



RADIO TEST REPORT

Test Report No. : 13408107S-C

Applicant : Panasonic Corporation
Type of EUT : Car Navigation
Model Number of EUT : AT2104
FCC ID : ACJ932AT2104
Test regulation : FCC Part 15 Subpart E: 2020
Test Item : Antenna Terminal Conducted Tests
Test result : Complied (Refer to SECTION 3.2)

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8. The opinions and the interpretations to the result of the description in this report are outside scopes where UL Japan has been accredited.
9. The information provided from the customer for this report is identified in SECTION 1.

Date of test: July 10 to August 17, 2020

Representative test engineer:


Shiro Kobayashi
Engineer
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Approved by:


Shinichi Takano
Engineer
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CERTIFICATE 1266.03

- ☐ The testing in which "Non-accreditation" is displayed is outside the accreditation scopes in UL Japan.
- ☒ There is no testing item of "Non-accreditation".

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REVISION HISTORY

Original Test Report No.: 13385909S-C

Revision	Test report No.	Date	Page revised	Contents
- (Original)	13408107S-C	September 29, 2020	-	-

Reference: Abbreviations (Including words undescribed in this report)

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

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SECTION 1: Customer information

Company Name	:	Panasonic Corporation
Address	:	4261 Ikonobe-cho, Tsuzuki-ku, Yokohama-shi, Kanagawa-ken, 224-8520, Japan
Telephone Number	:	+81-50-3689-7112
Contact Person	:	Takahisa Sakai

The information provided from the customer is as follows;

- Applicant, Type 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
- SECTION 4: Operation of EUT during testing

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

SECTION 2: Equipment under test (EUT)

2.1 Identification of EUT

Type	:	Car Navigation
Model Number	:	AT2104
Serial Number	:	Refer to SECTION 4.2
Rating	:	DC 13.2 V
Receipt Date	:	June 29, 2020
Country of Mass-production	:	Japan, Mexico, Czech Republic
Condition	:	Production prototype (Not for Sale: This sample is equivalent to mass-produced items.)
Modification	:	No Modification by the test lab.

2.2 Product Description

Model: AT2104 (referred to as the EUT in this report) are a Car Navigation.

There are 2 type for AT2104; Hi type(14 inch Display) and Lo type(8 inch Display). The same radio module and antenna are installed in these models, however the substrate pattern and antenna arrangement are different.

Radio Specification

	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, 5745 MHz – 5825 MHz	5190 MHz, 5230 MHz, 5755 MHz, 5795 MHz
Channel spacing	5 MHz		2.4 GHz band: 5 MHz 5 GHz band: 20 MHz	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, 5745 MHz – 5825 MHz	5180 MHz – 5240 MHz, 5745 MHz – 5825 MHz	5190 MHz, 5230 MHz, 5755 MHz, 5795 MHz	5210 MHz, 5775 MHz
Channel spacing	20 MHz		40 MHz	80 MHz
Modulation	OFDM (64QAM, 16QAM, QPSK, BPSK)	OFDM (256QAM,16QAM,QPSK,BPSK)		
	Bluetooth (BR/EDR)		Bluetooth Low Energy	
Frequency of operation	2402 MHz – 2480 MHz		2402 MHz – 2480 MHz	
Channel spacing	1 MHz		2 MHz	
Modulation	FHSS, GFSK, $\pi/4$ DQPSK, 8DPSK		FHSS, GFSK	
Antenna type	Inverted F type antenna			
Antenna Gain	Hi type (14 inch Display)	RF0	2.4 GHz WLAN	-0.83 dBi
			U-NII-1	2.17 dBi
			U-NII-3	2.37 dBi
		RF1	BT, BT LE	-0.13 dBi
			U-NII-1	2.59 dBi
			U-NII-3	2.64 dBi
	Lo type (8 inch Display)	RF0	2.4 GHz WLAN	2.25 dBi
			U-NII-1	1.41 dBi
			U-NII-3	0.99 dBi
		RF1	BT, BT LE	-0.22 dBi
			U-NII-1	1.08 dBi
			U-NII-3	2.14 dBi
Antenna Connector type	U.FL connector			
Operating Temperature	-30 deg. C to + 65 deg. C			

SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification : FCC Part 15 Subpart E
FCC Part 15 final revised on May 26, 2020 and effective July 27, 2020

Title : FCC 47 CFR Part 15 Radio Frequency Device Subpart E
Unlicensed National Information Infrastructure Devices
Section 15.407 General technical requirements

* The revision does not affect the test result conducted before its effective date.

* 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 ISED: RSS-Gen 8.8	FCC: 15.407 (b) (6) / 15.207 ISED: RSS-Gen 8.8	-	N/A *1)	-
26 dB Emission Bandwidth	FCC: KDB Publication Number 789033 ISED: -	FCC: 15.407 (a) (1) (2) (3) ISED: -	See data	N/A	Conducted
Maximum Conducted Output Power	FCC: KDB Publication Number 789033 ISED: -	FCC: 15.407 (a) (1) (2) (3) ISED: RSS-247 6.2.1.1 6.2.2.1 6.2.3.1 6.2.4.1		Complied a)	Conducted
Maximum Power Spectral Density	FCC: KDB Publication Number 789033 ISED: -	FCC : 15.407 (a) (1) (2) (3) ISED: RSS-247 6.2.1.1 6.2.2.1 6.2.3.1 6.2.4.1		N/A b)	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 6.2.1.2 6.2.2.2 6.2.3.2 6.2.4.2	See data	Complied c)	Conducted (< 30 MHz)
6 dB Emission Bandwidth	FCC: ANSI C63.10-2013 ISED: -	FCC: 15.407 (e) ISED: RSS-247 6.2.4.1	See data	Complied d)	Conducted
Note: UL Japan, Inc.'s EMI Work Procedures No. 13-EM-W0420 and 13-EM-W0422. *1) The test is not applicable since the EUT does not have AC Mains. a) Refer to APPENDIX 1 (data of Maximum Conducted Output Power) b) Refer to APPENDIX 1 (data of Maximum Power Spectral Density) c) Refer to APPENDIX 1 (data of Conducted Spurious Emission) d) Refer to APPENDIX 1 (data of 6 dB Bandwidth) Symbols: Complied The data of this test item has enough margin, more than the measurement uncertainty. Complied# The data of this test item meets the limits unless the measurement uncertainty is taken into consideration.					

* In case any questions arise about test procedure, ANSI C63.10: 2013 is also referred.

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

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

3.3 Addition to standard

Item	Test Procedure	Specification	Worst margin	Results	Remarks
99 % Occupied Band Width	ISED: RSS-Gen 6.7	ISED: -	N/A	- e)	Conducted
e) Refer to APPENDIX 1 (data of 99 % Occupied Bandwidth)					

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

3.4 Uncertainty

There is no applicable rule of uncertainty in this applied standard. Therefore, the following results are derived depending on whether or not laboratory uncertainty is applied.

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

Antenna terminal test	Uncertainty (+/-)
Power Measurement above 1 GHz (Average Detector)_SPM-06	0.98 dB
Power Measurement above 1 GHz (Peak Detector)_SPM-06	1.75 dB
Power Measurement above 1 GHz (Average Detector)_SPM-07	0.89 dB
Power Measurement above 1 GHz (Peak Detector)_SPM-07	1.12 dB
Power Measurement above 1 GHz (Average Detector)_SPM-13	1.06 dB
Power Measurement above 1 GHz (Peak Detector)_SPM-13	1.24 dB
Spurious emission (Conducted) below 1GHz	0.9 dB
Spurious emission (Conducted) 1 GHz-3 GHz	0.9 dB
Spurious emission (Conducted) 3 GHz-18 GHz	2.9 dB
Spurious emission (Conducted) 18 GHz-26.5 GHz	2.6 dB
Spurious emission (Conducted) 26.5 GHz-40 GHz	2.0 dB
Bandwidth Measurement	0.07 %
Duty cycle and Time Measurement	0.262 %
Temperature	0.95 deg.C.
Voltage	0.83 %

3.5 Test Location

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A2LA Certificate Number: 1266.03 (FCC Test Firm Registration Number: 626366, ISED Lab Company Number: 2973D)

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

3.6 Test data, Test instruments, and Test set up

Refer to APPENDIX.

SECTION 4: Operation of EUT during testing

4.1 Operating Mode(s)

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

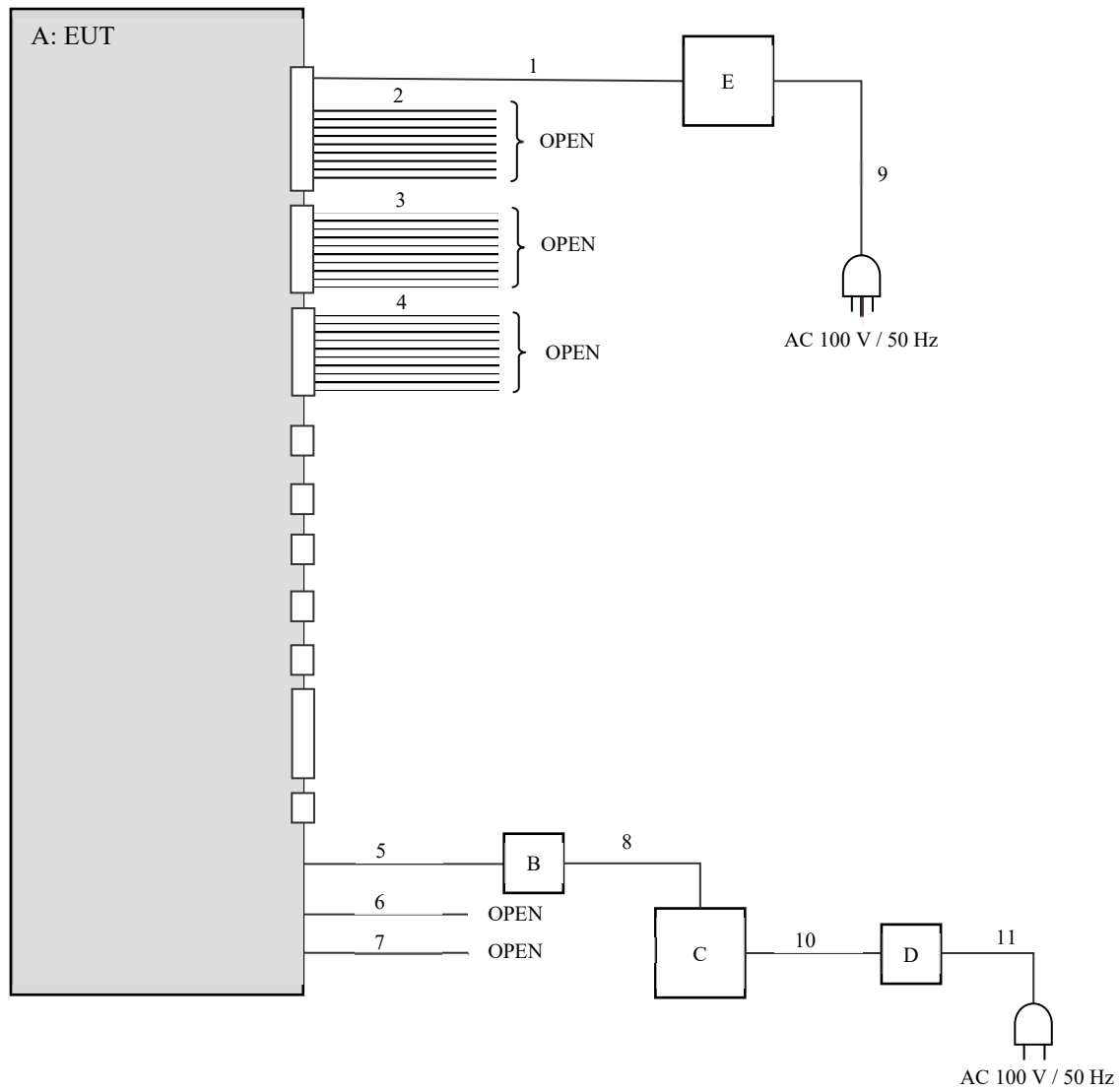
Mode	Remarks*
IEEE 802.11a SISO (11a SISO)	54 Mbps (RF0, RF1), PN9
IEEE 802.11a CDD (11a CDD)	54 Mbps (RF0 + RF1), PN9
IEEE 802.11n SISO 20 MHz BW (11n-20 SISO)	MCS 7 (RF0, RF1), PN9
IEEE 802.11n CDD 20 MHz BW (11n-20 CDD)	MCS 7 (RF0 + RF1), PN9
IEEE 802.11n MIMO 20 MHz BW (11n-20 MIMO)	MCS 15 (RF0 + RF1), PN9
IEEE 802.11ac SISO 20 MHz BW (11ac-20 SISO)	MCS 8 (RF0, RF1), PN9
IEEE 802.11ac CDD 20 MHz BW (11ac-20 CDD)	MCS 8 (RF0 + RF1), PN9
IEEE 802.11ac MIMO 20 MHz BW (11ac-20 MIMO)	MCS 8 (RF0 + RF1), PN9
IEEE 802.11n SISO 40 MHz BW (11n-40 SISO)	MCS 7 (RF0, RF1), PN9
IEEE 802.11n CDD 40 MHz BW (11n-40 CDD)	MCS 7 (RF0 + RF1), PN9
IEEE 802.11n MIMO 40 MHz BW (11n-40 MIMO)	MCS 15 (RF0 + RF1), PN9
IEEE 802.11ac SISO 40 MHz BW (11ac-40 SISO)	MCS 7 (RF0, RF1), PN9
IEEE 802.11ac CDD 40 MHz BW (11ac-40 CDD)	MCS 7 (RF0 + RF1), PN9
IEEE 802.11ac MIMO 40 MHz BW (11ac-40 MIMO)	MCS 7 (RF0 + RF1), PN9
IEEE 802.11ac SISO 80 MHz BW (11ac-80 SISO)	MCS 7 (RF0, RF1), PN9
IEEE 802.11ac CDD 80 MHz BW (11ac-80 CDD)	MCS 7 (RF0 + RF1), PN9
IEEE 802.11ac MIMO 80 MHz BW (11ac-80 MIMO)	MCS 7 (RF0 + RF1), PN9
*The worst antenna (RF1) and 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: 5 dBm Software: Labtool Version: 2.0.0.71 (Date: 2020.05.29, Storage location: EUT memory)	
*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 Antenna	Tested Frequency	
			U-NII-1 Band	U-NII-3 Band
99 % Occupied Bandwidth	11a SISO/CDD	RF1	5180 MHz	5745 MHz
	11n-20 SISO/CDD/MIMO		5220 MHz	5785 MHz
	11ac-20 SISO/CDD/MIMO		5240 MHz	5825 MHz
	11n-40 SISO/CDD/MIMO	RF1	5190 MHz	5755 MHz
	11ac-40 SISO/CDD/MIMO		5230 MHz	5795 MHz
	11ac-80 SISO/CDD/MIMO	RF1	5210 MHz	5775 MHz
Maximum Conducted Output Power, Maximum Power Spectral Density	11a SISO	RF0, RF1	5180 MHz	5745 MHz
	11n-20 SISO		5220 MHz	5785 MHz
	11ac-20 SISO		5240 MHz	5825 MHz
	11a CDD	RF0 + RF1	5180 MHz	5745 MHz
	11n-20 CDD		5220 MHz	5785 MHz
	11ac-20 CDD		5240 MHz	5825 MHz
	11n-20 MIMO	RF0 + RF1	5180 MHz	5745 MHz
	11ac-20 MIMO		5220 MHz	5785 MHz
			5240 MHz	5825 MHz
	11n-40 SISO	RF0, RF1	5190 MHz	5755 MHz
	11ac-40 SISO		5230 MHz	5795 MHz
	11n-40 CDD	RF0 + RF1	5190 MHz	5755 MHz
6 dB Bandwidth	11a SISO/CDD/MIMO	RF1	-	5745 MHz
	11n-20 SISO/CDD/MIMO			5785 MHz
	11ac-20 SISO/CDD/MIMO			5825 MHz
	11n-40 SISO/CDD/MIMO	RF1	-	5755 MHz
	11ac-40 SISO/CDD/MIMO			5795 MHz
	11ac-80 SISO/CDD/MIMO	RF1	-	5775 MHz
Conducted Spurious Emission	11ac MIMO *1)	RF1	-	5745 MHz

*1) The test was performed with the antenna that had higher power as a representative.

4.2 Configuration and peripherals



Description of EUT and support equipment

No.	Item	Model number	Serial number	Manufacturer	Remarks
A	Car Navigation	AT2104 Lo type (8 inch Display)	500107	Panasonic Corporation	EUT
B	Jig board	RCarDBG JTAG2	WR19-4014	WESTEK	-
C	Laptop Computer	7666-77J	LV-B8R1X 08/05	Lenovo	-
D	AC Adapter	42T4422	11S92P1154Z1DXF 1DBFDN	Lenovo	-
E	Power Supply (DC)	PAN35-10A	ML002085	KIKUSUI	-

List of cables used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	DC	1.0	Unshielded	Unshielded	-
2	Signal	0.2	Unshielded	Unshielded	-
3	Signal	0.2	Unshielded	Unshielded	-
4	Signal	0.2	Shielded	Shielded	-
5	Signal	0.1	Unshielded	Unshielded	*1)
6	Signal	0.2	Unshielded	Unshielded	*1)
7	UART	0.3	Unshielded	Unshielded	*1)
8	USB	1.5	Shielded	Shielded	-
9	AC	2.0	Unshielded	Unshielded	-
10	DC	1.8	Unshielded	Unshielded	-
11	AC	0.9	Unshielded	Unshielded	-

*1) This cable is for testing and is not included with products.

SECTION 5: 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
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	-	-	-	-	Average	-	Power Meter (Sensor: 160 MHz BW) (Method PM-G)
Maximum Power Spectral Density	Encompass the entire EBW	1 MHz or 100 kHz *2)	≥ 3 RBW	Auto	RMS Power Averaging (100 times)	Clear Write	Spectrum Analyzer
Conducted Spurious Emission*3) *4)	9 kHz – 150 kHz 150 kHz – 30 MHz	200 Hz 10 kHz	620 Hz 30 kHz	Auto	Peak	Max Hold	Spectrum Analyzer

* The test method was also referred to KDB 789033 D02 General UNII Test Procedures New Rules v02r01 "Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices Part 15, Subpart E".

*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-5.850 GHz, but it is not possible with spectrum analyzer, so RBW Correction Factor ($10 \log(500 \text{ kHz} / 100 \text{ kHz})$) 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 low enough as shown in the chart. (9 kHz-150 kHz: RBW = 200 Hz, 150 kHz-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.

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

Test data : APPENDIX
Test result : Pass

APPENDIX 1: Test data

99 % Occupied Bandwidth

Report No.	13408107S-C
Test place	Shonan EMC Lab. No.5 Shielded Room
Date	July 4, 2020
Temperature / Humidity	23 deg. C / 43 % RH
Engineer	Hiromasa Sato
Mode	Tx

11a SISO

Antenna	Tested Frequency [MHz]	99 % Occupied Bandwidth [kHz]
RF1	5180	16698.5
	5220	16718.7
	5240	16699.9
	5745	16640.7
	5785	16663.6
	5825	16659.2

11n-20 SISO

Antenna	Tested Frequency [MHz]	99 % Occupied Bandwidth [kHz]
RF1	5180	17763.8
	5220	17791.9
	5240	17725.6
	5745	17801.0
	5785	17705.6
	5825	17769.1

11a CDD

Antenna	Tested Frequency [MHz]	99 % Occupied Bandwidth [kHz]
RF1	5180	16706.0
	5220	16708.6
	5240	16686.3
	5745	16660.1
	5785	16659.3
	5825	16678.1

11n-20 CDD

Antenna	Tested Frequency [MHz]	99 % Occupied Bandwidth [kHz]
RF1	5180	17813.6
	5220	17793.5
	5240	17793.1
	5745	17702.0
	5785	17721.4
	5825	17772.5

11n-20 MIMO

Antenna	Tested Frequency [MHz]	99 % Occupied Bandwidth [kHz]
RF1	5180	17799.9
	5220	17790.8
	5240	17807.8
	5745	17785.2
	5785	17799.8
	5825	17811.3

99 % Occupied Bandwidth

Report No.	13408107S-C	
Test place	Shonan EMC Lab. No.5 Shielded Room	
Date	July 4, 2020	July 7, 2020
Temperature / Humidity	23 deg. C / 43 % RH	25 deg. C / 54 % RH
Engineer	Hiromasa Sato	Hiromasa Sato
Mode	Tx	

11ac-20 SISO

Antenna	Tested Frequency [MHz]	99 % Occupied Bandwidth [kHz]
RF1	5180	17754.2
	5220	17731.1
	5240	17741.4
	5745	17723.3
	5785	17741.9
	5825	17758.2

11n-40 SISO

Antenna	Tested Frequency [MHz]	99 % Occupied Bandwidth [kHz]
RF1	5190	36207.2
	5230	36250.7
	5755	36246.0
	5795	36230.1

11ac-20 CDD

Antenna	Tested Frequency [MHz]	99 % Occupied Bandwidth [kHz]
RF1	5180	17720.9
	5220	17722.4
	5240	17812.8
	5745	17710.6
	5785	17790.1
	5825	17812.9

11n-40 CDD

Antenna	Tested Frequency [MHz]	99 % Occupied Bandwidth [kHz]
RF1	5190	36324.1
	5230	36224.4
	5755	36208.6
	5795	36261.3

11ac-20 MIMO

Antenna	Tested Frequency [MHz]	99 % Occupied Bandwidth [kHz]
RF1	5180	17825.7
	5220	17745.1
	5240	17814.6
	5745	17740.7
	5785	17711.2
	5825	17730.3

11n-40 MIMO

Antenna	Tested Frequency [MHz]	99 % Occupied Bandwidth [kHz]
RF1	5190	36461.0
	5230	36433.9
	5755	36269.6
	5795	36263.1

99 % Occupied Bandwidth

Report No.	13408107S-C	
Test place	Shonan EMC Lab. No.5 Shielded Room	
Date	July 4, 2020	July 7, 2020
Temperature / Humidity	23 deg. C / 43 % RH	25 deg. C / 54 % RH
Engineer	Hiromasa Sato	Hiromasa Sato
Mode	Tx	

11ac-40 SISO

Antenna	Tested Frequency [MHz]	99 % Occupied Bandwidth [kHz]
RF1	5190	36263.3
	5230	36205.3
	5755	36184.6
	5795	36234.9

11ac-80 SISO

Antenna	Tested Frequency [MHz]	99 % Occupied Bandwidth [kHz]
RF1	5210	76585.0
	5775	76431.1

11ac-40 CDD

Antenna	Tested Frequency [MHz]	99 % Occupied Bandwidth [kHz]
RF1	5190	36342.6
	5230	36277.8
	5755	36276.6
	5795	36111.0

11ac-80 CDD

Antenna	Tested Frequency [MHz]	99 % Occupied Bandwidth [kHz]
RF1	5210	76553.1
	5775	76264.0

11ac-40 MIMO

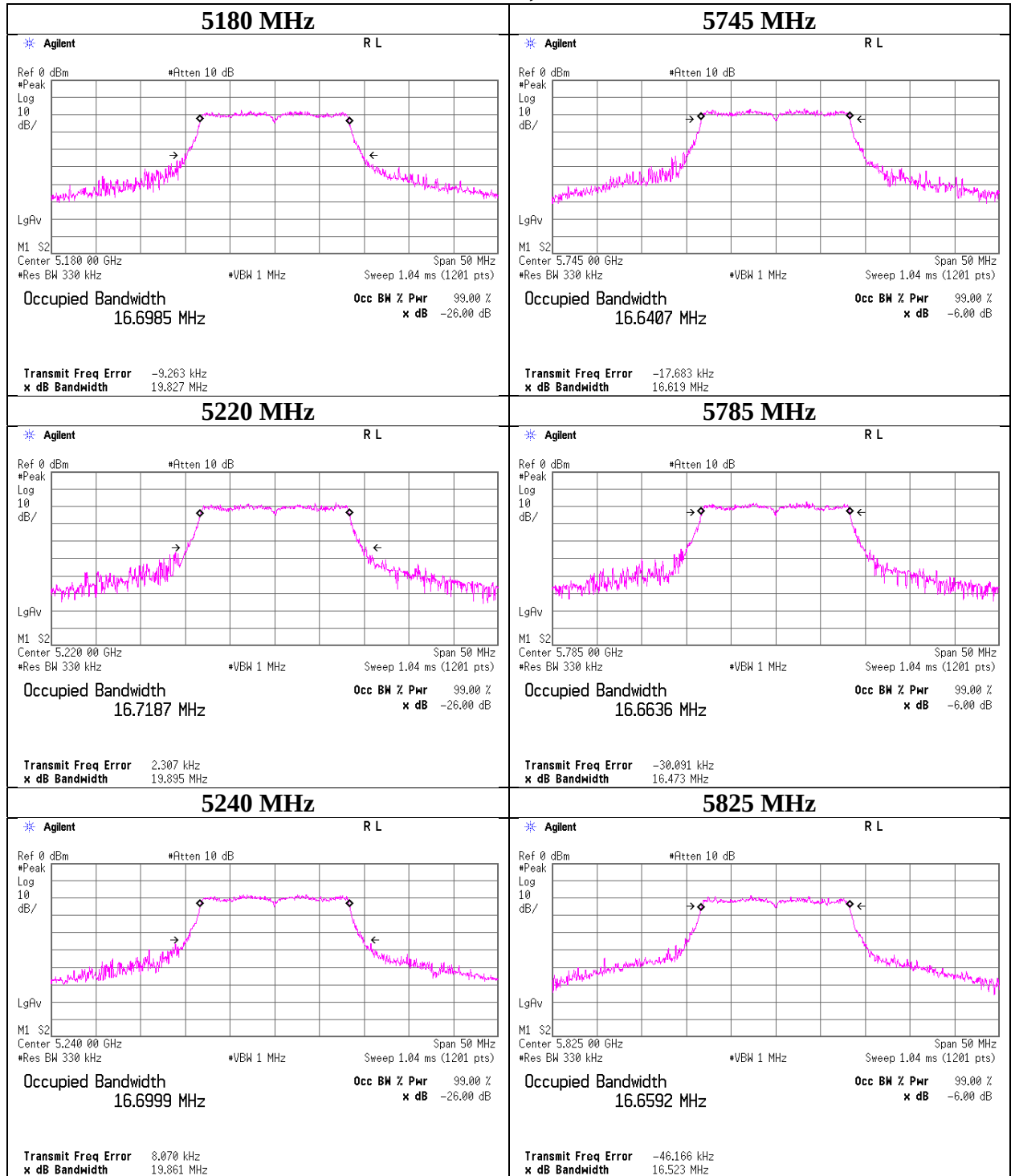
Antenna	Tested Frequency [MHz]	99 % Occupied Bandwidth [kHz]
RF1	5190	36319.5
	5230	36270.2
	5755	36401.5
	5795	36464.4

11ac-80 MIMO

Antenna	Tested Frequency [MHz]	99 % Occupied Bandwidth [kHz]
RF1	5210	76846.2
	5775	76157.5

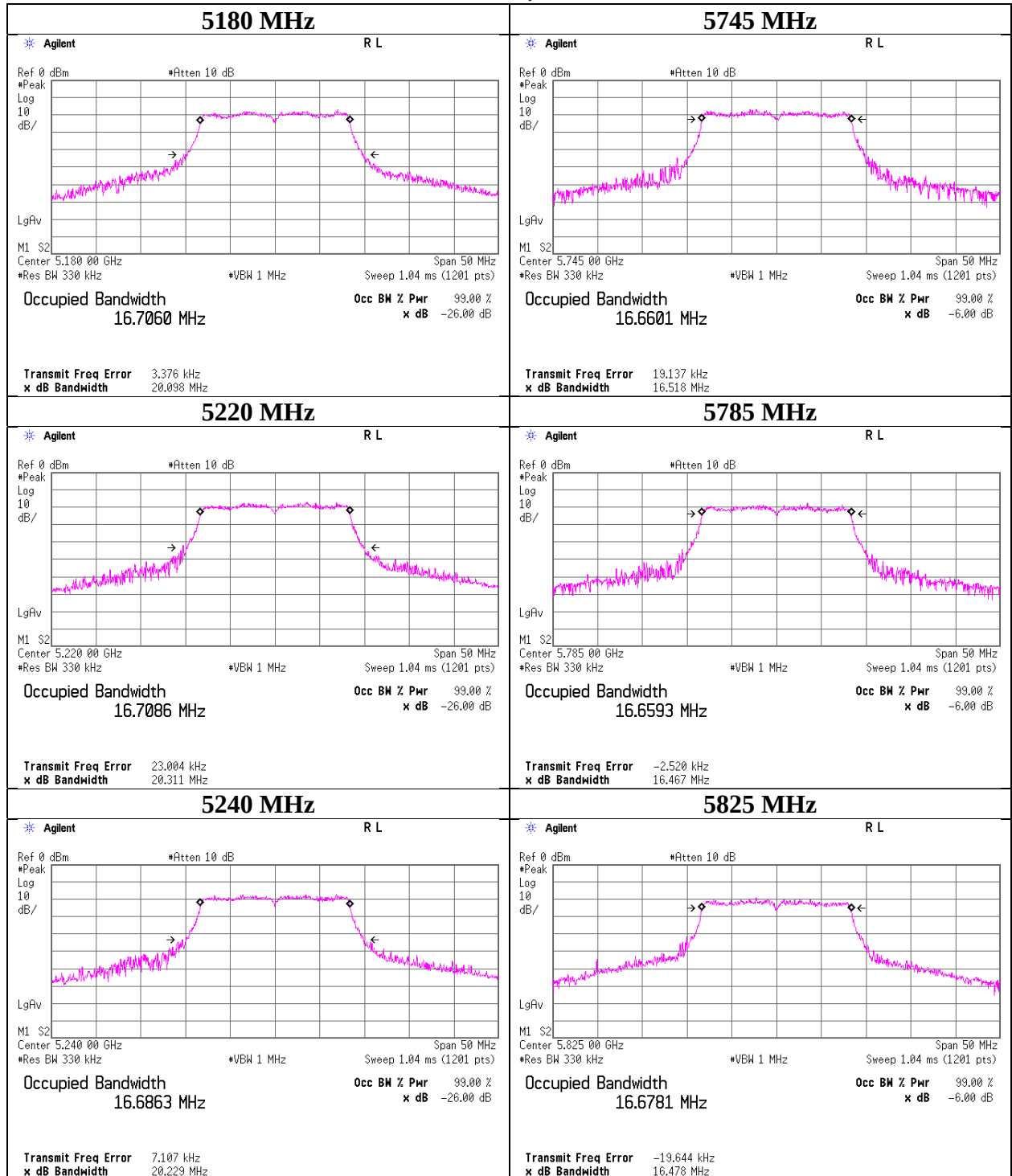
99 % Occupied Bandwidth

11a SISO, RF1



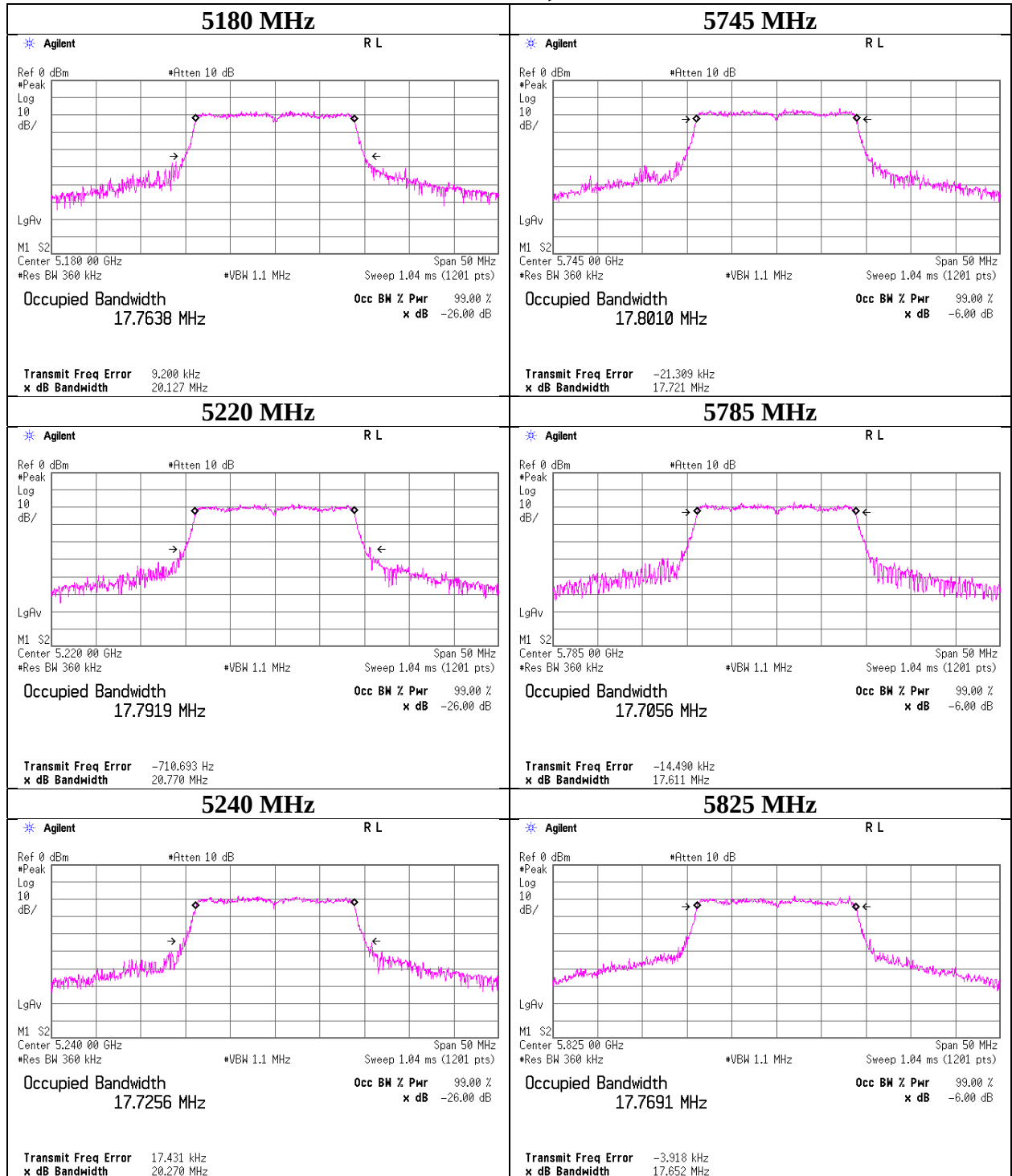
99 % Occupied Bandwidth

11a CDD, RF1



99 % Occupied Bandwidth

11n-20 SISO, RF1



UL Japan, Inc.

Shonan EMC Lab.

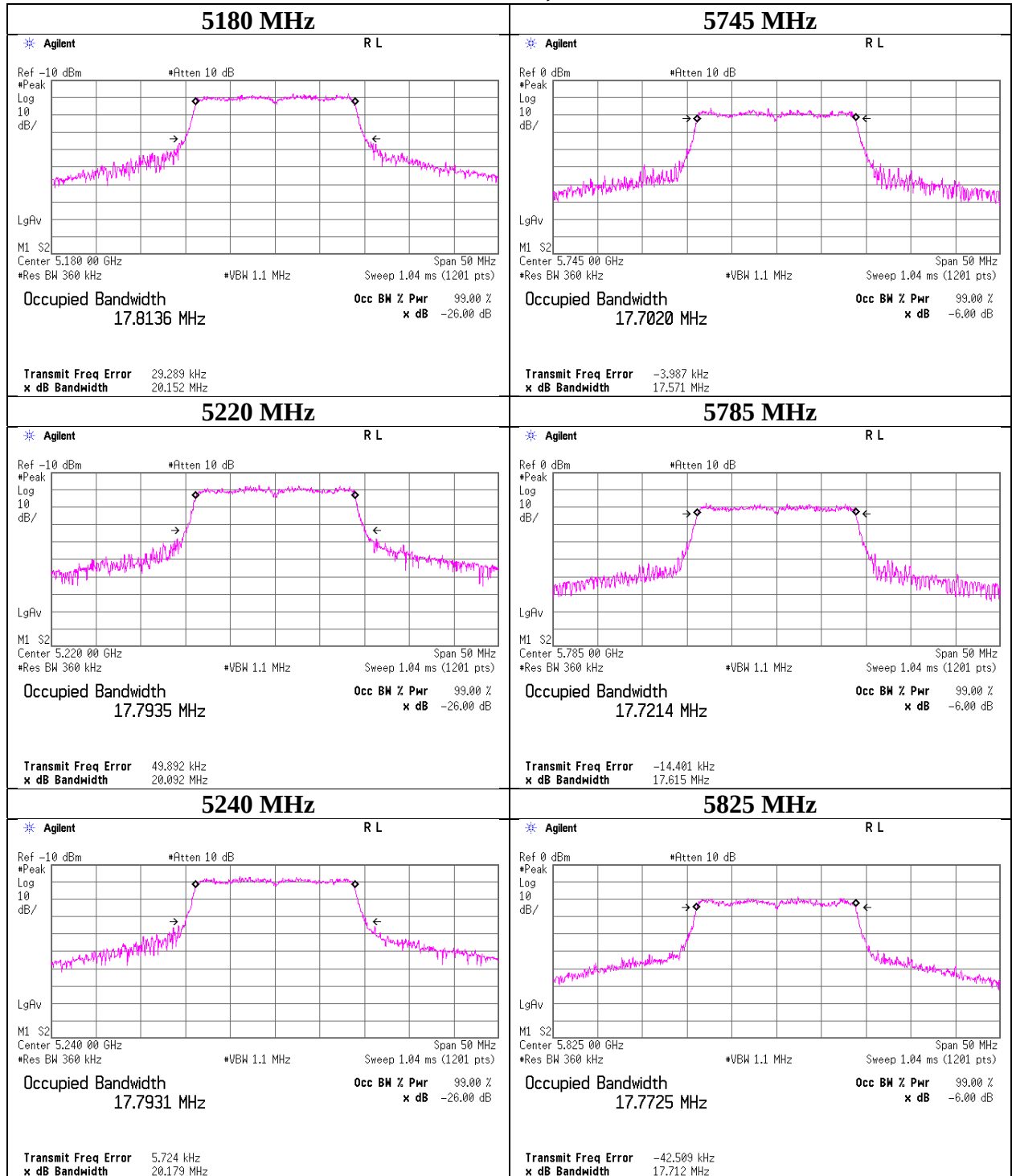
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

99 % Occupied Bandwidth

11n-20 CDD, RF1



UL Japan, Inc.

Shonan EMC Lab.

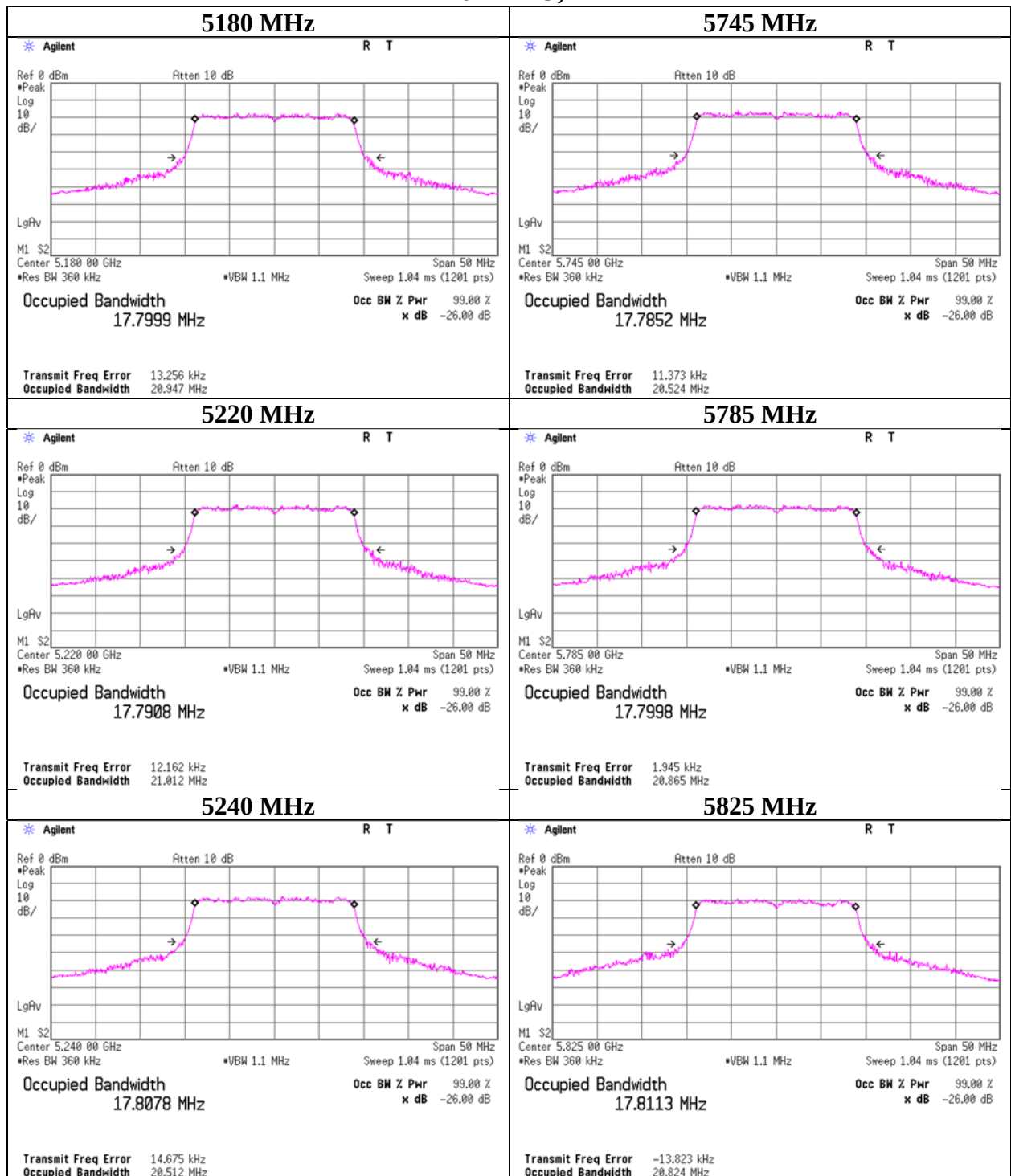
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

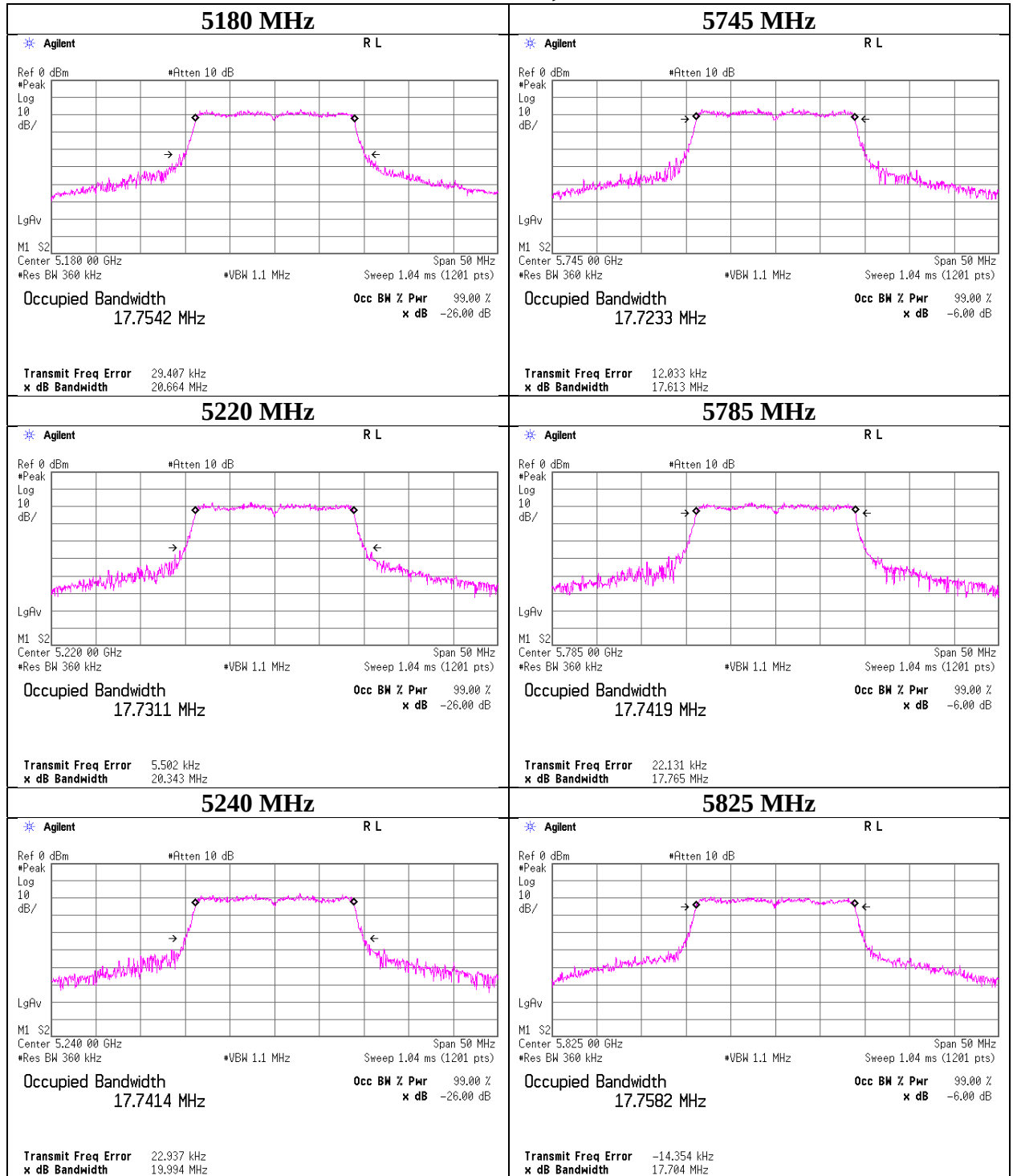
99 % Occupied Bandwidth

11n-20 MIMO, RF1



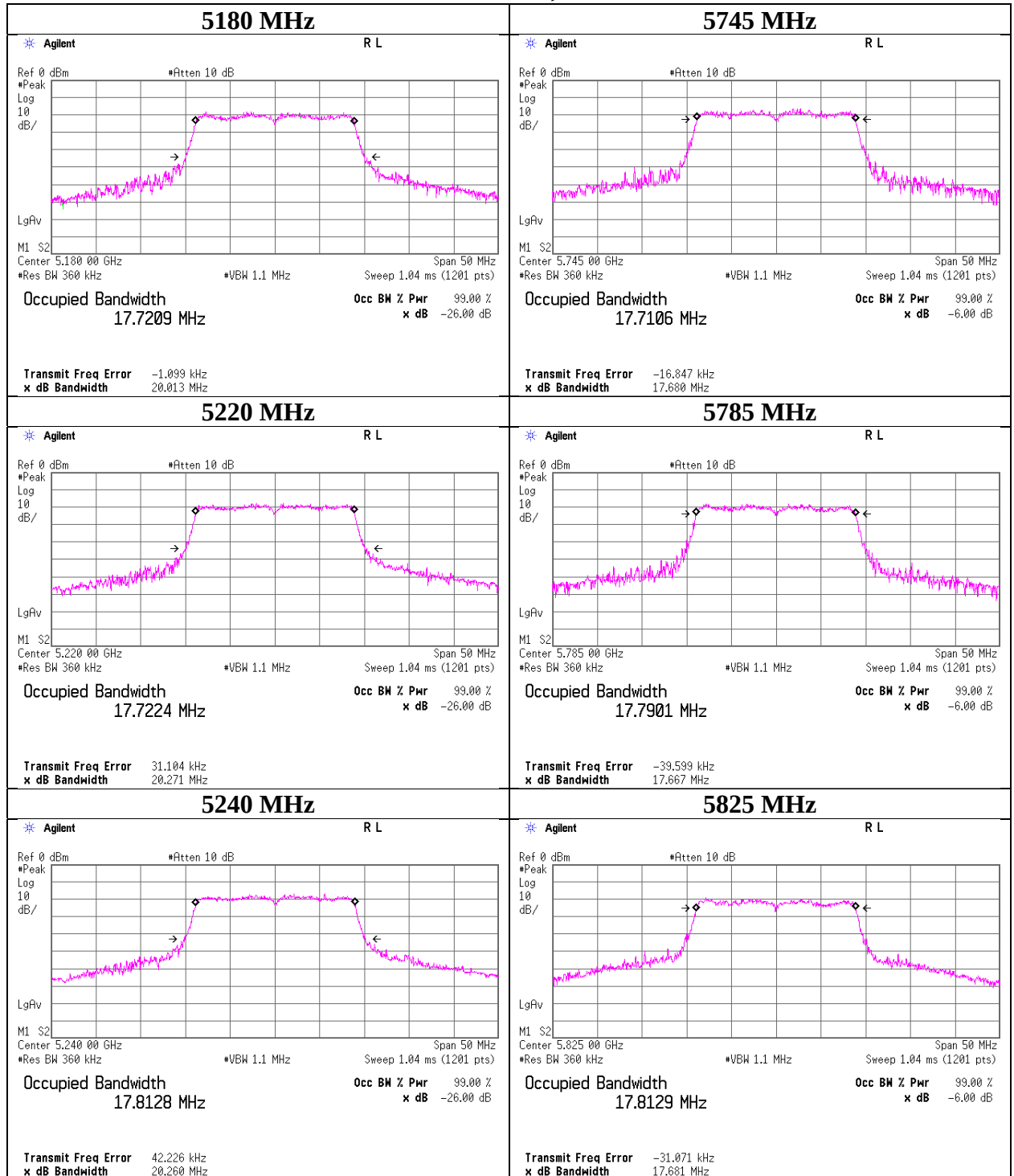
99 % Occupied Bandwidth

11ac-20 SISO, RF1



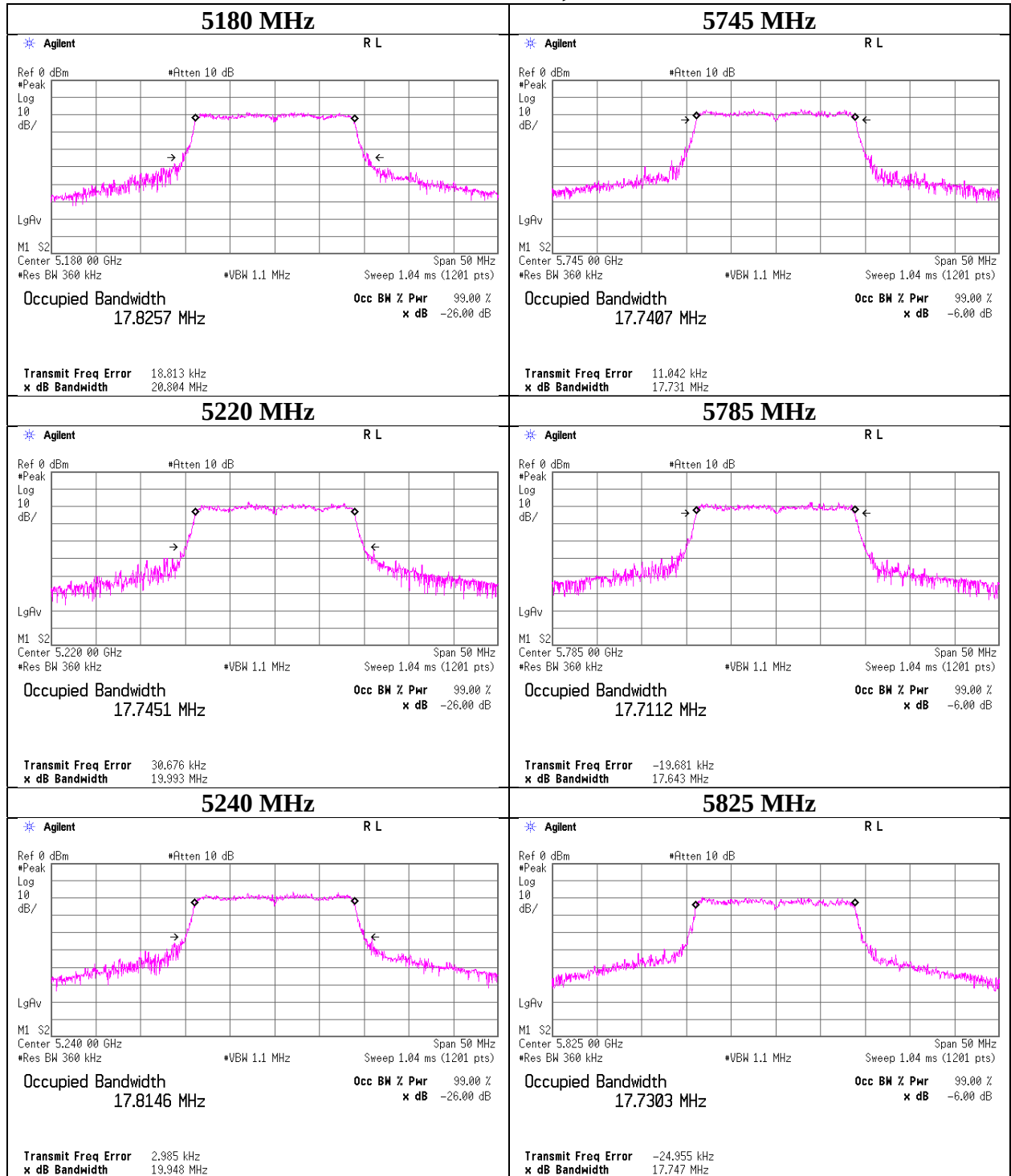
99 % Occupied Bandwidth

11ac-20 CDD, RF1



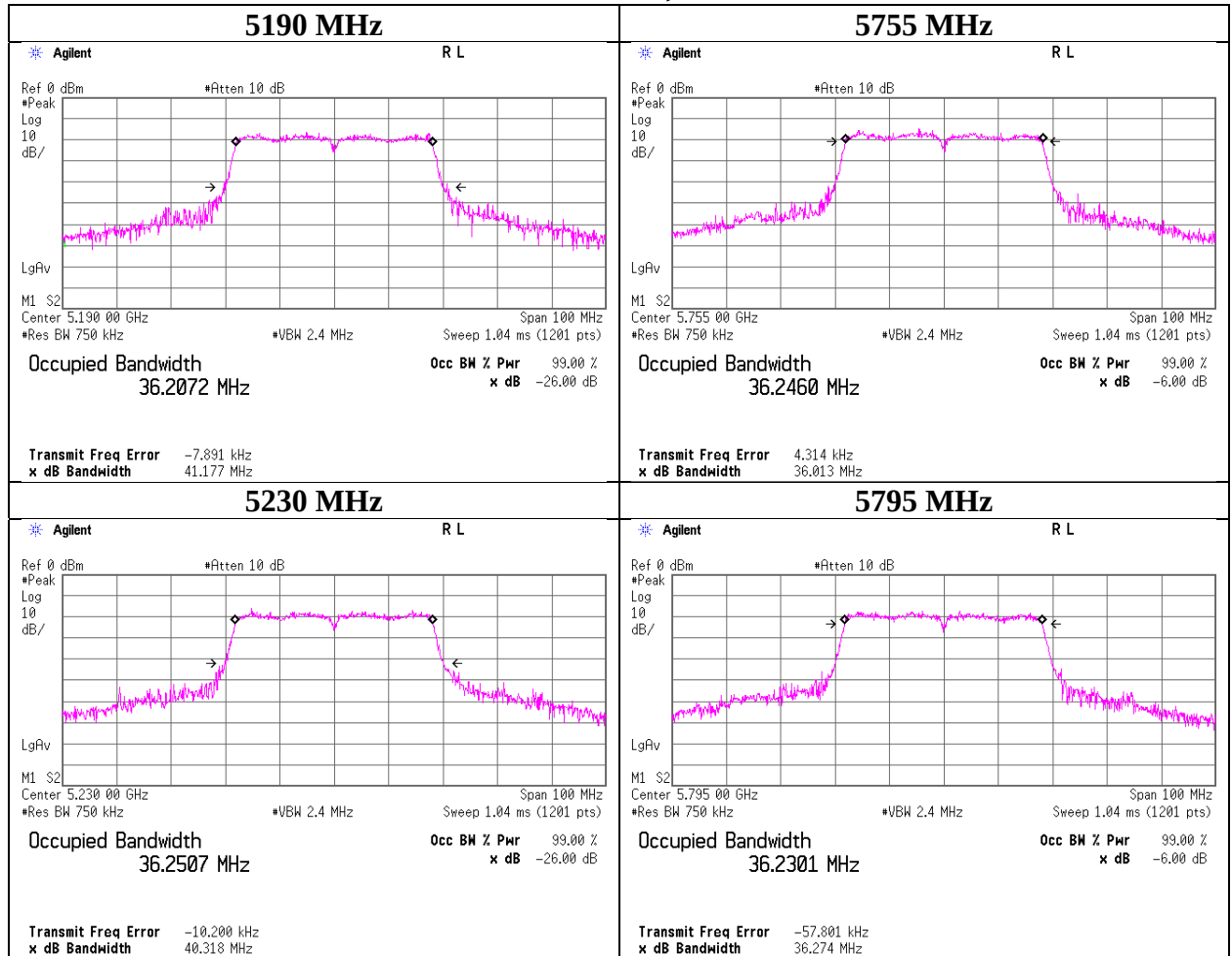
99 % Occupied Bandwidth

11ac-20 MIMO, RF1



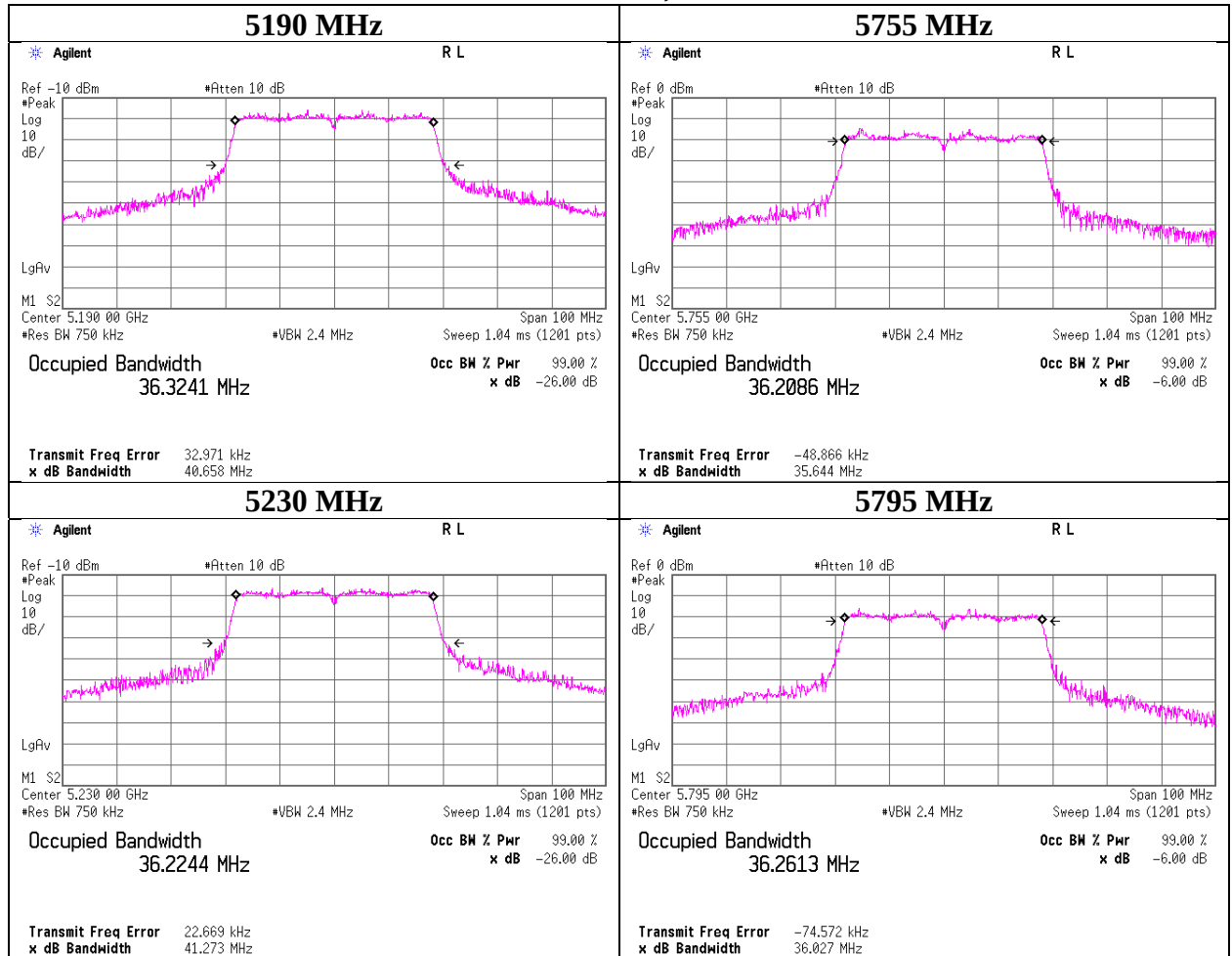
99 % Occupied Bandwidth

11n-40 SISO, RF1



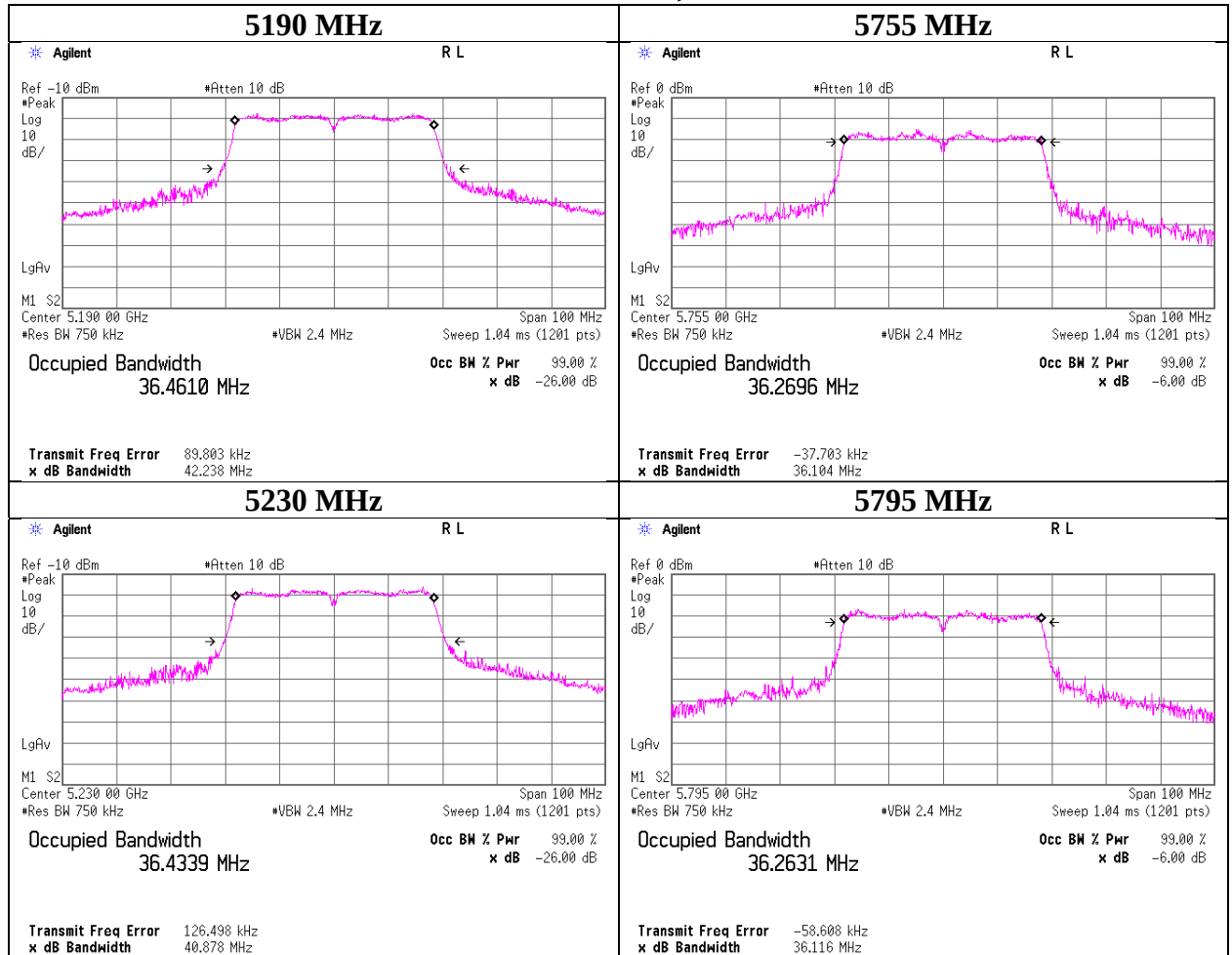
99 % Occupied Bandwidth

11n-40 CDD, RF1



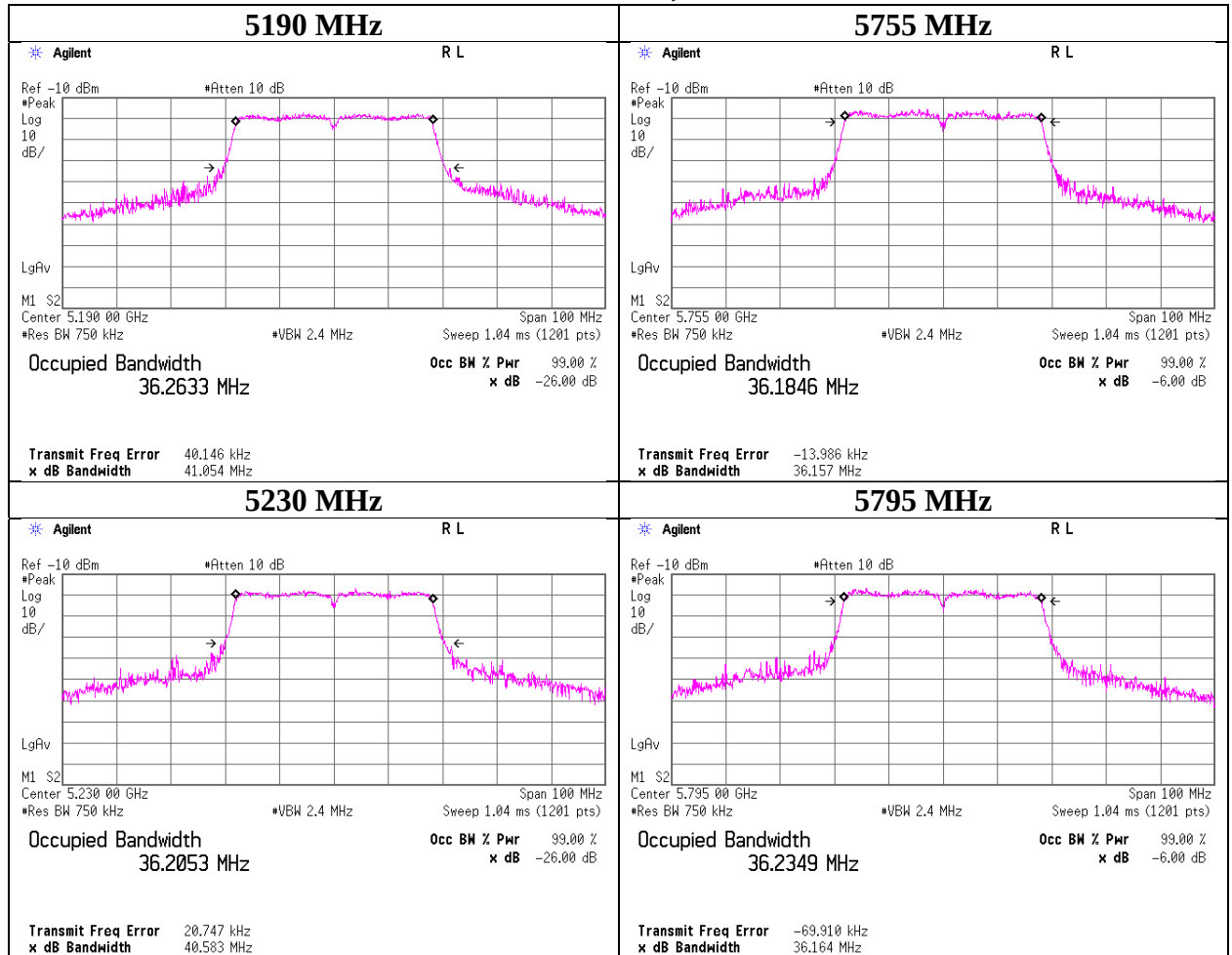
99 % Occupied Bandwidth

11n-40 MIMO, RF1



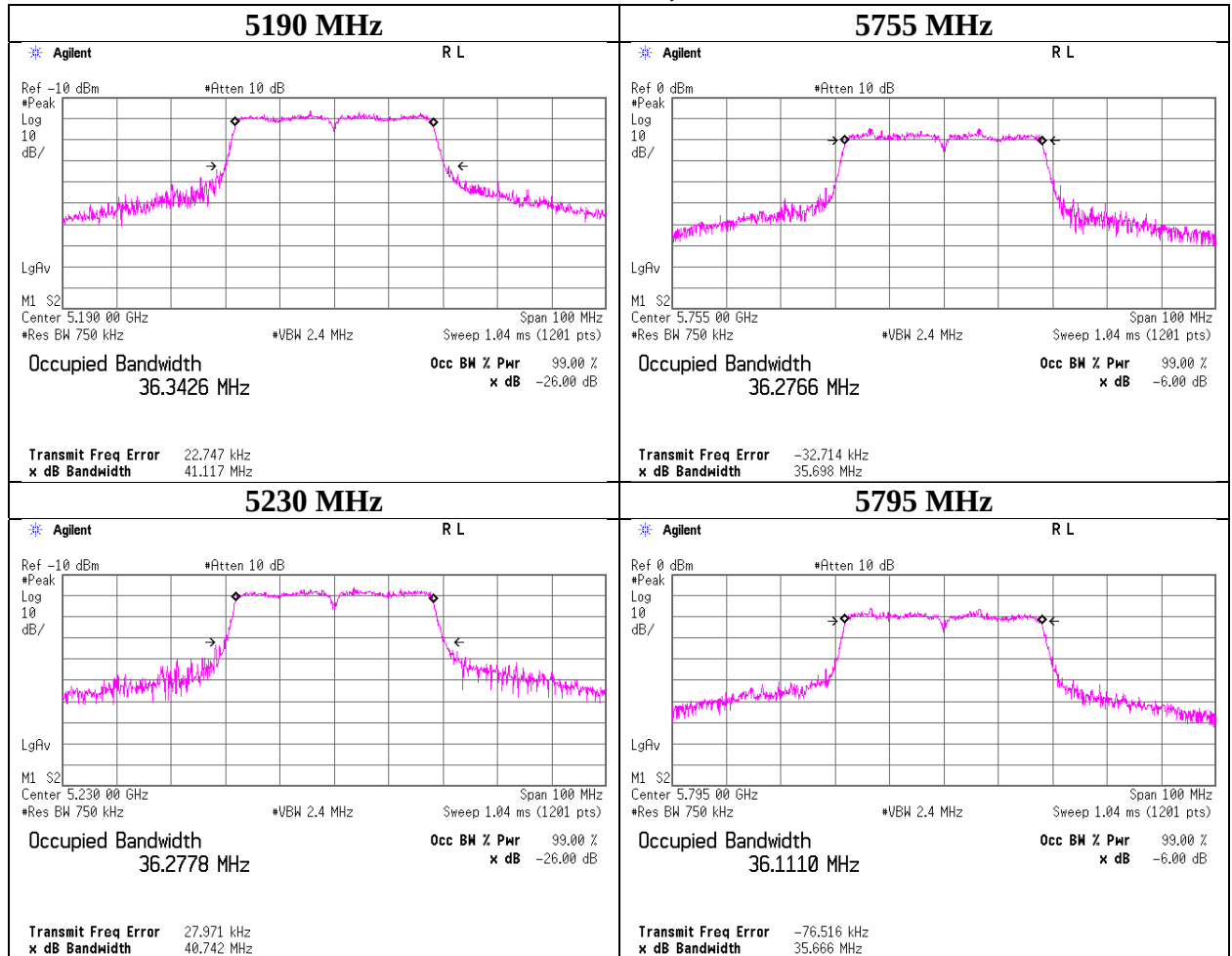
99 % Occupied Bandwidth

11ac-40 SISO, RF1



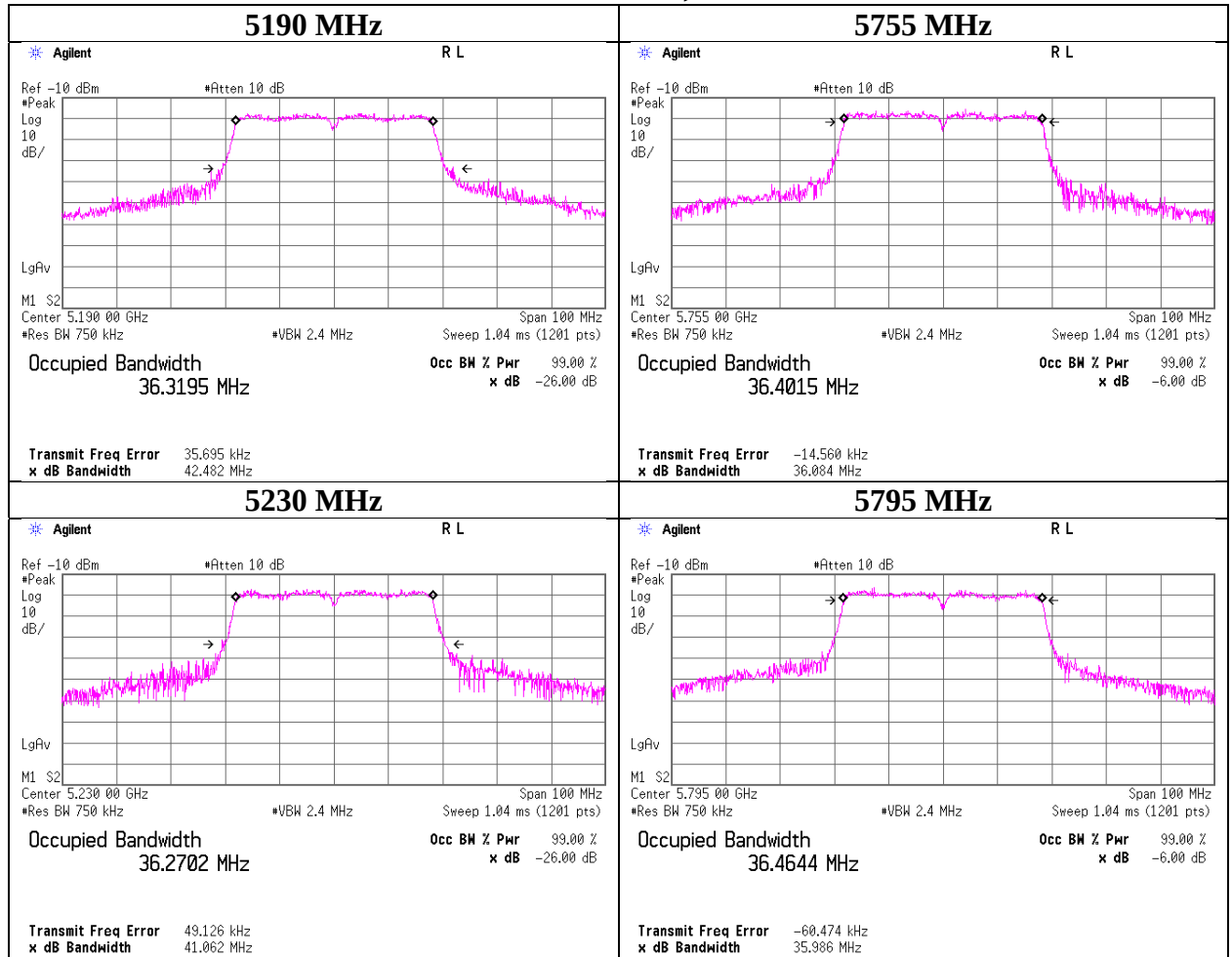
99 % Occupied Bandwidth

11ac-40 CDD, RF1

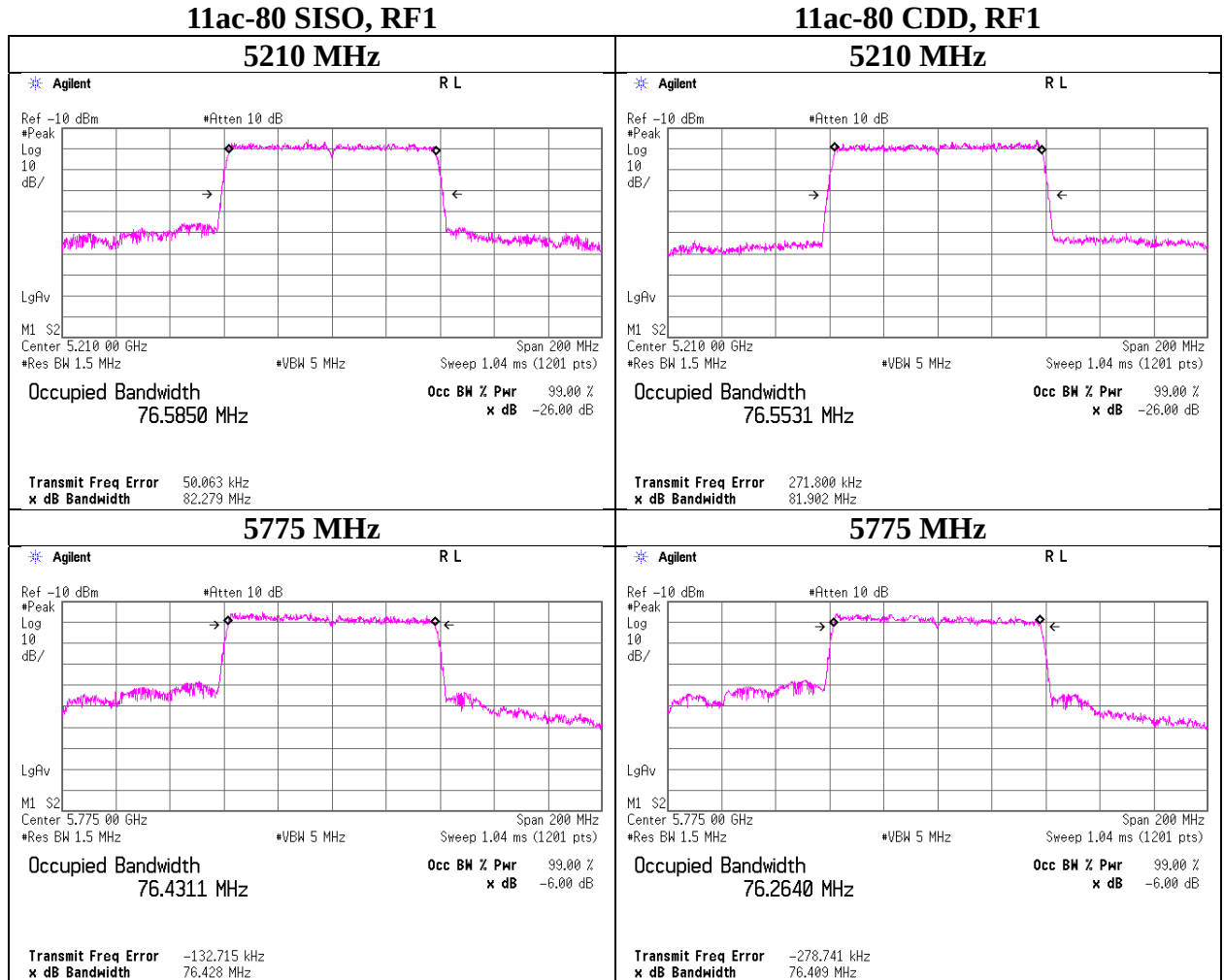


99 % Occupied Bandwidth

11ac-40 MIMO, RF1

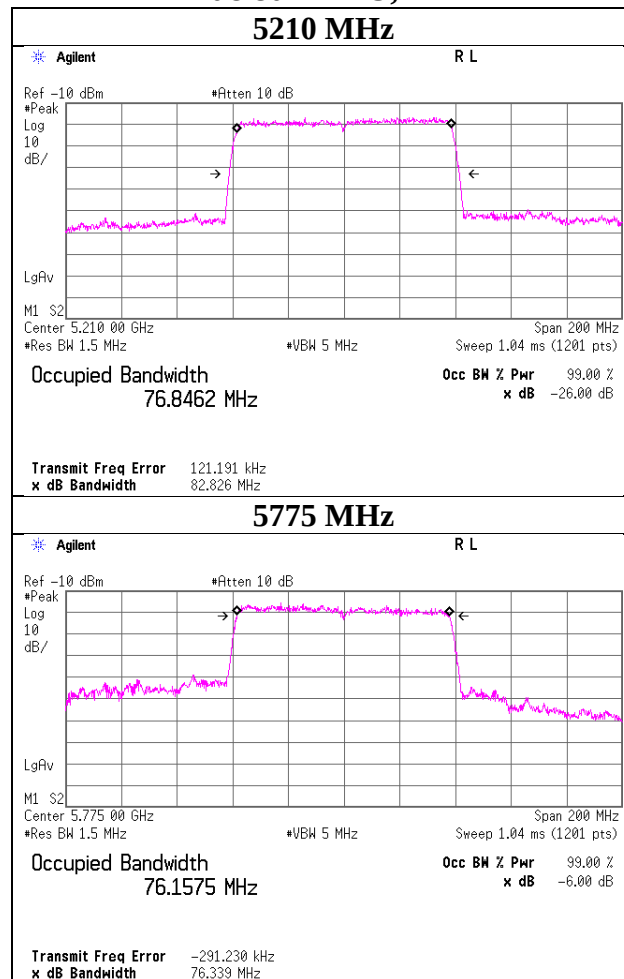


99 % Occupied Bandwidth



99 % Occupied Bandwidth

11ac-80 MIMO, RF1



6 dB Bandwidth

Report No.	13408107S-C
Test place	Shonan EMC Lab. No.5 Shielded Room
Date	August 7, 2020
Temperature / Humidity	25 deg. C / 54 % RH
Engineer	Hiromasa Sato
Mode	Tx

11a SISO

Antenna	Tested Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
RF1	5745	16.457	> 0.500
	5785	16.463	> 0.500
	5825	16.482	> 0.500

11a CDD

Antenna	Tested Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
RF1	5745	16.492	> 0.500
	5785	16.514	> 0.500
	5825	16.473	> 0.500

11n-20 SISO

Antenna	Tested Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
RF1	5745	17.595	> 0.500
	5785	17.696	> 0.500
	5825	17.627	> 0.500

11n-20 CDD

Antenna	Tested Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
RF1	5745	17.350	> 0.500
	5785	17.587	> 0.500
	5825	17.590	> 0.500

11n-20 MIMO

Antenna	Tested Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
RF1	5745	17.605	> 0.500
	5785	17.681	> 0.500
	5825	17.616	> 0.500

11ac-20 SISO

Antenna	Tested Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
RF1	5745	17.584	> 0.500
	5785	17.495	> 0.500
	5825	17.595	> 0.500

11ac-20 CDD

Antenna	Tested Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
RF1	5745	17.350	> 0.500
	5785	17.587	> 0.500
	5825	17.590	> 0.500

11ac-20 MIMO

Antenna	Tested Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
RF1	5745	17.605	> 0.500
	5785	17.681	> 0.500
	5825	17.616	> 0.500

6 dB Bandwidth

Report No.	13408107S-C
Test place	Shonan EMC Lab. No.5 Shielded Room
Date	August 4, 2020
Temperature / Humidity	23 deg. C / 43 % RH
Engineer	Hiromasa Sato
Mode	Tx

11n-40 SISO

Antenna	Tested Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
RF1	5755	35.826	> 0.500
	5795	35.936	> 0.500

11ac-40 SISO

Antenna	Tested Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
RF1	5755	35.813	> 0.500
	5795	36.066	> 0.500

11n-40 CDD

Antenna	Tested Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
RF1	5755	35.329	> 0.500
	5795	36.258	> 0.500

11ac-40 CDD

Antenna	Tested Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
RF1	5755	35.558	> 0.500
	5795	35.730	> 0.500

11n-40 MIMO

Antenna	Tested Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
RF1	5755	35.475	> 0.500
	5795	35.511	> 0.500

11ac-40 MIMO

Antenna	Tested Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
RF1	5755	35.516	> 0.500
	5795	35.593	> 0.500

11ac-80 SISO

Antenna	Tested Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
RF1	5775	75.890	> 0.500

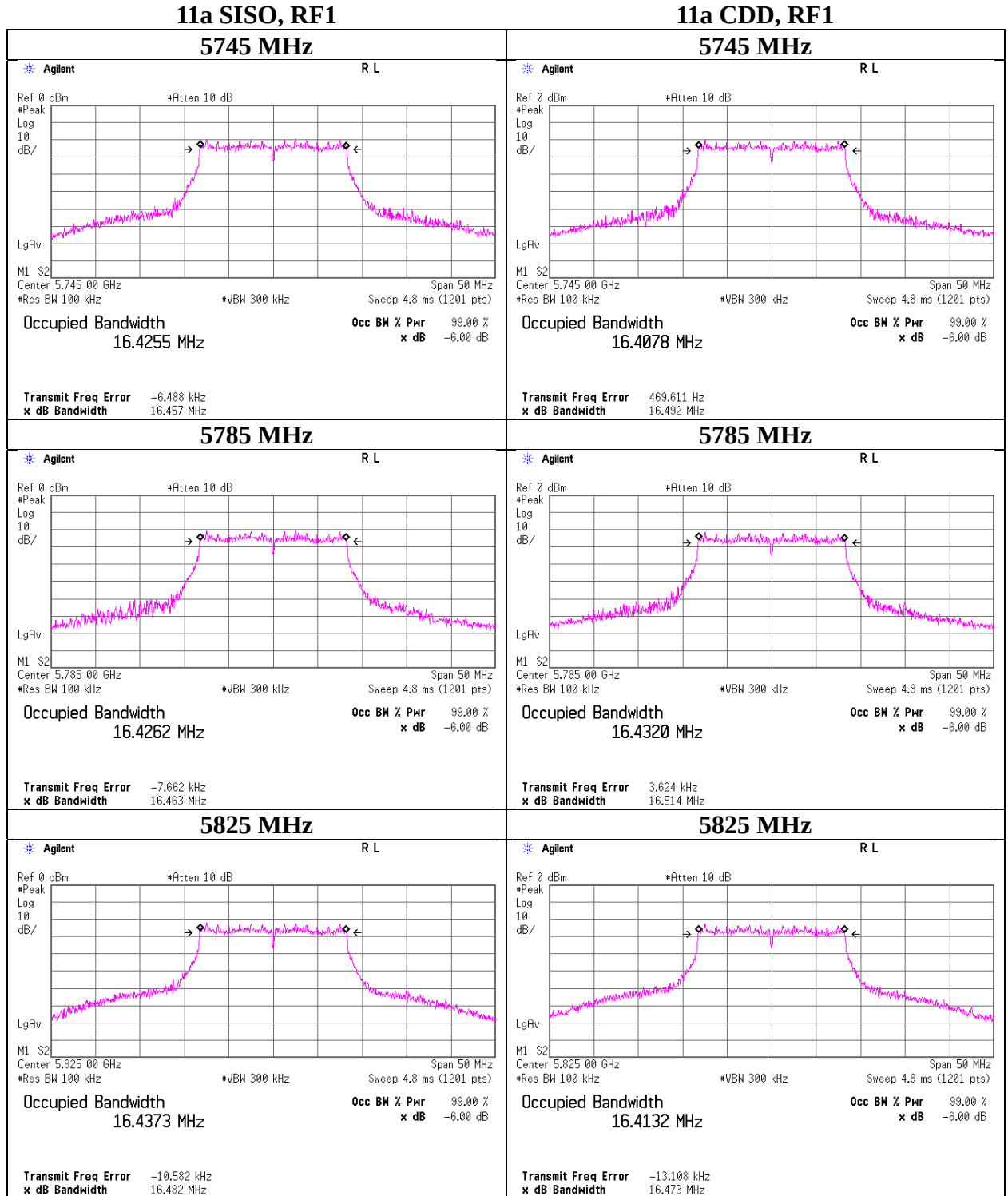
11ac-80 CDD

Antenna	Tested Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
RF1	5775	76.259	> 0.500

11ac-80 MIMO

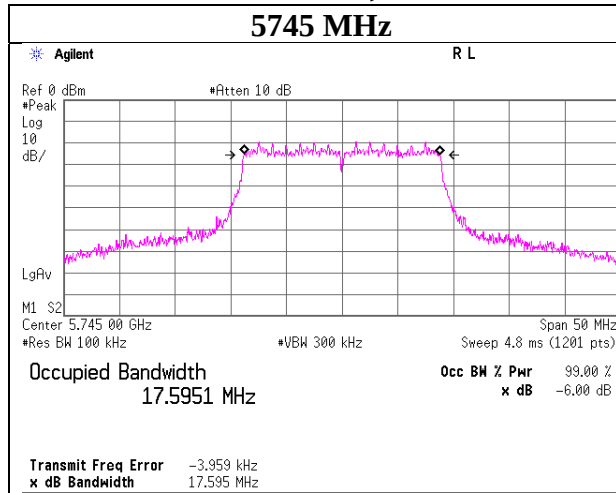
Antenna	Tested Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
RF1	5775	75.790	> 0.500

6 dB Bandwidth

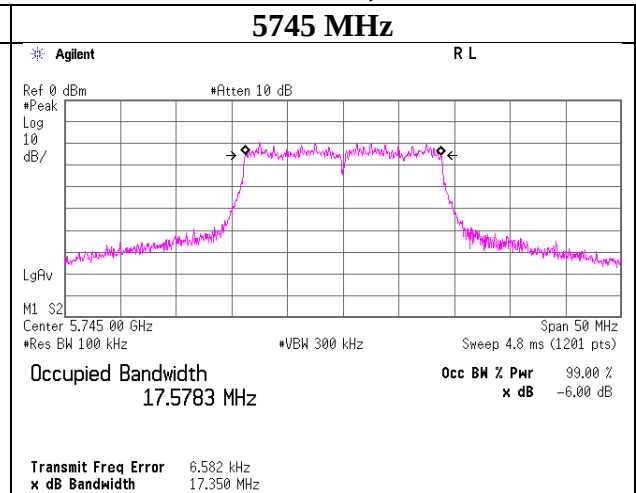


6 dB Bandwidth

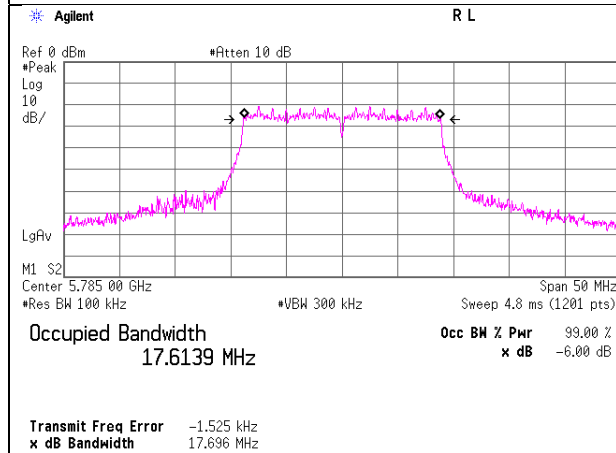
11n-20 SISO, RF1



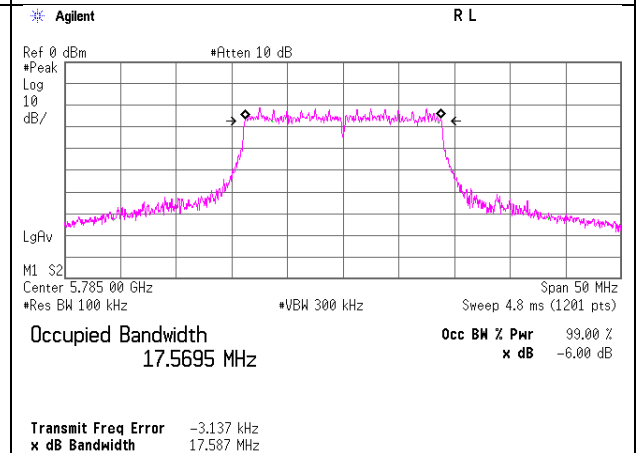
11n-20 CDD, RF1



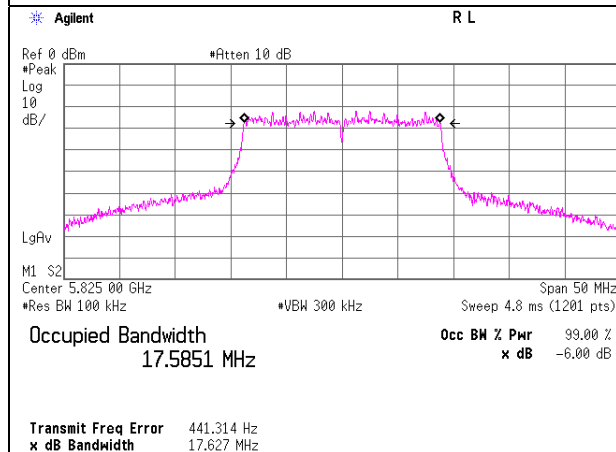
5785 MHz



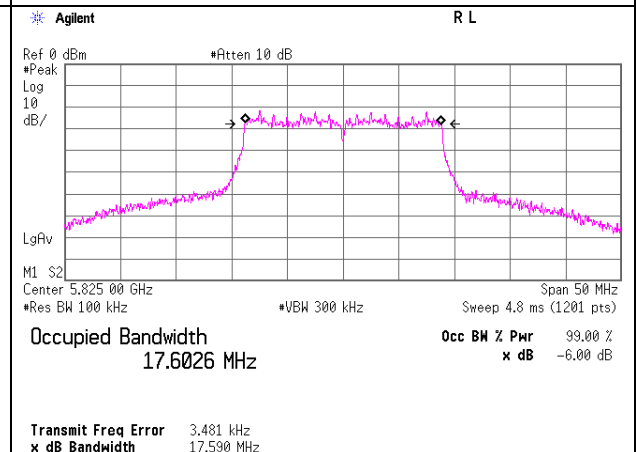
5785 MHz



5825 MHz



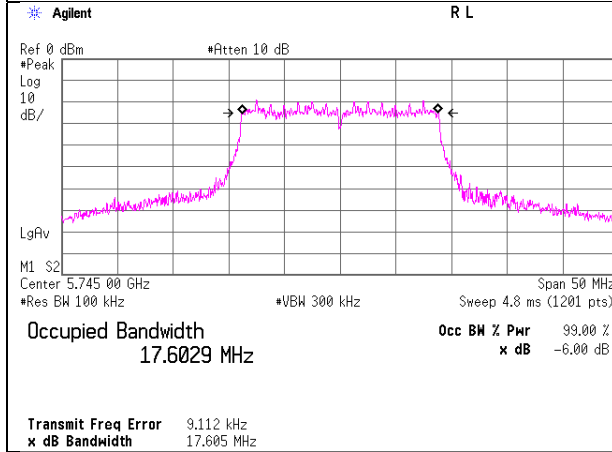
5825 MHz



6 dB Bandwidth

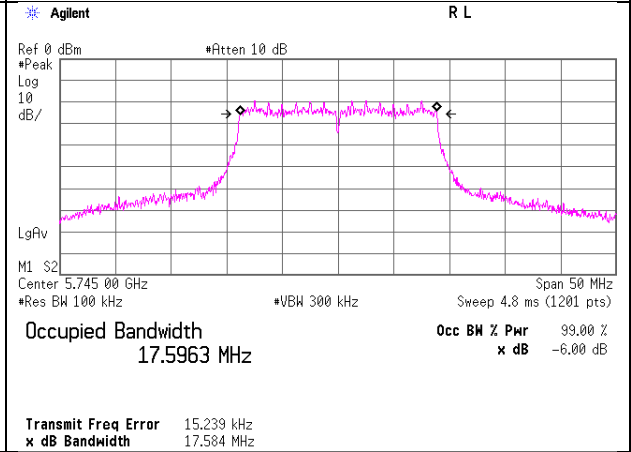
11n-20 MIMO, RF1

5745 MHz

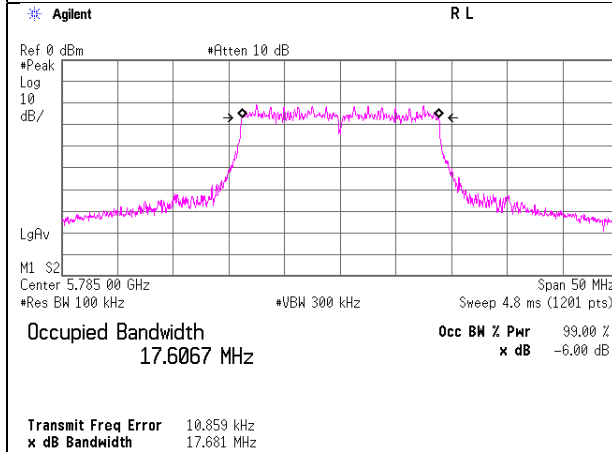


11ac-20 SISO, RF1

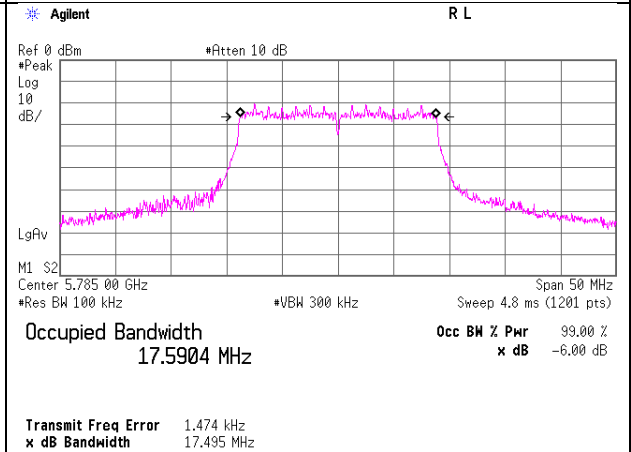
5745 MHz



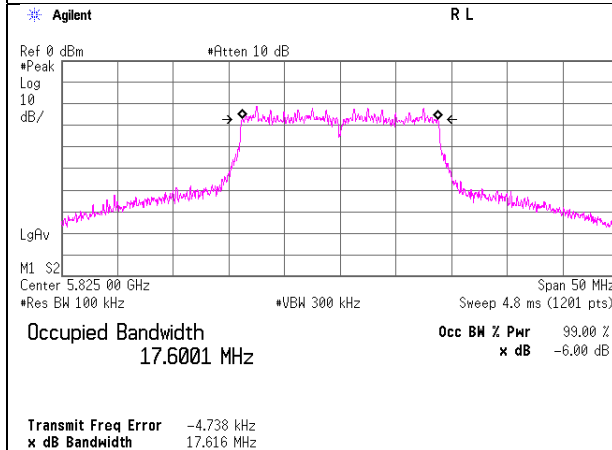
5785 MHz



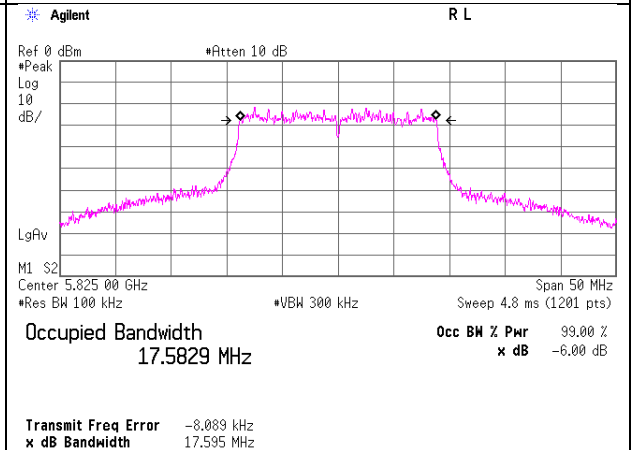
5785 MHz



5825 MHz



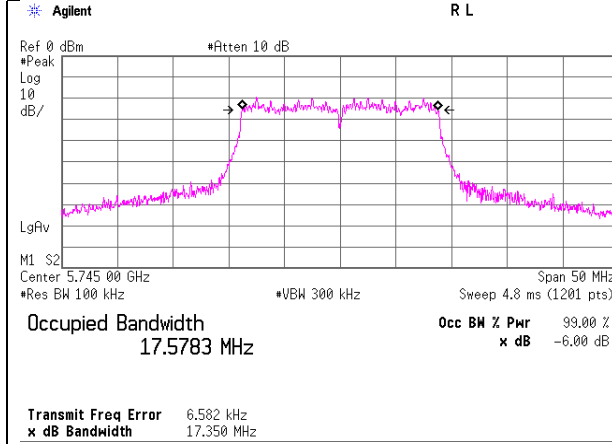
5825 MHz



6 dB Bandwidth

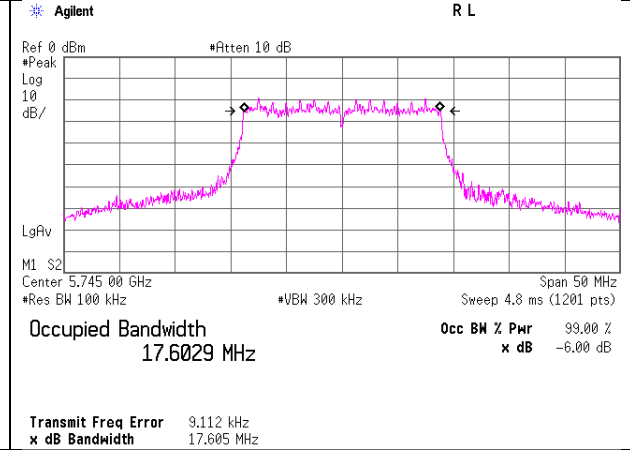
11ac-20 CDD, RF1

5745 MHz

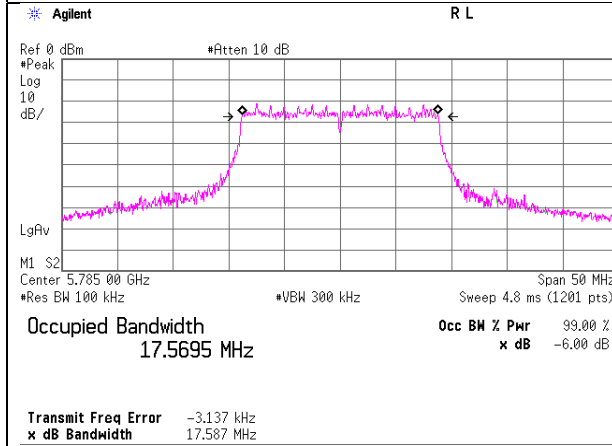


11ac-20 MIMO, RF1

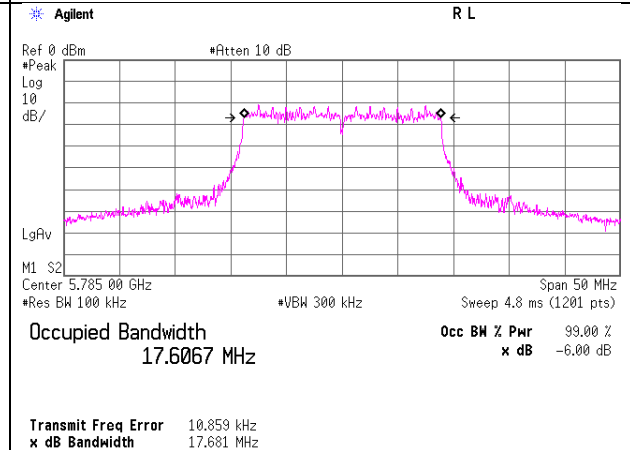
5745 MHz



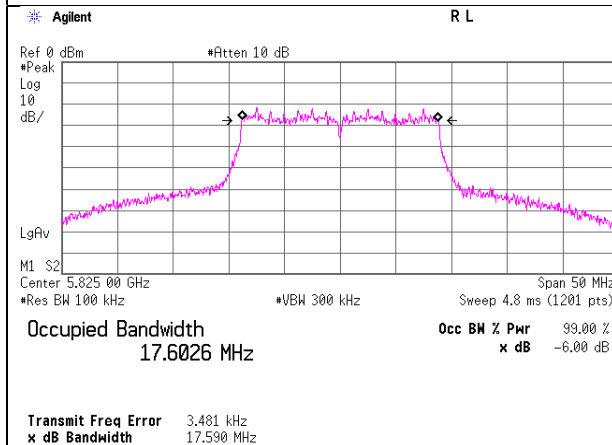
5785 MHz



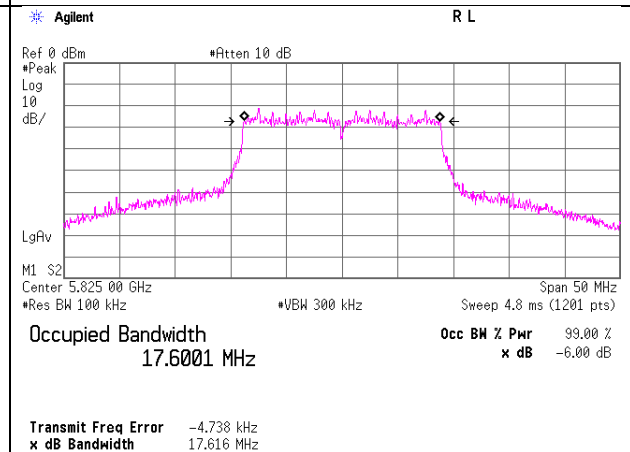
5785 MHz



5825 MHz

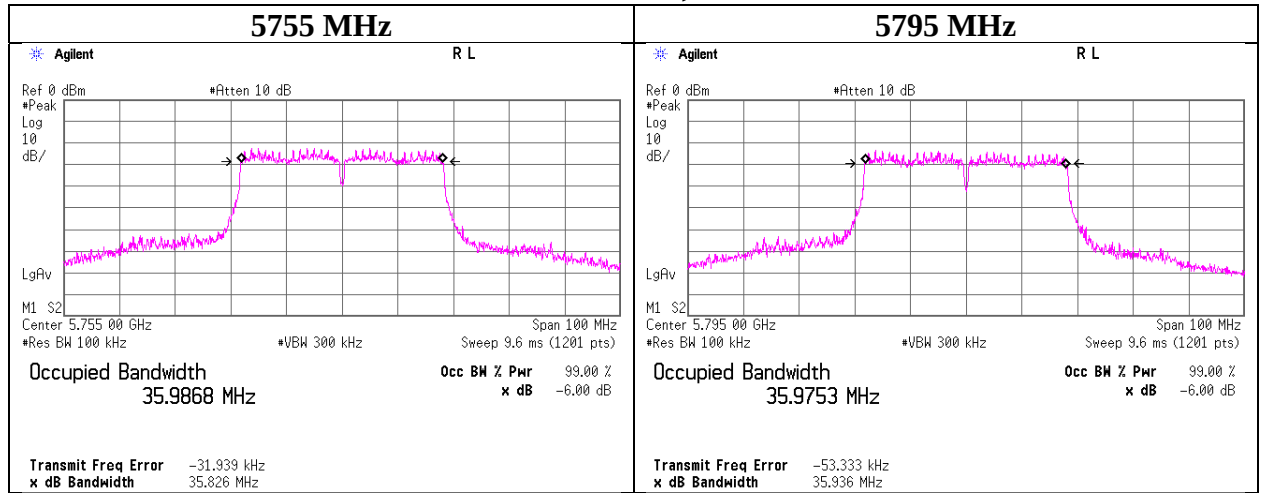


5825 MHz

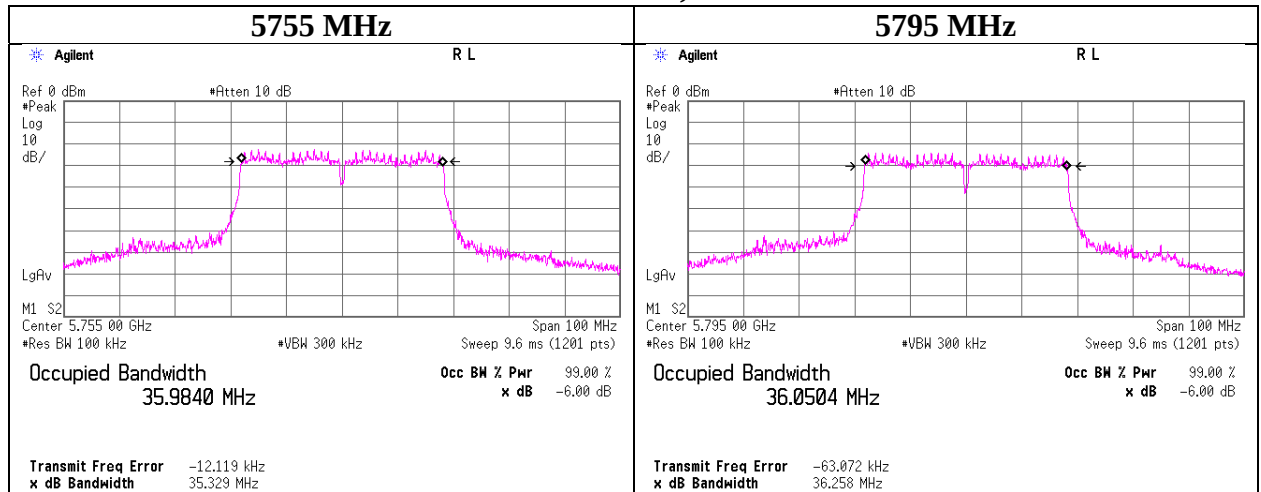


6 dB Bandwidth

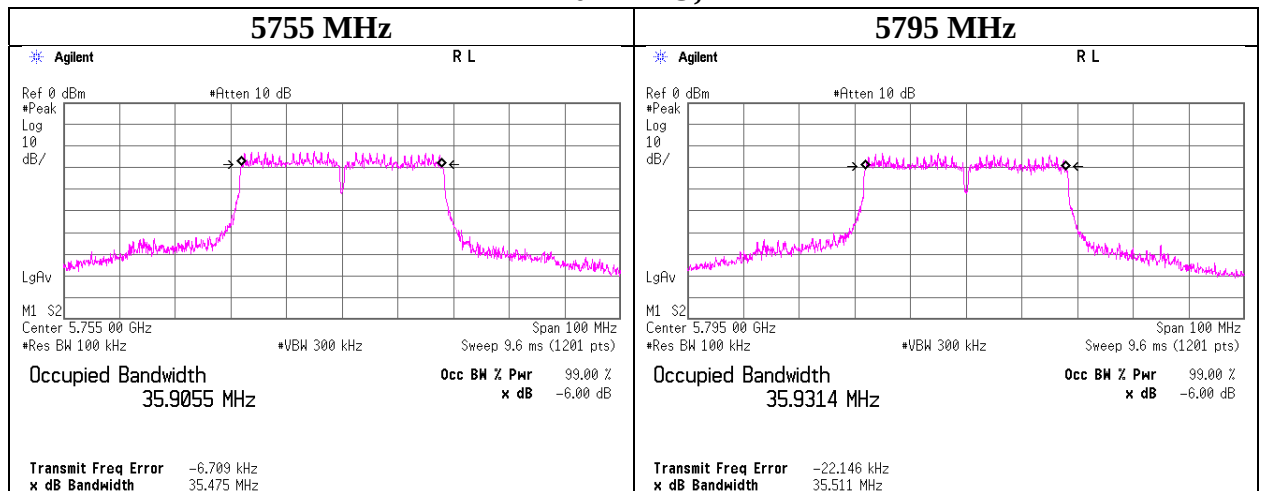
11n-40 SISO, RF1



11n-40 CDD, RF1



11n-40 MIMO, RF1



UL Japan, Inc.

Shonan EMC Lab.

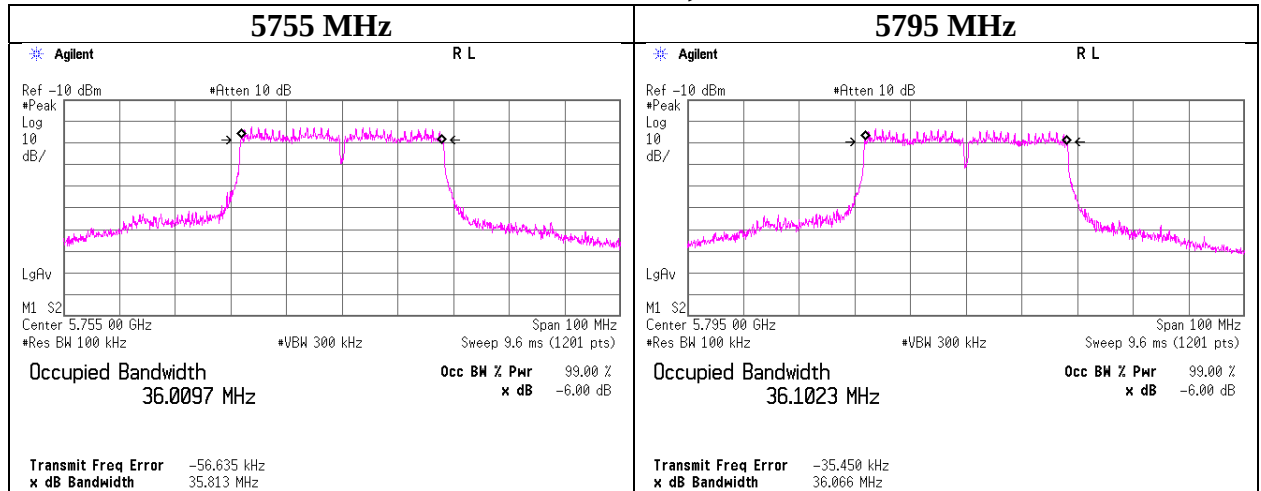
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

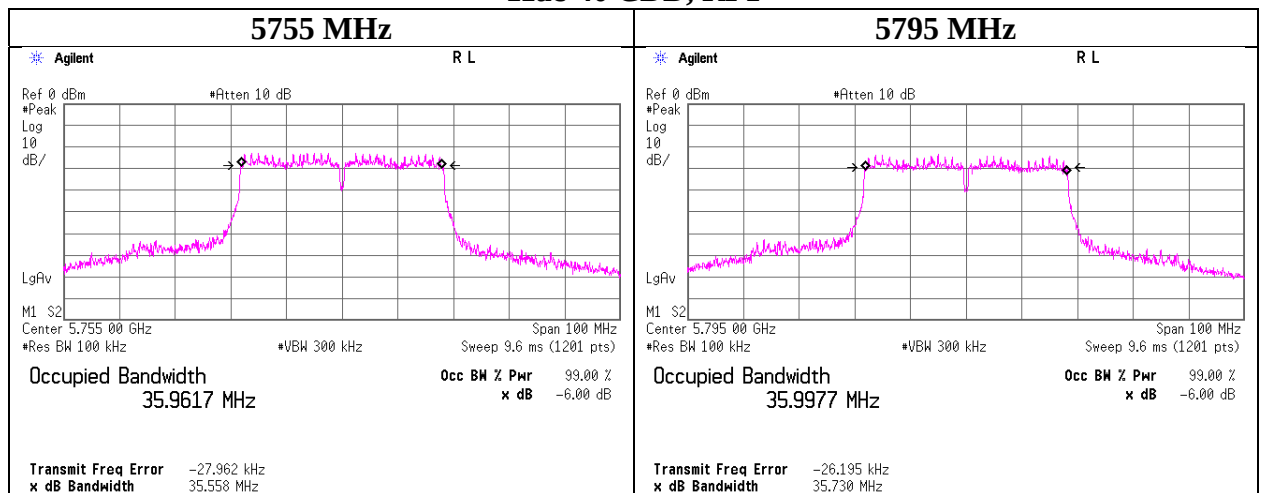
Facsimile : +81 463 50 6401

6 dB Bandwidth

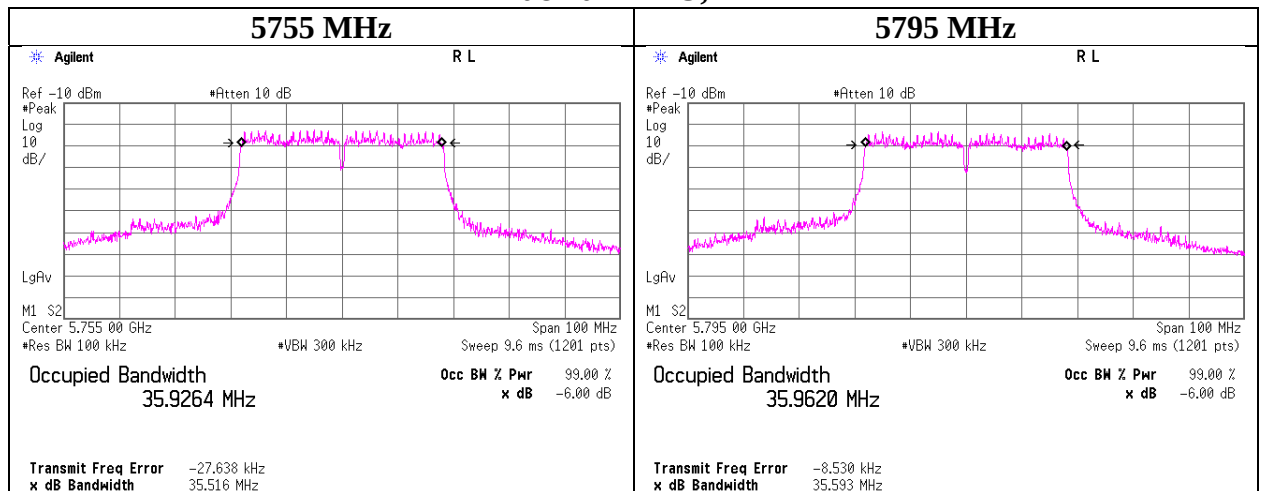
11ac-40 SISO, RF1



11ac-40 CDD, RF1



11ac-40 MIMO, RF1



UL Japan, Inc.

Shonan EMC Lab.

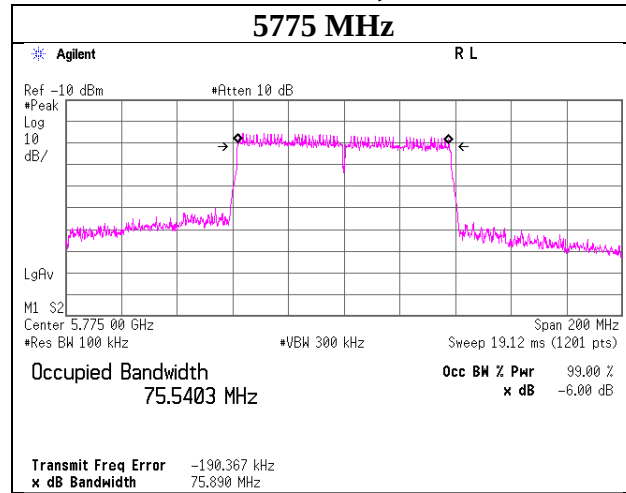
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

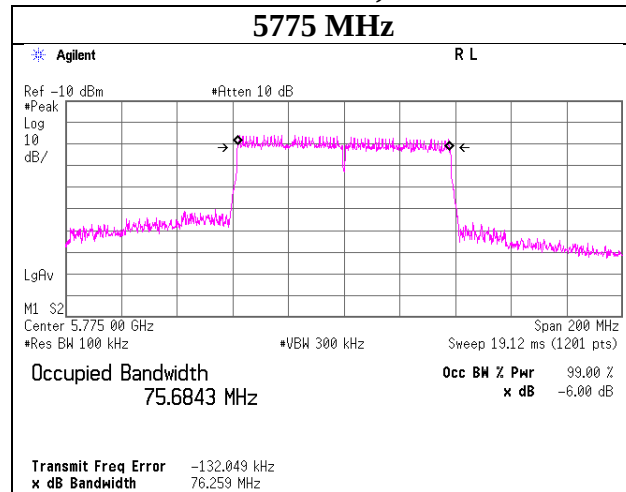
Facsimile : +81 463 50 6401

6 dB Bandwidth

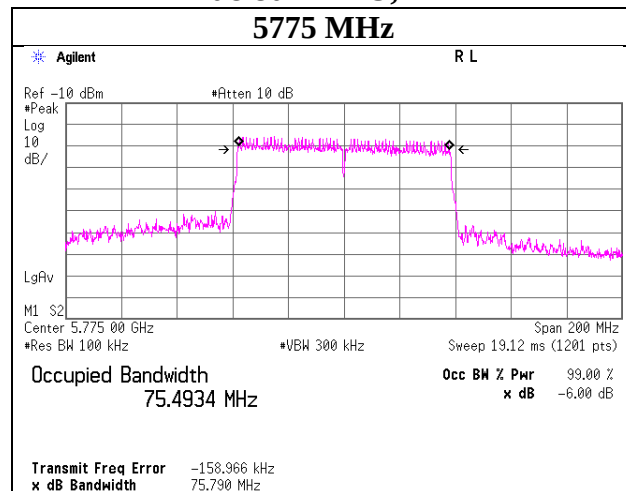
11ac-80 SISO, RF1



11ac-80 CDD, RF1



11ac-80 MIMO, RF1



Maximum Conducted Output Power

Report No. 13408107S-C
Test place Shonan EMC Lab. No.5 Shielded Room
Date July 10, 2020 July 22, 2020
Temperature / Humidity 25 deg. C / 52 % RH 22 deg. C / 56 % RH
Engineer Hiromasa Sato Hiromasa Sato
Mode Tx 11a SISO

11a SISO, RF0

Applied limit: 15.407, mobile and portable client device

Tested Frequency	Reading	Cable Loss	Atten. Loss	Duty Factor *1)	Antenna Gain *2)	26 dB EBW (B for FCC)	99% OBW (B for IC)	Conducted Power				e.i.r.p.			
								Result		Limit	Margin	Result		Limit	Margin
								[dBm]	[mW]	[dBm]	[dB]	[dBm]	[mW]	[dBm]	[dB]
5180	-11.53	3.50	9.87	-	2.17	-	16.698	1.84	1.53	23.97	22.13	4.01	2.52	29.97	25.96
5220	-10.78	3.51	9.87	-	2.17	-	16.719	2.60	1.82	23.97	21.37	4.77	3.00	29.97	25.20
5240	-10.56	3.51	9.88	-	2.17	-	16.700	2.83	1.92	23.97	21.14	5.00	3.16	29.97	24.97
5745	-10.91	3.60	9.89	-	2.37	-	16.641	2.58	1.81	30.00	27.42	4.95	3.13	36.00	31.05
5785	-11.32	3.61	9.89	-	2.37	-	16.664	2.18	1.65	30.00	27.82	4.55	2.85	36.00	31.45
5825	-11.57	3.62	9.89	-	2.37	-	16.659	1.94	1.56	30.00	28.06	4.31	2.70	36.00	31.69

*1) Duty Factor is not required because the measurement using a gated RF average power meter.

*2) Antenna Gain applied the higher of the two models.

Sample Calculation:

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

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

Conducted Power Limit (5150 MHz-5250 MHz) = 250 mW

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

11a SISO, RF1

Applied limit: 15.407, mobile and portable client device

Tested Frequency	Reading	Cable Loss	Atten. Loss	Duty Factor *1)	Antenna Gain *2)	26 dB EBW (B for FCC)	99% OBW (B for IC)	Conducted Power				e.i.r.p.			
								Result		Limit	Margin	Result		Limit	Margin
								[dBm]	[mW]	[dBm]	[dB]	[dBm]	[mW]	[dBm]	[dB]
5180	-10.73	3.51	9.93	-	2.59	-	16.698	2.71	1.87	23.97	21.26	5.30	3.39	29.97	24.67
5220	-11.15	3.52	9.93	-	2.59	-	16.719	2.30	1.70	23.97	21.67	4.89	3.08	29.97	25.08
5240	-11.21	3.52	9.93	-	2.59	-	16.700	2.24	1.67	23.97	21.73	4.83	3.04	29.97	25.14
5745	-9.60	3.61	9.93	-	2.64	-	16.641	3.94	2.48	30.00	26.06	6.58	4.55	36.00	29.42
5785	-10.76	3.62	9.93	-	2.64	-	16.664	2.79	1.90	30.00	27.21	5.43	3.49	36.00	30.57
5825	-12.07	3.62	9.93	-	2.64	-	16.659	1.48	1.41	30.00	28.52	4.12	2.58	36.00	31.88

*1) Duty Factor is not required because the measurement using a gated RF average power meter.

*2) Antenna Gain applied the higher of the two models.

Sample Calculation:

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

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

Conducted Power Limit (5150 MHz-5250 MHz) = 250 mW

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

UL Japan, Inc.

Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

Maximum Conducted Output Power

Report No. 13408107S-C
Test place Shonan EMC Lab. No.5 Shielded Room
Date July 10, 2020 July 22, 2020
Temperature / Humidity 25 deg. C / 52 % RH 22 deg. C / 56 % RH
Engineer Hiromasa Sato Hiromasa Sato
Mode Tx 11a CDD

RF0 + RF1

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	26 dB EBW (B for FCC) [MHz]	99% OBW (B for IC) [MHz]	Conducted power						e.i.r.p.					
			RF 0 [mW]	Antenna RF 1 [mW]	Sum [mW]	Result [dBm]	Limit [dBm]	Margin [dB]	RF 0 [mW]	Antenna RF 1 [mW]	Sum [mW]	Result [dBm]	Limit [dBm]	Margin [dB]
5180	-	16.706	1.44	1.70	3.14	4.97	23.97	19.00	2.61	3.08	5.70	7.56	29.97	22.41
5220	-	16.709	1.71	1.55	3.26	5.13	23.97	18.84	3.10	2.81	5.91	7.72	29.97	22.25
5240	-	16.686	1.84	1.53	3.37	5.27	23.97	18.70	3.34	2.77	6.12	7.86	29.97	22.11
5745	-	16.660	1.68	2.31	3.99	6.01	30.00	23.99	3.09	4.24	7.33	8.65	36.00	27.35
5785	-	16.659	1.53	1.64	3.17	5.01	30.00	24.99	2.82	3.01	5.82	7.65	36.00	28.35
5825	-	16.678	1.46	1.24	2.69	4.30	30.00	25.70	2.67	2.27	4.94	6.94	36.00	29.06

		RF0						RF1					
Tested Frequency	Duty Factor *1)	Reading	Cable Loss	Atten. Loss	Directional Gain	Result		Reading	Cable Loss	Atten. Loss	Directional Gain	Result	
[MHz]	[dB]	[dBm]	[dB]	[dB]	[dBi]	Cond. Power [dBm]	e.i.r.p. [dBm]	[dBm]	[dB]	[dB]	[dBi]	Cond. Power [dBm]	e.i.r.p. [dBm]
5180	-	-11.79	3.50	9.87	2.59	1.58	4.17	-11.14	3.51	9.93	2.59	2.30	4.89
5220	-	-11.05	3.51	9.87	2.59	2.33	4.92	-11.56	3.52	9.93	2.59	1.89	4.48
5240	-	-10.74	3.51	9.88	2.59	2.65	5.24	-11.61	3.52	9.93	2.59	1.84	4.43
5745	-	-11.23	3.60	9.89	2.64	2.26	4.90	-9.91	3.61	9.93	2.64	3.63	6.27
5785	-	-11.64	3.61	9.89	2.64	1.86	4.50	-11.41	3.62	9.93	2.64	2.14	4.78
5825	-	-11.88	3.62	9.89	2.64	1.63	4.27	-12.63	3.62	9.93	2.64	0.92	3.56

*1) Duty Factor is not required because the measurement using a gated RF average power meter.

Sample Calculation:

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

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

Directional Gain = $G_{ANT}(Antenna\ Gain^{*2}) + Array\ Gain$

Array Gain = 0 dB(i.e., no array gain) for $N_{ANT} < 4$

N_{ANT} = number of transmit antennas = 2

*2) Antenna Gain applied the highest gain of the two models.

Conducted Power Limit (5150 MHz-5250 MHz) = 250 mW

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

UL Japan, Inc.

Shonan EMC Lab.

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Maximum Conducted Output Power

Report No. 13408107S-C
Test place Shonan EMC Lab. No.5 Shielded Room
Date July 10, 2020 July 22, 2020
Temperature / Humidity 25 deg. C / 52 % RH 22 deg. C / 56 % RH
Engineer Hiromasa Sato Hiromasa Sato
Mode Tx 11n-20 SISO

11n-20 SISO, RF0

Applied limit: 15.407, mobile and portable client device

Tested Frequency	Reading	Cable Loss	Atten. Loss	Duty Factor *1)	Antenna Gain *2)	26 dB EBW (B for FCC)	99% OBW (B for IC)	Conducted Power				e.i.r.p.			
								Result		Limit	Margin	Result		Limit	Margin
								[dBm]	[mW]	[dBm]	[dB]	[dBm]	[mW]	[dBm]	[dB]
5180	-11.46	3.50	9.87	-	2.17	-	17.764	1.91	1.55	23.97	22.06	4.08	2.56	29.97	25.89
5220	-10.70	3.51	9.87	-	2.17	-	17.792	2.68	1.85	23.97	21.29	4.85	3.05	29.97	25.12
5240	-10.83	3.51	9.88	-	2.17	-	17.726	2.56	1.80	23.97	21.41	4.73	2.97	29.97	25.24
5745	-10.81	3.60	9.89	-	2.37	-	17.801	2.68	1.85	30.00	27.32	5.05	3.20	36.00	30.95
5785	-11.31	3.61	9.89	-	2.37	-	17.706	2.19	1.66	30.00	27.81	4.56	2.86	36.00	31.44
5825	-11.49	3.62	9.89	-	2.37	-	17.769	2.02	1.59	30.00	27.98	4.39	2.75	36.00	31.61

*1) Duty Factor is not required because the measurement using a gated RF average power meter.

*2) Antenna Gain applied the higher of the two models.

Sample Calculation:

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

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

Conducted Power Limit (5150 MHz-5250 MHz) = 250 mW

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

11n-20 SISO, RF1

Applied limit: 15.407, mobile and portable client device

Tested Frequency	Reading	Cable Loss	Atten. Loss	Duty Factor *1)	Antenna Gain *2)	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	-10.61	3.51	9.93	-	2.59	-	17.764	2.83	1.92	23.97	21.14	5.42	3.48	29.97	24.55
5220	-10.97	3.52	9.93	-	2.59	-	17.792	2.48	1.77	23.97	21.49	5.07	3.21	29.97	24.90
5240	-11.06	3.52	9.93	-	2.59	-	17.726	2.39	1.73	23.97	21.58	4.98	3.15	29.97	24.99
5745	-9.41	3.61	9.93	-	2.64	-	17.801	4.13	2.59	30.00	25.87	6.77	4.75	36.00	29.23
5785	-10.62	3.62	9.93	-	2.64	-	17.706	2.93	1.96	30.00	27.07	5.57	3.61	36.00	30.43
5825	-11.98	3.62	9.93	-	2.64	-	17.769	1.57	1.44	30.00	28.43	4.21	2.64	36.00	31.79

*1) Duty Factor is not required because the measurement using a gated RF average power meter.

*2) Antenna Gain applied the higher of the two models.

Sample Calculation:

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

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

Conducted Power Limit (5150 MHz-5250 MHz) = 250 mW

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

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Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

Maximum Conducted Output Power

Report No. 13408107S-C
Test place Shonan EMC Lab. No.5 Shielded Room
Date July 10, 2020 July 22, 2020
Temperature / Humidity 25 deg. C / 52 % RH 22 deg. C / 56 % RH
Engineer Hiromasa Sato Hiromasa Sato
Mode Tx 11n-20 CDD

RF0 + RF1

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	26 dB EBW (B for FCC) [MHz]	99% OBW (B for IC) [MHz]	Conducted power						e.i.r.p.					
			RF 0 [mW]	Antenna RF 1 [mW]	Sum [mW]	Result [dBm]	Limit [dBm]	Margin [dB]	RF 0 [mW]	Antenna RF 1 [mW]	Sum [mW]	Result [dBm]	Limit [dBm]	Margin [dB]
5180	-	17.814	1.48	1.73	3.21	5.06	23.97	18.91	2.68	3.14	5.82	7.65	29.97	22.32
5220	-	17.794	1.74	1.59	3.33	5.22	23.97	18.75	3.16	2.89	6.05	7.81	29.97	22.16
5240	-	17.793	1.89	1.58	3.47	5.40	23.97	18.57	3.44	2.86	6.30	7.99	29.97	21.98
5745	-	17.702	1.69	2.31	4.00	6.02	30.00	23.98	3.10	4.25	7.34	8.66	36.00	27.34
5785	-	17.721	1.55	1.66	3.21	5.06	30.00	24.94	2.84	3.05	5.89	7.70	36.00	28.30
5825	-	17.773	1.48	1.27	2.75	4.39	30.00	25.61	2.72	2.33	5.05	7.03	36.00	28.97

		RF0						RF1					
Tested Frequency	Duty Factor *1)	Reading	Cable Loss	Atten. Loss	Directional Gain	Result		Reading	Cable Loss	Atten. Loss	Directional Gain	Result	
[MHz]	[dB]	[dBm]	[dB]	[dB]	[dBi]	Cond. Power [dBm]	e.i.r.p. [dBm]	[dBm]	[dB]	[dB]	[dBi]	Cond. Power [dBm]	e.i.r.p. [dBm]
5180	-	-11.68	3.50	9.87	2.59	1.69	4.28	-11.06	3.51	9.93	2.59	2.38	4.97
5220	-	-10.98	3.51	9.87	2.59	2.40	4.99	-11.43	3.52	9.93	2.59	2.02	4.61
5240	-	-10.62	3.51	9.88	2.59	2.77	5.36	-11.47	3.52	9.93	2.59	1.98	4.57
5745	-	-11.22	3.60	9.89	2.64	2.27	4.91	-9.90	3.61	9.93	2.64	3.64	6.28
5785	-	-11.60	3.61	9.89	2.64	1.90	4.54	-11.35	3.62	9.93	2.64	2.20	4.84
5825	-	-11.81	3.62	9.89	2.64	1.70	4.34	-12.51	3.62	9.93	2.64	1.04	3.68

*1) Duty Factor is not required because the measurement using a gated RF average power meter.

Sample Calculation:

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

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

Directional Gain = $G_{ANT}(\text{Antenna Gain}^{*2}) + \text{Array Gain}$

Array Gain = 0 dB(i.e., no array gain) for $N_{ANT} < 4$

N_{ANT} = number of transmit antennas = 2

*2) Antenna Gain applied the highest gain of the two models.

Conducted Power Limit (5150 MHz-5250 MHz) = 250 mW

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

Maximum Conducted Output Power

Report No. 13408107S-C
Test place Shonan EMC Lab. No.5 Shielded Room
Date July 10, 2020 July 22, 2020
Temperature / Humidity 25 deg. C / 52 % RH 22 deg. C / 56 % RH
Engineer Hiromasa Sato Hiromasa Sato
Mode Tx 11n-20 MIMO

RF0 + RF1

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	26 dB EBW (B for FCC) [MHz]	99% OBW (B for IC) [MHz]	Conducted power						e.i.r.p.					
			RF 0 [mW]	Antenna RF 1 [mW]	Sum [mW]	Result [dBm]	Limit [dBm]	Margin [dB]	RF 0 [mW]	Antenna RF 1 [mW]	Sum [mW]	Result [dBm]	Limit [dBm]	Margin [dB]
5180	-	17.800	1.50	1.79	3.29	5.17	23.97	18.80	2.48	3.24	5.72	7.57	29.97	22.40
5220	-	17.791	1.81	1.66	3.47	5.40	23.97	18.57	2.99	3.01	6.00	7.78	29.97	22.19
5240	-	17.808	1.88	1.60	3.48	5.42	23.97	18.55	3.10	2.90	6.00	7.78	29.97	22.19
5745	-	17.785	1.76	2.34	4.10	6.13	30.00	23.87	3.04	4.30	7.34	8.65	36.00	27.35
5785	-	17.800	1.60	1.77	3.37	5.28	30.00	24.72	2.77	3.25	6.02	7.79	36.00	28.21
5825	-	17.811	1.50	1.31	2.81	4.48	30.00	25.52	2.59	2.40	4.99	6.98	36.00	29.02

		RF0						RF1					
Tested Frequency	Duty Factor *1)	Reading	Cable Loss	Atten. Loss	Antenna Gain *2)	Result		Reading	Cable Loss	Atten. Loss	Antenna Gain *2)	Result	
[MHz]	[dB]	[dBm]	[dB]	[dB]	[dBi]	Cond. Power [dBm]	e.i.r.p. [dBm]	[dBm]	[dB]	[dB]	[dBi]	Cond. Power [dBm]	e.i.r.p. [dBm]
5180	-	-11.60	3.50	9.87	2.17	1.77	3.94	-10.92	3.51	9.93	2.59	2.52	5.11
5220	-	-10.80	3.51	9.87	2.17	2.58	4.75	-11.25	3.52	9.93	2.59	2.20	4.79
5240	-	-10.64	3.51	9.88	2.17	2.75	4.92	-11.42	3.52	9.93	2.59	2.03	4.62
5745	-	-11.03	3.60	9.89	2.37	2.46	4.83	-9.85	3.61	9.93	2.64	3.69	6.33
5785	-	-11.45	3.61	9.89	2.37	2.05	4.42	-11.07	3.62	9.93	2.64	2.48	5.12
5825	-	-11.75	3.62	9.89	2.37	1.76	4.13	-12.39	3.62	9.93	2.64	1.16	3.80

*1) Duty Factor is not required because the measurement using a gated RF average power meter.

*2) Antenna Gain applied the higher of the two models.

Sample Calculation:

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

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

Conducted Power Limit (5150 MHz-5250 MHz) = 250 mW

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

Maximum Conducted Output Power

Report No. 13408107S-C
Test place Shonan EMC Lab. No.5 Shielded Room
Date July 10, 2020 July 22, 2020
Temperature / Humidity 25 deg. C / 52 % RH 22 deg. C / 56 % RH
Engineer Hiromasa Sato Hiromasa Sato
Mode Tx 11ac-20 SISO

11ac-20 SISO, RF0

Applied limit: 15.407, mobile and portable client device

Tested Frequency	Reading	Cable Loss	Atten. Loss	Duty Factor *1)	Antenna Gain *2)	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	-11.49	3.50	9.87	-	2.17	-	17.754	1.88	1.54	23.97	22.09	4.05	2.54	29.97	25.92
5220	-10.72	3.51	9.87	-	2.17	-	17.731	2.66	1.85	23.97	21.31	4.83	3.04	29.97	25.14
5240	-10.56	3.51	9.88	-	2.17	-	17.741	2.83	1.92	23.97	21.14	5.00	3.16	29.97	24.97
5745	-10.84	3.60	9.89	-	2.37	-	17.723	2.65	1.84	30.00	27.35	5.02	3.18	36.00	30.98
5785	-11.28	3.61	9.89	-	2.37	-	17.742	2.22	1.67	30.00	27.78	4.59	2.88	36.00	31.41
5825	-11.55	3.62	9.89	-	2.37	-	17.758	1.96	1.57	30.00	28.04	4.33	2.71	36.00	31.67

*1) Duty Factor is not required because the measurement using a gated RF average power meter.

*2) Antenna Gain applied the higher of the two models.

Sample Calculation:

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

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

Conducted Power Limit (5150 MHz-5250 MHz) = 250 mW

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

11ac-20 SISO, RF1

Applied limit: 15.407, mobile and portable client device

Tested Frequency	Reading	Cable Loss	Atten. Loss	Duty Factor *1)	Antenna Gain *2)	26 dB EBW (B for FCC)	99% OBW (B for IC)	Conducted Power				e.i.r.p.			
								Result		Limit	Margin	Result		Limit	Margin
								[dBm]	[mW]	[dBm]	[dB]	[dBm]	[mW]	[dBm]	[dB]
5180	-10.72	3.51	9.93	-	2.59	-	17.754	2.72	1.87	23.97	21.25	5.31	3.39	29.97	24.66
5220	-11.03	3.52	9.93	-	2.59	-	17.731	2.42	1.74	23.97	21.55	5.01	3.17	29.97	24.96
5240	-11.10	3.52	9.93	-	2.59	-	17.741	2.35	1.72	23.97	21.62	4.94	3.12	29.97	25.03
5745	-9.44	3.61	9.93	-	2.64	-	17.723	4.10	2.57	30.00	25.90	6.74	4.72	36.00	29.26
5785	-10.60	3.62	9.93	-	2.64	-	17.742	2.95	1.97	30.00	27.05	5.59	3.62	36.00	30.41
5825	-11.96	3.62	9.93	-	2.64	-	17.758	1.59	1.44	30.00	28.41	4.23	2.65	36.00	31.77

*1) Duty Factor is not required because the measurement using a gated RF average power meter.

*2) Antenna Gain applied the higher of the two models.

Sample Calculation:

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

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

Conducted Power Limit (5150 MHz-5250 MHz) = 250 mW

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

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Maximum Conducted Output Power

Report No. 13408107S-C
Test place Shonan EMC Lab. No.5 Shielded Room
Date July 10, 2020 July 22, 2020
Temperature / Humidity 25 deg. C / 52 % RH 22 deg. C / 56 % RH
Engineer Hiromasa Sato Hiromasa Sato
Mode Tx 11ac-20 CDD

RF0 + RF1

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	26 dB EBW (B for FCC) [MHz]	99% OBW (B for IC) [MHz]	Conducted power						e.i.r.p.					
			RF 0 [mW]	Antenna RF 1 [mW]	Sum [mW]	Result [dBm]	Limit [dBm]	Margin [dB]	RF 0 [mW]	Antenna RF 1 [mW]	Sum [mW]	Result [dBm]	Limit [dBm]	Margin [dB]
5180	-	17.721	1.48	1.76	3.24	5.10	23.97	18.87	2.69	3.19	5.88	7.69	29.97	22.28
5220	-	17.722	1.75	1.60	3.36	5.26	23.97	18.71	3.18	2.91	6.09	7.85	29.97	22.12
5240	-	17.813	1.84	1.54	3.38	5.29	23.97	18.68	3.33	2.80	6.13	7.88	29.97	22.09
5745	-	17.711	1.71	2.33	4.04	6.06	30.00	23.94	3.13	4.29	7.42	8.70	36.00	27.30
5785	-	17.790	1.53	1.66	3.19	5.04	30.00	24.96	2.82	3.05	5.87	7.68	36.00	28.32
5825	-	17.813	1.47	1.26	2.73	4.36	30.00	25.64	2.70	2.31	5.01	7.00	36.00	29.00

		RF0						RF1					
Tested Frequency	Duty Factor *1)	Reading	Cable Loss	Atten. Loss	Directional Gain	Result		Reading	Cable Loss	Atten. Loss	Directional Gain	Result	
[MHz]	[dB]	[dBm]	[dB]	[dB]	[dBi]	Cond. Power [dBm]	e.i.r.p. [dBm]	[dBm]	[dB]	[dB]	[dBi]	Cond. Power [dBm]	e.i.r.p. [dBm]
5180	-	-11.67	3.50	9.87	2.59	1.70	4.29	-10.99	3.51	9.93	2.59	2.45	5.04
5220	-	-10.94	3.51	9.87	2.59	2.44	5.03	-11.40	3.52	9.93	2.59	2.05	4.64
5240	-	-10.75	3.51	9.88	2.59	2.64	5.23	-11.57	3.52	9.93	2.59	1.88	4.47
5745	-	-11.17	3.60	9.89	2.64	2.32	4.96	-9.86	3.61	9.93	2.64	3.68	6.32
5785	-	-11.64	3.61	9.89	2.64	1.86	4.50	-11.35	3.62	9.93	2.64	2.20	4.84
5825	-	-11.84	3.62	9.89	2.64	1.67	4.31	-12.55	3.62	9.93	2.64	1.00	3.64

*1) Duty Factor is not required because the measurement using a gated RF average power meter.

Sample Calculation:

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

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

Directional Gain = $G_{ANT}(Antenna\ Gain^{*2}) + Array\ Gain$

Array Gain = 0 dB(i.e.,no array gain) for $N_{ANT} < 4$

N_{ANT} = number of transmit antennas = 2

*2) Antenna Gain applied the highest gain of the two models.

Conducted Power Limit (5150 MHz-5250 MHz) = 250 mW

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

Maximum Conducted Output Power

Report No. 13408107S-C
Test place Shonan EMC Lab. No.5 Shielded Room
Date July 10, 2020 July 22, 2020
Temperature / Humidity 25 deg. C / 52 % RH 22 deg. C / 56 % RH
Engineer Hiromasa Sato Hiromasa Sato
Mode Tx 11ac-20 MIMO

RF0 + RF1

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	26 dB EBW (B for FCC) [MHz]	99% OBW (B for IC) [MHz]	Conducted power						e.i.r.p.					
			RF 0 [mW]	Antenna RF 1 [mW]	Sum [mW]	Result [dBm]	Limit [dBm]	Margin [dB]	RF 0 [mW]	Antenna RF 1 [mW]	Sum [mW]	Result [dBm]	Limit [dBm]	Margin [dB]
5180	-	17.826	1.49	1.79	3.28	5.16	23.97	18.81	2.45	3.26	5.71	7.56	29.97	22.41
5220	-	17.745	1.77	1.65	3.41	5.33	23.97	18.64	2.91	2.99	5.90	7.71	29.97	22.26
5240	-	17.815	1.96	1.62	3.58	5.54	23.97	18.43	3.23	2.94	6.17	7.90	29.97	22.07
5745	-	17.741	1.79	2.40	4.19	6.22	30.00	23.78	3.08	4.41	7.49	8.74	36.00	27.26
5785	-	17.711	1.61	1.82	3.43	5.36	30.00	24.64	2.78	3.35	6.13	7.87	36.00	28.13
5825	-	17.730	1.52	1.33	2.85	4.55	30.00	25.45	2.62	2.44	5.07	7.05	36.00	28.95

		RF0						RF1					
Tested Frequency	Duty Factor *1)	Reading	Cable Loss	Atten. Loss	Antenna Gain *2)	Result		Reading	Cable Loss	Atten. Loss	Antenna Gain *2)	Result	
[MHz]	[dB]	[dBm]	[dB]	[dB]	[dBi]	Cond. Power [dBm]	e.i.r.p. [dBm]	[dBm]	[dB]	[dB]	[dBi]	Cond. Power [dBm]	e.i.r.p. [dBm]
5180	-	-11.65	3.50	9.87	2.17	1.72	3.89	-10.90	3.51	9.93	2.59	2.54	5.13
5220	-	-10.91	3.51	9.87	2.17	2.47	4.64	-11.28	3.52	9.93	2.59	2.17	4.76
5240	-	-10.47	3.51	9.88	2.17	2.92	5.09	-11.36	3.52	9.93	2.59	2.09	4.68
5745	-	-10.97	3.60	9.89	2.37	2.52	4.89	-9.74	3.61	9.93	2.64	3.80	6.44
5785	-	-11.43	3.61	9.89	2.37	2.07	4.44	-10.94	3.62	9.93	2.64	2.61	5.25
5825	-	-11.69	3.62	9.89	2.37	1.82	4.19	-12.31	3.62	9.93	2.64	1.24	3.88

*1) Duty Factor is not required because the measurement using a gated RF average power meter.

*2) Antenna Gain applied the higher of the two models.

Sample Calculation:

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

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

Conducted Power Limit (5150 MHz-5250 MHz) = 250 mW

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

Maximum Conducted Output Power

Report No. 13408107S-C
Test place Shonan EMC Lab. No.5 Shielded Room
Date July 10, 2020 July 22, 2020
Temperature / Humidity 25 deg. C / 52 % RH 22 deg. C / 56 % RH
Engineer Hiromasa Sato Hiromasa Sato
Mode Tx 11n-40 SISO

11n-40 SISO, RF0

Applied limit: 15.407, mobile and portable client device

Tested Frequency	Reading	Cable Loss	Atten. Loss	Duty Factor *1)	Antenna Gain *2)	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]
5190	-11.31	3.50	9.87	-	2.17	-	36.207	2.06	1.61	23.97	21.91	4.23	2.65	29.97	25.74
5230	-10.57	3.51	9.87	-	2.17	-	36.251	2.81	1.91	23.97	21.16	4.98	3.15	29.97	24.99
5755	-11.00	3.61	9.89	-	2.37	-	36.246	2.50	1.78	30.00	27.50	4.87	3.07	36.00	31.13
5795	-11.35	3.61	9.89	-	2.37	-	36.230	2.15	1.64	30.00	27.85	4.52	2.83	36.00	31.48

*1) Duty Factor is not required because the measurement using a gated RF average power meter.

*2) Antenna Gain applied the higher of the two models.

Sample Calculation:

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

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

Conducted Power Limit (5150 MHz-5250 MHz) = 250 mW

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

11n-40 SISO, RF1

Applied limit: 15.407, mobile and portable client device

Tested Frequency	Reading	Cable Loss	Atten. Loss	Duty Factor *1)	Antenna Gain *2)	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]
5190	-10.66	3.51	9.93	-	2.59	-	36.207	2.78	1.90	23.97	21.19	5.37	3.44	29.97	24.60
5230	-11.01	3.52	9.93	-	2.59	-	36.251	2.44	1.75	23.97	21.53	5.03	3.18	29.97	24.94
5755	-9.54	3.61	9.93	-	2.64	-	36.246	4.00	2.51	30.00	26.00	6.64	4.61	36.00	29.36
5795	-10.81	3.62	9.93	-	2.64	-	36.230	2.74	1.88	30.00	27.26	5.38	3.45	36.00	30.62

*1) Duty Factor is not required because the measurement using a gated RF average power meter.

*2) Antenna Gain applied the higher of the two models.

Sample Calculation:

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

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

Conducted Power Limit (5150 MHz-5250 MHz) = 250 mW

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

Maximum Conducted Output Power

Report No. 13408107S-C
Test place Shonan EMC Lab. No.5 Shielded Room
Date July 10, 2020 July 22, 2020
Temperature / Humidity 25 deg. C / 52 % RH 22 deg. C / 56 % RH
Engineer Hiromasa Sato Hiromasa Sato
Mode Tx 11n-40 CDD

RF0 + RF1

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	26 dB EBW (B for FCC) [MHz]	99% OBW (B for IC) [MHz]	Conducted power						e.i.r.p.					
			RF 0 [mW]	Antenna RF 1 [mW]	Sum [mW]	Result [dBm]	Limit [dBm]	Margin [dB]	RF 0 [mW]	Antenna RF 1 [mW]	Sum [mW]	Result [dBm]	Limit [dBm]	Margin [dB]
5190	-	36.324	1.52	1.74	3.26	5.13	23.97	18.84	2.75	3.16	5.92	7.72	29.97	22.25
5230	-	36.224	1.82	1.60	3.43	5.35	23.97	18.62	3.31	2.91	6.22	7.94	29.97	22.03
5755	-	36.209	1.66	2.33	3.99	6.01	30.00	23.99	3.05	4.28	7.32	8.65	36.00	27.35
5795	-	36.261	1.56	1.64	3.20	5.05	30.00	24.95	2.87	3.01	5.88	7.69	36.00	28.31

		RF0						RF1					
Tested Frequency	Duty Factor *1)	Reading	Cable Loss	Atten. Loss	Directional Gain	Result		Reading	Cable Loss	Atten. Loss	Directional Gain	Result	
						Cond. Power	e.i.r.p.					Cond. Power	e.i.r.p.
[MHz]	[dB]	[dBm]	[dB]	[dB]	[dBi]	[dBm]	[dBm]	[dBm]	[dB]	[dB]	[dBi]	[dBm]	[dBm]
5190	-	-11.56	3.50	9.87	2.59	1.81	4.40	-11.03	3.51	9.93	2.59	2.41	5.00
5230	-	-10.77	3.51	9.87	2.59	2.61	5.20	-11.40	3.52	9.93	2.59	2.05	4.64
5755	-	-11.30	3.61	9.89	2.64	2.20	4.84	-9.87	3.61	9.93	2.64	3.67	6.31
5795	-	-11.56	3.61	9.89	2.64	1.94	4.58	-11.41	3.62	9.93	2.64	2.14	4.78

*1) Duty Factor is not required because the measurement using a gated RF average power meter.

Sample Calculation:

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

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

Directional Gain = $G_{ANT}(Antenna\ Gain^{*2}) + Array\ Gain$

Array Gain = 0 dB(i.e.,no array gain) for $N_{ANT} < 4$

N_{ANT} = number of transmit antennas = 2

*2) Antenna Gain applied the highest gain of the two models.

Conducted Power Limit (5150 MHz-5250 MHz) = 250 mW

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

Maximum Conducted Output Power

Report No. 13408107S-C
Test place Shonan EMC Lab. No.5 Shielded Room
Date July 10, 2020 July 22, 2020
Temperature / Humidity 25 deg. C / 52 % RH 22 deg. C / 56 % RH
Engineer Hiromasa Sato Hiromasa Sato
Mode Tx 11n-40 MIMO

RF0 + RF1

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	26 dB EBW (B for FCC) [MHz]	99% OBW (B for IC) [MHz]	Conducted power						e.i.r.p.					
			Antenna			Result [dBm]	Limit [dBm]	Margin [dB]	Antenna			Result [dBm]	Limit [dBm]	Margin [dB]
			RF 0 [mW]	RF 1 [mW]	Sum [mW]				RF 0 [mW]	RF 1 [mW]	Sum [mW]			
5190	-	36.461	1.52	1.79	3.32	5.21	23.97	18.76	2.51	3.26	5.77	7.61	29.97	22.36
5230	-	36.434	1.83	1.63	3.45	5.38	23.97	18.59	3.01	2.95	5.96	7.76	29.97	22.21
5755	-	36.270	1.70	2.30	3.99	6.01	30.00	23.99	2.93	4.22	7.15	8.54	36.00	27.46
5795	-	36.263	1.56	1.68	3.25	5.11	30.00	24.89	2.70	3.09	5.79	7.63	36.00	28.37

RF0								RF1					
Tested Frequency	Duty Factor *1)	Reading	Cable Loss	Atten. Loss	Antenna Gain *2)	Result		Reading	Cable Loss	Atten. Loss	Antenna Gain *2)	Result	
[MHz]	[dB]	[dBm]	[dB]	[dB]	[dBi]	Cond. Power [dBm]	e.i.r.p. [dBm]	[dBm]	[dB]	[dB]	[dBi]	Cond. Power [dBm]	e.i.r.p. [dBm]
5190	-	-11.54	3.50	9.87	2.17	1.83	4.00	-10.90	3.51	9.93	2.59	2.54	5.13
5230	-	-10.76	3.51	9.87	2.17	2.62	4.79	-11.34	3.52	9.93	2.59	2.11	4.70
5755	-	-11.20	3.61	9.89	2.37	2.30	4.67	-9.93	3.61	9.93	2.64	3.61	6.25
5795	-	-11.56	3.61	9.89	2.37	1.94	4.31	-11.29	3.62	9.93	2.64	2.26	4.90

*1) Duty Factor is not required because the measurement using a gated RF average power meter.

*2) Antenna Gain applied the higher of the two models.

Sample Calculation:

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

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

Conducted Power Limit (5150 MHz-5250 MHz) = 250 mW

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

Maximum Conducted Output Power

Report No. 13408107S-C
Test place Shonan EMC Lab. No.5 Shielded Room
Date July 10, 2020 July 22, 2020
Temperature / Humidity 25 deg. C / 52 % RH 22 deg. C / 56 % RH
Engineer Hiromasa Sato Hiromasa Sato
Mode Tx 11ac-40 SISO

11ac-40 SISO, RF0

Applied limit: 15.407, mobile and portable client device

Tested Frequency	Reading	Cable Loss	Atten. Loss	Duty Factor *1)	Antenna Gain *2)	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]
5190	-11.35	3.50	9.87	-	2.17	-	36.263	2.02	1.59	23.97	21.95	4.19	2.62	29.97	25.78
5230	-10.64	3.51	9.87	-	2.17	-	36.205	2.74	1.88	23.97	21.23	4.91	3.10	29.97	25.06
5755	-10.94	3.61	9.89	-	2.37	-	36.185	2.56	1.80	30.00	27.44	4.93	3.11	36.00	31.07
5795	-11.33	3.61	9.89	-	2.37	-	36.235	2.17	1.65	30.00	27.83	4.54	2.84	36.00	31.46

*1) Duty Factor is not required because the measurement using a gated RF average power meter.

*2) Antenna Gain applied the higher of the two models.

Sample Calculation:

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

Conducted Power Limit (5150 MHz-5250 MHz) = 250 mW

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

11ac-40 SISO, RF1

Applied limit: 15.407, mobile and portable client device

Tested Frequency	Reading	Cable Loss	Atten. Loss	Duty Factor *1)	Antenna Gain *2)	26 dB EBW (B for FCC)	99% OBW (B for IC)	Conducted Power				e.i.r.p.			
								Result		Limit	Margin	Result		Limit	Margin
								[dBm]	[mW]	[dBm]	[dB]	[dBm]	[mW]	[dBm]	[dB]
[MHz]	[dBm]	[dB]	[dB]	[dB]	[dBi]	[MHz]	[MHz]	[dBm]	[mW]	[dBm]	[dB]	[dBm]	[mW]	[dBm]	[dB]
5190	-10.60	3.51	9.93	-	2.59	-	36.263	2.84	1.92	23.97	21.13	5.43	3.49	29.97	24.54
5230	-11.04	3.52	9.93	-	2.59	-	36.205	2.41	1.74	23.97	21.56	5.00	3.16	29.97	24.97
5755	-9.64	3.61	9.93	-	2.64	-	36.185	3.90	2.45	30.00	26.10	6.54	4.51	36.00	29.46
5795	-10.85	3.62	9.93	-	2.64	-	36.235	2.70	1.86	30.00	27.30	5.34	3.42	36.00	30.66

*1) Duty Factor is not required because the measurement using a gated RF average power meter.

*2) Antenna Gain applied the higher of the two models.

Sample Calculation:

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

Conducted Power Limit (5150 MHz-5250 MHz) = 250 mW

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

Maximum Conducted Output Power

Report No. 13408107S-C
Test place Shonan EMC Lab. No.5 Shielded Room
Date July 10, 2020 July 22, 2020
Temperature / Humidity 25 deg. C / 52 % RH 22 deg. C / 56 % RH
Engineer Hiromasa Sato Hiromasa Sato
Mode Tx 11ac-40 CDD

RF0 + RF1

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	26 dB EBW (B for FCC) [MHz]	99% OBW (B for IC) [MHz]	Conducted power						e.i.r.p.					
			RF 0 [mW]	Antenna RF 1 [mW]	Sum [mW]	Result [dBm]	Limit [dBm]	Margin [dB]	RF 0 [mW]	Antenna RF 1 [mW]	Sum [mW]	Result [dBm]	Limit [dBm]	Margin [dB]
5190	-	36.343	1.53	1.75	3.28	5.16	23.97	18.81	2.77	3.18	5.95	7.75	29.97	22.22
5230	-	36.278	1.82	1.62	3.43	5.36	23.97	18.61	3.30	2.94	6.23	7.95	29.97	22.02
5755	-	36.277	1.66	2.31	3.97	5.99	30.00	24.01	3.05	4.24	7.29	8.63	36.00	27.37
5795	-	36.111	1.55	1.61	3.16	5.00	30.00	25.00	2.84	2.96	5.81	7.64	36.00	28.36

		RF0						RF1					
Tested Frequency	Duty Factor *1)	Reading	Cable Loss	Atten. Loss	Directional Gain	Result		Reading	Cable Loss	Atten. Loss	Directional Gain	Result	
						Cond. Power	e.i.r.p.					Cond. Power	e.i.r.p.
[MHz]	[dB]	[dBm]	[dB]	[dB]	[dBi]	[dBm]	[dBm]	[dBm]	[dB]	[dB]	[dBi]	[dBm]	[dBm]
5190	-	-11.53	3.50	9.87	2.59	1.84	4.43	-11.01	3.51	9.93	2.59	2.43	5.02
5230	-	-10.79	3.51	9.87	2.59	2.59	5.18	-11.36	3.52	9.93	2.59	2.09	4.68
5755	-	-11.29	3.61	9.89	2.64	2.21	4.85	-9.91	3.61	9.93	2.64	3.63	6.27
5795	-	-11.60	3.61	9.89	2.64	1.90	4.54	-11.47	3.62	9.93	2.64	2.08	4.72

*1) Duty Factor is not required because the measurement using a gated RF average power meter.

Sample Calculation:

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

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

Directional Gain = G_{ANT} (Antenna Gain *2)) + Array Gain

Array Gain = 0 dB(i.e.,no array gain) for $N_{ANT} < 4$

N_{ANT} = number of transmit antennas = 2

*2) Antenna Gain applied the highest gain of the two models.

Conducted Power Limit (5150 MHz-5250 MHz) = 250 mW

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

Maximum Conducted Output Power

Report No. 13408107S-C
Test place Shonan EMC Lab. No.5 Shielded Room
Date July 10, 2020 July 22, 2020
Temperature / Humidity 25 deg. C / 52 % RH 22 deg. C / 56 % RH
Engineer Hiromasa Sato Hiromasa Sato
Mode Tx 11ac-40 MIMO

RF0 + RF1

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	26 dB EBW (B for FCC) [MHz]	99% OBW (B for IC) [MHz]	Conducted power						e.i.r.p.					
			Antenna			Result [dBm]	Limit [dBm]	Margin [dB]	Antenna			Result [dBm]	Limit [dBm]	Margin [dB]
			RF 0 [mW]	RF 1 [mW]	Sum [mW]				RF 0 [mW]	RF 1 [mW]	Sum [mW]			
5190	-	36.320	1.57	1.81	3.38	5.29	23.97	18.68	2.59	3.28	5.87	7.69	29.97	22.28
5230	-	36.270	1.86	1.67	3.54	5.49	23.97	18.48	3.07	3.04	6.11	7.86	29.97	22.11
5755	-	36.402	1.72	2.37	4.09	6.12	30.00	23.88	2.96	4.36	7.32	8.65	36.00	27.35
5795	-	36.464	1.58	1.71	3.28	5.16	30.00	24.84	2.72	3.13	5.86	7.68	36.00	28.32

RF0							RF1						
Tested Frequency [MHz]	Duty Factor *1) [dB]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain *2) [dBi]	Result		Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain *2) [dBi]	Result	
						Cond. Power [dBm]	e.i.r.p. [dBm]					Cond. Power [dBm]	e.i.r.p. [dBm]
5190	-	-11.41	3.50	9.87	2.17	1.96	4.13	-10.87	3.51	9.93	2.59	2.57	5.16
5230	-	-10.68	3.51	9.87	2.17	2.70	4.87	-11.21	3.52	9.93	2.59	2.24	4.83
5755	-	-11.15	3.61	9.89	2.37	2.35	4.72	-9.79	3.61	9.93	2.64	3.75	6.39
5795	-	-11.52	3.61	9.89	2.37	1.98	4.35	-11.23	3.62	9.93	2.64	2.32	4.96

*1) Duty Factor is not required because the measurement using a gated RF average power meter.

*2) Antenna Gain applied the higher of the two models.

Sample Calculation:

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

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

Conducted Power Limit (5150 MHz-5250 MHz) = 250 mW

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

Maximum Conducted Output Power

Report No. 13408107S-C
Test place Shonan EMC Lab. No.5 Shielded Room
Date July 10, 2020 July 22, 2020
Temperature / Humidity 25 deg. C / 52 % RH 22 deg. C / 56 % RH
Engineer Hiromasa Sato Hiromasa Sato
Mode Tx 11ac-80 SISO

11ac-80 SISO, RF0

Applied limit: 15.407, mobile and portable client device

Tested Frequency	Reading	Cable Loss	Atten. Loss	Duty Factor *1)	Antenna Gain *2)	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	-10.79	3.51	9.87	-	2.17	-	76.585	2.59	1.82	23.97	21.38	4.76	2.99	29.97	25.21
5775	-10.96	3.61	9.89	-	2.37	-	76.431	2.54	1.79	30.00	27.46	4.91	3.10	36.00	31.09

*1) Duty Factor is not required because the measurement using a gated RF average power meter.

*2) Antenna Gain applied the higher of the two models.

Sample Calculation:

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

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

Conducted Power Limit (5150 MHz-5250 MHz) = 250 mW

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

11ac-80 SISO, RF1

Applied limit: 15.407, mobile and portable client device

Tested Frequency	Reading	Cable Loss	Atten. Loss	Duty Factor *1)	Antenna Gain *2)	26 dB EBW (B for FCC)	99% OBW (B for IC)	Conducted Power				e.i.r.p.			
								Result		Limit	Margin	Result		Limit	Margin
								[dBm]	[mW]	[dBm]	[dB]	[dBm]	[mW]	[dBm]	[dB]
5210	-10.63	3.52	9.93	-	2.59	-	76.585	2.82	1.91	23.97	21.15	5.41	3.47	29.97	24.56
5775	-10.31	3.62	9.93	-	2.64	-	76.431	3.24	2.11	30.00	26.76	5.88	3.87	36.00	30.12

*1) Duty Factor is not required because the measurement using a gated RF average power meter.

*2) Antenna Gain applied the higher of the two models.

Sample Calculation:

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

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

Conducted Power Limit (5150 MHz-5250 MHz) = 250 mW

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

Maximum Conducted Output Power

Report No. 13408107S-C
Test place Shonan EMC Lab. No.5 Shielded Room
Date July 10, 2020 July 22, 2020
Temperature / Humidity 25 deg. C / 52 % RH 22 deg. C / 56 % RH
Engineer Hiromasa Sato Hiromasa Sato
Mode Tx 11ac-80 CDD

RF0 + RF1

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	26 dB EBW (B for FCC) [MHz]	99% OBW (B for IC) [MHz]	Conducted power						e.i.r.p.					
			RF 0 [mW]	Antenna RF 1 [mW]	Sum [mW]	Result [dBm]	Limit [dBm]	Margin [dB]	RF 0 [mW]	Antenna RF 1 [mW]	Sum [mW]	Result [dBm]	Limit [dBm]	Margin [dB]
5210	-	76.553	1.74	1.72	3.46	5.39	23.97	18.58	3.16	3.13	6.29	7.98	29.97	21.99
5775	-	76.264	1.76	2.06	3.81	5.81	30.00	24.19	3.23	3.78	7.00	8.45	36.00	27.55

		RF0						RF1					
Tested Frequency	Duty Factor *1)	Reading	Cable Loss	Atten. Loss	Directional Gain	Result		Reading	Cable Loss	Atten. Loss	Directional Gain	Result	
	[dB]	[dBm]	[dB]	[dB]	[dBi]	Cond. Power [dBm]	e.i.r.p. [dBm]					Cond. Power [dBm]	e.i.r.p. [dBm]
5210	-	-10.98	3.51	9.87	2.59	2.40	4.99	-11.08	3.52	9.93	2.59	2.37	4.96
5775	-	-11.05	3.61	9.89	2.64	2.45	5.09	-10.42	3.62	9.93	2.64	3.13	5.77

*1) Duty Factor is not required because the measurement using a gated RF average power meter.

Sample Calculation:

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

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

Directional Gain = $G_{ANT}(Antenna\ Gain^{*2}) + Array\ Gain$

*2) Antenna Gain applied the highest gain of the two models.

Array Gain = 0 dB(i.e.,no array gain) for $N_{ANT} < 4$

N_{ANT} = number of transmit antennas = 2

Conducted Power Limit (5150 MHz-5250 MHz) = 250 mW

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

Maximum Conducted Output Power

Report No. 13408107S-C
Test place Shonan EMC Lab. No.5 Shielded Room
Date July 10, 2020 July 22, 2020
Temperature / Humidity 25 deg. C / 52 % RH 22 deg. C / 56 % RH
Engineer Hiromasa Sato Hiromasa Sato
Mode Tx 11ac-80 MIMO

RF0 + RF1

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	26 dB EBW (B for FCC) [MHz]	99% OBW (B for IC) [MHz]	Conducted power						e.i.r.p.					
			Antenna			Result [dBm]	Limit [dBm]	Margin [dB]	Antenna			Result [dBm]	Limit [dBm]	Margin [dB]
			RF 0 [mW]	RF 1 [mW]	Sum [mW]				RF 0 [mW]	RF 1 [mW]	Sum [mW]			
5210	-	76.846	1.76	1.77	3.53	5.47	23.97	18.50	2.90	3.21	6.11	7.86	29.97	22.11
5775	-	76.158	1.77	2.21	3.98	6.00	30.00	24.00	3.05	4.06	7.11	8.52	36.00	27.48

		RF0						RF1					
Tested Frequency	Duty Factor *1)	Reading	Cable Loss	Atten. Loss	Antenna Gain *2)	Result		Reading	Cable Loss	Atten. Loss	Antenna Gain *2)	Result	
[MHz]	[dB]	[dBm]	[dB]	[dB]	[dBi]	Cond. Power [dBm]	e.i.r.p. [dBm]	[dBm]	[dB]	[dB]	[dBi]	Cond. Power [dBm]	e.i.r.p. [dBm]
5210	-	-10.93	3.51	9.87	2.17	2.45	4.62	-10.97	3.52	9.93	2.59	2.48	5.07
5775	-	-11.02	3.61	9.89	2.37	2.48	4.85	-10.11	3.62	9.93	2.64	3.44	6.08

*1) Duty Factor is not required because the measurement using a gated RF average power meter.

*2) Antenna Gain applied the higher of the two models.

Sample Calculation:

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

Conducted Power Limit (5150 MHz-5250 MHz) = 250 mW

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

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Maximum Conducted Output Power

Report No.	13408107S-C
Test place	Shonan EMC Lab. No.5 Shielded Room
Date	July 10, 2020
Temperature / Humidity	25 deg. C / 52 % RH
Engineer	Hiromasa Sato
Mode	Tx 11a SISO

5180 MHz

Antenna	Rate [Mbps]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor *1) [dB]	Conducted Power Result [dBm]	Remarks
RF0	6	-11.67	3.50	9.87	-	1.70	-
	9	-11.65	3.50	9.87	-	1.72	-
	12	-11.65	3.50	9.87	-	1.72	-
	18	-11.62	3.50	9.87	-	1.75	-
	24	-11.60	3.50	9.87	-	1.77	-
	36	-11.58	3.50	9.87	-	1.79	-
	48	-11.57	3.50	9.87	-	1.80	-
RF1	54	-11.53	3.50	9.87	-	1.84	-
	6	-11.67	3.51	9.93	-	1.77	-
	9	-11.09	3.51	9.93	-	2.35	-
	12	-10.96	3.51	9.93	-	2.48	-
	18	-10.92	3.51	9.93	-	2.52	-
	24	-10.88	3.51	9.93	-	2.56	-
	36	-10.77	3.51	9.93	-	2.67	-
	48	-10.75	3.51	9.93	-	2.69	-
	54	-10.73	3.51	9.93	-	2.71	*

* Worst rate

Sample Calculation:

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

*1) Duty facotr is not required because the measurement use a gated average power meter.

Maximum Conducted Output Power

Report No.	13408107S-C
Test place	Shonan EMC Lab. No.5 Shielded Room
Date	July 10, 2020
Temperature / Humidity	25 deg. C / 52 % RH
Engineer	Hiromasa Sato
Mode	Tx 11a CDD

5180 MHz

Rate [Mbps]	Conducted power			Result [dBm]	Remarks
	Antenna RF0 [mW]	RF1 [mW]	Sum [mW]		
6	1.36	1.53	2.89	4.60	-
9	1.36	1.53	2.90	4.62	-
12	1.37	1.55	2.92	4.66	-
18	1.38	1.61	2.98	4.75	-
24	1.38	1.66	3.04	4.83	-
36	1.39	1.66	3.05	4.84	-
48	1.43	1.69	3.11	4.93	-
54	1.44	1.70	3.14	4.97	*

* Worst Rate

Rate [Mbps]	Duty Factor *1) [dB]	RF0				RF1			
		Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result Cond. Power [dBm]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result Cond. Power [dBm]
6	-	-12.04	3.50	9.87	1.33	-11.60	3.51	9.93	1.84
9	-	-12.02	3.50	9.87	1.35	-11.58	3.51	9.93	1.86
12	-	-12.00	3.50	9.87	1.37	-11.53	3.51	9.93	1.91
18	-	-11.98	3.50	9.87	1.39	-11.38	3.51	9.93	2.06
24	-	-11.96	3.50	9.87	1.41	-11.25	3.51	9.93	2.19
36	-	-11.95	3.50	9.87	1.42	-11.23	3.51	9.93	2.21
48	-	-11.83	3.50	9.87	1.54	-11.17	3.51	9.93	2.27
54	-	-11.79	3.50	9.87	1.58	-11.14	3.51	9.93	2.30

*1) Duty Factor is not required because the measurement using a gated RF average power meter.

Sample Calculation:

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

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Maximum Conducted Output Power

Report No.	13408107S-C
Test place	Shonan EMC Lab. No.5 Shielded Room
Date	July 10, 2020
Temperature / Humidity	25 deg. C / 52 % RH
Engineer	Hiromasa Sato
Mode	Tx 11n-20 SISO

5180 MHz

Antenna	Rate [MCS]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor *1) [dB]	Conducted Power Result [dBm]	Remarks
RF0	0	-11.75	3.50	9.87	-	1.62	-
	1	-11.73	3.50	9.87	-	1.64	-
	2	-11.70	3.50	9.87	-	1.67	-
	3	-11.58	3.50	9.87	-	1.79	-
	4	-11.56	3.50	9.87	-	1.81	-
	5	-11.51	3.50	9.87	-	1.86	-
	6	-11.48	3.50	9.87	-	1.89	-
	7	-11.46	3.50	9.87	-	1.91	-
RF1	0	-11.12	3.51	9.93	-	2.32	-
	1	-10.93	3.51	9.93	-	2.51	-
	2	-10.85	3.51	9.93	-	2.59	-
	3	-10.80	3.51	9.93	-	2.64	-
	4	-10.78	3.51	9.93	-	2.66	-
	5	-10.66	3.51	9.93	-	2.78	-
	6	-10.65	3.51	9.93	-	2.79	-
	7	-10.61	3.51	9.93	-	2.83	*

* Worst rate

Sample Calculation:

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

*1) Duty facotr is not required because the measurement use a gated average power meter.

Maximum Conducted Output Power

Report No.	13408107S-C
Test place	Shonan EMC Lab. No.5 Shielded Room
Date	July 10, 2020
Temperature / Humidity	25 deg. C / 52 % RH
Engineer	Hiromasa Sato
Mode	Tx 11n-20 CDD

5180 MHz

Rate [MCS]	Conducted power Antenna			Result [dBm]	Remarks
	RF0 [mW]	RF1 [mW]	Sum [mW]		
0	1.37	1.54	2.91	4.63	-
1	1.41	1.56	2.97	4.73	-
2	1.43	1.67	3.10	4.91	-
3	1.43	1.69	3.12	4.94	-
4	1.45	1.71	3.15	4.99	-
5	1.45	1.71	3.16	5.00	-
6	1.46	1.71	3.17	5.01	-
7	1.48	1.73	3.21	5.06	*

Rate [MCS]	Duty Factor *1) [dB]	RF0				RF1			
		Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result Cond. Power [dBm]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result Cond. Power [dBm]
0	-	-12.01	3.50	9.87	1.36	-11.57	3.51	9.93	1.87
1	-	-11.89	3.50	9.87	1.48	-11.50	3.51	9.93	1.94
2	-	-11.83	3.50	9.87	1.54	-11.20	3.51	9.93	2.24
3	-	-11.82	3.50	9.87	1.55	-11.16	3.51	9.93	2.28
4	-	-11.77	3.50	9.87	1.60	-11.12	3.51	9.93	2.32
5	-	-11.76	3.50	9.87	1.61	-11.11	3.51	9.93	2.33
6	-	-11.73	3.50	9.87	1.64	-11.10	3.51	9.93	2.34
7	-	-11.68	3.50	9.87	1.69	-11.06	3.51	9.93	2.38

*1) Duty Factor is not required because the measurement using a gated RF average power meter.

Sample Calculation:

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

Maximum Conducted Output Power

Report No.	13408107S-C
Test place	Shonan EMC Lab. No.5 Shielded Room
Date	July 10, 2020
Temperature / Humidity	25 deg. C / 52 % RH
Engineer	Hiromasa Sato
Mode	Tx 11n-20 MIMO

5180 MHz

Rate [MCS]	Conducted power			Result [dBm]	Remarks
	Antenna RF0 [mW]	RF1 [mW]	Sum [mW]		
8	1.41	1.60	3.02	4.79	-
9	1.43	1.63	3.06	4.85	-
10	1.45	1.66	3.12	4.94	-
11	1.46	1.67	3.13	4.95	-
12	1.48	1.71	3.19	5.04	-
13	1.48	1.72	3.20	5.06	-
14	1.49	1.78	3.26	5.14	-
15	1.50	1.79	3.29	5.17	*

Rate [MCS]	Duty Factor *1) [dB]	RF0				RF1			
		Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result Cond. Power [dBm]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result Cond. Power [dBm]
8	-	-11.87	3.50	9.87	1.50	-11.39	3.51	9.93	2.05
9	-	-11.81	3.50	9.87	1.56	-11.33	3.51	9.93	2.11
10	-	-11.75	3.50	9.87	1.62	-11.23	3.51	9.93	2.21
11	-	-11.73	3.50	9.87	1.64	-11.22	3.51	9.93	2.22
12	-	-11.68	3.50	9.87	1.69	-11.10	3.51	9.93	2.34
13	-	-11.66	3.50	9.87	1.71	-11.08	3.51	9.93	2.36
14	-	-11.65	3.50	9.87	1.72	-10.94	3.51	9.93	2.50
15	-	-11.60	3.50	9.87	1.77	-10.92	3.51	9.93	2.52

*1) Duty Factor is not required because the measurement using a gated RF average power meter.

Sample Calculation:

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

Maximum Conducted Output Power

Report No.	13408107S-C
Test place	Shonan EMC Lab. No.5 Shielded Room
Date	July 10, 2020
Temperature / Humidity	25 deg. C / 52 % RH
Engineer	Hiromasa Sato
Mode	Tx 11ac-20 SISO

5180 MHz

Antenna	Rate [MCS]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor *1) [dB]	Conducted power Result [dBm]	Remarks
RF0	0	-11.70	3.50	9.87	-	1.67	-
	1	-11.68	3.50	9.87	-	1.69	-
	2	-11.65	3.50	9.87	-	1.72	-
	3	-11.64	3.50	9.87	-	1.73	-
	4	-11.60	3.50	9.87	-	1.77	-
	5	-11.57	3.50	9.87	-	1.80	-
	6	-11.54	3.50	9.87	-	1.83	-
	7	-11.51	3.50	9.87	-	1.86	-
	8	-11.49	3.50	9.87	-	1.88	-
RF1	0	-11.02	3.51	9.93	-	2.42	-
	1	-11.01	3.51	9.93	-	2.43	-
	2	-10.97	3.51	9.93	-	2.47	-
	3	-10.91	3.51	9.93	-	2.53	-
	4	-10.88	3.51	9.93	-	2.56	-
	5	-10.87	3.51	9.93	-	2.57	-
	6	-10.81	3.51	9.93	-	2.63	-
	7	-10.74	3.51	9.93	-	2.70	-
	8	-10.72	3.51	9.93	-	2.72	*

* Worst rate

Sample Calculation:

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

*1) Duty factor is not required because the measurement use a gated average power meter.

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Maximum Conducted Output Power

Report No.	13408107S-C
Test place	Shonan EMC Lab. No.5 Shielded Room
Date	July 10, 2020
Temperature / Humidity	25 deg. C / 52 % RH
Engineer	Hiromasa Sato
Mode	Tx 11ac-20 CDD

5180 MHz

Rate [MCS]	Conducted power			Result [dBm]	Remarks
	Antenna RF0 [mW]	RF1 [mW]	Sum [mW]		
0	1.42	1.63	3.05	4.84	-
1	1.43	1.64	3.07	4.88	-
2	1.43	1.65	3.08	4.89	-
3	1.45	1.68	3.12	4.95	-
4	1.46	1.72	3.17	5.02	-
5	1.46	1.73	3.19	5.04	-
6	1.47	1.73	3.20	5.05	-
7	1.48	1.73	3.21	5.06	-
8	1.48	1.76	3.24	5.10	*

Rate [MCS]	Duty Factor *1) [dB]	RF0				RF1			
		Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result Cond. Power [dBm]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result Cond. Power [dBm]
0	-	-11.84	3.50	9.87	1.53	-11.33	3.51	9.93	2.11
1	-	-11.82	3.50	9.87	1.55	-11.28	3.51	9.93	2.16
2	-	-11.81	3.50	9.87	1.56	-11.26	3.51	9.93	2.18
3	-	-11.77	3.50	9.87	1.60	-11.19	3.51	9.93	2.25
4	-	-11.74	3.50	9.87	1.63	-11.09	3.51	9.93	2.35
5	-	-11.72	3.50	9.87	1.65	-11.07	3.51	9.93	2.37
6	-	-11.69	3.50	9.87	1.68	-11.07	3.51	9.93	2.37
7	-	-11.68	3.50	9.87	1.69	-11.06	3.51	9.93	2.38
8	-	-11.67	3.50	9.87	1.70	-10.99	3.51	9.93	2.45

*1) Duty Factor is not required because the measurement using a gated RF average power meter.

Sample Calculation:

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

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Maximum Conducted Output Power

Report No.	13408107S-C
Test place	Shonan EMC Lab. No.5 Shielded Room
Date	July 10, 2020
Temperature / Humidity	25 deg. C / 52 % RH
Engineer	Hiromasa Sato
Mode	Tx 11ac-20 MIMO

5180 MHz

Rate [MCS]	Conducted power			Result [dBm]	Remarks
	Antenna RF0 [mW]	RF1 [mW]	Sum [mW]		
0	1.38	1.60	2.98	4.74	-
1	1.40	1.64	3.03	4.82	-
2	1.40	1.67	3.07	4.88	-
3	1.41	1.67	3.08	4.89	-
4	1.43	1.72	3.15	4.99	-
5	1.46	1.74	3.20	5.05	-
6	1.47	1.78	3.25	5.12	-
7	1.43	1.73	3.16	5.00	-
8	1.49	1.79	3.28	5.16	*

Rate [MCS]	Duty Factor *1) [dB]	RF0				RF1			
		Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result Cond. Power [dBm]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result Cond. Power [dBm]
0	-	-11.98	3.50	9.87	1.39	-11.40	3.51	9.93	2.04
1	-	-11.92	3.50	9.87	1.45	-11.30	3.51	9.93	2.14
2	-	-11.90	3.50	9.87	1.47	-11.21	3.51	9.93	2.23
3	-	-11.88	3.50	9.87	1.49	-11.20	3.51	9.93	2.24
4	-	-11.81	3.50	9.87	1.56	-11.08	3.51	9.93	2.36
5	-	-11.73	3.50	9.87	1.64	-11.04	3.51	9.93	2.40
6	-	-11.70	3.50	9.87	1.67	-10.93	3.51	9.93	2.51
7	-	-11.82	3.50	9.87	1.55	-11.06	3.51	9.93	2.38
8	-	-11.65	3.50	9.87	1.72	-10.90	3.51	9.93	2.54

*1) Duty Factor is not required because the measurement using a gated RF average power meter.

Sample Calculation:

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

Maximum Conducted Output Power

Report No.	13408107S-C
Test place	Shonan EMC Lab. No.5 Shielded Room
Date	July 10, 2020
Temperature / Humidity	25 deg. C / 52 % RH
Engineer	Hiromasa Sato
Mode	Tx 11n-40 SISO

5190 MHz

Antenna	Rate [MCS]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor *1) [dB]	Conducted power Result [dBm]	Remarks
RF0	0	-11.50	3.50	9.87	-	1.87	-
	1	-11.48	3.50	9.87	-	1.89	-
	2	-11.47	3.50	9.87	-	1.90	-
	3	-11.45	3.50	9.87	-	1.92	-
	4	-11.39	3.50	9.87	-	1.98	-
	5	-11.36	3.50	9.87	-	2.01	-
	6	-11.35	3.50	9.87	-	2.02	-
RF1	7	-11.31	3.50	9.87	-	2.06	-
	0	-11.04	3.51	9.93	-	2.40	-
	1	-10.91	3.51	9.93	-	2.53	-
	2	-10.88	3.51	9.93	-	2.56	-
	3	-10.81	3.51	9.93	-	2.63	-
	4	-10.80	3.51	9.93	-	2.64	-
	5	-10.77	3.51	9.93	-	2.67	-
	6	-10.71	3.51	9.93	-	2.73	-
	7	-10.66	3.51	9.93	-	2.78	*

* Worst rate

Sample Calculation:

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

*1) Duty facotr is not required because the measurement use a gated average power meter.

Maximum Conducted Output Power

Report No.	13408107S-C
Test place	Shonan EMC Lab. No.5 Shielded Room
Date	July 10, 2020
Temperature / Humidity	25 deg. C / 52 % RH
Engineer	Hiromasa Sato
Mode	Tx 11n-40 CDD

5190 MHz

Rate [MCS]	Conducted power Antenna			Result [dBm]	Remarks
	RF0 [mW]	RF1 [mW]	Sum [mW]		
0	1.44	1.55	2.99	4.76	-
1	1.45	1.57	3.02	4.79	-
2	1.46	1.58	3.04	4.82	-
3	1.48	1.60	3.08	4.88	-
4	1.49	1.60	3.09	4.89	-
5	1.50	1.61	3.11	4.93	-
6	1.51	1.67	3.18	5.03	-
7	1.52	1.74	3.26	5.13	*

Rate [MCS]	Duty Factor *1) [dB]	RF0				RF1			
		Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result Cond. Power [dBm]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result Cond. Power [dBm]
0	-	-11.78	3.50	9.87	1.59	-11.54	3.51	9.93	1.90
1	-	-11.77	3.50	9.87	1.60	-11.48	3.51	9.93	1.96
2	-	-11.73	3.50	9.87	1.64	-11.46	3.51	9.93	1.98
3	-	-11.67	3.50	9.87	1.70	-11.40	3.51	9.93	2.04
4	-	-11.65	3.50	9.87	1.72	-11.40	3.51	9.93	2.04
5	-	-11.60	3.50	9.87	1.77	-11.38	3.51	9.93	2.06
6	-	-11.58	3.50	9.87	1.79	-11.21	3.51	9.93	2.23
7	-	-11.56	3.50	9.87	1.81	-11.03	3.51	9.93	2.41

*1) Duty Factor is not required because the measurement using a gated RF average power meter.

Sample Calculation:

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

Maximum Conducted Output Power

Report No.	13408107S-C
Test place	Shonan EMC Lab. No.5 Shielded Room
Date	July 10, 2020
Temperature / Humidity	25 deg. C / 52 % RH
Engineer	Hiromasa Sato
Mode	Tx 11n-40 MIMO

5190 MHz

Rate [MCS]	Conducted power Antenna			Result [dBm]	Remarks
	RF0 [mW]	RF1 [mW]	Sum [mW]		
8	1.44	1.63	3.07	4.87	-
9	1.46	1.63	3.09	4.90	-
10	1.47	1.67	3.14	4.97	-
11	1.49	1.70	3.19	5.04	-
12	1.52	1.75	3.27	5.14	-
13	1.53	1.75	3.28	5.16	-
14	1.53	1.78	3.31	5.20	-
15	1.52	1.79	3.32	5.21	*

Rate [MCS]	Duty Factor *1) [dB]	RF0				RF1			
		Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result Cond. Power [dBm]	Reading [dBm]	Cable Loss [dB]	Antenna Loss [dB]	Result Cond. Power [dBm]
8	-	-11.78	3.50	9.87	1.59	-11.33	3.51	9.93	2.11
9	-	-11.74	3.50	9.87	1.63	-11.31	3.51	9.93	2.13
10	-	-11.69	3.50	9.87	1.68	-11.22	3.51	9.93	2.22
11	-	-11.65	3.50	9.87	1.72	-11.13	3.51	9.93	2.31
12	-	-11.55	3.50	9.87	1.82	-11.02	3.51	9.93	2.42
13	-	-11.53	3.50	9.87	1.84	-11.00	3.51	9.93	2.44
14	-	-11.53	3.50	9.87	1.84	-10.93	3.51	9.93	2.51
15	-	-11.54	3.50	9.87	1.83	-10.90	3.51	9.93	2.54

*1) Duty Factor is not required because the measurement using a gated RF average power meter.

Sample Calculation:

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

Maximum Conducted Output Power

Report No.	13408107S-C
Test place	Shonan EMC Lab. No.5 Shielded Room
Date	July 10, 2020
Temperature / Humidity	25 deg. C / 52 % RH
Engineer	Hiromasa Sato
Mode	Tx 11ac-40 SISO

5190 MHz

Antenna	Rate [MCS]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor *1) [dB]	Conducted power Result [dBm]	Remarks
RF0	0	-11.64	3.50	9.87	-	1.73	-
	1	-11.62	3.50	9.87	-	1.75	-
	2	-11.61	3.50	9.87	-	1.76	-
	3	-11.56	3.50	9.87	-	1.81	-
	4	-11.51	3.50	9.87	-	1.86	-
	5	-11.42	3.50	9.87	-	1.95	-
	6	-11.36	3.50	9.87	-	2.01	-
	7	-11.35	3.50	9.87	-	2.02	-
	8	-11.31	3.50	9.87	-	2.06	-
	9	-11.36	3.50	9.87	-	2.01	-
RF1	0	-11.24	3.51	9.93	-	2.20	-
	1	-11.21	3.51	9.93	-	2.23	-
	2	-11.14	3.51	9.93	-	2.30	-
	3	-11.13	3.51	9.93	-	2.31	-
	4	-11.06	3.51	9.93	-	2.38	-
	5	-10.97	3.51	9.93	-	2.47	-
	6	-10.74	3.51	9.93	-	2.70	-
	7	-10.60	3.51	9.93	-	2.84	*
	8	-10.73	3.51	9.93	-	2.71	-
	9	-10.75	3.51	9.93	-	2.69	-

* Worst rate

Sample Calculation:

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

*1) Duty facotr is not required because the measurement use a gated average power meter.

Maximum Conducted Output Power

Report No.	13408107S-C
Test place	Shonan EMC Lab. No.5 Shielded Room
Date	July 10, 2020
Temperature / Humidity	25 deg. C / 52 % RH
Engineer	Huromasa Sato
Mode	Tx 11ac-40 CDD

5190 MHz

Rate [MCS]	Conducted power			Result [dBm]	Remarks
	Antenna RF0 [mW]	RF1 [mW]	Sum [mW]		
0	1.42	1.57	2.99	4.76	-
1	1.47	1.66	3.13	4.95	-
2	1.48	1.67	3.15	4.98	-
3	1.49	1.68	3.17	5.01	-
4	1.51	1.71	3.22	5.08	-
5	1.50	1.72	3.23	5.09	-
6	1.52	1.74	3.25	5.13	-
7	1.53	1.75	3.28	5.16	*
8	1.49	1.72	3.21	5.07	-
9	1.51	1.71	3.23	5.09	-

Rate [MCS]	Duty Factor *1) [dB]	RF0				RF1			
		Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result Cond. Power [dBm]	Reading [dBm]	Cable Loss [dB]	Antenna Loss [dB]	Result Cond. Power [dBm]
0	-	-11.84	3.50	9.87	1.53	-11.49	3.51	9.93	1.95
1	-	-11.71	3.50	9.87	1.66	-11.23	3.51	9.93	2.21
2	-	-11.67	3.50	9.87	1.70	-11.21	3.51	9.93	2.23
3	-	-11.65	3.50	9.87	1.72	-11.18	3.51	9.93	2.26
4	-	-11.57	3.50	9.87	1.80	-11.12	3.51	9.93	2.32
5	-	-11.60	3.50	9.87	1.77	-11.08	3.51	9.93	2.36
6	-	-11.56	3.50	9.87	1.81	-11.04	3.51	9.93	2.40
7	-	-11.53	3.50	9.87	1.84	-11.01	3.51	9.93	2.43
8	-	-11.64	3.50	9.87	1.73	-11.08	3.51	9.93	2.36
9	-	-11.57	3.50	9.87	1.80	-11.10	3.51	9.93	2.34

*1) Duty Factor is not required because the measurement using a gated RF average power meter.

Sample Calculation:

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

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Maximum Conducted Output Power

Report No.	13408107S-C
Test place	Shonan EMC Lab. No.5 Shielded Room
Date	July 10, 2020
Temperature / Humidity	25 deg. C / 52 % RH
Engineer	Hiromasa Sato
Mode	Tx 11ac-40 MIMO

5190 MHz

Rate [MCS]	Conducted power			Result [dBm]	Remarks
	Antenna RF0 [mW]	RF1 [mW]	Sum [mW]		
0	1.46	1.61	3.07	4.87	-
1	1.50	1.63	3.13	4.95	-
2	1.51	1.66	3.17	5.01	-
3	1.51	1.71	3.22	5.08	-
4	1.52	1.72	3.24	5.11	-
5	1.54	1.76	3.30	5.19	-
6	1.55	1.76	3.31	5.20	-
7	1.57	1.81	3.38	5.29	*
8	1.57	1.78	3.35	5.25	-
9	1.56	1.76	3.32	5.21	-

Rate [MCS]	Duty Factor *1) [dB]	RF0				RF1			
		Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result Cond. Power [dBm]	Reading [dBm]	Cable Loss [dB]	Antenna Loss [dB]	Result Cond. Power [dBm]
0	-	-11.72	3.50	9.87	1.65	-11.38	3.51	9.93	2.06
1	-	-11.62	3.50	9.87	1.75	-11.32	3.51	9.93	2.12
2	-	-11.58	3.50	9.87	1.79	-11.24	3.51	9.93	2.20
3	-	-11.57	3.50	9.87	1.80	-11.11	3.51	9.93	2.33
4	-	-11.55	3.50	9.87	1.82	-11.08	3.51	9.93	2.36
5	-	-11.49	3.50	9.87	1.88	-10.98	3.51	9.93	2.46
6	-	-11.46	3.50	9.87	1.91	-10.98	3.51	9.93	2.46
7	-	-11.41	3.50	9.87	1.96	-10.87	3.51	9.93	2.57
8	-	-11.41	3.50	9.87	1.96	-10.93	3.51	9.93	2.51
9	-	-11.44	3.50	9.87	1.93	-10.98	3.51	9.93	2.46

*1) Duty Factor is not required because the measurement using a gated RF average power meter.

Sample Calculation:

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

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Maximum Conducted Output Power

Report No.	13408107S-C
Test place	Shonan EMC Lab. No.5 Shielded Room
Date	July 10, 2020
Temperature / Humidity	25 deg. C / 52 % RH
Engineer	Hiromasa Sato
Mode	Tx 11ac-80 SISO

5210 MHz

Antenna	Rate [MCS]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor *1) [dB]	Conducted power Result [dBm]	Remarks
RF0	0	-11.10	3.51	9.87	-	2.28	-
	1	-11.06	3.51	9.87	-	2.32	-
	2	-11.02	3.51	9.87	-	2.36	-
	3	-10.95	3.51	9.87	-	2.43	-
	4	-10.91	3.51	9.87	-	2.47	-
	5	-10.89	3.51	9.87	-	2.49	-
	6	-10.84	3.51	9.87	-	2.54	-
	7	-10.79	3.51	9.87	-	2.59	-
	8	-10.81	3.51	9.87	-	2.57	-
	9	-10.85	3.51	9.87	-	2.53	-
RF1	0	-11.17	3.52	9.93	-	2.28	-
	1	-10.99	3.52	9.93	-	2.46	-
	2	-10.98	3.52	9.93	-	2.47	-
	3	-10.87	3.52	9.93	-	2.58	-
	4	-10.76	3.52	9.93	-	2.69	-
	5	-10.70	3.52	9.93	-	2.75	-
	6	-10.67	3.52	9.93	-	2.78	-
	7	-10.63	3.52	9.93	-	2.82	*
	8	-10.66	3.52	9.93	-	2.79	-
	9	-10.76	3.52	9.93	-	2.69	-

* Worst rate

Sample Calculation:

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

*1) Duty facotr is not required because the measurement use a gated average power meter.

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Maximum Conducted Output Power

Report No.	13408107S-C
Test place	Shonan EMC Lab. No.5 Shielded Room
Date	July 10, 2020
Temperature / Humidity	25 deg. C / 52 % RH
Engineer	Hiromasa Sato
Mode	Tx 11ac-80 CDD

5210 MHz

Rate [MCS]	Conducted power			Result [dBm]	Remarks
	Antenna RF0 [mW]	RF1 [mW]	Sum [mW]		
0	1.59	1.50	3.08	4.89	-
1	1.60	1.62	3.23	5.09	-
2	1.60	1.65	3.25	5.12	-
3	1.65	1.66	3.31	5.19	-
4	1.67	1.66	3.33	5.23	-
5	1.68	1.68	3.36	5.26	-
6	1.73	1.69	3.42	5.33	-
7	1.74	1.72	3.46	5.39	*
8	1.69	1.67	3.36	5.26	-
9	1.67	1.65	3.32	5.21	-

Rate [MCS]	Duty Factor *1) [dB]	RF0				RF1			
		Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result Cond. Power [dBm]	Reading [dBm]	Cable Loss [dB]	Antenna Loss [dB]	Result Cond. Power [dBm]
0	-	-11.37	3.51	9.87	2.01	-11.70	3.52	9.93	1.75
1	-	-11.33	3.51	9.87	2.05	-11.34	3.52	9.93	2.11
2	-	-11.33	3.51	9.87	2.05	-11.27	3.52	9.93	2.18
3	-	-11.21	3.51	9.87	2.17	-11.25	3.52	9.93	2.20
4	-	-11.14	3.51	9.87	2.24	-11.25	3.52	9.93	2.20
5	-	-11.13	3.51	9.87	2.25	-11.20	3.52	9.93	2.25
6	-	-11.00	3.51	9.87	2.38	-11.18	3.52	9.93	2.27
7	-	-10.98	3.51	9.87	2.40	-11.08	3.52	9.93	2.37
8	-	-11.10	3.51	9.87	2.28	-11.23	3.52	9.93	2.22
9	-	-11.16	3.51	9.87	2.22	-11.26	3.52	9.93	2.19

*1) Duty Factor is not required because the measurement using a gated RF average power meter.

Sample Calculation:

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

UL Japan, Inc.

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Maximum Conducted Output Power

Report No.	13408107S-C
Test place	Shonan EMC Lab. No.5 Shielded Room
Date	July 10, 2020
Temperature / Humidity	25 deg. C / 52 % RH
Engineer	Hiromasa Sato
Mode	Tx 11ac-80 MIMO

5210 MHz

Rate [MCS]	Conducted power			Result [dBm]	Remarks
	Antenna RF0 [mW]	RF1 [mW]	Sum [mW]		
0	1.68	1.66	3.34	5.24	-
1	1.70	1.68	3.38	5.28	-
2	1.71	1.69	3.39	5.30	-
3	1.74	1.74	3.48	5.42	-
4	1.72	1.74	3.46	5.39	-
5	1.75	1.74	3.49	5.43	-
6	1.75	1.75	3.50	5.44	-
7	1.76	1.77	3.53	5.47	*
8	1.73	1.76	3.48	5.42	-
9	1.74	1.75	3.49	5.43	-

Rate [MCS]	Duty Factor *1) [dB]	RF0				RF1			
		Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result Cond. Power [dBm]	Reading [dBm]	Cable Loss [dB]	Antenna Loss [dB]	Result Cond. Power [dBm]
0	-	-11.12	3.51	9.87	2.26	-11.25	3.52	9.93	2.20
1	-	-11.08	3.51	9.87	2.30	-11.20	3.52	9.93	2.25
2	-	-11.06	3.51	9.87	2.32	-11.18	3.52	9.93	2.27
3	-	-10.97	3.51	9.87	2.41	-11.04	3.52	9.93	2.41
4	-	-11.02	3.51	9.87	2.36	-11.05	3.52	9.93	2.40
5	-	-10.96	3.51	9.87	2.42	-11.03	3.52	9.93	2.42
6	-	-10.95	3.51	9.87	2.43	-11.01	3.52	9.93	2.44
7	-	-10.93	3.51	9.87	2.45	-10.97	3.52	9.93	2.48
8	-	-11.01	3.51	9.87	2.37	-11.00	3.52	9.93	2.45
9	-	-10.97	3.51	9.87	2.41	-11.01	3.52	9.93	2.44

*1) Duty Factor is not required because the measurement using a gated RF average power meter.

Sample Calculation:

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

UL Japan, Inc.

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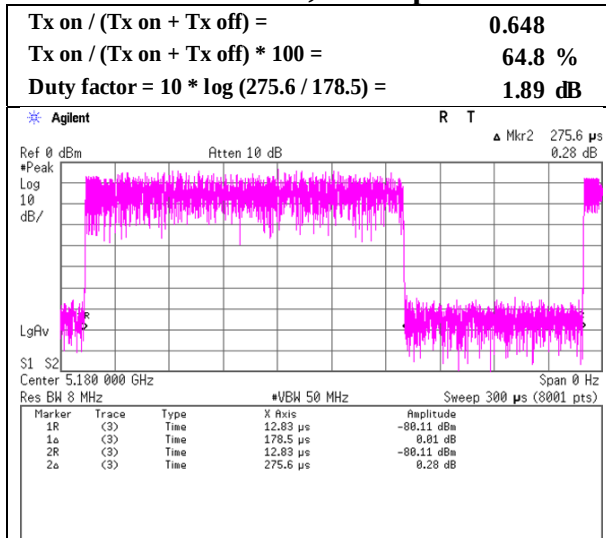
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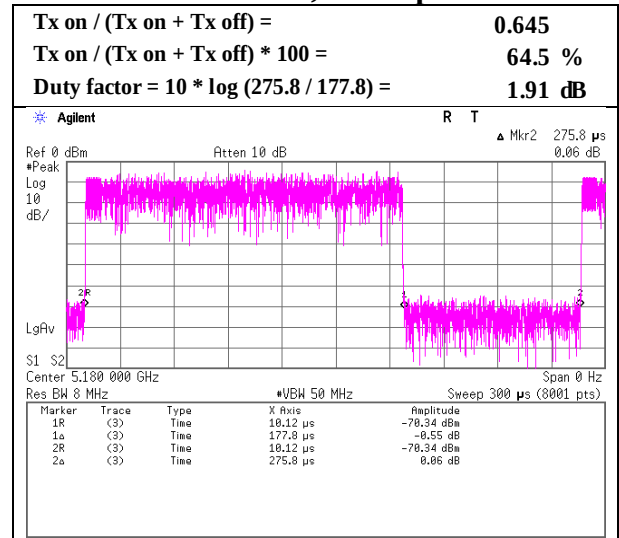
Burst rate confirmation

Report No. 13408107S-C
Test place Shonan EMC Lab. No.5 Shielded Room
Date August 7, 2020
Temperature / Humidity 25 deg. C / 53 % RH
Engineer Hiromasa Sato
Mode Tx

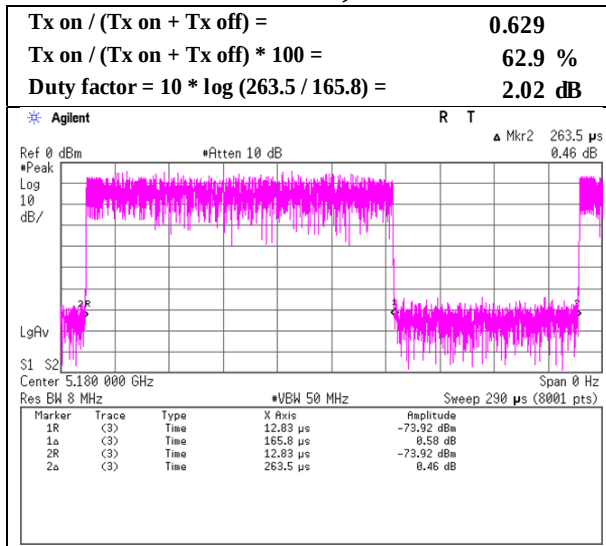
11a SISO, 54 Mbps



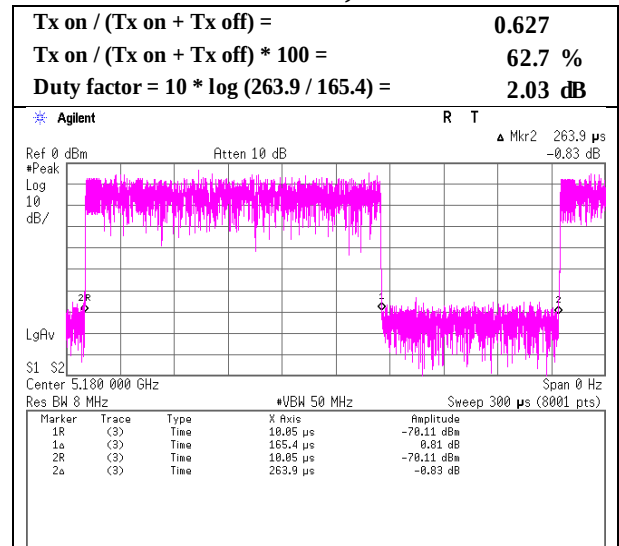
11a CDD, 54 Mbps



11n-20 SISO, MCS 7



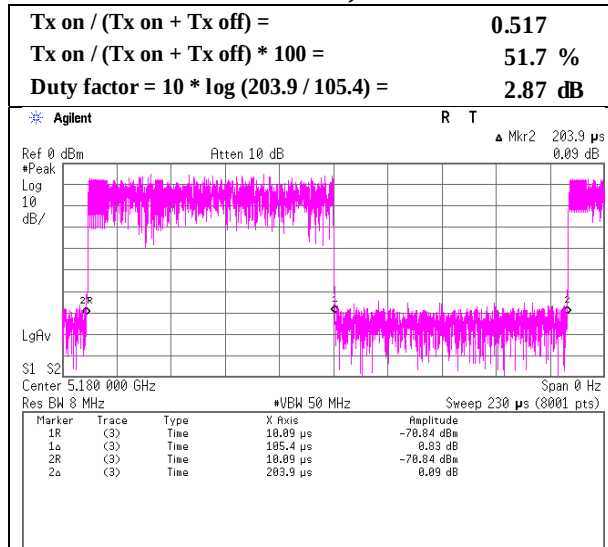
11n-20 CDD, MCS 7



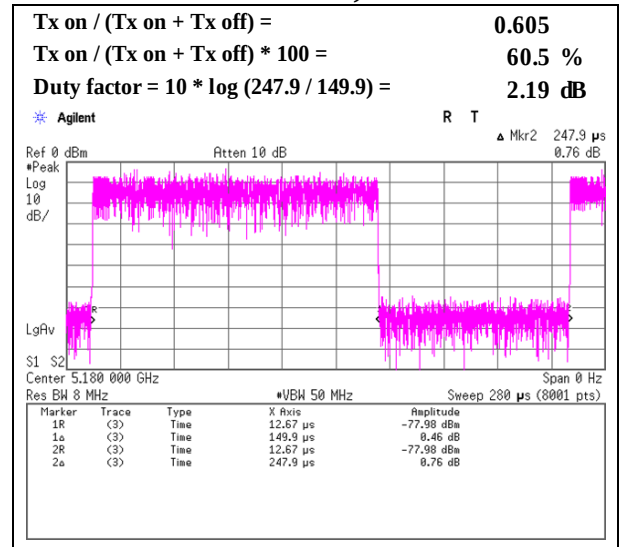
Burst rate confirmation

Report No. 13408107S-C
Test place Shonan EMC Lab. No.5 Shielded Room
Date July 27, 2020 August 6, 2020 August 7, 2020
Temperature / Humidity 27 deg. C / 57 % RH 23 deg. C / 61 % RH 25 deg. C / 53 % RH
Engineer Shiro Kobayashi Hiromasa Sato Hiromasa Sato
Mode Tx

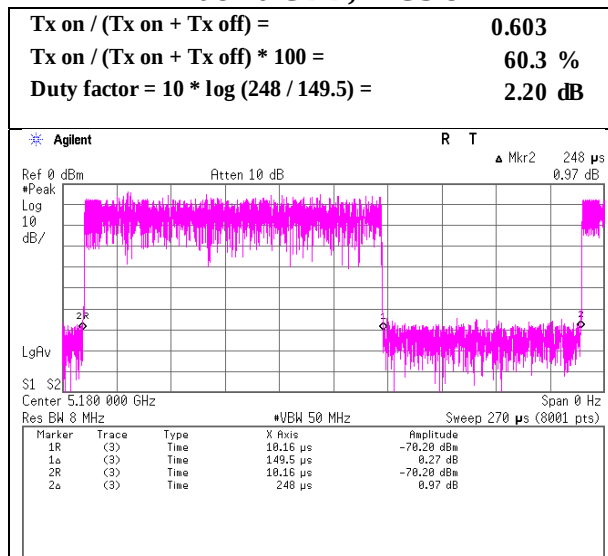
11n-20 MIMO, MCS 15



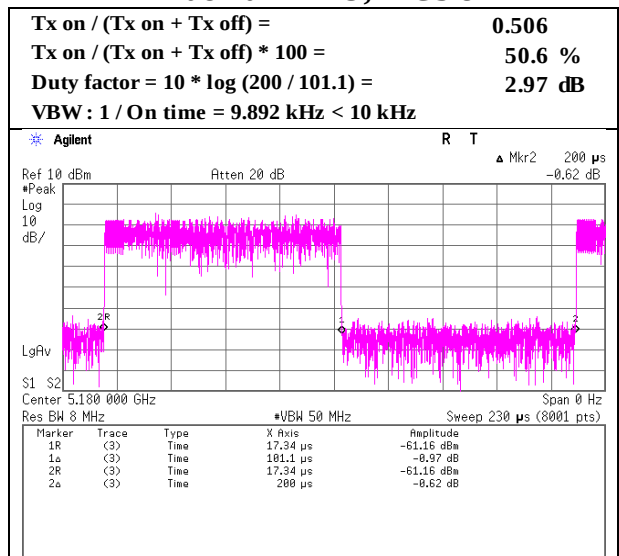
11ac-20 SISO, MCS 8



11ac-20 CDD, MCS 8



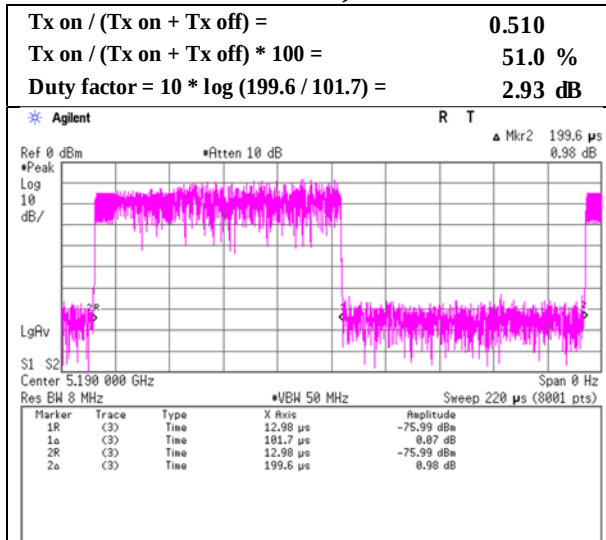
11ac-20 MIMO, MCS 8



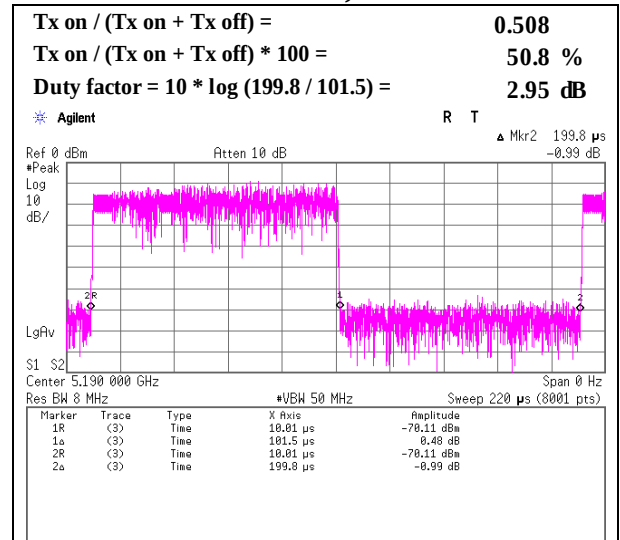
Burst rate confirmation

Report No. 13408107S-C
Test place Shonan EMC Lab. No.5 Shielded Room
Date August 6, 2020
Temperature / Humidity 23 deg. C / 61 % RH
Engineer Hiromasa Sato
Mode Tx

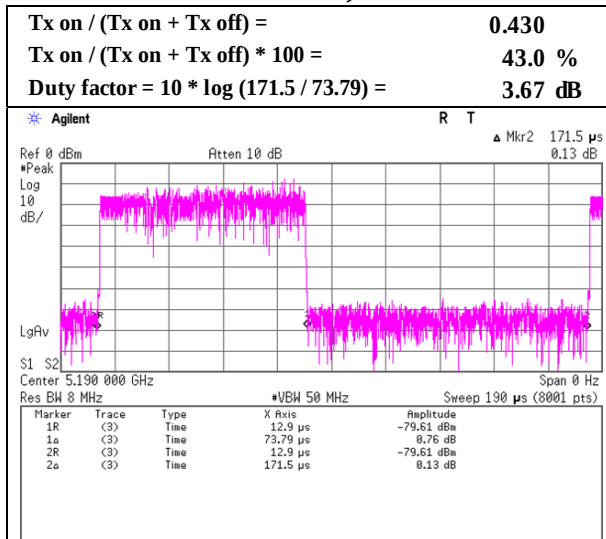
11n-40 SISO, MCS 7



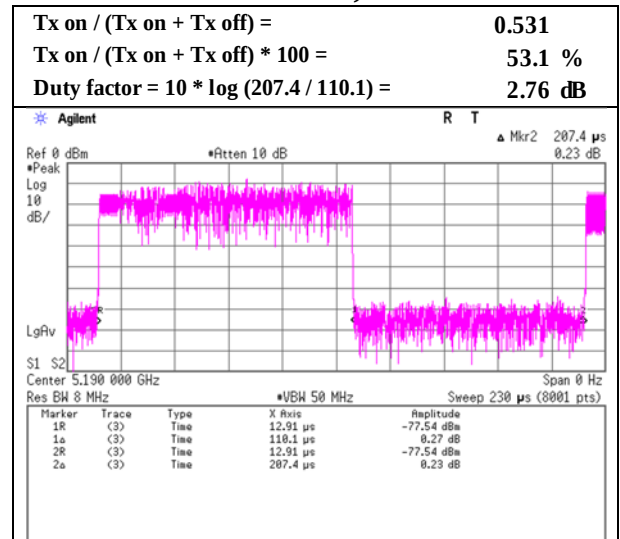
11n-40 CDD, MCS 7



11n-40 MIMO, MCS 15



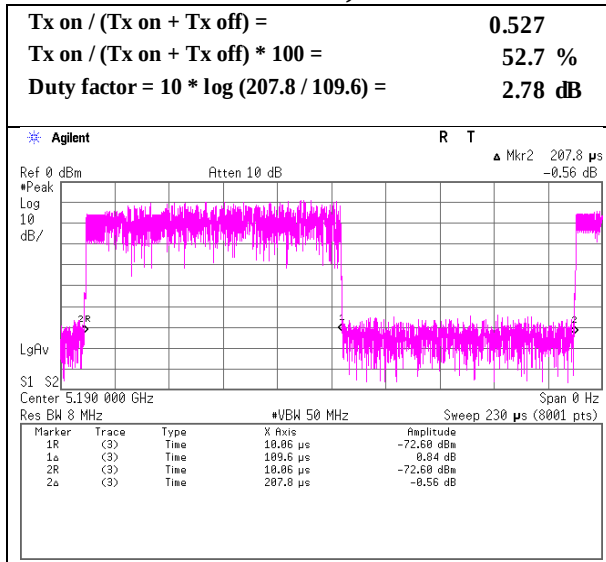
11ac-40 SISO, MCS 7



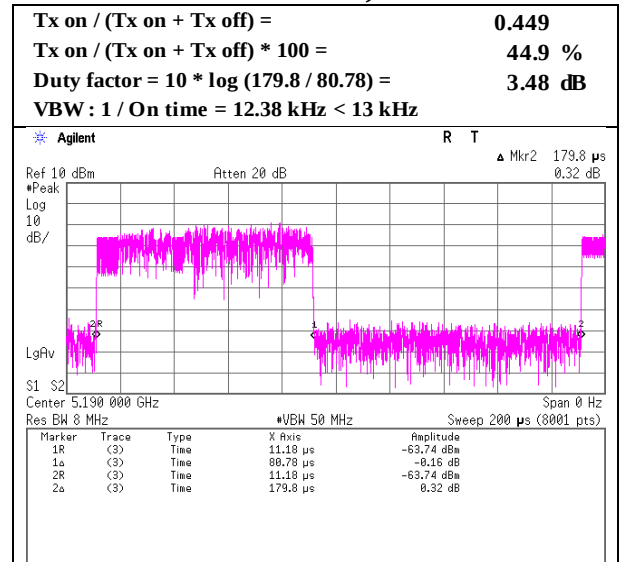
Burst rate confirmation

Report No. 13408107S-C
Test place Shonan EMC Lab. No.5 Shielded Room
Date July 27, 2020 August 7, 2020
Temperature / Humidity 27 deg. C / 57 % RH 25 deg. C / 53 % RH
Engineer Shiro Kobayashi Hiromasa Sato
Mode Tx

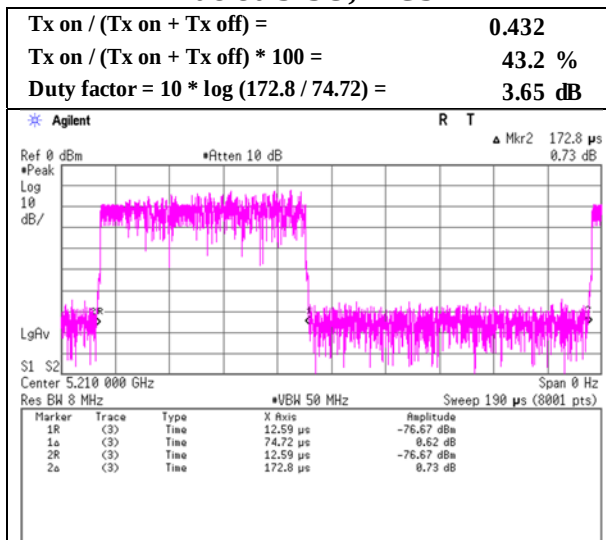
11ac-40 CDD, MCS 7



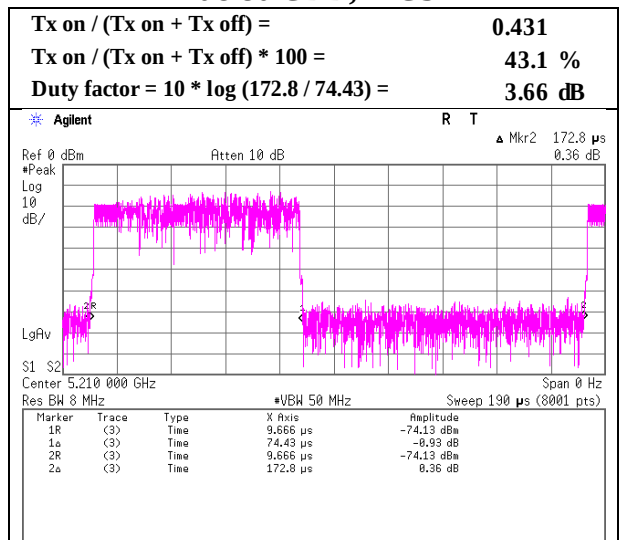
11ac-40 MIMO, MCS 7



11ac-80 SISO, MCS 7



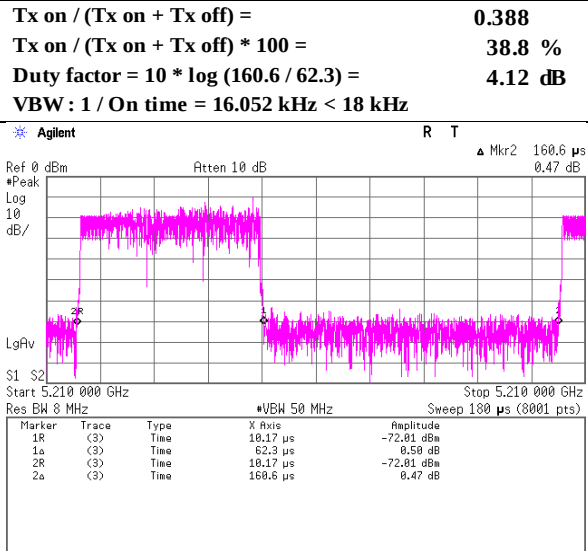
11ac-80 CDD, MCS 7



Burst rate confirmation

Report No. 13408107S-C
Test place Shonan EMC Lab. No.5 Shielded Room
Date July 27, 2020
Temperature / Humidity 27 deg. C / 57 % RH
Engineer Shiro Kobayashi
Mode Tx

11ac-40 MIMO, MCS 7



Maximum Power Spectral Density

Report No.	13408107S-C	
Test place	Shonan EMC Lab. No.5 Shielded Room	
Date	August 4, 2020	August 6, 2020
Temperature / Humidity	23 deg. C / 43 % RH	23 deg. C / 61 % RH
Engineer	Hiromasa Sato	Shiro Kobayashi
Mode	Tx 11a SISO	

11a SISO, RF0

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD Reading [dBm /MHz]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Antenna Gain *1) [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	-22.62	3.50	9.87	1.89	2.17	0.00	-7.36	11.00	18.36	-5.19	17.00	22.19
5220	-22.07	3.51	9.87	1.89	2.17	0.00	-6.80	11.00	17.80	-4.63	17.00	21.63
5240	-21.48	3.51	9.88	1.89	2.17	0.00	-6.20	11.00	17.20	-4.03	17.00	21.03
5745	-30.69	3.61	9.89	1.89	2.37	6.99	-8.31	30.00	38.31	-5.94	36.00	41.94
5785	-30.76	3.62	9.89	1.89	2.37	6.99	-8.37	30.00	38.37	-6.00	36.00	42.00
5825	-30.81	3.62	9.89	1.89	2.37	6.99	-8.42	30.00	38.42	-6.05	36.00	42.05

*1) Antenna Gain applied the higher of the two models.

Sample Calculation:

PSD: Power Spectral Density

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

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

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

11a SISO, RF1

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD Reading [dBm /MHz]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Antenna Gain *1) [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	-22.05	3.51	9.93	1.89	2.59	0.00	-6.72	11.00	17.72	-4.13	17.00	21.13
5220	-22.48	3.52	9.93	1.89	2.59	0.00	-7.15	11.00	18.15	-4.56	17.00	21.56
5240	-22.38	3.52	9.93	1.89	2.59	0.00	-7.04	11.00	18.04	-4.45	17.00	21.45
5745	-29.47	3.61	9.93	1.89	2.64	6.99	-7.05	30.00	37.05	-4.41	36.00	40.41
5785	-30.28	3.62	9.93	1.89	2.64	6.99	-7.85	30.00	37.85	-5.21	36.00	41.21
5825	-32.13	3.62	9.93	1.89	2.64	6.99	-9.70	30.00	39.70	-7.06	36.00	43.06

*1) Antenna Gain applied the higher of the two models.

Sample Calculation:

PSD: Power Spectral Density

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

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

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

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Shonan EMC Lab.

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Facsimile : +81 463 50 6401

Maximum Power Spectral Density

Report No. 13408107S-C
Test place Shonan EMC Lab. No.5 Shielded Room
Date August 4, 2020 August 6, 2020 August 17, 2020
Temperature / Humidity 23 deg. C / 43 % RH 23 deg. C / 61 % RH 24 deg. C / 54 % RH
Engineer Hiromasa Sato Shiro Kobayashi Shiro Kobayashi
Mode Tx 11a CDD

RF0 + RF1 Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD (Conducted)						PSD (e.i.r.p.)					
	RF0 [mW/MHz]	Antenna RF1 [mW/MHz]	Sum [mW/MHz]	Result [dBm/MHz]	Limit [dBm/MHz]	Margin [dB]	RF0 [mW/MHz]	Antenna RF1 [mW/MHz]	Sum [mW/MHz]	Result [dBm/MHz]	Limit [dBm/MHz]	Margin [dB]
5180	0.17	0.21	0.38	-4.15	11.00	15.15	0.63	0.77	1.40	1.46	17.00	15.54
5220	0.16	0.20	0.36	-4.39	11.00	15.39	0.60	0.73	1.32	1.22	17.00	15.78
5240	0.17	0.23	0.40	-4.02	11.00	15.02	0.61	0.83	1.44	1.59	17.00	15.41
5745	0.15	0.23	0.38	-4.25	30.00	34.25	0.55	0.83	1.38	1.41	36.00	34.59
5785	0.12	0.14	0.27	-5.72	30.00	35.72	0.46	0.53	0.99	-0.06	36.00	36.06
5825	0.12	0.09	0.21	-6.81	30.00	36.81	0.42	0.34	0.77	-1.15	36.00	37.15

			RF0						RF1					
Tested Frequency	Duty Factor	RBW Correction Factor	PSD Reading	Cable Loss	Atten. Loss	Directional Gain	PSD Result		PSD Reading	Cable Loss	Atten. Loss	Directional Gain	PSD Result	
							Cond.	e.i.r.p.					Cond.	e.i.r.p.
[MHz]	[dB]	[dB]	[dBm/MHz]	[dB]	[dB]	[dBi]	[dBm/MHz]	[dBm/MHz]	[dBm/MHz]	[dB]	[dB]	[dBi]	[dBm/MHz]	[dBm/MHz]
5180	1.91	0.00	-22.88	3.50	9.87	5.61	-7.60	-1.99	-22.12	3.51	9.93	5.61	-6.77	-1.16
5220	1.91	0.00	-23.13	3.51	9.87	5.61	-7.84	-2.23	-22.36	3.52	9.93	5.61	-7.00	-1.39
5240	1.91	0.00	-23.03	3.51	9.88	5.61	-7.73	-2.12	-21.79	3.52	9.93	5.61	-6.43	-0.82
5745	1.91	6.99	-30.63	3.60	9.89	5.66	-8.24	-2.58	-28.91	3.61	9.93	5.66	-6.47	-0.81
5785	1.91	6.99	-31.45	3.61	9.89	5.66	-9.05	-3.39	-30.89	3.62	9.93	5.66	-8.44	-2.78
5825	1.91	6.99	-31.80	3.62	9.89	5.66	-9.39	-3.73	-32.75	3.62	9.93	5.66	-10.30	-4.64

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 + Directional Gain

Directional Gain = $G_{\text{ANT}}(\text{Antenna Gain}^{*1}) + \text{Array Gain}$

*1) Antenna Gain applied the highest gain of the two models.

Array Gain = $10 \log(N_{\text{ANT}}/N_{\text{SS}})$ dB.

N_{ANT} = number of transmit antennas = 2

N_{SS} = number of spatial streams = 1

Maximum Power Spectral Density

Report No.	13408107S-C		
Test place	Shonan EMC Lab. No.5 Shielded Room		
Date	August 4, 2020	August 6, 2020	August 17, 2020
Temperature / Humidity	23 deg. C / 43 % RH	23 deg. C / 61 % RH	24 deg. C / 54 % RH
Engineer	Hiromasa Sato	Shiro Kobayashi	Shiro Kobayashi
Mode	Tx 11n-20 SISO		

11n-20 SISO, RF0

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD Reading [dBm /MHz]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Antenna Gain *1) [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	-23.10	3.50	9.87	2.02	2.17	0.00	-7.72	11.00	18.72	-5.55	17.00	22.55
5220	-22.19	3.51	9.87	2.02	2.17	0.00	-6.79	11.00	17.79	-4.62	17.00	21.62
5240	-22.03	3.51	9.88	2.02	2.17	0.00	-6.62	11.00	17.62	-4.45	17.00	21.45
5745	-30.94	3.60	9.89	2.02	2.37	6.99	-8.44	30.00	38.44	-6.07	36.00	42.07
5785	-31.51	3.61	9.89	2.02	2.37	6.99	-9.00	30.00	39.00	-6.63	36.00	42.63
5825	-32.06	3.62	9.89	2.02	2.37	6.99	-9.54	30.00	39.54	-7.17	36.00	43.17

*1) Antenna Gain applied the higher of the two models.

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

11n-20 SISO, RF1

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD Reading [dBm /MHz]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Antenna Gain *1) [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	-22.50	3.51	9.93	2.02	2.59	0.00	-7.05	11.00	18.05	-4.46	17.00	21.46
5220	-23.04	3.52	9.93	2.02	2.59	0.00	-7.57	11.00	18.57	-4.98	17.00	21.98
5240	-22.31	3.52	9.93	2.02	2.59	0.00	-6.84	11.00	17.84	-4.25	17.00	21.25
5745	-28.87	3.61	9.93	2.02	2.64	6.99	-6.32	30.00	36.32	-3.68	36.00	39.68
5785	-30.76	3.62	9.93	2.02	2.64	6.99	-8.20	30.00	38.20	-5.56	36.00	41.56
5825	-31.66	3.62	9.93	2.02	2.64	6.99	-9.10	30.00	39.10	-6.46	36.00	42.46

*1) Antenna Gain applied the higher of the two models.

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

UL Japan, Inc.

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Maximum Power Spectral Density

Report No.	13408107S-C	
Test place	Shonan EMC Lab. No.5 Shielded Room	
Date	August 4, 2020	August 17, 2020
Temperature / Humidity	23 deg. C / 43 % RH	23 deg. C / 61 % RH
Engineer	Hiromasa Sato	Shiro Kobayashi
Mode	Tx 11n-20 CDD	Shiro Kobayashi

RF0 + RF1

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD (Conducted)						PSD (e.i.r.p.)					
	Antenna			Result	Limit	Margin	Antenna			Result	Limit	Margin
	RF0	RF1	Sum				RF0	RF1	Sum			
	[mW/MHz]	[mW/MHz]	[mW/MHz]	[dBm/MHz]	[dBm/MHz]	[dB]	[mW/MHz]	[mW/MHz]	[mW/MHz]	[dBm/MHz]	[dBm/MHz]	[dB]
5180	0.15	0.21	0.36	-4.41	11.00	15.41	0.54	0.78	1.32	1.20	17.00	15.80
5220	0.23	0.17	0.39	-4.04	11.00	15.04	0.83	0.61	1.44	1.57	17.00	15.43
5240	0.22	0.18	0.40	-3.93	11.00	14.93	0.81	0.66	1.47	1.68	17.00	15.32
5745	0.16	0.22	0.37	-4.30	30.00	34.30	0.57	0.80	1.37	1.36	36.00	34.64
5785	0.12	0.16	0.28	-5.49	30.00	35.49	0.44	0.60	1.04	0.17	36.00	35.83
5825	0.11	0.12	0.23	-6.31	30.00	36.31	0.42	0.45	0.86	-0.65	36.00	36.65

RF0								RF1							
Tested Frequency	Duty Factor	RBW Correction Factor	PSD Reading	Cable Loss	Atten. Loss	Directional Gain	PSD Result	PSD Reading	Cable Loss	Atten. Loss	Directional Gain	PSD Result	PSD Reading	Cable Loss	Atten. Loss
[MHz]	[dB]	[dB]	[dBm/MHz]	[dB]	[dB]	[dBi]	Cond. e.i.r.p.	[dBm/MHz]	[dB]	[dB]	[dBi]	Cond. e.i.r.p.	[dBm/MHz]	[dB]	[dB]
5180	2.03	0.00	-23.68	3.50	9.87	5.61	-8.28 -2.67	-22.16	3.51	9.93	5.61	-6.69 -1.08	-22.16	3.51	9.93
5220	2.03	0.00	-21.84	3.51	9.87	5.61	-6.43 -0.82	-23.26	3.52	9.93	5.61	-7.78 -2.17	-23.26	3.52	9.93
5240	2.03	0.00	-21.93	3.51	9.88	5.61	-6.51 -0.90	-22.90	3.52	9.93	5.61	-7.42 -1.81	-22.90	3.52	9.93
5745	2.03	6.99	-30.60	3.60	9.89	5.66	-8.09 -2.43	-29.21	3.61	9.93	5.66	-6.65 -0.99	-29.21	3.61	9.93
5785	2.03	6.99	-31.75	3.61	9.89	5.66	-9.23 -3.57	-30.45	3.62	9.93	5.66	-7.88 -2.22	-30.45	3.62	9.93
5825	2.03	6.99	-32.01	3.62	9.89	5.66	-9.48 -3.82	-31.74	3.62	9.93	5.66	-9.17 -3.51	-31.74	3.62	9.93

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 + Directional Gain

Directional Gain = $G_{\text{ANT}}(\text{Antenna Gain}^{*1}) + \text{Array Gain}$

*1) Antenna Gain applied the highest gain of the two models.

Array Gain = $10 \log(N_{\text{ANT}}/N_{\text{SS}})$ dB.

N_{ANT} = number of transmit antennas = 2

N_{SS} = number of spatial streams = 1

Maximum Power Spectral Density

Report No.	13408107S-C	
Test place	Shonan EMC Lab. No.5 Shielded Room	
Date	August 4, 2020	August 17, 2020
Temperature / Humidity	23 deg. C / 43 % RH	23 deg. C / 61 % RH
Engineer	Hiromasa Sato	Shiro Kobayashi
Mode	Tx 11n-20 MIMO	Shiro Kobayashi

RF0 + RF1 Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD (Conducted)						PSD (e.i.r.p.)					
	Antenna			Result	Limit	Margin	Antenna			Result	Limit	Margin
	RF0	RF1	Sum				RF0	RF1	Sum			
	[mW/MHz]	[mW/MHz]	[mW/MHz]	[dBm/MHz]	[dBm/MHz]	[dB]	[mW/MHz]	[mW/MHz]	[mW/MHz]	[dBm/MHz]	[dBm/MHz]	[dB]
5180	0.18	0.21	0.39	-4.09	11.00	15.09	0.30	0.37	0.68	-1.69	17.00	18.69
5220	0.21	0.19	0.40	-4.01	11.00	15.01	0.34	0.34	0.69	-1.64	17.00	18.64
5240	0.23	0.23	0.46	-3.37	11.00	14.37	0.38	0.42	0.80	-0.98	17.00	17.98
5745	0.23	0.28	0.50	-2.99	30.00	32.99	0.39	0.51	0.90	-0.47	36.00	36.47
5785	0.16	0.18	0.34	-4.73	30.00	34.73	0.27	0.33	0.60	-2.22	36.00	38.22
5825	0.14	0.14	0.28	-5.58	30.00	35.58	0.24	0.25	0.49	-3.07	36.00	39.07

RF0								RF1							
Tested Frequency	Duty Factor	RBW Correction Factor	PSD Reading	Cable Loss	Atten. Loss	Antenna Gain *1)	PSD Result	PSD	Cable	Atten.	Antenna	PSD Result	PSD	Cable	Atten.
[MHz]	[dB]	[dB]	[dBm/MHz]	[dB]	[dB]	[dBi]	Cond.	e.i.r.p.	Loss	Loss	Gain *1)	Cond.	e.i.r.p.	Loss	Gain *1)
							[dBm/MHz]	[dBm/MHz]	[dB]	[dB]	[dBi]	[dBm/MHz]	[dBm/MHz]	[dB]	[dBi]
5180	2.87	0.00	-23.60	3.50	9.87	2.17	-7.36	-5.19	-23.16	3.51	9.93	2.59	-6.85	-4.26	
5220	2.87	0.00	-23.04	3.51	9.87	2.17	-6.79	-4.62	-23.59	3.52	9.93	2.59	-7.27	-4.68	
5240	2.87	0.00	-22.63	3.51	9.88	2.17	-6.37	-4.20	-22.70	3.52	9.93	2.59	-6.38	-3.79	
5745	2.87	6.99	-29.81	3.60	9.89	2.37	-6.46	-4.09	-28.99	3.61	9.93	2.64	-5.59	-2.95	
5785	2.87	6.99	-31.43	3.61	9.89	2.37	-8.07	-5.70	-30.85	3.62	9.93	2.64	-7.44	-4.80	
5825	2.87	6.99	-31.94	3.62	9.89	2.37	-8.57	-6.20	-32.01	3.62	9.93	2.64	-8.60	-5.96	

*1) Antenna Gain applied the highest gain of the two models.

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

Maximum Power Spectral Density

Report No.	13408107S-C	
Test place	Shonan EMC Lab. No.5 Shielded Room	
Date	August 4, 2020	August 6, 2020
Temperature / Humidity	23 deg. C / 43 % RH	23 deg. C / 61 % RH
Engineer	Hiromasa Sato	Shiro Kobayashi
Mode	Tx 11ac-20 SISO	Shiro Kobayashi

11ac-20 SISO, RF0

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD Reading [dBm /MHz]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Antenna Gain *1) [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	-22.78	3.50	9.87	2.19	2.17	0.00	-7.22	11.00	18.22	-5.05	17.00	22.05
5220	-22.22	3.51	9.87	2.19	2.17	0.00	-6.66	11.00	17.66	-4.49	17.00	21.49
5240	-22.26	3.51	9.88	2.19	2.17	0.00	-6.68	11.00	17.68	-4.51	17.00	21.51
5745	-31.08	3.60	9.89	2.19	2.37	6.99	-8.41	30.00	38.41	-6.04	36.00	42.04
5785	-31.54	3.61	9.89	2.19	2.37	6.99	-8.86	30.00	38.86	-6.49	36.00	42.49
5825	-32.48	3.61	9.89	2.19	2.37	6.99	-9.80	30.00	39.80	-7.43	36.00	43.43

*1) Antenna Gain applied the higher of the two models.

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

11ac-20 SISO, RF1

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD Reading [dBm /MHz]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Antenna Gain *1) [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	-22.79	3.51	9.93	2.19	2.59	0.00	-7.16	11.00	18.16	-4.57	17.00	21.57
5220	-22.69	3.52	9.93	2.19	2.59	0.00	-7.06	11.00	18.06	-4.47	17.00	21.47
5240	-22.80	3.52	9.93	2.19	2.59	0.00	-7.16	11.00	18.16	-4.57	17.00	21.57
5745	-28.74	3.61	9.93	2.19	2.64	6.99	-6.02	30.00	36.02	-3.38	36.00	39.38
5785	-30.70	3.62	9.93	2.19	2.64	6.99	-7.97	30.00	37.97	-5.33	36.00	41.33
5825	-31.91	3.62	9.93	2.19	2.64	6.99	-9.18	30.00	39.18	-6.54	36.00	42.54

*1) Antenna Gain applied the higher of the two models.

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

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Maximum Power Spectral Density

Report No. 13408107S-C
Test place Shonan EMC Lab. No.5 Shielded Room
Date August 4, 2020 August 6, 2020 August 17, 2020
Temperature / Humidity 23 deg. C / 43 % RH 23 deg. C / 61 % RH 24 deg. C / 54 % RH
Engineer Hiromasa Sato Shiro Kobayashi Shiro Kobayashi
Mode Tx 11ac-20 CDD

RF0 + RF1

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD (Conducted)						PSD (e.i.r.p.)					
	Antenna			Result	Limit	Margin	Antenna			Result	Limit	Margin
	RF0	RF1	Sum				RF0	RF1	Sum			
	[mW/MHz]	[mW/MHz]	[mW/MHz]	[dBm/MHz]	[dBm/MHz]	[dB]	[mW/MHz]	[mW/MHz]	[mW/MHz]	[dBm/MHz]	[dBm/MHz]	[dB]
5180	0.16	0.20	0.36	-4.43	11.00	15.43	0.59	0.72	1.31	1.18	17.00	15.82
5220	0.21	0.18	0.39	-4.14	11.00	15.14	0.77	0.64	1.40	1.47	17.00	15.53
5240	0.23	0.17	0.40	-4.00	11.00	15.00	0.82	0.62	1.45	1.61	17.00	15.39
5745	0.14	0.21	0.35	-4.59	30.00	34.59	0.51	0.77	1.28	1.07	36.00	34.93
5785	0.13	0.19	0.33	-4.86	30.00	34.86	0.49	0.71	1.20	0.80	36.00	35.20
5825	0.14	0.10	0.24	-6.26	30.00	36.26	0.50	0.37	0.87	-0.60	36.00	36.60

RF0							RF1							
Tested Frequency	Duty Factor	RBW Correction Factor	PSD Reading	Cable Loss	Atten. Loss	Directional Gain	PSD Result Cond.	PSD Result e.i.r.p.	PSD Reading	Cable Loss	Atten. Loss	Directional Gain	PSD Result Cond.	PSD Result e.i.r.p.
[MHz]	[dB]	[dB]	[dBm/MHz]	[dB]	[dB]	[dBi]	[dBm/MHz]	[dBm/MHz]	[dBm/MHz]	[dB]	[dB]	[dBi]	[dBm/MHz]	[dBm/MHz]
5180	2.20	0.00	-23.45	3.50	9.87	5.61	-7.88	-2.27	-22.68	3.51	9.93	5.61	-7.04	-1.43
5220	2.20	0.00	-22.34	3.51	9.87	5.61	-6.76	-1.15	-23.22	3.52	9.93	5.61	-7.57	-1.96
5240	2.20	0.00	-22.04	3.51	9.88	5.61	-6.45	-0.84	-23.31	3.52	9.93	5.61	-7.66	-2.05
5745	2.20	6.99	-31.23	3.60	9.89	5.66	-8.55	-2.89	-29.55	3.61	9.93	5.66	-6.82	-1.16
5785	2.20	6.99	-31.42	3.61	9.89	5.66	-8.73	-3.07	-29.89	3.62	9.93	5.66	-7.15	-1.49
5825	2.20	6.99	-31.39	3.62	9.89	5.66	-8.69	-3.03	-32.68	3.62	9.93	5.66	-9.94	-4.28

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 + Directional Gain

Directional Gain = $G_{\text{ANT}}(\text{Antenna Gain}^{*1}) + \text{Array Gain}$

*1) Antenna Gain applied the highest gain of the two models.

Array Gain = $10 \log(N_{\text{ANT}}/N_{\text{SS}})$ dB.

N_{ANT} = number of transmit antennas = 2

N_{SS} = number of spatial streams = 1

Maximum Power Spectral Density

Report No.	13408107S-C	
Test place	Shonan EMC Lab. No.5 Shielded Room	
Date	August 4, 2020	August 17, 2020
Temperature / Humidity	23 deg. C / 43 % RH	23 deg. C / 61 % RH
Engineer	Hiromasa Sato	Shiro Kobayashi
Mode	Tx 11ac-20 MIMO	Shiro Kobayashi

RF0 + RF1 Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD (Conducted)						PSD (e.i.r.p.)					
	Antenna			Result	Limit	Margin	Antenna			Result	Limit	Margin
	RF0	RF1	Sum				RF0	RF1	Sum			
	[mW/MHz]	[mW/MHz]	[mW/MHz]	[dBm/MHz]	[dBm/MHz]	[dB]	[mW/MHz]	[mW/MHz]	[mW/MHz]	[dBm/MHz]	[dBm/MHz]	[dB]
5180	0.16	0.20	0.37	-4.36	11.00	15.36	0.27	0.37	0.64	-1.95	17.00	18.95
5220	0.23	0.18	0.41	-3.89	11.00	14.89	0.38	0.33	0.70	-1.53	17.00	18.53
5240	0.23	0.18	0.41	-3.83	11.00	14.83	0.38	0.33	0.71	-1.47	17.00	18.47
5745	0.18	0.28	0.45	-3.44	30.00	33.44	0.31	0.51	0.81	-0.90	36.00	36.90
5785	0.15	0.16	0.31	-5.13	30.00	35.13	0.26	0.29	0.55	-2.62	36.00	38.62
5825	0.14	0.14	0.28	-5.60	30.00	35.60	0.24	0.25	0.49	-3.09	36.00	39.09

			RF0						RF1					
Tested Frequency	Duty Factor	RBW Correction Factor	PSD Reading	Cable Loss	Atten. Loss	Antenna Gain	PSD Result		PSD Reading	Cable Loss	Atten. Loss	Antenna Gain	PSD Result	
[MHz]	[dB]	[dB]	[dBm/MHz]	[dB]	[dB]	[dBi]	[dBm/MHz]	e.i.r.p.	[dBm/MHz]	[dB]	[dB]	[dBi]	[dBm/MHz]	e.i.r.p.
5180	2.97	0.00	-24.22	3.50	9.87	2.17	-7.88	-5.71	-23.33	3.51	9.93	2.59	-6.92	-4.33
5220	2.97	0.00	-22.76	3.51	9.87	2.17	-6.41	-4.24	-23.87	3.52	9.93	2.59	-7.45	-4.86
5240	2.97	0.00	-22.75	3.51	9.88	2.17	-6.39	-4.22	-23.77	3.52	9.93	2.59	-7.35	-4.76
5745	2.97	6.99	-30.98	3.60	9.89	2.37	-7.53	-5.16	-29.08	3.61	9.93	2.64	-5.58	-2.94
5785	2.97	6.99	-31.71	3.61	9.89	2.37	-8.25	-5.88	-31.56	3.62	9.93	2.64	-8.05	-5.41
5825	2.97	6.99	-32.08	3.62	9.89	2.37	-8.61	-6.24	-32.11	3.62	9.93	2.64	-8.60	-5.96

*1) Antenna Gain applied the highest gain of the two models.

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

Maximum Power Spectral Density

Report No.	13408107S-C		
Test place	Shonan EMC Lab. No.5 Shielded Room		
Date	August 4, 2020	August 6, 2020	August 17, 2020
Temperature / Humidity	23 deg. C / 43 % RH	23 deg. C / 61 % RH	24 deg. C / 54 % RH
Engineer	Hiromasa Sato	Shiro Kobayashi	Shiro Kobayashi
Mode	Tx 11n-40 SISO		

11n-40 SISO, RF0

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD Reading [dBm /MHz]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Antenna Gain *1) [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	-26.40	3.50	9.87	2.93	2.17	0.00	-10.10	11.00	21.10	-7.93	17.00	24.93
5230	-25.92	3.51	9.87	2.93	2.17	0.00	-9.62	11.00	20.62	-7.45	17.00	24.45
5755	-33.90	3.61	9.89	2.93	2.37	6.99	-10.48	30.00	40.48	-8.11	36.00	44.11
5795	-34.21	3.61	9.89	2.93	2.37	6.99	-10.79	30.00	40.79	-8.42	36.00	44.42

*1) Antenna Gain applied the higher of the two models.

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

11n-40 SISO, RF1

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD Reading [dBm /MHz]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Antenna Gain *1) [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	-25.83	3.51	9.93	2.93	2.59	0.00	-9.46	11.00	20.46	-6.87	17.00	23.87
5230	-25.90	3.52	9.93	2.93	2.59	0.00	-9.52	11.00	20.52	-6.93	17.00	23.93
5755	-31.89	3.61	9.93	2.93	2.64	6.99	-8.43	30.00	38.43	-5.79	36.00	41.79
5795	-33.85	3.62	9.93	2.93	2.64	6.99	-10.38	30.00	40.38	-7.74	36.00	43.74

*1) Antenna Gain applied the higher of the two models.

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

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Maximum Power Spectral Density

Report No.	13408107S-C	
Test place	Shonan EMC Lab. No.5 Shielded Room	
Date	August 4, 2020	August 6, 2020
Temperature / Humidity	23 deg. C / 43 % RH	23 deg. C / 61 % RH
Engineer	Hiromasa Sato	Shiro Kobayashi
Mode	Tx 11n-40 CDD	

RF0 + RF1 Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD (Conducted)						PSD (e.i.r.p.)					
	Antenna			Result	Limit	Margin	Antenna			Result	Limit	Margin
	RF0	RF1	Sum				RF0	RF1	Sum			
	[mW/MHz]	[mW/MHz]	[mW/MHz]	[dBm/MHz]	[dBm/MHz]	[dB]	[mW/MHz]	[mW/MHz]	[mW/MHz]	[dBm/MHz]	[dBm/MHz]	[dB]
5190	0.09	0.10	0.19	-7.14	11.00	18.14	0.32	0.38	0.70	-1.53	17.00	18.53
5230	0.10	0.09	0.19	-7.22	11.00	18.22	0.36	0.33	0.69	-1.61	17.00	18.61
5755	0.09	0.15	0.24	-6.29	30.00	36.29	0.33	0.54	0.87	-0.63	36.00	36.63
5795	0.08	0.09	0.17	-7.76	30.00	37.76	0.29	0.33	0.62	-2.10	36.00	38.10

Tested Frequency [MHz]	Duty Factor [dB]	RBW Correction Factor [dB]	RF0				PSD Result		RF1				PSD Result	
			PSD Reading	Cable Loss	Atten. Loss	Directional Gain	Cond.	e.i.r.p.	PSD Reading	Cable Loss	Atten. Loss	Directional Gain	Cond.	e.i.r.p.
			[dBm/MHz]	[dB]	[dB]	[dBi]			[dBm/MHz]	[dB]	[dB]	[dBi]		
5190	2.95	0.00	-26.85	3.50	9.87	5.61	-10.53	-4.92	-26.20	3.51	9.93	5.61	-9.81	-4.20
5230	2.95	0.00	-26.33	3.51	9.87	5.61	-10.00	-4.39	-26.86	3.52	9.93	5.61	-10.46	-4.85
5755	2.95	6.99	-33.95	3.61	9.89	5.66	-10.51	-4.85	-31.83	3.61	9.93	5.66	-8.35	-2.69
5795	2.95	6.99	-34.48	3.61	9.89	5.66	-11.04	-5.38	-34.01	3.62	9.93	5.66	-10.52	-4.86

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 + Directional Gain

Directional Gain = $G_{\text{ANT}}(\text{Antenna Gain}^{*1}) + \text{Array Gain}$

*1) Antenna Gain applied the highest gain of the two models.

Array Gain = $10 \log(N_{\text{ANT}}/N_{\text{SS}})$ dB.

N_{ANT} = number of transmit antennas = 2

N_{SS} = number of spatial streams = 1

Maximum Power Spectral Density

Report No.	13408107S-C	
Test place	Shonan EMC Lab. No.5 Shielded Room	
Date	August 4, 2020	August 6, 2020
Temperature / Humidity	23 deg. C / 43 % RH	23 deg. C / 61 % RH
Engineer	Hiromasa Sato	Shiro Kobayashi
Mode	Tx 11n-40 MIMO	Shiro Kobayashi

RF0 + RF1

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD (Conducted)						PSD (e.i.r.p.)					
	Antenna			Result	Limit	Margin	Antenna			Result	Limit	Margin
	RF0	RF1	Sum				RF0	RF1	Sum			
	[mW/MHz]	[mW/MHz]	[mW/MHz]	[dBm/MHz]	[dBm/MHz]	[dB]	[mW/MHz]	[mW/MHz]	[mW/MHz]	[dBm/MHz]	[dBm/MHz]	[dB]
5190	0.09	0.11	0.20	-7.01	11.00	18.01	0.14	0.20	0.35	-4.60	17.00	21.60
5230	0.11	0.10	0.21	-6.78	11.00	17.78	0.18	0.18	0.36	-4.40	17.00	21.40
5755	0.09	0.14	0.23	-6.41	30.00	36.41	0.15	0.26	0.41	-3.87	36.00	39.87
5795	0.08	0.12	0.21	-6.86	30.00	36.86	0.14	0.23	0.37	-4.33	36.00	40.33

			RF0						RF1					
Tested Frequency	Duty Factor	RBW Correction Factor	PSD Reading	Cable Loss	Atten. Loss	Antenna Gain	PSD Result		PSD Reading	Cable Loss	Atten. Loss	Antenna Gain	PSD Result	
							Cond.	e.i.r.p.					Cond.	e.i.r.p.
[MHz]	[dB]	[dB]	[dBm/MHz]	[dB]	[dB]	[dBi]	[dBm/MHz]	[dBm/MHz]	[dBm/MHz]	[dB]	[dB]	[dBi]	[dBm/MHz]	[dBm/MHz]
5190	3.67	0.00	-27.61	3.50	9.87	2.17	-10.57	-8.40	-26.63	3.51	9.93	2.59	-9.52	-6.93
5230	3.67	0.00	-26.67	3.51	9.87	2.17	-9.62	-7.45	-27.08	3.52	9.93	2.59	-9.96	-7.37
5755	3.67	6.99	-34.79	3.61	9.89	2.37	-10.63	-8.26	-32.67	3.61	9.93	2.64	-8.47	-5.83
5795	3.67	6.99	-34.99	3.61	9.89	2.37	-10.83	-8.46	-33.30	3.62	9.93	2.64	-9.09	-6.45

*1) Antenna Gain applied the highest gain of the two models.

Sample Calculation:

PSD: Power Spectral Density

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

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

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

Maximum Power Spectral Density

Report No.	13408107S-C	
Test place	Shonan EMC Lab. No.5 Shielded Room	
Date	August 4, 2020	August 17, 2020
Temperature / Humidity	23 deg. C / 43 % RH	23 deg. C / 61 % RH
Engineer	Hiromasa Sato	Shiro Kobayashi
Mode	Tx 11ac-40 SISO	Shiro Kobayashi

11ac-40 SISO, RF0

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD Reading [dBm /MHz]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Antenna Gain *1) [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	-26.12	3.50	9.87	2.76	2.17	0.00	-9.99	11.00	20.99	-7.82	17.00	24.82
5230	-25.73	3.51	9.87	2.76	2.17	0.00	-9.60	11.00	20.60	-7.43	17.00	24.43
5755	-33.81	3.61	9.89	2.76	2.37	6.99	-10.56	30.00	40.56	-8.19	36.00	44.19
5795	-34.95	3.61	9.89	2.76	2.37	6.99	-11.70	30.00	41.70	-9.33	36.00	45.33

*1) Antenna Gain applied the higher of the two models.

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

11ac-40 SISO, RF1

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD Reading [dBm /MHz]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Antenna Gain *1) [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	-26.28	3.51	9.93	2.76	2.59	0.00	-10.08	11.00	21.08	-7.49	17.00	24.49
5230	-26.70	3.52	9.93	2.76	2.59	0.00	-10.49	11.00	21.49	-7.90	17.00	24.90
5755	-32.24	3.61	9.93	2.76	2.64	6.99	-8.95	30.00	38.95	-6.31	36.00	42.31
5795	-33.72	3.62	9.93	2.76	2.64	6.99	-10.42	30.00	40.42	-7.78	36.00	43.78

*1) Antenna Gain applied the higher of the two models.

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

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Maximum Power Spectral Density

Report No. 13408107S-C
Test place Shonan EMC Lab. No.5 Shielded Room
Date August 4, 2020 August 6, 2020 August 17, 2020
Temperature / Humidity 23 deg. C / 43 % RH 23 deg. C / 61 % RH 24 deg. C / 54 % RH
Engineer Hiromasa Sato Shiro Kobayashi Shiro Kobayashi
Mode Tx 11ac-40 CDD

RF0 + RF1 Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD (Conducted)						PSD (e.i.r.p.)					
	Antenna			Result	Limit	Margin	Antenna			Result	Limit	Margin
	RF0	RF1	Sum				RF0	RF1	Sum			
	[mW/MHz]	[mW/MHz]	[mW/MHz]	[dBm/MHz]	[dBm/MHz]	[dB]	[mW/MHz]	[mW/MHz]	[mW/MHz]	[dBm/MHz]	[dBm/MHz]	[dB]
5190	0.09	0.13	0.22	-6.61	11.00	17.61	0.34	0.46	0.79	-1.00	17.00	18.00
5230	0.10	0.10	0.20	-6.96	11.00	17.96	0.36	0.37	0.73	-1.35	17.00	18.35
5755	0.09	0.12	0.21	-6.87	30.00	36.87	0.32	0.44	0.76	-1.21	36.00	37.21
5795	0.08	0.08	0.16	-7.94	30.00	37.94	0.28	0.31	0.59	-2.28	36.00	38.28

Tested Frequency [MHz]	RF0							RF1						
	Duty Factor	RBW Correction Factor	PSD Reading	Cable Loss	Atten. Loss	Directional Gain	PSD Result		PSD Reading	Cable Loss	Atten. Loss	Directional Gain	PSD Result	
							Cond.	e.i.r.p.					Cond.	e.i.r.p.
	[dB]	[dB]	[dBm/MHz]	[dB]	[dB]	[dBi]	[dBm/MHz]	[dBm/MHz]	[dBm/MHz]	[dB]	[dB]	[dBi]	[dBm/MHz]	[dBm/MHz]
5190	2.78	0.00	-26.47	3.50	9.87	5.61	-10.32	-4.71	-25.24	3.51	9.93	5.61	-9.02	-3.41
5230	2.78	0.00	-26.18	3.51	9.87	5.61	-10.02	-4.41	-26.16	3.52	9.93	5.61	-9.93	-4.32
5755	2.78	6.99	-33.93	3.61	9.89	5.66	-10.66	-5.00	-32.53	3.61	9.93	5.66	-9.22	-3.56
5795	2.78	6.99	-34.42	3.61	9.89	5.66	-11.15	-5.49	-34.07	3.62	9.93	5.66	-10.75	-5.09

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 + Directional Gain

Directional Gain = $G_{\text{ANT}}(\text{Antenna Gain}^{*1}) + \text{Array Gain}$

*1) Antenna Gain applied the highest gain of the two models.

Array Gain = $10 \log(N_{\text{ANT}}/N_{\text{SS}})$ dB.

N_{ANT} = number of transmit antennas = 2

N_{SS} = number of spatial streams = 1

Maximum Power Spectral Density

Report No.	13408107S-C	
Test place	Shonan EMC Lab. No.5 Shielded Room	
Date	August 4, 2020	August 6, 2020
Temperature / Humidity	23 deg. C / 43 % RH	23 deg. C / 61 % RH
Engineer	Hiromasa Sato	Shiro Kobayashi
Mode	Tx 11ac-40 MIMO	Shiro Kobayashi

RF0 + RF1 Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD (Conducted)						PSD (e.i.r.p.)					
	Antenna			Result	Limit	Margin	Antenna			Result	Limit	Margin
	RF0	RF1	Sum				RF0	RF1	Sum			
	[mW/MHz]	[mW/MHz]	[mW/MHz]	[dBm/MHz]	[dBm/MHz]	[dB]	[mW/MHz]	[mW/MHz]	[mW/MHz]	[dBm/MHz]	[dBm/MHz]	[dB]
5190	0.10	0.11	0.21	-6.87	11.00	17.87	0.16	0.20	0.36	-4.47	17.00	21.47
5230	0.09	0.09	0.18	-7.38	11.00	18.38	0.15	0.16	0.32	-4.99	17.00	21.99
5755	0.08	0.18	0.26	-5.79	30.00	35.79	0.14	0.33	0.48	-3.23	36.00	39.23
5795	0.07	0.12	0.19	-7.13	30.00	37.13	0.13	0.22	0.35	-4.59	36.00	40.59

Tested Frequency [MHz]	Duty Factor [dB]	RBW Correction Factor [dB]	RF0					RF1					PSD Result	
			PSD Reading	Cable Loss	Atten. Loss	Antenna Gain	PSD Result		PSD Reading	Cable Loss	Atten. Loss	Antenna Gain	PSD Result	
			[dBm/MHz]	[dB]	[dB]	[dBi]	[dBm/MHz]	[dBm/MHz]	[dBm/MHz]	[dB]	[dB]	[dBi]	[dBm/MHz]	[dBm/MHz]
5190	3.48	0.00	-27.07	3.50	9.87	2.17	-10.22	-8.05	-26.48	3.51	9.93	2.59	-9.56	-6.97
5230	3.48	0.00	-27.21	3.51	9.87	2.17	-10.35	-8.18	-27.36	3.52	9.93	2.59	-10.43	-7.84
5755	3.48	6.99	-34.83	3.61	9.89	2.37	-10.86	-8.49	-31.41	3.61	9.93	2.64	-7.40	-4.76
5795	3.48	6.99	-35.23	3.61	9.89	2.37	-11.26	-8.89	-33.27	3.62	9.93	2.64	-9.25	-6.61

*1) Antenna Gain applied the highest gain of the two models.

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

Maximum Power Spectral Density

Report No.	13408107S-C		
Test place	Shonan EMC Lab. No.5 Shielded Room		
Date	August 4, 2020	August 6, 2020	August 17, 2020
Temperature / Humidity	23 deg. C / 43 % RH	23 deg. C / 61 % RH	24 deg. C / 54 % RH
Engineer	Hiromasa Sato	Shiro Kobayashi	Shiro Kobayashi
Mode	Tx 11ac-80 SISO		

11ac-80 SISO, RF0

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD Reading [dBm /MHz]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Antenna Gain *1) [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	-29.85	3.51	9.87	3.65	2.17	0.00	-12.82	11.00	23.82	-10.65	17.00	27.65
5775	-38.20	3.61	9.89	3.65	2.37	6.99	-14.06	30.00	44.06	-11.69	36.00	47.69

*1) Antenna Gain applied the higher of the two models.

Sample Calculation:

PSD: Power Spectral Density

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

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

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

11ac-80 SISO, RF1

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD Reading [dBm /MHz]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Antenna Gain *1) [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	-30.21	3.52	9.93	3.65	2.59	0.00	-13.11	11.00	24.11	-10.52	17.00	27.52
5775	-36.76	3.62	9.93	3.65	2.64	6.99	-12.57	30.00	42.57	-9.93	36.00	45.93

*1) Antenna Gain applied the higher of the two models.

Sample Calculation:

PSD: Power Spectral Density

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

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

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

Maximum Power Spectral Density

Report No.	13408107S-C		
Test place	Shonan EMC Lab. No.5 Shielded Room		
Date	August 4, 2020	August 6, 2020	August 17, 2020
Temperature / Humidity	23 deg. C / 43 % RH	23 deg. C / 61 % RH	24 deg. C / 54 % RH
Engineer	Hiromasa Sato	Shiro Kobayashi	Shiro Kobayashi
Mode	Tx 11ac-80 CDD		

RF0 + RF1 Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD (Conducted)						PSD (e.i.r.p.)					
	Antenna			Result	Limit	Margin	Antenna			Result	Limit	Margin
	RF0	RF1	Sum				RF0	RF1	Sum			
	[mW/MHz]	[mW/MHz]	[mW/MHz]	[dBm/MHz]	[dBm/MHz]	[dB]	[mW/MHz]	[mW/MHz]	[mW/MHz]	[dBm/MHz]	[dBm/MHz]	[dB]
5210	0.05	0.05	0.10	-10.21	11.00	21.21	0.18	0.17	0.35	-4.60	17.00	21.60
5775	0.04	0.05	0.09	-10.27	30.00	40.27	0.14	0.20	0.35	-4.62	36.00	40.62

			RF0						RF1					
Tested Frequency	Duty Factor	RBW Correction Factor	PSD Reading	Cable Loss	Atten. Loss	Directional Gain	PSD Result		PSD Reading	Cable Loss	Atten. Loss	Directional Gain	PSD Result	
							Cond.	e.i.r.p.					Cond.	e.i.r.p.
[MHz]	[dB]	[dB]	[dBm/MHz]	[dB]	[dB]	[dBi]	[dBm/MHz]	[dBm/MHz]	[dBm/MHz]	[dB]	[dB]	[dBi]	[dBm/MHz]	[dBm/MHz]
5210	3.66	0.00	-30.08	3.51	9.87	5.61	-13.04	-7.43	-30.52	3.52	9.93	5.61	-13.41	-7.80
5775	3.66	6.99	-38.19	3.61	9.89	5.65	-14.04	-8.39	-36.84	3.62	9.93	5.65	-12.64	-6.99

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 + Directional Gain

Directional Gain = $G_{\text{ANT}}(\text{Antenna Gain}^{*1}) + \text{Array Gain}$

*1) Antenna Gain applied the highest gain of the two models.

Array Gain = $10 \log(N_{\text{ANT}}/N_{\text{SS}})$ dB.

N_{ANT} = number of transmit antennas = 2

N_{SS} = number of spatial streams = 1

Maximum Power Spectral Density

Report No.	13408107S-C	
Test place	Shonan EMC Lab. No.5 Shielded Room	
Date	August 4, 2020	August 6, 2020
Temperature / Humidity	23 deg. C / 43 % RH	23 deg. C / 61 % RH
Engineer	Hiromasa Sato	Shiro Kobayashi
Mode	Tx 11ac-80 MIMO	Shiro Kobayashi

RF0 + RF1 Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD (Conducted)						PSD (e.i.r.p.)					
	Antenna			Result	Limit	Margin	Antenna			Result	Limit	Margin
	RF0	RF1	Sum				RF0	RF1	Sum			
	[mW/MHz]	[mW/MHz]	[mW/MHz]	[dBm/MHz]	[dBm/MHz]	[dB]	[mW/MHz]	[mW/MHz]	[mW/MHz]	[dBm/MHz]	[dBm/MHz]	[dB]
5210	0.05	0.05	0.10	-10.11	11.00	21.11	0.08	0.08	0.17	-7.73	17.00	24.73
5775	0.05	0.09	0.14	-8.44	30.00	38.44	0.09	0.17	0.26	-5.90	36.00	41.90

RF0								RF1							
Tested Frequency	Duty Factor	RBW Correction Factor	PSD Reading	Cable Loss	Atten. Loss	Antenna Gain	PSD Result	PSD Reading	Cable Loss	Atten. Loss	Antenna Gain	PSD Result	PSD Reading	Cable Loss	Atten. Loss
[MHz]	[dB]	[dB]	[dBm/MHz]	[dB]	[dB]	[dBi]	[dBm/MHz]	[dBm/MHz]	[dB]	[dB]	[dBi]	[dBm/MHz]	[dBm/MHz]	[dB]	[dB]
5210	4.12	0.00	-30.44	3.51	9.87	2.17	-12.94	-10.77	-30.87	3.52	9.93	2.59	-13.30	-10.71	-7.71
5775	4.12	6.99	-37.55	3.61	9.89	2.37	-12.94	-10.57	-35.01	3.62	9.93	2.64	-10.35	-10.71	-7.71

*1) Antenna Gain applied the highest gain of the two models.

Sample Calculation:

PSD: Power Spectral Density

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

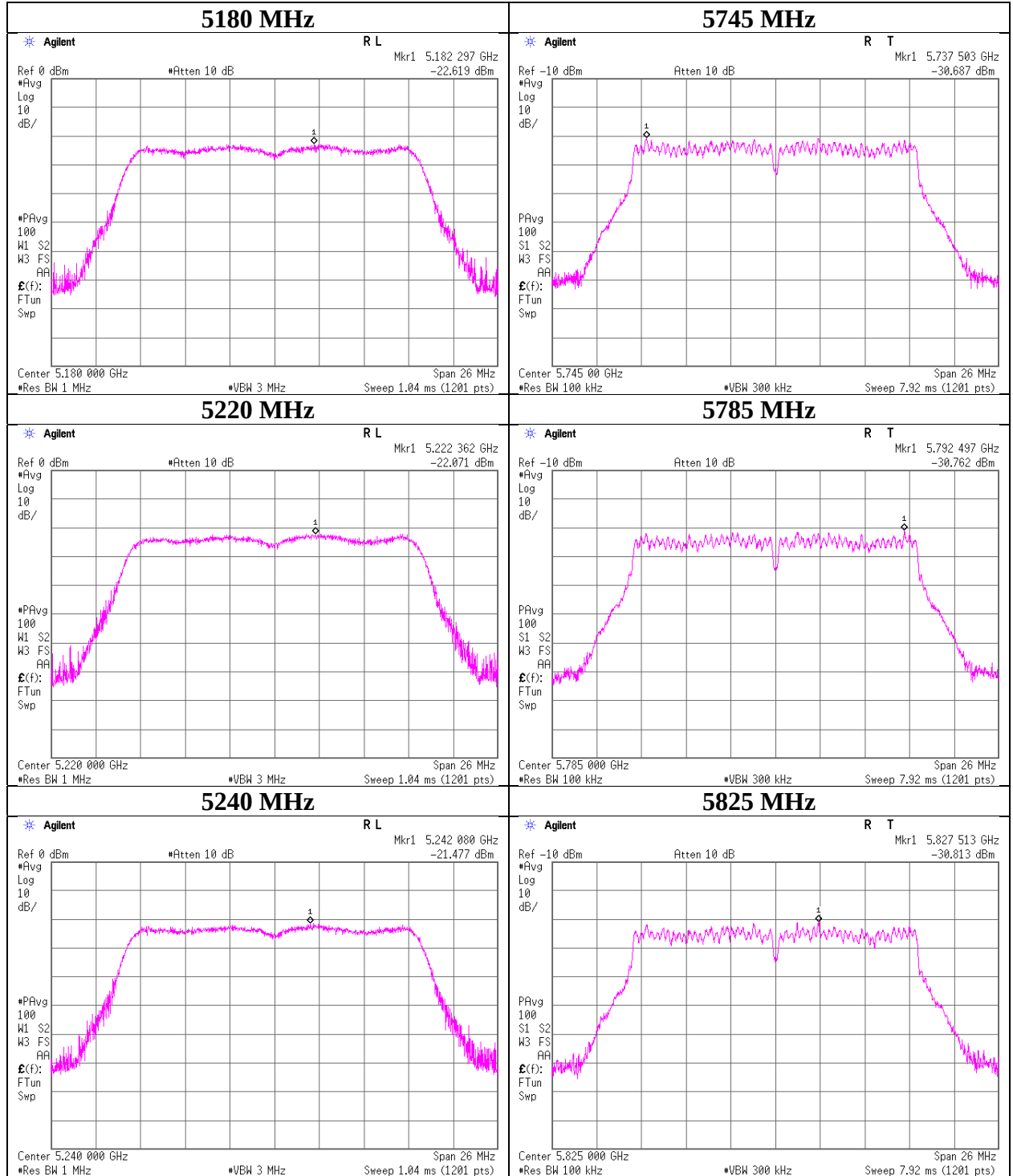
RBW Correction Factor = 10 * log (Specified bandwidth / Measured bandwidth)

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

Maximum Power Spectral Density

11a SISO, RF0



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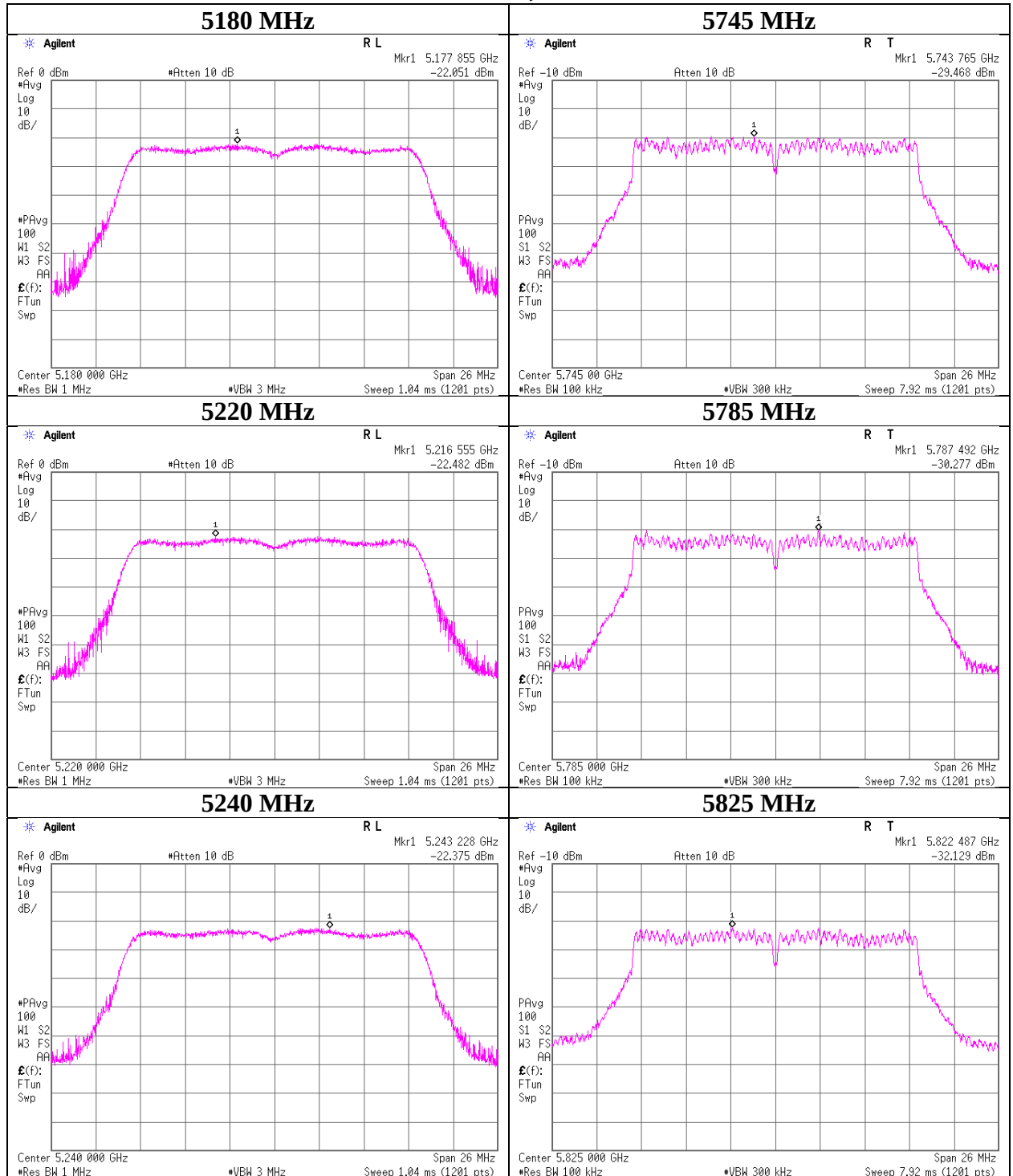
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Maximum Power Spectral Density

11a SISO, RF1



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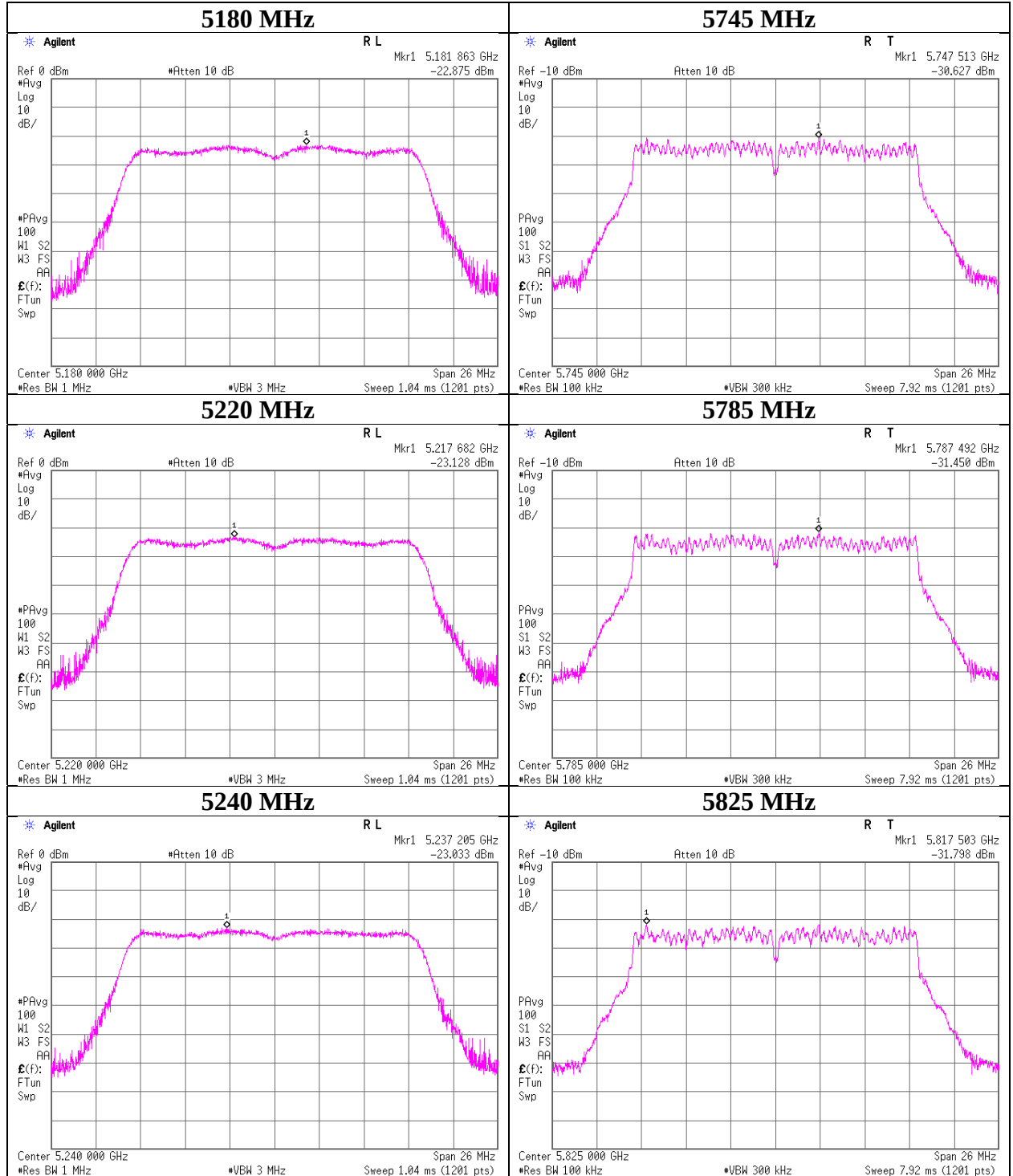
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Maximum Power Spectral Density

11a CDD, RF0



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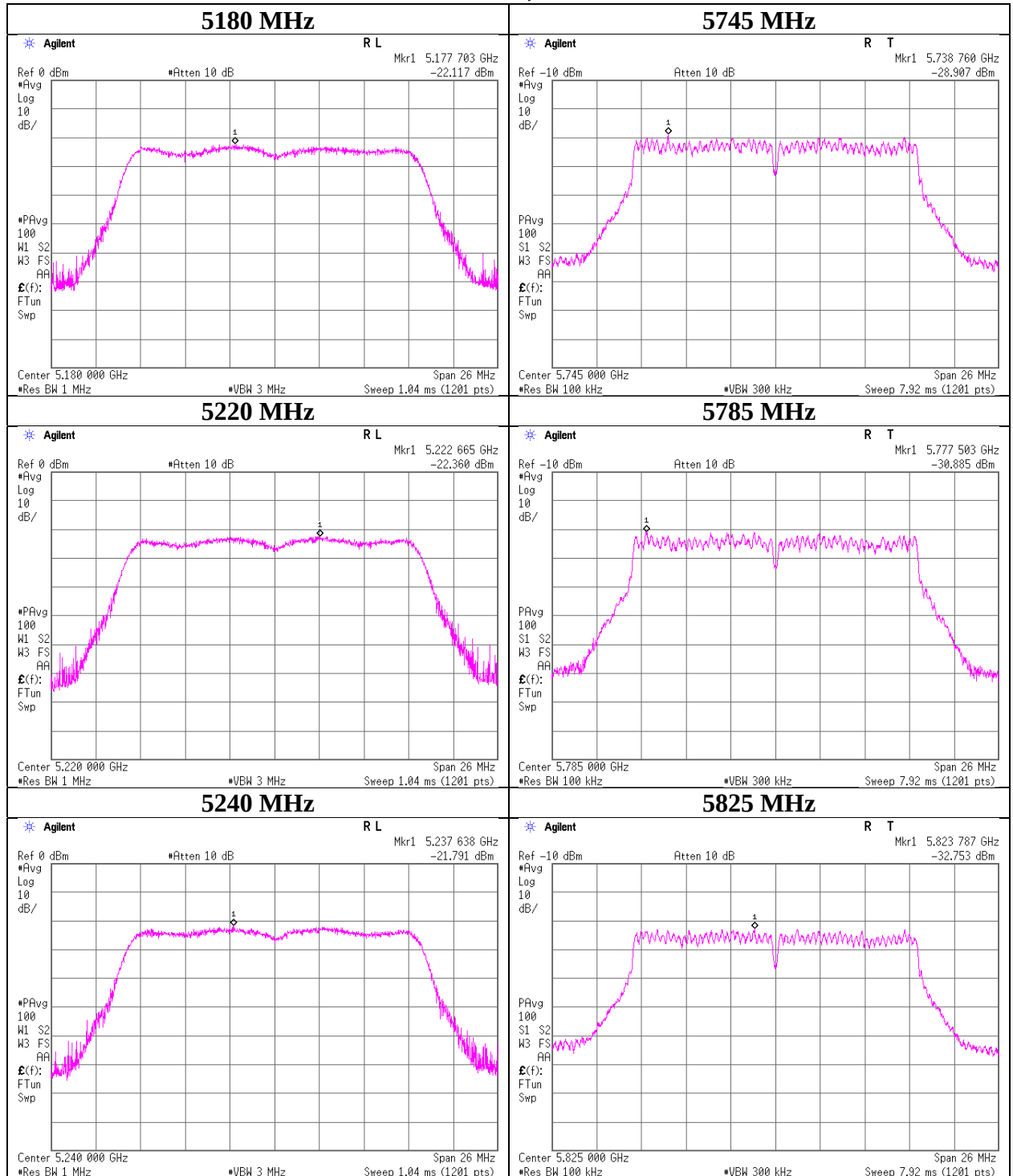
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Facsimile : +81 463 50 6401

Maximum Power Spectral Density

11a CDD, RF1



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Shonan EMC Lab.

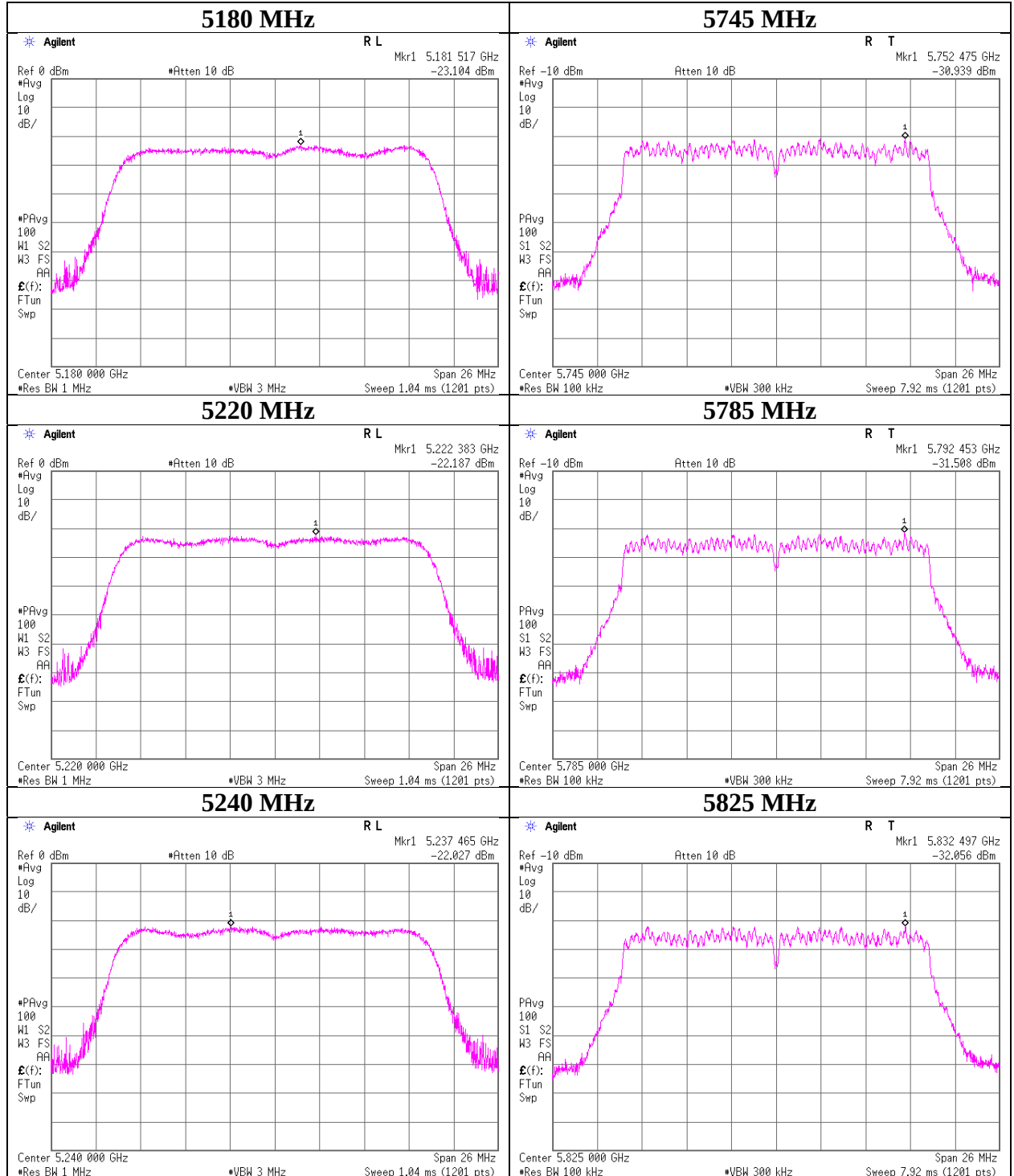
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Maximum Power Spectral Density

11n-20 SISO, RF0



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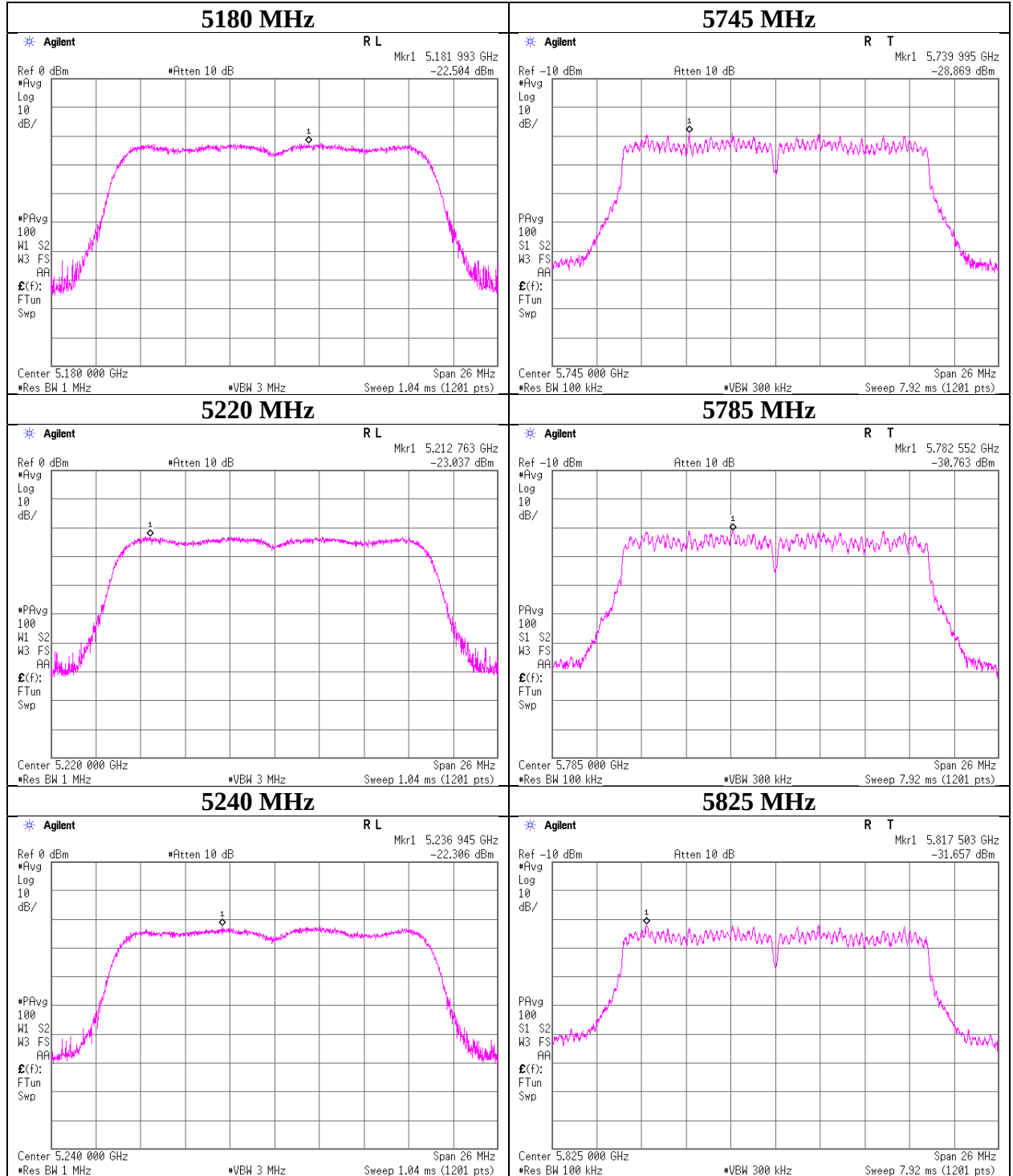
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Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

Maximum Power Spectral Density

11n-20 SISO, RF1



UL Japan, Inc.

Shonan EMC Lab.

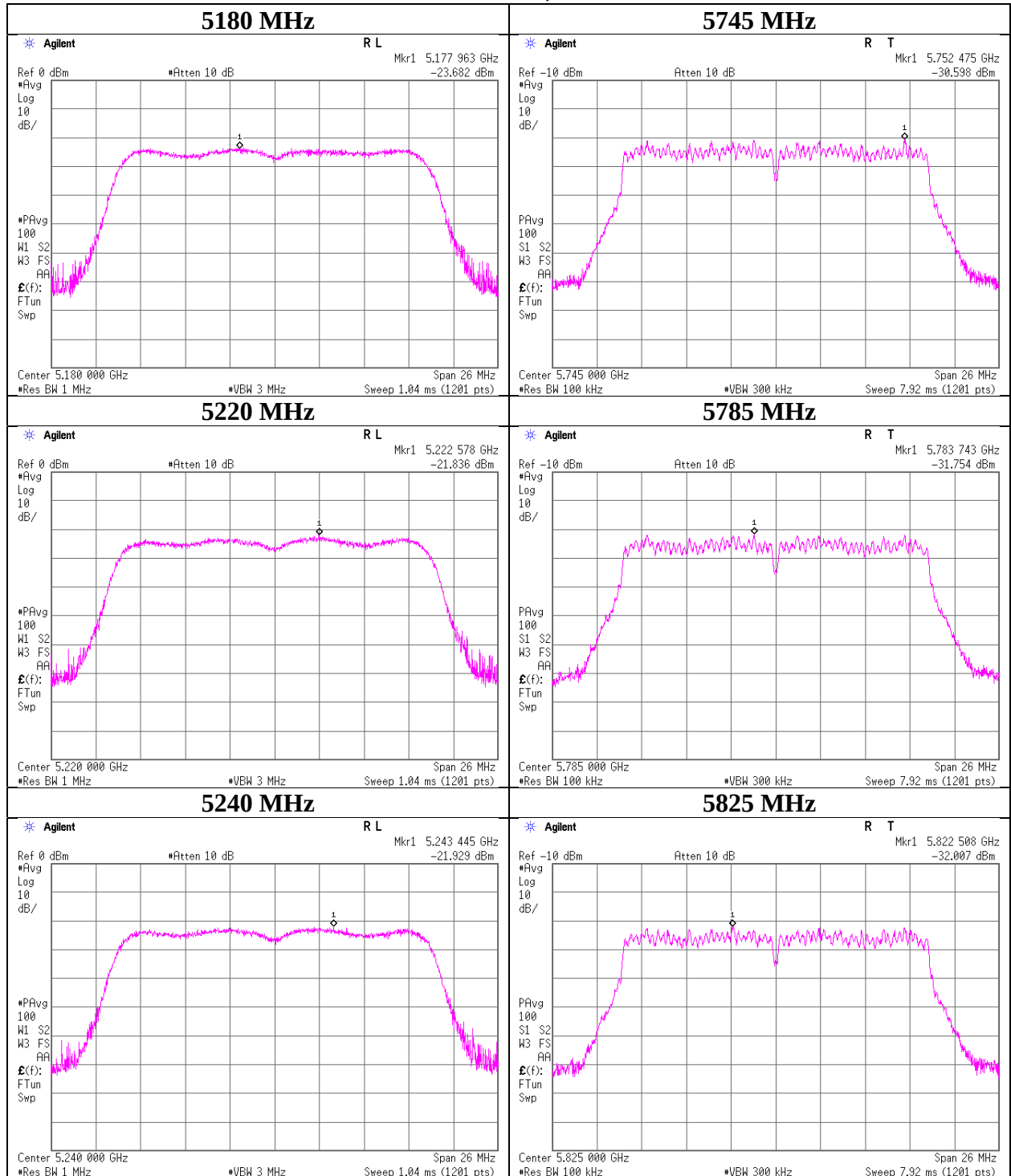
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Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

Maximum Power Spectral Density

11n-20 CDD, RF0



UL Japan, Inc.

Shonan EMC Lab.

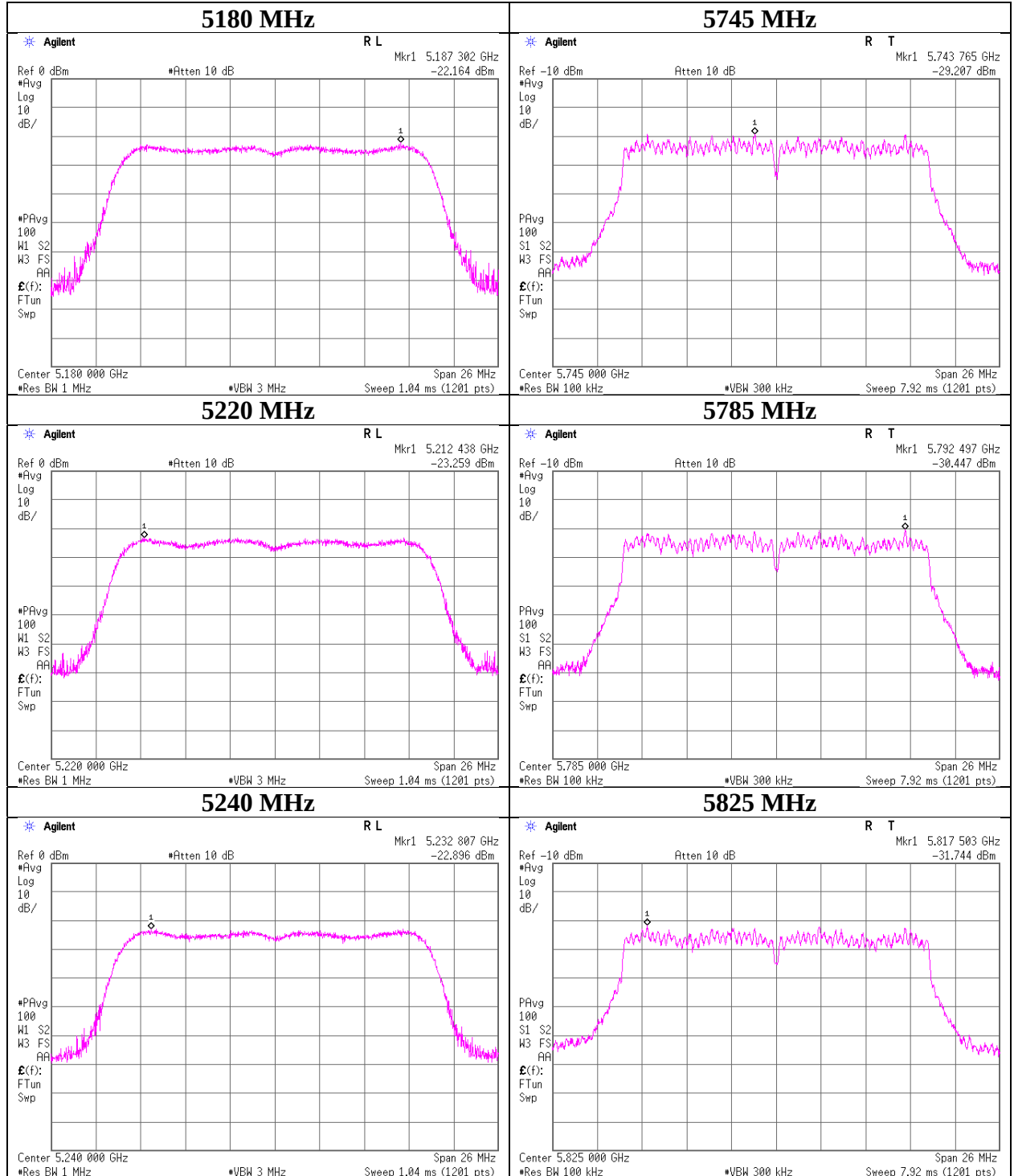
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Telephone : +81 463 50 6400

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Maximum Power Spectral Density

11n-20 CDD, RF1



UL Japan, Inc.

Shonan EMC Lab.

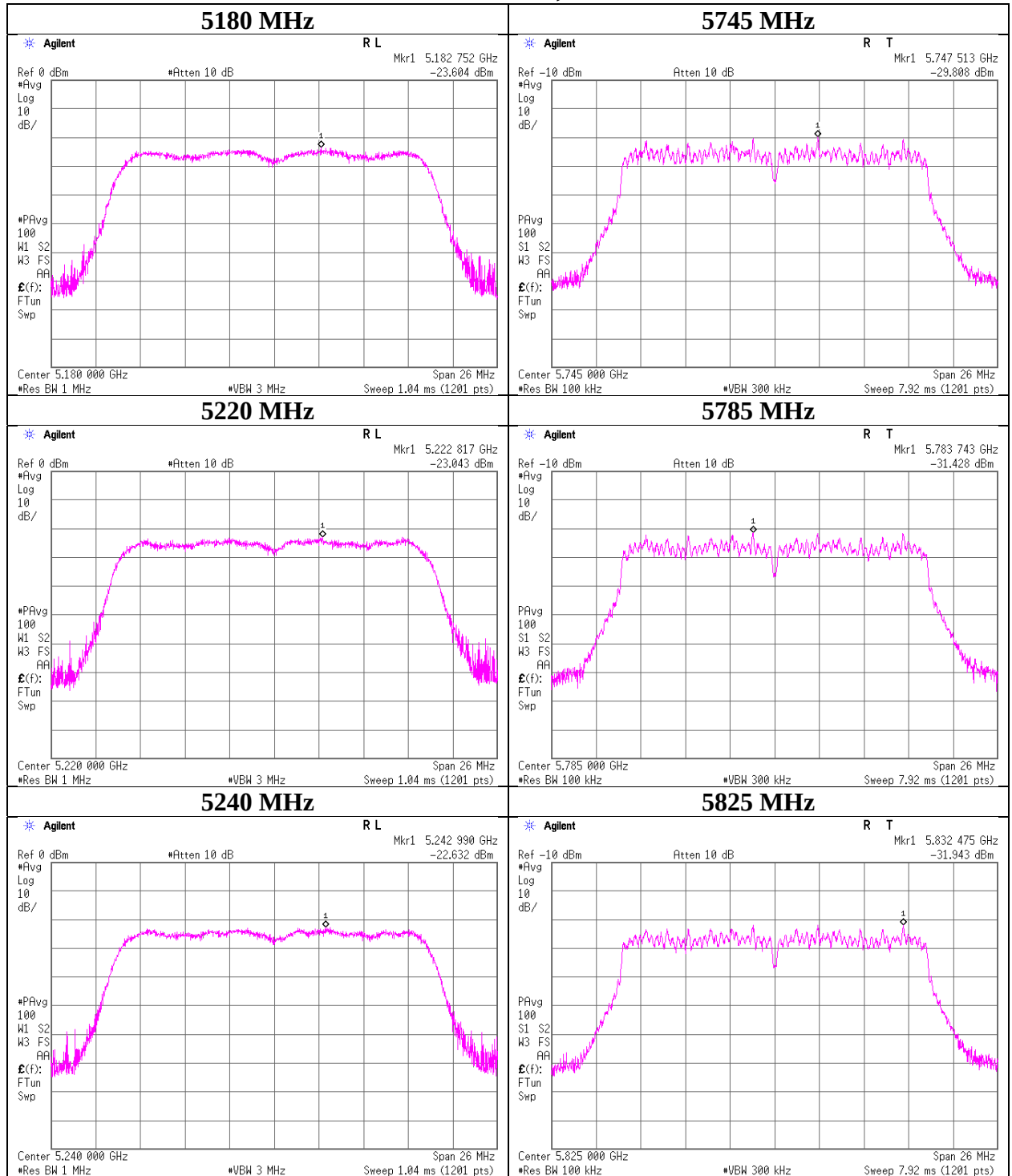
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Maximum Power Spectral Density

11n-20 MIMO, RF0



UL Japan, Inc.

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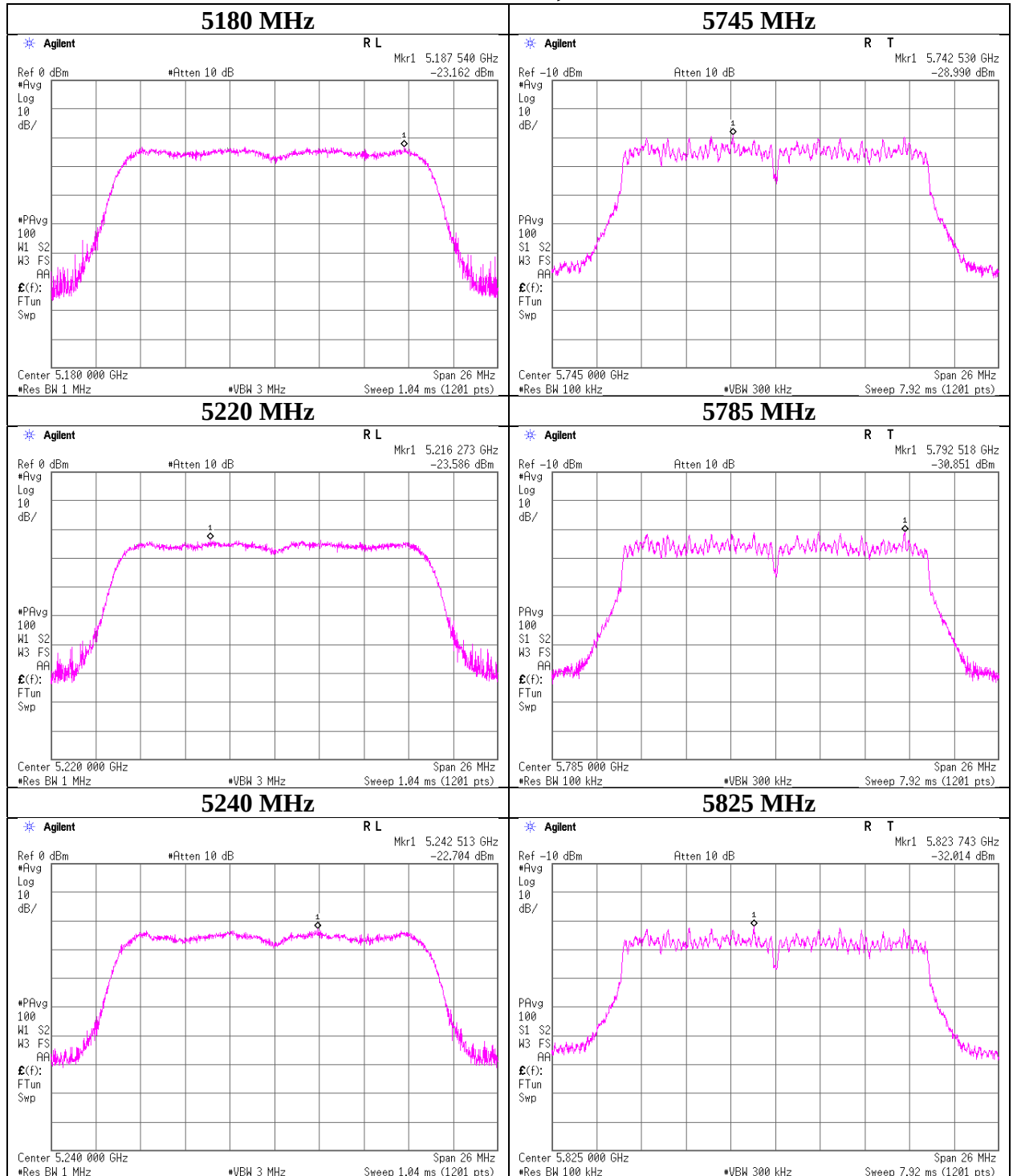
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Facsimile : +81 463 50 6401

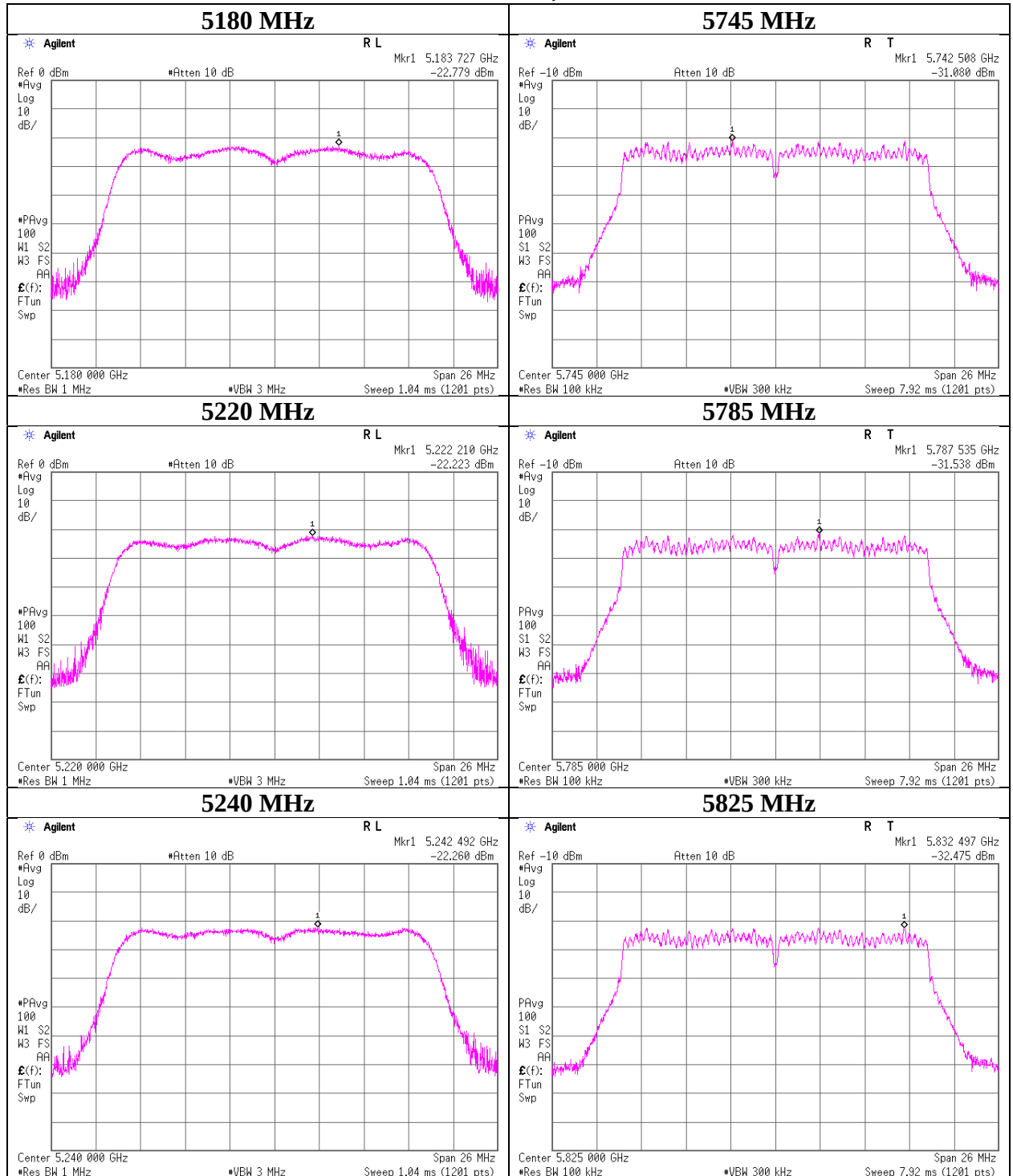
Maximum Power Spectral Density

11n-20 MIMO, RF1



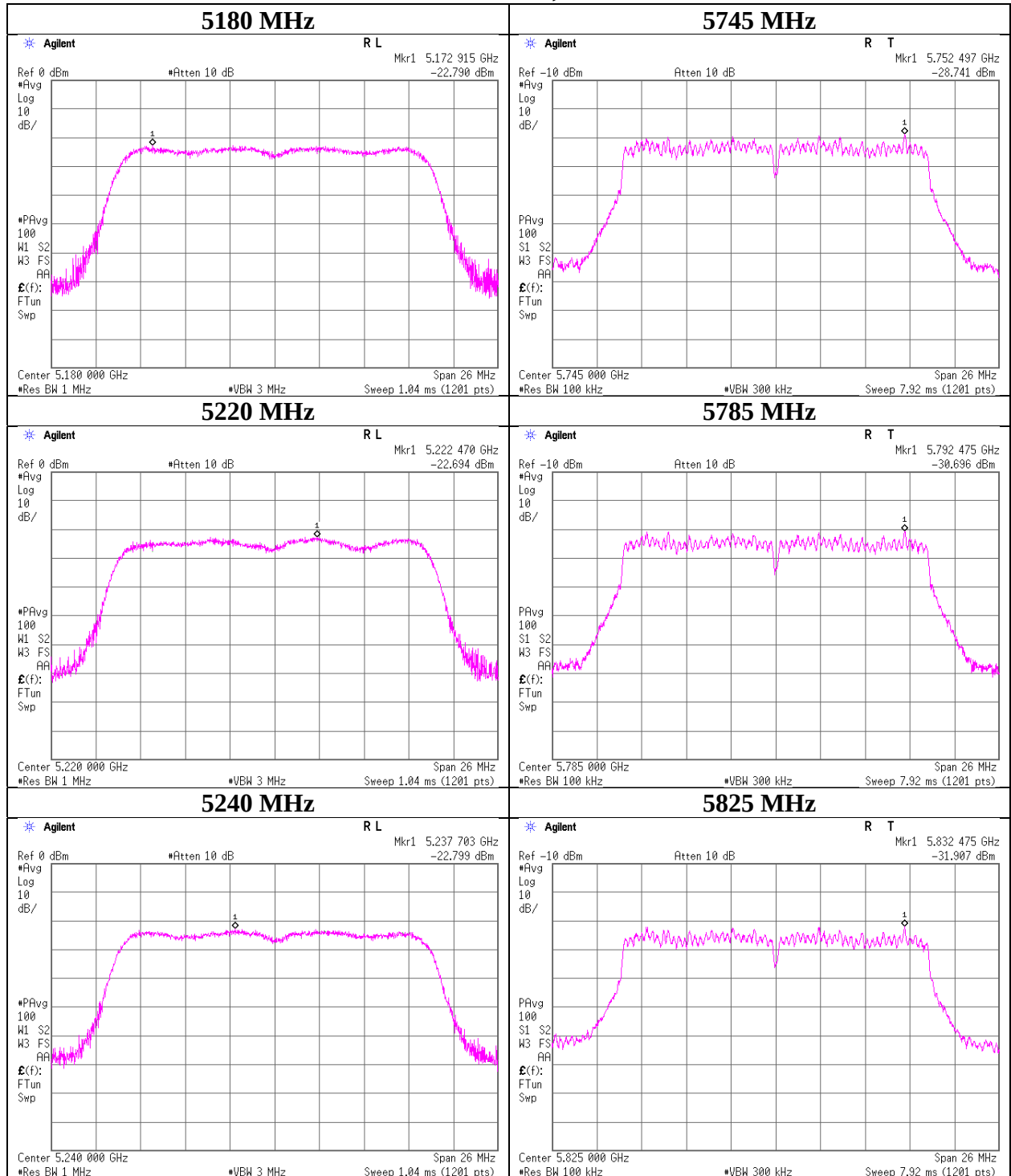
Maximum Power Spectral Density

11ac-20 SISO, RF0



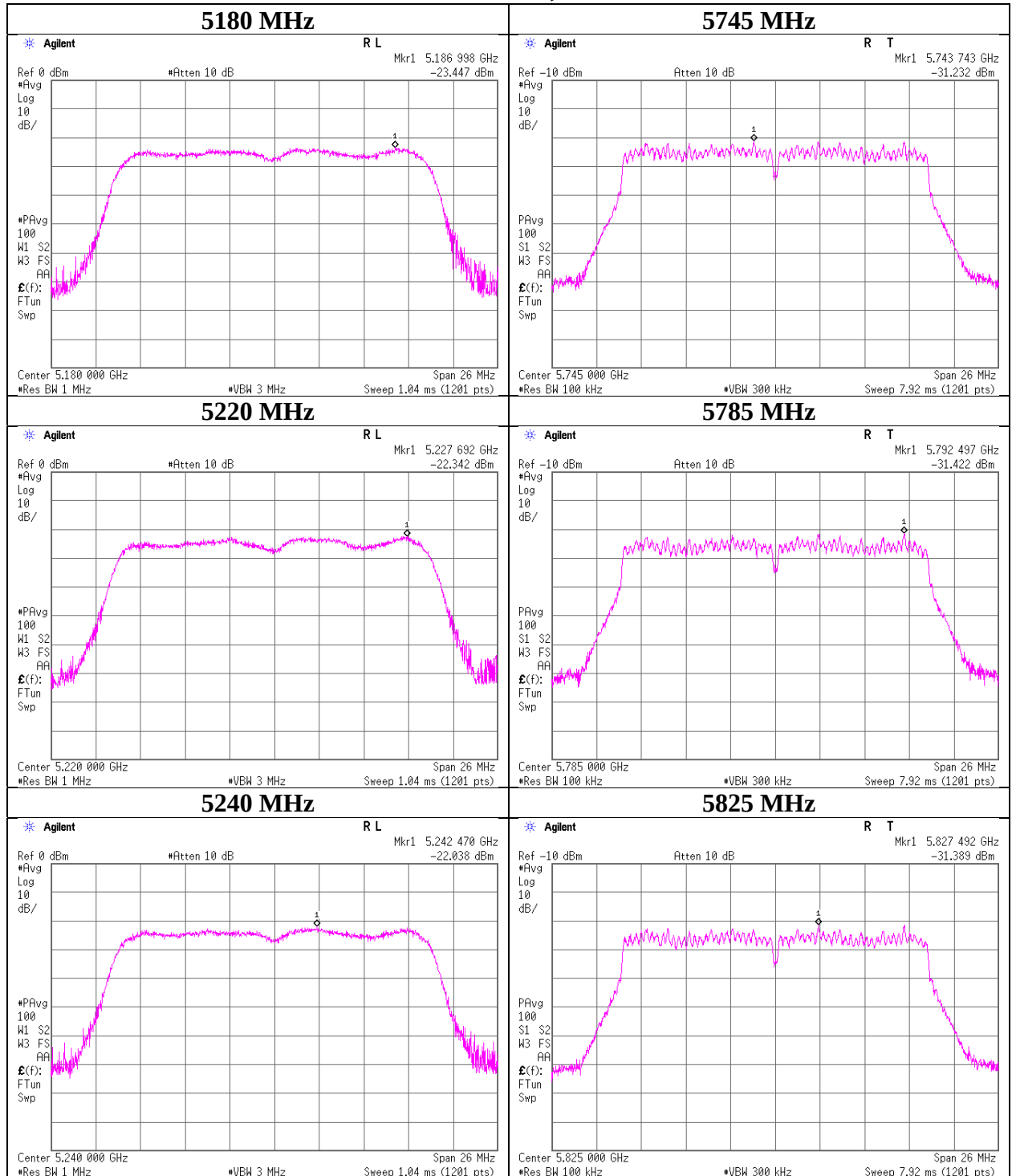
Maximum Power Spectral Density

11ac-20 SISO, RF1



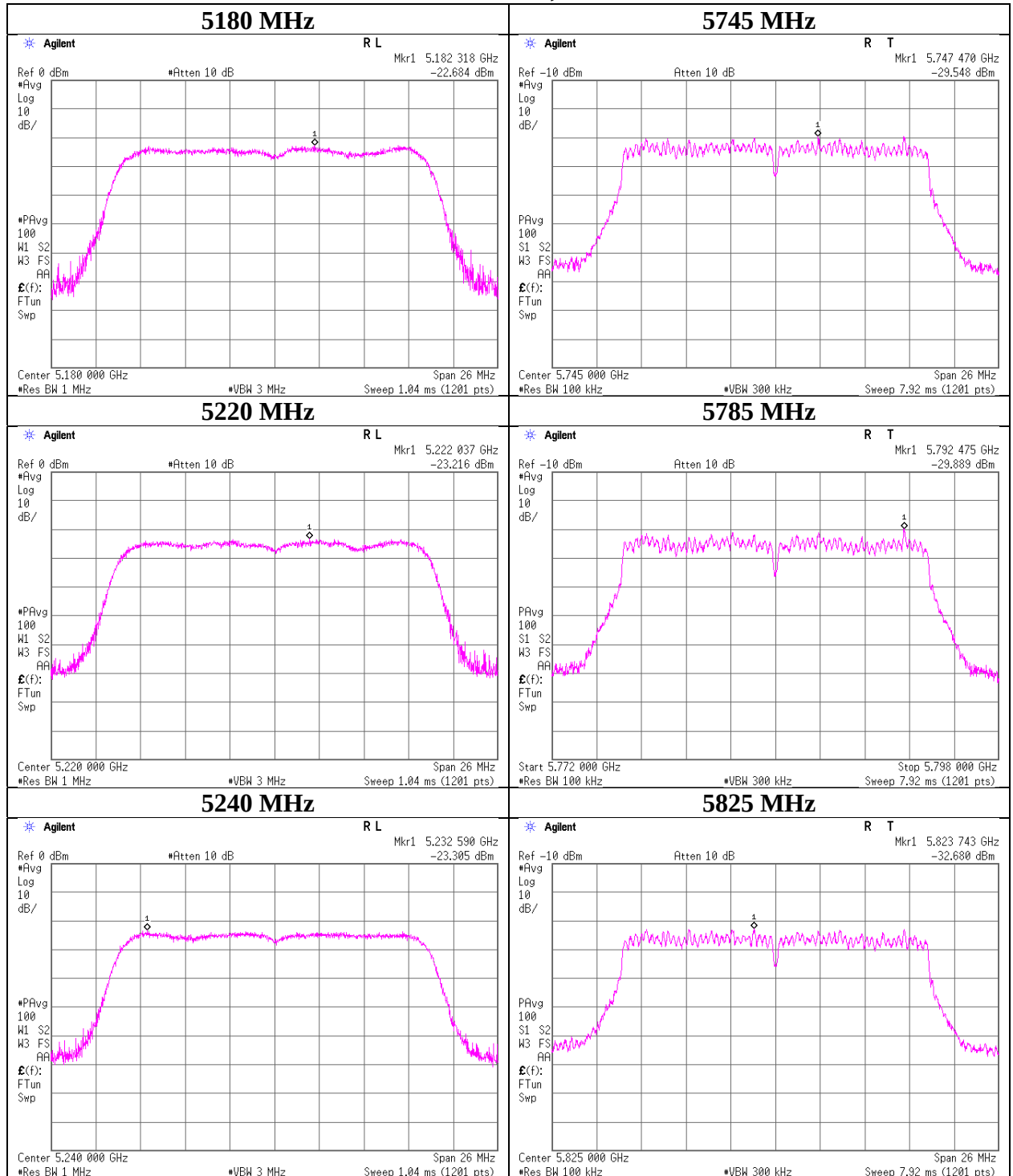
Maximum Power Spectral Density

11ac-20 CDD, RF0



Maximum Power Spectral Density

11ac-20 CDD, RF1



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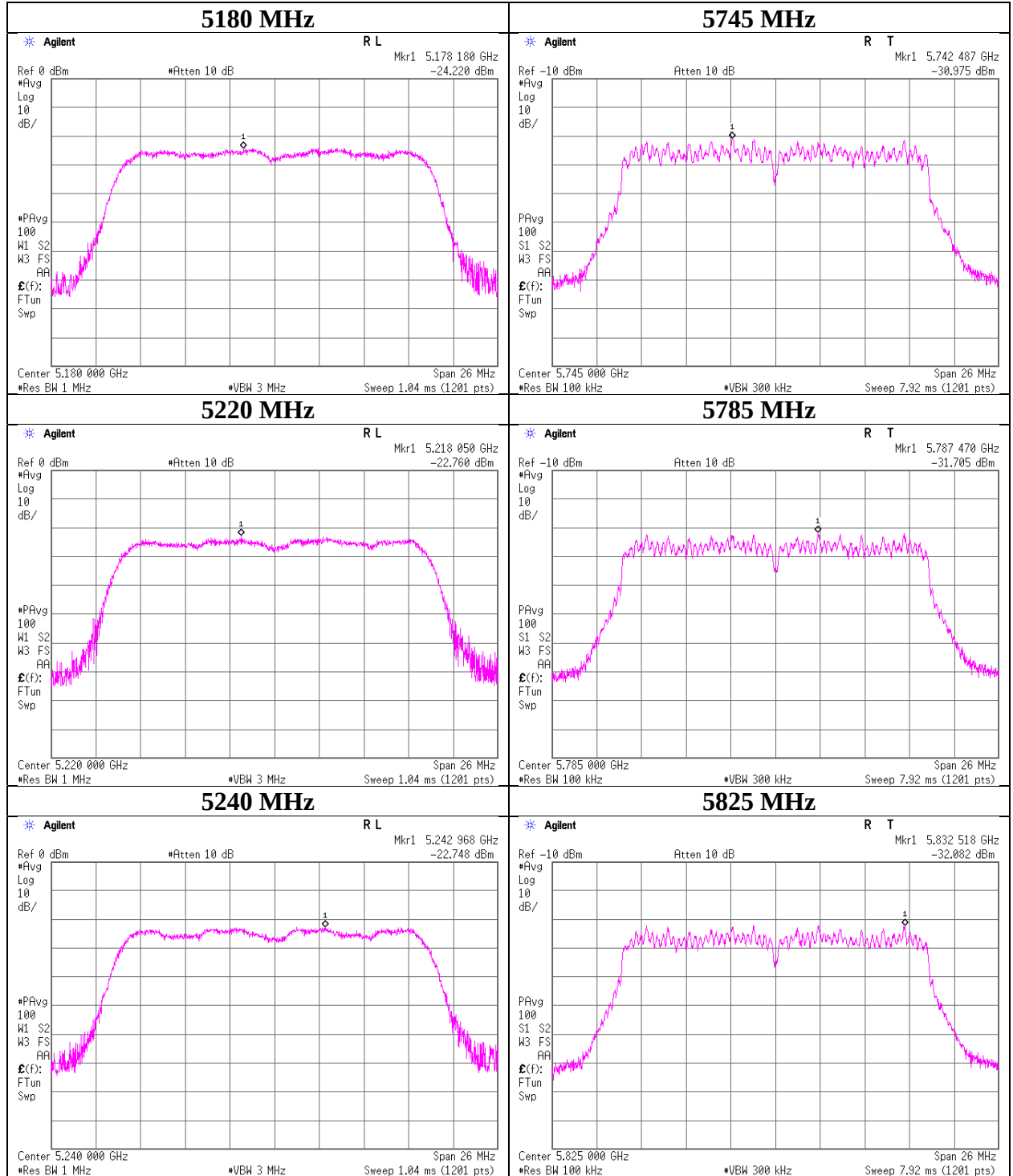
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

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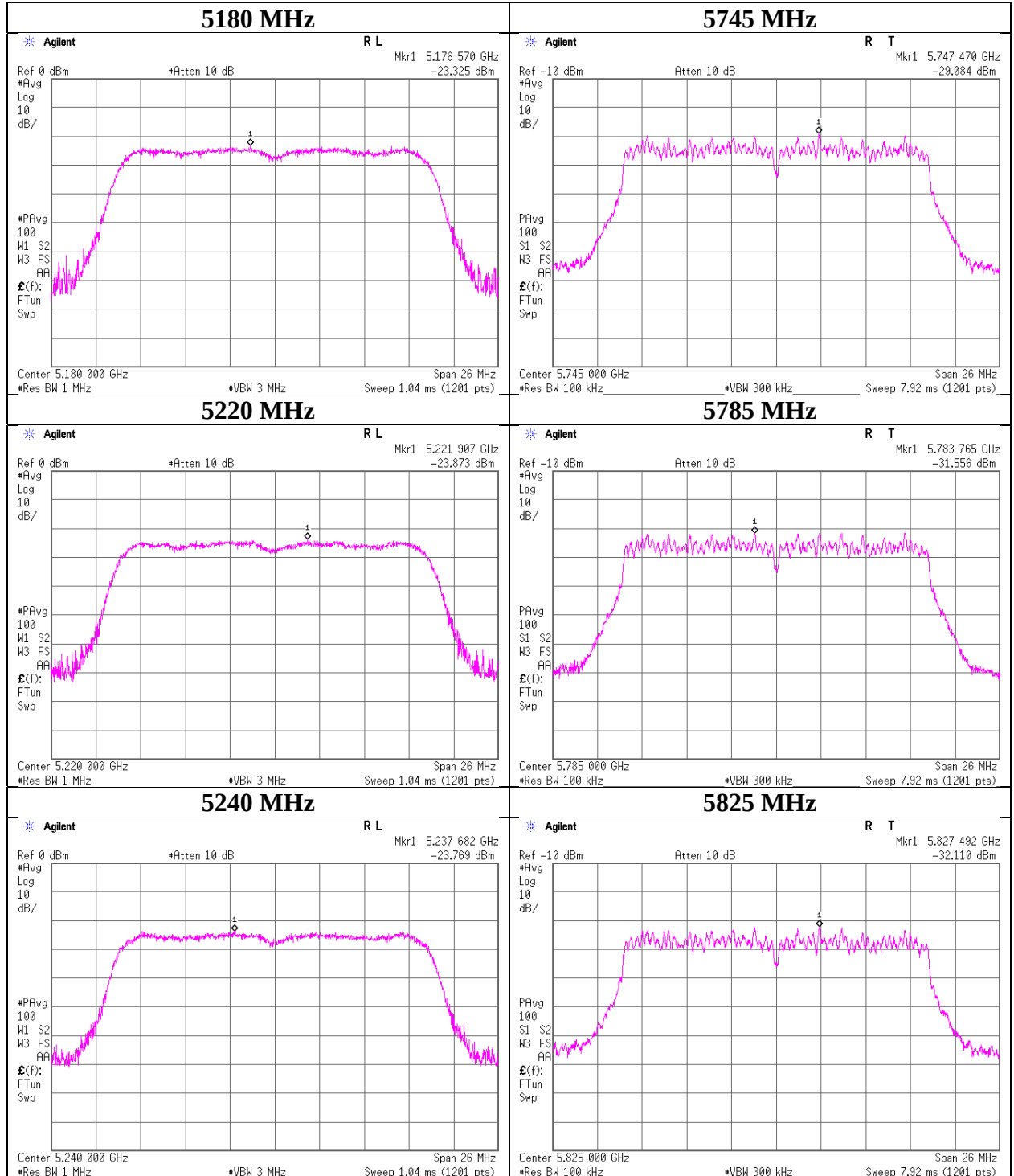
Maximum Power Spectral Density

11ac-20 MIMO, RF0



Maximum Power Spectral Density

11ac-20 MIMO, RF1



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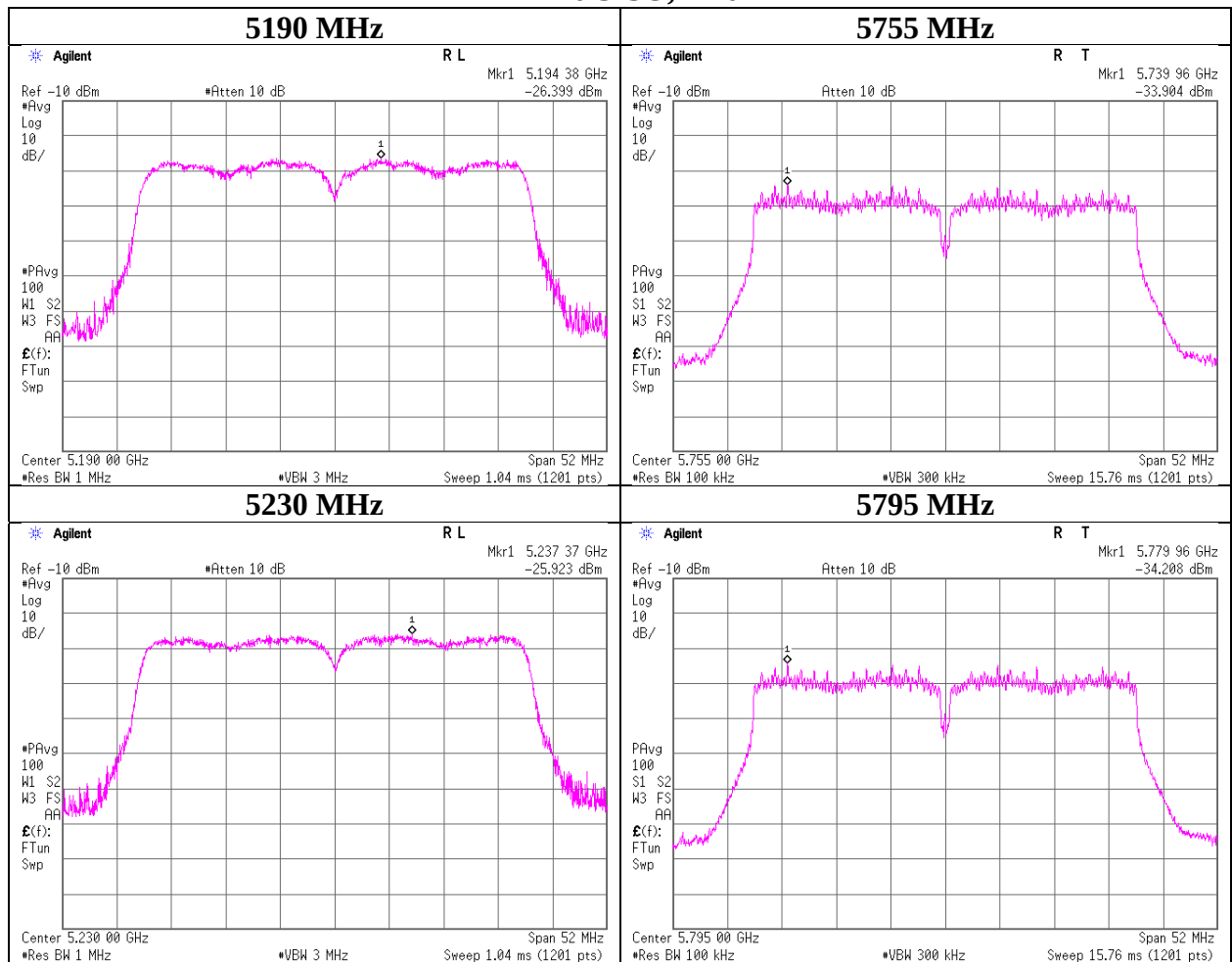
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

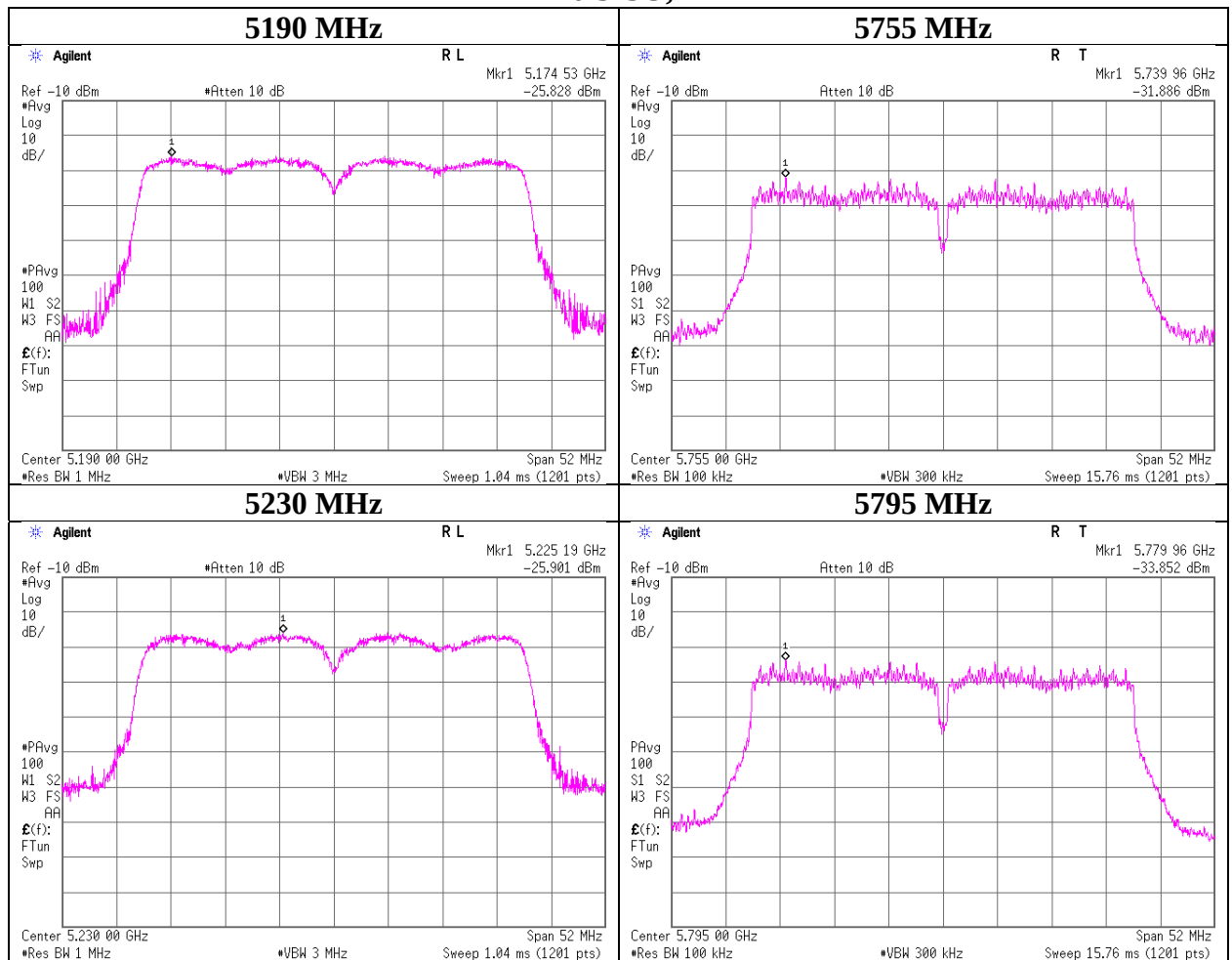
Maximum Power Spectral Density

11n-40 SISO, RF0



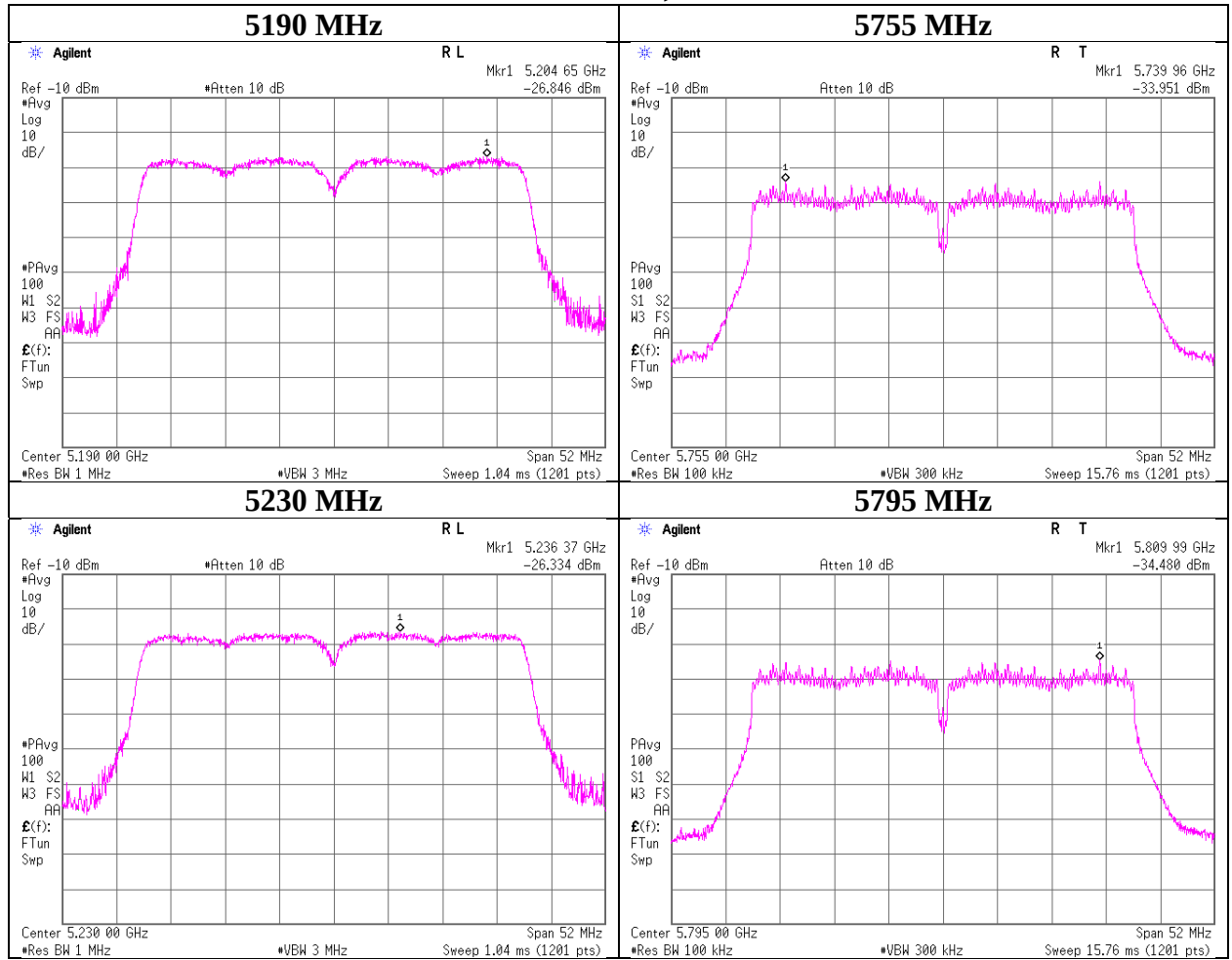
Maximum Power Spectral Density

11n-40 SISO, RF1



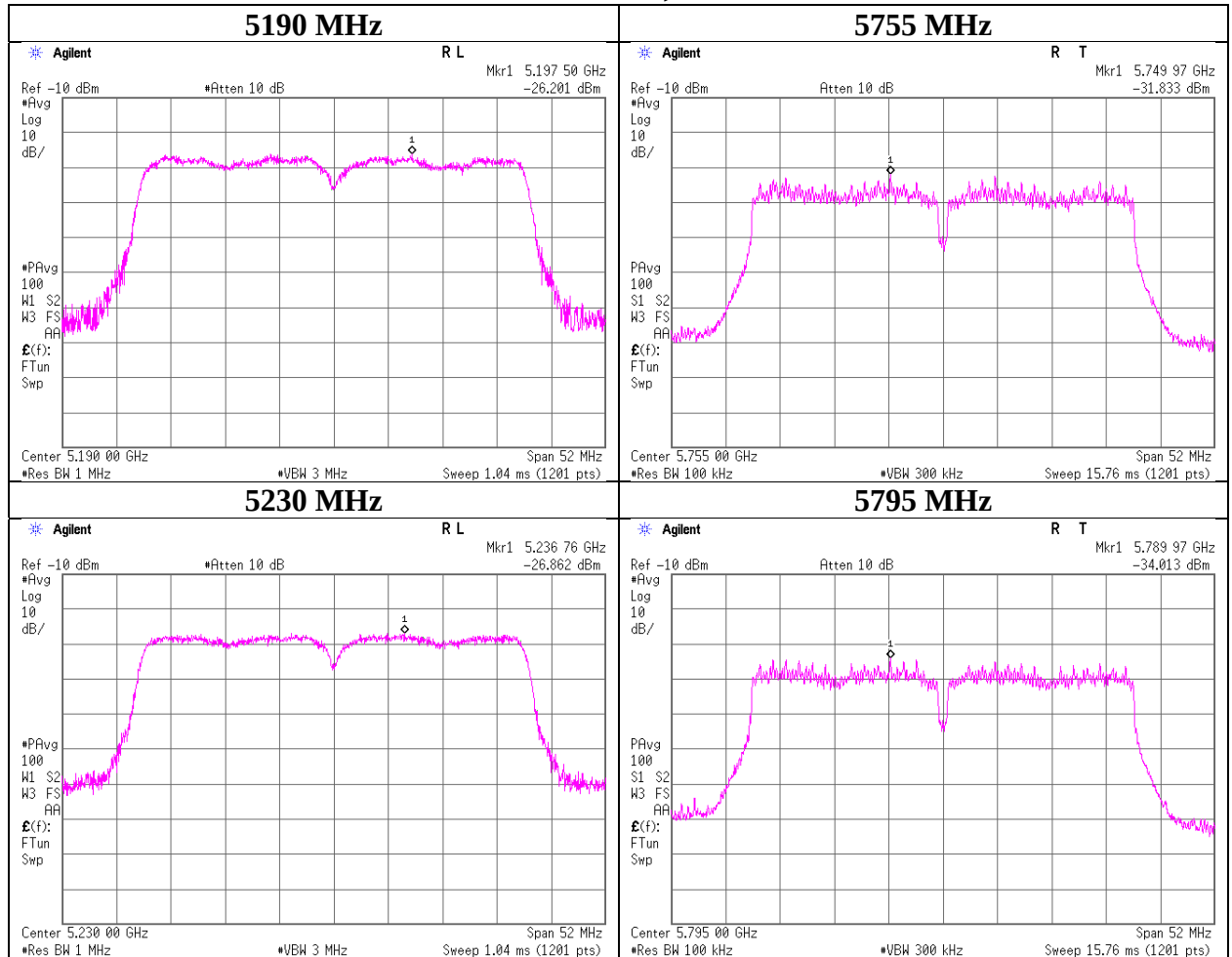
Maximum Power Spectral Density

11n-40 CDD, RF0



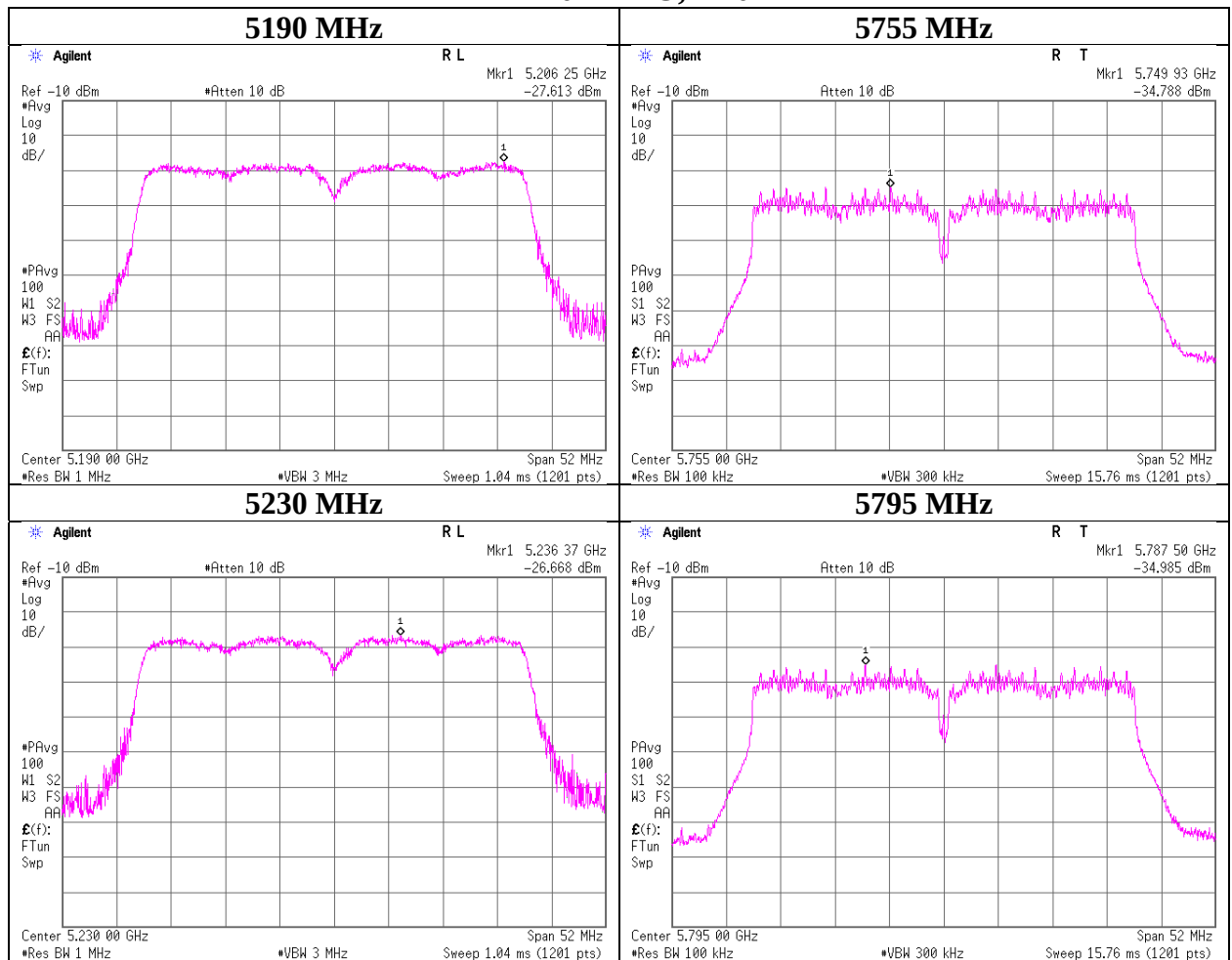
Maximum Power Spectral Density

11n-40 CDD, RF1



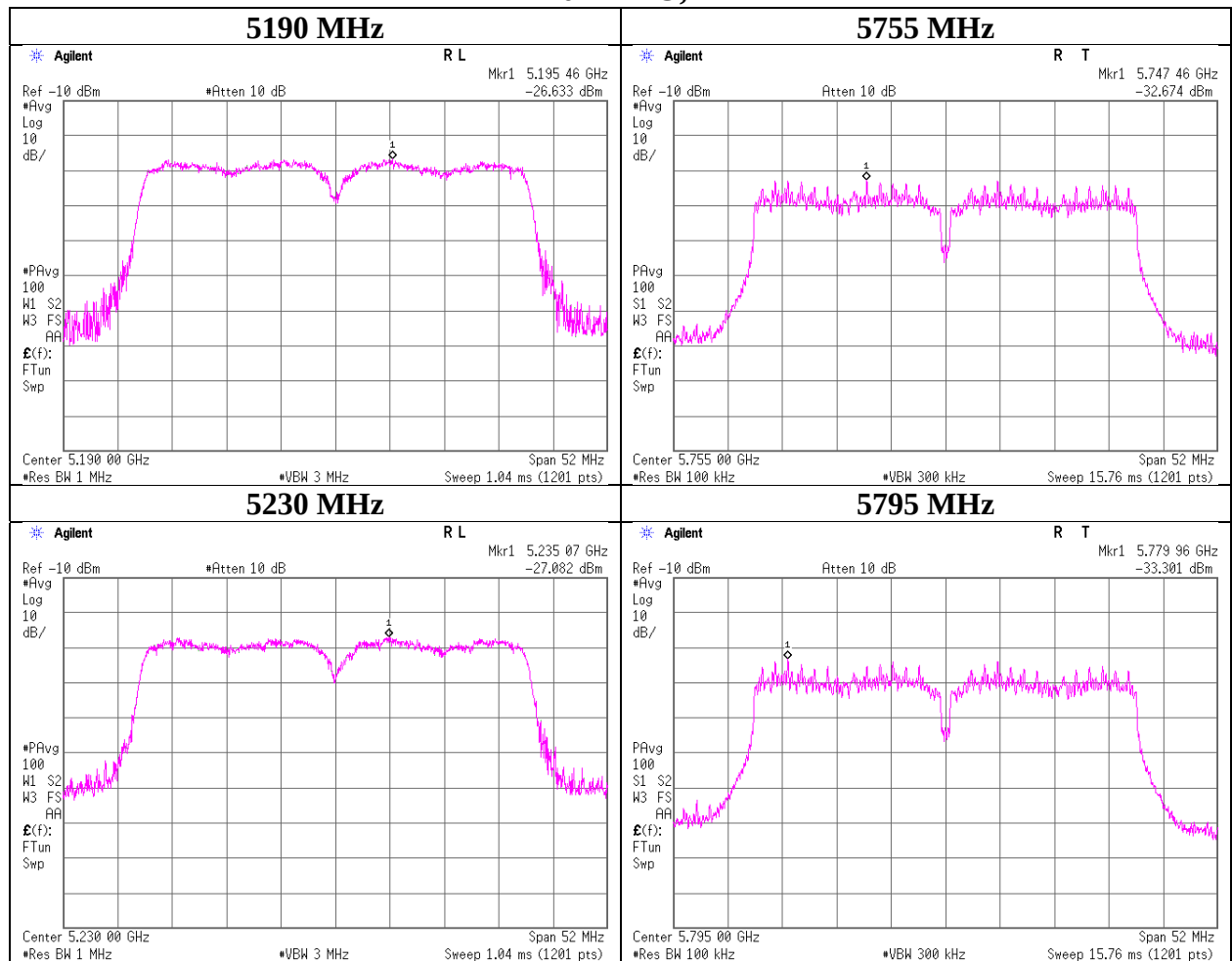
Maximum Power Spectral Density

11n-40 MIMO, RF0



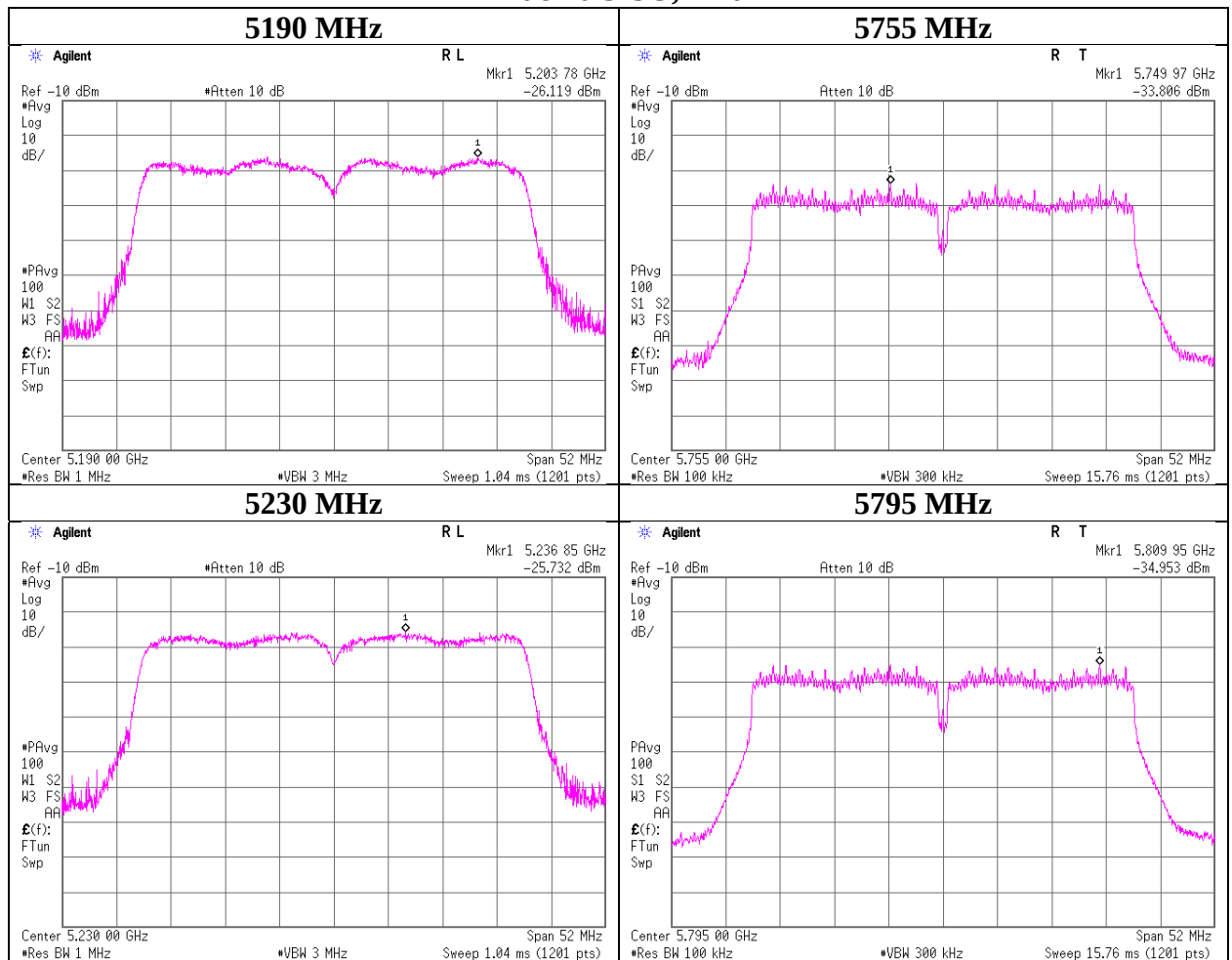
Maximum Power Spectral Density

11n-40 MIMO, RF1



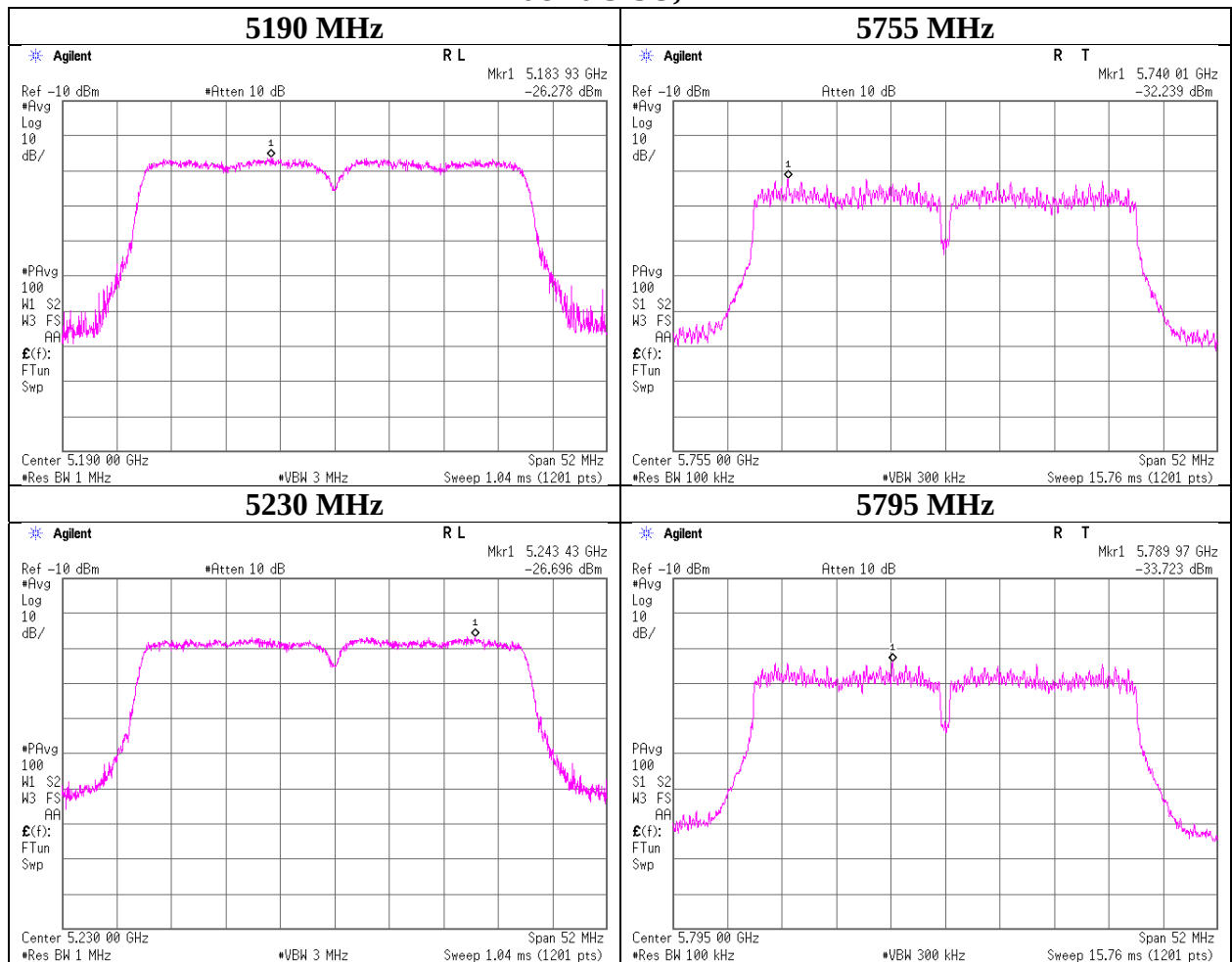
Maximum Power Spectral Density

11ac-40 SISO, RF0



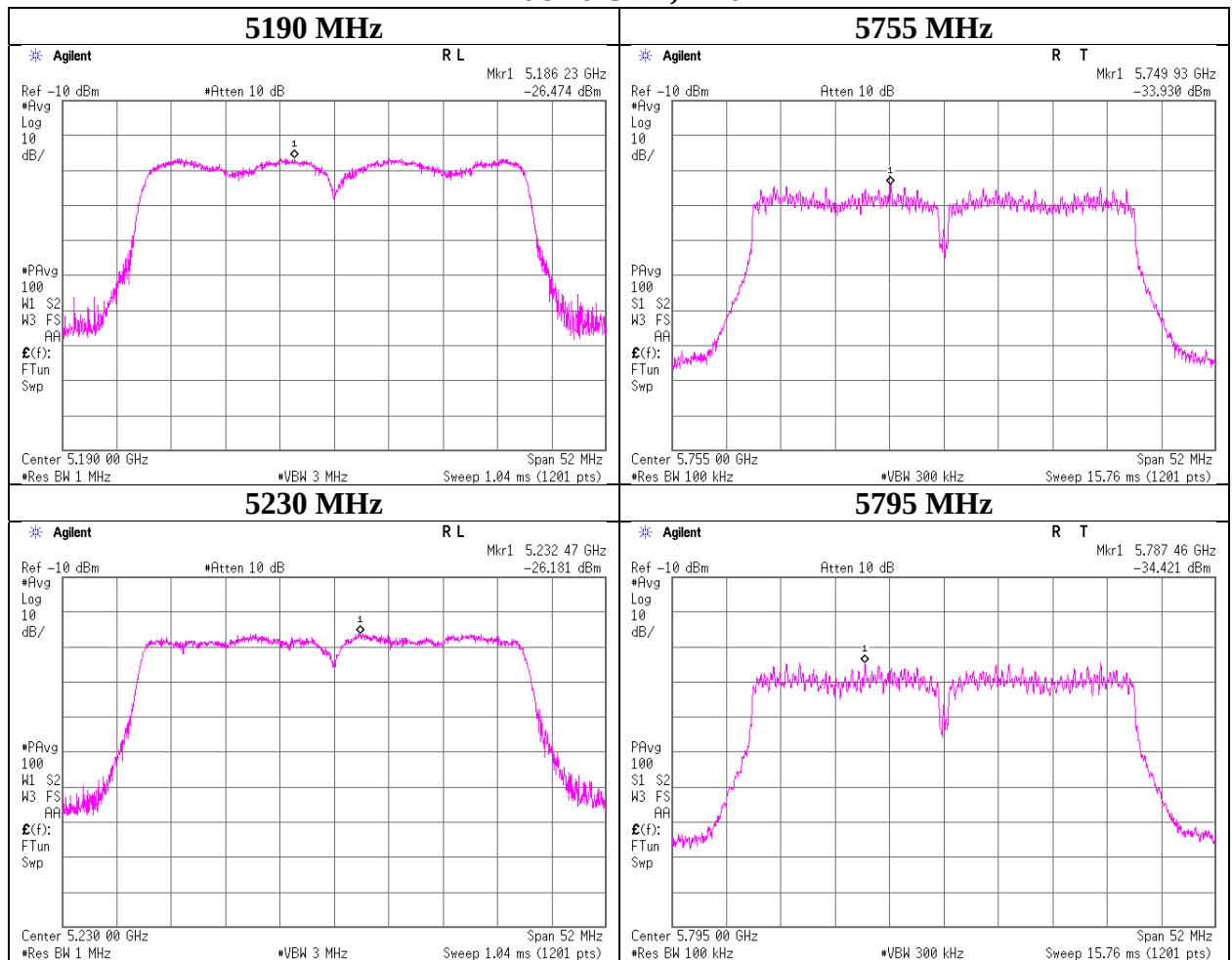
Maximum Power Spectral Density

11ac-40 SISO, RF1



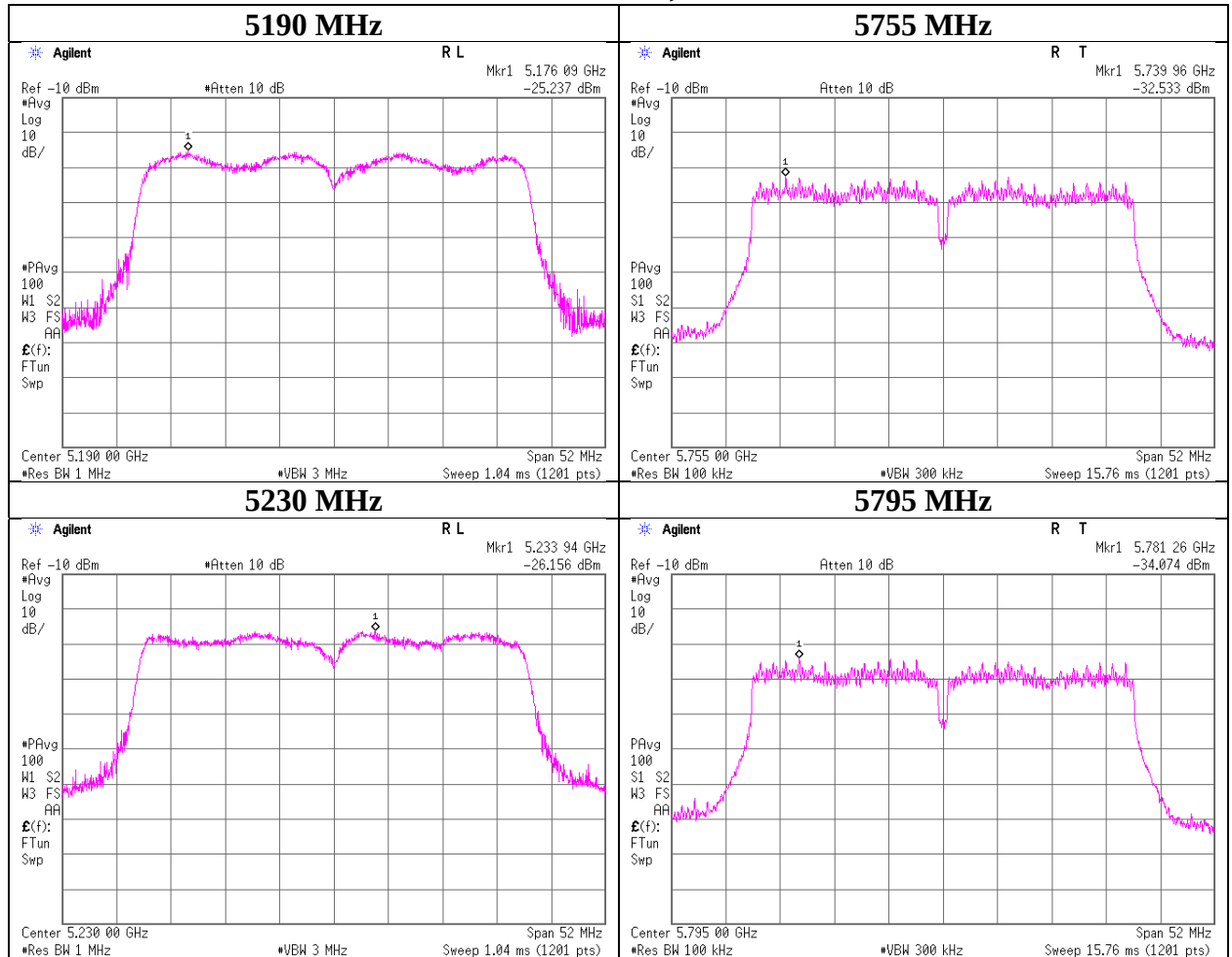
Maximum Power Spectral Density

11ac-40 CDD, RF0



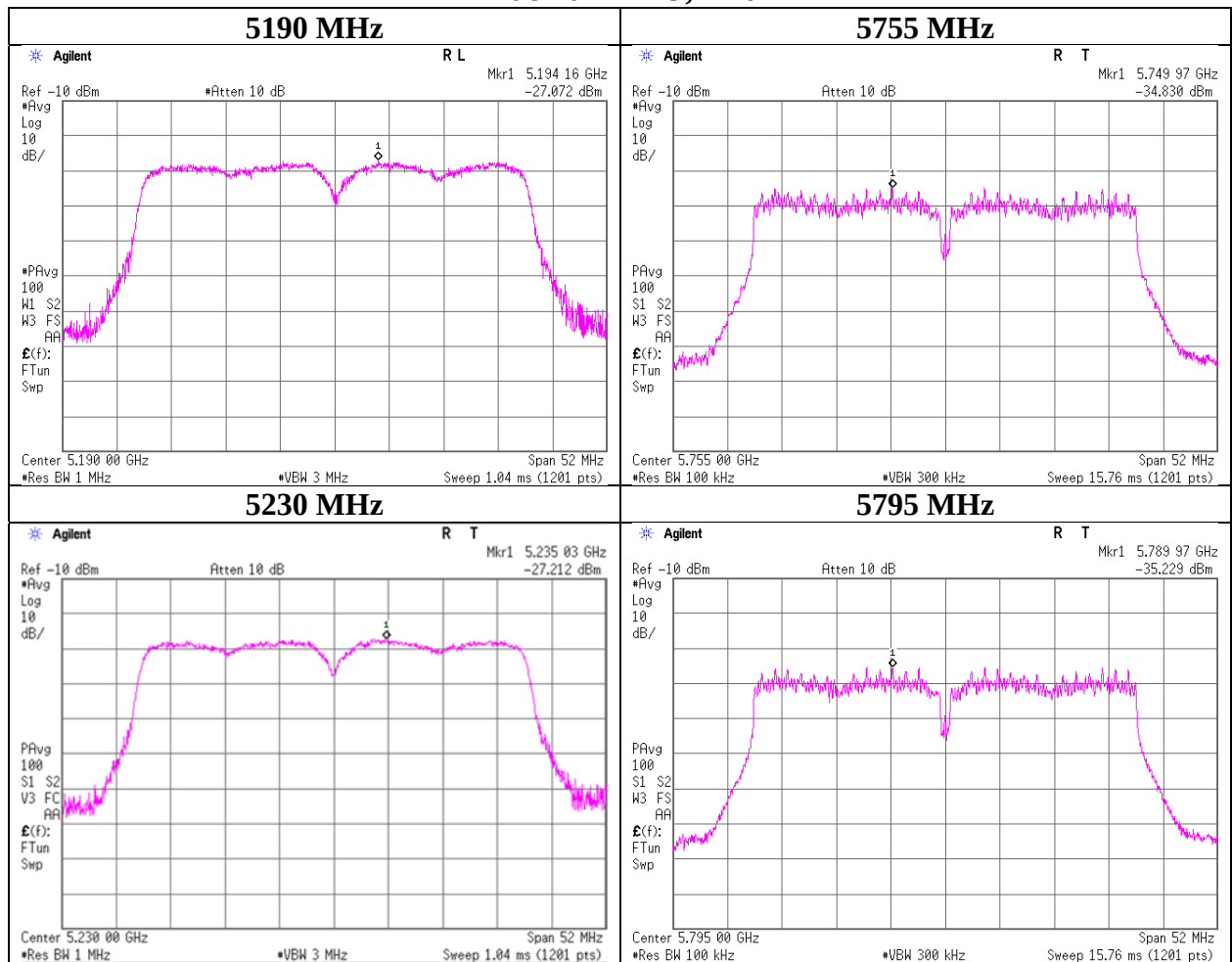
Maximum Power Spectral Density

11ac-40 CDD, RF1



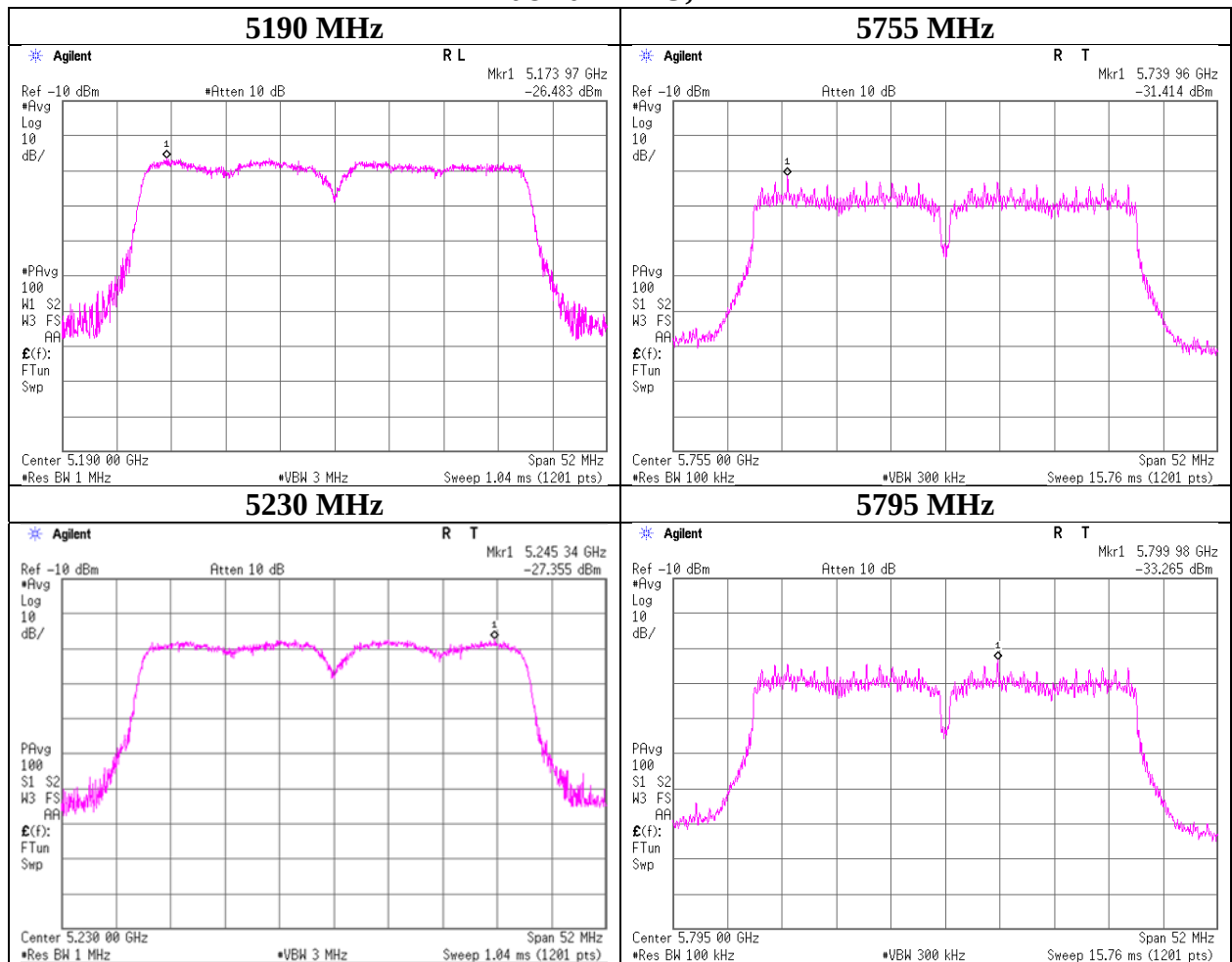
Maximum Power Spectral Density

11ac-40 MIMO, RF0



Maximum Power Spectral Density

11ac-40 MIMO, RF1



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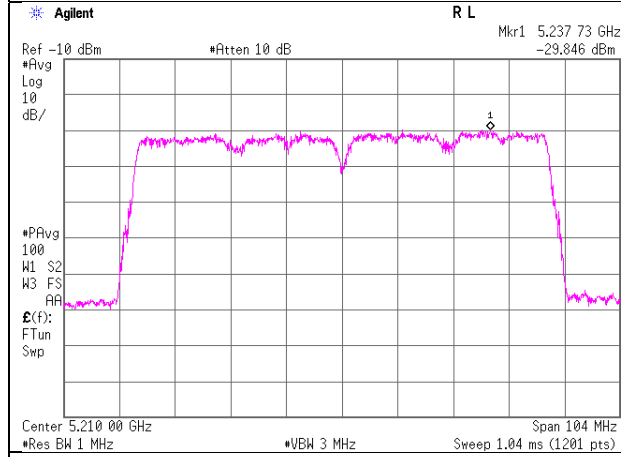
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Maximum Power Spectral Density

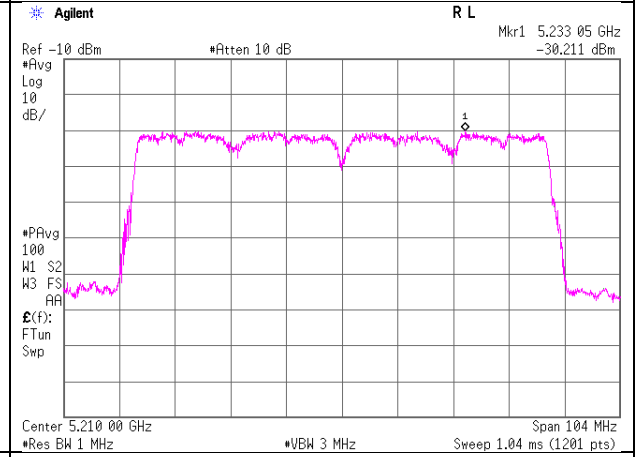
11ac-80 SISO, RF0

5210 MHz

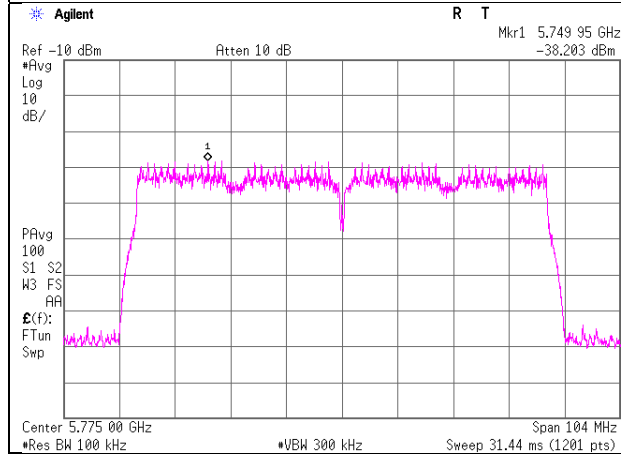


11ac-80 SISO, RF1

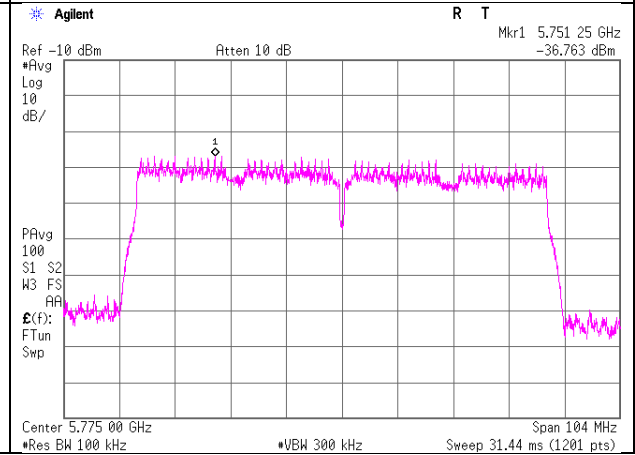
5210 MHz



5775 MHz



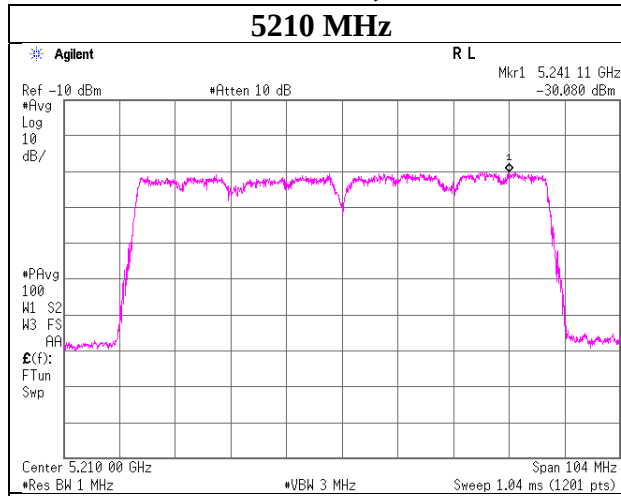
5775 MHz



Maximum Power Spectral Density

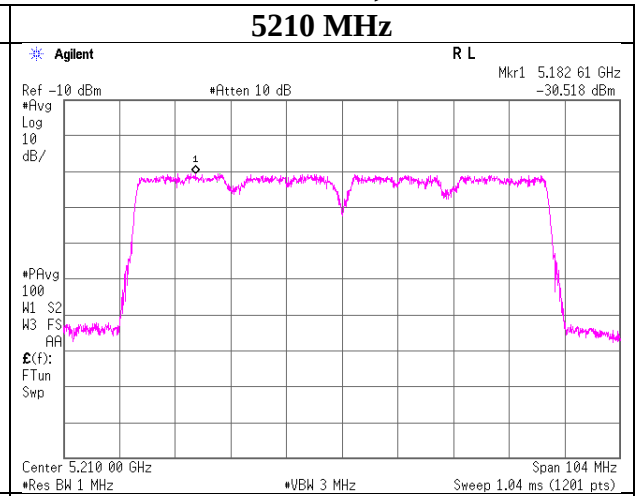
11ac-80 CDD, RF0

5210 MHz

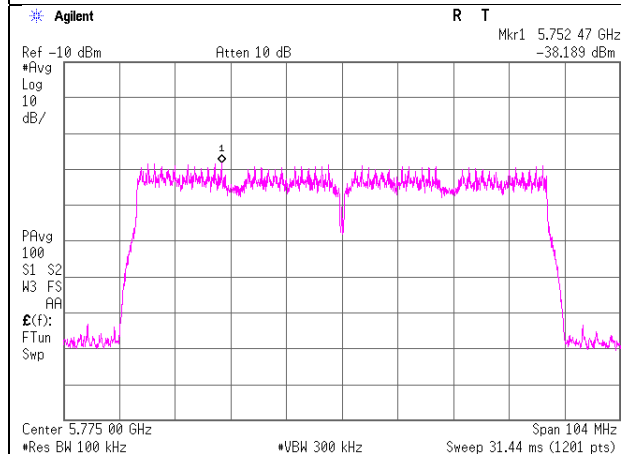


11ac-80 CDD, RF1

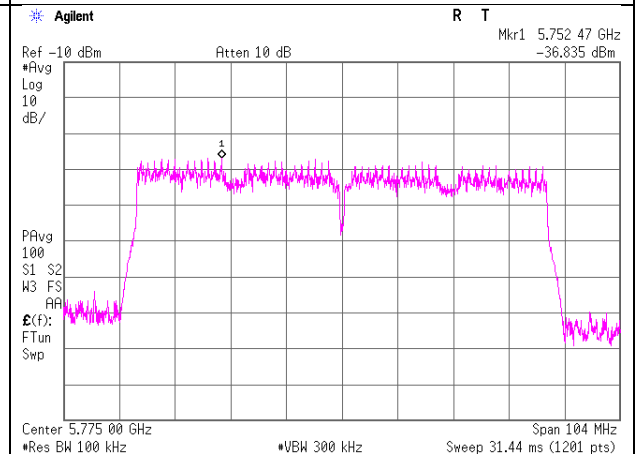
5210 MHz



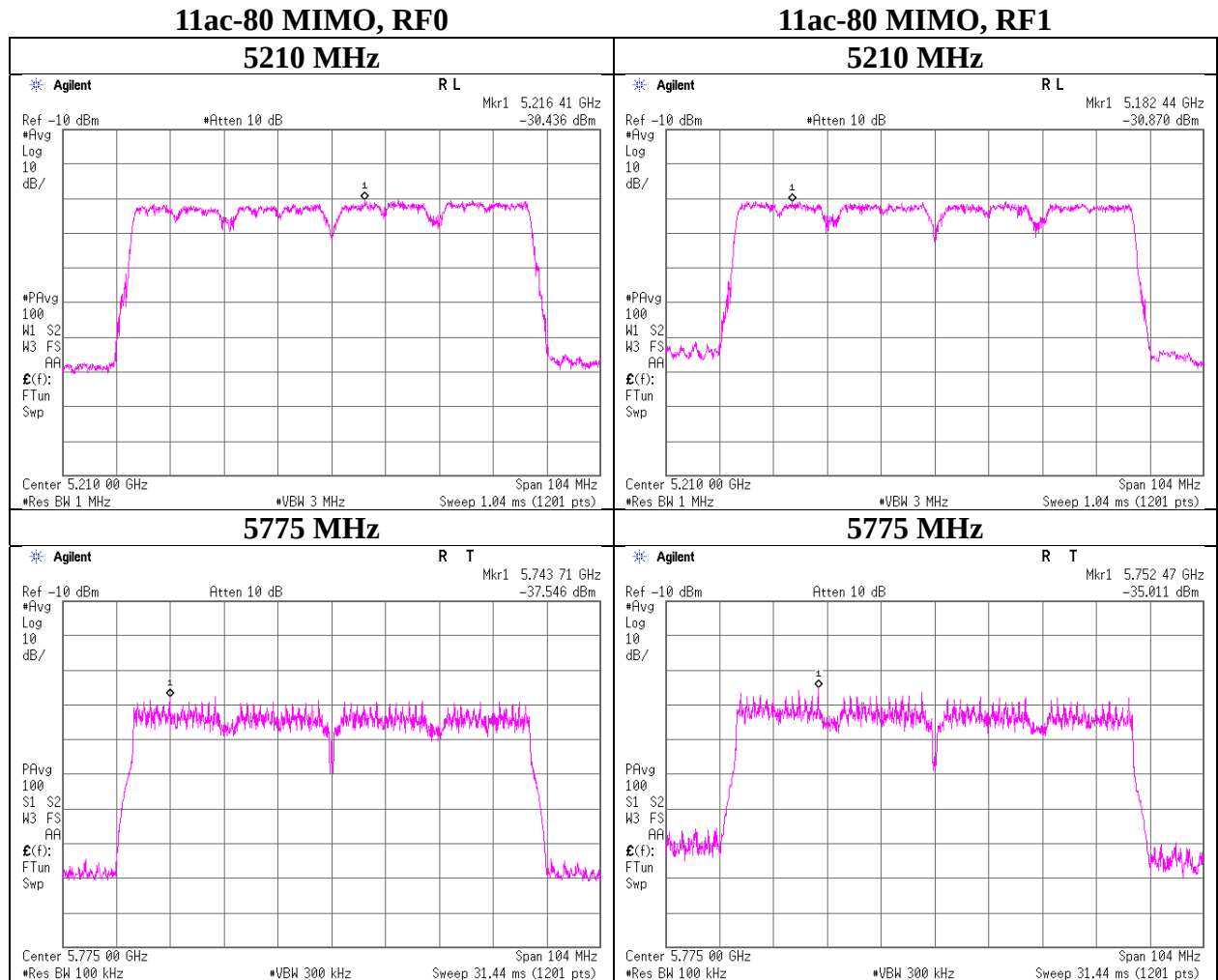
5775 MHz



5775 MHz



Maximum Power Spectral Density



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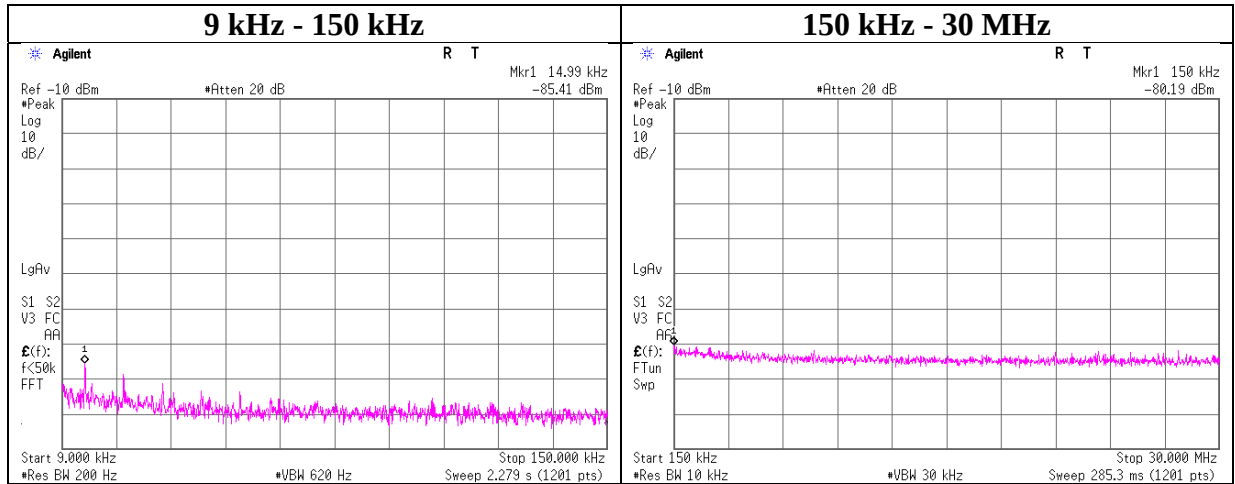
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

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Conducted Spurious Emission

Report No. 13408107S-C
Test place Shonan EMC Lab. No.5 Shielded Room
Date August 17, 2020
Temperature / Humidity 24 deg. C / 54 % RH
Engineer Shiro Kobayashi
Mode Tx 11ac-20 MIMO 5745 MHz



Frequency [kHz]	Reading [dBm]	Cable Loss [dB]	Attenuator [dB]	Antenna Gain [dBi]	N (Number of Output)	EIRP [dBm]	Distance [m]	Ground bounce [dB]	E (field strength) [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
14.99	-85.4	0.01	9.81	2.64	2	-69.9	300	6.0	-8.7	44.0	52.7	-
150.00	-80.2	0.01	9.81	2.64	2	-64.7	300	6.0	-3.5	24.0	27.5	-

$E [dBuV/m] = EIRP [dBm] - 20 \log (Distance [m]) + Ground\ bounce [dB] + 104.8 [dBuV/m]$

$EIRP [dBm] = Reading [dBm] + Cable\ loss [dB] + Attenuator\ Loss [dB] + Antenna\ gain [dBi] + 10 * \log (N)$

N: Number of output

APPENDIX 2: Test instruments

Test equipment

Test Name	Local ID	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Calibration Interval (Month)
AT	KSA-08	145089	Spectrum Analyzer	Keysight Technologies Inc	E4446A	MY46180525	2019/11/05	12
AT	KTS-07	145111	Digital Tester	SANWA	PC500	7019232	2019/10/01	12
AT	SAT10-14	154591	Attenuator	Weinschel Corp.	54A-10	81595	2020/04/01	12
AT	SAT10-16	160494	Attenuator	Weinschel Corp.	54A-10	83420	2019/12/12	12
AT	SCC-G66	196947	Coaxial Cable	HUBER+SUNER	SUCOFLEX 102	803478/2	2020/03/10	12
AT	SCC-G67	196949	Coaxial Cable	HUBER+SUNER	SUCOFLEX 102	803480/2	2020/03/10	12
AT	SOS-19	175823	Humidity Indicator	CUSTOM. Inc	CTH-201	-	2019/12/19	12
AT	SPM-07	146247	Power Meter	Keysight Technologies Inc	8990B	MY5100272	2020/05/27	12
AT	SPSS-04	146310	Power sensor	Keysight Technologies Inc	N1923A	MY5326009	2020/05/27	12
AT	SPSS-05	146311	Power sensor	Keysight Technologies Inc	N1923A	MY5349008	2020/05/27	12
AT	SRENT-15	160899	Spectrum Analyzer	Keysight Technologies Inc	E4440A	MY46185516	2020/01/15	12
AT	STM-G6	146207	Terminator	JFW	50T-128	-	2019/11/05	12

*Hyphens for Last Calibration Date and Cal Int (month) are instruments that Calibration is not required (e.g. software), or instruments checked in advance before use.

The expiration date of the calibration is the end of the expired month.

As for some calibrations performed after the tested dates, those test equipment have been controlled by means of an unbroken chains of calibrations.

All equipment is calibrated with valid calibrations. Each measurement data is traceable to the national or international standards.

Test item:

AT: Antenna Terminal Conducted test

UL Japan, Inc.

Shonan EMC Lab.

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