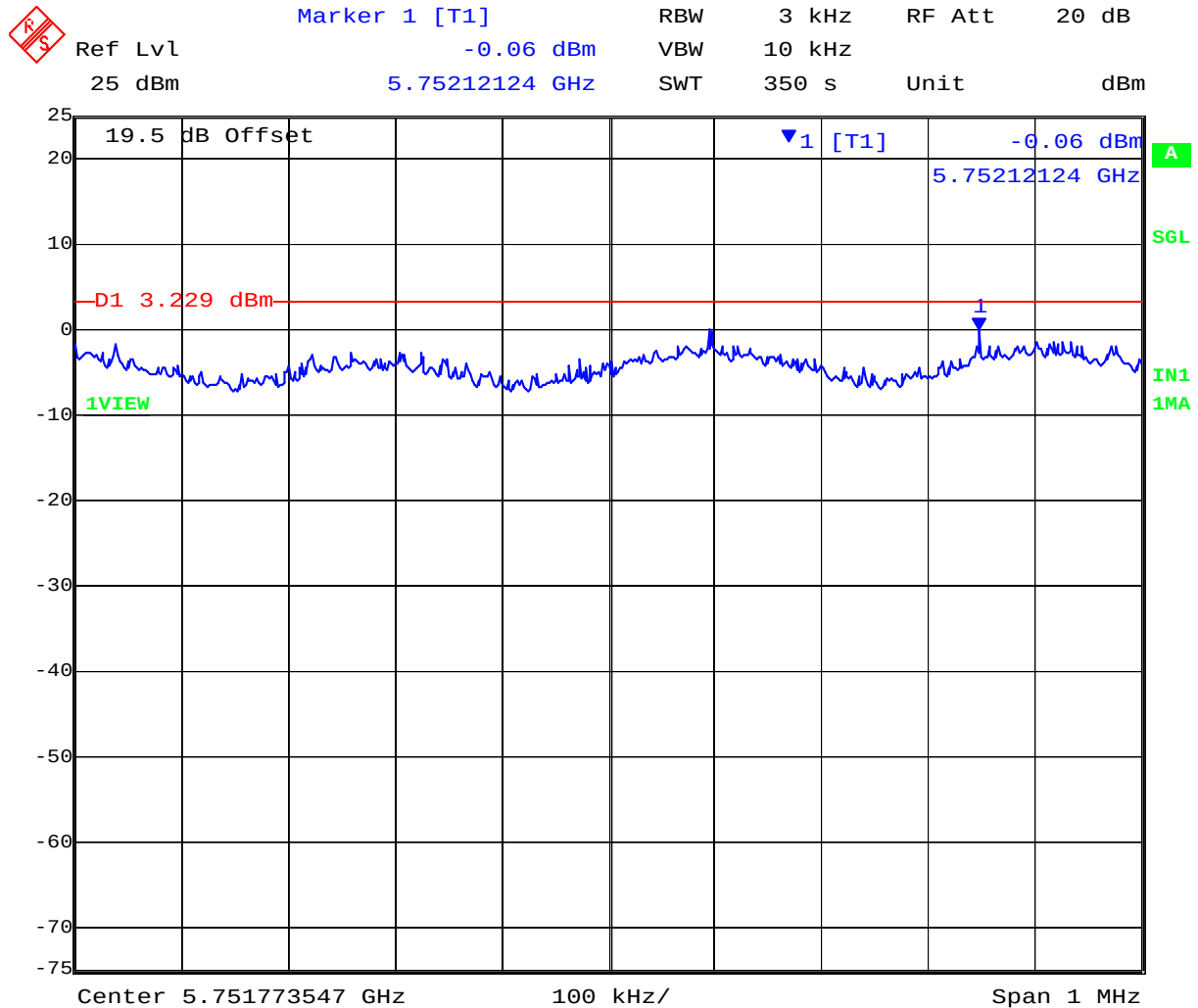
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PORT C 5,745 MHz 802.11n HT-20 - Peak Power Spectral Density



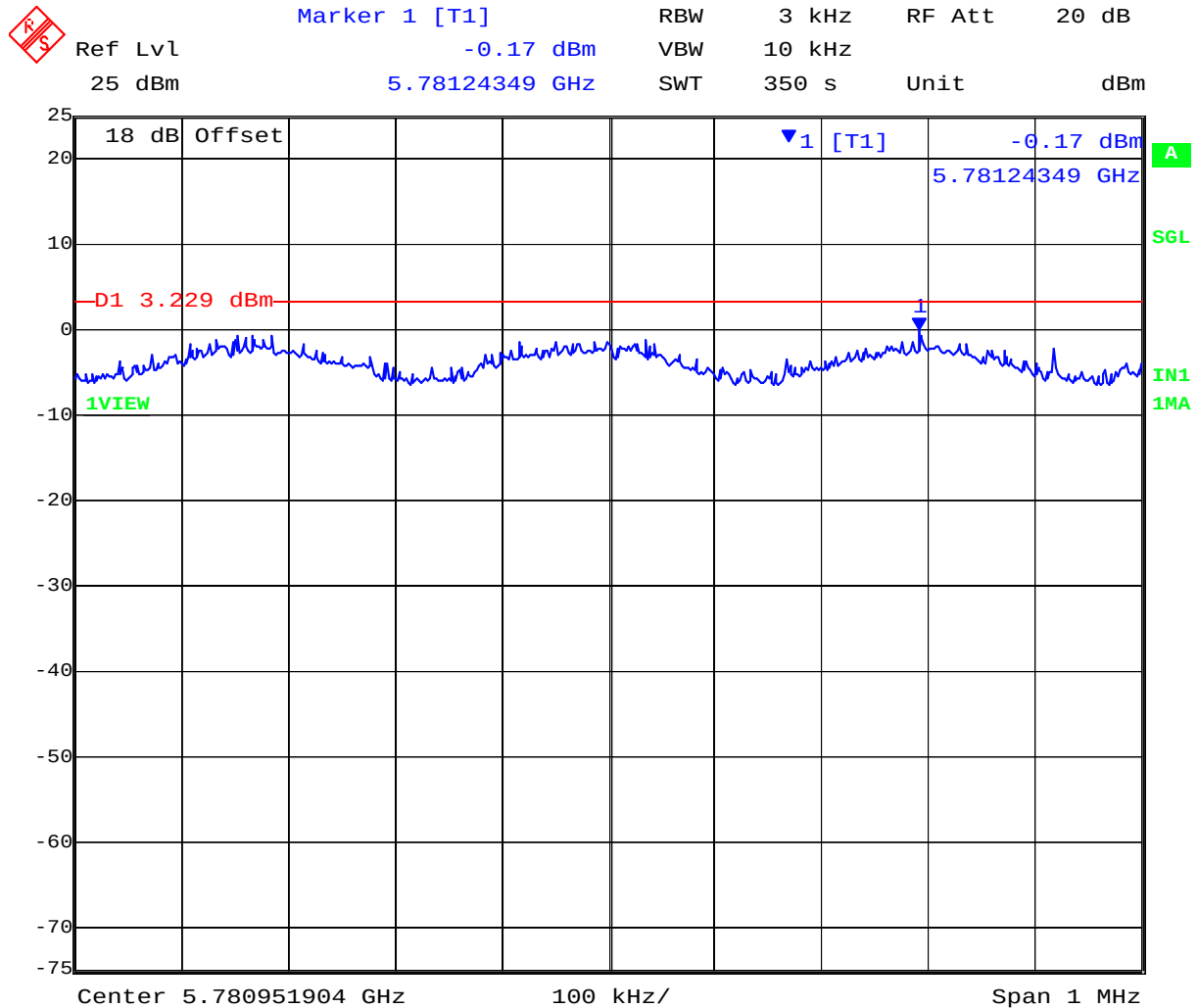
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PORT A 5,785 MHz 802.11n HT-20 - Peak Power Spectral Density



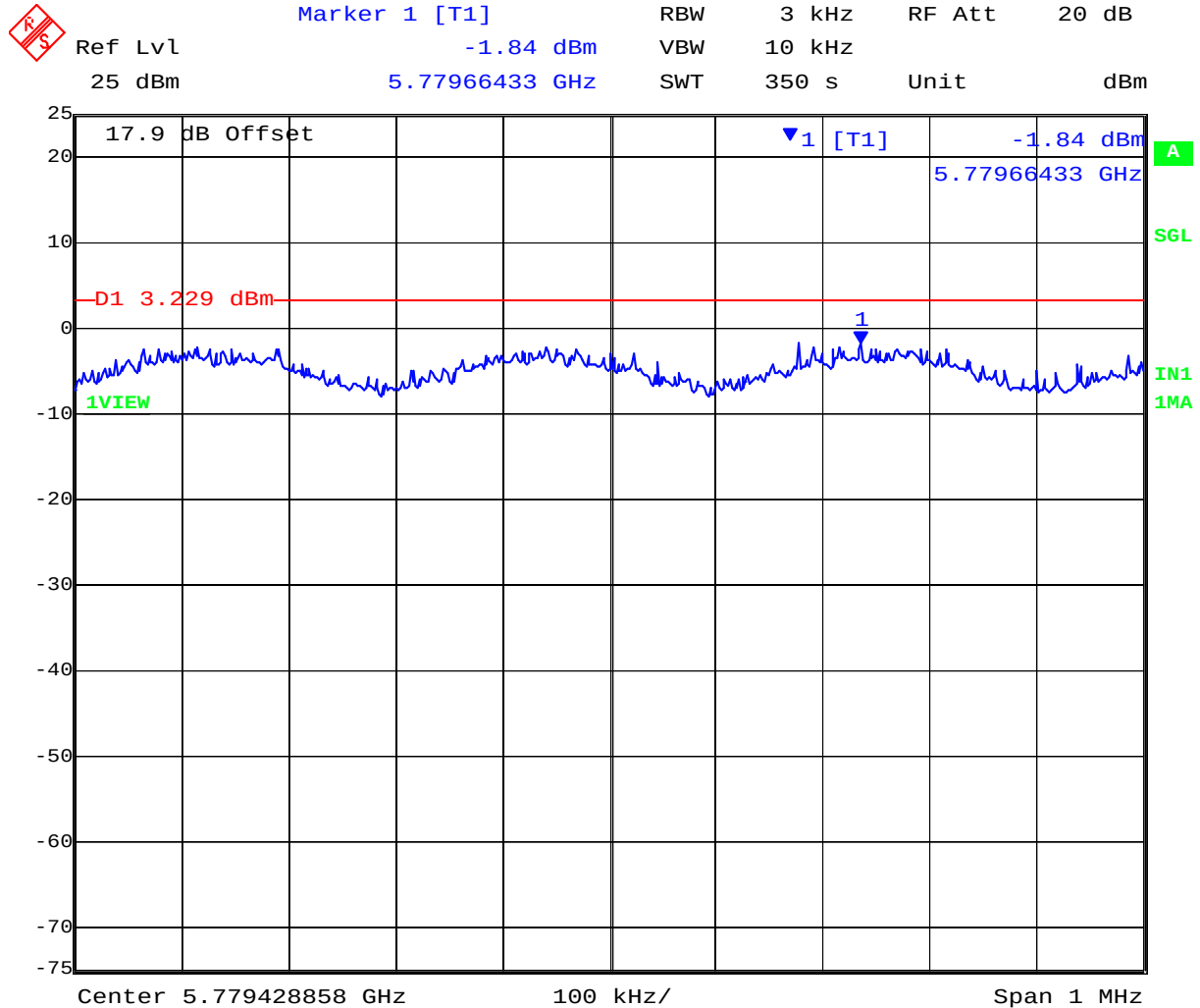
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PORT B 5,785 MHz 802.11n HT-20 - Peak Power Spectral Density



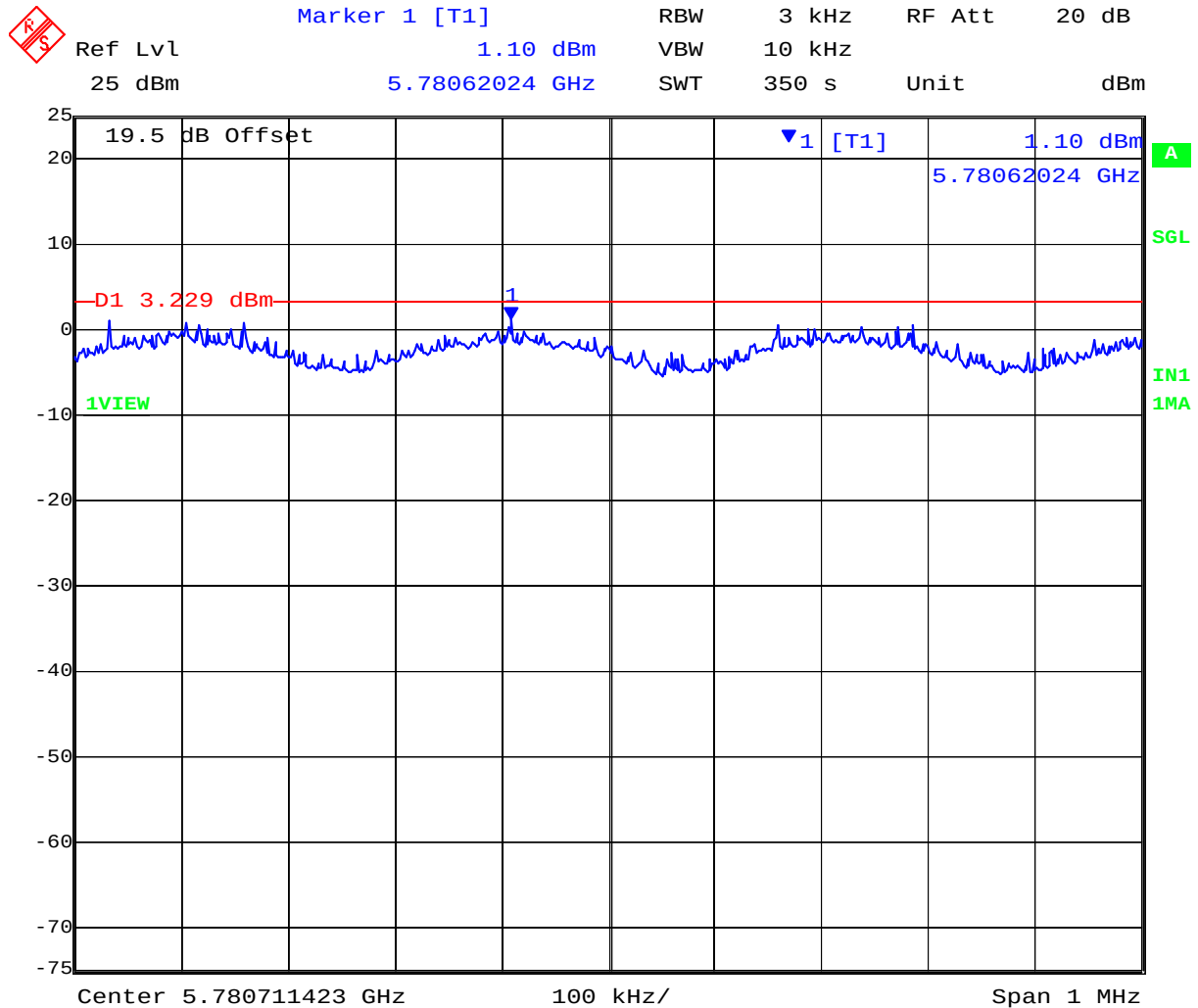
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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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PORT C 5,785 MHz 802.11n HT-20 - Peak Power Spectral Density



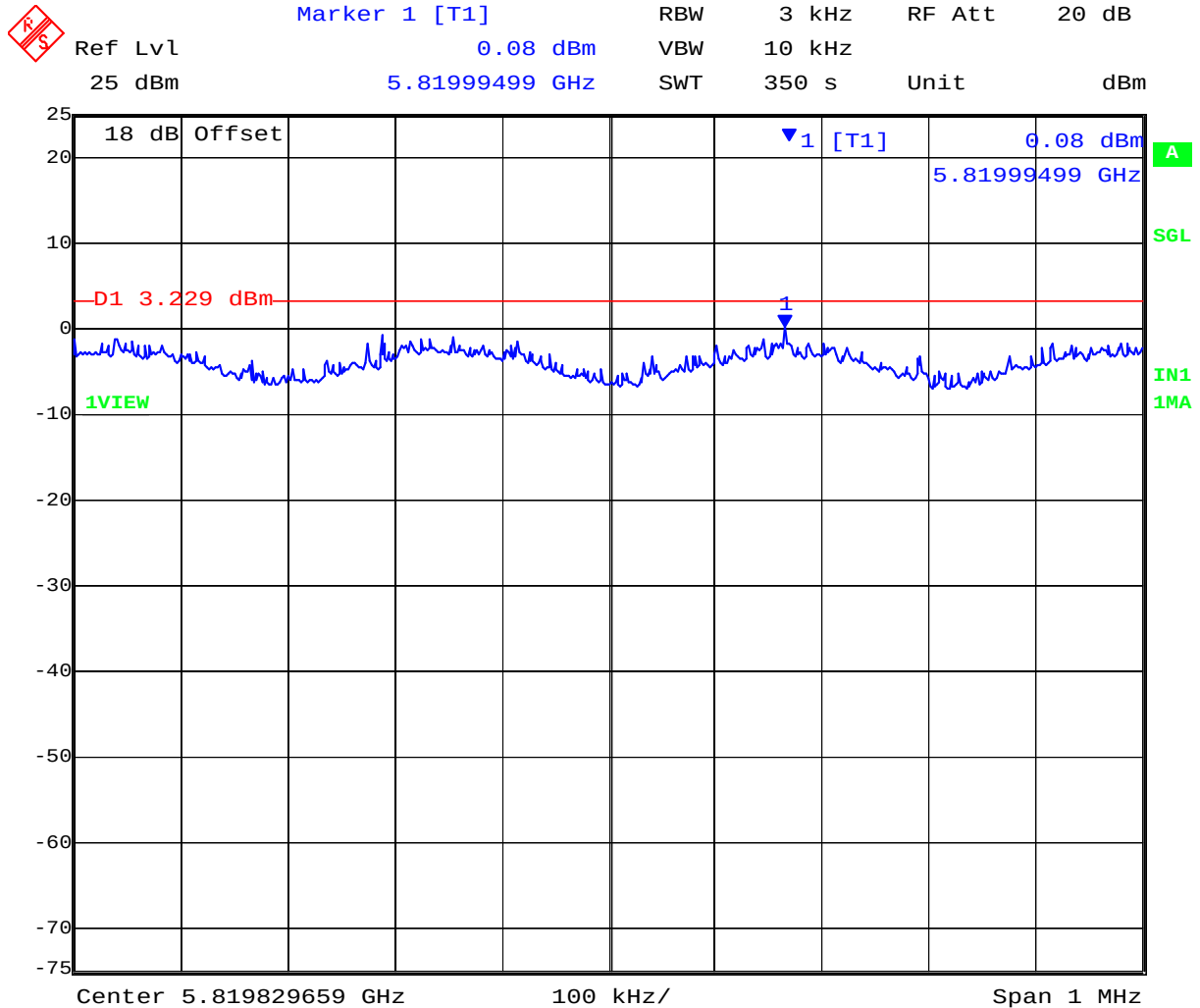
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PORT A 5,825 MHz 802.11n HT-20 - Peak Power Spectral Density



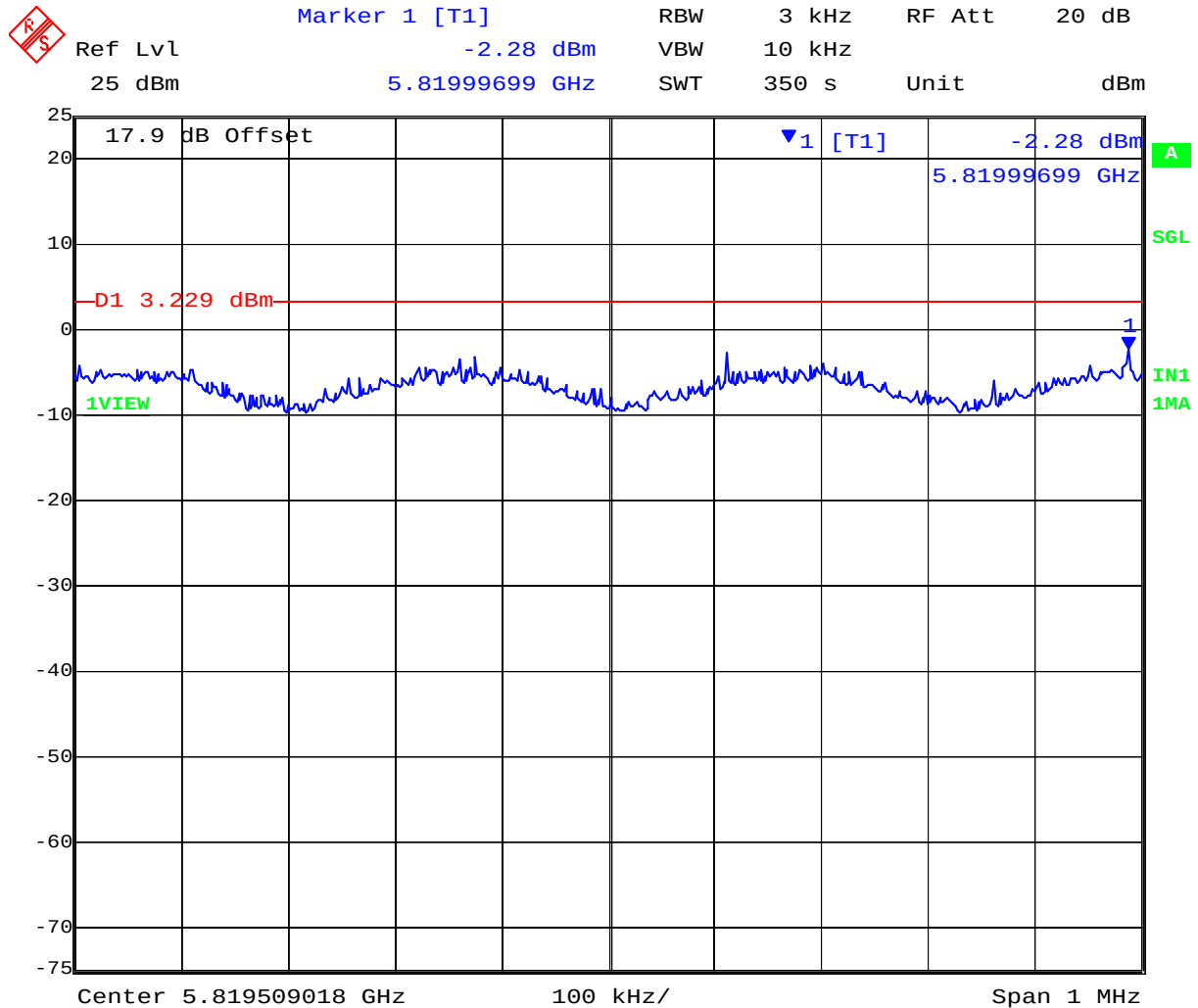
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PORT B 5,825 MHz 802.11n HT-20 - Peak Power Spectral Density



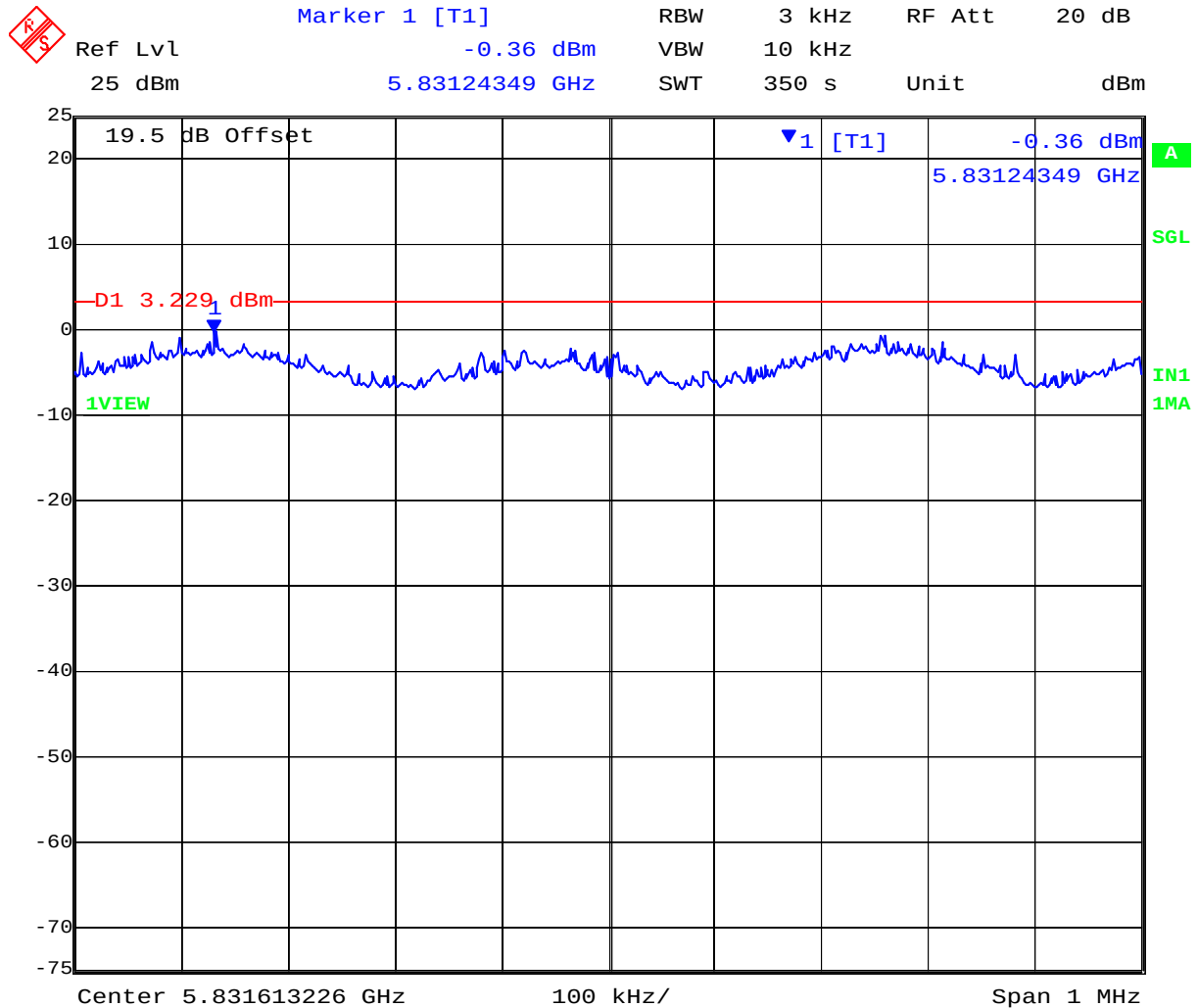
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PORT C 5,825 MHz 802.11n HT-20 - Peak Power Spectral Density



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To: FCC 47 CFR Part 15.247 & IC RSS-210
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TABLE OF RESULTS – 802.11n HT-40

Test Conditions:	15.247 (e)	Rel. Humidity (%):	35	to	42
Variant:	802.11n HT-40	Ambient Temp. (°C):	19	to	22
TPC:	HIGH	Pressure (mBars):	998	to	1003
Modulation:	ON	Duty Cycle (%):	100		
Beam Forming Gain (Y):	N/A dB	Antenna Gain:			
Applied Voltage:	48.00 Vdc	Antenna Ports (N):	3		
Notes 1:					
Notes 2:					

Test Frequency	Measured Power Density				Correction factor	Peak Power Spectral Density	Limit	Margin
	RF Port (dBm)							
MHz	a	b	c	d	10Log(N)	dBm	dBm	dB
5755	-5.18	-6.27	-3.99	--	4.77	0.78	3.23	-7.22
5795	-3.46	-4.28	-0.96	--	4.77	3.81	3.23	-4.19

Measurement uncertainty:	± 1.33 dB
---------------------------------	-----------

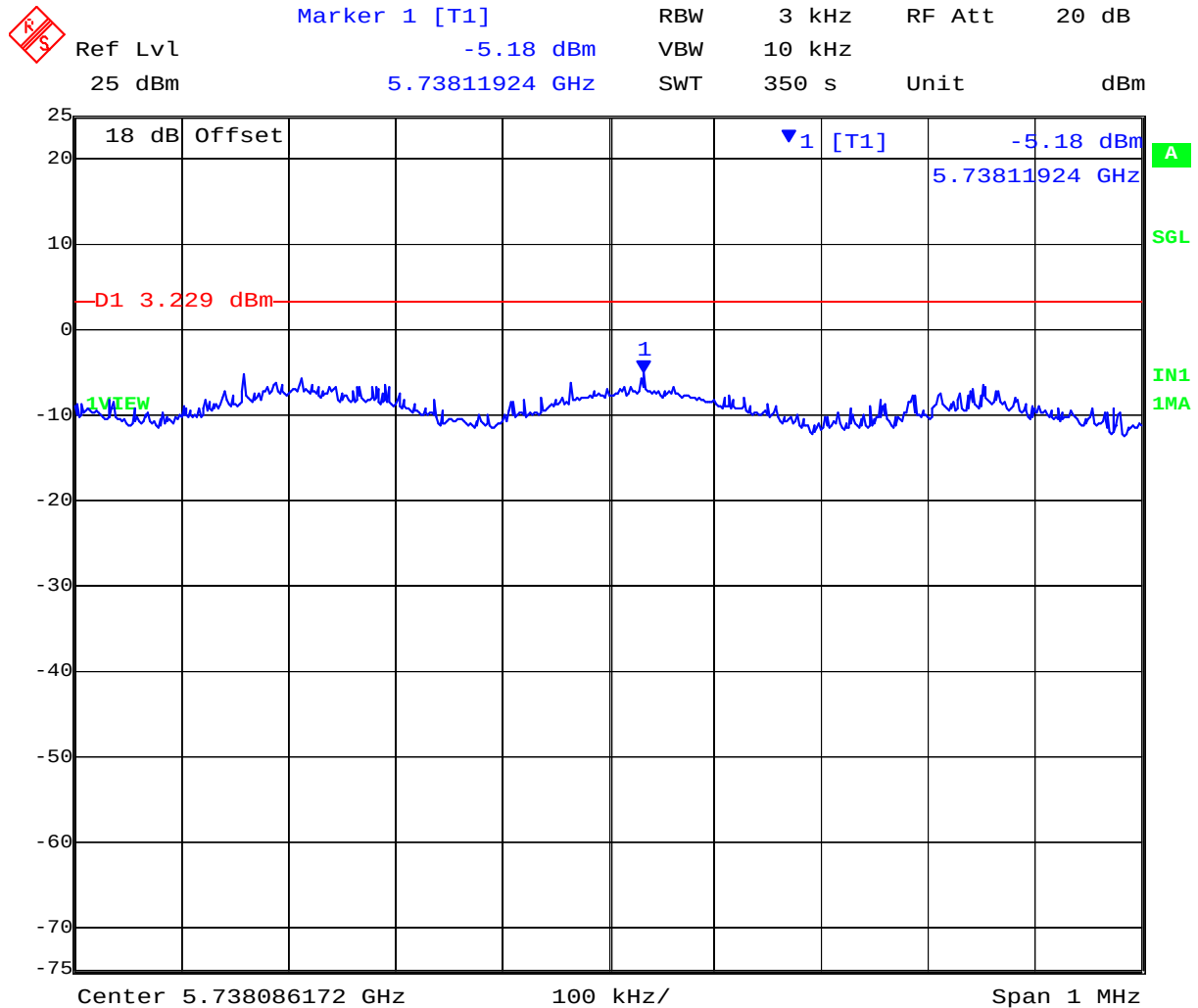
NOTE: above margin is calculated from the highest Power Density returned from Chain A or B or C

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PORT A 5,755 MHz 802.11n HT-40 - Peak Power Spectral Density



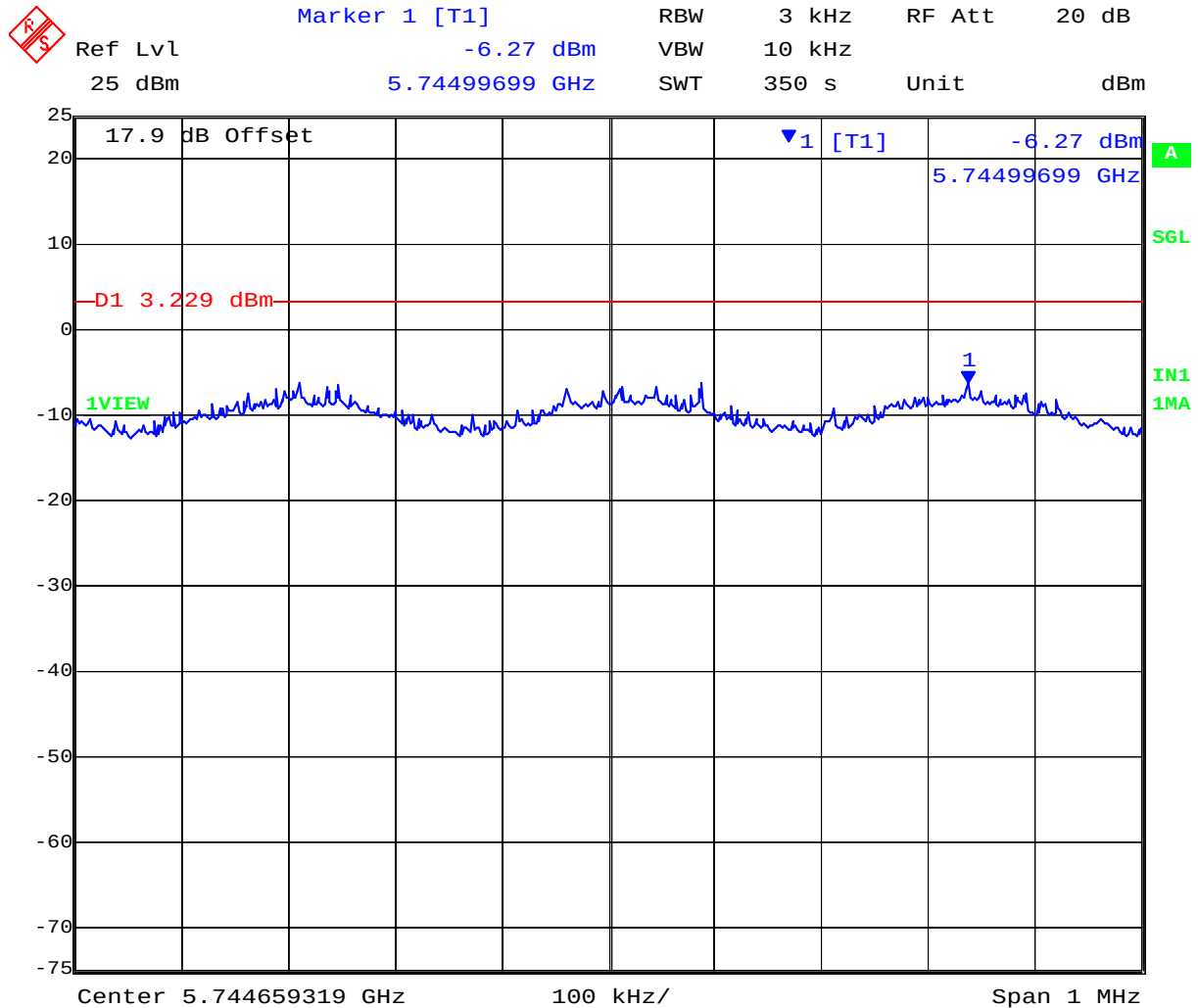
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PORT B 5,755 MHz 802.11n HT-40 - Peak Power Spectral Density



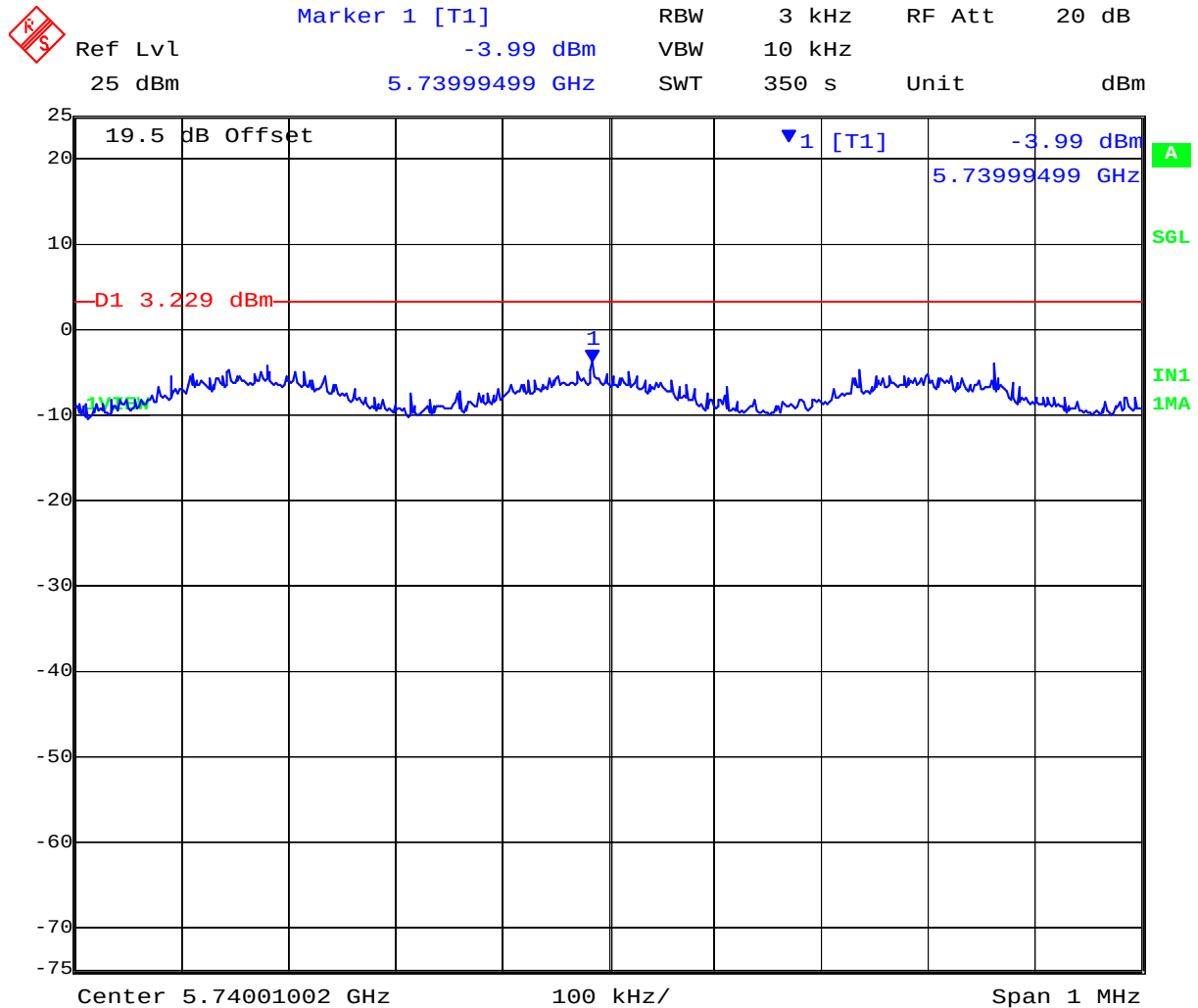
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PORT C 5,755 MHz 802.11n HT-40 - Peak Power Spectral Density



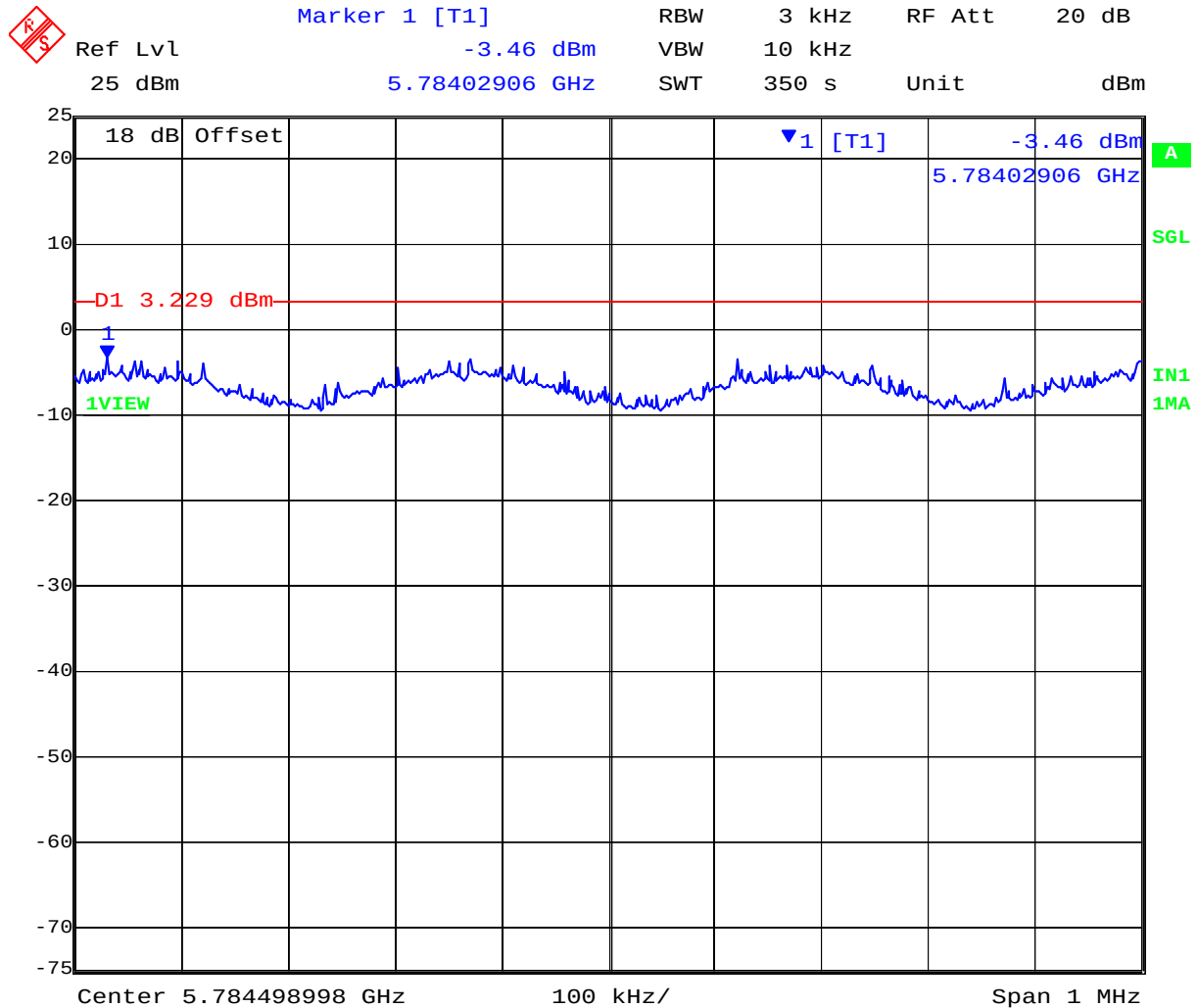
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PORT A 5,795 MHz 802.11n HT-40 - Peak Power Spectral Density



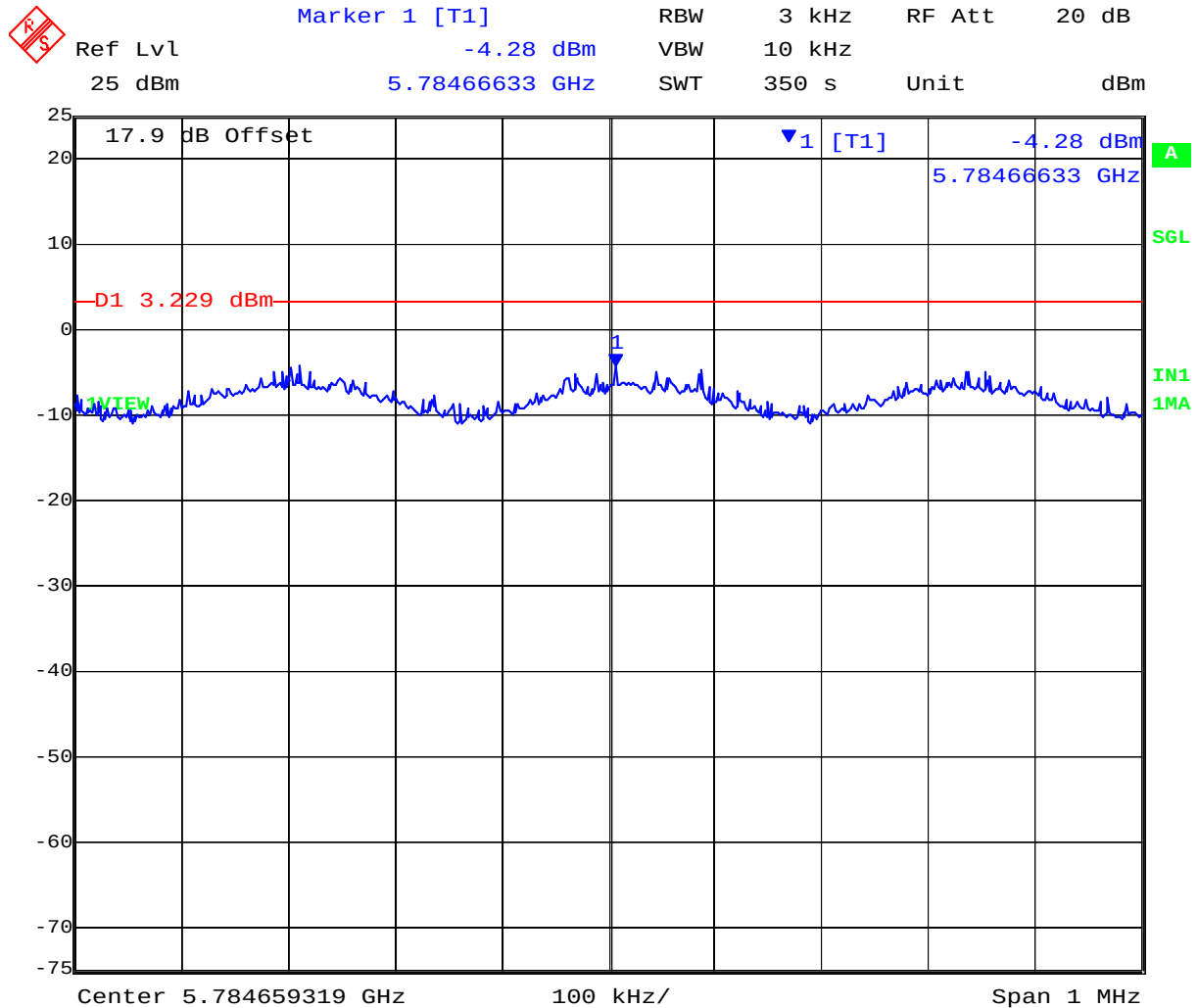
Date: 28.FEB.2012 16:29:53

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PORT B 5,795 MHz 802.11n HT-40 - Peak Power Spectral Density



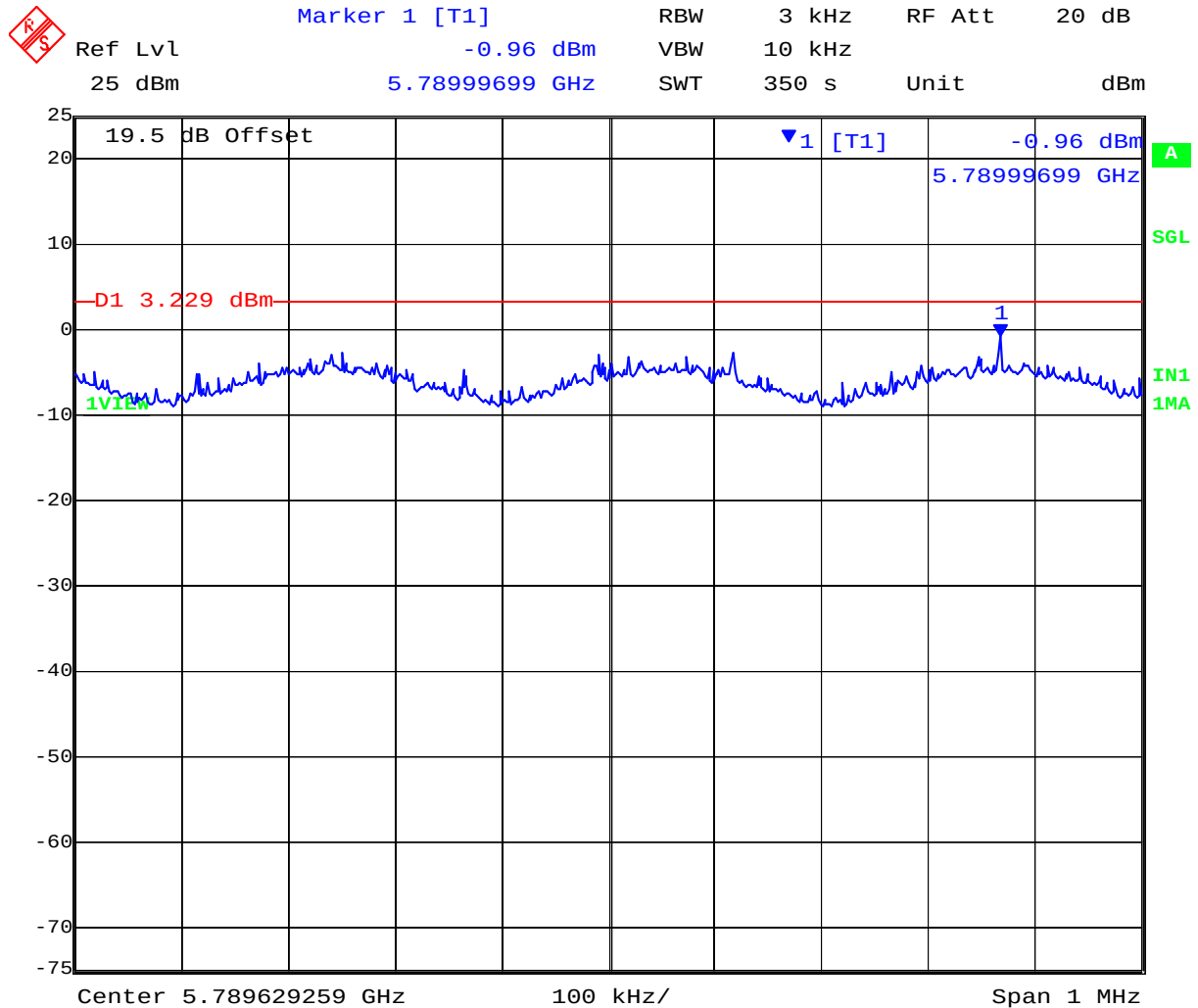
Date: 28.FEB.2012 16:36:29

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PORT C 5,795 MHz 802.11n HT-40 - Peak Power Spectral Density



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Specification

Peak Power Spectral Density Limits

§15.247(e) For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than +8 dBm in any 3 kHz band during any time interval of continuous transmission

RSS-210 §A8.2(2) The transmitter power spectral density (into the antenna) shall not be greater than +8 dBm in any 3 kHz band during any time interval of continuous transmission or over 1.0 second if the transmission exceeds 1.0 second duration.

Laboratory Measurement Uncertainty for Spectral Density

Measurement uncertainty	± 1.33 dB
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Traceability

Method	Test Equipment Used
Measurements were made per work instruction WI-01 'Measuring RF Output Power'	0158, 0287, 0252, 0313, 0314, 0070, 0116, 0117

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5.1.4. Maximum Permissible Exposure

FCC, Part 15 Subpart C §15.247(i)

Industry Canada RSS-Gen §5.5

Calculations for Maximum Permissible Exposure Levels

Power Density = P_d (mW/cm²) = $EIRP / (4\pi d^2)$

$EIRP = P * G$

P = Peak output power (mW)

G = Antenna numeric gain (numeric)

d = Separation distance (cm)

Numeric Gain = $10^{(G \text{ (dBi)} / 10)}$

The Wavion WBSn-2450-OS/-SO Wireless LAN Access Point has three transmitters in each frequency band. The peak power in the table below is calculated by assuming a worst case scenario where all transmitters are operating simultaneously on the same channel therefore the Σ of all chain power was used to calculate MPE.

Because the EUT belongs to the General Population/Uncontrolled Exposure the limit of power density is 1.0 mW/cm²

Freq. Band (GHz)	Antenna Gain (dBi)	Numeric Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Calculated Safe Distance @ 1mW/cm ² Limit(cm)	Minimum Separation Distance (cm)
2.4 OMNI	7.4	5.5	+26.49	445.7	13.97	20.0*
2.4 SECTOR	12.0	15.8	+26.07	404.6	23.11	23.11
5.8 OMNI	8.5	7.1	+27.81	603.9	22.55	22.55
5.8 SECTOR	14.0	25.1	+27.27	533.3	32.64	33.34

*Note: for mobile or fixed location transmitters the minimum separation distance is 20cm, even if calculations indicate the MPE distance to be less.

Specification - Maximum Permissible Exposure Limits

§15.247(i) Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency levels in excess of the Commission's guidelines.

FCC §1.1310 Limit = 1mW / cm² from 1.310 Table 1

RSS-Gen §5.5 Before equipment certification is granted, the applicable requirements of RSS-102 shall be met

Laboratory Measurement Uncertainty for Power Measurements

Measurement uncertainty

±1.33 dB

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5.1.5. Conducted Spurious Emissions

FCC, Part 15 Subpart C §15.247(d); 15.205; 15.209

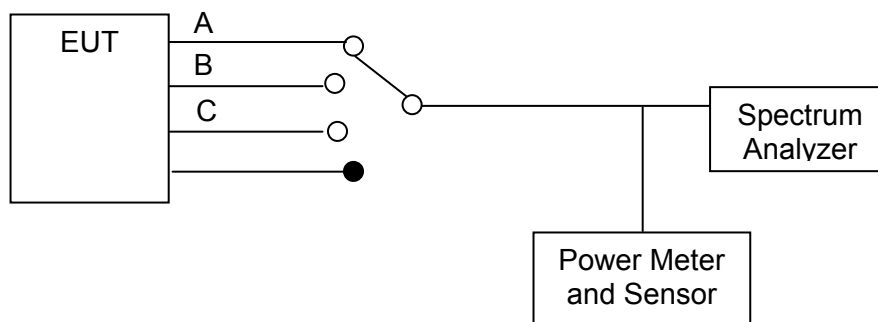
Industry Canada RSS-210 §A8.5, §2.2

Industry Canada RSS-Gen 4.7

Test Procedure

Conducted emissions were measured at a limit of 20 dB below the highest in-band spectral density measured with a spectrum analyzer connected to the antenna terminal. Emissions at the band edge were measured and recorded. Measurements were made while EUT was operating in transmit mode of operation at the appropriate center frequency.

Test Measurement Set up



Band-edge measurement test configuration

Measurement Results of Conducted Spurious Emissions

Ambient conditions.

Temperature: 17 to 23 °C Relative humidity: 31 to 57 % Pressure: 999 to 1012 mbar

Radio Parameters

Duty Cycle: 100%

Output: Modulated Carrier

Power: Maximum Default Power

NOTE: KDB 662911 was implemented for Out-of-Band measurements. Where necessary Option (2) Measure and add 10 log (N) dB was implemented



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Conducted Spurious Emission Results

Measurements were performed with the transmitter tuned to the channel closest to the band-edge being measured. All emissions were maximized during measurement. Limits which were derived from the band-edge measurements provided below are drawn on each plot.

TABLE OF RESULTS – 802.11b – Legacy

Test Conditions:	15.247 (a)(2)	Rel. Humidity (%):	35	to	42
Variant:	802.11b	Ambient Temp. (°C):	19	to	22
TPC:	HIGH	Pressure (mBars):	998	to	1003
Modulation:	ON	Duty Cycle (%):	100		
Beam Forming Gain	N/A dB	Antenna Gain:	N/A	dBi	
Applied Voltage:	48.00 Vdc	Antenna Ports (N):			
Notes 1:					
Notes 2:					

Conducted Spurious Measurement

Test Freq.	Start Freq.	Stop Freq.	Port A		Port B		Port C		Port D	
MHz	MHz	MHz	SE dBm	Limit dBm	SE dBm	Limit dBm	SE dBm	Limit dBm	SE dBm	Limit dBm
2412.000	30.00	26000.00	-42.15	-7.50	-42.49	-8.38	-42.31	-7.92		
2437.000	30.00	26000.00	-43.13	-6.84	-42.55	-8.87	-42.69	-8.85		
2462.000	30.00	26000.00	-43.06	-8.03	-43.35	-7.83	-42.67	-7.01		

SE: Maximum spurious emission found

Band-edge Measurement

Test Freq.	Band-edge freq.	Port A		Port B		Port C		Port D	
MHz	MHz	BE dBm	Limit dBm	BE dBm	Limit dBm	BE dBm	Limit dBm	BE dBm	Limit dBm
2412.000	2400.00	-35.99	-6.99	-33.97	-7.39	-36.28	-7.29		
2462.000	2483.50	-49.30	-6.75	-49.27	-6.67	-48.61	-6.07		

BE: Maximum Band edge emission found

Measurement uncertainty:	±2.81 dB
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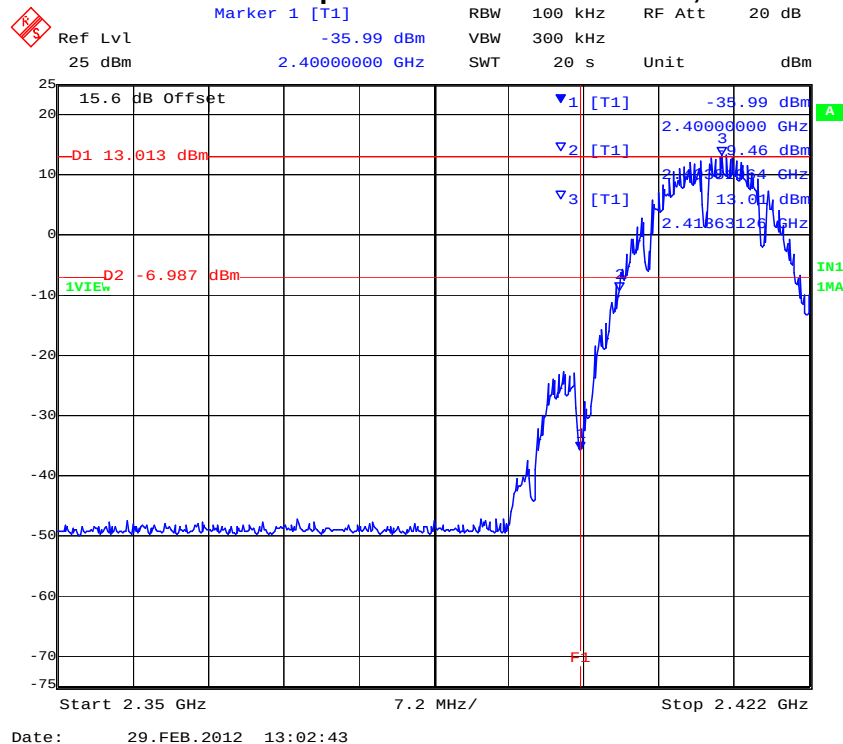
Note: Limit is based on 20dB down from fundamental emissions

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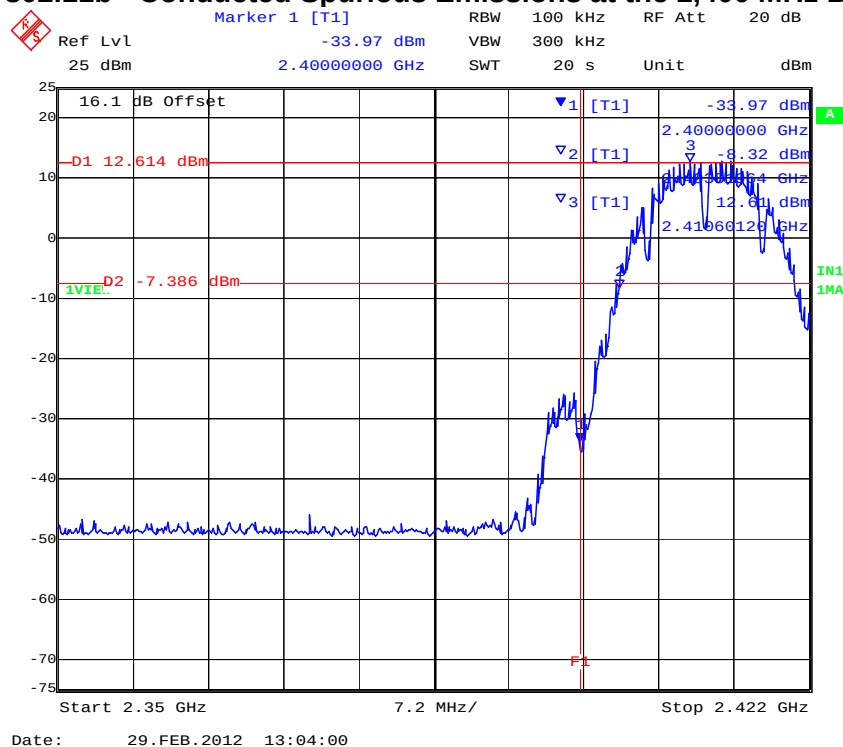


Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
Serial #: WAVI02-U1 Rev A
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PORT A 802.11b - Conducted Spurious Emissions at the 2,400 MHz Band Edge



PORT B 802.11b - Conducted Spurious Emissions at the 2,400 MHz Band Edge



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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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PORT C 802.11b - Conducted Spurious Emissions at the 2,400 MHz Band Edge

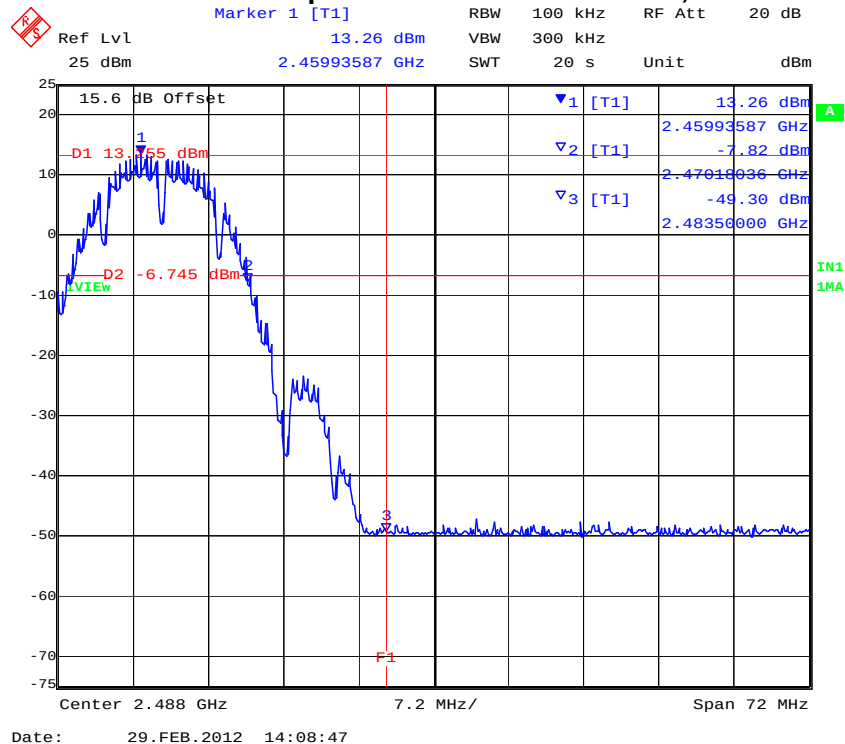


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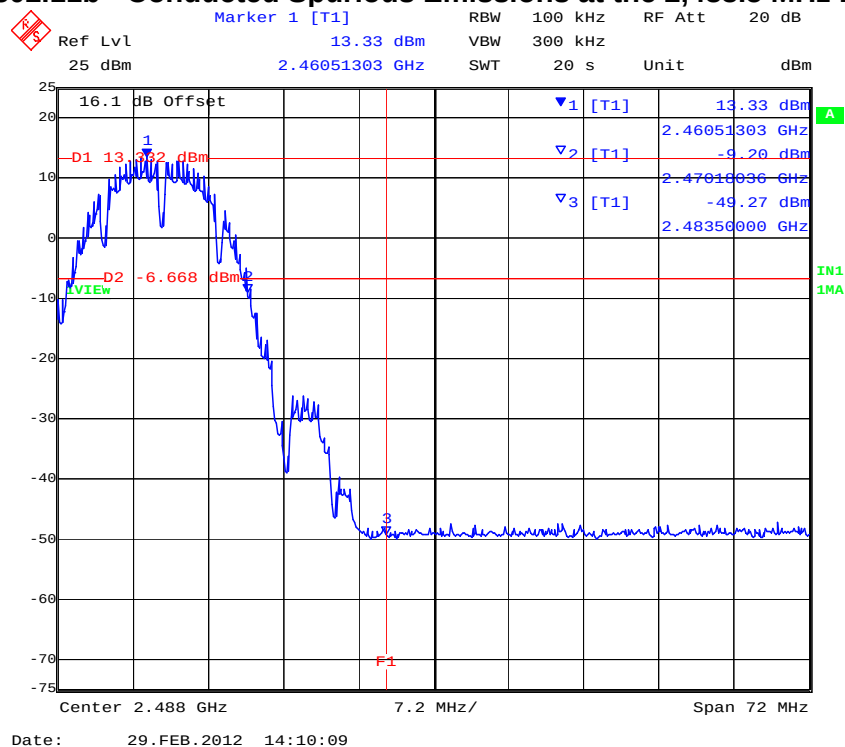


Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
Serial #: WAVI02-U1 Rev A
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PORT A 802.11b - Conducted Spurious Emissions at the 2,483.5 MHz Band Edge



PORT B 802.11b - Conducted Spurious Emissions at the 2,483.5 MHz Band Edge

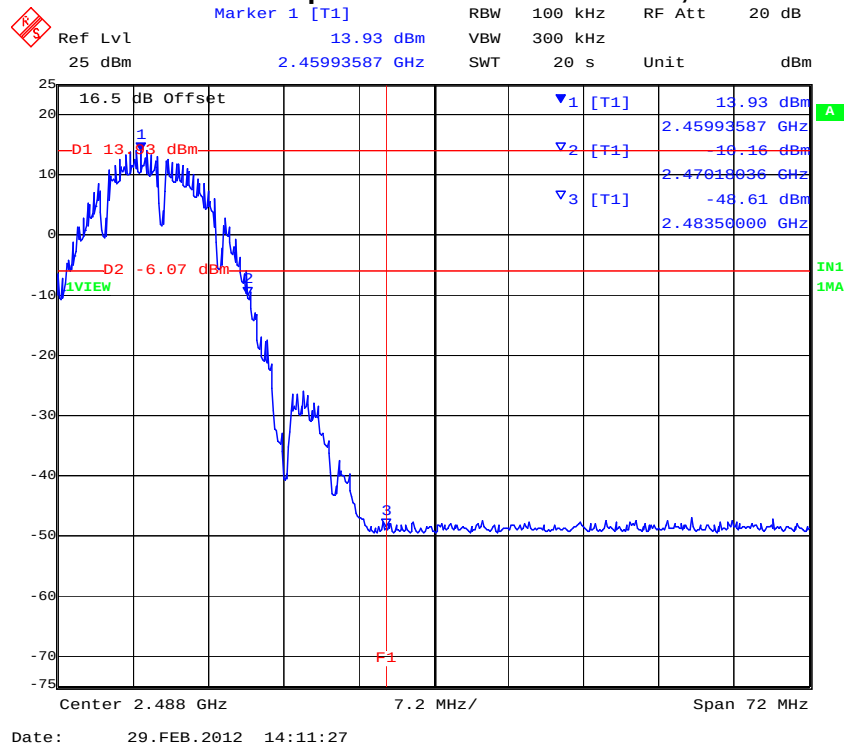


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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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PORT C 802.11b - Conducted Spurious Emissions at the 2,483.5 MHz Band Edge

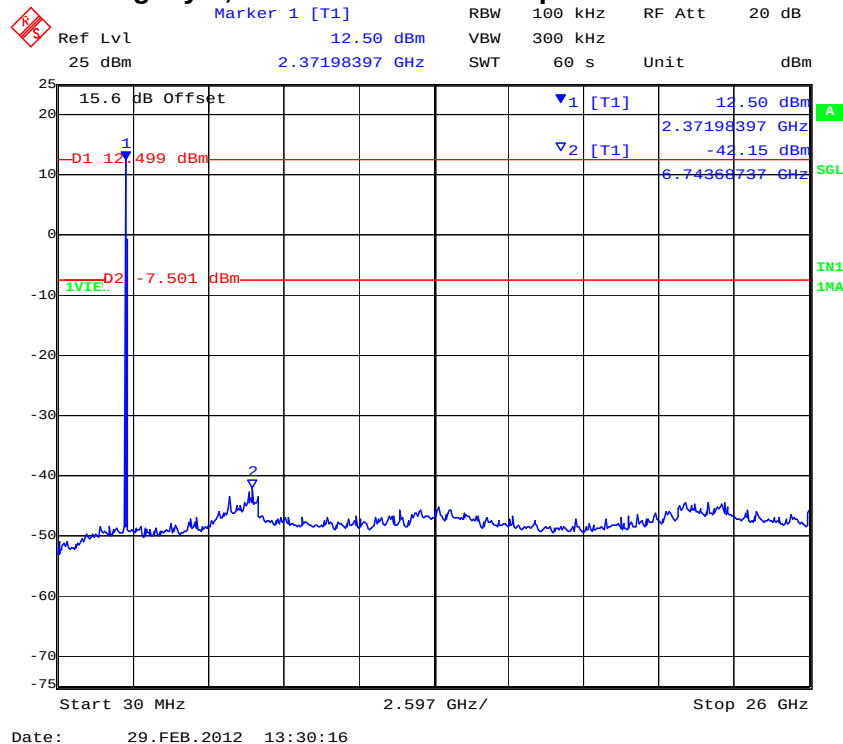


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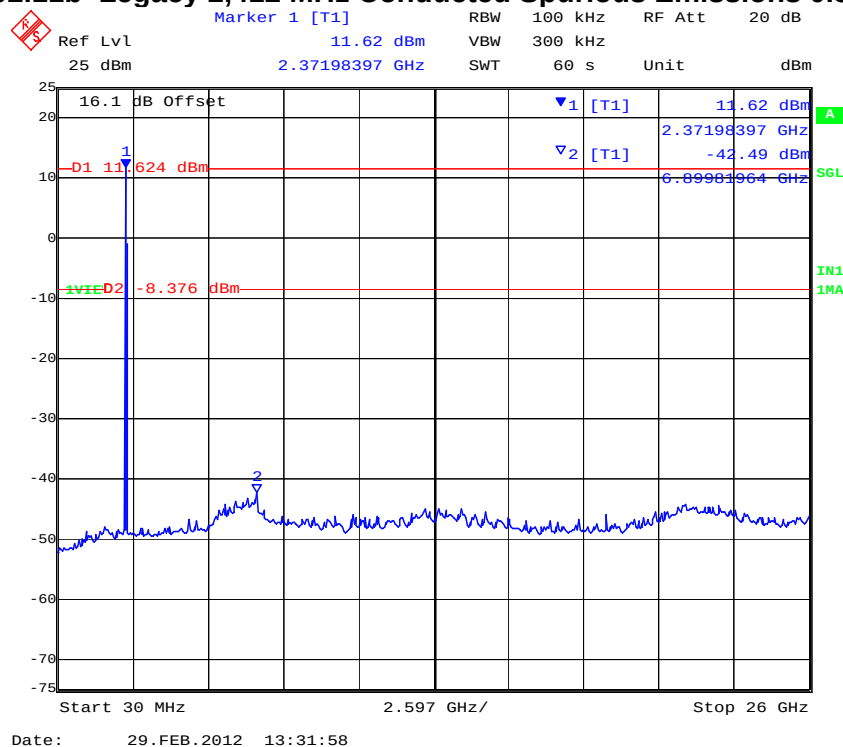


Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
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PORT A 802.11b-Legacy 2,412 MHz Conducted Spurious Emissions 0.30 to 26 GHz



PORT B 802.11b-Legacy 2,412 MHz Conducted Spurious Emissions 0.30 to 26 GHz

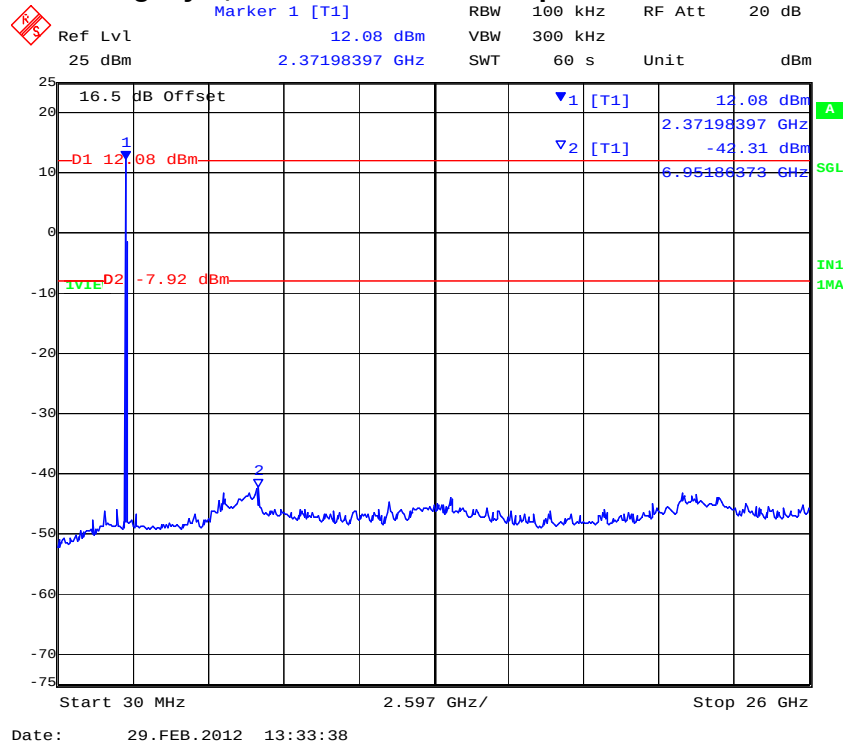


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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
Serial #: WAVI02-U1 Rev A
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PORT C 802.11b-Legacy 2,412 MHz Conducted Spurious Emissions 0.30 to 26 GHz

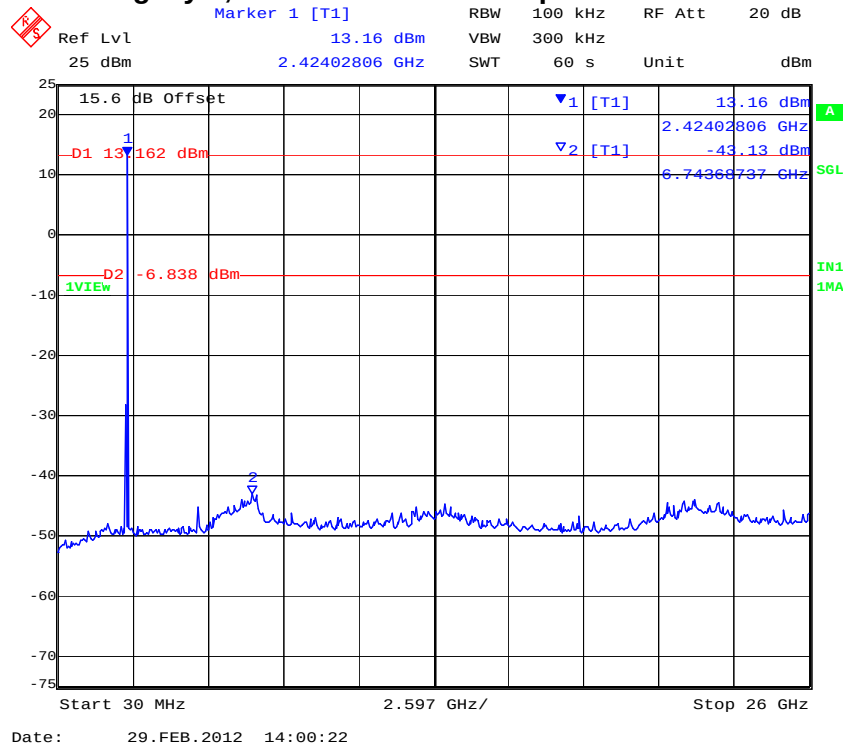


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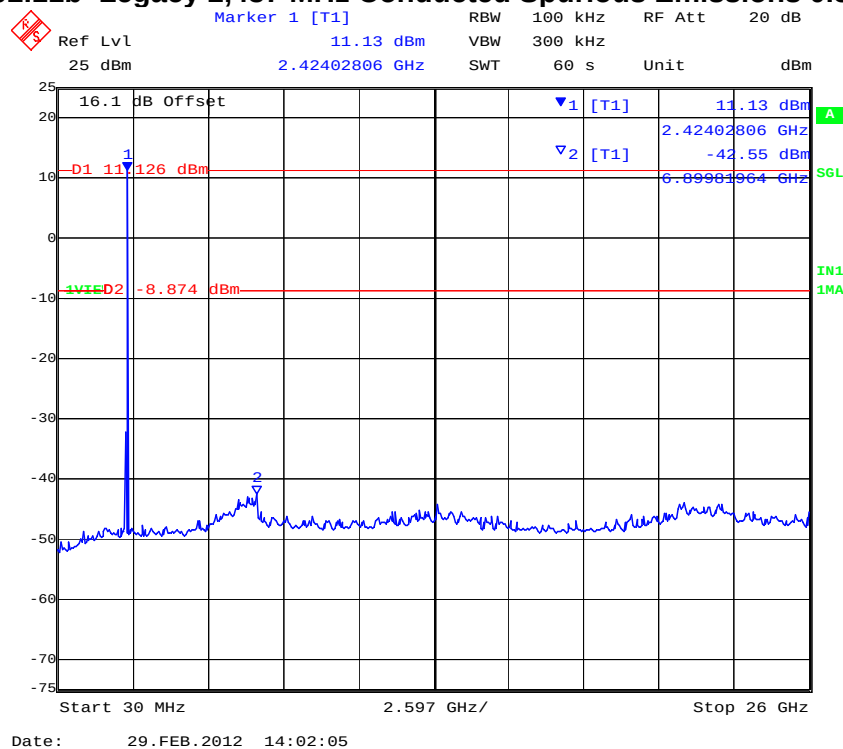


Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
Serial #: WAVI02-U1 Rev A
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PORT A 802.11b-Legacy 2,437 MHz Conducted Spurious Emissions 0.30 to 26 GHz



PORT B 802.11b-Legacy 2,437 MHz Conducted Spurious Emissions 0.30 to 26 GHz

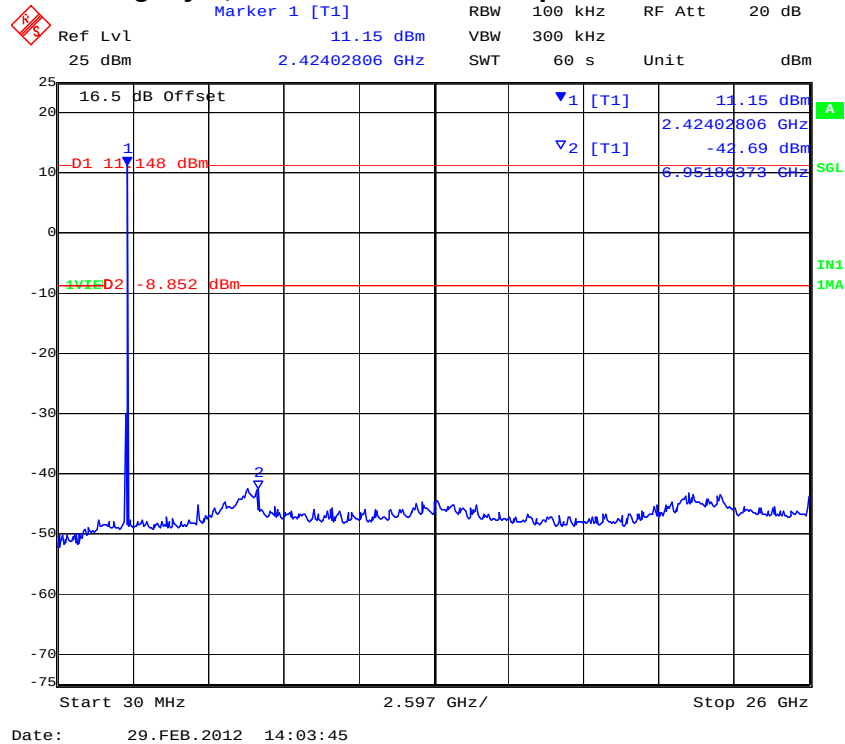


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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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PORT C 802.11b-Legacy 2,437 MHz Conducted Spurious Emissions 0.30 to 26 GHz

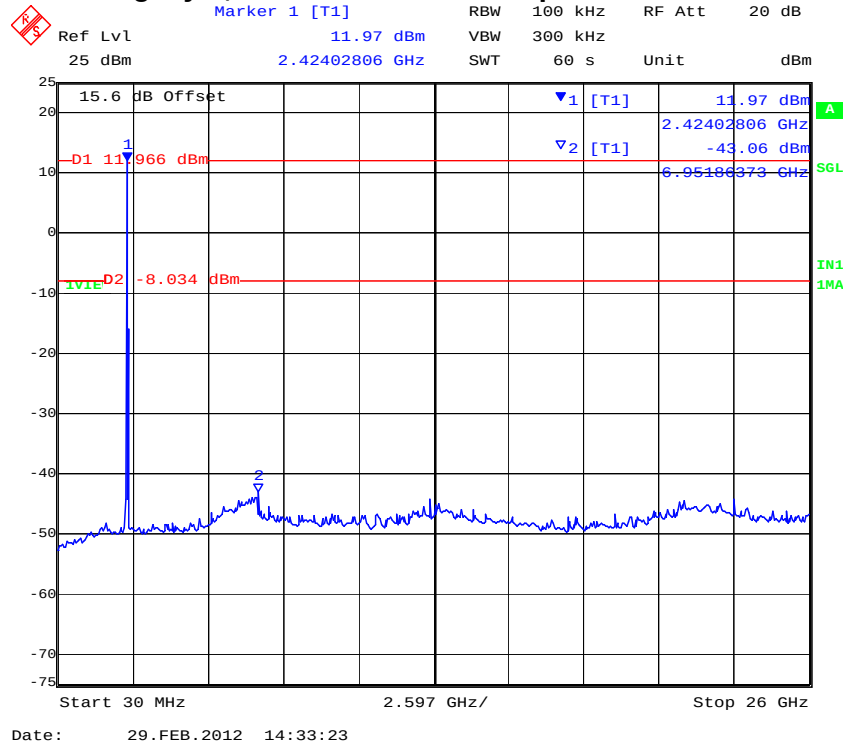


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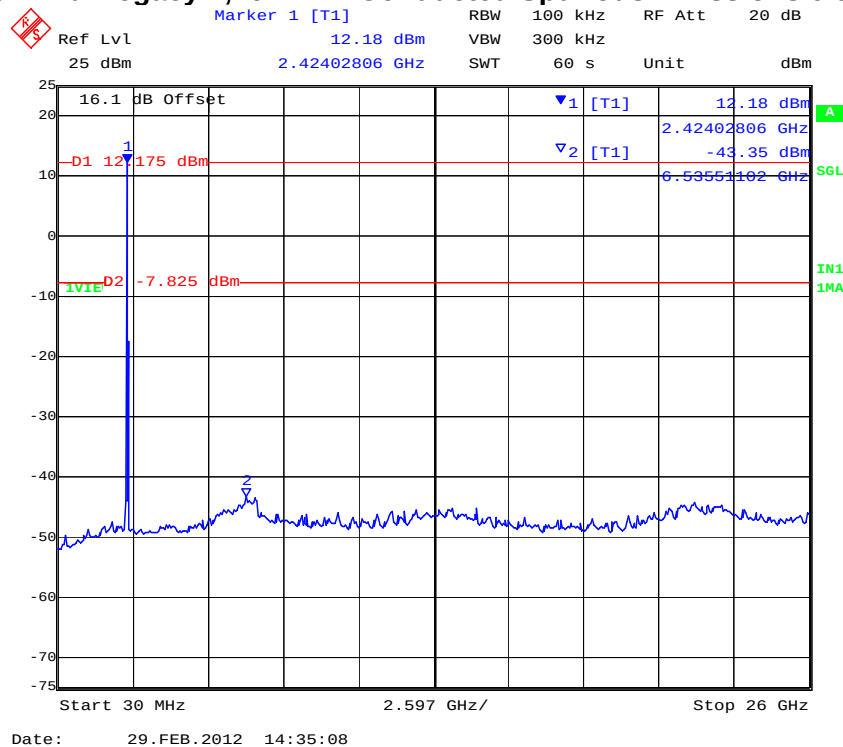


Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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PORT A 802.11b-Legacy 2,462 MHz Conducted Spurious Emissions 0.30 to 26 GHz



PORT B 802.11b-Legacy 2,462 MHz Conducted Spurious Emissions 0.30 to 26 GHz

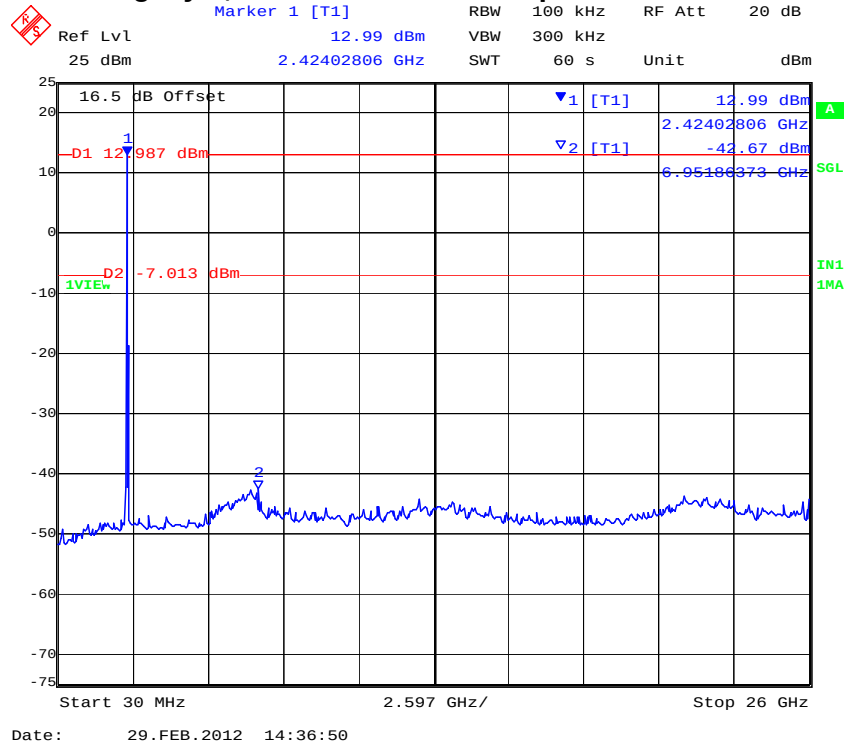


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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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PORT C 802.11b-Legacy 2,462 MHz Conducted Spurious Emissions 0.30 to 26 GHz



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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
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Conducted Spurious Emission Results

TABLE OF RESULTS – 802.11g Legacy

Test Conditions:	15.247 (a)(2)	Rel. Humidity (%):	35	to	42
Variant:	802.11b	Ambient Temp. (°C):	19	to	22
TPC:	HIGH	Pressure (mBars):	998	to	1003
Modulation:	ON	Duty Cycle (%):	100		
Beam Forming Gain	N/A dB	Antenna Gain:	N/A		dBi
Applied Voltage:	48.00 Vdc	Antenna Ports (N):			
Notes 1:					
Notes 2:					

Conducted Spurious Measurement

Test Freq.	Start Freq.	Stop Freq.	Port A		Port B		Port C		Port D	
MHz	MHz	MHz	SE dBm	Limit dBm	SE dBm	Limit dBm	SE dBm	Limit dBm	SE dBm	Limit dBm
2412.000	30.00	26000.00	-43.00	-11.26	-43.51	-11.76	-42.73	-11.32		
2437.000	30.00	26000.00	-43.35	-11.51	-42.93	-12.45	-42.43	-11.55		
2462.000	30.00	26000.00	-43.21	-11.27	-42.72	-10.82	-42.31	-11.21		

SE: Maximum spurious emission found

Band-edge Measurement

Test Freq.	Band-edge freq.	Port A		Port B		Port C		Port D	
MHz	MHz	BE dBm	Limit dBm	BE dBm	Limit dBm	BE dBm	Limit dBm	BE dBm	Limit dBm
2412.000	2400.00	-12.05	-9.40	-13.47	-10.36	-11.28	-10.02		
2462.000	2483.50	-44.24	-10.46	-47.69	-9.37	-44.91	-8.92		

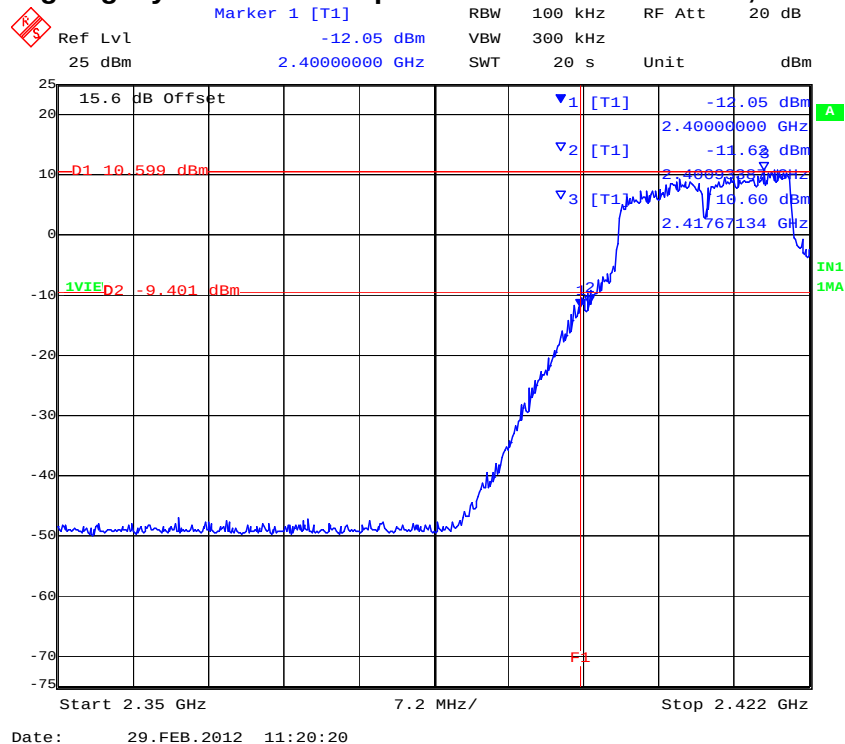
BE: Maximum Band edge emission found

Measurement uncertainty:	±2.81 dB
---------------------------------	----------

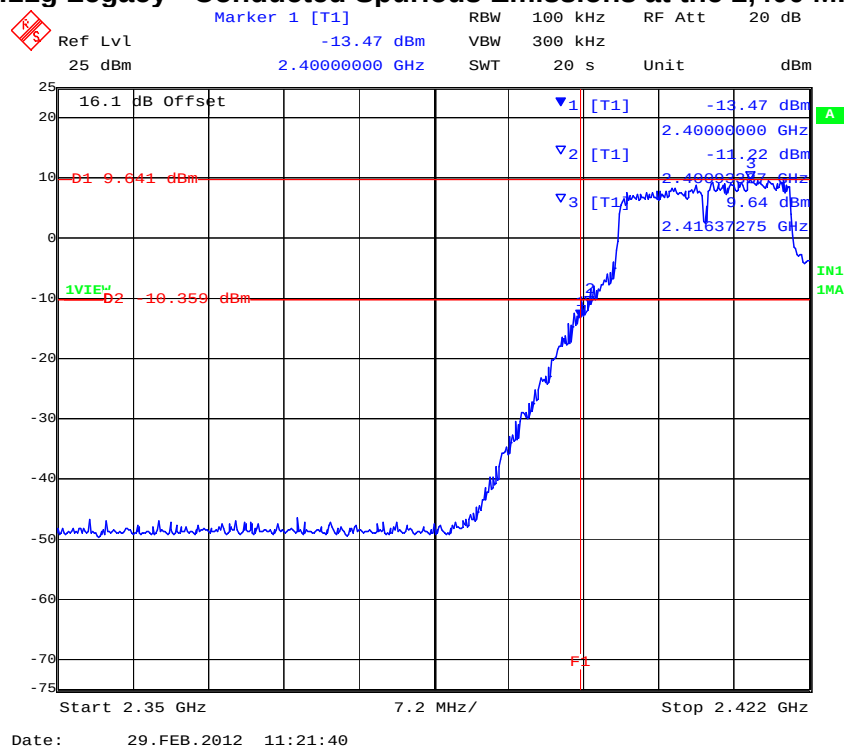
Note: Limit is based on 20dB down from fundamental emissions

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PORT A 802.11g Legacy - Conducted Spurious Emissions at the 2,400 MHz Band Edge



PORT B 802.11g Legacy - Conducted Spurious Emissions at the 2,400 MHz Band Edge

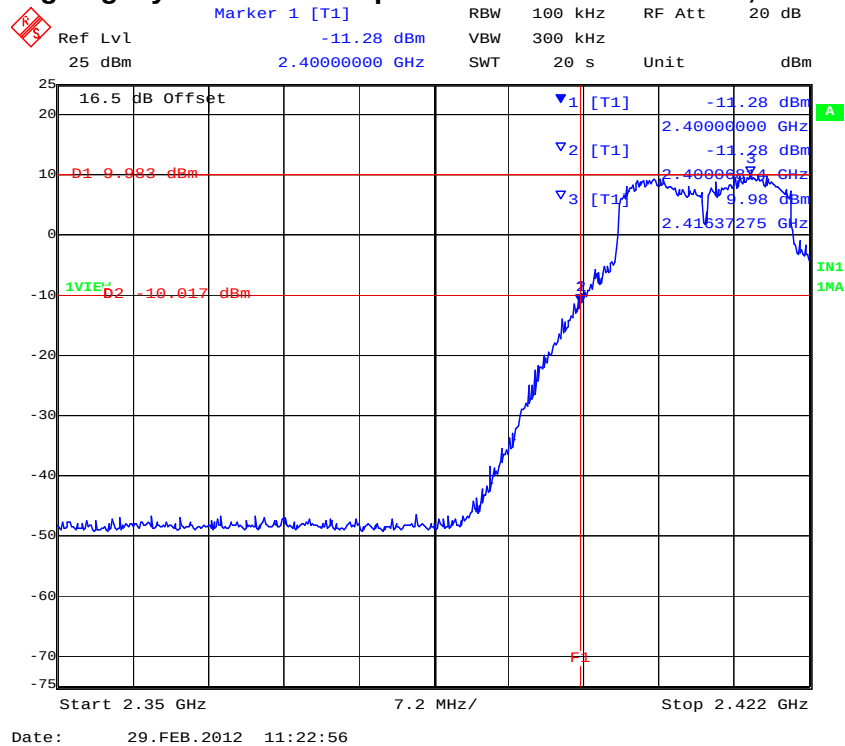


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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
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PORT C 802.11g Legacy - Conducted Spurious Emissions at the 2,400 MHz Band Edge

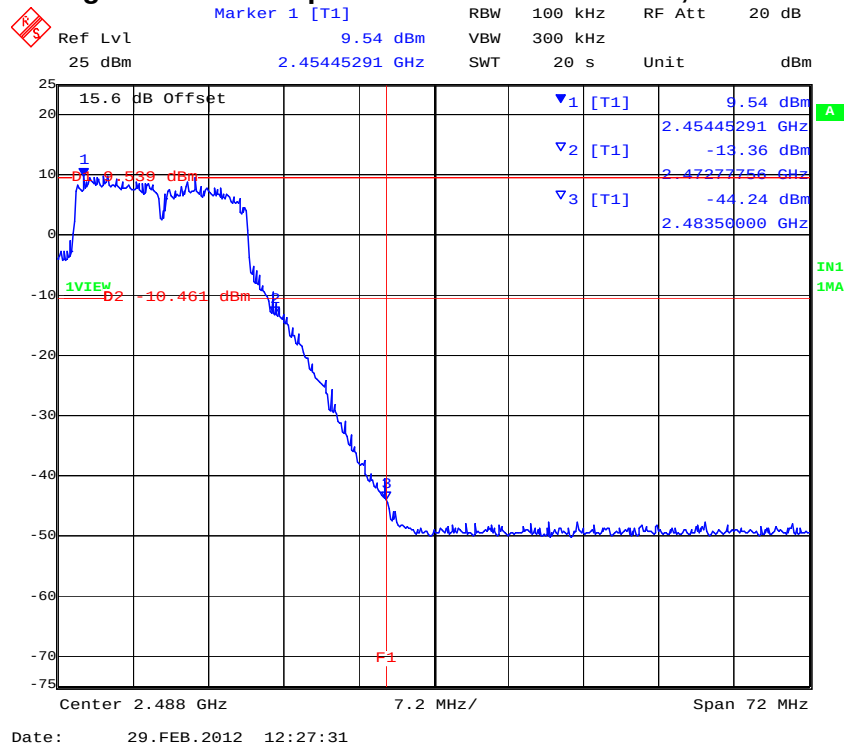


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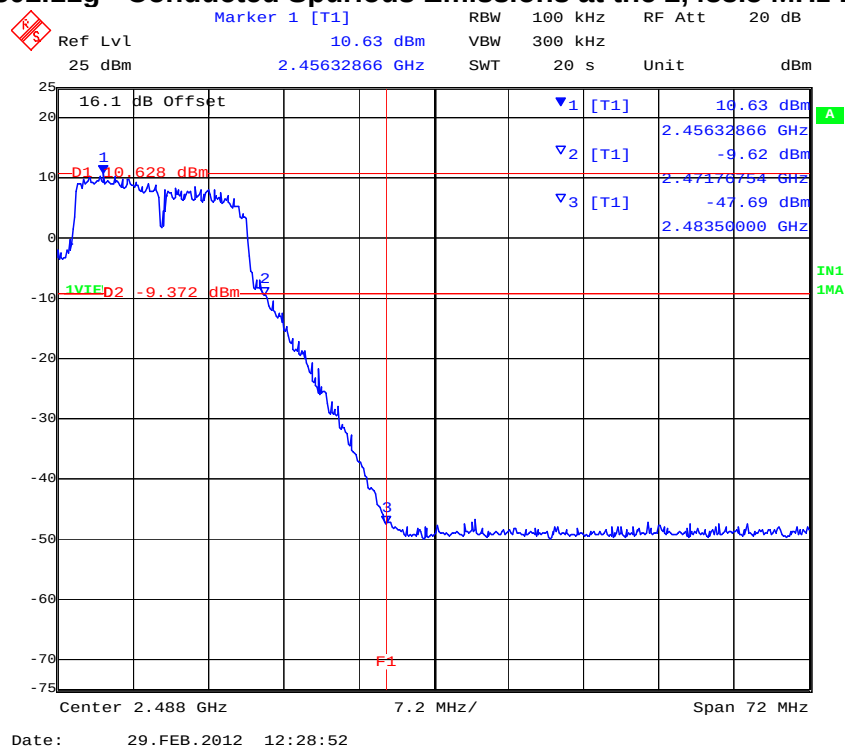


Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
Serial #: WAVI02-U1 Rev A
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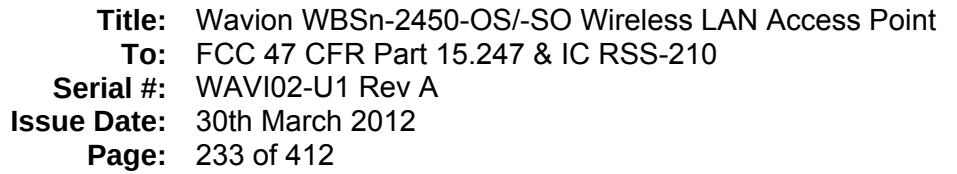
PORT A 802.11g - Conducted Spurious Emissions at the 2,483.5 MHz Band Edge



PORT B 802.11g - Conducted Spurious Emissions at the 2,483.5 MHz Band Edge



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Ref Lvl 25 dBm

Marker 1 [T1] 11.08 dBm

RBW 100 kHz

VBW 300 kHz

SWT 20 s

RF Att 20 dB

Unit dBm

16.5 dB Offset

1 11.083 dBm

2 -8.917 dBm

3 -44.91 dBm

F1 -75 dBm

Center 2.488 GHz

7.2 MHz/

Span 72 MHz

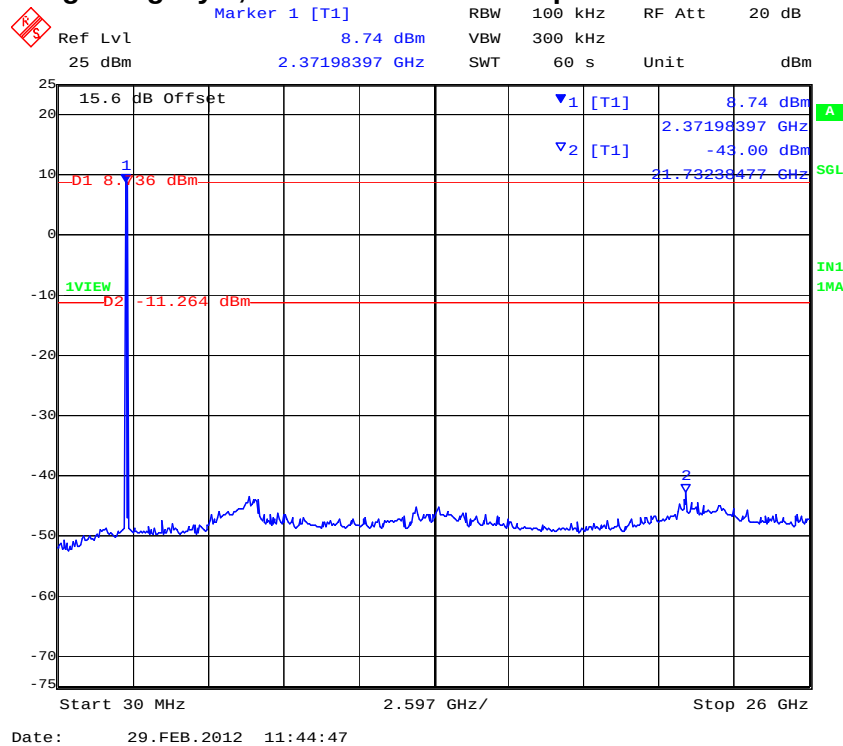
Date: 29.FEB.2012 12:30:10

MiCOM Labs, 440 Boulder Court, Suite 200, Pleasanton, CA 94566 USA, Phone: 925.462.0304, Fax: 925.462.0306, www.micomlabs.com

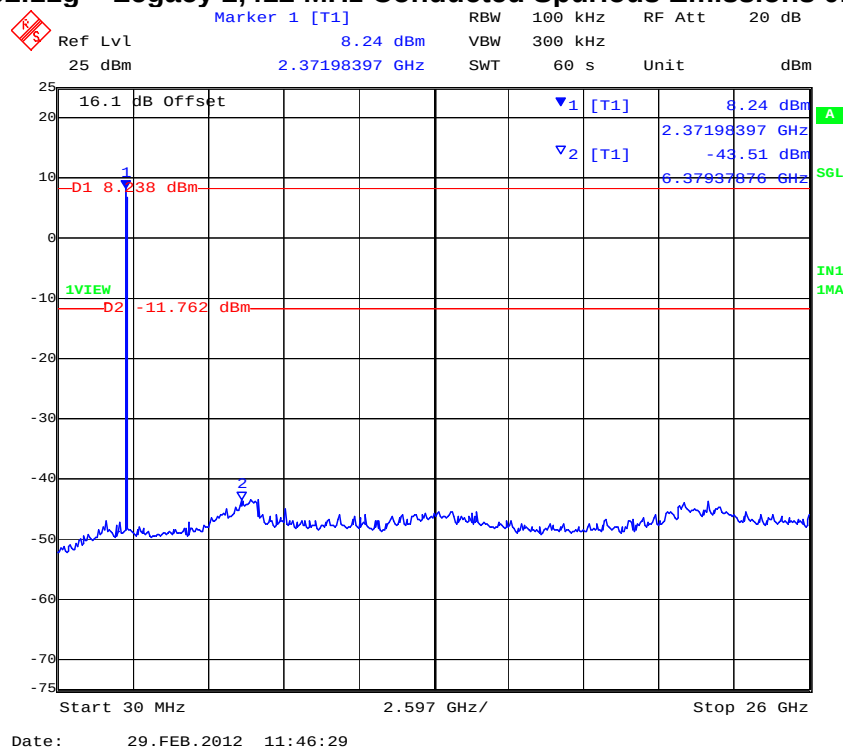


Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
Serial #: WAVI02-U1 Rev A
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PORT A 802.11g – Legacy 2,412 MHz Conducted Spurious Emissions 0.03 – 26 GHz



PORT B 802.11g – Legacy 2,412 MHz Conducted Spurious Emissions 0.03 – 26 GHz

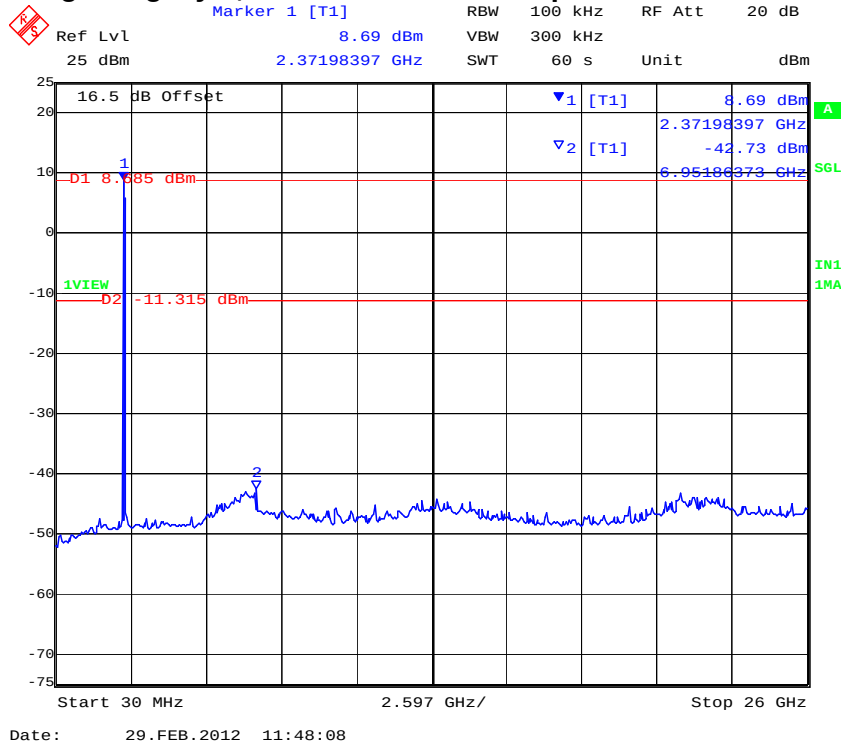


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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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Serial #: WAVI02-U1 Rev A
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PORT C 802.11g – Legacy 2,412 MHz Conducted Spurious Emissions 0.03 – 26 GHz

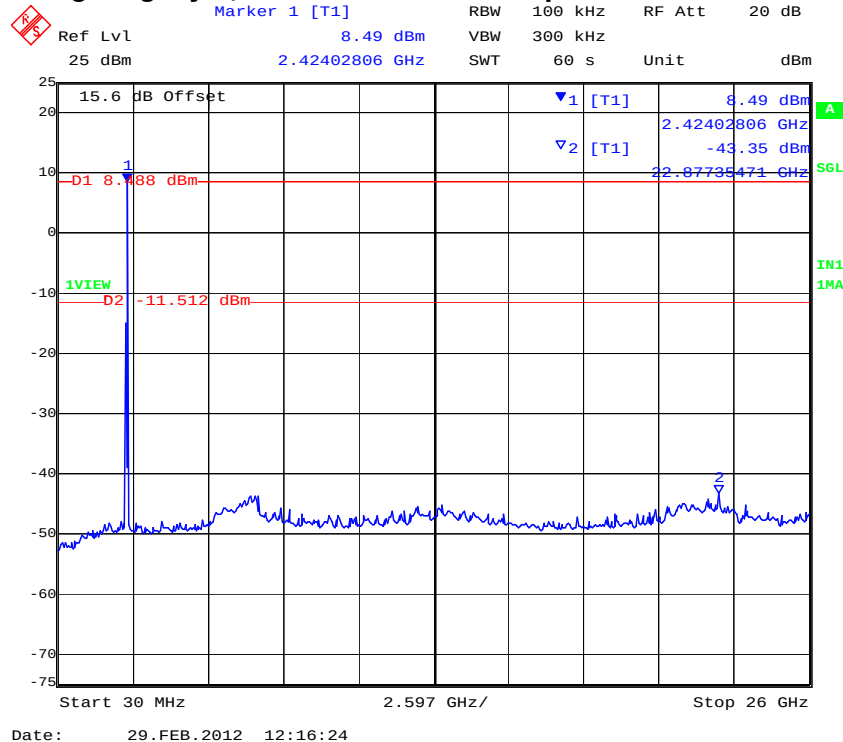


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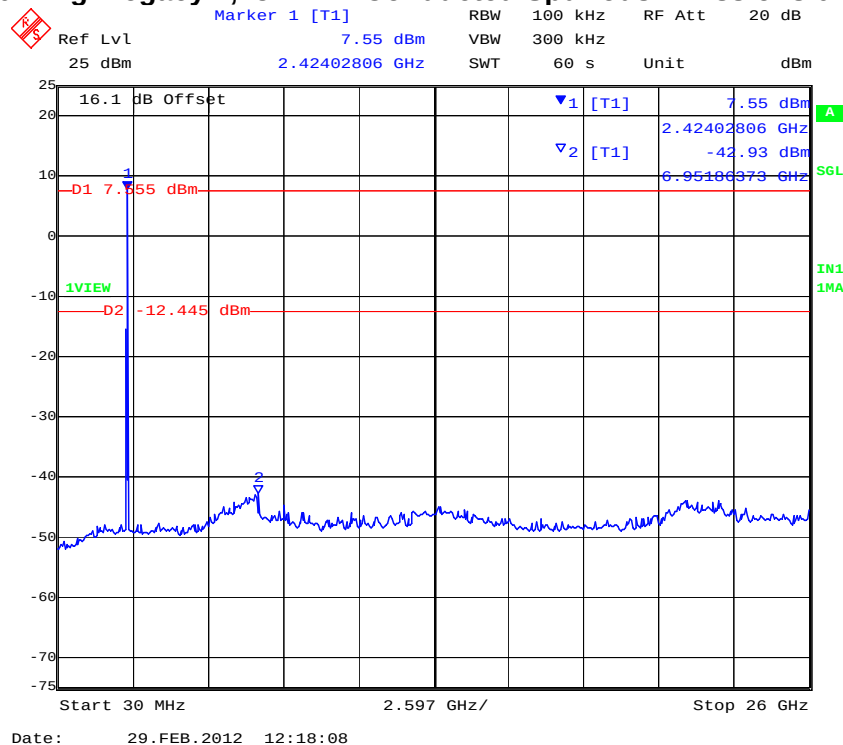


Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
Serial #: WAVI02-U1 Rev A
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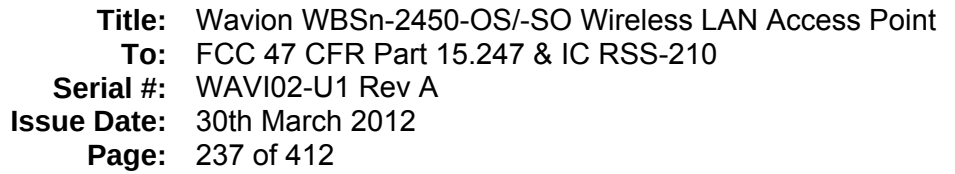
PORT A 802.11g-Legacy 2,437 MHz Conducted Spurious Emissions 0.03 – 26 GHz



PORT B 802.11g-Legacy 2,437 MHz Conducted Spurious Emissions 0.03 – 26 GHz



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Ref Lvl 25 dBm

Marker 1 [T1] 8.45 dBm

RBW 100 kHz

VBW 300 kHz

SWT 60 s

Unit dBm

16.5 dB Offset

1 8.45 dBm

2.42402806 GHz

-42.43 dBm

D1 8.447 dBm

D2 -11.553 dBm

VIEW

Start 30 MHz

2.597 GHz/

Stop 26 GHz

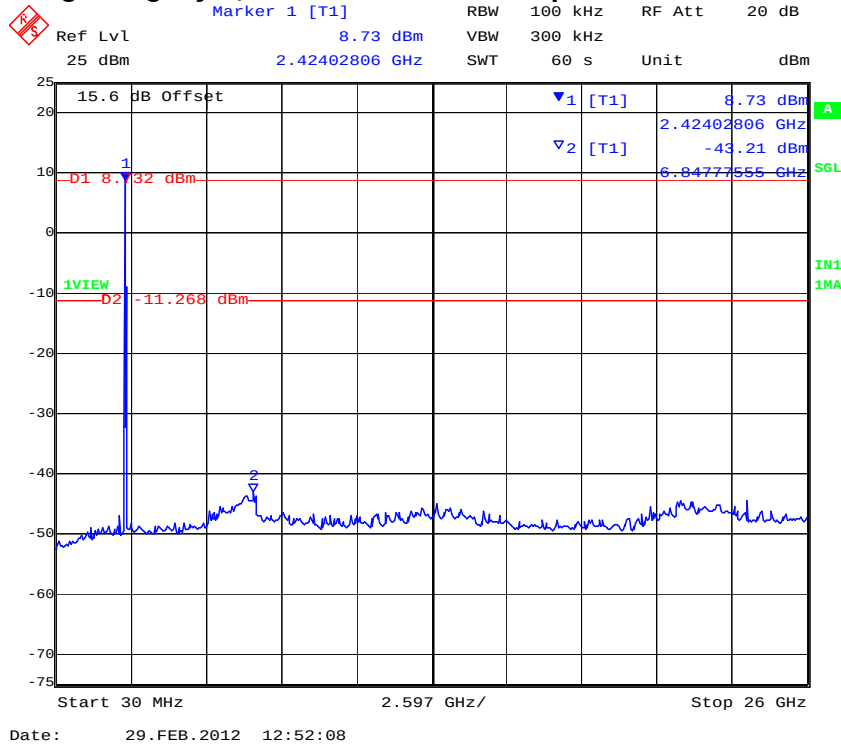
Date: 29.FEB.2012 12:19:48

MiCOM Labs, 440 Boulder Court, Suite 200, Pleasanton, CA 94566 USA, Phone: 925.462.0304, Fax: 925.462.0306, www.micomlabs.com

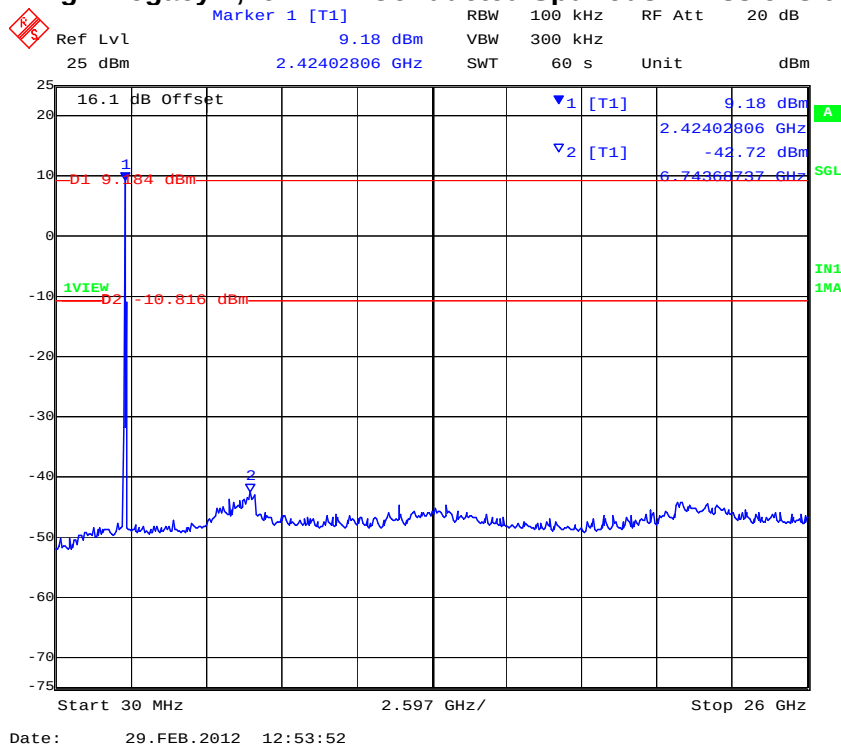


Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
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PORT A 802.11g – Legacy 2,462 MHz Conducted Spurious Emissions 0.03 – 26 GHz



PORT B 802.11g – Legacy 2,462 MHz Conducted Spurious Emissions 0.03 – 26 GHz

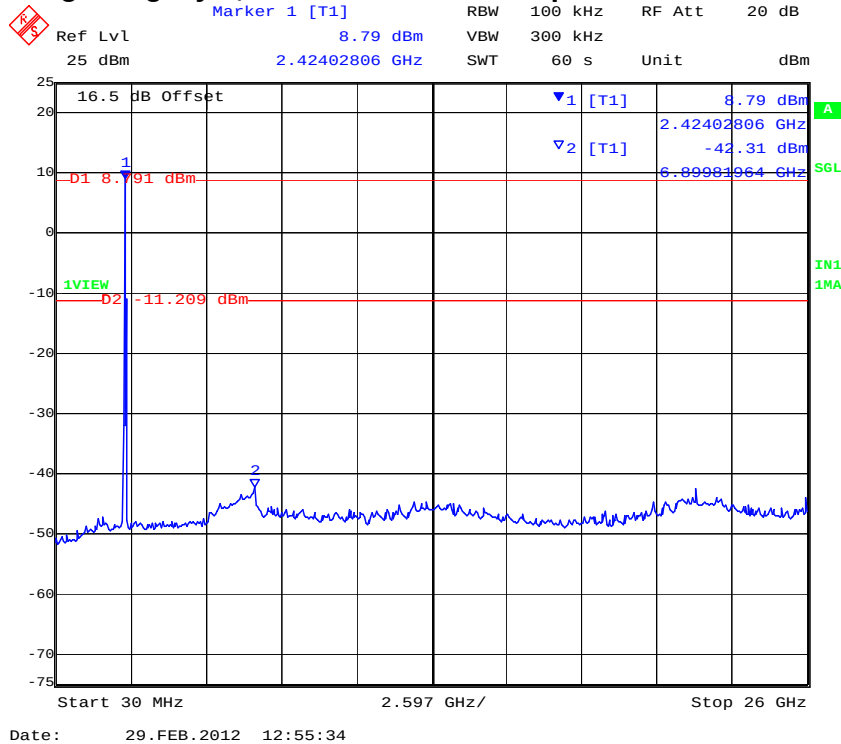


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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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PORT C 802.11g – Legacy 2,462 MHz Conducted Spurious Emissions 0.03 – 26 GHz



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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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Conducted Spurious Emission Results

TABLE OF RESULTS – 802.11n HT-20

Test Conditions:	15.247 (a)(2)	Rel. Humidity (%):	35	to	42
Variant:	802.11n HT-20	Ambient Temp. (°C):	19	to	22
TPC:	HIGH	Pressure (mBars):	998	to	1003
Modulation:	ON	Duty Cycle (%):	100		
Beam Forming Gain	N/A dB	Antenna Gain:	N/A		dBi
Applied Voltage:	48.00 Vdc	Antenna Ports (N):			
Notes 1:					
Notes 2:					

Conducted Spurious Measurement

Test Freq.	Start Freq.	Stop Freq.	Port A		Port B		Port C		Port D	
MHz	MHz	MHz	SE dBm	Limit dBm	SE dBm	Limit dBm	SE dBm	Limit dBm	SE dBm	Limit dBm
2412.000	30.00	26000.00	-43.45	-11.44	-42.47	-11.84	-42.83	-11.24		
2437.000	30.00	26000.00	-43.83	-12.38	-42.50	-12.54	-42.68	-11.84		
2462.000	30.00	26000.00	-43.35	-12.26	-43.00	-11.47	-42.82	-12.25		

SE: Maximum spurious emission found

Band-edge Measurement

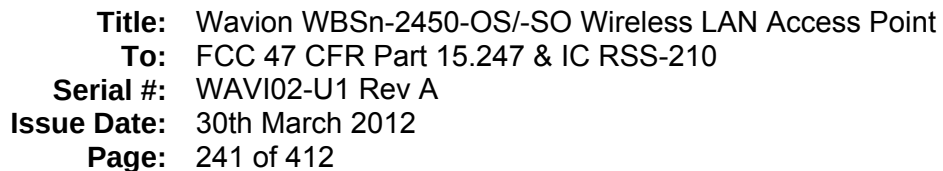
Test Freq.	Band-edge freq.	Port A		Port B		Port C		Port D	
MHz	MHz	BE dBm	Limit dBm	BE dBm	Limit dBm	BE dBm	Limit dBm	BE dBm	Limit dBm
2412.000	2400.00	-13.93	-10.69	-13.60	-10.63	-10.85	-10.83		
2462.000	2483.50	-44.15	-10.14	-45.74	-9.40	-44.19	-10.33		

BE: Maximum Band edge emission found

Measurement uncertainty:	±2.81 dB
---------------------------------	----------

Note: Limit is based on 20dB down from fundamental emissions

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Ref Lvl 25 dBm

Marker 1 [T1] -13.93 dBm

RBW 100 kHz RF Att 20 dB

VBW 300 kHz

SWT 20 s Unit dBm

15.6 dB Offset

1 [T1] -13.93 dBm

2 [T1] 2.4000000 GHz -11.41 dBm

3 [T1] 2.4012222 GHz -9.31 dBm

1VIEW

2

Start 2.35 GHz 7.2 MHz/ Stop 2.422 GHz

Date: 29.FEB.2012 15:20:08

Ref Lvl: 25 dBm
 Marker 1 [T1]: -13.60 dBm
 RBW: 100 kHz
 VBW: 300 kHz
 RF Att: 20 dB
 Unit: dBm

16.1 dB Offset
 2.40000000 GHz
 20 s

1 [T1]: -13.60 dBm
 2 [T1]: -13.27 dBm
 3 [T1]: -9.37 dBm

D1 9.375 dBm
 D2 -16.625 dBm
 F1

1VIEW
 IN1
 1MA

Start 2.35 GHz
 7.2 MHz/
 Stop 2.422 GHz

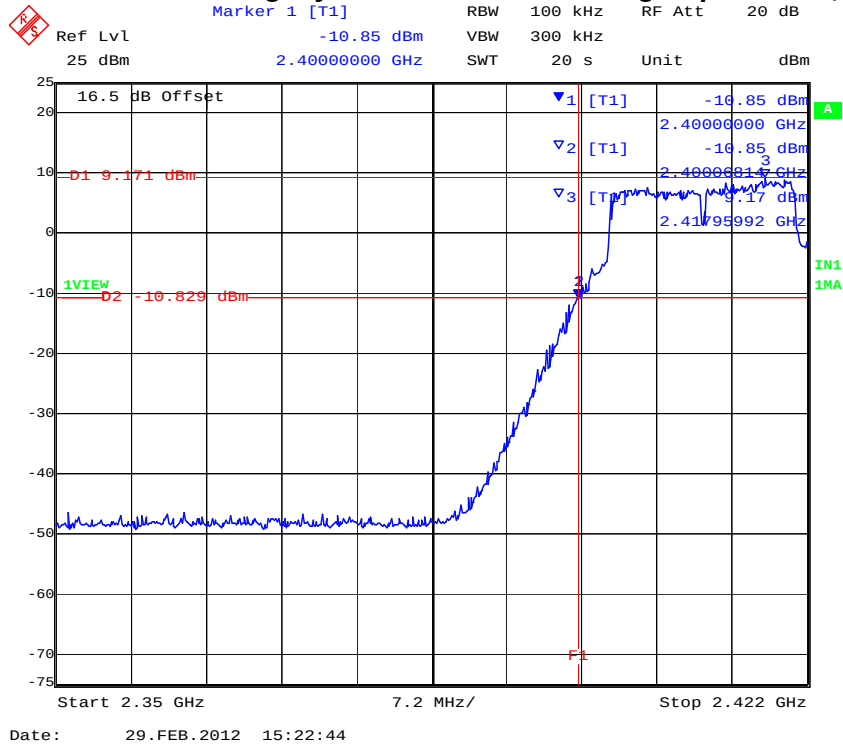
Date: 29.FEB.2012 15:21:27

MiCOM Labs, 440 Boulder Court, Suite 200, Pleasanton, CA 94566 USA, Phone: 925.462.0304, Fax: 925.462.0306, www.micomlabs.com



Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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PORT C 802.11n HT-20 Legacy - Conducted Band Edge Spurious 2,400 MHz

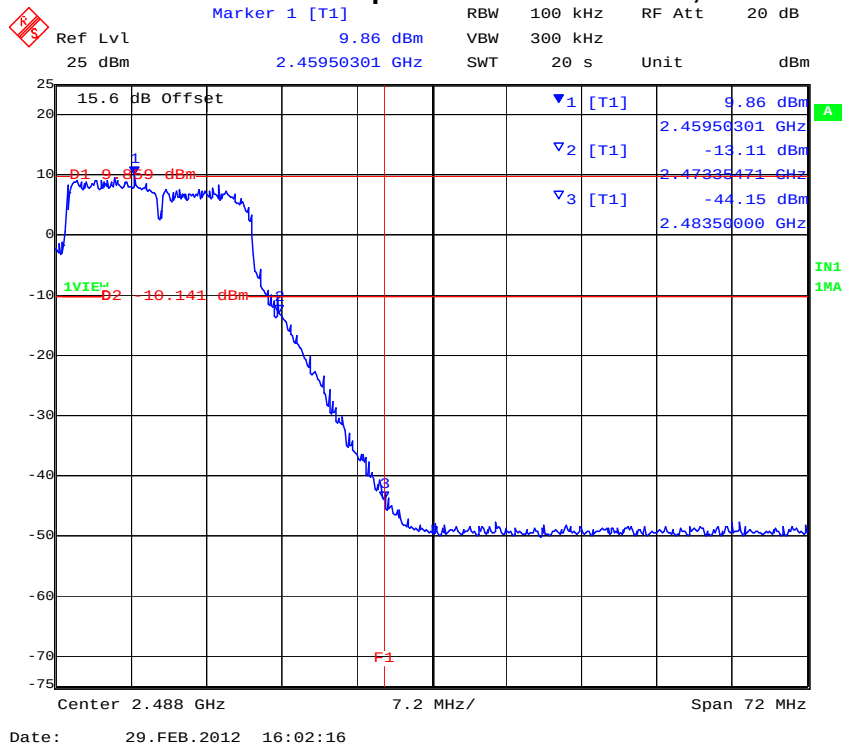


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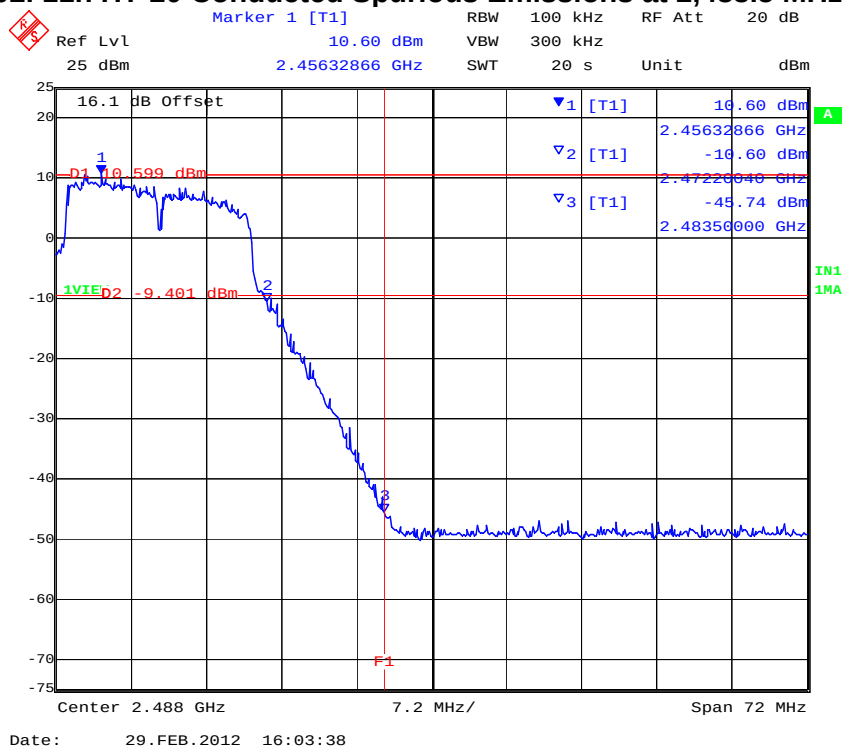


Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
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PORT A 802.11n HT-20 Conducted Spurious Emissions at 2,483.5 MHz Band Edge



PORT B 802.11n HT-20 Conducted Spurious Emissions at 2,483.5 MHz Band Edge

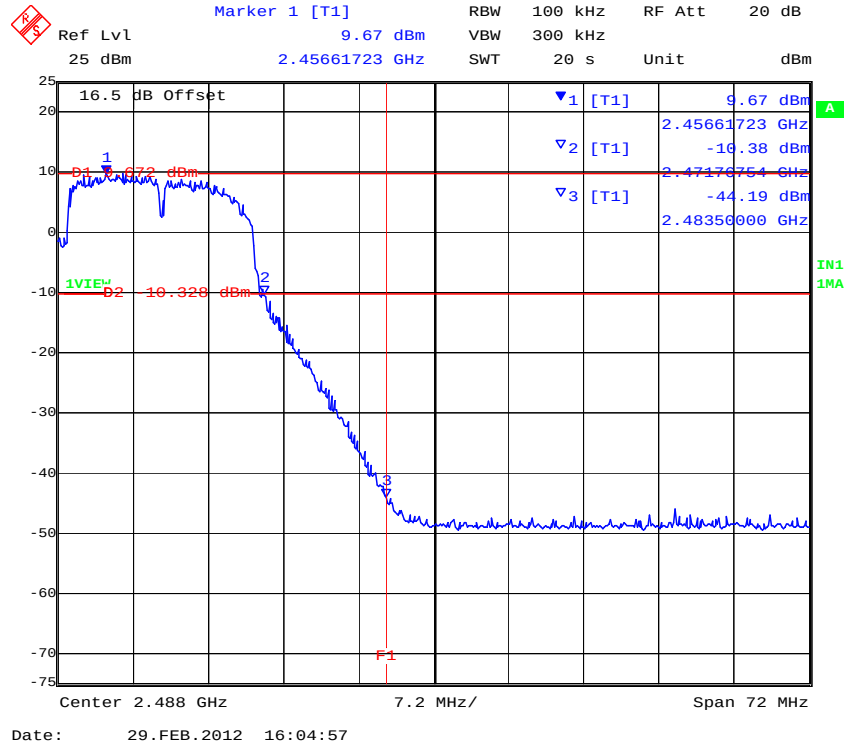


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To: FCC 47 CFR Part 15.247 & IC RSS-210
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PORT C 802. 11n HT-20 Conducted Spurious Emissions at 2,483.5 MHz Band Edge

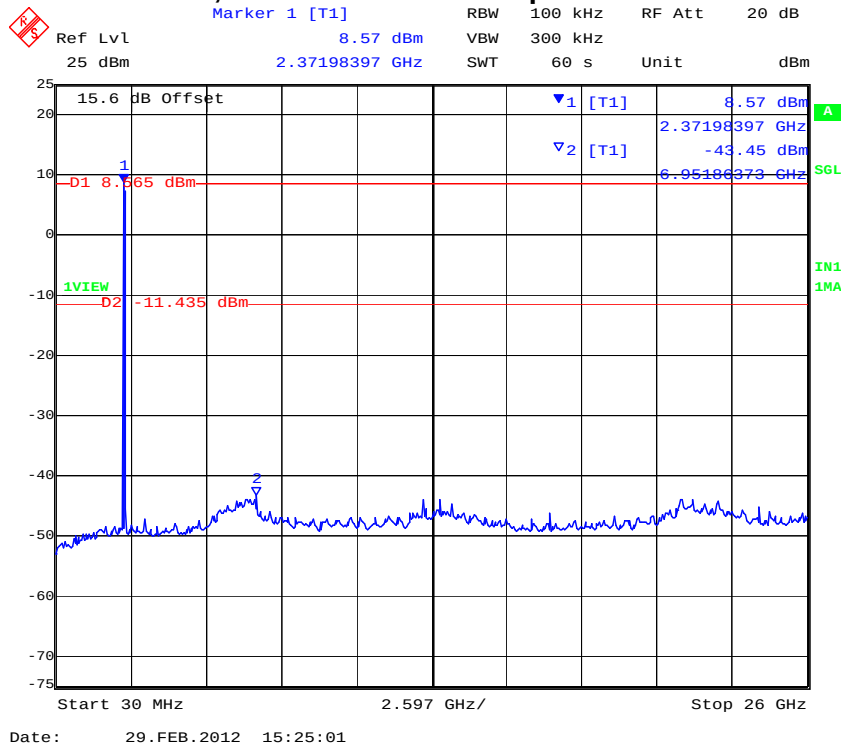


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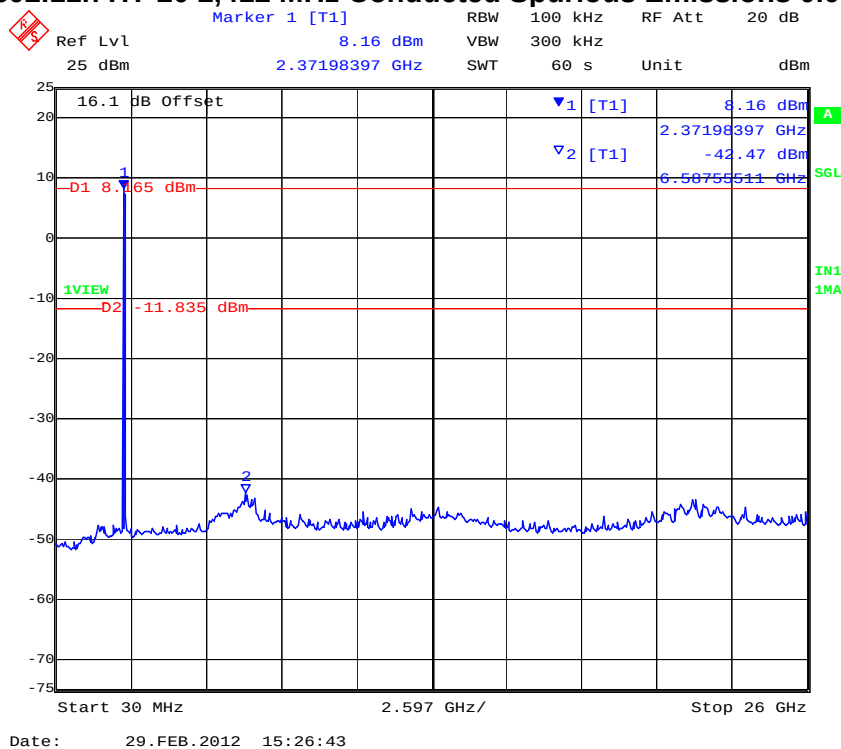


Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
Serial #: WAVI02-U1 Rev A
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PORT A 802.11n HT-20 2,412 MHz Conducted Spurious Emissions 0.03 – 26 GHz



PORT B 802.11n HT-20 2,412 MHz Conducted Spurious Emissions 0.03 – 26 GHz

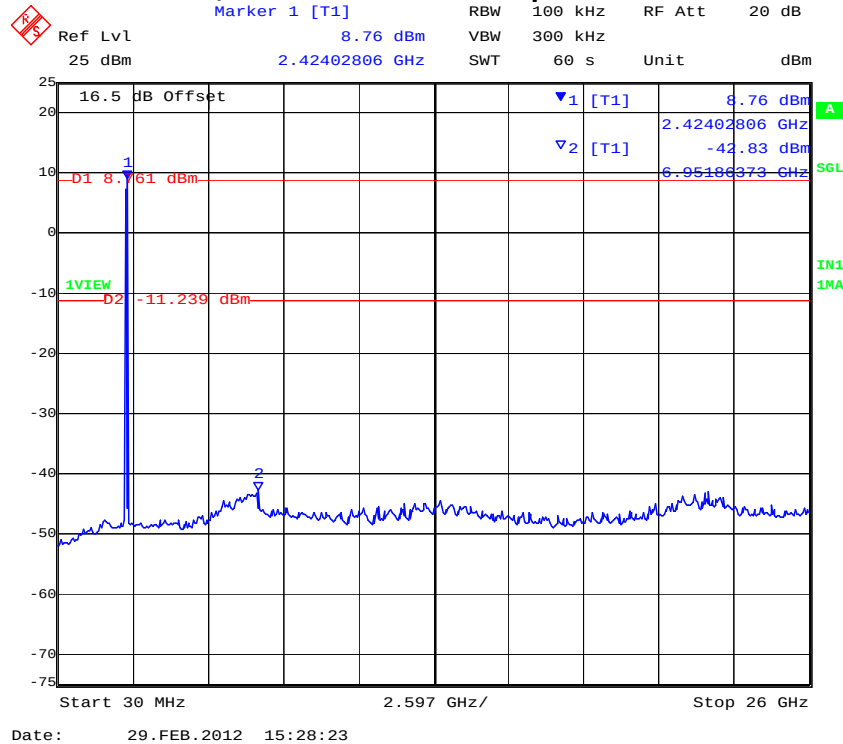


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PORT C 802.11n HT-20 2,412 MHz Conducted Spurious Emissions 0.03 – 26 GHz

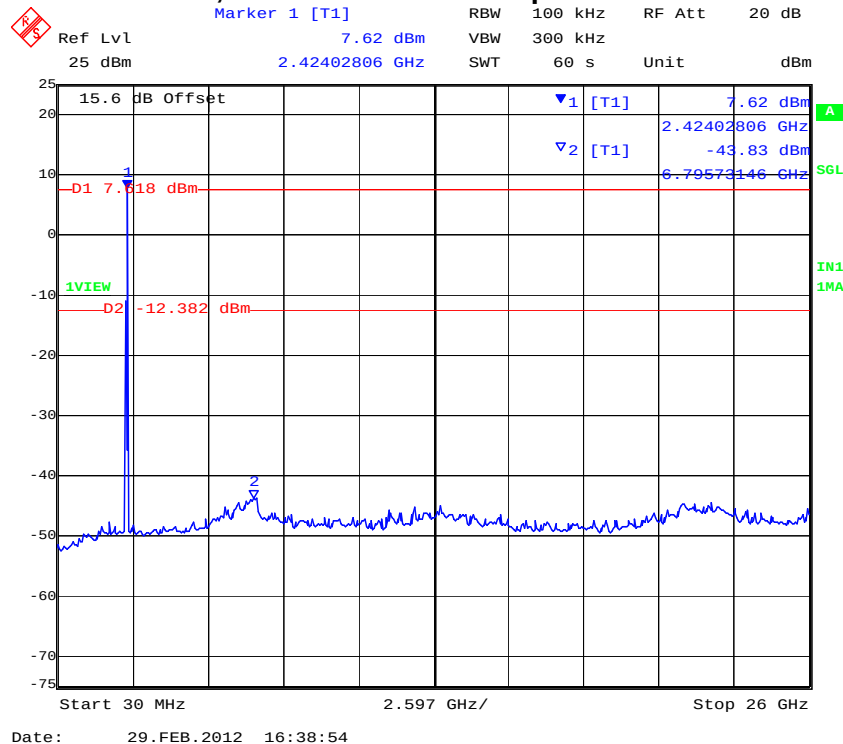


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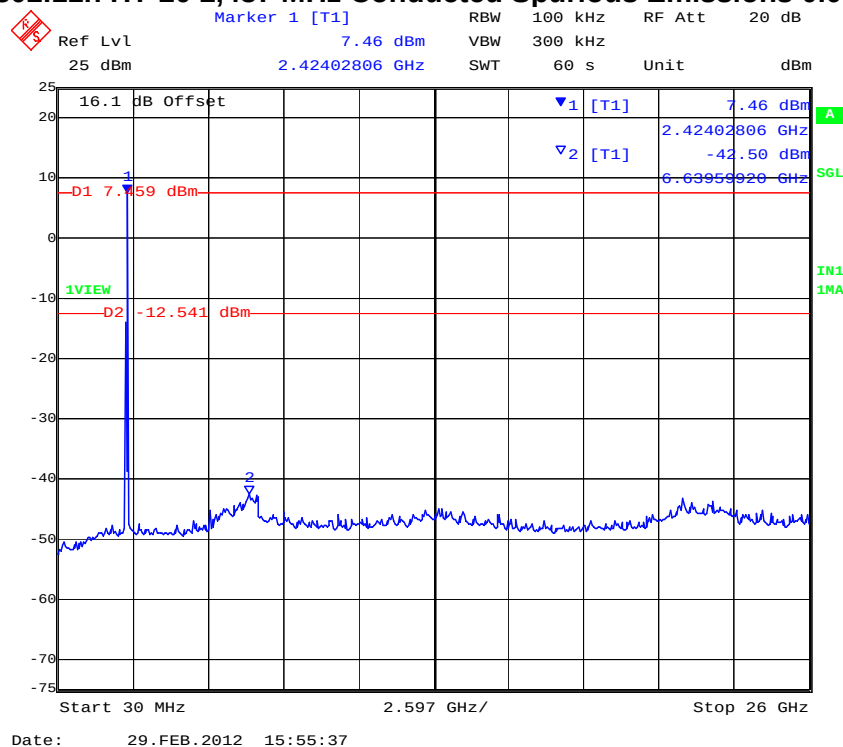


Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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PORT A 802.11n HT-20 2,437 MHz Conducted Spurious Emissions 0.03 – 26 GHz



PORT B 802.11n HT-20 2,437 MHz Conducted Spurious Emissions 0.03 – 26 GHz

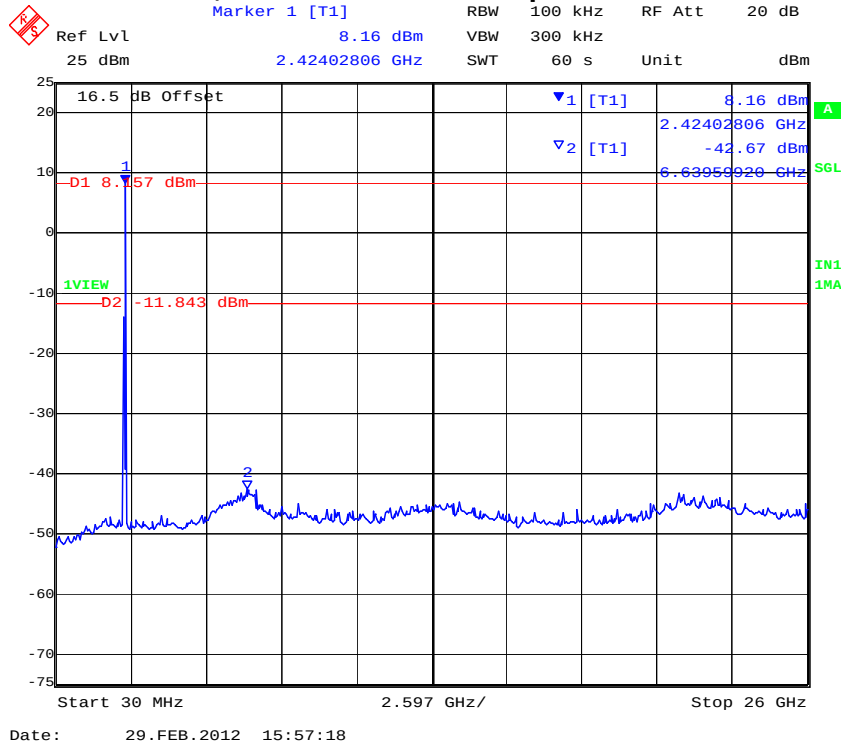


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PORT C 802.11n HT-20 2,437 MHz Conducted Spurious Emissions 0.03 – 26 GHz

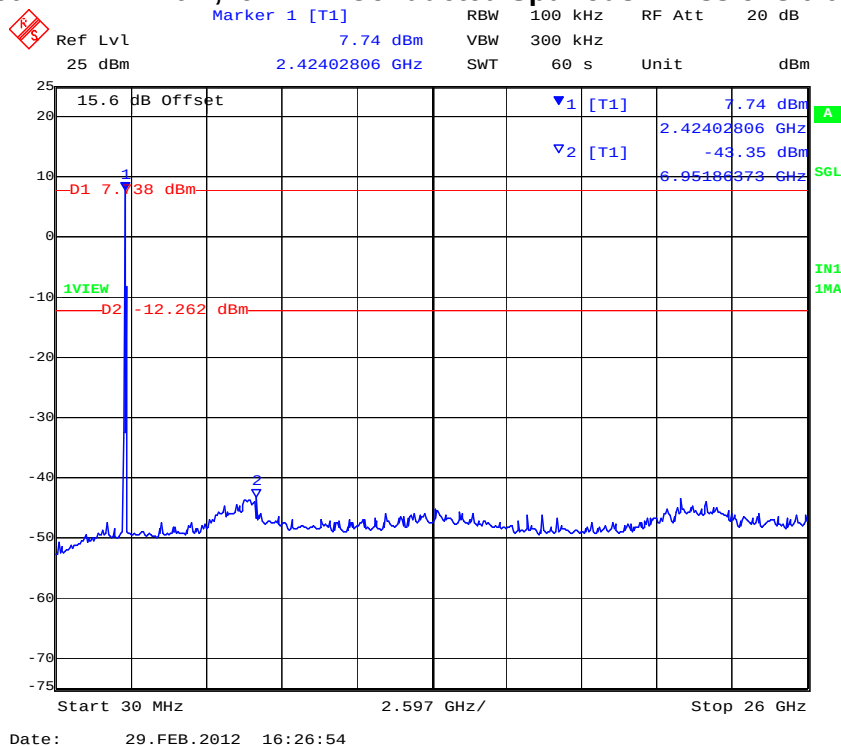


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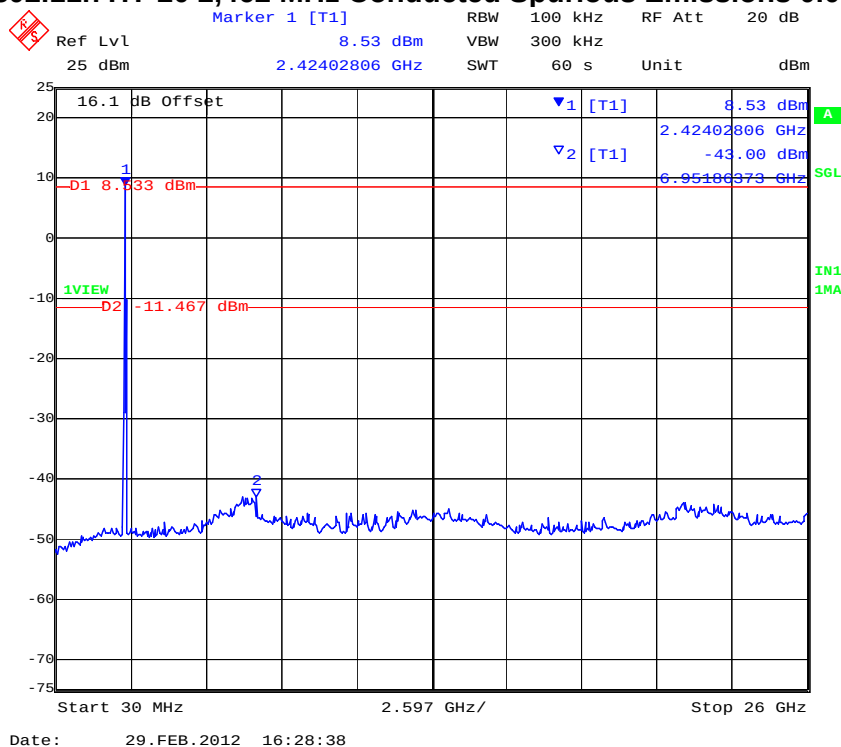


Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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PORT A 802.11n HT-20 2,462 MHz Conducted Spurious Emissions 0.03 – 26 GHz



PORT B 802.11n HT-20 2,462 MHz Conducted Spurious Emissions 0.03 – 26 GHz

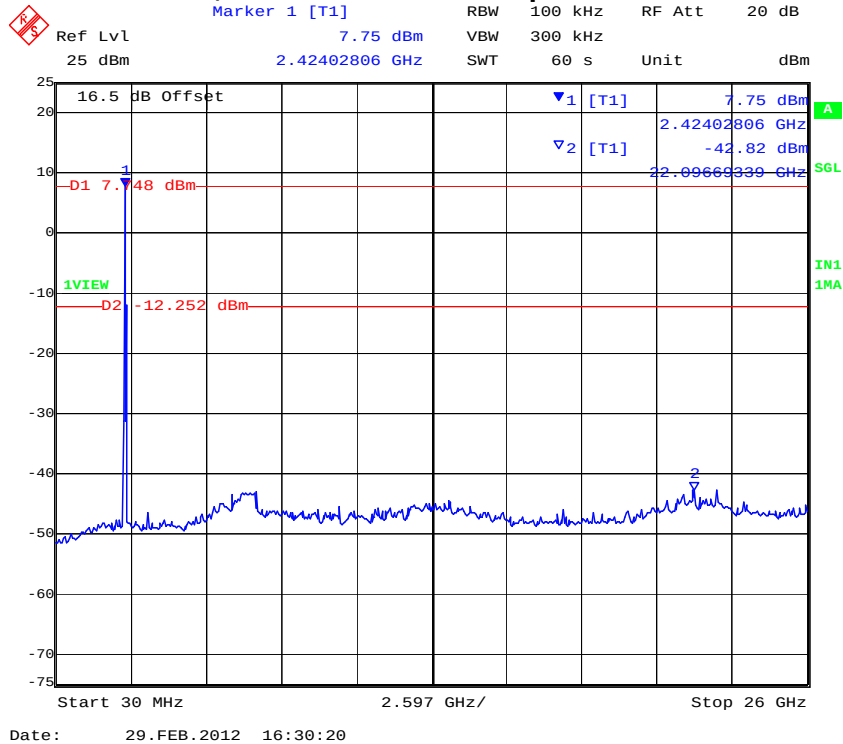


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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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PORT C 802.11n HT-20 2,462 MHz Conducted Spurious Emissions 0.03 – 26 GHz



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Conducted Spurious Emission Results

TABLE OF RESULTS – 802.11n HT-40

Test Conditions:	15.247 (a)(2)	Rel. Humidity (%):	35	to	42
Variant:	802.11n HT-40	Ambient Temp. (°C):	19	to	22
TPC:	HIGH	Pressure (mBars):	998	to	1003
Modulation:	ON	Duty Cycle (%):	100		
Beam Forming Gain	N/A dB	Antenna Gain:	N/A	dBi	
Applied Voltage:	48.00 Vdc	Antenna Ports (N):			
Notes 1:					
Notes 2:					

Conducted Spurious Measurement

Test Freq.	Start Freq.	Stop Freq.	Port A		Port B		Port C		Port D	
MHz	MHz	MHz	SE dBm	Limit dBm	SE dBm	Limit dBm	SE dBm	Limit dBm	SE dBm	Limit dBm
2422.000	30.00	26000.00	-43.07	-13.51	-42.66	-13.02	-43.00	-14.96		
2437.000	30.00	26000.00	-43.39	-14.06	-42.16	-14.65	-42.52	-14.39		
2452.000	30.00	26000.00	-43.66	-14.62	-42.41	-14.64	-42.72	-14.24		

SE: Maximum spurious emission found

Band-edge Measurement

Test Freq.	Band-edge freq.	Port A		Port B		Port C		Port D	
MHz	MHz	BE dBm	Limit dBm	BE dBm	Limit dBm	BE dBm	Limit dBm	BE dBm	Limit dBm
2422.000	2400.00	-13.99	-12.87	-16.45	-12.28	-16.21	-14.41		
2452.000	2483.50	-45.20	-13.16	-45.65	-13.51	-45.81	-13.61		

BE: Maximum Band edge emission found

Measurement uncertainty:	±2.81 dB
---------------------------------	----------

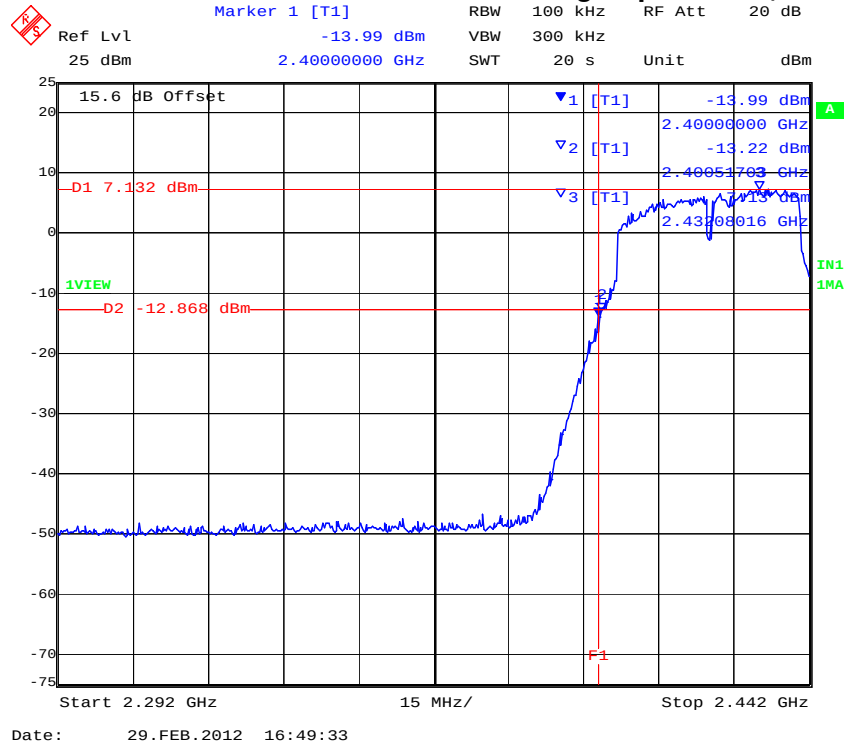
Note: Limit is based on 20dB down from fundamental emissions

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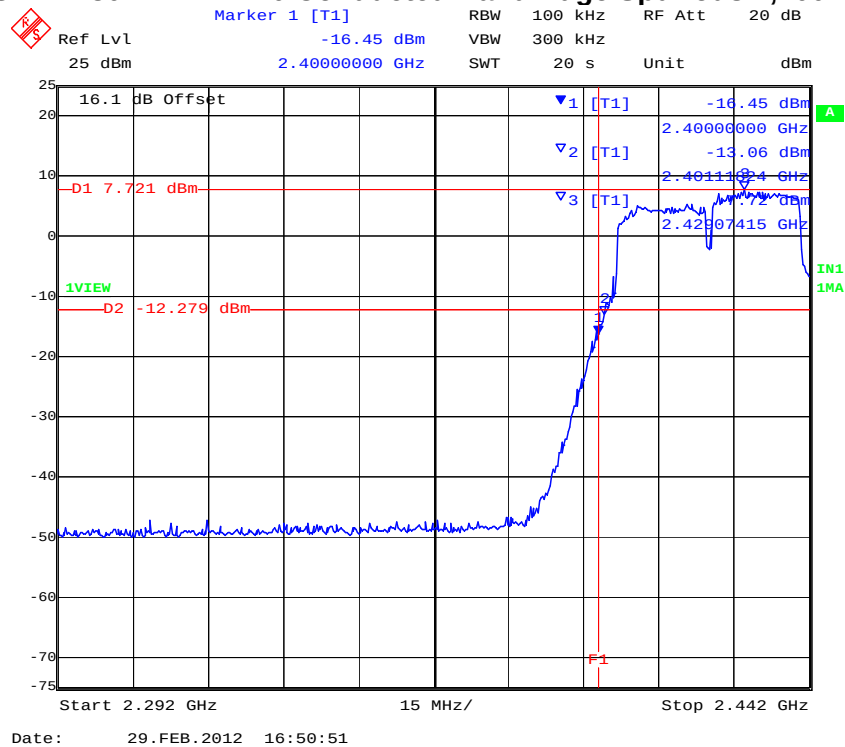


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PORT A 802.11n HT-40 Conducted Band Edge Spurious 2,400 MHz



PORT B 802.11n HT-40 Conducted Band Edge Spurious 2,400 MHz

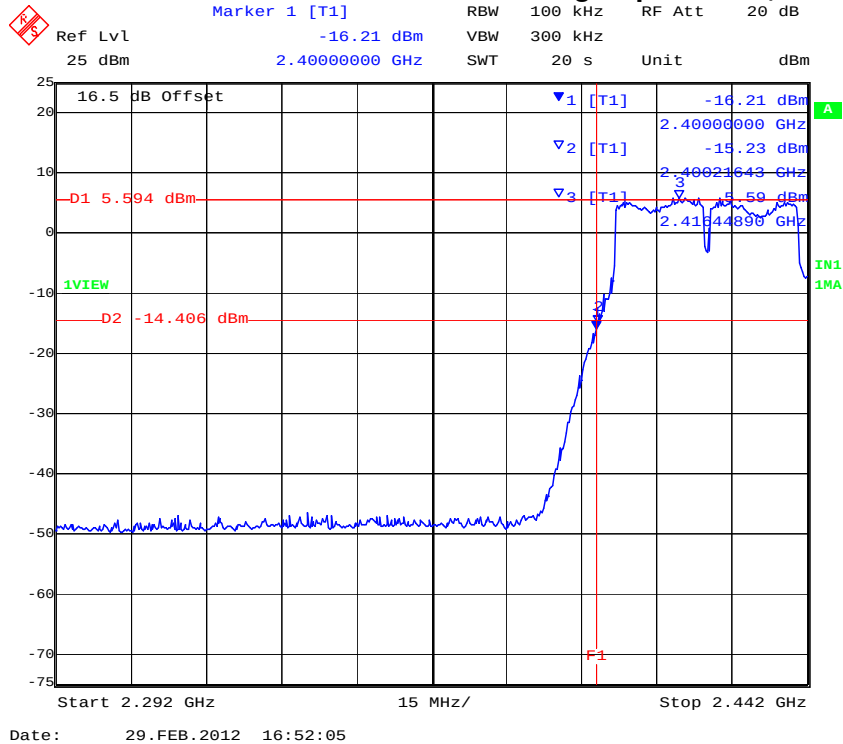


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PORT C 802.11n HT-40 Conducted Band Edge Spurious 2,400 MHz

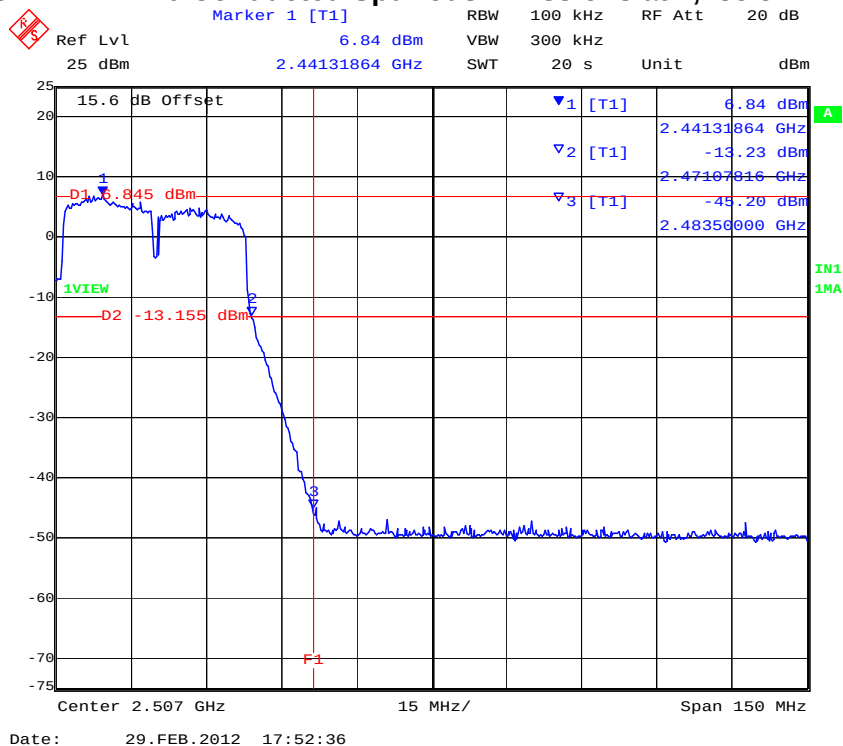


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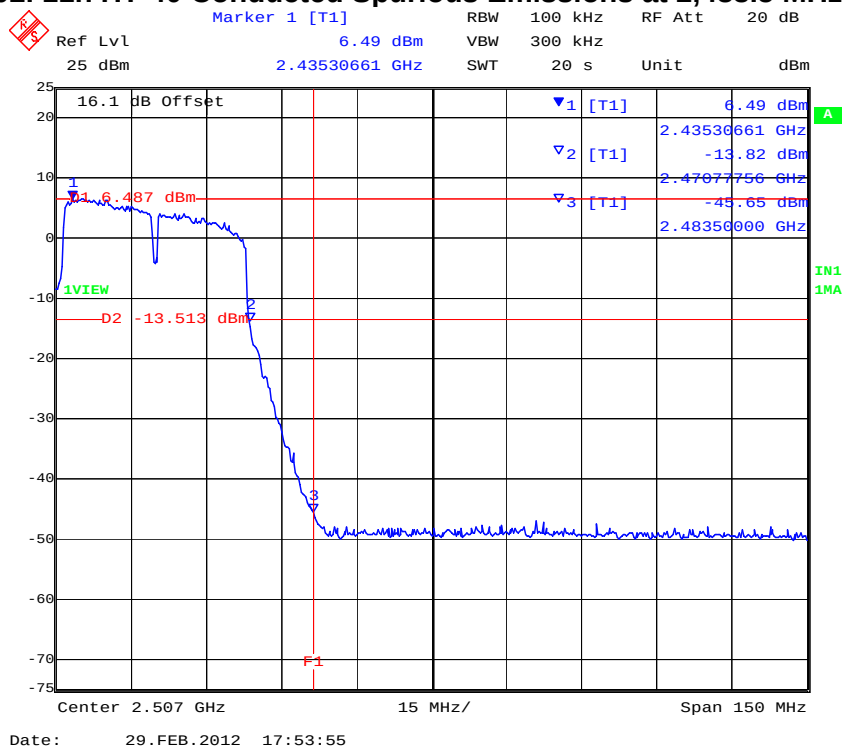


Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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PORT A 802.11n HT-40 Conducted Spurious Emissions at 2,483.5 MHz Band Edge



PORT B 802.11n HT-40 Conducted Spurious Emissions at 2,483.5 MHz Band Edge



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PORT C 802.11n HT-40 Conducted Spurious Emissions at 2,483.5 MHz Band Edge

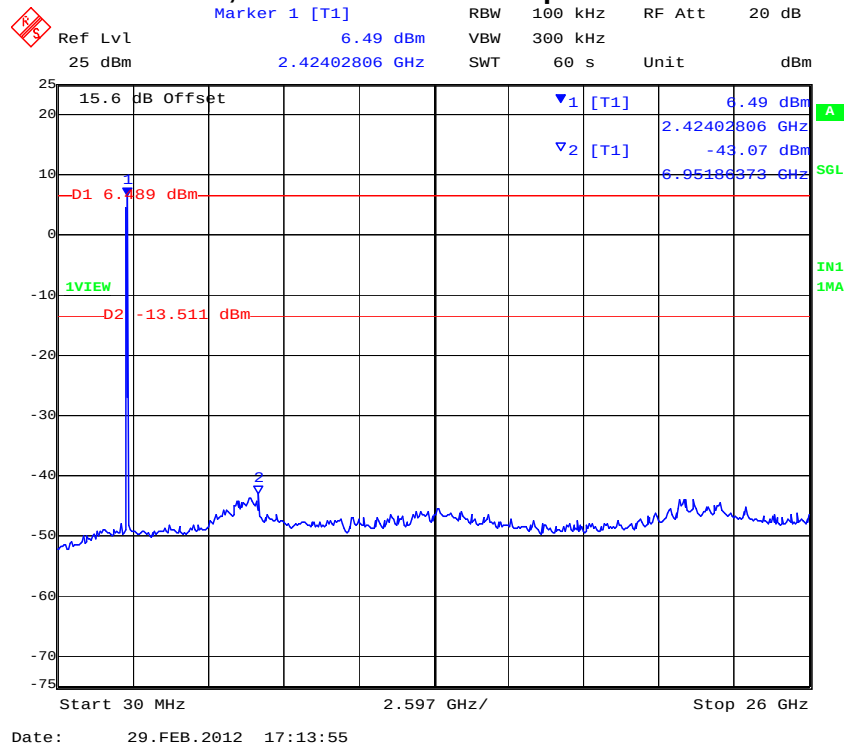


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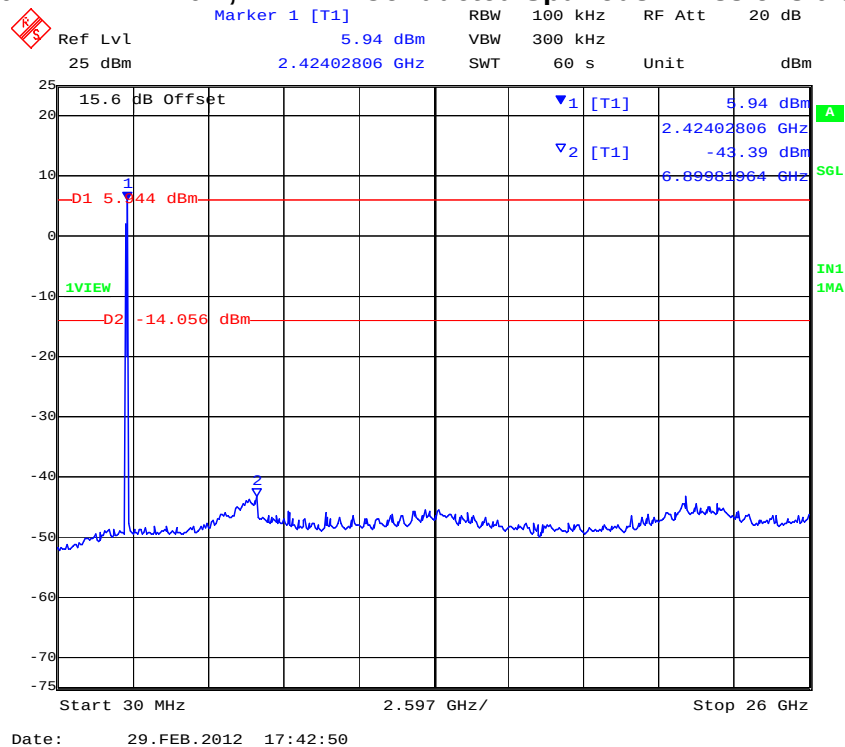


Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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PORT A 802.11n – HT-40 2,422 MHz Conducted Spurious Emissions 0.03 – 26 GHz



PORT B 802.11n – HT-40 2,422 MHz Conducted Spurious Emissions 0.03 – 26 GHz

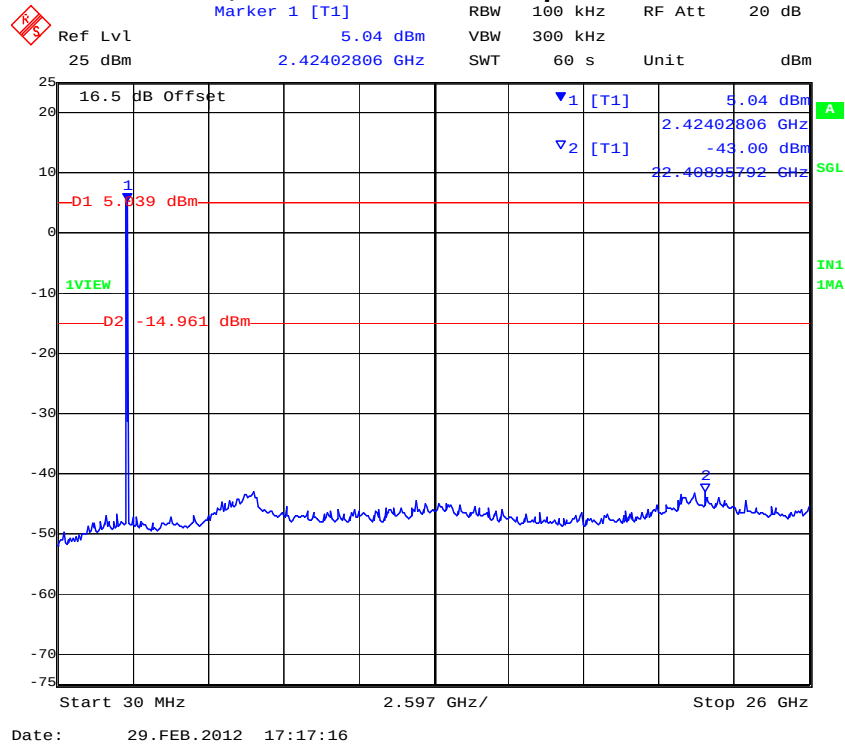


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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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PORT C 802.11n – HT-40 2,422 MHz Conducted Spurious Emissions 0.03 – 26 GHz

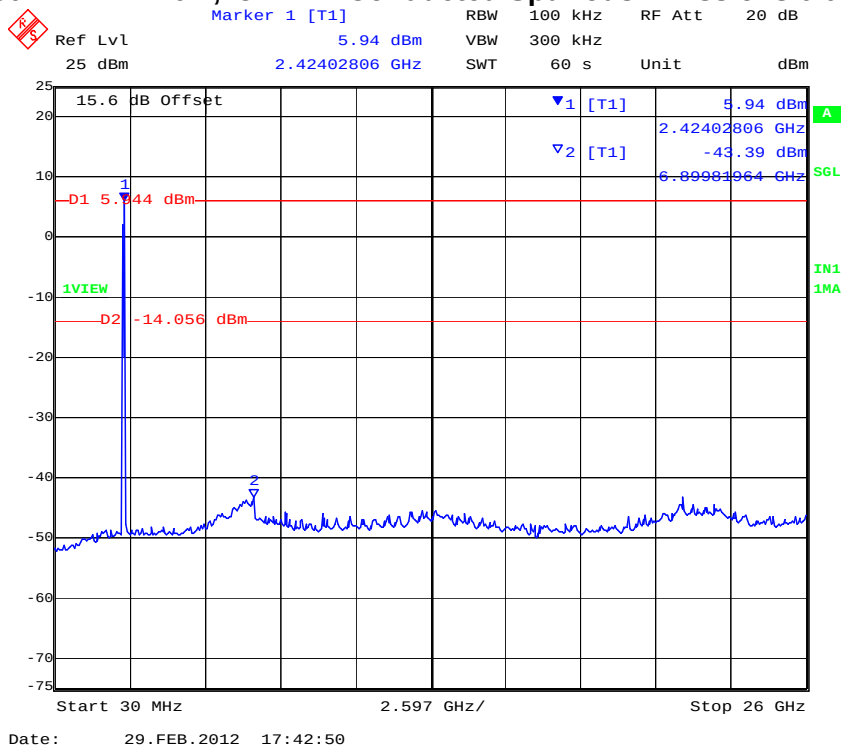


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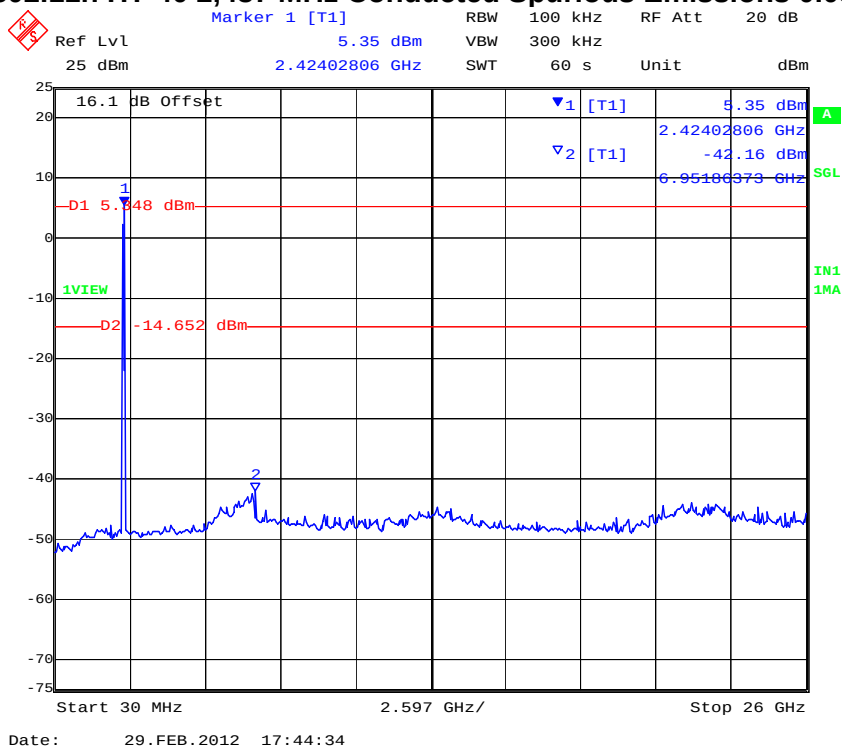


Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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PORT A 802.11n HT-40 2,437 MHz Conducted Spurious Emissions 0.03 – 26 GHz



PORT B 802.11n HT-40 2,437 MHz Conducted Spurious Emissions 0.03 – 26 GHz

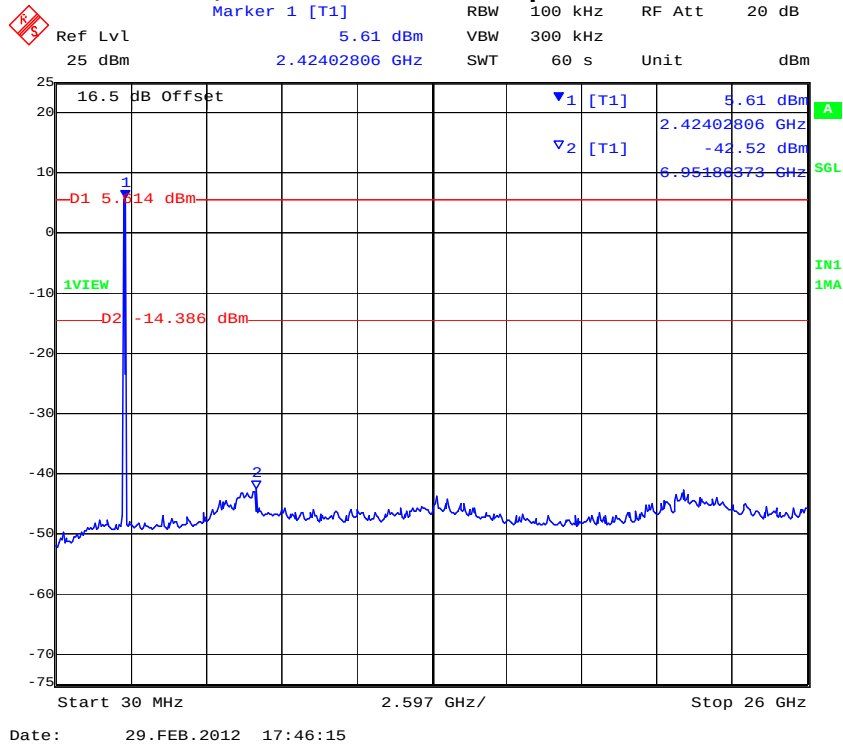


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PORT C 802.11n HT-40 2,437 MHz Conducted Spurious Emissions 0.03 – 26 GHz

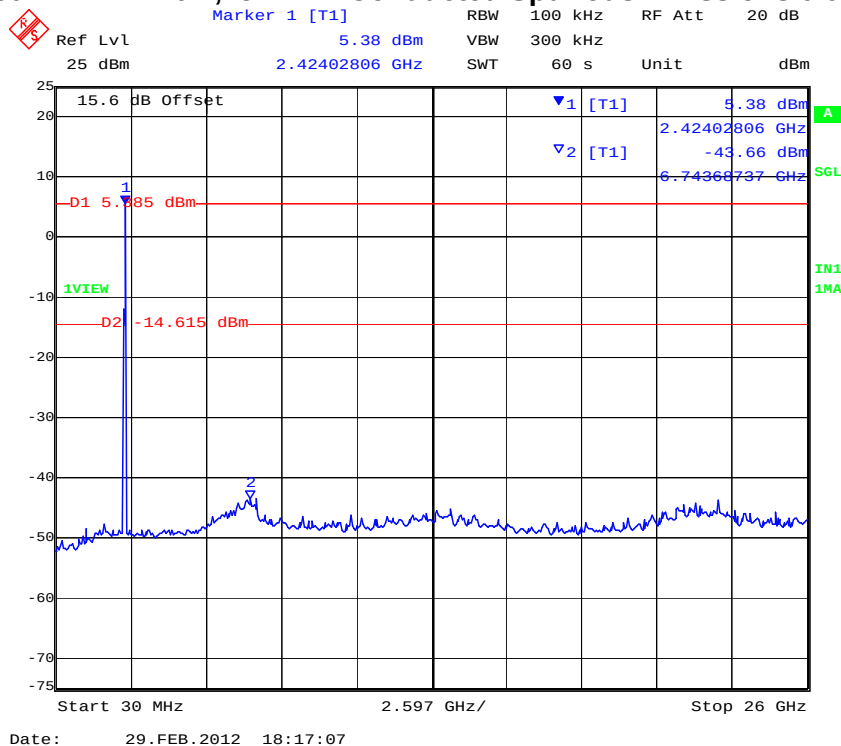


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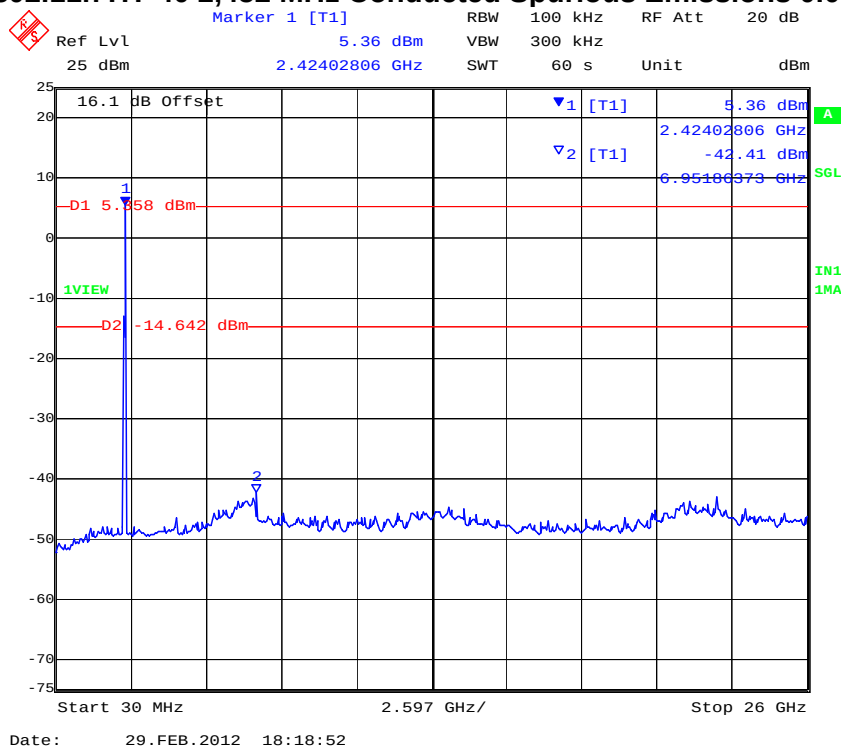


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PORT A 802.11n HT-40 2,452 MHz Conducted Spurious Emissions 0.03 – 26 GHz



PORT B 802.11n HT-40 2,452 MHz Conducted Spurious Emissions 0.03 – 26 GHz

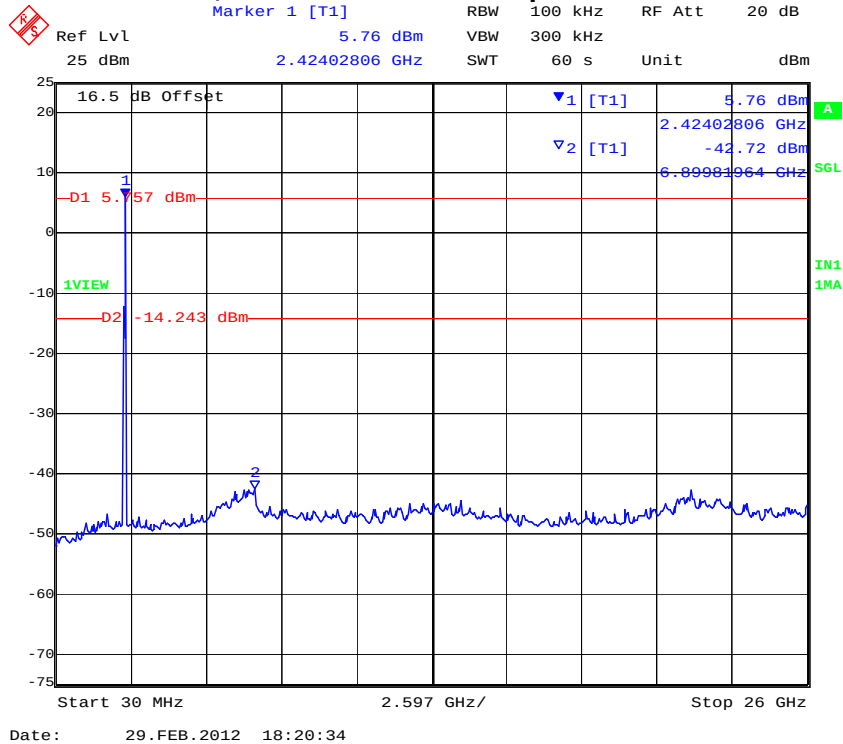


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PORT C 802.11n HT-40 2,452 MHz Conducted Spurious Emissions 0.03 – 26 GHz



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Conducted Spurious Emission Results

TABLE OF RESULTS – 802.11a Legacy 5 MHz, 6 MBit/s

Test Conditions:	15.247 (a)(2)	Rel. Humidity (%):	35	to	42
Variant:	802.11a, 5 MHz	Ambient Temp. (°C):	19	to	22
TPC:	HIGH	Pressure (mBars):	998	to	1003
Modulation:	ON	Duty Cycle (%):	100		
Beam Forming Gain	N/A dB	Antenna Gain:	N/A		dBi
Applied Voltage:	48.00 Vdc	Antenna Ports (N):			
Notes 1:					
Notes 2:					

Conducted Spurious Measurement

Test Freq.	Start Freq.	Stop Freq.	Port A		Port B		Port C		Port D	
MHz	MHz	MHz	SE dBm	Limit dBm	SE dBm	Limit dBm	SE dBm	Limit dBm	SE dBm	Limit dBm
5730.500	30.00	26000.00	-42.05	-8.91	-41.29	-7.08	-42.03	-8.59		
5790.500	30.00	26000.00	-42.14	-9.91	-41.33	-9.64	-41.56	-8.13		
5845.500	30.00	26000.00	-41.05	-9.82	-41.20	-11.84	-41.22	-10.06		

SE: Maximum spurious emission found

Band-edge Measurement

Test Freq.	Band-edge freq.	Port A		Port B		Port C		Port D	
MHz	MHz	BE dBm	Limit dBm	BE dBm	Limit dBm	BE dBm	Limit dBm	BE dBm	Limit dBm
5730.500	5725.00	-16.23	-5.96	-11.23	-4.35	-14.05	-5.33		
5845.500	5850.00	-13.59	-8.08	-18.25	-10.02	-17.26	-8.46		

BE: Maximum Band edge emission found

Measurement uncertainty:	±2.81 dB
---------------------------------	----------

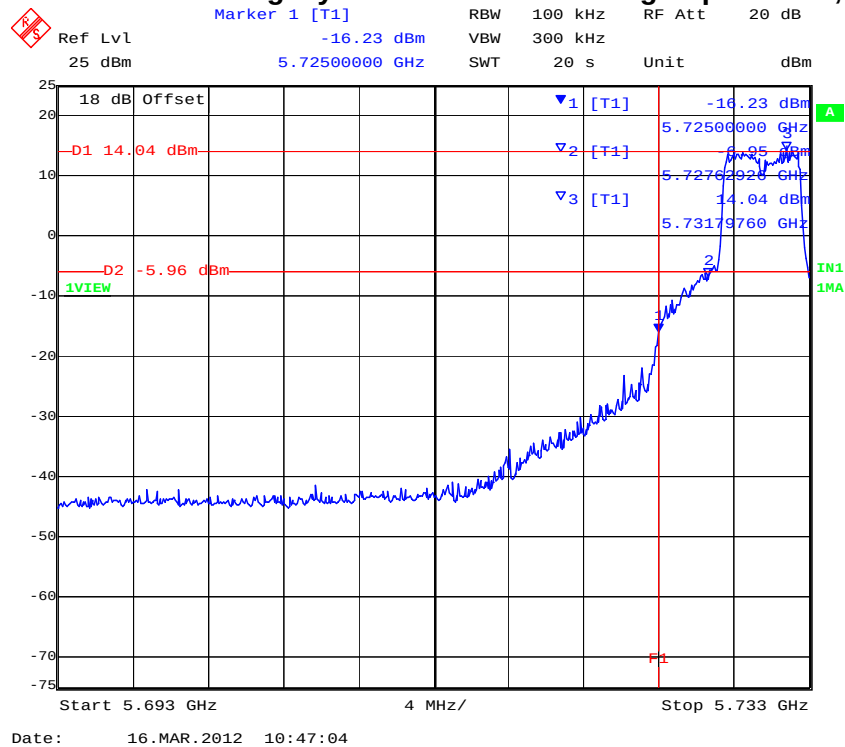
Note: Limit is based on 20dB down from fundamental emission

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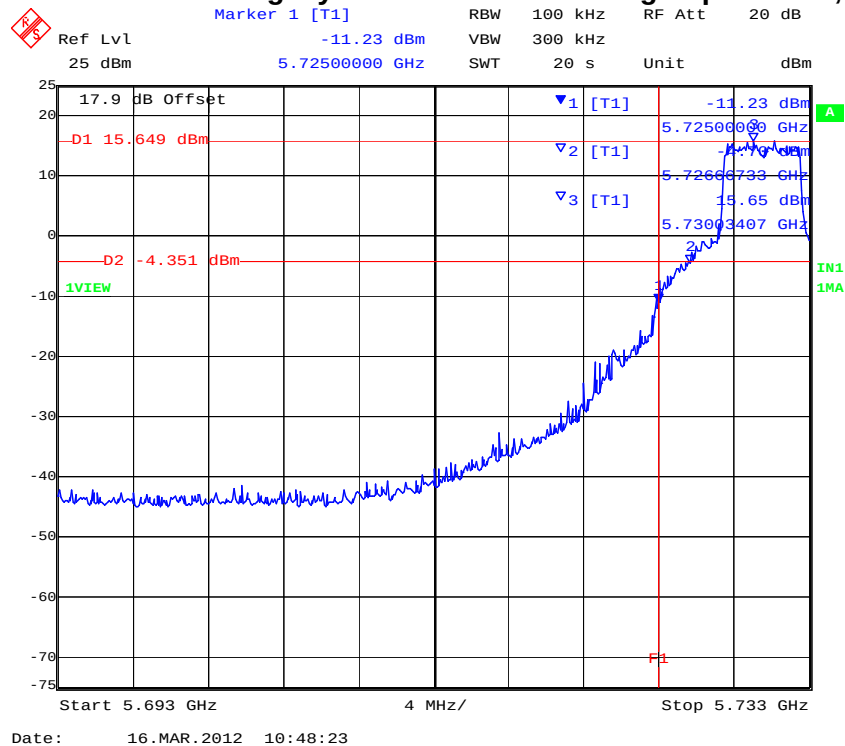


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5 MHz PORT A 802.11a Legacy - Conducted Band Edge Spurious 5,725 MHz



5 MHz PORT B 802.11a Legacy - Conducted Band Edge Spurious 5,725 MHz

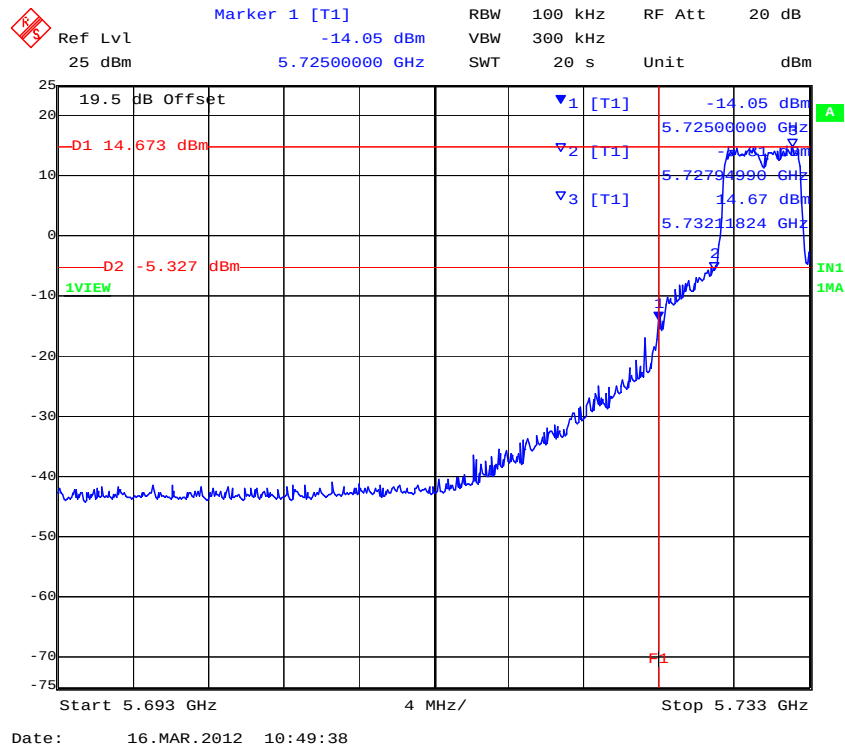


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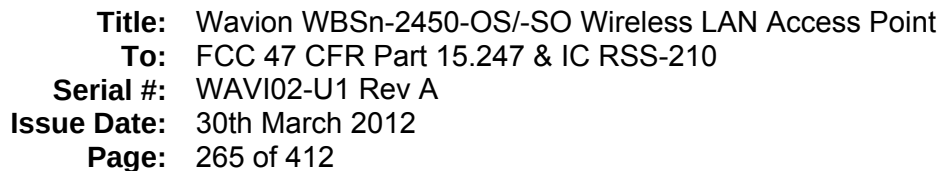


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5 MHz PORT C 802.11a Legacy - Conducted Band Edge Spurious 5,725 MHz



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K

Ref Lvl
25 dBm

Marker 1 [T1]
11.92 dBm
5.84500401 GHz

RBW 100 kHz
VBW 300 kHz
SWT 20 s
Unit dBm

Marker	Type	Value
1	[T1]	11.92 dBm
2	[T1]	-9.63 dBm
3	[T1]	-13.59 dBm

Center 5.863 GHz
4 MHz/
Span 40 MHz

Date: 16.MAR.2012 12:08:24

Ref Lvl 25 dBm

Marker 1 [T1] 9.98 dBm

RBW 100 kHz

VBW 300 kHz

SWT 20 s

Unit dBm

17.9 dB Offset

▼1 [T1] 9.98 dBm

▼2 [T1] 5.84716834 GHz -12.30 dBm

▼3 [T1] 5.84700078 GHz -18.25 dBm

5.85000000 GHz

D1 9.98 dBm

D2 20.010 dBm

F1

Center 5.863 GHz

4 MHz/

Span 40 MHz

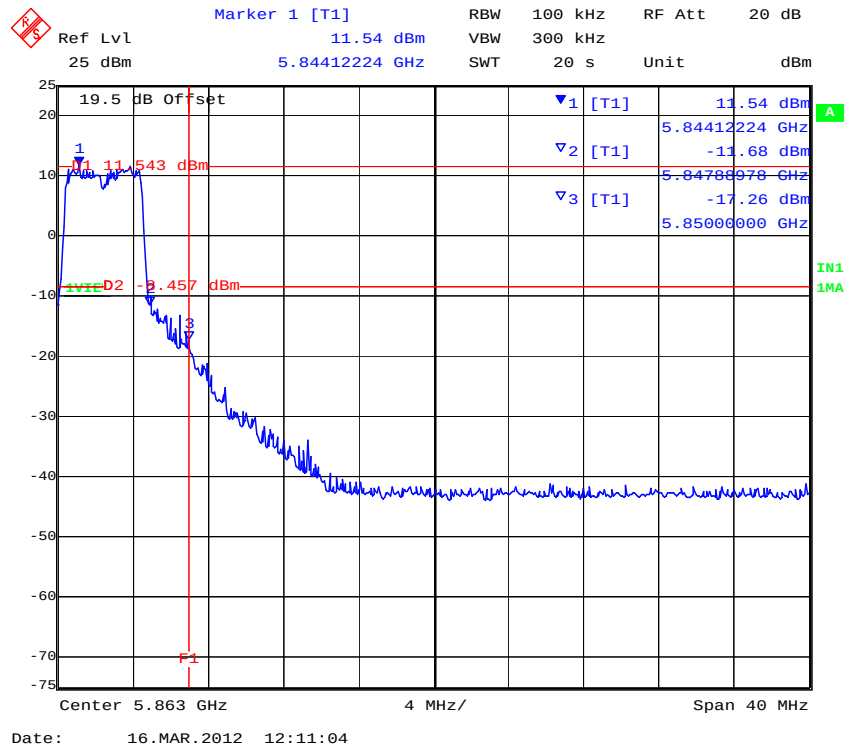
Date: 16.MAR.2012 12:09:45

MiCOM Labs, 440 Boulder Court, Suite 200, Pleasanton, CA 94566 USA, Phone: 925.462.0304, Fax: 925.462.0306, www.micomlabs.com



Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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5 MHz PORT C 802.11a Legacy - Conducted Band Edge Spurious 5,850 MHz

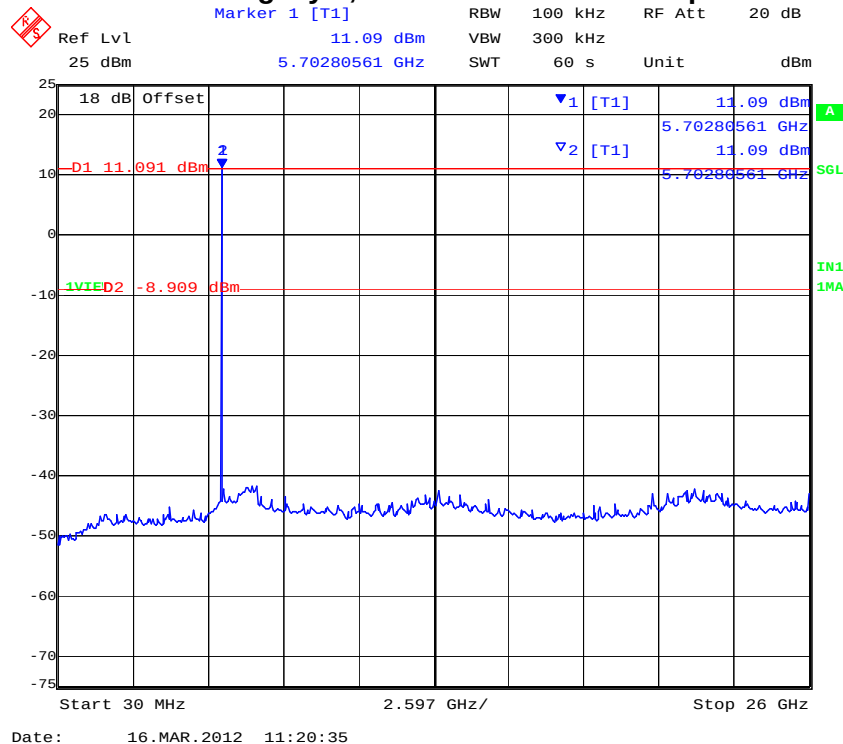


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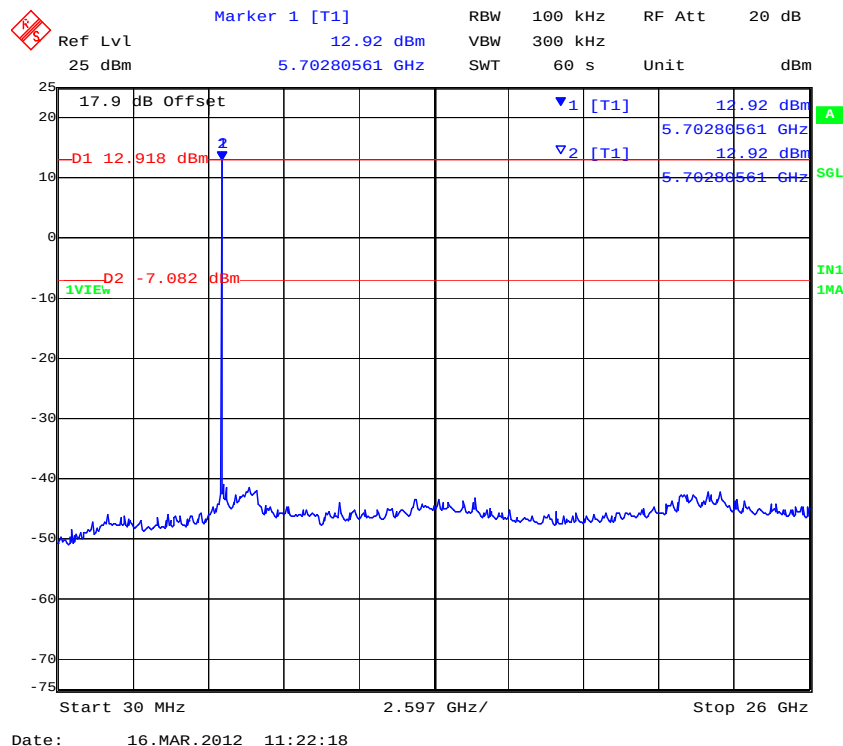


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5 MHz PORT A 802.11a-Legacy 5,730.5 MHz Conducted Spurious 0.03-26 GHz



5 MHz PORT B 802.11a-Legacy 5,730.5 MHz Conducted Spurious 0.03-26 GHz

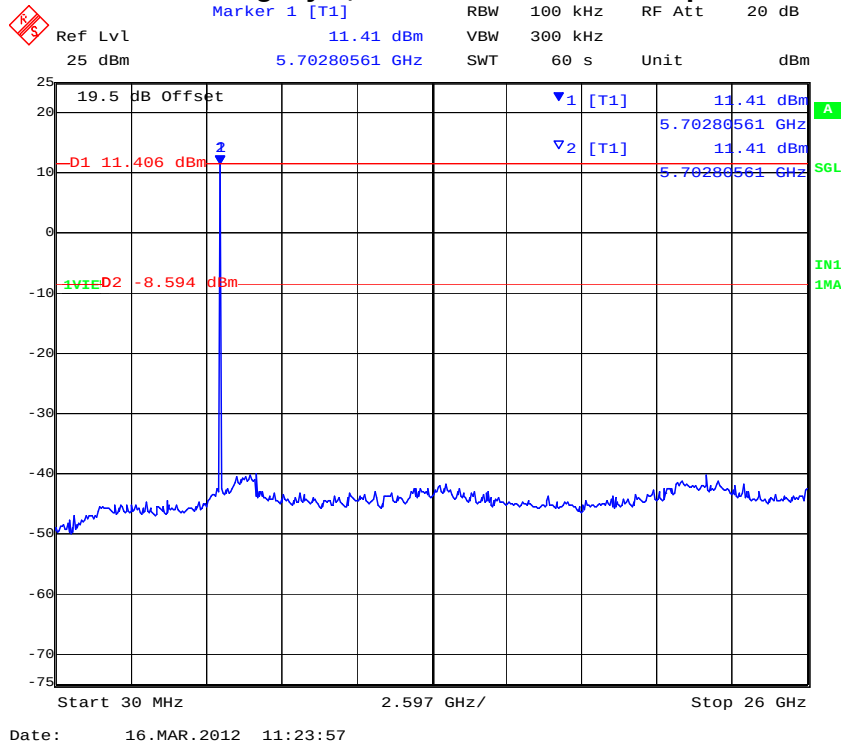


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5 MHz PORT C 802.11a-Legacy 5,730.5 MHz Conducted Spurious 0.03-26 GHz

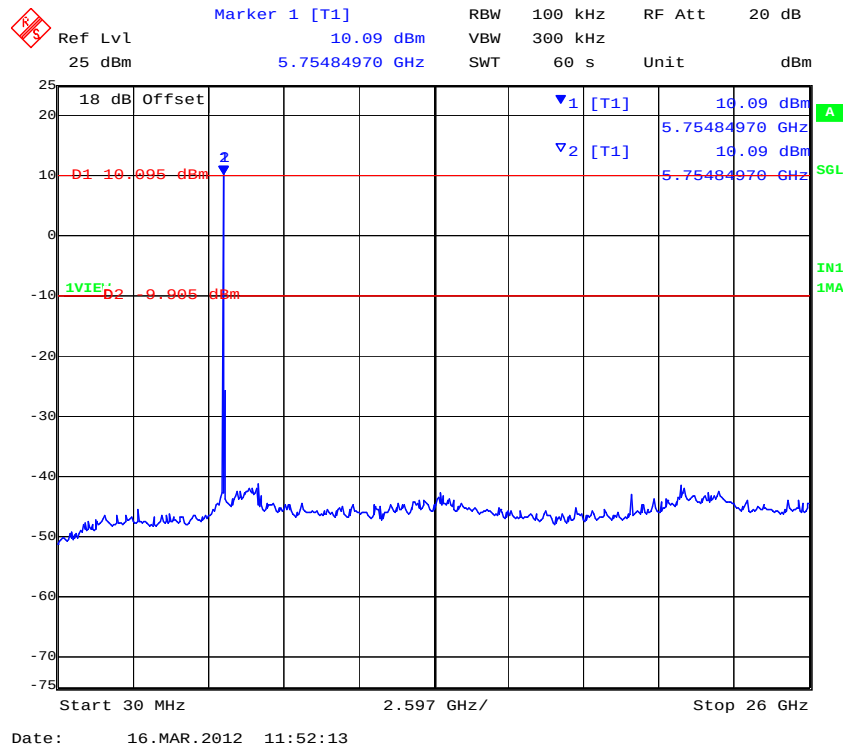


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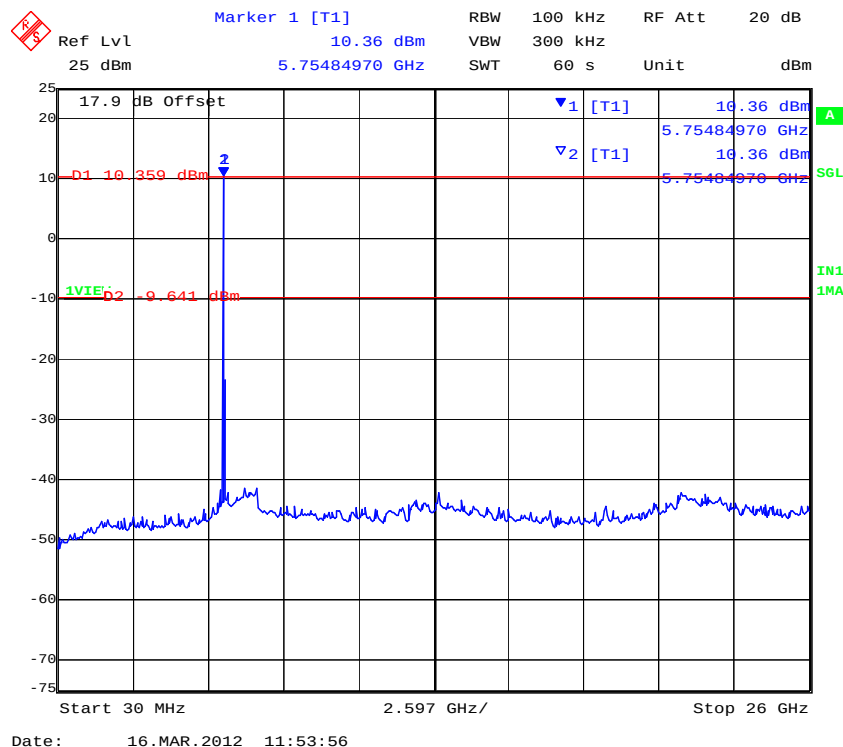


Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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5 MHz PORT A 802.11a-Legacy 5,790.5 MHz Conducted Spurious 0.03-26 GHz



5 MHz PORT B 802.11a-Legacy 5,790.5 MHz Conducted Spurious 0.03-26 GHz

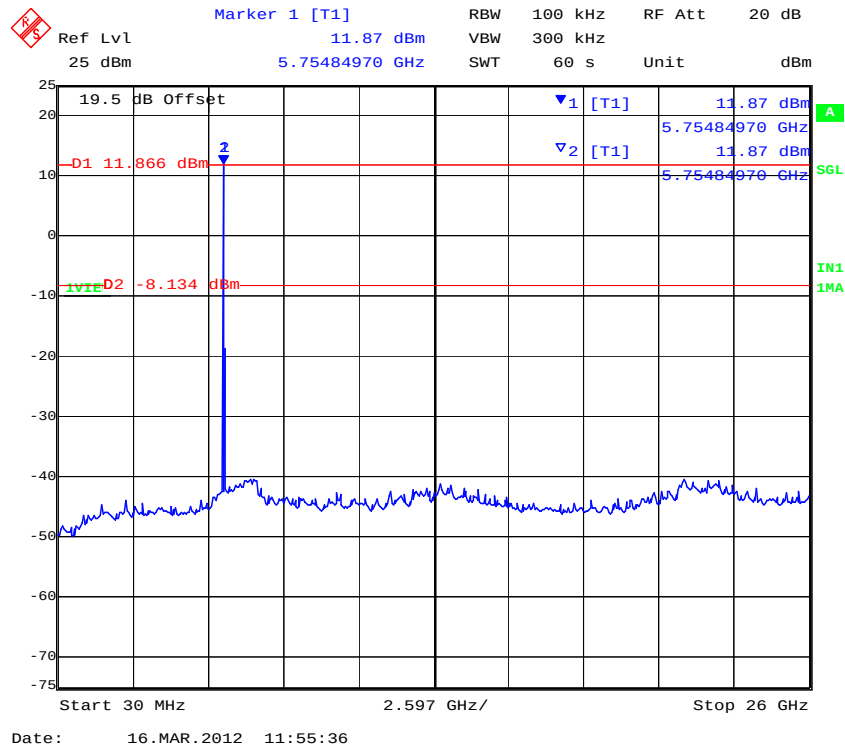


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5 MHz PORT C 802.11a-Legacy 5,790.5 MHz Conducted Spurious 0.03-26 GHz

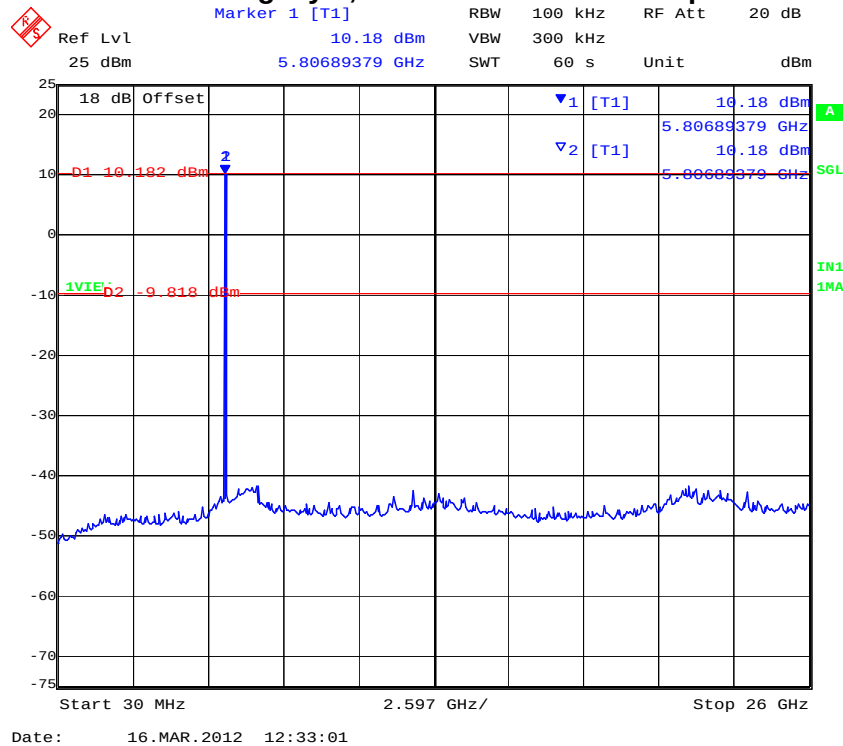


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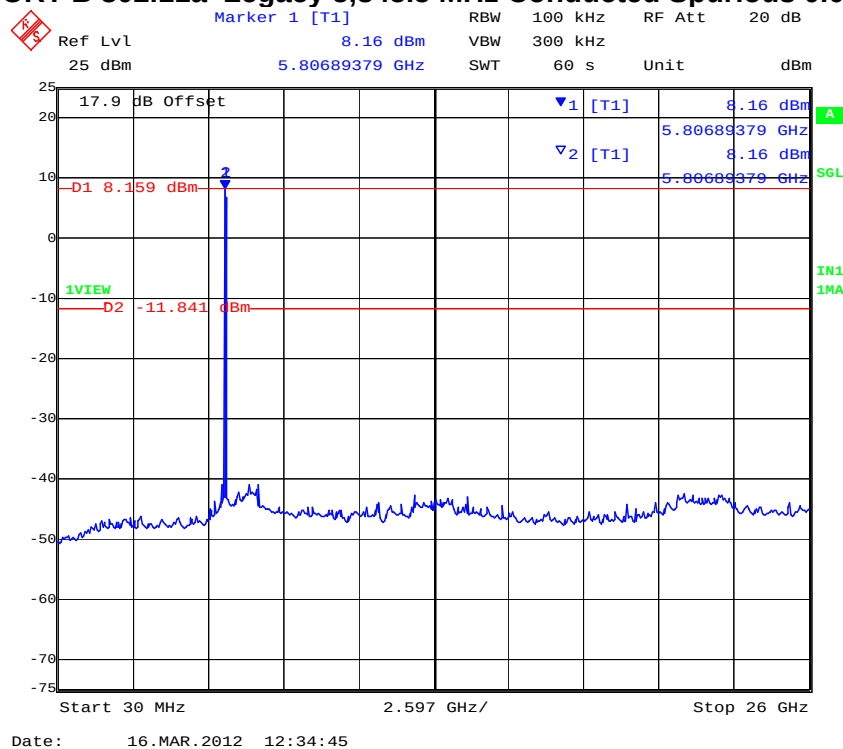


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5 MHz PORT A 802.11a-Legacy 5,845.5 MHz Conducted Spurious 0.03-26 GHz



5 MHz PORT B 802.11a-Legacy 5,845.5 MHz Conducted Spurious 0.03-26 GHz

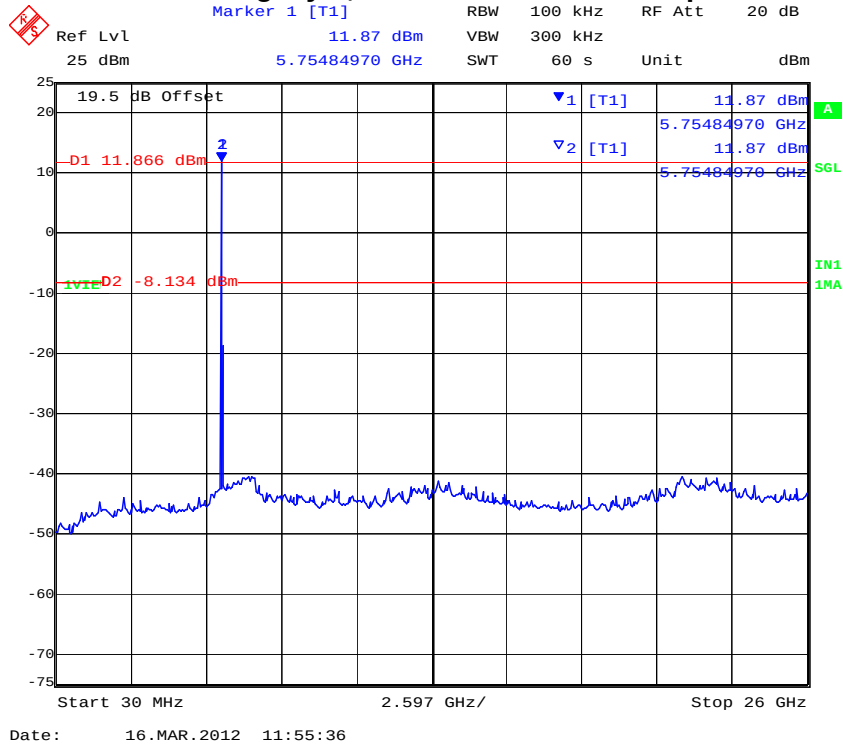


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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
Serial #: WAVI02-U1 Rev A
Issue Date: 30th March 2012
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5 MHz PORT C 802.11a-Legacy 5,845.5 MHz Conducted Spurious 0.03-26 GHz



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Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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TABLE OF RESULTS – 802.11a Legacy 10 MHz, 6 MBit/s

Test Conditions:	15.247 (a)(2)	Rel. Humidity (%):	35	to	42
Variant:	802.11a, 10 MHz	Ambient Temp. (°C):	19	to	22
TPC:	HIGH	Pressure (mBars):	998	to	1003
Modulation:	ON	Duty Cycle (%):	100		
Beam Forming Gain	N/A dB	Antenna Gain:	N/A		dBi
Applied Voltage:	48.00 Vdc	Antenna Ports (N):			
Notes 1:					
Notes 2:					

Conducted Spurious Measurement

Test Freq.	Start Freq.	Stop Freq.	Port A		Port B		Port C		Port D	
MHz	MHz	MHz	SE dBm	Limit dBm	SE dBm	Limit dBm	SE dBm	Limit dBm	SE dBm	Limit dBm
5735.000	30.00	26000.00	-41.36	-8.99	-41.83	-8.69	-40.05	-9.01		
5790.000	30.00	26000.00	-41.37	-9.73	-41.44	-9.58	-39.53	-8.14		
5840.000	30.00	26000.00	-41.89	-8.53	-41.54	-9.69	-40.25	-8.82		

SE: Maximum spurious emission found

Band-edge Measurement

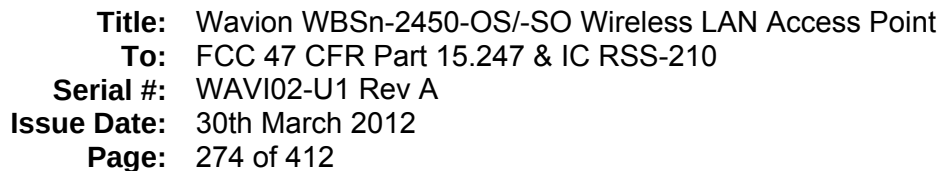
Test Freq.	Band-edge freq.	Port A		Port B		Port C		Port D	
MHz	MHz	BE dBm	Limit dBm	BE dBm	Limit dBm	BE dBm	Limit dBm	BE dBm	Limit dBm
5735.000	5725.00	-10.78	-7.10	-9.61	-7.42	-11.64	-7.28		
5840.000	5850.00	-7.66	-7.10	-12.20	-8.93	-8.51	-7.34		

BE: Maximum Band edge emission found

Measurement uncertainty:	±2.81 dB
---------------------------------	----------

Note: Limit is based on 20dB down from fundamental emission

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The screenshot displays a spectrum analyzer interface. At the top, a red 'K' logo is visible. The main display area shows a blue signal trace on a grid. A red vertical line is positioned at 5.725 GHz, labeled 'F1'. Three blue markers are placed on the trace: Marker 1 [T1] at -10.78 dBm, Marker 2 [T1] at -7.25 dBm, and Marker 3 [T1] at -7.25 dBm. The trace shows a signal that is relatively flat at -40 dBm from 5.69 GHz to 5.72 GHz, then rises sharply to -7.25 dBm at 5.725 GHz, and continues to rise to -5.73 GHz. The right side of the screen shows a table of measurement data. The table has columns for 'Ref Lvl', 'Offset', 'Marker', 'RBW', 'VBW', 'SWT', 'Unit', and 'dBm'. The data is as follows:

Ref Lvl	Offset	Marker	RBW	VBW	SWT	Unit	dBm
25 dBm		5.7250000 GHz	100 kHz	300 kHz	20 s		
18 dB	Offset						
-10.78 dBm		Marker 1 [T1]					
-7.25 dBm		Marker 2 [T1]					
-7.25 dBm		Marker 3 [T1]					
-5.73 dBm							

The bottom of the screen shows the date and time: 16.MAR.2012 14:27:11.

Ref Lvl 25 dBm
 Marker 1 [T1] -9.61 dBm
 RBW 100 kHz
 VBW 300 kHz
 RF Att 20 dB
 Unit dBm

17.9 dB Offset
 -D1 12.582 dBm
 -D2 -7.418 dBm
 IN1
 1MA

1 [T1] -9.61 dBm
 2 [T1] 5.72500000 GHz 7.83 dBm
 3 [T1] 5.7257458 GHz 12.58 dBm
 4 [T1] 5.73378758 GHz

F1

Start 5.69 GHz 5 MHz/ Stop 5.74 GHz

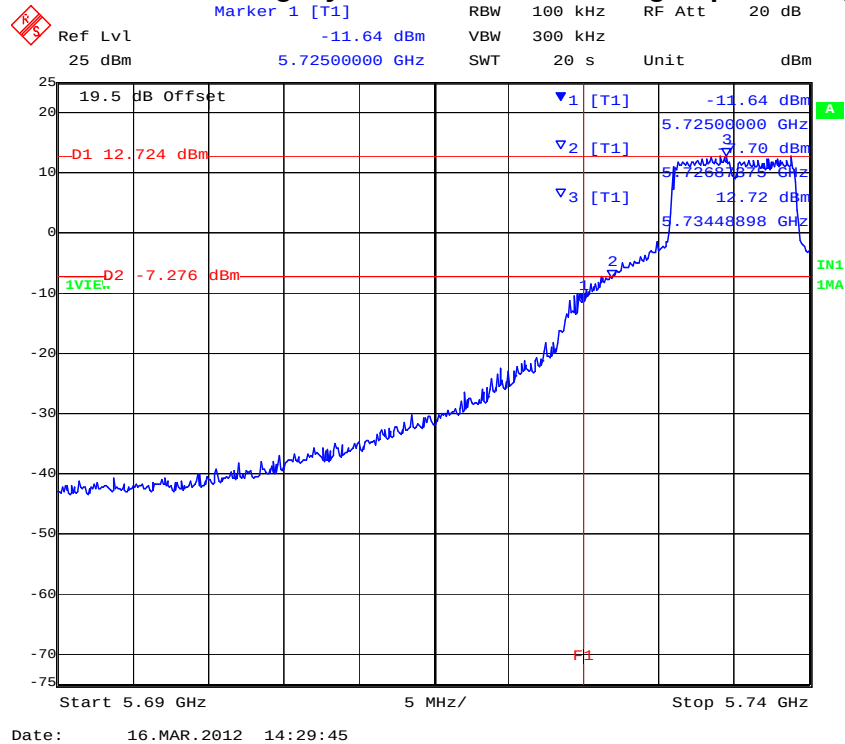
Date: 16.MAR.2012 14:28:28

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To: FCC 47 CFR Part 15.247 & IC RSS-210
Serial #: WAVI02-U1 Rev A
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10 MHz PORT C 802.11a Legacy - Conducted Band Edge Spurious 5,725 MHz

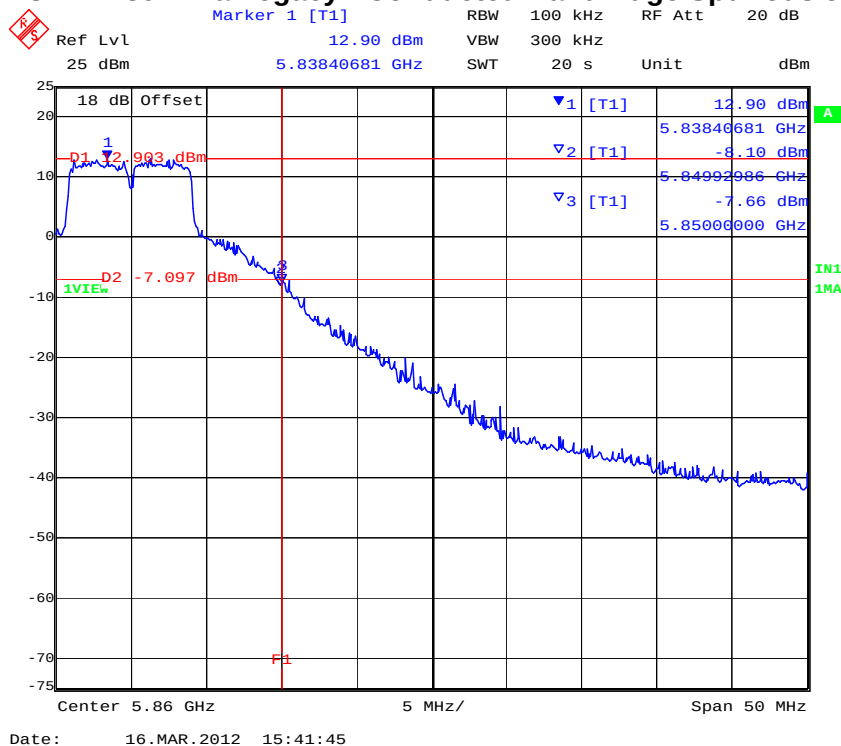


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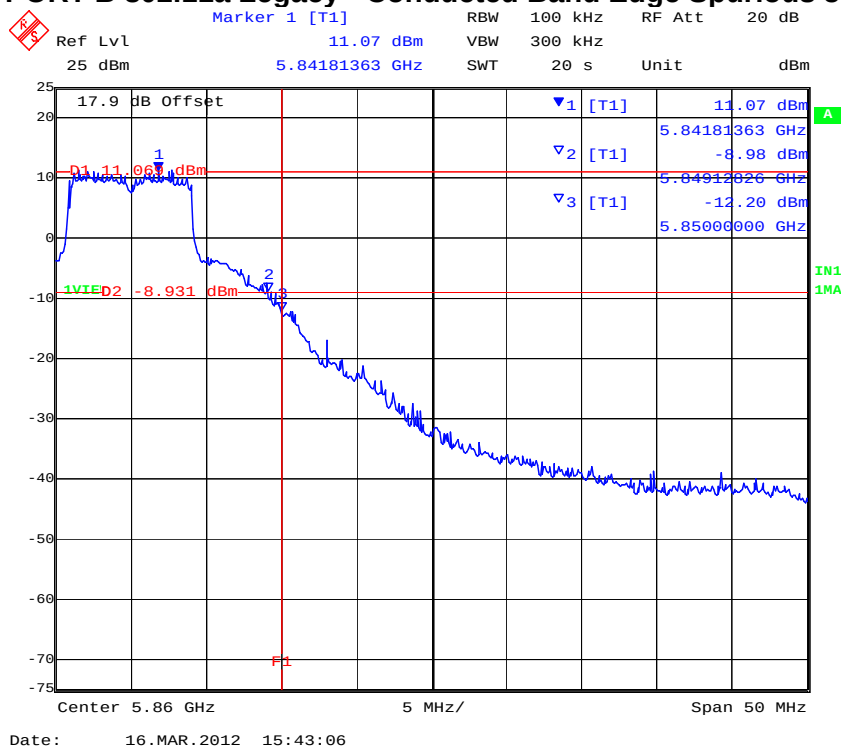


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10 MHz PORT A 802.11a Legacy - Conducted Band Edge Spurious 5,850 MHz



10 MHz PORT B 802.11a Legacy - Conducted Band Edge Spurious 5,850 MHz

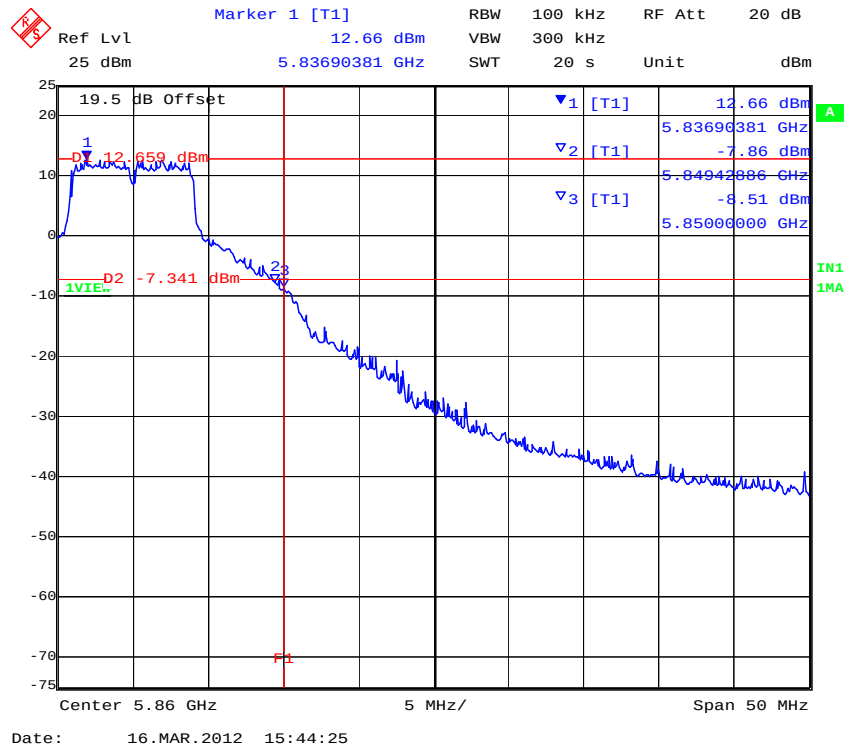


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10 MHz PORT C 802.11a Legacy - Conducted Band Edge Spurious 5,850 MHz

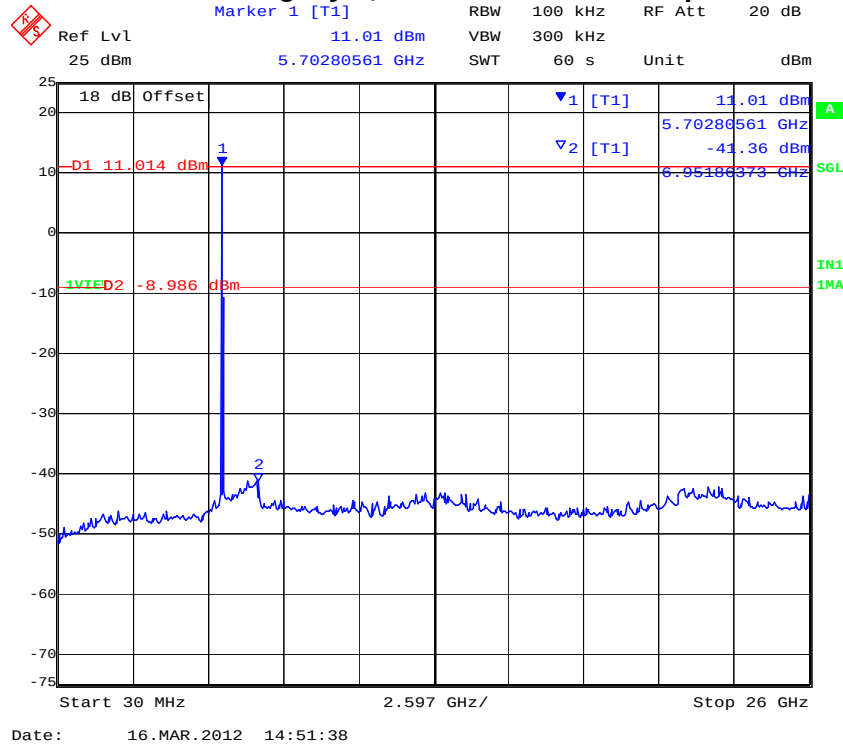


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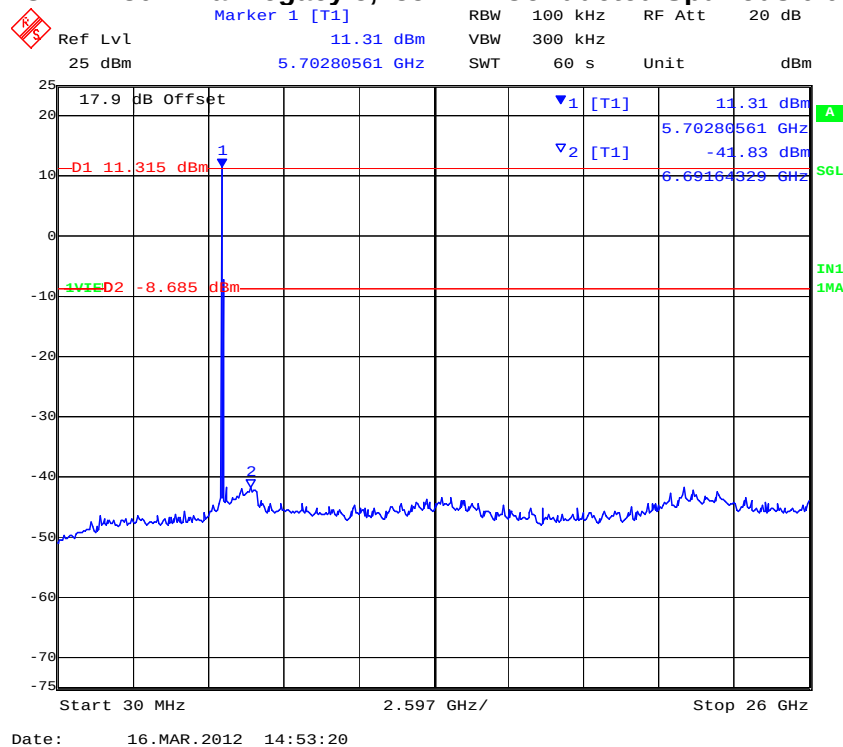


Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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10 MHz PORT A 802.11a-Legacy 5,735 MHz Conducted Spurious 0.03-26 GHz



10 MHz PORT B 802.11a-Legacy 5,735 MHz Conducted Spurious 0.03-26 GHz

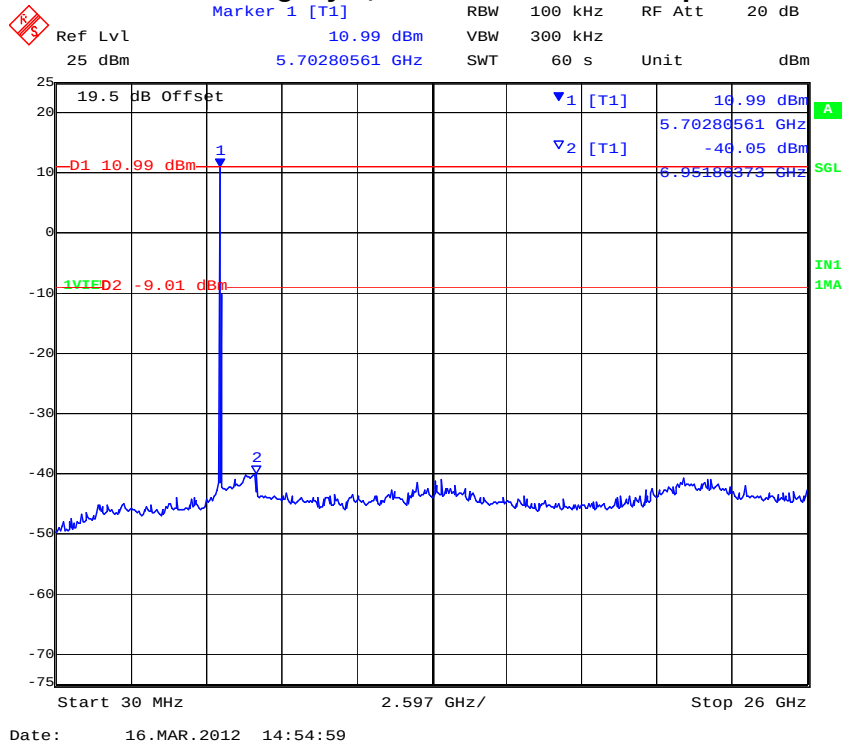


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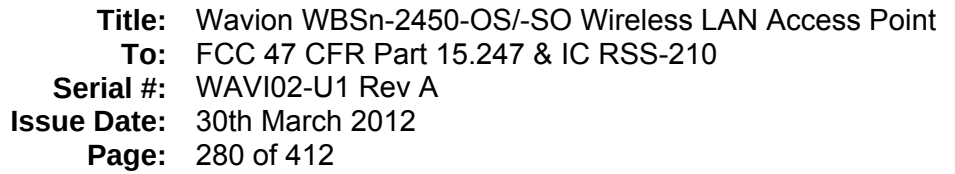


Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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10 MHz PORT C 802.11a-Legacy 5,735 MHz Conducted Spurious 0.03-26 GHz



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Ref Lvl 25 dBm Marker 1 [T1] 10.27 dBm RBW 100 kHz VBW 300 kHz RF Att 20 dB Unit dBm

18 dB Offset

10.27 dBm

5.75484970 GHz

SWT 60 s

Unit dBm

1

2

10.27 dBm

5.75484970 GHz

-9.73 dBm

Start 30 MHz Stop 26 GHz

Date: 16.MAR.2012 15:21:08

Ref Lvl 25 dBm RBW 100 kHz VBW 300 kHz SWT 60 s Unit dBm

Marker 1 [T1] 10.42 dBm 5.75484970 GHz

17.9 dB Offset

1 10.42 dBm

2 -41.44 dBm

Start 30 MHz Stop 26 GHz

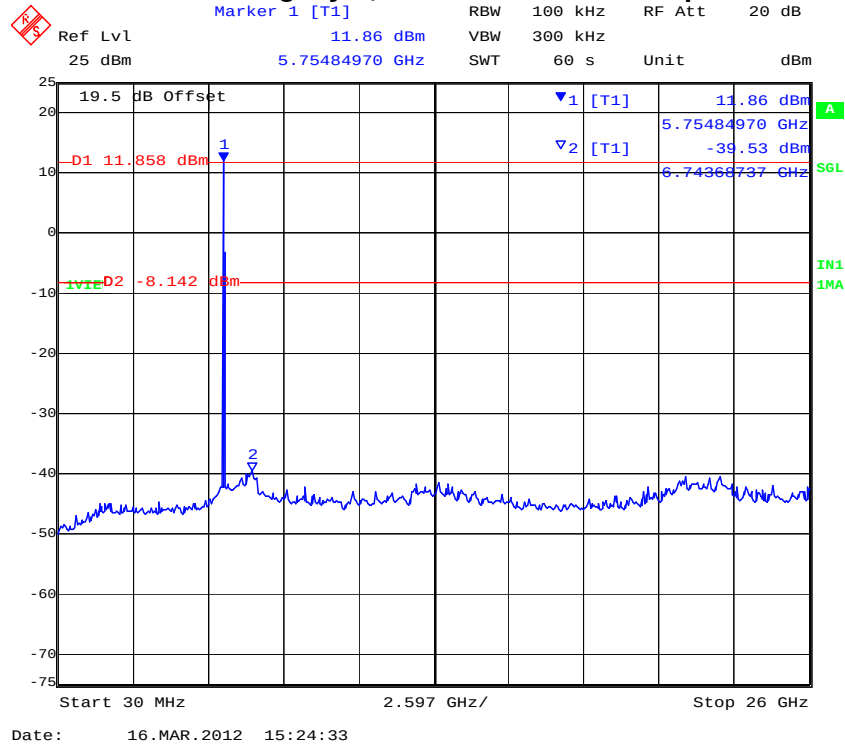
Date: 16.MAR.2012 15:22:52

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To: FCC 47 CFR Part 15.247 & IC RSS-210
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10 MHz PORT C 802.11a-Legacy 5,790 MHz Conducted Spurious 0.03-26 GHz

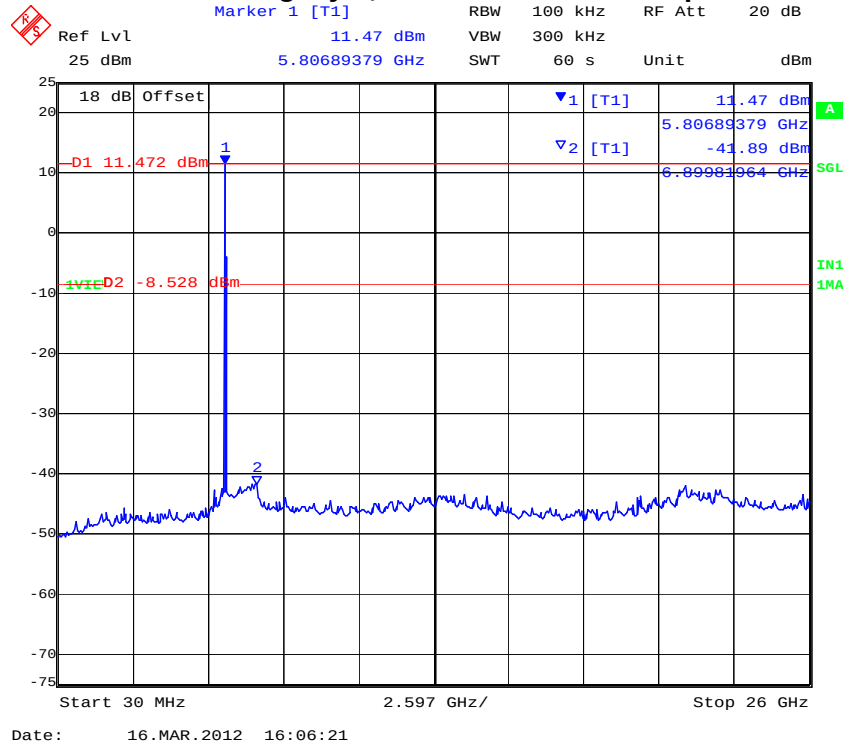


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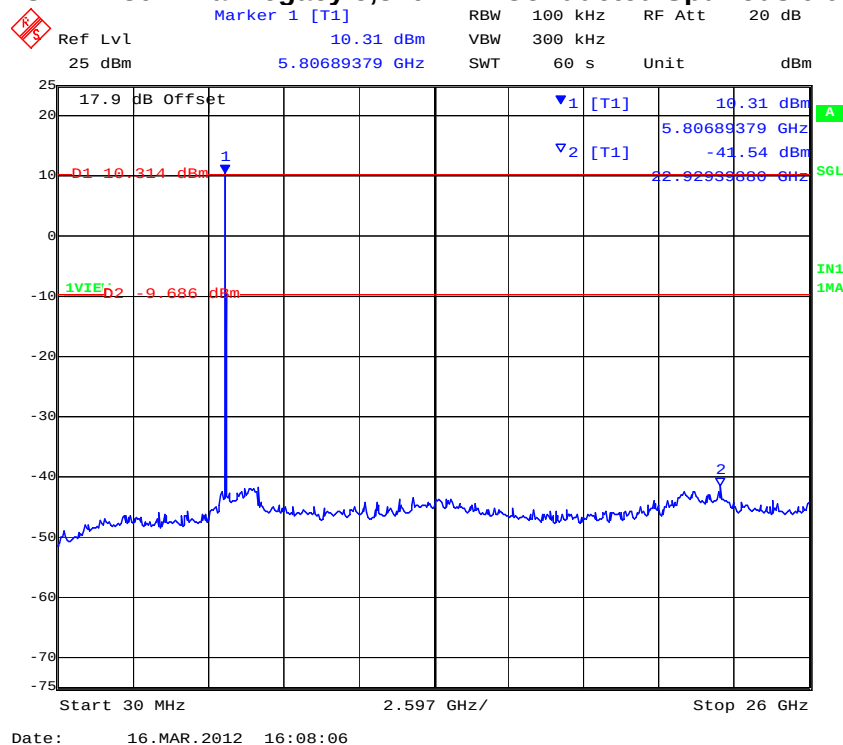


Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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10 MHz PORT A 802.11a-Legacy 5,840 MHz Conducted Spurious 0.03-26 GHz



10 MHz PORT B 802.11a-Legacy 5,840 MHz Conducted Spurious 0.03-26 GHz

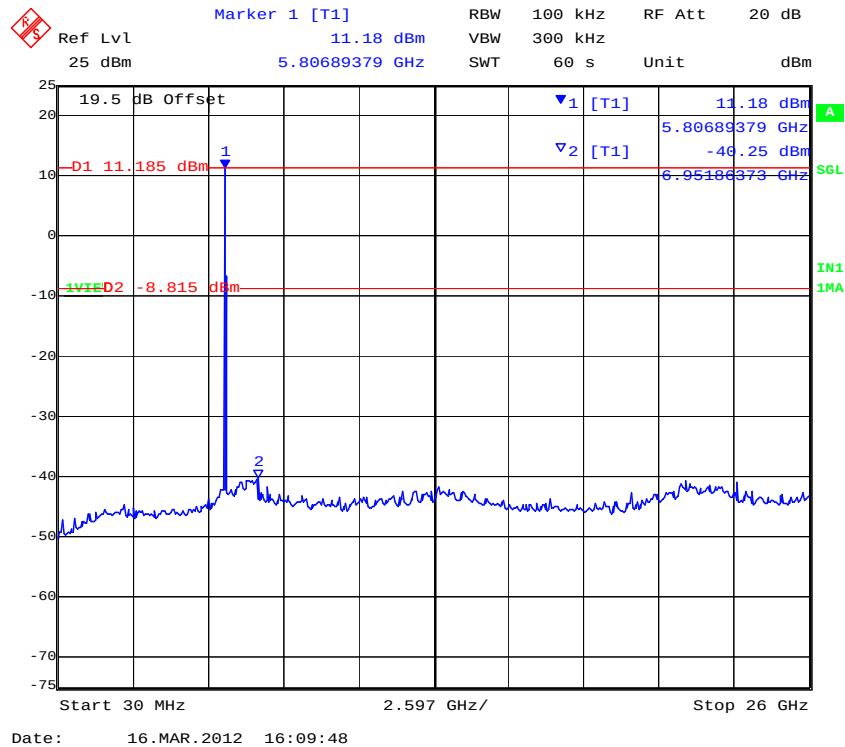


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10 MHz PORT C 802.11a-Legacy 5,840 MHz Conducted Spurious 0.03-26 GHz



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TABLE OF RESULTS – 802.11a Legacy 20 MHz

Test Conditions:	15.247 (a)(2)	Rel. Humidity (%):	35	to	42
Variant:	802.11a	Ambient Temp. (°C):	19	to	22
TPC:	HIGH	Pressure (mBars):	998	to	1003
Modulation:	ON	Duty Cycle (%):	100		
Beam Forming Gain	N/A dB	Antenna Gain:	N/A		dBi
Applied Voltage:	48.00 Vdc	Antenna Ports (N):			
Notes 1:					
Notes 2:					

Conducted Spurious Measurement

Test Freq.	Start Freq.	Stop Freq.	Port A		Port B		Port C		Port D	
MHz	MHz	MHz	SE dBm	Limit dBm	SE dBm	Limit dBm	SE dBm	Limit dBm	SE dBm	Limit dBm
5745.000	30.00	26000.00	-41.24	-11.69	-42.05	-12.16	-40.08	-9.81		
5785.000	30.00	26000.00	-40.99	-9.70	-41.78	-10.68	-39.60	-7.29		
5825.000	30.00	26000.00	-38.38	-9.19	-41.29	-11.24	-40.13	-9.36		

SE: Maximum spurious emission found

Band-edge Measurement

Test Freq.	Band-edge freq.	Port A		Port B		Port C		Port D	
MHz	MHz	BE dBm	Limit dBm	BE dBm	Limit dBm	BE dBm	Limit dBm	BE dBm	Limit dBm
5745.000	5725.00	-13.00	-9.88	-10.38	-9.81	-9.68	-7.81		
5825.000	5850.00	-11.64	-8.27	-16.14	-10.27	-11.35	-7.62		

BE: Maximum Band edge emission found

Measurement uncertainty:	±2.81 dB
---------------------------------	----------

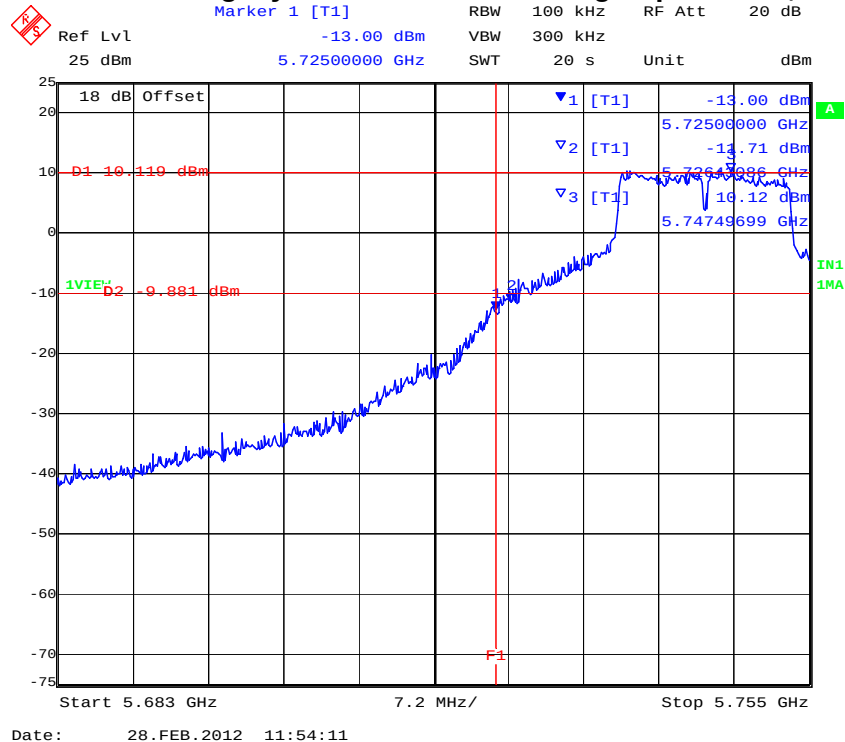
Note: Limit is based on 20dB down from fundamental emission

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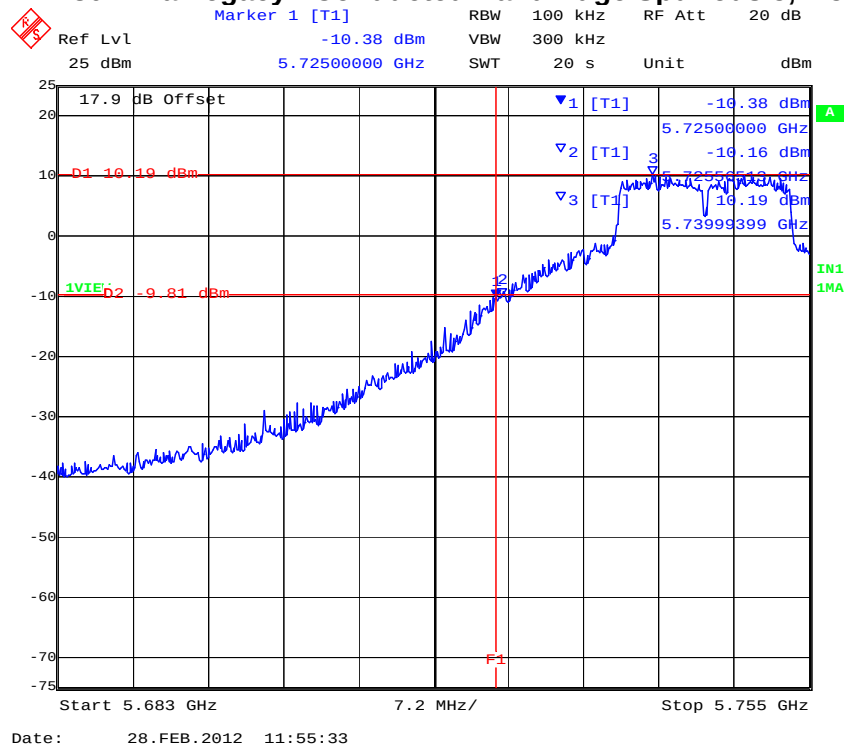


Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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PORT A 802.11a Legacy - Conducted Band Edge Spurious 5,725 MHz



PORT B 802.11a Legacy - Conducted Band Edge Spurious 5,725 MHz

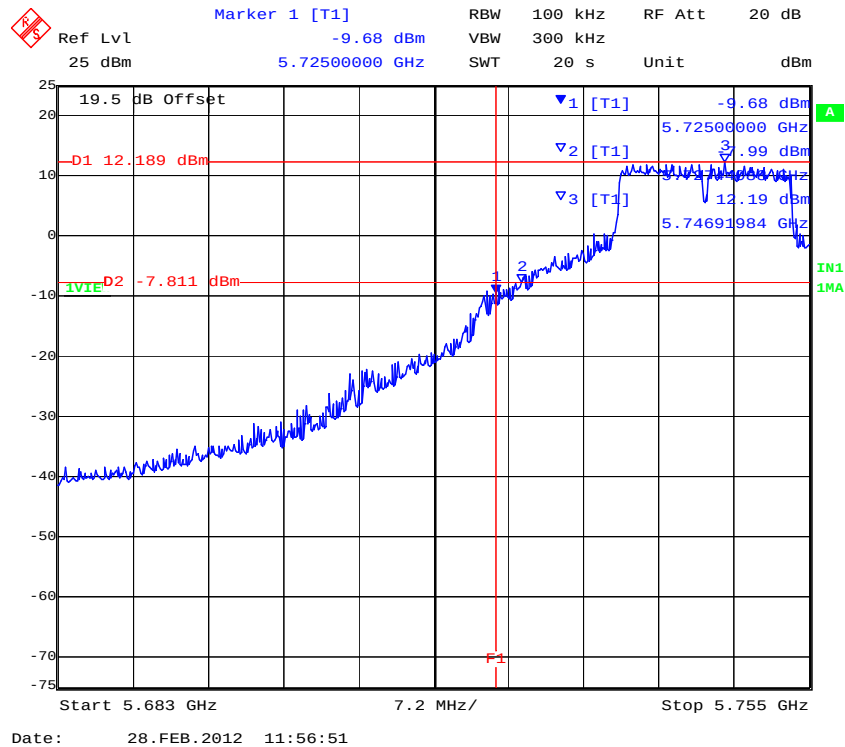


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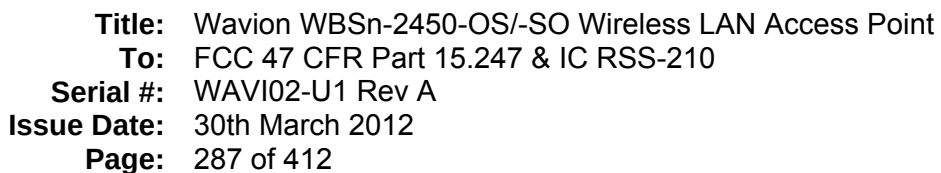


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PORT C 802.11a Legacy - Conducted Band Edge Spurious 5,725 MHz



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Ref Lvl 25 dBm

Marker 1 [T1] 11.73 dBm 5.81904008 GHz

RBW 100 kHz RF Att 20 dB

VBW 300 kHz

SWT 20 s Unit dBm

18 dB Offset

1 11.732 dBm

2 10.09 dBm

3 11.64 dBm

D1 11.732 dBm

D2 -8.268 dBm

F1

Center 5.851 GHz

Span 72 MHz

Date: 28.FEB.2012 12:58:05

Ref Lvl 25 dBm Marker 1 [T1] 9.73 dBm RBW 100 kHz RF Att 20 dB
 5.82019439 GHz SWT 20 s Unit dBm

17.9 dB Offset

1 9.73 dBm
 2 5.82019439 GHz
 3 -11.68 dBm
 4 -16.13 dBm
 5 5.85000000 GHz

IN1
 IMA

Center 5.851 GHz 7.2 MHz/ Span 72 MHz

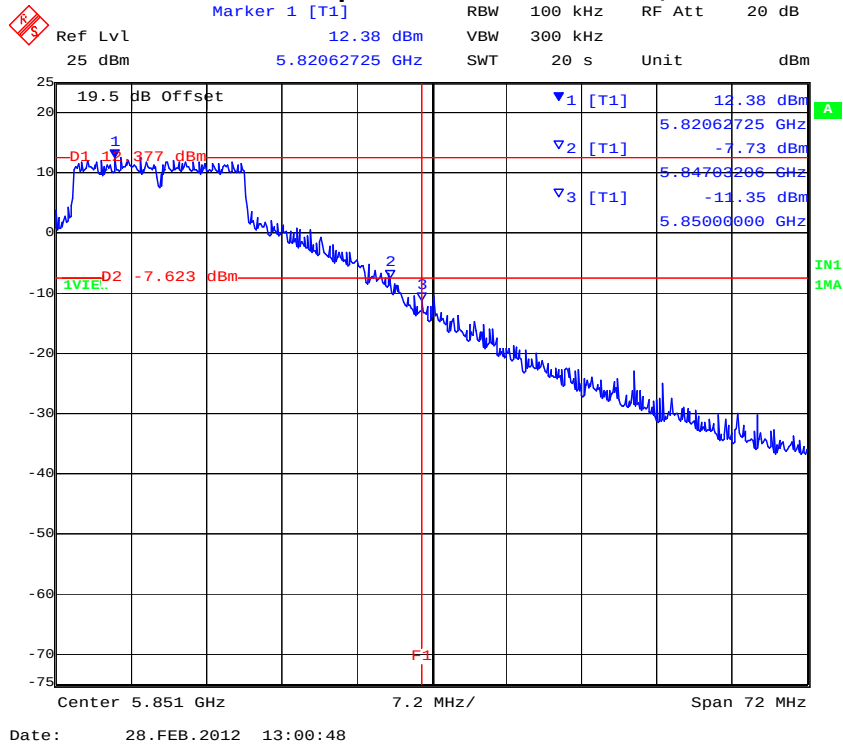
Date: 28.FEB.2012 12:59:29

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To: FCC 47 CFR Part 15.247 & IC RSS-210
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PORT C 802.11a Conducted Spurious Emissions at 5,850 MHz Band Edge

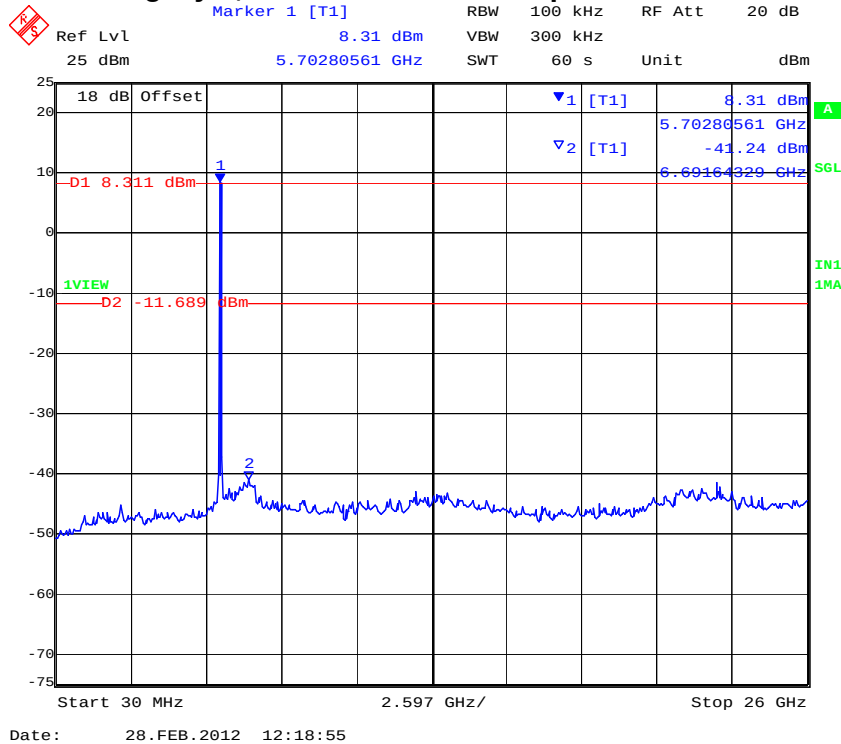


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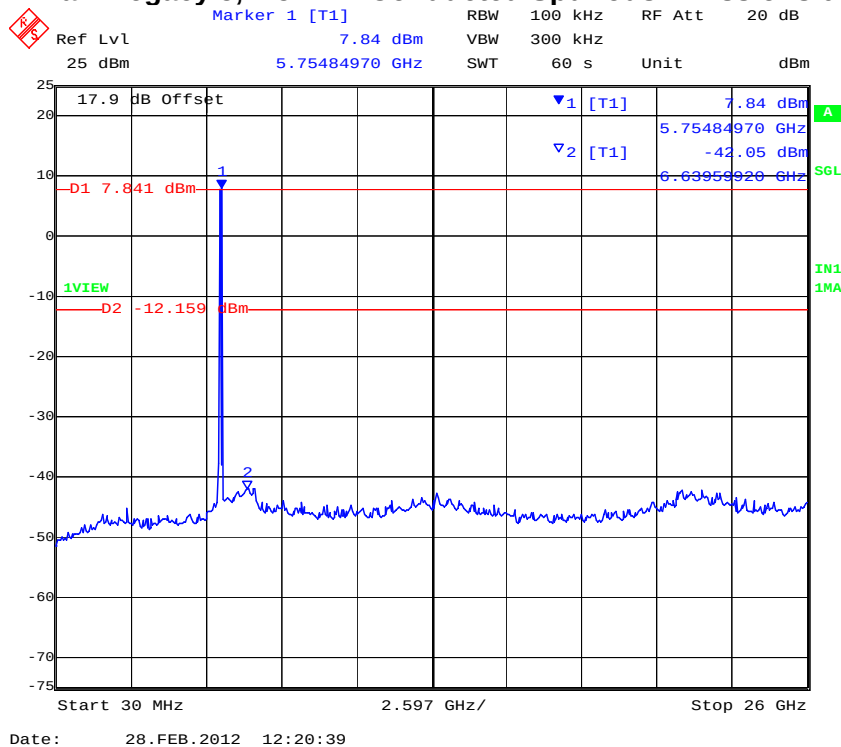


Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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PORT A 802.11a – Legacy 5,745 MHz Conducted Spurious Emissions 0.03 – 26 GHz



PORT B 802.11a – Legacy 5,745 MHz Conducted Spurious Emissions 0.03 – 26 GHz

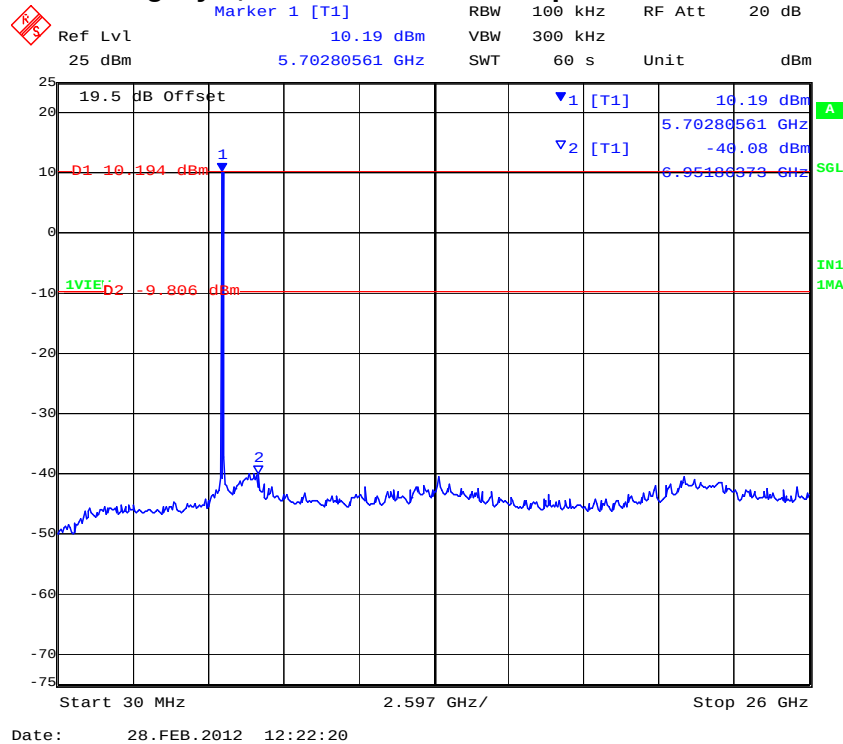


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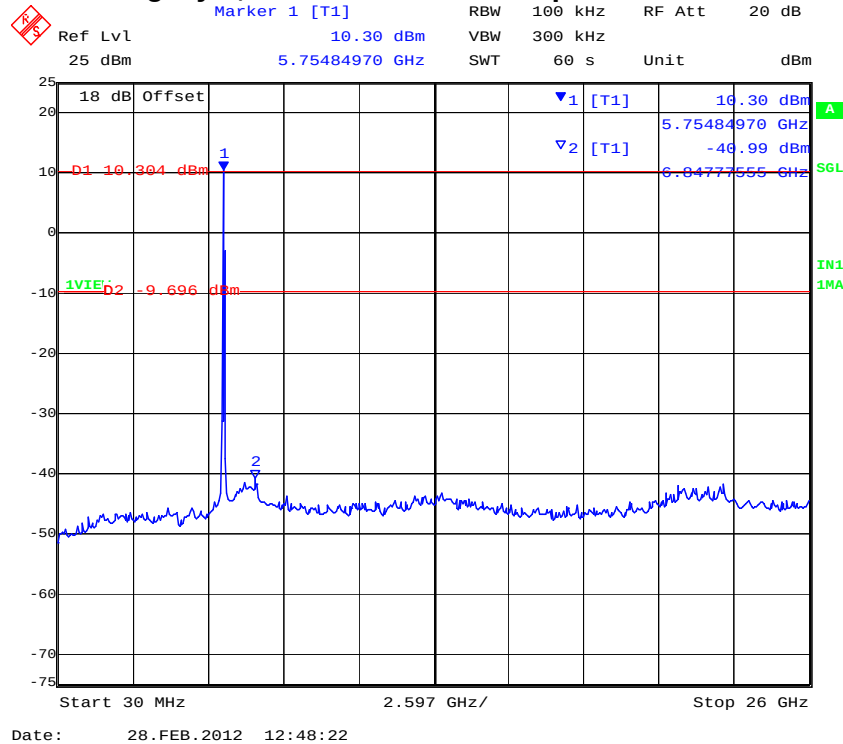
Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
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PORT C 802.11a – Legacy 5,745 MHz Conducted Spurious Emissions 0.03 – 26 GHz

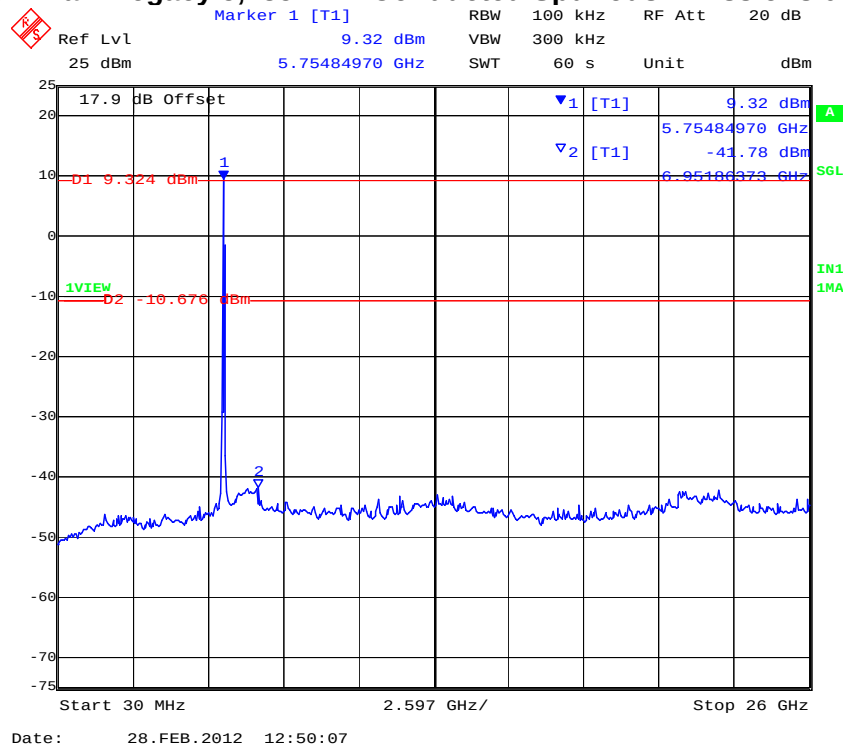


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PORT A 802.11a – Legacy 5,785 MHz Conducted Spurious Emissions 0.03 – 26 GHz

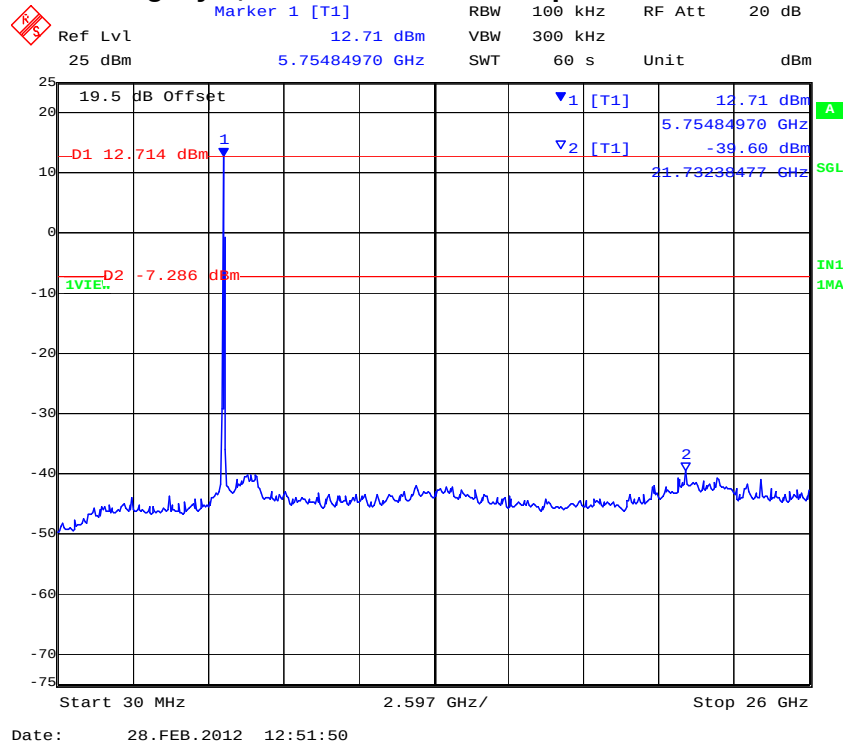


PORT B 802.11a – Legacy 5,785 MHz Conducted Spurious Emissions 0.03 – 26 GHz



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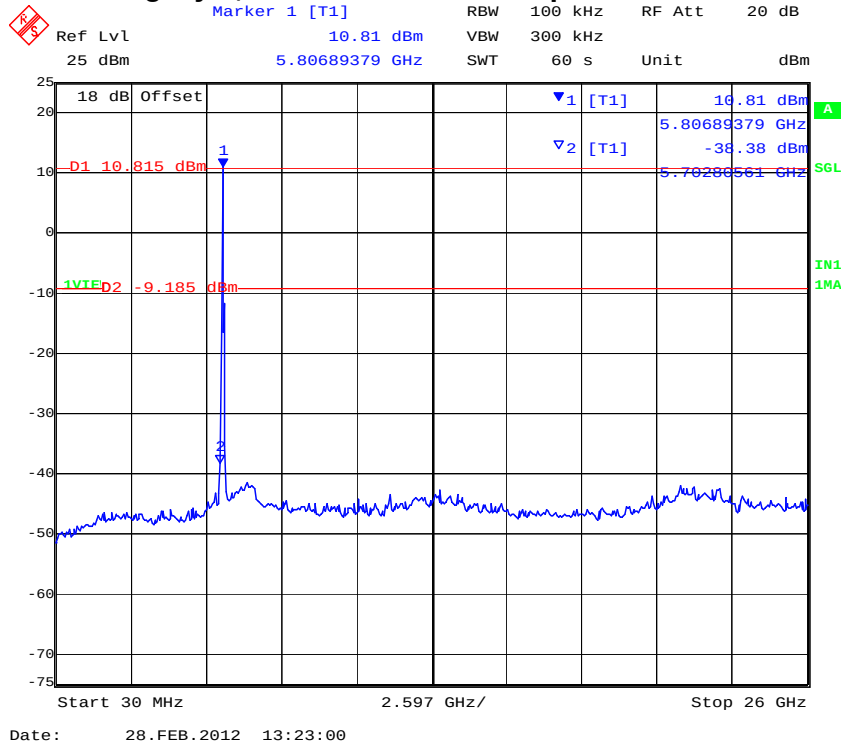
PORT C 802.11a – Legacy 5,785 MHz Conducted Spurious Emissions 0.03 – 26 GHz



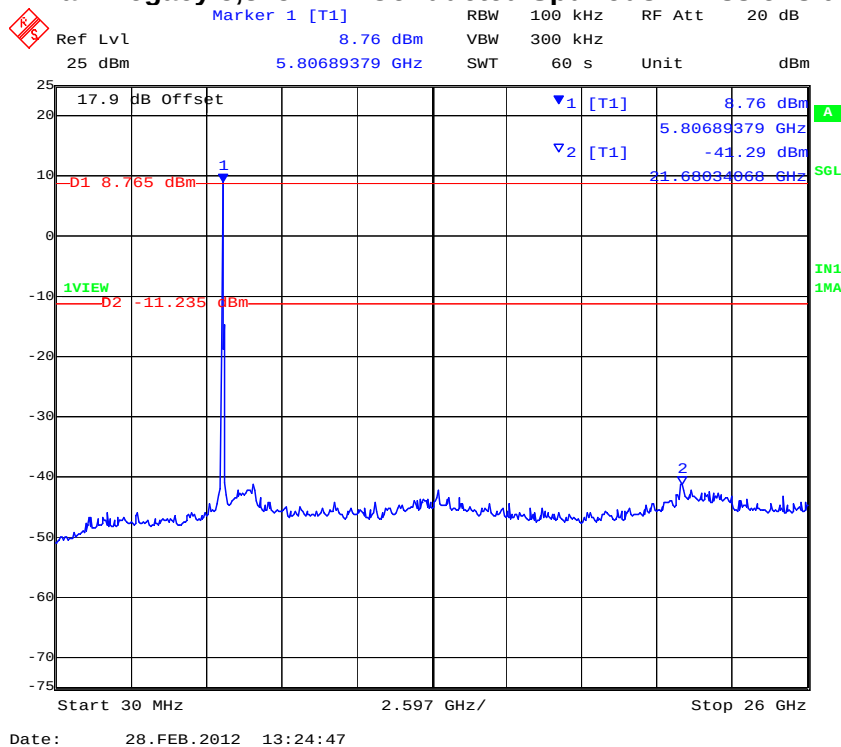


Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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PORT A 802.11a – Legacy 5,825 MHz Conducted Spurious Emissions 0.03 – 26 GHz



PORT B 802.11a – Legacy 5,825 MHz Conducted Spurious Emissions 0.03 – 26 GHz

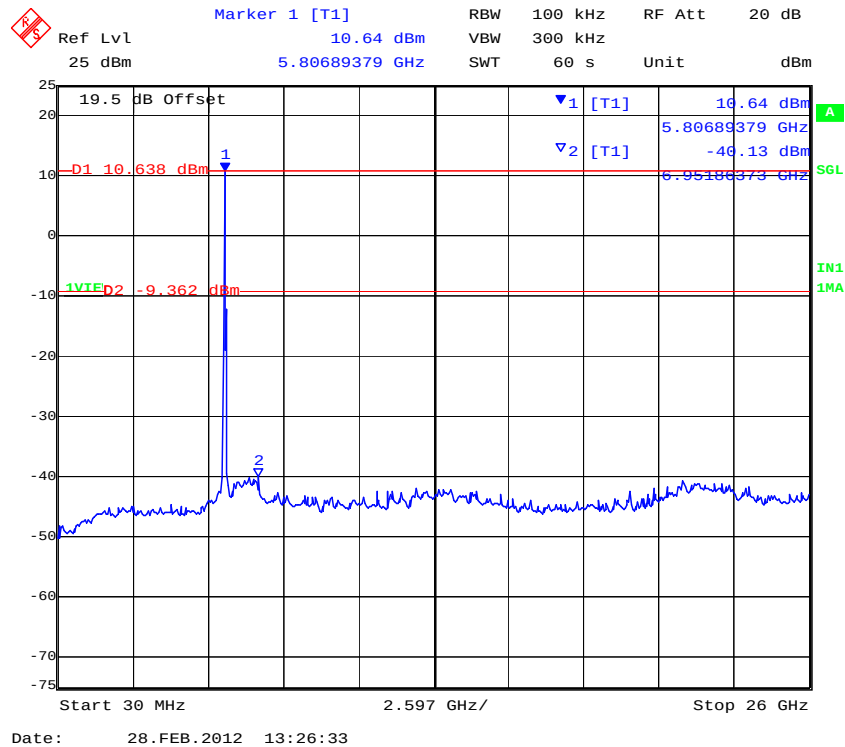


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PORT C 802.11a – Legacy 5,825 MHz Conducted Spurious Emissions 0.03 – 26 GHz



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Conducted Spurious Emission Results

TABLE OF RESULTS – 802.11n HT-20

Test Conditions:	15.247 (a)(2)	Rel. Humidity (%):	35	to	42
Variant:	802.11n HT-20	Ambient Temp. (°C):	19	to	22
TPC:	HIGH	Pressure (mBars):	998	to	1003
Modulation:	ON	Duty Cycle (%):	100		
Beam Forming Gain	N/A dB	Antenna Gain:	N/A	dBi	
Applied Voltage:	48.00 Vdc	Antenna Ports (N):			
Notes 1:					
Notes 2:					

Conducted Spurious Measurement

Test Freq.	Start Freq.	Stop Freq.	Port A		Port B		Port C		Port D	
MHz	MHz	MHz	SE dBm	Limit dBm	SE dBm	Limit dBm	SE dBm	Limit dBm	SE dBm	Limit dBm
5745.000	30.00	26000.00	-41.14	-12.04	-41.33	-12.21	-39.68	-10.40		
5785.000	30.00	26000.00	-41.31	-9.51	-40.81	-10.16	-40.18	-8.40		
5825.000	30.00	26000.00	-39.25	-9.70	-41.17	-12.82	-39.43	-9.68		

SE: Maximum spurious emission found

Band-edge Measurement

Test Freq.	Band-edge freq.	Port A		Port B		Port C		Port D	
MHz	MHz	BE dBm	Limit dBm	BE dBm	Limit dBm	BE dBm	Limit dBm	BE dBm	Limit dBm
5745.000	5725.00	-14.55	-11.72	-12.75	-11.99	-12.73	-10.34		
5825.000	5850.00	-12.66	-7.79	-16.74	-11.12	-14.75	-8.82		

BE: Maximum Band edge emission found

Measurement uncertainty:	±2.81 dB
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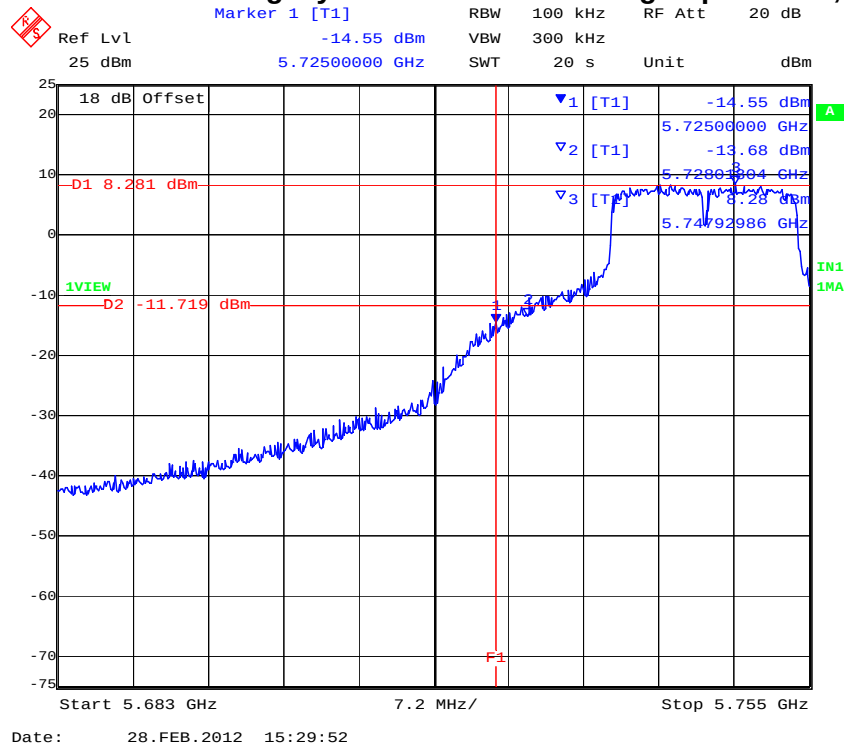
Note: Limit is based on 20dB down from fundamental emissions

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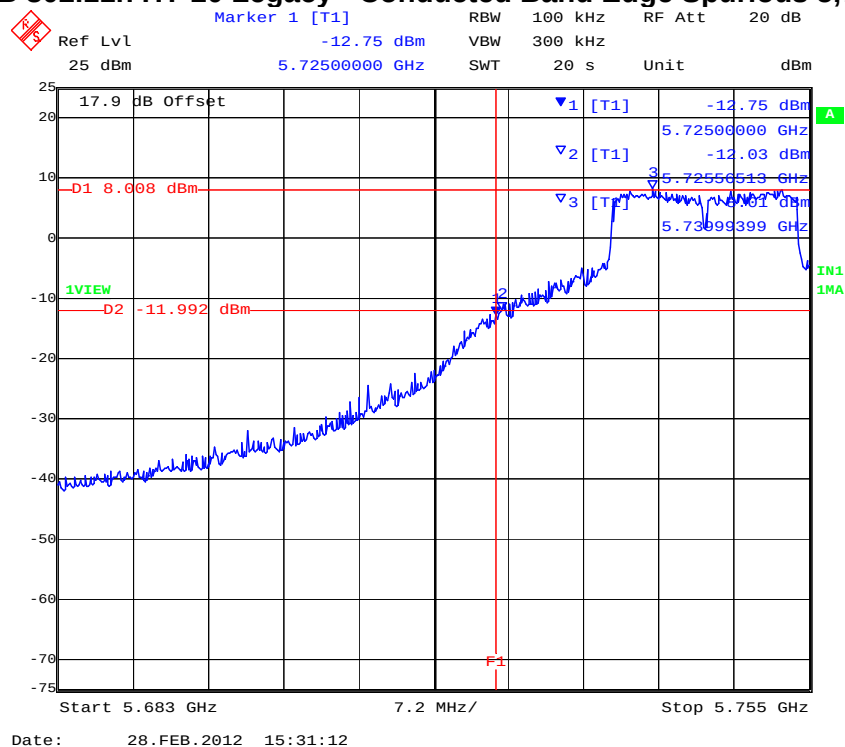


Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
To: FCC 47 CFR Part 15.247 & IC RSS-210
Serial #: WAVI02-U1 Rev A
Issue Date: 30th March 2012
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PORT A 802.11n HT-20 Legacy - Conducted Band Edge Spurious 5,725 MHz



PORT B 802.11n HT-20 Legacy - Conducted Band Edge Spurious 5,725 MHz

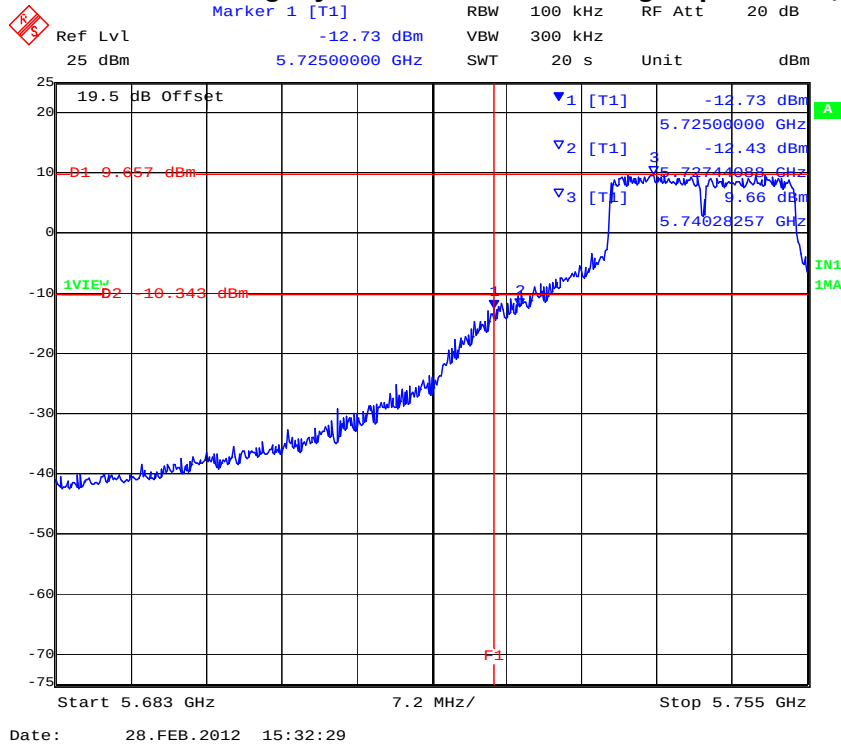


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PORT C 802.11n HT-20 Legacy - Conducted Band Edge Spurious 5,725 MHz

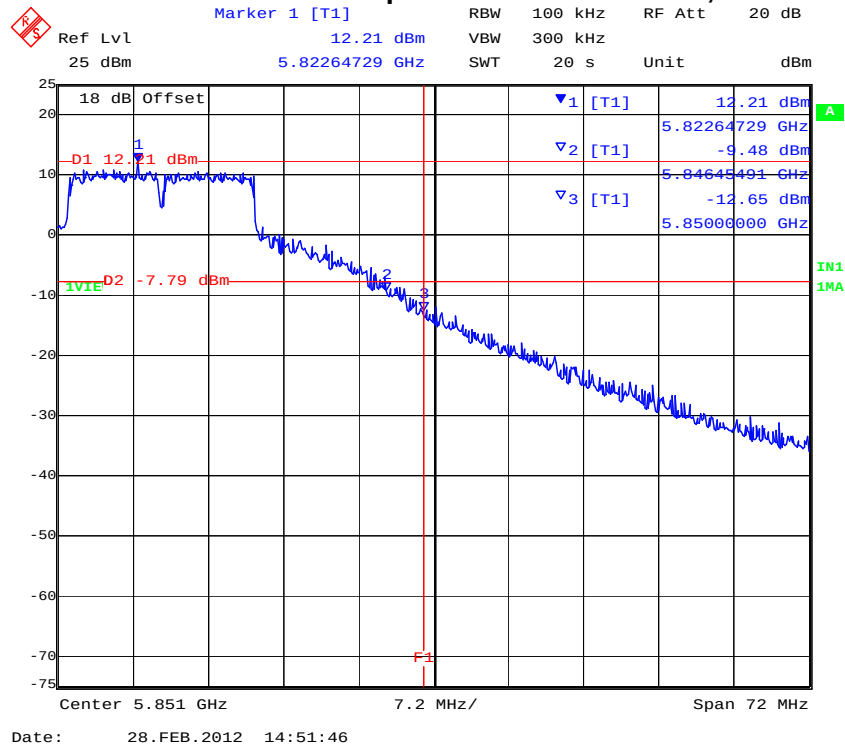


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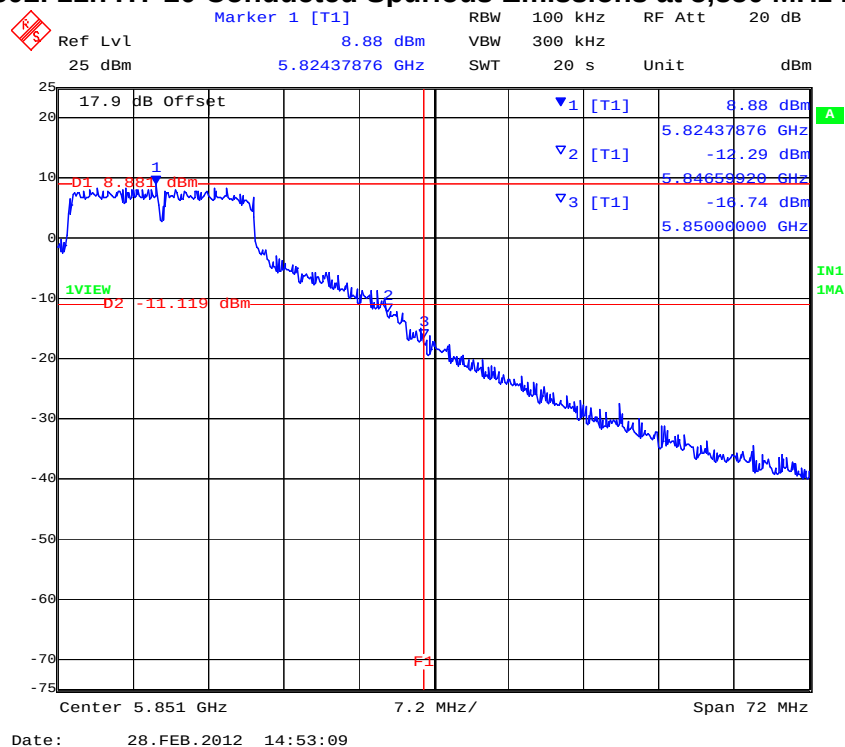


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To: FCC 47 CFR Part 15.247 & IC RSS-210
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PORT A 802.11n HT-20 Conducted Spurious Emissions at 5,850 MHz Band Edge



PORT B 802.11n HT-20 Conducted Spurious Emissions at 5,850 MHz Band Edge

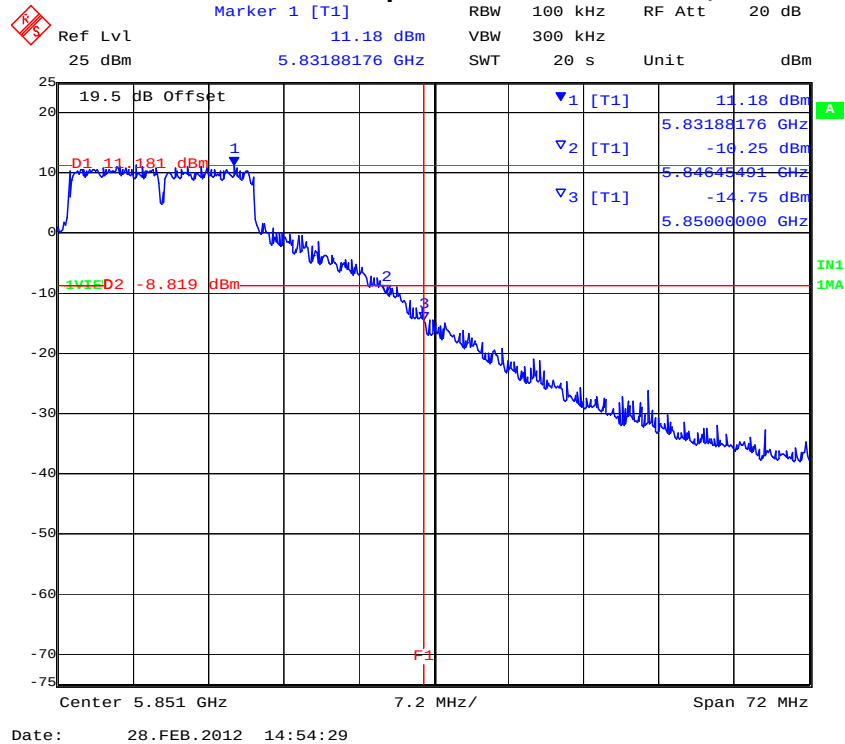


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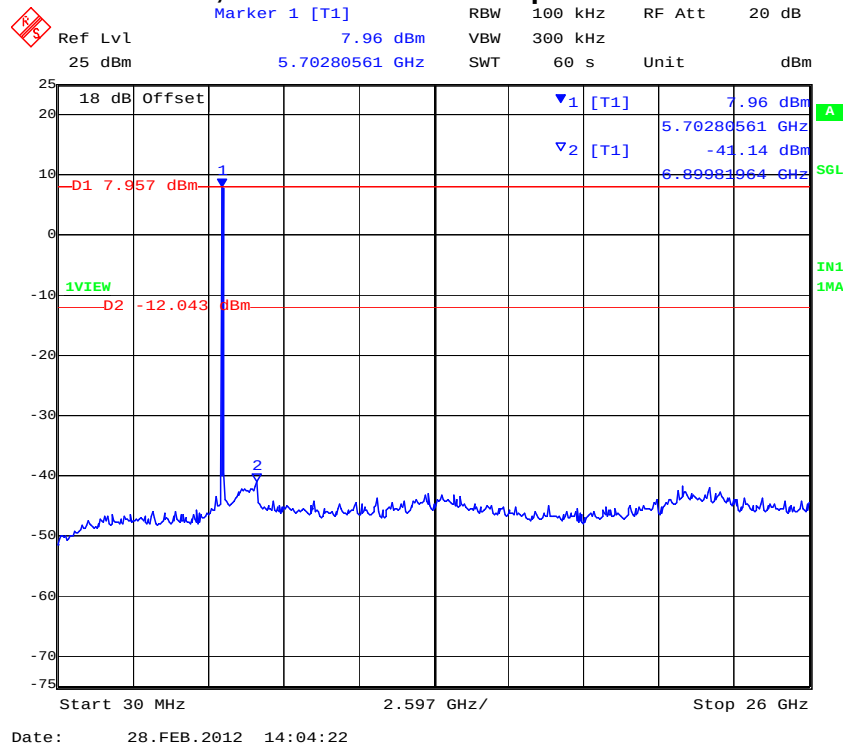
Title: Wavion WBSn-2450-OS/-SO Wireless LAN Access Point
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Serial #: WAVI02-U1 Rev A
Issue Date: 30th March 2012
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PORT C 802.11n HT-20 Conducted Spurious Emissions at 5,850 MHz Band Edge

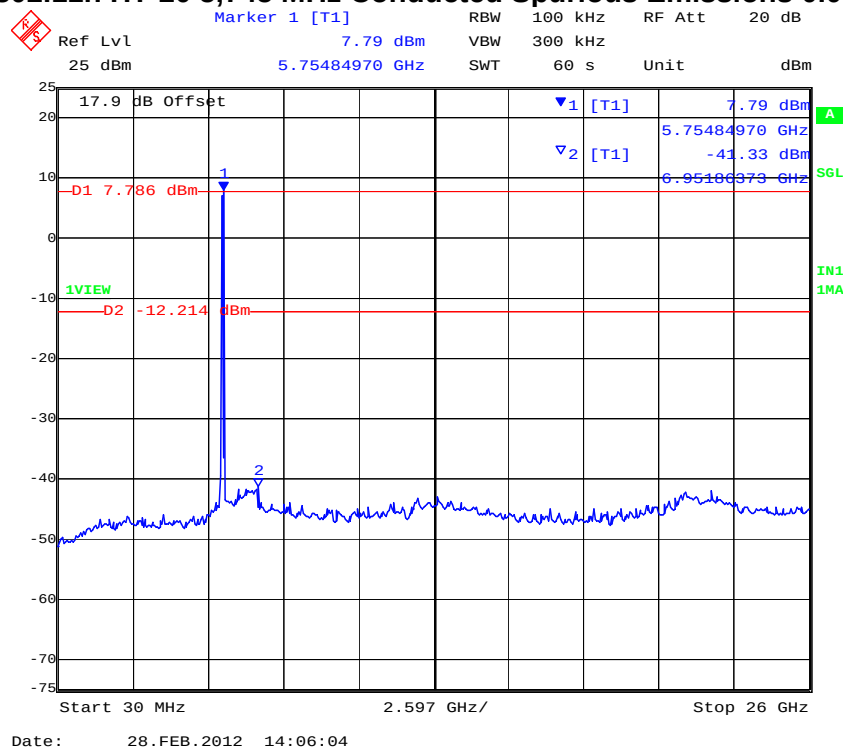


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PORT A 802.11n HT-20 5,745 MHz Conducted Spurious Emissions 0.03 – 26 GHz



PORT B 802.11n HT-20 5,745 MHz Conducted Spurious Emissions 0.03 – 26 GHz



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