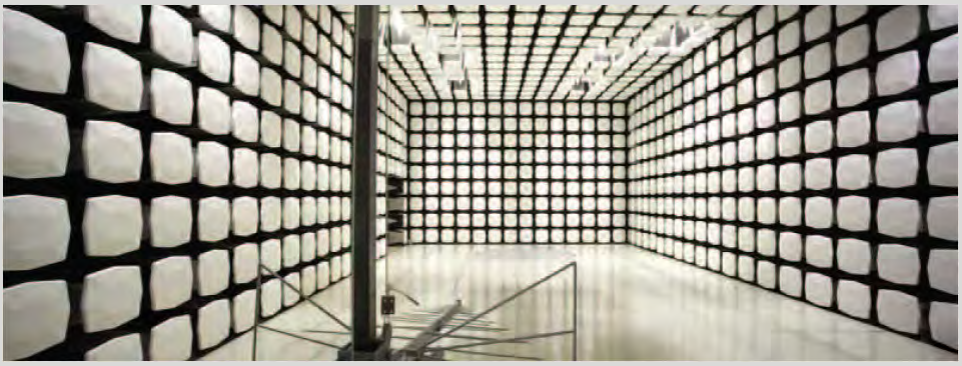
Microsoft Corporation

Model 1631

FCC 15.407:2014

FCC 15.207:2014

Report #: MCSO1698.2 PART 4 OF 4



Report Prepared By Northwest EMC Inc.

NORTHWEST EMC – (888) 364-2378 – www.nwemc.com

California – Minnesota – Oregon – New York – Washington

BAND EDGE COMPLIANCE

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval (mo.)
40GHz DC Block	Miteq	DCB4000	AMD	5/16/2013	12
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	7/30/2013	12
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0
Attenuator, 6dB	S.M. Electronics	18N-06	AWN	2/3/2014	12
RF Vector Signal Generator	Agilent	V2920A	TIH	NCR	0
Power Meter	Gigatronics	8651A	SPM	11/26/2013	24
Power Sensor	Gigatronics	80701A	SPL	7/8/2011	36
Spectrum Analyzer	Agilent	E4440	AFE	11/4/2013	24

TEST DESCRIPTION

The spurious RF conducted emissions at the edges of the authorized bands were measured with the EUT set to low and high transmit frequencies in each available band. The channels closest to the band edges were selected. The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at the data rate(s) listed in the datasheet.

The spectrum was scanned below the lower band edge and above the higher band edge.

BAND EDGE COMPLIANCE

EUT:	Model 1631			**Work Order:**	MCSO1698
Serial Number:	041151240753			**Date:**	03/23/14
Customer:	Microsoft Corporation			**Temperature:**	21.5°C
Attendees:	None			**Humidity:**	Interval (mo.)
Project:	None			**Barometric Pres.:**	1007
Tested by:	Brandon Hobbs, Jared Ison	**Power:**	110VAC/60Hz	**Job Site:**	EV06

TEST SPECIFICATIONS	Test Method
FCC 15.407:2014	ANSI C63.10:2009

COMMENTS

Modes of operation tested were client provided.

DEVIATIONS FROM TEST STANDARD

None

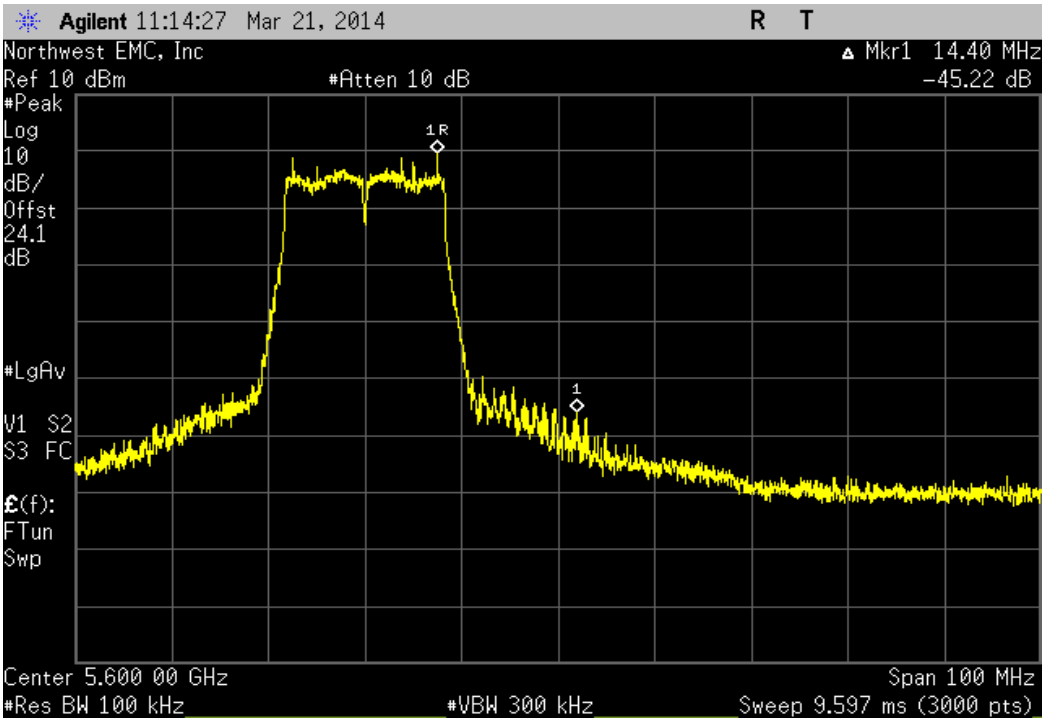
Configuration #	5	Signature

		Value	Limit	Result
20MHz Bandwidth				
	802.11(a) 6 Mbps			
	Channel 116, 5580 MHz	-45.22 dBc	≤ -20 dBc	Pass
	Channel 132, 5660 MHz	-30.3 dBc	≤ -20 dBc	Pass
	802.11(a) 36 Mbps			
	Channel 116, 5580 MHz	-50.92 dBc	≤ -20 dBc	Pass
	Channel 132, 5660 MHz	-32.85 dBc	≤ -20 dBc	Pass
	802.11(a) 54 Mbps			
	Channel 116, 5580 MHz	-49.09 dBc	≤ -20 dBc	Pass
	Channel 132, 5660 MHz	-30.71 dBc	≤ -20 dBc	Pass
	802.11(n) MCS7			
	Channel 116, 5580 MHz	-47.37 dBc	≤ -20 dBc	Pass
	Channel 132, 5660 MHz	-30.55 dBc	≤ -20 dBc	Pass
	802.11(ac) MCS0			
	Channel 116, 5580 MHz	-45.88 dBc	≤ -20 dBc	Pass
	Channel 132, 5660 MHz	-30.76 dBc	≤ -20 dBc	Pass
	802.11(ac) MCS8			
	Channel 116, 5580 MHz	-47.15 dBc	≤ -20 dBc	Pass
	Channel 132, 5660 MHz	-30.3 dBc	≤ -20 dBc	Pass
40MHz Bandwidth				
	802.11(n) MCS7			
	Channel 108/112, 5550 MHz	-48.13 dBc	≤ -20 dBc	Pass
	Channel 132/136, 5670 MHz	-31.02 dBc	≤ -20 dBc	Pass
	802.11(ac) MCS0			
	Channel 108/112, 5550 MHz	-47.38 dBc	≤ -20 dBc	Pass
	Channel 132/136, 5670 MHz	-31.46 dBc	≤ -20 dBc	Pass
	802.11(ac) MCS9			
	Channel 108/112, 5550 MHz	-48.1 dBc	≤ -20 dBc	Pass
	Channel 132/136, 5670 MHz	-29.65 dBc	≤ -20 dBc	Pass
80MHz Bandwidth				
	802.11(ac) MCS0			
	Channel 106, 5530 MHz	-31.28 dBc	≤ -20 dBc	Pass
	802.11(ac) MCS9			
	Channel 106, 5530 MHz	-34.44 dBc	≤ -20 dBc	Pass

BAND EDGE COMPLIANCE

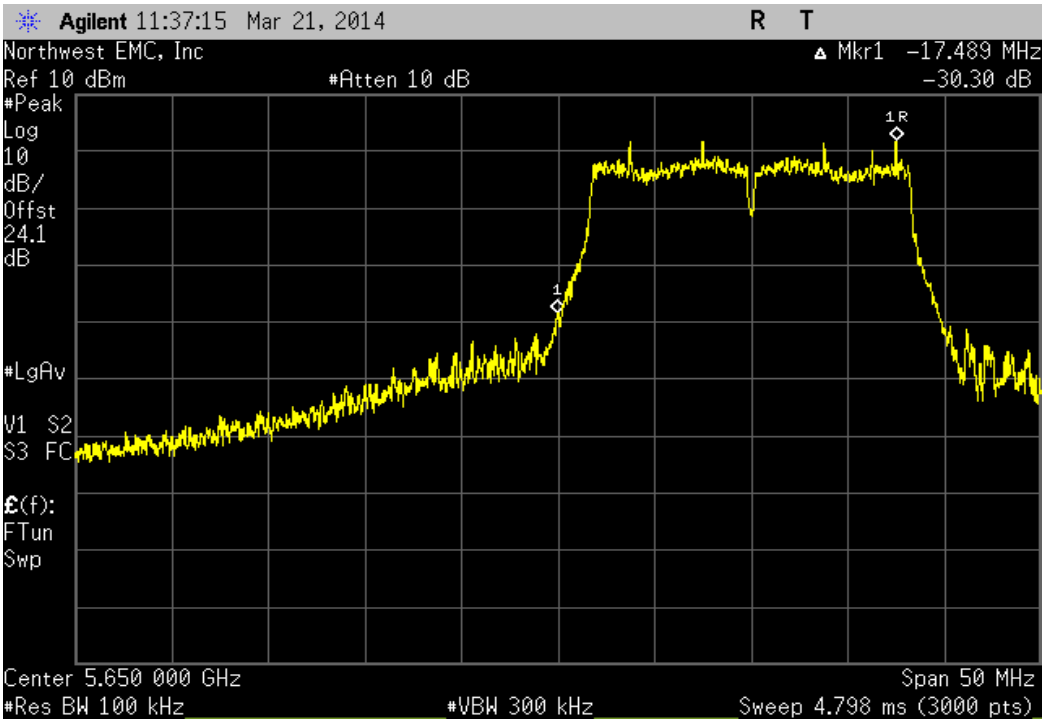
20MHz Bandwidth , 802.11(a) 6 Mbps, Channel 116, 5580 MHz

				Value	Limit	Result	Interval (mo.)
				-45.22 dBc	≤ -20 dBc	Pass	



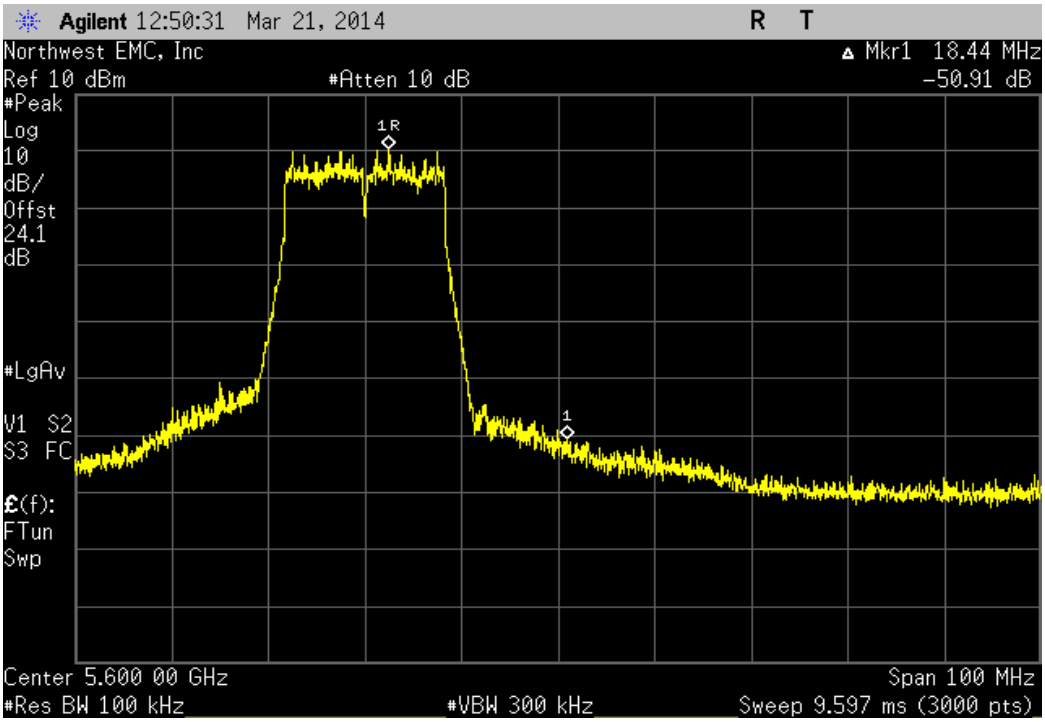
20MHz Bandwidth , 802.11(a) 6 Mbps, Channel 132, 5660 MHz

				Value	Limit	Result
				-30.3 dBc	≤ -20 dBc	Pass



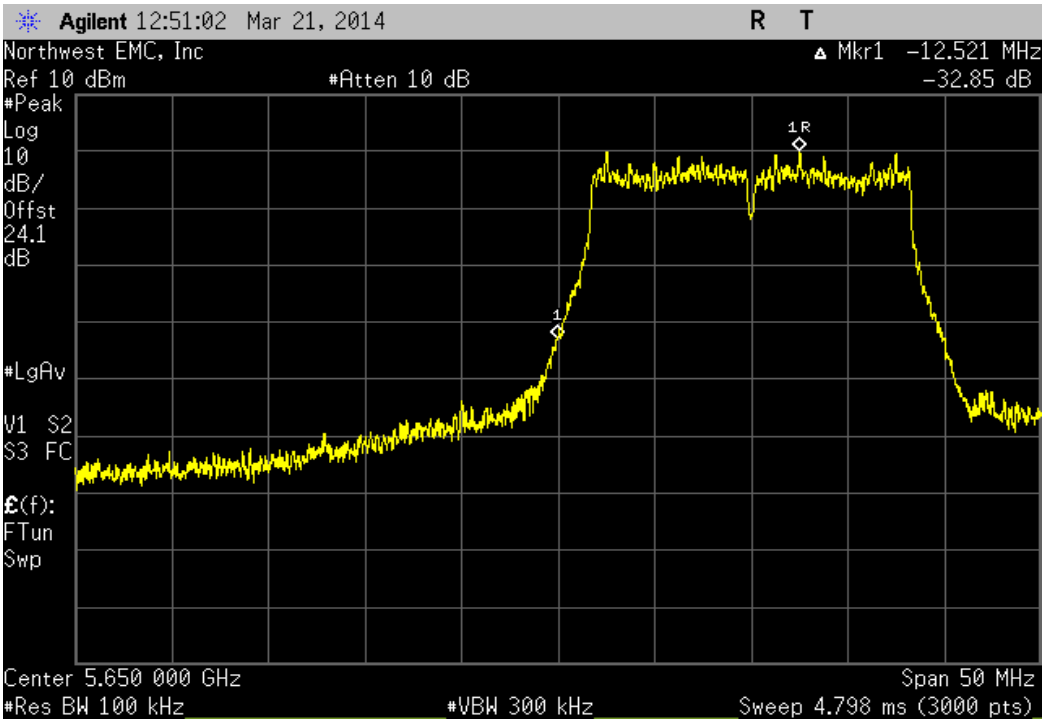
20MHz Bandwidth , 802.11(a) 36 Mbps, Channel 116, 5580 MHz

				Value	Limit	Result	Interval (mo.)
				-50.92 dBc	≤ -20 dBc	Pass	



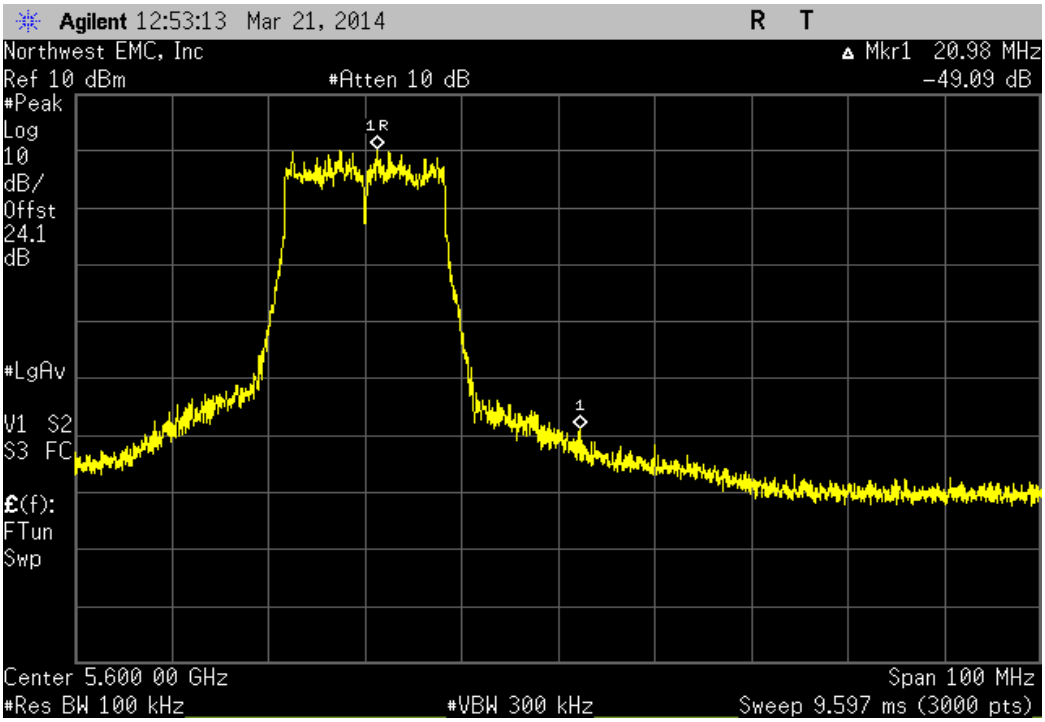
20MHz Bandwidth , 802.11(a) 36 Mbps, Channel 132, 5660 MHz

				Value	Limit	Result
				-32.85 dBc	≤ -20 dBc	Pass



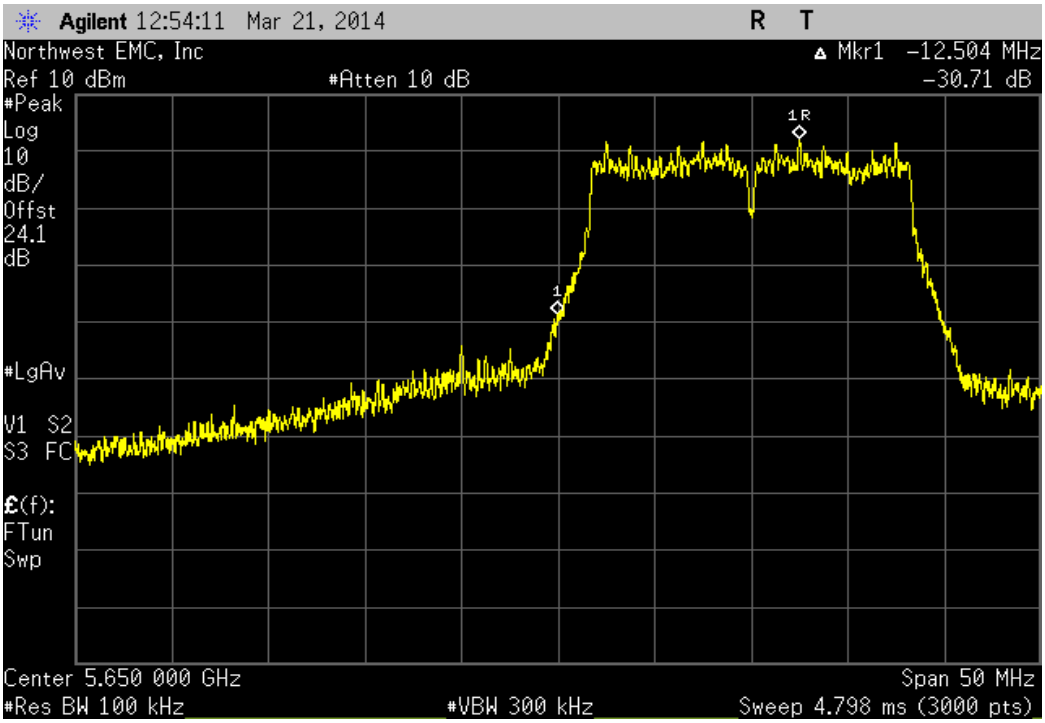
20MHz Bandwidth , 802.11(a) 54 Mbps, Channel 116, 5580 MHz

				Value	Limit	Result	Interval (mo.)
				-49.09 dBc	≤ -20 dBc	Pass	



20MHz Bandwidth , 802.11(a) 54 Mbps, Channel 132, 5660 MHz

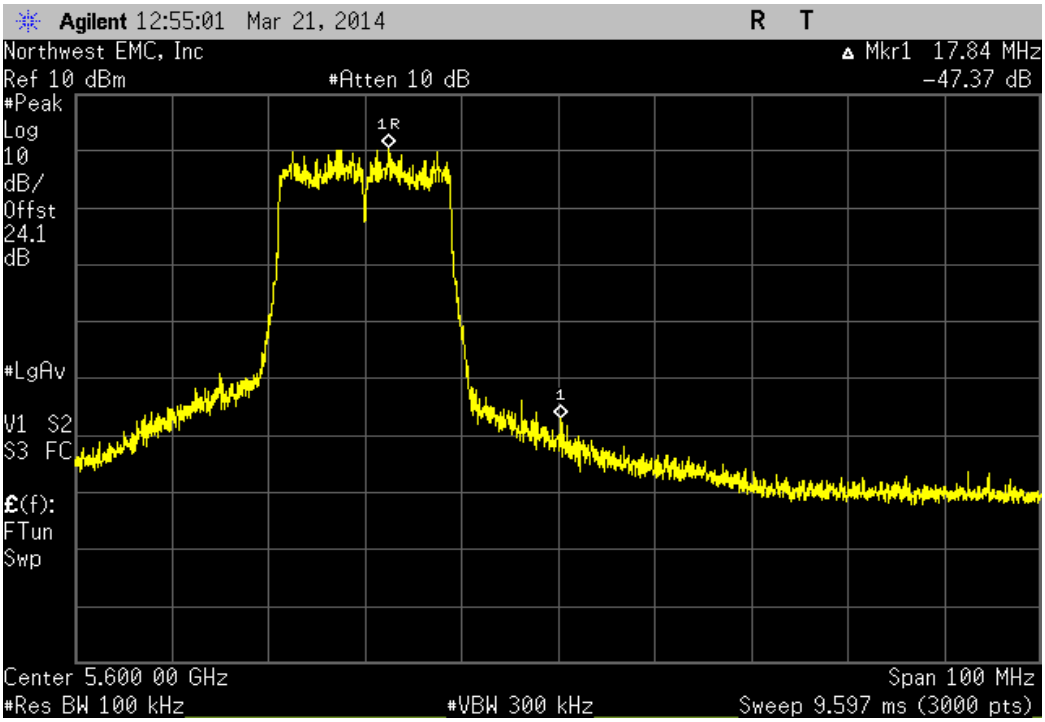
				Value	Limit	Result
				-30.71 dBc	≤ -20 dBc	Pass



BAND EDGE COMPLIANCE

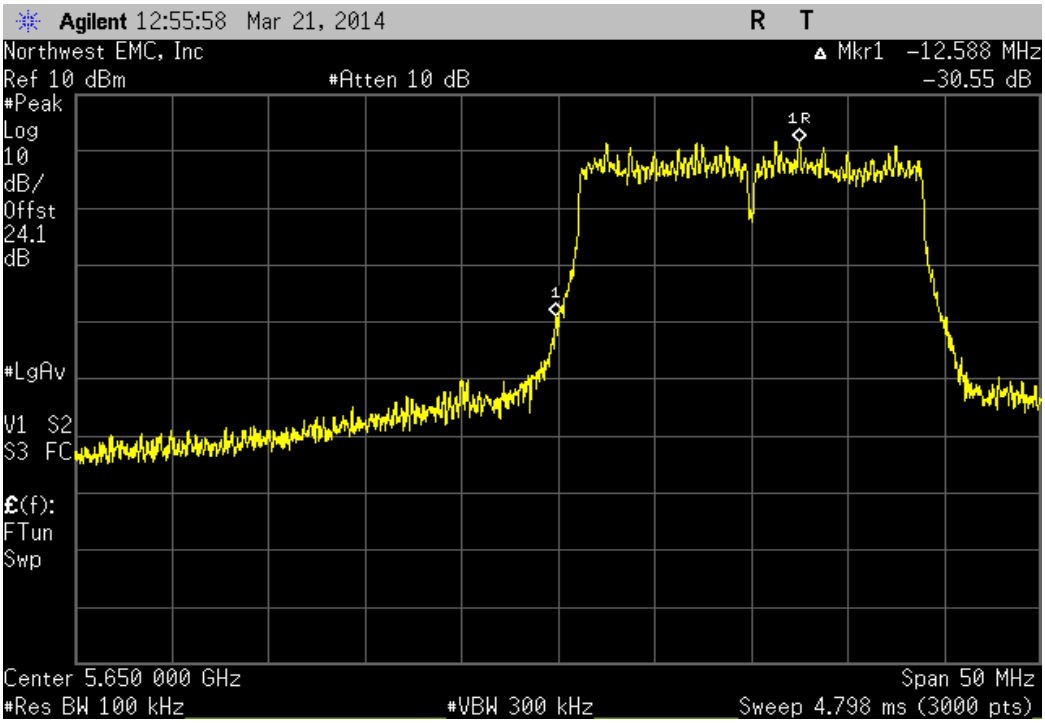
20MHz Bandwidth , 802.11(n) MCS7, Channel 116, 5580 MHz

				Value	Limit	Result	Interval (mo.)
				-47.37 dBc	≤ -20 dBc	Pass	



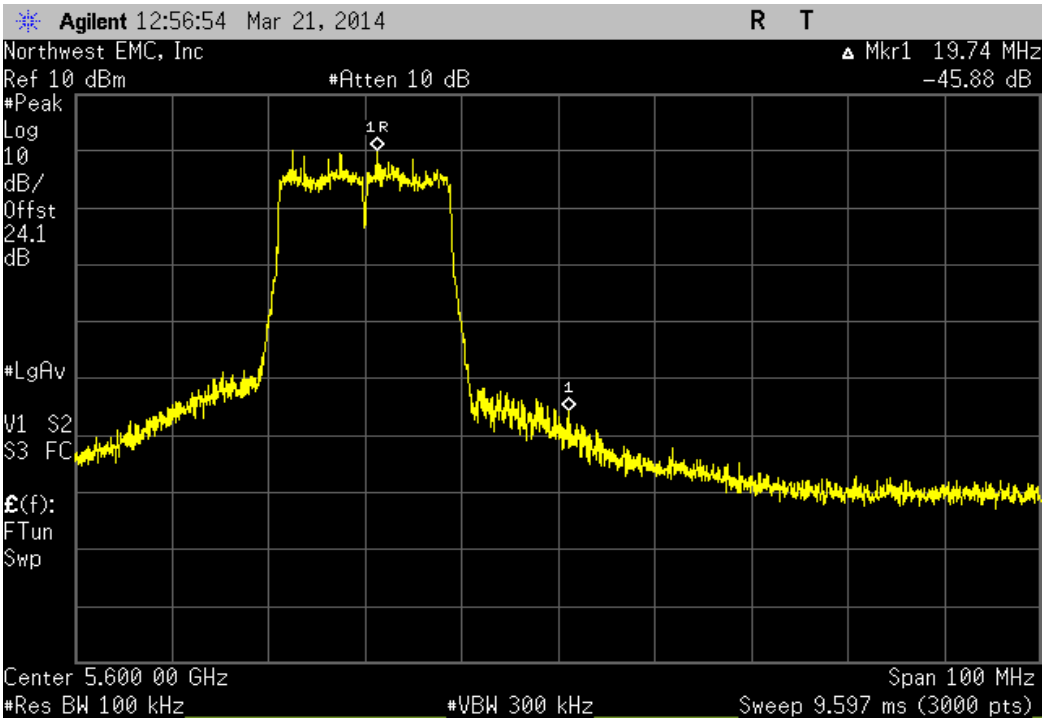
20MHz Bandwidth , 802.11(n) MCS7, Channel 132, 5660 MHz

				Value	Limit	Result
				-30.55 dBc	≤ -20 dBc	Pass



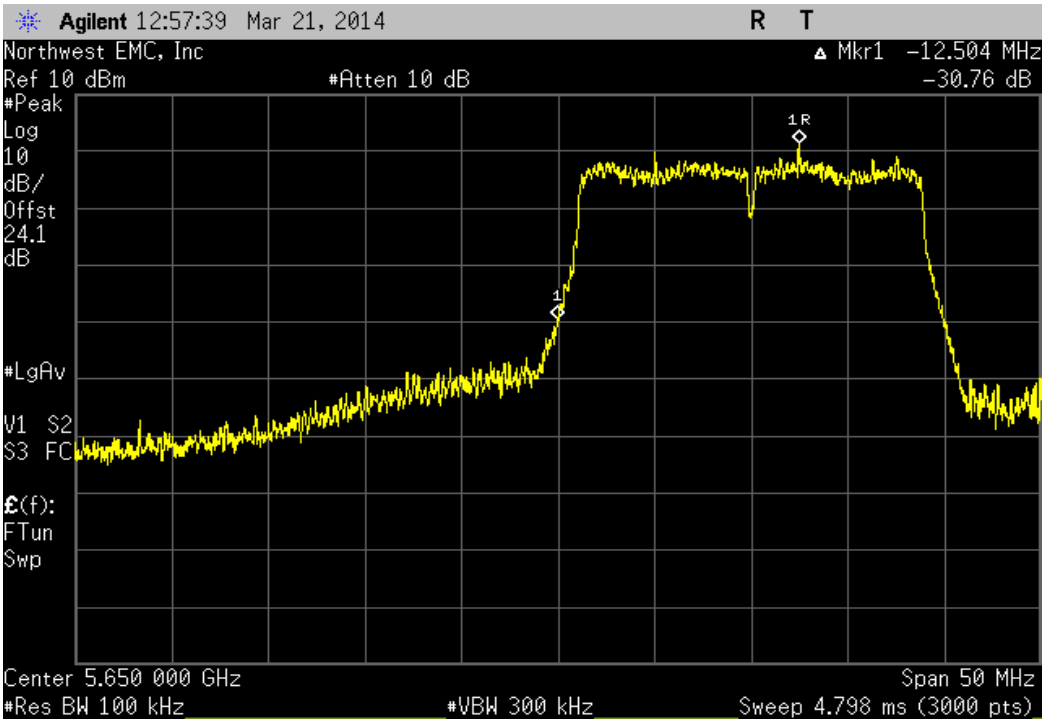
20MHz Bandwidth , 802.11(ac) MCS0, Channel 116, 5580 MHz

				Value	Limit	Result	Interval (mo.)
				-45.88 dBc	≤ -20 dBc	Pass	



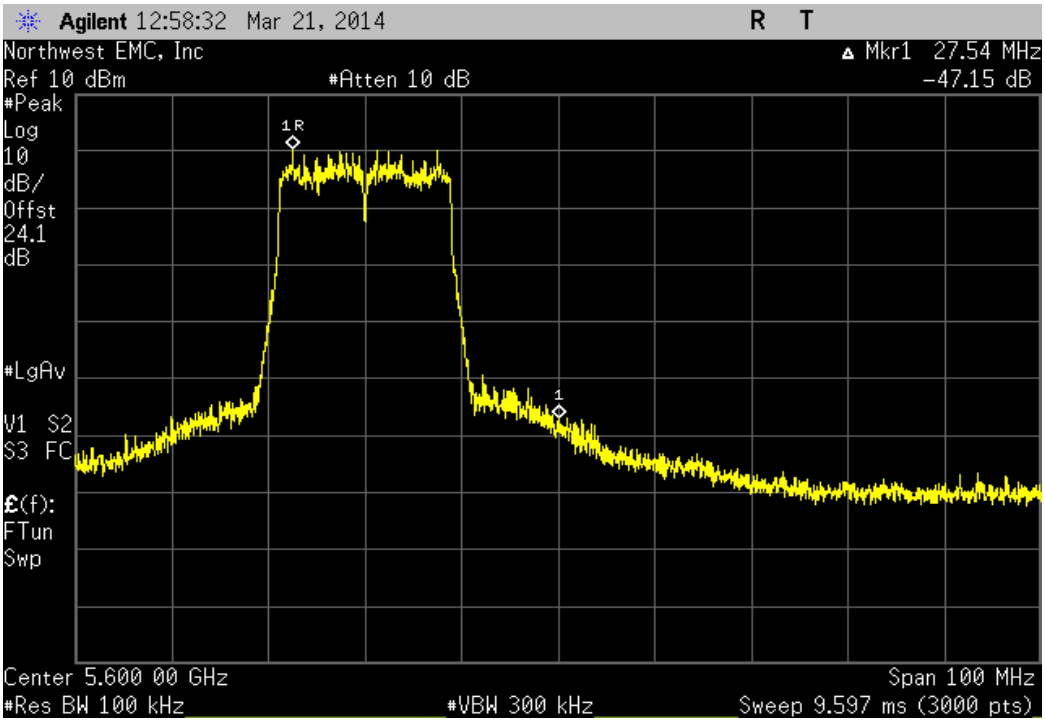
20MHz Bandwidth , 802.11(ac) MCS0, Channel 132, 5660 MHz

				Value	Limit	Result
				-30.76 dBc	≤ -20 dBc	Pass



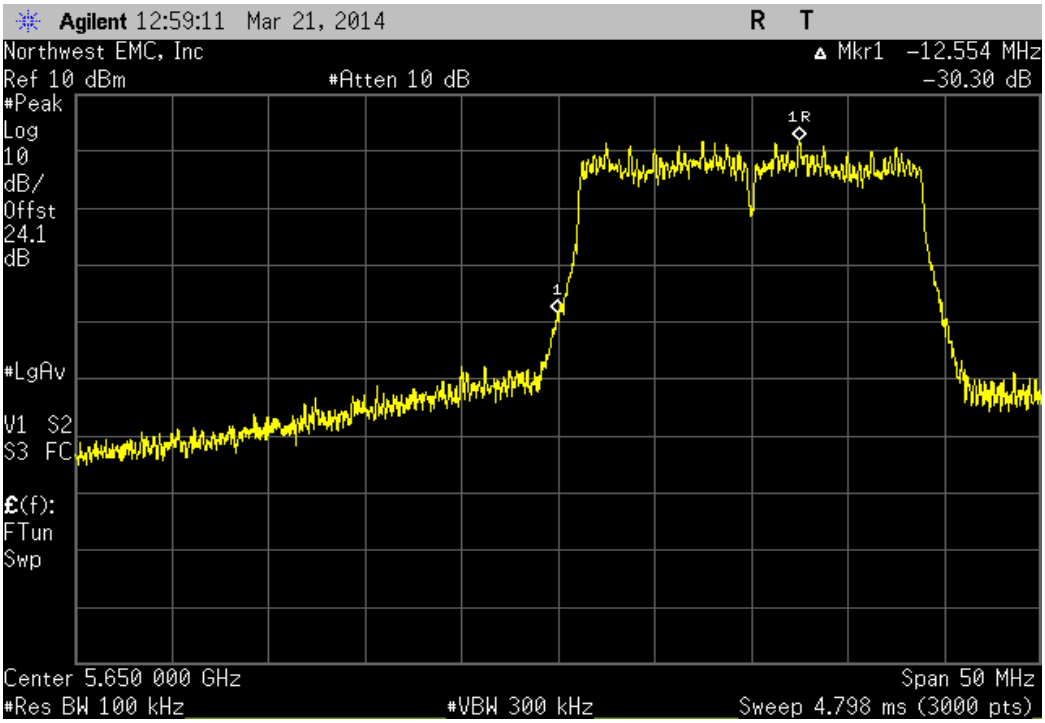
20MHz Bandwidth , 802.11(ac) MCS8, Channel 116, 5580 MHz

				Value	Limit	Result	Interval (mo.)
				-47.15 dBc	≤ -20 dBc	Pass	



20MHz Bandwidth , 802.11(ac) MCS8, Channel 132, 5660 MHz

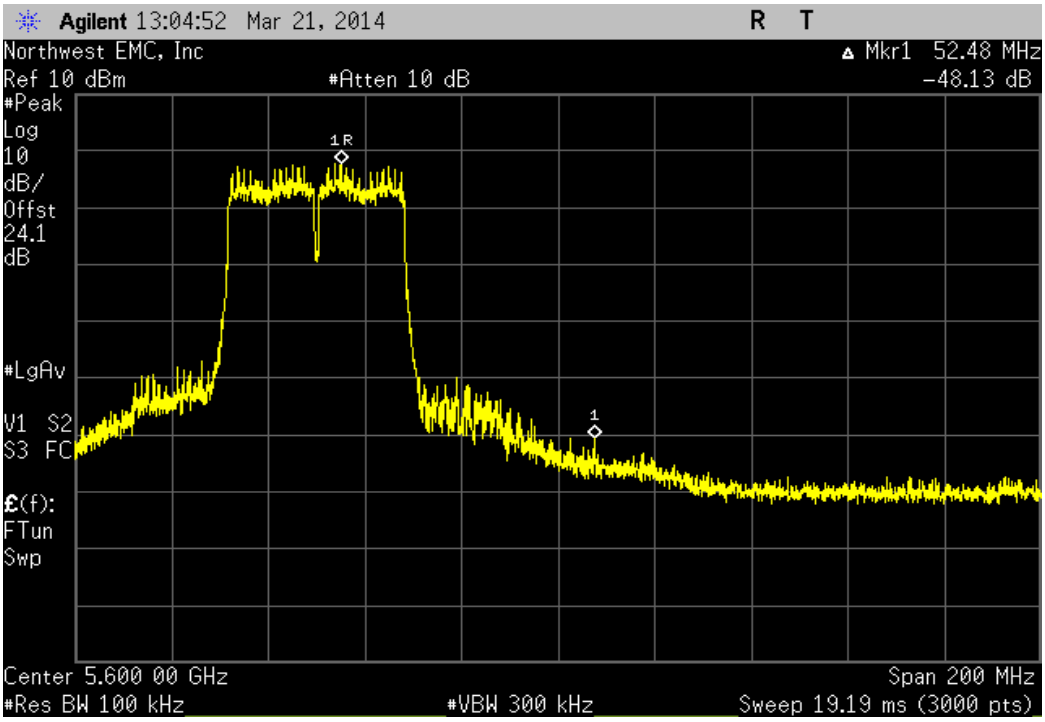
				Value	Limit	Result
				-30.3 dBc	≤ -20 dBc	Pass



BAND EDGE COMPLIANCE

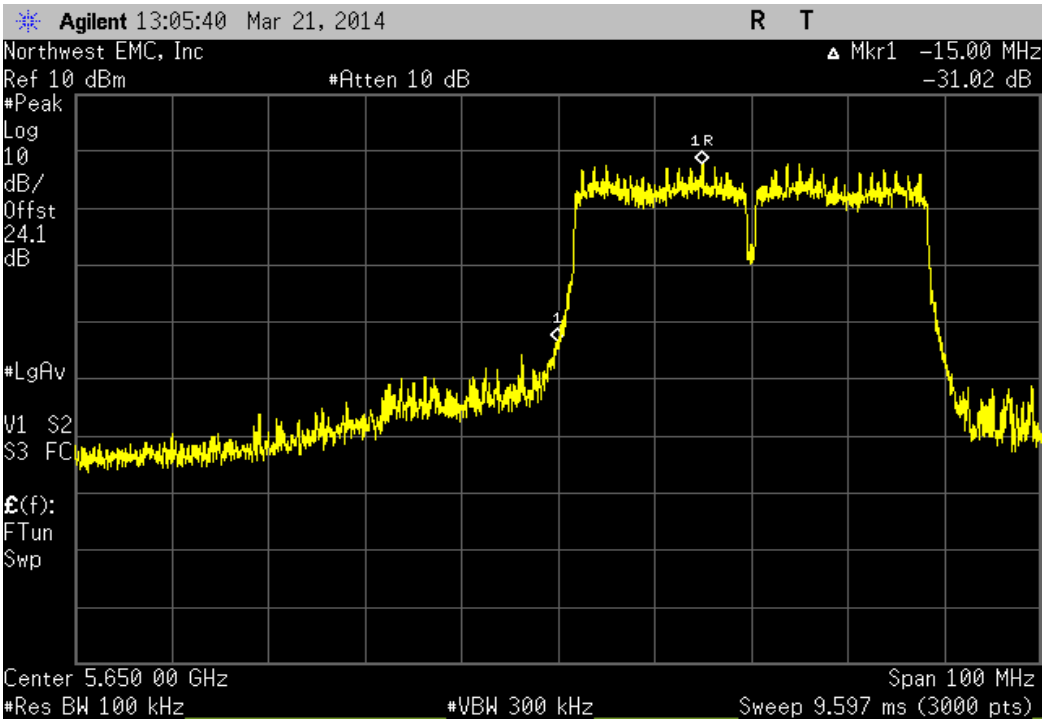
40MHz Bandwidth , 802.11(n) MCS7, Channel 108/112, 5550 MHz

				Value	Limit	Result
				-48.13 dBc	≤ -20 dBc	Pass



40MHz Bandwidth , 802.11(n) MCS7, Channel 132/136, 5670 MHz

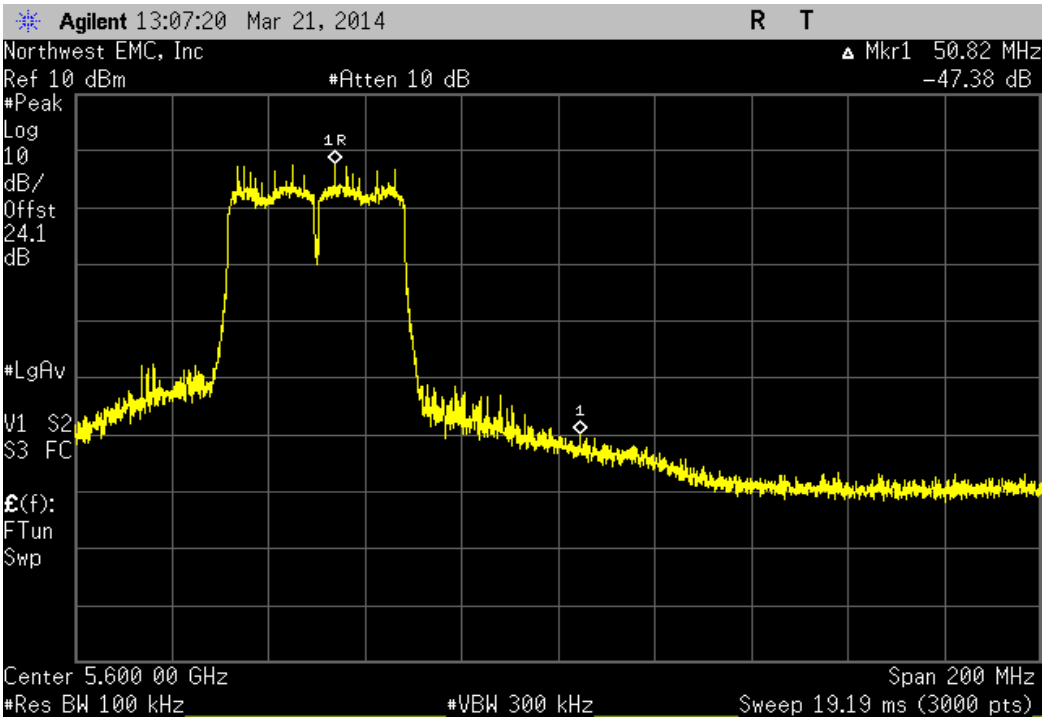
				Value	Limit	Result
				-31.02 dBc	≤ -20 dBc	Pass



BAND EDGE COMPLIANCE

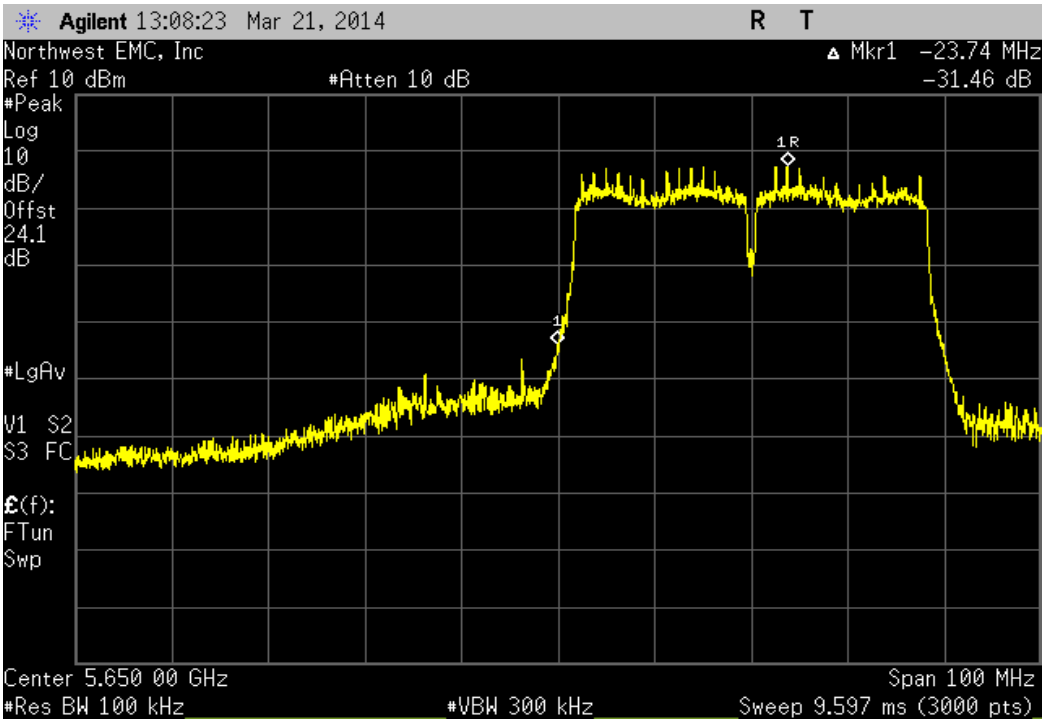
40MHz Bandwidth , 802.11(ac) MCS0, Channel 108/112, 5550 MHz

				Value	Limit	Result
				-47.38 dBc	≤ -20 dBc	Pass



40MHz Bandwidth , 802.11(ac) MCS0, Channel 132/136, 5670 MHz

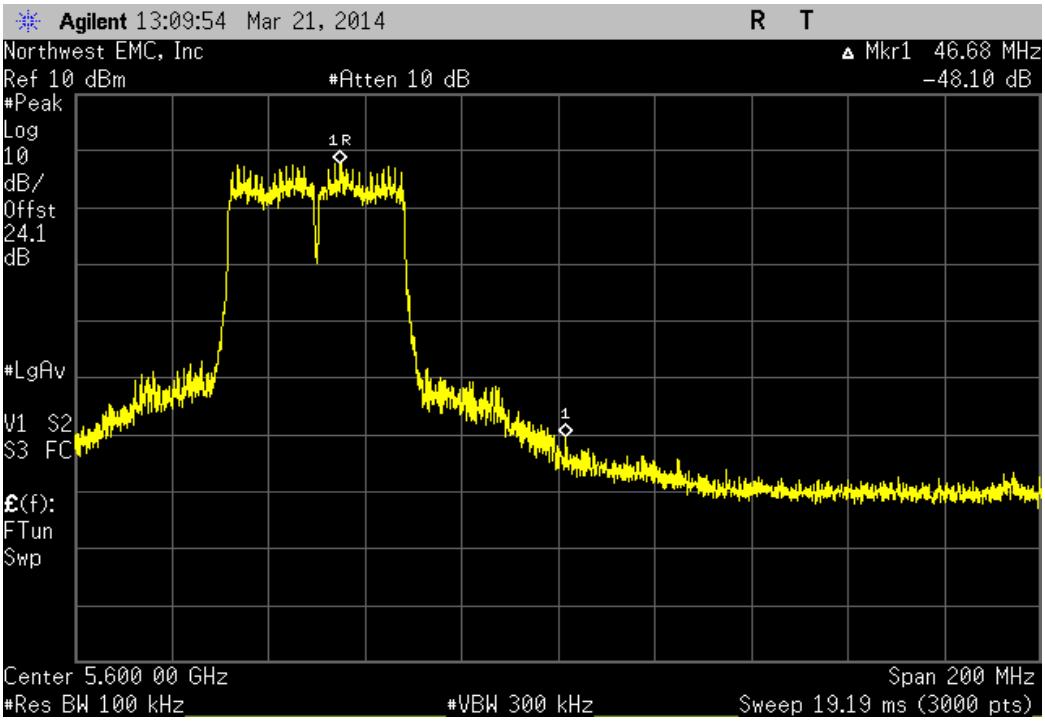
				Value	Limit	Result
				-31.46 dBc	≤ -20 dBc	Pass



BAND EDGE COMPLIANCE

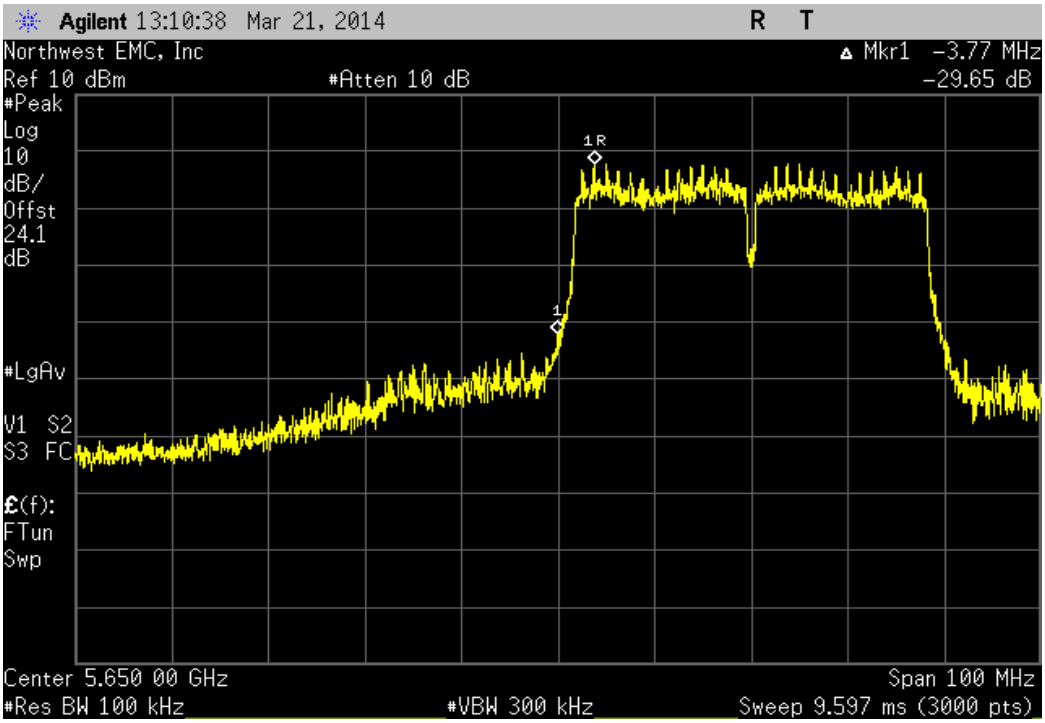
40MHz Bandwidth , 802.11(ac) MCS9, Channel 108/112, 5550 MHz

				Value	Limit	Result
				-48.1 dBc	≤ -20 dBc	Pass



40MHz Bandwidth , 802.11(ac) MCS9, Channel 132/136, 5670 MHz

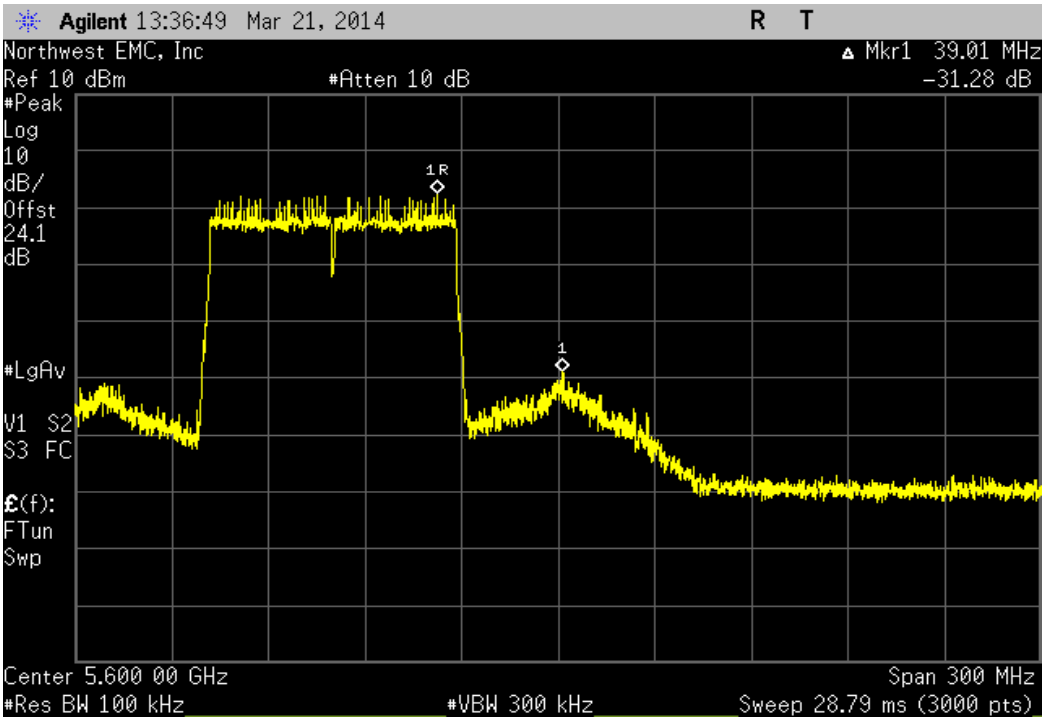
				Value	Limit	Result
				-29.65 dBc	≤ -20 dBc	Pass



BAND EDGE COMPLIANCE

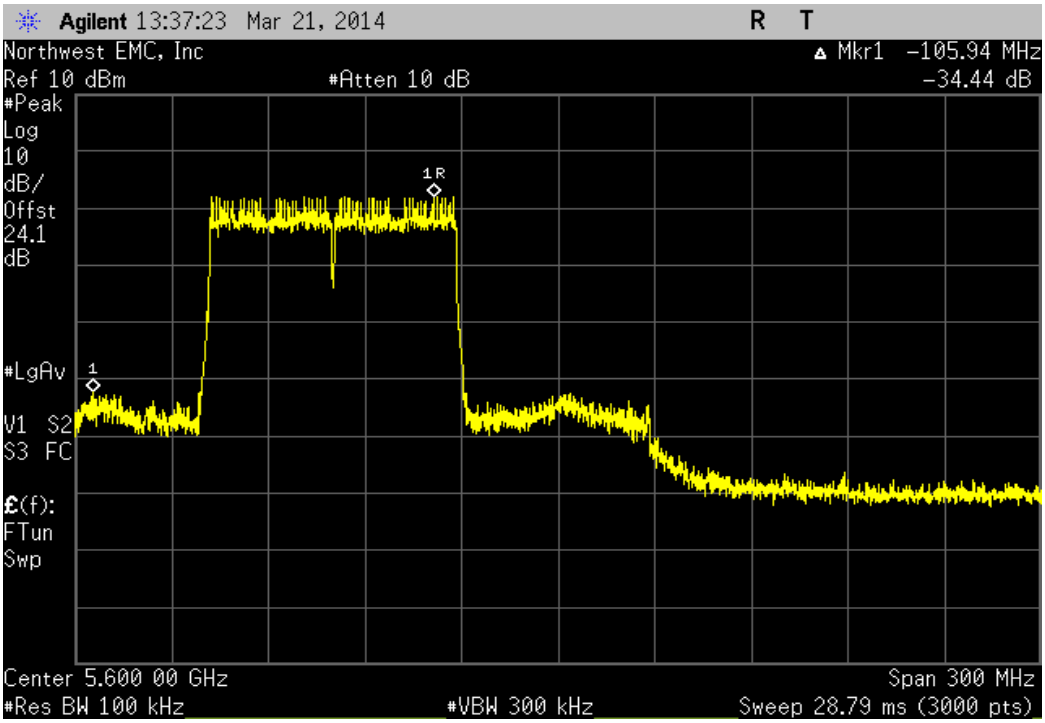
80MHz Bandwidth , 802.11(ac) MCS0, Channel 106, 5530 MHz

				Value	Limit	Result
				-31.28 dBc	≤ -20 dBc	Pass



80MHz Bandwidth , 802.11(ac) MCS9, Channel 106, 5530 MHz

				Value	Limit	Result
				-34.44 dBc	≤ -20 dBc	Pass



BAND EDGE COMPLIANCE

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval (mo.)
40GHz DC Block	Miteq	DCB4000	AMD	5/16/2013	12
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	7/30/2013	12
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0
Attenuator, 6dB	S.M. Electronics	18N-06	AWN	2/3/2014	12
RF Vector Signal Generator	Agilent	V2920A	TIH	NCR	0
Power Meter	Gigatronics	8651A	SPM	11/26/2013	24
Power Sensor	Gigatronics	80701A	SPL	7/8/2011	36
Spectrum Analyzer	Agilent	E4440	AFE	11/4/2013	24

TEST DESCRIPTION

The spurious RF conducted emissions at the edges of the authorized bands were measured with the EUT set to low and high transmit frequencies in each available band. The channels closest to the band edges were selected. The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at the data rate(s) listed in the datasheet.

The spectrum was scanned below the lower band edge and above the higher band edge.

BAND EDGE COMPLIANCE

EUT:	Model 1631			**Work Order:**	MCSO1698
Serial Number:	041151240753			**Date:**	4/03/14
Customer:	Microsoft Corporation			**Temperature:**	21.5°C
Attendees:	None			**Humidity:**	29%
Project:	None			**Barometric Pres.:**	1007
Tested by:	Brandon Hobbs, Jared Ison, Rod Peloquin	**Power:**	110VAC/60Hz	**Job Site:**	EV06

TEST SPECIFICATIONS	Test Method
FCC 15.407:2014	ANSI C63.10:2009

COMMENTS

Modes of operation tested were client provided.

DEVIATIONS FROM TEST STANDARD

None

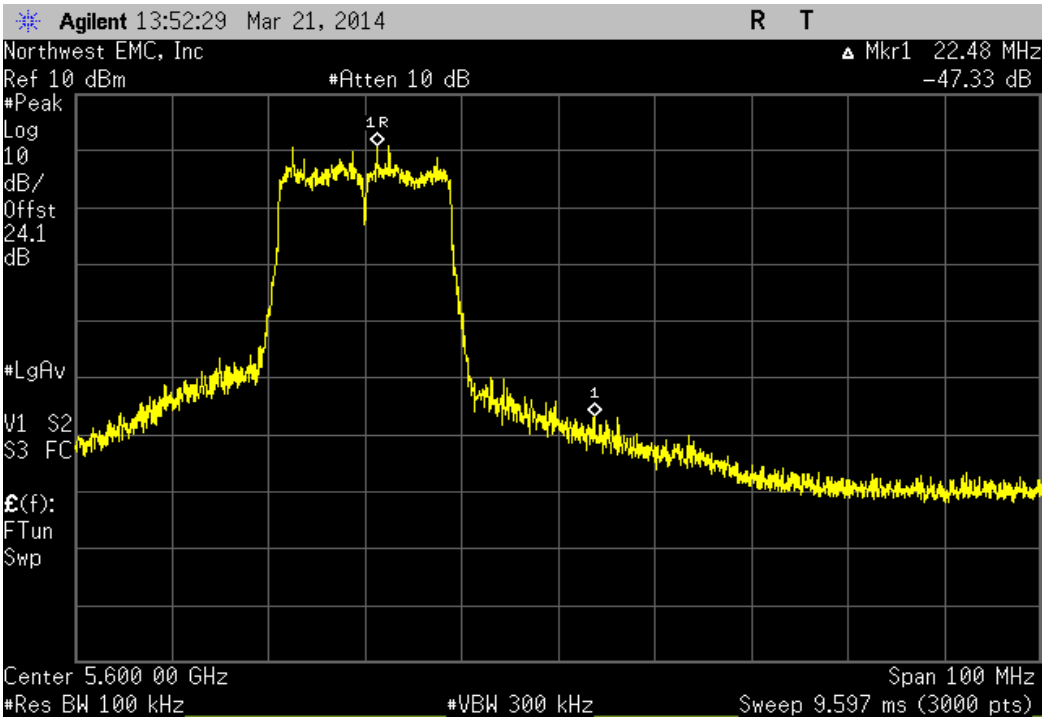
Configuration #	5	Signature

		Value	Limit	Result
Ant A				
	20MHz Bandwidth			
	802.11(n) MCS8			
	Channel 116, 5580 MHz	-47.33 dBc	≤ -20 dBc	Pass
	Channel 132, 5660 MHz	-30.58 dBc	≤ -20 dBc	Pass
	802.11(n) MCS15			
	Channel 116, 5580 MHz	-47.48 dBc	≤ -20 dBc	Pass
	Channel 132, 5660 MHz	-30.44 dBc	≤ -20 dBc	Pass
	802.11(ac) MCS0			
	Channel 116, 5580 MHz	-36.13 dBc	≤ -20 dBc	Pass
	Channel 132, 5660 MHz	-20.23 dBc	≤ -20 dBc	Pass
	802.11(ac) MCS8			
	Channel 116, 5580 MHz	-44.6 dBc	≤ -20 dBc	Pass
	Channel 132, 5660 MHz	-27.09 dBc	≤ -20 dBc	Pass
	40MHz Bandwidth			
	802.11(n) MCS8			
	Channel 108/112, 5550 MHz	-47.31 dBc	≤ -20 dBc	Pass
	Channel 132/136, 5670 MHz	-31.72 dBc	≤ -20 dBc	Pass
	802.11(n) MCS15			
	Channel 108/112, 5550 MHz	-45.16 dBc	≤ -20 dBc	Pass
	Channel 132/136, 5670 MHz	-32.51 dBc	≤ -20 dBc	Pass
	802.11(ac) MCS0			
	Channel 108/112, 5550 MHz	-40.7 dBc	≤ -20 dBc	Pass
	Channel 132/136, 5670 MHz	-30.05 dBc	≤ -20 dBc	Pass
	802.11(ac) MCS9			
	Channel 108/112, 5550 MHz	-47.96 dBc	≤ -20 dBc	Pass
	Channel 132/136, 5670 MHz	-31.68 dBc	≤ -20 dBc	Pass
	80MHz Bandwidth			
	802.11(ac) MCS0			
	Channel 106, 5530 MHz	-31.59 dBc	≤ -20 dBc	Pass
	802.11(ac) MCS9			
	Channel 106, 5530 MHz	-31.68 dBc	≤ -20 dBc	Pass
Ant B				
	20MHz Bandwidth			
	802.11(n) MCS8			
	Channel 116, 5580 MHz	-47.55 dBc	≤ -20 dBc	Pass
	Channel 132, 5660 MHz	-29.45 dBc	≤ -20 dBc	Pass
	802.11(n) MCS15			
	Channel 116, 5580 MHz	-47.3 dBc	≤ -20 dBc	Pass
	Channel 132, 5660 MHz	-29.54 dBc	≤ -20 dBc	Pass
	802.11(ac) MCS0			
	Channel 116, 5580 MHz	-35.11 dBc	≤ -20 dBc	Pass
	Channel 132, 5660 MHz	-30.92 dBc	≤ -20 dBc	Pass
	802.11(ac) MCS8			
	Channel 116, 5580 MHz	-48.75 dBc	≤ -20 dBc	Pass
	Channel 132, 5660 MHz	-31.17 dBc	≤ -20 dBc	Pass
	40MHz Bandwidth			
	802.11(n) MCS8			
	Channel 108/112, 5550 MHz	-48.61 dBc	≤ -20 dBc	Pass
	Channel 132/136, 5670 MHz	-31.96 dBc	≤ -20 dBc	Pass
	802.11(n) MCS15			
	Channel 108/112, 5550 MHz	-48.07 dBc	≤ -20 dBc	Pass
	Channel 132/136, 5670 MHz	-32.23 dBc	≤ -20 dBc	Pass
	802.11(ac) MCS0			
	Channel 108/112, 5550 MHz	-36.93 dBc	≤ -20 dBc	Pass
	Channel 132/136, 5670 MHz	-29.11	≤ -20 dBc	Pass
	802.11(ac) MCS9			
	Channel 108/112, 5550 MHz	-48.75 dBc	≤ -20 dBc	Pass
	Channel 132/136, 5670 MHz	-31.26 dBc	≤ -20 dBc	Pass
	80MHz Bandwidth			
	802.11(ac) MCS0			
	Channel 106, 5530 MHz	-35.03 dBc	≤ -20 dBc	Pass
	802.11(ac) MCS9			
	Channel 106, 5530 MHz	-34.46 dBc	≤ -20 dBc	Pass

BAND EDGE COMPLIANCE

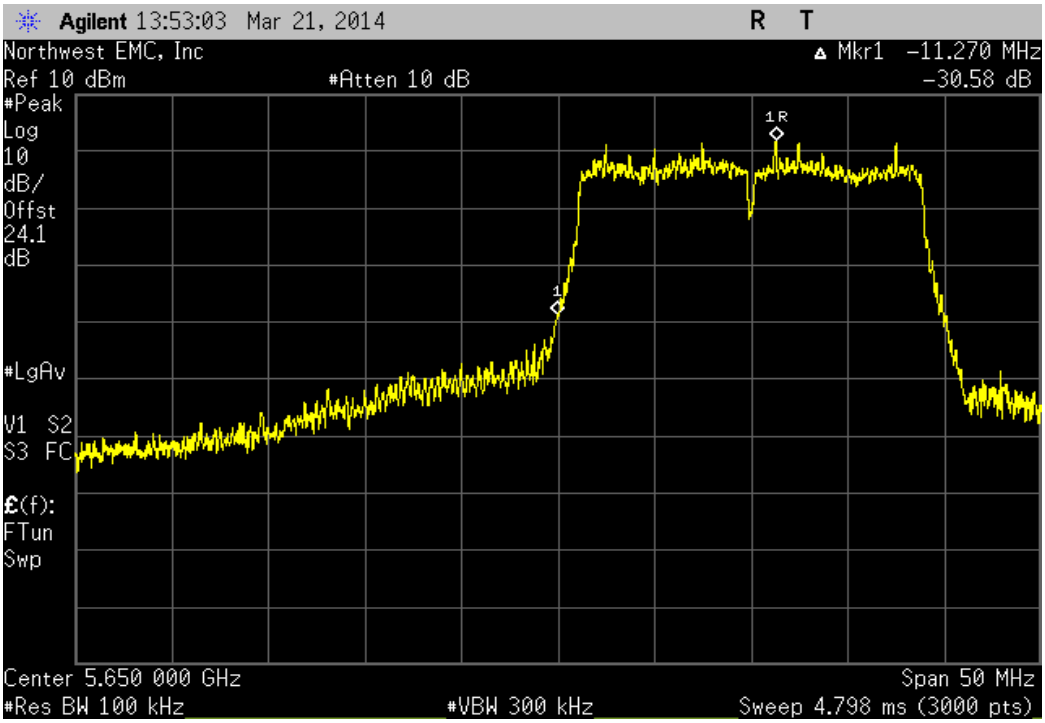
Ant A, 20MHz Bandwidth , 802.11(n) MCS8, Channel 116, 5580 MHz

				Value	Limit	Result
				-47.33 dBc	≤ -20 dBc	Pass



Ant A, 20MHz Bandwidth , 802.11(n) MCS8, Channel 132, 5660 MHz

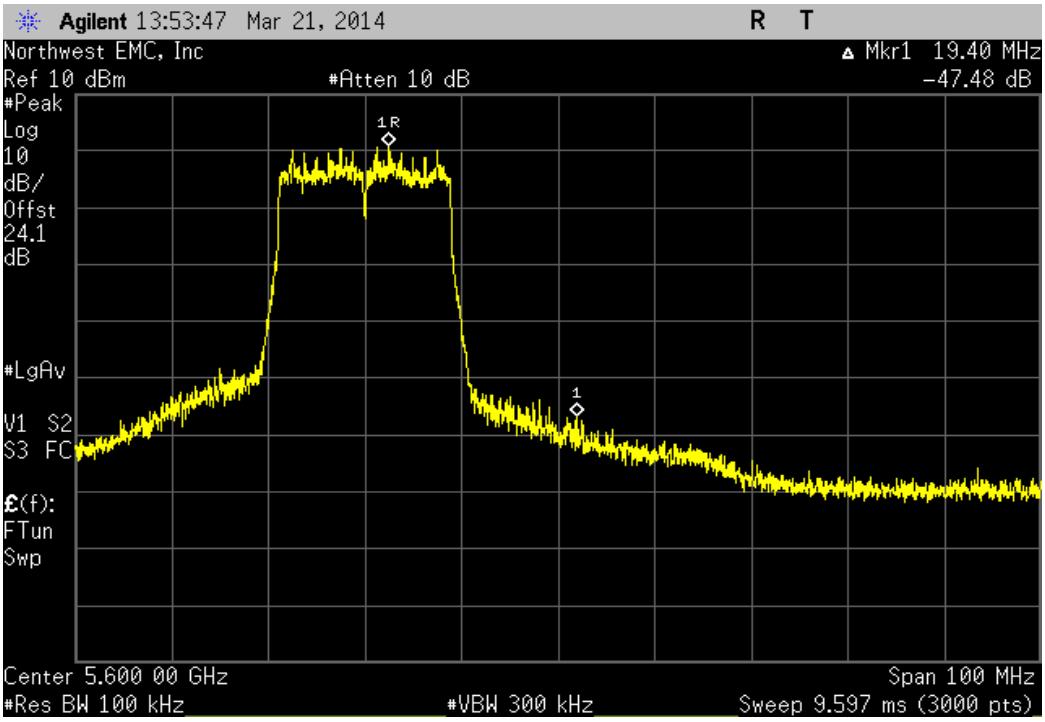
				Value	Limit	Result
				-30.58 dBc	≤ -20 dBc	Pass



BAND EDGE COMPLIANCE

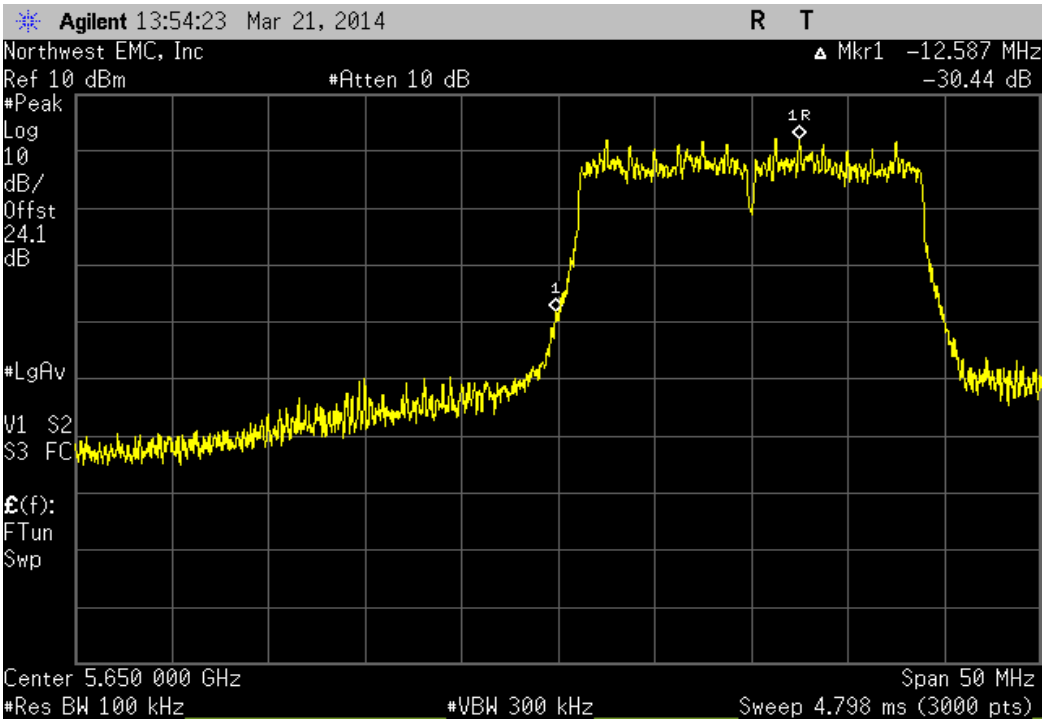
Ant A, 20MHz Bandwidth , 802.11(n) MCS15, Channel 116, 5580 MHz

				Value	Limit	Result
				-47.48 dBc	≤ -20 dBc	Pass



Ant A, 20MHz Bandwidth , 802.11(n) MCS15, Channel 132, 5660 MHz

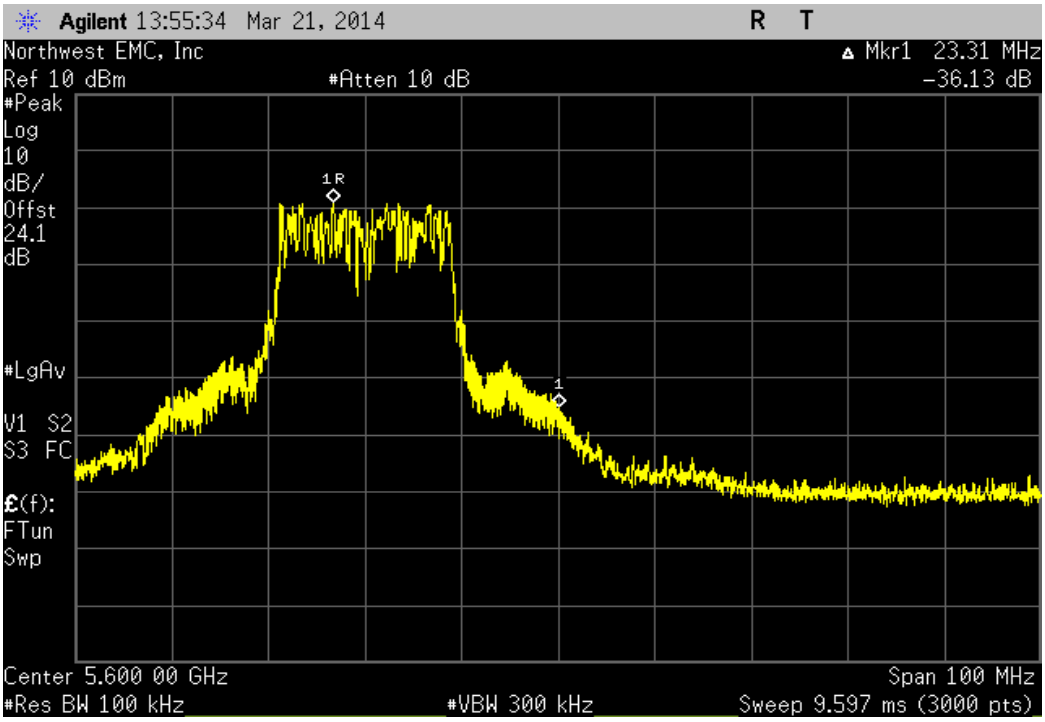
				Value	Limit	Result
				-30.44 dBc	≤ -20 dBc	Pass



BAND EDGE COMPLIANCE

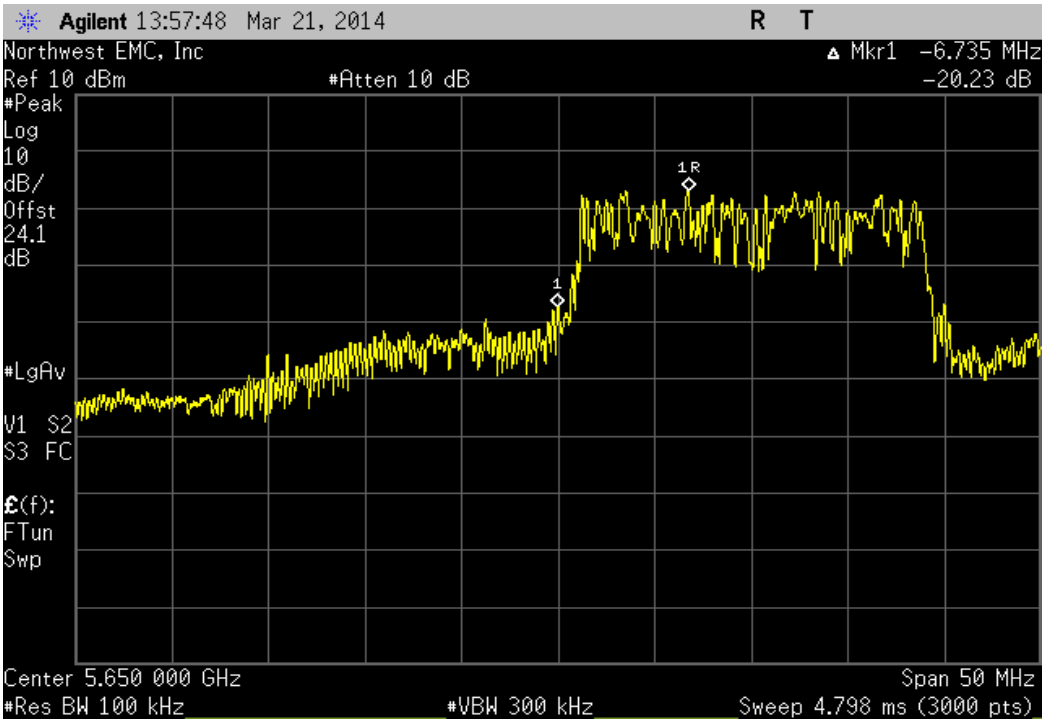
Ant A, 20MHz Bandwidth , 802.11(ac) MCS0, Channel 116, 5580 MHz

				Value	Limit	Result
				-36.13 dBc	≤ -20 dBc	Pass



Ant A, 20MHz Bandwidth , 802.11(ac) MCS0, Channel 132, 5660 MHz

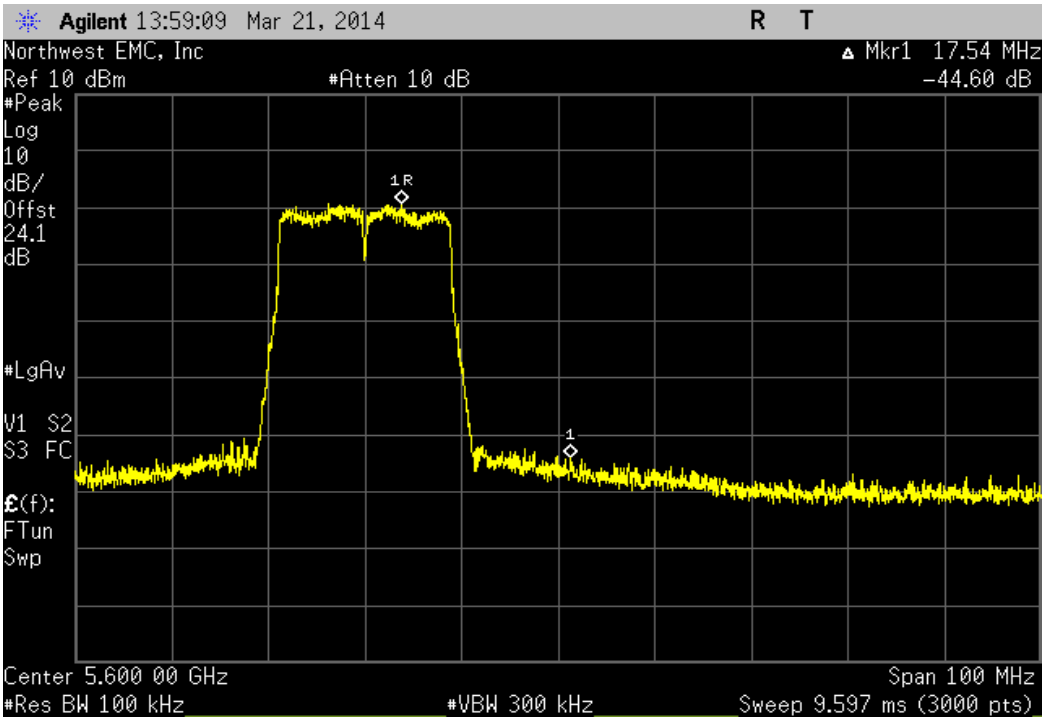
				Value	Limit	Result
				-20.23 dBc	≤ -20 dBc	Pass



BAND EDGE COMPLIANCE

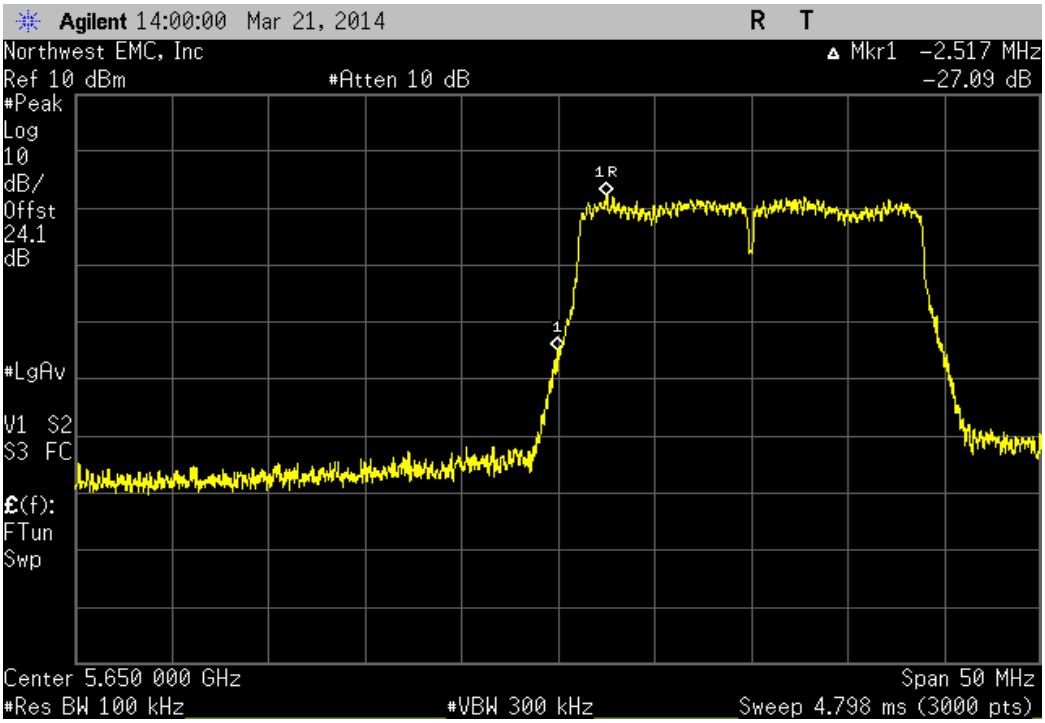
Ant A, 20MHz Bandwidth , 802.11(ac) MCS8, Channel 116, 5580 MHz

				Value	Limit	Result
				-44.6 dBc	≤ -20 dBc	Pass



Ant A, 20MHz Bandwidth , 802.11(ac) MCS8, Channel 132, 5660 MHz

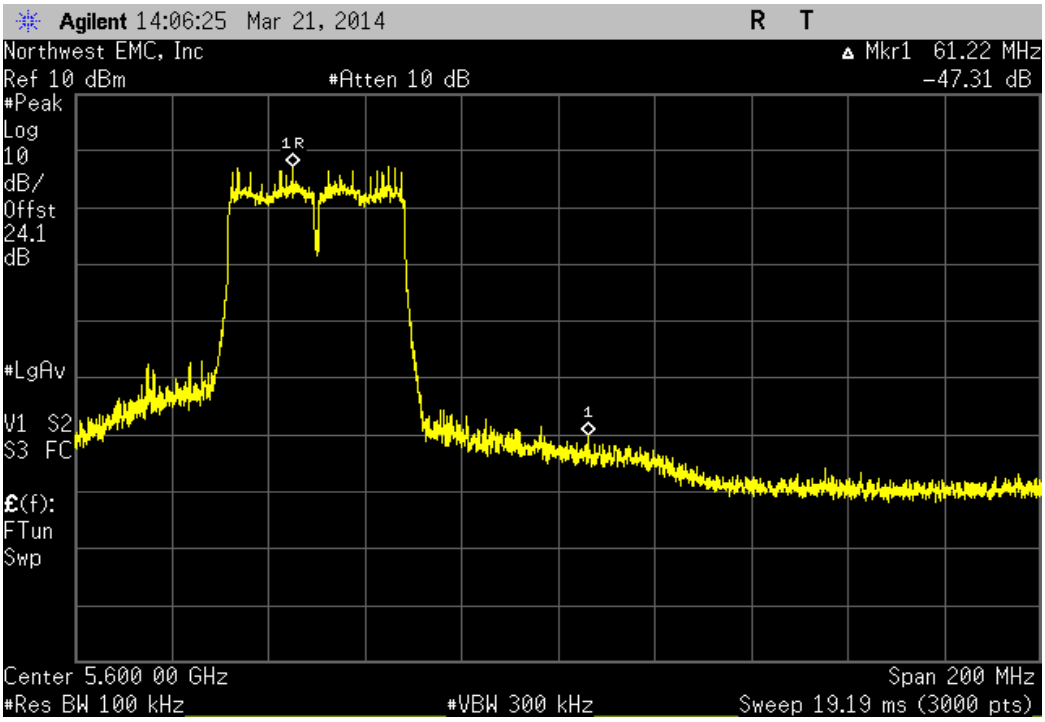
				Value	Limit	Result
				-27.09 dBc	≤ -20 dBc	Pass



BAND EDGE COMPLIANCE

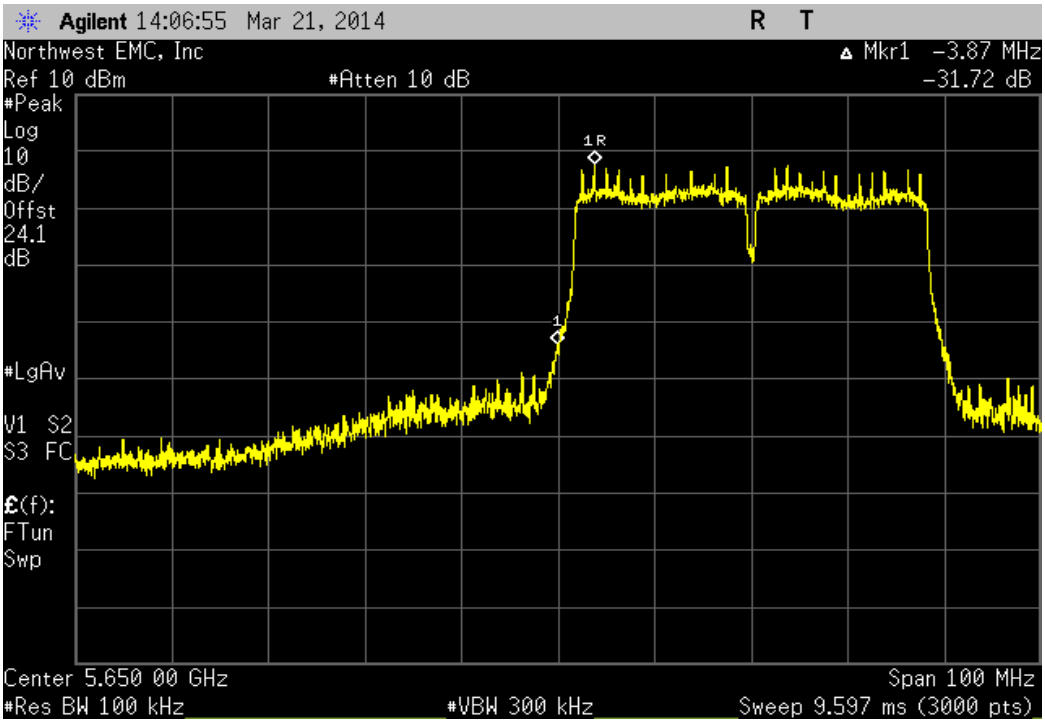
Ant A, 40MHz Bandwidth , 802.11(n) MCS8, Channel 108/112, 5550 MHz

				Value	Limit	Result
				-47.31 dBc	≤ -20 dBc	Pass



Ant A, 40MHz Bandwidth , 802.11(n) MCS8, Channel 132/136, 5670 MHz

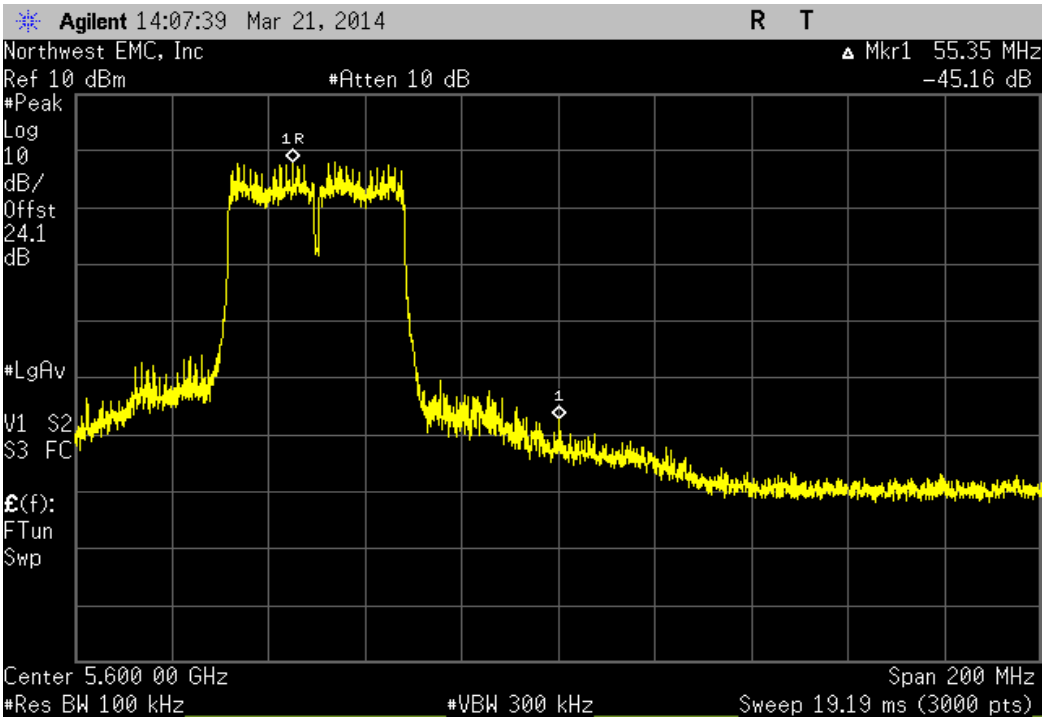
				Value	Limit	Result
				-31.72 dBc	≤ -20 dBc	Pass



BAND EDGE COMPLIANCE

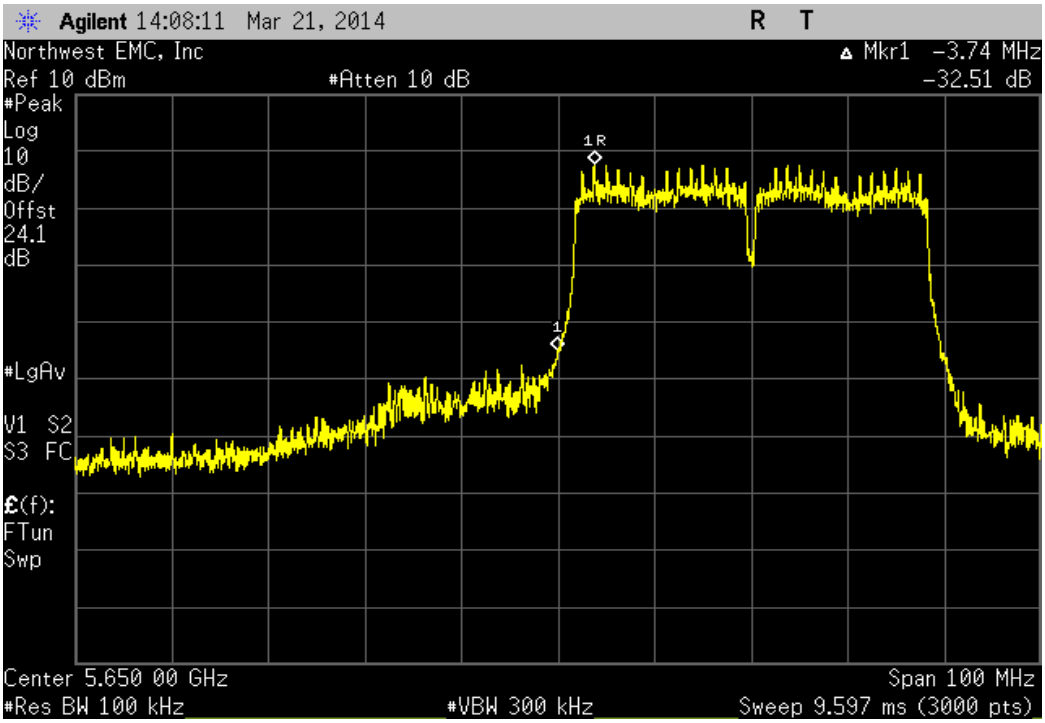
Ant A, 40MHz Bandwidth , 802.11(n) MCS15, Channel 108/112, 5550 MHz

Value	Limit	Result
-45.16 dBc	≤ -20 dBc	Pass



Ant A, 40MHz Bandwidth , 802.11(n) MCS15, Channel 132/136, 5670 MHz

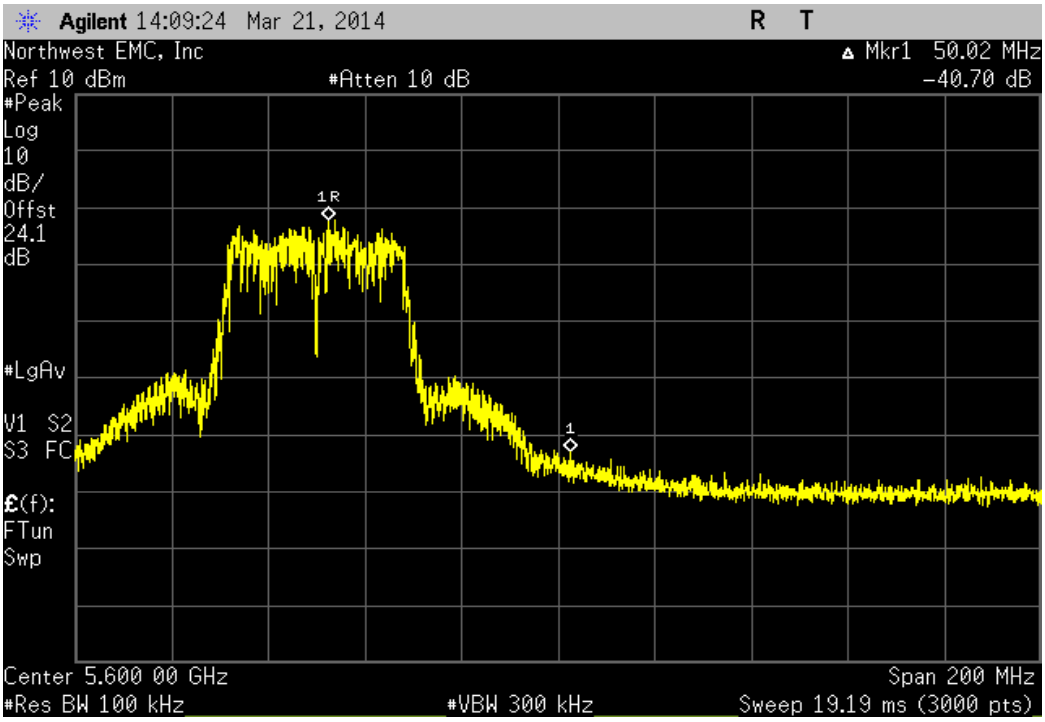
Value	Limit	Result
-32.51 dBc	≤ -20 dBc	Pass



BAND EDGE COMPLIANCE

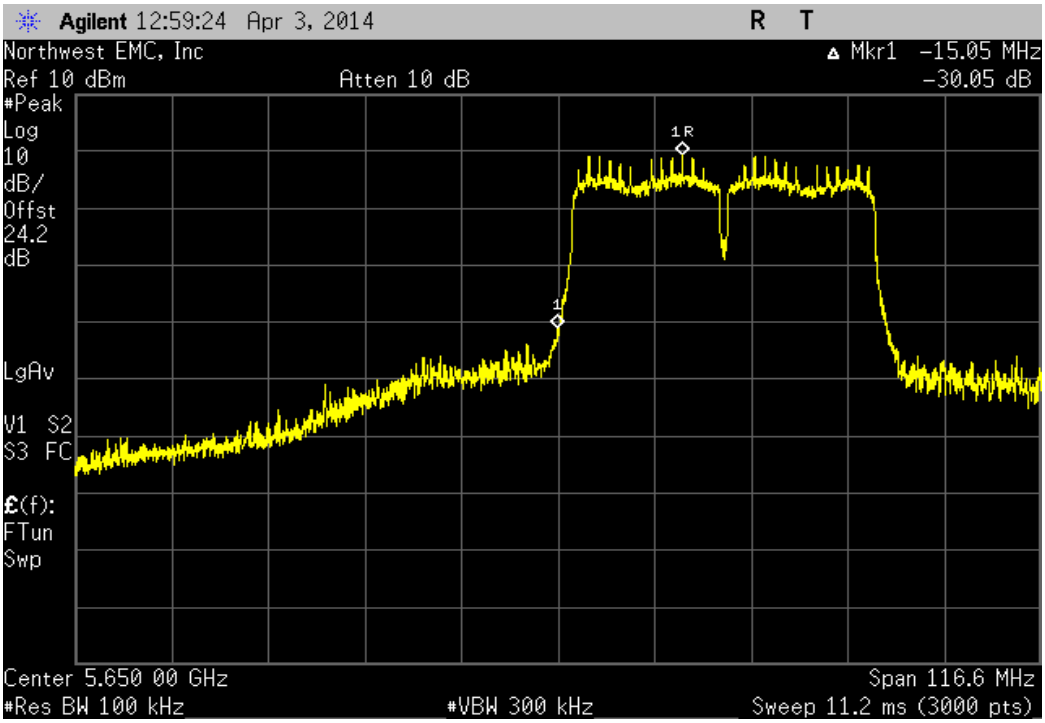
Ant A, 40MHz Bandwidth , 802.11(ac) MCS0, Channel 108/112, 5550 MHz

				Value	Limit	Result
				-40.7 dBc	≤ -20 dBc	Pass



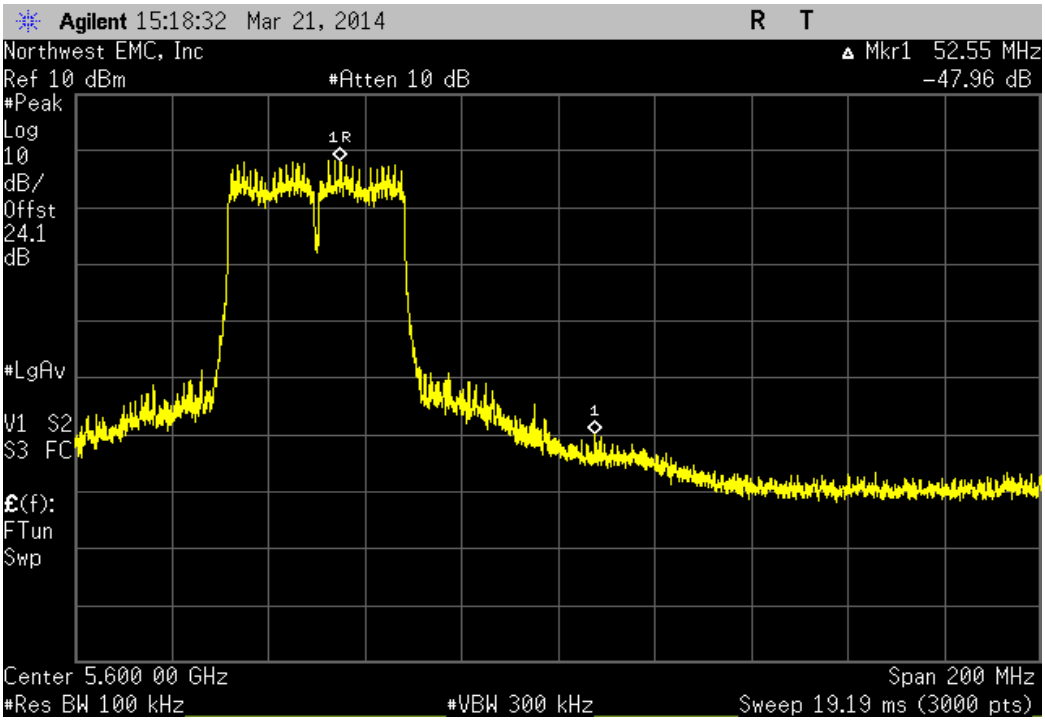
Ant A, 40MHz Bandwidth , 802.11(ac) MCS0, Channel 132/136, 5670 MHz

				Value	Limit	Result
				-30.05 dBc	≤ -20 dBc	Pass



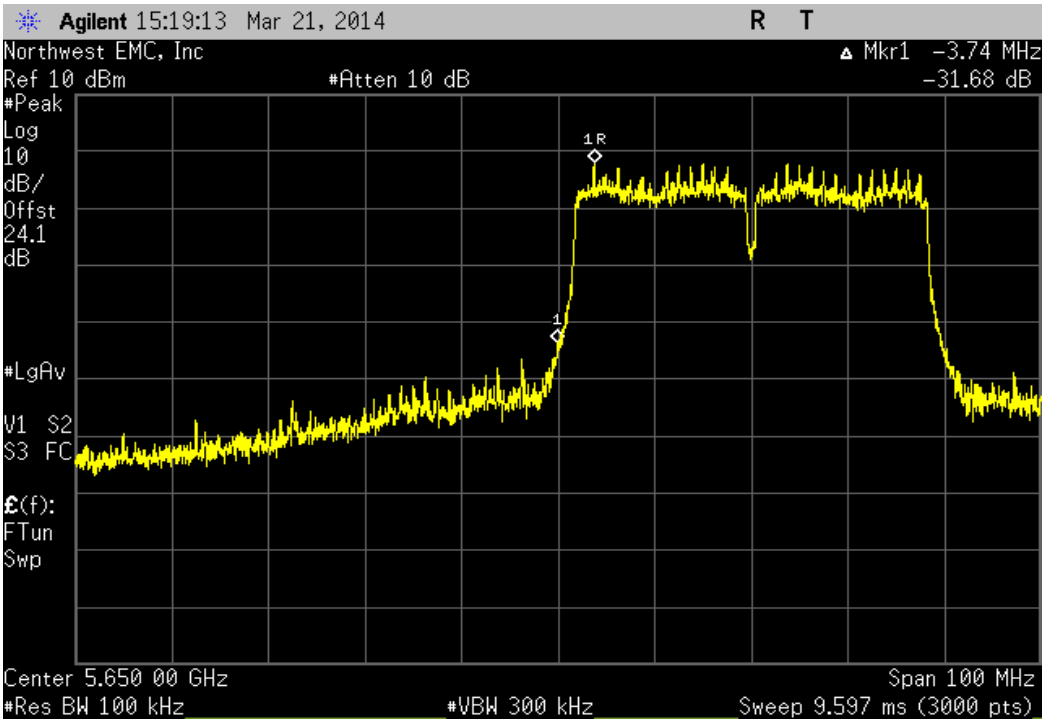
Ant A, 40MHz Bandwidth , 802.11(ac) MCS9, Channel 108/112, 5550 MHz

				Value	Limit	Result
				-47.96 dBc	≤ -20 dBc	Pass



Ant A, 40MHz Bandwidth , 802.11(ac) MCS9, Channel 132/136, 5670 MHz

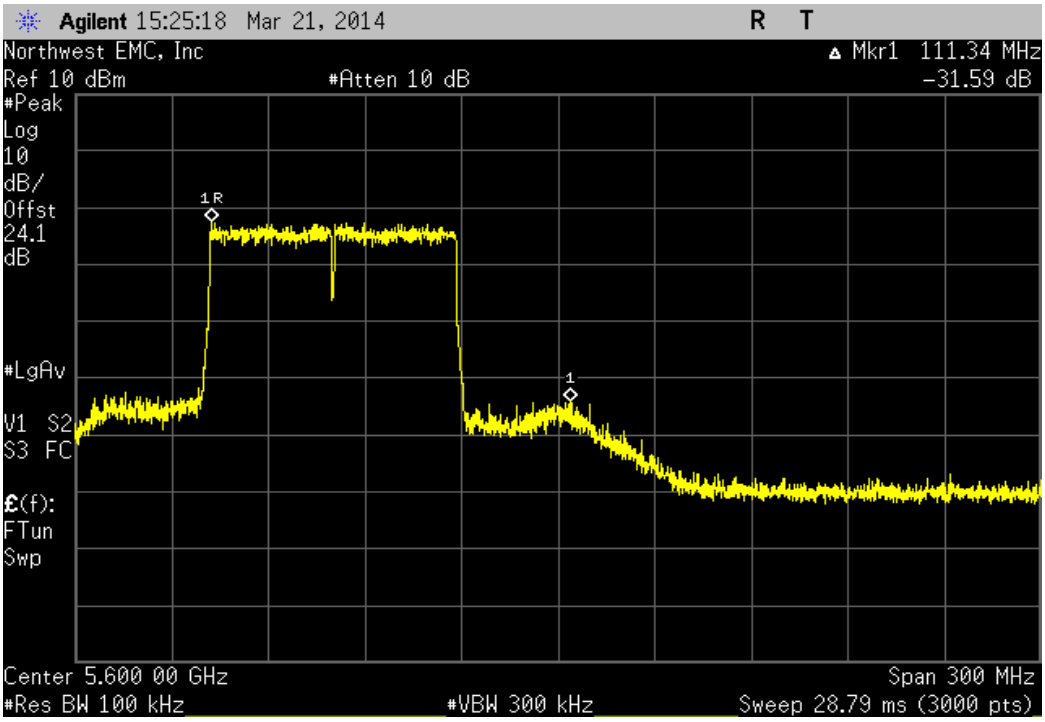
				Value	Limit	Result
				-31.68 dBc	≤ -20 dBc	Pass



BAND EDGE COMPLIANCE

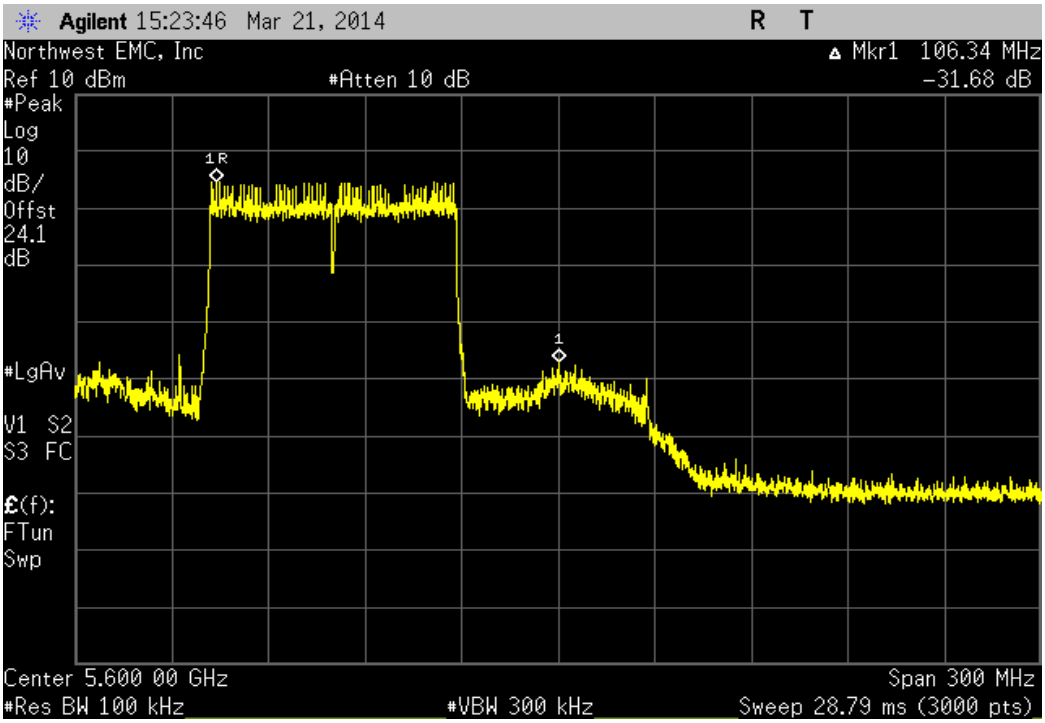
Ant A, 80MHz Bandwidth , 802.11(ac) MCS0, Channel 106, 5530 MHz

Value	Limit	Result
-31.59 dBc	≤ -20 dBc	Pass



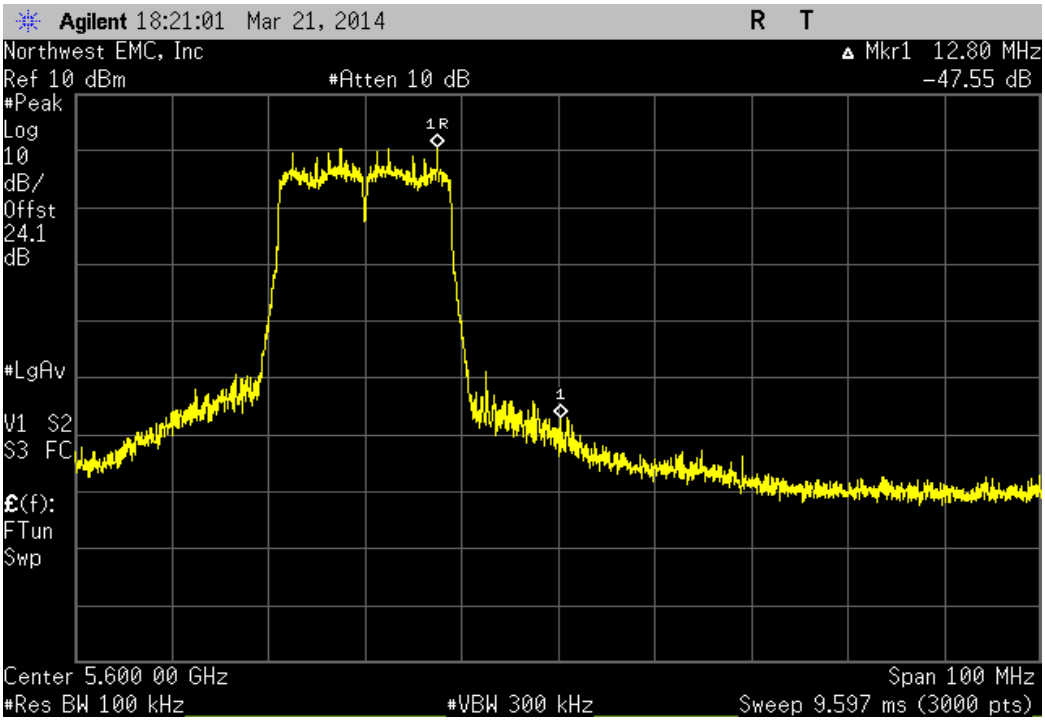
Ant A, 80MHz Bandwidth , 802.11(ac) MCS9, Channel 106, 5530 MHz

Value	Limit	Result
-31.68 dBc	≤ -20 dBc	Pass



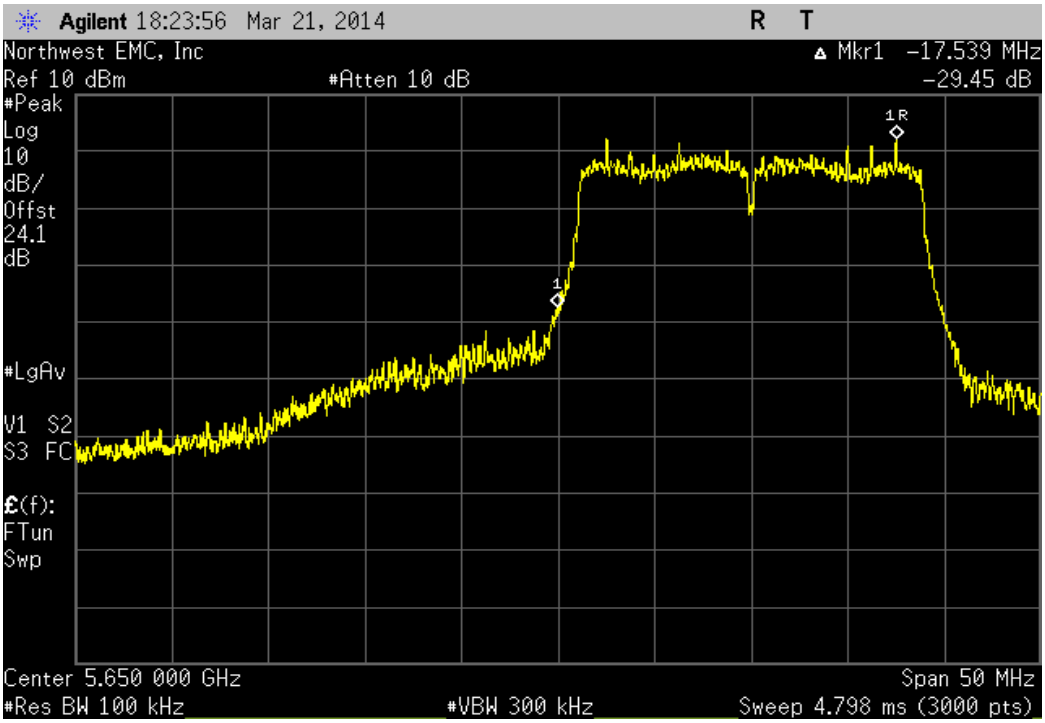
Ant B, 20MHz Bandwidth , 802.11(n) MCS8, Channel 116, 5580 MHz

				Value	Limit	Result
				-47.55 dBc	≤ -20 dBc	Pass



Ant B, 20MHz Bandwidth , 802.11(n) MCS8, Channel 132, 5660 MHz

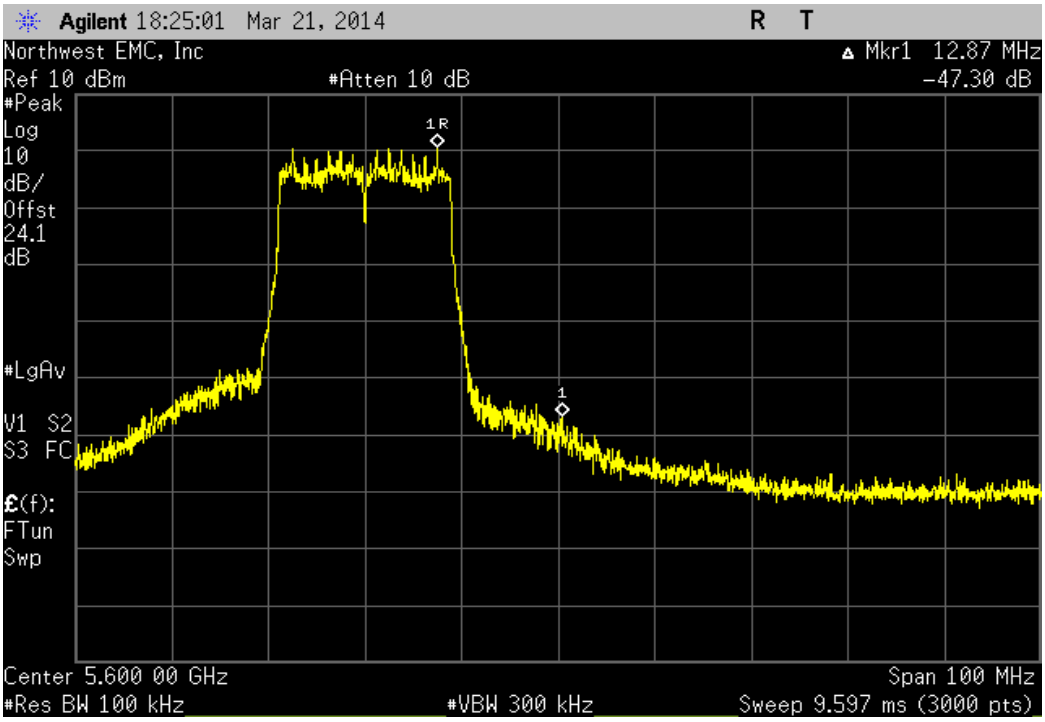
				Value	Limit	Result
				-29.45 dBc	≤ -20 dBc	Pass



BAND EDGE COMPLIANCE

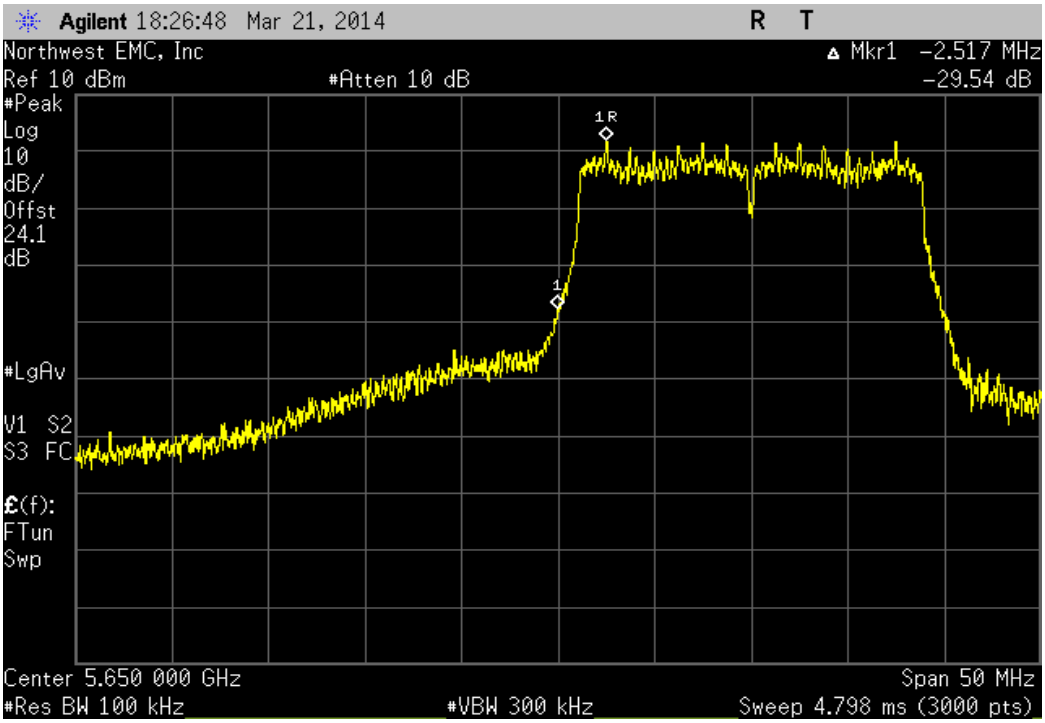
Ant B, 20MHz Bandwidth , 802.11(n) MCS15, Channel 116, 5580 MHz

				Value	Limit	Result
				-47.3 dBc	≤ -20 dBc	Pass



Ant B, 20MHz Bandwidth , 802.11(n) MCS15, Channel 132, 5660 MHz

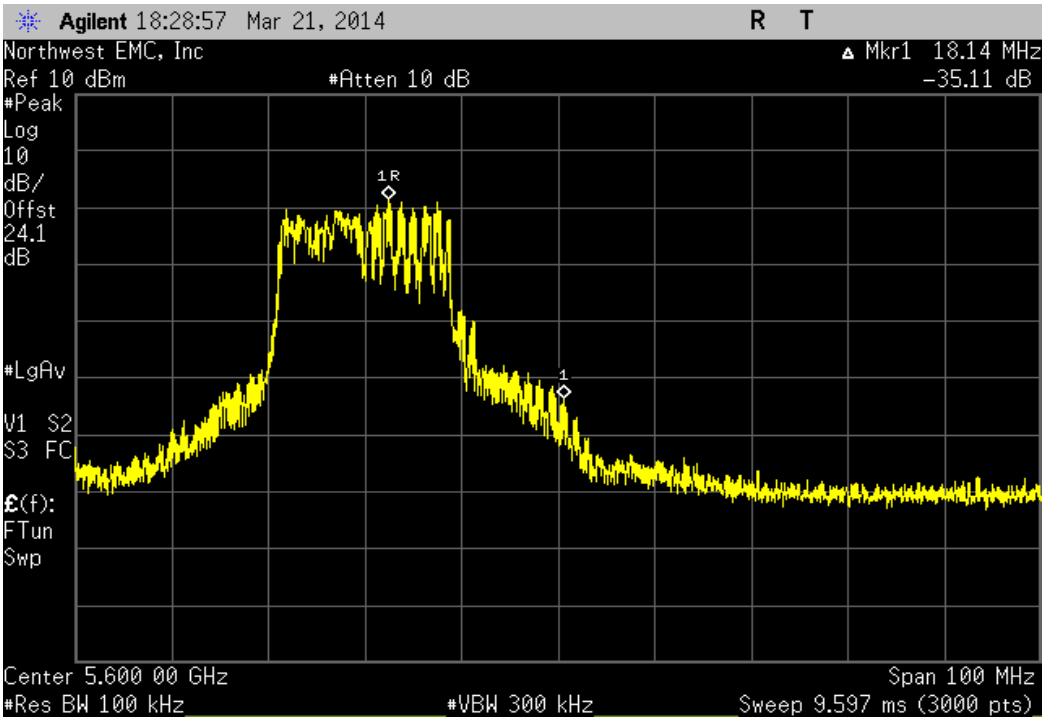
				Value	Limit	Result
				-29.54 dBc	≤ -20 dBc	Pass



BAND EDGE COMPLIANCE

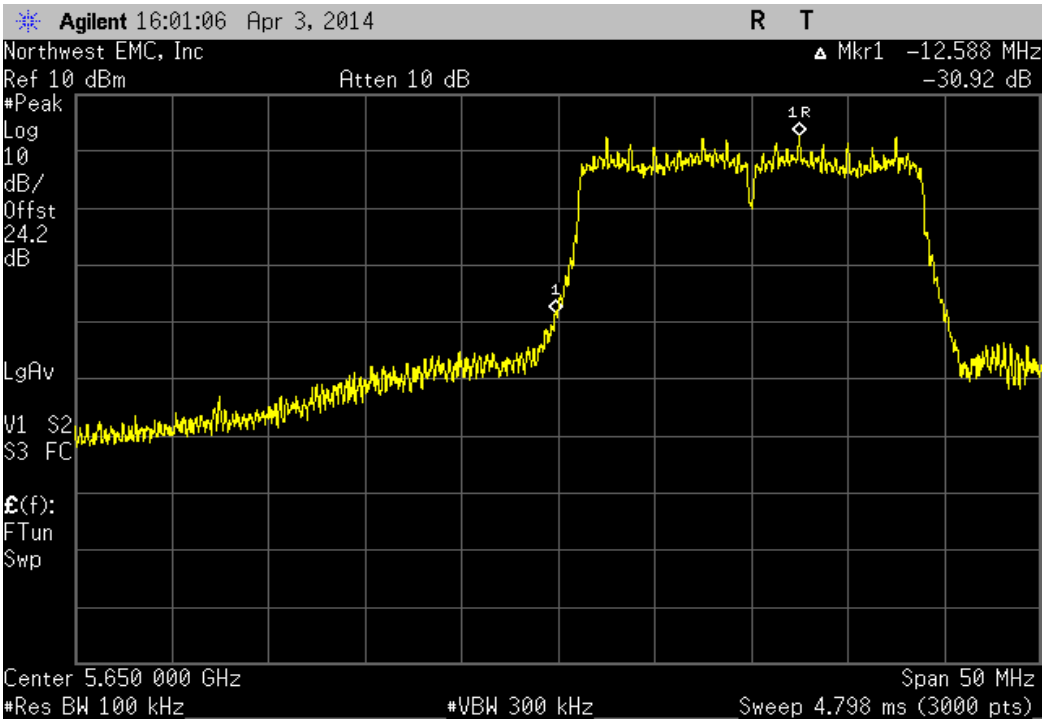
Ant B, 20MHz Bandwidth , 802.11(ac) MCS0, Channel 116, 5580 MHz

				Value	Limit	Result
				-35.11 dBc	≤ -20 dBc	Pass



Ant B, 20MHz Bandwidth , 802.11(ac) MCS0, Channel 132, 5660 MHz

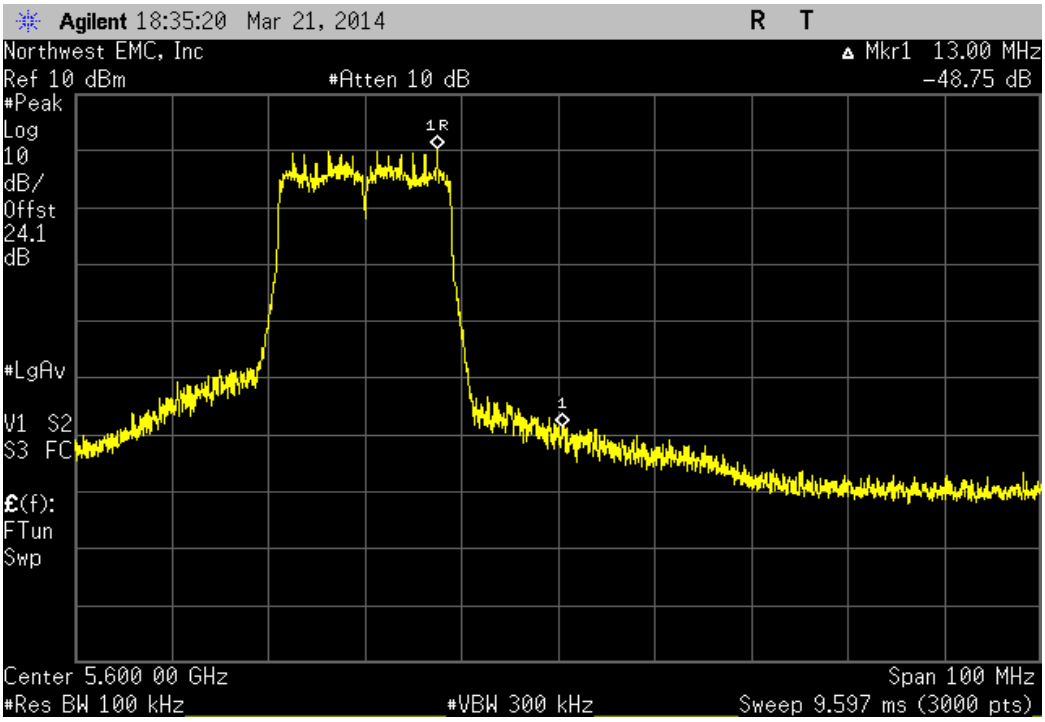
				Value	Limit	Result
				-30.92 dBc	≤ -20 dBc	Pass



BAND EDGE COMPLIANCE

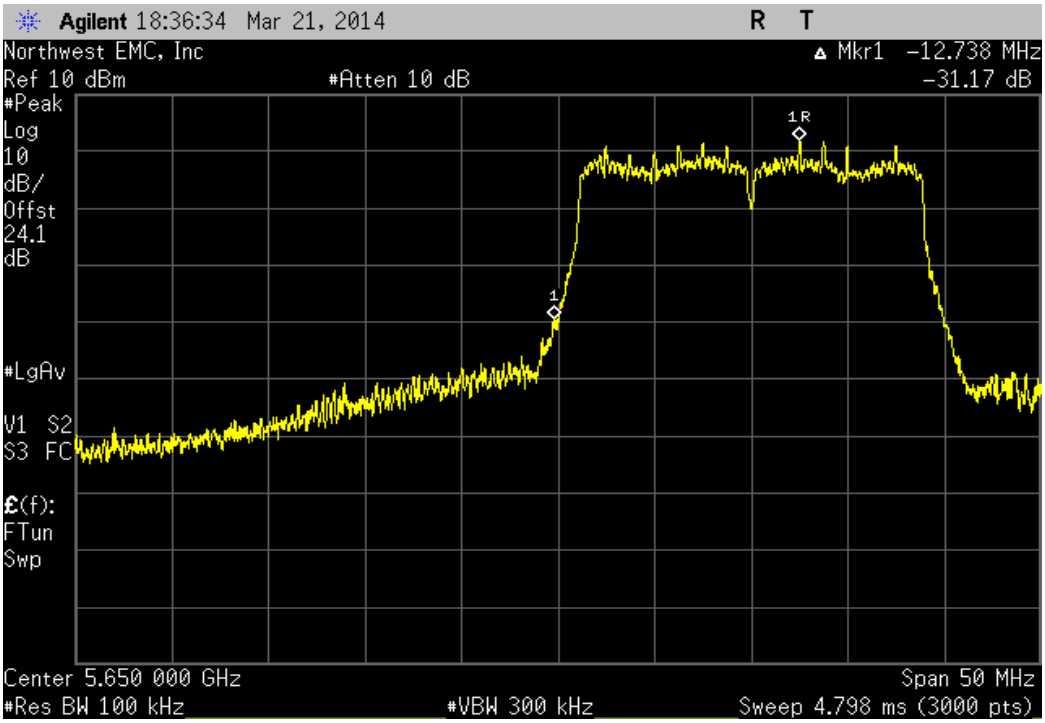
Ant B, 20MHz Bandwidth , 802.11(ac) MCS8, Channel 116, 5580 MHz

				Value	Limit	Result
				-48.75 dBc	≤ -20 dBc	Pass



Ant B, 20MHz Bandwidth , 802.11(ac) MCS8, Channel 132, 5660 MHz

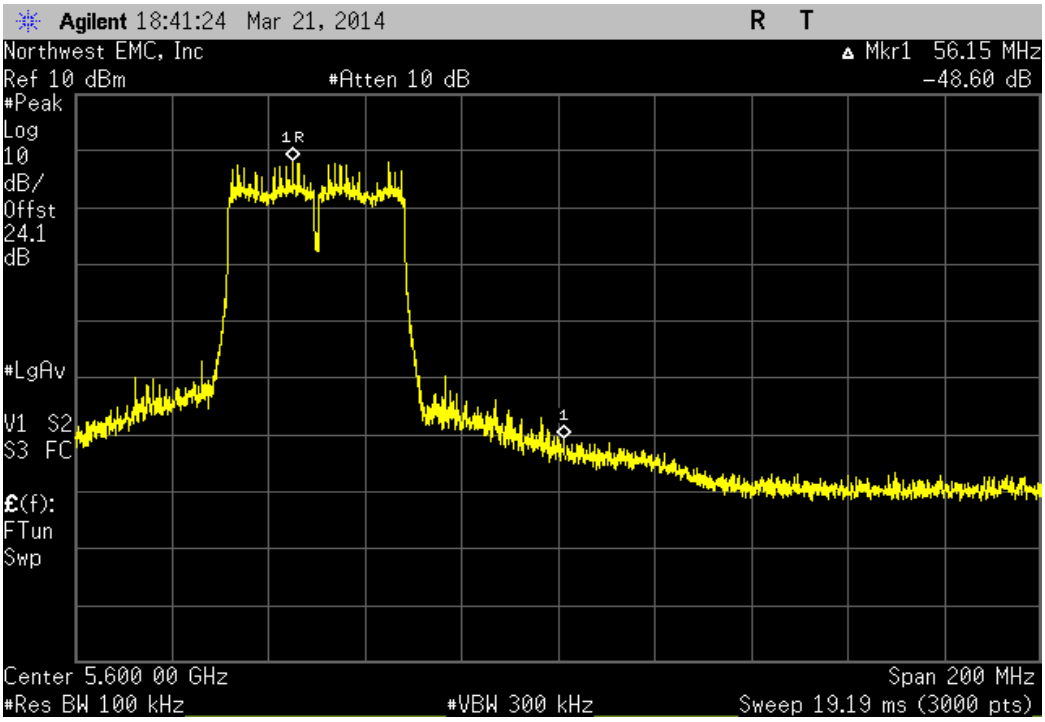
				Value	Limit	Result
				-31.17 dBc	≤ -20 dBc	Pass



BAND EDGE COMPLIANCE

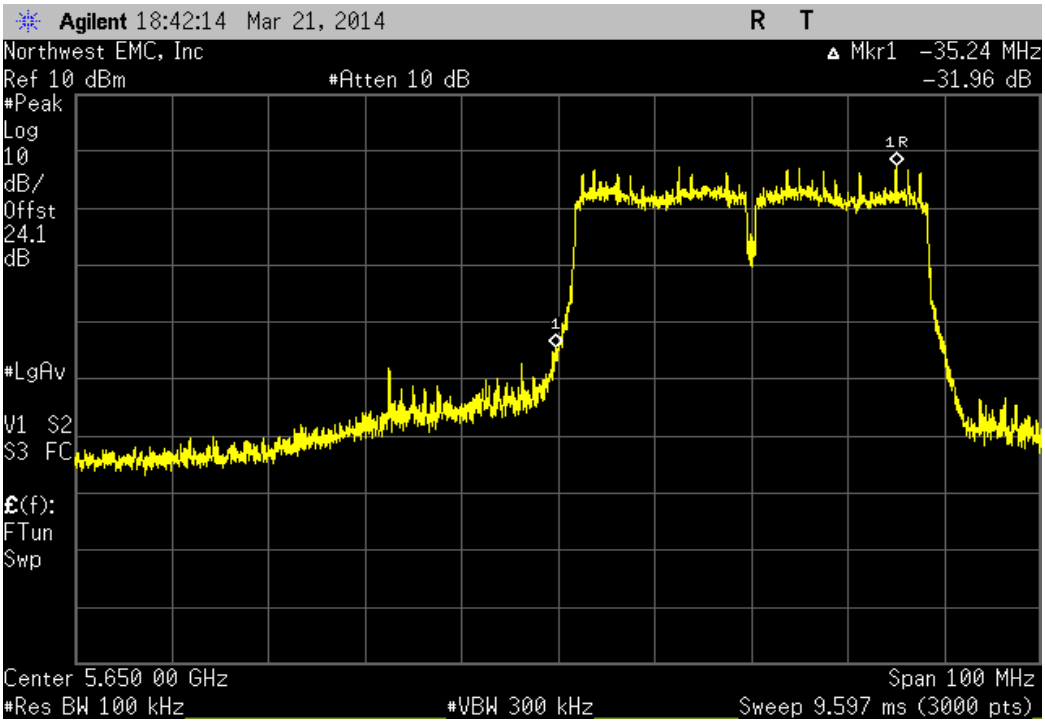
Ant B, 40MHz Bandwidth , 802.11(n) MCS8, Channel 108/112, 5550 MHz

				Value	Limit	Result
				-48.61 dBc	≤ -20 dBc	Pass



Ant B, 40MHz Bandwidth , 802.11(n) MCS8, Channel 132/136, 5670 MHz

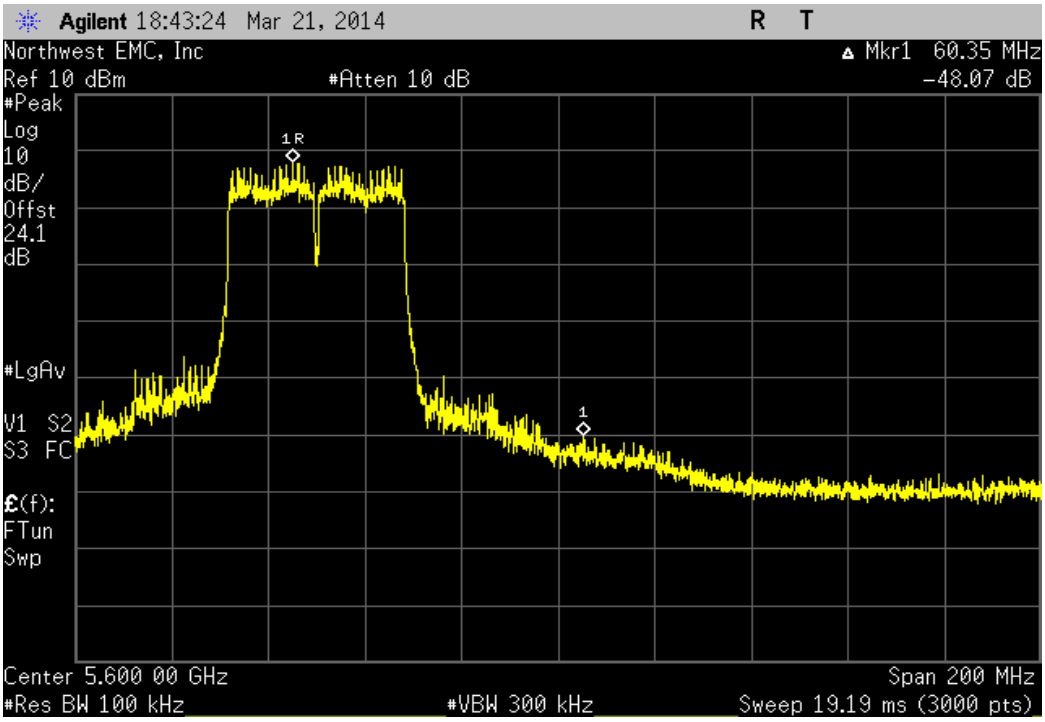
				Value	Limit	Result
				-31.96 dBc	≤ -20 dBc	Pass



BAND EDGE COMPLIANCE

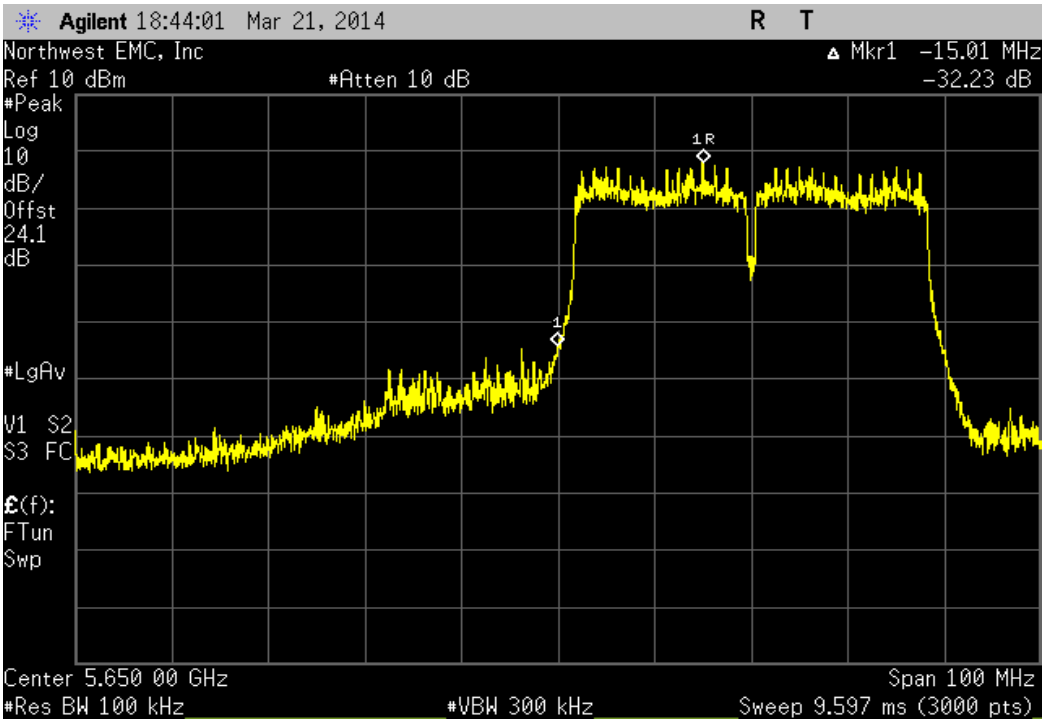
Ant B, 40MHz Bandwidth , 802.11(n) MCS15, Channel 108/112, 5550 MHz

				Value	Limit	Result
				-48.07 dBc	≤ -20 dBc	Pass



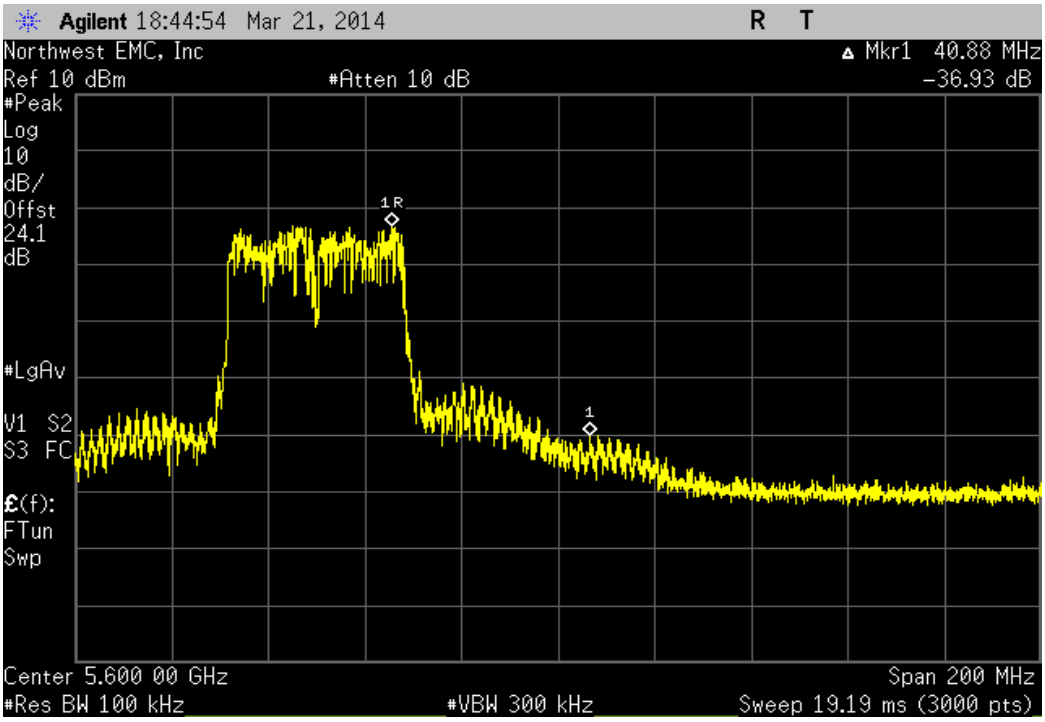
Ant B, 40MHz Bandwidth , 802.11(n) MCS15, Channel 132/136, 5670 MHz

				Value	Limit	Result
				-32.23 dBc	≤ -20 dBc	Pass



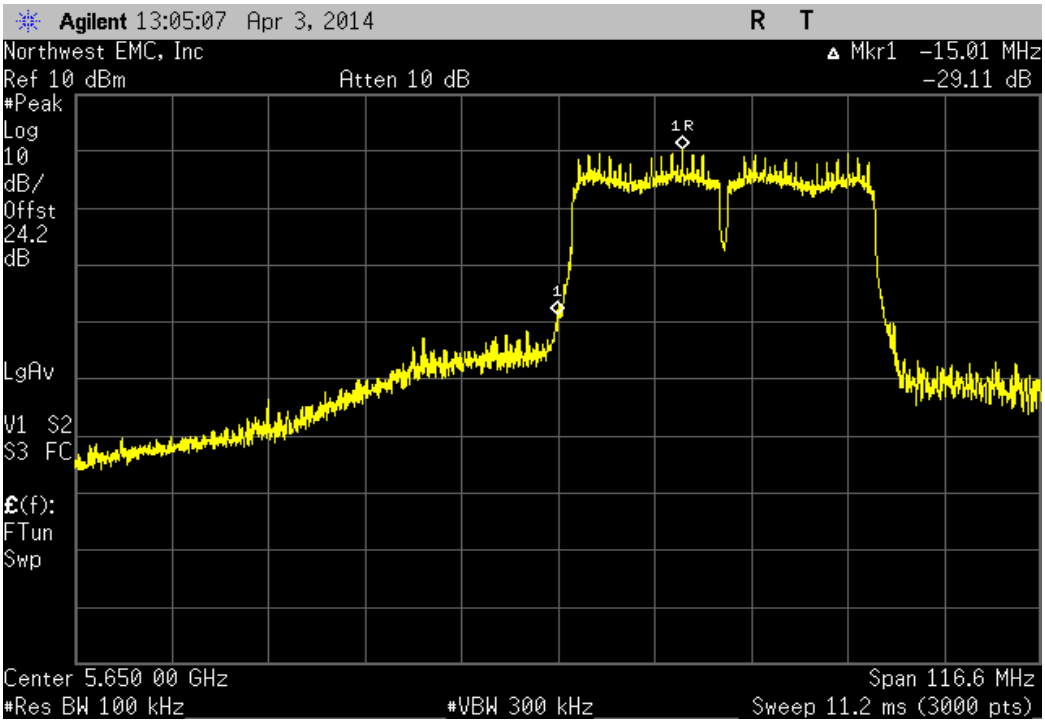
Ant B, 40MHz Bandwidth , 802.11(ac) MCS0, Channel 108/112, 5550 MHz

				Value	Limit	Result
				-36.93 dBc	≤ -20 dBc	Pass



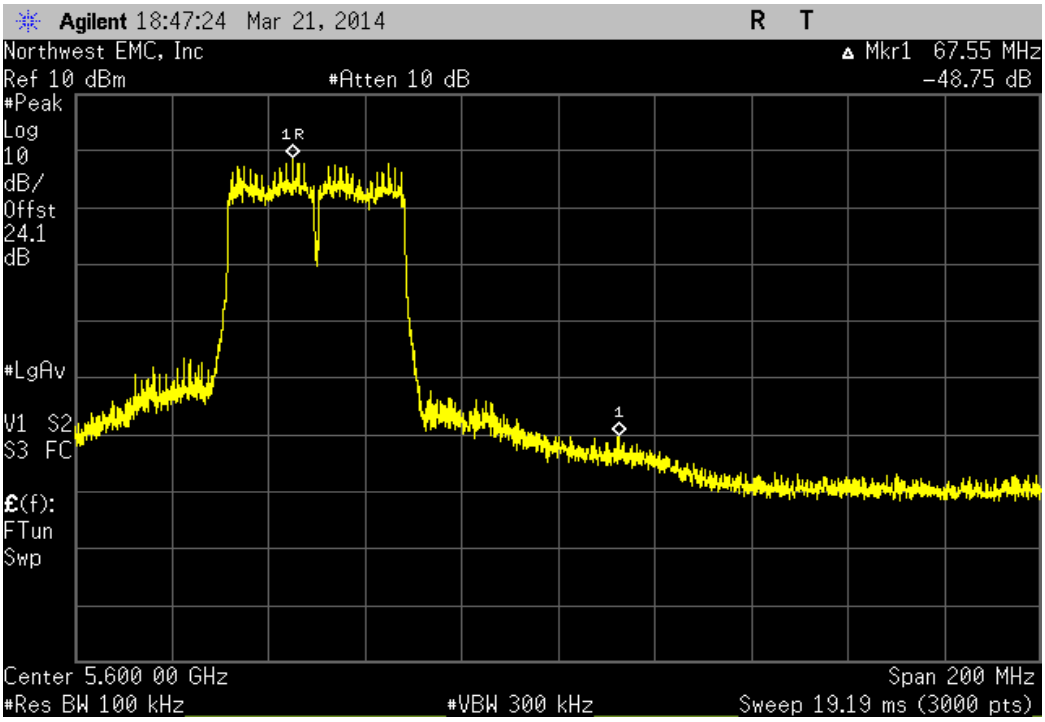
Ant B, 40MHz Bandwidth , 802.11(ac) MCS0, Channel 132/136, 5670 MHz

				Value	Limit	Result
				-29.11	≤ -20 dBc	Pass



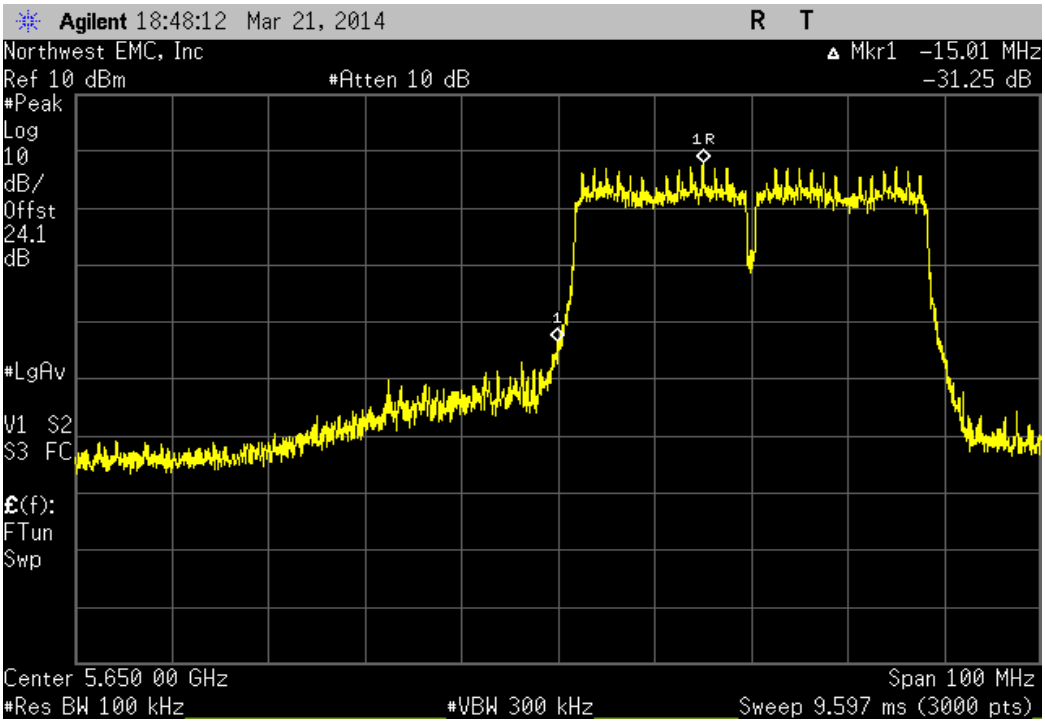
Ant B, 40MHz Bandwidth , 802.11(ac) MCS9, Channel 108/112, 5550 MHz

				Value	Limit	Result
				-48.75 dBc	≤ -20 dBc	Pass



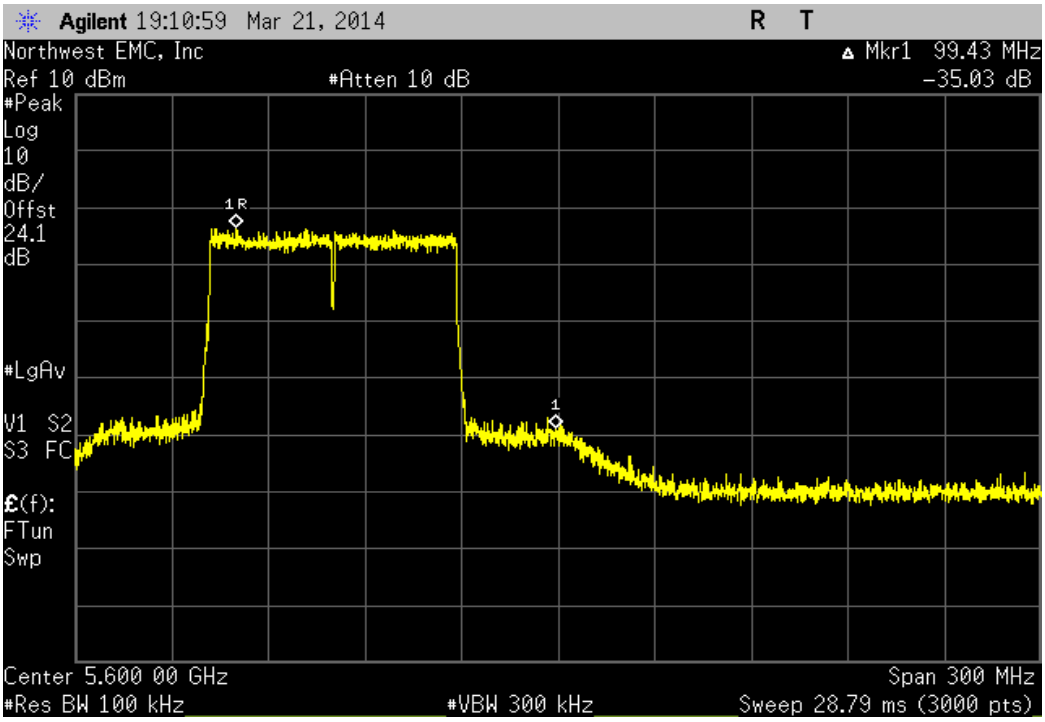
Ant B, 40MHz Bandwidth , 802.11(ac) MCS9, Channel 132/136, 5670 MHz

				Value	Limit	Result
				-31.26 dBc	≤ -20 dBc	Pass



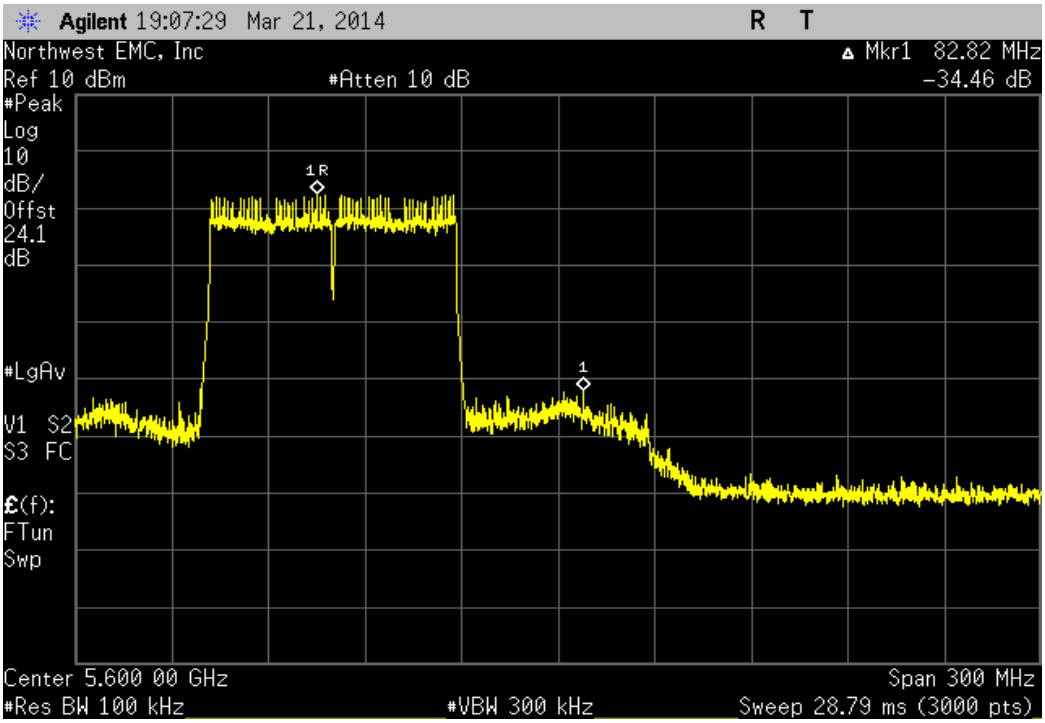
Ant B, 80MHz Bandwidth , 802.11(ac) MCS0, Channel 106, 5530 MHz

Value	Limit	Result
-35.03 dBc	≤ -20 dBc	Pass



Ant B, 80MHz Bandwidth , 802.11(ac) MCS9, Channel 106, 5530 MHz

Value	Limit	Result
-34.46 dBc	≤ -20 dBc	Pass



BAND EDGE COMPLIANCE

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval (mo.)
40GHz DC Block	Miteq	DCB4000	AMD	5/16/2013	12
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	7/30/2013	12
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0
Attenuator, 6dB	S.M. Electronics	18N-06	AWN	2/3/2014	12
Power Meter	Gigatronics	8651A	SPM	11/26/2013	24
Power Sensor	Gigatronics	80701A	SPL	7/8/2011	36
RF Vector Signal Generator	Agilent	V2920A	TIH	NCR	0
Spectrum Analyzer	Agilent	E4440	AFE	11/4/2013	24

TEST DESCRIPTION

The spurious RF conducted emissions at the edges of the authorized bands were measured with the EUT set to low and high transmit frequencies in each available band. The channels closest to the band edges were selected. The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at the data rate(s) listed in the datasheet.

The spectrum was scanned below the lower band edge and above the higher band edge.

BAND EDGE COMPLIANCE

EUT:	Model 1631			**Work Order:**	MCSO1698
Serial Number:	041151240753			**Date:**	03/23/14
Customer:	Microsoft Corporation			**Temperature:**	21.5°C
Attendees:	None			**Humidity:**	29%
Project:	None			**Barometric Pres.:**	1007
Tested by:	Brandon Hobbs, Jared Ison	**Power:**	110VAC/60Hz	**Job Site:**	EV06

TEST SPECIFICATIONS	Test Method
FCC 15.407:2014	ANSI C63.10:2009

COMMENTS

Modes of operation tested were client provided.

DEVIATIONS FROM TEST STANDARD

None

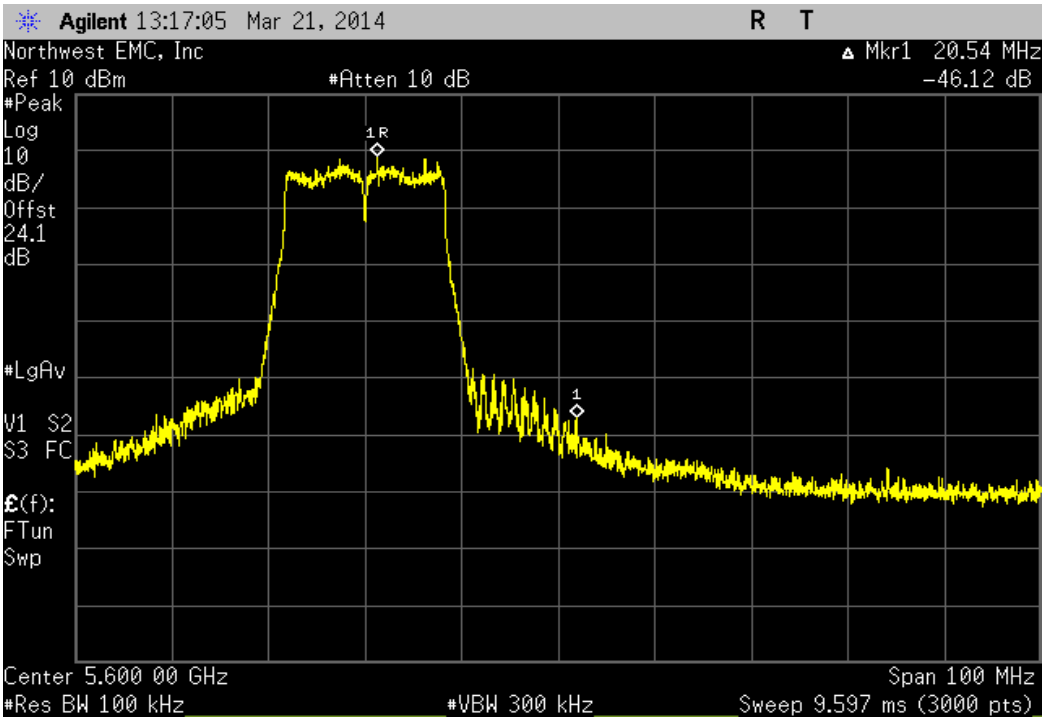
Configuration #	5	Signature

		Value	Limit	Result
20MHz Bandwidth				
	802.11(a) 6 Mbps			
	Channel 116, 5580 MHz	-46.12 dBc	≤ -20 dBc	Pass
	Channel 132, 5660 MHz	-30.35 dBc	≤ -20 dBc	Pass
	802.11(a) 36 Mbps			
	Channel 116, 5580 MHz	-50.9 dBc	≤ -20 dBc	Pass
	Channel 132, 5660 MHz	-31.71 dBc	≤ -20 dBc	Pass
	802.11(a) 54 Mbps			
	Channel 116, 5580 MHz	-48.23 dBc	≤ -20 dBc	Pass
	Channel 132, 5660 MHz	-31.19 dBc	≤ -20 dBc	Pass
	802.11(n) MCS7			
	Channel 116, 5580 MHz	-46.31 dBc	≤ -20 dBc	Pass
	Channel 132, 5660 MHz	-31.09 dBc	≤ -20 dBc	Pass
	802.11(ac) MCS0			
	Channel 116, 5580 MHz	-48.39 dBc	≤ -20 dBc	Pass
	Channel 132, 5660 MHz	-30.27 dBc	≤ -20 dBc	Pass
	802.11(ac) MCS8			
	Channel 116, 5580 MHz	-48.78 dBc	≤ -20 dBc	Pass
	Channel 132, 5660 MHz	-30.61 dBc	≤ -20 dBc	Pass
40MHz Bandwidth				
	802.11(n) MCS7			
	Channel 108/112, 5550 MHz	-48.01 dBc	≤ -20 dBc	Pass
	Channel 132/136, 5670 MHz	-29.92 dBc	≤ -20 dBc	Pass
	802.11(ac) MCS0			
	Channel 108/112, 5550 MHz	-50.6 dBc	≤ -20 dBc	Pass
	Channel 132/136, 5670 MHz	-31.23 dBc	≤ -20 dBc	Pass
	802.11(ac) MCS9			
	Channel 108/112, 5550 MHz	-49.23 dBc	≤ -20 dBc	Pass
	Channel 132/136, 5670 MHz	-31.01 dBc	≤ -20 dBc	Pass
80MHz Bandwidth				
	802.11(ac) MCS0			
	Channel 106, 5530 MHz	-32.19 dBc	≤ -20 dBc	Pass
	802.11(ac) MCS9			
	Channel 106, 5530 MHz	-35.03 dBc	≤ -20 dBc	Pass

BAND EDGE COMPLIANCE

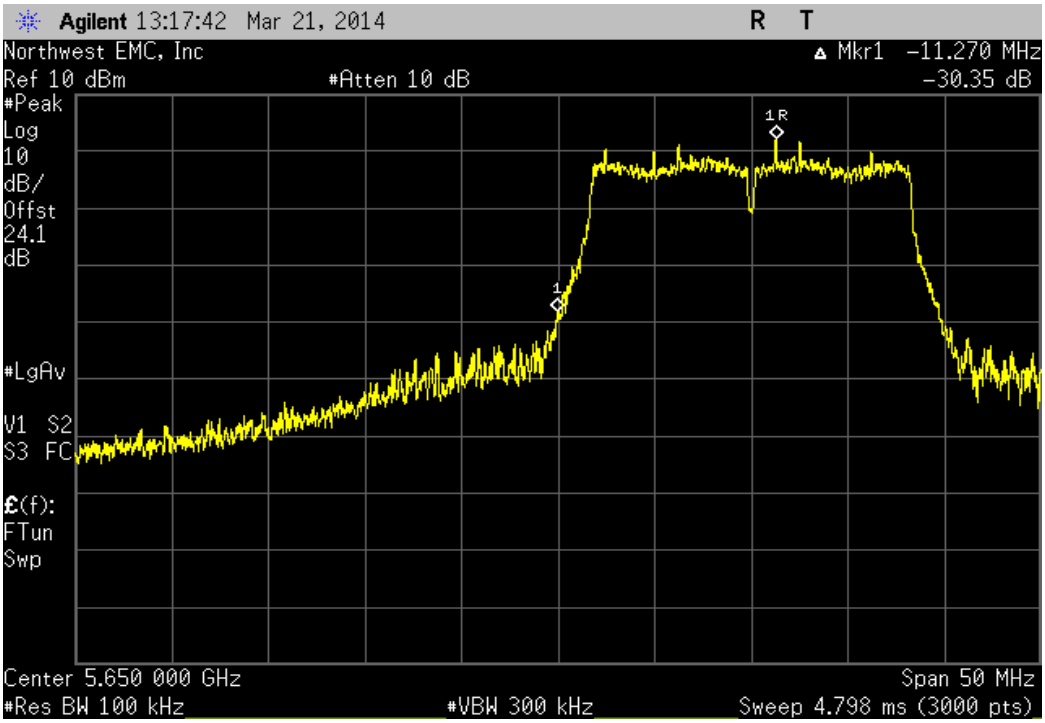
20MHz Bandwidth , 802.11(a) 6 Mbps, Channel 116, 5580 MHz

				Value	Limit	Result
				-46.12 dBc	≤ -20 dBc	Pass



20MHz Bandwidth , 802.11(a) 6 Mbps, Channel 132, 5660 MHz

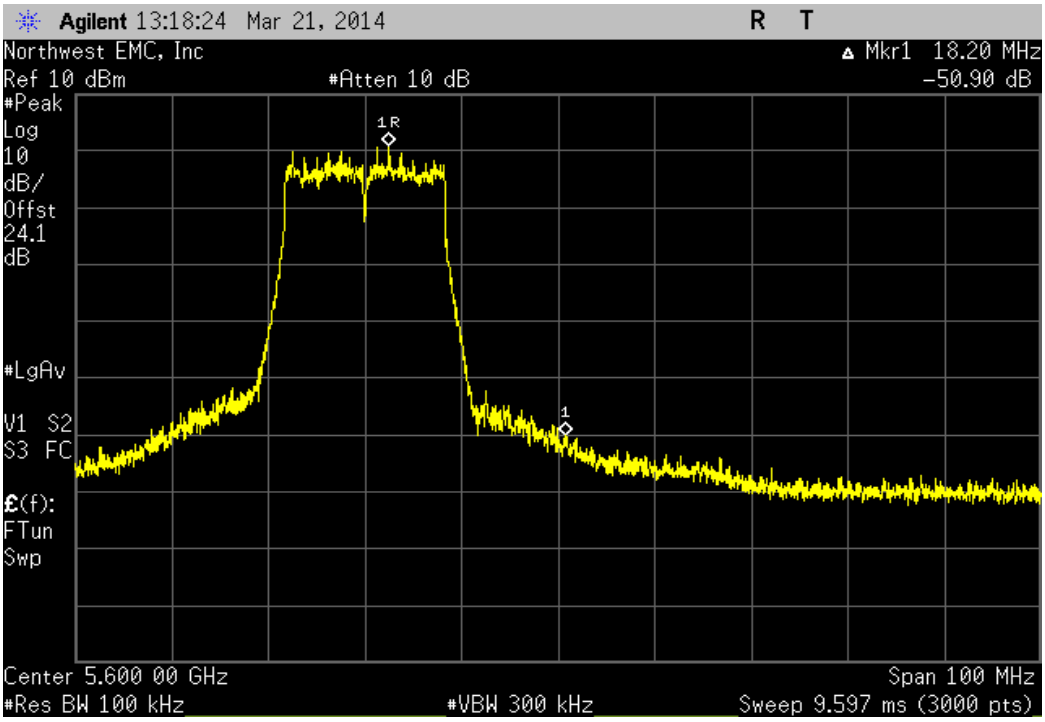
				Value	Limit	Result
				-30.35 dBc	≤ -20 dBc	Pass



BAND EDGE COMPLIANCE

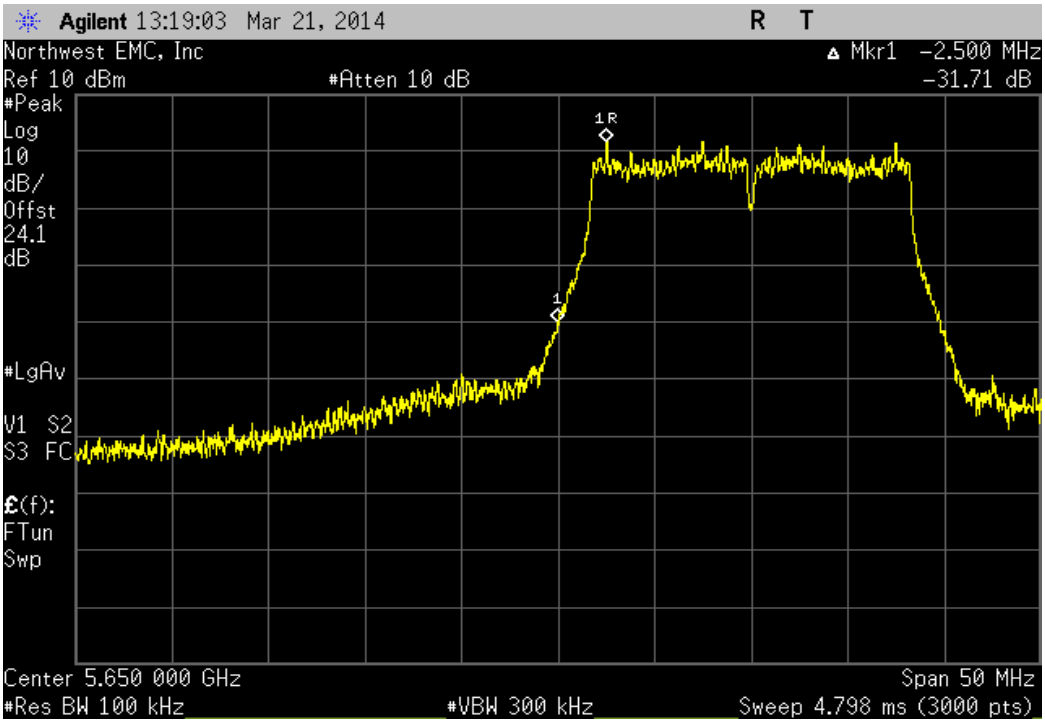
20MHz Bandwidth , 802.11(a) 36 Mbps, Channel 116, 5580 MHz

				Value	Limit	Result
				-50.9 dBc	≤ -20 dBc	Pass



20MHz Bandwidth , 802.11(a) 36 Mbps, Channel 132, 5660 MHz

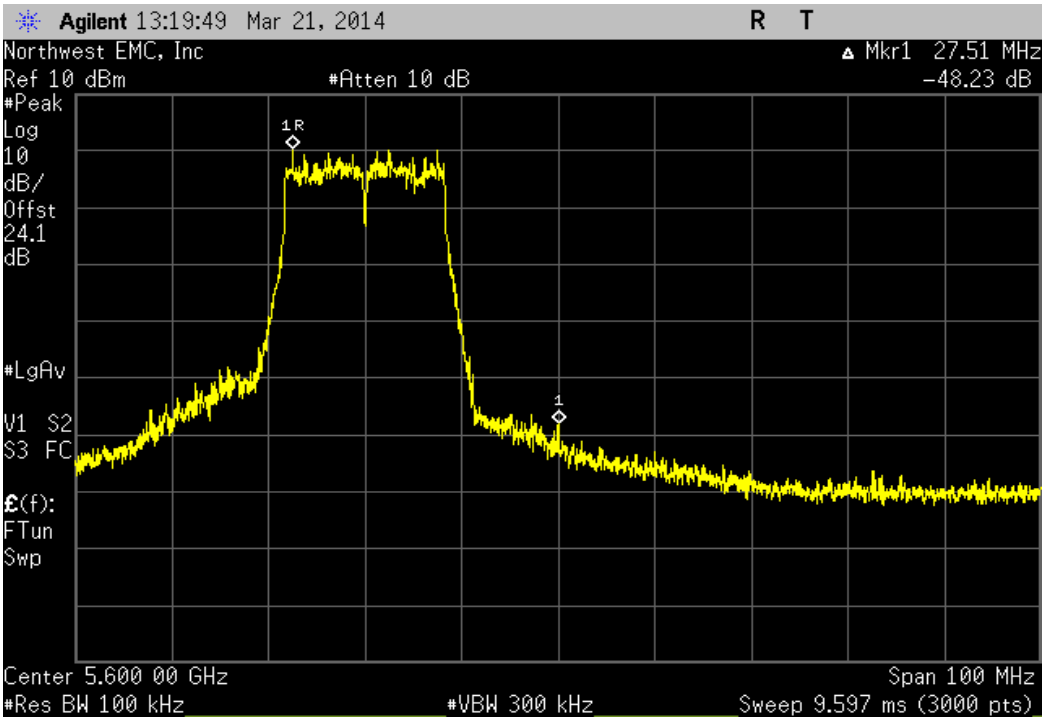
				Value	Limit	Result
				-31.71 dBc	≤ -20 dBc	Pass



BAND EDGE COMPLIANCE

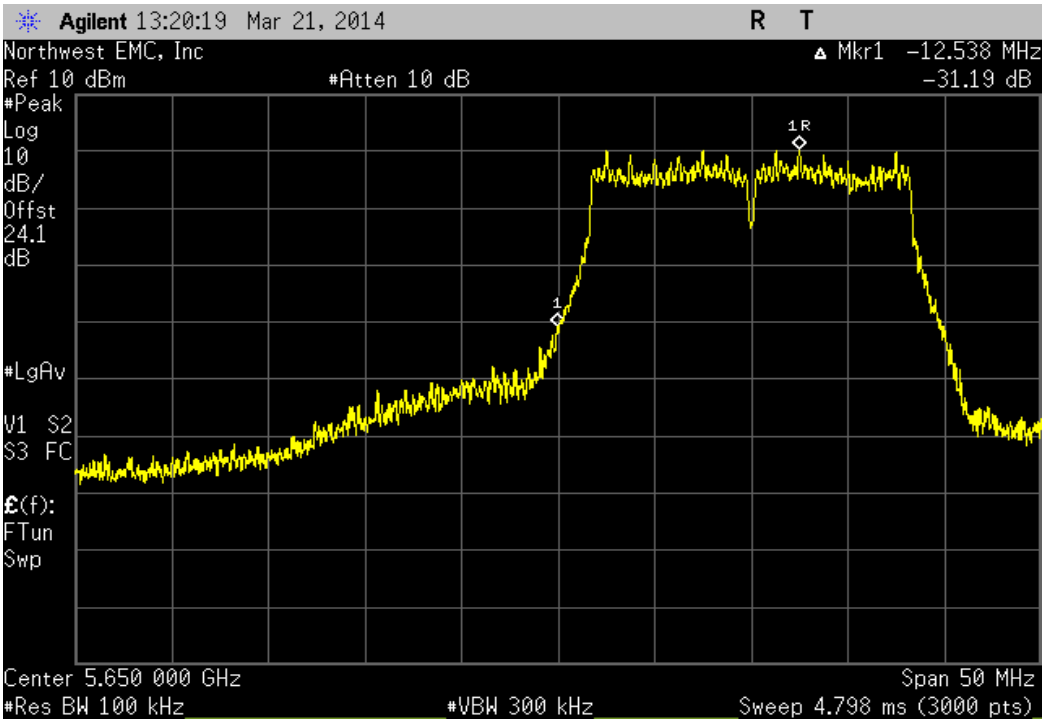
20MHz Bandwidth , 802.11(a) 54 Mbps, Channel 116, 5580 MHz

Value	Limit	Result
-48.23 dBc	≤ -20 dBc	Pass



20MHz Bandwidth , 802.11(a) 54 Mbps, Channel 132, 5660 MHz

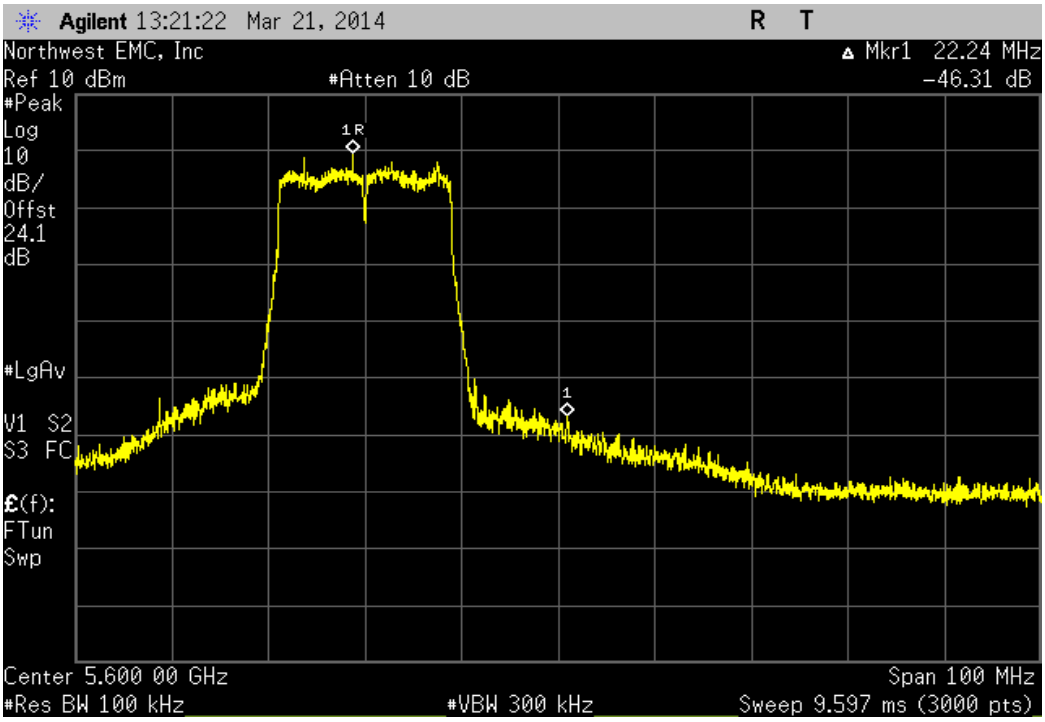
Value	Limit	Result
-31.19 dBc	≤ -20 dBc	Pass



BAND EDGE COMPLIANCE

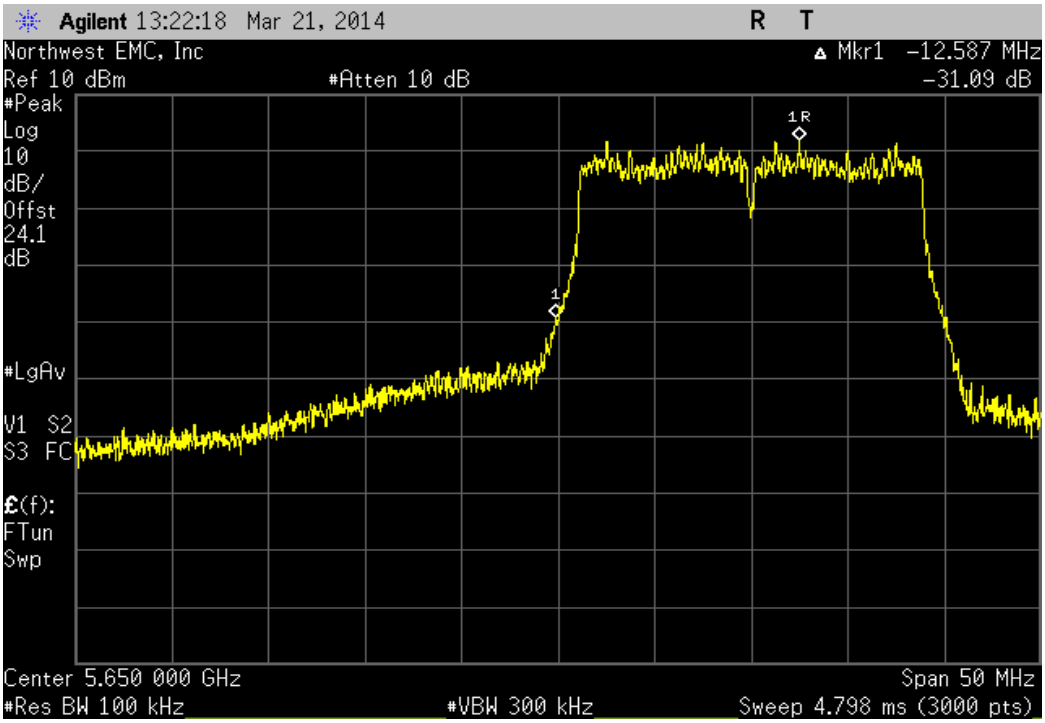
20MHz Bandwidth , 802.11(n) MCS7, Channel 116, 5580 MHz

				Value	Limit	Result
				-46.31 dBc	≤ -20 dBc	Pass



20MHz Bandwidth , 802.11(n) MCS7, Channel 132, 5660 MHz

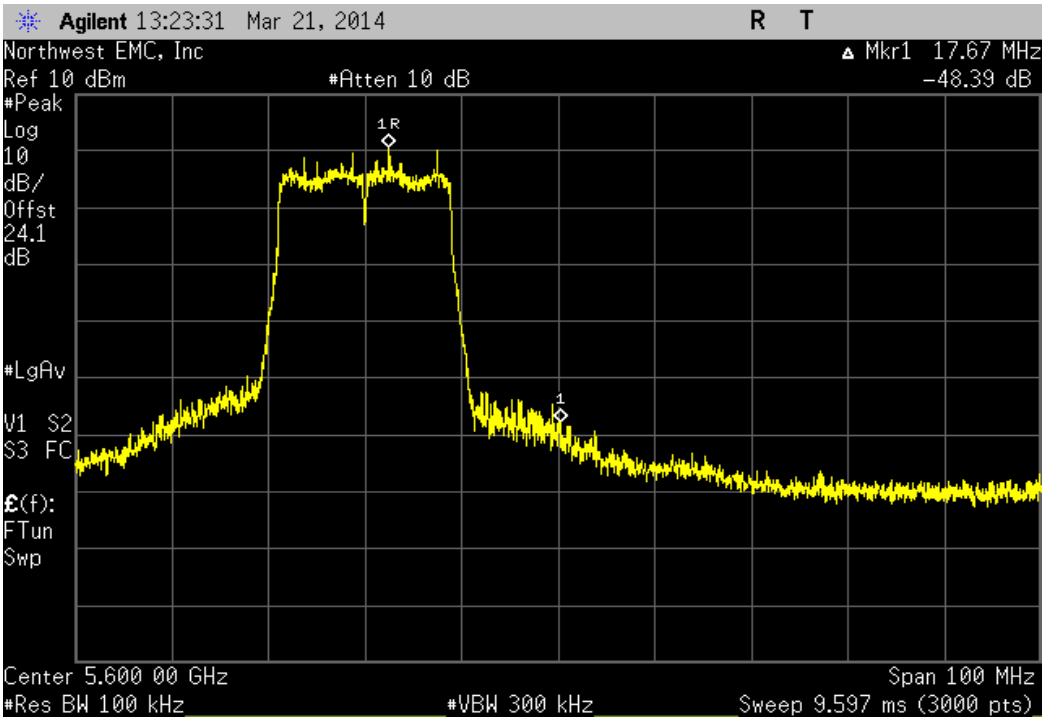
				Value	Limit	Result
				-31.09 dBc	≤ -20 dBc	Pass



BAND EDGE COMPLIANCE

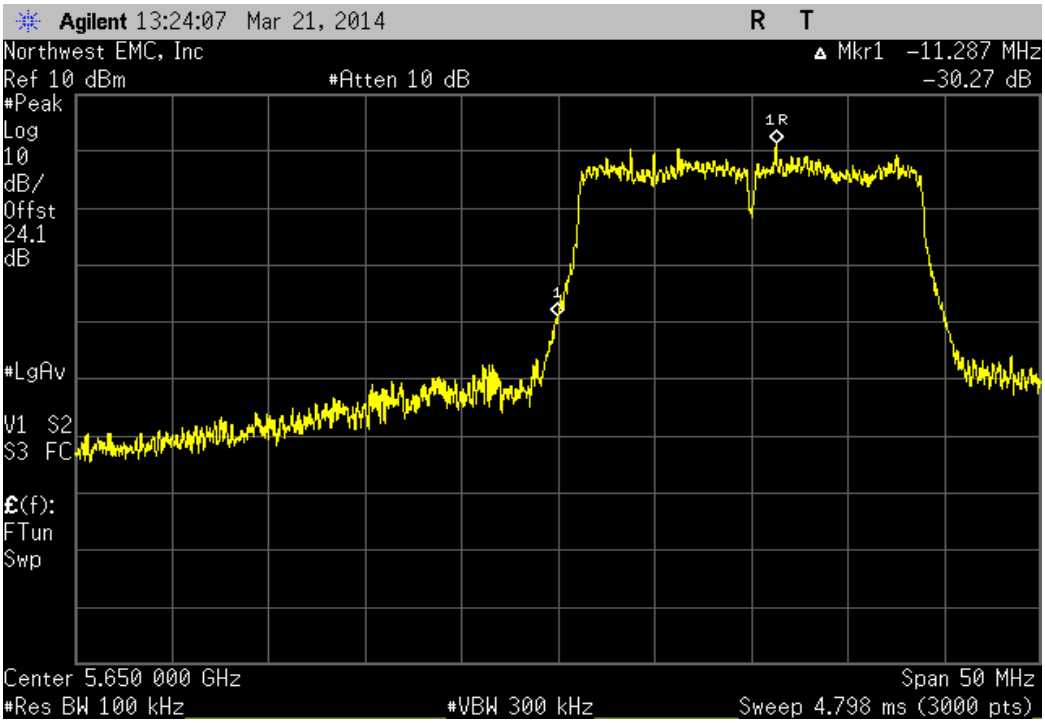
20MHz Bandwidth , 802.11(ac) MCS0, Channel 116, 5580 MHz

					Value	Limit	Result
					-48.39 dBc	≤ -20 dBc	Pass



20MHz Bandwidth , 802.11(ac) MCS0, Channel 132, 5660 MHz

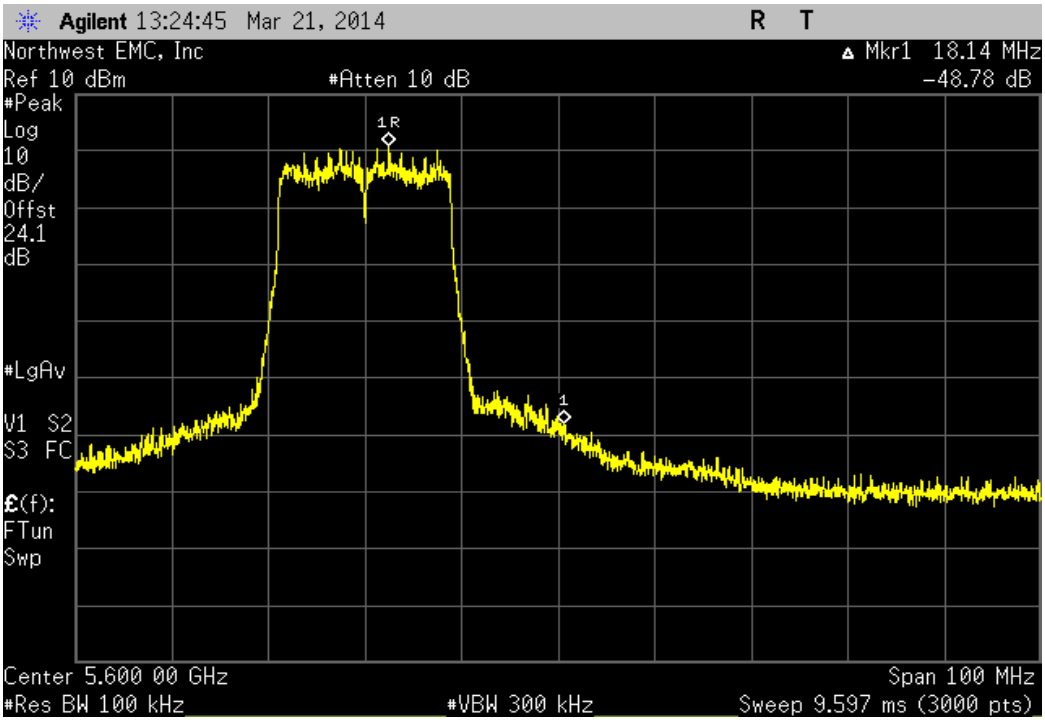
					Value	Limit	Result
					-30.27 dBc	≤ -20 dBc	Pass



BAND EDGE COMPLIANCE

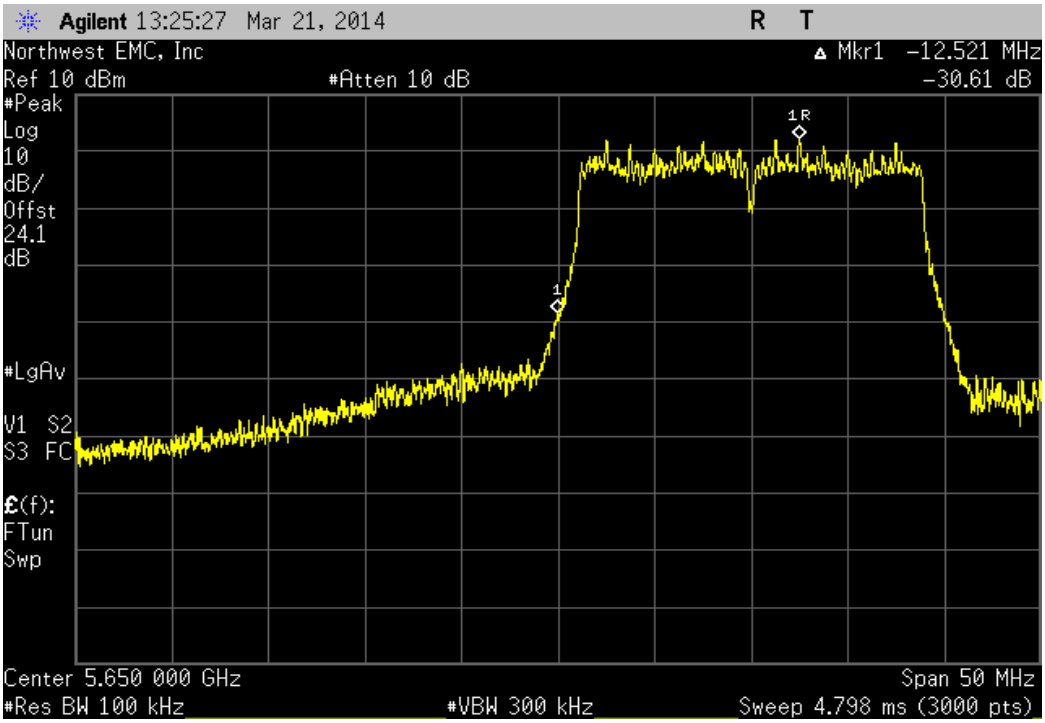
20MHz Bandwidth , 802.11(ac) MCS8, Channel 116, 5580 MHz

				Value	Limit	Result
				-48.78 dBc	≤ -20 dBc	Pass



20MHz Bandwidth , 802.11(ac) MCS8, Channel 132, 5660 MHz

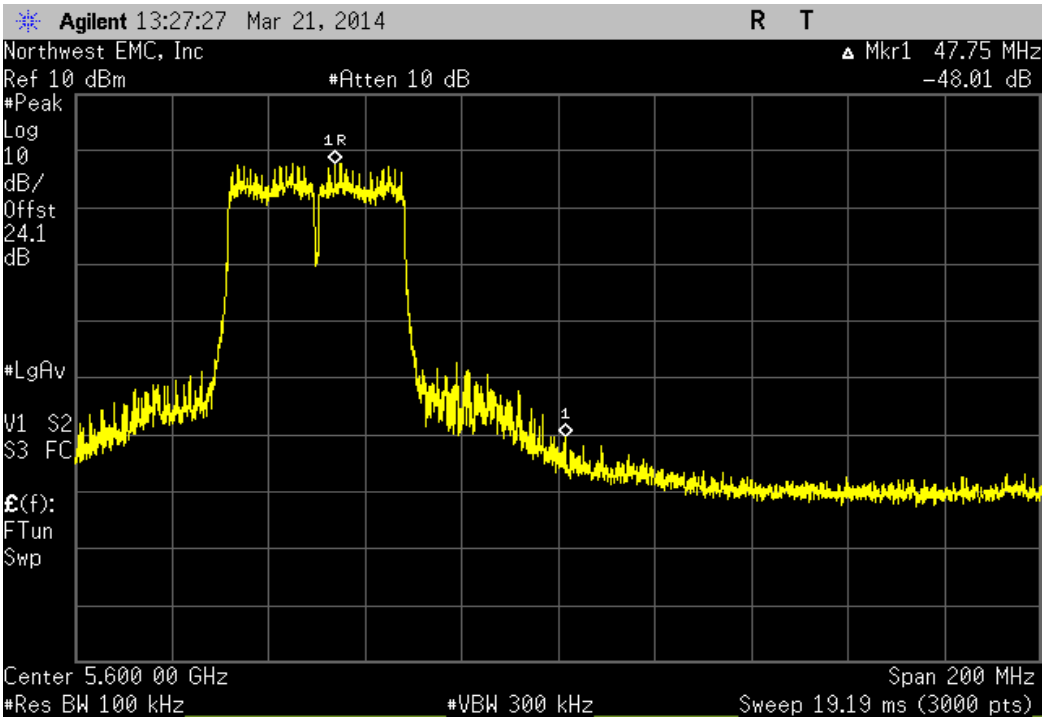
				Value	Limit	Result
				-30.61 dBc	≤ -20 dBc	Pass



BAND EDGE COMPLIANCE

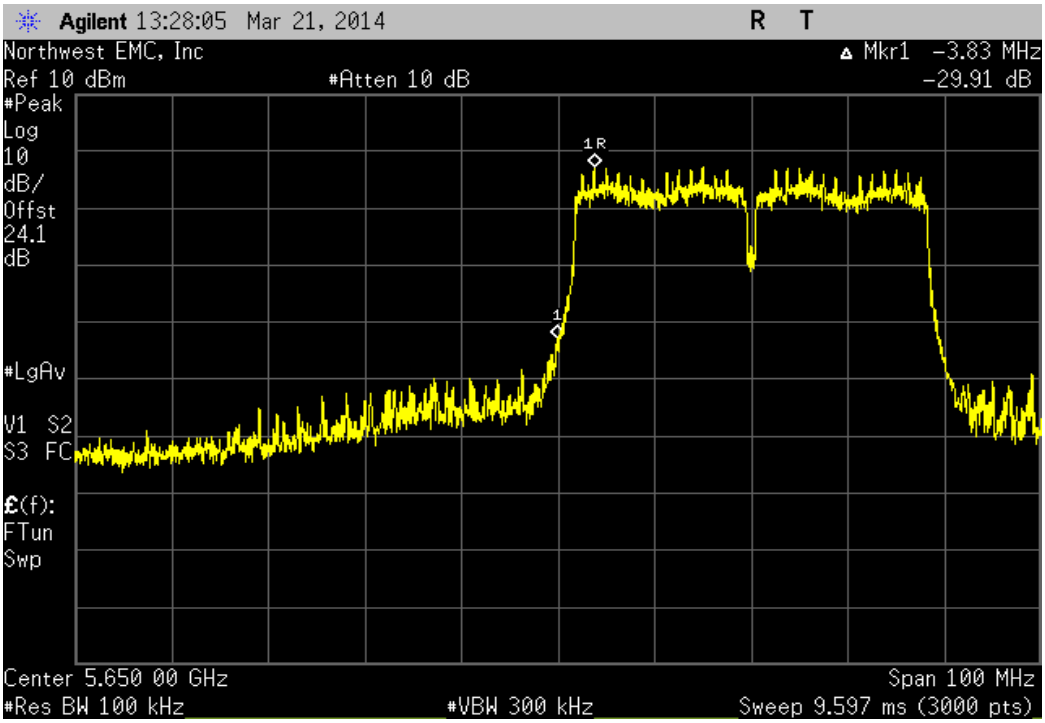
40MHz Bandwidth , 802.11(n) MCS7, Channel 108/112, 5550 MHz

				Value	Limit	Result
				-48.01 dBc	≤ -20 dBc	Pass



40MHz Bandwidth , 802.11(n) MCS7, Channel 132/136, 5670 MHz

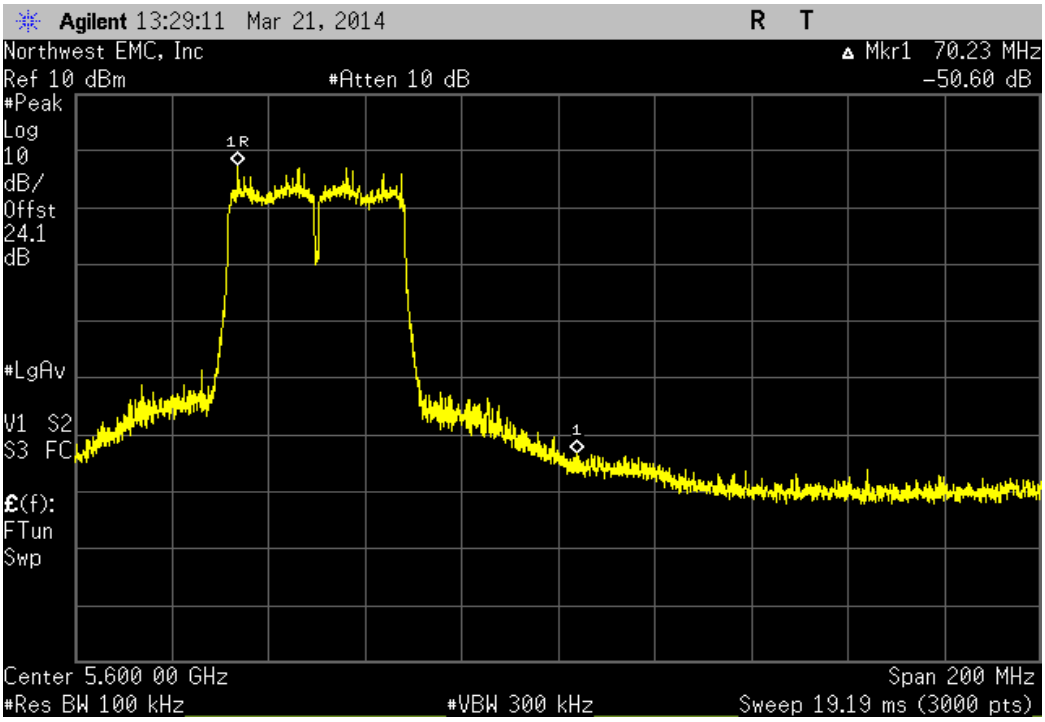
				Value	Limit	Result
				-29.92 dBc	≤ -20 dBc	Pass



BAND EDGE COMPLIANCE

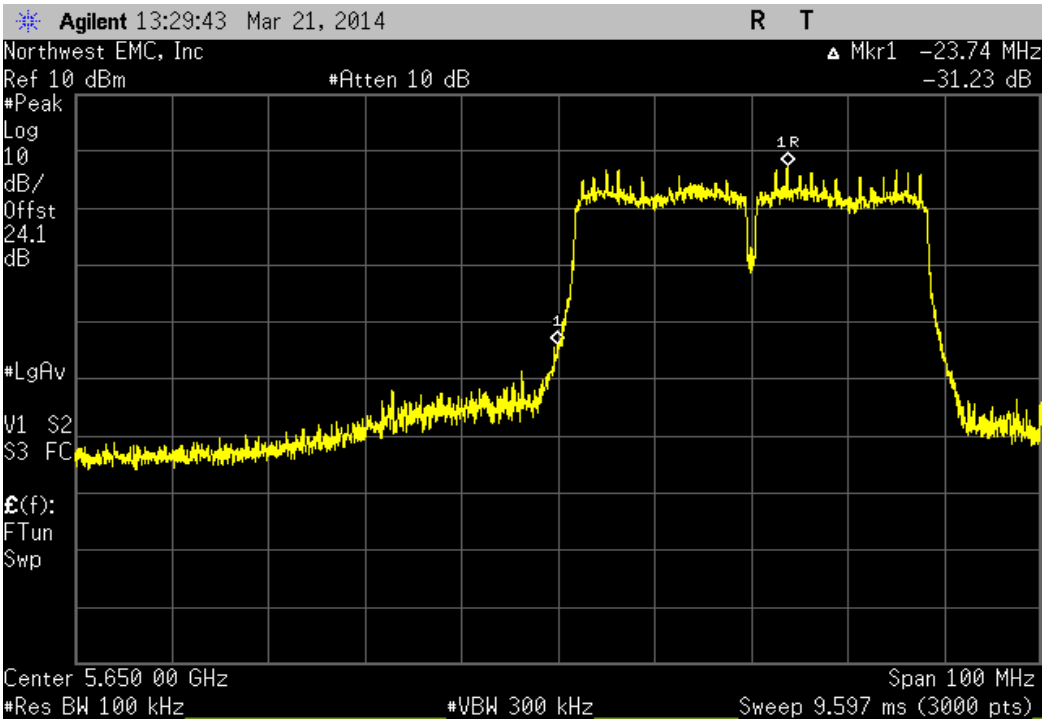
40MHz Bandwidth , 802.11(ac) MCS0, Channel 108/112, 5550 MHz

				Value	Limit	Result
				-50.6 dBc	≤ -20 dBc	Pass



40MHz Bandwidth , 802.11(ac) MCS0, Channel 132/136, 5670 MHz

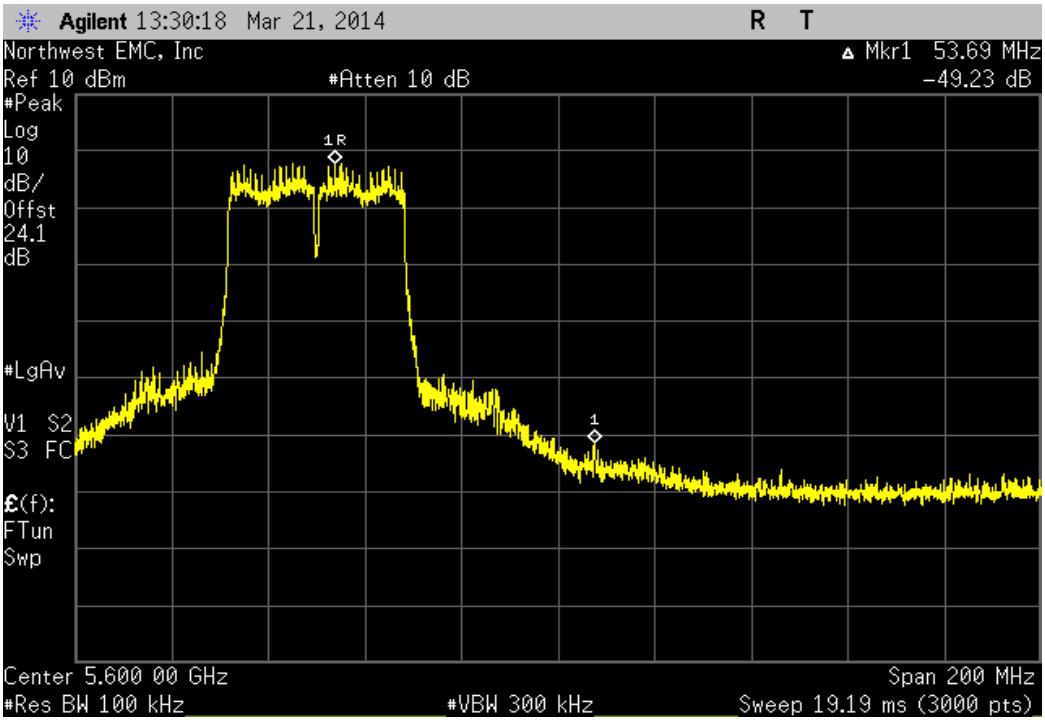
				Value	Limit	Result
				-31.23 dBc	≤ -20 dBc	Pass



BAND EDGE COMPLIANCE

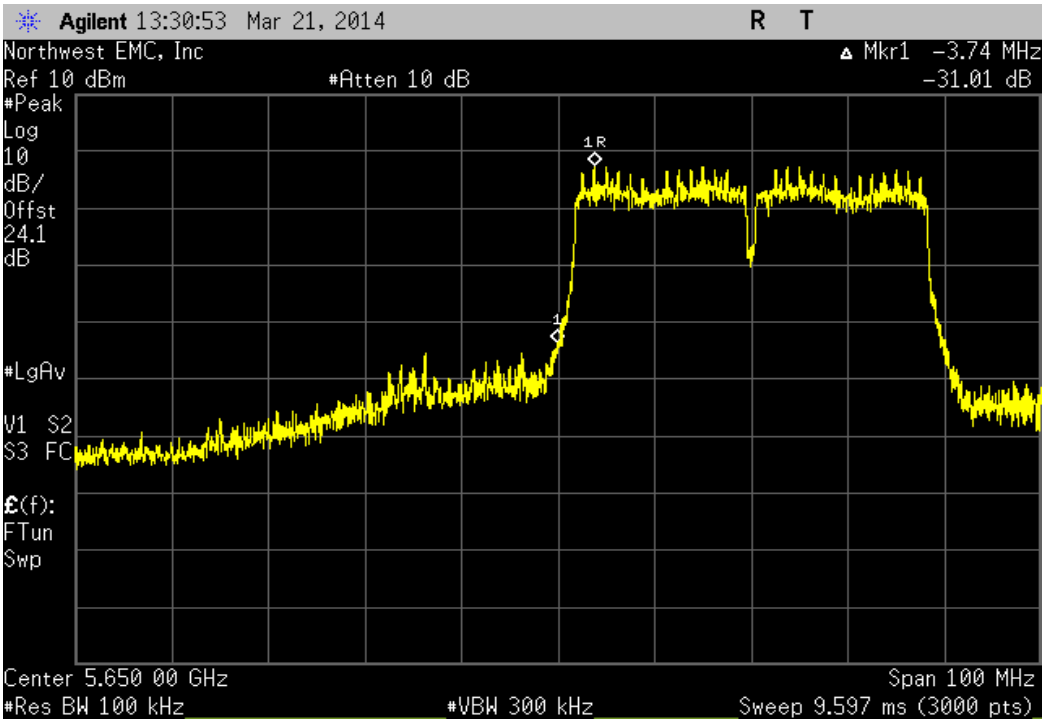
40MHz Bandwidth , 802.11(ac) MCS9, Channel 108/112, 5550 MHz

	Value	Limit	Result
	-49.23 dBc	≤ -20 dBc	Pass



40MHz Bandwidth , 802.11(ac) MCS9, Channel 132/136, 5670 MHz

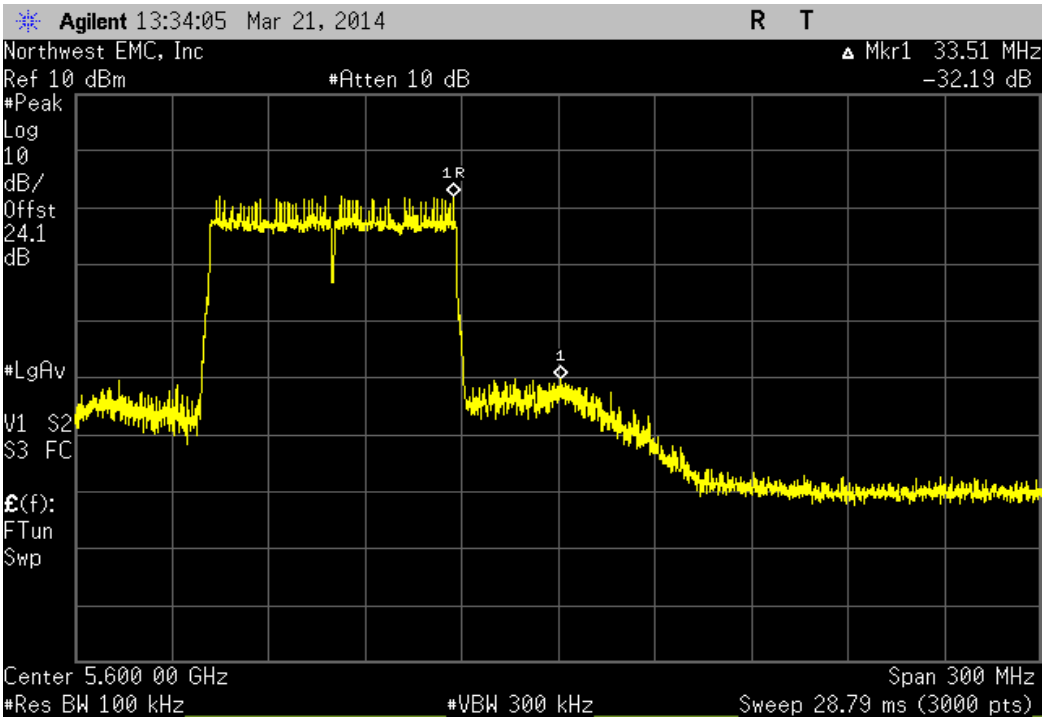
	Value	Limit	Result
	-31.01 dBc	≤ -20 dBc	Pass



BAND EDGE COMPLIANCE

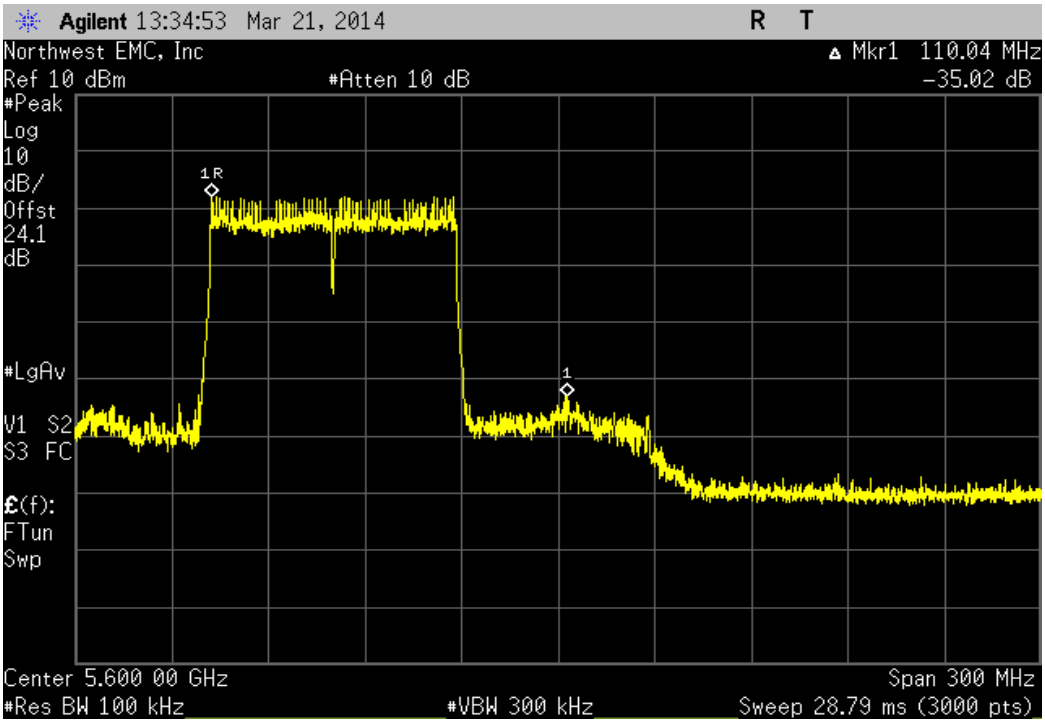
80MHz Bandwidth , 802.11(ac) MCS0, Channel 106, 5530 MHz

Value	Limit	Result
-32.19 dBc	≤ -20 dBc	Pass



80MHz Bandwidth , 802.11(ac) MCS9, Channel 106, 5530 MHz

Value	Limit	Result
-35.03 dBc	≤ -20 dBc	Pass



FREQUENCY STABILITY

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval (mo.)
Multimeter	Tektronix	DMM912	MMH	2/5/2013	24
DC Power Supply	Topward	TPS-2000	TPD	NCR	0
Humidity Temperature Meter	Omegaette	HH311	DTY	3/29/2011	36
Temp./Humidity Chamber	Cincinnati Sub Zero (CSZ)	ZH-32-2-2-H/AC	TBA	NCR	0
40GHz DC Block	Miteq	DCB4000	AMD	5/16/2013	12
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	7/30/2013	12
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0
Attenuator, 6dB	S.M. Electronics	18N-06	AWN	2/3/2014	12
RF Vector Signal Generator	Agilent	V2920A	TIH	NCR	0
Power Meter	Gigatronics	8651A	SPM	11/26/2013	24
Power Sensor	Gigatronics	80701A	SPL	7/8/2011	36
Spectrum Analyzer	Agilent	E4440	AFE	11/4/2013	24

TEST DESCRIPTION

A direct connect measurement was made between the EUT's antenna cable and a spectrum analyzer. The spectrum analyzer is equipped with a precision frequency reference that exceeds the stability requirement of the EUT.

Measurements were made at the edges of the main transmit bands as called out on the data sheets. Testing was done with an absence of modulation in a CW mode of operation.

The primary supply voltage was varied from 85 % to 115% of the nominal voltage Using a temperature chamber, the transmit frequency was recorded at the extremes of the specified temperature range (-30 ° to +50° C) and at 10°C intervals.

Per the requirements of FCC 15.407:

"Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual."

No specific limits are provided in either FCC 15.407, the product specific rule part, or FCC 2.1055, the equipment authorization procedure for testing frequency stability. While there are no limits called out, any results less than 100ppm will still allow the radio to be operating within the band.

FREQUENCY STABILITY

EUT:	Model 1631	**Work Order:**	MCSO1698
Serial Number:	041151240753	**Date:**	03/23/14
Customer:	Microsoft Corporation	**Temperature:**	21.5°C
Attendees:	None	**Humidity:**	29%
Project:	None	**Barometric Pres.:**	1007
Tested by:	Brandon Hobbs, Jared Ison	**Power:** 110VAC/60Hz	**Job Site:** EV06

TEST SPECIFICATIONS	Test Method
FCC 15.407:2014	ANSI C63.10:2009

COMMENTS

Modes of operation tested were client provided. EUT employed thermal protection/shutdown when testing below 0°C and above +40°C. Measurements captured from tempature range 0°C - +40°C.

DEVIATIONS FROM TEST STANDARD

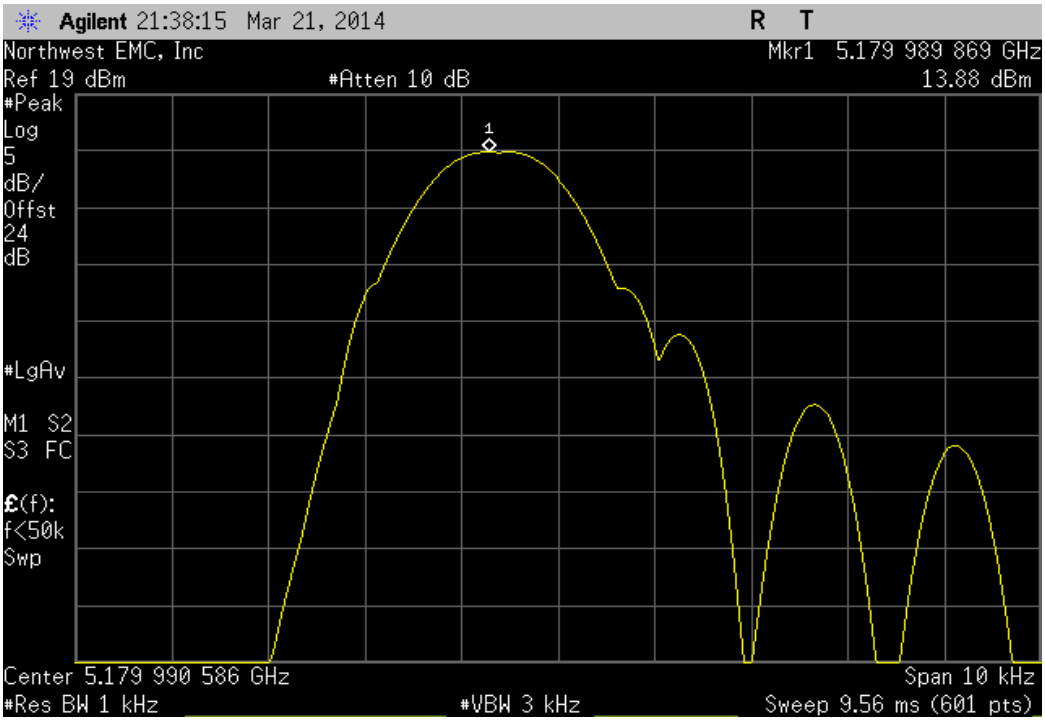
None

Configuration #	5	Signature

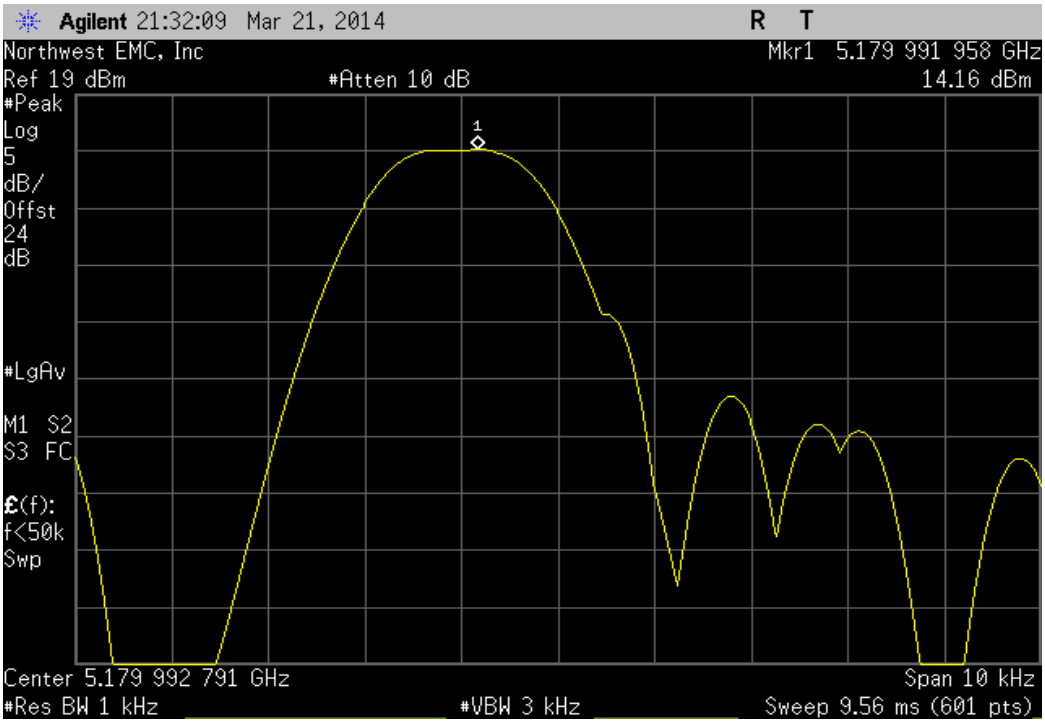
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
Ch. 36, Low Channel 5180 MHz					
Voltage: 115%	5179.989869	5180	2	100	Pass
Voltage: 100%	5179.991958	5180	1.6	100	Pass
Voltage: 85%	5179.990004	5180	1.9	100	Pass
Temperature: +50°	5180.021736	5180	4.2	100	Pass
Temperature: +40°	5179.987783	5180	2.4	100	Pass
Temperature: +30°	5179.990037	5180	1.9	100	Pass
Temperature: +20°	5179.995563	5180	0.9	100	Pass
Temperature: +10°	5180.00134	5180	0.3	100	Pass
Temperature: 0°	5180.010392	5180	2	100	Pass
Ch. 64, High Channel 5320 MHz					
Voltage: 115%	5319.988074	5320	2.2	100	Pass
Voltage: 100%	5319.988791	5320	2.1	100	Pass
Voltage: 85%	5319.988037	5320	2.3	100	Pass
Temperature: +40°	5319.987833	5320	2.3	100	Pass
Temperature: +30°	5319.988642	5320	2.1	100	Pass
Temperature: +20°	5319.99314	5320	1.3	100	Pass
Temperature: +10°	5319.999021	5320	0.2	100	Pass
Temperature: 0°	5320.008278	5320	1.6	100	Pass
Ch. 100, Low Channel 5500 MHz					
Voltage: 115%	5499.98608	5500	2.5	100	Pass
Voltage: 100%	5499.986715	5500	2.4	100	Pass
Voltage: 85%	5499.985931	5500	2.6	100	Pass
Temperature: +40°	5499.9884	5500	2.1	100	Pass
Temperature: +30°	5499.987165	5500	2.3	100	Pass
Temperature: +20°	5499.991156	5500	1.6	100	Pass
Temperature: +10°	5499.995679	5500	0.8	100	Pass
Temperature: 0°	5500.006175	5500	1.1	100	Pass
Ch. 140, High Channel 5700 MHz					
Voltage: 115%	5699.985754	5700	2.5	100	Pass
Voltage: 100%	5699.986524	5700	2.4	100	Pass
Voltage: 85%	5699.985604	5700	2.5	100	Pass
Temperature: +40°	5699.987708	5700	2.2	100	Pass
Temperature: +30°	5699.986888	5700	2.3	100	Pass
Temperature: +20°	5699.991117	5700	1.6	100	Pass
Temperature: +10°	5699.996146	5700	0.7	100	Pass
Temperature: 0°	5700.006526	5700	1.1	100	Pass
Ch. 36/40, Low Channel 5190 MHz					
Voltage: 115%	5189.987684	5190	2.4	100	Pass
Voltage: 100%	5189.987534	5190	2.4	100	Pass
Voltage: 85%	5189.987734	5190	2.4	100	Pass
Temperature: +40°	5189.988718	5190	2.2	100	Pass
Temperature: +30°	5189.988689	5190	2.2	100	Pass
Temperature: +20°	5189.993973	5190	1.2	100	Pass
Temperature: +10°	5189.998874	5190	0.2	100	Pass
Temperature: 0°	5190.007161	5190	1.4	100	Pass
Ch. 44/48, High Channel 5230 MHz					
Voltage: 115%	5229.986944	5230	2.5	100	Pass
Voltage: 100%	5229.987027	5230	2.5	100	Pass
Voltage: 85%	5229.987245	5230	2.4	100	Pass
Temperature: +40°	5229.988229	5230	2.3	100	Pass
Temperature: +30°	5229.988146	5230	2.3	100	Pass
Temperature: +20°	5229.99337	5230	1.3	100	Pass
Temperature: +10°	5229.997234	5230	0.5	100	Pass
Temperature: 0°	5230.006398	5230	1.2	100	Pass
Ch. 52/56, High Channel 5310 MHz					
Voltage: 115%	5309.98688	5310	2.5	100	Pass
Voltage: 100%	5309.98683	5310	2.5	100	Pass
Voltage: 85%	5309.98718	5310	2.4	100	Pass
Temperature: +40°	5309.987914	5310	2.3	100	Pass
Temperature: +30°	5309.988065	5310	2.3	100	Pass
Temperature: +20°	5309.992941	5310	1.3	100	Pass
Temperature: +10°	5309.997383	5310	0.5	100	Pass
Temperature: 0°	5310.00672	5310	1.3	100	Pass
Ch. 100/104, High Channel 5510 MHz					
Voltage: 115%	5509.987114	5510	2.3	100	Pass
Voltage: 100%	5509.987631	5510	2.2	100	Pass
Voltage: 85%	5509.987398	5510	2.3	100	Pass
Temperature: +40°	5509.987297	5510	2.3	100	Pass
Temperature: +30°	5509.988182	5510	2.1	100	Pass
Temperature: +20°	5509.993788	5510	1.1	100	Pass
Temperature: +10°	5509.998955	5510	0.2	100	Pass
Temperature: 0°	5510.008366	5510	1.5	100	Pass
Ch. 42, Low Channel 5210 MHz					
Voltage: 115%	5209.98837	5210	2.2	100	Pass
Voltage: 100%	5209.988016	5210	2.3	100	Pass
Voltage: 85%	5209.987932	5210	2.3	100	Pass
Temperature: +40°	5209.987714	5210	2.4	100	Pass
Temperature: +30°	5209.988954	5210	2.1	100	Pass

Temperature: +20°	5209.994657	5210	1	100	Pass
Temperature: +10°	5209.998839	5210	0.2	100	Pass
Temperature: 0°	5210.008752	5210	1.7	100	Pass
Ch. 58, High Channel 5290 MHz					
Voltage: 115%	5289.98616	5290	2.6	100	Pass
Voltage: 100%	5289.986277	5290	2.6	100	Pass
Voltage: 85%	5289.986077	5290	2.6	100	Pass
Temperature: +40°	5289.988346	5290	2.2	100	Pass
Temperature: +30°	5289.987596	5290	2.3	100	Pass
Temperature: +20°	5289.992122	5290	1.5	100	Pass
Temperature: +10°	5289.996382	5290	0.7	100	Pass
Temperature: 0°	5290.005988	5290	1.1	100	Pass
Ch. 106, Low Channel 5530 MHz					
Voltage: 115%	5529.986222	5530	2.5	100	Pass
Voltage: 100%	5529.986039	5530	2.5	100	Pass
Voltage: 85%	5529.986106	5530	2.5	100	Pass
Temperature: +40°	5529.987778	5530	2.2	100	Pass
Temperature: +30°	5529.987244	5530	2.3	100	Pass
Temperature: +20°	5529.992616	5530	1.3	100	Pass
Temperature: +10°	5529.997384	5530	0.5	100	Pass
Temperature: 0°	5530.006464	5530	1.2	100	Pass

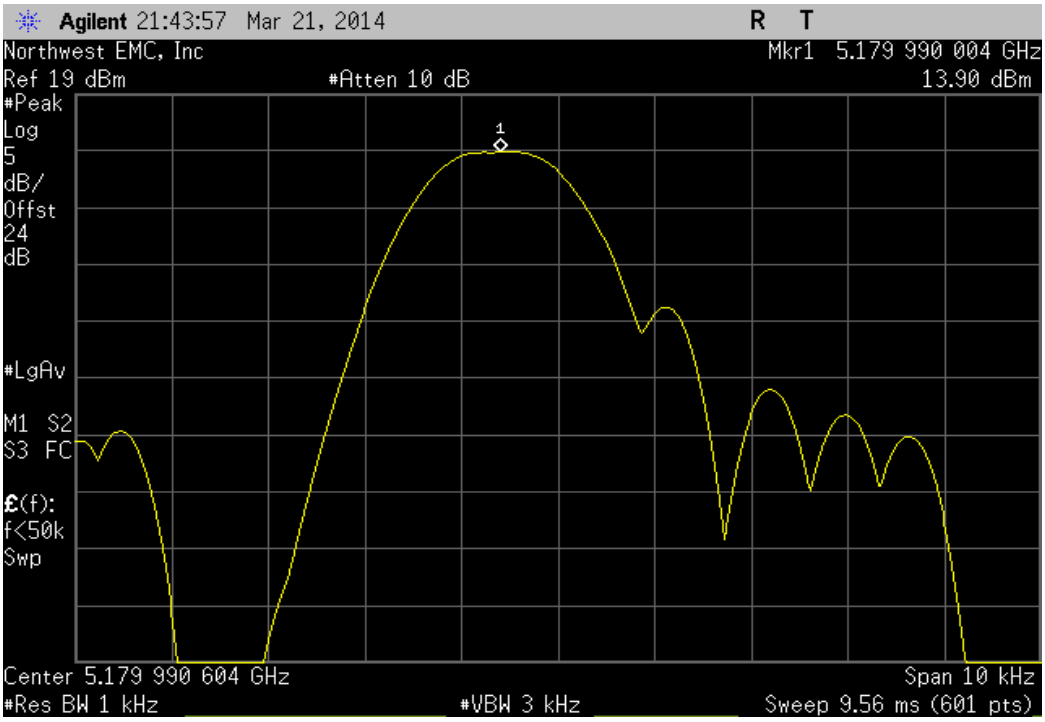
Ch. 36, Low Channel 5180 MHz, Voltage: 115%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5179.989869	5180	2	100	Pass



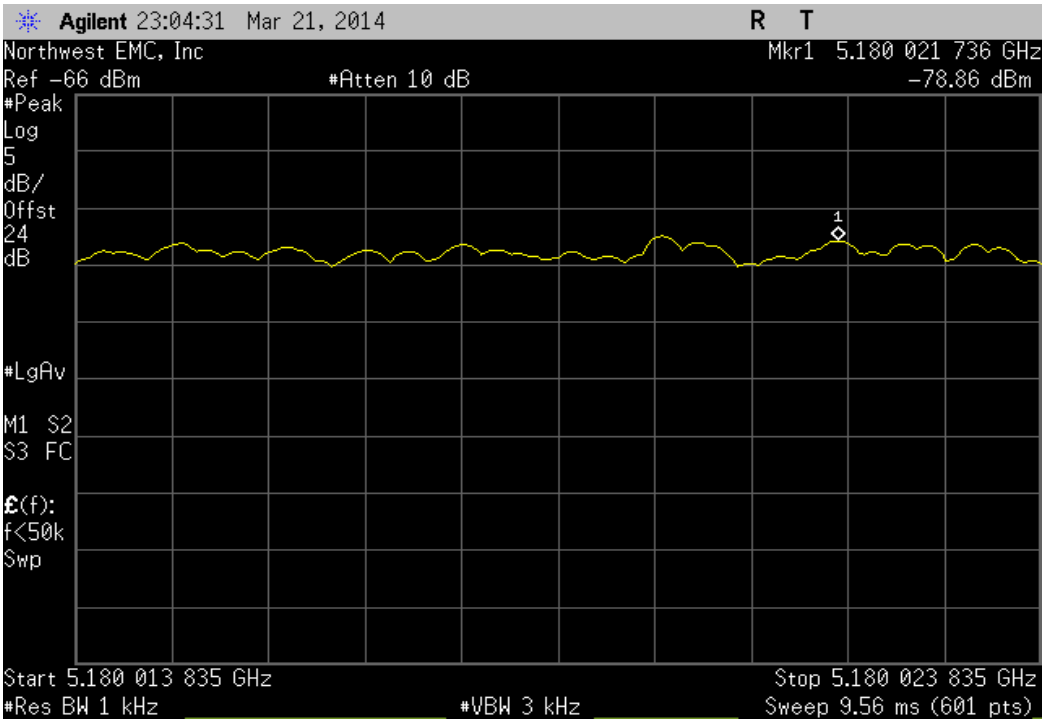
Ch. 36, Low Channel 5180 MHz, Voltage: 100%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5179.991958	5180	1.6	100	Pass



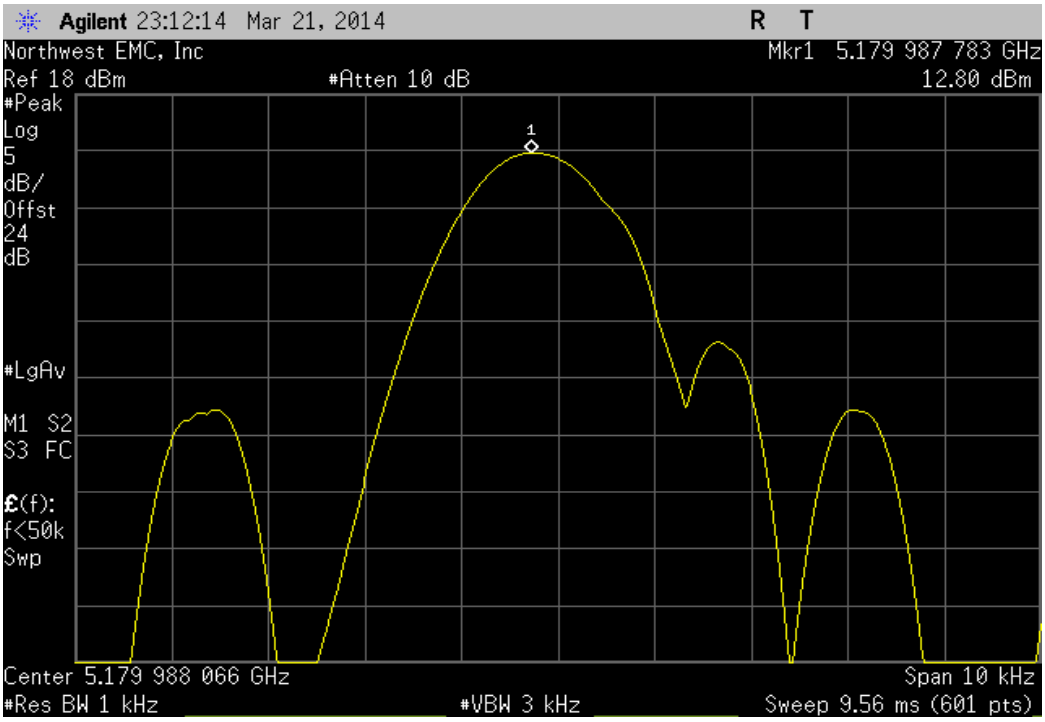
Ch. 36, Low Channel 5180 MHz, Voltage: 85%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5179.990004	5180	1.9	100	Pass



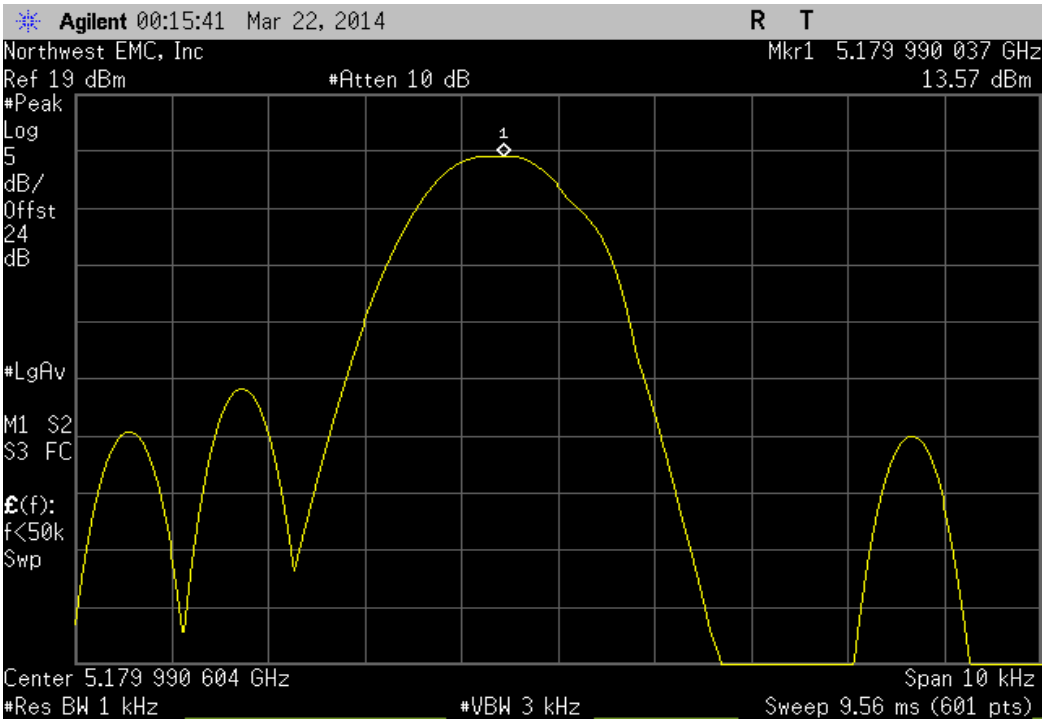
Ch. 36, Low Channel 5180 MHz, Temperature: +50°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5180.021736	5180	4.2	100	Pass



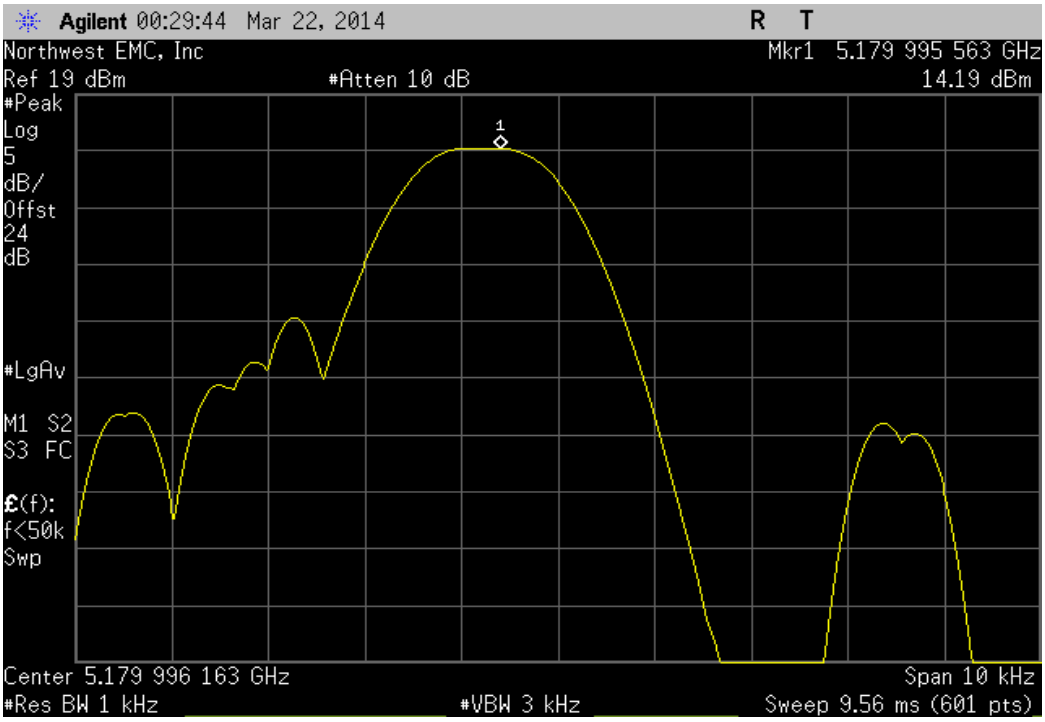
Ch. 36, Low Channel 5180 MHz, Temperature: +40°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5179.987783	5180	2.4	100	Pass



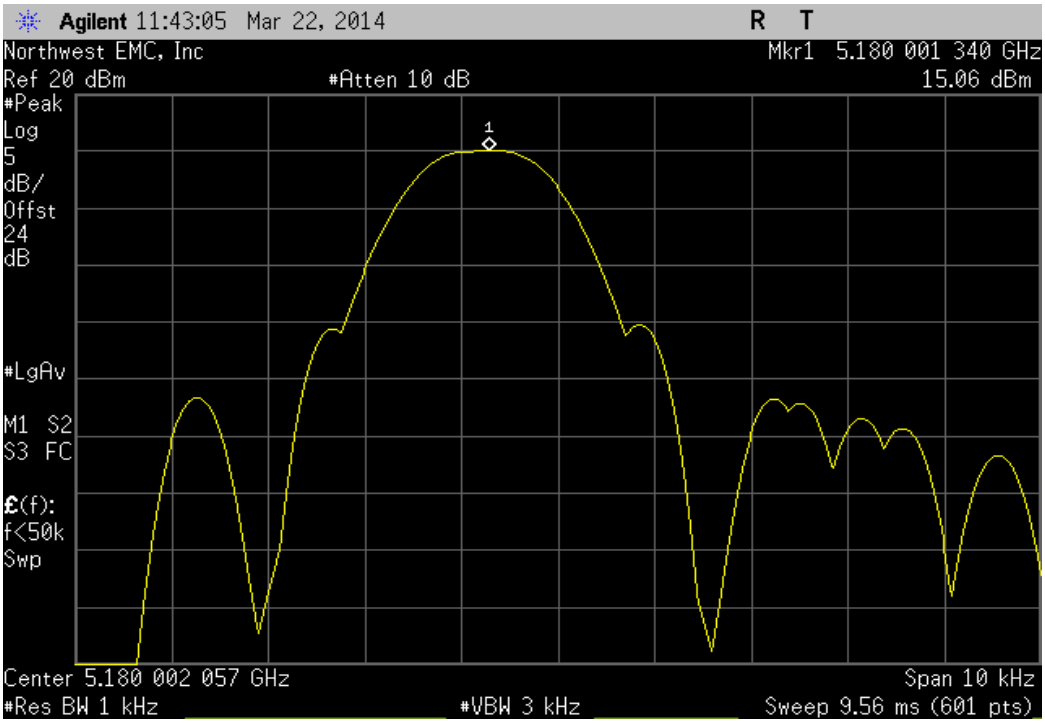
Ch. 36, Low Channel 5180 MHz, Temperature: +30°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5179.990037	5180	1.9	100	Pass



Ch. 36, Low Channel 5180 MHz, Temperature: +20°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5179.995563	5180	0.9	100	Pass

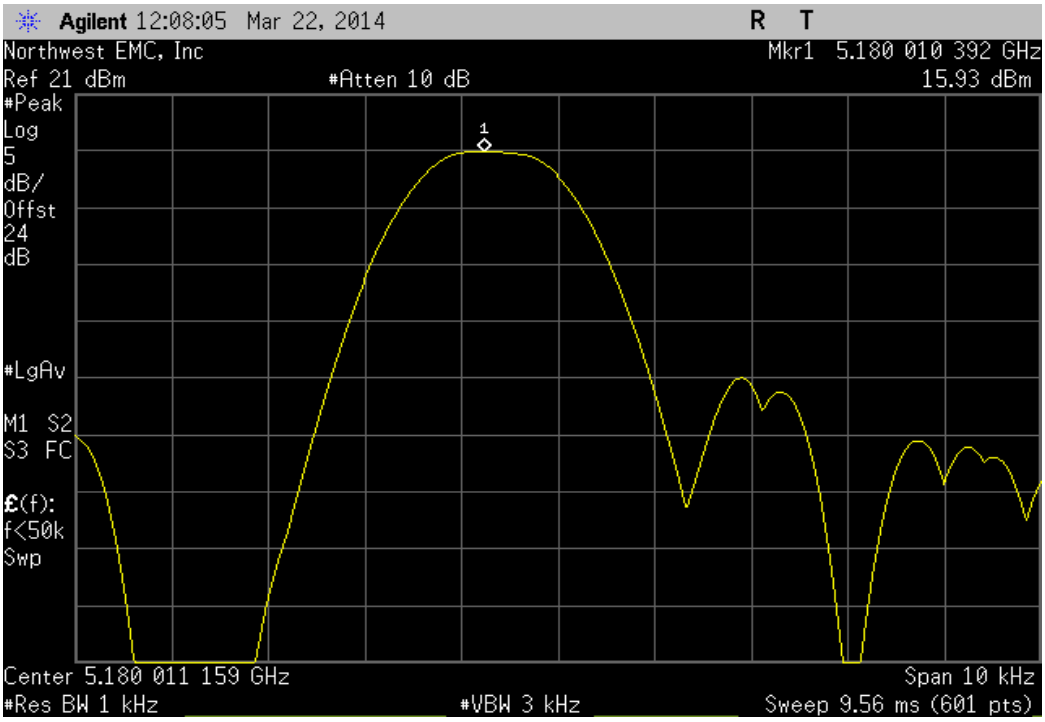


Ch. 36, Low Channel 5180 MHz, Temperature: +10°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5180.00134	5180	0.3	100	Pass

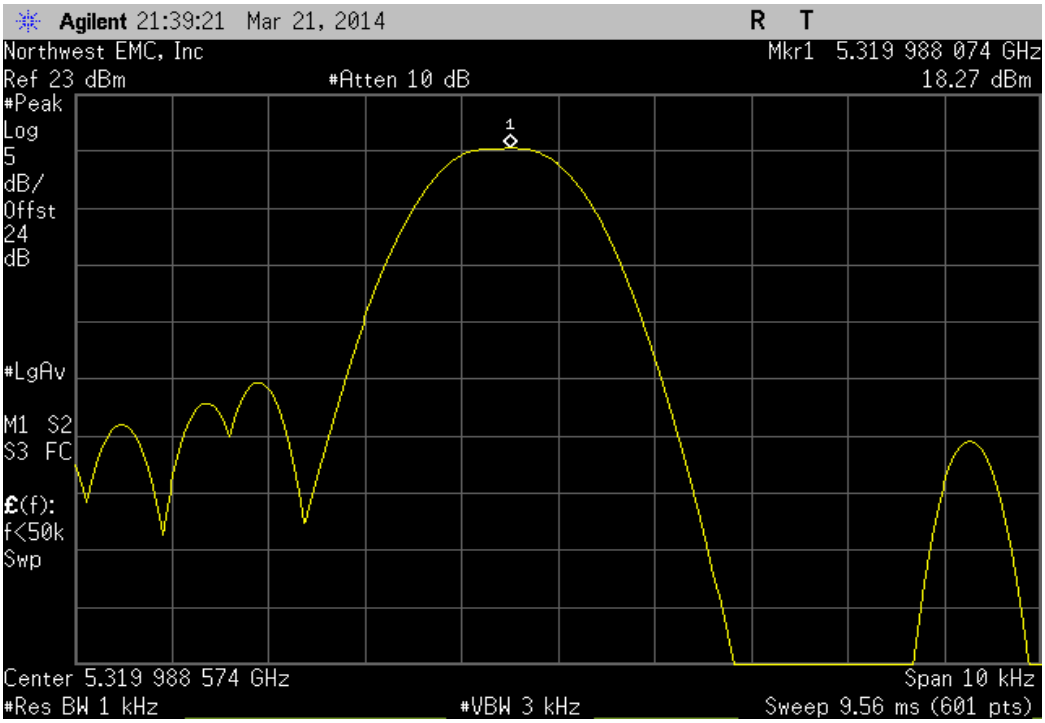


FREQUENCY STABILITY

Ch. 36, Low Channel 5180 MHz, Temperature: 0°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5180.010392	5180	2	100	Pass

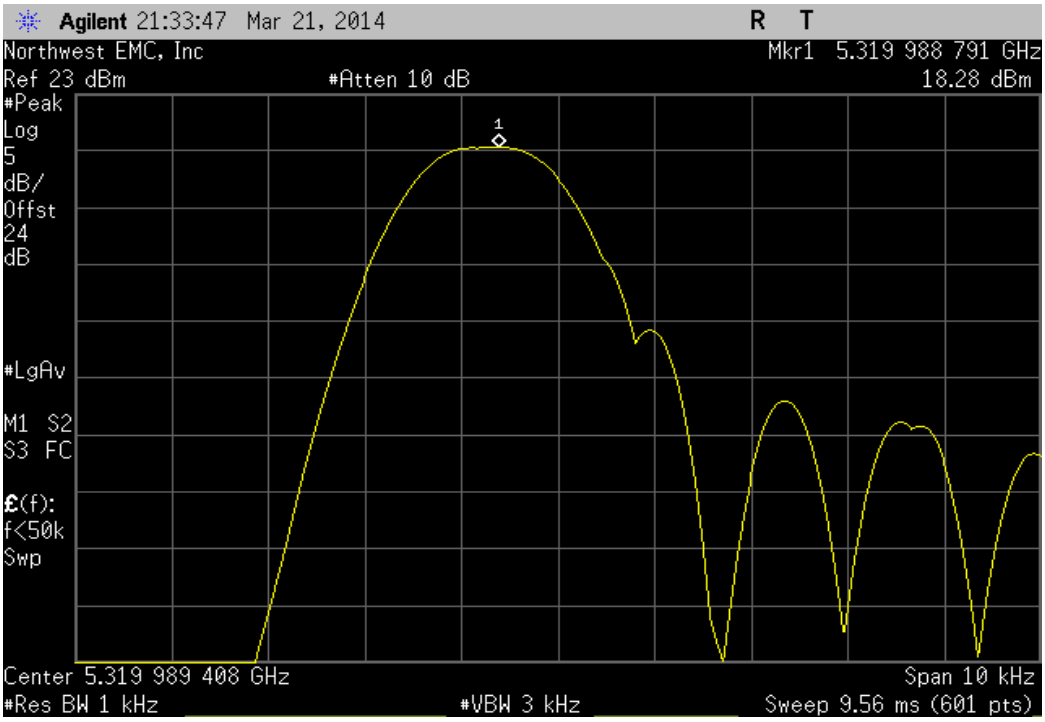


Ch. 64, High Channel 5320 MHz, Voltage: 115%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5319.988074	5320	2.2	100	Pass

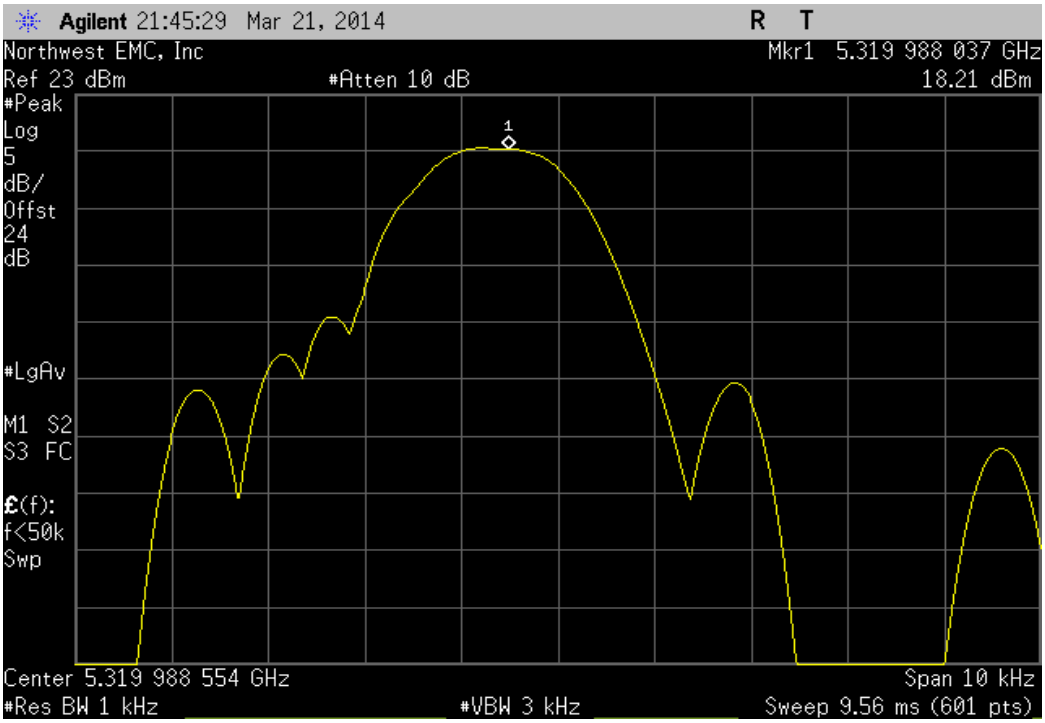


FREQUENCY STABILITY

Ch. 64, High Channel 5320 MHz, Voltage: 100%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5319.988791	5320	2.1	100	Pass

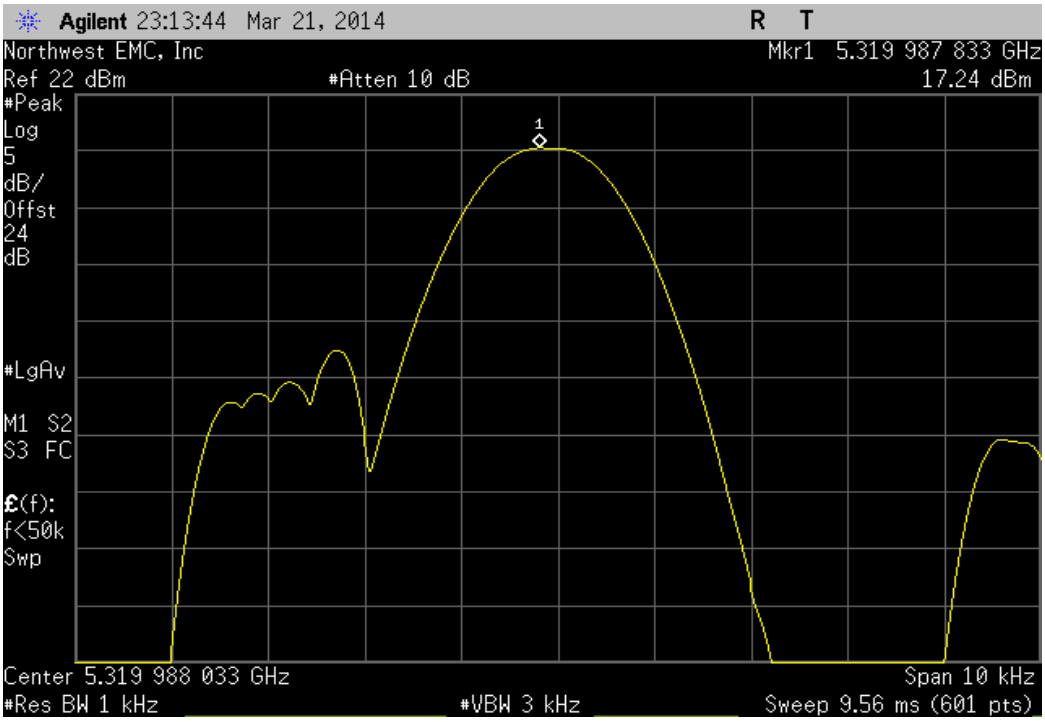


Ch. 64, High Channel 5320 MHz, Voltage: 85%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5319.988037	5320	2.3	100	Pass

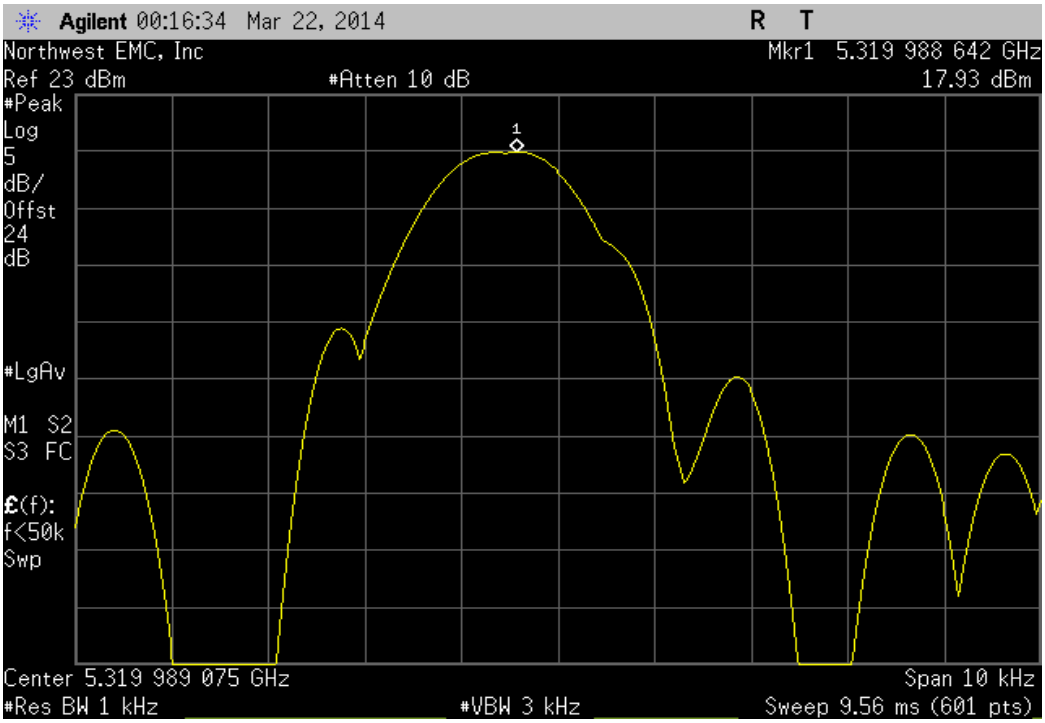


FREQUENCY STABILITY

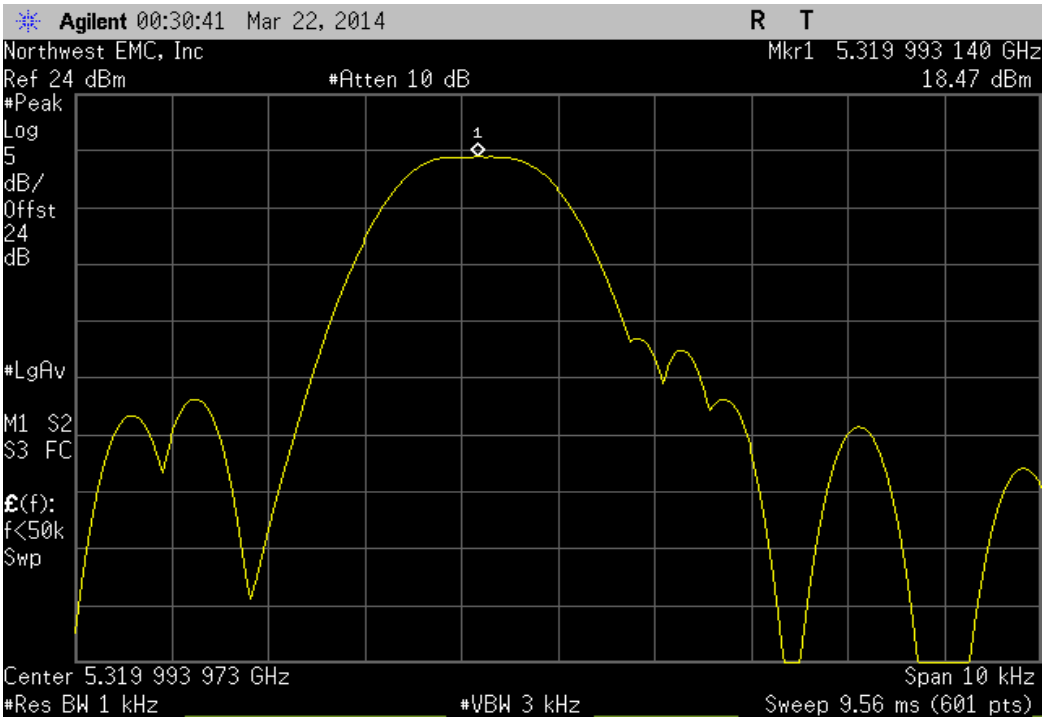
Ch. 64, High Channel 5320 MHz, Temperature: +40°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5319.987833	5320	2.3	100	Pass



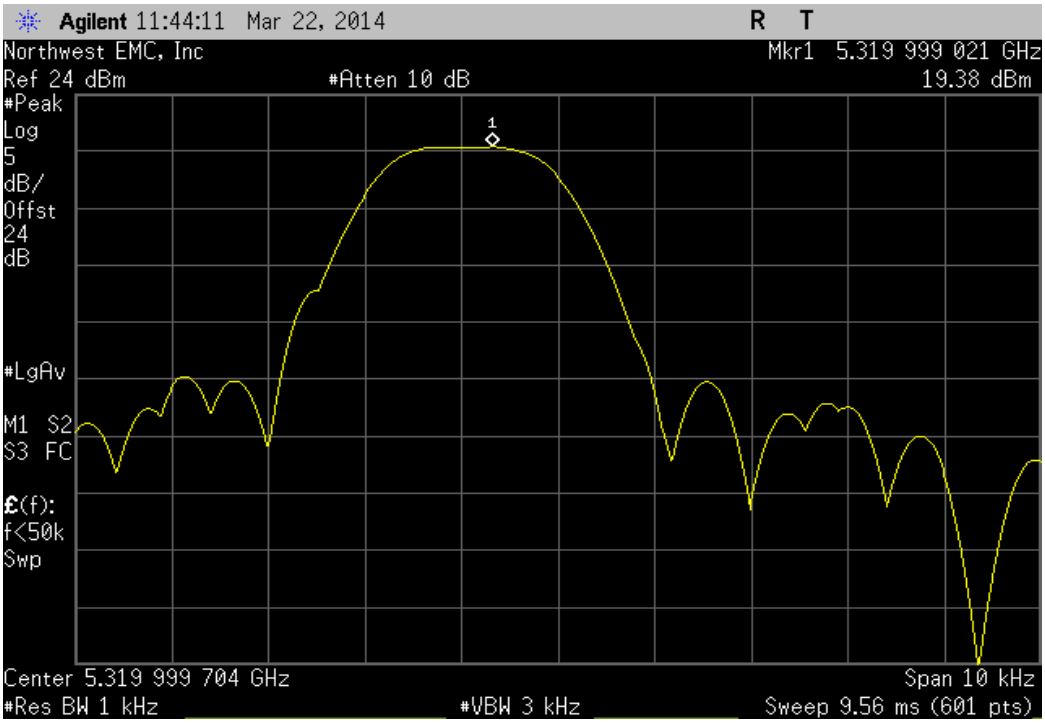
Ch. 64, High Channel 5320 MHz, Temperature: +30°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5319.988642	5320	2.1	100	Pass



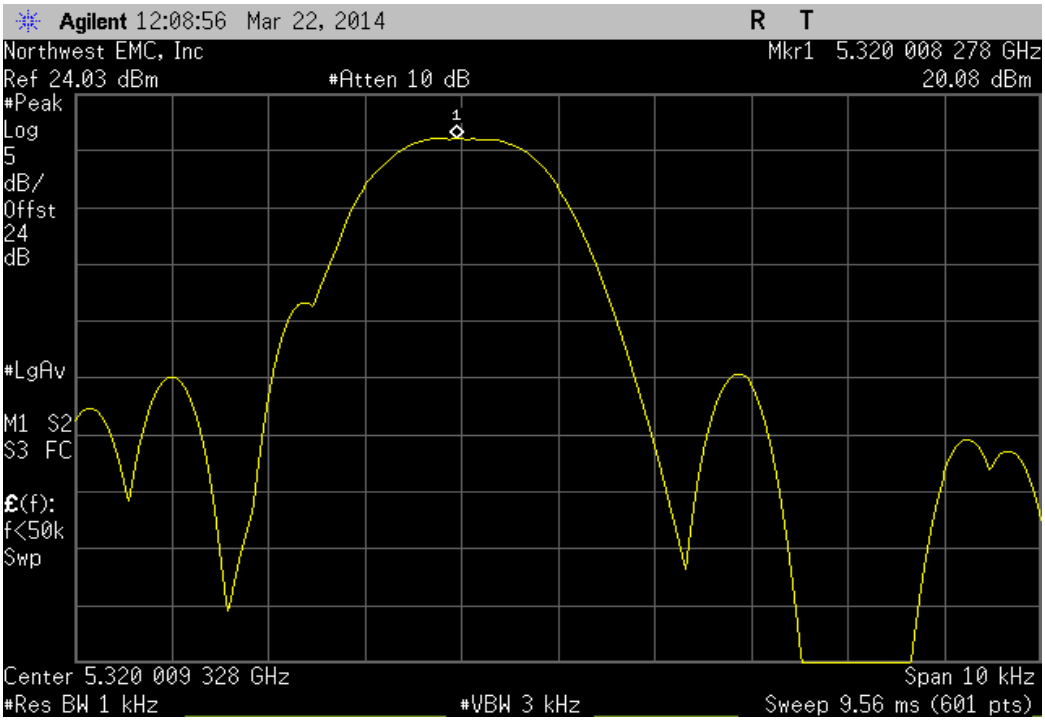
Ch. 64, High Channel 5320 MHz, Temperature: +20°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5319.99314	5320	1.3	100	Pass



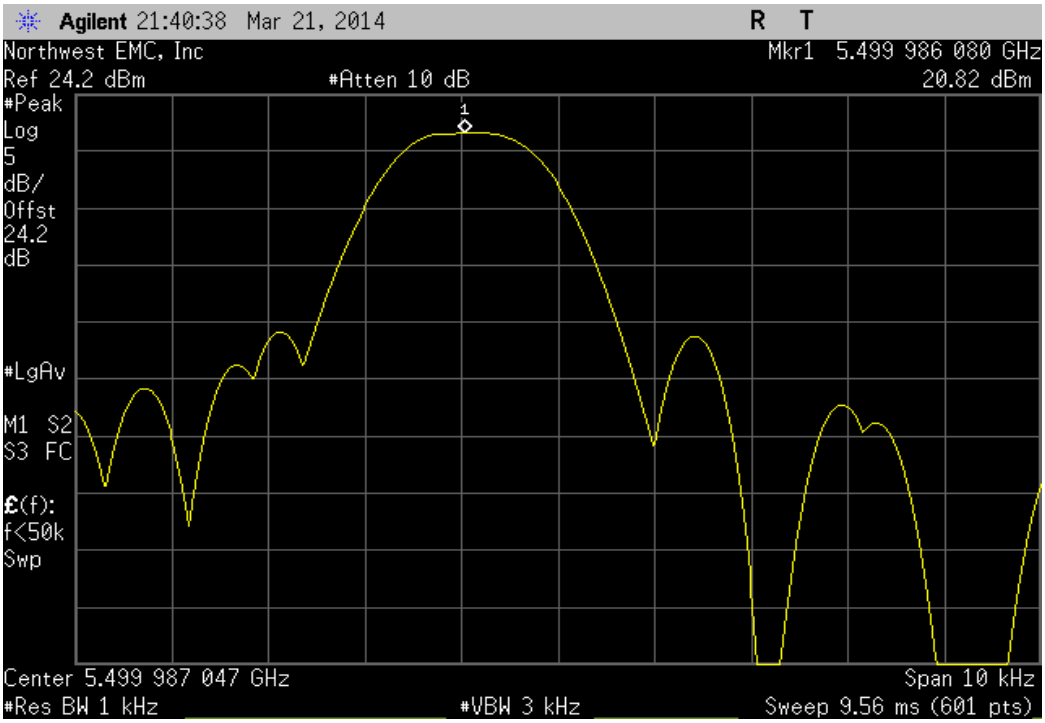
Ch. 64, High Channel 5320 MHz, Temperature: +10°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5319.999021	5320	0.2	100	Pass



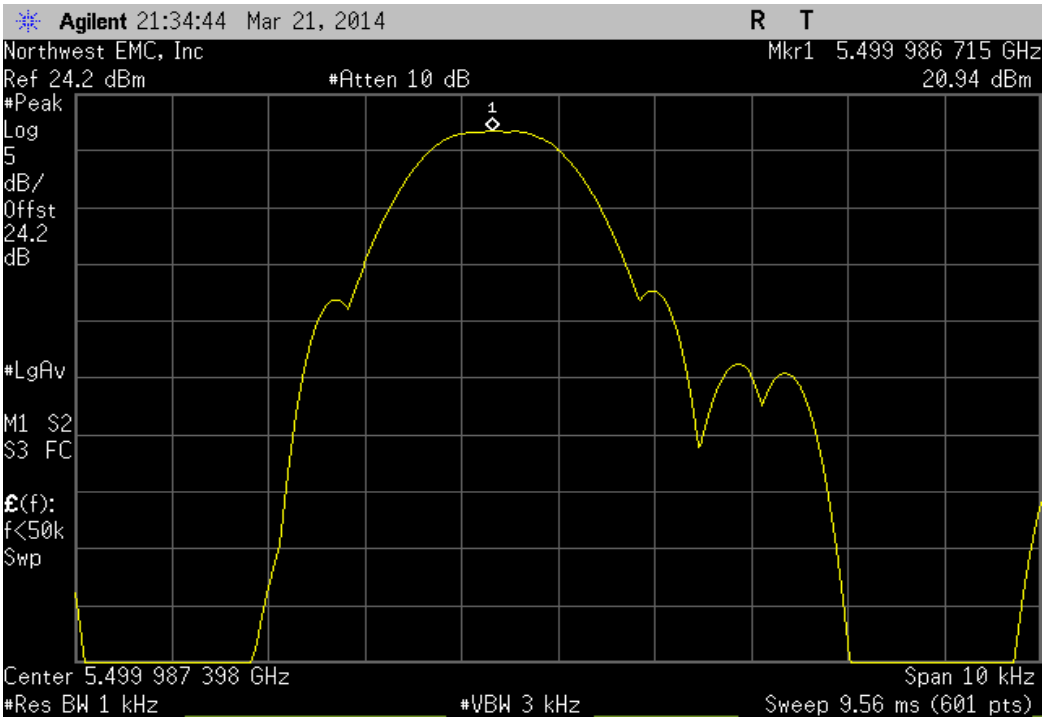
Ch. 64, High Channel 5320 MHz, Temperature: 0°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5320.008278	5320	1.6	100	Pass



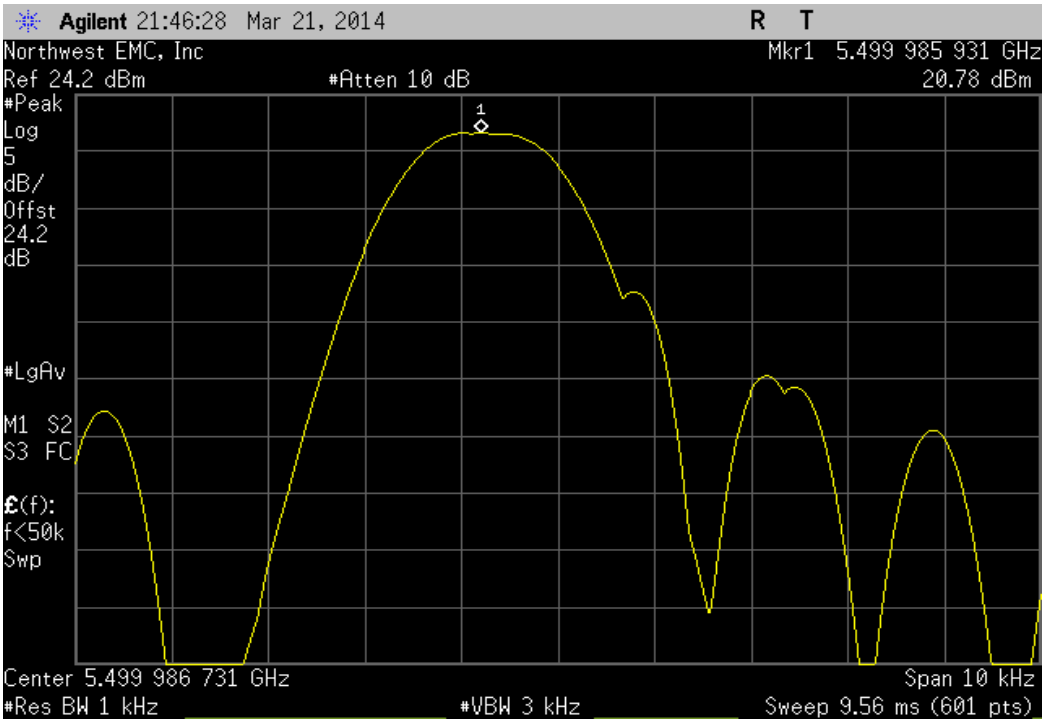
Ch. 100, Low Channel 5500 MHz, Voltage: 115%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5499.98608	5500	2.5	100	Pass



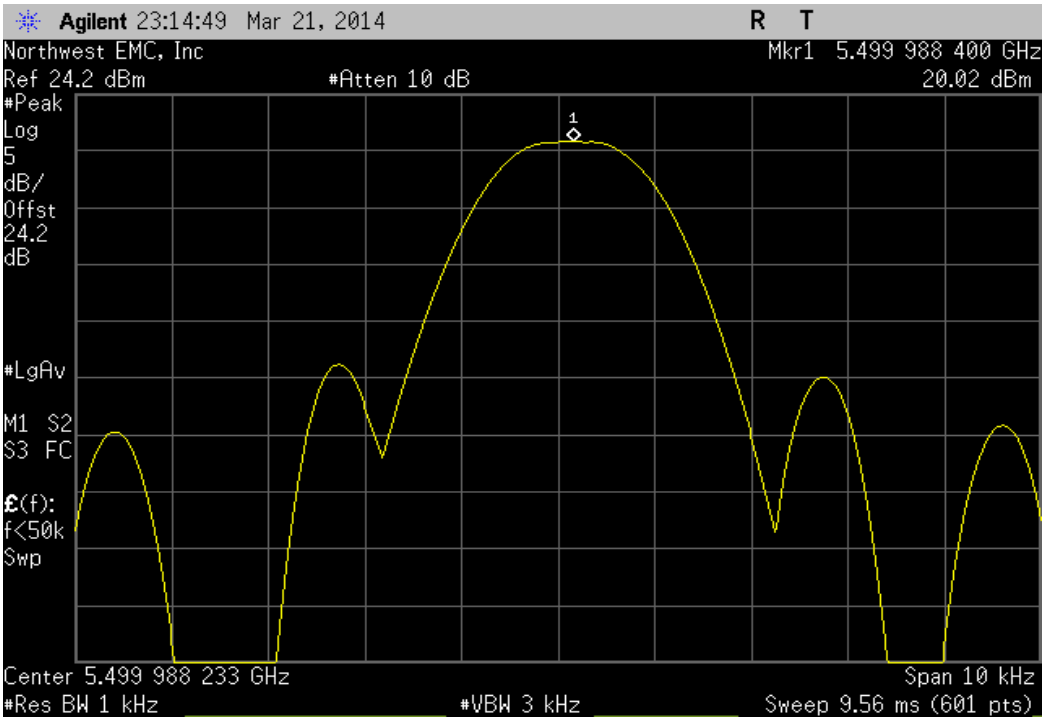
Ch. 100, Low Channel 5500 MHz, Voltage: 100%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5499.986715	5500	2.4	100	Pass



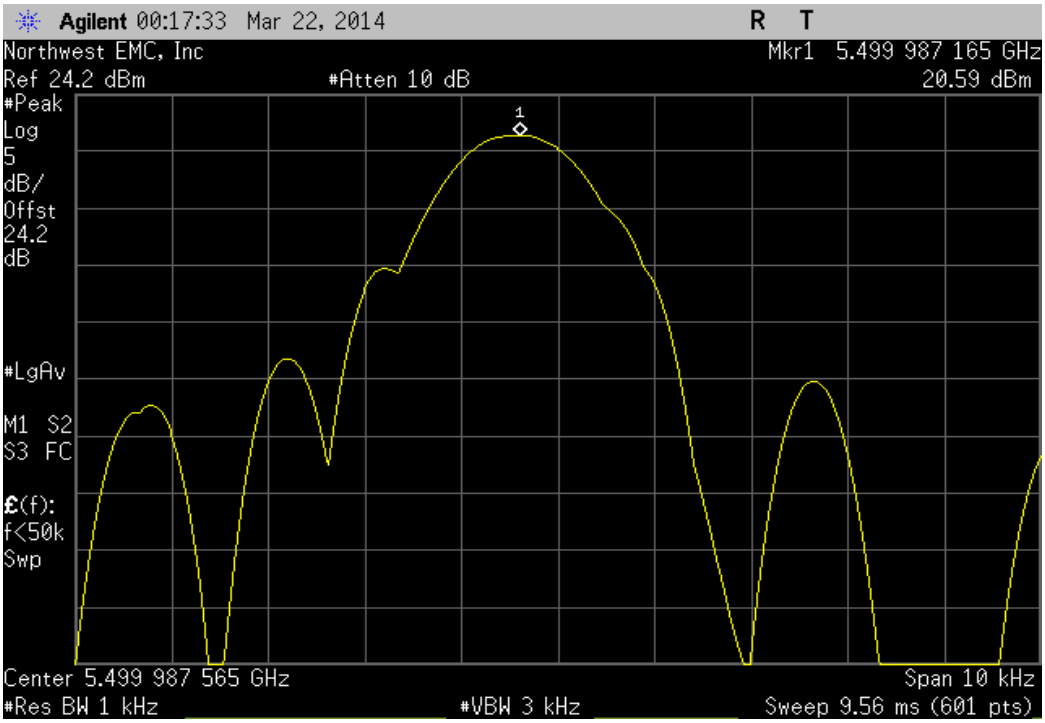
Ch. 100, Low Channel 5500 MHz, Voltage: 85%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5499.985931	5500	2.6	100	Pass



Ch. 100, Low Channel 5500 MHz, Temperature: +40°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5499.9884	5500	2.1	100	Pass

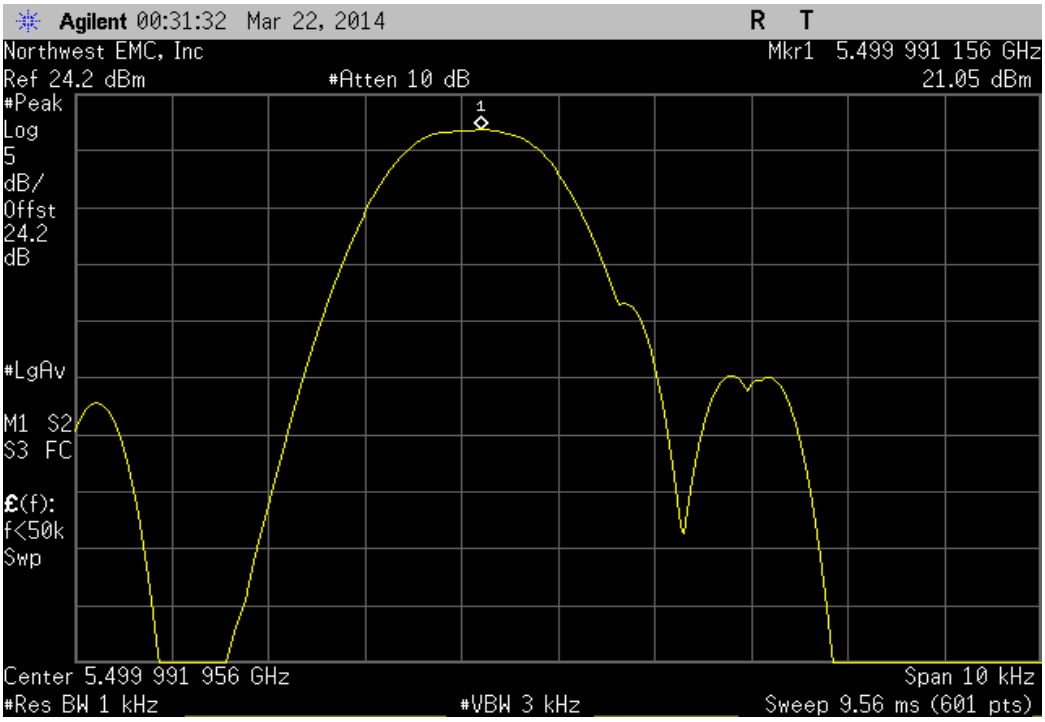


Ch. 100, Low Channel 5500 MHz, Temperature: +30°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5499.987165	5500	2.3	100	Pass

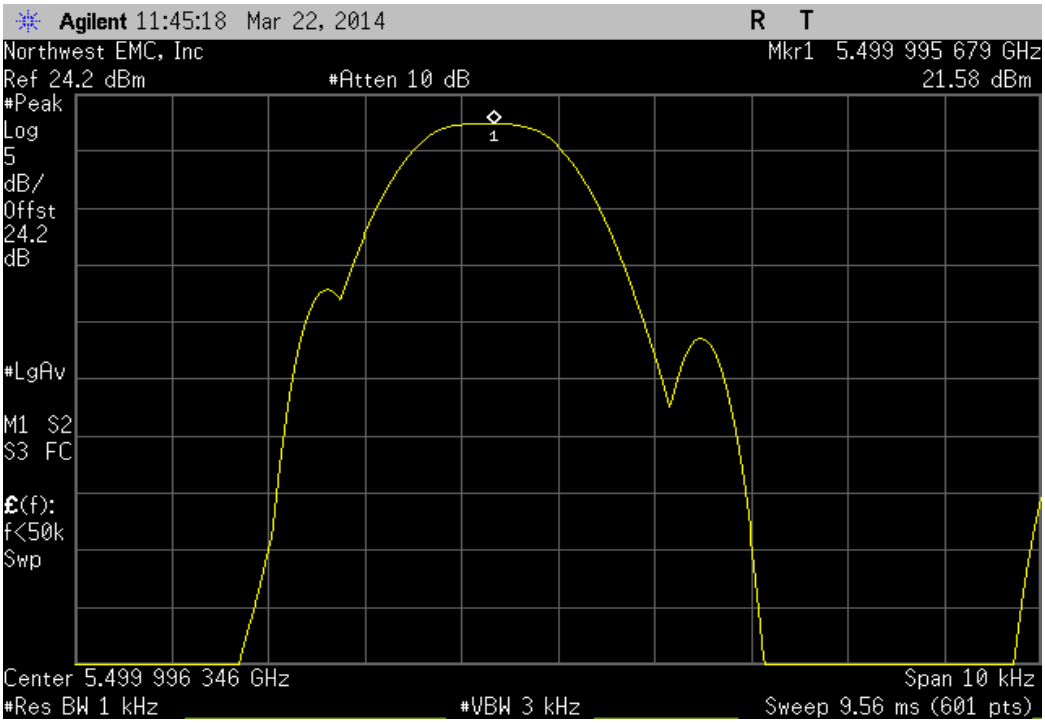


FREQUENCY STABILITY

Ch. 100, Low Channel 5500 MHz, Temperature: +20°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5499.991156	5500	1.6	100	Pass

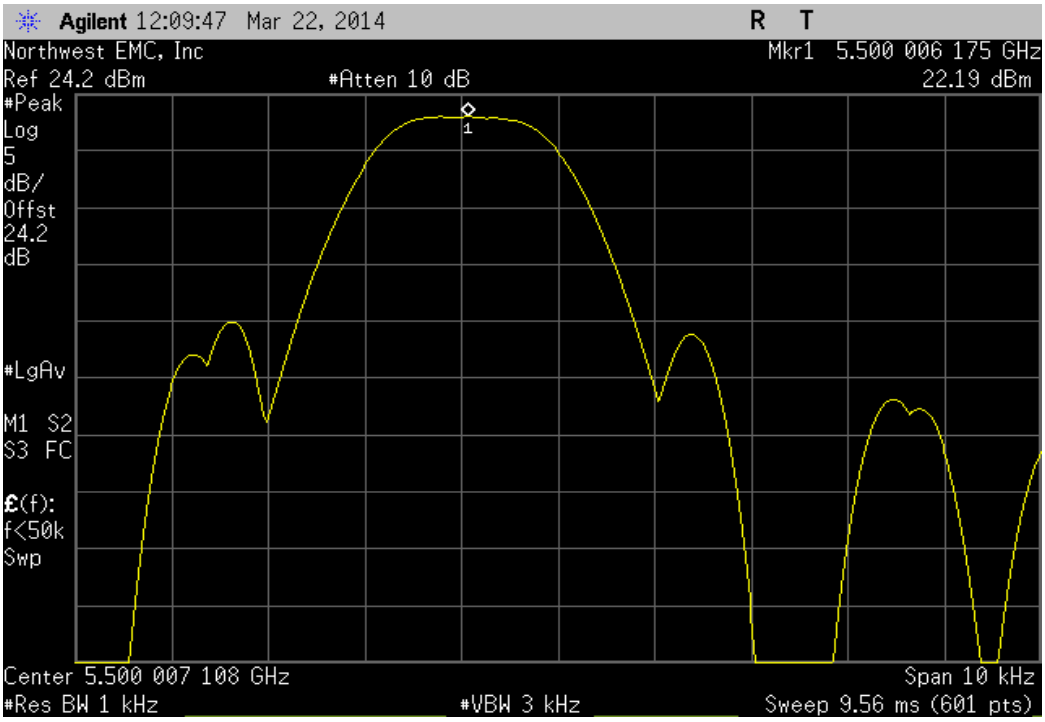


Ch. 100, Low Channel 5500 MHz, Temperature: +10°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5499.995679	5500	0.8	100	Pass

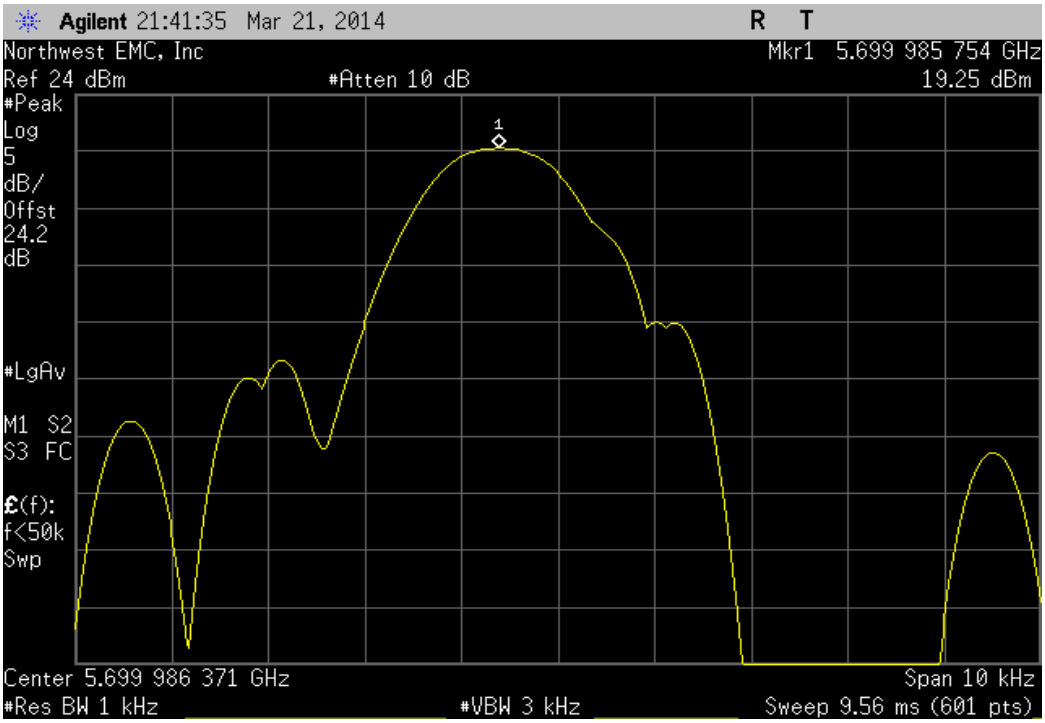


FREQUENCY STABILITY

Ch. 100, Low Channel 5500 MHz, Temperature: 0°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5500.006175	5500	1.1	100	Pass

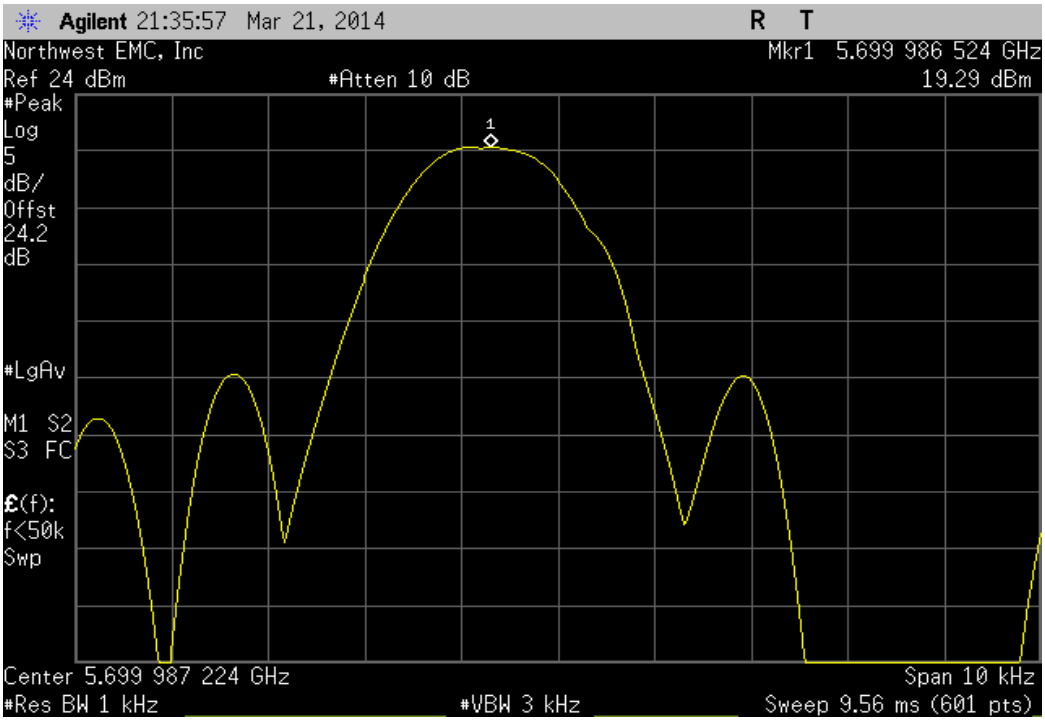


Ch. 140, High Channel 5700 MHz, Voltage: 115%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5699.985754	5700	2.5	100	Pass

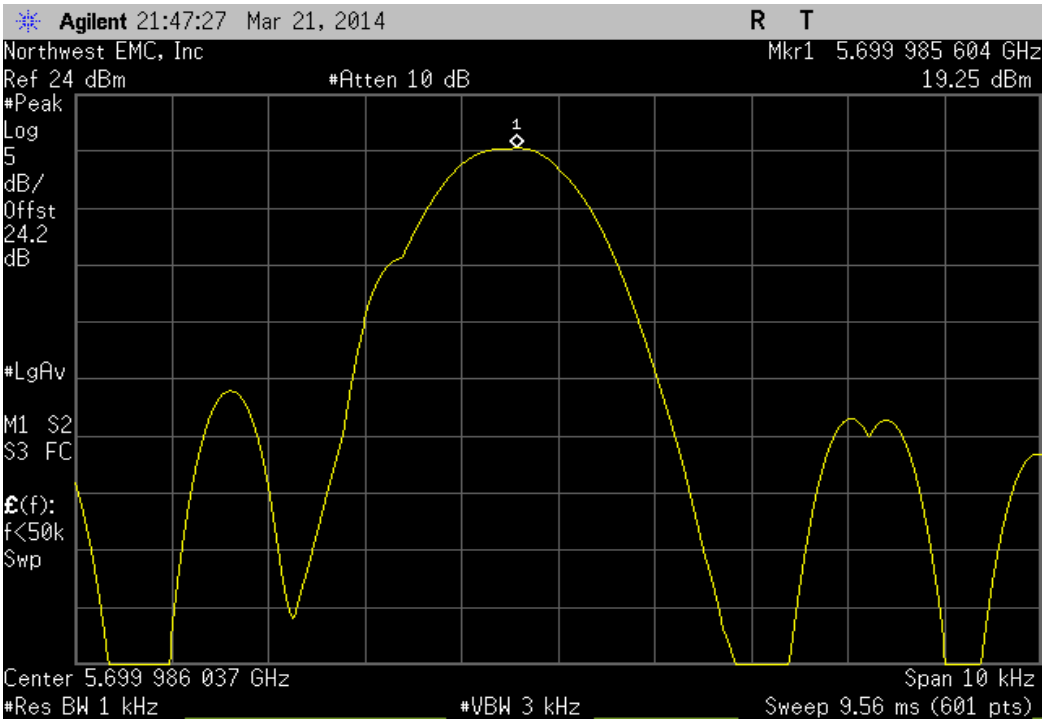


FREQUENCY STABILITY

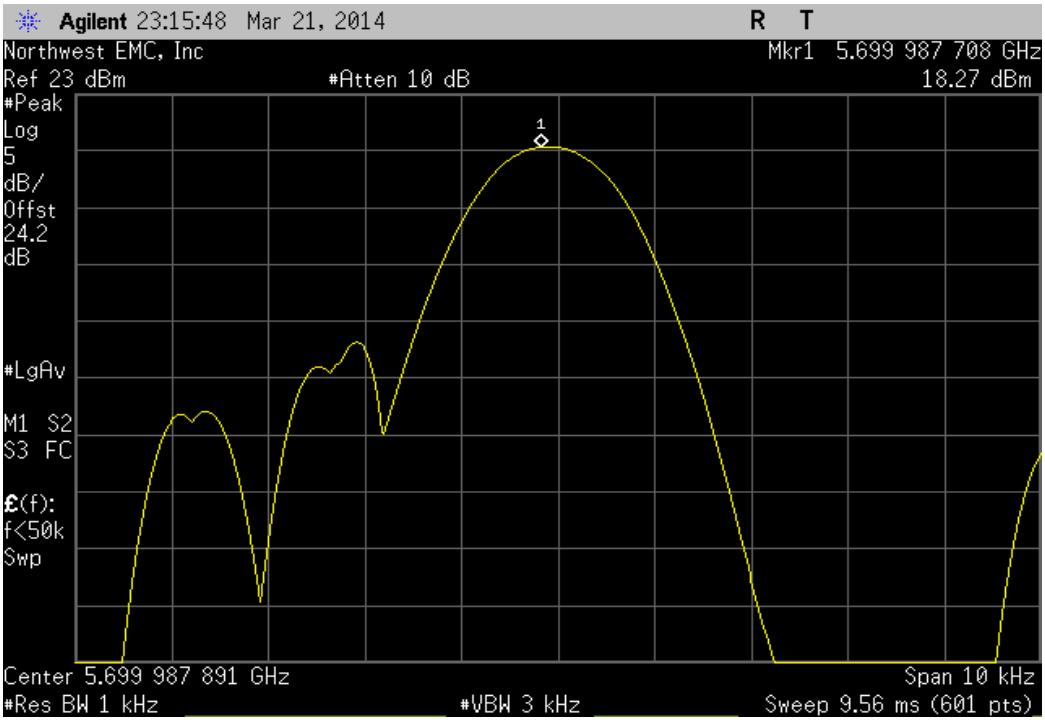
Ch. 140, High Channel 5700 MHz, Voltage: 100%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5699.986524	5700	2.4	100	Pass



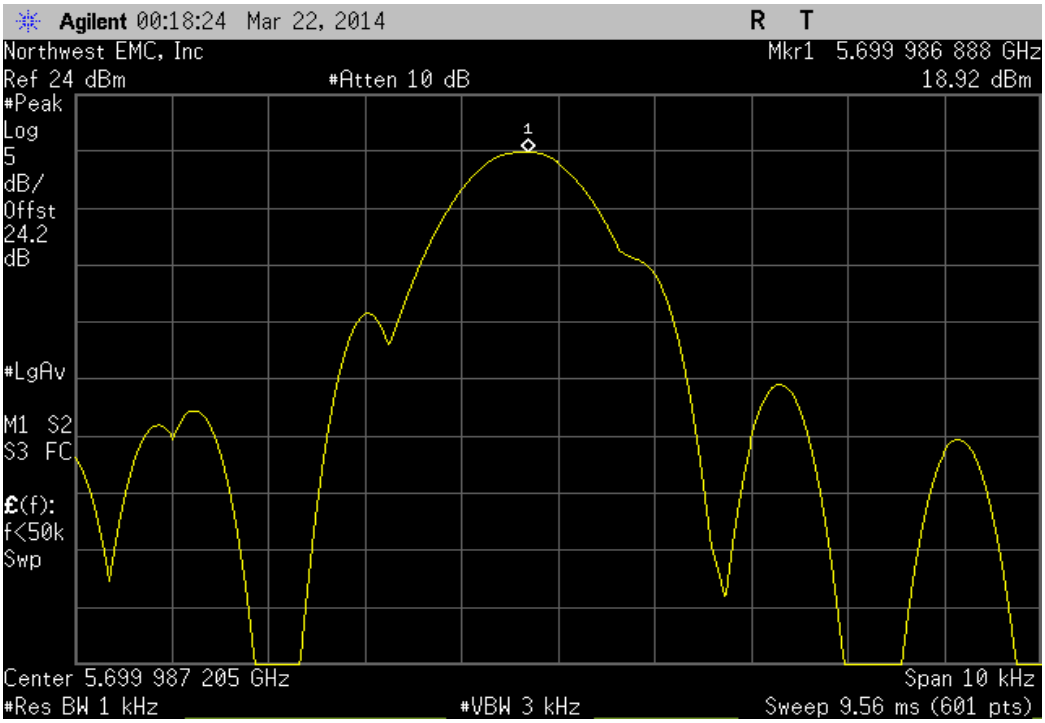
Ch. 140, High Channel 5700 MHz, Voltage: 85%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5699.985604	5700	2.5	100	Pass



Ch. 140, High Channel 5700 MHz, Temperature: +40°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5699.987708	5700	2.2	100	Pass

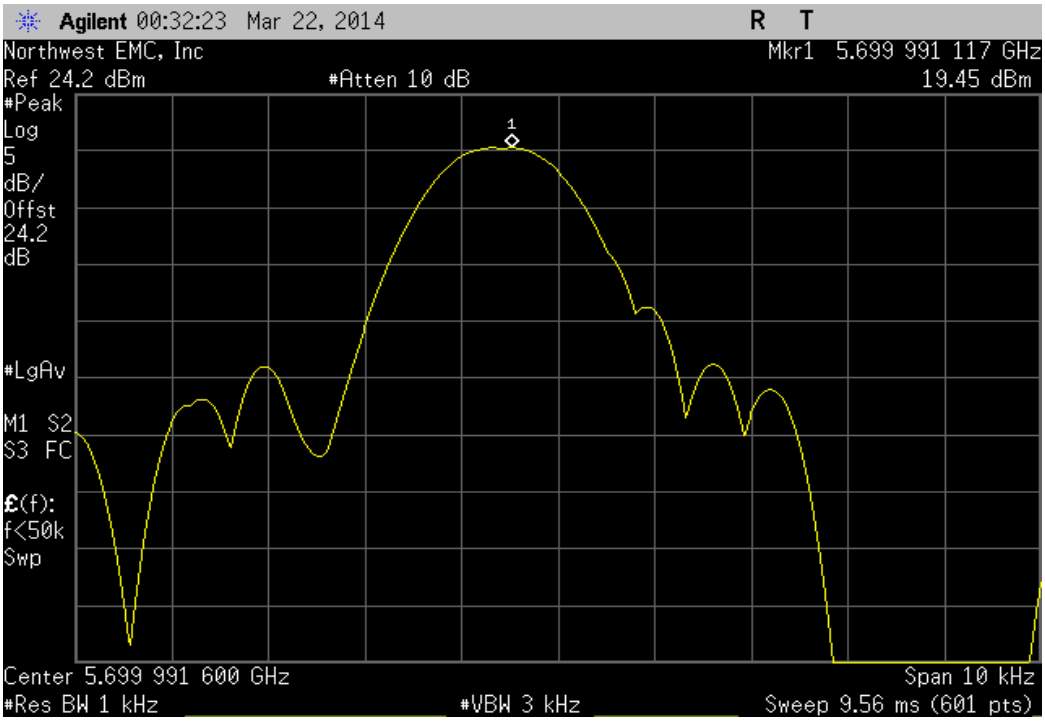


Ch. 140, High Channel 5700 MHz, Temperature: +30°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5699.986888	5700	2.3	100	Pass

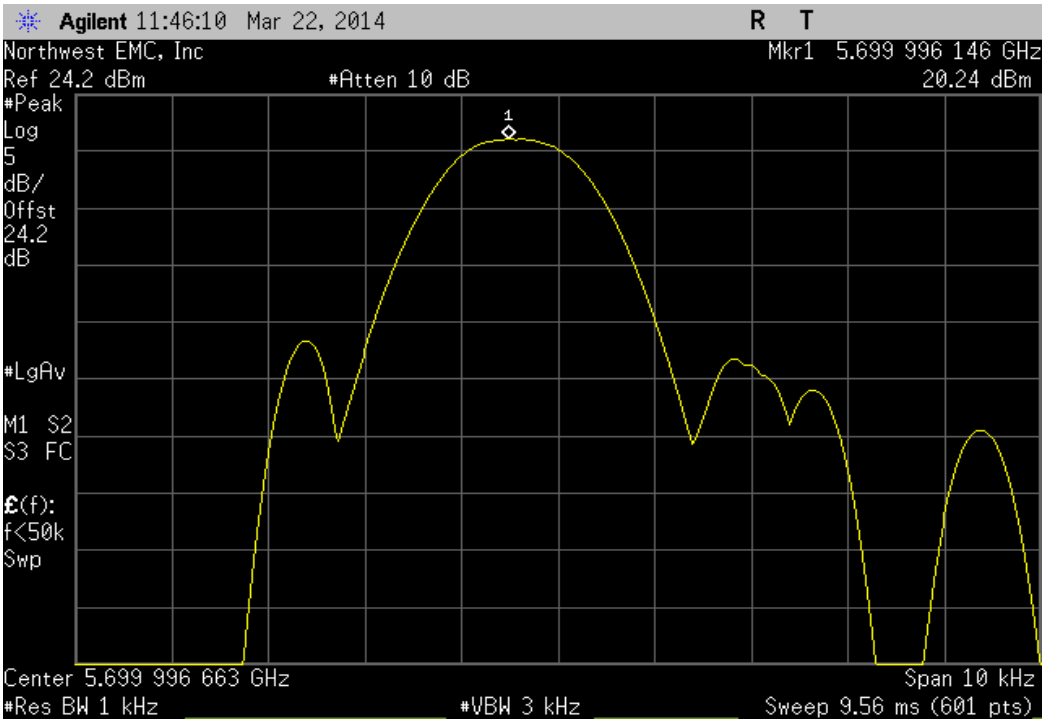


FREQUENCY STABILITY

Ch. 140, High Channel 5700 MHz, Temperature: +20°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5699.991117	5700	1.6	100	Pass

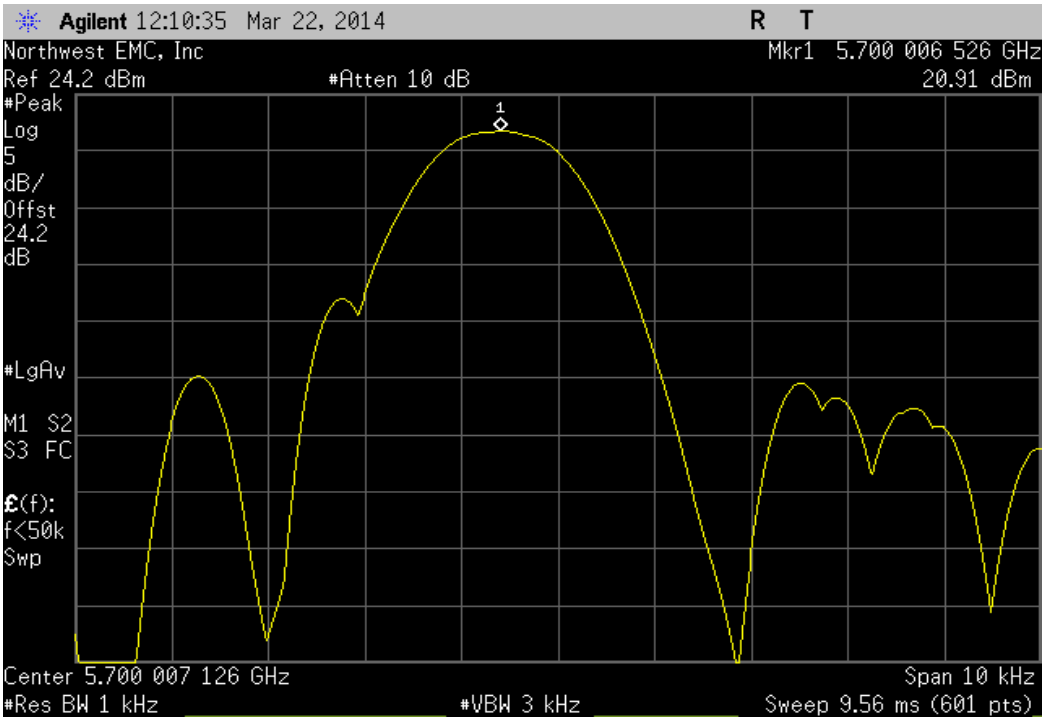


Ch. 140, High Channel 5700 MHz, Temperature: +10°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5699.996146	5700	0.7	100	Pass

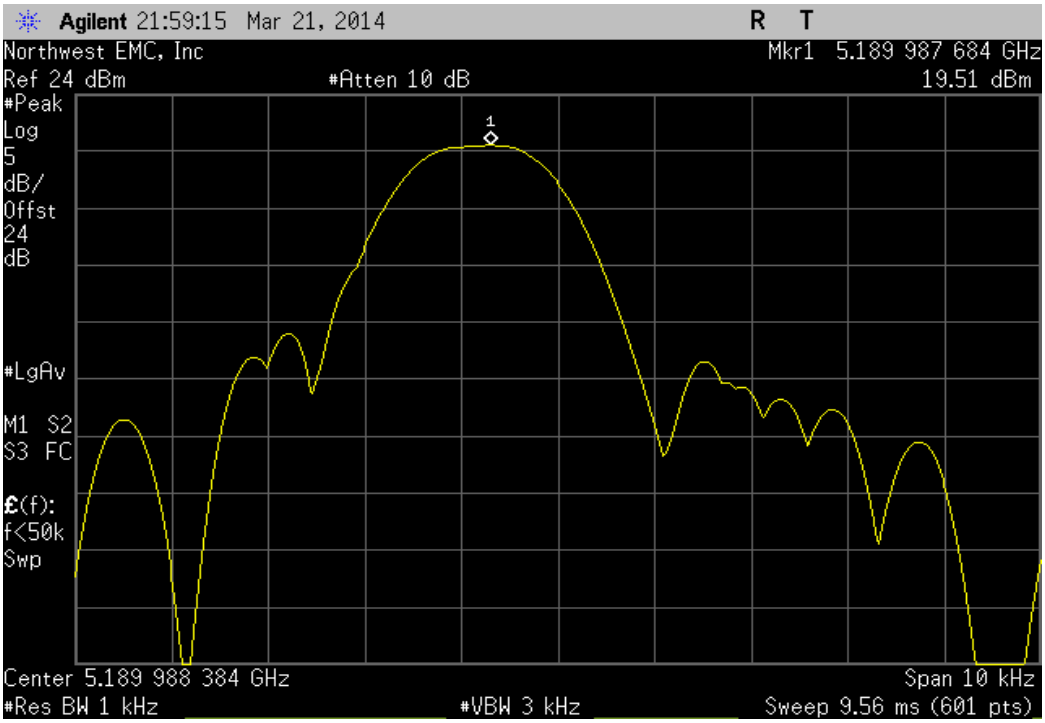


FREQUENCY STABILITY

Ch. 140, High Channel 5700 MHz, Temperature: 0°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5700.006526	5700	1.1	100	Pass

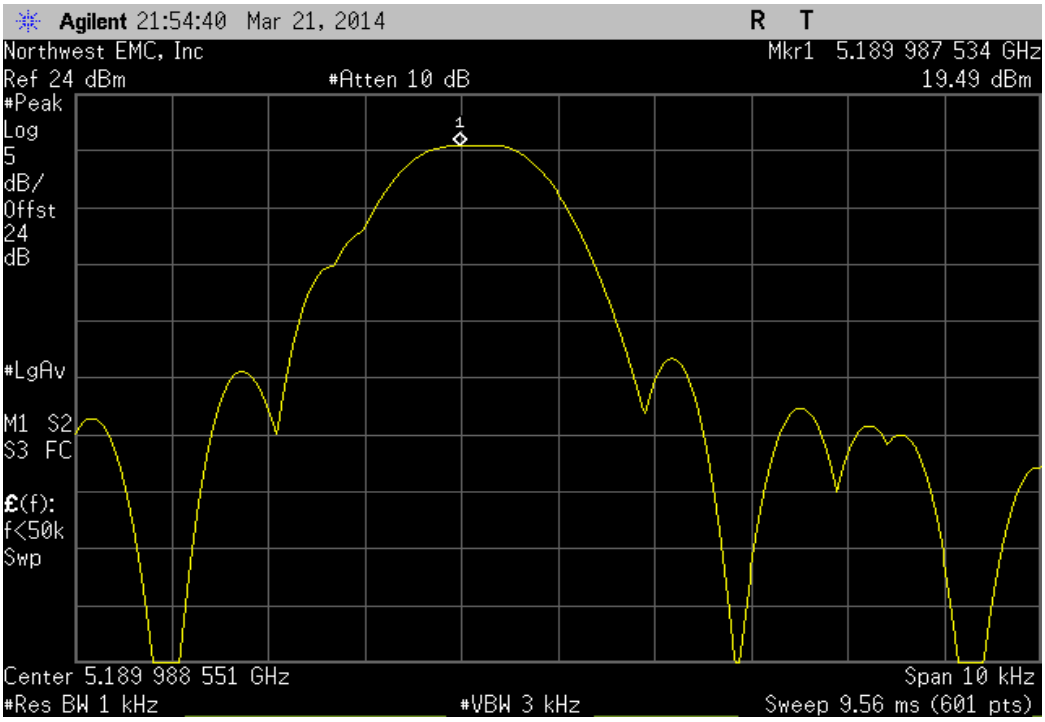


Ch. 36/40, Low Channel 5190 MHz, Voltage: 115%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5189.987684	5190	2.4	100	Pass

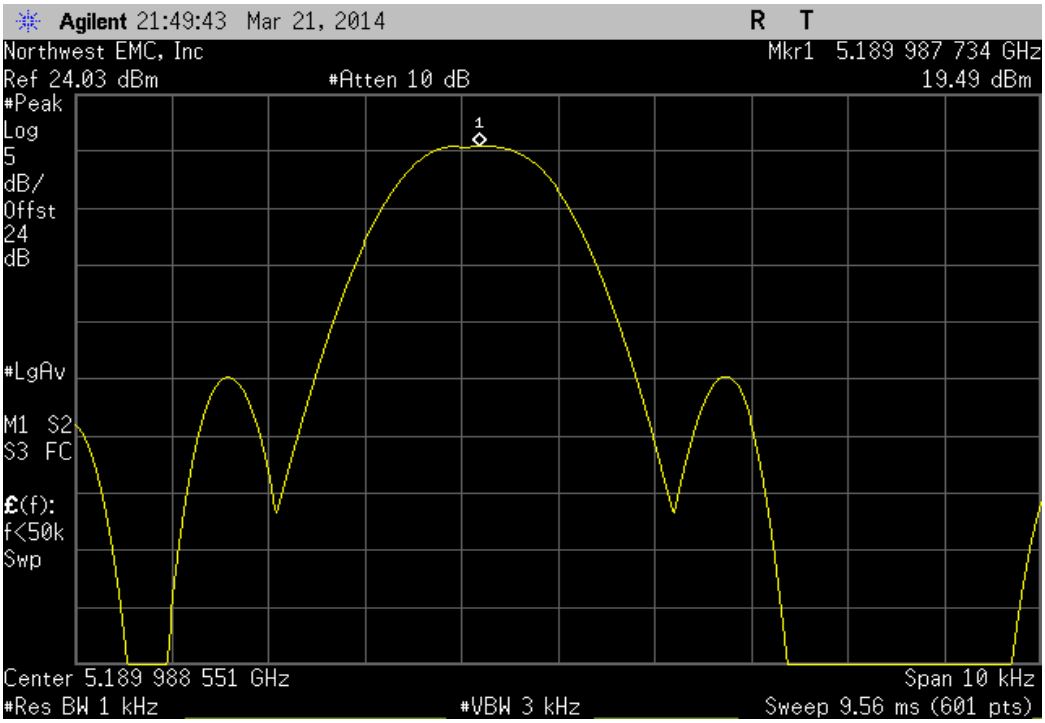


FREQUENCY STABILITY

Ch. 36/40, Low Channel 5190 MHz, Voltage: 100%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5189.987534	5190	2.4	100	Pass

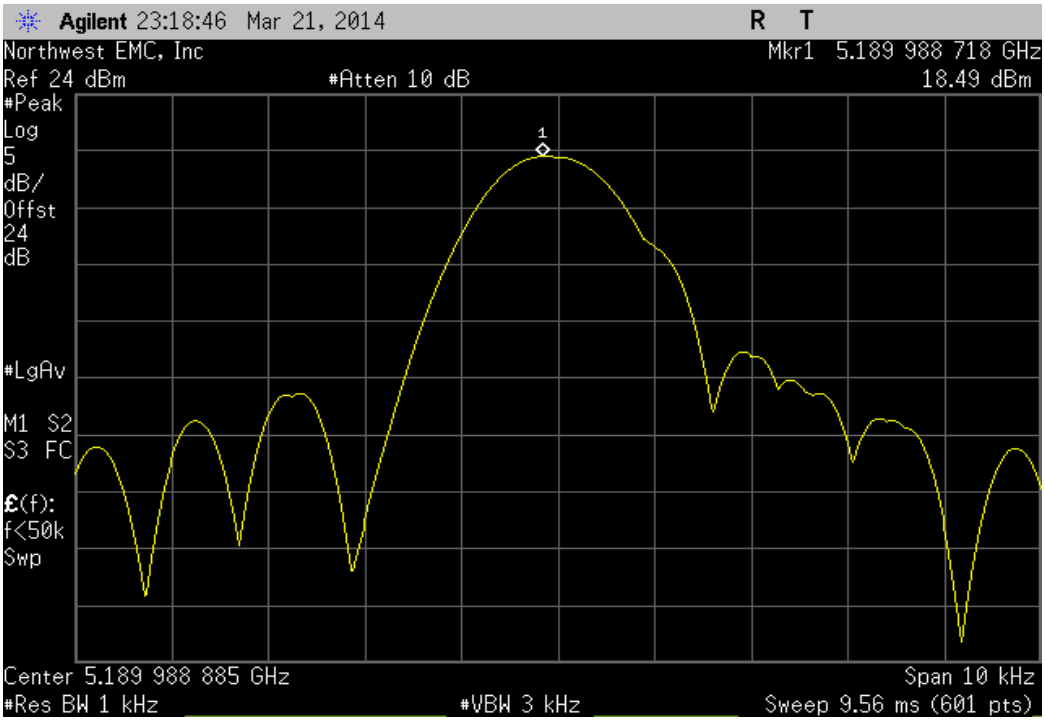


Ch. 36/40, Low Channel 5190 MHz, Voltage: 85%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5189.987734	5190	2.4	100	Pass

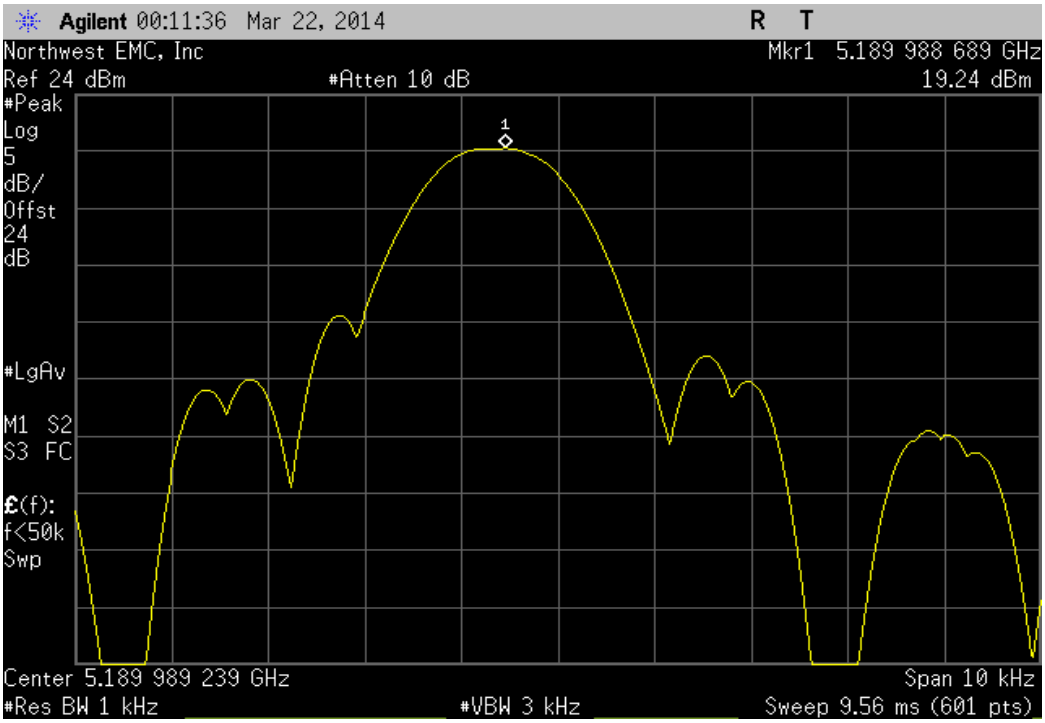


FREQUENCY STABILITY

Ch. 36/40, Low Channel 5190 MHz, Temperature: +40°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5189.988718	5190	2.2	100	Pass

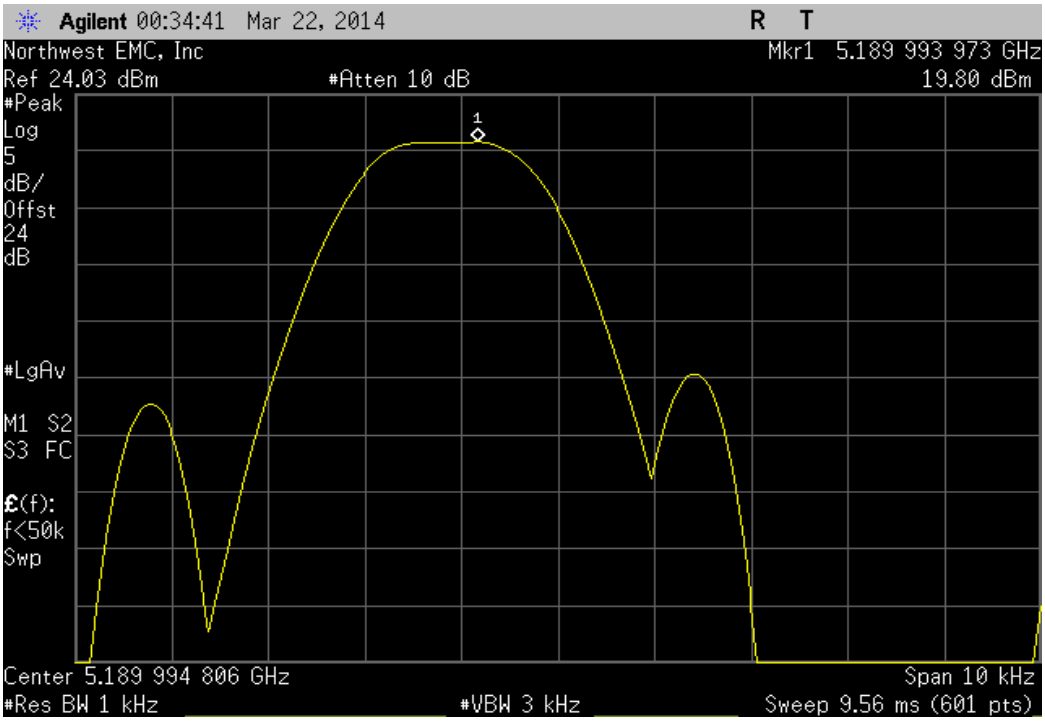


Ch. 36/40, Low Channel 5190 MHz, Temperature: +30°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5189.988689	5190	2.2	100	Pass

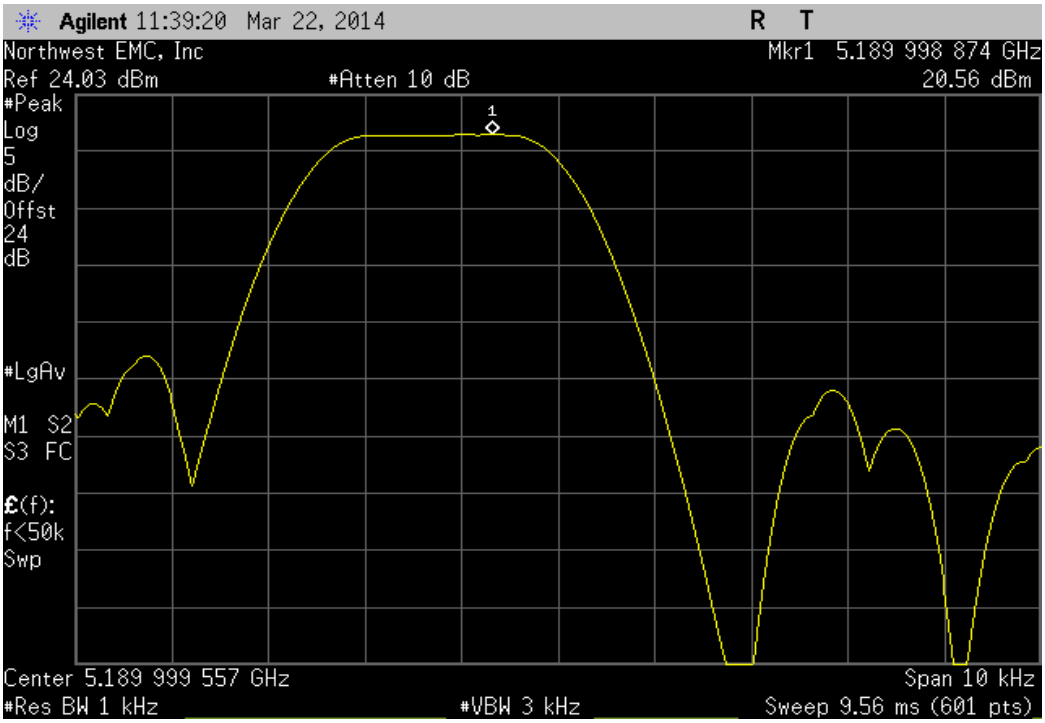


FREQUENCY STABILITY

Ch. 36/40, Low Channel 5190 MHz, Temperature: +20°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5189.993973	5190	1.2	100	Pass

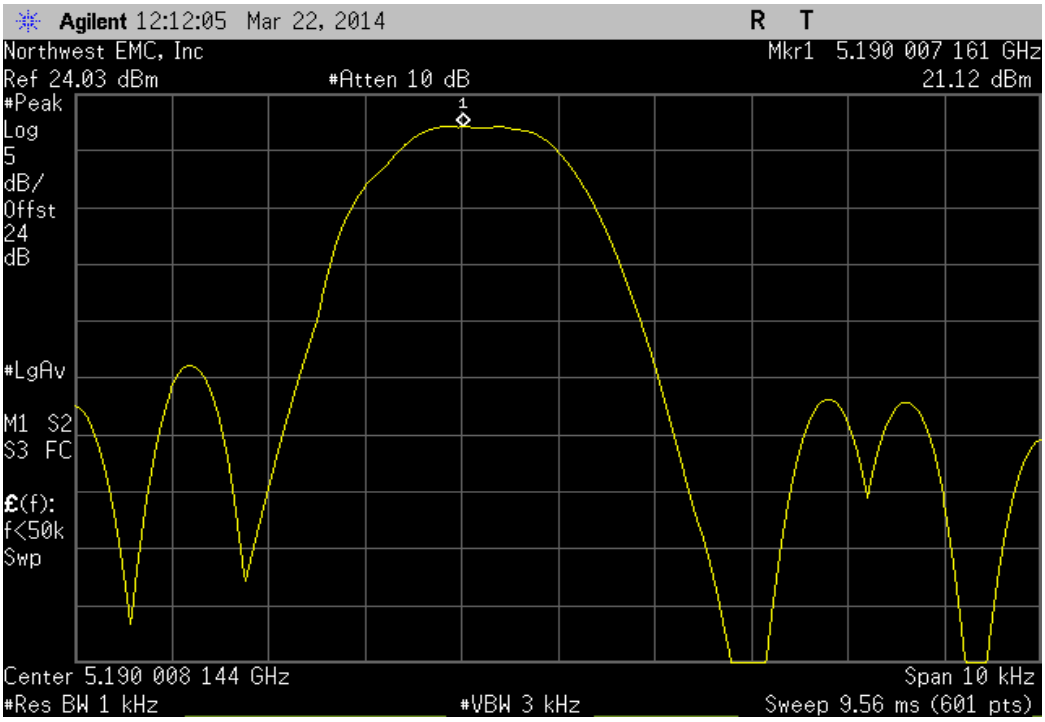


Ch. 36/40, Low Channel 5190 MHz, Temperature: +10°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5189.998874	5190	0.2	100	Pass

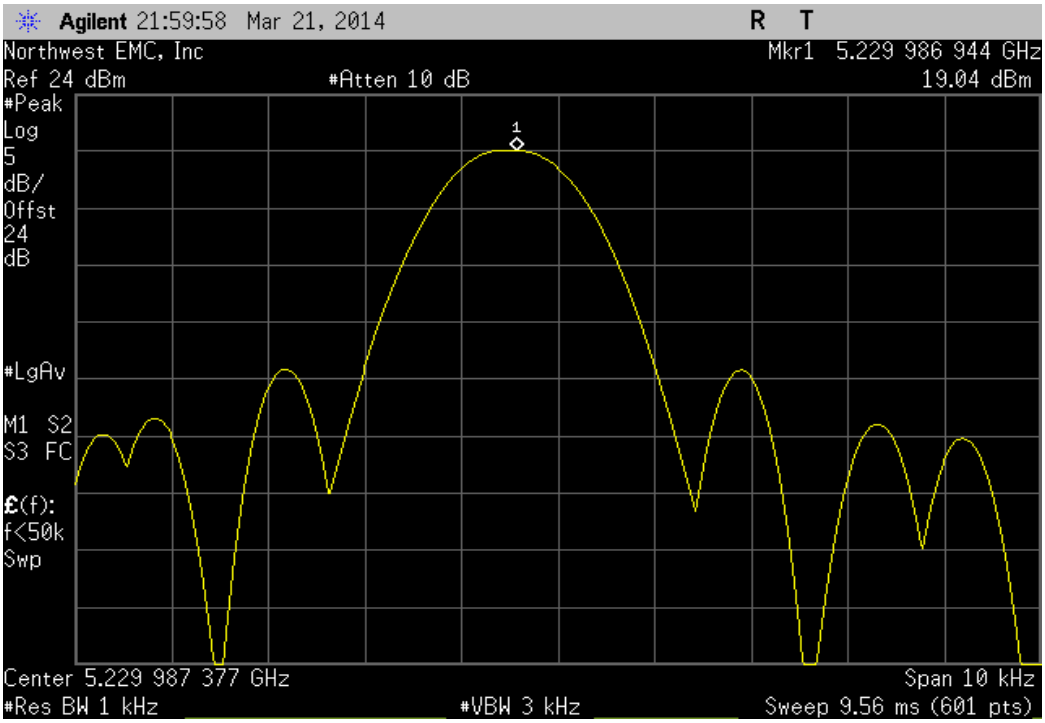


FREQUENCY STABILITY

Ch. 36/40, Low Channel 5190 MHz, Temperature: 0°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5190.007161	5190	1.4	100	Pass

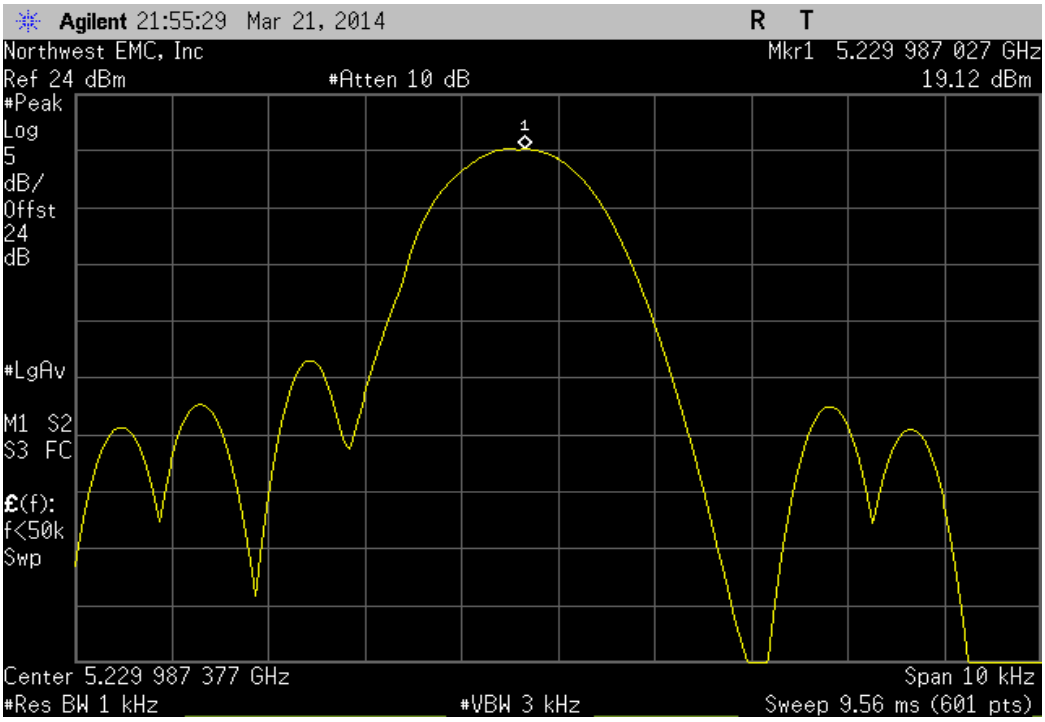


Ch. 44/48, High Channel 5230 MHz, Voltage: 115%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5229.986944	5230	2.5	100	Pass

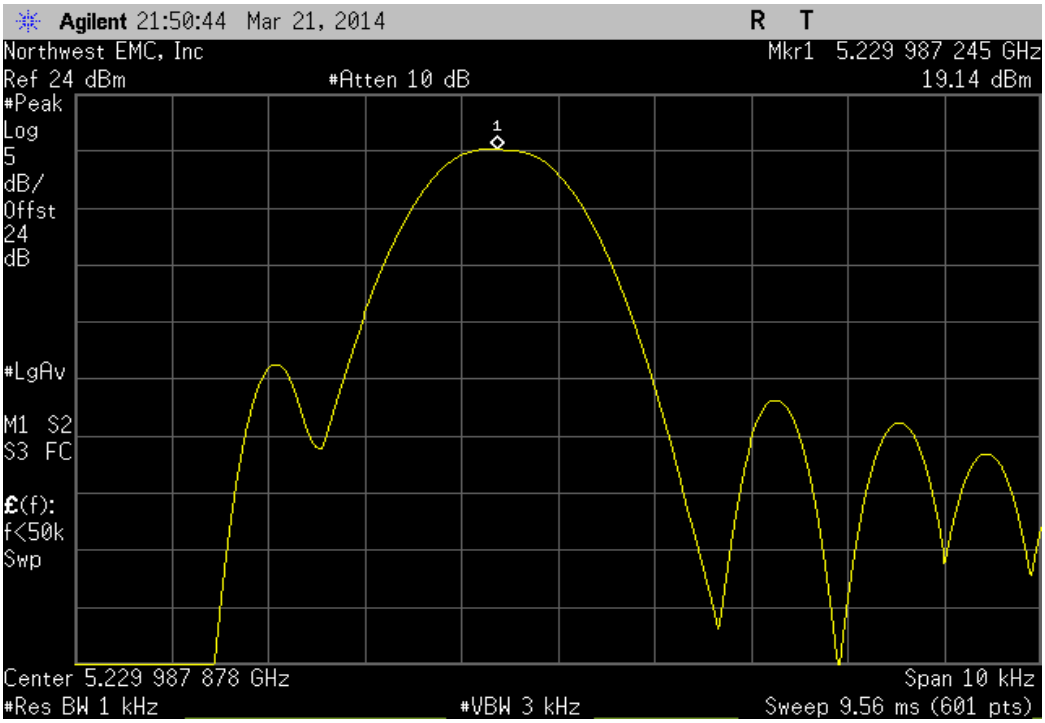


FREQUENCY STABILITY

Ch. 44/48, High Channel 5230 MHz, Voltage: 100%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5229.987027	5230	2.5	100	Pass

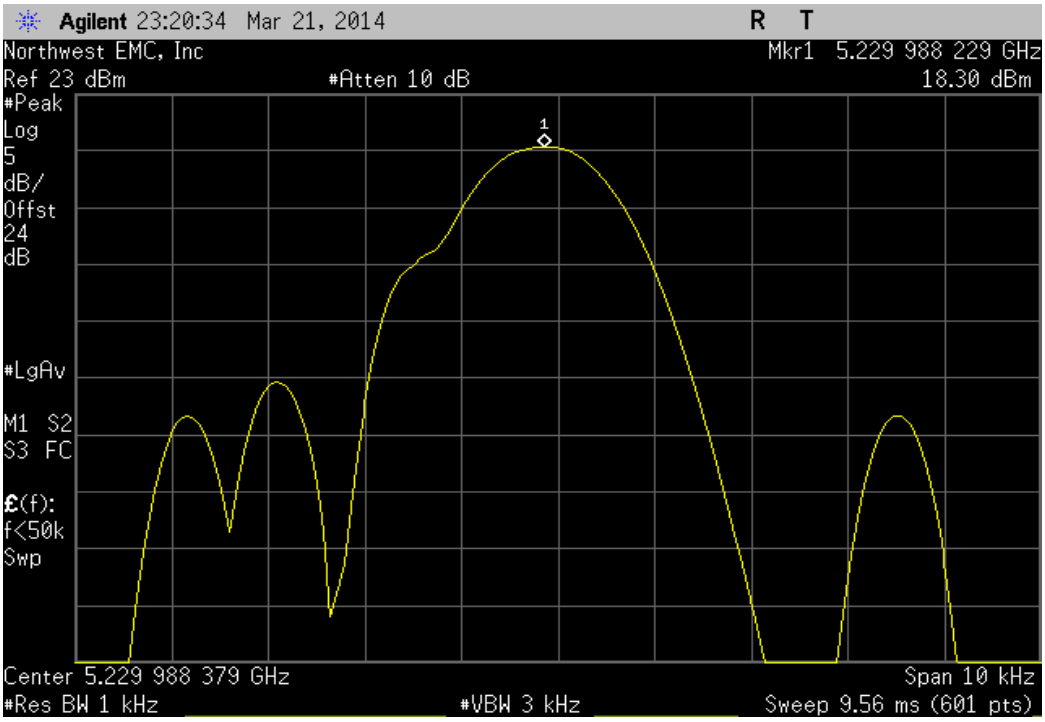


Ch. 44/48, High Channel 5230 MHz, Voltage: 85%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5229.987245	5230	2.4	100	Pass

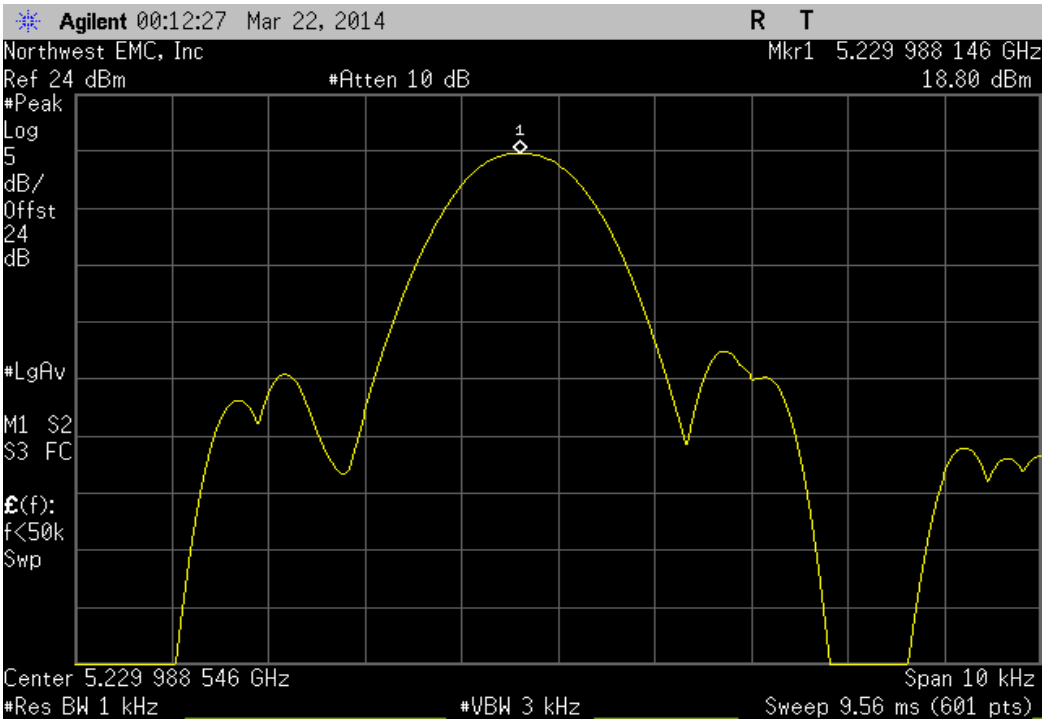


FREQUENCY STABILITY

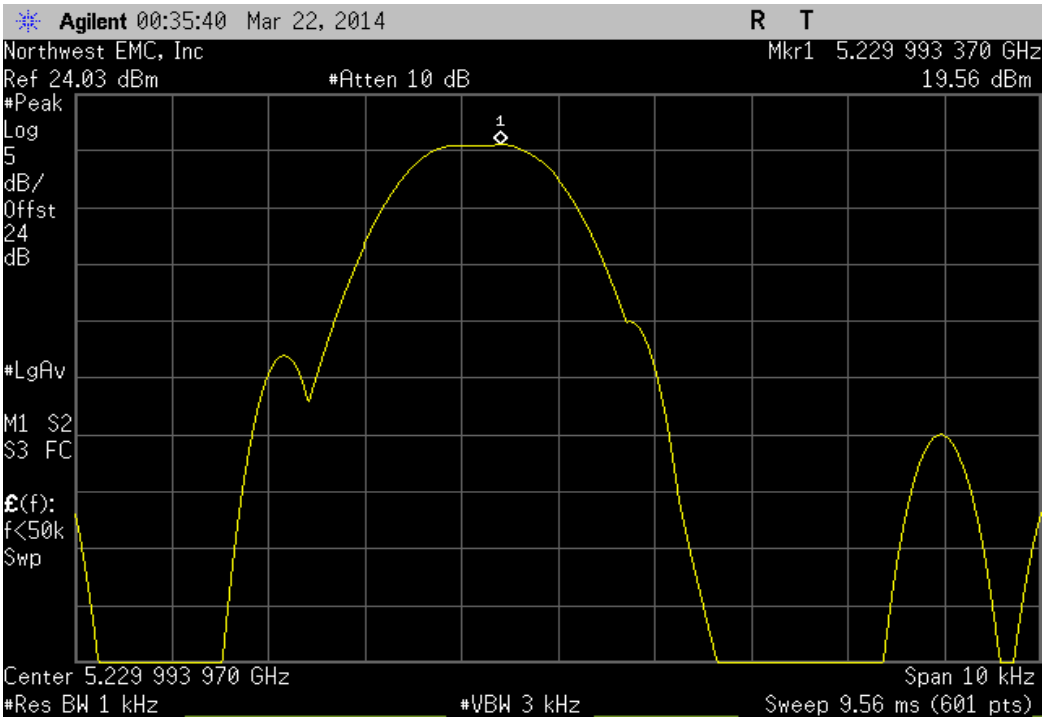
Ch. 44/48, High Channel 5230 MHz, Temperature: +40°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5229.988229	5230	2.3	100	Pass



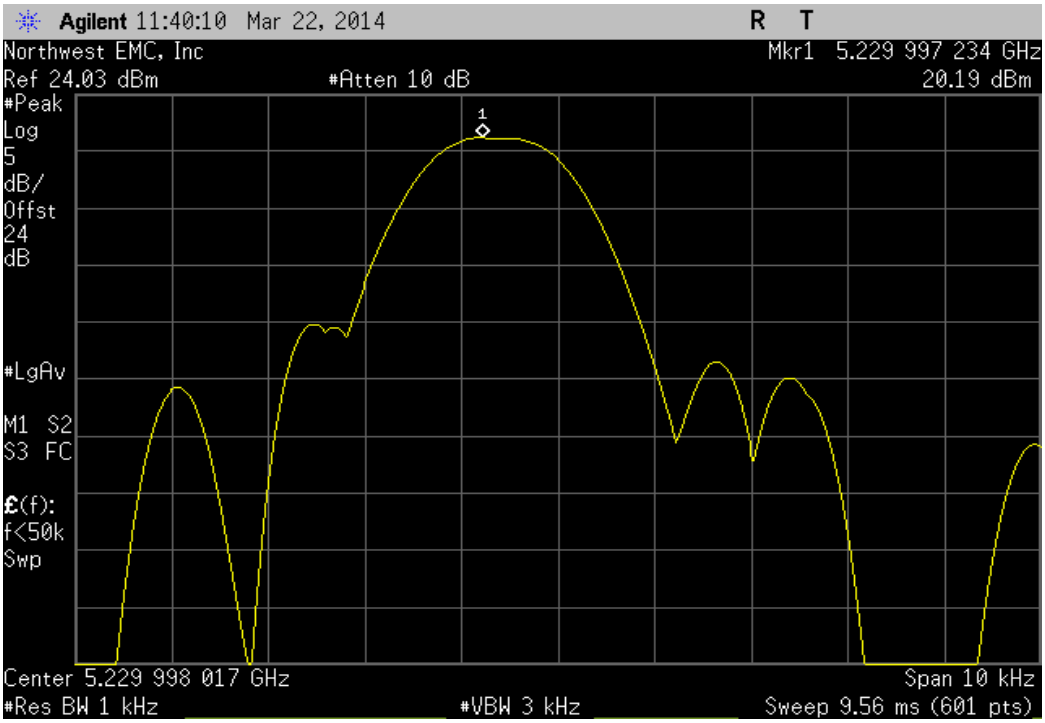
Ch. 44/48, High Channel 5230 MHz, Temperature: +30°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5229.988146	5230	2.3	100	Pass



Ch. 44/48, High Channel 5230 MHz, Temperature: +20°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5229.99337	5230	1.3	100	Pass

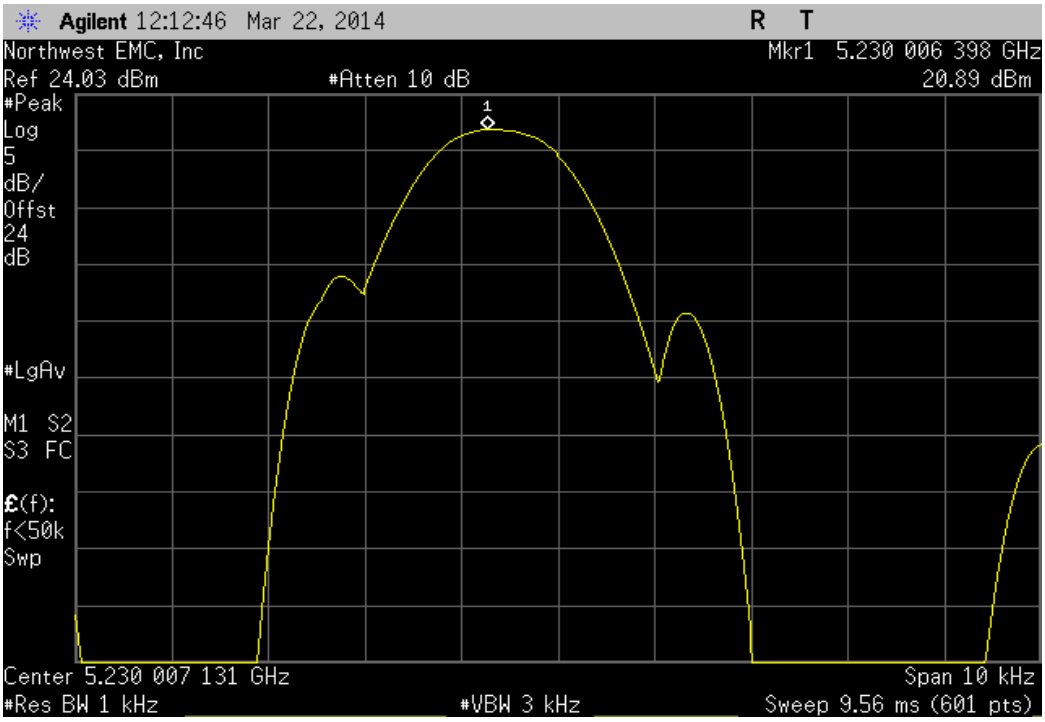


Ch. 44/48, High Channel 5230 MHz, Temperature: +10°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5229.997234	5230	0.5	100	Pass

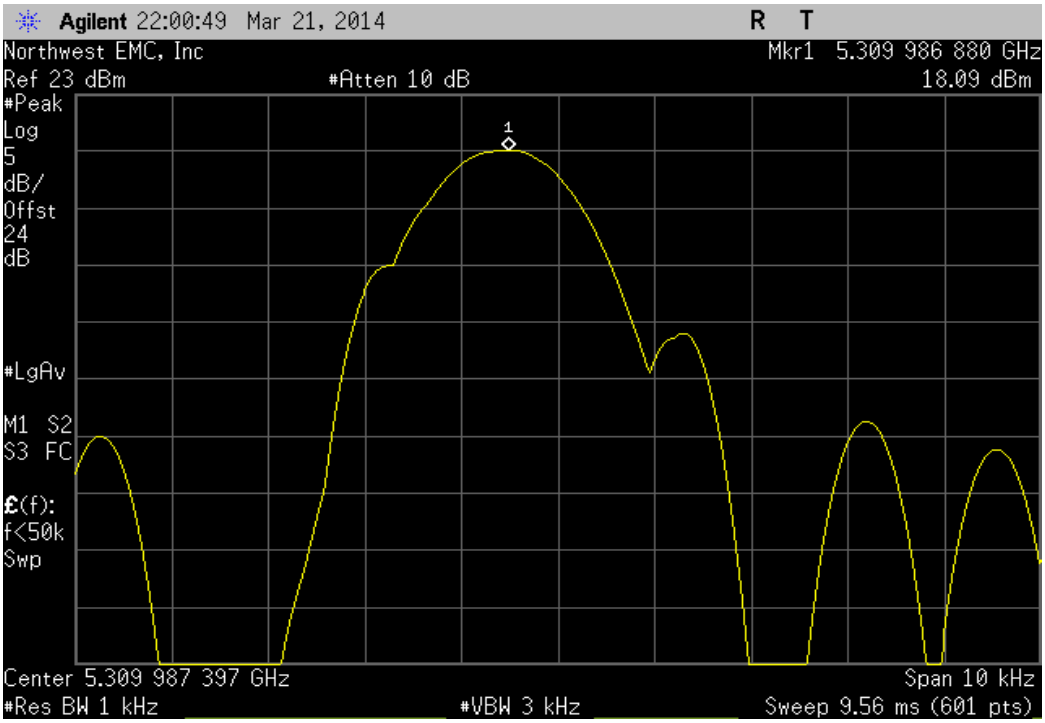


FREQUENCY STABILITY

Ch. 44/48, High Channel 5230 MHz, Temperature: 0°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5230.006398	5230	1.2	100	Pass

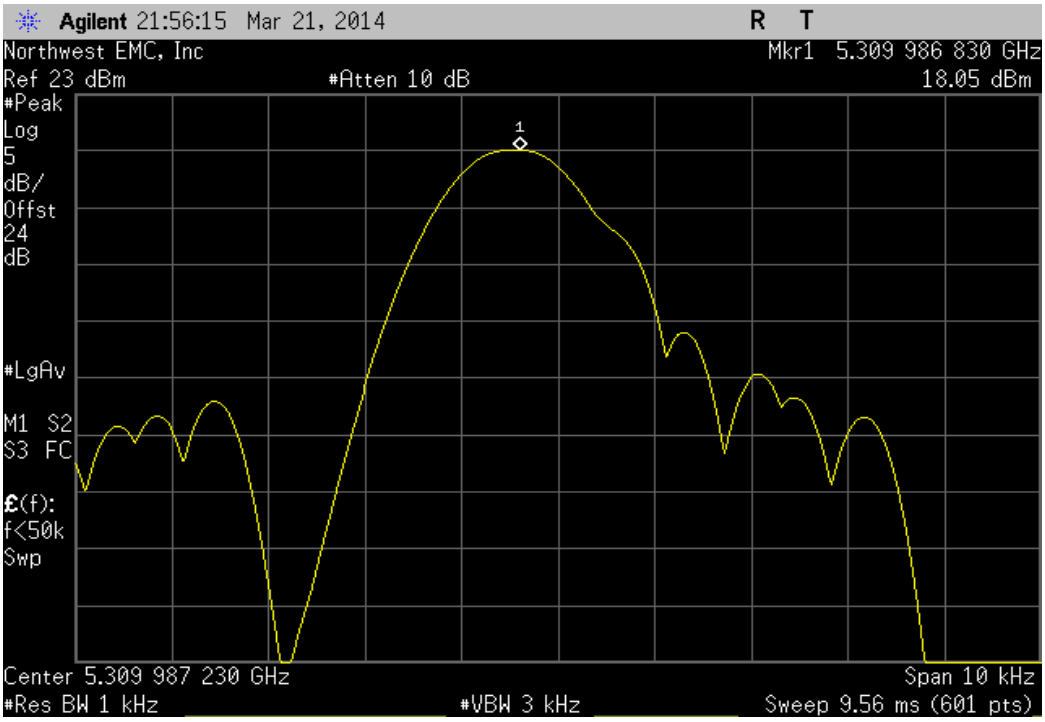


Ch. 52/56, High Channel 5310 MHz, Voltage: 115%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5309.98688	5310	2.5	100	Pass

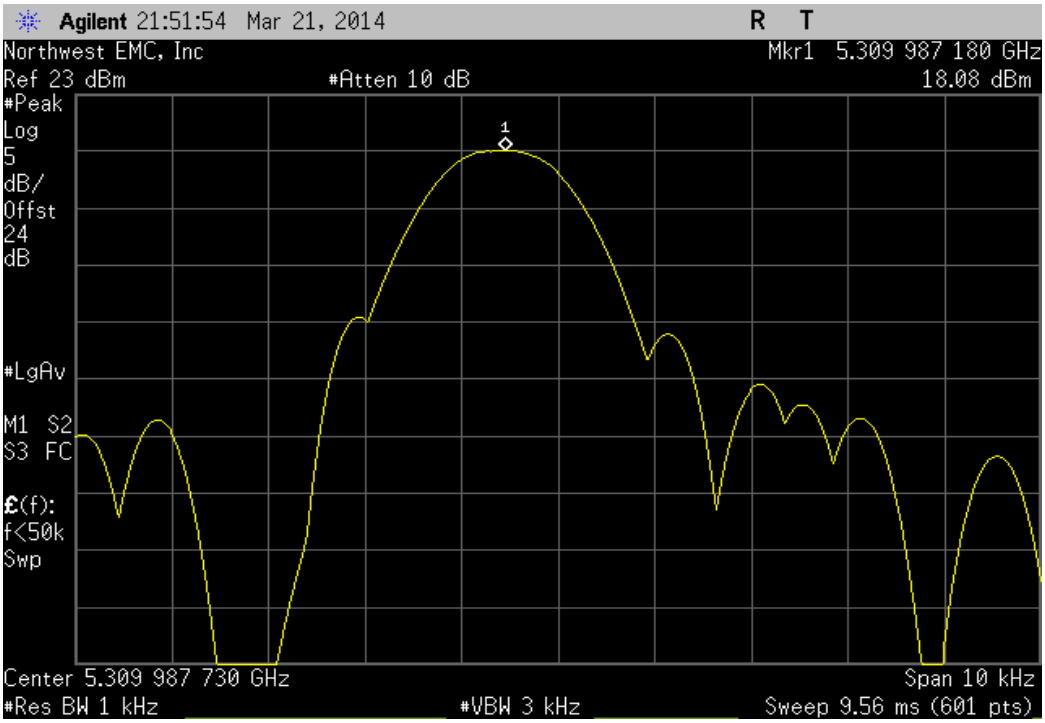


FREQUENCY STABILITY

Ch. 52/56, High Channel 5310 MHz, Voltage: 100%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5309.98683	5310	2.5	100	Pass

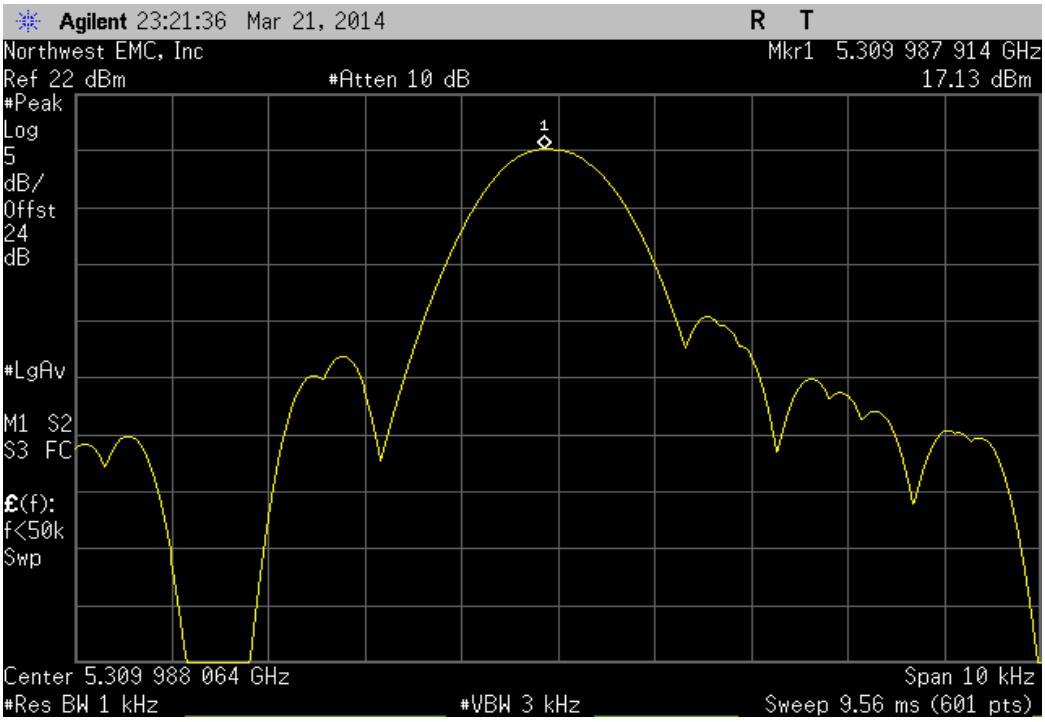


Ch. 52/56, High Channel 5310 MHz, Voltage: 85%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5309.98718	5310	2.4	100	Pass

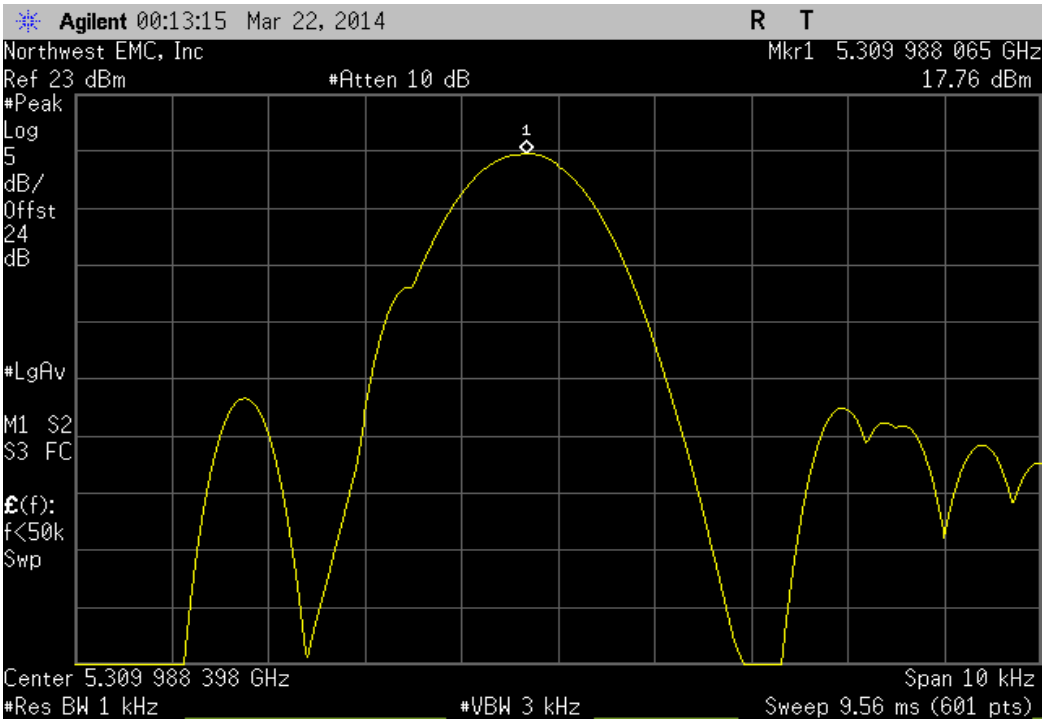


FREQUENCY STABILITY

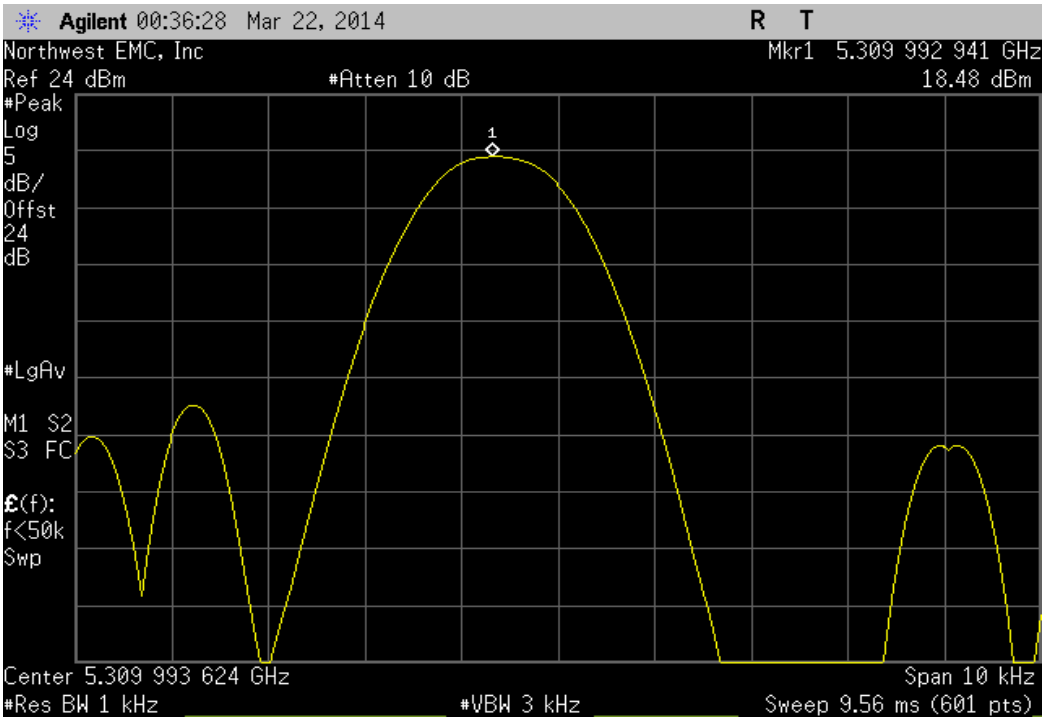
Ch. 52/56, High Channel 5310 MHz, Temperature: +40°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5309.987914	5310	2.3	100	Pass



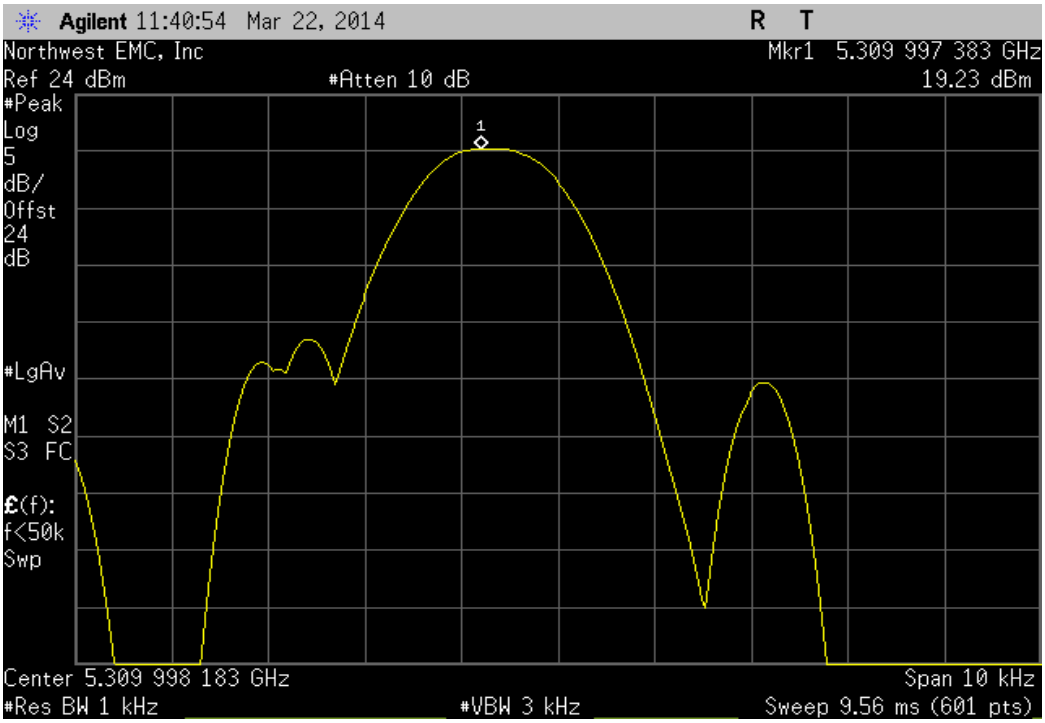
Ch. 52/56, High Channel 5310 MHz, Temperature: +30°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5309.988065	5310	2.3	100	Pass



Ch. 52/56, High Channel 5310 MHz, Temperature: +20°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5309.992941	5310	1.3	100	Pass

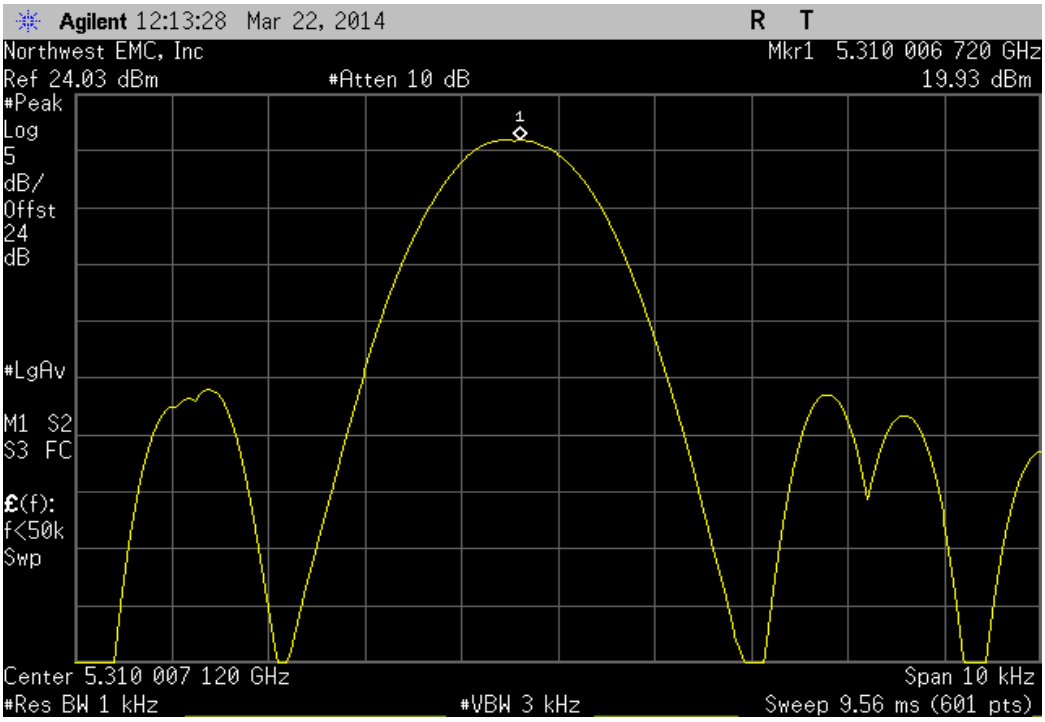


Ch. 52/56, High Channel 5310 MHz, Temperature: +10°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5309.997383	5310	0.5	100	Pass

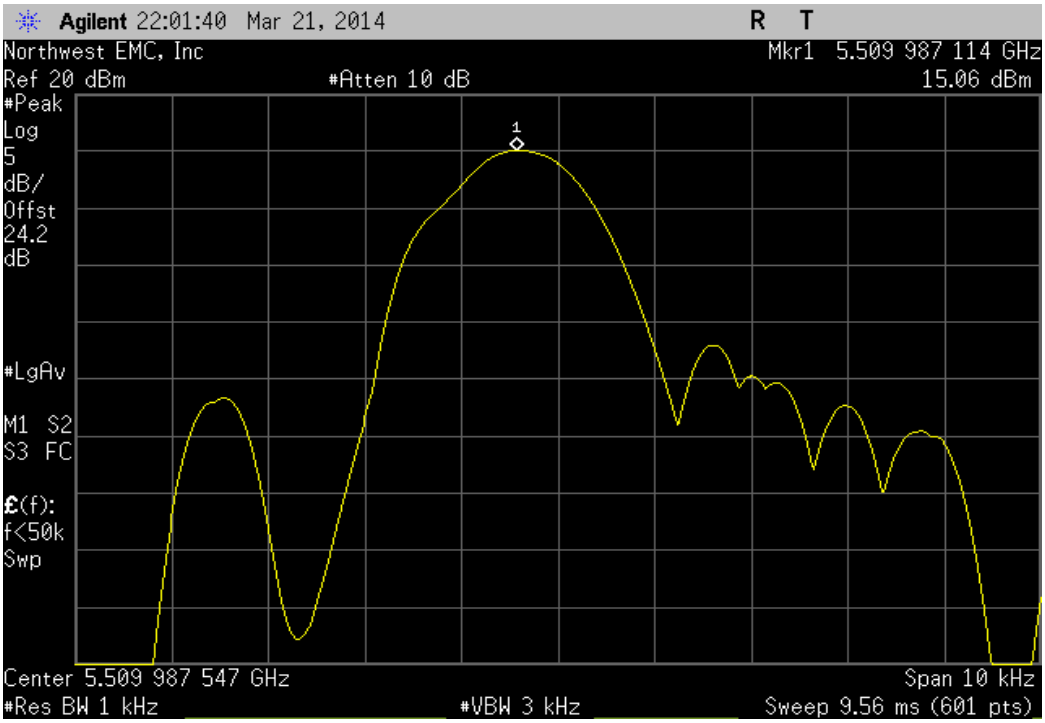


FREQUENCY STABILITY

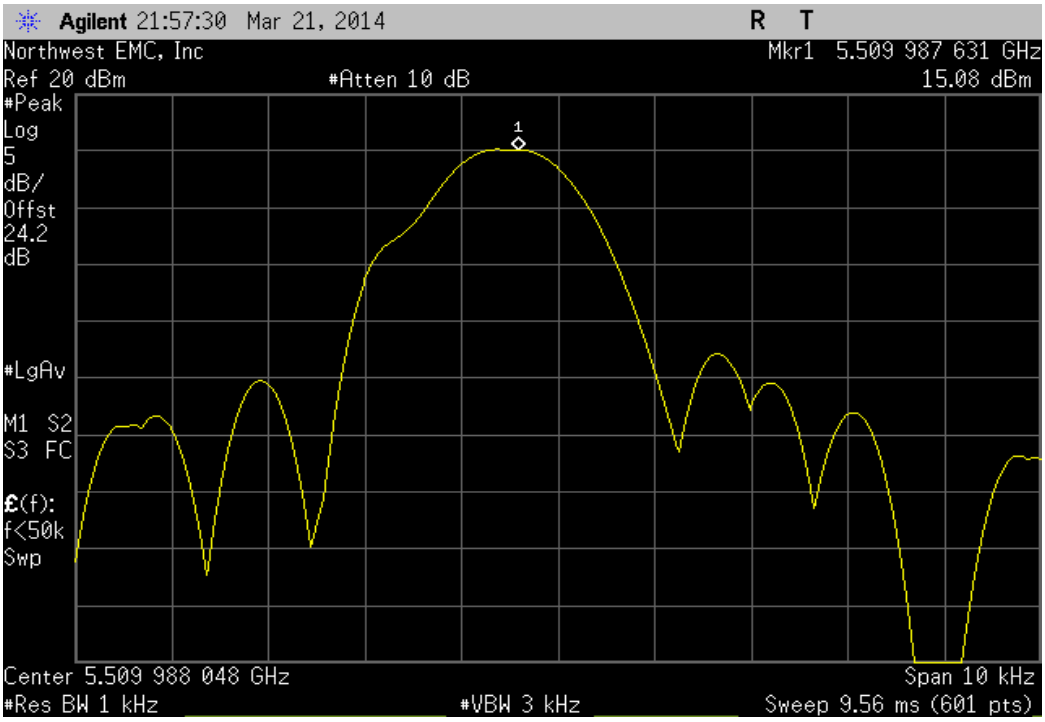
Ch. 52/56, High Channel 5310 MHz, Temperature: 0°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5310.00672	5310	1.3	100	Pass



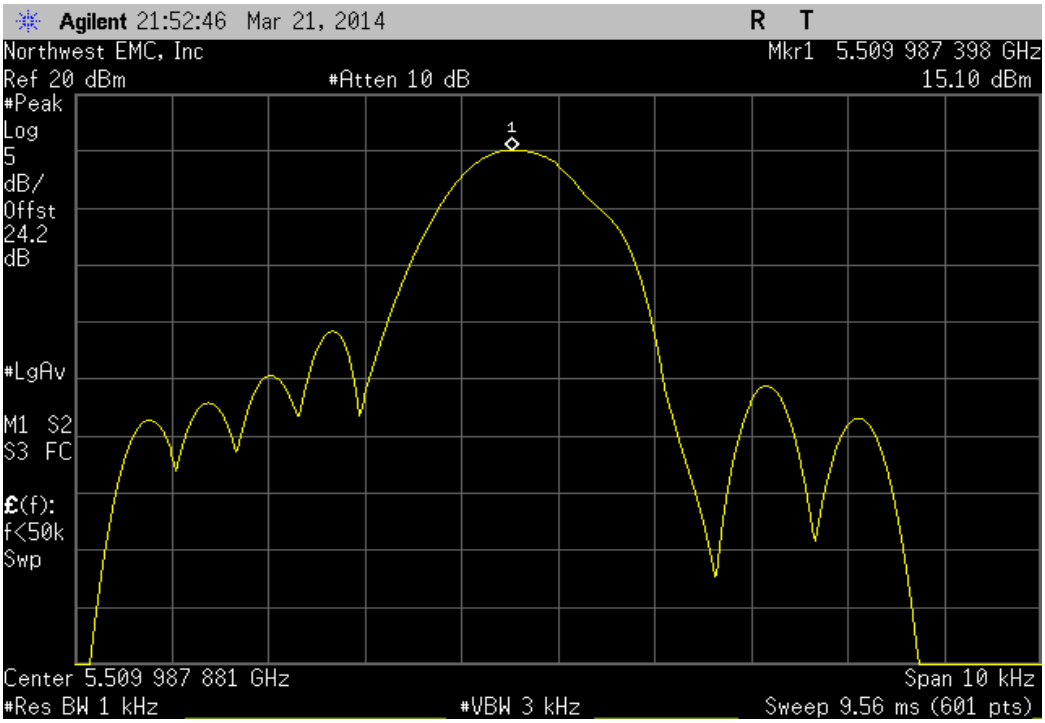
Ch. 100/104, High Channel 5510 MHz, Voltage: 115%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5509.987114	5510	2.3	100	Pass



Ch. 100/104, High Channel 5510 MHz, Voltage: 100%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5509.987631	5510	2.2	100	Pass

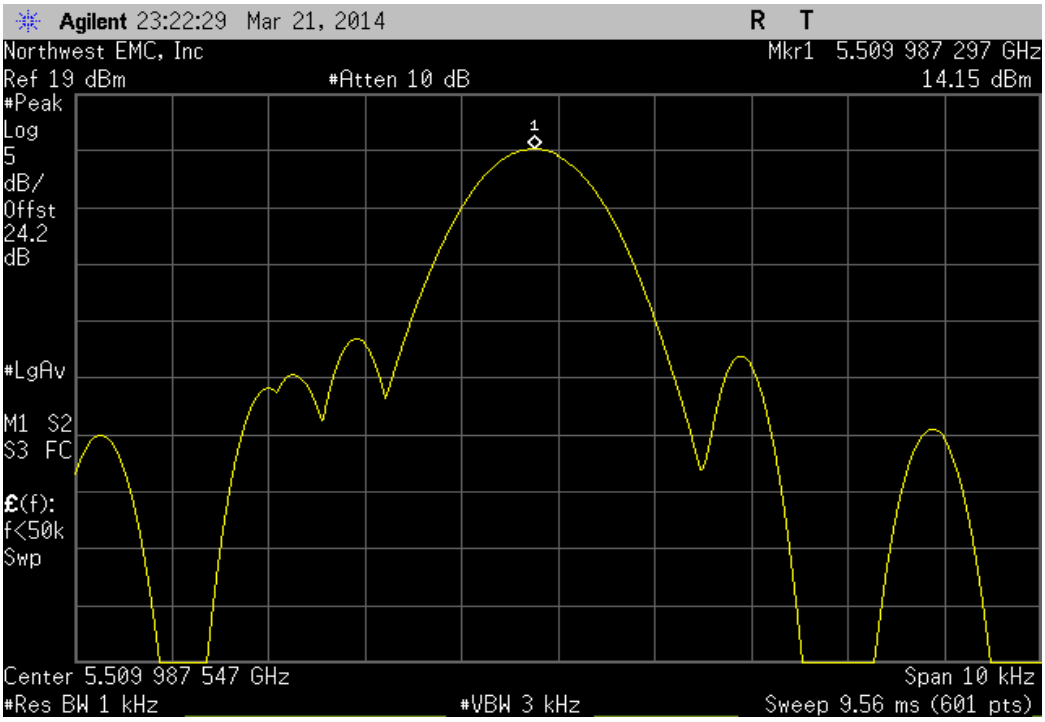


Ch. 100/104, High Channel 5510 MHz, Voltage: 85%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5509.987398	5510	2.3	100	Pass

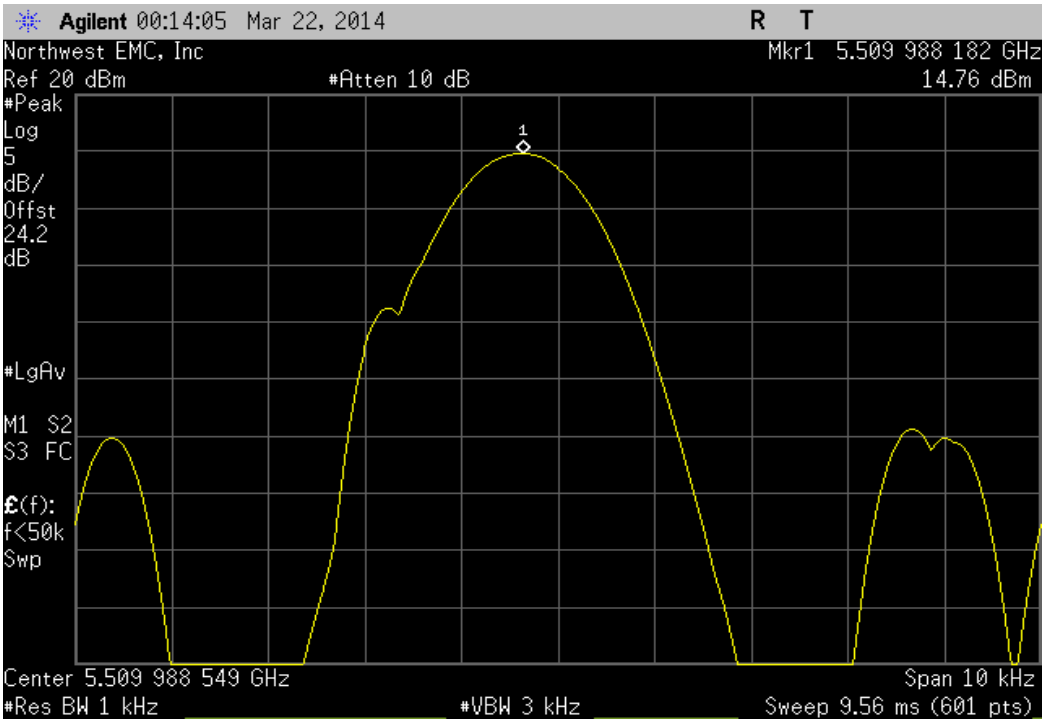


FREQUENCY STABILITY

Ch. 100/104, High Channel 5510 MHz, Temperature: +40°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5509.987297	5510	2.3	100	Pass

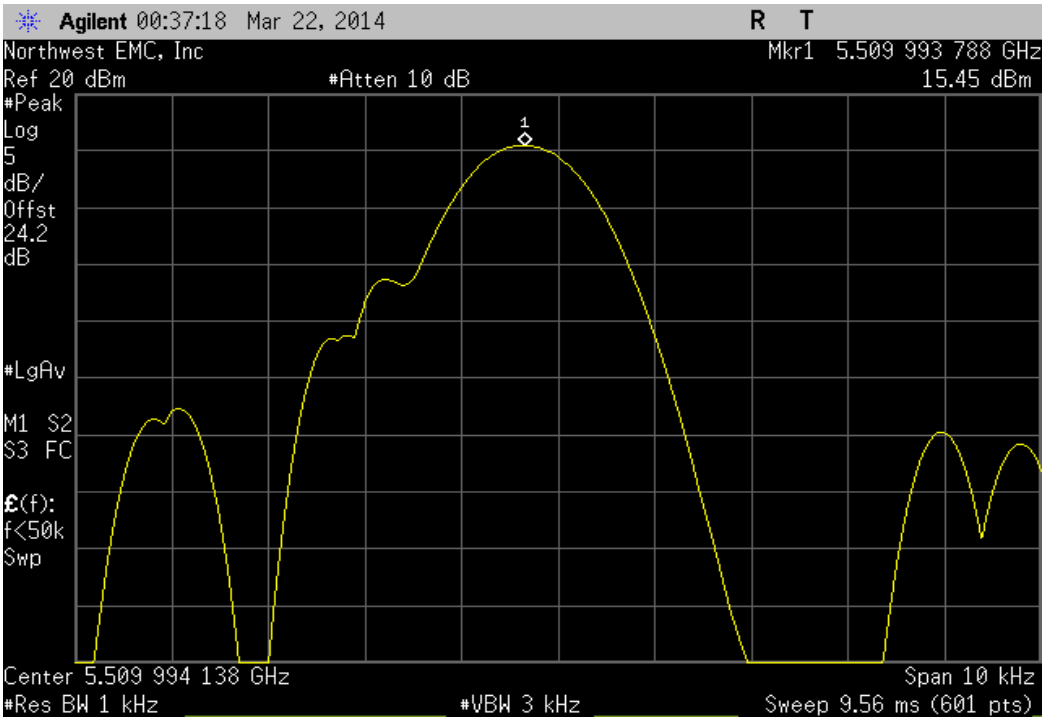


Ch. 100/104, High Channel 5510 MHz, Temperature: +30°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5509.988182	5510	2.1	100	Pass

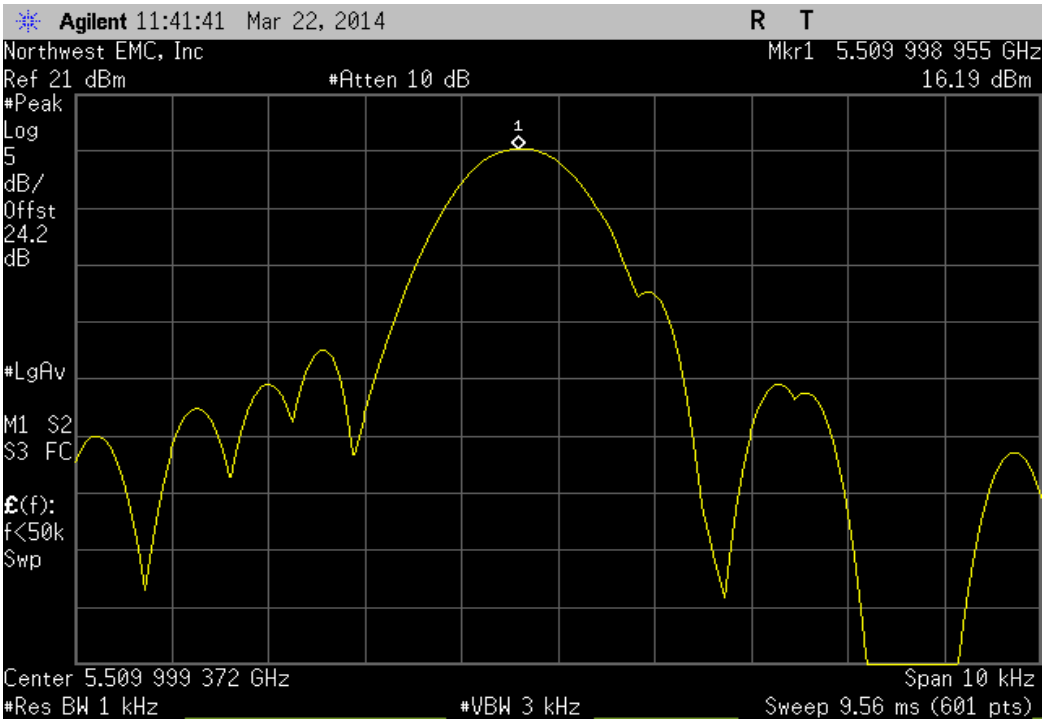


FREQUENCY STABILITY

Ch. 100/104, High Channel 5510 MHz, Temperature: +20°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5509.993788	5510	1.1	100	Pass

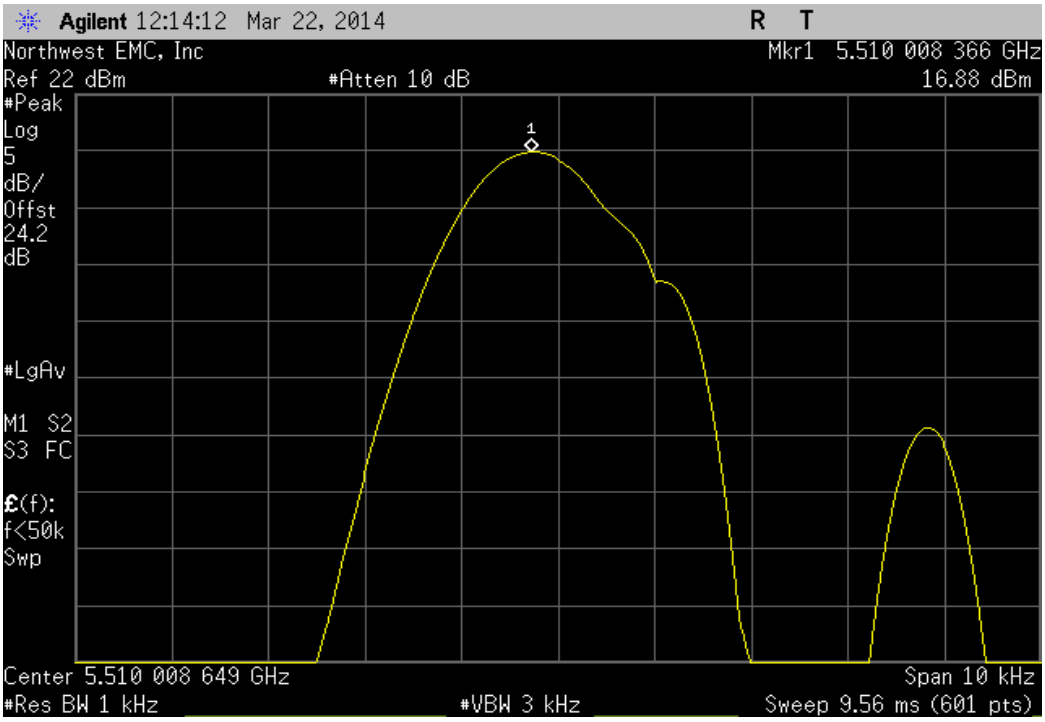


Ch. 100/104, High Channel 5510 MHz, Temperature: +10°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5509.998955	5510	0.2	100	Pass

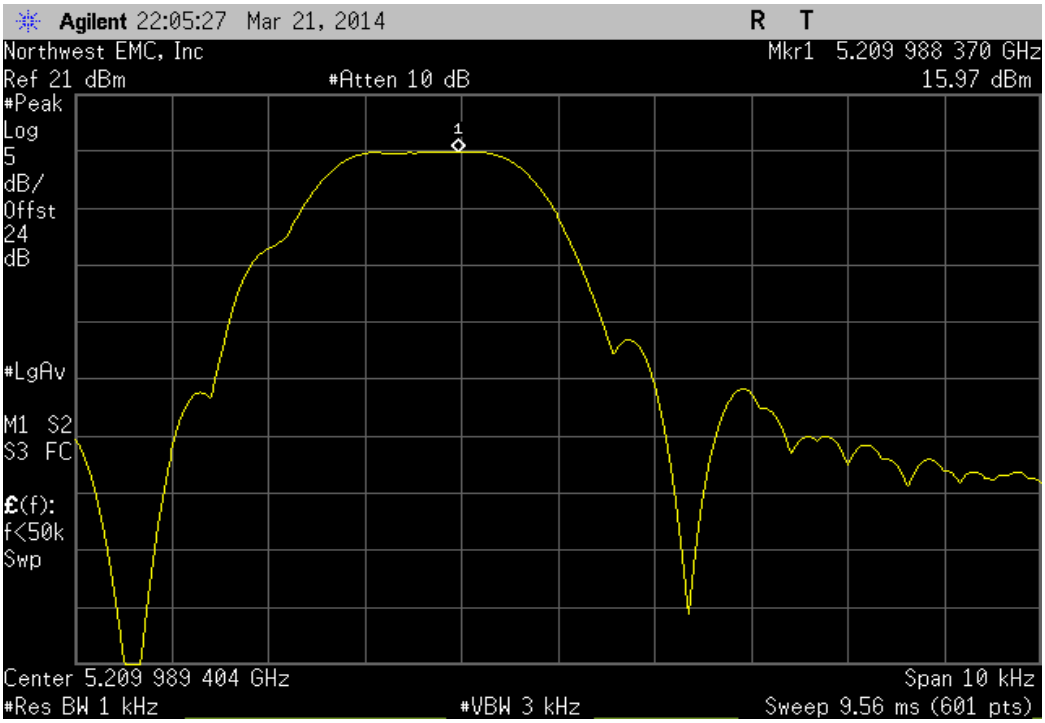


FREQUENCY STABILITY

Ch. 100/104, High Channel 5510 MHz, Temperature: 0°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5510.008366	5510	1.5	100	Pass

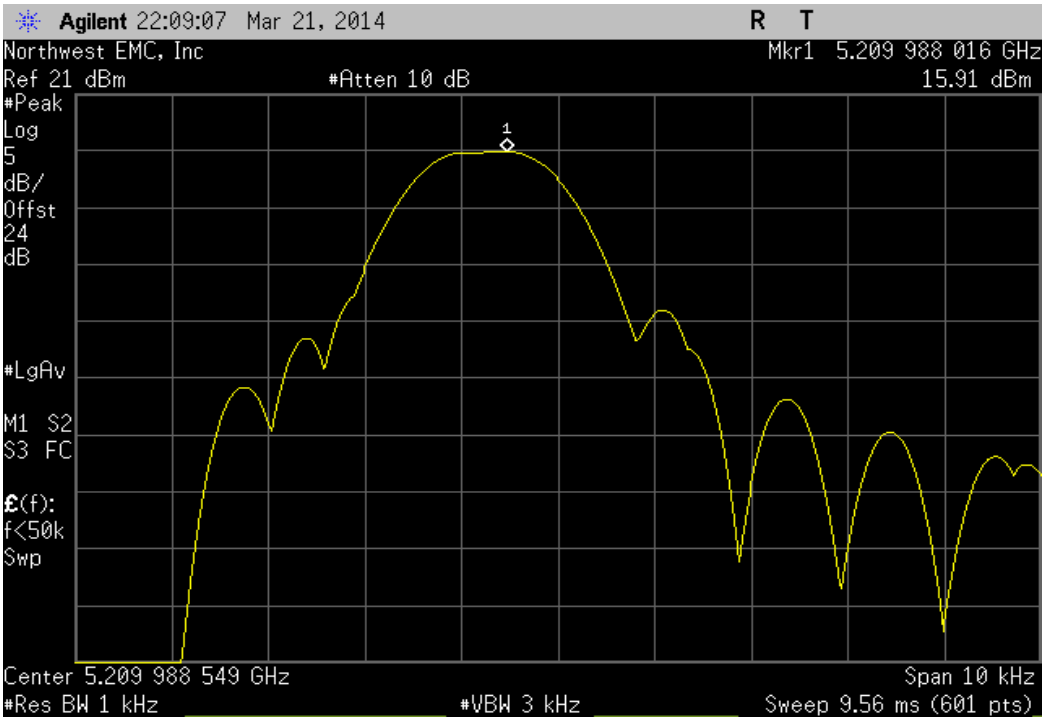


Ch. 42, Low Channel 5210 MHz, Voltage: 115%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5209.98837	5210	2.2	100	Pass

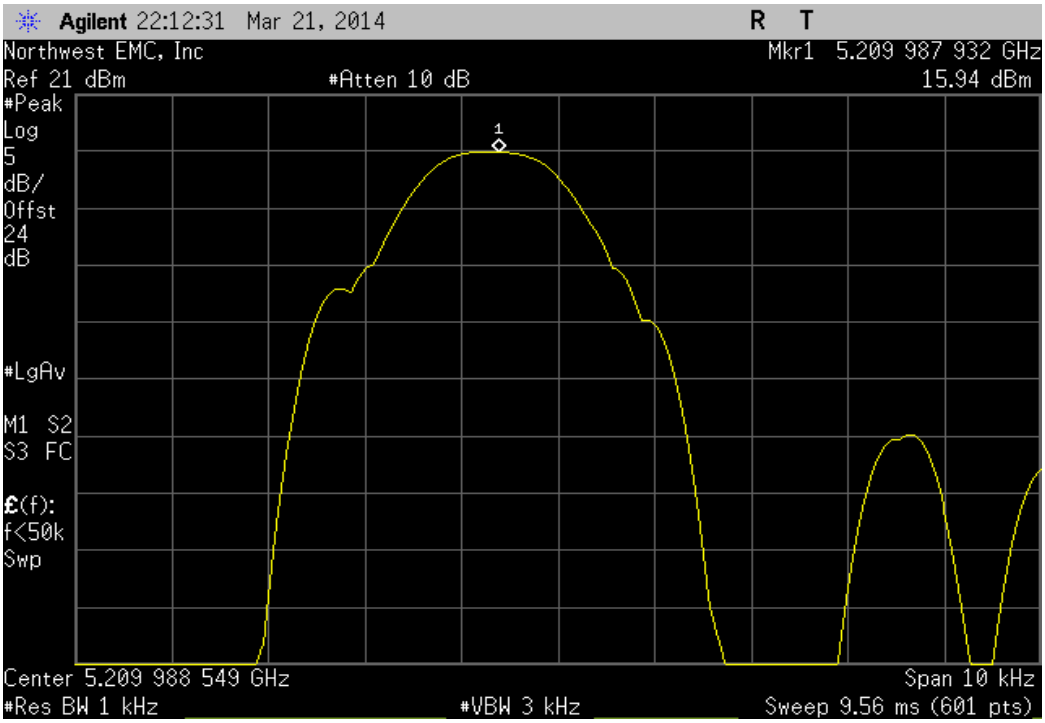


FREQUENCY STABILITY

Ch. 42, Low Channel 5210 MHz, Voltage: 100%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5209.988016	5210	2.3	100	Pass

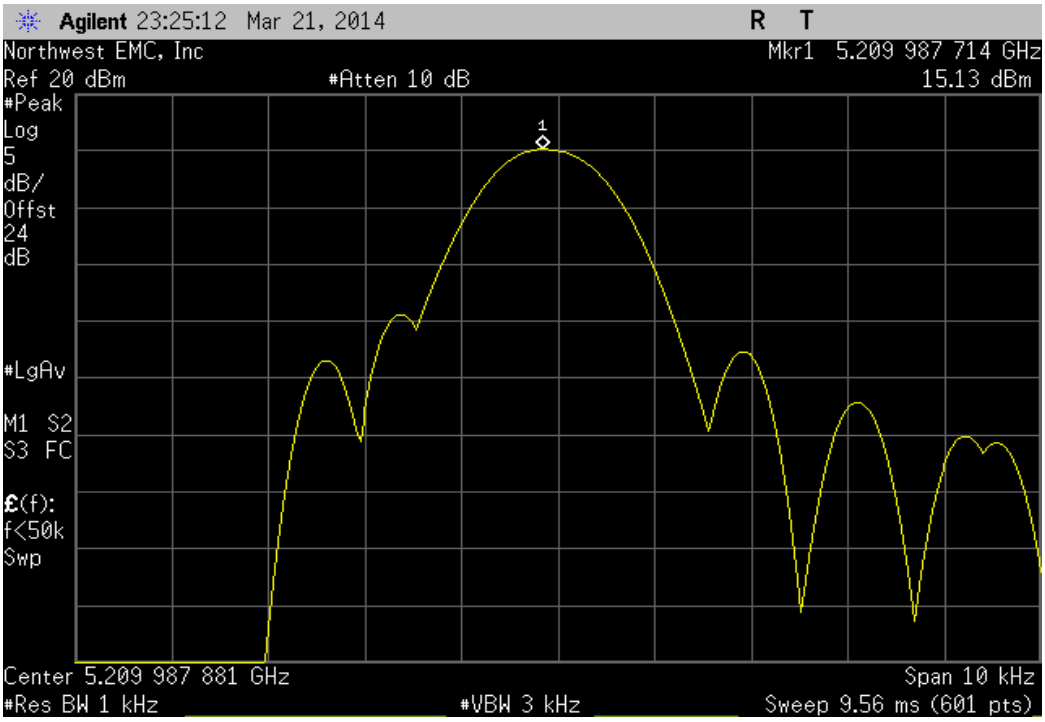


Ch. 42, Low Channel 5210 MHz, Voltage: 85%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5209.987932	5210	2.3	100	Pass

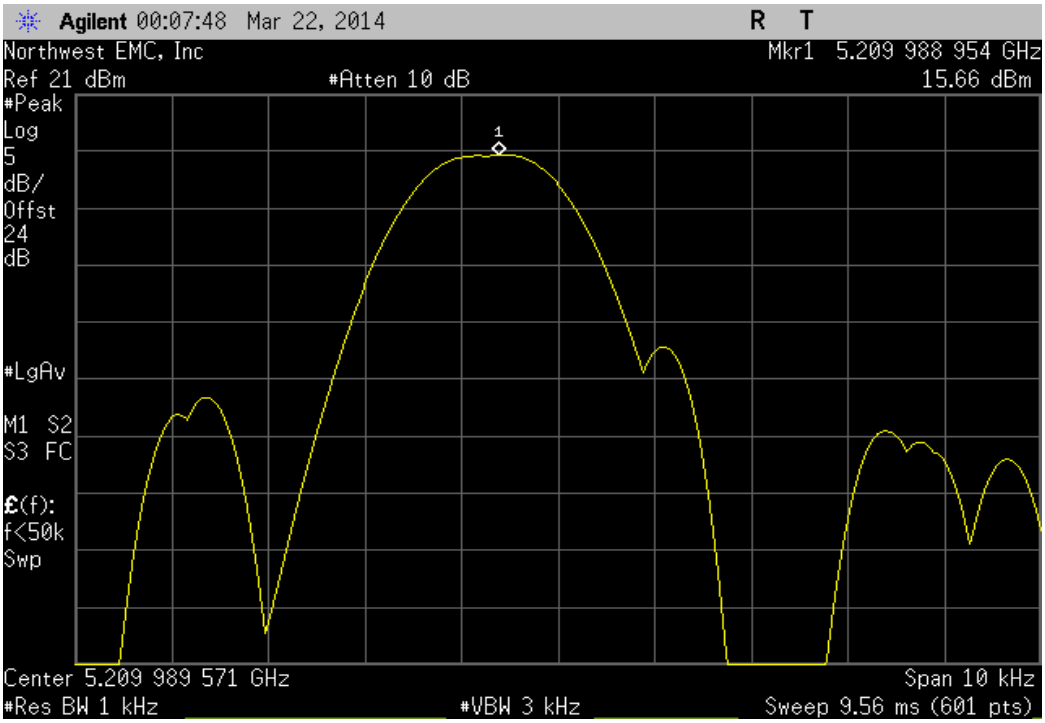


FREQUENCY STABILITY

Ch. 42, Low Channel 5210 MHz, Temperature: +40°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5209.987714	5210	2.4	100	Pass

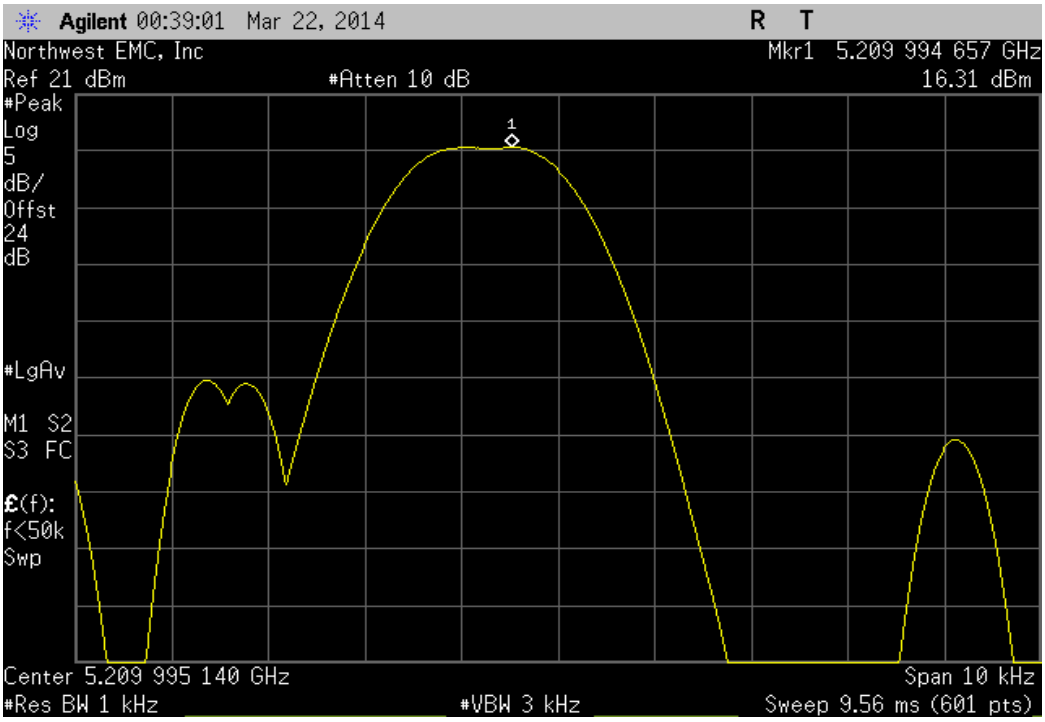


Ch. 42, Low Channel 5210 MHz, Temperature: +30°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5209.988954	5210	2.1	100	Pass

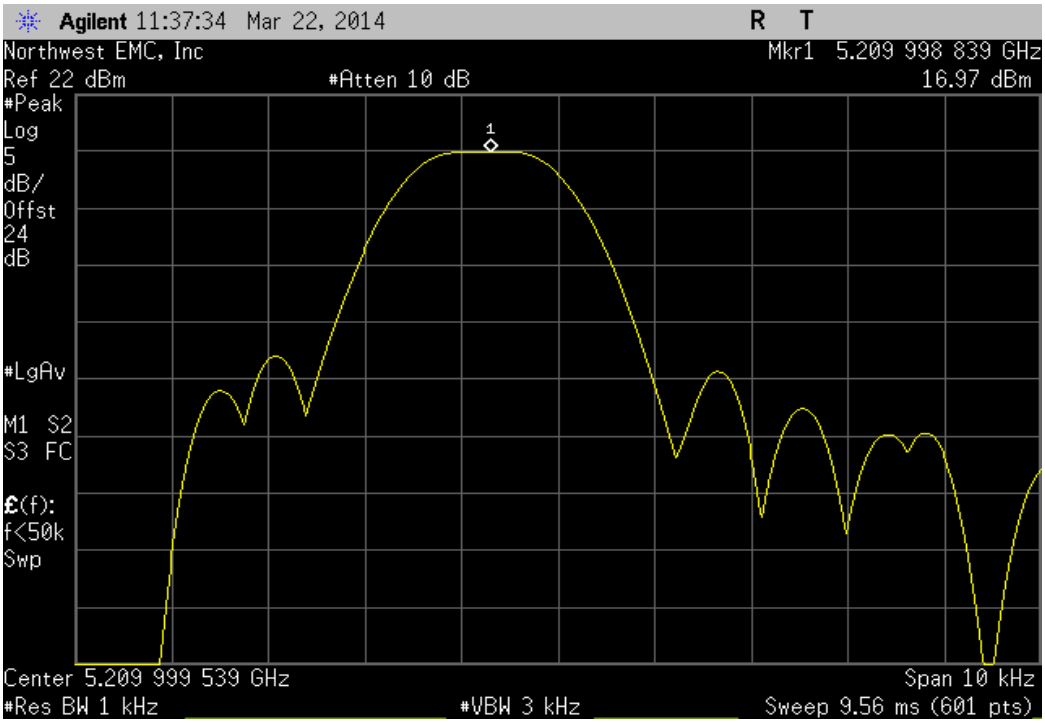


FREQUENCY STABILITY

Ch. 42, Low Channel 5210 MHz, Temperature: +20°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5209.994657	5210	1	100	Pass

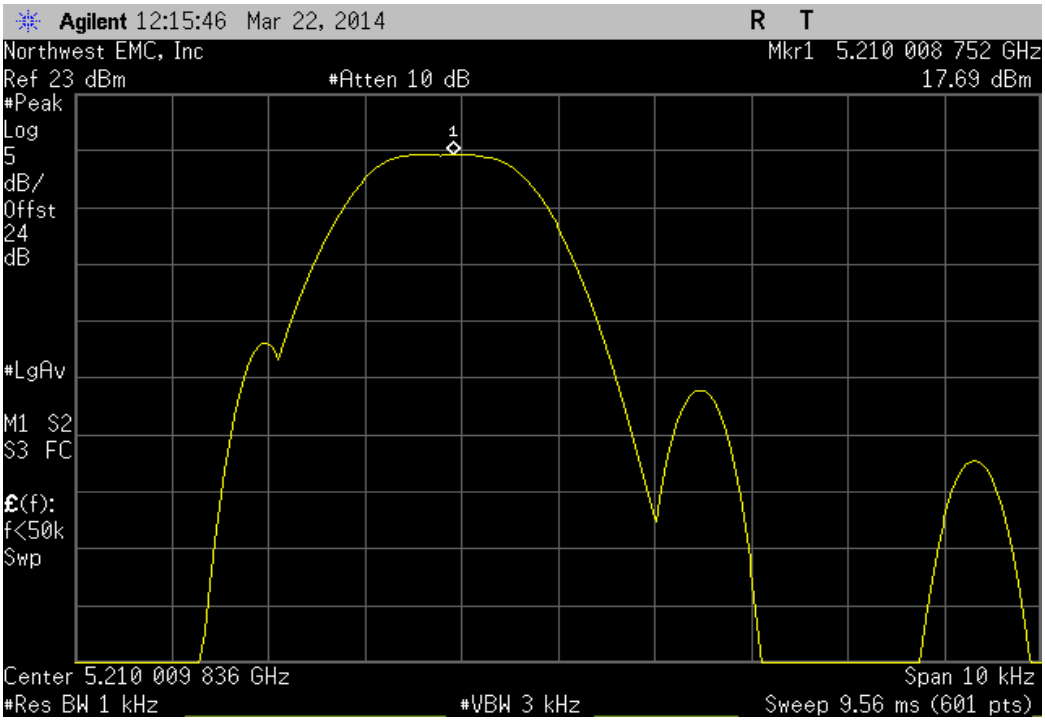


Ch. 42, Low Channel 5210 MHz, Temperature: +10°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5209.998839	5210	0.2	100	Pass

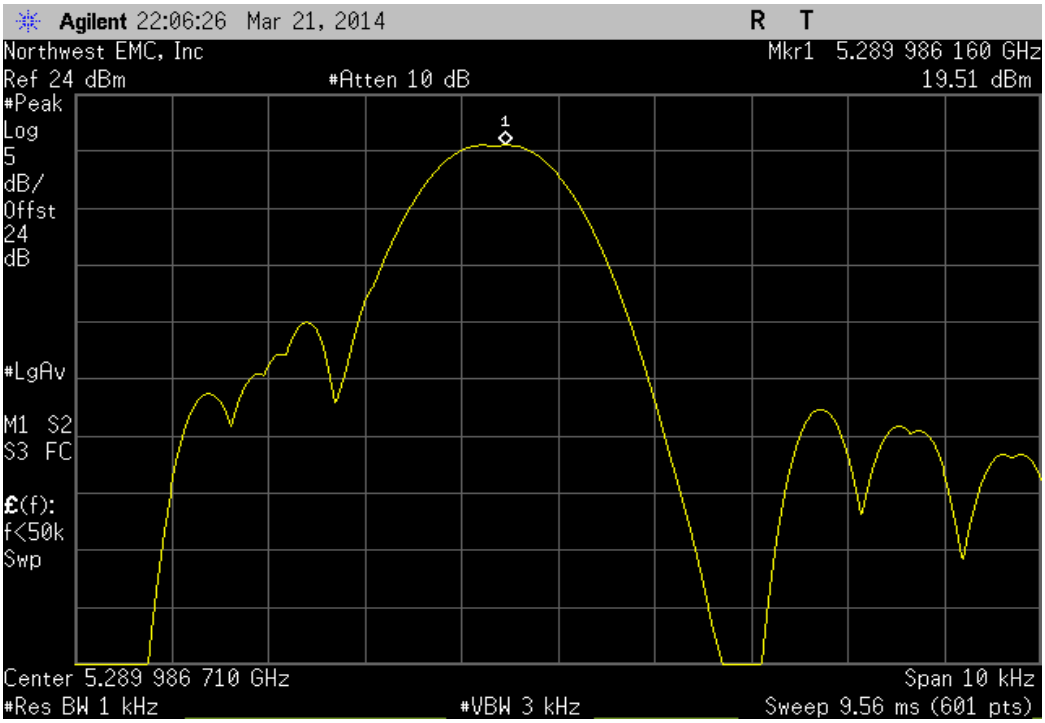


FREQUENCY STABILITY

Ch. 42, Low Channel 5210 MHz, Temperature: 0°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5210.008752	5210	1.7	100	Pass

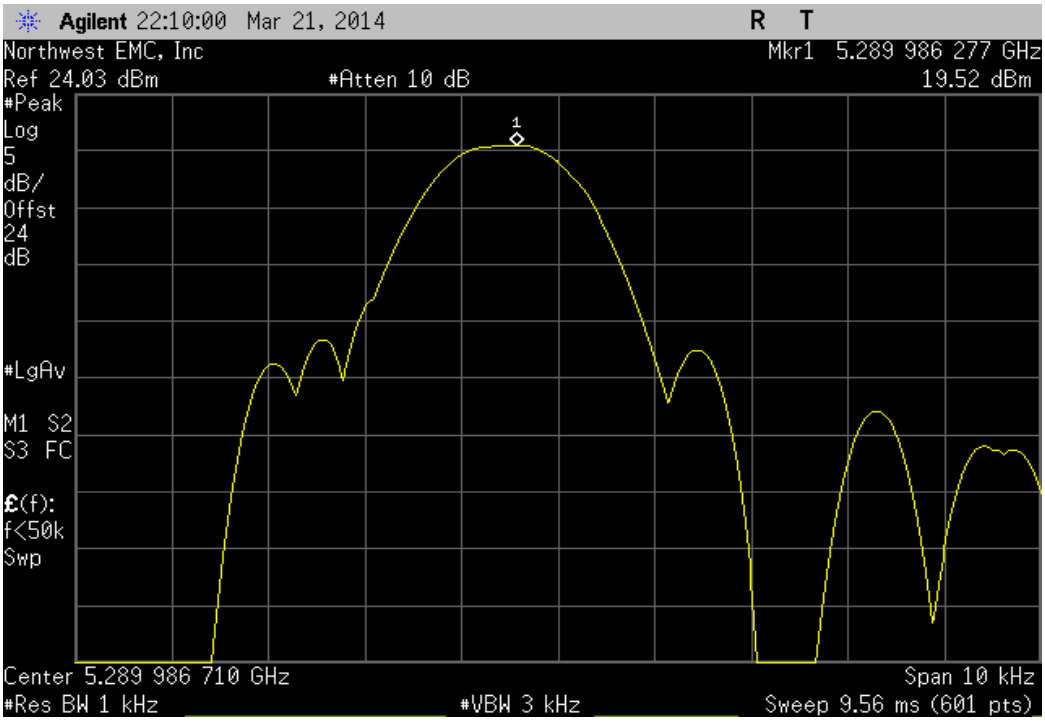


Ch. 58, High Channel 5290 MHz, Voltage: 115%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5289.98616	5290	2.6	100	Pass

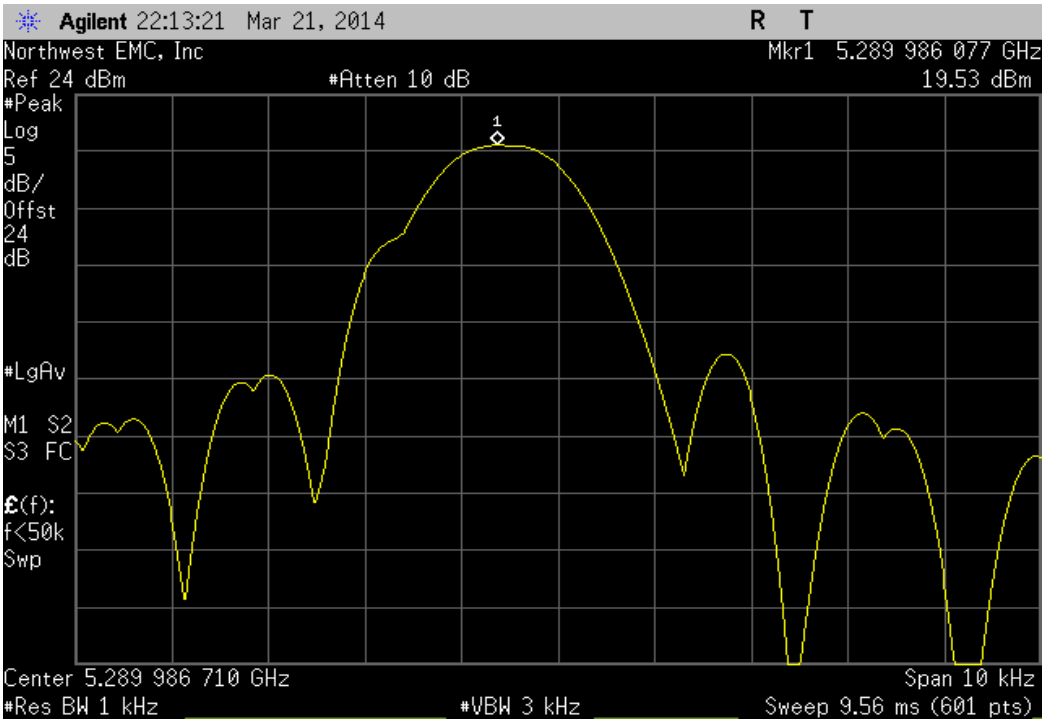


FREQUENCY STABILITY

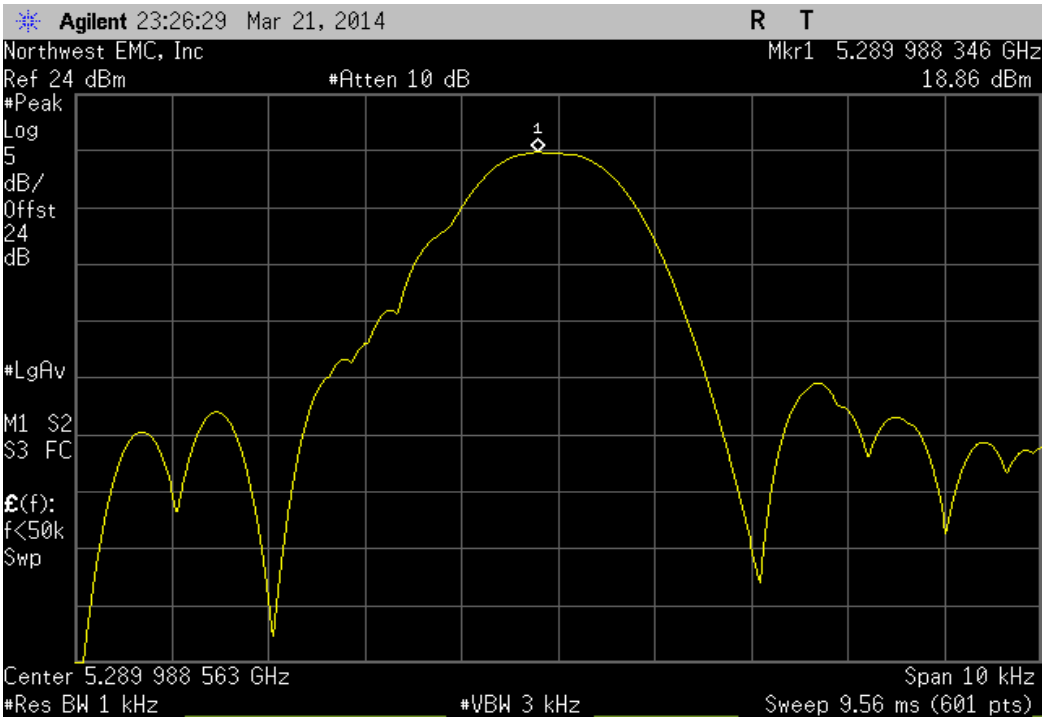
Ch. 58, High Channel 5290 MHz, Voltage: 100%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5289.986277	5290	2.6	100	Pass



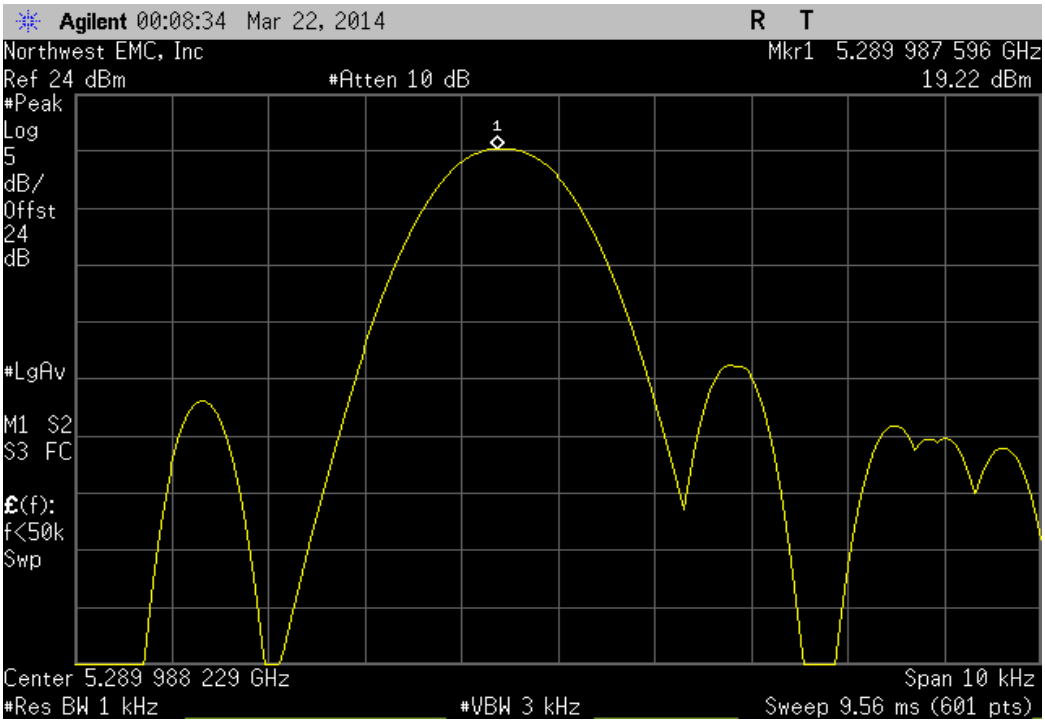
Ch. 58, High Channel 5290 MHz, Voltage: 85%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5289.986077	5290	2.6	100	Pass



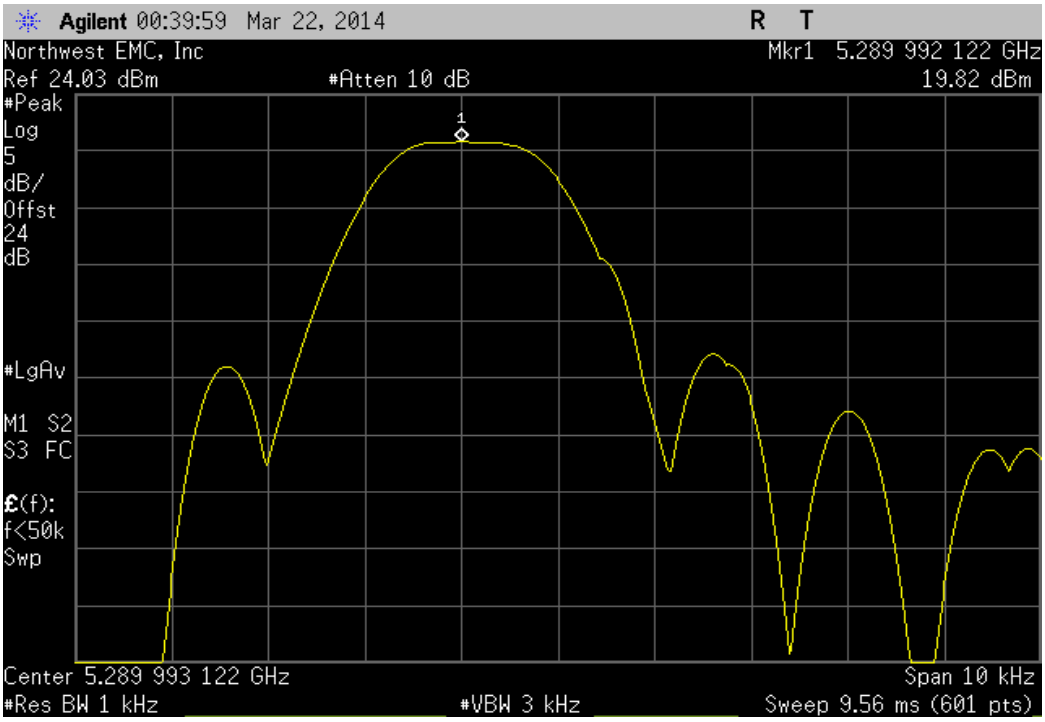
Ch. 58, High Channel 5290 MHz, Temperature: +40°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5289.988346	5290	2.2	100	Pass



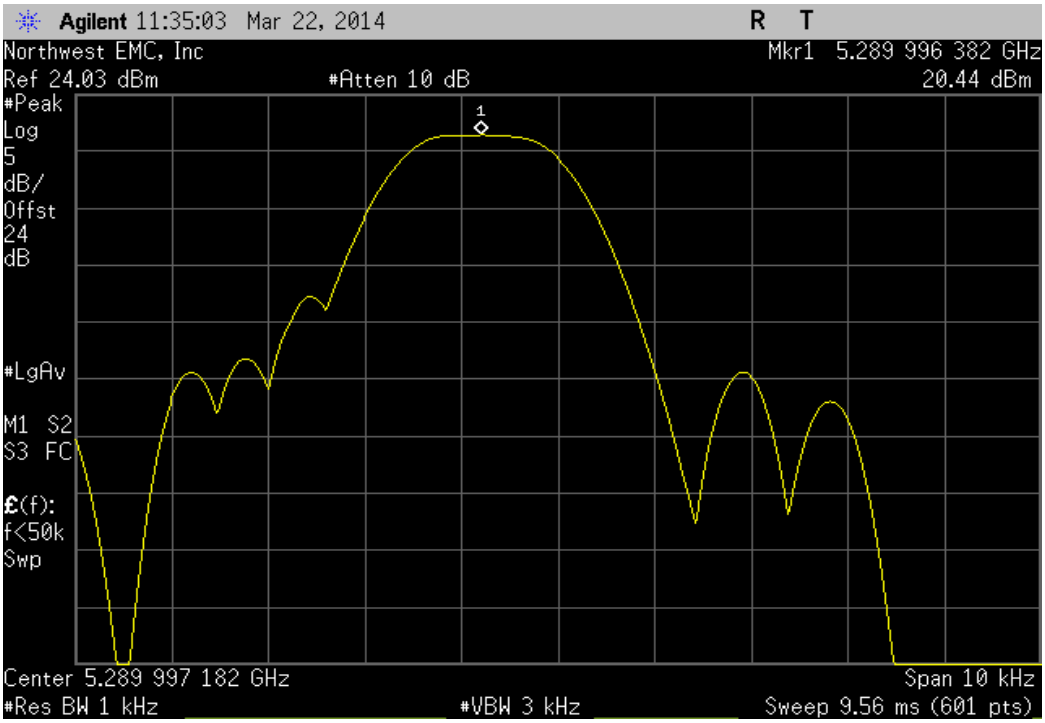
Ch. 58, High Channel 5290 MHz, Temperature: +30°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5289.987596	5290	2.3	100	Pass



Ch. 58, High Channel 5290 MHz, Temperature: +20°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5289.992122	5290	1.5	100	Pass

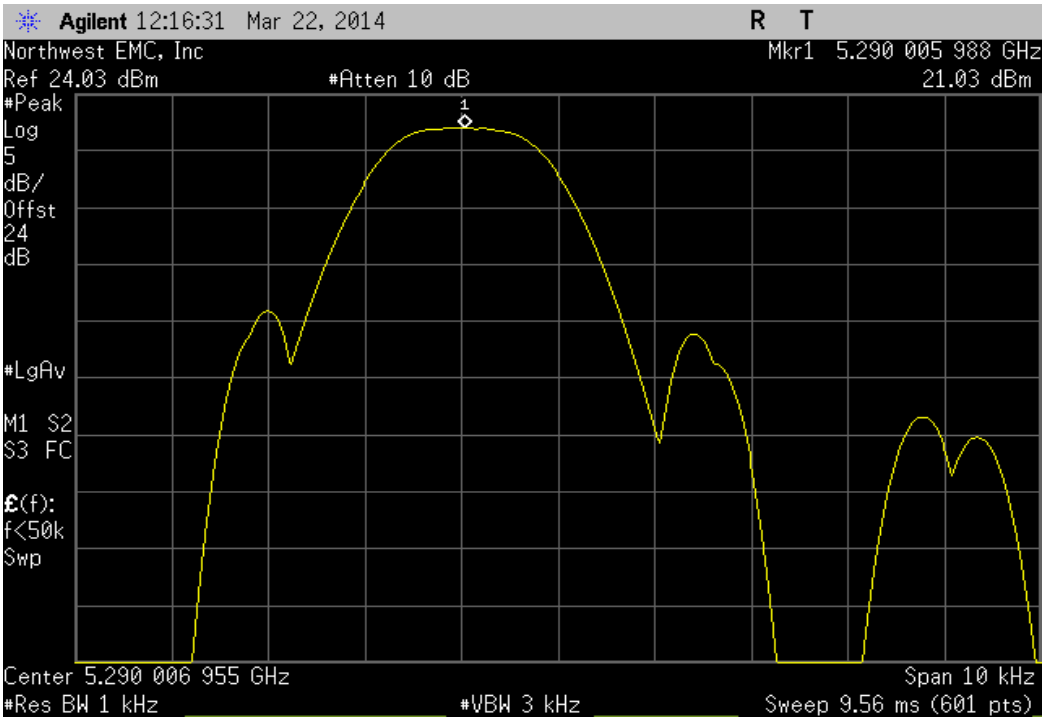


Ch. 58, High Channel 5290 MHz, Temperature: +10°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5289.996382	5290	0.7	100	Pass

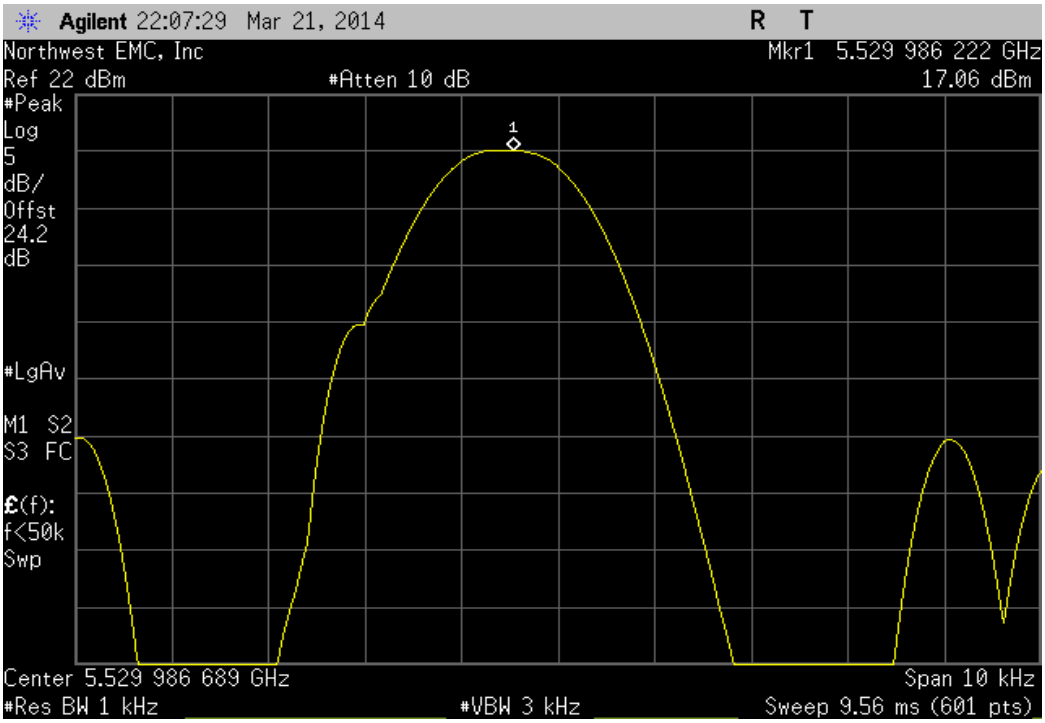


FREQUENCY STABILITY

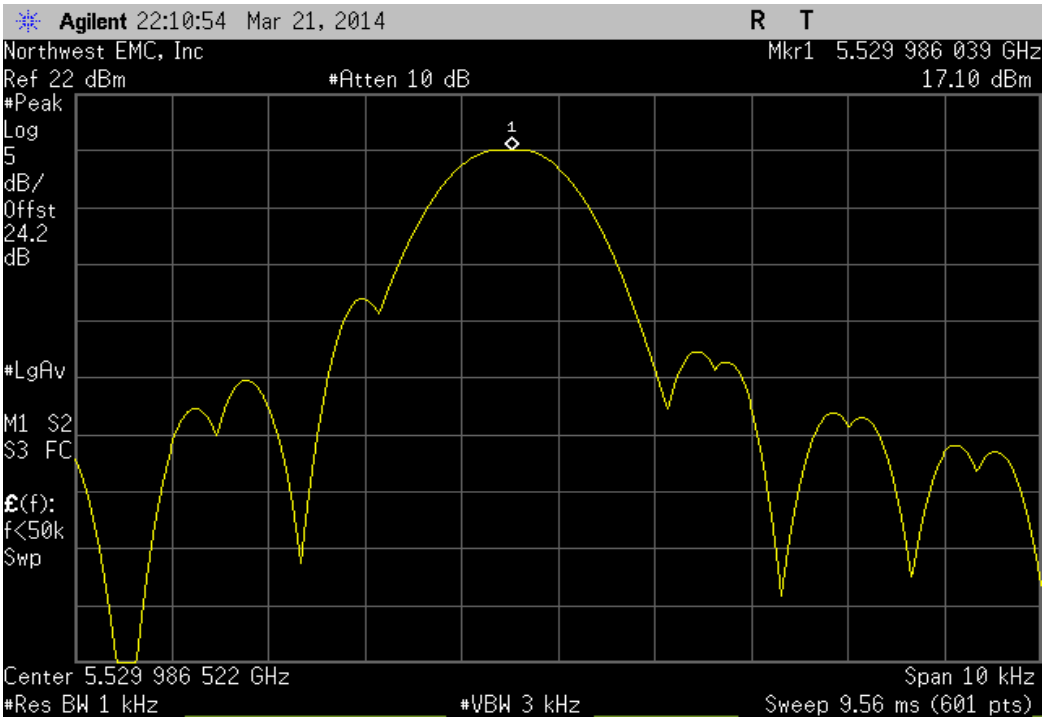
Ch. 58, High Channel 5290 MHz, Temperature: 0°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5290.005988	5290	1.1	100	Pass



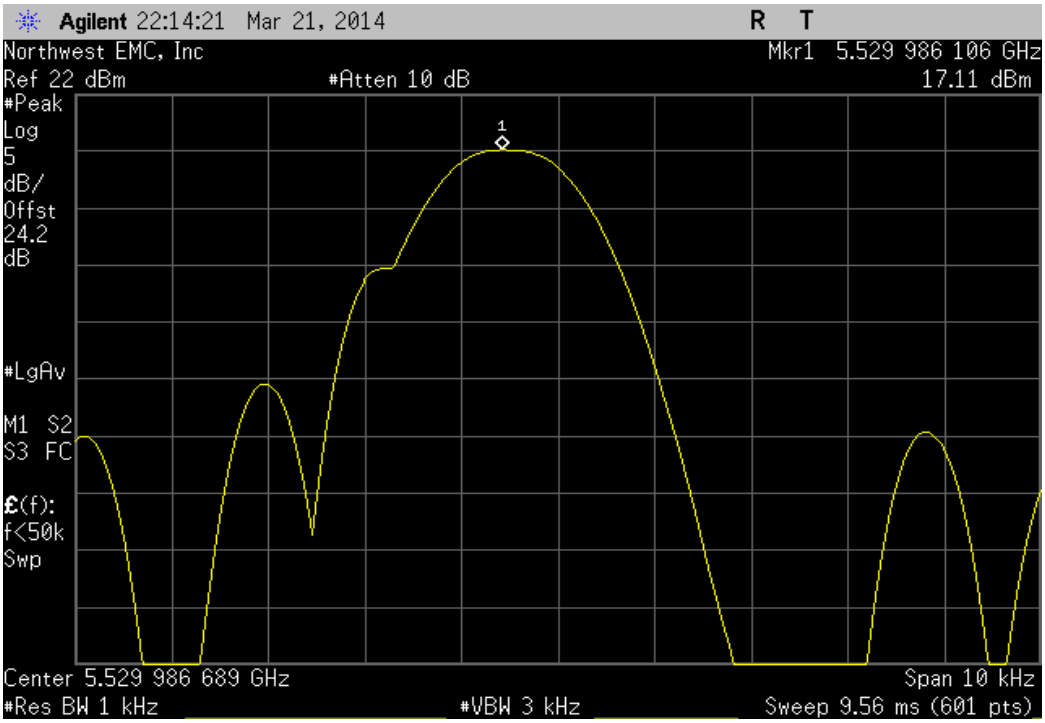
Ch. 106, Low Channel 5530 MHz, Voltage: 115%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5529.986222	5530	2.5	100	Pass



Ch. 106, Low Channel 5530 MHz, Voltage: 100%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5529.986039	5530	2.5	100	Pass

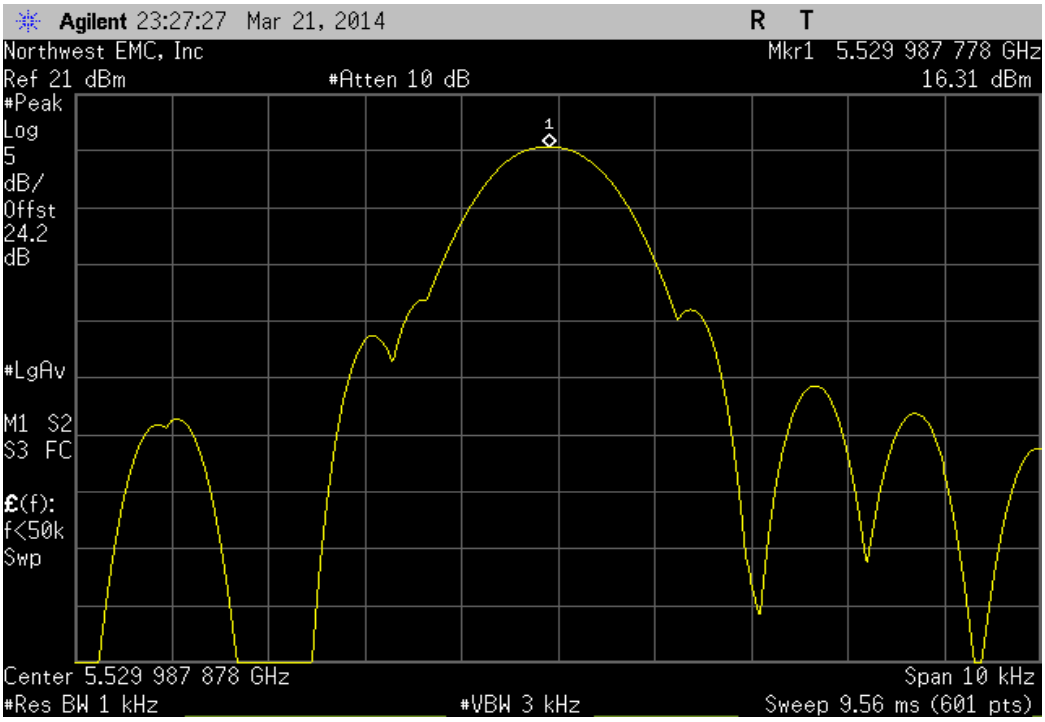


Ch. 106, Low Channel 5530 MHz, Voltage: 85%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5529.986106	5530	2.5	100	Pass

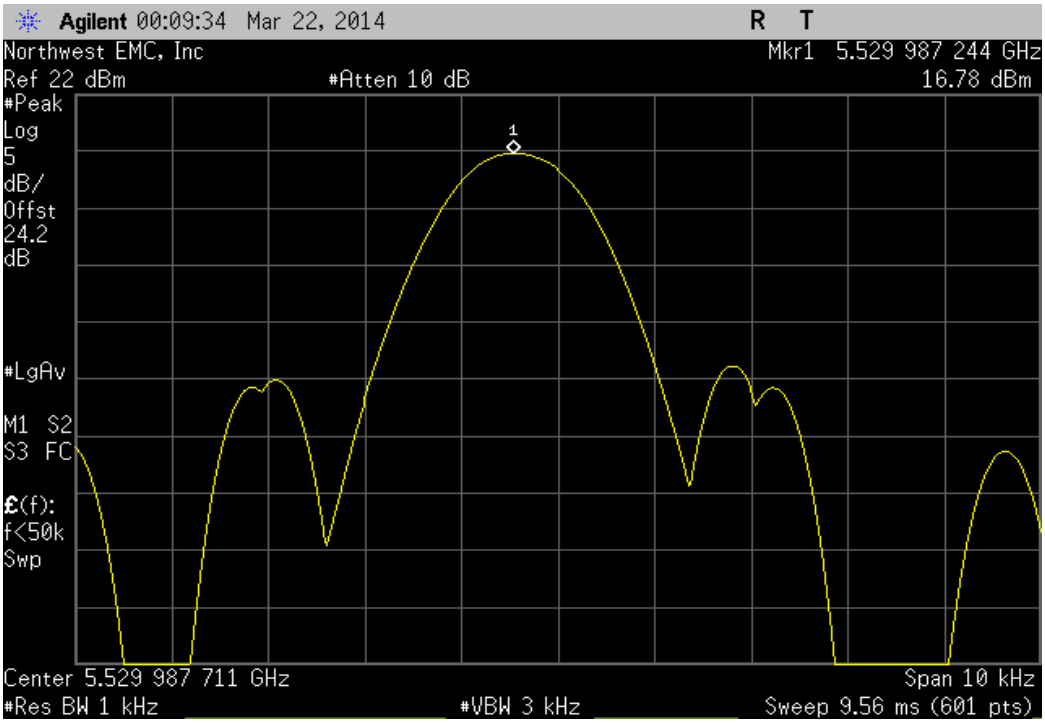


FREQUENCY STABILITY

Ch. 106, Low Channel 5530 MHz, Temperature: +40°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5529.987778	5530	2.2	100	Pass

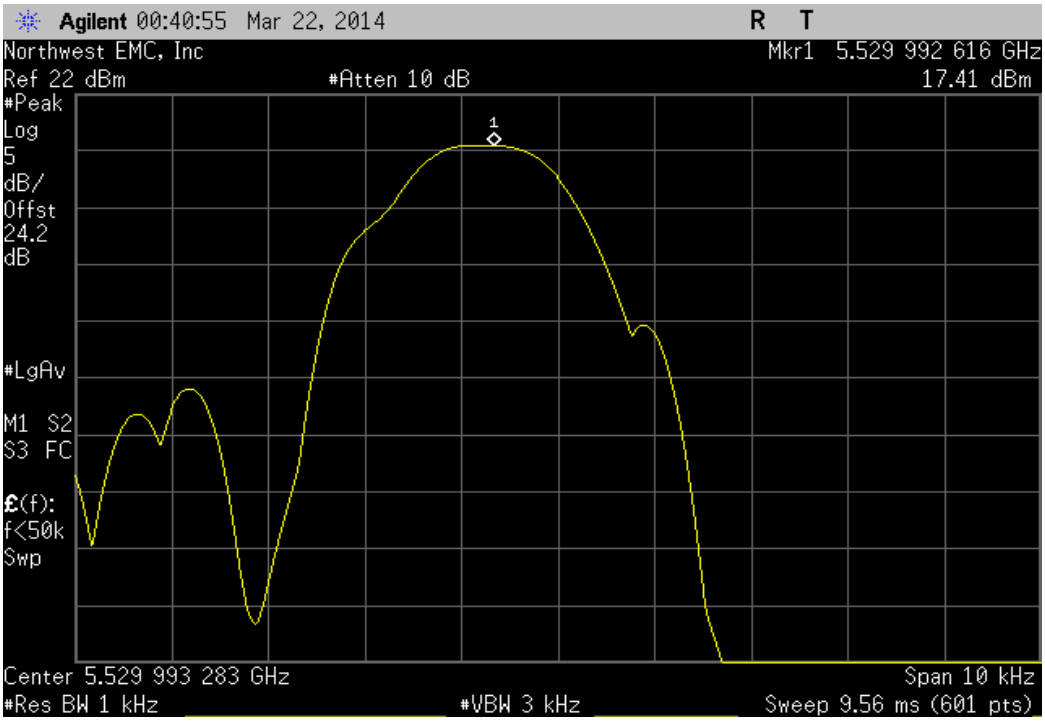


Ch. 106, Low Channel 5530 MHz, Temperature: +30°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5529.987244	5530	2.3	100	Pass

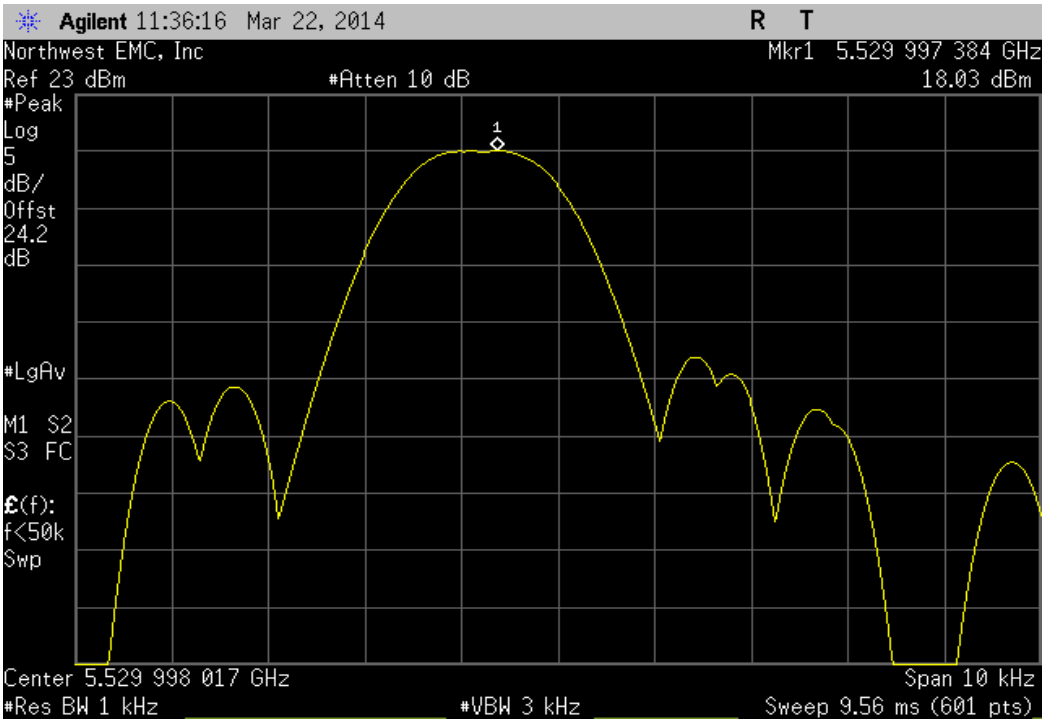


FREQUENCY STABILITY

Ch. 106, Low Channel 5530 MHz, Temperature: +20°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5529.992616	5530	1.3	100	Pass

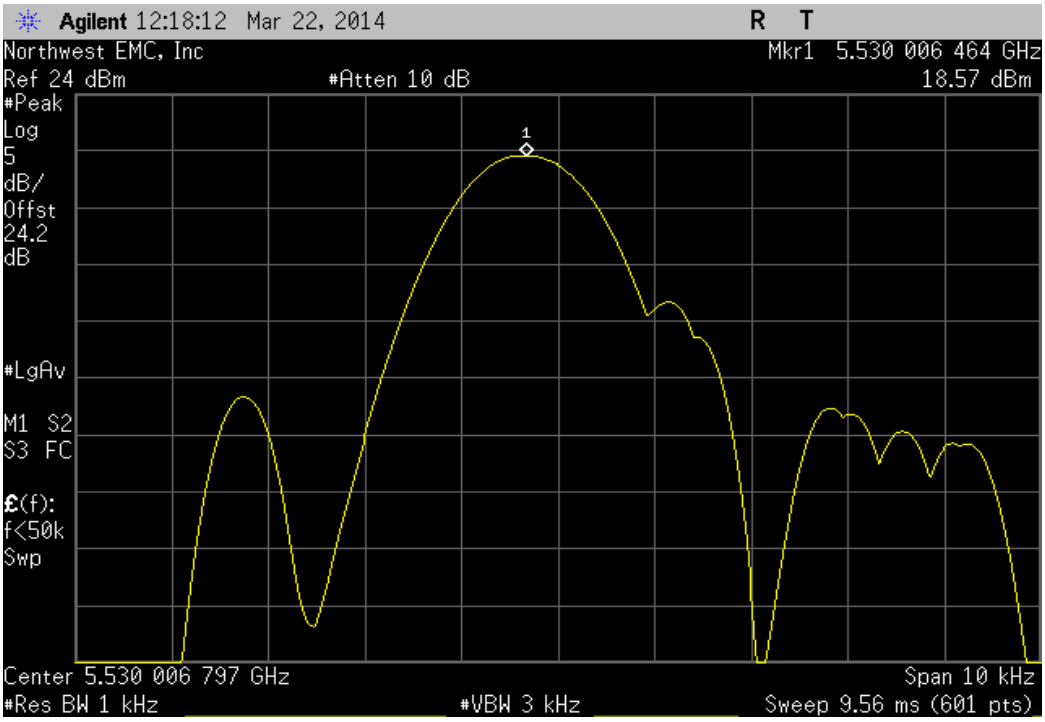


Ch. 106, Low Channel 5530 MHz, Temperature: +10°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5529.997384	5530	0.5	100	Pass



FREQUENCY STABILITY

Ch. 106, Low Channel 5530 MHz, Temperature: 0°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5530.006464	5530	1.2	100	Pass



FREQUENCY STABILITY

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval (mo.)
Multimeter	Tektronix	DMM912	MMH	2/5/2013	24
DC Power Supply	Topward	TPS-2000	TPD	NCR	0
Humidity Temperature Meter	Omegaette	HH311	DTY	3/29/2011	36
Temp./Humidity Chamber	Cincinnati Sub Zero (CSZ)	ZH-32-2-2-H/AC	TBA	NCR	0
40GHz DC Block	Miteq	DCB4000	AMD	5/16/2013	12
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	7/30/2013	12
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0
Attenuator, 6dB	S.M. Electronics	18N-06	AWN	2/3/2014	12
RF Vector Signal Generator	Agilent	V2920A	TIH	NCR	0
Power Meter	Gigatronics	8651A	SPM	11/26/2013	24
Power Sensor	Gigatronics	80701A	SPL	7/8/2011	36
Spectrum Analyzer	Agilent	E4440	AFE	11/4/2013	24

TEST DESCRIPTION

A direct connect measurement was made between the EUT's antenna cable and a spectrum analyzer. The spectrum analyzer is equipped with a precision frequency reference that exceeds the stability requirement of the EUT.

Measurements were made at the edges of the main transmit bands as called out on the data sheets. Testing was done with an absence of modulation in a CW mode of operation.

The primary supply voltage was varied from 85 % to 115% of the nominal voltage Using a temperature chamber, the transmit frequency was recorded at the extremes of the specified temperature range (-30° to +50° C) and at 10°C intervals.

Per the requirements of FCC 15.407:

"Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual."

No specific limits are provided in either FCC 15.407, the product specific rule part, or FCC 2.1055, the equipment authorization procedure for testing frequency stability. While there are no limits called out, any results less than 100ppm will still allow the radio to be operating within the band.

FREQUENCY STABILITY

EUT:	Model 1631			**Work Order:**	MCSO1698
Serial Number:	041151240753			**Date:**	03/23/14
Customer:	Microsoft Corporation			**Temperature:**	21.5°C
Attendees:	None			**Humidity:**	29%
Project:	None			**Barometric Pres.:**	1007
Tested by:	Brandon Hobbs, Jared Ison	**Power:**	110VAC/60Hz	**Job Site:**	EV06

TEST SPECIFICATIONS	Test Method
FCC 15.407:2014	ANSI C63.10:2009

COMMENTS

Modes of operation tested were client provided. EUT employed thermal protection/shutdown when testing below 0°C and above +40°C. Measurements captured from tempature range 0°C - +40°C.

DEVIATIONS FROM TEST STANDARD

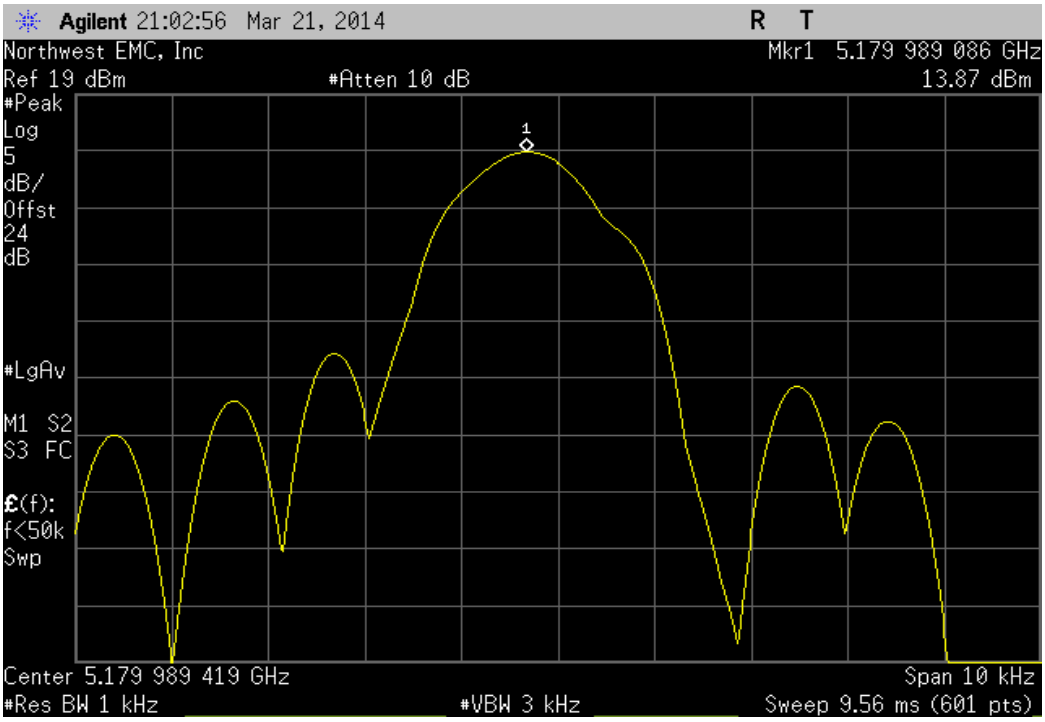
None

Configuration #	5	Signature

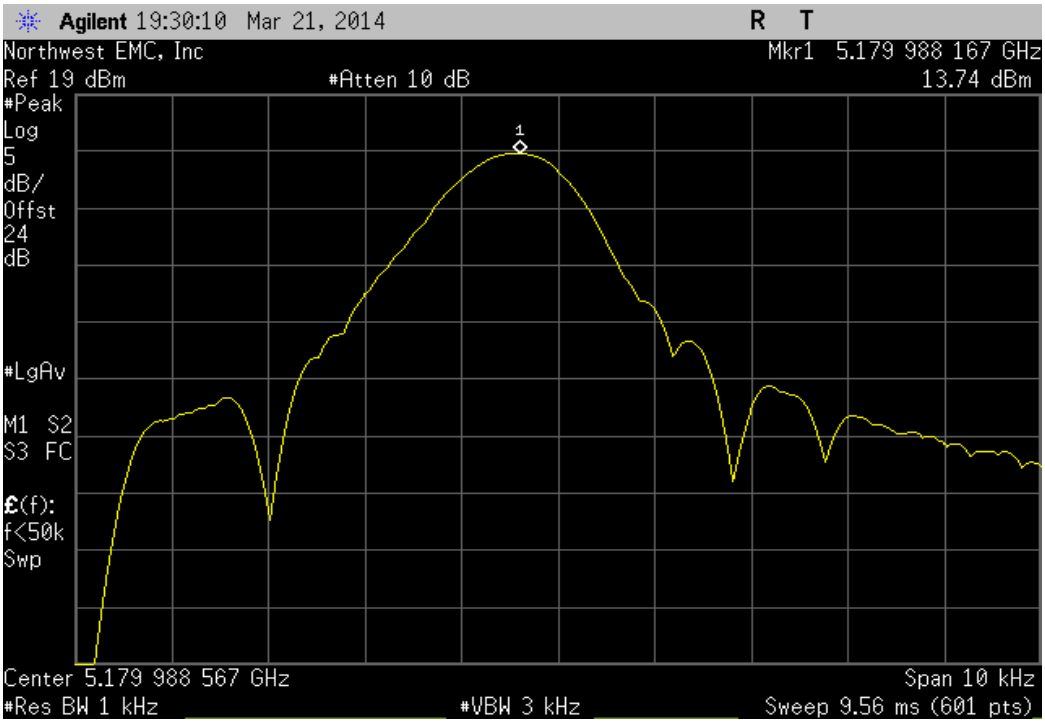
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
Ch. 36, Low Channel 5180 MHz					
Voltage: 115%	5179.989086	5180	2.1	100	Pass
Voltage: 100%	5179.988167	5180	2.3	100	Pass
Voltage: 85%	5179.990004	5180	1.9	100	Pass
Temperature: +40°	5179.987666	5180	2.4	100	Pass
Temperature: +30°	5179.989486	5180	2	100	Pass
Temperature: +20°	5179.997298	5180	0.5	100	Pass
Temperature: +10°	5180.00114	5180	0.2	100	Pass
Temperature: 0°	5180.00807	5180	1.6	100	Pass
Ch. 48, High Channel 5240 MHz					
Voltage: 100%	5239.987093	5240	2.5	100	Pass
Ch. 52, Low Channel 5260 MHz					
Voltage: 100%	5259.986925	5260	2.5	100	Pass
Ch. 64, High Channel 5320 MHz					
Voltage: 115%	5319.98777	5320	2.3	100	Pass
Voltage: 100%	5319.986635	5320	2.5	100	Pass
Voltage: 85%	5319.988458	5320	2.2	100	Pass
Temperature: +40°	5319.987436	5320	2.4	100	Pass
Temperature: +30°	5319.988107	5320	2.2	100	Pass
Temperature: +20°	5319.994994	5320	0.9	100	Pass
Temperature: +10°	5319.999489	5320	0.1	100	Pass
Temperature: 0°	5320.006355	5320	1.2	100	Pass
Ch. 100, Low Channel 5500 MHz					
Voltage: 115%	5499.986197	5500	2.5	100	Pass
Voltage: 100%	5499.985396	5500	2.7	100	Pass
Voltage: 85%	5499.98618	5500	2.5	100	Pass
Temperature: +40°	5499.987465	5500	2.3	100	Pass
Temperature: +30°	5499.986898	5500	2.4	100	Pass
Temperature: +20°	5499.992524	5500	1.4	100	Pass
Temperature: +10°	5500.000334	5500	0.1	100	Pass
Temperature: 0°	5500.004006	5500	0.7	100	Pass
Ch. 140, High Channel 5700 MHz					
Voltage: 115%	5699.985938	5700	2.5	100	Pass
Voltage: 100%	5699.986824	5700	2.3	100	Pass
Voltage: 85%	5699.986138	5700	2.4	100	Pass
Temperature: +40°	5699.986905	5700	2.3	100	Pass
Temperature: +30°	5699.986588	5700	2.4	100	Pass
Temperature: +20°	5699.992437	5700	1.3	100	Pass
Temperature: +10°	5699.997734	5700	0.4	100	Pass
Temperature: 0°	5700.004204	5700	0.7	100	Pass
Ch. 36/40, Low Channel 5190 MHz					
Voltage: 115%	5189.989157	5190	2.1	100	Pass
Voltage: 100%	5189.988323	5190	2.3	100	Pass
Voltage: 85%	5189.989945	5190	1.9	100	Pass
Temperature: +40°	5189.987683	5190	2.4	100	Pass
Temperature: +30°	5189.989156	5190	2.1	100	Pass
Temperature: +20°	5189.996379	5190	0.7	100	Pass
Temperature: +10°	5190.002014	5190	0.4	100	Pass
Temperature: 0°	5190.008396	5190	1.6	100	Pass
Ch. 44/48, High Channel 5230 MHz					
Voltage: 100%	5229.98709	5230	2.5	100	Pass
Temperature: +40°	5229.987845	5230	2.3	100	Pass
Temperature: +30°	5229.988029	5230	2.3	100	Pass
Temperature: +20°	5229.994004	5230	1.2	100	Pass
Temperature: +10°	5229.99894	5230	0.2	100	Pass
Temperature: 0°	5230.006483	5230	1.2	100	Pass
Ch. 52/56, High Channel 5310 MHz					
Voltage: 115%	5309.987731	5310	2.3	100	Pass
Voltage: 100%	5309.987147	5310	2.4	100	Pass
Voltage: 85%	5309.988131	5310	2.2	100	Pass
Temperature: +40°	5309.987697	5310	2.3	100	Pass
Temperature: +30°	5309.987981	5310	2.3	100	Pass
Temperature: +20°	5309.994008	5310	1.1	100	Pass
Temperature: +10°	5309.998636	5310	0.3	100	Pass
Temperature: 0°	5310.005449	5310	1	100	Pass
Ch. 100/104, High Channel 5510 MHz					
Voltage: 115%	5509.987498	5510	2.3	100	Pass
Voltage: 100%	5509.98721	5510	2.3	100	Pass
Voltage: 85%	5509.987648	5510	2.2	100	Pass
Temperature: +40°	5509.987059	5510	2.4	100	Pass
Temperature: +30°	5509.987949	5510	2.2	100	Pass
Temperature: +20°	5509.995127	5510	0.9	100	Pass
Temperature: +10°	5509.999506	5510	0.1	100	Pass
Temperature: 0°	5510.007029	5510	1.3	100	Pass
Ch. 42, Low Channel 5210 MHz					
Voltage: 115%	5209.987315	5210	2.4	100	Pass
Voltage: 100%	5209.986459	5210	2.6	100	Pass
Voltage: 85%	5209.98817	5210	2.3	100	Pass
Temperature: +40°	5209.987643	5210	2.4	100	Pass

Temperature: +30°	5209.988116	5210	2.3	100	Pass
Temperature: +20°	5209.995411	5210	0.9	100	Pass
Temperature: +10°	5210.000444	5210	0.1	100	Pass
Temperature: 0°	5210.008249	5210	1.6	100	Pass
Ch. 58, High Channel 5290 MHz					
Voltage: 115%	5289.988382	5290	2.2	100	Pass
Voltage: 100%	5289.986844	5290	2.5	100	Pass
Voltage: 85%	5289.987128	5290	2.4	100	Pass
Temperature: +40°	5289.987612	5290	2.3	100	Pass
Temperature: +30°	5289.987863	5290	2.3	100	Pass
Temperature: +20°	5289.994092	5290	1.1	100	Pass
Temperature: +10°	5289.999204	5290	0.2	100	Pass
Temperature: 0°	5290.007226	5290	1.4	100	Pass
Ch. 106, Low Channel 5530 MHz					
Voltage: 115%	5529.986239	5530	2.5	100	Pass
Voltage: 100%	5529.986861	5530	2.4	100	Pass
Voltage: 85%	5529.986306	5530	2.5	100	Pass
Temperature: +40°	5529.987273	5530	2.3	100	Pass
Temperature: +30°	5529.987194	5530	2.3	100	Pass
Temperature: +20°	5529.993103	5530	1.3	100	Pass
Temperature: +10°	5529.998189	5530	0.3	100	Pass
Temperature: 0°	5530.006881	5530	1.2	100	Pass

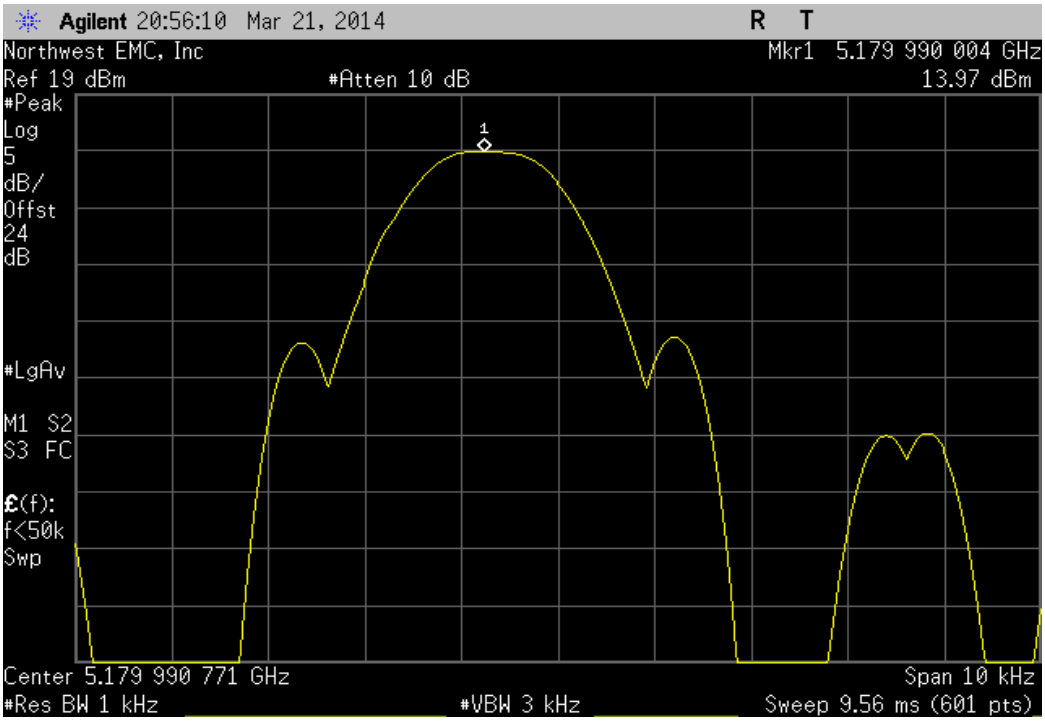
Ch. 36, Low Channel 5180 MHz, Voltage: 115%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5179.989086	5180	2.1	100	Pass



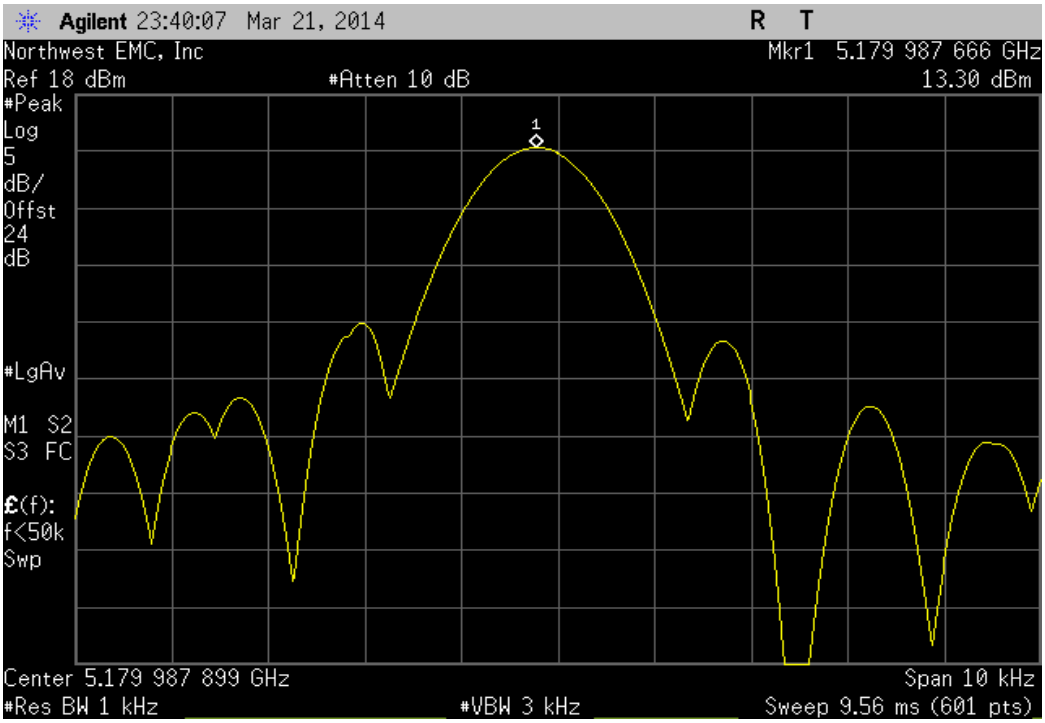
Ch. 36, Low Channel 5180 MHz, Voltage: 100%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5179.988167	5180	2.3	100	Pass



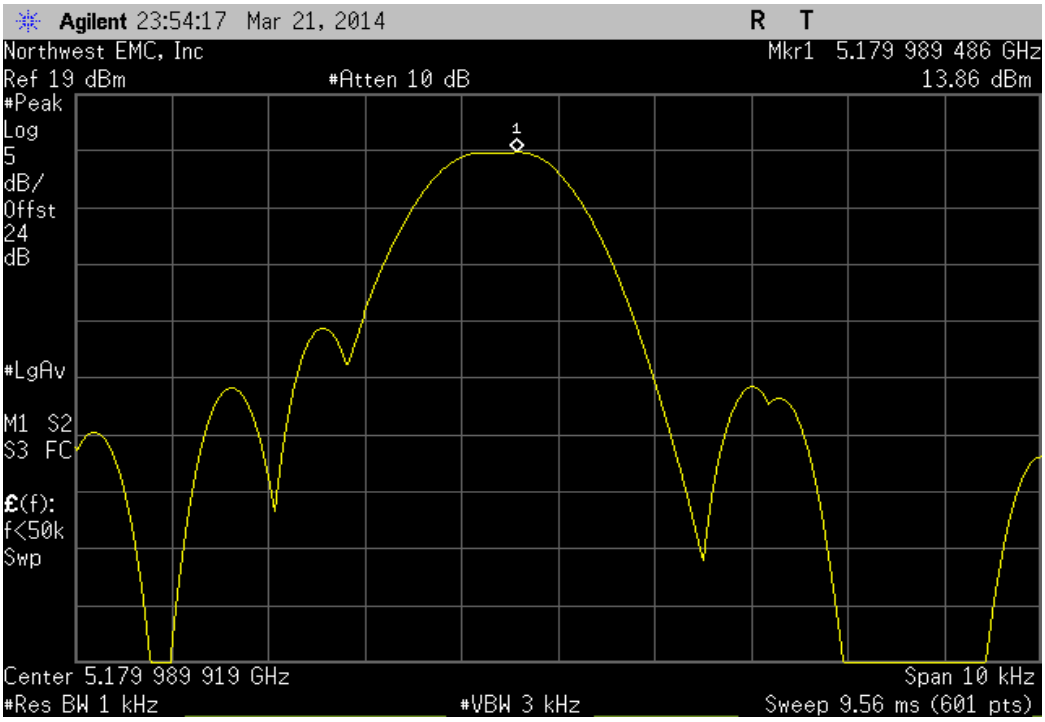
Ch. 36, Low Channel 5180 MHz, Voltage: 85%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5179.990004	5180	1.9	100	Pass



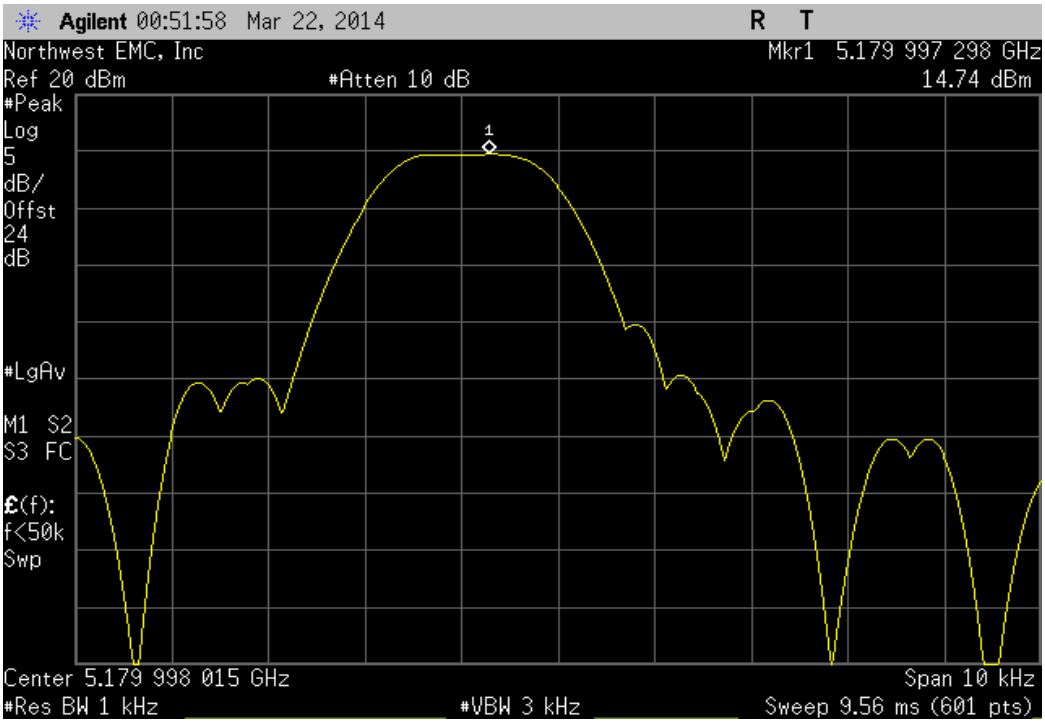
Ch. 36, Low Channel 5180 MHz, Temperature: +40°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5179.987666	5180	2.4	100	Pass



Ch. 36, Low Channel 5180 MHz, Temperature: +30°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5179.989486	5180	2	100	Pass

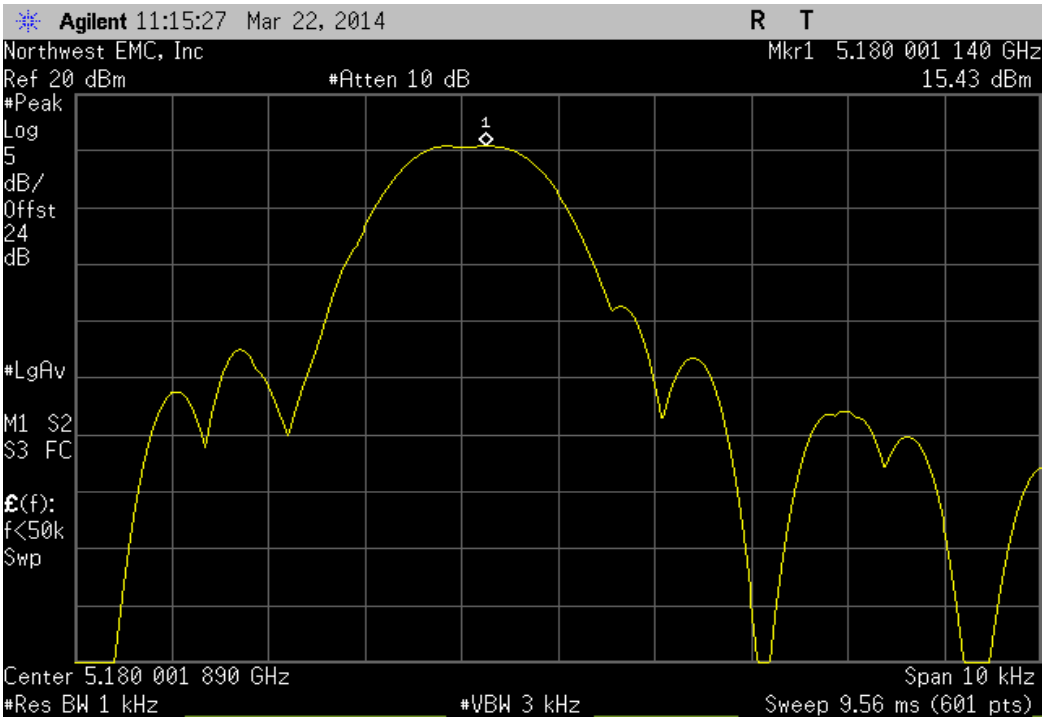


Ch. 36, Low Channel 5180 MHz, Temperature: +20°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5179.997298	5180	0.5	100	Pass

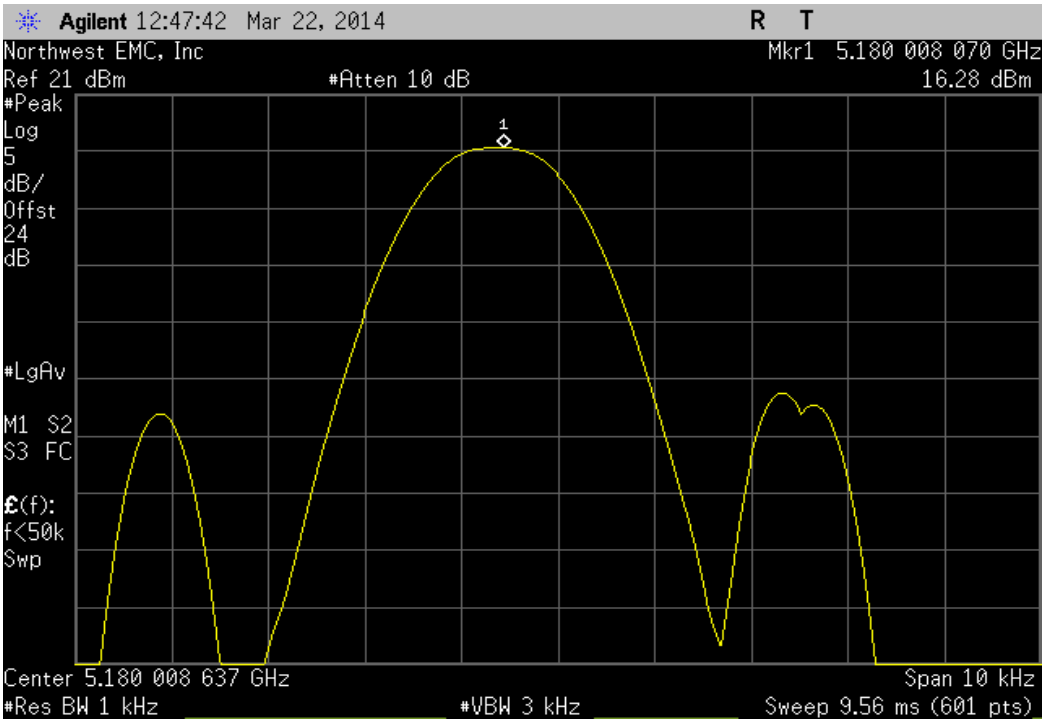


FREQUENCY STABILITY

Ch. 36, Low Channel 5180 MHz, Temperature: +10°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5180.00114	5180	0.2	100	Pass

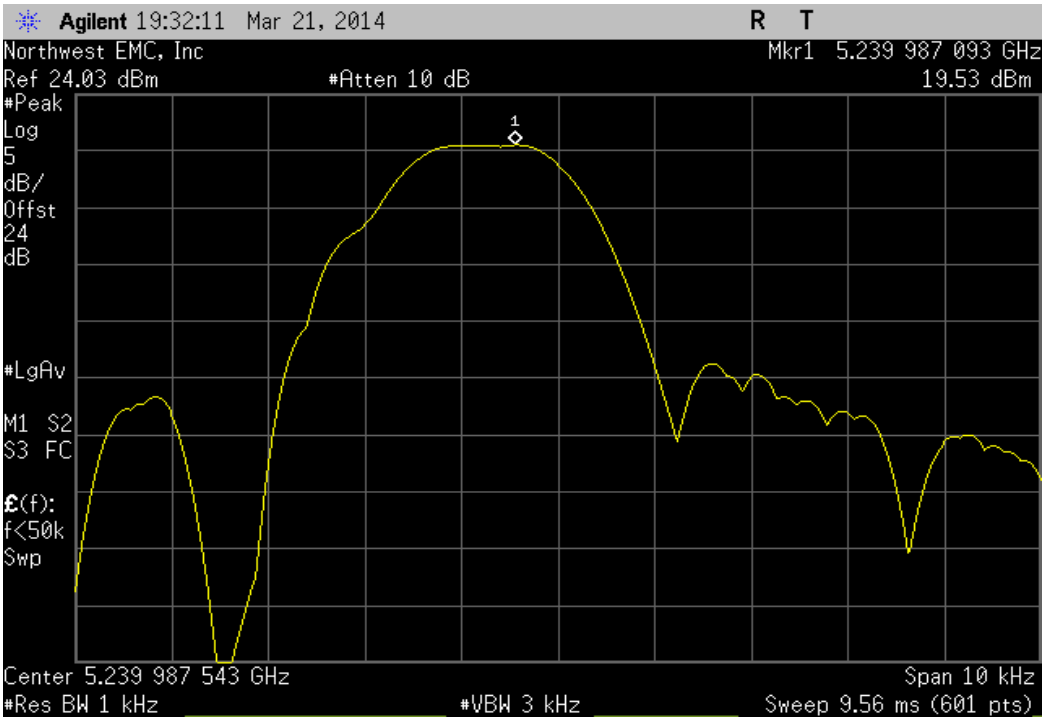


Ch. 36, Low Channel 5180 MHz, Temperature: 0°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5180.00807	5180	1.6	100	Pass

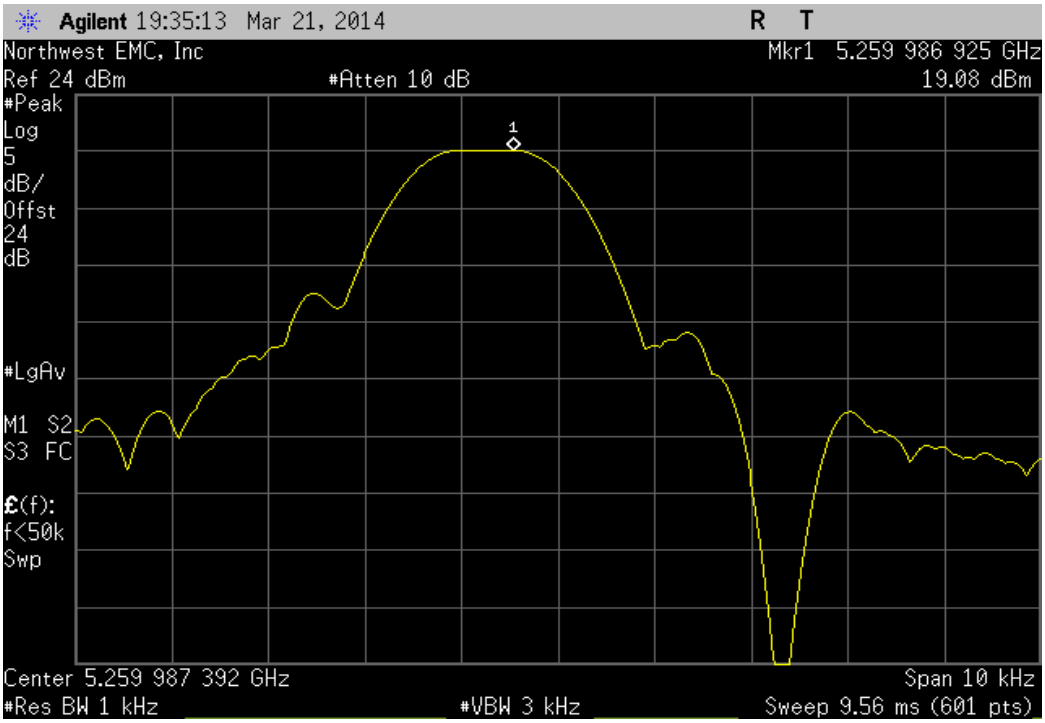


FREQUENCY STABILITY

Ch. 48, High Channel 5240 MHz, Voltage: 100%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5239.987093	5240	2.5	100	Pass

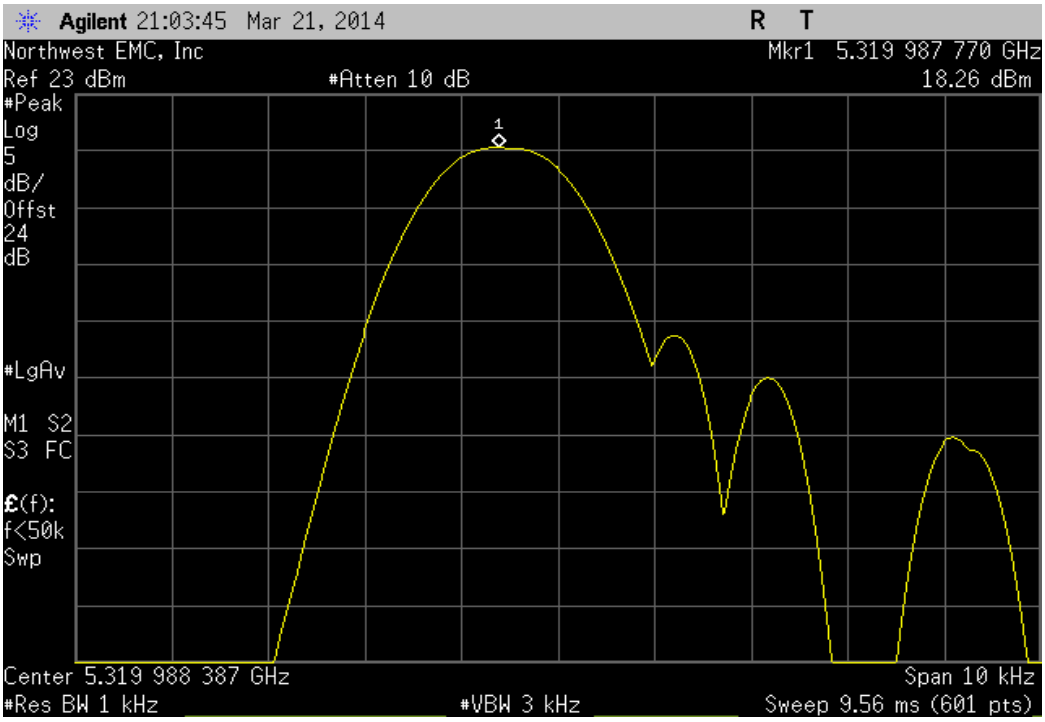


Ch. 52, Low Channel 5260 MHz, Voltage: 100%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5259.986925	5260	2.5	100	Pass

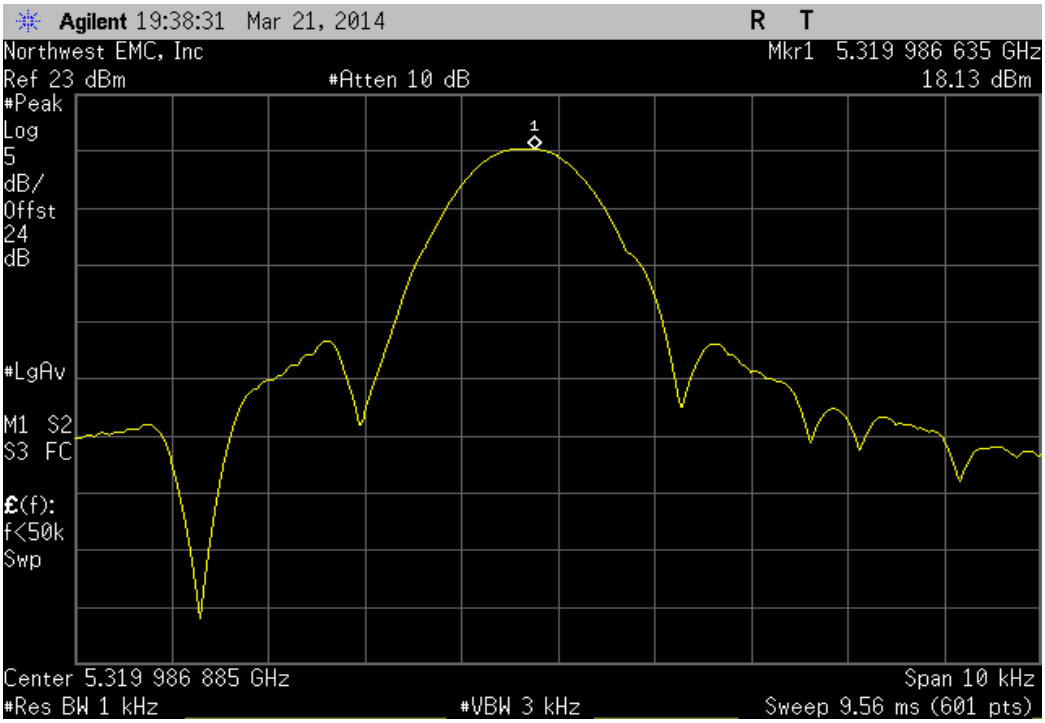


FREQUENCY STABILITY

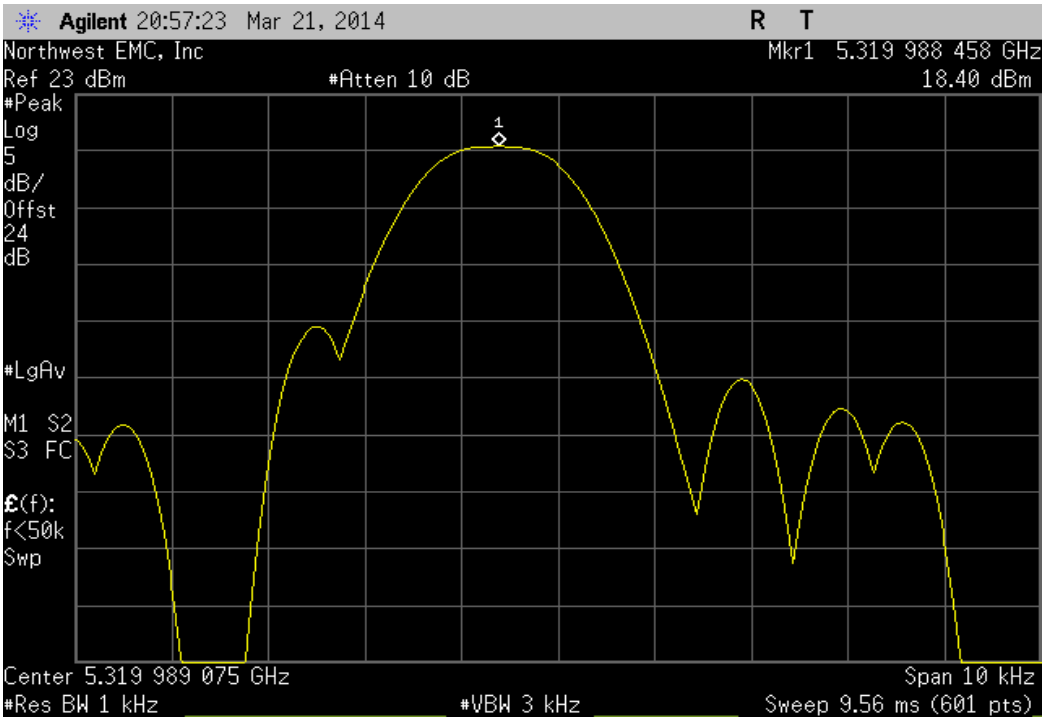
Ch. 64, High Channel 5320 MHz, Voltage: 115%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5319.98777	5320	2.3	100	Pass



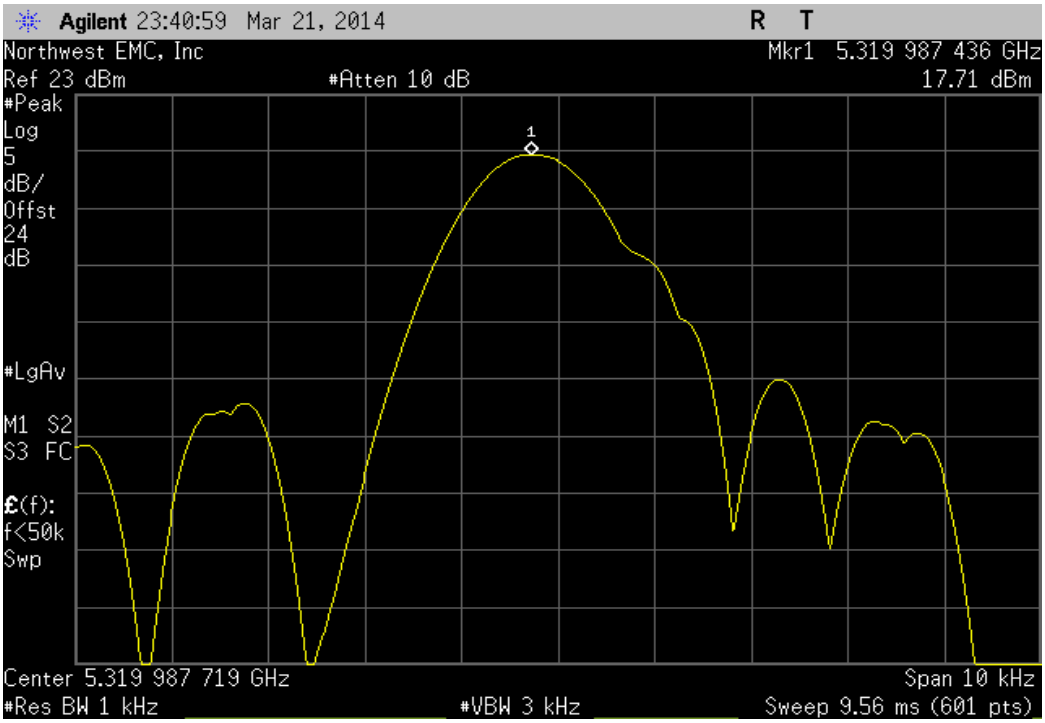
Ch. 64, High Channel 5320 MHz, Voltage: 100%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5319.986635	5320	2.5	100	Pass



Ch. 64, High Channel 5320 MHz, Voltage: 85%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5319.988458	5320	2.2	100	Pass

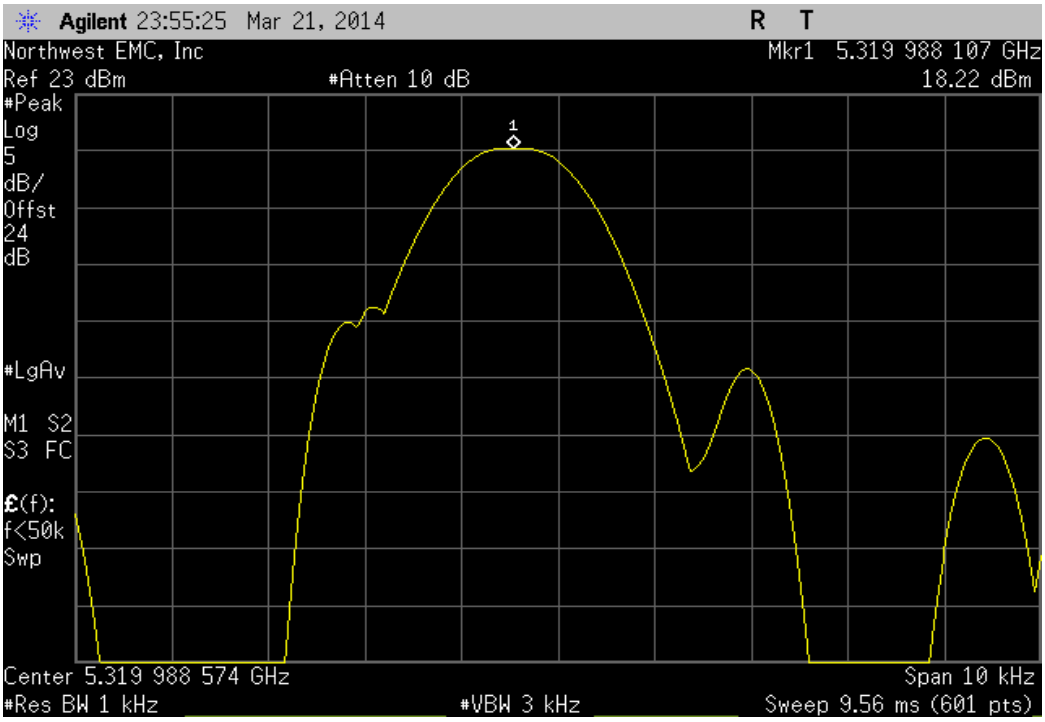


Ch. 64, High Channel 5320 MHz, Temperature: +40°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5319.987436	5320	2.4	100	Pass

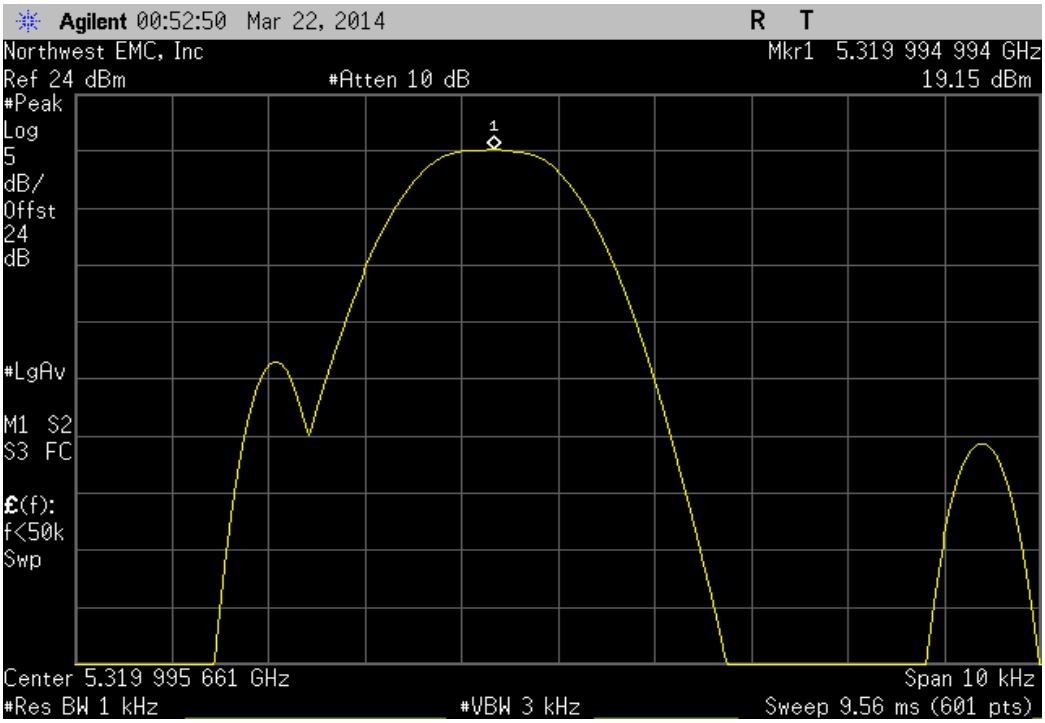


FREQUENCY STABILITY

Ch. 64, High Channel 5320 MHz, Temperature: +30°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5319.988107	5320	2.2	100	Pass

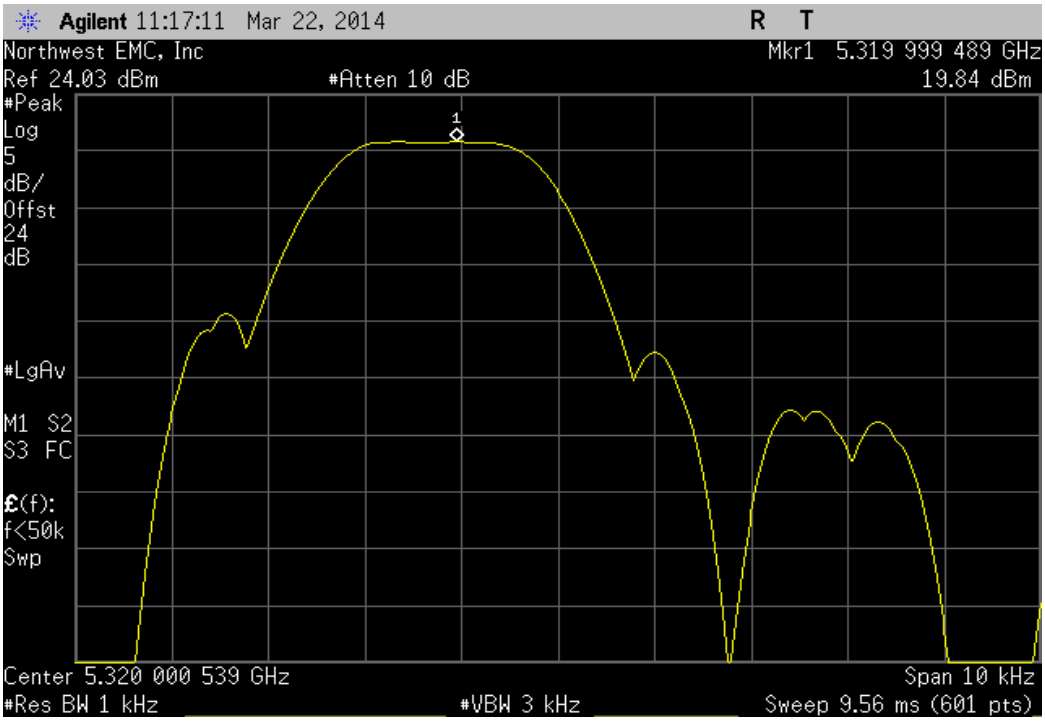


Ch. 64, High Channel 5320 MHz, Temperature: +20°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5319.994994	5320	0.9	100	Pass

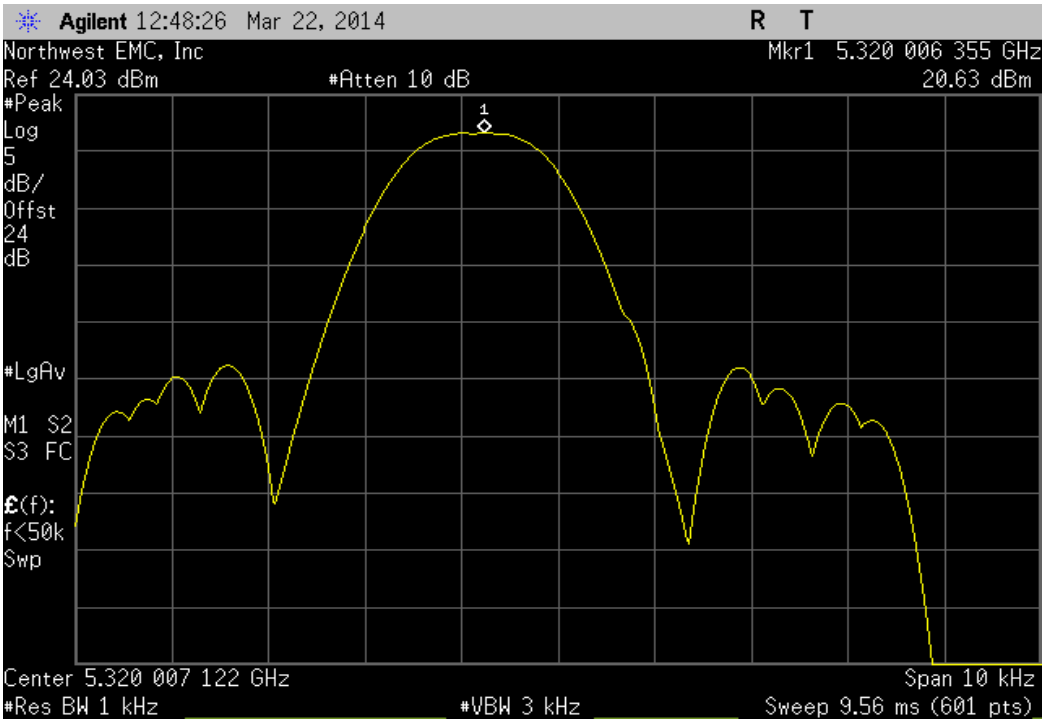


FREQUENCY STABILITY

Ch. 64, High Channel 5320 MHz, Temperature: +10°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5319.999489	5320	0.1	100	Pass

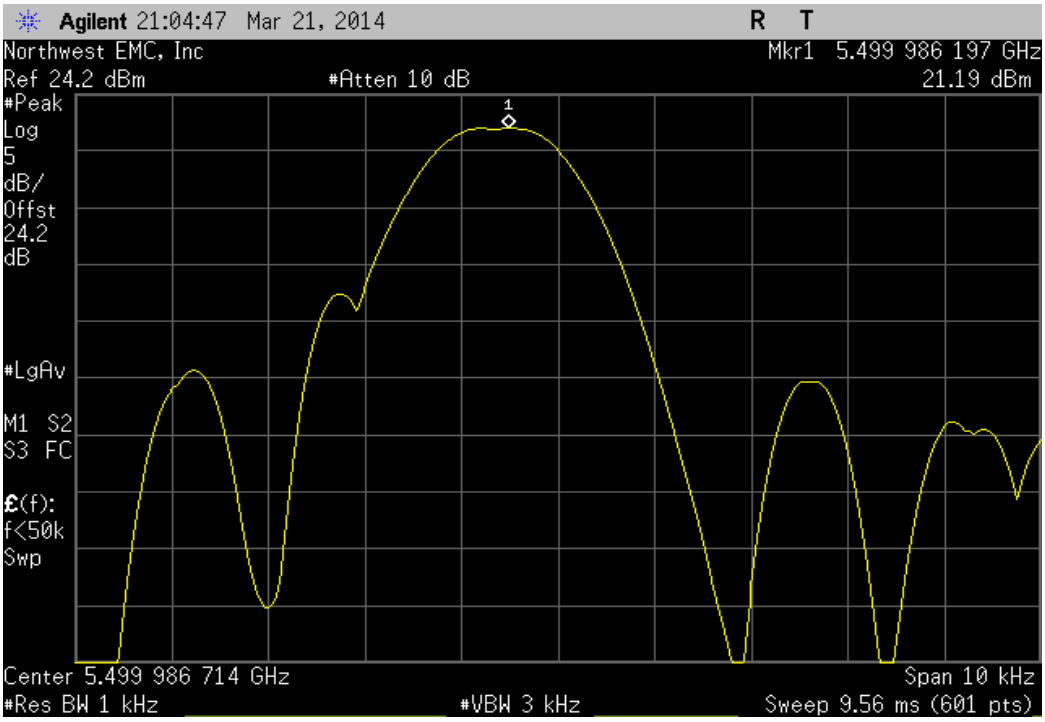


Ch. 64, High Channel 5320 MHz, Temperature: 0°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5320.006355	5320	1.2	100	Pass

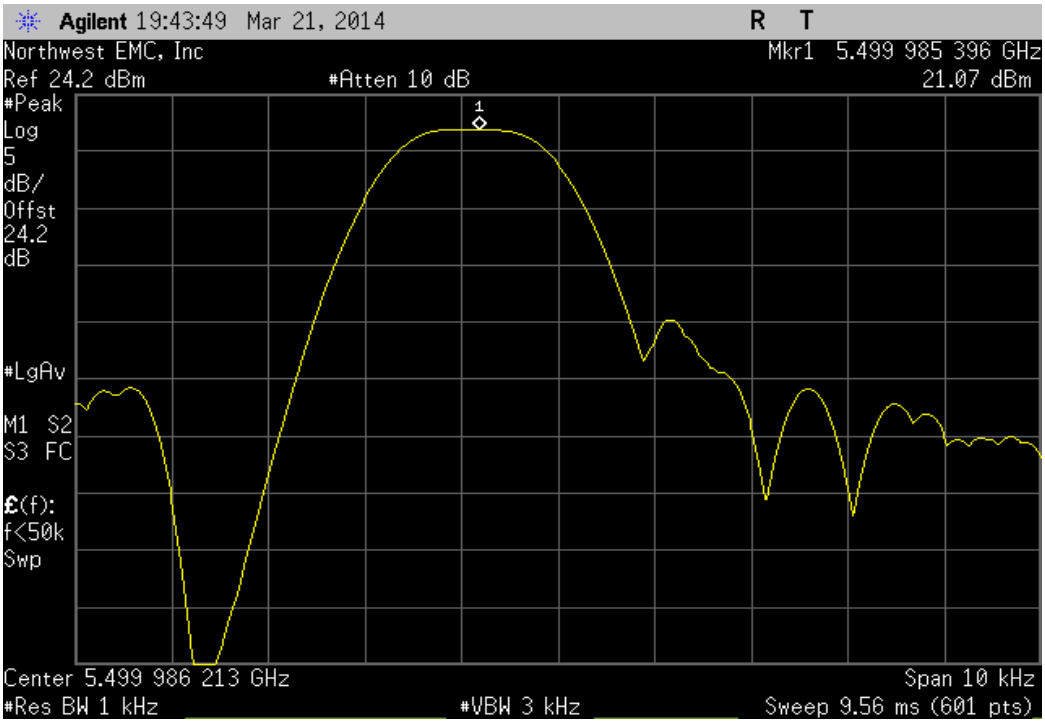


FREQUENCY STABILITY

Ch. 100, Low Channel 5500 MHz, Voltage: 115%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5499.986197	5500	2.5	100	Pass

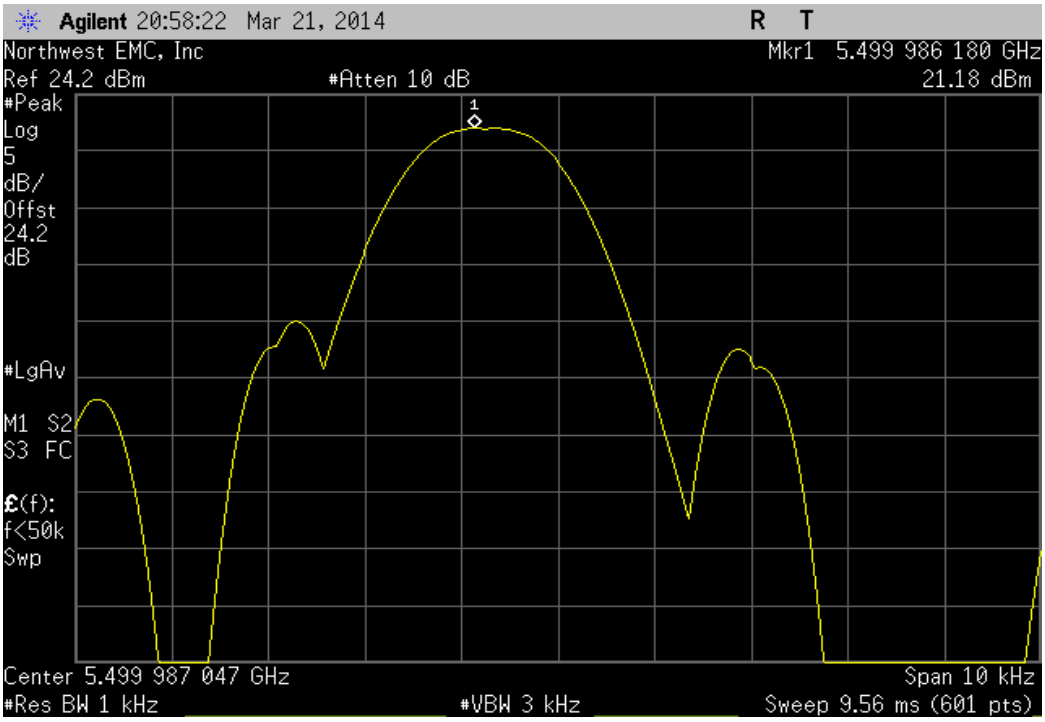


Ch. 100, Low Channel 5500 MHz, Voltage: 100%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5499.985396	5500	2.7	100	Pass

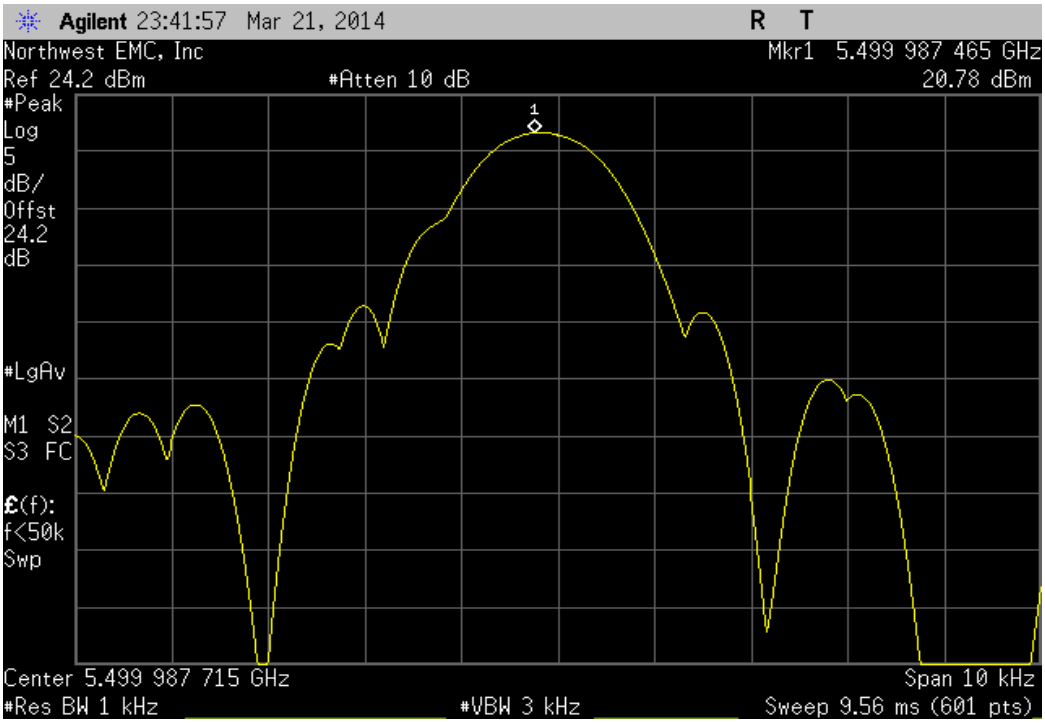


FREQUENCY STABILITY

Ch. 100, Low Channel 5500 MHz, Voltage: 85%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5499.98618	5500	2.5	100	Pass

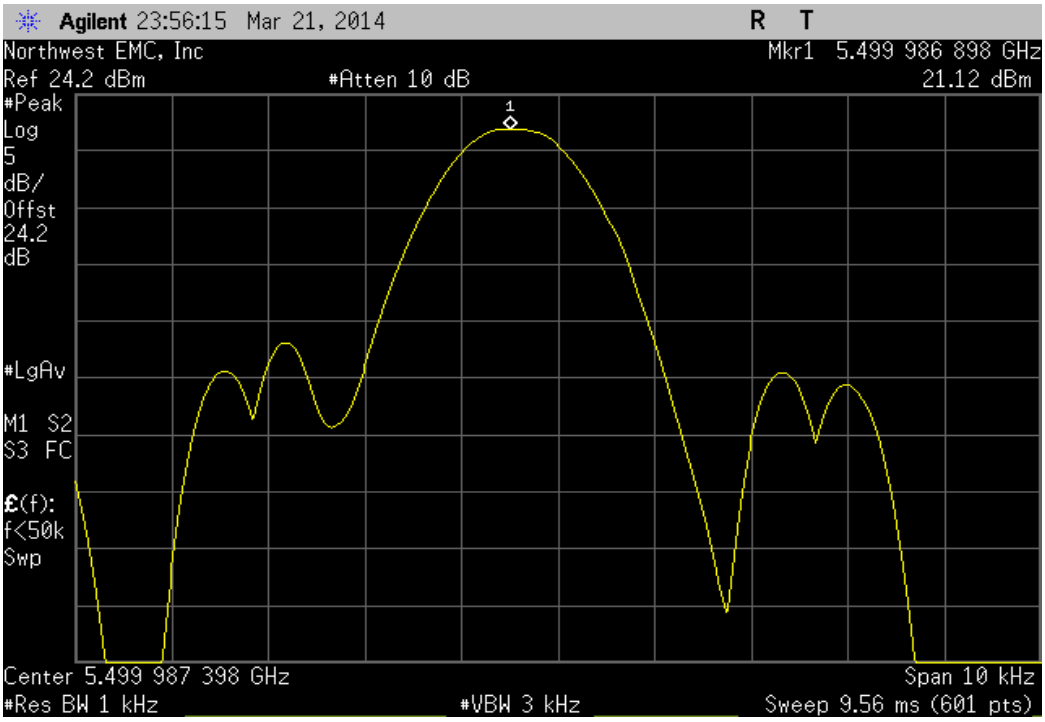


Ch. 100, Low Channel 5500 MHz, Temperature: +40°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5499.987465	5500	2.3	100	Pass

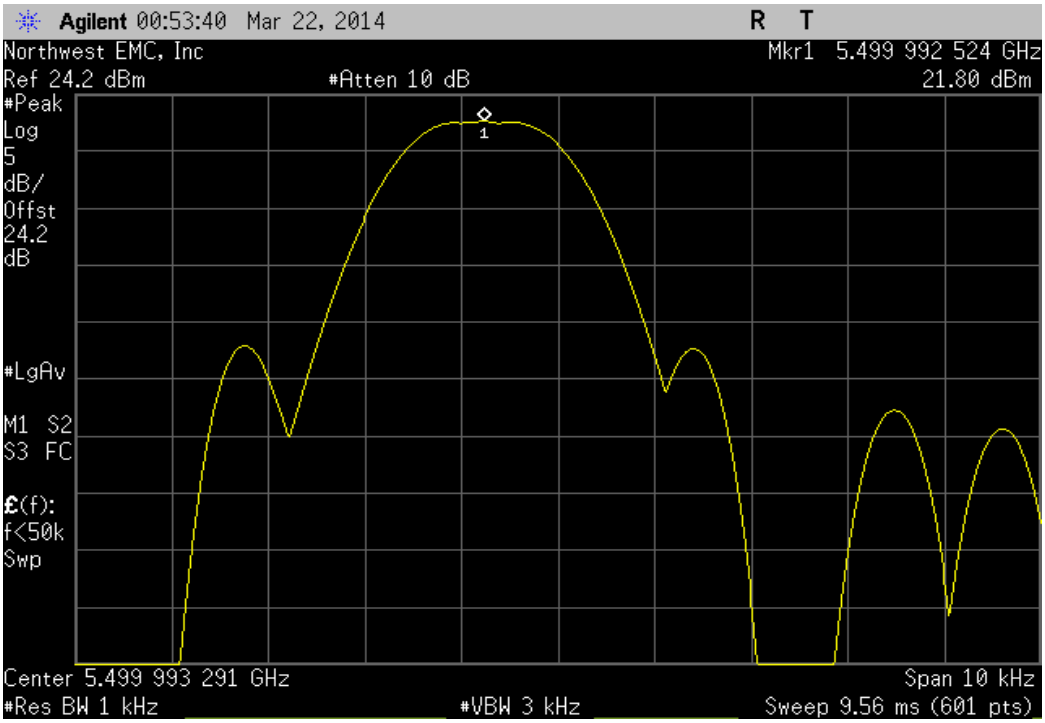


FREQUENCY STABILITY

Ch. 100, Low Channel 5500 MHz, Temperature: +30°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5499.986898	5500	2.4	100	Pass

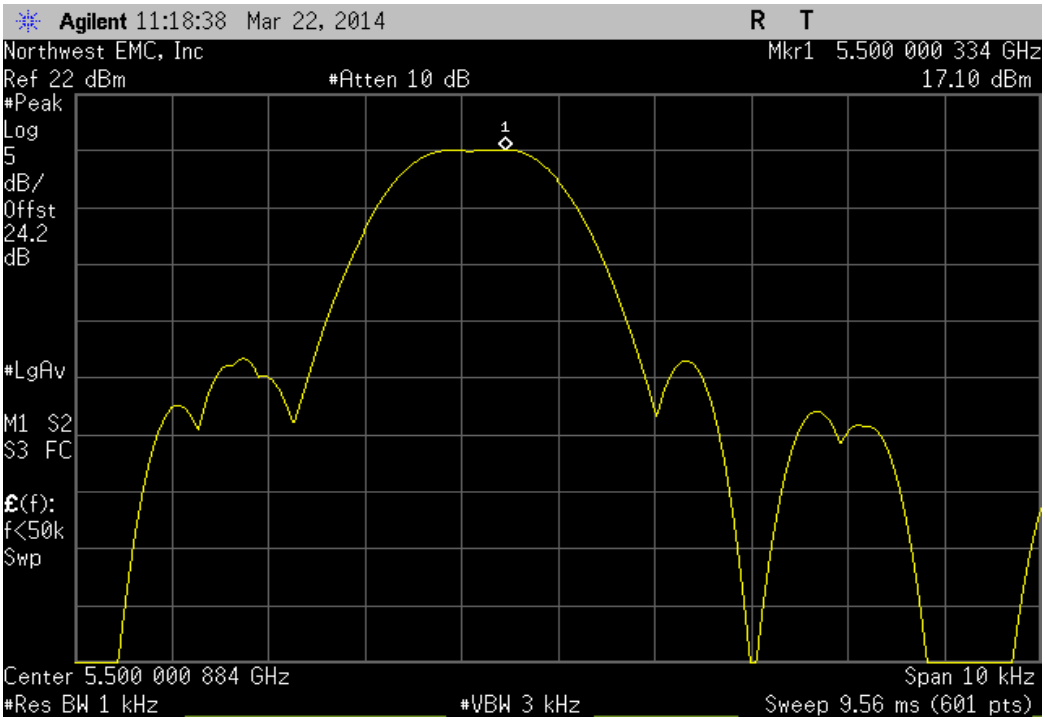


Ch. 100, Low Channel 5500 MHz, Temperature: +20°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5499.992524	5500	1.4	100	Pass

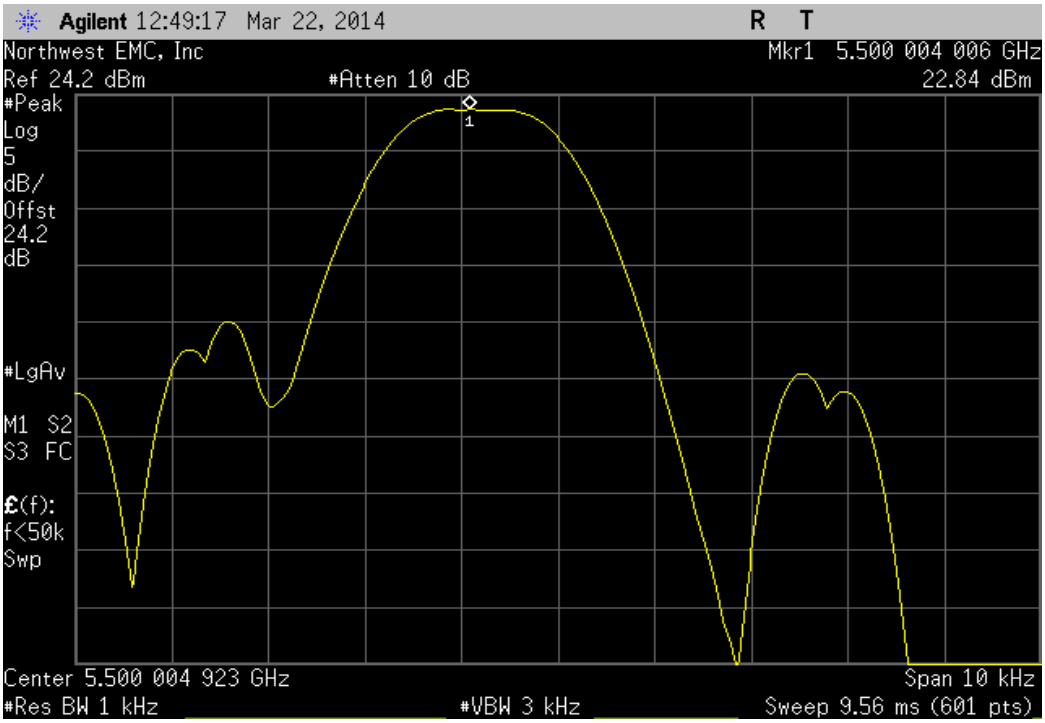


FREQUENCY STABILITY

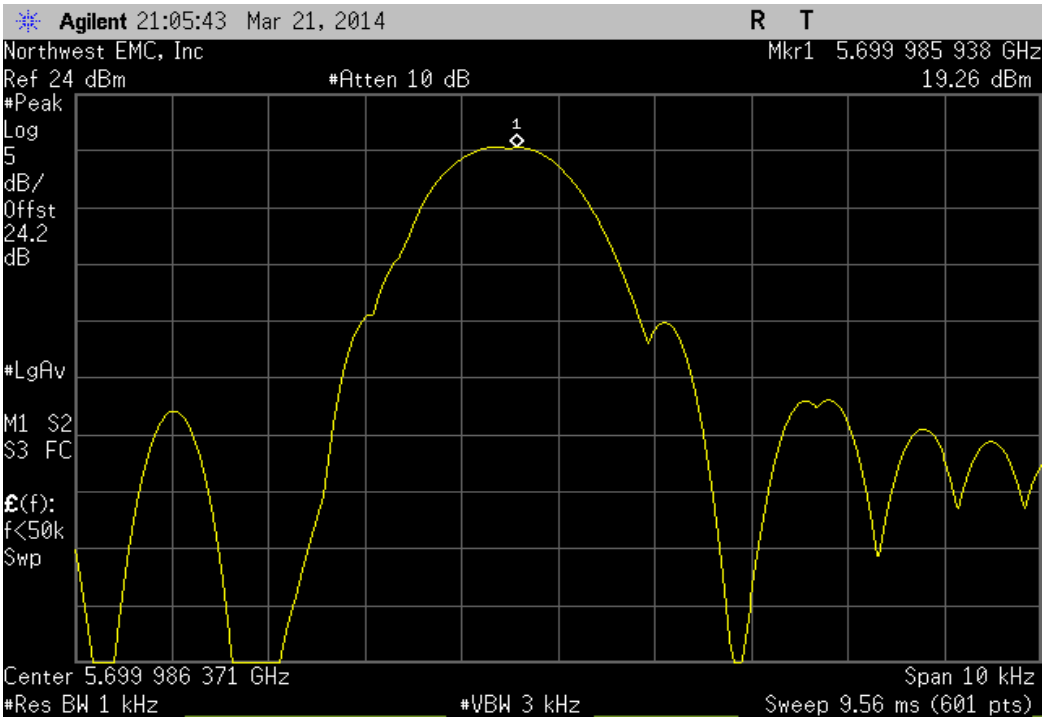
Ch. 100, Low Channel 5500 MHz, Temperature: +10°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5500.000334	5500	0.1	100	Pass



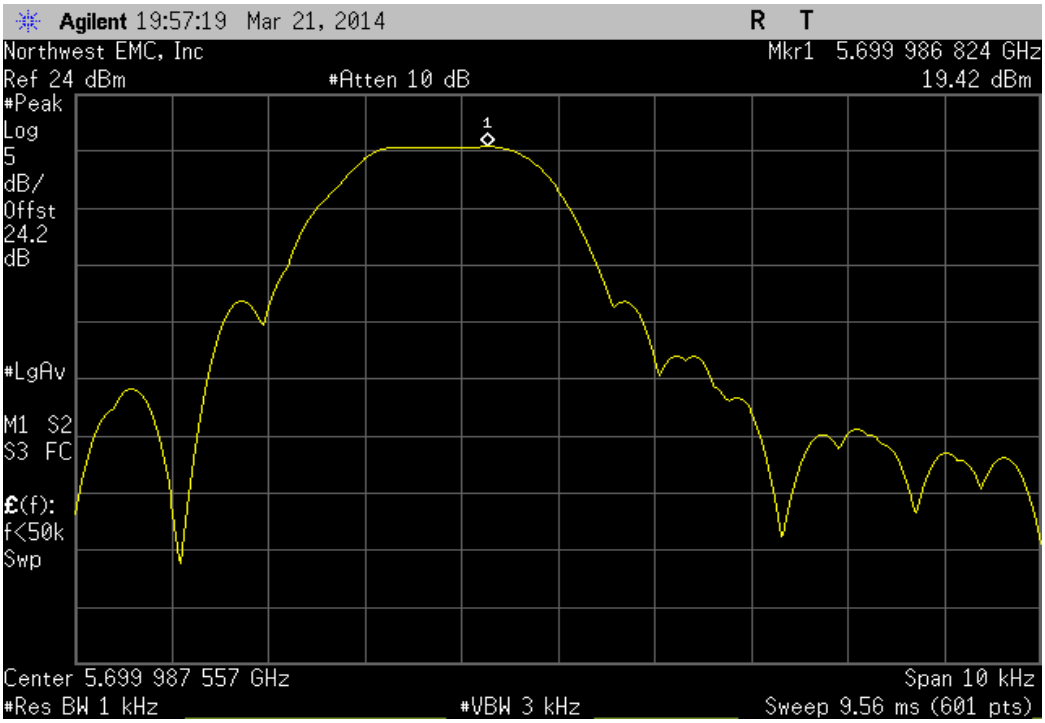
Ch. 100, Low Channel 5500 MHz, Temperature: 0°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5500.004006	5500	0.7	100	Pass



Ch. 140, High Channel 5700 MHz, Voltage: 115%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5699.985938	5700	2.5	100	Pass

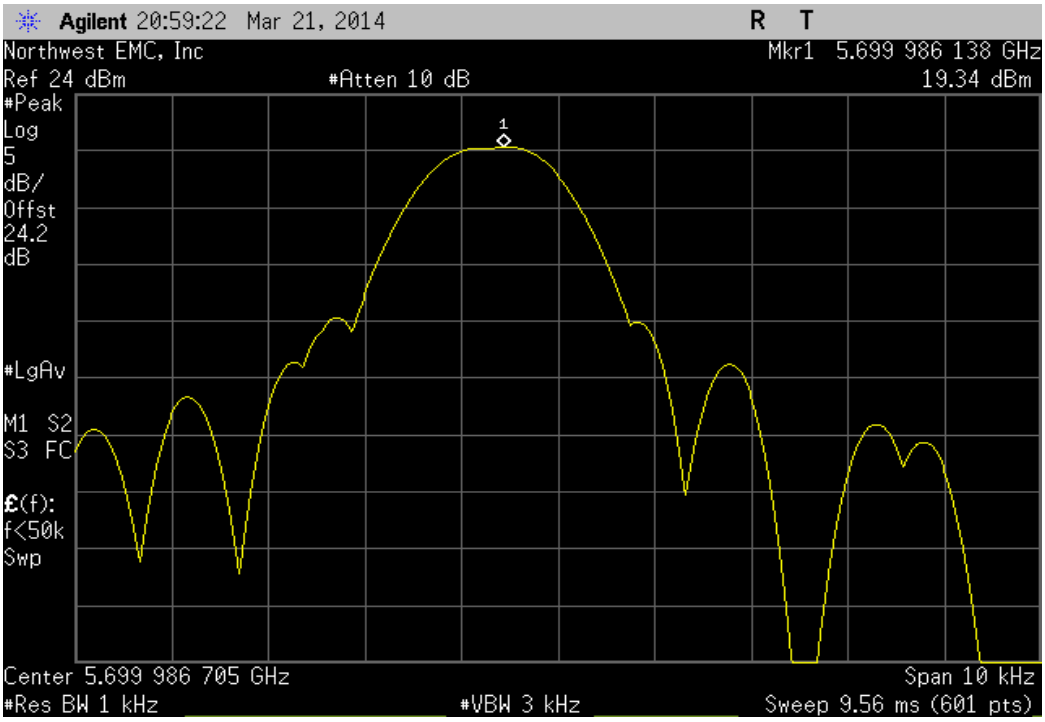


Ch. 140, High Channel 5700 MHz, Voltage: 100%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5699.986824	5700	2.3	100	Pass

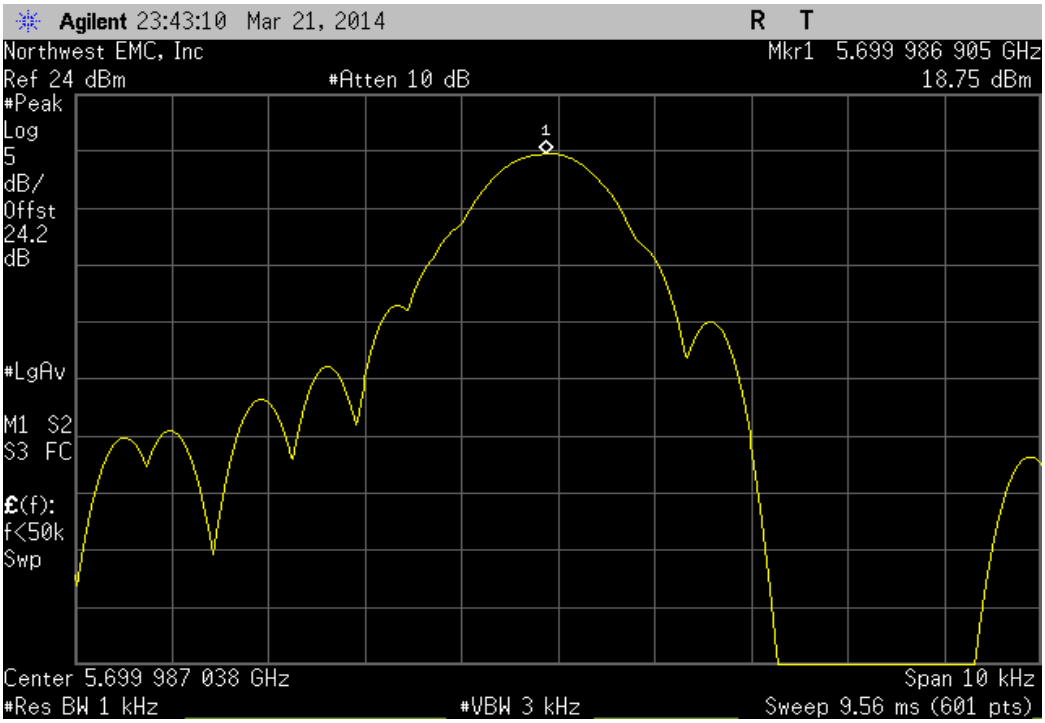


FREQUENCY STABILITY

Ch. 140, High Channel 5700 MHz, Voltage: 85%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5699.986138	5700	2.4	100	Pass

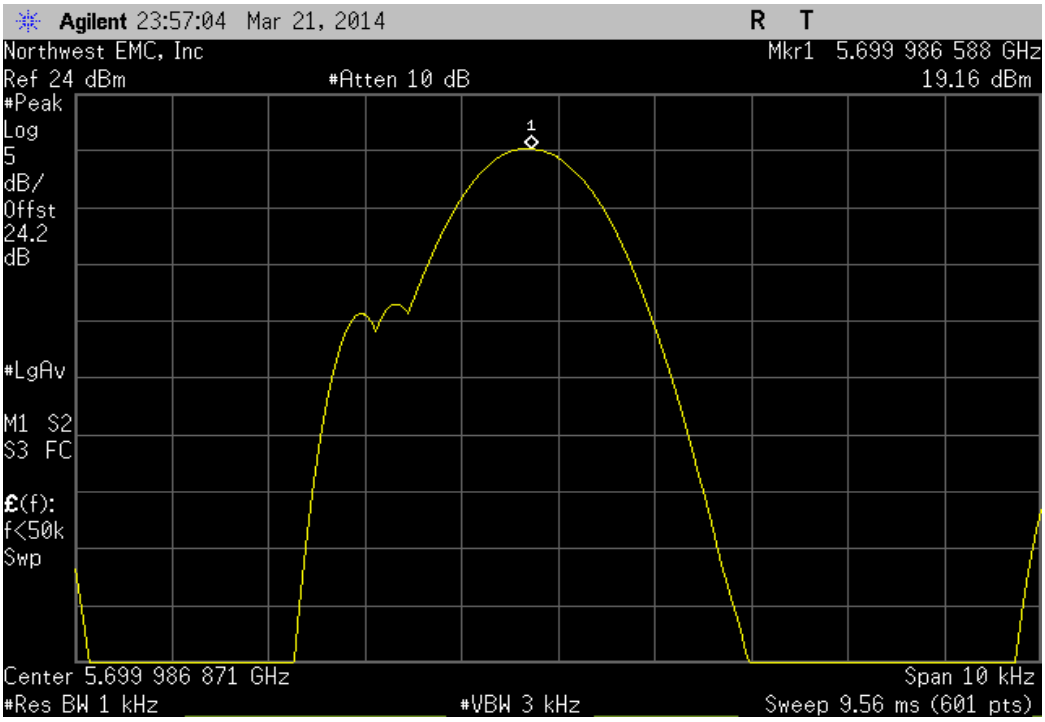


Ch. 140, High Channel 5700 MHz, Temperature: +40°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5699.986905	5700	2.3	100	Pass

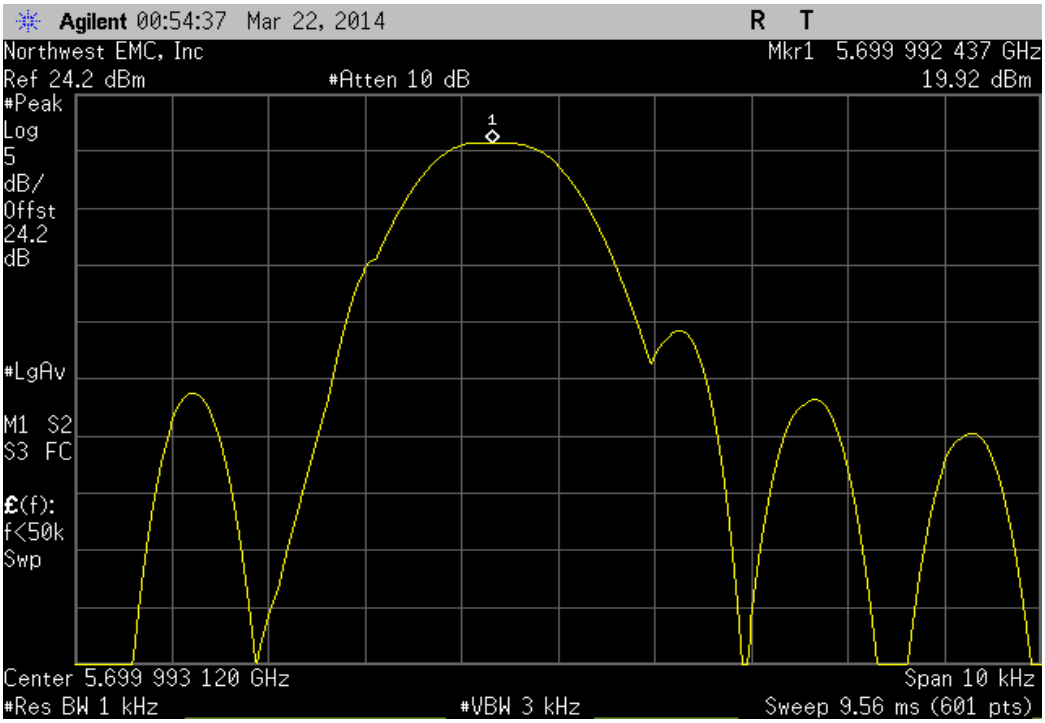


FREQUENCY STABILITY

Ch. 140, High Channel 5700 MHz, Temperature: +30°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5699.986588	5700	2.4	100	Pass

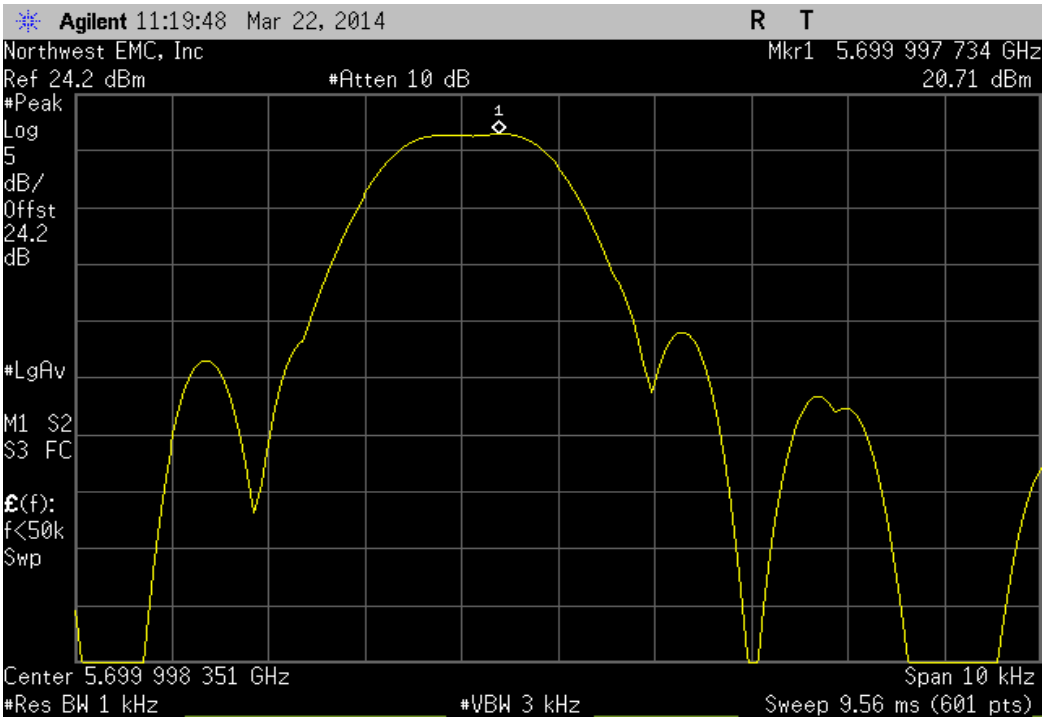


Ch. 140, High Channel 5700 MHz, Temperature: +20°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5699.992437	5700	1.3	100	Pass

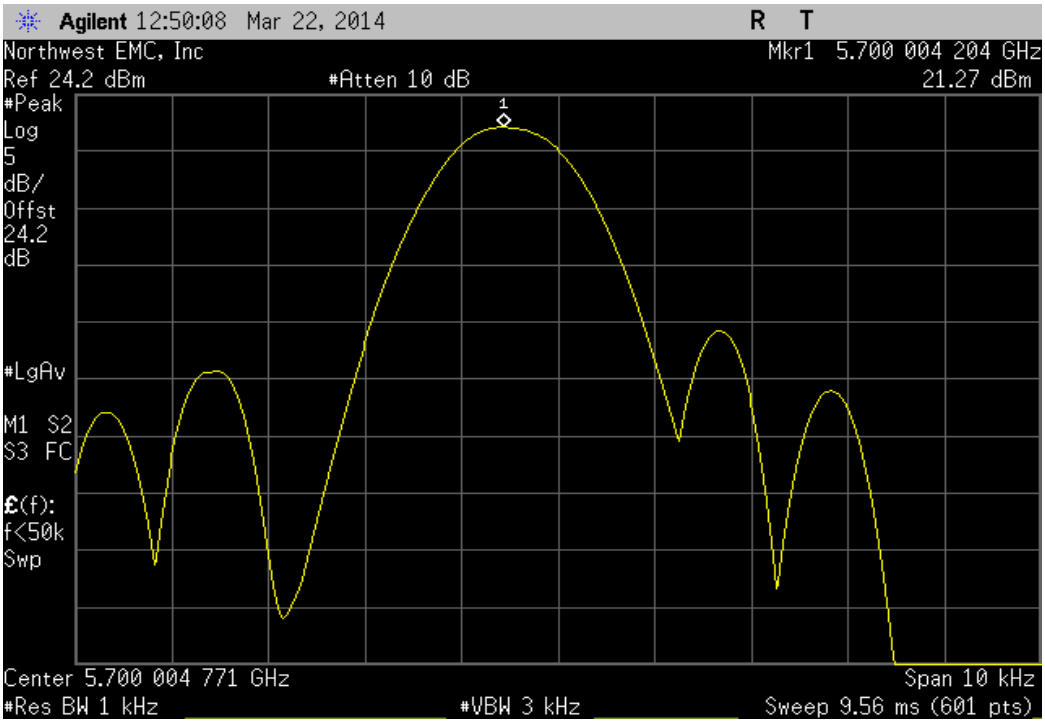


FREQUENCY STABILITY

Ch. 140, High Channel 5700 MHz, Temperature: +10°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5699.997734	5700	0.4	100	Pass

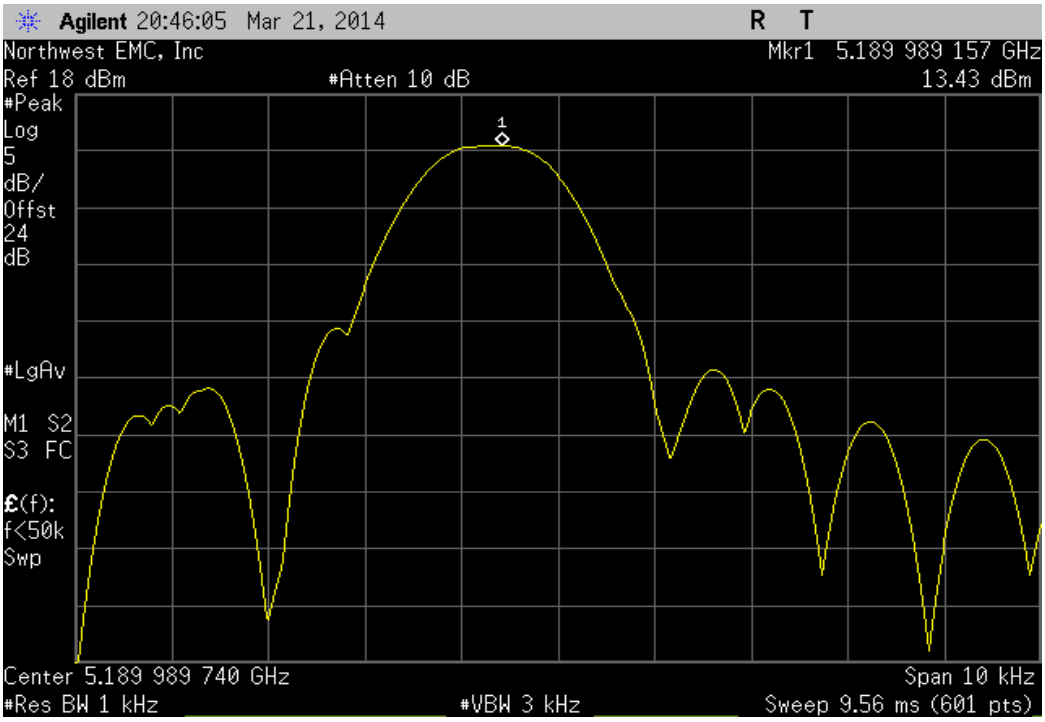


Ch. 140, High Channel 5700 MHz, Temperature: 0°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5700.004204	5700	0.7	100	Pass

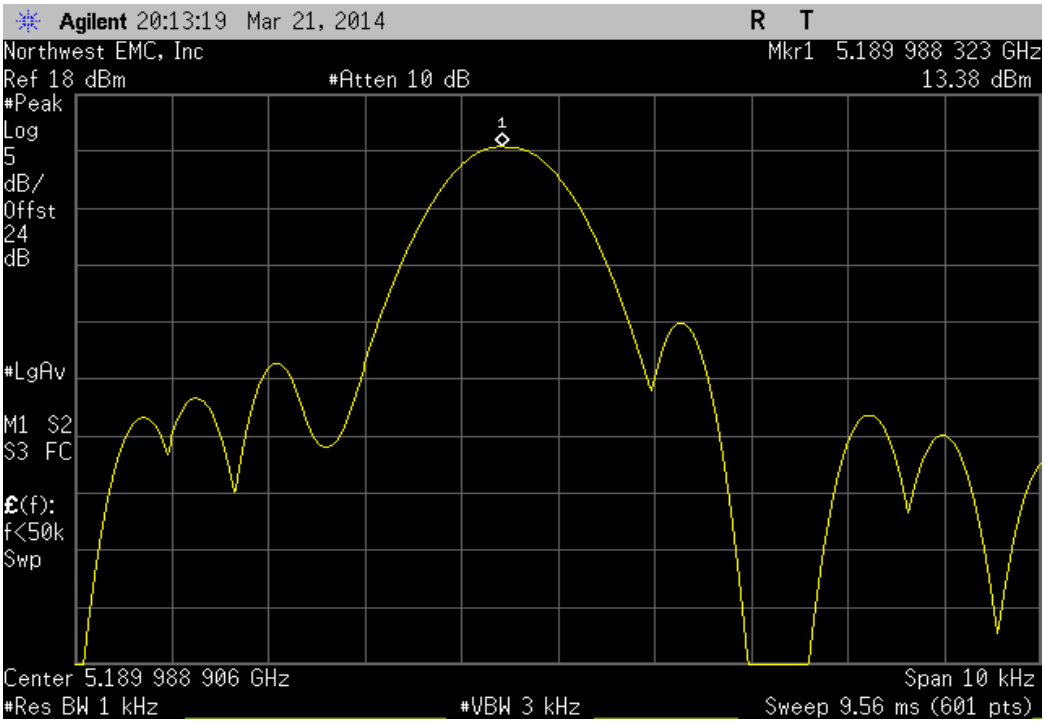


FREQUENCY STABILITY

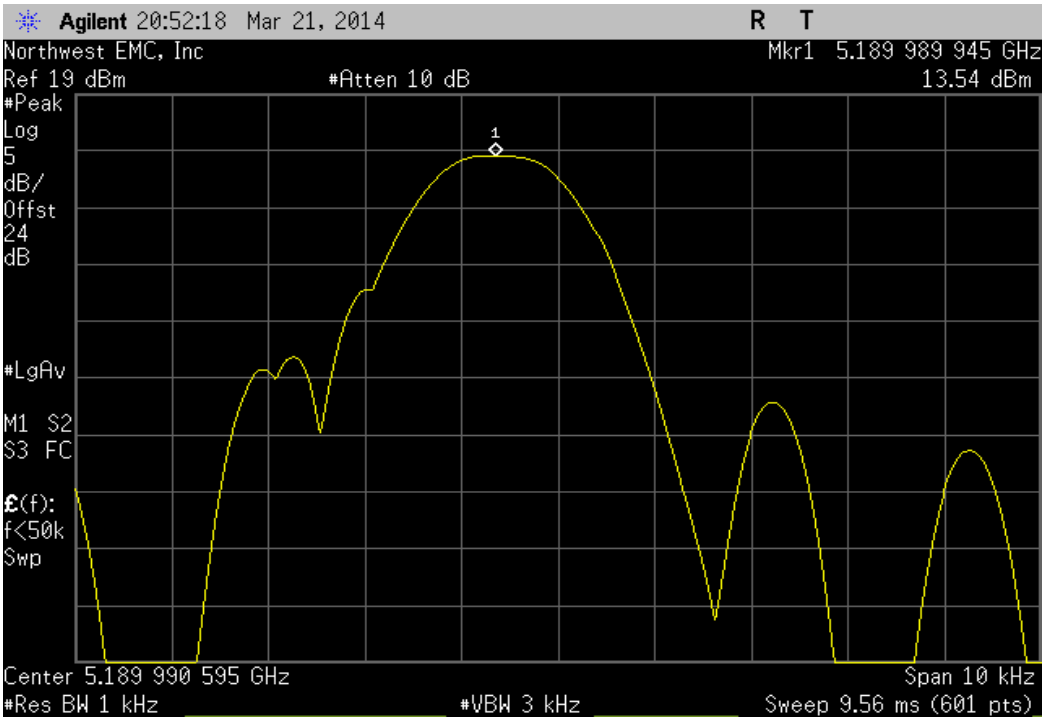
Ch. 36/40, Low Channel 5190 MHz, Voltage: 115%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5189.989157	5190	2.1	100	Pass



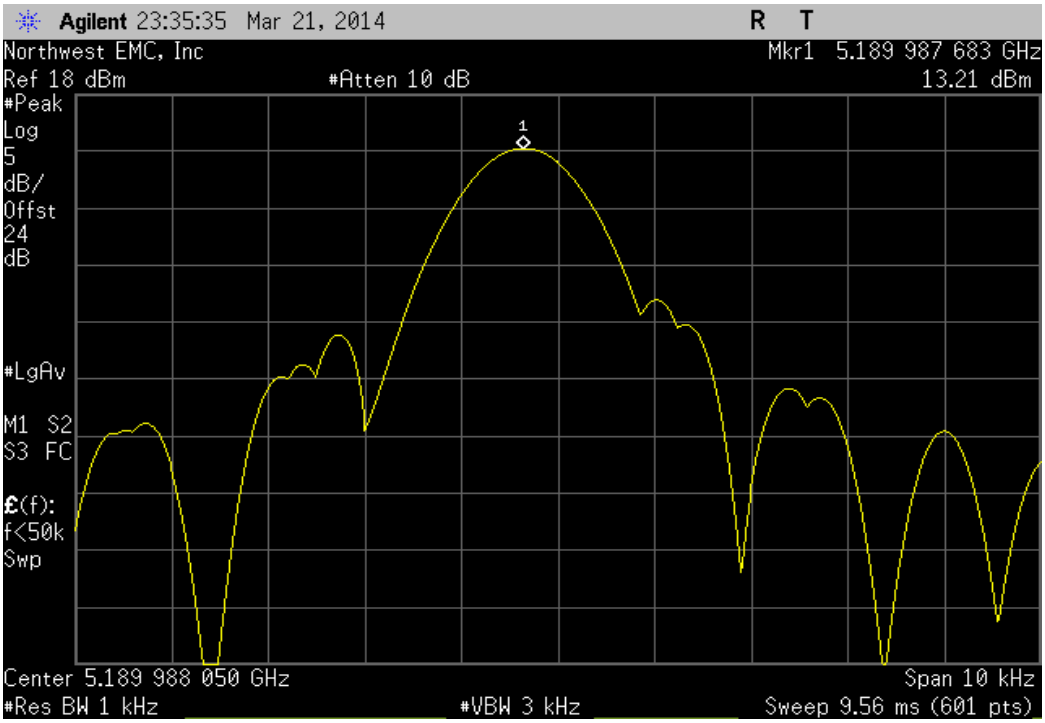
Ch. 36/40, Low Channel 5190 MHz, Voltage: 100%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5189.988323	5190	2.3	100	Pass



Ch. 36/40, Low Channel 5190 MHz, Voltage: 85%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5189.989945	5190	1.9	100	Pass

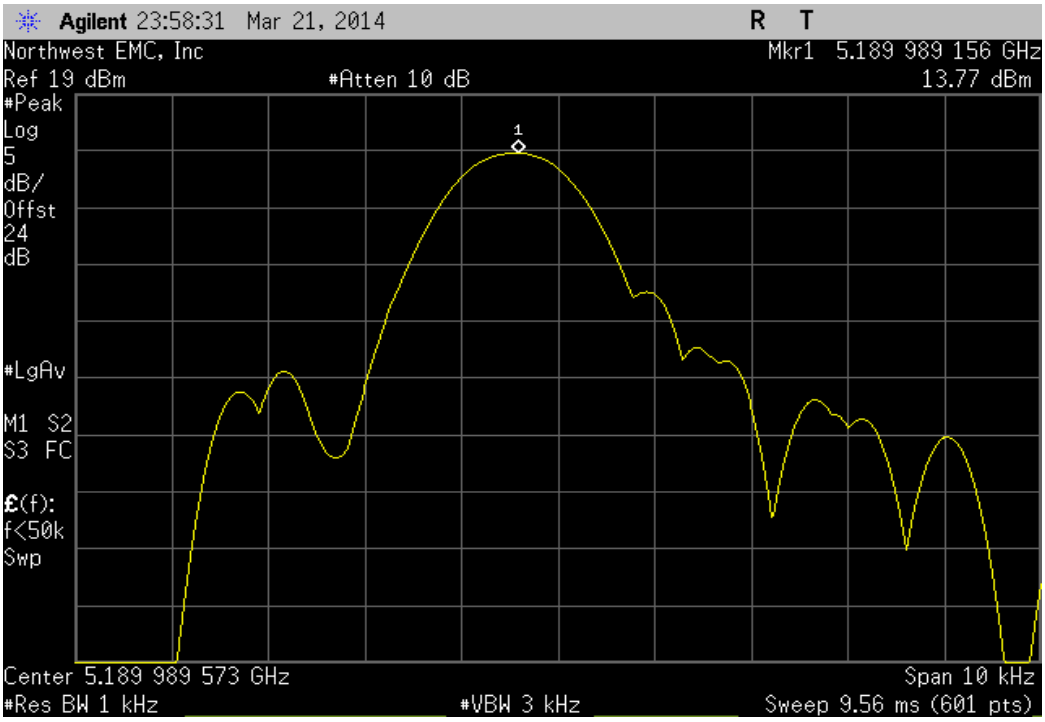


Ch. 36/40, Low Channel 5190 MHz, Temperature: +40°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5189.987683	5190	2.4	100	Pass

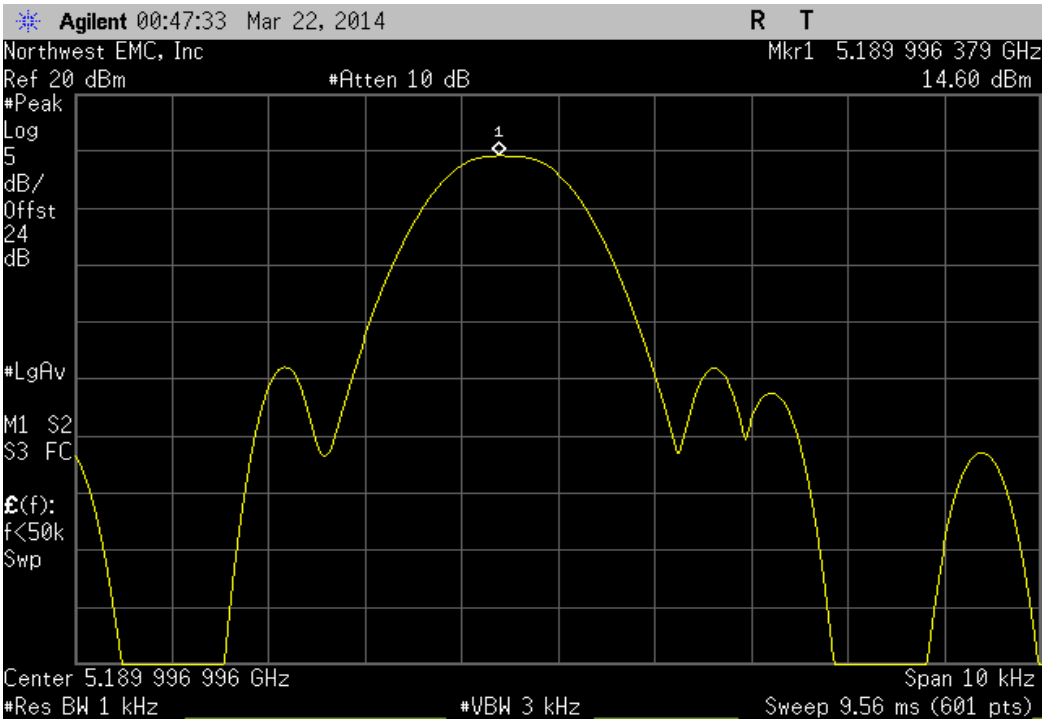


FREQUENCY STABILITY

Ch. 36/40, Low Channel 5190 MHz, Temperature: +30°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5189.989156	5190	2.1	100	Pass

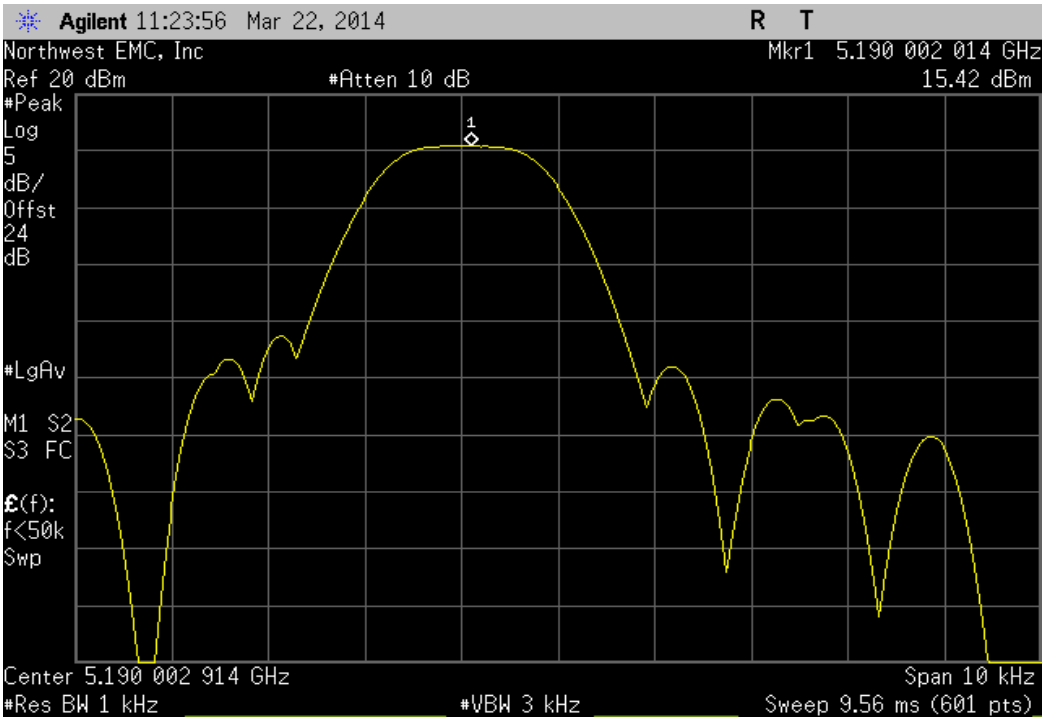


Ch. 36/40, Low Channel 5190 MHz, Temperature: +20°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5189.996379	5190	0.7	100	Pass

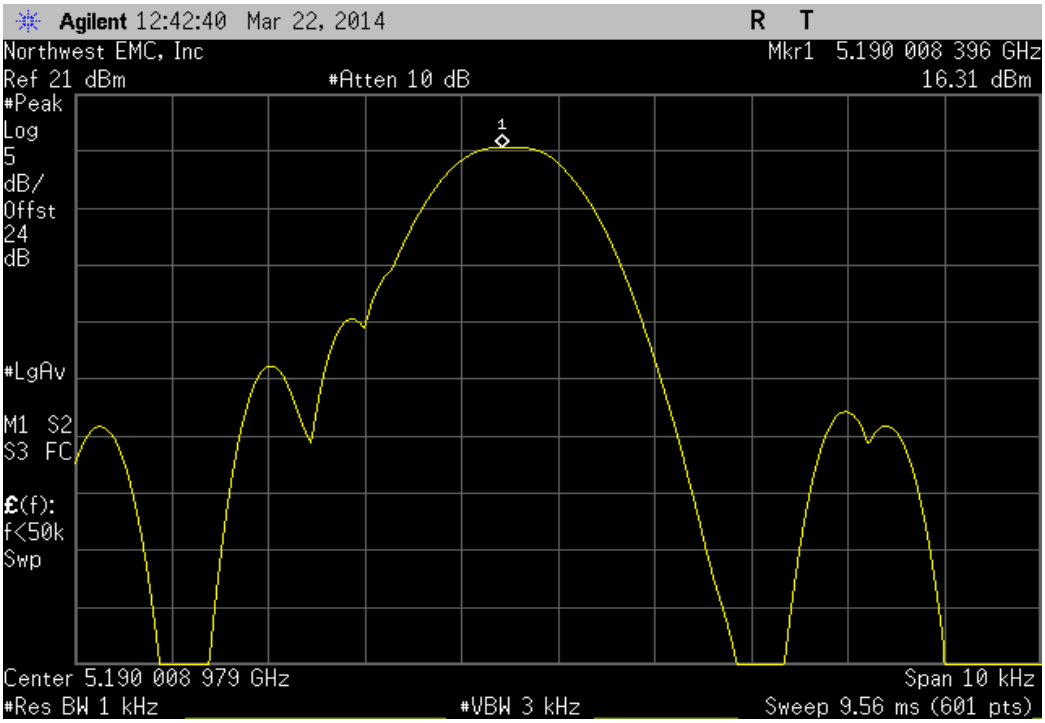


FREQUENCY STABILITY

Ch. 36/40, Low Channel 5190 MHz, Temperature: +10°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5190.002014	5190	0.4	100	Pass

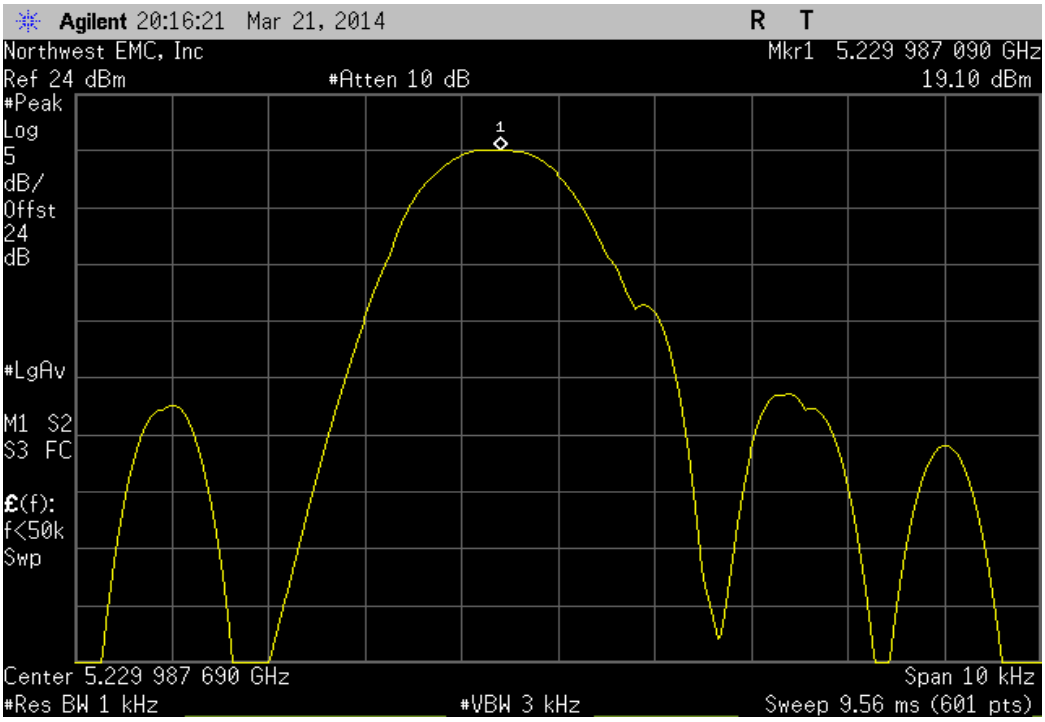


Ch. 36/40, Low Channel 5190 MHz, Temperature: 0°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5190.008396	5190	1.6	100	Pass

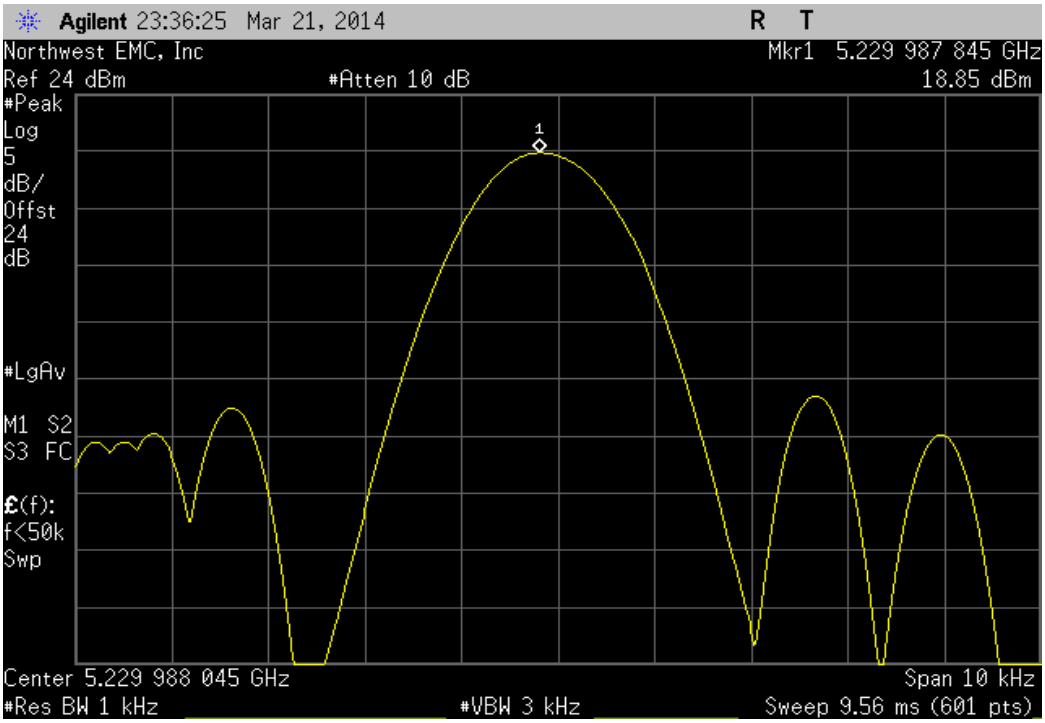


FREQUENCY STABILITY

Ch. 44/48, High Channel 5230 MHz, Voltage: 100%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5229.98709	5230	2.5	100	Pass

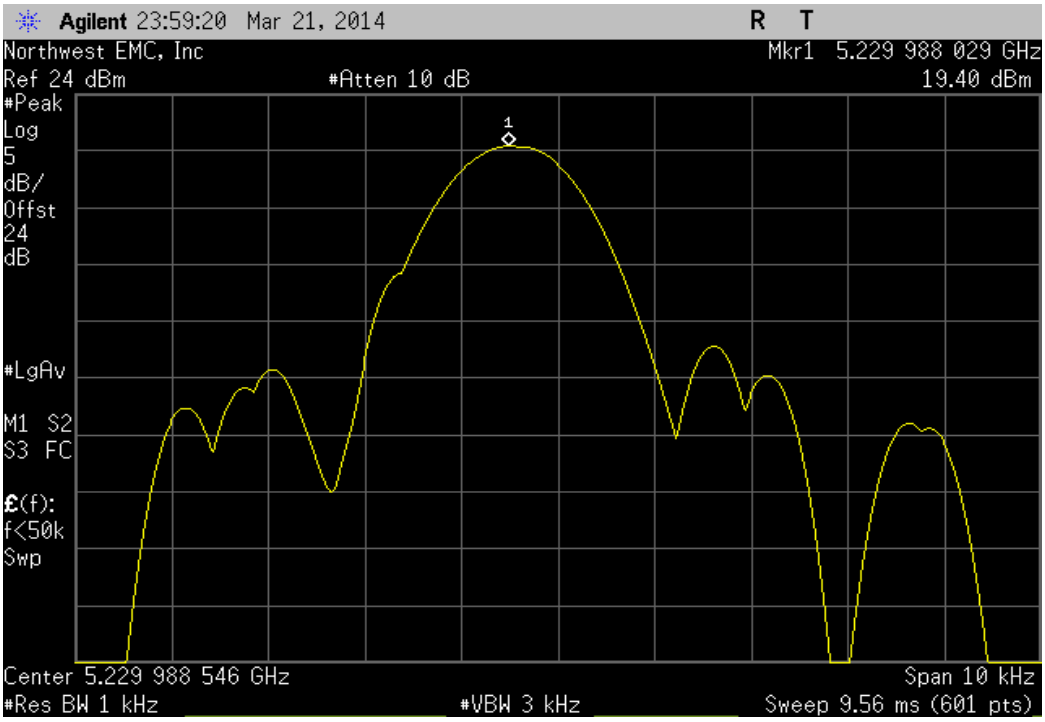


Ch. 44/48, High Channel 5230 MHz, Temperature: +40°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5229.987845	5230	2.3	100	Pass

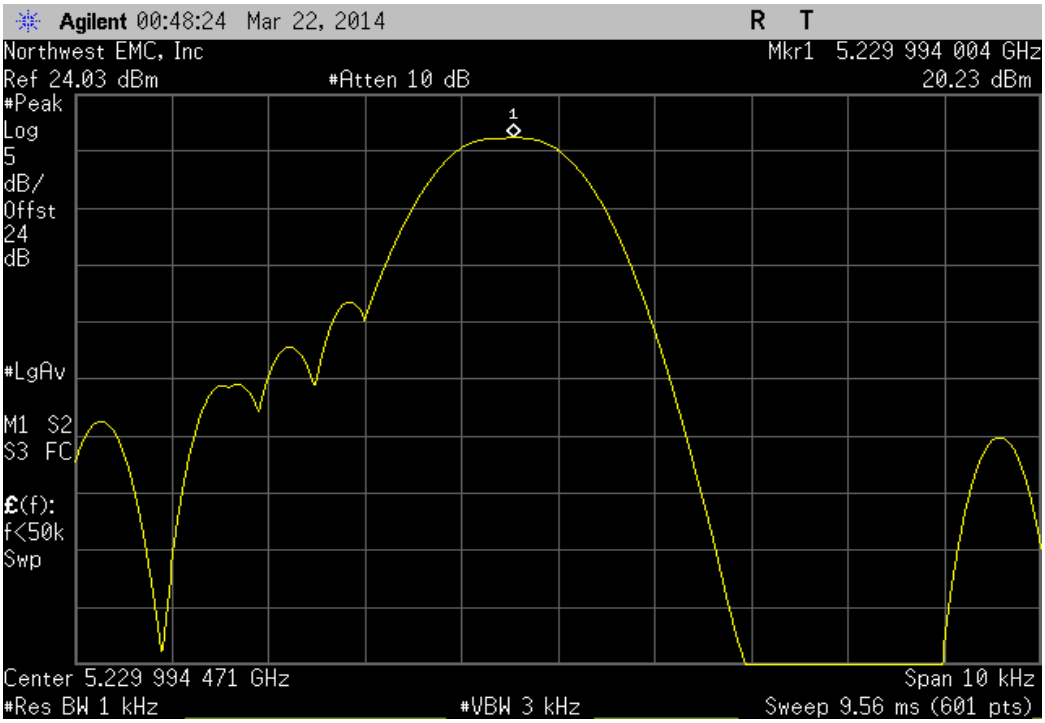


FREQUENCY STABILITY

Ch. 44/48, High Channel 5230 MHz, Temperature: +30°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5229.988029	5230	2.3	100	Pass

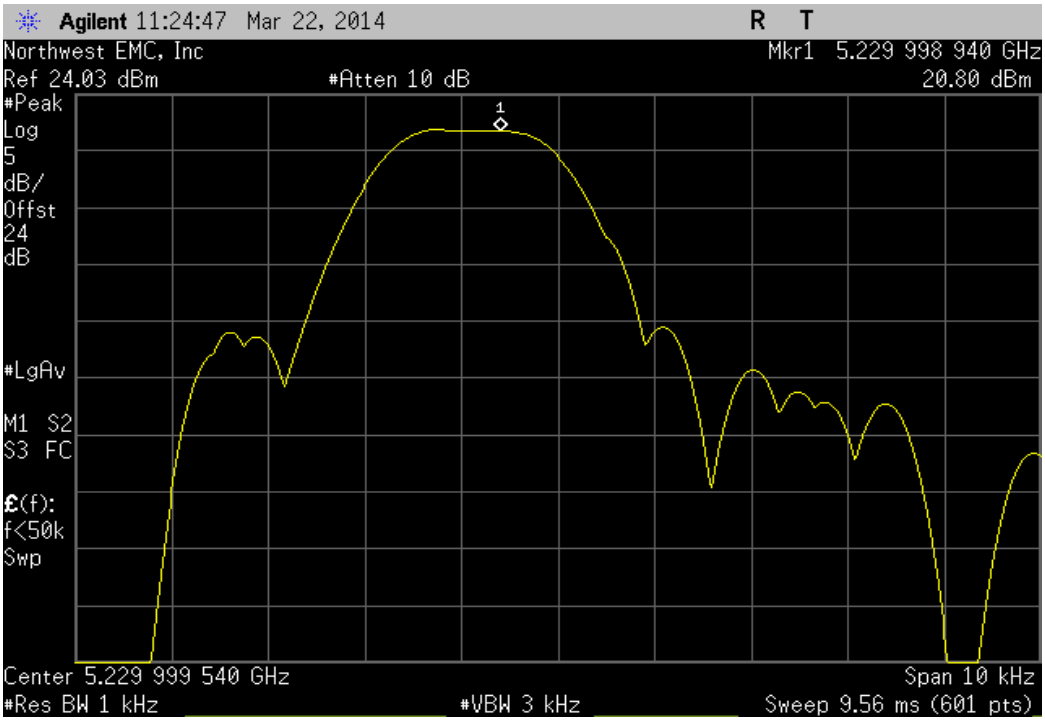


Ch. 44/48, High Channel 5230 MHz, Temperature: +20°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5229.994004	5230	1.2	100	Pass

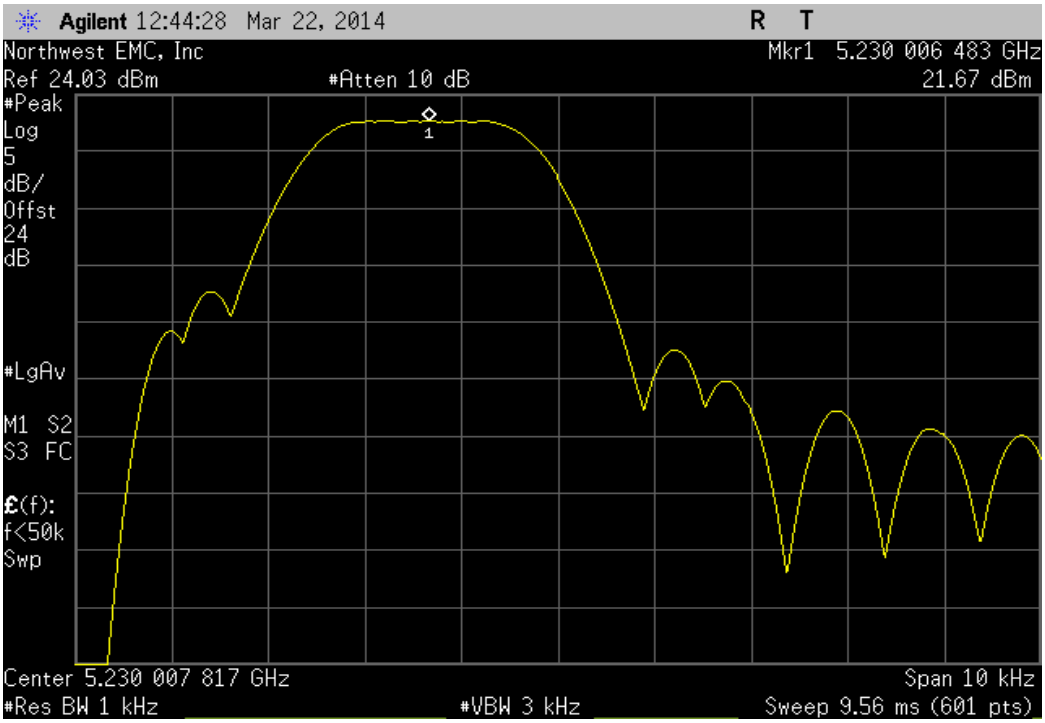


FREQUENCY STABILITY

Ch. 44/48, High Channel 5230 MHz, Temperature: +10°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5229.99894	5230	0.2	100	Pass

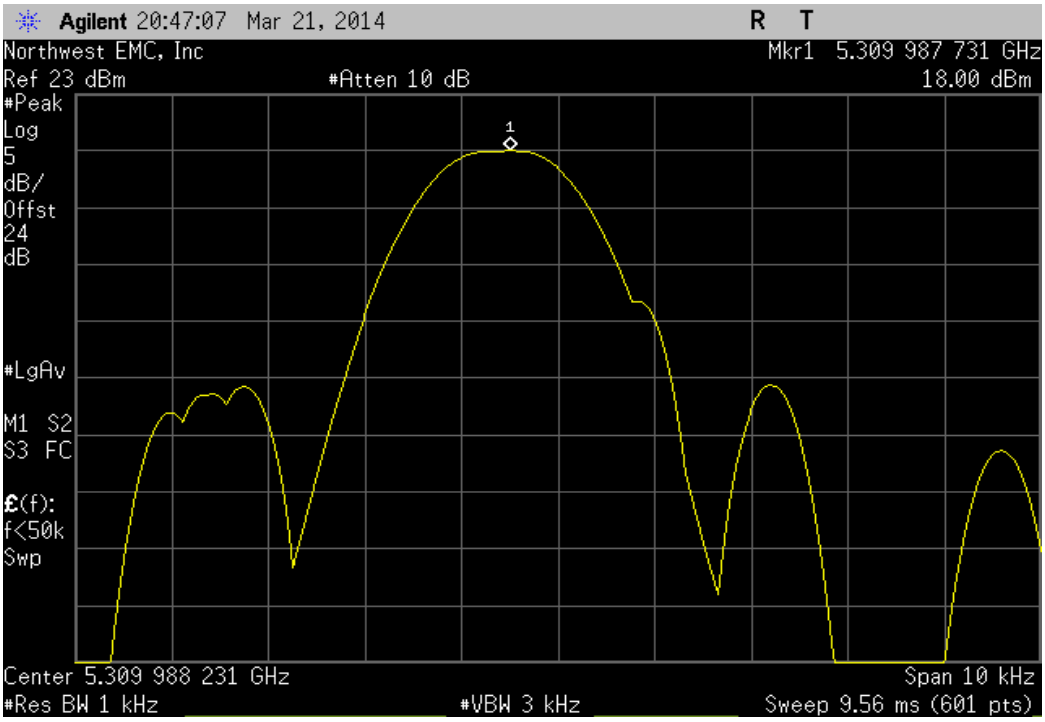


Ch. 44/48, High Channel 5230 MHz, Temperature: 0°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5230.006483	5230	1.2	100	Pass

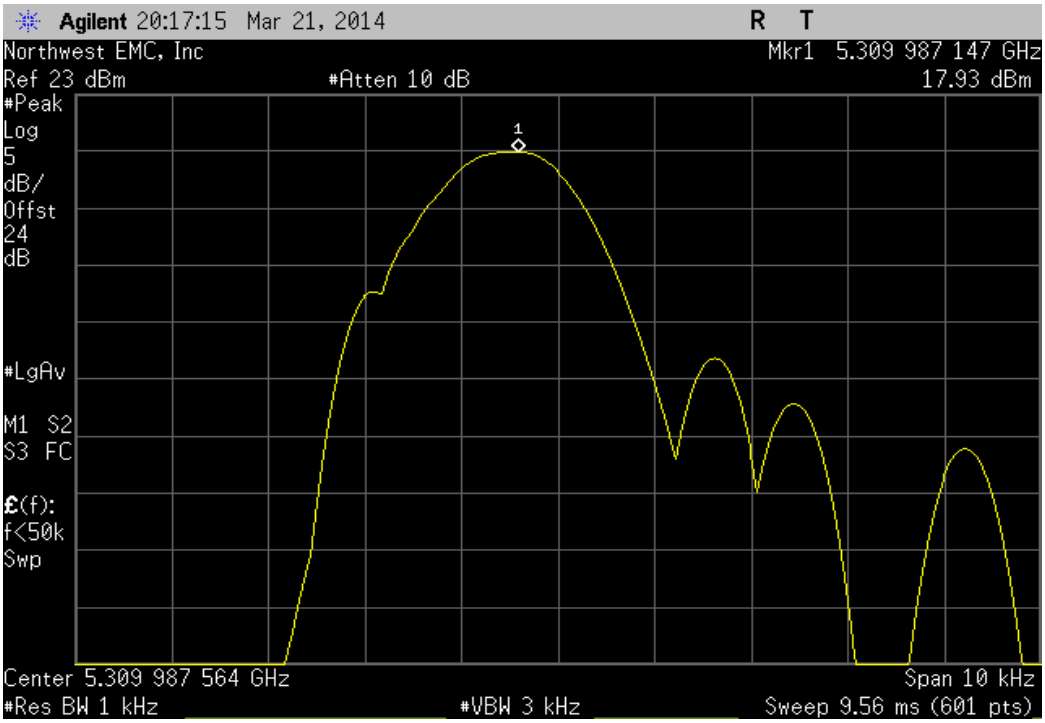


FREQUENCY STABILITY

Ch. 52/56, High Channel 5310 MHz, Voltage: 115%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5309.987731	5310	2.3	100	Pass

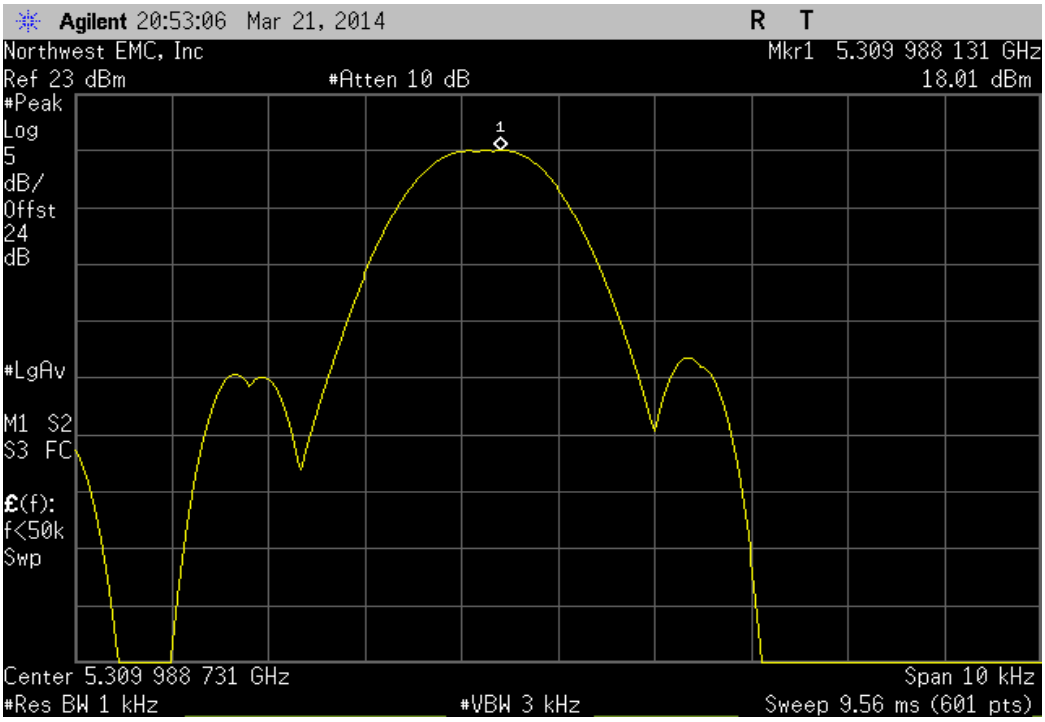


Ch. 52/56, High Channel 5310 MHz, Voltage: 100%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5309.987147	5310	2.4	100	Pass

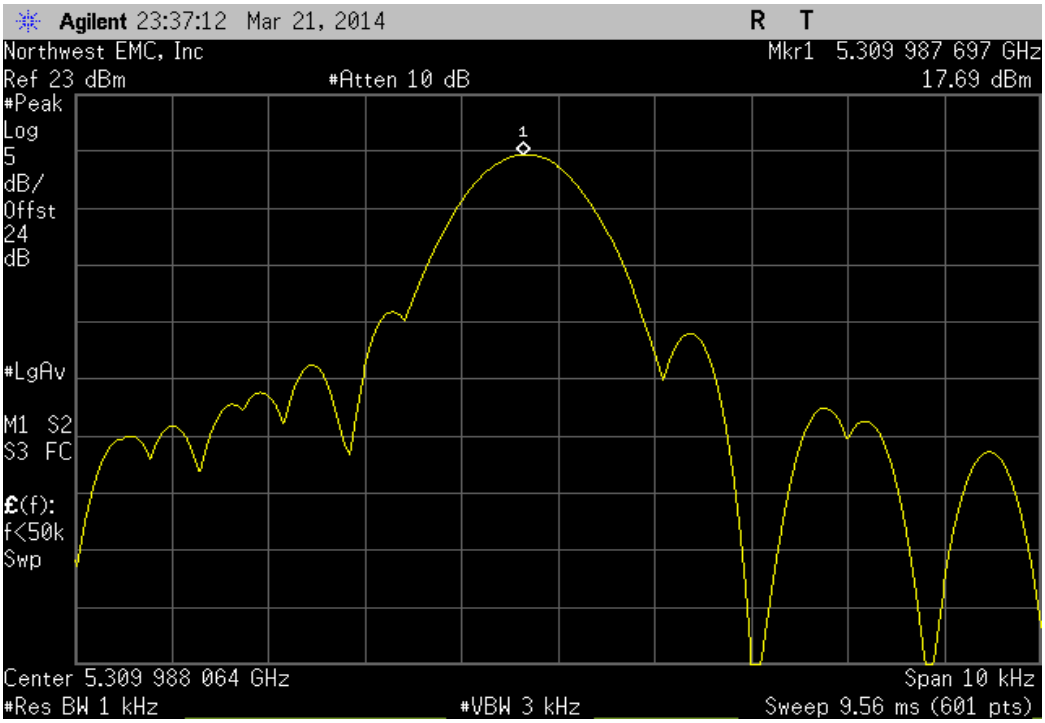


FREQUENCY STABILITY

Ch. 52/56, High Channel 5310 MHz, Voltage: 85%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5309.988131	5310	2.2	100	Pass

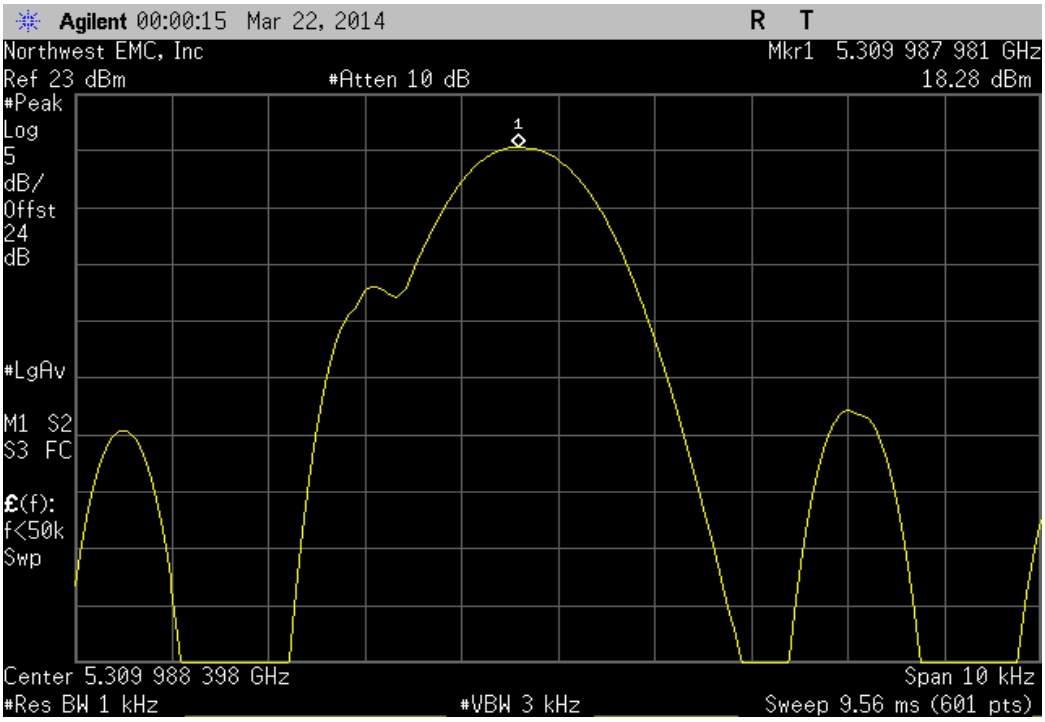


Ch. 52/56, High Channel 5310 MHz, Temperature: +40°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5309.987697	5310	2.3	100	Pass

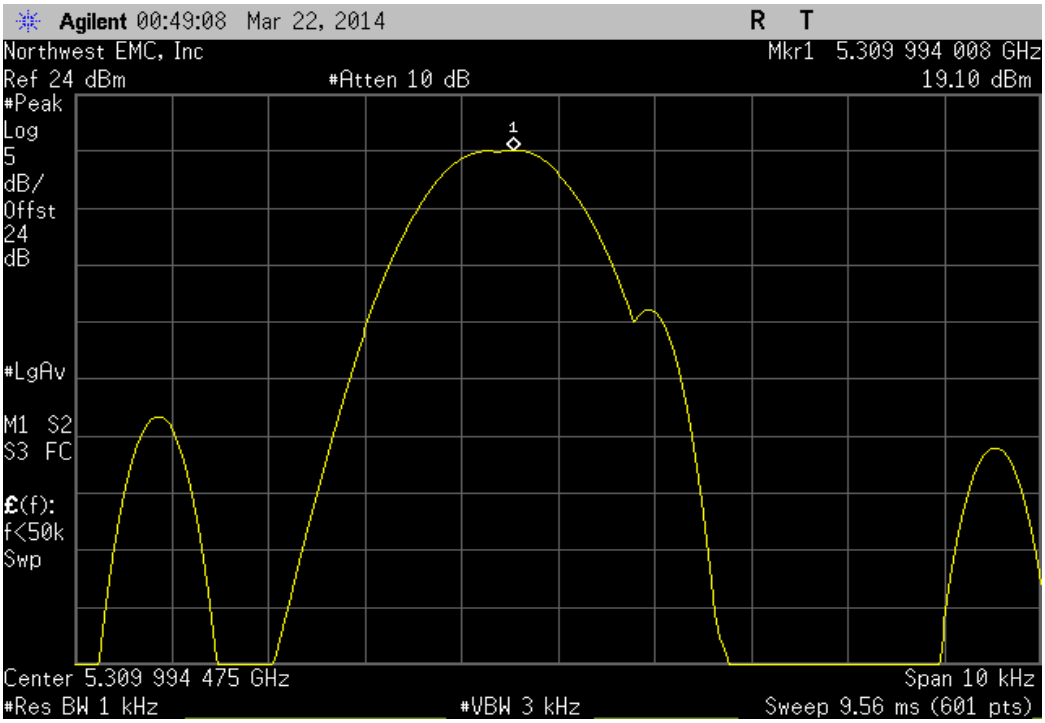


FREQUENCY STABILITY

Ch. 52/56, High Channel 5310 MHz, Temperature: +30°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5309.987981	5310	2.3	100	Pass

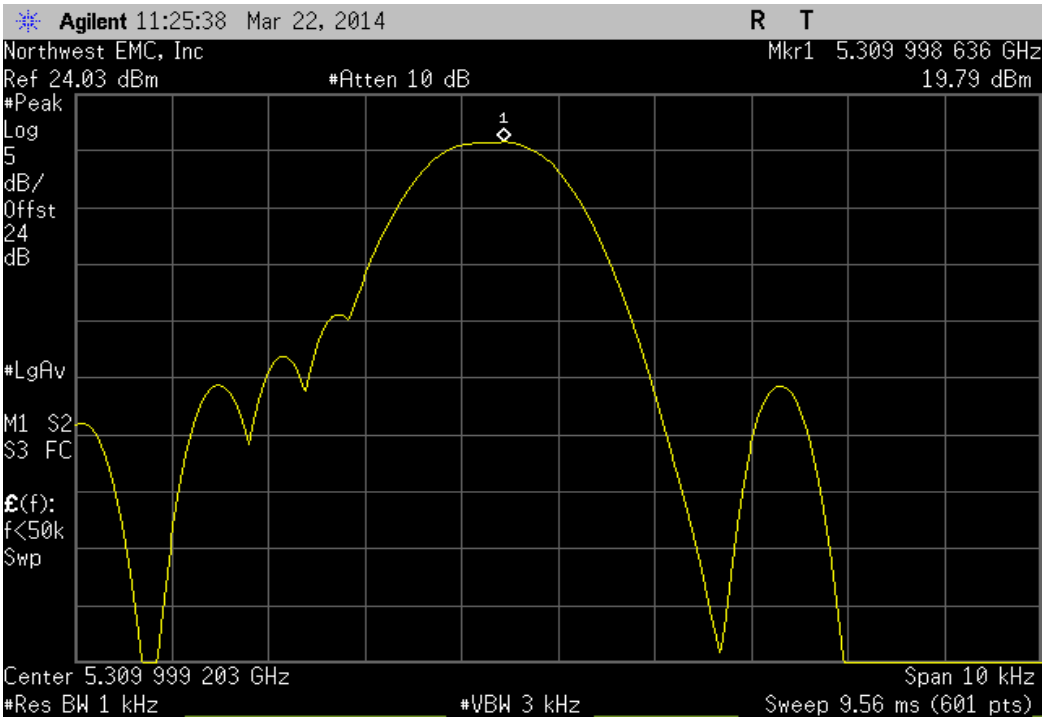


Ch. 52/56, High Channel 5310 MHz, Temperature: +20°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5309.994008	5310	1.1	100	Pass

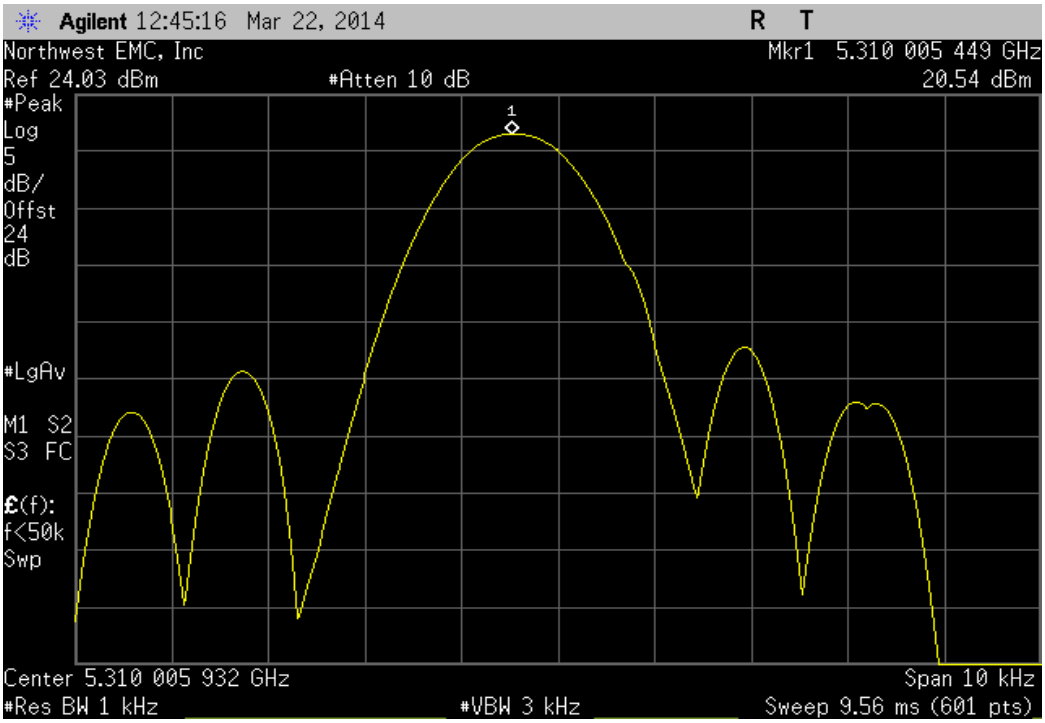


FREQUENCY STABILITY

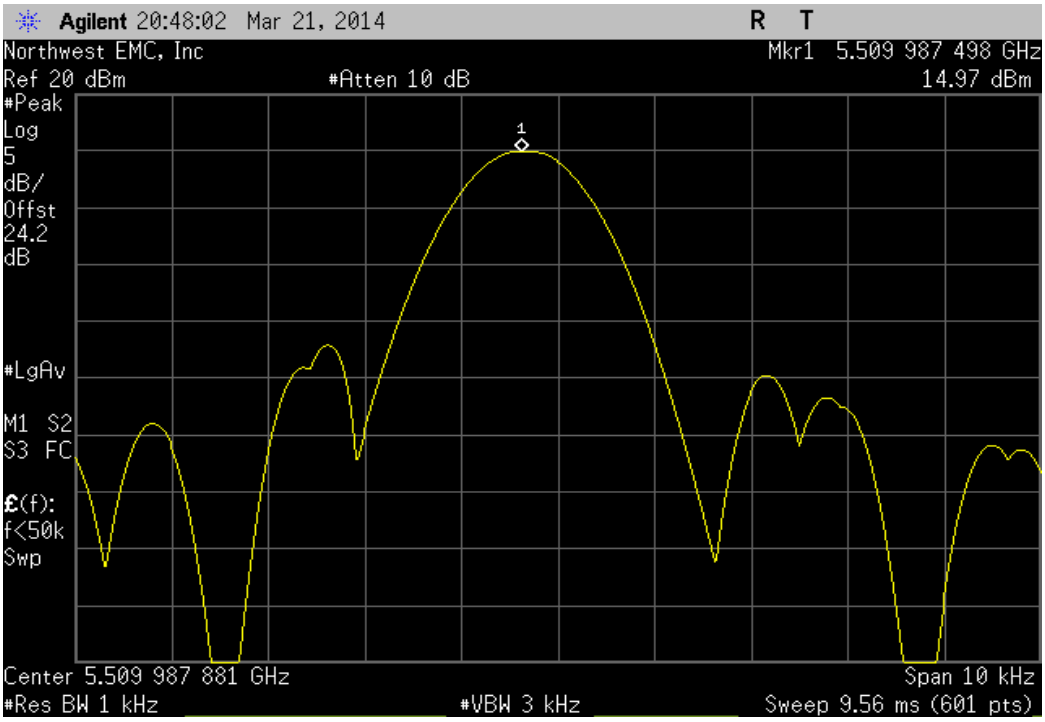
Ch. 52/56, High Channel 5310 MHz, Temperature: +10°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5309.998636	5310	0.3	100	Pass



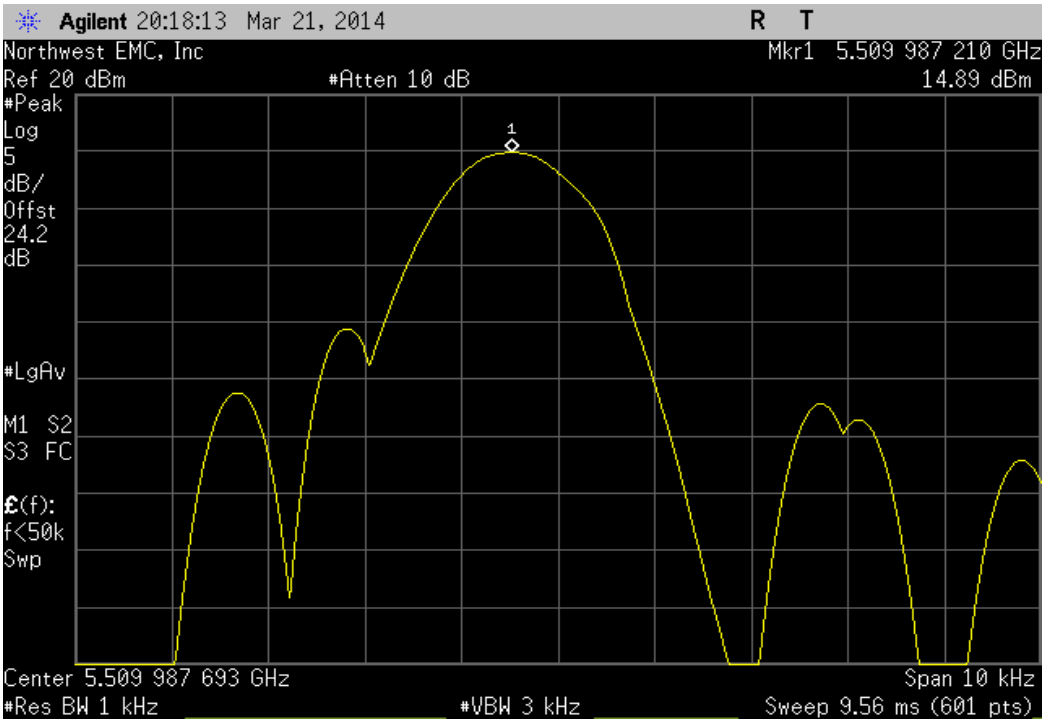
Ch. 52/56, High Channel 5310 MHz, Temperature: 0°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5310.005449	5310	1	100	Pass



Ch. 100/104, High Channel 5510 MHz, Voltage: 115%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5509.987498	5510	2.3	100	Pass

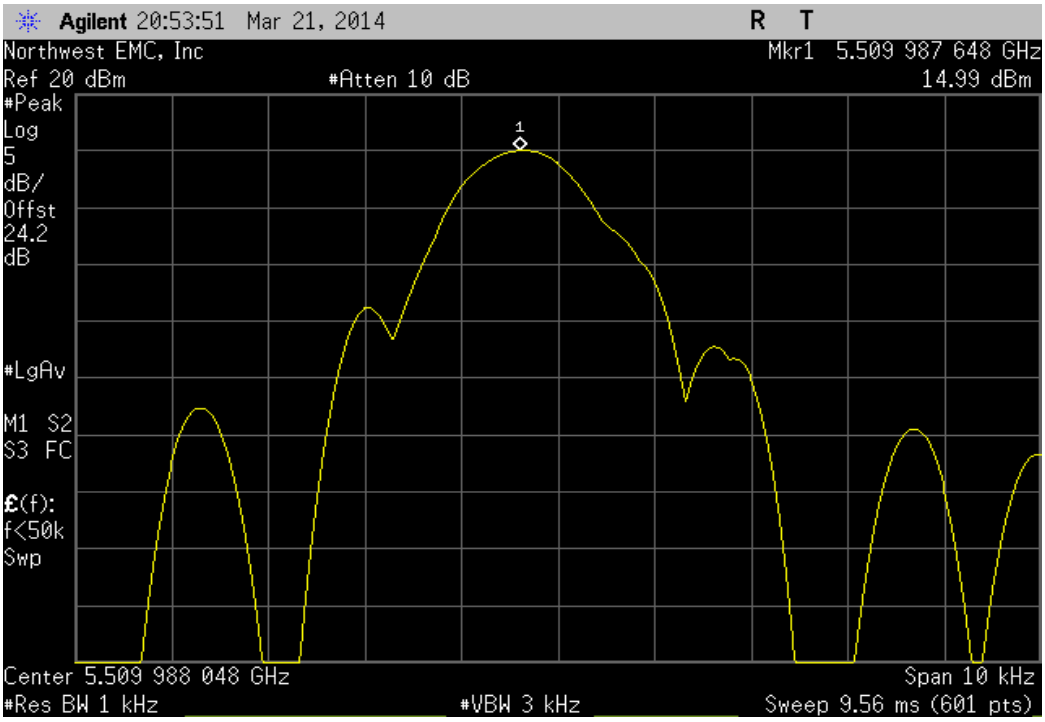


Ch. 100/104, High Channel 5510 MHz, Voltage: 100%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5509.98721	5510	2.3	100	Pass

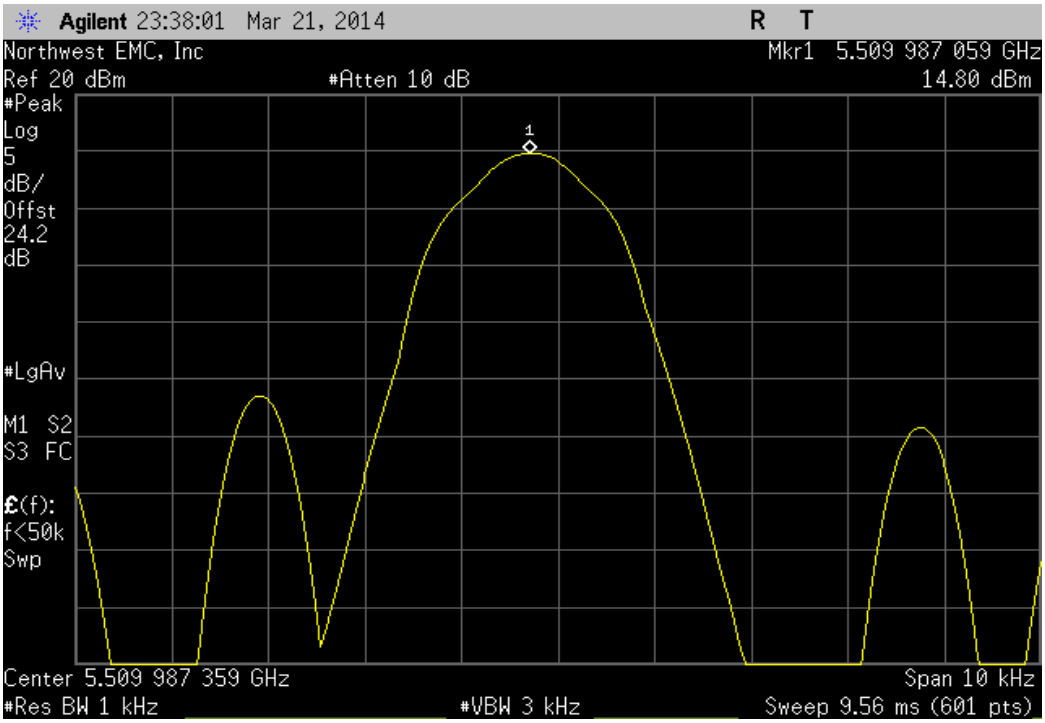


FREQUENCY STABILITY

Ch. 100/104, High Channel 5510 MHz, Voltage: 85%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5509.987648	5510	2.2	100	Pass

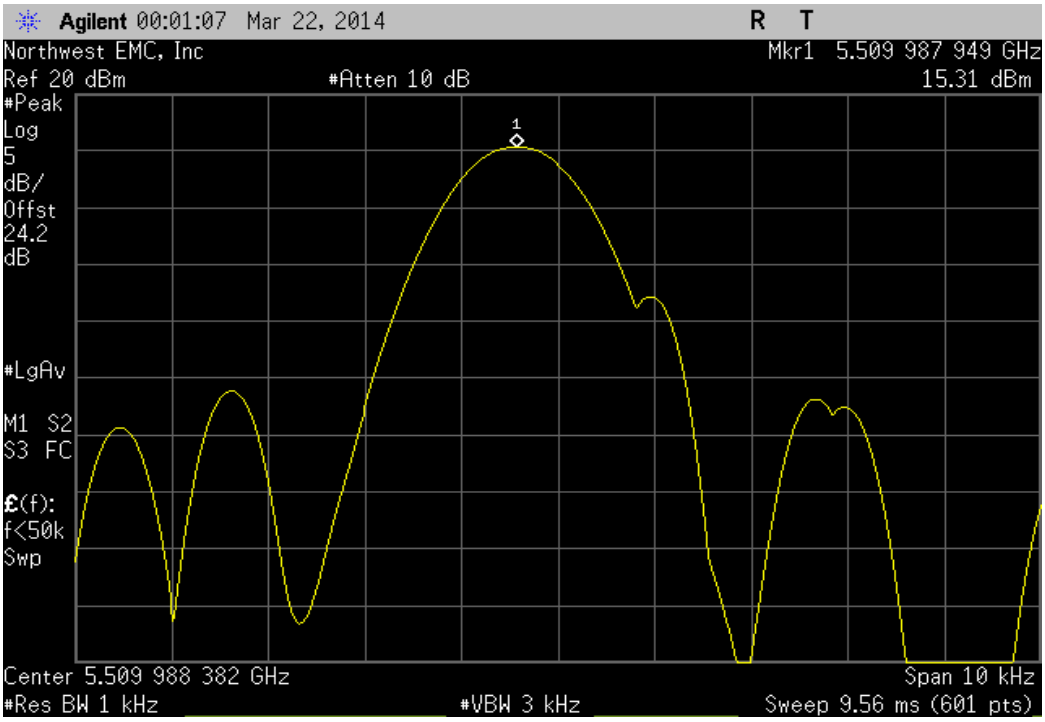


Ch. 100/104, High Channel 5510 MHz, Temperature: +40°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5509.987059	5510	2.4	100	Pass

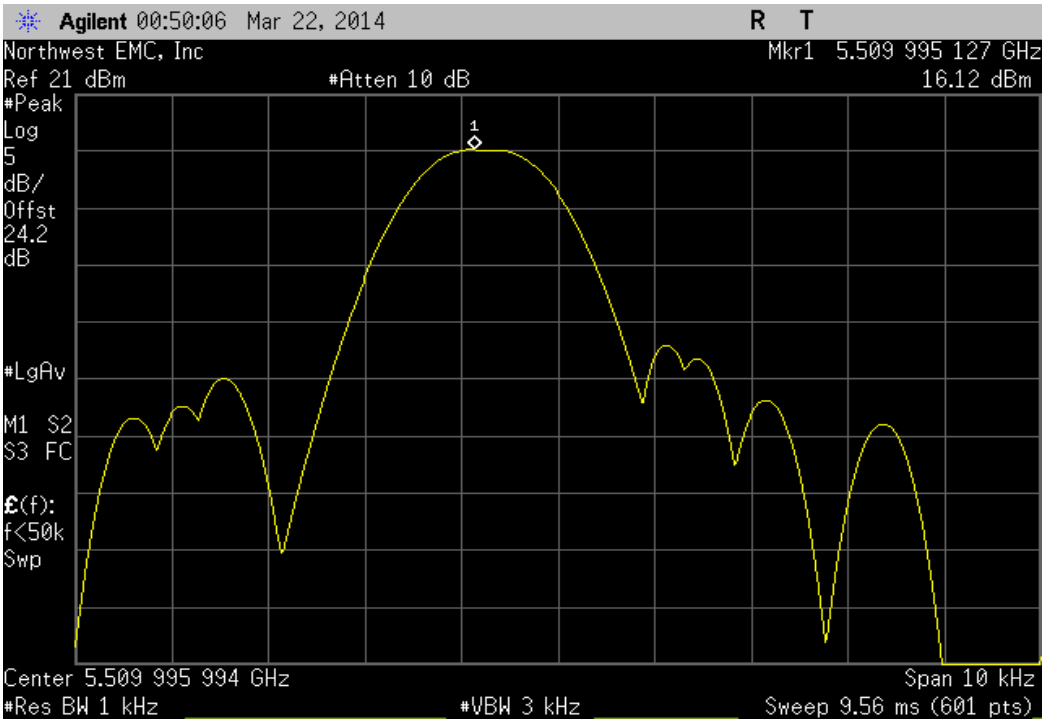


FREQUENCY STABILITY

Ch. 100/104, High Channel 5510 MHz, Temperature: +30°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5509.987949	5510	2.2	100	Pass

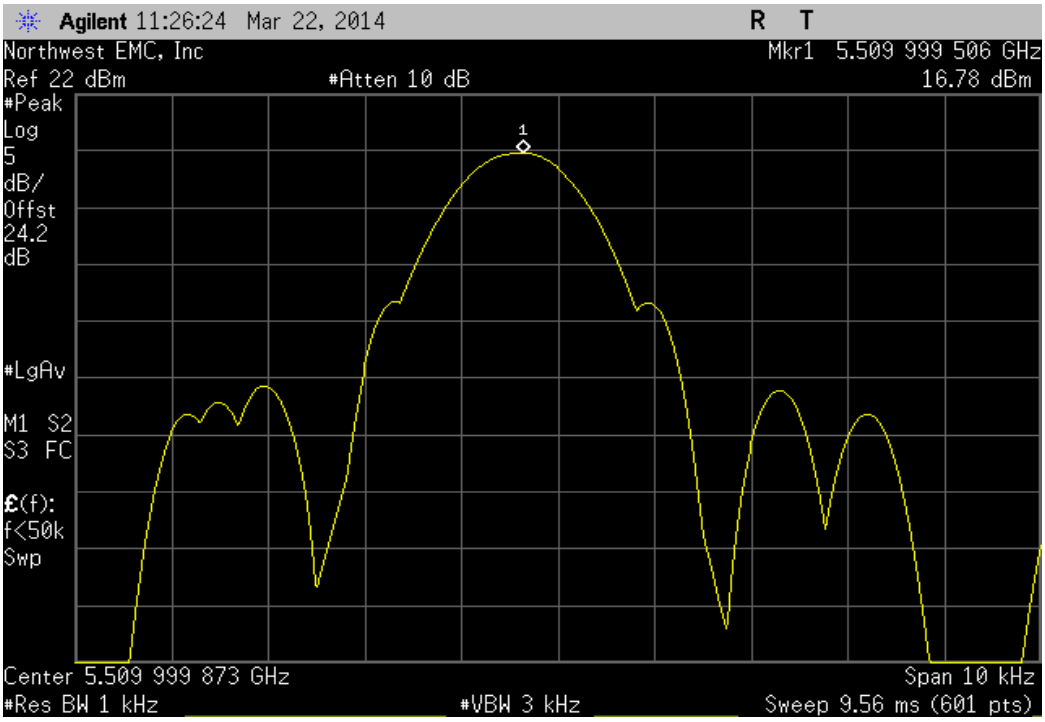


Ch. 100/104, High Channel 5510 MHz, Temperature: +20°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5509.995127	5510	0.9	100	Pass

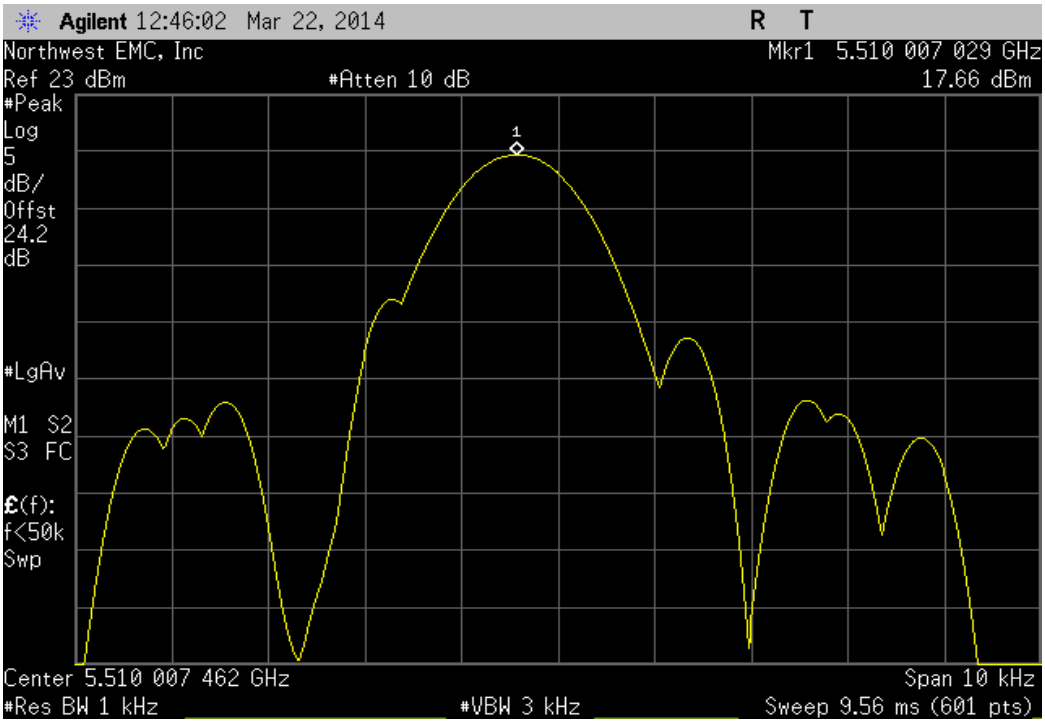


FREQUENCY STABILITY

Ch. 100/104, High Channel 5510 MHz, Temperature: +10°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5509.999506	5510	0.1	100	Pass

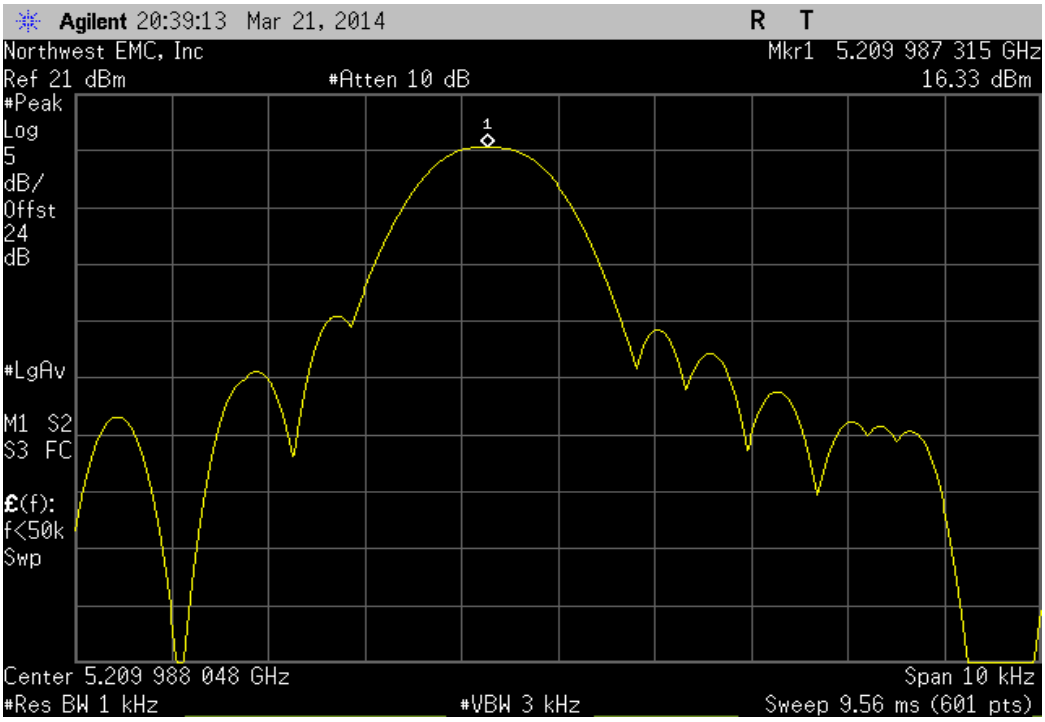


Ch. 100/104, High Channel 5510 MHz, Temperature: 0°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5510.007029	5510	1.3	100	Pass

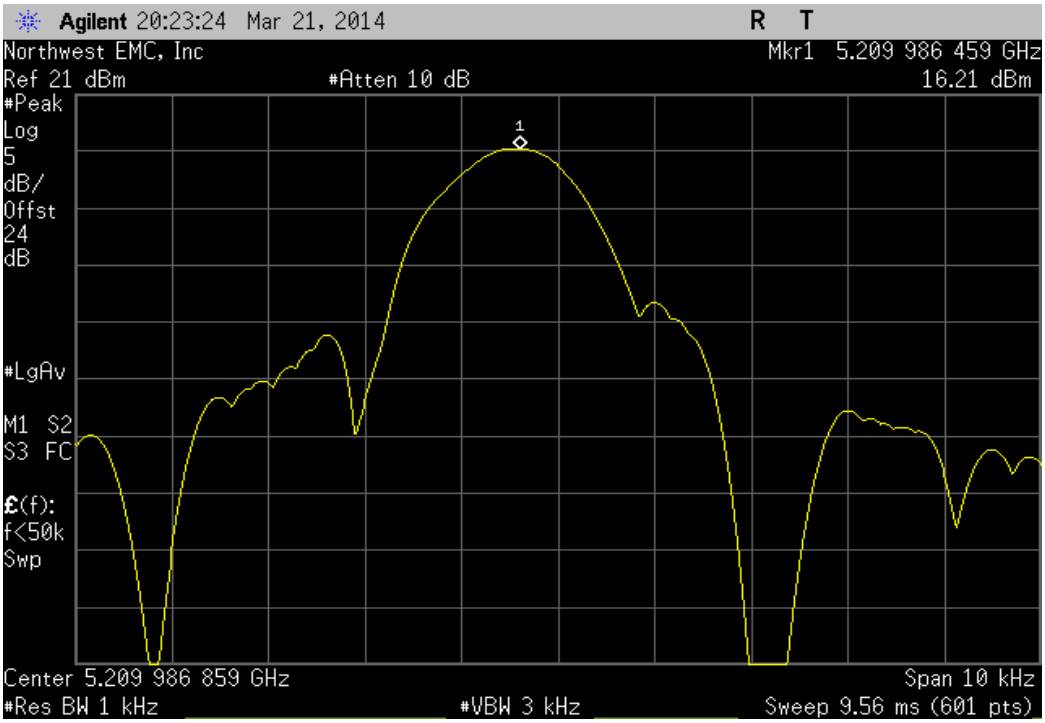


FREQUENCY STABILITY

Ch. 42, Low Channel 5210 MHz, Voltage: 115%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5209.987315	5210	2.4	100	Pass

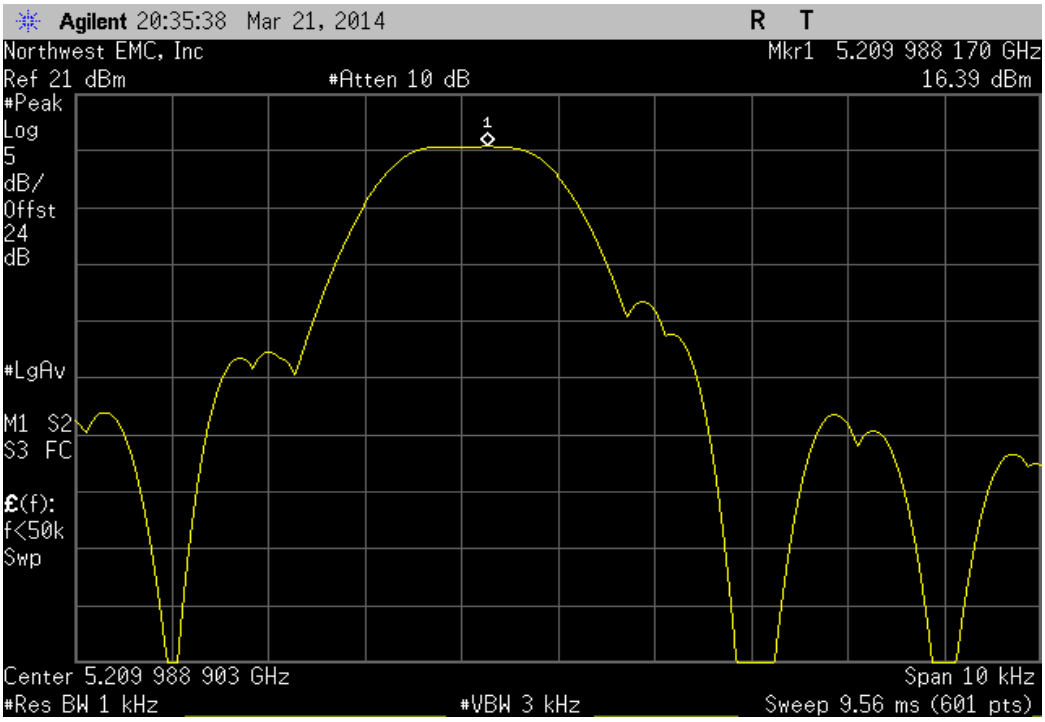


Ch. 42, Low Channel 5210 MHz, Voltage: 100%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5209.986459	5210	2.6	100	Pass

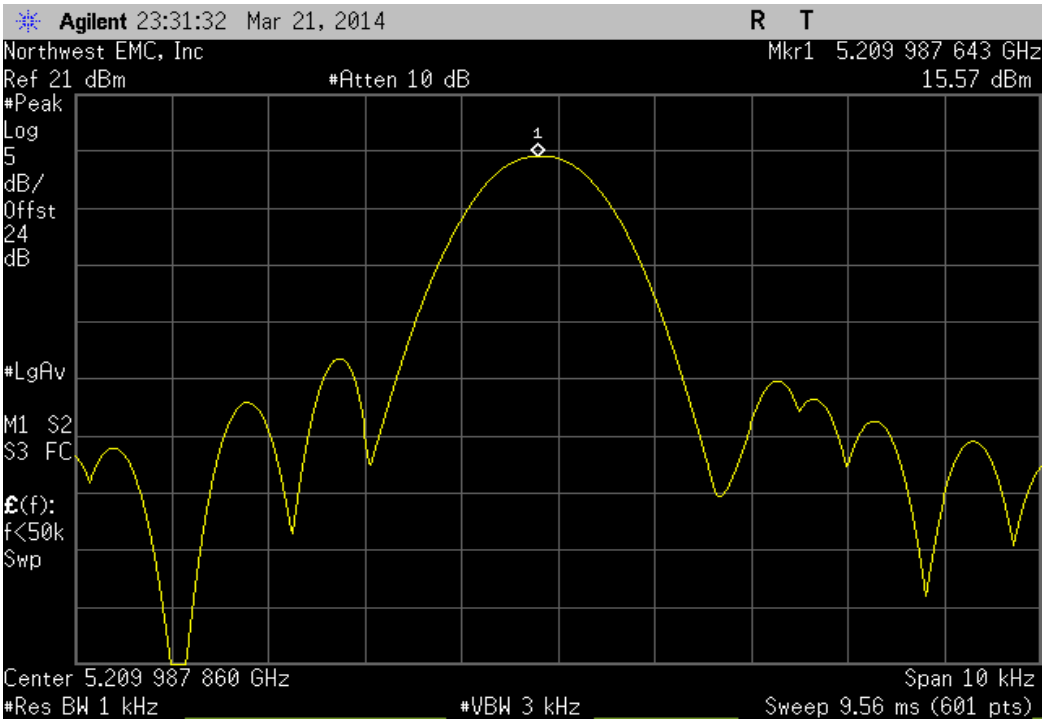


FREQUENCY STABILITY

Ch. 42, Low Channel 5210 MHz, Voltage: 85%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5209.98817	5210	2.3	100	Pass

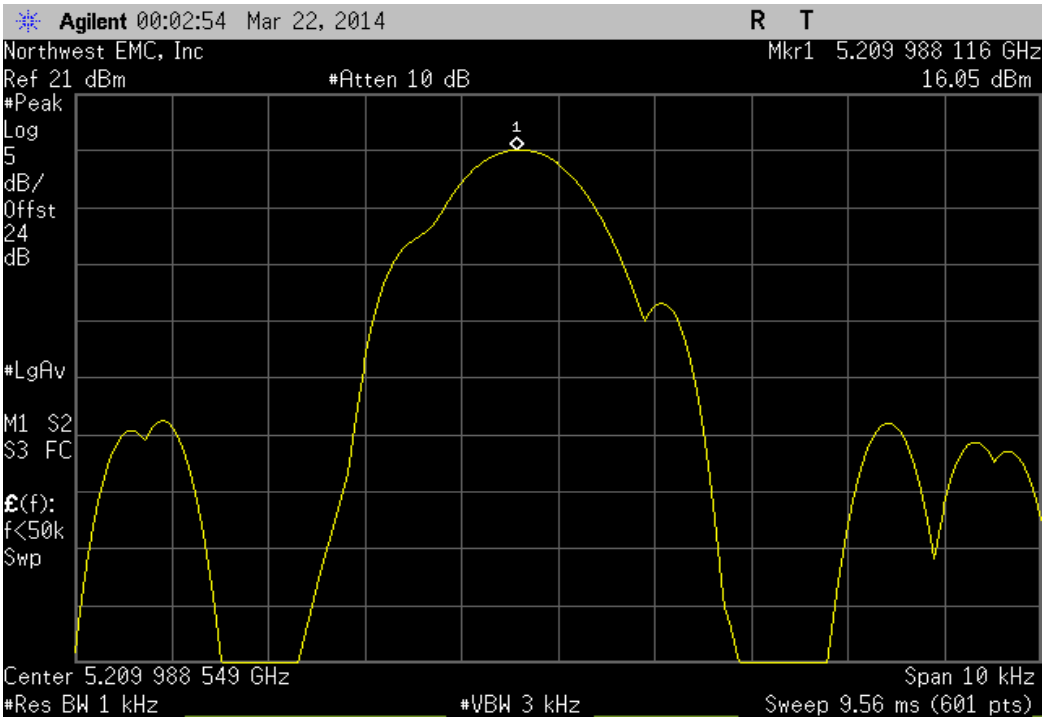


Ch. 42, Low Channel 5210 MHz, Temperature: +40°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5209.987643	5210	2.4	100	Pass

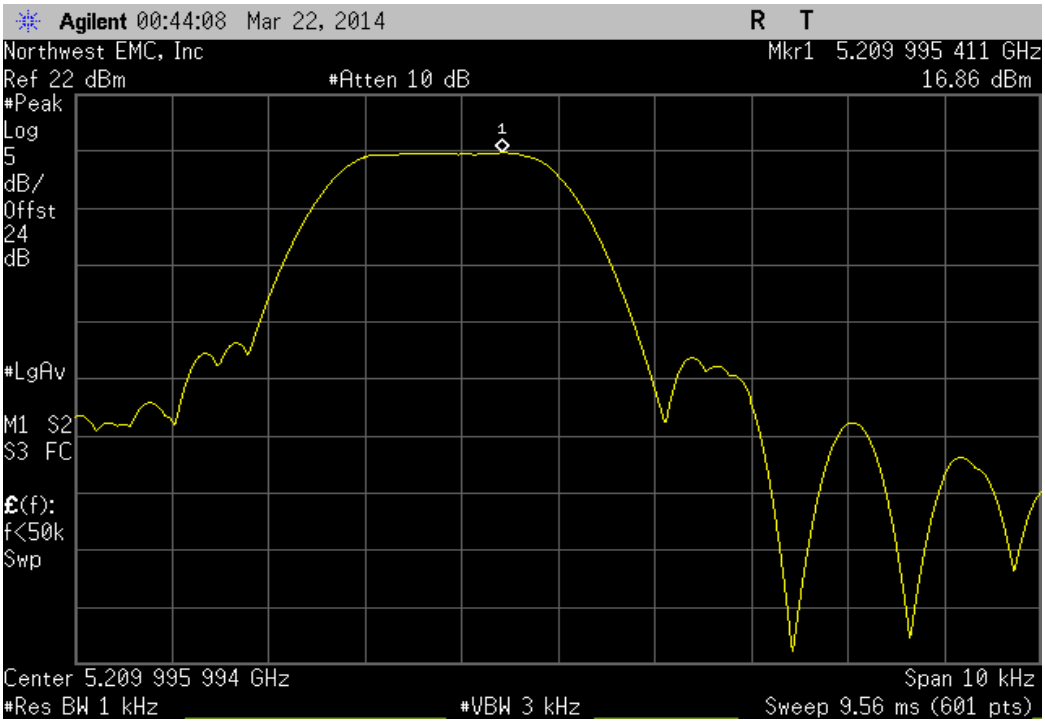


FREQUENCY STABILITY

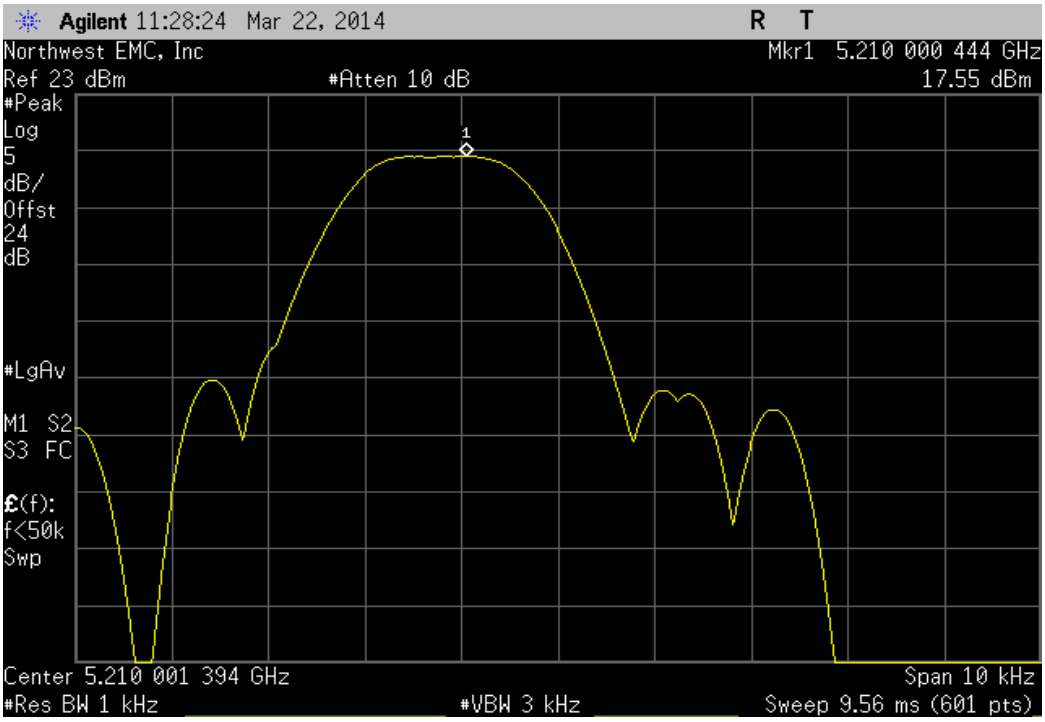
Ch. 42, Low Channel 5210 MHz, Temperature: +30°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5209.988116	5210	2.3	100	Pass



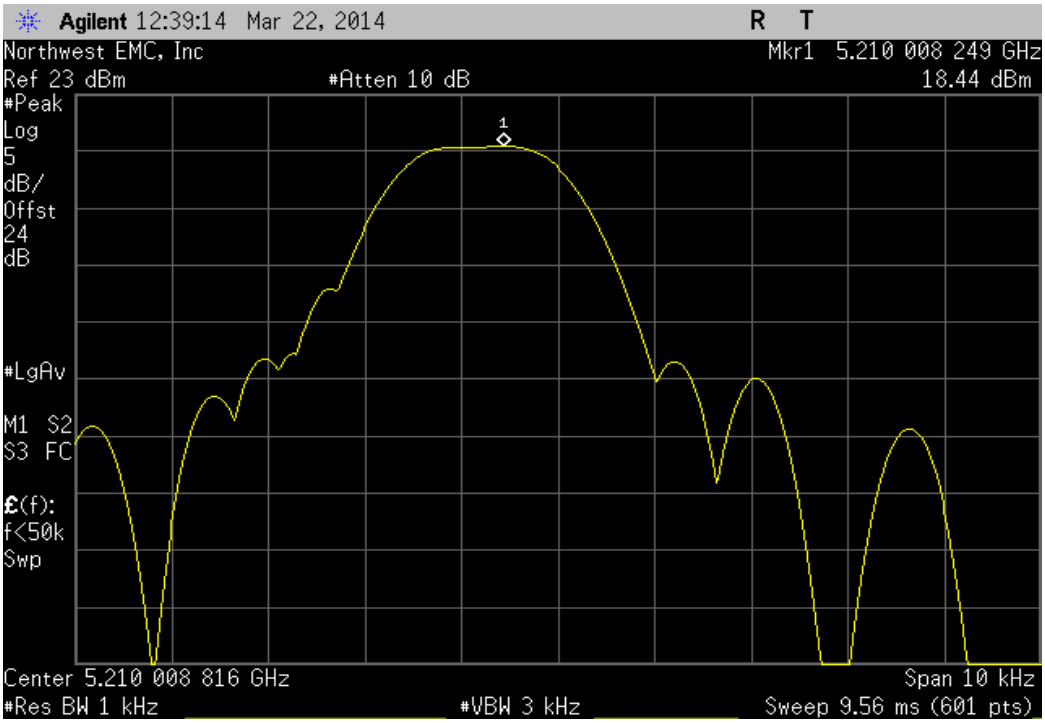
Ch. 42, Low Channel 5210 MHz, Temperature: +20°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5209.995411	5210	0.9	100	Pass



Ch. 42, Low Channel 5210 MHz, Temperature: +10°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5210.000444	5210	0.1	100	Pass

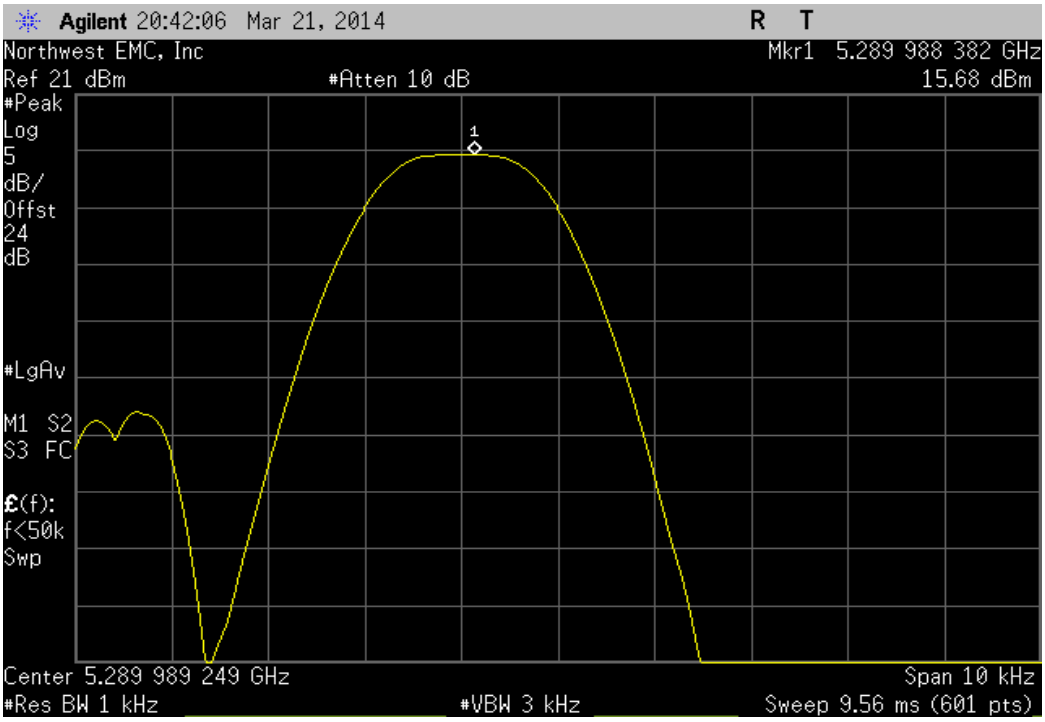


Ch. 42, Low Channel 5210 MHz, Temperature: 0°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5210.008249	5210	1.6	100	Pass

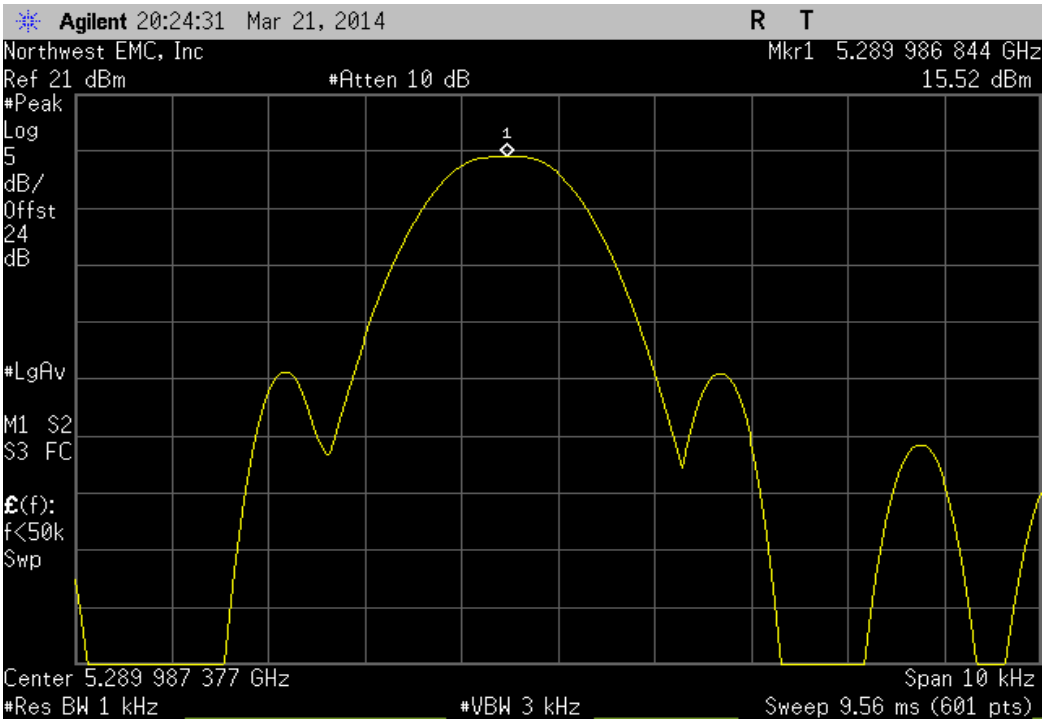


FREQUENCY STABILITY

Ch. 58, High Channel 5290 MHz, Voltage: 115%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5289.988382	5290	2.2	100	Pass

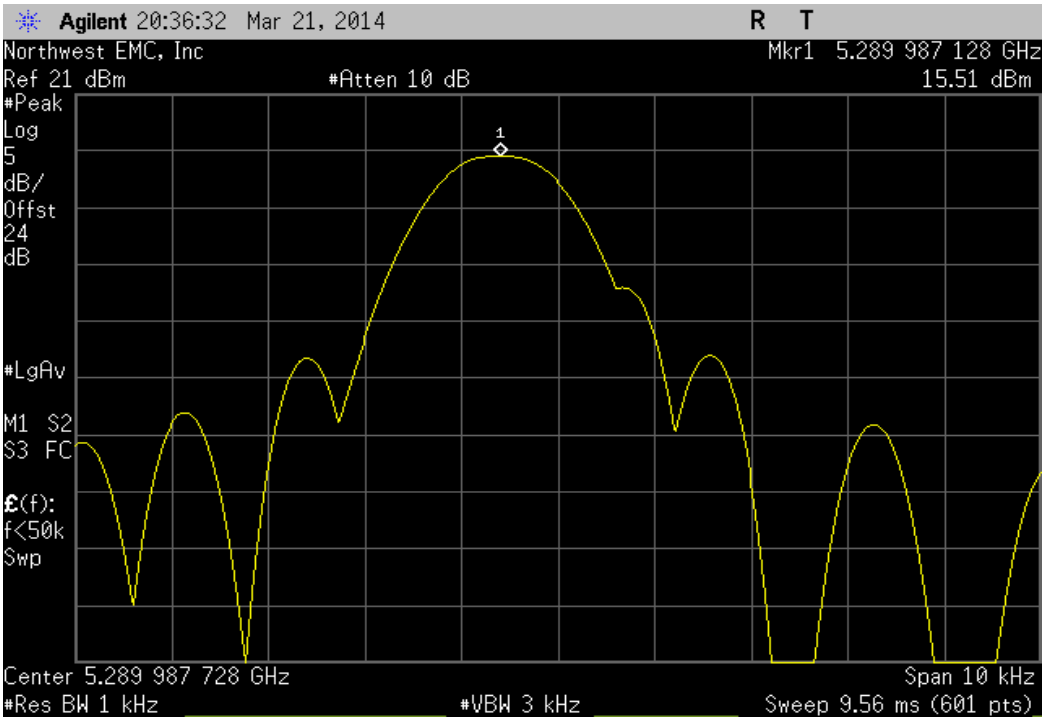


Ch. 58, High Channel 5290 MHz, Voltage: 100%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5289.986844	5290	2.5	100	Pass

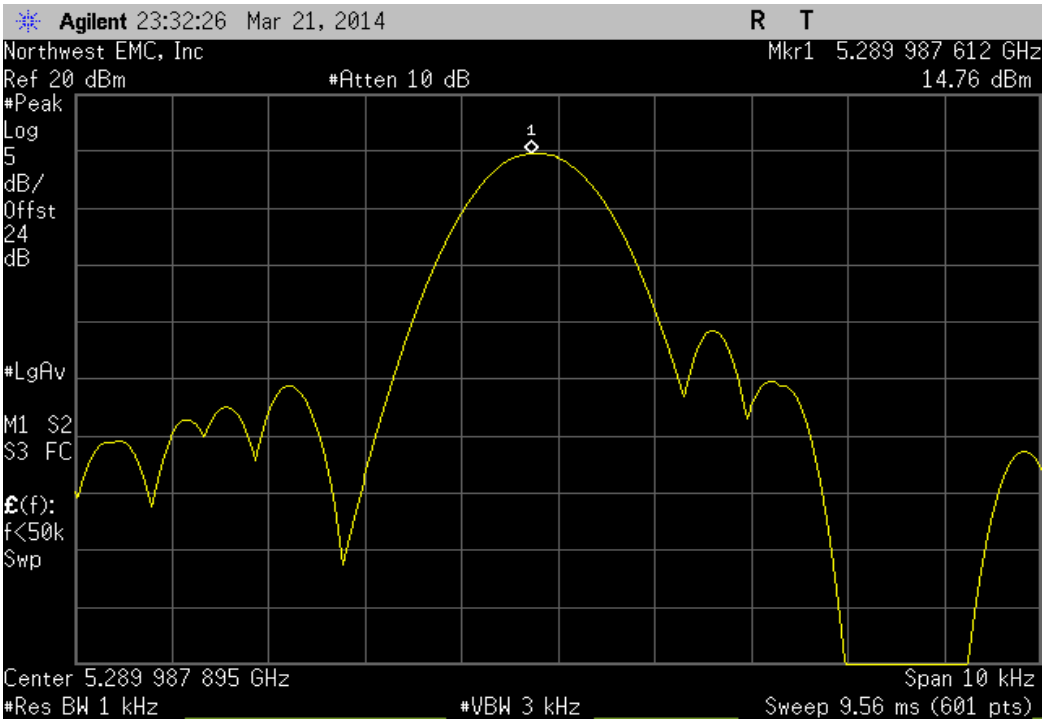


FREQUENCY STABILITY

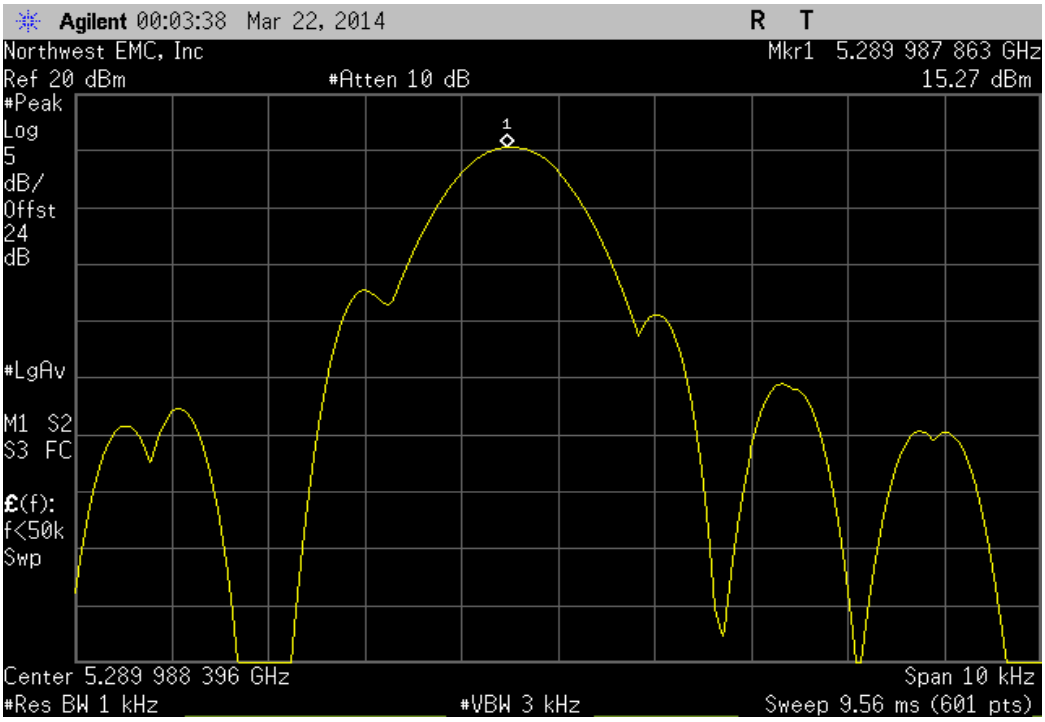
Ch. 58, High Channel 5290 MHz, Voltage: 85%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5289.987128	5290	2.4	100	Pass



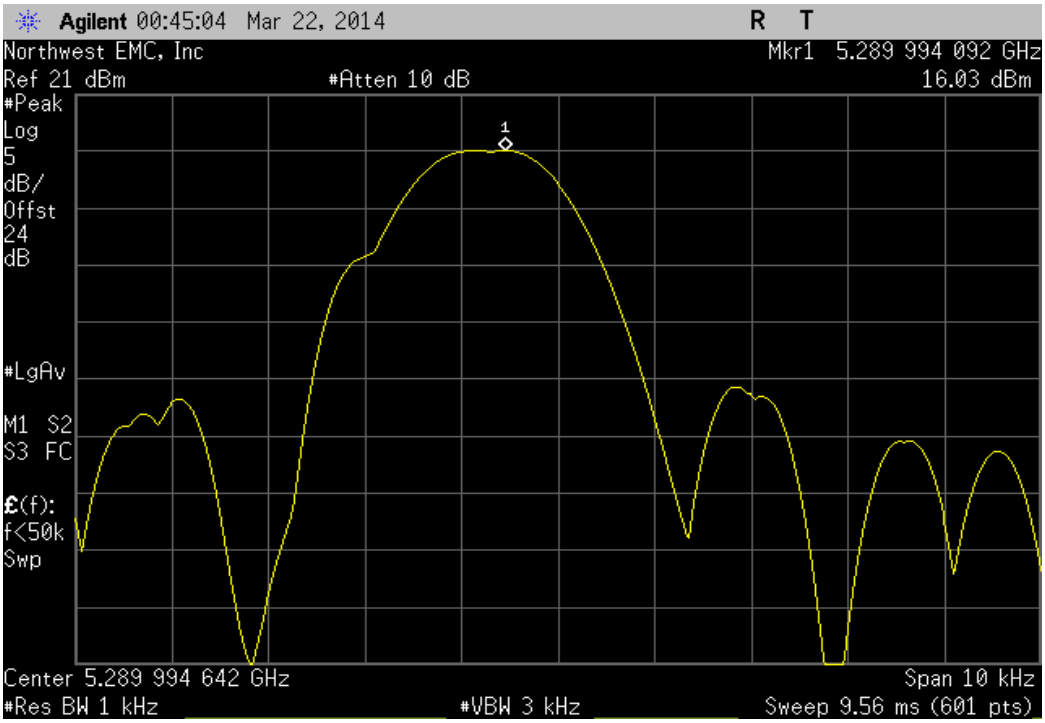
Ch. 58, High Channel 5290 MHz, Temperature: +40°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5289.987612	5290	2.3	100	Pass



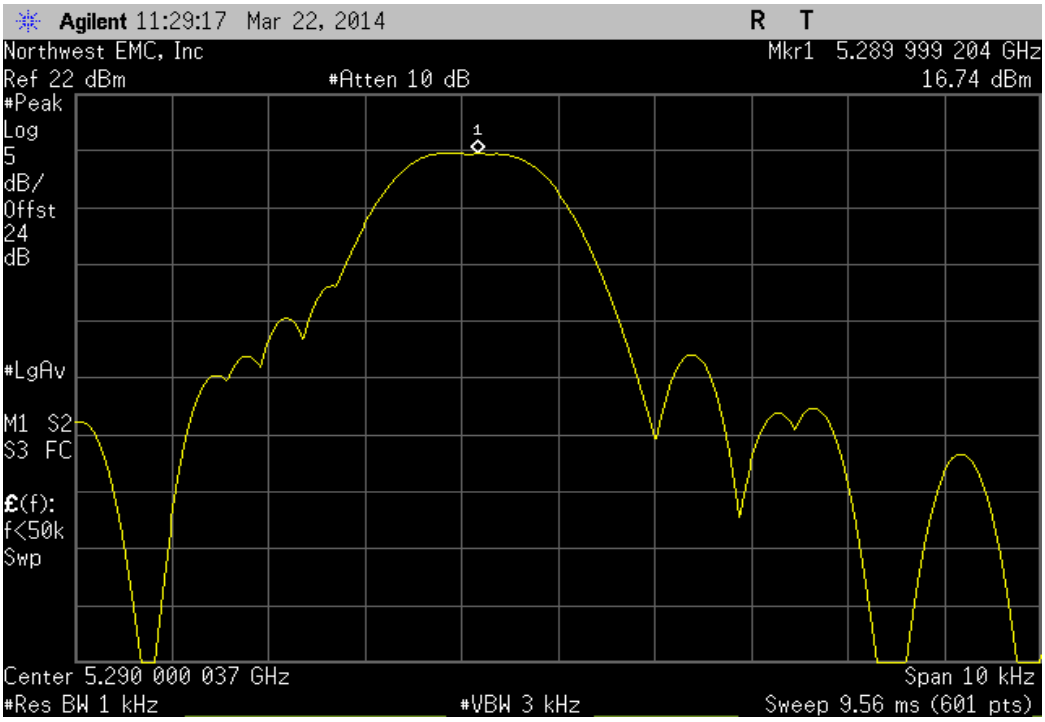
Ch. 58, High Channel 5290 MHz, Temperature: +30°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5289.987863	5290	2.3	100	Pass



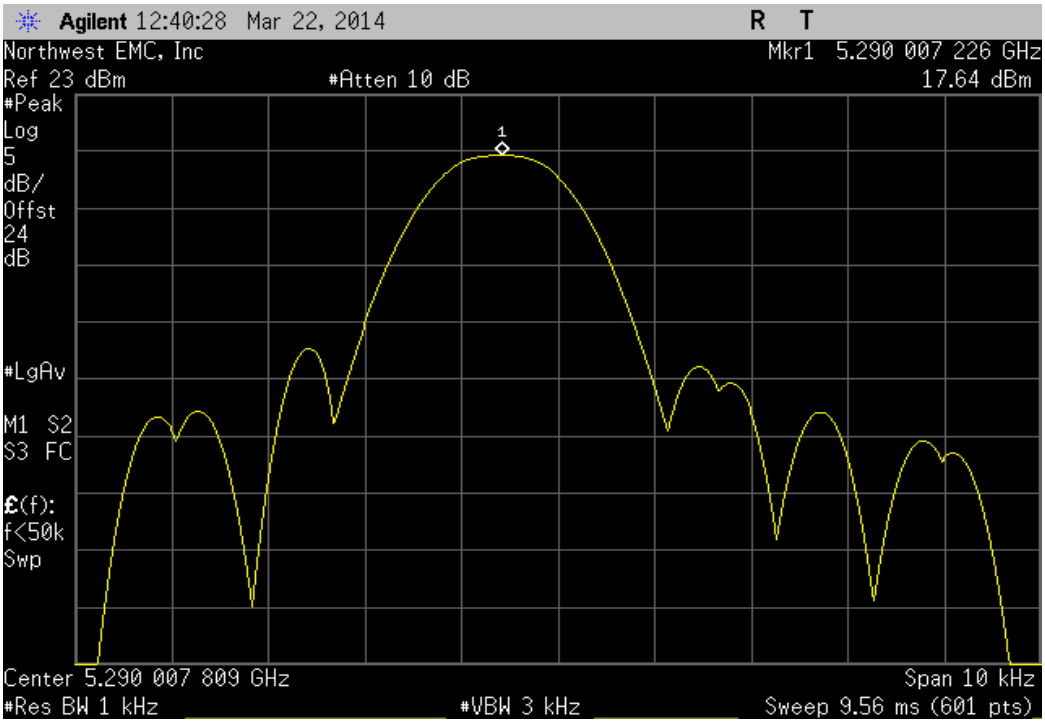
Ch. 58, High Channel 5290 MHz, Temperature: +20°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5289.994092	5290	1.1	100	Pass



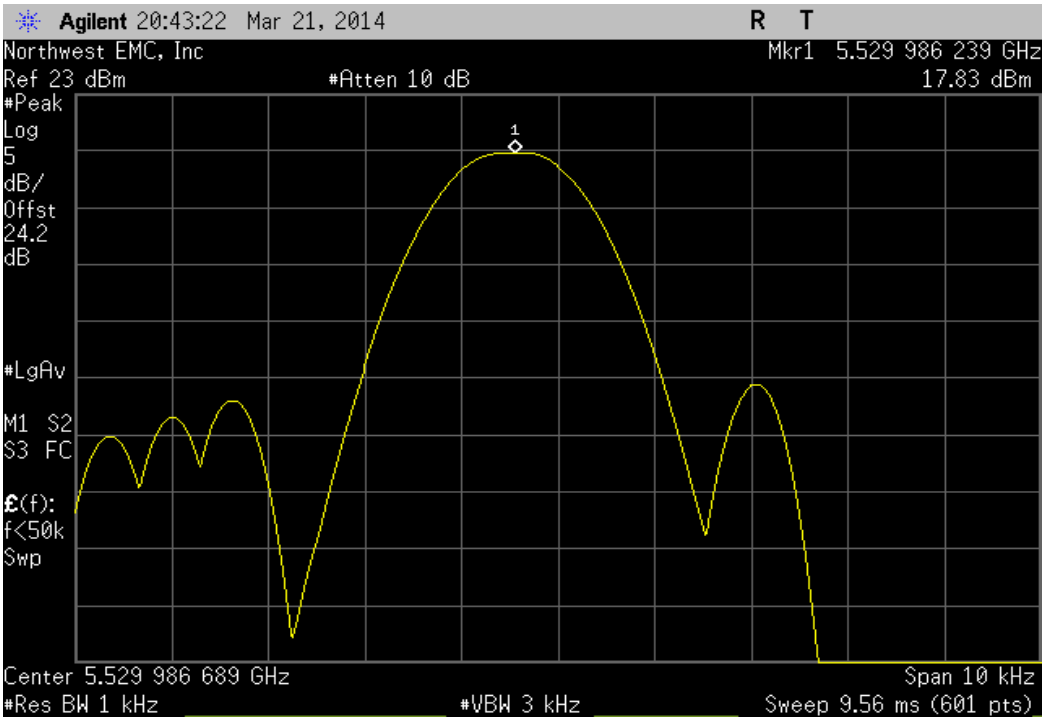
Ch. 58, High Channel 5290 MHz, Temperature: +10°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5289.999204	5290	0.2	100	Pass



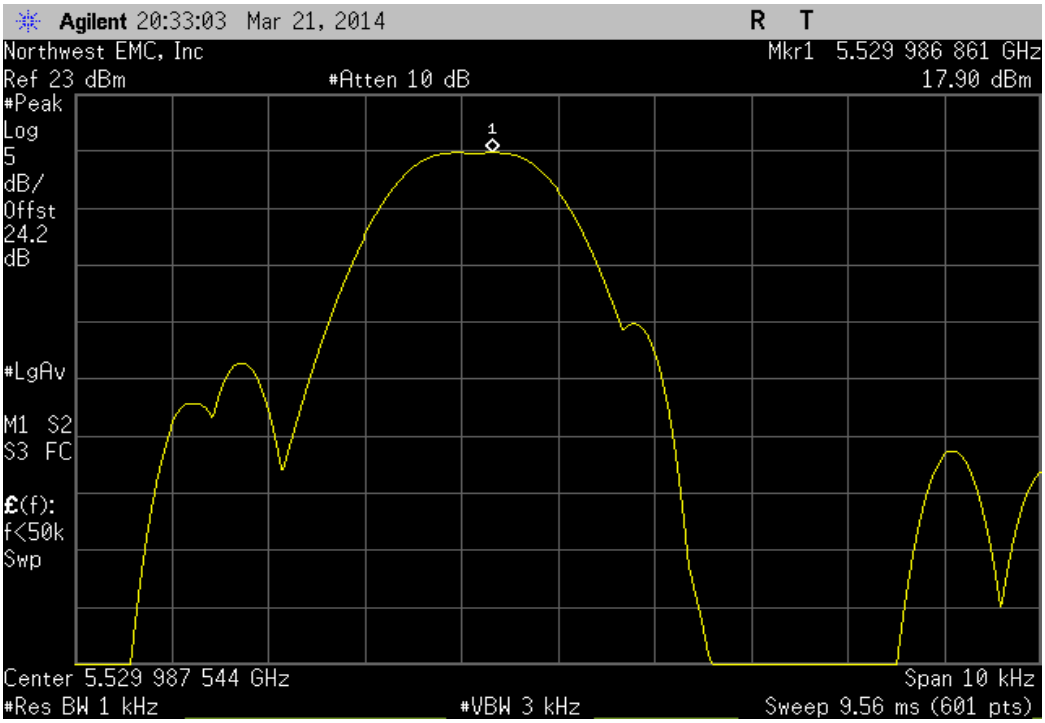
Ch. 58, High Channel 5290 MHz, Temperature: 0°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5290.007226	5290	1.4	100	Pass



Ch. 106, Low Channel 5530 MHz, Voltage: 115%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5529.986239	5530	2.5	100	Pass

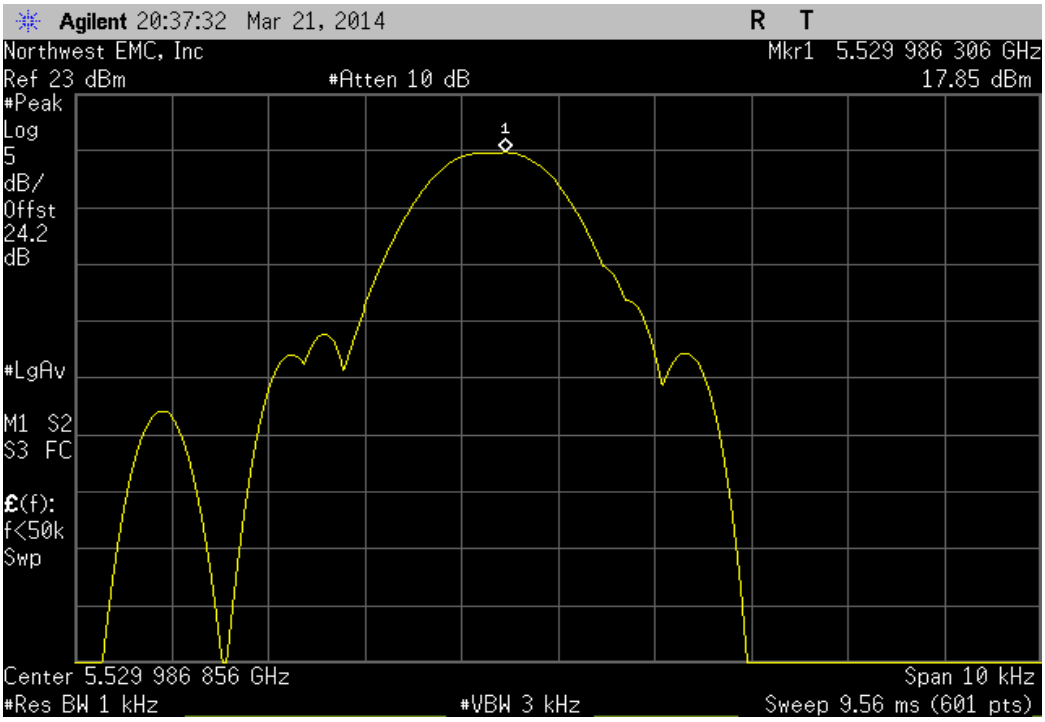


Ch. 106, Low Channel 5530 MHz, Voltage: 100%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5529.986861	5530	2.4	100	Pass

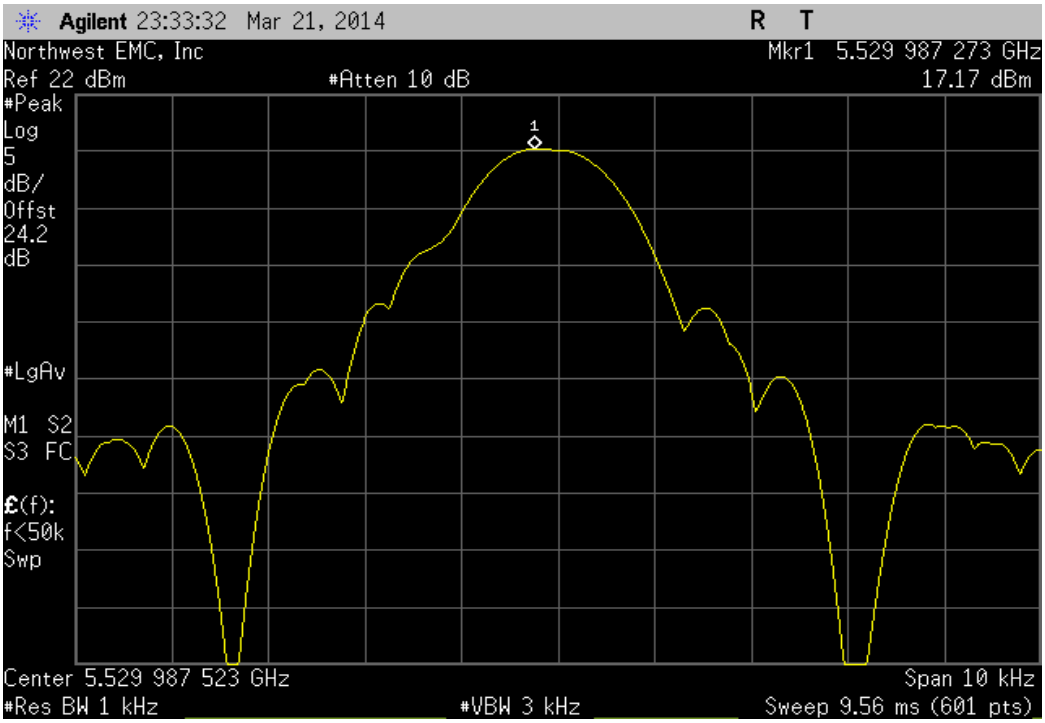


FREQUENCY STABILITY

Ch. 106, Low Channel 5530 MHz, Voltage: 85%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5529.986306	5530	2.5	100	Pass

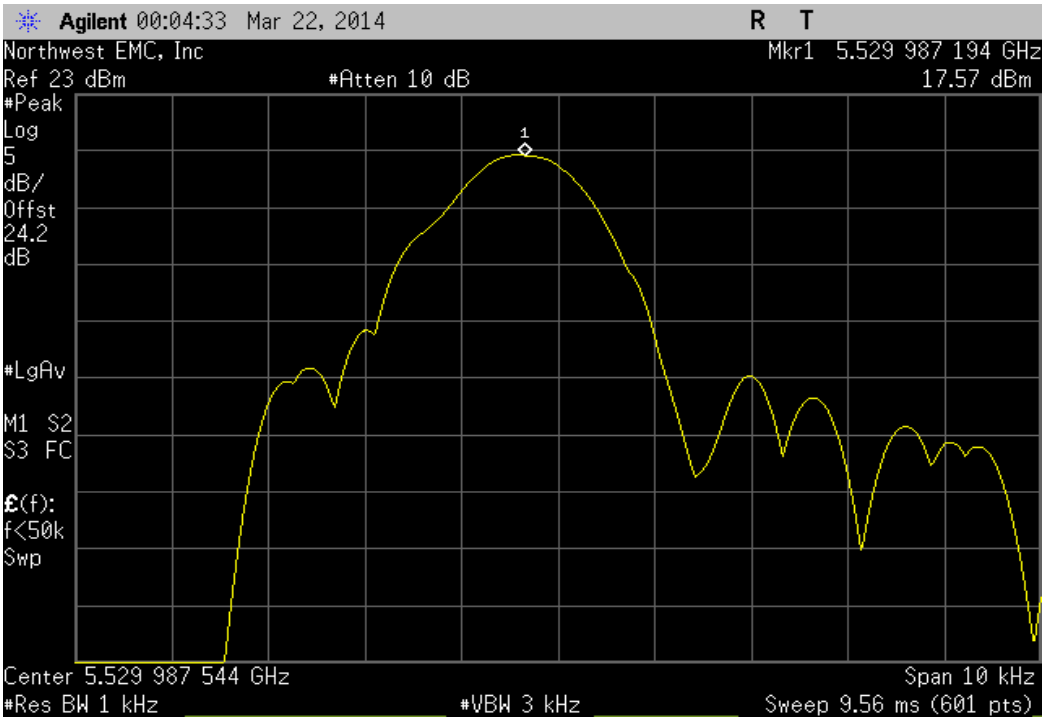


Ch. 106, Low Channel 5530 MHz, Temperature: +40°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5529.987273	5530	2.3	100	Pass

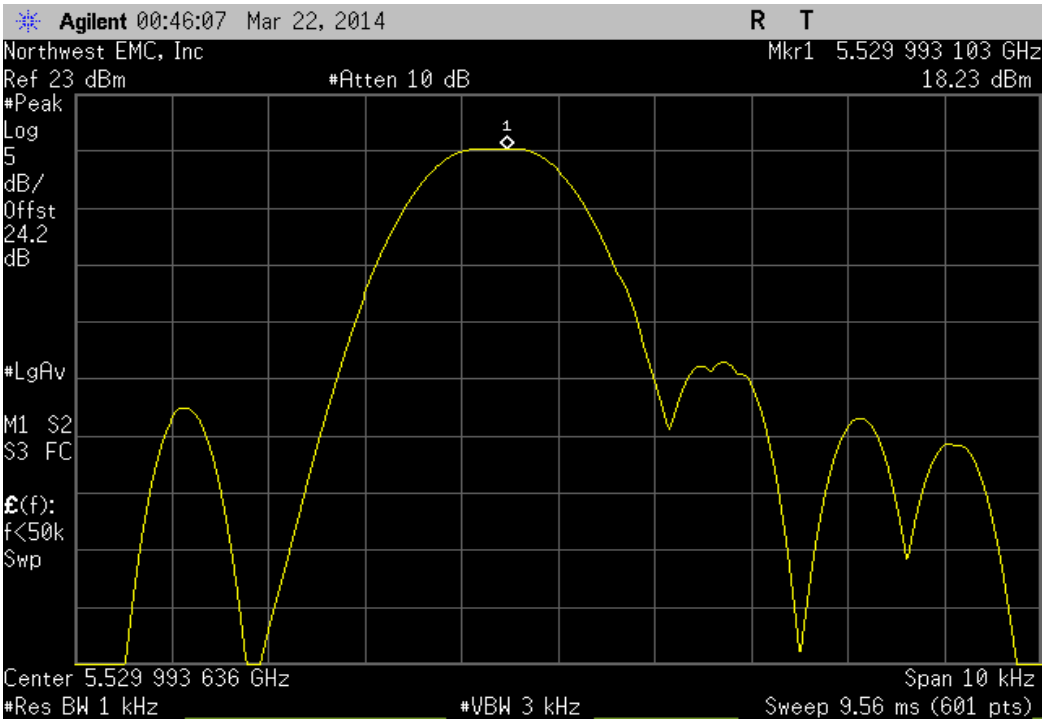


FREQUENCY STABILITY

Ch. 106, Low Channel 5530 MHz, Temperature: +30°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5529.987194	5530	2.3	100	Pass

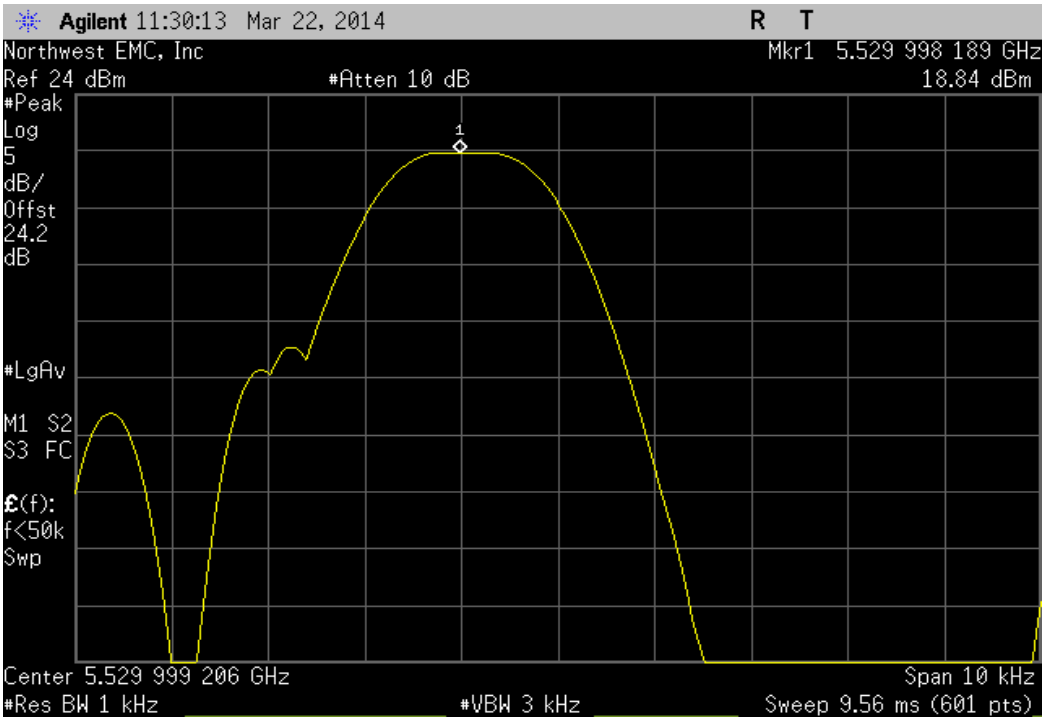


Ch. 106, Low Channel 5530 MHz, Temperature: +20°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5529.993103	5530	1.3	100	Pass

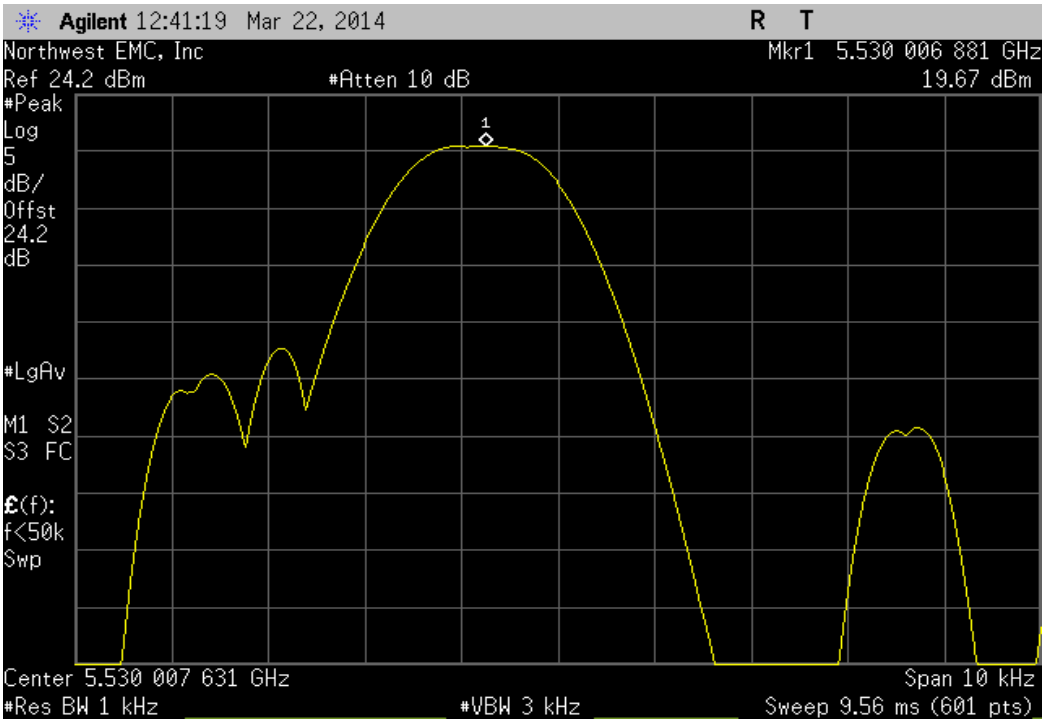


FREQUENCY STABILITY

Ch. 106, Low Channel 5530 MHz, Temperature: +10°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5529.998189	5530	0.3	100	Pass



Ch. 106, Low Channel 5530 MHz, Temperature: 0°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5530.006881	5530	1.2	100	Pass



SPURIOUS RADIATED EMISSIONS

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

MODES OF OPERATION

802.11(a) 6Mbps
802.11(a) 36Mbps
802.11(a) 54Mbps
802.11(n) MCS7
802.11(n) MCS8
802.11(n) MCS15
802.11(ac) MCS0 (SISO)
802.11(ac) MCS8 (SISO)
802.11(ac) MCS9 (SISO)
802.11(ac) MCS0 (MIMO)
802.11(ac) MCS8 (MIMO)
802.11(ac) MCS9 (MIMO)

CHANNELS OF OPERATION

Ch. 36, 5180MHz (20MHz)
Ch. 48, 5240MHz (20MHz)
Ch. 52, 5260MHz (20MHz)
Ch. 64, 5320MHz (20MHz)
Ch. 100, 5500MHz (20MHz)
Ch. 116, 5580MHz (20MHz)
Ch. 140, 5700MHz (20MHz)
Ch. 36/40, 5190MHz (40MHz)
Ch. 44/48, 5230MHz (40MHz)
Ch. 52/56, 5270MHz (40MHz)
Ch. 60/64, 5310MHz (40MHz)
Ch. 100/104, 5510MHz (40MHz)
Ch. 108/112, 5550MHz (40MHz)
Ch. 132/136, 5510MHz (40MHz)
Ch. 42, 5210MHz (80MHz)
Ch. 58, 5290MHz (80MHz)
Ch. 106, 5530MHz (80MHz)

POWER SETTINGS INVESTIGATED

110VAC/60Hz

CONFIGURATIONS INVESTIGATED

MCSO1698 - 2
MCSO1698 - 3
MCSO1698 - 4

FREQUENCY RANGE INVESTIGATED

Start Frequency	30 MHz	Stop Frequency	40000 MHz

SAMPLE CALCULATIONS

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
5.725-5.875 Notch Filter	Micro-Tronics	BRC50705	HGJ	2/18/2014	24 mo
BP Filter	Micro-Tronics	BRC50703	HHJ	6/20/2013	36 mo
5.47-5.725 Notch Filter	Micro-Tronics	BRC50704	HGI	10/4/2012	24 mo
EV01 Cable	ESM Cable Corp.	TTBJ-141 KMKM-72	ECC	8/26/2013	12 mo
OC Cable	ESM Cable Corp.	KMKM-72	OCV	6/24/2013	12 mo
Cable	ESM Cable Corp.	KMKM-72	EVY	9/10/2013	12 mo
Power Meter	Gigatronics	8651A	SPM	11/26/2013	24 mo
Power Sensor	Gigatronics	80701A	SPL	7/8/2011	36 mo
Attenuator, 6dB	S.M. Electronics	18N-06	AWN	2/3/2014	12 mo
MXG Analog Signal Generator	Agilent	N5181A	TIG	NCR	0 mo
Antenna, Horn	EMCO	3115	AHC	6/20/2012	24 mo
LP Filter	Micro-Tronics	LPM50004	LFD	7/6/2012	24 mo
EV01 Cables	N/A	Standard Gain Horns Cables	EVF	2/18/2014	12 mo
EV01 Cables	N/A	Double Ridge Horn Cables	EVB	2/18/2014	12 mo
EV01 Cables	N/A	Bilog Cables	EVA	2/18/2014	12 mo
Pre-Amplifier	Miteq	JSW45-26004000-40-5P	AVR	6/24/2013	12 mo
Pre-Amplifier	Miteq	AMF-6F-18002650-25-10P	AVU	9/10/2013	12 mo
Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVD	2/18/2014	12 mo
Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVC	2/18/2014	12 mo
Pre-Amplifier	Miteq	AMF-4D-010100-24-10P	APW	2/18/2014	12 mo
Pre-Amplifier	Miteq	AM-1616-1000	AOL	2/18/2014	12 mo
Antenna, Horn	EMCO	3115	AHC	6/20/2012	24 mo
Antenna, Horn	ETS Lindgren	3160-10	AIW	NCR	0 mo
Antenna, Horn	ETS Lindgren	3160-09	AIV	NCR	0 mo
Antenna, Horn	ETS	3160-08	AHV	NCR	0 mo
Antenna, Horn	ETS	3160-07	AHU	NCR	0 mo
Antenna, Horn	ETS	3115	AIZ	1/27/2014	36 mo
Antenna, Biconilog	EMCO	3141	AXG	4/10/2012	36 mo
Spectrum Analyzer	Agilent	E4446A	AAQ	1/21/2014	24 mo
Spectrum Analyzer	Agilent	E4440	AFE	11/4/2013	24 mo

MEASUREMENT BANDWIDTHS

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

TEST DESCRIPTION

The highest gain antenna of each type to be used with the EUT were tested. The EUT was configured for the lowest, a middle, and the highest transmit frequency in each operational band. For each configuration, the spectrum was scanned throughout the specified range. Measurements were made to satisfy the three requirements of 47 CFR 15.407: Field strength under 1GHz, Restricted Bands of 47 CFR 15.205, and EIRP of 47 CFR 15.407.

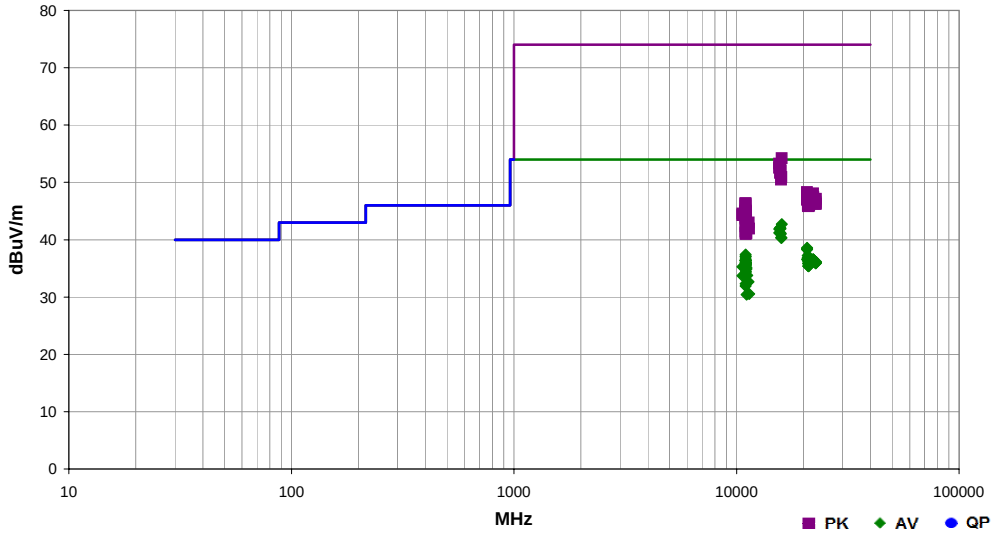
While scanning, emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and EUT antenna in three orthogonal axis, and adjusting the measurement antenna height and polarization (per ANSI C63.10:2009). A preamp and high pass filter (and notch filter) were used for this test in order to provide sufficient measurement sensitivity.

SPURIOUS RADIATED EMISSIONS

Work Order:	MCSO1698	**Date:**	03/11/14		
Project:	None	**Temperature:**	22 °C		
Job Site:	EV01	**Humidity:**	35% RH		
Serial Number:	41151240753	**Barometric Pres.:**	1026 mbar	**Tested by:**	Brandon Hobbs
EUT:	Model 1631				
Configuration:	2				
Customer:	Microsoft Corporation				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	See comments for modes of operation				
Deviations:	None				
Comments:	Please reference the data comments for EUT orientation, frequency, modulation and antenna chain				

Test Specifications	**Test Method**
FCC 15.407:2014	ANSI C63.10:2009

Run #	103	**Test Distance (m)**	3	**Antenna Height(s)**	1-4m	**Results**	Pass



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
15962.370	30.3	12.4	1.0	9.0	3.0	0.0	Horz	AV	0.0	42.7	54.0	-11.3	Ch. 5320 MHz, Chain AB, 802.11n, MCS8, EUT On Side
15721.110	29.6	12.5	1.0	8.0	3.0	0.0	Horz	AV	0.0	42.1	54.0	-11.9	Ch. 5240 MHz, Chain AB, 802.11n, MCS8, EUT On Side
15779.300	29.4	12.5	1.0	8.0	3.0	0.0	Horz	AV	0.0	41.9	54.0	-12.1	Ch. 5260 MHz, Chain AB, 802.11n, MCS8, EUT On Side
15540.900	29.8	12.1	1.0	8.0	3.0	0.0	Horz	AV	0.0	41.9	54.0	-12.1	Ch. 5180 MHz, Chain AB, 802.11n, MCS8, EUT On Side
15570.980	29.1	12.1	1.0	238.0	3.0	0.0	Horz	AV	0.0	41.2	54.0	-12.8	Ch. 5190 MHz, Chain AB, 802.11n, MCS15, EUT On Side
15687.560	28.8	12.4	1.0	238.0	3.0	0.0	Horz	AV	0.0	41.2	54.0	-12.8	Ch. 5230 MHz, Chain AB, 802.11n, MCS15, EUT On Side
15807.910	28.5	12.5	1.0	238.0	3.0	0.0	Horz	AV	0.0	41.0	54.0	-13.0	Ch. 5270 MHz, Chain AB, 802.11n, MCS15, EUT On Side
15871.030	27.9	12.5	1.0	202.0	3.0	0.0	Horz	AV	0.0	40.4	54.0	-13.6	Ch. 5290 MHz, Chain AB, 802.11ac, MCS9, EUT On Side
15927.720	27.9	12.4	1.0	238.0	3.0	0.0	Horz	AV	0.0	40.3	54.0	-13.7	Ch. 5310 MHz, Chain AB, 802.11n, MCS15, EUT On Side
20719.950	39.1	-0.5	1.2	214.0	3.0	0.0	Horz	AV	0.0	38.6	54.0	-15.4	Ch. 5180 MHz, Chain AB, 802.11n, MCS8, EUT On Side
20760.010	38.9	-0.5	1.2	216.0	3.0	0.0	Horz	AV	0.0	38.4	54.0	-15.6	Ch. 5190 MHz, Chain AB, 802.11n, MCS15, EUT On Side
20759.960	38.8	-0.5	1.2	318.0	3.0	0.0	Vert	AV	0.0	38.3	54.0	-15.7	Ch. 5190 MHz, Chain AB, 802.11n, MCS15, EUT Vert
10999.950	46.0	-8.6	1.0	334.0	3.0	0.0	Horz	AV	0.0	37.4	54.0	-16.6	Ch. 5500 MHz, Chain AB, 802.11n, MCS8, EUT On Side
20919.930	37.6	-0.4	1.2	318.0	3.0	0.0	Vert	AV	0.0	37.2	54.0	-16.8	Ch. 5230 MHz, Chain AB, 802.11n, MCS15, EUT Vert
10999.920	45.7	-8.6	1.0	334.0	3.0	0.0	Horz	AV	0.0	37.1	54.0	-16.9	Ch. 5500 MHz, Chain AB, 802.11ac, MCS8, EUT On Side
10999.980	45.6	-8.6	1.0	334.0	3.0	0.0	Horz	AV	0.0	37.0	54.0	-17.0	Ch. 5500 MHz, Chain AB, 802.11n, MCS15, EUT On Side
20919.940	37.2	-0.4	1.2	216.0	3.0	0.0	Horz	AV	0.0	36.8	54.0	-17.2	Ch. 5230 MHz, Chain AB, 802.11n, MCS15, EUT On Side
10999.910	45.2	-8.6	1.0	322.0	3.0	0.0	Horz	AV	0.0	36.6	54.0	-17.4	Ch. 5500 MHz, Chain B, 802.11a, 6Mbps, EUT On Side
22120.390	36.3	0.3	1.2	318.0	3.0	0.0	Vert	AV	0.0	36.6	54.0	-17.4	Ch. 5530 MHz, Chain AB, 802.11ac, MCS9, EUT Vert
22119.080	36.3	0.3	1.2	324.0	3.0	0.0	Horz	AV	0.0	36.6	54.0	-17.4	Ch. 5530 MHz, Chain AB, 802.11ac, MCS9, EUT On Side
20722.340	37.1	-0.5	1.2	104.0	3.0	0.0	Vert	AV	0.0	36.6	54.0	-17.4	Ch. 5180 MHz, Chain AB, 802.11n, MCS8, EUT Vert
22199.630	36.2	0.3	1.2	318.0	3.0	0.0	Vert	AV	0.0	36.5	54.0	-17.5	Ch. 5550 MHz, Chain AB, 802.11n, MCS15, EUT Vert
22039.930	36.2	0.3	1.2	216.0	3.0	0.0	Horz	AV	0.0	36.5	54.0	-17.5	Ch. 5510 MHz, Chain AB, 802.11n, MCS15, EUT On Side
22040.230	36.2	0.3	1.2	318.0	3.0	0.0	Vert	AV	0.0	36.5	54.0	-17.5	Ch. 5510 MHz, Chain AB, 802.11n, MCS15, EUT Vert
10999.990	45.0	-8.6	1.0	334.0	3.0	0.0	Horz	AV	0.0	36.4	54.0	-17.6	Ch. 5500 MHz, Chain B, 802.11a, 54Mbps, EUT On Side
11000.000	45.0	-8.6	1.0	334.0	3.0	0.0	Horz	AV	0.0	36.4	54.0	-17.6	Ch. 5500 MHz, Chain B, 802.11ac, MCS0, EUT On Side
10999.960	45.0	-8.6	1.0	334.0	3.0	0.0	Horz	AV	0.0	36.4	54.0	-17.6	Ch. 5500 MHz, Chain B, 802.11a, 36Mbps, EUT On Side
22000.150	36.1	0.2	1.2	104.0	3.0	0.0	Vert	AV	0.0	36.3	54.0	-17.7	Ch. 5500 MHz, Chain AB, 802.11n, MCS8, EUT Vert
22000.090	36.1	0.2	1.2	215.0	3.0	0.0	Horz	AV	0.0	36.3	54.0	-17.7	Ch. 5500 MHz, Chain AB, 802.11n, MCS8, EUT On Side
10999.990	44.9	-8.6	1.0	334.0	3.0	0.0	Horz	AV	0.0	36.3	54.0	-17.7	Ch. 5500 MHz, Chain B, 802.11n, MCS7, EUT On Side
10999.970	44.9	-8.6	1.0	334.0	3.0	0.0	Horz	AV	0.0	36.3	54.0	-17.7	Ch. 5500 MHz, Chain B, 802.11ac, MCS8, EUT On Side
22199.680	36.0	0.3	1.2	216.0	3.0	0.0	Horz	AV	0.0	36.3	54.0	-17.7	Ch. 5550 MHz, Chain AB, 802.11n, MCS15, EUT On Side
22319.780	35.9	0.4	1.2	215.0	3.0	0.0	Horz	AV	0.0	36.3	54.0	-17.7	Ch. 5580 MHz, Chain AB, 802.11n, MCS8, EUT On Side
20960.070	36.6	-0.3	1.2	214.0	3.0	0.0	Horz	AV	0.0	36.3	54.0	-17.7	Ch. 5240 MHz, Chain AB, 802.11n, MCS8, EUT On Side
22319.850	35.8	0.4	1.2	104.0	3.0	0.0	Vert	AV	0.0	36.2	54.0	-17.8	Ch. 5580 MHz, Chain AB, 802.11n, MCS8, EUT Vert
10999.940	44.7	-8.6	1.0	346.0	3.0	0.0	Vert	AV	0.0	36.1	54.0	-17.9	Ch. 5500 MHz, Chain B, 802.11a, 6Mbps, EUT Vert
22800.230	35.7	0.4	1.2	215.0	3.0	0.0	Horz	AV	0.0	36.1	54.0	-17.9	Ch. 5700 MHz, Chain AB, 802.11n, MCS8, EUT On Side
21159.880	36.3	-0.3	1.2	318.0	3.0	0.0	Vert	AV	0.0	36.0	54.0	-18.0	Ch. 5290 MHz, Chain AB, 802.11ac, MCS9, EUT Vert
10999.930	44.6	-8.6	1.0	206.0	3.0	0.0	Vert	AV	0.0	36.0	54.0	-18.0	Ch. 5500 MHz, Chain B, 802.11a, 6Mbps, EUT Horz
21079.700	36.3	-0.3	1.2	318.0	3.0	0.0	Vert	AV	0.0	36.0	54.0	-18.0	Ch. 5270 MHz, Chain AB, 802.11n, MCS15, EUT Vert

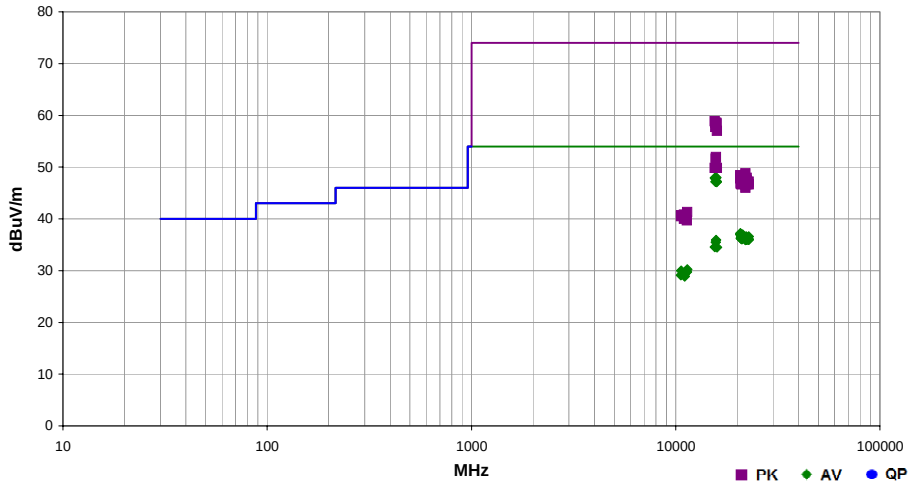
22798.630	35.6	0.4	1.2	104.0	3.0	0.0	Vert	AV	0.0	36.0	54.0	-18.0	Ch. 5700 MHz, Chain AB, 802.11n, MCS8, EUT Vert
11019.930	44.4	-8.4	1.0	336.0	3.0	0.0	Horz	AV	0.0	36.0	54.0	-18.0	Ch. 5510 MHz, Chain AB, 802.11n, MCS15, EUT On Side
11019.930	44.4	-8.4	1.0	333.0	3.0	0.0	Horz	AV	0.0	36.0	54.0	-18.0	Ch. 5510 MHz, Chain B, 802.11ac, MCS0, EUT On Side
22678.800	35.5	0.4	1.2	216.0	3.0	0.0	Horz	AV	0.0	35.9	54.0	-18.1	Ch. 5670 MHz, Chain AB, 802.11n, MCS15, EUT On Side
22680.050	35.5	0.4	1.2	318.0	3.0	0.0	Vert	AV	0.0	35.9	54.0	-18.1	Ch. 5670 MHz, Chain AB, 802.11n, MCS15, EUT Vert
20959.670	36.2	-0.3	1.2	104.0	3.0	0.0	Vert	AV	0.0	35.9	54.0	-18.1	Ch. 5240 MHz, Chain AB, 802.11n, MCS8, EUT Vert
21279.030	36.1	-0.2	1.2	215.0	3.0	0.0	Horz	AV	0.0	35.9	54.0	-18.1	Ch. 5320 MHz, Chain AB, 802.11n, MCS8, EUT On Side
11019.980	44.3	-8.4	1.0	336.0	3.0	0.0	Horz	AV	0.0	35.9	54.0	-18.1	Ch. 5510 MHz, Chain AB, 802.11n, MCS8, EUT On Side
10999.910	44.4	-8.6	1.0	330.0	3.0	0.0	Vert	AV	0.0	35.8	54.0	-18.2	Ch. 5500 MHz, Chain B, 802.11a, 6Mbps, EUT On Side
21280.480	36.0	-0.2	1.2	104.0	3.0	0.0	Vert	AV	0.0	35.8	54.0	-18.2	Ch. 5320 MHz, Chain AB, 802.11n, MCS8, EUT Vert
11019.930	44.2	-8.4	1.0	333.0	3.0	0.0	Horz	AV	0.0	35.8	54.0	-18.2	Ch. 5510 MHz, Chain B, 802.11ac, MCS9, EUT On Side
21240.230	36.0	-0.2	1.2	318.0	3.0	0.0	Vert	AV	0.0	35.8	54.0	-18.2	Ch. 5310 MHz, Chain AB, 802.11n, MCS15, EUT Vert
21159.340	36.0	-0.3	1.2	324.0	3.0	0.0	Horz	AV	0.0	35.7	54.0	-18.3	Ch. 5290 MHz, Chain AB, 802.11ac, MCS9, EUT On Side
21239.910	35.9	-0.2	1.2	216.0	3.0	0.0	Horz	AV	0.0	35.7	54.0	-18.3	Ch. 5310 MHz, Chain AB, 802.11n, MCS15, EUT On Side
10999.990	44.2	-8.6	1.0	334.0	3.0	0.0	Horz	AV	0.0	35.6	54.0	-18.4	Ch. 5500 MHz, Chain AB, 802.11ac, MCS0, EUT On Side
11020.000	44.0	-8.4	1.0	336.0	3.0	0.0	Horz	AV	0.0	35.6	54.0	-18.4	Ch. 5510 MHz, Chain B, 802.11n, MCS7, EUT On Side
21079.960	35.7	-0.3	1.2	216.0	3.0	0.0	Horz	AV	0.0	35.4	54.0	-18.6	Ch. 5270 MHz, Chain AB, 802.11n, MCS15, EUT On Side
21040.030	35.7	-0.3	1.2	214.0	3.0	0.0	Horz	AV	0.0	35.4	54.0	-18.6	Ch. 5260 MHz, Chain AB, 802.11n, MCS8, EUT On Side
21037.580	35.7	-0.3	1.2	104.0	3.0	0.0	Vert	AV	0.0	35.4	54.0	-18.6	Ch. 5260 MHz, Chain AB, 802.11n, MCS8, EUT Vert
10640.030	45.1	-9.8	1.0	333.0	3.0	0.0	Horz	AV	0.0	35.3	54.0	-18.7	Ch. 5320 MHz, Chain AB, 802.11n, MCS8, EUT On Side
11059.910	43.3	-8.1	1.0	342.0	3.0	0.0	Horz	AV	0.0	35.2	54.0	-18.8	Ch. 5530 MHz, Chain AB, 802.11ac, MCS9, EUT On Side
11059.930	43.2	-8.1	1.0	342.0	3.0	0.0	Horz	AV	0.0	35.1	54.0	-18.9	Ch. 5530 MHz, Chain AB, 802.11ac, MCS0, EUT On Side
11060.000	43.1	-8.1	1.0	342.0	3.0	0.0	Horz	AV	0.0	35.0	54.0	-19.0	Ch. 5530 MHz, Chain B, 802.11ac, MCS0, EUT On Side
11060.010	43.0	-8.1	1.0	342.0	3.0	0.0	Horz	AV	0.0	34.9	54.0	-19.1	Ch. 5530 MHz, Chain B, 802.11ac, MCS9, EUT On Side
11019.970	42.8	-8.4	1.0	336.0	3.0	0.0	Horz	AV	0.0	34.4	54.0	-19.6	Ch. 5510 MHz, Chain AB, 802.11ac, MCS9, EUT On Side
15957.920	41.8	12.4	1.0	9.0	3.0	0.0	Horz	PK	0.0	54.2	74.0	-19.8	Ch. 5320 MHz, Chain AB, 802.11n, MCS8, EUT On Side
11160.000	41.2	-7.4	1.0	333.0	3.0	0.0	Horz	AV	0.0	33.8	54.0	-20.2	Ch. 5580 MHz, Chain AB, 802.11n, MCS8, EUT On Side
10620.030	43.6	-9.9	1.0	318.0	3.0	0.0	Horz	AV	0.0	33.7	54.0	-20.3	Ch. 5310 MHz, Chain AB, 802.11n, MCS15, EUT On Side
11019.980	42.1	-8.4	1.0	336.0	3.0	0.0	Horz	AV	0.0	33.7	54.0	-20.3	Ch. 5510 MHz, Chain AB, 802.11ac, MCS0, EUT On Side
15540.370	41.2	12.1	1.0	8.0	3.0	0.0	Horz	PK	0.0	53.3	74.0	-20.8	Ch. 5180 MHz, Chain AB, 802.11n, MCS8, EUT On Side
15721.190	40.4	12.5	1.0	8.0	3.0	0.0	Horz	PK	0.0	52.9	74.0	-21.1	Ch. 5240 MHz, Chain AB, 802.11n, MCS8, EUT On Side
15781.970	40.2	12.5	1.0	8.0	3.0	0.0	Horz	PK	0.0	52.7	74.0	-21.3	Ch. 5260 MHz, Chain AB, 802.11n, MCS8, EUT On Side
11339.980	38.4	-5.8	1.0	339.0	3.0	0.0	Horz	AV	0.0	32.6	54.0	-21.4	Ch. 5670 MHz, Chain AB, 802.11n, MCS15, EUT On Side
15571.430	40.4	12.1	1.0	238.0	3.0	0.0	Horz	PK	0.0	52.5	74.0	-21.5	Ch. 5190 MHz, Chain AB, 802.11n, MCS15, EUT On Side
10999.940	40.9	-8.6	1.0	326.0	3.0	0.0	Horz	AV	0.0	32.3	54.0	-21.7	Ch. 5500 MHz, Chain B, 802.11a, 6Mbps, EUT Vert
15807.650	39.5	12.5	1.0	238.0	3.0	0.0	Horz	PK	0.0	52.0	74.0	-22.0	Ch. 5270 MHz, Chain AB, 802.11n, MCS15, EUT On Side
10999.910	40.5	-8.6	1.0	191.0	3.0	0.0	Horz	AV	0.0	31.9	54.0	-22.1	Ch. 5500 MHz, Chain B, 802.11a, 6Mbps, EUT Horz
15688.010	39.2	12.4	1.0	238.0	3.0	0.0	Horz	PK	0.0	51.6	74.0	-22.4	Ch. 5230 MHz, Chain AB, 802.11n, MCS15, EUT On Side
15929.220	38.5	12.4	1.0	238.0	3.0	0.0	Horz	PK	0.0	50.9	74.0	-23.1	Ch. 5310 MHz, Chain AB, 802.11n, MCS15, EUT On Side
11400.030	35.6	-5.1	1.0	333.0	3.0	0.0	Horz	AV	0.0	30.5	54.0	-23.5	Ch. 5700 MHz, Chain AB, 802.11n, MCS8, EUT On Side
15872.290	38.0	12.5	1.0	202.0	3.0	0.0	Horz	PK	0.0	50.5	74.0	-23.5	Ch. 5290 MHz, Chain AB, 802.11ac, MCS9, EUT On Side
11099.790	38.3	-7.9	1.0	318.0	3.0	0.0	Horz	AV	0.0	30.4	54.0	-23.6	Ch. 5550 MHz, Chain AB, 802.11n, MCS15, EUT On Side
20760.380	48.8	-0.5	1.2	318.0	3.0	0.0	Vert	PK	0.0	48.3	74.0	-25.7	Ch. 5190 MHz, Chain AB, 802.11n, MCS15, EUT Vert
22120.010	47.8	0.3	1.2	324.0	3.0	0.0	Horz	PK	0.0	48.1	74.0	-25.9	Ch. 5530 MHz, Chain AB, 802.11ac, MCS9, EUT On Side
20760.360	48.4	-0.5	1.2	216.0	3.0	0.0	Horz	PK	0.0	47.9	74.0	-26.1	Ch. 5190 MHz, Chain AB, 802.11n, MCS15, EUT On Side
21239.900	47.8	-0.2	1.2	318.0	3.0	0.0	Vert	PK	0.0	47.6	74.0	-26.4	Ch. 5310 MHz, Chain AB, 802.11n, MCS15, EUT Vert
20921.980	47.9	-0.4	1.2	216.0	3.0	0.0	Horz	PK	0.0	47.5	74.0	-26.5	Ch. 5230 MHz, Chain AB, 802.11n, MCS15, EUT On Side
20719.100	48.0	-0.5	1.2	214.0	3.0	0.0	Horz	PK	0.0	47.5	74.0	-26.5	Ch. 5180 MHz, Chain AB, 802.11n, MCS8, EUT On Side
21278.530	47.7	-0.2	1.2	104.0	3.0	0.0	Vert	PK	0.0	47.5	74.0	-26.5	Ch. 5320 MHz, Chain AB, 802.11n, MCS8, EUT Vert
22201.480	47.1	0.3	1.2	216.0	3.0	0.0	Horz	PK	0.0	47.4	74.0	-26.6	Ch. 5550 MHz, Chain AB, 802.11n, MCS15, EUT On Side
22039.880	47.1	0.3	1.2	216.0	3.0	0.0	Horz	PK	0.0	47.4	74.0	-26.6	Ch. 5510 MHz, Chain AB, 802.11n, MCS15, EUT On Side
20922.430	47.5	-0.4	1.2	318.0	3.0	0.0	Vert	PK	0.0	47.1	74.0	-26.9	Ch. 5230 MHz, Chain AB, 802.11n, MCS15, EUT Vert
22801.630	46.7	0.4	1.2	215.0	3.0	0.0	Horz	PK	0.0	47.1	74.0	-26.9	Ch. 5700 MHz, Chain AB, 802.11n, MCS8, EUT On Side
22038.960	46.8	0.3	1.2	318.0	3.0	0.0	Vert	PK	0.0	47.1	74.0	-26.9	Ch. 5510 MHz, Chain AB, 802.11n, MCS15, EUT Vert
22199.610	46.7	0.3	1.2	318.0	3.0	0.0	Vert	PK	0.0	47.0	74.0	-27.0	Ch. 5550 MHz, Chain AB, 802.11n, MCS15, EUT Vert
20719.030	47.5	-0.5	1.2	104.0	3.0	0.0	Vert	PK	0.0	47.0	74.0	-27.0	Ch. 5180 MHz, Chain AB, 802.11n, MCS8, EUT Vert
22002.180	46.7	0.2	1.2	215.0	3.0	0.0	Horz	PK	0.0	46.9	74.0	-27.1	Ch. 5500 MHz, Chain AB, 802.11n, MCS8, EUT On Side
22118.200	46.5	0.3	1.2	318.0	3.0	0.0	Vert	PK	0.0	46.8	74.0	-27.2	Ch. 5530 MHz, Chain AB, 802.11ac, MCS9, EUT Vert
22320.520	46.4	0.4	1.2	215.0	3.0	0.0	Horz	PK	0.0	46.8	74.0	-27.2	Ch. 5580 MHz, Chain AB, 802.11n, MCS8, EUT On Side
21159.260	47.0	-0.3	1.2	324.0	3.0	0.0	Horz	PK	0.0	46.7	74.0	-27.3	Ch. 5290 MHz, Chain AB, 802.11ac, MCS9, EUT On Side
22000.180	46.4	0.2	1.2	104.0	3.0	0.0	Vert	PK	0.0	46.6	74.0	-27.4	Ch. 5500 MHz, Chain AB, 802.11n, MCS8, EUT Vert
22682.060	46.2	0.4	1.2	216.0	3.0	0.0	Horz	PK	0.0	46.6	74.0	-27.4	Ch. 5670 MHz, Chain AB, 802.11n, MCS15, EUT On Side
21159.290	46.7	-0.3	1.2	318.0	3.0	0.0	Vert	PK	0.0	46.4	74.0	-27.6	Ch. 5290 MHz, Chain AB, 802.11ac, MCS9, EUT Vert
11000.390	54.9	-8.6	1.0	334.0	3.0	0.0	Horz	PK	0.0	46.3	74.0	-27.7	Ch. 5500 MHz, Chain AB, 802.11n, MCS15, EUT On Side
10999.640	54.9	-8.6	1.0	334.0	3.0	0.0	Horz	PK	0.0	46.3	74.0	-27.7	Ch. 5500 MHz, Chain AB, 802.11n, MCS15, EUT On Side
22798.410	45.9	0.4	1.2	104.0	3.0	0.0	Vert	PK	0.0	46.3	74.0	-27.7	Ch. 5700 MHz, Chain AB, 802.11n, MCS8, EUT Vert
22322.080	45.9	0.4	1.2	104.0	3.0	0.0	Vert	PK	0.0	46.3	74.0	-27.7	Ch. 5580 MHz, Chain AB, 802.11n, MCS8, EUT Vert
21280.770	46.5	-0.2	1.2	215.0	3.0	0.0	Horz	PK	0.0	46.3	74.0	-27.7	Ch. 5320 MHz, Chain AB, 802.11n, MCS8, EUT On Side
22678.690	45.8	0.4	1.2	318.0	3.0	0.0	Vert	PK	0.0	46.2	74.0	-27.8	Ch. 5670 MHz, Chain AB, 802.11n, MCS15, EUT Vert
10999.910	54.8	-8.6	1.0	334.0	3.0	0.0	Horz	PK	0.0	46.2	74.0	-27.8	Ch. 5500 MHz, Chain AB, 802.11ac, MCS8, EUT On Side
21038.490	46.4	-0.3	1.2	104.0	3.0	0.0	Vert	PK	0.0	46.1	74.0	-27.9	Ch. 5260 MHz, Chain AB, 802.11n, MCS8, EUT Vert
20960.570	46.4	-0.3	1.2	104.0	3.0	0.0	Vert	PK	0.0	46.1	74.0	-27.9	Ch. 5240 MHz, Chain AB, 802.11n, MCS8, EUT Vert
21080.460	46.3	-0.3	1.2	216.0	3.0	0.0	Horz	PK	0.0	46.0	74.0	-28.0	Ch. 5270 MHz, Chain AB, 802.11n, MCS15, EUT On Side
21241.610	46.2	-0.2	1.2	216.0	3.0	0.0	Horz	PK	0.0	46.0	74.0	-28.0	Ch. 5310 MHz, Chain AB, 802.11n, MCS15, EUT On Side
11000.120	54.5	-8.6	1.0	334.0	3.0	0.0	Horz	PK	0.0	45.9	74.0	-28.1	Ch. 5500 MHz, Chain B, 802.11ac, MCS0, EUT On Side
20961.100	46.2	-0.3	1.2	214.0	3.0	0.0	Horz	PK	0.0	45.9	74.0	-28.1	Ch. 5240 MHz, Chain AB, 802.11n, MCS8, EUT On Side
21077.510	46.1	-0.3	1.2	318.0	3.0	0.0	Vert	PK	0.0	45.8	74.0	-28.2	Ch. 5270 MHz, Chain AB, 802.11n, MCS15, EUT Vert
21041.820	46.1	-0.3	1.2	214.0	3.0	0.0	Horz	PK	0.0	45.8	74.0	-28.2	Ch. 5260 MHz, Chain AB, 802.11n, MCS8, EUT On Side
11000.000	53.8	-8.6	1.0	334.0	3.0	0.0	Horz	PK	0.0	45.2	74.0	-28.8	Ch. 5500 MHz, Chain B, 802.11a, 54Mbps, EUT On Side
11000.190	53.5	-8.6	1.0	334.0	3.0	0.0	Horz	PK	0.0	44.9	74.0	-29.1	Ch. 5500 MHz, Chain B, 802.11a, 36Mbps, EUT On Side
10999.940	53.5	-8.6	1.0	346.0	3.0	0.0	Vert	PK	0.0	44.9	74.0	-29.1	Ch. 5500 MHz, Chain B, 802.11a, 6Mbps, EUT Vert
11019.950	53.3	-8.4	1.0	336.0	3.0	0.0	Horz	PK	0.0	44.9	74.0	-29.1	Ch. 5510 MHz, Chain AB, 802.11n, MCS8, EUT On Side
11000.030	53.4	-8.6	1.0	334.0	3.0	0.0	Horz	PK	0.0	44.8	74.0	-29.2	Ch. 5500 MHz, Chain B, 802.11ac, MCS8, EUT On Side
10999.530	53.3	-8.6	1.0	330.0	3.0	0.0	Vert	PK	0.0	44.7	74.0	-29.3	Ch. 5500 MHz, Chain B, 802.11a, 6Mbps, EUT On Side
10620.920	54.4	-9.9	1.0	318.0	3.0	0.0	Horz	PK	0.0	44.5	74.0	-29.5	Ch. 5310 MHz, Chain AB, 802.11n, MCS15, EUT On Side
10999.920	53.1	-8.6	1.0	334.0	3.0	0.0	Horz	PK	0.0	44.5	74.0	-29.5	Ch. 5500 MHz, Chain B, 802.11n, MCS7, EUT On Side
11021.500	52.9	-8.4	1.0	336.0	3.0	0.0	Horz	PK	0.0	44.5	74.0	-29.5	Ch. 5510 MHz, Chain AB, 802.11n, MCS15, EUT On Side
10638.970	54.1	-9.8	1.0	333.0	3.0	0.0	Horz	PK	0.0	44.3	74.0	-29.7	Ch. 5320 MHz, Chain AB, 802.11n, MCS8, EUT On Side
11019.900	52.7	-8.4	1.0	333.0	3.0	0.0	Horz	PK	0.0	44.3	74.0	-29.7	Ch. 5510 MHz, Chain B, 802.11ac, MCS0, EUT On Side
10999.530	52.4	-8.6	1.0	322.0	3.0	0.0	Horz	PK	0.0	43.8	74.0	-30.2	Ch. 5500 MHz, Chain B, 802.11a, 6Mbps, EUT On Side
11020.240	52.2	-8.4	1.0	333.0	3.0	0.0	Horz	PK	0.0	43.8	74.0	-30.2	Ch. 5510 MHz, Chain B, 802.11ac, MCS9, EUT On Side
11000.000	52.1	-8.6	1.0	206.0	3.0	0.0	Vert	PK	0.0	43.5	74.0	-30.5	Ch. 5500 MHz, Chain B, 802.11a, 6Mbps, EUT Horz
11060.000	51.6	-8.1	1.0	342.0	3.0	0.0	Horz	PK	0.0	43.5	74.0	-30.5	Ch. 5530 MHz, Chain B, 802.11ac, MCS9, EUT On Side
11021.780	51.7	-8.4	1.0	336.0	3.0	0.0	Horz	PK	0.0	43.3	74.0	-30.7	Ch. 5510 MHz, Chain AB, 802.11ac, MCS9, EUT On Side
11341.650	48.7	-5.7	1.0	339.0	3.0	0.0	Horz	PK	0.0	43.0	74.0	-31.0	Ch. 5670 MHz, Chain AB, 802.11n, MCS15, EUT On Side
11019.400	51.4	-8.4	1.0	336.0	3.0	0.0	Horz	PK	0.0	43.0	74.0	-31.0	Ch. 5510 MHz, Chain B, 802.11n, MCS7, EUT On Side
11059.330	51.0	-8.1	1.0	342.0	3.0	0.0	Horz	PK	0.0	42.9	74.0	-31.1	Ch. 5530 MHz, Chain B, 802.11ac, MCS0, EUT On Side
11159.980	50.2	-7.4	1.0	333.0	3.0	0.0	Horz	PK	0.0	42.8	74.0	-31.2	Ch. 5580 MHz, Chain AB, 802.11n, MCS8, EUT On Side
11059.730	50.8	-8.1	1.0	342.0	3.0	0.0	Horz	PK	0.0	42.7	74.0	-31.3	Ch. 5530 MHz, Chain AB, 802.11ac, MCS9, EUT On Side
10999.990	50.9	-8.6	1.0	334.0	3.0	0.0	Horz	PK	0.0	42.3	74.0	-31.7	Ch. 5500 MHz, Chain AB, 802.11ac, MCS0, EUT On Side
11060.160	50.2	-8.1	1.0	342.0	3.0	0.0	Horz	PK	0.0	42.1	74.0	-31.9	Ch. 5530 MHz, Chain AB, 802.11ac, MCS0, EUT On Side
11399.900	47.0	-5.1	1.0	333.0	3.0	0.0	Horz	PK	0.0	41.9	74.0	-32.1	Ch. 5700 MHz, Chain AB, 802.11n, MCS8, EUT On Side
11000.080	50.0	-8.6	1.0	191.0	3.0	0.0	Horz	PK	0.0	41.4	74.0	-32.6	Ch. 5500 MHz, Chain B, 802.11a, 6Mbps, EUT Horz
11101.550	49.0	-7.8	1.0	318.0	3.0	0.0	Horz	PK	0.0	41.2	74.0	-32.8	Ch. 5550 MHz, Chain AB, 802.11n, MCS15, EUT On Side
10999.510	49.7	-8.6	1.0	326.0	3.0	0.0	Horz	PK	0.0	41.1	74.0	-32.9	Ch. 5500 MHz, Chain B, 802.11a, 6Mbps, EUT Vert
11019.960	49.4	-8.4	1.0	336.0	3.0	0.0	Horz	PK	0.0	41.0	74.0	-33.0	Ch. 5510 MHz, Chain AB, 802.11ac, MCS0, EUT On Side

SPURIOUS RADIATED EMISSIONS

Work Order:	MCSO1698	**Date:**	03/18/14		
Project:	None	**Temperature:**	22.6 °C		
Job Site:	EV01	**Humidity:**	32.7% RH		
Serial Number:	41148340753	**Barometric Pres.:**	1027 mbar	**Tested by:**	Cole Ghizzone, Brandon Hobbs
EUT:	Model 1631				
Configuration:	4				
Customer:	Microsoft Corporation				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	See comments for modes of operation				
Deviations:	None				
Comments:	Please reference the data comments for EUT orientation, frequency, modulation and antenna chain				

Test Specifications	**Test Method**
FCC 15.407:2014	ANSI C63.10:2009

Run #	151	**Test Distance (m)**	3	**Antenna Height(s)**	1-4m	**Results**	Pass



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
15807.580	27.5	20.5	1.0	229.0	3.0	0.0	Horz	AV	0.0	48.0	54.0	-6.0	Ch. 52/56, 5270MHz, 40MHz wide, MIMO 802.11n, MCS15, EUT on side
15564.830	27.7	20.2	1.0	252.0	3.0	0.0	Horz	AV	0.0	47.9	54.0	-6.1	Ch. 36/40, 5190MHz, 40MHz wide, MIMO 802.11n, MCS15, EUT on side
15683.500	27.3	20.5	1.0	226.0	3.0	0.0	Horz	AV	0.0	47.8	54.0	-6.2	Ch. 44/48, 5230MHz, 40MHz wide, MIMO 802.11n, MCS15, EUT on side
15871.180	26.9	20.3	1.0	192.0	3.0	0.0	Horz	AV	0.0	47.2	54.0	-6.8	Ch. 58, 5290MHz, 10dBm, 80MHz wide, MIMO 802.11ac, MCS9, EUT on side
15629.520	26.8	20.4	1.0	313.0	3.0	0.0	Horz	AV	0.0	47.2	54.0	-6.8	Ch. 42, 5210MHz, 10dBm, 80MHz wide, MIMO 802.11ac, MCS9, EUT on side
15906.250	26.9	20.2	1.0	238.0	3.0	0.0	Horz	AV	0.0	47.1	54.0	-6.9	Ch. 60/64, 5310MHz, 40MHz wide, MIMO 802.11n, MCS15, EUT on side
15569.250	38.6	20.2	1.0	252.0	3.0	0.0	Horz	PK	0.0	58.8	74.0	-15.2	Ch. 36/40, 5190MHz, 40MHz wide, MIMO 802.11n, MCS15, EUT on side
15683.920	38.1	20.5	1.0	226.0	3.0	0.0	Horz	PK	0.0	58.6	74.0	-15.4	Ch. 44/48, 5230MHz, 40MHz wide, MIMO 802.11n, MCS15, EUT on side
15823.500	38.1	20.4	1.0	229.0	3.0	0.0	Horz	PK	0.0	58.5	74.0	-15.5	Ch. 52/56, 5270MHz, 40MHz wide, MIMO 802.11n, MCS15, EUT on side
15870.310	38.1	20.3	1.0	192.0	3.0	0.0	Horz	PK	0.0	58.4	74.0	-15.6	Ch. 58, 5290MHz, 10dBm, 80MHz wide, MIMO 802.11ac, MCS9, EUT on side
15629.490	37.4	20.4	1.0	313.0	3.0	0.0	Horz	PK	0.0	57.8	74.0	-16.2	Ch. 42, 5210MHz, 10dBm, 80MHz wide, MIMO 802.11ac, MCS9, EUT on side
20719.920	37.2	0.0	1.0	180.0	3.0	0.0	Horz	AV	0.0	37.2	54.0	-16.8	Ch. 36, 5180MHz, 20MHz wide, MIMO 802.11n, MCS8, EUT on side
20719.760	37.1	0.0	1.0	267.0	3.0	0.0	Horz	AV	0.0	37.1	54.0	-16.9	Ch. 36, 5180MHz, 20MHz wide,SISO Port A 802.11a, EUT on side
21240.040	37.0	0.0	1.0	302.0	3.0	0.0	Horz	AV	0.0	37.0	54.0	-17.0	Ch. 60/64, 5310MHz, 40MHz wide, MIMO 802.11n, MCS15, EUT on side
20759.920	37.0	0.0	1.0	26.0	3.0	0.0	Horz	AV	0.0	37.0	54.0	-17.0	Ch. 36/40, 5190MHz, 40MHz wide, MIMO 802.11n, MCS15, EUT on side
20719.520	37.0	0.0	1.0	154.0	3.0	0.0	Horz	AV	0.0	37.0	54.0	-17.0	Ch. 36, 5180MHz, 20MHz wide,SISO Port B 802.11a, EUT on side
15921.250	36.8	20.2	1.0	238.0	3.0	0.0	Horz	PK	0.0	57.0	74.0	-17.0	Ch. 60/64, 5310MHz, 40MHz wide, MIMO 802.11n, MCS15, EUT on side
21279.490	36.7	0.0	1.0	59.0	3.0	0.0	Horz	AV	0.0	36.7	54.0	-17.3	Ch. 64, 5320MHz, 20MHz wide, MIMO 802.11n, MCS8, EUT on side
20960.270	36.7	0.0	1.0	97.0	3.0	0.0	Horz	AV	0.0	36.7	54.0	-17.3	Ch. 48, 5240MHz, 20MHz wide, MIMO 802.11n, MCS8, EUT on side
22799.990	36.6	0.0	1.0	209.0	3.0	0.0	Horz	AV	0.0	36.6	54.0	-17.4	Ch. 140, 5700MHz, 20MHz wide, MIMO 802.11n, MCS8, EUT on side
22120.130	36.6	0.0	1.0	271.0	3.0	0.0	Horz	AV	0.0	36.6	54.0	-17.4	Ch. 106, 5530MHz, 9dBm, 80MHz wide, MIMO 802.11ac, MCS9, EUT on side
21279.940	36.6	0.0	1.0	256.0	3.0	0.0	Horz	AV	0.0	36.6	54.0	-17.4	Ch. 64, 5320MHz, 20MHz wide,SISO Port B 802.11a, EUT on side
21278.630	36.6	0.0	1.0	129.0	3.0	0.0	Horz	AV	0.0	36.6	54.0	-17.4	Ch. 64, 5320MHz, 20MHz wide,SISO Port A 802.11a, EUT on side
21079.920	36.5	0.0	1.0	265.0	3.0	0.0	Horz	AV	0.0	36.5	54.0	-17.5	Ch. 52/56, 5270MHz, 40MHz wide, MIMO 802.11n, MCS15, EUT on side
20960.130	36.4	0.0	1.0	289.0	3.0	0.0	Horz	AV	0.0	36.4	54.0	-17.6	Ch. 48, 5240MHz, 20MHz wide,SISO Port A 802.11a, EUT on side
20959.800	36.4	0.0	1.0	264.0	3.0	0.0	Horz	AV	0.0	36.4	54.0	-17.6	Ch. 48, 5240MHz, 20MHz wide,SISO Port B 802.11a, EUT on side
20919.850	36.4	0.0	1.0	145.0	3.0	0.0	Horz	AV	0.0	36.4	54.0	-17.6	Ch. 44/48, 5230MHz, 40MHz wide, MIMO 802.11n, MCS15, EUT on side
22038.920	36.3	0.0	1.0	71.0	3.0	0.0	Horz	AV	0.0	36.3	54.0	-17.7	Ch. 100/104, 5510MHz, 40MHz wide, MIMO 802.11n, MCS15, EUT on side
21039.410	36.3	0.0	1.0	83.0	3.0	0.0	Horz	AV	0.0	36.3	54.0	-17.7	Ch. 52, 5260MHz, 20MHz wide, MIMO 802.11n, MCS8, EUT on side
22679.970	36.2	0.0	1.0	247.0	3.0	0.0	Horz	AV	0.0	36.2	54.0	-17.8	Ch. 132/136, 5670MHz, 40MHz wide, MIMO 802.11n, MCS15, EUT on side
20839.410	36.2	0.0	1.0	296.0	3.0	0.0	Horz	AV	0.0	36.2	54.0	-17.8	Ch. 42, 5210MHz, 10dBm, 80MHz wide, MIMO 802.11ac, MCS9, EUT on side
22320.370	36.1	0.0	1.0	112.0	3.0	0.0	Horz	AV	0.0	36.1	54.0	-17.9	Ch. 116, 5580MHz, 20MHz wide, MIMO 802.11n, MCS8, EUT on side
21160.210	36.1	0.0	1.0	228.0	3.0	0.0	Horz	AV	0.0	36.1	54.0	-17.9	Ch. 58, 5290MHz, 10dBm, 80MHz wide, MIMO 802.11ac, MCS9, EUT on side
21040.360	36.1	0.0	1.0	216.0	3.0	0.0	Horz	AV	0.0	36.1	54.0	-17.9	Ch. 52, 5260MHz, 20MHz wide,SISO Port A 802.11a, EUT on side
21039.430	36.1	0.0	1.0	10.0	3.0	0.0	Horz	AV	0.0	36.1	54.0	-17.9	Ch. 52, 5260MHz, 20MHz wide,SISO Port B 802.11a, EUT on side
22798.740	36.0	0.0	1.0	143.0	3.0	0.0	Horz	AV	0.0	36.0	54.0	-18.0	Ch. 140, 5700MHz, 20MHz wide,SISO Port A 802.11a, EUT on side
22798.600	36.0	0.0	1.0	121.0	3.0	0.0	Horz	AV	0.0	36.0	54.0	-18.0	Ch. 140, 5700MHz, 20MHz wide,SISO Port B 802.11a, EUT on side
22321.080	36.0	0.0	1.0	316.0	3.0	0.0	Horz	AV	0.0	36.0	54.0	-18.0	Ch. 116, 5580MHz, 20MHz wide,SISO Port A 802.11a, EUT on side
22321.040	36.0	0.0	1.0	348.0	3.0	0.0	Horz	AV	0.0	36.0	54.0	-18.0	Ch. 116, 5580MHz, 20MHz wide,SISO Port B 802.11a, EUT on side
22200.040	36.0	0.0	1.0	309.0	3.0	0.0	Horz	AV	0.0	36.0	54.0	-18.0	Ch. 108/112, 5550MHz, 40MHz wide, MIMO 802.11n, MCS15, EUT on side
22001.340	36.0	0.0	1.0	65.0	3.0	0.0	Horz	AV	0.0	36.0	54.0	-18.0	Ch. 100, 5500MHz, 20MHz wide,SISO Port A 802.11a, EUT on side
22001.100	36.0	0.0	1.0	33.0	3.0	0.0	Horz	AV	0.0	36.0	54.0	-18.0	Ch. 100, 5500MHz, 20MHz wide, MIMO 802.11n, MCS8, EUT on side
15778.680	23.4	12.5	1.0	359.0	3.0	0.0	Horz	AV	0.0	35.9	54.0	-18.1	Ch. 52, 5260 MHz, 20 MHz wide, MIMO 802.11n, MCS8, EUT on side
21999.390	35.9	0.0	1.0	98.0	3.0	0.0	Horz	AV	0.0	35.9	54.0	-18.1	Ch. 100, 5500MHz, 20MHz wide,SISO Port B 802.11a, EUT on side
15719.480	23.0	12.5	1.0	360.0	3.0	0.0	Horz	AV	0.0	35.5	54.0	-18.5	Ch. 48, 5240 MHz, 20 MHz wide, MIMO 802.11n, MCS8, EUT on side
15540.480	22.5	12.1	1.0	308.0	3.0	0.0	Horz	AV	0.0	34.6	54.0	-19.4	Ch. 36, 5180 MHz, 20 MHz wide, MIMO 802.11n, MCS8, EUT on side
15959.580	22.1	12.4	1.0	214.0	3.0	0.0	Horz	AV	0.0	34.5	54.0	-19.5	Ch. 64, 5320 MHz, 20 MHz wide, MIMO 802.11n, MCS8, EUT on side
15780.680	39.4	12.5	1.0	359.0	3.0	0.0	Horz	PK	0.0	51.9	74.0	-22.1	Ch. 52, 5260 MHz, 20 MHz wide, MIMO 802.11n, MCS8, EUT on side
15720.440	39.1	12.5	1.0	360.0	3.0	0.0	Horz	PK	0.0	51.6	74.0	-22.4	Ch. 48, 5240 MHz, 20 MHz wide, MIMO 802.11n, MCS8, EUT on side
11398.750	35.3	-5.1	1.0	171.0	3.0	0.0	Horz	AV	0.0	30.2	54.0	-23.8	Ch. 140, 5700 MHz, 20 MHz wide, MIMO 802.11n, MCS8, EUT on side
10639.830	39.8	-9.8	1.0	280.0	3.0	0.0	Horz	AV	0.0	30.0	54.0	-24.0	Ch. 64, 5320 MHz, 20 MHz wide, MIMO 802.11n, MCS8, EUT on side
15540.730	37.8	12.1	1.0	308.0	3.0	0.0	Horz	PK	0.0	49.9	74.0	-24.1	Ch. 36, 5180 MHz, 20 MHz wide, MIMO 802.11n, MCS8, EUT on side

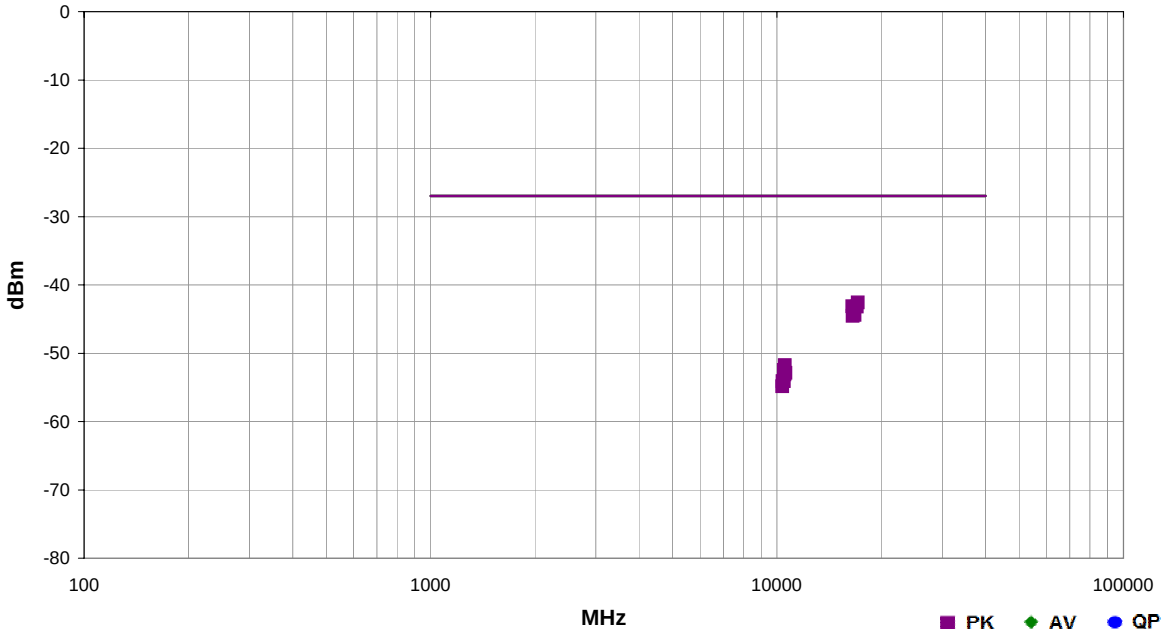
15959.730	37.4	12.4	1.0	214.0	3.0	0.0	Horz	PK	0.0	49.8	74.0	-24.2	Ch. 64, 5320 MHz, 20 MHz wide, MIMO 802.11n, MCS8, EUT on side
11158.850	37.2	-7.4	1.0	319.0	3.0	0.0	Horz	AV	0.0	29.8	54.0	-24.2	Ch. 116, 5580 MHz, 20 MHz wide, MIMO 802.11n, MCS8, EUT on side
11340.250	35.5	-5.7	1.0	307.0	3.0	0.0	Horz	AV	0.0	29.8	54.0	-24.2	Ch. 132/136, 5670MHz, 40MHz wide, MIMO 802.11n, MCS15, EUT on side
11085.500	37.3	-8.0	1.0	86.0	3.0	0.0	Horz	AV	0.0	29.3	54.0	-24.7	Ch. 108/112, 5550MHz, 40MHz wide, MIMO 802.11n, MCS15, EUT on side
11000.200	37.8	-8.6	1.0	40.0	3.0	0.0	Horz	AV	0.0	29.2	54.0	-24.8	Ch. 100, 5500 MHz, 20 MHz wide, MIMO 802.11n, MCS8, EUT on side
11018.580	37.6	-8.4	1.0	286.0	3.0	0.0	Horz	AV	0.0	29.2	54.0	-24.8	Ch. 100/104, 5510MHz, 40MHz wide, MIMO 802.11n, MCS15, EUT on side
10619.580	39.0	-9.9	1.0	109.0	3.0	0.0	Horz	AV	0.0	29.1	54.0	-24.9	Ch. 60/64, 5310MHz, 40MHz wide, MIMO 802.11n, MCS15, EUT on side
11060.110	37.0	-8.1	1.0	310.0	3.0	0.0	Horz	AV	0.0	28.9	54.0	-25.1	Ch. 106, 5530MHz, 9dBm, 80MHz wide, MIMO 802.11ac, MCS9, EUT on side
22001.240	48.8	0.0	1.0	65.0	3.0	0.0	Horz	PK	0.0	48.8	74.0	-25.2	Ch. 100, 5500MHz, 20MHz wide,SISO Port A 802.11a, EUT on side
20718.790	48.4	0.0	1.0	154.0	3.0	0.0	Horz	PK	0.0	48.4	74.0	-25.6	Ch. 36, 5180MHz, 20MHz wide,SISO Port B 802.11a, EUT on side
21278.610	48.2	0.0	1.0	129.0	3.0	0.0	Horz	PK	0.0	48.2	74.0	-25.8	Ch. 64, 5320MHz, 20MHz wide,SISO Port A 802.11a, EUT on side
21240.910	48.2	0.0	1.0	302.0	3.0	0.0	Horz	PK	0.0	48.2	74.0	-25.8	Ch. 60/64, 5310MHz, 40MHz wide, MIMO 802.11n, MCS15, EUT on side
20760.120	48.1	0.0	1.0	26.0	3.0	0.0	Horz	PK	0.0	48.1	74.0	-25.9	Ch. 36/40, 5190MHz, 40MHz wide, MIMO 802.11n, MCS15, EUT on side
20721.180	48.0	0.0	1.0	180.0	3.0	0.0	Horz	PK	0.0	48.0	74.0	-26.0	Ch. 36, 5180MHz, 20MHz wide, MIMO 802.11n, MCS8, EUT on side
22320.640	47.9	0.0	1.0	316.0	3.0	0.0	Horz	PK	0.0	47.9	74.0	-26.1	Ch. 116, 5580MHz, 20MHz wide,SISO Port A 802.11a, EUT on side
20719.460	47.8	0.0	1.0	267.0	3.0	0.0	Horz	PK	0.0	47.8	74.0	-26.2	Ch. 36, 5180MHz, 20MHz wide,SISO Port A 802.11a, EUT on side
21279.150	47.7	0.0	1.0	256.0	3.0	0.0	Horz	PK	0.0	47.7	74.0	-26.3	Ch. 64, 5320MHz, 20MHz wide,SISO Port B 802.11a, EUT on side
22321.030	47.5	0.0	1.0	348.0	3.0	0.0	Horz	PK	0.0	47.5	74.0	-26.5	Ch. 116, 5580MHz, 20MHz wide,SISO Port B 802.11a, EUT on side
20959.450	47.5	0.0	1.0	264.0	3.0	0.0	Horz	PK	0.0	47.5	74.0	-26.5	Ch. 48, 5240MHz, 20MHz wide,SISO Port B 802.11a, EUT on side
21278.540	47.4	0.0	1.0	59.0	3.0	0.0	Horz	PK	0.0	47.4	74.0	-26.6	Ch. 64, 5320MHz, 20MHz wide, MIMO 802.11n, MCS8, EUT on side
22200.200	47.3	0.0	1.0	309.0	3.0	0.0	Horz	PK	0.0	47.3	74.0	-26.7	Ch. 108/112, 5550MHz, 40MHz wide, MIMO 802.11n, MCS15, EUT on side
22038.740	47.3	0.0	1.0	71.0	3.0	0.0	Horz	PK	0.0	47.3	74.0	-26.7	Ch. 100/104, 5510MHz, 40MHz wide, MIMO 802.11n, MCS15, EUT on side
20960.780	47.3	0.0	1.0	97.0	3.0	0.0	Horz	PK	0.0	47.3	74.0	-26.7	Ch. 48, 5240MHz, 20MHz wide, MIMO 802.11n, MCS8, EUT on side
22799.450	47.2	0.0	1.0	121.0	3.0	0.0	Horz	PK	0.0	47.2	74.0	-26.8	Ch. 140, 5700MHz, 20MHz wide,SISO Port B 802.11a, EUT on side
22678.740	47.1	0.0	1.0	247.0	3.0	0.0	Horz	PK	0.0	47.1	74.0	-26.9	Ch. 132/136, 5670MHz, 40MHz wide, MIMO 802.11n, MCS15, EUT on side
20960.670	47.1	0.0	1.0	289.0	3.0	0.0	Horz	PK	0.0	47.1	74.0	-26.9	Ch. 48, 5240MHz, 20MHz wide,SISO Port A 802.11a, EUT on side
22118.790	47.0	0.0	1.0	271.0	3.0	0.0	Horz	PK	0.0	47.0	74.0	-27.0	Ch. 106, 5530MHz, 9dBm, 80MHz wide, MIMO 802.11ac, MCS9, EUT on side
20919.520	47.0	0.0	1.0	145.0	3.0	0.0	Horz	PK	0.0	47.0	74.0	-27.0	Ch. 44/48, 5230MHz, 40MHz wide, MIMO 802.11n, MCS15, EUT on side
21161.490	46.9	0.0	1.0	228.0	3.0	0.0	Horz	PK	0.0	46.9	74.0	-27.1	Ch. 58, 5290MHz, 10dBm, 80MHz wide, MIMO 802.11ac, MCS9, EUT on side
21081.170	46.9	0.0	1.0	265.0	3.0	0.0	Horz	PK	0.0	46.9	74.0	-27.1	Ch. 52/56, 5270MHz, 40MHz wide, MIMO 802.11n, MCS15, EUT on side
21038.860	46.8	0.0	1.0	216.0	3.0	0.0	Horz	PK	0.0	46.8	74.0	-27.2	Ch. 52, 5260MHz, 20MHz wide,SISO Port A 802.11a, EUT on side
20840.140	46.8	0.0	1.0	296.0	3.0	0.0	Horz	PK	0.0	46.8	74.0	-27.2	Ch. 42, 5210MHz, 10dBm, 80MHz wide, MIMO 802.11ac, MCS9, EUT on side
22799.760	46.7	0.0	1.0	143.0	3.0	0.0	Horz	PK	0.0	46.7	74.0	-27.3	Ch. 140, 5700MHz, 20MHz wide,SISO Port A 802.11a, EUT on side
22801.060	46.7	0.0	1.0	209.0	3.0	0.0	Horz	PK	0.0	46.7	74.0	-27.3	Ch. 140, 5700MHz, 20MHz wide, MIMO 802.11n, MCS8, EUT on side
22319.650	46.7	0.0	1.0	112.0	3.0	0.0	Horz	PK	0.0	46.7	74.0	-27.3	Ch. 116, 5580MHz, 20MHz wide, MIMO 802.11n, MCS8, EUT on side
21041.410	46.7	0.0	1.0	83.0	3.0	0.0	Horz	PK	0.0	46.7	74.0	-27.3	Ch. 52, 5260MHz, 20MHz wide, MIMO 802.11n, MCS8, EUT on side
21038.550	46.7	0.0	1.0	10.0	3.0	0.0	Horz	PK	0.0	46.7	74.0	-27.3	Ch. 52, 5260MHz, 20MHz wide,SISO Port B 802.11a, EUT on side
22001.410	46.6	0.0	1.0	33.0	3.0	0.0	Horz	PK	0.0	46.6	74.0	-27.4	Ch. 100, 5500MHz, 20MHz wide, MIMO 802.11n, MCS8, EUT on side
21999.090	46.0	0.0	1.0	98.0	3.0	0.0	Horz	PK	0.0	46.0	74.0	-28.0	Ch. 100, 5500MHz, 20MHz wide,SISO Port B 802.11a, EUT on side
11398.650	46.4	-5.1	1.0	171.0	3.0	0.0	Horz	PK	0.0	41.3	74.0	-32.7	Ch. 140, 5700 MHz, 20 MHz wide, MIMO 802.11n, MCS8, EUT on side
10999.890	49.4	-8.6	1.0	40.0	3.0	0.0	Horz	PK	0.0	40.8	74.0	-33.2	Ch. 100, 5500 MHz, 20 MHz wide, MIMO 802.11n, MCS8, EUT on side
10639.530	50.5	-9.8	1.0	280.0	3.0	0.0	Horz	PK	0.0	40.7	74.0	-33.3	Ch. 64, 5320 MHz, 20 MHz wide, MIMO 802.11n, MCS8, EUT on side
11158.700	48.1	-7.4	1.0	319.0	3.0	0.0	Horz	PK	0.0	40.7	74.0	-33.3	Ch. 116, 5580 MHz, 20 MHz wide, MIMO 802.11n, MCS8, EUT on side
10641.420	50.3	-9.8	1.0	109.0	3.0	0.0	Horz	PK	0.0	40.5	74.0	-33.5	Ch. 60/64, 5310MHz, 40MHz wide, MIMO 802.11n, MCS15, EUT on side
11108.170	48.1	-7.8	1.0	86.0	3.0	0.0	Horz	PK	0.0	40.3	74.0	-33.7	Ch. 108/112, 5550MHz, 40MHz wide, MIMO 802.11n, MCS15, EUT on side
11060.120	48.3	-8.1	1.0	310.0	3.0	0.0	Horz	PK	0.0	40.2	74.0	-33.8	Ch. 106, 5530MHz, 9dBm, 80MHz wide, MIMO 802.11ac, MCS9, EUT on side
11011.920	48.5	-8.5	1.0	286.0	3.0	0.0	Horz	PK	0.0	40.0	74.0	-34.0	Ch. 100/104, 5510MHz, 40MHz wide, MIMO 802.11n, MCS15, EUT on side
11363.750	45.2	-5.5	1.0	307.0	3.0	0.0	Horz	PK	0.0	39.7	74.0	-34.3	Ch. 132/136, 5670MHz, 40MHz wide, MIMO 802.11n, MCS15, EUT on side

SPURIOUS RADIATED EMISSIONS

Work Order:	MCSO1698	**Date:**	03/11/14		
Project:	None	**Temperature:**	22 °C		
Job Site:	EV01	**Humidity:**	35% RH		
Serial Number:	41151240753	**Barometric Pres.:**	1026 mbar	**Tested by:**	Brandon Hobbs
EUT:	Model 1631				
Configuration:	2				
Customer:	Microsoft Corporation				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	See comments for modes of operation				
Deviations:	None				
Comments:	Please reference the data comments for EUT orientation, frequency, modulation and antenna chain				

Test Specifications	**Test Method**
FCC 15.407:2014	

Run #	105	**Test Distance (m)**	3	**Antenna Height(s)**	1-4m	**Results**	Pass



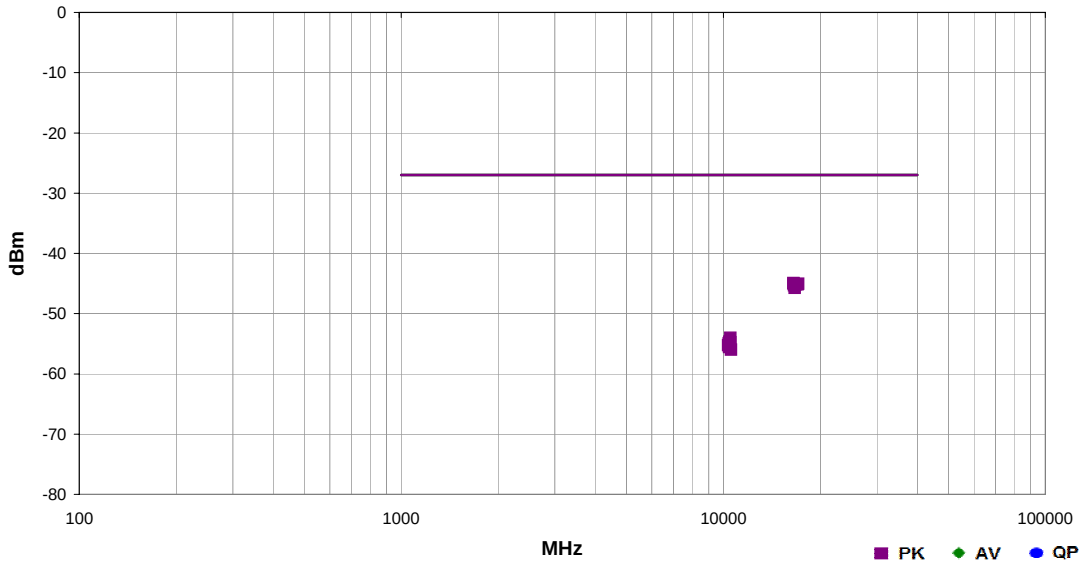
	Freq (MHz)	Antenna Height (meters)	Azimuth (degrees)	Polarity/ Transducer Type	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
	17100.030	1.0	269.0	Horz	PK	5.55E-08	-42.6	-27.0	-15.6	Ch. 5700 MHz, Chain AB, 802.11n, MC
	16501.200	1.0	269.0	Horz	PK	4.86E-08	-43.1	-27.0	-16.1	Ch. 5500 MHz, Chain AB, 802.11n, MC
	17011.530	1.0	238.0	Horz	PK	4.82E-08	-43.2	-27.0	-16.2	Ch. 5670 MHz, Chain AB, 802.11n, MC
	16591.180	1.0	338.0	Horz	PK	4.05E-08	-43.9	-27.0	-16.9	Ch. 5530 MHz, Chain AB, 802.11ac, M
	16651.900	1.0	238.0	Horz	PK	3.87E-08	-44.1	-27.0	-17.1	Ch. 5550 MHz, Chain AB, 802.11n, MC
	16740.500	1.0	269.0	Horz	PK	3.62E-08	-44.4	-27.0	-17.4	Ch. 5580 MHz, Chain AB, 802.11n, MC
	16531.600	1.0	238.0	Horz	PK	3.52E-08	-44.5	-27.0	-17.5	Ch. 5510 MHz, Chain AB, 802.11n, MC
	10540.830	1.0	339.0	Horz	PK	6.68E-09	-51.8	-27.0	-24.8	Ch. 5270 MHz, Chain AB, 802.11n, MC
	10461.330	1.0	339.0	Horz	PK	5.69E-09	-52.4	-27.0	-25.4	Ch. 5230 MHz, Chain AB, 802.11n, MC
	10579.530	1.0	338.0	Horz	PK	5.16E-09	-52.9	-27.0	-25.9	Ch. 5290 MHz, Chain AB, 802.11ac, M
	10518.090	1.0	336.0	Horz	PK	4.90E-09	-53.1	-27.0	-26.1	Ch. 5260 MHz, Chain AB, 802.11n, MC
	10380.080	1.0	339.0	Horz	PK	3.89E-09	-54.1	-27.0	-27.1	Ch. 5190 MHz, Chain AB, 802.11n, MC
	10480.020	1.0	336.0	Horz	PK	3.89E-09	-54.1	-27.0	-27.1	Ch. 5240 MHz, Chain AB, 802.11n, MC
	10359.560	1.0	336.0	Horz	PK	3.26E-09	-54.9	-27.0	-27.9	Ch. 5180 MHz, Chain AB, 802.11n, MC

SPURIOUS RADIATED EMISSIONS

Work Order:	MCSO1698	**Date:**	03/18/14		
Project:	None	**Temperature:**	22.6 °C		
Job Site:	EV01	**Humidity:**	32.7% RH		
Serial Number:	41148340753	**Barometric Pres.:**	1027 mbar	**Tested by:**	Cole Ghizzone, Brandon Hobbs
EUT:	Model 1631				
Configuration:	4				
Customer:	Microsoft Corporation				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	See comments for modes of operation				
Deviations:	None				
Comments:	Please reference the data comments for EUT orientation, frequency, modulation and antenna chain				

Test Specifications	**Test Method**
FCC 15.407:2014	ANSI C63.10:2009

Run #	150	**Test Distance (m)**	3	**Antenna Height(s)**	1-4m	**Results**	Pass



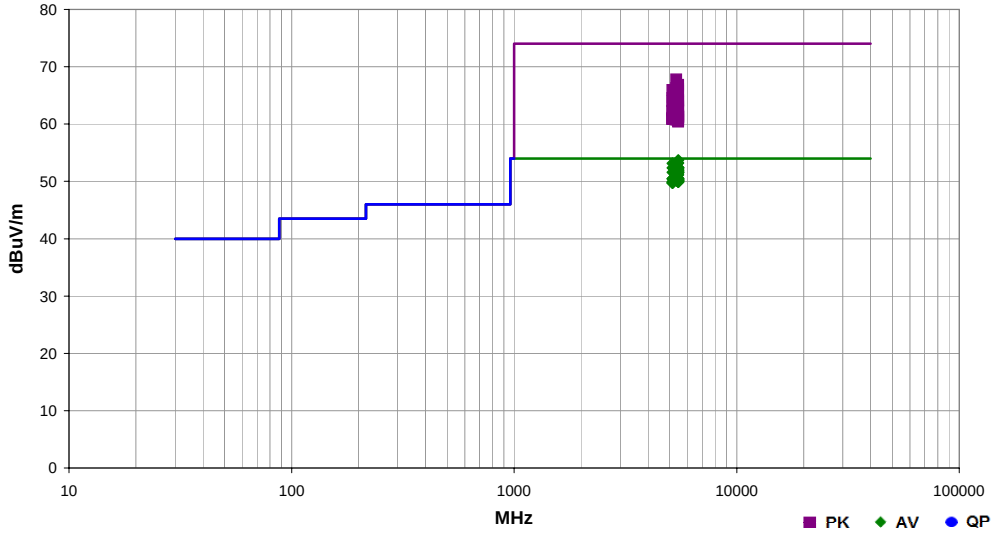
	Freq (MHz)	Antenna Height (meters)	Azimuth (degrees)	Polarity/ Transducer Type	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
	16499.640	1.0	286.0	Horz	PK	3.21E-08	-44.9	-27.0	-17.9	Ch. 100, 5500 MHz, 20 MHz wide, MIMO 802.11n, MCS8, EUT on side
	16546.420	1.0	243.0	Horz	PK	3.14E-08	-45.0	-27.0	-18.0	Ch. 100/104, 5510MHz, 40MHz wide, MIMO 802.11n, MCS15, EUT on side
	17099.780	1.0	119.0	Horz	PK	3.12E-08	-45.1	-27.0	-18.1	Ch. 140, 5700 MHz, 20 MHz wide, MIMO 802.11n, MCS8, EUT on side
	17021.830	1.0	223.0	Horz	PK	3.06E-08	-45.1	-27.0	-18.1	Ch. 132/136, 5670MHz, 40MHz wide, MIMO 802.11n, MCS15, EUT on side
	16739.390	1.0	52.0	Horz	PK	3.01E-08	-45.2	-27.0	-18.2	Ch. 116, 5580 MHz, 20 MHz wide, MIMO 802.11n, MCS8, EUT on side
	16590.230	3.2	54.0	Horz	PK	2.93E-08	-45.3	-27.0	-18.3	Ch. 106, 5530MHz, 9dBm, 80MHz wide, MIMO 802.11ac, MCS9, EUT on side
	16671.420	1.0	221.0	Horz	PK	2.68E-08	-45.7	-27.0	-18.7	Ch. 108/112, 5550MHz, 40MHz wide, MIMO 802.11n, MCS15, EUT on side
	10519.090	1.0	241.0	Horz	PK	3.98E-09	-54.0	-27.0	-27.0	Ch. 52, 5260 MHz, 20 MHz wide, MIMO 802.11n, MCS8, EUT on side
	10447.830	1.0	295.0	Horz	PK	3.42E-09	-54.7	-27.0	-27.7	Ch. 44/48, 5230MHz, 40MHz wide, MIMO 802.11n, MCS15, EUT on side
	10530.670	1.0	303.0	Horz	PK	3.33E-09	-54.8	-27.0	-27.8	Ch. 52/56, 5270MHz, 40MHz wide, MIMO 802.11n, MCS15, EUT on side
	10398.670	1.0	301.0	Horz	PK	3.20E-09	-54.9	-27.0	-27.9	Ch. 36/40, 5190MHz, 40MHz wide, MIMO 802.11n, MCS15, EUT on side
	10480.450	1.0	85.0	Horz	PK	3.17E-09	-55.0	-27.0	-28.0	Ch. 48, 5240 MHz, 20 MHz wide, MIMO 802.11n, MCS8, EUT on side
	10359.600	1.0	12.0	Horz	PK	2.98E-09	-55.3	-27.0	-28.3	Ch. 36, 5180 MHz, 20 MHz wide, MIMO 802.11n, MCS8, EUT on side
	10421.660	1.0	299.0	Horz	PK	2.78E-09	-55.6	-27.0	-28.6	Ch. 42, 5210MHz, 10dBm, 80MHz wide, MIMO 802.11ac, MCS9, EUT on side
	10578.100	1.0	324.0	Horz	PK	2.53E-09	-56.0	-27.0	-29.0	Ch. 58, 5290MHz, 10dBm, 80MHz wide, MIMO 802.11ac, MCS9, EUT on side

SPURIOUS RADIATED EMISSIONS

Work Order:	MCSO1698	**Date:**	03/06/14		
Project:	None	**Temperature:**	20.7 °C		
Job Site:	EV01	**Humidity:**	45.1% RH		
Serial Number:	41151240753	**Barometric Pres.:**	1026 mbar	**Tested by:**	Brandon Hobbs
EUT:	Model 1631				
Configuration:	2				
Customer:	Microsoft Corporation				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	See comments for modes of operation				
Deviations:	None				
Comments:	Please reference the data comments for EUT orientation, frequency, modulation and antenna chain				

Test Specifications	**Test Method**
FCC 15.407:2014	ANSI C63.10:2009

Run #	69	**Test Distance (m)**	1	**Antenna Height(s)**	1-4m	**Results**	Pass



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
5458.677	25.8	37.5	1.1	265.0	1.0	0.0	Vert	AV	-9.5	53.7	54.0	-0.3	Ch. 5530 MHz, Chain B, 802.11ac, MCS0, EUT On Side
5459.750	25.3	37.5	1.1	265.0	1.0	0.0	Vert	AV	-9.5	53.2	54.0	-0.8	Ch. 5510 MHz, Chain AB, 802.11ac, MCS9, EUT On Side
5149.913	25.8	36.9	1.1	273.0	1.0	0.0	Vert	AV	-9.5	53.2	54.0	-0.8	Ch. 5190 MHz, Chain AB, MCS8, EUT On Side
5350.080	25.1	37.4	1.1	276.0	1.0	0.0	Vert	AV	-9.5	53.0	54.0	-1.0	Ch. 5310 MHz, Chain AB, MCS15, EUT On Side
5350.133	24.8	37.4	1.1	276.0	1.0	0.0	Vert	AV	-9.5	52.7	54.0	-1.3	Ch. 5310 MHz, Chain AB, MCS8, EUT On Side
5459.997	24.5	37.5	1.1	265.0	1.0	0.0	Vert	AV	-9.5	52.4	54.0	-1.6	Ch. 5510 MHz, Chain AB, 802.11n, MCS8, EUT On Side (10Hz)
5458.950	24.5	37.5	1.3	40.0	1.0	0.0	Vert	AV	-9.5	52.4	54.0	-1.6	Ch. 5510 MHz, Chain AB, 802.11n, MCS15, EUT Vert
5350.153	24.5	37.4	1.1	276.0	1.0	0.0	Vert	AV	-9.5	52.4	54.0	-1.6	Ch. 5310 MHz, Chain B, MCS7, EUT On Side
5149.027	25.0	36.9	1.1	273.0	1.0	0.0	Vert	AV	-9.5	52.4	54.0	-1.6	Ch. 5190 MHz, Chain AB, MCS15, EUT On Side
5460.000	24.4	37.5	1.1	265.0	1.0	0.0	Vert	AV	-9.5	52.3	54.0	-1.7	Ch. 5510 MHz, Chain B, 802.11ac, MCS0, EUT On Side
5458.787	24.4	37.5	1.1	265.0	1.0	0.0	Vert	AV	-9.5	52.3	54.0	-1.7	Ch. 5530 MHz, Chain B, 802.11ac, MCS9, EUT On Side
5458.873	24.1	37.5	1.1	265.0	1.0	0.0	Vert	AV	-9.5	52.0	54.0	-2.0	Ch. 5510 MHz, Chain B, 802.11n, MCS7, EUT On Side
5458.693	24.0	37.5	1.1	265.0	1.0	0.0	Vert	AV	-9.5	51.9	54.0	-2.1	Ch. 5530 MHz, Chain AB, 802.11ac, MCS9, On Side (10Hz)
5459.870	23.9	37.5	1.1	271.0	1.0	0.0	Horz	AV	-9.5	51.8	54.0	-2.2	Ch. 5510 MHz, Chain AB, 802.11n, MCS15, EUT On Side
5458.540	23.8	37.5	1.0	268.0	1.0	0.0	Horz	AV	-9.5	51.7	54.0	-2.3	Ch. 5510 MHz, Chain AB, 802.11n, MCS15, EUT Vert
5149.957	24.2	36.9	1.1	273.0	1.0	0.0	Vert	AV	-9.5	51.6	54.0	-2.4	Ch. 5190 MHz, Chain B, MCS7, EUT On Side
5460.000	23.6	37.5	1.1	260.0	1.0	0.0	Vert	AV	-9.5	51.5	54.0	-2.5	Ch. 5510 MHz, Chain AB, 802.11n, MCS15, EUT On Side (10Hz)
5459.483	23.6	37.5	1.1	265.0	1.0	0.0	Vert	AV	-9.5	51.5	54.0	-2.5	Ch. 5510 MHz, Chain B, 802.11ac, MCS0, EUT On Side
5458.910	23.6	37.5	1.1	143.0	1.0	0.0	Horz	AV	-9.5	51.5	54.0	-2.5	Ch. 5510 MHz, Chain AB, 802.11n, MCS15, EUT Horz
5458.270	23.2	37.5	1.1	227.0	1.0	0.0	Vert	AV	-9.5	51.1	54.0	-2.9	Ch. 5510 MHz, Chain AB, 802.11n, MCS15, EUT Horz
5351.580	23.2	37.4	1.1	276.0	1.0	0.0	Vert	AV	-9.5	51.1	54.0	-2.9	Ch. 5320 MHz, Chain AB, MCS8, EUT On Side
5351.373	23.1	37.4	1.1	276.0	1.0	0.0	Vert	AV	-9.5	51.0	54.0	-3.0	Ch. 5320 MHz, Chain AB, MCS15, EUT On Side
5459.980	22.6	37.5	1.1	265.0	1.0	0.0	Vert	AV	-9.5	50.5	54.0	-3.5	Ch. 5500 MHz, Chain AB, 802.11ac, MCS8, On Side
5459.740	22.6	37.5	1.1	265.0	1.0	0.0	Vert	AV	-9.5	50.5	54.0	-3.5	Ch. 5500 MHz, Chain AB, 802.11n, MCS8, On Side
5148.380	23.1	36.9	1.1	273.0	1.0	0.0	Vert	AV	-9.5	50.5	54.0	-3.5	Ch. 5180 MHz, Chain AB, MCS8, EUT On Side
5351.680	22.6	37.4	1.1	276.0	1.0	0.0	Vert	AV	-9.5	50.5	54.0	-3.5	Ch. 5320 MHz, Chain B, 6Mbps, EUT On Side
5149.940	23.1	36.9	1.1	273.0	1.0	0.0	Vert	AV	-9.5	50.5	54.0	-3.5	Ch. 5180 MHz, Chain AB, MCS15, EUT On Side
5459.860	22.5	37.5	1.1	265.0	1.0	0.0	Vert	AV	-9.5	50.4	54.0	-3.6	Ch. 5500 MHz, Chain B, 802.11a, 6Mbps. On Side
5459.520	22.5	37.5	1.1	265.0	1.0	0.0	Vert	AV	-9.5	50.4	54.0	-3.6	Ch. 5500 MHz, Chain AB, 802.11n, MCS15, On Side
5350.417	22.5	37.4	1.1	276.0	1.0	0.0	Vert	AV	-9.5	50.4	54.0	-3.6	Ch. 5320 MHz, Chain B, MCS7, EUT On Side
5350.580	22.5	37.4	1.1	276.0	1.0	0.0	Vert	AV	-9.5	50.4	54.0	-3.6	Ch. 5320 MHz, Chain B, 36Mbps, EUT On Side
5459.700	22.3	37.5	1.1	265.0	1.0	0.0	Vert	AV	-9.5	50.2	54.0	-3.8	Ch. 5500 MHz, Chain B, 802.11n, MCS7, EUT On Side
5459.697	22.3	37.5	1.1	265.0	1.0	0.0	Vert	AV	-9.5	50.2	54.0	-3.8	Ch. 5500 MHz, Chain B, 802.11a, 36Mbps. On Side
5459.430	22.3	37.5	1.1	265.0	1.0	0.0	Vert	AV	-9.5	50.2	54.0	-3.8	Ch. 5500 MHz, Chain B, 802.11a, 54Mbps. On Side
5350.713	22.3	37.4	1.1	273.0	1.0	0.0	Vert	AV	-9.5	50.2	54.0	-3.8	Ch. 5320 MHz, Chain B, 54Mbps, EUT On Side
5459.910	22.2	37.5	1.1	265.0	1.0	0.0	Vert	AV	-9.5	50.1	54.0	-3.9	Ch. 5500 MHz, Chain B, 802.11ac, MCS0, On Side
5459.570	22.2	37.5	1.1	265.0	1.0	0.0	Vert	AV	-9.5	50.1	54.0	-3.9	Ch. 5500 MHz, Chain B, 802.11ac, MCS8, On Side
5459.083	22.1	37.5	1.1	265.0	1.0	0.0	Vert	AV	-9.5	50.0	54.0	-4.0	Ch. 5500 MHz, Chain AB, 802.11ac, MCS0, On Side
5148.600	22.6	36.9	1.1	273.0	1.0	0.0	Vert	AV	-9.5	50.0	54.0	-4.0	Ch. 5180 MHz, Chain B, 6Mbps, EUT On Side
5459.157	22.0	37.5	1.1	265.0	1.0	0.0	Vert	AV	-9.5	49.9	54.0	-4.1	Ch. 5510 MHz, Chain AB, 802.11ac, MCS0, EUT On Side

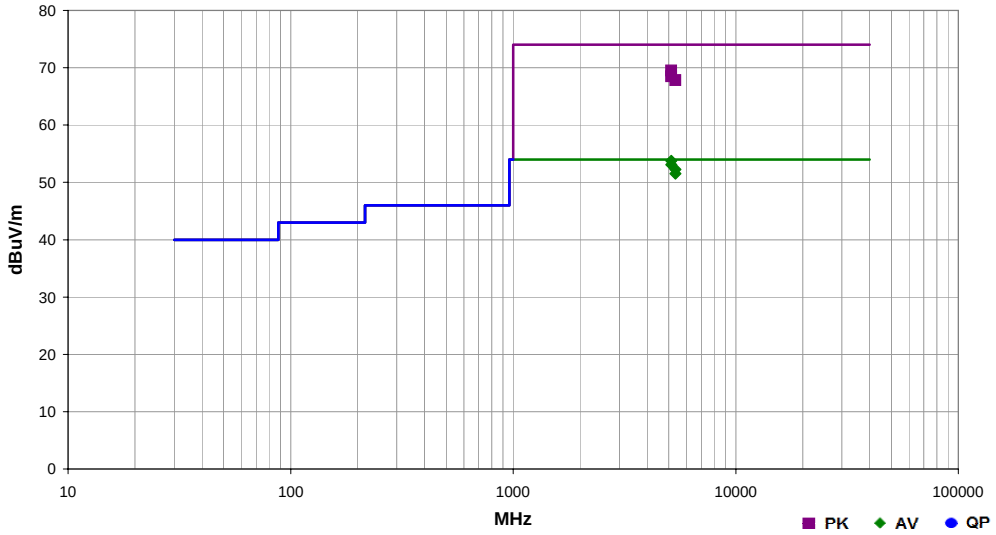
5458.593	22.0	37.5	1.1	265.0	1.0	0.0	Vert	AV	-9.5	49.9	54.0	-4.1	Ch. 5510 MHz, Chain B, 802.11ac, MCS9, EUT On Side
5458.323	22.0	37.5	1.1	265.0	1.0	0.0	Vert	AV	-9.5	49.9	54.0	-4.1	Ch. 5530 MHz, Chain AB, 802.11 ac MCS0, EUT On Side
5148.600	22.4	36.9	1.1	273.0	1.0	0.0	Vert	AV	-9.5	49.8	54.0	-4.2	Ch. 5180 MHz, Chain B, 36Mbps, EUT On Side
5149.697	22.4	36.9	1.1	273.0	1.0	0.0	Vert	AV	-9.5	49.8	54.0	-4.2	Ch. 5180 MHz, Chain B, MCS7, EUT On Side
5149.710	22.4	36.9	1.1	273.0	1.0	0.0	Vert	AV	-9.5	49.8	54.0	-4.2	Ch. 5180 MHz, Chain B, 54Mbps, EUT On Side
5350.087	39.9	37.4	1.1	276.0	1.0	0.0	Vert	PK	-9.5	67.8	74.0	-6.2	Ch. 5310 MHz, Chain AB, MCS15, EUT On Side
5458.107	38.9	37.5	1.1	265.0	1.0	0.0	Vert	PK	-9.5	66.8	74.0	-7.2	Ch. 5530 MHz, Chain AB, 802.11ac, MCS9, On Side
5459.603	38.8	37.5	1.1	265.0	1.0	0.0	Vert	PK	-9.5	66.7	74.0	-7.3	Ch. 5510 MHz, Chain AB, 802.11n, MCS8, EUT On Side
5351.143	38.4	37.4	1.1	276.0	1.0	0.0	Vert	PK	-9.5	66.3	74.0	-7.7	Ch. 5310 MHz, Chain AB, MCS8, EUT On Side
5459.803	38.2	37.5	1.1	260.0	1.0	0.0	Vert	PK	-9.5	66.1	74.0	-7.9	Ch. 5510 MHz, Chain AB, 802.11n, MCS15, EUT On Side
5149.763	38.6	36.9	1.1	273.0	1.0	0.0	Vert	PK	-9.5	66.0	74.0	-8.0	Ch. 5190 MHz, Chain AB, MCS8, EUT On Side
5458.443	37.9	37.5	1.1	265.0	1.0	0.0	Vert	PK	-9.5	65.8	74.0	-8.2	Ch. 5530 MHz, Chain B, 802.11ac, MCS0, EUT On Side
5458.663	36.8	37.5	1.1	265.0	1.0	0.0	Vert	PK	-9.5	64.7	74.0	-9.3	Ch. 5530 MHz, Chain B, 802.11ac, MCS9, EUT On Side
5350.003	36.8	37.4	1.1	276.0	1.0	0.0	Vert	PK	-9.5	64.7	74.0	-9.3	Ch. 5310 MHz, Chain B, MCS7, EUT On Side
5149.693	37.2	36.9	1.1	273.0	1.0	0.0	Vert	PK	-9.5	64.6	74.0	-9.4	Ch. 5190 MHz, Chain AB, MCS15, EUT On Side
5459.633	36.2	37.5	1.1	265.0	1.0	0.0	Vert	PK	-9.5	64.1	74.0	-9.9	Ch. 5510 MHz, Chain AB, 802.11ac, MCS9, EUT On Side
5459.173	36.2	37.5	1.1	265.0	1.0	0.0	Vert	PK	-9.5	64.1	74.0	-9.9	Ch. 5510 MHz, Chain B, 802.11n, MCS7, EUT On Side
5148.957	36.6	36.9	1.1	273.0	1.0	0.0	Vert	PK	-9.5	64.0	74.0	-10.0	Ch. 5190 MHz, Chain B, MCS7, EUT On Side
5459.630	36.0	37.5	1.1	265.0	1.0	0.0	Vert	PK	-9.5	63.9	74.0	-10.1	Ch. 5510 MHz, Chain B, 802.11ac, MCS0, EUT On Side
5458.710	36.0	37.5	1.3	40.0	1.0	0.0	Vert	PK	-9.5	63.9	74.0	-10.1	Ch. 5510 MHz, Chain AB, 802.11n, MCS15, EUT Vert
5458.953	35.2	37.5	1.1	271.0	1.0	0.0	Horz	PK	-9.5	63.1	74.0	-10.9	Ch. 5510 MHz, Chain AB, MCS15, EUT On Side
5458.720	35.0	37.5	1.1	265.0	1.0	0.0	Vert	PK	-9.5	62.9	74.0	-11.1	Ch. 5510 MHz, Chain B, 802.11ac, MCS0, EUT On Side
5459.123	34.7	37.5	1.1	268.0	1.0	0.0	Horz	PK	-9.5	62.6	74.0	-11.4	Ch. 5510 MHz, Chain AB, 802.11n, MCS15, EUT Vert
5350.420	34.7	37.4	1.1	276.0	1.0	0.0	Vert	PK	-9.5	62.6	74.0	-11.4	Ch. 5320 MHz, Chain AB, MCS15, EUT On Side
5459.663	34.6	37.5	1.1	143.0	1.0	0.0	Horz	PK	-9.5	62.5	74.0	-11.5	Ch. 5510 MHz, Chain AB, 802.11n, MCS15, EUT Horz
5148.520	35.0	36.9	1.1	273.0	1.0	0.0	Vert	PK	-9.5	62.4	74.0	-11.6	Ch. 5180 MHz, Chain AB, MCS15, EUT On Side
5148.930	35.0	36.9	1.1	273.0	1.0	0.0	Vert	PK	-9.5	62.4	74.0	-11.6	Ch. 5180 MHz, Chain AB, MCS8, EUT On Side
5459.810	34.4	37.5	1.1	227.0	1.0	0.0	Vert	PK	-9.5	62.3	74.0	-11.7	Ch. 5510 MHz, Chain AB, 802.11n, MCS15, EUT Horz
5351.507	34.4	37.4	1.1	276.0	1.0	0.0	Vert	PK	-9.5	62.3	74.0	-11.7	Ch. 5320 MHz, Chain AB, MCS8, EUT On Side
5351.417	33.9	37.4	1.1	276.0	1.0	0.0	Vert	PK	-9.5	61.8	74.0	-12.2	Ch. 5320 MHz, Chain B, MCS7, EUT On Side
5459.037	33.7	37.5	1.1	265.0	1.0	0.0	Vert	PK	-9.5	61.6	74.0	-12.4	Ch. 5500 MHz, Chain B, 802.11n, MCS7, EUT On Side
5350.967	33.7	37.4	1.1	276.0	1.0	0.0	Vert	PK	-9.5	61.6	74.0	-12.4	Ch. 5320 MHz, Chain B, 6Mbps, EUT On Side
5459.363	33.5	37.5	1.1	265.0	1.0	0.0	Vert	PK	-9.5	61.4	74.0	-12.6	Ch. 5510 MHz, Chain B, 802.11ac, MCS9, EUT On Side
5459.010	33.5	37.5	1.1	265.0	1.0	0.0	Vert	PK	-9.5	61.4	74.0	-12.6	Ch. 5500 MHz, Chain B, 802.11a, 6Mbps. On Side
5350.630	33.4	37.4	1.1	276.0	1.0	0.0	Vert	PK	-9.5	61.3	74.0	-12.7	Ch. 5320 MHz, Chain B, 36Mbps, EUT On Side
5459.940	33.3	37.5	1.1	265.0	1.0	0.0	Vert	PK	-9.5	61.2	74.0	-12.8	Ch. 5500 MHz, Chain AB, 802.11ac, MCS8, On Side
5459.137	33.3	37.5	1.1	265.0	1.0	0.0	Vert	PK	-9.5	61.2	74.0	-12.8	Ch. 5500 MHz, Chain AB, 802.11n, MCS15, On Side
5458.480	33.3	37.5	1.1	265.0	1.0	0.0	Vert	PK	-9.5	61.2	74.0	-12.8	Ch. 5500 MHz, Chain B, 802.11a, 54Mbps. On Side
5459.587	33.2	37.5	1.1	265.0	1.0	0.0	Vert	PK	-9.5	61.1	74.0	-12.9	Ch. 5500 MHz, Chain B, 802.11ac, MCS8, On Side
5458.953	33.2	37.5	1.1	265.0	1.0	0.0	Vert	PK	-9.5	61.1	74.0	-12.9	Ch. 5500 MHz, Chain AB, 802.11n, MCS8, On Side
5149.247	33.7	36.9	1.1	273.0	1.0	0.0	Vert	PK	-9.5	61.1	74.0	-12.9	Ch. 5180 MHz, Chain B, MCS7, EUT On Side
5148.507	33.6	36.9	1.1	273.0	1.0	0.0	Vert	PK	-9.5	61.0	74.0	-13.0	Ch. 5180 MHz, Chain B, 54Mbps, EUT On Side
5148.667	33.5	36.9	1.1	273.0	1.0	0.0	Vert	PK	-9.5	60.9	74.0	-13.1	Ch. 5180 MHz, Chain B, 36Mbps, EUT On Side
5148.980	33.5	36.9	1.1	273.0	1.0	0.0	Vert	PK	-9.5	60.9	74.0	-13.1	Ch. 5180 MHz, Chain B, 6Mbps, EUT On Side
5458.793	32.9	37.5	1.1	265.0	1.0	0.0	Vert	PK	-9.5	60.8	74.0	-13.2	Ch. 5500 MHz, Chain B, 802.11ac, MCS0, On Side
5458.787	32.9	37.5	1.1	265.0	1.0	0.0	Vert	PK	-9.5	60.8	74.0	-13.2	Ch. 5500 MHz, Chain B, 802.11a, 36Mbps. On Side
5350.597	32.9	37.4	1.1	273.0	1.0	0.0	Vert	PK	-9.5	60.8	74.0	-13.2	Ch. 5320 MHz, Chain B, 54Mbps, EUT On Side
5458.547	32.7	37.5	1.1	265.0	1.0	0.0	Vert	PK	-9.5	60.6	74.0	-13.4	Ch. 5530 MHz, Chain AB, 802.11 ac MCS0, EUT On Side
5458.000	32.6	37.5	1.1	265.0	1.0	0.0	Vert	PK	-9.5	60.5	74.0	-13.5	Ch. 5500 MHz, Chain AB, 802.11ac, MCS0, On Side
5458.137	32.5	37.5	1.1	265.0	1.0	0.0	Vert	PK	-9.5	60.4	74.0	-13.6	Ch. 5510 MHz, Chain AB, 802.11ac, MCS0, EUT On Side

SPURIOUS RADIATED EMISSIONS

Work Order:	MCSO1698	**Date:**	03/17/14		
Project:	None	**Temperature:**	22.2 °C		
Job Site:	EV01	**Humidity:**	34.9% RH		
Serial Number:	41151240753	**Barometric Pres.:**	1027.9 mbar	**Tested by:**	Cole Ghizzone, Brandon Hobbs
EUT:	Model 1631				
Configuration:	3				
Customer:	Microsoft Corporation				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	See comments for modes of operation				
Deviations:	None				
Comments:	Please reference the data comments for EUT orientation, frequency, modulation and antenna chain				

Test Specifications	**Test Method**
FCC 15.407:2014	ANSI C63.10:2009

Run #	143	**Test Distance (m)**	1	**Antenna Height(s)**	1-4m	**Results**	Pass



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
5137.310	26.4	36.9	1.4	325.0	1.0	0.0	Vert	AV	-9.5	53.8	54.0	-0.2	Ch. 42, 5210 MHz, MCS09, 10dBm, EUT on side, 10Hz
5136.047	25.7	36.9	1.4	41.0	1.0	0.0	Horz	AV	-9.5	53.1	54.0	-0.9	Ch. 42, 5210 MHz, MCS09, 10dBm, EUT vertical, 10Hz
5361.177	24.4	37.4	1.5	37.0	1.0	0.0	Vert	AV	-9.5	52.2	54.0	-1.8	Ch. 58, 5290 MHz, MCS09, 10dBm, EUT on side, 10 Hz
5362.570	23.7	37.4	1.4	88.0	1.0	0.0	Horz	AV	-9.5	51.5	54.0	-2.5	Ch. 58, 5290 MHz, MCS09, 10dBm, EUT vertical, 10Hz
5136.450	42.1	36.9	1.4	325.0	1.0	0.0	Vert	PK	-9.5	69.5	74.0	-4.5	Ch. 42, 5210 MHz, MCS09, 10dBm, EUT on side
5136.337	41.1	36.9	1.4	41.0	1.0	0.0	Horz	PK	-9.5	68.5	74.0	-5.5	Ch. 42, 5210 MHz, MCS09, 10dBm, EUT vertical
5361.840	40.0	37.4	1.5	37.0	1.0	0.0	Vert	PK	-9.5	67.8	74.0	-6.2	Ch. 58, 5290 MHz, MCS09, 10dBm, EUT on side

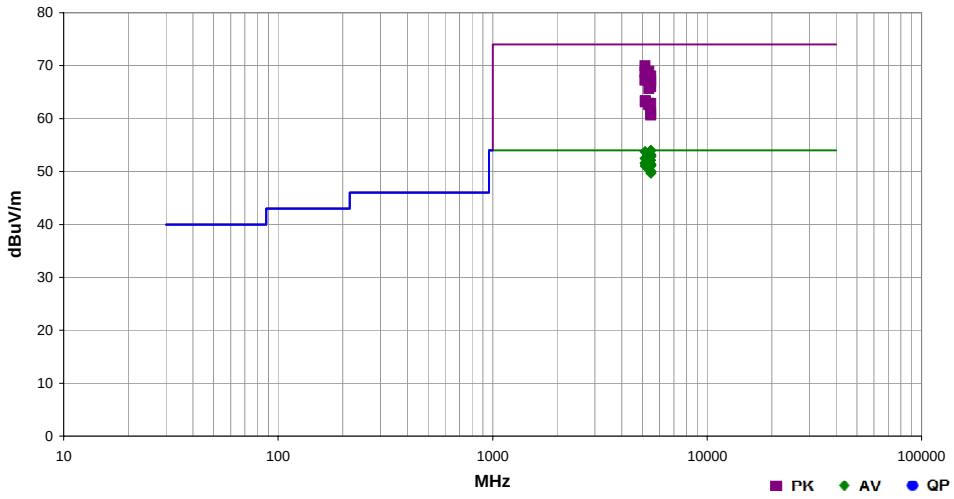
SPURIOUS RADIATED EMISSIONS

Work Order:	MCSO1698	**Date:**	03/18/14		
Project:	None	**Temperature:**	22.6 °C		
Job Site:	EV01	**Humidity:**	32.7% RH		
Serial Number:	41148340753	**Barometric Pres.:**	1027 mbar	**Tested by:**	Cole Ghizzone, Brandon Hobbs

EUT:	Model 1631
Configuration:	4
Customer:	Microsoft Corporation
Attendees:	None
EUT Power:	110VAC/60Hz
Operating Mode:	See comments for modes of operation
Deviations:	None
Comments:	Please reference the data comments for EUT orientation, frequency, modulation and antenna chain

Test Specifications	**Test Method**
FCC 15.407:2014	ANSI C63.10:2009

Run #	145	**Test Distance (m)**	1	**Antenna Height(s)**	1-4m	**Results**	Pass



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
5459.160	26.1	37.5	1.4	23.0	1.0	0.0	Horz	AV	-9.5	54.0	54.0	0.0	Ch. 106, 5530 MHz, MCS9, 80 MHz wide, 9 dBm, EUT vertical, RMS
5148.147	26.4	36.9	1.4	346.0	1.0	0.0	Horz	AV	-9.5	53.8	54.0	-0.2	Ch. 42, 5210 MHz, MCS09,80MHz wide, 10dBm, EUT vertical, RMS
5351.920	25.3	37.4	1.4	296.0	1.0	0.0	Vert	AV	-9.5	53.2	54.0	-0.8	Ch. 58, 5290 MHz, MCS9, 80 MHz wide, 10 dBm, EUT on side, 10 Hz
5458.543	25.2	37.5	1.4	273.0	1.0	0.0	Vert	AV	-9.5	53.1	54.0	-0.9	Ch. 102, 5510 MHz, MCS15, 40 MHz wide, 13 dBm, EUT on side, RMS
5458.683	24.9	37.5	1.4	273.0	1.0	0.0	Vert	AV	-9.5	52.8	54.0	-1.2	Ch. 106, 5530 MHz, MCS9, 80 MHz wide, 9 dBm, EUT on side, 10 Hz
5351.697	24.7	37.4	1.4	25.0	1.0	0.0	Horz	AV	-9.5	52.6	54.0	-1.4	Ch. 62, 5310 MHz, MCS15, 40 MHz wide, 13 dBm, EUT vertical, RMS
5148.017	25.1	36.9	1.4	297.0	1.0	0.0	Vert	AV	-9.5	52.5	54.0	-1.5	Ch. 38, 5190 MHz, MCS15, 40 MHz wide, 13 dBm, EUT on side, 10 Hz
5350.000	24.5	37.4	1.4	321.0	1.0	0.0	Vert	AV	-9.5	52.4	54.0	-1.6	Ch. 62, 5310 MHz, MCS15, 40 MHz wide, 13 dBm, EUT on side, RMS
5455.030	24.2	37.5	1.4	273.0	1.0	0.0	Vert	AV	-9.5	52.1	54.0	-1.9	Ch. 106, 5530 MHz, MCS9, 80 MHz wide, 9 dBm, EUT on side, 10 Hz
5363.427	23.9	37.4	1.4	304.0	1.0	0.0	Vert	AV	-9.5	51.7	54.0	-2.3	Ch. 58, 5290 MHz, MCS9, 80 MHz wide, 10 dBm, EUT on side, 10 Hz
5148.037	24.2	36.9	1.4	267.0	1.0	0.0	Vert	AV	-9.5	51.6	54.0	-2.4	Ch. 42, 5210 MHz, MCS09,80MHz wide, 10dBm, EUT on side, 10 Hz
5149.427	24.2	36.9	1.5	293.0	1.0	0.0	Vert	AV	-9.5	51.6	54.0	-2.4	Ch. 36, 5180 MHz, MCS8, 20 MHz wide, 13 dBm, EUT on side, RMS
5149.287	24.1	36.9	1.4	44.0	1.0	0.0	Horz	AV	-9.5	51.5	54.0	-2.5	Ch. 38, 5190 MHz, MCS15, 40 MHz wide, 13 dBm, EUT vertical, 10 Hz
5455.070	23.5	37.5	1.4	23.0	1.0	0.0	Horz	AV	-9.5	51.4	54.0	-2.6	Ch. 106, 5530 MHz, MCS9, 80 MHz wide, 9 dBm, EUT vertical, 10 Hz
5351.970	23.5	37.4	1.4	254.0	1.0	0.0	Vert	AV	-9.5	51.4	54.0	-2.6	Ch. 58, 5290 MHz, MCS09,80MHz wide, 10dBm, EUT on side, 10 Hz
5459.607	23.4	37.5	1.4	23.0	1.0	0.0	Horz	AV	-9.5	51.3	54.0	-2.7	Ch. 106, 5530 MHz, MCS9, 80 MHz wide, 9 dBm, EUT vertical, 10 Hz
5351.993	23.3	37.4	1.5	360.0	1.0	0.0	Horz	AV	-9.5	51.2	54.0	-2.8	Ch. 58, 5290 MHz, MCS09,80MHz wide, 10dBm, EUT vertical, 10 Hz
5458.357	23.2	37.5	1.4	11.0	1.0	0.0	Horz	AV	-9.5	51.1	54.0	-2.9	Ch. 102, 5510 MHz, MCS15, 40 MHz wide, 13 dBm, EUT vertical, RMS
5350.173	23.2	37.4	1.4	327.0	1.0	0.0	Vert	AV	-9.5	51.1	54.0	-2.9	Ch. 64, 5320 MHz, MCS8, 20 MHz wide, 13 dBm, EUT on side, RMS
5149.913	23.7	36.9	1.5	28.0	1.0	0.0	Horz	AV	-9.5	51.1	54.0	-2.9	Ch. 36, 5180 MHz, MCS8, 20 MHz wide, 13 dBm, EUT vertical, RMS
5350.043	22.6	37.4	1.4	25.0	1.0	0.0	Horz	AV	-9.5	50.5	54.0	-3.5	Ch. 64, 5320 MHz, MCS8, 20 MHz wide, 13 dBm, EUT vertical, RMS
5459.887	22.1	37.5	1.4	273.0	1.0	0.0	Vert	AV	-9.5	50.0	54.0	-4.0	Ch. 100, 5500 MHz, MCS8, 20 MHz wide, 13 dBm, EUT on side, RMS
5148.160	42.6	36.9	1.4	267.0	1.0	0.0	Vert	PK	-9.5	70.0	74.0	-4.0	Ch. 42, 5210 MHz, MCS09,80MHz wide, 10dBm, EUT on side
5458.313	21.8	37.5	1.4	15.0	1.0	0.0	Horz	AV	-9.5	49.7	54.0	-4.3	Ch. 100, 5500 MHz, MCS8, 20 MHz wide, 13 dBm, EUT vertical, RMS
5350.213	41.1	37.4	1.4	296.0	1.0	0.0	Vert	PK	-9.5	69.0	74.0	-5.0	Ch. 58, 5290 MHz, MCS9, 80 MHz wide, 10 dBm, EUT on side
5148.263	41.4	36.9	1.4	297.0	1.0	0.0	Vert	PK	-9.5	68.8	74.0	-5.2	Ch. 38, 5190 MHz, MCS15, 40 MHz wide, 13 dBm, EUT on side
5459.933	40.1	37.5	1.4	273.0	1.0	0.0	Vert	PK	-9.5	68.0	74.0	-6.0	Ch. 106, 5530 MHz, MCS9, 80 MHz wide, 9 dBm, EUT on side
5350.447	39.8	37.4	1.4	25.0	1.0	0.0	Horz	PK	-9.5	67.7	74.0	-6.3	Ch. 62, 5310 MHz, MCS15, 40 MHz wide, 13 dBm, EUT vertical
5149.380	40.0	36.9	1.4	44.0	1.0	0.0	Horz	PK	-9.5	67.4	74.0	-6.6	Ch. 38, 5190 MHz, MCS15, 40 MHz wide, 13 dBm, EUT vertical
5456.920	39.4	37.5	1.4	273.0	1.0	0.0	Vert	PK	-9.5	67.3	74.0	-6.7	Ch. 106, 5530 MHz, MCS9, 80 MHz wide, 9 dBm, EUT on side
5148.077	39.9	36.9	1.4	346.0	1.0	0.0	Horz	PK	-9.5	67.3	74.0	-6.7	Ch. 42, 5210 MHz, MCS09,80MHz wide, 10dBm, EUT vertical
5350.103	39.4	37.4	1.5	360.0	1.0	0.0	Horz	PK	-9.5	67.3	74.0	-6.7	Ch. 58, 5290 MHz, MCS09,80MHz wide, 10dBm, EUT vertical
5350.320	39.3	37.4	1.4	254.0	1.0	0.0	Vert	PK	-9.5	67.2	74.0	-6.8	Ch. 58, 5290 MHz, MCS09,80MHz wide, 10dBm, EUT on side
5362.920	39.3	37.4	1.4	304.0	1.0	0.0	Vert	PK	-9.5	67.1	74.0	-6.9	Ch. 58, 5290 MHz, MCS9, 80 MHz wide, 10 dBm, EUT on side
5459.387	39.2	37.5	1.4	23.0	1.0	0.0	Horz	PK	-9.5	67.1	74.0	-6.9	Ch. 106, 5530 MHz, MCS9, 80 MHz wide, 9 dBm, EUT vertical
5455.077	38.5	37.5	1.4	23.0	1.0	0.0	Horz	PK	-9.5	66.4	74.0	-7.6	Ch. 106, 5530 MHz, MCS9, 80 MHz wide, 9 dBm, EUT on side
5459.903	38.1	37.5	1.4	273.0	1.0	0.0	Vert	PK	-9.5	66.0	74.0	-8.0	Ch. 102, 5510 MHz, MCS15, 40 MHz wide, 13 dBm, EUT on side
5350.060	37.8	37.4	1.4	321.0	1.0	0.0	Vert	PK	-9.5	65.7	74.0	-8.3	Ch. 62, 5310 MHz, MCS15, 40 MHz wide, 13 dBm, EUT on side
5149.553	36.0	36.9	1.5	293.0	1.0	0.0	Vert	PK	-9.5	63.4	74.0	-10.6	Ch. 36, 5180 MHz, MCS8, 20 MHz wide, 13 dBm, EUT on side
5149.647	35.8	36.9	1.5	28.0	1.0	0.0	Horz	PK	-9.5	63.2	74.0	-10.8	Ch. 36, 5180 MHz, MCS8, 20 MHz wide, 13 dBm, EUT vertical
5350.123	35.0	37.4	1.4	25.0	1.0	0.0	Horz	PK	-9.5	62.9	74.0	-11.1	Ch. 64, 5320 MHz, MCS8, 20 MHz wide, 13 dBm, EUT vertical
5459.380	34.9	37.5	1.4	11.0	1.0	0.0	Horz	PK	-9.5	62.8	74.0	-11.2	Ch. 102, 5510 MHz, MCS15, 40 MHz wide, 13 dBm, EUT vertical
5351.507	34.7	37.4	1.4	327.0	1.0	0.0	Vert	PK	-9.5	62.6	74.0	-11.4	Ch. 64, 5320 MHz, MCS8, 20 MHz wide, 13 dBm, EUT on side
5458.773	33.1	37.5	1.4	15.0	1.0	0.0	Horz	PK	-9.5	61.0	74.0	-13.0	Ch. 100, 5500 MHz, MCS8, 20 MHz wide, 13 dBm, EUT vertical
5458.220	32.7	37.5	1.4	273.0	1.0	0.0	Vert	PK	-9.5	60.6	74.0	-13.4	Ch. 100, 5500 MHz, MCS8, 20 MHz wide, 13 dBm, EUT on side

CONDUCTED EMISSIONS

TEST DESCRIPTION

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
LISN	Solar	9252-50-R-24-BNC	LIP	02/16/2014	12 mo
Attenuator	Fairview Microwave	SA6B10W-20	RKA	10/24/2013	12 mo
High Pass Filter	TTE	H97-100K-50-720B	HHD	01/22/2014	12 mo
EV07 Cables	N/A	Conducted Cables	EVG	03/07/2014	12 mo
Receiver	Rohde & Schwarz	ESCI	ARH	02/05/2014	12 mo
LISN	Solar	9252-50-R-24-BNC	LIR	10/09/2013	12 mo

MEASUREMENT UNCERTAINTY

Description		
Expanded k=2	2.94 dB	-2.94 dB

CONFIGURATIONS INVESTIGATED

MCSO1698-3

MODES INVESTIGATED

Tx Ch.100, 5500MHz 802.11(a) 6Mbps Chain B
Tx Ch.116, 5580MHz 802.11(a) 6Mbps Chain B
Tx Ch.140, 5700MHz 802.11(a) 6Mbps Chain B
Tx Ch.36, 5180MHz 802.11(a) 6Mbps Chain B
Tx Ch.48, 5240MHz 802.11(a) 6Mbps Chain B
Tx Ch.52, 5260MHz 802.11(a) 6Mbps Chain B
Tx Ch.64, 5320MHz 802.11(a) 6Mbps Chain B

CONDUCTED EMISSIONS

WTD.2013.07.23, PSA-ESCI 2014.02.19, PSA-ESCI Version 2013.2.20

EUT:	Model 1631	Work Order:	MCSO1698
Serial Number:	41151240753	Date:	03/23/2014
Customer:	Microsoft Corporation	Temperature:	22.3°C
Attendees:	None	Relative Humidity:	31.2%
Customer Project:	None	Bar. Pressure:	1023.9 mb
Tested By:	Brandon Hobbs	Job Site:	EV07
Power:	110VAC/60Hz	Configuration:	MCSO1698-3

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2014	ANSI C63.10:2009

TEST PARAMETERS

Run #:	31	Line:	High Line	Ext. Attenuation (dB):	20

COMMENTS

None

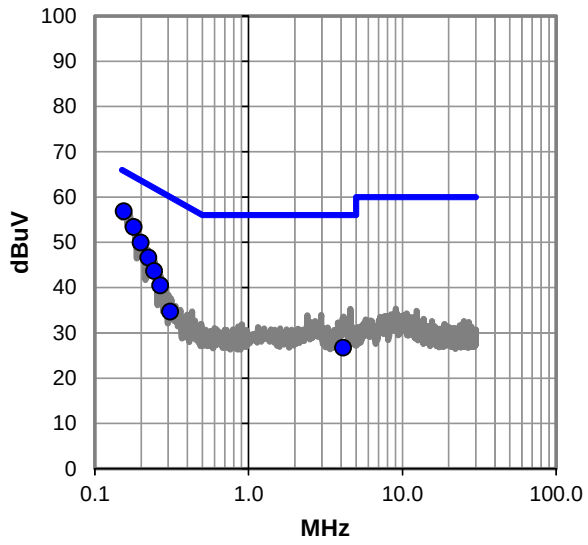
EUT OPERATING MODES

Tx Ch.36 5180MHz 802.11(a) 6Mbps Chain B

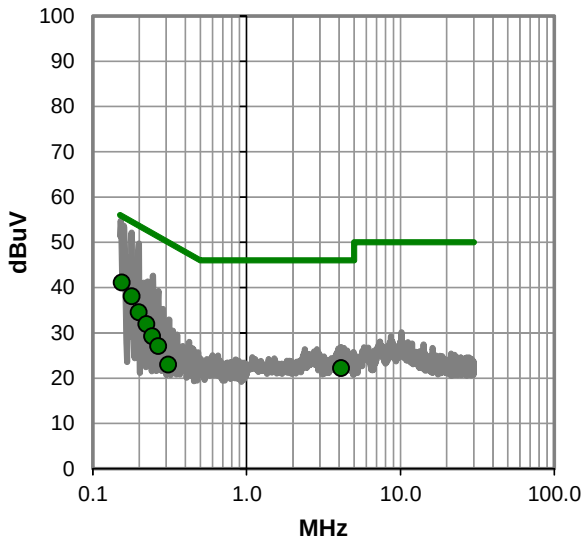
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



CONDUCTED EMISSIONS

RESULTS - Run #31

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.154	37.2	19.7	56.9	65.8	-8.9
0.179	33.6	19.7	53.3	64.5	-11.2
0.199	30.2	19.7	49.9	63.7	-13.7
0.223	26.9	19.7	46.6	62.7	-16.1
0.243	23.9	19.7	43.6	62.0	-18.3
0.267	20.7	19.8	40.5	61.2	-20.7
0.309	14.9	19.8	34.7	60.0	-25.3
4.116	7.1	19.6	26.7	56.0	-29.3

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.154	21.4	19.7	41.1	55.8	-14.7
0.179	18.3	19.7	38.0	54.5	-16.5
0.199	14.8	19.7	34.5	53.7	-19.1
0.223	12.2	19.7	31.9	52.7	-20.8
0.243	9.5	19.7	29.2	52.0	-22.7
4.116	2.6	19.6	22.2	46.0	-23.8
0.267	7.3	19.8	27.1	51.2	-24.1
0.309	3.2	19.8	23.0	50.0	-27.0

CONCLUSION

Pass

Tested By

CONDUCTED EMISSIONS

WTD.2013.07.23, PSA-ESCI 2014.02.19, PSA-ESCI Version 2013.2.20

EUT:	Model 1631	Work Order:	MCSO1698
Serial Number:	41151240753	Date:	03/23/2014
Customer:	Microsoft Corporation	Temperature:	22.3°C
Attendees:	None	Relative Humidity:	31.2%
Customer Project:	None	Bar. Pressure:	1023.9 mb
Tested By:	Brandon Hobbs	Job Site:	EV07
Power:	110VAC/60Hz	Configuration:	MCSO1698-3

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2014	ANSI C63.10:2009

TEST PARAMETERS

Run #:	32	Line:	Neutral	Ext. Attenuation (dB):	20

COMMENTS

None

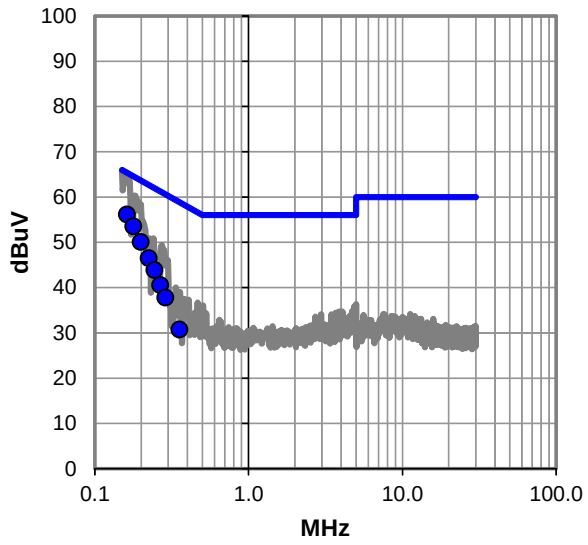
EUT OPERATING MODES

Tx Ch.36 5180MHz 802.11(a) 6Mbps Chain B

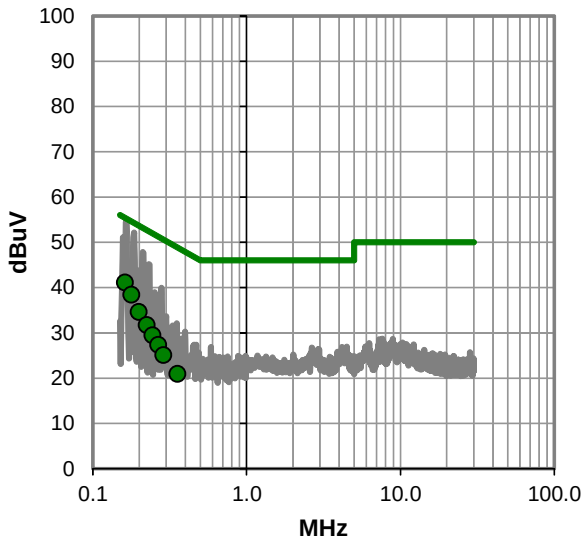
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



CONDUCTED EMISSIONS

RESULTS - Run #32

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.162	36.4	19.7	56.1	65.4	-9.2
0.178	33.8	19.7	53.5	64.6	-11.0
0.199	30.3	19.7	50.0	63.7	-13.6
0.224	26.7	19.7	46.4	62.7	-16.2
0.244	24.1	19.7	43.8	62.0	-18.1
0.267	20.8	19.8	40.6	61.2	-20.6
0.288	18.0	19.8	37.8	60.6	-22.8
0.355	10.9	19.8	30.7	58.8	-28.1

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.162	21.4	19.7	41.1	55.4	-14.2
0.178	18.7	19.7	38.4	54.6	-16.1
0.199	14.9	19.7	34.6	53.7	-19.0
0.224	12.0	19.7	31.7	52.7	-20.9
0.244	9.7	19.7	29.4	52.0	-22.5
0.267	7.6	19.8	27.4	51.2	-23.8
0.288	5.3	19.8	25.1	50.6	-25.5
0.355	1.1	19.8	20.9	48.8	-27.9

CONCLUSION

Pass

Tested By

CONDUCTED EMISSIONS

WTD.2013.07.23, PSA-ESCI 2014.02.19, PSA-ESCI Version 2013.2.20

EUT:	Model 1631	Work Order:	MCSO1698
Serial Number:	41151240753	Date:	03/23/2014
Customer:	Microsoft Corporation	Temperature:	22.3°C
Attendees:	None	Relative Humidity:	31.2%
Customer Project:	None	Bar. Pressure:	1023.9 mb
Tested By:	Brandon Hobbs	Job Site:	EV07
Power:	110VAC/60Hz	Configuration:	MCSO1698-3

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2014	ANSI C63.10:2009

TEST PARAMETERS

Run #:	33	Line:	Neutral	Ext. Attenuation (dB):	20

COMMENTS

None

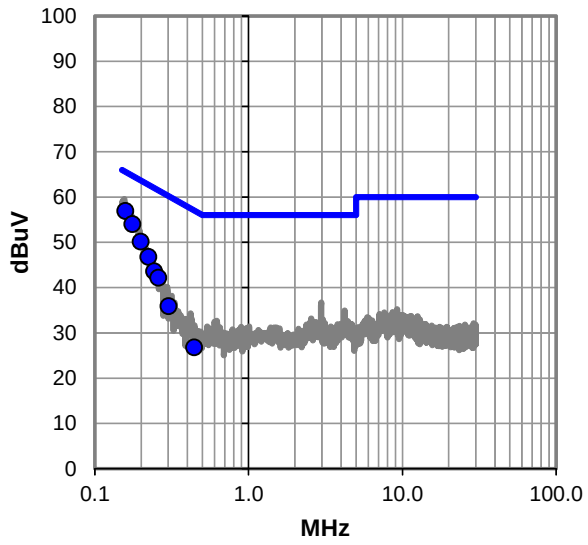
EUT OPERATING MODES

Tx Ch.48 5240MHz 802.11(a) 6Mbps Chain B

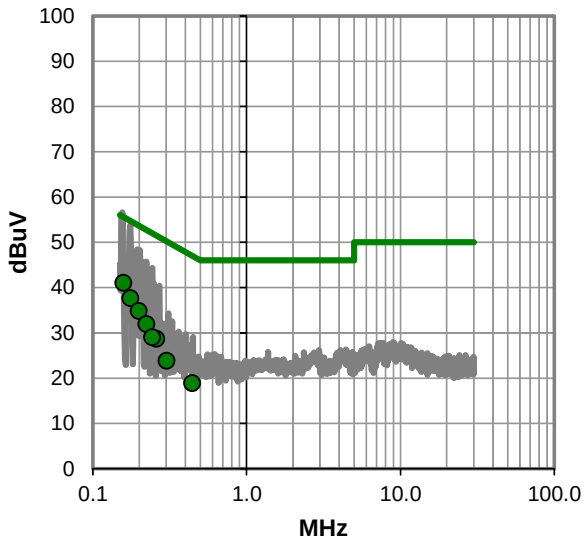
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



CONDUCTED EMISSIONS

RESULTS - Run #33

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.158	37.2	19.7	56.9	65.6	-8.7
0.176	34.3	19.7	54.0	64.7	-10.6
0.199	30.4	19.7	50.1	63.7	-13.5
0.223	27.0	19.7	46.7	62.7	-16.0
0.243	23.8	19.7	43.5	62.0	-18.4
0.259	22.4	19.8	42.2	61.5	-19.3
0.302	16.1	19.8	35.9	60.2	-24.3
0.444	7.0	19.8	26.8	57.0	-30.2

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.158	21.3	19.7	41.0	55.6	-14.6
0.176	17.9	19.7	37.6	54.7	-17.0
0.199	15.1	19.7	34.8	53.7	-18.8
0.223	12.2	19.7	31.9	52.7	-20.8
0.259	8.9	19.8	28.7	51.5	-22.8
0.243	9.3	19.7	29.0	52.0	-22.9
0.302	4.0	19.8	23.8	50.2	-26.4
0.444	-0.9	19.8	18.9	47.0	-28.1

CONCLUSION

Pass

Tested By

CONDUCTED EMISSIONS

WTD.2013.07.23, PSA-ESCI 2014.02.19, PSA-ESCI Version 2013.2.20

EUT:	Model 1631	Work Order:	MCSO1698
Serial Number:	41151240753	Date:	03/23/2014
Customer:	Microsoft Corporation	Temperature:	22.3°C
Attendees:	None	Relative Humidity:	31.2%
Customer Project:	None	Bar. Pressure:	1023.9 mb
Tested By:	Brandon Hobbs	Job Site:	EV07
Power:	110VAC/60Hz	Configuration:	MCSO1698-3

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2014	ANSI C63.10:2009

TEST PARAMETERS

Run #:	34	Line:	High Line	Ext. Attenuation (dB):	20

COMMENTS

None

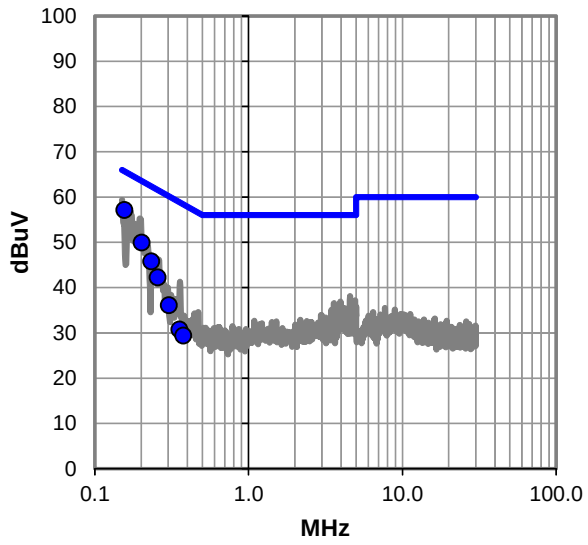
EUT OPERATING MODES

Tx Ch.48 5240MHz 802.11(a) 6Mbps Chain B

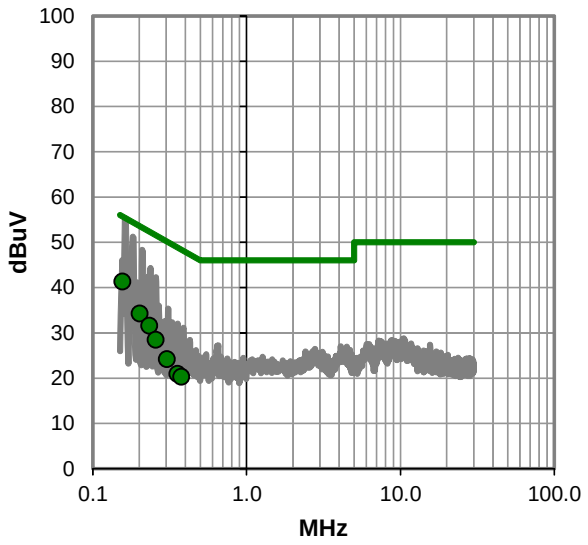
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



CONDUCTED EMISSIONS

RESULTS - Run #34

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.156	37.4	19.7	57.1	65.7	-8.6
0.202	30.2	19.7	49.9	63.5	-13.6
0.233	26.0	19.7	45.7	62.3	-16.6
0.257	22.5	19.8	42.3	61.5	-19.3
0.304	16.3	19.8	36.1	60.1	-24.1
0.356	10.9	19.8	30.7	58.8	-28.1
0.376	9.6	19.8	29.4	58.4	-29.0

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.156	21.6	19.7	41.3	55.7	-14.4
0.202	14.5	19.7	34.2	53.5	-19.3
0.233	11.8	19.7	31.5	52.3	-20.8
0.257	8.7	19.8	28.5	51.5	-23.1
0.304	4.4	19.8	24.2	50.1	-26.0
0.356	1.1	19.8	20.9	48.8	-27.9
0.376	0.5	19.8	20.3	48.4	-28.1

CONCLUSION

Pass

Tested By

CONDUCTED EMISSIONS

WTD.2013.07.23, PSA-ESCI 2014.02.19, PSA-ESCI Version 2013.2.20

EUT:	Model 1631	Work Order:	MCSO1698
Serial Number:	41151240753	Date:	03/23/2014
Customer:	Microsoft Corporation	Temperature:	22.3°C
Attendees:	None	Relative Humidity:	31.2%
Customer Project:	None	Bar. Pressure:	1023.9 mb
Tested By:	Jared Ison	Job Site:	EV07
Power:	110VAC/60Hz	Configuration:	MCSO1698-3

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2014	ANSI C63.10:2009

TEST PARAMETERS

Run #:	35	Line:	Neutral	Ext. Attenuation (dB):	20

COMMENTS

None

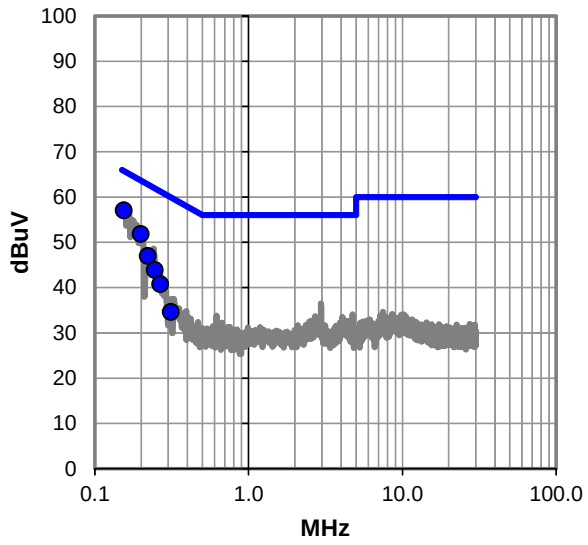
EUT OPERATING MODES

Tx Ch.52 5260MHz 802.11(a) 6Mbps Chain B

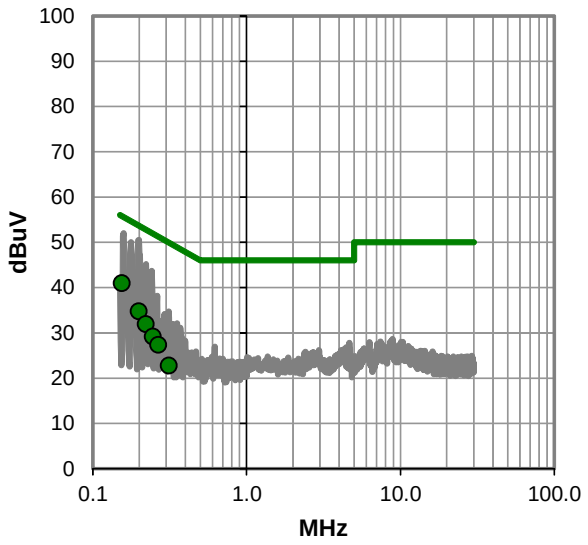
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



CONDUCTED EMISSIONS

RESULTS - Run #35

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.154	37.4	19.7	57.1	65.8	-8.7
0.199	32.1	19.7	51.8	63.7	-11.8
0.221	27.2	19.7	46.9	62.8	-15.8
0.246	24.1	19.7	43.8	61.9	-18.0
0.266	21.0	19.8	40.8	61.2	-20.5
0.312	14.8	19.8	34.6	59.9	-25.3

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.154	21.3	19.7	41.0	55.8	-14.8
0.199	15.0	19.7	34.7	53.7	-18.9
0.221	12.2	19.7	31.9	52.8	-20.8
0.246	9.4	19.7	29.1	51.9	-22.7
0.266	7.6	19.8	27.4	51.2	-23.9
0.312	3.0	19.8	22.8	49.9	-27.1

CONCLUSION

Pass

Tested By

CONDUCTED EMISSIONS

EUT:	Model 1631	Work Order:	MCSO1698
Serial Number:	41151240753	Date:	03/23/2014
Customer:	Microsoft Corporation	Temperature:	22.3°C
Attendees:	None	Relative Humidity:	31.2%
Customer Project:	None	Bar. Pressure:	1023.9 mb
Tested By:	Jared Ison	Job Site:	EV07
Power:	110VAC/60Hz	Configuration:	MCSO1698-3

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2014	ANSI C63.10:2009

TEST PARAMETERS

Run #:	36	Line:	High Line	Ext. Attenuation (dB):	20

COMMENTS

None

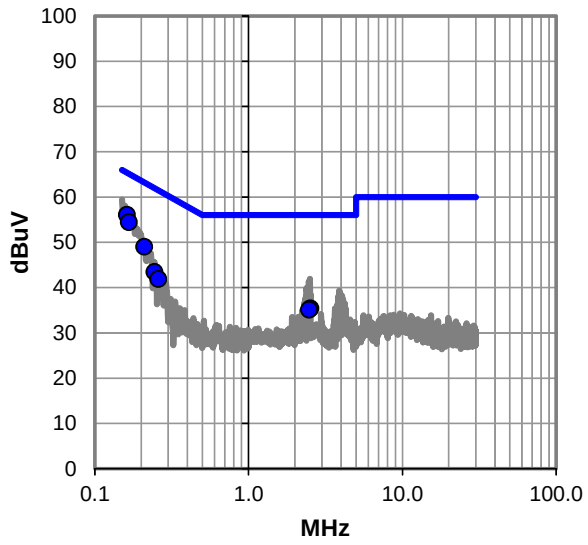
EUT OPERATING MODES

Tx Ch.52 5260MHz 802.11(a) 6Mbps Chain B

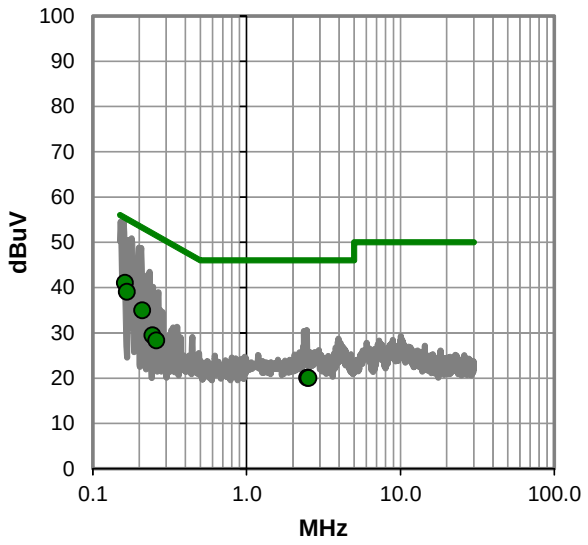
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



CONDUCTED EMISSIONS

RESULTS - Run #36

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.162	36.3	19.7	56.0	65.4	-9.3
0.167	34.7	19.7	54.4	65.1	-10.7
0.210	29.3	19.7	49.0	63.2	-14.2
0.245	23.7	19.7	43.4	61.9	-18.5
0.259	22.1	19.8	41.9	61.5	-19.6
2.524	15.8	19.6	35.4	56.0	-20.6
2.476	15.5	19.6	35.1	56.0	-20.9

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.162	21.3	19.7	41.0	55.4	-14.3
0.167	19.3	19.7	39.0	55.1	-16.1
0.210	15.2	19.7	34.9	53.2	-18.3
0.245	9.7	19.7	29.4	51.9	-22.5
0.259	8.6	19.8	28.4	51.5	-23.1
2.476	0.5	19.6	20.1	46.0	-25.9
2.524	0.4	19.6	20.0	46.0	-26.0

CONCLUSION

Pass

Tested By

CONDUCTED EMISSIONS

WTD.2013.07.23, PSA-ESCI 2014.02.19, PSA-ESCI Version 2013.2.20

EUT:	Model 1631	Work Order:	MCSO1698
Serial Number:	41151240753	Date:	03/23/2014
Customer:	Microsoft Corporation	Temperature:	22.3°C
Attendees:	None	Relative Humidity:	31.2%
Customer Project:	None	Bar. Pressure:	1023.9 mb
Tested By:	Jared Ison	Job Site:	EV07
Power:	110VAC/60Hz	Configuration:	MCSO1698-3

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2014	ANSI C63.10:2009

TEST PARAMETERS

Run #:	37	Line:	Neutral	Ext. Attenuation (dB):	20

COMMENTS

None

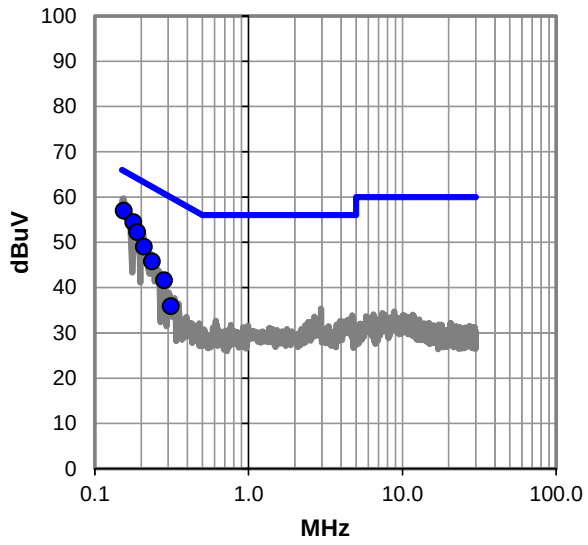
EUT OPERATING MODES

Tx Ch.64 5320MHz 802.11(a) 6Mbps Chain B

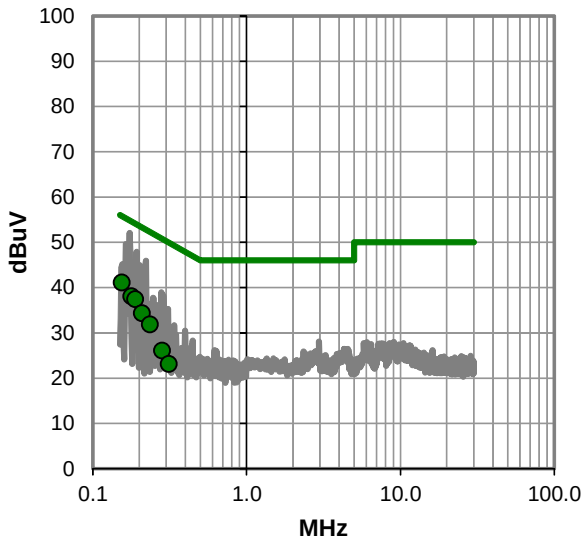
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



CONDUCTED EMISSIONS

RESULTS - Run #37

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.154	37.3	19.7	57.0	65.8	-8.8
0.178	34.7	19.7	54.4	64.6	-10.1
0.189	32.5	19.7	52.2	64.1	-11.8
0.209	29.3	19.7	49.0	63.2	-14.2
0.235	26.0	19.7	45.7	62.3	-16.5
0.283	21.8	19.8	41.6	60.7	-19.2
0.312	16.1	19.8	35.9	59.9	-24.0

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.154	21.4	19.7	41.1	55.8	-14.7
0.178	18.3	19.7	38.0	54.6	-16.5
0.189	17.7	19.7	37.4	54.1	-16.6
0.209	14.6	19.7	34.3	53.2	-18.9
0.235	12.1	19.7	31.8	52.3	-20.4
0.283	6.3	19.8	26.1	50.7	-24.7
0.312	3.3	19.8	23.1	49.9	-26.8

CONCLUSION

Pass

Tested By

CONDUCTED EMISSIONS

EUT:	Model 1631	Work Order:	MCSO1698
Serial Number:	41151240753	Date:	03/23/2014
Customer:	Microsoft Corporation	Temperature:	22.3°C
Attendees:	None	Relative Humidity:	31.2%
Customer Project:	None	Bar. Pressure:	1023.9 mb
Tested By:	Jared Ison	Job Site:	EV07
Power:	110VAC/60Hz	Configuration:	MCSO1698-3

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2014	ANSI C63.10:2009

TEST PARAMETERS

Run #:	38	Line:	High Line	Ext. Attenuation (dB):	20

COMMENTS

None

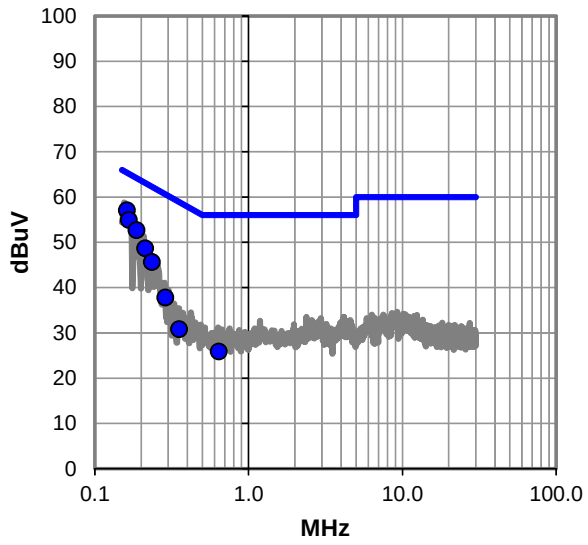
EUT OPERATING MODES

Tx Ch.64 5320MHz 802.11(a) 6Mbps Chain B

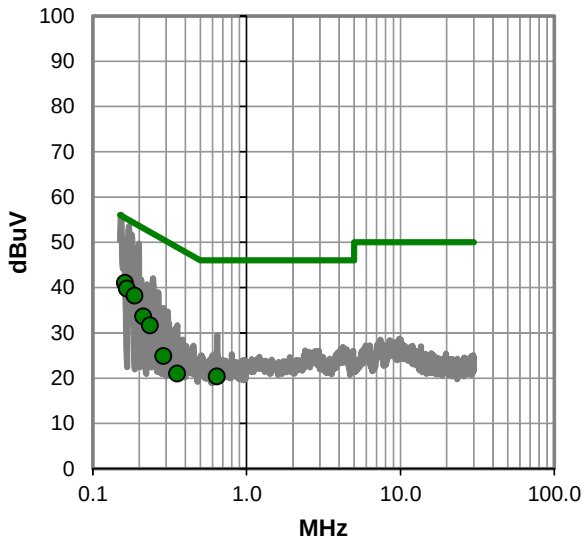
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



CONDUCTED EMISSIONS

RESULTS - Run #38

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.162	37.3	19.7	57.0	65.4	-8.3
0.167	35.2	19.7	54.9	65.1	-10.2
0.187	32.9	19.7	52.6	64.2	-11.5
0.213	28.9	19.7	48.6	63.1	-14.5
0.235	25.9	19.7	45.6	62.3	-16.6
0.288	18.0	19.8	37.8	60.6	-22.8
0.354	11.0	19.8	30.8	58.9	-28.1
0.641	6.1	19.8	25.9	56.0	-30.1

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.162	21.3	19.7	41.0	55.4	-14.3
0.167	20.0	19.7	39.7	55.1	-15.4
0.187	18.5	19.7	38.2	54.2	-15.9
0.213	13.9	19.7	33.6	53.1	-19.5
0.235	11.9	19.7	31.6	52.3	-20.6
0.641	0.6	19.8	20.4	46.0	-25.6
0.288	5.1	19.8	24.9	50.6	-25.7
0.354	1.2	19.8	21.0	48.9	-27.9

CONCLUSION

Pass

Tested By

CONDUCTED EMISSIONS

EUT:	Model 1631	Work Order:	MCSO1698
Serial Number:	41151240753	Date:	03/23/2014
Customer:	Microsoft Corporation	Temperature:	22.3°C
Attendees:	None	Relative Humidity:	31.2%
Customer Project:	None	Bar. Pressure:	1023.9 mb
Tested By:	Jared Ison	Job Site:	EV07
Power:	110VAC/60Hz	Configuration:	MCSO1698-3

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2014	ANSI C63.10:2009

TEST PARAMETERS

Run #:	39	Line:	Neutral	Ext. Attenuation (dB):	20

COMMENTS

None

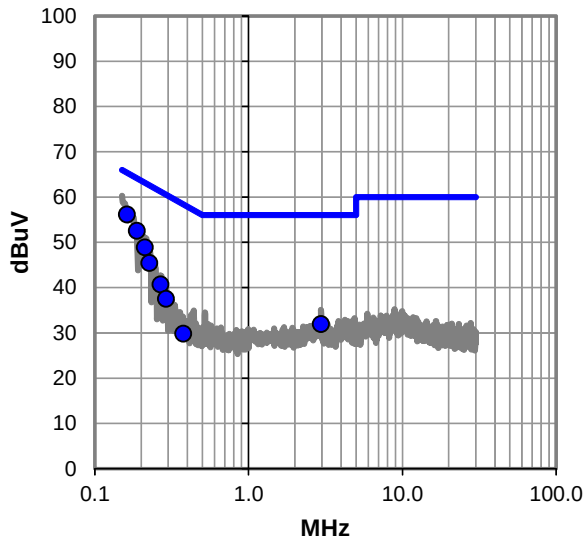
EUT OPERATING MODES

Tx Ch.100 5500MHz 802.11(a) 6Mbps Chain B

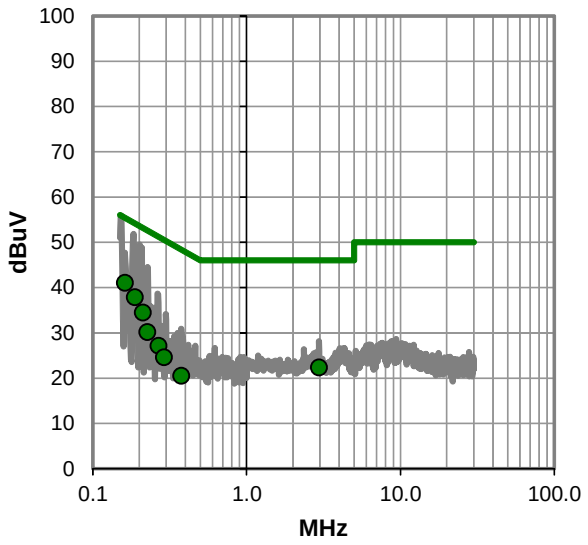
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



CONDUCTED EMISSIONS

RESULTS - Run #39

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.162	36.4	19.7	56.1	65.4	-9.2
0.188	32.8	19.7	52.5	64.1	-11.6
0.212	29.1	19.7	48.8	63.1	-14.3
0.226	25.7	19.7	45.4	62.6	-17.2
0.268	20.9	19.8	40.7	61.2	-20.5
0.290	17.7	19.8	37.5	60.5	-23.0
2.952	12.4	19.6	32.0	56.0	-24.0
0.376	10.0	19.8	29.8	58.4	-28.6

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.162	21.3	19.7	41.0	55.4	-14.3
0.188	18.1	19.7	37.8	54.1	-16.3
0.212	14.7	19.7	34.4	53.1	-18.7
0.226	10.4	19.7	30.1	52.6	-22.5
2.952	2.8	19.6	22.4	46.0	-23.6
0.268	7.4	19.8	27.2	51.2	-24.0
0.290	4.8	19.8	24.6	50.5	-25.9
0.376	0.7	19.8	20.5	48.4	-27.9

CONCLUSION

Pass

Tested By

CONDUCTED EMISSIONS

EUT:	Model 1631	Work Order:	MCSO1698
Serial Number:	41151240753	Date:	03/23/2014
Customer:	Microsoft Corporation	Temperature:	22.3°C
Attendees:	None	Relative Humidity:	31.2%
Customer Project:	None	Bar. Pressure:	1023.9 mb
Tested By:	Jared Ison	Job Site:	EV07
Power:	110VAC/60Hz	Configuration:	MCSO1698-3

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2014	ANSI C63.10:2009

TEST PARAMETERS

Run #:	40	Line:	High Line	Ext. Attenuation (dB):	20

COMMENTS

None

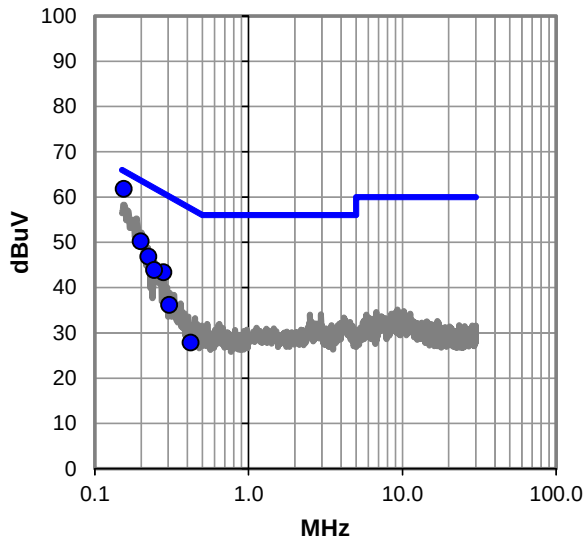
EUT OPERATING MODES

Tx Ch.100 5500MHz 802.11(a) 6Mbps Chain B

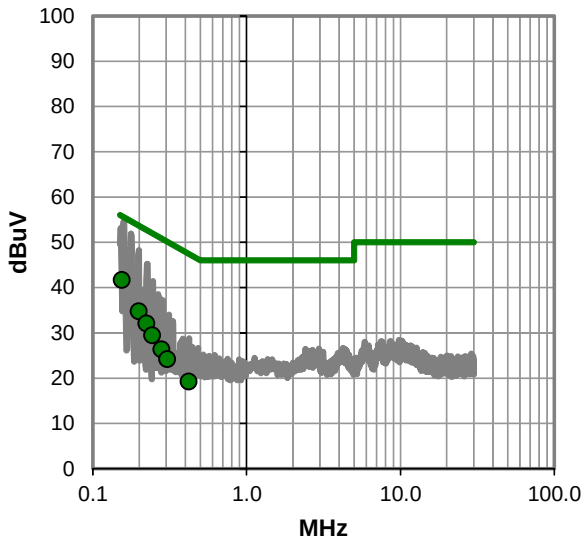
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



CONDUCTED EMISSIONS

RESULTS - Run #40

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.154	42.1	19.7	61.8	65.8	-4.0
0.199	30.5	19.7	50.2	63.7	-13.4
0.223	27.1	19.7	46.8	62.7	-15.9
0.280	23.6	19.8	43.4	60.8	-17.4
0.243	24.1	19.7	43.8	62.0	-18.1
0.305	16.4	19.8	36.2	60.1	-23.9
0.420	8.0	19.8	27.8	57.4	-29.6

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.154	22.0	19.7	41.7	55.8	-14.1
0.199	15.0	19.7	34.7	53.7	-18.9
0.223	12.3	19.7	32.0	52.7	-20.7
0.243	9.7	19.7	29.4	52.0	-22.5
0.280	6.6	19.8	26.4	50.8	-24.4
0.305	4.4	19.8	24.2	50.1	-25.9
0.420	-0.6	19.8	19.2	47.4	-28.2

CONCLUSION

Pass

Tested By

CONDUCTED EMISSIONS

EUT:	Model 1631	Work Order:	MCSO1698
Serial Number:	41151240753	Date:	03/23/2014
Customer:	Microsoft Corporation	Temperature:	22.3°C
Attendees:	None	Relative Humidity:	31.2%
Customer Project:	None	Bar. Pressure:	1023.9 mb
Tested By:	Jared Ison	Job Site:	EV07
Power:	110VAC/60Hz	Configuration:	MCSO1698-3

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2014	ANSI C63.10:2009

TEST PARAMETERS

Run #:	41	Line:	Neutral	Ext. Attenuation (dB):	20

COMMENTS

None

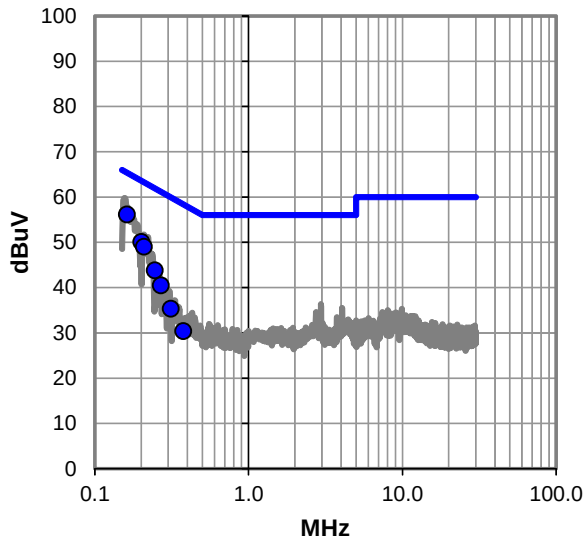
EUT OPERATING MODES

Tx Ch.116 5580MHz 802.11(a) 6Mbps Chain B

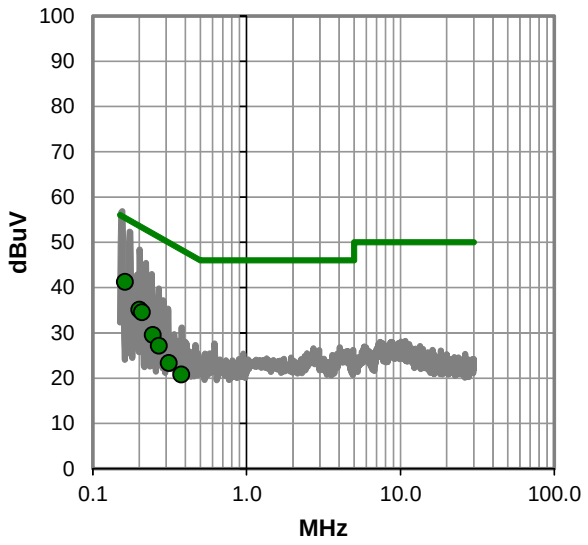
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



CONDUCTED EMISSIONS

RESULTS - Run #41

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.162	36.4	19.7	56.1	65.4	-9.2
0.201	30.3	19.7	50.0	63.6	-13.5
0.209	29.3	19.7	49.0	63.2	-14.2
0.246	24.0	19.7	43.7	61.9	-18.1
0.269	20.7	19.8	40.5	61.1	-20.7
0.312	15.5	19.8	35.3	59.9	-24.6
0.376	10.6	19.8	30.4	58.4	-28.0

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.162	21.5	19.7	41.2	55.4	-14.1
0.201	15.4	19.7	35.1	53.6	-18.4
0.209	14.8	19.7	34.5	53.2	-18.7
0.246	9.8	19.7	29.5	51.9	-22.3
0.269	7.4	19.8	27.2	51.1	-24.0
0.312	3.5	19.8	23.3	49.9	-26.6
0.376	1.0	19.8	20.8	48.4	-27.6

CONCLUSION

Pass

Tested By

CONDUCTED EMISSIONS

EUT:	Model 1631	Work Order:	MCSO1698
Serial Number:	41151240753	Date:	03/23/2014
Customer:	Microsoft Corporation	Temperature:	22.3°C
Attendees:	None	Relative Humidity:	31.2%
Customer Project:	None	Bar. Pressure:	1023.9 mb
Tested By:	Jared Ison	Job Site:	EV07
Power:	110VAC/60Hz	Configuration:	MCSO1698-3

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2014	ANSI C63.10:2009

TEST PARAMETERS

Run #:	42	Line:	High Line	Ext. Attenuation (dB):	20

COMMENTS

None

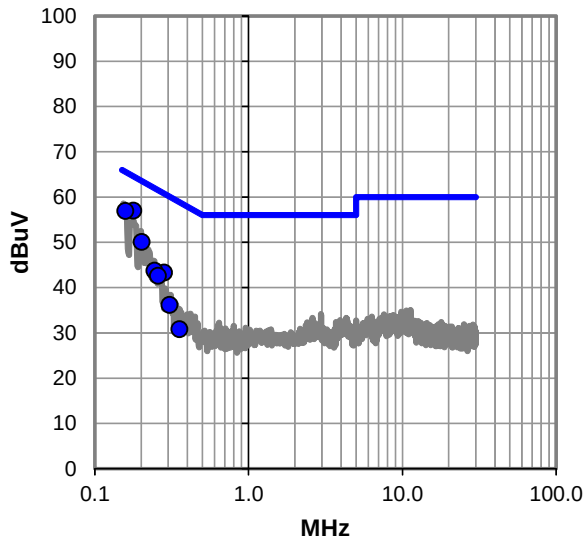
EUT OPERATING MODES

Tx Ch.116 5580MHz 802.11(a) 6Mbps Chain B

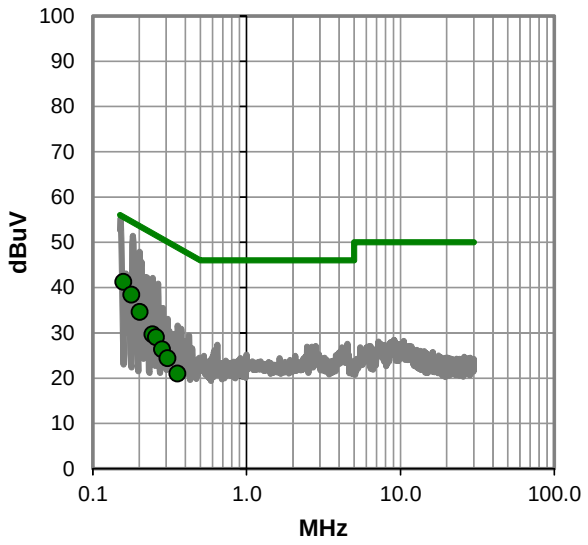
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



CONDUCTED EMISSIONS

RESULTS - Run #42

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.178	37.2	19.7	56.9	64.6	-7.6
0.158	37.2	19.7	56.9	65.6	-8.7
0.202	30.3	19.7	50.0	63.5	-13.5
0.282	23.5	19.8	43.3	60.8	-17.5
0.245	24.0	19.7	43.7	61.9	-18.2
0.258	22.8	19.8	42.6	61.5	-18.9
0.306	16.4	19.8	36.2	60.1	-23.9
0.356	11.0	19.8	30.8	58.8	-28.0

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.158	21.5	19.7	41.2	55.6	-14.4
0.178	18.7	19.7	38.4	54.6	-16.1
0.202	14.9	19.7	34.6	53.5	-18.9
0.245	9.9	19.7	29.6	51.9	-22.3
0.258	9.3	19.8	29.1	51.5	-22.4
0.282	6.6	19.8	26.4	50.8	-24.4
0.306	4.6	19.8	24.4	50.1	-25.7
0.356	1.2	19.8	21.0	48.8	-27.8

CONCLUSION

Pass

Tested By

CONDUCTED EMISSIONS

WTD.2013.07.23, PSA-ESCI 2014.02.19, PSA-ESCI Version 2013.2.20

EUT:	Model 1631	Work Order:	MCSO1698
Serial Number:	41151240753	Date:	03/23/2014
Customer:	Microsoft Corporation	Temperature:	22.3°C
Attendees:	None	Relative Humidity:	31.2%
Customer Project:	None	Bar. Pressure:	1023.9 mb
Tested By:	Jared Ison	Job Site:	EV07
Power:	110VAC/60Hz	Configuration:	MCSO1698-3

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2014	ANSI C63.10:2009

TEST PARAMETERS

Run #:	43	Line:	Neutral	Ext. Attenuation (dB):	20

COMMENTS

None

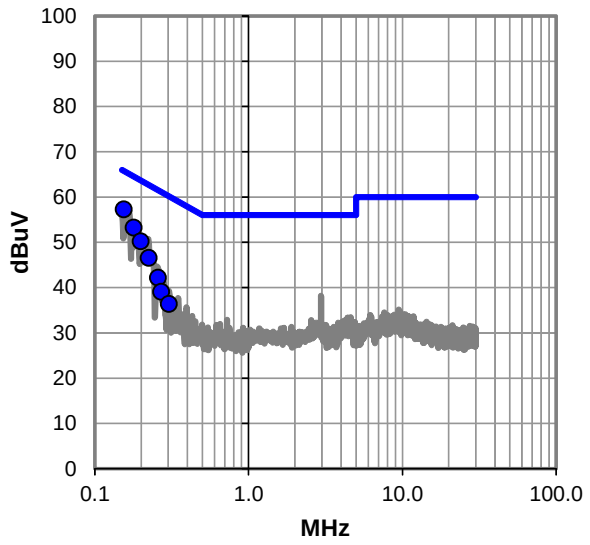
EUT OPERATING MODES

Tx Ch.140 5700MHz 802.11(a) 6Mbps Chain B

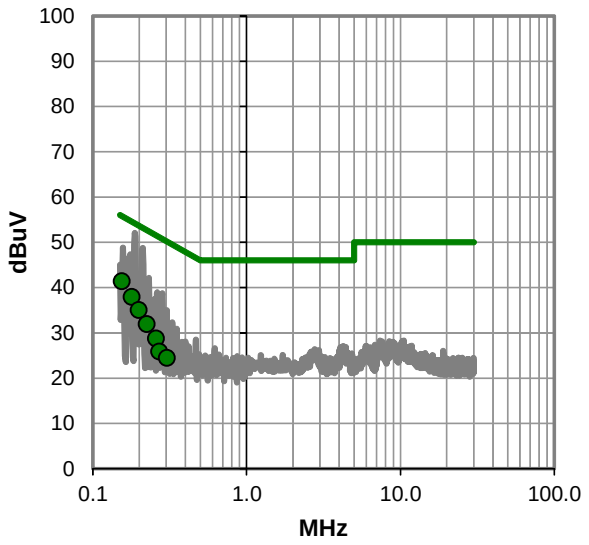
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



CONDUCTED EMISSIONS

RESULTS - Run #43

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.154	37.6	19.7	57.3	65.8	-8.5
0.179	33.5	19.7	53.2	64.5	-11.3
0.199	30.5	19.7	50.2	63.7	-13.4
0.224	26.8	19.7	46.5	62.7	-16.1
0.258	22.4	19.8	42.2	61.5	-19.3
0.271	19.3	19.8	39.1	61.1	-22.0
0.303	16.6	19.8	36.4	60.2	-23.8

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.154	21.7	19.7	41.4	55.8	-14.4
0.179	18.2	19.7	37.9	54.5	-16.6
0.199	15.3	19.7	35.0	53.7	-18.6
0.224	12.2	19.7	31.9	52.7	-20.7
0.258	9.0	19.8	28.8	51.5	-22.7
0.271	6.1	19.8	25.9	51.1	-25.2
0.303	4.7	19.8	24.5	50.2	-25.7

CONCLUSION

Pass

Tested By

CONDUCTED EMISSIONS

WTD.2013.07.23, PSA-ESCI 2014.02.19, PSA-ESCI Version 2013.2.20

EUT:	Model 1631	Work Order:	MCSO1698
Serial Number:	41151240753	Date:	03/23/2014
Customer:	Microsoft Corporation	Temperature:	22.3°C
Attendees:	None	Relative Humidity:	31.2%
Customer Project:	None	Bar. Pressure:	1023.9 mb
Tested By:	Jared Ison	Job Site:	EV07
Power:	110VAC/60Hz	Configuration:	MCSO1698-3

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2014	ANSI C63.10:2009

TEST PARAMETERS

Run #:	44	Line:	High Line	Ext. Attenuation (dB):	20

COMMENTS

None

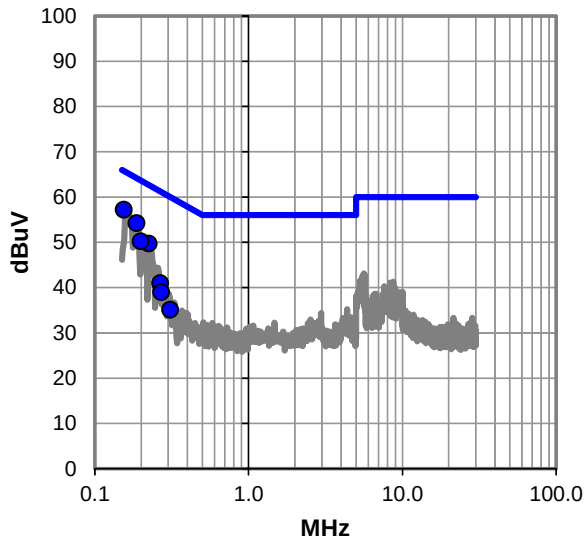
EUT OPERATING MODES

Tx Ch.140 5700MHz 802.11(a) 6Mbps Chain B

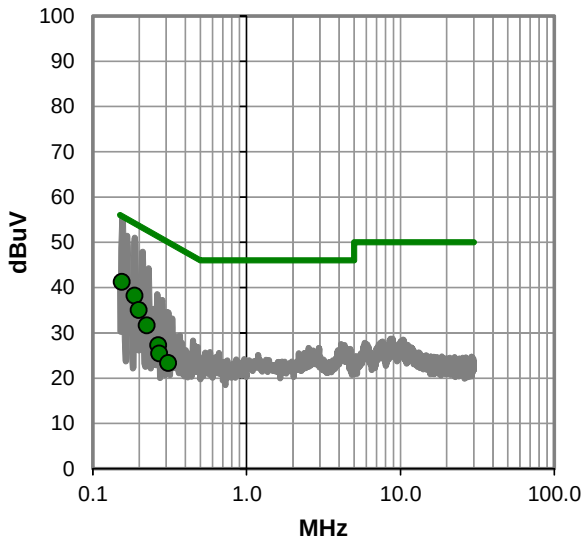
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



CONDUCTED EMISSIONS

RESULTS - Run #44

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.154	37.5	19.7	57.2	65.8	-8.6
0.187	34.5	19.7	54.2	64.2	-9.9
0.224	30.0	19.7	49.7	62.7	-12.9
0.199	30.5	19.7	50.2	63.7	-13.4
0.266	21.2	19.8	41.0	61.2	-20.3
0.271	19.2	19.8	39.0	61.1	-22.1
0.310	15.3	19.8	35.1	60.0	-24.9

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.154	21.6	19.7	41.3	55.8	-14.5
0.187	18.5	19.7	38.2	54.2	-15.9
0.199	15.3	19.7	35.0	53.7	-18.6
0.224	11.9	19.7	31.6	52.7	-21.0
0.266	7.5	19.8	27.3	51.2	-24.0
0.271	5.7	19.8	25.5	51.1	-25.6
0.310	3.5	19.8	23.3	50.0	-26.7

CONCLUSION

Pass

Tested By