

RADIO TEST REPORT

Test Report No. 15654367S-C-R2

Customer	Canon Inc.
Description of EUT	Wireless LAN Module
Model Number of EUT	K30387
FCC ID	AZDK30387-2
Test Regulation	FCC Part 15 Subpart E
Test Result	Complied
Issue Date	May 8, 2025
Remarks	WLAN (5 GHz band) part Except for DFS test

Representative Test EngineerYuta Shiba
Engineer**Approved By**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".

Report Cover Page - Form-ULID-003532 (DCS:13-EM-F0429) Issue# 24.0

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- The information provided by the customer for this report is identified in SECTION 1.
- The laboratory is not responsible for information provided by the customer which can impact the validity of the results.
- For test report(s) referred in this report, the latest version (including any revisions) is always referred.

REVISION HISTORY

Original Test Report No. 15654367S-C

This report is a revised version of 15654367S-C-R1. 15654367S-C-R1 is replaced with this report.

Revision	Test Report No.	Date	Page Revised Contents
- (Original)	15654367S-C	March 26, 2025	-
1	15654367S-C-R1	April 22, 2025	2.1 Correction of test date. From: "to March 25, 2025" To: "to April 15, 2025" 3.2 Deletion of worst margin of Spurious Emission Restricted Band Edge "5470.000 MHz, PK, Vert., Tx 11n-40 5550 MHz" 4.1 Operating Mode(s) -Deletion of "dBm" of Power settings -Addition of "5520 MHz" -Correction of (5550 MHz) From: 13 To: 11 -Correction of Software: From: Tera Team Version 4.87 (SVN#5897) To: 1.28b RC0.0 WIO: Oct 29 2024 00:17:19 version 13.10.246.356 (39f8a82 CY WLTEST) FWID 01-5ee0685e (Storage location: Driven by connected PC) Figure 2 Correction of Distance Factor: From: $20 \times \log(3.94 \text{ m}^* / 3.0 \text{ m}) = 2.46 \text{ dB}$ To: $20 \times \log(3.98 \text{ m}^* / 3.0 \text{ m}) = 2.46 \text{ dB}$ 7 Correction of RBW of Maximum Power Spectral Density From: 1 MHz or 100 kHz *2) To: 1 MHz or 470 kHz *2) APPENDIX 1 -P41 Addition of data "**Pre-Check of worst case voltage" -P105,106,132,133,160,161,182,183 Update of data. Replaced with measurements taken at correct power settings. -P120,127,129,138,140,147,193,195,197,199,201 Addition of remarks "(WAC 1)" "(SAC 3)" "Result = Reading + Ant. Fac. + Loss (Cable + (Atten or Filter)(below 18 GHz)) - Gain (Amp) + Distance Fac." APPENDIX 2 Addition of Test Equipment LIMS ID: 239643, 243689, 236769
2	15654367S-C-R2	May 8, 2025	2.1 Correction of test date. From: "to March 25, 2025" To: "to May 8, 2025" APPENDIX 1 -P42,43,56,57,65,67 Update of 5550 MHz data. Replaced by measurement data for power setting 11. -P53 to P58 Correction of engineer name From: "Yoshuke Matsuzawa" To: "Yohsuke Matsuzawa" -P144 For the test frequency range 10 GHz to 26.5 GHz, Deleted test dates February 20, 2025 (WAC1) and February 18, 2025 (SAC3), and added test date December 16, 2024 (SAC3) -P171,173 Correction of Semi Anechoic Chamber "(10 GHz to 18 GHz)" From: "WAC 1" To: "SAC 3" -P181 Update of 6.4 GHz to 40 GHz data. Replaced by measurement data for power setting 11.

Reference: Abbreviations (Including words undescribed in this report)

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

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SECTION 1: Customer Information

Company Name	Canon Inc.
Address	451, Tsukagoshi 3-chome, Saiwai-ku, Kawasaki-shi, Kanagawa 212-8530, Japan
Telephone Number	+81-3-3758-2111
Contact Person	Hiroyuki Saito

The information provided by the customer is as follows;

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

SECTION 2: Equipment Under Test (EUT)

2.1 Identification of EUT

Description	Wireless LAN Module
Model Number	K30387
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	December 4, 2024 January 14, 2025
Test Date	December 8, 2024 to May 8, 2025

2.2 Product Description

General Specification

Rating	DC 3.3 V
Operating temperature	0 deg. C to +45 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.

	IEEE802.11b	IEEE802.11g	IEEE802.11n (20 MHz band)	IEEE802.11n (40 MHz band)
Frequency of operation	2412 MHz - 2462 MHz	2412 MHz - 2462 MHz	2412 MHz - 2462 MHz, 5180 MHz - 5240 MHz, 5260 MHz - 5320 MHz, 5500 MHz - 5700 MHz, 5745 MHz - 5825 MHz	2422 MHz - 2452 MHz, 5190 MHz - 5230 MHz, 5270 MHz - 5310 MHz, 5510 MHz - 5670 MHz, 5755 MHz - 5795 MHz
Channel spacing	5 MHz		2.4 GHz band: 5 MHz 5 GHz band: 20 MHz	2.4 GHz band: 5 MHz 5 GHz band: 40 MHz
Modulation	DSSS (CCK, DQPSK, DBPSK)	OFDM-CCK (64QAM, 16QAM, QPSK, BPSK)	OFDM (64QAM, 16QAM, QPSK, BPSK)	
	IEEE802.11a	IEEE802.11ac (20 MHz band)	IEEE802.11ac (40 MHz band)	IEEE802.11ac (80 MHz band)
Frequency of operation	5180 MHz - 5240 MHz, 5260 MHz - 5320 MHz, 5500 MHz - 5700 MHz, 5745 MHz - 5825 MHz	5180 MHz - 5240 MHz, 5260 MHz - 5320 MHz, 5500 MHz - 5700 MHz, 5745 MHz - 5825 MHz	5190 MHz - 5230 MHz, 5270 MHz - 5310 MHz, 5510 MHz - 5670 MHz, 5755 MHz - 5795 MHz	5210 MHz, 5290 MHz, 5530 MHz, 5610 MHz, 5775 MHz
Channel spacing	20 MHz		40 MHz	80 MHz
Modulation	OFDM (64QAM, 16QAM, QPSK, BPSK)	OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK)		
Antenna type	Inverted-L antenna			
Antenna Gain ^{a)}	2.4 GHz	1.8 dBi		
	U-NII-1, U-NII-2A	2.1 dBi		
	U-NII-2C	2.1 dBi		
	U-NII-3	2.1 dBi		
Master / Slave	2.4 GHz	Master and Client		
	U-NII-1	Master and Client		
	U-NII-2A	Client		
	U-NII-2C	Client		
	U-NII-3	Master and Client		

SECTION 3: Test specification, Procedures & Results

3.1 Test Specification

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

3.2 Procedures and Results

Item	Test Procedure	Specification	Worst Margin	Results	Remarks
Conducted Emission	FCC: ANSI C63.10-2013 ISED: RSS-Gen 8.8	FCC: 15.407 (b) (9) / 15.207 ISED: RSS-Gen 8.8	13.2 dB 12.47434, N, AV	Complied	-
26 dB Emission Bandwidth	FCC: KDB Publication Number 789033 ISED: -	FCC: 15.407 (a) (1) (2) (3) ISED: -	See data	Complied	Conducted
Maximum Conducted Output Power	FCC: KDB Publication Number 789033 ISED: -	FCC: 15.407 (a) (1) (2) (3) ISED: RSS-247 6.2		Complied	Conducted
Maximum Power Spectral Density	FCC: KDB Publication Number 789033 ISED: -	FCC : 15.407 (a) (1) (2) (3) ISED: RSS-247 6.2		Complied	Conducted
Spurious Emission Restricted Band Edge	FCC: ANSI C63.10-2013 KDB Publication Number 789033 ISED: -	FCC: 15.407 (b), 15.205 and 15.209 ISED: RSS-247 6.2	2.7 dB 5725.939 MHz, PK, Vert., Tx 11n-40 5630 MHz	Complied	Conducted (below 30 MHz) / Radiated (above 30 MHz) *1)
6 dB Emission Bandwidth	FCC: ANSI C63.10-2013 ISED: -	FCC: 15.407 (e) ISED: RSS-247 6.2	See data	Complied	Conducted
Note: UL Japan, Inc.'s EMI Work Procedures: Work Instructions-ULID-003591 and Work Instructions-ULID-003593. * In case any questions arise about test procedure, ANSI C63.10: 2013 is also referred. *1) Radiated test was selected over 30 MHz based on FCC 15.407 (b) and KDB 789033 D02 G.3.b).					

FCC Part 15.31 (e)

The host device provides stable voltage constantly to RF Module regardless of input voltage. Therefore, this EUT complies with the requirement.

FCC Part 15.203/212 Antenna requirement

The antenna is not removable from the EUT. Therefore, the equipment complies with the antenna requirement of Section 15.203.

3.3 Addition to Standard

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

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

3.4 Uncertainty

Measurement uncertainty is not taken into account when stating conformity with a specified requirement.

Note: When margins obtained from test results are less than the measurement uncertainty, the test results may exceed the limit.

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

Item	Frequency range	Uncertainty (+/-)
Conducted Emission (AC Mains) LISN	150 kHz to 30 MHz	3.0 dB
Radiated Emission (Measurement distance: 3 m)	9 kHz to 30 MHz	3.3 dB
	30 MHz to 200 MHz	4.8 dB
	200 MHz to 1 GHz	6.1 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)	1.3 dB
Power Measurement above 1 GHz (Peak Detector)	1.5 dB
Spurious Emission (Conducted) below 1 GHz	0.93 dB
Conducted Emissions Power Density Measurement 1 GHz to 3 GHz	0.93 dB
Conducted Emissions Power Density Measurement 3 GHz to 18 GHz	3.0 dB
Spurious Emission (Conducted) 18 GHz to 26.5 GHz	2.8 dB
Spurious Emission (Conducted) 26.5 GHz to 40 GHz	2.3 dB
Bandwidth Measurement	0.012 %
Duty Cycle and Time Measurement	0.27 %
Temperature	2.2 deg.C.
Humidity	3.4 %
Voltage	0.92 %

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 802.11a (11a)	6 Mbps, PN9
IEEE 802.11n SISO 20 MHz BW (11n-20)	MCS 0, PN9
IEEE 802.11ac SISO 20 MHz BW (11ac-20)	MCS 0, PN9
IEEE 802.11n SISO 40 MHz BW (11n-40)	MCS 2, PN9
IEEE 802.11ac SISO 40 MHz BW (11ac-40)	MCS 1, PN9
IEEE 802.11ac SISO 80 MHz BW (11ac-80)	MCS 7, PN9
*The worst condition was determined based on the test result of Maximum Conducted Output Power.	
*Power of the EUT was set by the software as follows; Power settings: •11a(6 Mbps to 18 Mbps): (5180 MHz,5320 MHz,5500 MHz,5700 MHz,5745 MHz,5825 MHz): 8 (Another channel):14 •11a(24 Mbps to 54 Mbps): (5180 MHz,5320 MHz,5500 MHz,5700 MHz,5745 MHz,5825 MHz): 8 (Another channel):12 •11n-20(MCS 0 to MCS 2) / 11ac-20(MCS 0 to MCS 2): (5180 MHz,5320 MHz,5500 MHz,5700 MHz,5745 MHz,5825 MHz): 8 (5520 MHz, 5680 MHz):13 (Another channel):14 •11n-20(MCS 3 to MCS 7) / 11ac-20(MCS 3 to MCS 7): (5180 MHz,5320 MHz,5500 MHz,5700 MHz,5745 MHz,5825 MHz): 8 (Another channel):12 •11ac-20(MCS 8): (5180 MHz,5320 MHz,5500 MHz,5700 MHz,5745 MHz,5825 MHz): 8 (Another channel):10 •11n-40(MCS 0 to MCS 2) / 11ac-40(MCS 0 to MCS 2): (5190 MHz,5310 MHz,5510 MHz,5755 MHz): 6 (5550 MHz):11 (5670 MHz):11 (Another channel):14 •11n-40(MCS 3 to MCS 7) / 11ac-40(MCS 3 to MCS 7): (5190 MHz,5310 MHz,5510 MHz,5755 MHz): 6 (5670 MHz):11 (Another channel):12 •11ac-40(MCS 8 to MCS 9): (5190 MHz,5310 MHz,5510 MHz,5755 MHz): 6 (Another channel):8 •11ac-80 (All channel): 6 Software: 1.28b RC0.0 WI0: Oct 29 2024 00:17:19 version 13.10.246.356 (39f8a82 CY WLTEST) FWID 01-5ee0685e (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.	

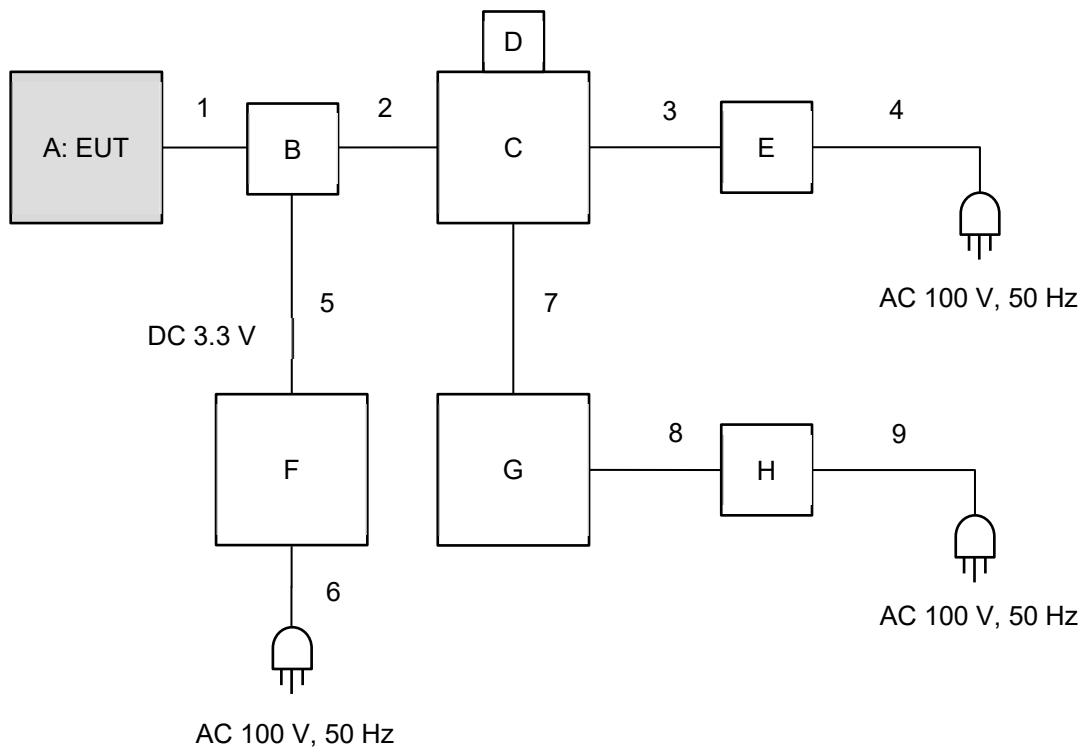
*The Details of Operation Mode(s)

Test Item	Operating Mode	Tested Frequency			
		Lower Band	Middle Band	Additional Band	Upper Band
Conducted emission	Tx, 11ac-20 *1)	-	-	5580 MHz	-
26 dB Emission Bandwidth	Tx, 11a Tx, 11n-20 Tx, 11ac-20	-	5260 MHz 5300 MHz 5320 MHz	5500 MHz 5580 MHz 5700 MHz	-
	Tx, 11n-40 Tx, 11ac-40	-	5270 MHz 5310 MHz	5510 MHz 5550 MHz 5590 MHz 5670 MHz	-
	Tx, 11ac-80	-	5290 MHz	5530 MHz 5610 MHz	-
99 % Occupied Bandwidth, Maximum Conducted Output Power, Maximum Power Spectral Density	Tx, 11a Tx, 11n-20 Tx, 11ac-20	5180 MHz 5220 MHz 5240 MHz	5260 MHz 5300 MHz 5320 MHz	5500 MHz 5580 MHz 5700 MHz	5745 MHz 5785 MHz 5825 MHz
	Tx, 11n-40 Tx, 11ac-40	5190 MHz 5230 MHz	5270 MHz 5310 MHz	5510 MHz 5550 MHz 5590 MHz 5670 MHz	5755 MHz 5795 MHz
	Tx, 11ac-80	5210 MHz	5290 MHz	5530 MHz 5610 MHz	5775 MHz
6 dB Bandwidth	Tx, 11a Tx, 11n-20 Tx, 11ac-20	-	-	-	5745 MHz 5785 MHz 5825 MHz
	Tx, 11n-40 Tx, 11ac-40	-	-	-	5755 MHz 5795 MHz
	Tx, 11ac-80	-	-	-	5775 MHz
Radiated Spurious Emission (Below 1 GHz)	Tx, 11ac-20 *1)	-	-	5580 MHz	-
Radiated Spurious Emission (Above 1 GHz)	Tx, 11a *2)	5180 MHz 5200 MHz	5300 MHz 5320 MHz	5500 MHz 5520 MHz 5680 MHz 5700 MHz	5745 MHz 5765 MHz 5805 MHz 5825 MHz
	Tx, 11n-20 *2)	5180 MHz 5200 MHz	5300 MHz 5320 MHz	5500 MHz 5520 MHz 5660 MHz 5680 MHz 5700 MHz	5745 MHz 5765 MHz 5805 MHz 5825 MHz
	Tx, 11ac-20	5180 MHz 5200 MHz *3) 5240 MHz	5300 MHz *3) 5320 MHz	5500 MHz 5520 MHz *3) 5580 MHz 5660 MHz *3) 5680 MHz *3) 5700 MHz	5745 MHz 5765 MHz *3) 5785 MHz 5805 MHz *3) 5825 MHz
	Tx, 11n-40 *2)	5190 MHz 5230 MHz	5270 MHz 5310 MHz	5510 MHz 5550 MHz 5590 MHz 5630 MHz 5670 MHz	5755 MHz 5795 MHz
	Tx, 11ac-40	5190 MHz 5230 MHz	5270 MHz *3) 5310 MHz	5510 MHz 5550 MHz 5590 MHz 5630 MHz *3) 5670 MHz	5755 MHz 5795 MHz
	Tx, 11ac-80	5210 MHz	5290 MHz	5530 MHz 5610 MHz	5775 MHz
Conducted Spurious Emission	Tx, 11ac-20 *1)	-	-	5580 MHz	-

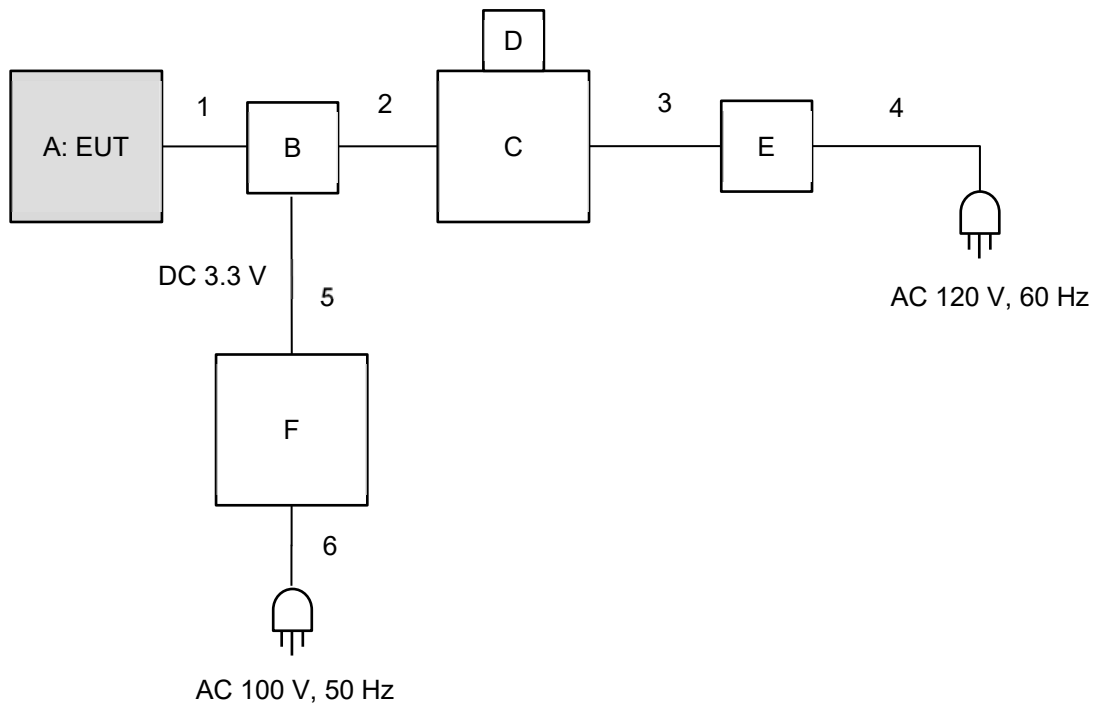
*1) The mode was tested as a representative, because it had the highest power at antenna terminal test.
*2) For all frequencies, the test had been conducted only in band-edge.
*3) The test had been conducted only in band-edge.

4.2 Configuration and Peripherals

<For Antenna Terminal Conducted test>



<For Radiated Emission test and Conducted emission test>



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

Description of EUT and Support equipment

No.	Item	Model number	Serial number	Manufacturer	Remarks
A	WLAN Module	K30387	C300	Canon	EUT
B	WLAN JOINT PCB	-	-	Canon	-
C	Smart Devices Board	MCIMX6SX-SDB-ND	TR19051240	NXP	-
D	SD Card	SDS/16GB	-	Kingston	-
E	AC Adaptor	ATS036T-A050	400-75956	SCEPTRE	-
F	Power Supply(DC)	PW16-5ADP PNA16-10A PAN35-10A	19100034 ER001085 BP002287	GW Instek Kikusui Electronics Corp. Kikusui Electronics Corp.	*1) *2) *3)
G	Laptop Computer	E1Q57PA#ABJ	5CB3310KHW	HP	-
H	AC Adapter	PPP009L-E	3453442403	HP	-

*1) Used for Antenna Terminal Conducted test

*2) Used for Radiated Emission

*3) Used for Conducted Emission test

List of cables used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	FLAT	0.075	Unshielded	Unshielded	-
2	USB	1.0	Shielded	Shielded	-
3	DC	1.0	Unshielded	Unshielded	-
4	AC	1.8	Unshielded	Unshielded	-
5	DC	0.25 *4) 0.25 + 1.8 *5)	Unshielded	Unshielded	-
6	AC	1.7	Unshielded	Unshielded	-
7	LAN	1.0	Unshielded	Unshielded	-
8	DC	1.7	Unshielded	Unshielded	-
9	AC	0.9	Unshielded	Unshielded	-

*4) Used for Radiated Emission(Below 1 GHz) and Conducted Emission test

*5) Used for Other tests

SECTION 5: Conducted Emission

Test Procedure and Conditions

EUT was placed on a urethane platform of nominal size, 1.0 m by 1.5 m, raised 0.8 m above the conducting ground plane.

The rear of tabletop was located 40 cm to the vertical conducting plane. The rear of EUT, including peripherals was aligned and flushed with rear of tabletop. All other surfaces of tabletop were at least 80 cm from any other grounded conducting surface. EUT was located 80cm from a Line Impedance Stabilization Network (LISN) / Artificial mains Network (AMN) and excess AC cable was bundled in center.

All unused 50 ohm connectors of the LISN (AMN) were resistivity terminated in 50 ohm when not connected to the measuring equipment.

The AC Mains Terminal Continuous disturbance Voltage has been measured with the EUT in a Shielded room.

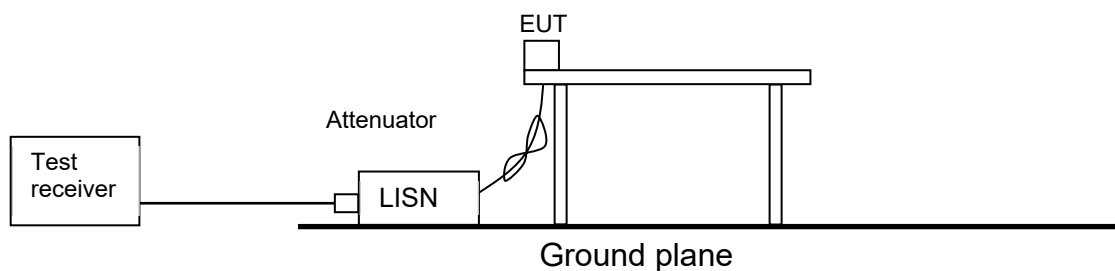
The EUT was connected to a LISN (AMN).

An overview sweep with peak detection has been performed.

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

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

Figure 1: Test Setup



SECTION 6: Radiated Spurious Emission and Band Edge Compliance

Test Procedure

< Below 1 GHz >

EUT was placed on a urethane platform of nominal size, 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.

< Above 1 GHz >

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

The height of the measuring antenna varied between 1 m and 4 m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field strength.

The measurements were performed for both vertical and horizontal antenna polarization with the Test Receiver, or the Spectrum Analyzer.

The measurements were made with the following detector function of the test receiver and the Spectrum analyzer (in linear mode).

The test was made with the detector (RBW/VBW) in the following table.

When using Spectrum analyzer, the test was made with adjusting span to zero by using peak hold.

< Below 1 GHz >

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

< Above 1 GHz >

Inside of restricted bands (Section 15.205):

Apply to limit in the Section 15.209 (a).

Outside of the restricted bands:

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

For 5.8 GHz band Bandedge

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

Restricted band edge:

Apply to limit in the Section 15.209 (a).

Since this limit is severer than the limit of the inside of restricted bands.

*Electric field strength to e.i.r.p. conversion:

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

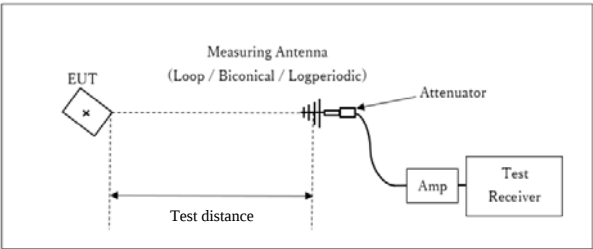
Test Antennas are used as below;

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

Frequency	Below 1 GHz	Above 1 GHz	
Instrument Used	Test Receiver	Spectrum Analyzer	
Detector	QP	Peak	Average
IF Bandwidth	BW: 120 kHz	RBW: 1 MHz VBW: 3 MHz	Method VB *1) RBW: 1 MHz VBW: 1/T MHz (T: Burst length, refer to Burst rate confirmation sheet) Detector: Peak Trace mode: Max hold

Figure 2: Test Setup

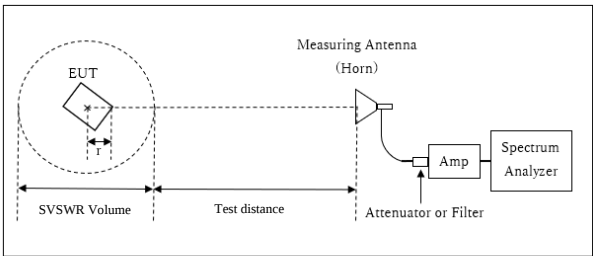
Below 1 GHz



x : Center of turn table

Test Distance: 3 m

1 GHz to 10 GHz



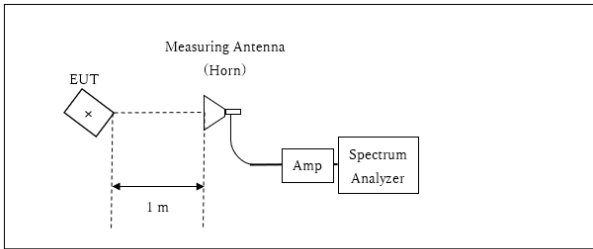
r : Radius of an outer periphery of EUT

x : Center of turn table

Distance Factor: $20 \times \log (3.98\text{m}^* / 3.0 \text{ m}) = 2.46 \text{ dB}$
*(Test Distance + SVSWR Volume /2) - r = 3.98 m

Test Distance: 3 m
SVSWR Volume: 2.0 m
(SVSWR Volume has been calibrated based on CISPR 16-1-4.)
r: 0.02 m

10 GHz to 40 GHz



x : Center of turn table

Distance Factor: $20 \times \log (1.0 \text{ m} / 3.0 \text{ m}) = -9.54 \text{ dB}$
*Test Distance: 1 m

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

Antenna polarization	Spurious (30 MHz - 1 GHz)	Spurious (1 GHz - 6.4 GHz)	Spurious (6.4 GHz - 10 GHz)	Spurious (10 GHz - 18 GHz)	Spurious (18 GHz - 26.5 GHz)	Spurious (26.5 GHz - 40 GHz)
Horizontal	X	X	X	Y	Y	X
Vertical	X	Y	Y	X	X	X

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

Measurement Range : 30 MHz to 40 GHz
Test Data : APPENDIX
Test Result : Pass

SECTION 7: Antenna Terminal Conducted Tests

Test Procedure

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

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

*1) Peak hold was applied as Worst-case measurement.

*2) KDB 789033 D02 says that RBW is set to be 500 kHz for 5.725 GHz to 5.850 GHz, but it is not possible with spectrum analyzer, so RBW Correction Factor ($10 \log(500 \text{ kHz} / 470 \text{ kHz})$) was added to the test result.

*3) In the frequency range below 30 MHz, RBW was narrowed to separate the noise contents.

Then, wide-band noise near the limit was checked separately, however the noise was not detected as shown in the chart.
(9 kHz to 150 kHz: RBW = 200 Hz, 150 kHz to 30 MHz: RBW = 10 kHz)

*4) The limits in CFR 47, Part 15, Subpart C, paragraph 15.209(a), are identical to those in RSS-Gen section 8.9, Table 6, since the measurements are performed in terms of magnetic field strength and converted to electric field strength levels (as reported in the table) using the free space impedance of 377 Ohms. For example, the measurement at frequency 9 kHz resulted in a level of 45.5 dBuV/m, which is equivalent to $45.5 - 51.5 = -6.0$ dBuA/m, which has the same margin, 3 dB, to the corresponding RSS-Gen Table 6 limit as it has to 15.209(a) limit.

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

Test Data : APPENDIX
Test Result : Pass

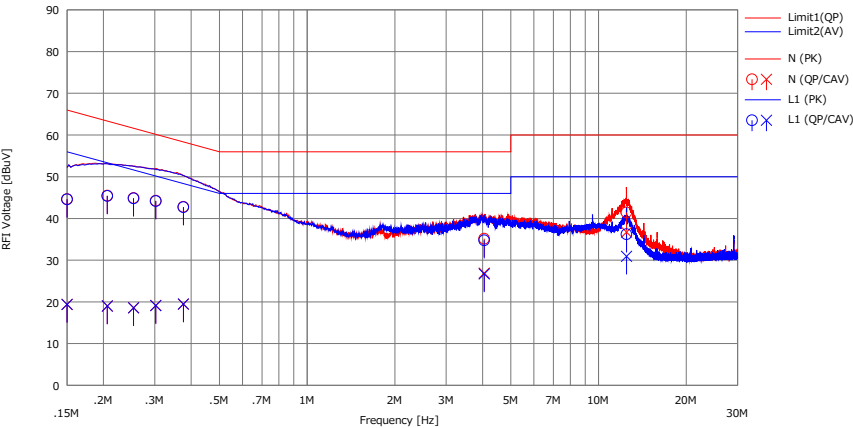
APPENDIX 1: Test Data

Conducted Emission

UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2025/03/12

Mode : Tx 11ac-20 5580 MHz
Power : AC 120 V / 60 Hz
Temp./Humi. : 22 deg.C / 28 %RH

Limit : FCC_Part 15 Subpart C(15.207)
Engineer : Yuta Shiba



No.	Freq. [MHz]	Reading		C.Fac	Results		Limit		Margin		Phase	Comment
		[QP] [dBuV]	[CAV] [dBuV]		[QP] [dBuV]	[CAV] [dBuV]	[QP] [dBuV]	[AV] [dBuV]	[QP] [dB]	[AV] [dB]		
1	0.15000	29.23	4.05	15.37	44.60	19.42	66.00	56.00	21.4	36.5	N	
2	0.20623	30.05	3.61	15.40	45.45	19.01	63.36	53.36	17.9	34.3	N	
3	0.25386	29.48	3.18	15.42	44.90	18.60	61.63	51.63	16.7	33.0	N	
4	0.30257	28.79	3.73	15.42	44.21	19.15	60.17	50.17	15.9	31.0	N	
5	0.37617	27.32	4.03	15.44	42.76	19.47	58.36	48.36	15.6	28.8	N	
6	4.05243	19.50	11.26	15.65	35.15	26.91	56.00	46.00	20.8	19.0	N	
7	12.47434	25.42	20.72	16.02	41.44	36.74	60.00	50.00	18.5	13.2	N	
8	0.15000	29.17	3.99	15.40	44.57	19.39	66.00	56.00	21.4	36.6	L1	
9	0.20623	29.97	3.60	15.41	45.38	19.01	63.36	53.36	17.9	34.3	L1	
10	0.25386	29.42	3.17	15.41	44.83	18.58	61.63	51.63	16.8	33.0	L1	
11	0.30257	28.74	3.71	15.42	44.16	19.13	60.17	50.17	16.0	31.0	L1	
12	0.37617	27.28	4.05	15.44	42.72	19.49	58.36	48.36	15.6	28.8	L1	
13	4.05243	19.14	11.07	15.63	34.77	26.70	56.00	46.00	21.2	19.3	L1	
14	12.47434	20.27	15.01	15.93	36.20	30.94	60.00	50.00	23.8	19.0	L1	

Calculation: Result[dBuV]=Reading[dBuV]+C.Fac(LISN(AMN)+Cable+ATT)[dB]
LISN(AMN): 145542

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Test place Shonan EMC Lab. No.8 Shielded Room
Date February 10, 2025
Temperature / Humidity 22 deg. C / 24 % RH
Engineer Yuta Shiba
Mode Tx

11a

Tested Frequency [MHz]	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
5180	-	16752.7
5220	-	16782.1
5240	-	16789.9
5260	21.174	16703.5
5300	21.427	16762.0
5320	21.102	16672.7
5500	21.067	16675.5
5580	21.345	16676.7
5700	21.213	16671.1
5745	-	16713.8
5785	-	16671.1
5825	-	16702.4

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Test place	Shonan EMC Lab. No.8 Shielded Room	
Date	February 17, 2025	March 5, 2025
Temperature / Humidity	21 deg. C / 25 % RH	23 deg. C / 47 % RH
Engineer	Miku Ikudome	Takayuki Kobayashi
Mode	Tx	

11n-20

Tested Frequency [MHz]	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
5180	-	17860.3
5220	-	17893.0
5240	-	17911.5
5260	21.634	17906.0
5300	21.578	17885.9
5320	21.547	17913.3
5500	22.032	18317.5
5580	21.530	17940.6
5700	21.887	18297.8
5745	-	17904.5
5785	-	17948.8
5825	-	17934.6

11ac-20

Tested Frequency [MHz]	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
5180	-	17819.1
5220	-	17896.1
5240	-	17926.5
5260	21.817	18019.4
5300	21.732	17979.4
5320	21.402	17873.4
5500	22.044	18382.7
5580	21.924	17979.9
5700	21.834	18278.1
5745	-	17857.9
5785	-	17935.0
5825	-	17896.8

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

Test place	Shonan EMC Lab. No.8 Shielded Room	
Date	February 17, 2025	March 5, 2025
Temperature / Humidity	21 deg. C / 25 % RH	23 deg. C / 47 % RH
Engineer	Miku Ikudome	Takayuki Kobayashi
Mode	Tx	

11n-40

Tested Frequency [MHz]	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
5190	-	36424.3
5230	-	36416.7
5270	40.158	36402.8
5310	39.965	36348.2
5510	40.745	36680.3
5550	40.793	36656.3
5590	40.841	36617.7
5670	40.070	36385.8
5755	-	36401.4
5795	-	36377.8

11ac-40

Tested Frequency [MHz]	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
5190	-	36330.7
5230	-	36333.0
5270	40.086	36424.8
5310	40.573	36729.5
5510	40.308	36716.9
5550	40.206	36678.3
5590	39.844	36382.9
5670	40.470	36611.0
5755	-	36404.0
5795	-	36462.4

26 dB Emission Bandwidth and 99 % Occupied Bandwidth

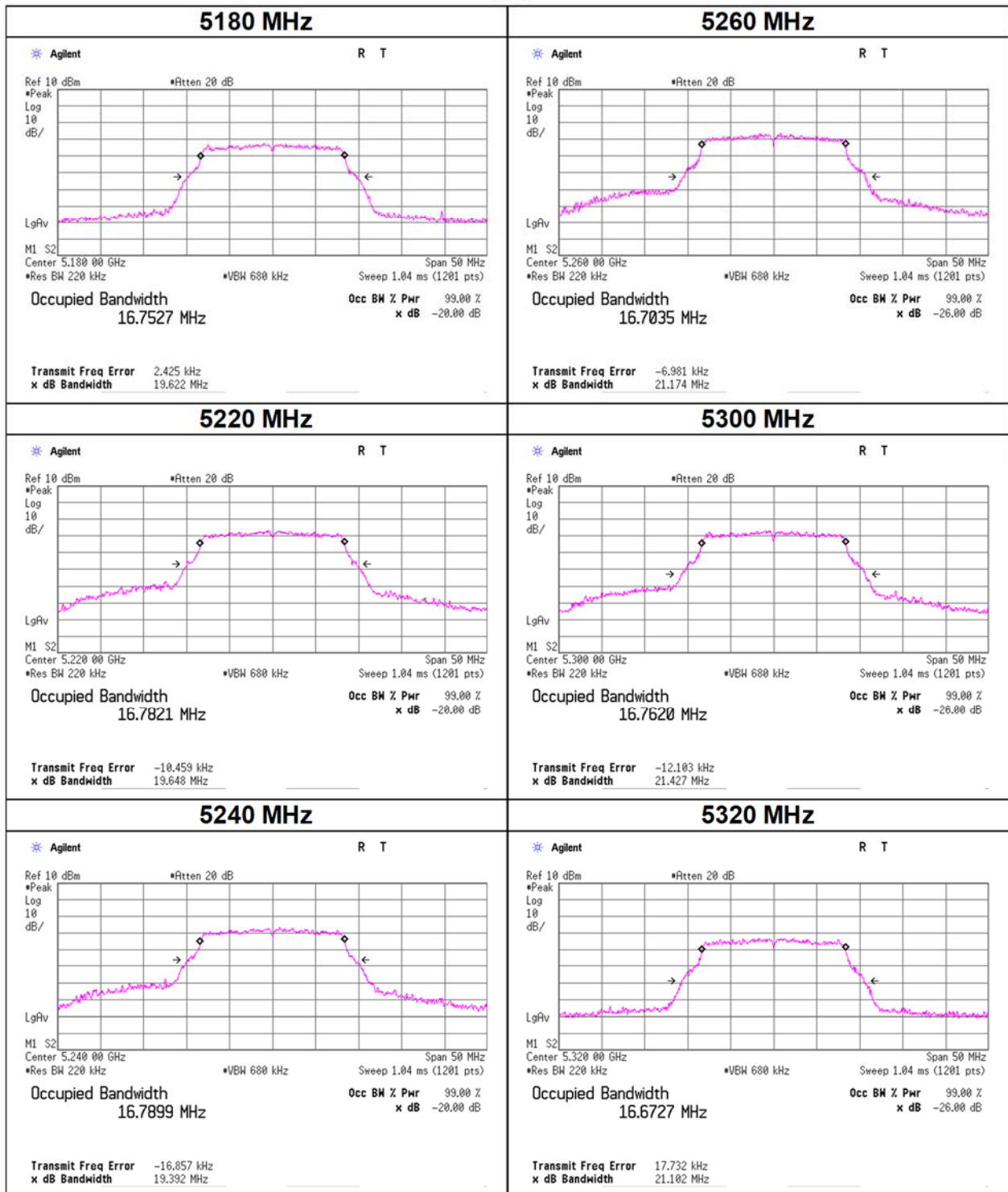
Test place	Shonan EMC Lab. No.8 Shielded Room	
Date	February 17, 2025	March 5, 2025
Temperature / Humidity	21 deg. C / 25 % RH	23 deg. C / 47 % RH
Engineer	Miku Ikudome	Takayuki Kobayashi
Mode	Tx	

11ac-80

Tested Frequency [MHz]	26 dB Emission Bandwidth [MHz]	99 % Occupied Bandwidth [kHz]
5210	-	75654.7
5290	80.697	75745.7
5530	81.336	75753.4
5610	80.949	75777.7
5775	-	75714.7

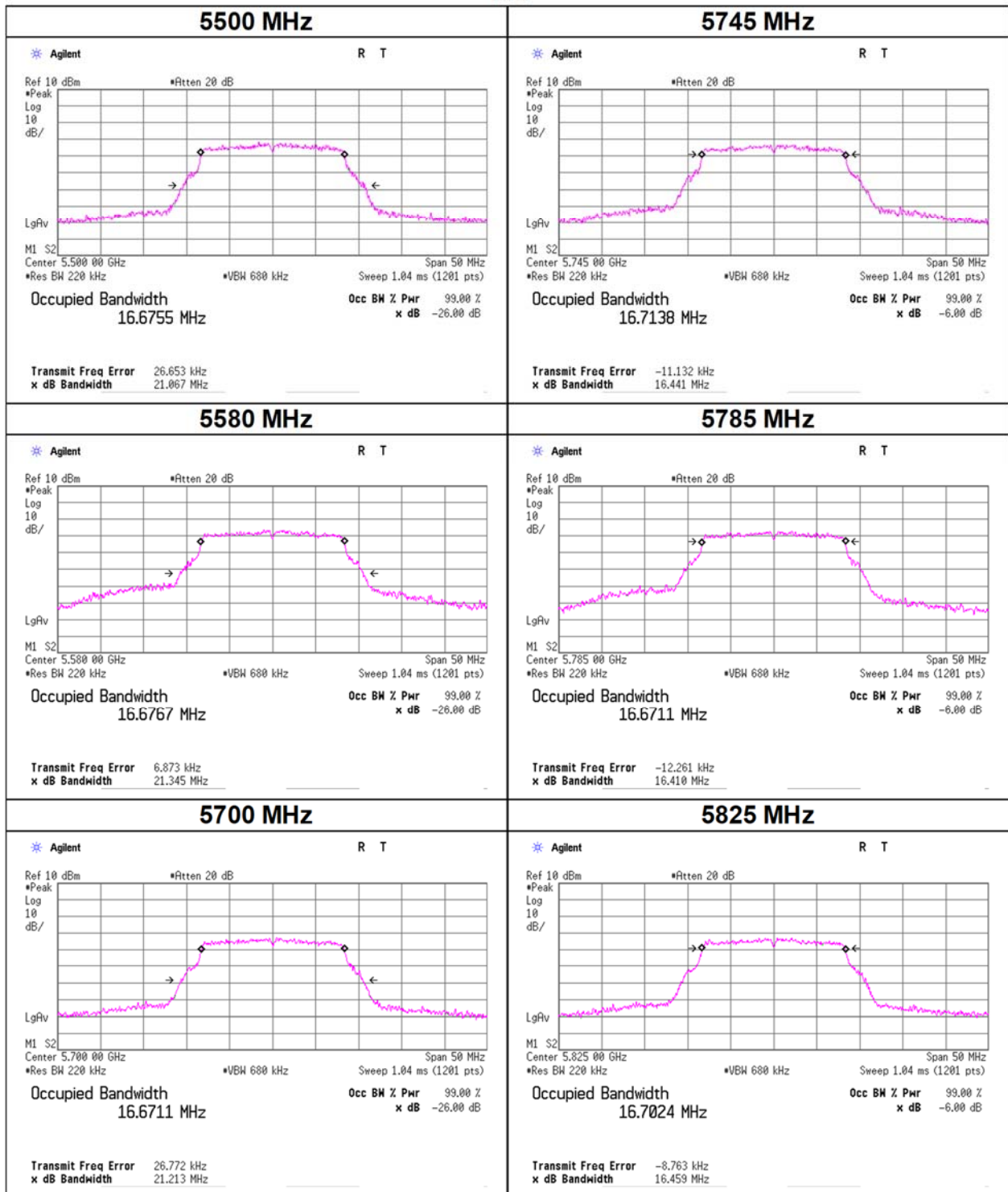
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11a



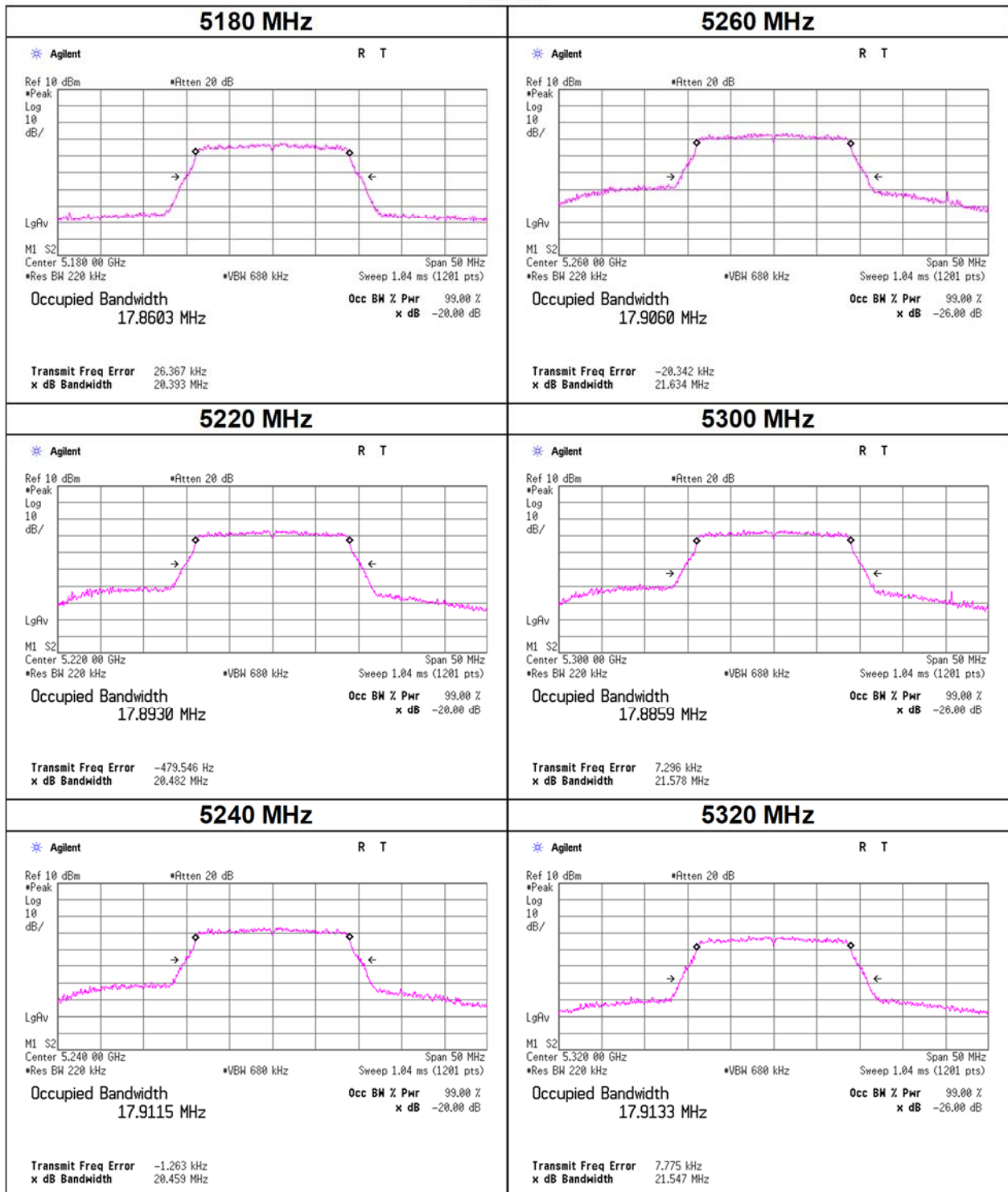
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11a



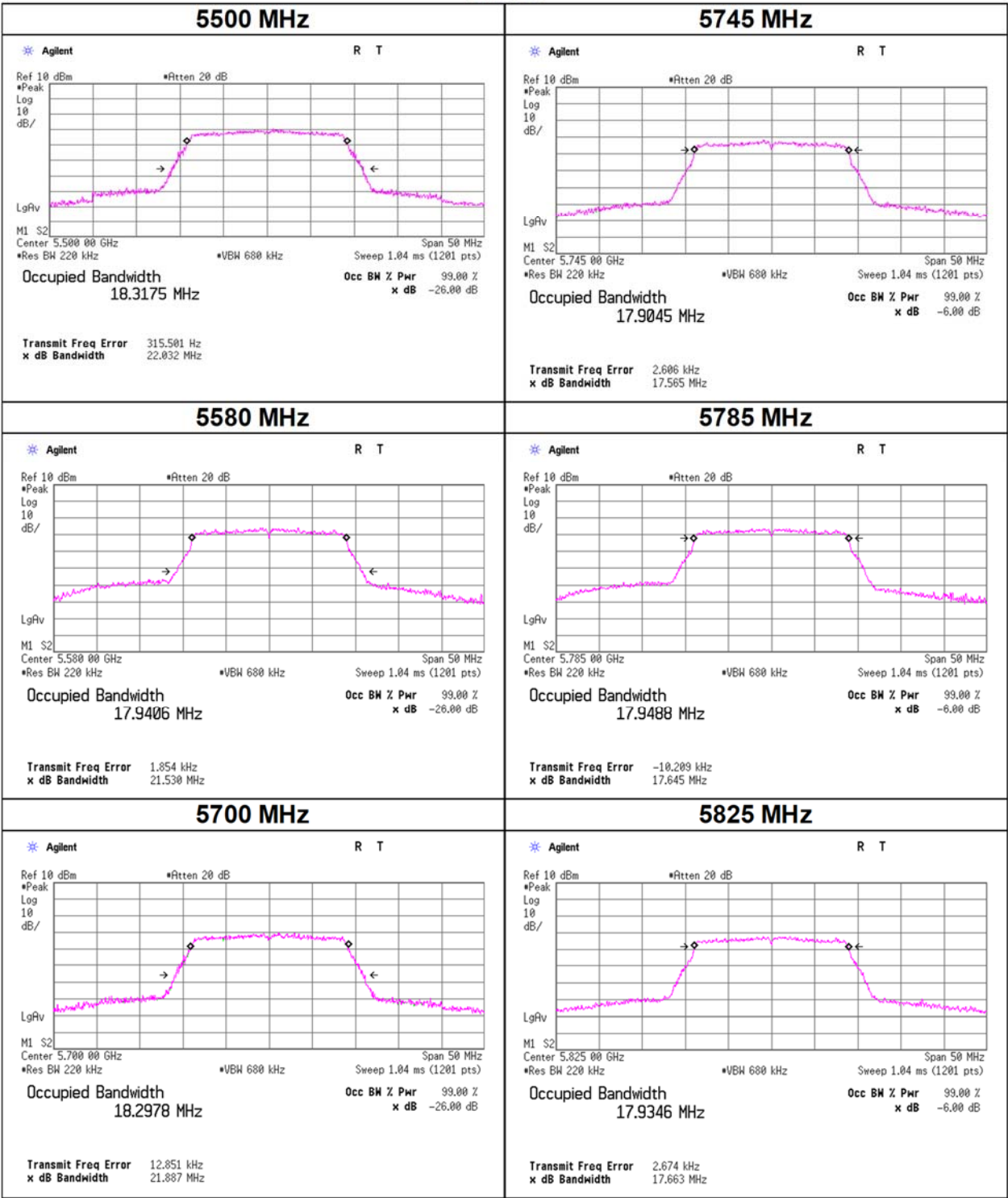
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11n-20



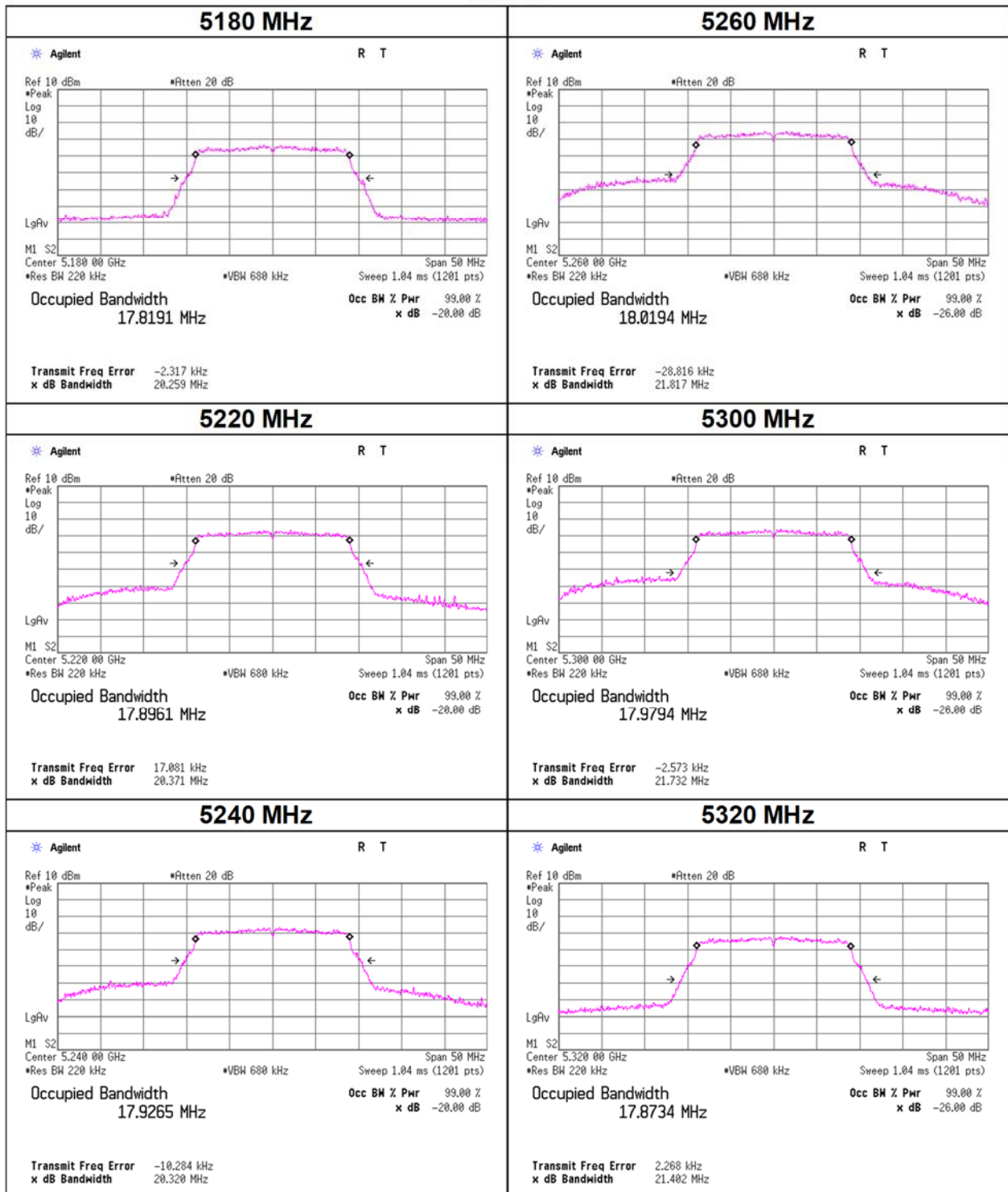
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11n-20



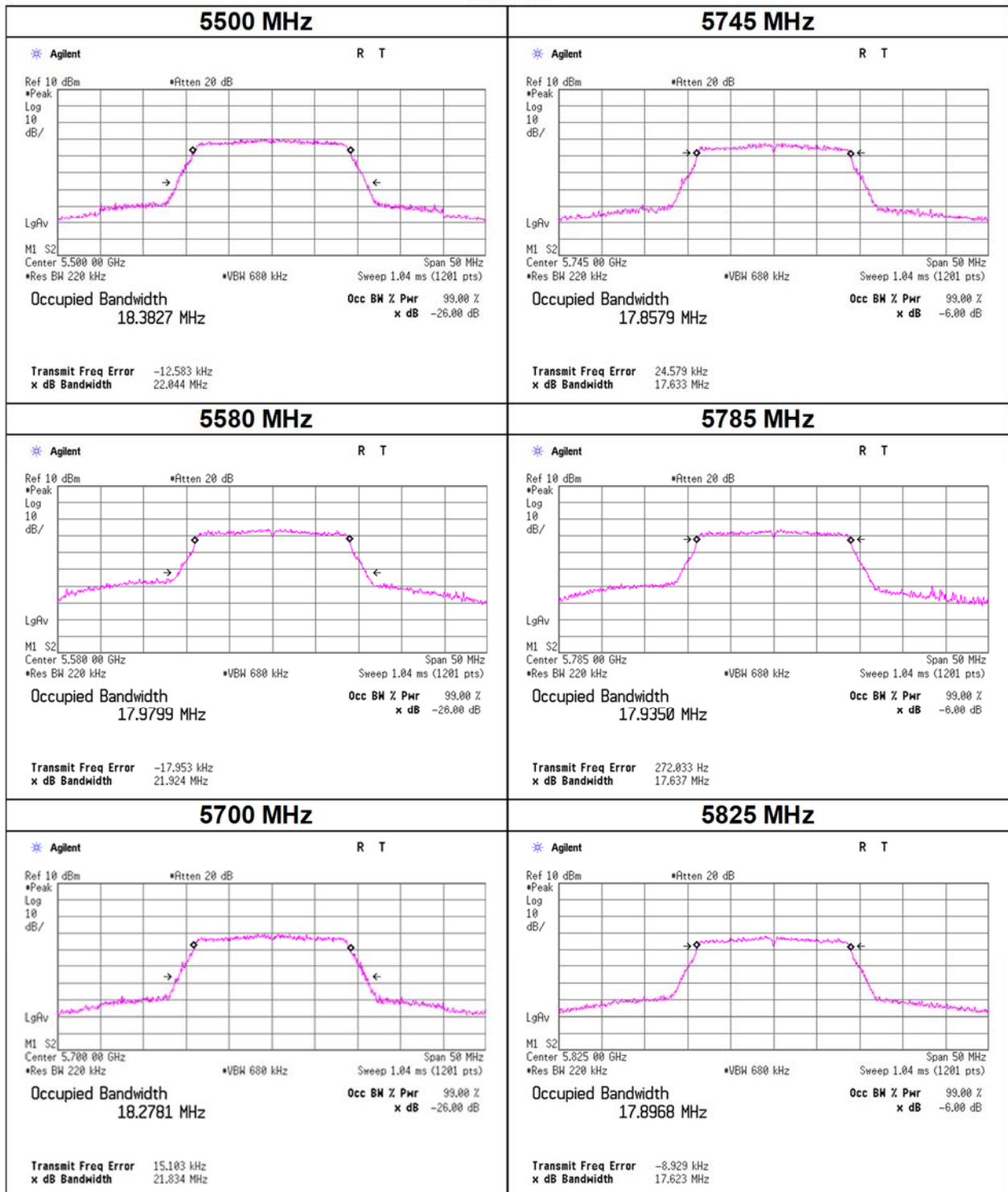
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11ac-20



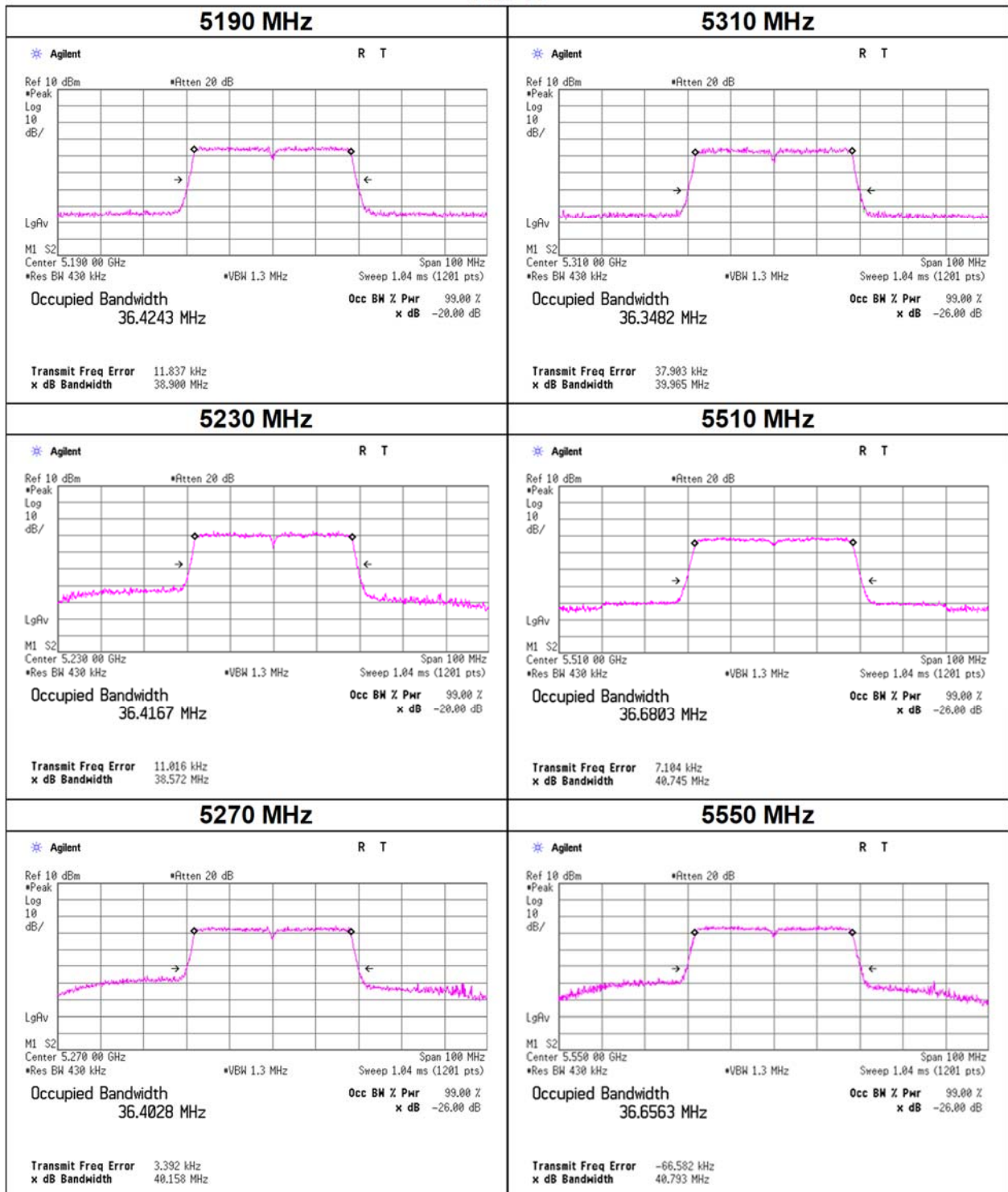
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11ac-20



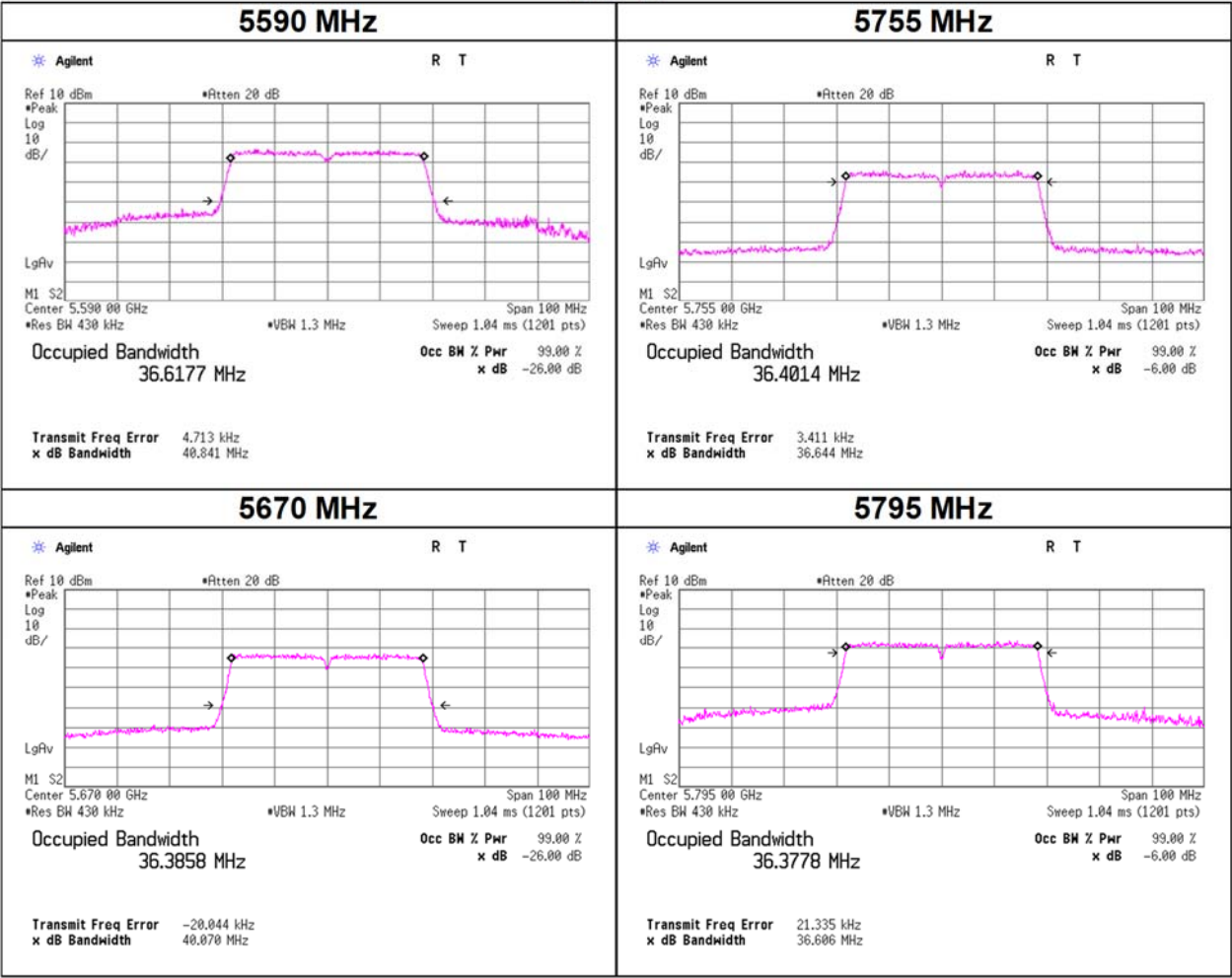
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11n-40



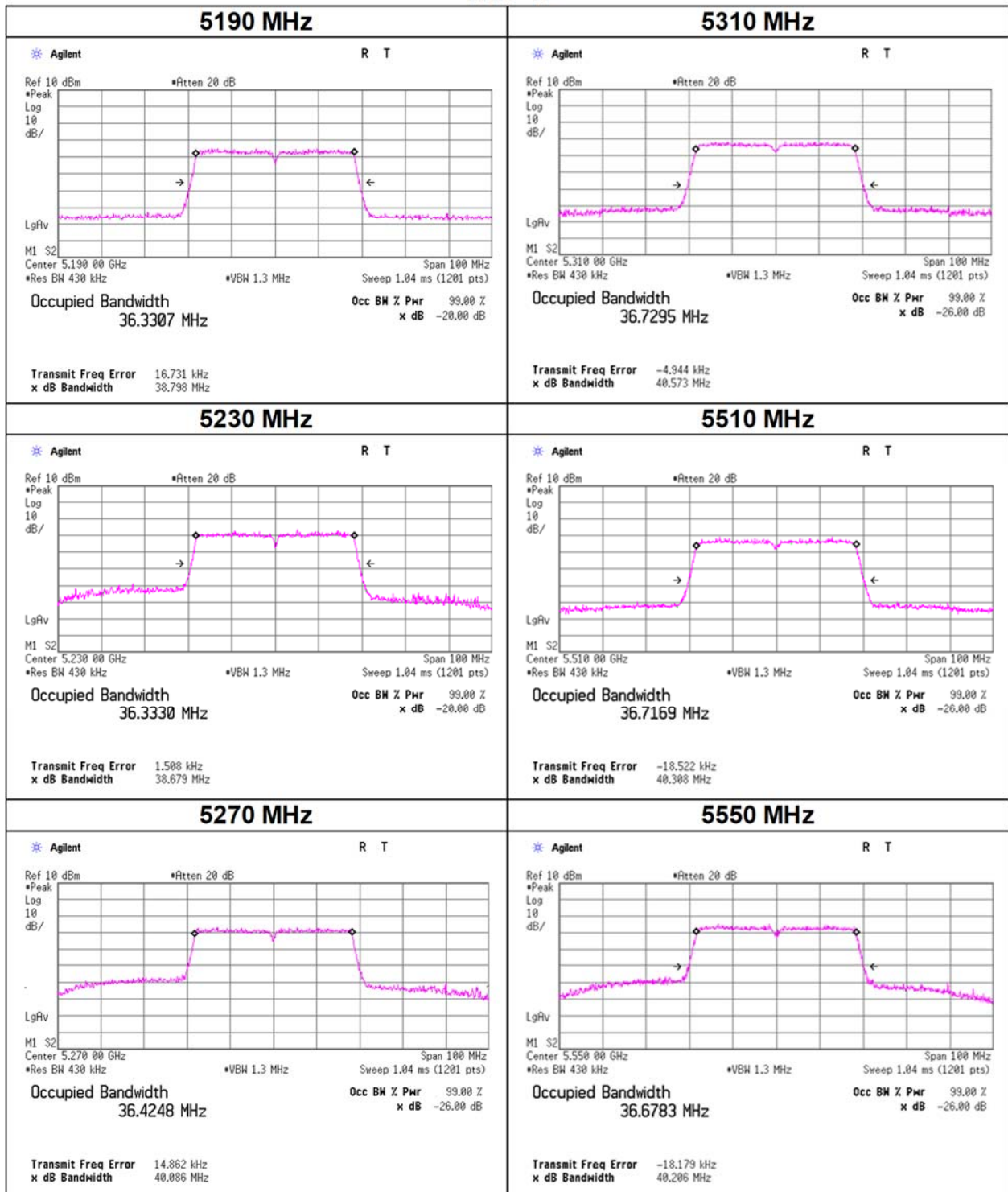
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11n-40



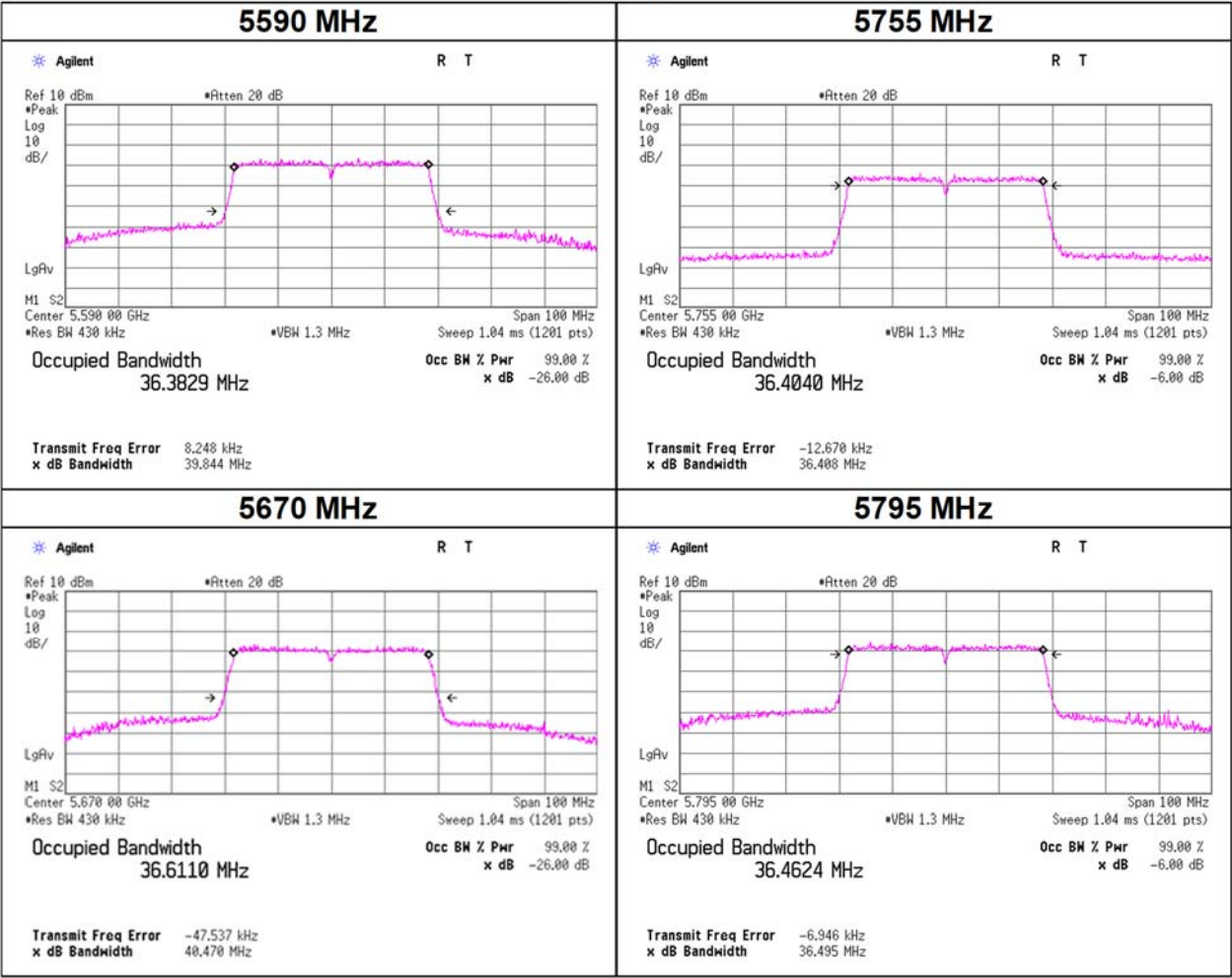
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11ac-40



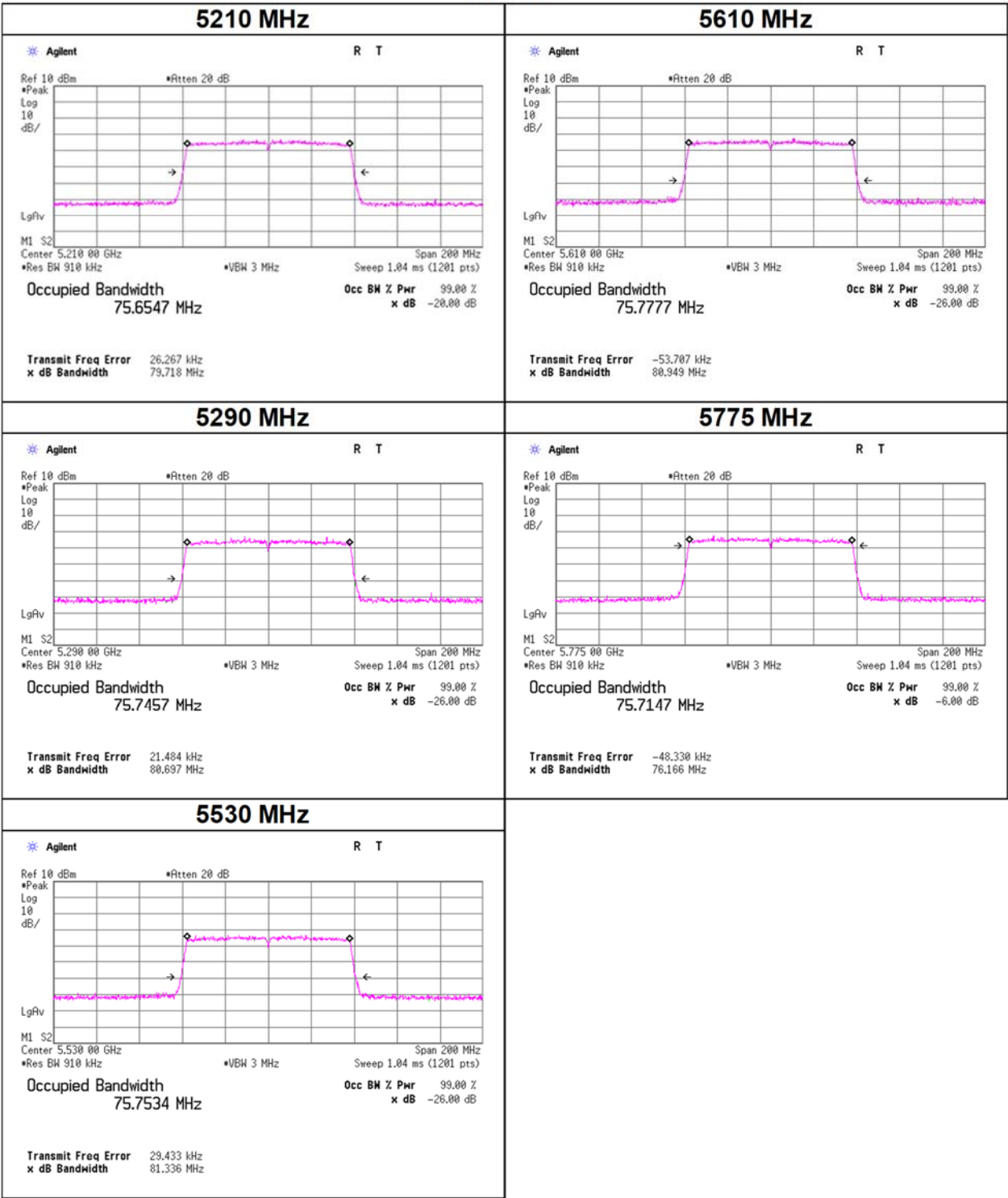
26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11ac-40



26 dB Emission Bandwidth and 99 % Occupied Bandwidth

11ac-80



6 dB Bandwidth

Test place
Date
Temperature / Humidity
Engineer
Mode

Shonan EMC Lab. No.8 Shielded Room
February 10, 2025
22 deg. C / 24 % RH
Yuta Shiba
Tx

February 17, 2025
21 deg. C / 25 % RH
Miku Ikudome

March 5, 2025
23 deg. C / 47 % RH
Takayuki Kobayashi

11a

Tested Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
5745	16.372	> 0.500
5785	16.380	> 0.500
5825	16.365	> 0.500

11n-20

Tested Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
5745	17.550	> 0.500
5785	17.623	> 0.500
5825	17.597	> 0.500

11ac-20

Tested Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
5745	17.608	> 0.500
5785	17.622	> 0.500
5825	17.602	> 0.500

11n-40

Tested Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
5755	36.427	> 0.500
5795	36.502	> 0.500

11ac-40

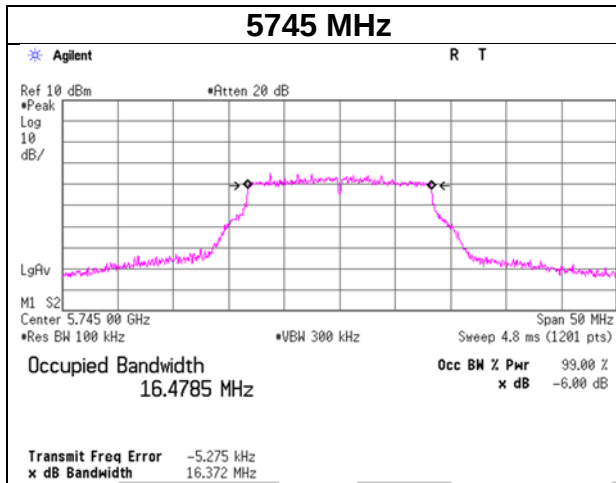
Tested Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
5755	36.505	> 0.500
5795	36.516	> 0.500

11ac-80

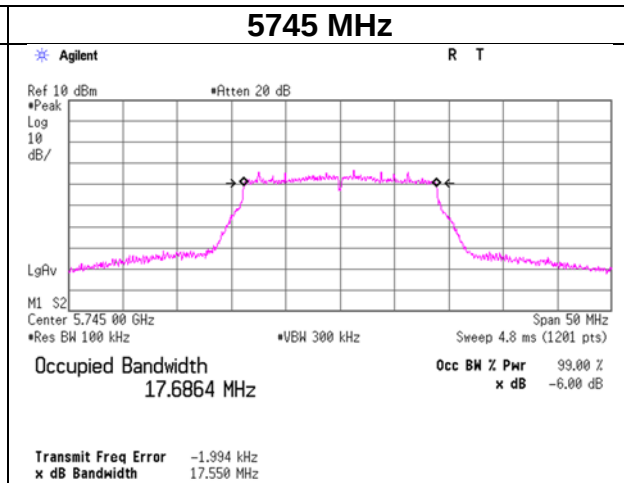
Tested Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
5775	76.466	> 0.500

6 dB Bandwidth

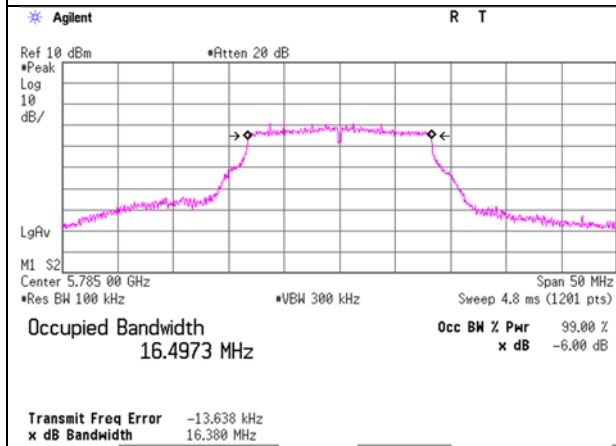
11a



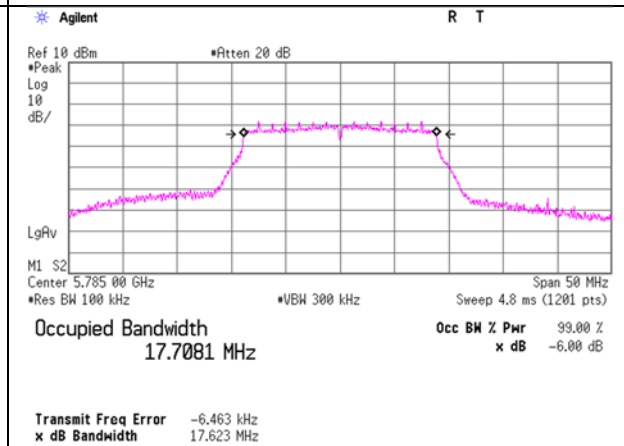
11n-20



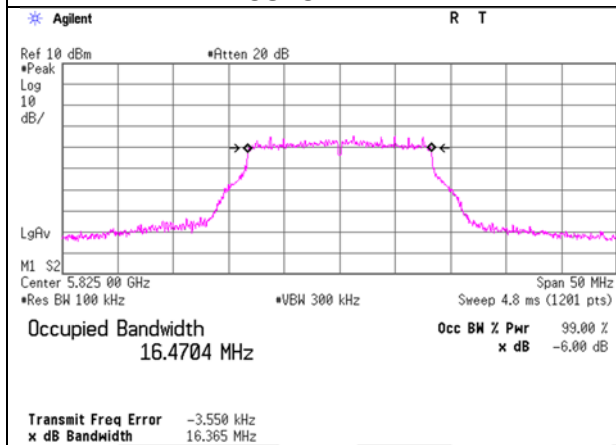
5785 MHz



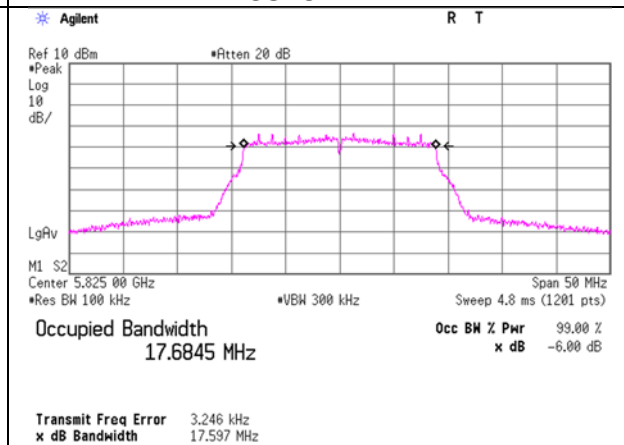
5785 MHz



5825 MHz

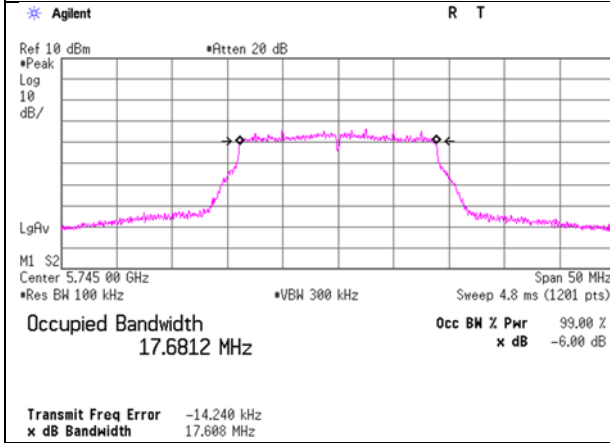


5825 MHz

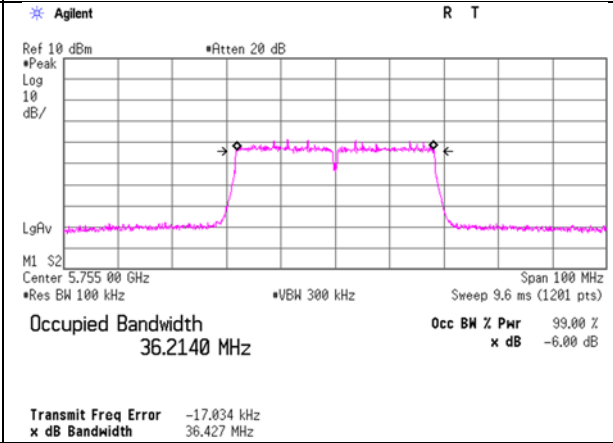


6 dB Bandwidth

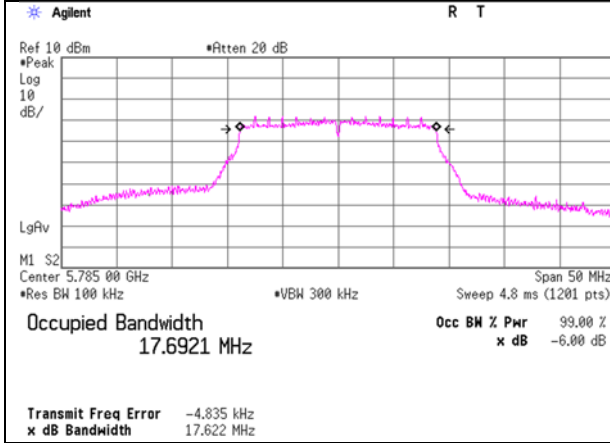
11ac-20
5745 MHz



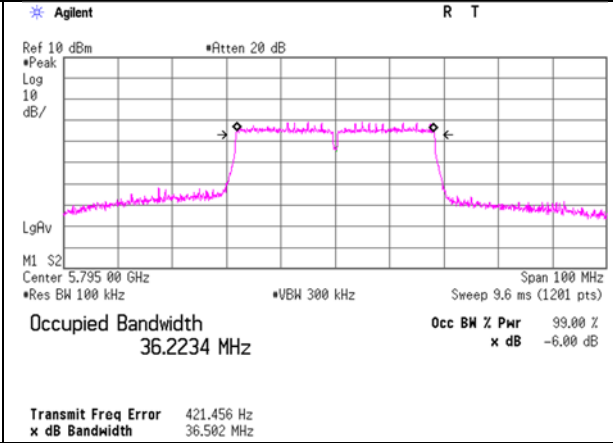
11n-40
5755 MHz



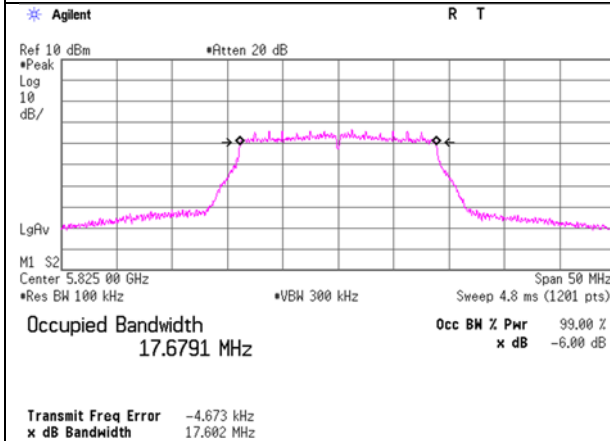
5785 MHz



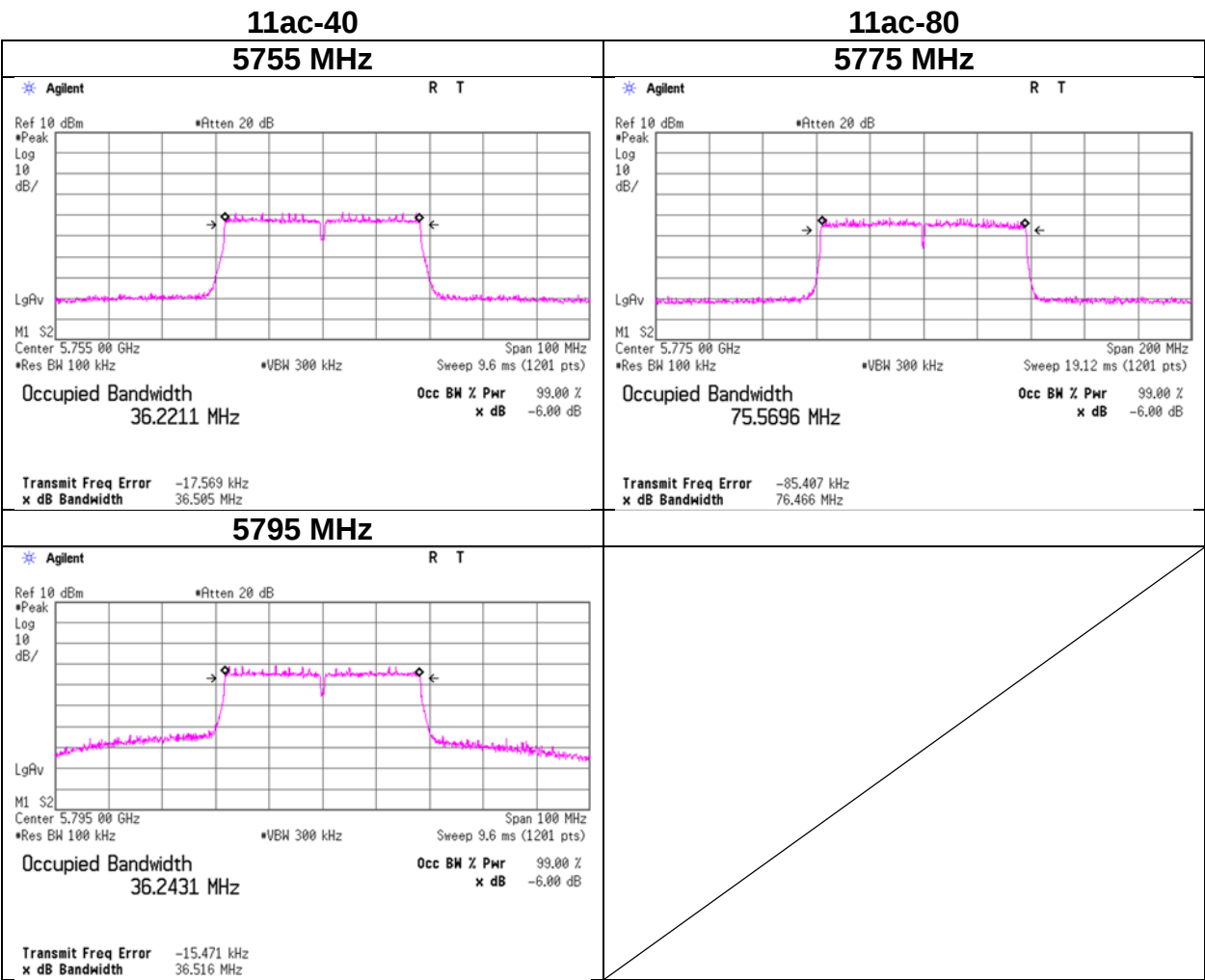
5795 MHz



5825 MHz



6 dB Bandwidth



Maximum Conducted Output Power

Test place Shonan EMC Lab. No.8 Shielded Room
Date February 5, 2025 March 5, 2025
Temperature / Humidity 23 deg. C / 36 % RH 23 deg. C / 47 % RH
Engineer Takayuki Kobayashi Takayuki Kobayashi
Mode Tx 11a

11a		(*)						Applied limit: 15.407, mobile and portable client device									
Tested Frequency	Power Meter Reading	Cable Loss	Atten. Loss	Duty Factor	Antenna Gain	26 dB EBW (B for FCC)	99 % OBW (B for IC)	Conducted Power				e.i.r.p.					
								Result		Limit	Margin	Result		Limit	Margin		
[MHz]	[dBm]	[dB]	[dB]	[dB]	[dBi]	[MHz]	[MHz]	[dBm]	[mW]	[dBm]	[dB]	[dBm]	[mW]	[dBm]	[dB]		
5180	-2.24	1.38	9.93	0.00	2.10	-	16.753	9.07	8.07	23.97	14.90	11.17	13.09	29.97	18.80		
5220	3.29	1.38	9.93	0.00	2.10	-	16.782	14.60	28.84	23.97	9.37	16.70	46.77	29.97	13.27		
5240	3.28	1.38	9.93	0.00	2.10	-	16.790	14.59	28.77	23.97	9.38	16.69	46.67	29.97	13.28		
5260	3.65	1.39	9.93	0.00	2.10	21.174	16.704	14.97	31.41	23.97	9.00	17.07	50.93	29.97	12.90		
5300	3.58	1.39	9.93	0.00	2.10	21.427	16.762	14.90	30.90	23.97	9.07	17.00	50.12	29.97	12.97		
5320	-2.45	1.39	9.93	0.00	2.10	21.102	16.673	8.87	7.71	23.97	15.10	10.97	12.50	29.97	19.00		
5500	-2.22	1.41	9.94	0.00	2.10	21.067	16.675	9.13	8.18	23.97	14.84	11.23	13.27	29.97	18.74		
5580	3.62	1.42	9.94	0.00	2.10	21.345	16.677	14.98	31.48	23.97	8.99	17.08	51.05	29.97	12.89		
5700	-2.28	1.43	9.94	0.00	2.10	21.213	16.671	9.09	8.11	23.97	14.88	11.19	13.15	29.97	18.78		
5745	-2.39	1.43	9.94	0.00	2.10	-	16.714	8.98	7.91	30.00	21.02	11.08	12.82	36.00	24.92		
5785	3.31	1.44	9.94	0.00	2.10	-	16.671	14.69	29.44	30.00	15.31	16.79	47.75	36.00	19.21		
5825	-2.49	1.44	9.94	0.00	2.10	-	16.702	8.89	7.74	30.00	21.11	10.99	12.56	36.00	25.01		

Sample Calculation:

Conducted Power Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor

e.i.r.p. Result = Conducted Power Result + Antenna Gain

(*) Power was measured with using the gate function of power meter.

Conducted Power Limit (5250 MHz-5350 MHz, 5470 MHz-5725 MHz) = 250 mW or (11 + 10logB) dBm, whichever is lower

Conducted Power Limit (5725 MHz-5850 MHz) = 1W

Although the EUT operates on Master mode, more stringent limit for Client device was applied. (U-NII-1 for FCC)

Maximum Conducted Output Power

Test place	Shonan EMC Lab. No.8 Shielded Room	
Date	February 6, 2025	March 5, 2025
Temperature / Humidity	25 deg. C / 50 % RH	23 deg. C / 47 % RH
Engineer	Hiromasa Sato	Takayuki Kobayashi
Mode	Tx 11n-20	

11n-20 (SISO)		(*)		Applied limit: 15.407, mobile and portable client device											
Tested Frequency	Power Meter Reading	Cable Loss	Atten. Loss	Duty Factor	Antenna Gain	26 dB EBW (B for FCC)	99 % OBW (B for IC)	Conducted Power				e.i.r.p.			
[MHz]	[dBm]	[dB]	[dB]	[dB]	[dBi]	[MHz]	[MHz]	Result	Limit	Margin		Result	Limit	Margin	
5180	-2.44	1.38	9.93	0.00	2.10	-	17.860	8.87	7.71	23.97	15.10	10.97	12.50	29.97	19.00
5220	3.30	1.38	9.93	0.00	2.10	-	17.893	14.61	28.91	23.97	9.36	16.71	46.88	29.97	13.26
5240	3.22	1.38	9.93	0.00	2.10	-	17.911	14.53	28.38	23.97	9.44	16.63	46.03	29.97	13.34
5260	3.50	1.39	9.93	0.00	2.10	21.634	17.906	14.82	30.34	23.97	9.15	16.92	49.20	29.97	13.05
5300	3.22	1.39	9.93	0.00	2.10	21.578	17.886	14.54	28.44	23.97	9.43	16.64	46.13	29.97	13.33
5320	-2.48	1.39	9.93	0.00	2.10	21.547	17.913	8.84	7.66	23.97	15.13	10.94	12.42	29.97	19.03
5500	-2.44	1.41	9.94	0.00	2.10	22.032	18.317	8.91	7.78	23.97	15.06	11.01	12.62	29.97	18.96
5580	3.47	1.42	9.94	0.00	2.10	21.530	17.941	14.83	30.41	23.97	9.14	16.93	49.32	29.97	13.04
5700	-2.40	1.43	9.94	0.00	2.10	21.887	18.298	8.97	7.89	23.97	15.00	11.07	12.79	29.97	18.90
5745	-2.43	1.43	9.94	0.00	2.10	-	17.904	8.94	7.83	30.00	21.06	11.04	12.71	36.00	24.96
5785	3.29	1.44	9.94	0.00	2.10	-	17.949	14.67	29.31	30.00	15.33	16.77	47.53	36.00	19.23
5825	-2.47	1.44	9.94	0.00	2.10	-	17.935	8.91	7.78	30.00	21.09	11.01	12.62	36.00	24.99

Sample Calculation:

Conducted Power Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor

e.i.r.p. Result = Conducted Power Result + Antenna Gain

(*) Power was measured with using the gate function of power meter.

Conducted Power Limit (5250 MHz-5350 MHz, 5470 MHz-5725 MHz) = 250 mW or (11 + 10logB) dBm, whichever is lower

Conducted Power Limit (5725 MHz-5850 MHz) = 1W

Although the EUT operates on Master mode, more stringent limit for Client device was applied. (U-NII-1 for FCC)

Maximum Conducted Output Power

Test place Shonan EMC Lab. No.8 Shielded Room
Date February 6, 2025 March 5, 2025
Temperature / Humidity 25 deg. C / 50 % RH 23 deg. C / 47 % RH
Engineer Hiromasa Sato Takayuki Kobayashi
Mode Tx 11ac-20

11ac-20 (*)								Applied limit: 15.407, mobile and portable client device							
Tested Frequency	Power Meter Reading	Cable Loss	Atten. Loss	Duty Factor	Antenna Gain	26 dB EBW (B for FCC)	99 % OBW (B for IC)	Conducted Power				e.i.r.p.			
								Result	Limit	Margin	Result	Limit	Margin		
[MHz]	[dBm]	[dB]	[dB]	[dB]	[dBi]	[MHz]	[MHz]	[dBm]	[mW]	[dBm]	[dB]	[dBm]	[mW]	[dBm]	[dB]
5180	-2.42	1.38	9.93	0.00	2.10	-	17.819	8.89	7.74	23.97	15.08	10.99	12.56	29.97	18.98
5220	3.35	1.38	9.93	0.00	2.10	-	17.896	14.66	29.24	23.97	9.31	16.76	47.42	29.97	13.21
5240	3.25	1.38	9.93	0.00	2.10	-	17.926	14.56	28.58	23.97	9.41	16.66	46.34	29.97	13.31
5260	3.66	1.39	9.93	0.00	2.10	21.817	18.019	14.98	31.48	23.97	8.99	17.08	51.05	29.97	12.89
5300	3.25	1.39	9.93	0.00	2.10	21.732	17.979	14.57	28.64	23.97	9.40	16.67	46.45	29.97	13.30
5320	-2.45	1.39	9.93	0.00	2.10	21.402	17.873	8.87	7.71	23.97	15.10	10.97	12.50	29.97	19.00
5500	-2.43	1.41	9.94	0.00	2.10	22.044	18.383	8.92	7.80	23.97	15.05	11.02	12.65	29.97	18.95
5580	3.63	1.42	9.94	0.00	2.10	21.924	17.980	14.99	31.55	23.97	8.98	17.09	51.17	29.97	12.88
5700	-2.63	1.43	9.94	0.00	2.10	21.834	18.278	8.74	7.48	23.97	15.23	10.84	12.13	29.97	19.13
5745	-2.42	1.43	9.94	0.00	2.10	-	17.858	8.95	7.85	30.00	21.05	11.05	12.74	36.00	24.95
5785	3.32	1.44	9.94	0.00	2.10	-	17.935	14.70	29.51	30.00	15.30	16.80	47.86	36.00	19.20
5825	-2.47	1.44	9.94	0.00	2.10	-	17.897	8.91	7.78	30.00	21.09	11.01	12.62	36.00	24.99

Sample Calculation:

Conducted Power Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor

e.i.r.p. Result = Conducted Power Result + Antenna Gain

(*) Power was measured with using the gate function of power meter.

Conducted Power Limit (5250 MHz-5350 MHz, 5470 MHz-5725 MHz) = 250 mW or (11 + 10logB) dBm, whichever is lower

Conducted Power Limit (5725 MHz-5850 MHz) = 1W

Although the EUT operates on Master mode, more stringent limit for Client device was applied. (U-NII-1 for FCC)

*Pre-Check of worst case voltage.

11ac-20 (*)

Applied limit: 15.407, mobile and portable client device

Although the EUT operates on Master mode, more stringent limit for Client device was applied. (U-NII-1 for FCC)

Voltage	Power Meter Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Antenna Gain [dBi]	26 dB EBW (B for FCC) [MHz]	99 % OBW (B for IC) [MHz]	Conducted Power				e.i.r.p.			
								Result [dBm]	Limit [dBm]	Margin [dB]	Result [dBm]	Limit [dBm]	Margin [dB]		
Vnom	3.63	1.42	9.94	0.00	2.10	21.924	17.980	14.99	31.55	23.97	8.98	17.09	51.17	29.97	12.88
Vmin	3.20	1.42	9.94	0.00	2.10	21.924	17.980	14.99	31.55	23.97	8.98	17.09	51.17	29.97	12.88
Vmax	3.59	1.42	9.94	0.00	2.10	21.924	17.980	14.95	31.26	23.97	9.02	17.05	50.70	29.97	12.92

Sample Calculation:

Conducted Power Result = Reading + + Atten. Loss + Duty Factor

e.i.r.p. Result = Conducted Power Result + Antenna Gain

(*) Power was measured with using the gate function of power meter.

Conducted Power Limit (5250 MHz-5350 MHz, 5470 MHz-5725 MHz) = 250 mW or (11 + 10logB) dBm, whichever is lower

Conducted Power Limit (5725 MHz-5850 MHz) = 1W

Voltage	Vnom: DC 3.3 V Vmin: DC 2.97 V Vmax: DC 3.63 V
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Maximum Conducted Output Power

Test place Shonan EMC Lab. No.8 Shielded Room
Date February 6, 2025 March 5, 2025 May 8, 2025
Temperature / Humidity 25 deg. C / 50 % RH 23 deg. C / 47 % RH 24 deg. C / 43 % RH
Engineer Hiromasa Sato Takayuki Kobayashi Yuta Shiba
Mode Tx 11n-40

11n-40 (*) Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	Power Meter Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Antenna Gain [dBi]	26 dB EBW (B for FCC) [MHz]	99 % OBW (B for IC) [MHz]	Conducted Power				e.i.r.p.			
								Result	Limit	Margin		Result	Limit	Margin	
5190	-4.17	1.38	9.93	0.00	2.10	-	36.424	7.14	5.18	23.97	16.83	9.24	8.39	29.97	20.73
5230	3.25	1.38	9.93	0.00	2.10	-	36.417	14.56	28.58	23.97	9.41	16.66	46.34	29.97	13.31
5270	3.48	1.39	9.93	0.00	2.10	40.158	36.403	14.80	30.20	23.97	9.17	16.90	48.98	29.97	13.07
5310	-4.24	1.39	9.93	0.00	2.10	39.965	36.348	7.08	5.11	23.97	16.89	9.18	8.28	29.97	20.79
5510	-4.38	1.41	9.94	0.00	2.10	40.745	36.680	6.97	4.98	23.97	17.00	9.07	8.07	29.97	20.90
5550	0.21	1.41	9.94	0.00	2.10	40.793	36.656	11.56	14.32	23.97	12.41	13.66	23.23	29.97	16.31
5590	3.19	1.42	9.94	0.00	2.10	40.841	36.618	14.55	28.51	23.97	9.42	16.65	46.24	29.97	13.32
5670	0.21	1.42	9.94	0.00	2.10	40.070	36.386	11.57	14.35	23.97	12.40	13.67	23.28	29.97	16.30
5755	-4.33	1.43	9.94	0.00	2.10	-	36.401	7.04	5.06	30.00	22.96	9.14	8.20	36.00	26.86
5795	3.33	1.44	9.94	0.00	2.10	-	36.378	14.71	29.58	30.00	15.29	16.81	47.97	36.00	19.19

Sample Calculation:

Conducted Power Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor

e.i.r.p. Result = Conducted Power Result + Antenna Gain

(*) Power was measured with using the gate function of power meter.

Conducted Power Limit (5250 MHz-5350 MHz, 5470 MHz-5725 MHz) = 250 mW or (11 + 10logB) dBm, whichever is lower

Conducted Power Limit (5725 MHz-5850 MHz) = 1W

Although the EUT operates on Master mode, more stringent limit for Client device was applied. (U-NII-1 for FCC)

Maximum Conducted Output Power

Test place Shonan EMC Lab. No.8 Shielded Room
Date February 6, 2025 March 5, 2025 May 8, 2025
Temperature / Humidity 25 deg. C / 50 % RH 23 deg. C / 47 % RH 24 deg. C / 43 % RH
Engineer Hiromasa Sato Takayuki Kobayashi Yuta Shiba
Mode Tx 11ac-40

11ac-40 (*) Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	Power Meter Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Antenna Gain [dBi]	26 dB EBW (B for FCC) [MHz]	99 % OBW (B for IC) [MHz]	Conducted Power				e.i.r.p.			
								Result	Limit	Margin		Result	Limit	Margin	
5190	-4.02	1.38	9.93	0.00	2.10	-	36.331	7.29	5.36	23.97	16.68	9.39	8.69	29.97	20.58
5230	3.45	1.38	9.93	0.00	2.10	-	36.333	14.76	29.92	23.97	9.21	16.86	48.53	29.97	13.11
5270	3.50	1.39	9.93	0.00	2.10	40.086	36.425	14.82	30.34	23.97	9.15	16.92	49.20	29.97	13.05
5310	-4.23	1.39	9.93	0.00	2.10	40.573	36.730	7.09	5.12	23.97	16.88	9.19	8.30	29.97	20.78
5510	-4.40	1.41	9.94	0.00	2.10	40.308	36.717	6.95	4.95	23.97	17.02	9.05	8.04	29.97	20.92
5550	0.24	1.41	9.94	0.00	2.10	40.206	36.678	11.59	14.42	23.97	12.38	13.69	23.39	29.97	16.28
5590	3.49	1.42	9.94	0.00	2.10	39.844	36.383	14.85	30.55	23.97	9.12	16.95	49.55	29.97	13.02
5670	0.34	1.42	9.94	0.00	2.10	40.470	36.611	11.70	14.79	23.97	12.27	13.80	23.99	29.97	16.17
5755	-4.15	1.43	9.94	0.00	2.10	-	36.404	7.22	5.27	30.00	22.78	9.32	8.55	36.00	26.68
5795	3.35	1.44	9.94	0.00	2.10	-	36.462	14.73	29.72	30.00	15.27	16.83	48.19	36.00	19.17

Sample Calculation:

Conducted Power Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor

e.i.r.p. Result = Conducted Power Result + Antenna Gain

(*) Power was measured with using the gate function of power meter.

Conducted Power Limit (5250 MHz-5350 MHz, 5470 MHz-5725 MHz) = 250 mW or (11 + 10logB) dBm, whichever is lower

Conducted Power Limit (5725 MHz-5850 MHz) = 1W

Although the EUT operates on Master mode, more stringent limit for Client device was applied. (U-NII-1 for FCC)

Maximum Conducted Output Power

Test place Shonan EMC Lab. No.8 Shielded Room
Date February 6, 2025 March 5, 2025
Temperature / Humidity 25 deg. C / 50 % RH 23 deg. C / 47 % RH
Engineer Hiromasa Sato Takayuki Kobayashi
Mode Tx 11ac-80

11ac-80 (SISO)								(*)								Applied limit: 15.407, mobile and portable client device							
Tested Frequency	Power Meter Reading	Cable Loss	Atten. Loss	Duty Factor	Antenna Gain	26 dB EBW (B for FCC)	99 % OBW (B for IC)	Conducted Power				e.i.r.p.											
								Result		Limit	Margin	Result		Limit	Margin								
[MHz]	[dBm]	[dB]	[dB]	[dB]	[dBi]	[MHz]	[MHz]	[dBm]	[mW]	[dBm]	[dB]	[dBm]	[mW]	[dBm]	[dB]								
5210	-3.68	1.38	9.93	0.00	2.10	-	75.655	7.63	5.79	23.97	16.34	9.73	9.40	29.97	20.24								
5290	-3.80	1.39	9.93	0.00	2.10	80.697	75.746	7.52	5.65	23.97	16.45	9.62	9.16	29.97	20.35								
5530	-3.87	1.41	9.94	0.00	2.10	81.336	75.753	7.48	5.60	23.97	16.49	9.58	9.08	29.97	20.39								
5610	-3.86	1.42	9.94	0.00	2.10	80.949	75.778	7.50	5.62	23.97	16.47	9.60	9.12	29.97	20.37								
5775	-3.99	1.43	9.94	0.00	2.10	-	75.715	7.38	5.47	30.00	22.62	9.48	8.87	36.00	26.52								

Sample Calculation:

Conducted Power Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor

e.i.r.p. Result = Conducted Power Result + Antenna Gain

(*) Power was measured with using the gate function of power meter.

Conducted Power Limit (5250 MHz-5350 MHz, 5470 MHz-5725 MHz) = 250 mW or (11 + 10logB) dBm, whichever is lower

Conducted Power Limit (5725 MHz-5850 MHz) = 1W

Although the EUT operates on Master mode, more stringent limit for Client device was applied. (U-NII-1 for FCC)

Maximum Conducted Output Power

Test place Shonan EMC Lab. No.8 Shielded Room
Date February 5, 2025
Temperature / Humidity 23 deg. C / 46 % RH
Engineer Yuta Shiba
Mode Tx 11a

11a
Worst rate check (5220 MHz)

Rate [Mbps]	Reading (Average) [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Total Result Power		Remark
				[dBm]	[mW]	[dBm]	[mW]	
6	3.29	1.38	9.93	14.60	28.84	14.60	28.84	*
9	3.28	1.38	9.93	14.59	28.77	14.59	28.77	-
12	3.26	1.38	9.93	14.57	28.64	14.57	28.64	-
18	3.19	1.38	9.93	14.50	28.18	14.50	28.18	-
24	1.29	1.38	9.93	12.60	18.20	12.60	18.20	-
36	1.27	1.38	9.93	12.58	18.11	12.58	18.11	-
48	1.29	1.38	9.93	12.60	18.20	12.60	18.20	-
54	1.30	1.38	9.93	12.61	18.24	12.61	18.24	-

*Worst Rate
Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss
This measurement was performed only on the on time using the gate function of power meter.

Maximum Conducted Output Power

Test place
Date
Temperature / Humidity
Engineer
Mode

Shonan EMC Lab. No.8 Shielded Room
February 5, 2025
23 deg. C / 46 % RH
Yuta Shiba
Tx 11n-20

11n-20

Worst rate check (5220 MHz)

MCS Index	Reading (Average) [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Total Result Power		Remark
				[dBm]	[mW]	[dBm]	[mW]	
0	3.30	1.38	9.93	14.61	28.91	14.61	28.91	*
1	3.16	1.38	9.93	14.47	27.99	14.47	27.99	-
2	3.21	1.38	9.93	14.52	28.31	14.52	28.31	-
3	1.32	1.38	9.93	12.63	18.32	12.63	18.32	-
4	1.28	1.38	9.93	12.59	18.16	12.59	18.16	-
5	1.29	1.38	9.93	12.60	18.20	12.60	18.20	-
6	1.37	1.38	9.93	12.68	18.54	12.68	18.54	-
7	1.41	1.38	9.93	12.72	18.71	12.72	18.71	-

*Worst Rate

Sample Calculation:

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

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

Maximum Conducted Output Power

Test place
Date
Temperature / Humidity
Engineer
Mode

Shonan EMC Lab. No.8 Shielded Room
February 5, 2025
23 deg. C / 46 % RH
Yuta Shiba
Tx 11ac-20

11ac-20

Worst rate check (5220 MHz)

MCS Index	Reading (Average) [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Total Result Power		Remark
				[dBm]	[mW]	[dBm]	[mW]	
0	3.35	1.38	9.93	14.66	29.24	14.66	29.24	*
1	3.23	1.38	9.93	14.54	28.44	14.54	28.44	-
2	3.26	1.38	9.93	14.57	28.64	14.57	28.64	-
3	1.32	1.38	9.93	12.63	18.32	12.63	18.32	-
4	1.32	1.38	9.93	12.63	18.32	12.63	18.32	-
5	1.34	1.38	9.93	12.65	18.41	12.65	18.41	-
6	1.31	1.38	9.93	12.62	18.28	12.62	18.28	-
7	1.30	1.38	9.93	12.61	18.24	12.61	18.24	-
8	-0.71	1.38	9.93	10.60	11.48	10.60	11.48	-

*Worst Rate

Sample Calculation:

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

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

Maximum Conducted Output Power

Test place
Date
Temperature / Humidity
Engineer
Mode

Shonan EMC Lab. No.8 Shielded Room
February 5, 2025
23 deg. C / 46 % RH
Yuta Shiba
Tx 11n-40

11n-40
Worst rate check (5230 MHz)

MCS Index	Reading (Average) [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Total Result Power		Remark
				[dBm]	[mW]	[dBm]	[mW]	
0	3.12	1.38	9.93	14.43	27.73	14.43	27.73	-
1	3.16	1.38	9.93	14.47	27.99	14.47	27.99	-
2	3.25	1.38	9.93	14.56	28.58	14.56	28.58	*
3	1.57	1.38	9.93	12.88	19.41	12.88	19.41	-
4	1.56	1.38	9.93	12.87	19.36	12.87	19.36	-
5	1.53	1.38	9.93	12.84	19.23	12.84	19.23	-
6	1.54	1.38	9.93	12.85	19.28	12.85	19.28	-
7	1.52	1.38	9.93	12.83	19.19	12.83	19.19	-

*Worst Rate
Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator Loss
This measurement was performed only on the on time using the gate function of power meter.

Maximum Conducted Output Power

Test place
Date
Temperature / Humidity
Engineer
Mode

Shonan EMC Lab. No.8 Shielded Room
February 5, 2025
23 deg. C / 46 % RH
Yuta Shiba
Tx 11ac-40

11ac-40

Worst rate check (5230 MHz)

MCS Index	Reading (Average) [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Total Result Power		Remark
				[dBm]	[mW]	[dBm]	[mW]	
0	3.21	1.38	9.93	14.52	28.31	14.52	28.31	-
1	3.45	1.38	9.93	14.76	29.92	14.76	29.92	*
2	3.43	1.38	9.93	14.74	29.79	14.74	29.79	-
3	1.58	1.38	9.93	12.89	19.45	12.89	19.45	-
4	1.57	1.38	9.93	12.88	19.41	12.88	19.41	-
5	1.56	1.38	9.93	12.87	19.36	12.87	19.36	-
6	1.55	1.38	9.93	12.86	19.32	12.86	19.32	-
7	1.53	1.38	9.93	12.84	19.23	12.84	19.23	-
8	-2.36	1.38	9.93	8.95	7.85	8.95	7.85	-
9	-2.37	1.38	9.93	8.94	7.83	8.94	7.83	-

*Worst Rate

Sample Calculation:

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

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

Maximum Conducted Output Power

Test place
Date
Temperature / Humidity
Engineer
Mode

Shonan EMC Lab. No.8 Shielded Room
February 5, 2025
23 deg. C / 46 % RH
Yuta Shiba
Tx 11ac-80

11ac-80

Worst rate check (5210 MHz)

MCS Index	Reading (Average) [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Total Result Power		Remark
				[dBm]	[mW]	[dBm]	[mW]	
0	-4.15	1.38	9.93	7.16	5.20	7.16	5.20	-
1	-4.01	1.38	9.93	7.30	5.37	7.30	5.37	-
2	-3.99	1.38	9.93	7.32	5.40	7.32	5.40	-
3	-4.00	1.38	9.93	7.31	5.38	7.31	5.38	-
4	-3.94	1.38	9.93	7.37	5.46	7.37	5.46	-
5	-3.72	1.38	9.93	7.59	5.74	7.59	5.74	-
6	-3.70	1.38	9.93	7.61	5.77	7.61	5.77	-
7	-3.68	1.38	9.93	7.63	5.79	7.63	5.79	*
8	-3.71	1.38	9.93	7.60	5.75	7.60	5.75	-
9	-3.70	1.38	9.93	7.61	5.77	7.61	5.77	-

*Worst Rate

Sample Calculation:

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

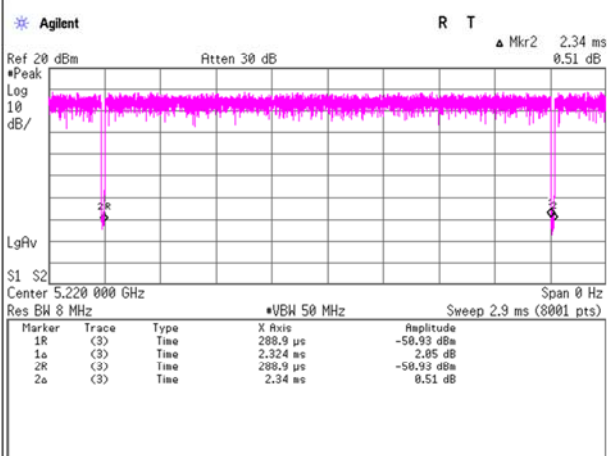
This measurement was performed only on the on time using the gate function of power meter.

Burst rate confirmation

Test place Shonan EMC Lab. No.8 Shielded Room
Date February 10, 2025
Temperature / Humidity 22 deg. C / 24 % RH
Engineer Yuta Shiba
Mode Tx

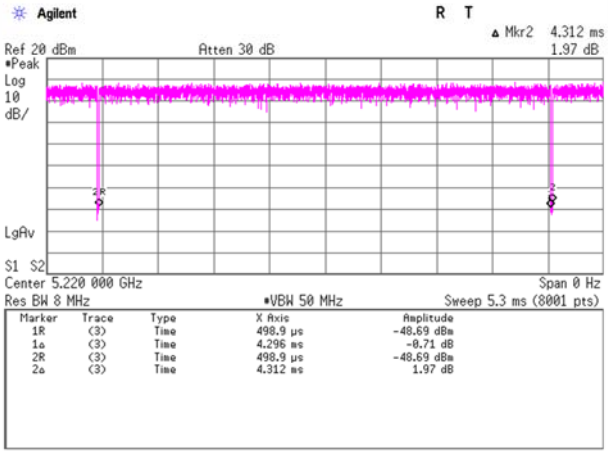
11a, 6 Mbps

$Tx\ on / (Tx\ on + Tx\ off) = 0.993$
 $Tx\ on / (Tx\ on + Tx\ off) * 100 = 99.3\ \%$
 $Duty\ factor = 10 * \log (2.34 / 2.324) = 0.03\ dB$
 $VBW: 1 / x = 430.293\ Hz < 0.50\ kHz$
 $x: (Tx\ on) = 2.32\ ms$



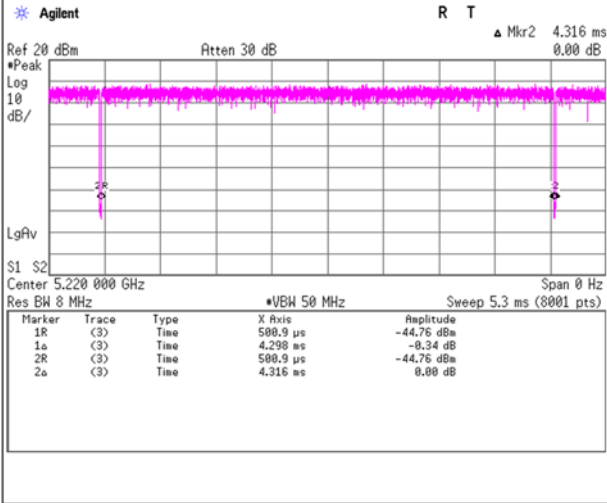
11n-20, MCS 0

$Tx\ on / (Tx\ on + Tx\ off) = 0.996$
 $Tx\ on / (Tx\ on + Tx\ off) * 100 = 99.6\ \%$
 $Duty\ factor = 10 * \log (4.312 / 4.296) = 0.02\ dB$
 $VBW: 1 / x = 232.775\ Hz < 0.30\ kHz$
 $x: (Tx\ on) = 4.30\ ms$



11ac-20, MCS 0

$Tx\ on / (Tx\ on + Tx\ off) = 0.996$
 $Tx\ on / (Tx\ on + Tx\ off) * 100 = 99.6\ \%$
 $Duty\ factor = 10 * \log (4.316 / 4.298) = 0.02\ dB$
 $VBW: 1 / x = 232.666\ Hz < 0.30\ kHz$
 $x: (Tx\ on) = 4.30\ ms$

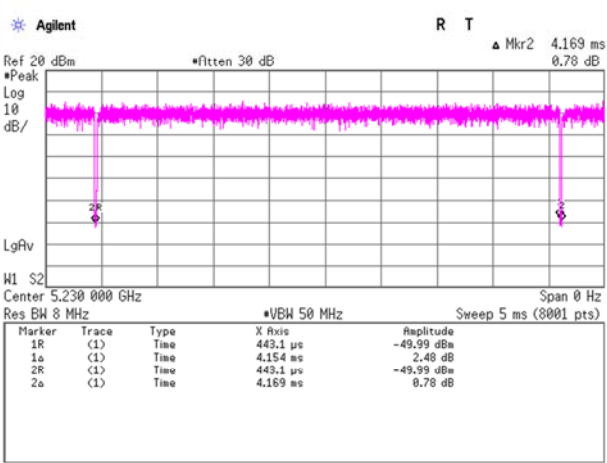


Burst rate confirmation

Test place Shonan EMC Lab. No.8 Shielded Room
Date February 10, 2025
Temperature / Humidity 22 deg. C / 24 % RH
Engineer Yuta Shiba
Mode Tx

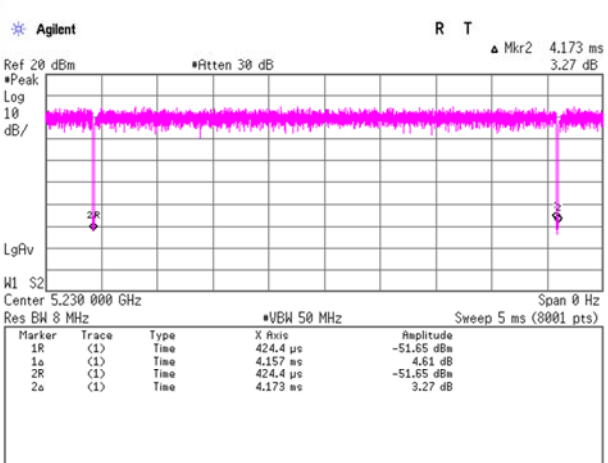
11n-40 MCS 2

Tx on / (Tx on + Tx off) =	0.996
Tx on / (Tx on + Tx off) * 100 =	99.6 %
Duty factor = 10 * log (4.169 / 4.154) =	0.02 dB
VBW: 1 / x = 240.732 Hz <	0.30 kHz
x: (Tx on) =	4.15 ms



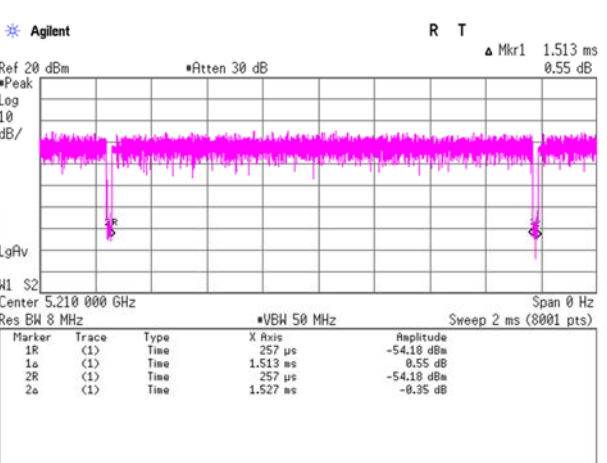
11ac-40 MCS 1

Tx on / (Tx on + Tx off) =	0.996
Tx on / (Tx on + Tx off) * 100 =	99.6 %
Duty factor = 10 * log (4.173 / 4.157) =	0.02 dB
VBW: 1 / x = 240.558 Hz <	0.30 kHz
x: (Tx on) =	4.16 ms



11ac-80 MCS 7

Tx on / (Tx on + Tx off) =	0.991
Tx on / (Tx on + Tx off) * 100 =	99.1 %
Duty factor = 10 * log (1.527 / 1.513) =	0.04 dB
VBW: 1 / x = 660.939 Hz <	1.00 kHz
x: (Tx on) =	1.51 ms



Maximum Power Spectral Density

Test place Shonan EMC Lab. No.8 Shielded Room
Date February 18, 2025
Temperature / Humidity 24 deg. C / 23 % RH
Engineer Yohsuke Matsuzawa
Mode Tx 11a

11a

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD Frequency [MHz]	PSD Reading [dBm /MHz]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Antenna Gain [dBi]	RBW Correction Factor [dB]	PSD (Conducted)			PSD (e.i.r.p.)		
								Result [dBm /MHz]	Limit [dBm /MHz]	Margin [dB]	Result [dBm /MHz]	Limit [dBm /MHz]	Margin [dB]
5180	5178.85	-22.44	1.38	20.16	0.03	2.10	0.00	-0.87	11.00	11.87	1.23	17.00	15.77
5220	5218.96	-16.93	1.38	20.16	0.03	2.10	0.00	4.64	11.00	6.36	6.74	17.00	10.26
5240	5239.05	-16.70	1.38	20.16	0.03	2.10	0.00	4.87	11.00	6.13	6.97	17.00	10.03
5260	5261.17	-16.15	1.39	20.16	0.03	2.10	0.00	5.43	11.00	5.57	7.53	17.00	9.47
5300	5299.11	-16.53	1.39	20.16	0.03	2.10	0.00	5.05	11.00	5.95	7.15	17.00	9.85
5320	5321.15	-22.19	1.39	20.16	0.03	2.10	0.00	-0.61	11.00	11.61	1.49	17.00	15.51
5500	5500.89	-22.26	1.41	20.16	0.03	2.10	0.00	-0.66	11.00	11.66	1.44	17.00	15.56
5580	5578.68	-16.59	1.42	20.16	0.03	2.10	0.00	5.02	11.00	5.98	7.12	17.00	9.88
5700	5699.16	-22.45	1.43	20.16	0.03	2.10	0.00	-0.83	11.00	11.83	1.27	17.00	15.73
5745	5744.44	-25.56	1.43	20.16	0.03	2.10	0.27	-3.67	30.00	33.67	-1.57	36.00	37.57
5785	5785.48	-19.76	1.44	20.16	0.03	2.10	0.27	2.14	30.00	27.86	4.24	36.00	31.76
5825	5825.52	-25.41	1.44	20.16	0.03	2.10	0.27	-3.51	30.00	33.51	-1.41	36.00	37.41

Sample Calculation:

PSD: Power Spectral Density

The PSD within 5725 MHz to 5825 MHz are based on any 500 kHz band.

RBW Correction Factor = $10 \cdot \log (\text{Specified bandwidth} / \text{Measured bandwidth})$

PSD Result (Conducted) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor + RBW Correction Factor

PSD Result (e.i.r.p.) = Conducted PSD Result + Antenna Gain

RBW Correction Factor = $10 \cdot \log (500 \text{ [kHz]} / 470 \text{ [kHz]})$

Maximum Power Spectral Density

Test place Shonan EMC Lab. No.8 Shielded Room
Date February 18, 2025
Temperature / Humidity 24 deg. C / 23 % RH
Engineer Yohsuke Matsuzawa
Mode Tx 11n-20

11n-20 (SISO)

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD Frequency [MHz]	PSD Reading [dBm /MHz]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Antenna Gain [dBi]	RBW Correction Factor [dB]	PSD (Conducted)			PSD (e.i.r.p.)		
								Result [dBm /MHz]	Limit [dBm /MHz]	Margin [dB]	Result [dBm /MHz]	Limit [dBm /MHz]	Margin [dB]
5180	5179.11	-22.45	1.38	20.16	0.02	2.10	0.00	-0.89	11.00	11.89	1.21	17.00	15.79
5220	5221.37	-17.26	1.38	20.16	0.02	2.10	0.00	4.30	11.00	6.70	6.40	17.00	10.60
5240	5240.98	-17.28	1.38	20.16	0.02	2.10	0.00	4.28	11.00	6.72	6.38	17.00	10.62
5260	5260.74	-16.84	1.39	20.16	0.02	2.10	0.00	4.73	11.00	6.27	6.83	17.00	10.17
5300	5298.83	-17.09	1.39	20.16	0.02	2.10	0.00	4.48	11.00	6.52	6.58	17.00	10.42
5320	5321.45	-22.59	1.39	20.16	0.02	2.10	0.00	-1.02	11.00	12.02	1.08	17.00	15.92
5500	5500.76	-23.06	1.41	20.16	0.02	2.10	0.00	-1.47	11.00	12.47	0.63	17.00	16.37
5580	5579.07	-16.94	1.42	20.16	0.02	2.10	0.00	4.66	11.00	6.34	6.76	17.00	10.24
5700	5701.08	-24.35	1.43	20.16	0.02	2.10	0.00	-2.74	11.00	13.74	-0.64	17.00	17.64
5745	5744.46	-26.14	1.43	20.16	0.02	2.10	0.27	-4.26	30.00	34.26	-2.16	36.00	38.16
5785	5783.61	-20.34	1.44	20.16	0.02	2.10	0.27	1.55	30.00	28.45	3.65	36.00	32.35
5825	5824.05	-26.04	1.44	20.16	0.02	2.10	0.27	-4.15	30.00	34.15	-2.05	36.00	38.05

Sample Calculation:

PSD: Power Spectral Density

The PSD within 5725 MHz to 5825 MHz are based on any 500 kHz band.

RBW Correction Factor = $10 \cdot \log (\text{Specified bandwidth} / \text{Measured bandwidth})$

PSD Result (Conducted) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor + RBW Correction Factor

PSD Result (e.i.r.p.) = Conducted PSD Result + Antenna Gain

RBW Correction Factor = $10 \cdot \log (500 \text{ [kHz]} / 470 \text{ [kHz]})$

Maximum Power Spectral Density

Test place Shonan EMC Lab. No.8 Shielded Room
Date February 18, 2025
Temperature / Humidity 24 deg. C / 23 % RH
Engineer Yohsuke Matsuzawa
Mode Tx 11ac-20

11ac-20 (SISO)

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD Frequency [MHz]	PSD Reading [dBm /MHz]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Antenna Gain [dBi]	RBW Correction Factor [dB]	PSD (Conducted)			PSD (e.i.r.p.)		
								Result [dBm /MHz]	Limit [dBm /MHz]	Margin [dB]	Result [dBm /MHz]	Limit [dBm /MHz]	Margin [dB]
5180	5180.85	-22.85	1.38	20.16	0.02	2.10	0.00	-1.29	11.00	12.29	0.81	17.00	16.19
5220	5221.21	-17.35	1.38	20.16	0.02	2.10	0.00	4.21	11.00	6.79	6.31	17.00	10.69
5240	5241.30	-17.28	1.38	20.16	0.02	2.10	0.00	4.28	11.00	6.72	6.38	17.00	10.62
5260	5258.94	-16.95	1.39	20.16	0.02	2.10	0.00	4.62	11.00	6.38	6.72	17.00	10.28
5300	5300.69	-17.27	1.39	20.16	0.02	2.10	0.00	4.30	11.00	6.70	6.40	17.00	10.60
5320	5318.74	-22.96	1.39	20.16	0.02	2.10	0.00	-1.39	11.00	12.39	0.71	17.00	16.29
5500	5498.87	-23.48	1.41	20.16	0.02	2.10	0.00	-1.89	11.00	12.89	0.21	17.00	16.79
5580	5579.18	-17.10	1.42	20.16	0.02	2.10	0.00	4.50	11.00	6.50	6.60	17.00	10.40
5700	5701.02	-24.55	1.43	20.16	0.02	2.10	0.00	-2.94	11.00	13.94	-0.84	17.00	17.84
5745	5744.42	-25.83	1.43	20.16	0.02	2.10	0.27	-3.95	30.00	33.95	-1.85	36.00	37.85
5785	5785.65	-20.18	1.44	20.16	0.02	2.10	0.27	1.71	30.00	28.29	3.81	36.00	32.19
5825	5824.48	-25.69	1.44	20.16	0.02	2.10	0.27	-3.80	30.00	33.80	-1.70	36.00	37.70

Sample Calculation:

PSD: Power Spectral Density

The PSD within 5725 MHz to 5825 MHz are based on any 500 kHz band.

RBW Correction Factor = $10 \cdot \log (\text{Specified bandwidth} / \text{Measured bandwidth})$

PSD Result (Conducted) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor + RBW Correction Factor

PSD Result (e.i.r.p.) = Conducted PSD Result + Antenna Gain

RBW Correction Factor = $10 \cdot \log (500 \text{ [kHz]} / 470 \text{ [kHz]})$

Maximum Power Spectral Density

Test place	Shonan EMC Lab. No.8 Shielded Room	
Date	February 18, 2025	May 8, 2025
Temperature / Humidity	24 deg. C / 23 % RH	24 deg. C / 43 % RH
Engineer	Yohsuke Matsuzawa	Yuta Shiba
Mode	Tx 11n-40	

11n-40 (SISO)

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD Frequency [MHz]	PSD Reading [dBm /MHz]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Antenna Gain [dBi]	RBW Correction Factor [dB]	PSD (Conducted)			PSD (e.i.r.p.)		
								Result [dBm /MHz]	Limit [dBm /MHz]	Margin [dB]	Result [dBm /MHz]	Limit [dBm /MHz]	Margin [dB]
5190	5182.46	-28.44	1.38	20.16	0.02	2.10	0.00	-6.88	11.00	17.88	-4.78	17.00	21.78
5230	5238.28	-21.29	1.38	20.16	0.02	2.10	0.00	0.27	11.00	10.73	2.37	17.00	14.63
5270	5256.74	-20.56	1.39	20.16	0.02	2.10	0.00	1.01	11.00	9.99	3.11	17.00	13.89
5310	5324.95	-28.10	1.39	20.16	0.02	2.10	0.00	-6.53	11.00	17.53	-4.43	17.00	21.43
5510	5496.78	-29.31	1.41	20.16	0.02	2.10	0.00	-7.72	11.00	18.72	-5.62	17.00	22.62
5550	5537.13	-23.63	1.42	20.16	0.02	2.10	0.00	-2.03	11.00	13.03	0.07	17.00	16.93
5590	5575.35	-21.81	1.43	20.16	0.02	2.10	0.00	-0.20	11.00	11.20	1.90	17.00	15.10
5670	5656.65	-25.28	1.43	20.16	0.02	2.10	0.00	-3.67	11.00	14.67	-1.57	17.00	18.57
5755	5744.04	-31.84	1.43	20.16	0.02	2.10	0.27	-9.96	30.00	39.96	-7.86	36.00	43.86
5795	5810.43	-31.79	1.44	20.16	0.02	2.10	0.27	-9.90	30.00	39.90	-7.80	36.00	43.80

Sample Calculation:

PSD: Power Spectral Density

The PSD within 5725 MHz to 5825 MHz are based on any 500 kHz band.

RBW Correction Factor = $10 \cdot \log (\text{Specified bandwidth} / \text{Measured bandwidth})$

PSD Result (Conducted) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor + RBW Correction Factor

PSD Result (e.i.r.p.) = Conducted PSD Result + Antenna Gain

RBW Correction Factor = $10 \cdot \log (500 \text{ [kHz]} / 470 \text{ [kHz]})$

Maximum Power Spectral Density

Test place	Shonan EMC Lab. No.8 Shielded Room	
Date	February 18, 2025	May 8, 2025
Temperature / Humidity	24 deg. C / 23 % RH	24 deg. C / 43 % RH
Engineer	Yohsuke Matsuzawa	Yuta Shiba
Mode	Tx 11ac-40	

11ac-40 (SISO)

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD Frequency [MHz]	PSD Reading [dBm /MHz]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Antenna Gain [dBi]	RBW Correction Factor [dB]	PSD (Conducted)			PSD (e.i.r.p.)		
								Result [dBm /MHz]	Limit [dBm /MHz]	Margin [dB]	Result [dBm /MHz]	Limit [dBm /MHz]	Margin [dB]
5190	5204.78	-28.14	1.38	20.16	0.02	2.10	0.00	-6.58	11.00	17.58	-4.48	17.00	21.48
5230	5243.3	-21.78	1.38	20.16	0.02	2.10	0.00	-0.22	11.00	11.22	1.88	17.00	15.12
5270	5255.01	-21.80	1.39	20.16	0.02	2.10	0.00	-0.23	11.00	11.23	1.87	17.00	15.13
5310	5323.91	-29.49	1.39	20.16	0.02	2.10	0.00	-7.92	11.00	18.92	-5.82	17.00	22.82
5510	5501.85	-29.72	1.41	20.16	0.02	2.10	0.00	-8.13	11.00	19.13	-6.03	17.00	23.03
5550	5536.83	-23.81	1.42	20.16	0.02	2.10	0.00	-2.21	11.00	13.21	-0.10	17.00	17.11
5590	5601.61	-21.48	1.43	20.16	0.02	2.10	0.00	0.13	11.00	10.87	2.23	17.00	14.77
5670	5659.64	-22.04	1.43	20.16	0.02	2.10	0.00	-0.43	11.00	11.43	1.68	17.00	15.33
5755	5740.74	-31.69	1.43	20.16	0.02	2.10	0.27	-9.81	30.00	39.81	-7.71	36.00	43.71
5795	5806.09	-23.84	1.44	20.16	0.02	2.10	0.27	-1.95	30.00	31.95	0.15	36.00	35.85

Sample Calculation:

PSD: Power Spectral Density

The PSD within 5725 MHz to 5825 MHz are based on any 500 kHz band.

RBW Correction Factor = $10 \cdot \log (\text{Specified bandwidth} / \text{Measured bandwidth})$

PSD Result (Conducted) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor + RBW Correction Factor

PSD Result (e.i.r.p.) = Conducted PSD Result + Antenna Gain

RBW Correction Factor = $10 \cdot \log (500 \text{ [kHz]} / 470 \text{ [kHz]})$

Maximum Power Spectral Density

Test place Shonan EMC Lab. No.8 Shielded Room
Date February 18, 2025
Temperature / Humidity 24 deg. C / 23 % RH
Engineer Yohsuke Matsuzawa
Mode Tx 11ac-80

11ac-80 (SISO)

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD Frequency [MHz]	PSD Reading [dBm /MHz]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Antenna Gain [dBi]	RBW Correction Factor [dB]	PSD (Conducted)			PSD (e.i.r.p.)		
								Result [dBm /MHz]	Limit [dBm /MHz]	Margin [dB]	Result [dBm /MHz]	Limit [dBm /MHz]	Margin [dB]
5210	5220.83	-32.54	1.38	20.16	0.04	2.10	0.00	-10.96	11.00	21.96	-8.86	17.00	25.86
5290	5302.31	-30.95	1.39	20.16	0.04	2.10	0.00	-9.36	11.00	20.36	-7.26	17.00	24.26
5530	5539.53	-30.98	1.41	20.16	0.04	2.10	0.00	-9.37	11.00	20.37	-7.27	17.00	24.27
5610	5600.90	-31.05	1.42	20.16	0.04	2.10	0.00	-9.43	11.00	20.43	-7.33	17.00	24.33
5775	5784.19	-33.94	1.44	20.16	0.04	2.10	0.27	-12.03	30.00	42.03	-9.93	36.00	45.93

Sample Calculation:

PSD: Power Spectral Density

The PSD within 5725 MHz to 5825 MHz are based on any 500 kHz band.

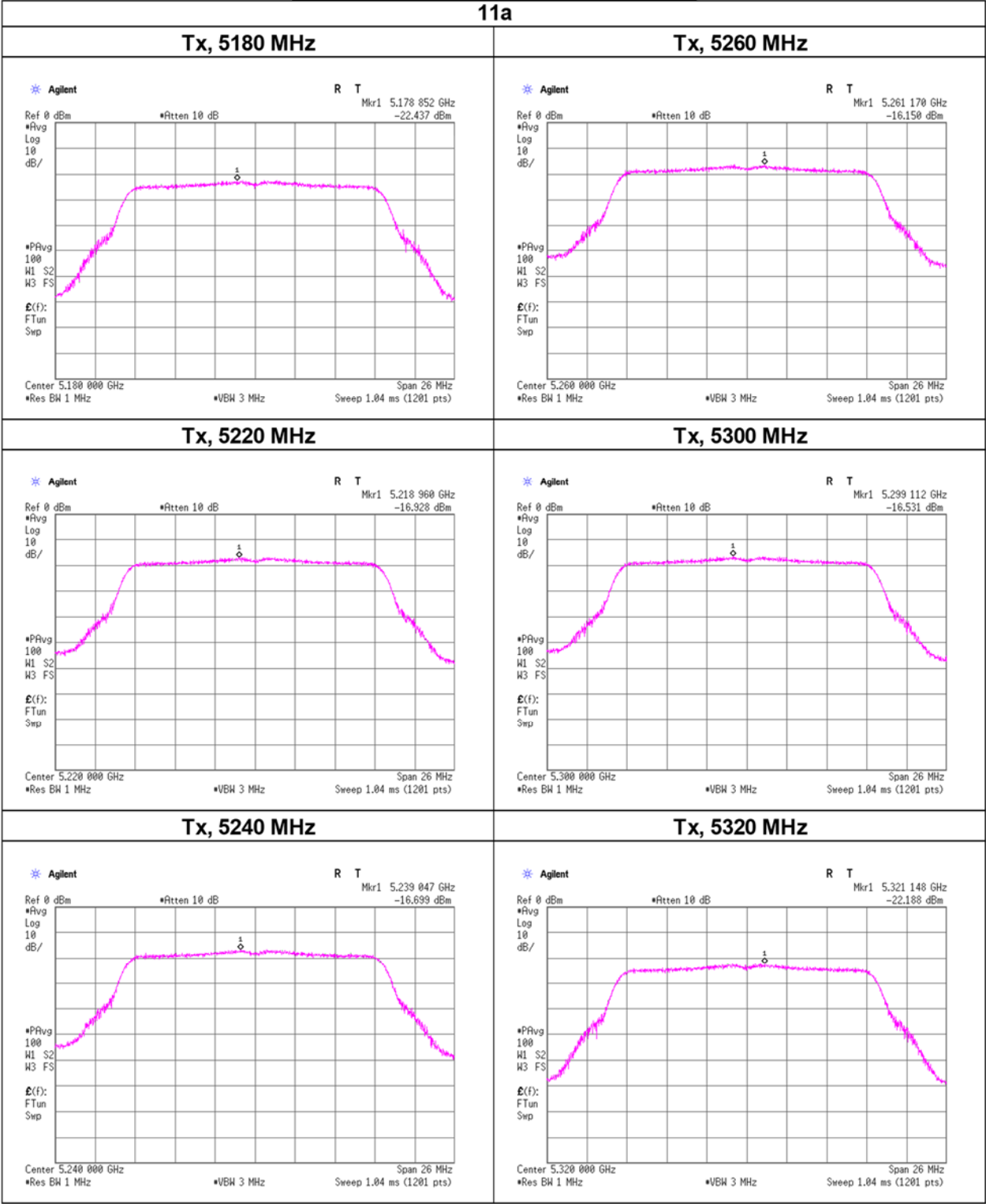
RBW Correction Factor = $10 \cdot \log (\text{Specified bandwidth} / \text{Measured bandwidth})$

PSD Result (Conducted) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor + RBW Correction Factor

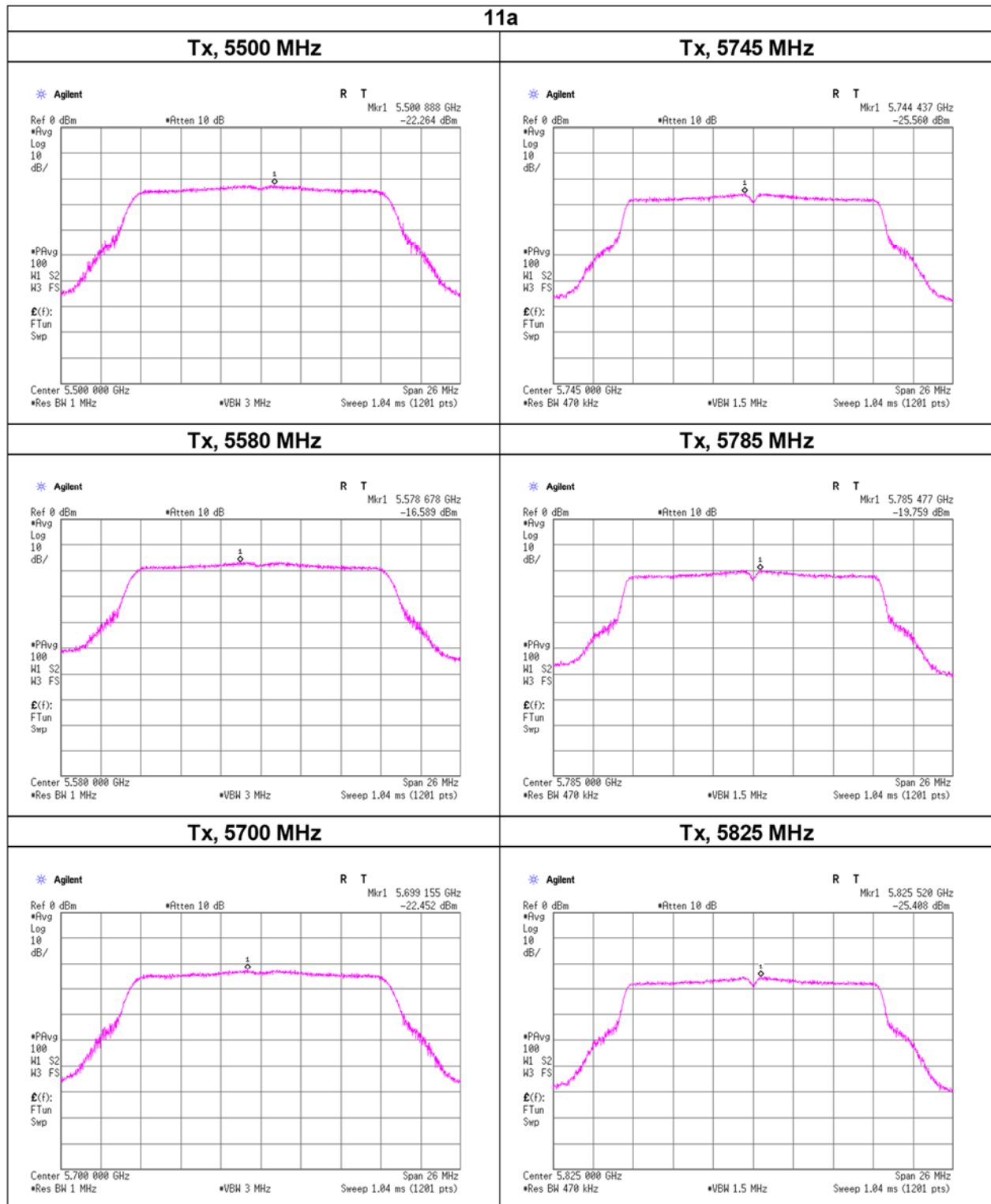
PSD Result (e.i.r.p.) = Conducted PSD Result + Antenna Gain

RBW Correction Factor = $10 \cdot \log (500 \text{ [kHz]} / 470 \text{ [kHz]})$

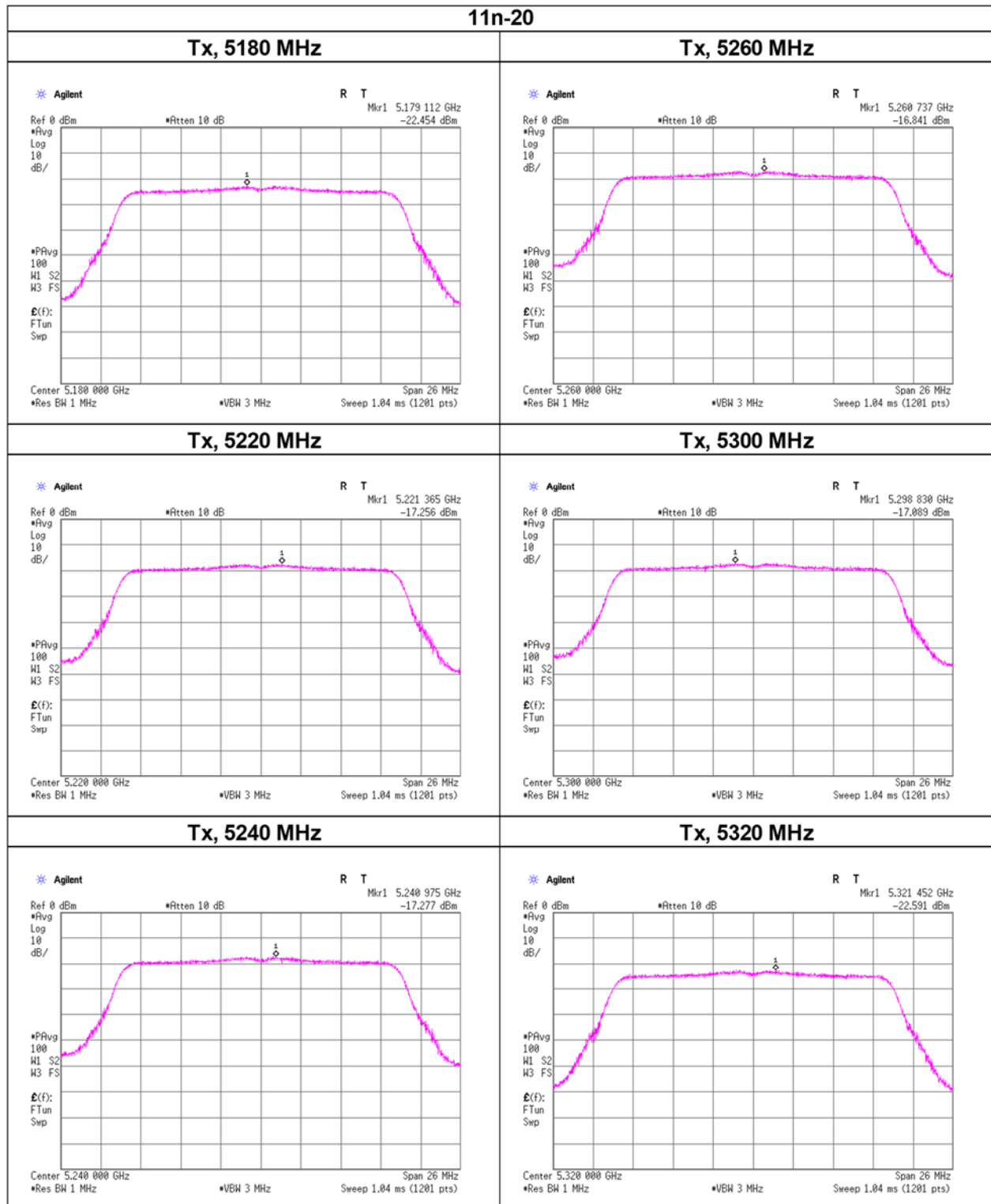
Maximum Power Spectral Density



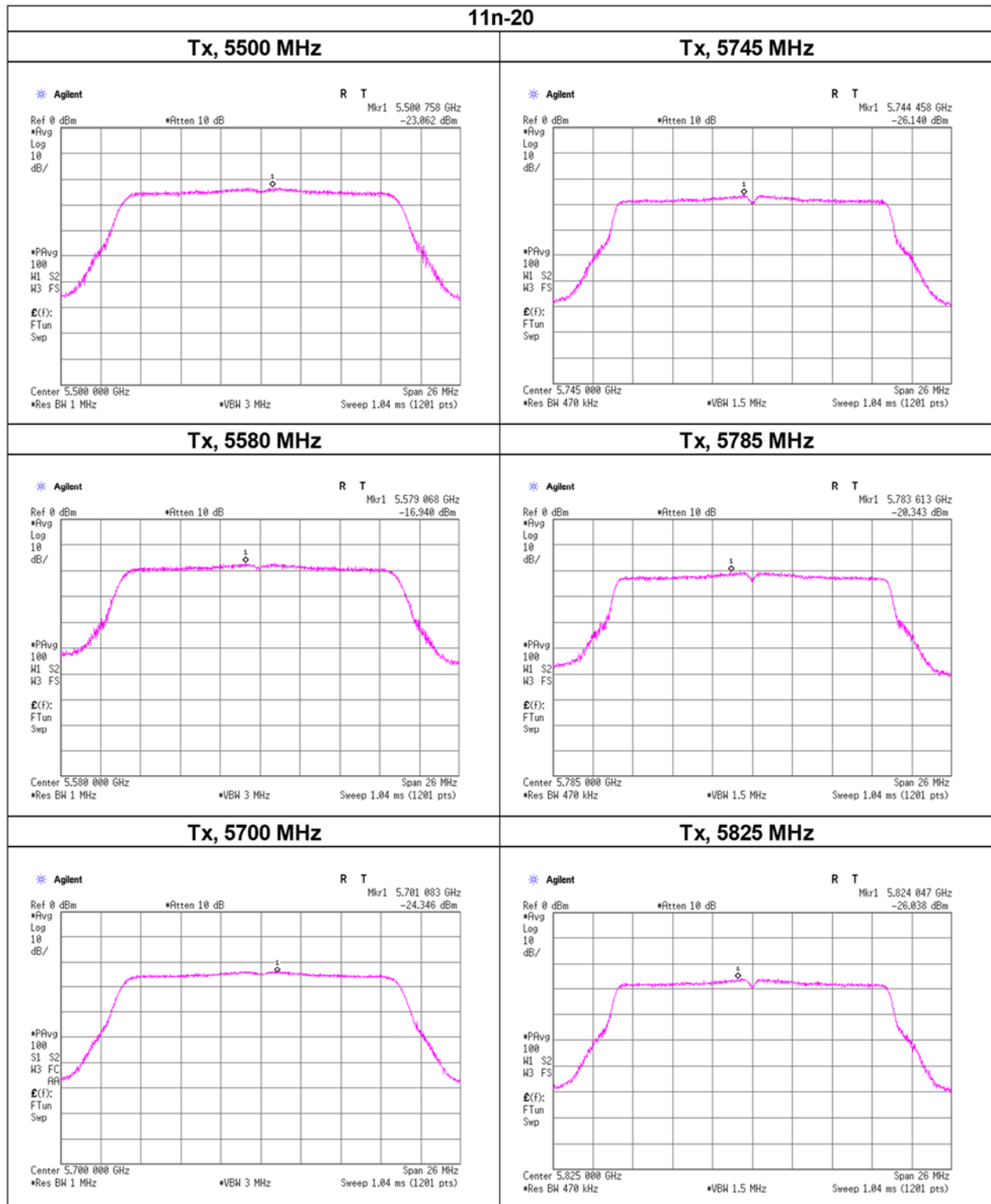
Maximum Power Spectral Density



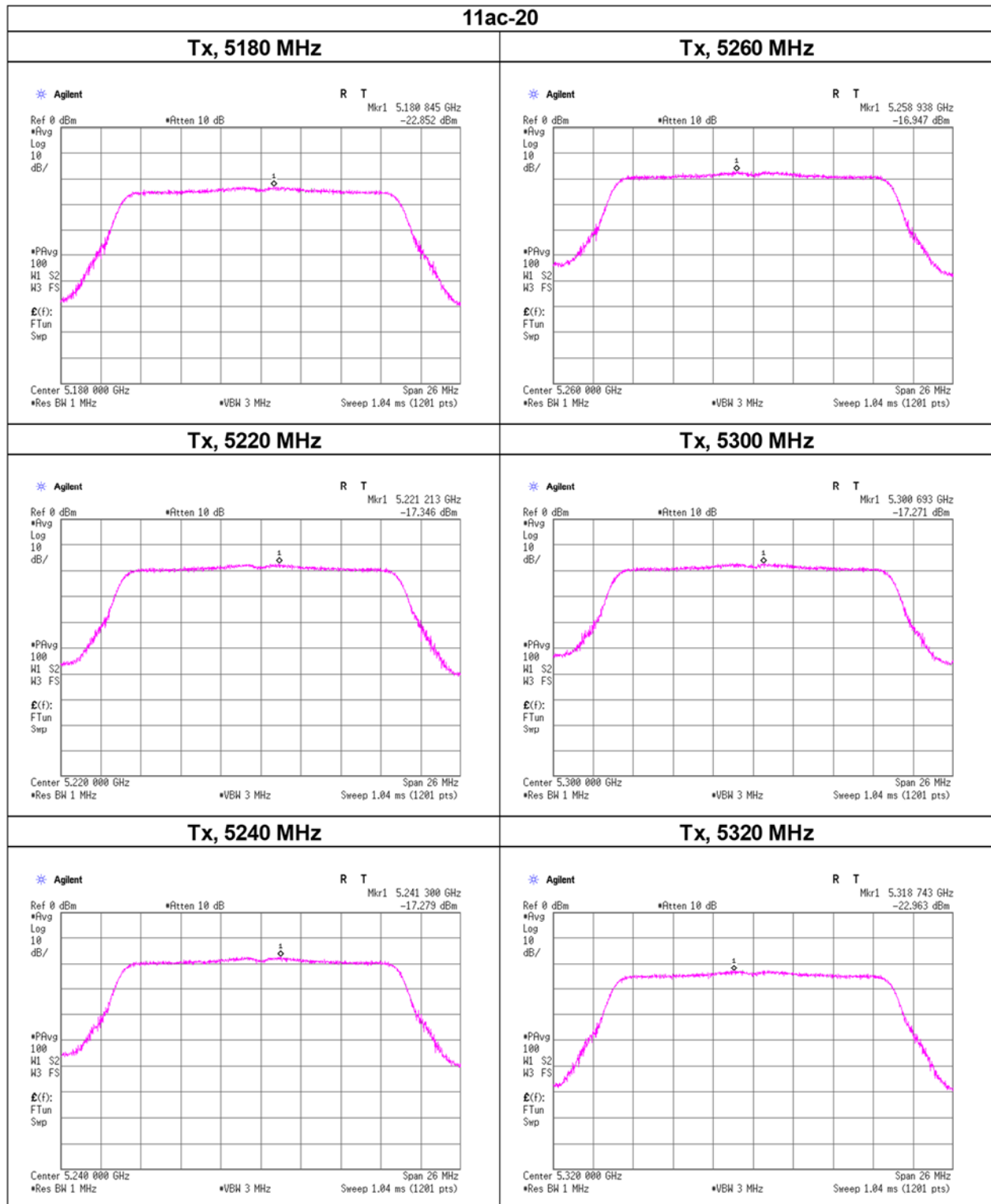
Maximum Power Spectral Density



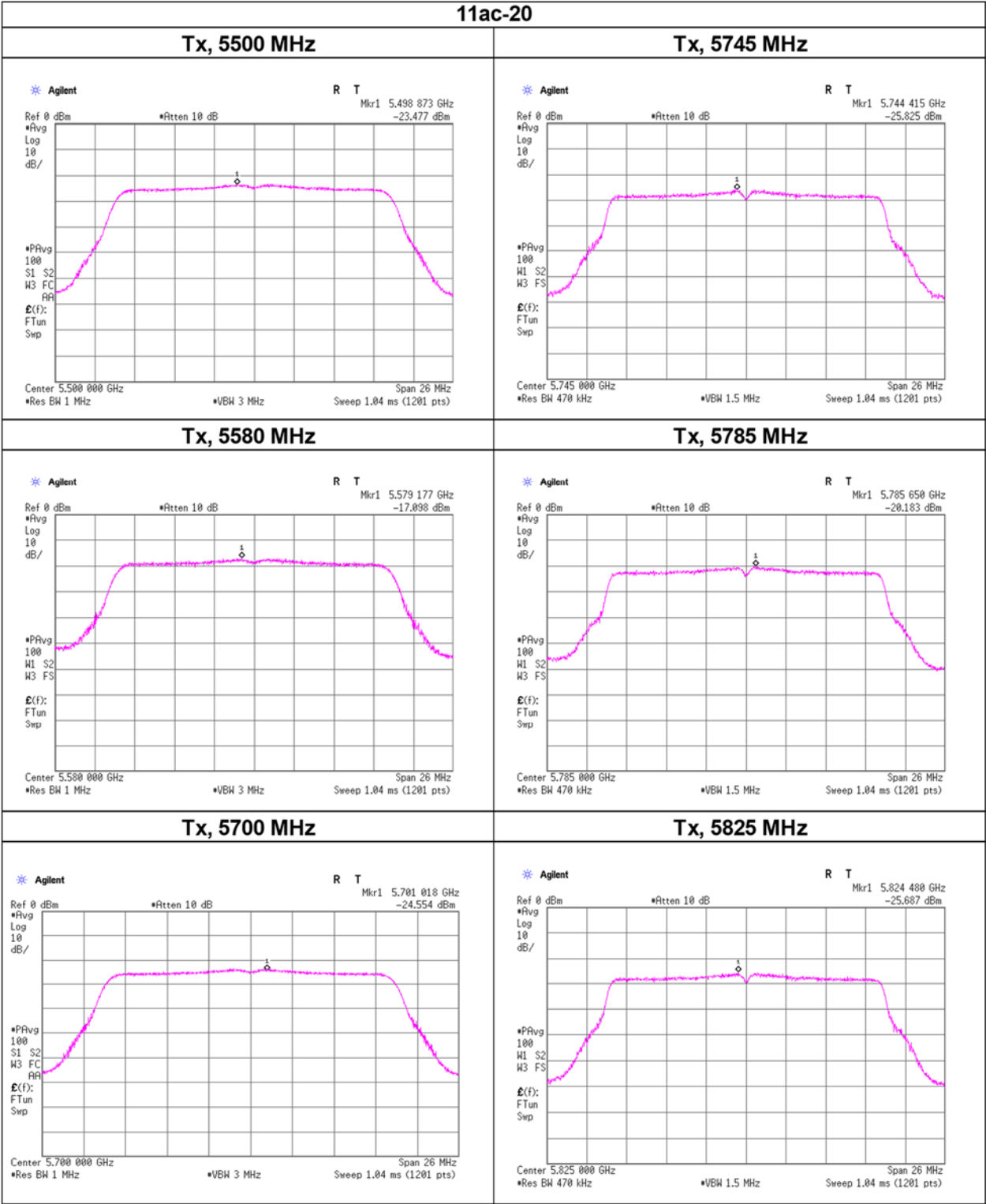
Maximum Power Spectral Density



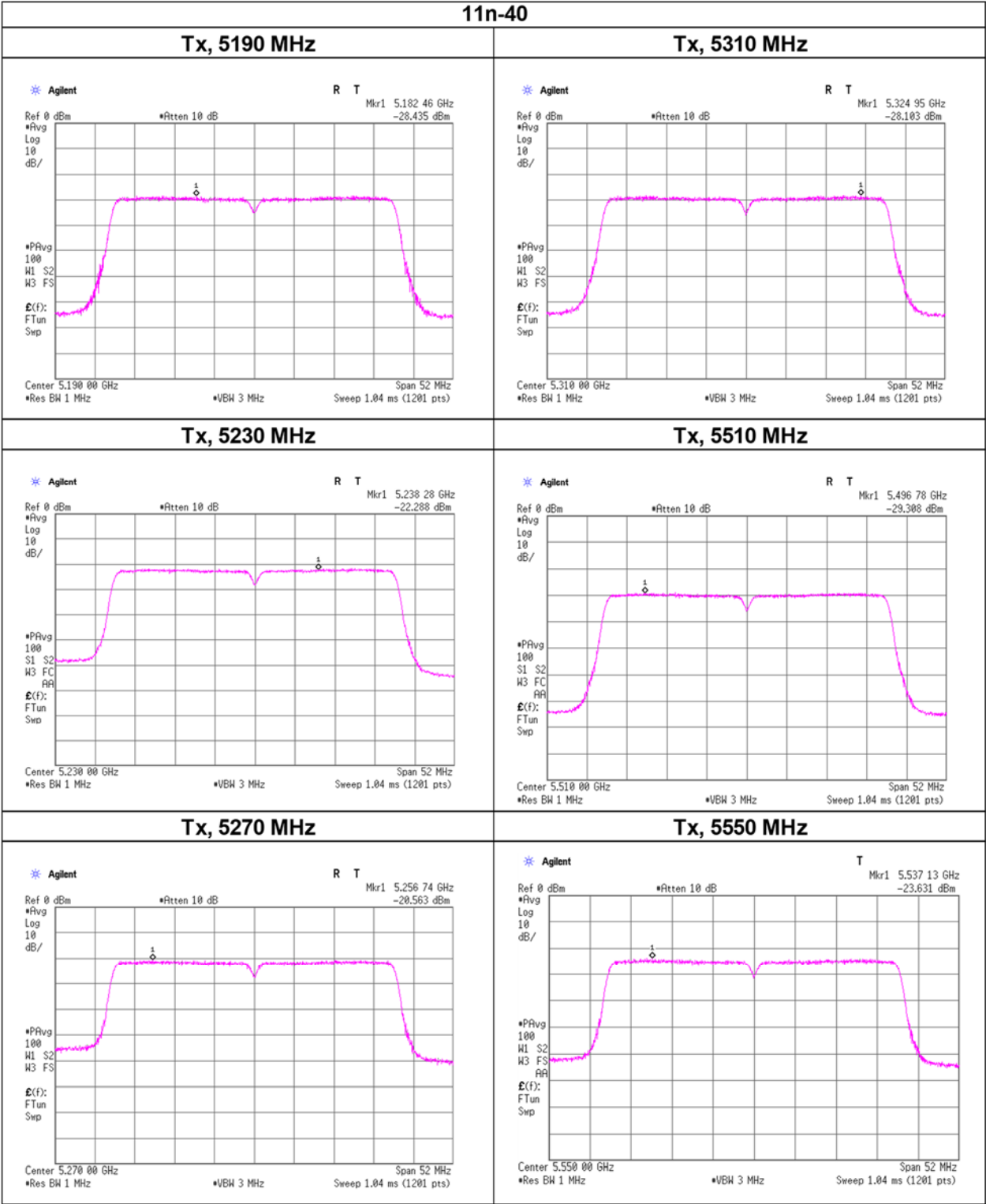
Maximum Power Spectral Density



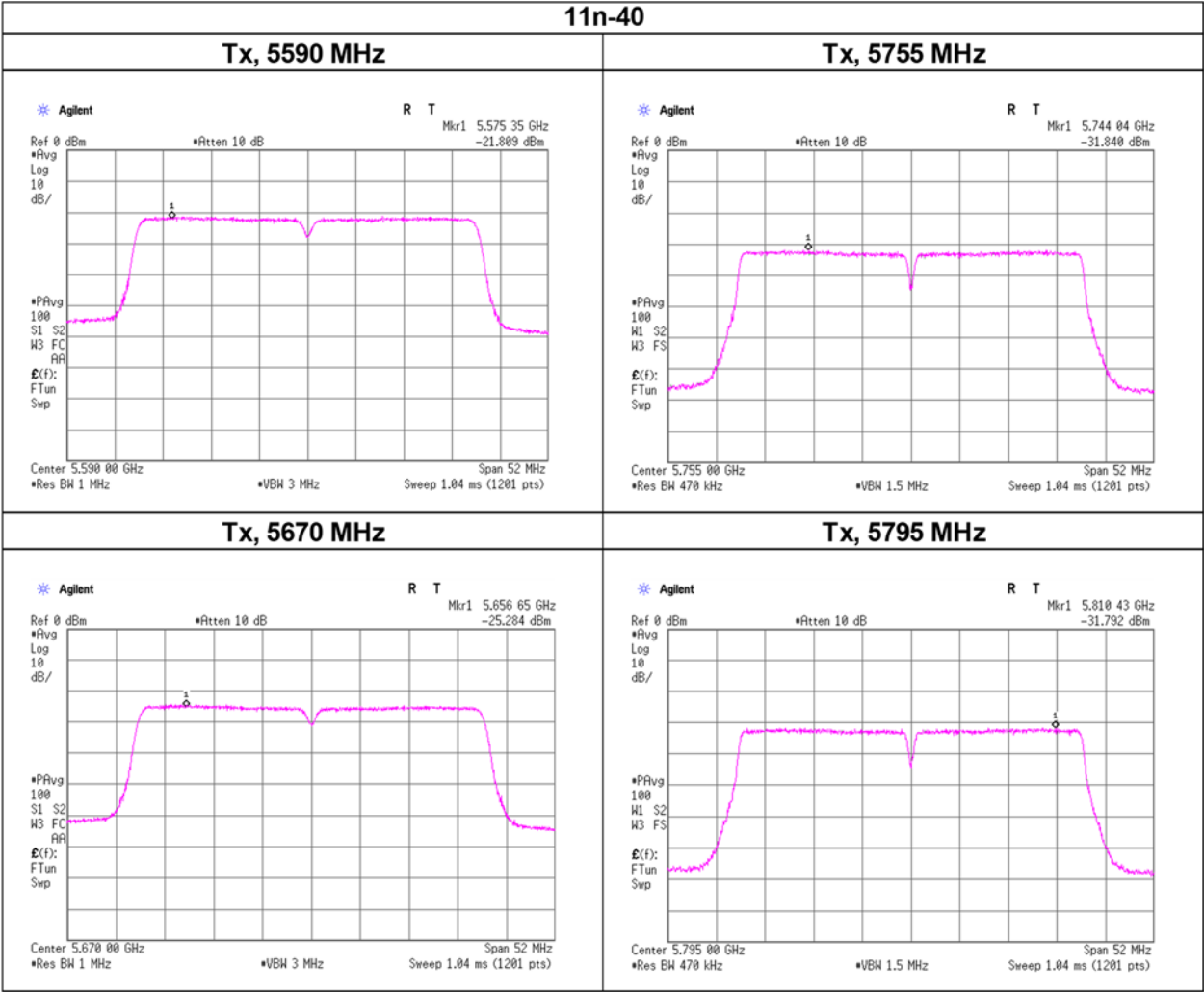
Maximum Power Spectral Density



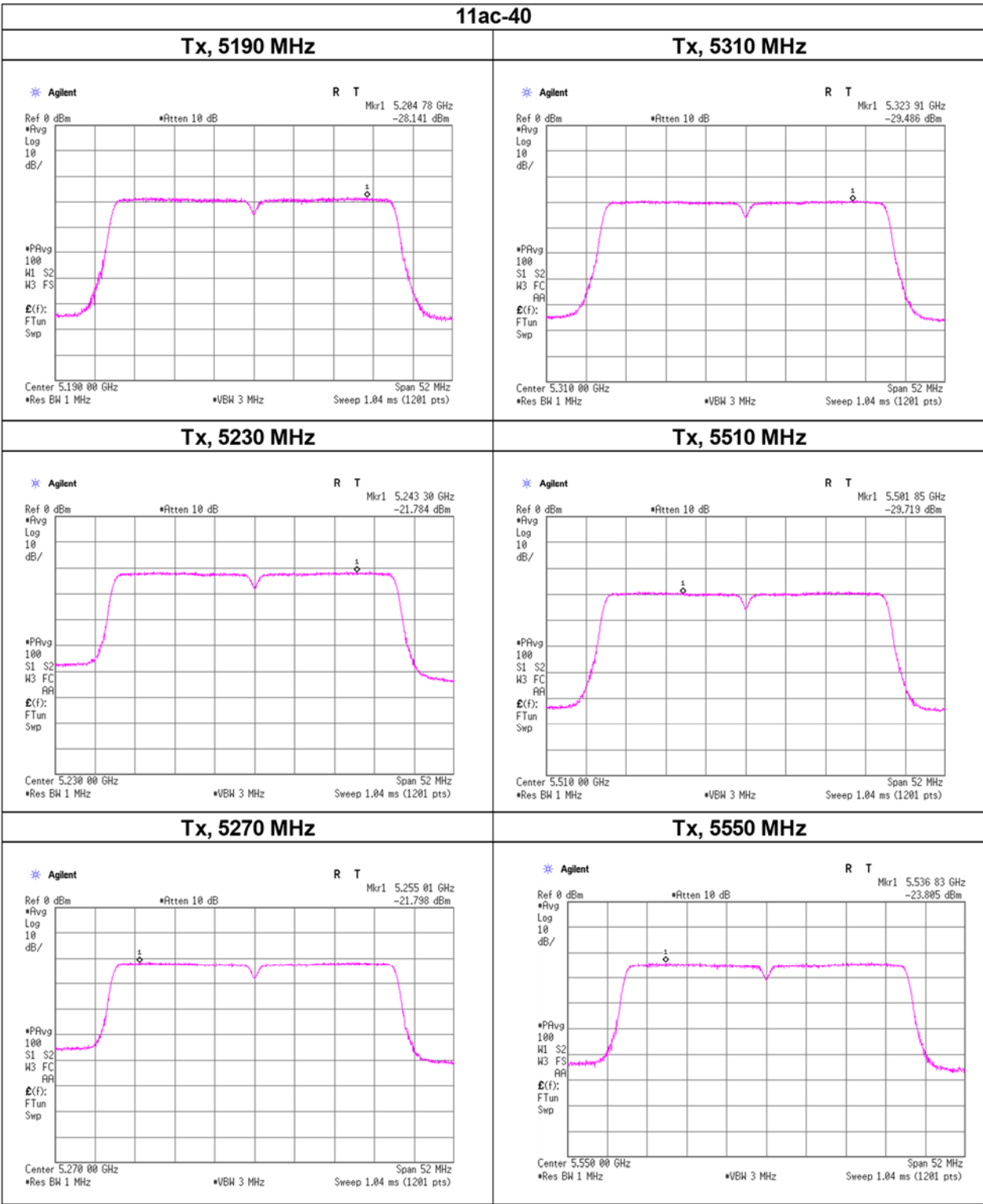
Maximum Power Spectral Density



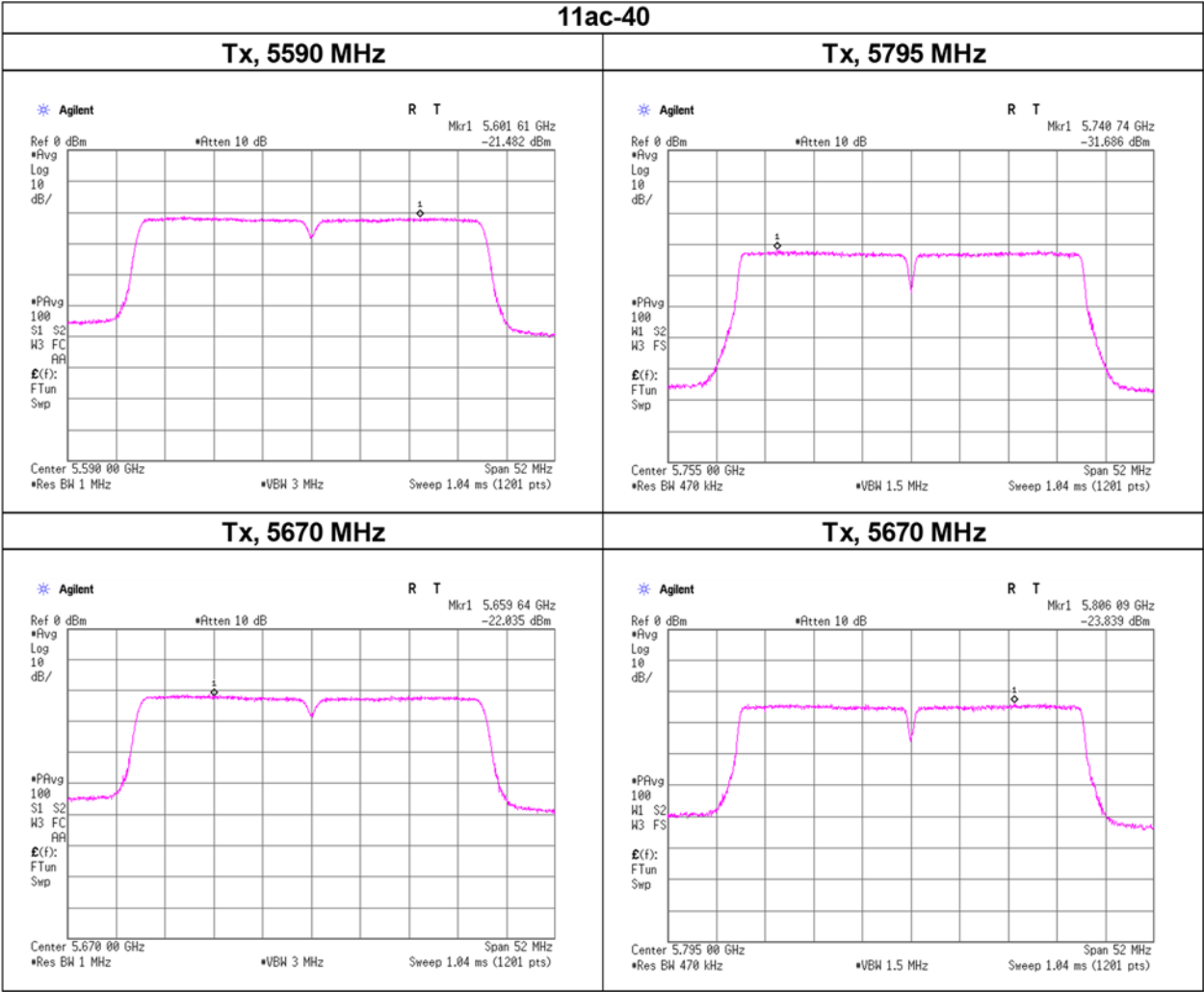
Maximum Power Spectral Density



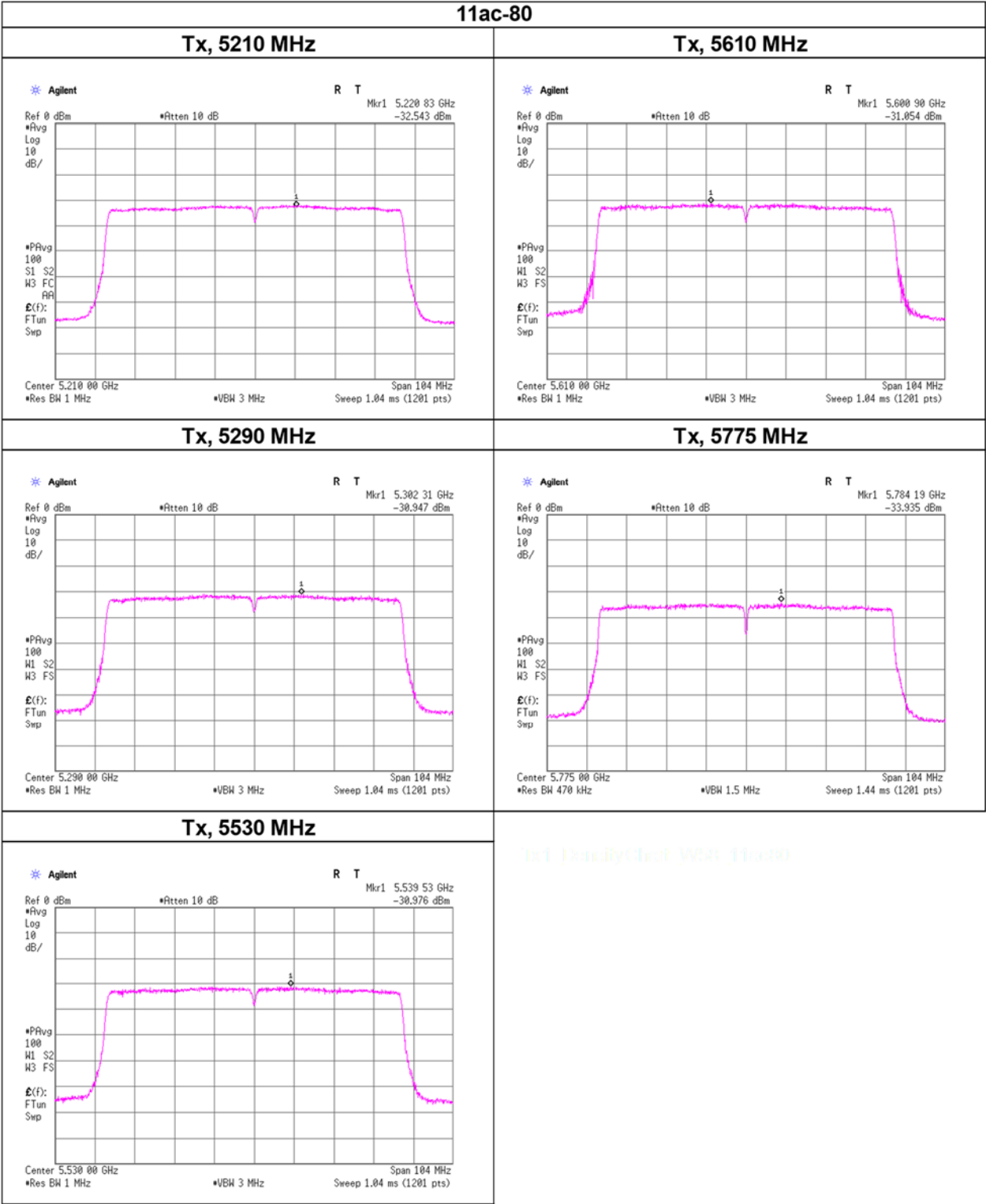
Maximum Power Spectral Density



Maximum Power Spectral Density



Maximum Power Spectral Density



Test Density Test WSA 11ac80

Radiated Spurious Emission

Test place Shonan EMC Lab.
Semi Anechoic Chamber SAC 3
Date February 23, 2025
Temperature / Humidity 23 deg. C / 38 % RH
Engineer Yohsuke Matsuzawa
(1 GHz to 6.4 GHz)
Mode Tx 11a 5180 MHz

(above 1 GHz Inside of the restricted band)

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

Polarity	Frequency	Detector	Reading	Ant.Fac.	Loss	Gain	Distance	Result	Limit	Margin	Height	Angle	Remark
	[MHz]		[dBuV]	[dB/m]	[dB]	[dB]	Fac. [dB]	[dBuV/m]	[dBuV/m]	[dB]	[cm]	[deg.]	
Hori.	5150.000	PK	50.33	31.88	16.37	42.99	2.46	58.05	73.9	15.8	136	87	-
Hori.	5150.000	AV	35.81	31.88	16.37	42.99	2.46	43.53	53.9	10.3	136	87	VBW:500 Hz
Vert.	5150.000	PK	50.45	31.88	16.37	42.99	2.46	58.17	73.9	15.7	166	150	-
Vert.	5150.000	AV	35.88	31.88	16.37	42.99	2.46	43.60	53.9	10.3	166	150	VBW:500 Hz

Result = Reading + Ant.Fac. + Loss (Cable + (Atten or Filter)(below 18 GHz)) - Gain(Amp) + Distance Fac.

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).

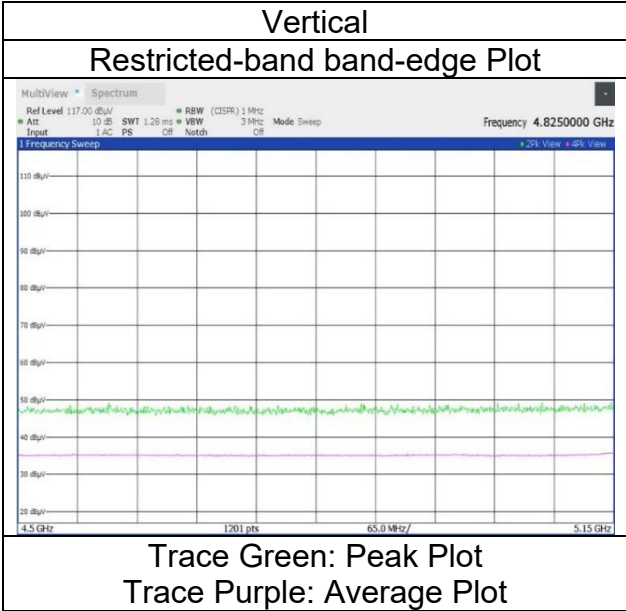
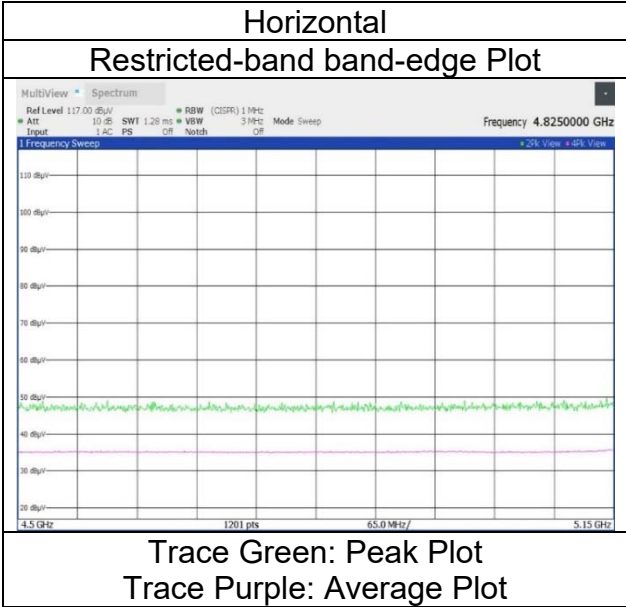
Distance Fac. : 1 GHz to 10 GHz : $20\log(3.98[m]/3.0[m]) = 2.46$ [dB]

10 GHz to 40 GHz : $20\log(1.00[m]/3.0[m]) = -9.54$ [dB]

Radiated Spurious Emission

Test place
Semi Anechoic Chamber
Date
Temperature / Humidity
Engineer
Mode

Shonan EMC Lab.
SAC 3
February 23, 2025
23 deg. C / 38 % RH
Yohsuke Matsuzawa
Tx 11a 5180 MHz



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

Radiated Spurious Emission

Test place Shonan EMC Lab.
Semi Anechoic Chamber SAC 3
Date February 23, 2025
Temperature / Humidity 23 deg. C / 38 % RH
Engineer Yohsuke Matsuzawa
(1 GHz to 6.4 GHz)
Mode Tx 11a 5200 MHz

(above 1 GHz Inside of the restricted band)

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

Polarity	Frequency	Detector	Reading	Ant.Fac.	Loss	Gain	Distance	Result	Limit	Margin	Height	Angle	Remark
	[MHz]		[dBuV]	[dB/m]	[dB]	[dB]	Fac. [dB]	[dBuV/m]	[dBuV/m]	[dB]	[cm]	[deg.]	
Hori.	5150.000	PK	50.36	31.88	16.37	42.99	2.46	58.08	73.9	15.8	175	70	-
Hori.	5150.000	AV	36.61	31.88	16.37	42.99	2.46	44.33	53.9	9.5	175	70	VBW:500 Hz
Vert.	5150.000	PK	50.37	31.88	16.37	42.99	2.46	58.09	73.9	15.8	135	144	-
Vert.	5150.000	AV	36.55	31.88	16.37	42.99	2.46	44.27	53.9	9.6	135	144	VBW:500 Hz

Result = Reading + Ant.Fac. + Loss (Cable + (Atten or Filter)(below 18 GHz)) - Gain(Amp) + Distance Fac.

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).

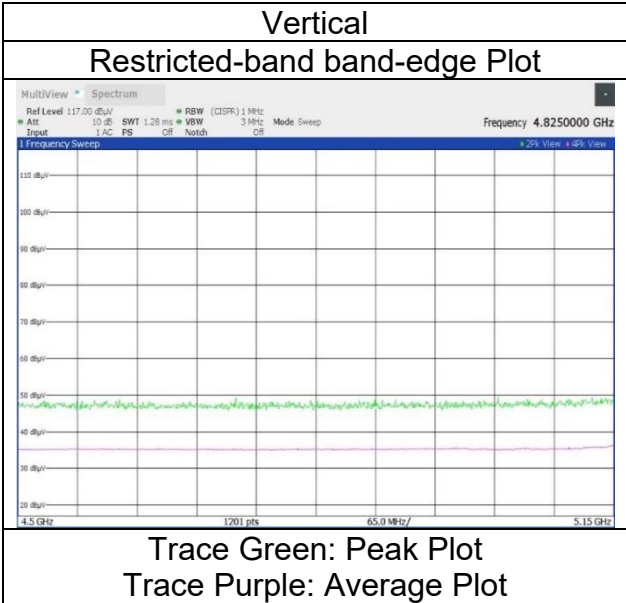
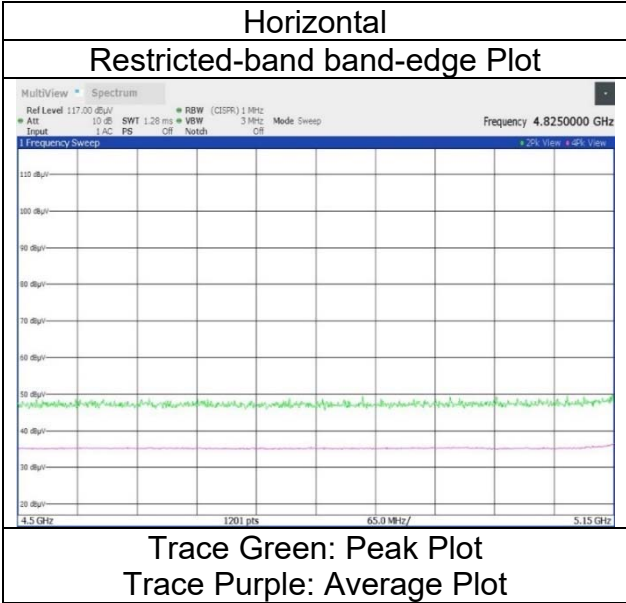
Distance Fac. : 1 GHz to 10 GHz : $20\log(3.98[m]/3.0[m]) = 2.46$ [dB]

10 GHz to 40 GHz : $20\log(1.00[m]/3.0[m]) = -9.54$ [dB]

Radiated Spurious Emission

Test place
Semi Anechoic Chamber
Date
Temperature / Humidity
Engineer
Mode

Shonan EMC Lab.
SAC 3
February 23, 2025
23 deg. C / 38 % RH
Yohsuke Matsuzawa
Tx 11a 5200 MHz



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

Radiated Spurious Emission

Test place Shonan EMC Lab.
Semi Anechoic Chamber SAC 3
Date February 23, 2025
Temperature / Humidity 23 deg. C / 38 % RH
Engineer Yohsuke Matsuzawa
(1 GHz to 6.4 GHz)
Mode Tx 11a 5300 MHz

(above 1 GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Fac. [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5350.000	PK	50.85	31.60	16.49	43.21	2.46	58.19	73.9	15.7	101	76	-
Hori.	5350.000	AV	37.15	31.60	16.49	43.21	2.46	44.49	53.9	9.4	101	76	VBW:500 Hz
Vert.	5350.000	PK	50.36	31.60	16.49	43.21	2.46	57.70	73.9	16.2	156	165	-
Vert.	5350.000	AV	37.06	31.60	16.49	43.21	2.46	44.40	53.9	9.5	156	165	VBW:500 Hz

Result = Reading + Ant.Fac. + Loss (Cable + (Atten or Filter)(below 18 GHz)) - Gain(Amp) + Distance Fac.

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).

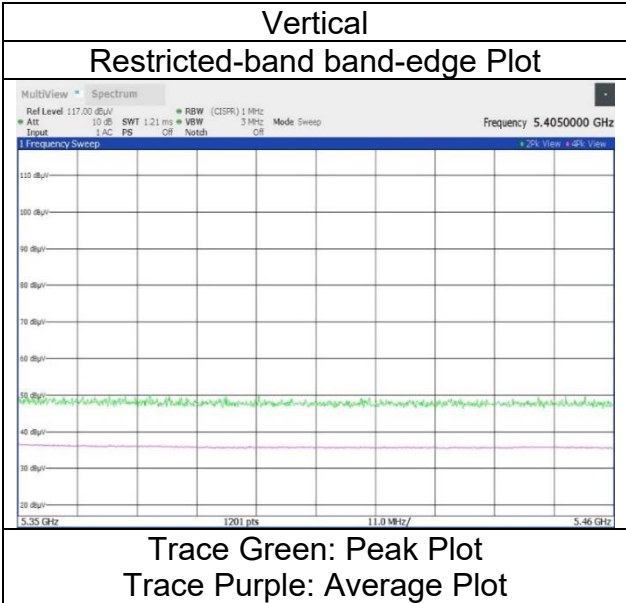
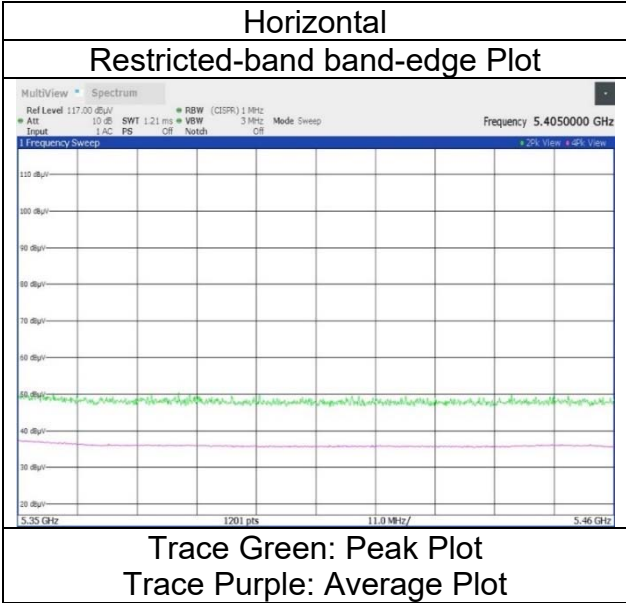
Distance Fac. : 1 GHz to 10 GHz : $20\log(3.98[m]/3.0[m]) = 2.46$ [dB]

10 GHz to 40 GHz : $20\log(1.00[m]/3.0[m]) = -9.54$ [dB]

Radiated Spurious Emission

Test place
Semi Anechoic Chamber
Date
Temperature / Humidity
Engineer
Mode

Shonan EMC Lab.
SAC 3
February 23, 2025
23 deg. C / 38 % RH
Yohsuke Matsuzawa
Tx 11a 5300 MHz



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

Radiated Spurious Emission

Test place Shonan EMC Lab.
Semi Anechoic Chamber SAC 3
Date February 23, 2025
Temperature / Humidity 23 deg. C / 38 % RH
Engineer Yohsuke Matsuzawa
(1 GHz to 6.4 GHz)
Mode Tx 11a 5320 MHz

(above 1 GHz Inside of the restricted band)

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

Polarity	Frequency	Detector	Reading	Ant.Fac.	Loss	Gain	Distance	Result	Limit	Margin	Height	Angle	Remark
	[MHz]		[dBuV]	[dB/m]	[dB]	[dB]	Fac. [dB]	[dBuV/m]	[dBuV/m]	[dB]	[cm]	[deg.]	
Hori.	5350.000	PK	50.15	31.60	16.49	43.21	2.46	57.49	73.9	16.4	148	189	-
Hori.	5350.000	AV	36.13	31.60	16.49	43.21	2.46	43.47	53.9	10.4	148	189	VBW:500 Hz
Vert.	5350.000	PK	50.13	31.60	16.49	43.21	2.46	57.47	73.9	16.4	147	166	-
Vert.	5350.000	AV	36.18	31.60	16.49	43.21	2.46	43.52	53.9	10.3	147	166	VBW:500 Hz

Result = Reading + Ant.Fac. + Loss (Cable + (Atten or Filter)(below 18 GHz)) - Gain(Amp) + Distance Fac.

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).

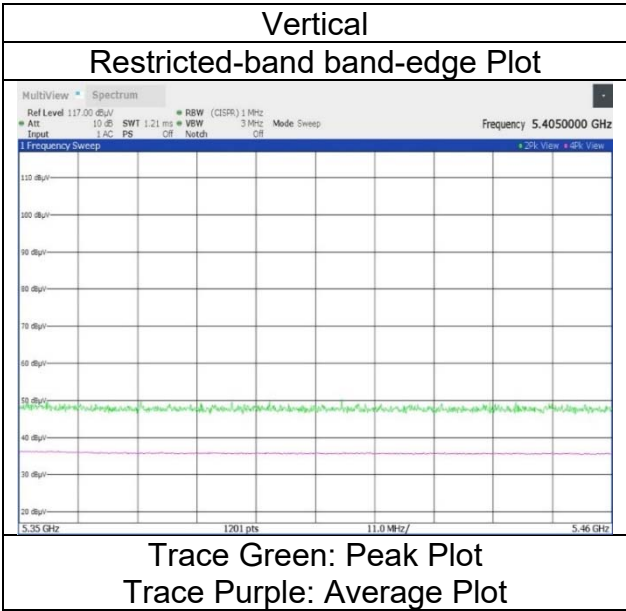
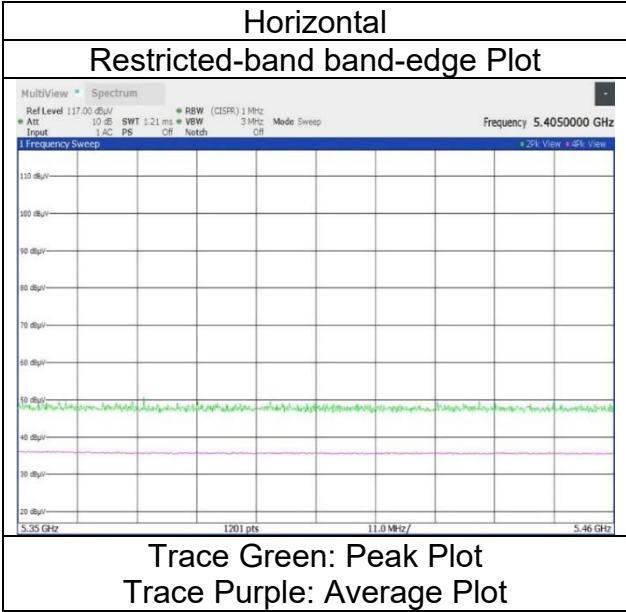
Distance Fac. : 1 GHz to 10 GHz : $20\log(3.98[m]/3.0[m]) = 2.46[dB]$

10 GHz to 40 GHz : $20\log(1.00[m]/3.0[m]) = -9.54[dB]$

Radiated Spurious Emission

Test place
Semi Anechoic Chamber
Date
Temperature / Humidity
Engineer
Mode

Shonan EMC Lab.
SAC 3
February 23, 2025
23 deg. C / 38 % RH
Yohsuke Matsuzawa
Tx 11a 5320 MHz



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

Radiated Spurious Emission

Test place Shonan EMC Lab.
Semi Anechoic Chamber SAC 3
Date February 25, 2025
Temperature / Humidity 23 deg. C / 30 % RH
Engineer Miku Ikudome
 (1 GHz to 6.4 GHz)
Mode Tx 11a 5500 MHz

(above 1 GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant. Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Fac. [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5460.000	PK	50.61	31.87	16.55	43.34	2.46	58.15	73.9	15.7	101	24	-
Hori.	5460.000	AV	36.62	31.87	16.55	43.34	2.46	44.16	53.9	9.7	101	24	VBW:500 Hz
Vert.	5460.000	PK	50.44	31.87	16.55	43.34	2.46	57.98	73.9	15.9	145	235	-
Vert.	5460.000	AV	36.39	31.87	16.55	43.34	2.46	43.93	53.9	9.9	145	235	VBW:500 Hz

Result = Reading + Ant.Fac. + Loss (Cable + (Attenu or Filter)(below 18 GHz)) - Gain(Amp) + Distance Fac.

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).

Distance Fac.: 1 GHz to 10 GHz : $20\log(3.98[m]/3.0[m]) = 2.46[dB]$

10 GHz to 40 GHz : $20\log(1.00[m]/3.0[m]) = -9.54[dB]$

(Calculation) (above 1 GHz Outside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant. Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Fac. [dB]	Distance Fac. [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5470.000	PK	50.50	31.89	16.56	43.35	-	2.46	58.06	-37.17	-27.0	10.1	101	24	-
Vert.	5470.000	PK	50.51	31.89	16.56	43.35	-	2.46	58.07	-37.16	-27.0	10.1	145	235	-

Result = Reading + Ant.Fac. + Loss (Cable + (Attenu or Filter)(below 18 GHz)) - Gain(Amp) + Duty Fac. + Distance Fac.

Result (EIRP) [dBm] = $10 * \log((10^{(Result[dBuV/m]/20)} * 10^{(-6)} * Distance : 3[m])^2 / 30 * 10^{-3})$

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).

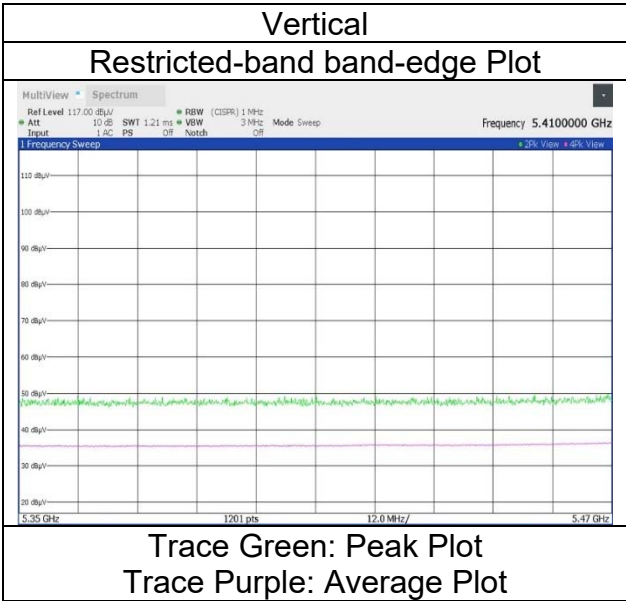
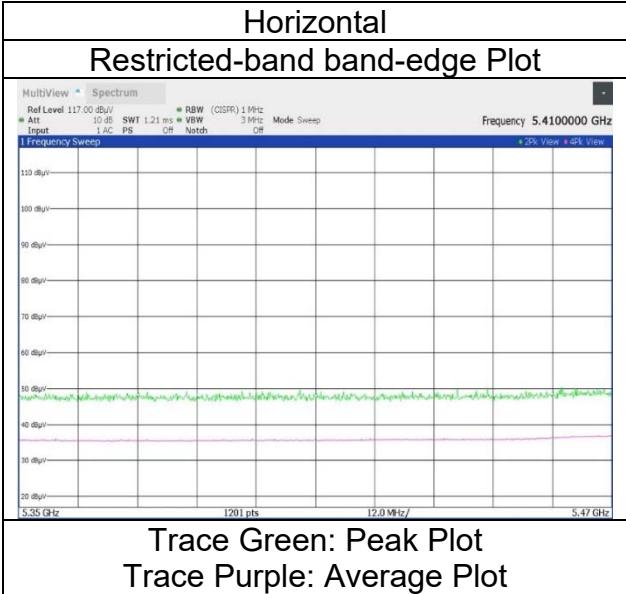
Distance Fac.: 1 GHz to 10 GHz : $20\log(3.98[m]/3.0[m]) = 2.46[dB]$

10 GHz to 40 GHz : $20\log(1.00[m]/3.0[m]) = -9.54[dB]$

Radiated Spurious Emission

Test place
Semi Anechoic Chamber
Date
Temperature / Humidity
Engineer
Mode

Shonan EMC Lab.
SAC 3
February 25, 2025
23 deg. C / 30 % RH
Miku Ikudome
Tx 11a 5500 MHz



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

Radiated Spurious Emission

Test place Shonan EMC Lab.
Semi Anechoic Chamber SAC 3
Date February 25, 2025
Temperature / Humidity 23 deg. C / 30 % RH
Engineer Miku Ikudome
 (1 GHz to 6.4 GHz)
Mode Tx 11a 5520 MHz

(above 1 GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant. Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Fac. [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5460.000	PK	50.21	31.87	16.55	43.34	2.46	57.75	73.9	16.1	158	67	-
Hori.	5460.000	AV	35.79	31.87	16.55	43.34	2.46	43.33	53.9	10.5	158	67	VBW:500 Hz
Vert.	5460.000	PK	50.18	31.87	16.55	43.34	2.46	57.72	73.9	16.1	151	25	-
Vert.	5460.000	AV	36.22	31.87	16.55	43.34	2.46	43.76	53.9	10.1	151	25	VBW:500 Hz

Result = Reading + Ant.Fac. + Loss (Cable + (Atten or Filter)(below 18 GHz)) - Gain(Amp) + Distance Fac.

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).

Distance Fac.: 1 GHz to 10 GHz : $20\log(3.98[m]/3.0[m]) = 2.46[dB]$

10 GHz to 40 GHz : $20\log(1.00[m]/3.0[m]) = -9.54[dB]$

(Calculation) (above 1 GHz Outside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant. Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Fac. [dB]	Distance Fac. [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5470.000	PK	51.23	31.89	16.56	43.35	-	2.46	58.79	-36.44	-27.0	9.4	158	67	-
Vert.	5470.000	PK	52.47	31.89	16.56	43.35	-	2.46	60.03	-35.20	-27.0	8.2	151	25	-

Result = Reading + Ant.Fac. + Loss (Cable + (Atten or Filter)(below 18 GHz)) - Gain(Amp) + Duty Fac. + Distance Fac.

Result (EIRP) [dBm] = $10 * \log((10^{(Result[dBuV/m]/20)} * 10^{(-6)} * Distance : 3[m])^2 / 30 * 10^{-3})$

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).

Distance Fac.: 1 GHz to 10 GHz : $20\log(3.98[m]/3.0[m]) = 2.46[dB]$

10 GHz to 40 GHz : $20\log(1.00[m]/3.0[m]) = -9.54[dB]$