RADIO TEST REPORT

Test Report No. 14615663S-A-R1

Customer	**CANON INC.**
Description of EUT	**Wireless LAN Module**
Model Number of EUT	**FM3-L998**
FCC ID	**AZDFM3L998**
Test Regulation	**FCC Part 15 Subpart C**
Test Result	**Complied**
Issue Date	**December 19, 2023**
Remarks	**WLAN (2.4 GHz band) part**

Representative Test Engineer	Approved By
M. Ikudome	T. Imamura
Miku Ikudome Engineer	Toyokazu Imamura Leader

CERTIFICATE 1266.03

☐ 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".

Report Cover Page - Form-ULID-003532 (DCS:13-EM-F0429) Issue# 22.0

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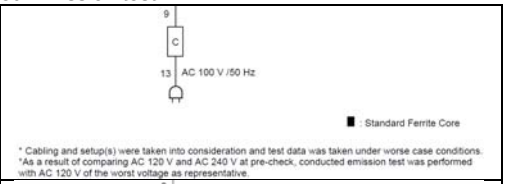
- The opinions and the interpretations to the result of the description in this report are outside scopes where UL Japan, Inc. has been accredited.
- The information provided from the customer for this report is identified in Section 1.
- For test report(s) referred in this report, the latest version (including any revisions) is always referred.

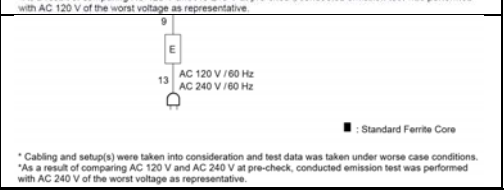
REVISION HISTORY

Original Test Report No.: 14615663S-A

This report is a revised version of 14615663S-A. 14615663S-A is replaced with this report.

<table>
<tr><th>Revision</th><th>Test Report No.</th><th>Date</th><th>Revised Contents</th></tr>
<tr><td>-
(Original)</td><td>14615663S-A</td><td>September 6, 2023</td><td>-</td></tr>
<tr><td>1</td><td>14615663S-A-R1</td><td>December 19, 2023</td><td>Change of test standards' version:
From “ANSI C63.10-2020” to "ANSI C63.10-2013"

Correction of 4.2 Configuration and Peripherals for Conducted Emission test:
From
 

To
 
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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

CONTENTS PAGE

SECTION 1: Customer Information

Company Name	CANON INC.
Address	16-1, Shimonoge 3-chome, Takatsu-ku, Kawasaki-shi, Kanagawa 213-8512, Japan
Telephone Number	+81 3-3758-2111
Contact Person	Yoshihiro Funamizu

The information provided from 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

* The laboratory is exempted from liability of any test results affected from the above information in SECTION 2 and 4.

SECTION 2: Equipment Under Test (EUT)

2.1 Identification of EUT

Description	Wireless LAN Module
Model Number	FM3-L998
Serial Number	Refer to SECTION 4.2
Condition	Production prototype (Not for Sale: This sample is equivalent to mass-produced items.)
Modification	No Modification by the test lab
Receipt Date	January 23, 2023
Test Date	January 27, 2023 to May 21, 2023

2.2 Product Description

General Specification

Rating	DC 5.0 V
Operating temperature	10 deg. C to 50 deg. C

Radio Specification

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

Equipment Type	Transceiver
Frequency of Operation	2412 MHz to 2462 MHz
Type of Modulation	DSSS, OFDM, OFDMA
Antenna Type	Monopole Antenna
Antenna Gain: G_{ANT}	Ant A: -0.75 dBi Ant B: -0.26 dBi
Directional Gain *1)	2.51 dBi

WLAN (IEEE802.11a/11n-20/11ac-20/11ax-20)

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
Type of Modulation	OFDM, OFDMA	
Antenna Type	Monopole Antenna	
Antenna Gain: G_{ANT}	W52 5150 MHz to 5250 MHz:	Ant A: 0.67 dBi (W52) Ant B: 0.91 dBi (W52)
	W53 5250 MHz to 5350 MHz	Ant A: 0.85 dBi (W53) Ant B: 1.50 dBi (W53)
	W56 5470 MHz to 5725 MHz:	Ant A: 0.97 dBi (W56) Ant B: 1.59 dBi (W56)
	W58 5725 MHz to 5850 MHz:	Ant A: 1.15 dBi (W58) Ant B: 1.50 dBi (W58)
Directional Gain *1)	W52 5150 MHz to 5250 MHz:	3.81 dBi
	W53 5250 MHz to 5350 MHz	4.20 dBi
	W56 5470 MHz to 5725 MHz:	4.30 dBi
	W58 5725 MHz to 5850 MHz:	4.34 dBi

*1) Directional Antenna Gain = $10\log\{\left(10^{\frac{G_{ANT1}}{20}} + 10^{\frac{G_{ANT2}}{20}}\right)^2 /2\}$

* Following channels are not used.
- 20 MHz Bandwidth (5600 MHz - 5640 MHz)

SECTION 3: Test Specification, Procedures & Results

3.1 Test Specification

Test Specification	FCC Part 15 Subpart C The latest version on the first day of the testing period
Title	FCC 47 CFR Part 15 Radio Frequency Device Subpart C Intentional Radiators Section 15.207 Conducted limits Section 15.247 Operation within the bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz

3.2 Procedures and Results

Item	Test Procedure	Specification	Worst Margin	Results	Remarks
Conducted Emission	**FCC:** ANSI C63.10-2013 6. Standard test methods	**FCC:** Section 15.207	13.8 dB 0.19080 MHz, QP, L1 Mode: Tx, 11ax-20 (OFDM), 2437 MHz	Complied	-
	ISED: RSS-Gen 8.8	**ISED:** RSS-Gen 8.8			
6 dB Bandwidth	**FCC:** KDB 558074 D01 15.247 Meas Guidance v05r02	**FCC:** Section 15.247(a)(2)	See data.	Complied	Conducted
	ISED: -	**ISED:** RSS-247 5.2(a)			
Maximum Peak Output Power	**FCC:** KDB 558074 D01 15.247 Meas Guidance v05r02	**FCC:** Section 15.247(b)(3)		Complied	Conducted
	ISED: RSS-Gen 6.12	**ISED:** RSS-247 5.4(d)			
Power Density	**FCC:** KDB 558074 D01 15.247 Meas Guidance v05r02	**FCC:** Section 15.247(e)		Complied	Conducted
	ISED: -	**ISED:** RSS-247 5.2(b)			
Spurious Emission Restricted Band Edges	**FCC:** KDB 558074 D01 15.247 Meas Guidance v05r02	**FCC:** Section15.247(d)	7.0 dB 2483.500 MHz, AV, Vert., Mode: Tx 11b 2462 MHz	Complied	Conducted (below 30 MHz)/ Radiated (above 30 MHz) *1)
	ISED: RSS-Gen 6.13	**ISED:** RSS-247 5.5 RSS-Gen 8.9 RSS-Gen 8.10			

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 section 15.247(d) and KDB 558074 D01 15.247 Meas Guidance v05r02 8.5 and 8.6.

FCC Part 15.31 (e)

The RF Module has its own regulator. The RF Module is constantly provided voltage through the regulator regardless of input voltage. Therefore, this EUT complies with the requirement.

FCC Part 15.203 Antenna requirement

The antenna is not removable from 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 Bandwidth	**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.

Item	Frequency range	Uncertainty (+/-)
Conducted emission (AC Mains) LISN	150 kHz-30 MHz	3.1 dB
Radiated emission (Measurement distance: 3 m)	9 kHz-30 MHz	3.3 dB
	30 MHz-200 MHz	4.8 dB
	200 MHz-1 GHz	6.1 dB
	1 GHz-6 GHz	4.7 dB
	6 GHz-18 GHz	5.3 dB
	18 GHz-40 GHz	5.5 dB
Radiated emission (Measurement distance: 1 m)	1 GHz-18 GHz	5.6 dB
	18 GHz-40 GHz	5.8 dB

Antenna terminal test	Uncertainty (+/-)
Power Measurement above 1 GHz (Average Detector)_SPM-06	1.3 dB
Power Measurement above 1 GHz (Peak Detector)_SPM-06	2.1 dB
Power Measurement above 1 GHz (Average Detector)_SPM-07	1.1 dB
Power Measurement above 1 GHz (Peak Detector)_SPM-07	1.2 dB
Power Measurement above 1 GHz (Average Detector)_SPM-13	1.1 dB
Power Measurement above 1 GHz (Peak Detector)_SPM-13	1.4 dB
Spurious emission (Conducted) below 1 GHz	0.84 dB
Conducted emissions Power Density Measurement 1 GHz-3 GHz	0.86 dB
Conducted emissions Power Density Measurement 3 GHz-18 GHz	2.4 dB
Spurious emission (Conducted) 18 GHz-26.5 GHz	2.4 dB
Spurious emission (Conducted) 26.5 GHz-40 GHz	2.2 dB
Bandwidth Measurement	0.012 %
Duty cycle and Time Measurement	0.27 %
Temperature_SCH-01	0.87 deg.C.
Humidity_SCH-01	3.5 %
Temperature_SCH-02	2.0 deg.C.
Humidity_SCH-02	6.7 %
Voltage	0.92 %

3.5 Test Location

UL Japan, Inc. Shonan EMC Lab.
1-22-3, Megumigaoka, Hiratsuka-shi, Kanagaw a-ken 259-1220 Japan
Telephone: +81 463 50 6400
A2LA Certificate Number: 1266.03
(FCC test firm registration number: 626366, ISED lab company number: 2973D / CAB identifier: JP0001)

Test site	IC Registration Number	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Maximum measurement distance
No.1 Semi-anechoic chamber	2973D-1	20.6 x 11.3 x 7.65	20.6 x 11.3	10 m
No.2 Semi-anechoic chamber	2973D-2	20.6 x 11.3 x 7.65	20.6 x 11.3	10 m
No.3 Semi-anechoic chamber	2973D-3	12.7 x 7.7 x 5.35	12.7 x 7.7	5 m
No.4 Semi-anechoic chamber	-	8.1 x 5.1 x 3.55	8.1 x 5.1	-
No.1 Shielded room	-	6.8 x 4.1 x 2.7	6.8 x 4.1	-
No.2 Shielded room	-	6.8 x 4.1 x 2.7	6.8 x 4.1	-
No.3 Shielded room	-	6.3 x 4.7 x 2.7	6.3 x 4.7	-
No.4 Shielded room	-	4.4 x 4.7 x 2.7	4.4 x 4.7	-
No.5 Shielded room	-	7.8 x 6.4 x 2.7	7.8 x 6.4	-
No.6 Shielded room	-	7.8 x 6.4 x 2.7	7.8 x 6.4	-
No.8 Shielded room	-	3.45 x 5.5 x 2.4	3.45 x 5.5	-
No.1 Measurement room	-	2.55 x 4.1 x 2.5	-	-

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 802.11b CDD (11b)	11 Mbps, PN9
IEEE 802.11g CDD (11g)	54 Mbps, PN9
IEEE 802.11n MIMO (CDD/SDM) 20 MHz BW (11n-20)	MCS 5 (1SS), PN9
IEEE 802.11ax MIMO (CDD/SDM) 20 MHz BW, OFDM (11ax-20 (OFDM))	MCS 6 (1SS), PN9
IEEE 802.11ax MIMO (CDD/SDM) 20 MHz BW, OFDM, pre-correction mode (11ax-20 (OFDM) pre-correction)	MCS 6 (1SS), PN9
IEEE 802.11ax MIMO (CDD/SDM) 20 MHz BW, OFDMA, 26-tone Resource Unit (11ax-20 (OFDMA) 26-tone RU)	MCS 6 (1SS), PN9
IEEE 802.11ax MIMO (CDD/SDM) 20 MHz BW, OFDMA, 26-tone Resource Unit, pre-correction mode (11ax-20 (OFDMA) 26-tone RU, pre-correction)	MCS 6 (1SS), PN9
IEEE 802.11ax MIMO (CDD/SDM) 20 MHz BW, OFDMA, 52-tone Resource Unit (11ax-20 (OFDMA) 52-tone RU)	MCS 6 (1SS), PN9
IEEE 802.11ax MIMO (CDD/SDM) 20 MHz BW, OFDMA, 52-tone Resource Unit, pre-correction mode (11ax-20 (OFDMA) 52-tone RU, pre-correction)	MCS 6 (1SS), PN9
IEEE 802.11ax MIMO (CDD/SDM) 20 MHz BW, OFDMA, 106-tone Resource Unit (11ax-20 (OFDMA) 106-tone RU)	MCS 6 (1SS), PN9
IEEE 802.11ax MIMO (CDD/SDM) 20 MHz BW, OFDMA, 106-tone Resource Unit, pre-correction mode (11ax-20 (OFDMA) 106-tone RU, pre-correction)	MCS 6 (1SS), PN9
IEEE 802.11ax MIMO (CDD/SDM) 20 MHz BW, OFDMA, 242-tone Resource Unit (11ax-20 (OFDMA) 242-tone RU)	MCS 6 (1SS), PN9
IEEE 802.11ax MIMO (CDD/SDM) 20 MHz BW, OFDMA, 242-tone Resource Unit, pre-correction mode (11ax-20 (OFDMA) 242-tone RU, pre-correction)	MCS 6 (1SS), PN9
The worst condition was determined based on the test result of Maximum Peak Output Power (Mid Channel) (SS: Spatial Stream)	

*Power of the EUT was set by the software as follows;

Power Setting: 11b:11 dBm

*1) 11g/n-20/ax-20 (OFDM) (1ch and 11ch): 5 dBm
11g/n-20/ax-20 (OFDM) (2ch to 10ch): 10 dBm

11ax-20 (OFDMA)
26 tone (1ch and 11ch): -8 dBm
26 tone (2ch to 10ch): -3 dBm
52 tone (1ch and 11ch): -5 dBm
52 tone (2ch to 10ch): 0 dBm
106 tone (1ch and 11ch): -2 dBm
106 tone (2ch to 10ch): 3 dBm
242 tone (1ch and 11ch): 2 dBm
242 tone (2ch to 10ch): 7 dBm

11ax-20 (pre-correction mode): -8 dBm

Software: DutApiMimoApApp.exe Version: 1.0.0.119 for EUT
(Date: 2023.01 23, Storage location: Driven by connected PC)
DutApiMimoApApp.exe Version: 1.0.0.115 for trigger module
(Date: 2023.01 23, Storage location: Driven by connected PC)
Labtool Version: 1.0.0.119.1
(Date: 2023.01 23, Storage location: Driven by connected PC)

*1) Actual measurement output power and set-up output power are different.
*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 mode by the pre-test.

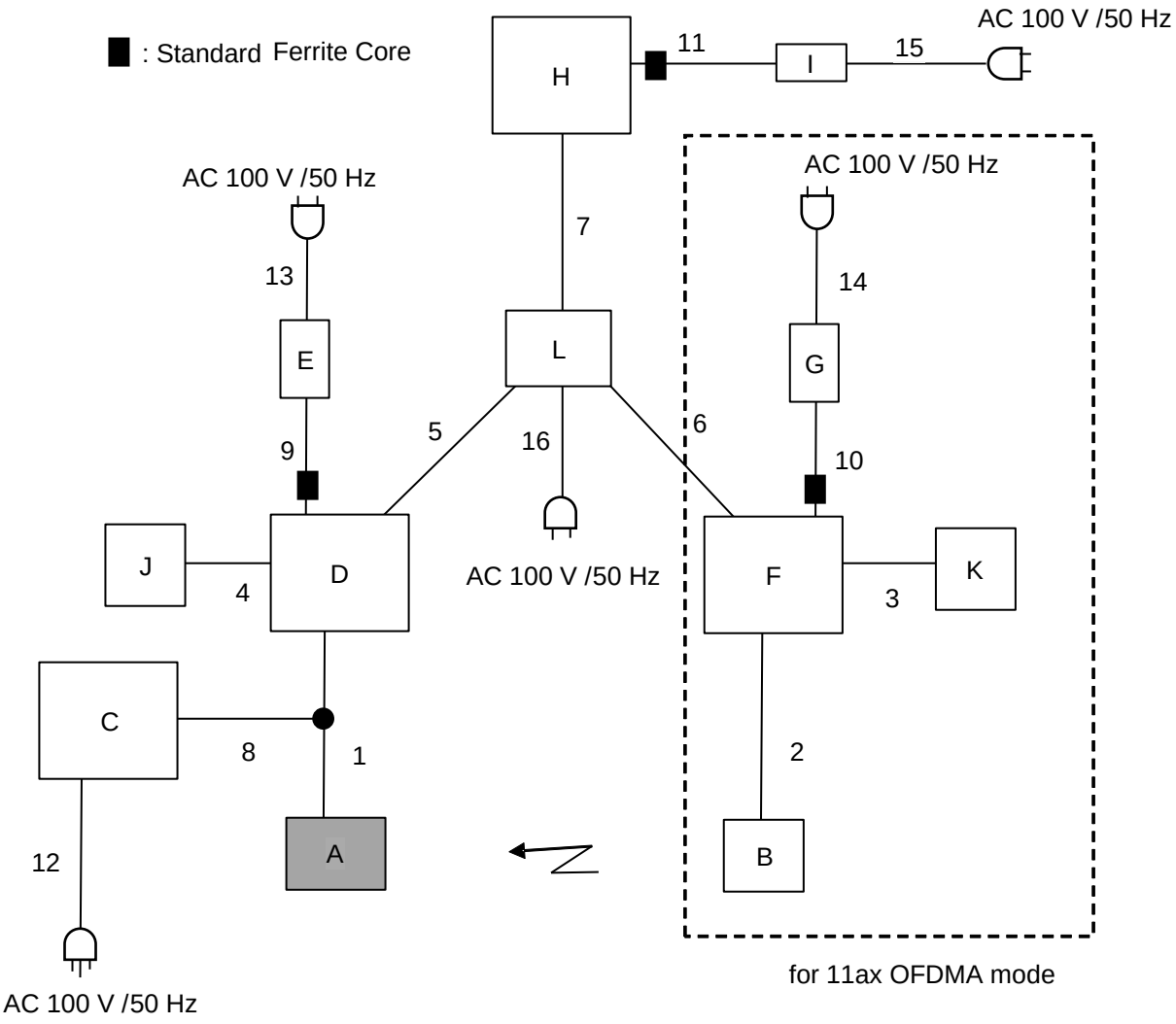
*The Details of Operating Mode(s)

Test Item	Operating Mode	Tested Antenna	Tested Frequency
Conducted Emission, Radiated Spurious Emission (Below 1 GHz) Conducted Spurious Emission	Tx 11ax-20 (OFDM) *1)	Ant A + Ant B	2437 MHz
Maximum Peak Output Power	Tx 11b	Ant A + Ant B	2412 MHz 2437 MHz 2462 MHz
	Tx 11g, Tx 11n-20, Tx 11ax-20 (OFDM), Tx 11ax-20 (OFDMA), Tx 11ax-20 (OFDMA) pre-correction	Ant A + Ant B	2412 MHz 2417 MHz 2437 MHz 2457 MHz 2462 MHz
6 dB Bandwidth, 99 % Occupied Bandwidth	Tx 11b	Ant A + Ant B	2412 MHz 2437 MHz 2462 MHz
	Tx 11g, Tx 11n-20, Tx 11ax-20 (OFDM), Tx 11ax-20 (OFDMA)	Ant A + Ant B	2412 MHz 2417 MHz 2437 MHz 2457 MHz 2462 MHz
Radiated Spurious Emission (Above 1 GHz)	Tx 11b	Ant A + Ant B	2412 MHz 2437 MHz 2462 MHz
	Tx 11g, Tx 11n-20, Tx 11ax-20 (OFDM), Tx 11ax-20 (OFDMA) *2)	Ant A + Ant B	2412 MHz 2417 MHz 2437 MHz 2457 MHz 2462 MHz
Power Density	Tx 11g, Tx 11n-20, Tx 11ax-20 (OFDM), Tx 11ax-20 (OFDMA)	Ant A + Ant B	2412 MHz 2437 MHz 2462 MHz

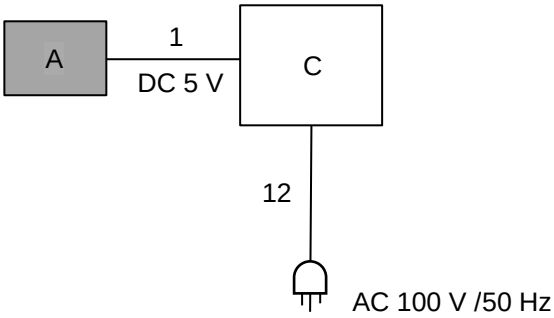
*1) The mode was tested as a representative, because it had the highest power at antenna terminal test.
*2) OFDMA configuration tests were conducted only at the band edge since preliminary testing indicated that the other spurious emission was lower than OFDM

4.2 Configuration and Peripherals

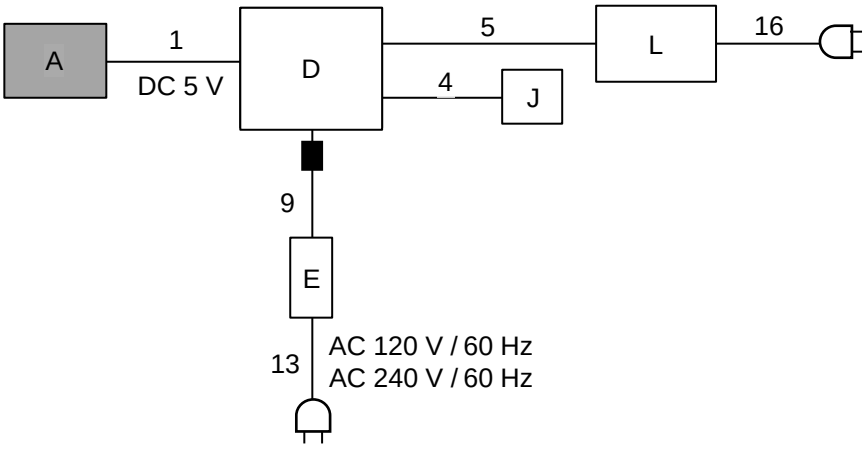
<For Antenna Terminal Conducted Tests and Radiated Emission tests (OFDMA mode)>



<For Radiated Emission tests (OFDM mode)>



<For Conducted Emission tests>



■ : Standard Ferrite Core

* Cabling and setup(s) were taken into consideration and test data was taken under worse case conditions.
*As a result of comparing AC 120 V and AC 240 V at pre-check, conducted emission test was performed with AC 240 V of the worst voltage as representative.

Description of EUT and Support Equipment

No.	Item	Model number	Serial Number	Manufacturer	Remarks
A	Wireless LAN Module	FM3-L998	2 *1) 4 *2)	Canon	EUT
B	Wireless LAN Module	FM3-L998	5	Canon	Trigger module (Auxiliary equipment) for OFDMA mode
C	Power Supply(DC)	PAN35-10A	DE001677	KIKUSUI	-
D	Laptop Computer	dynabook Satellite B453 M	ZE127581H	TOSHIBA	-
E	AC Adapter	PA3917U-1ACA	G71C000DP410	TOSHIBA	-
F	Laptop Computer	7666-77J	LV-B8R1X 08/05	Lenovo	-
G	AC Adapter	42T4422	11S92P1154Z1DXF1DBFDN	Lenovo	-
H	Laptop Computer	ThinkPad L580	PF-1LTWLZ	LENOVO	-
I	AC Adapter	ADLX45YLC2A	8SSA10E75842L1CZ94J0D3R	LENOVO	-
J	Portable HDD	LGB-PBSU3	27A674402225 A	Logitec INA Solutions Co, Ltd.	-
K	Portable HDD	LGB-PBSU3	24A674401370 A	Logitec INA Solutions Co, Ltd.	-
L	HUB	CG-SW05TXLV2	1082980090200734	Corega Inc.	-

*1) Used for Antenna Terminal conducted test
*2) Used for Conducted Emission test and Radiated Emission test

List of Cables Used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	USB	1.0	Shielded	Shielded	-
2	USB	1.0	Shielded	Shielded	-
3	USB	0.5	Shielded	Shielded	-
4	USB	0.5	Shielded	Shielded	-
5	LAN	3.0	Unshielded	Unshielded	-
6	LAN	3.0	Unshielded	Unshielded	-
7	LAN	3.0	Unshielded	Unshielded	-
8	DC	2.0	Unshielded	Unshielded	-
9	DC	1.7	Unshielded	Unshielded	-
10	DC	1.8	Unshielded	Unshielded	-
11	DC	1.8	Unshielded	Unshielded	-
12	AC	2.0	Unshielded	Unshielded	-
13	AC	0.8	Unshielded	Unshielded	-
14	AC	0.9	Unshielded	Unshielded	-
15	AC	0.9	Unshielded	Unshielded	-
16	AC	1.8	Unshielded	Unshielded	-

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 40 cm 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 80 cm from a Line Impedance Stabilization Network (LISN) / Artificial mains Network (AMN) and excess AC cable was bundled in center.

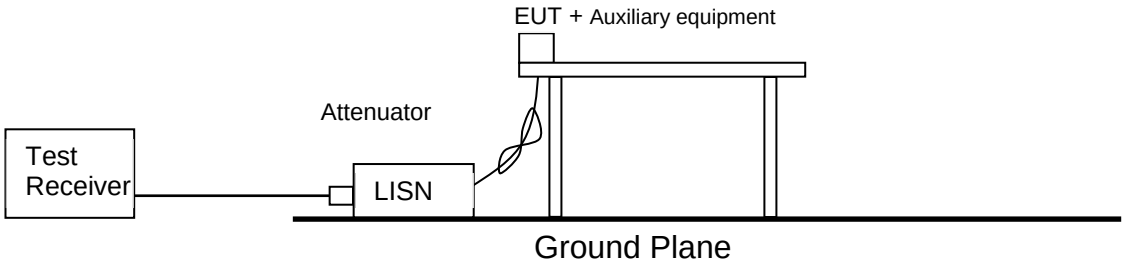
For the tests on EUT with other peripherals (as a whole system)
I/O cables that were connected to the peripherals were bundled in center. They were folded back and forth forming a bundle 30 cm to 40 cm long and were hanged at a 40 cm height to the ground plane. All unused 50ohm connectors of the LISN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

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

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

Figure 1: Test Setup



SECTION 6: Radiated Spurious Emission

Test Procedure

It was measured based on "8.5 and 8.6 of KDB 558074 D01 15.247 Meas Guidance v05r02".

[For below 1 GHz]
EUT was placed on a urethane platform of nominal size, 1.5 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.

[For 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.

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

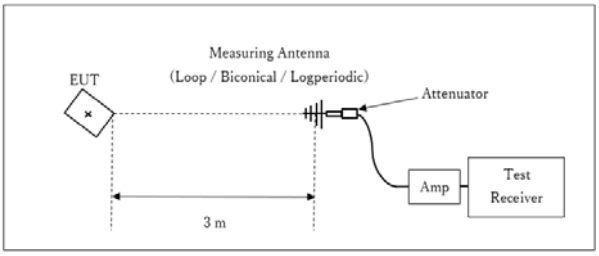
In any 100 kHz bandwidth outside the restricted band in which the spread spectrum intentional radiator is operating,
the radio frequency power that is produced by the intentional radiator confirmed 20 dB below that in the 100 kHz
bandwidth within the band that contains the highest level of the desired power, based on a radiated measurement.

20 dBc was applied to the frequency over the limit of FCC 15.209 / Table 4 of RSS-Gen 8.9(ISED) and outside the restricted band of FCC15.205 / Table 6 of RSS-Gen 8.10 (ISED).

Frequency	Below 1 GHz	Above 1 GHz		20 dBc
Instrument Used	Test Receiver	Spectrum Analyzer		Spectrum Analyzer
Detector	QP	PK	AV	PK
IF Bandwidth	BW 120 kHz	RBW: 1 MHz VBW: 3 MHz	[For other than OFDMA] 11.12.2.5.1 RBW: 1 MHz VBW: 3 MHz Detector: Power Averaging (RMS) Trace: 100 traces 11.12.2.5.2 The duty cycle was less than 98 % for detected noise, a duty factor was added to the 11.12.2.5.1 results. [For OFDMA] RBW: 1 MHz VBW: 1/T (T: burst length, refer to Burst rate confirmation sheet) Detector: Peak	RBW: 100 kHz VBW: 300 kHz

Figure 2: Test Setup

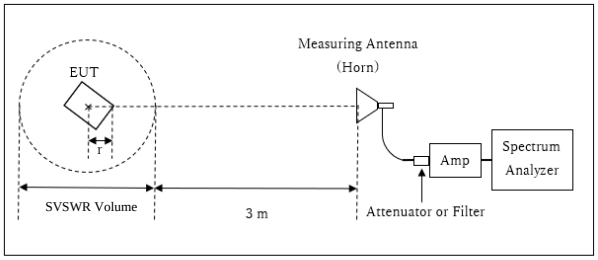
Below 1 GHz



× : Center of turn table

Test Distance: 3 m

1 GHz to 10 GHz

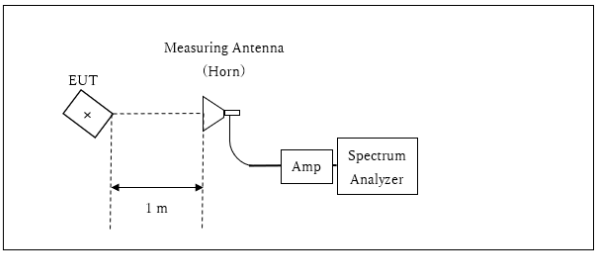


r : Radius of an outer periphery of EUT
× : Center of turn table

Distance Factor: 20 x log (3.98 m / 3.0 m) = 2.45 dB
* Test Distance: (3 + SVSWR Volume /2) - r = 3.98 m

SVSWR Volume : 2.0 m
(SVSWR Volume has been calibrated based on CISPR 16-1-4.)
r = 0.02 m

10 GHz to 26.5 GHz



× : Center of turn table

Distance Factor: 20 x log (1.0 m / 3.0 m) = -9.54 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.

	Below 1 GHz	1 -10 GHz	10 -18 GHz	Above 18 GHz
Horizontal	X	X	X	X
Vertical	X	Y	X	Y

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

Measurement Range : 30 MHz to 26.5 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
6 dB Bandwidth	50 MHz	100 kHz	300 kHz	Auto	Peak	Max Hold	Spectrum Analyzer
99 % Occupied Bandwidth *1)	Enough width to display emission skirts	1 to 5 % of OBW	Three times of RBW	Auto	Peak	Max Hold	Spectrum Analyzer
Maximum Peak Output Power	-	-	-	Auto	Peak/ Average *2)	-	Power Meter (Sensor: 160 MHz BW)
Peak Power Density	1.5 times the 6 dB Bandwidth	3 kHz	9.1 kHz	Auto	Peak	Max Hold	Spectrum Analyzer *3)
Conducted Spurious Emission *4) *5)	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) Reference data
*3) Section 11.10.2 Method PKPSD (peak PSD) of "ANSI C63.10-2013".
*4) 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.
(9 kHz - 150 kHz: RBW = 200 Hz, 150 kHz - 30 MHz: RBW = 10 kHz)
*5) 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.

The test results and limit are rounded off to two decimals place, 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

DATA OF CONDUCTED EMISSION TEST

UL Japan,Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2023/03/17

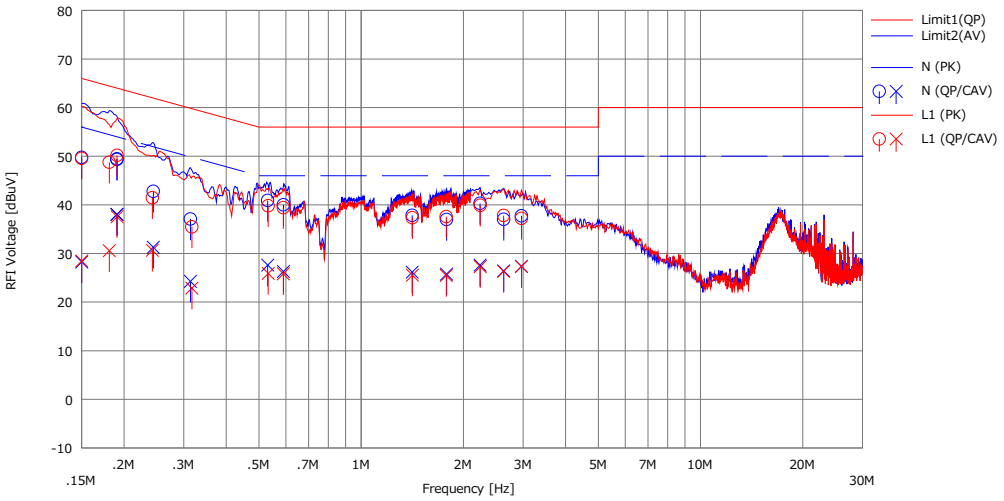
Mode : Tx, 11ax-20 (OFDM), 2437 MHz

Power : DC 5.0 V (AC 240 V / 60 Hz)
Temp./Humi. : 26 deg.C / 26 %RH

Remarks : -

Limit : FCC_Part 15 Subpart C(15.207)

Engineer : Kouki Yamada



No.	Freq.	Reading		C.Fac	Results		Limit		Margin		Phase	Comment
		〈QP〉	〈CAV〉		〈QP〉	〈CAV〉	〈QP〉	〈AV〉	〈QP〉	〈AV〉		
	[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
1	0.15000	37.30	15.80	12.46	49.76	28.26	66.00	56.00	16.2	27.7	N	
2	0.19069	37.00	25.60	12.45	49.45	38.05	64.01	54.01	14.5	15.9	N	
3	0.19070	36.90	25.60	12.45	49.35	38.05	64.01	54.01	14.6	15.9	N	
4	0.24400	30.30	18.80	12.48	42.78	31.28	61.96	51.96	19.1	20.6	N	
5	0.31379	24.60	11.80	12.48	37.08	24.28	59.87	49.87	22.7	25.5	N	
6	0.53013	28.40	15.10	12.49	40.89	27.59	56.00	46.00	15.1	18.4	N	
7	0.58991	27.50	13.80	12.50	40.00	26.30	56.00	46.00	16.0	19.7	N	
8	1.41290	25.30	13.60	12.56	37.86	26.16	56.00	46.00	18.1	19.8	N	
9	1.78500	24.40	13.20	12.58	36.98	25.78	56.00	46.00	19.0	20.2	N	
10	2.24020	27.70	15.00	12.60	40.30	27.60	56.00	46.00	15.7	18.4	N	
11	2.63040	24.40	13.80	12.62	37.02	26.42	56.00	46.00	18.9	19.5	N	
12	2.96630	25.10	14.70	12.64	37.74	27.34	56.00	46.00	18.2	18.6	N	
13	0.15000	37.10	16.00	12.47	49.57	28.47	66.00	56.00	16.4	27.5	L1	
14	0.18100	36.30	18.10	12.46	48.76	30.56	64.44	54.44	15.6	23.8	L1	
15	0.19080	37.70	25.10	12.46	50.16	37.56	64.00	54.00	13.8	16.4	L1	
16	0.24250	29.00	18.20	12.46	41.46	30.66	62.01	52.01	20.5	21.3	L1	
17	0.31700	23.00	10.40	12.47	35.47	22.87	59.79	49.79	24.3	26.9	L1	
18	0.53191	27.30	13.40	12.50	39.80	25.90	56.00	46.00	16.2	20.1	L1	
19	0.58948	26.90	13.30	12.52	39.42	25.82	56.00	46.00	16.5	20.1	L1	
20	1.41579	24.80	13.00	12.56	37.36	25.56	56.00	46.00	18.6	20.4	L1	
21	1.78010	25.00	12.90	12.58	37.58	25.48	56.00	46.00	18.4	20.5	L1	
22	2.24270	27.30	14.70	12.60	39.90	27.30	56.00	46.00	16.1	18.7	L1	
23	2.62820	25.20	13.70	12.61	37.81	26.31	56.00	46.00	18.1	19.6	L1	
24	2.96690	24.60	14.70	12.63	37.23	27.33	56.00	46.00	18.7	18.6	L1	

Calculation:Result[dBuV]=Reading[dBuV]+C.Fac(LISN(AMN)+Cable+ATT)[dB]
LISN(AMN):SLS-05

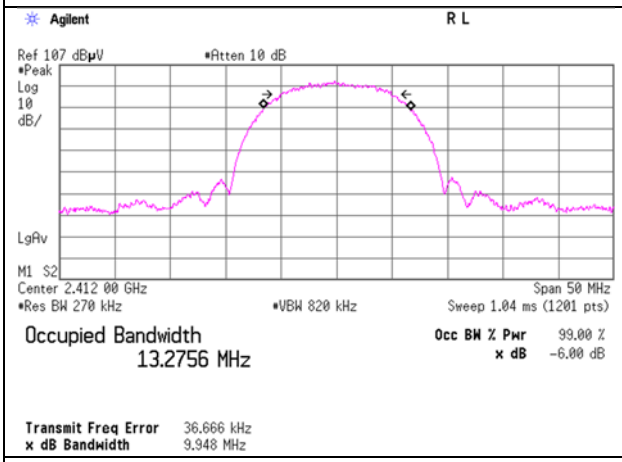
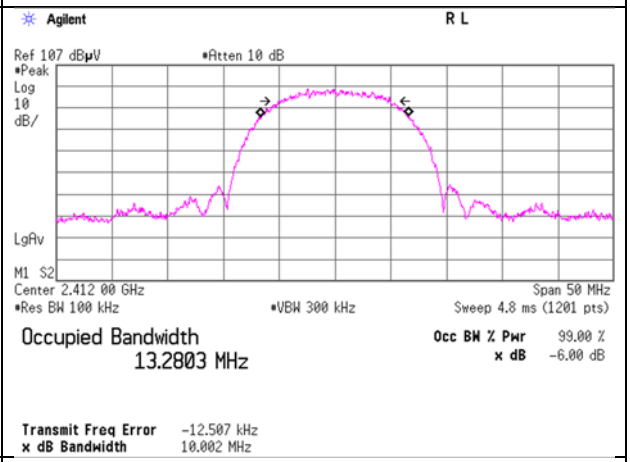
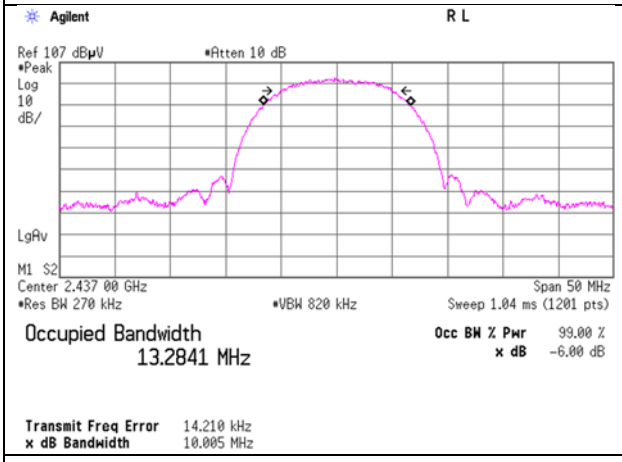
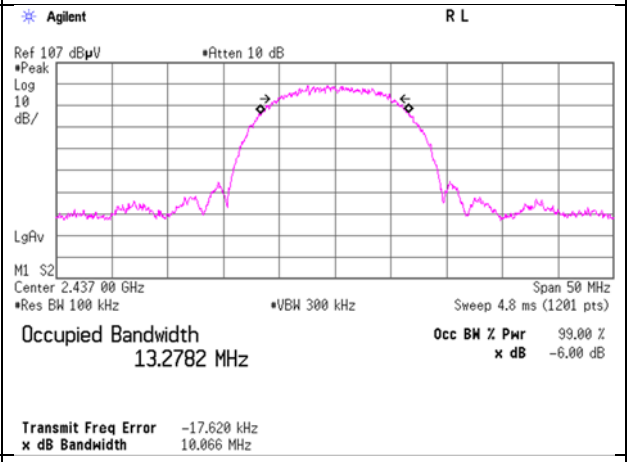
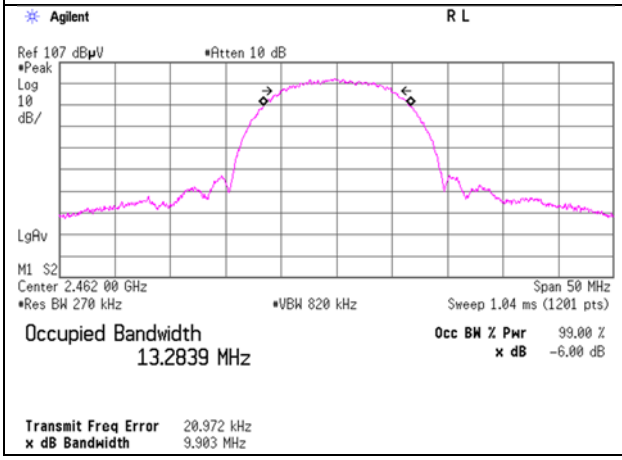
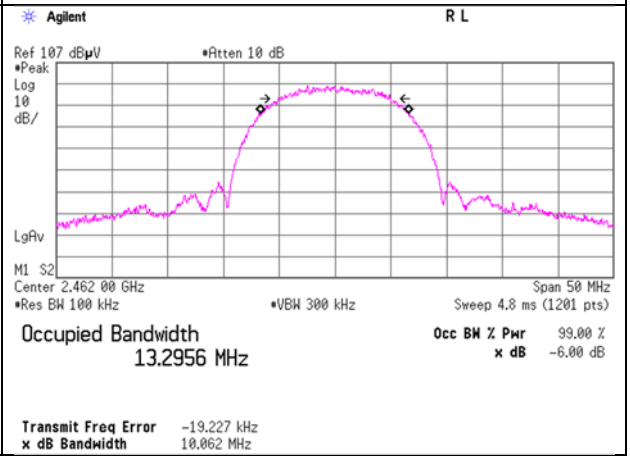
99 % Occupied Bandwidth and 6 dB Bandwidth

Test place	Shonan EMC Lab. No.1 Measurement Room		
Date	February 3, 2023	February 6, 2023	February 7, 2023
Temperature / Humidity	22 deg. C / 28 % RH	23 deg. C / 25 % RH	23 deg. C / 24 % RH
Engineer	Miku Ikudome	Miku Ikudome	Miku Ikudome
Mode	Tx		

Mode	Frequency [MHz]	99 % Occupied Bandwidth [kHz]	6 dB Bandwidth [MHz]	Limit for 6 dB Bandwidth [MHz]
11b	2412	13275.6	10.002	> 0.5000
	2437	13284.1	10.066	> 0.5000
	2462	13283.9	10.062	> 0.5000
11g	2412	16777.5	16.520	> 0.5000
	2417	16808.5	16.545	> 0.5000
	2437	16801.6	16.536	> 0.5000
	2457	16806.8	16.535	> 0.5000
	2462	16797.3	16.506	> 0.5000
11n-20	2412	17864.4	17.679	> 0.5000
	2417	17934.3	17.700	> 0.5000
	2437	17873.5	17.679	> 0.5000
	2457	17901.4	17.697	> 0.5000
	2462	17931.2	17.697	> 0.5000
11ax-20 (OFDM)	2412	18844.8	18.751	> 0.5000
	2417	18829.1	18.797	> 0.5000
	2437	18812.7	18.688	> 0.5000
	2457	18852.1	18.799	> 0.5000
	2462	18806.3	18.848	> 0.5000

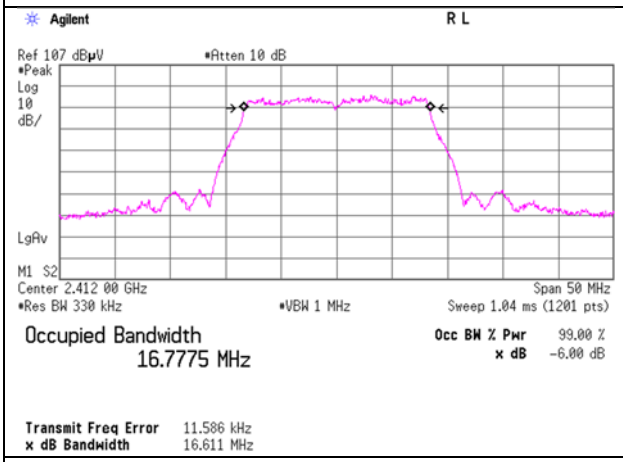
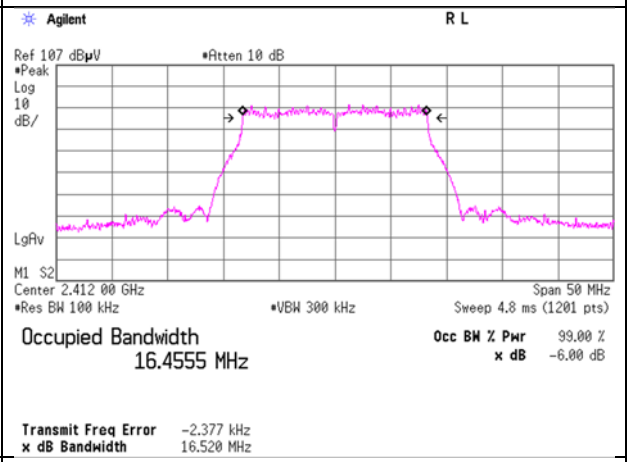
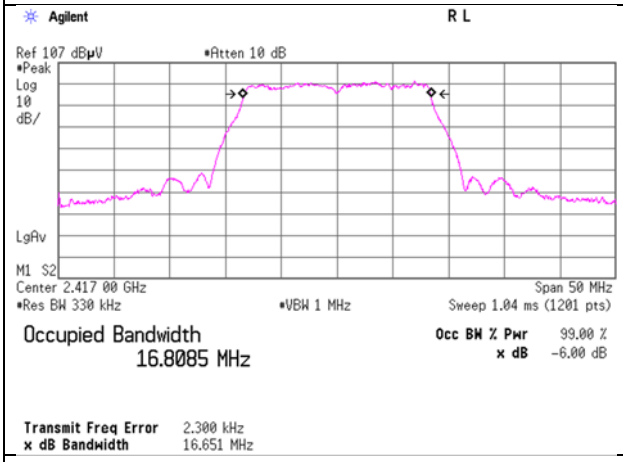
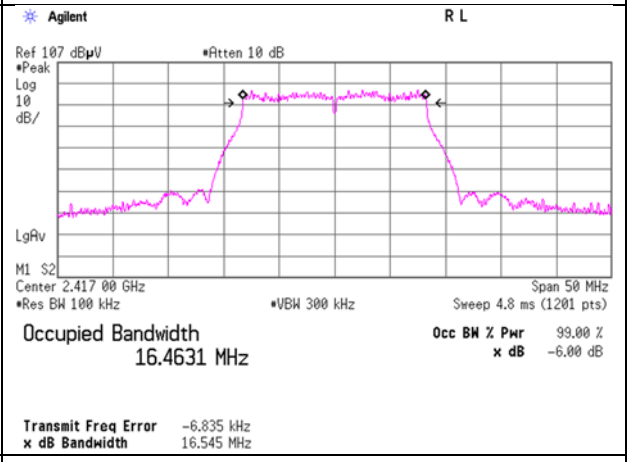
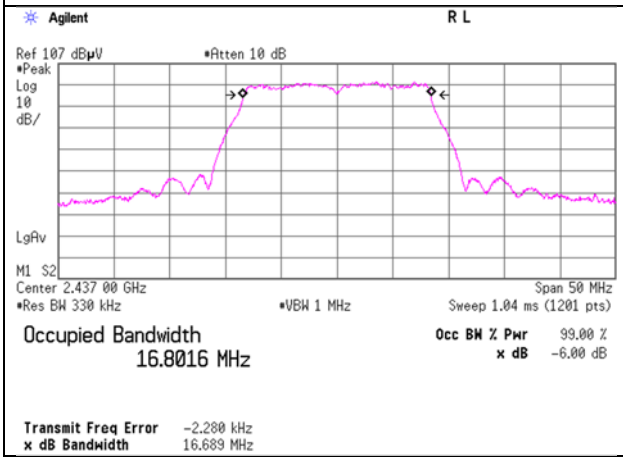
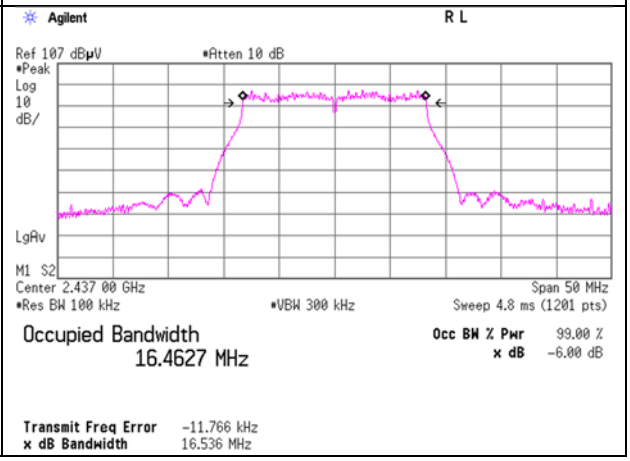
99 % Occupied Bandwidth and 6 dB Bandwidth

11b

99 % Occupied Bandwidth	6 dB Bandwidth
2412 MHz	**2412 MHz**
	
2437 MHz	**2437 MHz**
	
2462 MHz	**2462 MHz**
	

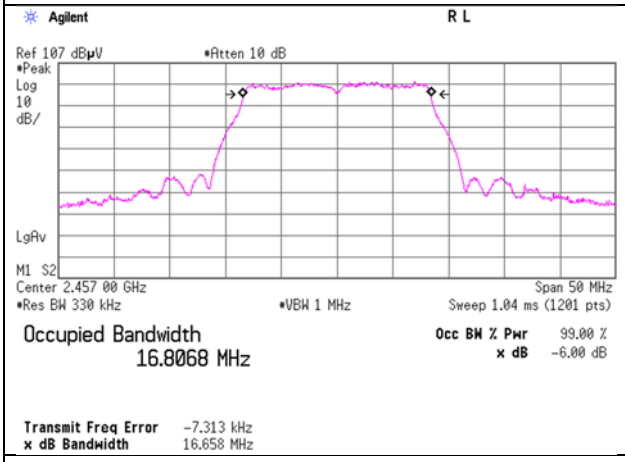
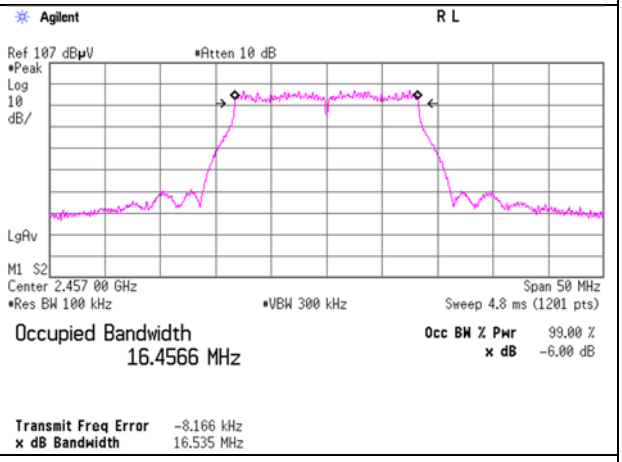
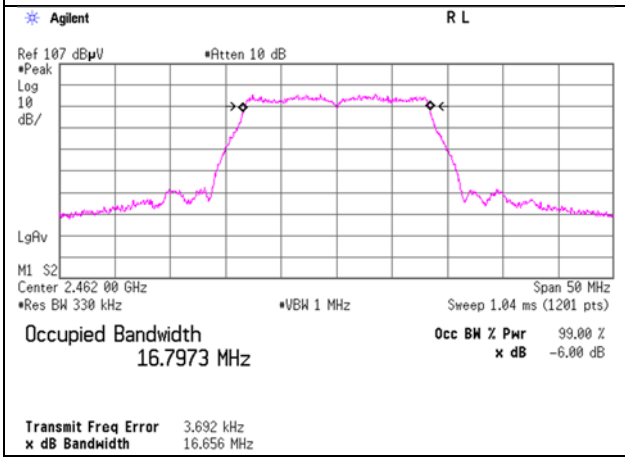
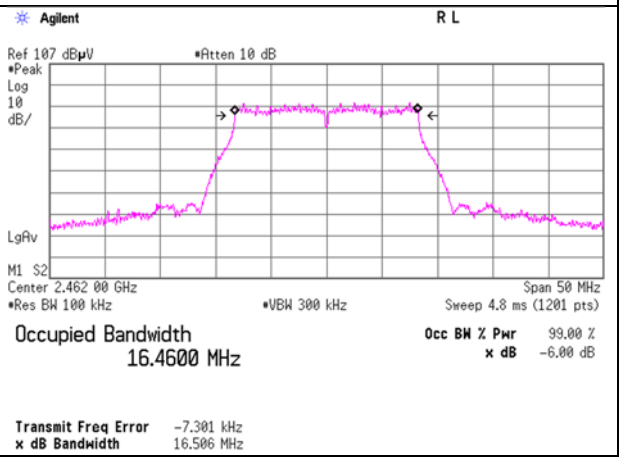
99 % Occupied Bandwidth and 6 dB Bandwidth

11g

99 % Occupied Bandwidth	6 dB Bandwidth
2412 MHz	**2412 MHz**
	
2417 MHz	**2417 MHz**
	
2437 MHz	**2437 MHz**
	

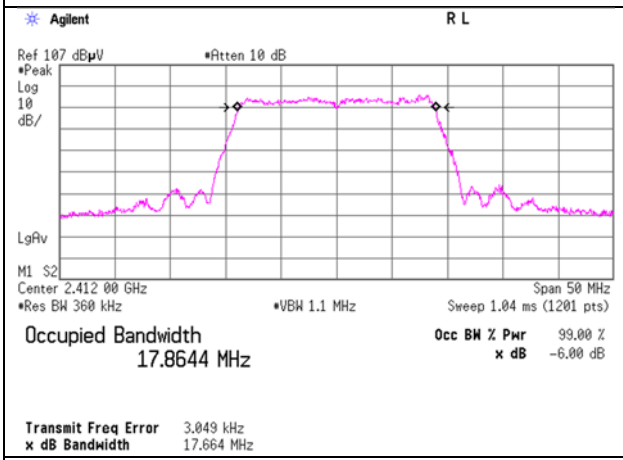
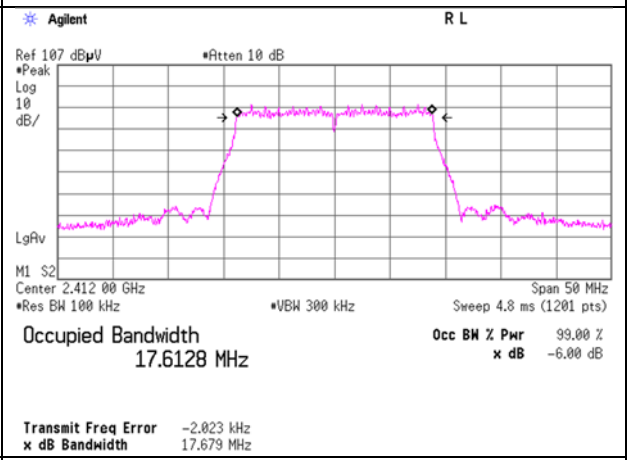
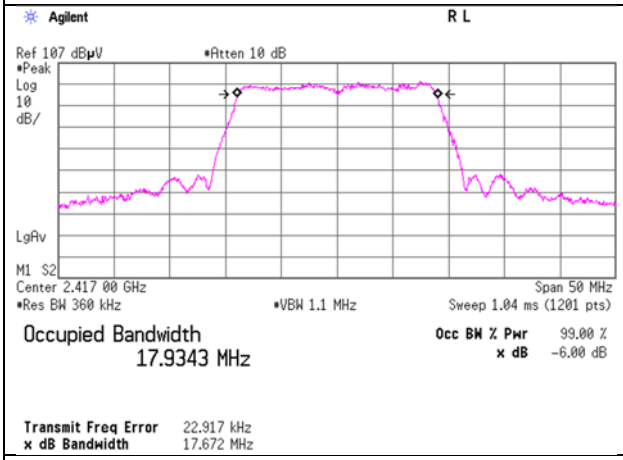
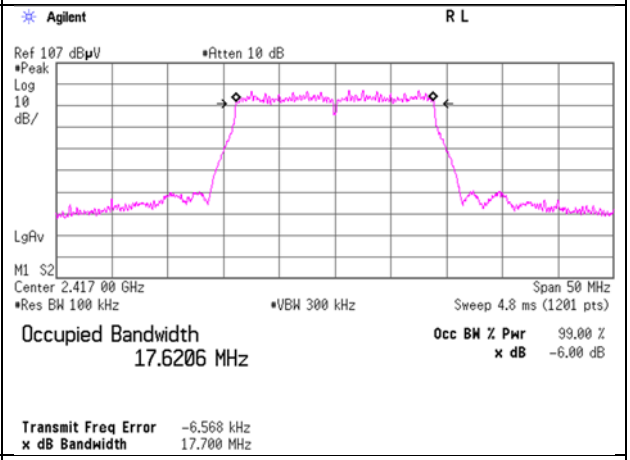
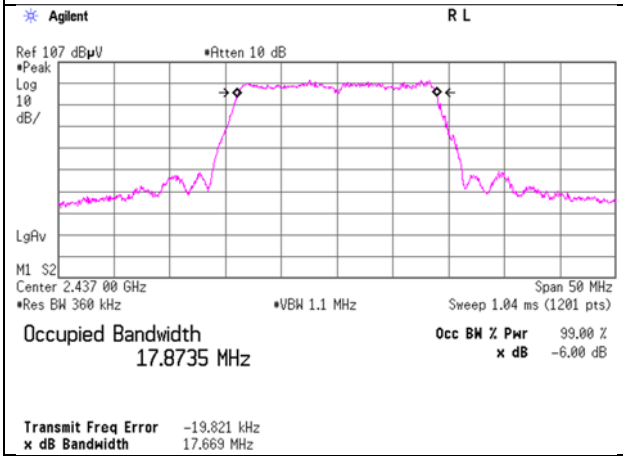
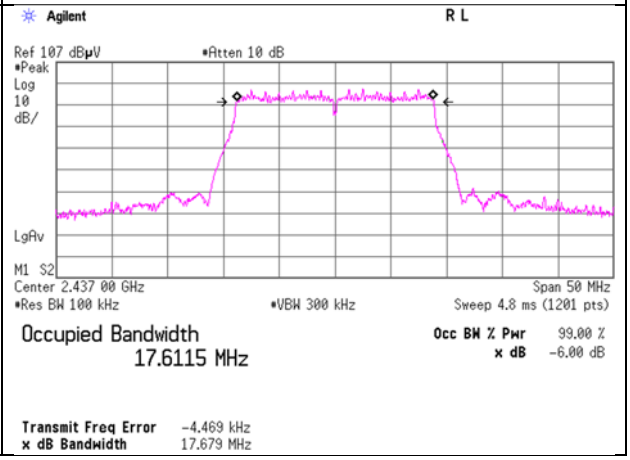
99 % Occupied Bandwidth and 6 dB Bandwidth

11g

99 % Occupied Bandwidth	6 dB Bandwidth
2457 MHz	**2457 MHz**
	
2462 MHz	**2462 MHz**
	

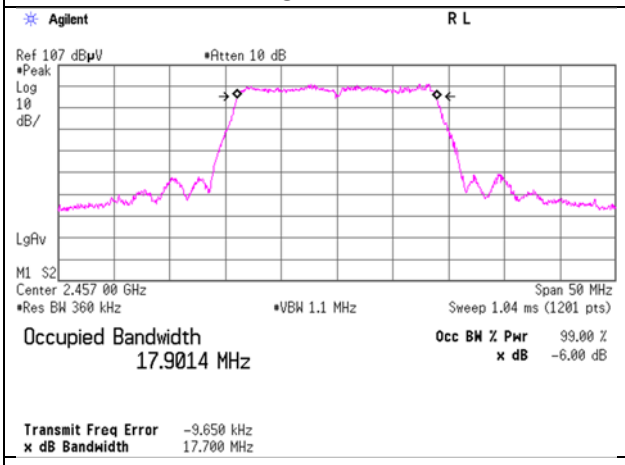
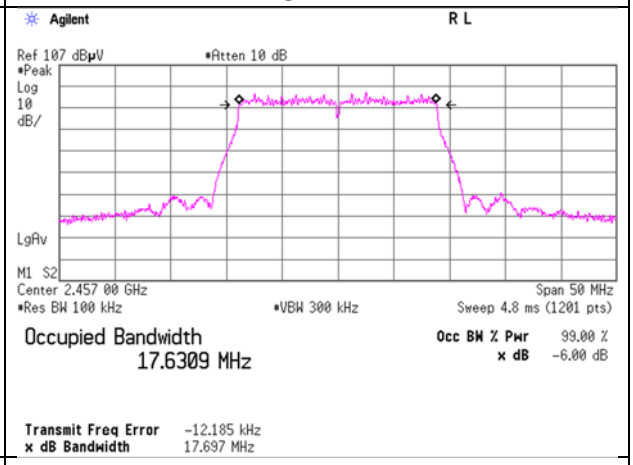
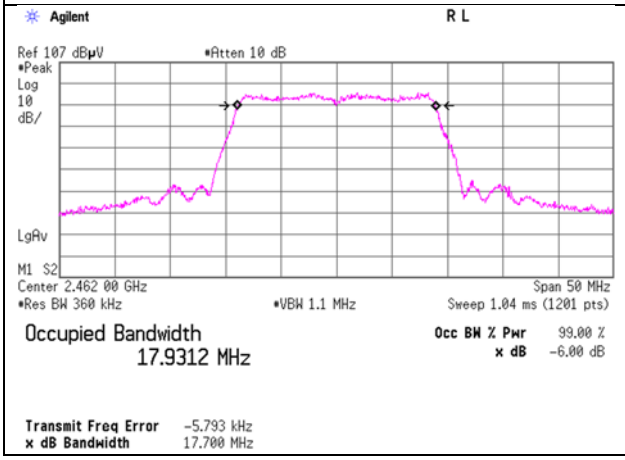
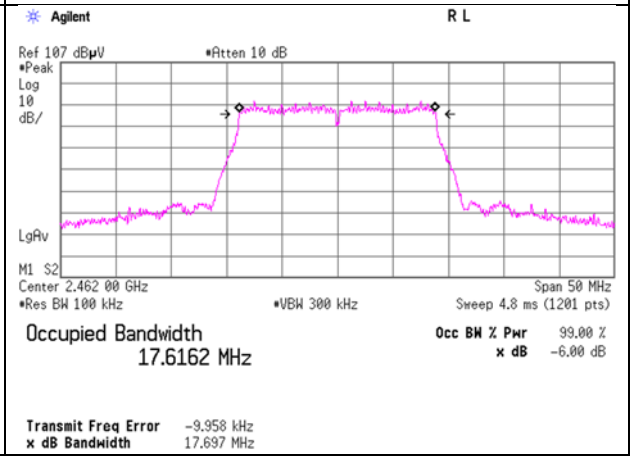
99 % Occupied Bandwidth and 6 dB Bandwidth

11n-20

99 % Occupied Bandwidth	6 dB Bandwidth
2412 MHz	2412 MHz
	
2417 MHz	2417 MHz
	
2437 MHz	2437 MHz
	

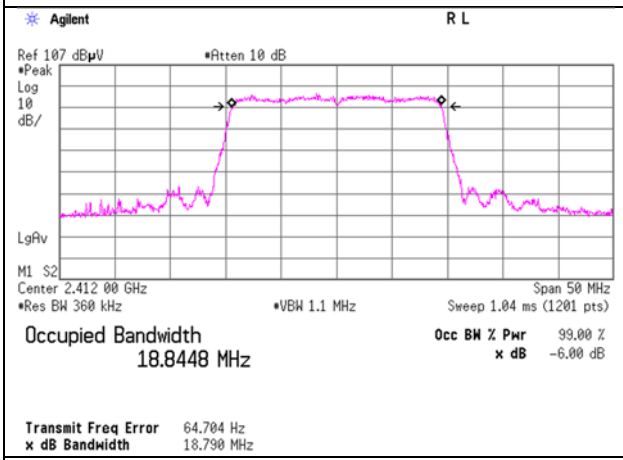
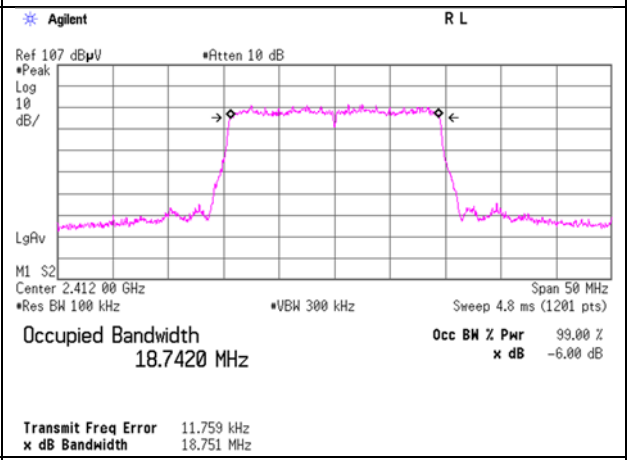
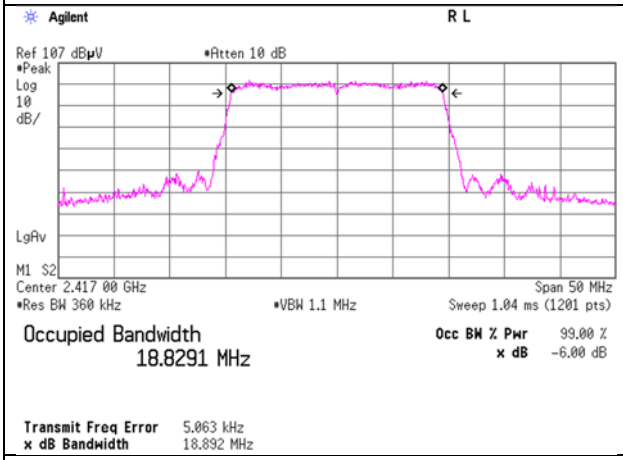
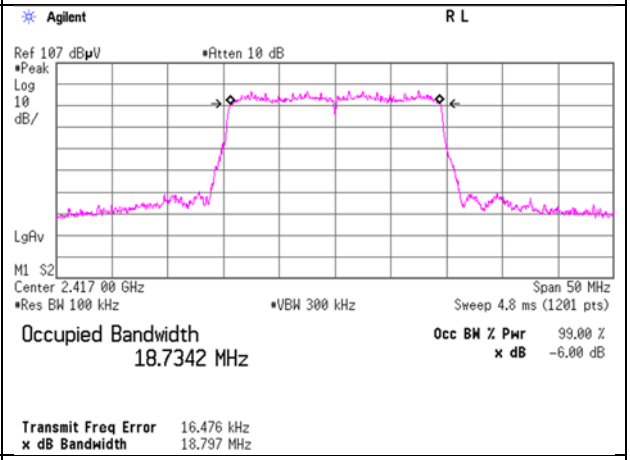
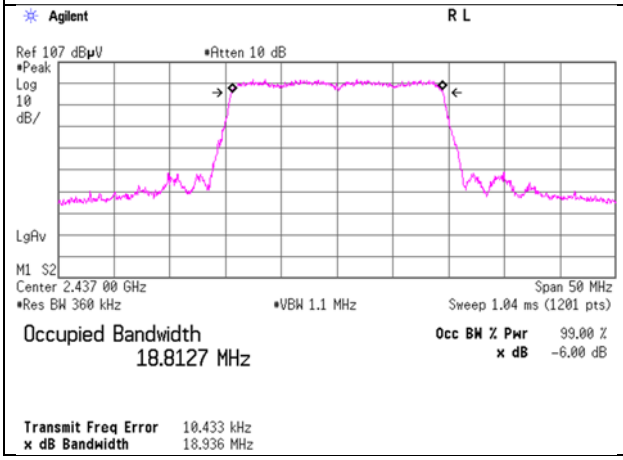
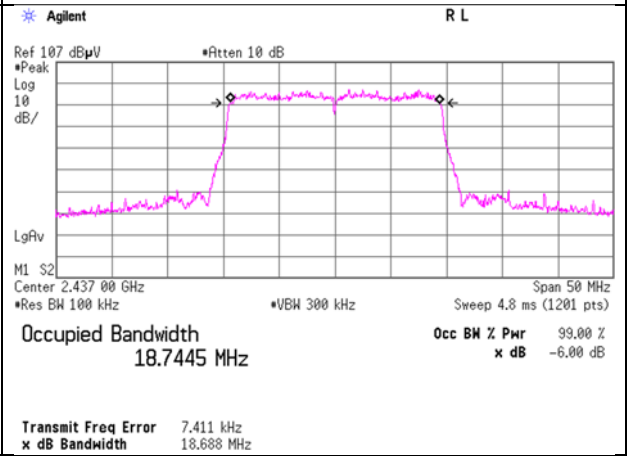
99 % Occupied Bandwidth and 6 dB Bandwidth

11n-20

99 % Occupied Bandwidth	6 dB Bandwidth
2457 MHz	2457 MHz
	
2462 MHz	2462 MHz
	

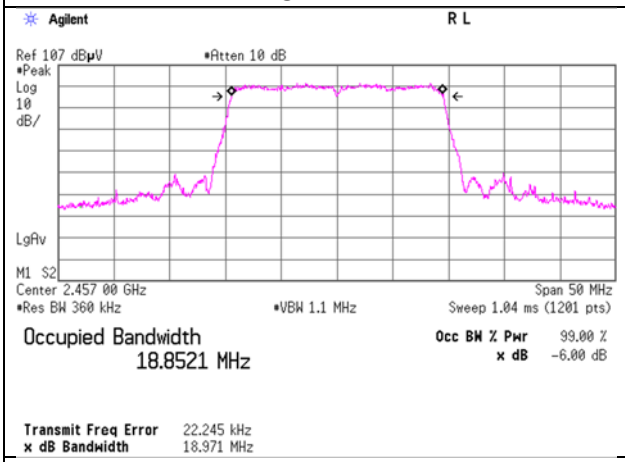
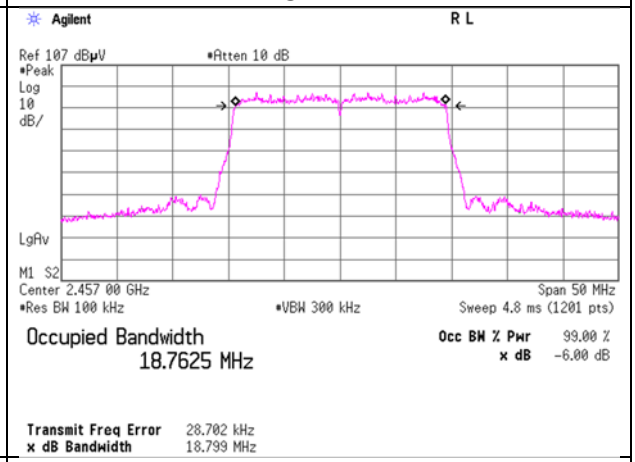
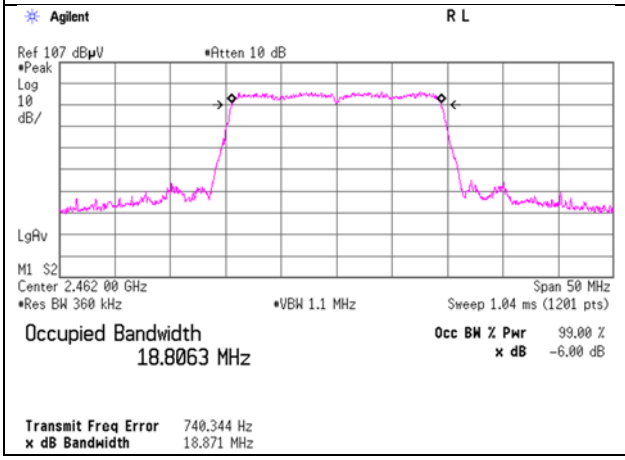
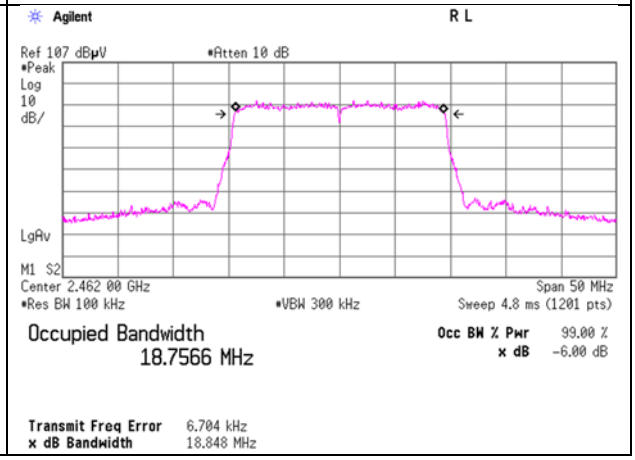
99 % Occupied Bandwidth and 6 dB Bandwidth

11ax-20 (OFDM)

99 % Occupied Bandwidth	6 dB Bandwidth
2412 MHz	2412 MHz
	
2417 MHz	2417 MHz
	
2437 MHz	2437 MHz
	

99 % Occupied Bandwidth and 6 dB Bandwidth

11ax-20 (OFDM)

99 % Occupied Bandwidth	6 dB Bandwidth
2457 MHz	2457 MHz
	
2462 MHz	2462 MHz
	

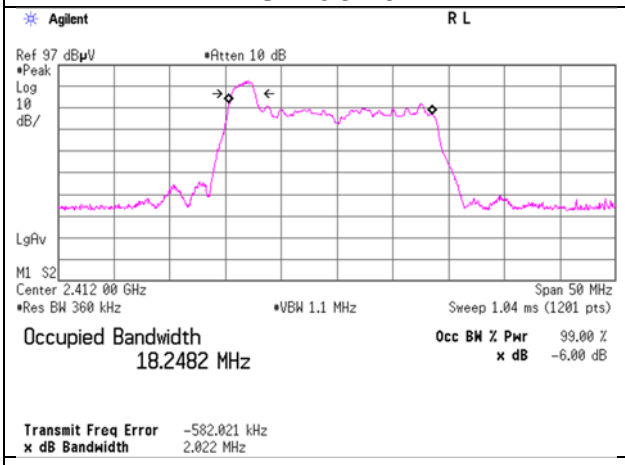
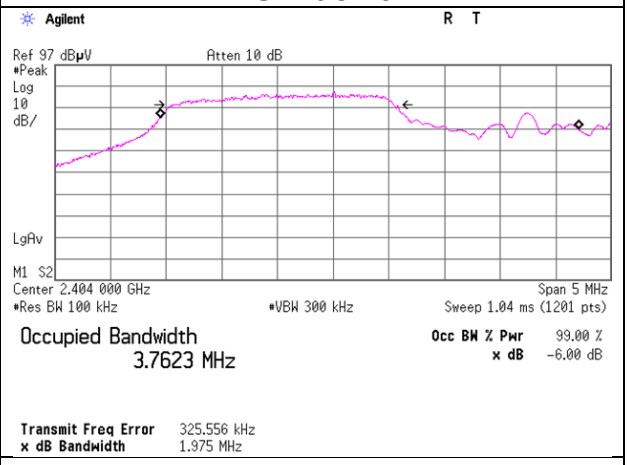
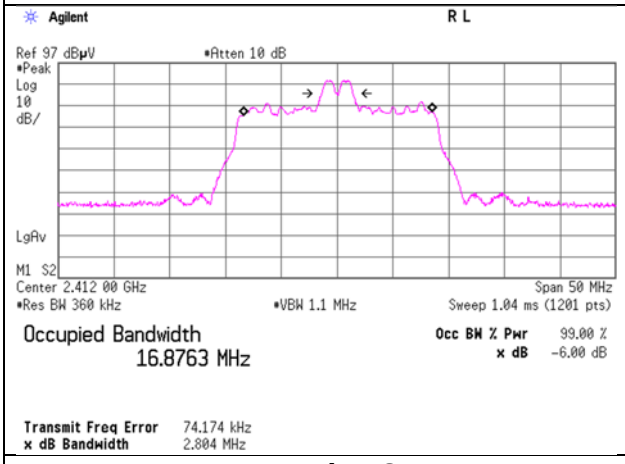
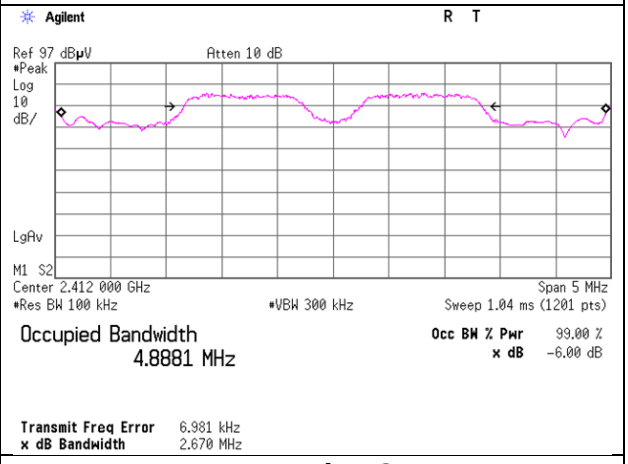
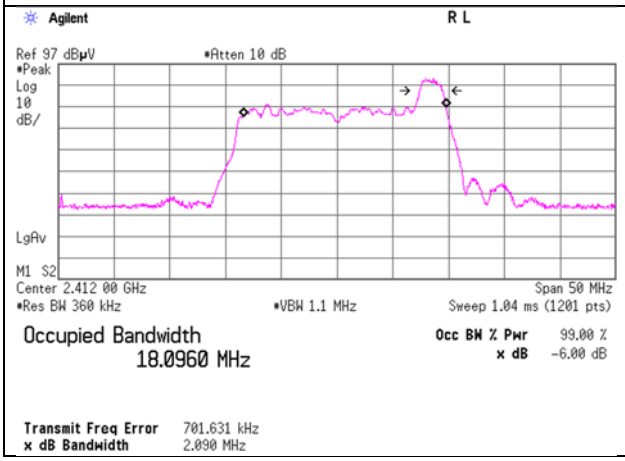
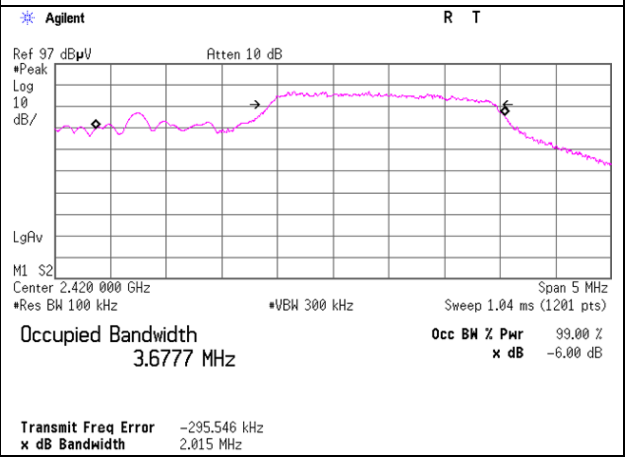
99 % Occupied Bandwidth and 6 dB Bandwidth

Test place	Shonan EMC Lab. No.5 Shielded Room		
Date	April 2, 2023	April 4, 2023	April 25, 2023
Temperature / Humidity	26 deg. C / 26 % RH	23 deg. C / 30 % RH	25 deg. C / 30 % RH
Engineer	Miku Ikudome	Miku Ikudome	Miku Ikudome
Mode	Tx 11ax-20 (OFDMA)		

Mode	Frequency [MHz]	RU index	99 % Occupied Bandwidth [kHz]	6 dB Bandwidth [MHz]	Limit for 6 dB Bandwidth [MHz]
26-tone RU	2412	0	18248.2	1.975	> 0.5000
		4	16876.3	2.670	> 0.5000
		8	18096.0	2.015	> 0.5000
	2417	0	18222.1	1.949	> 0.5000
		4	16883.9	2.666	> 0.5000
		8	18099.0	2.015	> 0.5000
	2437	0	18227.0	1.989	> 0.5000
		4	16923.7	2.661	> 0.5000
		8	18127.7	2.015	> 0.5000
	2457	0	18224.7	2.066	> 0.5000
		4	16945.1	2.653	> 0.5000
		8	18097.7	2.018	> 0.5000
	2462	0	18231.5	1.998	> 0.5000
		4	16912.7	2.641	> 0.5000
		8	18121.9	2.016	> 0.5000
52-tone RU	2412	37	18127.8	3.989	> 0.5000
		38	16902.6	4.088	> 0.5000
		40	18015.0	4.084	> 0.5000
	2417	37	18112.7	4.043	> 0.5000
		38	16884.3	4.069	> 0.5000
		40	17986.8	4.050	> 0.5000
	2437	37	18118.8	4.047	> 0.5000
		38	16902.7	4.084	> 0.5000
		40	18017.2	4.005	> 0.5000
	2457	37	18103.0	4.014	> 0.5000
		38	16919.0	4.070	> 0.5000
		40	18030.9	4.004	> 0.5000
	2462	37	18105.7	4.020	> 0.5000
		38	16930.7	4.079	> 0.5000
		40	18076.3	4.024	> 0.5000
106-tone RU	2412	53	18109.4	8.288	> 0.5000
		54	18141.8	8.301	> 0.5000
	2417	53	18090.4	8.279	> 0.5000
		54	18142.1	8.296	> 0.5000
	2437	53	18126.2	8.256	> 0.5000
		54	18154.3	8.267	> 0.5000
	2457	53	18068.1	8.162	> 0.5000
		54	18159.8	8.261	> 0.5000
	2462	53	18093.3	8.256	> 0.5000
		54	18197.7	8.072	> 0.5000
242-tone RU	2412	61	18838.1	18.506	> 0.5000
	2417	61	18803.9	18.788	> 0.5000
	2437	61	18852.2	18.673	> 0.5000
	2457	61	18854.5	18.811	> 0.5000
	2462	61	18876.7	18.789	> 0.5000

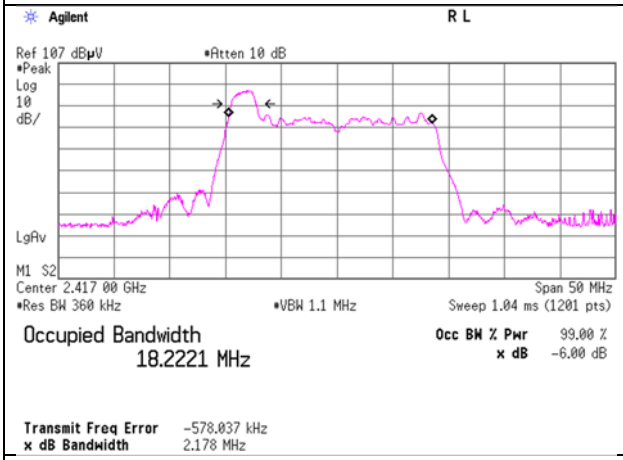
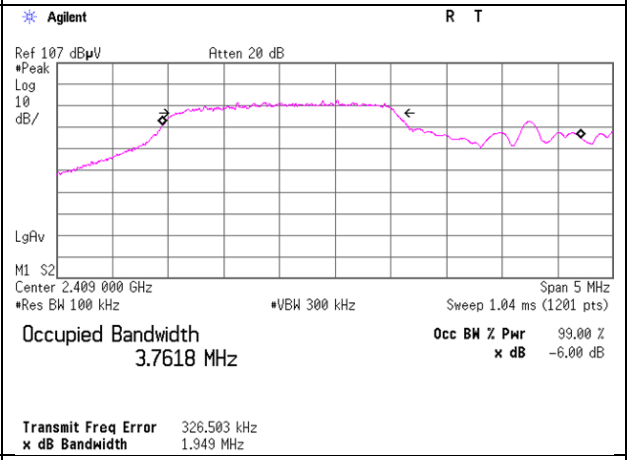
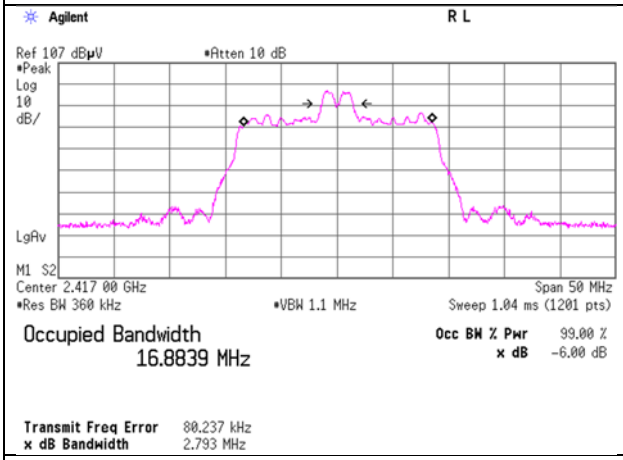
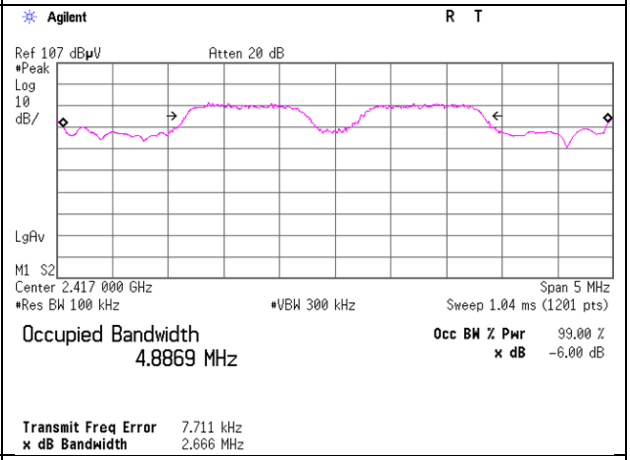
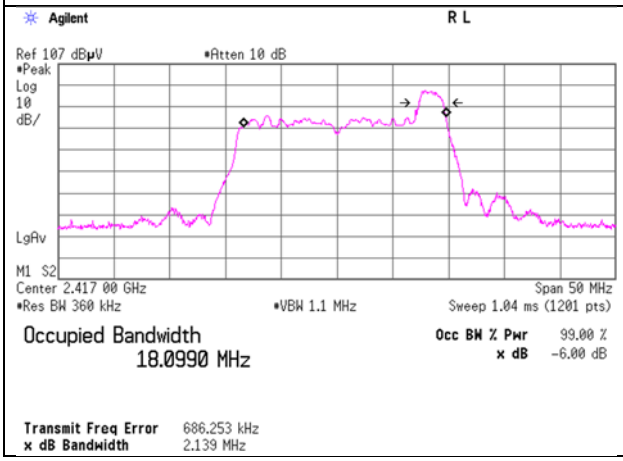
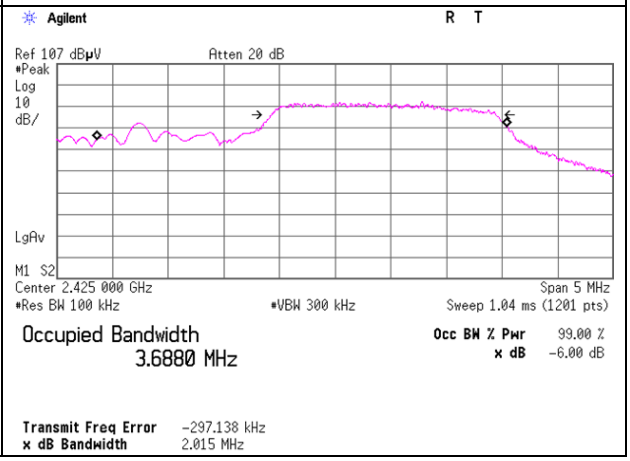
99 % Occupied Bandwidth and 6 dB Bandwidth

11ax-20 (OFDMA), 26-tone RU

99 % Occupied Bandwidth	6 dB Bandwidth
2412 MHz	2412 MHz
RU Index 0	RU Index 0
	
RU Index 4	RU Index 4
	
RU Index 8	RU Index 8
	

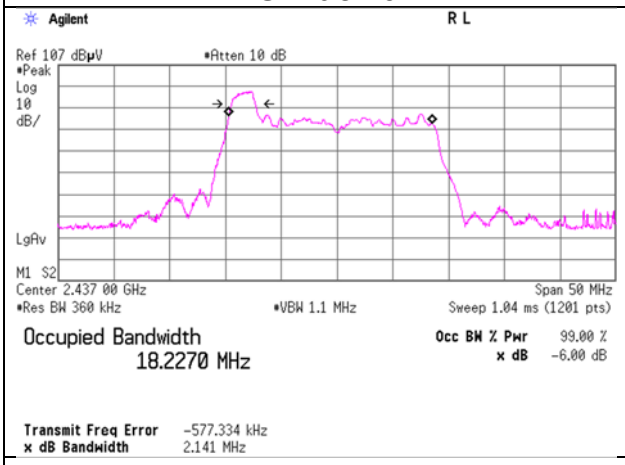
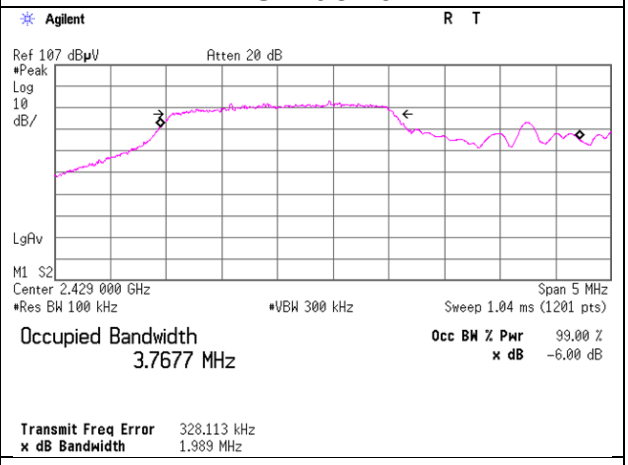
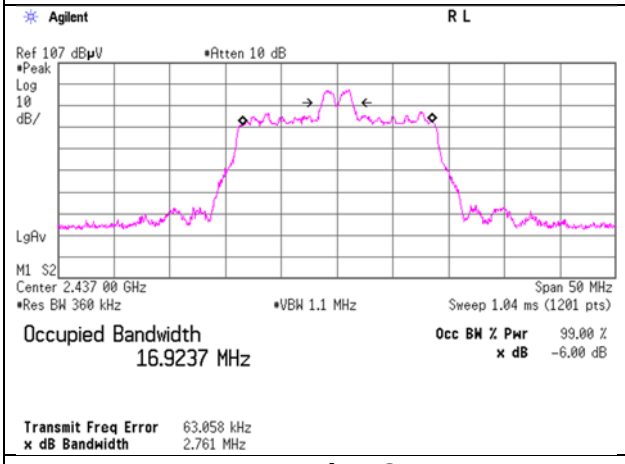
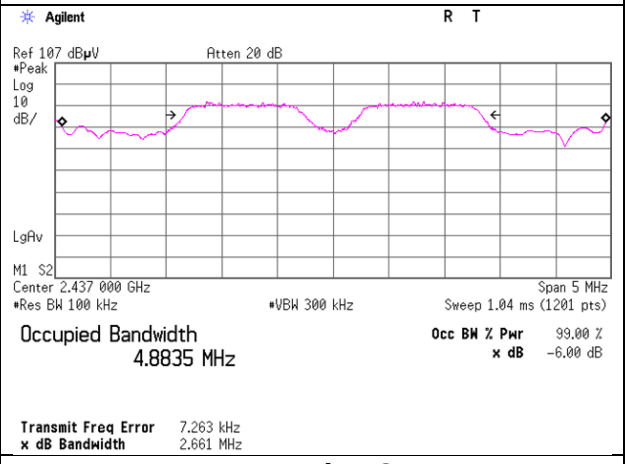
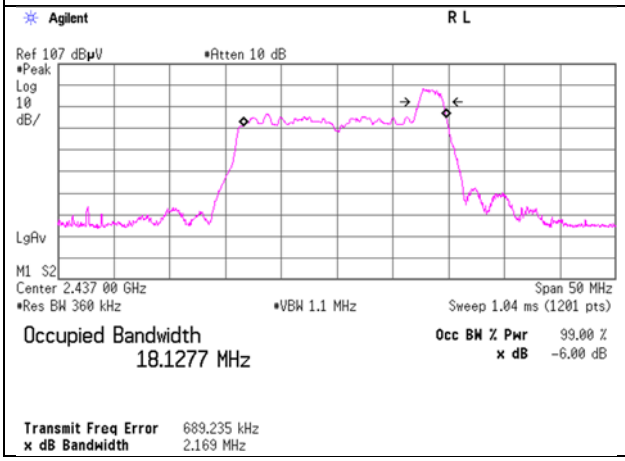
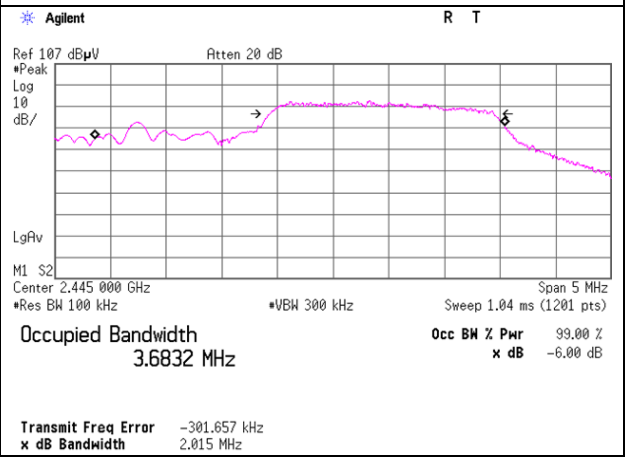
99 % Occupied Bandwidth and 6 dB Bandwidth

11ax-20 (OFDMA), 26-tone RU

99 % Occupied Bandwidth	6 dB Bandwidth
2417 MHz	2417 MHz
RU Index 0	RU Index 0
	
RU Index 4	RU Index 4
	
RU Index 8	RU Index 8
	

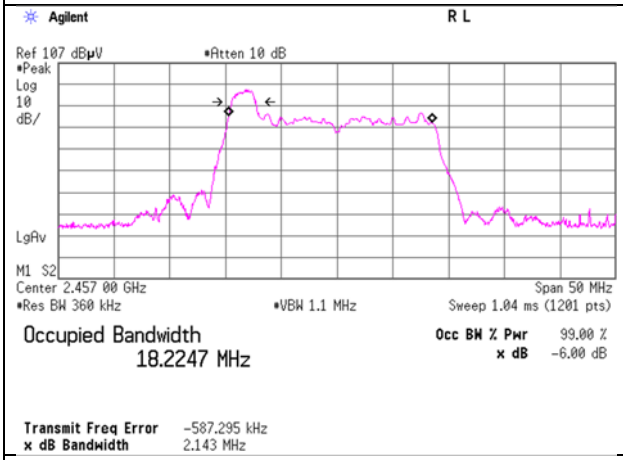
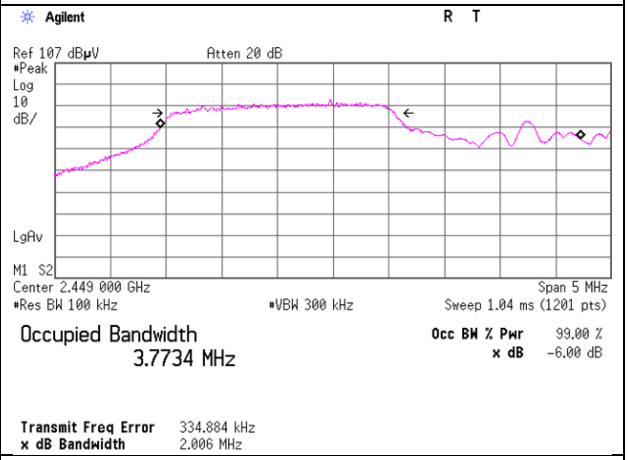
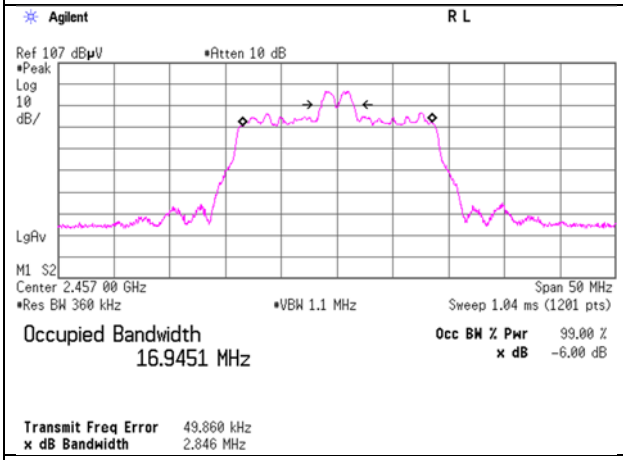
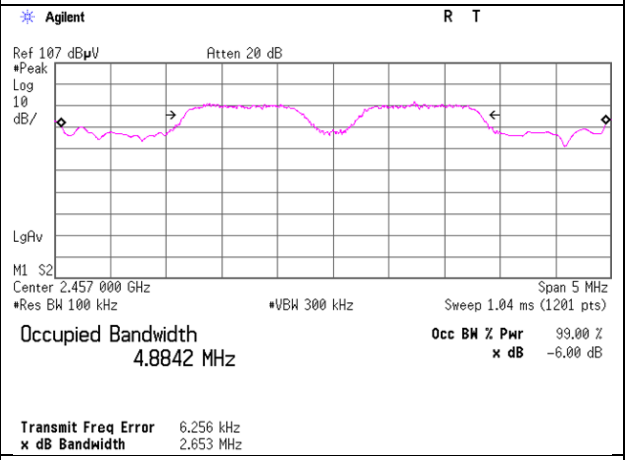
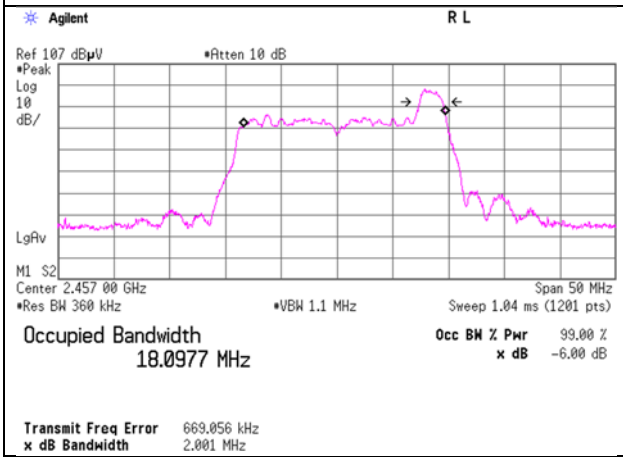
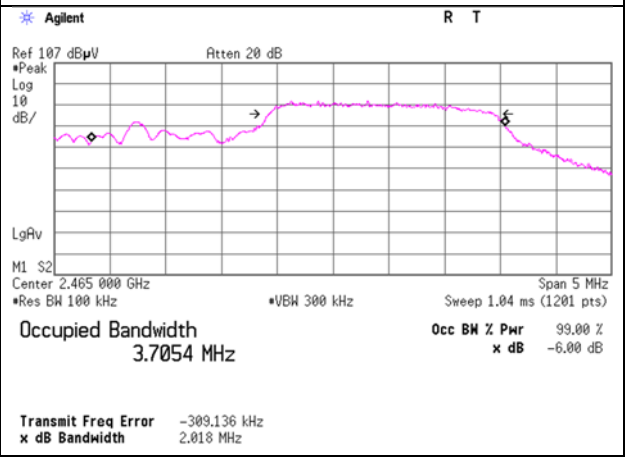
99 % Occupied Bandwidth and 6 dB Bandwidth

11ax-20 (OFDMA), 26-tone RU

99 % Occupied Bandwidth	6 dB Bandwidth
2437 MHz	2437 MHz
RU Index 0	RU Index 0
	
RU Index 4	RU Index 4
	
RU Index 8	RU Index 8
	

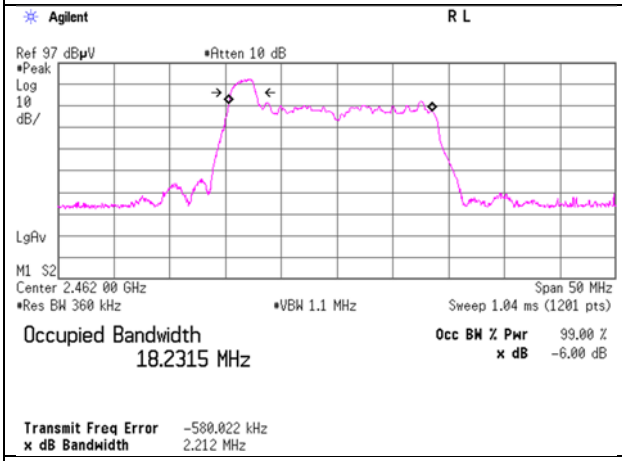
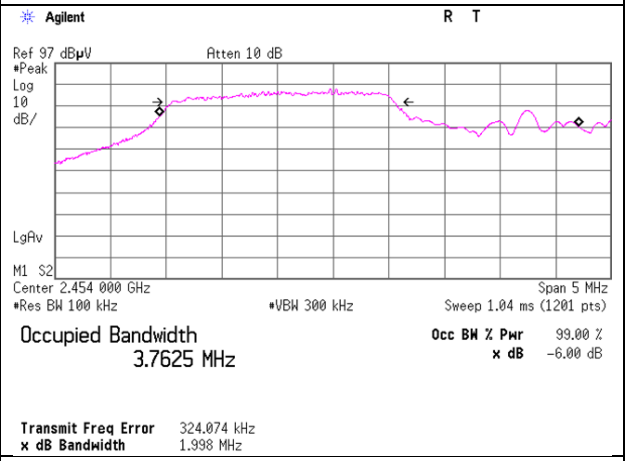
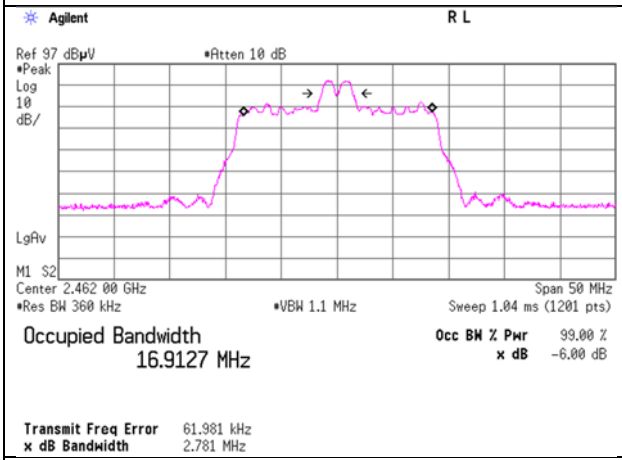
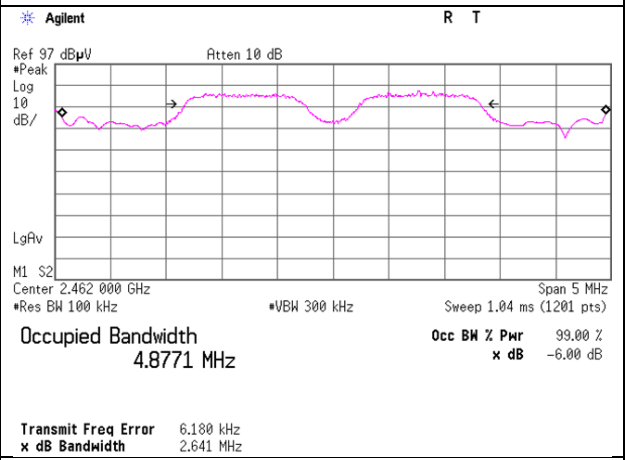
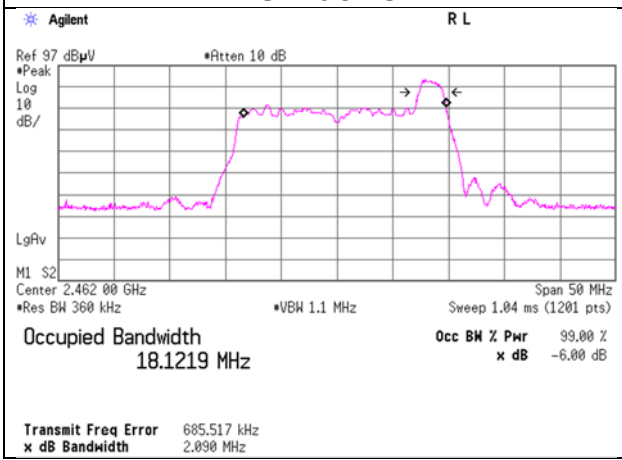
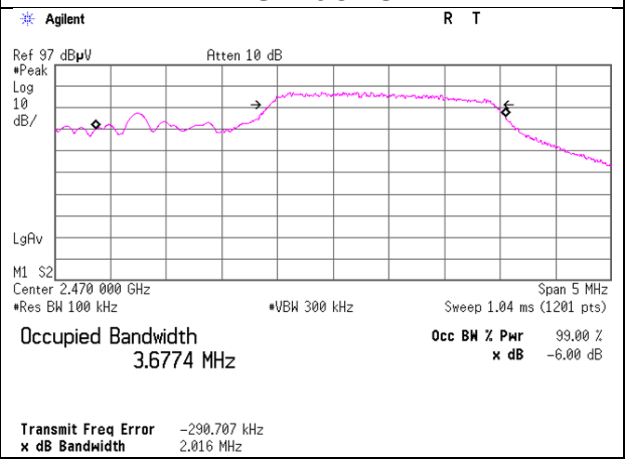
99 % Occupied Bandwidth and 6 dB Bandwidth

11ax-20 (OFDMA), 26-tone RU

99 % Occupied Bandwidth	6 dB Bandwidth
2457 MHz	2457 MHz
RU Index 0	RU Index 0
	
RU Index 4	RU Index 4
	
RU Index 8	RU Index 8
	

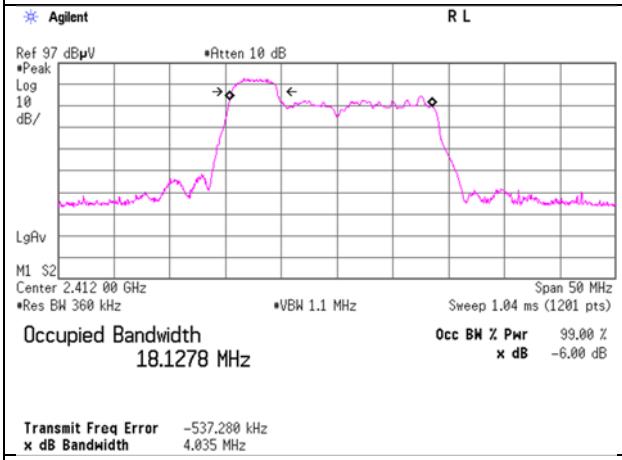
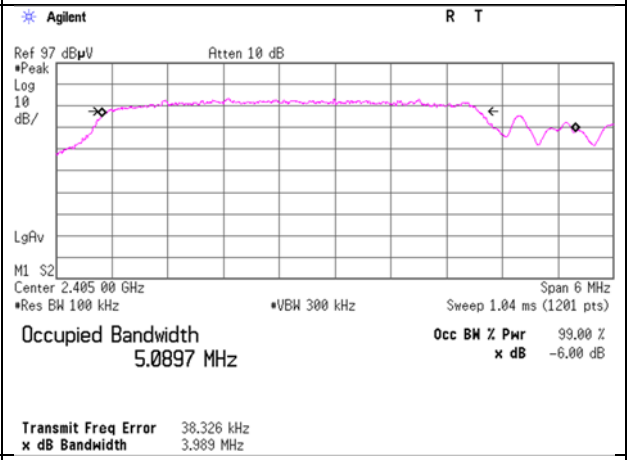
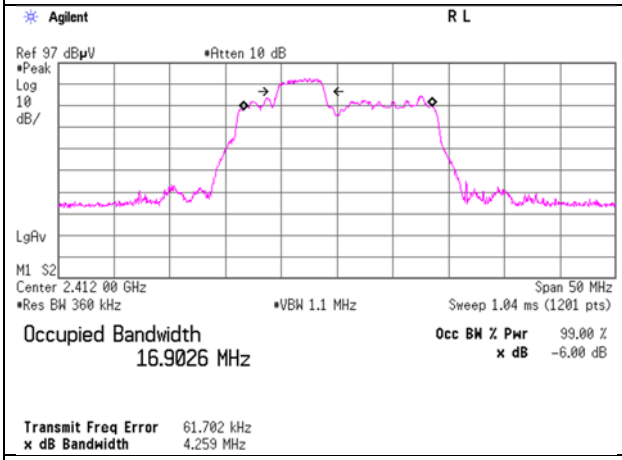
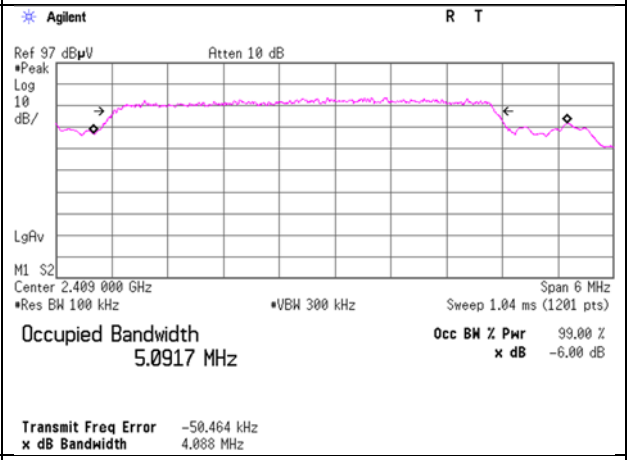
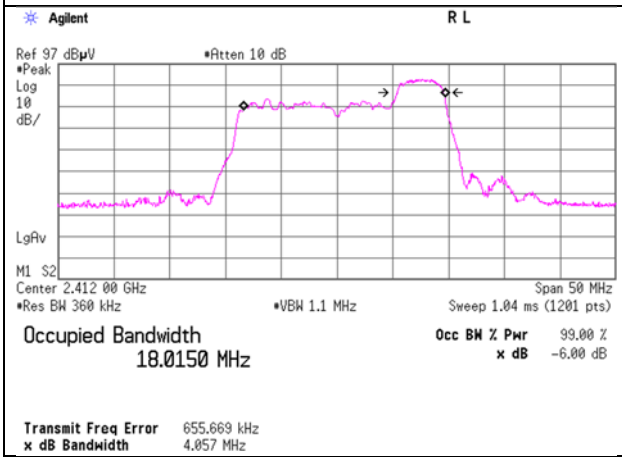
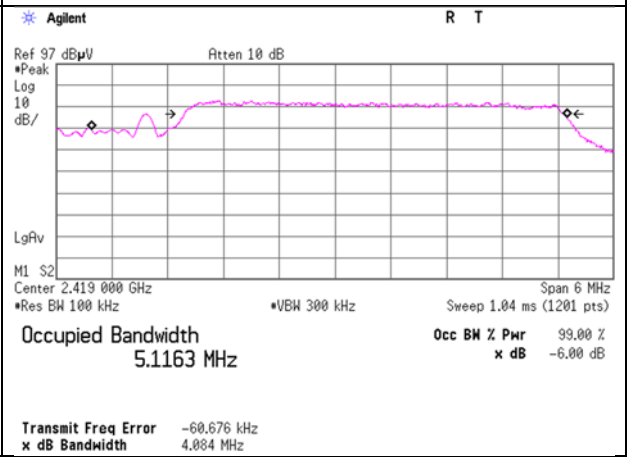
99 % Occupied Bandwidth and 6 dB Bandwidth

11ax-20 (OFDMA), 26-tone RU

99 % Occupied Bandwidth	6 dB Bandwidth
2462 MHz	2462 MHz
RU Index 0	RU Index 0
	
RU Index 4	RU Index 4
	
RU Index 8	RU Index 8
	

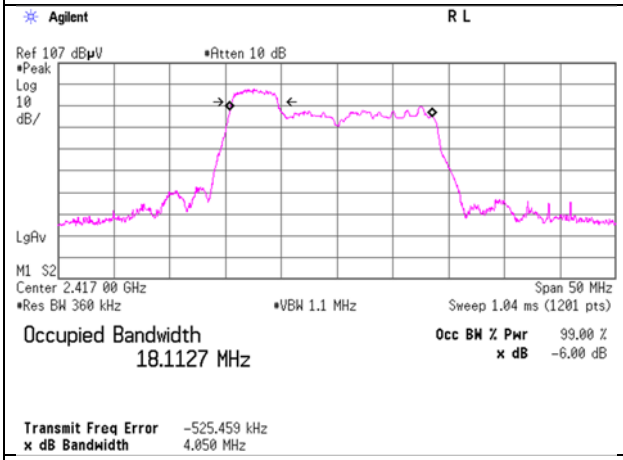
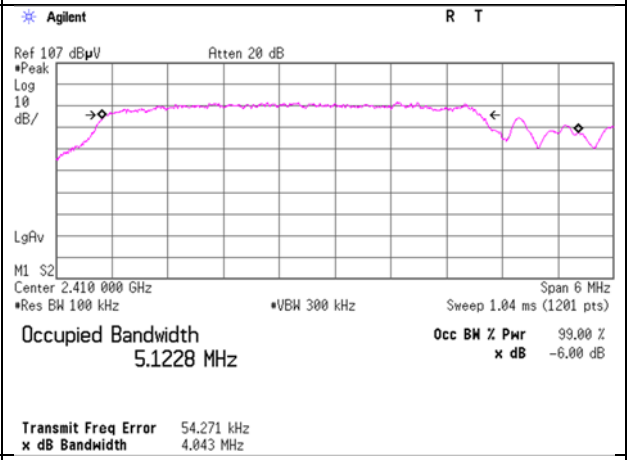
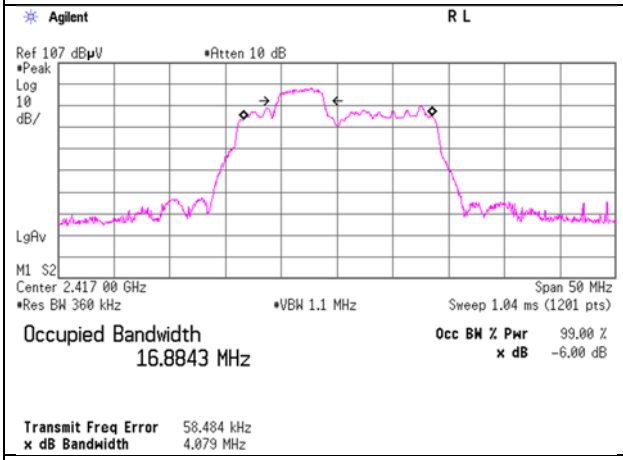
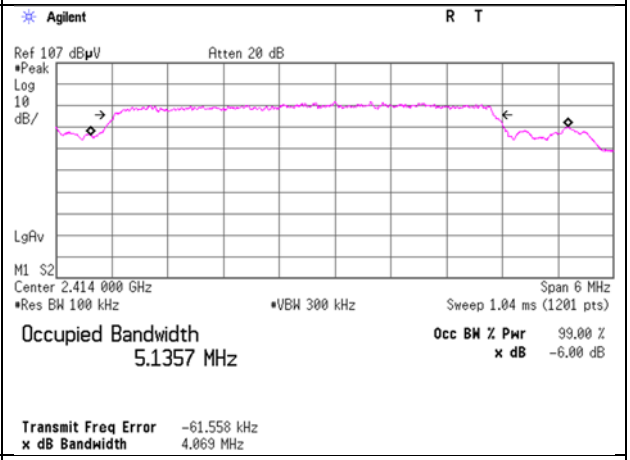
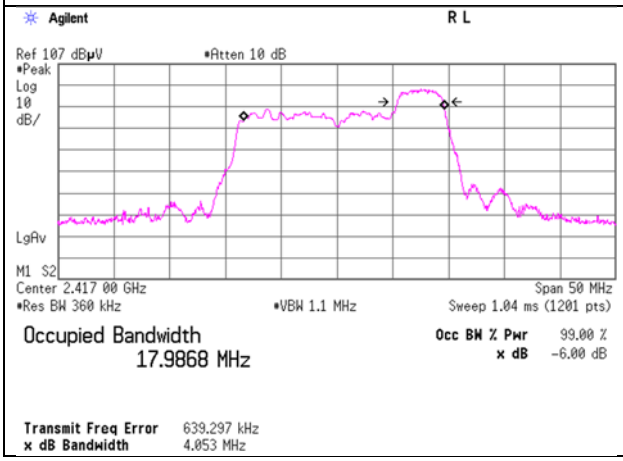
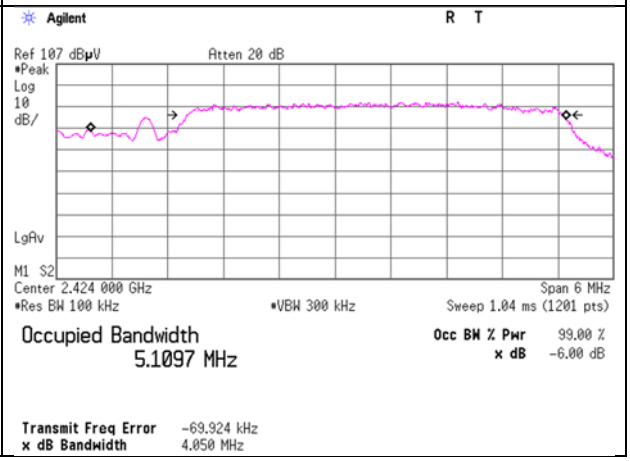
99 % Occupied Bandwidth and 6 dB Bandwidth

11ax-20 (OFDMA), 52-tone RU

99 % Occupied Bandwidth	6 dB Bandwidth
2412 MHz	2412 MHz
RU Index 37	RU Index 37
	
RU Index 38	RU Index 38
	
RU Index 40	RU Index 40
	

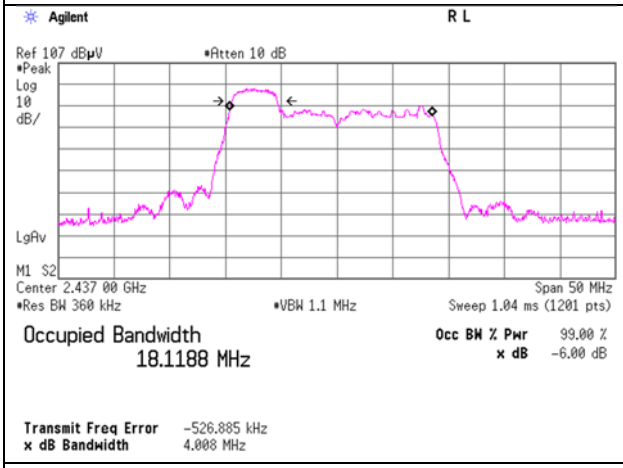
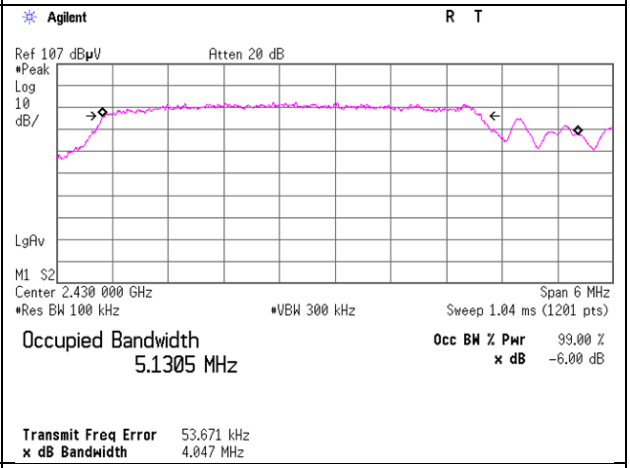
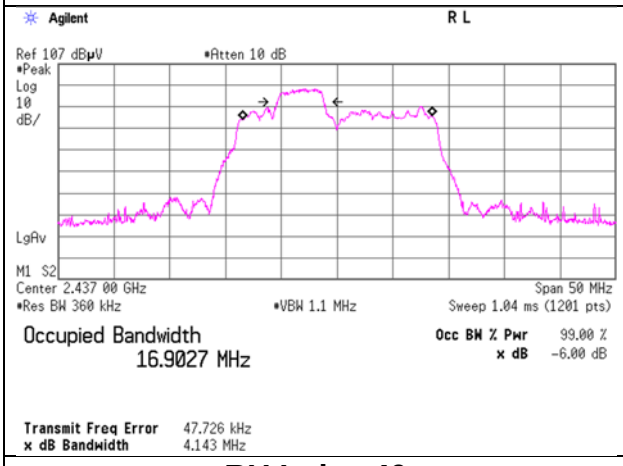
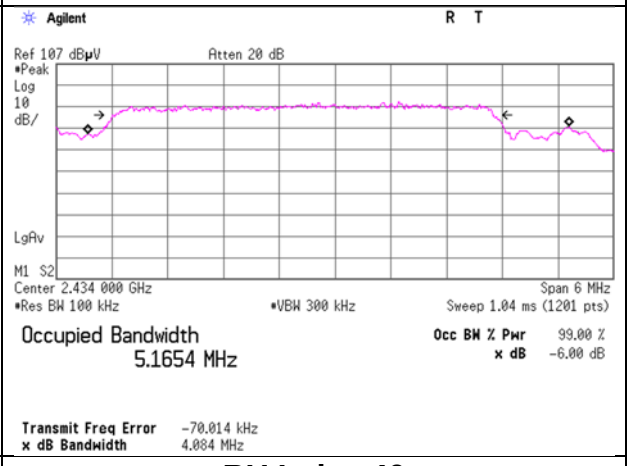
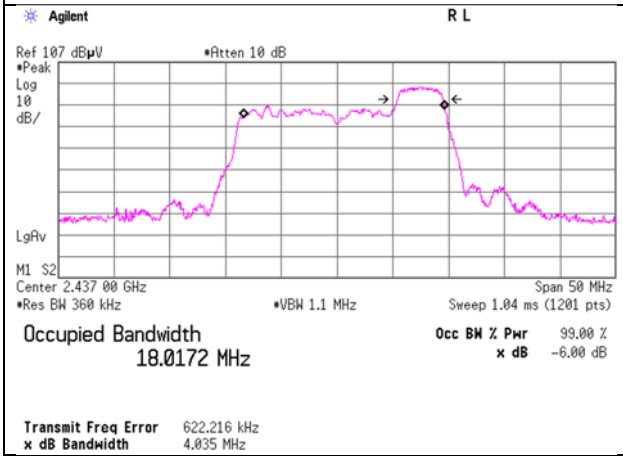
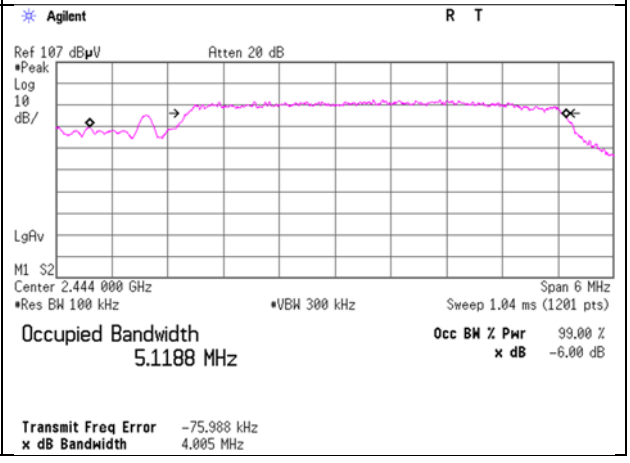
99 % Occupied Bandwidth and 6 dB Bandwidth

11ax-20 (OFDMA), 52-tone RU

99 % Occupied Bandwidth	6 dB Bandwidth
2417 MHz	2417 MHz
RU Index 37	RU Index 37
	
RU Index 38	RU Index 38
	
RU Index 40	RU Index 40
	

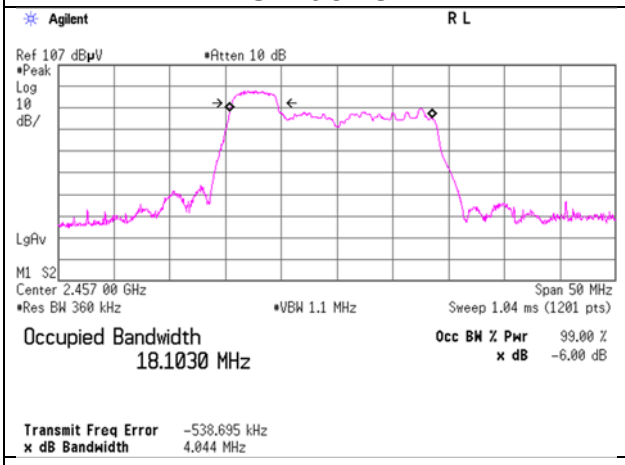
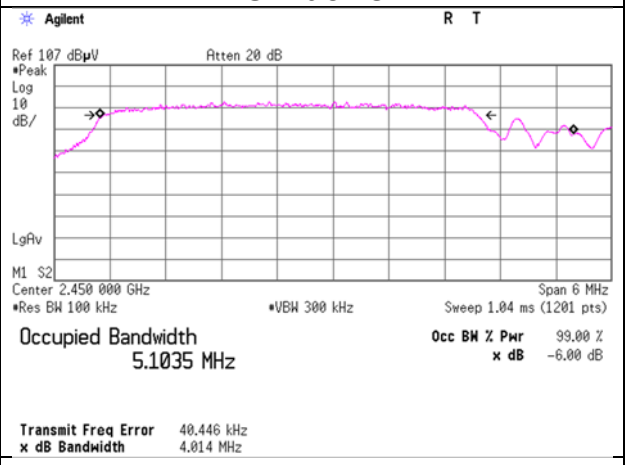
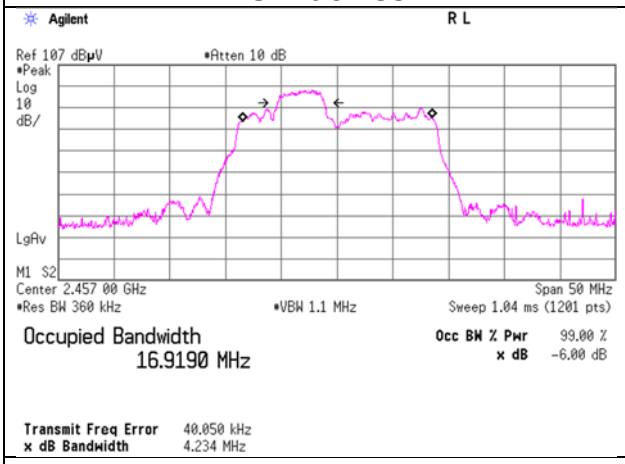
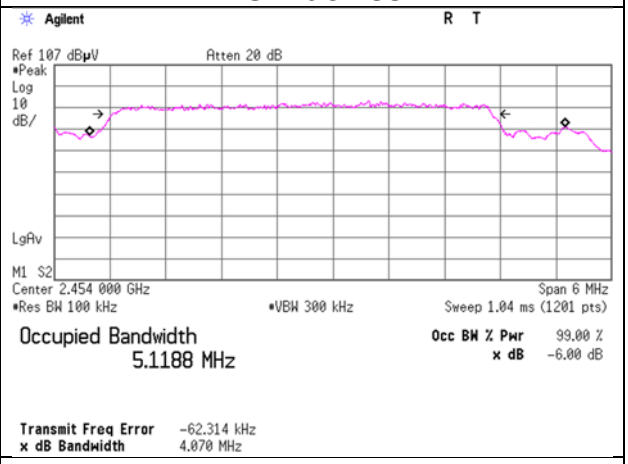
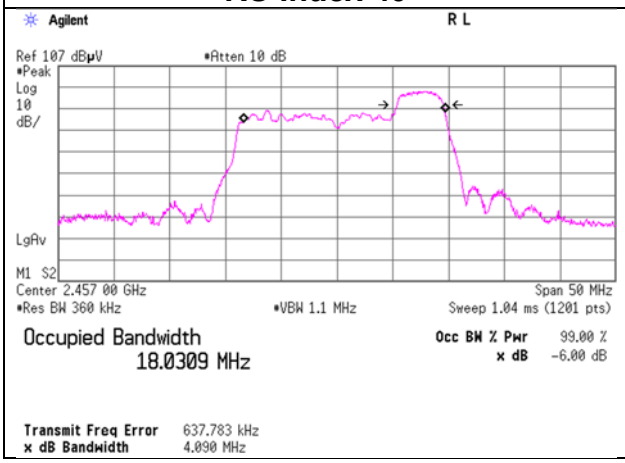
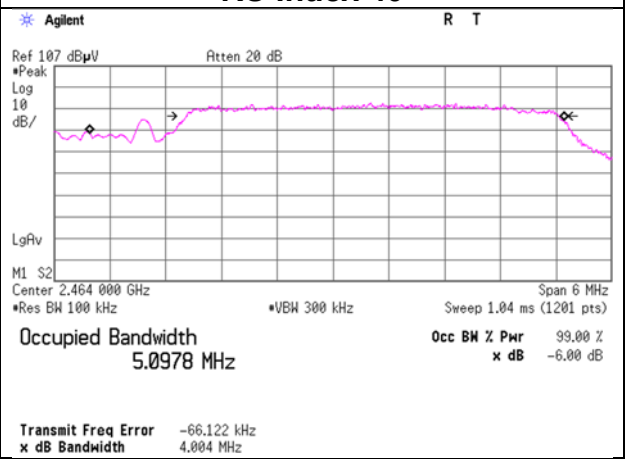
99 % Occupied Bandwidth and 6 dB Bandwidth

11ax-20 (OFDMA), 52-tone RU

99 % Occupied Bandwidth	6 dB Bandwidth
2437 MHz	2437 MHz
RU Index 37	RU Index 37
	
RU Index 38	RU Index 38
	
RU Index 40	RU Index 40
	

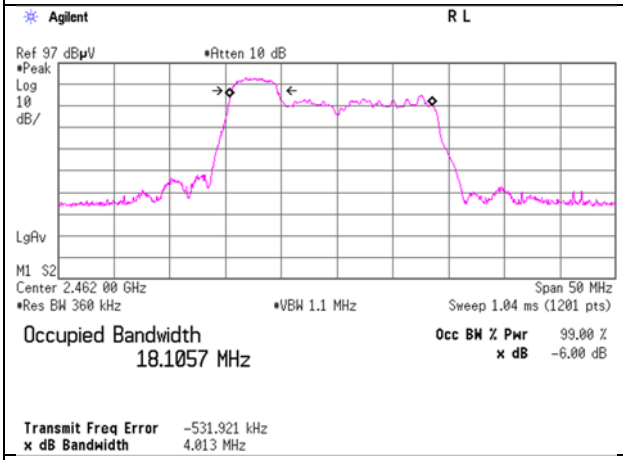
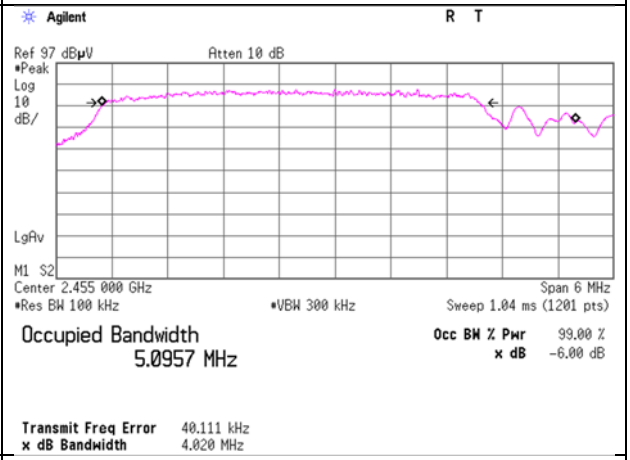
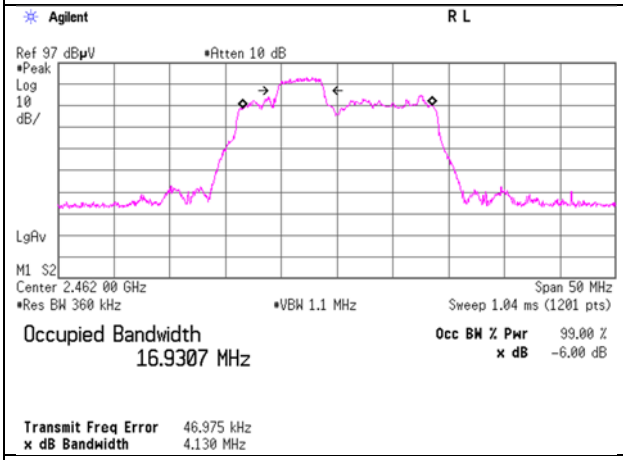
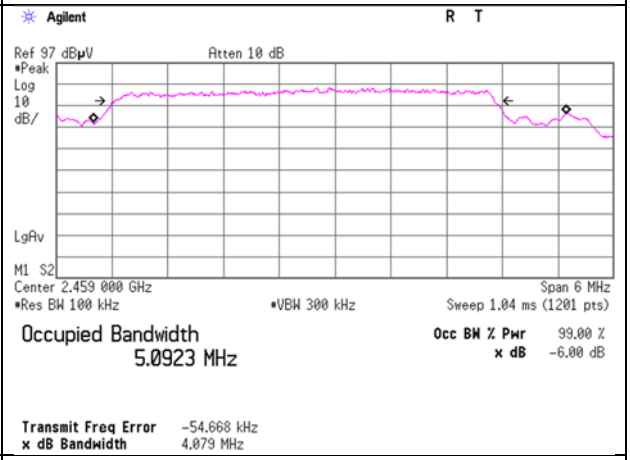
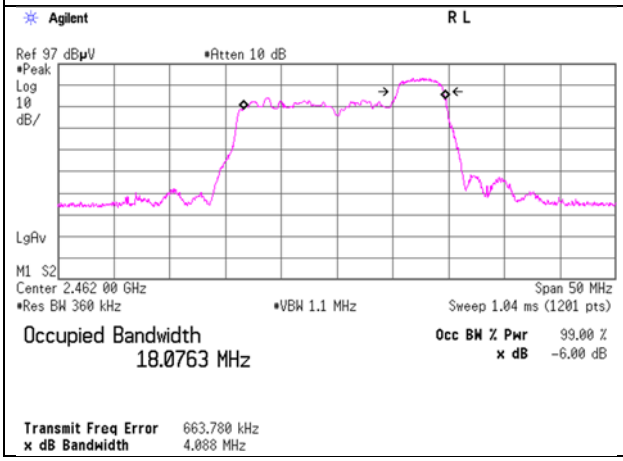
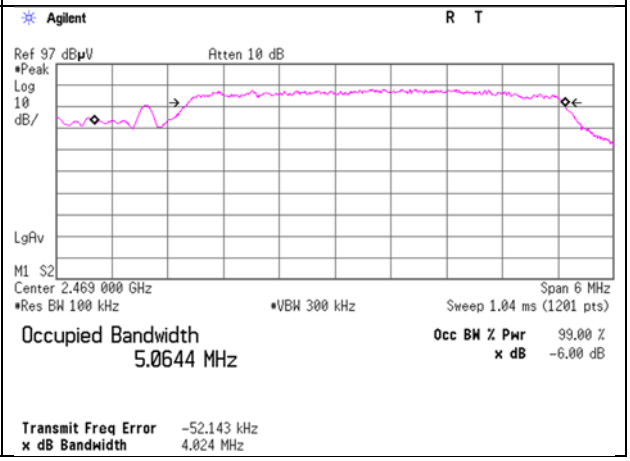
99 % Occupied Bandwidth and 6 dB Bandwidth

11ax-20 (OFDMA), 52-tone RU

99 % Occupied Bandwidth	6 dB Bandwidth
2457 MHz	2457 MHz
RU Index 37	RU Index 37
	
RU Index 38	RU Index 38
	
RU Index 40	RU Index 40
	

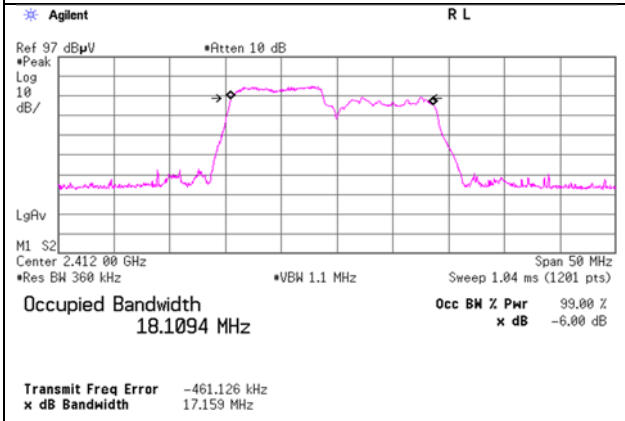
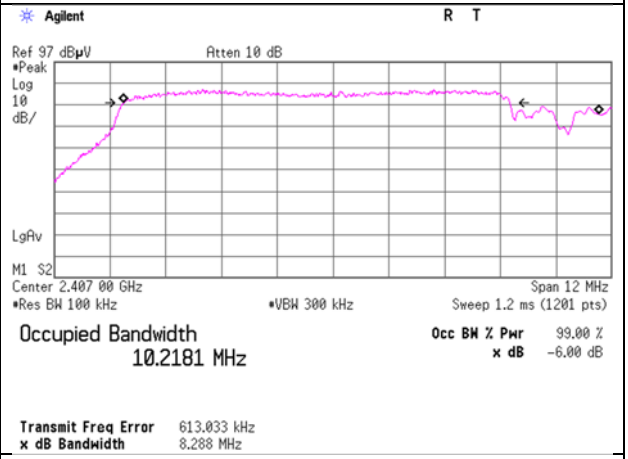
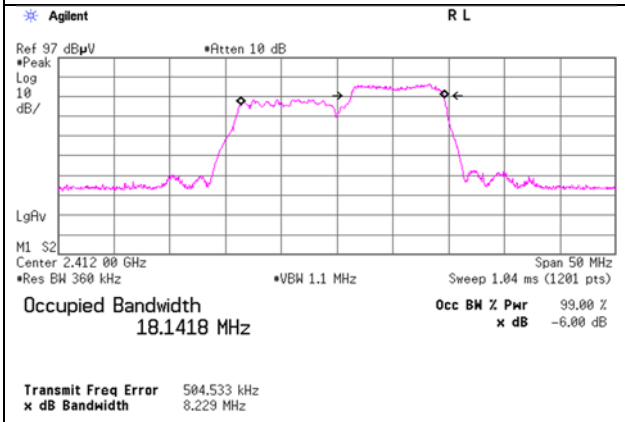
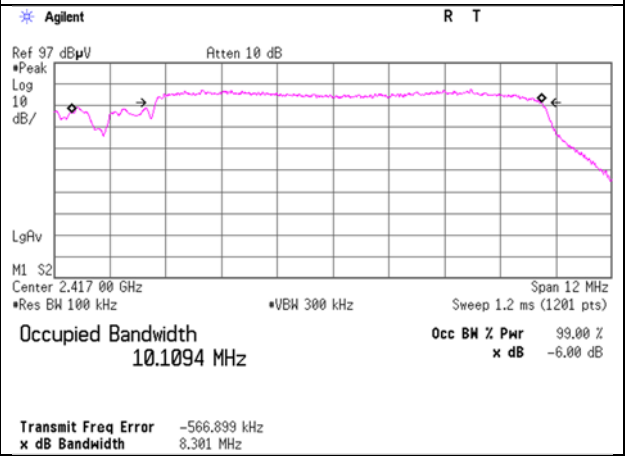
99 % Occupied Bandwidth and 6 dB Bandwidth

11ax-20 (OFDMA), 52-tone RU

99 % Occupied Bandwidth	6 dB Bandwidth
2462 MHz	2462 MHz
RU Index 37	RU Index 37
	
RU Index 38	RU Index 38
	
RU Index 40	RU Index 40
	

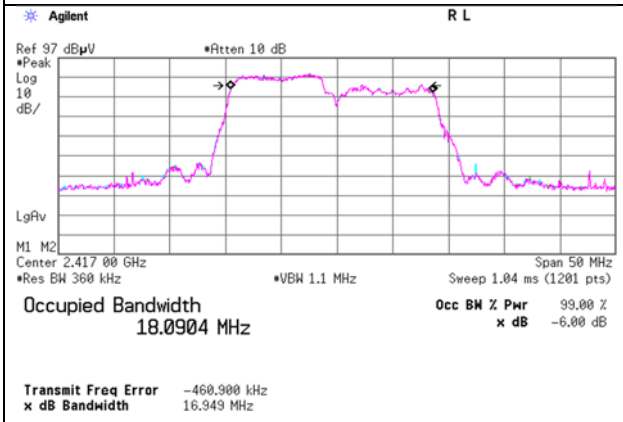
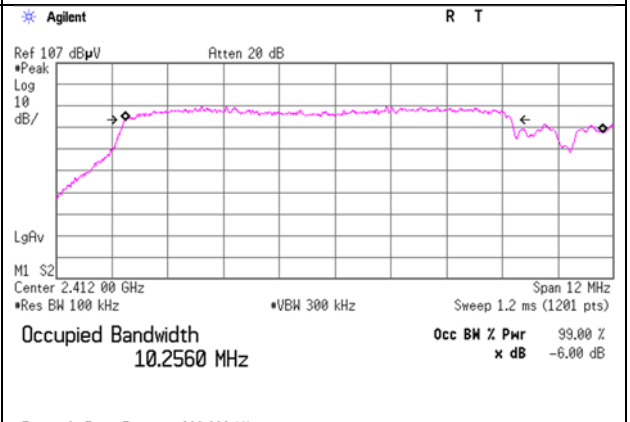
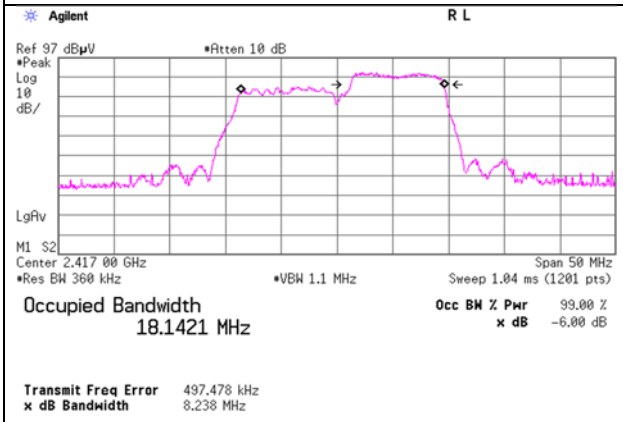
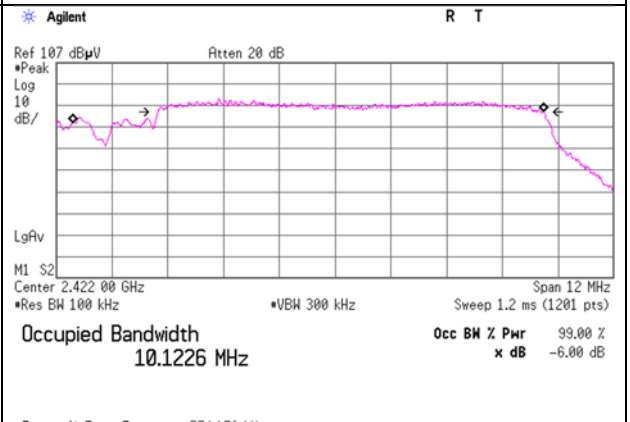
99 % Occupied Bandwidth and 6 dB Bandwidth

11ax-20 (OFDMA), 106-tone RU

99 % Occupied Bandwidth	6 dB Bandwidth
2412 MHz	2412 MHz
RU Index 53	RU Index 53
	
RU Index 54	RU Index 54
	

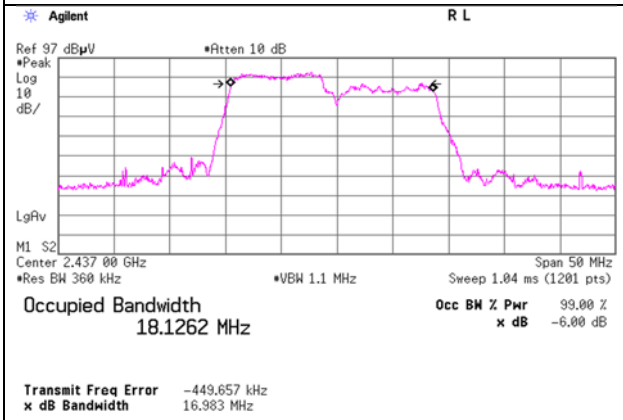
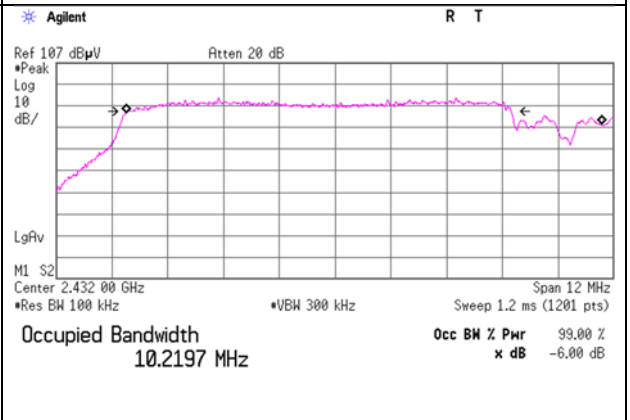
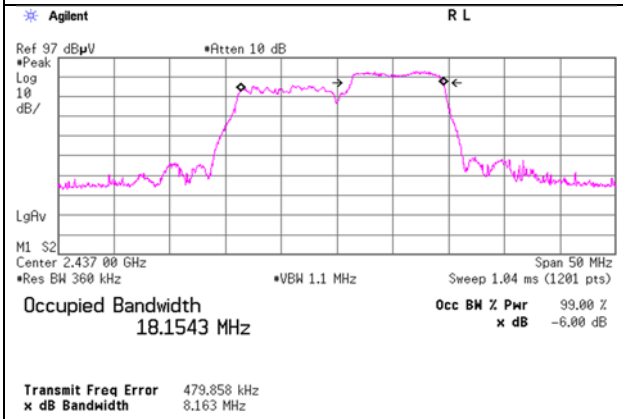
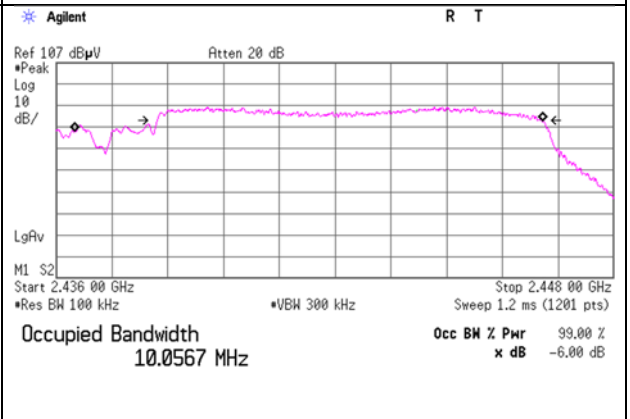
99 % Occupied Bandwidth and 6 dB Bandwidth

11ax-20 (OFDMA), 106-tone RU

99 % Occupied Bandwidth	6 dB Bandwidth
2417 MHz	2417 MHz
RU Index 53	RU Index 53
	
RU Index 54	RU Index 54
	

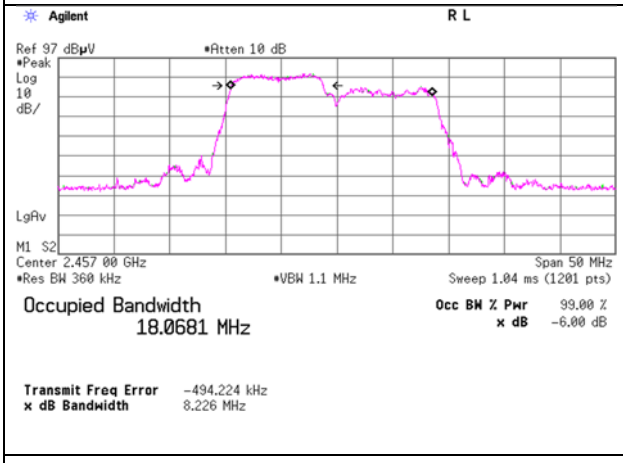
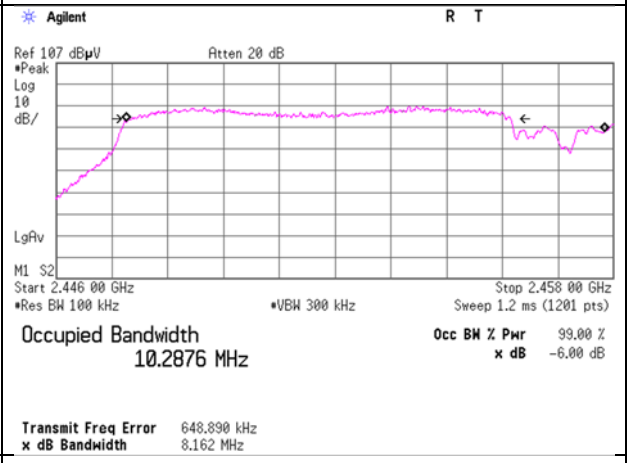
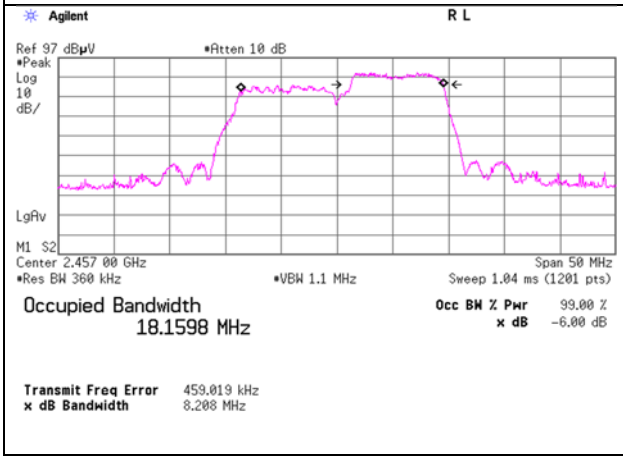
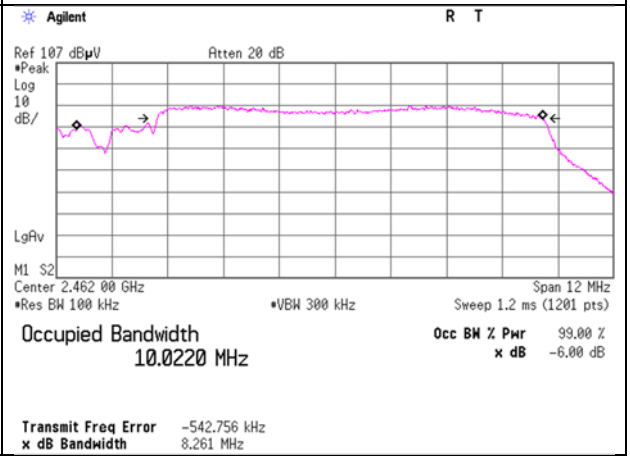
99 % Occupied Bandwidth and 6 dB Bandwidth

11ax-20 (OFDMA), 106-tone RU

99 % Occupied Bandwidth	6 dB Bandwidth
2437 MHz	2437 MHz
RU Index 53	RU Index 53
	
RU Index 54	RU Index 54
	

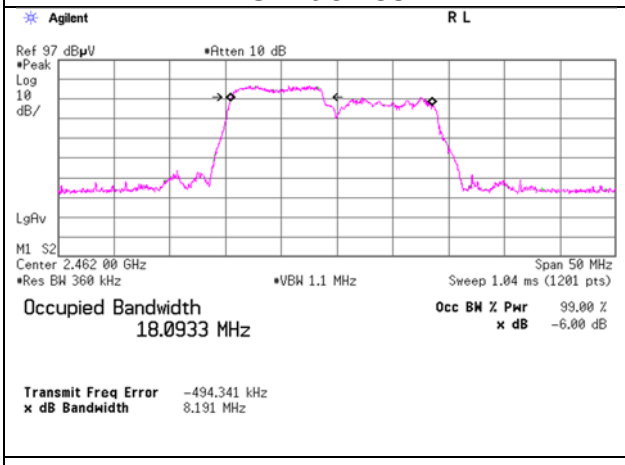
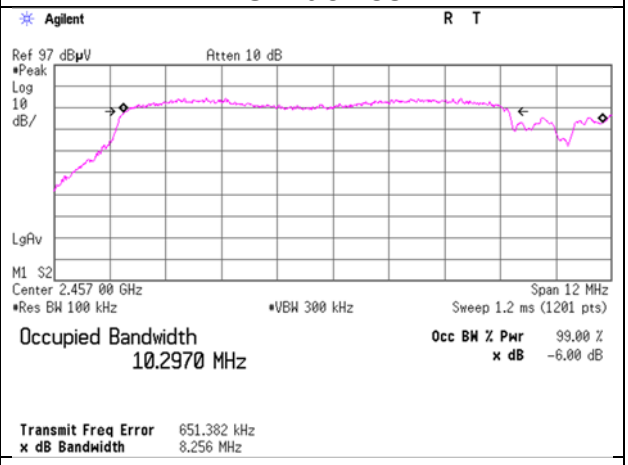
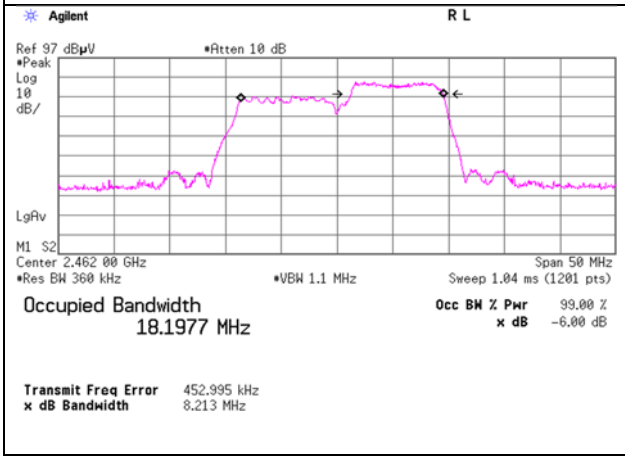
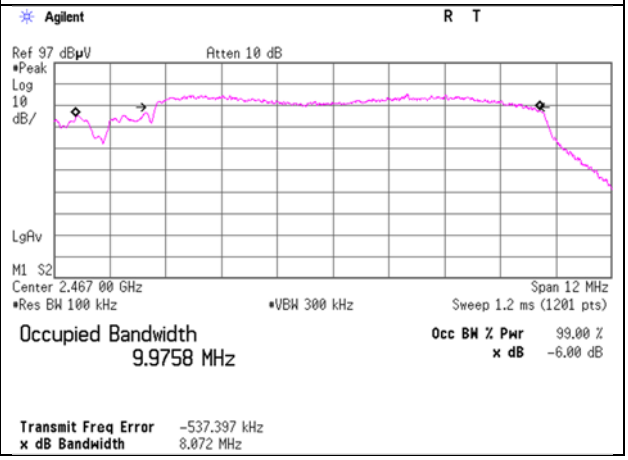
99 % Occupied Bandwidth and 6 dB Bandwidth

11ax-20 (OFDMA), 106-tone RU

99 % Occupied Bandwidth	6 dB Bandwidth
2457 MHz	2457 MHz
RU Index 53	RU Index 53
	
RU Index 54	RU Index 54
	

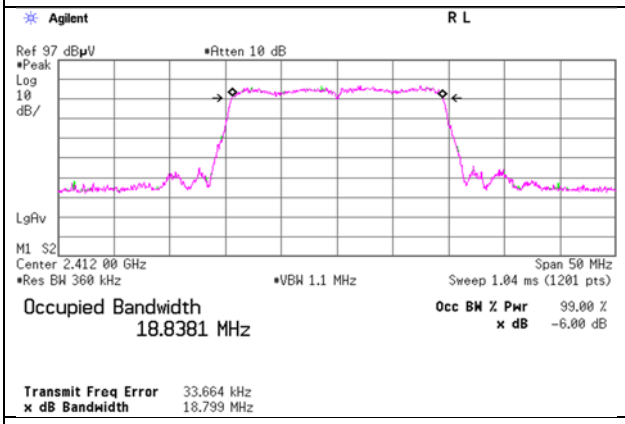
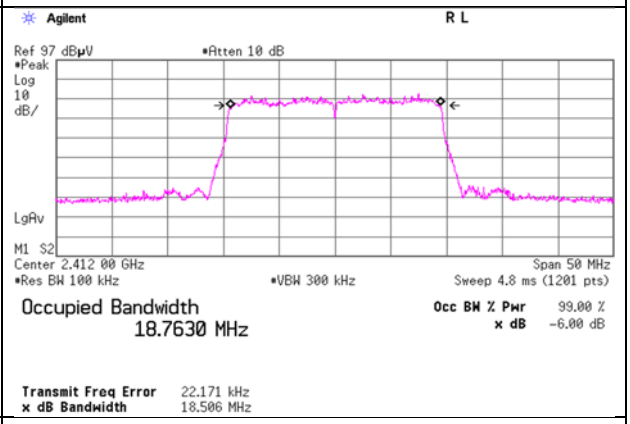
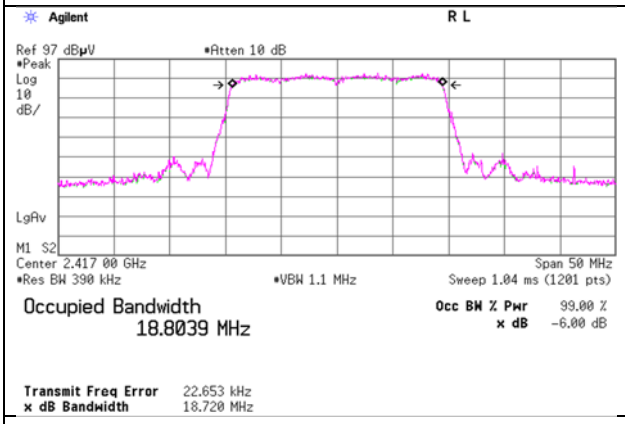
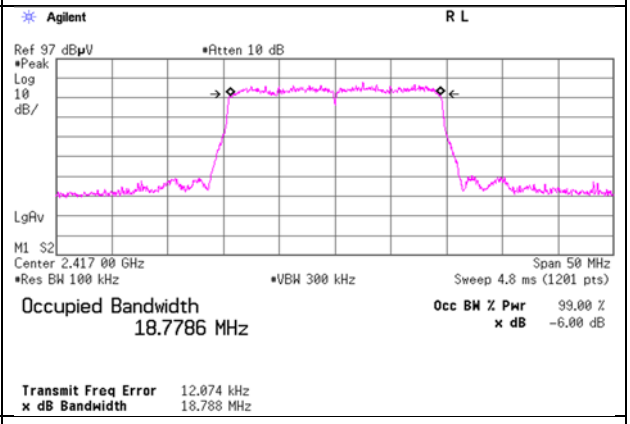
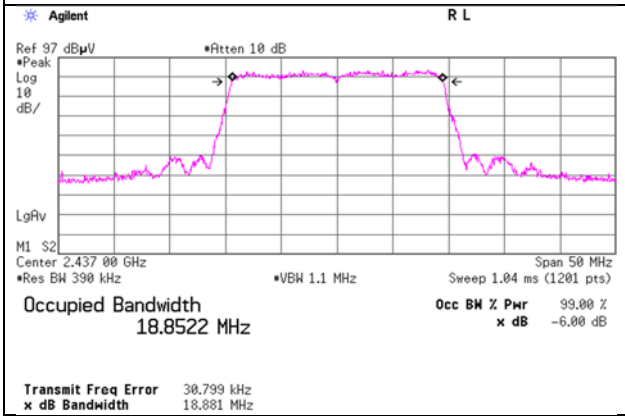
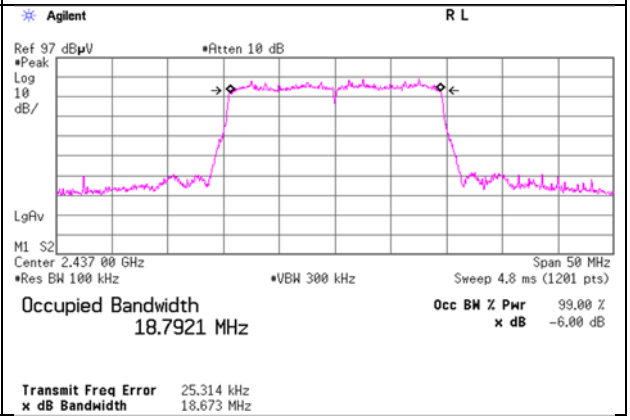
99 % Occupied Bandwidth and 6 dB Bandwidth

11ax-20 (OFDMA), 106-tone RU

99 % Occupied Bandwidth	6 dB Bandwidth
2462 MHz	2462 MHz
RU Index 53	RU Index 53
	
RU Index 54	RU Index 54
	

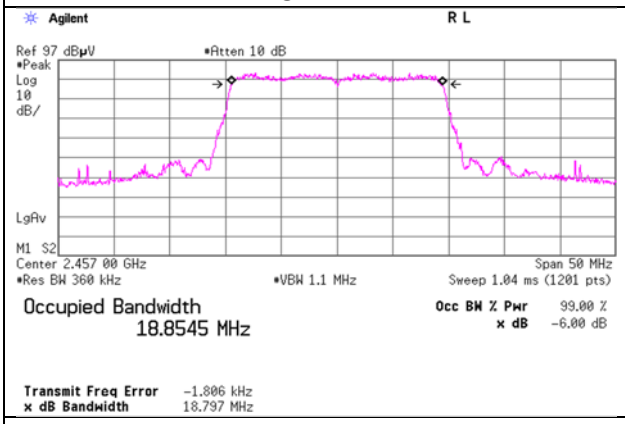
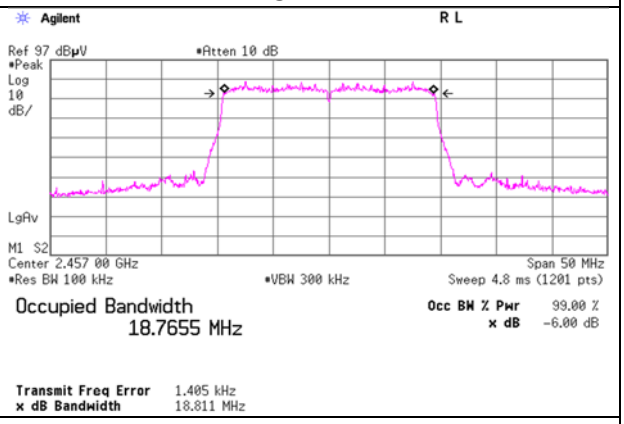
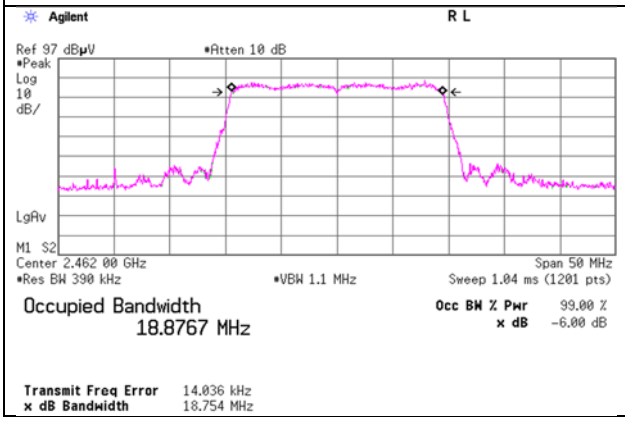
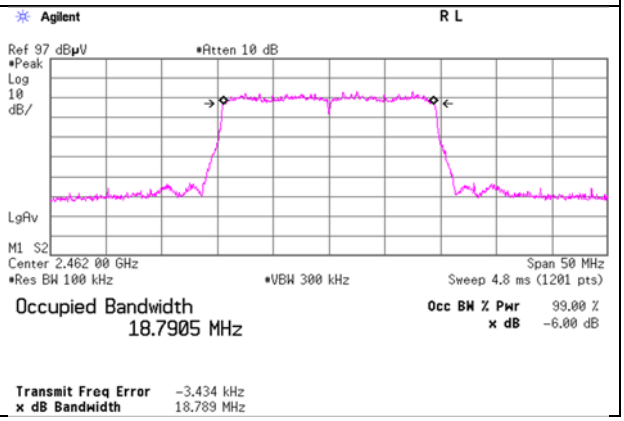
99 % Occupied Bandwidth and 6 dB Bandwidth

11ax-20 (OFDMA), 242-tone RU

99 % Occupied Bandwidth	6 dB Bandwidth
2412 MHz	**2412 MHz**
	
2417 MHz	**2417 MHz**
	
2437 MHz	**2437 MHz**
	

99 % Occupied Bandwidth and 6 dB Bandwidth

11ax-20 (OFDMA), 242-tone RU

99 % Occupied Bandwidth	6 dB Bandwidth
2457 MHz	2457 MHz
	
2462 MHz	2462 MHz
	

Maximum Peak Output Power

Test place	Shonan EMC Lab. No.1 Measurement Room
Date	February 6, 2023
Temperature / Humidity	23 deg. C / 25 % RH
Engineer	Miku Ikudome
Mode	Tx 11b

Ant A + Ant B

Freq.	Ant A Result	Ant B Result	Conducted Power Result		Conducted Power Limit		Margin	e.i.r.p. Result		e.i.r.p. Limit		Margin
[MHz]	[mW]	[mW]	[dBm]	[mW]	[dBm]	[mW]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2412	19.28	18.88	15.82	38.16	30.00	1000	14.18	18.33	68.01	36.02	4000.00	17.70
2437	22.34	22.03	16.47	44.36	30.00	1000	13.53	18.98	79.08	36.02	4000.00	17.04
2462	21.28	20.46	16.21	41.75	30.00	1000	13.79	18.72	74.41	36.02	4000.00	17.30

Sample Calculation:
Result = Antenna A + Antenna B
e.i.r.p. Result = Antenna A Result (e.i.r.p) + Antenna B Result (e.i.r.p)

Ant A

Freq.	Reading	Cable Loss	Atten. Loss	Result		Antenna Gain	Result (e.i.r.p)	
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]
2412	0.97	1.94	9.94	12.85	19.28	2.51	15.36	34.36
2437	1.60	1.95	9.94	13.49	22.34	2.51	16.00	39.81
2462	1.38	1.96	9.94	13.28	21.28	2.51	15.79	37.93

Ant B

Freq.	Reading	Cable Loss	Atten. Loss	Result		Antenna Gain	Result (e.i.r.p)	
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]
2412	0.76	1.96	10.04	12.76	18.88	2.51	15.27	33.65
2437	1.42	1.97	10.04	13.43	22.03	2.51	15.94	39.26
2462	1.09	1.98	10.04	13.11	20.46	2.51	15.62	36.48

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss
Result(e.i.r.p.) = Result + Antenna Gain

Worst Rate Check (2437 MHz)

Rate	Ant A					Ant B					Total Result Power		Remark
	Reading	Cable Loss	Atten. Loss	Result		Reading	Cable Loss	Atten. Loss	Result				
[Mbps]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	
1	1.59	1.95	9.94	13.48	22.28	1.37	1.97	10.04	13.38	21.78	16.44	44.06	-
2	1.57	1.95	9.94	13.46	22.18	1.41	1.97	10.04	13.42	21.98	16.45	44.16	-
5.5	1.58	1.95	9.94	13.47	22.23	1.42	1.97	10.04	13.43	22.03	16.46	44.26	-
11	1.60	1.95	9.94	13.49	22.34	1.42	1.97	10.04	13.43	22.03	16.47	44.36	*

*Worst Rate
Sample Calculation:
Each port Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss
Total Result = Ant A Result + Ant B Result

Maximum Peak Output Power

Test place	Shonan EMC Lab. No.1 Measurement Room	
Date	January 30, 2023	February 6, 2023
Temperature / Humidity	25 deg. C / 28 % RH	23 deg. C / 25 % RH
Engineer	Miku Ikudome	Miku Ikudome
Mode	Tx 11g	

Ant A + Ant B

Freq.	Ant A Result	Ant B Result	Conducted Power Result		Conducted Power Limit		Margin	e.i.r.p. Result		e.i.r.p. Limit		Margin
[MHz]	[mW]	[mW]	[dBm]	[mW]	[dBm]	[mW]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2412	31.70	33.65	18.15	65.35	30.00	1000	11.85	20.66	116.47	36.02	4000.00	15.36
2417	107.89	112.98	23.44	220.87	30.00	1000	6.56	25.95	393.68	36.02	4000.00	10.07
2437	127.06	122.74	23.98	249.80	30.00	1000	6.02	26.49	445.24	36.02	4000.00	9.53
2457	115.88	112.46	23.59	228.34	30.00	1000	6.41	26.10	406.99	36.02	4000.00	9.92
2462	34.12	35.89	18.45	70.01	30.00	1000	11.55	20.96	124.79	36.02	4000.00	15.06

Sample Calculation:
Result = Ant A + Ant B
e.i.r.p. Result = Ant A Result (e.i.r.p) + Ant B Result (e.i.r.p)

Ant A

Freq.	Reading	Cable Loss	Atten. Loss	Result		Antenna Gain	Result (e.i.r.p)	
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]
2412	3.13	1.94	9.94	15.01	31.70	2.51	17.52	56.49
2417	8.45	1.94	9.94	20.33	107.89	2.51	22.84	192.31
2437	9.15	1.95	9.94	21.04	127.06	2.51	23.55	226.46
2457	8.75	1.95	9.94	20.64	115.88	2.51	23.15	206.54
2462	3.43	1.96	9.94	15.33	34.12	2.51	17.84	60.81

Ant B

Freq.	Reading	Cable Loss	Atten. Loss	Result		Antenna Gain	Result (e.i.r.p)	
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]
2412	3.27	1.96	10.04	15.27	33.65	2.51	17.78	59.98
2417	8.53	1.96	10.04	20.53	112.98	2.51	23.04	201.37
2437	8.88	1.97	10.04	20.89	122.74	2.51	23.40	218.78
2457	8.49	1.98	10.04	20.51	112.46	2.51	23.02	200.45
2462	3.53	1.98	10.04	15.55	35.89	2.51	18.06	63.97

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss
Result(e.i.r.p.) = Result + Antenna Gain

Worst Rate Check (2437 MHz)

Rate	Ant A					Ant B					Total Result Power		Remark
	Reading	Cable Loss	Atten. Loss	Result		Reading	Cable Loss	Atten. Loss	Result				
[Mbps]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	
6	8.97	1.95	9.94	20.86	121.90	8.82	1.97	10.04	20.83	121.06	23.86	242.96	-
9	9.05	1.95	9.94	20.94	124.17	8.83	1.97	10.04	20.84	121.34	23.90	245.50	-
12	8.96	1.95	9.94	20.85	121.62	8.84	1.97	10.04	20.85	121.62	23.86	243.24	-
18	8.85	1.95	9.94	20.74	118.58	8.80	1.97	10.04	20.81	120.50	23.79	239.08	-
24	8.83	1.95	9.94	20.72	118.03	8.65	1.97	10.04	20.66	116.41	23.70	234.44	-
36	8.64	1.95	9.94	20.53	112.98	8.71	1.97	10.04	20.72	118.03	23.64	231.01	-
48	9.14	1.95	9.94	21.03	126.77	8.87	1.97	10.04	20.88	122.46	23.97	249.23	-
54	9.15	1.95	9.94	21.04	127.06	8.88	1.97	10.04	20.89	122.74	23.98	249.80	*

*Worst Rate
Sample Calculation:
Each port Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss
Total Result = Ant A Result + Ant B Result

Maximum Peak Output Power

Test place	Shonan EMC Lab. No.1 Measurement Room	
Date	January 30, 2023	February 6, 2023
Temperature / Humidity	25 deg. C / 28 % RH	23 deg. C / 25 % RH
Engineer	Miku Ikudome	Miku Ikudome
Mode	Tx 11n-20	

Ant A + Ant B

Freq.	Ant A Result	Ant B Result	Conducted Power Result		Conducted Power Limit		Margin	e.i.r.p. Result		e.i.r.p. Limit		Margin
[MHz]	[mW]	[mW]	[dBm]	[mW]	[dBm]	[mW]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2412	34.20	35.97	18.46	70.17	30.00	1000	11.54	20.97	125.07	36.02	4000.00	15.05
2417	119.95	123.88	23.87	243.83	30.00	1000	6.13	26.38	434.60	36.02	4000.00	9.64
2437	129.42	129.72	24.14	259.14	30.00	1000	5.86	26.65	461.88	36.02	4000.00	9.38
2457	120.78	123.03	23.87	243.81	30.00	1000	6.13	26.38	434.56	36.02	4000.00	9.64
2462	34.67	37.07	18.56	71.74	30.00	1000	11.44	21.07	127.87	36.02	4000.00	14.95

Sample Calculation:
Result = Ant A + Ant B
e.i.r.p. Result = Ant A Result (e.i.r.p) + Ant B Result (e.i.r.p)

Ant A

Freq.	Reading	Cable Loss	Atten. Loss	Result		Antenna Gain	Result (e.i.r.p)	
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]
2412	3.46	1.94	9.94	15.34	34.20	2.51	17.85	60.95
2417	8.91	1.94	9.94	20.79	119.95	2.51	23.30	213.80
2437	9.23	1.95	9.94	21.12	129.42	2.51	23.63	230.67
2457	8.93	1.95	9.94	20.82	120.78	2.51	23.33	215.28
2462	3.50	1.96	9.94	15.40	34.67	2.51	17.91	61.80

Ant B

Freq.	Reading	Cable Loss	Atten. Loss	Result		Antenna Gain	Result (e.i.r.p)	
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]
2412	3.56	1.96	10.04	15.56	35.97	2.51	18.07	64.12
2417	8.93	1.96	10.04	20.93	123.88	2.51	23.44	220.80
2437	9.12	1.97	10.04	21.13	129.72	2.51	23.64	231.21
2457	8.88	1.98	10.04	20.90	123.03	2.51	23.41	219.28
2462	3.67	1.98	10.04	15.69	37.07	2.51	18.20	66.07

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss
Result(e.i.r.p.) = Result + Antenna Gain

Worst Rate Check (2437 MHz)

MCS	Ant A					Ant B					Total Result Power		Remark
	Reading	Cable Loss	Atten. Loss	Result		Reading	Cable Loss	Atten. Loss	Result				
	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	
0	9.05	1.95	9.94	20.94	124.17	8.86	1.97	10.04	20.87	122.18	23.92	246.35	-
1	9.18	1.95	9.94	21.07	127.94	9.08	1.97	10.04	21.09	128.53	24.09	256.47	-
2	9.37	1.95	9.94	21.26	133.66	8.90	1.97	10.04	20.91	123.31	24.10	256.97	-
3	8.95	1.95	9.94	20.84	121.34	8.93	1.97	10.04	20.94	124.17	23.90	245.50	-
4	9.08	1.95	9.94	20.97	125.03	9.00	1.97	10.04	21.01	126.18	24.00	251.21	-
5	9.23	1.95	9.94	21.12	129.42	9.12	1.97	10.04	21.13	129.72	24.14	259.14	*
6	9.08	1.95	9.94	20.97	125.03	8.99	1.97	10.04	21.00	125.89	24.00	250.92	-
7	9.01	1.95	9.94	20.90	123.03	8.87	1.97	10.04	20.88	122.46	23.90	245.49	-
8	9.04	1.95	9.94	20.93	123.88	8.94	1.97	10.04	20.95	124.45	23.95	248.33	-
9	8.14	1.95	9.94	20.03	100.69	8.84	1.97	10.04	20.85	121.62	23.47	222.31	-
10	8.84	1.95	9.94	20.73	118.30	8.88	1.97	10.04	20.89	122.74	23.82	241.05	-
11	9.19	1.95	9.94	21.08	128.23	9.08	1.97	10.04	21.09	128.53	24.10	256.76	-
12	9.11	1.95	9.94	21.00	125.89	8.77	1.97	10.04	20.78	119.67	23.90	245.57	-
13	8.67	1.95	9.94	20.56	113.76	8.60	1.97	10.04	20.61	115.08	23.60	228.84	-
14	9.18	1.95	9.94	21.07	127.94	9.12	1.97	10.04	21.13	129.72	24.11	257.66	-
15	8.70	1.95	9.94	20.59	114.55	9.11	1.97	10.04	21.12	129.42	23.87	243.97	-

*Worst Rate
Sample Calculation:
Each port Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss
Total Result = Ant A Result + Ant B Result

Maximum Peak Output Power

Test place	Shonan EMC Lab. No.1 Measurement Room	
Date	January 31, 2023	February 7, 2023
Temperature / Humidity	20 deg. C / 30 % RH	23 deg. C / 24 % RH
Engineer	Yusuke Tanikawara	Miku Ikudome
Mode	Tx 11ax-20 (OFDM)	

Ant A + Ant B

Freq.	Ant A Result	Ant B Result	Conducted Power Result		Conducted Power Limit		Margin	e.i.r.p. Result		e.i.r.p. Limit		Margin
[MHz]	[mW]	[mW]	[dBm]	[mW]	[dBm]	[mW]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2412	42.17	43.05	19.31	85.22	30.00	1000	10.69	21.82	151.90	36.02	4000.00	14.21
2417	155.96	149.62	24.85	305.58	30.00	1000	5.15	27.36	544.66	36.02	4000.00	8.66
2437	160.69	149.62	24.92	310.32	30.00	1000	5.08	27.43	553.10	36.02	4000.00	8.59
2457	155.60	132.43	24.59	288.03	30.00	1000	5.41	27.10	513.38	36.02	4000.00	8.92
2462	44.67	45.50	19.55	90.17	30.00	1000	10.45	22.06	160.71	36.02	4000.00	13.96

Sample Calculation:
Result = Ant A + Ant B
e.i.r.p. Result = Ant A Result (e.i.r.p) + Ant B Result (e.i.r.p)

Ant A

Freq.	Reading	Cable Loss	Atten. Loss	Result		Antenna Gain	Result (e.i.r.p)	
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]
2412	4.37	1.94	9.94	16.25	42.17	2.51	18.76	75.16
2417	10.05	1.94	9.94	21.93	155.96	2.51	24.44	277.97
2437	10.17	1.95	9.94	22.06	160.69	2.51	24.57	286.42
2457	10.03	1.95	9.94	21.92	155.60	2.51	24.43	277.33
2462	4.60	1.96	9.94	16.50	44.67	2.51	19.01	79.62

Ant B

Freq.	Reading	Cable Loss	Atten. Loss	Result		Antenna Gain	Result (e.i.r.p)	
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]
2412	4.34	1.96	10.04	16.34	43.05	2.51	18.85	76.74
2417	9.75	1.96	10.04	21.75	149.62	2.51	24.26	266.69
2437	9.74	1.97	10.04	21.75	149.62	2.51	24.26	266.69
2457	9.21	1.97	10.04	21.22	132.43	2.51	23.73	236.05
2462	4.56	1.98	10.04	16.58	45.50	2.51	19.09	81.10

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss
Result(e.i.r.p.) = Result + Antenna Gain

Worst Rate Check (2437 MHz)

MCS	Ant A					Ant B					Total Result Power		Remark
	Reading	Cable Loss	Atten. Loss	Result		Reading	Cable Loss	Atten. Loss	Result				
	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	
0 (1SS)	9.85	1.95	9.94	21.74	149.28	9.79	1.97	10.04	21.80	151.36	24.78	300.64	-
1 (1SS)	9.94	1.95	9.94	21.83	152.41	9.74	1.97	10.04	21.75	149.62	24.80	302.03	-
2 (1SS)	9.92	1.95	9.94	21.81	151.71	9.75	1.97	10.04	21.76	149.97	24.80	301.67	-
3 (1SS)	9.99	1.95	9.94	21.88	154.17	9.68	1.97	10.04	21.69	147.57	24.80	301.74	-
4 (1SS)	9.84	1.95	9.94	21.73	148.94	9.68	1.97	10.04	21.69	147.57	24.72	296.51	-
5 (1SS)	10.02	1.95	9.94	21.91	155.24	9.67	1.97	10.04	21.68	147.23	24.81	302.47	-
6 (1SS)	10.17	1.95	9.94	22.06	160.69	9.74	1.97	10.04	21.75	149.62	24.92	310.32	*
7 (1SS)	9.90	1.95	9.94	21.79	151.01	9.71	1.97	10.04	21.72	148.59	24.77	299.60	-
0 (2SS)	10.05	1.95	9.94	21.94	156.31	9.72	1.97	10.04	21.73	148.94	24.85	305.25	-
1 (2SS)	10.04	1.95	9.94	21.93	155.96	9.70	1.97	10.04	21.71	148.25	24.83	304.21	-
2 (2SS)	9.86	1.95	9.94	21.75	149.62	9.63	1.97	10.04	21.64	145.88	24.71	295.50	-
3 (2SS)	9.76	1.95	9.94	21.65	146.22	9.74	1.97	10.04	21.75	149.62	24.71	295.84	-
4 (2SS)	9.88	1.95	9.94	21.77	150.31	9.72	1.97	10.04	21.73	148.94	24.76	299.25	-
5 (2SS)	9.63	1.95	9.94	21.52	141.91	9.63	1.97	10.04	21.64	145.88	24.59	287.79	-
6 (2SS)	9.96	1.95	9.94	21.85	153.11	9.73	1.97	10.04	21.74	149.28	24.81	302.39	-
7 (2SS)	9.85	1.95	9.94	21.74	149.28	9.68	1.97	10.04	21.69	147.57	24.73	296.85	-

*Worst Rate
Sample Calculation:
Each port Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss
Total Result = Ant A Result + Ant B Result

Maximum Peak Output Power

Test place	Shonan EMC Lab. No.5 Shielded Room
Date	April 19, 2023
Temperature / Humidity	25 deg. C / 41 % RH
Engineer	Miku Ikudome
Mode	Tx 11ax-20 (OFDM), pre-correction

Ant A + Ant B

Freq.	Ant A Result	Ant B Result	Conducted Power Result		Limit		Margin	e.i.r.p. Result		Limit		Margin
[MHz]	[mW]	[mW]	[dBm]	[mW]	[dBm]	[mW]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2412	2.36	2.48	6.85	4.84	30.00	1000	23.15	9.36	8.62	36.02	4000.00	26.66
2437	2.12	2.85	6.97	4.97	30.00	1000	23.03	9.48	8.87	36.02	4000.00	26.54
2462	2.01	2.55	6.59	4.56	30.00	1000	23.41	9.10	8.13	36.02	4000.00	26.92

Sample Calculation:
Result = Ant A + Ant B
e.i.r.p. Result = Ant A Result (e.i.r.p) + Ant B Result (e.i.r.p)

Ant A

Freq.	Reading	Cable Loss	Atten. Loss	Result		Antenna Gain	Result (e.i.r.p)	
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]
2412	-8.16	1.94	9.94	3.72	2.36	2.51	6.23	4.20
2437	-8.62	1.95	9.94	3.27	2.12	2.51	5.78	3.78
2462	-8.87	1.96	9.94	3.03	2.01	2.51	5.54	3.58

Ant B

Freq.	Reading	Cable Loss	Atten. Loss	Result		Antenna Gain	Result (e.i.r.p)	
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]
2412	-8.05	1.96	10.04	3.95	2.48	2.51	6.46	4.43
2437	-7.46	1.97	10.04	4.55	2.85	2.51	7.06	5.08
2462	-7.95	1.98	10.04	4.07	2.55	2.51	6.58	4.55

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss
Result(e.i.r.p.) = Result + Antenna Gain

Maximum Peak Output Power

Test place	Shonan EMC Lab. No.5 Shielded Room		
Date	February 9, 2023	March 26, 2023	March 27, 2023
Temperature / Humidity	23 deg. C / 24 % RH	23 deg. C / 36 % RH	22 deg. C / 37 % RH
Engineer	Miku Ikudome	Miku Ikudome	Miku Ikudome
Mode	Tx 11ax-20 (OFDMA) 26-tone RU		

Ant A + Ant B

Freq.	RU Index	Ant A Result	Ant B Result	Conducted Power					e.i.r.p.				
				Result		Limit		Margin	Result		Limit		Margin
[MHz]		[mW]	[mW]	[dBm]	[mW]	[dBm]	[mW]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2412	0	1.71	1.70	5.33	3.41	30.00	1000	24.67	7.84	6.08	36.02	4000.00	28.18
	4	1.77	1.69	5.39	3.46	30.00	1000	24.61	7.90	6.16	36.02	4000.00	28.12
	8	1.87	1.86	5.73	3.74	30.00	1000	24.27	8.24	6.66	36.02	4000.00	27.79
2417	0	5.65	4.58	10.10	10.23	30.00	1000	19.90	12.61	18.24	36.02	4000.00	23.41
	4	5.16	5.15	10.14	10.32	30.00	1000	19.86	12.65	18.39	36.02	4000.00	23.38
	8	5.35	5.31	10.28	10.65	30.00	1000	19.72	12.79	18.99	36.02	4000.00	23.24
2437	0	6.22	6.61	11.08	12.83	30.00	1000	18.92	13.59	22.87	36.02	4000.00	22.43
	4	6.34	6.53	11.10	12.87	30.00	1000	18.90	13.61	22.94	36.02	4000.00	22.41
	8	5.79	6.00	10.72	11.79	30.00	1000	19.28	13.23	21.02	36.02	4000.00	22.79
2457	0	5.19	5.37	10.24	10.56	30.00	1000	19.76	12.75	18.82	36.02	4000.00	23.27
	4	5.68	5.46	10.47	11.13	30.00	1000	19.53	12.98	19.84	36.02	4000.00	23.04
	8	5.70	5.90	10.65	11.60	30.00	1000	19.35	13.16	20.68	36.02	4000.00	22.86
2462	0	1.92	1.91	5.84	3.83	30.00	1000	24.16	8.35	6.83	36.02	4000.00	27.68
	4	1.93	1.91	5.84	3.83	30.00	1000	24.16	8.35	6.83	36.02	4000.00	27.68
	8	1.94	1.98	5.93	3.91	30.00	1000	24.07	8.44	6.98	36.02	4000.00	27.59

Sample Calculation:
Result = Ant A + Ant B
e.i.r.p. Result = Ant A Result (e.i.r.p) + Ant B Result (e.i.r.p)

Ant A

Freq.	RU Index	Reading	Cable Loss	Atten. Loss	Result		Antenna Gain	Result (e.i.r.p)	
[MHz]		[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]
2412	0	-9.55	1.94	9.94	2.33	1.71	2.51	4.84	3.05
	4	-9.41	1.94	9.94	2.47	1.77	2.51	4.98	3.15
	8	-9.15	1.94	9.94	2.73	1.87	2.51	5.24	3.34
2417	0	-4.36	1.94	9.94	7.52	5.65	2.51	10.03	10.07
	4	-4.75	1.94	9.94	7.13	5.16	2.51	9.64	9.20
	8	-4.60	1.94	9.94	7.28	5.35	2.51	9.79	9.53
2437	0	-3.95	1.95	9.94	7.94	6.22	2.51	10.45	11.09
	4	-3.87	1.95	9.94	8.02	6.34	2.51	10.53	11.30
	8	-4.26	1.95	9.94	7.63	5.79	2.51	10.14	10.33
2457	0	-4.74	1.95	9.94	7.15	5.19	2.51	9.66	9.25
	4	-4.35	1.95	9.94	7.54	5.68	2.51	10.05	10.12
	8	-4.33	1.95	9.94	7.56	5.70	2.51	10.07	10.16
2462	0	-9.06	1.96	9.94	2.84	1.92	2.51	5.35	3.43
	4	-9.05	1.96	9.94	2.85	1.93	2.51	5.36	3.44
	8	-9.03	1.96	9.94	2.87	1.94	2.51	5.38	3.45

Ant B

Freq.	RU Index	Reading	Cable Loss	Atten. Loss	Result		Antenna Gain	Result (e.i.r.p)	
[MHz]		[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]
2412	0	-9.69	1.96	10.04	2.31	1.70	2.51	4.82	3.03
	4	-9.72	1.96	10.04	2.28	1.69	2.51	4.79	3.01
	8	-9.30	1.96	10.04	2.70	1.86	2.51	5.21	3.32
2417	0	-5.39	1.96	10.04	6.61	4.58	2.51	9.12	8.17
	4	-4.88	1.96	10.04	7.12	5.15	2.51	9.63	9.18
	8	-4.75	1.96	10.04	7.25	5.31	2.51	9.76	9.46
2437	0	-3.81	1.97	10.04	8.20	6.61	2.51	10.71	11.78
	4	-3.86	1.97	10.04	8.15	6.53	2.51	10.66	11.64
	8	-4.23	1.97	10.04	7.78	6.00	2.51	10.29	10.69
2457	0	-4.72	1.98	10.04	7.30	5.37	2.51	9.81	9.57
	4	-4.65	1.98	10.04	7.37	5.46	2.51	9.88	9.73
	8	-4.31	1.98	10.04	7.71	5.90	2.51	10.22	10.52
2462	0	-9.21	1.98	10.04	2.81	1.91	2.51	5.32	3.40
	4	-9.22	1.98	10.04	2.80	1.91	2.51	5.31	3.40
	8	-9.06	1.98	10.04	2.96	1.98	2.51	5.47	3.52

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss
Result(e.i.r.p.) = Result + Antenna Gain

Maximum Peak Output Power

Test place	Shonan EMC Lab. No.5 Shielded Room	
Date	March 26, 2023	March 27, 2023
Temperature / Humidity	23 deg. C / 36 % RH	22 deg. C / 37 % RH
Engineer	Miku Ikudome	Miku Ikudome
Mode	Tx 11ax-20 (OFDMA) 52-tone RU	

Ant A + Ant B

Freq.	RU Index	Ant A Result	Ant B Result	Conducted Power Result		Conducted Power Limit		Margin	e.i.r.p. Result		e.i.r.p. Limit		Margin
[MHz]		[mW]	[mW]	[dBm]	[mW]	[dBm]	[mW]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2412	37	3.34	3.26	8.20	6.60	30.00	1000	21.80	10.71	11.76	36.02	4000.00	25.31
	38	3.57	3.68	8.61	7.25	30.00	1000	21.39	11.12	12.93	36.02	4000.00	24.90
	40	3.40	3.44	8.35	6.84	30.00	1000	21.65	10.86	12.19	36.02	4000.00	25.16
2417	37	9.82	10.62	13.10	20.43	30.00	1000	16.90	15.61	36.42	36.02	4000.00	20.41
	38	10.79	11.32	13.45	22.11	30.00	1000	16.55	15.96	39.41	36.02	4000.00	20.06
	40	10.30	10.86	13.26	21.17	30.00	1000	16.74	15.77	37.73	36.02	4000.00	20.25
2437	37	10.84	12.08	13.60	22.92	30.00	1000	16.40	16.11	40.85	36.02	4000.00	19.91
	38	11.46	12.59	13.81	24.04	30.00	1000	16.19	16.32	42.86	36.02	4000.00	19.70
	40	11.43	12.27	13.75	23.70	30.00	1000	16.25	16.26	42.25	36.02	4000.00	19.76
2457	37	10.94	11.46	13.50	22.39	30.00	1000	16.50	16.01	39.92	36.02	4000.00	20.01
	38	12.71	13.12	14.12	25.83	30.00	1000	15.88	16.63	46.03	36.02	4000.00	19.39
	40	11.43	11.80	13.66	23.23	30.00	1000	16.34	16.17	41.41	36.02	4000.00	19.85
2462	37	3.56	3.68	8.60	7.25	30.00	1000	21.40	11.11	12.91	36.02	4000.00	24.91
	38	3.72	3.86	8.80	7.58	30.00	1000	21.20	11.31	13.51	36.02	4000.00	24.71
	40	3.53	3.65	8.56	7.18	30.00	1000	21.44	11.07	12.80	36.02	4000.00	24.95

Sample Calculation:
Result = Ant A + Ant B
e.i.r.p. Result = Ant A Result (e.i.r.p) + Ant B Result (e.i.r.p)

Ant A

Freq.	RU Index	Reading	Cable Loss	Atten. Loss	Result		Antenna Gain	Result (e.i.r.p)	
[MHz]		[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]
2412	37	-6.64	1.94	9.94	5.24	3.34	2.51	7.75	5.96
	38	-6.35	1.94	9.94	5.53	3.57	2.51	8.04	6.37
	40	-6.56	1.94	9.94	5.32	3.40	2.51	7.83	6.07
2417	37	-1.96	1.94	9.94	9.92	9.82	2.51	12.43	17.50
	38	-1.55	1.94	9.94	10.33	10.79	2.51	12.84	19.23
	40	-1.75	1.94	9.94	10.13	10.30	2.51	12.64	18.37
2437	37	-1.54	1.95	9.94	10.35	10.84	2.51	12.86	19.32
	38	-1.30	1.95	9.94	10.59	11.46	2.51	13.10	20.42
	40	-1.31	1.95	9.94	10.58	11.43	2.51	13.09	20.37
2457	37	-1.50	1.95	9.94	10.39	10.94	2.51	12.90	19.50
	38	-0.85	1.95	9.94	11.04	12.71	2.51	13.55	22.65
	40	-1.31	1.95	9.94	10.58	11.43	2.51	13.09	20.37
2462	37	-6.38	1.96	9.94	5.52	3.56	2.51	8.03	6.35
	38	-6.20	1.96	9.94	5.70	3.72	2.51	8.21	6.62
	40	-6.42	1.96	9.94	5.48	3.53	2.51	7.99	6.30

Ant B

Freq.	RU Index	Reading	Cable Loss	Atten. Loss	Result		Antenna Gain	Result (e.i.r.p)	
[MHz]		[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]
2412	37	-6.87	1.96	10.04	5.13	3.26	2.51	7.64	5.81
	38	-6.34	1.96	10.04	5.66	3.68	2.51	8.17	6.56
	40	-6.64	1.96	10.04	5.36	3.44	2.51	7.87	6.12
2417	37	-1.74	1.96	10.04	10.26	10.62	2.51	12.77	18.92
	38	-1.46	1.96	10.04	10.54	11.32	2.51	13.05	20.18
	40	-1.64	1.96	10.04	10.36	10.86	2.51	12.87	19.36
2437	37	-1.19	1.97	10.04	10.82	12.08	2.51	13.33	21.53
	38	-1.01	1.97	10.04	11.00	12.59	2.51	13.51	22.44
	40	-1.12	1.97	10.04	10.89	12.27	2.51	13.40	21.88
2457	37	-1.43	1.98	10.04	10.59	11.46	2.51	13.10	20.42
	38	-0.84	1.98	10.04	11.18	13.12	2.51	13.69	23.39
	40	-1.30	1.98	10.04	10.72	11.80	2.51	13.23	21.04
2462	37	-6.36	1.98	10.04	5.66	3.68	2.51	8.17	6.56
	38	-6.15	1.98	10.04	5.87	3.86	2.51	8.38	6.89
	40	-6.40	1.98	10.04	5.62	3.65	2.51	8.13	6.50

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss
Result(e.i.r.p.) = Result + Antenna Gain

Maximum Peak Output Power

Test place	Shonan EMC Lab. No.5 Shielded Room	
Date	March 26, 2023	March 27, 2023
Temperature / Humidity	23 deg. C / 36 % RH	22 deg. C / 37 % RH
Engineer	Miku Ikudome	Miku Ikudome
Mode	Tx 11ax-20 (OFDMA) 106-tone RU	

Ant A + Ant B

Freq.	RU Index	Ant A Result	Ant B Result	Conducted Power					e.i.r.p.				
				Result		Limit		Margin	Result		Limit		Margin
[MHz]		[mW]	[mW]	[dBm]	[mW]	[dBm]	[mW]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2412	53	6.82	6.53	11.26	13.35	30.00	1000	18.74	13.77	23.80	36.02	4000.00	22.25
	54	6.89	7.18	11.48	14.06	30.00	1000	18.52	13.99	25.07	36.02	4000.00	22.03
2417	53	22.54	23.71	16.65	46.26	30.00	1000	13.35	19.16	82.45	36.02	4000.00	16.86
	54	22.28	23.66	16.62	45.94	30.00	1000	13.38	19.13	81.89	36.02	4000.00	16.89
2437	53	23.77	25.59	16.93	49.35	30.00	1000	13.07	19.44	87.97	36.02	4000.00	16.58
	54	24.55	26.92	17.11	51.46	30.00	1000	12.89	19.62	91.73	36.02	4000.00	16.40
2457	53	22.70	22.34	16.54	45.03	30.00	1000	13.46	19.05	80.27	36.02	4000.00	16.98
	54	22.80	23.82	16.69	46.63	30.00	1000	13.31	19.20	83.11	36.02	4000.00	16.82
2462	53	7.52	7.21	11.68	14.73	30.00	1000	18.32	14.19	26.25	36.02	4000.00	21.83
	54	7.62	7.87	11.90	15.49	30.00	1000	18.10	14.41	27.61	36.02	4000.00	21.61

Sample Calculation:
Result = Ant A + Ant B
e.i.r.p. Result = Ant A Result (e.i.r.p) + Ant B Result (e.i.r.p)

Ant A

Freq.	RU Index	Reading	Cable Loss	Atten. Loss	Result		Antenna Gain	Result (e.i.r.p)	
[MHz]		[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]
2412	53	-3.54	1.94	9.94	8.34	6.82	2.51	10.85	12.16
	54	-3.50	1.94	9.94	8.38	6.89	2.51	10.89	12.27
2417	53	1.65	1.94	9.94	13.53	22.54	2.51	16.04	40.18
	54	1.60	1.94	9.94	13.48	22.28	2.51	15.99	39.72
2437	53	1.87	1.95	9.94	13.76	23.77	2.51	16.27	42.36
	54	2.01	1.95	9.94	13.90	24.55	2.51	16.41	43.75
2457	53	1.67	1.95	9.94	13.56	22.70	2.51	16.07	40.46
	54	1.69	1.95	9.94	13.58	22.80	2.51	16.09	40.64
2462	53	-3.14	1.96	9.94	8.76	7.52	2.51	11.27	13.40
	54	-3.08	1.96	9.94	8.82	7.62	2.51	11.33	13.58

Ant B

Freq.	RU Index	Reading	Cable Loss	Atten. Loss	Result		Antenna Gain	Result (e.i.r.p)	
[MHz]		[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]
2412	53	-3.85	1.96	10.04	8.15	6.53	2.51	10.66	11.64
	54	-3.44	1.96	10.04	8.56	7.18	2.51	11.07	12.79
2417	53	1.75	1.96	10.04	13.75	23.71	2.51	16.26	42.27
	54	1.74	1.96	10.04	13.74	23.66	2.51	16.25	42.17
2437	53	2.07	1.97	10.04	14.08	25.59	2.51	16.59	45.60
	54	2.29	1.97	10.04	14.30	26.92	2.51	16.81	47.97
2457	53	1.47	1.98	10.04	13.49	22.34	2.51	16.00	39.81
	54	1.75	1.98	10.04	13.77	23.82	2.51	16.28	42.46
2462	53	-3.44	1.98	10.04	8.58	7.21	2.51	11.09	12.85
	54	-3.06	1.98	10.04	8.96	7.87	2.51	11.47	14.03

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss
Result(e.i.r.p.) = Result + Antenna Gain

Maximum Peak Output Power

Test place	Shonan EMC Lab. No.5 Shielded Room
Date	March 27, 2023
Temperature / Humidity	22 deg. C / 37 % RH
Engineer	Miku Ikudome
Mode	Tx 11ax-20 (OFDMA) 242-tone RU

Ant A + Ant B

Freq.	Ant A Result	Ant B Result	Conducted Power					e.i.r.p.				
			Result		Limit		Margin	Result		Limit		Margin
[MHz]	[mW]	[mW]	[dBm]	[mW]	[dBm]	[mW]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2412	17.30	17.91	15.47	35.20	30.00	1000	14.53	17.98	62.75	36.02	4000.00	18.04
2417	55.34	59.02	20.58	114.36	30.00	1000	9.42	23.09	203.82	36.02	4000.00	12.93
2437	57.81	64.42	20.87	122.23	30.00	1000	9.13	23.38	217.85	36.02	4000.00	12.64
2457	57.68	59.98	20.71	117.66	30.00	1000	9.29	23.22	209.71	36.02	4000.00	12.80
2462	18.16	18.75	15.67	36.91	30.00	1000	14.33	18.18	65.78	36.02	4000.00	17.84

Sample Calculation:
Result = Ant A + Ant B
e.i.r.p. Result = Ant A Result (e.i.r.p) + Ant B Result (e.i.r.p)

Ant A

Freq.	Reading	Cable Loss	Atten. Loss	Result		Antenna Gain	Result (e.i.r.p)	
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]
2412	0.50	1.94	9.94	12.38	17.30	2.51	14.89	30.83
2417	5.55	1.94	9.94	17.43	55.34	2.51	19.94	98.63
2437	5.73	1.95	9.94	17.62	57.81	2.51	20.13	103.04
2457	5.72	1.95	9.94	17.61	57.68	2.51	20.12	102.80
2462	0.69	1.96	9.94	12.59	18.16	2.51	15.10	32.36

Ant B

Freq.	Reading	Cable Loss	Atten. Loss	Result		Antenna Gain	Result (e.i.r.p)	
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]
2412	0.53	1.96	10.04	12.53	17.91	2.51	15.04	31.92
2417	5.71	1.96	10.04	17.71	59.02	2.51	20.22	105.20
2437	6.08	1.97	10.04	18.09	64.42	2.51	20.60	114.82
2457	5.77	1.97	10.04	17.78	59.98	2.51	20.29	106.91
2462	0.71	1.98	10.04	12.73	18.75	2.51	15.24	33.42

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss
Result(e.i.r.p.) = Result + Antenna Gain

Maximum Peak Output Power

Test place	Shonan EMC Lab. No.5 Shielded Room
Date	April 19, 2023
Temperature / Humidity	25 deg. C / 41 % RH
Engineer	Miku Ikudome
Mode	Tx 11ax-20 (OFDMA) 26-tone RU, pre-correction

Ant A + Ant B

Freq.	RU Index	Ant A Result	Ant B Result	Conducted Power					e.i.r.p.				
				Result		Limit		Margin	Result		Limit		Margin
[MHz]		[mW]	[mW]	[dBm]	[mW]	[dBm]	[mW]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2412	0	1.71	1.70	5.33	3.41	30.00	1000	24.67	7.84	6.08	36.02	4000.00	28.18
	4	1.77	1.69	5.39	3.46	30.00	1000	24.61	7.90	6.16	36.02	4000.00	28.12
	8	1.87	1.86	5.73	3.74	30.00	1000	24.27	8.24	6.66	36.02	4000.00	27.79
2437	0	1.86	2.16	6.04	4.02	30.00	1000	23.96	8.55	7.16	36.02	4000.00	27.47
	4	1.90	2.19	6.11	4.08	30.00	1000	23.89	8.62	7.28	36.02	4000.00	27.40
	8	1.93	2.29	6.25	4.22	30.00	1000	23.75	8.76	7.52	36.02	4000.00	27.26
2462	0	1.92	1.91	5.84	3.83	30.00	1000	24.16	8.35	6.83	36.02	4000.00	27.68
	4	1.93	1.91	5.84	3.83	30.00	1000	24.16	8.35	6.83	36.02	4000.00	27.68
	8	1.94	1.98	5.93	3.91	30.00	1000	24.07	8.44	6.98	36.02	4000.00	27.59

Sample Calculation:
Result = Ant A + Ant B
e.i.r.p. Result = Ant A Result (e.i.r.p) + Ant B Result (e.i.r.p)

Ant A

Freq.	RU Index	Reading	Cable Loss	Atten. Loss	Result		Antenna Gain	Result (e.i.r.p)	
[MHz]		[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]
2412	0	-9.55	1.94	9.94	2.33	1.71	2.51	4.84	3.05
	4	-9.41	1.94	9.94	2.47	1.77	2.51	4.98	3.15
	8	-9.15	1.94	9.94	2.73	1.87	2.51	5.24	3.34
2437	0	-9.19	1.95	9.94	2.70	1.86	2.51	5.21	3.32
	4	-9.11	1.95	9.94	2.78	1.90	2.51	5.29	3.38
	8	-9.03	1.95	9.94	2.86	1.93	2.51	5.37	3.44
2462	0	-9.06	1.96	9.94	2.84	1.92	2.51	5.35	3.43
	4	-9.05	1.96	9.94	2.85	1.93	2.51	5.36	3.44
	8	-9.03	1.96	9.94	2.87	1.94	2.51	5.38	3.45

Ant B

Freq.	RU Index	Reading	Cable Loss	Atten. Loss	Result		Antenna Gain	Result (e.i.r.p)	
[MHz]		[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]
2412	0	-9.69	1.96	10.04	2.31	1.70	2.51	4.82	3.03
	4	-9.72	1.96	10.04	2.28	1.69	2.51	4.79	3.01
	8	-9.30	1.96	10.04	2.70	1.86	2.51	5.21	3.32
2437	0	-8.67	1.97	10.04	3.34	2.16	2.51	5.85	3.85
	4	-8.61	1.97	10.04	3.40	2.19	2.51	5.91	3.90
	8	-8.42	1.97	10.04	3.59	2.29	2.51	6.10	4.07
2462	0	-9.21	1.98	10.04	2.81	1.91	2.51	5.32	3.40
	4	-9.22	1.98	10.04	2.80	1.91	2.51	5.31	3.40
	8	-9.06	1.98	10.04	2.96	1.98	2.51	5.47	3.52

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss
Result(e.i.r.p.) = Result + Antenna Gain

Maximum Peak Output Power

Test place	Shonan EMC Lab. No.5 Shielded Room
Date	April 19, 2023
Temperature / Humidity	25 deg. C / 41 % RH
Engineer	Miku Ikudome
Mode	Tx 11ax-20 (OFDMA) 52-tone RU, pre-correction

Ant A + Ant B

Freq.	RU Index	Ant A Result	Ant B Result	Conducted Power					e.i.r.p.				
				Result		Limit		Margin	Result		Limit		Margin
[MHz]		[mW]	[mW]	[dBm]	[mW]	[dBm]	[mW]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2412	37	1.45	1.86	5.20	3.31	30.00	1000	24.80	7.71	5.90	36.02	4000.00	28.31
	38	1.37	1.89	5.14	3.26	30.00	1000	24.86	7.65	5.82	36.02	4000.00	28.37
	40	1.38	1.87	5.12	3.25	30.00	1000	24.88	7.63	5.79	36.02	4000.00	28.39
2437	37	1.67	2.19	5.86	3.86	30.00	1000	24.14	8.37	6.87	36.02	4000.00	27.65
	38	1.77	2.32	6.12	4.09	30.00	1000	23.88	8.63	7.30	36.02	4000.00	27.39
	40	1.71	2.22	5.95	3.94	30.00	1000	24.05	8.46	7.02	36.02	4000.00	27.56
2462	37	1.51	2.21	5.71	3.72	30.00	1000	24.29	8.22	6.63	36.02	4000.00	27.80
	38	1.75	2.30	6.08	4.06	30.00	1000	23.92	8.59	7.23	36.02	4000.00	27.43
	40	1.72	2.29	6.02	4.00	30.00	1000	23.98	8.53	7.14	36.02	4000.00	27.49

Sample Calculation:
Result = Ant A + Ant B
e.i.r.p. Result = Ant A Result (e.i.r.p) + Ant B Result (e.i.r.p)

Ant A

Freq.	RU Index	Reading	Cable Loss	Atten. Loss	Result		Antenna Gain	Result (e.i.r.p)	
[MHz]		[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]
2412	37	-10.26	1.94	9.94	1.62	1.45	2.51	4.13	2.59
	38	-10.51	1.94	9.94	1.37	1.37	2.51	3.88	2.44
	40	-10.49	1.94	9.94	1.39	1.38	2.51	3.90	2.45
2437	37	-9.67	1.95	9.94	2.22	1.67	2.51	4.73	2.97
	38	-9.41	1.95	9.94	2.48	1.77	2.51	4.99	3.16
	40	-9.55	1.95	9.94	2.34	1.71	2.51	4.85	3.05
2462	37	-10.10	1.96	9.94	1.80	1.51	2.51	4.31	2.70
	38	-9.46	1.96	9.94	2.44	1.75	2.51	4.95	3.13
	40	-9.55	1.96	9.94	2.35	1.72	2.51	4.86	3.06

Ant B

Freq.	RU Index	Reading	Cable Loss	Atten. Loss	Result		Antenna Gain	Result (e.i.r.p)	
[MHz]		[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]
2412	37	-9.31	1.96	10.04	2.69	1.86	2.51	5.20	3.31
	38	-9.23	1.96	10.04	2.77	1.89	2.51	5.28	3.37
	40	-9.28	1.96	10.04	2.72	1.87	2.51	5.23	3.33
2437	37	-8.61	1.97	10.04	3.40	2.19	2.51	5.91	3.90
	38	-8.35	1.97	10.04	3.66	2.32	2.51	6.17	4.14
	40	-8.54	1.97	10.04	3.47	2.22	2.51	5.98	3.96
2462	37	-8.58	1.98	10.04	3.44	2.21	2.51	5.95	3.94
	38	-8.40	1.98	10.04	3.62	2.30	2.51	6.13	4.10
	40	-8.43	1.98	10.04	3.59	2.29	2.51	6.10	4.07

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss
Result(e.i.r.p.) = Result + Antenna Gain

Maximum Peak Output Power

Test place	Shonan EMC Lab. No.5 Shielded Room
Date	April 19, 2023
Temperature / Humidity	25 deg. C / 41 % RH
Engineer	Miku Ikudome
Mode	Tx 11ax-20 (OFDMA) 106-tone RU, pre-correction

Ant A + Ant B

Freq.	RU Index	Ant A Result	Ant B Result	Conducted Power					e.i.r.p.				
				Result		Limit		Margin	Result		Limit		Margin
[MHz]		[mW]	[mW]	[dBm]	[mW]	[dBm]	[mW]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2412	53	1.48	1.97	5.37	3.44	30.00	1000	24.63	7.88	6.14	36.02	4000.00	28.14
	54	1.72	2.20	5.93	3.92	30.00	1000	24.07	8.44	6.99	36.02	4000.00	27.58
2437	53	1.80	2.14	5.95	3.94	30.00	1000	24.05	8.46	7.02	36.02	4000.00	27.56
	54	1.87	2.28	6.18	4.15	30.00	1000	23.82	8.69	7.39	36.02	4000.00	27.33
2462	53	1.78	2.21	6.01	3.99	30.00	1000	23.99	8.52	7.11	36.02	4000.00	27.50
	54	1.79	2.22	6.04	4.02	30.00	1000	23.96	8.55	7.16	36.02	4000.00	27.47

Sample Calculation:
Result = Ant A + Ant B
e.i.r.p. Result = Ant A Result (e.i.r.p) + Ant B Result (e.i.r.p)

Ant A

Freq.	RU Index	Reading	Cable Loss	Atten. Loss	Result		Antenna Gain	Result (e.i.r.p)	
[MHz]		[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]
2412	53	-10.19	1.94	9.94	1.69	1.48	2.51	4.20	2.63
	54	-9.53	1.94	9.94	2.35	1.72	2.51	4.86	3.06
2437	53	-9.34	1.95	9.94	2.55	1.80	2.51	5.06	3.21
	54	-9.18	1.95	9.94	2.71	1.87	2.51	5.22	3.33
2462	53	-9.40	1.96	9.94	2.50	1.78	2.51	5.01	3.17
	54	-9.36	1.96	9.94	2.54	1.79	2.51	5.05	3.20

Ant B

Freq.	RU Index	Reading	Cable Loss	Atten. Loss	Result		Antenna Gain	Result (e.i.r.p)	
[MHz]		[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]
2412	53	-9.06	1.96	10.04	2.94	1.97	2.51	5.45	3.51
	54	-8.57	1.96	10.04	3.43	2.20	2.51	5.94	3.93
2437	53	-8.71	1.97	10.04	3.30	2.14	2.51	5.81	3.81
	54	-8.43	1.97	10.04	3.58	2.28	2.51	6.09	4.06
2462	53	-8.57	1.98	10.04	3.45	2.21	2.51	5.96	3.94
	54	-8.55	1.98	10.04	3.47	2.22	2.51	5.98	3.96

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss
Result(e.i.r.p.) = Result + Antenna Gain

Maximum Peak Output Power

Test place	Shonan EMC Lab. No.5 Shielded Room
Date	April 19, 2023
Temperature / Humidity	25 deg. C / 41 % RH
Engineer	Miku Ikudome
Mode	Tx 11ax-20 (OFDMA) 242-tone RU, pre-correction

Ant A + Ant B

Freq.	Ant A Result	Ant B Result	Conducted Power					e.i.r.p.				
			Result		Limit		Margin	Result		Limit		Margin
[MHz]	[mW]	[mW]	[dBm]	[mW]	[dBm]	[mW]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2412	1.68	2.08	5.75	3.76	30.00	1000	24.25	8.26	6.71	36.02	4000.00	27.76
2437	1.91	2.32	6.27	4.24	30.00	1000	23.73	8.78	7.55	36.02	4000.00	27.24
2462	1.87	2.15	6.04	4.02	30.00	1000	23.96	8.55	7.16	36.02	4000.00	27.47

Sample Calculation:
Result = Ant A + Ant B
e.i.r.p. Result = Ant A Result (e.i.r.p) + Ant B Result (e.i.r.p)

Ant A

Freq.	Reading	Cable Loss	Atten. Loss	Result		Antenna Gain	Result (e.i.r.p)	
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]
2412	-9.62	1.94	9.94	2.26	1.68	2.51	4.77	3.00
2437	-9.07	1.95	9.94	2.82	1.91	2.51	5.33	3.41
2462	-9.19	1.96	9.94	2.71	1.87	2.51	5.22	3.33

Ant B

Freq.	Reading	Cable Loss	Atten. Loss	Result		Antenna Gain	Result (e.i.r.p)	
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]
2412	-8.82	1.96	10.04	3.18	2.08	2.51	5.69	3.71
2437	-8.35	1.97	10.04	3.66	2.32	2.51	6.17	4.14
2462	-8.69	1.98	10.04	3.33	2.15	2.51	5.84	3.84

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss
Result(e.i.r.p.) = Result + Antenna Gain

Average Output Power
(Reference data for RF Exposure)

Test place	Shonan EMC Lab. No.1 Measurement Room				
Date	January 30, 2023	January 31, 2023	February 6, 2023	February 7, 2023	April 19, 2023
Temperature / Humidity	25 deg. C / 28 % RH	20 deg. C / 30 % RH	23 deg. C / 25 % RH	23 deg. C / 24 % RH	25 deg. C / 41 % RH
Engineer	Miku Ikudome	Yusuke Tanikawara	Miku Ikudome	Miku Ikudome	Miku Ikudome
Mode	Tx				

11b 1 Mbps

		Ant A					Ant B					Total Power	
Frequency	Duty factor	Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Result (Average)	
[MHz]	[dB]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]
2412	0.00	-1.78	1.94	9.94	10.10	10.23	-1.94	1.96	10.04	10.06	10.14	13.09	20.37
2437	0.00	-1.25	1.95	9.94	10.64	11.59	-1.38	1.97	10.04	10.63	11.56	13.65	23.15
2462	0.00	-1.46	1.96	9.94	10.44	11.07	-1.71	1.98	10.04	10.31	10.74	13.39	21.81

11g 54 Mbps

		Ant A					Ant B					Total Power	
Frequency	Duty factor	Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Result (Average)	
[MHz]	[dB]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]
2412	0.10	-7.58	1.94	9.94	4.40	2.75	-7.40	1.96	10.04	4.70	2.95	7.56	5.71
2417	0.10	-2.35	1.94	9.94	9.63	9.18	-2.28	1.96	10.04	9.82	9.59	12.74	18.78
2437	0.10	-1.97	1.95	9.94	10.02	10.05	-1.91	1.97	10.04	10.20	10.47	13.12	20.52
2457	0.10	-2.24	1.95	9.94	9.75	9.44	-2.39	1.98	10.04	9.73	9.40	12.75	18.84
2462	0.10	-7.26	1.96	9.94	4.74	2.98	-7.11	1.98	10.04	5.01	3.17	7.89	6.15

11n-20 MCS 2

		Ant A					Ant B					Total Power	
Frequency	Duty factor	Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Result (Average)	
[MHz]	[dB]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]
2412	0.01	-7.42	1.94	9.94	4.47	2.80	-7.34	1.94	9.94	4.55	2.85	7.52	5.65
2417	0.01	-2.18	1.94	9.94	9.71	9.35	-2.09	1.96	10.04	9.92	9.82	12.83	19.17
2437	0.01	-1.84	1.95	9.94	10.06	10.14	-1.79	1.97	10.04	10.23	10.54	13.16	20.68
2457	0.01	-2.20	1.95	9.94	9.70	9.33	-2.31	1.98	10.04	9.72	9.38	12.72	18.71
2462	0.01	-7.07	1.96	9.94	4.84	3.05	-7.02	1.96	9.94	4.89	3.08	7.88	6.13

11ax-20 (OFDM) MCS 5 (1SS)

		Ant A					Ant B					Total Power	
Frequency	Duty factor	Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Result (Average)	
[MHz]	[dB]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]
2412	0.04	-7.34	1.94	9.94	4.58	2.87	-7.09	1.96	10.04	4.95	3.13	7.78	6.00
2417	0.04	-1.81	1.94	9.94	10.11	10.26	-1.93	1.96	10.04	10.11	10.26	13.12	20.51
2437	0.04	-1.54	1.95	9.94	10.39	10.94	-1.67	1.97	10.04	10.38	10.91	13.40	21.85
2457	0.04	-1.48	1.95	9.94	10.45	11.09	-1.98	1.97	10.04	10.07	10.16	13.27	21.25
2462	0.04	-7.05	1.96	9.94	4.89	3.08	-6.83	1.98	10.04	5.23	3.33	8.07	6.42

11ax-20 (OFDM), pre-correction MCS 5 (1SS)

		Ant A					Ant B					Total Power	
Frequency	Duty factor	Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Result (Average)	
[MHz]	[dB]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]
2412	0.04	-21.10	1.94	9.94	-9.18	0.12	-20.23	1.96	10.04	-8.19	0.15	-5.65	0.27
2437	0.04	-20.25	1.95	9.94	-8.32	0.15	-19.55	1.97	10.04	-7.50	0.18	-4.88	0.33
2462	0.04	-21.00	1.96	9.94	-9.06	0.12	-19.95	1.98	10.04	-7.89	0.16	-5.43	0.29

Sample Calculation:
Result [dBm] = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss + Duty factor
Total Result = Ant A Result + Ant B Result

*The equipment and cables were not used for factor 0 dB of the data sheets.

Average Output Power
(Reference data for RF Exposure)

Test place	Shonan EMC Lab. No.1 Measurement Room		
Date	February 9, 2023	March 26, 2023	March 27, 2023
Temperature / Humidity	23 deg. C / 24 % RH	23 deg. C / 36 % RH	22 deg. C / 37 % RH
Engineer	Miku Ikudome	Miku Ikudome	Miku Ikudome
Mode	Tx 11ax-20 (OFDMA)		

11ax-20 (OFDMA), MCS 5 (1SS)
26-tone RU

			Ant A					**Ant B**					**Total Power**	
Frequency	RU Index	Duty factor *1)	Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Result (Average)	
[MHz]		[dB]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]
2412	0	0.00	-20.67	1.94	9.94	-8.79	0.13	-20.54	1.96	10.04	-8.54	0.14	-5.65	0.27
	4	0.00	-20.24	1.94	9.94	-8.36	0.15	-20.06	1.96	10.04	-8.06	0.16	-5.09	0.31
	8	0.00	-20.26	1.94	9.94	-8.38	0.15	-20.05	1.96	10.04	-8.05	0.16	-5.09	0.31
2417	0	0.00	-15.46	1.94	9.94	-3.58	0.44	-15.63	1.96	10.04	-3.63	0.43	-0.59	0.87
	4	0.00	-15.08	1.94	9.94	-3.20	0.48	-15.11	1.96	10.04	-3.11	0.49	-0.14	0.97
	8	0.00	-15.06	1.94	9.94	-3.18	0.48	-15.02	1.96	10.04	-3.02	0.50	-0.09	0.98
2437	0	0.00	-15.03	1.95	9.94	-3.14	0.49	-15.02	1.97	10.04	-3.01	0.50	-0.06	0.99
	4	0.00	-14.72	1.95	9.94	-2.83	0.52	-14.69	1.97	10.04	-2.68	0.54	0.26	1.06
	8	0.00	-14.88	1.95	9.94	-2.99	0.50	-14.66	1.97	10.04	-2.65	0.54	0.17	1.04
2457	0	0.00	-15.55	1.95	9.94	-3.66	0.43	-15.40	1.98	10.04	-3.38	0.46	-0.51	0.89
	4	0.00	-15.29	1.95	9.94	-3.40	0.46	-15.01	1.98	10.04	-2.99	0.50	-0.18	0.96
	8	0.00	-15.44	1.95	9.94	-3.55	0.44	-15.14	1.98	10.04	-3.12	0.49	-0.32	0.93
2462	0	0.00	-20.25	1.96	9.94	-8.35	0.15	-20.19	1.98	10.04	-8.17	0.15	-5.25	0.30
	4	0.00	-20.02	1.96	9.94	-8.12	0.15	-19.87	1.98	10.04	-7.85	0.16	-5.09	0.31
	8	0.00	-19.99	1.96	9.94	-8.09	0.16	-19.85	1.98	10.04	-7.83	0.16	-4.95	0.32

11ax-20 (OFDMA), MCS 5 (1SS)
52-tone RU

			Ant A					**Ant B**					**Total Power**	
Frequency	RU Index	Duty factor *1)	Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Result (Average)	
[MHz]		[dB]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]
2412	37	0.00	-17.37	1.94	9.94	-5.49	0.28	-17.73	1.96	10.04	-5.73	0.27	-2.60	0.55
	38	0.00	-17.09	1.94	9.94	-5.21	0.30	-17.07	1.96	10.04	-5.07	0.31	-2.13	0.61
	40	0.00	-17.20	1.94	9.94	-5.32	0.29	-17.24	1.96	10.04	-5.24	0.30	-2.27	0.59
2417	37	0.00	-12.46	1.94	9.94	-0.58	0.87	-12.32	1.96	10.04	-0.32	0.93	2.56	1.80
	38	0.00	-11.98	1.94	9.94	-0.10	0.98	-11.80	1.96	10.04	0.20	1.05	3.07	2.03
	40	0.00	-12.09	1.94	9.94	-0.21	0.95	-11.90	1.96	10.04	0.10	1.02	2.94	1.97
2437	37	0.00	-12.09	1.95	9.94	-0.20	0.95	-11.88	1.97	10.04	0.13	1.03	2.97	1.98
	38	0.00	-11.58	1.95	9.94	0.31	1.07	-11.34	1.97	10.04	0.67	1.17	3.50	2.24
	40	0.00	-11.88	1.95	9.94	0.01	1.00	-11.53	1.97	10.04	0.48	1.12	**3.26**	**2.12**
2457	37	0.00	-12.27	1.95	9.94	-0.38	0.92	-12.14	1.98	10.04	-0.12	0.97	2.76	1.89
	38	0.00	-11.91	1.95	9.94	-0.02	1.00	-11.69	1.98	10.04	0.33	1.08	3.18	2.08
	40	0.00	-12.22	1.95	9.94	-0.33	0.93	-11.85	1.98	10.04	0.17	1.04	2.94	1.97
2462	37	0.00	-17.36	1.96	9.94	-5.46	0.28	-17.18	1.98	10.04	-5.16	0.30	-2.37	0.58
	38	0.00	-17.00	1.96	9.94	-5.10	0.31	-16.73	1.98	10.04	-4.71	0.34	-1.89	0.65
	40	0.00	-17.24	1.96	9.94	-5.34	0.29	-16.92	1.98	10.04	-4.90	0.32	-2.15	0.61

Sample Calculation:
Result [dBm] = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss + Duty factor
Total Result = Ant A Result + Ant B Result

*The equipment and cables were not used for factor 0 dB of the data sheets.

(*1) Power meter was measured with using the gate function of power meter.
It was means that the intervals during which the transmitter is off or is transmitting at reduced power level is not the average.
Therefore, there is no need to add duty cycle correction to the result.

Average Output Power
(Reference data for RF Exposure)

Test place	Shonan EMC Lab. No.1 Measurement Room	
Date	March 26, 2023	March 27, 2023
Temperature / Humidity	23 deg. C / 36 % RH	22 deg. C / 37 % RH
Engineer	Miku Ikudome	Miku Ikudome
Mode	Tx 11ax-20 (OFDMA)	

11ax-20 (OFDMA), MCS 5 (1SS)
106-tone RU

			Ant A					**Ant B**					**Total Power**	
Frequency	RU Index	Duty factor *1)	Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Result (Average)	
[MHz]		[dB]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]
2412	53	0.00	-14.18	1.94	9.94	-2.30	0.59	-14.39	1.96	10.04	-2.39	0.58	0.67	1.17
	54	0.00	-14.03	1.94	9.94	-2.15	0.61	-13.99	1.96	10.04	-1.99	0.63	0.94	1.24
2417	53	0.00	-9.14	1.94	9.94	2.74	1.88	-8.97	1.96	10.04	3.03	2.01	5.90	3.89
	54	0.00	-8.97	1.94	9.94	2.91	1.95	-8.69	1.96	10.04	3.31	2.14	6.12	4.09
2437	53	0.00	-8.73	1.95	9.94	3.16	2.07	-8.41	1.97	10.04	3.60	2.29	6.40	4.36
	54	0.00	-8.67	1.95	9.94	3.22	2.10	-8.32	1.97	10.04	3.69	2.34	6.47	4.44
2457	53	0.00	-8.97	1.95	9.94	2.92	1.96	-8.80	1.98	10.04	3.22	2.10	6.08	4.06
	54	0.00	-8.93	1.95	9.94	2.96	1.98	-8.67	1.98	10.04	3.35	2.16	6.17	4.14
2462	53	0.00	-14.20	1.96	9.94	-2.30	0.59	-13.96	1.98	10.04	-1.94	0.64	0.89	1.23
	54	0.00	-14.16	1.96	9.94	-2.26	0.59	-13.71	1.98	10.04	-1.69	0.68	1.04	1.27

11ax-20 (OFDMA), MCS 5 (1SS)
242-tone RU

			Ant A					**Ant B**					**Total Power**	
Frequency	RU Index	Duty factor *1)	Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Result (Average)	
[MHz]		[dB]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]
2412	61	0.00	-10.39	1.94	9.94	1.49	1.41	-9.95	1.96	10.04	2.05	1.60	4.79	3.01
2417	61	0.00	-4.96	1.94	9.94	6.92	4.92	-4.73	1.96	10.04	7.27	5.33	10.11	10.25
2437	61	0.00	-4.72	1.95	9.94	7.17	5.21	-4.35	1.97	10.04	7.66	5.83	10.43	11.04
2457	61	0.00	-4.80	1.95	9.94	7.09	5.12	-4.66	1.97	10.04	7.35	5.43	10.23	10.55
2462	61	0.00	-10.00	1.96	9.94	1.90	1.55	-9.89	1.98	10.04	2.13	1.63	5.03	3.18

Sample Calculation:
Result [dBm] = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss + Duty factor
Total Result = Ant A Result + Ant B Result

*The equipment and cables were not used for factor 0 dB of the data sheets.

(*1) Power meter was measured with using the gate function of power meter.
It was means that the intervals during which the transmitter is off or is transmitting at reduced power level is not the average.
Therefore, there is no need to add duty cycle correction to the result.

Average Output Power
(Reference data for RF Exposure)

Test place	Shonan EMC Lab. No.1 Measurement Room
Date	April 19, 2023
Temperature / Humidity	25 deg. C / 41 % RH
Engineer	Miku Ikudome
Mode	Tx 11ax-20 (OFDMA), pre-correction

11ax-20 (OFDMA), pre-correction MCS 5 (1SS)

26-tone RU			**Ant A**					**Ant B**					**Total Power**	
Frequency	RU Index	Duty factor *1)	Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Result (Average)	
[MHz]		[dB]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]
2412	0	0.00	-20.67	1.94	9.94	-8.79	0.13	-20.54	1.96	10.04	-8.54	0.14	-5.65	0.27
	4	0.00	-20.24	1.94	9.94	-8.36	0.15	-20.06	1.96	10.04	-8.06	0.16	-5.09	0.31
	8	0.00	-20.26	1.94	9.94	-8.38	0.15	-20.05	1.96	10.04	-8.05	0.16	-5.09	0.31
2437	0	0.00	-21.39	1.95	9.94	-9.50	0.11	-20.63	1.97	10.04	-8.62	0.14	-6.03	0.25
	4	0.00	-20.83	1.95	9.94	-8.94	0.13	-20.22	1.97	10.04	-8.21	0.15	-5.55	0.28
	8	0.00	-20.74	1.95	9.94	-8.85	0.13	-20.12	1.97	10.04	-8.11	0.15	-5.45	0.28
2462	0	0.00	-20.25	1.96	9.94	-8.35	0.15	-20.19	1.98	10.04	-8.17	0.15	-5.25	0.30
	4	0.00	-20.02	1.96	9.94	-8.12	0.15	-19.87	1.98	10.04	-7.85	0.16	-5.09	0.31
	8	0.00	-19.99	1.96	9.94	-8.09	0.16	-19.85	1.98	10.04	-7.83	0.16	**-4.95**	**0.32**

11ax-20 (OFDMA), pre-correction MCS 5 (1SS)

52-tone RU			**Ant A**					**Ant B**					**Total Power**	
Frequency	RU Index	Duty factor *1)	Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Result (Average)	
[MHz]		[dB]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]
2412	37	0.00	-20.76	1.94	9.94	-8.88	0.13	-20.47	1.96	10.04	-8.47	0.14	-5.66	0.27
	38	0.00	-20.30	1.94	9.94	-8.42	0.14	-19.99	1.96	10.04	-7.99	0.16	-5.19	0.30
	40	0.00	-20.37	1.94	9.94	-8.49	0.14	-20.00	1.96	10.04	-8.00	0.16	-5.23	0.30
2437	37	0.00	-20.29	1.95	9.94	-8.40	0.14	-19.76	1.97	10.04	-7.75	0.17	-5.05	0.31
	38	0.00	-19.73	1.95	9.94	-7.84	0.16	-19.25	1.97	10.04	-7.24	0.19	-4.52	0.35
	40	0.00	-20.00	1.95	9.94	-8.11	0.15	-19.51	1.97	10.04	-7.50	0.18	**-4.78**	**0.33**
2462	37	0.00	-20.42	1.96	9.94	-8.52	0.14	-20.15	1.98	10.04	-8.13	0.15	-5.31	0.29
	38	0.00	-20.08	1.96	9.94	-8.18	0.15	-19.69	1.98	10.04	-7.67	0.17	-4.91	0.32
	40	0.00	-20.45	1.96	9.94	-8.55	0.14	-19.82	1.98	10.04	-7.80	0.17	-5.15	0.31

11ax-20 (OFDMA), pre-correction MCS 5 (1SS)

106-tone RU			**Ant A**					**Ant B**					**Total Power**	
Frequency	RU Index	Duty factor *1)	Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Result (Average)	
[MHz]		[dB]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]
2412	53	0.00	-20.78	1.94	9.94	-8.90	0.13	-20.32	1.96	10.04	-8.32	0.15	-5.59	0.28
	54	0.00	-20.45	1.94	9.94	-8.57	0.14	-20.03	1.96	10.04	-8.03	0.16	-5.28	0.30
2437	53	0.00	-20.20	1.95	9.94	-8.31	0.15	-19.57	1.97	10.04	-7.56	0.18	-4.81	0.33
	54	0.00	-20.11	1.95	9.94	-8.22	0.15	-19.43	1.97	10.04	-7.42	0.18	**-4.81**	**0.33**
2462	53	0.00	-20.38	1.96	9.94	-8.48	0.14	-19.96	1.98	10.04	-7.94	0.16	-5.19	0.30
	54	0.00	-20.27	1.96	9.94	-8.37	0.15	-19.75	1.98	10.04	-7.73	0.17	-4.95	0.32

11ax-20 (OFDMA), pre-correction MCS 5 (1SS)

242-tone RU			**Ant A**					**Ant B**					**Total Power**	
Frequency	RU Index	Duty factor *1)	Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Result (Average)	
[MHz]		[dB]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]
2412	61	0.00	-20.60	1.94	9.94	-8.72	0.13	-20.33	1.96	10.04	-8.33	0.15	-5.53	0.28
2437	61	0.00	-20.07	1.95	9.94	-8.18	0.15	-19.56	1.97	10.04	-7.55	0.18	**-4.81**	**0.33**
2462	61	0.00	-20.32	1.96	9.94	-8.42	0.14	-19.91	1.98	10.04	-7.89	0.16	-5.23	0.30

Sample Calculation:
Result [dBm] = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss + Duty factor
Total Result = Ant A Result + Ant B Result

*The equipment and cables were not used for factor 0 dB of the data sheets.

(*1) Power meter was measured with using the gate function of power meter.
It was means that the intervals during which the transmitter is off or is transmitting at reduced power level is not the average.
Therefore, there is no need to add duty cycle correction to the result.

Average Output Power
(Reference data for RF Exposure)

Test place	Shonan EMC Lab. No.1 Measurement Room	
Date	January 30, 2023	February 6, 2023
Temperature / Humidity	25 deg. C / 28 % RH	23 deg. C / 25 % RH
Engineer	Miku Ikudome	Miku Ikudome
Mode	Tx	

Worst Rate Check (2437 MHz)
11b

		Ant A					**Ant B**					**Total Power**		**Remarks**
Rate	Duty factor	Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Result (Average)		
[Mbps]	[dB]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	
1	0.00	-1.25	1.95	9.94	10.64	11.59	-1.38	1.97	10.04	10.63	11.56	13.65	23.15	*
2	0.00	-1.27	1.95	9.94	10.62	11.53	-1.40	1.97	10.04	10.61	11.51	13.63	23.04	-
5.5	0.01	-1.30	1.95	9.94	10.60	11.48	-1.44	1.97	10.04	10.58	11.43	13.60	22.91	-
11	0.02	-1.29	1.95	9.94	10.62	11.53	-1.43	1.97	10.04	10.60	11.48	13.62	23.02	-

11g

		Ant A					**Ant B**					**Total Power**		**Remarks**
Rate	Duty factor	Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Result (Average)		
[Mbps]	[dB]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	
6	0.01	-1.91	1.94	9.94	9.98	9.95	-1.85	1.96	10.04	10.16	10.38	13.08	20.33	-
9	0.01	-1.90	1.94	9.94	9.99	9.98	-1.83	1.96	10.04	10.18	10.42	13.10	20.40	-
12	0.02	-1.90	1.94	9.94	10.00	10.00	-1.85	1.96	10.04	10.17	10.40	13.10	20.40	-
18	0.03	-1.93	1.94	9.94	9.98	9.95	-1.87	1.96	10.04	10.16	10.38	13.08	20.33	-
24	0.04	-1.94	1.94	9.94	9.98	9.95	-1.89	1.96	10.04	10.15	10.35	13.08	20.31	-
36	0.07	-1.96	1.94	9.94	9.99	9.98	-1.87	1.96	10.04	10.20	10.47	13.11	20.45	-
48	0.09	-1.98	1.94	9.94	9.99	9.98	-1.92	1.96	10.04	10.17	10.40	13.09	20.38	-
54	0.10	-1.97	1.94	9.94	10.01	10.02	-1.91	1.96	10.04	10.19	10.45	13.11	20.47	*

Sample Calculation:
Result [dBm] = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss + Duty factor
Total Result = Ant A Result + Ant B Result

Average Output Power
(Reference data for RF Exposure)

Test place	Shonan EMC Lab. No.1 Measurement Room	
Date	January 30, 2023	January 31, 2023
Temperature / Humidity	25 deg. C / 28 % RH	20 deg. C / 30 % RH
Engineer	Miku Ikudome	Yusuke Tanikawara
Mode	Tx	

Worst Rate Check (2437 MHz)
11n-20

		Ant A					Ant B					Total Power		Remarks
MCS	Duty factor	Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Result (Average)		
	[dB]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	
0	0.00	-1.86	1.95	9.94	10.03	10.07	-1.79	1.97	10.04	10.22	10.52	13.14	20.59	-
1	0.01	-1.85	1.95	9.94	10.05	10.12	-1.81	1.97	10.04	10.21	10.50	13.14	20.61	-
2	0.01	-1.84	1.95	9.94	10.06	10.14	-1.79	1.97	10.04	10.23	10.54	13.16	20.68	*
3	0.01	-1.89	1.95	9.94	10.01	10.02	-1.84	1.97	10.04	10.18	10.42	13.11	20.45	-
4	0.05	-1.88	1.95	9.94	10.06	10.14	-1.86	1.97	10.04	10.20	10.47	13.14	20.61	-
5	0.03	-1.89	1.95	9.94	10.03	10.07	-1.86	1.97	10.04	10.18	10.42	13.12	20.49	-
6	0.03	-1.89	1.95	9.94	10.03	10.07	-1.85	1.97	10.04	10.19	10.45	13.12	20.52	-
7	0.04	-1.93	1.95	9.94	10.00	10.00	-1.83	1.97	10.04	10.22	10.52	13.12	20.52	-
8	0.01	-1.87	1.95	9.94	10.03	10.07	-1.81	1.97	10.04	10.21	10.50	13.13	20.56	-
9	0.01	-1.88	1.95	9.94	10.02	10.05	-1.87	1.97	10.04	10.15	10.35	13.10	20.40	-
10	0.02	-1.92	1.95	9.94	9.99	9.98	-1.84	1.97	10.04	10.19	10.45	13.10	20.42	-
11	0.03	-1.86	1.95	9.94	10.06	10.14	-1.91	1.97	10.04	10.13	10.30	13.11	20.44	-
12	0.04	-1.89	1.95	9.94	10.04	10.09	-1.86	1.97	10.04	10.19	10.45	13.13	20.54	-
13	0.06	-1.94	1.95	9.94	10.01	10.02	-1.89	1.97	10.04	10.18	10.42	13.11	20.45	-
14	0.06	-1.90	1.95	9.94	10.05	10.12	-1.87	1.97	10.04	10.20	10.47	13.14	20.59	-
15	0.07	-1.93	1.95	9.94	10.03	10.07	-1.88	1.97	10.04	10.20	10.47	13.13	20.54	-

11ax-20 (OFDM)

		Ant A					Ant B					Total Power		Remarks
MCS	Duty factor	Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Result (Average)		
	[dB]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	
0 (1SS)	0.00	-1.58	1.94	9.94	10.30	10.72	-1.69	1.96	10.04	10.31	10.74	13.32	21.46	-
1 (1SS)	0.01	-1.56	1.94	9.94	10.33	10.79	-1.66	1.96	10.04	10.35	10.84	13.35	21.63	-
2 (1SS)	0.01	-1.53	1.94	9.94	10.36	10.86	-1.69	1.96	10.04	10.32	10.76	13.35	21.63	-
3 (1SS)	0.02	-1.60	1.94	9.94	10.30	10.72	-1.68	1.96	10.04	10.34	10.81	13.33	21.53	-
4 (1SS)	0.03	-1.57	1.94	9.94	10.34	10.81	-1.68	1.96	10.04	10.35	10.84	13.36	21.65	-
5 (1SS)	0.04	-1.54	1.94	9.94	10.38	10.91	-1.67	1.96	10.04	10.37	10.89	13.39	21.80	*
6 (1SS)	0.04	-1.62	1.94	9.94	10.30	10.72	-1.71	1.96	10.04	10.33	10.79	13.33	21.50	-
7 (1SS)	0.04	-1.58	1.94	9.94	10.34	10.81	-1.70	1.96	10.04	10.34	10.81	13.35	21.63	-
0 (2SS)	0.01	-1.53	1.94	9.94	10.36	10.86	-1.67	1.96	10.04	10.34	10.81	13.36	21.68	-
1 (2SS)	0.02	-1.55	1.94	9.94	10.35	10.84	-1.64	1.96	10.04	10.38	10.91	13.38	21.75	-
2 (2SS)	0.02	-1.59	1.94	9.94	10.31	10.74	-1.71	1.96	10.04	10.31	10.74	13.32	21.48	-
3 (2SS)	0.04	-1.56	1.94	9.94	10.36	10.86	-1.68	1.96	10.04	10.36	10.86	13.37	21.73	-
4 (2SS)	0.06	-1.58	1.94	9.94	10.36	10.86	-1.73	1.96	10.04	10.33	10.79	13.36	21.65	-
5 (2SS)	0.07	-1.65	1.94	9.94	10.30	10.72	-1.79	1.96	10.04	10.28	10.67	13.30	21.38	-
6 (2SS)	0.08	-1.66	1.94	9.94	10.30	10.72	-1.73	1.96	10.04	10.35	10.84	13.34	21.55	-
7 (2SS)	0.09	-1.66	1.94	9.94	10.31	10.74	-1.78	1.96	10.04	10.31	10.74	13.32	21.48	-

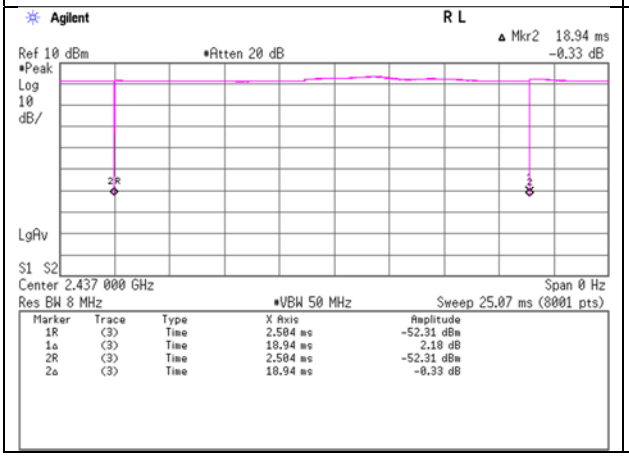
Sample Calculation:
Result [dBm] = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss + Duty factor
Total Result = Ant A Result + Ant B Result

Burst rate confirmation (For Average Power)

Test place	Shonan EMC Lab. No.1 Measurement Room
Date	January 27, 2023
Temperature / Humidity	25 deg. C / 30 % RH
Engineer	Takahiro Kawakami
Mode	Tx

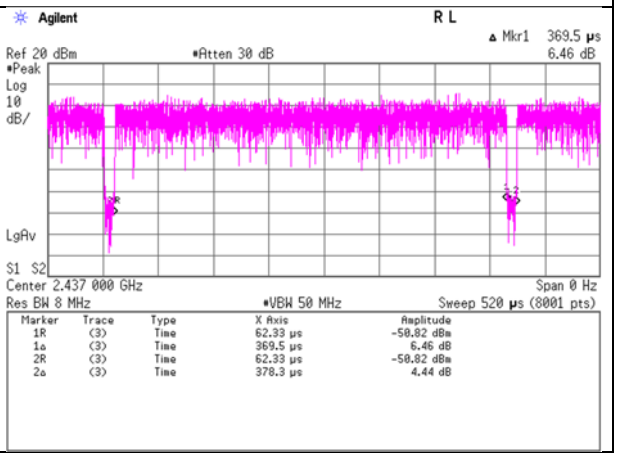
11b 1 Mbps

Tx on / (Tx on + Tx off) =	0.999
Tx on / (Tx on + Tx off) * 100 =	99.9 %
Duty factor = 10 * log (18.94 / 18.94) =	0.00 dB



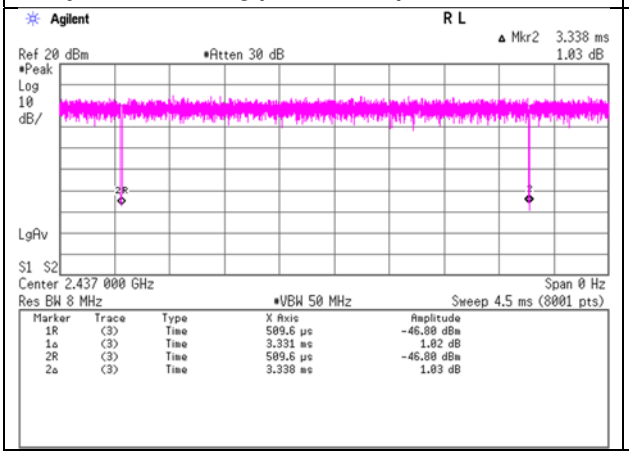
11g 54 Mbps

Tx on / (Tx on + Tx off) =	0.977
Tx on / (Tx on + Tx off) * 100 =	97.7 %
Duty factor = 10 * log (0.3783 / 0.3695) =	0.10 dB



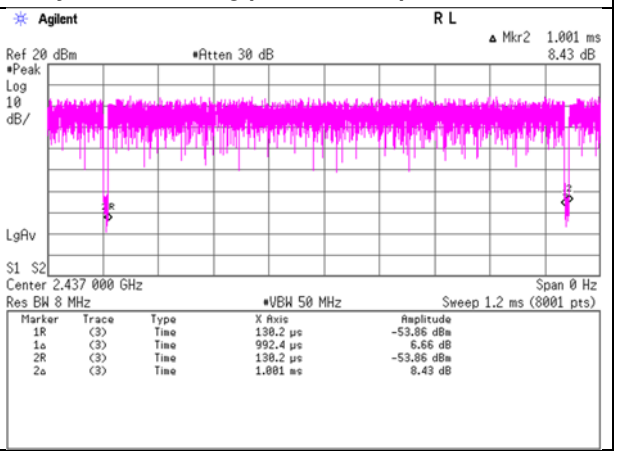
11n-20 MCS 2

Tx on / (Tx on + Tx off) =	0.998
Tx on / (Tx on + Tx off) * 100 =	99.8 %
Duty factor = 10 * log (3.338 / 3.331) =	0.01 dB



11ax-20 (OFDM) MCS 5 (1SS)

Tx on / (Tx on + Tx off) =	0.991
Tx on / (Tx on + Tx off) * 100 =	99.1 %
Duty factor = 10 * log (1.001 / 0.9924) =	0.04 dB



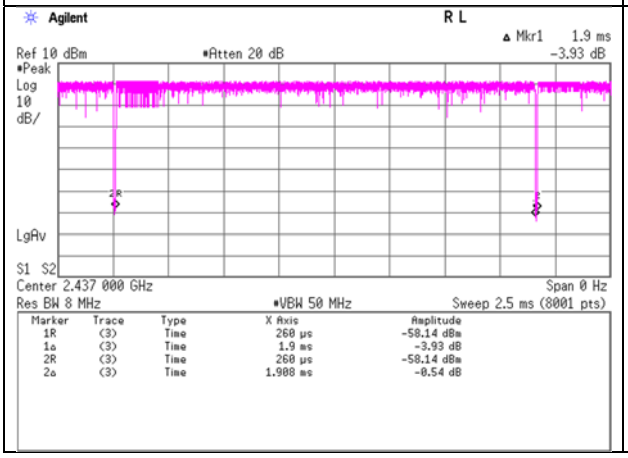
* Since the burst rate is not different between the channels, the data has been obtained on the representative channel.

Burst rate confirmation (For Radiated Emission)

Test place	Shonan EMC Lab. No.1 Measurement Room
Date	January 27, 2023
Temperature / Humidity	25 deg. C / 30 % RH
Engineer	Takahiro Kawakami
Mode	Tx

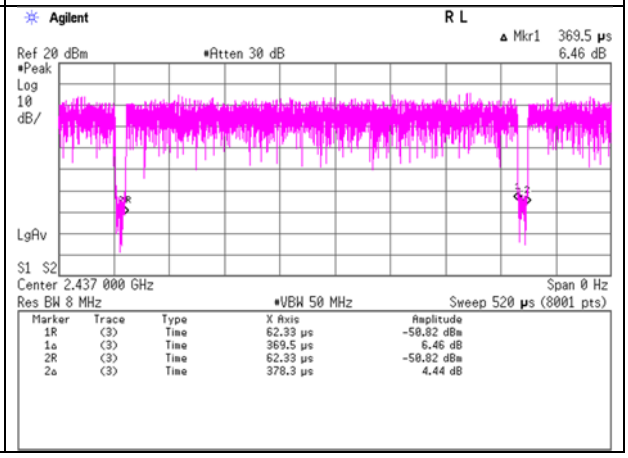
11b 11 Mbps

Tx on / (Tx on + Tx off) =	0.996
Tx on / (Tx on + Tx off) * 100 =	99.6 %
Duty >98 %	



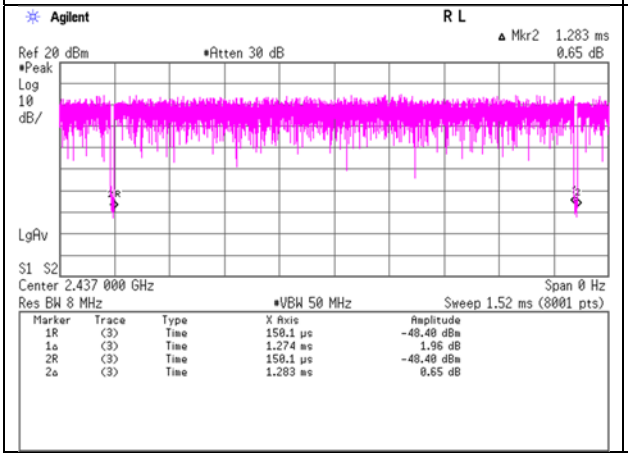
11g 54 Mbps

Tx on / (Tx on + Tx off) =	0.977
Tx on / (Tx on + Tx off) * 100 =	97.7 %
Duty factor = 20 * log (0.3783 / 0.3695) =	0.20 dB



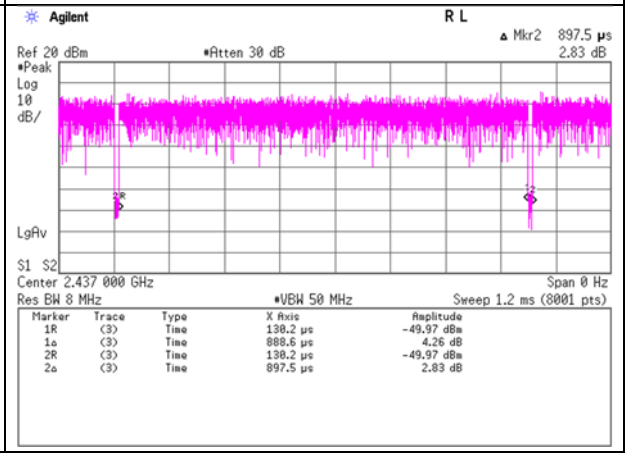
11n-20 MCS 5

Tx on / (Tx on + Tx off) =	0.993
Tx on / (Tx on + Tx off) * 100 =	99.3 %
Duty >98 %	



11ax-20 (OFDM) MCS 6 (1SS)

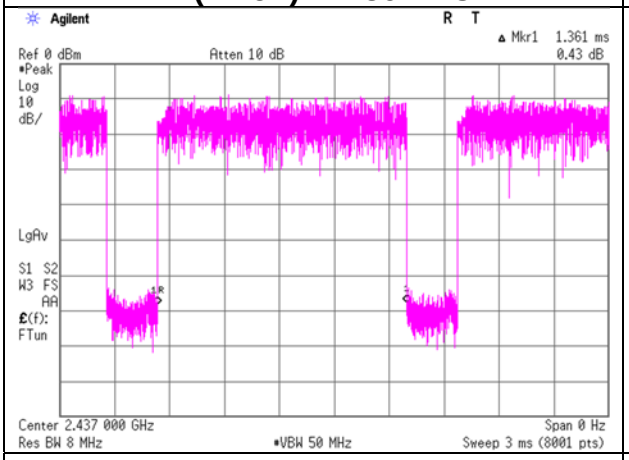
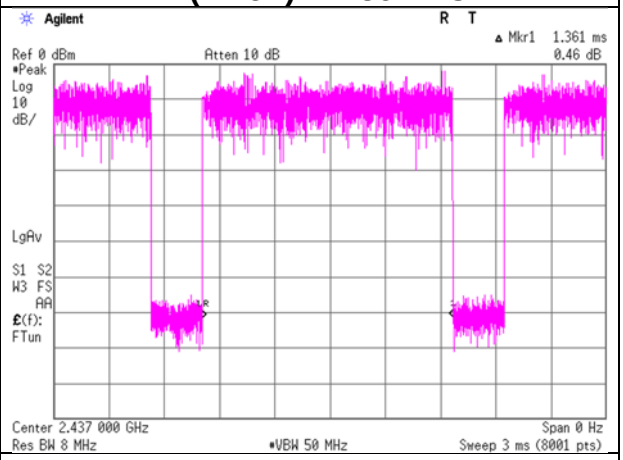
Tx on / (Tx on + Tx off) =	0.990
Tx on / (Tx on + Tx off) * 100 =	99.0 %
Duty >98 %	

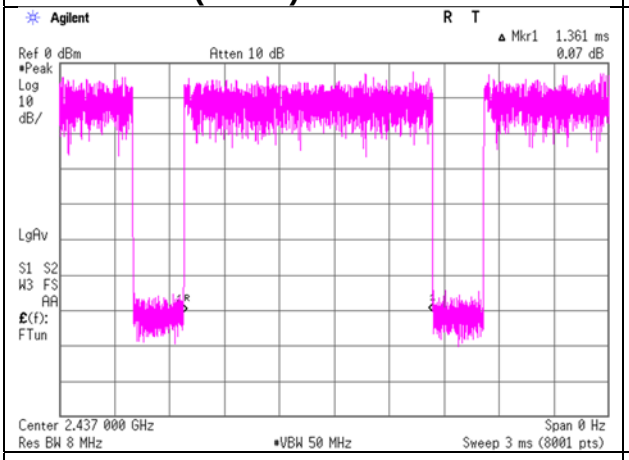
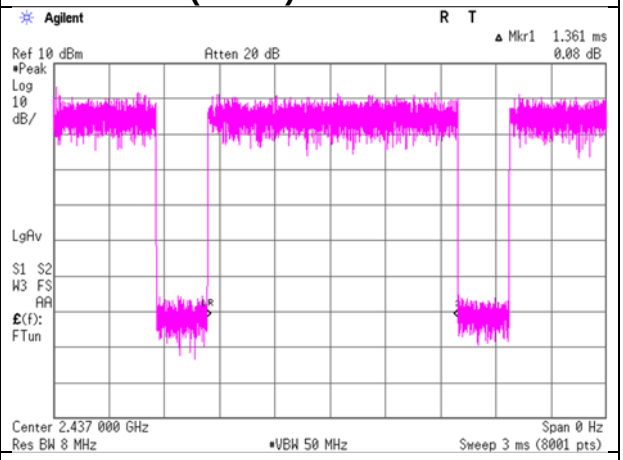


* Since the burst rate is not different between the channels, the data has been obtained on the representative channel.

Burst rate confirmation (For Radiated Emission)

Test place	Shonan EMC Lab. No.1 Measurement Room
Date	May 21, 2023
Temperature / Humidity	22 deg. C / 59 % RH
Engineer	Hiromasa Sato
Mode	Tx 11ax-20 (OFDMA)

11ax-20 (OFDMA) 26-tone RU MCS 0 (1SS)	11ax-20 (OFDMA) 52-tone RU MCS 0 (1SS)
VBW: 1/x = 735 Hz<750 Hz x: (Tx on) = 1.361 ms	VBW: 1/x = 735 Hz<750 Hz x: (Tx on) = 1.361 ms
	

11ax-20 (OFDMA) 106-tone RU MCS 0 (1SS)	11ax-20 (OFDMA) 242-tone RU MCS 0 (1SS)
VBW: 1/x = 735 Hz<750 Hz x: (Tx on) = 1.361 ms	VBW: 1/x = 735 Hz<750 Hz x: (Tx on) = 1.361 ms
	

* Since the burst rate is not different between the channels, the data has been obtained on the representative channel.

Radiated Spurious Emission

Test place	Shonan EMC Lab.		
Semi Anechoic Chamber	3	3	3
Date	March 17, 2023	March 20, 2023	March 20, 2023
Temperature / Humidity	22 deg.C, 33 %RH	23 deg.C, 36 %RH	23 deg.C, 36 %RH
Engineer	Takahiro Suzuki (1 GHz -10 GHz)	Hiromasa Sato (10 GHz -18 GHz)	Akihiro Oda (18 -26.5 GHz)
Mode	Tx 11b 2412 MHz		

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	2390.000	PK	51.89	28.57	14.71	41.61	2.45	56.01	73.9	17.8	108	344	-
Hori.	4824.000	PK	49.36	31.91	7.23	42.87	2.45	48.08	73.9	25.8	150	0	-
Hori.	7236.000	PK	50.52	37.59	8.61	43.36	2.45	55.81	73.9	18.0	150	0	-
Hori.	9648.000	PK	49.52	38.97	9.82	43.09	2.45	57.67	73.9	16.2	150	0	-
Hori.	19296.000	PK	48.58	40.23	13.90	47.52	-9.54	45.65	73.9	28.2	148	5	-
Hori.	2390.000	AV	40.09	28.57	14.71	41.61	2.45	44.21	53.9	9.6	108	344	-
Hori.	4824.000	AV	38.71	31.91	7.23	42.87	2.45	37.43	53.9	16.4	150	0	Floor noise
Hori.	7236.000	AV	37.74	37.59	8.61	43.36	2.45	43.03	53.9	10.8	150	0	Floor noise
Hori.	9648.000	AV	37.48	38.97	9.82	43.09	2.45	45.63	53.9	8.2	150	0	Floor noise
Hori.	19296.000	AV	45.18	40.23	13.90	47.52	-9.54	42.25	53.9	11.6	148	5	-
Vert.	2390.000	PK	51.65	28.57	14.71	41.61	2.45	55.77	73.9	18.1	150	28	-
Vert.	4824.000	PK	50.16	31.91	7.23	42.87	2.45	48.88	73.9	25.0	150	0	-
Vert.	7236.000	PK	47.51	37.59	8.61	43.36	2.45	52.80	73.9	21.1	150	0	-
Vert.	9648.000	PK	48.86	38.97	9.82	43.09	2.45	57.01	73.9	16.8	150	0	-
Vert.	19296.000	PK	48.66	40.23	13.90	47.52	-9.54	45.73	73.9	28.1	131	124	-
Vert.	2390.000	AV	39.98	28.57	14.71	41.61	2.45	44.10	53.9	9.8	150	28	-
Vert.	4824.000	AV	38.07	31.91	7.23	42.87	2.45	36.79	53.9	17.1	150	0	Floor noise
Vert.	7236.000	AV	38.77	37.59	8.61	43.36	2.45	44.06	53.9	9.8	150	0	Floor noise
Vert.	9648.000	AV	38.41	38.97	9.82	43.09	2.45	46.56	53.9	**7.3**	150	0	Floor noise
Vert.	19296.000	AV	45.23	40.23	13.90	47.52	-9.54	42.30	53.9	11.6	131	124	-

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor
Distance factor : 1 GHz - 10 GHz : 20log (3.98 m / 3.0 m) = 2.45 dB
10 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

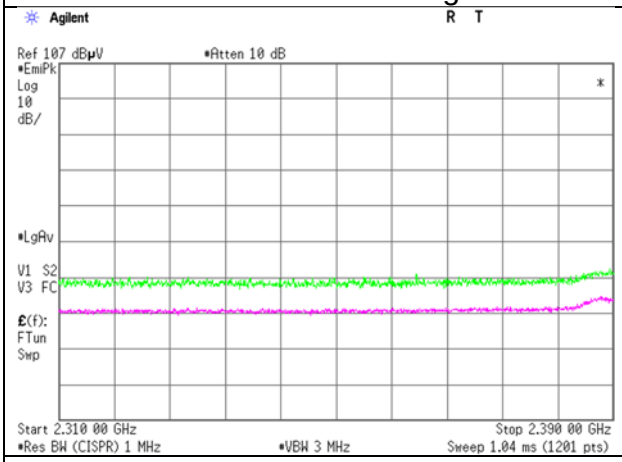
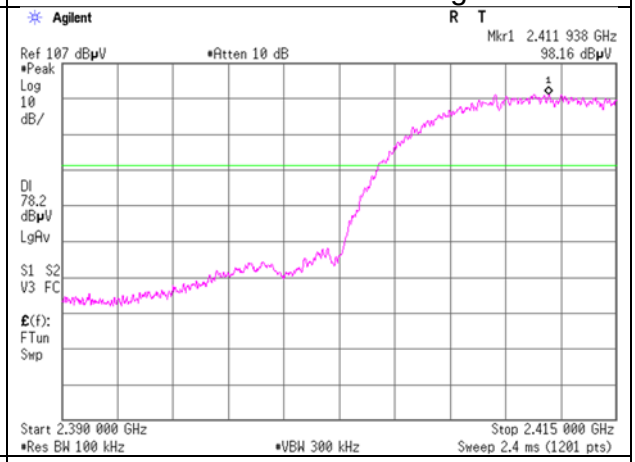
20 dBc Data Sheet **(RBW 100 kHz, VBW 300 kHz)**

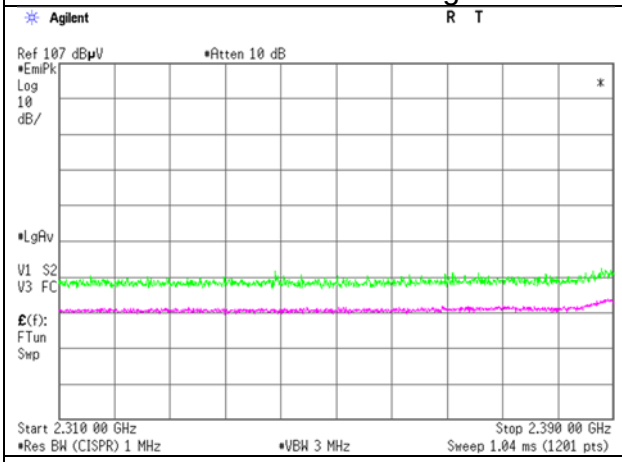
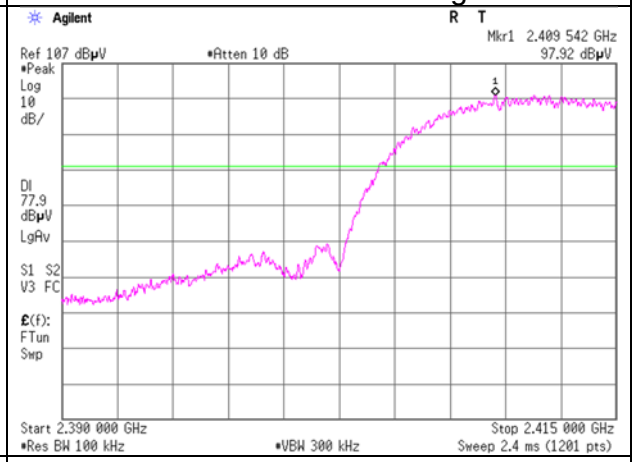
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2412.000	PK	97.39	28.53	14.74	41.61	2.45	101.50	-	-	Carrier
Hori.	2400.000	PK	47.68	28.55	14.72	41.61	2.45	51.79	81.5	29.7	-
Vert.	2412.000	PK	96.66	28.53	14.74	41.61	2.45	100.77	-	-	Carrier
Vert.	2400.000	PK	48.82	28.55	14.72	41.61	2.45	52.93	80.7	27.7	-

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor
Distance factor : 1 GHz - 10 GHz : 20log (3.98 m / 3.0 m) = 2.45 dB
10 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	3
Date	March 17, 2023
Temperature / Humidity	22 deg.C, 33 %RH
Engineer	Takahiro Suzuki
Mode	Tx 11b 2412 MHz

Horizontal	
Restricted-band band-edge Plot	Authorized-band band-edge Plot
	
Trace Green : Peak Plot Trace Purple : Average Plot	20dBc Plot

Vertical	
Restricted-band band-edge Plot	Authorized-band band-edge Plot
	
Trace Green : Peak Plot Trace Purple : Average Plot	20dBc Plot

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Test place	Shonan EMC Lab.		
Semi Anechoic Chamber	3	3	3
Date	March 17, 2023	March 20, 2023	March 20, 2023
Temperature / Humidity	22 deg.C, 33 %RH	23 deg.C, 36 %RH	23 deg.C, 36 %RH
Engineer	Takahiro Suzuki	Hiromasa Sato	Akihiro Oda
	(1 GHz -10 GHz)	(10 GHz -18 GHz)	(18 -26.5 GHz)
Mode	Tx 11b 2437 MHz		

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	4874.000	PK	50.09	31.92	7.26	42.88	2.45	48.84	73.9	25.0	150	0	-
Hori.	7311.000	PK	50.06	37.64	8.64	43.41	2.45	55.38	73.9	18.5	150	0	-
Hori.	9748.000	PK	49.55	39.25	9.86	43.02	2.45	58.09	73.9	15.8	150	0	-
Hori.	19496.000	PK	48.05	40.25	14.01	47.11	-9.54	45.66	73.9	28.2	143	5	-
Hori.	4874.000	AV	38.07	31.92	7.26	42.88	2.45	36.82	53.9	17.0	150	0	Floor noise
Hori.	7311.000	AV	38.11	37.64	8.64	43.41	2.45	43.43	53.9	10.4	150	0	Floor noise
Hori.	9748.000	AV	37.54	39.25	9.86	43.02	2.45	46.08	53.9	7.8	150	0	Floor noise
Hori.	19496.000	AV	43.71	40.25	14.01	47.11	-9.54	41.32	53.9	12.5	143	5	-
Vert.	4874.000	PK	50.13	31.92	7.26	42.88	2.45	48.88	73.9	25.0	150	0	-
Vert.	7311.000	PK	50.03	37.64	8.64	43.41	2.45	55.35	73.9	18.5	150	0	-
Vert.	9748.000	PK	48.87	39.25	9.86	43.02	2.45	57.41	73.9	16.4	150	0	-
Vert.	19496.000	PK	46.42	40.25	14.01	47.11	-9.54	44.03	73.9	29.8	128	126	-
Vert.	4874.000	AV	38.11	31.92	7.26	42.88	2.45	36.86	53.9	17.0	150	0	Floor noise
Vert.	7311.000	AV	38.08	37.64	8.64	43.41	2.45	43.40	53.9	10.5	150	0	Floor noise
Vert.	9748.000	AV	38.41	39.25	9.86	43.02	2.45	46.95	53.9	**6.9**	150	0	Floor noise
Vert.	19496.000	AV	44.69	40.25	14.01	47.11	-9.54	42.30	53.9	11.6	128	126	-

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Distance factor : 1 GHz - 10 GHz : 20log (3.98 m / 3.0 m) = 2.45 dB

10 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission

Test place	Shonan EMC Lab.		
Semi Anechoic Chamber	3	3	3
Date	March 17, 2023	March 20, 2023	March 20, 2023
Temperature / Humidity	22 deg.C, 33 %RH	23 deg.C, 36 %RH	23 deg.C, 36 %RH
Engineer	Takahiro Suzuki	Hiromasa Sato	Akihiro Oda
	(1 GHz -10 GHz)	(10 GHz -18 GHz)	(18 -26.5 GHz)
Mode	Tx 11b 2462 MHz		

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	2483.500	PK	51.65	28.44	14.83	41.64	2.45	55.73	73.9	18.1	167	336	-
Hori.	4924.000	PK	50.55	31.98	7.28	42.89	2.45	49.37	73.9	24.5	150	0	-
Hori.	7386.000	PK	49.94	37.78	8.67	43.46	2.45	55.38	73.9	18.5	150	0	-
Hori.	9848.000	PK	49.61	39.38	9.92	42.94	2.45	58.42	73.9	15.4	150	0	-
Hori.	19696.000	PK	43.91	40.25	14.07	47.30	-9.54	41.39	73.9	32.5	145	8	-
Hori.	2483.500	AV	40.05	28.44	14.83	41.64	2.45	44.13	53.9	9.7	167	336	-
Hori.	4924.000	AV	37.76	31.98	7.28	42.89	2.45	36.58	53.9	17.3	150	0	Floor noise
Hori.	7386.000	AV	37.62	37.78	8.67	43.46	2.45	43.06	53.9	10.8	150	0	Floor noise
Hori.	9848.000	AV	37.48	39.38	9.92	42.94	2.45	46.29	53.9	7.6	150	0	Floor noise
Hori.	19696.000	AV	35.09	40.25	14.07	47.30	-9.54	32.57	53.9	21.3	145	8	-
Vert.	2483.500	PK	53.77	28.44	14.83	41.64	2.45	57.85	73.9	16.0	244	42	-
Vert.	4924.000	PK	49.83	31.98	7.28	42.89	2.45	48.65	73.9	25.2	150	0	-
Vert.	7386.000	PK	50.35	37.78	8.67	43.46	2.45	55.79	73.9	18.1	150	0	-
Vert.	9848.000	PK	49.92	39.38	9.92	42.94	2.45	58.73	73.9	15.1	150	0	-
Vert.	19696.000	PK	45.89	40.25	14.07	47.30	-9.54	43.37	73.9	30.5	113	113	-
Vert.	2483.500	AV	42.74	28.44	14.83	41.64	2.45	46.82	53.9	**7.0**	244	42	-
Vert.	4924.000	AV	38.28	31.98	7.28	42.89	2.45	37.10	53.9	16.8	150	0	Floor noise
Vert.	7386.000	AV	38.17	37.78	8.67	43.46	2.45	43.61	53.9	10.2	150	0	Floor noise
Vert.	9848.000	AV	37.88	39.38	9.92	42.94	2.45	46.69	53.9	7.2	150	0	Floor noise
Vert.	19696.000	AV	40.14	40.25	14.07	47.30	-9.54	37.62	53.9	16.2	113	113	-

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Distance factor : 1 GHz - 10 GHz : 20log (3.98 m / 3.0 m) = 2.45 dB

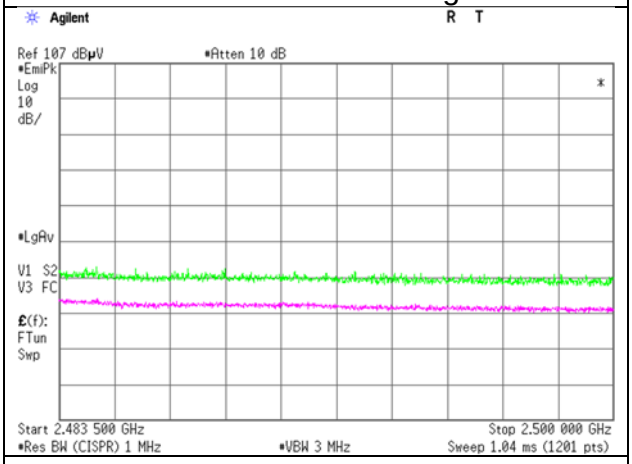
10 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	3
Date	March 17, 2023
Temperature / Humidity	22 deg.C, 33 %RH
Engineer	Takahiro Suzuki
Mode	Tx 11b 2462 MHz

Horizontal

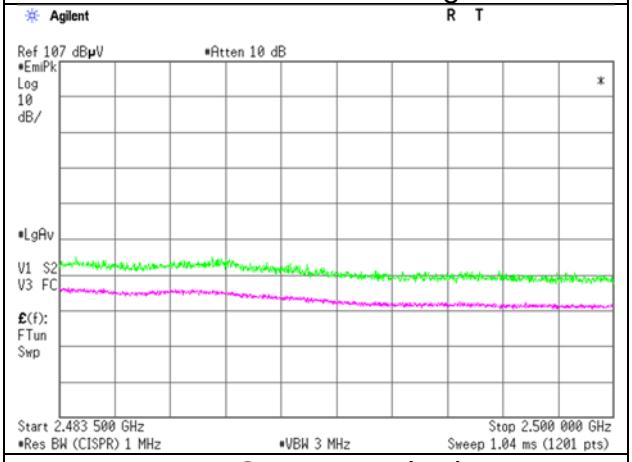
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	3
Date	March 17, 2023
Temperature / Humidity	22 deg.C, 33 %RH
Engineer	Takahiro Suzuki (1 GHz -2.8 GHz)
Mode	Tx 11g 2412 MHz

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	2390.000	PK	53.48	28.57	14.71	41.61	2.45	57.60	73.9	16.3	151	343	-
Vert.	2390.000	PK	50.02	28.57	14.71	41.61	2.45	54.14	73.9	19.7	150	30	-

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor
Distance factor : 1 GHz - 10 GHz : 20log (3.98 m / 3.0 m) = 2.45 dB
10 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2390.000	AV	38.72	28.57	14.71	41.61	0.21	2.45	43.05	53.9	**10.8**	*1)
Vert.	2390.000	AV	37.71	28.57	14.71	41.61	0.21	2.45	42.04	53.9	11.8	*1)

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Duty factor + Distance factor
Distance factor : 1 GHz - 10 GHz : 20log (3.98 m / 3.0 m) = 2.45 dB
10 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB
Duty factor refer to "Burst rate confirmation" sheet.
*1) Not out of band emission (Leakage Power)

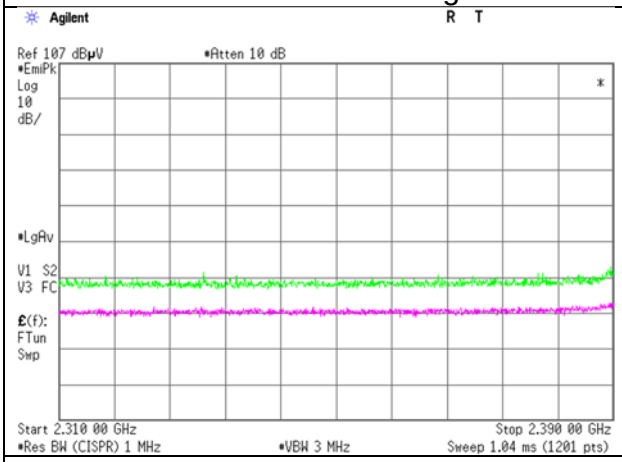
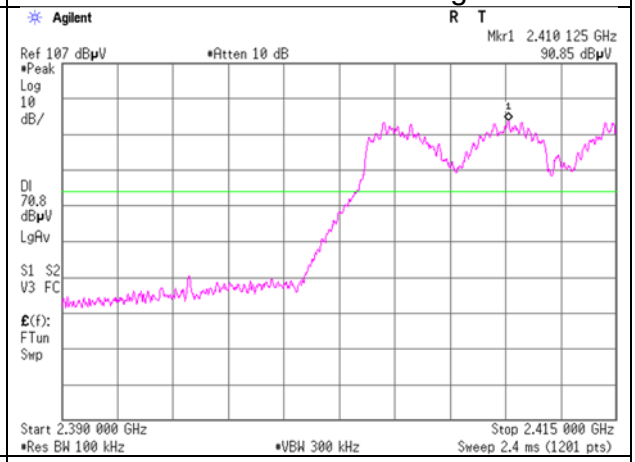
20 dBc Data Sheet **(RBW 100 kHz, VBW 300 kHz)**

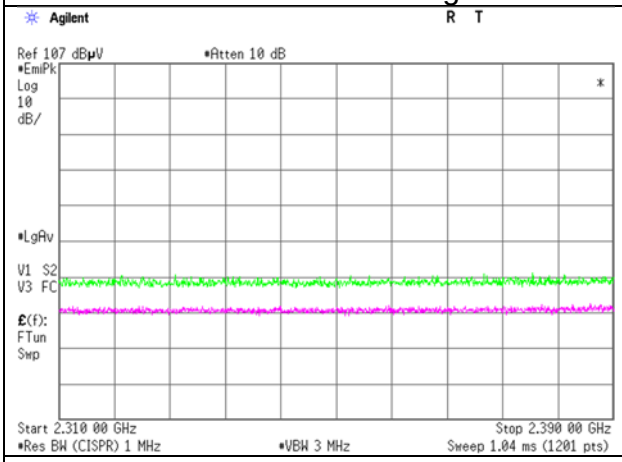
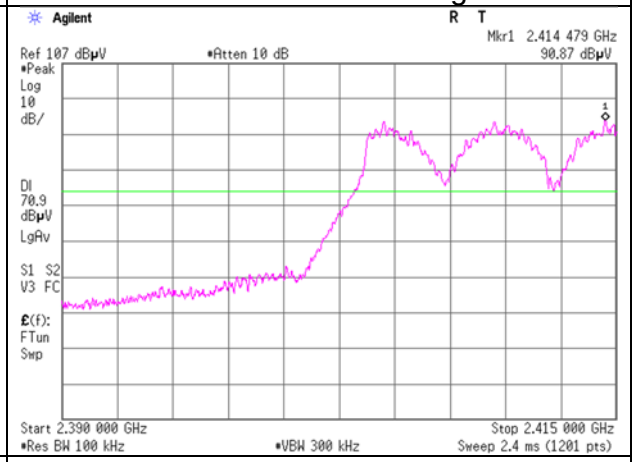
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2412.000	PK	90.85	28.53	14.74	41.61	2.45	94.96	-	-	Carrier
Hori.	2400.000	PK	45.90	28.55	14.72	41.61	2.45	50.01	74.9	24.8	-
Vert.	2412.000	PK	90.87	28.53	14.74	41.61	2.45	94.98	-	-	Carrier
Vert.	2400.000	PK	47.79	28.55	14.72	41.61	2.45	51.90	74.9	23.0	-

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor
Distance factor : 1 GHz - 10 GHz : 20log (3.98 m / 3.0 m) = 2.45 dB
10 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	3
Date	March 17, 2023
Temperature / Humidity	22 deg.C, 33 %RH
Engineer	Takahiro Suzuki
Mode	Tx 11g 2412 MHz

Horizontal	
Restricted-band band-edge Plot	Authorized-band band-edge Plot
	
Trace Green : Peak Plot Trace Purple : Average Plot	20dBc Plot

Vertical	
Restricted-band band-edge Plot	Authorized-band band-edge Plot
	
Trace Green : Peak Plot Trace Purple : Average Plot	20dBc Plot

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	3
Date	March 19, 2023
Temperature / Humidity	22 deg.C, 31 %RH
Engineer	Takahiro Suzuki (1 GHz -2.8 GHz)
Mode	Tx 11g 2417 MHz

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	2390.000	PK	54.58	27.85	14.71	41.61	2.45	57.98	73.9	15.9	150	349	-
Vert.	2390.000	PK	51.97	27.85	14.71	41.61	2.45	55.37	73.9	18.5	146	13	-

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor
Distance factor : 1 GHz - 10 GHz : 20log (3.98 m / 3.0 m) = 2.45 dB
10 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2390.000	AV	40.26	27.85	14.71	41.61	0.21	2.45	43.87	53.9	**10.0**	*1)
Vert.	2390.000	AV	38.98	27.85	14.71	41.61	0.21	2.45	42.59	53.9	11.3	*1)

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Duty factor + Distance factor
Distance factor : 1 GHz - 10 GHz : 20log (3.98 m / 3.0 m) = 2.45 dB
10 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB
Duty factor refer to "Burst rate confirmation" sheet.
*1) Not out of band emission (Leakage Power)

20 dBc Data Sheet **(RBW 100 kHz, VBW 300 kHz)**

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2417.000	PK	95.95	27.80	14.75	41.62	2.45	99.33	-	-	Carrier
Hori.	2400.000	PK	52.35	27.83	14.72	41.61	2.45	55.74	79.3	23.5	-
Vert.	2417.000	PK	95.45	27.80	14.75	41.62	2.45	98.83	-	-	Carrier
Vert.	2400.000	PK	49.59	27.83	14.72	41.61	2.45	52.98	78.8	25.8	-

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor
Distance factor : 1 GHz - 10 GHz : 20log (3.98 m / 3.0 m) = 2.45 dB
10 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB