RADIO TEST REPORT

Test Report No. 15148509H-C-R1

Customer	**Sony Interactive Entertainment Inc.**
Description of EUT	**Wireless communication module**
Model Number of EUT	**J20H106**
FCC ID	**AK8M23TFU1**
Test Regulation	**FCC Part 15 Subpart E**
Test Result	**Complied**
Issue Date	**March 27, 2024**
Remarks	**WLAN (5 GHz band) part** **Except for DFS test**

Representative Test Engineer	Approved By
	
Junya Okuno Engineer	Takayuki Shimada Leader

CERTIFICATE 5107.02

☐ The testing in which "Non-accreditation" is displayed is outside the accreditation scopes in UL Japan, Inc.

☒ There is no testing item of "Non-accreditation".

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REVISION HISTORY

Original Test Report No. 15148509H-C

This report is a revised version of 15148509H-C. 15148509H-C is replaced with this report.

Revision	Test Report No.	Date	Page Revised Contents
- (Original)	15148509H-C	March 11, 2024	-
1	15148509H-C-R1	March 27, 2024	**Clause 4.1** - Changed original *2), *3), *4), *5) to *3), *4), *5), *6) in the table of The Details of Operating Mode(s), and added explanatory note *2)
			APPENDIX 1 **6 dB Bandwidth** -Corrected the table for 11be-20 (242-tone RU 5825 MHz): 1.9028 → 19.028 **Maximum Conducted Output Power** - Corrected Tested Frequency in the tables on 11be-160 [OFDM / OFDMA] of Low power setting: 5530 → 5570
			APPENDIX 4 - Divided “Configuration and Peripherals” into Conducted Emission and Radiated Spurious Emission

Reference: Abbreviations (Including words undescribed in this report)

A2LA	The American Association for Laboratory Accreditation	ICES	Interference-Causing Equipment Standard
AC	Alternating Current	IEC	International Electrotechnical Commission
AFH	Adaptive Frequency Hopping	IEEE	Institute of Electrical and Electronics Engineers
AM	Amplitude Modulation	IF	Intermediate Frequency
Amp, AMP	Amplifier	ILAC	International Laboratory Accreditation Conference
ANSI	American National Standards Institute	ISED	Innovation, Science and Economic Development Canada
Ant, ANT	Antenna	ISO	International Organization for Standardization
AP	Access Point	JAB	Japan Accreditation Board
ASK	Amplitude Shift Keying	LAN	Local Area Network
Atten., ATT	Attenuator	LIMS	Laboratory Information Management System
AV	Average	MCS	Modulation and Coding Scheme
BPSK	Binary Phase-Shift Keying	MRA	Mutual Recognition Arrangement
BR	Bluetooth Basic Rate	N/A	Not Applicable
BT	Bluetooth	NIST	National Institute of Standards and Technology
BT LE	Bluetooth Low Energy	NS	No signal detect.
BW	BandWidth	NSA	Normalized Site Attenuation
Cal Int	Calibration Interval	NVLAP	National Voluntary Laboratory Accreditation Program
CCK	Complementary Code Keying	OBW	Occupied Band Width
Ch., CH	Channel	OFDM	Orthogonal Frequency Division Multiplexing
CISPR	Comite International Special des Perturbations Radioelectriques	P/M	Power meter
CW	Continuous Wave	PCB	Printed Circuit Board
DBPSK	Differential BPSK	PER	Packet Error Rate
DC	Direct Current	PHY	Physical Layer
D-factor	Distance factor	PK	Peak
DFS	Dynamic Frequency Selection	PN	Pseudo random Noise
DQPSK	Differential QPSK	PRBS	Pseudo-Random Bit Sequence
DSSS	Direct Sequence Spread Spectrum	PSD	Power Spectral Density
EDR	Enhanced Data Rate	QAM	Quadrature Amplitude Modulation
EIRP, e.i.r.p.	Equivalent Isotropically Radiated Power	QP	Quasi-Peak
EMC	ElectroMagnetic Compatibility	QPSK	Quadri-Phase Shift Keying
EMI	ElectroMagnetic Interference	RBW	Resolution Band Width
EN	European Norm	RDS	Radio Data System
ERP, e.r.p.	Effective Radiated Power	RE	Radio Equipment
EU	European Union	RF	Radio Frequency
EUT	Equipment Under Test	RMS	Root Mean Square
Fac.	Factor	RSS	Radio Standards Specifications
FCC	Federal Communications Commission	Rx	Receiving
FHSS	Frequency Hopping Spread Spectrum	SA, S/A	Spectrum Analyzer
FM	Frequency Modulation	SG	Signal Generator
Freq.	Frequency	SVSWR	Site-Voltage Standing Wave Ratio
FSK	Frequency Shift Keying	TR	Test Receiver
GFSK	Gaussian Frequency-Shift Keying	Tx	Transmitting
GNSS	Global Navigation Satellite System	VBW	Video BandWidth
GPS	Global Positioning System	Vert.	Vertical
Hori.	Horizontal	WLAN	Wireless LAN

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SECTION 1: Customer Information

Company Name	Sony Interactive Entertainment Inc.
Brand Name	SONY
Address	1-7-1 Konan, Minato-ku, Tokyo, 108-0075 Japan
Telephone Number	+81-50-3807-5639
Contact Person	Miho Nakamura

The information provided by the customer is as follows;
- Customer, Description of EUT, Model Number of EUT, FCC ID on the cover and other relevant pages
- Operating/Test Mode(s) (Mode(s)) on all the relevant pages
- SECTION 1: Customer Information
- SECTION 2: Equipment Under Test (EUT) other than the Receipt Date and Test Date
- SECTION 4: Operation of EUT during testing

SECTION 2: Equipment Under Test (EUT)

2.1 Identification of EUT

Description	Wireless communication module
Model Number	J20H106
Serial Number	Refer to SECTION 4.2
Condition	Engineering prototype (Not for Sale: This sample is equivalent to mass-produced items.)
Modification	No Modification by the test lab
Receipt Date	January 22, 2024
Test Date	January 22, 2024 to March 3, 2024

2.2 Product Description

General Specification

Rating	DC 3.3 V

Radio Specification

This report contains data provided by the customer which can impact the validity of results. UL Japan, Inc. is only responsible for the validity of results after the integration of the data provided by the customer.
The data provided by the customer is marked “a)” in the table below.

WLAN (IEEE802.11b/11g/11n-20/11ax-20/11be-20)

Equipment Type	Transceiver	
Frequency of Operation	2412 MHz to 2462 MHz	
Type of Modulation	DSSS, OFDM	
	OFDMA	20 MHz: 26/52/106/242-tone RU
Antenna Type	PIFA	
Antenna Gain	Antenna 1: 4.0 dBi Antenna 2: 4.0 dBi	
Directional Gain *1)	7.01 dBi	

WLAN (IEEE802.11a/11n-20/11ac-20/11ax-20/11be-20/11n-40/11ac-40/11ax-40/11be-40/ 11ac-80/11ax-80/11be-80/11ac-160/11ax-160/11be-160)

Equipment Type	Transceiver		
Frequency of Operation	20 MHz Band:	5180 MHz to 5240 MHz 5260 MHz to 5320 MHz 5500 MHz to 5720 MHz 5745 MHz to 5825 MHz	
	40 MHz Band:	5190 MHz to 5230 MHz 5270 MHz to 5310 MHz 5510 MHz to 5710 MHz 5755 MHz to 5795 MHz	
	80 MHz Band:	5210 MHz 5290 MHz 5530 MHz to 5690 MHz 5775 MHz	
	160 MHz Band:	5250 MHz 5570 MHz	
Type of Modulation	OFDM		
	OFDMA	20 MHz: 26/52/106/242-tone RU	
		40 MHz: 26/52/106/242/484-tone RU	
		80 MHz: 26/52/106/242/484/996-tone RU	
		160 MHz: 26/52/106/242/484/996/2x996-tone RU	
Antenna Type	PIFA		IFA
Antenna Gain[a)]	Antenna 1: 5.5 dBi		Antenna 3: 5.0 dBi
Directional Gain[a)] *1)	8.26 dBi		

WLAN (IEEE802.11ax-20/11be-20/11ax-40/11be-40/11ax-80/11be-80/11ax-160/11be-160)

Equipment Type	Transceiver		
Frequency of Operation	20 MHz Band:	5955 MHz to 7095 MHz	
	40 MHz Band:	5965 MHz to 7085 MHz	
	80 MHz Band:	5985 MHz to 7025 MHz	
	160 MHz Band:	6025 MHz to 6985 MHz	
Type of Modulation	OFDM		
	OFDMA	20 MHz: 26/52/106/242-tone RU	
		40 MHz: 26/52/106/242/484-tone RU	
		80 MHz: 26/52/106/242/484/996-tone RU	
		160 MHz: 26/52/106/242/484/996/2x996-tone RU	
Antenna Type	PIFA		IFA
Antenna Gain	Antenna 1: 6.5 dBi		Antenna 3: 6.8 dBi
Directional Gain *1)	9.66 dBi		

* Preamble puncturing options are not supported.

BT1: Bluetooth (BR / EDR / Low Energy)

Equipment Type	Transceiver
Frequency of Operation	2402 MHz to 2480 MHz
Type of Modulation	BT: FHSS (GFSK, π/4DQPSK, 8DPSK) BT LE: GFSK
Antenna Type	IFA
Antenna Gain[a)]	Antenna 3: 4.0 dBi

BT2: Bluetooth (BR / EDR / Low Energy)

Equipment Type	Transceiver
Frequency of Operation	2402 MHz to 2480 MHz
Type of Modulation	BT: FHSS (GFSK, π/4DQPSK, 8DPSK) BT LE: GFSK
Antenna Type	IFA
Antenna Gain[a)]	Antenna 4: 3.5 dBi

*1) Directional antenna gain = $10\log\left(\left(10^{\frac{Gain(Ant1)}{20}} + 10^{\frac{Gain(Ant2\ or\ Ant3)}{20}}\right)^2/2\right)$

SECTION 3: Test specification, Procedures & Results

3.1 Test Specification

Test Specification	FCC Part 15 Subpart E The latest version on the first day of the testing period
Title	FCC 47 CFR Part 15 Radio Frequency Device Subpart E Unlicensed National Information Infrastructure Devices Section 15.407 General technical requirements

3.2 Procedures and Results

Item	Test Procedure	Specification	Worst Margin	Results	Remarks
Conducted Emission	**FCC:** ANSI C63.10-2013	**FCC:** 15.407 (b) (6) / 15.207	8.94 dB, 0.35910 MHz, N, QP	Complied	-
	ISED: RSS-Gen 8.8	**ISED:** RSS-Gen 8.8			
26 dB Emission Bandwidth	**FCC:** KDB Publication Number 789033	**FCC:** 15.407 (a) (1) (2) (3)	See data	Complied	Conducted
	ISED: -	**ISED:** -			
Maximum Conducted Output Power	**FCC:** KDB Publication Number 789033	**FCC:** 15.407 (a) (1) (2) (3)		Complied	Conducted
	ISED: -	**ISED:** RSS-247 6.2.1.1 6.2.2.1 6.2.3.1 6.2.4.1			
Maximum Power Spectral Density	**FCC:** KDB Publication Number 789033	**FCC :** 15.407 (a) (1) (2) (3)		Complied	Conducted
	ISED: -	**ISED:** RSS-247 6.2.1.1 6.2.2.1 6.2.3.1 6.2.4.1			
Spurious Emission Restricted Band Edge	**FCC:** ANSI C63.10-2013 KDB Publication Number 789033	**FCC:** 15.407 (b), 15.205 and 15.209	3.8 dB 166.5 MHz, QP, Vertical	Complied	Conducted (< 30 MHz) / Radiated (> 30 MHz) *1)
	ISED: -	**ISED:** RSS-247 6.2.1.2 6.2.2.2 6.2.3.2 6.2.4.2			
6 dB Emission Bandwidth	**FCC:** ANSI C63.10-2013	**FCC:** 15.407 (e)	See data	Complied	Conducted
	ISED: -	**ISED:** RSS-247 6.2.4.1			

Note: UL Japan, Inc.'s EMI Work Procedures: Work Instructions-ULID-003591 and Work Instructions-ULID-003593.
* In case any questions arise about test procedure, ANSI C63.10: 2013 is also referred.

*1) Radiated test was selected over 30 MHz based on FCC 15.407 (b) and KDB 789033 D02 G.3.b).

FCC Part 15.31 (e)
The stable voltage will be supplied by the end product, which will be required to have a power supply regulator. Therefore, the EUT complies with the requirement.

FCC Part 15.203/212 Antenna requirement
[Antenna 1 and 2] The EUT has unique coupling/antenna connector (U.FL).
[Antenna 3 and 4] The antenna is not removable from the EUT.
Therefore, the equipment complies with the antenna requirement of Section 15.203/212.

3.3 Addition to Standard

Item	Test Procedure	Specification	Worst Margin	Results	Remarks
99 % Occupied Band Width	**ISED:** RSS-Gen 6.7	**ISED:** -	N/A	-	Conducted

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

3.4 Uncertainty

Measurement uncertainty is not taken into account when stating conformity with a specified requirement.
Note: When margins obtained from test results are less than the measurement uncertainty, the test results may exceed the limit.

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

Conducted emission

Item	Frequency range	Unit	Calculated Uncertainty (+/-)
AMN (LISN)	0.009 MHz to 0.15 MHz	dB	3.7
	0.15 MHz to 30 MHz	dB	3.3

Radiated emission

Measurement distance	Frequency range		Unit	Calculated Uncertainty (+/-)
3 m	9 kHz to 30 MHz		dB	3.3
10 m			dB	3.1
3 m	30 MHz to 200 MHz	Horizontal	dB	4.8
		Vertical	dB	5.0
	200 MHz to 1000 MHz	Horizontal	dB	5.1
		Vertical	dB	6.2
10 m	30 MHz to 200 MHz	Horizontal	dB	4.8
		Vertical	dB	4.8
	200 MHz to 1000 MHz	Horizontal	dB	4.9
		Vertical	dB	5.0
3 m	1 GHz to 6 GHz	Test Receiver	dB	5.1
		Spectrum Analyzer	dB	4.9
	6 GHz to 18 GHz	Test Receiver	dB	5.4
		Spectrum Analyzer	dB	5.2
1 m	10 GHz to 18 GHz	Spectrum analyzer	dB	5.0
	18 GHz to 26.5 GHz	Spectrum analyzer	dB	5.6
	26.5 GHz to 40 GHz	Spectrum analyzer	dB	4.9
0.5 m	26.5 GHz to 40 GHz	Spectrum analyzer	dB	4.9
10 m	1 GHz to 18 GHz	Test Receiver	dB	5.4

Antenna Terminal Conducted

Item	Unit	Calculated Uncertainty (+/-)
Antenna terminated conducted emission / Power density / Burst power	dB	3.47
Adjacent channel power (ACP)	dB	2.28
Bandwidth (OBW)	%	0.96
Time readout (time span upto 100 msec)	%	0.11
Time readout (time span upto 1000 msec)	%	0.11
Time readout (time span upto 60 sec)	%	0.02
Power measurement (Power meter < 8 GHz)	dB	1.46
Power measurement (Call box < 6 GHz)	dB	1.69
Frequency readout (Frequency counter)	ppm	0.67
Frequency readout (Spectrum analyzer frequency readout function)	ppm	2.13
Temperature (constant temperature bath)	deg. C	0.69
Humidity (constant temperature bath)	%RH	2.98
Modulation characteristics	%	6.93
Frequency for mobile	ppm	0.08
Contention-based protocol	dB	2.26

3.5 Test Location

UL Japan, Inc. Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 Japan
Telephone: +81-596-24-8999
A2LA Certificate Number: 5107.02 / FCC Test Firm Registration Number: 884919
ISED Lab Company Number: 2973C / CAB identifier: JP0002

Test site	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Other rooms	Maximum measurement distance
No.1 semi-anechoic chamber	19.2 x 11.2 x 7.7	7.0 x 6.0	No.1 Power source room	10 m
No.2 semi-anechoic chamber	7.5 x 5.8 x 5.2	4.0 x 4.0	-	3 m
No.3 semi-anechoic chamber	12.0 x 8.5 x 5.9	6.8 x 5.75	No.3 Preparation room	3 m
No.3 shielded room	4.0 x 6.0 x 2.7	N/A	-	-
No.4 semi-anechoic chamber	12.0 x 8.5 x 5.9	6.8 x 5.75	No.4 Preparation room	3 m
No.4 shielded room	4.0 x 6.0 x 2.7	N/A	-	-
No.5 semi-anechoic chamber	6.0 x 6.0 x 3.9	6.0 x 6.0	-	-
No.5 measurement room	6.4 x 6.4 x 3.0	6.4 x 6.4	-	-
No.6 shielded room	4.0 x 4.5 x 2.7	4.0 x 4.5	-	-
No.6 measurement room	4.75 x 5.4 x 3.0	4.75 x 4.15	-	-
No.7 shielded room	4.7 x 7.5 x 2.7	4.7 x 7.5	-	-
No.8 measurement room	3.1 x 5.0 x 2.7	3.1 x 5.0	-	-
No.9 measurement room	8.8 x 4.6 x 2.8	2.4 x 2.4	-	-
No.10 shielded room	3.8 x 2.8 x 2.8	3.8 x 2.8	-	-
No.11 measurement room	4.0 x 3.4 x 2.5	N/A	-	-
No.12 measurement room	2.6 x 3.4 x 2.5	N/A	-	-
Large Chamber	16.9 x 22.1 x 10.17	16.9 x 22.1	-	10 m
Small Chamber	5.3 x 6.69 x 3.59	5.3 x 6.69	-	-

* Size of vertical conducting plane (for Conducted Emission test): 2.0 x 2.0 m for No.1, No.2, No.3, No.4, and No.5 semi-anechoic chambers and No.3 and No.4 shielded rooms.

3.6 Test Data, Test Instruments, and Test Set Up

Refer to APPENDIX.

SECTION 4: Operation of EUT during testing

4.1 Operating Mode(s)

Mode	Remarks*
IEEE 802.11a (11a)	6 Mbps, PN9
IEEE 802.11n MIMO 20 MHz BW (11n-20)	MCS 0, PN9
IEEE 802.11ac MIMO 20 MHz BW (11ac-20)	MCS 0 (1TX), PN9
IEEE 802.11ax MIMO 20 MHz BW (11ax-20)	MCS 0 (1TX), PN9
IEEE 802.11be MIMO 20 MHz BW (11be-20)	MCS 0 (1TX), PN9
IEEE 802.11n MIMO 40 MHz BW (11n-40)	MCS 0, PN9
IEEE 802.11ac MIMO 40 MHz BW (11ac-40)	MCS 0 (1TX), PN9
IEEE 802.11ax MIMO 40 MHz BW (11ax-40)	MCS 11 (1TX), PN9
IEEE 802.11be MIMO 40 MHz BW (11be-40)	MCS 11 (1TX), PN9
IEEE 802.11ac MIMO 80 MHz BW (11ac-80)	MCS 0 (1TX), PN9
IEEE 802.11ax MIMO 80 MHz BW (11ax-80)	MCS 11 (1TX), PN9
IEEE 802.11be MIMO 80 MHz BW (11be-80)	MCS 11 (1TX), PN9
IEEE 802.11ac MIMO 160 MHz BW (11ac-160)	MCS 4 (1TX), PN9
IEEE 802.11ax MIMO 160 MHz BW (11ax-160)	MCS 0 (1TX), PN9
IEEE 802.11be MIMO 160 MHz BW (11be-160)	MCS 6 (1TX), PN9
*The worst antenna and condition were determined based on the test result of Maximum Conducted Output Power.	
*Power of the EUT was set by the software as follows; Power Setting: Refer to Power setting column of Test Data for Maximum Conducted Output Power. The tests other than Maximum Conducted Output Power were conducted at high power setting. Software: autotest.sh Version: R1.01 (Date: January 22, 2024 / Storage location: Driven by connected PC) *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.	
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/ax/be mode by the pre-test.	

*The Details of Operation Mode(s) (1/2)

Test Item	Operating Mode	Tested Antenna	Tested Frequency			
			Lower Band	Middle Band	Additional Band	Upper Band
Conducted emission, Radiated Spurious Emission (Below 1 GHz), Conducted Spurious Emission	Tx 11be-80 *1)	Antenna 1 + 3	-	-	-	5775 MHz
26 dB Emission Bandwidth *2)	Tx 11a Tx 11ac-20 Tx 11be-20 [OFDM] Tx 11be-20 [OFDMA]	Antenna 1 *3)	-	5260 MHz 5300 MHz 5320 MHz	5500 MHz 5580 MHz 5700 MHz 5720 MHz	-
	Tx 11ac-40 Tx 11be-40 [OFDM] Tx 11be-40 [OFDMA]		-	5270 MHz 5310 MHz	5510 MHz 5550 MHz 5670 MHz 5710 MHz	-
	Tx 11ac-80 Tx 11be-80 [OFDM] Tx 11be-80 [OFDMA]		-	5290 MHz	5530 MHz 5610 MHz 5690 MHz	-
	Tx 11ac-160 Tx 11be-160 [OFDM] Tx 11be-160 [OFDMA]		-	5250 MHz	5570 MHz	-
99 % Occupied Bandwidth *2)	Tx 11a Tx 11ac-20 Tx 11be-20 [OFDM] Tx 11be-20 [OFDMA]	Antenna 1 *3)	5180 MHz 5220 MHz 5240 MHz	5260 MHz 5300 MHz 5320 MHz	5500 MHz 5580 MHz 5700 MHz 5720 MHz	5745 MHz 5785 MHz 5825 MHz
	Tx 11ac-40 Tx 11be-40 [OFDM] Tx 11be-40 [OFDMA]		5190 MHz 5230 MHz	5270 MHz 5310 MHz	5510 MHz 5550 MHz 5670 MHz 5710 MHz	5755 MHz 5795 MHz
	Tx 11ac-80 Tx 11be-80 [OFDM] Tx 11be-80 [OFDMA]		5210 MHz	5290 MHz	5530 MHz 5610 MHz 5690 MHz	5775 MHz
	Tx 11ac-160 Tx 11be-160 [OFDM] Tx 11be-160 [OFDMA]		-	5250 MHz	5570 MHz	-
Maximum Conducted Output Power *2), Maximum Power Spectral Density *2)	Tx 11a Tx 11ac-20 Tx 11be-20 [OFDM] Tx 11be-20 [OFDMA]	Antenna 1 Antenna 3 Antenna 1 + 3	5180 MHz 5220 MHz 5240 MHz	5260 MHz 5300 MHz 5320 MHz	5500 MHz 5580 MHz 5700 MHz 5720 MHz	5745 MHz 5785 MHz 5825 MHz
	Tx 11ac-40 Tx 11be-40 [OFDM] Tx 11be-40 [OFDMA]		5190 MHz 5230 MHz	5270 MHz 5310 MHz	5510 MHz 5550 MHz 5670 MHz 5710 MHz	5755 MHz 5795 MHz
	Tx 11ac-80 Tx 11be-80 [OFDM] Tx 11be-80 [OFDMA]		5210 MHz	5290 MHz	5530 MHz 5610 MHz 5690 MHz	5775 MHz
	Tx 11ac-160 Tx 11be-160 [OFDM] Tx 11be-160 [OFDMA]		-	5250 MHz	5570 MHz	-
6 dB Bandwidth *2)	Tx 11a Tx 11ac-20 Tx 11be-20 [OFDM] Tx 11be-20 [OFDMA]	Antenna 1 *3)	-	-	-	5745 MHz 5785 MHz 5825 MHz
	Tx 11ac-40 Tx 11be-40 [OFDM] Tx 11be-40 [OFDMA]		-	-	-	5755 MHz 5795 MHz
	Tx 11ac-80 Tx 11be-80 [OFDM] Tx 11be-80 [OFDMA]		-	-	-	5775 MHz

*The Details of Operation Mode(s) (2/2)

Test Item	Operating Mode	Tested Antenna	Tested Frequency			
			Lower Band	Middle Band	Additional Band	Upper Band
Radiated Spurious Emission (Above 1 GHz)	Tx 11ac-20 *4)	Antenna 1 + 3	-	5260 MHz 5320 MHz	-	-
	Tx 11be-20 [OFDM] *5) Tx 11be-20 [OFDMA] *6)		5180 MHz	5260 MHz 5320 MHz	5500 MHz 5580 MHz 5700 MHz	5745 MHz 5785 MHz 5825 MHz
	Tx 11ac-40 *4)		-	5270 MHz 5310 MHz	-	-
	Tx 11be-40 [OFDM] *5) Tx 11be-40 [OFDMA] *6)		5190 MHz	5270 MHz 5310 MHz	5510 MHz 5550 MHz 5670 MHz	5755 MHz 5795 MHz
	Tx 11ac-80 *3)		-	5290 MHz	-	-
	Tx 11be-80 [OFDM] *5) Tx 11be-80 [OFDMA] *6)		5210 MHz	5290 MHz	5530 MHz 5610 MHz 5690 MHz	5775 MHz
	Tx 11be-160 [OFDM] Tx 11be-160 [OFDMA]		-	5250 MHz	5570 MHz	-

*1) The mode was tested as a representative because it had the highest power at antenna terminal test.
*2) Since each mode of 11n / 11ac and 11ax / 11be have same modulation method and no differences in transmitting specification, the test was performed on the representative mode that had the highest output power.
*3) After the comparison between Antenna 1 and Antenna 3, the test was performed with the antenna that had higher power as a representative.
*4) The test was conducted only middle band, since output power of 11a / 11ac-20 / 11ac-40 / 11ac-80 was higher than 11be-20 / 11be-40 / 11be-80.
*5) Since each of 20 MHz BW (11a / 11n-20 / 11ac-20 / 11ax-20 / 11be-20), 40 MHz BW (11n-40 / 11ac-40 / 11ax-40 / 11be-40), 80 MHz BW (11ac-80 / 11ax-80 / 11be-80), and 160 MHz BW (11ac-160 / 11ax-160 / 11be-160) have the same modulation method and no differences in transmitting specification, the test was performed on the representative mode that had the highest output power.
*6) OFDMA configuration tests were conducted only at the band edge since preliminary testing indicated that the other spurious emission was lower than OFDM.

Simultaneous transmission
(Only Antenna 3 simultaneously transmits BT1 and WLAN 5 GHz on a signal antenna.)

Test Item	Mode *1)	Antenna type
Radiated Spurious Emission	Tx 11be-40 [OFDM] 5190 MHz + BT1 3DH5 Hopping	Antenna 3

*1) The test was conducted on representative mode, the worst mode of GHz band at Spurious emission test for WLAN 5 GHz band and the mode had the highest power at Antenna terminal conducted test for BT1.

4.2 Configuration and Peripherals

This clause has been submitted for separate exhibit (refer to APPENDIX 4).

SECTION 5: Conducted Emission

Test Procedure and Conditions

EUT was placed on a urethane platform of nominal size, 1.0 m by 1.5 m, raised 0.8 m above the conducting ground plane.
The rear of tabletop was located 40cm to the vertical conducting plane. The rear of EUT, including peripherals was 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.

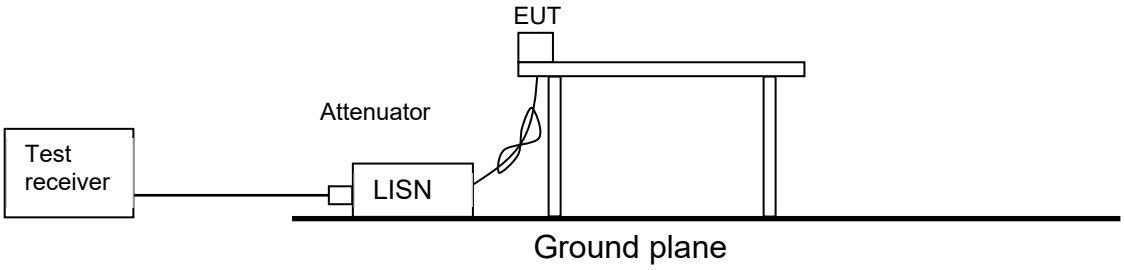
For the tests on EUT with other peripherals (as a whole system)
I/O cables that were connected to the peripherals were bundled in center. They were folded back and forth forming a bundle 30 cm to 40 cm long and were hanged at a 40 cm height to the ground plane. All unused 50 ohm connectors of the LISN (AMN) were resistivity terminated in 50 ohm 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.
The EUT was connected to a LISN (AMN).
An overview sweep with peak detection has been performed.

Test results are rounded off and limit are rounded down, so some differences might be observed.

Detector : QP and CISPR Average
Measurement Range : 0.15 MHz to 30 MHz
Test Data : APPENDIX
Test Result : Pass

Figure 1: Test Setup



SECTION 6: Radiated Spurious Emission and Band Edge Compliance

Test Procedure

< Below 1 GHz >
EUT was placed on a urethane platform of nominal size, 0.5 m by 1.0 m, raised 0.8 m above the conducting ground plane. The Radiated Electric Field Strength has been measured in a Semi Anechoic Chamber with a ground plane.

< Above 1 GHz >
EUT was placed on a urethane platform of nominal size, 0.5 m by 0.5 m, raised 1.5 m above the conducting ground plane. The Radiated Electric Field Strength has been measured in a Semi Anechoic Chamber with absorbent materials lined on a ground plane. Test antenna was aimed at the EUT for receiving the maximum signal and always kept within the illumination area of the 3 dB beamwidth of the antenna.

The height of the measuring antenna varied between 1 m and 4 m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field strength.
The measurements were performed for both vertical and horizontal antenna polarization with the Test Receiver, or the Spectrum Analyzer.
The measurements were made with the following detector function of the test receiver and the Spectrum analyzer (in linear mode).
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 1 GHz >

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

< Above 1 GHz >

Inside of restricted bands (Section 15.205):

Apply to limit in the Section 15.209 (a).

Outside of the restricted bands:

Apply to limit 68.2 dBuV/m, 3 m (-27 dBm e.i.r.p.*) in the Section 15.407 (b) (1) (2) (3).

For W58 Bandedge
-27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to
10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge in the section 15.407(b)(4)(i).

Restricted band edge:

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:

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

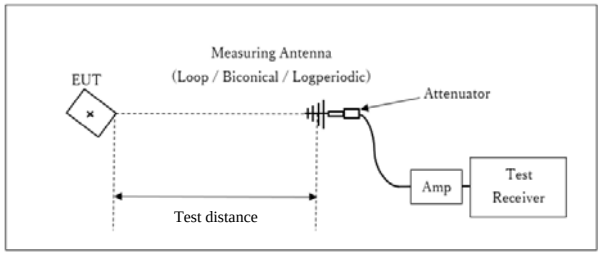
Test Antennas are used as below;

Frequency	30 MHz to 200 MHz	200 MHz to 1 GHz	Above 1 GHz
Antenna Type	Biconical	Logperiodic	Horn

Frequency	Below 1 GHz	Above 1 GHz	
Instrument Used	Test Receiver	Spectrum Analyzer	
Detector	QP	Peak	Average
IF Bandwidth	BW: 120 kHz	RBW: 1 MHz VBW: 3 MHz	Method AD RBW: 1 MHz VBW: 3 MHz Detector: Power Averaging (RMS) Trace: ≥ 100 traces If duty cycle was less than 98%, a duty factor was added to the results.

Figure 2: Test Setup

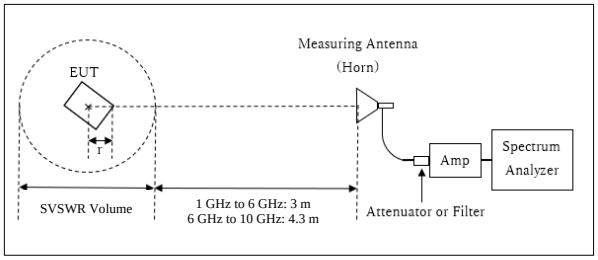
Below 1 GHz



× : Center of turn table

Test Distance: 3 m

1 GHz to 10 GHz



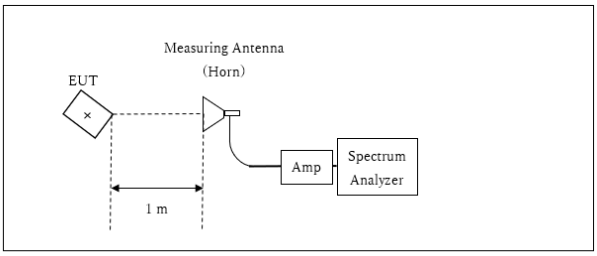
r : Radius of an outer periphery of EUT
× : Center of turn table

[1 GHz to 6 GHz]
Distance Factor: 20 x log (3.95 m / 3.0 m) = 2.39 dB
Test Distance: (3 + SVSWR Volume /2) - r = 3.95 m
SVSWR Volume : 2.0 m

[6 GHz to 10 GHz]
Distance Factor: 20 x log (4.95 m / 3.0 m) = 4.35 dB
Test Distance: (4.3 + SVSWR Volume /2) - r = 4.95 m
SVSWR Volume : 1.4 m

r = 0.05 m

10 GHz to 40 GHz



× : Center of turn table

Distance Factor: 20 x log (1.0 m / 3.0 m) = -9.5 dB
*Test Distance: 1 m

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.

Test results are rounded off and limit are rounded down, so some differences might be observed.

Measurement Range : 30 MHz to 40 GHz
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.

Test	Span	RBW	VBW	Sweep time	Detector	Trace	Instrument used and Test method
26 dB Bandwidth	Enough to capture the emission	Close to 1 % of EBW	> RBW	Auto	Peak	Max Hold	Spectrum Analyzer
99 % Occupied Bandwidth *1)	Enough width to display emission skirts	1 % to 5 % of OBW	≥ 3 RBW	Auto	Peak	Max Hold	Spectrum Analyzer
6 dB Bandwidth	Enough to capture the emission	100 kHz	300 kHz	Auto	Peak	Max Hold	Spectrum Analyzer
Maximum Conducted Output Power	-	-	-	Auto	Average	-	Power Meter (Sensor: 160 MHz BW) (Method PM-G)
Maximum Power Spectral Density	Encompass the entire EBW	1 MHz or 470 kHz *2)	≥ 3 RBW	Auto	RMS Power Averaging (200 times)	Clear Write	Spectrum Analyzer
Conducted Spurious Emission*3) *4)	9 kHz to 150 kHz	200 Hz	620 Hz	Auto	Peak	Max Hold	Spectrum Analyzer
	150 kHz to 30 MHz	10 kHz	30 kHz				

*1) Peak hold was applied as Worst-case measurement.
*2) KDB 789033 D02 says that RBW is set to be 500 kHz for 5.725 GHz to 5.850 GHz, but it is not possible with spectrum analyzer, so RBW Correction Factor (10 log(500 kHz / 470 kHz)) was added to the test result.
*3) In the frequency range below 30 MHz, RBW was narrowed to separate the noise contents.
Then, wide-band noise near the limit was checked separately, however the noise was low enough as shown in the chart.
(9 kHz to 150 kHz: RBW = 200 Hz, 150 kHz to 30 MHz: RBW = 10 kHz).
*4) The limits in CFR 47, Part 15, Subpart C, paragraph 15.209(a), are identical to those in RSS-Gen section 8.9, Table 6, since the measurements are performed in terms of magnetic field strength and converted to electric field strength levels (as reported in the table) using the free space impedance of 377 Ohmes. For example, the measurement at frequency 9 kHz resulted in a level of 45.5 dBuV/m, which is equivalent to 45.5 – 51.5 = -6.0 dBuA/m, which has the same margin, 3 dB, to the corresponding RSS-Gen Table 6 limit as it has to 15.209(a) limit.

Test results are rounded off and limit are rounded down, so some differences might be observed.
The equipment and cables were not used for factor 0 dB of the data sheets.

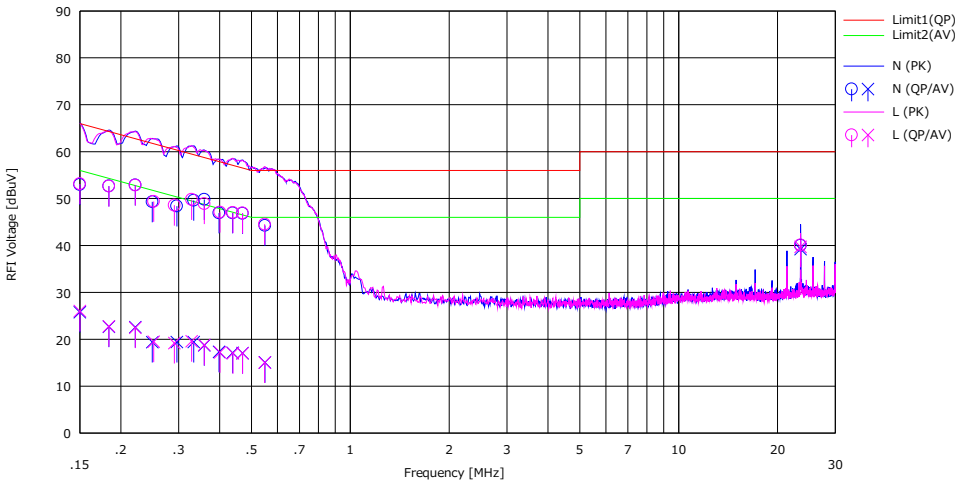
Test Data : APPENDIX
Test Result : Pass

APPENDIX 1: Test Data

Conducted Emission

Test place	Ise EMC Lab. No.2 Semi Anechoic Chamber
Date	February 8, 2024
Temperature / Humidity	20 deg. C / 40 % RH
Engineer	Ken Fujita
Mode	Tx 11be-80 [OFDM] 5775 MHz

Limit : FCC_Part 15 Subpart C(15.207)



No.	Freq.	Reading		LISN	LOSS	Results		Limit		Margin		Phase	Comment
		〈QP〉	〈AV〉			〈QP〉	〈AV〉	〈QP〉	〈AV〉	〈QP〉	〈AV〉		
	[MHz]	[dBuV]	[dBuV]	[dB]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
1	0.15000	39.80	12.60	0.06	13.10	52.96	25.76	66.00	56.00	13.04	30.24	N	
2	0.18400	39.50	9.50	0.06	13.11	52.67	22.67	64.30	54.30	11.63	31.63	N	
3	0.22140	39.70	9.40	0.06	13.12	52.88	22.58	62.77	52.77	9.89	30.19	N	
4	0.24945	36.10	6.20	0.06	13.13	49.29	19.39	61.78	51.78	12.49	32.39	N	
5	0.29620	35.20	6.20	0.06	13.14	48.40	19.40	60.35	50.35	11.95	30.95	N	
6	0.33360	36.40	6.20	0.06	13.15	49.61	19.41	59.36	49.36	9.75	29.95	N	
7	0.35910	36.60	5.50	0.06	13.15	49.81	18.71	58.75	48.75	8.94	30.04	N	
8	0.39820	33.70	4.10	0.06	13.15	46.91	17.31	57.89	47.89	10.98	30.58	N	
9	0.43815	33.70	3.90	0.06	13.16	46.92	17.12	57.10	47.10	10.18	29.98	N	
10	0.46960	33.60	3.80	0.06	13.17	46.83	17.03	56.52	46.52	9.69	29.49	N	
11	0.54950	31.00	1.80	0.06	13.18	44.24	15.04	56.00	46.00	11.76	30.96	N	
12	23.52000	25.10	24.30	0.51	14.40	40.01	39.21	60.00	50.00	19.99	10.79	N	
13	0.15000	40.00	12.90	0.03	13.10	53.13	26.03	66.00	56.00	12.87	29.97	L	
14	0.18400	39.50	9.60	0.04	13.11	52.65	22.75	64.30	54.30	11.65	31.55	L	
15	0.22140	39.70	9.30	0.04	13.12	52.86	22.46	62.77	52.77	9.91	30.31	L	
16	0.25200	36.20	6.30	0.04	13.13	49.37	19.47	61.69	51.69	12.32	32.22	L	
17	0.29110	35.40	6.00	0.04	13.14	48.58	19.18	60.49	50.49	11.91	31.31	L	
18	0.32850	36.60	6.40	0.04	13.14	49.78	19.58	59.49	49.49	9.71	29.91	L	
19	0.35910	35.70	5.60	0.04	13.15	48.89	18.79	58.75	48.75	9.86	29.96	L	
20	0.40075	33.90	4.00	0.04	13.16	47.10	17.20	57.84	47.84	10.74	30.64	L	
21	0.43900	33.80	3.80	0.04	13.16	47.00	17.00	57.08	47.08	10.08	30.08	L	
22	0.46960	33.70	3.80	0.04	13.17	46.91	17.01	56.52	46.52	9.61	29.51	L	
23	0.54865	31.30	1.80	0.04	13.18	44.52	15.02	56.00	46.00	11.48	30.98	L	
24	23.52000	25.20	24.80	0.48	14.40	40.08	39.68	60.00	50.00	19.92	10.32	L	

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

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Test place	Ise EMC Lab. No.7 Shielded Room
Date	January 29, 2024
Temperature / Humidity	25 deg. C / 40 % RH
Engineer	Kiyoshiro Okazaki
Mode	Tx

11a

Antenna	Tested Frequency [MHz]	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
Antenna 1	5180	-	16395.1
	5220	-	16400.1
	5240	-	16379.1
	5260	18.399	16396.6
	5300	18.439	16396.4
	5320	18.355	16413.0
	5500	18.437	16404.7
	5580	18.427	16395.1
	5700	18.399	16390.3
	5720	18.342	16397.9
	5745	-	16381.0
	5785	-	16402.6
	5825	-	16405.6

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Test place	Ise EMC Lab. No.7 Shielded Room
Date	January 29, 2024
Temperature / Humidity	25 deg. C / 40 % RH
Engineer	Kiyoshiro Okazaki
Mode	Tx

11ac-20

Antenna	Tested Frequency [MHz]	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
Antenna 1	5180	-	17529.3
	5220	-	17548.7
	5240	-	17548.6
	5260	18.924	17542.4
	5300	19.013	17532.2
	5320	18.985	17535.8
	5500	18.987	17531.8
	5580	19.033	17547.9
	5700	19.009	17536.4
	5720	18.964	17547.5
	5745	-	17538.4
	5785	-	17537.2
	5825	-	17537.1

11be-20 [OFDM]

Antenna	Tested Frequency [MHz]	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
Antenna 1	5180	-	18913.0
	5220	-	18884.9
	5240	-	18896.6
	5260	19.819	18889.6
	5300	19.880	18922.9
	5320	19.928	18903.9
	5500	19.878	18925.3
	5580	19.899	18908.3
	5700	19.907	18917.9
	5720	19.953	18900.7
	5745	-	18924.5
	5785	-	18906.8
	5825	-	18927.0

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Test place	Ise EMC Lab. No. 7 Shielded Room
Date	January 29, 2024
Temperature / Humidity	22 deg. C / 40 % RH
Engineer	Junya Okuno
Mode	Tx

11be-20 [26-tone RU]

Antenna	Tested Frequency [MHz]	RU Index	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
Antenna 1	5180	0	-	18125.6
	5220	4	-	17027.2
	5240	8	-	18154.6
	5260	0	19.375	18211.4
	5300	4	18.181	17121.7
	5320	8	19.480	18107.7
	5500	0	19.304	18209.4
	5580	4	18.336	17092.8
	5700	8	19.457	18210.4
	5720	8	19.507	18176.5
	5745	0	-	18205.7
	5785	4	-	17024.8
	5825	8	-	18170.1

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Test place	Ise EMC Lab. No. 7 Shielded Room
Date	January 29, 2024
Temperature / Humidity	22 deg. C / 40 % RH
Engineer	Junya Okuno
Mode	Tx

11be-20 [52-tone RU]

Antenna	Tested Frequency [MHz]	RU Index	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
Antenna 1	5180	37	-	18157.4
	5220	38	-	17136.3
	5240	40	-	18077.8
	5260	37	19.673	18178.5
	5300	38	18.412	17145.4
	5320	40	19.526	18066.7
	5500	37	19.675	18139.9
	5580	38	18.363	17095.1
	5700	40	19.414	18069.3
	5720	40	19.552	18100.5
	5745	37	-	18133.4
	5785	38	-	17154.7
	5825	40	-	18039.1

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Test place	Ise EMC Lab. No. 7 Shielded Room
Date	January 29, 2024
Temperature / Humidity	22 deg. C / 40 % RH
Engineer	Junya Okuno
Mode	Tx

11be-20 [106-tone RU]

Antenna	Tested Frequency [MHz]	RU Index	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
Antenna 1	5180	53	-	18154.5
	5220	53	-	18182.0
	5240	54	-	18125.6
	5260	53	19.684	18182.9
	5300	53	19.638	18158.7
	5320	54	19.706	18126.0
	5500	53	19.655	18149.4
	5580	53	19.655	18171.1
	5700	54	19.723	18113.8
	5720	54	19.829	18126.1
	5745	53	-	18187.0
	5785	53	-	18168.1
	5825	54	-	18140.6

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Test place	Ise EMC Lab. No. 7 Shielded Room
Date	January 29, 2024
Temperature / Humidity	22 deg. C / 40 % RH
Engineer	Junya Okuno
Mode	Tx

11be-20 [242-tone RU]

Antenna	Tested Frequency [MHz]	RU Index	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
Antenna 1	5180	61	-	18904.0
	5220	61	-	18893.7
	5240	61	-	18898.0
	5260	61	20.003	18901.7
	5300	61	19.872	18898.7
	5320	61	19.944	18898.3
	5500	61	19.890	18895.7
	5580	61	19.960	18899.3
	5700	61	19.930	18898.4
	5720	61	19.920	18893.1
	5745	61	-	18901.8
	5785	61	-	18903.5
	5825	61	-	18896.9

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Test place	Ise EMC Lab. No.7 Shielded Room
Date	January 29, 2024
Temperature / Humidity	25 deg. C / 40 % RH
Engineer	Kiyoshiro Okazaki
Mode	Tx

11ac-40

Antenna	Tested Frequency [MHz]	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
Antenna 1	5190	-	36139.3
	5230	-	36130.5
	5270	38.689	36080.2
	5310	38.716	36099.8
	5510	38.766	36147.5
	5550	38.757	36107.1
	5670	38.642	36133.1
	5710	38.740	36086.0
	5755	-	36121.8
	5795	-	36085.4

11be-40 [OFDM]

Antenna	Tested Frequency [MHz]	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
Antenna 1	5190	-	37875.4
	5230	-	37846.4
	5270	39.797	37802.3
	5310	39.573	37840.4
	5510	39.642	37824.7
	5550	39.616	37787.8
	5670	39.532	37757.3
	5710	39.696	37835.5
	5755	-	37812.7
	5795	-	37842.0

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Test place	Ise EMC Lab. No.6 Measurement Room
Date	January 30, 2024
Temperature / Humidity	22 deg. C / 37 % RH
Engineer	Kiyoshiro Okazaki
Mode	Tx

11be-40 [26-tone RU]

Antenna	Tested Frequency [MHz]	RU Index	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
Antenna 1	5190	0	-	18025.1
	5230	17	-	18003.9
	5270	0	19.281	18014.0
	5310	17	19.034	17888.2
	5510	0	19.406	17995.4
	5550	8	21.802	20009.2
	5670	17	19.278	18028.1
	5710	17	19.155	17990.5
	5755	0	-	18017.4
	5795	17	-	17969.8

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Test place	Ise EMC Lab. No.6 Measurement Room
Date	January 30, 2024
Temperature / Humidity	22 deg. C / 37 % RH
Engineer	Kiyoshiro Okazaki
Mode	Tx

11be-40 [52-tone RU]

Antenna	Tested Frequency [MHz]	RU Index	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
Antenna 1	5190	37	-	17931.8
	5230	44	-	17849.8
	5270	37	19.394	17867.5
	5310	44	19.441	17848.0
	5510	37	19.517	17914.3
	5550	40	22.994	19936.1
	5670	44	19.649	17883.7
	5710	44	19.698	17918.5
	5755	37	-	17877.6
	5795	44	-	17867.1

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Test place	Ise EMC Lab. No.6 Measurement Room
Date	January 30, 2024
Temperature / Humidity	22 deg. C / 37 % RH
Engineer	Kiyoshiro Okazaki
Mode	Tx

11be-40 [106-tone RU]

Antenna	Tested Frequency [MHz]	RU Index	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
Antenna 1	5190	53	-	17794.1
	5230	56	-	17809.9
	5270	53	19.769	17780.6
	5310	56	19.792	17856.2
	5510	53	19.806	17766.3
	5550	54	23.869	18856.3
	5670	56	19.553	17779.9
	5710	56	19.877	17782.4
	5755	53	-	17783.5
	5795	56	-	17780.5

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Test place	Ise EMC Lab. No.6 Measurement Room
Date	January 30, 2024
Temperature / Humidity	22 deg. C / 37 % RH
Engineer	Kiyoshiro Okazaki
Mode	Tx

11be-40 [242-tone RU]

Antenna	Tested Frequency [MHz]	RU Index	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
Antenna 1	5190	61	-	19187.8
	5230	62	-	19009.1
	5270	61	25.486	19001.2
	5310	62	29.388	19077.8
	5510	61	28.278	18962.3
	5550	61	26.958	19035.4
	5670	62	27.275	19012.0
	5710	62	27.843	19079.0
	5755	61	-	19015.4
	5795	62	-	19171.3

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Test place	Ise EMC Lab. No.6 Measurement Room
Date	January 30, 2024
Temperature / Humidity	22 deg. C / 37 % RH
Engineer	Kiyoshiro Okazaki
Mode	Tx

11be-40 [484-tone RU]

Antenna	Tested Frequency [MHz]	RU Index	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
Antenna 1	5190	65	-	37806.4
	5230	65	-	37870.1
	5270	65	39.507	37876.4
	5310	65	39.688	37822.3
	5510	65	39.750	37764.0
	5550	65	39.566	37837.9
	5670	65	39.503	37780.0
	5710	65	39.707	37777.6
	5755	65	-	37797.8
	5795	65	-	37848.9

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Test place	Ise EMC Lab. No.7 Shielded Room
Date	January 29, 2024
Temperature / Humidity	25 deg. C / 40 % RH
Engineer	Kiyoshiro Okazaki
Mode	Tx

11ac-80

Antenna	Tested Frequency [MHz]	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
Antenna 1	5210	-	75739.9
	5290	79.222	75666.1
	5530	79.064	75707.9
	5610	79.112	75684.1
	5690	79.212	75730.4
	5775	-	75665.1

11be-80 [OFDM]

Antenna	Tested Frequency [MHz]	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
Antenna 1	5210	-	77539.2
	5290	80.062	77445.9
	5530	80.078	77409.5
	5610	80.082	77474.0
	5690	80.012	77372.8
	5775	-	77388.2

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Test place	Ise EMC Lab. No.6 Measurement Room
Date	January 30, 2024
Temperature / Humidity	22 deg. C / 37 % RH
Engineer	Kiyoshiro Okazaki
Mode	Tx

11be-80 [26-tone RU]

Antenna	Tested Frequency [MHz]	RU Index	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
Antenna 1	5210	0	-	18613.3
	5290	36	19.960	18597.7
	5530	0	20.035	18547.7
	5610	36	20.593	18623.3
	5690	36	20.182	18632.5
	5775	0	-	18571.1

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Test place	Ise EMC Lab. No.6 Measurement Room
Date	January 30, 2024
Temperature / Humidity	22 deg. C / 40 % RH
Engineer	Junya Okuno
Mode	Tx

11be-80 [52-tone RU]

Antenna	Tested Frequency [MHz]	RU Index	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
Antenna 1	5210	37	-	18408.1
	5290	52	20.939	18575.4
	5530	37	21.420	18506.6
	5610	52	21.057	18456.2
	5690	52	20.971	18561.8
	5775	37	-	18511.4

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Test place	Ise EMC Lab. No.6 Measurement Room
Date	January 30, 2024
Temperature / Humidity	22 deg. C / 40 % RH
Engineer	Junya Okuno
Mode	Tx

11be-80 [106-tone RU]

Antenna	Tested Frequency [MHz]	RU Index	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
Antenna 1	5210	53	-	18329.0
	5290	60	21.841	18366.8
	5530	53	22.655	18347.2
	5610	60	22.129	18383.2
	5690	60	21.830	18380.7
	5775	53	-	18351.5

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Test place	Ise EMC Lab. No.6 Measurement Room
Date	January 30, 2024
Temperature / Humidity	22 deg. C / 40 % RH
Engineer	Junya Okuno
Mode	Tx

11be-80 [242-tone RU]

Antenna	Tested Frequency [MHz]	RU Index	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
Antenna 1	5210	61	-	20474.9
	5290	64	29.014	20160.0
	5530	61	32.270	20282.8
	5610	64	27.295	19869.3
	5690	64	28.044	20078.5
	5775	61	-	20741.8

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Test place	Ise EMC Lab. No.6 Measurement Room
Date	January 30, 2024
Temperature / Humidity	22 deg. C / 40 % RH
Engineer	Junya Okuno
Mode	Tx

11be-80 [484-tone RU]

Antenna	Tested Frequency [MHz]	RU Index	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
Antenna 1	5210	65	-	38297.2
	5290	66	53.071	38546.5
	5530	65	55.035	38394.6
	5610	66	51.644	38408.5
	5690	66	56.560	38536.9
	5775	65	-	38336.1

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Test place	Ise EMC Lab. No.6 Measurement Room
Date	January 30, 2024
Temperature / Humidity	22 deg. C / 40 % RH
Engineer	Junya Okuno
Mode	Tx

11be-80 [996-tone RU]

Antenna	Tested Frequency [MHz]	RU Index	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
Antenna 1	5210	67	-	77364.3
	5290	67	80.035	77441.8
	5530	67	80.209	77397.7
	5610	67	80.088	77375.9
	5690	67	80.174	77485.2
	5775	67	-	77444.9

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Test place	Ise EMC Lab. No.7 Shielded Room
Date	January 29, 2024
Temperature / Humidity	25 deg. C / 40 % RH
Engineer	Kiyoshiro Okazaki
Mode	Tx

11ac-160

Antenna	Tested Frequency [MHz]	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
Antenna 1	5250	160.544	154675.5
	5570	160.505	154826.6

11be-160 [OFDM]

Antenna	Tested Frequency [MHz]	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
Antenna 1	5250	162.139	156586.2
	5570	162.220	156616.5

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Test place	Ise EMC Lab. No.6 Measurement Room
Date	January 31, 2024
Temperature / Humidity	23 deg. C / 37 % RH
Engineer	Kiyoshiro Okazaki
Mode	Tx

11be-160 [26-tone RU]

Antenna	Tested Frequency [MHz]	Segment	RU Index	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
Antenna 1	5250	0	0	23.601	27990.2
	5250	1	36	22.439	24348.1
	5570	0	0	23.286	23510.6

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Test place	Ise EMC Lab. No.6 Measurement Room
Date	January 31, 2024
Temperature / Humidity	23 deg. C / 37 % RH
Engineer	Kiyoshiro Okazaki
Mode	Tx

11be-160 [52-tone RU]

Antenna	Tested Frequency [MHz]	Segment	RU Index	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
Antenna 1	5250	0	37	22.630	20219.1
	5250	1	52	22.846	19715.3
	5570	0	37	23.604	19944.1

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Test place	Ise EMC Lab. No.6 Measurement Room
Date	January 31, 2024
Temperature / Humidity	23 deg. C / 37 % RH
Engineer	Kiyoshiro Okazaki
Mode	Tx

11be-160 [106-tone RU]

Antenna	Tested Frequency [MHz]	Segment	RU Index	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
Antenna 1	5250	0	53	24.596	19737.7
	5250	1	60	26.297	20882.4
	5570	0	53	24.642	19691.7

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Test place	Ise EMC Lab. No.6 Measurement Room
Date	January 31, 2024
Temperature / Humidity	23 deg. C / 37 % RH
Engineer	Kiyoshiro Okazaki
Mode	Tx

11be-160 [242-tone RU]

Antenna	Tested Frequency [MHz]	Segment	RU Index	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
Antenna 1	5250	0	61	39.456	25122.7
	5250	1	64	40.603	24618.3
	5570	0	61	39.026	24934.2

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Test place	Ise EMC Lab. No.6 Measurement Room
Date	January 31, 2024
Temperature / Humidity	23 deg. C / 37 % RH
Engineer	Kiyoshiro Okazaki
Mode	Tx

11be-160 [484-tone RU]

Antenna	Tested Frequency [MHz]	Segment	RU Index	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
Antenna 1	5250	0	65	60.211	40348.1
	5250	1	66	57.994	42239.4
	5570	0	65	58.661	41196.2

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Test place	Ise EMC Lab. No.6 Measurement Room
Date	January 31, 2024
Temperature / Humidity	23 deg. C / 37 % RH
Engineer	Kiyoshiro Okazaki
Mode	Tx

11be-160 [996-tone RU]

Antenna	Tested Frequency [MHz]	Segment	RU Index	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
Antenna 1	5250	0	67	93.662	78529.5
	5250	1	67	109.607	78270.7
	5570	0	67	115.536	78623.7

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Test place	Ise EMC Lab. No.6 Measurement Room
Date	January 31, 2024
Temperature / Humidity	23 deg. C / 37 % RH
Engineer	Kiyoshiro Okazaki
Mode	Tx

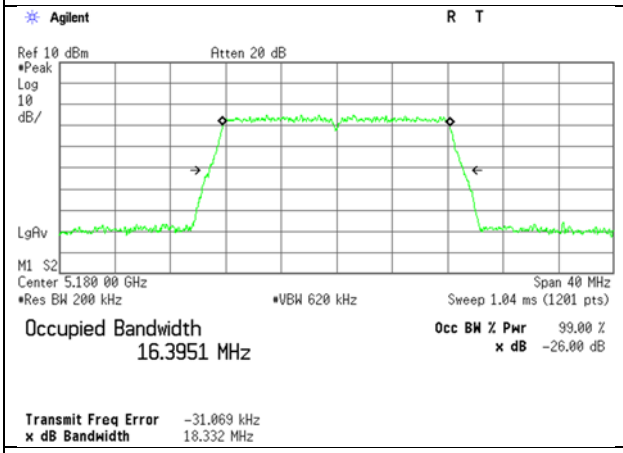
11be-160 [2x996-tone RU]

Antenna	Tested Frequency [MHz]	RU Index	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
Antenna 1	5250	68	162.077	156578.6
	5570	68	162.043	156567.4

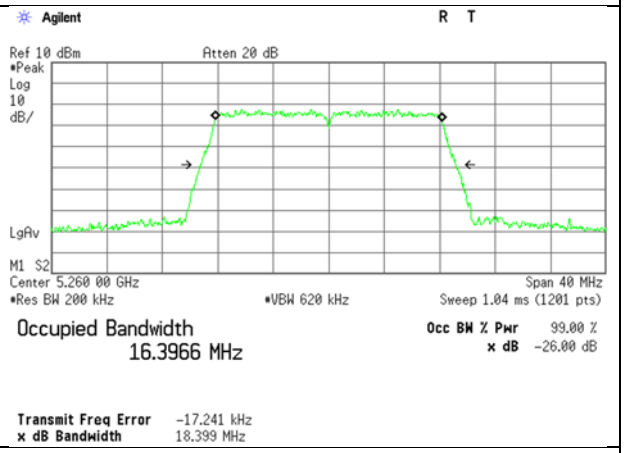
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11a

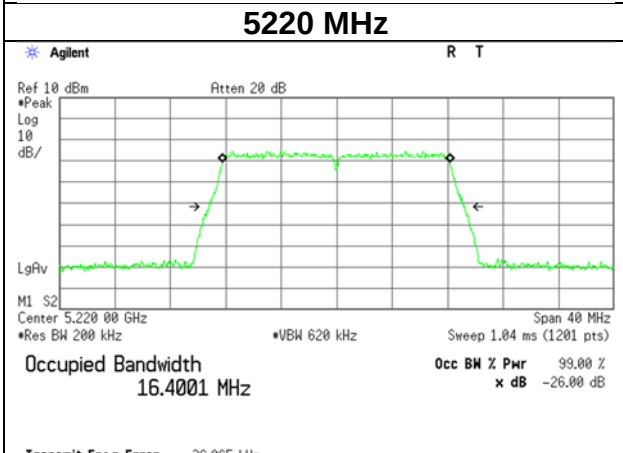
5180 MHz



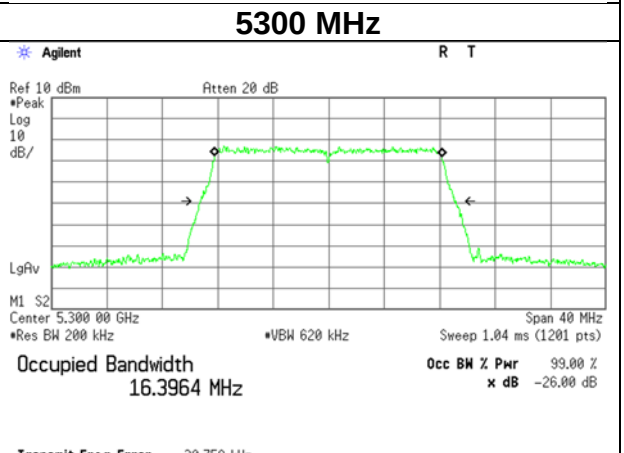
5260 MHz



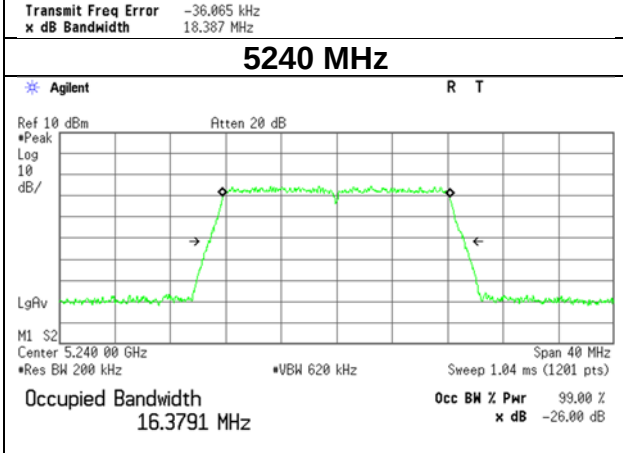
5220 MHz



5300 MHz



5240 MHz



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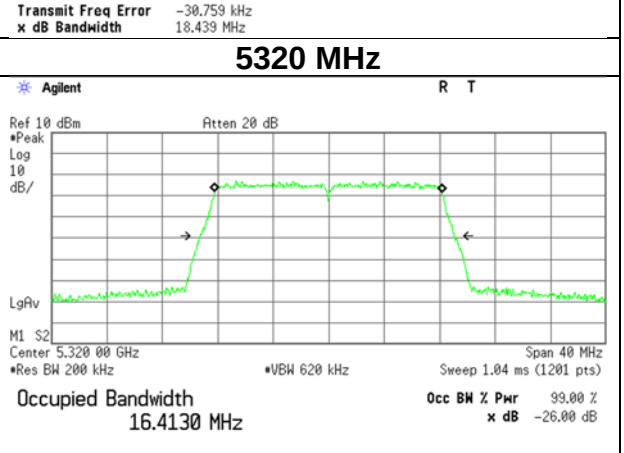
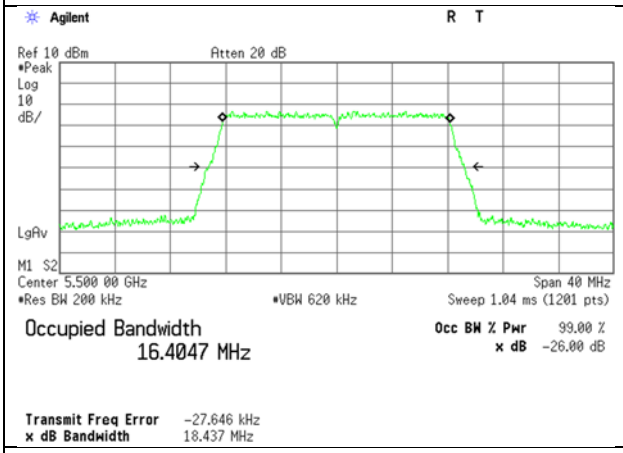


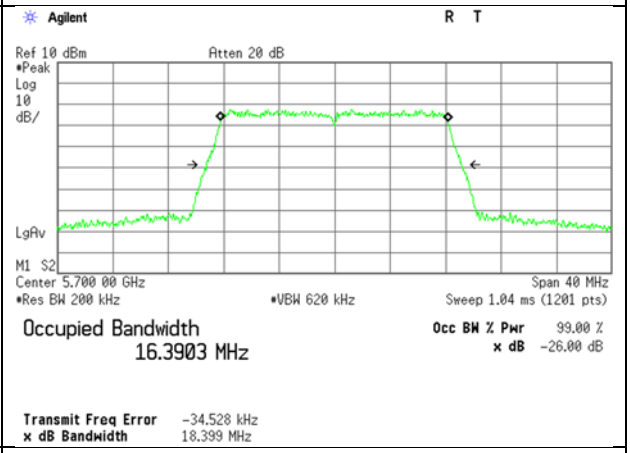
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11a

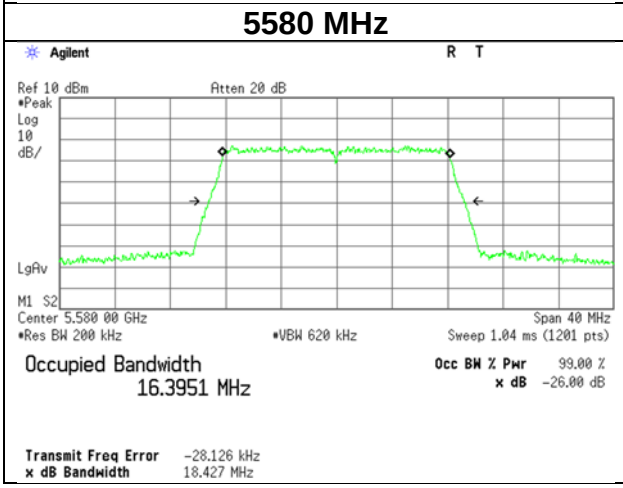
5500 MHz



5700 MHz



5580 MHz



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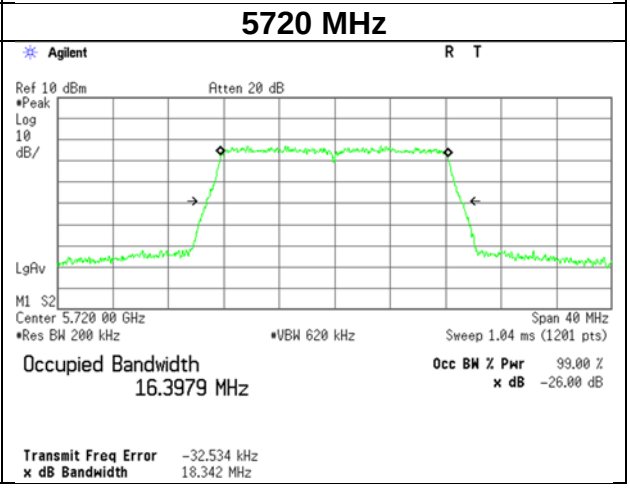
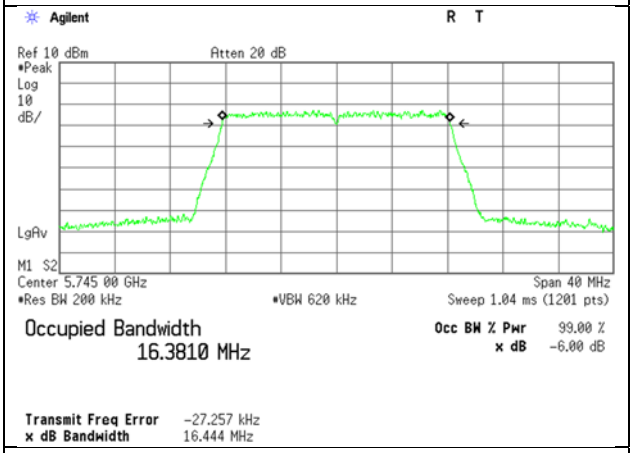


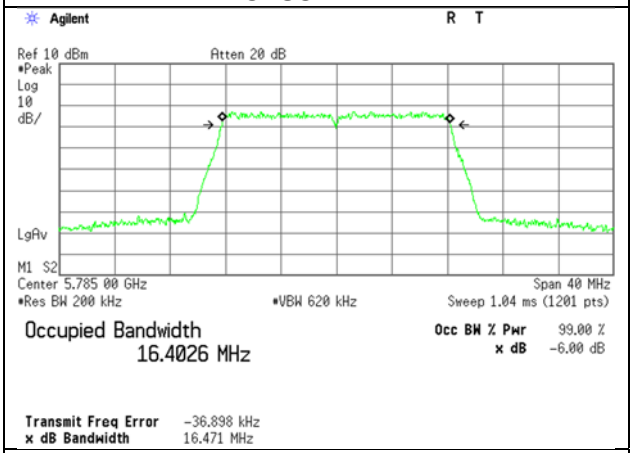
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11a

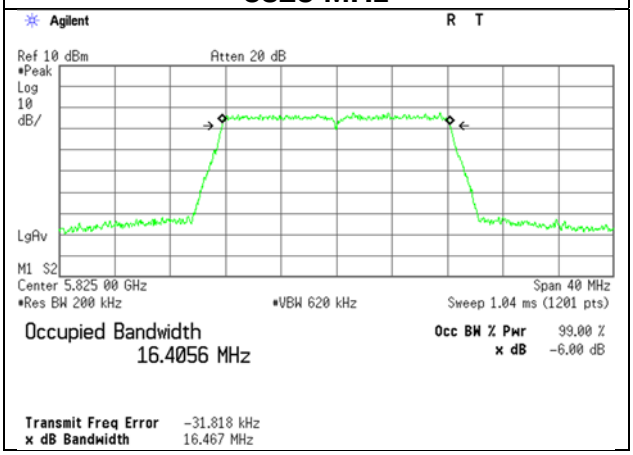
5745 MHz



5785 MHz



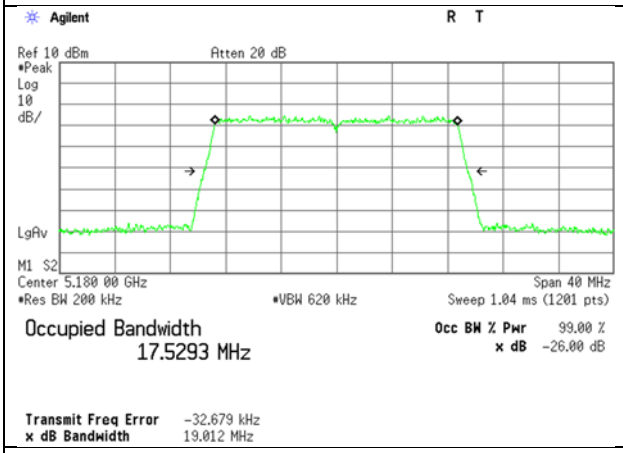
5825 MHz



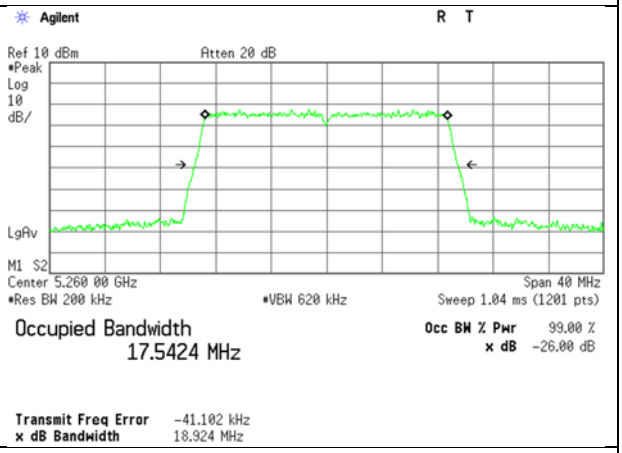
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11ac-20

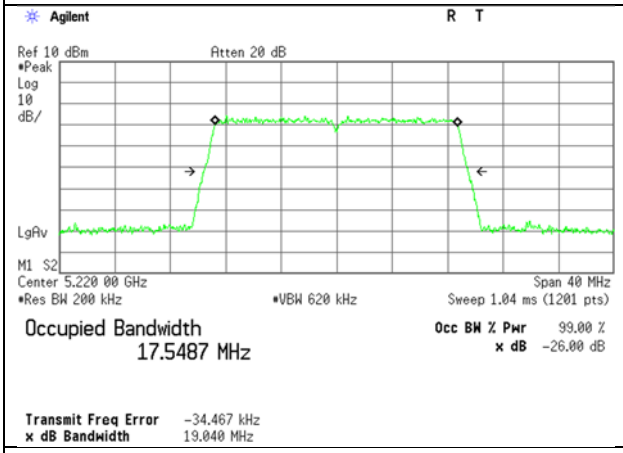
5180 MHz



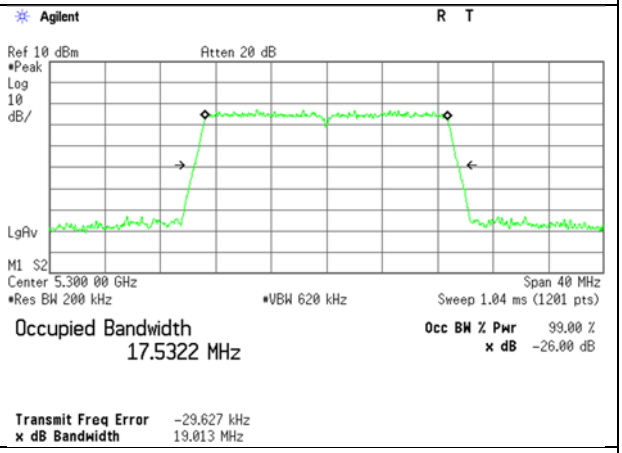
5260 MHz



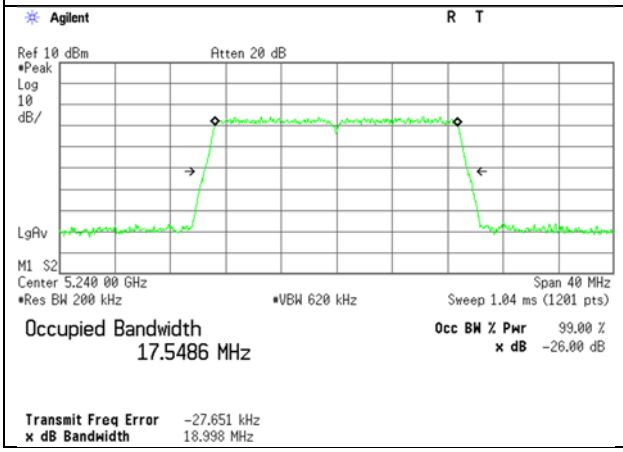
5220 MHz



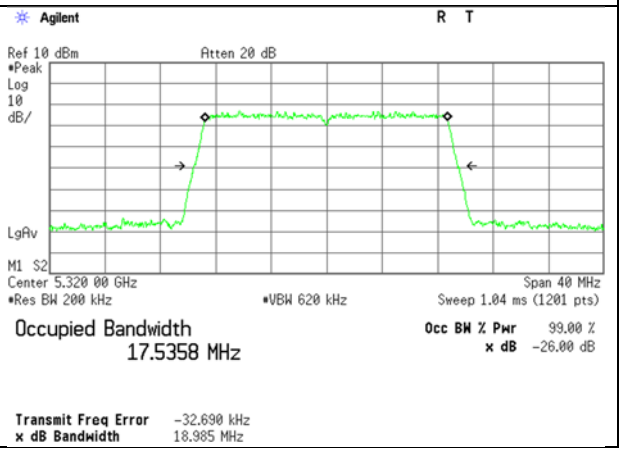
5300 MHz



5240 MHz



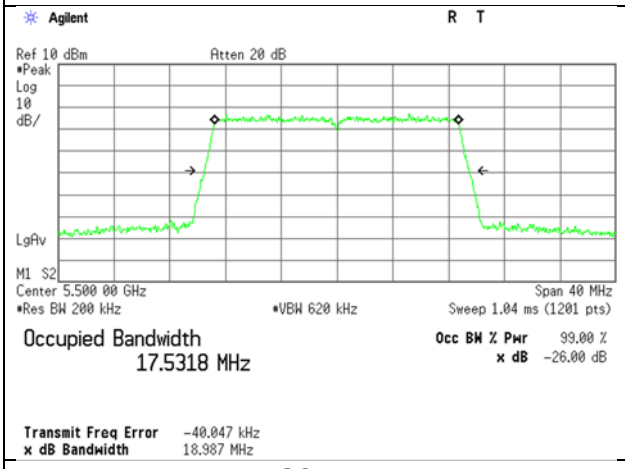
5320 MHz



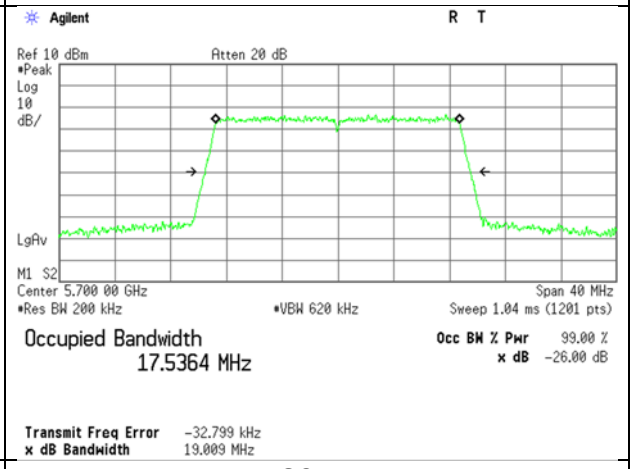
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11ac-20

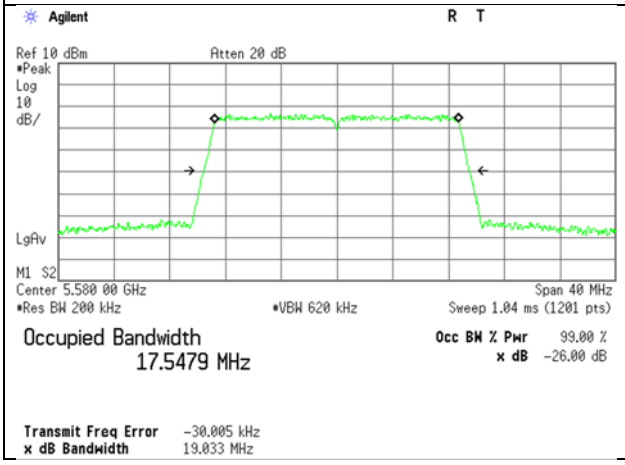
5500 MHz



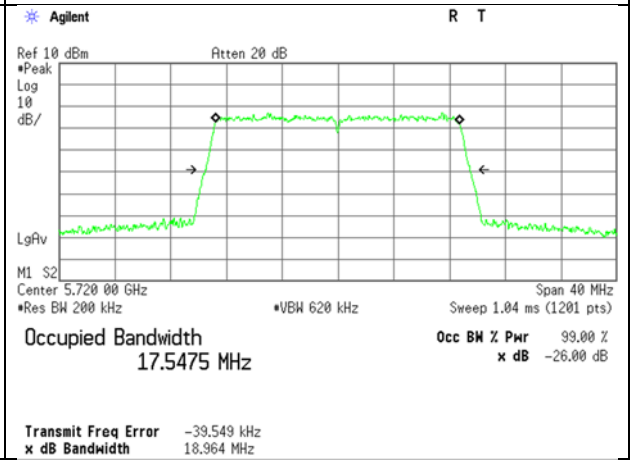
5700 MHz



5580 MHz



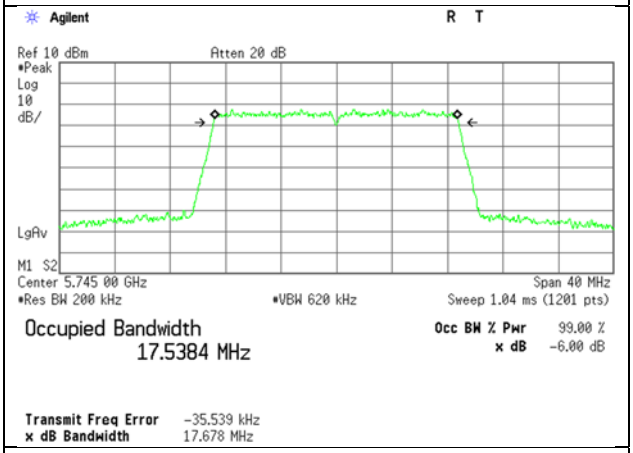
5720 MHz



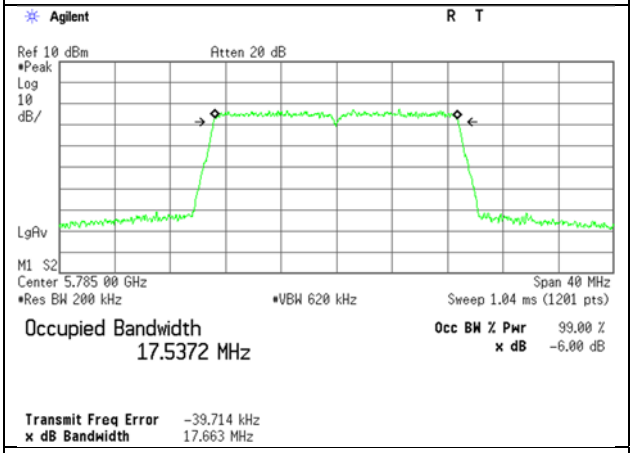
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11ac-20

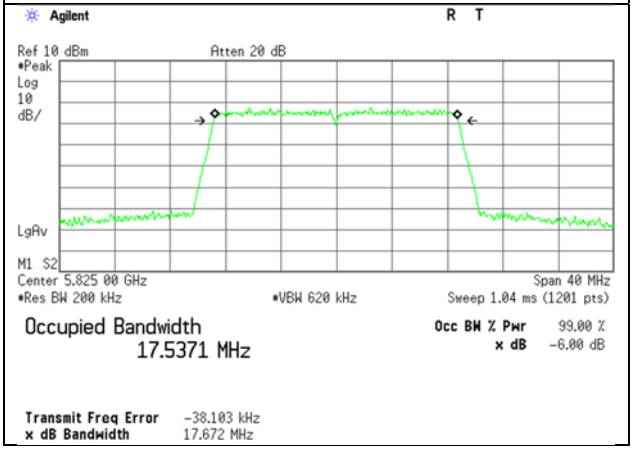
5745 MHz



5785 MHz



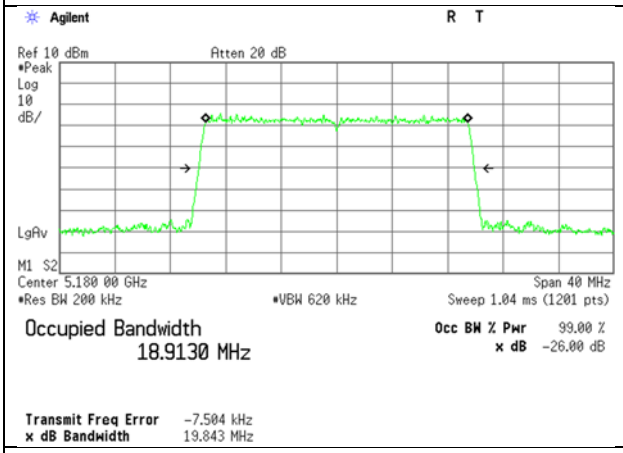
5825 MHz



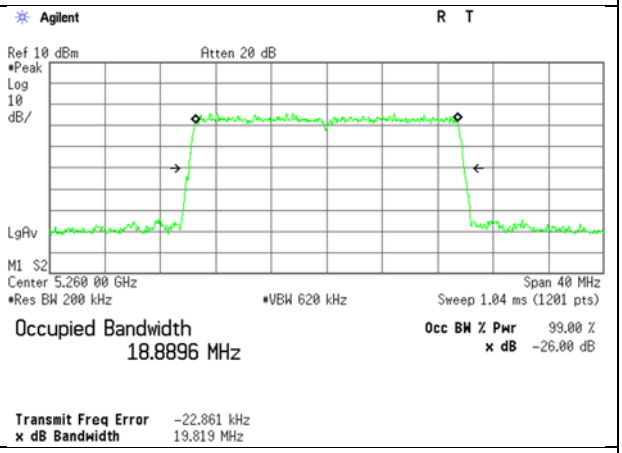
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11be-20 [OFDM]

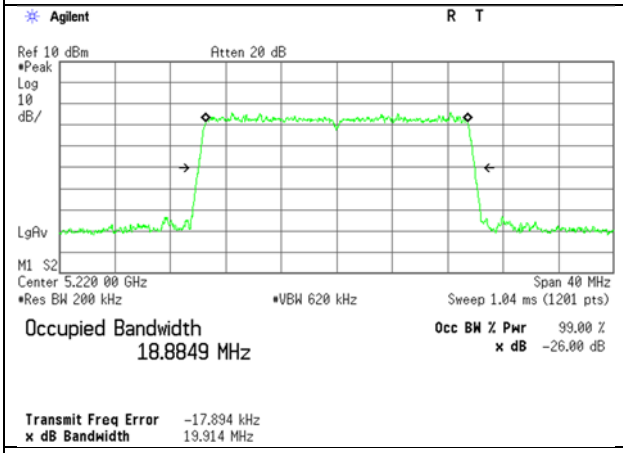
5180 MHz



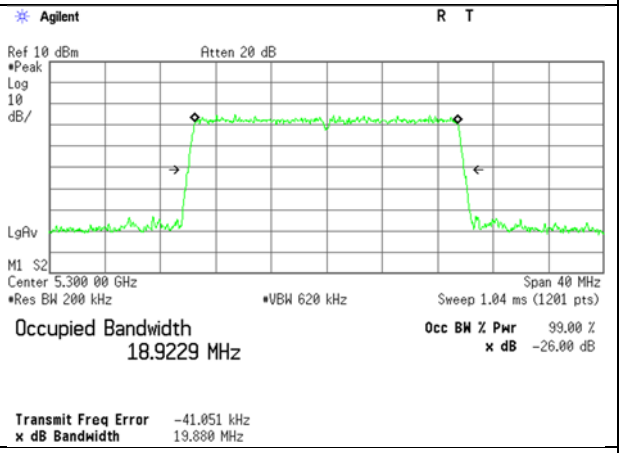
5260 MHz



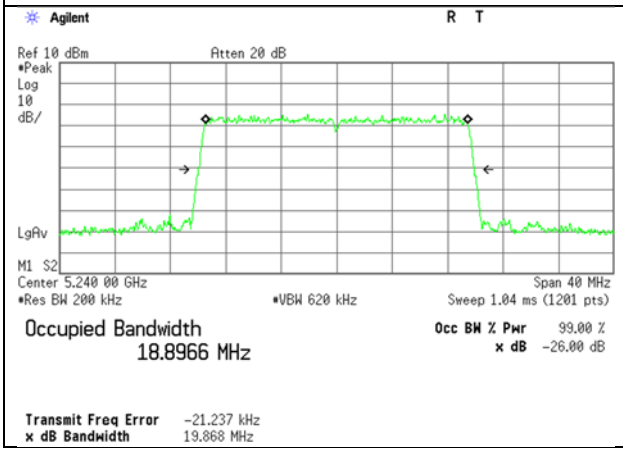
5220 MHz



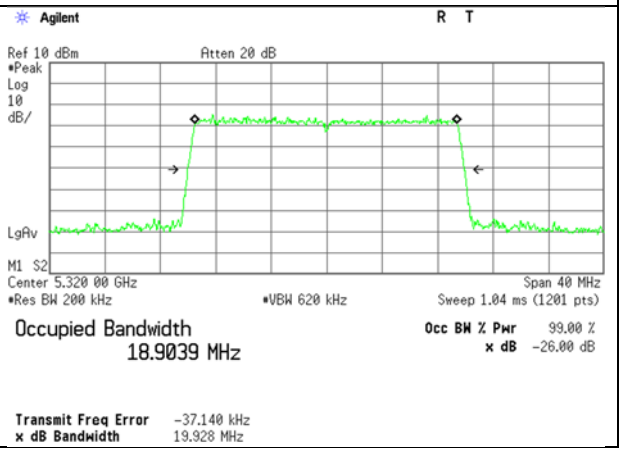
5300 MHz



5240 MHz



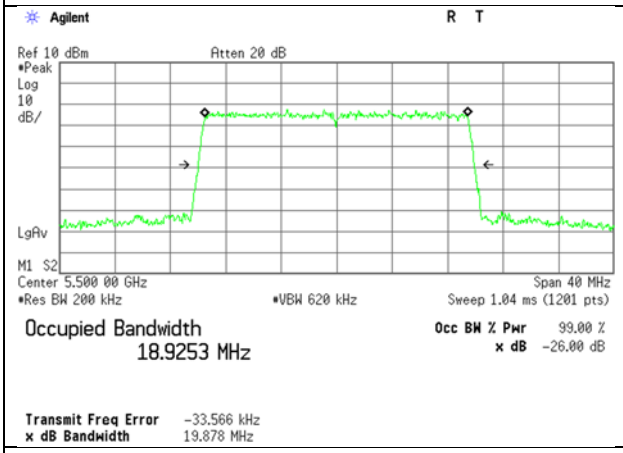
5320 MHz



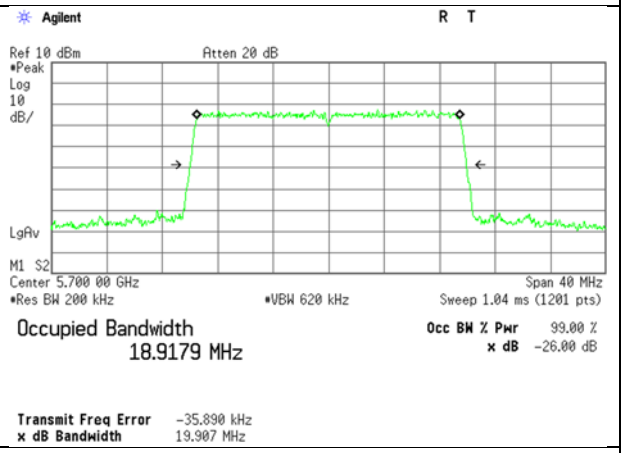
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11be-20 [OFDM]

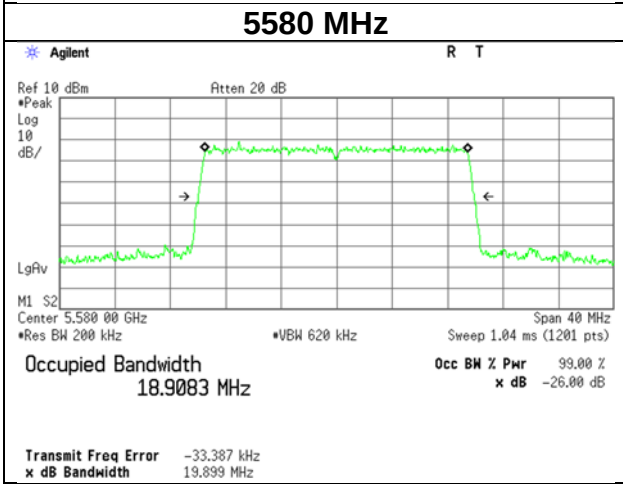
5500 MHz



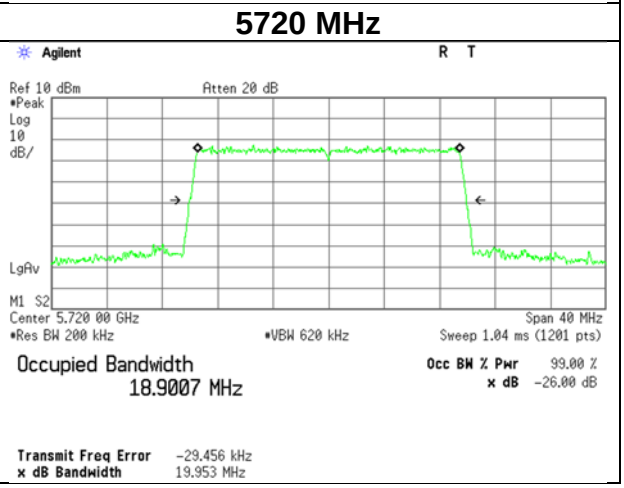
5700 MHz



5580 MHz



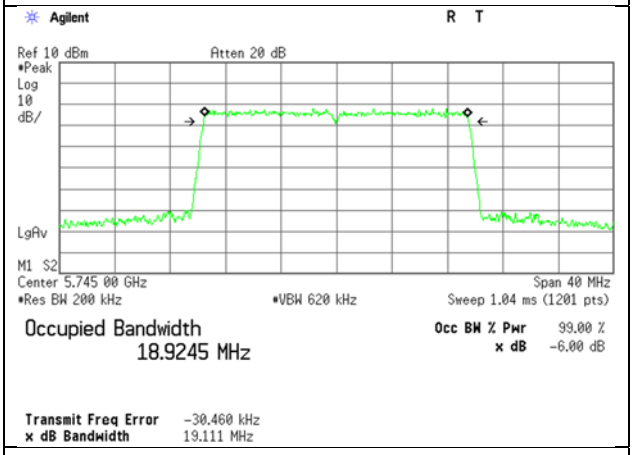
5720 MHz



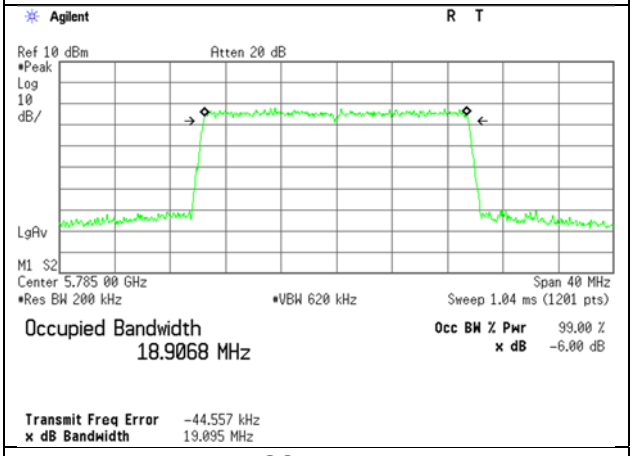
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11be-20 [OFDM]

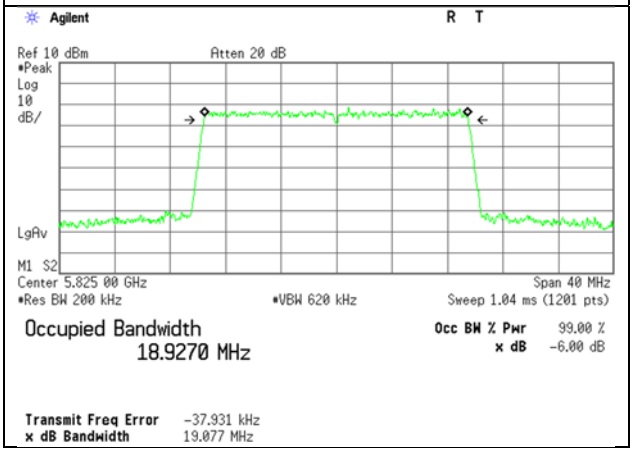
5745 MHz



5785 MHz



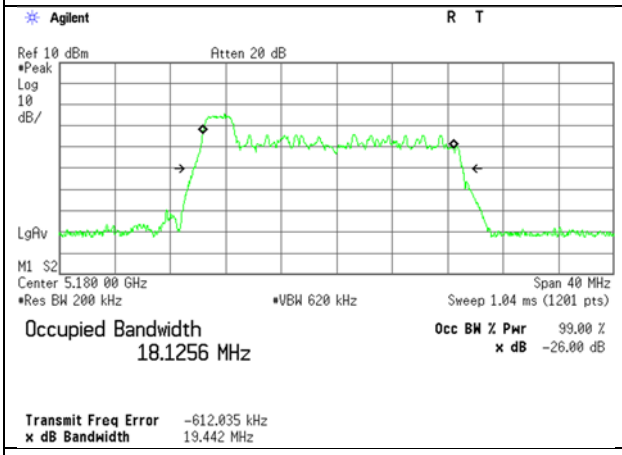
5825 MHz



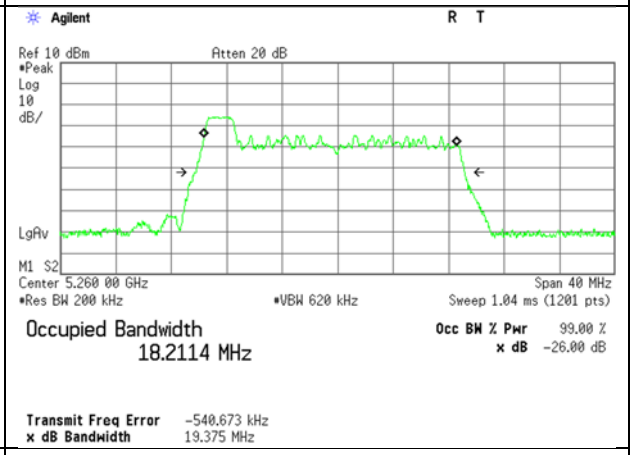
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11be-20 [26-tone RU]

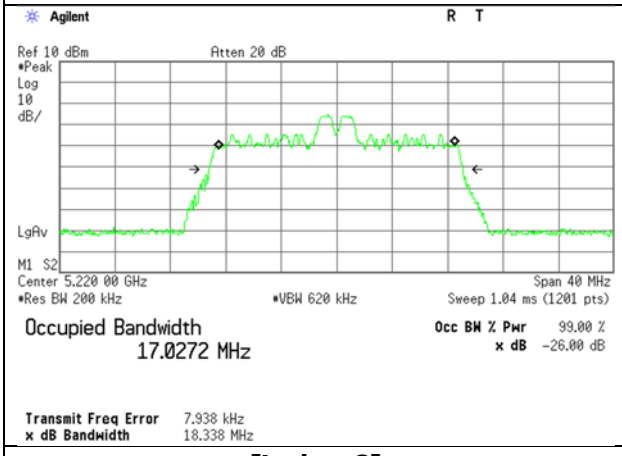
[Index 0] 5180 MHz



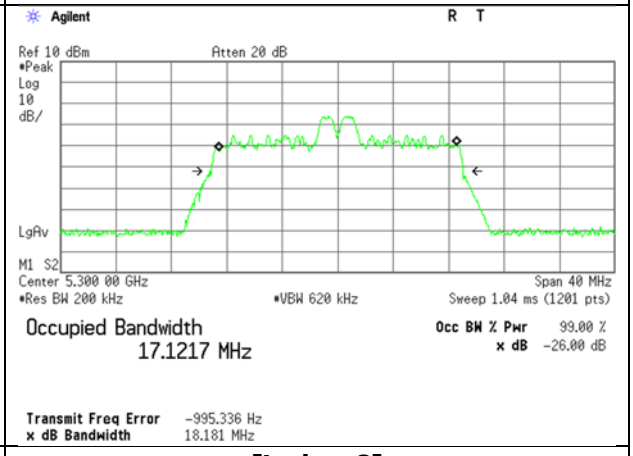
[Index 0] 5260 MHz



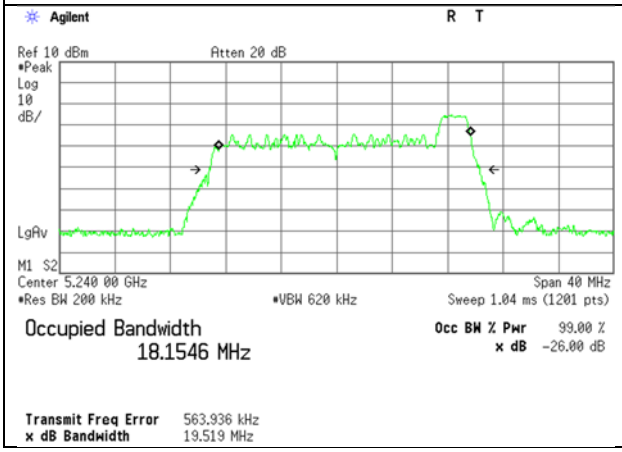
[Index 4] 5220 MHz



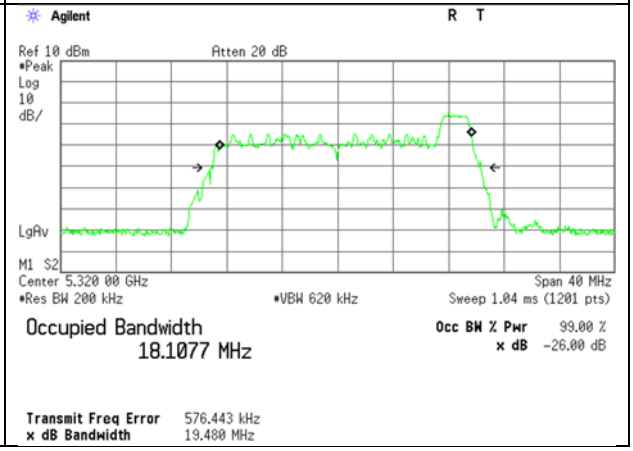
[Index 4] 5300 MHz



[Index 8] 5240 MHz



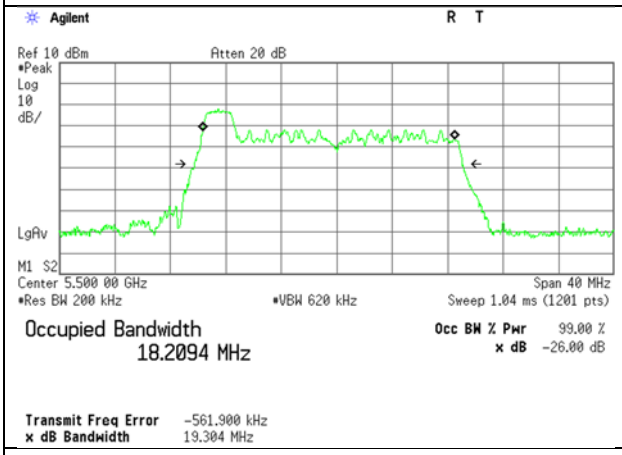
[Index 8] 5320 MHz



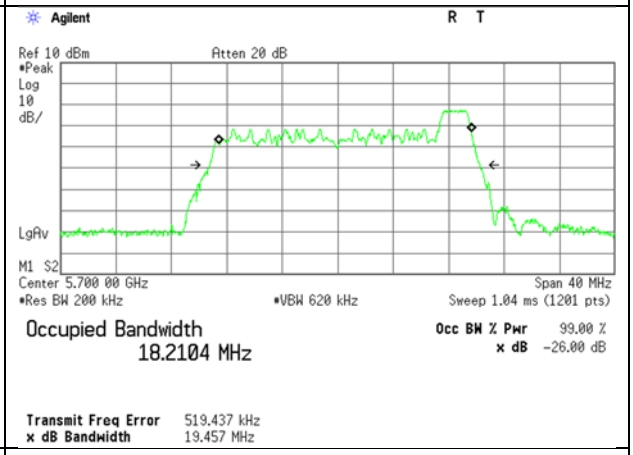
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11be-20 [26-tone RU]

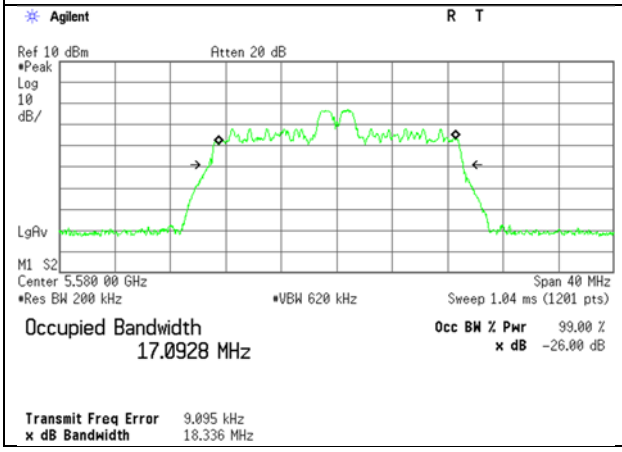
[Index 0]
5500 MHz



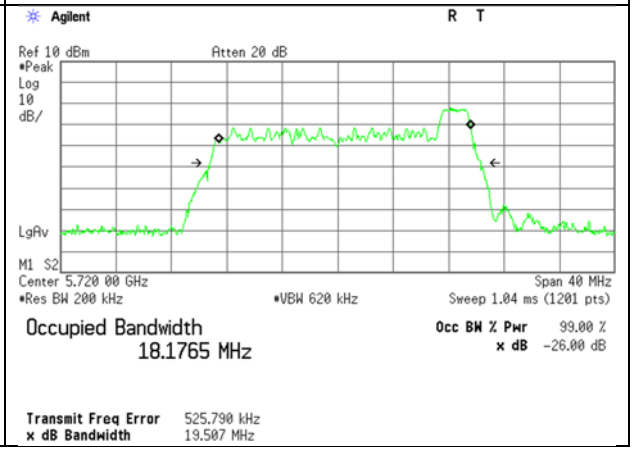
[Index 8]
5700 MHz



[Index 4]
5580 MHz



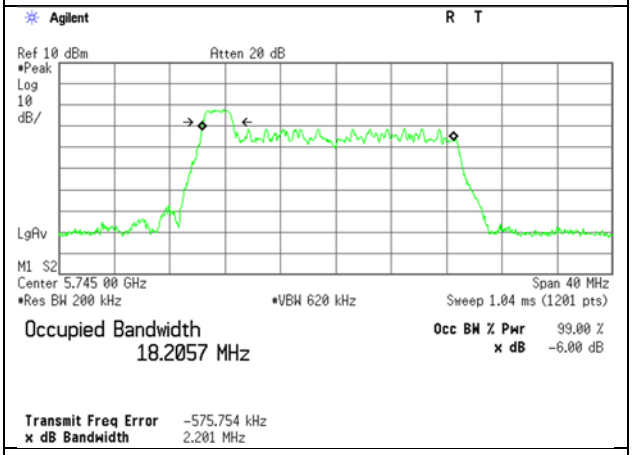
[Index 8]
5720 MHz



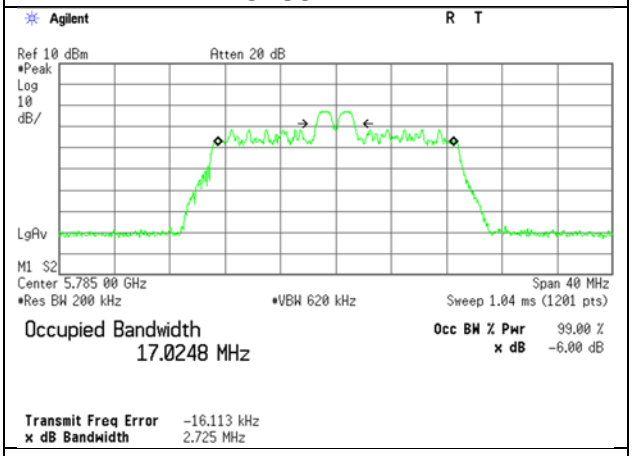
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11be-20 [26-tone RU]

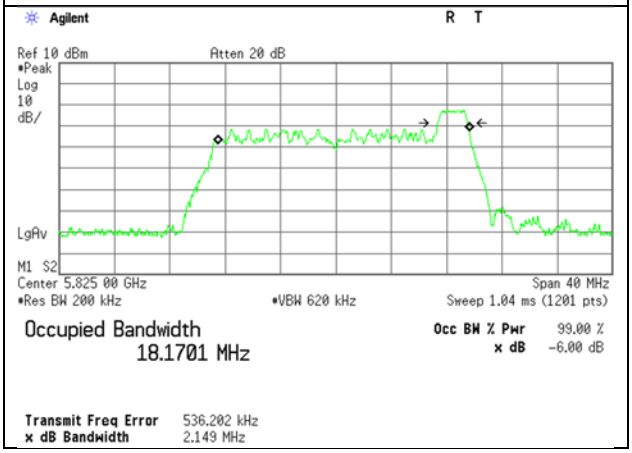
[Index 0]
5745 MHz



[Index 4]
5785 MHz



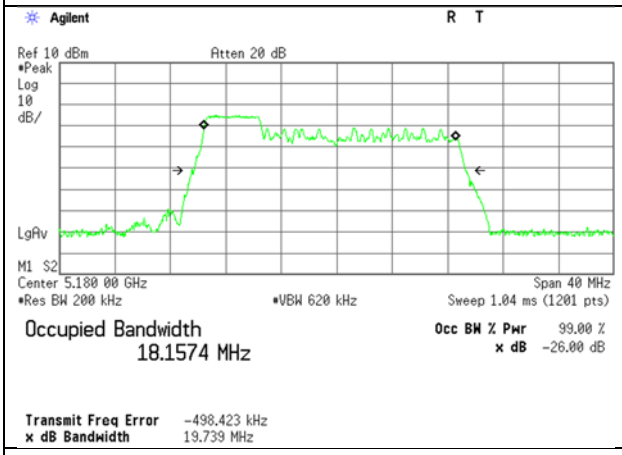
[Index 8]
5825 MHz



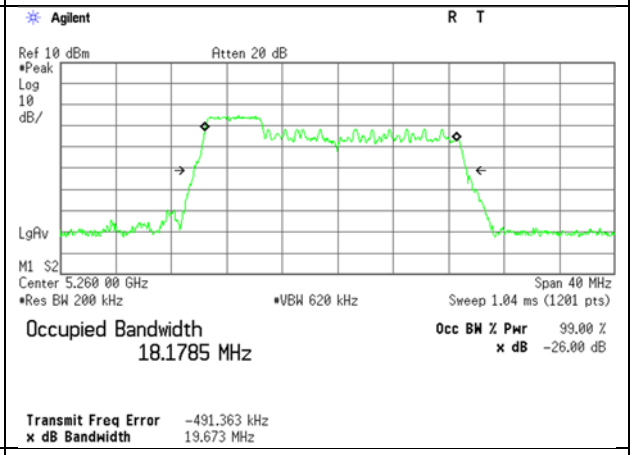
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11be-20 [52-tone RU]

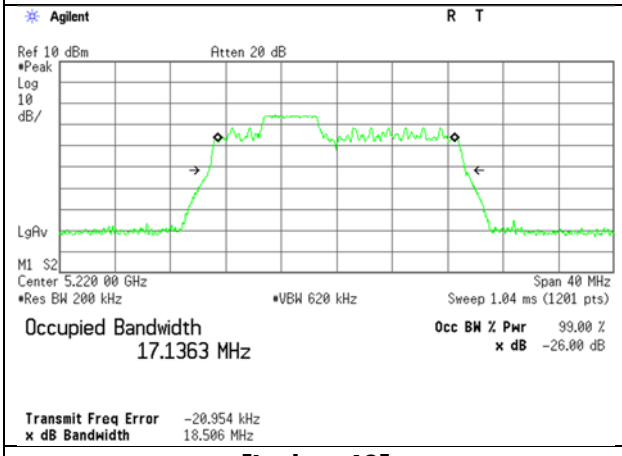
[Index 37] 5180 MHz



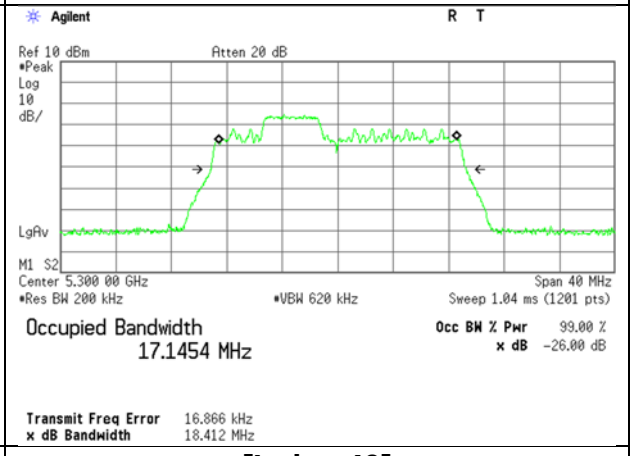
[Index 37] 5260 MHz



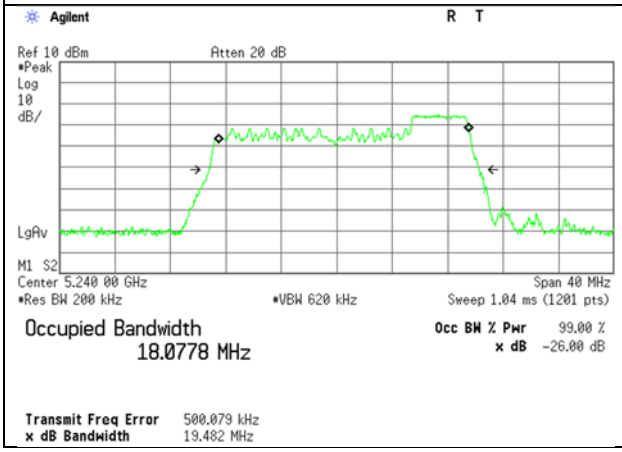
[Index 38] 5220 MHz



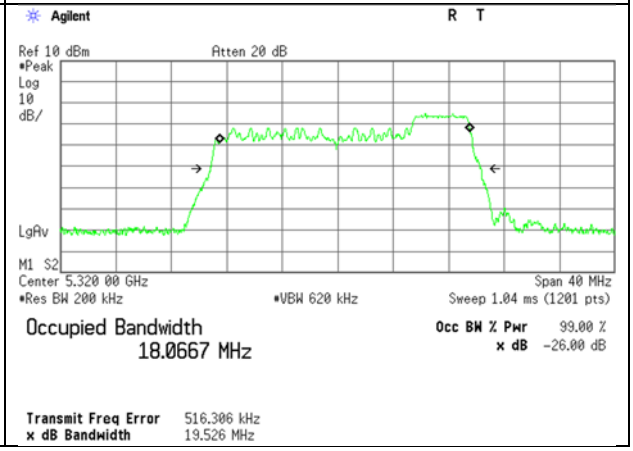
[Index 38] 5300 MHz



[Index 40] 5240 MHz



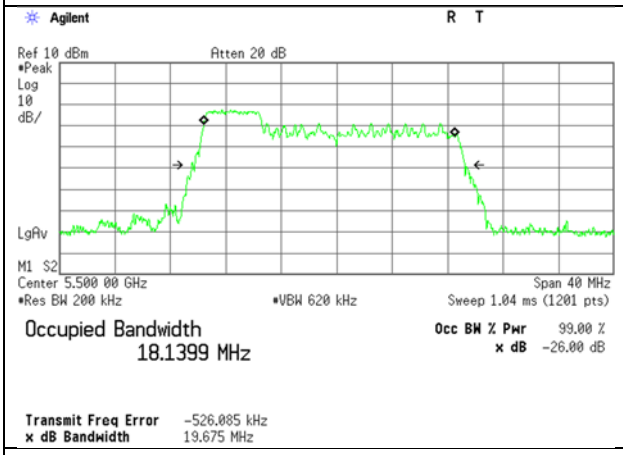
[Index 40] 5320 MHz



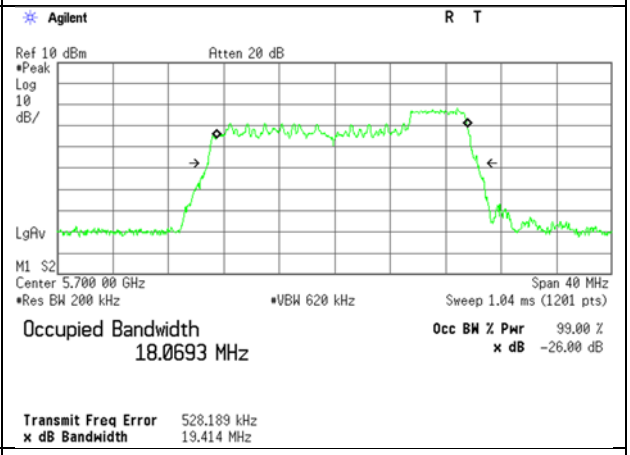
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11be-20 [52-tone RU]

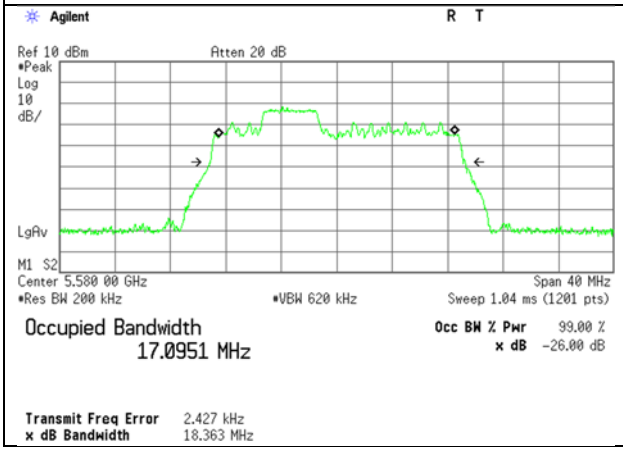
[Index 37] 5500 MHz



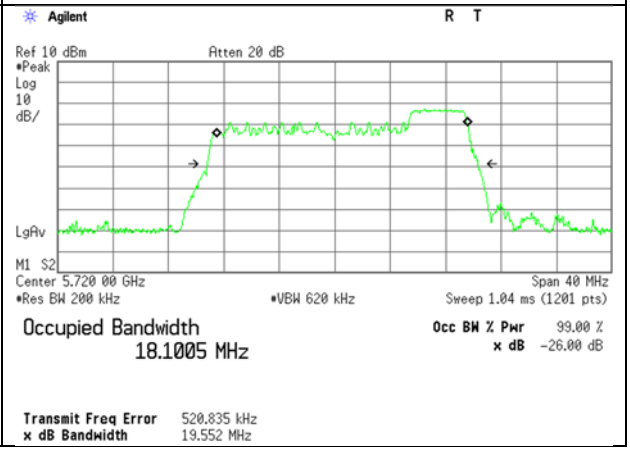
[Index 40] 5700 MHz



[Index 38] 5580 MHz



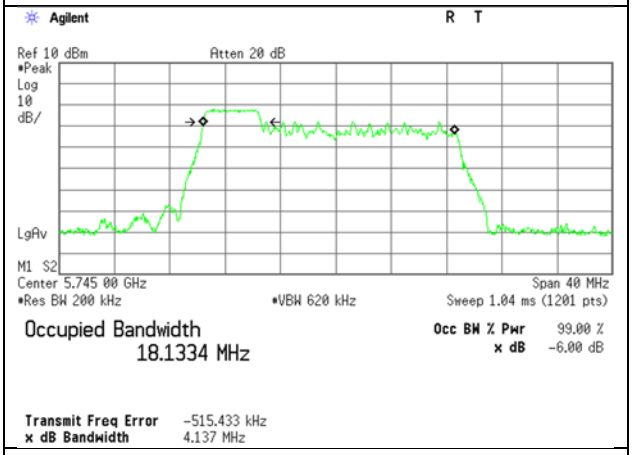
[Index 40] 5720 MHz



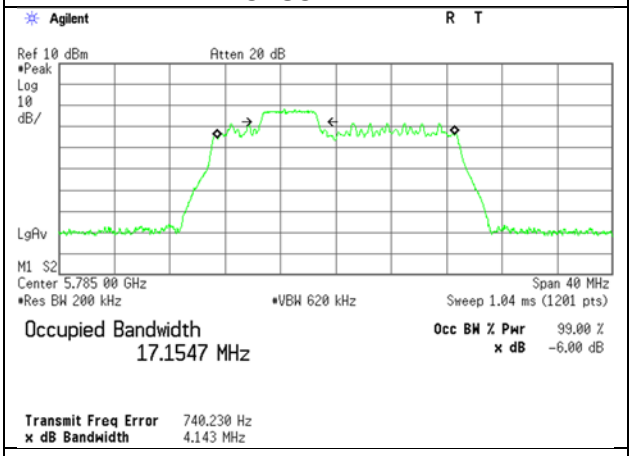
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11be-20 [52-tone RU]

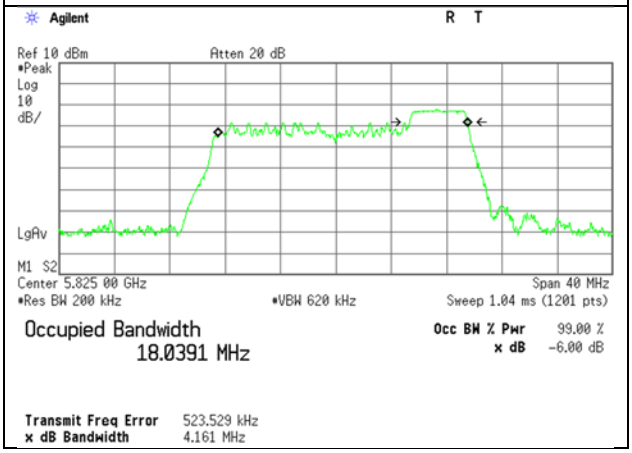
[Index 37]
5745 MHz



[Index 38]
5785 MHz



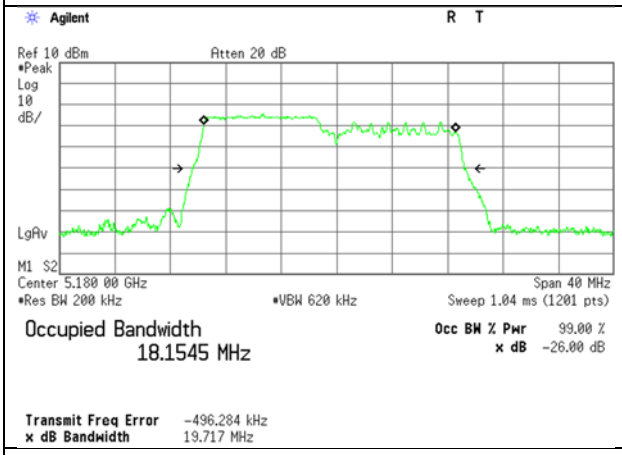
[Index 40]
5825 MHz



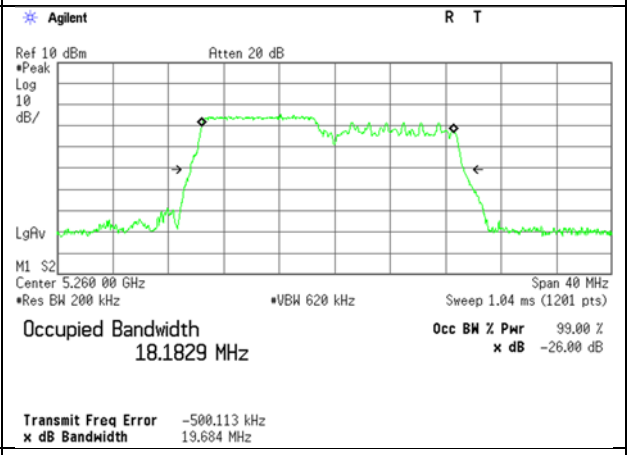
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11be-20 [106-tone RU]

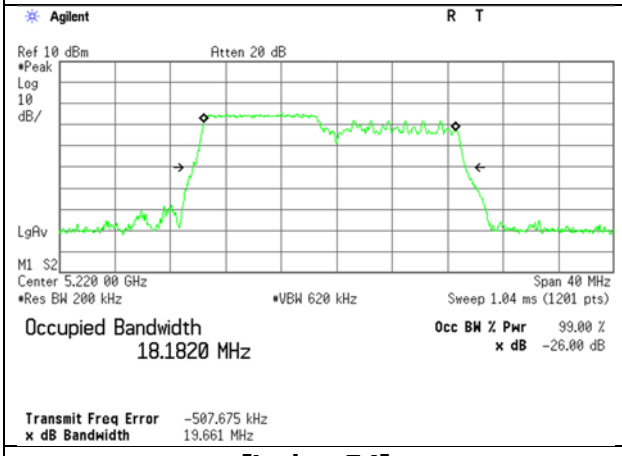
[Index 53] 5180 MHz



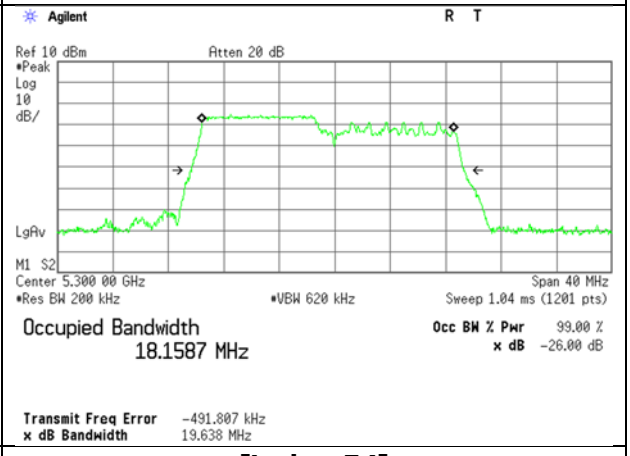
[Index 53] 5260 MHz



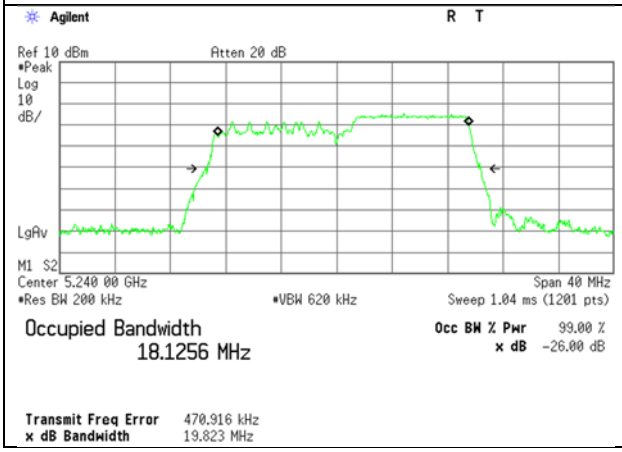
[Index 53] 5220 MHz



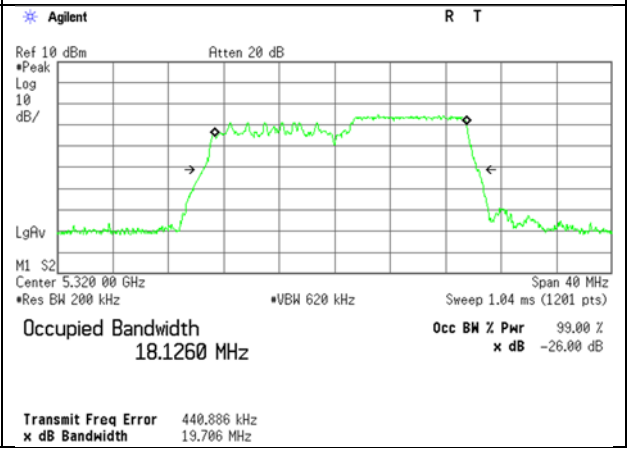
[Index 53] 5300 MHz



[Index 54] 5240 MHz



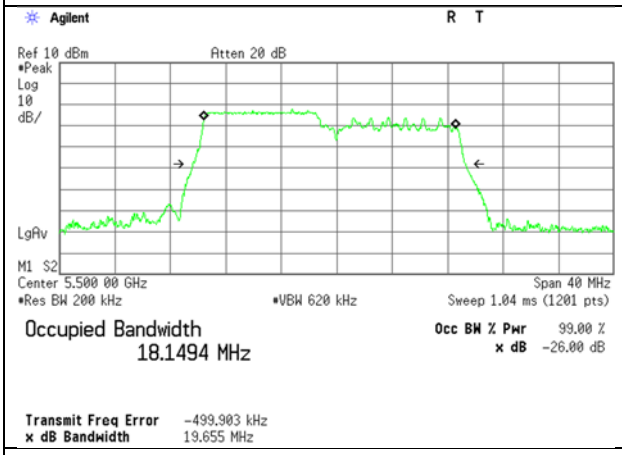
[Index 54] 5320 MHz



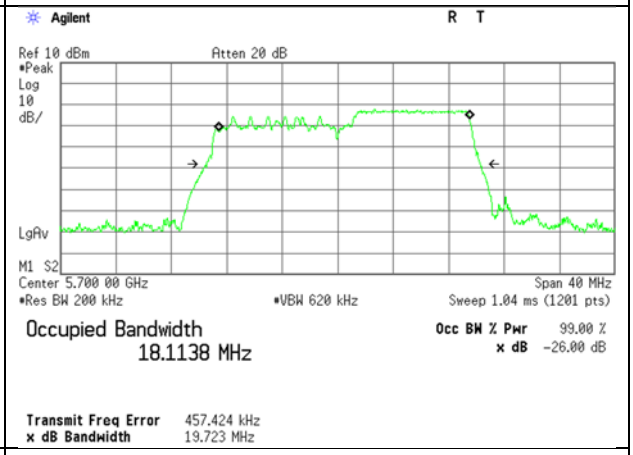
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11be-20 [106-tone RU]

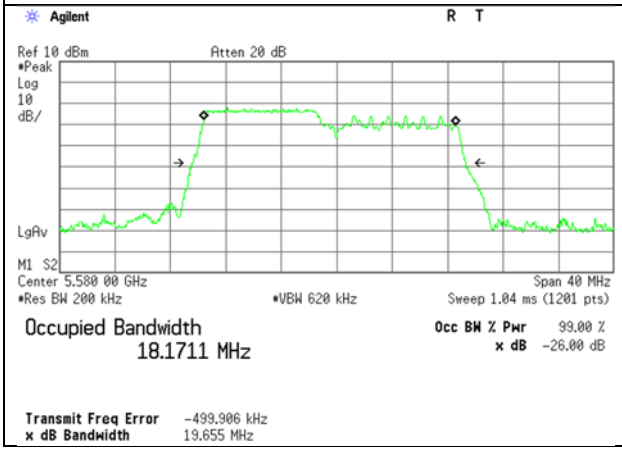
[Index 53] 5500 MHz



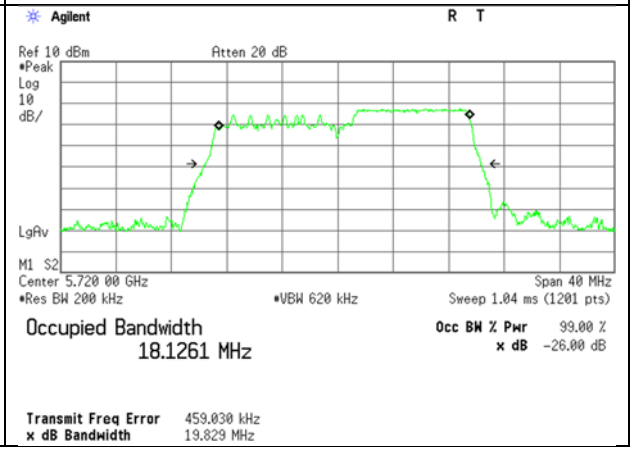
[Index 54] 5700 MHz



[Index 53] 5580 MHz



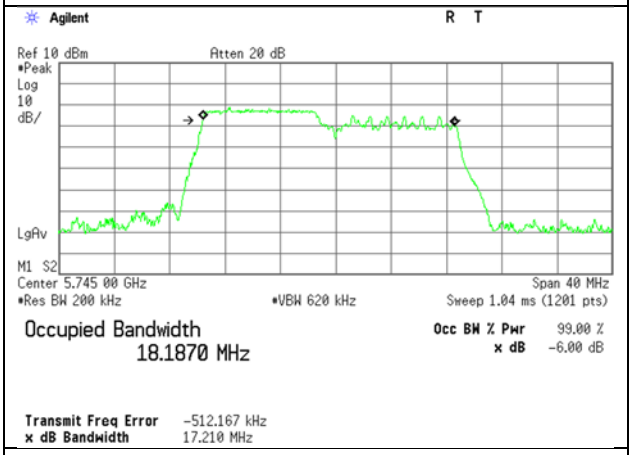
[Index 54] 5720 MHz



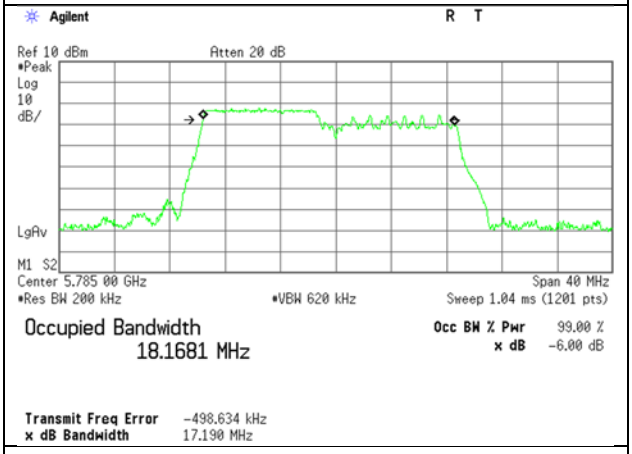
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11be-20 [106-tone RU]

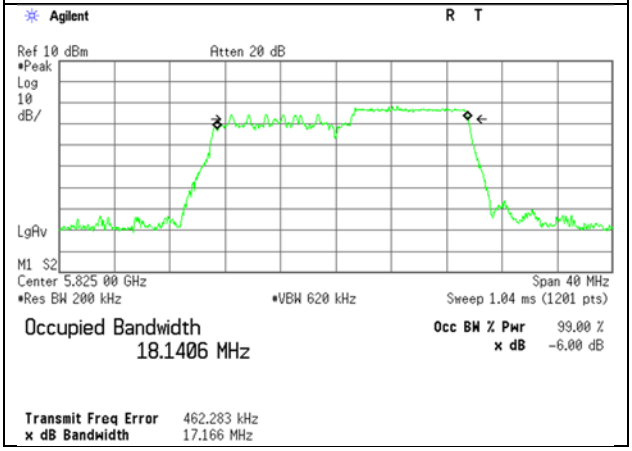
[Index 53]
5745 MHz



[Index 53]
5785 MHz



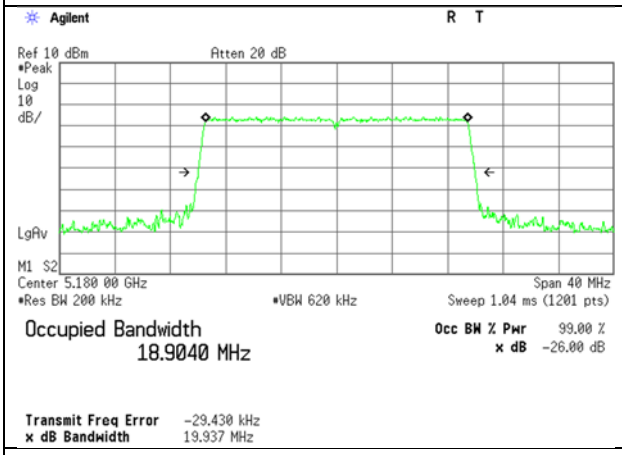
[Index 54]
5825 MHz



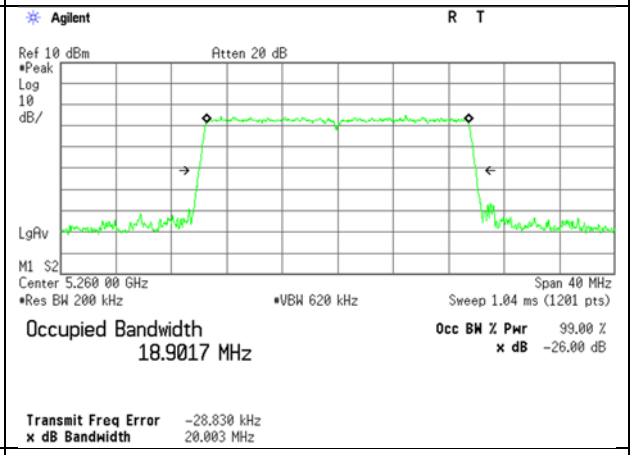
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11be-20 [242-tone RU]

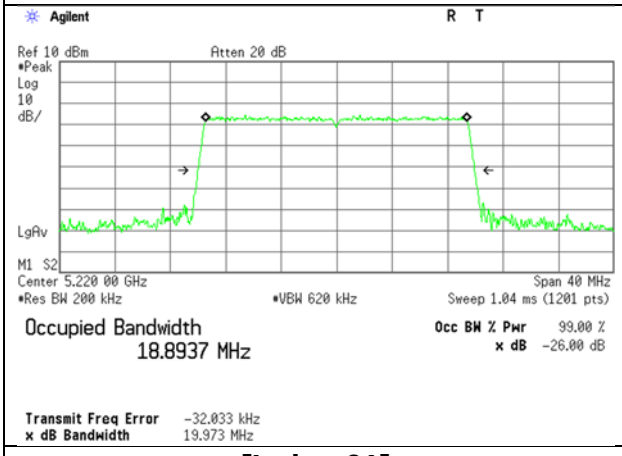
[Index 61] 5180 MHz



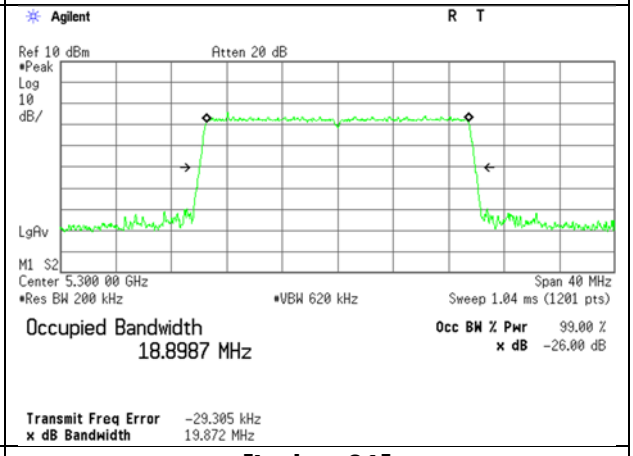
[Index 61] 5260 MHz



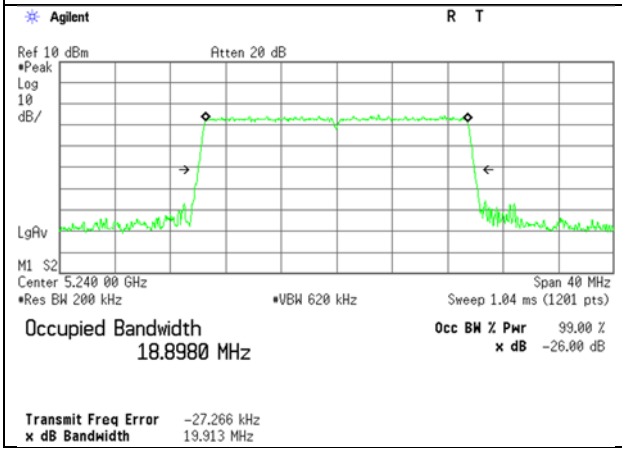
[Index 61] 5220 MHz



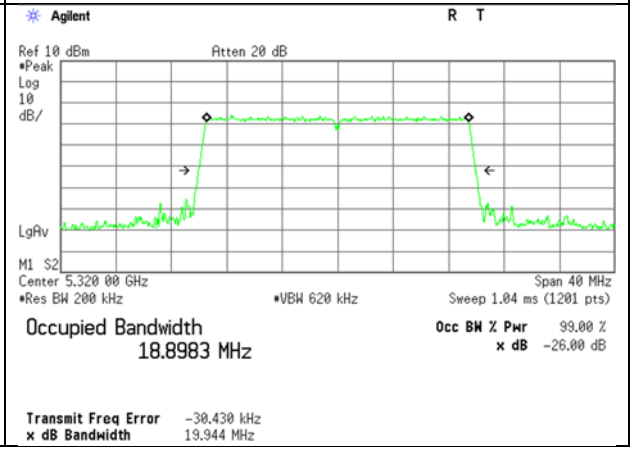
[Index 61] 5300 MHz



[Index 61] 5240 MHz



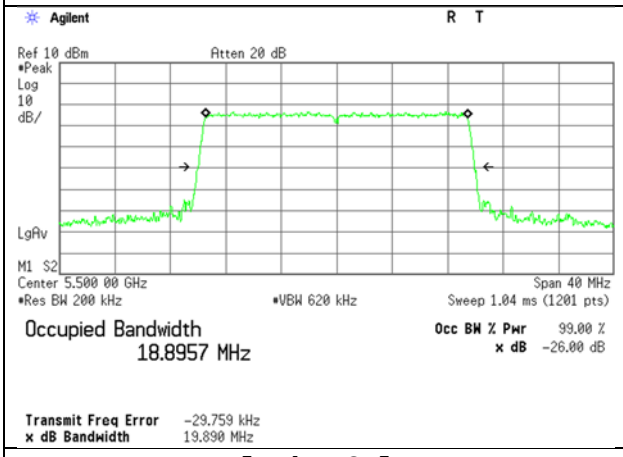
[Index 61] 5320 MHz



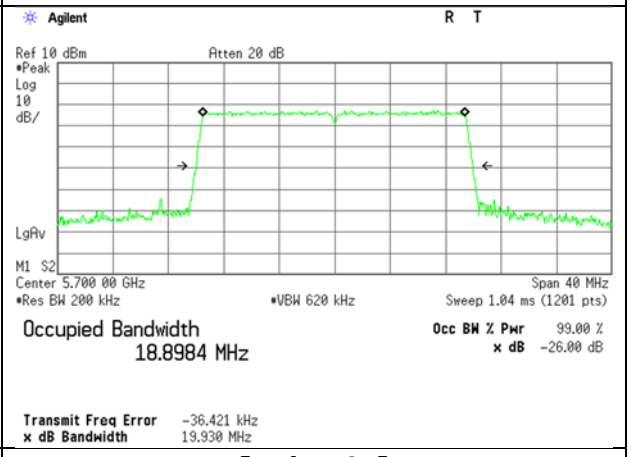
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11be-20 [242-tone RU]

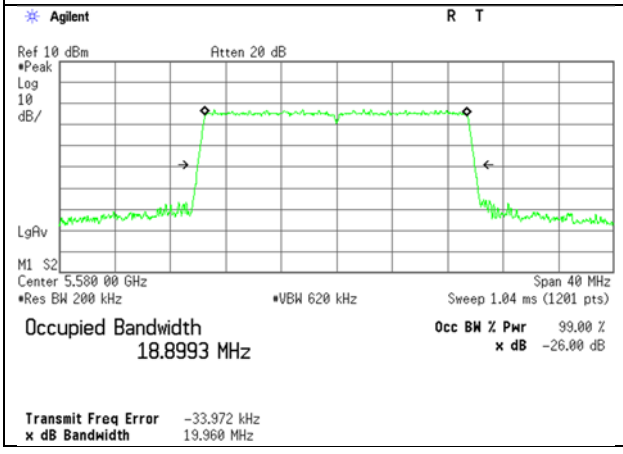
[Index 61] 5500 MHz



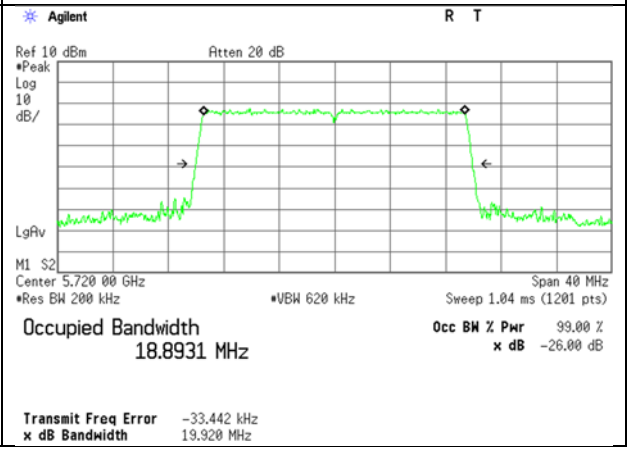
[Index 61] 5700 MHz



[Index 61] 5580 MHz



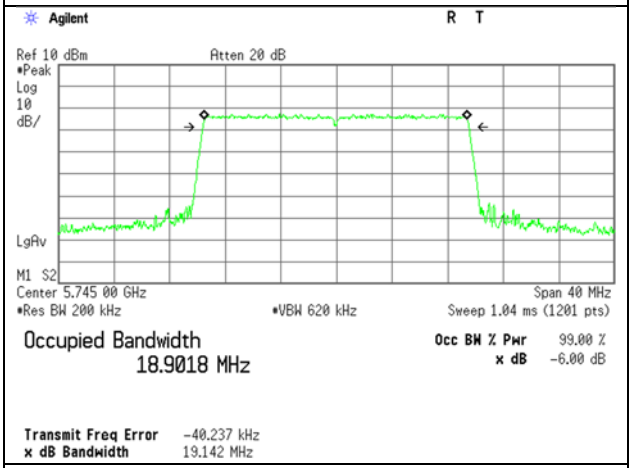
[Index 61] 5720 MHz



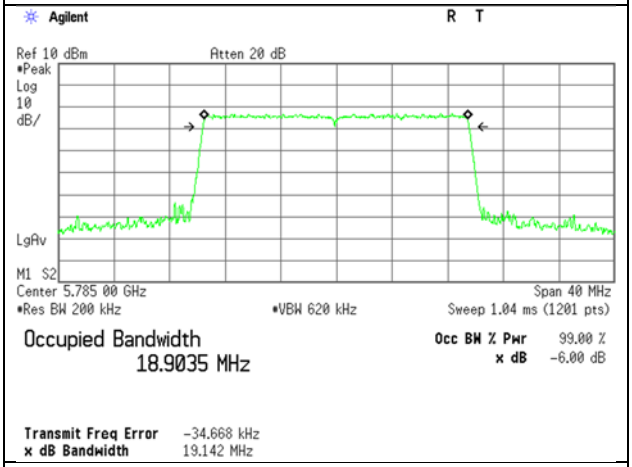
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11be-20 [242-tone RU]

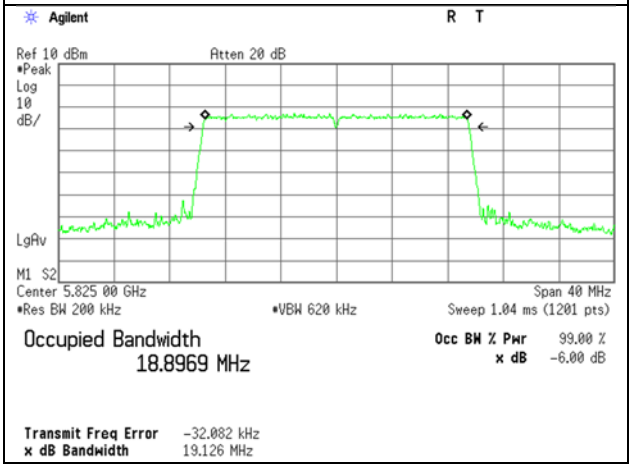
[Index 61]
5745 MHz



[Index 61]
5785 MHz



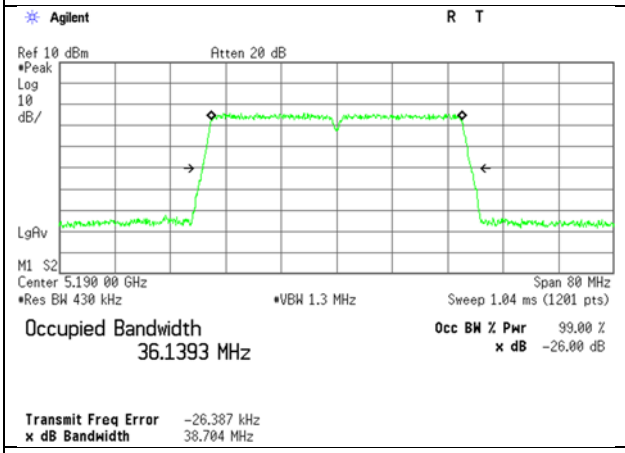
[Index 61]
5825 MHz



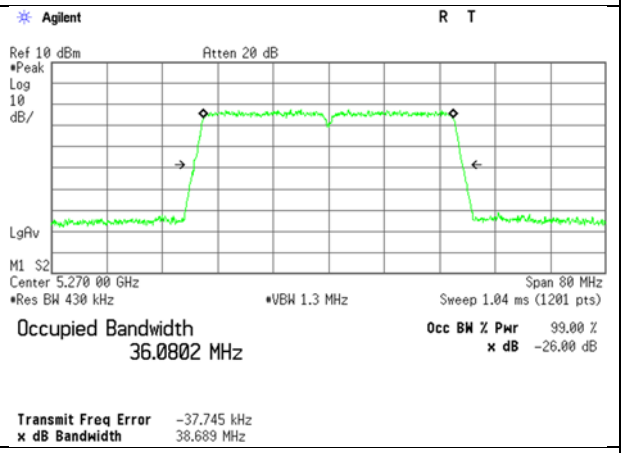
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11ac-40

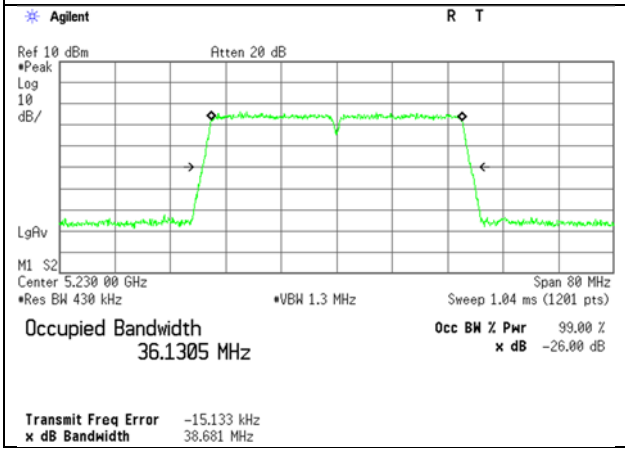
5190 MHz



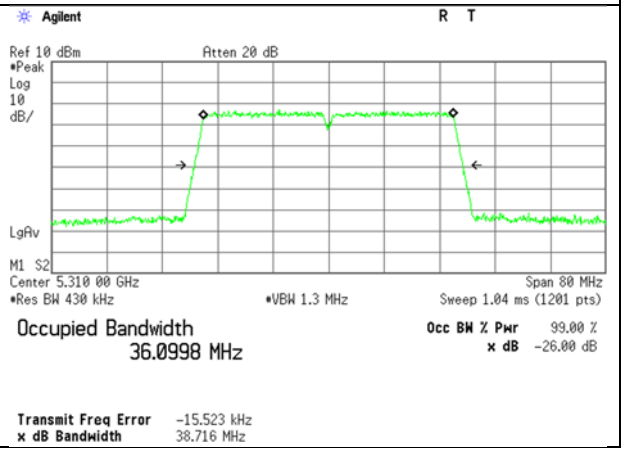
5270 MHz



5230 MHz



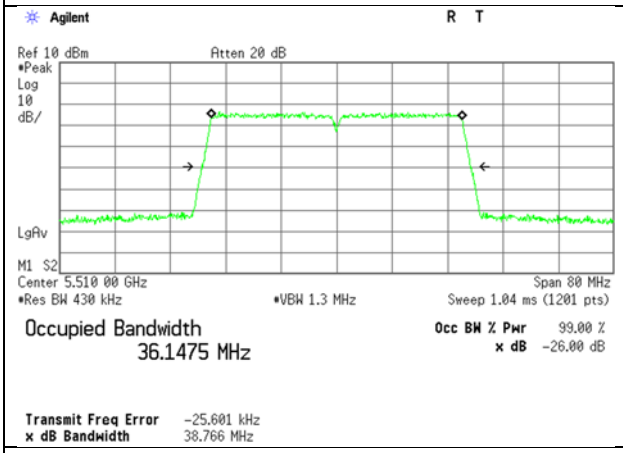
5310 MHz



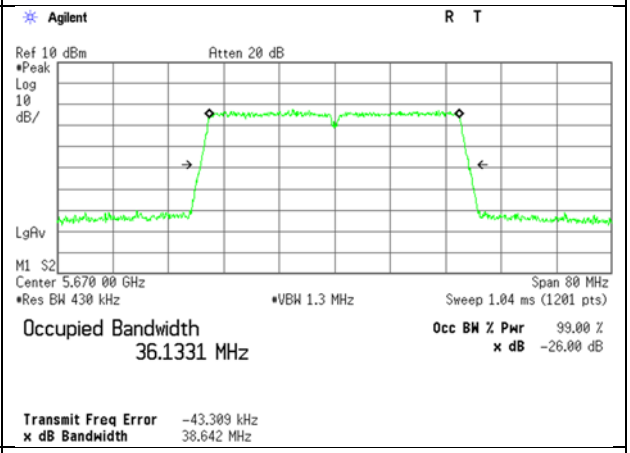
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11ac-40

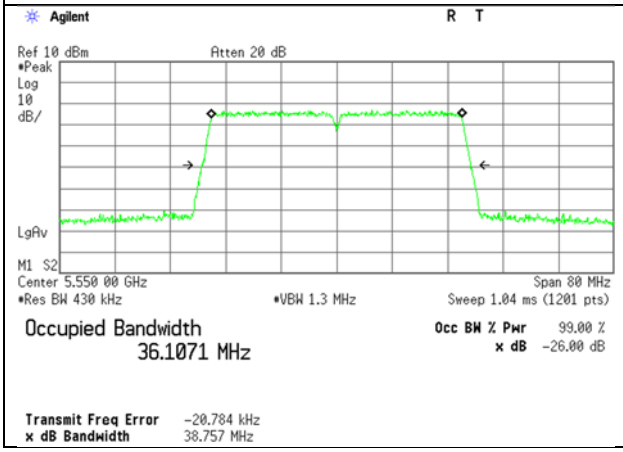
5510 MHz



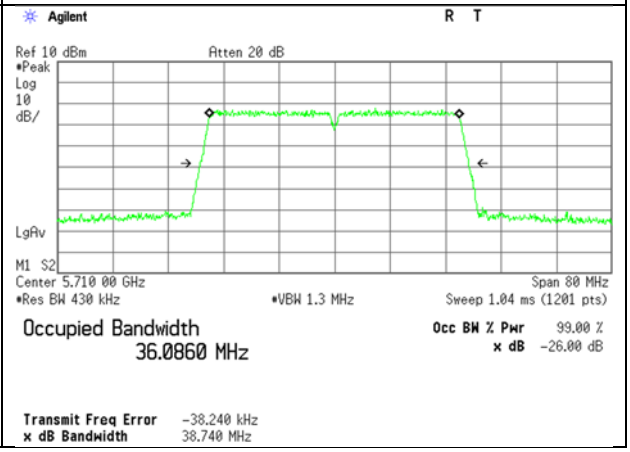
5670 MHz



5550 MHz



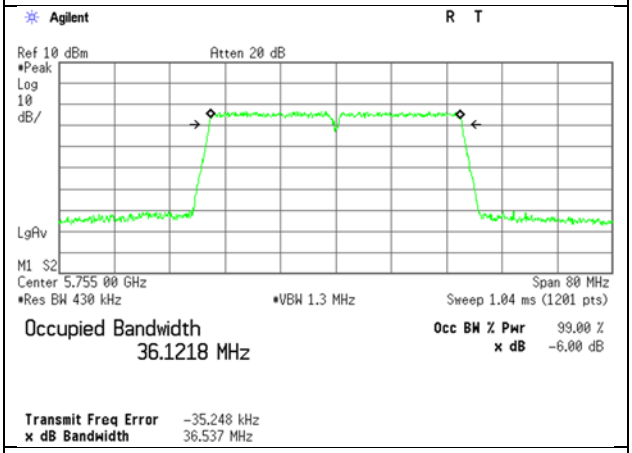
5710 MHz



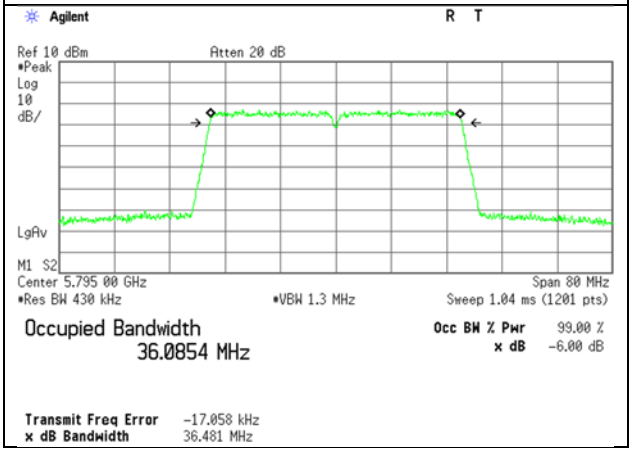
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11ac-40

5755 MHz



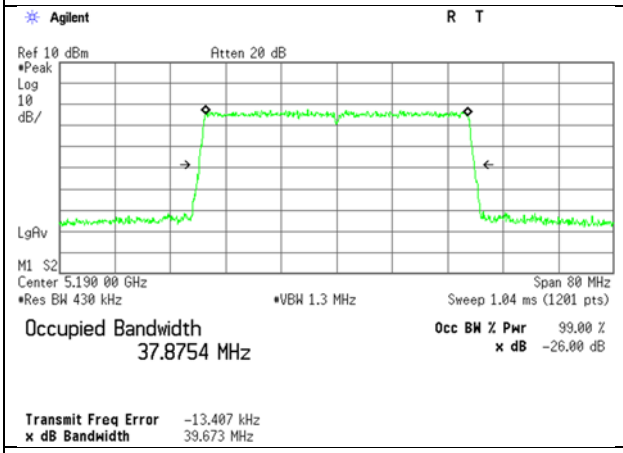
5795 MHz



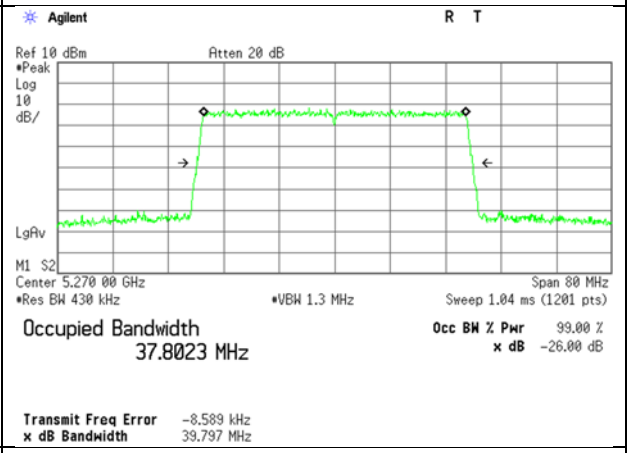
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11be-40 [OFDM]

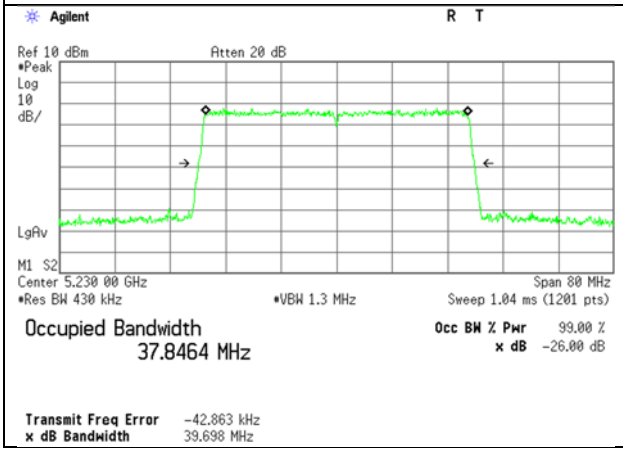
5190 MHz



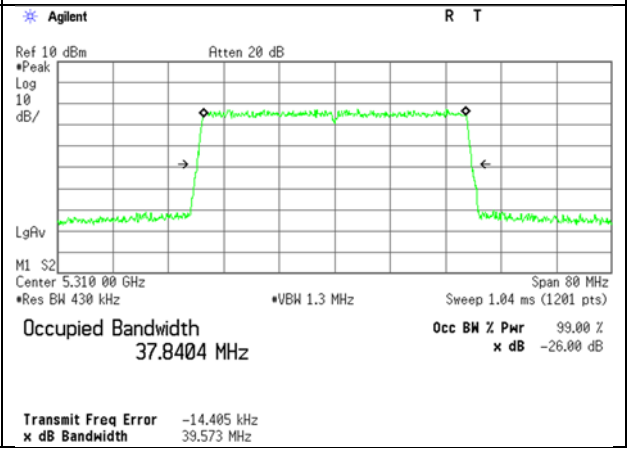
5270 MHz



5230 MHz



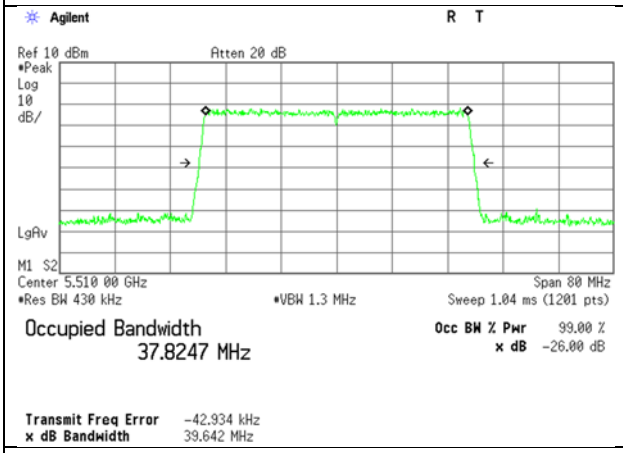
5310 MHz



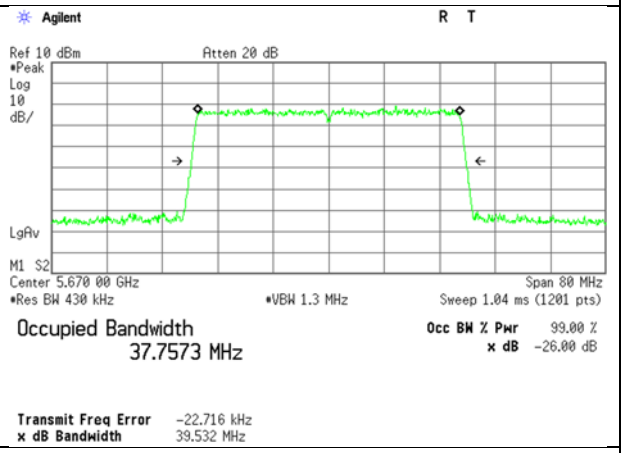
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11be-40 [OFDM]

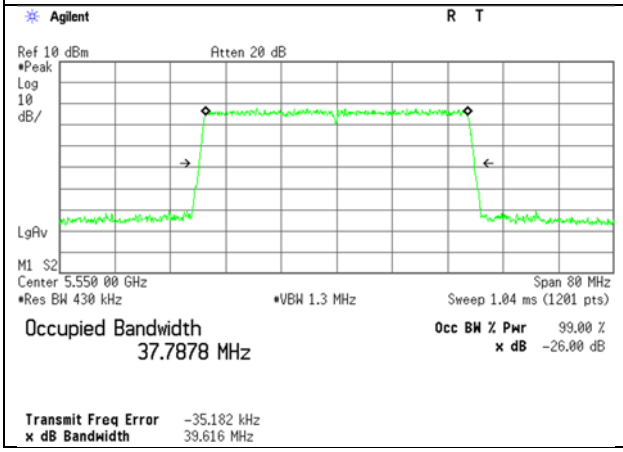
5510 MHz



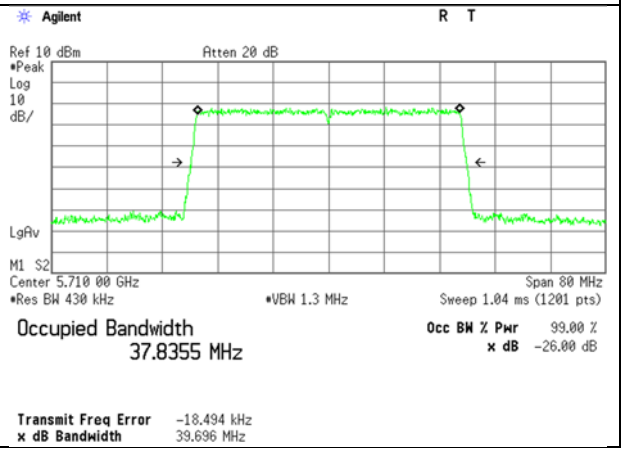
5670 MHz



5550 MHz



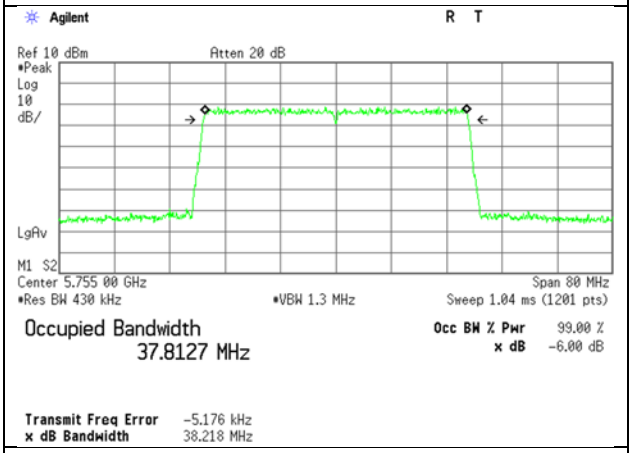
5710 MHz



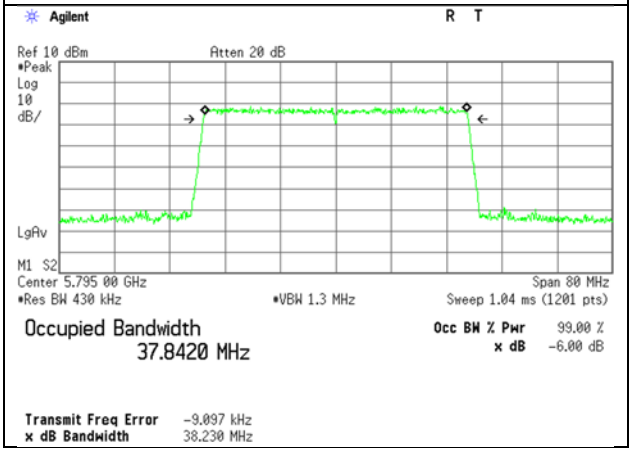
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11be-40 [OFDM]

5755 MHz



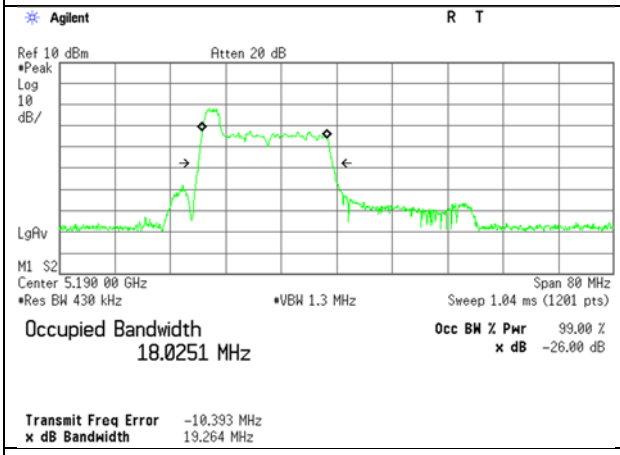
5795 MHz



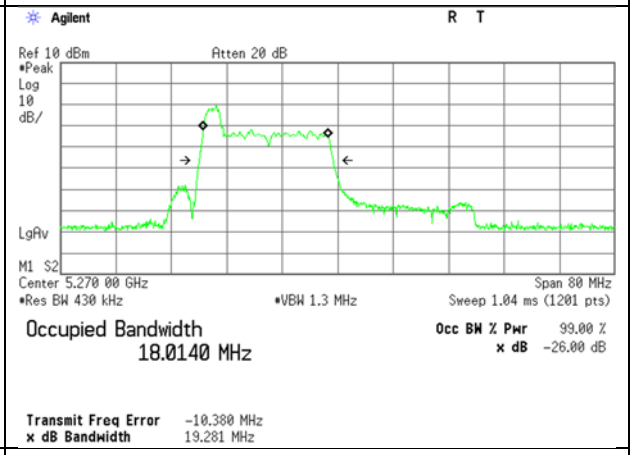
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11be-40 [26-tone RU]

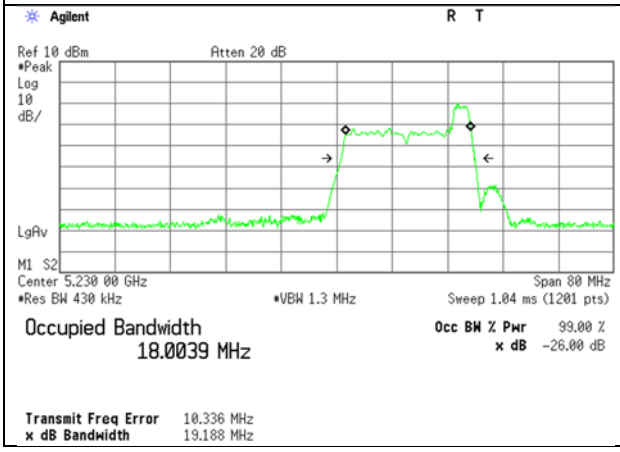
[Index 0] 5190 MHz



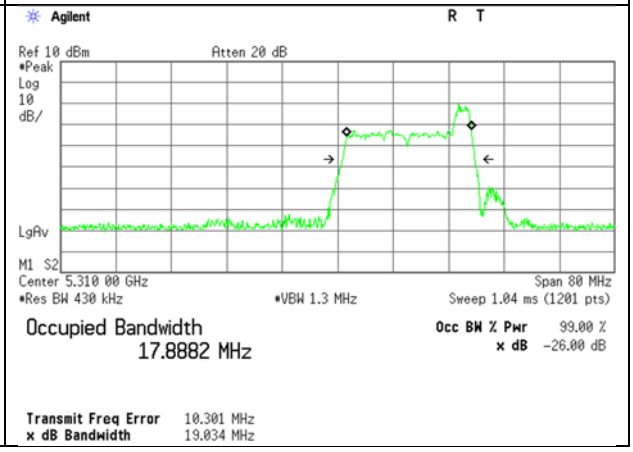
[Index 0] 5270 MHz



[Index 17] 5230 MHz



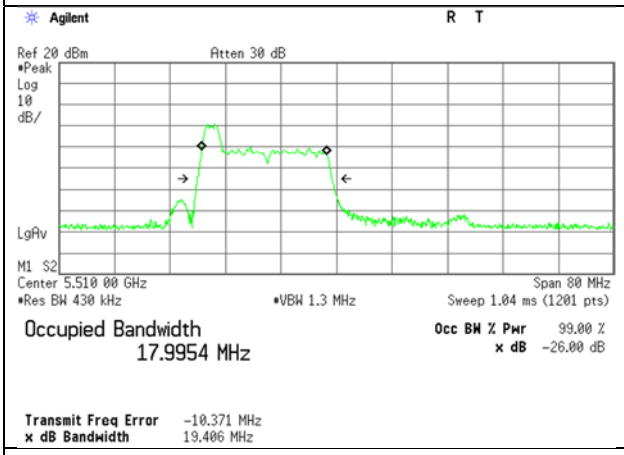
[Index 17] 5310 MHz



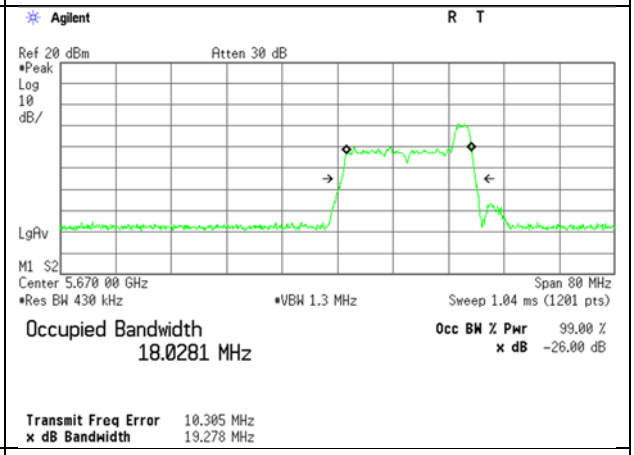
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11be-40 [26-tone RU]

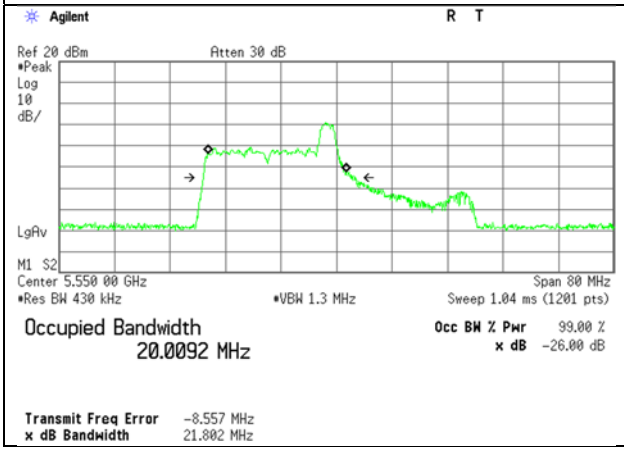
[Index 0] 5510 MHz



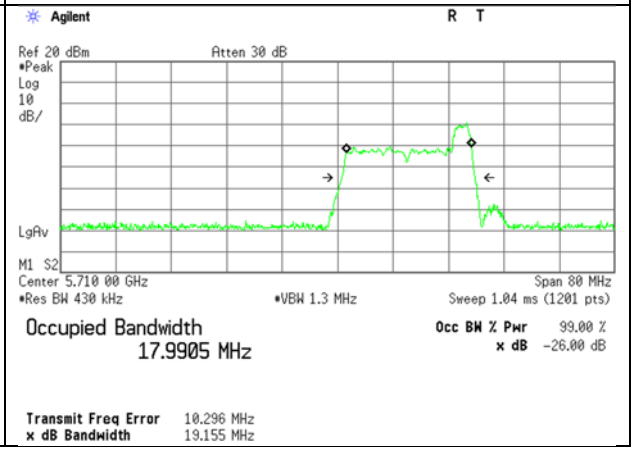
[Index 17] 5670 MHz



[Index 8] 5550 MHz



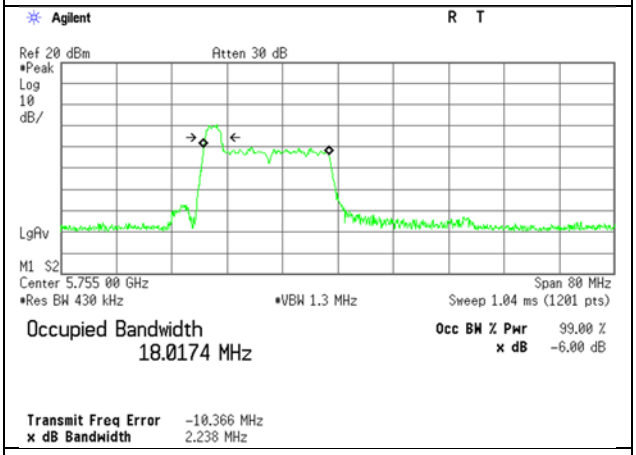
[Index 17] 5710 MHz



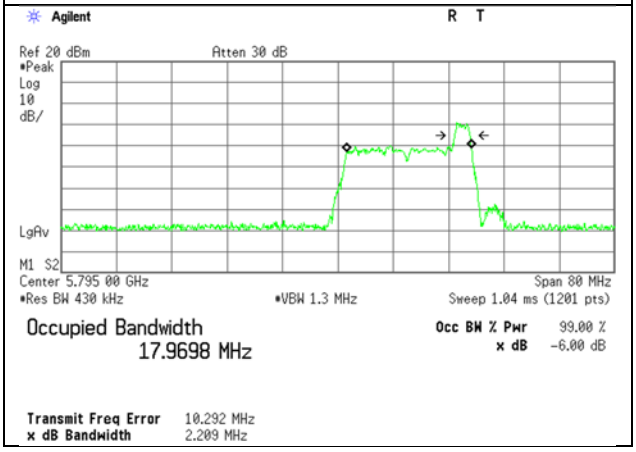
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11be-40 [26-tone RU]

[Index 0]
5755 MHz



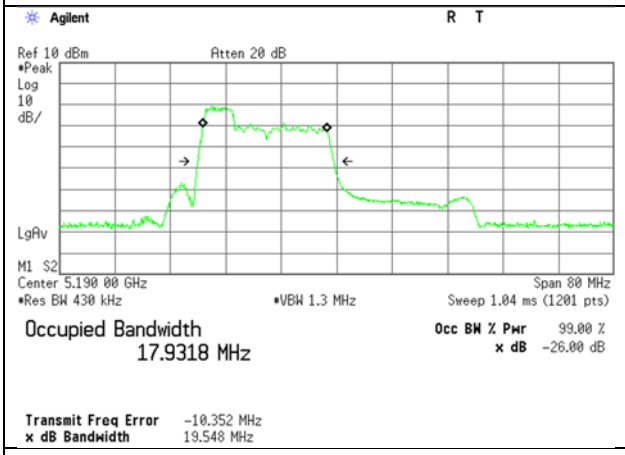
[Index 17]
5795 MHz



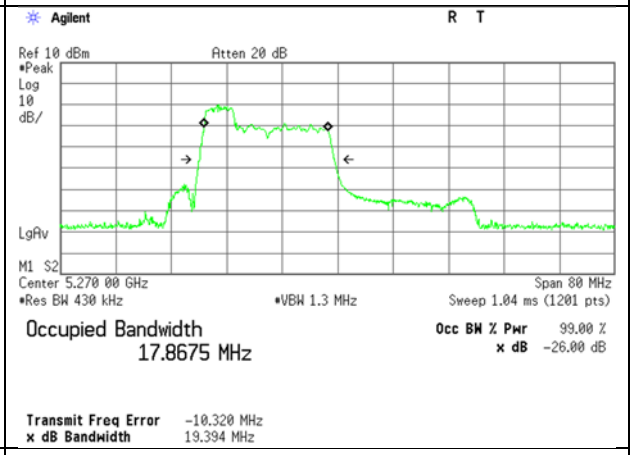
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11be-40 [52-tone RU]

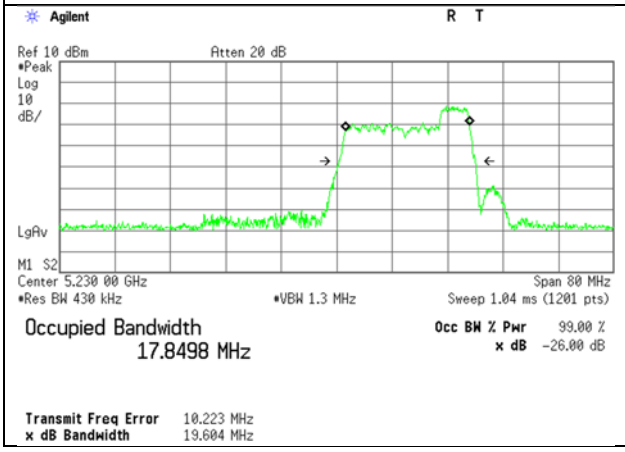
[Index 37] 5190 MHz



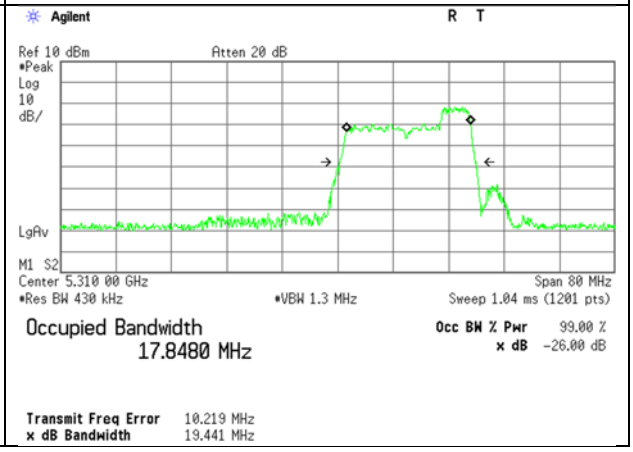
[Index 37] 5270 MHz



[Index 44] 5230 MHz



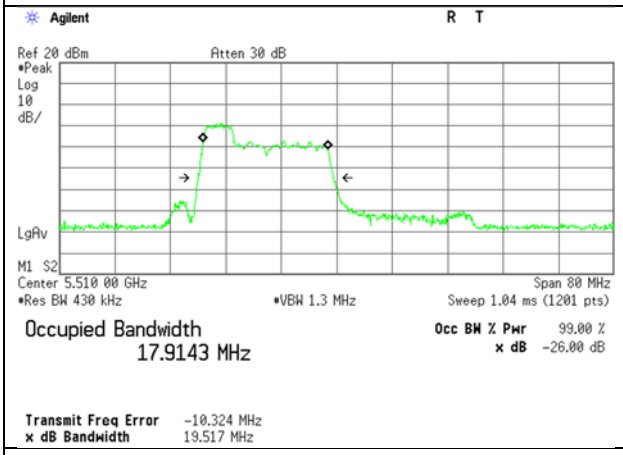
[Index 44] 5310 MHz



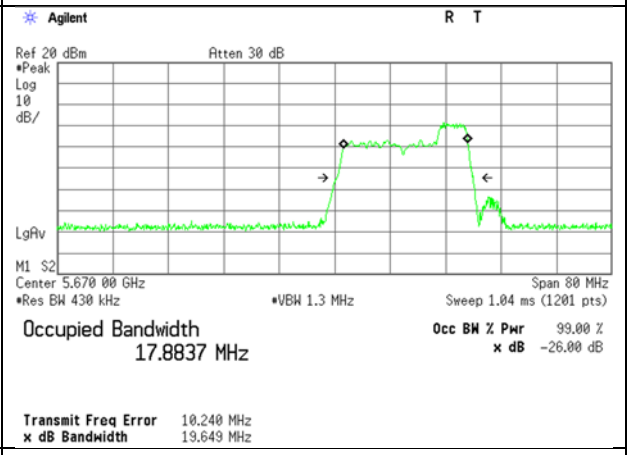
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11be-40 [52-tone RU]

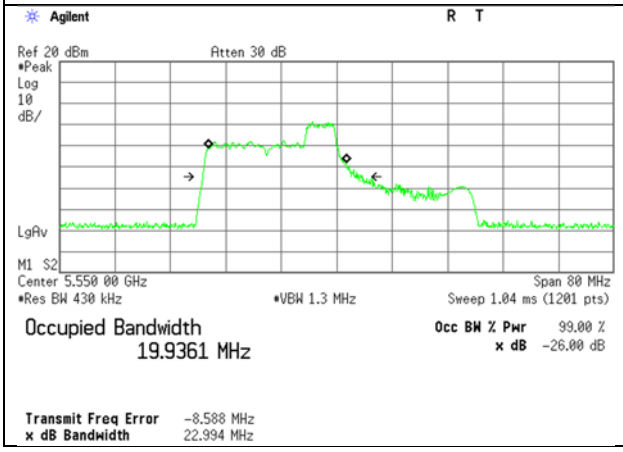
[Index 37] 5510 MHz



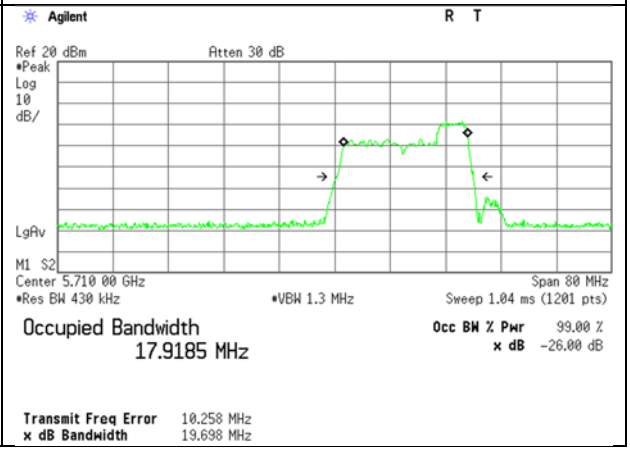
[Index 44] 5670 MHz



[Index 40] 5550 MHz



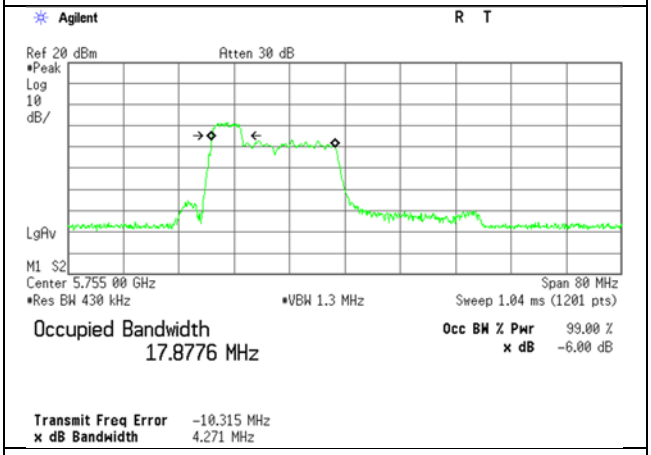
[Index 44] 5710 MHz



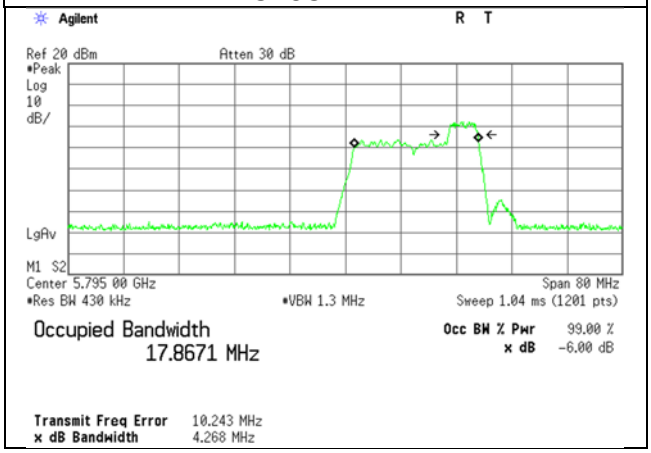
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11be-40 [52-tone RU]

[Index 37]
5755 MHz



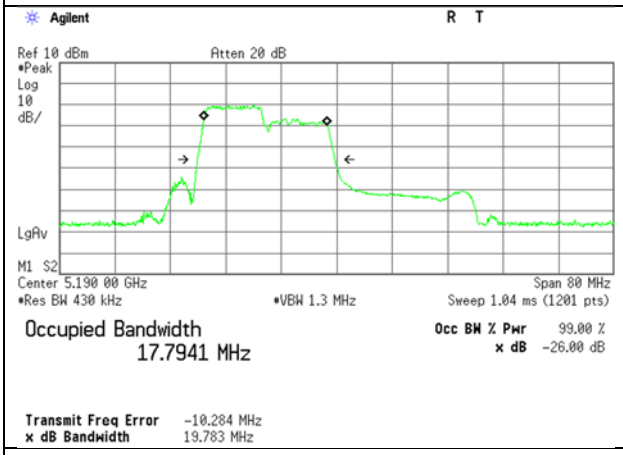
[Index 44]
5795 MHz



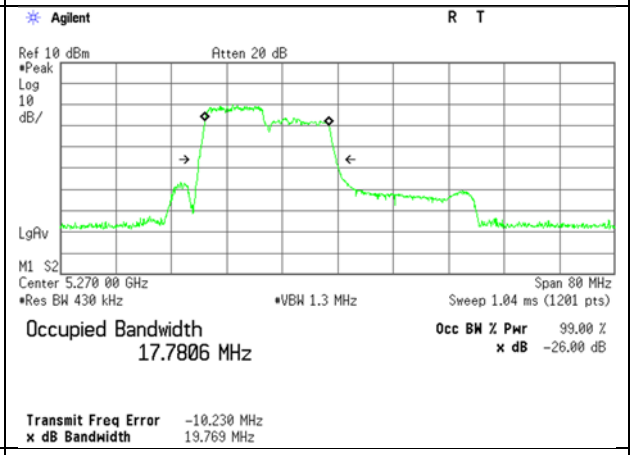
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11be-40 [106-tone RU]

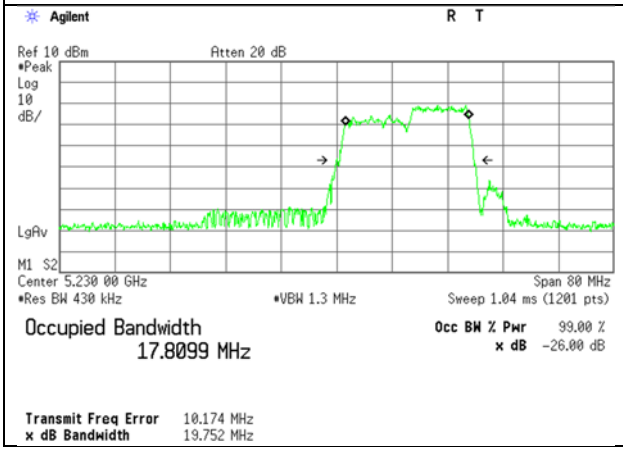
[Index 53] 5190 MHz



[Index 53] 5270 MHz



[Index 56] 5230 MHz



[Index 56] 5310 MHz