Radio Test Report

FCC ID: 2AB9W-3F21X

This report concerns (check one) : ☒ **Original Grant** ☐ **Class II Change**

Issued Date : May 08, 2014
Project No. : 1404171
Equipment : 3D Printer
Model Name : da Vinci 2.1 Duo Plus

Applicant : XYZprinting, Inc.
Address : 10F., No.99, Sec. 5, Nanjing E. Rd., Songshan Dist., Taipei City 10571, Taiwan (R.O.C.)

Tested by: Neutron Engineering Inc. EMC Laboratory
Date of Receipt: Apr. 16, 2014
Date of Test: Apr. 16, 2014 ~ Apr. 24, 2014

Testing Engineer : (Josh Lin)

Technical Manager : (Jeff Yang)

Authorized Signatory : (Andy Chiu)

Neutron Engineering Inc.
B1, No. 37, Lane 365, YangGuang St.,
NeiHu District 114, Taipei, Taiwan.
TEL: +886-2-2657-3299
FAX: +886-2-2657-3331

Testing Laboratory 0659

Declaration

Neutron represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with the standards traceable to National Measurement Laboratory (**NML**) of **R.O.C**., or National Institute of Standards and Technology (**NIST**) of **U.S.A.**

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Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

Table of Contents

Table of Contents

REPORT ISSUED HISTORY

Issue No.	Description	Issued Date
NEI-FCCP-1-1404171	Original Issue.	May 08, 2014

1 CERTIFICATION

Equipment	:	3D Printer
Brand Name	:	XYZPrinting
Model Name	:	da Vinci 2.1 Duo Plus
Applicant	:	XYZprinting, Inc.
Date of Test	:	Apr. 16, 2014 ~ Apr. 24, 2014
Standards	:	FCC Part 15, Subpart C: 2013 ANSI C63.4-2009

The above equipment has been tested and found compliance with the requirement of the relative standards by Neutron Engineering Inc. EMC Laboratory.
The test data, data evaluation, and equipment configuration contained in our test report (Ref No. NEI-FCCP-1-1404171) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of TAF according to the ISO-17025 quality assessment standard and technical standard(s).

2. SUMMARY OF TEST RESULTS

Standard Clause	Test Item	Result
15.207	Conducted Emission	**PASS**
15.247 (c)	Antenna conducted Spurious Emission	**PASS**
15.247 (a)(2)	6 dB Bandwidth	**PASS**
15.247 (b)	Maximum Peak Conducted Output Power	**PASS**
15.247 (c)	Radiated Spurious Emission	**PASS**
15.247 (d)(e)	Power Spectral Density	**PASS**
15.205	Restricted Bands	**PASS**
15.203	Antenna Requirement	**PASS**

NOTE:

(1) N/A: denotes test is not applicable in this Test Report

2.1 TEST FACILITY

The test facilities used to collect the test data in this report:

Conducted emission Test:

C02: 1F., No. 61, Ln. 77, Sing-ai Rd., Neihu Dist., Taipei City 114, Taiwan (R.O.C.)

Radiated emission Test (Below 1 GHz):

CB08: 1F., No. 61, Ln. 77, Sing-ai Rd., Neihu Dist., Taipei City 114, Taiwan (R.O.C.)

Radiated emission Test (Above 1 GHz):

CB08: 1F., No. 61, Ln. 77, Sing-ai Rd., Neihu Dist., Taipei City 114, Taiwan (R.O.C.)

2.2 MEASUREMENT UNCERTAINTY

The measurement uncertainty is not specified by FCC/Industry Canada rules and for reference only.

The reported uncertainty of measurement **y** ± **U**，where expended uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of **k=2**，providing a level of confidence of approximately **95**%.

The measurement instrumentation uncertainty considerations contained in CISPR 16-4-2.

A. Conducted emission test:

Test Site	Measurement Frequency Range	U，(dB)	NOTE
C02	150 kHz ~ 30 MHz	2.59	

B. Radiated emission test:

Test Site	Item	Measurement Frequency Range		Uncertainty	NOTE
CB08	Radiated emission at 3m	Horizontal Polarization	30 - 200MHz	3.35 dB	
			200 - 1000MHz	3.11 dB	
			1 - 18GHz	3.97 dB	
			18 - 40GHz	4.01 dB	
		Vertical Polarization	30 - 200MHz	3.22 dB	
			200 - 1000MHz	3.24 dB	
			1 - 18GHz	4.05 dB	
			18 - 40GHz	4.04 dB	

Our calculated Measurement Instrumentation Uncertainty is shown in the tables above. These are our U_{lab} values in CISPR 16-4-2 terminology.

Since Table 1 of CISPR 16-4-2 has values of measurement instrumentation uncertainty, called U_{CISPR}, as follows:

Conducted Disturbance (mains port) – 150 kHz – 30 MHz: 3.6 dB

Radiated Disturbance (electric field strength on an open area test site or alternative test site) – 30 MHz – 1000 MHz: 5.2 dB

It can be seen that our U_{lab} values are smaller than U_{CISPR}.

If U_{lab} is less than or equal to U_{CISPR}, then:

- compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.

If U_{lab} is greater than U_{CISPR}, then:

- compliance is deemed to occur if no measured disturbance level, increased by (U_{lab} - U_{CISPR}), exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance level, increased by (U_{lab} - U_{CISPR}), exceeds the disturbance limit.

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Equipment	3D Printer
Brand Name	XYZPrinting
Model Name	da Vinci 2.1 Duo Plus
OEM Brand/Model Name	N/A
Model Difference	N/A
Product Description	<table><tr><td>Operation Frequency</td><td>2412~2462 MHz</td></tr><tr><td>Modulation Type</td><td>IEEE 802.11b: DSSS (DQPSK, DBPSK, CCK) IEEE 802.11g: OFDM (64-QAM, 16-QAM, QPSK, BPSK) IEEE 802.11n: OFDM (64-QAM, 16-QAM, QPSK, BPSK)</td></tr><tr><td>Bit Rate of Transmitter</td><td>IEEE 802.11b: 1, 2, 5.5, 11 Mbps IEEE 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps IEEE 802.11n: 6.5, 13, 19.5, 26, 39, 52, 58.5, 65 Mbps</td></tr><tr><td>Number Of Channel</td><td>Please refer to the Note 2.</td></tr><tr><td>Antenna Designation</td><td>Please refer to the Note 3.</td></tr><tr><td>Antenna Gain(Peak)</td><td>Please refer to the Note 3.</td></tr><tr><td>Maximum Conducted Output Power</td><td>IEEE 802.11b: 13.69 dBm (0.0234 W) IEEE 802.11g: 19.24 dBm (0.0839 W) IEEE 802.11n (20 MHz): 18.76 dBm (0.0752 W)</td></tr></table> More details of EUT technical specification please refer to the User's Manual.
Power Source	AC Mains.
Power Rating	#1 I/P: AC 100-127V~/200-240V~ 4.0A/2.0A 60/50Hz #2 I/P: AC 100-240V~ 4-2A 60-50Hz
Connecting I/O Port(s)	Please refer to the User's Manual
Products Covered	1 * SWITCHING POWER SUPPLY: (1) AcBel, FLXA5201A (2) FSP GROUP INC., FSP250-50LC
EUT Modification(s)	N/A

NOTE:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
2. Channel List:

IEEE 802.11b/g/n (20MHz)					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2412	05	2432	09	2452
02	2417	06	2437	10	2457
03	2422	07	2442	11	2462
04	2427	08	2447		

3. Table for Filed Antenna

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	WIESON	GY136HT0131A-001	PIFA	IPEX	2.73
2	INPAQ	WA-M-LA-02-042	PIFA	IPEX	3.77

3.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Test Items	IEEE	Mode	Data Rate	Channel	Note
Conducted Emission	802.11b	DSSS	1 Mbps	06	
Antenna conducted Spurious Emission	802.11b	DSSS	1 Mbps	01/06/11	
	802.11g	OFDM	6 Mbps	01/06/11	
	802.11n (20 MHz)	BPSK	MCS0	01/06/11	
6 dB Bandwidth	802.11b	DSSS	1 Mbps	01/06/11	
	802.11g	OFDM	6 Mbps	01/06/11	
	802.11n (20 MHz)	BPSK	MCS0	01/06/11	
Maximum Peak Conducted Output Power	802.11b	DSSS	1 Mbps	01/06/11	
	802.11g	OFDM	6 Mbps	01/06/11	
	802.11n (20 MHz)	BPSK	MCS0	01/06/11	
Radiated Spurious Emission (30 MHz to 1 GHz)	802.11n (20 MHz)	OFDM	MCS0	06	
Radiated Spurious Emission (above 1 GHz)	802.11b	DSSS	1 Mbps	01/06/11	
	802.11g	OFDM	6 Mbps	01/06/11	
	802.11n (20 MHz)	BPSK	MCS0	01/06/11	
Restricted Bands	802.11b	DSSS	1 Mbps	01/06/11	
	802.11g	OFDM	6 Mbps	01/06/11	
	802.11n (20 MHz)	BPSK	MCS0	01/06/11	
Antenna Requirement	---		---	---	

NOTE: The measurements are performed at the highest, middle, lowest available channels.

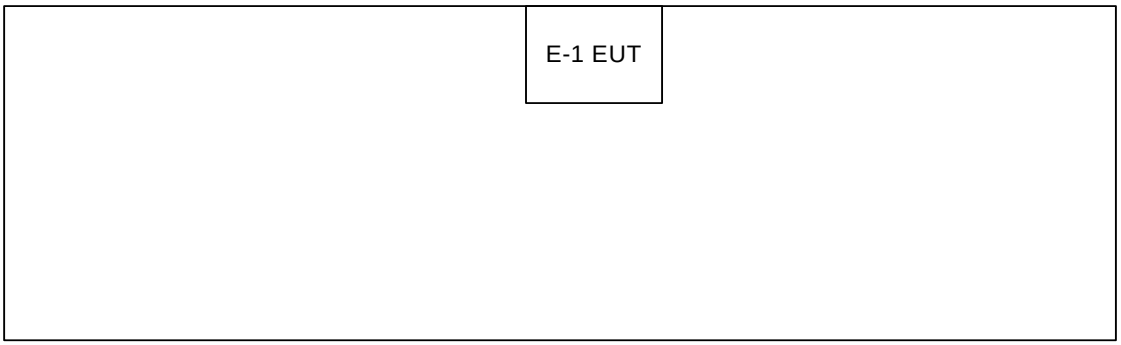
3.3 TABLE OF PARAMETERS OF TEXT SOFTWARE SETTING

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

IEEE	802.11b			802.11g		
Test software Version	Ampak RFTestTool VER:4.4			Ampak RFTestTool VER:4.4		
Frequency	2412 MHz	2437 MHz	2462 MHz	2412 MHz	2437 MHz	2462 MHz
Parameter	Def.	Def.	Def.	Def.	Def.	Def.

IEEE	802.11n (20 MHz)					
Test software Version	Ampak RFTestTool VER:4.4					
Frequency	2412 MHz	2437 MHz	2462 MHz			
Parameter	Def.	Def.	Def.			

3.4 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



3.5 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	Series No.	Note
E-1	3D Printer	XYZPrinting	da Vinci 2.1 Duo Plus	2AB9W-3F21X	N/A	EUT

Item	Shielded Type	Ferrite Core	Length	Note
N/A	-	-	-	-

NOTE: The support equipment was authorized by Declaration of Conformity (DOC).

4 CONDUCTED EMISSION

4.1 LIMIT

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	79.00	66.00	66 - 56 *	56 - 46 *
0.50 - 5.0	73.00	60.00	56.00	46.00
5.0 - 30.0	73.00	60.00	60.00	50.00

NOTE:

1. The tighter limit applies at the band edges.
2. The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.
3. The test result calculated as following:
   Measurement Value = Reading Level + Correct Factor
   Correct Factor = Insertion Loss + Cable Loss + Attenuator Factor(if use)
   Margin Level = Measurement Value – Limit Value

4.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	LISN	Schwarzbeck	NSLK 8127	8127685	Jan. 08, 2015
2	Test Cable	TIMES	CFD300-NL	C01	Jun. 16, 2014
3	Spectrum Analyzer	Agilent	N9020A	MY51160196	Jun. 20, 2014
4	Measurement Software	EZ	EZ_EMC (Version NB-02A)	N/A	N/A

NOTE: **N/A**: denotes No Model Name, No Serial No. or No Calibration specified.

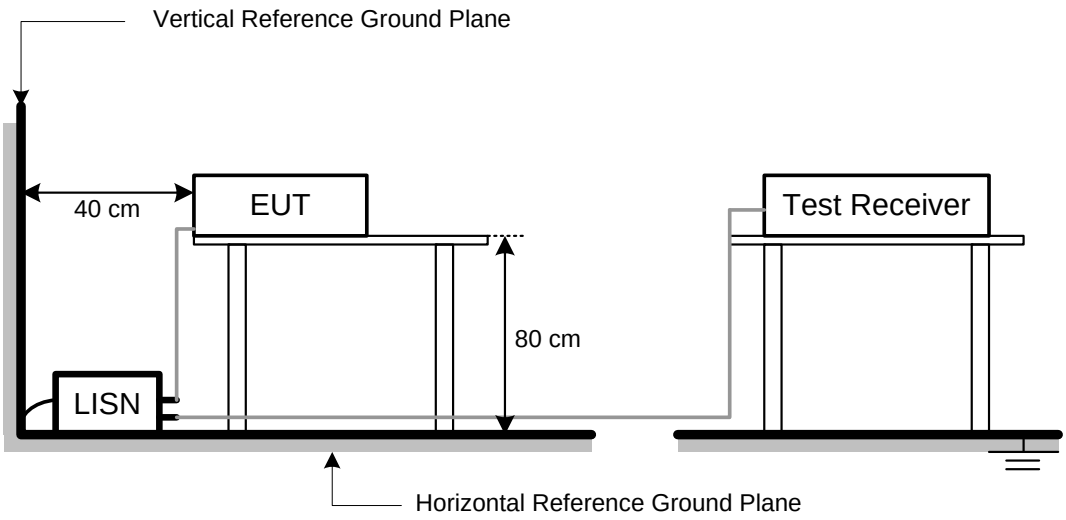
4.3 TEST PROCEDURES

a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
d. LISN at least 80 cm from nearest part of EUT chassis.
e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

NOTE:

a. Reading in which marked as Peak, QP or AVG means measurements by using are Quasi-Peak or Average Mode with Detector BW=9 kHz (6 dB Bandwidth).
b. All readings are Peak Mode value unless otherwise stated QP or AVG in column of Note. If the Peak or QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only Peak or QP Mode was measured, but AVG Mode didn‘t perform.

4.4 TEST SETUP LAYOUT



4.5 DEVIATION FROM TEST STANDARD

No deviation

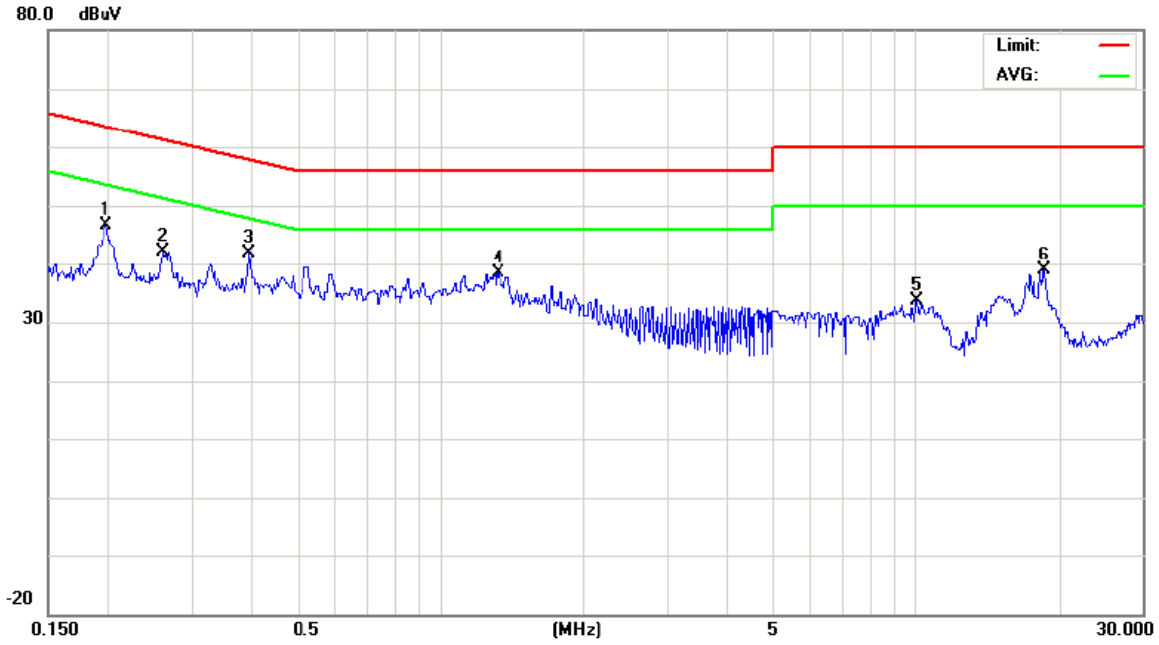
4.6 EUT OPERATING CONDITIONS

The EUT used during radiated and/or conducted emission measurement was designed to exercise in a manner similar to a typical use.

4.7 TEST RESULTS

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	24°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11b/2437 MHz		

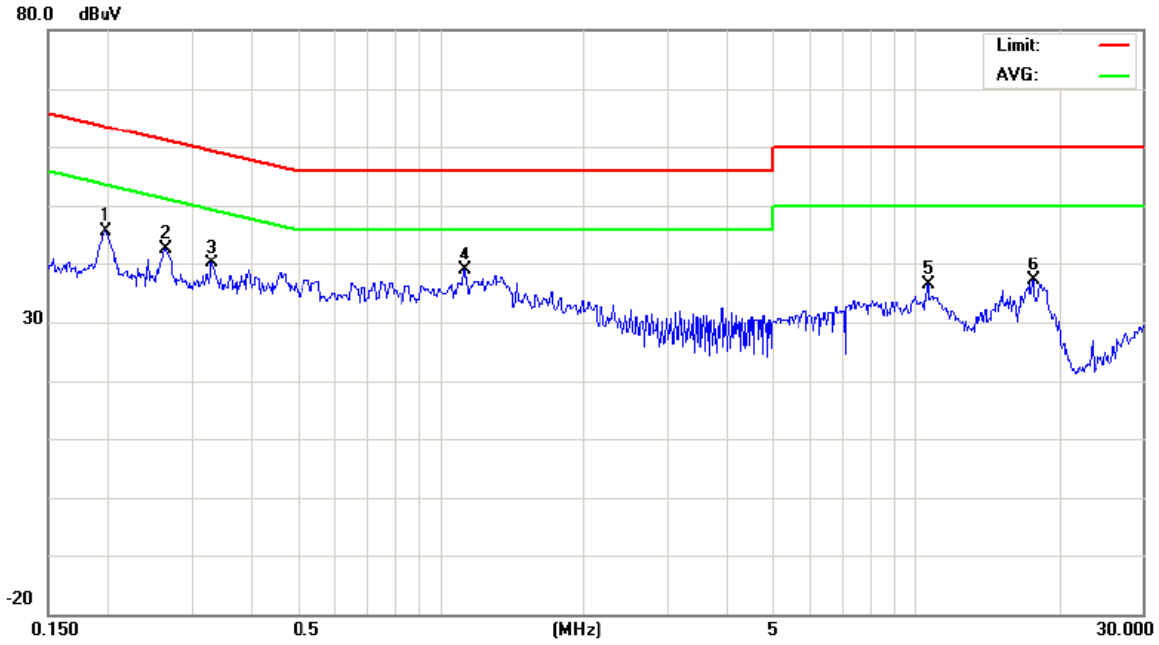
Phase: Line



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1968	37.33	9.27	46.60	63.74	-17.14	peak	
2		0.2612	33.31	8.90	42.21	61.39	-19.18	peak	
3	*	0.3949	33.10	8.90	42.00	57.96	-15.96	peak	
4		1.3189	29.27	9.05	38.32	56.00	-17.68	peak	
5		10.0500	23.69	9.96	33.65	60.00	-26.35	peak	
6		18.5500	28.92	10.01	38.93	60.00	-21.07	peak	

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	24°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11b/2437 MHz		

Phase: Neutral



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1983	36.28	9.29	45.57	63.68	-18.11	peak	
2		0.2634	33.66	8.89	42.55	61.32	-18.77	peak	
3		0.3305	31.51	8.73	40.24	59.44	-19.20	peak	
4	*	1.1210	29.92	8.98	38.90	56.00	-17.10	peak	
5		10.6000	26.44	9.95	36.39	60.00	-23.61	peak	
6		17.6000	27.26	9.96	37.22	60.00	-22.78	peak	

5 ANTENNA CONDUCTED SPURIOUS EMISSION

5.1 LIMIT

Test Item	Frequency Range (MHz)	Limit
Antenna conducted Spurious Emission	30-25000	20 dB less than the peak value of fundamental frequency

5.2 MEASUREMENT INSTRUMENTS LIST

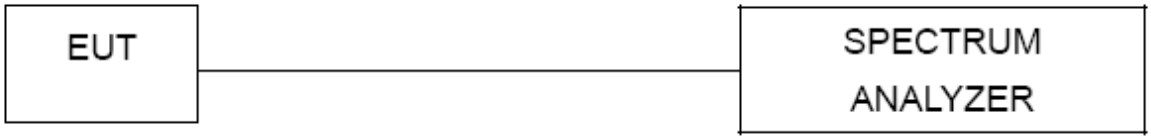
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-30	100854	Sep. 08, 2014

NOTE: **N/A**: denotes No Model Name, No Serial No. or No Calibration specified.

5.3 TEST PROCEDURES

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
b. Spectrum Setting: RBW= 100KHz, VBW=100KHz, Sweep time = Auto.

5.4 TEST SETUP LAYOUT



5.5 DEVIATION FROM TEST STANDARD

No deviation

5.6 EUT OPERATING CONDITIONS

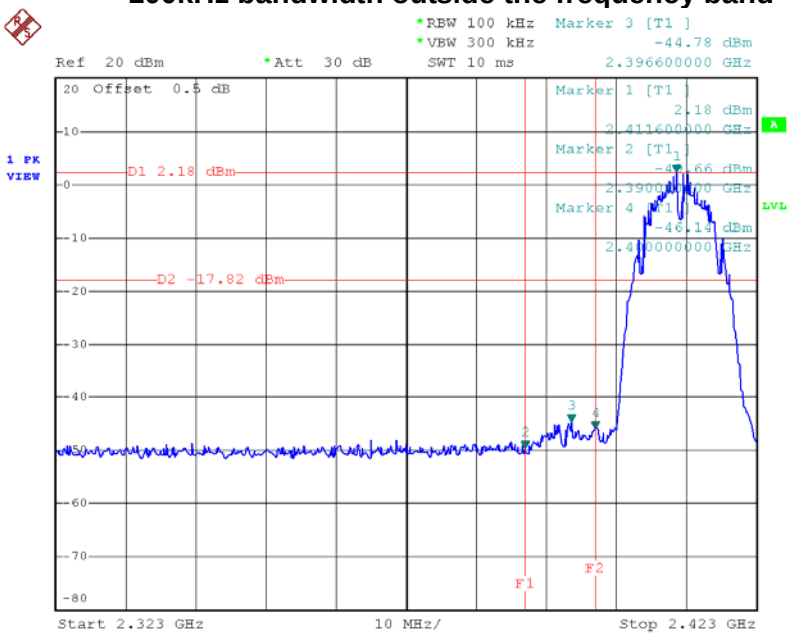
The EUT tested system was configured as the statements of 4.6 Unless otherwise a special operating condition is specified in the follows during the testing.

5.7 TEST RESULTS

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11b		

Channel of Worst Data			
The max. radio frequency power in any 100 kHz bandwidth outside the frequency band		The max. radio frequency power in any 100 kHz bandwidth within the frequency band.	
FREQUENCY(MHz)	POWER(dBm)	FREQUENCY(MHz)	POWER(dBm)
2396.60	-44.78	2485.80	-48.61
Result			
In any 100kHz bandwidth outside the frequency band, the radio frequency power is at least 20dB below that in the 100kHz bandwidth within the band that contains the highest lever of the desired power.			

IEEE 802.11b/The max. radio frequency power in any 100kHz bandwidth outside the frequency band



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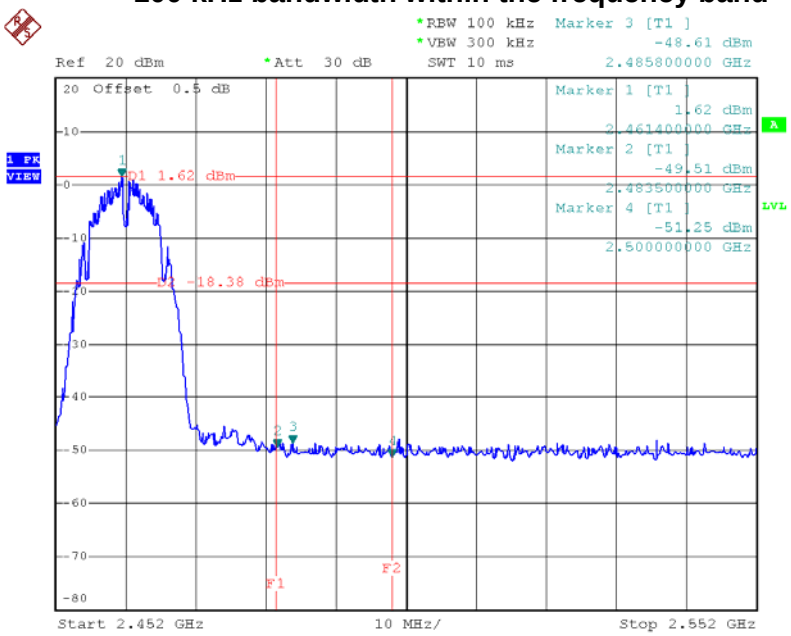
IEEE 802.11b/The max. radio frequency power in any 100 kHz bandwidth within the frequency band



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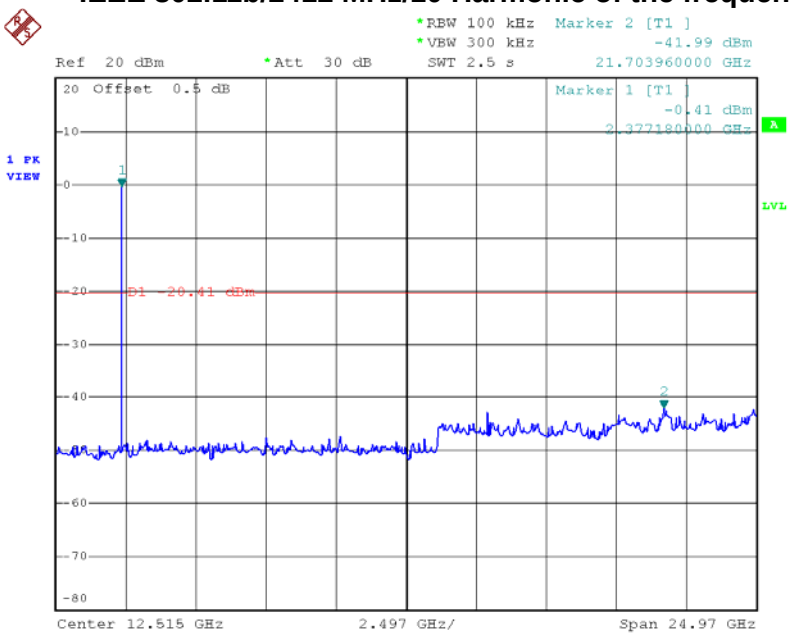
IEEE 802.11b/2412 MHz/10 Harmonic of the frequency



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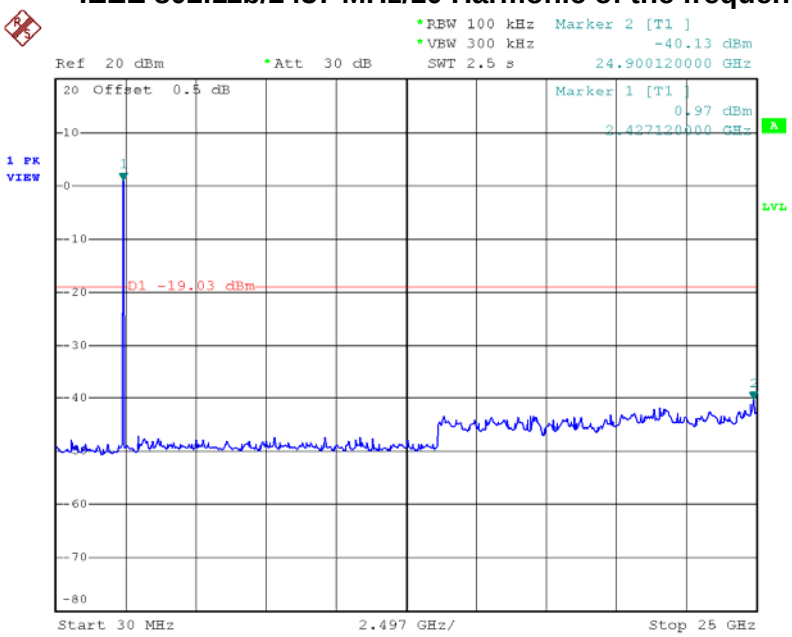

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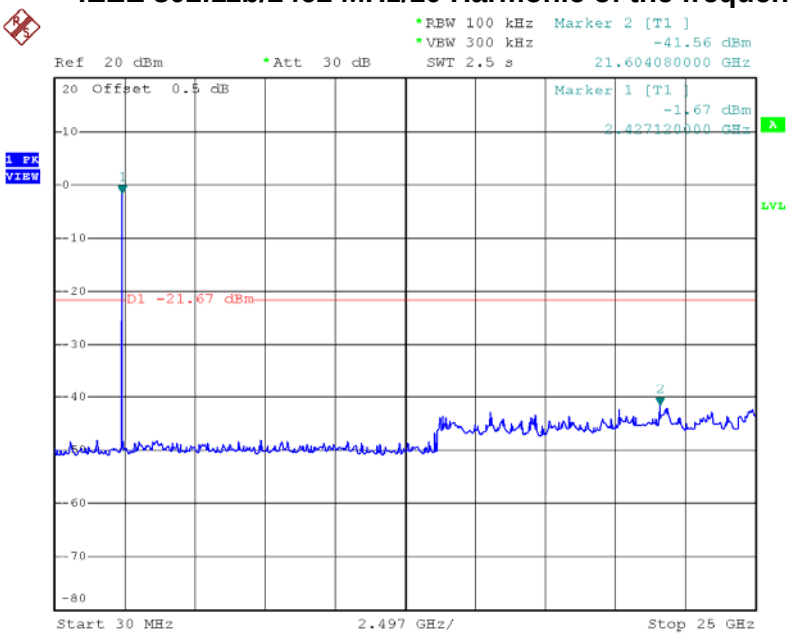
IEEE 802.11b/2462 MHz/10 Harmonic of the frequency

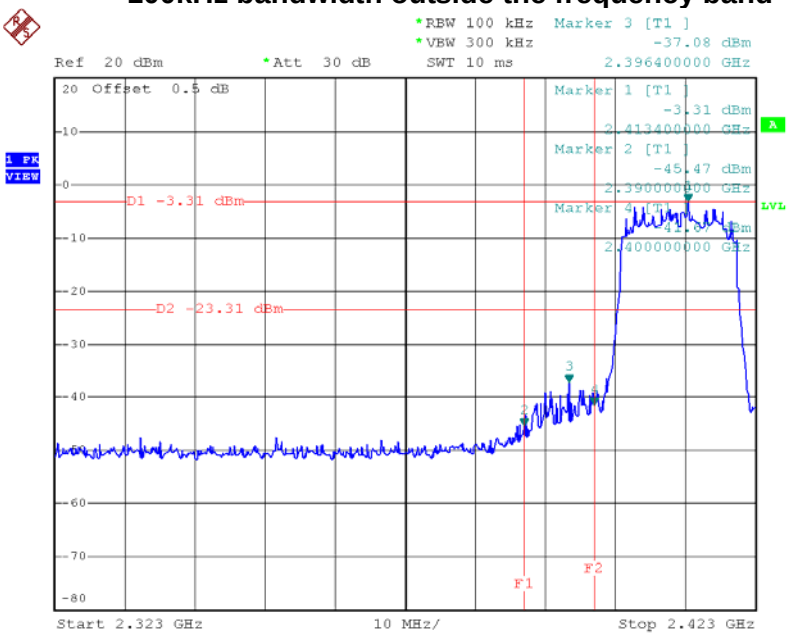


Date: 23.APR.2014 09:50:04

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11g		

Channel of Worst Data			
The max. radio frequency power in any 100kHz bandwidth outside the frequency band		The max. radio frequency power in any 100 kHz bandwidth within the frequency band.	
FREQUENCY(MHz)	POWER(dBm)	FREQUENCY(MHz)	POWER(dBm)
2396.40	-37.08	2484.00	-45.69
Result			
In any 100kHz bandwidth outside the frequency band, the radio frequency power is at least 20dB below that in the 100kHz bandwidth within the band that contains the highest lever of the desired power.			

IEEE 802.11g/The max. radio frequency power in any 100kHz bandwidth outside the frequency band



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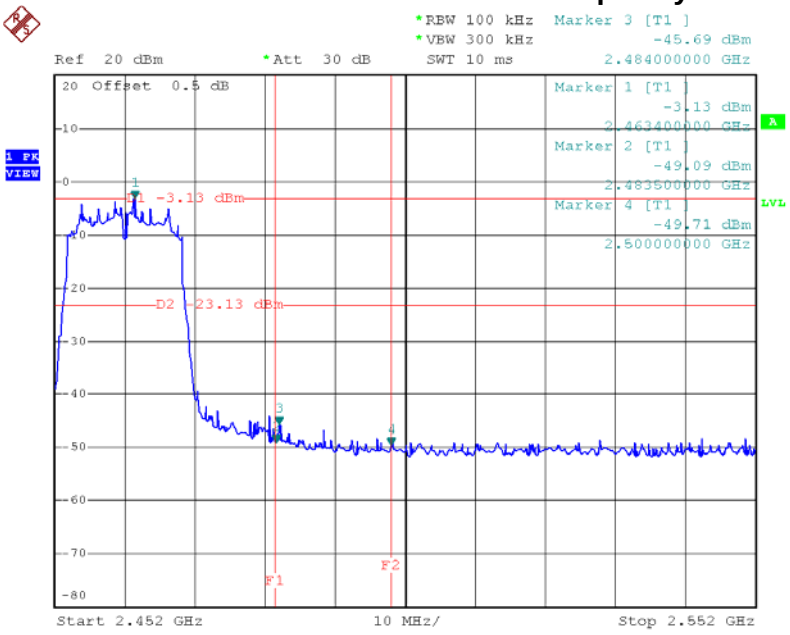
IEEE 802.11g/The max. radio frequency power in any 100 kHz bandwidth within the frequency band



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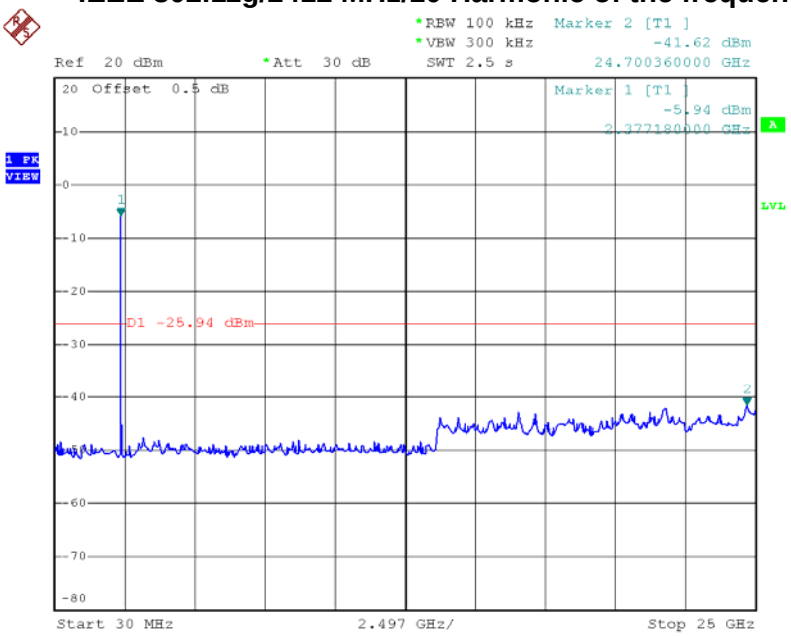
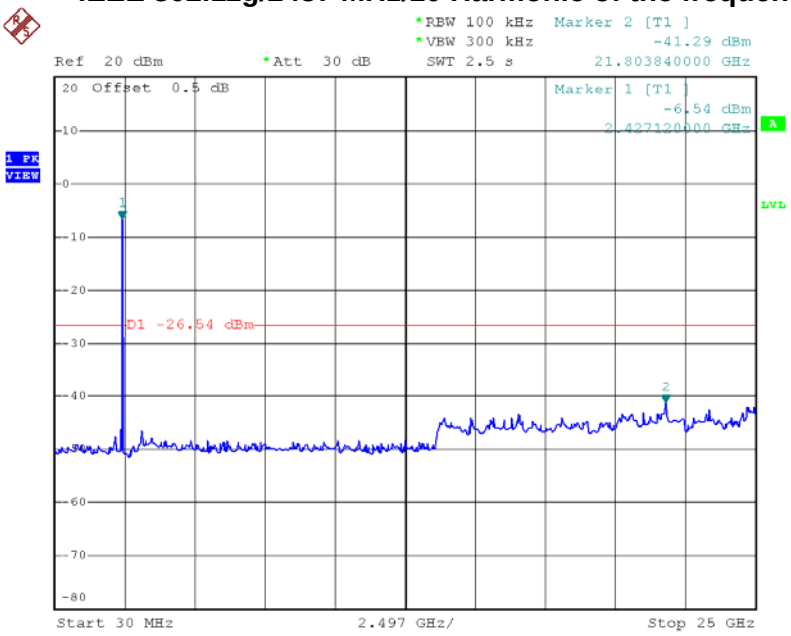
IEEE 802.11g/2412 MHz/10 Harmonic of the frequency



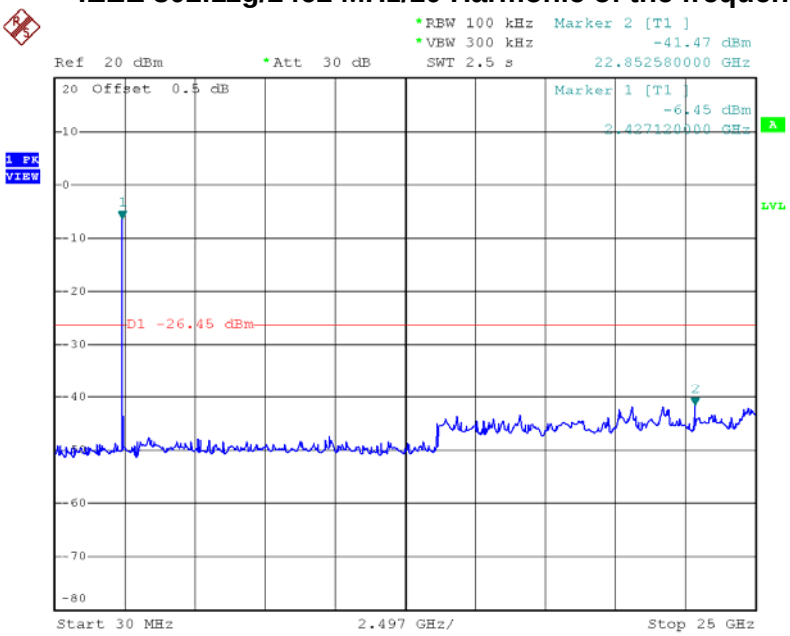
Date: 23.APR.2014 10:06:40

IEEE 802.11g/2437 MHz/10 Harmonic of the frequency



Date: 23.APR.2014 10:08:37

IEEE 802.11g/2462 MHz/10 Harmonic of the frequency

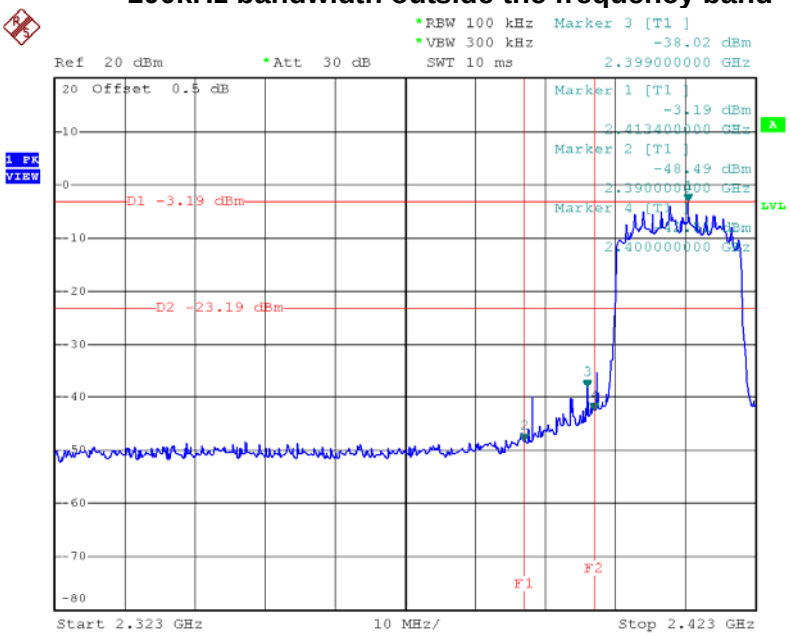


Date: 23.APR.2014 10:09:42

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)		

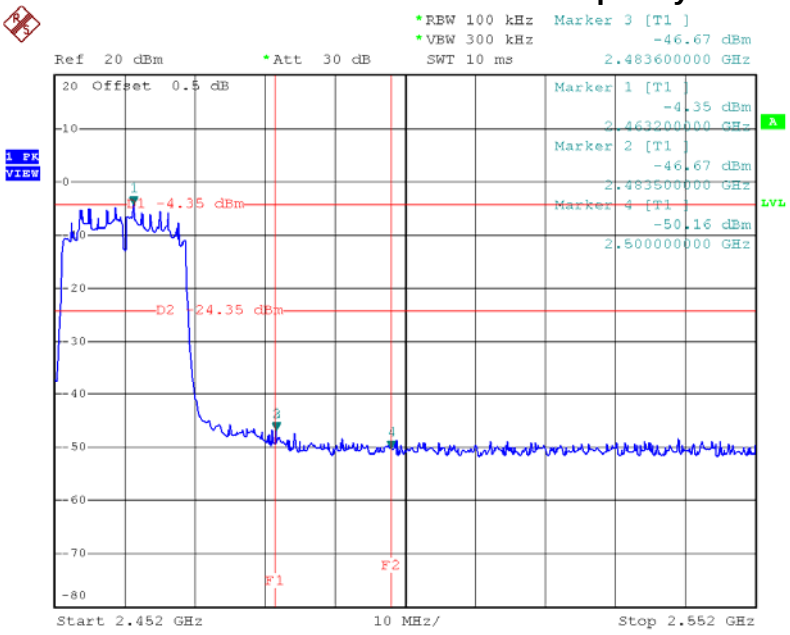
Channel of Worst Data			
The max. radio frequency power in any 100kHz bandwidth outside the frequency band		The max. radio frequency power in any 100 kHz bandwidth within the frequency band.	
FREQUENCY(MHz)	POWER(dBm)	FREQUENCY(MHz)	POWER(dBm)
2399.00	-38.02	2483.60	-46.67
Result			
In any 100kHz bandwidth outside the frequency band, the radio frequency power is at least 20dB below that in the 100kHz bandwidth within the band that contains the highest lever of the desired power.			

IEEE 802.11n (20 MHz)/The max. radio frequency power in any 100kHz bandwidth outside the frequency band



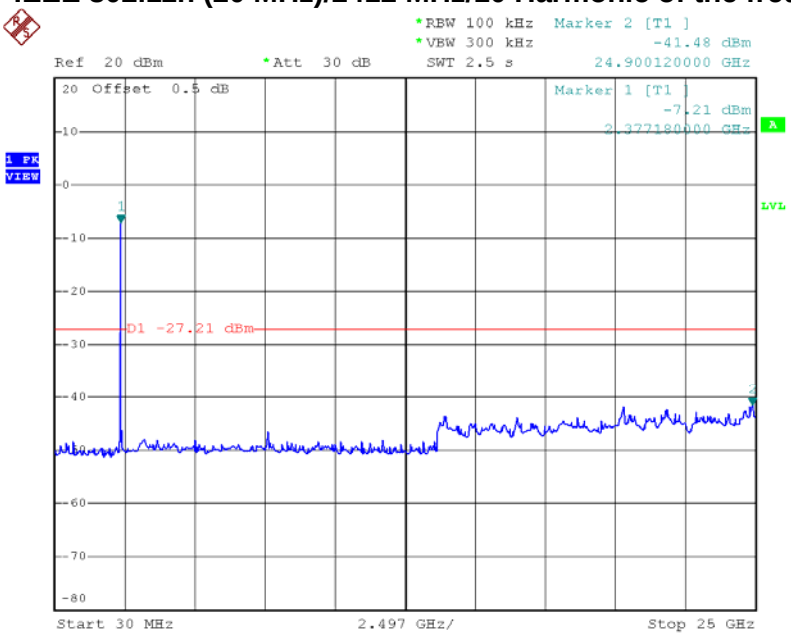
Date: 23.APR.2014 10:12:15

IEEE 802.11n (20 MHz)/The max. radio frequency power in any 100 kHz bandwidth within the frequency band



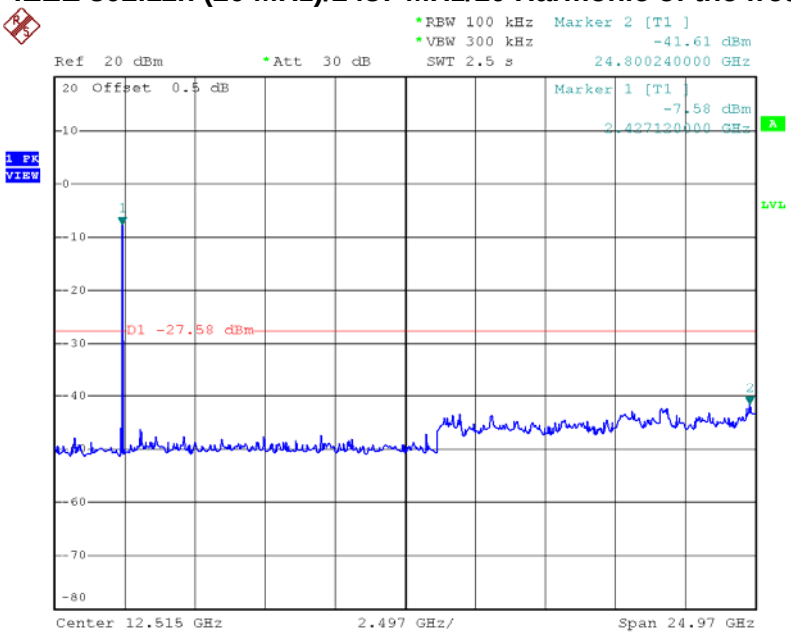
Date: 23.APR.2014 10:14:35

IEEE 802.11n (20 MHz)/2412 MHz/10 Harmonic of the frequency



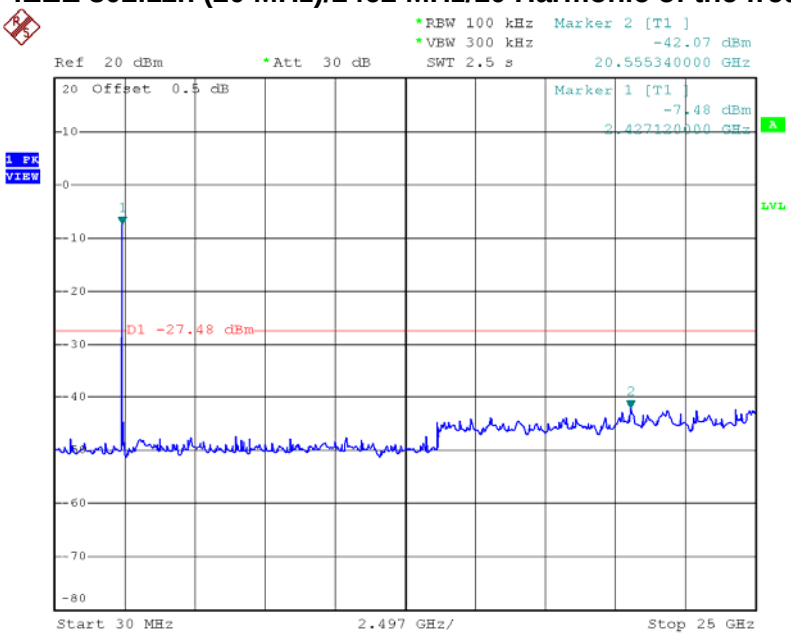
Date: 23.APR.2014 10:11:36

IEEE 802.11n (20 MHz)/2437 MHz/10 Harmonic of the frequency



Date: 23.APR.2014 10:12:51

IEEE 802.11n (20 MHz)/2462 MHz/10 Harmonic of the frequency



Date: 23.APR.2014 10:13:59

6 6 DB BANDWIDTH

6.1 LIMIT

Test Item	Frequency Range (MHz)	Limit
Bandwidth	2400-2483.5	>= 500KHz (6dB bandwidth)

6.2 MEASUREMENT INSTRUMENTS LIST

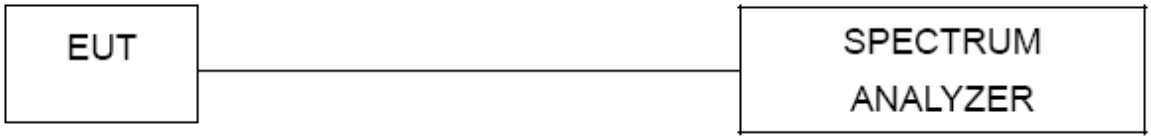
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-30	100854	Sep. 08, 2014

NOTE: **N/A**: denotes No Model Name, No Serial No. or No Calibration specified.

6.3 TEST PROCEDURES

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
b. Spectrum Setting: RBW= 100KHz, VBW=100KHz, Sweep time = Auto.

6.4 TEST SETUP LAYOUT



6.5 DEVIATION FROM TEST STANDARD

No deviation

6.6 EUT OPERATING CONDITIONS

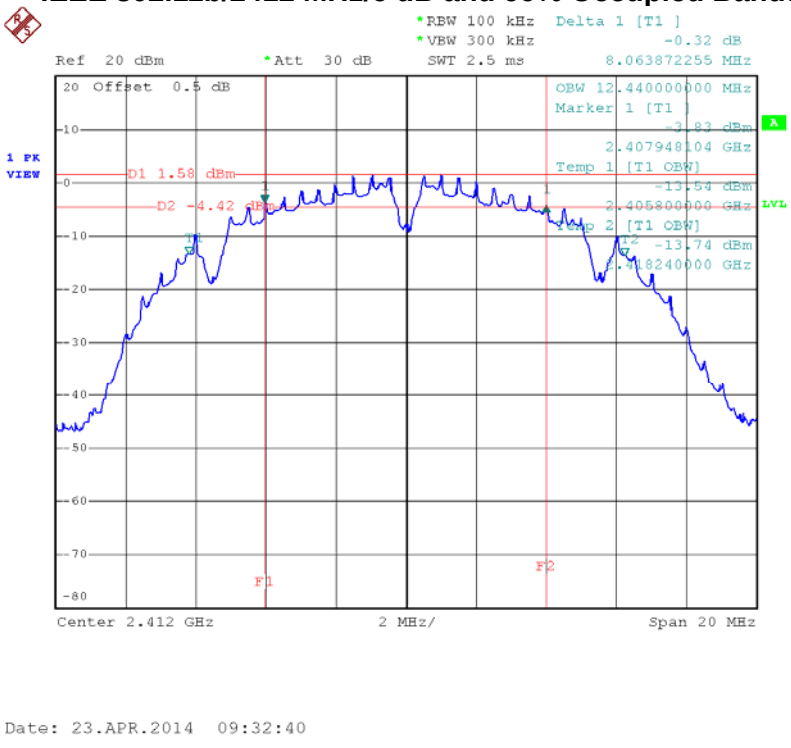
The EUT tested system was configured as the statements of 4.6 Unless otherwise a special operating condition is specified in the follows during the testing.

6.7 TEST RESULTS

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11b/2412 MHz, 2437 MHz, 2462 MHz		

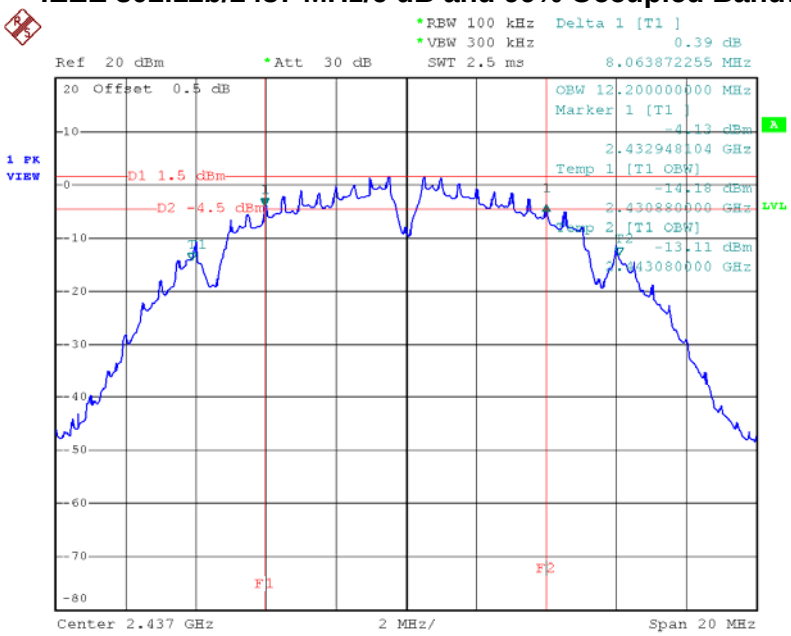
Frequency	6 dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Limit	Result
2412 MHz	8.06	12.44	>=500 kHz	PASS
2437 MHz	8.06	12.20	>=500 kHz	PASS
2462 MHz	8.06	12.20	>=500 kHz	PASS

IEEE 802.11b/2412 MHz/6 dB and 99% Occupied Bandwidth



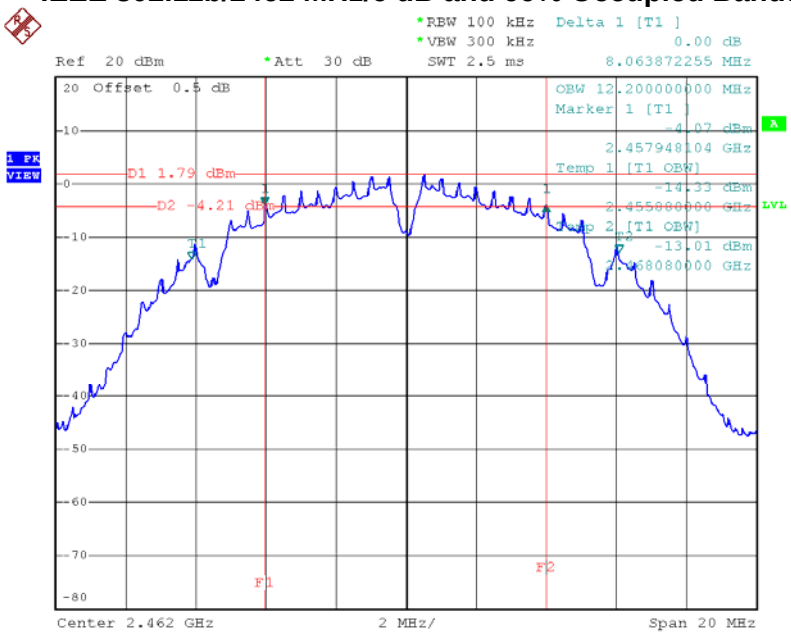
Date: 23.APR.2014 09:32:40

IEEE 802.11b/2437 MHz/6 dB and 99% Occupied Bandwidth



Date: 23.APR.2014 09:35:50

IEEE 802.11b/2462 MHz/6 dB and 99% Occupied Bandwidth

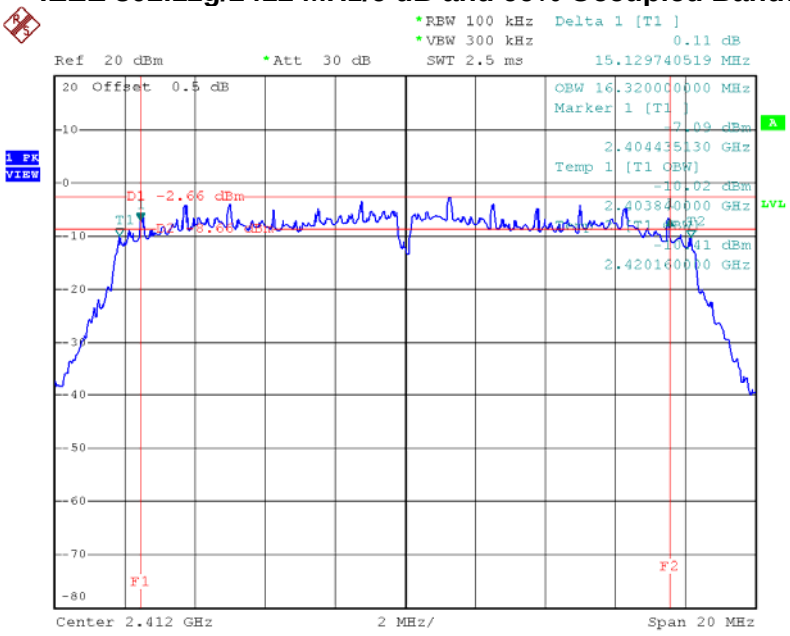


Date: 23.APR.2014 09:50:34

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11g/2412 MHz, 2437 MHz, 2462 MHz		

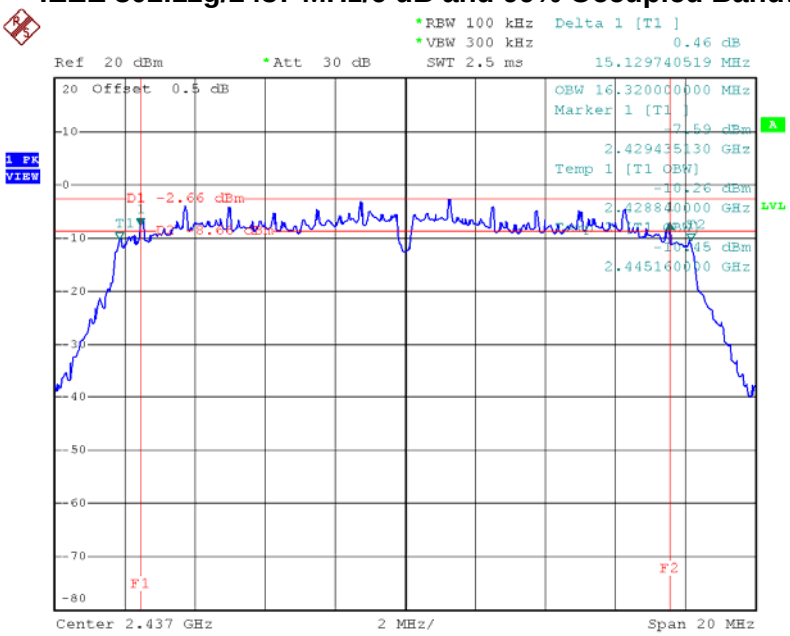
Frequency	6 dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Limit	Result
2412 MHz	15.13	16.32	>=500 kHz	PASS
2437 MHz	15.13	16.32	>=500 kHz	PASS
2462 MHz	15.13	16.32	>=500 kHz	PASS

IEEE 802.11g/2412 MHz/6 dB and 99% Occupied Bandwidth



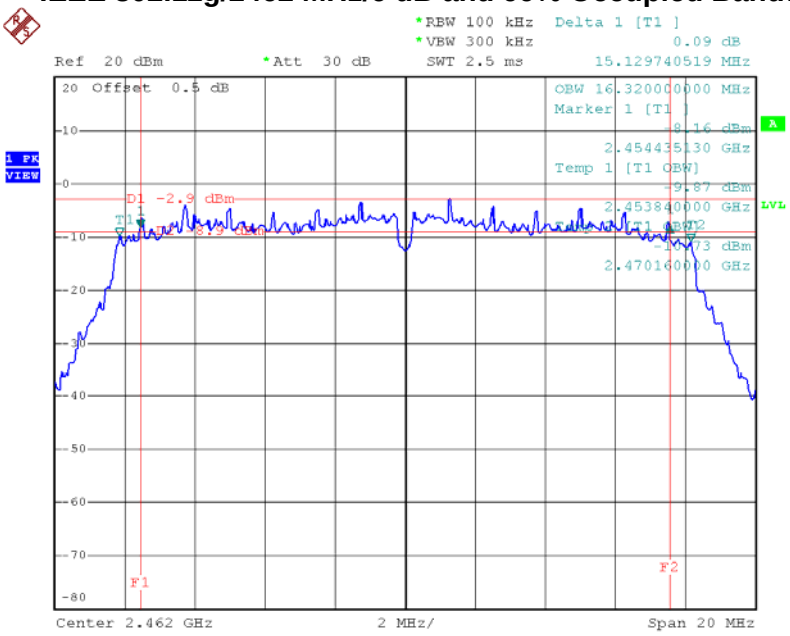
Date: 23.APR.2014 10:07:06

IEEE 802.11g/2437 MHz/6 dB and 99% Occupied Bandwidth



Date: 23.APR.2014 10:09:01

IEEE 802.11g/2462 MHz/6 dB and 99% Occupied Bandwidth

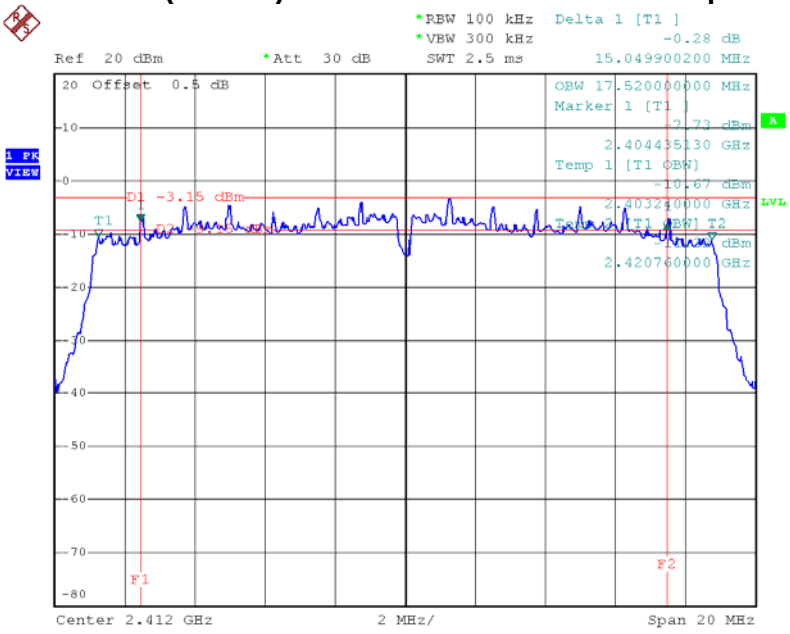


Date: 23.APR.2014 10:10:07

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/2412 MHz, 2437 MHz, 2462 MHz		

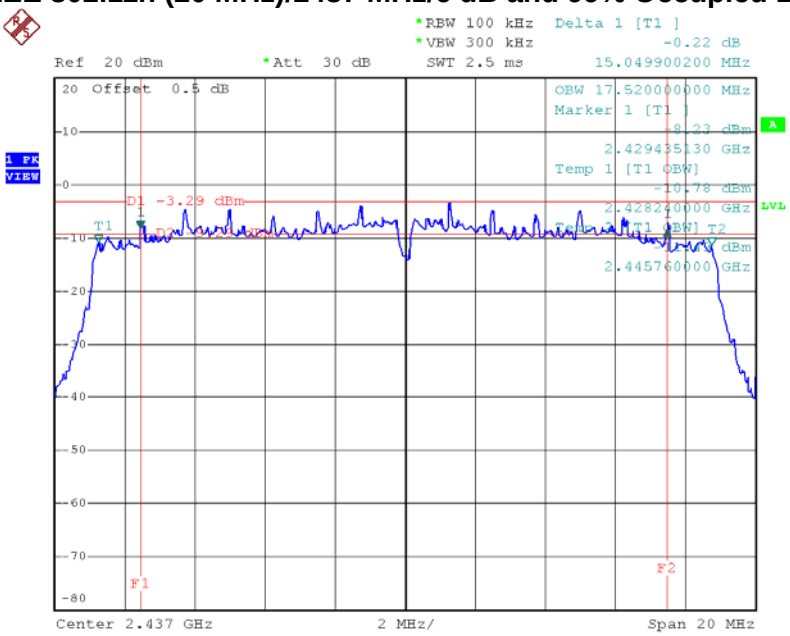
Frequency	6 dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Limit	Result
2412 MHz	15.05	17.52	>=500 kHz	PASS
2437 MHz	15.05	17.52	>=500 kHz	PASS
2462 MHz	15.09	17.52	>=500 kHz	PASS

IEEE 802.11n (20 MHz)/2412 MHz/6 dB and 99% Occupied Bandwidth



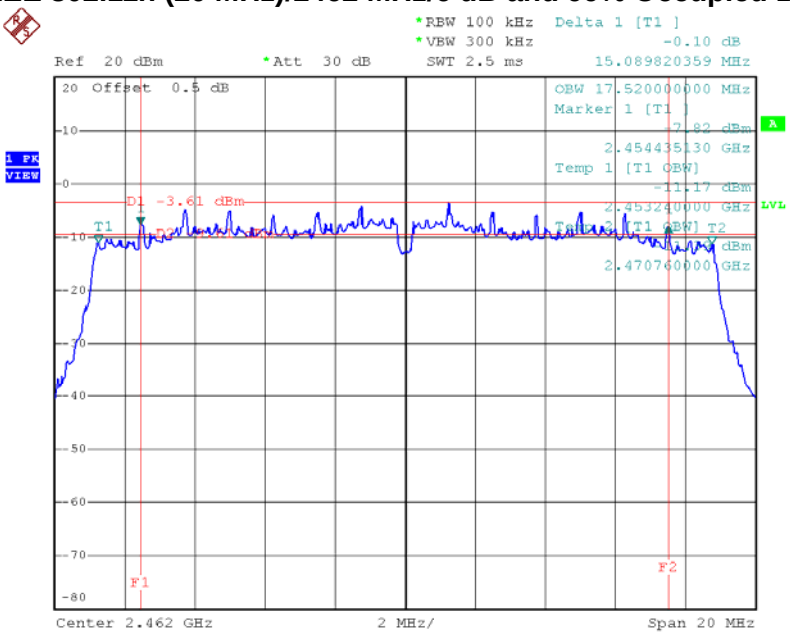
Date: 23.APR.2014 10:11:58

IEEE 802.11n (20 MHz)/2437 MHz/6 dB and 99% Occupied Bandwidth



Date: 23.APR.2014 10:13:12

IEEE 802.11n (20 MHz)/2462 MHz/6 dB and 99% Occupied Bandwidth



Date: 23.APR.2014 10:14:18

7 MAXIMUM PEAK CONDUCTED OUTPUT POWER

7.1 LIMIT

Test Item	Frequency Range (MHz)	Limit
Maximum Peak Conducted Output Power	2400-2483.5	1 watt or 30 dBm

7.2 MEASUREMENT INSTRUMENTS LIST

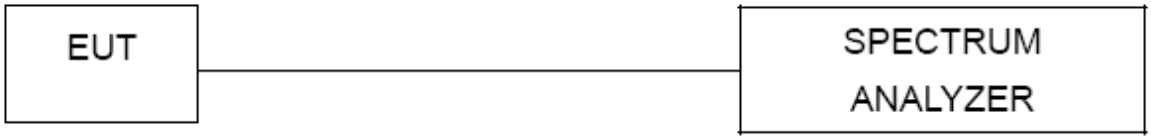
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-30	100854	Sep. 08, 2014

NOTE: **N/A**: denotes No Model Name, No Serial No. or No Calibration specified.

7.3 TEST PROCEDURES

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
b. Spectrum Setting: RBW= 3 MHz, VBW= 3 MHz, Sweep time = Auto.

7.4 TEST SETUP LAYOUT



7.5 DEVIATION FROM TEST STANDARD

No deviation

7.6 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 5.6 Unless otherwise a special operating condition is specified in the follows during the testing.

7.7 TEST RESULTS

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11b/2412 MHz, 2437 MHz, 2462 MHz		

Frequency	Peak Output Power		Limit		Result
	(dBm)	(W)	(dBm)	(W)	
2412 MHz	13.69	0.0234	30	1	PASS
2437 MHz	13.63	0.0231	30	1	PASS
2462 MHz	13.17	0.0207	30	1	PASS

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11g/2412 MHz, 2437 MHz, 2462 MHz		

Frequency	Peak Output Power		Limit		Result
	(dBm)	(W)	(dBm)	(W)	
2412 MHz	19.24	0.0839	30	1	PASS
2437 MHz	18.64	0.0731	30	1	PASS
2462 MHz	18.65	0.0733	30	1	PASS

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/2412 MHz, 2437 MHz, 2462 MHz		

Frequency	Peak Output Power		Limit		Result
	(dBm)	(W)	(dBm)	(W)	
2412 MHz	18.76	0.0752	30	1	PASS
2437 MHz	18.34	0.0682	30	1	PASS
2462 MHz	17.81	0.0604	30	1	PASS

8 RADIATED SPURIOUS EMISSION (9 KHZ TO 1 GHZ)

8.1 LIMIT

20 dB in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequency Range: 9 kHz to 1 GHz		
FREQUENCY (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(kHz)	300
0.490~1.705	24000/F(kHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

Frequency Range: above 1 GHz				
FREQUENCY (MHz)	Class A (dBuV/m) (at 3m)		Class B (dBuV/m) (at 3m)	
	PEAK	AVERAGE	PEAK	AVERAGE
above 1 GHz	80	60	74	54

NOTE:

1. The limit for radiated test was performed according to FCC PART 15B.
2. The tighter limit applies at the band edges.
3. Emission level (dBuV/m)=20log Emission level (uV/m).
4. The test result calculated as following:
   Measurement Value = Reading Level + Correct Factor
   Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain(if use)
   Margin Level = Measurement Value – Limit Value

8.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-30	100854	Sep. 08, 2014
2	Horn Antenna	Schwarzbeck	BBHA 9120	D-325	Apr. 14, 2015
3	Microwave Pre_amplifier	Agilent	8449B	3008A01714	Apr. 15, 2015
4	Microflex Cable	Harbour industries	27478LL142	1m	May. 13, 2014
5	Microflex Cable	EMC	S104-SMA	8m	May. 13, 2014
6	Microflex Cable	Harbour industries	27478LL142	3m	May. 13, 2014
7	Test Cable	LMR	LMR-400	12m	May. 14, 2014
8	Test Cable	LMR	LMR-400	3m	May. 14, 2014
9	Pre-Amplifier	Anritsu	MH648A	M92649	Jun. 18, 2014
10	Log-Bicon Antenna	Schwarzbeck	VULB9168-352	9168-352	Jun. 11, 2014

Remark: “N/A” denotes No Model Name, No Serial No. or No Calibration specified.

8.3 MEASURING INSTRUMENTS SETTING

EMI Test Receiver	Parameter Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

8.4 TEST PROCEDURES

a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1 GHz. For frequencies above 1 GHz, any suitable measuring distance may be used.
b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3m Semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
f. For the actual test configuration, please refer to the related Item –EUT Test Photos.
g. The testing follows the guidelines in ANSI C63.4 and FCC Public Notice DA 00-705 Measurement Guidelines. In case the emission is fail due to the used RBW/VBW is too wide, marker-delta method of FCC Public Notice DA 00-705 will be followed.

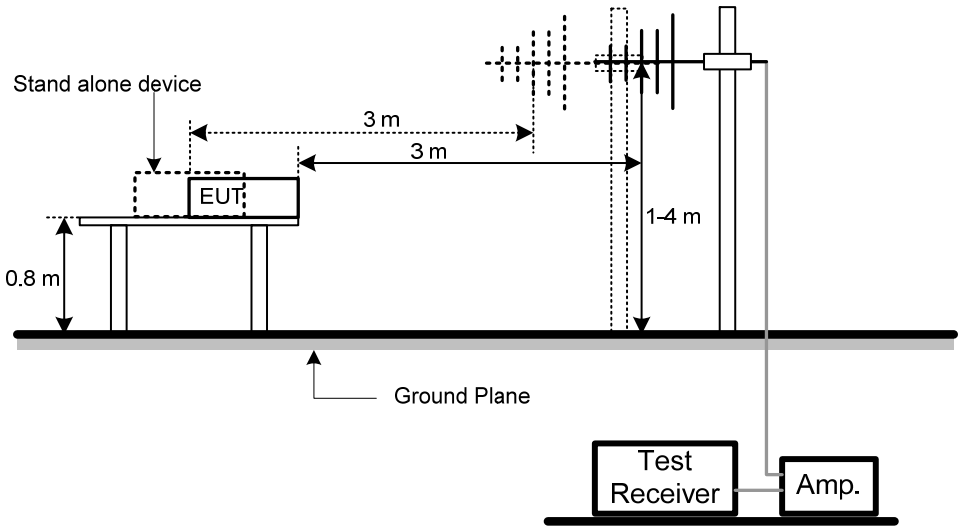
NOTE:

a. Reading in which marked as QP or Peak means measurements by using are Quasi-Peak Mode with Detector BW=120 kHz; SPA setting in RBW=100 kHz, VBW =100 kHz, Swp. Time = 0.3 sec./ MHz.
b. All readings are Peak unless otherwise stated QP in column of Note. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn‘t perform.

8.5 DEVIATION FROM TEST STANDARD

No deviation

8.6 TEST SETUP LAYOUT



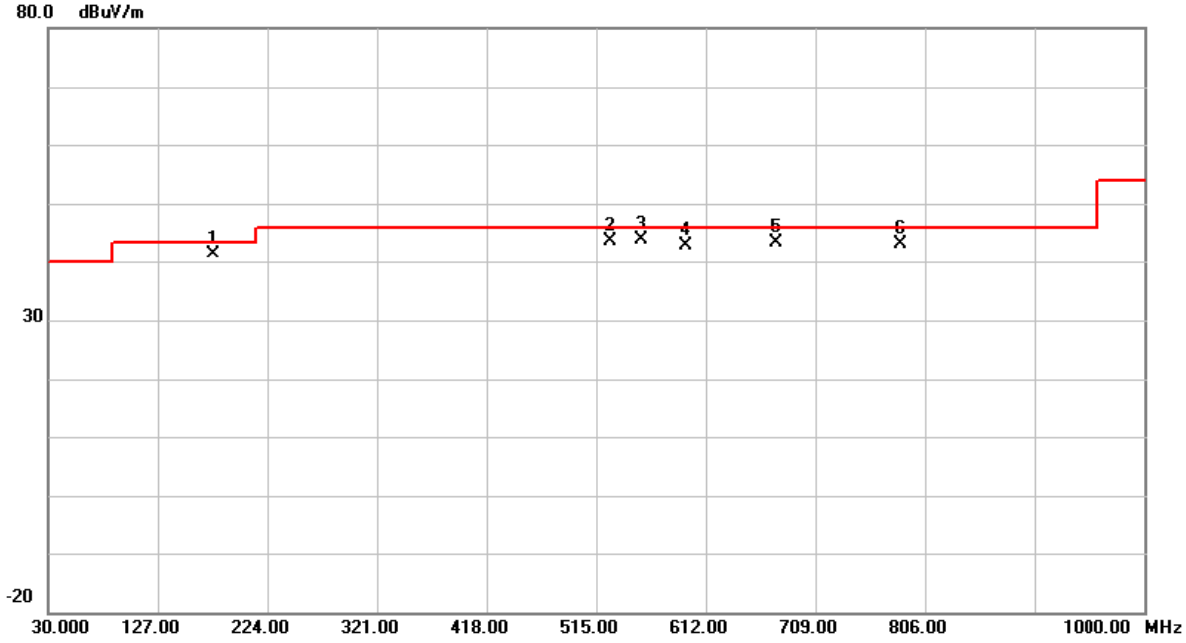
8.7 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 5.6 Unless otherwise a special operating condition is specified in the follows during the testing.

8.8 TEST RESULTS

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11b/2437 MHz		

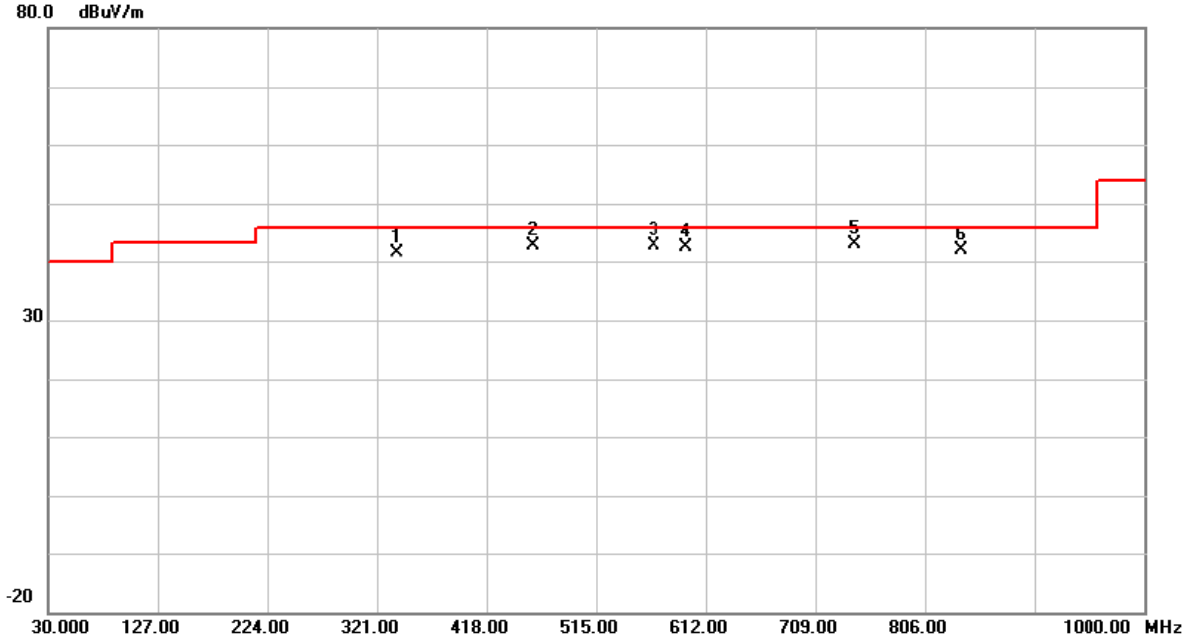
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		175.5000	56.59	-15.28	41.31	43.50	-2.19	peak	
2		527.1250	52.41	-8.80	43.61	46.00	-2.39	peak	
3	*	553.8000	51.96	-8.11	43.85	46.00	-2.15	peak	
4		595.0250	49.85	-6.90	42.95	46.00	-3.05	peak	
5		675.0500	49.99	-6.68	43.31	46.00	-2.69	peak	
6		784.1750	48.20	-5.00	43.20	46.00	-2.80	peak	

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11b/2437 MHz		

Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		337.9750	54.25	-12.66	41.59	46.00	-4.41	peak	
2		459.2250	52.66	-9.71	42.95	46.00	-3.05	peak	
3		565.9250	50.73	-7.76	42.97	46.00	-3.03	peak	
4		595.0250	49.44	-6.90	42.54	46.00	-3.46	peak	
5	*	742.9500	48.60	-5.51	43.09	46.00	-2.91	peak	
6		837.5250	46.29	-4.23	42.06	46.00	-3.94	peak	

9 RADIATED SPURIOUS EMISSION (ABOVE 1 GHZ)

9.1 LIMIT

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequency Range: 9 kHz to 1 GHz		
FREQUENCY (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(kHz)	300
0.490~1.705	24000/F(kHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

Frequency Range: above 1 GHz				
FREQUENCY (MHz)	Class A (dBuV/m) (at 3m)		Class B (dBuV/m) (at 3m)	
	PEAK	AVERAGE	PEAK	AVERAGE
above 1 GHz	80	60	74	54

NOTE:

(1) The limit for radiated test was performed according to FCC PART 15B.
(2) The tighter limit applies at the band edges.
(3) Emission level (dBuV/m)=20log Emission level (uV/m).
(4) The test result calculated as following:
Measurement Value = Reading Level + Correct Factor
Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain(if use)
Margin Level = Measurement Value – Limit Value

9.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-30	100854	Sep. 08, 2014
2	Horn Antenna	Schwarzbeck	BBHA 9120	D-325	Apr. 14, 2015
3	Microwave Pre_amplifier	Agilent	8449B	3008A01714	Apr. 15, 2015
4	Microflex Cable	Harbour industries	27478LL142	1m	May. 13, 2014
5	Microflex Cable	EMC	S104-SMA	8m	May. 13, 2014
6	Microflex Cable	Harbour industries	27478LL142	3m	May. 13, 2014
7	Test Cable	LMR	LMR-400	12m	May. 14, 2014
8	Test Cable	LMR	LMR-400	3m	May. 14, 2014
9	Pre-Amplifier	Anritsu	MH648A	M92649	Jun. 18, 2014
10	Log-Bicon Antenna	Schwarzbeck	VULB9168-352	9168-352	Jun. 11, 2014

Remark: “N/A” denotes No Model Name, No Serial No. or No Calibration specified.

9.3 MEASURING INSTRUMENTS SETTING

Spectrum Analyzer	Parameter Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted band)	1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average
RB / VB (other emission)	1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average

9.4 TEST PROCEDURES

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3m Semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
b. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
c. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
d. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
e. For the actual test configuration, please refer to the related Item –EUT Test Photos.
f. The testing follows the guidelines in ANSI C63.4 and FCC Public Notice DA 00-705 Measurement Guidelines. In case the emission is fail due to the used RBW/VBW is too wide, marker-delta method of FCC Public Notice DA 00-705 will be followed.

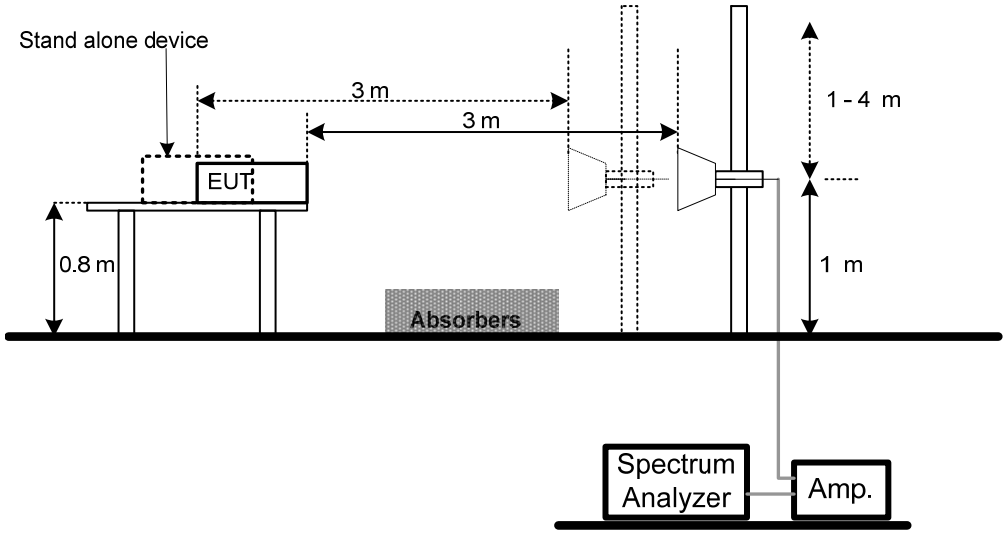
NOTE:

a. Reading in which marked as Peak means measurements by using are Peak Mode with instrument setting in RBW= 1 MHz, VBW= 1 MHz, Swp. Time = Auto.
Reading in which marked as AV means measurements by using are Average Mode with instrument setting in RBW= 1 MHz, VBW= 10 Hz, Swp. Time = Auto.
b. All readings are Peak Mode value unless otherwise stated AVG in column of Note. If the Peak Mode Measured value compliance with the Peak Limits and lower than AVG Limits, the EUT shall be deemed to meet both Peak & AVG Limits and then only Peak Mode was measured, but AVG Mode didn't perform.

9.5 DEVIATION FROM TEST STANDARD

No deviation

9.6 TEST SETUP LAYOUT



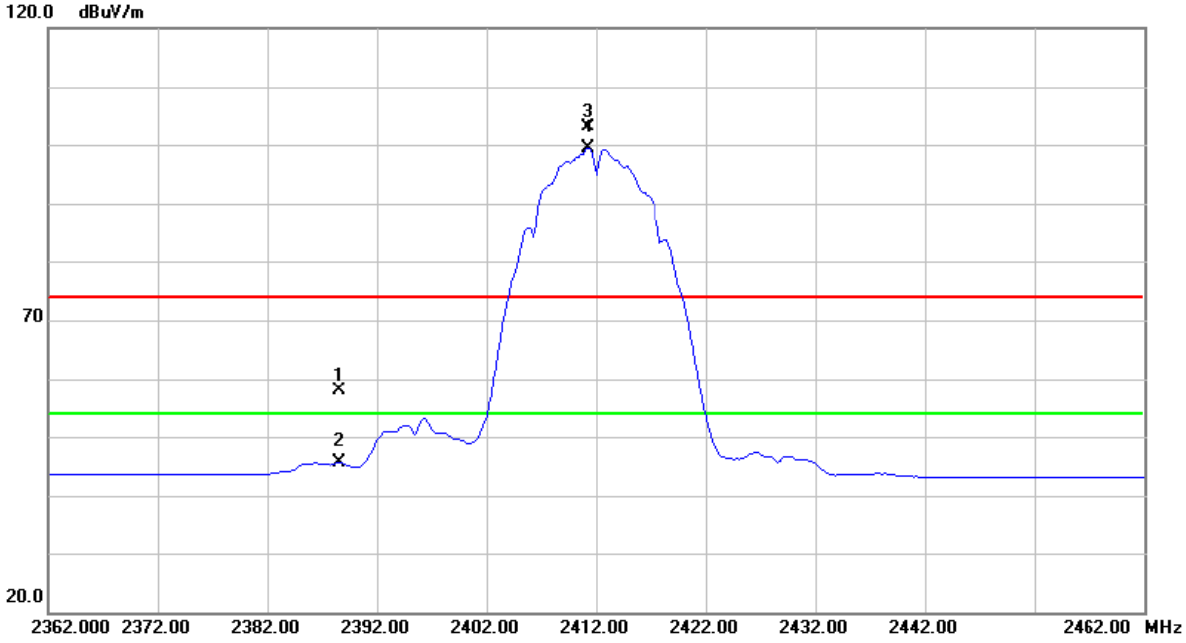
9.7 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 5.6 Unless otherwise a special operating condition is specified in the follows during the testing.

9.8 TEST RESULTS

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11b/2412 MHz		

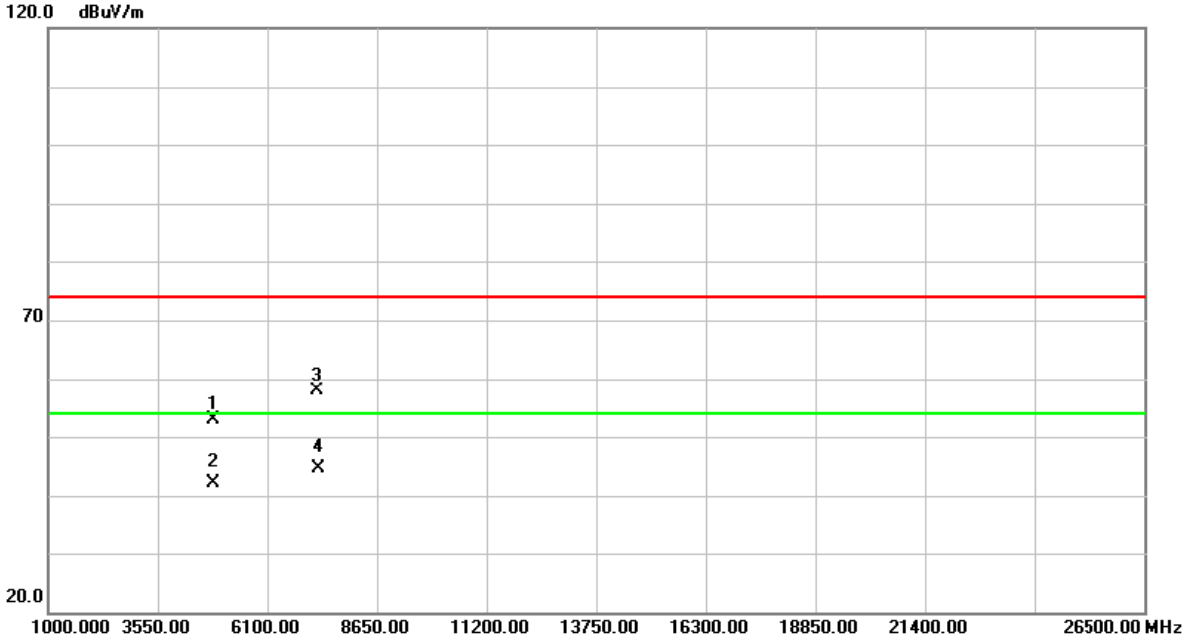
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2388.600	26.25	31.66	57.91	74.00	-16.09	peak	
2		2388.600	13.96	31.66	45.62	54.00	-8.38	AVG	
3	X	2411.200	71.47	31.76	103.23	74.00	29.23	peak	
4	*	2411.200	67.73	31.76	99.49	54.00	45.49	AVG	

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11b/2412 MHz		

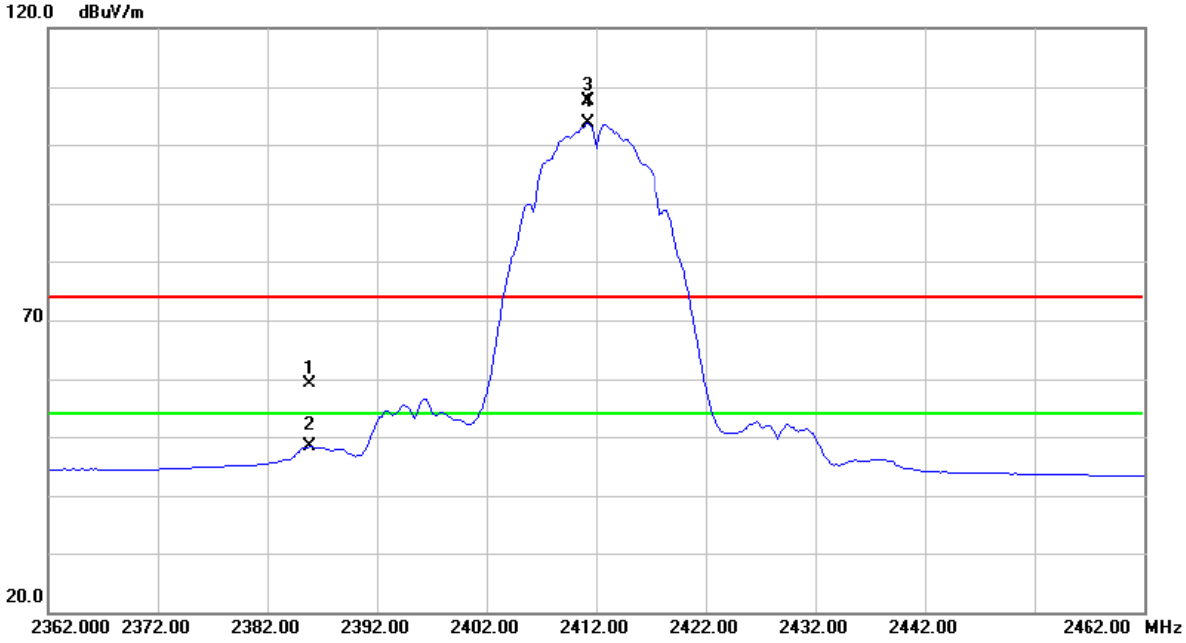
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4824.048	47.11	5.71	52.82	74.00	-21.18	peak	
2		4824.048	36.47	5.71	42.18	54.00	-11.82	AVG	
3		7236.756	45.59	12.30	57.89	74.00	-16.11	peak	
4	*	7236.756	32.32	12.30	44.62	54.00	-9.38	AVG	

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11b/2412 MHz		

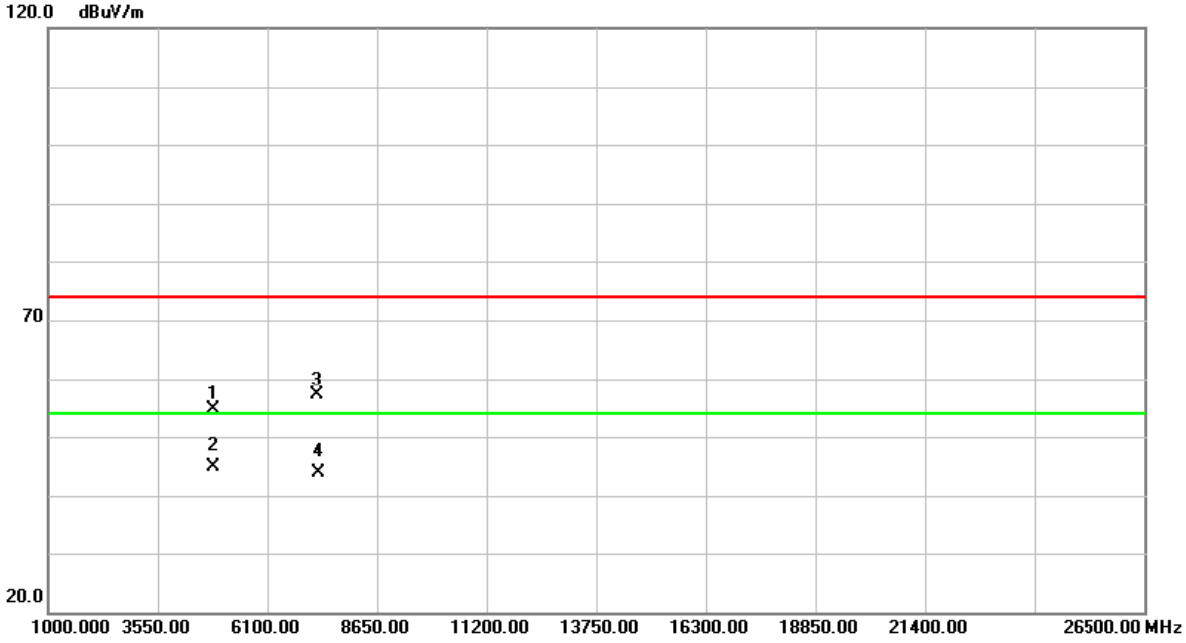
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2385.800	27.59	31.65	59.24	74.00	-14.76	peak	
2		2385.800	16.65	31.65	48.30	54.00	-5.70	AVG	
3	X	2411.200	75.89	31.76	107.65	74.00	33.65	peak	
4	*	2411.200	72.13	31.76	103.89	54.00	49.89	AVG	

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11b/2412 MHz		

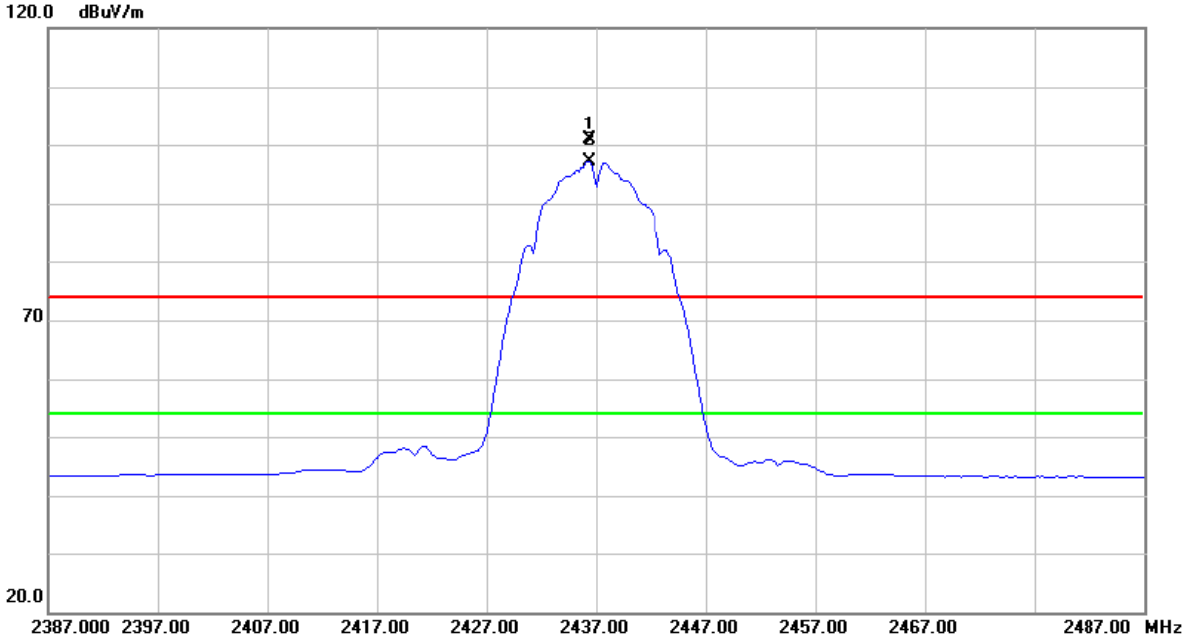
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4823.992	48.97	5.71	54.68	74.00	-19.32	peak	
2	*	4823.992	39.17	5.71	44.88	54.00	-9.12	AVG	
3		7236.044	44.96	12.29	57.25	74.00	-16.75	peak	
4		7236.044	31.61	12.29	43.90	54.00	-10.10	AVG	

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11b/2437 MHz		

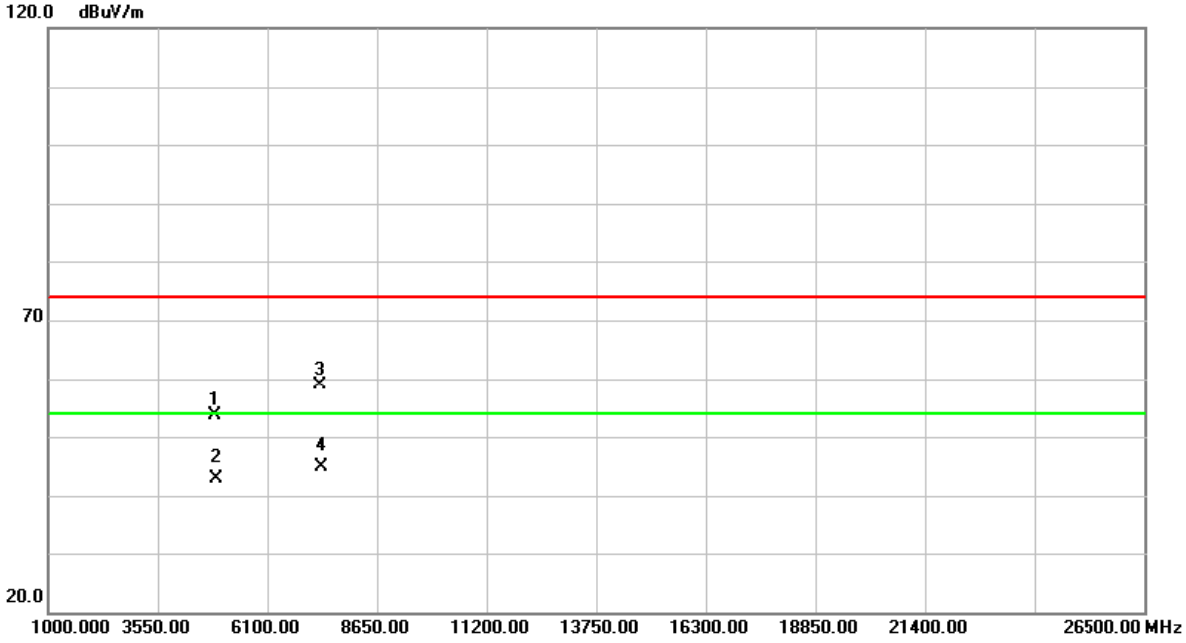
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	X	2436.400	68.97	31.87	100.84	74.00	26.84	peak	
2	*	2436.400	65.29	31.87	97.16	54.00	43.16	AVG	

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11b/2437 MHz		

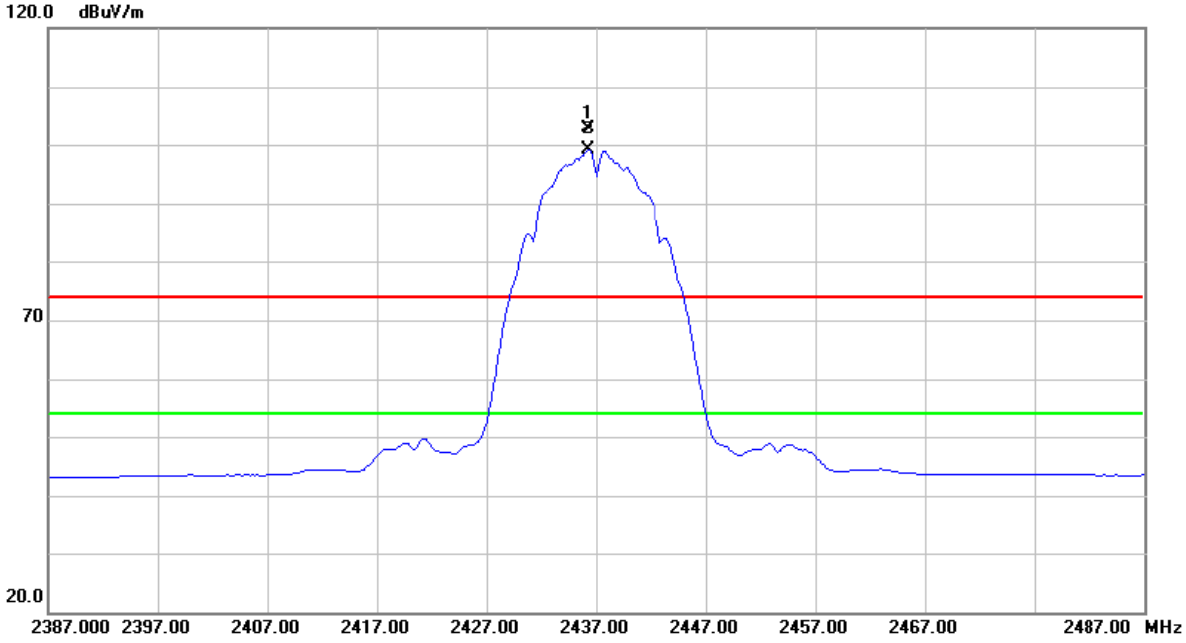
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4874.008	47.74	5.78	53.52	74.00	-20.48	peak	
2		4874.008	37.22	5.78	43.00	54.00	-11.00	AVG	
3		7311.656	46.32	12.57	58.89	74.00	-15.11	peak	
4	*	7311.656	32.37	12.57	44.94	54.00	-9.06	AVG	

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11b/2437 MHz		

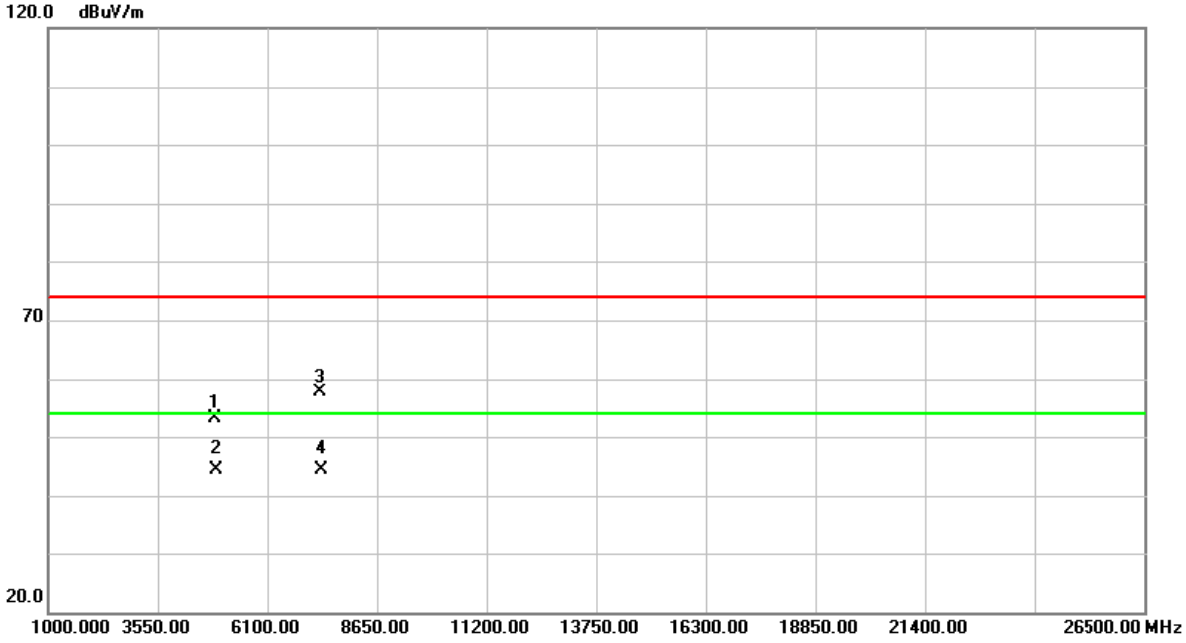
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	X	2436.200	71.06	31.87	102.93	74.00	28.93	peak	
2	*	2436.200	67.29	31.87	99.16	54.00	45.16	AVG	

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11b/2437 MHz		

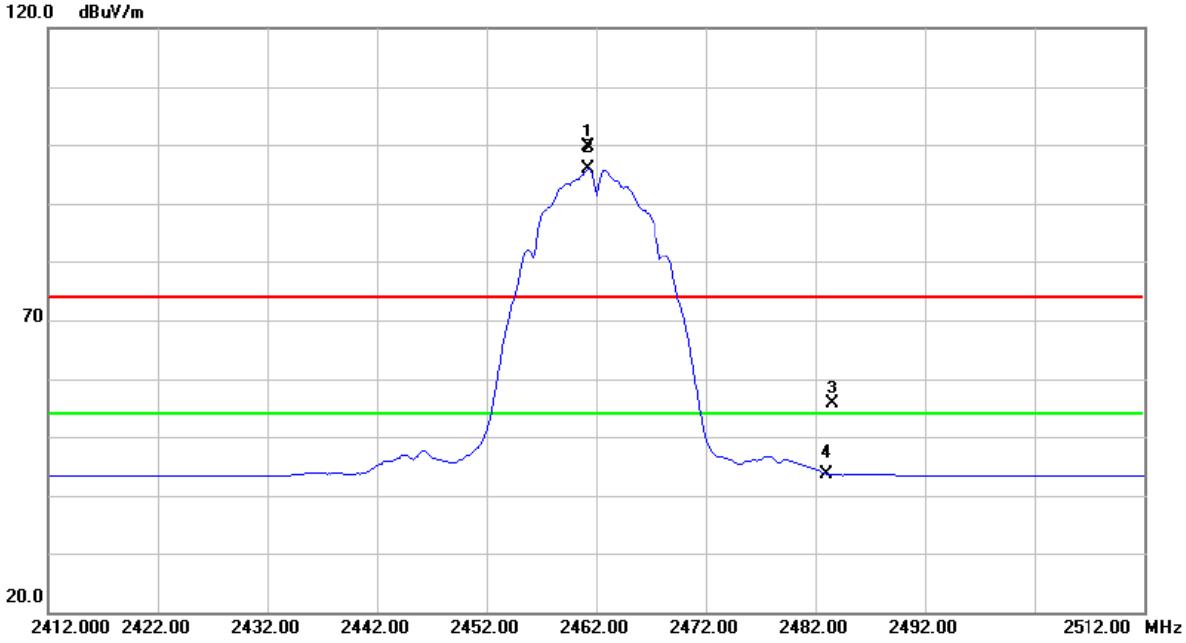
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4873.972	47.45	5.78	53.23	74.00	-20.77	peak	
2		4873.972	38.51	5.78	44.29	54.00	-9.71	AVG	
3		7311.068	45.14	12.57	57.71	74.00	-16.29	peak	
4	*	7311.068	31.90	12.57	44.47	54.00	-9.53	AVG	

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11b/2462 MHz		

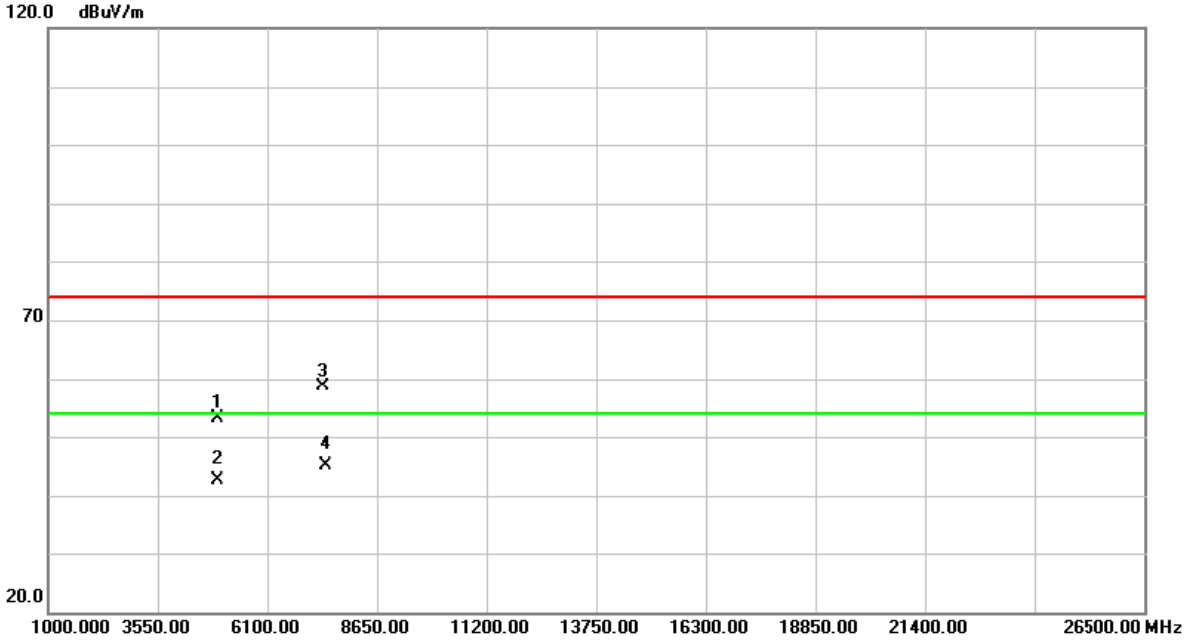
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	X	2461.200	67.60	31.99	99.59	74.00	25.59	peak	
2	*	2461.200	63.89	31.99	95.88	54.00	41.88	AVG	
3		2483.500	23.61	32.08	55.69	74.00	-18.31	peak	
4		2483.500	11.50	32.08	43.58	54.00	-10.42	AVG	

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11b/2462 MHz		

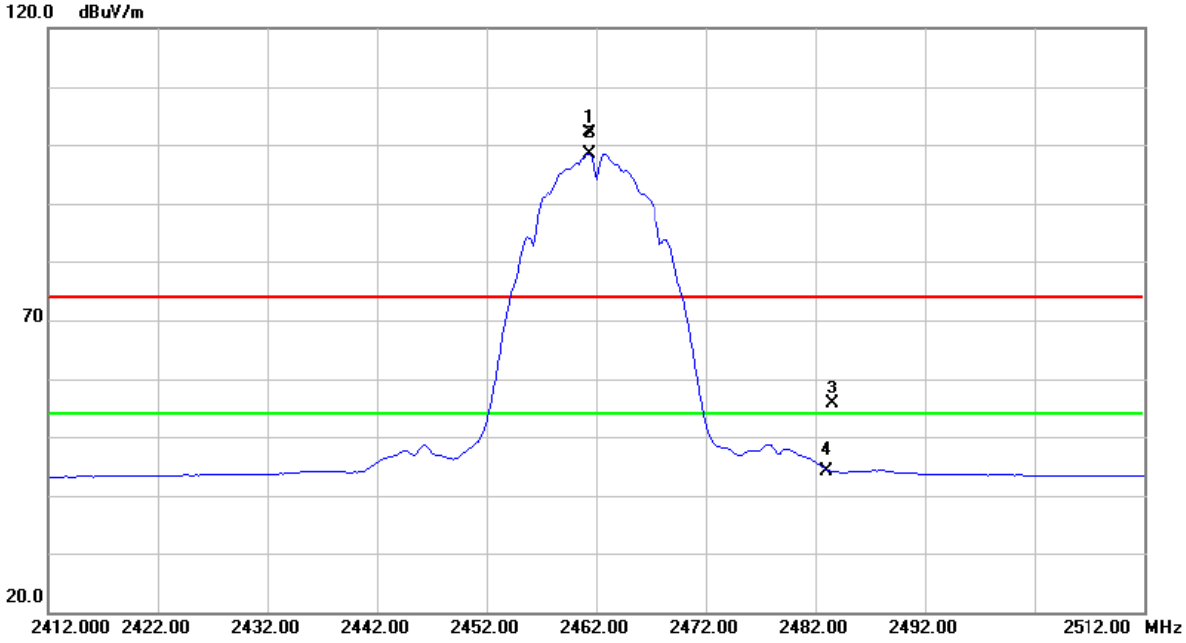
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4924.048	47.30	5.84	53.14	74.00	-20.86	peak	
2		4924.048	36.68	5.84	42.52	54.00	-11.48	AVG	
3		7386.060	45.84	12.85	58.69	74.00	-15.31	peak	
4	*	7386.060	32.32	12.85	45.17	54.00	-8.83	AVG	

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11b/2462 MHz		

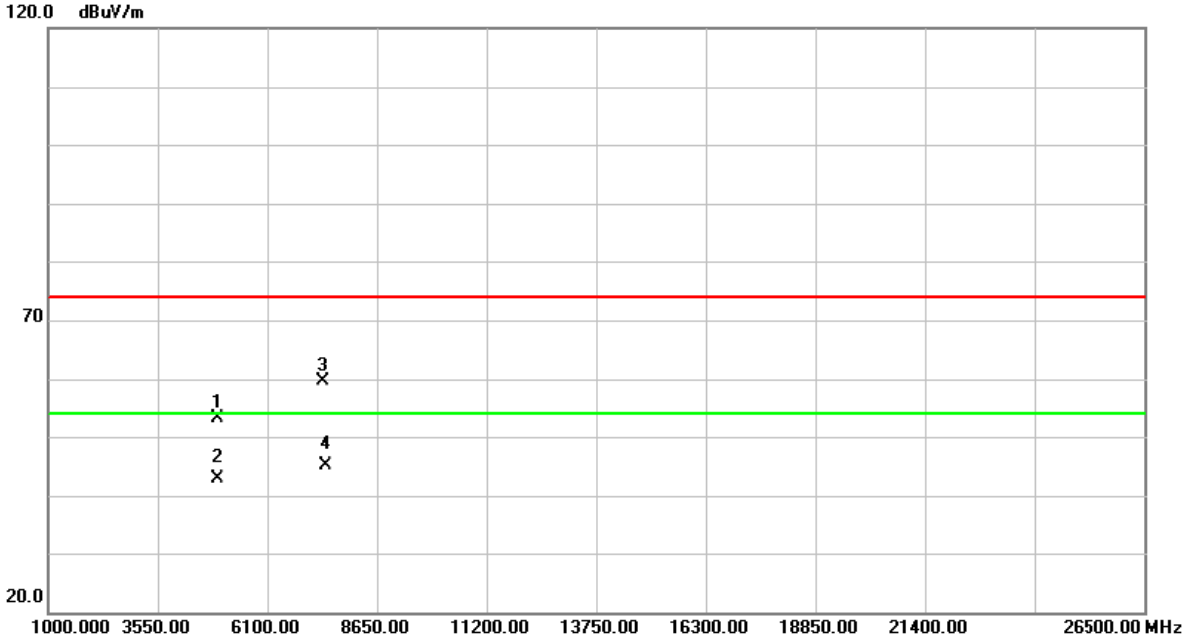
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	X	2461.400	70.16	31.99	102.15	74.00	28.15	peak	
2	*	2461.400	66.50	31.99	98.49	54.00	44.49	AVG	
3		2483.500	23.62	32.08	55.70	74.00	-18.30	peak	
4		2483.500	12.05	32.08	44.13	54.00	-9.87	AVG	

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11b/2462 MHz		

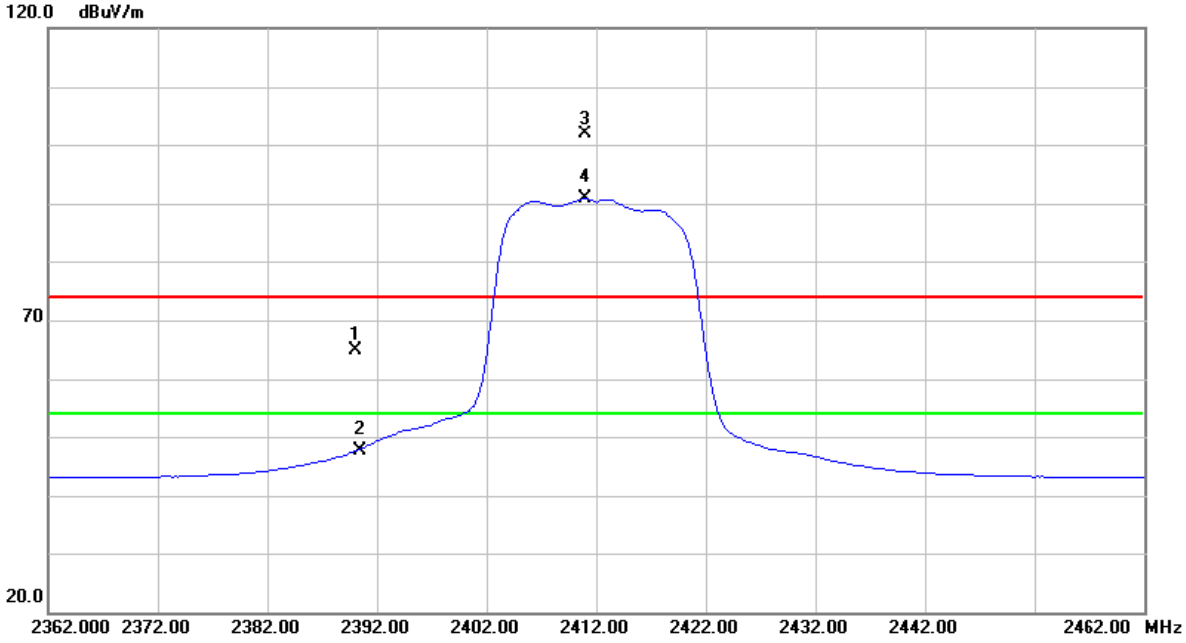
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4923.968	47.33	5.84	53.17	74.00	-20.83	peak	
2		4923.968	37.00	5.84	42.84	54.00	-11.16	AVG	
3		7385.980	46.80	12.85	59.65	74.00	-14.35	peak	
4	*	7385.980	32.34	12.85	45.19	54.00	-8.81	AVG	

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11g/2412 MHz		

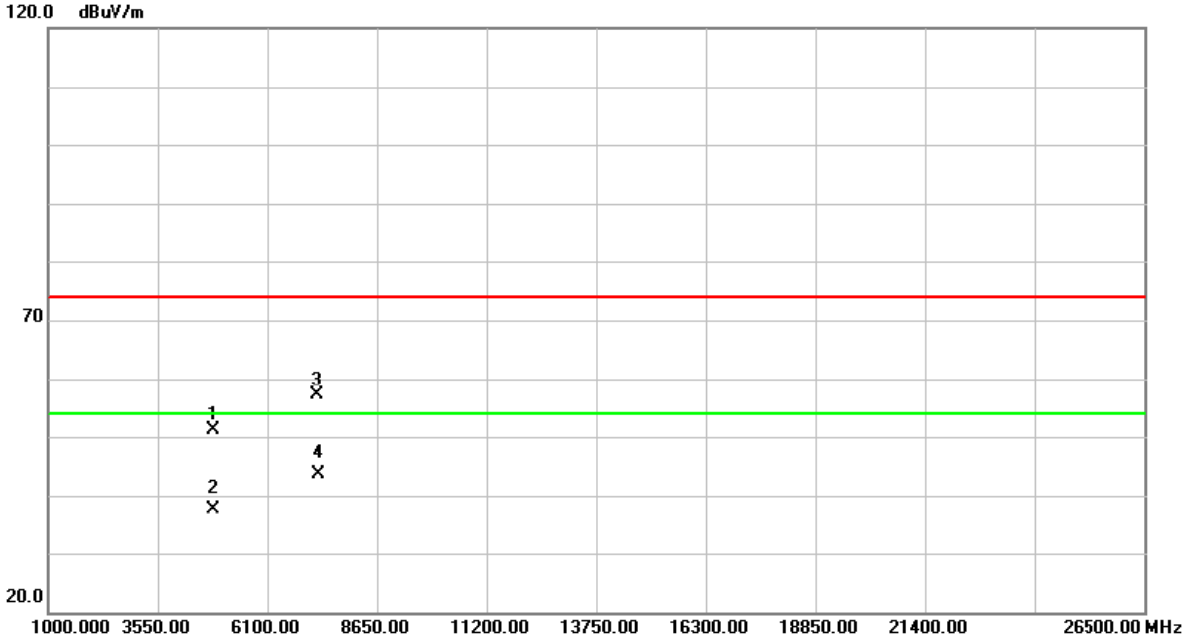
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2390.000	33.11	31.67	64.78	74.00	-9.22	peak	
2		2390.000	15.91	31.67	47.58	54.00	-6.42	AVG	
3	X	2411.000	70.15	31.76	101.91	74.00	27.91	peak	
4	*	2411.000	59.09	31.76	90.85	54.00	36.85	AVG	

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11g/2412 MHz		

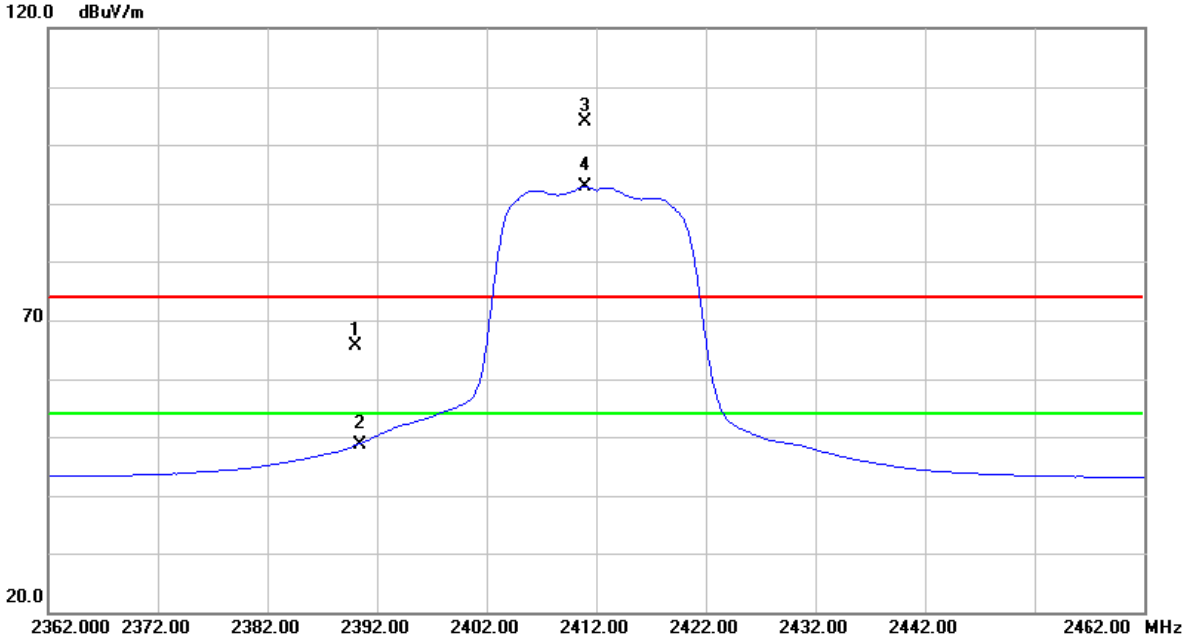
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4824.088	45.43	5.71	51.14	74.00	-22.86	peak	
2		4824.088	31.96	5.71	37.67	54.00	-16.33	AVG	
3		7235.968	44.86	12.29	57.15	74.00	-16.85	peak	
4	*	7235.968	31.32	12.29	43.61	54.00	-10.39	AVG	

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11g/2412 MHz		

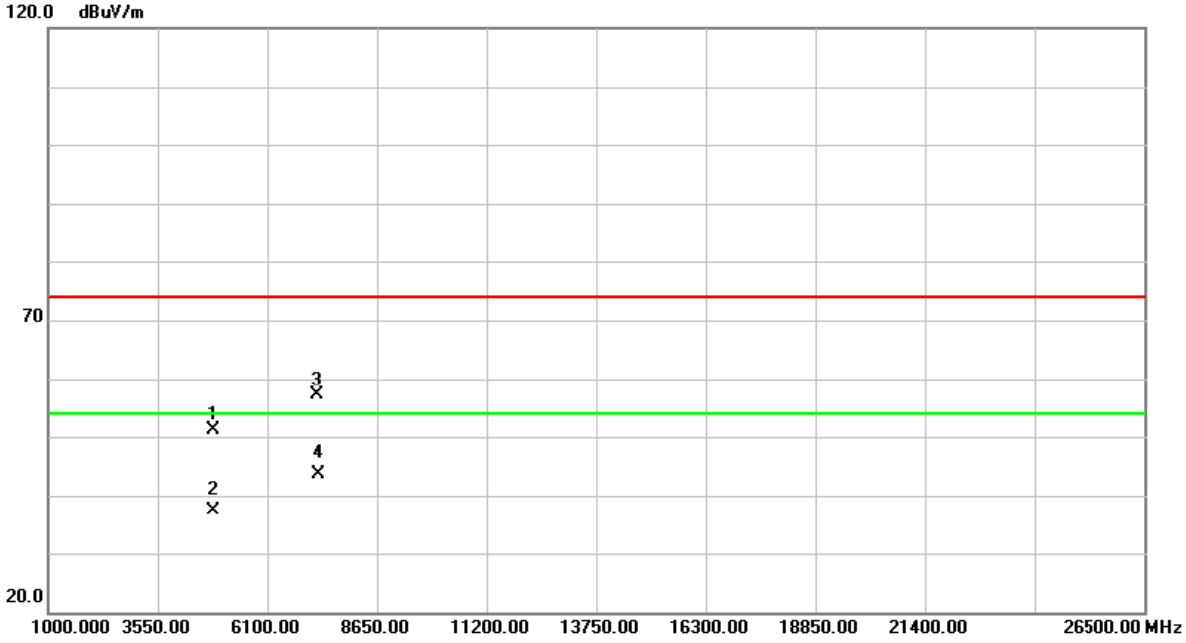
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2390.000	33.89	31.67	65.56	74.00	-8.44	peak	
2		2390.000	16.86	31.67	48.53	54.00	-5.47	AVG	
3	X	2411.000	72.45	31.76	104.21	74.00	30.21	peak	
4	*	2411.000	61.08	31.76	92.84	54.00	38.84	AVG	

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11g/2412 MHz		

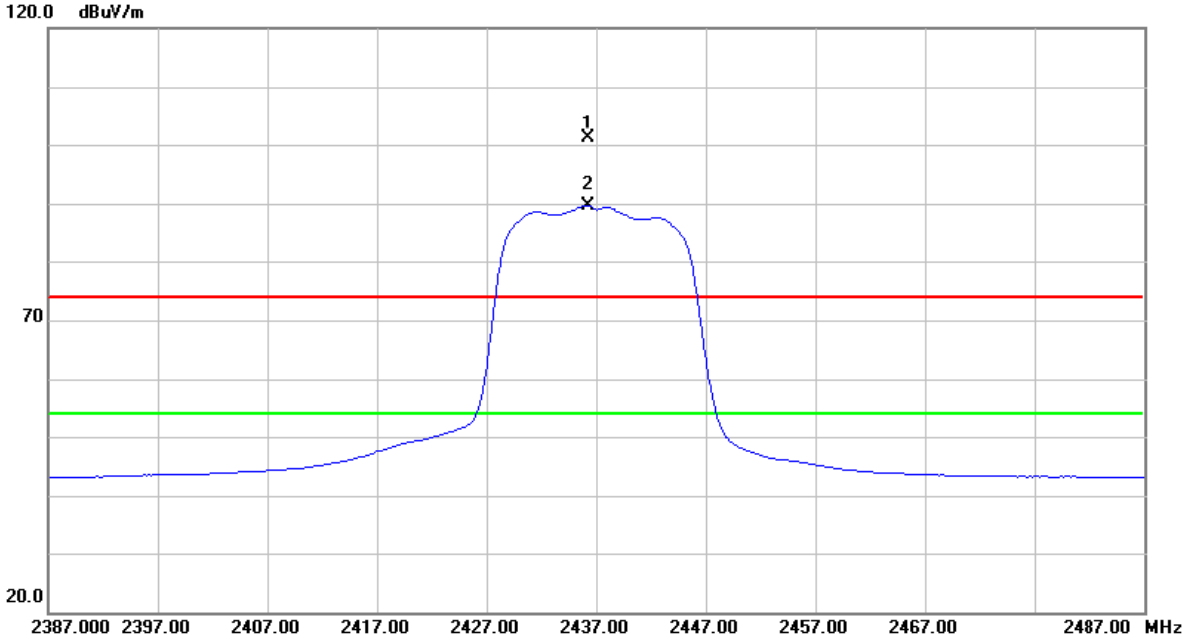
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4824.032	45.31	5.71	51.02	74.00	-22.98	peak	
2		4824.032	31.56	5.71	37.27	54.00	-16.73	AVG	
3		7236.084	44.87	12.29	57.16	74.00	-16.84	peak	
4	*	7236.084	31.35	12.29	43.64	54.00	-10.36	AVG	

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11g/2437 MHz		

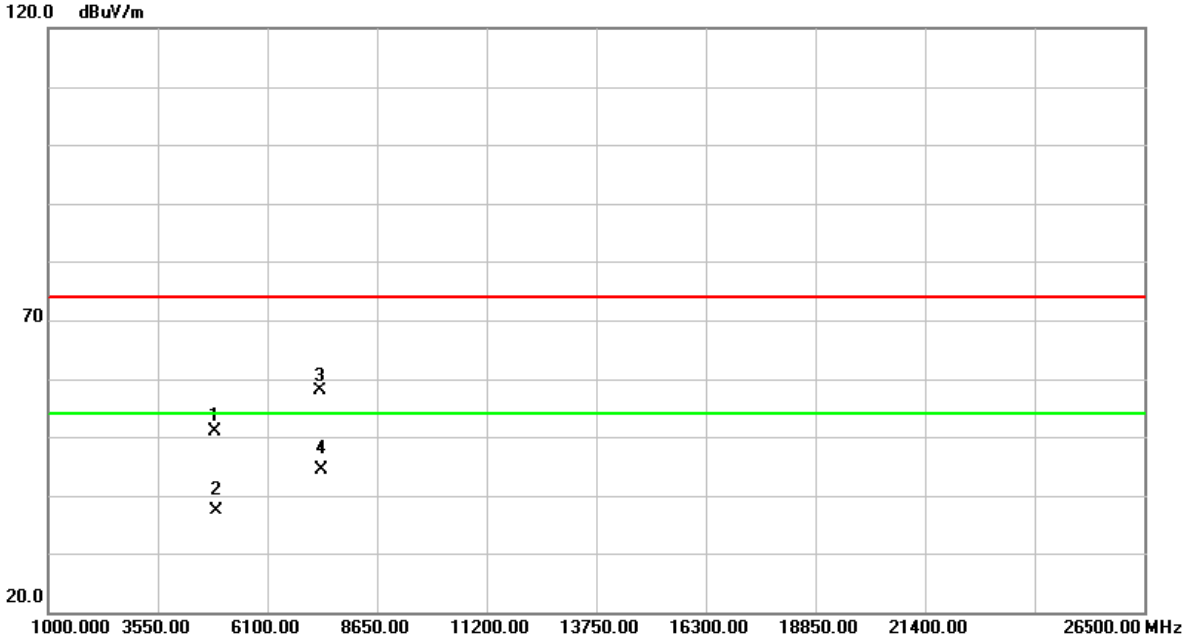
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	X	2436.200	69.18	31.87	101.05	74.00	27.05	peak	
2	*	2436.200	57.75	31.87	89.62	54.00	35.62	AVG	

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11g/2437 MHz		

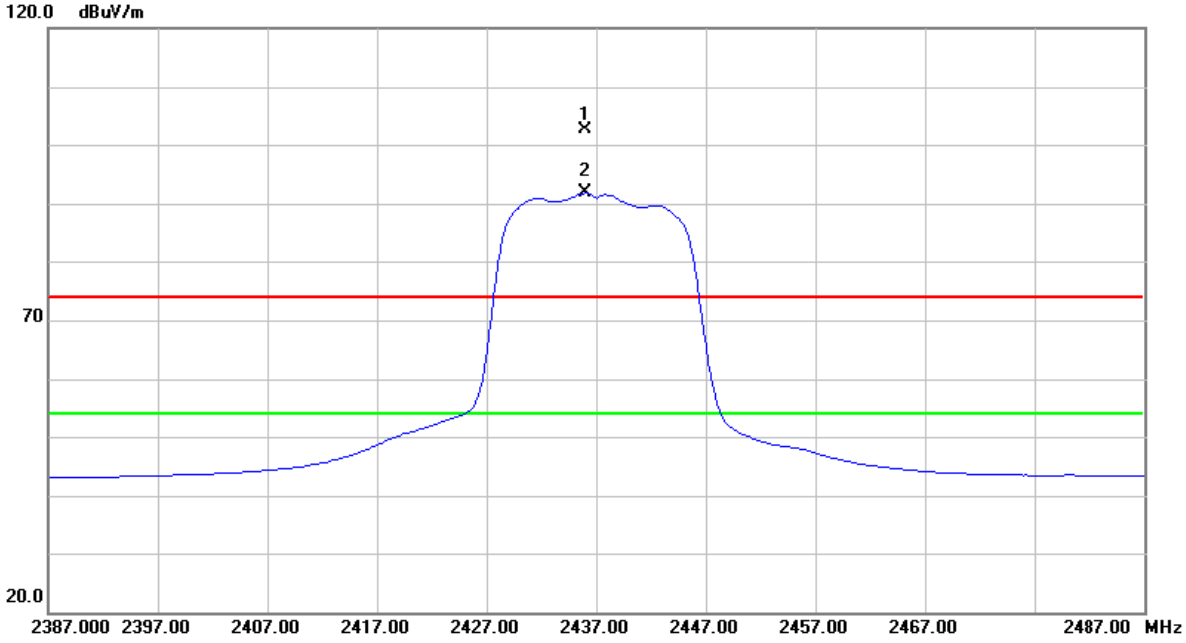
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4873.980	45.04	5.78	50.82	74.00	-23.18	peak	
2		4873.980	31.54	5.78	37.32	54.00	-16.68	AVG	
3		7310.156	45.22	12.56	57.78	74.00	-16.22	peak	
4	*	7310.156	31.72	12.56	44.28	54.00	-9.72	AVG	

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11g/2437 MHz		

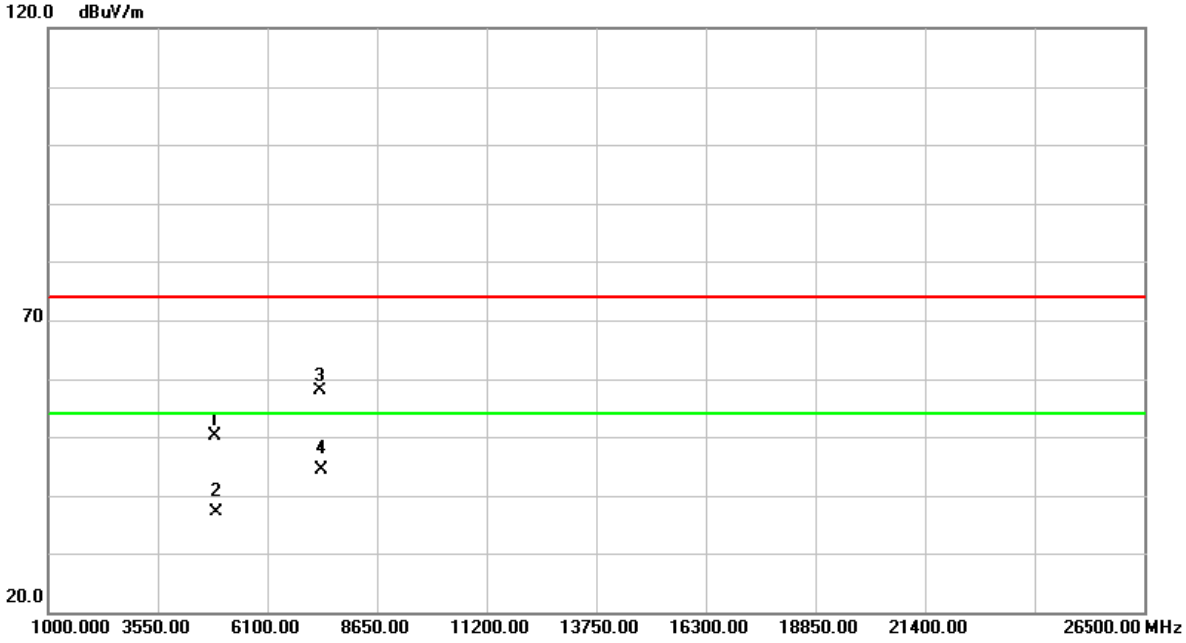
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	X	2436.000	70.75	31.87	102.62	74.00	28.62	peak	
2	*	2436.000	59.90	31.87	91.77	54.00	37.77	AVG	

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11g/2437 MHz		

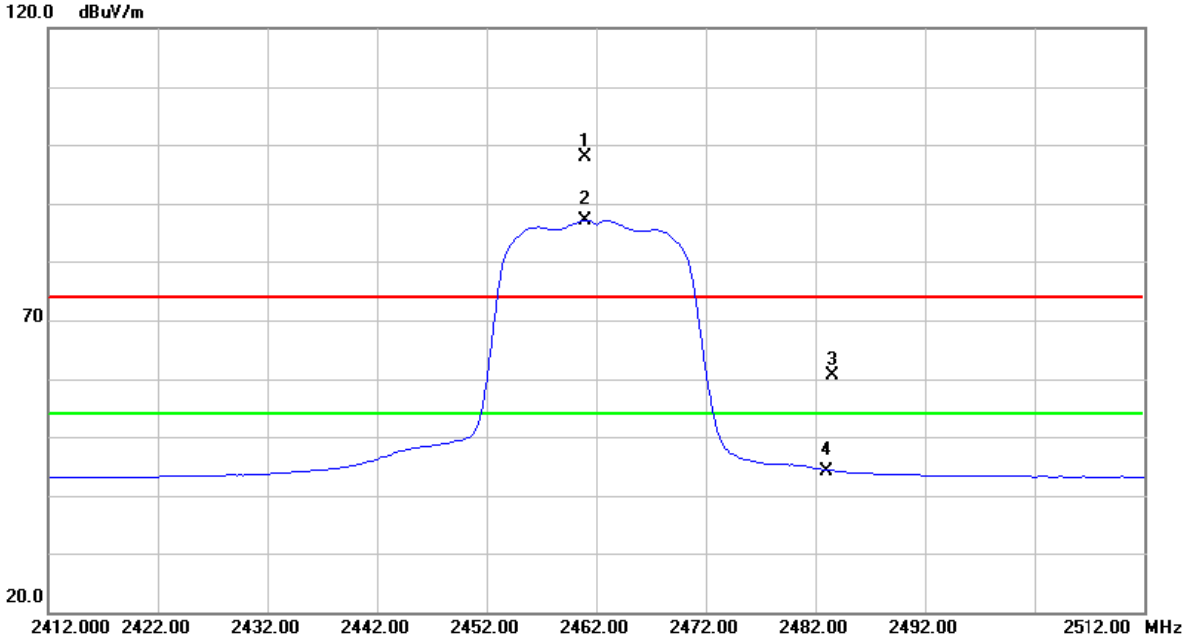
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4874.224	44.43	5.78	50.21	74.00	-23.79	peak	
2		4874.224	31.41	5.78	37.19	54.00	-16.81	AVG	
3		7311.816	45.30	12.57	57.87	74.00	-16.13	peak	
4	*	7311.816	31.77	12.57	44.34	54.00	-9.66	AVG	

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11g/2462 MHz		

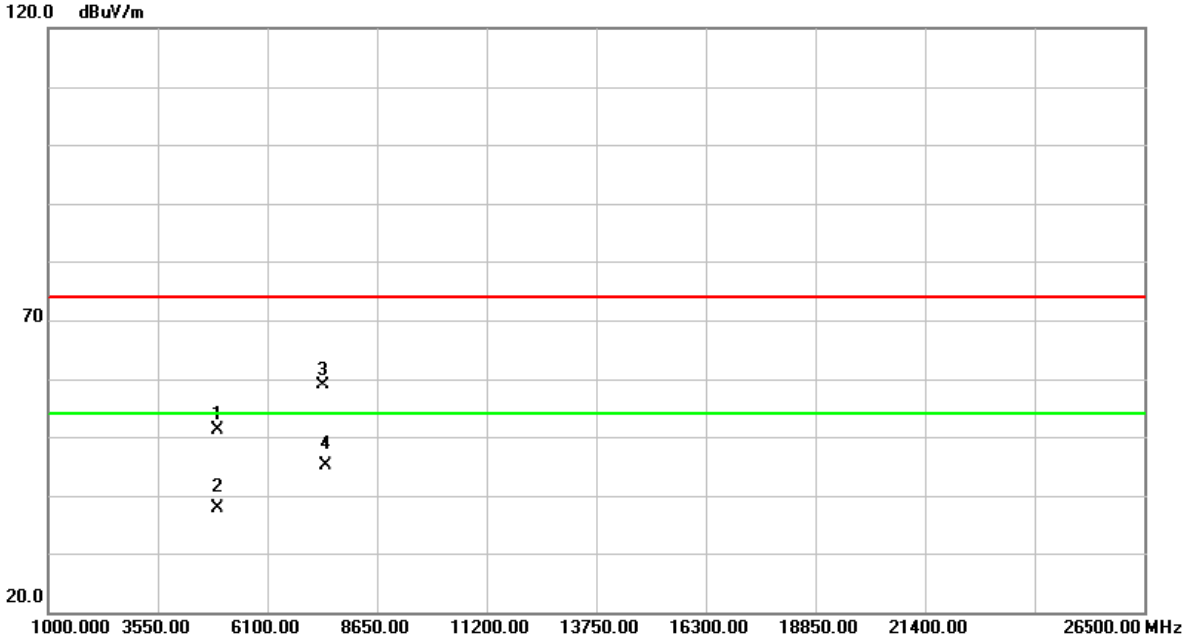
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	X	2461.000	66.01	31.99	98.00	74.00	24.00	peak	
2	*	2461.000	55.24	31.99	87.23	54.00	33.23	AVG	
3		2483.500	28.51	32.08	60.59	74.00	-13.41	peak	
4		2483.500	12.17	32.08	44.25	54.00	-9.75	AVG	

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11g/2462 MHz		

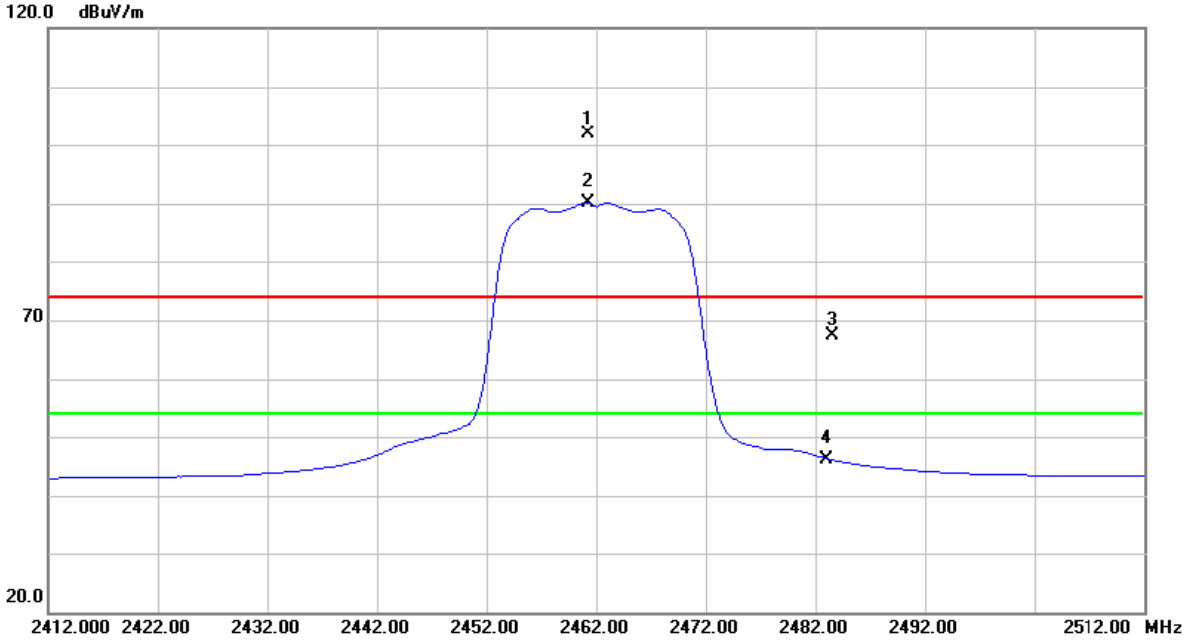
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4924.232	45.40	5.84	51.24	74.00	-22.76	peak	
2		4924.232	32.02	5.84	37.86	54.00	-16.14	AVG	
3		7386.116	46.01	12.85	58.86	74.00	-15.14	peak	
4	*	7386.116	32.31	12.85	45.16	54.00	-8.84	AVG	

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11g/2462 MHz		

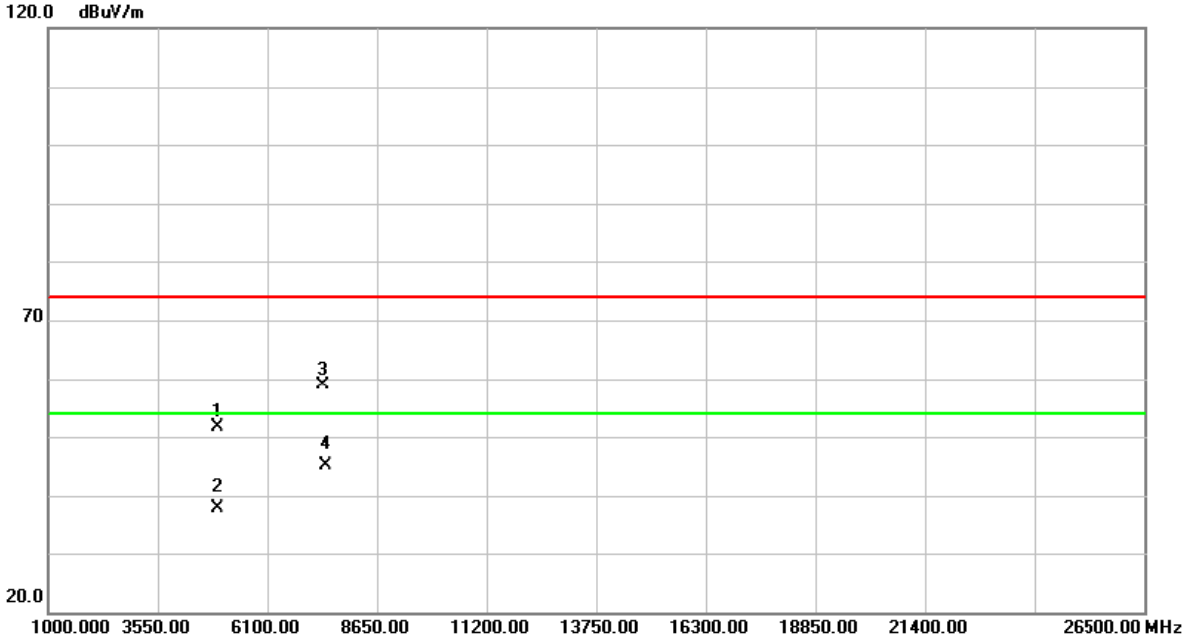
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	X	2461.200	69.81	31.99	101.80	74.00	27.80	peak	
2	*	2461.200	58.13	31.99	90.12	54.00	36.12	AVG	
3		2483.500	35.36	32.08	67.44	74.00	-6.56	peak	
4		2483.500	13.96	32.08	46.04	54.00	-7.96	AVG	

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11g/2462 MHz		

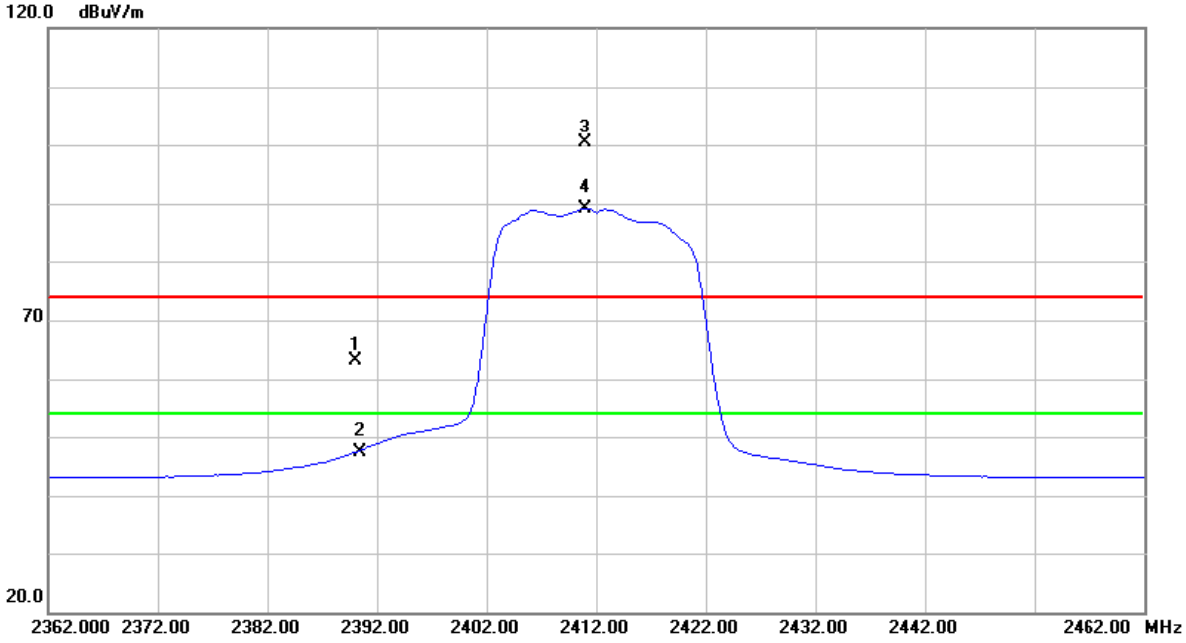
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4924.040	45.68	5.84	51.52	74.00	-22.48	peak	
2		4924.040	31.97	5.84	37.81	54.00	-16.19	AVG	
3		7385.980	45.91	12.85	58.76	74.00	-15.24	peak	
4	*	7385.980	32.30	12.85	45.15	54.00	-8.85	AVG	

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/2412 MHz		

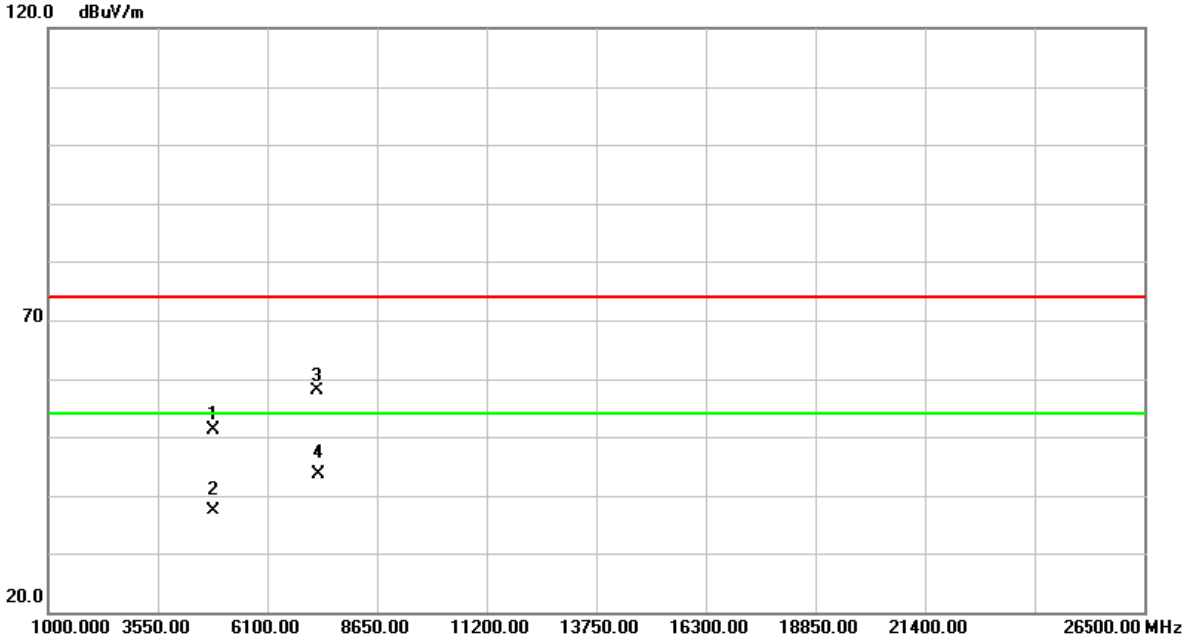
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2390.000	31.57	31.67	63.24	74.00	-10.76	peak	
2		2390.000	15.71	31.67	47.38	54.00	-6.62	AVG	
3	X	2411.000	68.54	31.76	100.30	74.00	26.30	peak	
4	*	2411.000	57.44	31.76	89.20	54.00	35.20	AVG	

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/2412 MHz		

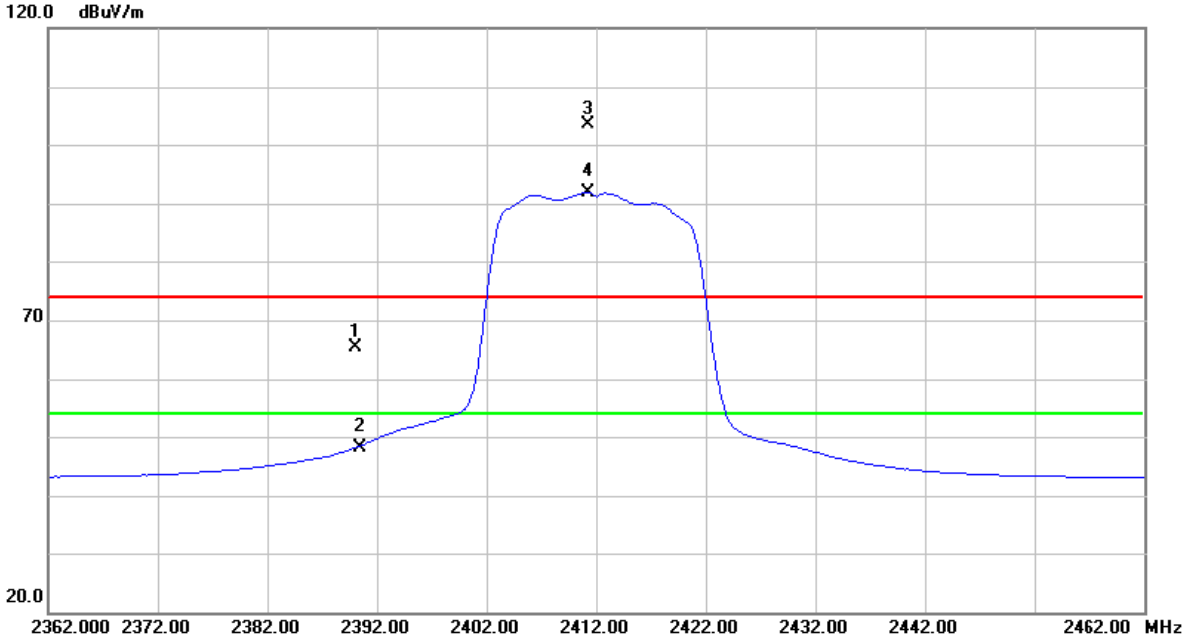
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4824.132	45.40	5.71	51.11	74.00	-22.89	peak	
2		4824.132	31.77	5.71	37.48	54.00	-16.52	AVG	
3		7236.092	45.58	12.29	57.87	74.00	-16.13	peak	
4	*	7236.092	31.31	12.29	43.60	54.00	-10.40	AVG	

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/2412 MHz		

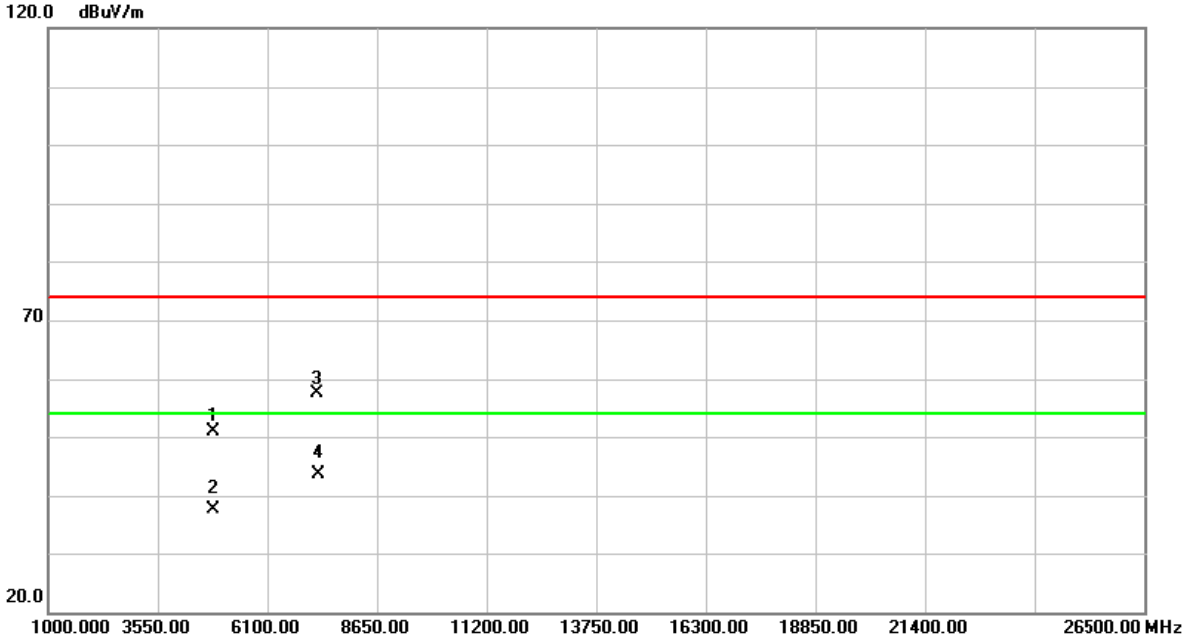
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2390.000	33.64	31.67	65.31	74.00	-8.69	peak	
2		2390.000	16.48	31.67	48.15	54.00	-5.85	AVG	
3	X	2411.200	71.86	31.76	103.62	74.00	29.62	peak	
4	*	2411.200	60.15	31.76	91.91	54.00	37.91	AVG	

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/2412 MHz		

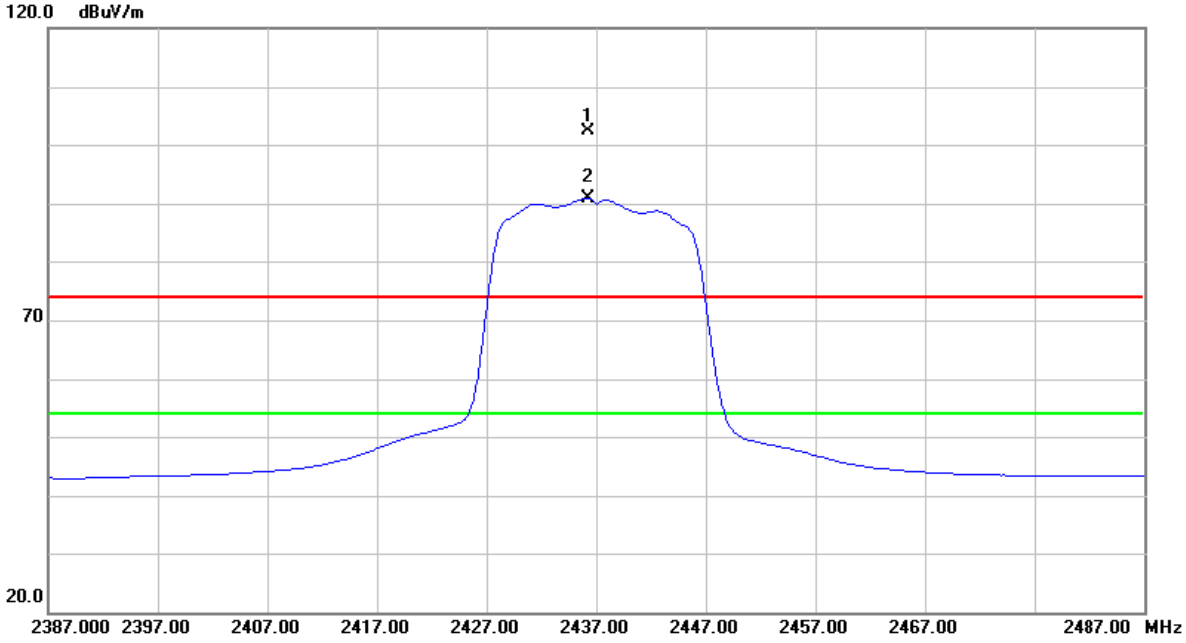
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4824.100	45.18	5.71	50.89	74.00	-23.11	peak	
2		4824.100	31.88	5.71	37.59	54.00	-16.41	AVG	
3		7236.048	45.01	12.29	57.30	74.00	-16.70	peak	
4	*	7236.048	31.27	12.29	43.56	54.00	-10.44	AVG	

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/2437 MHz		

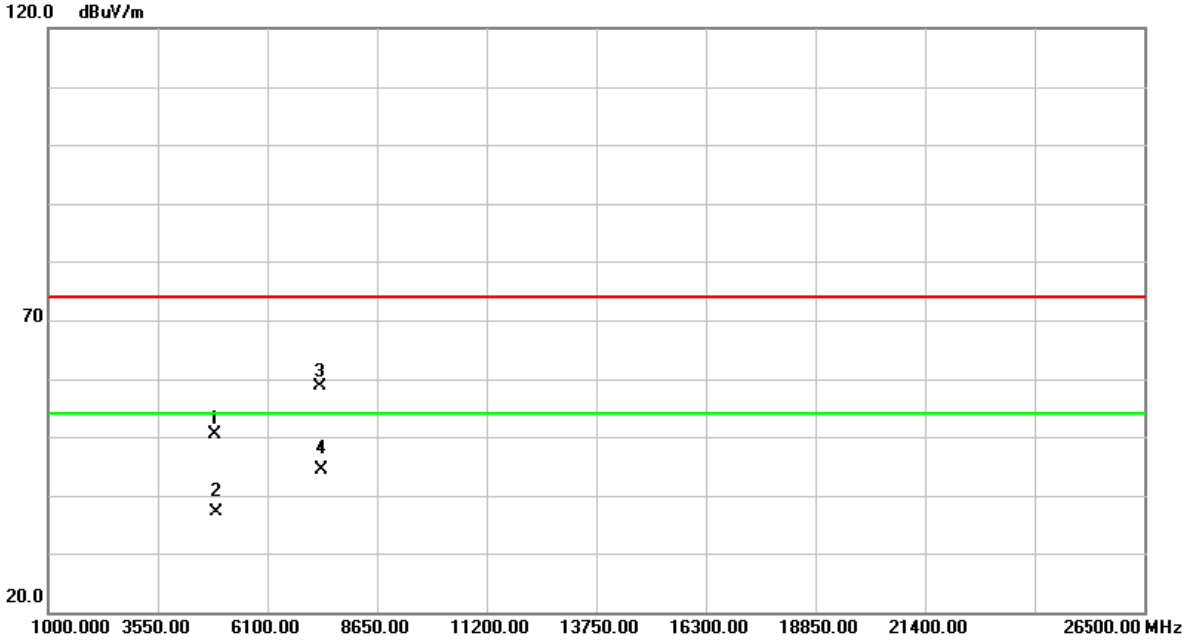
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	X	2436.200	70.58	31.87	102.45	74.00	28.45	peak	
2	*	2436.200	59.03	31.87	90.90	54.00	36.90	AVG	

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/2437 MHz		

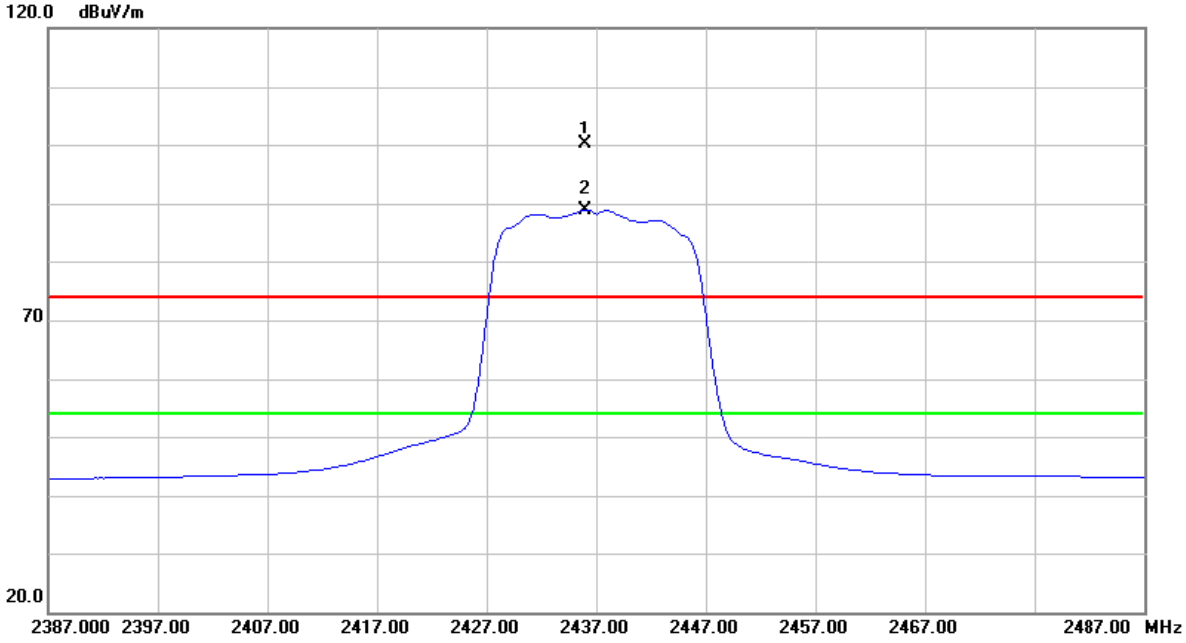
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4874.044	44.54	5.78	50.32	74.00	-23.68	peak	
2		4874.044	31.46	5.78	37.24	54.00	-16.76	AVG	
3		7311.460	46.00	12.57	58.57	74.00	-15.43	peak	
4	*	7311.460	31.78	12.57	44.35	54.00	-9.65	AVG	

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/2437 MHz		

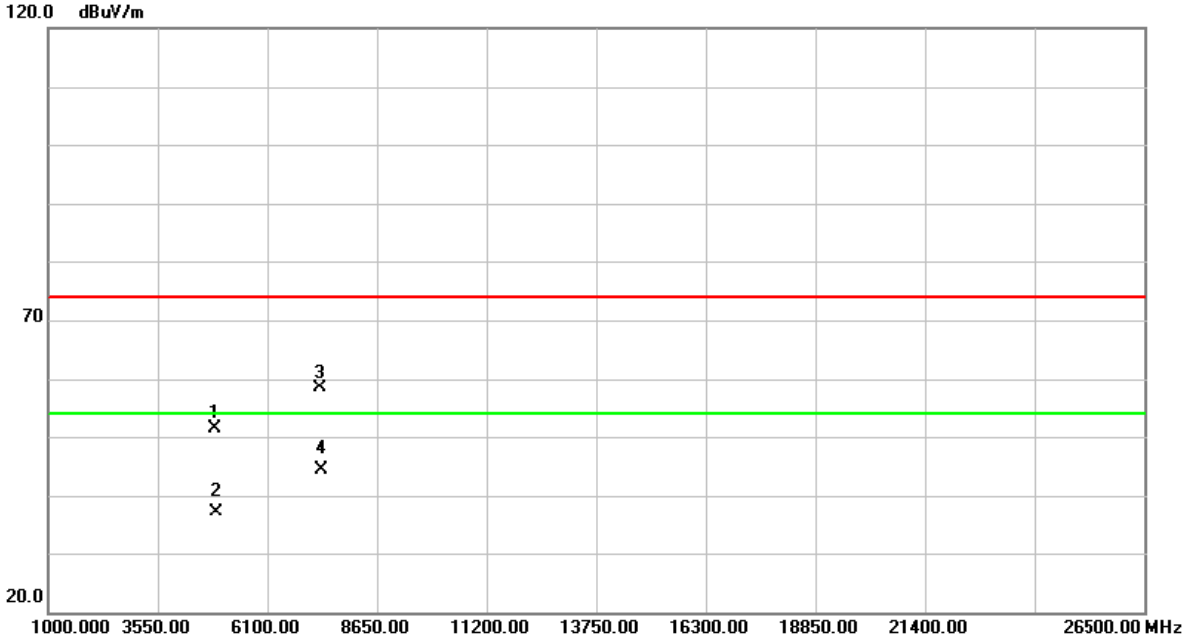
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	X	2436.000	68.30	31.87	100.17	74.00	26.17	peak	
2	*	2436.000	57.10	31.87	88.97	54.00	34.97	AVG	

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/2437 MHz		

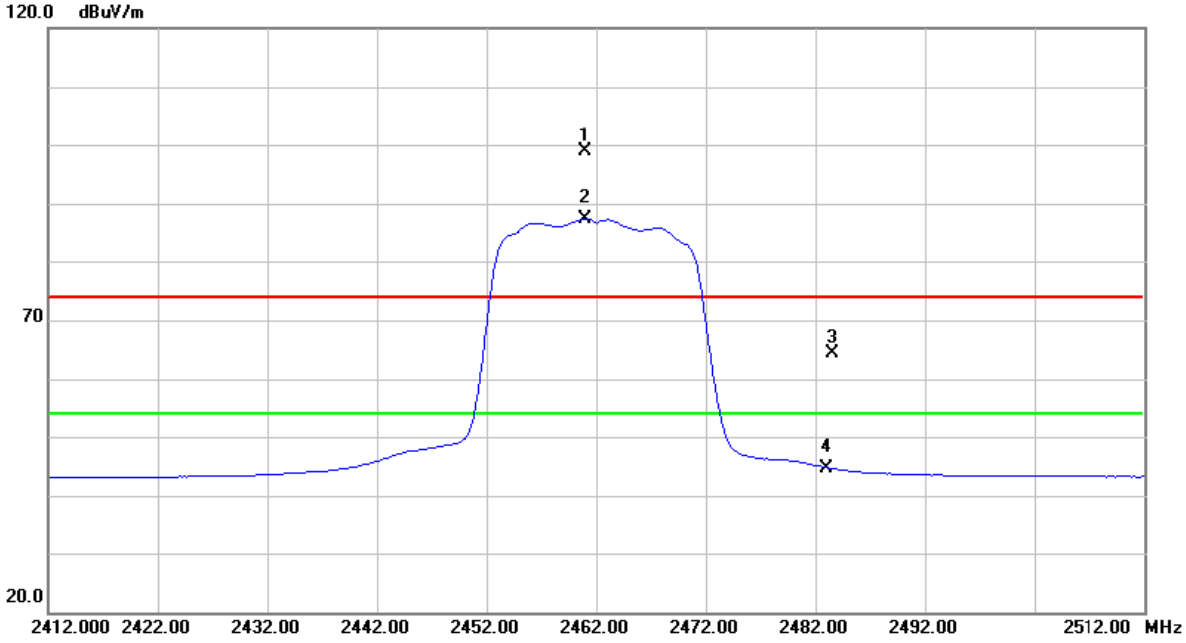
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4873.140	45.58	5.78	51.36	74.00	-22.64	peak	
2		4873.140	31.43	5.78	37.21	54.00	-16.79	AVG	
3		7311.060	45.76	12.57	58.33	74.00	-15.67	peak	
4	*	7311.060	31.82	12.57	44.39	54.00	-9.61	AVG	

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/2462 MHz		

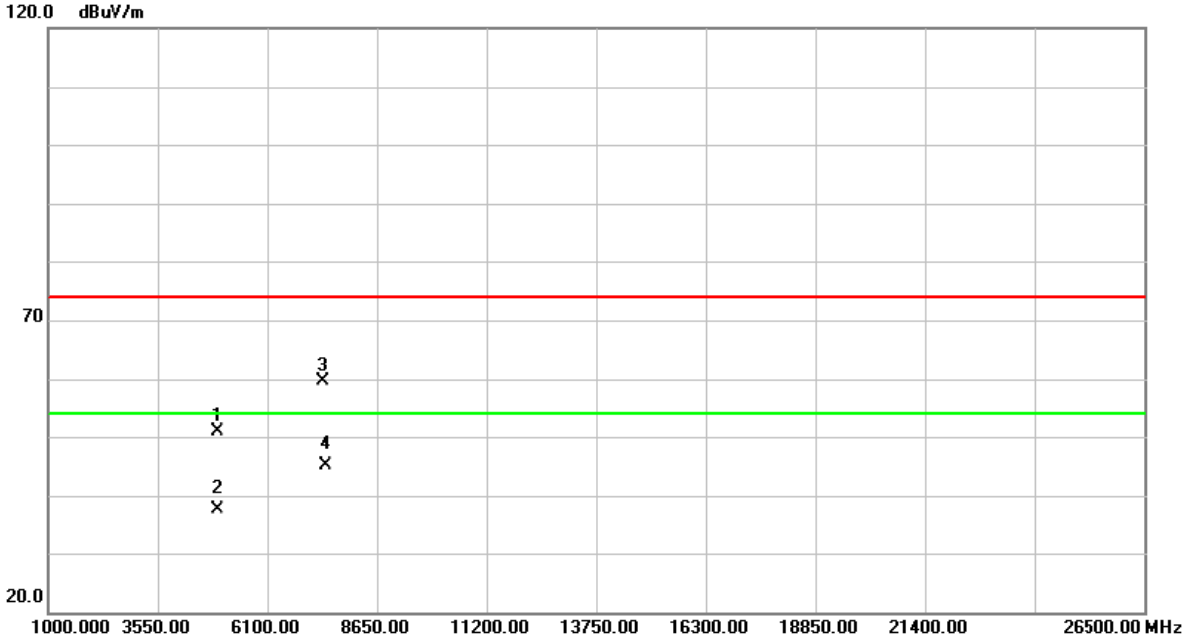
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	X	2461.000	66.95	31.99	98.94	74.00	24.94	peak	
2	*	2461.000	55.51	31.99	87.50	54.00	33.50	AVG	
3		2483.500	32.21	32.08	64.29	74.00	-9.71	peak	
4		2483.500	12.52	32.08	44.60	54.00	-9.40	AVG	

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/2462 MHz		

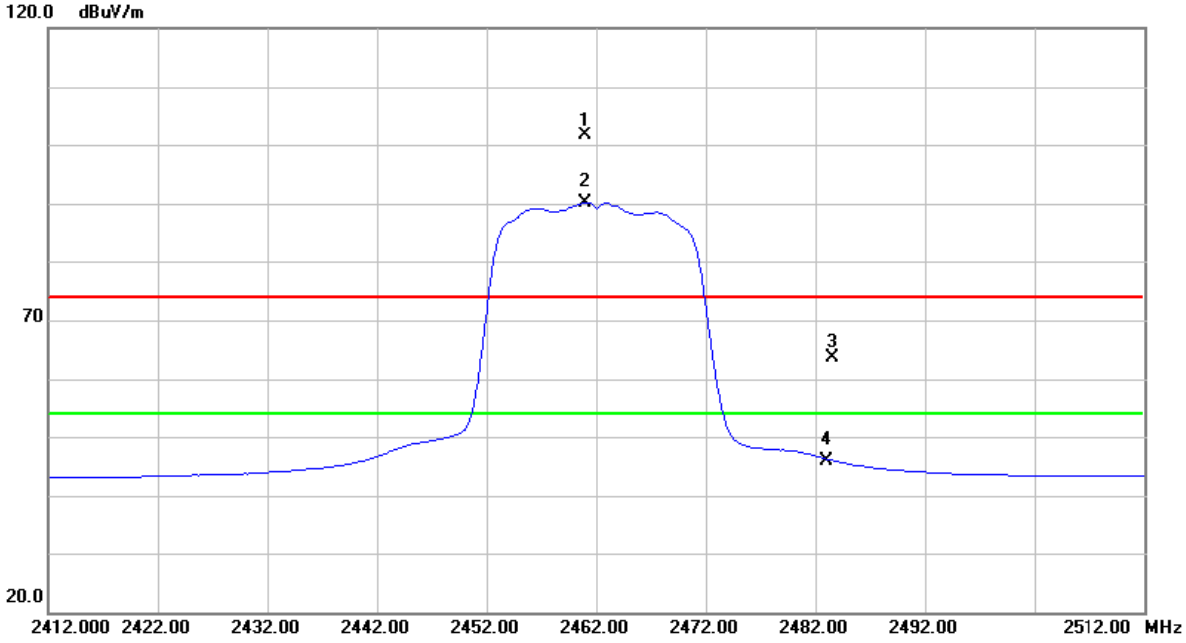
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4924.036	45.12	5.84	50.96	74.00	-23.04	peak	
2		4924.036	31.90	5.84	37.74	54.00	-16.26	AVG	
3		7386.032	46.77	12.85	59.62	74.00	-14.38	peak	
4	*	7386.032	32.26	12.85	45.11	54.00	-8.89	AVG	

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/2462 MHz		

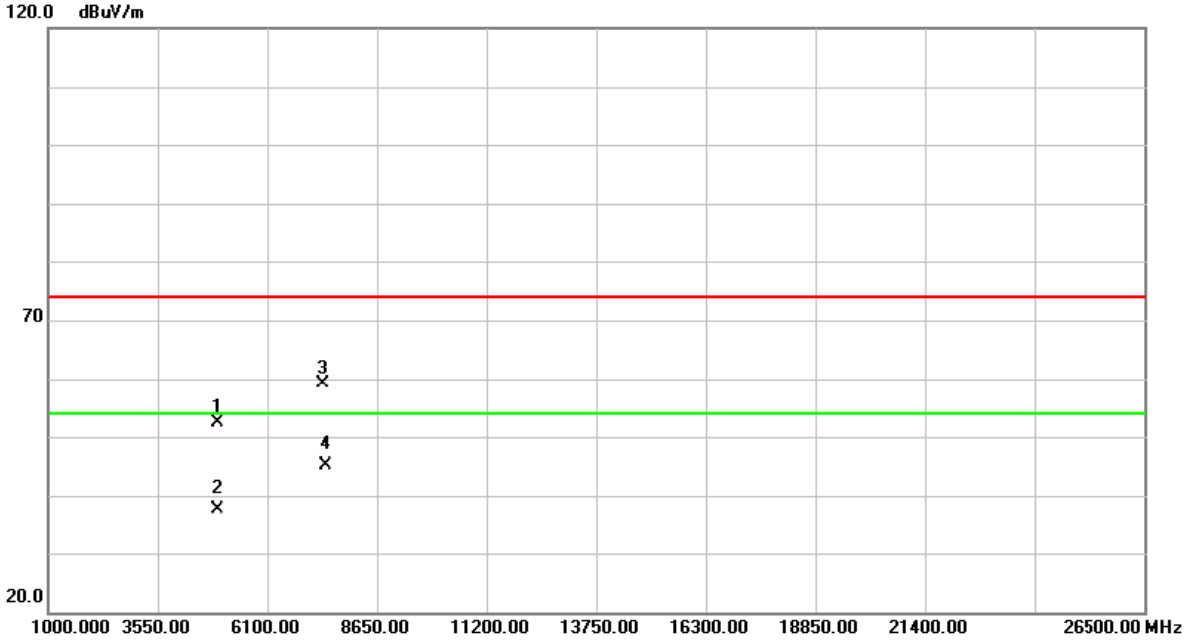
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	X	2461.000	69.72	31.99	101.71	74.00	27.71	peak	
2	*	2461.000	58.17	31.99	90.16	54.00	36.16	AVG	
3		2483.500	31.58	32.08	63.66	74.00	-10.34	peak	
4		2483.500	13.88	32.08	45.96	54.00	-8.04	AVG	

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/2462 MHz		

Polarization: Horizontal

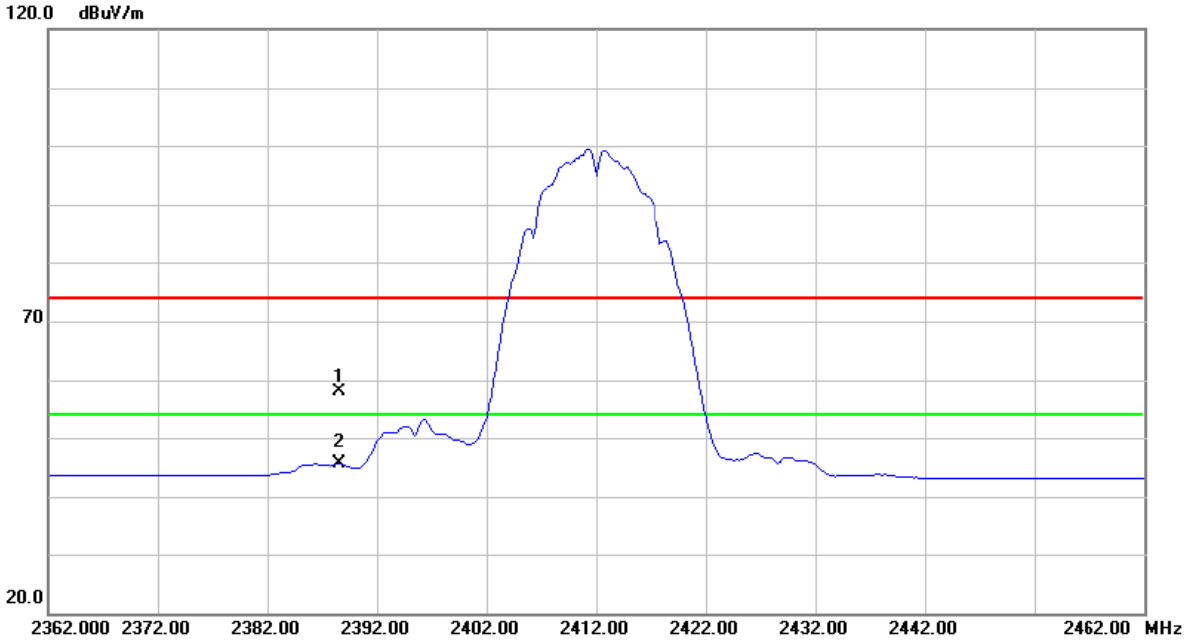


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4924.068	46.48	5.84	52.32	74.00	-21.68	peak	
2		4924.068	31.86	5.84	37.70	54.00	-16.30	AVG	
3		7385.996	46.22	12.85	59.07	74.00	-14.93	peak	
4	*	7385.996	32.26	12.85	45.11	54.00	-8.89	AVG	

9.9 TEST RESULTS (RESTRICTED BANDS)

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	24°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11b		
NOTE	The transmitter was setup to transmit at the lowest channel and the field strength was measured at 2310-2390 MHz.		

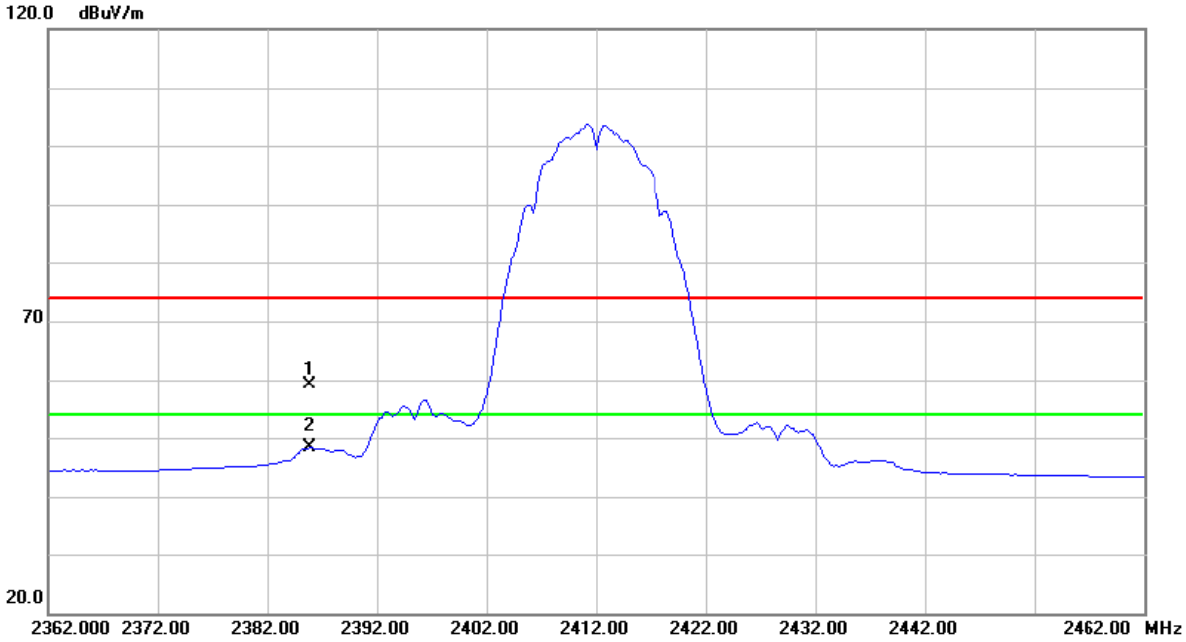
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2388.600	26.25	31.66	57.91	74.00	-16.09	peak	
2	*	2388.600	13.96	31.66	45.62	54.00	-8.38	AVG	

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	24°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11b		
NOTE	The transmitter was setup to transmit at the lowest channel and the field strength was measured at 2310-2390 MHz.		

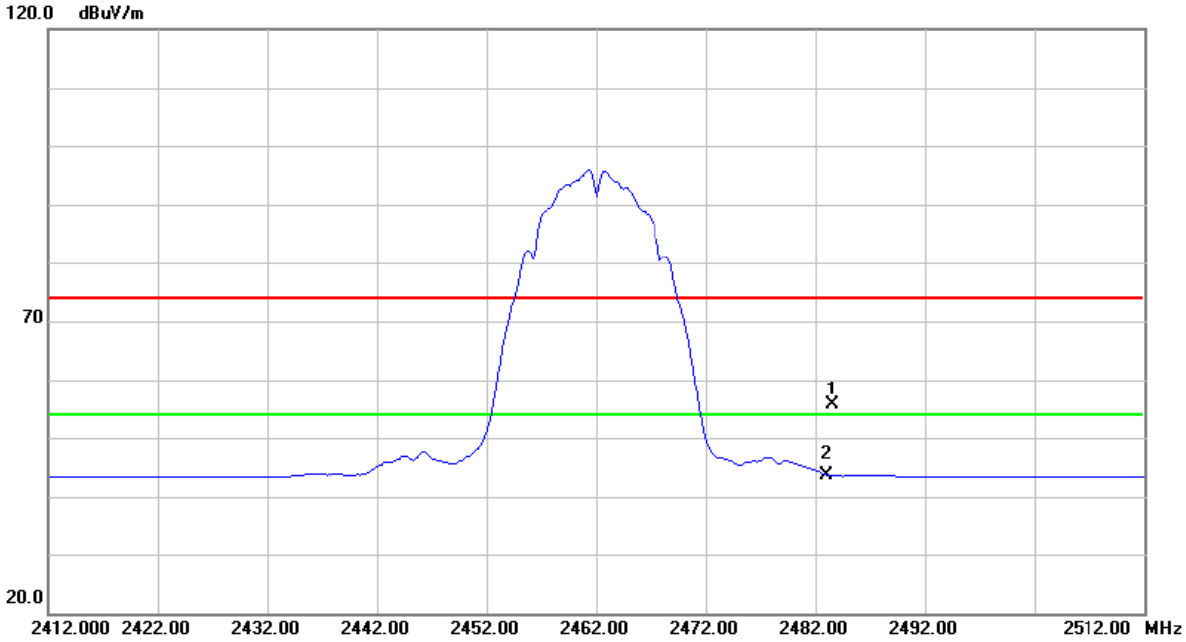
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2385.800	27.59	31.65	59.24	74.00	-14.76	peak	
2	*	2385.800	16.65	31.65	48.30	54.00	-5.70	AVG	

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	24°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11b		
NOTE	The transmitter was setup to transmit at the highest channel and the field strength was measured at 2483.5-2500 MHz.		

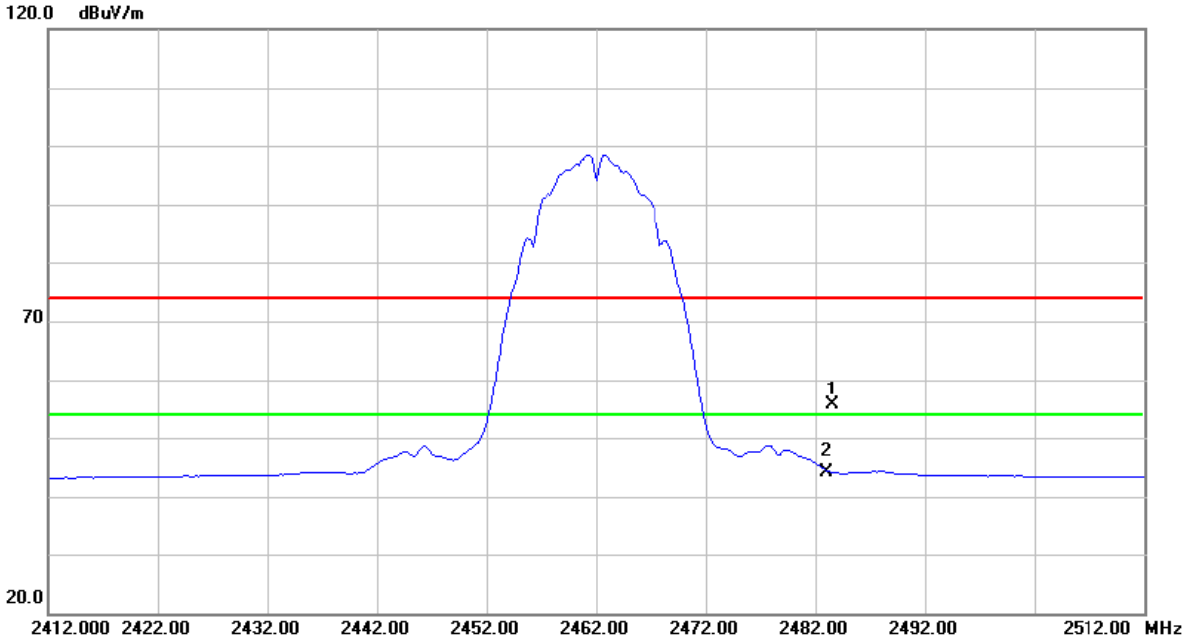
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2483.500	23.61	32.08	55.69	74.00	-18.31	peak	
2	*	2483.500	11.50	32.08	43.58	54.00	-10.42	AVG	

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	24°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11b		
NOTE	The transmitter was setup to transmit at the highest channel and the field strength was measured at 2483.5-2500 MHz.		

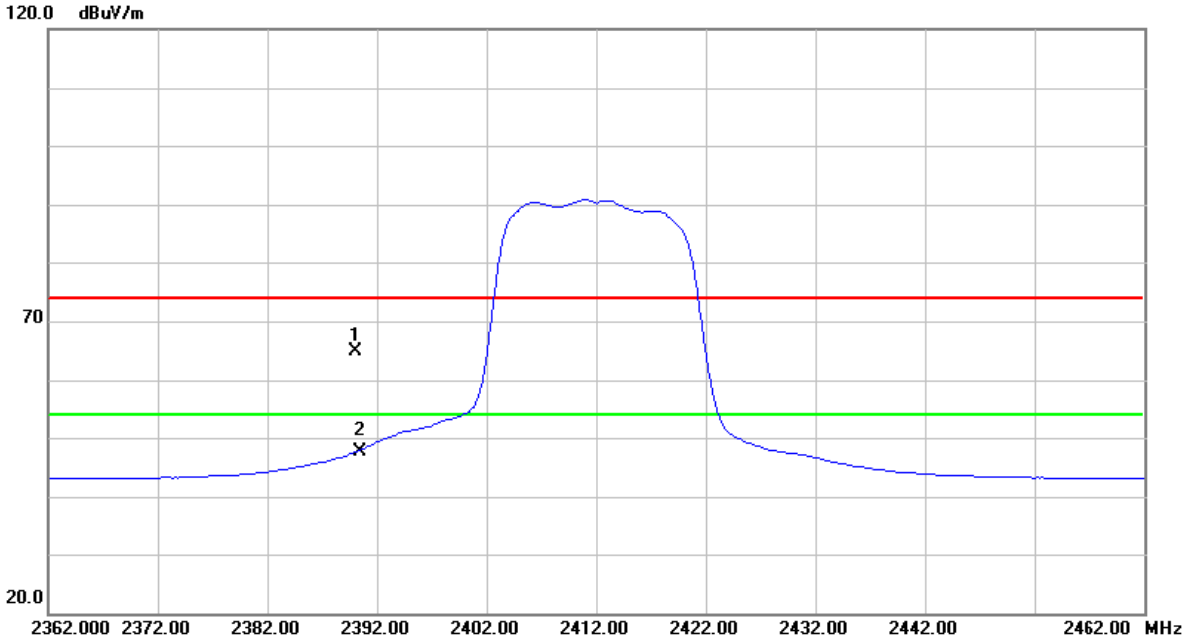
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2483.500	23.62	32.08	55.70	74.00	-18.30	peak	
2	*	2483.500	12.05	32.08	44.13	54.00	-9.87	AVG	

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	24°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11g		
NOTE	The transmitter was setup to transmit at the lowest channel and the field strength was measured at 2310-2390 MHz.		

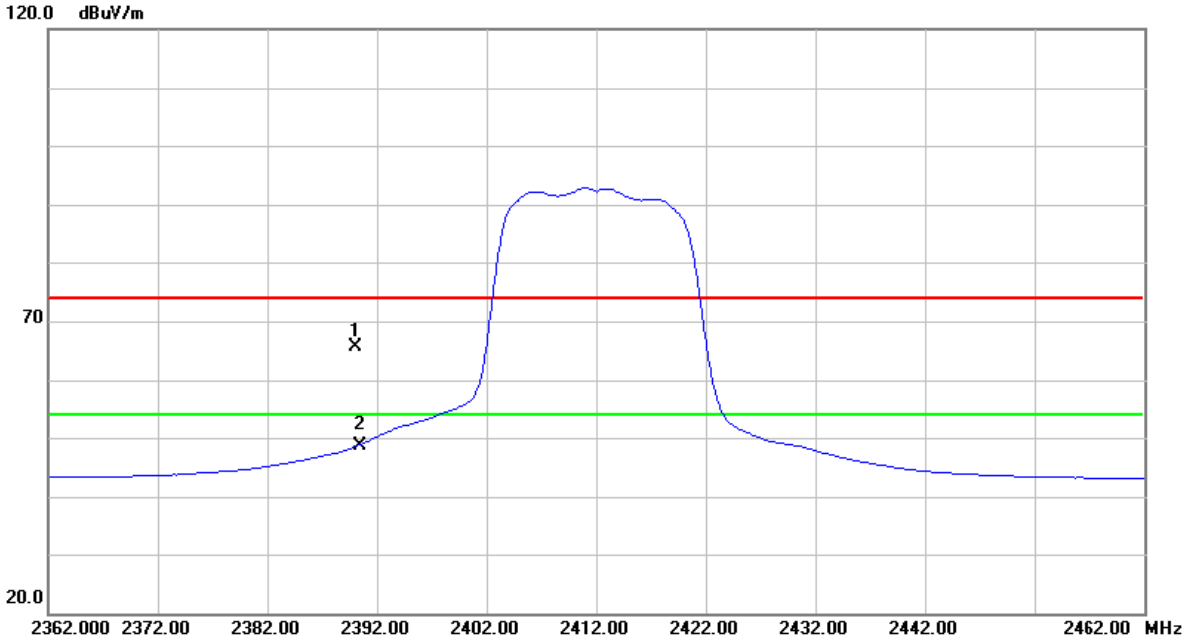
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2390.000	33.11	31.67	64.78	74.00	-9.22	peak	
2	*	2390.000	15.91	31.67	47.58	54.00	-6.42	AVG	

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	24°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11g		
NOTE	The transmitter was setup to transmit at the lowest channel and the field strength was measured at 2310-2390 MHz.		

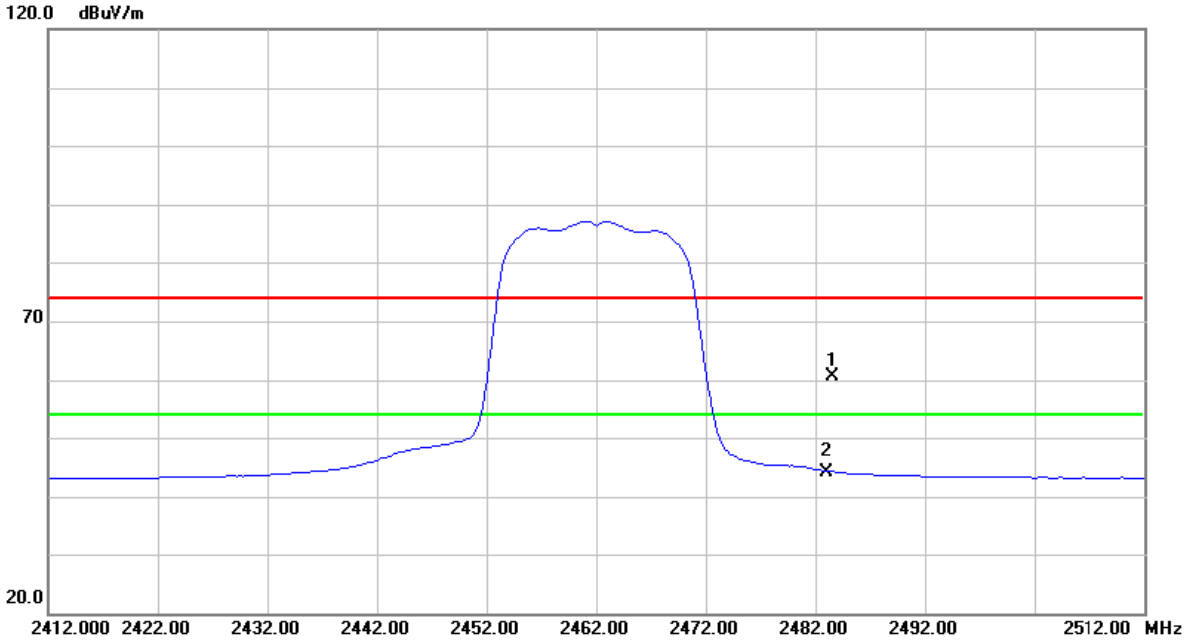
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2390.000	33.89	31.67	65.56	74.00	-8.44	peak	
2	*	2390.000	16.86	31.67	48.53	54.00	-5.47	AVG	

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	24°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11g		
NOTE	The transmitter was setup to transmit at the highest channel and the field strength was measured at 2483.5-2500 MHz.		

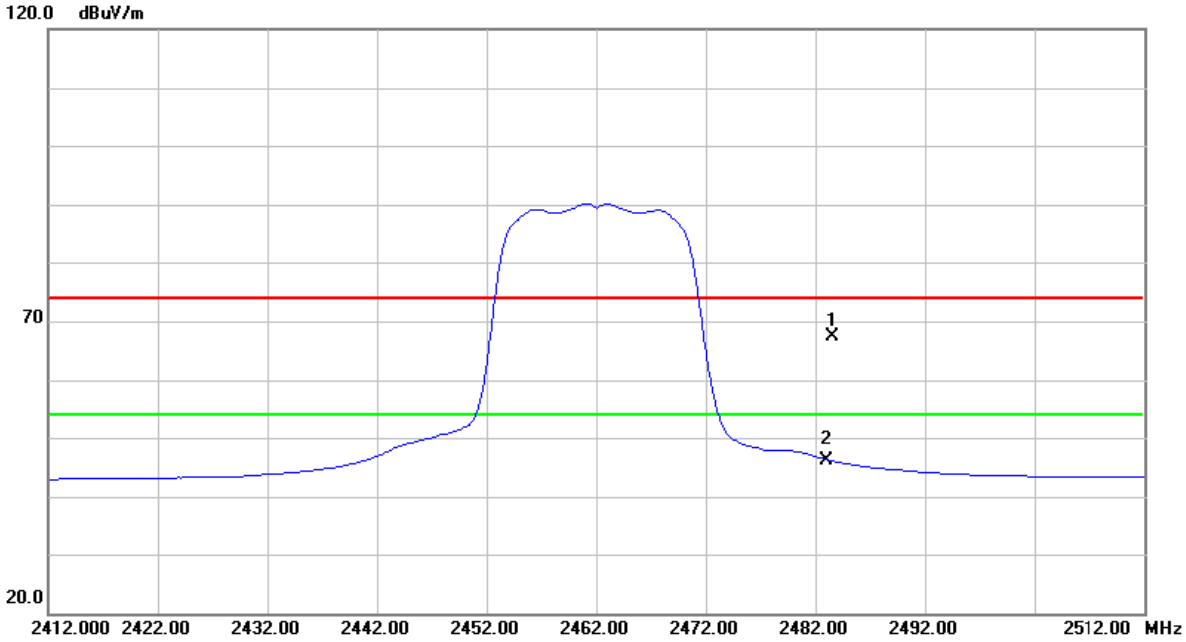
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2483.500	28.51	32.08	60.59	74.00	-13.41	peak	
2	*	2483.500	12.17	32.08	44.25	54.00	-9.75	AVG	

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	24°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11g		
NOTE	The transmitter was setup to transmit at the highest channel and the field strength was measured at 2483.5-2500 MHz.		

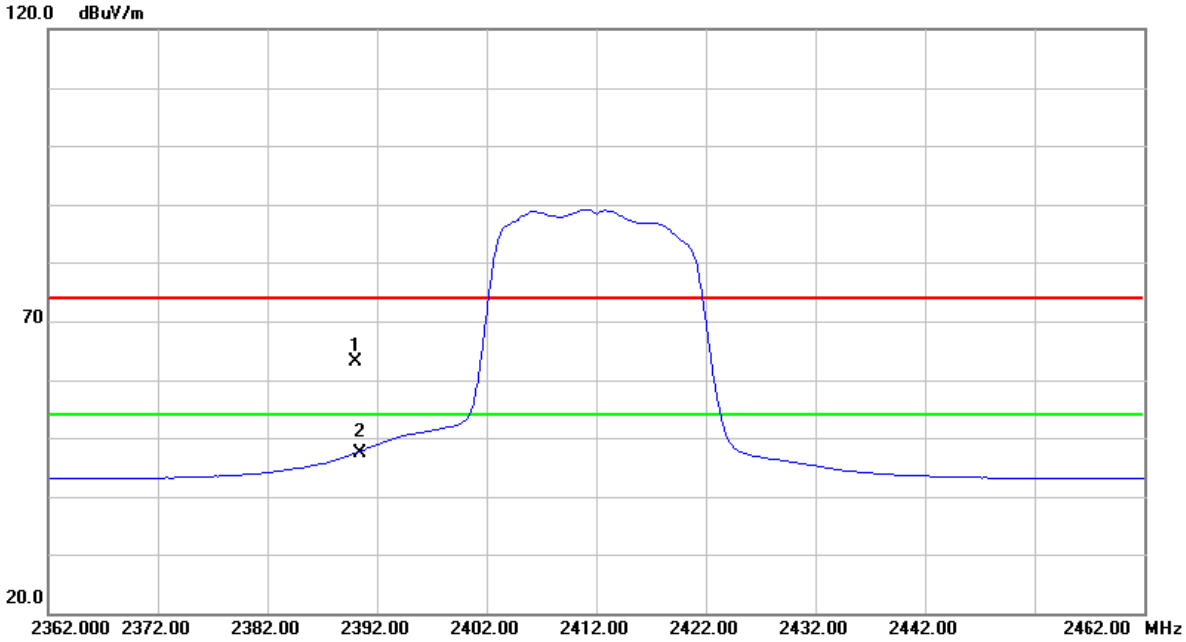
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	2483.500	35.36	32.08	67.44	74.00	-6.56	peak	
2		2483.500	13.96	32.08	46.04	54.00	-7.96	AVG	

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	24°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)		
NOTE	The transmitter was setup to transmit at the lowest channel and the field strength was measured at 2310-2390 MHz.		

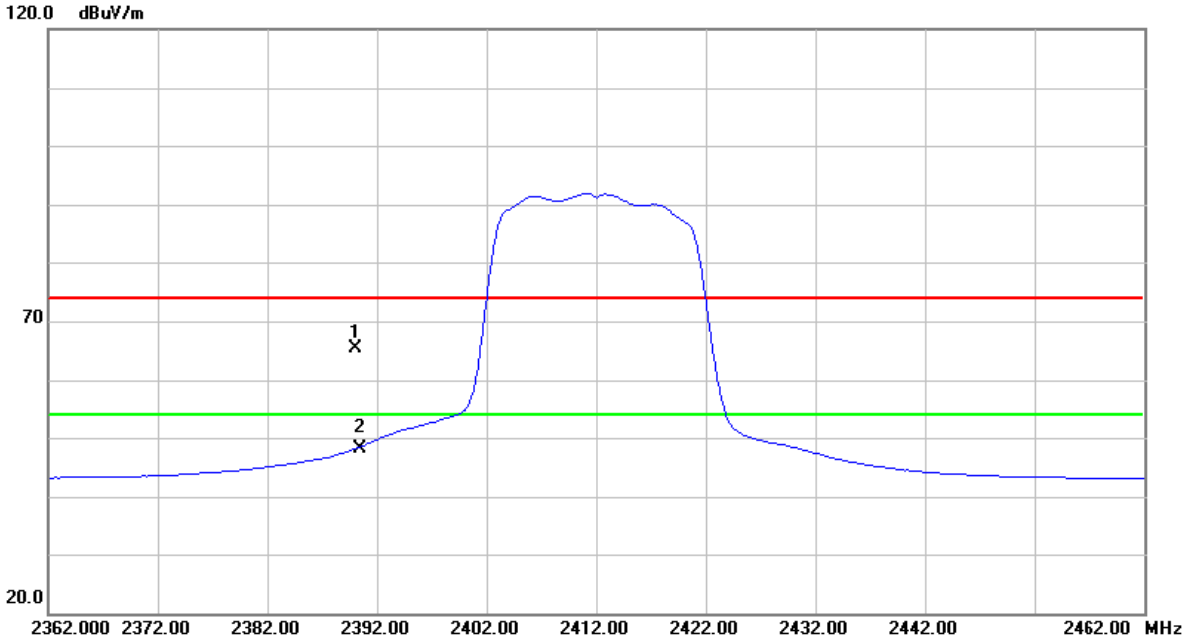
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2390.000	31.57	31.67	63.24	74.00	-10.76	peak	
2	*	2390.000	15.71	31.67	47.38	54.00	-6.62	AVG	

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	24°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)		
NOTE	The transmitter was setup to transmit at the lowest channel and the field strength was measured at 2310-2390 MHz.		

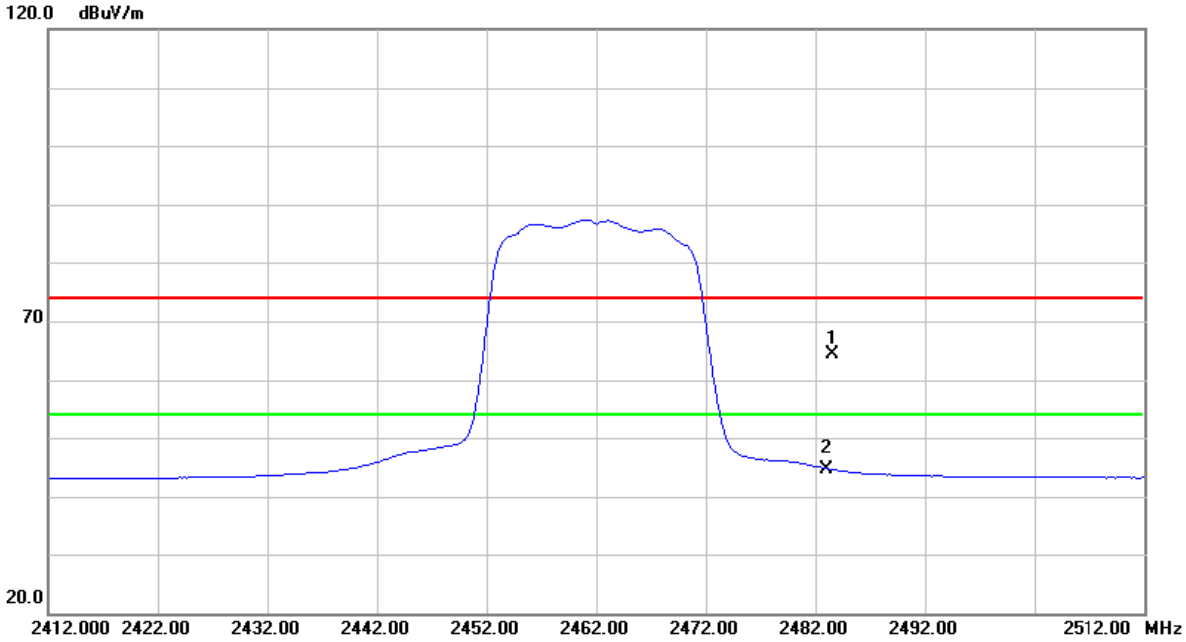
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2390.000	33.64	31.67	65.31	74.00	-8.69	peak	
2	*	2390.000	16.48	31.67	48.15	54.00	-5.85	AVG	

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	24°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)		
NOTE	The transmitter was setup to transmit at the highest channel and the field strength was measured at 2483.5-2500 MHz.		

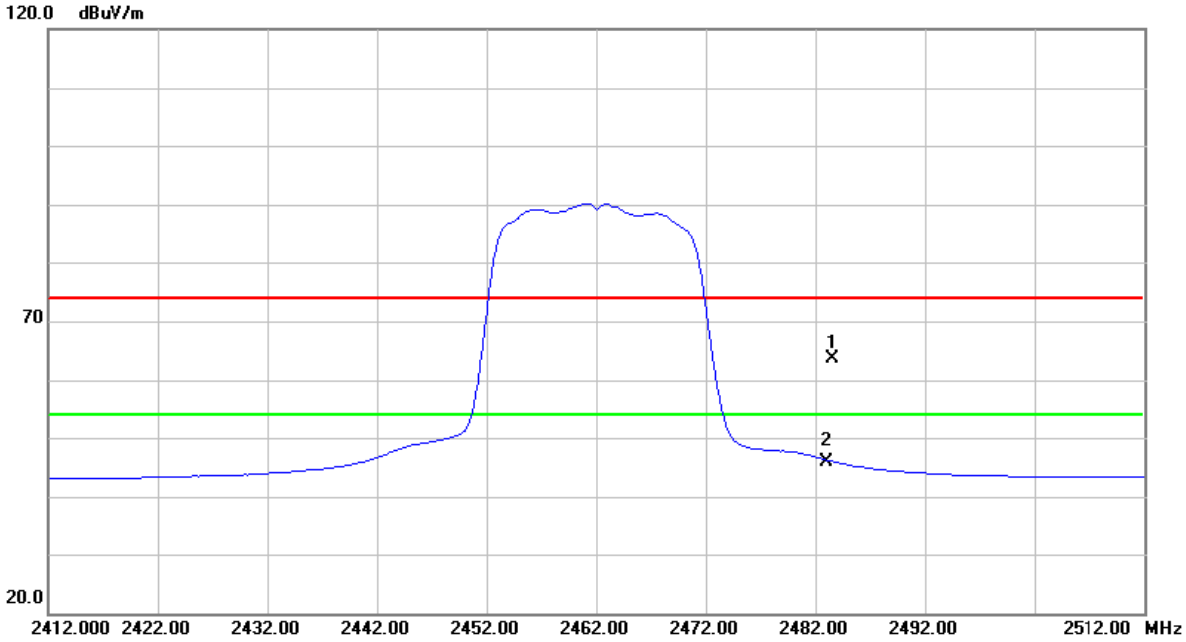
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2483.500	32.21	32.08	64.29	74.00	-9.71	peak	
2	*	2483.500	12.52	32.08	44.60	54.00	-9.40	AVG	

EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	24°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)		
NOTE	The transmitter was setup to transmit at the highest channel and the field strength was measured at 2483.5-2500 MHz.		

Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2483.500	31.58	32.08	63.66	74.00	-10.34	peak	
2	*	2483.500	13.88	32.08	45.96	54.00	-8.04	AVG	

10 POWER SPECTRAL DENSITY

10.1 LIMIT

Test Item	Frequency Range (MHz)	Limit
Power Spectral Density	2400-2483.5	8 dBm (in any 3 kHz)

10.2 MEASUREMENT INSTRUMENTS LIST

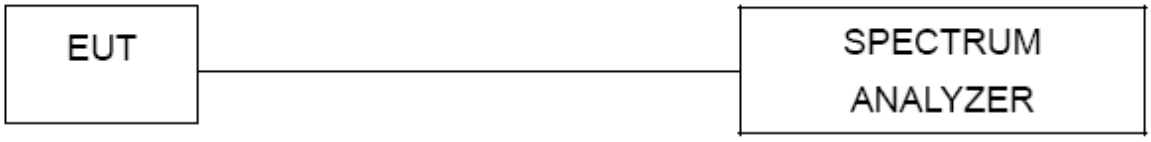
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-30	100854	Sep. 08, 2014

NOTE: **N/A**: denotes No Model Name, No Serial No. or No Calibration specified.

10.3 TEST PROCEDURES

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
b. Spectrum Setting: RBW=3 kHz, VBW=30 kHz, Sweep time = 500s.

10.4 TEST SETUP LAYOUT



10.5 DEVIATION FROM TEST STANDARD

No deviation

10.6 EUT OPERATING CONDITIONS

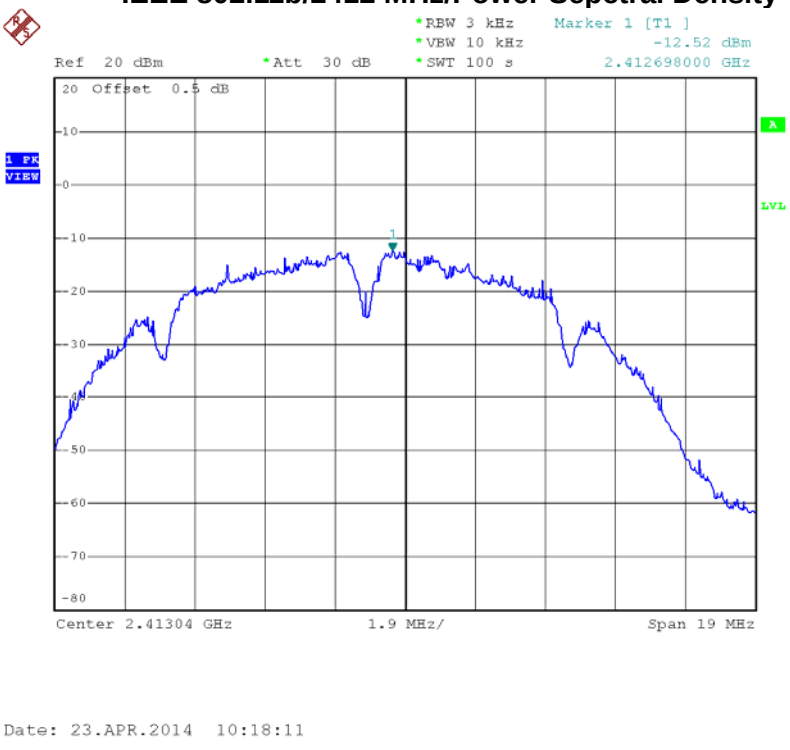
The EUT tested system was configured as the statements of 5.6 Unless otherwise a special operating condition is specified in the follows during the testing.

10.7TEST RESULTS

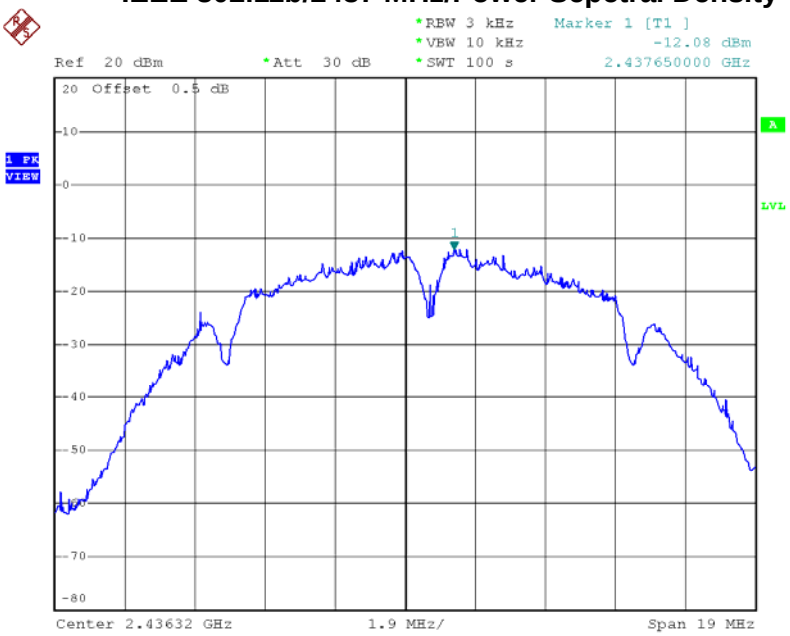
EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11b/2412 MHz, 2437 MHz, 2462 MHz		

Frequency	Power Density (dBm)	Limit (dBm)	Result
2412 MHz	-12.52	8	PASS
2437 MHz	-12.08	8	PASS
2462 MHz	-12.16	8	PASS

IEEE 802.11b/2412 MHz/Power Sepctral Density

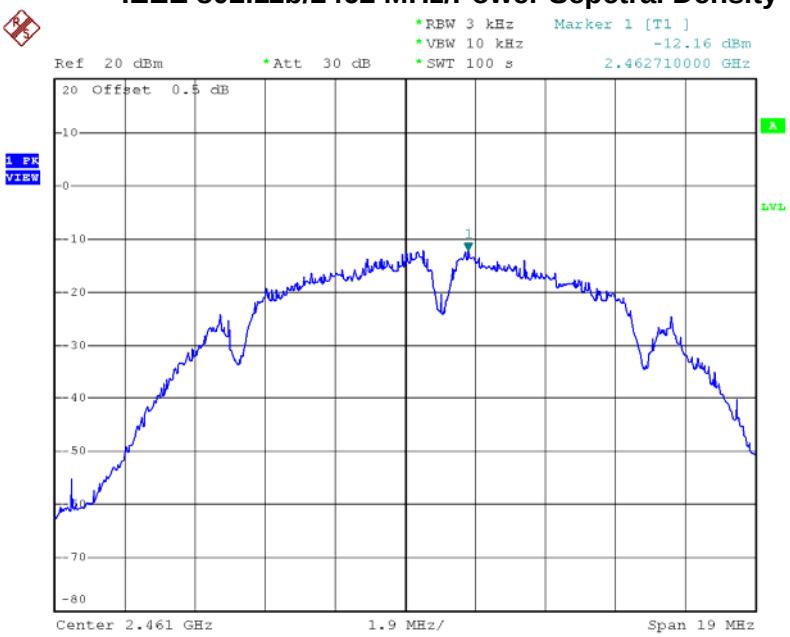


IEEE 802.11b/2437 MHz/Power Sepctral Density



Date: 23.APR.2014 10:20:36

IEEE 802.11b/2462 MHz/Power Sepctral Density

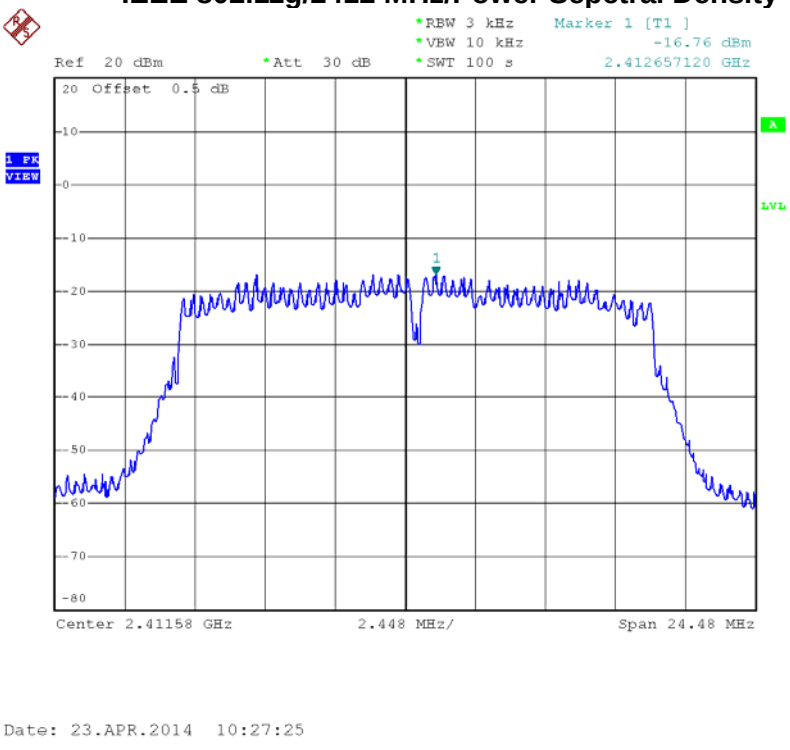


Date: 23.APR.2014 10:23:21

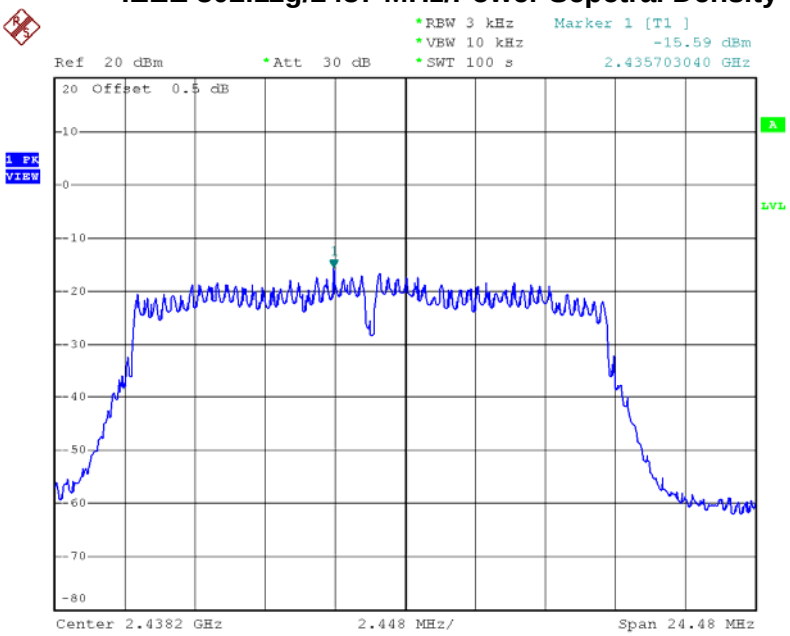
EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11g/2412 MHz, 2437 MHz, 2462 MHz		

Frequency	Power Density (dBm)	Limit (dBm)	Result
2412 MHz	-16.76	8	PASS
2437 MHz	-15.59	8	PASS
2462 MHz	-16.21	8	PASS

IEEE 802.11g/2412 MHz/Power Sepctral Density

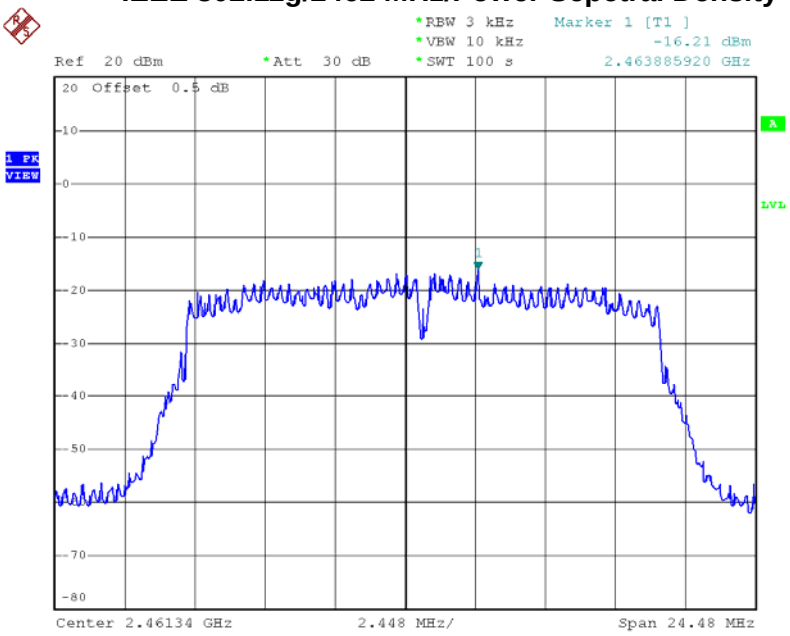


IEEE 802.11g/2437 MHz/Power Sepctral Density



Date: 23.APR.2014 10:30:01

IEEE 802.11g/2462 MHz/Power Sepctral Density

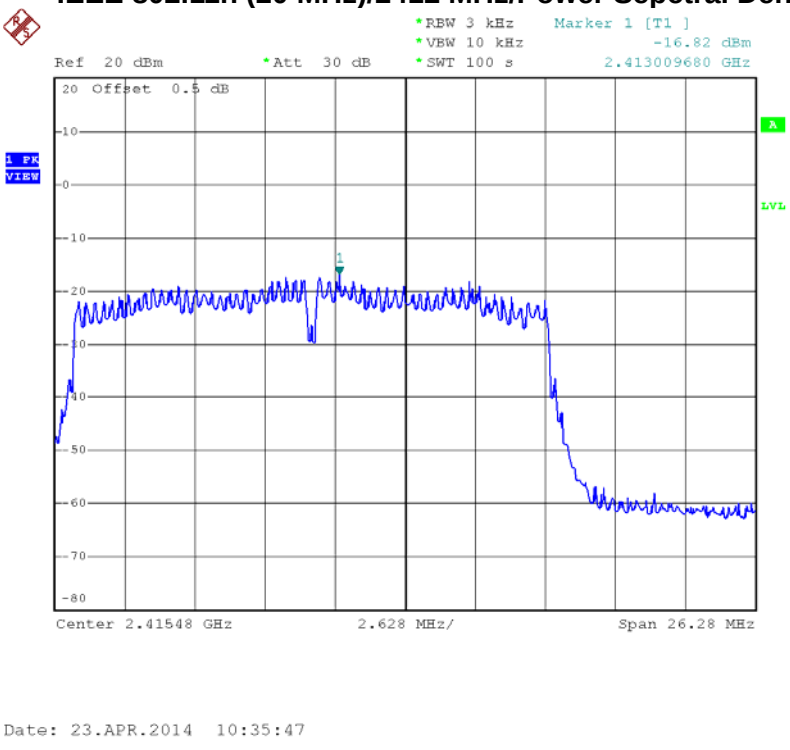


Date: 23.APR.2014 10:32:39

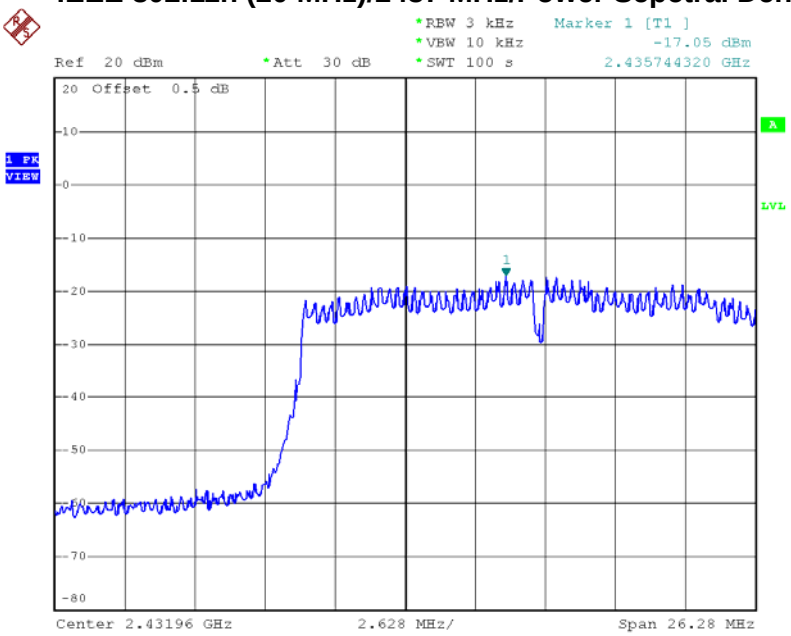
EUT	3D Printer	Model Name	da Vinci 2.1 Duo Plus
Temperature	26°C	Relative Humidity	60%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/2412 MHz, 2437 MHz, 2462 MHz		

Frequency	Power Density (dBm)	Limit (dBm)	Result
2412 MHz	-16.82	8	PASS
2437 MHz	-17.05	8	PASS
2462 MHz	-17.40	8	PASS

IEEE 802.11n (20 MHz)/2412 MHz/Power Sepctral Density

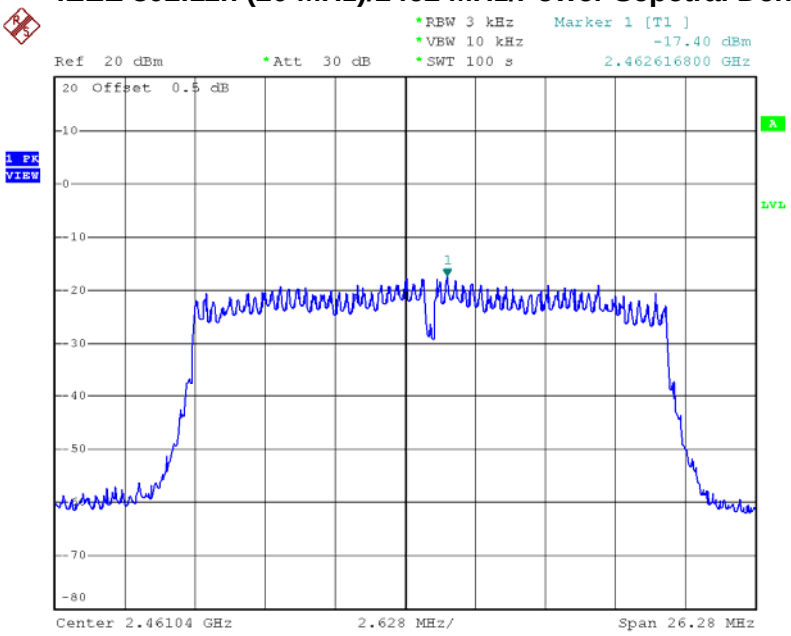


IEEE 802.11n (20 MHz)/2437 MHz/Power Sepctral Density



Date: 23.APR.2014 10:38:08

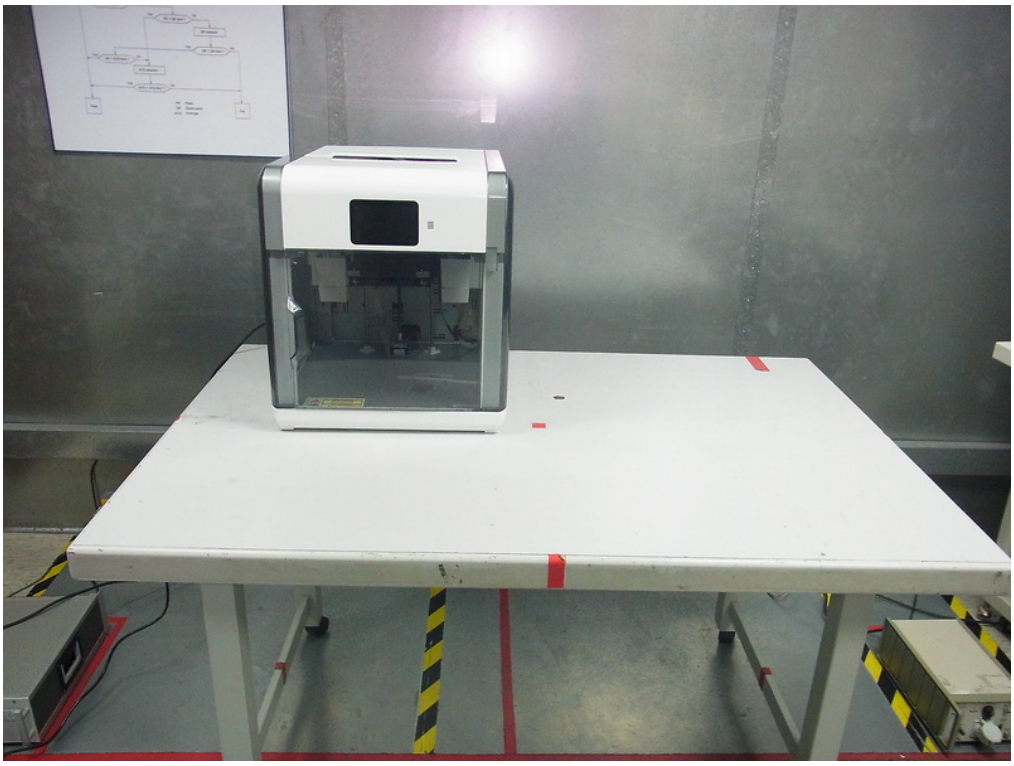
IEEE 802.11n (20 MHz)/2462 MHz/Power Sepctral Density



Date: 23.APR.2014 10:40:14

11 EUT TEST PHOTO

Conducted emission test photos



Radiated spurious emission test photos