RADIO TEST REPORT

Test Report No. : 10636726H-C-R1

Applicant	:	**Panasonic Mobile Communications Development of Europe Ltd**
Type of Equipment	:	**Digital Camera**
Model No.	:	**DMC-CM1**
FCC ID	:	**UCE314062A**
Test regulation	:	**FCC Part 15 Subpart E: 2015**
Test Result	:	**Complied**

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2. The results in this report apply only to the sample tested.
3. This sample tested is in compliance with above regulation.
4. The test results in this report are traceable to the national or international standards.
5. This test report must not be used by the customer to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.
6. This test report covers Radio technical requirements. It does not cover administrative issues such as Manual or non-Radio test related Requirements. (if applicable)
7. This report is a revised version of 10636726H-C. 10636726H-C is replaced with this report.

Date of test: January 14 to 30, 2015

Representative test engineer:
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Approved by:
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Takayuki Shimada
Engineer
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NVLAP LAB CODE: 200572-0

This laboratory is accredited by the NVLAP LAB CODE 200572-0, U.S.A. The tests reported herein have been performed in accordance with its terms of accreditation.
*As for the range of Accreditation in NVLAP, you may refer to the WEB address, http://www.ul.com/japan/jpn/pages/services/emc/about/mark1/index.jsp#nvlap

REVISION HISTORY

Original Test Report No.: 10636726H-C

Revision	Test report No.	Date	Page revised	Contents
- (Original)	10636726H-C	February 20, 2015	-	-
1	10636726H-C-R1	March 5, 2015	P.4	Correction of rating
1	10636726H-C-R1	March 5, 2015	P.6	Correction of FCC 15.31 (e) sentence
1	10636726H-C-R1	March 5, 2015	P.9	Correction of explanatory note for software
1	10636726H-C-R1	March 5, 2015	P.37	Correction of test report number

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SECTION 1: Customer information

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Contact Person	:	Andrew James

SECTION 2: Equipment under test (E.U.T.)

2.1 Identification of E.U.T.

Type of Equipment	:	Digital Camera
Model No.	:	DMC-CM1
Serial No.	:	Refer to Section 4, Clause 4.2
Rating	:	AC120V/60Hz (AC Adaptor) DC3.8V (Battery)
Receipt Date of Sample	:	January 7, 2015
Country of Mass-production	:	China
Condition of EUT	:	Production prototype (Not for Sale: This sample is equivalent to mass-produced items.)
Modification of EUT	:	No Modification by the test lab

2.2 Product Description

General Specification

Power Supply (radio part input) : Cellular PA: 3.0V-4.2V (Depend on Battery voltage)
Cellular other RF part: 1.3V, 1.8V, 2.05V, 2.7V (Regulated voltage)
WLAN 5GHz Front-end module: 3.0V-4.2V (Depend on Battery voltage)
WLAN/BT other RF part: 1.3V, 1.8V, 3.0V (Regulated voltage)

Clock frequency(ies) in the system : 2.26GHz (Max)
See below table for other clock frequencies

Frequency	Device
32.768kHz	MSM8974AB
32.768kHz (X'tal)	BUYD2206
27.0MHz	TC358764AXBG, XO2-256-64UCBGA, BUYD2206
48.0MHz (X'tal)	WCN3680
24.0MHz	MSM8974AB, Sub Camera
19.2MHz	WTR1625L, MSM8974AB
19.2MHz (X'tal)	PM8941
9.6MHz	WCD9320
72MHz	Main Camera
27.12MHz	NFC IC

Hardware / Software version : Rev. PR / QRCT Version 3.0.32.0

Radio Specification

	IEEE802.11b	**IEEE802.11g/n (20 M band)**	**IEEE802.11a/n/ac (20 M band)**	**IEEE802.11n/ac (40 M band)**	**IEEE802.11ac (80 M band)**
Frequency of operation	2412-2462MHz *1)	2412-2462MHz *1)	5180-5240MHz 5260-5320MHz 5500-5700MHz 5745-5825MHz	5190-5230MHz 5270-5310MHz 5510-5670MHz 5755-5795MHz	5210MHz 5290MHz 5530-5610MHz 5775MHz
Type of modulation	DSSS (CCK, DQPSK, DBPSK)	OFDM-CCK (64QAM, 16QAM, QPSK, BPSK)	OFDM (64QAM, 16QAM, QPSK, BPSK)		OFDM (64QAM, 16QAM, QPSK, BPSK, 256QAM)
Channel spacing	5MHz		20MHz	40MHz	80MHz
Antenna type	Monopole				
Antenna Connector type	Spring type				
Antenna Gain	2.4GHz: -5.40dBi W52: -3.0dBi, W53: -3.5dBi, W56: -1.5dBi, W58: -1.8dBi				

*1) 2412-2462MHz is not applied for this test report.

	Bluetooth Ver.4.0 with EDR function	**GSM**	**W-CDMA**	**LTE**
Frequency of operation	2402-2480MHz	[Up Link] GSM850: 824 – 849MHz PCS: 1850 – 1910MHz [Down Link] GSM850: 869 – 894MHz PCS: 1930 – 1990MHz	[Up Link] Band II: 1850 – 1910MHz Band IV: 1710 – 1755MHz Band V: 824 – 849MHz [Down Link] Band II: 1930 – 1990MHz Band IV: 2110 – 2155MHz Band V: 869 – 894MHz	[Up Link] Band II: 1850 – 1910MHz Band IV: 1710 – 1755MHz Band V: 824 – 849MHz Band VII: 2500 – 2570MHz Band X VII: 704 – 716MHz [Down Link] Band II: 1930 – 1990MHz Band IV: 2110 – 2155MHz Band V: 869 – 894MHz Band VII: 2620 – 2690MHz Band X VII: 734 – 746MHz
Type of modulation	BT: FHSS (GFSK, π/4-DQPSK, 8-DPSK) LE: GFSK	GMSK , 8PSK	QPSK	QPSK, 16QAM
Channel spacing	BT: 1MHz LE: 2MHz	200kHz	200kHz	100kHz
Antenna type	Monopole	Monopole	Main: Monopole Sub: Monopole	
Antenna Connector type	Spring type	Spring type	Main: Spring type Sub: Spring type	
Antenna Gain	-5.40dBi	GSM850: -0.9dBi PCS: 0.5dBi	Band II: 0.5dBi Band IV: 0.6dBi Band V: -0.9dBi	Band II: 0.5dBi Band IV: 0.6dBi Band V: -0.9dBi Band VII: -0.2dBi Band X VII: -1.5dBi

	NFC	**GPS/GLONASS**
Frequency of operation	13.56MHz	GPS: 1575.42MHz GLONASS: 1597.55-1605.89MHz
Type of modulation	ASK	GPS: BPSK GLONASS: BPSK
Channel spacing	-	GLONASS: 0.5625MHz
Antenna type	Loop	Monopole
Antenna Connector type	Spring type	Spring type
Antenna Gain	N/A	-2.9dBi

*This test report applies for WLAN (IEEE802.11a/11n-20/11ac-20/11n-40/11ac-40/11ac-80 [5GHz band]).

SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification	:	FCC Part 15 Subpart E: 2015, final revised on January 21, 2015
Title	:	FCC 47CFR Part15 Radio Frequency Device Subpart E Unlicensed National Information Infrastructure Devices Section 15.407 General technical requirements

* The revision on January 21, 2015 does not affect the test specification applied to the EUT.

3.2 Procedures and results

Item	Test Procedure	Specification	Worst margin	Results	Remarks
Conducted Emission	**FCC :**ANSI C63.4:2009	**FCC:** 15.407(b)(6) / 15.207	**QP** 26.6dB, 0.54165MHz, L **AV** 21.3dB, 0.53701MHz, N	Complied	-
	IC: RSS-Gen 8.8	**IC:** RSS-Gen 8.8			
26dB Emission Bandwidth	**FCC :**ANSI C63.4:2009, FCC KDB Publication Number 789033	**FCC :** 15.407(a)(1)(2)(3)	See data	N/A	Conducted
	IC: -	**IC:** -			
Maximum Conducted Output Power	**FCC :**ANSI C63.4:2009, FCC KDB Publication Number 789033	**FCC :** 15.407(a)(1)(2)(3)		Complied	Conducted
	IC: -	**IC:** RSS-210 A9.2(1)(2)(3)			
Maximum Power Spectral Density	**FCC :**ANSI C63.4:2009, FCC KDB Publication Number 789033	**FCC :** 15.407(a)(1)(2)(3)		Complied	Conducted
	IC: -	**IC:** RSS-210 A9.2(1)(2)(3)			
Spurious Emission Restricted Band Edge	**FCC:** ANSI C63.4:2009	**FCC :** 15.407(b), 15.205 and 15.209	7.5dB 5725.000MHz, PK, Vert.	Complied	Conducted / Radiated
	IC: -	**IC:** RSS-210 A.9.2(1)(2)(3)			
20dB Emission Bandwidth	**FCC :**ANSI C63.4:2009	**FCC :** 15.215(c)	See data	Complied	Conducted
6dB Emission Bandwidth	**FCC :**ANSI C63.4:2009	**FCC :** 15.407(e)	See data	Complied	Conducted
Note: UL Japan, Inc.'s EMI Work Procedures No. 13-EM-W0420 and 13-EM-W0422. * For DFS tests, please see the test report number 10636726H-H-R1 issued by UL Japan, Inc.					

FCC 15.31 (e)
The EUT is a battery-operated device and test was performed with the full-charged battery.
During the test, the battery was charged from AC Adaptor.
Therefore, this EUT complies with the requirement.

FCC Part 15.203 Antenna requirement
It is impossible for end users to replace the antenna, because the antenna is mounted inside of the EUT. Therefore, the equipment complies with the antenna requirement of Section 15.203.

3.3 Addition to standard

Item	Test Procedure	Specification	Worst margin	Results	Remarks
99% Occupied Band Width	RSS-Gen 6.6	RSS-210 A9.2 (1)(2)(3)	N/A	N/A	Conducted

Other than above, no addition, exclusion nor deviation has been made from the standard.

3.4 Uncertainty

EMI

The following uncertainties have been calculated to provide a confidence level of 95% using a coverage factor k=2.

Test room (semi-anechoic chamber)	**Conducted emission (±dB)**
	150kHz-30MHz
No.1	3.5dB
No.2	3.5dB
No.3	3.6dB
No.4	3.5dB

Test room (semi-anechoic chamber)	**Radiated emission**						
	(3m*)(±dB)				**(1m*)(±dB)**		**(0.5m*)(±dB)**
	9kHz -30MHz	30MHz -300MHz	300MHz -1GHz	1GHz -10GHz	10GHz -18GHz	18GHz -26.5GHz	26.5GHz -40GHz
No.1	4.0dB	5.1dB	5.0dB	5.1dB	6.0dB	4.9dB	4.3dB
No.2	3.9dB	5.2dB	5.0dB	4.9dB	5.9dB	4.7dB	4.2dB
No.3	4.3dB	5.1dB	5.2dB	5.2dB	6.0dB	4.8dB	4.2dB
No.4	4.6dB	5.2dB	5.0dB	5.2dB	6.0dB	5.7dB	4.2dB

*3m/1m/0.5m = Measurement distance

Antenna terminal conducted emission and Power density (±dB)			**Antenna terminal conducted emission (±dB)**		**Channel power (±dB)**
Below 1GHz	1GHz-3GHz	3GHz-18GHz	18GHz-26.5GHz	26.5GHz-40GHz	
1.5dB	1.7dB	2.8dB	2.8dB	2.9dB	2.6dB

Conducted Emission test

The data listed in this test report has enough margin, more than the site margin.

Radiated emission test(3m)

The data listed in this test report has enough margin, more than the site margin.

3.5 Test Location

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	IC Registration Number	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Other rooms
No.1 semi-anechoic chamber	2973C-1	19.2 x 11.2 x 7.7m	7.0 x 6.0m	No.1 Power source room
No.2 semi-anechoic chamber	2973C-2	7.5 x 5.8 x 5.2m	4.0 x 4.0m	-
No.3 semi-anechoic chamber	2973C-3	12.0 x 8.5 x 5.9m	6.8 x 5.75m	No.3 Preparation room
No.3 shielded room	-	4.0 x 6.0 x 2.7m	N/A	-
No.4 semi-anechoic chamber	2973C-4	12.0 x 8.5 x 5.9m	6.8 x 5.75m	No.4 Preparation room
No.4 shielded room	-	4.0 x 6.0 x 2.7m	N/A	-
No.5 semi-anechoic chamber	-	6.0 x 6.0 x 3.9m	6.0 x 6.0m	-
No.6 shielded room	-	4.0 x 4.5 x 2.7m	4.0 x 4.5 m	-
No.6 measurement room	-	4.75 x 5.4 x 3.0m	4.75 x 4.15 m	-
No.7 shielded room	-	4.7 x 7.5 x 2.7m	4.7 x 7.5m	-
No.8 measurement room	-	3.1 x 5.0 x 2.7m	N/A	-
No.9 measurement room	-	8.8 x 4.6 x 2.8m	2.4 x 2.4m	-
No.11 measurement room	-	6.2 x 4.7 x 3.0m	4.8 x 4.6m	-

* Size of vertical conducting plane (for Conducted Emission test) : 2.0 x 2.0m for No.1, No.2, No.3, and No.4 semi-anechoic chambers and No.3 and No.4 shielded rooms.

3.6 Data of EMI, Test instruments, and Test set up

Refer to APPENDIX.

SECTION 4: Operation of E.U.T. during testing

4.1 Operating Modes

Test operating mode was determined as follows according to "Section 1 of 6 802.11 a/b/g/n testing- Managing Complex Regulatory Approvals - " of TCB Council Workshop October 2009 and also was judged the necessity of 802.11ac mode by the pre-test.

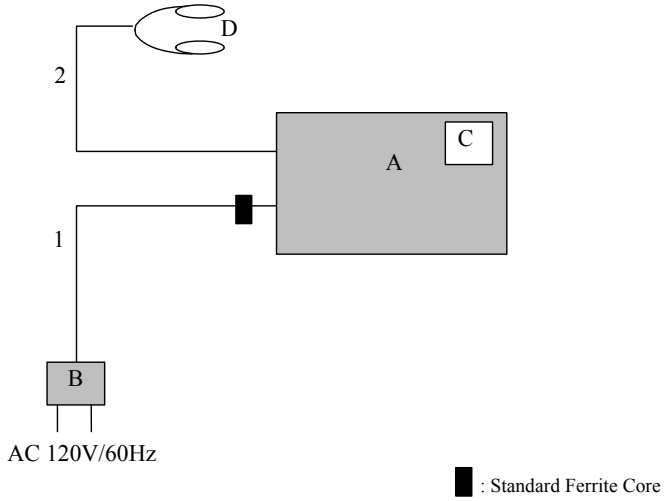
Mode	Remarks*
IEEE 802.11a (11a)	6Mbps, PN9
IEEE 802.11n 20MHz BW (11n-20)	MCS 0, PN9
IEEE 802.11ac 20MHz BW (11ac-20)	MCS 0, PN9
IEEE 802.11n 40MHz BW (11n-40)	MCS 0, PN9
IEEE 802.11ac 40MHz BW (11ac-40)	MCS 0, PN9
IEEE 802.11ac 80MHz BW (11ac-80)	MCS 0, PN9
*The worst condition was determined based on the test result of Maximum Conducted Output Power.	
*The power value of the EUT was set for testing as follows (setting value might be different from product specification value); - Power Setting: 11a: 12dBm, 11n-20: 12dBm, 11ac-20: 12dBm, 11n-40: 11dBm, 11ac-40: 10dBm, 11ac-80: 10dBm - Software: QRCT Version 3.0.32.0 *This setting of software is the worst case. Any conditions under the normal use do not exceed the condition of setting. In addition, end users cannot change the settings of the output power of the product.	

*The details of Operating mode(s)

Test Item	Operating Mode	Tested Frequency			
		Lower Band	Middle Band	Additional Band	Upper Band
Conducted emission, Conducted Spurious Emission	11a Tx *1)	-	5260MHz *1)	-	-
26dB Emission Bandwidth	11a Tx 11n-20 Tx 11ac-20 Tx	-	5260MHz 5300MHz 5320MHz	5500MHz 5580MHz 5700MHz	-
	11n-40 Tx 11ac-40 Tx	-	5270MHz 5310MHz	5510MHz 5550MHz 5670MHz	-
	11ac-80	-	5290MHz	5530MHz 5610MHz	-
99% Occupied Bandwidth, 20dB Bandwidth, Maximum Conducted Output Power, Maximum Power Spectral Density	11a Tx 11n-20 Tx 11ac-20 Tx	5180MHz 5220MHz 5240MHz	5260MHz 5300MHz 5320MHz	5500MHz 5580MHz 5700MHz	5745MHz 5785MHz 5825MHz
	11n-40 Tx 11ac-40 Tx	5190MHz 5230MHz	5270MHz 5310MHz	5510MHz 5550MHz 5670MHz	5755MHz 5795MHz
	11ac-80	5210MHz	5290MHz	5530MHz 5610MHz	5775MHz
Radiated Spurious Emission (Below 1GHz)	11a Tx *1)	-	5260MHz *1)	-	-
Radiated Spurious Emission (Above 1GHz)	11a Tx	5180MHz	5260MHz 5320MHz	5500MHz 5580MHz 5700MHz	5745MHz 5785MHz 5825MHz
	11n-20 Tx	5180MHz	5320MHz	5500MHz 5700MHz	5745MHz 5825MHz
	11n-40 Tx	5190MHz	5270MHz 5310MHz	5510MHz 5550MHz 5670MHz	5755MHz 5795MHz
	11ac-80	5210MHz	5290MHz	5530MHz 5610MHz	5775MHz
6dB Bandwidth	11a Tx 11n-20 Tx 11ac-20 Tx	-	-	-	5745MHz 5785MHz 5825MHz
	11n-40 Tx 11ac-40 Tx	-	-	-	5755MHz 5795MHz
	11ac-80	-	-	-	5775MHz

*1) The operating mode and tested frequency were tested as a representative, because it had the highest power at antenna terminal test.

4.2 Configuration and peripherals



* Cabling and setup(s) were taken into consideration and test data was taken under worse case conditions.

Description of EUT

No.	Item	Model number	Serial number	Manufacturer	Remarks
A	Digital Camera	DMC-CM1	004401221416346 *1) 004401221415512 *2)	Panasonic	EUT
B	AC Adaptor	VSK0825	k4000106PH	Panasonic	EUT
C	Micro SD Card	02GUECA-MB	-	Panasonic	-
D	Earphone	-	-	Panasonic	-

*1) Used for antenna terminal conducted test
*2) Used for all tests except for antenna terminal conducted test

List of cables used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	DC Cable	1.2	Unshielded	Unshielded	-
2	Earphone Cable	1.2	Unshielded	Unshielded	-

SECTION 5: Conducted Emission

Test Procedure

EUT was placed on a urethane platform of nominal size, 1.0m by 1.5m, raised 0.8m above the conducting ground plane.
The rear of tabletop was located 40cm to the vertical conducting plane. The rear of EUT, including peripherals aligned and flushed with rear of tabletop. All other surfaces of tabletop were at least 80cm from any other grounded conducting surface. EUT was located 80cm from a Line Impedance Stabilization Network (LISN)/ Artificial mains Network (AMN) and excess AC cable was bundled in center.

For the tests on EUT with other peripherals (as a whole system)
I/O cable and AC cables that were connected to the peripherals were bundled in center. They were folded back and forth forming a bundle 30cm to 40cm long and were hanged at a 40cm height to the ground plane. All unused 50ohm connectors of the LISN(AMN) were resistivity terminated in 50ohm when not connected to the measuring equipment.

The AC Mains Terminal Continuous disturbance Voltage has been measured with the EUT in a Semi Anechoic Chamber or a Measurement Room.
The EUT was connected to a LISN (AMN).
An overview sweep with peak detection has been performed.

Detector	**: QP and CISPR AV**
Measurement range	**: 0.15-30MHz**
Test data	**: APPENDIX**
Test result	**: Pass**

SECTION 6: Radiated Spurious Emission and Band Edge Compliance

Test Procedure

EUT was placed on a urethane platform of nominal size, 0.5m by 1.0m, raised 0.8m above the conducting ground plane.
The Radiated Electric Field Strength has been measured in a Semi Anechoic Chamber with a ground plane.
The height of the measuring antenna varied between 1 and 4m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field strength.
The measurements were made with the following detector function of the test receiver and the Spectrum analyzer (in linear mode).
The measurements were performed for both vertical and horizontal antenna polarization with the Test Receiver, or the Spectrum Analyzer.
The test was made with the detector (RBW/VBW) in the following table.
When using Spectrum analyzer, the test was made with adjusting span to zero by using peak hold.

Below 1GHz
The result also satisfied with the general limits specified in section 15.209(a).

Above 1GHz

Inside of restricted bands(Section 15.205):	Apply to limit in the Section 15.209(a).
Outside of the restricted bands:	Apply to limit 68.2dBuV/m(–27dBm e.i.r.p.*) in the Section 15.407(b)(1)(2)(3). Apply to limit 68.2dBuV/m(–27dBm e.i.r.p.*) or 78.2dBuV/m(-17dBm e.i.r.p.*) in the Section 15.407(b) (4m).
Restricted bandedge:	Apply to limit in the Section 15.209(a). Since this limit is severer than the limit of the inside of restricted bands.

*Electric Field Strength to e.i.r.p. Conversion

$$E = \frac{1000000\sqrt{30P}}{3} \text{ (uV/m)} \qquad \text{:P is the e.i.r.p. (Watts)}$$

Test Antennas are used as below;

Frequency	30MHz to 300MHz	300MHz to 1GHz	Above 1GHz
Antenna Type	Biconical	Logperiodic	Horn

Frequency	Below 1GHz	Above 1GHz	
Instrument used	Test Receiver	Spectrum Analyzer	
Detector	QP	PK	AV
IF Bandwidth	BW 120kHz(T/R)	RBW: 1MHz VBW: 3MHz	Method AD *1) RBW: 1MHz VBW: 3MHz Detector: Power Averaging (RMS)
Test Distance	3m	3m (below 10GHz), 1m*2) (above 10GHz), 0.5m*3) (above 26.5GHz)	

*1) The test method was also referred to KDB 789033 D02 General UNII Test Procedures New Rules v01 "Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices Part 15, Subpart E (Issued on June 6, 2014)".
*2) Distance Factor: 20 x log (3.0m/1.0m) = 9.5dB
*3) Distance Factor: 20 x log (3.0m/0.5m) = 15.6dB

- The carrier level and noise levels were confirmed at each position of X, Y and Z axes of EUT to see the position of maximum noise, and the test was made at the position that has the maximum noise.

The test results and limit are rounded off to one decimal place, so some differences might be observed.

Measurement range : 30M-40GHz
Test data : APPENDIX
Test result : Pass

SECTION 7: Antenna Terminal Conducted Tests

Test Procedure

The tests were made with below setting connected to the antenna port with Spectrum Analyzer.

Test	Span	RBW	VBW	Sweep time	Detector	Trace	Instrument used and Test method
26dB Bandwidth	40MHz, 80MHz, 160MHz	Close to 1% of EBW	Greater than RBW	Auto	Peak	Max Hold	Spectrum Analyzer
99% Occupied Bandwidth	1.5 times to 5.0 times the OBW	1% to 5% of the OBW	≥ 3 RBW	Auto	Peak	Max Hold *1)	Spectrum Analyzer
20dB Bandwidth	40MHz, 80MHz, 160MHz	100kHz	300kHz	Auto	Peak	Max Hold	Spectrum Analyzer
6dB Bandwidth	40MHz, 80MHz, 160MHz	100kHz	300kHz	Auto	Peak	Max Hold	Spectrum Analyzer
Maximum Conducted Output Power	-	-	-	Auto	Averaging	-	Power Meter (Sensor: 80MHz BW) (Method PM-G)
Maximum Power Spectral Density	40MHz, 80MHz, 160MHz	1MHz or 470kHz *2)	3MHz or 1.5MHz	Auto	Sample Power Averaging (200 times)	Clear Write	Spectrum Analyzer
Conducted Spurious Emission*3)	9kHz-150kHz	200Hz	620Hz	Auto	Peak	Max Hold	Spectrum Analyzer
	150kHz-30MHz	9.1kHz	27kHz				

*The test method was also referred to KDB 789033 D02 General UNII Test Procedures New Rules v01 "Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices Part 15, Subpart E (Issued on June 6, 2014)".

*1) The measurement was performed with Max Hold since the duty cycle was not 100%.
*2) FCC standard says that RBW is set to be 500kHz for 5.725-5850GHz, but it is not possible with spectrum analyzer, so 10log(500kHz/470kHz) was added to the test result.
*3) In the frequency range below 30MHz, RBW was narrowed to separate the noise contents. Then, wide-band noise near the limit was checked separately, however the noise was not detected as shown in the chart.(9kHz-150kHz:RBW=200Hz, 150kHz-30MHz:RBW=9.1kHz)

The test results and limit are rounded off to two decimals place, so some differences might be observed.

Test data : APPENDIX
Test result : Pass

APPENDIX 1: Data of EMI test

Conducted Emission

DATA OF CONDUCTED EMISSION TEST

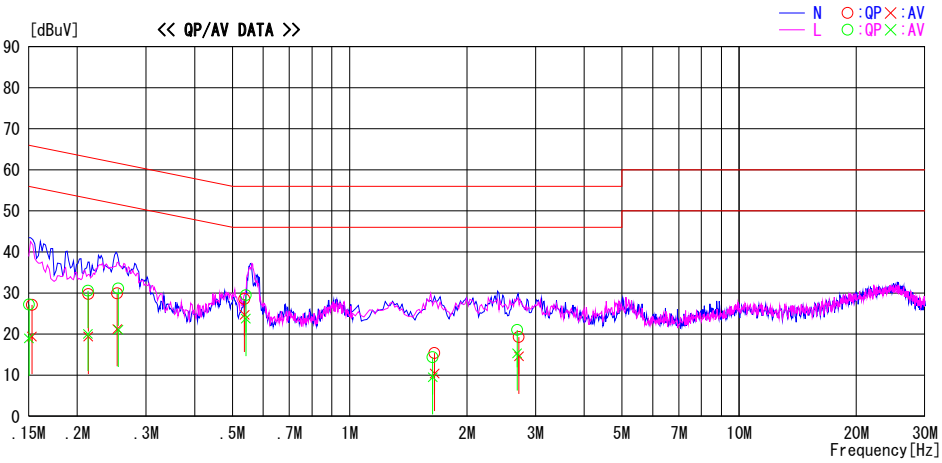
UL Japan, Inc. Ise EMC Lab. No.4 Semi Anechoic Chamber
Date : 2015/01/20

Report No. : 10636726H

Temp./Humi. : 23deg. C / 35% RH
Engineer : Koji Yamamoto

Mode / Remarks : WLAN 11a 5260MHz

LIMIT : FCC15.207 QP
FCC15.207 AV



Frequency	Reading Level		Corr.	Results		Limit		Margin		Phase	Comment
	QP	AV	Factor	QP	AV	QP	AV	QP	AV		
[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
0.15297	13.7	6.0	13.4	27.1	19.4	65.8	55.8	38.7	36.4	N	
0.21324	16.3	6.0	13.4	29.7	19.4	63.1	53.1	33.4	33.7	N	
0.25319	16.5	7.9	13.4	29.9	21.3	61.7	51.7	31.8	30.4	N	
0.53701	15.0	11.2	13.5	28.5	24.7	56.0	46.0	27.5	21.3	N	
1.65194	1.7	-3.3	13.7	15.4	10.4	56.0	46.0	40.6	35.6	N	
2.72026	5.6	0.9	13.7	19.3	14.6	56.0	46.0	36.7	31.4	N	
0.15026	13.8	5.6	13.4	27.2	19.0	66.0	56.0	38.8	37.0	L	
0.21297	17.2	6.7	13.4	30.6	20.1	63.1	53.1	32.5	33.0	L	
0.25490	17.7	7.7	13.4	31.1	21.1	61.6	51.6	30.5	30.5	L	
0.54165	16.0	10.3	13.5	29.5	23.8	56.0	46.0	26.6	22.2	L	
1.63303	0.9	-4.0	13.5	14.4	9.5	56.0	46.0	41.6	36.5	L	
2.69368	7.3	1.7	13.7	21.0	15.4	56.0	46.0	35.0	30.6	L	

CHART : WITH FACTOR, Peak hold data. CALCULATION : RESULT = READING + C.F (LISN + ATTEN + CABLE)
Except for the above table : adequate margin data below the limits.

26dB Emission Bandwidth and 99% Occupied Bandwidth

Test place Ise EMC Lab. No.3 Measurement Room
Report No. 10636726H
Date 01/30/2015
Temperature/ Humidity 25deg. C / 30% RH
Engineer Shinichi Miyazono
Mode 11a/ 11n-20/ 11ac-20 Tx

11a

Frequency [MHz]	26dB Emission Bandwidth [MHz]	99% Occupied Bandwidth [MHz]	Limit [MHz]
5180	-	17.3528	-
5220	-	17.3956	-
5240	-	17.3005	-
5260	21.680	17.3530	-
5300	21.596	17.2499	-
5320	21.981	17.3324	-
5500	21.754	17.3631	-
5580	21.672	17.3240	-
5700	21.666	17.3422	-
5745	-	17.4026	-
5785	-	17.3299	-
5825	-	17.4056	-

11n-20

Frequency [MHz]	26dB Emission Bandwidth [MHz]	99% Occupied Bandwidth [MHz]	Limit [MHz]
5180	-	18.2707	-
5220	-	18.2851	-
5240	-	18.3018	-
5260	22.187	18.2308	-
5300	21.922	18.2892	-
5320	21.801	18.3452	-
5500	22.206	18.2528	-
5580	21.952	18.3486	-
5700	21.776	18.2915	-
5745	-	18.1974	-
5785	-	18.3336	-
5825	-	18.3038	-

11ac-20

Frequency [MHz]	26dB Emission Bandwidth [MHz]	99% Occupied Bandwidth [MHz]	Limit [MHz]
5180	-	18.3032	-
5220	-	18.3279	-
5240	-	18.3062	-
5260	21.858	18.3494	-
5300	21.927	18.3161	-
5320	21.839	18.3336	-
5500	21.790	18.3107	-
5580	21.686	18.3178	-
5700	21.928	18.3217	-
5745	-	18.3118	-
5785	-	18.2946	-
5825	-	18.2973	-

26dB Emission Bandwidth and 99% Occupied Bandwidth

Test place	Ise EMC Lab. No.11 Measurement Room
Report No.	10636456H
Date	01/22/2015
Temperature/ Humidity	25deg. C / 31% RH
Engineer	Shinichi Miyazono
Mode	11n-40/ 11ac-40 / 11ac-80 Tx

11n-40

Frequency [MHz]	26dB Emission Bandwidth [MHz]	99% Occupied Bandwidth [MHz]	Limit [MHz]
5190	-	36.3646	-
5230	-	36.3696	-
5270	42.664	36.3878	-
5310	43.283	36.4007	-
5510	43.218	36.4471	-
5550	42.849	36.4253	-
5670	43.371	36.4458	-
5755	-	36.4793	-
5795	-	36.4134	-

11ac-40

Frequency [MHz]	26dB Emission Bandwidth [MHz]	99% Occupied Bandwidth [MHz]	Limit [MHz]
5190	-	36.4562	-
5230	-	36.5231	-
5270	42.125	36.5407	-
5310	42.093	36.4504	-
5510	42.398	36.5473	-
5550	42.164	36.5003	-
5670	42.296	36.4555	-
5755	-	36.4756	-
5795	-	36.5027	-

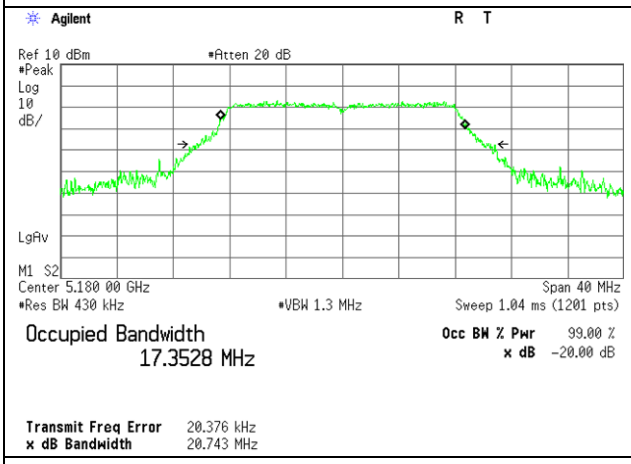
11ac-80

Frequency [MHz]	26dB Emission Bandwidth [MHz]	99% Occupied Bandwidth [MHz]	Limit [MHz]
5210	-	74.9322	-
5290	83.012	74.8615	-
5530	83.175	74.8323	-
5610	83.786	74.8834	-
5775	-	74.9082	-

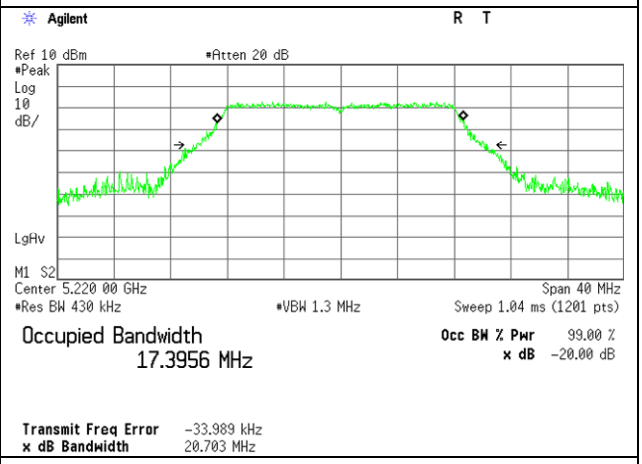
99% Occupied Bandwidth

11a

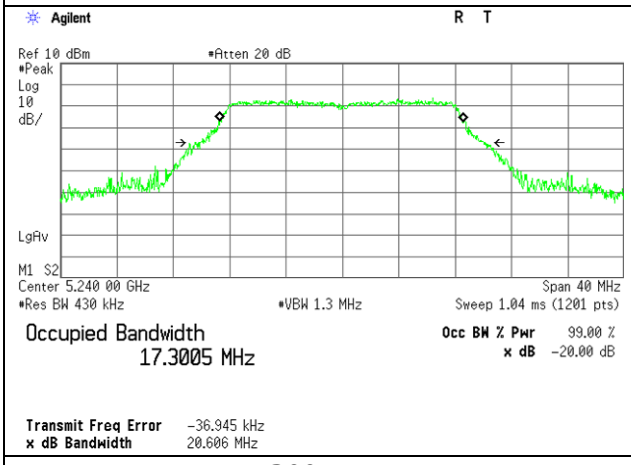
5180MHz



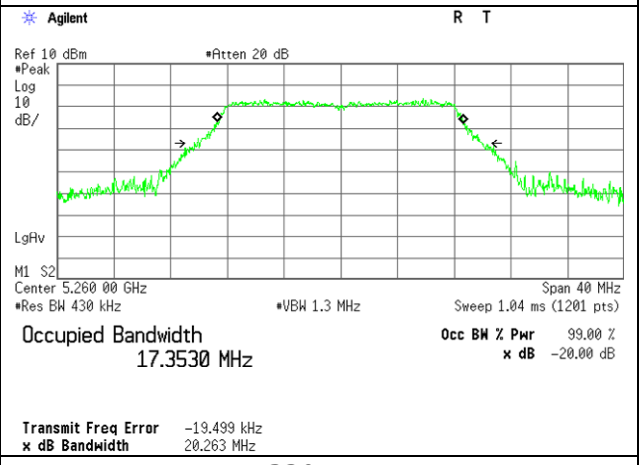
5220MHz



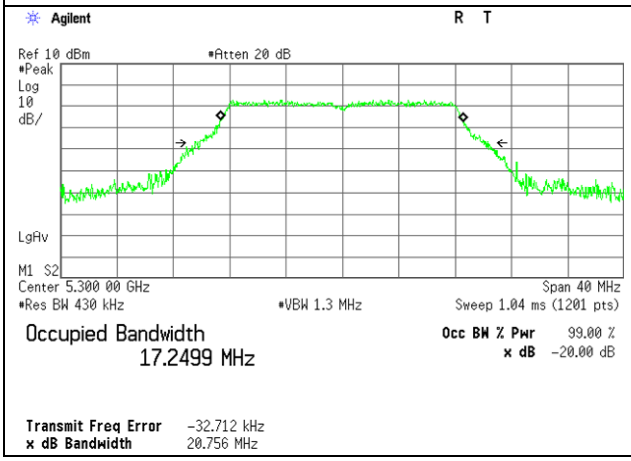
5240MHz



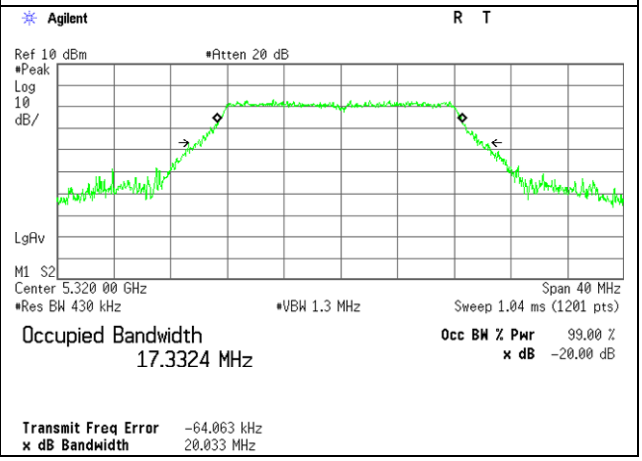
5260MHz



5300MHz



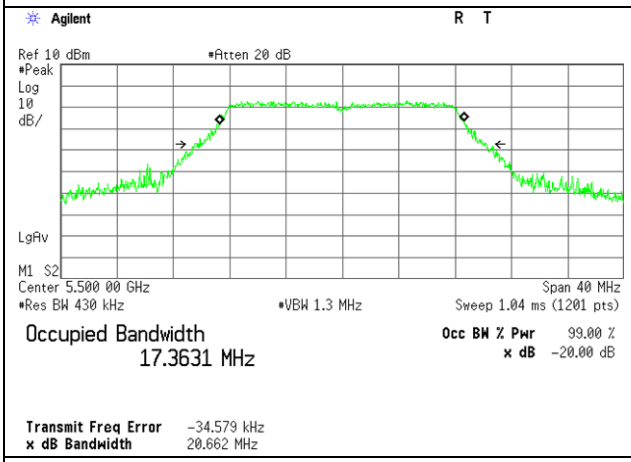
5320MHz



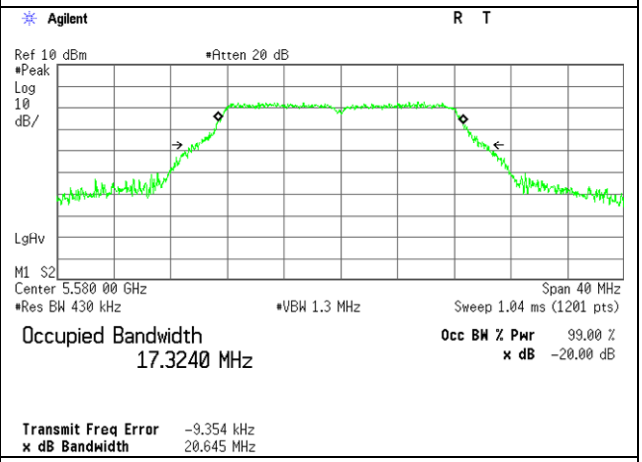
99% Occupied Bandwidth

11a

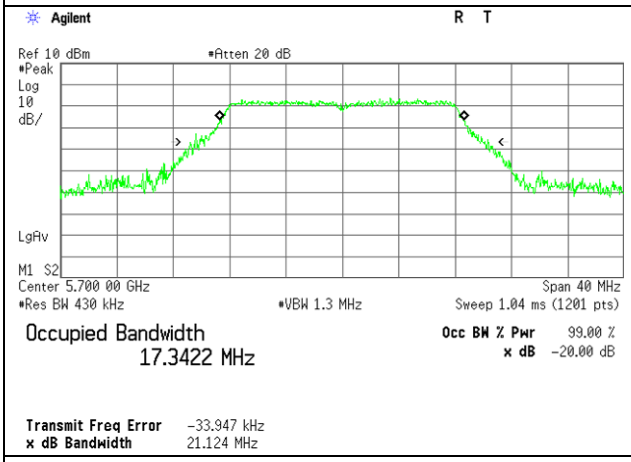
5500MHz



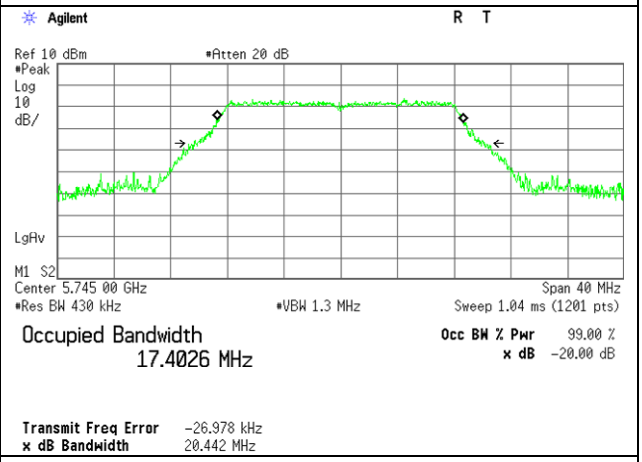
5580MHz



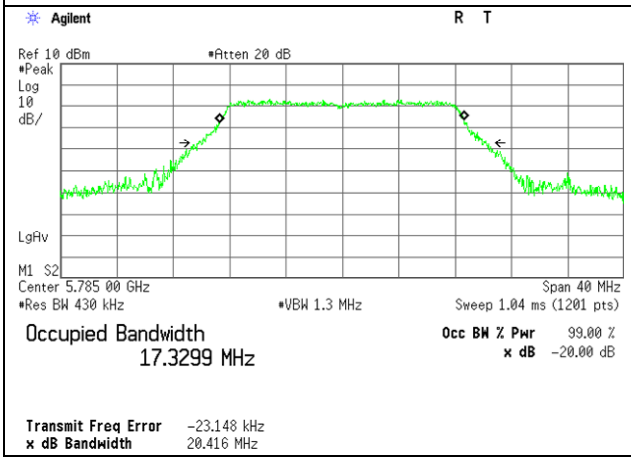
5700MHz



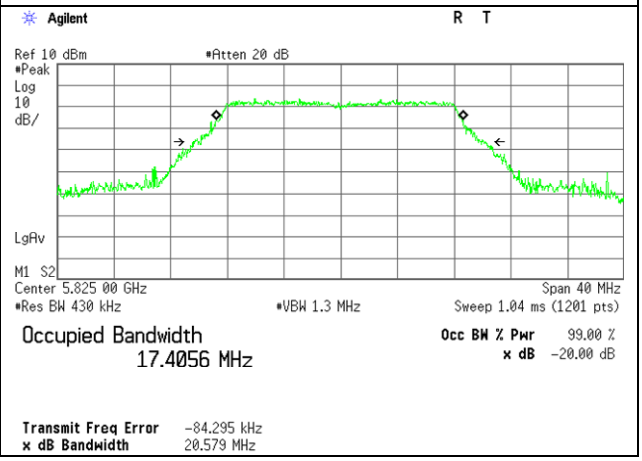
5745MHz



5785MHz



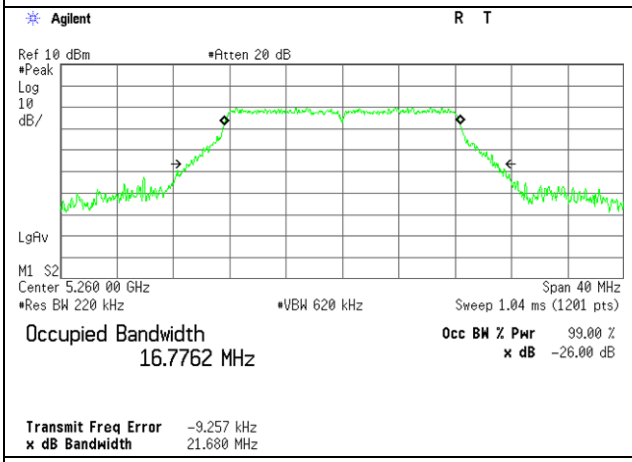
5825MHz



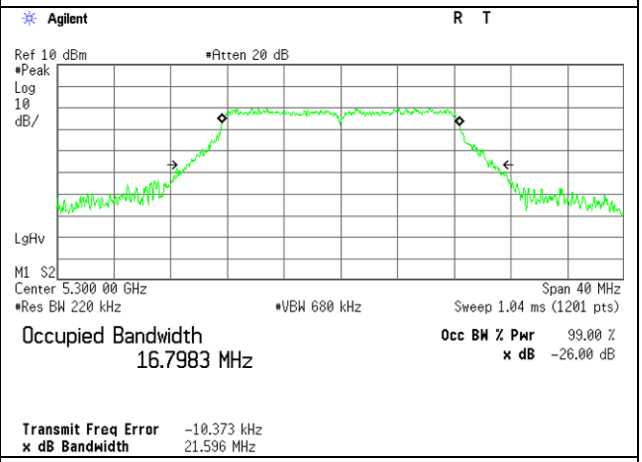
26dB Emission Bandwidth

11a

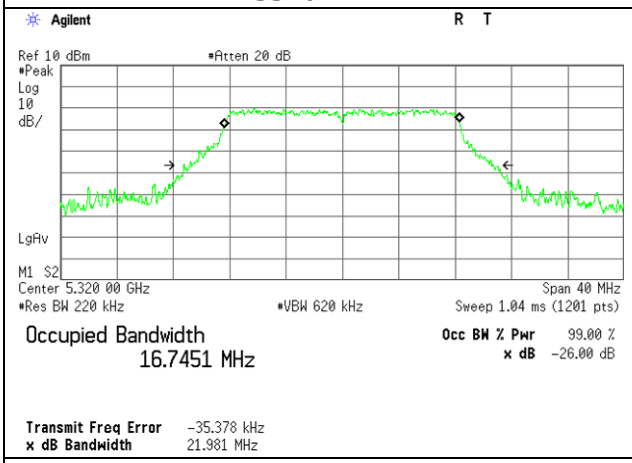
5260MHz



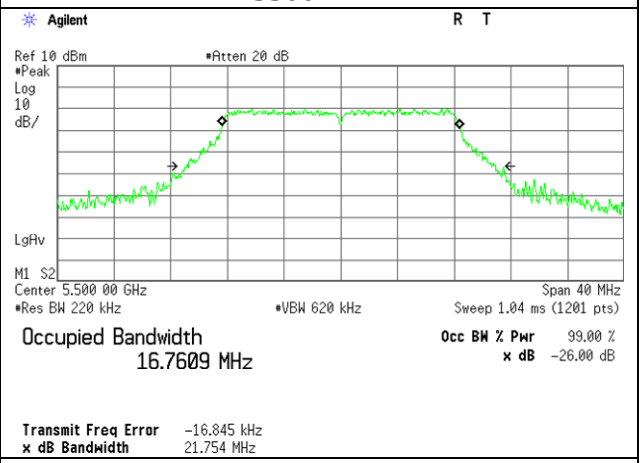
5300MHz



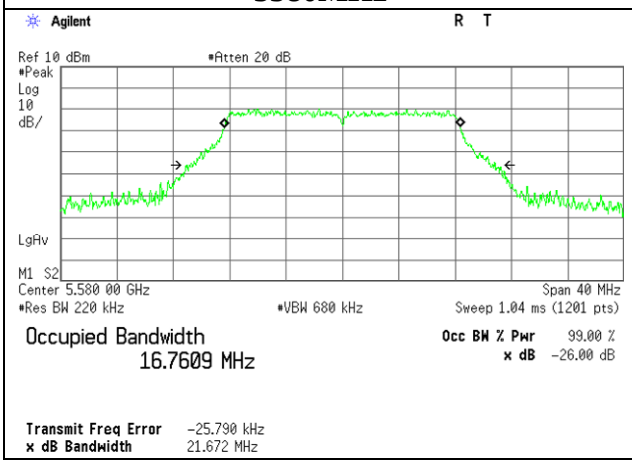
5320MHz



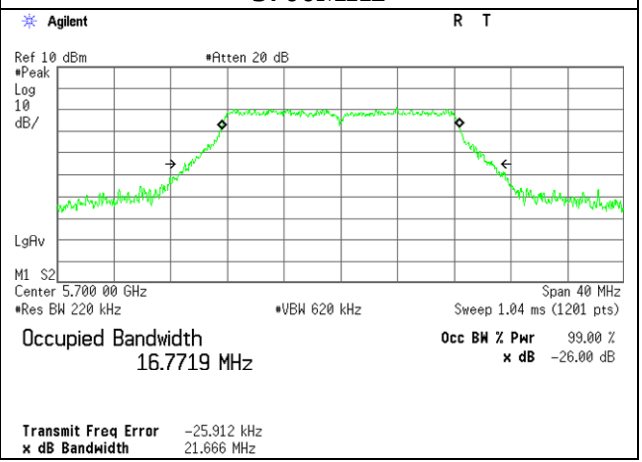
5500MHz



5580MHz



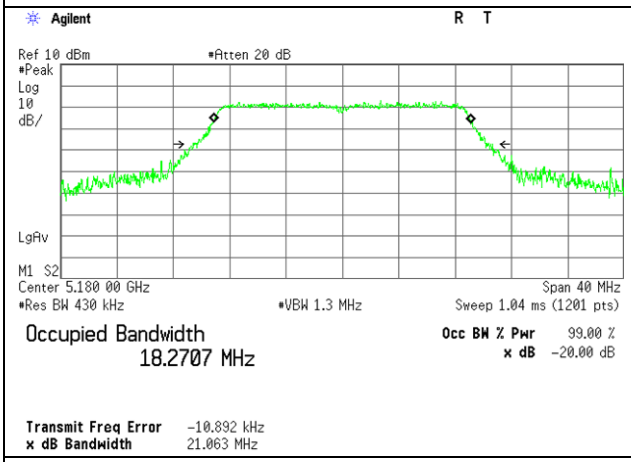
5700MHz



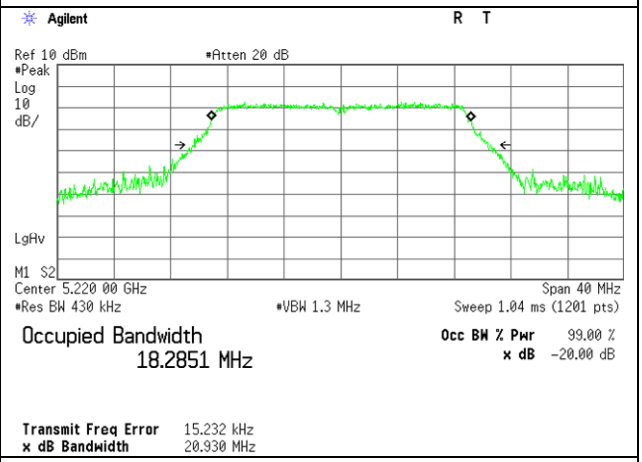
99% Occupied Bandwidth

11n-20

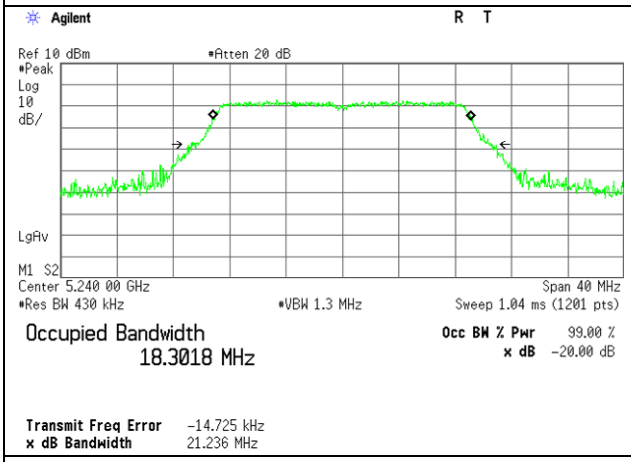
5180MHz



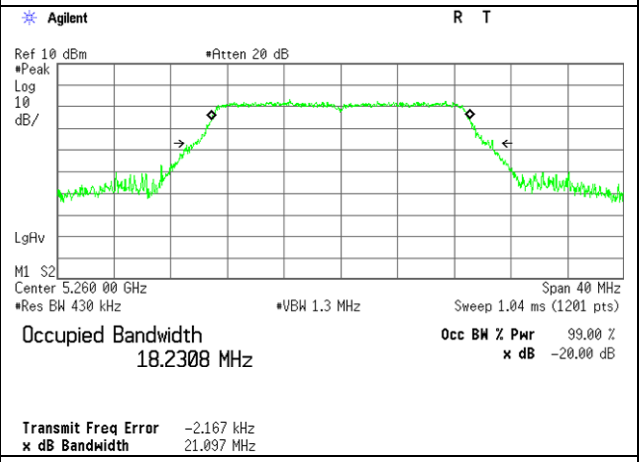
5220MHz



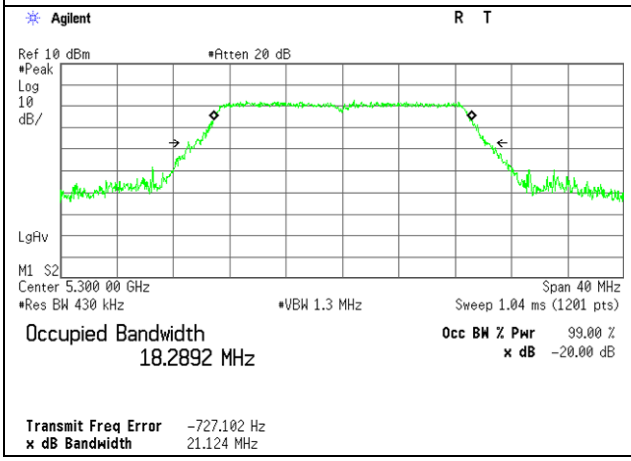
5240MHz



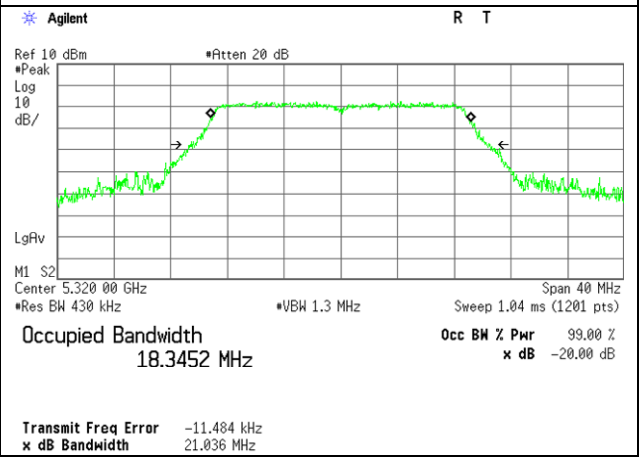
5260MHz



5300MHz



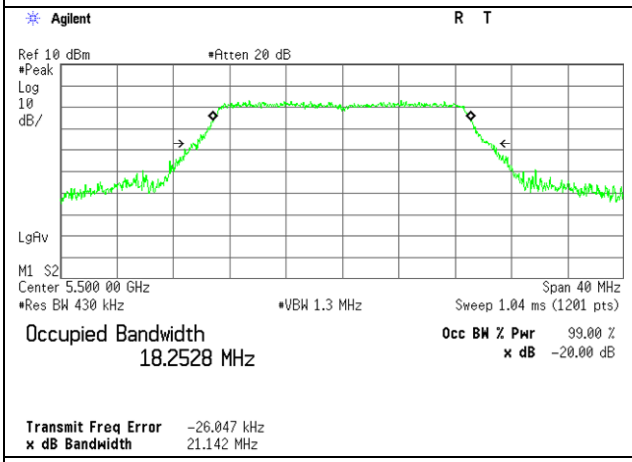
5320MHz



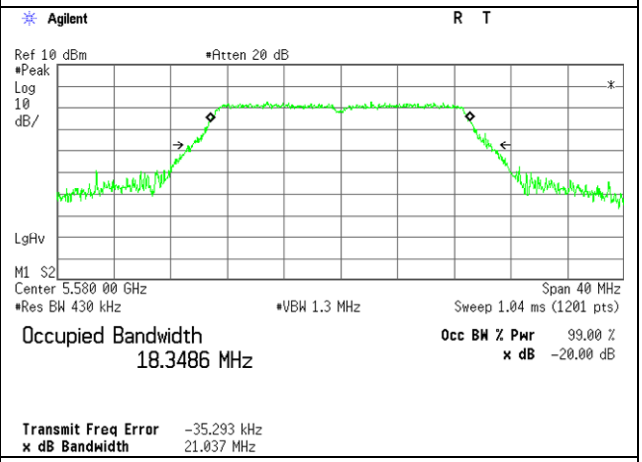
99% Occupied Bandwidth

11n-20

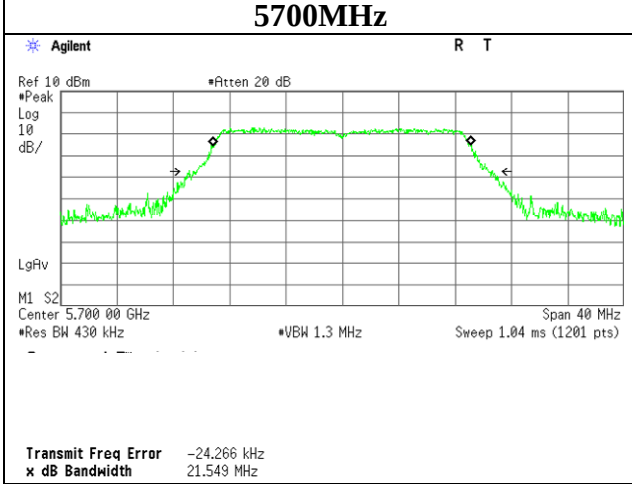
5500MHz



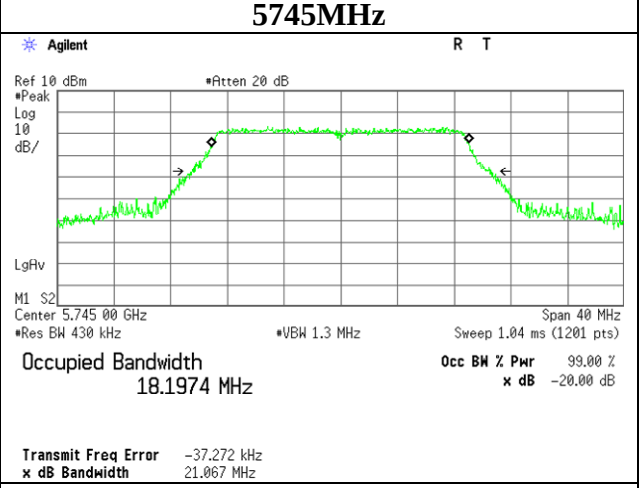
5580MHz



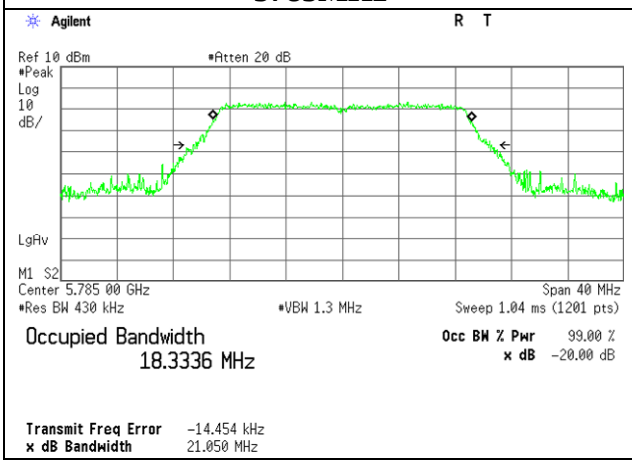
5700MHz



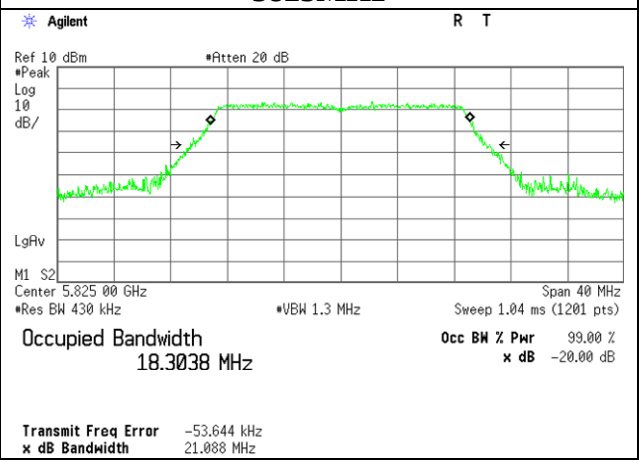
5745MHz



5785MHz



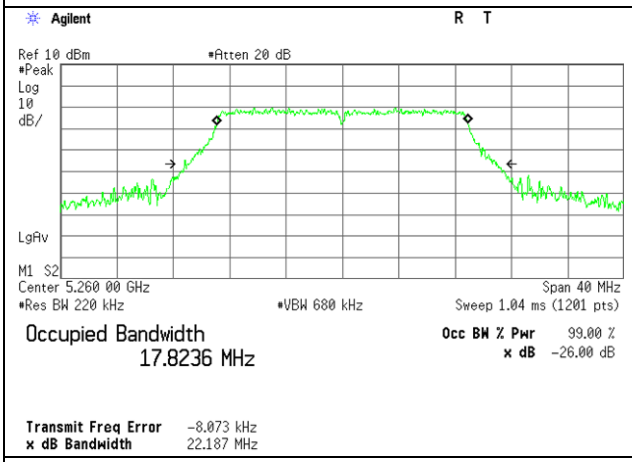
5825MHz



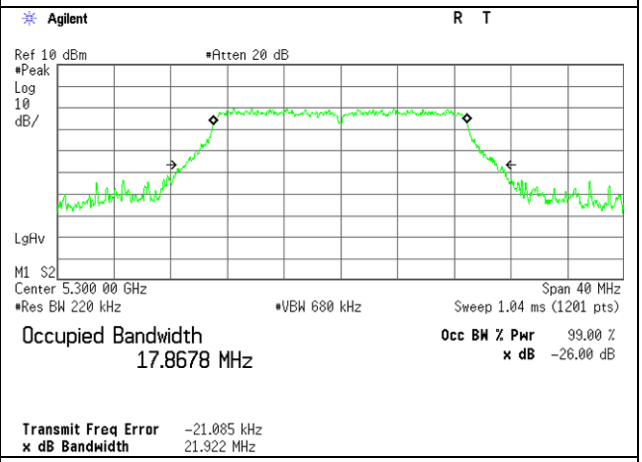
26dB Emission Bandwidth

11n-20

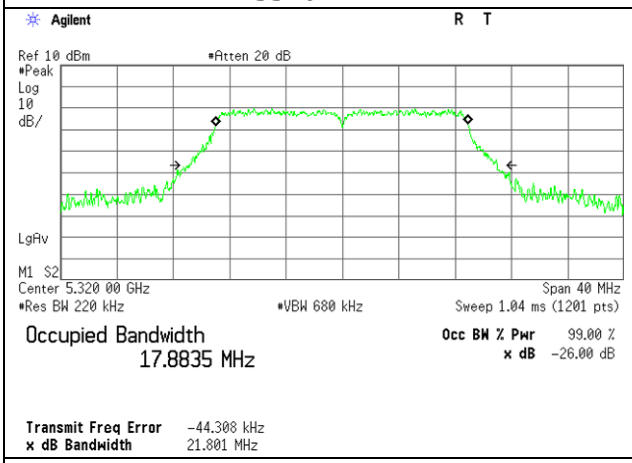
5260MHz



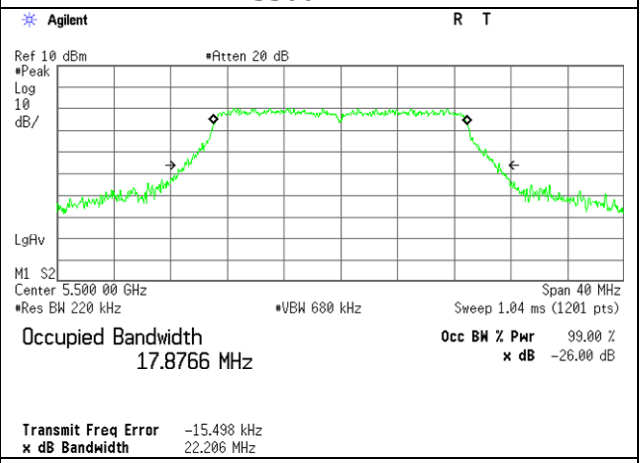
5300MHz



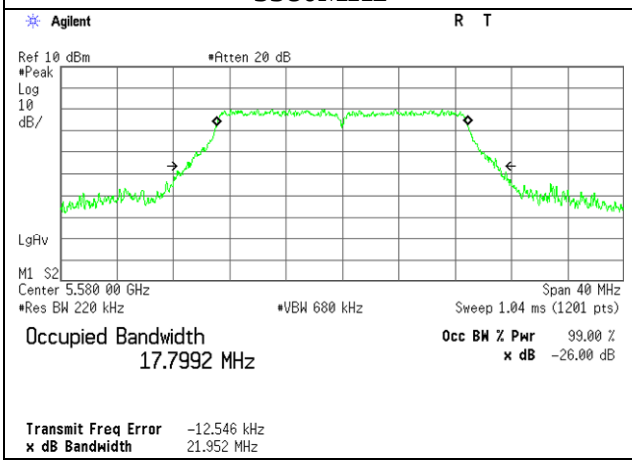
5320MHz



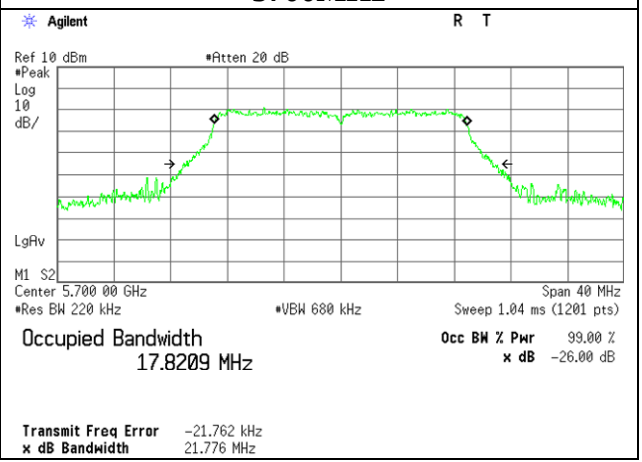
5500MHz



5580MHz



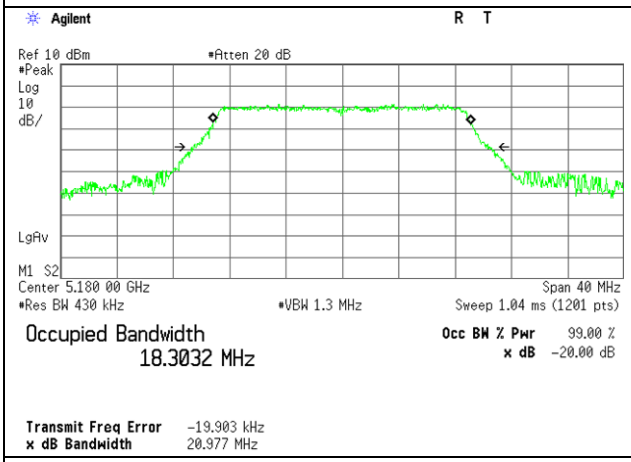
5700MHz



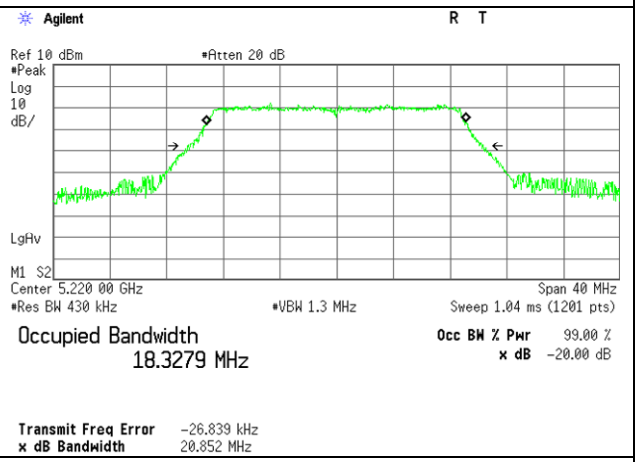
99% Occupied Bandwidth

11ac-20

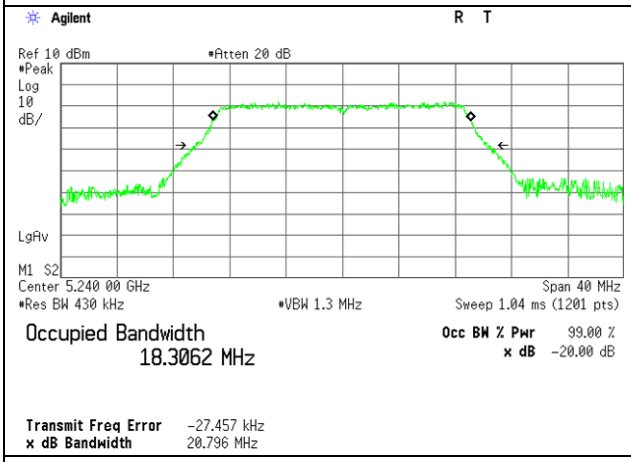
5180MHz



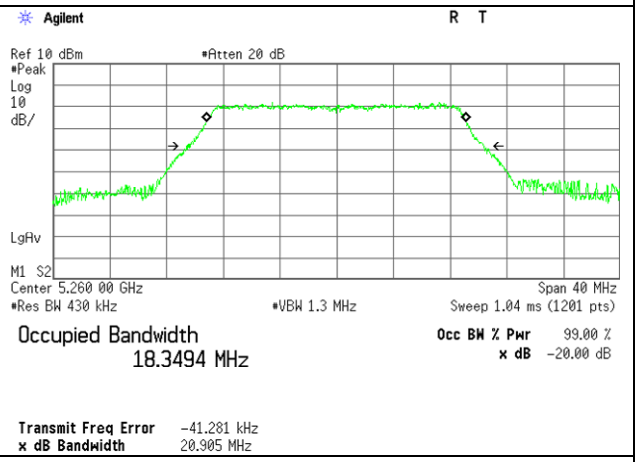
5220MHz



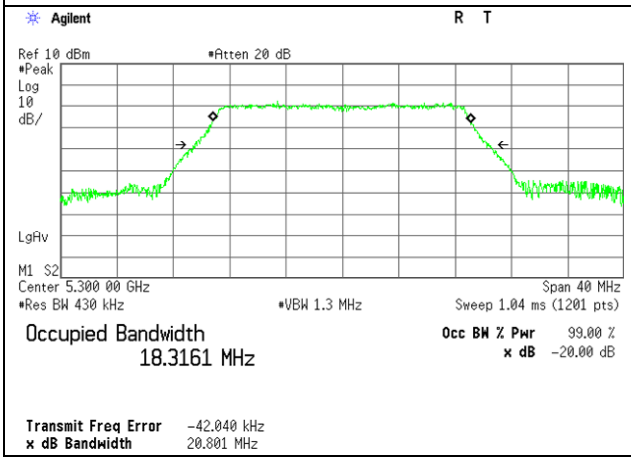
5240MHz



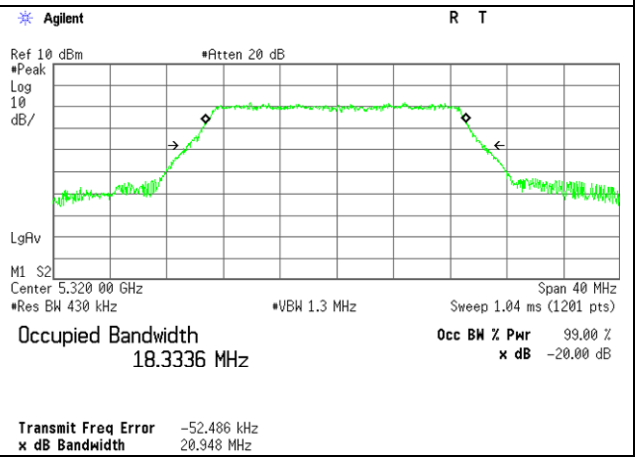
5260MHz



5300MHz



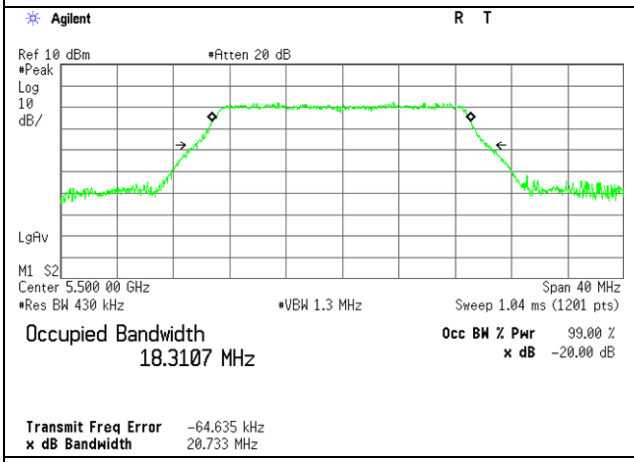
5320MHz



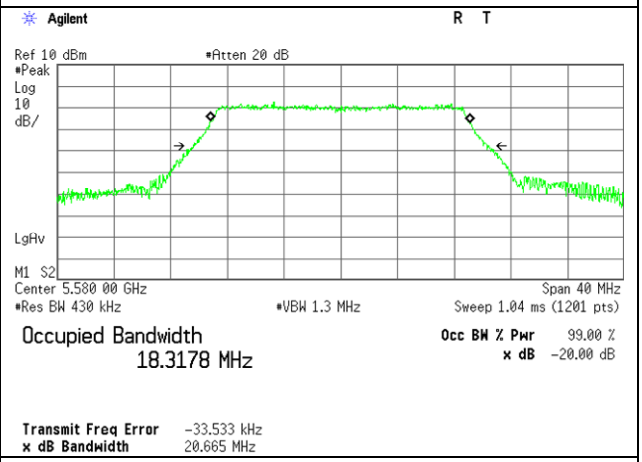
99% Occupied Bandwidth

11ac-20

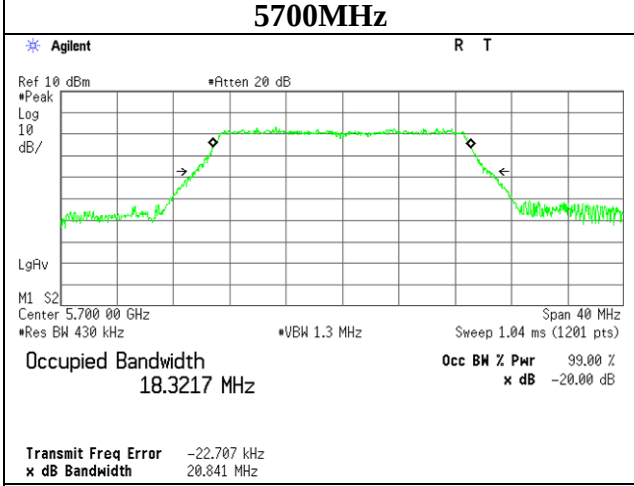
5500MHz



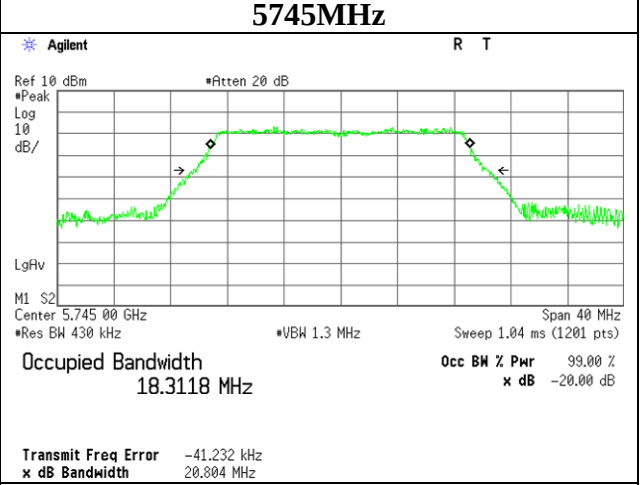
5580MHz



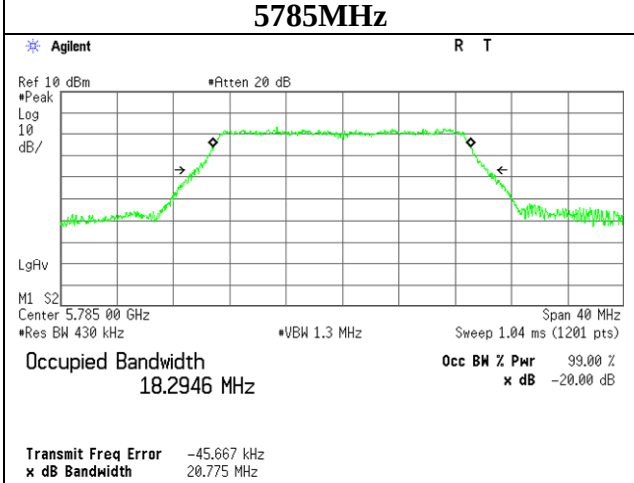
5700MHz



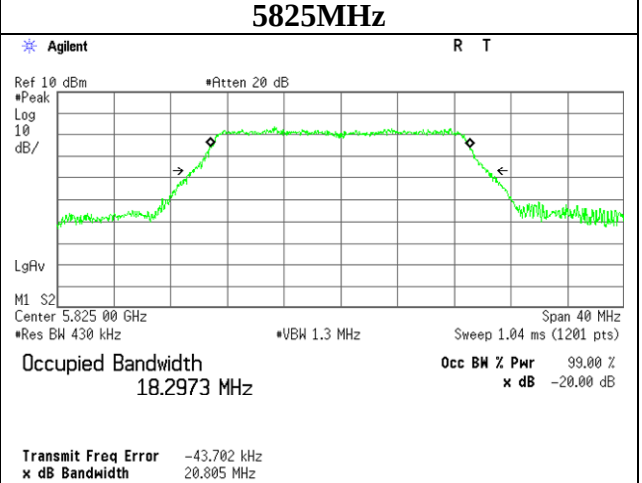
5745MHz



5785MHz



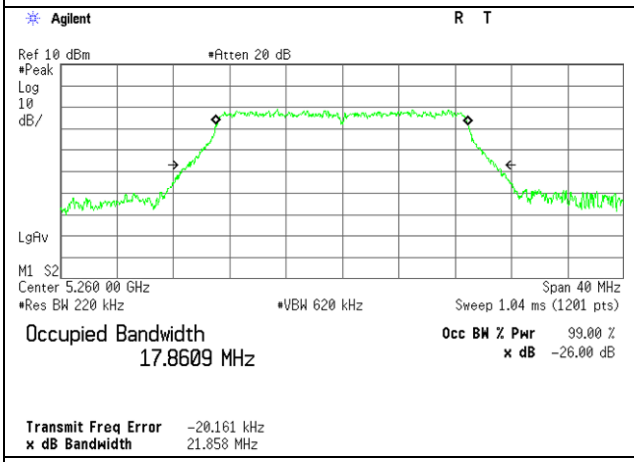
5825MHz



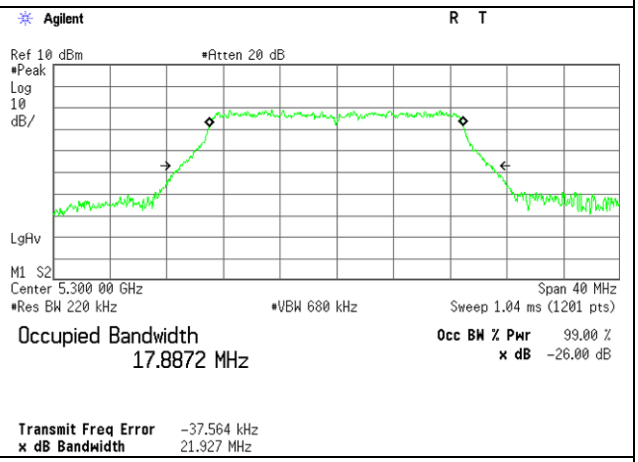
26dB Emission Bandwidth

11ac-20

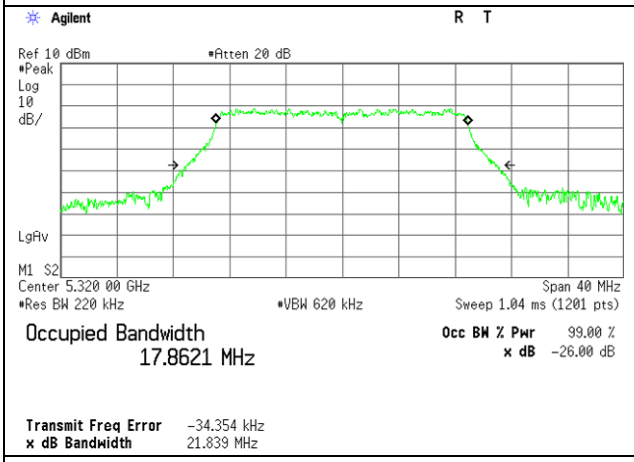
5260MHz



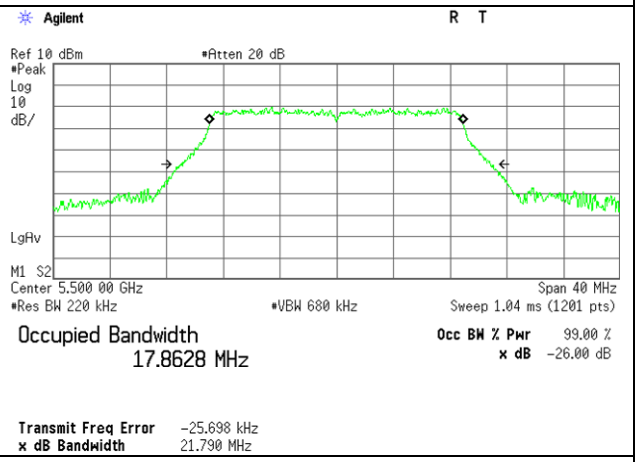
5300MHz



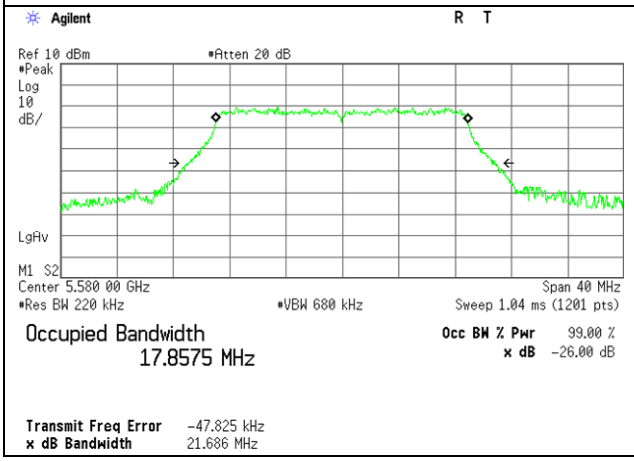
5320MHz



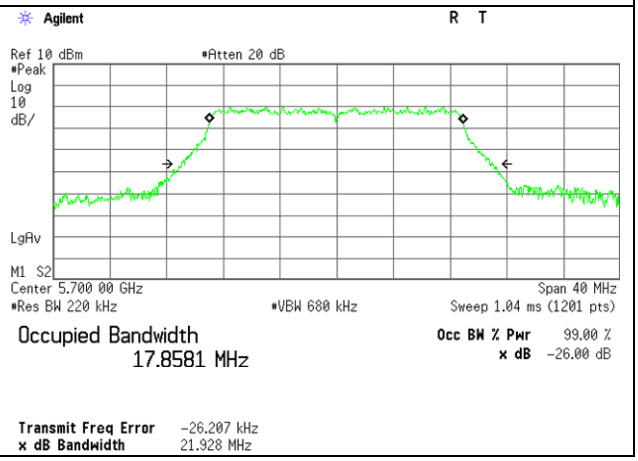
5500MHz



5580MHz



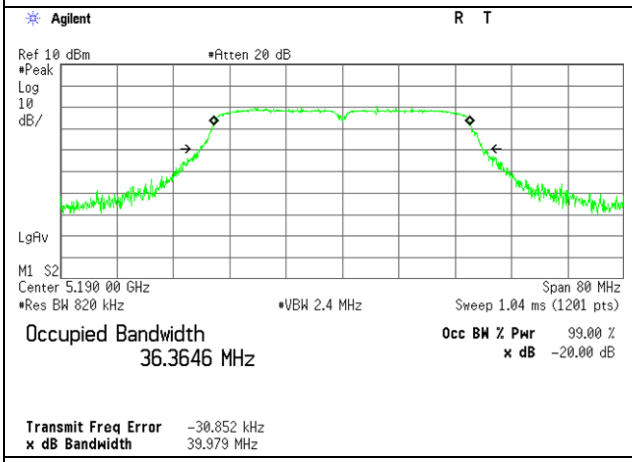
5700MHz



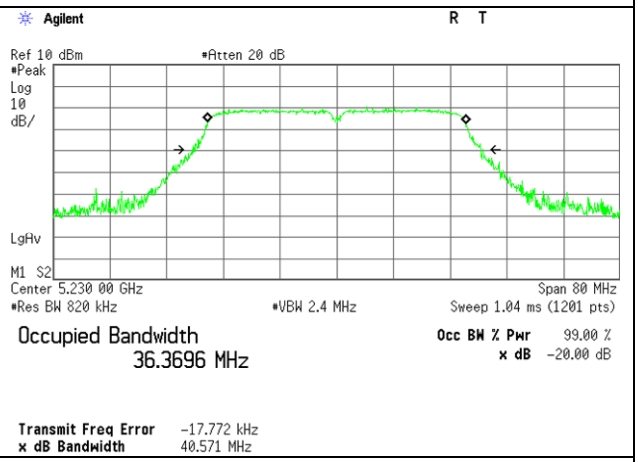
99% Occupied Bandwidth

11n-40

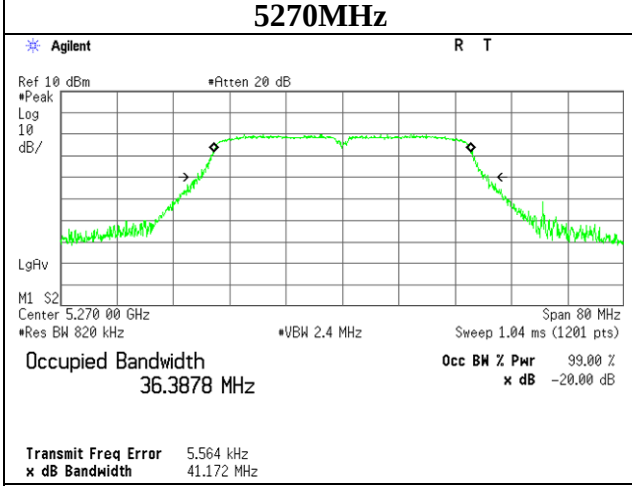
5190MHz



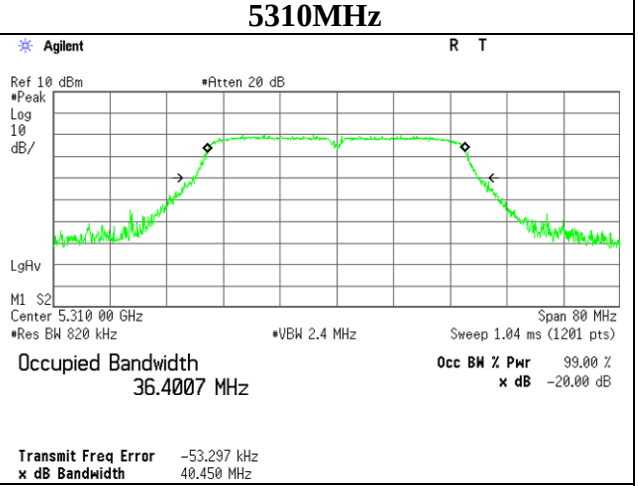
5230MHz



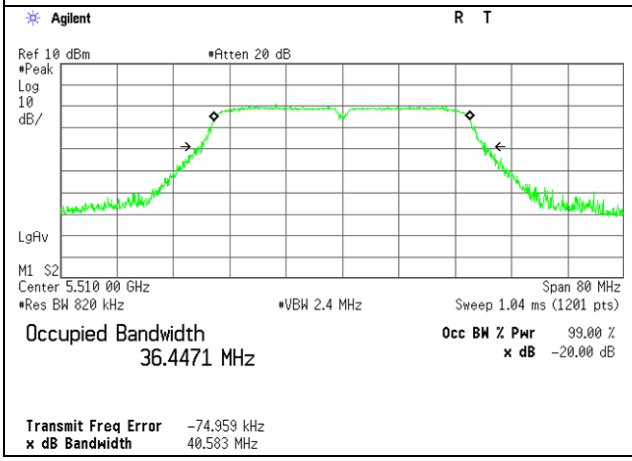
5270MHz



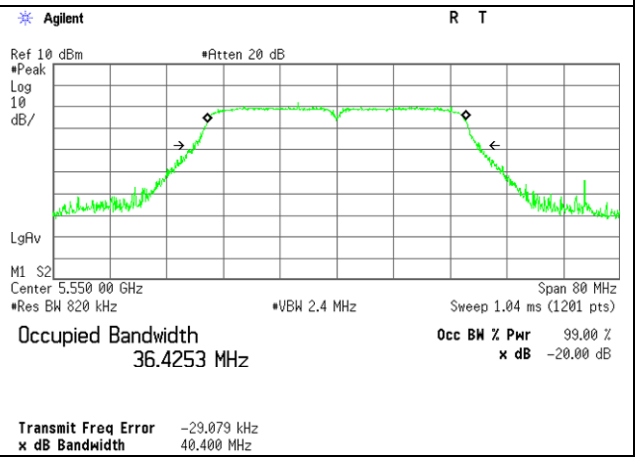
5310MHz



5510MHz



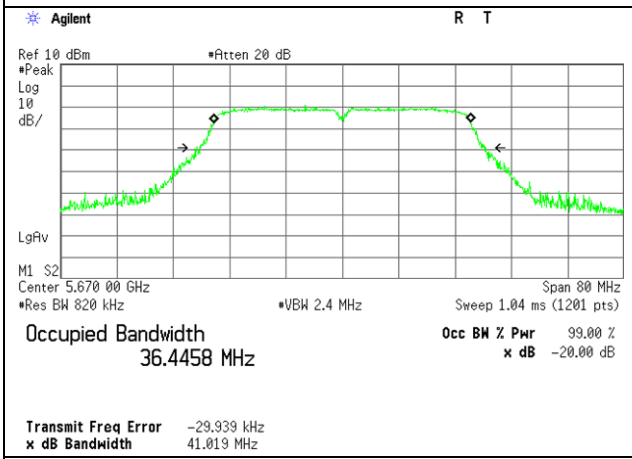
5550MHz



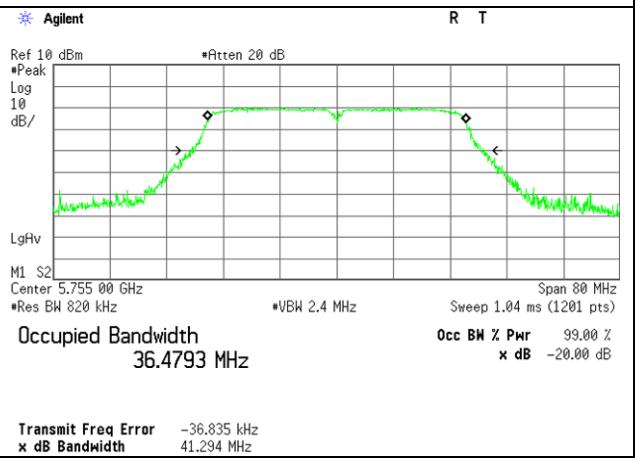
99% Occupied Bandwidth

11n-40

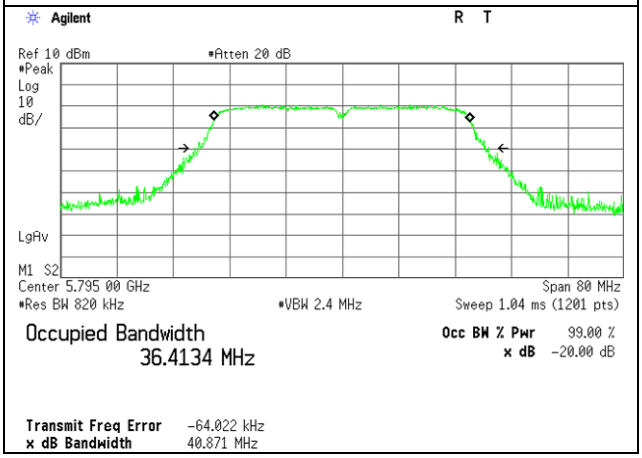
5670MHz



5755MHz



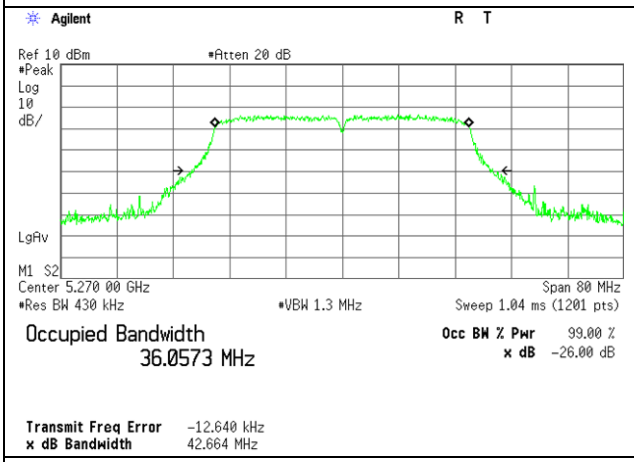
5795MHz



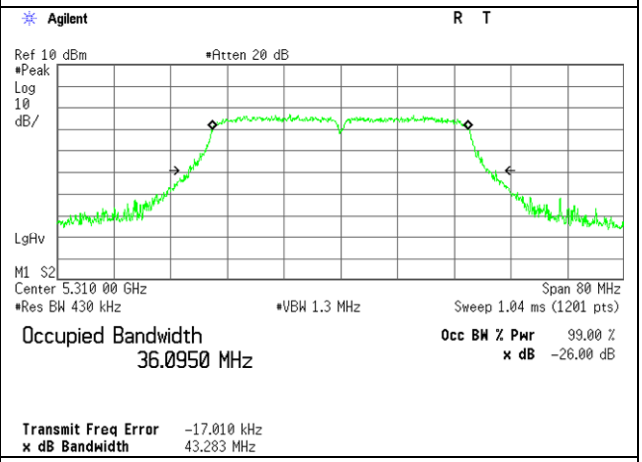
26dB Emission Bandwidth

11n-40

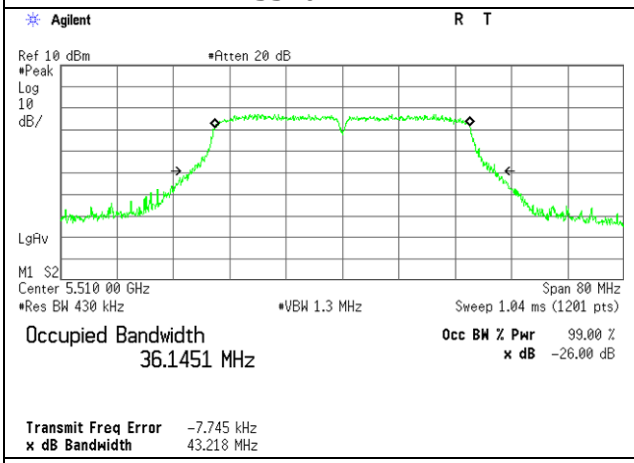
5270MHz



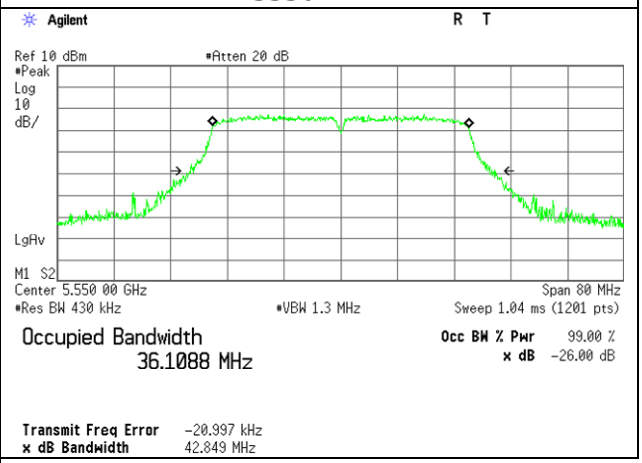
5310MHz



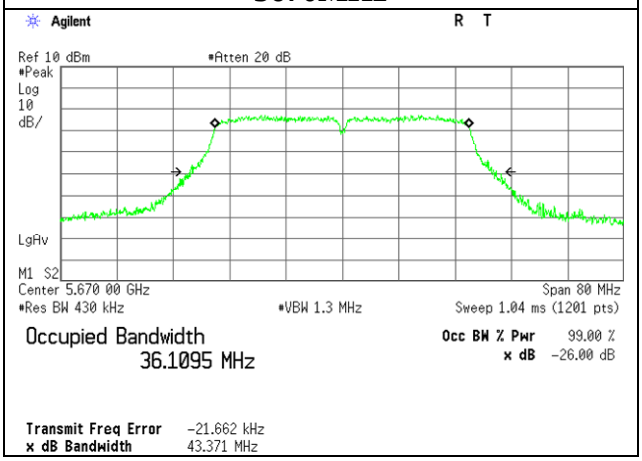
5510MHz



5550MHz



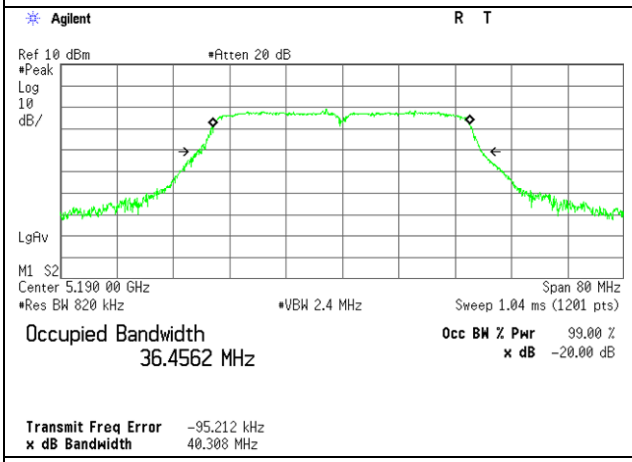
5670MHz



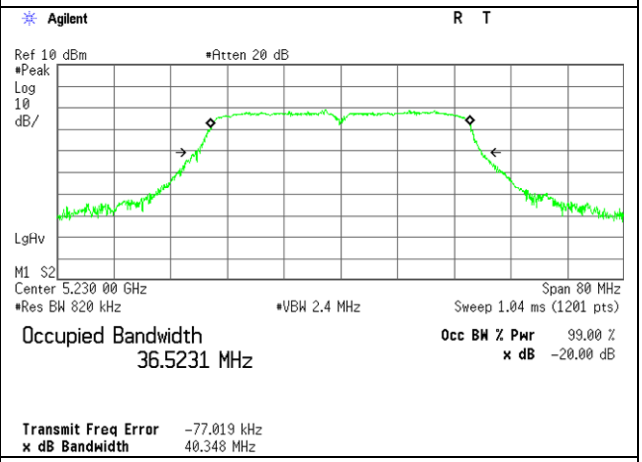
99% Occupied Bandwidth

11ac-40

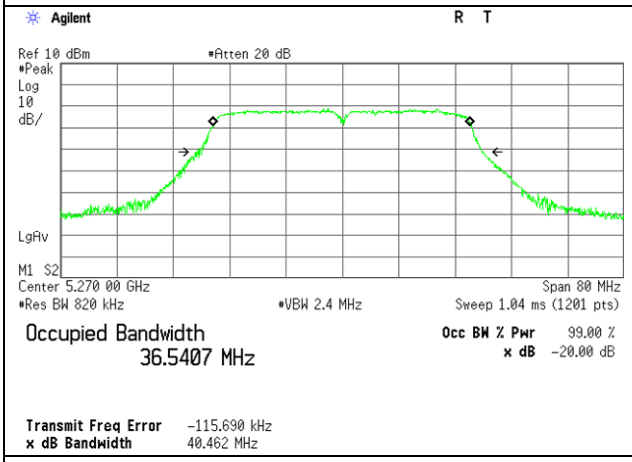
5190MHz



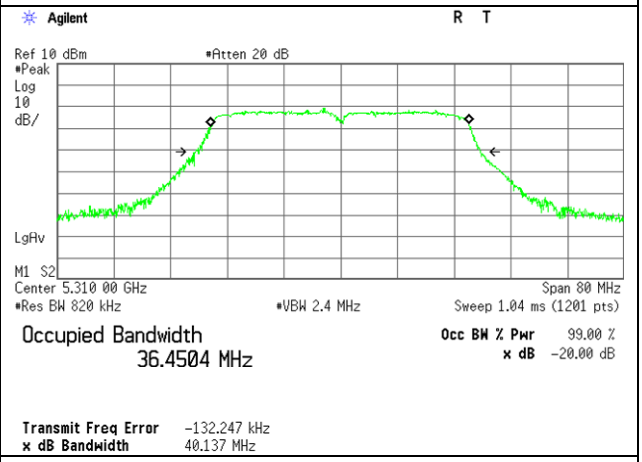
5230MHz



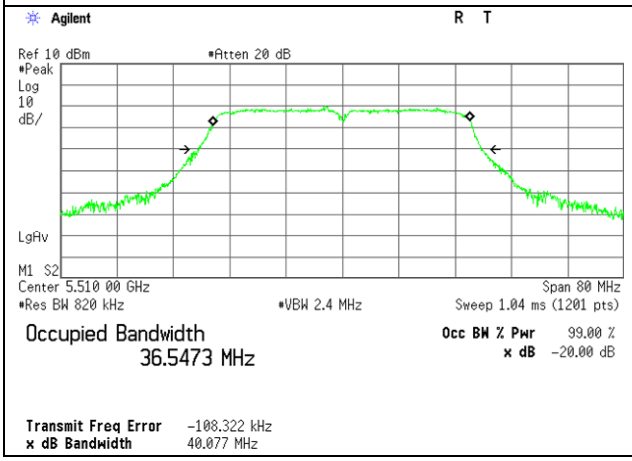
5270MHz



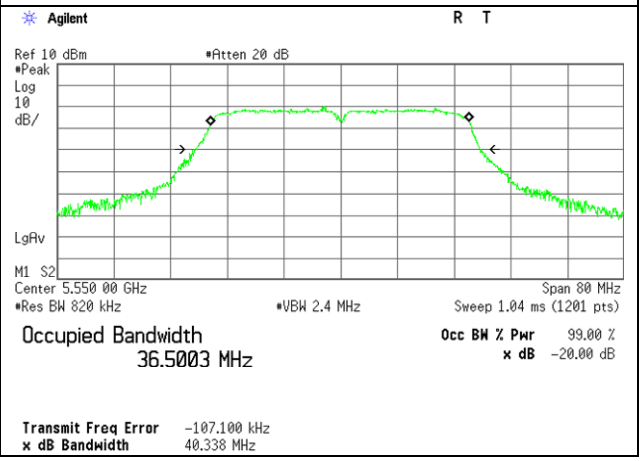
5310MHz



5510MHz



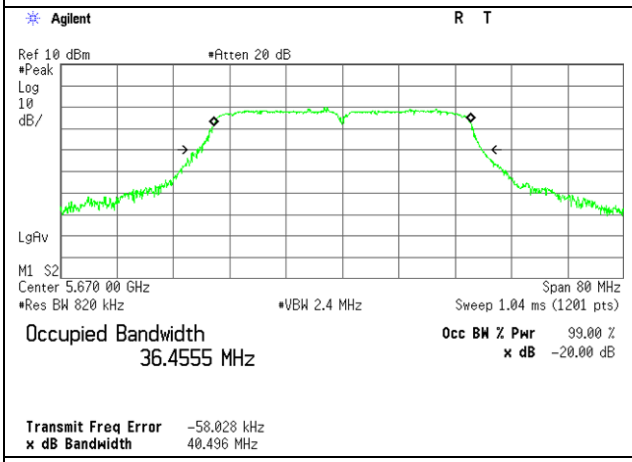
5550MHz



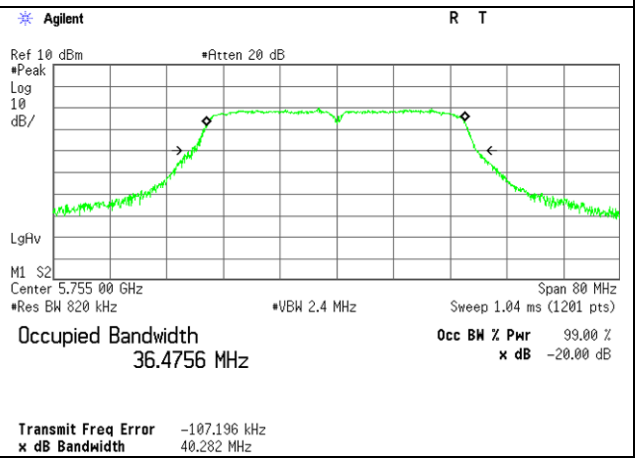
99% Occupied Bandwidth

11ac-40

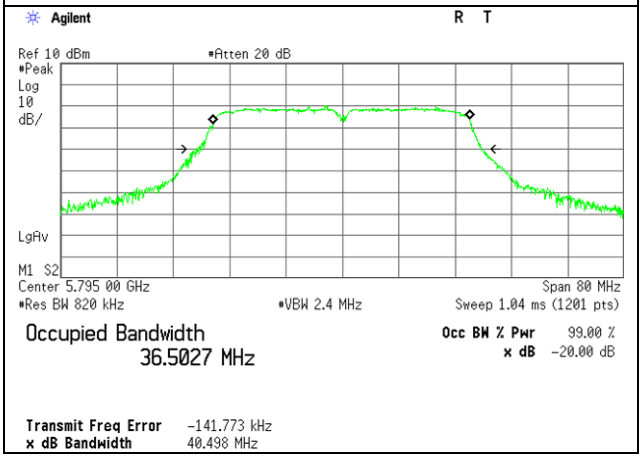
5670MHz



5755MHz



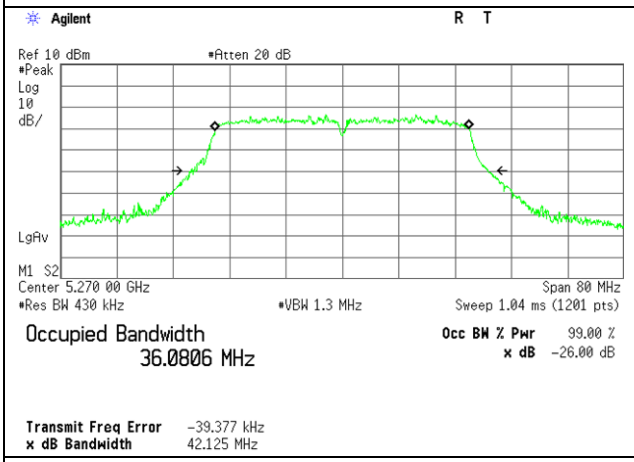
5795MHz



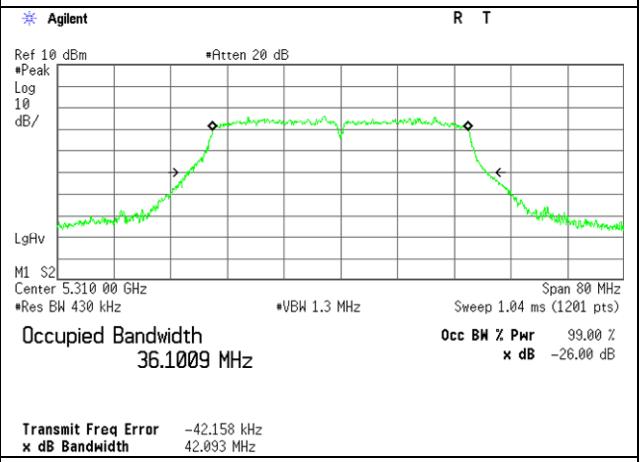
26dB Emission Bandwidth

11ac-40

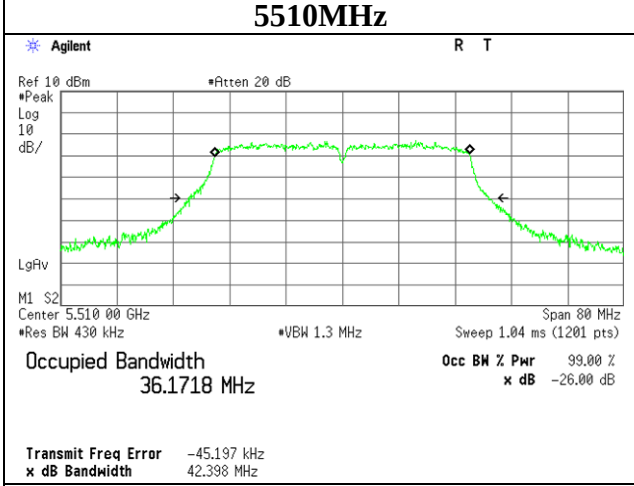
5270MHz



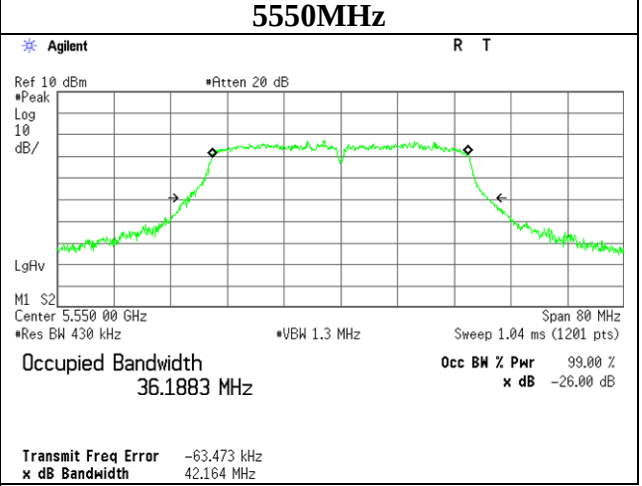
5310MHz



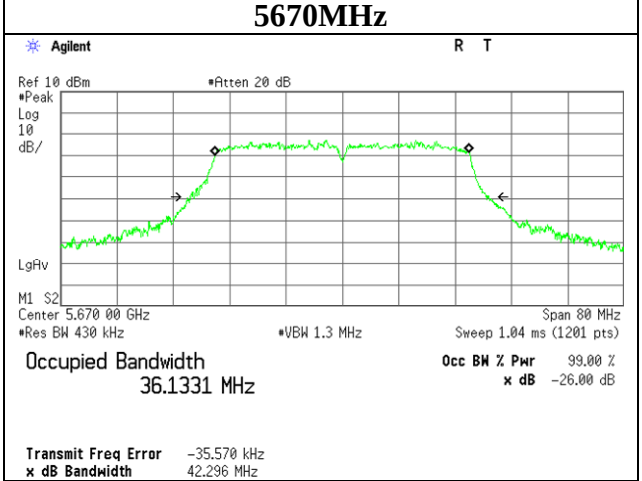
5510MHz



5550MHz



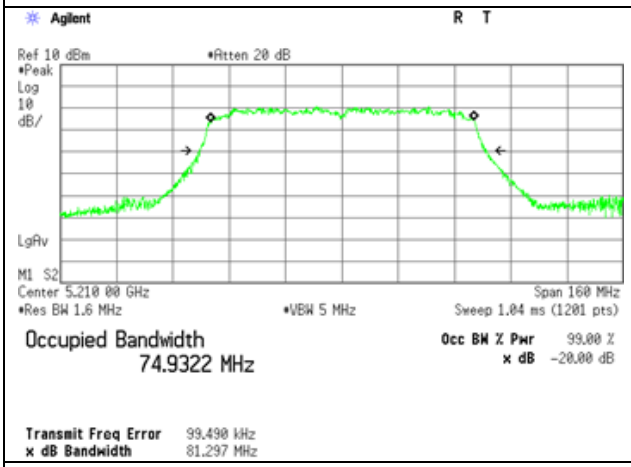
5670MHz



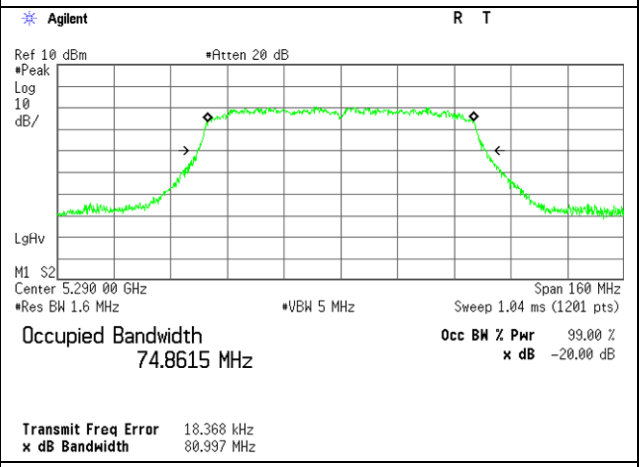
99% Occupied Bandwidth

11ac-80

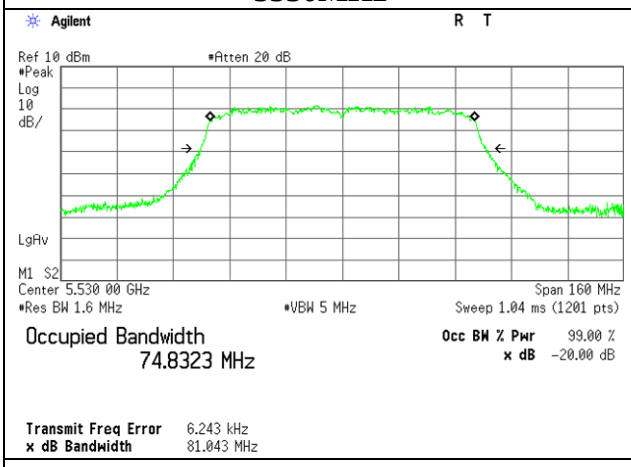
5210MHz



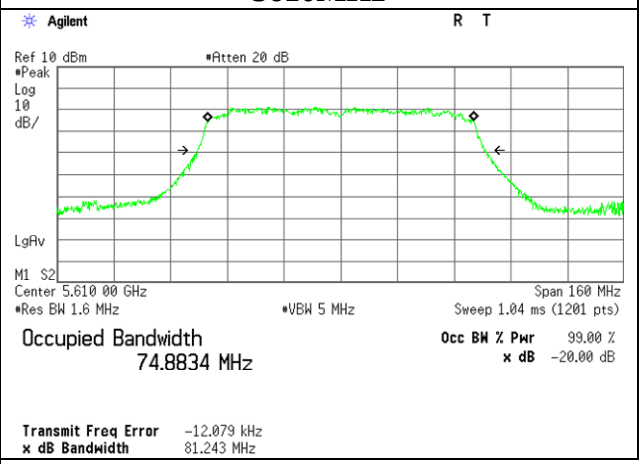
5290MHz



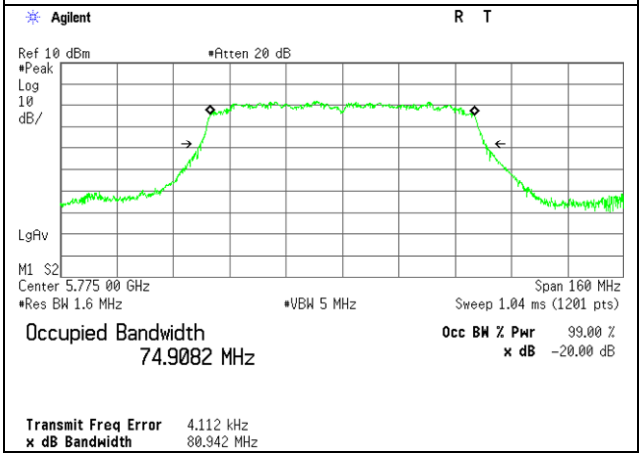
5530MHz



5610MHz



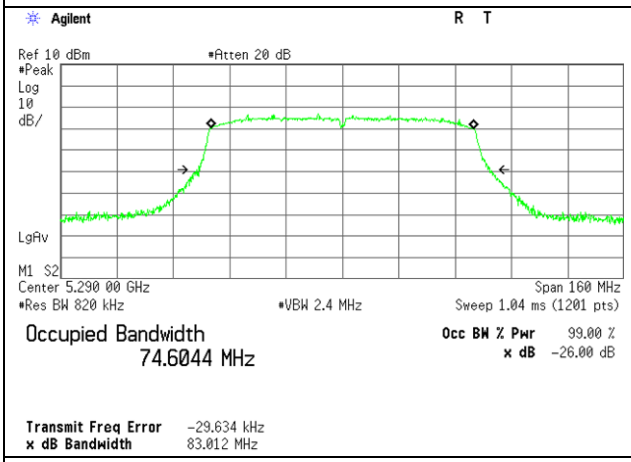
5775MHz



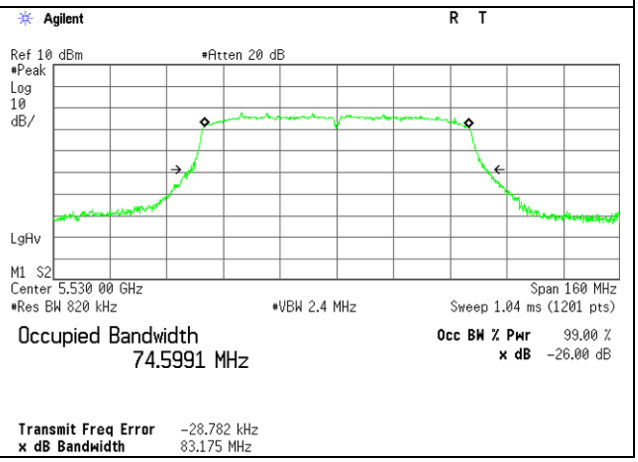
26dB Emission Bandwidth

11ac-80

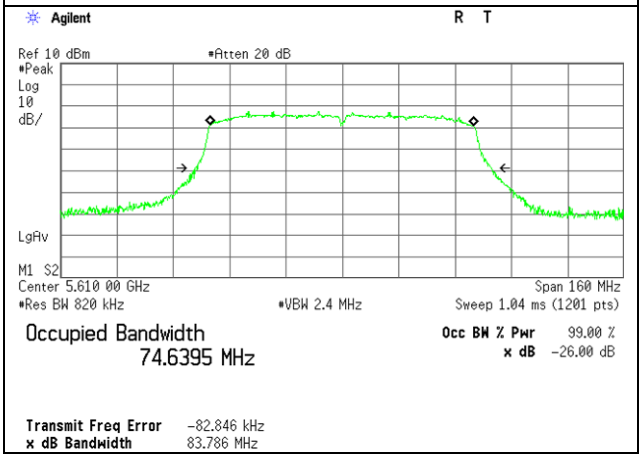
5290MHz



5530MHz



5610MHz



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Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8999
Facsimile : +81 596 24 8124

20dB Bandwidth

Test place	Ise EMC Lab. No.3 Measurement Room
Report No.	10636726H
Date	01/30/2015
Temperature/ Humidity	25deg. C / 30% RH
Engineer	Shinichi Miyazono
Mode	Tx 11a / 11n-20 / 11ac-20

11a

Frequency [MHz]	20dB Bandwidth [MHz]	Limit [MHz]
5180	18.036	-
5220	18.313	-
5240	18.194	-
5260	18.105	-
5300	18.164	-
5320	18.122	-
5500	18.083	-
5580	18.209	-
5700	18.249	-
5745	18.097	-
5785	17.877	-
5825	17.933	-

11n-20

Frequency [MHz]	20dB Bandwidth [MHz]	Limit [MHz]
5180	19.094	-
5220	19.060	-
5240	19.146	-
5260	18.863	-
5300	19.031	-
5320	18.942	-
5500	19.062	-
5580	19.015	-
5700	19.110	-
5745	18.898	-
5785	18.928	-
5825	19.103	-

11ac-20

Frequency [MHz]	20dB Bandwidth [MHz]	Limit [MHz]
5180	18.925	-
5220	18.930	-
5240	19.040	-
5260	18.930	-
5300	18.883	-
5320	18.889	-
5500	18.911	-
5580	18.914	-
5700	19.080	-
5745	18.855	-
5785	18.919	-
5825	18.916	-

20dB Bandwidth

Test place	Ise EMC Lab. No.11 Measurement Room
Report No.	10636726H
Date	01/22/2015
Temperature/ Humidity	25deg. C / 31% RH
Engineer	Shinichi Miyazono
Mode	Tx 11n-40 / 11ac-40 / 11ac-80

11n-40

Frequency [MHz]	20dB Bandwidth [MHz]	Limit [MHz]
5190	37.525	-
5230	37.412	-
5270	37.322	-
5310	37.265	-
5510	37.392	-
5550	37.339	-
5670	37.496	-
5755	37.227	-
5795	37.421	-

11ac-40

Frequency [MHz]	20dB Bandwidth [MHz]	Limit [MHz]
5190	37.358	-
5230	37.204	-
5270	37.371	-
5310	37.363	-
5510	37.385	-
5550	37.368	-
5670	37.378	-
5755	37.363	-
5795	37.378	-

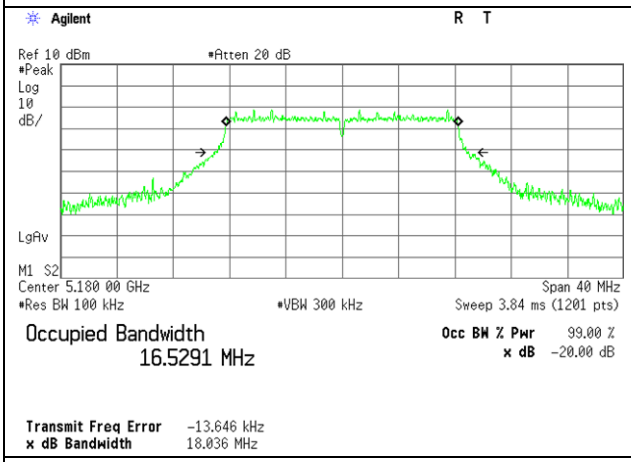
11ac-80

Frequency [MHz]	20dB Bandwidth [MHz]	Limit [MHz]
5210	76.991	-
5290	76.907	-
5530	76.913	-
5610	76.934	-
5775	76.905	-

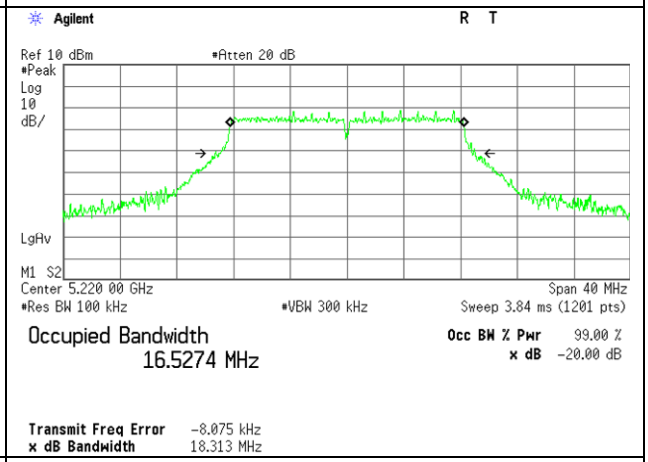
20dB Bandwidth

11a

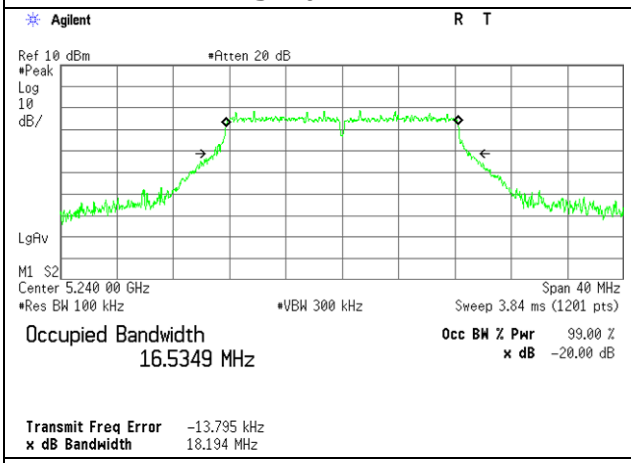
5180MHz



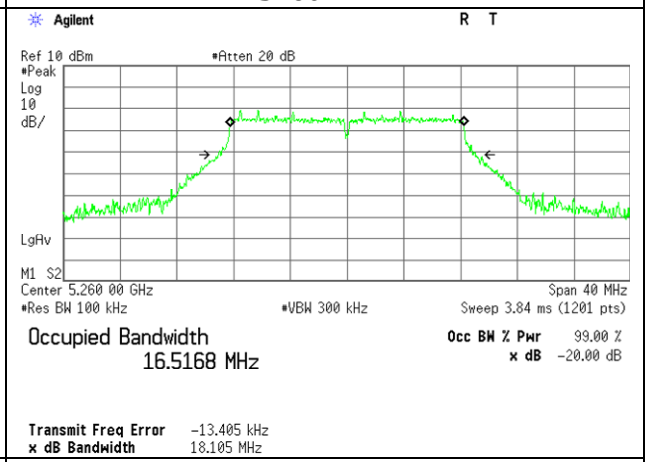
5220MHz



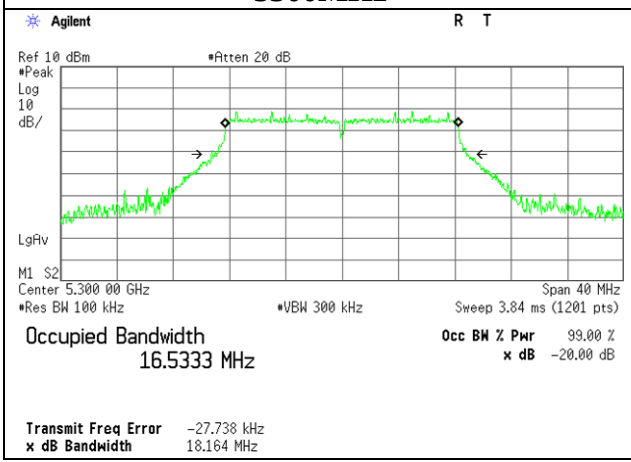
5240MHz



5260MHz



5300MHz



5320MHz