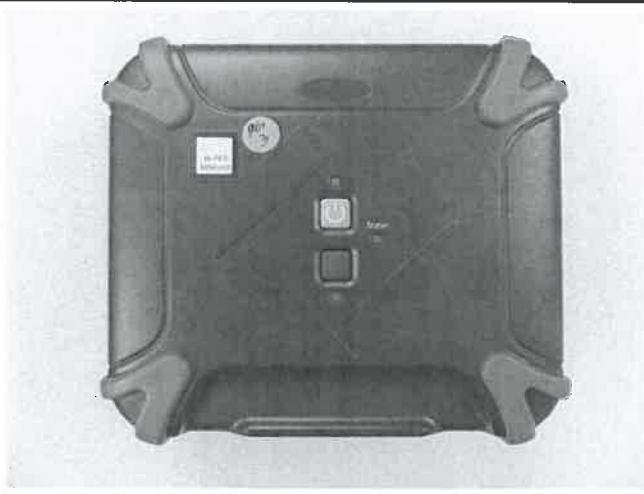




Prüfbericht-Nr.: <i>Test Report No.:</i>	17042741 003	Auftrags-Nr.: <i>Order No.:</i>	164020202	Seite 1 von 31 <i>Page 1 of 31</i>
Kunden-Referenz-Nr.: <i>Client Reference No.:</i>	N/A	Auftragsdatum: <i>Order date:</i>	21.08.2014	
Auftraggeber: <i>Client:</i>	JDSU Uniphase Corporation, 1100 Perimeter Park Drive, Suite 101, Morrisville, NC 27560			
Prüfgegenstand: <i>Test item:</i>	WiFi Advisor			
Bezeichnung / Typ-Nr.: <i>Identification / Type No.:</i>	WFED-300AC			
Auftrags-Inhalt: <i>Order content:</i>	FCC approval			
Prüfgrundlage: <i>Test specification:</i>	CFR47 FCC Part 15: Subpart C Section 15.407 CFR47 FCC Part 15: Subpart C Section 15.207 CFR47 FCC Part 15: Subpart C Section 15.209 CFR47 FCC Part 15: Subpart B Section 15.107 CFR47 FCC Part 15: Subpart B Section 15.109			
Wareneingangsdatum: <i>Date of receipt:</i>	18.09.2014			
Prüfmuster-Nr.: <i>Test sample No.:</i>	A000135548-001, A000135548-002			
Prüfzeitraum: <i>Testing period:</i>	20.09.2014 - 03.12.2014			
Ort der Prüfung: <i>Place of testing:</i>	Accurate Technology Co., Ltd.			
Prüflaboratorium: <i>Testing laboratory:</i>	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüfergebnis*: <i>Test result*:</i>	Pass			
geprüft von / tested by:		kontrolliert von / reviewed by:		
 Tom Wang / Assistant Project Manager		 Sam Lin / Senior Project Manager		
07.12.2014	Tom Wang / Assistant Project Manager	10.12.2014	Sam Lin / Senior Project Manager	
Datum	Name / Stellung	Datum	Name / Stellung	Unterschrift
<i>Date</i>	<i>Name / Position</i>	<i>Date</i>	<i>Name / Position</i>	<i>Signature</i>
Sonstiges / Other:				
This report is for NII equipment class.				
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i>		Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged</i>		
* Legende: 1 = sehr gut 2 = gut 3 = befriedigend 4 = ausreichend 5 = mangelhaft P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T = nicht getestet				
Legend: 1 = very good 2 = good 3 = satisfactory 4 = sufficient 5 = poor P(ass) = passed a.m. test specification(s) F(ail) = failed a.m. test specification(s) N/A = not applicable N/T = not tested				
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i>				

TEST SUMMARY

5.1.1 DIRECTIONAL GAIN CALCULATION

RESULT: *Passed*

5.1.2 DUTY CYCLE

RESULT: *Passed*

5.1.3 MAXIMUM CONDUCTED OUTPUT POWER

RESULT: *Passed*

5.1.4 26dB BANDWIDTH, 6dB BANDWIDTH AND 99% BANDWIDTH

RESULT: *Passed*

5.1.5 POWER SPECTRAL DENSITY

RESULT: *Passed*

5.1.6 UNWANTED EMISSION

RESULT: *Passed*

5.1.7 RADIATED EMISSIONS

RESULT: *Passed*

5.1.8 CONDUCTED EMISSIONS

RESULT: *Passed*

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1. General Remarks

1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix A: Test Results of Maximum Conducted Output Power, Power Spectral Density and Bandwidth for U-NII-1 band

Appendix B: Test Results of Unwanted Emissions for U-NII-1 band

Appendix C: Test Results of Maximum Conducted Output Power, Power Spectral Density and Bandwidth for U-NII-3 band

Appendix D: Test Results of Unwanted Emissions for U-NII-3 band

Appendix E: Test Results of Radiated Emissions and Conducted Emissions

2. Test Sites

2.1 Test Facilities

Accurate Technology Co., Ltd.

(FCC Registration No.: 752051 & IC Registration Number: 5077A-2)

F1, Bldg A, Changyuan New Material Port, Keyuan Rd., Science & Industry Park,
Nanshan District, Shenzhen, 518057, P.R. China

The tests at the test site have been conducted under the supervision of a TÜV engineer.

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

Kind of Equipment	Manufacturer	Type	S/N	Calibrated until
Radio Spectrum Test				
Spectrum Analyzer	Rohde&Schwarz	FSV40	101495	Jan.11, 2015
Test Receiver	Rohde& Schwarz	ESR	101817	Jul. 30, 2015
Spectrum Analyzer	Rohde&Schwarz	FSP30	100220	Jan.21, 2015
Power Meter	Rohde&Schwarz	NRP	100970	Jan. 21.2015
Power Sensor	Rohde&Schwarz	NRP-Z11	103642	Jan. 21.2015
Conducted emissions				
Test Receiver	Rohde & Schwarz	ESCS30	100307	Jan.11, 2015
L.I.S.N.	Schwarzbeck	NLSK8126	8126431	Jan.11, 2015
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100305	Jan.11, 2015
Radiated emissions				
Spectrum Analyzer	Rohde&Schwarz	FSV40	101495	Jan.11, 2015
Test Receiver	Rohde& Schwarz	ESR	101817	Jul. 30, 2015
EMI Receiver	Rohde& Schwarz	ESU40	SB8501/09	May. 14, 2015
Bilog Antenna	Schwarzbeck	VULB9163	9163-194	Jan.15, 2015
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	Jan.15, 2015
Horn Antenna	Schwarzbeck	BBHA9170	9170-359	Jan.11, 2015
Horn Antenna	Rohde& Schwarz	3160-10	SB8501/12	Aug. 15, 2015
RF Switching Unit+PreAMP	Compliance Direction	RSU-M2	38322	Jan.11, 2015
Pre-Amplifier	Agilent	8447D	294A10619	Jan.11, 2015
Pre-Amplifier	Rohde&Schwarz	CBLU1183540-01	3791	Jan.11, 2015

2.3 Traceability

All measurement equipment calibrations are traceable to NIST or where calibration is performed outside the United States, to equivalent nationally recognized standards organizations.

2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

2.5 Measurement Uncertainty

The estimated combined standard uncertainty for radiated emissions and conducted emissions measurements as below table,

Items		Extended Uncertainty
CE	Disturbance Voltage (dBuV)	U=1.94dB, k=2, σ =95%
RE (9kHz-30MHz)	Field strength (dBuV/m)	U=3.08dB, k=2, σ =95%
RE (30-1000MHz)	Field strength (dBuV/m)	U=4.42dB, k=2, σ =95%
RE (above 1000MHz)	Field strength (dBuV/m)	U=4.06dB, k=2, σ =95%

2.6 Location of Original Data

The original copies of all test data taken during actual testing were attached at Appendix 1 of this report and delivered to the applicant. A copy has been retained in the TÜV Rheinland (Shenzhen) file for certification follow-up purposes.

2.7 Status of Facility Used for Testing

The Accurate Technology Co., Ltd. facility located at F1, Bldg A, Changyuan New Material Port, Keyuan Rd., Science & Industry Park, Nanshan District, Shenzhen, 518057, P.R. China is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

3. General Product Information

3.1 Product Function and Intended Use

The EUT is Wireless LAN Analyzer provides a complete, multi-dimensional map of real WiFi performance, highlighting margining and resiliency of WiFi connections at multiple locations within a site. It includes intuitive tools to quickly optimize and troubleshoot the in-home WiFi network. It provides valuable performance information to the end-user to help reduce unnecessary trouble calls and repeats.

For details refer to the User Manual, Technical Description and Circuit Diagram.

3.2 Ratings and System Details

Table 2: Technical Specification of EUT

Technical Specification	Value
Kind of Equipment:	WiFi Advisor
Type Designation:	WFED-300AC
FCC ID:	WUW22073946
IC:	9613A-22073946
Type of Equipment:	Class A digital equipment
Equipment Class:	NII
Wireless Technology:	Wi-Fi
Operating Frequency Range:	U-NII-1 Band: 5180-5240 MHz U-NII-3 Band: 5745-5825 MHz
Channel Number:	U-NII-1 Band: 4 channels for 20MHz bandwidth 2 channels for 40MHz bandwidth 1 channel for 80MHz bandwidth U-NII-3 Band: 5 channels for 20MHz bandwidth 2 channels for 40MHz bandwidth 1 channel for 80MHz bandwidth
Channel Separation:	20MHz
Type of Modulation:	OFDM for Wi-Fi 802.11a/n/ac
Operating Voltage:	DC 12V via marketed AC/DC adapter DC 7.2V via Lithium-ion battery

Operating Temperature Range:	0°C to 40°C
Antenna Type:	PCB Antenna for WiFi
Smart Antenna Systems:	Applicable, 3x3 MIMO for Wi-Fi operation
Number of Antenna:	3 for Wi-Fi
Antenna Gain:	Max. 5.0 dBi for Wi-Fi Antenna 1 Max. 2.6 dBi for Wi-Fi Antenna 2 Max. 4.2 dBi for Wi-Fi Antenna 3

Table 3: Marketed AC/DC adapter

Description	Manufacturer	Model	S/N	Rating
AC/DC adapter	Universal Microelectronics	UP0351E-12P	C0192215468LG	Input: AC 100-240V, 50/60Hz, 0.8A MAX. Output: DC 12V, 3.0A

Table 4: List of Radio Frequency Channel, Wi-Fi 802.11 a/n/ac 20MHz bandwidth

U-NII-1 Band					
RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
36	5180.00	40	5200.00	44	5220.00
48	5240.00	--	--	--	--
U-NII-3 Band					
RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
149	5745.00	153	5765.00	157	5785.00
161	5805.00	165	5825.00	--	--

Table 5: List of Radio Frequency Channel, Wi-Fi 802.11 n/ac 40MHz bandwidth

U-NII-1 Band					
RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
38	5190.00	46	5230.00	--	--
U-NII-3 Band					
RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
151	5755.00	159	5795.00	--	--

Table 6: List of Radio Frequency Channel, Wi-Fi 802.11 ac 80MHz bandwidth

U-NII-1 Band					
RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
42	5210.00	--	--	--	--
U-NII-3 Band					
RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
155	5775.00	--	--	--	--

3.3 Independent Operation Modes

The basic operation modes are:

- A. Transmitting
 - 1. Wi-Fi function
 - a. Low Channel
 - b. Mid Channel
 - c. High Channel
- B. Receiving
- C. Standby
- D. Battery Charging
- E. Off

Table 7: List of Wi-Fi operation modes

Mode	Non-Beamforming									Beamforming					
	Single			Two			Three			Two			Three		
Antenna	20	40	80	20	40	80	20	40	80	20	40	80	20	40	80
802.11a	√	x	x	√	x	x	√	x	x	x	x	x	x	x	x
802.11n	√	√	x	√	√	x	√	√	x	√	√	x	√	√	x
802.11ac	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√

Note:

1. The EUT support HT20 and HT40.
2. The EUT support VHT20, VHT40 and VHT80.
3. 802.11n support MCS0 ~ MCS23 data rates.
4. 802.11ac support MCS0NSS1 ~ MCS9NSS3 data rates.
5. The EUT supports Access Poine and Station modes.

3.4 Noise Generating and Noise Suppressing Parts

Refer to the Circuit Diagram.

3.5 Submitted Documents

- Bill of Material	- Circuit Diagram
- PCB Layout	- Instruction Manual
- Photo Document	- Rating Label

4. Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

Radio Spectrum: The equipment under test (EUT) was configured at its highest power output in order to measure its highest possible radiation and conducted level. The test modes were adapted accordingly in reference to the instructions for use.

Emission: The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the instructions for use.

4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5.

Test software 'Tera Term' provided by the applicant was used to control the operating channels as well as output power for Wi-Fi operation.

Table 8: List of Frequencies under Test, Wi-Fi operation

Operation Band	RF Channel of 802.11a, 802.11n HT20 and 802.11ac VHT20		802.11n HT40 and 802.11ac VHT40		802.11ac VHT80	
	Channel number	Frequency (MHz)	Channel number	Frequency (MHz)	Channel number	Frequency (MHz)
U-NII-1	36	5180.00	38	5190.00	42	5210.00
	40	5200.00	46	5230.00	--	--
	44	5220.00	--	--	--	--
	48	5240.00	--	--	--	--
U-NII-3	149	5745.00	151	5755.00	155	5775.00
	157	5785.00	159	5795.00	--	--
	165	5825.00	--	--	--	--

Table 9: List of Operation mode under Test, Wi-Fi operation

Configuration	Data Rates	Transmit Chain
Transmit Chain - 1TX_Non-Beamforming		
802.11a	6Mbps	ANT 1
802.11n HT20	MCS0	ANT 1
802.11n HT40	MCS0	ANT 1
802.11ac VHT20	MCS0NSS1	ANT 1
802.11ac VHT40	MCS0NSS1	ANT 1
802.11ac VHT80	MCS0NSS1	ANT 1
Transmit Chain - 2TX_Non-Beamforming		
802.11a	6Mbps	ANT 1+ANT 3
802.11n HT20	MCS8	ANT 1+ANT 3
802.11n HT40	MCS8	ANT 1+ANT 3
802.11ac VHT20	MCS0NSS2	ANT 1+ANT 3
802.11ac VHT40	MCS0NSS2	ANT 1+ANT 3
802.11ac VHT80	MCS0NSS2	ANT 1+ANT 3
Transmit Chain - 3TX_Non-Beamforming		
802.11a	6Mbps	ANT 1+ANT 2+ANT 3
802.11n HT20	MCS16	ANT 1+ANT 2+ANT 3
802.11n HT40	MCS16	ANT 1+ANT 2+ANT 3
802.11ac VHT20	MCS0NSS3	ANT 1+ANT 2+ANT 3
802.11ac VHT40	MCS0NSS3	ANT 1+ANT 2+ANT 3
802.11ac VHT80	MCS0NSS3	ANT 1+ANT 2+ANT 3
Transmit Chain - 2TX_Beamforming		
802.11n HT20	MCS8	ANT 1+ANT 3
802.11n HT40	MCS8	ANT 1+ANT 3
802.11ac VHT20	MCS0NSS2	ANT 1+ANT 3
802.11ac VHT40	MCS0NSS2	ANT 1+ANT 3
802.11ac VHT80	MCS0NSS2	ANT 1+ANT 3
Transmit Chain - 3TX_Beamforming		
802.11n HT20	MCS16	ANT 1+ANT 2+ANT 3
802.11n HT40	MCS16	ANT 1+ANT 2+ANT 3
802.11ac VHT20	MCS0NSS3	ANT 1+ANT 2+ANT 3
802.11ac VHT40	MCS0NSS3	ANT 1+ANT 2+ANT 3
802.11ac VHT80	MCS0NSS3	ANT 1+ANT 2+ANT 3

Note:

Preliminary tests were performed in different data rate and antenna chain to find the worst case. The data rate and antenna chain shown in the table is the worst case.

Table 10: Power level setting of U-NII-1 band in test software - AP mode

Power Level Setting in Test Software - Non Beamforming									
Configuration	802.11a			802.11n HT20			802.11ac VHT20		
Transmit Chain	1TX	2TX	3TX	1TX	2TX	3TX	1TX	2TX	3TX
Channel 36	70	70	70	70	70	70	70	70	70
Channel 40	70	70	70	70	70	70	70	70	70
Channel 44	70	70	70	70	70	70	70	70	70
Channel 48	70	70	70	70	70	70	70	70	70
Configuration	802.11n HT40			802.11ac VHT40			<i>Not applicable</i>		
Transmit Chain	1TX	2TX	3TX	1TX	2TX	3TX			
Channel 38	56	52	48	56	52	48			
Channel 46	56	52	48	56	52	48			
Configuration	802.11n VHT80			<i>Not applicable</i>					
Transmit Chain	1TX	2TX	3TX						
Channel 42	48	36	36						
Power Level Setting in Test Software - Beamforming									
Configuration	802.11n HT20			802.11ac VHT20			<i>Not applicable</i>		
Transmit Chain	1TX	2TX	1TX	2TX	1TX	2TX			
Channel 36	70	70	70	70	70	70			
Channel 40	70	70	70	70	70	70			
Channel 44	70	70	70	70	70	70			
Channel 48	70	70	70	70	70	70			
Configuration	802.11n HT40			802.11ac VHT40			<i>Not applicable</i>		
Transmit Chain	1TX	2TX	3TX	1TX	2TX	3TX			
Channel 38	56	52	48	56	52	48			
Channel 46	56	52	48	56	52	48			
Configuration	802.11n VHT80			<i>Not applicable</i>					
Transmit Chain	1TX	2TX	3TX						
Channel 42	48	36	36						

Table 11: Power level setting of U-NII-1 band in test software - Station mode

Power Level Setting in Test Software - Non Beamforming												
Configuration	802.11a			802.11n HT20			802.11ac VHT20					
Transmit Chain	1TX	2TX	3TX	1TX	2TX	3TX	1TX	2TX	3TX			
Channel 36	70	60	48	70	60	48	70	60	48			
Channel 40	70	60	48	70	60	48	70	60	48			
Channel 44	70	60	48	70	60	48	70	60	48			
Channel 48	70	60	48	70	60	48	70	60	48			
Configuration	802.11n HT40			802.11ac VHT40			<i>Not applicable</i>					
Transmit Chain	1TX	2TX	3TX	1TX	2TX	3TX						
Channel 38	56	52	48	56	52	48						
Channel 46	56	52	48	56	52	48	<i>Not applicable</i>					
Configuration	802.11n VHT80			<i>Not applicable</i>								
Transmit Chain	1TX	2TX	3TX									
Channel 42	48	36	36	<i>Not applicable</i>								
Configuration	802.11n HT20									802.11ac VHT20			Not applicable
Transmit Chain	1TX	2TX	1TX	2TX	1TX	2TX						
Channel 36	70	60	48	70	60	48						
Channel 40	70	60	48	70	60	48						
Channel 44	70	60	48	70	60	48						
Channel 48	70	60	48	70	60	48						
Configuration	802.11n HT40			802.11ac VHT40			<i>Not applicable</i>					
Transmit Chain	1TX	2TX	3TX	1TX	2TX	3TX						
Channel 38	56	52	48	56	52	48						
Channel 46	56	52	48	56	52	48	<i>Not applicable</i>					
Configuration	802.11n VHT80			<i>Not applicable</i>								
Transmit Chain	1TX	2TX	3TX									
Channel 42	48	36	36	<i>Not applicable</i>								

Table 12: Power level setting of U-NII-3 band in test software - AP and Station mode

Power Level Setting in Test Software - Non Beamforming									
Configuration	802.11a			802.11n HT20			802.11ac VHT20		
Transmit Chain	1TX	2TX	3TX	1TX	2TX	3TX	1TX	2TX	3TX
Channel 149	64	64	64	64	64	64	64	64	64
Channel 157	64	64	64	64	64	64	64	64	64
Channel 165	64	64	64	64	64	64	64	64	64
Configuration	802.11n HT40			802.11ac VHT40			<i>Not applicable</i>		
Transmit Chain	1TX	2TX	3TX	1TX	2TX	3TX			
Channel 151	64	64	64	64	64	64			
Channel 159	64	64	64	64	64	64	<i>Not applicable</i>		
Configuration	802.11n VHT80			<i>Not applicable</i>					
Transmit Chain	1TX	2TX	3TX						
Channel 155	48	40	40						
Power Level Setting in Test Software - Beamforming									
Configuration	802.11n HT20			802.11ac VHT20			<i>Not applicable</i>		
Transmit Chain	1TX	2TX	1TX	2TX	1TX	2TX			
Channel 149	64	64	64	64	64	64			
Channel 157	64	64	64	64	64	64			
Channel 165	64	64	64	64	64	64			
Configuration	802.11n HT40			802.11ac VHT40					
Transmit Chain	1TX	2TX	3TX	1TX	2TX	3TX			
Channel 151	64	64	64	64	64	64			
Channel 159	64	64	64	64	64	64			
Configuration	802.11n VHT80			<i>Not applicable</i>					
Transmit Chain	1TX	2TX	3TX						
Channel 155	48	40	40						

4.3 Special Accessories and Auxiliary Equipment

Table 13: List of Accessories and Auxiliary Equipment

Description	Manufacturer	Model	S/N	Rating
Laptop PC	Lenovo	X200	L3-ANW2G	--

4.4 Countermeasures to achieve EMC Compliance

The test sample which has been tested contained the noise suppression parts as described in the Constructional Data Form or the Technical Construction File. No additional measures were employed to achieve compliance.

4.5 Test Setup Diagram

Diagram of Measurement Configuration for Radiation Test

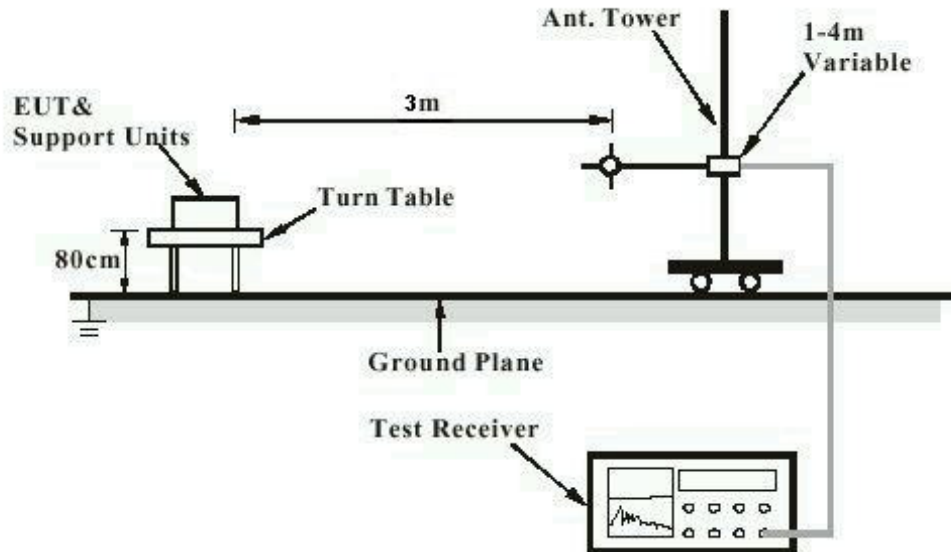


Diagram of Measurement Equipment Configuration for Conduction Measurement

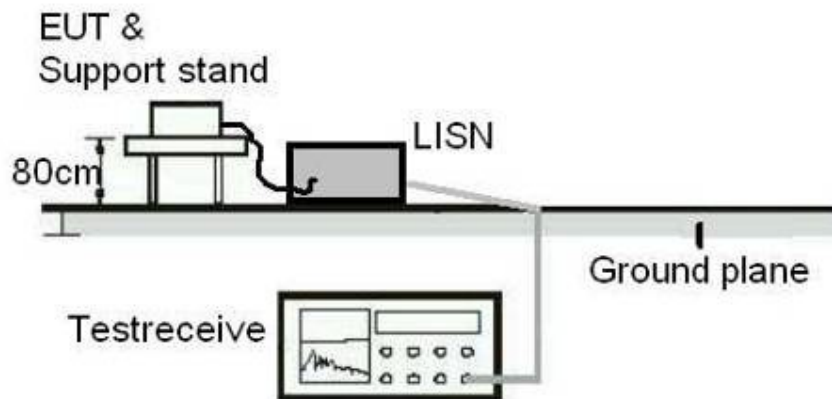
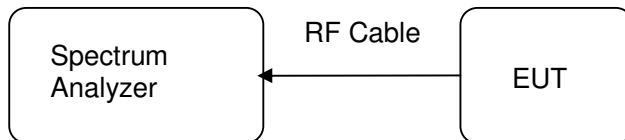


Diagram of Measurement Equipment Configuration for Transmitter Measurement



5. Test Results

5.1 Transmitter Requirement & Test Suites

5.1.1 Directional Gain Calculation

RESULT:
Passed

Date of testing : 2014-09-20 to 2014-12-03
 Test standard : KDB 662911 D01 v02r01

According to the manufacturer declared, the EUT has an internal antenna, the directional gain of antenna is 5.0dBi, 2.6dBi and 4.2dBi for each antenna for WiFi, and the antenna connector is designed with permanent attachment and no consideration of replacement. Refer to EUT photo for details.

Total directional gain calculation:

The three antenna gains are different for Wi-Fi operation, the gains are unequal antenna gains and the EUT supports CDD and beamforming mode. Refer to KDB 662911 Multiple Transmitter Output, following is total directional gain for Wi-Fi operation.

TX Mode		Antenna Number_N _{ANT}	Antenna Gain (dBi)			Max. Total Directional Gain (dB)	Max. Total Directional Gain_CDD (dB)	Max. Total Directional Gain_BF (dB)
			Ant 1	Ant 2	Ant 3			
802.11a	MIMO	2	5.0	2.6	4.2	7.6	8.0	--
802.11a	MIMO	3	5.0	2.6	4.2	8.8	9.8	--
802.11n	MIMO	2	5.0	2.6	4.2	7.6	8.0	8.0
802.11n	MIMO	3	5.0	2.6	4.2	8.8	9.8	9.8
802.11ac	MIMO	2	5.0	2.6	4.2	7.6	8.0	8.0
802.11ac	MIMO	3	5.0	2.6	4.2	8.8	9.8	9.8

5.1.2 Duty Cycle

RESULT:
Passed

Date of testing : 2014-09-20 to 2014-12-03
 Test standard : FCC Part 15.407
 Basic standard : ANSI C63.4: 2009
 : KDB 789033 D02 v01
 Kind of test site : Shielded room

Test setup

Test Channel : One channel for all data rates
 Operation Mode : A.1
 Ambient temperature : 22°C
 Relative humidity : 51%
 Atmospheric pressure : 101.0 kPa

Table 14: Test result of Duty Cycle

Mode	Data rate Mbps	T _{on} (us)	T _{Total} (us)	Duty Cycle	Duty Cycle Factor
802.11a	6	52.00	66.00	0.79	1.02
802.11an HT20	MCS0	52.20	66.40	0.79	1.02
	MCS8	52.20	66.80	0.78	1.08
	MCS16	52.00	66.40	0.78	1.08
802.11an HT40	MCS0	52.20	67.00	0.78	1.08
	MCS8	51.20	66.70	0.77	1.14
	MCS16	51.00	66.00	0.77	1.14
802.11ac VHT20	MCS0NSS1	52.00	66.00	0.79	1.02
	MCS0NSS2	52.40	66.40	0.79	1.02
	MCS0NSS3	51.20	66.80	0.77	1.14
802.11ac VHT40	MCS0NSS1	52.00	66.00	0.79	1.02
	MCS0NSS2	51.81	66.00	0.79	1.02
	MCS0NSS3	51.20	66.00	0.78	1.08
802.11ac VHT80	MCS0NSS1	52.00	66.20	0.79	1.02
	MCS0NSS2	52.00	66.40	0.78	1.08
	MCS0NSS3	51.20	66.00	0.78	1.08

5.1.3 Maximum Conducted Output Power

RESULT:
Passed

Date of testing : 2014-09-20 to 2014-12-03
 Test standard : FCC Part 15.407(a)
 Basic standard : ANSI C63.4: 2009
 : KDB 789033 D02 v01
 Limit : 1Watt (30dBm) for AP
 : 250mW (24dBm) for mobile and portable client device
 Kind of test site : Shielded room

Test setup

Test Channel : CH36, CH40, CH44, CH48, CH149, CH157, CH165 for 20MHz
 : CH38, CH46, CH151, CH159 for 40MHz
 : CH42, CH155 for 80MHz
 Operation Mode : A.1
 Ambient temperature : 22°C
 Relative humidity : 51%
 Atmospheric pressure : 101.0 kPa

Table 15: Limit Calculation for Maximum Conducted Output Power

Band	Configuration	Antenna Number (N _{ANT})	Power Limit P _{Limit} (dBm)	Directional Gain G _{TX} (dBi)	Output Power Limit P _{out} (dBm)
U-NII-1	AP	2	30	8.0	28
		3	30	9.8	26.2
	Station	2	24	8.0	22
		3	34	9.8	20.2
U-NII-3	AP and Station	2	30	8.0	28
		3	30	9.8	26.2

Note:

1. Calculation formula is $P_{out} = P_{Limit} - (G_{TX} - 6)$
2. The worse case directional gain for compliance with all emission limits.

Refer to attached Appendix A and Appendix C for details of test results.

38	5190	39.62	36.93	Pass
46	5230	39.80	36.93	Pass
802.11ac VHT80				
42	5210	82.39	76.24	Pass

Table 17: Test result of 6dB Bandwidth and 99% Bandwidth for U-NII-3 band

Channel	Channel Frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Result
802.11a				
149	5745	16.19	16.63	Pass
157	5785	16.19	16.63	Pass
165	5825	16.19	16.63	Pass
802.11n HT20				
149	5745	16.37	16.63	Pass
157	5785	16.37	16.63	Pass
165	5825	16.37	16.63	Pass
802.11n HT40				
151	5755	36.47	36.70	Pass
159	5795	36.50	36.70	Pass
802.11ac VHT20				
149	5745	16.37	16.45	Pass
157	5785	16.37	16.50	Pass
165	5825	16.37	16.50	Pass
802.11ac VHT40				
151	5755	36.49	36.70	Pass
159	5795	36.50	36.70	Pass
802.11ac VHT80				
155	5775	76.27	76.41	Pass

Refer to attached Appendix A and Appendix C for details of test results.

5.1.5 Power Spectral Density

RESULT:
Passed

Date of testing : 2014-09-20 to 2014-12-03
 Test standard : FCC part 15.407(a)
 Basic standard : ANSI C63.4: 2009
 : KDB 789033 D02 v01
 Limit : 17dBm/MHz for U-NII-1 AP mode
 : 11dBm/MHz for U-NII-1 Station mode
 : 30dBm/500kHz for U-NII-3
 Kind of test site : Shield room

Test setup

Test Channel : CH36, CH40, CH44, CH48, CH149, CH157, CH165 for 20MHz
 : CH38, CH46, CH151, CH159 for 40MHz
 : CH42, CH155 for 80MHz
 Operation mode : A.1
 Ambient temperature : 23°C
 Relative humidity : 48%
 Atmospheric pressure : 101kPa

Table 18: Limit Calculation for Power Spectral Density

Band	Configuration	Antenna Number (N _{ANT})	PSD Limit PSD _{Limit}	Directional Gain G _{TX} (dBi)	Output PSD Limit PSD _{out}
U-NII-1	AP	2	17dBm/MHz	8.0	15dBm/MHz
		3	17dBm/MHz	9.8	13.2dBm/MHz
	Station	2	11dBm/MHz	8.0	9dBm/MHz
		3	11dBm/MHz	9.8	7.2dBm/MHz
U-NII-3	AP and Station	2	30dBm/500kHz	8.0	28dBm/500kHz
		3	30dBm/500kHz	9.8	26.2dBm/500kHz

Note:

1. Calculation formula is $P_{out} = P_{Limit} - (G_{TX} - 6)$
2. The worse case directional gain for compliance with all emission limits.

Refer to attached Appendix A and Appendix C for details of test results.

5.1.6 Unwanted Emission

RESULT:**Passed**

Date of testing	:	2014-09-20 to 2014-12-03
Test standard	:	FCC part 15.407(b) FCC part 15.209
Basic standard	:	ANSI C63.4: 2009 KDB 789033 D02 v01
Limits	:	-27dBm/MHz outside 5150-5250MHz -17dBm/MHz within 5715-5725MHz and 5850-5860MHz -27dBm/MHz outside 5715-5860MHz All emissions in the restricted bands must comply with FCC 15.209(a)
Kind of test site	:	3m Semi-Anechoic Chamber

Test setup

Test Channel	:	CH36, CH40, CH44, CH48, CH149, CH157, CH165 for 20MHz CH38, CH46, CH151, CH159 for 40MHz CH42, CH155 for 80MHz
Operation mode	:	A.1
Ambient temperature	:	23°C
Relative humidity	:	48%
Atmospheric pressure	:	101.0 kPa

Radiated measurement were performed, EIRP is converted to field strength as follow:

$$\text{EIRP(dBm)} = \text{E(dBuV/m)} - 95.2$$

For U-NII-1 band

$$\text{Outside 5150-5250MHz, } E_{\text{Limit}} = -27 + 95.2 = 68.2 \text{ dBuV/m}$$

For U-NII-3 band

$$\text{Within 5715-5725MHz and 5850-5860MHz, } E_{\text{Limit}} = -17 + 95.2 = 78.2 \text{ dBuV/m}$$

$$\text{Outside 5715-5860MHz: } E_{\text{Limit}} = -27 + 95.2 = 68.2 \text{ dBuV/m}$$

The general field strength limits set forth in FCC 15.209 is more strict than the specified in FCC 15.407(b), therefore the device can fulfill the FCC 15.209 requirements is not required to satisfy the -27dBm/MHz or -17dBm/MHz maximum emission limit.

Refer to attached Appendix B and Appendix D for details.

5.1.7 Radiated emissions

RESULT:**Passed**

Date of testing : 2014-09-20 to 2014-12-03
Test standard : FCC Part 15.109
Basic standard : ANSI C63.4: 2009
Frequency range : 30 – 6000MHz
Limits : FCC Part 15.109(a)
Kind of test site : 3m Semi-Anechoic Chamber

Test Setup

Input Voltage : DC 12V (via AC/DC adapter)
Operation Mode : A+D
Ambient temperature : 23°C
Relative humidity : 48%
Atmospheric pressure : 101.0 kPa

Refer to attached Appendix E for details.

5.1.8 Conducted emissions

RESULT:**Passed**

Date of testing : 2014-09-20 to 2014-12-03
Test standard : FCC Part 15.207
FCC Part 15.107
Basic standard : ANSI C63.4: 2009
Frequency range : 0.15MHz – 30MHz
Limits : FCC Part 15.207(a)
FCC Part 15.107(a)
Kind of test site : Shield Room

Test Setup

Input Voltage : DC 12V (via AC/DC adapter)
Operation Mode : A+D
Ambient temperature : 23°C
Relative humidity : 50%
Atmospheric pressure : 101.0 kPa

Refer to attached Appendix E for details.

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Appendix A

Test Results of Maximum Conducted Output Power, Power Spectral Density and Bandwidth for U-NII-1 band

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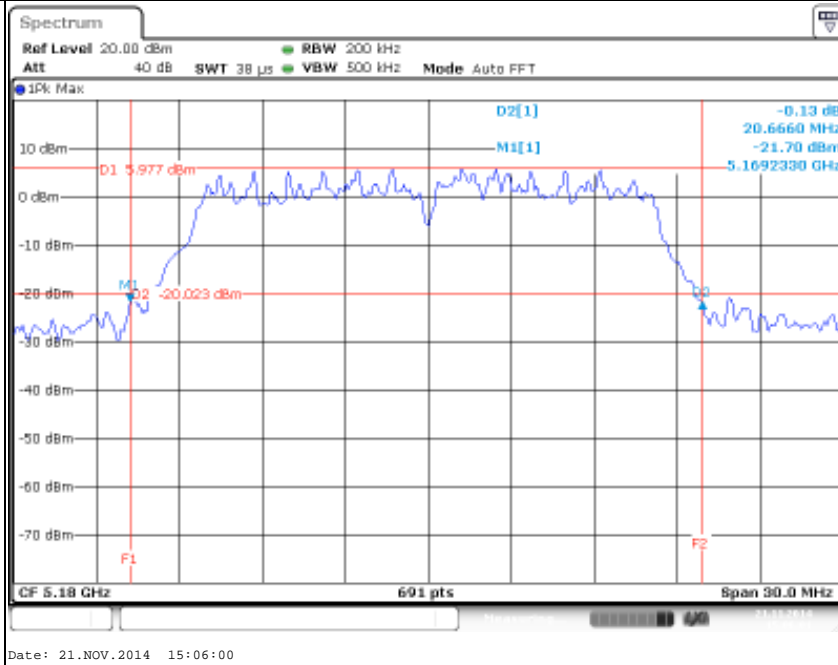
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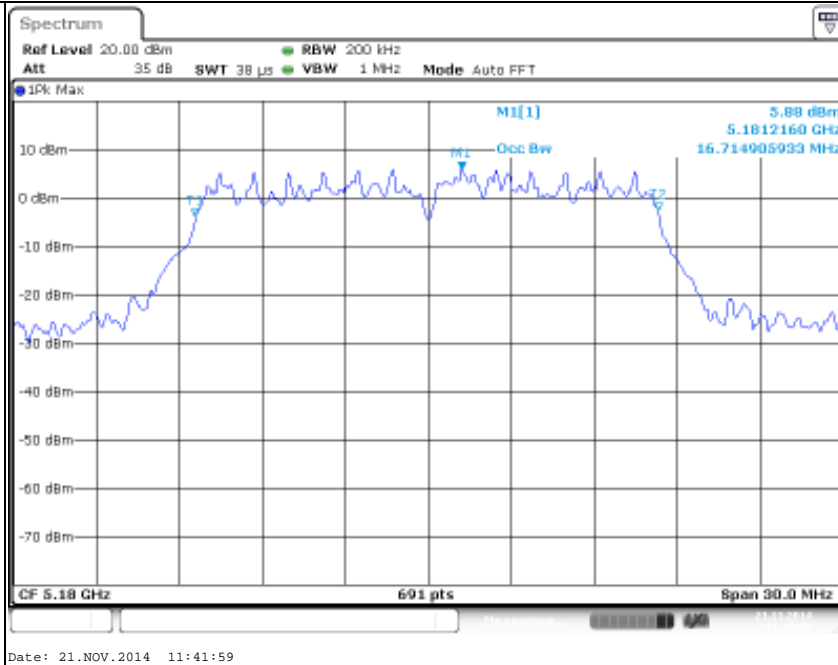
Appendix A.2: 26dB Bandwidth and 99% Bandwidth

802.11a

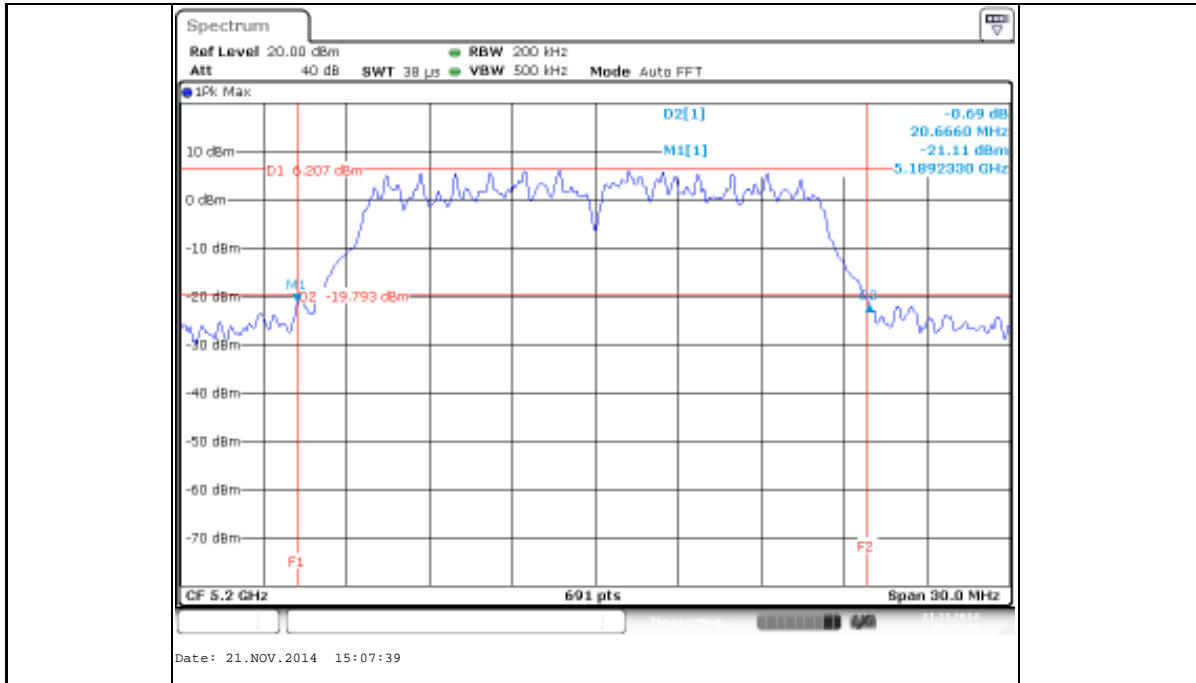
Channel 36, 26dB Bandwidth



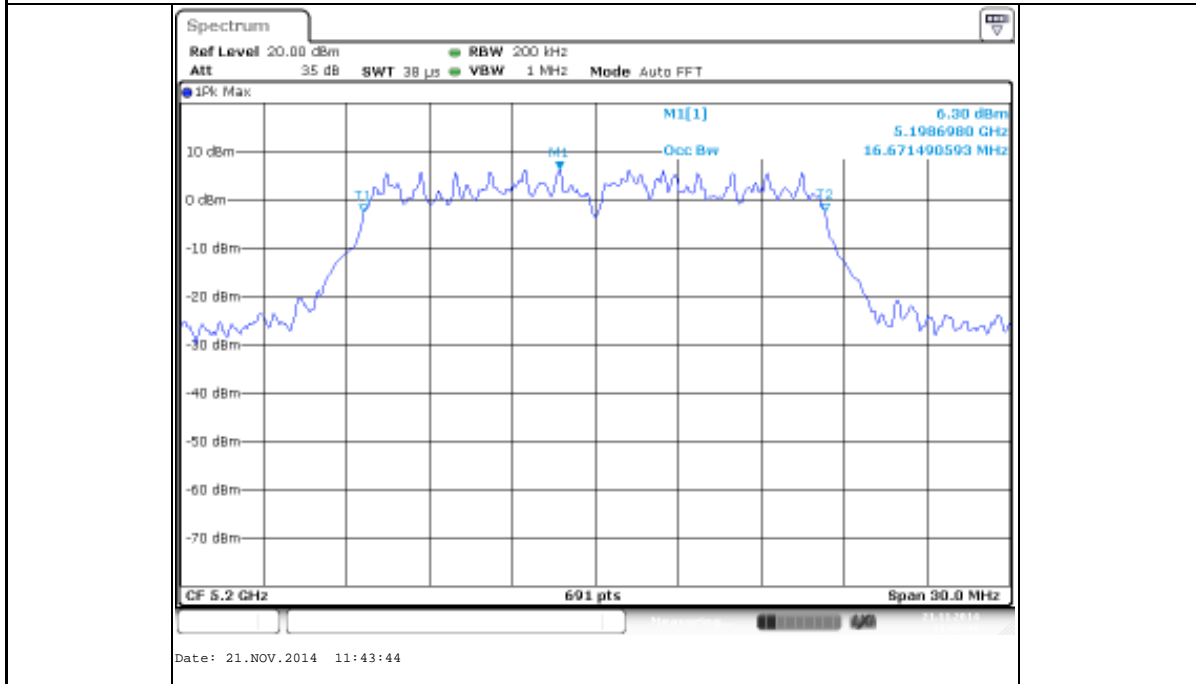
Channel 36, 99% Bandwidth



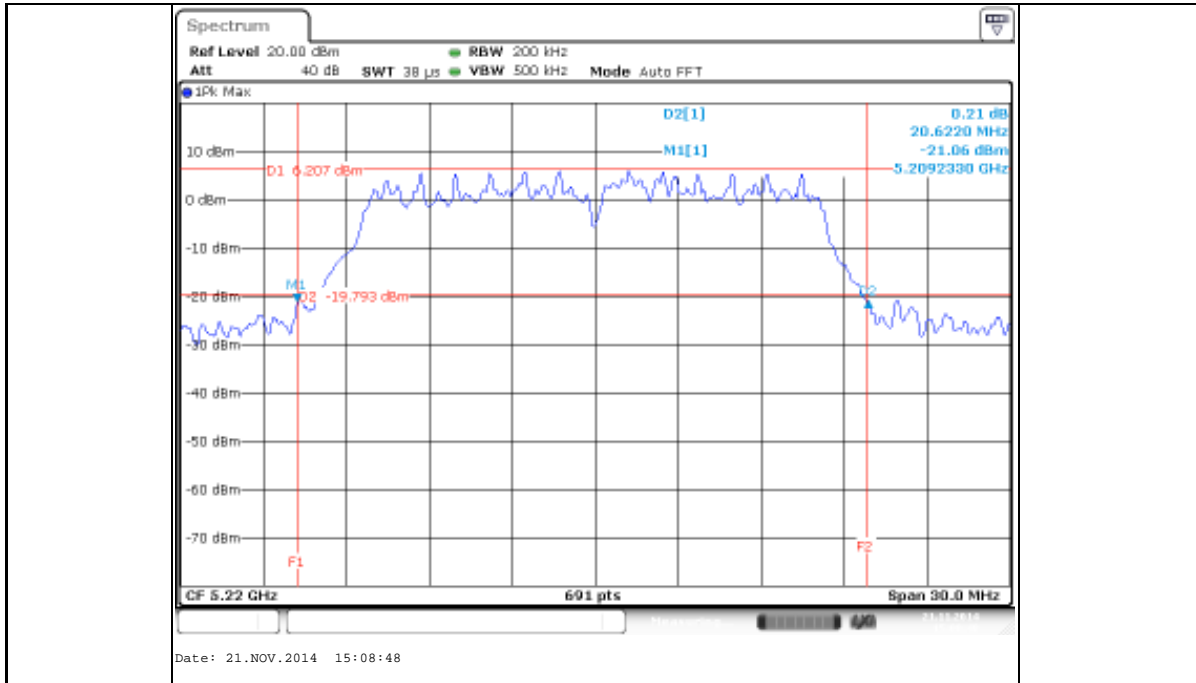
Channel 40, 26dB Bandwidth



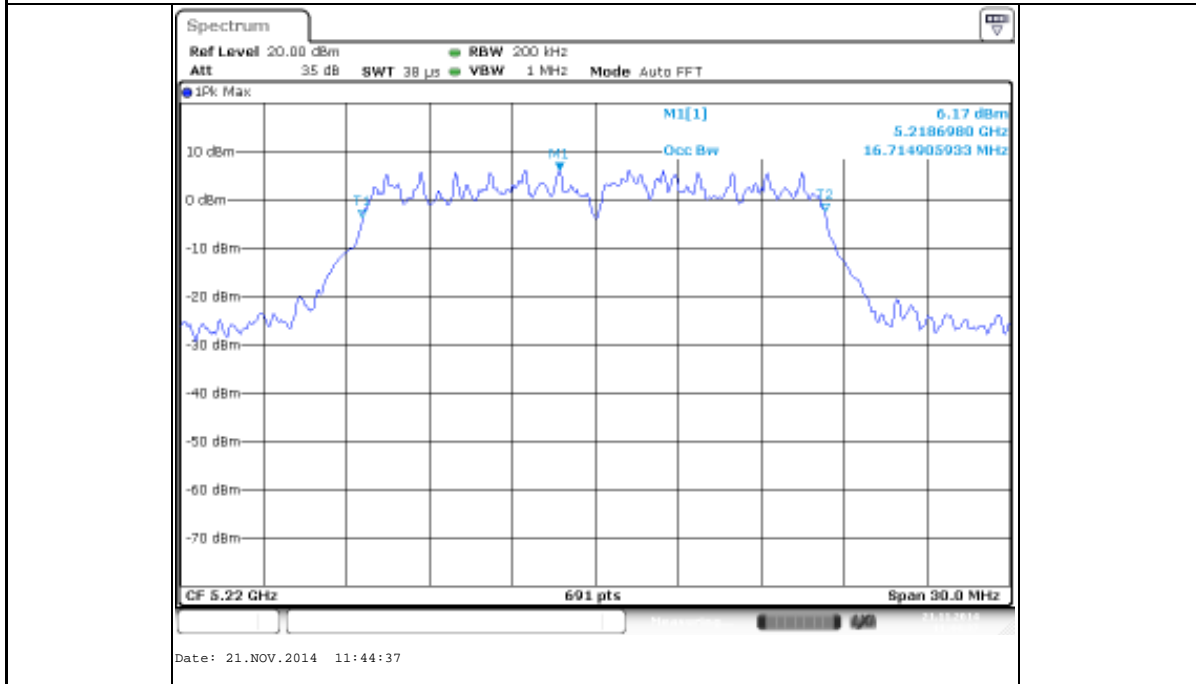
Channel 40, 99% Bandwidth



Channel 44, 26dB Bandwidth

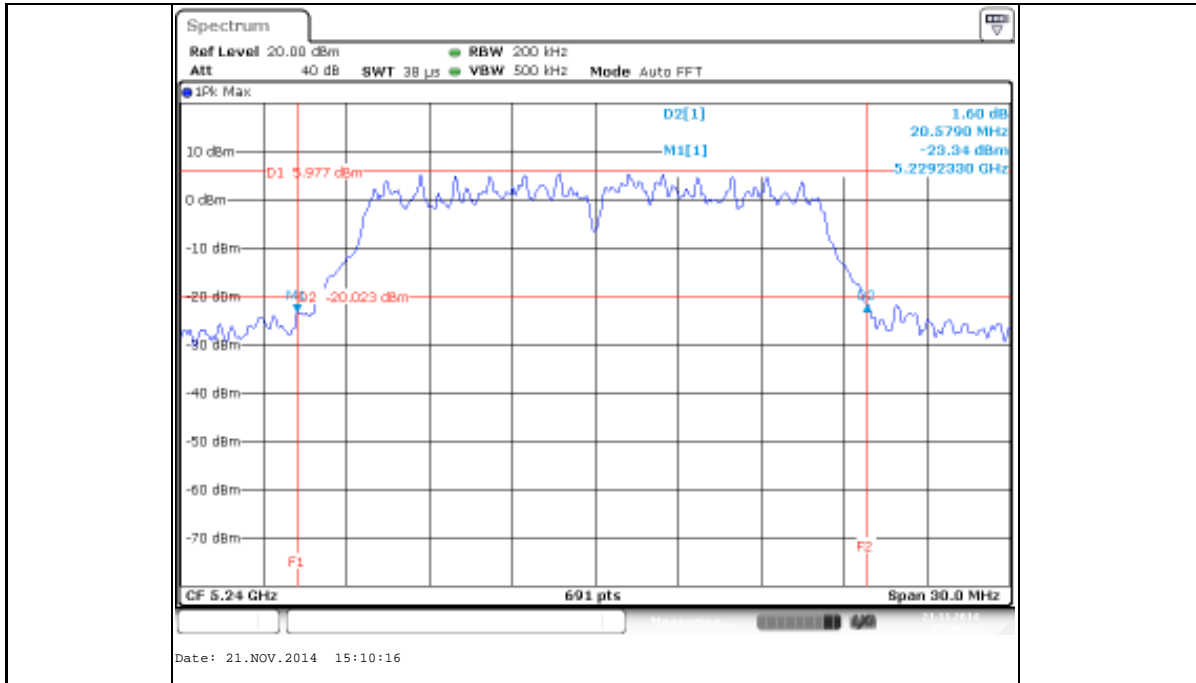


Channel 44, 99% Bandwidth

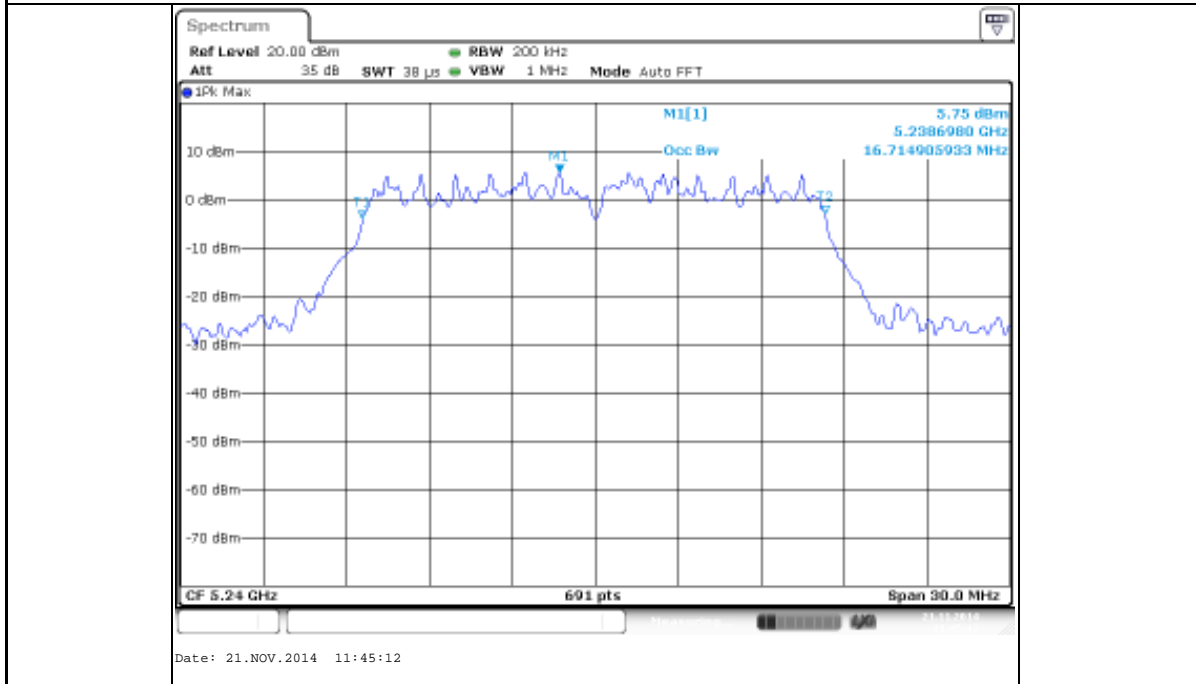


Channel 48, 26dB Bandwidth

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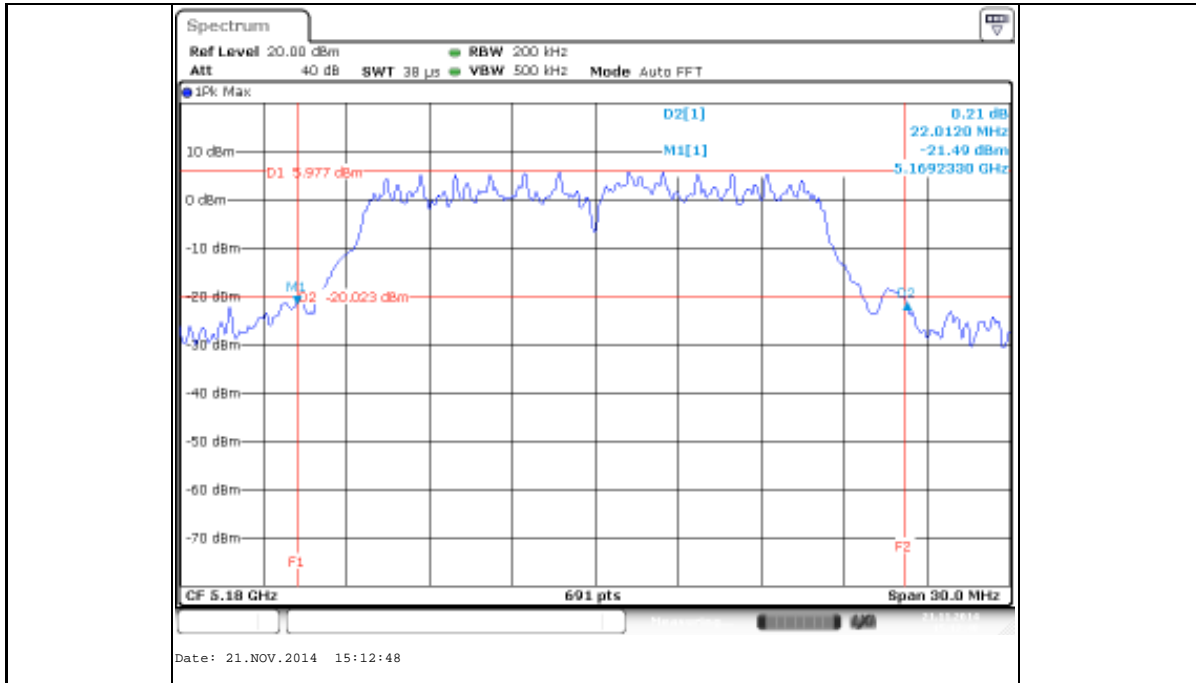


Channel 48, 99% Bandwidth

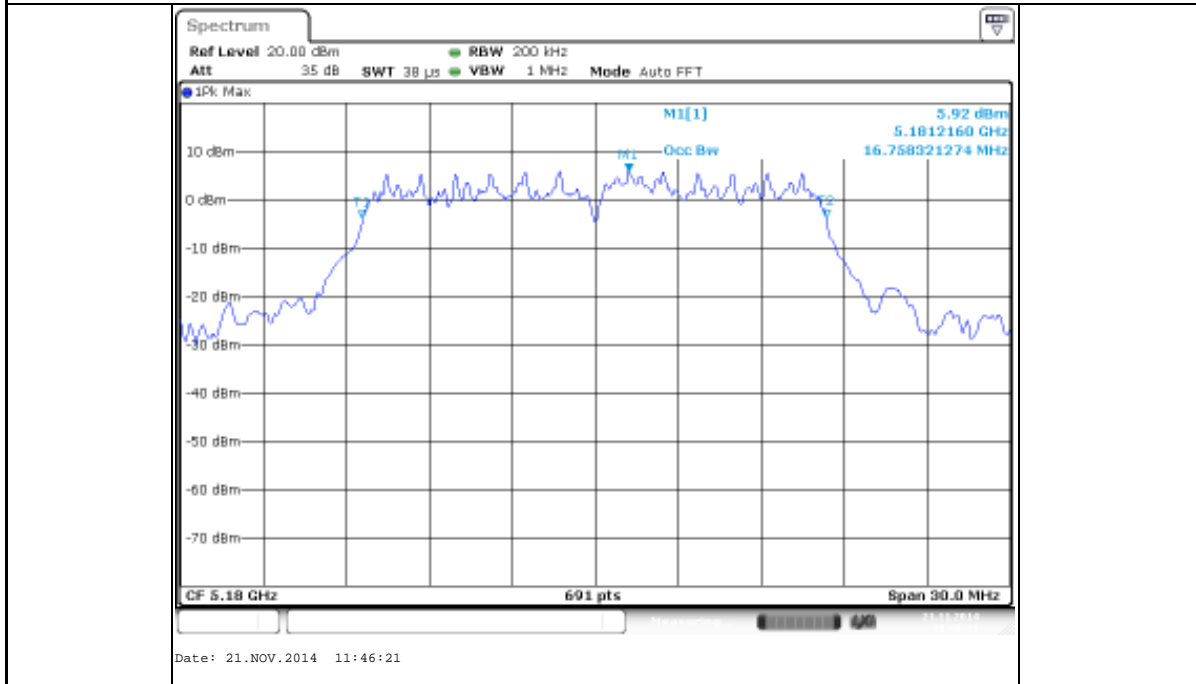


802.11n HT20

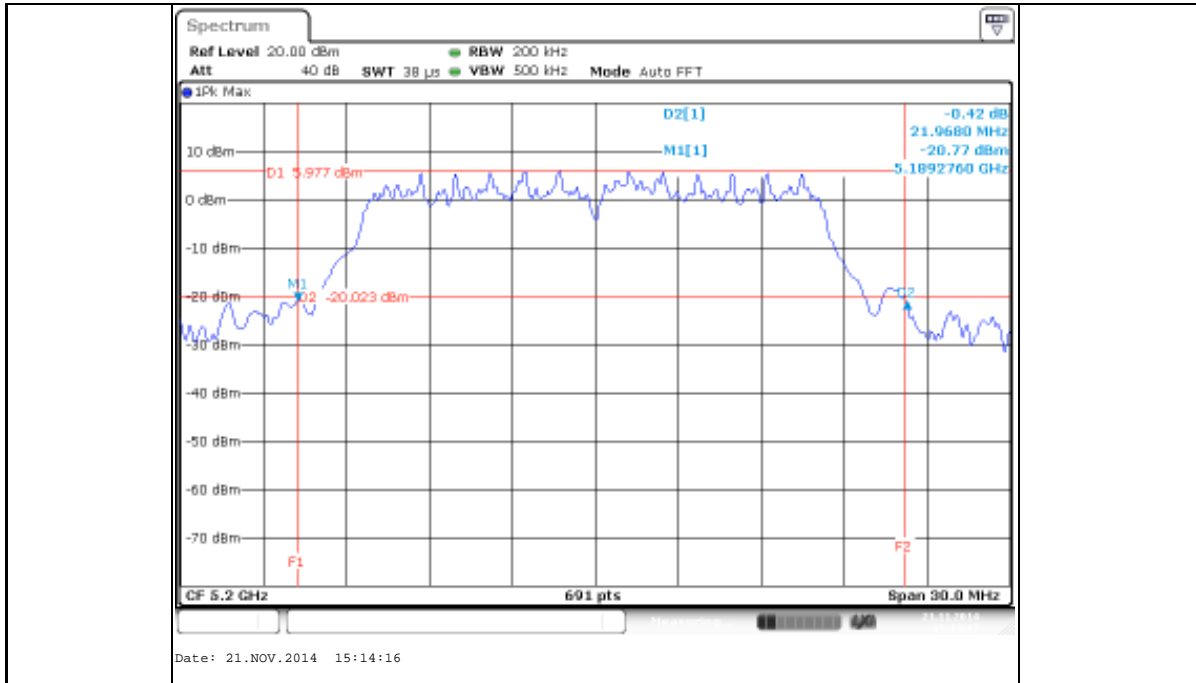
Channel 36, 26dB Bandwidth



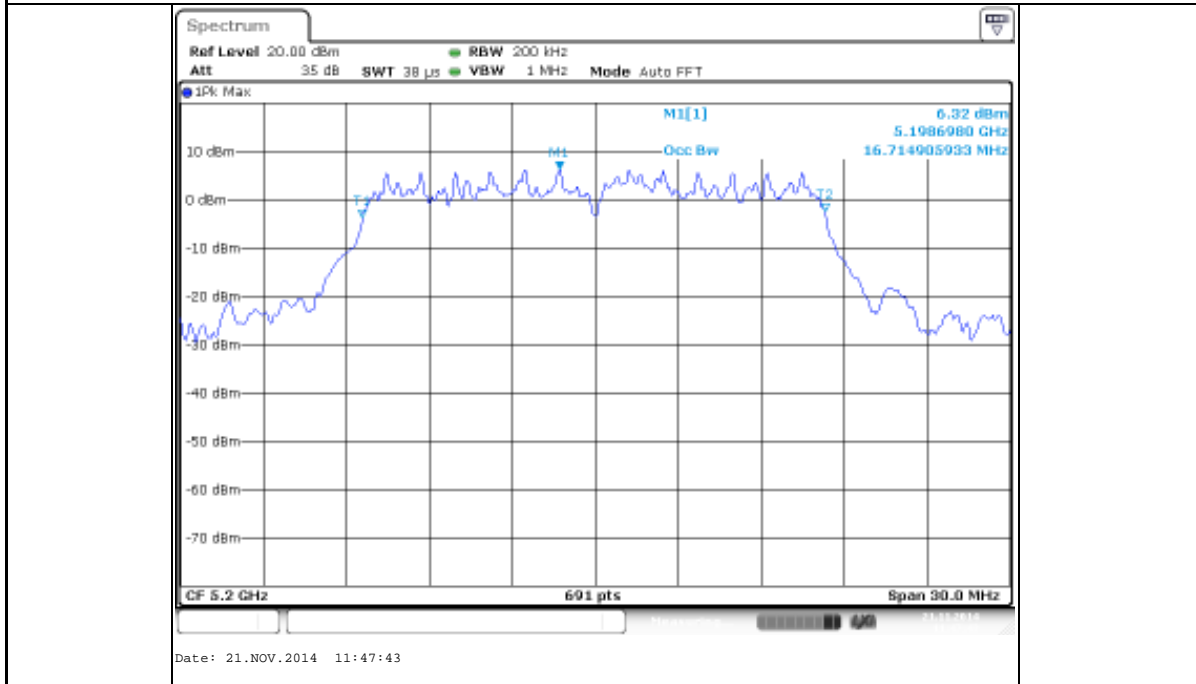
Channel 36, 99% Bandwidth



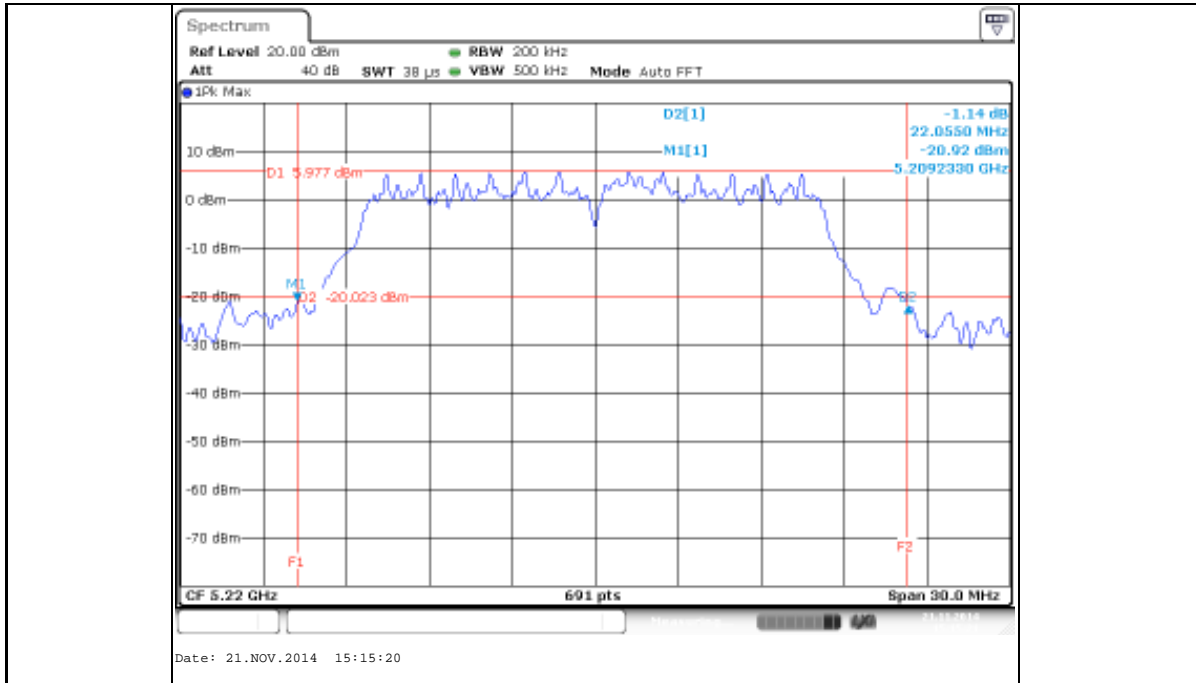
Channel 40, 26dB Bandwidth



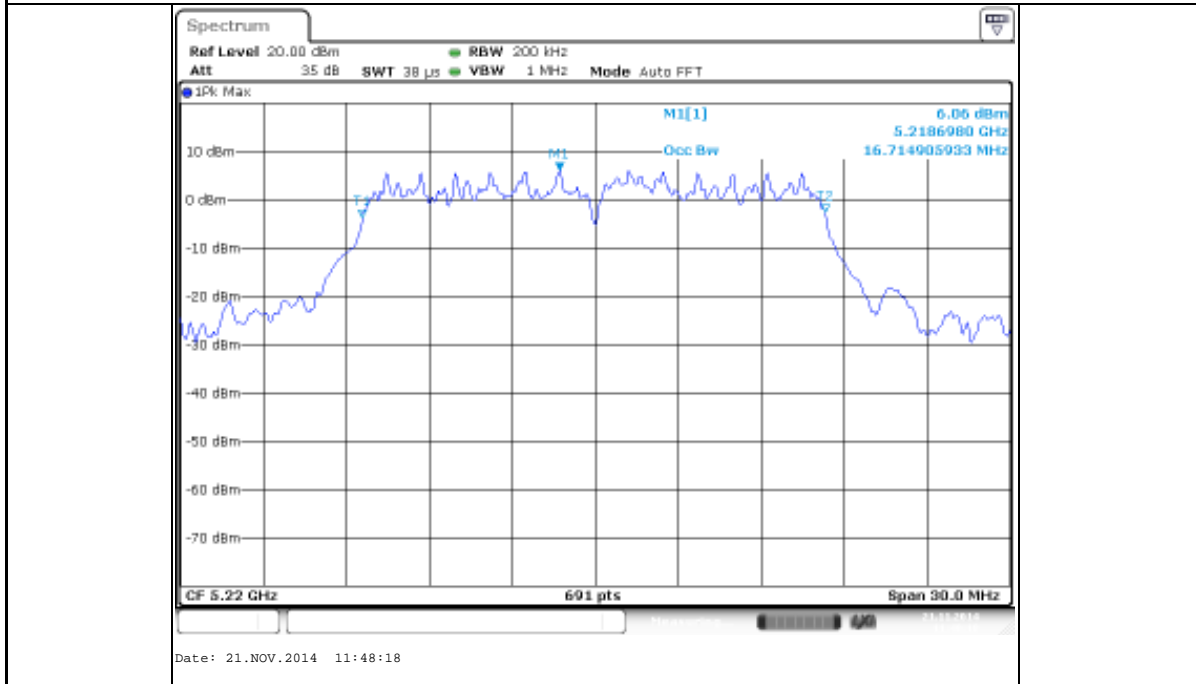
Channel 40, 99% Bandwidth



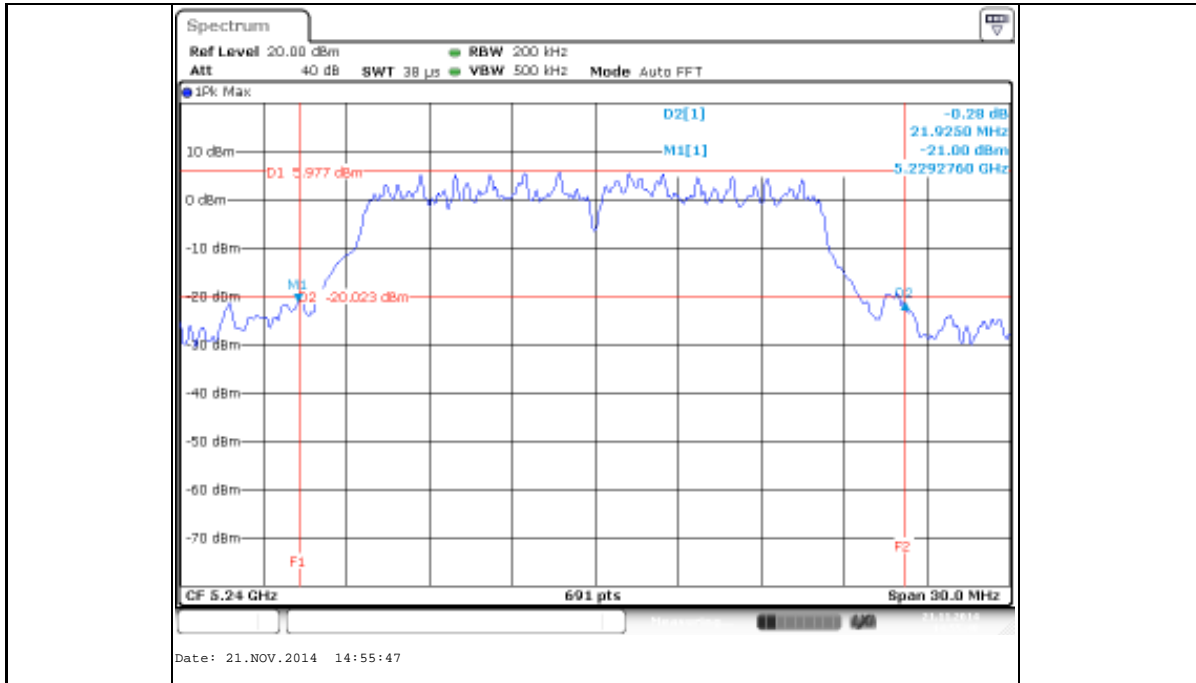
Channel 44, 26dB Bandwidth



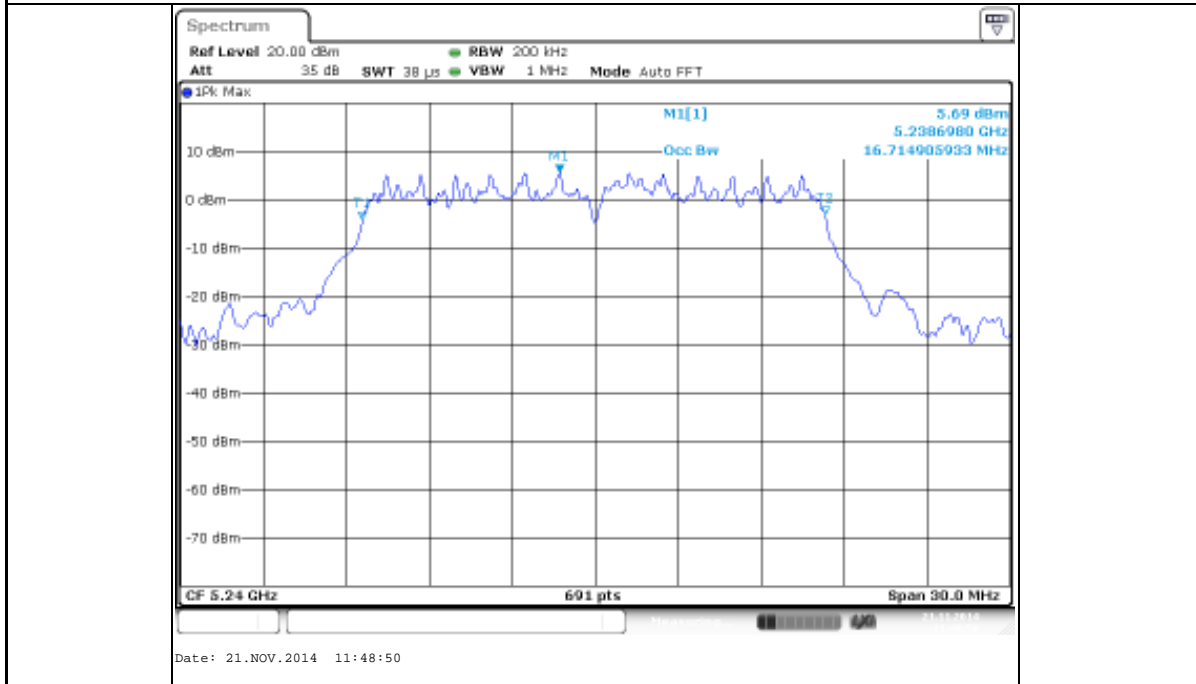
Channel 44, 99% Bandwidth



Channel 48, 26dB Bandwidth

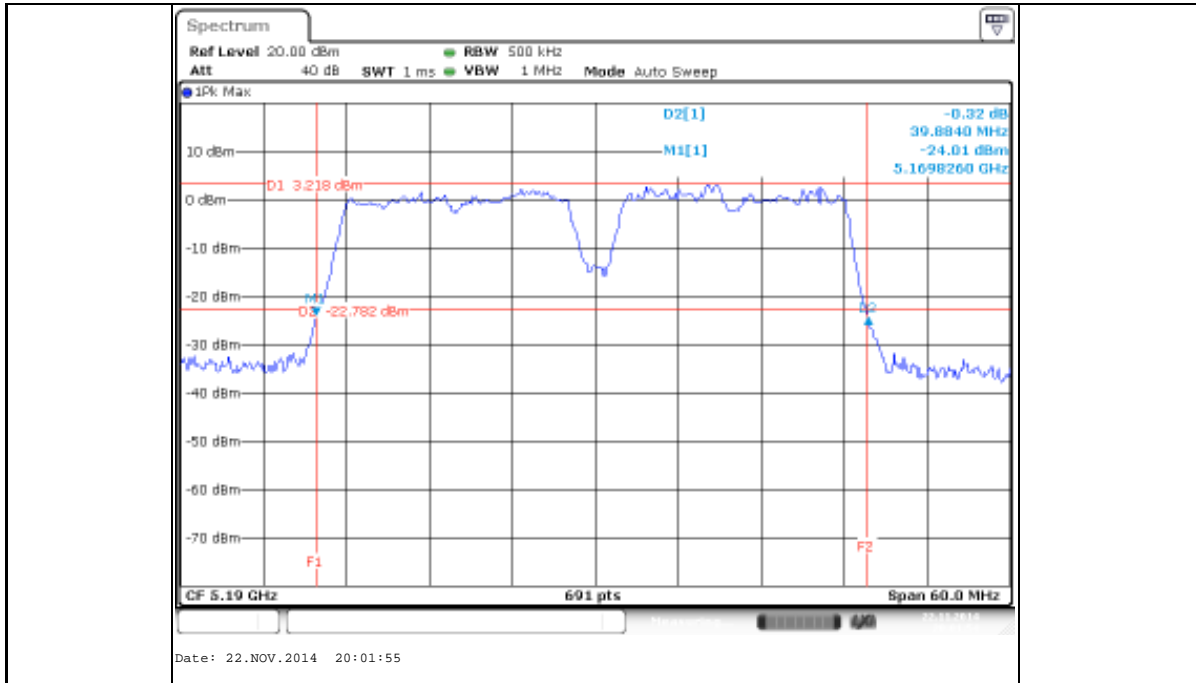


Channel 48, 99% Bandwidth

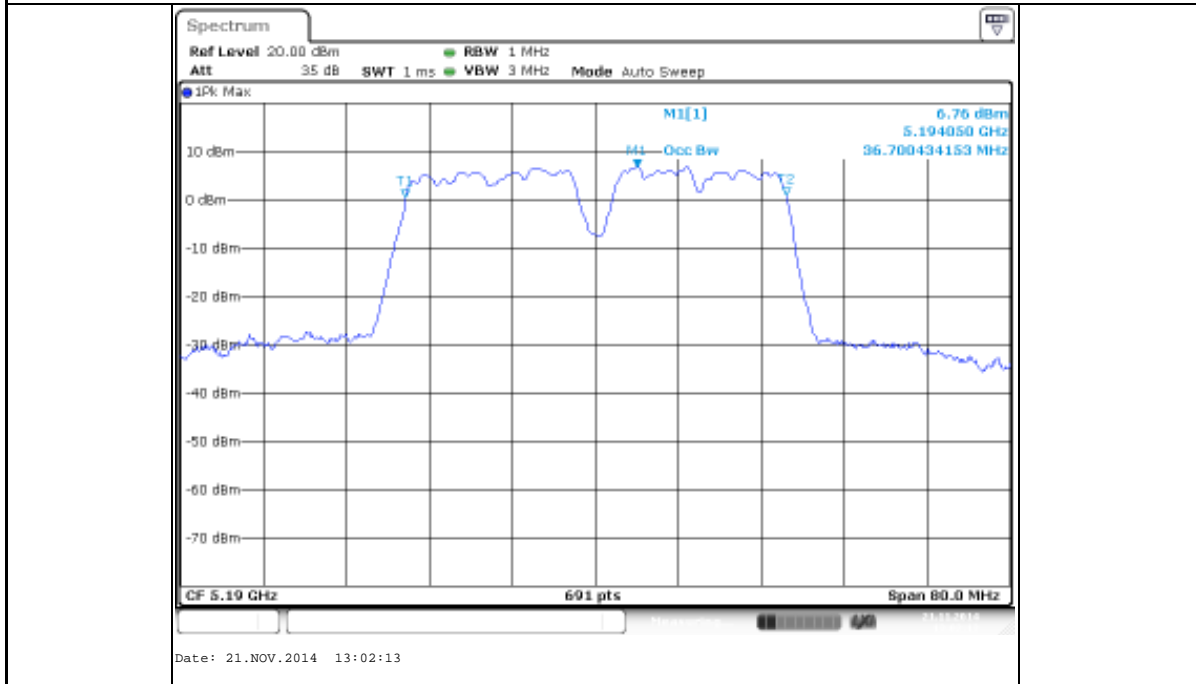


802.11n HT40

Channel 38, 26dB Bandwidth

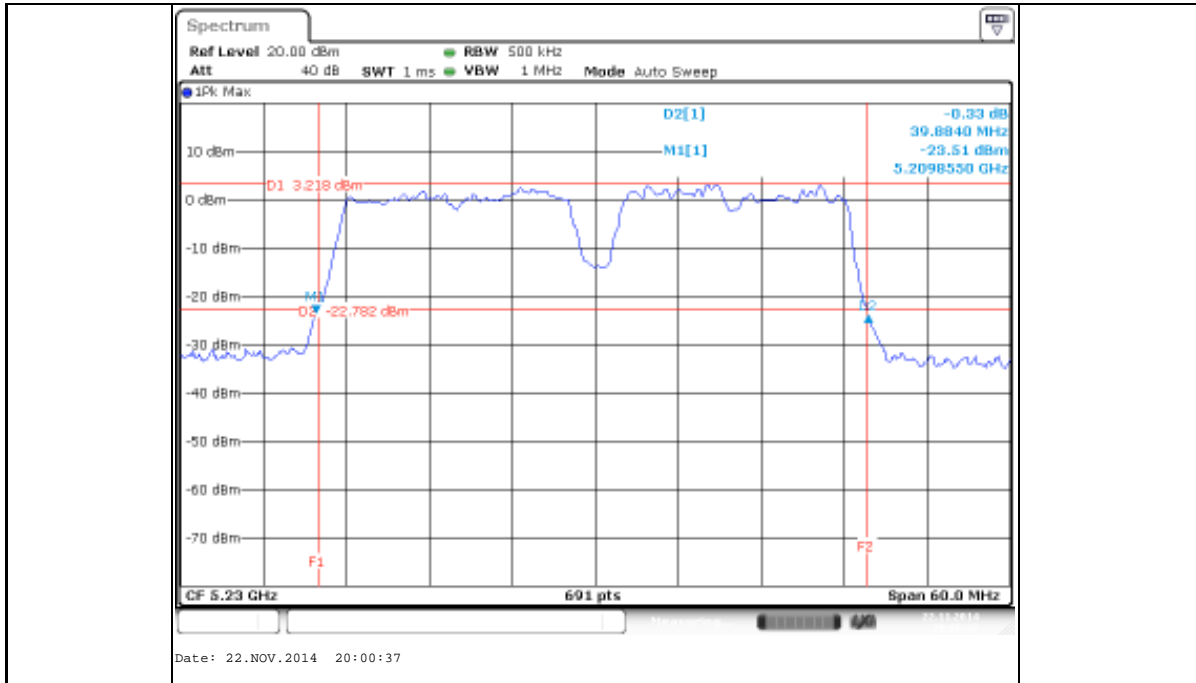


Channel 38, 99% Bandwidth

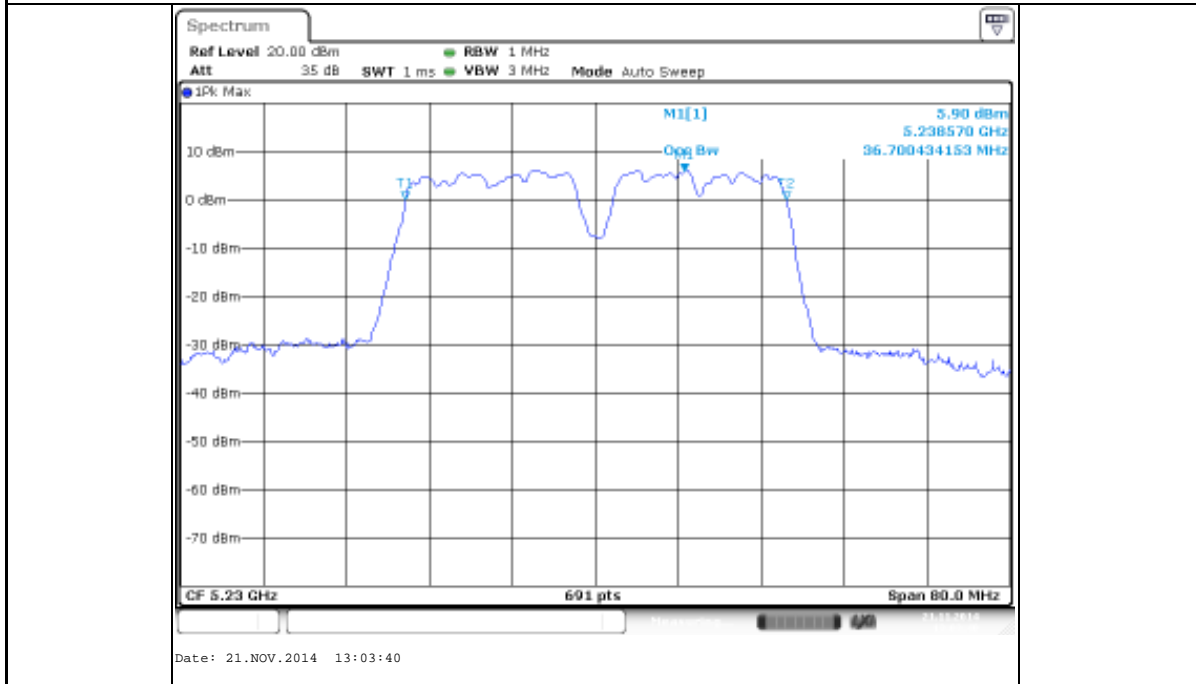


Channel 46, 26dB Bandwidth

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 Products

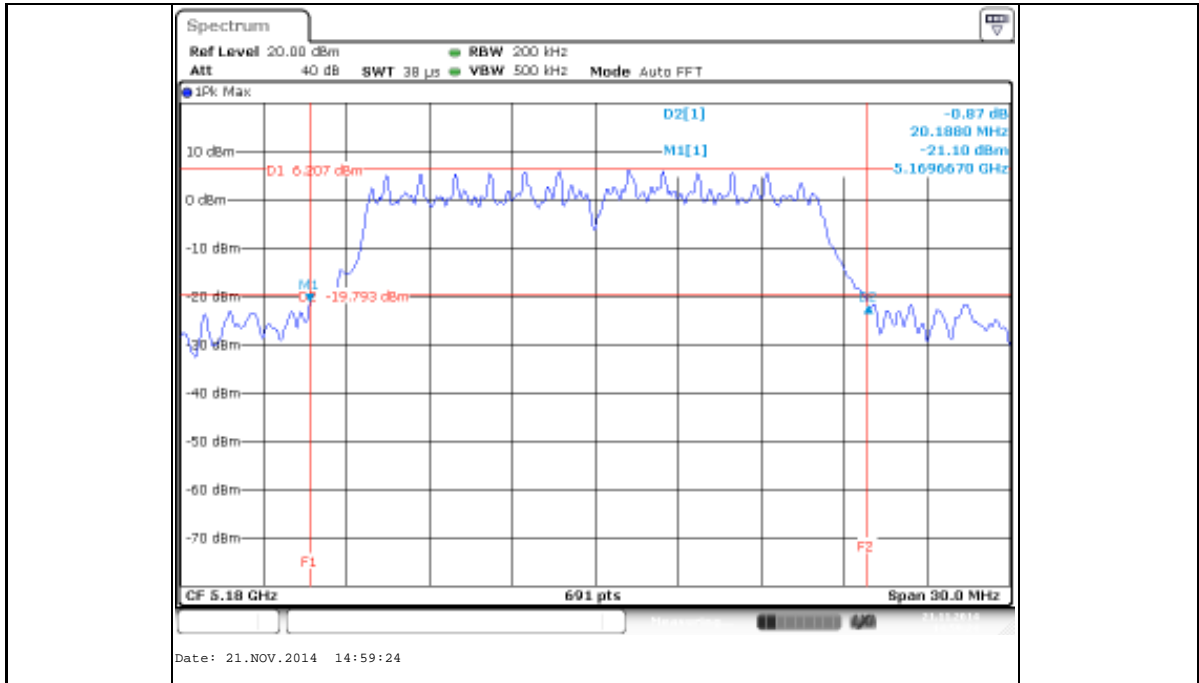


Channel 46, 99% Bandwidth

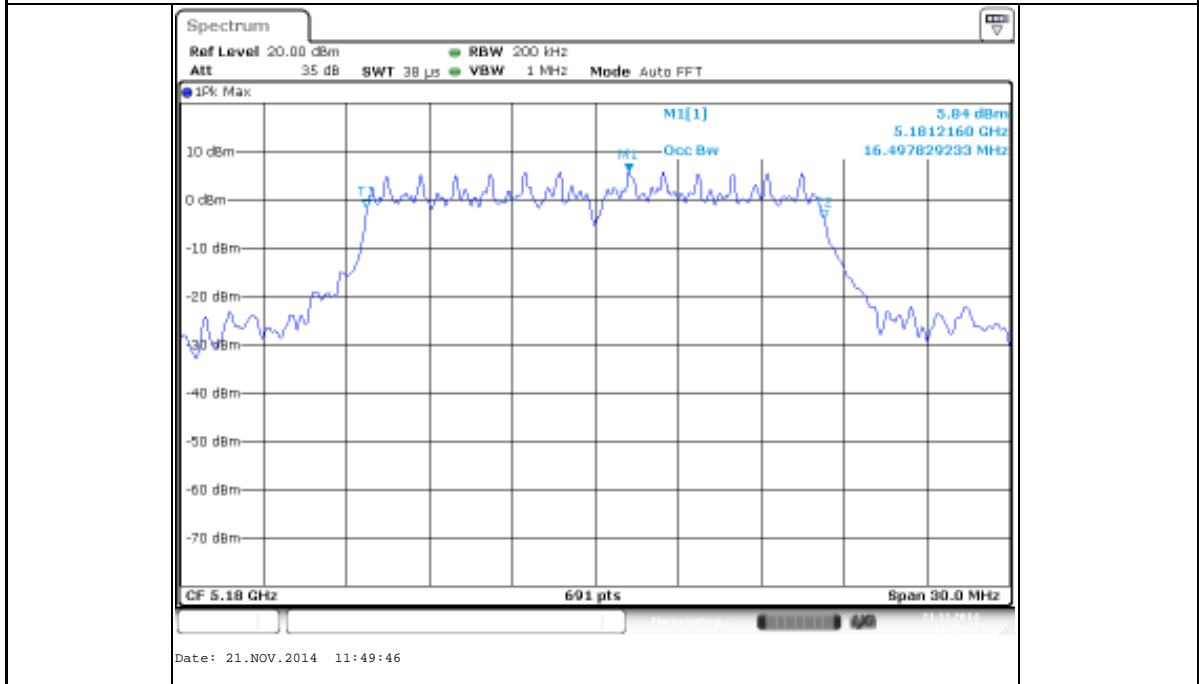


802.11ac VHT20

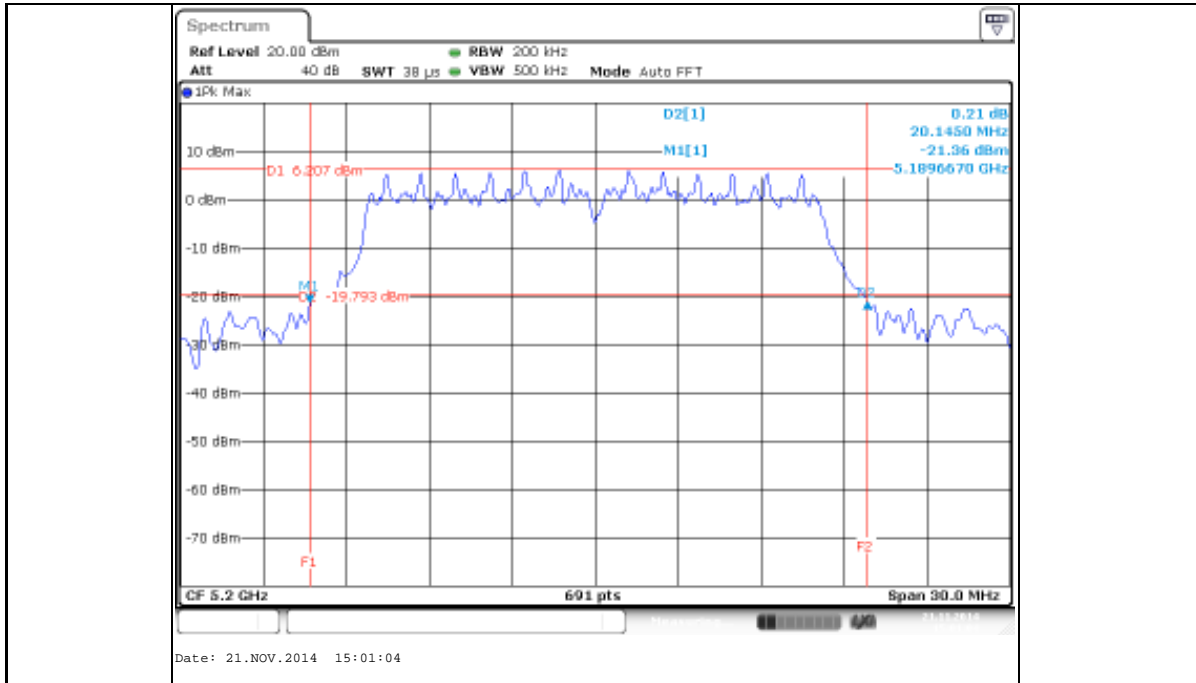
Channel 36, 26dB Bandwidth



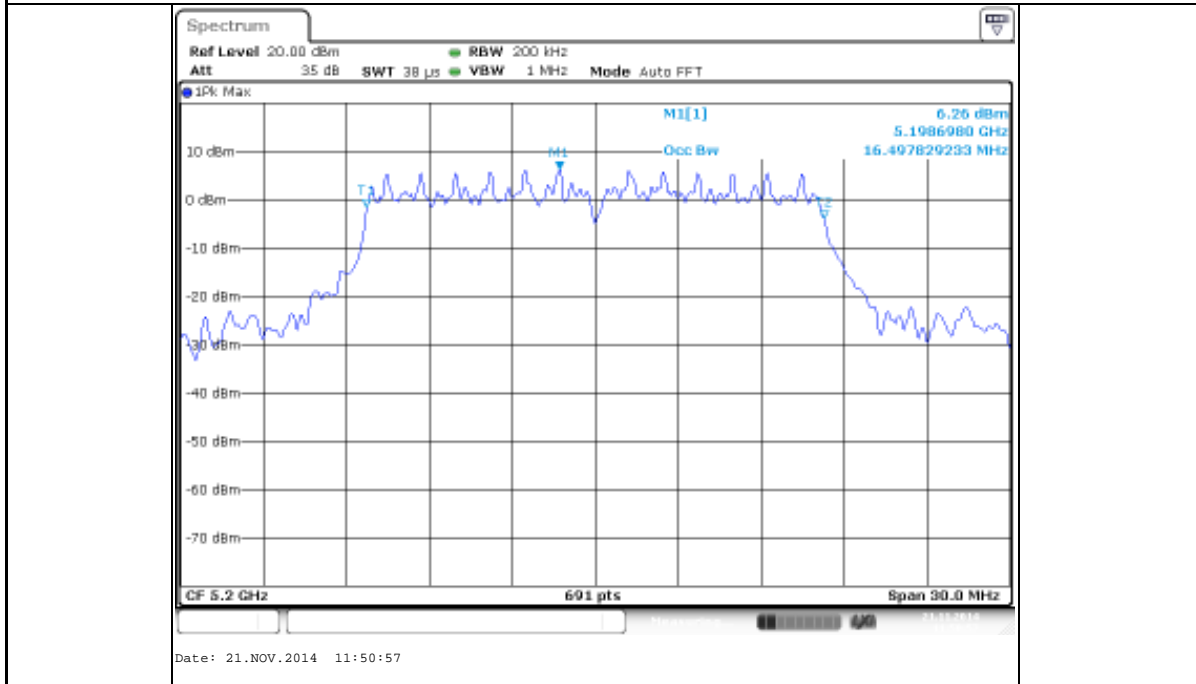
Channel 36, 99% Bandwidth



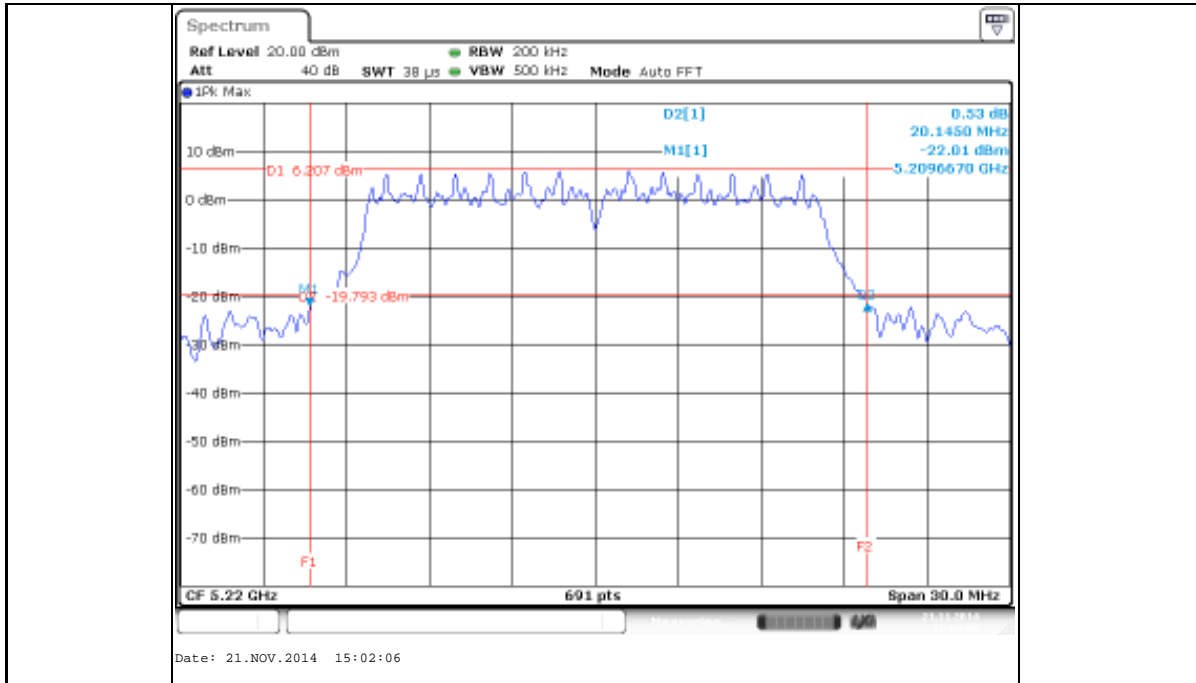
Channel 40, 26dB Bandwidth



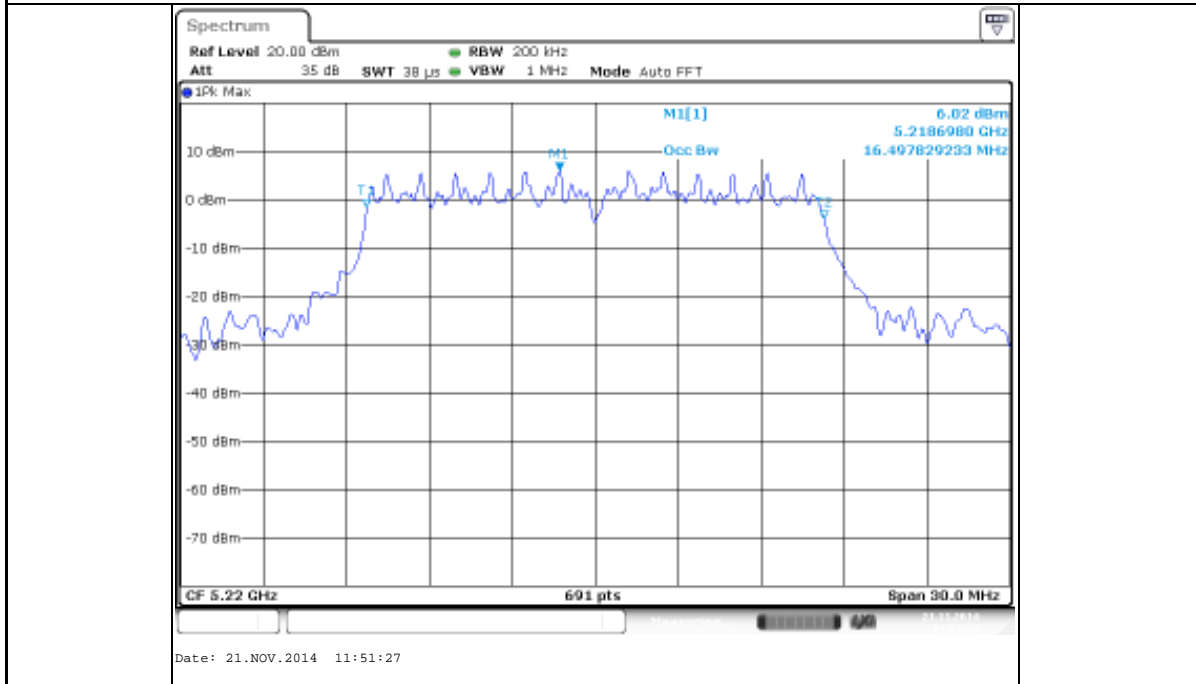
Channel 40, 99% Bandwidth



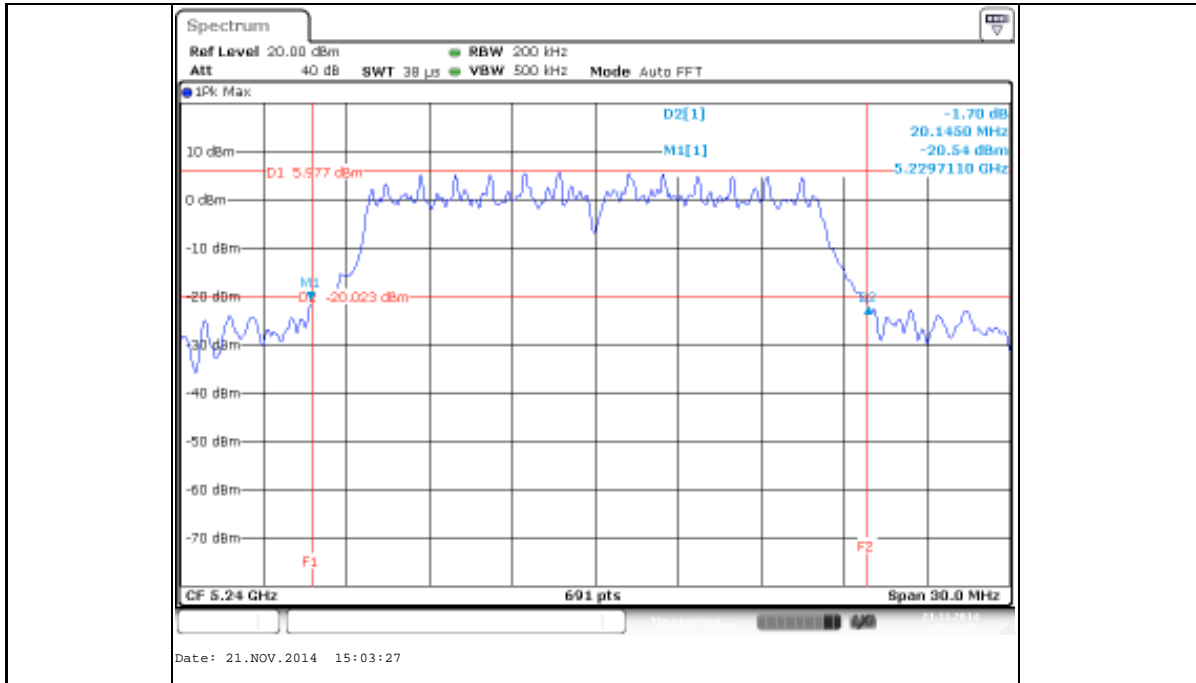
Channel 44, 26dB Bandwidth



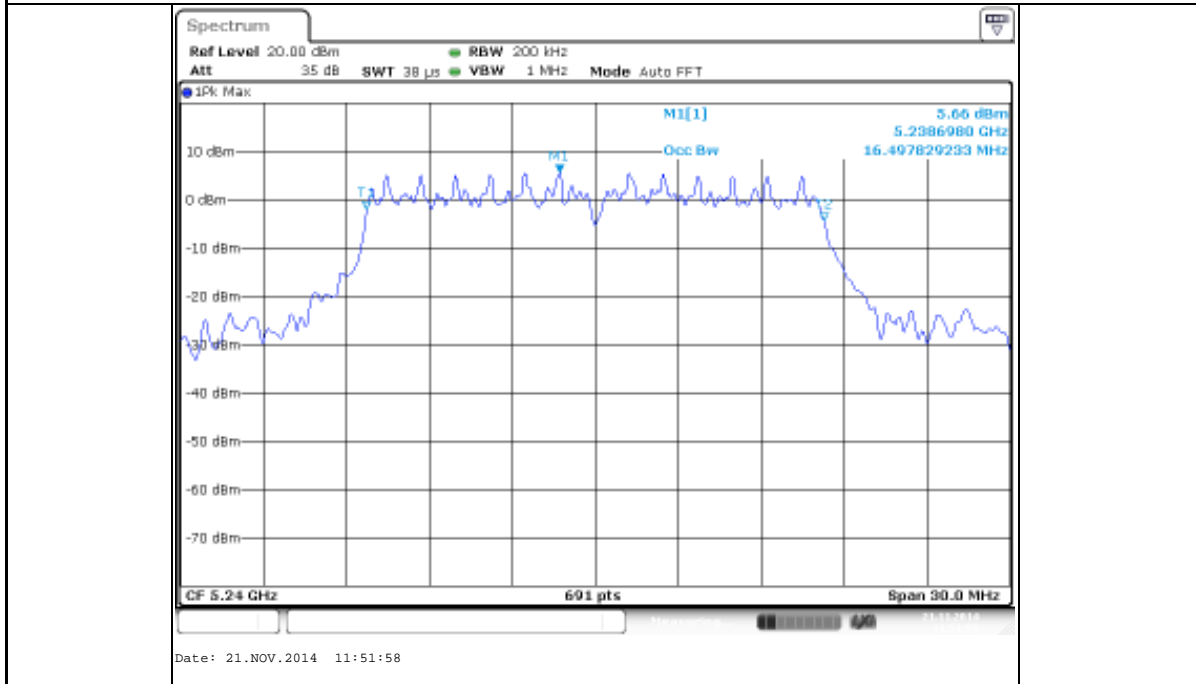
Channel 44, 99% Bandwidth



Channel 48, 26dB Bandwidth

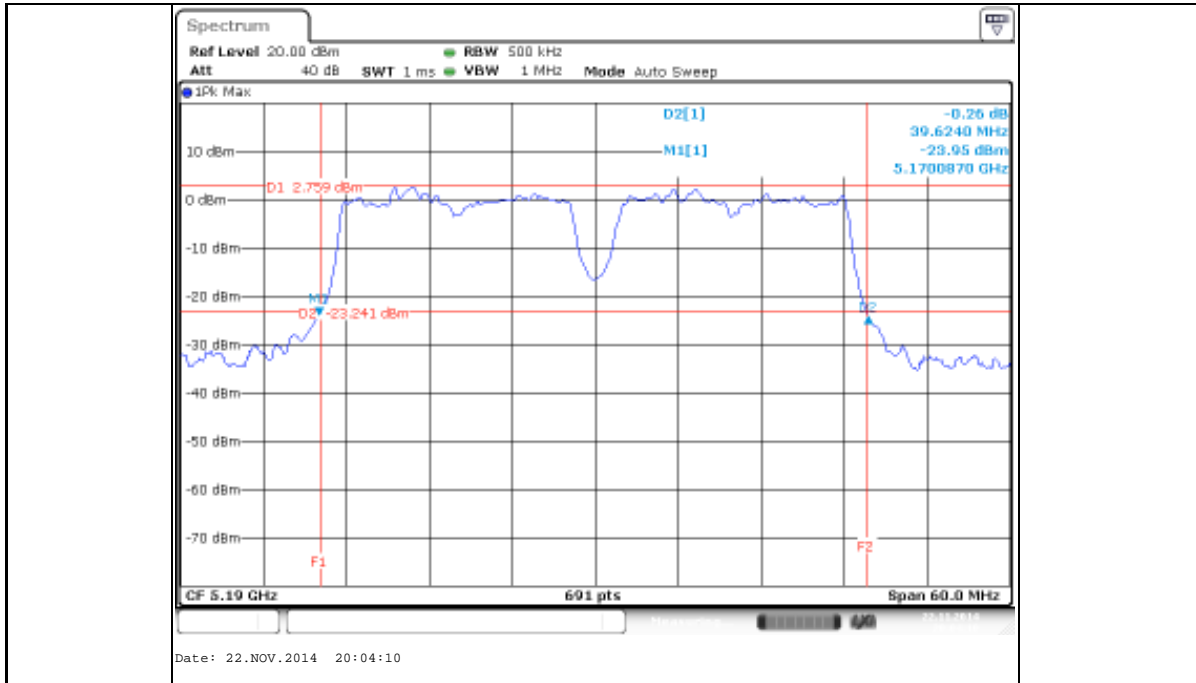


Channel 48, 99% Bandwidth

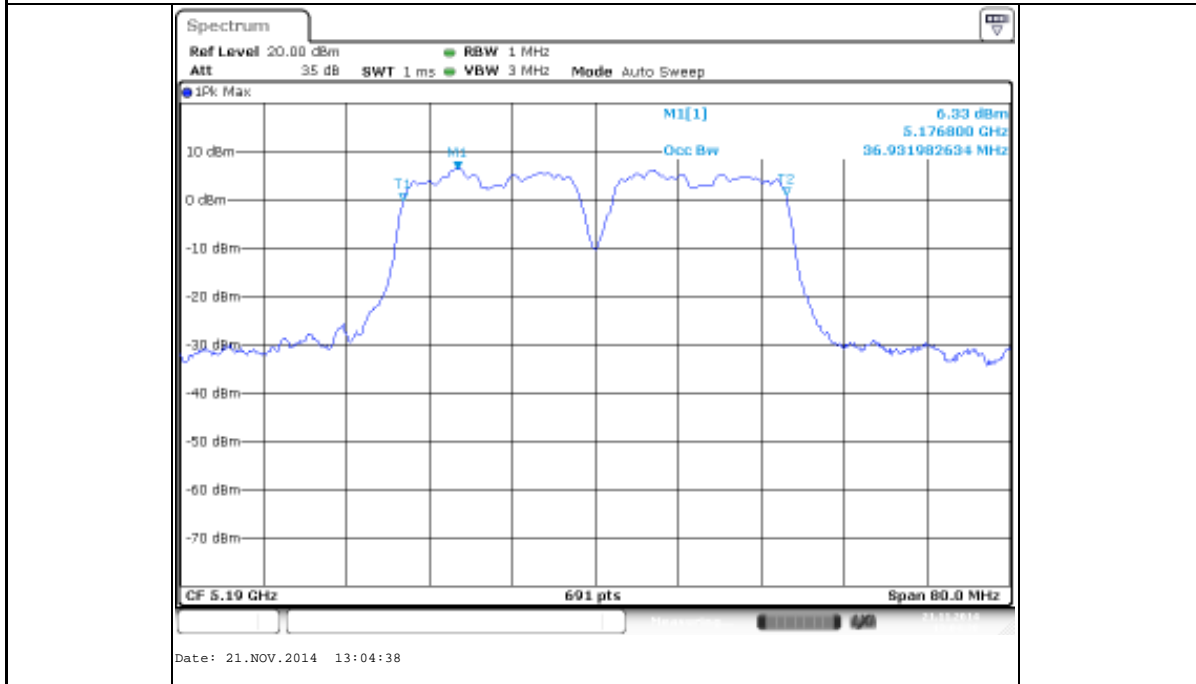


802.11ac VHT40

Channel 38, 26dB Bandwidth

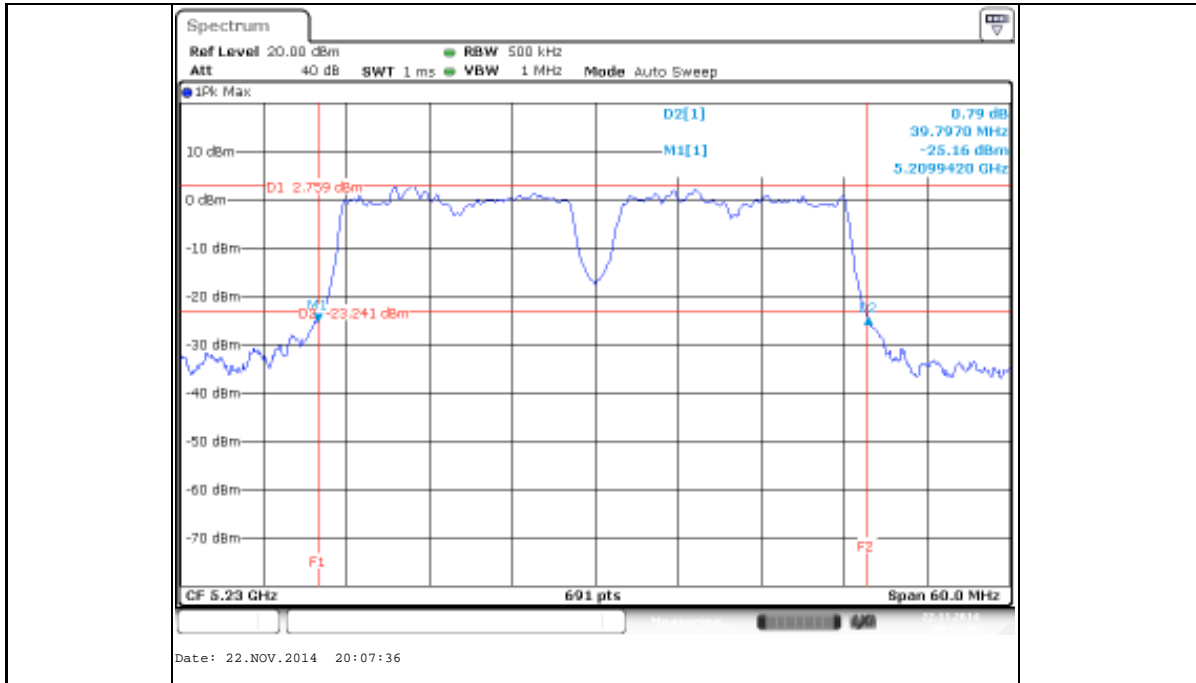


Channel 38, 99% Bandwidth

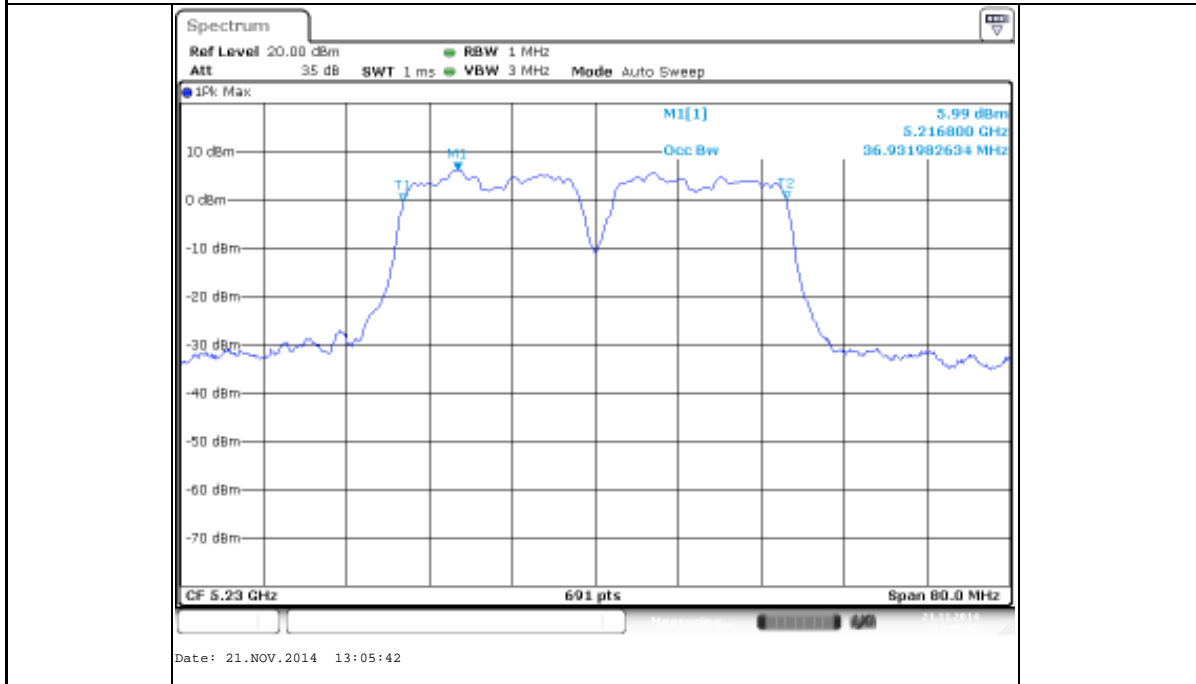


Channel 46, 26dB Bandwidth

Produkte
Products

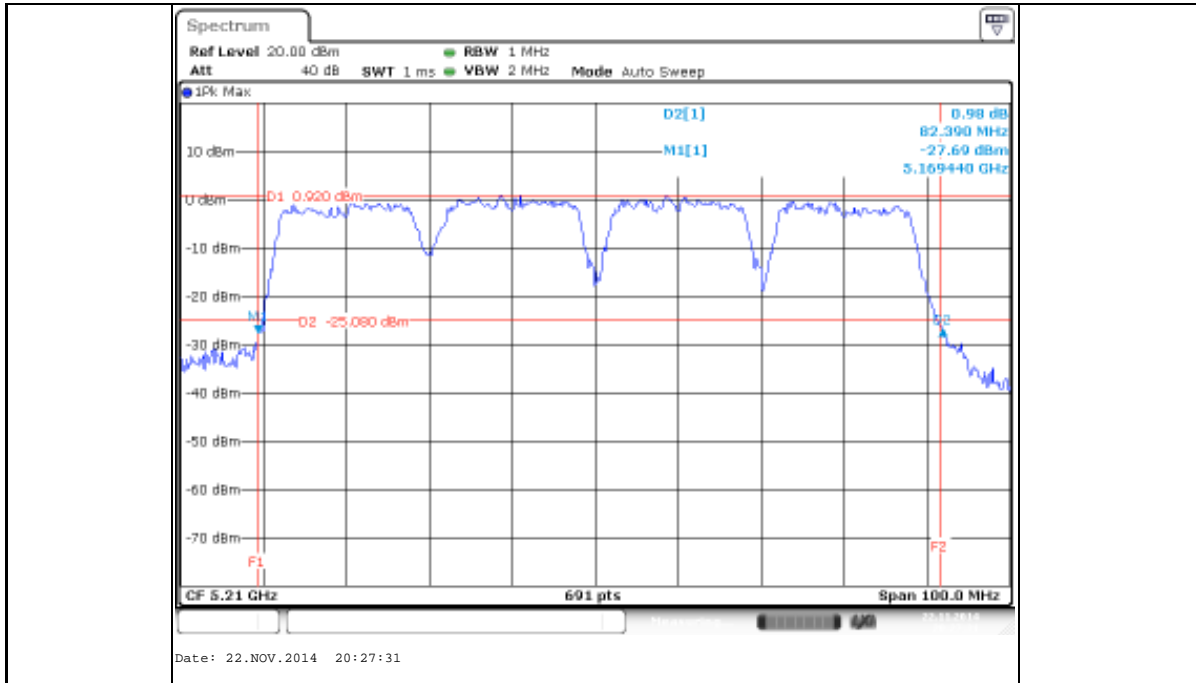


Channel 46, 99% Bandwidth

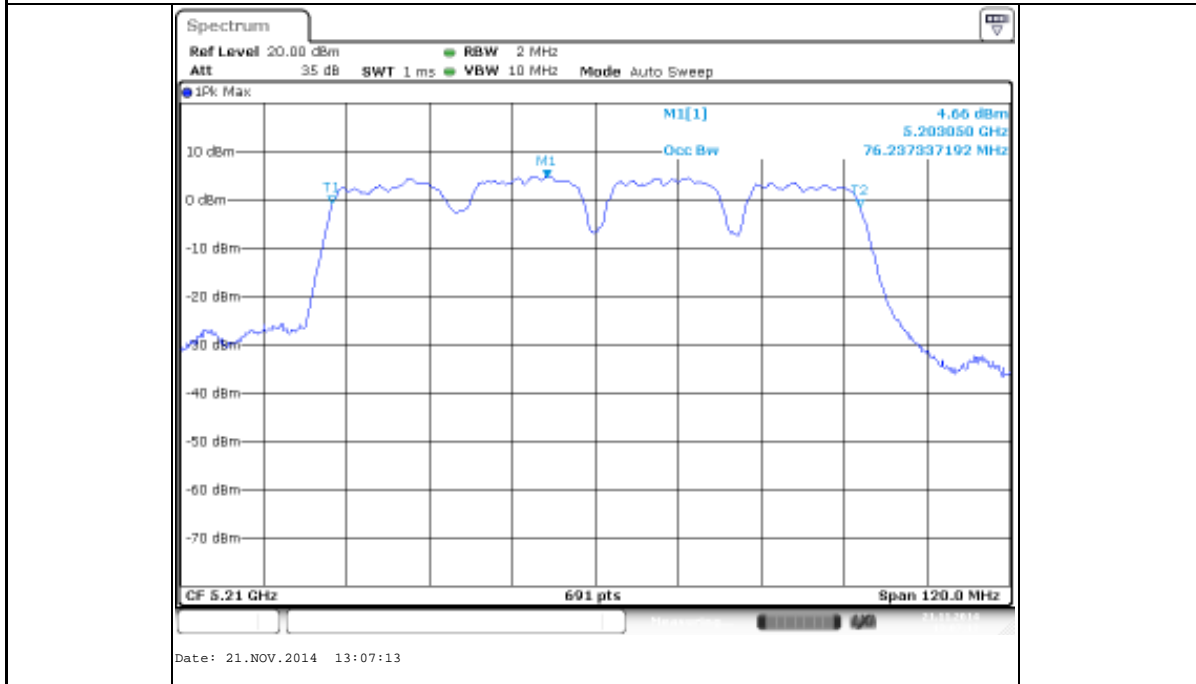


802.11ac VHT80

Channel 42, 26dB Bandwidth

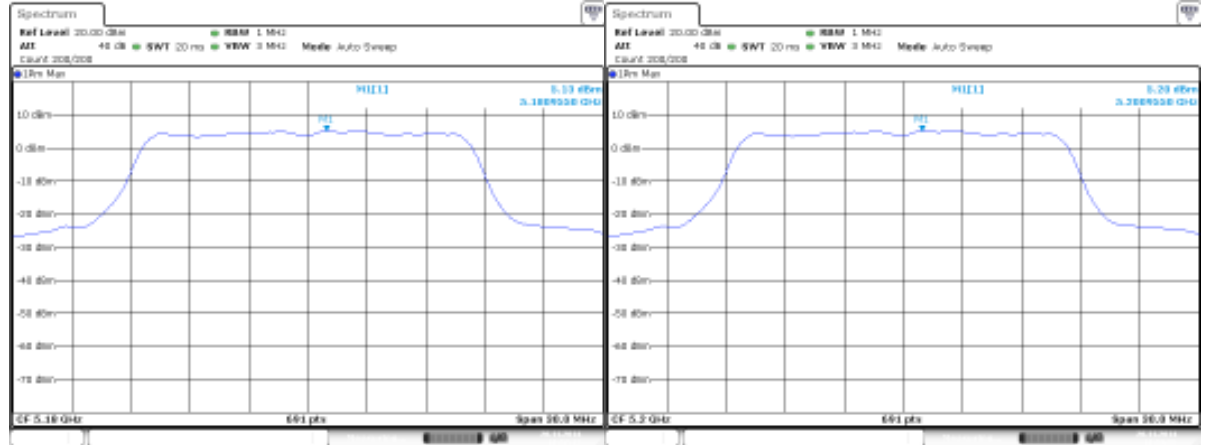


Channel 42, 99% Bandwidth



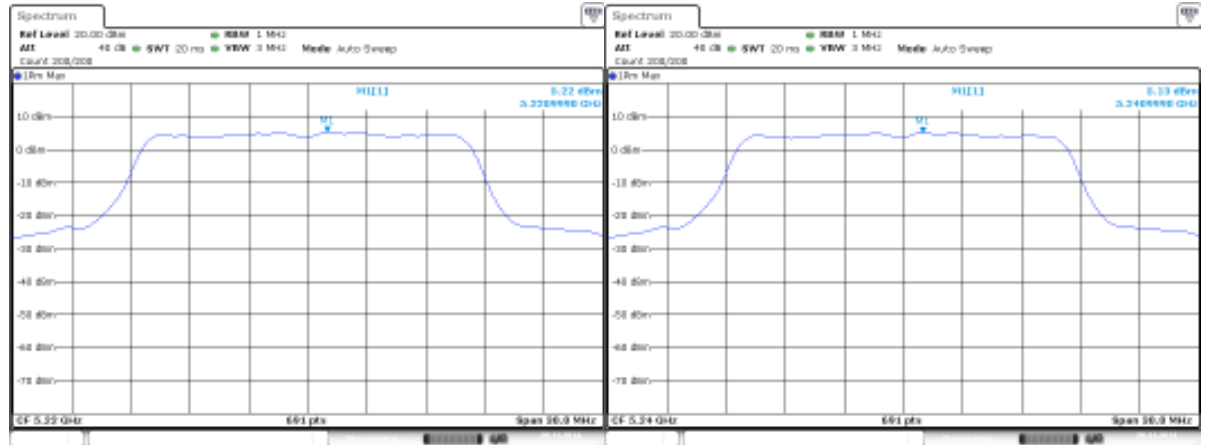
Produkte
Products

802.11a_1TX - Non Beamforming_ANT1



Date: 20.NOV.2014 10:57:13

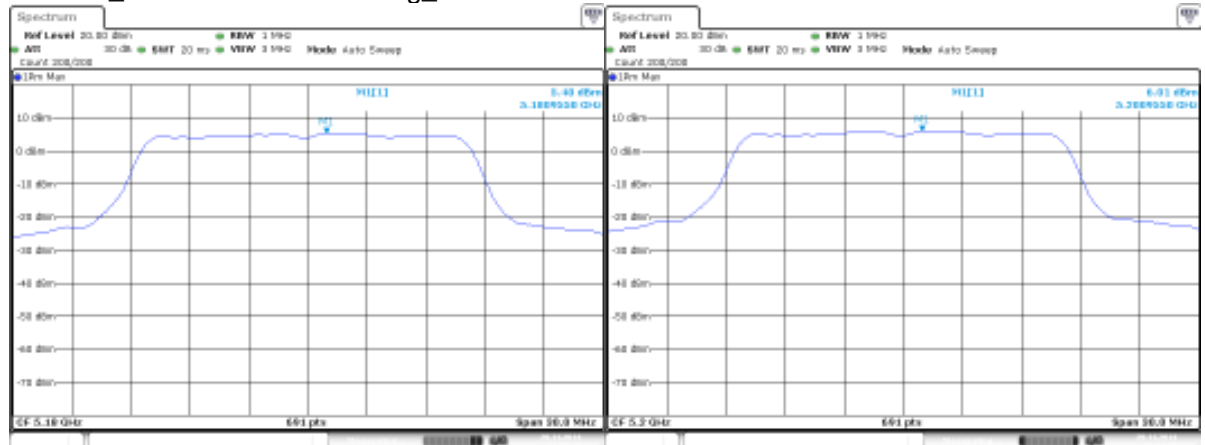
Date: 20.NOV.2014 10:59:56



Date: 20.NOV.2014 11:15:21

Date: 20.NOV.2014 11:16:31

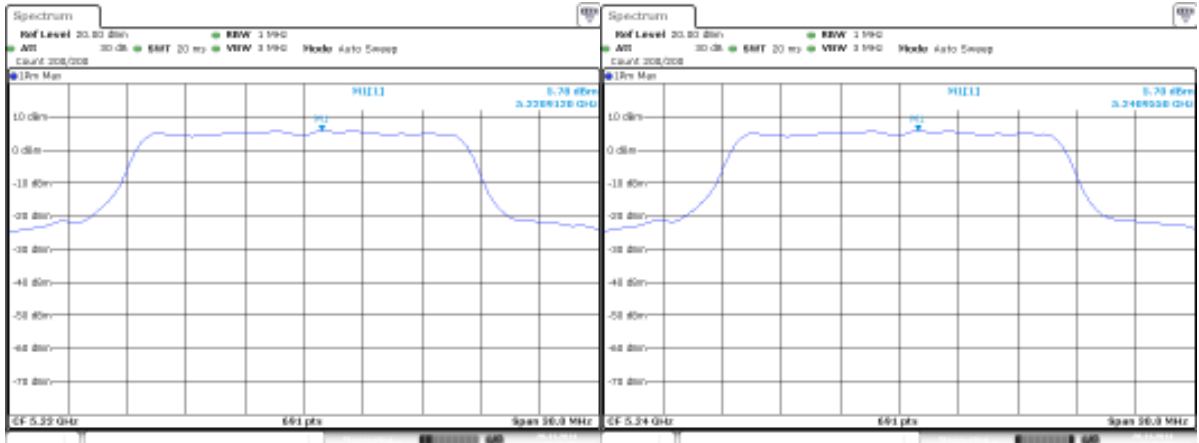
802.11a_2TX - Non Beamforming_ANT1



Date: 20.NOV.2014 21:03:34

Date: 20.NOV.2014 21:04:39

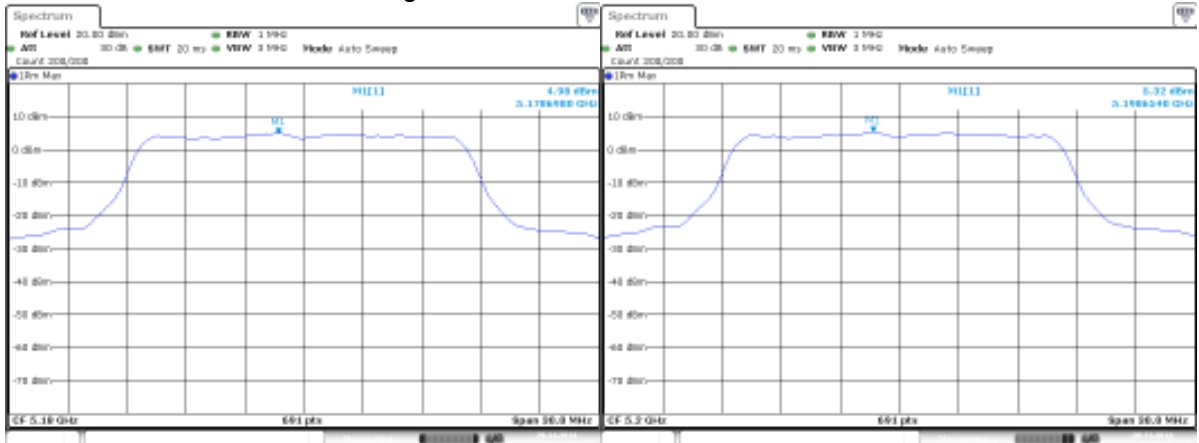
Produkte
Products



Date: 20.NOV.2014 21:06:05

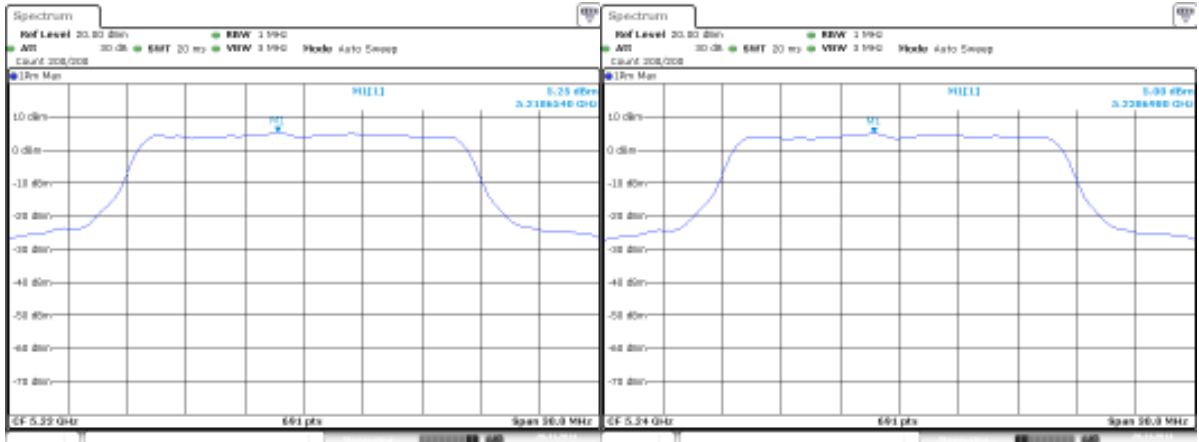
Date: 20.NOV.2014 21:07:00

802.11a_2TX - Non Beamforming_ANT3



Date: 20.NOV.2014 17:53:05

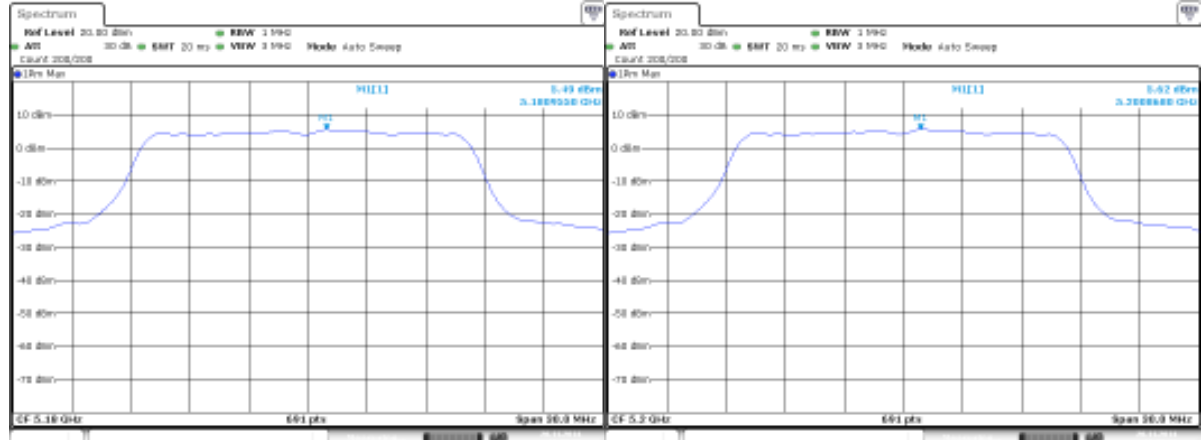
Date: 20.NOV.2014 17:56:27



Date: 20.NOV.2014 17:57:29

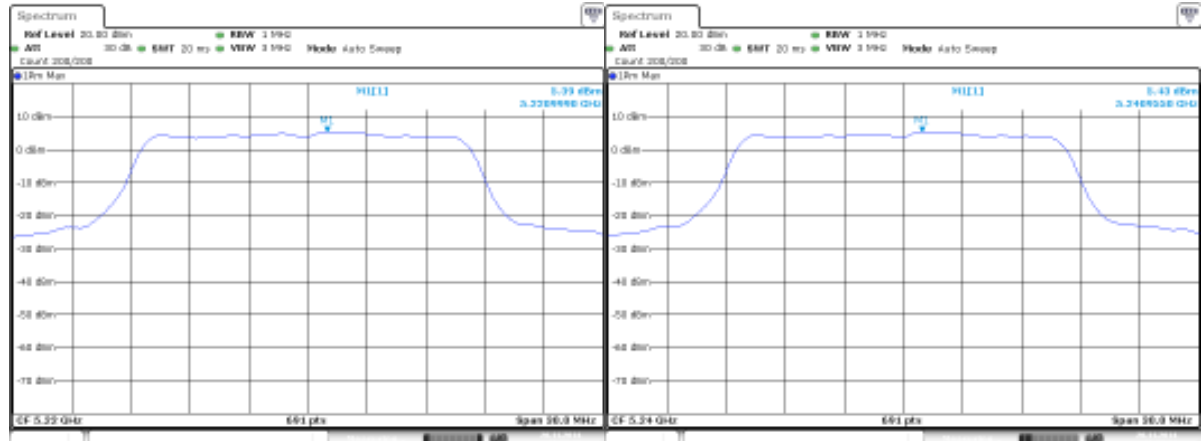
Date: 20.NOV.2014 17:59:27

802.11a_3TX - Non Beamforming_ANT1



Date: 20.NOV.2014 19:27:00

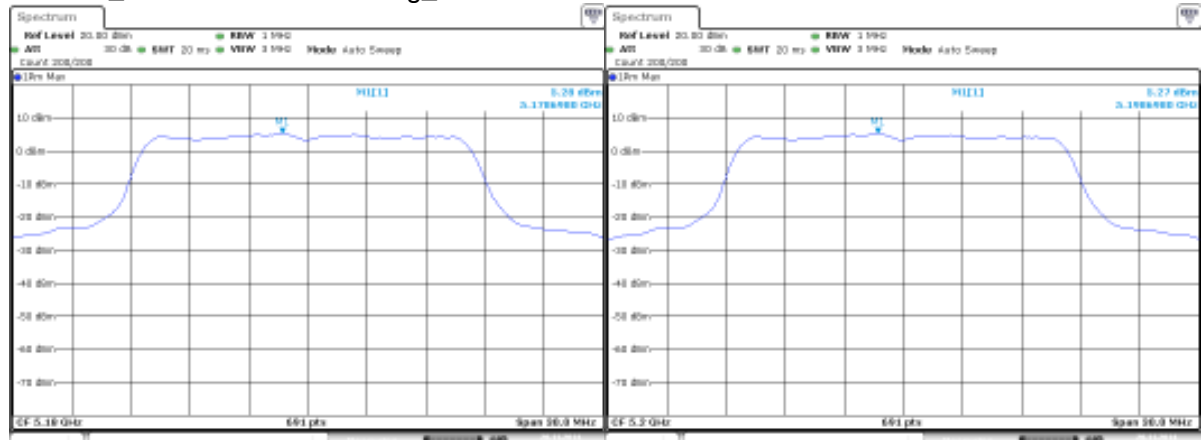
Date: 20.NOV.2014 19:28:27



Date: 20.NOV.2014 19:29:23

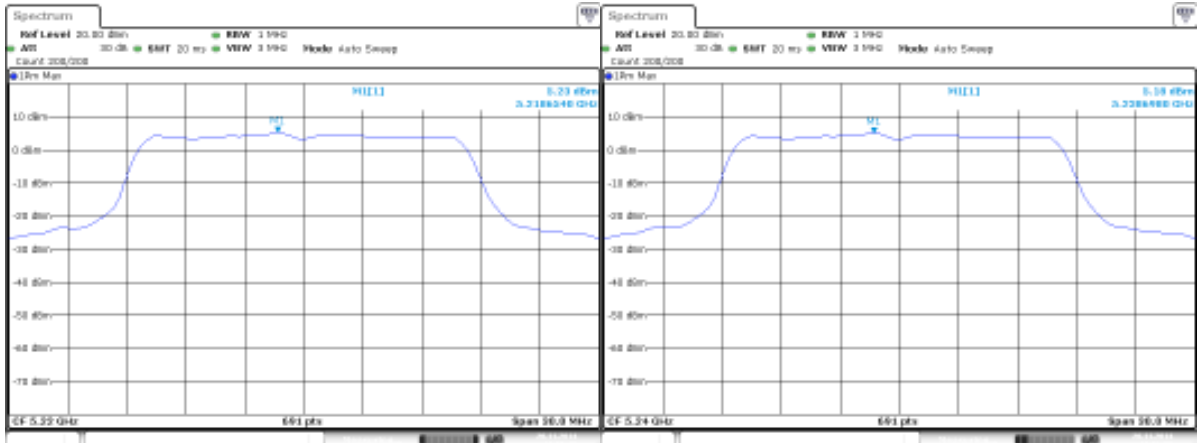
Date: 20.NOV.2014 19:30:12

802.11a_3TX - Non Beamforming_ANT2



Date: 20.NOV.2014 19:53:29

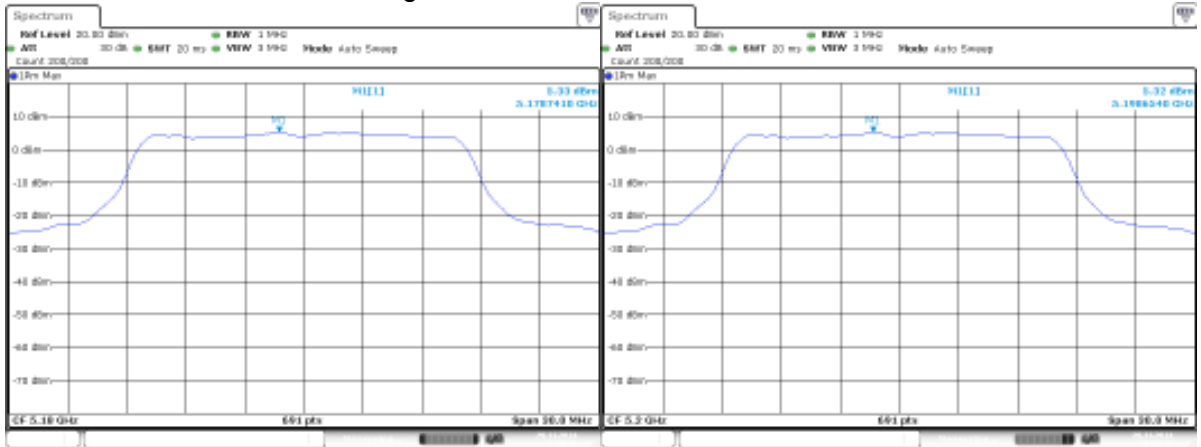
Date: 20.NOV.2014 19:54:33



Date: 20.NOV.2014 19:55:18

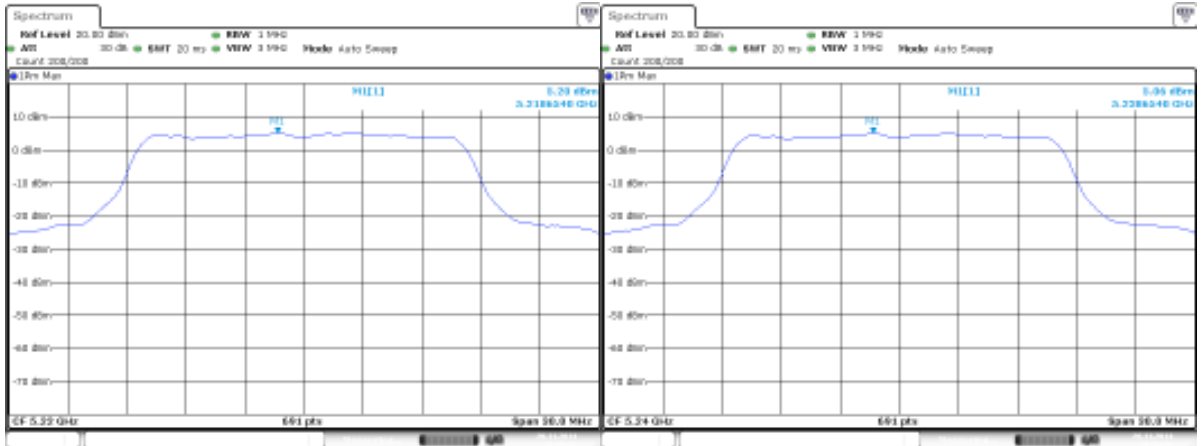
Date: 20.NOV.2014 19:56:01

802.11a_3TX - Non Beamforming_ANT3



Date: 20.NOV.2014 20:33:10

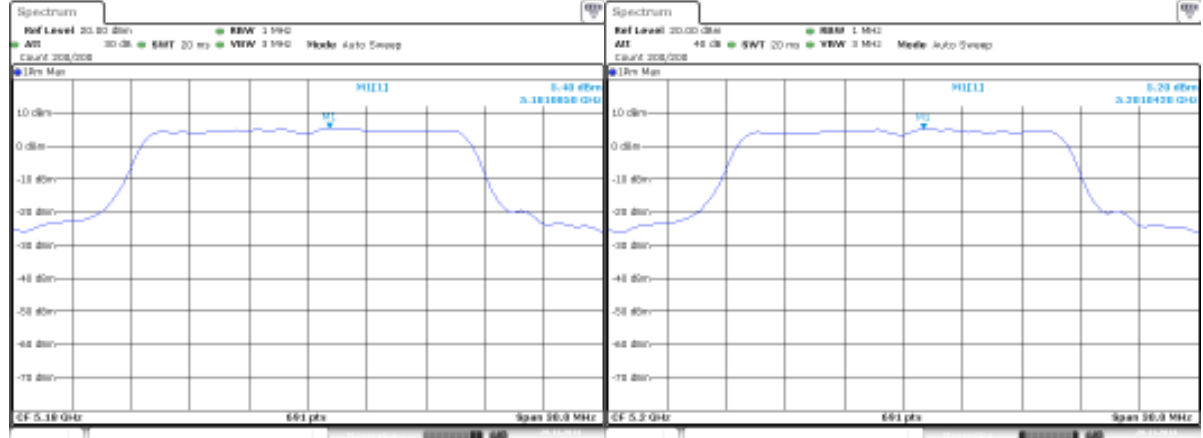
Date: 20.NOV.2014 20:34:37



Date: 20.NOV.2014 20:35:19

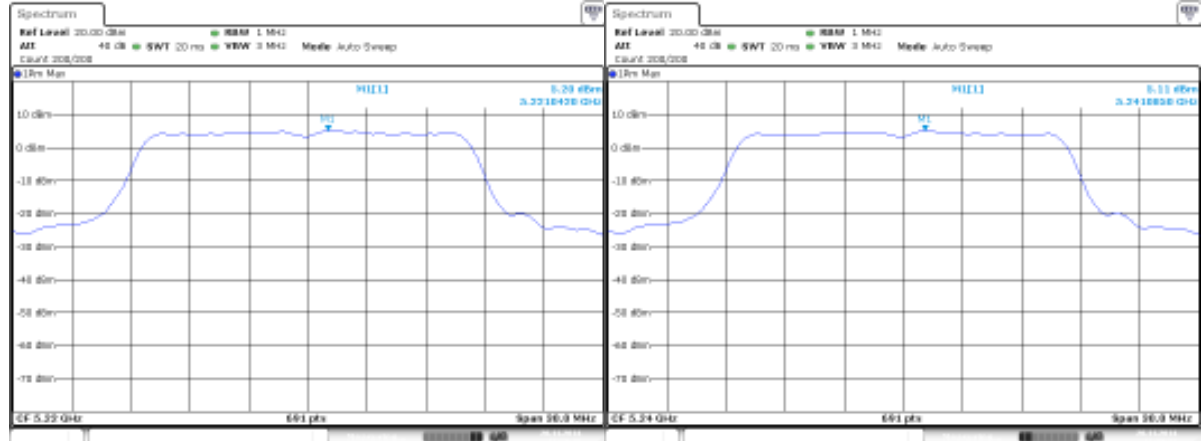
Date: 20.NOV.2014 20:36:49

802.11n HT20_1TX - Non Beamforming_ANT1



Date: 20.NOV.2014 21:24:03

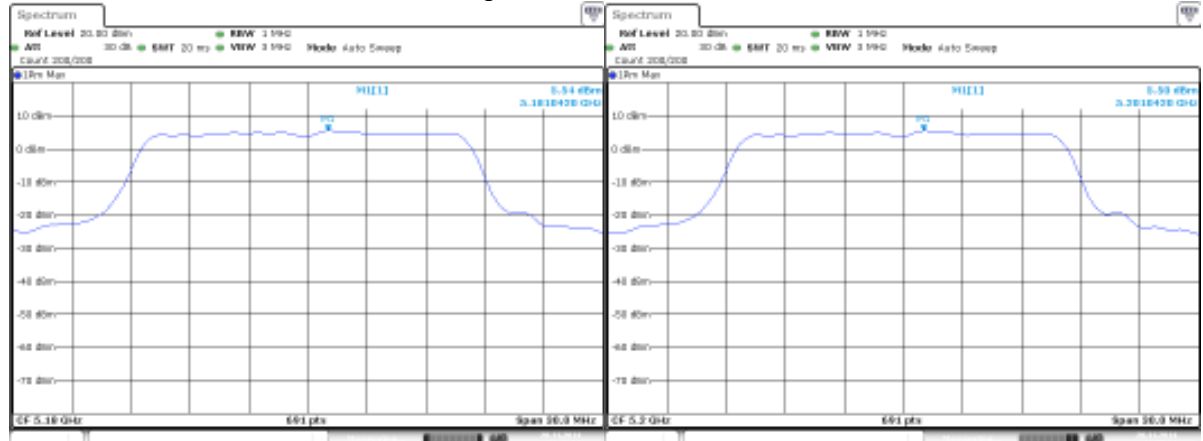
Date: 20.NOV.2014 11:18:47



Date: 20.NOV.2014 11:19:40

Date: 20.NOV.2014 11:20:23

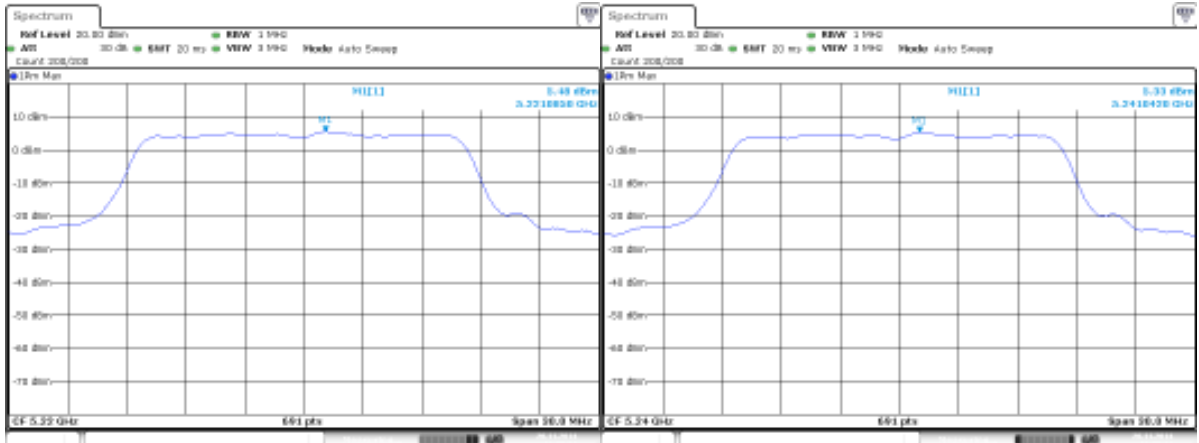
802.11n HT20_2TX - Non Beamforming_ANT1



Date: 20.NOV.2014 21:25:54

Date: 20.NOV.2014 21:27:21

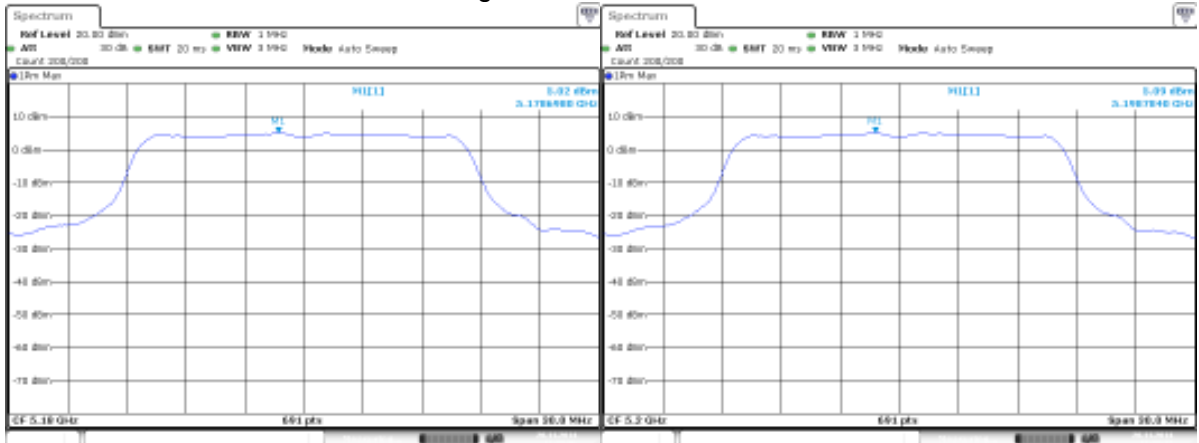
Produkte
Products



Date: 20.NOV.2014 21:28:04

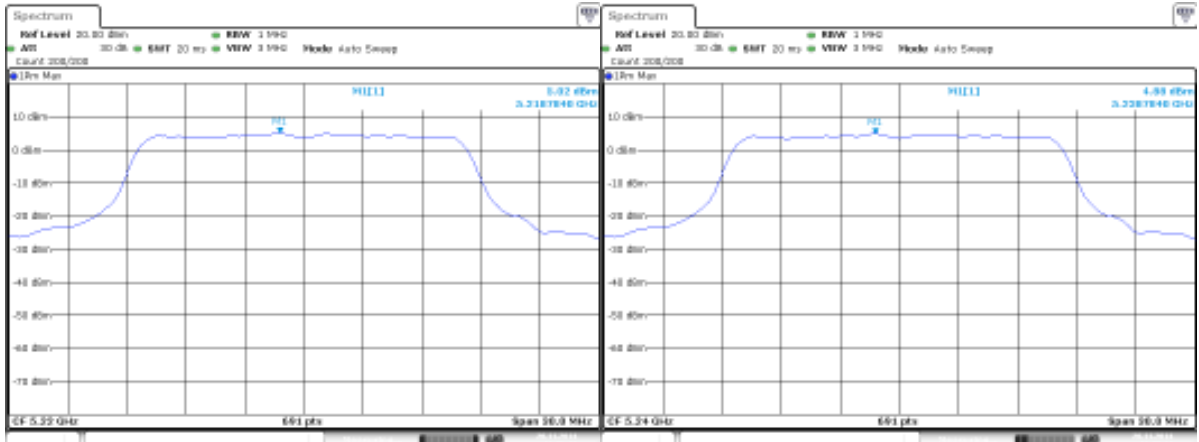
Date: 20.NOV.2014 21:28:44

802.11n HT20_2TX - Non Beamforming_ANT3



Date: 20.NOV.2014 21:33:06

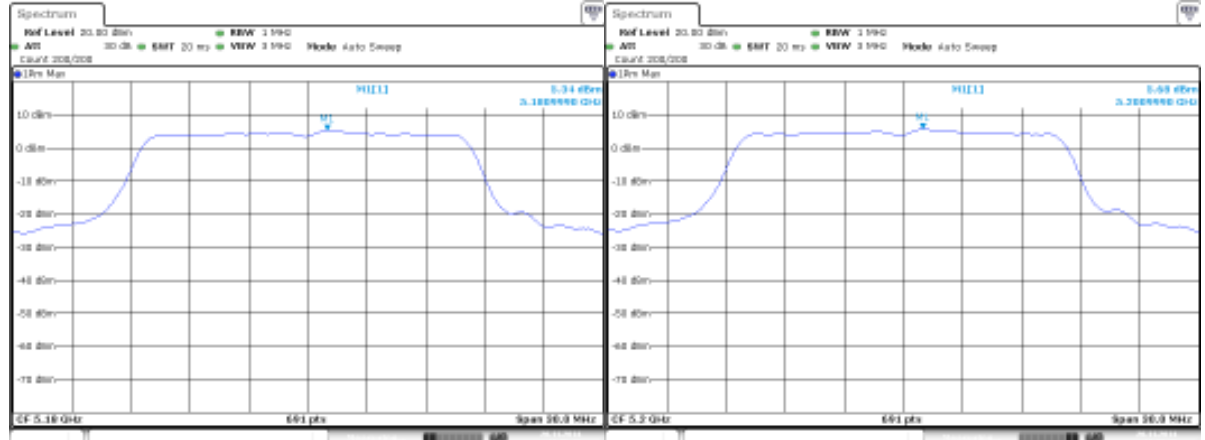
Date: 20.NOV.2014 21:32:18



Date: 20.NOV.2014 21:31:22

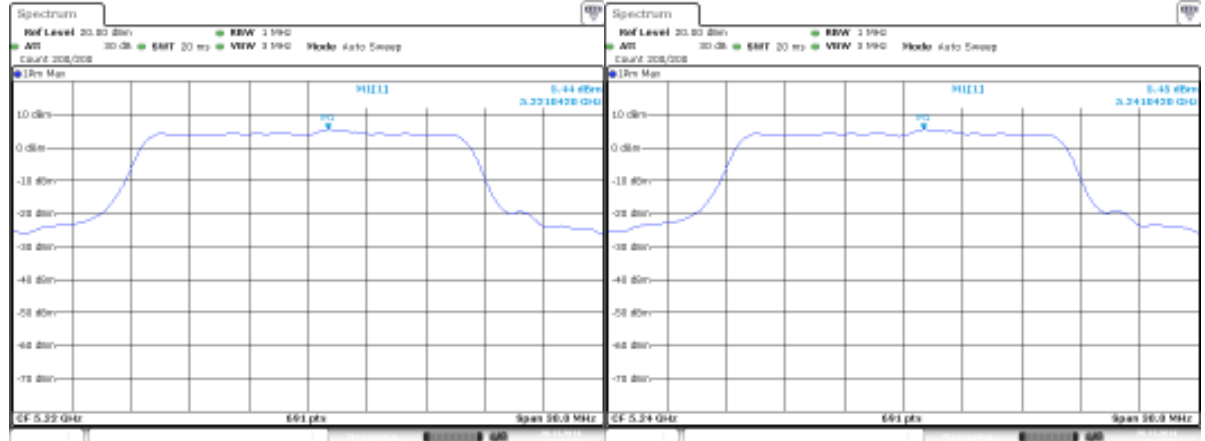
Date: 20.NOV.2014 21:30:14

802.11n HT20_3TX - Non Beamforming_ANT1



Date: 20.NOV.2014 19:31:28

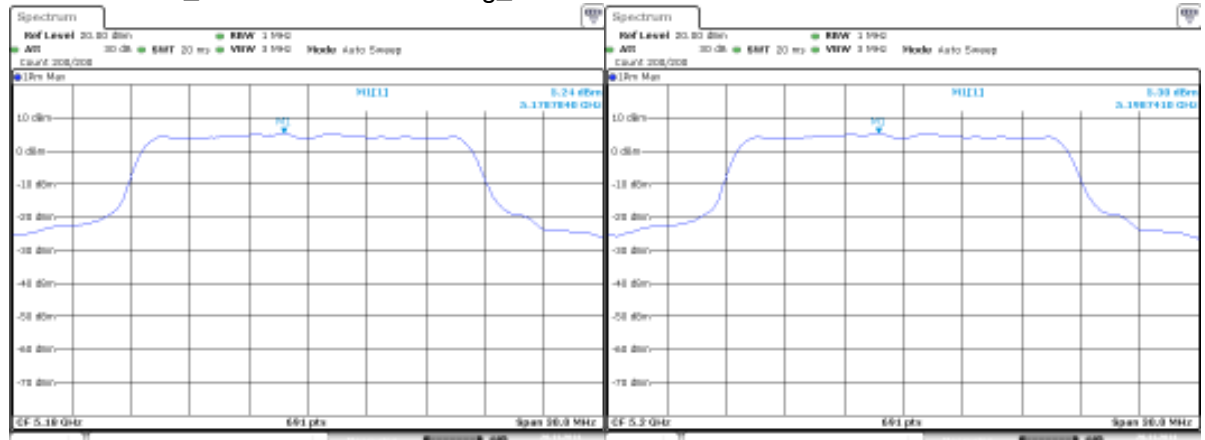
Date: 20.NOV.2014 19:31:29



Date: 20.NOV.2014 19:34:33

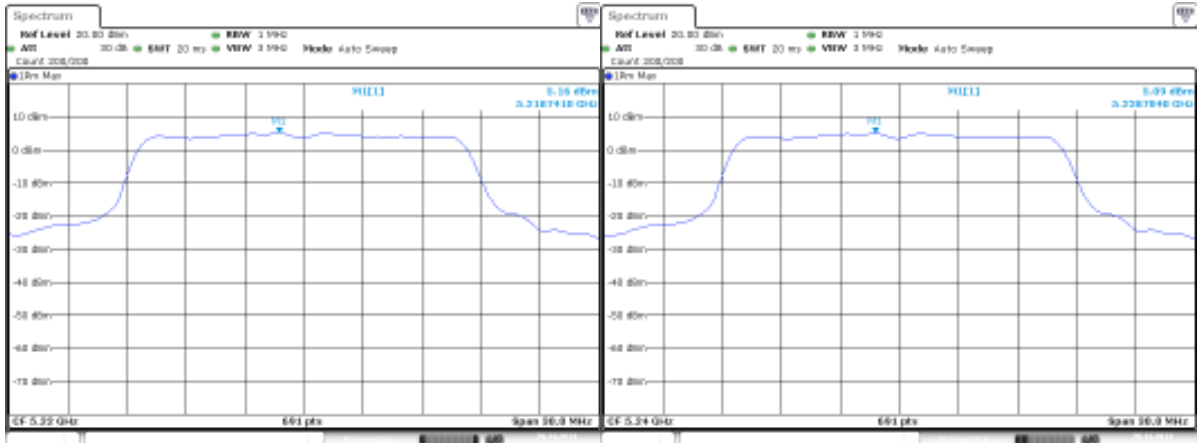
Date: 20.NOV.2014 19:35:31

802.11n HT20_3TX - Non Beamforming_ANT2



Date: 20.NOV.2014 21:36:00

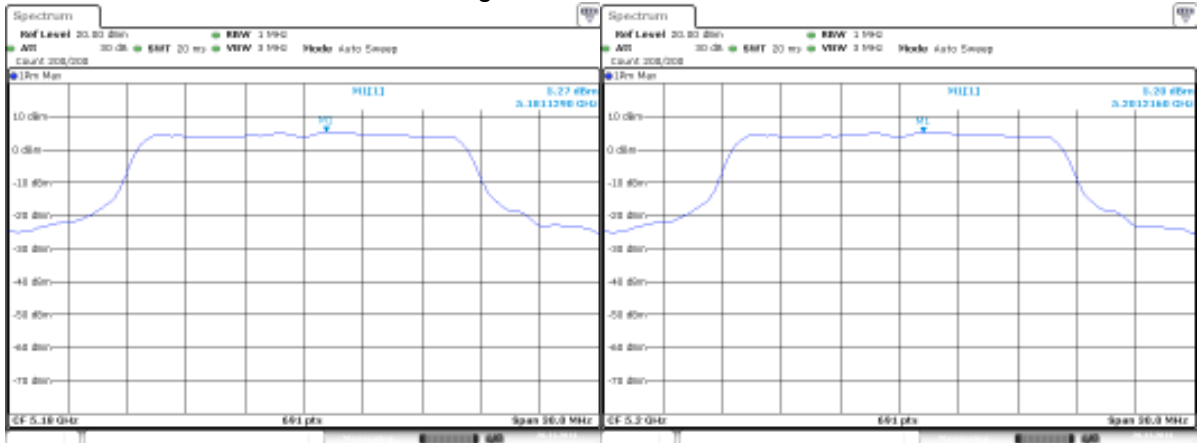
Date: 20.NOV.2014 21:37:00



Date: 20.NOV.2014 21:37:46

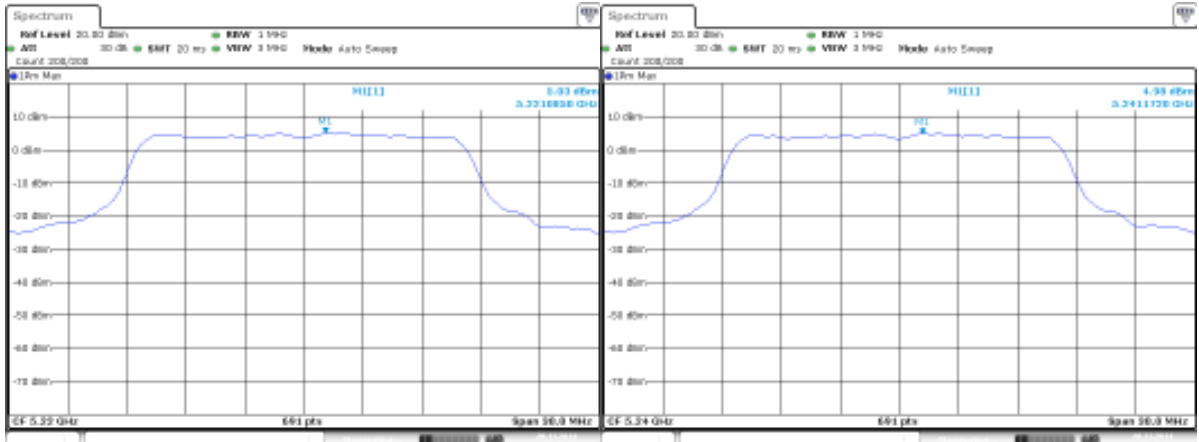
Date: 20.NOV.2014 21:38:56

802.11n HT20_3TX - Non Beamforming_ANT3



Date: 20.NOV.2014 20:38:12

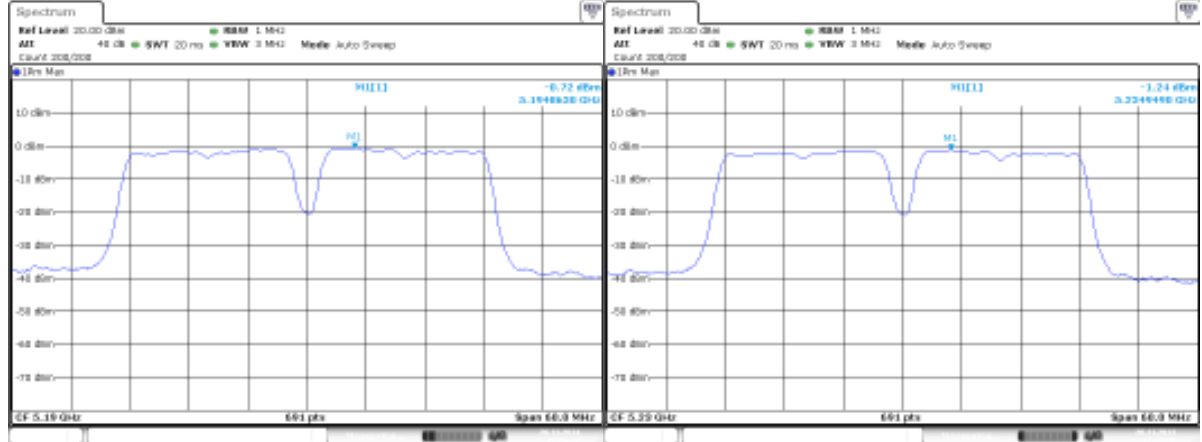
Date: 20.NOV.2014 20:41:11



Date: 20.NOV.2014 20:42:08

Date: 20.NOV.2014 20:43:05

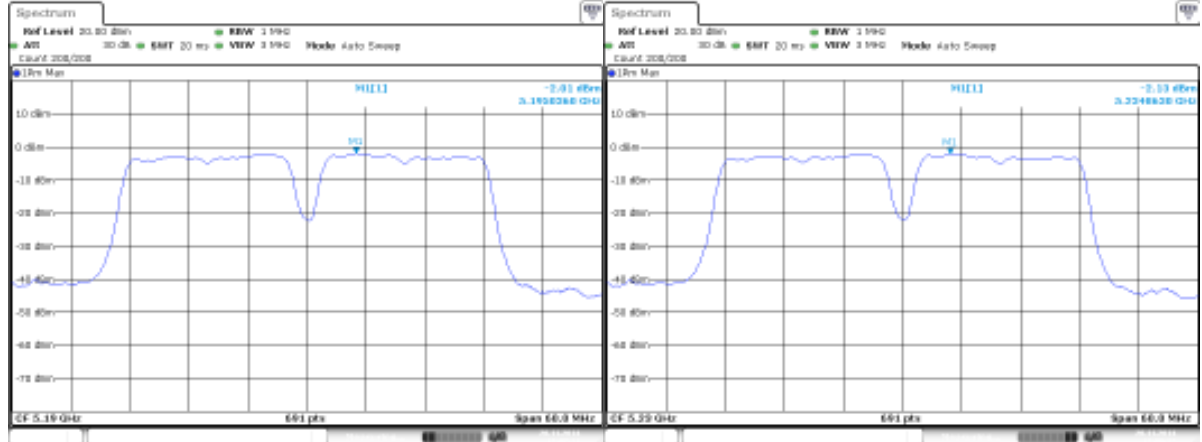
802.11n HT40_1TX - Non Beamforming_ANT1



Date: 20.NOV.2014 11:30:44

Date: 20.NOV.2014 11:31:50

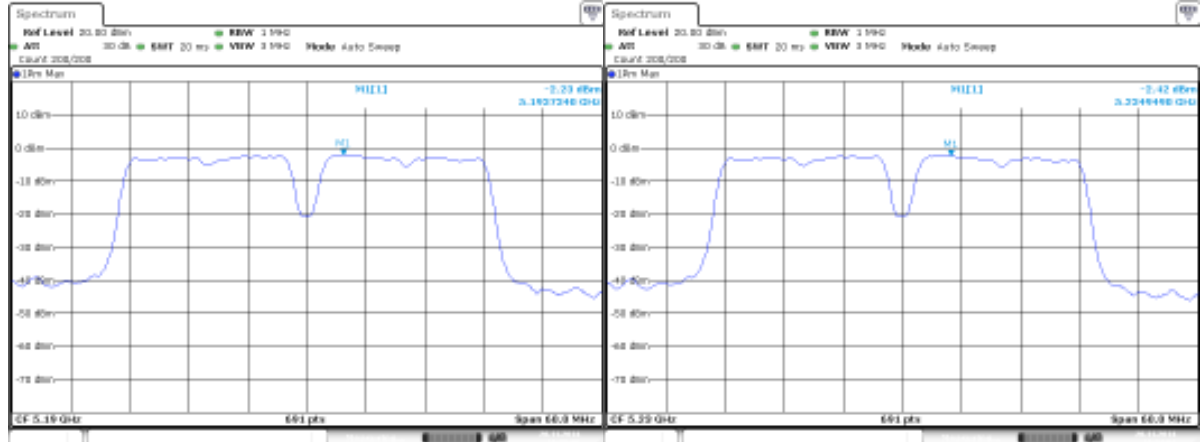
802.11n HT40_2TX - Non Beamforming_ANT1



Date: 20.NOV.2014 19:07:21

Date: 20.NOV.2014 19:08:38

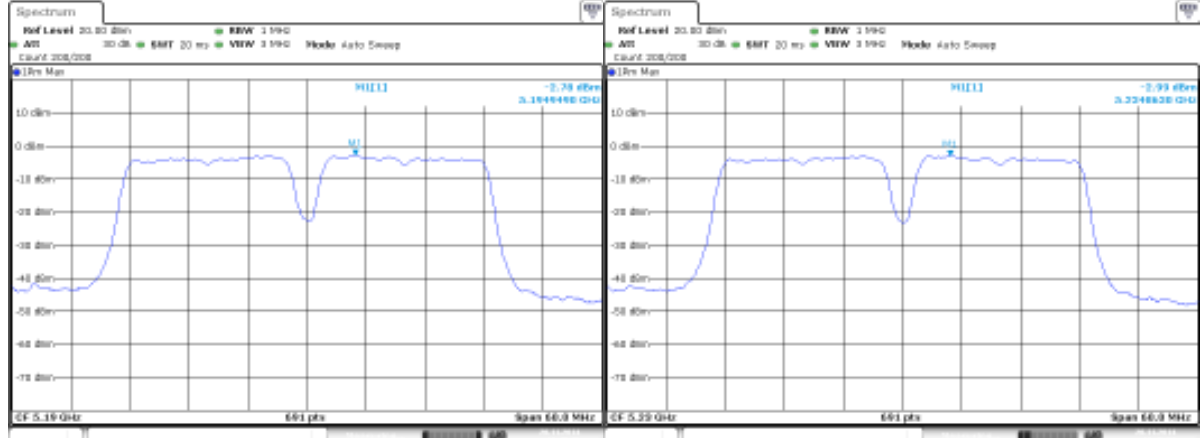
802.11n HT40_2TX - Non Beamforming_ANT3



Date: 20.NOV.2014 18:33:00

Date: 20.NOV.2014 18:34:05

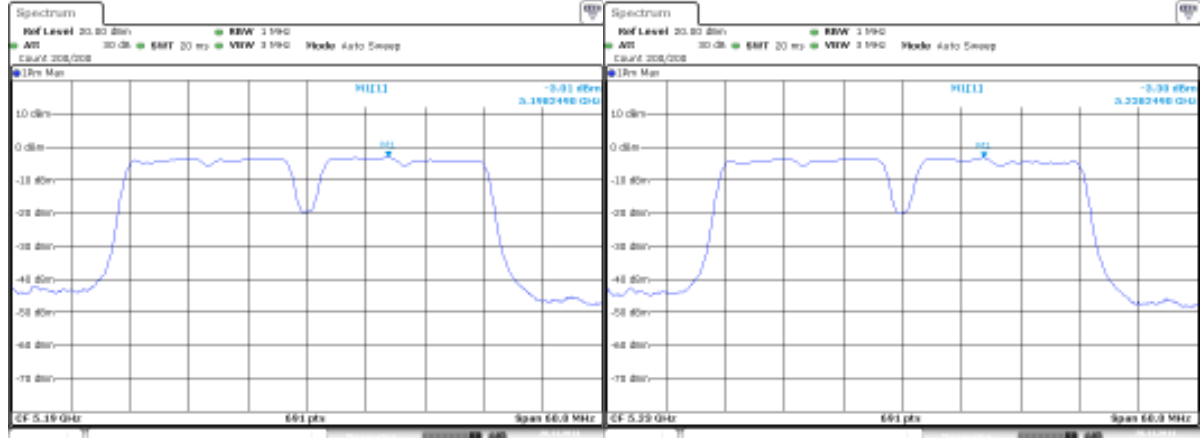
802.11n HT40_3TX - Non Beamforming_ANT1



Date: 20.NOV.2014 19:40:46

Date: 20.NOV.2014 19:41:54

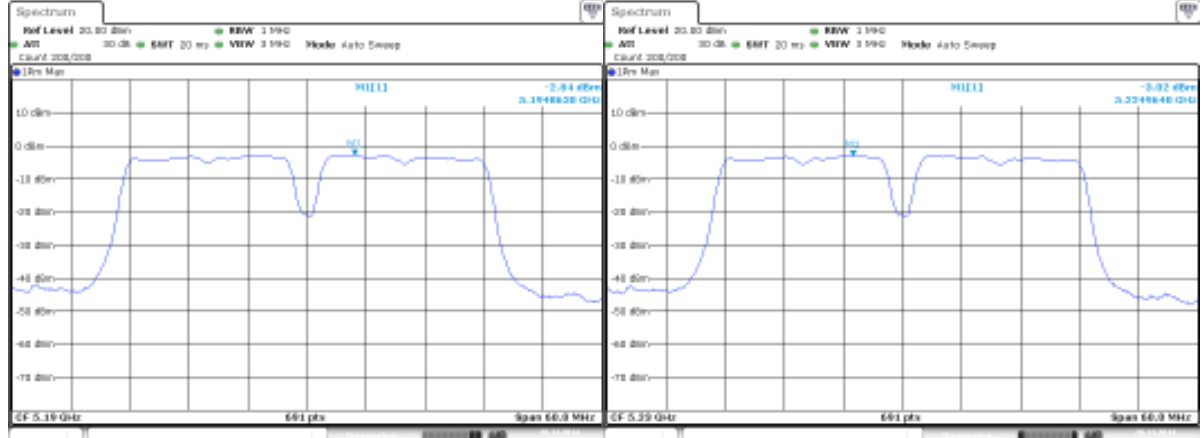
802.11n HT40_3TX - Non Beamforming_ANT2



Date: 20.NOV.2014 19:51:21

Date: 20.NOV.2014 19:52:15

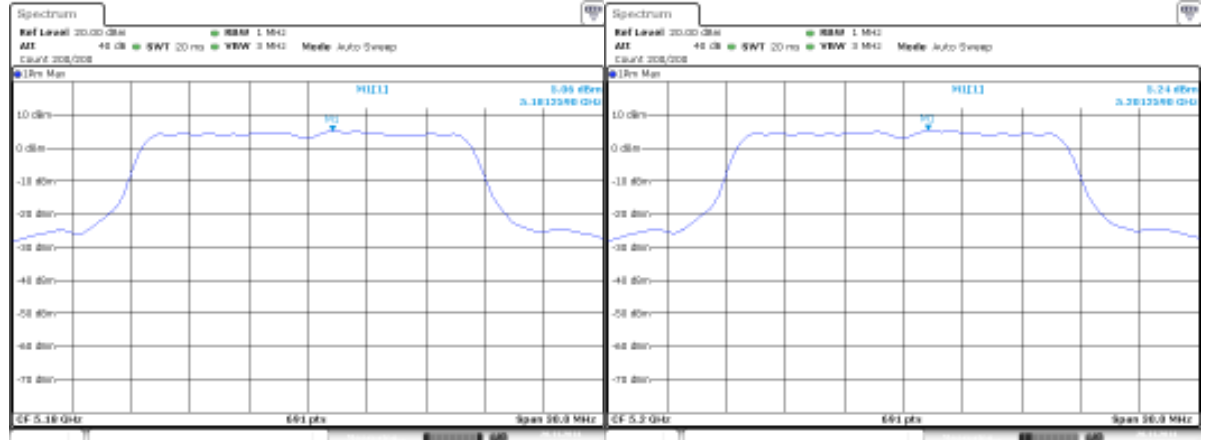
802.11n HT40_3TX - Non Beamforming_ANT3



Date: 20.NOV.2014 20:44:27

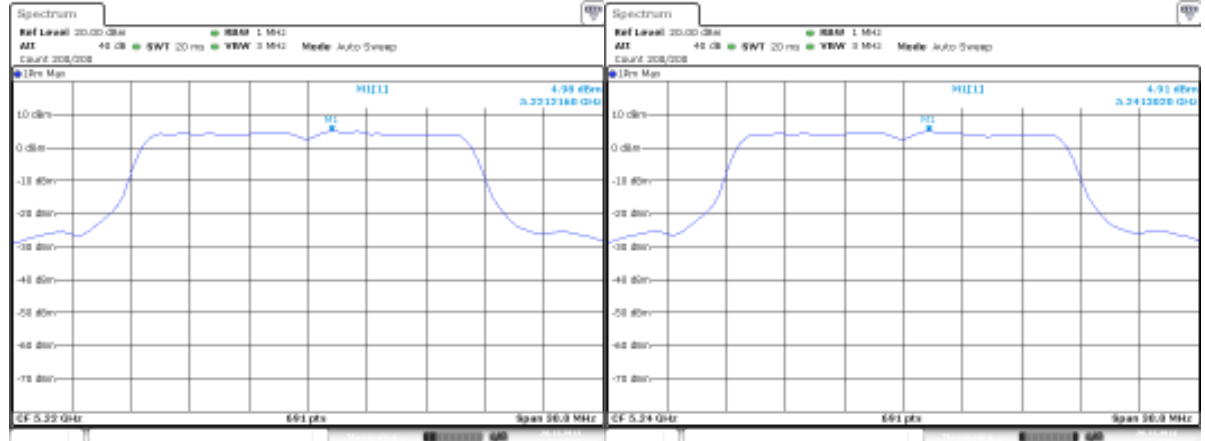
Date: 20.NOV.2014 20:45:26

802.11ac VHT20_1TX - Non Beamforming_ANT1



Date: 20.NOV.2014 11:21:33

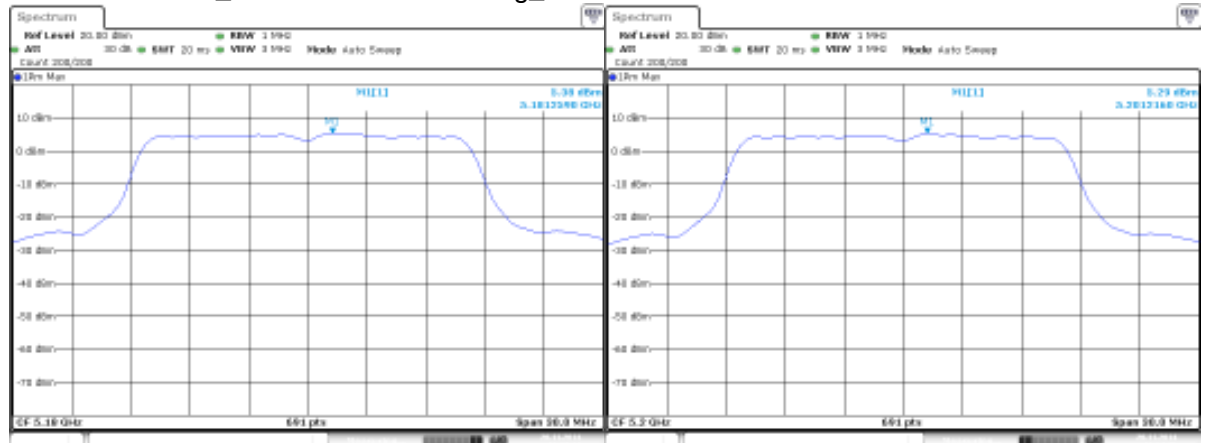
Date: 20.NOV.2014 11:22:55



Date: 20.NOV.2014 11:27:05

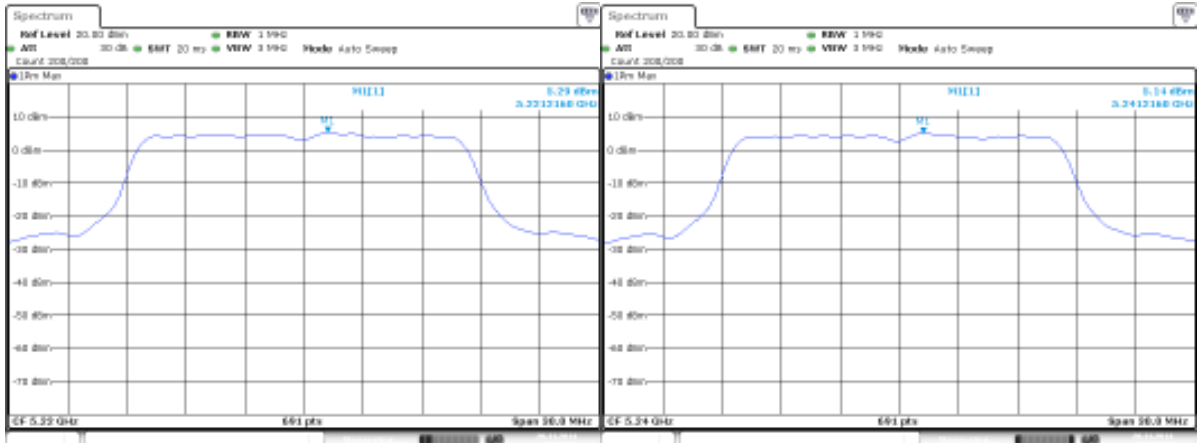
Date: 20.NOV.2014 11:25:06

802.11ac VHT20_2TX - Non Beamforming_ANT1



Date: 20.NOV.2014 21:13:12

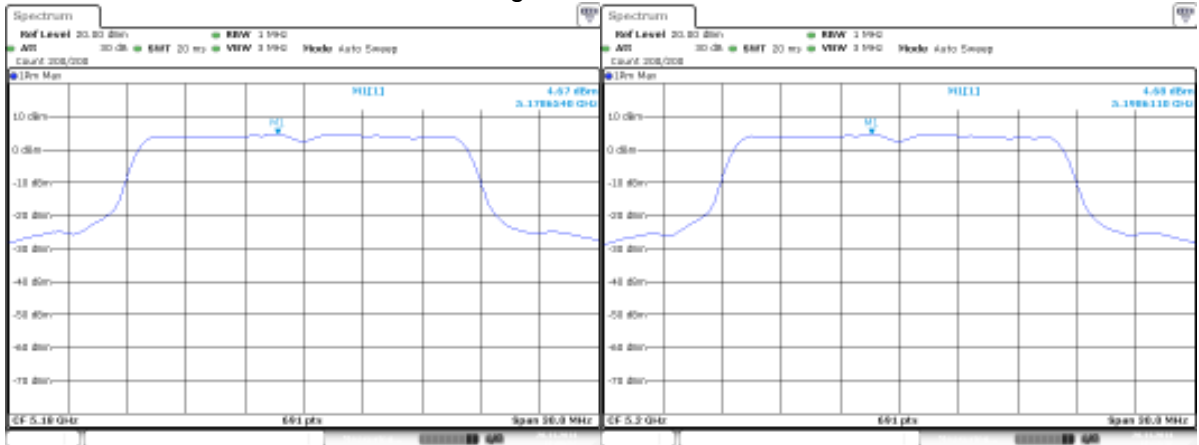
Date: 20.NOV.2014 21:14:35



Date: 20.NOV.2014 21:15:35

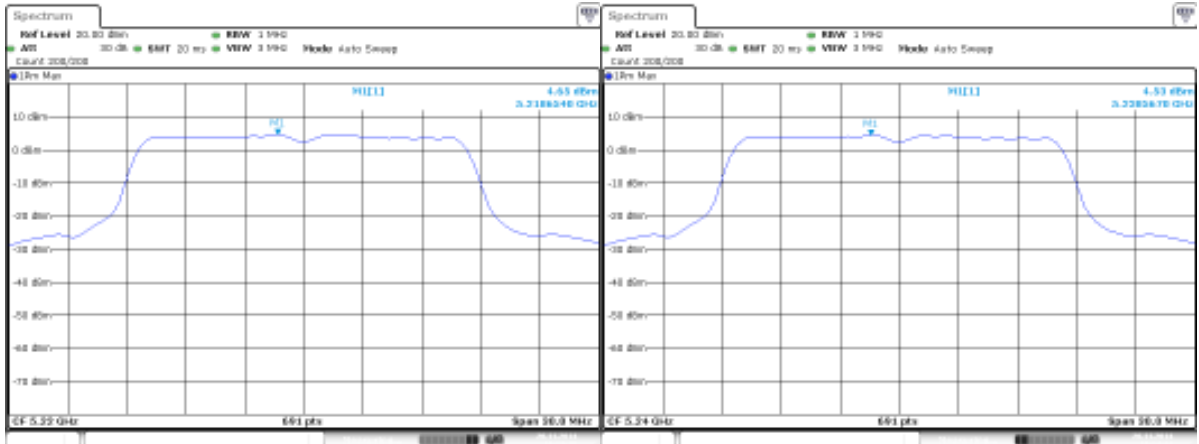
Date: 20.NOV.2014 21:16:25

802.11ac VHT20_2TX - Non Beamforming_ANT3



Date: 20.NOV.2014 18:08:55

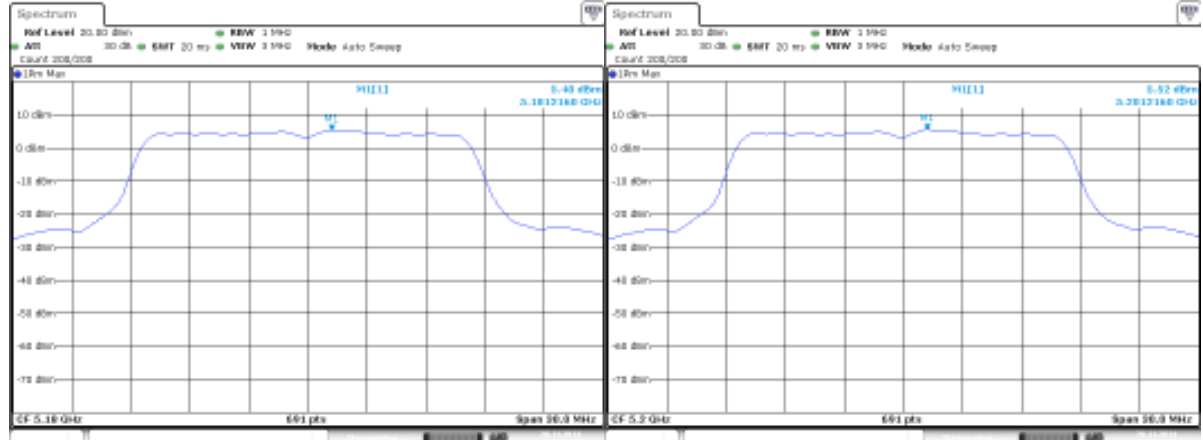
Date: 20.NOV.2014 18:12:38



Date: 20.NOV.2014 18:13:29

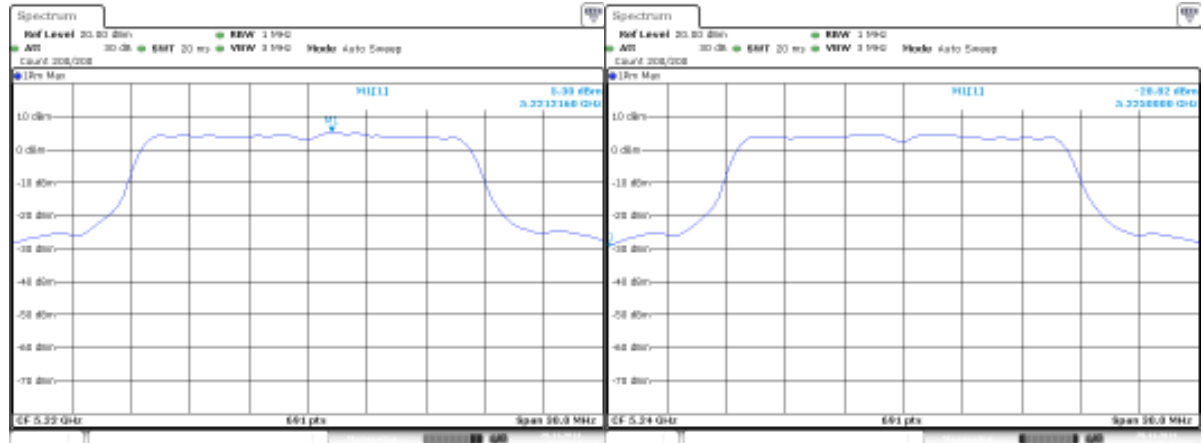
Date: 20.NOV.2014 18:14:45

802.11ac VHT20_3TX - Non Beamforming_ANT1



Date: 20.NOV.2014 19:36:44

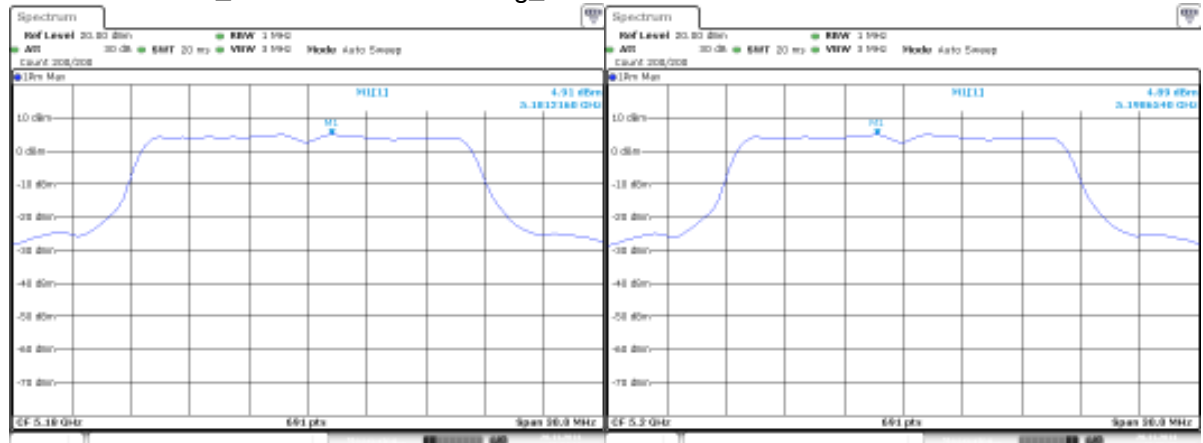
Date: 20.NOV.2014 19:37:34



Date: 20.NOV.2014 19:38:21

Date: 20.NOV.2014 20:08:10

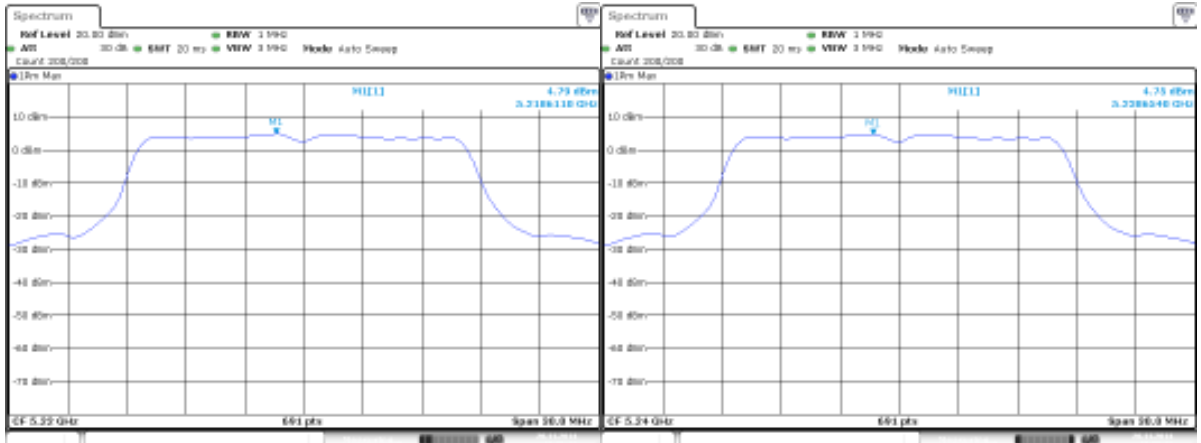
802.11ac VHT20_3TX - Non Beamforming_ANT2



Date: 20.NOV.2014 20:04:11

Date: 20.NOV.2014 20:05:30

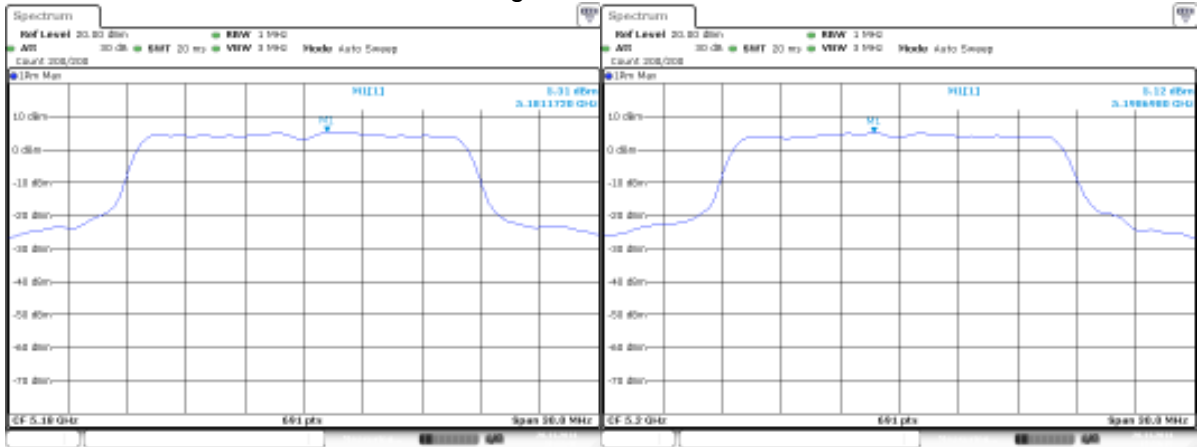
Produkte
Products



Date: 20.NOV.2014 20:06:33

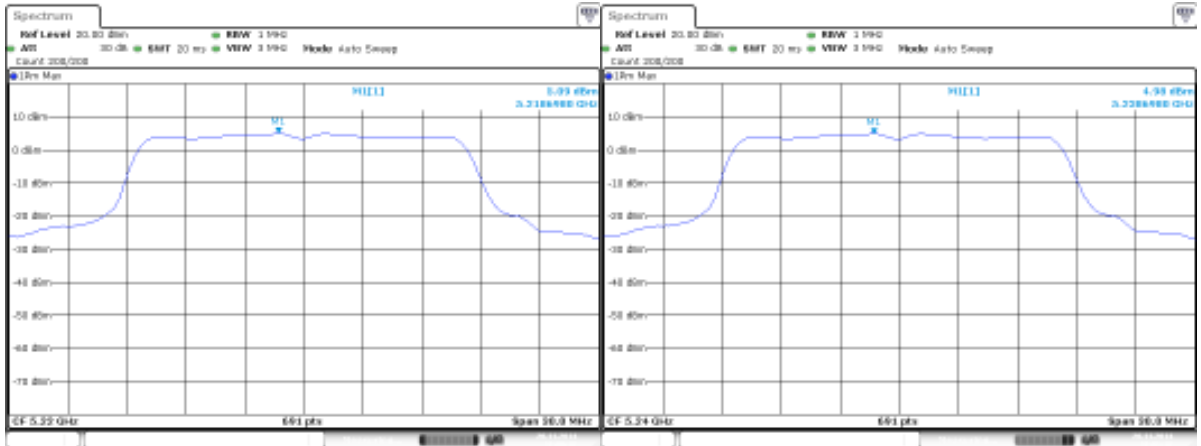
Date: 20.NOV.2014 20:08:43

802.11ac VHT20_3TX - Non Beamforming_ANT3



Date: 20.NOV.2014 20:12:40

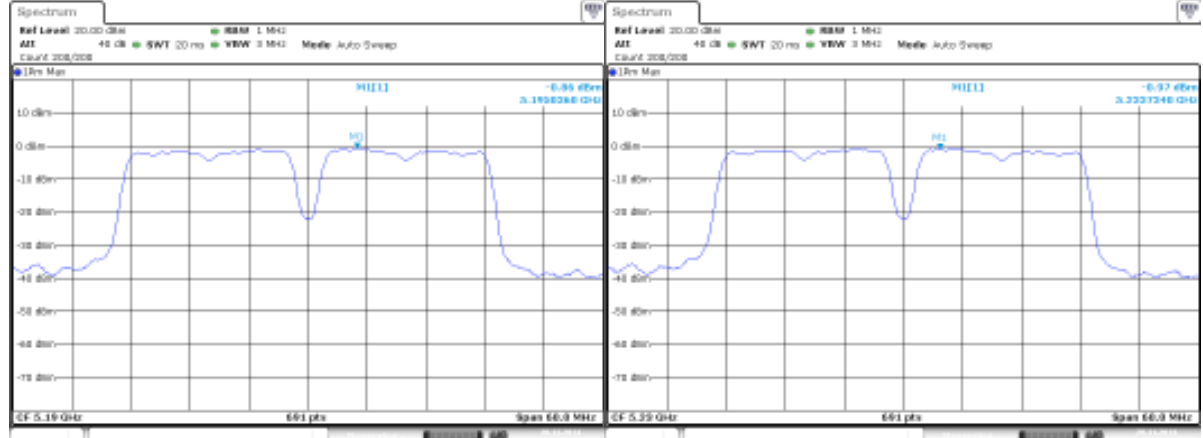
Date: 20.NOV.2014 19:59:20



Date: 20.NOV.2014 20:00:18

Date: 20.NOV.2014 20:01:18

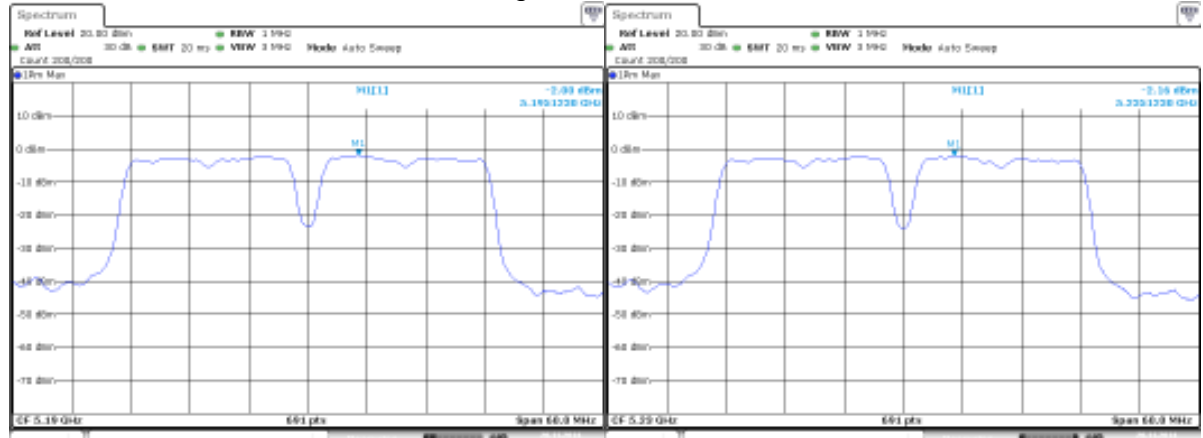
802.11ac VHT40_1TX - Non Beamforming_ANT1



Date: 20.NOV.2014 11:33:38

Date: 20.NOV.2014 11:34:58

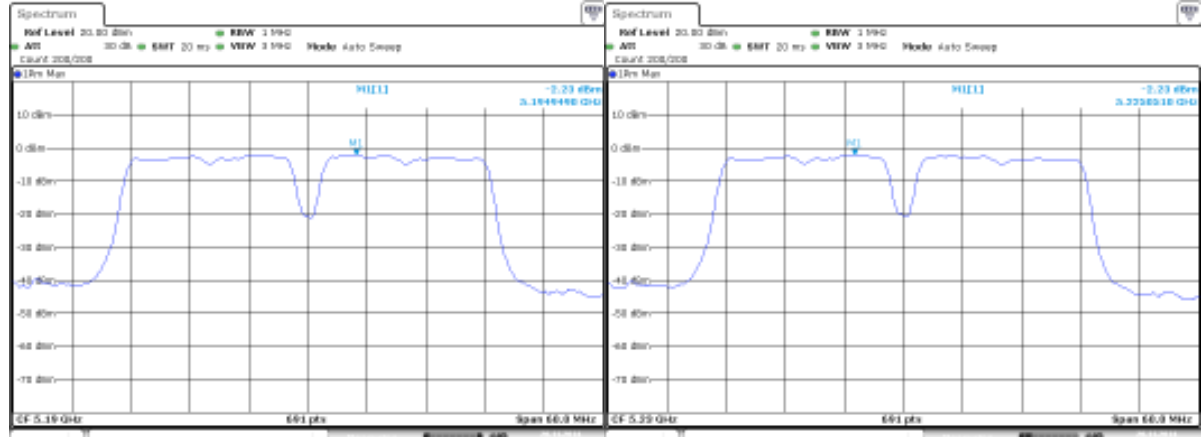
802.11ac VHT40_2TX - Non Beamforming_ANT1



Date: 20.NOV.2014 18:57:33

Date: 20.NOV.2014 19:02:23

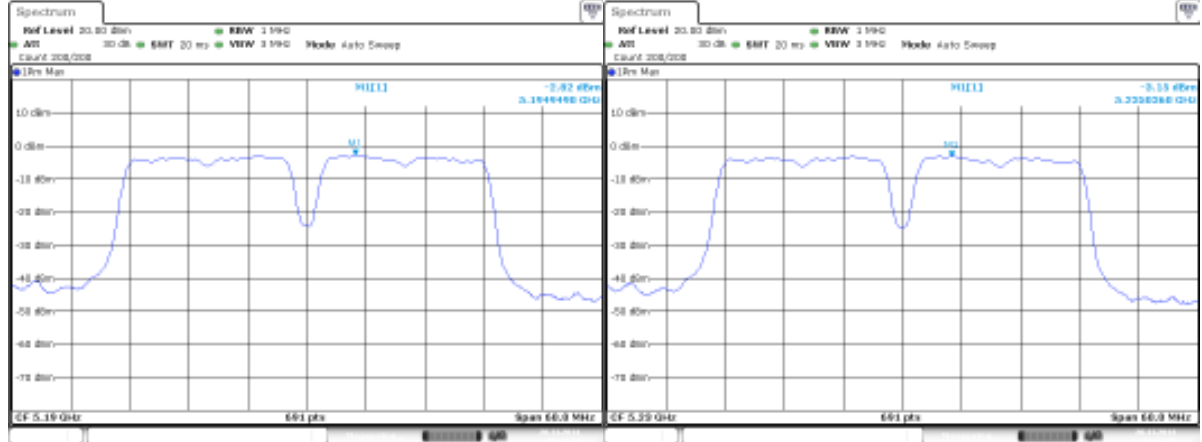
802.11ac VHT40_2TX - Non Beamforming_ANT3



Date: 20.NOV.2014 18:29:54

Date: 20.NOV.2014 18:31:17

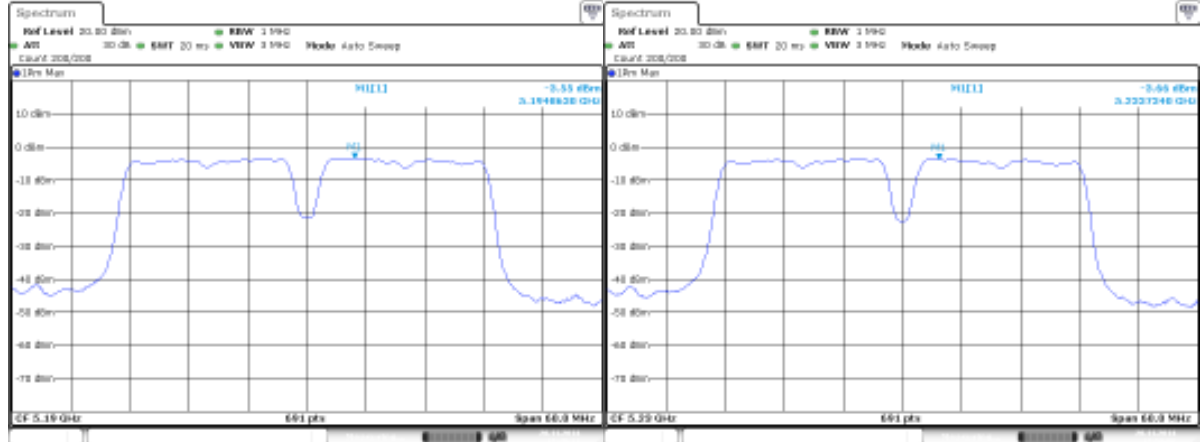
802.11ac VHT40_3TX - Non Beamforming_ANT1



Date: 20.NOV.2014 19:44:05

Date: 20.NOV.2014 19:44:50

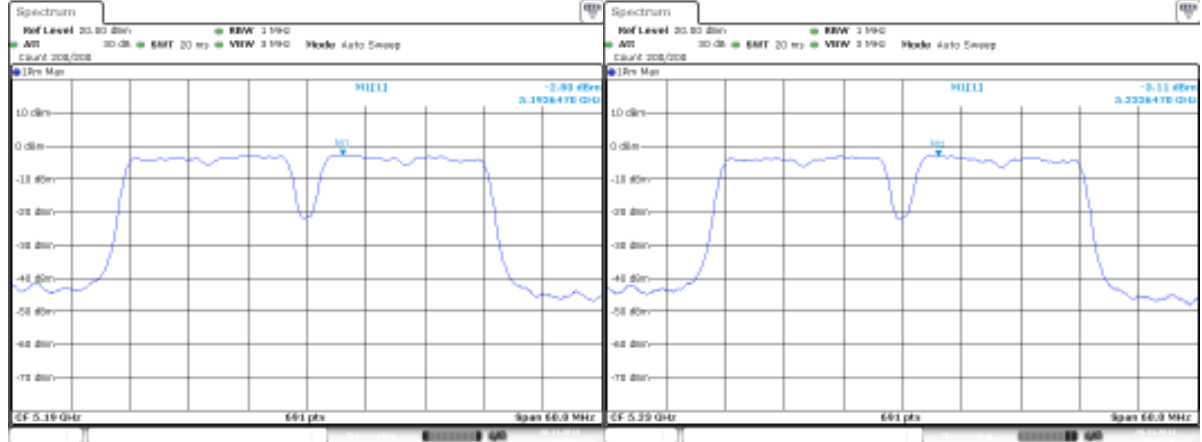
802.11ac VHT40_3TX - Non Beamforming_ANT2



Date: 20.NOV.2014 19:49:11

Date: 20.NOV.2014 19:50:08

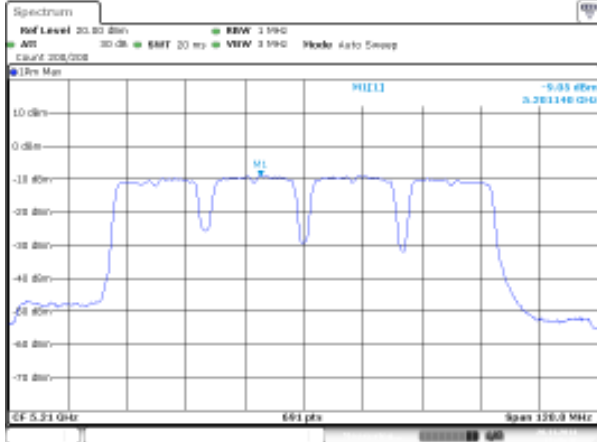
802.11ac VHT40_3TX - Non Beamforming_ANT3



Date: 20.NOV.2014 20:46:49

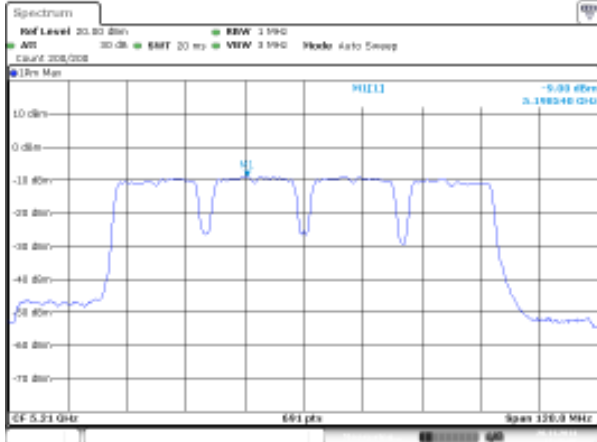
Date: 20.NOV.2014 20:47:51

802.11ac VHT80_3TX - Non Beamforming_ANT1



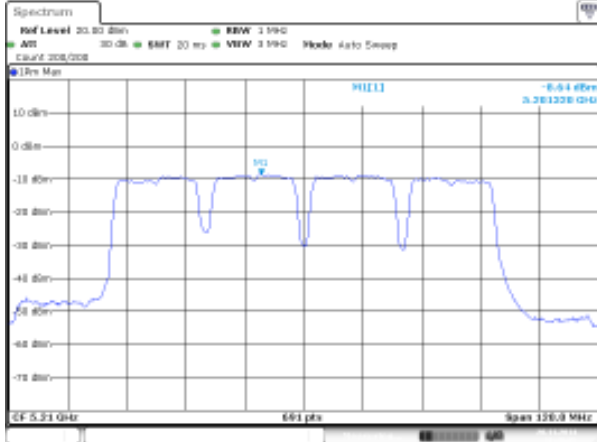
Date: 20.NOV.2014 19:46:30

802.11ac VHT80_3TX - Non Beamforming_ANT2



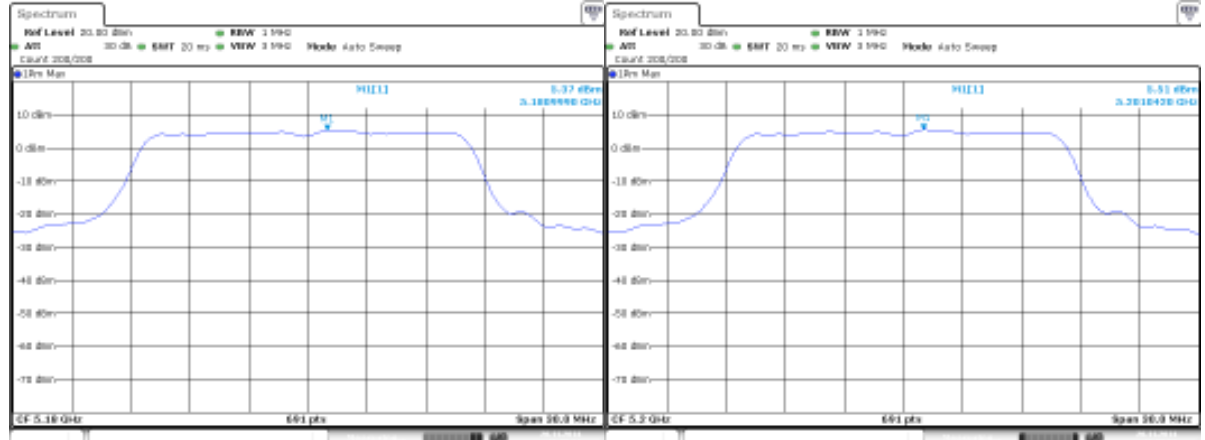
Date: 20.NOV.2014 19:48:00

802.11ac VHT80_3TX - Non Beamforming_ANT3



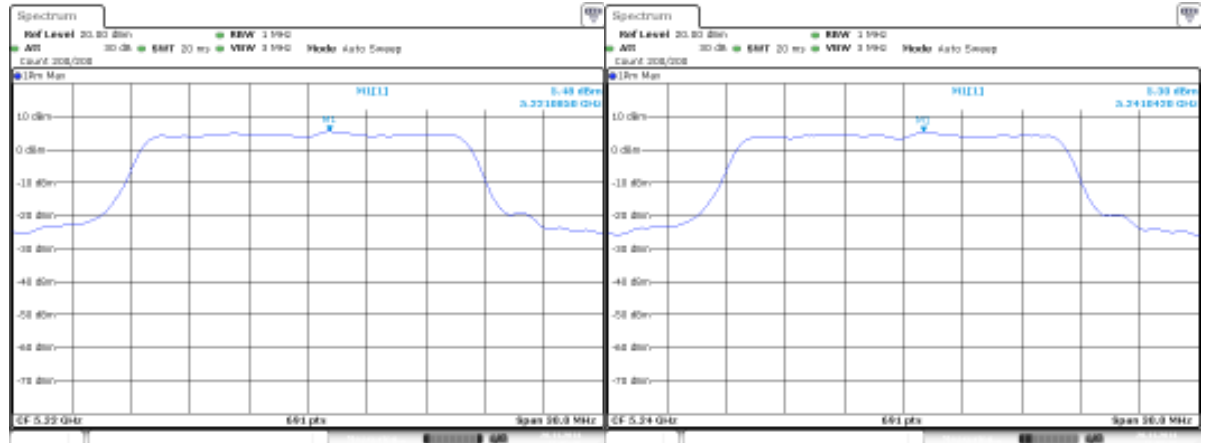
Date: 20.NOV.2014 20:49:06

802.11n HT20_2TX - Beamforming_ANT1



Date: 20.NOV.2014 22:00:01

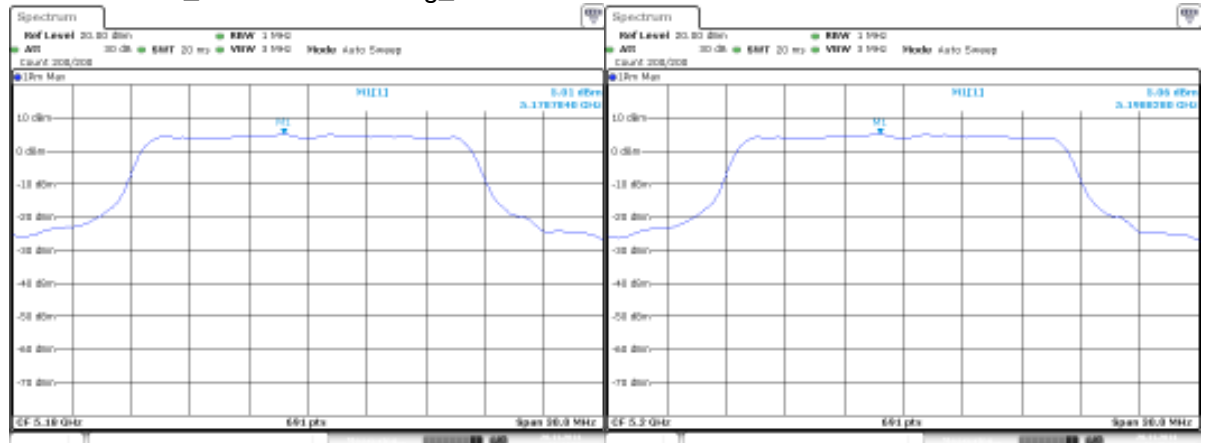
Date: 20.NOV.2014 22:00:53



Date: 20.NOV.2014 22:01:40

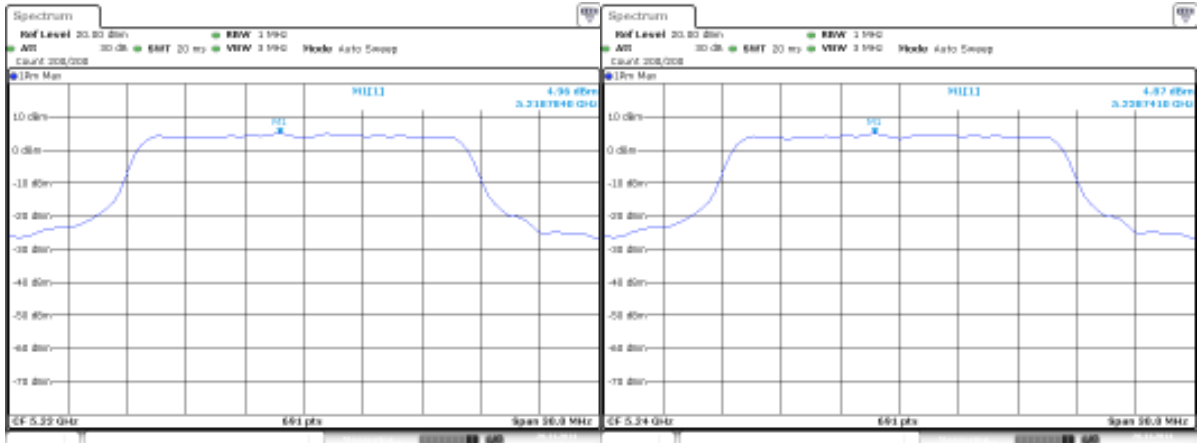
Date: 20.NOV.2014 22:02:18

802.11n HT20_2TX - Beamforming_ANT3



Date: 20.NOV.2014 21:44:54

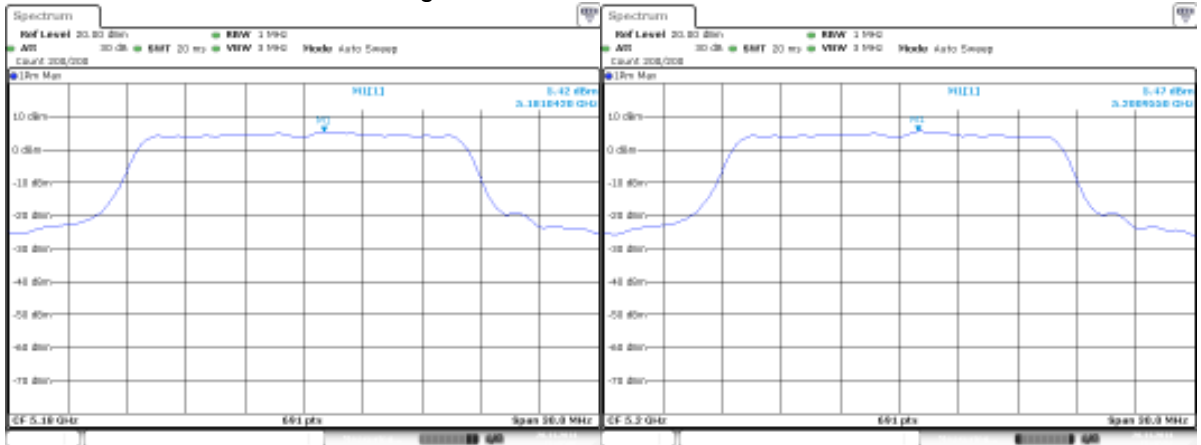
Date: 20.NOV.2014 21:48:11



Date: 20.NOV.2014 21:49:14

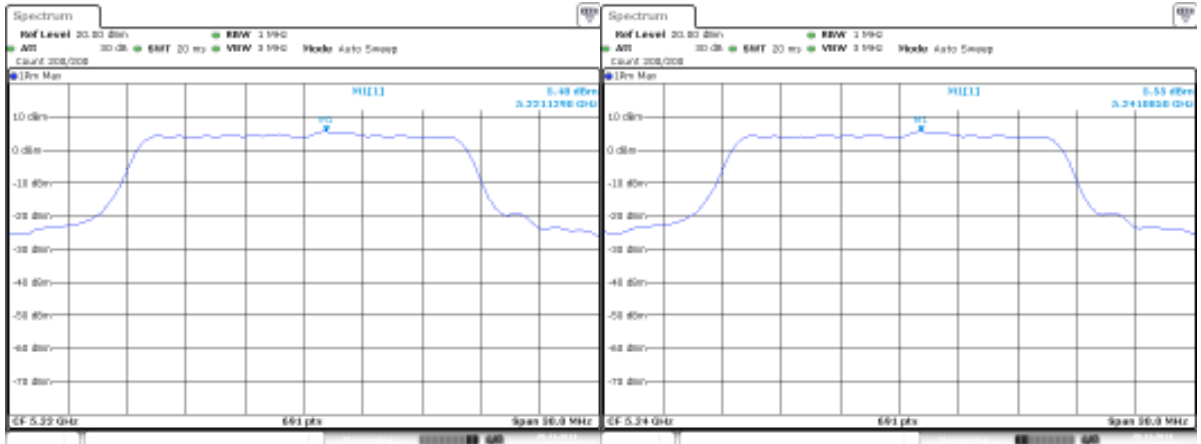
Date: 20.NOV.2014 21:50:07

802.11n HT20_3TX - Beamforming_ANT1



Date: 20.NOV.2014 22:47:00

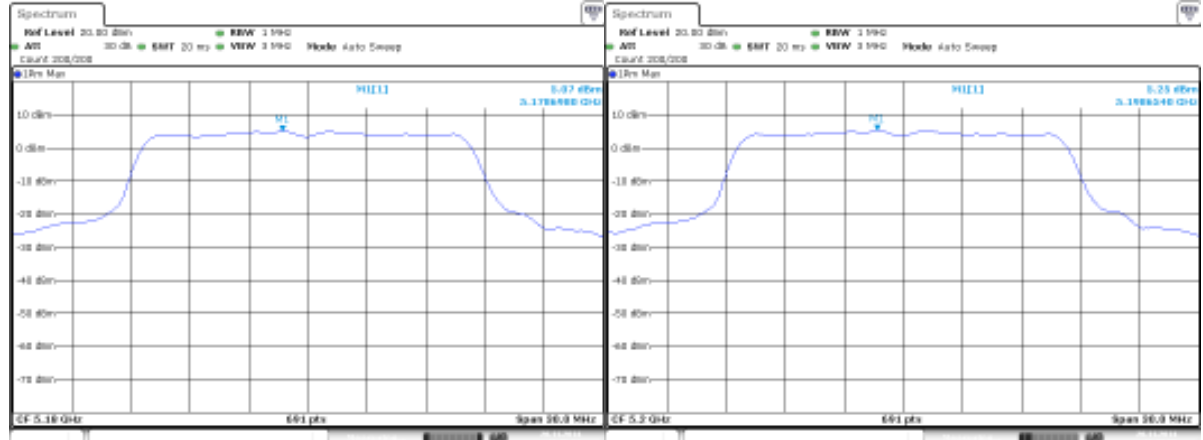
Date: 20.NOV.2014 22:47:55



Date: 20.NOV.2014 22:48:34

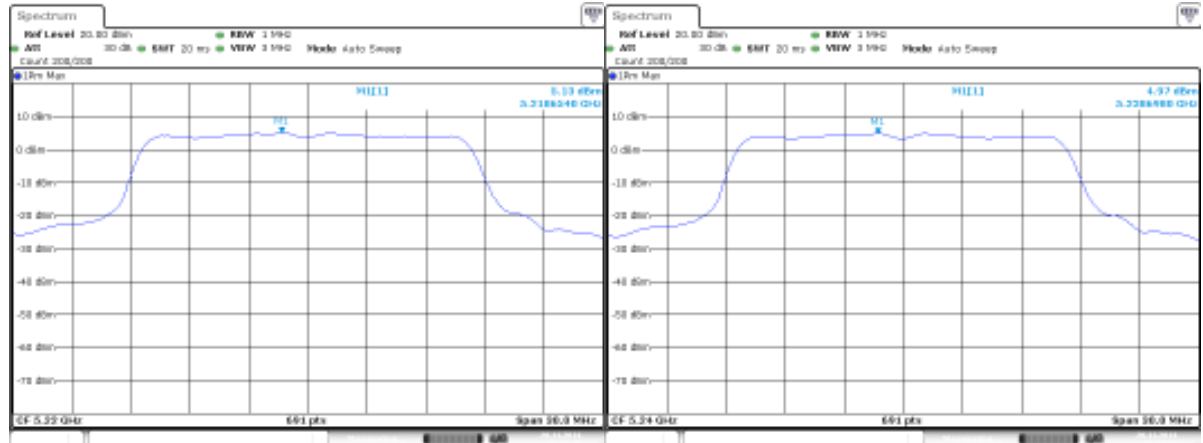
Date: 20.NOV.2014 22:49:15

802.11n HT20_3TX - Beamforming_ANT2



Date: 20.NOV.2014 22:21:54

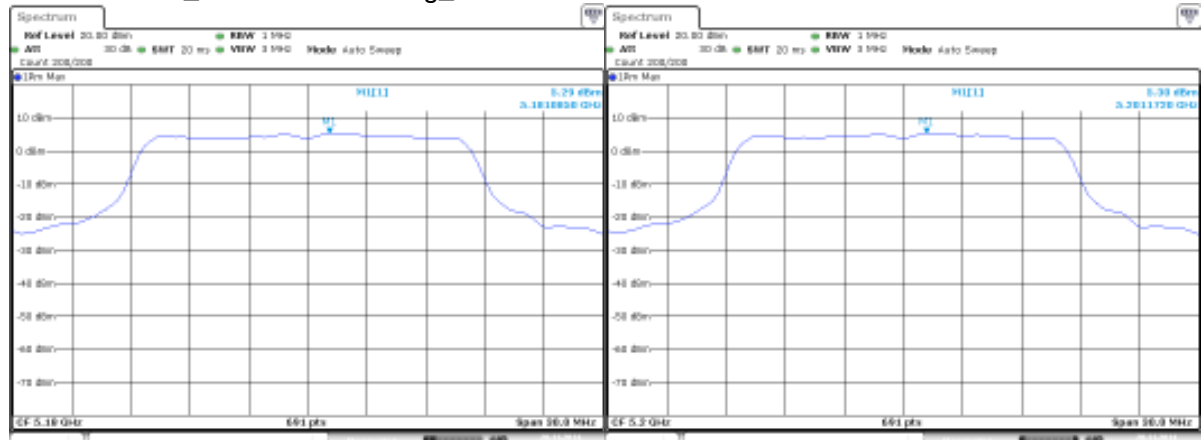
Date: 20.NOV.2014 22:23:00



Date: 20.NOV.2014 22:23:48

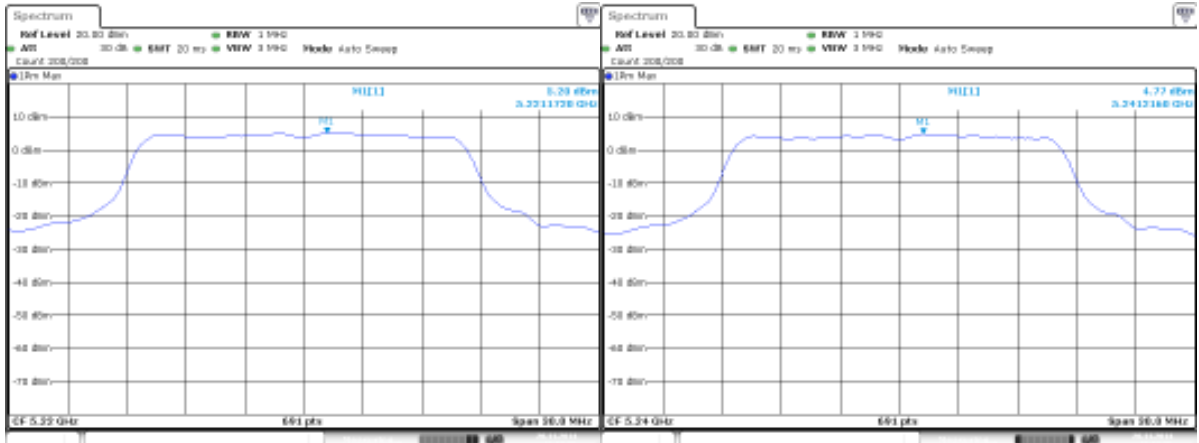
Date: 20.NOV.2014 22:24:34

802.11n HT20_3TX - Beamforming_ANT3



Date: 20.NOV.2014 22:52:44

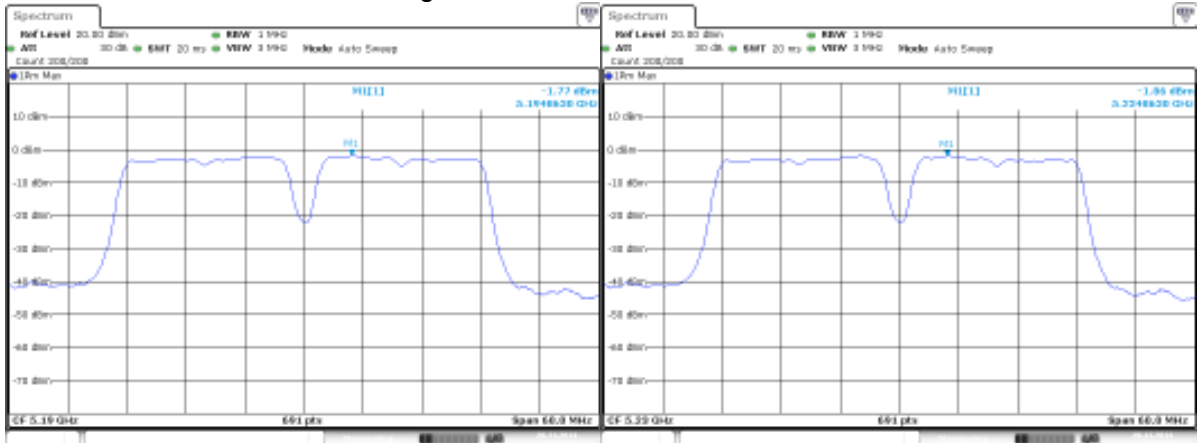
Date: 20.NOV.2014 22:52:04



Date: 20.NOV.2014 22:50:55

Date: 20.NOV.2014 22:50:05

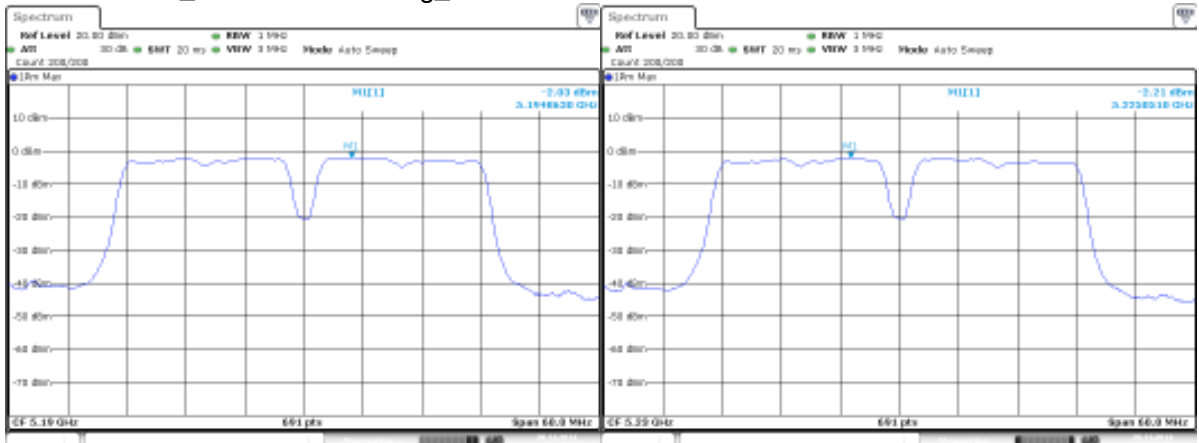
802.11n HT40_2TX - Beamforming_ANT1



Date: 20.NOV.2014 22:03:38

Date: 20.NOV.2014 22:05:03

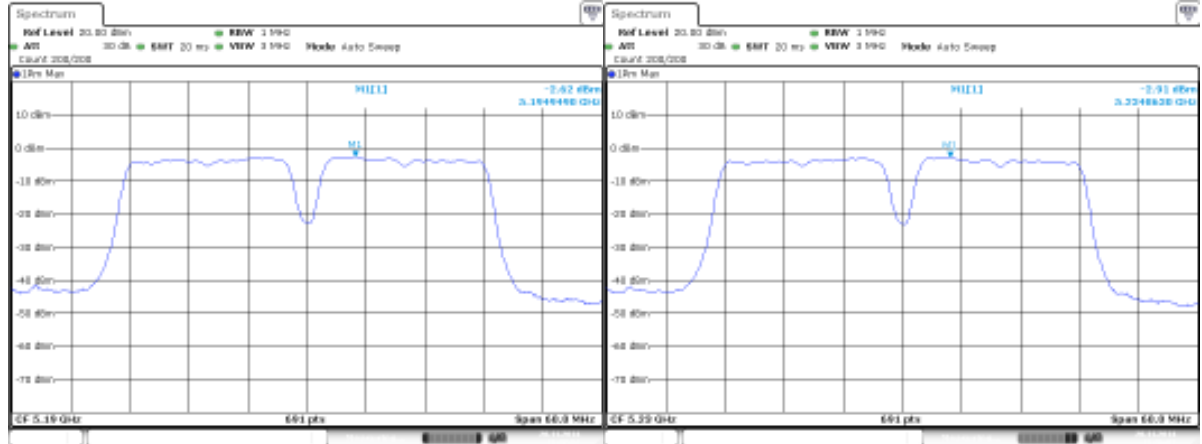
802.11n HT40_2TX - Beamforming_ANT3



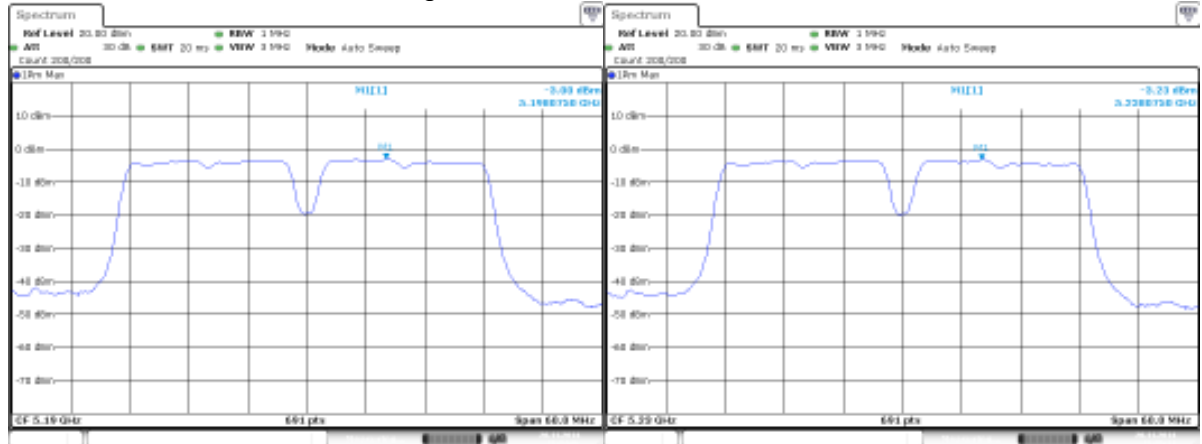
Date: 20.NOV.2014 22:13:51

Date: 20.NOV.2014 22:14:38

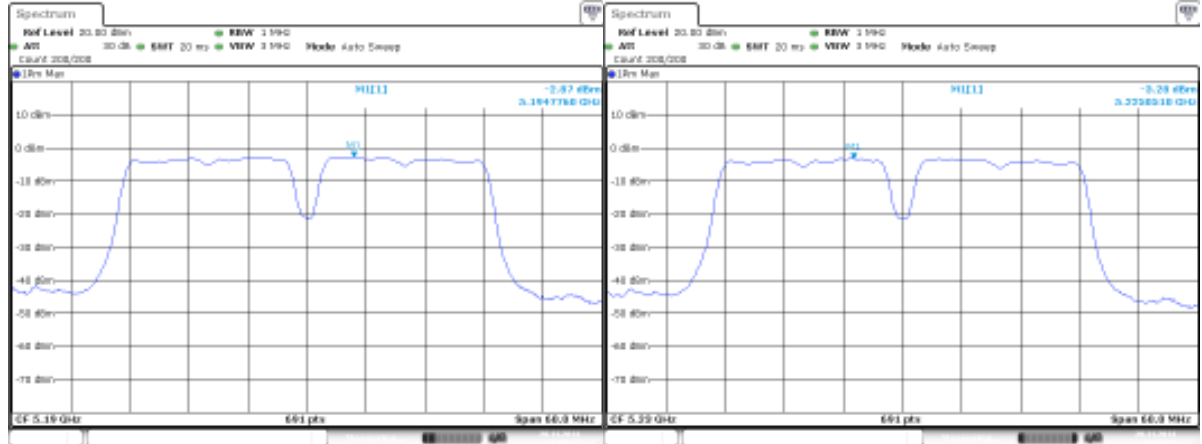
802.11n HT40_3TX - Beamforming_ANT1



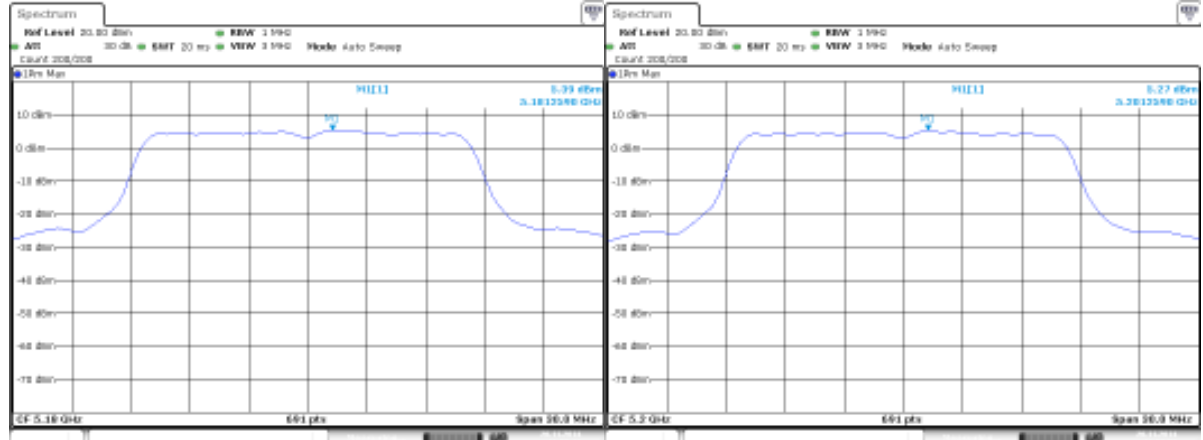
802.11n HT40_3TX - Beamforming_ANT2



802.11n HT40_3TX - Beamforming_ANT3

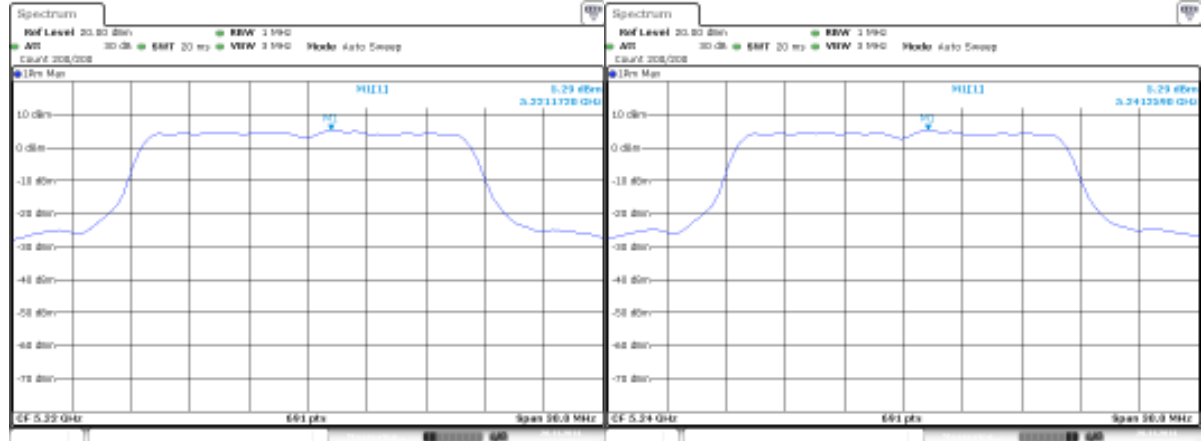


802.11ac VHT20_2TX - Beamforming_ANT1



Date: 20.NOV.2014 21:58:48

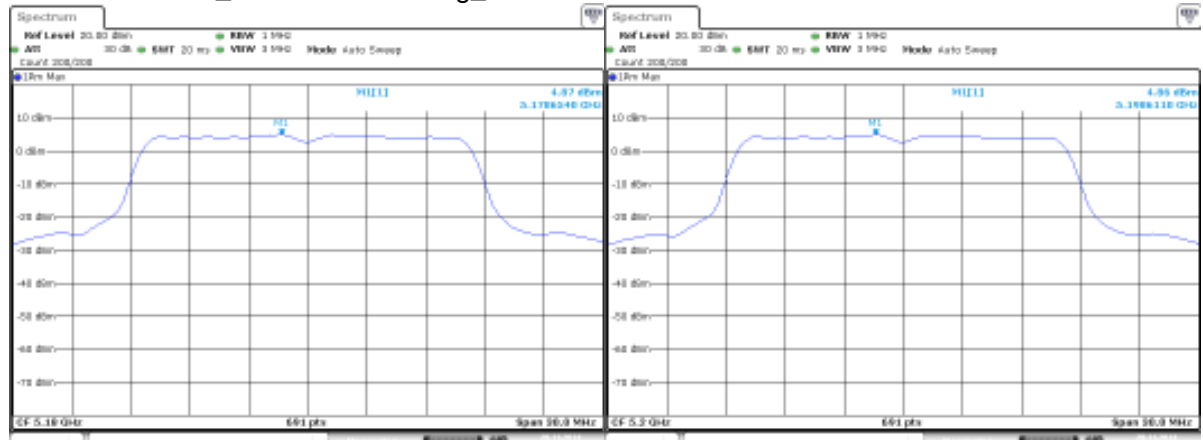
Date: 20.NOV.2014 21:58:04



Date: 20.NOV.2014 21:57:06

Date: 20.NOV.2014 21:56:18

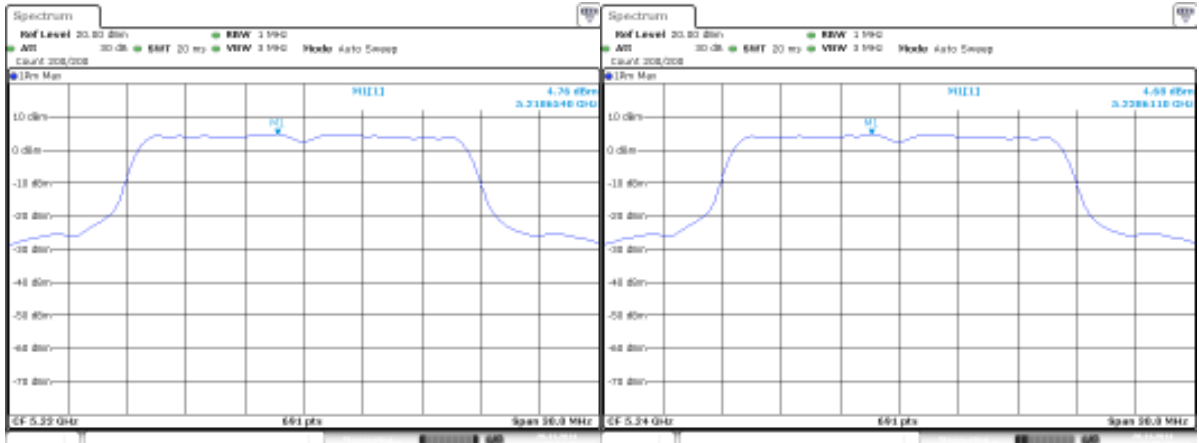
802.11ac VHT20_2TX - Beamforming_ANT3



Date: 20.NOV.2014 21:51:41

Date: 20.NOV.2014 21:53:14

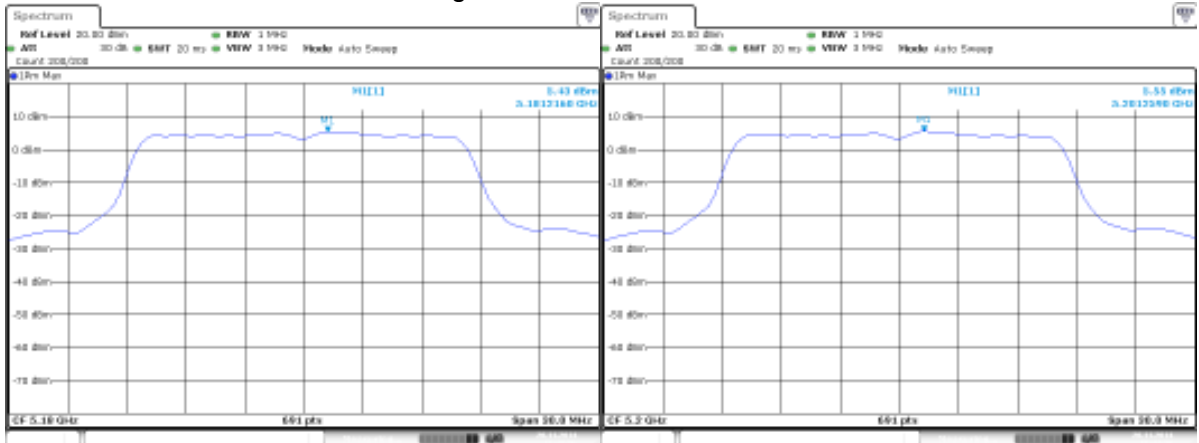
Produkte
 Products



Date: 20.NOV.2014 21:54:30

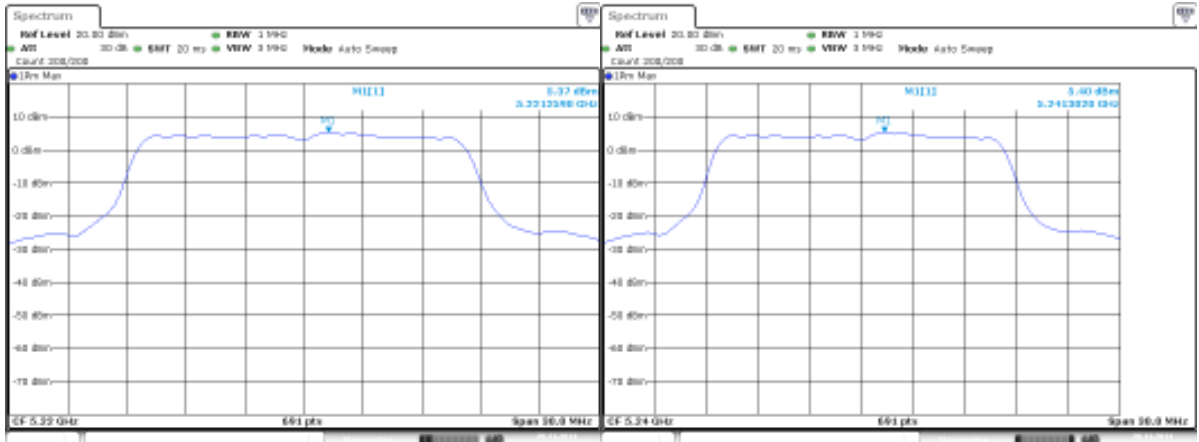
Date: 20.NOV.2014 21:55:29

802.11ac VHT20_3TX - Beamforming_ANT1



Date: 20.NOV.2014 22:42:57

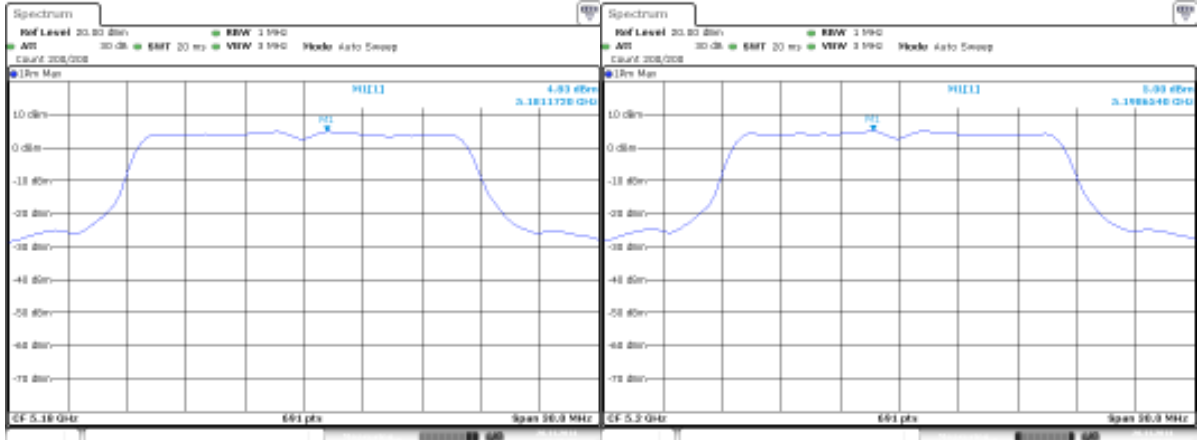
Date: 20.NOV.2014 22:44:30



Date: 20.NOV.2014 22:45:15

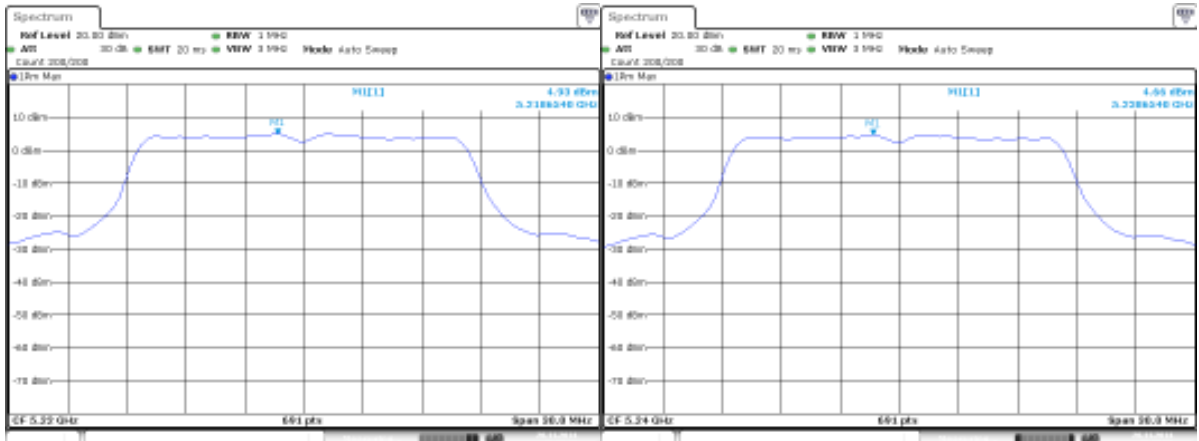
Date: 20.NOV.2014 22:45:59

802.11ac VHT20_3TX - Beamforming_ANT2



Date: 20.NOV.2014 22:25:59

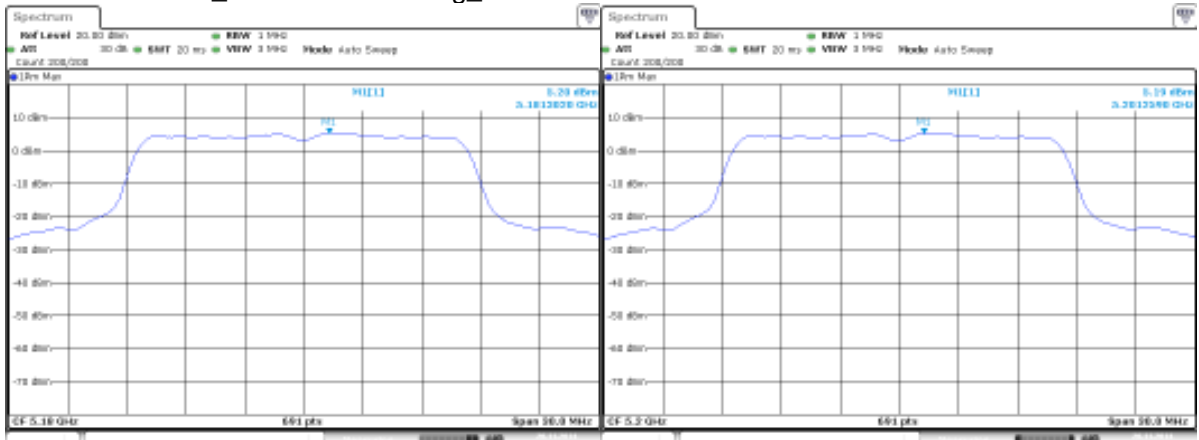
Date: 20.NOV.2014 22:27:20



Date: 20.NOV.2014 22:28:10

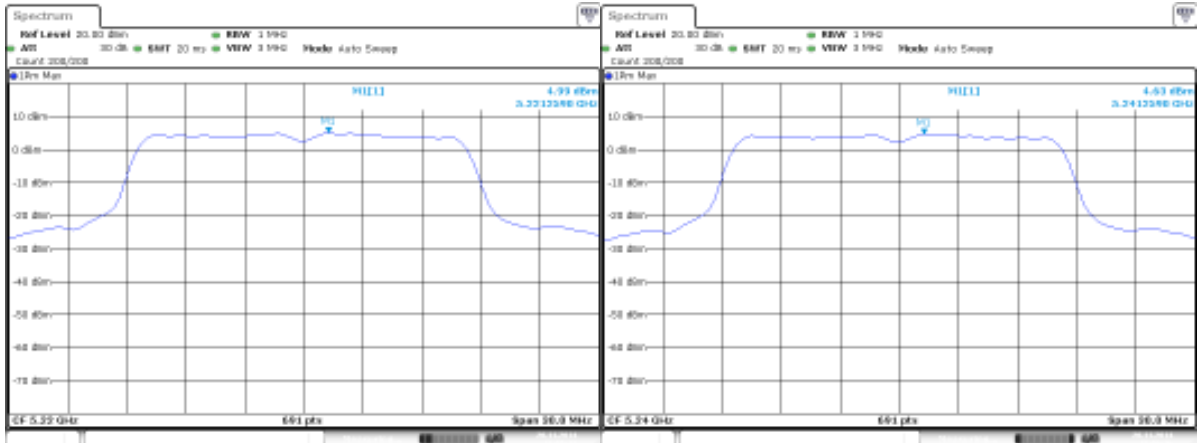
Date: 20.NOV.2014 22:28:58

802.11ac VHT20_3TX - Beamforming_ANT3



Date: 20.NOV.2014 22:53:47

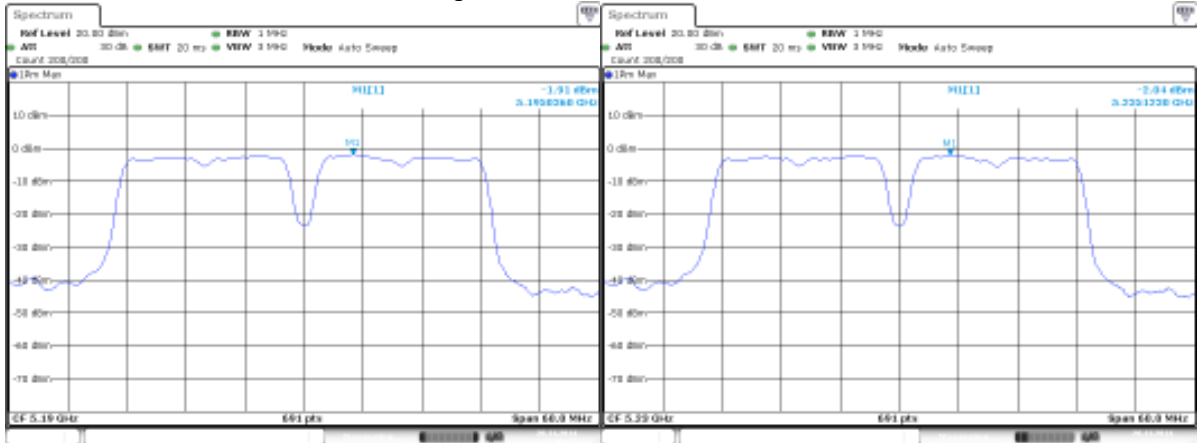
Date: 20.NOV.2014 22:54:38



Date: 20.NOV.2014 22:55:23

Date: 20.NOV.2014 22:56:16

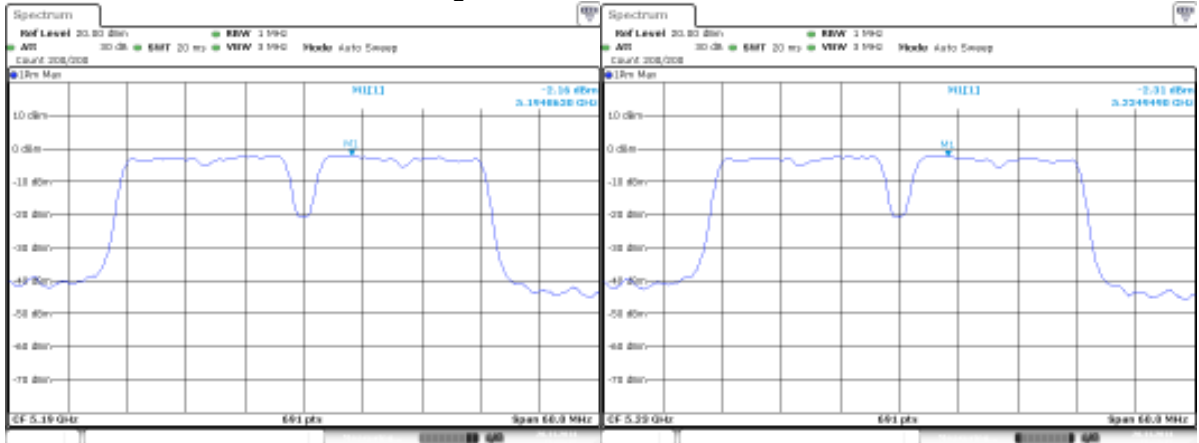
802.11ac VHT40_2TX - Beamforming_ANT1



Date: 20.NOV.2014 22:06:12

Date: 20.NOV.2014 22:07:31

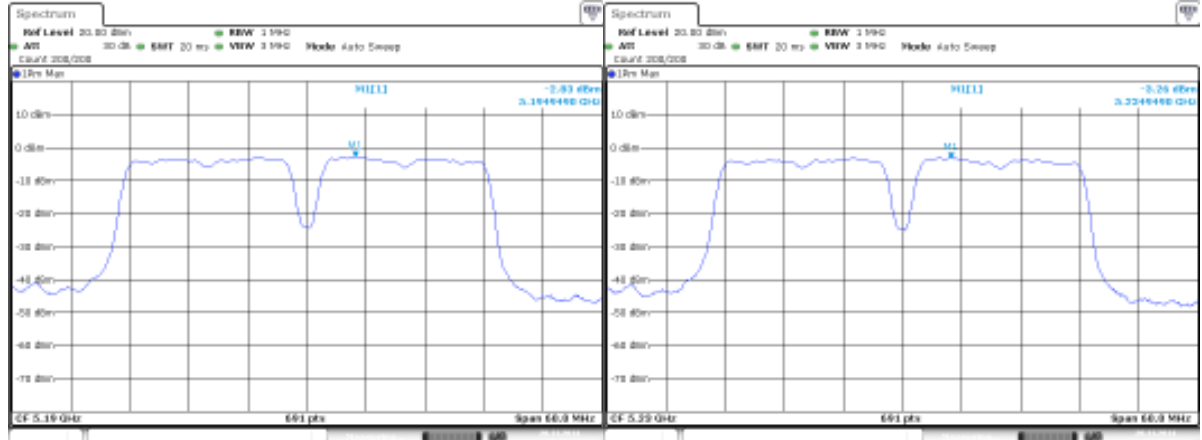
802.11ac VHT40_2TX - Beamforming_ANT3



Date: 20.NOV.2014 22:11:20

Date: 20.NOV.2014 22:12:13

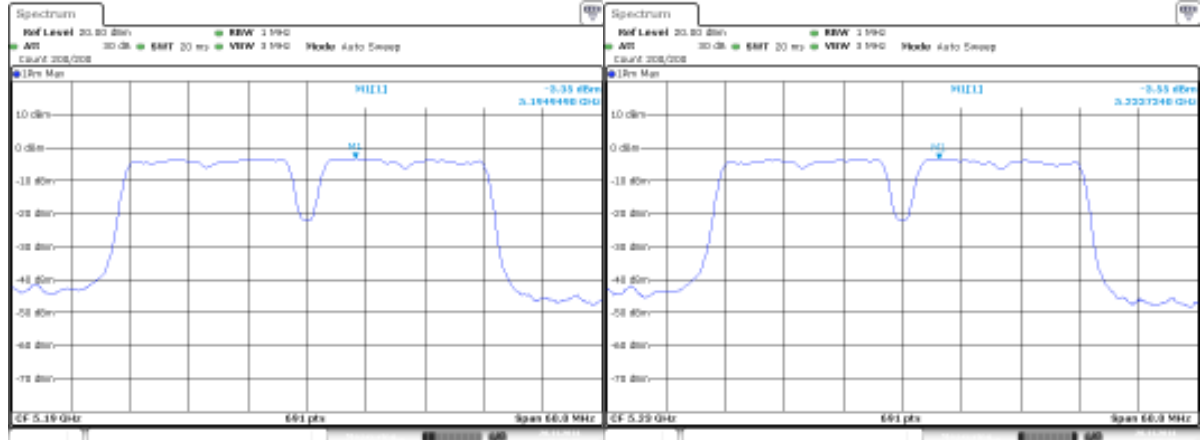
802.11ac VHT40_3TX - Beamforming_ANT1



Date: 20.NOV.2014 22:39:42

Date: 20.NOV.2014 22:40:30

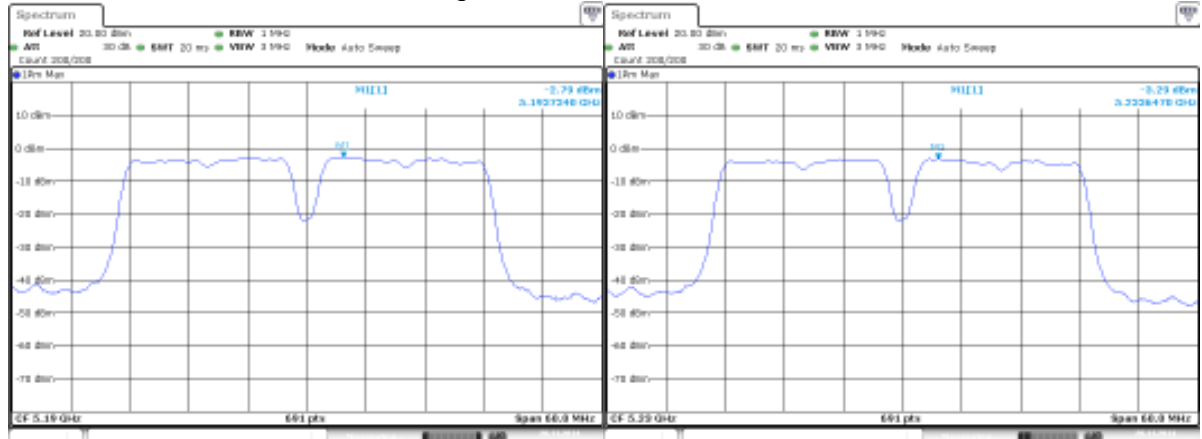
802.11ac VHT40_3TX - Beamforming_ANT2



Date: 20.NOV.2014 22:30:38

Date: 20.NOV.2014 22:31:38

802.11ac VHT40_3TX - Beamforming_ANT3

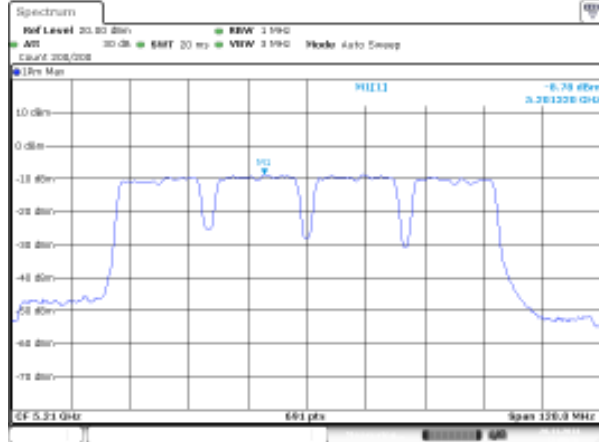


Date: 20.NOV.2014 22:57:43

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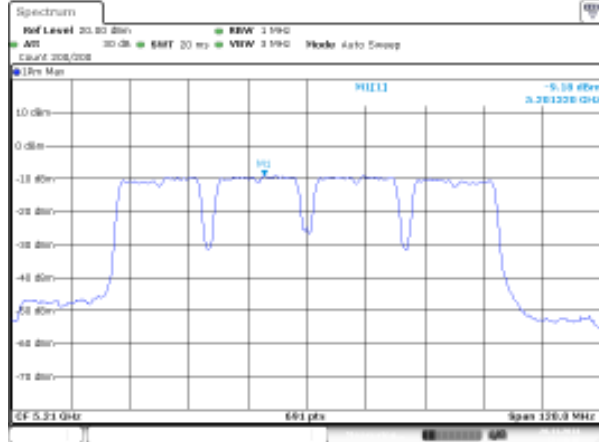
Produkte
Products

802.11ac VHT80_2TX - Beamforming_ANT1



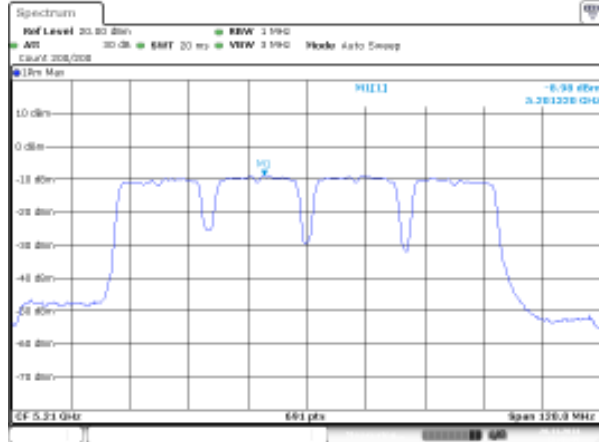
Date: 20.NOV.2014 22:08:56

802.11ac VHT80_2TX - Beamforming_ANT3



Date: 20.NOV.2014 22:10:18

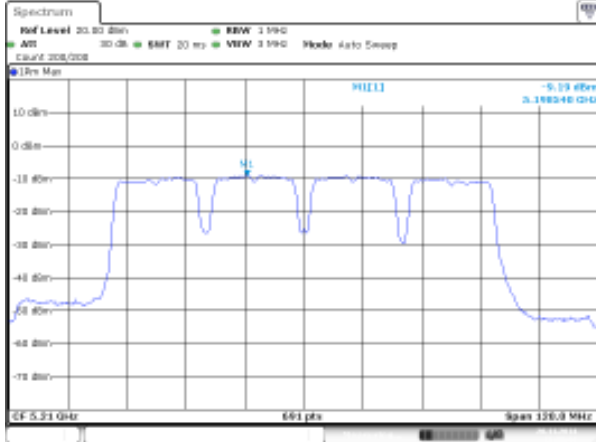
802.11ac VHT80_3TX - Beamforming_ANT1



Date: 20.NOV.2014 22:41:49

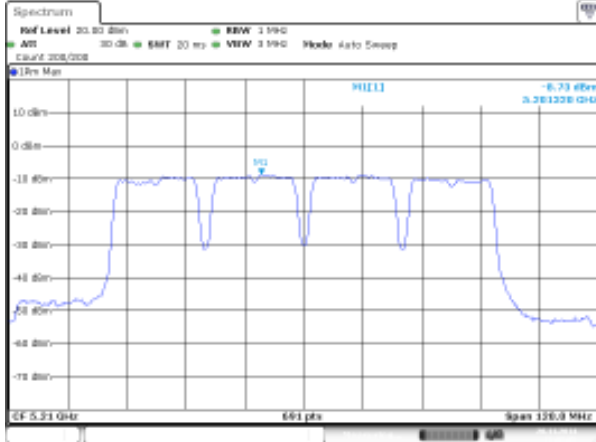
Produkte
Products

802.11ac VHT80_3TX - Beamforming_ANT2



Date: 20.NOV.2014 22:32:45

802.11ac VHT80_3TX - Beamforming_ANT3

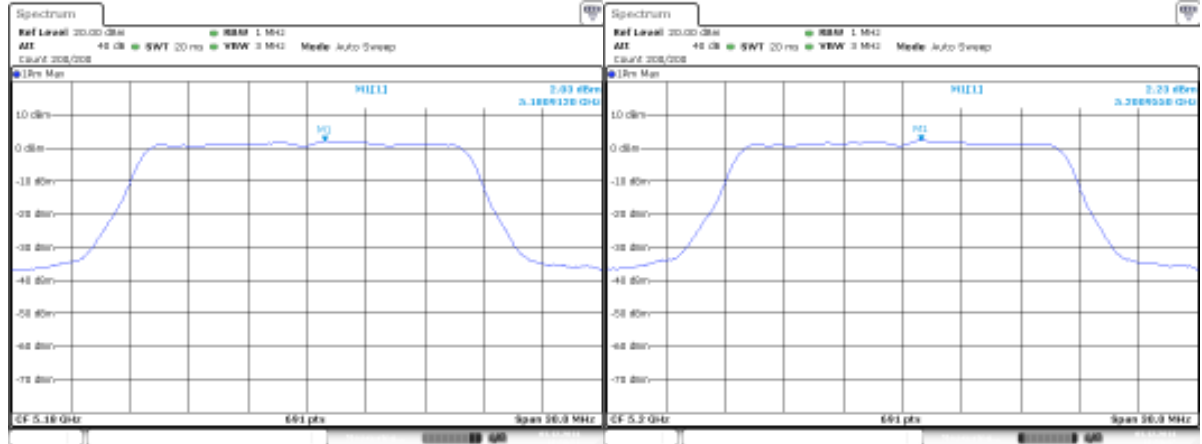


Date: 20.NOV.2014 23:02:06

Appendix A.4: Power Spectral Density - Station mode

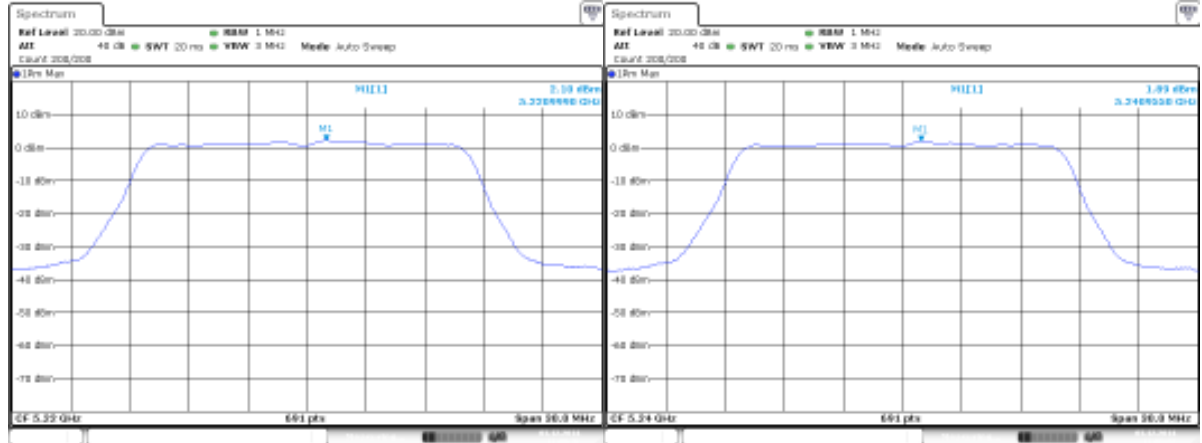
TTX - Max Besamtmittel	ANT 1 Measured PSD				ANT 2 Measured PSD				ANT 3 Measured PSD				Total PSD (dBm/Hz)				Limit (dBm/Hz)	Conclusion
	Ch 36	Ch 40	Ch 44	Ch 48	Ch 36	Ch 40	Ch 44	Ch 48	Ch 36	Ch 40	Ch 44	Ch 48	Ch 36	Ch 40	Ch 44	Ch 48		
General	7.14	7.21	7.25	7.14	...	...	...	...	...	...	...	...	...	...	...	...	11.00	PASS
302.1180 MHz	7.44	7.51	7.24	7.16	...	...	...	...	...	...	...	...	...	...	...	...	11.00	PASS
302.1182 MHz	7.24	7.42	7.18	7.28	...	...	...	...	...	...	...	...	...	...	...	...	11.00	PASS
General	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Limit	Conclusion
302.1184 MHz	4.04	4.23	4.11	3.90	...	...	...	...	...	...	...	...	...	...	...	...	3.00	PASS
302.1186 MHz	3.82	3.92	3.88	3.82	...	...	...	...	...	...	...	...	...	...	...	...	3.00	PASS
302.1188 MHz	4.14	4.25	4.17	4.02	...	...	...	...	...	...	...	...	...	...	...	...	3.00	PASS
General	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Limit	Conclusion
302.1190 MHz	1.22	1.43	1.57	1.25	...	...	...	...	...	...	...	...	...	...	...	...	2.00	PASS
302.1192 MHz	1.04	1.18	1.28	1.13	...	...	...	...	...	...	...	...	...	...	...	...	2.00	PASS
302.1194 MHz	1.07	1.23	1.32	1.13	...	...	...	...	...	...	...	...	...	...	...	...	2.00	PASS
General	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Limit	Conclusion
302.1196 MHz	3.26	3.77	3.54	3.74	...	...	...	...	...	...	...	...	...	...	...	...	3.00	PASS
302.1198 MHz	3.26	4.08	4.18	4.05	...	...	...	...	...	...	...	...	...	...	...	...	3.00	PASS
General	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Limit	Conclusion
302.1199 MHz	1.12	1.31	1.40	1.28	...	...	...	...	...	...	...	...	...	...	...	...	2.00	PASS
302.1199 MHz	1.48	1.51	1.66	1.56	...	...	...	...	...	...	...	...	...	...	...	...	2.00	PASS

802.11a_2TX - Non Beamforming_ANT1



Date: 3.DEC.2014 10:58:51

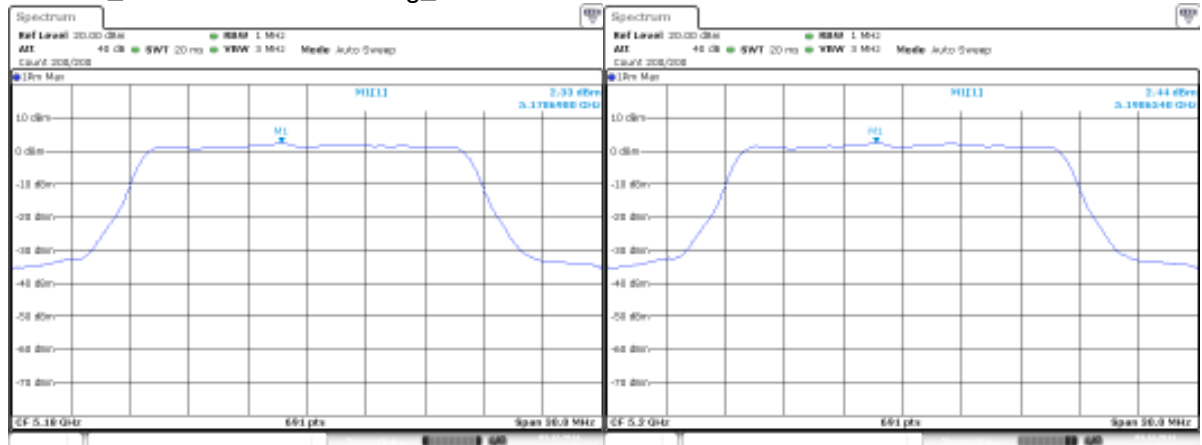
Date: 3.DEC.2014 10:59:47



Date: 3.DEC.2014 11:00:36

Date: 3.DEC.2014 11:01:43

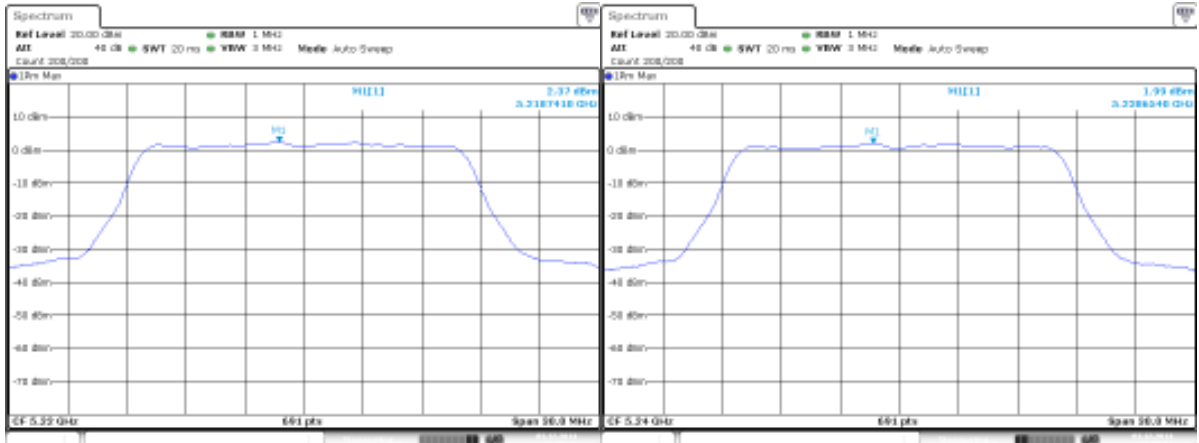
802.11a_2TX - Non Beamforming_ANT3



Date: 3.DEC.2014 11:05:18

Date: 3.DEC.2014 11:04:33

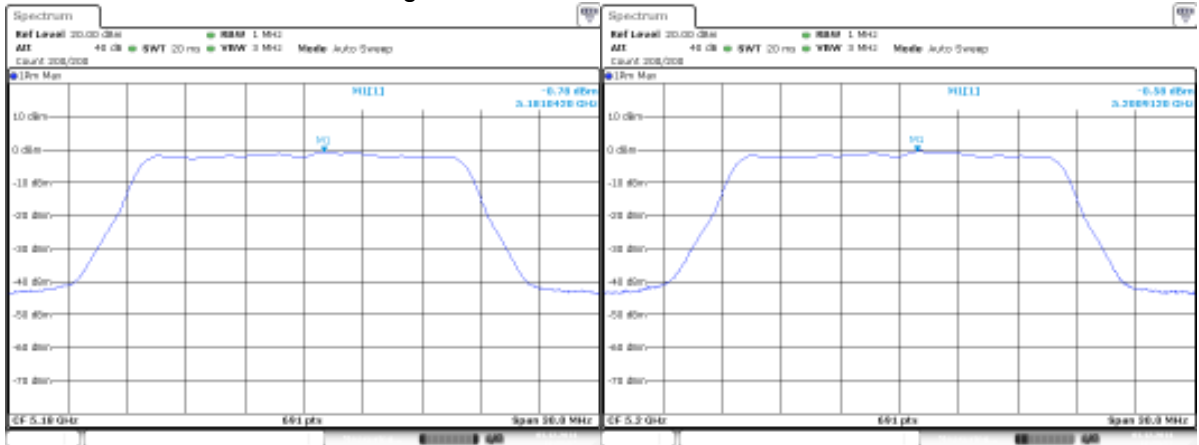
Produkte
 Products



Date: 3.DEC.2014 11:03:49

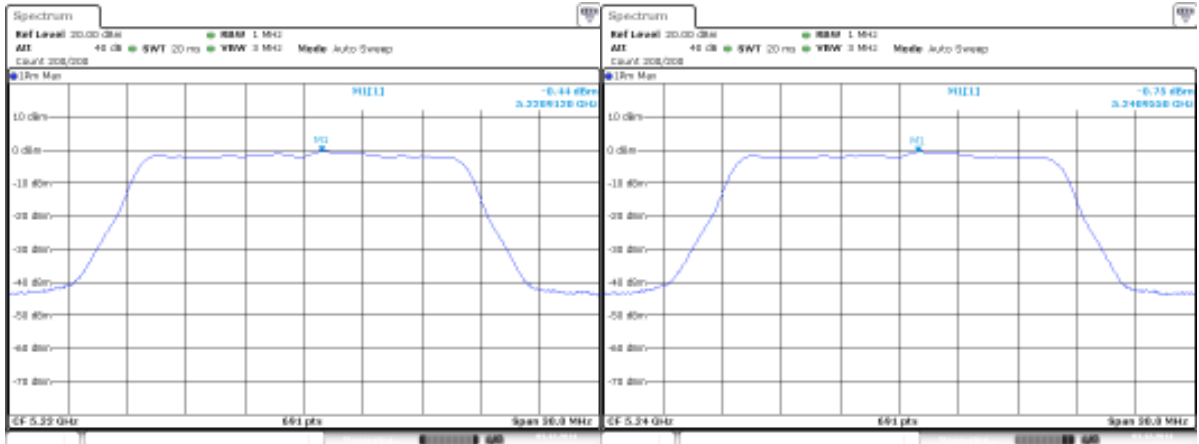
Date: 3.DEC.2014 11:02:51

802.11a_3TX - Non Beamforming_ANT1



Date: 3.DEC.2014 16:32:58

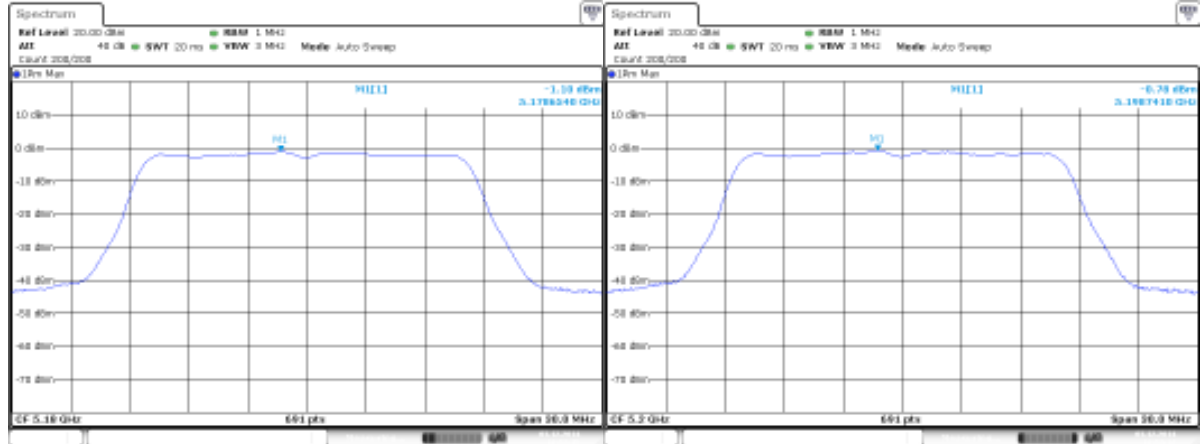
Date: 3.DEC.2014 16:33:53



Date: 3.DEC.2014 16:34:43

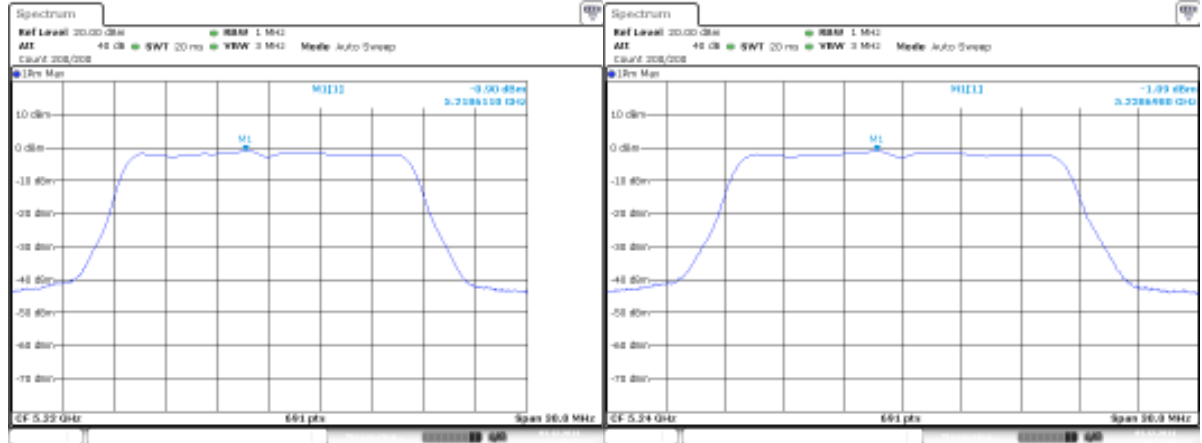
Date: 3.DEC.2014 16:35:23

802.11a_3TX - Non Beamforming_ANT2



Date: 3.DEC.2014 16:52:15

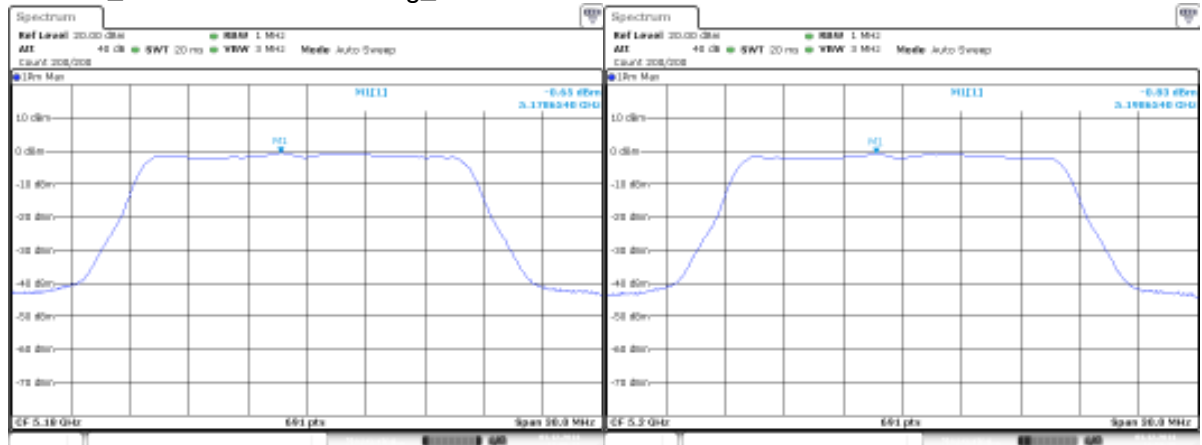
Date: 3.DEC.2014 16:53:14



Date: 3.DEC.2014 16:55:36

Date: 3.DEC.2014 16:54:38

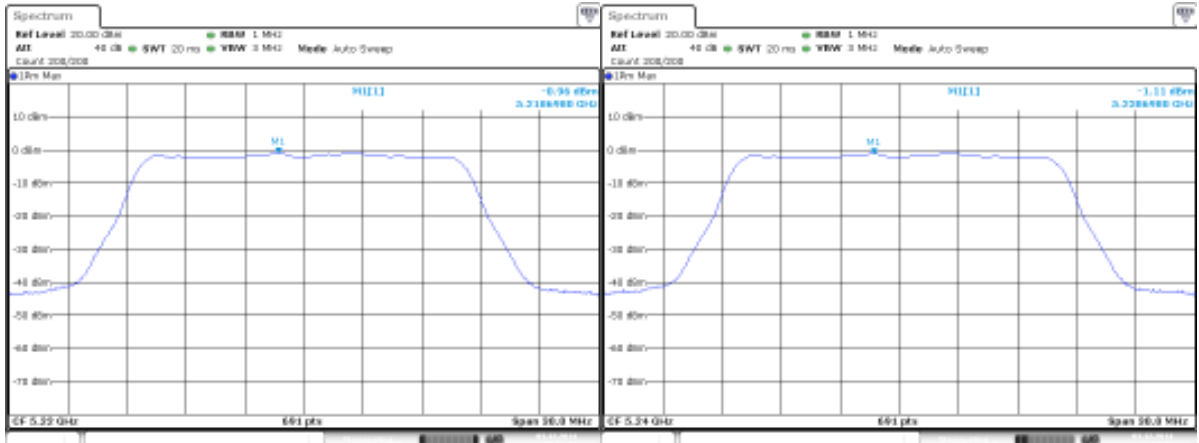
802.11a_3TX - Non Beamforming_ANT3



Date: 3.DEC.2014 17:00:17

Date: 3.DEC.2014 16:59:30

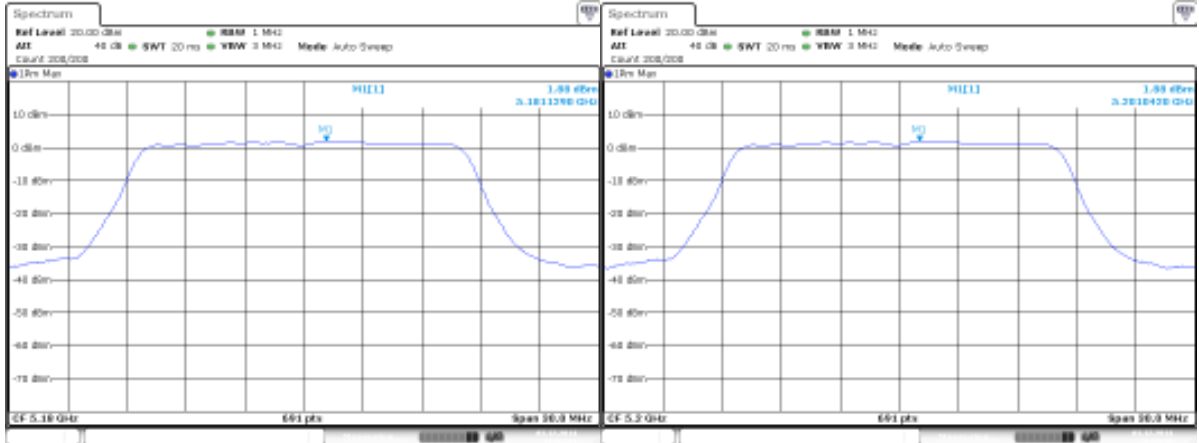
Produkte
 Products



Date: 3.DEC.2014 16:56:24

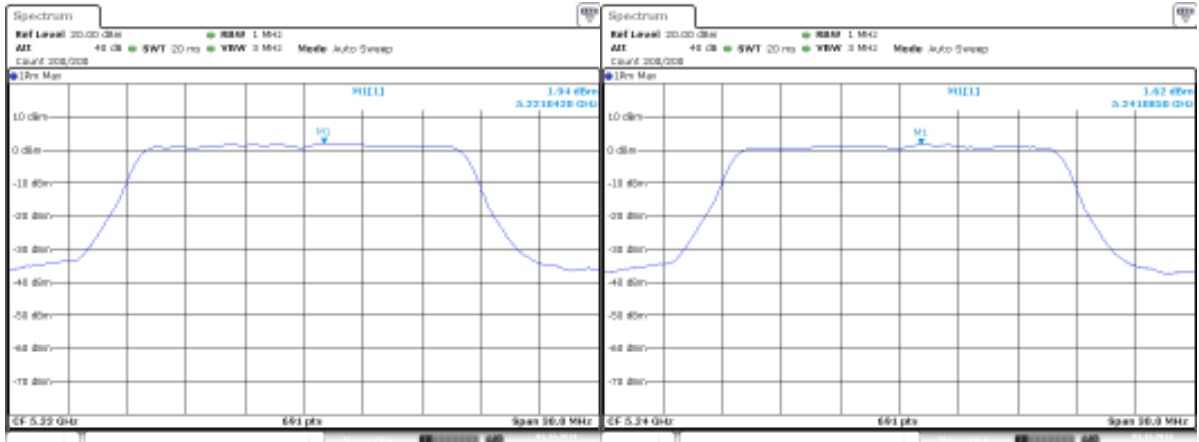
Date: 3.DEC.2014 16:57:30

802.11n HT20_2TX - Non Beamforming_ANT1



Date: 3.DEC.2014 10:54:51

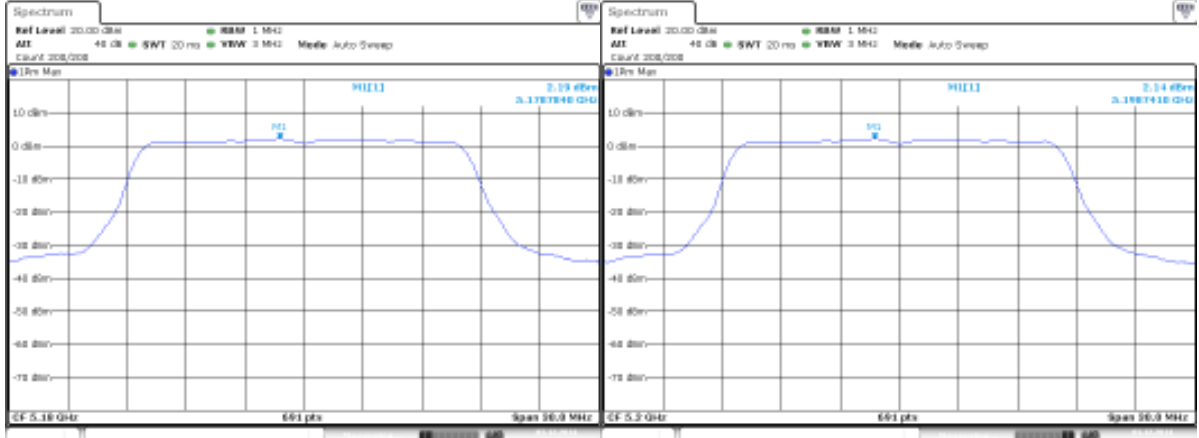
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Date: 3.DEC.2014 10:56:55

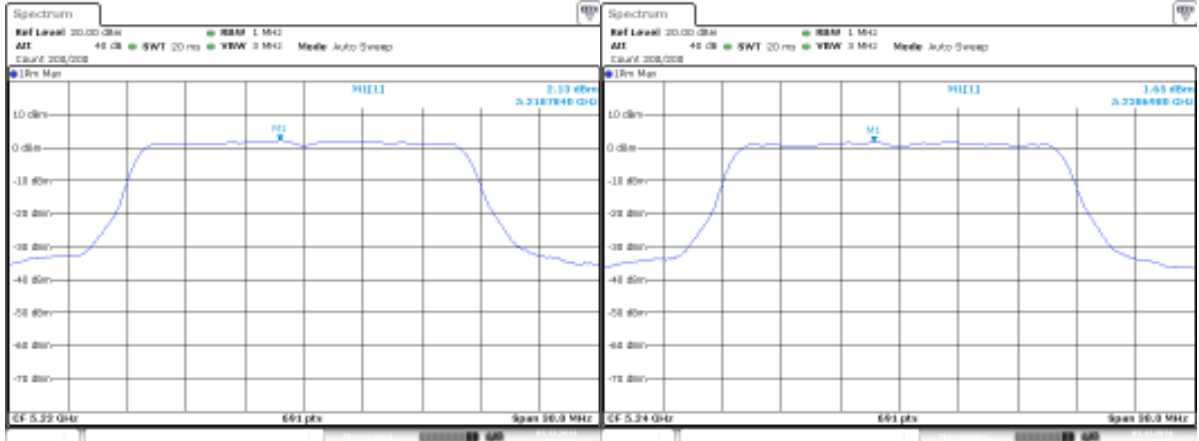
Date: 3.DEC.2014 10:57:56

802.11n HT20_2TX - Non Beamforming_ANT3



Date: 3.DEC.2014 11:06:08

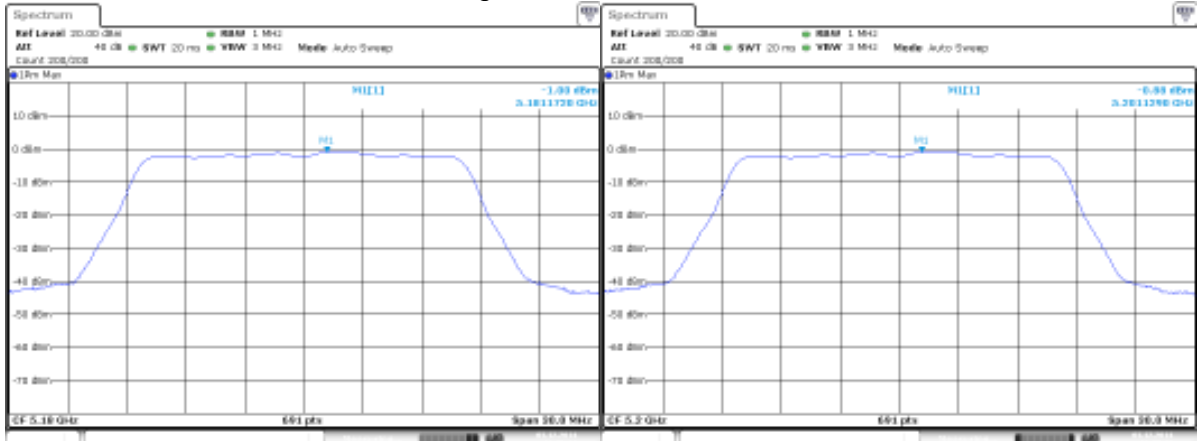
Date: 3.DEC.2014 11:07:04



Date: 3.DEC.2014 11:07:44

Date: 3.DEC.2014 11:08:28

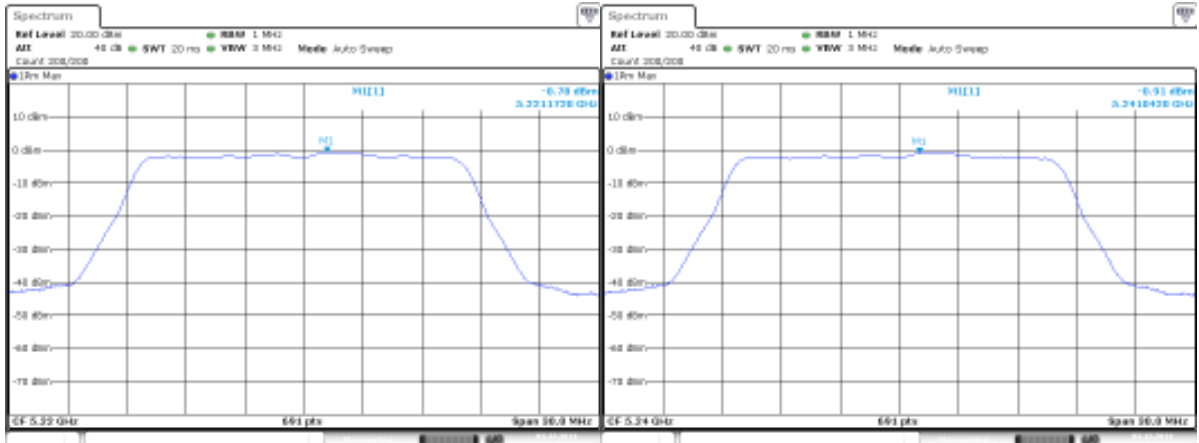
802.11n HT20_3TX - Non Beamforming_ANT1



Date: 3.DEC.2014 16:36:21

Date: 3.DEC.2014 16:37:17

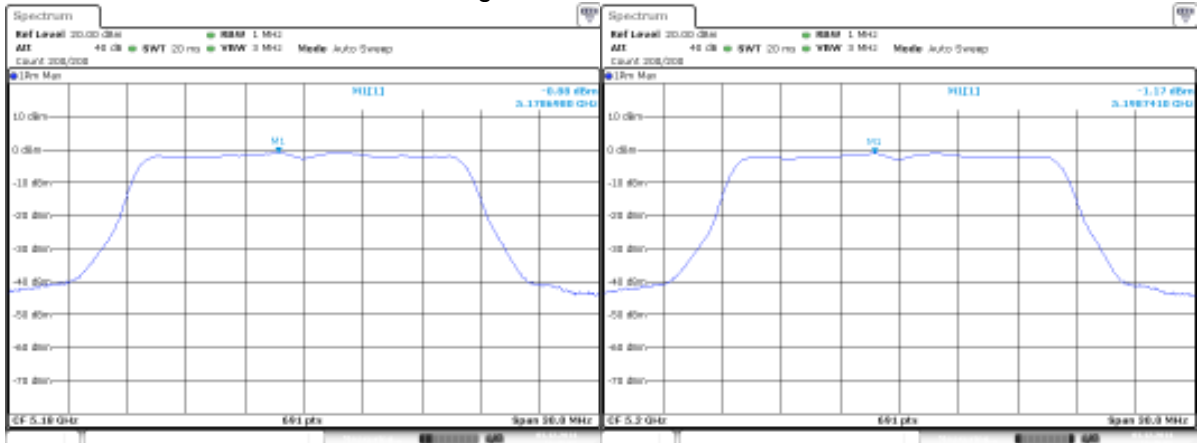
Produkte
 Products



Date: 3.DEC.2014 16:38:01

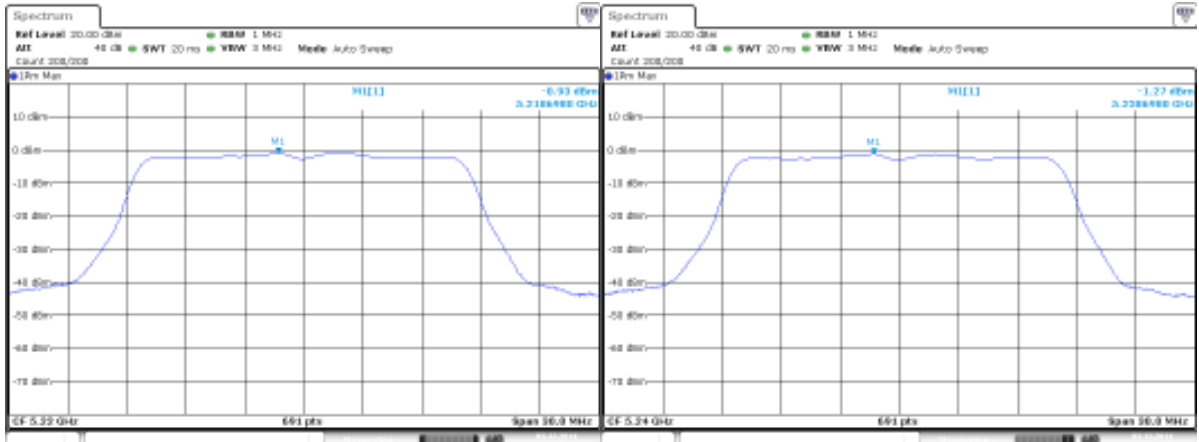
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802.11n HT20_3TX - Non Beamforming_ANT2



Date: 3.DEC.2014 16:48:09

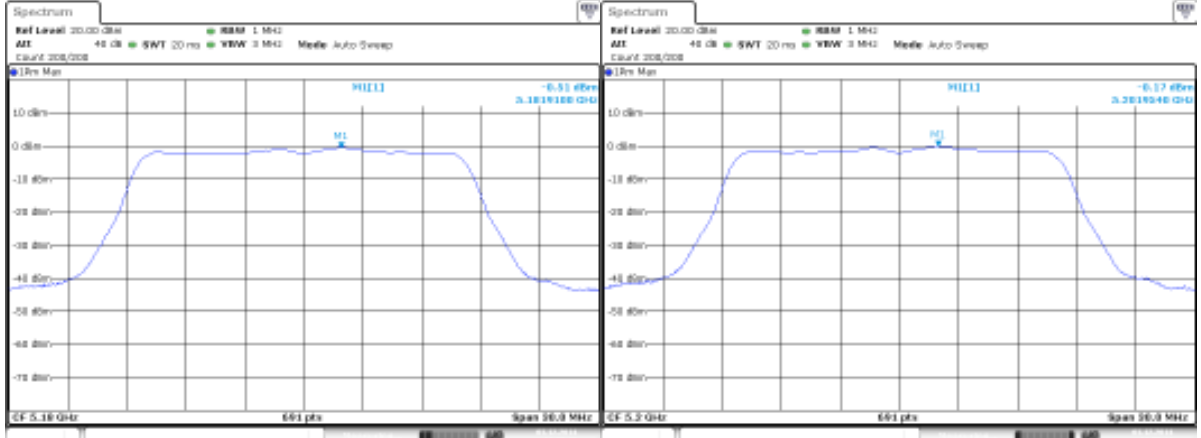
Date: 3.DEC.2014 16:49:09



Date: 3.DEC.2014 16:49:59

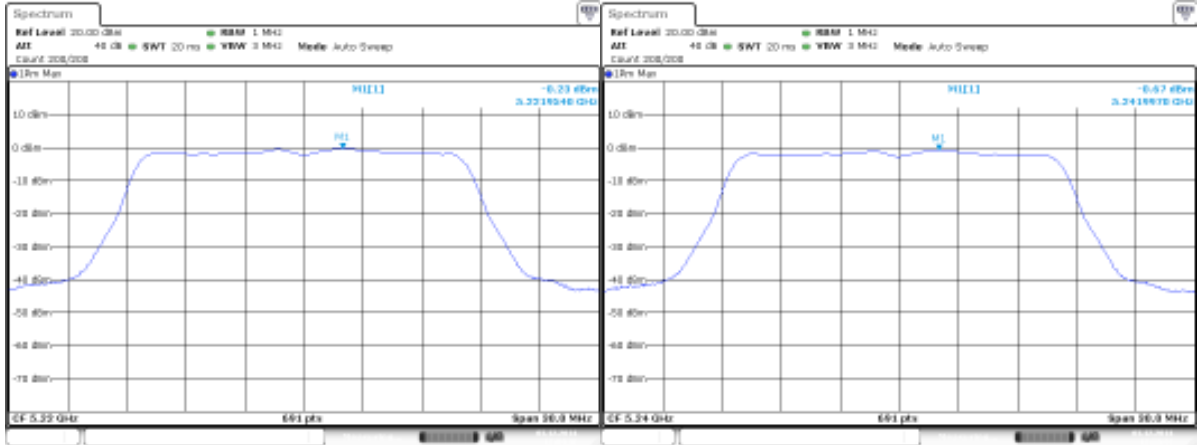
Date: 3.DEC.2014 16:50:48

802.11n HT20_3TX - Non Beamforming_ANT3



Date: 3.DEC.2014 17:02:39

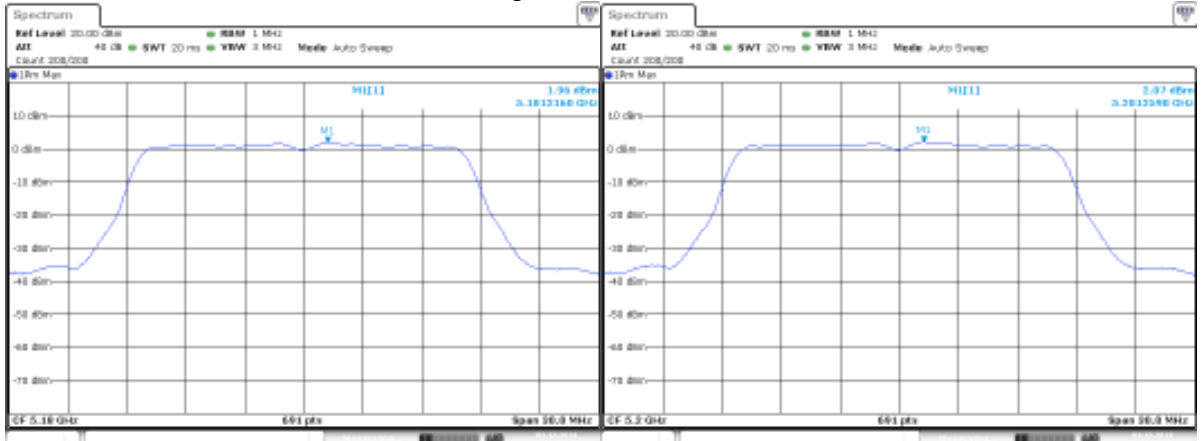
Date: 3.DEC.2014 17:03:45



Date: 3.DEC.2014 17:04:38

Date: 3.DEC.2014 17:13:44

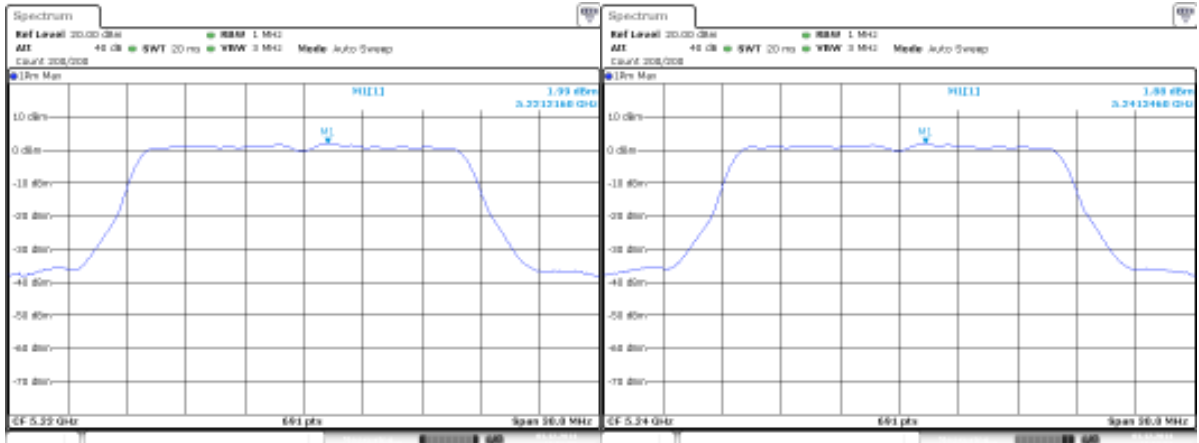
802.11ac VHT20_2TX - Non Beamforming_ANT1



Date: 3.DEC.2014 10:53:31

Date: 3.DEC.2014 10:52:46

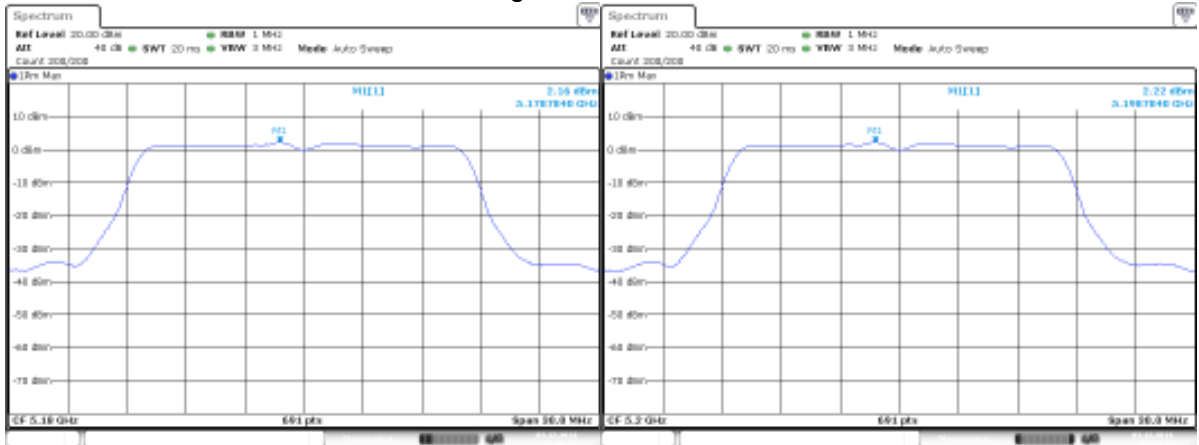
Produkte
 Products



Date: 3.DEC.2014 10:51:58

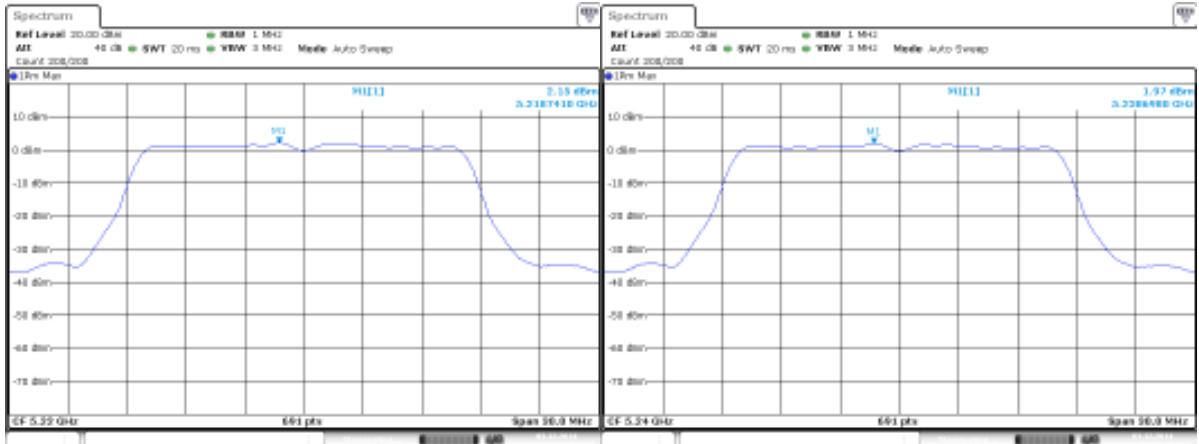
Date: 3.DEC.2014 10:50:57

802.11ac VHT20_2TX - Non Beamforming_ANT3



Date: 3.DEC.2014 11:09:30

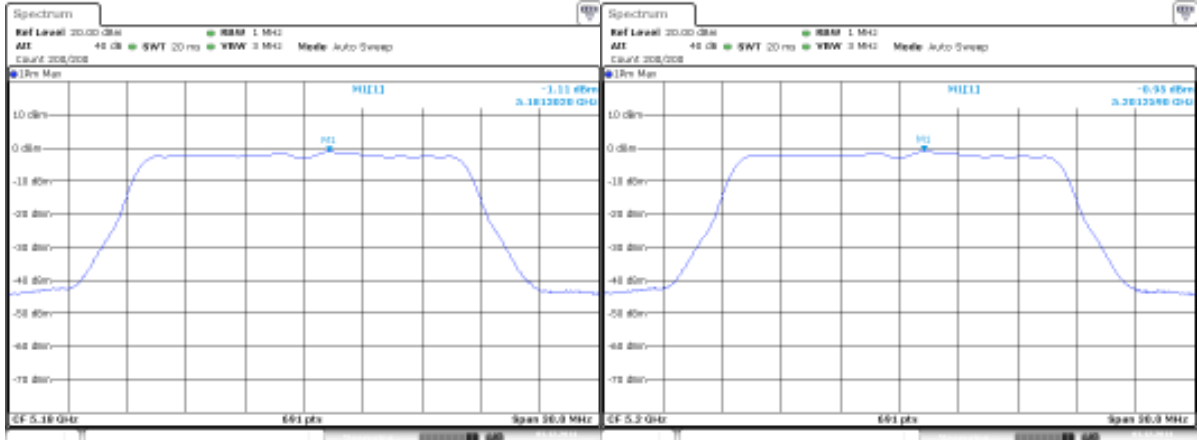
Date: 3.DEC.2014 11:10:14



Date: 3.DEC.2014 11:11:16

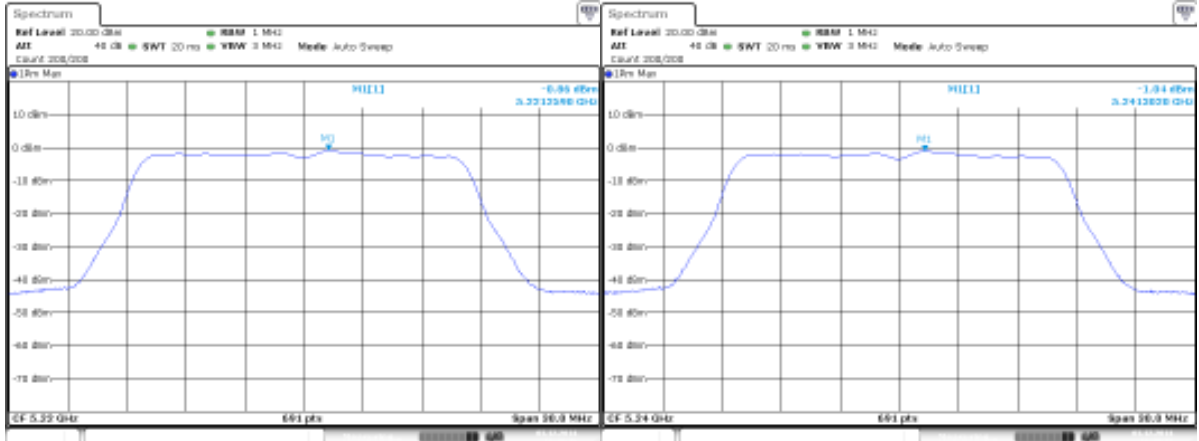
Date: 3.DEC.2014 11:12:14

802.11ac VHT20_3TX - Non Beamforming_ANT1



Date: 3.DEC.2014 16:40:49

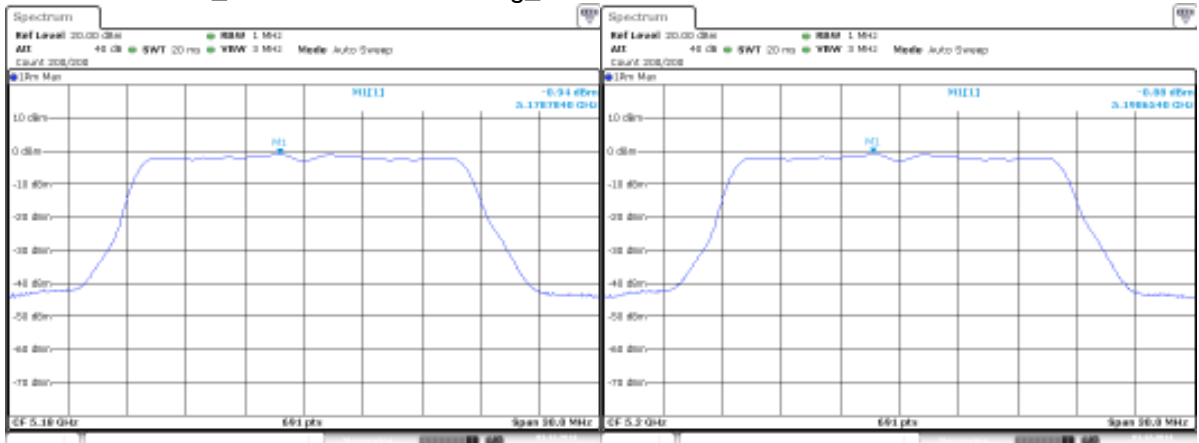
Date: 3.DEC.2014 16:41:39



Date: 3.DEC.2014 16:42:35

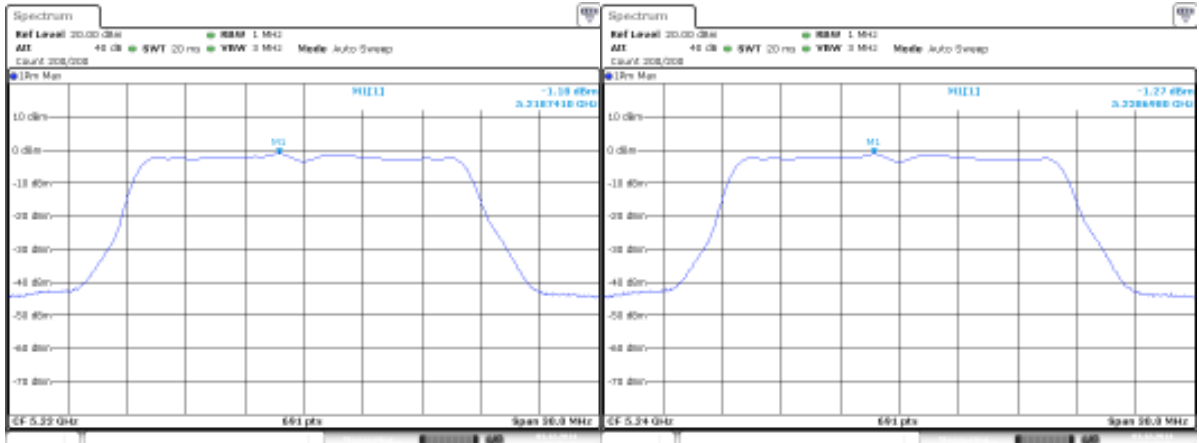
Date: 3.DEC.2014 16:43:13

802.11ac VHT20_3TX - Non Beamforming_ANT2



Date: 3.DEC.2014 16:44:24

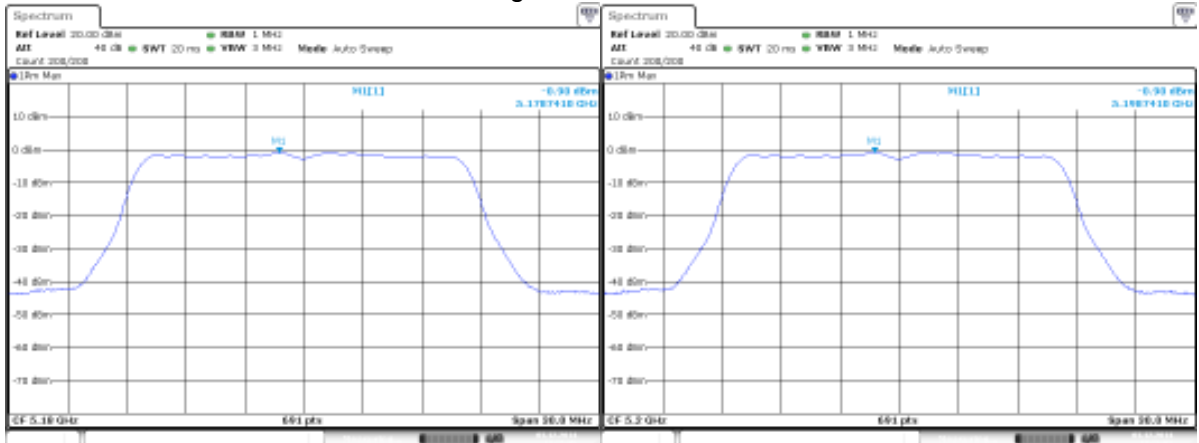
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Date: 3.DEC.2014 16:46:15

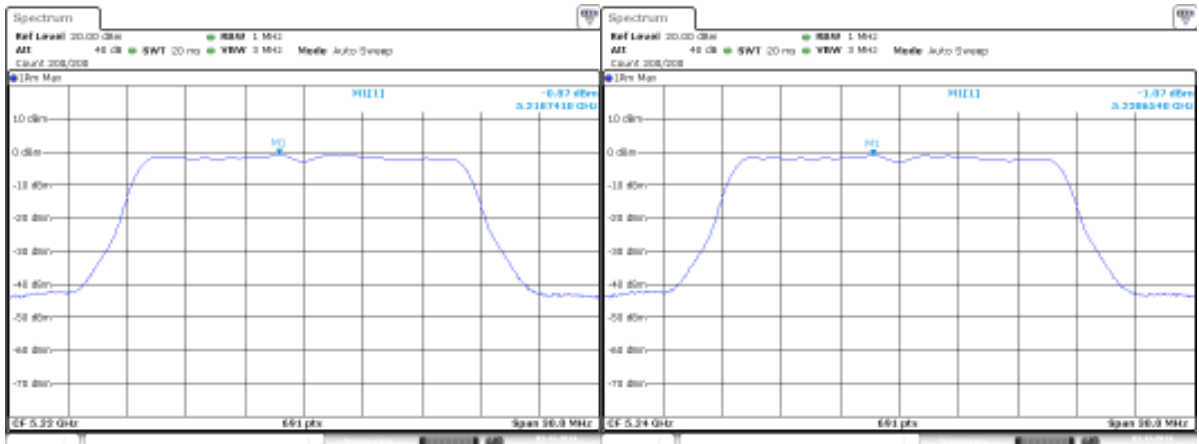
Date: 3.DEC.2014 16:47:05

802.11ac VHT20_3TX - Non Beamforming_ANT3



Date: 3.DEC.2014 17:15:05

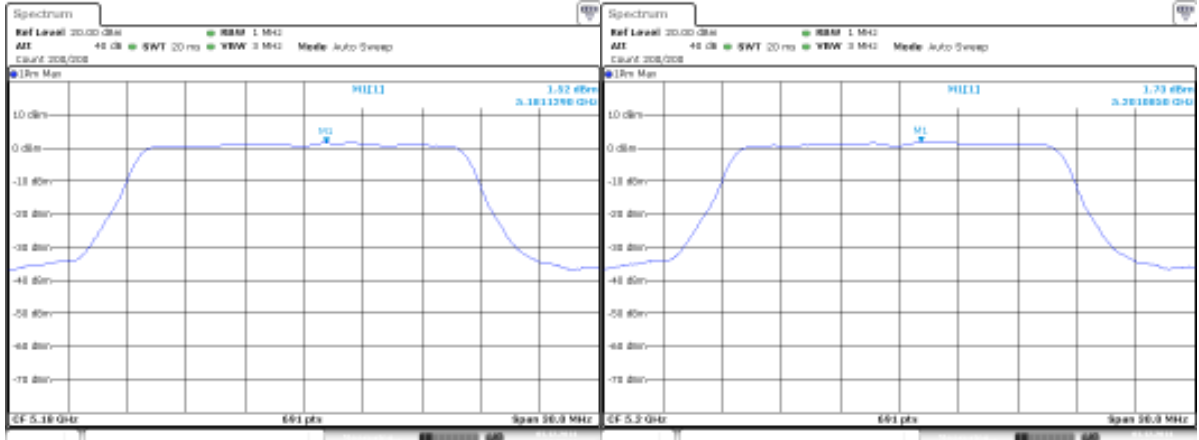
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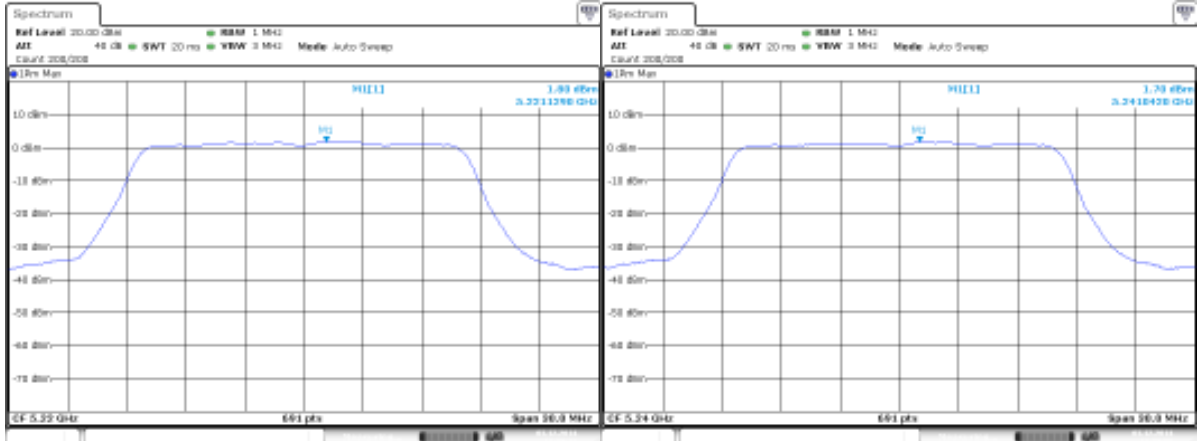
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802.11n HT20_2TX - Beamforming_ANT1



Date: 3.DEC.2014 17:37:21

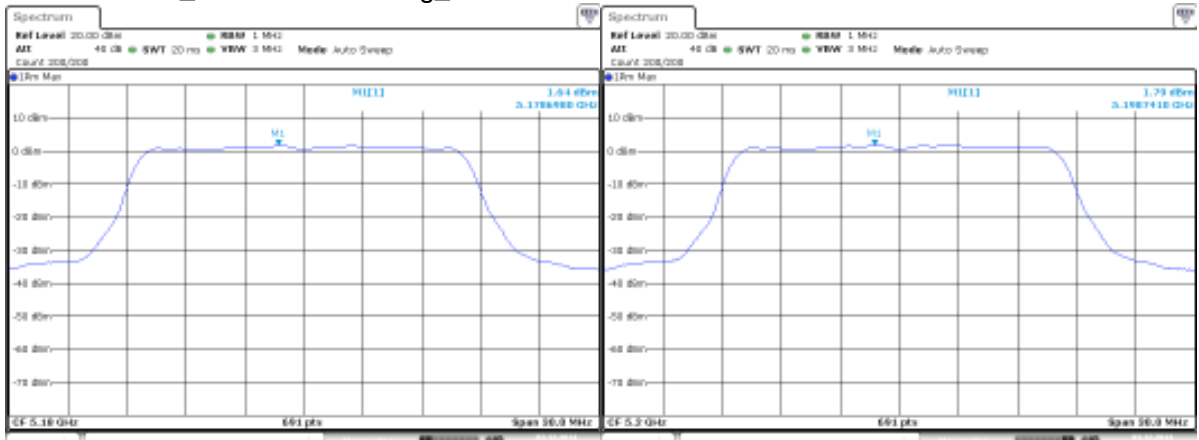
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Date: 3.DEC.2014 17:39:22

Date: 3.DEC.2014 17:39:59

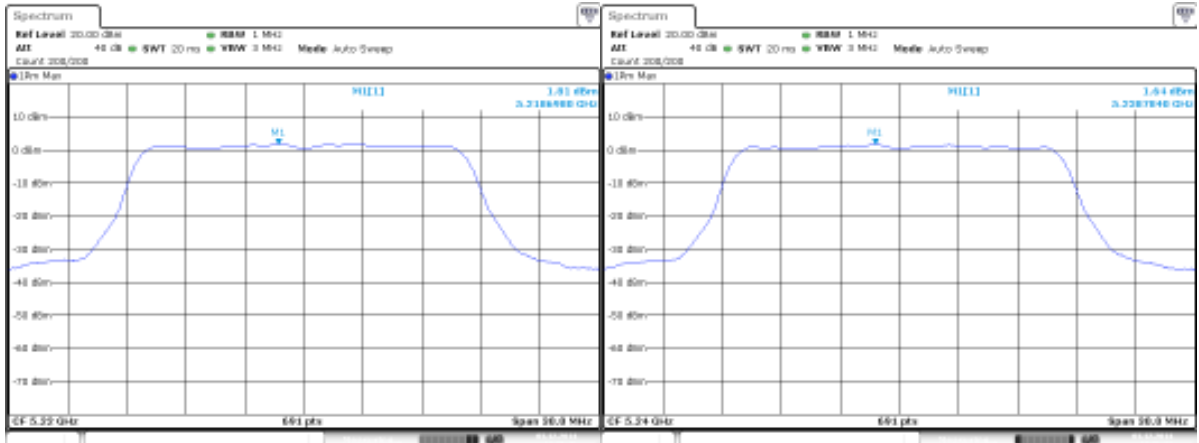
802.11n HT20_2TX - Beamforming_ANT3



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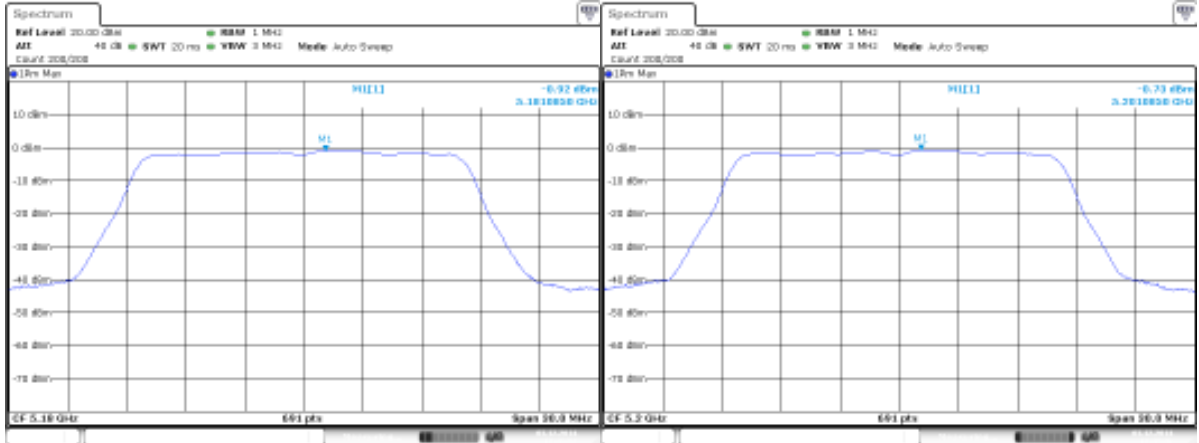
Produkte
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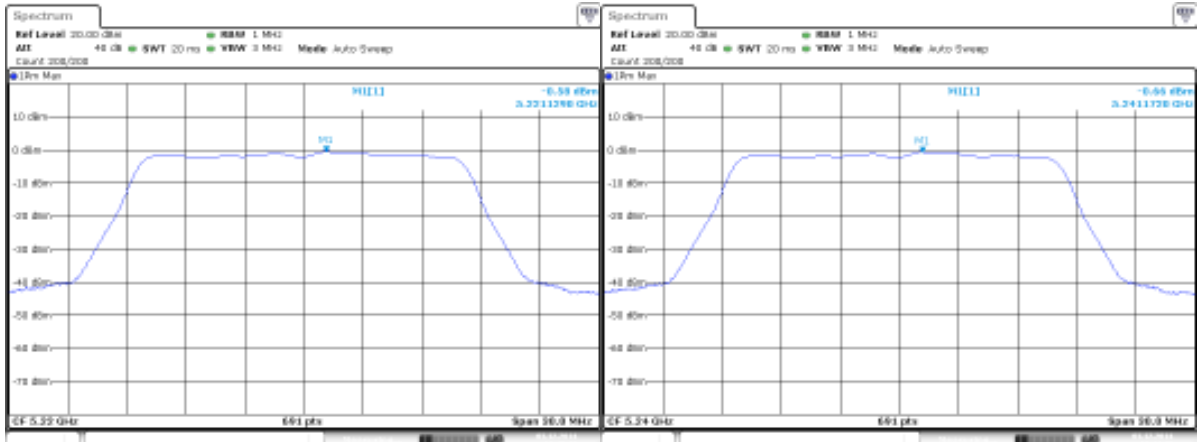
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802.11n HT20_3TX - Beamforming_ANT1



Date: 3.DEC.2014 17:41:54

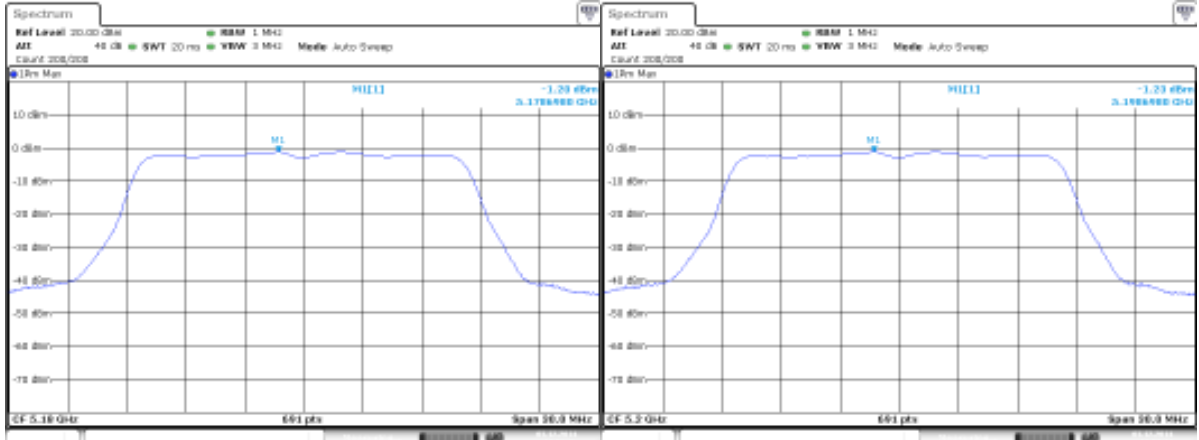
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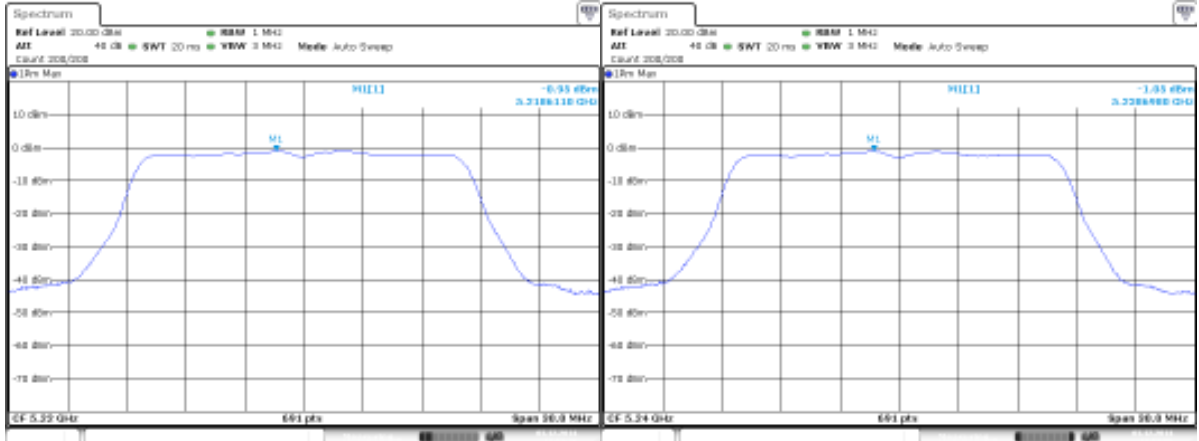
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802.11n HT20_3TX - Beamforming_ANT2



Date: 3.DEC.2014 17:51:46

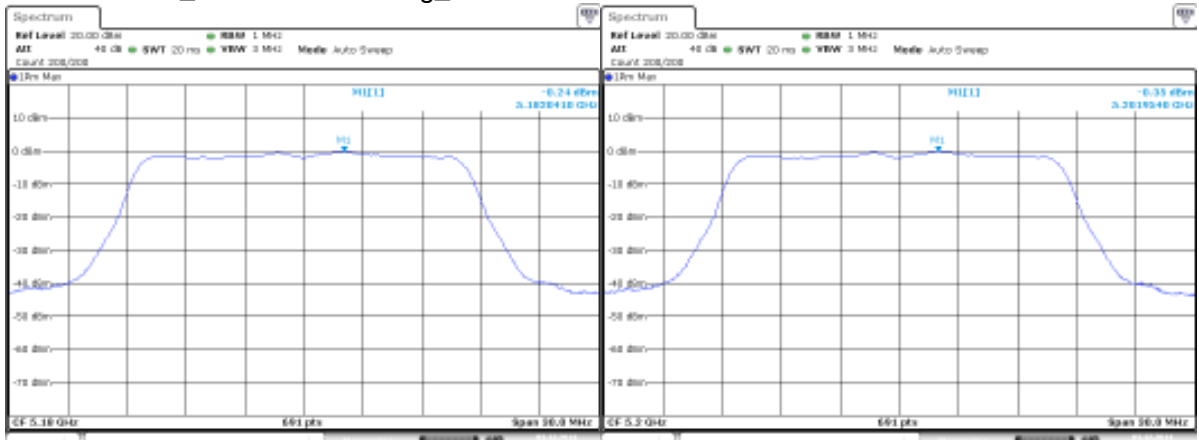
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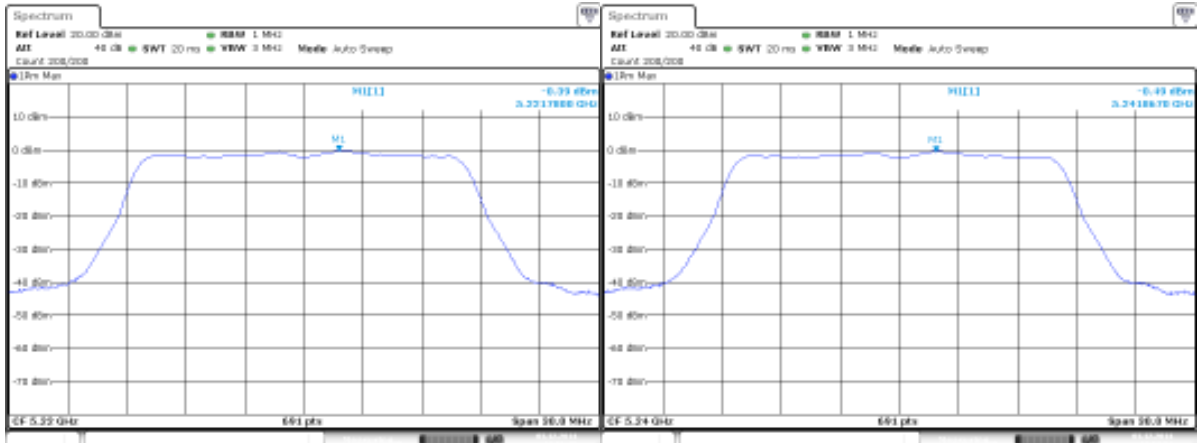
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802.11n HT20_3TX - Beamforming_ANT3



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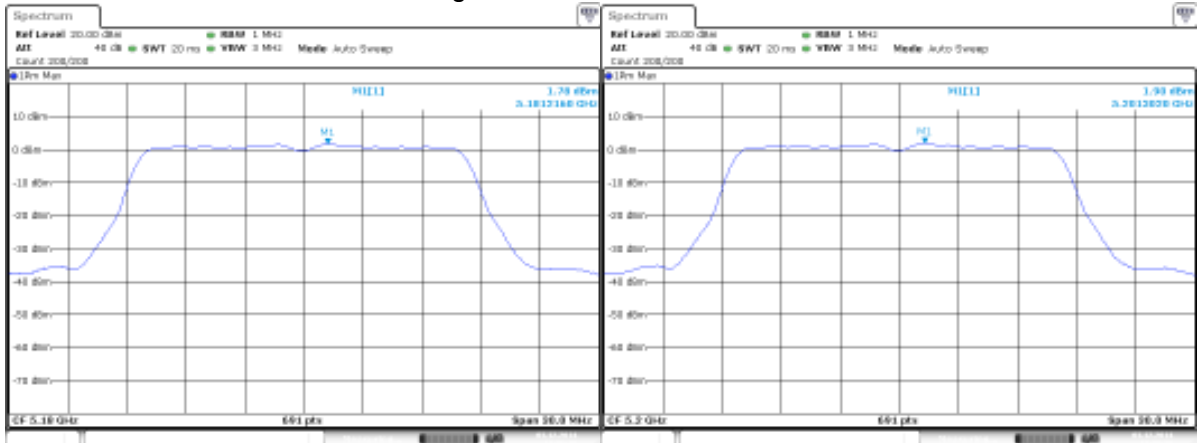
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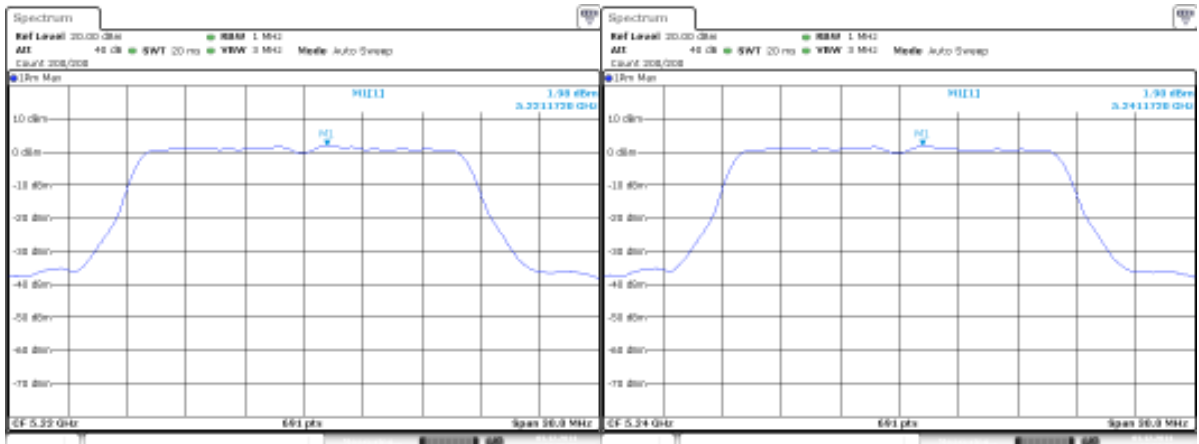
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802.11ac VHT20_2TX - Beamforming_ANT1



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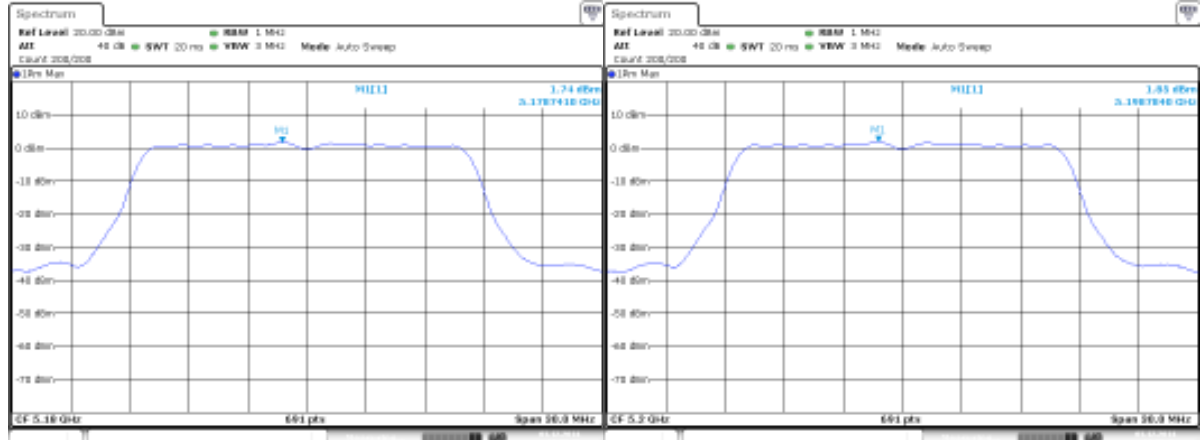
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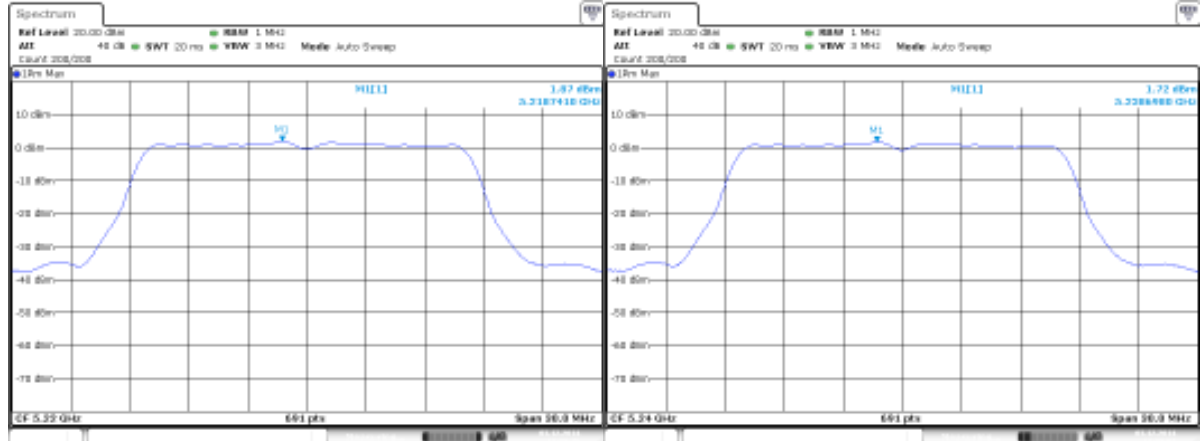
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802.11ac VHT20_2TX - Beamforming_ANT3



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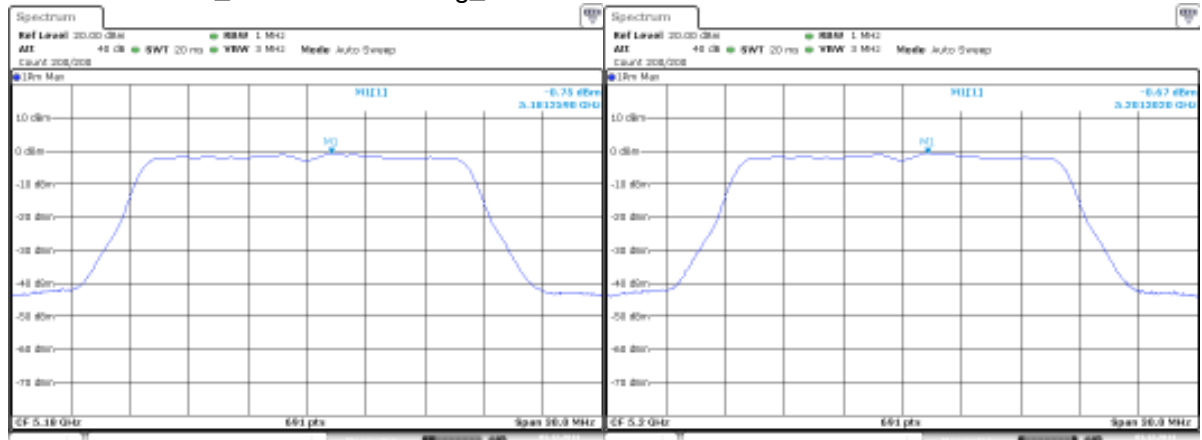
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Date: 3.DEC.2014 17:29:25

Date: 3.DEC.2014 17:30:07

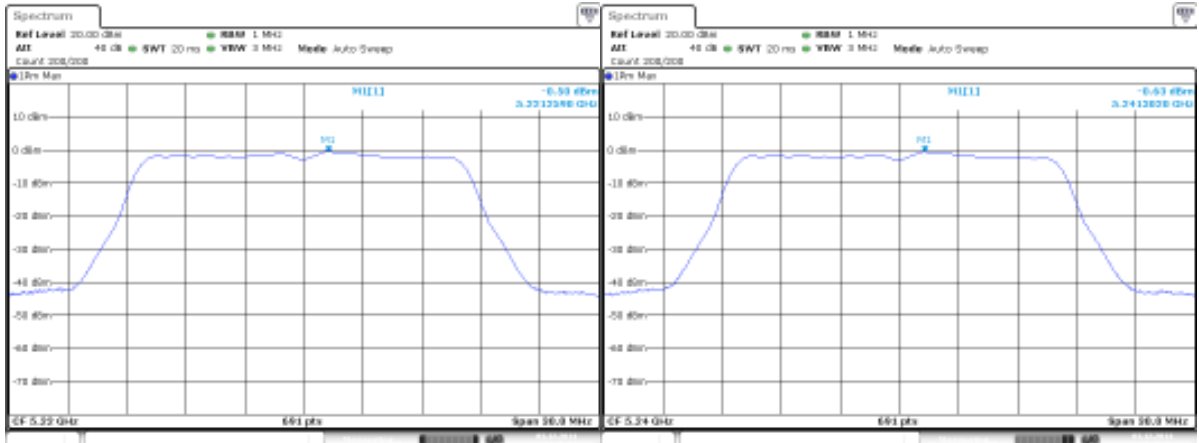
802.11ac VHT20_3TX - Beamforming_ANT1



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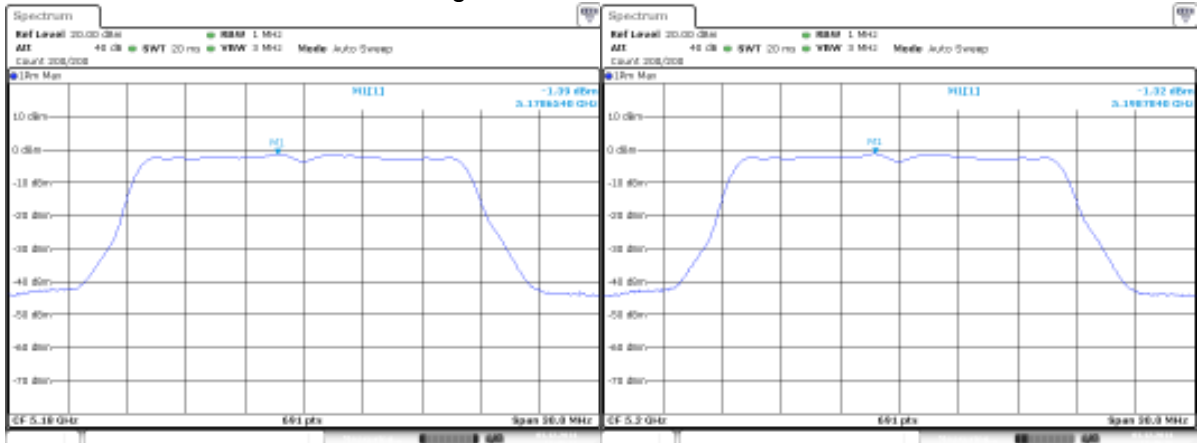
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Date: 3.DEC.2014 17:46:51

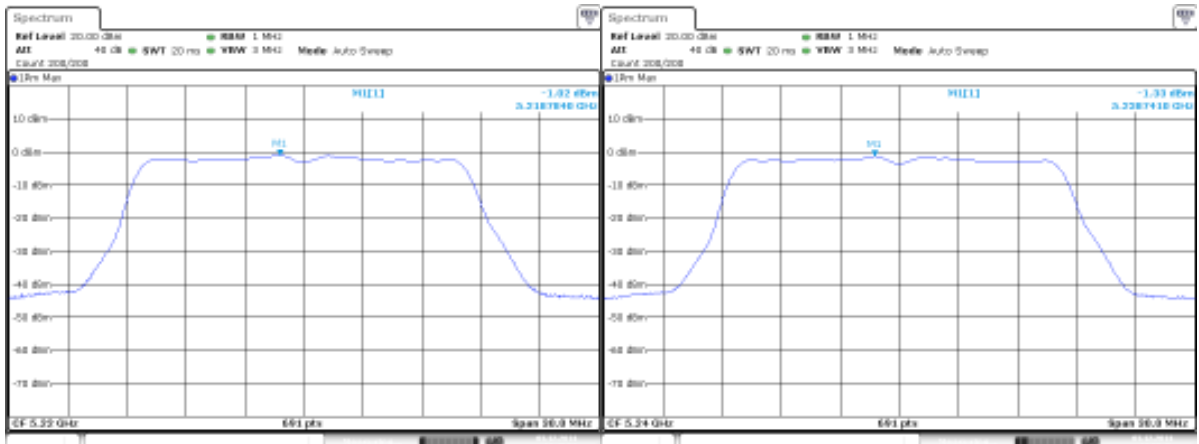
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802.11ac VHT20_3TX - Beamforming_ANT2



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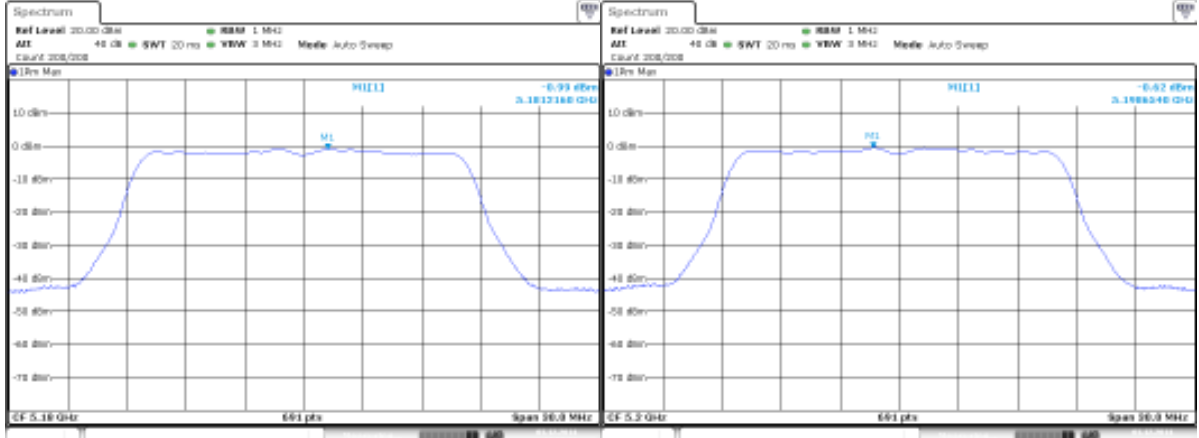


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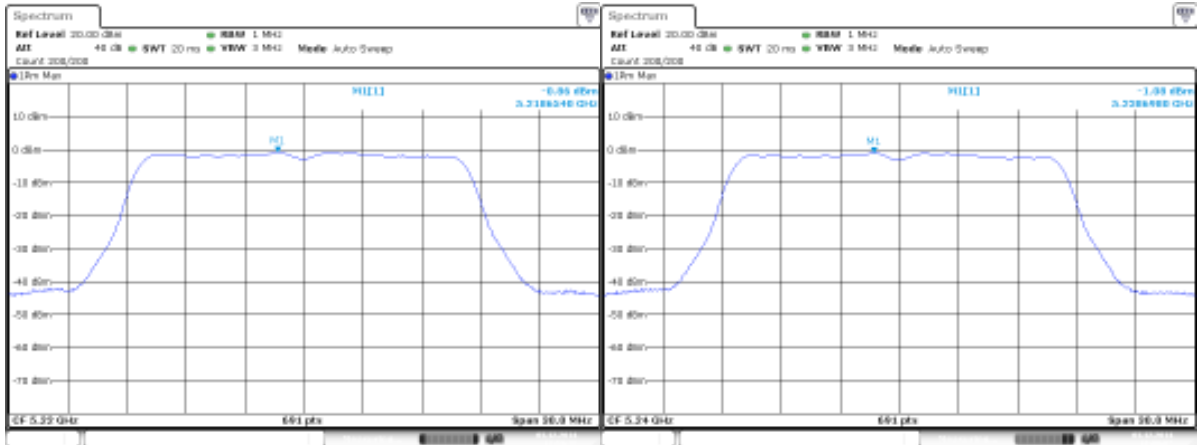
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802.11ac VHT20_3TX - Beamforming_ANT3



Date: 3.DEC.2014 17:58:03

Date: 3.DEC.2014 17:58:46



Date: 3.DEC.2014 17:59:29

Date: 3.DEC.2014 18:00:07

Appendix B

Test Results of Unwanted Emissions for U-NII-1 band

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 Products

Appendix B.1: Unwanted Emissions - Outside of the Restricted Bands
 802.11a_1TX - Non Beamforming



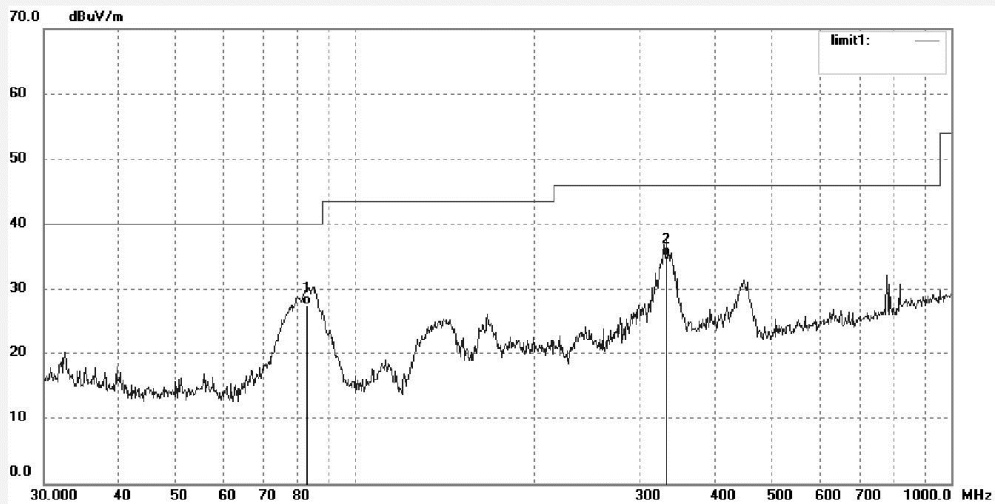
ACCURATE TECHNOLOGY CO., LTD.

F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
 Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 2# Chamber
 Tel:+86-0755-26503290
 Fax:+86-0755-26503396

Job No.: pz #1756	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 14/11/15/
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: WiFi Advisor	Engineer Signature: PEI
Mode: TX 5180MHz	Distance: 3m
Model: WFED-300AC	
Manufacturer: JDSU	

Note: 802.1a---1TX (Non-Beamforming)



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	83.1076	43.34	-15.81	27.53	40.00	-12.47	QP			
2	331.7857	43.38	-8.31	35.07	46.00	-10.93	QP			

Produkte
 Products



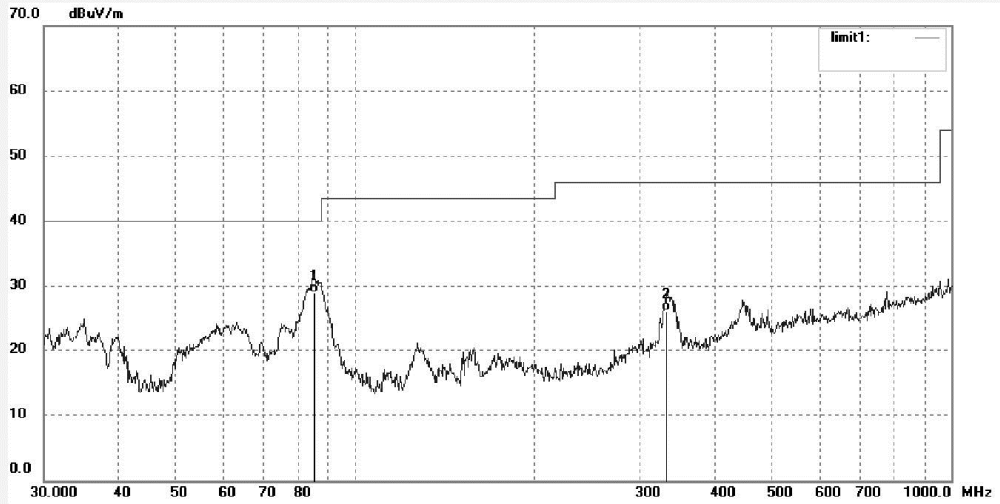
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F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
 Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 2# Chamber
 Tel:+86-0755-26503290
 Fax:+86-0755-26503396

Job No.: pz #1757	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 14/11/15/
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: WiFi Advisor	Engineer Signature: PEI
Mode: TX 5180MHz	Distance: 3m
Model: WFED-300AC	
Manufacturer: JDSU	

Note: 802.11a---1TX (Non-Beamforming)



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	85.4769	44.35	-15.36	28.99	40.00	-11.01	QP			
2	332.9536	34.50	-8.29	26.21	46.00	-19.79	QP			

Produkte
 Products



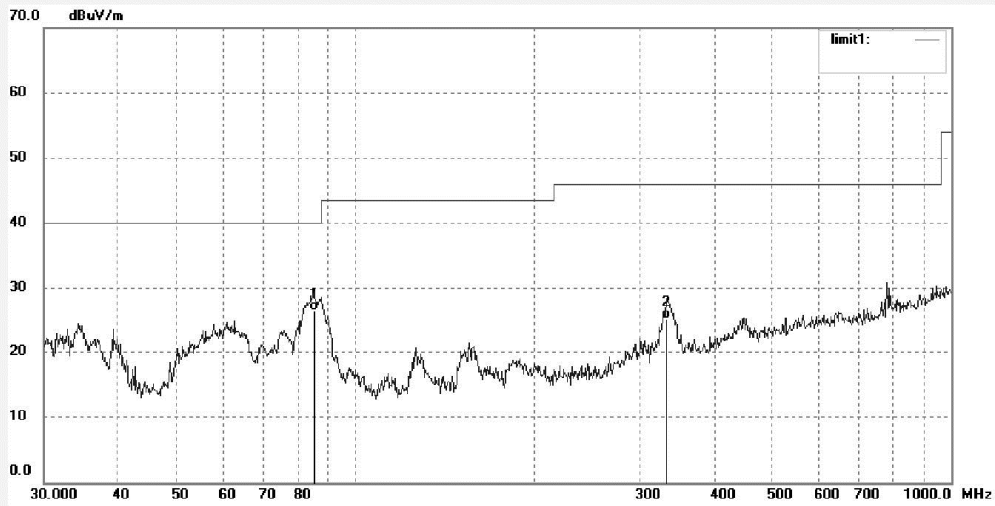
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 Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 2# Chamber
 Tel:+86-0755-26503290
 Fax:+86-0755-26503396

Job No.: pz #1758	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 14/11/15/
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: WiFi Advisor	Engineer Signature: PEI
Mode: TX 5200MHz	Distance: 3m
Model: WFED-300AC	
Manufacturer: JDSU	

Note: 802.11a---1TX (Non-Beamforming)



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	85.1770	41.83	-15.38	26.45	40.00	-13.55	QP			
2	331.7857	33.66	-8.31	25.35	46.00	-20.65	QP			

Produkte
 Products



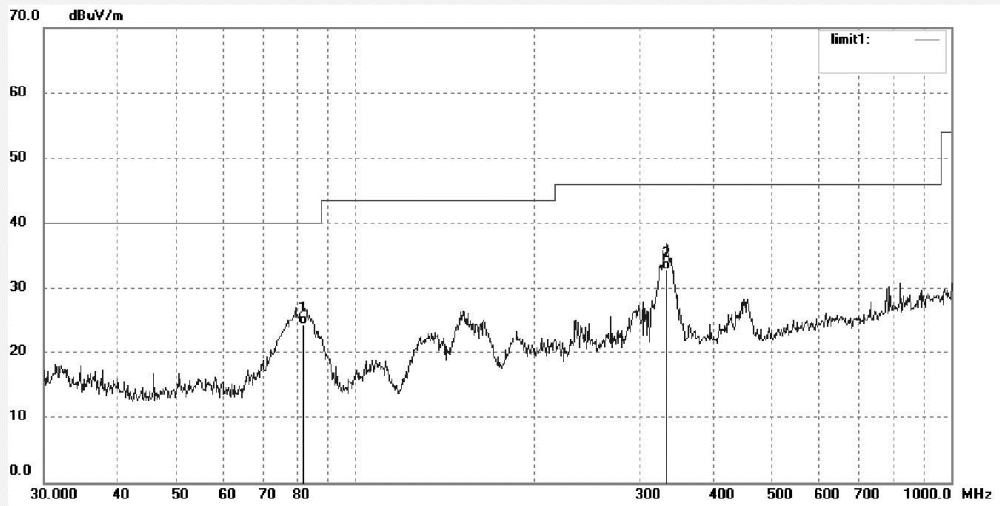
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F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
 Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 2# Chamber
 Tel:+86-0755-26503290
 Fax:+86-0755-26503396

Job No.: pz #1759	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 14/11/15/
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: WiFi Advisor	Engineer Signature: PEI
Mode: TX 5200MHz	Distance: 3m
Model: WFED-300AC	
Manufacturer: JDSU	

Note: 802.11a---1TX (Non-Beamforming)



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	81.9477	40.50	-16.08	24.42	40.00	-15.58	QP			
2	332.9536	41.13	-8.29	32.84	46.00	-13.16	QP			

Produkte
 Products



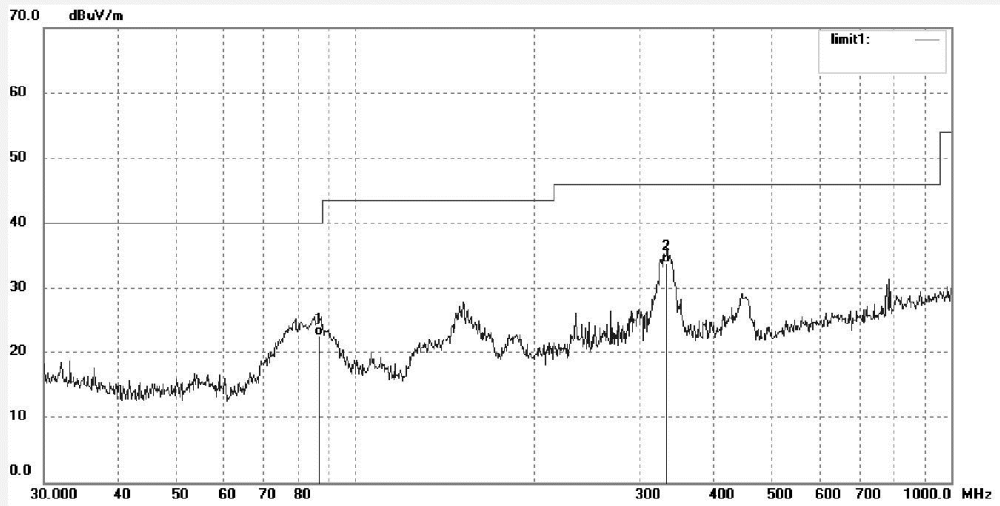
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 Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 2# Chamber
 Tel:+86-0755-26503290
 Fax:+86-0755-26503396

Job No.: pz #1760	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 14/11/15/
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: WiFi Advisor	Engineer Signature: PEI
Mode: TX 5220MHz	Distance: 3m
Model: WFED-300AC	
Manufacturer: JDSU	

Note: 802.11a---1TX (Non-Beamforming)



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	86.9917	37.95	-15.26	22.69	40.00	-17.31	QP			
2	332.9534	42.14	-8.29	33.85	46.00	-12.15	QP			

Produkte
 Products



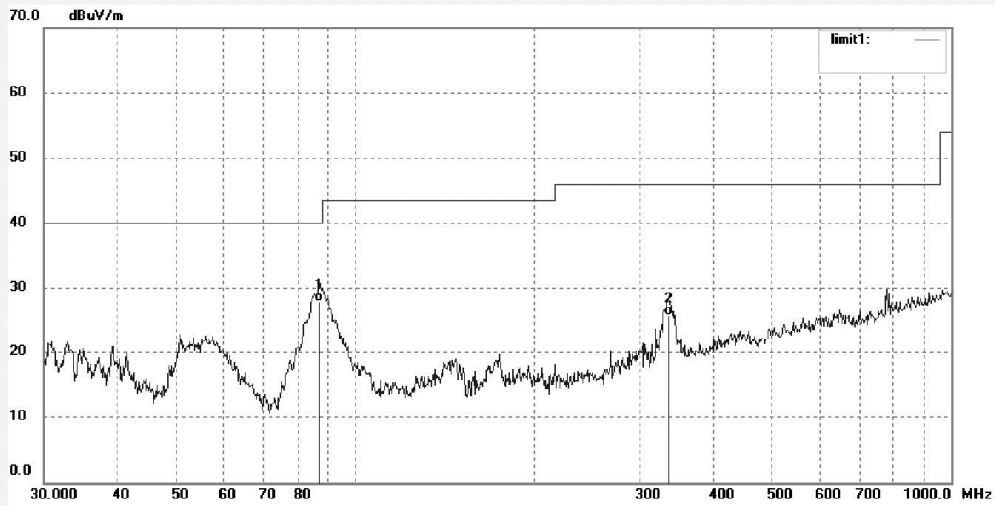
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 Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 2# Chamber
 Tel:+86-0755-26503290
 Fax:+86-0755-26503396

Job No.: pz #1761	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 14/11/15/
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: WiFi Advisor	Engineer Signature: PEI
Mode: TX 5220MHz	Distance: 3m
Model: WFED-300AC	
Manufacturer: JDSU	

Note: 802.11a---1TX (Non-Beamforming)



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	86.9918	43.11	-15.26	27.85	40.00	-12.15	QP			
2	335.3016	34.08	-8.25	25.83	46.00	-20.17	QP			

Produkte
 Products



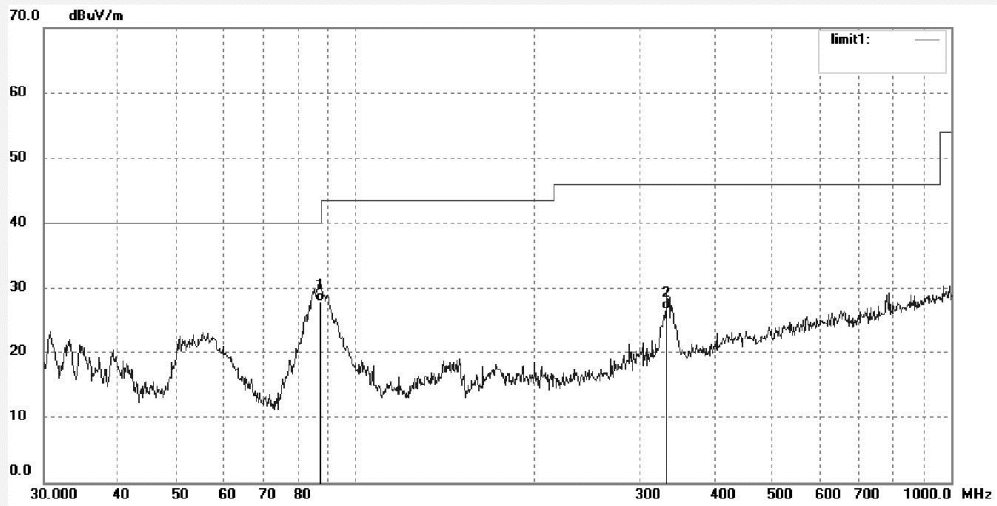
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F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
 Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 2# Chamber
 Tel:+86-0755-26503290
 Fax:+86-0755-26503396

Job No.: pz #1762	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 14/11/15/
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: WiFi Advisor	Engineer Signature: PEI
Mode: TX 5240MHz	Distance: 3m
Model: WFED-300AC	
Manufacturer: JDSU	

Note: 802.11a---1TX (Non-Beamforming)



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	87.2980	43.24	-15.24	28.00	40.00	-12.00	QP			
2	332.9534	34.98	-8.29	26.69	46.00	-19.31	QP			

Produkte
 Products



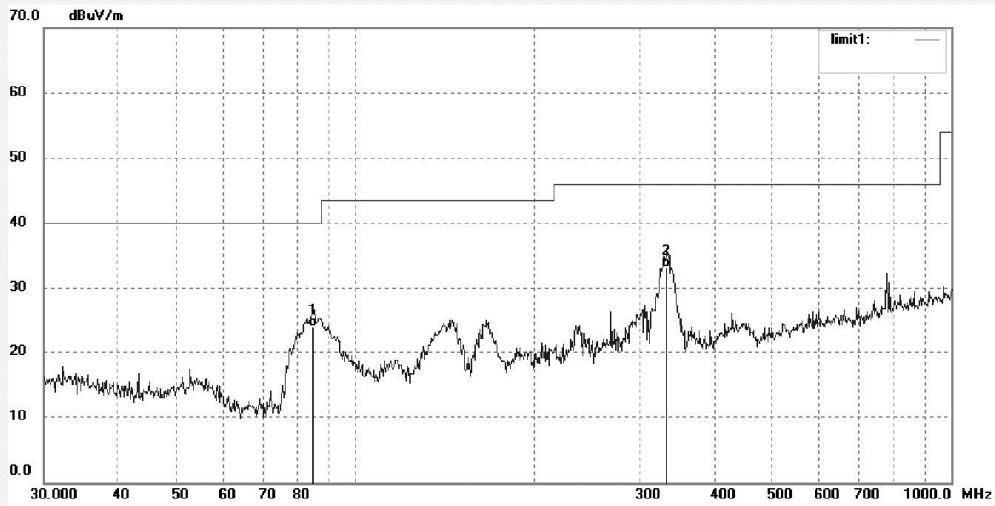
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 Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 2# Chamber
 Tel:+86-0755-26503290
 Fax:+86-0755-26503396

Job No.: pz #1763	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 14/11/15/
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: WiFi Advisor	Engineer Signature: PEI
Mode: TX 5240MHz	Distance: 3m
Model: WFED-300AC	
Manufacturer: JDSU	

Note: 802.11a---1TX (Non-Beamforming)



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	84.8782	39.47	-15.42	24.05	40.00	-15.95	QP			
2	332.9534	41.39	-8.29	33.10	46.00	-12.90	QP			

Produkte
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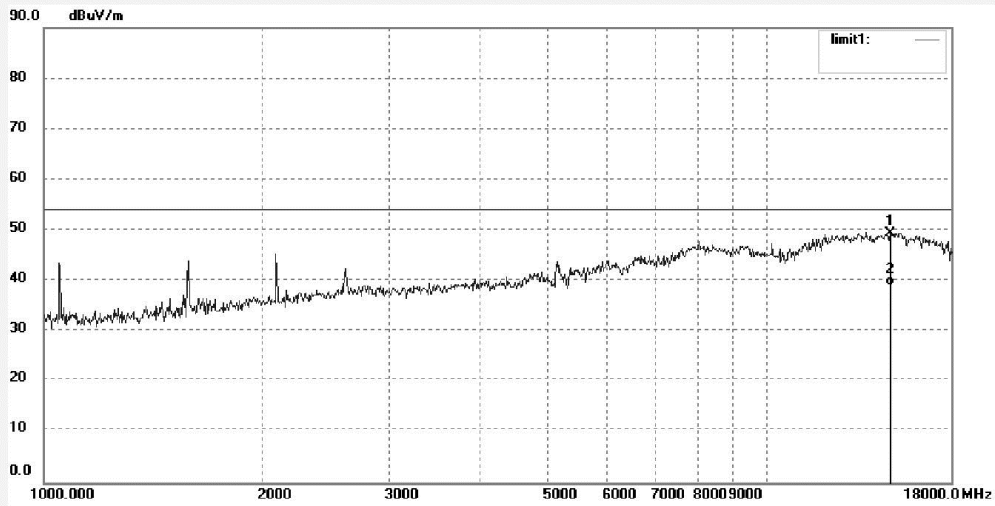
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 Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 2# Chamber
 Tel:+86-0755-26503290
 Fax:+86-0755-26503396

Job No.: pz #1914	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 14/11/16/
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: WiFi Advisor	Engineer Signature: PEI
Mode: TX 5180MHz	Distance: 3m
Model: WFED-300AC	
Manufacturer: JDSU	

Note: 802.11a---1TX (Non-Beamforming)



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	14810.727	7.74	41.67	49.41	74.00	-24.59	peak			
2	14810.727	-2.59	41.67	39.08	54.00	-14.92	AVG			

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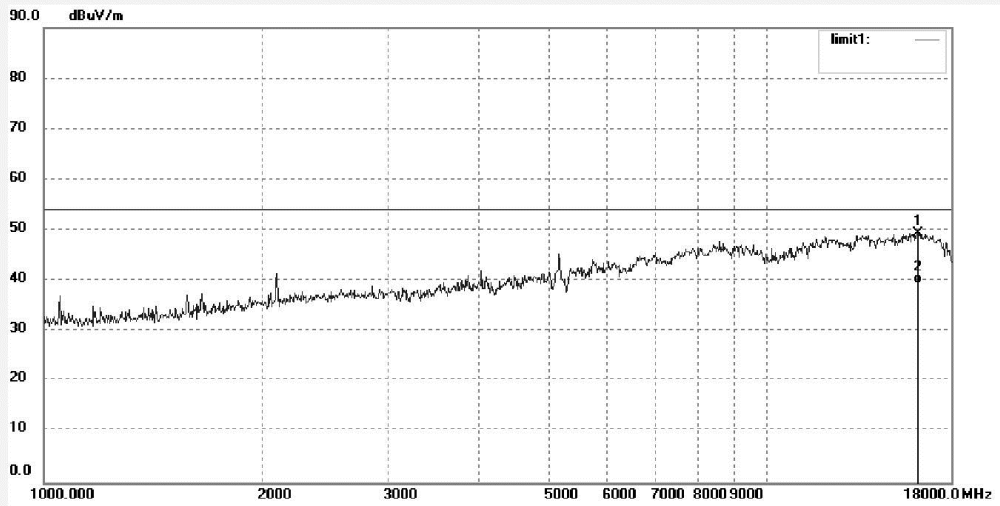
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 Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 2# Chamber
 Tel:+86-0755-26503290
 Fax:+86-0755-26503396

Job No.: pz #1915	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 14/11/16/
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: WiFi Advisor	Engineer Signature: PEI
Mode: TX 5180MHz	Distance: 3m
Model: WFED-300AC	
Manufacturer: JDSU	

Note: 802.11a---1TX (Non-Beamforming)



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	16162.183	9.37	40.10	49.47	74.00	-24.53	peak			
2	16162.183	-0.69	40.10	39.41	54.00	-14.59	AVG			