RADIO TEST REPORT

Test Report No. 15263628S-A-R1

Customer	**Panasonic Automotive Systems Co., Ltd.**
Description of EUT	**Car AV Control Unit for CDC**
Model Number of EUT	**AM2301**
FCC ID	**ACJ932AM2301**
Test Regulation	**FCC Part 15 Subpart C**
Test Result	**Complied**
Issue Date	**January 27, 2025**
Remarks	**Wireless LAN (2.4 GHz band) and Bluetooth Low Energy part(s)**

Representative Test Engineer	Approved By
M. Ikudome	S. Takano
Miku Ikudome Engineer	Shinichi Takano Engineer

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".

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REVISION HISTORY

Original Test Report No.: 15263628S-A

This report is a revised version of 15263628S-A. 15263628S-A is replaced with this report.

Revision	Test Report No.	Date	Page Revised Contents
- (Original)	15263628S-A	December 20, 2024	-
1	15263628S-A-R1	January 27, 2025	P.14 Correction of position comment. From “-30, 0dg and -30 deg” To “-30, 0 deg. and +30 deg.” Correction of position table. From “30 deg.” To “+30 deg.”
			P.102, 104 Addition of Reference Plot for band-edge.
			P.136 Addition of Pre-Check Worst Case Position photos.

Reference: Abbreviations (Including words undescribed in this report)

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

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SECTION 1: Customer Information

Company Name	Panasonic Automotive Systems Co., Ltd. *1)
Address	4261, Ikonobe-cho, Tsuzuki-ku, Yokohama-shi, Kanagawa-ken 224-8520, Japan
Telephone Number	+81-80-7194-8870
Contact Person	Minoru Osada

*1) The Grantee name in the FCC application is “Panasonic Corporation of North America”.

The Information provided by the customer is as follows;
- Customer, Description of EUT, Model Number of EUT 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
- APPENDIX 4: Variant models list

SECTION 2: Equipment Under Test (EUT)

2.1 Identification of EUT

Description	Car AV Control Unit for CDC
Model Number	AM2301
Serial Number	Refer to SECTION 4.2
Condition	Engineering prototype (Not for Sale: This sample is equivalent to mass-produced items.)
Modification	No Modification by the test lab
Receipt Date	For Antenna Terminal Conducted test: April 26, 2024 For Radiated Emission test: August 2, 2024
Test Date	May 7 to September 3, 2024

2.2 Product Description

General Specification

Rating	DC 13.2 V
Operating temperature	-30 deg. C to +60 deg. C

Radio Specification

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

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

Equipment Type	Transceiver	
Frequency of Operation	2412 MHz to 2462 MHz	
Type of Modulation	DSSS, OFDM	
	OFDMA: (20 MHz band): 26/52/106/242-tone RU	
Antenna Gain a)	1st Antenna:	4.0 dBi
	2nd Antenna:	4.0 dBi

Bluetooth (BR / EDR / Low Energy)

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

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

Equipment Type	Transceiver	
Frequency of Operation	20 MHz Band:	5745 MHz to 5825 MHz
	40 MHz Band:	5755 MHz to 5795 MHz
	80 MHz Band:	5775 MHz
Type of Modulation	OFDM, OFDMA	
	OFDMA (IEEE802.11ax only)	(20 MHz band): 26/52/106/242-tone RU
		(40 MHz band): 26/52/106/242/484-tone RU
		(80 MHz band): 26/52/106/242/484/996-tone RU
Antenna Gain [a)]	1st Antenna:	6.0 dBi
	2nd Antenna:	6.0 dBi

[FM]

Equipment Type	Receiver
Frequency of Operation	87.75 MHz to 107.9 MHz
Type of Modulation	FM
Antenna Connector Type	Car manufacturer original
Impedance	75 ohm

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

* Also the EUT complies with FCC Part 15 Subpart B.

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	-	N/A	*1)
	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)	WLAN 7.0 dB 2483.500 MHz, AV, Vertical Mode: Tx 11ax-20 OFDMA 2462 MHz, 242-tone RU Index 61 BT LE 2.8 dB 2529.861 MHz, AV, Vertical Mode: Tx BT LE 2402 MHz	Complied	Conducted (below 30 MHz)/ Radiated (above 30 MHz) *2)
	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) The test is not applicable since the EUT does not have AC Mains.
*2) 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 EUT provides stable voltage constantly to the RF Part regardless of input voltage.
Instead of a new battery, DC power supply was used for the test. That does not affect the test result, therefore the EUT complies with the requirement.

FCC Part 15.203 Antenna requirement
The equipment and its antenna comply with the requirement since the antenna is built in the equipment and it cannot be replaced by end users. 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 to 30 MHz	3.2 dB
Radiated Emission (Measurement distance: 3 m)	9 kHz to 30 MHz	3.3 dB
	30 MHz to 200 MHz	4.9 dB
	200 MHz to 1 GHz	6.2 dB
	1 GHz to 6 GHz	4.7 dB
	6 GHz to 18 GHz	5.3 dB
	18 GHz to 40 GHz	5.5 dB
Radiated Emission (Measurement distance: 1 m)	1 GHz to 18 GHz	5.6 dB
	18 GHz to 40 GHz	5.8 dB

Antenna terminal test	Uncertainty (+/-)
Power Measurement above 1 GHz (Average Detector) SPM-06	1.1 dB
Power Measurement above 1 GHz (Peak Detector) SPM-06	1.8 dB
Power Measurement above 1 GHz (Average Detector) SPM-07	1.0 dB
Power Measurement above 1 GHz (Peak Detector) SPM-07	1.2 dB
Power Measurement above 1 GHz (Average Detector) SPM-13	0.81 dB
Power Measurement above 1 GHz (Peak Detector) SPM-13	1.1 dB
Spurious Emission (Conducted) below 1 GHz	0.91 dB
Conducted Emissions Power Density Measurement 1 GHz to 3 GHz	1.3 dB
Conducted Emissions Power Density Measurement 3 GHz to 18 GHz	2.5 dB
Spurious Emission (Conducted) 18 GHz to 26.5 GHz	2.8 dB
Spurious Emission (Conducted) 26.5 GHz to 40 GHz	2.6 dB
Bandwidth Measurement	0.012 %
Duty Cycle and Time Measurement	0.27 %
Temperature_SCH-01	0.96 deg.C.
Humidity_SCH-01	4.0 %
Temperature_SCH-02	2.2 deg.C.
Voltage	0.74 %

3.5 Test Location

UL Japan, Inc. Shonan EMC Lab.
1-22-3, Megumigaoka, Hiratsuka-shi, Kanagawa-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 room	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Maximum measurement distance
No.1 Semi-anechoic chamber (SAC1)	20.6 x 11.3 x 7.65	20.6 x 11.3	10 m
No.2 Semi-anechoic chamber (SAC2)	20.6 x 11.3 x 7.65	20.6 x 11.3	10 m
No.3 Semi-anechoic chamber (SAC3)	12.7 x 7.7 x 5.35	12.7 x 7.7	5 m
No.4 Semi-anechoic chamber (SAC4)	8.1 x 5.1 x 3.55	8.1 x 5.1	-
Wireless anechoic chamber 1 (WAC1)	9.5 x 6.0 x 5.4	9.5 x 6.0	3 m
Wireless anechoic chamber 2 (WAC2)	9.5 x 6.0 x 5.4	9.5 x 6.0	3 m
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	-	-
No.2 Measurement room	4.5 x 3.5 x 2.5	-	-
Wireless shielded room 1	3.0 x 4.5 x 2.7	3.0 x 4.5	-
Wireless shielded room 2	3.0 x 4.5 x 2.7	3.0 x 4.5	-

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 (11b)	2 Mbps, PN9
IEEE 802.11g (11g)	24 Mbps, PN9
IEEE 802.11n CDD 20 MHz BW (11n-20 CDD)	MCS 6, G.I. 800 ns, PN9
IEEE 802.11n SDM 20 MHz BW (11n-20 SDM)	MCS 15, G.I. 800 ns, PN9
IEEE 802.11ax CDD 20 MHz BW (11ax-20 CDD)	MCS 10, 1SS, G.I. 3200 ns, PN9
IEEE 802.11ax SDM 20 MHz BW (11ax-20 SDM)	MCS 10, 2SS, G.I. 3200 ns, PN9
Bluetooth Low Energy (BT LE)	1M-PHY Uncoded PHY (1M-PHY), Maximum Packet Size, PRBS9
Bluetooth Low Energy (BT LE)	2M-PHY Uncoded PHY (2M-PHY), Maximum Packet Size, PRBS9
*The worst antenna (2nd) and condition was determined based on the test result of Maximum Peak Output Power (Low Channel) *For the 11n-20 and 11ax-20, all test items except for Maximum Peak Output Power were tested on CDD as a representative, because it had the highest power at Maximum Peak Output Power.	
*Power of the EUT was set by the software as follows; Power Setting: See the below table Software: mcdc_wifi_2g_serial Version: 1 (Date: 2024.04.26, Storage location: Driven by connected PC) mcdc_ofdma_2g_serial Version: 1 (Date: 2024.04.26, Storage location: Driven by connected PC) mcdc_bluetooth_serial Version: 1 (Date: 2024.04.26, Storage location: Driven by connected PC) *This setting of software is the worst case. Any conditions under the normal use do not exceed the condition of setting. In addition, end users cannot change the settings of the output power of the product. Test operating mode was determined as follows according to “Section 1 of 6 802.11 a/b/g/n testing - Managing Complex Regulatory Approvals - ” of TCB Council Workshop October 2009 and also was judged the necessity of 802.11ax mode by the pre-test.	

Power Setting:

		11b	11g	11n-20	11ax-20	BT LE
Non-OFDMA		9	10	10	10	Fixed
OFDMA	26-tone RU	-	-	-	4	-
	52-tone RU	-	-	-	7	-
	106-tone RU	-	-	-	10	-
	242-tone RU	-	-	-	10	-

*The Details of Operating Mode(s)

Test Item	Operating Mode	Tested Antenna	Tested Frequency
Radiated Spurious Emission (Below 1 GHz)	Tx 11ax-20 OFDM *1), Tx 11ax-20 OFDM 2412 MHz with Tx 11ax-20 OFDM 5825 MHz	1st + 2nd	2412 MHz
	Tx BT LE 2M-PHY *1), Tx BT LE 2M-PHY 2402 MHz with Tx 11ax-20 OFDM 5825 MHz	-	2402 MHz
Conducted Spurious Emission	Tx 11ax-20 OFDM *1)	2nd *3)	2412 MHz
	Tx BT LE 2M-PHY *1)	-	2402 MHz
6 dB Bandwidth, 99 % Occupied Bandwidth	Tx 11b Tx 11g Tx 11n-20 Tx 11ax-20 OFDM Tx 11ax-20 OFDMA	2nd *3)	2412 MHz 2437 MHz 2462 MHz
	Tx BT LE 1M-PHY Tx BT LE 2M-PHY	-	2402 MHz 2440 MHz 2480 MHz
Maximum Peak Output Power	Tx 11b, Tx 11g, Tx 11n-20, Tx 11ax-20 OFDM, Tx 11ax-20 OFDMA	1st + 2nd	2412 MHz 2437 MHz 2462 MHz
	Tx BT LE 1M-PHY Tx BT LE 2M-PHY	-	2402 MHz 2440 MHz 2480 MHz
Radiated Spurious Emission (Above 1 GHz)	Tx 11b, Tx 11ax-20 OFDM *2)	1st + 2nd	2412 MHz 2437 MHz 2462 MHz
	Tx BT LE 1M-PHY, Tx BT LE 2M-PHY	-	2402 MHz 2440 MHz 2480 MHz
	Tx 11ax-20 OFDM with Tx 11ax-20 OFDM 5825 MHz	1st + 2nd	2412 MHz
	Tx BT LE 2M-PHY with Tx 11ax-20 OFDM 5825 MHz	-	2402 MHz
Radiated Spurious Emission (Band edge)	Tx 11ax-20 OFDMA *4)	1st + 2nd	2412 MHz 2462 MHz
Power Density	Tx 11b, Tx 11g, Tx 11n-20, Tx 11ax-20 OFDM, Tx 11ax-20 OFDMA	1st + 2nd	2412 MHz 2437 MHz 2462 MHz
	Tx BT LE 1M-PHY Tx BT LE 2M-PHY	-	2402 MHz 2440 MHz 2480 MHz

*1) Spurious emissions for frequencies below 1 GHz were limited to the channel that had the highest power during the antenna terminal test, as preliminary testing indicated that changing the operating frequency had no significant impact on the emissions in those frequency bands.
*2) The mode was tested as a representative, because it had the highest power at antenna terminal test.
*3) The test was performed with the antenna that had higher power as a representative.
*4) 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

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

SECTION 5: 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, 1.0 m by 1.5 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

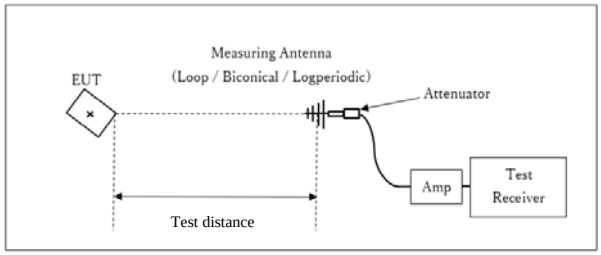
In any 100 kHz bandwidth outside the restricted band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator confirmed 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired 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	11.12.2.5.2 RBW: 1 MHz VBW: 3 MHz Detector: Power Averaging (Linear voltage) Trace: 100 traces Duty factor was added to the results.	RBW: 100 kHz VBW: 300 kHz

Figure 2: Test Setup

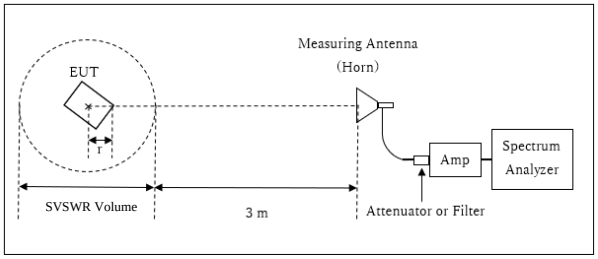
Below 1 GHz



× : Center of turn table

Test Distance: 3 m

1 GHz to 10 GHz

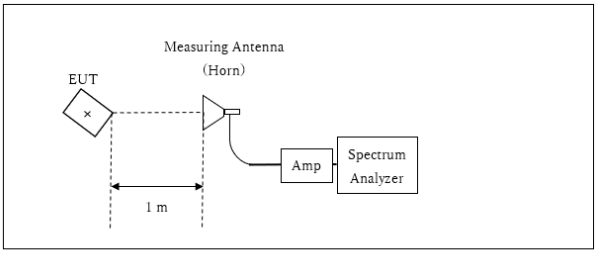


r : Radius of an outer periphery of EUT
× : Center of turn table

Distance Factor: 20 x log (3.89 m / 3.0 m) = 2.26 dB
* Test Distance: (3 + SVSWR Volume /2) - r = 3.89 m

SVSWR Volume : 2.0 m
(SVSWR Volume has been calibrated based on CISPR 16-1-4.)
r = 0.11 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 -30, 0 deg. and +30 deg of EUT to see the position of maximum noise, and the test was made at the position that has the maximum noise.

Test Range	Horizontal	Vertical
Below 1 GHz	0 deg.	0 deg.
1 GHz to 2.8 GHz	-30 deg.	-30 deg.
2.8 GHz to 10 GHz	+30 deg.	+30 deg.
10 GHz to 18 GHz	0 deg.	0 deg.
18 GHz to 26.5 GHz	+30 deg.	+30 deg.

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

Measurement Range : 30 MHz to 26.5 GHz
Test Data : APPENDIX
Test Result : Pass

SECTION 6: 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	20 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.

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

Test Data : APPENDIX
Test Result : Pass

APPENDIX 1: Test Data

99 % Occupied Bandwidth and 6 dB Bandwidth

Test place	Shonan EMC Lab. No.5 Shielded Room
Date	May 21, 2024
Temperature / Humidity	26 deg. C / 44 % RH
Engineer	Kouki Yamada
Mode	Tx

11b

Frequency [MHz]	99 % Occupied Bandwidth [kHz]	6 dB Bandwidth [MHz]	Limit for 6 dB Bandwidth [MHz]
2412	***13256.3***	7.471	> 0.5000
2437	13239.4	8.056	> 0.5000
2462	13226.7	8.116	> 0.5000

11g

Frequency [MHz]	99 % Occupied Bandwidth [kHz]	6 dB Bandwidth [MHz]	Limit for 6 dB Bandwidth [MHz]
2412	***17232.7***	16.487	> 0.5000
2437	17209.6	16.488	> 0.5000
2462	17218.1	16.488	> 0.5000

11n-20

Frequency [MHz]	99 % Occupied Bandwidth [kHz]	6 dB Bandwidth [MHz]	Limit for 6 dB Bandwidth [MHz]
2412	***17094.3***	16.498	> 0.5000
2437	17082.8	16.475	> 0.5000
2462	17091.3	16.481	> 0.5000

11ax-20 OFDM

Frequency [MHz]	99 % Occupied Bandwidth [kHz]	6 dB Bandwidth [MHz]	Limit for 6 dB Bandwidth [MHz]
2412	***19359.5***	19.125	> 0.5000
2437	19299.1	19.148	> 0.5000
2462	19351.3	19.146	> 0.5000

99 % Occupied Bandwidth and 6 dB Bandwidth

Test place	Shonan EMC Lab. No.5 Shielded Room
Date	May 21, 2024
Temperature / Humidity	26 deg. C / 44 % RH
Engineer	Kouki Yamada
Mode	Tx

11ax-20 OFDMA

RU Type	Tested Frequency [MHz]	RU Index	99 % Occupied Bandwidth [kHz]	6 dB Bandwidth [MHz]	Limit for 6 dB Bandwidth [MHz]
26-tone RU	2412	0	***18587.5***	2.081	> 0.500
		4	17231.3	2.586	> 0.500
		8	18490.5	2.066	> 0.500
	2437	0	18576.2	2.085	> 0.500
		4	17231.5	2.605	> 0.500
		8	18507.0	2.048	> 0.500
	2462	0	18570.1	2.083	> 0.500
		4	17222.0	2.587	> 0.500
		8	18540.8	2.051	> 0.500

11ax-20 OFDMA

RU Type	Tested Frequency [MHz]	RU Index	99 % Occupied Bandwidth [kHz]	6 dB Bandwidth [MHz]	Limit for 6 dB Bandwidth [MHz]
52-tone RU	2412	37	***18421.9***	4.128	> 0.500
		38	17285.7	4.065	> 0.500
		40	18392.1	4.086	> 0.500
	2437	37	18408.8	4.121	> 0.500
		38	17275.4	4.125	> 0.500
		40	18399.0	4.063	> 0.500
	2462	37	18397.4	4.105	> 0.500
		38	17271.2	4.134	> 0.500
		40	18415.9	4.062	> 0.500

99 % Occupied Bandwidth and 6 dB Bandwidth

Test place	Shonan EMC Lab. No.5 Shielded Room
Date	May 21, 2024
Temperature / Humidity	26 deg. C / 44 % RH
Engineer	Kouki Yamada
Mode	Tx

11ax-20 OFDMA

RU Type	Tested Frequency [MHz]	RU Index	99 % Occupied Bandwidth [kHz]	6 dB Bandwidth [MHz]	Limit for 6 dB Bandwidth [MHz]
106-tone RU	2412	53	***18476.1***	8.403	> 0.500
		54	18331.5	8.393	> 0.500
	2437	53	18469.3	8.414	> 0.500
		54	18333.7	8.392	> 0.500
	2462	53	18461.6	8.406	> 0.500
		54	18327.2	8.385	> 0.500

11ax-20 OFDMA

RU Type	Tested Frequency [MHz]	RU Index	99 % Occupied Bandwidth [kHz]	6 dB Bandwidth [MHz]	Limit for 6 dB Bandwidth [MHz]
242-tone RU	2412	61	19273.5	19.140	> 0.500
	2437	61	***19278.6***	19.102	> 0.500
	2462	61	19276.0	19.113	> 0.500

99 % Occupied Bandwidth and 6 dB Bandwidth

Test place	Shonan EMC Lab. No.5 Shielded Room
Date	May 7, 2024
Temperature / Humidity	26 deg. C / 37 % RH
Engineer	Miku Ikudome
Mode	Tx BT LE

BT LE 1M-PHY

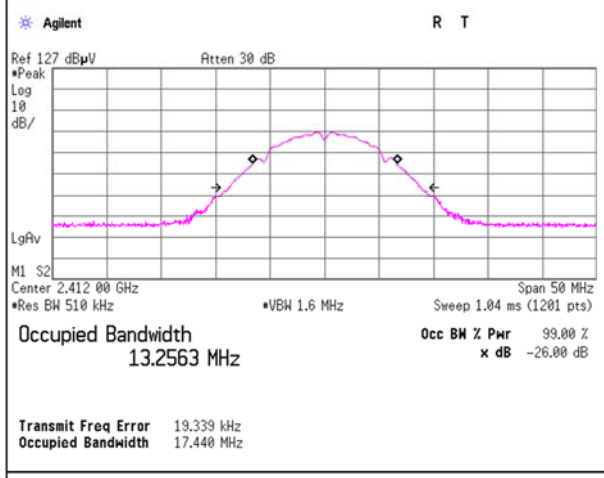
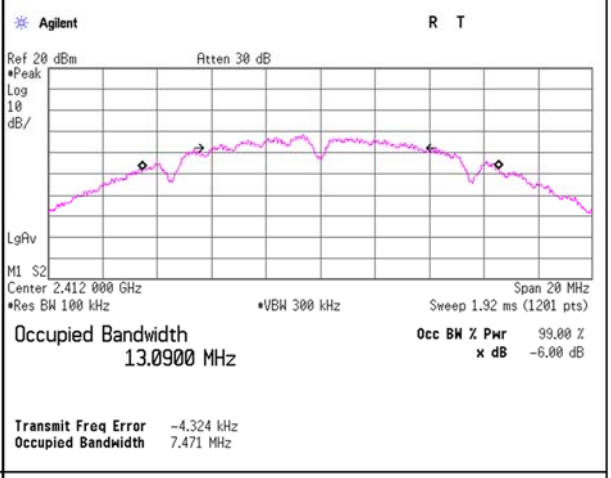
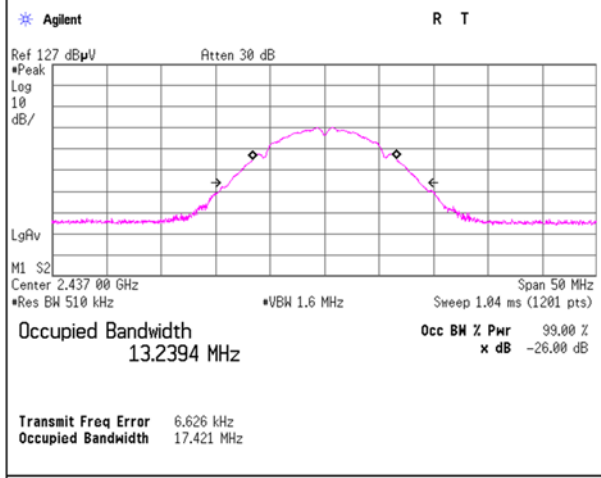
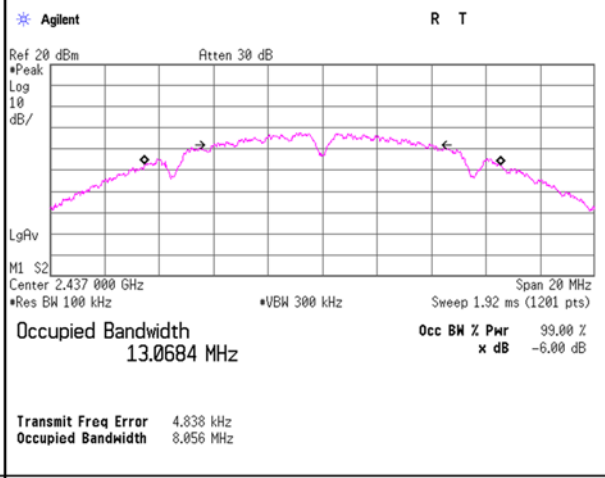
Frequency [MHz]	99 % Occupied Bandwidth [kHz]	6 dB Bandwidth [MHz]	Limit for 6 dB Bandwidth [MHz]
2402	1027.8	0.676	> 0.5000
2440	***1029.1***	0.672	> 0.5000
2480	1027.5	0.672	> 0.5000

BT LE 2M-PHY

Frequency [MHz]	99 % Occupied Bandwidth [kHz]	6 dB Bandwidth [MHz]	Limit for 6 dB Bandwidth [MHz]
2402	***2007.1***	1.159	> 0.5000
2440	2003.1	1.146	> 0.5000
2480	2005.8	1.151	> 0.5000

99 % Occupied Bandwidth and 6 dB Bandwidth

11b

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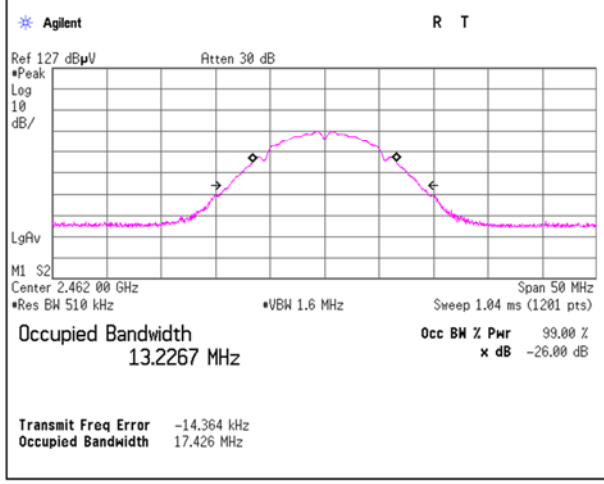
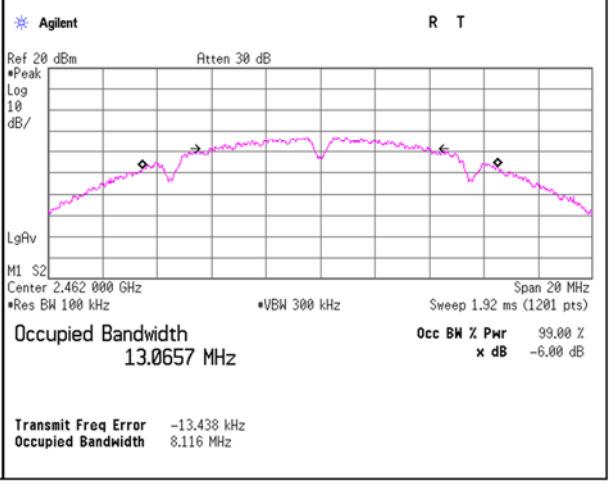
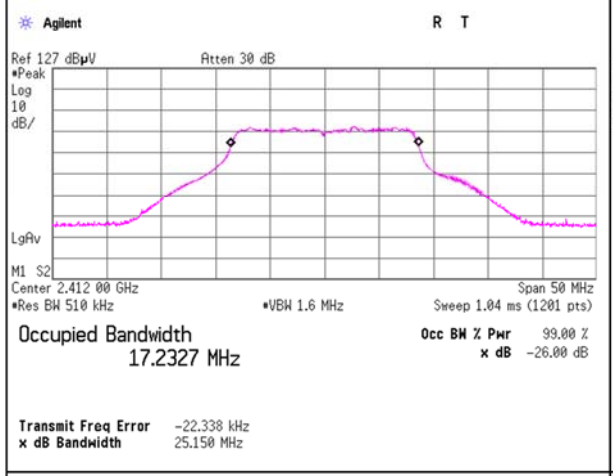
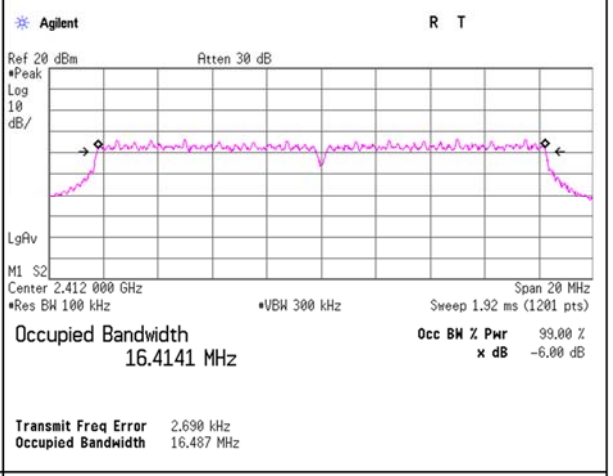
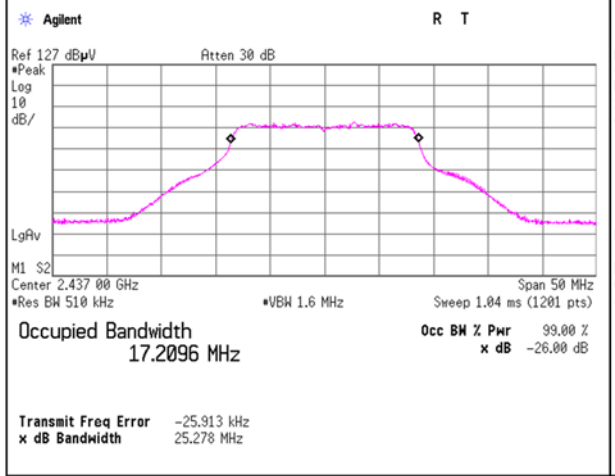
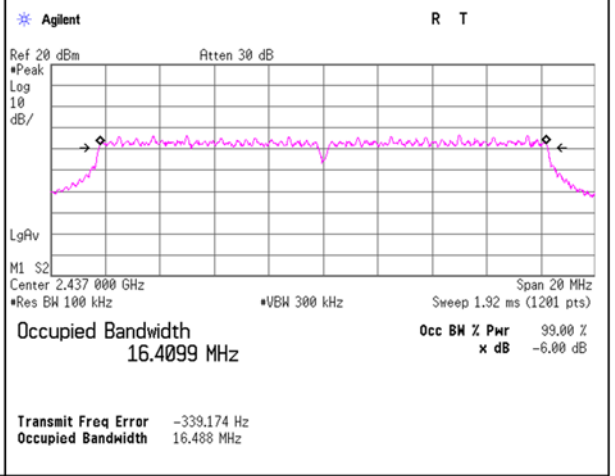
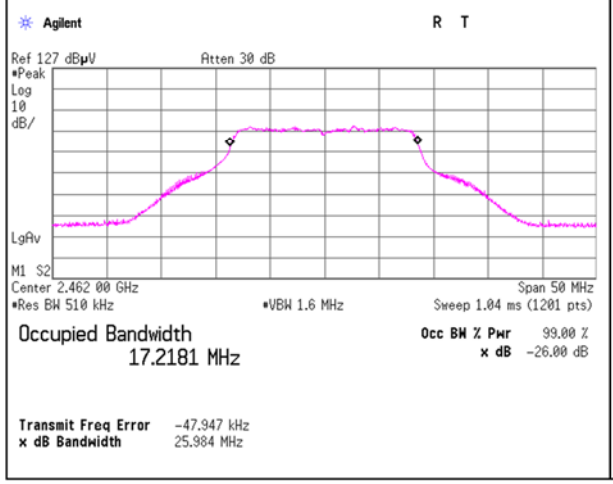
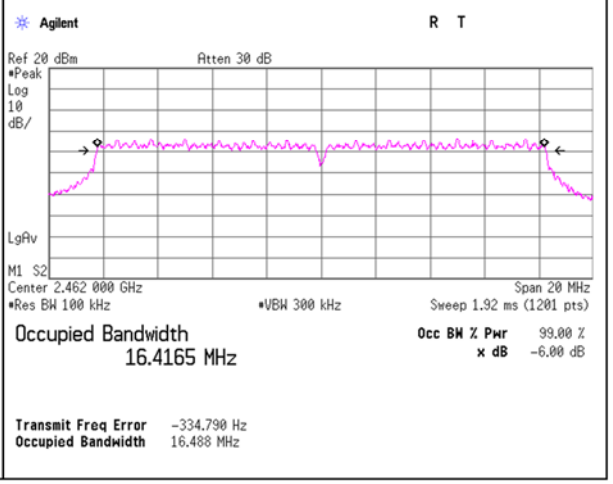
	

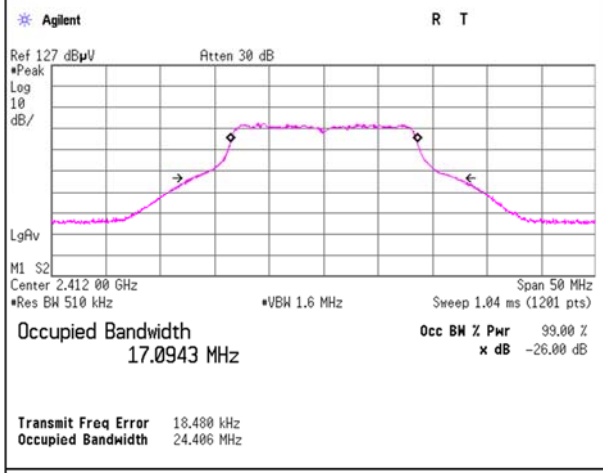
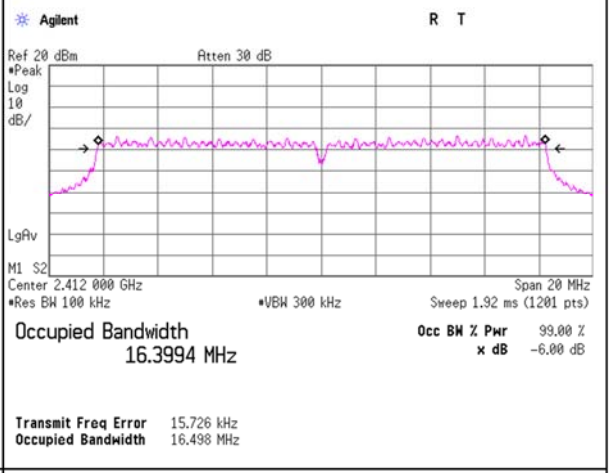
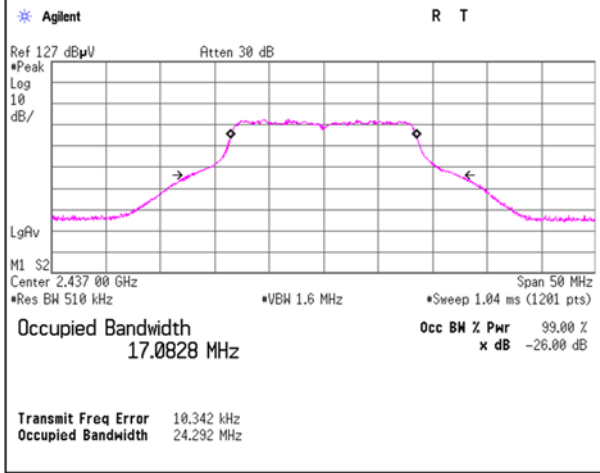
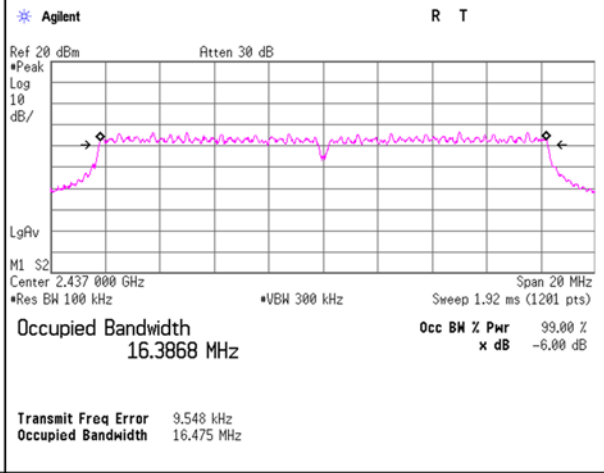
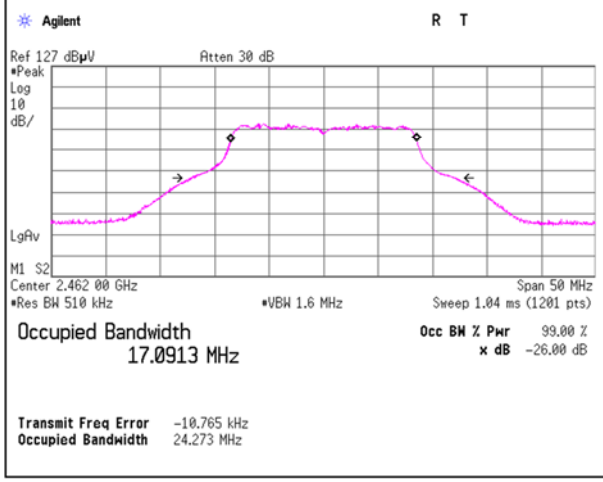
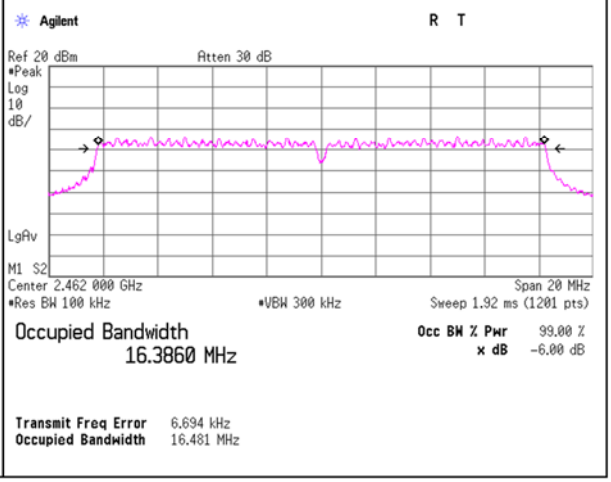
99 % Occupied Bandwidth and 6 dB Bandwidth

11g

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

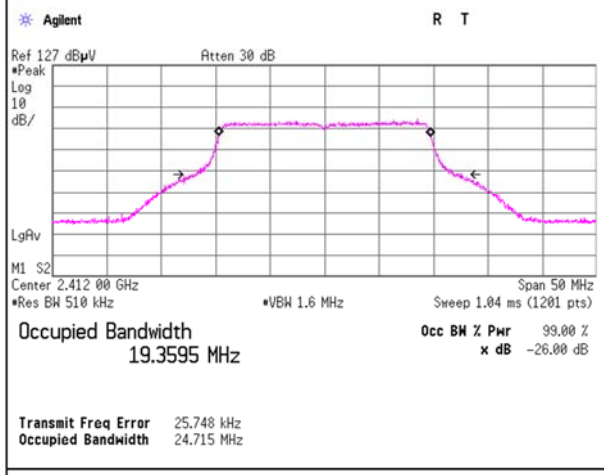
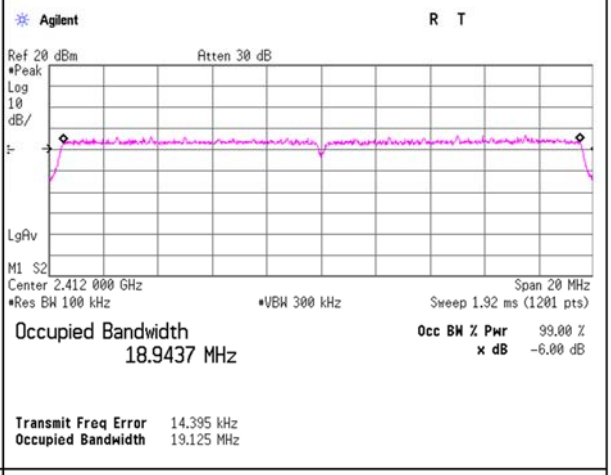
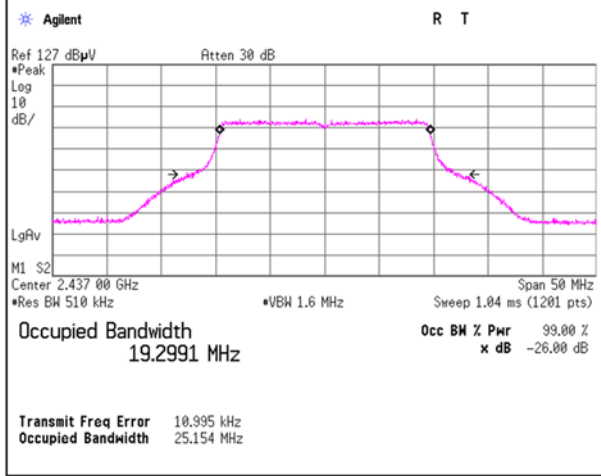
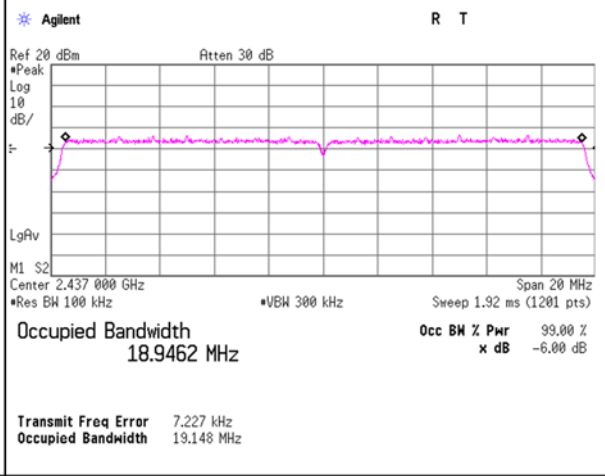
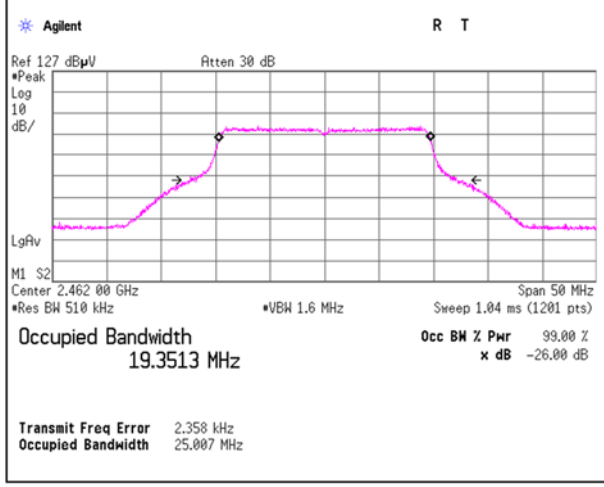
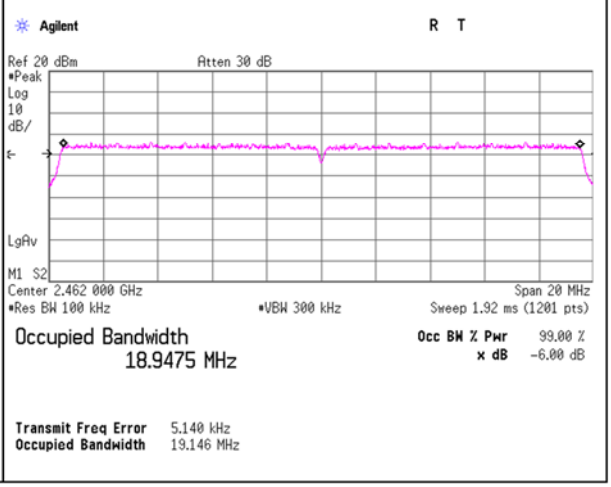
99 % Occupied Bandwidth and 6 dB Bandwidth

11n-20

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

11ax-20 OFDM

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

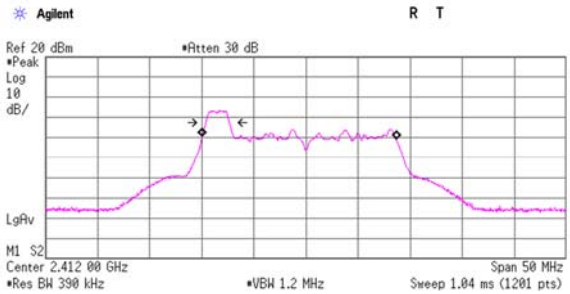
99 % Occupied Bandwidth and 6 dB Bandwidth

11ax-20 OFDMA, 26-tone RU

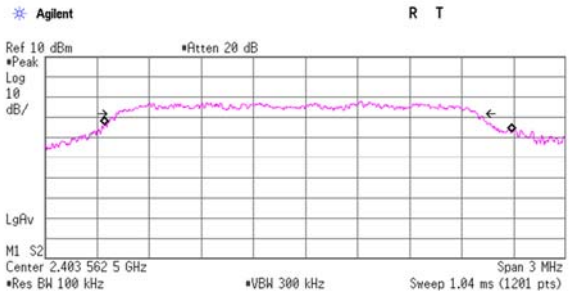
2412 MHz

99 % Occupied Bandwidth

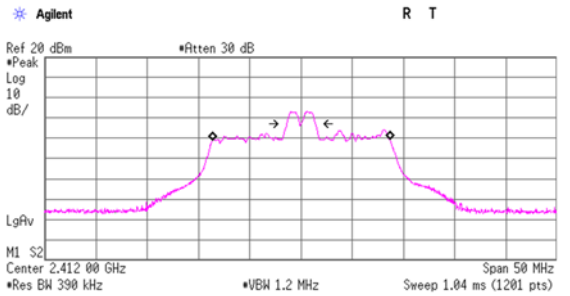
RU Index 0



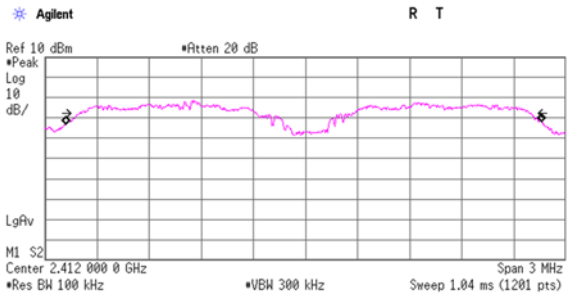
RU Index 0



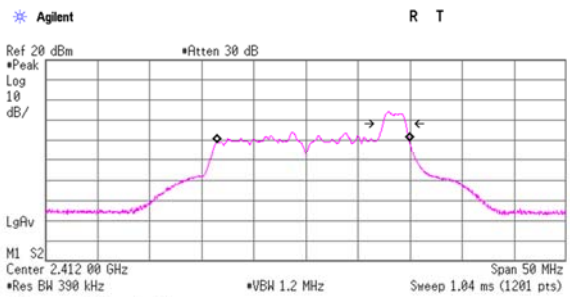
RU Index 4



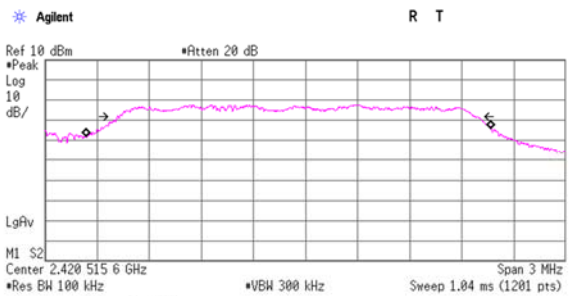
RU Index 4



RU Index 8



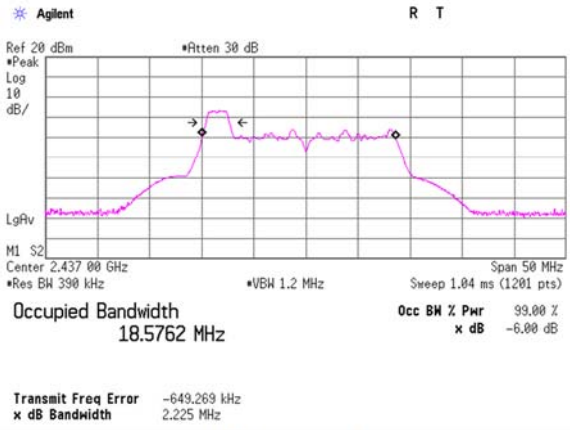
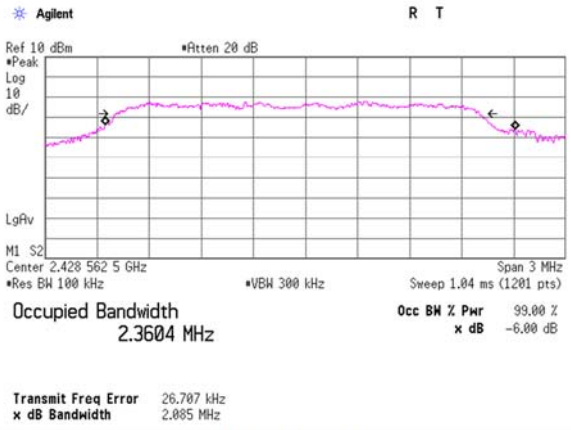
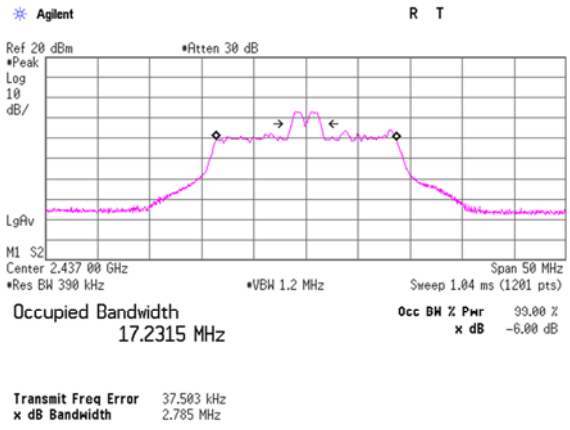
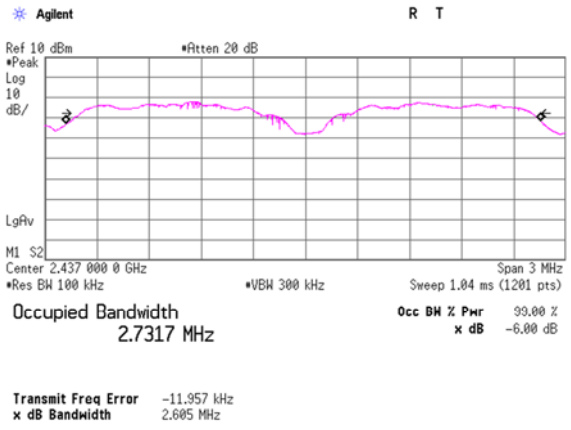
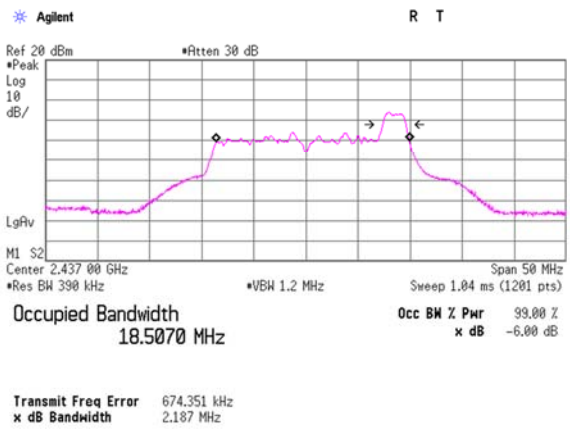
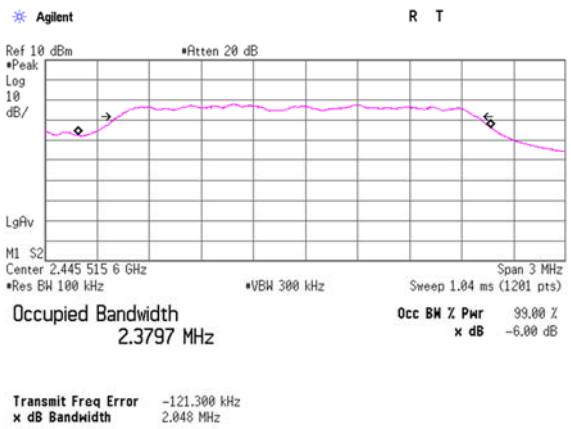
RU Index 8



99 % Occupied Bandwidth and 6 dB Bandwidth

11ax-20 OFDMA, 26-tone RU

2437 MHz

99 % Occupied Bandwidth	6 dB Bandwidth
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

2462 MHz

99 % Occupied Bandwidth	6 dB Bandwidth
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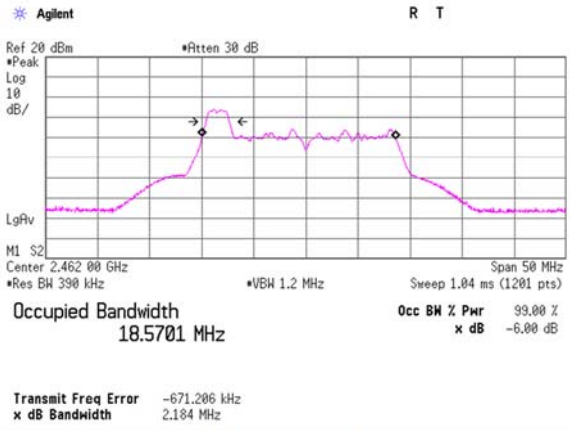	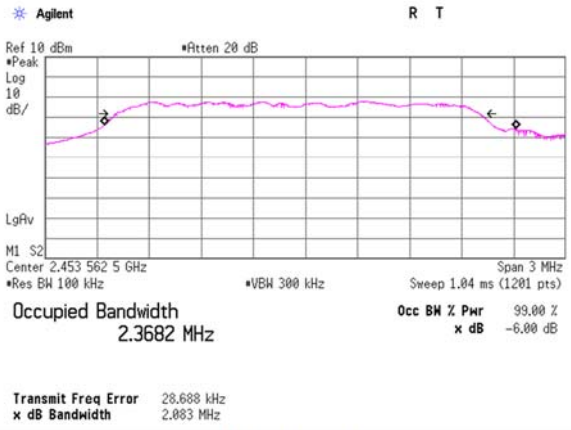
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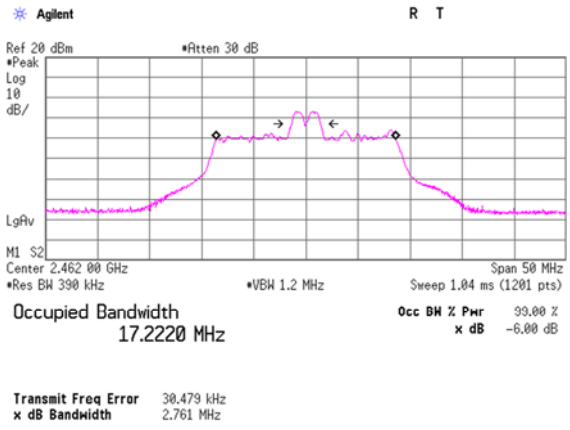
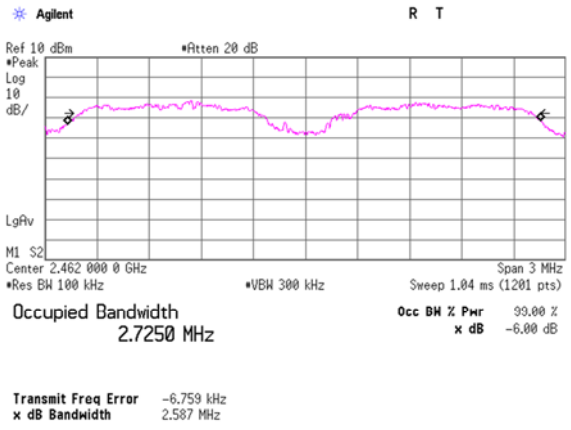
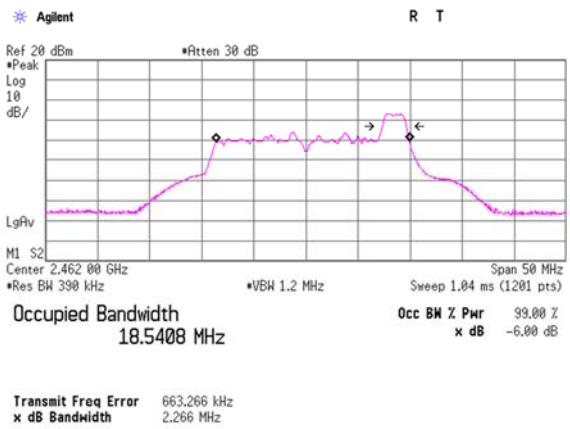
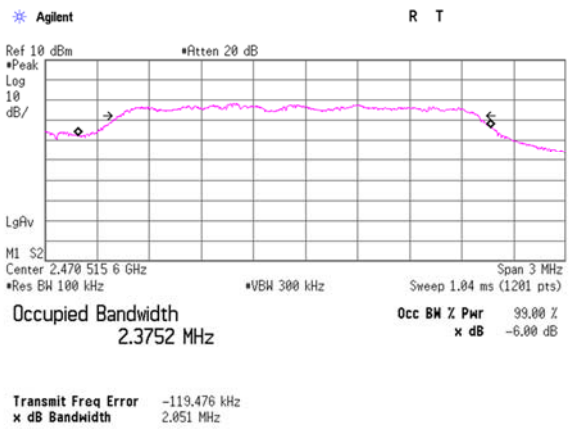
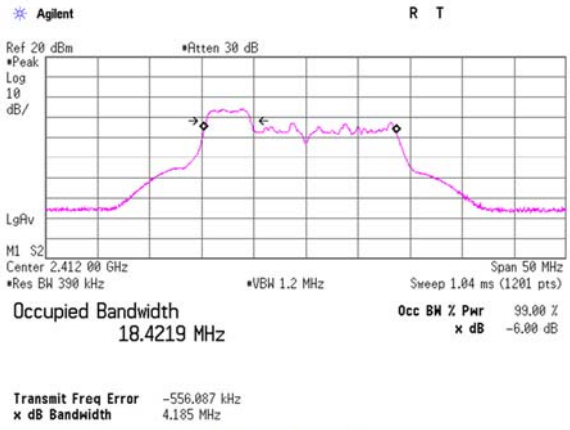
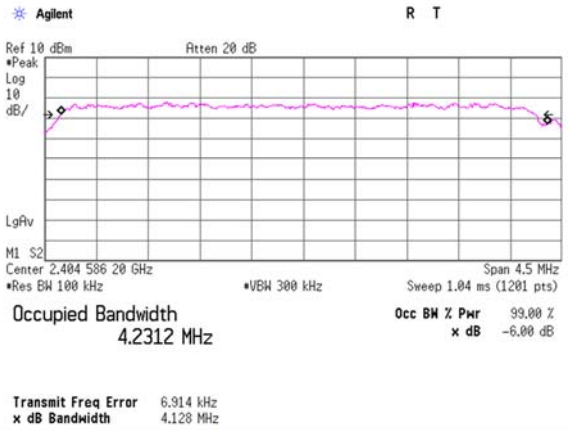
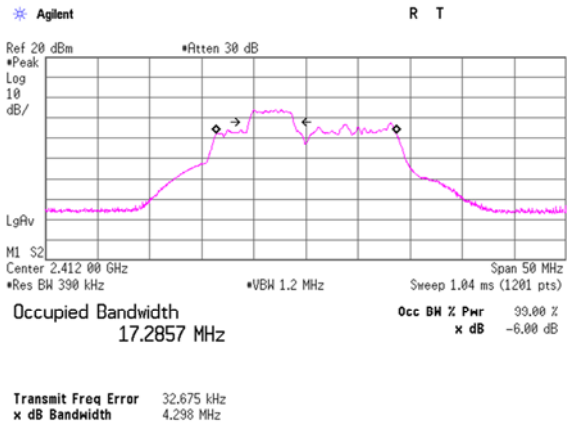
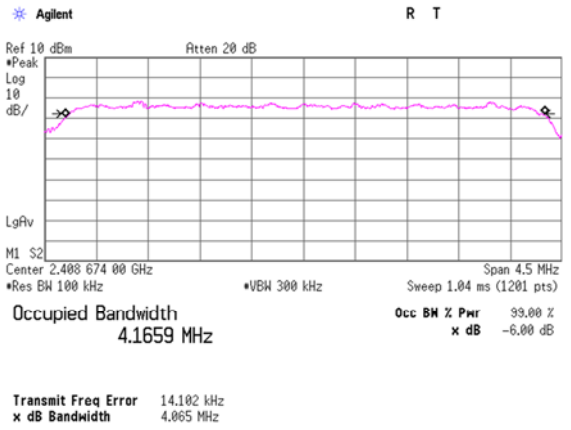
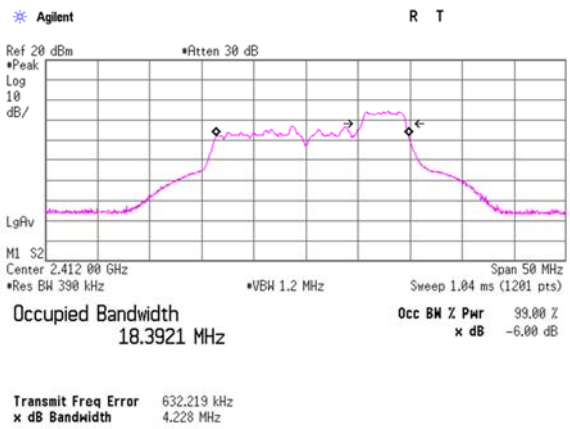
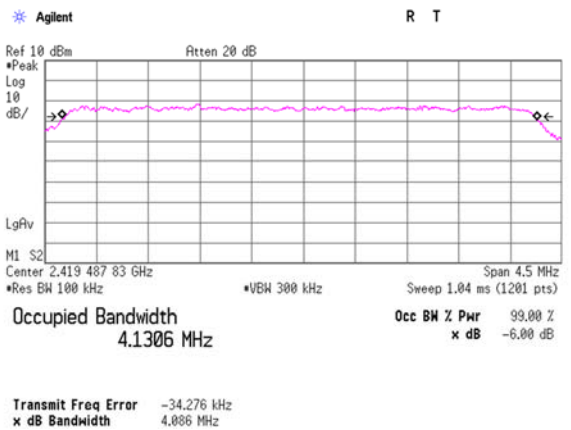
	
RU Index 8	**RU Index 8**
	

99 % Occupied Bandwidth and 6 dB Bandwidth

11ax-20 OFDMA, 52-tone RU

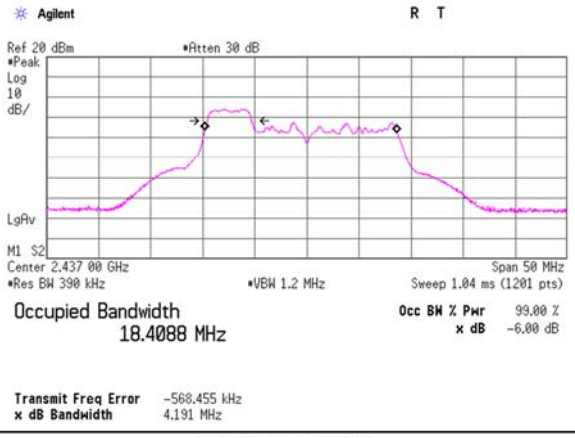
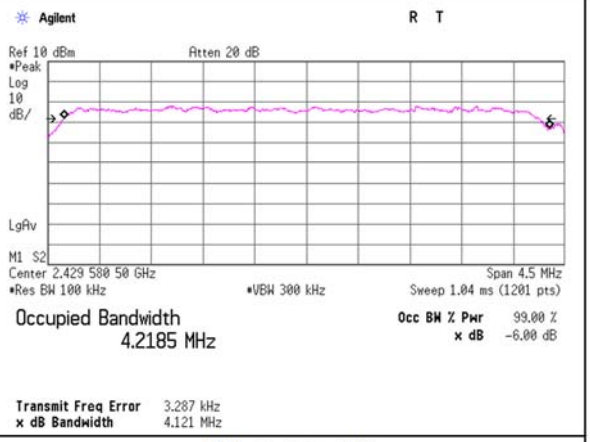
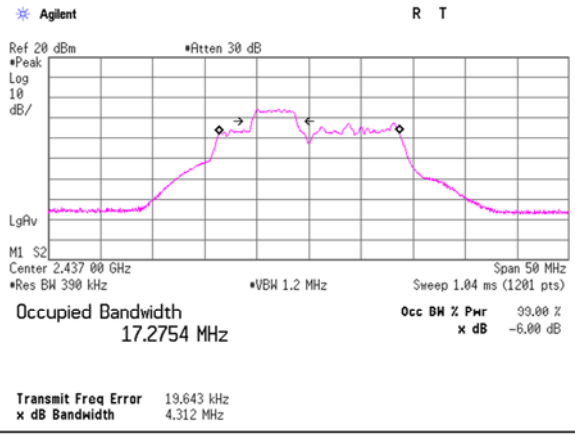
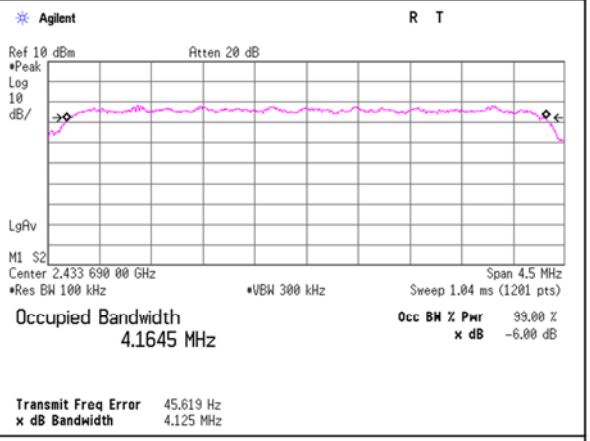
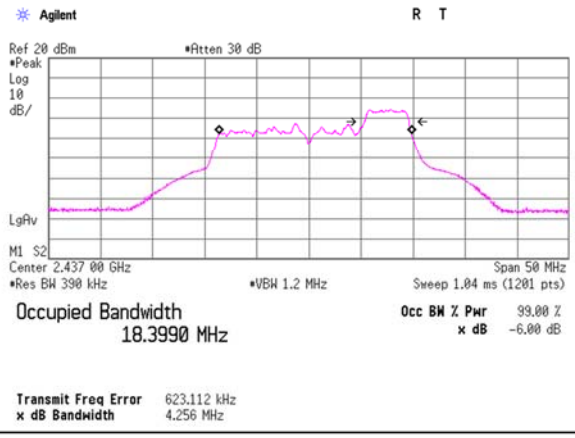
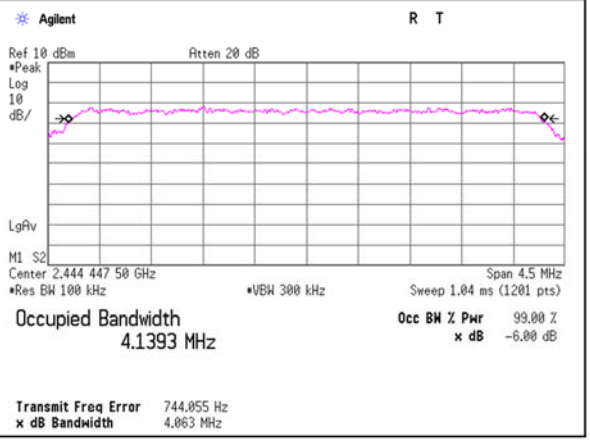
2412 MHz

99 % Occupied Bandwidth	6 dB Bandwidth
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

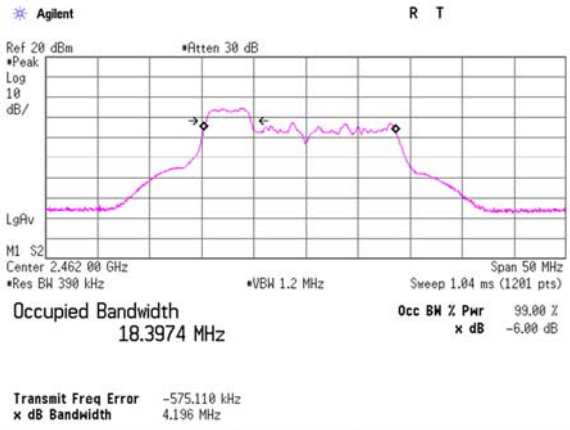
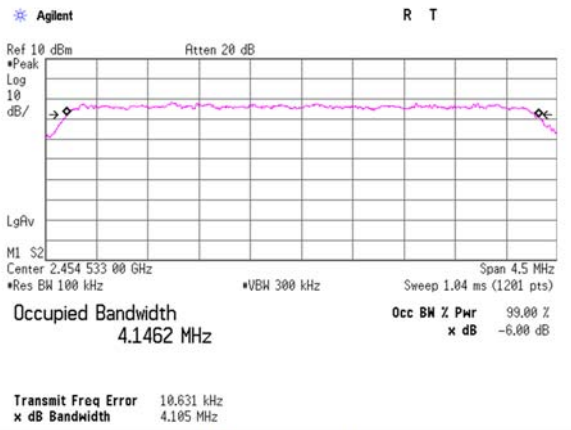
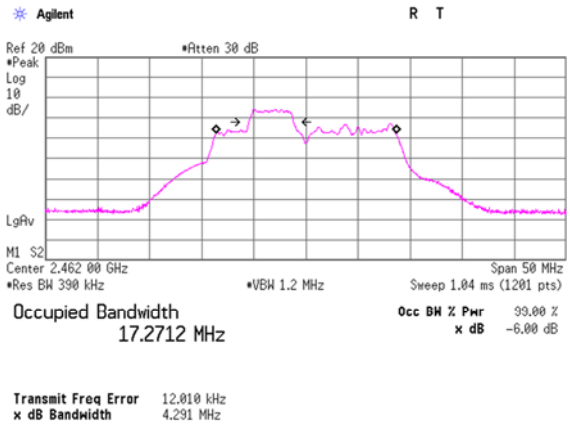
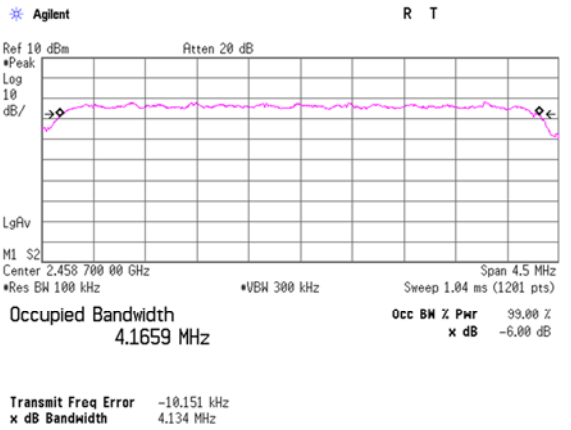
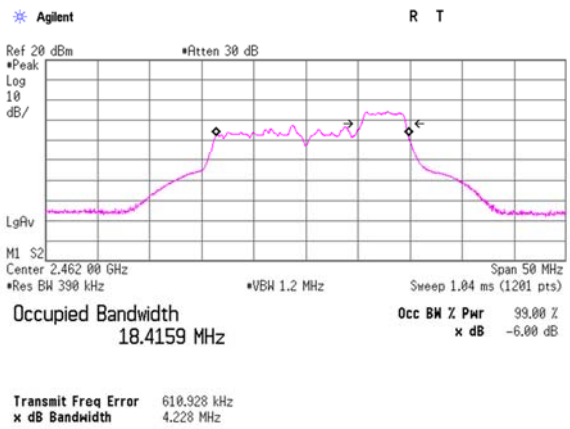
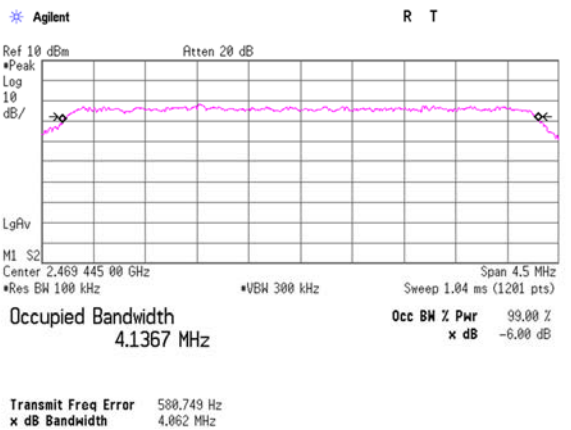
2437 MHz

99 % Occupied Bandwidth	6 dB Bandwidth
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

2462 MHz

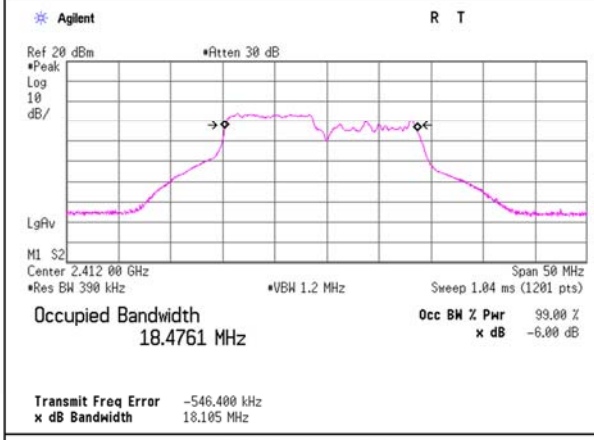
99 % Occupied Bandwidth	6 dB Bandwidth
RU Index 37	**RU Index 37**
	
RU Index 38	**RU Index 38**
	
RU Index 40	**RU Index 40**
	

99 % Occupied Bandwidth and 6 dB Bandwidth

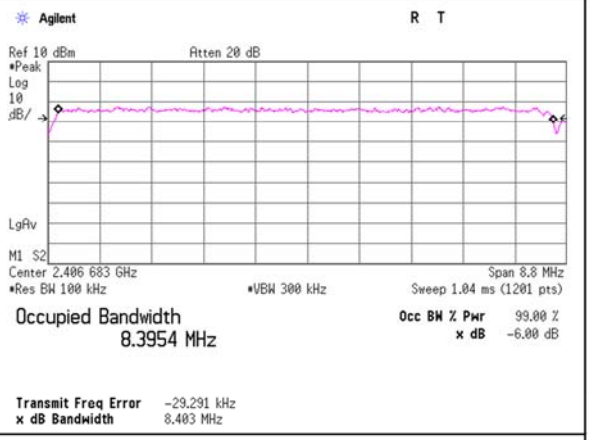
11ax-20 OFDMA, 106-tone RU

2412 MHz

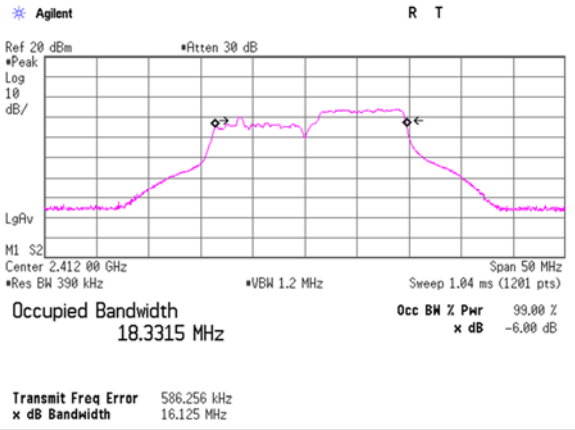
99 % Occupied Bandwidth — RU Index 53



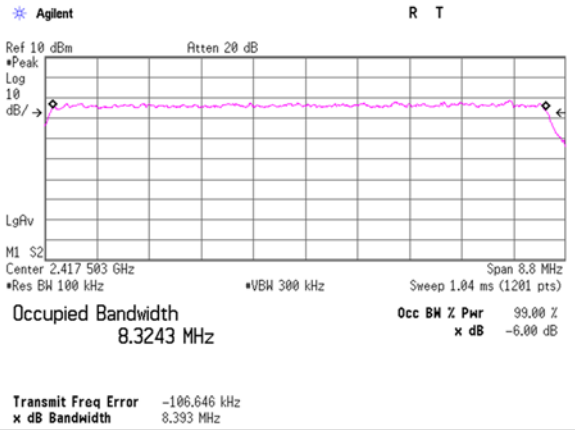
6 dB Bandwidth — RU Index 53



99 % Occupied Bandwidth — RU Index 54



6 dB Bandwidth — RU Index 54



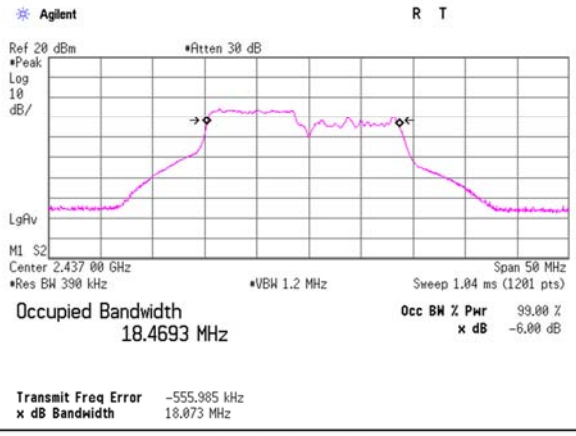
99 % Occupied Bandwidth and 6 dB Bandwidth

11ax-20 OFDMA, 106-tone RU

2437 MHz

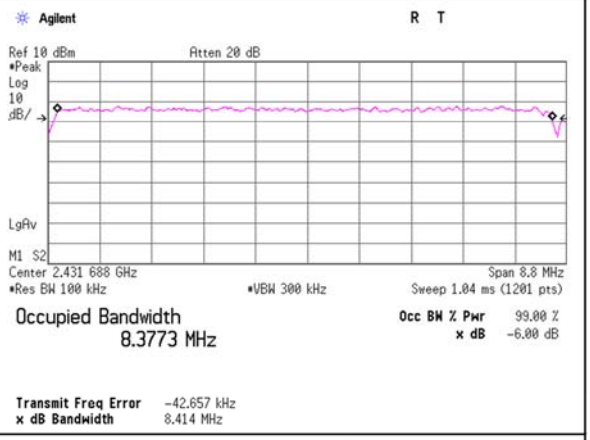
99 % Occupied Bandwidth

RU Index 53



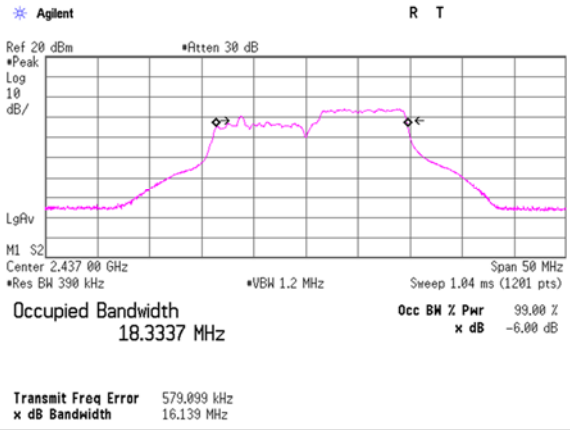
6 dB Bandwidth

RU Index 53



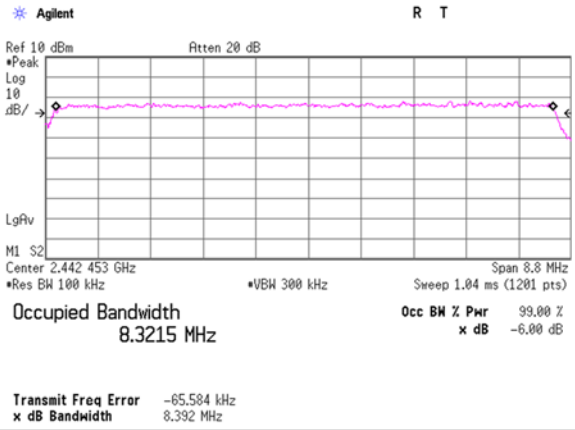
99 % Occupied Bandwidth

RU Index 54



6 dB Bandwidth

RU Index 54

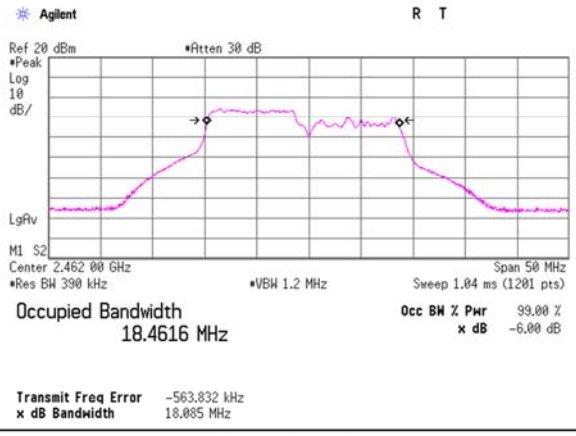


99 % Occupied Bandwidth and 6 dB Bandwidth

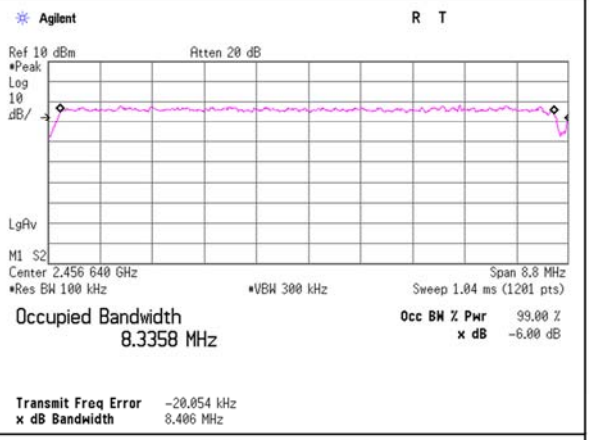
11ax-20 OFDMA, 106-tone RU

2462 MHz

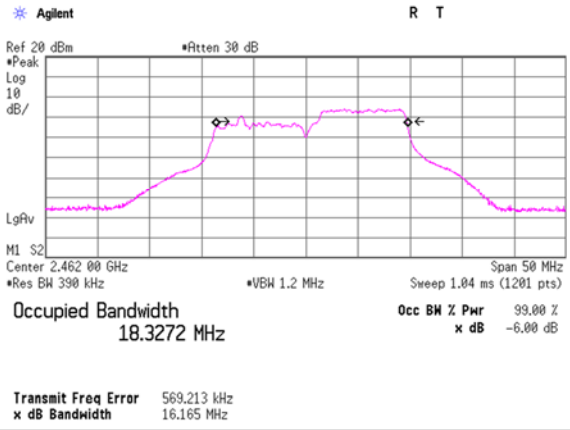
99 % Occupied Bandwidth — RU Index 53



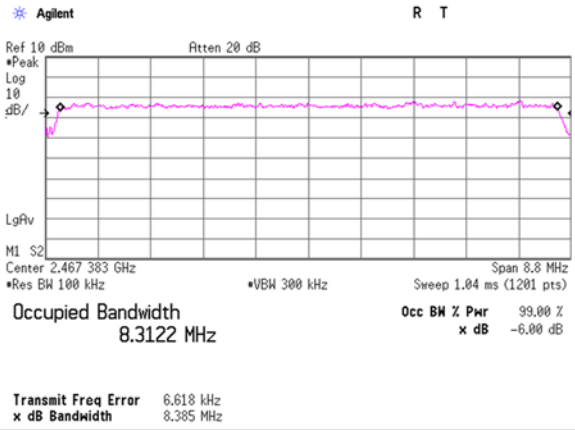
6 dB Bandwidth — RU Index 53



99 % Occupied Bandwidth — RU Index 54



6 dB Bandwidth — RU Index 54

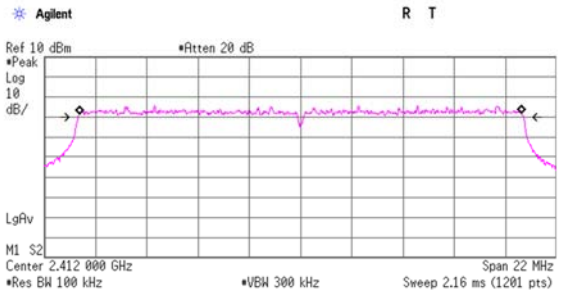


99 % Occupied Bandwidth and 6 dB Bandwidth

11ax-20 OFDMA, 242-tone RU

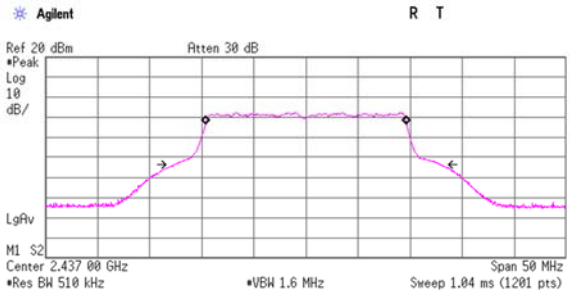
2412 MHz

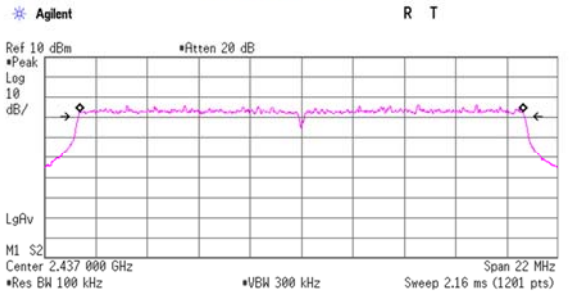
99 % Occupied Bandwidth	6 dB Bandwidth
RU Index 61	RU Index 61



2437 MHz

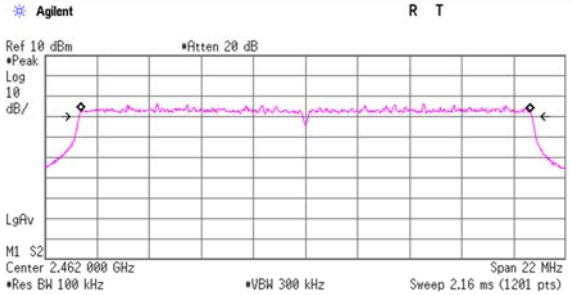
99 % Occupied Bandwidth	6 dB Bandwidth
RU Index 61	RU Index 61





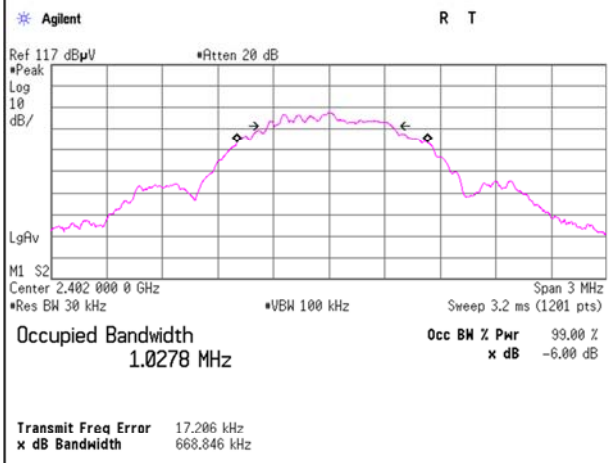
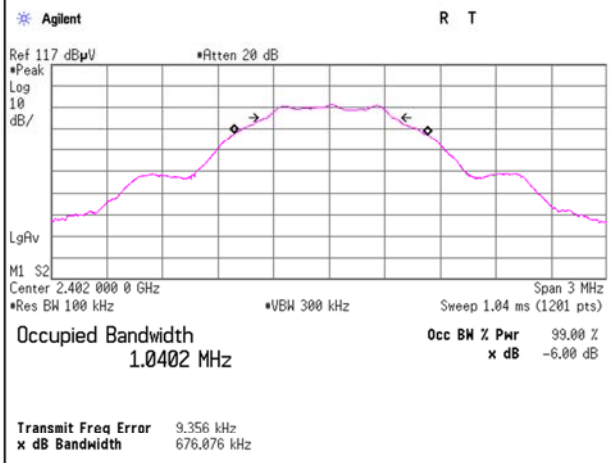
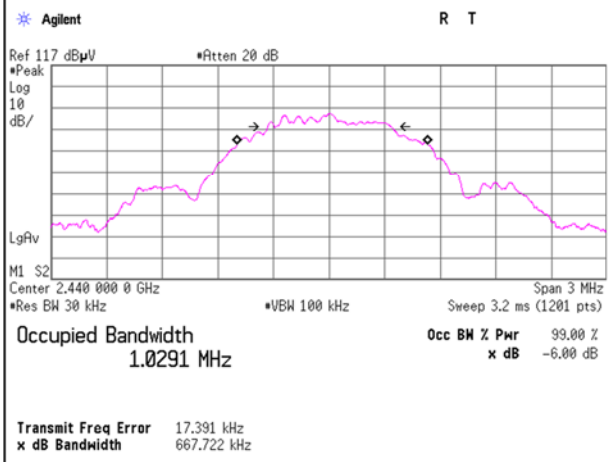
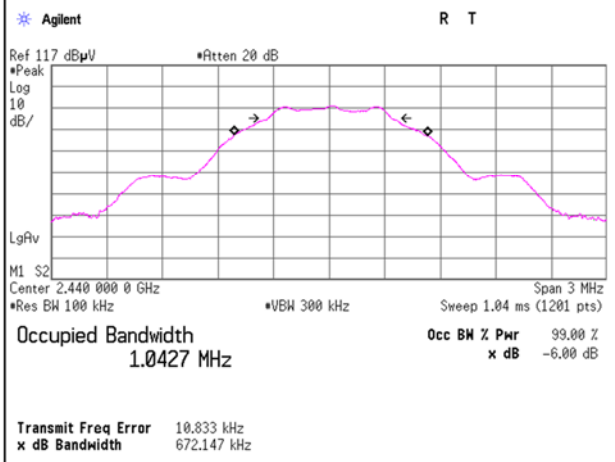
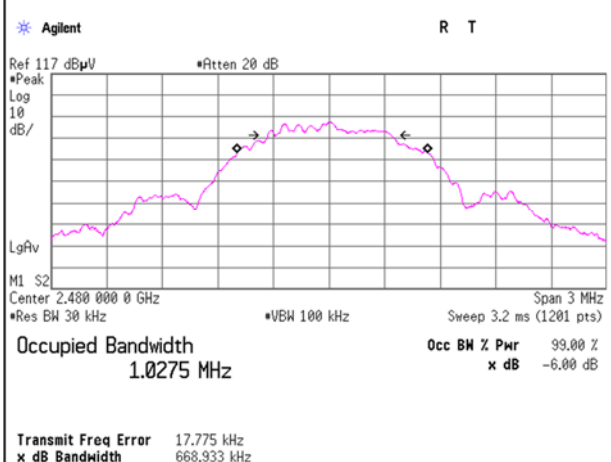
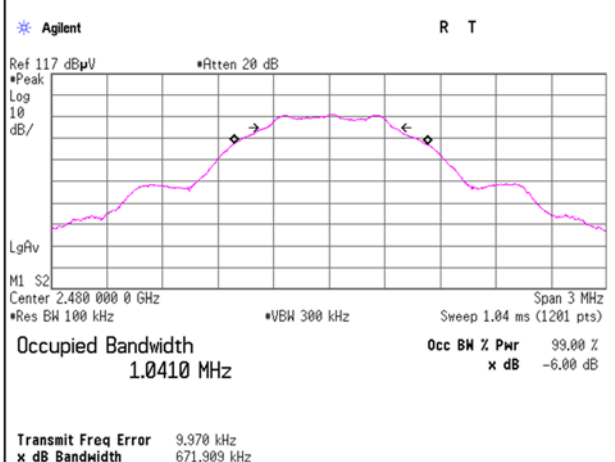
2462 MHz

99 % Occupied Bandwidth	6 dB Bandwidth
RU Index 61	RU Index 61



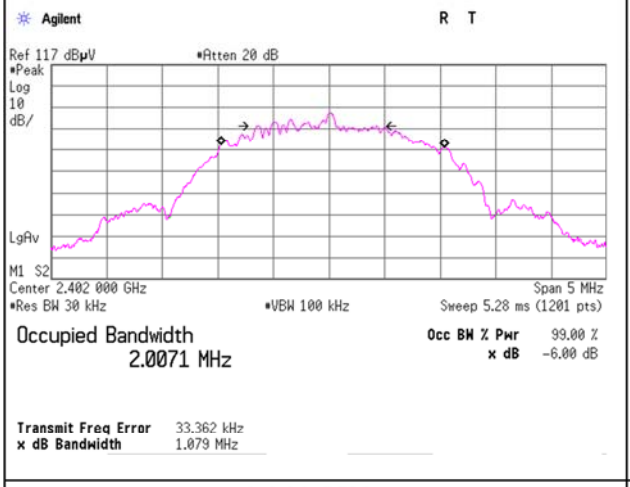
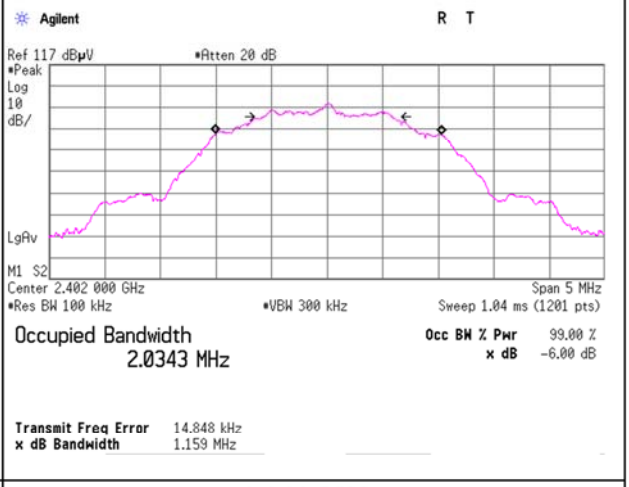
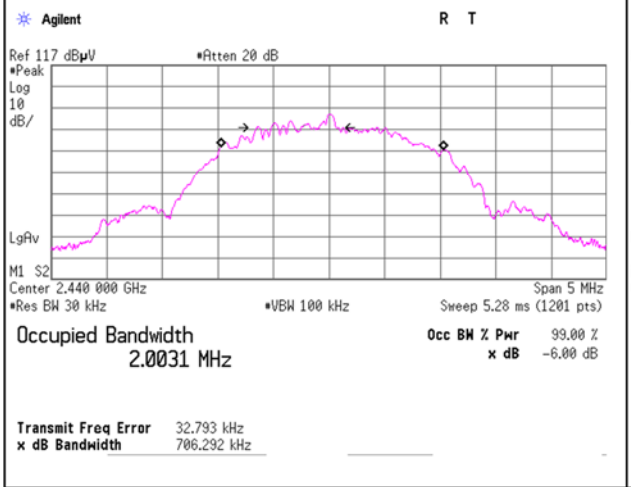
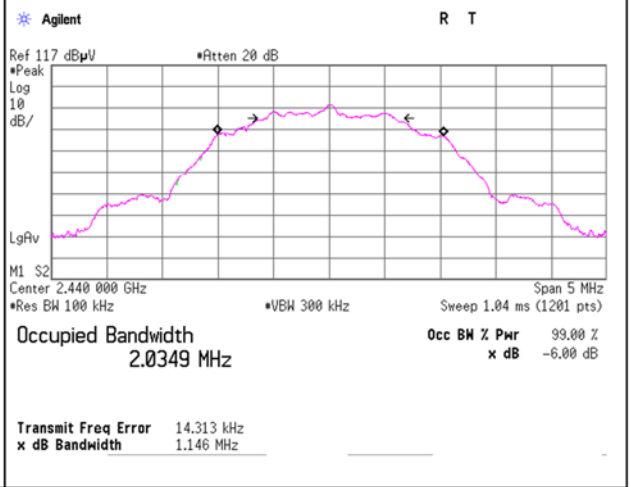
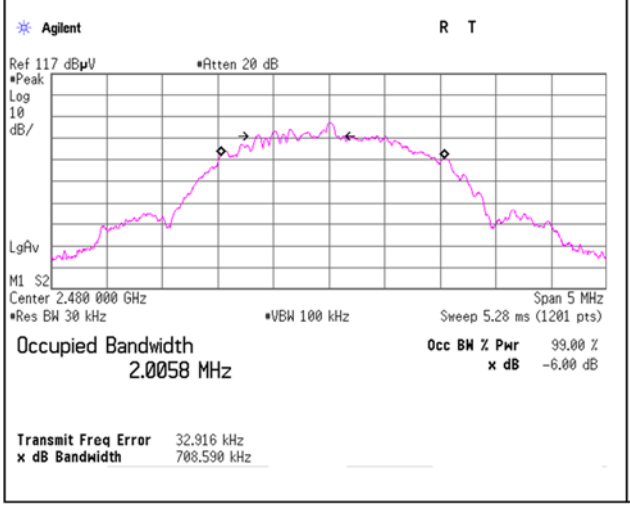
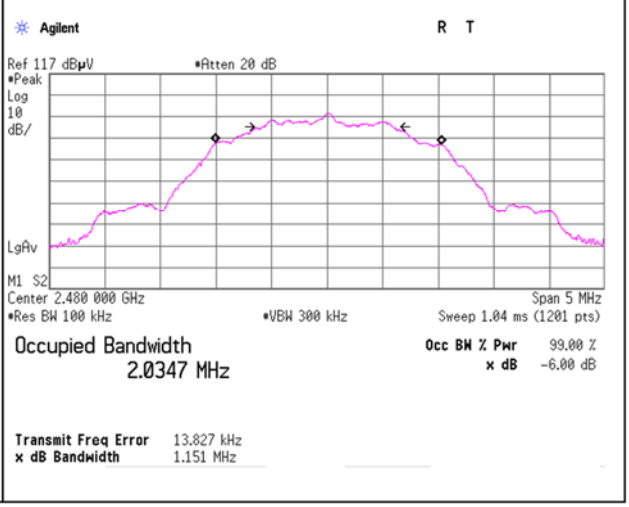
99 % Occupied Bandwidth and 6 dB Bandwidth

BT LE 1M-PHY

99 % Occupied Bandwidth	6 dB Bandwidth
2402 MHz	2402 MHz
	
2440 MHz	2440 MHz
	
2480 MHz	2480 MHz
	

99 % Occupied Bandwidth and 6 dB Bandwidth

BT LE 2M-PHY

99 % Occupied Bandwidth	6 dB Bandwidth
2402 MHz	2402 MHz
	
2440 MHz	2440 MHz
	
2480 MHz	2480 MHz
	

Maximum Peak Output Power

Test place	Shonan EMC Lab. No.5 Shielded Room	
Date	May 9, 2024	May 17, 2024
Temperature / Humidity	26 deg. C / 32 % RH	21 deg. C / 39 % RH
Engineer	Miku Ikudome	Takayuki Kobayashi
Mode	Tx 11b	

1st + 2nd

			Conducted Power					e.i.r.p.				
Freq.	1st Result	2nd Result	Result		Limit		Margin	Result		Limit		Margin
[MHz]	[mW]	[mW]	[dBm]	[mW]	[dBm]	[mW]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2412	13.30	13.87	14.34	27.17	30.00	1000	15.66	18.34	68.25	36.02	4000.00	17.68
2437	12.16	14.89	14.32	27.06	30.00	1000	15.68	18.32	67.96	36.02	4000.00	17.70
2462	12.56	14.79	14.37	27.35	30.00	1000	15.63	18.37	68.70	36.02	4000.00	17.65

Sample Calculation:
Result = 1st Result + 2nd Result
e.i.r.p. Result = 1st Result (e.i.r.p) + 2nd Result (e.i.r.p)

1st

Freq.	Reading	Cable Loss	Atten. Loss	Result		Antenna Gain	Result (e.i.r.p)	
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]
2412	-1.06	2.35	9.95	11.24	13.30	4.00	15.24	33.42
2437	-1.46	2.36	9.95	10.85	12.16	4.00	14.85	30.55
2462	-1.33	2.37	9.95	10.99	12.56	4.00	14.99	31.55

2nd

Freq.	Reading	Cable Loss	Atten. Loss	Result		Antenna Gain	Result (e.i.r.p)	
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]
2412	-0.84	2.35	9.91	11.42	13.87	4.00	15.42	34.83
2437	-0.53	2.35	9.91	11.73	14.89	4.00	15.73	37.41
2462	-0.57	2.36	9.91	11.70	14.79	4.00	15.70	37.15

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	May 9, 2024	May 17, 2024
Temperature / Humidity	26 deg. C / 32 % RH	21 deg. C / 39 % RH
Engineer	Miku Ikudome	Takayuki Kobayashi
Mode	Tx 11g	

1st + 2nd

			Conducted Power					e.i.r.p.				
Freq.	1st Result	2nd Result	Result		Limit		Margin	Result		Limit		Margin
[MHz]	[mW]	[mW]	[dBm]	[mW]	[dBm]	[mW]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2412	103.28	107.15	23.23	210.43	30.00	1000	6.77	27.23	528.57	36.02	4000.00	8.79
2437	94.84	112.72	23.17	207.56	30.00	1000	6.83	27.17	521.37	36.02	4000.00	8.85
2462	92.47	113.50	23.14	205.97	30.00	1000	6.86	27.14	517.38	36.02	4000.00	8.88

Sample Calculation:
Result = 1st Result + 2nd Result
e.i.r.p. Result = 1st Result (e.i.r.p) + 2nd Result (e.i.r.p)

1st

Freq.	Reading	Cable Loss	Atten. Loss	Result		Antenna Gain	Result (e.i.r.p)	
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]
2412	7.84	2.35	9.95	20.14	103.28	4.00	24.14	259.42
2437	7.46	2.36	9.95	19.77	94.84	4.00	23.77	238.23
2462	7.34	2.37	9.95	19.66	92.47	4.00	23.66	232.27

2nd

Freq.	Reading	Cable Loss	Atten. Loss	Result		Antenna Gain	Result (e.i.r.p)	
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]
2412	8.04	2.35	9.91	20.30	107.15	4.00	24.30	269.15
2437	8.26	2.35	9.91	20.52	112.72	4.00	24.52	283.14
2462	8.28	2.36	9.91	20.55	113.50	4.00	24.55	285.10

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	May 9, 2024	May 17, 2024
Temperature / Humidity	26 deg. C / 32 % RH	21 deg. C / 39 % RH
Engineer	Miku Ikudome	Takayuki Kobayashi
Mode	Tx 11n-20 (CDD)	

1st + 2nd

			Conducted Power					e.i.r.p.				
Freq.	1st Result	2nd Result	Result		Limit		Margin	Result		Limit		Margin
[MHz]	[mW]	[mW]	[dBm]	[mW]	[dBm]	[mW]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2412	94.84	96.16	22.81	191.00	30.00	1000	7.19	26.81	479.78	36.02	4000.00	9.21
2437	83.75	100.69	22.66	184.45	30.00	1000	7.34	26.66	463.31	36.02	4000.00	9.36
2462	85.11	101.39	22.71	186.50	30.00	1000	7.29	26.71	468.48	36.02	4000.00	9.31

Sample Calculation:
Result = 1st Result + 2nd Result
e.i.r.p. Result = 1st Result (e.i.r.p) + 2nd Result (e.i.r.p)

1st

Freq.	Reading	Cable Loss	Atten. Loss	Result		Antenna Gain	Result (e.i.r.p)	
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]
2412	7.47	2.35	9.95	19.77	94.84	4.00	23.77	238.23
2437	6.92	2.36	9.95	19.23	83.75	4.00	23.23	210.38
2462	6.98	2.37	9.95	19.30	85.11	4.00	23.30	213.80

2nd

Freq.	Reading	Cable Loss	Atten. Loss	Result		Antenna Gain	Result (e.i.r.p)	
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]
2412	7.57	2.35	9.91	19.83	96.16	4.00	23.83	241.55
2437	7.77	2.35	9.91	20.03	100.69	4.00	24.03	252.93
2462	7.79	2.36	9.91	20.06	101.39	4.00	24.06	254.68

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	May 9, 2024	May 17, 2024
Temperature / Humidity	26 deg. C / 32 % RH	21 deg. C / 39 % RH
Engineer	Miku Ikudome	Takayuki Kobayashi
Mode	Tx 11n-20 (SDM)	

1st + 2nd

			Conducted Power					e.i.r.p.				
Freq.	1st Result	2nd Result	Result		Limit		Margin	Result		Limit		Margin
[MHz]	[mW]	[mW]	[dBm]	[mW]	[dBm]	[mW]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2412	93.33	97.50	22.81	190.82	30.00	1000	7.19	26.81	479.33	36.02	4000.00	9.21
2437	84.72	100.00	22.67	184.72	30.00	1000	7.33	26.67	464.00	36.02	4000.00	9.36
2462	88.51	108.39	22.94	196.90	30.00	1000	7.06	26.94	494.60	36.02	4000.00	9.08

Sample Calculation:
Result = 1st Result + 2nd Result
e.i.r.p. Result = 1st Result (e.i.r.p) + 2nd Result (e.i.r.p)

1st

Freq.	Reading	Cable Loss	Atten. Loss	Result		Antenna Gain	Result (e.i.r.p)	
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]
2412	7.40	2.35	9.95	19.70	93.33	4.00	23.70	234.42
2437	6.97	2.36	9.95	19.28	84.72	4.00	23.28	212.81
2462	7.15	2.37	9.95	19.47	88.51	4.00	23.47	222.33

2nd

Freq.	Reading	Cable Loss	Atten. Loss	Result		Antenna Gain	Result (e.i.r.p)	
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]
2412	7.63	2.35	9.91	19.89	97.50	4.00	23.89	244.91
2437	7.74	2.35	9.91	20.00	100.00	4.00	24.00	251.19
2462	8.08	2.36	9.91	20.35	108.39	4.00	24.35	272.27

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	May 9, 2024	May 17, 2024
Temperature / Humidity	26 deg. C / 32 % RH	21 deg. C / 39 % RH
Engineer	Miku Ikudome	Takayuki Kobayashi
Mode	Tx 11ax-20 OFDM (CDD)	

1st + 2nd

			Conducted Power					e.i.r.p.				
Freq.	1st Result	2nd Result	Result		Limit		Margin	Result		Limit		Margin
[MHz]	[mW]	[mW]	[dBm]	[mW]	[dBm]	[mW]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2412	139.00	141.25	24.48	280.25	30.00	1000	5.52	28.48	703.95	36.02	4000.00	7.55
2437	127.94	147.57	24.40	275.51	30.00	1000	5.60	28.40	692.05	36.02	4000.00	7.62
2462	124.17	148.59	24.36	272.76	30.00	1000	5.64	28.36	685.14	36.02	4000.00	7.66

Sample Calculation:
Result = 1st Result + 2nd Result
e.i.r.p. Result = 1st Result (e.i.r.p) + 2nd Result (e.i.r.p)

1st

Freq.	Reading	Cable Loss	Atten. Loss	Result		Antenna Gain	Result (e.i.r.p)	
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]
2412	9.13	2.35	9.95	21.43	139.00	4.00	25.43	349.14
2437	8.76	2.36	9.95	21.07	127.94	4.00	25.07	321.37
2462	8.62	2.37	9.95	20.94	124.17	4.00	24.94	311.89

2nd

Freq.	Reading	Cable Loss	Atten. Loss	Result		Antenna Gain	Result (e.i.r.p)	
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]
2412	9.24	2.35	9.91	21.50	141.25	4.00	25.50	354.81
2437	9.43	2.35	9.91	21.69	147.57	4.00	25.69	370.68
2462	9.45	2.36	9.91	21.72	148.59	4.00	25.72	373.25

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	May 9, 2024	May 17, 2024
Temperature / Humidity	26 deg. C / 32 % RH	21 deg. C / 39 % RH
Engineer	Miku Ikudome	Takayuki Kobayashi
Mode	Tx 11ax-20 OFDM (SDM)	

1st + 2nd

			Conducted Power					e.i.r.p.				
Freq.	1st Result	2nd Result	Result		Limit		Margin	Result		Limit		Margin
[MHz]	[mW]	[mW]	[dBm]	[mW]	[dBm]	[mW]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2412	138.04	141.58	24.47	279.62	30.00	1000	5.53	28.47	702.37	36.02	4000.00	7.55
2437	131.52	139.32	24.33	270.84	30.00	1000	5.67	28.33	680.31	36.02	4000.00	7.69
2462	121.34	153.11	24.38	274.45	30.00	1000	5.62	28.38	689.38	36.02	4000.00	7.64

Sample Calculation:
Result = 1st Result + 2nd Result
e.i.r.p. Result = 1st Result (e.i.r.p) + 2nd Result (e.i.r.p)

1st

Freq.	Reading	Cable Loss	Atten. Loss	Result		Antenna Gain	Result (e.i.r.p)	
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]
2412	9.10	2.35	9.95	21.40	138.04	4.00	25.40	346.74
2437	8.88	2.36	9.95	21.19	131.52	4.00	25.19	330.37
2462	8.52	2.37	9.95	20.84	121.34	4.00	24.84	304.79

2nd

Freq.	Reading	Cable Loss	Atten. Loss	Result		Antenna Gain	Result (e.i.r.p)	
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBi]	[dBm]	[mW]
2412	9.25	2.35	9.91	21.51	141.58	4.00	25.51	355.63
2437	9.18	2.35	9.91	21.44	139.32	4.00	25.44	349.95
2462	9.58	2.36	9.91	21.85	153.11	4.00	25.85	384.59

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	May 20, 2024
Temperature / Humidity	25 deg. C / 40 % RH
Engineer	Shiro Kobayashi
Mode	Tx 11ax-20 OFDMA 26-tone RU (CDD)

1st + 2nd

Freq.	RU Index	1st Result	2nd 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	28.38	31.62	17.78	60.00	30.00	1000	12.22	21.78	150.72	36.02	4000.00	14.24
	4	28.05	31.19	17.73	59.24	30.00	1000	12.27	21.73	148.81	36.02	4000.00	14.29
	8	28.12	31.05	17.72	59.16	30.00	1000	12.28	21.72	148.61	36.02	4000.00	14.30
2437	0	27.48	30.69	17.65	58.17	30.00	1000	12.35	21.65	146.11	36.02	4000.00	14.37
	4	26.85	31.41	17.65	58.26	30.00	1000	12.35	21.65	146.34	36.02	4000.00	14.37
	8	26.92	30.20	17.57	57.11	30.00	1000	12.43	21.57	143.47	36.02	4000.00	14.45
2462	0	26.85	31.33	17.65	58.19	30.00	1000	12.35	21.65	146.16	36.02	4000.00	14.37
	4	26.55	30.83	17.59	57.38	30.00	1000	12.41	21.59	144.13	36.02	4000.00	14.43
	8	26.61	30.62	17.58	57.23	30.00	1000	12.42	21.58	143.75	36.02	4000.00	14.44

Sample Calculation:
Result = 1st Result + 2nd Result
e.i.r.p. Result = 1st Result (e.i.r.p) + 2nd Result (e.i.r.p)

1st

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	2.23	2.35	9.95	14.53	28.38	4.00	18.53	71.29
	4	2.18	2.35	9.95	14.48	28.05	4.00	18.48	70.47
	8	2.19	2.35	9.95	14.49	28.12	4.00	18.49	70.63
2437	0	2.08	2.36	9.95	14.39	27.48	4.00	18.39	69.02
	4	1.98	2.36	9.95	14.29	26.85	4.00	18.29	67.45
	8	1.99	2.36	9.95	14.30	26.92	4.00	18.30	67.61
2462	0	1.97	2.37	9.95	14.29	26.85	4.00	18.29	67.45
	4	1.92	2.37	9.95	14.24	26.55	4.00	18.24	66.68
	8	1.93	2.37	9.95	14.25	26.61	4.00	18.25	66.83

2nd

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	2.74	2.35	9.91	15.00	31.62	4.00	19.00	79.43
	4	2.68	2.35	9.91	14.94	31.19	4.00	18.94	78.34
	8	2.66	2.35	9.91	14.92	31.05	4.00	18.92	77.98
2437	0	2.61	2.35	9.91	14.87	30.69	4.00	18.87	77.09
	4	2.71	2.35	9.91	14.97	31.41	4.00	18.97	78.89
	8	2.54	2.35	9.91	14.80	30.20	4.00	18.80	75.86
2462	0	2.69	2.36	9.91	14.96	31.33	4.00	18.96	78.70
	4	2.62	2.36	9.91	14.89	30.83	4.00	18.89	77.45
	8	2.59	2.36	9.91	14.86	30.62	4.00	18.86	76.91

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	May 20, 2024
Temperature / Humidity	25 deg. C / 40 % RH
Engineer	Shiro Kobayashi
Mode	Tx 11ax-20 OFDMA 26-tone RU (SDM)

1st + 2nd

				Conducted Power					e.i.r.p.				
Freq.	RU Index	1st Result	2nd Result	Result		Limit		Margin	Result		Limit		Margin
[MHz]		[mW]	[mW]	[dBm]	[mW]	[dBm]	[mW]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2412	0	26.49	31.05	17.60	57.53	30.00	1000	12.40	21.60	144.51	36.02	4000.00	14.42
	4	25.64	30.34	17.48	55.98	30.00	1000	12.52	21.48	140.62	36.02	4000.00	14.54
	8	26.42	30.97	17.59	57.40	30.00	1000	12.41	21.59	144.18	36.02	4000.00	14.43
2437	0	27.35	29.79	17.57	57.14	30.00	1000	12.43	21.57	143.52	36.02	4000.00	14.45
	4	27.16	30.69	17.62	57.85	30.00	1000	12.38	21.62	145.32	36.02	4000.00	14.40
	8	27.48	29.99	17.59	57.47	30.00	1000	12.41	21.59	144.36	36.02	4000.00	14.43
2462	0	26.12	30.34	17.52	56.46	30.00	1000	12.48	21.52	141.82	36.02	4000.00	14.50
	4	26.06	30.48	17.52	56.54	30.00	1000	12.48	21.52	142.02	36.02	4000.00	14.50
	8	26.12	30.90	17.56	57.02	30.00	1000	12.44	21.56	143.24	36.02	4000.00	14.46

Sample Calculation:
Result = 1st Result + 2nd Result
e.i.r.p. Result = 1st Result (e.i.r.p) + 2nd Result (e.i.r.p)

1st

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	1.93	2.35	9.95	14.23	26.49	4.00	18.23	66.53
	4	1.79	2.35	9.95	14.09	25.64	4.00	18.09	64.42
	8	1.92	2.35	9.95	14.22	26.42	4.00	18.22	66.37
2437	0	2.06	2.36	9.95	14.37	27.35	4.00	18.37	68.71
	4	2.03	2.36	9.95	14.34	27.16	4.00	18.34	68.23
	8	2.08	2.36	9.95	14.39	27.48	4.00	18.39	69.02
2462	0	1.85	2.37	9.95	14.17	26.12	4.00	18.17	65.61
	4	1.84	2.37	9.95	14.16	26.06	4.00	18.16	65.46
	8	1.85	2.37	9.95	14.17	26.12	4.00	18.17	65.61

2nd

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	2.66	2.35	9.91	14.92	31.05	4.00	18.92	77.98
	4	2.56	2.35	9.91	14.82	30.34	4.00	18.82	76.21
	8	2.65	2.35	9.91	14.91	30.97	4.00	18.91	77.80
2437	0	2.48	2.35	9.91	14.74	29.79	4.00	18.74	74.82
	4	2.61	2.35	9.91	14.87	30.69	4.00	18.87	77.09
	8	2.51	2.35	9.91	14.77	29.99	4.00	18.77	75.34
2462	0	2.55	2.36	9.91	14.82	30.34	4.00	18.82	76.21
	4	2.57	2.36	9.91	14.84	30.48	4.00	18.84	76.56
	8	2.63	2.36	9.91	14.90	30.90	4.00	18.9	77.62

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	May 20, 2024
Temperature / Humidity	25 deg. C / 40 % RH
Engineer	Shiro Kobayashi
Mode	Tx 11ax-20 OFDMA 52-tone RU (CDD)

1st + 2nd

				Conducted Power					e.i.r.p.				
Freq.	RU Index	1st Result	2nd Result	Result		Limit		Margin	Result		Limit		Margin
[MHz]		[mW]	[mW]	[dBm]	[mW]	[dBm]	[mW]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2412	37	57.41	62.95	20.80	120.36	30.00	1000	9.20	24.80	302.34	36.02	4000.00	11.22
	38	58.08	63.24	20.84	121.32	30.00	1000	9.16	24.84	304.74	36.02	4000.00	11.18
	40	57.41	63.53	20.83	120.94	30.00	1000	9.17	24.83	303.80	36.02	4000.00	11.19
2437	37	53.95	65.31	20.77	119.26	30.00	1000	9.23	24.77	299.58	36.02	4000.00	11.26
	38	53.33	65.92	20.76	119.25	30.00	1000	9.24	24.76	299.54	36.02	4000.00	11.26
	40	53.46	64.42	20.71	117.87	30.00	1000	9.29	24.71	296.08	36.02	4000.00	11.31
2462	37	53.58	65.31	20.75	118.89	30.00	1000	9.25	24.75	298.65	36.02	4000.00	11.27
	38	53.83	65.61	20.77	119.44	30.00	1000	9.23	24.77	300.02	36.02	4000.00	11.25
	40	53.83	65.46	20.77	119.29	30.00	1000	9.23	24.77	299.64	36.02	4000.00	11.25

Sample Calculation:
Result = 1st Result + 2nd Result
e.i.r.p. Result = 1st Result (e.i.r.p) + 2nd Result (e.i.r.p)

1st

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	5.29	2.35	9.95	17.59	57.41	4.00	21.59	144.21
	38	5.34	2.35	9.95	17.64	58.08	4.00	21.64	145.88
	40	5.29	2.35	9.95	17.59	57.41	4.00	21.59	144.21
2437	37	5.01	2.36	9.95	17.32	53.95	4.00	21.32	135.52
	38	4.96	2.36	9.95	17.27	53.33	4.00	21.27	133.97
	40	4.97	2.36	9.95	17.28	53.46	4.00	21.28	134.28
2462	37	4.97	2.37	9.95	17.29	53.58	4.00	21.29	134.59
	38	4.99	2.37	9.95	17.31	53.83	4.00	21.31	135.21
	40	4.99	2.37	9.95	17.31	53.83	4.00	21.31	135.21

2nd

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	5.73	2.35	9.91	17.99	62.95	4.00	21.99	158.12
	38	5.75	2.35	9.91	18.01	63.24	4.00	22.01	158.85
	40	5.77	2.35	9.91	18.03	63.53	4.00	22.03	159.59
2437	37	5.89	2.35	9.91	18.15	65.31	4.00	22.15	164.06
	38	5.93	2.35	9.91	18.19	65.92	4.00	22.19	165.58
	40	5.83	2.35	9.91	18.09	64.42	4.00	22.09	161.81
2462	37	5.88	2.36	9.91	18.15	65.31	4.00	22.15	164.06
	38	5.90	2.36	9.91	18.17	65.61	4.00	22.17	164.82
	40	5.89	2.36	9.91	18.16	65.46	4.00	22.16	164.44

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	May 20, 2024
Temperature / Humidity	25 deg. C / 40 % RH
Engineer	Shiro Kobayashi
Mode	Tx 11ax-20 OFDMA 52-tone RU (SDM)

1st + 2nd

Freq.	RU Index	1st Result	2nd 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	57.94	63.10	20.83	121.04	30.00	1000	9.17	24.83	304.04	36.02	4000.00	11.19
	38	57.68	63.24	20.82	120.92	30.00	1000	9.18	24.82	303.73	36.02	4000.00	11.20
	40	57.81	63.24	20.83	121.05	30.00	1000	9.17	24.83	304.07	36.02	4000.00	11.19
2437	37	54.08	63.97	20.72	118.05	30.00	1000	9.28	24.72	296.53	36.02	4000.00	11.30
	38	52.72	63.97	20.67	116.70	30.00	1000	9.33	24.67	293.13	36.02	4000.00	11.35
	40	53.83	65.92	20.78	119.74	30.00	1000	9.22	24.78	300.78	36.02	4000.00	11.24
2462	37	53.33	64.86	20.73	118.20	30.00	1000	9.27	24.73	296.90	36.02	4000.00	11.29
	38	52.72	65.16	20.71	117.89	30.00	1000	9.29	24.71	296.12	36.02	4000.00	11.31
	40	53.95	65.01	20.75	118.96	30.00	1000	9.25	24.75	298.82	36.02	4000.00	11.27

Sample Calculation:
Result = 1st Result + 2nd Result
e.i.r.p. Result = 1st Result (e.i.r.p) + 2nd Result (e.i.r.p)

1st

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	5.33	2.35	9.95	17.63	57.94	4.00	21.63	145.55
	38	5.31	2.35	9.95	17.61	57.68	4.00	21.61	144.88
	40	5.32	2.35	9.95	17.62	57.81	4.00	21.62	145.21
2437	37	5.02	2.36	9.95	17.33	54.08	4.00	21.33	135.83
	38	4.91	2.36	9.95	17.22	52.72	4.00	21.22	132.43
	40	5.00	2.36	9.95	17.31	53.83	4.00	21.31	135.21
2462	37	4.95	2.37	9.95	17.27	53.33	4.00	21.27	133.97
	38	4.90	2.37	9.95	17.22	52.72	4.00	21.22	132.43
	40	5.00	2.37	9.95	17.32	53.95	4.00	21.32	135.52

2nd

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	5.74	2.35	9.91	18.00	63.10	4.00	22.00	158.49
	38	5.75	2.35	9.91	18.01	63.24	4.00	22.01	158.85
	40	5.75	2.35	9.91	18.01	63.24	4.00	22.01	158.85
2437	37	5.80	2.35	9.91	18.06	63.97	4.00	22.06	160.69
	38	5.80	2.35	9.91	18.06	63.97	4.00	22.06	160.69
	40	5.93	2.35	9.91	18.19	65.92	4.00	22.19	165.58
2462	37	5.85	2.36	9.91	18.12	64.86	4.00	22.12	162.93
	38	5.87	2.36	9.91	18.14	65.16	4.00	22.14	163.68
	40	5.86	2.36	9.91	18.13	65.01	4.00	22.13	163.31

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	May 20, 2024
Temperature / Humidity	25 deg. C / 40 % RH
Engineer	Shiro Kobayashi
Mode	Tx 11ax-20 OFDMA 106-tone RU (CDD)

1st + 2nd

Freq.	RU Index	1st Result	2nd 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	115.08	121.06	23.73	236.14	30.00	1000	6.27	27.73	593.16	36.02	4000.00	8.29
	54	113.76	117.76	23.65	231.52	30.00	1000	6.35	27.65	581.56	36.02	4000.00	8.37
2437	53	107.65	123.03	23.63	230.67	30.00	1000	6.37	27.63	579.43	36.02	4000.00	8.39
	54	107.40	123.88	23.64	231.28	30.00	1000	6.36	27.64	580.95	36.02	4000.00	8.38
2462	53	104.47	125.03	23.61	229.50	30.00	1000	6.39	27.61	576.47	36.02	4000.00	8.41
	54	103.75	125.31	23.60	229.07	30.00	1000	6.40	27.60	575.39	36.02	4000.00	8.42

Sample Calculation:
Result = 1st Result + 2nd Result
e.i.r.p. Result = 1st Result (e.i.r.p) + 2nd Result (e.i.r.p)

1st

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	8.31	2.35	9.95	20.61	115.08	4.00	24.61	289.07
	54	8.26	2.35	9.95	20.56	113.76	4.00	24.56	285.76
2437	53	8.01	2.36	9.95	20.32	107.65	4.00	24.32	270.40
	54	8.00	2.36	9.95	20.31	107.40	4.00	24.31	269.77
2462	53	7.87	2.37	9.95	20.19	104.47	4.00	24.19	262.42
	54	7.84	2.37	9.95	20.16	103.75	4.00	24.16	260.62

2nd

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	8.57	2.35	9.91	20.83	121.06	4.00	24.83	304.09
	54	8.45	2.35	9.91	20.71	117.76	4.00	24.71	295.80
2437	53	8.64	2.35	9.91	20.90	123.03	4.00	24.90	309.03
	54	8.67	2.35	9.91	20.93	123.88	4.00	24.93	311.17
2462	53	8.70	2.36	9.91	20.97	125.03	4.00	24.97	314.05
	54	8.71	2.36	9.91	20.98	125.31	4.00	24.98	314.77

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	May 20, 2024
Temperature / Humidity	25 deg. C / 40 % RH
Engineer	Shiro Kobayashi
Mode	Tx 11ax-20 OFDMA 106-tone RU (SDM)

1st + 2nd

Freq.	RU Index	1st Result	2nd 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	114.55	119.12	23.69	233.68	30.00	1000	6.31	27.69	586.97	36.02	4000.00	8.33
	54	115.35	119.95	23.72	235.30	30.00	1000	6.28	27.72	591.03	36.02	4000.00	8.30
2437	53	107.40	123.03	23.63	230.43	30.00	1000	6.37	27.63	578.80	36.02	4000.00	8.40
	54	107.15	124.17	23.64	231.32	30.00	1000	6.36	27.64	581.04	36.02	4000.00	8.38
2462	53	104.71	125.31	23.62	230.03	30.00	1000	6.38	27.62	577.80	36.02	4000.00	8.40
	54	104.47	125.89	23.62	230.36	30.00	1000	6.38	27.62	578.65	36.02	4000.00	8.40

Sample Calculation:
Result = 1st Result + 2nd Result
e.i.r.p. Result = 1st Result (e.i.r.p) + 2nd Result (e.i.r.p)

1st

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	8.29	2.35	9.95	20.59	114.55	4.00	24.59	287.74
	54	8.32	2.35	9.95	20.62	115.35	4.00	24.62	289.73
2437	53	8.00	2.36	9.95	20.31	107.40	4.00	24.31	269.77
	54	7.99	2.36	9.95	20.30	107.15	4.00	24.30	269.15
2462	53	7.88	2.37	9.95	20.20	104.71	4.00	24.20	263.03
	54	7.87	2.37	9.95	20.19	104.47	4.00	24.19	262.42

2nd

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	8.50	2.35	9.91	20.76	119.12	4.00	24.76	299.23
	54	8.53	2.35	9.91	20.79	119.95	4.00	24.79	301.30
2437	53	8.64	2.35	9.91	20.90	123.03	4.00	24.90	309.03
	54	8.68	2.35	9.91	20.94	124.17	4.00	24.94	311.89
2462	53	8.71	2.36	9.91	20.98	125.31	4.00	24.98	314.77
	54	8.73	2.36	9.91	21.00	125.89	4.00	25.00	316.23

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	May 20, 2024
Temperature / Humidity	25 deg. C / 40 % RH
Engineer	Shiro Kobayashi
Mode	Tx 11ax-20 OFDMA 242-tone RU (CDD)

1st + 2nd

				Conducted Power					e.i.r.p.				
Freq.	RU Index	1st Result	2nd Result	Result		Limit		Margin	Result		Limit		Margin
[MHz]		[mW]	[mW]	[dBm]	[mW]	[dBm]	[mW]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2412	61	115.35	120.78	23.73	236.13	30.00	1000	6.27	27.73	593.12	36.02	4000.00	8.29
2437	61	107.65	122.46	23.62	230.11	30.00	1000	6.38	27.62	578.01	36.02	4000.00	8.40
2462	61	103.99	124.45	23.59	228.44	30.00	1000	6.41	27.59	573.82	36.02	4000.00	8.43

Sample Calculation:
Result = 1st Result + 2nd Result
e.i.r.p. Result = 1st Result (e.i.r.p) + 2nd Result (e.i.r.p)

1st

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	61	8.32	2.35	9.95	20.62	115.35	4.00	24.62	289.73
2437	61	8.01	2.36	9.95	20.32	107.65	4.00	24.32	270.40
2462	61	7.85	2.37	9.95	20.17	103.99	4.00	24.17	261.22

2nd

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	61	8.56	2.35	9.91	20.82	120.78	4.00	24.82	303.39
2437	61	8.62	2.35	9.91	20.88	122.46	4.00	24.88	307.61
2462	61	8.68	2.36	9.91	20.95	124.45	4.00	24.95	312.61

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	May 20, 2024
Temperature / Humidity	25 deg. C / 40 % RH
Engineer	Shiro Kobayashi
Mode	Tx 11ax-20 OFDMA 242-tone RU (SDM)

1st + 2nd

				Conducted Power					e.i.r.p.				
Freq.	RU Index	1st Result	2nd Result	Result		Limit		Margin	Result		Limit		Margin
[MHz]		[mW]	[mW]	[dBm]	[mW]	[dBm]	[mW]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2412	61	114.02	120.78	23.71	234.81	30.00	1000	6.29	27.71	589.81	36.02	4000.00	8.31
2437	61	107.65	123.31	23.64	230.96	30.00	1000	6.36	27.64	580.14	36.02	4000.00	8.39
2462	61	105.93	125.60	23.65	231.53	30.00	1000	6.35	27.65	581.57	36.02	4000.00	8.37

Sample Calculation:
Result = 1st Result + 2nd Result
e.i.r.p. Result = 1st Result (e.i.r.p) + 2nd Result (e.i.r.p)

1st

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	61	8.27	2.35	9.95	20.57	114.02	4.00	24.57	286.42
2437	61	8.01	2.36	9.95	20.32	107.65	4.00	24.32	270.40
2462	61	7.93	2.37	9.95	20.25	105.93	4.00	24.25	266.07

2nd

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	61	8.56	2.35	9.91	20.82	120.78	4.00	24.82	303.39
2437	61	8.65	2.35	9.91	20.91	123.31	4.00	24.91	309.74
2462	61	8.72	2.36	9.91	20.99	125.60	4.00	24.99	315.50

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	May 7, 2024
Temperature / Humidity	26 deg. C / 37 % RH
Engineer	Miku Ikudome
Mode	Tx BT LE

BT LE 1M-PHY

Maximum peak output power

				Conducted Power					e.i.r.p. for RSS-247					
Freq.	Reading	Cable Loss	Atten. Loss	Result		Limit		Margin	Antenna Gain	Result		Limit		Margin
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]	[dBi]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2402	-7.89	2.35	9.95	4.41	2.76	30.00	1000	25.59	4.00	8.41	6.93	36.02	4000	27.61
2440	-8.20	2.36	9.95	4.11	2.58	30.00	1000	25.89	4.00	8.11	6.47	36.02	4000	27.91
2480	-8.18	2.37	9.95	4.14	2.59	30.00	1000	25.86	4.00	8.14	6.52	36.02	4000	27.88

BT LE 2M-PHY

Maximum peak output power

				Conducted Power					e.i.r.p. for RSS-247					
Freq.	Reading	Cable Loss	Atten. Loss	Result		Limit		Margin	Antenna Gain	Result		Limit		Margin
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]	[dBi]	[dBm]	[mW]	[dBm]	[mW]	[dB]
2402	-7.64	2.35	9.95	4.66	2.92	30.00	1000	25.34	4.00	8.66	7.35	36.02	4000	27.36
2440	-8.02	2.36	9.95	4.29	2.69	30.00	1000	25.71	4.00	8.29	6.75	36.02	4000	27.73
2480	-7.96	2.37	9.95	4.36	2.73	30.00	1000	25.64	4.00	8.36	6.85	36.02	4000	27.66

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

Maximum Peak Output Power
(Worst rate check)

Test place	Shonan EMC Lab. No.5 Shielded Room
Date	May 9, 2024
Temperature / Humidity	26 deg. C / 32 % RH
Engineer	Miku Ikudome
Mode	Tx

11b
Worst rate check (2412 MHz)

data rate	1st					2nd					Total Result Power		Remark
	Reading (Peak)	Cable Loss	Atten. Loss	Result		Reading (Peak)	Cable Loss	Atten. Loss	Result				
[Mbps]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	
1	-1.23	2.35	9.95	11.07	12.79	-1.06	2.35	9.91	11.20	13.18	14.15	25.98	-
2	-1.06	2.35	9.95	11.24	13.30	-0.84	2.35	9.91	11.42	13.87	14.34	27.17	*
6	-1.10	2.35	9.95	11.20	13.18	-0.85	2.35	9.91	11.41	13.84	14.32	27.02	-
11	-1.09	2.35	9.95	11.21	13.21	-0.87	2.35	9.91	11.39	13.77	14.31	26.99	-

*Worst Rate
Sample Calculation:
Each port Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss
Total Result = 1st Result + 2nd Result

11g
Worst rate check (2412 MHz)

data rate	1st					2nd					Total Result Power		Remark
	Reading (Peak)	Cable Loss	Atten. Loss	Result		Reading (Peak)	Cable Loss	Atten. Loss	Result				
[Mbps]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	
6	4.30	2.35	9.95	16.60	45.71	4.55	2.35	9.91	16.81	47.97	19.72	93.68	-
9	4.56	2.35	9.95	16.86	48.53	4.66	2.35	9.91	16.92	49.20	19.90	97.73	-
12	4.61	2.35	9.95	16.91	49.09	4.81	2.35	9.91	17.07	50.93	20.00	100.02	-
18	4.78	2.35	9.95	17.08	51.05	4.67	2.35	9.91	16.93	49.32	20.02	100.37	-
24	7.84	2.35	9.95	20.14	103.28	8.04	2.35	9.91	20.30	107.15	23.23	210.43	*
36	7.43	2.35	9.95	19.73	93.97	7.58	2.35	9.91	19.84	96.38	22.80	190.36	-
48	7.36	2.35	9.95	19.66	92.47	7.69	2.35	9.91	19.95	98.86	22.82	191.33	-
54	7.34	2.35	9.95	19.64	92.04	7.53	2.35	9.91	19.79	95.28	22.73	187.32	-

*Worst Rate
Sample Calculation:
Each port Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss
Total Result = 1st Result + 2nd Result

11n-20
Worst rate check (2412 MHz)

MCS	G.I.	1st					2nd					Total Result Power		Remark
		Reading (Peak)	Cable Loss	Atten. Loss	Result		Reading (Peak)	Cable Loss	Atten. Loss	Result				
		[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	
0	800 ns	7.28	2.35	9.95	19.58	90.78	7.55	2.35	9.91	19.81	95.72	22.71	186.50	-
1	800 ns	7.38	2.35	9.95	19.68	92.90	7.59	2.35	9.91	19.85	96.61	22.78	189.50	-
2	800 ns	7.35	2.35	9.95	19.65	92.26	7.50	2.35	9.91	19.76	94.62	22.72	186.88	-
3	800 ns	7.40	2.35	9.95	19.70	93.33	7.56	2.35	9.91	19.82	95.94	22.77	189.27	-
4	800 ns	7.37	2.35	9.95	19.67	92.68	7.49	2.35	9.91	19.75	94.41	22.72	187.09	-
5	800 ns	7.41	2.35	9.95	19.71	93.54	7.58	2.35	9.91	19.84	96.38	22.79	189.92	-
6	800 ns	7.47	2.35	9.95	19.77	94.84	7.57	2.35	9.91	19.83	96.16	22.81	191.00	*1
7	800 ns	7.36	2.35	9.95	19.66	92.47	7.53	2.35	9.91	19.79	95.28	22.74	187.75	-
6	400 ns	7.41	2.35	9.95	19.71	93.54	7.54	2.35	9.91	19.80	95.50	22.77	189.04	-
8	800 ns	7.41	2.35	9.95	19.71	93.54	7.57	2.35	9.91	19.83	96.16	22.78	189.70	-
9	800 ns	7.42	2.35	9.95	19.72	93.76	7.53	2.35	9.91	19.79	95.28	22.77	189.04	-
10	800 ns	7.44	2.35	9.95	19.74	94.19	7.52	2.35	9.91	19.78	95.06	22.77	189.25	-
11	800 ns	7.35	2.35	9.95	19.65	92.26	7.52	2.35	9.91	19.78	95.06	22.73	187.32	-
12	800 ns	7.39	2.35	9.95	19.69	93.11	7.49	2.35	9.91	19.75	94.41	22.73	187.52	-
13	800 ns	7.44	2.35	9.95	19.74	94.19	7.55	2.35	9.91	19.81	95.72	22.79	189.91	-
14	800 ns	7.39	2.35	9.95	19.69	93.11	7.62	2.35	9.91	19.88	97.27	22.80	190.39	-
15	800 ns	7.40	2.35	9.95	19.70	93.33	7.63	2.35	9.91	19.89	97.50	22.81	190.82	*2
15	400 ns	7.39	2.35	9.95	19.69	93.11	7.60	2.35	9.91	19.86	96.83	22.79	189.94	-

*1: Worst Rate for CDD, *2: Worst Rate for SDM
Sample Calculation:
Each port Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss
Total Result = 1st Result + 2nd Result

Maximum Peak Output Power
(Worst rate check)

Test place	Shonan EMC Lab. No.5 Shielded Room
Date	May 9, 2024
Temperature / Humidity	26 deg. C / 32 % RH
Engineer	Miku Ikudome
Mode	Tx

11ax-20 OFDM
Worst rate check (2412 MHz)

MCS	G.I.	1st					2nd					Total Result Power		Remark
		Reading (Peak)	Cable Loss	Atten. Loss	Result		Reading (Peak)	Cable Loss	Atten. Loss	Result				
		[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	
0 (1SS)	3200 ns	6.10	2.35	9.95	18.40	69.18	6.29	2.35	9.91	18.55	71.61	21.49	140.80	-
1 (1SS)	3200 ns	5.92	2.35	9.95	18.22	66.37	6.10	2.35	9.91	18.36	68.55	21.30	134.92	-
2 (1SS)	3200 ns	5.91	2.35	9.95	18.21	66.22	6.14	2.35	9.91	18.40	69.18	21.32	135.40	-
3 (1SS)	3200 ns	5.71	2.35	9.95	18.01	63.24	5.92	2.35	9.91	18.18	65.77	21.11	129.01	-
4 (1SS)	3200 ns	8.11	2.35	9.95	20.41	109.90	8.28	2.35	9.91	20.54	113.24	23.49	223.14	-
5 (1SS)	3200 ns	8.70	2.35	9.95	21.00	125.89	8.69	2.35	9.91	20.95	124.45	23.99	250.34	-
6 (1SS)	3200 ns	8.94	2.35	9.95	21.24	133.05	9.12	2.35	9.91	21.38	137.40	24.32	270.45	-
7 (1SS)	3200 ns	8.87	2.35	9.95	21.17	130.92	8.97	2.35	9.91	21.23	132.74	24.21	263.66	-
8 (1SS)	3200 ns	8.32	2.35	9.95	20.62	115.35	8.56	2.35	9.91	20.82	120.78	23.73	236.13	-
9 (1SS)	3200 ns	8.42	2.35	9.95	20.72	118.03	8.53	2.35	9.91	20.79	119.95	23.77	237.98	-
10 (1SS)	3200 ns	9.13	2.35	9.95	21.43	139.00	9.24	2.35	9.91	21.50	141.25	24.48	280.25	*1
11 (1SS)	3200 ns	9.07	2.35	9.95	21.37	137.09	9.14	2.35	9.91	21.40	138.04	24.40	275.13	-
10 (1SS)	1600 ns	9.02	2.35	9.95	21.32	135.52	9.03	2.35	9.91	21.29	134.59	24.32	270.10	-
10 (1SS)	800 ns	8.81	2.35	9.95	21.11	129.12	8.97	2.35	9.91	21.23	132.74	24.18	261.86	-
0 (2SS)	3200 ns	5.82	2.35	9.95	18.12	64.86	5.92	2.35	9.91	18.18	65.77	21.16	130.63	-
1 (2SS)	3200 ns	5.49	2.35	9.95	17.79	60.12	5.87	2.35	9.91	18.13	65.01	20.97	125.13	-
2 (2SS)	3200 ns	5.60	2.35	9.95	17.90	61.66	5.90	2.35	9.91	18.16	65.46	21.04	127.12	-
3 (2SS)	3200 ns	5.46	2.35	9.95	17.76	59.70	5.80	2.35	9.91	18.06	63.97	20.92	123.68	-
4 (2SS)	3200 ns	8.30	2.35	9.95	20.60	114.82	8.34	2.35	9.91	20.60	114.82	23.61	229.63	-
5 (2SS)	3200 ns	8.48	2.35	9.95	20.78	119.67	8.24	2.35	9.91	20.50	112.20	23.65	231.88	-
6 (2SS)	3200 ns	8.79	2.35	9.95	21.09	128.53	8.42	2.35	9.91	20.68	116.95	23.90	245.48	-
7 (2SS)	3200 ns	9.01	2.35	9.95	21.31	135.21	8.37	2.35	9.91	20.63	115.61	23.99	250.82	-
8 (2SS)	3200 ns	8.16	2.35	9.95	20.46	111.17	8.58	2.35	9.91	20.84	121.34	23.66	232.51	-
9 (2SS)	3200 ns	8.89	2.35	9.95	21.19	131.52	8.36	2.35	9.91	20.62	115.35	23.92	246.87	-
10 (2SS)	3200 ns	9.10	2.35	9.95	21.40	138.04	9.25	2.35	9.91	21.51	141.58	24.47	279.62	*2
11 (2SS)	3200 ns	8.97	2.35	9.95	21.27	133.97	9.12	2.35	9.91	21.38	137.40	24.34	271.37	-
10 (2SS)	1600 ns	8.88	2.35	9.95	21.18	131.22	9.10	2.35	9.91	21.36	136.77	24.28	267.99	-
10 (2SS)	800 ns	8.94	2.35	9.95	21.24	133.05	9.23	2.35	9.91	21.49	140.93	24.38	273.97	-

*1: Worst Rate for CDD, *2: Worst Rate for SDM
Sample Calculation: (* SS: Spatial Stream)
Each port Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss
Total Result = 1st Result + 2nd Result

Average Output Power
(Reference data for RF Exposure)

Test place	Shonan EMC Lab. No.5 Shielded Room	
Date	May 9, 2024	May 17, 2024
Temperature / Humidity	26 deg. C / 32 % RH	21 deg. C / 39 % RH
Engineer	Miku Ikudome	Takayuki Kobayashi
Mode	Tx 11b	

	1st					2nd					Total Power	
Frequency	Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Result (Average)	
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]
2412	-3.61	2.35	9.95	8.69	7.40	-3.45	2.35	9.91	8.81	7.60	11.76	15.00
2437	-3.28	2.36	9.95	9.03	8.00	-2.36	2.35	9.91	9.90	9.77	12.50	17.77
2462	-3.16	2.37	9.95	9.16	8.24	-2.40	2.36	9.91	9.87	9.71	**12.54**	**17.95**

Worst rate check (2412 MHz)

data rate	1st					2nd					Total Result Power		Remark
	Reading (Average)	Cable Loss	Atten. Loss	Result		Reading (Average)	Cable Loss	Atten. Loss	Result				
[Mbps]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	
1	-3.86	2.35	9.95	8.44	6.98	-3.61	2.35	9.91	8.65	7.33	11.56	14.31	-
2	-3.61	2.35	9.95	8.69	7.40	-3.45	2.35	9.91	8.81	7.60	11.76	15.00	*
6	-3.63	2.35	9.95	8.67	7.36	-3.46	2.35	9.91	8.80	7.59	11.75	14.95	-
11	-3.62	2.35	9.95	8.68	7.38	-3.48	2.35	9.91	8.78	7.55	11.74	14.93	-

*Worst Rate

Sample Calculation:
Result [dBm] = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss
Total Result = 1st Result + 2nd Result

* This measurement was performed only on the on time using the gate function of power meter.

Average Output Power
(Reference data for RF Exposure)

Test place	Shonan EMC Lab. No.5 Shielded Room	
Date	May 9, 2024	May 17, 2024
Temperature / Humidity	26 deg. C / 32 % RH	21 deg. C / 39 % RH
Engineer	Miku Ikudome	Takayuki Kobayashi
Mode	Tx 11g	

	1st					2nd					Total Power	
Frequency	Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Result (Average)	
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]
2412	-2.86	2.35	9.95	9.44	8.79	-2.48	2.35	9.91	9.78	9.51	**12.62**	**18.30**
2437	-3.31	2.36	9.95	9.00	7.94	-2.51	2.35	9.91	9.75	9.44	12.40	17.38
2462	-3.38	2.37	9.95	8.94	7.83	-2.49	2.36	9.91	9.78	9.51	12.39	17.34

Worst rate check (2412 MHz)

data rate	1st					2nd					Total Result Power		Remark
	Reading (Average)	Cable Loss	Atten. Loss	Result		Reading (Average)	Cable Loss	Atten. Loss	Result				
[Mbps]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	
6	-3.06	2.35	9.95	9.24	8.39	-2.89	2.35	9.91	9.37	8.65	12.32	17.04	-
9	-3.04	2.35	9.95	9.26	8.43	-2.80	2.35	9.91	9.46	8.83	12.37	17.26	-
12	-3.08	2.35	9.95	9.22	8.36	-2.77	2.35	9.91	9.49	8.89	12.37	17.25	-
18	-2.97	2.35	9.95	9.33	8.57	-2.71	2.35	9.91	9.55	9.02	12.45	17.59	-
24	-2.92	2.35	9.95	9.38	8.67	-2.67	2.35	9.91	9.59	9.10	12.50	17.77	-
36	-2.95	2.35	9.95	9.35	8.61	-2.57	2.35	9.91	9.69	9.31	12.53	17.92	-
48	-2.90	2.35	9.95	9.40	8.71	-2.62	2.35	9.91	9.64	9.20	12.53	17.91	-
54	-2.86	2.35	9.95	9.44	8.79	-2.48	2.35	9.91	9.78	9.51	12.62	18.30	*

*Worst Rate

Sample Calculation:

Result [dBm] = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss

Total Result = 1st Result + 2nd Result

* This measurement was performed only on the on time using the gate function of power meter.

Average Output Power
(Reference data for RF Exposure)

Test place	Shonan EMC Lab. No.5 Shielded Room	
Date	May 9, 2024	May 17, 2024
Temperature / Humidity	26 deg. C / 32 % RH	21 deg. C / 39 % RH
Engineer	Miku Ikudome	Takayuki Kobayashi
Mode	Tx 11n-20	

CDD:

	1st					2nd					Total Power	
Frequency	Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Result (Average)	
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]
2412	-2.76	2.35	9.95	9.54	8.99	-2.44	2.35	9.91	9.82	9.59	**12.69**	**18.59**
2437	-3.29	2.36	9.95	9.02	7.98	-2.33	2.35	9.91	9.93	9.84	12.51	17.82
2462	-3.32	2.37	9.95	9.00	7.94	-2.39	2.36	9.91	9.88	9.73	12.47	17.67

SDM:

	1st					2nd					Total Power	
Frequency	Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Result (Average)	
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]
2412	-2.80	2.35	9.95	9.50	8.91	-2.44	2.35	9.91	9.82	9.59	**12.67**	**18.51**
2437	-3.35	2.36	9.95	8.96	7.87	-2.38	2.35	9.91	9.88	9.73	12.45	17.60
2462	-3.41	2.37	9.95	8.91	7.78	-2.37	2.36	9.91	9.90	9.77	12.44	17.55

Worst rate check (2412 MHz)

MCS	G.I.	1st					2nd					Total Result Power		Remark
		Reading (Average)	Cable Loss	Atten. Loss	Result		Reading (Average)	Cable Loss	Atten. Loss	Result				
		[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	
0	800 ns	-2.85	2.35	9.95	9.45	8.81	-2.48	2.35	9.91	9.78	9.51	12.63	18.32	-
1	800 ns	-2.87	2.35	9.95	9.43	8.77	-2.51	2.35	9.91	9.75	9.44	12.60	18.21	-
2	800 ns	-2.89	2.35	9.95	9.41	8.73	-2.53	2.35	9.91	9.73	9.40	12.58	18.13	-
3	800 ns	-2.83	2.35	9.95	9.47	8.85	-2.45	2.35	9.91	9.81	9.57	12.65	18.42	-
4	800 ns	-2.81	2.35	9.95	9.49	8.89	-2.50	2.35	9.91	9.76	9.46	12.64	18.35	-
5	800 ns	-2.79	2.35	9.95	9.51	8.93	-2.48	2.35	9.91	9.78	9.51	12.66	18.44	-
6	800 ns	-2.76	2.35	9.95	9.54	8.99	-2.44	2.35	9.91	9.82	9.59	12.69	18.59	*1
7	800 ns	-2.79	2.35	9.95	9.51	8.93	-2.47	2.35	9.91	9.79	9.53	12.66	18.46	-
6	400 ns	-2.80	2.35	9.95	9.50	8.91	-2.47	2.35	9.91	9.79	9.53	12.66	18.44	-
8	800 ns	-2.82	2.35	9.95	9.48	8.87	-2.49	2.35	9.91	9.77	9.48	12.64	18.36	-
9	800 ns	-2.81	2.35	9.95	9.49	8.89	-2.47	2.35	9.91	9.79	9.53	12.65	18.42	-
10	800 ns	-2.80	2.35	9.95	9.50	8.91	-2.50	2.35	9.91	9.76	9.46	12.64	18.37	-
11	800 ns	-2.80	2.35	9.95	9.50	8.91	-2.51	2.35	9.91	9.75	9.44	12.64	18.35	-
12	800 ns	-2.81	2.35	9.95	9.49	8.89	-2.46	2.35	9.91	9.80	9.55	12.66	18.44	-
13	800 ns	-2.81	2.35	9.95	9.49	8.89	-2.44	2.35	9.91	9.82	9.59	12.67	18.49	-
14	800 ns	-2.82	2.35	9.95	9.48	8.87	-2.44	2.35	9.91	9.82	9.59	12.66	18.47	-
15	800 ns	-2.80	2.35	9.95	9.50	8.91	-2.44	2.35	9.91	9.82	9.59	12.67	18.51	*2
15	400 ns	-2.83	2.35	9.95	9.47	8.85	-2.44	2.35	9.91	9.82	9.59	12.66	18.45	-

*1: Worst Rate for CDD, *2: Worst Rate for SDM

Sample Calculation:

Result [dBm] = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss

Total Result = 1st Result + 2nd Result

* This measurement was performed only on the on time using the gate function of power meter.

Average Output Power
(Reference data for RF Exposure)

Test place	Shonan EMC Lab. No.5 Shielded Room	
Date	May 9, 2024	May 17, 2024
Temperature / Humidity	26 deg. C / 32 % RH	21 deg. C / 39 % RH
Engineer	Miku Ikudome	Takayuki Kobayashi
Mode	Tx 11ax-20 OFDM	

(CDD):

	1st					2nd					Total Power	
Frequency	Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Result (Average)	
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]
2412	-2.63	2.35	9.95	9.67	9.27	-2.40	2.35	9.91	9.86	9.68	**12.78**	**18.95**
2437	-3.19	2.36	9.95	9.12	8.17	-2.34	2.35	9.91	9.92	9.82	12.55	17.98
2462	-3.31	2.37	9.95	9.01	7.96	-2.36	2.36	9.91	9.91	9.79	12.49	17.76

(SDM):

	1st					2nd					Total Power	
Frequency	Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Result (Average)	
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]
2412	-2.66	2.35	9.95	9.64	9.20	-2.42	2.35	9.91	9.84	9.64	**12.75**	**18.84**
2437	-3.21	2.36	9.95	9.10	8.13	-2.32	2.35	9.91	9.94	9.86	12.55	17.99
2462	-3.20	2.37	9.95	9.12	8.17	-2.28	2.36	9.91	9.99	9.98	12.59	18.14

Worst rate check (2412 MHz)

MCS	G.I.	1st					2nd					Total Result Power		Remark
		Reading (Average)	Cable Loss	Atten. Loss	Result		Reading (Average)	Cable Loss	Atten. Loss	Result				
		[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	
0 (1SS)	3200 ns	-3.17	2.35	9.95	9.13	8.18	-2.90	2.35	9.91	9.36	8.63	12.26	16.81	-
1 (1SS)	3200 ns	-3.10	2.35	9.95	9.20	8.32	-2.84	2.35	9.91	9.42	8.75	12.32	17.07	-
2 (1SS)	3200 ns	-3.06	2.35	9.95	9.24	8.39	-2.87	2.35	9.91	9.39	8.69	12.33	17.08	-
3 (1SS)	3200 ns	-3.08	2.35	9.95	9.22	8.36	-2.88	2.35	9.91	9.38	8.67	12.31	17.03	-
4 (1SS)	3200 ns	-2.71	2.35	9.95	9.59	9.10	-2.43	2.35	9.91	9.83	9.62	12.72	18.72	-
5 (1SS)	3200 ns	-2.70	2.35	9.95	9.60	9.12	-2.42	2.35	9.91	9.84	9.64	12.73	18.76	-
6 (1SS)	3200 ns	-2.70	2.35	9.95	9.60	9.12	-2.40	2.35	9.91	9.86	9.68	12.74	18.80	-
7 (1SS)	3200 ns	-2.68	2.35	9.95	9.62	9.16	-2.44	2.35	9.91	9.82	9.59	12.73	18.76	-
8 (1SS)	3200 ns	-2.67	2.35	9.95	9.63	9.18	-2.44	2.35	9.91	9.82	9.59	12.74	18.78	-
9 (1SS)	3200 ns	-2.70	2.35	9.95	9.60	9.12	-2.41	2.35	9.91	9.85	9.66	12.74	18.78	-
10 (1SS)	3200 ns	-2.63	2.35	9.95	9.67	9.27	-2.40	2.35	9.91	9.86	9.68	12.78	18.95	*1
11 (1SS)	3200 ns	-2.73	2.35	9.95	9.57	9.06	-2.45	2.35	9.91	9.81	9.57	12.70	18.63	-
10 (1SS)	1600 ns	-2.74	2.35	9.95	9.56	9.04	-2.46	2.35	9.91	9.80	9.55	12.69	18.59	-
10 (1SS)	800 ns	-2.68	2.35	9.95	9.62	9.16	-2.48	2.35	9.91	9.78	9.51	12.71	18.67	-
0 (2SS)	3200 ns	-3.03	2.35	9.95	9.27	8.45	-2.86	2.35	9.91	9.40	8.71	12.35	17.16	-
1 (2SS)	3200 ns	-3.11	2.35	9.95	9.19	8.30	-2.87	2.35	9.91	9.39	8.69	12.30	16.99	-
2 (2SS)	3200 ns	-3.06	2.35	9.95	9.24	8.39	-2.85	2.35	9.91	9.41	8.73	12.34	17.12	-
3 (2SS)	3200 ns	-3.06	2.35	9.95	9.24	8.39	-2.86	2.35	9.91	9.40	8.71	12.33	17.10	-
4 (2SS)	3200 ns	-2.72	2.35	9.95	9.58	9.08	-2.45	2.35	9.91	9.81	9.57	12.71	18.65	-
5 (2SS)	3200 ns	-2.70	2.35	9.95	9.60	9.12	-2.47	2.35	9.91	9.79	9.53	12.71	18.65	-
6 (2SS)	3200 ns	-2.78	2.35	9.95	9.52	8.95	-2.49	2.35	9.91	9.77	9.48	12.66	18.44	-
7 (2SS)	3200 ns	-2.69	2.35	9.95	9.61	9.14	-2.44	2.35	9.91	9.82	9.59	12.73	18.74	-
8 (2SS)	3200 ns	-2.70	2.35	9.95	9.60	9.12	-2.44	2.35	9.91	9.82	9.59	12.72	18.71	-
9 (2SS)	3200 ns	-2.72	2.35	9.95	9.58	9.08	-2.46	2.35	9.91	9.80	9.55	12.70	18.63	-
10 (2SS)	3200 ns	-2.66	2.35	9.95	9.64	9.20	-2.42	2.35	9.91	9.84	9.64	12.75	18.84	*2
11 (2SS)	3200 ns	-2.71	2.35	9.95	9.59	9.10	-2.45	2.35	9.91	9.81	9.57	12.71	18.67	-
10 (2SS)	1600 ns	-2.67	2.35	9.95	9.63	9.18	-2.48	2.35	9.91	9.78	9.51	12.72	18.69	-
10 (2SS)	800 ns	-2.69	2.35	9.95	9.61	9.14	-2.49	2.35	9.91	9.77	9.48	12.70	18.63	-

*1: Worst Rate for CDD, *2: Worst Rate for SDM

Sample Calculation:

Result [dBm] = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss

Total Result = 1st Result + 2nd Result

* This measurement was performed only on the on time using the gate function of power meter.

Average Output Power
(Reference data for RF Exposure)

Test place	Shonan EMC Lab. No.5 Shielded Room
Date	May 20, 2024
Temperature / Humidity	25 deg. C / 40 % RH
Engineer	Shiro Kobayashi
Mode	Tx 11ax-20 OFDMA, (CDD)

26-tone RU		1st					2nd					Total Power	
Frequency	RU Index	Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Result (Average)	
[MHz]		[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]
2412	0	-9.22	2.35	9.95	3.08	2.03	-8.43	2.35	9.91	3.83	2.42	6.48	4.45
	4	-9.67	2.35	9.95	2.63	1.83	-8.80	2.35	9.91	3.46	2.22	6.08	4.05
	8	-9.05	2.35	9.95	3.25	2.11	-8.37	2.35	9.91	3.89	2.45	**6.59**	**4.56**
2437	0	-9.28	2.36	9.95	3.03	2.01	-8.44	2.35	9.91	3.82	2.41	6.45	4.42
	4	-9.76	2.36	9.95	2.55	1.80	-8.85	2.35	9.91	3.41	2.19	6.01	3.99
	8	-9.04	2.36	9.95	3.27	2.12	-8.68	2.35	9.91	3.58	2.28	6.44	4.40
2462	0	-9.22	2.37	9.95	3.10	2.04	-8.29	2.36	9.91	3.98	2.50	6.57	4.54
	4	-9.82	2.37	9.95	2.50	1.78	-8.80	2.36	9.91	3.47	2.22	6.02	4.00
	8	-9.25	2.37	9.95	3.07	2.03	-8.77	2.36	9.91	3.50	2.24	6.30	4.27

52-tone RU		1st					2nd					Total Power	
Frequency	RU Index	Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Result (Average)	
[MHz]		[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]
2412	37	-6.06	2.35	9.95	6.24	4.21	-5.47	2.35	9.91	6.79	4.78	9.53	8.98
	38	-6.21	2.35	9.95	6.09	4.06	-5.64	2.35	9.91	6.62	4.59	9.37	8.66
	40	-6.00	2.35	9.95	6.30	4.27	-5.25	2.35	9.91	7.01	5.02	9.68	9.29
2437	37	-6.25	2.36	9.95	6.06	4.04	-5.30	2.35	9.91	6.96	4.97	9.54	9.00
	38	-6.45	2.36	9.95	5.86	3.85	-5.52	2.35	9.91	6.74	4.72	9.33	8.58
	40	-6.33	2.36	9.95	5.98	3.96	-5.27	2.35	9.91	6.99	5.00	9.52	8.96
2462	37	-6.08	2.37	9.95	6.24	4.21	-5.20	2.36	9.91	7.07	5.09	**9.69**	**9.30**
	38	-6.38	2.37	9.95	5.94	3.93	-5.48	2.36	9.91	6.79	4.78	9.40	8.70
	40	-6.36	2.37	9.95	5.96	3.94	-5.32	2.36	9.91	6.95	4.95	9.49	8.90

106-tone RU		1st					2nd					Total Power	
Frequency	RU Index	Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Result (Average)	
[MHz]		[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]
2412	53	-2.96	2.35	9.95	9.34	8.59	-2.42	2.35	9.91	9.84	9.64	12.61	18.23
	54	-2.87	2.35	9.95	9.43	8.77	-2.31	2.35	9.91	9.95	9.89	**12.71**	**18.66**
2437	53	-3.20	2.36	9.95	9.11	8.15	-2.31	2.35	9.91	9.95	9.89	12.56	18.03
	54	-3.23	2.36	9.95	9.08	8.09	-2.35	2.35	9.91	9.91	9.79	12.53	17.89
2462	53	-3.14	2.37	9.95	9.18	8.28	-2.26	2.36	9.91	10.01	10.02	12.63	18.30
	54	-3.28	2.37	9.95	9.04	8.02	-2.33	2.36	9.91	9.94	9.86	12.52	17.88

242-tone RU		1st					2nd					Total Power	
Frequency	RU Index	Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Result (Average)	
[MHz]		[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]
2412	61	-2.78	2.35	9.95	9.52	8.95	-2.26	2.35	9.91	10.00	10.00	**12.78**	**18.95**
2437	61	-3.05	2.36	9.95	9.26	8.43	-2.22	2.35	9.91	10.04	10.09	12.68	18.53
2462	61	-3.07	2.37	9.95	9.25	8.41	-2.20	2.36	9.91	10.07	10.16	12.69	18.58

Sample Calculation:
Result [dBm] = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss
Total Result = 1st Result + 2nd Result

* This measurement was performed only on the on time using the gate function of power meter.

Average Output Power
(Reference data for RF Exposure)

Test place	Shonan EMC Lab. No.5 Shielded Room
Date	May 20, 2024
Temperature / Humidity	25 deg. C / 40 % RH
Engineer	Shiro Kobayashi
Mode	Tx 11ax-20 OFDMA, (SDM)

26-tone RU		1st					2nd					Total Power	
Frequency	RU Index	Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Result (Average)	
[MHz]		[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]
2412	0	-9.30	2.35	9.95	3.00	2.00	-8.59	2.35	9.91	3.67	2.33	6.36	4.32
	4	-9.79	2.35	9.95	2.51	1.78	-8.95	2.35	9.91	3.31	2.14	5.94	3.93
	8	-9.31	2.35	9.95	2.99	1.99	-8.37	2.35	9.91	3.89	2.45	6.47	4.44
2437	0	-9.27	2.36	9.95	3.04	2.01	-8.55	2.35	9.91	3.71	2.35	6.40	4.36
	4	-9.68	2.36	9.95	2.63	1.83	-8.97	2.35	9.91	3.29	2.13	5.98	3.97
	8	-9.26	2.36	9.95	3.05	2.02	-8.55	2.35	9.91	3.71	2.35	6.40	4.37
2462	0	-9.16	2.37	9.95	3.16	2.07	-8.38	2.36	9.91	3.89	2.45	**6.55**	**4.52**
	4	-9.73	2.37	9.95	2.59	1.82	-8.90	2.36	9.91	3.37	2.17	6.01	3.99
	8	-9.45	2.37	9.95	2.87	1.94	-8.57	2.36	9.91	3.70	2.34	6.32	4.28

52-tone RU		1st					2nd					Total Power	
Frequency	RU Index	Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Result (Average)	
[MHz]		[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]
2412	37	-6.12	2.35	9.95	6.18	4.15	-5.47	2.35	9.91	6.79	4.78	9.51	8.92
	38	-6.36	2.35	9.95	5.94	3.93	-5.68	2.35	9.91	6.58	4.55	9.28	8.48
	40	-6.04	2.35	9.95	6.26	4.23	-5.40	2.35	9.91	6.86	4.85	9.58	9.08
2437	37	-6.36	2.36	9.95	5.95	3.94	-5.31	2.35	9.91	6.95	4.95	9.49	8.89
	38	-6.62	2.36	9.95	5.69	3.71	-5.52	2.35	9.91	6.74	4.72	9.26	8.43
	40	-6.37	2.36	9.95	5.94	3.93	-5.30	2.35	9.91	6.96	4.97	9.49	8.89
2462	37	-6.19	2.37	9.95	6.13	4.10	-5.24	2.36	9.91	7.03	5.05	**9.61**	**9.15**
	38	-6.47	2.37	9.95	5.85	3.85	-5.52	2.36	9.91	6.75	4.73	9.33	8.58
	40	-6.40	2.37	9.95	5.92	3.91	-5.42	2.36	9.91	6.85	4.84	9.42	8.75

106-tone RU		1st					2nd					Total Power	
Frequency	RU Index	Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Result (Average)	
[MHz]		[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]
2412	53	-2.85	2.35	9.95	9.45	8.81	-2.35	2.35	9.91	9.91	9.79	**12.70**	**18.61**
	54	-2.91	2.35	9.95	9.39	8.69	-2.36	2.35	9.91	9.90	9.77	12.66	18.46
2437	53	-3.09	2.36	9.95	9.22	8.36	-2.28	2.35	9.91	9.98	9.95	12.63	18.31
	54	-3.14	2.36	9.95	9.17	8.26	-2.34	2.35	9.91	9.92	9.82	12.57	18.08
2462	53	-3.04	2.37	9.95	9.28	8.47	-2.21	2.36	9.91	10.06	10.14	**12.70**	**18.61**
	54	-3.25	2.37	9.95	9.07	8.07	-2.37	2.36	9.91	9.90	9.77	12.52	17.84

242-tone RU		1st					2nd					Total Power	
Frequency	RU Index	Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Reading (Average)	Cable Loss	Atten. Loss	Result (Average)		Result (Average)	
[MHz]		[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]
2412	61	-2.86	2.35	9.95	9.44	8.79	-2.25	2.35	9.91	10.01	10.02	**12.74**	**18.81**
2437	61	-3.10	2.36	9.95	9.21	8.34	-2.14	2.35	9.91	10.12	10.28	12.70	18.62
2462	61	-3.15	2.37	9.95	9.17	8.26	-2.21	2.36	9.91	10.06	10.14	12.65	18.40

Sample Calculation:
Result [dBm] = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss
Total Result = 1st Result + 2nd Result

* This measurement was performed only on the on time using the gate function of power meter.

Average Output Power
(Reference data for RF Exposure)

Test place	Shonan EMC Lab. No.5 Shielded Room
Date	May 7, 2024
Temperature / Humidity	26 deg. C / 37 % RH
Engineer	Miku Ikudome
Mode	Tx BT LE

BT LE 1M-PHY

Average power

Freq.	Reading	Cable Loss	Atten. Loss	Result (Time average)		Duty factor	Result (Burst power average)	
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dB]	[dBm]	[mW]
2402	-10.37	2.35	9.95	1.93	1.56	1.87	**3.80**	**2.40**
2440	-10.74	2.36	9.95	1.57	1.44	1.87	3.44	2.21
2480	-10.68	2.37	9.95	1.64	1.46	1.87	3.51	2.24

BT LE 2M-PHY

Average power

Freq.	Reading	Cable Loss	Atten. Loss	Result (Time average)		Duty factor	Result (Burst power average)	
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dB]	[dBm]	[mW]
2402	-13.16	2.35	9.95	-0.86	0.82	4.54	**3.68**	**2.33**
2440	-13.53	2.36	9.95	-1.22	0.76	4.54	3.32	2.15
2480	-13.47	2.37	9.95	-1.15	0.77	4.54	3.39	2.18

Sample Calculation:

Result (Time average) = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss

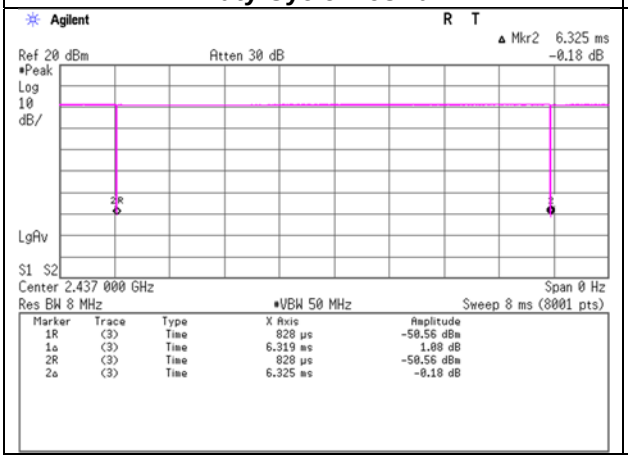
Result (Burst power average) = Result (Time average) + Duty factor

Burst rate confirmation
(For Radiated Emission)

Test place	Shonan EMC Lab. No.5 Shielded Room
Date	May 14, 2024
Temperature / Humidity	24 deg. C / 44 % RH
Engineer	Miku Ikudome
Mode	Tx

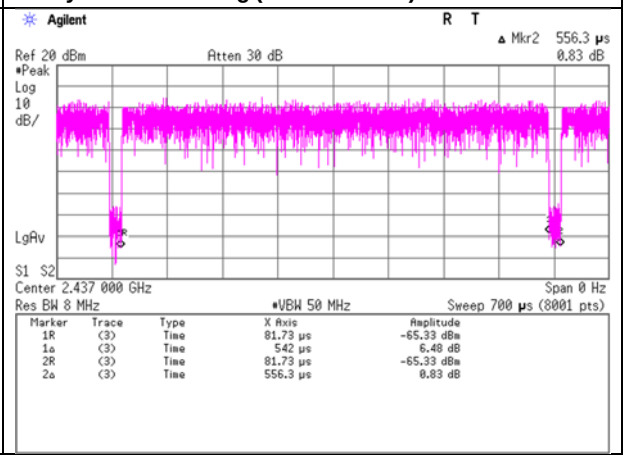
11b 2 Mbps

Tx on / (Tx on + Tx off) =	0.999
Tx on / (Tx on + Tx off) * 100 =	99.9 %
Duty Cycle > 98 %	



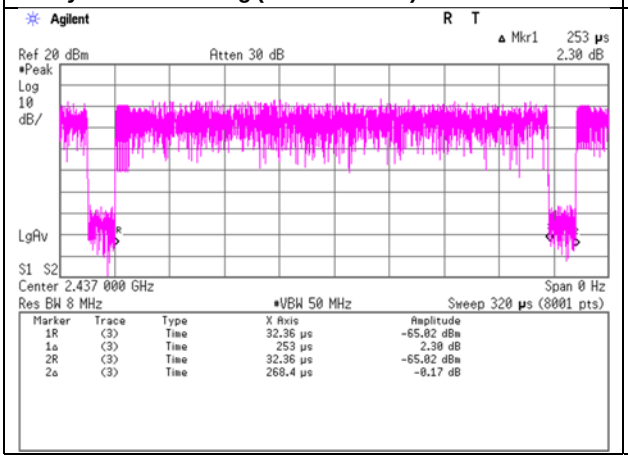
11g 24 Mbps

Tx on / (Tx on + Tx off) =	0.974
Tx on / (Tx on + Tx off) * 100 =	97.4 %
Duty factor = 20 * log (0.5563 / 0.542) =	0.23 dB



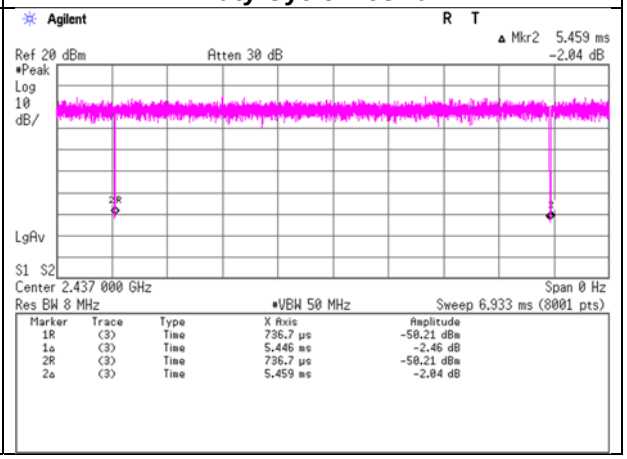
11n-20 MCS 6

Tx on / (Tx on + Tx off) =	0.943
Tx on / (Tx on + Tx off) * 100 =	94.3 %
Duty factor = 20 * log (0.2684 / 0.253) =	0.52 dB



11ax-20 OFDM MCS 10 (CDD)

Tx on / (Tx on + Tx off) =	0.998
Tx on / (Tx on + Tx off) * 100 =	99.8 %
Duty Cycle > 98 %	



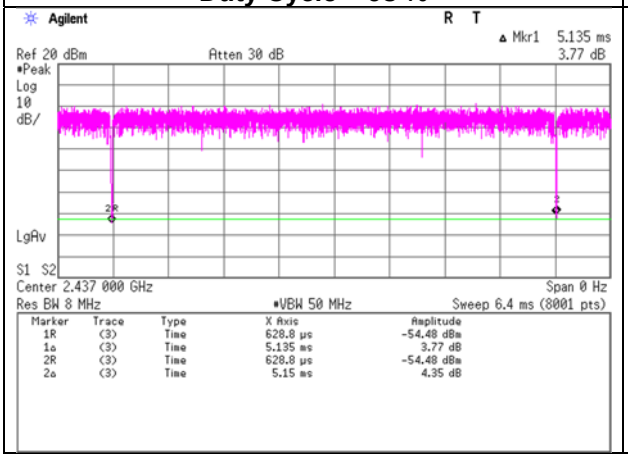
* Since the burst rate is not different between the channels, the data has been obtained on the representative channel.

Burst rate confirmation
(For Radiated Emission)

Test place	Shonan EMC Lab. No.5 Shielded Room
Date	May 14, 2024
Temperature / Humidity	24 deg. C / 44 % RH
Engineer	Miku Ikudome
Mode	Tx

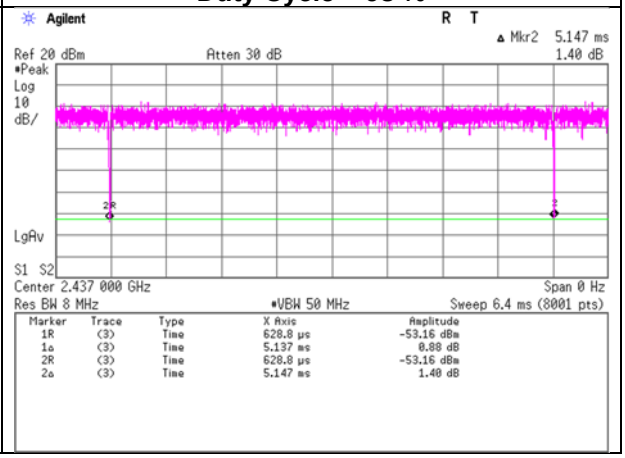
11ax-20 OFDMA, 26-tone RU, MCS 10(CDD)

Tx on / (Tx on + Tx off) = 0.997
Tx on / (Tx on + Tx off) * 100 = 99.7 %
Duty Cycle > 98 %



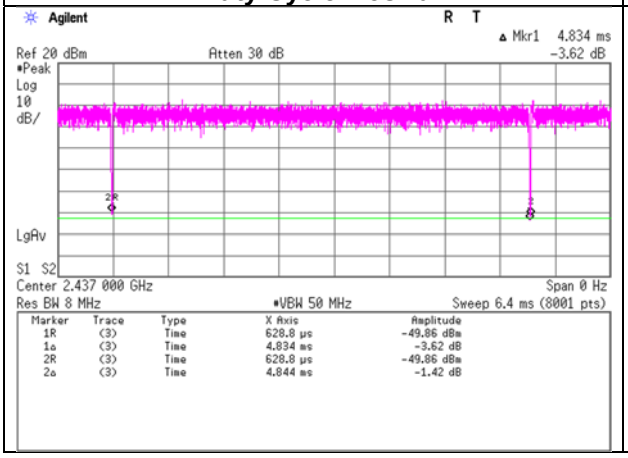
11ax-20 OFDMA, 52-tone RU, MCS 10(CDD)

Tx on / (Tx on + Tx off) = 0.998
Tx on / (Tx on + Tx off) * 100 = 99.8 %
Duty Cycle > 98 %



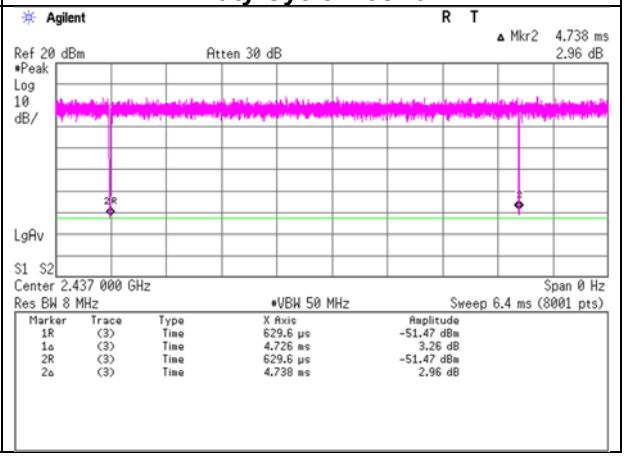
11ax-20 OFDMA, 106-tone RU, MCS 10(CDD)

Tx on / (Tx on + Tx off) = 0.998
Tx on / (Tx on + Tx off) * 100 = 99.8 %
Duty Cycle > 98 %



11ax-20 OFDMA, 242-tone RU, MCS 10(CDD)

Tx on / (Tx on + Tx off) = 0.997
Tx on / (Tx on + Tx off) * 100 = 99.7 %
Duty Cycle > 98 %



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

Burst rate confirmation

Test place	Shonan EMC Lab. No.5 Shielded Room
Date	May 7, 2024
Temperature / Humidity	26 deg. C / 37 % RH
Engineer	Miku Ikudome
Mode	Tx BT LE

BT LE 1M-PHY (for Average power) *1) BT LE 1M-PHY (for Radiated emission) *2)		BT LE 2M-PHY (for Average power) *3) BT LE 2M-PHY (for Radiated emission) *4)	
Tx on / (Tx on + Tx off) =	0.650	Tx on / (Tx on + Tx off) =	0.352
Tx on / (Tx on + Tx off) * 100 =	65.0 %	Tx on / (Tx on + Tx off) * 100 =	35.2 %
Duty factor = 10 * log (0.626 / 0.407) =	1.87 dB *1)	Duty factor = 10 * log (0.628 / 0.221) =	4.54 dB *3)
Duty factor = 20 * log (0.626 / 0.407) =	3.74 dB *2)	Duty factor = 20 * log (0.628 / 0.221) =	9.08 dB *4)