



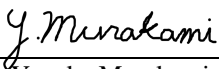
RADIO TEST REPORT

Test Report No. : 13692701S-C-R2

Applicant : DENSO CORPORATION
Type of EUT : Cockpit Control Unit
Model Number of EUT : DNNS122
FCC ID : HYQDNNS122
Test regulation : FCC Part 15 Subpart E: 2021
*WLAN (5 GHz band) part
Test result : Complied (Refer to SECTION 3)

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It does not cover administrative issues such as Manual or non-Radio test related Requirements. (if applicable)
7. The all test items in this test report are conducted by UL Japan, Inc. Shonan EMC Lab.
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.
10. This report is a revised version of 13692701S-C-R1. 13692701S-C-R1 is replaced with this report.

Date of test: February 1 to March 5, 2021

Representative test engineer: 
Yosuke Murakami
Engineer

Approved by: 
Kazutaka Takeyama
Leader



CERTIFICATE 1266.03



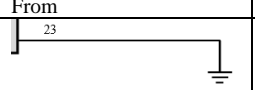
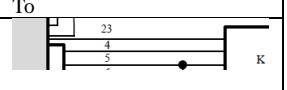
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REVISION HISTORY

Original Test Report No.: 13692701S-C

Revision	Test report No.	Date	Page revised	Contents
- (Original)	13692701S-C	March 26, 2021	-	-
1	13692701S-C-R1	June 25, 2021	1	Change of approver: From "Kazuya Noda" to "Kazutaka Takeyama"
				Removal of the division name "Consumer Technology Division"
			6	Correction of clock frequency: 2 GHz → 40 MHz
			7	Update of Test Specification: From "FCC Part 15 final revised on January 12, 2021 and effective February 11, 2021" To "FCC Part 15 final revised on May 3, 2021 and effective July 2, 2021" *The revision does not affect the test result conducted before its effective date."
			8	Update of the result in Section 3.2: Due to the modification of the worst margin at the Radiated Spurious Emission.
				Update of remarks to the FCC Part 15.31 (e): From "This EUT provides the stable voltage constantly to RF Part regardless of input voltage. Therefore, this EUT complies with the requirement." To "The EUT provides stable voltage constantly to the wireless transmitter regardless of input voltage. Instead of a new battery, DC power supply was used for the test. Therefore, this EUT complies with the requirement."
			13	Modification of 4.2 Configuration and peripherals: From  To 
				Correction of 4.2 Configuration and peripherals: Cable No.23 "GND" From  To 
			14,16	Corrected the model name and added "No" before the serial number.
			59-63	Added the description of the worst rate.
94-175	Removal of the Radiated Spurious Emission data of AE.			
177	Removal of the Radiated Spurious Emission data of AE (Plot data, Worst case).			
2	13692701S-C-R2	July 5, 2021	67-72	Addition 6.99 dB to PSD Result in U-NII-3.
			73-77	Addition 6.99 dB to Chain 1 PSD Result in U-NII-3. Recalculation PSD (Conducted) and PSD (e.i.r.p.).

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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 : DENSO CORPORATION
Address : 1-1 Showa-cho, Kariya-shi, Aichi ken, 448-8661 Japan
Telephone Number : +81-566-20-3304
Facsimile Number : +81-566-25-4920
Contact Person : Naoto Makino

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 : Cockpit Control Unit
Model Number : DNNS122
Serial Number : Refer to SECTION 4.2
Rating : DC 13.2 V
Receipt Date : January 29, 2021
Country of Mass-production : USA, JAPAN
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: DNNS122 (referred to as the EUT in this report) is a Cockpit Control Unit.

Radio Specification

Clock frequency(Maximum) : 40 MHz

Bluetooth (BR/EDR)	
Frequency of operation	2402 MHz - 2480 MHz
Channel spacing	1 MHz
Modulation	FHSS (GFSK, $\pi/4$ -DQPSK, 8DPSK)
Antenna type	External Antenna
Antenna Gain	2.55 dBi (Max)

	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	5 GHz band 40 MHz
Modulation	DSSS: DBPSK, DQPSK, CCK	OFDM: BPSK, QPSK, 16QAM, 64QAM		
	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 BPSK, QPSK, 16QAM, 64QAM, 256QAM (*256QAM is only for IEEE802.11ac 80 MHz band)			
Antenna type	External Antenna			
Antenna Gain	Main Antenna: Chain0 : 2.55 dBi (2.4 GHz), 0.02 dBi (5 GHz) Sub Antenna: Chain1 : -2.10 dBi (2.4 GHz), -5.26 dBi (5 GHz)			

[AM/FM (incl.RBDS)/XM Radio]

	AM	FM (incl. RBDS)	XM
Equipment type	Receiver		
Frequency of operation	530 kHz to 1710 kHz	87.75 MHz to 107.9 MHz	2333.465 MHz to 2344.045 MHz

FM tuner specification

Intermediate frequency: 220 kHz

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SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification : FCC Part 15 Subpart E
FCC Part 15 final revised on January 12, 2021 and effective February 11, 2021

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

3.2 Procedures and results

Item	Test Procedure	Specification	Worst margin	Results	Remarks
Conducted Emission	FCC: ANSI C63.10-2013 ISED: RSS-Gen 8.8	FCC: 15.407 (b) (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		Complied 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		6.3 dB 5150.000 MHz, AV, Hori. Tx 11n-40 5190 MHz	Complied c) / d)
6 dB Emission Bandwidth	FCC: ANSI C63.10-2013 ISED: -	FCC: 15.407 (e) ISED: RSS-247 6.2.4.1	See data	Complied e)	Conducted
<p>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 *2) Radiated test was selected over 30 MHz based on FCC 15.407 (b) and KDB 789033 D02 G.3.b).</p> <p>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 Radiated Spurious Emission) d) Refer to APPENDIX 1 (data of Conducted Spurious Emission) e) Refer to APPENDIX 1 (data of 6 dB Bandwidth)</p> <p>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.</p>					

* 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 wireless transmitter regardless of input voltage. Instead of a new battery, DC power supply was used for the test. Therefore, this 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 vehicle. Therefore, the equipment complies with the antenna requirement of Section 15.203.

3.3 Addition to standard

Item	Test Procedure	Specification	Worst margin	Results	Remarks
99 % Occupied Bandwidth	ISED: RSS-Gen 6.7	ISED: -	N/A	- a)	Conducted
a) 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 $k=2$.

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Item	Frequency range	Uncertainty (+/-)			
		No. 1 SAC / SR	No. 2 SAC / SR	No. 3 SAC / SR	No. 4,5,6,8 SR
Conducted emission (AC Mains) LISN	150 kHz-30 MHz	2.6 dB	2.6 dB	2.56dB	2.9 dB
Radiated emission (Measurement distance: 3 m)	9 kHz-30 MHz	3.0 dB	2.7 dB	2.7 dB	-
	30 MHz-200 MHz	4.6 dB	4.6 dB	4.6 dB	-
	200 MHz-1 GHz	6.0 dB	6.0 dB	6.0 dB	-
	1 GHz-6 GHz	4.8 dB	4.8 dB	4.8 dB	-
	6 GHz-18 GHz	5.4 dB	5.4 dB	5.4 dB	-
Radiated emission (Measurement distance: 1 m)	18 GHz-40 GHz	5.3 dB	5.3 dB	5.3 dB	-
	1 GHz-18 GHz	5.7 dB	5.7 dB	5.7 dB	-
	18 GHz-40 GHz	5.6 dB	5.6 dB	5.6 dB	-

SAC=Semi-Anechoic Chamber

SR= Shielded Room is applied besides radiated emission

Antenna terminal test	Uncertainty (+/-)
Power Measurement above 1 GHz (Average Detector)_SPM-06	1.4 dB
Power Measurement above 1 GHz (Peak Detector)_SPM-06	1.6 dB
Power Measurement above 1 GHz (Average Detector)_SPM-07	0.89 dB
Power Measurement above 1 GHz (Peak Detector)_SPM-07	1.2 dB
Power Measurement above 1 GHz (Average Detector)_SPM-13	0.91 dB
Power Measurement above 1 GHz (Peak Detector)_SPM-13	1.2 dB
Spurious emission (Conducted) below 1GHz	0.87 dB
Spurious emission (Conducted) 1 GHz-3 GHz	0.96 dB
Spurious emission (Conducted) 3 GHz-18 GHz	3.0 dB
Spurious emission (Conducted) 18 GHz-26.5 GHz	2.6 dB
Spurious emission (Conducted) 26.5 GHz-40 GHz	2.2 dB
Bandwidth Measurement	0.012 %
Duty cycle and Time Measurement	0.27 %
Temperature_SCH-01	0.95 deg.C.
Humidity_SCH-01	0.83 %
Temperature_SCH-02	2.0 deg.C.
Humidity_SCH-02	6.6 %
Voltage	0.86 %

3.5 Test Location

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Telephone: +81 463 50 6400, Facsimile: +81 463 50 6401
A2LA Certificate Number: 1266.03
(FCC test firm registration number: 626366, ISED lab company number: 2973D / CAB identifier: JP0001)

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

3.6 Test data, Test instruments, and Test set up

Refer to APPENDIX.

SECTION 4: Operation of EUT during testing

4.1 Operating Mode(s)

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.

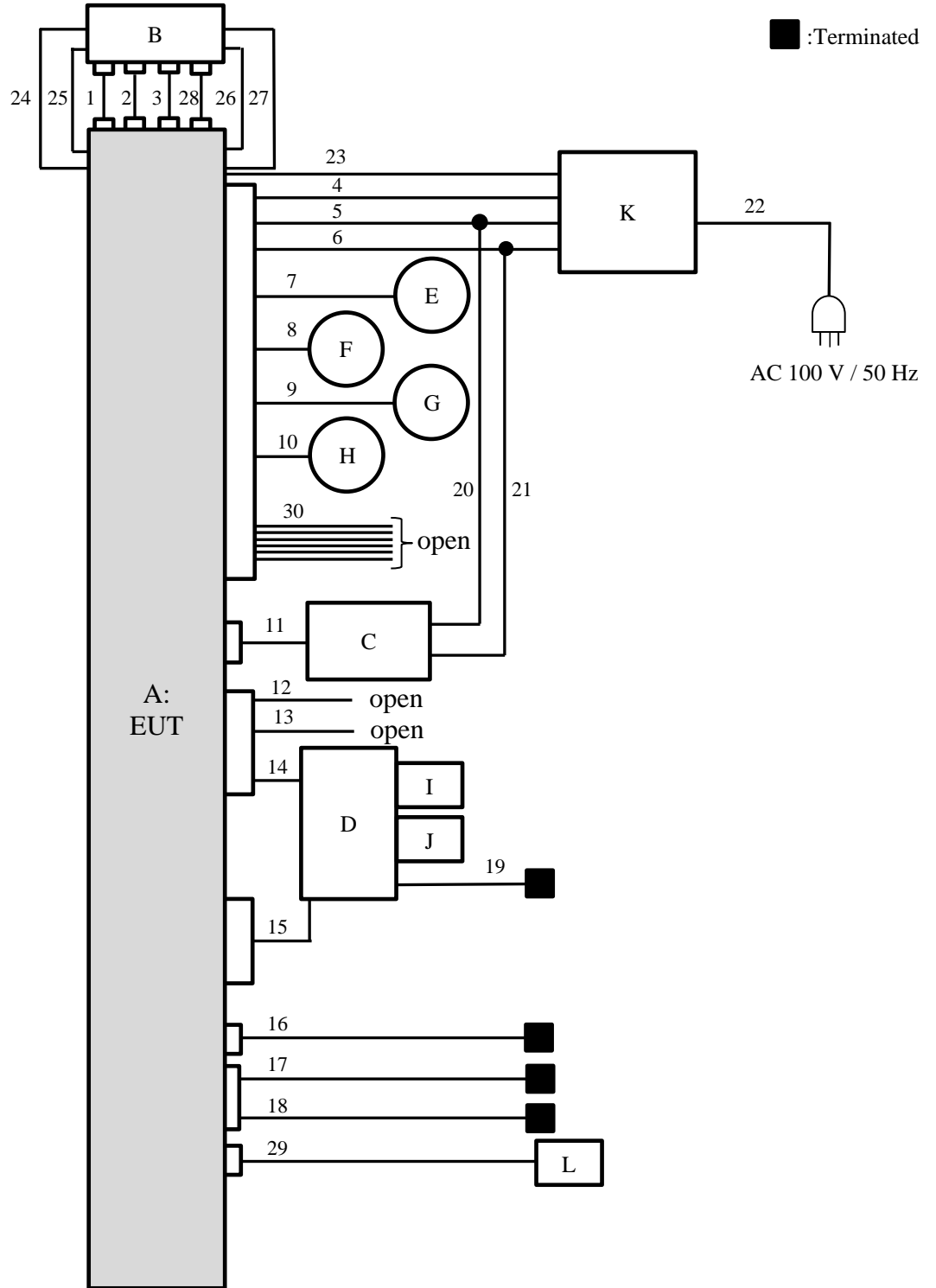
Mode	Remarks*
IEEE 802.11a (11a)	18 Mbps, PN9
IEEE 802.11n SISO 20 MHz BW (11n-20 SISO)	MCS 2, PN9
IEEE 802.11n MIMO 20 MHz BW (11n-20 MIMO)	MCS 10, PN9
IEEE 802.11ac SISO 20 MHz BW (11ac-20 SISO)	MCS 2, PN9
IEEE 802.11ac MIMO 20 MHz BW (11ac-20 MIMO)	MCS 2, PN9
IEEE 802.11n SISO 40 MHz BW (11n-40 SISO)	MCS 4, PN9
IEEE 802.11n MIMO 40 MHz BW (11n-40 MIMO)	MCS 10, PN9
IEEE 802.11ac SISO 40 MHz BW (11ac-40 SISO)	MCS 6, PN9
IEEE 802.11ac MIMO 40 MHz BW (11ac-40 MIMO)	MCS 2, PN9
IEEE 802.11ac SISO 80 MHz BW (11ac-80 SISO)	MCS 2, PN9
IEEE 802.11ac MIMO 80 MHz BW (11ac-80 MIMO)	MCS 2, PN9
*The worst condition was determined based on the test result of Maximum Conducted Output Power.	
*Power of the EUT was set by the software as follows; Power settings *1): 11a 7.5 dBm, 11n-20 6.5 dBm, 11ac-20(MCS 0~MCS 7) 6.5 dBm, 11ac-20(MCS 8) 5.5 dBm 11n-40 5.5 dBm, 11ac-40(MCS 0~MCS 7) 5.5 dBm, 11ac-40(MCS 8~ MCS 9) 3.5 dBm 11ac-80(MCS 0~MCS 7) 4.5 dBm, 11ac-80(MCS 8~ MCS 9) 2.5 dBm Software: MSoC Ver.F61WHM010-708(Date:2020.Nov-12th) (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.	
*1) The power setting values on this table are testing software's settings, therefore it does not represents actual power output level 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, 11n-20 SISO/MIMO, 11ac-20 SISO/MIMO	Chain0	5180 MHz 5220 MHz 5240 MHz	5745 MHz 5785 MHz 5825 MHz
	11n-40 SISO/MIMO, 11ac-40 SISO/MIMO,	Chain0	5190 MHz 5230 MHz	5755 MHz 5795 MHz
	11ac-80 SISO/MIMO	Chain0	5210 MHz	5775 MHz
Maximum Conducted Output Power, Maximum Power Spectral Density	11a, 11n-20 SISO/MIMO, 11ac-20 SISO/MIMO	Chain0, Chain0+Chain1	5180 MHz 5220 MHz 5240 MHz	5745 MHz 5785 MHz 5825 MHz
	11n-40 SISO/MIMO 11ac-40 SISO/MIMO	Chain0, Chain0+Chain1	5190 MHz 5230 MHz	5755 MHz 5795 MHz
	11ac-80 SISO	Chain0, Chain0+Chain1	5210 MHz	5775 MHz
6 dB Bandwidth	11a, 11n-20 SISO/MIMO, 11ac-20 SISO/MIMO	Chain0	-	5745 MHz 5785 MHz 5825 MHz
	11n-40 SISO/MIMO, 11ac-40 SISO/MIMO	Chain0	-	5755 MHz 5795 MHz
	11ac-80 SISO/MIMO	Chain0	-	5775 MHz
Radiated Spurious Emission (Below 1 GHz) *1)	11a	Chain0	-	5785 MHz
	11ac-20 MIMO	Chain0+Chain1	-	5745 MHz
Radiated Spurious Emission (Above 1 GHz)	11a, 11n-20 SISO/MIMO, 11ac-20 SISO/MIMO	Chain0, Chain0+Chain1	5180 MHz 5220 MHz 5240 MHz	5745 MHz 5785 MHz 5825 MHz
	11n-40 SISO/MIMO, 11ac-40 SISO.MIMO	Chain0, Chain0+Chain1	5190 MHz 5230 MHz	5755 MHz 5795 MHz
	11ac-80 SISO/MIMO	Chain0, Chain0+Chain1	5210 MHz	5775 MHz
Conducted Spurious Emission *1)	11a	Chain0	-	5785 MHz
	11ac-20 MIMO	Chain0 *2)	-	5745 MHz
*1) The mode was tested as a representative, because it had the highest power at antenna terminal test.				
*2) The test was performed with the antenna that had higher power as a representative				

4.2 Configuration and peripherals

<Radiated Emission test>



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

Description of EUT and Support equipment

No.	Item	Model number	Serial number	Manufacturer	Remarks
A	Cockpit Control Unit	DNNS122	CP1.5-K3-GZ1-US-High-064	DENSO CORPORATION	EUT
B	Center Information Display	DNNS132	GZ1-SD-HM LHD-077	DENSO CORPORATION	-
C	Meter	85002AN02A	-	DENSO CORPORATION	-
D	AUX-BOX	86257 AN00A	No.5	DENSO CORPORATION	-
E	Speaker L	20FHI-SPRE-03	-	DENSO CORPORATION	-
F	Speaker R	20FHI-SPRE-03	-	DENSO CORPORATION	-
G	Speaker Rear L	20FHI-SPRE-03	-	DENSO CORPORATION	-
H	Speaker Rear R	20FHI-SPRE-03	-	DENSO CORPORATION	-
I	USB Memory	USM4GL-W	-	SONY	-
J	USB Memory	USM4GU	-	SONY	-
K	DC Power supply	PAN60-10A	NL002383	KIKUSUI	-
L	GPS Antenna	86277AL150	03590033	SUBARU	-

List of cables used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	CCU-CID-POW	0.2	Unshielded	Unshielded	-
2	CCU-CID-LVDS	0.2	Unshielded	Unshielded	-
3	CCU-CID-BT	0.2	Unshielded	Unshielded	-
4	DC power(+B)	1.8	Unshielded	Unshielded	-
5	DC power(+IG)	1.8	Unshielded	Unshielded	-
6	DC power(GND)	1.8	Unshielded	Unshielded	-
7	Speaker L	1.8	Unshielded	Unshielded	-
8	Speaker R	1.8	Unshielded	Unshielded	-
9	Speaker Rear L	1.8	Unshielded	Unshielded	-
10	Speaker Rear R	1.8	Unshielded	Unshielded	-
11	Meter	1.8	Unshielded	Unshielded	-
12	USB(Blue)	1.5	Shielded	Shielded	-
13	USB(Brown)	0.15	Shielded	Shielded	-
14	USB(Green)	0.5	Shielded	Shielded	-
15	Power Supply	1.0	Unshielded	Unshielded	-
16	XM	1.0	Shielded	Shielded	-
17	AM/FM	2.0	Shielded	Shielded	-
18	AM/FM	2.0	Shielded	Shielded	-
19	Mini Jack	2.0	Unshielded	Unshielded	-
20	DC power(+IG)	1.2	Unshielded	Unshielded	-
21	DC power(GND)	1.2	Unshielded	Unshielded	-
22	AC	3.0	Unshielded	Unshielded	-
23	GND	2.4	Unshielded	Unshielded	-
24	GND	0.2	Unshielded	Unshielded	-
25	GND	0.2	Unshielded	Unshielded	-
26	GND	0.2	Unshielded	Unshielded	-
27	GND	0.2	Unshielded	Unshielded	-
28	CCU-CID-Wifi	0.2	Unshielded	Unshielded	-
29	GPS	0.8	Shielded	Shielded	-
30	Signal	1.0	Unshielded	Unshielded	-

UL Japan, Inc.

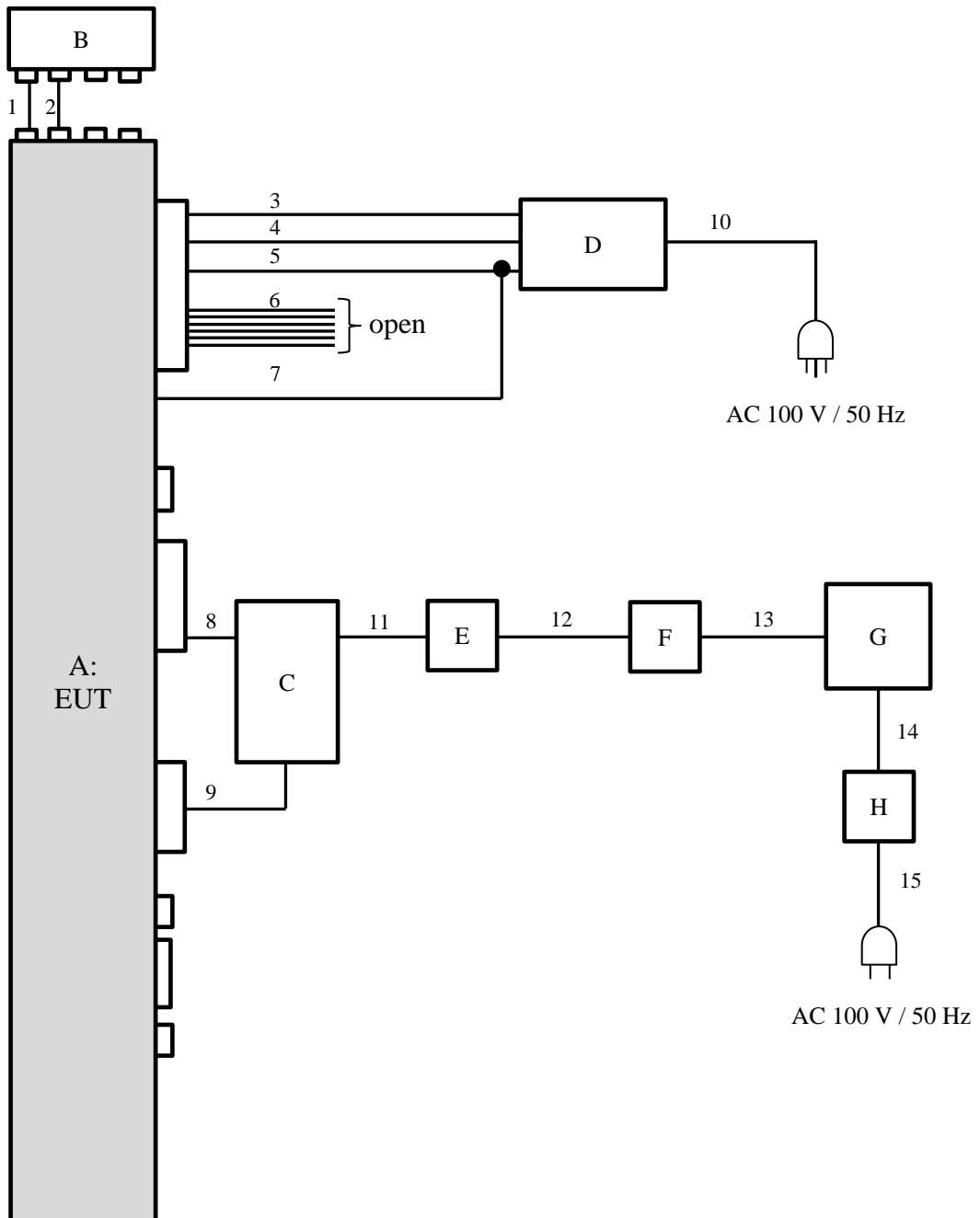
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<Antenna Terminal Conducted test>



Description of EUT and Support equipment

No.	Item	Model number	Serial number	Manufacturer	Remarks
A	Cockpit Control Unit	DNNS122	CP1.5-K3-GZ1-US-High-065	DENSO CORPORATION	EUT
B	Center Information Display	DNNS132	GZ1-SD-HM LHD-077	DENSO CORPORATION	-
C	AUX-BOX	86257 AN00A	No.2	HOSIDEN	-
D	DC Power supply	PAN35-10A	ML002085	KIKUSUI	-
E	USB-LAN Converter	LUA3-U2-ATX	26495680102812	Buffalo	-
F	USB-LAN Converter	LUA3-U2-ATX	26495680815712	Buffalo	-
G	Laptop PC	ThinkPad L580	PF-1PLZHX 19/05	Lenovo	-
H	AC Adaptor	ADLX45YCC2A	8SSA10E75844C1SG94BG7T0	Lenovo	-

List of cables used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	CCU-CID-POW	1.0	Unshielded	Unshielded	-
2	CCU-CID-LVDS	2.0	Unshielded	Unshielded	-
3	DC power(+B)	1.8	Unshielded	Unshielded	-
4	DC power(+IG)	1.8	Unshielded	Unshielded	-
5	DC power(GND)	1.8	Unshielded	Unshielded	-
6	Signal	1.0	Unshielded	Unshielded	-
7	GND	2.4	Unshielded	Unshielded	-
8	USB(Green)	0.5	Shielded	Shielded	-
9	Power Supply	1.0	Unshielded	Unshielded	-
10	AC	3.0	Unshielded	Unshielded	-
11	USB	0.4	Shielded	Shielded	-
12	LAN	2.0	Shielded	Shielded	-
13	USB	0.4	Shielded	Shielded	-
14	DC	1.0	Unshielded	Unshielded	-
15	AC	1.8	Unshielded	Unshielded	-

SECTION 5: Radiated Spurious Emission and Band Edge Compliance

Test Procedure

< Below 1GHz >

EUT was placed on a urethane platform of nominal size, 2.0 m by 1.0 m, raised 0.8 m above the conducting ground plane. The Radiated Electric Field Strength has been measured in a Semi Anechoic Chamber with a ground plane.

< Above 1GHz >

EUT was placed on a urethane platform of nominal size, 0.5 m by 0.5 m, raised 1.5 m above the conducting ground plane. The Radiated Electric Field Strength has been measured in a Semi Anechoic Chamber with absorbent materials lined on a ground plane.

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

Test antenna was aimed at the EUT for receiving the maximum signal and always kept within the illumination area of the 3 dB beamwidth of the antenna.

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

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

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

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

< Below 1 GHz >

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

< Above 1 GHz >

Inside of restricted bands (Section 15.205):

Apply to limit in the Section 15.209 (a).

Outside of the restricted bands:

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

For U-NII-3 Bandedge

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

Restricted band edge:

Apply to limit in the Section 15.209 (a).

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

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

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

Test Antennas are used as below;

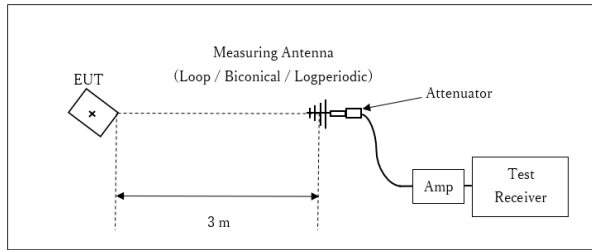
Frequency	30 MHz to 200 MHz	200 MHz to 1 GHz	Above 1 GHz
Antenna Type	Biconical	Logperiodic	Horn

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

*1) 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".

Figure 2: Test Setup

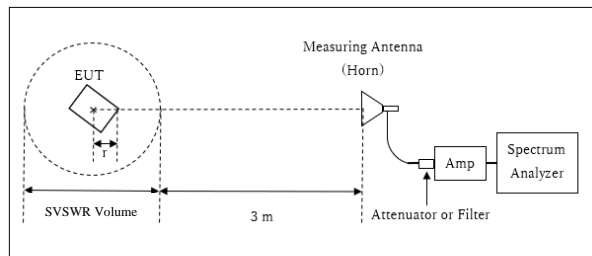
Below 1 GHz



× : Center of turn table

Test Distance: 3 m

1 GHz - 10 GHz



r : Radius of an outer periphery of EUT

× : Center of turn table

Distance Factor: $20 \times \log(3.80 \text{ m} / 3.0 \text{ m}) = 2.06 \text{ dB}$

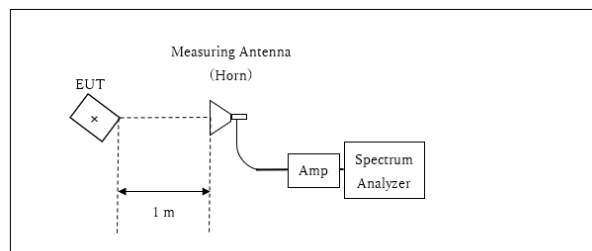
* Test Distance: $(3 + \text{SVSWR Volume} / 2) - r = 3.8 \text{ m}$

SVSWR Volume : 2.0 m

(SVSWR Volume has been calibrated based on CISPR 16-1-4.)

r = 0.20 m

10 GHz - 40 GHz



× : Center of turn table

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

*Test Distance: 1 m

The test was made on EUT at the normal use position.

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

Measurement range : 30 MHz - 40 GHz
Test data : APPENDIX
Test result : Pass

UL Japan, Inc.

Shonan EMC Lab.

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SECTION 6: Antenna Terminal Conducted Tests

Test Procedure

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

Test	Span	RBW	VBW	Sweep time	Detector	Trace	Instrument used 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	-	-	-	Auto	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 not detected 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. 13692701S-C-R2
Test place Shonan EMC Lab. No.5 Shielded Room
Date February 26, 2021
Temperature / Humidity 24 deg. C / 41 % RH
Engineer Shiro Kobayashi
Mode Tx

11a

Tested Frequency [MHz]	99 % Occupied Bandwidth [kHz]
5180	16370.0
5220	16374.0
5240	16375.0
5745	16368.0
5785	16370.0
5825	16386.0

11n-20 SISO

Tested Frequency [MHz]	99 % Occupied Bandwidth [kHz]
5180	17519.0
5220	17511.0
5240	17514.0
5745	17500.0
5785	17508.0
5825	17502.0

11ac-20 SISO

Tested Frequency [MHz]	99 % Occupied Bandwidth [kHz]
5180	17512.0
5220	17511.0
5240	17522.0
5745	17512.0
5785	17525.0
5825	17518.0

11n-40 SISO

Tested Frequency [MHz]	99 % Occupied Bandwidth [kHz]
5190	36827.0
5230	36784.0
5755	36815.0
5795	36830.0

11ac-40 SISO

Tested Frequency [MHz]	99 % Occupied Bandwidth [kHz]
5190	36928.0
5230	36919.0
5755	36929.0
5795	36937.0

11ac-80 SISO

Tested Frequency [MHz]	99 % Occupied Bandwidth [kHz]
5210	74979.0
5775	74996.0

99 % Occupied Bandwidth

Report No. 13692701S-C-R2
Test place Shonan EMC Lab. No.5 Shielded Room
Date February 24, 2021
Temperature / Humidity 24 deg. C / 46 % RH
Engineer Shiro Kobayashi
Mode Tx

11n-20 MIMO

Antenna	Tested Frequency [MHz]	99 % Occupied Bandwidth [kHz]
Chain 0	5180	17539.0
	5220	17523.0
	5240	17528.0
	5745	17537.0
	5785	17513.0
	5825	17534.0

11ac-20 MIMO

Antenna	Tested Frequency [MHz]	99 % Occupied Bandwidth [kHz]
Chain 0	5180	17519.0
	5220	17526.0
	5240	17524.0
	5745	17517.0
	5785	17520.0
	5825	17520.0

11n-40 MIMO

Antenna	Tested Frequency [MHz]	99 % Occupied Bandwidth [kHz]
Chain 0	5190	35948.0
	5230	36045.0
	5755	35987.0
	5795	36002.0

11ac-40 MIMO

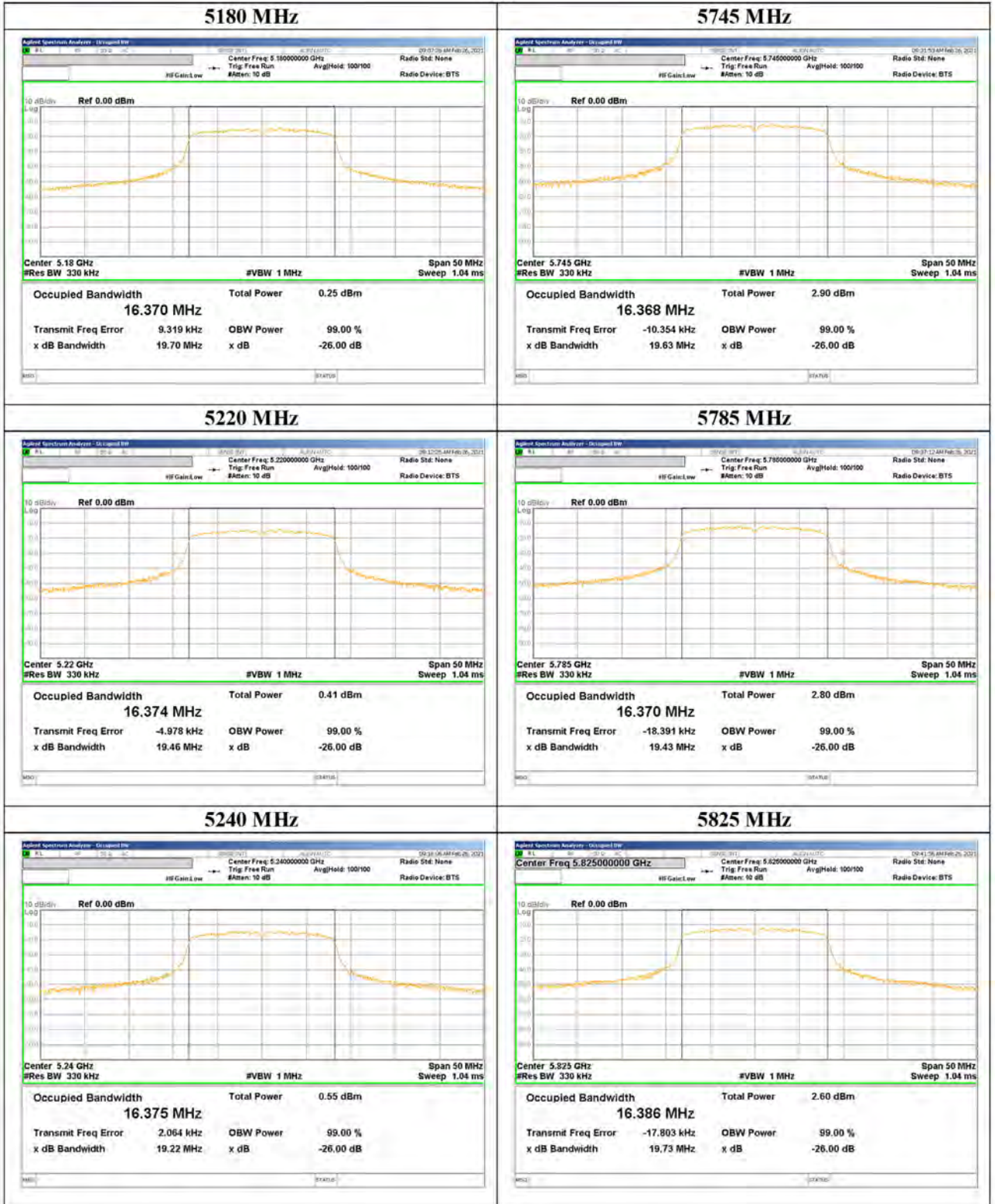
Antenna	Tested Frequency [MHz]	99 % Occupied Bandwidth [kHz]
Chain 0	5190	35965.0
	5230	35982.0
	5755	35965.0
	5795	35991.0

11ac-80 MIMO

Antenna	Tested Frequency [MHz]	99 % Occupied Bandwidth [kHz]
Chain 0	5210	74975.0
	5775	75023.0

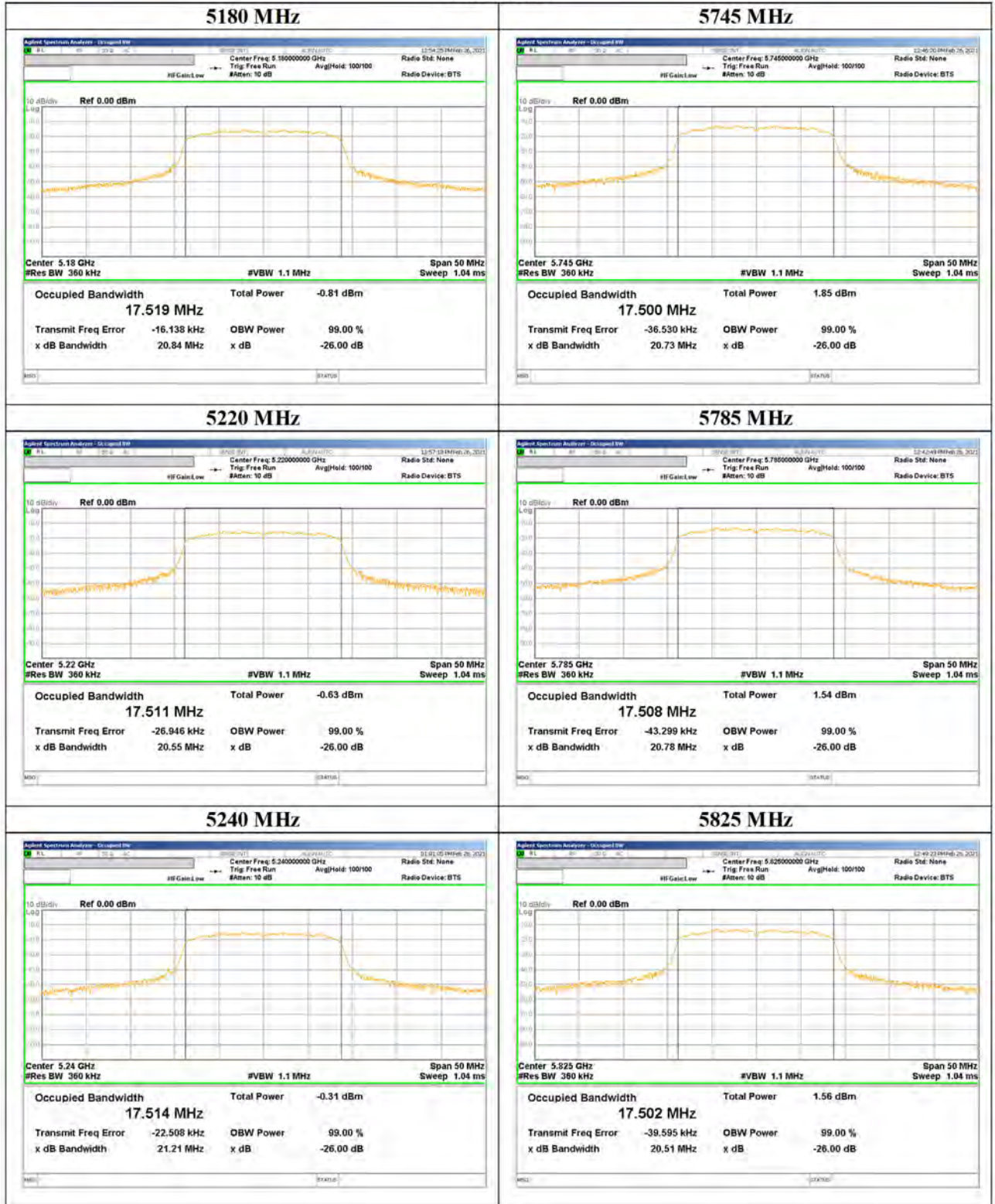
99 % Occupied Bandwidth

11a



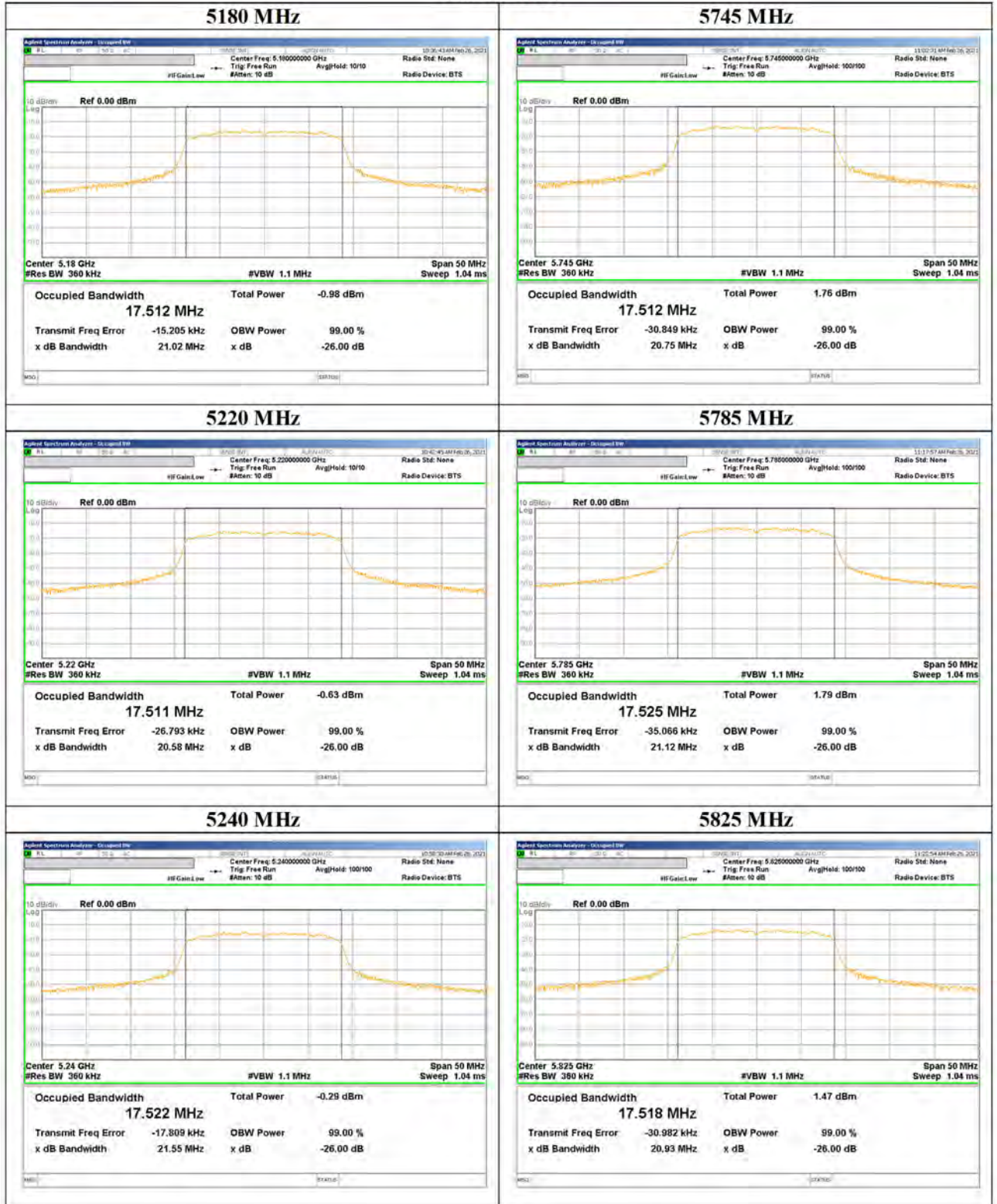
99 % Occupied Bandwidth

11n-20 SISO



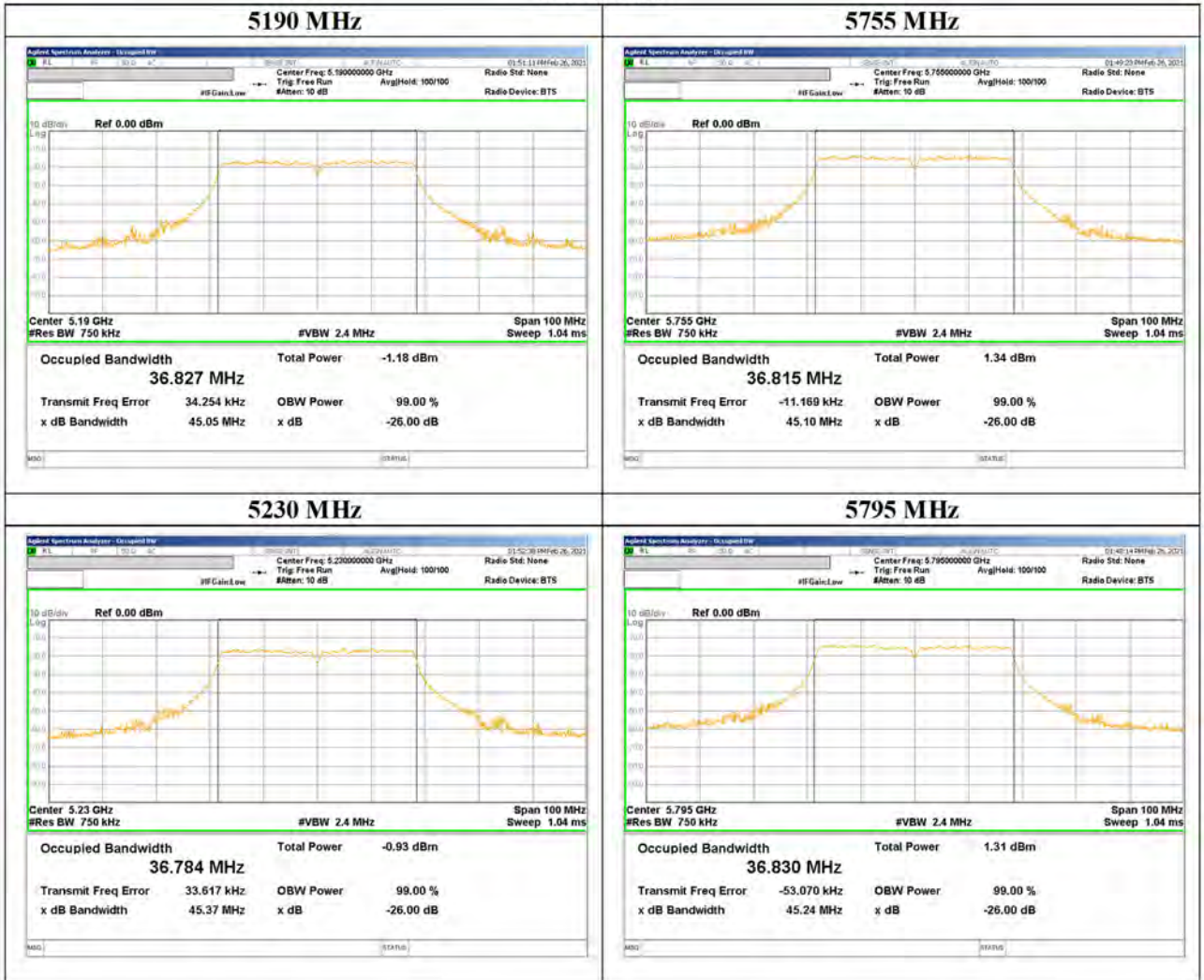
99 % Occupied Bandwidth

11ac-20 SISO



99 % Occupied Bandwidth

11n-40 SISO



99 % Occupied Bandwidth

11ac-40 SISO



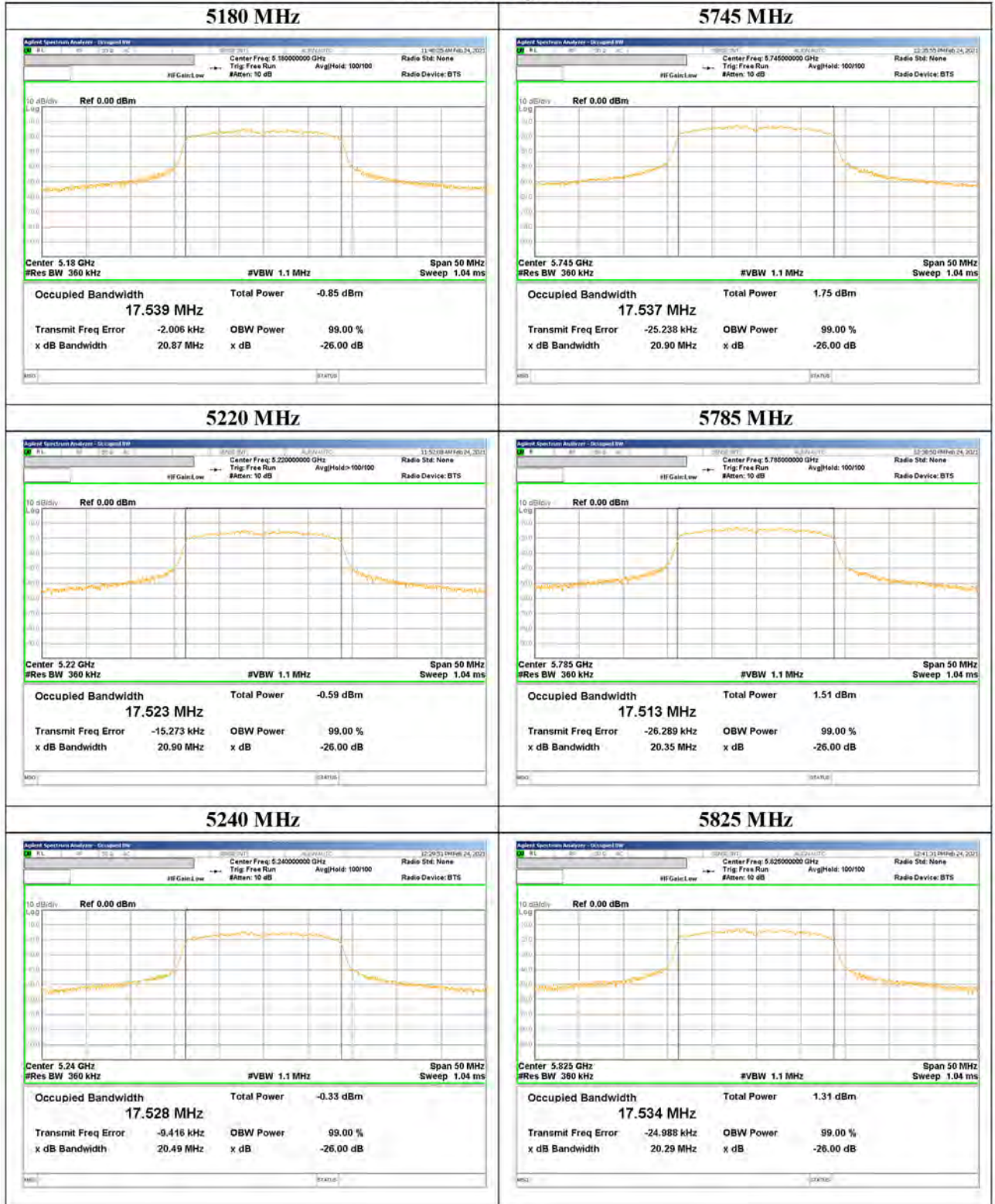
99 % Occupied Bandwidth

11ac-80 SISO



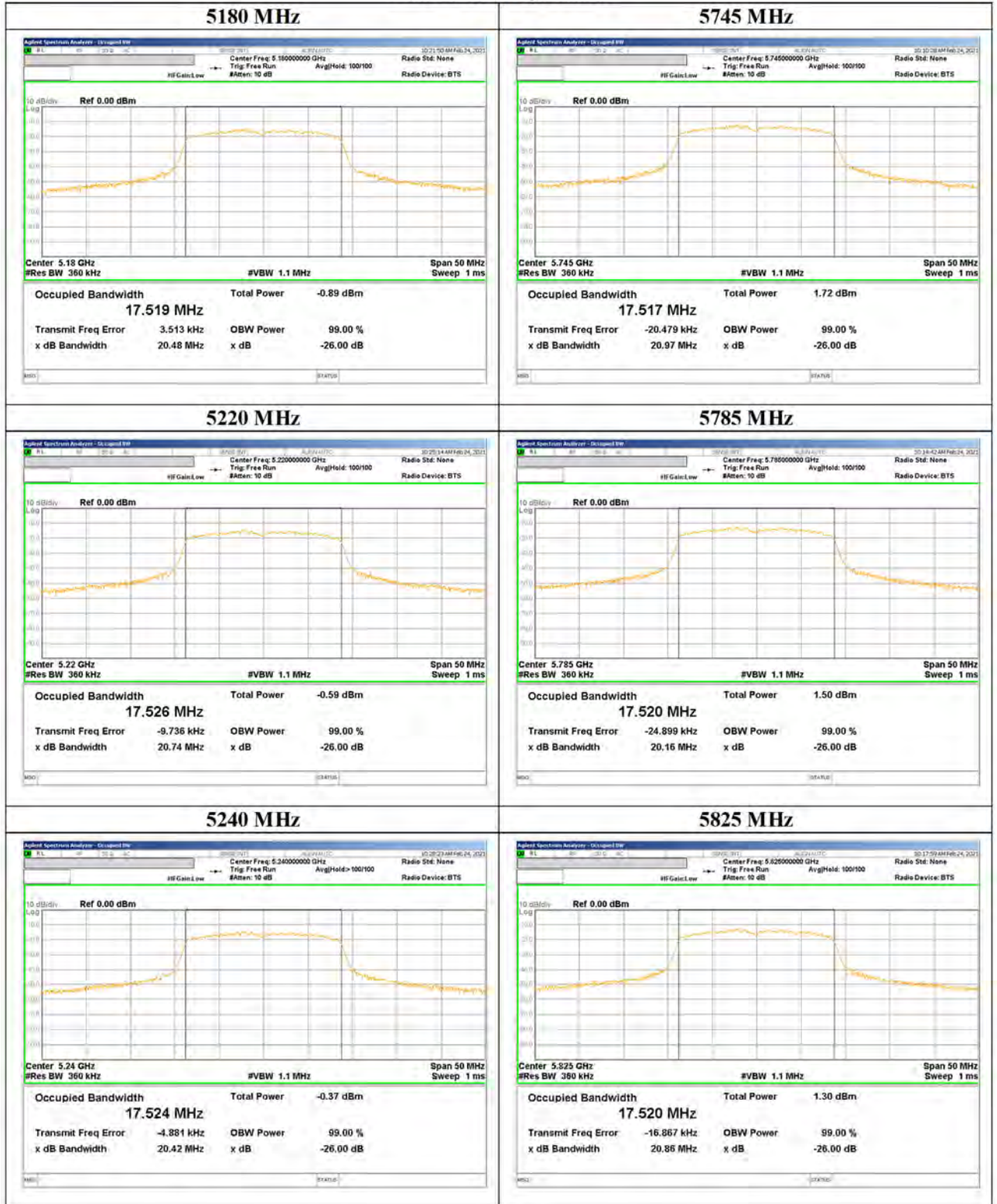
99 % Occupied Bandwidth

11n-20 MIMO, Chain 0



99 % Occupied Bandwidth

11ac-20 MIMO, Chain 0



99 % Occupied Bandwidth

11n-40 MIMO, Chain 0



99 % Occupied Bandwidth

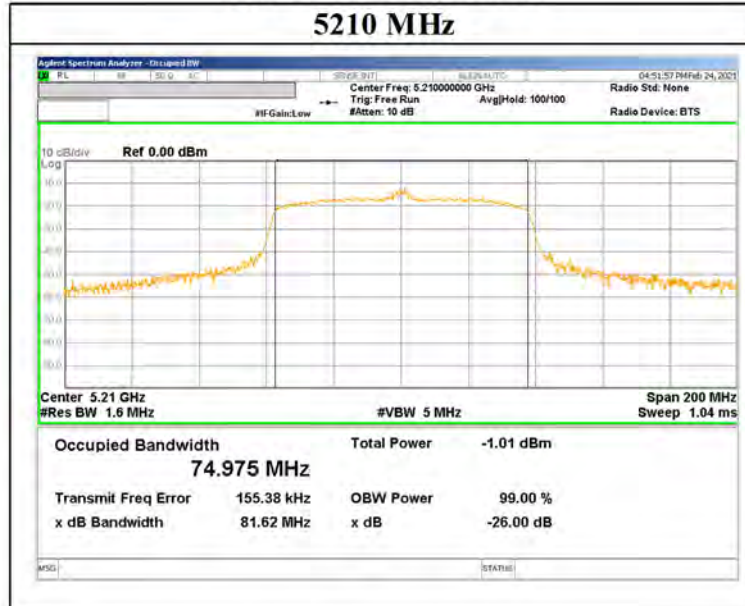
11ac-40 MIMO, Chain 0



99 % Occupied Bandwidth

11ac-80 MIMO, Chain 0

5210 MHz



5775 MHz



6 dB Bandwidth

Report No. 13692701S-C-R2
Test place Shonan EMC Lab. No.5 Shielded Room
Date February 26, 2021
Temperature / Humidity 24 deg. C / 41 % RH
Engineer Shiro Kobayashi
Mode Tx

11a

Tested Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
5745	15.180	> 0.500
5785	15.180	> 0.500
5825	15.180	> 0.500

11n-20 SISO

Tested Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
5745	15.180	> 0.500
5785	15.180	> 0.500
5825	15.180	> 0.500

11ac-20 SISO

Tested Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
5745	15.180	> 0.500
5785	15.180	> 0.500
5825	15.180	> 0.500

11n-40 SISO

Tested Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
5755	36.490	> 0.500
5795	36.480	> 0.500

11ac-40 SISO

Tested Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
5755	36.470	> 0.500
5795	36.490	> 0.500

11ac-80 SISO

Tested Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
5775	75.200	> 0.500

6 dB Bandwidth

Report No. 13692701S-C-R2
Test place Shonan EMC Lab. No.5 Shielded Room
Date February 24, 2021
Temperature / Humidity 24 deg. C / 46 % RH
Engineer Shiro Kobayashi
Mode Tx

11n-20 MIMO

Antenna	Tested Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
Chain 0	5745	15.180	> 0.500
	5785	15.180	> 0.500
	5825	15.180	> 0.500

11ac-20 MIMO

Antenna	Tested Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
Chain 0	5745	15.200	> 0.500
	5785	15.200	> 0.500
	5825	15.200	> 0.500

11n-40 MIMO

Antenna	Tested Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
Chain 0	5755	35.180	> 0.500
	5795	35.180	> 0.500

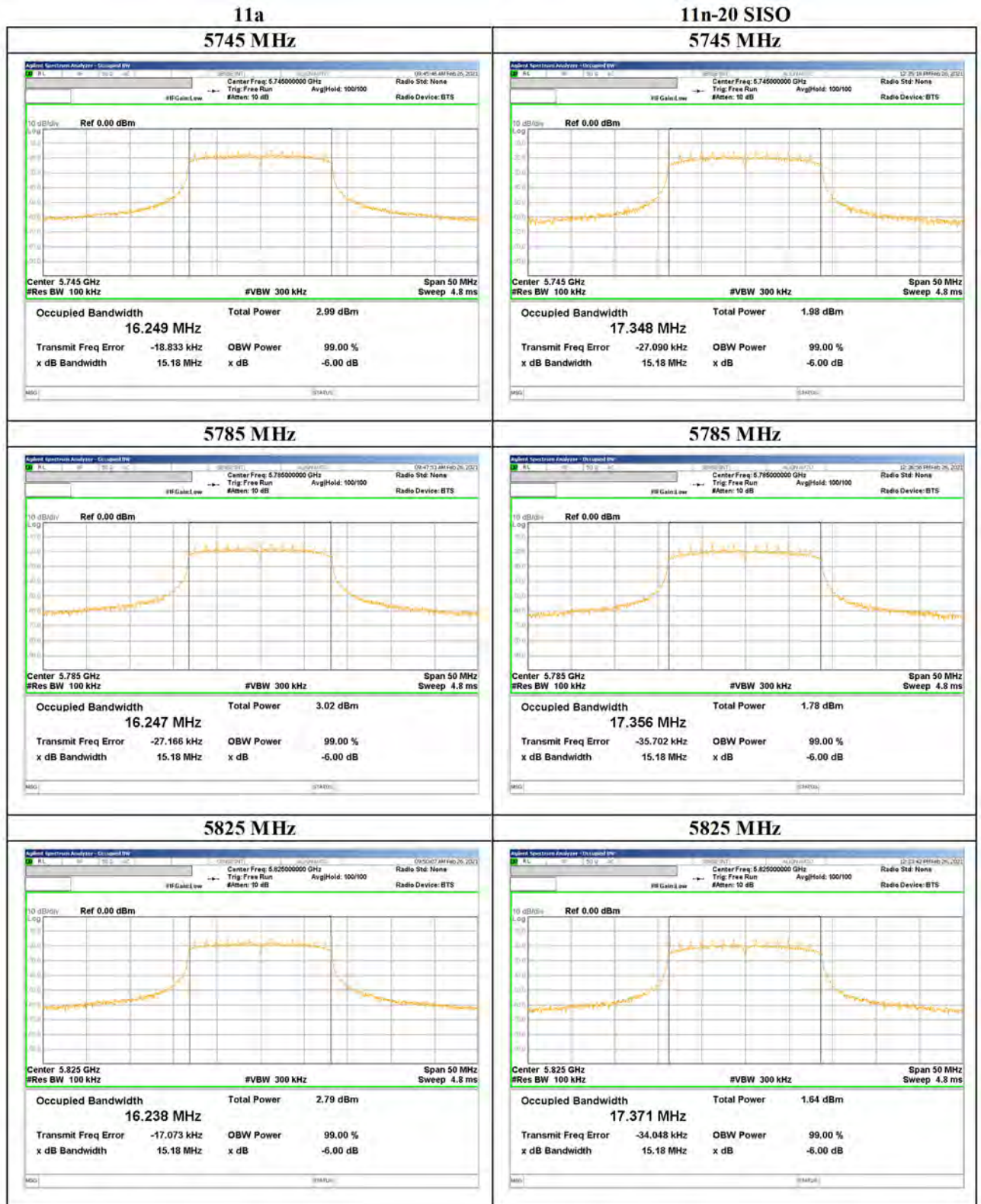
11ac-40 MIMO

Antenna	Tested Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
Chain 0	5755	35.180	> 0.500
	5795	35.180	> 0.500

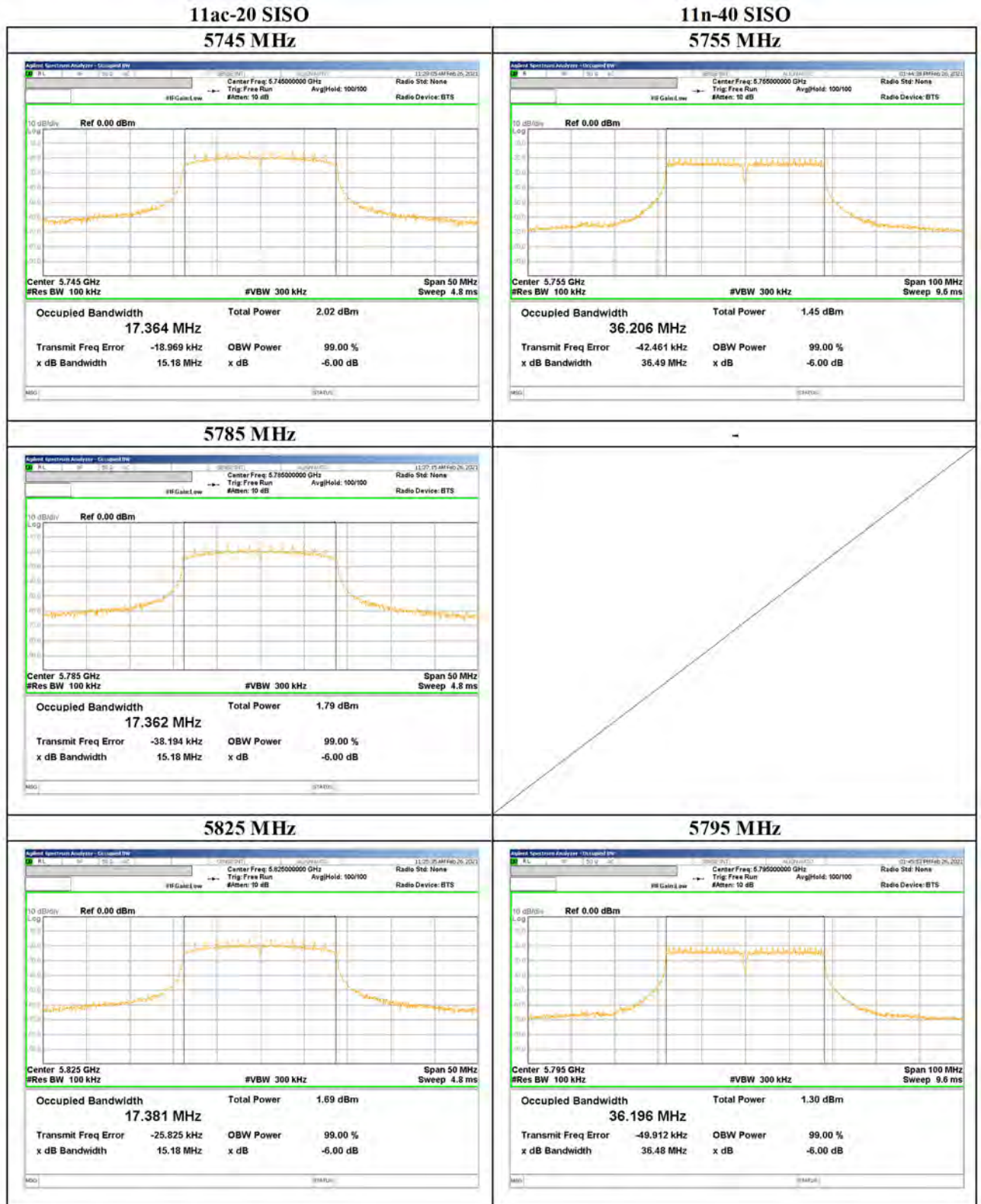
11ac-80

Antenna	Tested Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
Chain 0	5775	75.180	> 0.500

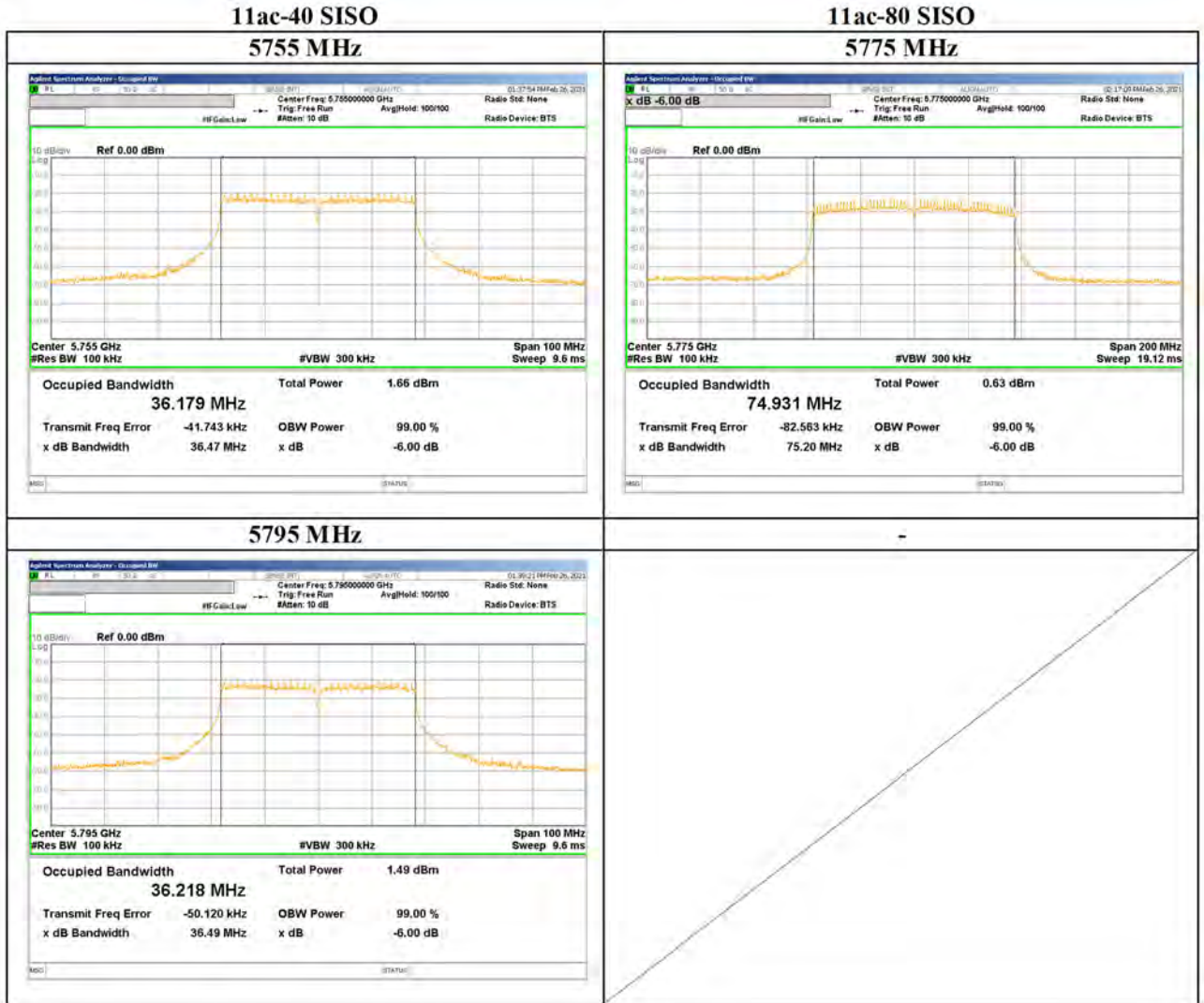
6 dB Bandwidth



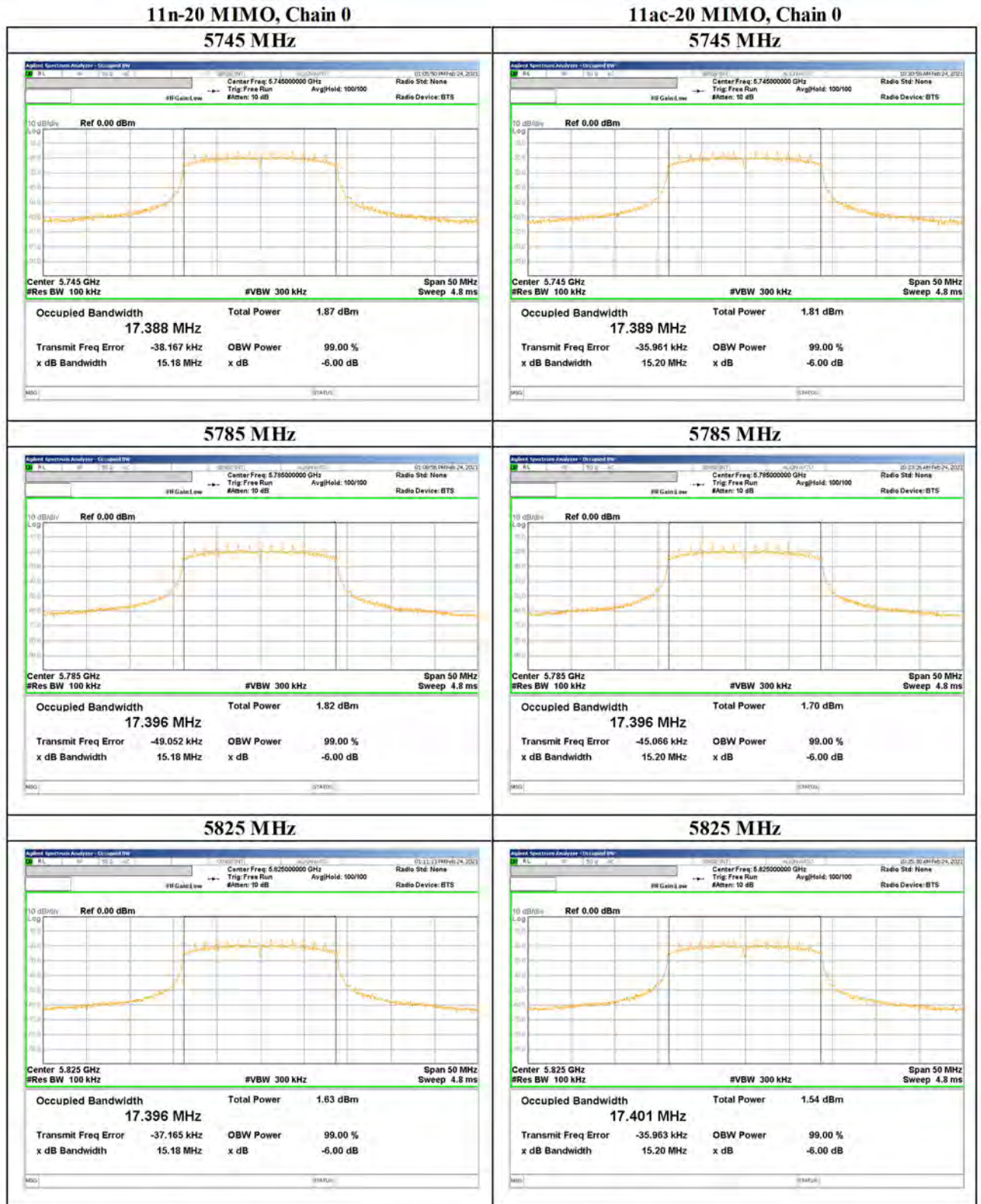
6 dB Bandwidth



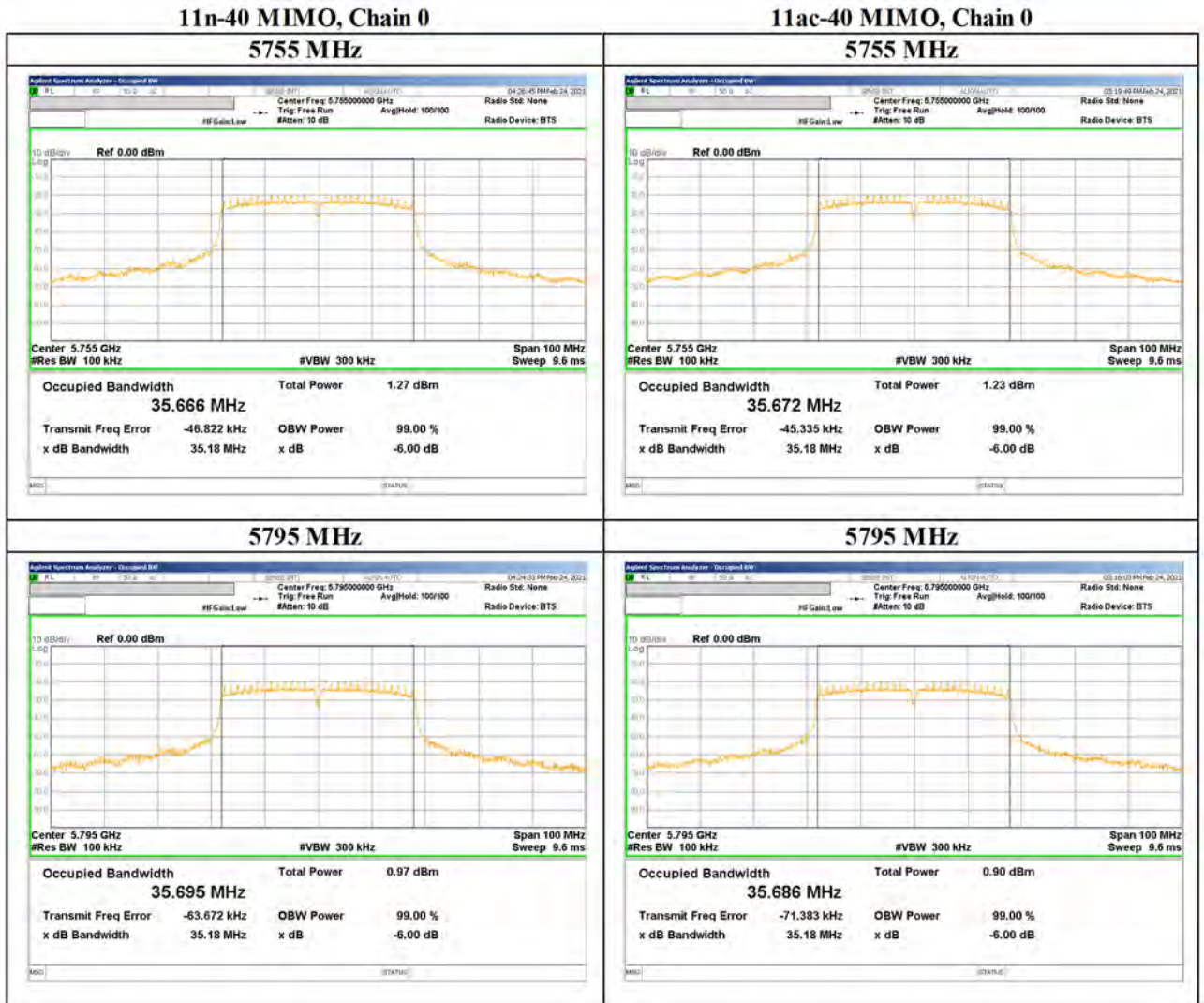
6 dB Bandwidth



6 dB Bandwidth

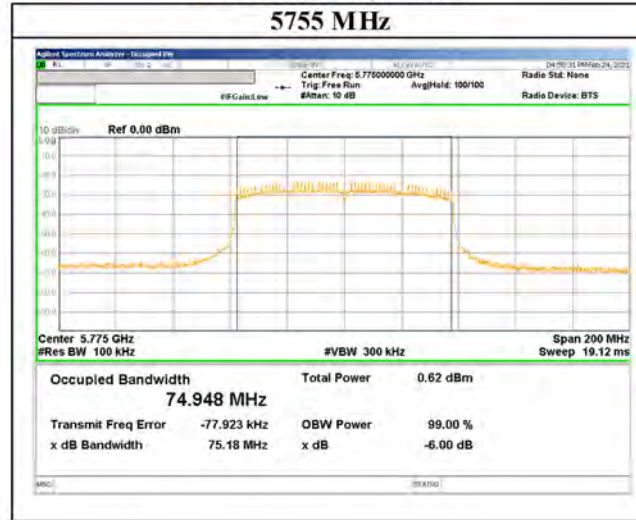


6 dB Bandwidth



6 dB Bandwidth

11ac-80 MIMO, Chain 0
5755 MHz



Maximum Conducted Output Power

Report No. 13692701S-C-R2
Test place Shonan EMC Lab. No.5 Shielded Room
Date February 1, 2021 February 5, 2021
Temperature / Humidity 22 deg. C / 40 % RH 26 deg. C / 52 % RH
Engineer Yosuke Murakami Hiromasa Sato
Mode Tx 11a

11a

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	26 dB EBW (B for FCC) [MHz]	99 % OBW (B for IC) [MHz]	Conducted Power				e.i.r.p.			
							Result [dBm]	[mW]	Limit [dBm]	Margin [dB]	Result [dBm]	[mW]	Limit [dBm]	Margin [dB]
5180	-7.08	2.81	9.94	0.02	-	16.370	5.67	3.69	23.97	18.30	5.69	3.71	29.97	24.28
5220	-6.81	2.81	9.94	0.02	-	16.374	5.94	3.93	23.97	18.03	5.96	3.94	29.97	24.01
5240	-6.45	2.81	9.94	0.02	-	16.375	6.30	4.27	23.97	17.67	6.32	4.29	29.97	23.65
5745	-4.65	2.99	9.94	0.02	-	16.368	8.28	6.73	30.00	21.72	8.30	6.76	36.00	27.70
5785	-4.59	2.99	9.94	0.02	-	16.370	8.34	6.82	30.00	21.66	8.36	6.85	36.00	27.64
5825	-4.89	2.99	9.94	0.02	-	16.386	8.04	6.37	30.00	21.96	8.06	6.40	36.00	27.94

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

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

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

UL Japan, Inc.

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Maximum Conducted Output Power

Report No. 13692701S-C-R2
Test place Shonan EMC Lab. No.5 Shielded Room
Date February 1, 2021 February 5, 2021
Temperature / Humidity 22 deg. C / 40 % RH 26 deg. C / 52 % RH
Engineer Yosuke Murakami Hiromasa Sato
Mode Tx 11n-20 SISO

11n-20 SISO

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	26 dB EBW (B for FCC) [MHz]	99 % OBW (B for IC) [MHz]	Conducted Power				e.i.r.p.			
							Result [dBm]	[mW]	Limit [dBm]	Margin [dB]	Result [dBm]	[mW]	Limit [dBm]	Margin [dB]
5180	-8.34	2.81	9.94	0.02	-	17.519	4.41	2.76	23.97	19.56	4.43	2.77	29.97	25.54
5220	-7.82	2.81	9.94	0.02	-	17.511	4.93	3.11	23.97	19.04	4.95	3.13	29.97	25.02
5240	-7.54	2.81	9.94	0.02	-	17.514	5.21	3.32	23.97	18.76	5.23	3.33	29.97	24.74
5745	-5.69	2.99	9.94	0.02	-	17.500	7.24	5.30	30.00	22.76	7.26	5.32	36.00	28.74
5785	-5.74	2.99	9.94	0.02	-	17.508	7.19	5.24	30.00	22.81	7.21	5.26	36.00	28.79
5825	-5.94	2.99	9.94	0.02	-	17.502	6.99	5.00	30.00	23.01	7.01	5.02	36.00	28.99

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

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

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

Maximum Conducted Output Power

Report No. 13692701S-C-R2
Test place Shonan EMC Lab. No.5 Shielded Room
Date February 1, 2021 February 5, 2021
Temperature / Humidity 22 deg. C / 40 % RH 26 deg. C / 52 % RH
Engineer Yosuke Murakami Hiromasa Sato
Mode Tx 11ac-20 SISO

11ac-20 SISO

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	26 dB EBW (B for FCC) [MHz]	99 % OBW (B for IC) [MHz]	Conducted Power				e.i.r.p.			
							Result [dBm]	[mW]	Limit [dBm]	Margin [dB]	Result [dBm]	[mW]	Limit [dBm]	Margin [dB]
5180	-8.32	2.81	9.94	0.02	-	17.512	4.43	2.77	23.97	19.54	4.45	2.79	29.97	25.52
5220	-7.97	2.81	9.94	0.02	-	17.511	4.78	3.01	23.97	19.19	4.80	3.02	29.97	25.17
5240	-7.89	2.81	9.94	0.02	-	17.522	4.86	3.06	23.97	19.11	4.88	3.08	29.97	25.09
5745	-5.85	2.99	9.94	0.02	-	17.512	7.08	5.11	30.00	22.92	7.10	5.13	36.00	28.90
5785	-5.86	2.99	9.94	0.02	-	17.525	7.07	5.09	30.00	22.93	7.09	5.12	36.00	28.91
5825	-5.97	2.99	9.94	0.02	-	17.518	6.96	4.97	30.00	23.04	6.98	4.99	36.00	29.02

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

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

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

Maximum Conducted Output Power

Report No. 13692701S-C-R2
Test place Shonan EMC Lab. No.5 Shielded Room
Date February 1, 2021 February 5, 2021
Temperature / Humidity 22 deg. C / 40 % RH 26 deg. C / 52 % RH
Engineer Yosuke Murakami Hiromasa Sato
Mode Tx 11n-40 SISO

11n-40 SISO

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	26 dB EBW (B for FCC) [MHz]	99 % OBW (B for IC) [MHz]	Conducted Power				e.i.r.p.			
							Result [dBm]	Limit [dBm]	Margin [dB]	Result [dBm]	Limit [dBm]	Margin [dB]		
5190	-9.20	2.81	9.94	0.02	-	36.827	3.55	2.26	23.97	20.42	3.57	2.28	29.97	26.40
5230	-8.78	2.81	9.94	0.02	-	36.784	3.97	2.49	23.97	20.00	3.99	2.51	29.97	25.98
5755	-6.65	2.99	9.94	0.02	-	36.815	6.28	4.25	30.00	23.72	6.30	4.27	36.00	29.70
5795	-6.66	2.99	9.94	0.02	-	36.830	6.27	4.24	30.00	23.73	6.29	4.26	36.00	29.71

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

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

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

Maximum Conducted Output Power

Report No. 13692701S-C-R2
Test place Shonan EMC Lab. No.5 Shielded Room
Date February 1, 2021 February 5, 2021
Temperature / Humidity 22 deg. C / 40 % RH 26 deg. C / 52 % RH
Engineer Yosuke Murakami Hiromasa Sato
Mode Tx 11ac-40 SISO

11ac-40 SISO

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	26 dB EBW (B for FCC) [MHz]	99 % OBW (B for IC) [MHz]	Conducted Power				e.i.r.p.			
							Result [dBm]	Limit [dBm]	Margin [dB]	Result [dBm]	Limit [dBm]	Margin [dB]		
5190	-9.12	2.81	9.94	0.02	-	36.928	3.63	2.31	23.97	20.34	3.65	2.32	29.97	26.32
5230	-8.66	2.81	9.94	0.02	-	36.919	4.09	2.56	23.97	19.88	4.11	2.58	29.97	25.86
5755	-6.66	2.99	9.94	0.02	-	36.929	6.27	4.24	30.00	23.73	6.29	4.26	36.00	29.71
5795	-6.67	2.99	9.94	0.02	-	36.937	6.26	4.23	30.00	23.74	6.28	4.25	36.00	29.72

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

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

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

Maximum Conducted Output Power

Report No. 13692701S-C-R2
Test place Shonan EMC Lab. No.5 Shielded Room
Date February 1, 2021 February 5, 2021
Temperature / Humidity 22 deg. C / 40 % RH 26 deg. C / 52 % RH
Engineer Yosuke Murakami Hiromasa Sato
Mode Tx 11ac-80 SISO

11ac-80 SISO

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	26 dB EBW (B for FCC) [MHz]	99 % OBW (B for IC) [MHz]	Conducted Power				e.i.r.p.			
							Result [dBm]	[mW]	Limit [dBm]	Margin [dB]	Result [dBm]	[mW]	Limit [dBm]	Margin [dB]
5210	-9.90	2.81	9.94	0.02	-	74.979	2.85	1.93	23.97	21.12	2.87	1.94	29.97	27.10
5775	-7.61	2.99	9.94	0.02	-	74.996	5.32	3.40	30.00	24.68	5.34	3.42	36.00	30.66

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

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

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

Maximum Conducted Output Power

Report No. 13692701S-C-R2
Test place Shonan EMC Lab. No.5 Shielded Room
Date February 19, 2021
Temperature / Humidity 22 deg. C / 42 % RH
Engineer Toshinori Yamada
Mode Tx 11n-20 MIMO

11n-20 MIMO

Chain 0 + Chain 1

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.					
			Chain 0 [mW]	Chain 1 [mW]	Sum [mW]	Result [dBm]	Limit [dBm]	Margin [dB]	Chain 0 [mW]	Chain 1 [mW]	Sum [mW]	Result [dBm]	Limit [dBm]	Margin [dB]
5180	-	17.539	2.71	2.79	5.50	7.40	23.97	16.57	2.72	0.83	3.55	5.51	29.97	24.46
5220	-	17.523	2.94	2.84	5.79	7.63	23.97	16.34	2.96	0.85	3.81	5.80	29.97	24.17
5240	-	17.528	3.14	2.85	5.99	7.78	23.97	16.19	3.16	0.85	4.00	6.03	29.97	23.94
5745	-	17.537	5.43	2.71	8.14	9.11	30.00	20.89	5.46	0.81	6.26	7.97	36.00	28.03
5785	-	17.513	5.13	2.89	8.02	9.04	30.00	20.96	5.15	0.86	6.01	7.79	36.00	28.21
5825	-	17.534	5.07	2.84	7.91	8.98	30.00	21.02	5.09	0.85	5.94	7.74	36.00	28.26

Tested Frequency [MHz]	-	Chain 0						Chain 1					
		Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	Cond. Power [dBm]	e.i.r.p. [dBm]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	Cond. Power [dBm]	e.i.r.p. [dBm]
5180	-	-8.42	2.81	9.94	0.02	4.33	4.35	-8.29	2.81	9.93	-5.26	4.45	-0.81
5220	-	-8.06	2.81	9.94	0.02	4.69	4.71	-8.20	2.81	9.93	-5.26	4.54	-0.72
5240	-	-7.78	2.81	9.94	0.02	4.97	4.99	-8.19	2.81	9.93	-5.26	4.55	-0.71
5745	-	-5.58	2.99	9.94	0.02	7.35	7.37	-8.59	2.99	9.93	-5.26	4.33	-0.93
5785	-	-5.83	2.99	9.94	0.02	7.10	7.12	-8.31	2.99	9.93	-5.26	4.61	-0.65
5825	-	-5.88	2.99	9.94	0.02	7.05	7.07	-8.38	2.99	9.93	-5.26	4.54	-0.72

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

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

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. 13692701S-C-R2
Test place Shonan EMC Lab. No.5 Shielded Room
Date February 19, 2021
Temperature / Humidity 22 deg. C / 42 % RH
Engineer Toshinori Yamada
Mode Tx 11ac-20 MIMO

11ac-20 MIMO

Chain 0 + Chain 1

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	26 dB EBW [MHz]	99 % OBW [MHz]	Conducted power							e.i.r.p.					
			Antenna		Sum [mW]	Result [dBm]	Limit [dBm]	Margin [dB]	Antenna		Sum [mW]	Result [dBm]	Limit [dBm]	Margin [dB]	
			Chain 0 [mW]	Chain 1 [mW]					Chain 0 [mW]	Chain 1 [mW]					
5180	-	17.519	2.72	2.79	5.52	7.42	23.97	16.55	2.74	0.83	3.57	5.52	29.97	24.45	
5220	-	17.526	2.88	2.93	5.81	7.65	23.97	16.32	2.90	0.87	3.77	5.76	29.97	24.21	
5240	-	17.524	3.16	2.89	6.05	7.81	23.97	16.16	3.17	0.86	4.03	6.05	29.97	23.92	
5745	-	17.517	5.47	2.73	8.20	9.14	30.00	20.86	5.50	0.81	6.31	8.00	36.00	28.00	
5785	-	17.520	5.14	2.90	8.04	9.05	30.00	20.95	5.16	0.86	6.03	7.80	36.00	28.20	
5825	-	17.520	5.11	2.86	7.96	9.01	30.00	20.99	5.13	0.85	5.98	7.77	36.00	28.23	

Tested Frequency [MHz]	-	Chain 0							Chain 1						
		Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	Result [dBm]		Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	Result [dBm]			
						Cond. Power	e.i.r.p.					Cond. Power	e.i.r.p.		
5180	-	-8.40	2.81	9.94	0.02	4.35	4.37	-8.28	2.81	9.93	-5.26	4.46	-0.80		
5220	-	-8.15	2.81	9.94	0.02	4.60	4.62	-8.07	2.81	9.93	-5.26	4.67	-0.59		
5240	-	-7.76	2.81	9.94	0.02	4.99	5.01	-8.13	2.81	9.93	-5.26	4.61	-0.65		
5745	-	-5.55	2.99	9.94	0.02	7.38	7.40	-8.56	2.99	9.93	-5.26	4.36	-0.90		
5785	-	-5.82	2.99	9.94	0.02	7.11	7.13	-8.30	2.99	9.93	-5.26	4.62	-0.64		
5825	-	-5.85	2.99	9.94	0.02	7.08	7.10	-8.36	2.99	9.93	-5.26	4.56	-0.70		

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

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

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

Maximum Conducted Output Power

Report No. 13692701S-C-R2
Test place Shonan EMC Lab. No.5 Shielded Room
Date February 19, 2021
Temperature / Humidity 22 deg. C / 42 % RH
Engineer Toshinori Yamada
Mode Tx 11n-40 MIMO

11n-40

Chain 0 + Chain 1

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		Sum [mW]	Result [dBm]	Limit [dBm]	Margin [dB]	Antenna			Result [dBm]	Limit [dBm]	Margin [dB]	
			Chain 0 [mW]	Chain 1 [mW]					Chain 0 [mW]	Chain 1 [mW]	Sum [mW]				
5190	-	35.948	2.28	2.23	4.51	6.54	23.97	17.43	2.29	0.67	2.95	4.70	29.97	25.27	
5230	-	36.045	2.53	2.29	4.82	6.83	23.97	17.14	2.54	0.68	3.22	5.08	29.97	24.89	
5755	-	35.987	4.32	2.25	6.57	8.18	30.00	21.82	4.34	0.67	5.01	7.00	36.00	29.00	
5795	-	36.002	4.03	2.28	6.30	7.99	30.00	22.01	4.05	0.68	4.72	6.74	36.00	29.26	

Tested Frequency [MHz]	-	Chain 0						Chain 1					
		Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	Result		Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	Result	
						Cond. Power [dBm]	e.i.r.p. [dBm]					Cond. Power [dBm]	e.i.r.p. [dBm]
5190	-	-9.18	2.81	9.94	0.02	3.57	3.59	-9.25	2.81	9.93	-5.26	3.49	-1.77
5230	-	-8.72	2.81	9.94	0.02	4.03	4.05	-9.14	2.81	9.93	-5.26	3.60	-1.66
5755	-	-6.58	2.99	9.94	0.02	6.35	6.37	-9.39	2.99	9.93	-5.26	3.53	-1.73
5795	-	-6.88	2.99	9.94	0.02	6.05	6.07	-9.35	2.99	9.93	-5.26	3.57	-1.69

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

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

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

Maximum Conducted Output Power

Report No. 13692701S-C-R2
Test place Shonan EMC Lab. No.5 Shielded Room
Date February 19, 2021
Temperature / Humidity 22 deg. C / 42 % RH
Engineer Toshinori Yamada
Mode Tx 11ac-40 MIMO

11ac-40

Chain 0 + Chain 1

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	26 dB EBW [MHz]	99 % OBW [MHz]	Conducted power						e.i.r.p.					
			Chain 0 [mW]	Chain 1 [mW]	Sum [mW]	Result [dBm]	Limit [dBm]	Margin [dB]	Chain 0 [mW]	Chain 1 [mW]	Sum [mW]	Result [dBm]	Limit [dBm]	Margin [dB]
5190	-	35.965	2.25	2.28	4.53	6.57	23.97	17.40	2.26	0.68	2.94	4.69	29.97	25.28
5230	-	35.982	2.53	2.30	4.83	6.84	23.97	17.13	2.54	0.69	3.23	5.09	29.97	24.88
5755	-	35.965	4.35	2.25	6.60	8.20	30.00	21.80	4.37	0.67	5.04	7.02	36.00	28.98
5795	-	35.991	4.06	2.29	6.34	8.02	30.00	21.98	4.07	0.68	4.75	6.77	36.00	29.23

Tested Frequency [MHz]	-	Chain 0						Chain 1					
		Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	Result [dBm]		Reading [dBm]	Cable Loss [dB]	Antenna Loss [dB]	Antenna Gain [dBi]	Result [dBm]	
5190	-	-9.22	2.81	9.94	0.02	3.53	3.55	-9.16	2.81	9.93	-5.26	3.58	-1.68
5230	-	-8.72	2.81	9.94	0.02	4.03	4.05	-9.12	2.81	9.93	-5.26	3.62	-1.64
5755	-	-6.55	2.99	9.94	0.02	6.38	6.40	-9.39	2.99	9.93	-5.26	3.53	-1.73
5795	-	-6.85	2.99	9.94	0.02	6.08	6.10	-9.33	2.99	9.93	-5.26	3.59	-1.67

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

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

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

Maximum Conducted Output Power

Report No. 13692701S-C-R2
Test place Shonan EMC Lab. No.5 Shielded Room
Date February 19, 2021
Temperature / Humidity 22 deg. C / 42 % RH
Engineer Toshinori Yamada
Mode Tx 11ac-80 MIMO

11ac-80

Chain 0 + Chain 1

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	26 dB EBW [MHz]	99 % OBW [MHz]	Conducted power							e.i.r.p.					
			Chain 0 [mW]	Chain 1 [mW]	Sum [mW]	Result [dBm]	Limit [dBm]	Margin [dB]	Chain 0 [mW]	Chain 1 [mW]	Sum [mW]	Result [dBm]	Limit [dBm]	Margin [dB]	
5210	-	74.975	1.95	1.92	3.87	5.88	23.97	18.09	1.96	0.57	2.53	4.04	29.97	25.93	
5775	-	75.023	3.56	1.94	5.49	7.40	30.00	22.60	3.57	0.58	4.15	6.18	36.00	29.82	

Tested Frequency [MHz]	-	Chain 0						Chain 1					
		Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	Cond. Power [dBm]	e.i.r.p. [dBm]	Reading [dBm]	Cable Loss [dB]	Antenna Loss [dB]	Antenna Gain [dBi]	Cond. Power [dBm]	e.i.r.p. [dBm]
5210	-	-9.84	2.81	9.94	0.02	2.91	2.93	-9.91	2.81	9.93	-5.26	2.83	-2.43
5775	-	-7.42	2.99	9.94	0.02	5.51	5.53	-10.05	2.99	9.93	-5.26	2.87	-2.39

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

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

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

Maximum Conducted Output Power

Report No. 13692701S-C-R2
Test place Shonan EMC Lab. No.5 Shielded Room
Date February 1, 2021
Temperature / Humidity 22 deg. C / 40 % RH
Engineer Yosuke Murakami
Mode Tx 11a

5180 MHz

Rate [Mbps]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Conducted power Result [dBm]	Remarks
6	-7.16	2.81	9.94	5.59	-
9	-7.24	2.81	9.94	5.51	-
12	-7.21	2.81	9.94	5.54	-
18	-7.08	2.81	9.94	5.67	*
24	-7.52	2.81	9.94	5.23	-
36	-7.50	2.81	9.94	5.25	-
48	-7.40	2.81	9.94	5.35	-
54	-7.40	2.81	9.94	5.35	-

* Worst rate

Sample Calculation:

Burst power = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

Maximum Conducted Output Power

Report No. 13692701S-C-R2
Test place Shonan EMC Lab. No.5 Shielded Room
Date February 1, 2021
Temperature / Humidity 22 deg. C / 40 % RH
Engineer Yosuke Murakami
Mode Tx 1In-20 SISO

5180 MHz

Rate [MCS]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Conducted power Result [dBm]	Remarks
0	-8.44	2.81	9.94	4.31	-
1	-8.52	2.81	9.94	4.23	-
2	-8.34	2.81	9.94	4.41	*
3	-8.59	2.81	9.94	4.16	-
4	-8.44	2.81	9.94	4.31	-
5	-8.39	2.81	9.94	4.36	-
6	-8.38	2.81	9.94	4.37	-
7	-8.43	2.81	9.94	4.32	-

* Worst rate

Sample Calculation:

Burst power = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

Maximum Conducted Output Power

Report No. 13692701S-C-R2
Test place Shonan EMC Lab. No.5 Shielded Room
Date February 1, 2021
Temperature / Humidity 22 deg. C / 40 % RH
Engineer Yosuke Murakami
Mode Tx 11ac-20 SISO

5180 MHz

Rate [MCS]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Conducted power Result [dBm]	Remarks
0	-8.47	2.81	9.94	4.28	-
1	-8.54	2.81	9.94	4.21	-
2	-8.32	2.81	9.94	4.43	*
3	-8.49	2.81	9.94	4.26	-
4	-8.40	2.81	9.94	4.35	-
5	-8.39	2.81	9.94	4.36	-
6	-8.35	2.81	9.94	4.40	-
7	-8.37	2.81	9.94	4.38	-
8	-9.26	2.81	9.94	3.49	-

* Worst rate

Sample Calculation:

Burst power = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

Maximum Conducted Output Power

Report No. 13692701S-C-R2
Test place Shonan EMC Lab. No.5 Shielded Room
Date February 1, 2021
Temperature / Humidity 22 deg. C / 40 % RH
Engineer Yosuke Murakami
Mode Tx 11n-40 SISO

5190 MHz

Rate [MCS]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Conducted power Result [dBm]	Remarks
0	-9.31	2.81	9.94	3.44	-
1	-9.22	2.81	9.94	3.53	-
2	-9.25	2.81	9.94	3.50	-
3	-9.34	2.81	9.94	3.41	-
4	-9.20	2.81	9.94	3.55	*
5	-9.36	2.81	9.94	3.39	-
6	-9.22	2.81	9.94	3.53	-
7	-9.24	2.81	9.94	3.51	-

* Worst rate

Sample Calculation:

Burst power = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

Maximum Conducted Output Power

Report No. 13692701S-C-R2
Test place Shonan EMC Lab. No.5 Shielded Room
Date February 1, 2021
Temperature / Humidity 22 deg. C / 40 % RH
Engineer Yosuke Murakami
Mode Tx 11ac-40 SISO

5190 MHz

Rate [MCS]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Conducted power Result [dBm]	Remarks
0	-9.37	2.81	9.94	3.38	-
1	-9.25	2.81	9.94	3.50	-
2	-9.22	2.81	9.94	3.53	-
3	-9.34	2.81	9.94	3.41	-
4	-9.23	2.81	9.94	3.52	-
5	-9.13	2.81	9.94	3.62	-
6	-9.12	2.81	9.94	3.63	*
7	-9.21	2.81	9.94	3.54	-
8	-11.45	2.81	9.94	1.30	-
9	-11.49	2.81	9.94	1.26	-

* Worst rate

Sample Calculation:

Burst power = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

Maximum Conducted Output Power

Report No. 13692701S-C-R2
Test place Shonan EMC Lab. No.5 Shielded Room
Date February 1, 2021
Temperature / Humidity 22 deg. C / 40 % RH
Engineer Yosuke Murakami
Mode Tx 11ac-80 SISO

5210 MHz

Rate [MCS]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Conducted power Result [dBm]	Remarks
0	-10.18	2.81	9.94	2.57	-
1	-9.94	2.81	9.94	2.81	-
2	-9.90	2.81	9.94	2.85	*
3	-10.12	2.81	9.94	2.63	-
4	-10.13	2.81	9.94	2.62	-
5	-10.02	2.81	9.94	2.73	-
6	-9.99	2.81	9.94	2.76	-
7	-9.98	2.81	9.94	2.77	-
8	-12.23	2.81	9.94	0.52	-
9	-12.20	2.81	9.94	0.55	-

* Worst rate

Sample Calculation:

Burst power = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

Maximum Conducted Output Power

Report No. 13692701S-C-R2
Test place Shonan EMC Lab. No.5 Shielded Room
Date February 19, 2021
Temperature / Humidity 22 deg. C / 42 % RH
Engineer Toshinori Yamada
Mode Tx 11n-20 MIMO

5180 MHz

Rate [MCS]	Conducted power			Result [dBm]	Remarks
	Antenna Chain 0 [mW]	Chain 1 [mW]	Sum [mW]		
8	2.56	2.74	5.31	7.25	-
9	2.69	2.78	5.47	7.38	-
10	2.71	2.79	5.50	7.40	*
11	2.64	2.76	5.40	7.32	-
12	2.62	2.66	5.28	7.23	-
13	2.51	2.71	5.22	7.18	-
14	2.58	2.72	5.30	7.25	-
15	2.61	2.74	5.35	7.28	-

Rate [MCS]	Chain 0					Chain 1			
	-	Power Meter Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result Cond. Power [dBm]	Power Meter Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result Cond. Power [dBm]
8	-	-8.66	2.81	9.94	4.09	-8.36	2.81	9.93	4.38
9	-	-8.46	2.81	9.94	4.29	-8.30	2.81	9.93	4.44
10	-	-8.42	2.81	9.94	4.33	-8.29	2.81	9.93	4.45
11	-	-8.54	2.81	9.94	4.21	-8.33	2.81	9.93	4.41
12	-	-8.57	2.81	9.94	4.18	-8.49	2.81	9.93	4.25
13	-	-8.75	2.81	9.94	4.00	-8.41	2.81	9.93	4.33
14	-	-8.63	2.81	9.94	4.12	-8.39	2.81	9.93	4.35
15	-	-8.58	2.81	9.94	4.17	-8.37	2.81	9.93	4.37

* Worst rate

Sample Calculation:

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

Maximum Conducted Output Power

Report No. 13692701S-C-R2
Test place Shonan EMC Lab. No.5 Shielded Room
Date February 19, 2021
Temperature / Humidity 22 deg. C / 42 % RH
Engineer Toshinori Yamada
Mode Tx 11ac-20 MIMO

5180 MHz

Rate [Mbps]	Conducted power			Result [dBm]	Remarks
	Antenna				
	Cnain 0 [mW]	Chain 1 [mW]	Sum [mW]		
0	2.60	2.76	5.36	7.29	-
1	2.65	2.74	5.39	7.32	-
2	2.72	2.79	5.52	7.42	*
3	2.56	2.75	5.32	7.26	-
4	2.56	2.69	5.26	7.21	-
5	2.55	2.77	5.33	7.26	-
6	2.57	2.75	5.32	7.26	-
7	2.61	2.75	5.36	7.29	-
8	2.09	2.23	4.32	6.36	-

Rate [Mbps]	Cnain 0					Chain 1			
	- [dB]	Power Meter Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result Cond. Power [dBm]	Power Meter Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result Cond. Power [dBm]
0	-	-8.60	2.81	9.94	4.15	-8.33	2.81	9.93	4.41
1	-	-8.51	2.81	9.94	4.24	-8.37	2.81	9.93	4.37
2	-	-8.40	2.81	9.94	4.35	-8.28	2.81	9.93	4.46
3	-	-8.66	2.81	9.94	4.09	-8.34	2.81	9.93	4.40
4	-	-8.66	2.81	9.94	4.09	-8.44	2.81	9.93	4.30
5	-	-8.68	2.81	9.94	4.07	-8.31	2.81	9.93	4.43
6	-	-8.65	2.81	9.94	4.10	-8.35	2.81	9.93	4.39
7	-	-8.59	2.81	9.94	4.16	-8.34	2.81	9.93	4.40
8	-	-9.54	2.81	9.94	3.21	-9.26	2.81	9.93	3.48

* Worst rate

Sample Calculation:

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

Maximum Conducted Output Power

Report No. 13692701S-C-R2
Test place Shonan EMC Lab. No.5 Shielded Room
Date February 19, 2021
Temperature / Humidity 22 deg. C / 42 % RH
Engineer Toshinori Yamada
Mode Tx 11n-40 MIMO

5190 MHz

Rate [MCS]	Conducted power			Result [dBm]	Remarks
	Antenna				
	Chain 0 [mW]	Chain 1 [mW]	Sum [mW]		
8	2.22	2.21	4.44	6.47	-
9	2.26	2.21	4.47	6.51	-
10	2.28	2.23	4.51	6.54	*
11	2.17	2.16	4.33	6.36	-
12	2.15	2.21	4.36	6.40	-
13	2.18	2.22	4.40	6.44	-
14	2.17	2.21	4.38	6.42	-
15	2.18	2.21	4.39	6.42	-

Rate [MCS]	Chain 0					Chain 1			
	-	Power Meter Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result Cond. Power [dBm]	Power Meter Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result Cond. Power [dBm]
8	-	-9.28	2.81	9.94	3.47	-9.29	2.81	9.93	3.45
9	-	-9.20	2.81	9.94	3.55	-9.30	2.81	9.93	3.44
10	-	-9.18	2.81	9.94	3.57	-9.25	2.81	9.93	3.49
11	-	-9.39	2.81	9.94	3.36	-9.40	2.81	9.93	3.34
12	-	-9.43	2.81	9.94	3.32	-9.29	2.81	9.93	3.45
13	-	-9.36	2.81	9.94	3.39	-9.28	2.81	9.93	3.46
14	-	-9.39	2.81	9.94	3.36	-9.29	2.81	9.93	3.45
15	-	-9.37	2.81	9.94	3.38	-9.30	2.81	9.93	3.44

* Worst rate

Sample Calculation:

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

Maximum Conducted Output Power

Report No. 13692701S-C-R2
Test place Shonan EMC Lab. No.5 Shielded Room
Date February 19, 2021
Temperature / Humidity 22 deg. C / 42 % RH
Engineer Toshinori Yamada
Mode Tx 11ac-40 MIMO

5190 MHz

Rate [MCS]	Conducted power			Result [dBm]	Remarks
	Antenna				
	Chain 0 [mW]	Chain 1 [mW]	Sum [mW]		
0	2.14	2.25	4.39	6.43	-
1	2.18	2.26	4.44	6.48	-
2	2.25	2.28	4.53	6.57	*
3	2.20	2.23	4.43	6.46	-
4	2.09	2.20	4.30	6.33	-
5	2.18	2.24	4.42	6.46	-
6	2.19	2.25	4.44	6.48	-
7	2.17	2.24	4.42	6.45	-
8	1.30	1.46	2.76	4.41	-
9	1.30	1.43	2.73	4.37	-

Rate [MCS]	Chain 0					Chain 1			
	-	Power Meter Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result Cond. Power [dBm]	Power Meter Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result Cond. Power [dBm]
0	-	-9.45	2.81	9.94	3.30	-9.21	2.81	9.93	3.53
1	-	-9.37	2.81	9.94	3.38	-9.19	2.81	9.93	3.55
2	-	-9.22	2.81	9.94	3.53	-9.16	2.81	9.93	3.58
3	-	-9.33	2.81	9.94	3.42	-9.26	2.81	9.93	3.48
4	-	-9.54	2.81	9.94	3.21	-9.31	2.81	9.93	3.43
5	-	-9.36	2.81	9.94	3.39	-9.24	2.81	9.93	3.50
6	-	-9.35	2.81	9.94	3.40	-9.21	2.81	9.93	3.53
7	-	-9.38	2.81	9.94	3.37	-9.23	2.81	9.93	3.51
8	-	-11.61	2.81	9.94	1.14	-11.10	2.81	9.93	1.64
9	-	-11.61	2.81	9.94	1.14	-11.18	2.81	9.93	1.56

* Worst rate

Sample Calculation:

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

UL Japan, Inc.

Shonan EMC Lab.

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Maximum Conducted Output Power

Report No. 13692701S-C-R2
Test place Shonan EMC Lab. No.5 Shielded Room
Date February 19, 2021
Temperature / Humidity 22 deg. C / 42 % RH
Engineer Toshinori Yamada
Mode Tx 11ac-80 MIMO

5210 MHz

Rate [MCS]	Conducted power			Result [dBm]	Remarks
	Antenna				
	Chain 0 [mW]	Chain 1 [mW]	Sum [mW]		
0	1.89	1.90	3.79	5.79	-
1	1.89	1.90	3.79	5.79	-
2	1.95	1.92	3.87	5.88	*
3	1.80	1.81	3.61	5.58	-
4	1.84	1.83	3.66	5.64	-
5	1.85	1.86	3.71	5.69	-
6	1.82	1.86	3.68	5.66	-
7	1.85	1.85	3.70	5.69	-
8	1.11	1.18	2.29	3.59	-
9	1.10	1.19	2.30	3.61	-

Rate [MCS]	Chain 0					Chain 1			
	-	Power Meter Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result Cond. Power [dBm]	Power Meter Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result Cond. Power [dBm]
0	-	-9.98	2.81	9.94	2.77	-9.95	2.81	9.93	2.79
1	-	-9.98	2.81	9.94	2.77	-9.96	2.81	9.93	2.78
2	-	-9.84	2.81	9.94	2.91	-9.91	2.81	9.93	2.83
3	-	-10.19	2.81	9.94	2.56	-10.17	2.81	9.93	2.57
4	-	-10.11	2.81	9.94	2.64	-10.12	2.81	9.93	2.62
5	-	-10.09	2.81	9.94	2.66	-10.04	2.81	9.93	2.70
6	-	-10.15	2.81	9.94	2.60	-10.04	2.81	9.93	2.70
7	-	-10.08	2.81	9.94	2.67	-10.06	2.81	9.93	2.68
8	-	-12.30	2.81	9.94	0.45	-12.03	2.81	9.93	0.71
9	-	-12.33	2.81	9.94	0.42	-11.97	2.81	9.93	0.77

* Worst rate

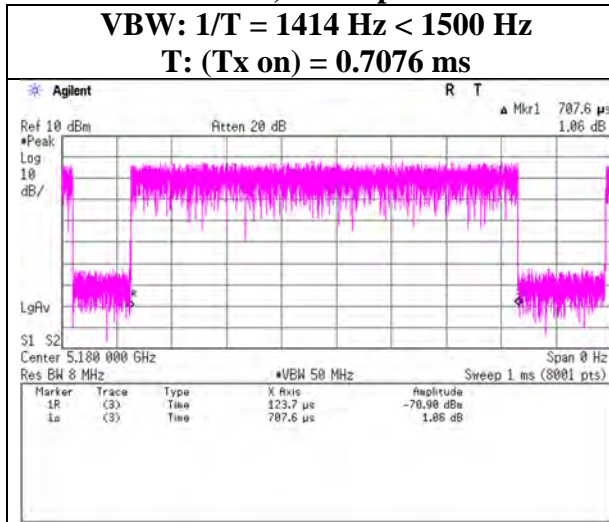
Sample Calculation:

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

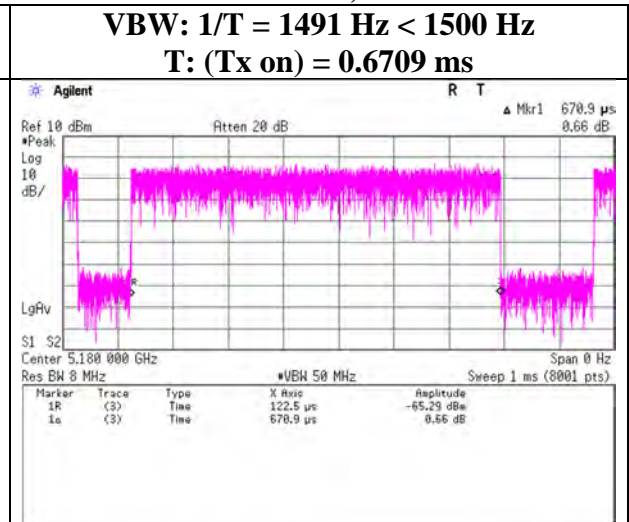
Burst rate confirmation

Report No. 13692701S-C-R2
Test place Shonan EMC Lab. No.5 Shielded Room
Date February 5, 2021
Temperature / Humidity 26 deg. C / 52 % RH
Engineer Hiromasa Sato
Mode Tx

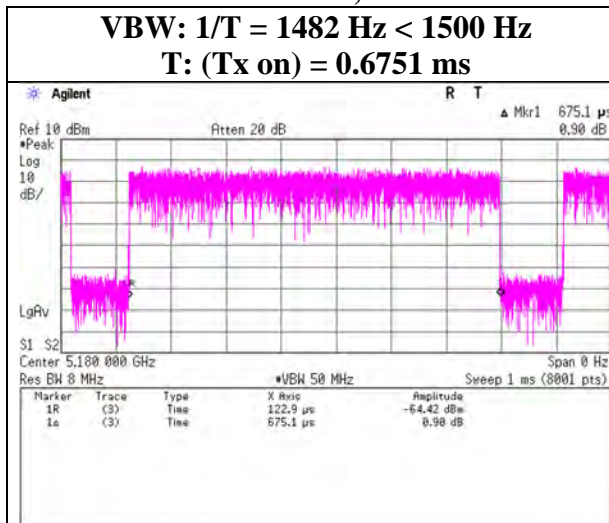
11a, 18 Mbps



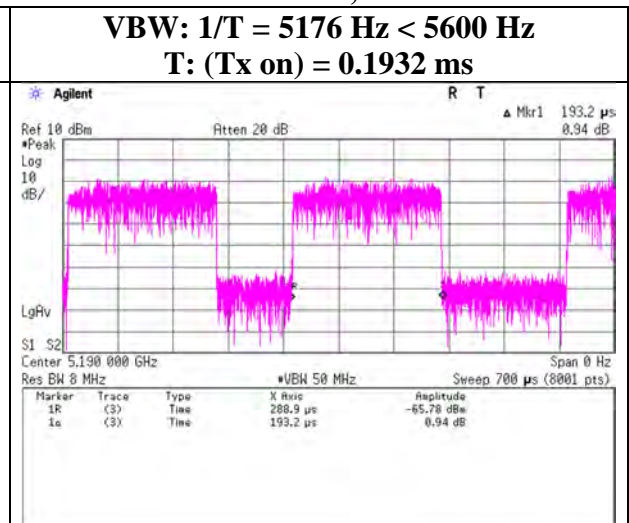
11n-20 SISO, MCS 2



11ac-20 SISO, MCS 2



11n-40 SISO, MCS 4

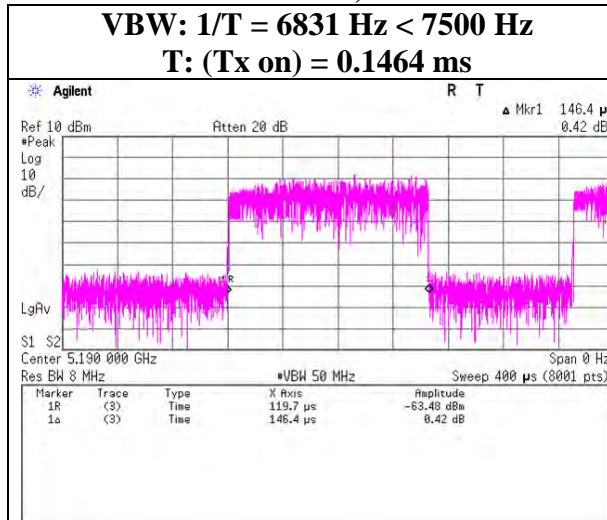


Burst rate confirmation

Report No. 13692701S-C-R2
 Test place Shonan EMC Lab. No.5 Shielded Room
 Date February 5, 2021 February 19, 2021
 Temperature / Humidity 26 deg. C / 52 % RH 22 deg. C / 42 % RH
 Engineer Hiromasa Sato Toshinori Yamada
 Mode Tx

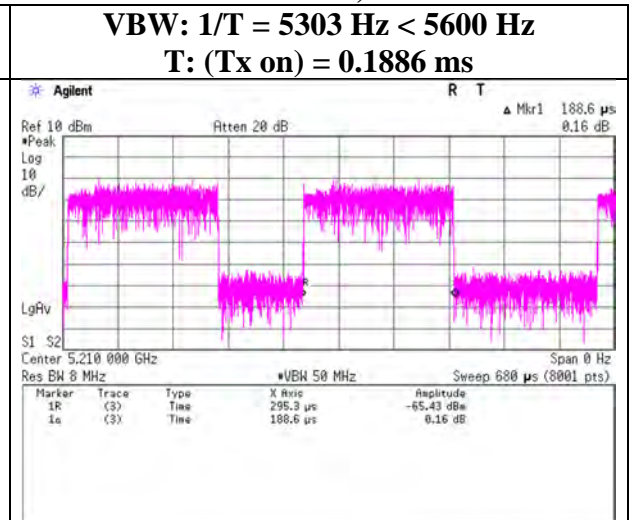
11ac-40 SISO, MCS 6

VBW: 1/T = 6831 Hz < 7500 Hz
T: (Tx on) = 0.1464 ms



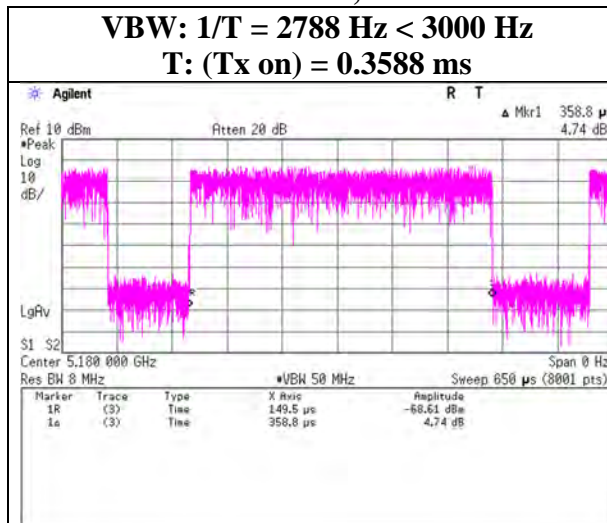
11ac-80 SISO, MCS 2

VBW: 1/T = 5303 Hz < 5600 Hz
T: (Tx on) = 0.1886 ms



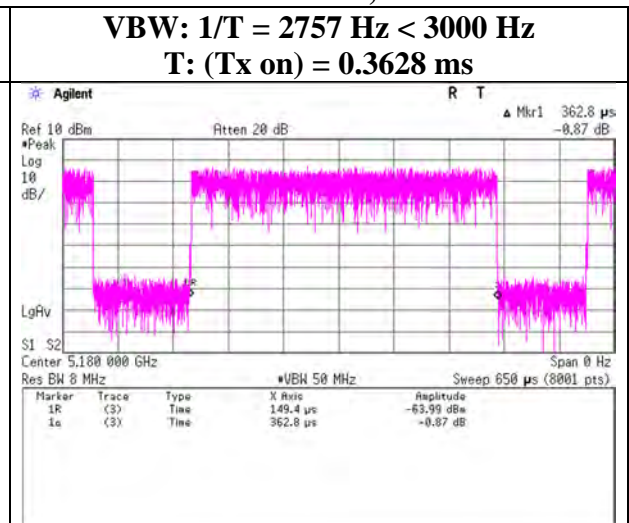
11n-20 MIMO, MCS 10

VBW: 1/T = 2788 Hz < 3000 Hz
T: (Tx on) = 0.3588 ms



11ac-20 MIMO, MCS 2

VBW: 1/T = 2757 Hz < 3000 Hz
T: (Tx on) = 0.3628 ms

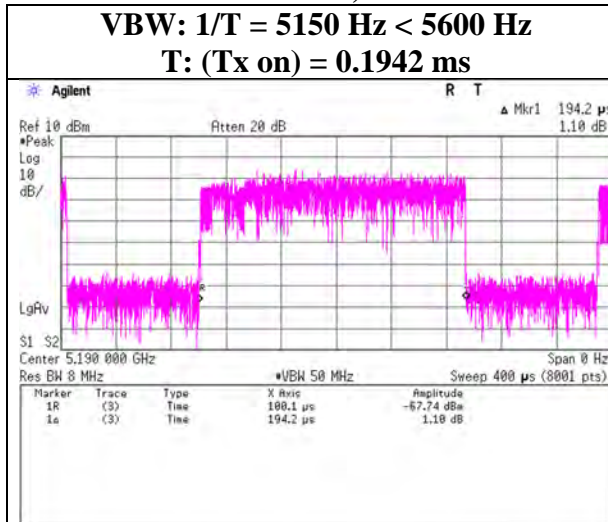


Burst rate confirmation

Report No. 13692701S-C-R2
 Test place Shonan EMC Lab. No.5 Shielded Room
 Date February 19, 2021
 Temperature / Humidity 22 deg. C / 42 % RH
 Engineer Toshinori Yamada
 Mode Tx

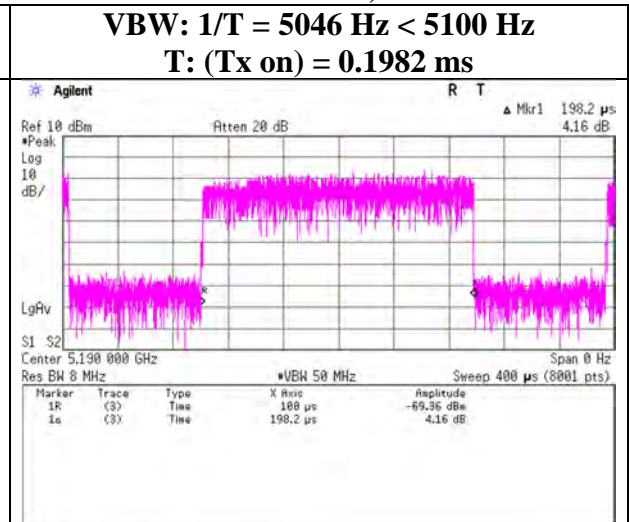
11n-40 MIMO, MCS 10

VBW: $1/T = 5150 \text{ Hz} < 5600 \text{ Hz}$
T: (Tx on) = 0.1942 ms



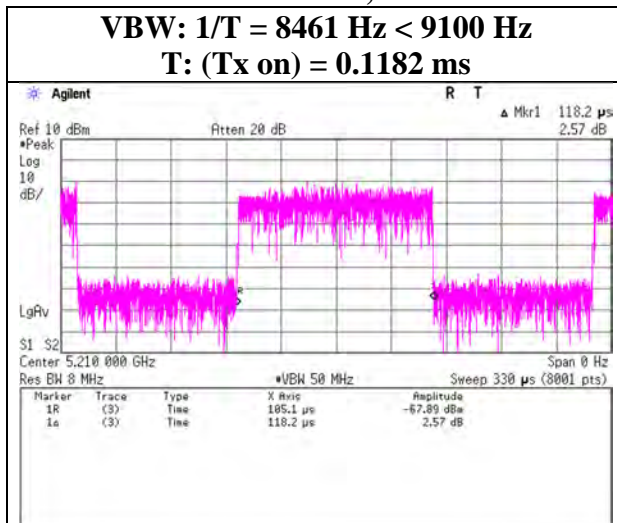
11ac-40 MIMO, MCS 2

VBW: $1/T = 5046 \text{ Hz} < 5100 \text{ Hz}$
T: (Tx on) = 0.1982 ms



11ac-80 MIMO, MCS 2

VBW: $1/T = 8461 \text{ Hz} < 9100 \text{ Hz}$
T: (Tx on) = 0.1182 ms



Maximum Power Spectral Density

Report No. 13692701S-C-R2
Test place Shonan EMC Lab. No.5 Shielded Room
Date February 26, 2021
Temperature / Humidity 24 deg. C / 41 % RH
Engineer Shiro Kobayashi
Mode Tx 11a

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD Reading [dBm /MHz]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	RBW Correction Factor [dB]	PSD (Conducted)			PSD (e.i.r.p.)		
						Result [dBm /MHz]	Limit [dBm /MHz]	Margin [dB]	Result [dBm /MHz]	Limit [dBm /MHz]	Margin [dB]
5180	-17.73	2.81	9.94	0.02	0.00	-4.98	11.00	15.98	-4.96	17.00	21.96
5220	-17.19	2.81	9.94	0.02	0.00	-4.44	11.00	15.44	-4.42	17.00	21.42
5240	-16.70	2.81	9.94	0.02	0.00	-3.95	11.00	14.95	-3.93	17.00	20.93
5745	-23.58	2.99	9.94	0.02	6.99	-3.66	30.00	33.66	-3.64	36.00	39.64
5785	-23.61	2.99	9.94	0.02	6.99	-3.69	30.00	33.69	-3.67	36.00	39.67
5825	-24.00	2.99	9.94	0.02	6.99	-4.08	30.00	34.08	-4.06	36.00	40.06

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 (Conducted) Result = Reading + Cable Loss + Atten. Loss + RBW Correction Factor

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

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

Maximum Power Spectral Density

Report No. 13692701S-C-R2
Test place Shonan EMC Lab. No.5 Shielded Room
Date February 26, 2021
Temperature / Humidity 24 deg. C / 41 % RH
Engineer Shiro Kobayashi
Mode Tx 11n-20 SISO

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD Reading [dBm /MHz]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	RBW Correction Factor [dB]	PSD (Conducted)			PSD (e.i.r.p.)		
						Result [dBm /MHz]	Limit [dBm /MHz]	Margin [dB]	Result [dBm /MHz]	Limit [dBm /MHz]	Margin [dB]
5180	-20.63	2.81	9.94	0.02	0.00	-7.88	11.00	18.88	-7.86	17.00	24.86
5220	-20.19	2.81	9.94	0.02	0.00	-7.44	11.00	18.44	-7.42	17.00	24.42
5240	-19.58	2.81	9.94	0.02	0.00	-6.83	11.00	17.83	-6.81	17.00	23.81
5745	-26.47	2.99	9.94	0.02	6.99	-6.55	30.00	36.55	-6.53	36.00	42.53
5785	-25.98	2.99	9.94	0.02	6.99	-6.06	30.00	36.06	-6.04	36.00	42.04
5825	-26.63	2.99	9.94	0.02	6.99	-6.71	30.00	36.71	-6.69	36.00	42.69

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 (Conducted) Result = Reading + Cable Loss + Atten. Loss + RBW Correction Factor

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

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

Maximum Power Spectral Density

Report No. 13692701S-C-R2
Test place Shonan EMC Lab. No.5 Shielded Room
Date February 26, 2021
Temperature / Humidity 24 deg. C / 41 % RH
Engineer Shiro Kobayashi
Mode Tx 11ac-20 SISO

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD Reading [dBm /MHz]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	RBW Correction Factor [dB]	PSD (Conducted)			PSD (e.i.r.p.)		
						Result [dBm /MHz]	Limit [dBm /MHz]	Margin [dB]	Result [dBm /MHz]	Limit [dBm /MHz]	Margin [dB]
5180	-19.15	2.81	9.94	0.02	0.00	-6.40	11.00	17.40	-6.38	17.00	23.38
5220	-18.74	2.81	9.94	0.02	0.00	-5.99	11.00	16.99	-5.97	17.00	22.97
5240	-18.47	2.81	9.94	0.02	0.00	-5.72	11.00	16.72	-5.70	17.00	22.70
5745	-25.05	2.99	9.94	0.02	6.99	-5.13	30.00	35.13	-5.11	36.00	41.11
5785	-25.25	2.99	9.94	0.02	6.99	-5.33	30.00	35.33	-5.31	36.00	41.31
5825	-25.44	2.99	9.94	0.02	6.99	-5.52	30.00	35.52	-5.50	36.00	41.50

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 (Conducted) Result = Reading + Cable Loss + Atten. Loss + RBW Correction Factor

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

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

Maximum Power Spectral Density

Report No. 13692701S-C-R2
Test place Shonan EMC Lab. No.5 Shielded Room
Date February 26, 2021
Temperature / Humidity 24 deg. C / 41 % RH
Engineer Shiro Kobayashi
Mode Tx 11n-40 SISO

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD Reading [dBm /MHz]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	RBW Correction Factor [dB]	PSD (Conducted)			PSD (e.i.r.p.)		
						Result [dBm /MHz]	Limit [dBm /MHz]	Margin [dB]	Result [dBm /MHz]	Limit [dBm /MHz]	Margin [dB]
5190	-23.48	2.81	9.94	0.02	0.00	-10.73	11.00	21.73	-10.71	17.00	27.71
5230	-23.07	2.81	9.94	0.02	0.00	-10.32	11.00	21.32	-10.30	17.00	27.30
5755	-29.41	2.99	9.94	0.02	6.99	-9.49	30.00	39.49	-9.47	36.00	45.47
5795	-29.53	2.99	9.94	0.02	6.99	-9.61	30.00	39.61	-9.59	36.00	45.59

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 (Conducted) Result = Reading + Cable Loss + Atten. Loss + RBW Correction Factor

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

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

Maximum Power Spectral Density

Report No. 13692701S-C-R2
Test place Shonan EMC Lab. No.5 Shielded Room
Date February 26, 2021
Temperature / Humidity 24 deg. C / 41 % RH
Engineer Shiro Kobayashi
Mode Tx 11ac-40 SISO

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD Reading [dBm /MHz]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	RBW Correction Factor [dB]	PSD (Conducted)			PSD (e.i.r.p.)		
						Result [dBm /MHz]	Limit [dBm /MHz]	Margin [dB]	Result [dBm /MHz]	Limit [dBm /MHz]	Margin [dB]
5190	-24.74	2.81	9.94	0.02	0.00	-11.99	11.00	22.99	-11.97	17.00	28.97
5230	-24.70	2.81	9.94	0.02	0.00	-11.95	11.00	22.95	-11.93	17.00	28.93
5755	-30.70	2.99	9.94	0.02	6.99	-10.78	30.00	40.78	-10.76	36.00	46.76
5795	-30.66	2.99	9.94	0.02	6.99	-10.74	30.00	40.74	-10.72	36.00	46.72

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 (Conducted) Result = Reading + Cable Loss + Atten. Loss + RBW Correction Factor

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

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

Maximum Power Spectral Density

Report No. 13692701S-C-R2
Test place Shonan EMC Lab. No.5 Shielded Room
Date February 26, 2021
Temperature / Humidity 24 deg. C / 41 % RH
Engineer Shiro Kobayashi
Mode Tx 11ac-80 SISO

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD Reading [dBm /MHz]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	RBW Correction Factor [dB]	PSD (Conducted)			PSD (e.i.r.p.)		
						Result [dBm /MHz]	Limit [dBm /MHz]	Margin [dB]	Result [dBm /MHz]	Limit [dBm /MHz]	Margin [dB]
5210	-26.92	2.81	9.94	0.02	0.00	-14.17	11.00	25.17	-14.15	17.00	31.15
5775	-33.40	2.99	9.94	0.02	6.99	-13.48	30.00	43.48	-13.46	36.00	49.46

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 (Conducted) Result = Reading + Cable Loss + Atten. Loss + RBW Correction Factor

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

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

Maximum Power Spectral Density

Report No. 13692701S-C-R2
Test place Shonan EMC Lab. No.5 Shielded Room
Date February 24, 2021
Temperature / Humidity 24 deg. C / 46 % RH
Engineer Shiro Kobayashi
Mode Tx 11n-20 MIMO

Chain 0 + Chain 1

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
	Chain 0	Chain 1	Sum				Chain 0	Chain 1	Sum			
[mW/MHz]	[mW/MHz]	[mW/MHz]	[dBm/MHz]	[dBm/MHz]	[dB]	[mW/MHz]	[mW/MHz]	[mW/MHz]	[dBm/MHz]	[dBm/MHz]	[dB]	
5180	0.24	0.18	0.42	-3.73	11.00	14.73	0.24	0.05	0.30	-5.29	17.00	22.29
5220	0.25	0.20	0.45	-3.49	11.00	14.49	0.25	0.06	0.31	-5.07	17.00	22.07
5240	0.27	0.21	0.48	-3.17	11.00	14.17	0.27	0.06	0.33	-4.78	17.00	21.78
5745	0.31	0.14	0.45	-3.50	30.00	33.50	0.31	0.04	0.35	-4.53	36.00	40.53
5785	0.30	0.14	0.44	-3.55	30.00	33.55	0.30	0.04	0.34	-4.63	36.00	40.63
5825	0.28	0.14	0.42	-3.82	30.00	33.82	0.28	0.04	0.32	-4.93	36.00	40.93

Tested Frequency [MHz]	-	RBW Correction Factor [dB]	Chain 0					Chain 1					PSD Result Cond.	PSD Result e.i.r.p.
			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]	[dB]	[dB]	[dBi]	[dBm/MHz]		
5180	-	0.00	-18.96	2.81	9.94	0.02	-6.21	-6.19	-20.08	2.81	9.93	-5.26	-7.34	-12.60
5220	-	0.00	-18.75	2.81	9.94	0.02	-6.00	-5.98	-19.80	2.81	9.93	-5.26	-7.06	-12.32
5240	-	0.00	-18.47	2.81	9.94	0.02	-5.72	-5.70	-19.42	2.81	9.93	-5.26	-6.68	-11.94
5745	-	6.99	-25.00	2.99	9.94	0.02	-5.08	-5.06	-28.57	2.99	9.93	-5.26	-8.66	-13.92
5785	-	6.99	-25.13	2.99	9.94	0.02	-5.21	-5.19	-28.45	2.99	9.93	-5.26	-8.54	-13.80
5825	-	6.99	-25.45	2.99	9.94	0.02	-5.53	-5.51	-28.60	2.99	9.93	-5.26	-8.69	-13.95

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 (Conducted) Result = Reading + Cable Loss + Atten. Loss + RBW Correction Factor

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

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

Maximum Power Spectral Density

Report No. 13692701S-C-R2
Test place Shonan EMC Lab. No.5 Shielded Room
Date February 24, 2021
Temperature / Humidity 24 deg. C / 46 % RH
Engineer Shiro Kobayashi
Mode Tx 11ac-20 MIMO

Chain 0 + Chain 1

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD (Conducted)						PSD (e.i.r.p.)					
	Antenna			Result [dBm/MHz]	Limit [dBm/MHz]	Margin [dB]	Antenna			Result [dBm/MHz]	Limit [dBm/MHz]	Margin [dB]
	Chain 0 [mW/MHz]	Chain 1 [mW/MHz]	Sum [mW/MHz]				Chain 0 [mW/MHz]	Chain 1 [mW/MHz]	Sum [mW/MHz]			
5180	0.23	0.19	0.42	-3.79	11.00	14.79	0.23	0.06	0.29	-5.42	17.00	22.42
5220	0.26	0.18	0.44	-3.59	11.00	14.59	0.26	0.05	0.31	-5.05	17.00	22.05
5240	0.28	0.19	0.47	-3.27	11.00	14.27	0.28	0.06	0.34	-4.74	17.00	21.74
5745	0.30	0.14	0.44	-3.56	30.00	33.56	0.31	0.04	0.35	-4.61	36.00	40.61
5785	0.31	0.15	0.46	-3.36	30.00	33.36	0.31	0.04	0.36	-4.47	36.00	40.47
5825	0.29	0.14	0.43	-3.70	30.00	33.70	0.29	0.04	0.33	-4.81	36.00	40.81

Tested Frequency [MHz]	-	RBW Correction Factor [dB]	Chain 0					Chain 1						
			PSD Reading [dBm/MHz]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	PSD Result		PSD Reading [dBm/MHz]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	PSD Result	
							Cond.	e.i.r.p.					Cond.	e.i.r.p.
5180	-	0.00	-19.13	2.81	9.94	0.02	-6.38	-6.36	-19.99	2.81	9.93	-5.26	-7.25	-12.51
5220	-	0.00	-18.65	2.81	9.94	0.02	-5.90	-5.88	-20.17	2.81	9.93	-5.26	-7.43	-12.69
5240	-	0.00	-18.33	2.81	9.94	0.02	-5.58	-5.56	-19.84	2.81	9.93	-5.26	-7.10	-12.36
5745	-	6.99	-25.09	2.99	9.94	0.02	-5.17	-5.15	-28.56	2.99	9.93	-5.26	-8.65	-13.91
5785	-	6.99	-24.99	2.99	9.94	0.02	-5.07	-5.05	-28.16	2.99	9.93	-5.26	-8.25	-13.51
5825	-	6.99	-25.34	2.99	9.94	0.02	-5.42	-5.40	-28.45	2.99	9.93	-5.26	-8.54	-13.80

Sample Calculation:

PSD: Power Spectral Density

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

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

PSD (Conducted) Result = Reading + Cable Loss + Atten. Loss + RBW Correction Factor

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

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

Maximum Power Spectral Density

Report No. 13692701S-C-R2
Test place Shonan EMC Lab. No.5 Shielded Room
Date February 24, 2021
Temperature / Humidity 24 deg. C / 46 % RH
Engineer Shiro Kobayashi
Mode Tx 11n-40 MIMO

Chain 0 + Chain 1

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
	Chain 0	Chain 1	Sum				Chain 0	Chain 1	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	0.09	0.19	-7.26	11.00	18.26	0.10	0.03	0.13	-8.98	17.00	25.98
5230	0.11	0.09	0.19	-7.10	11.00	18.10	0.11	0.03	0.13	-8.78	17.00	25.78
5755	0.16	0.08	0.24	-6.17	30.00	36.17	0.16	0.02	0.18	-7.34	36.00	43.34
5795	0.14	0.08	0.23	-6.43	30.00	36.43	0.14	0.02	0.17	-7.71	36.00	43.71

Tested Frequency [MHz]	Chain 0							Chain 1							
	-	RBW Correction Factor [dB]	PSD Reading [dBm/MHz]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	PSD Result		PSD Reading [dBm/MHz]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	PSD Result		
							Cond. [dBm/MHz]	e.i.r.p. [dBm/MHz]					Cond. [dBm/MHz]	e.i.r.p. [dBm/MHz]	
5190	-	0.00	-22.76	2.81	9.94	0.02	-10.01	-9.99	-23.28	2.81	9.93	-5.26	-10.54	-15.80	
5230	-	0.00	-22.53	2.81	9.94	0.02	-9.78	-9.76	-23.22	2.81	9.93	-5.26	-10.48	-15.74	
5755	-	6.99	-27.90	2.99	9.94	0.02	-7.98	-7.96	-30.76	2.99	9.93	-5.26	-10.85	-16.11	
5795	-	6.99	-28.35	2.99	9.94	0.02	-8.43	-8.41	-30.68	2.99	9.93	-5.26	-10.77	-16.03	

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 (Conducted) Result = Reading + Cable Loss + Atten. Loss + RBW Correction Factor

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

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

Maximum Power Spectral Density

Report No. 13692701S-C-R2
Test place Shonan EMC Lab. No.5 Shielded Room
Date February 24, 2021
Temperature / Humidity 24 deg. C / 46 % RH
Engineer Shiro Kobayashi
Mode Tx 11ac-40 MIMO

Chain 0 + Chain 1

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
	Chain 0	Chain 1	Sum				Chain 0	Chain 1	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	0.08	0.18	-7.47	11.00	18.47	0.10	0.02	0.12	-9.17	17.00	26.17
5230	0.10	0.08	0.18	-7.34	11.00	18.34	0.10	0.02	0.13	-8.98	17.00	25.98
5755	0.13	0.07	0.20	-6.89	30.00	36.89	0.14	0.02	0.16	-8.06	36.00	44.06
5795	0.14	0.06	0.20	-6.94	30.00	36.94	0.14	0.02	0.16	-7.99	36.00	43.99

Tested Frequency [MHz]	Chain 0							Chain 1						
	-	RBW Correction Factor [dB]	PSD Reading [dBm/MHz]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	PSD Result		PSD Reading [dBm/MHz]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	PSD Result	
							Cond.	e.i.r.p.					Cond.	e.i.r.p.
[dB]	[dBm/MHz]	[dB]	[dB]	[dB]	[dBi]	[dBm/MHz]	[dBm/MHz]	[dBm/MHz]	[dB]	[dB]	[dBi]	[dBm/MHz]	[dBm/MHz]	
5190	-	0.00	-22.93	2.81	9.94	0.02	-10.18	-10.16	-23.55	2.81	9.93	-5.26	-10.81	-16.07
5230	-	0.00	-22.70	2.81	9.94	0.02	-9.95	-9.93	-23.52	2.81	9.93	-5.26	-10.78	-16.04
5755	-	6.99	-28.62	2.99	9.94	0.02	-8.70	-8.68	-31.48	2.99	9.93	-5.26	-11.57	-16.83
5795	-	6.99	-28.48	2.99	9.94	0.02	-8.56	-8.54	-31.94	2.99	9.93	-5.26	-12.03	-17.29

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 (Conducted) Result = Reading + Cable Loss + Atten. Loss + RBW Correction Factor

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

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

Maximum Power Spectral Density

Report No. 13692701S-C-R2
Test place Shonan EMC Lab. No.5 Shielded Room
Date February 24, 2021
Temperature / Humidity 24 deg. C / 46 % RH
Engineer Shiro Kobayashi
Mode Tx 11ac-80 MIMO

Chain 0 + Chain 1

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
	Chain 0	Chain 1	Sum				Chain 0	Chain 1	Sum			
[mW/MHz]	[mW/MHz]	[mW/MHz]	[dBm/MHz]	[dBm/MHz]	[dB]	[mW/MHz]	[mW/MHz]	[mW/MHz]	[dBm/MHz]	[dBm/MHz]	[dB]	
5210	0.04	0.03	0.07	-11.55	11.00	22.55	0.04	0.01	0.05	-13.24	17.00	30.24
5775	0.05	0.02	0.07	-11.27	30.00	41.27	0.05	0.01	0.06	-12.40	36.00	48.40

Tested Frequency [MHz]	Chain 0							Chain 1						
	RBW Correction Factor [dB]	PSD Reading [dBm/MHz]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	PSD Result		PSD Reading [dBm/MHz]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	PSD Result		
						Cond.	e.i.r.p.					Cond.	e.i.r.p.	
[dB]	[dBm/MHz]	[dB]	[dB]	[dBi]	[dBm/MHz]	[dBm/MHz]	[dBm/MHz]	[dB]	[dB]	[dBi]	[dBm/MHz]	[dBm/MHz]		
5210	-	0.00	-27.00	2.81	9.94	0.02	-14.25	-14.23	-27.65	2.81	9.93	-5.26	-14.91	-20.17
5775	-	6.99	-32.93	2.99	9.94	0.02	-13.01	-12.99	-35.99	2.99	9.93	-5.26	-16.08	-21.34

Sample Calculation:

PSD: Power Spectral Density

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

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

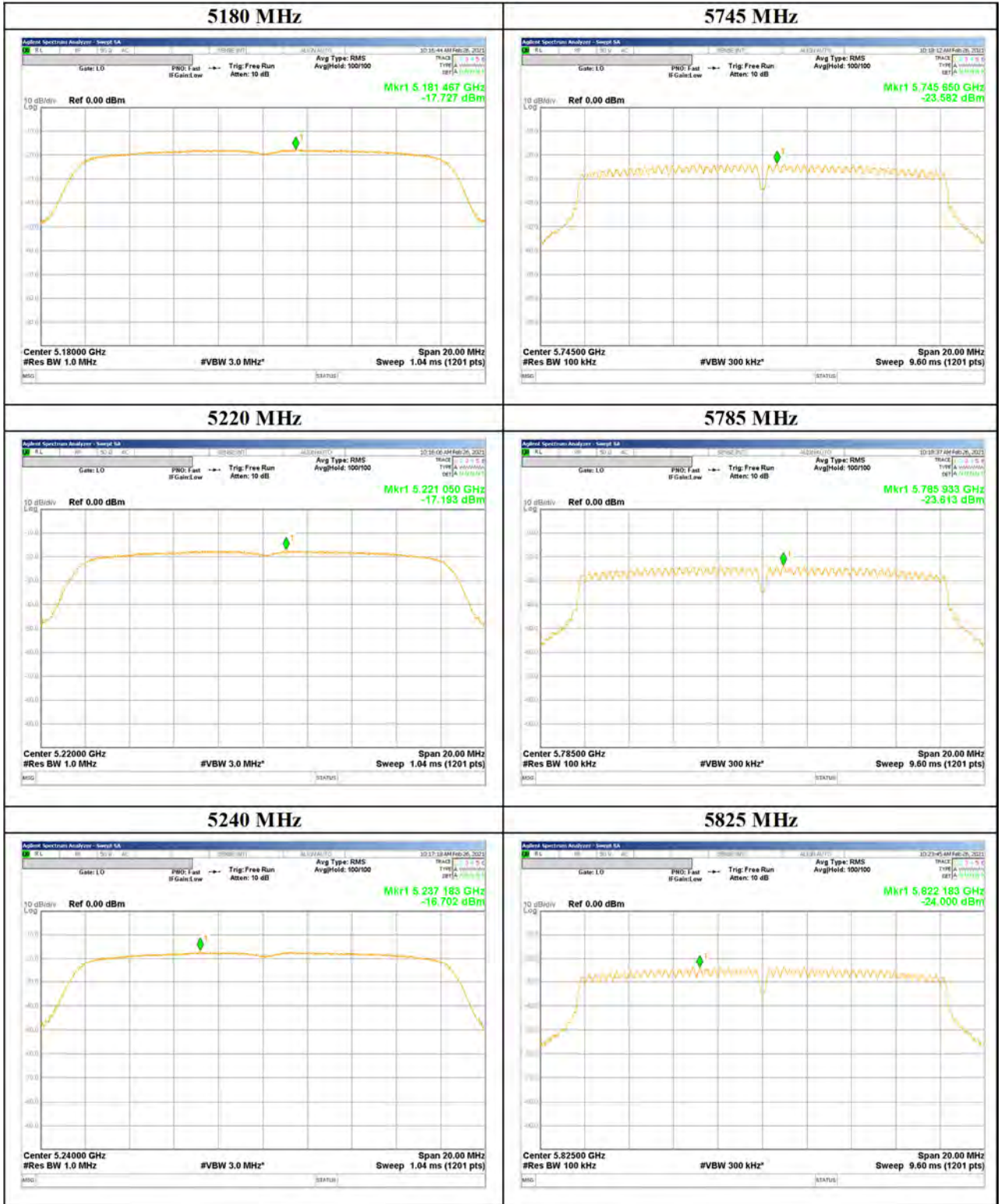
PSD (Conducted) Result = Reading + Cable Loss + Atten. Loss + RBW Correction Factor

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

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

Maximum Power Spectral Density

11a

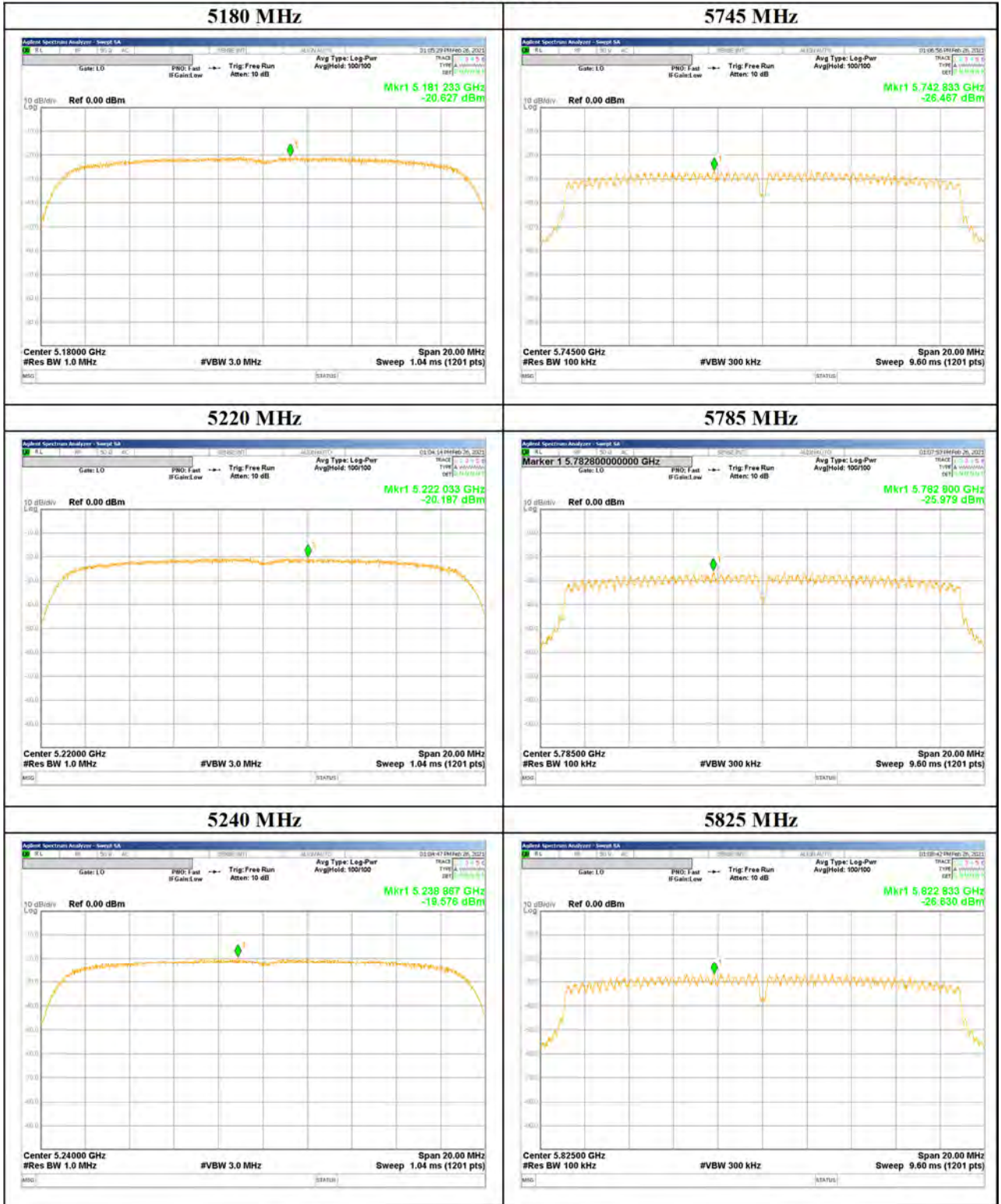


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Maximum Power Spectral Density

11n-20 SISO

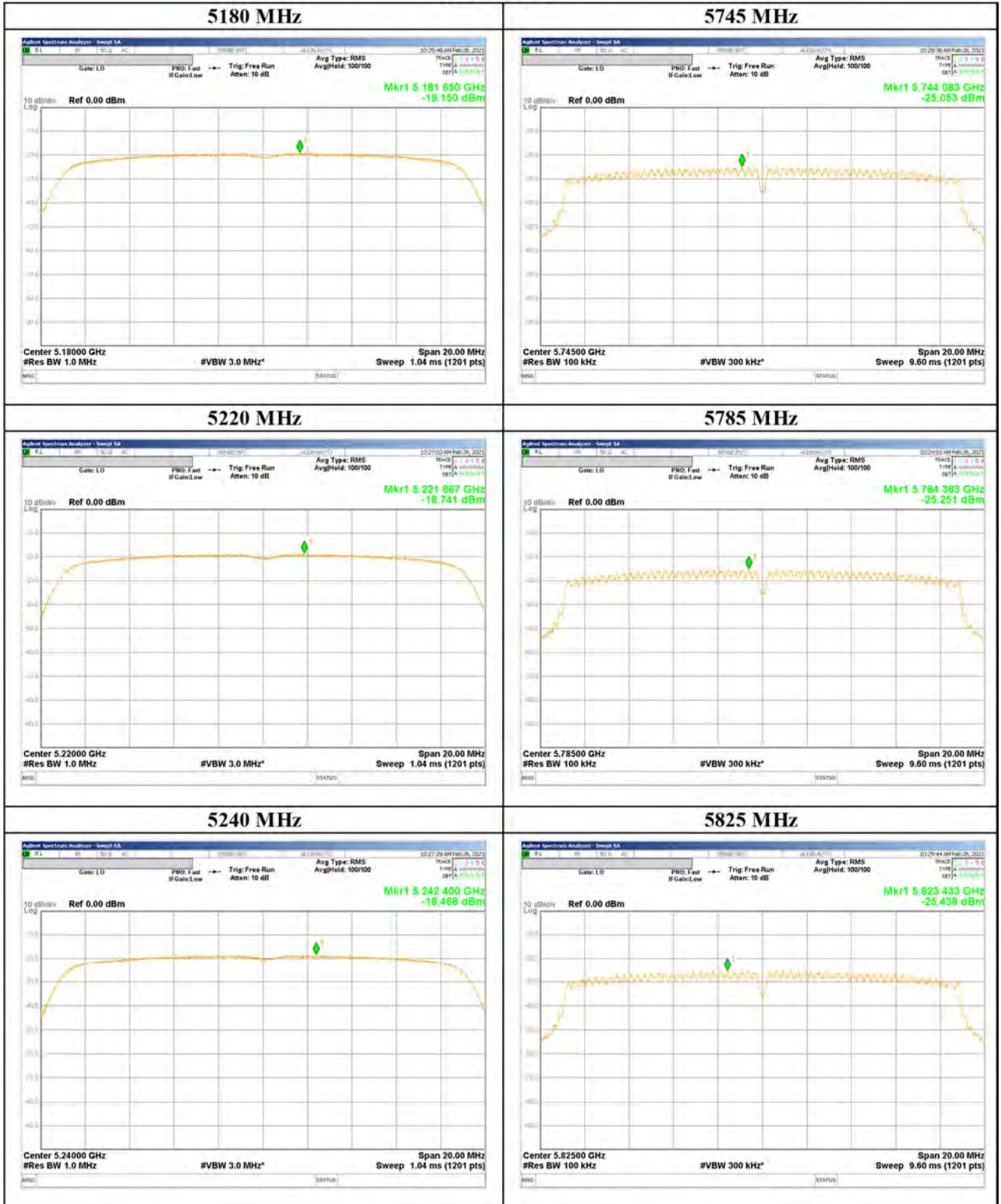


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Maximum Power Spectral Density

11ac-20 SISO

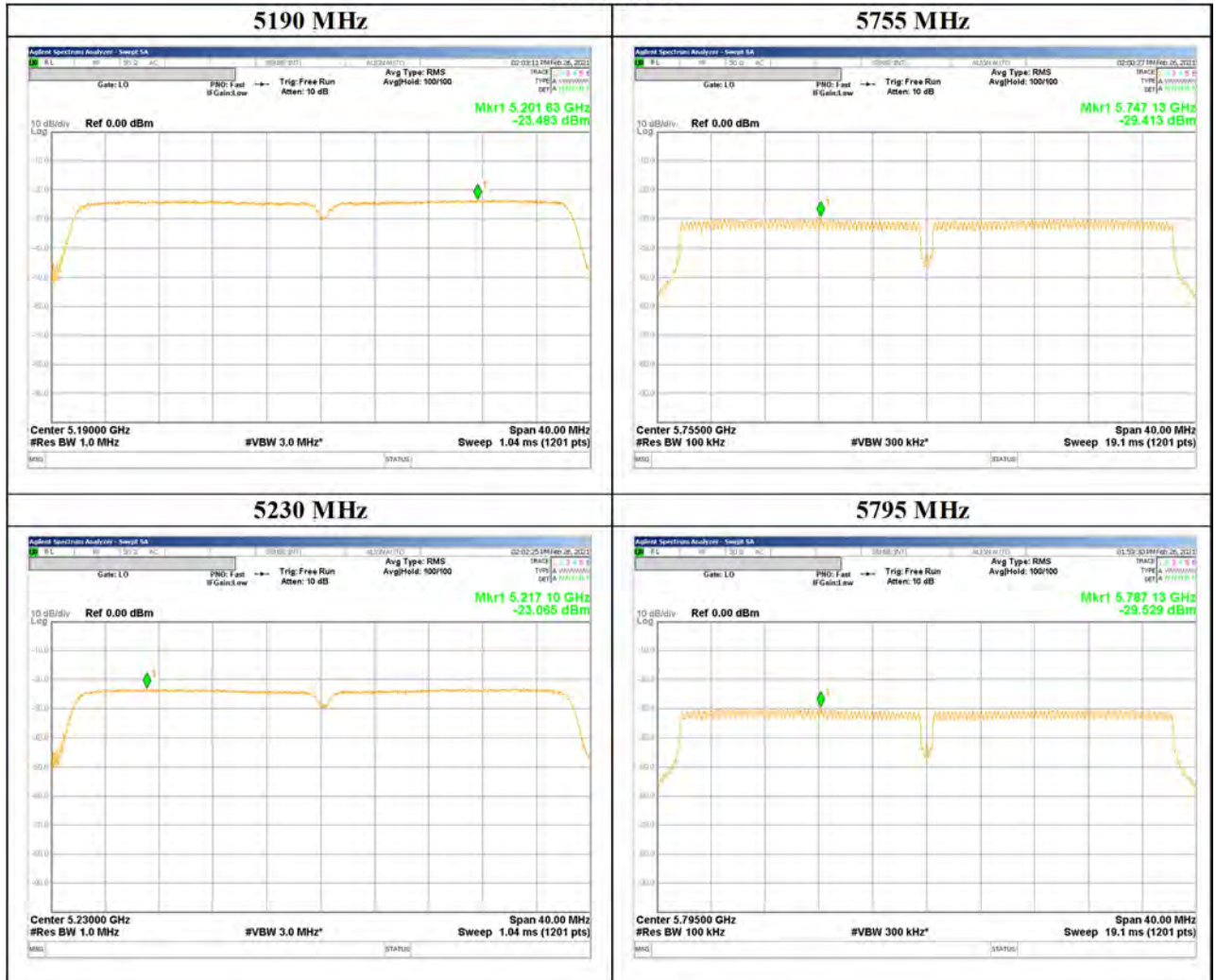


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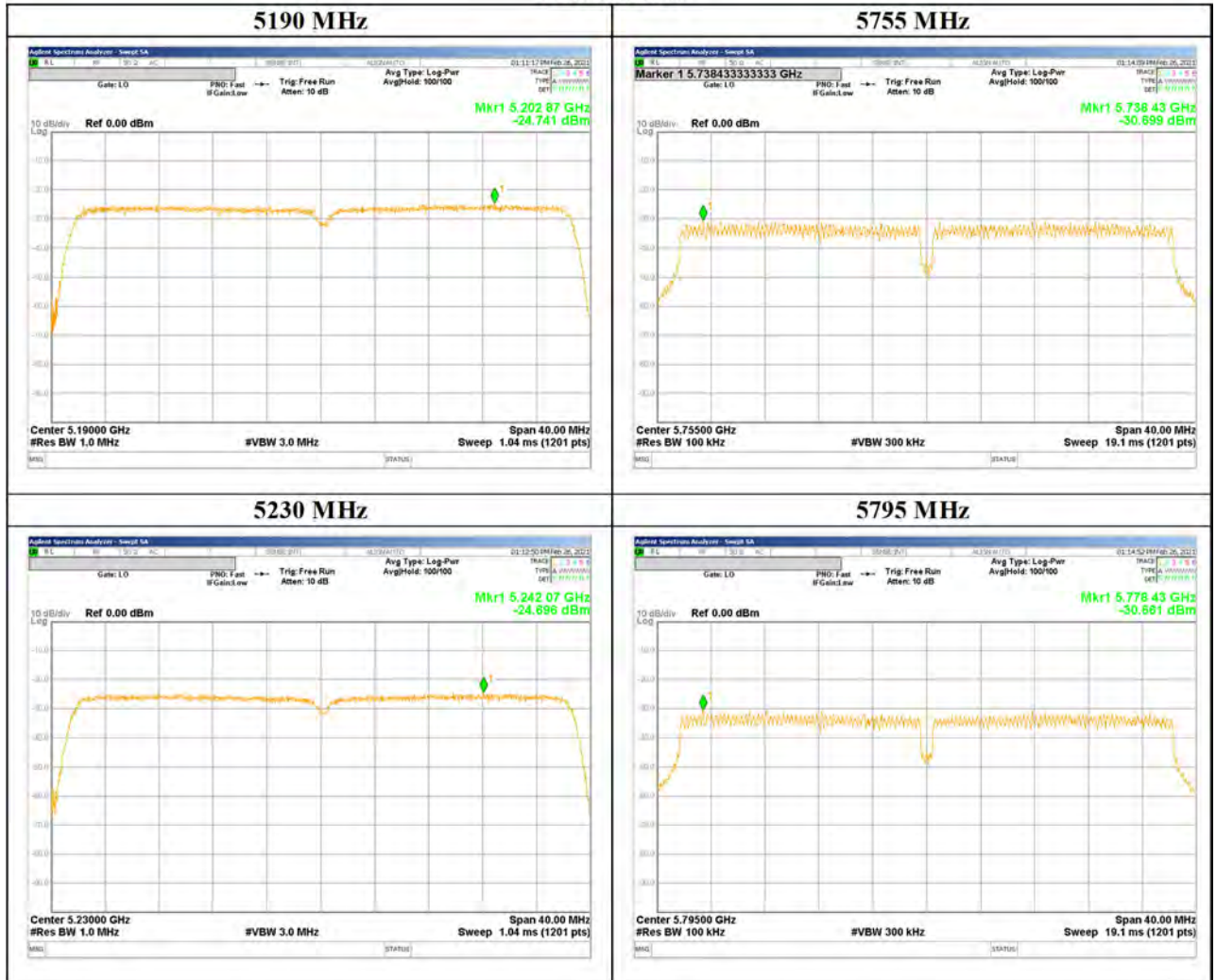
Maximum Power Spectral Density

11n-40 SISO



Maximum Power Spectral Density

11ac-40 SISO

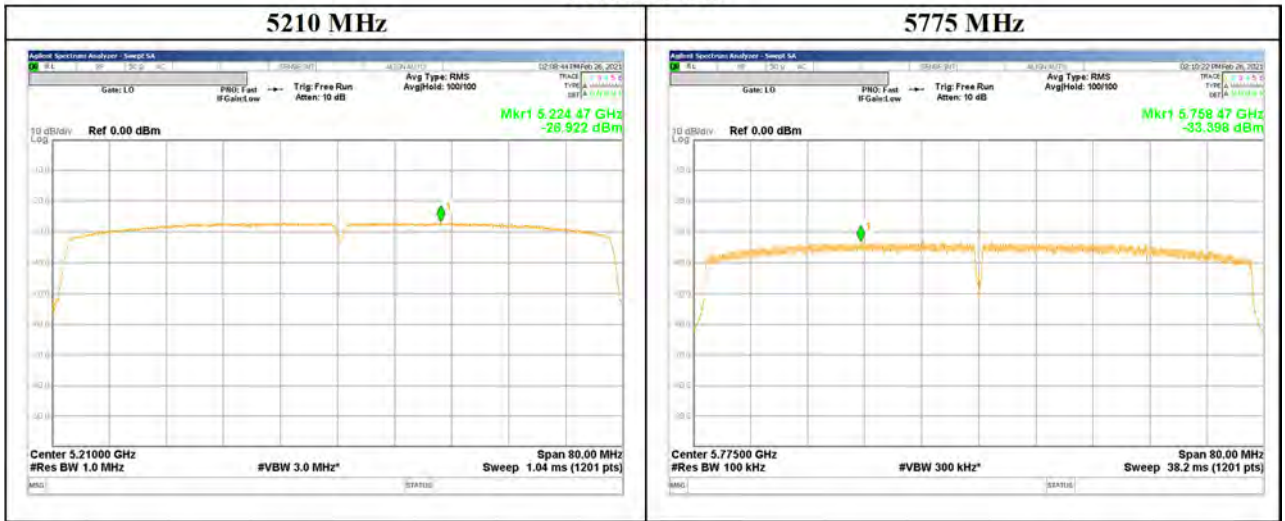


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Maximum Power Spectral Density

11ac-80 SISO



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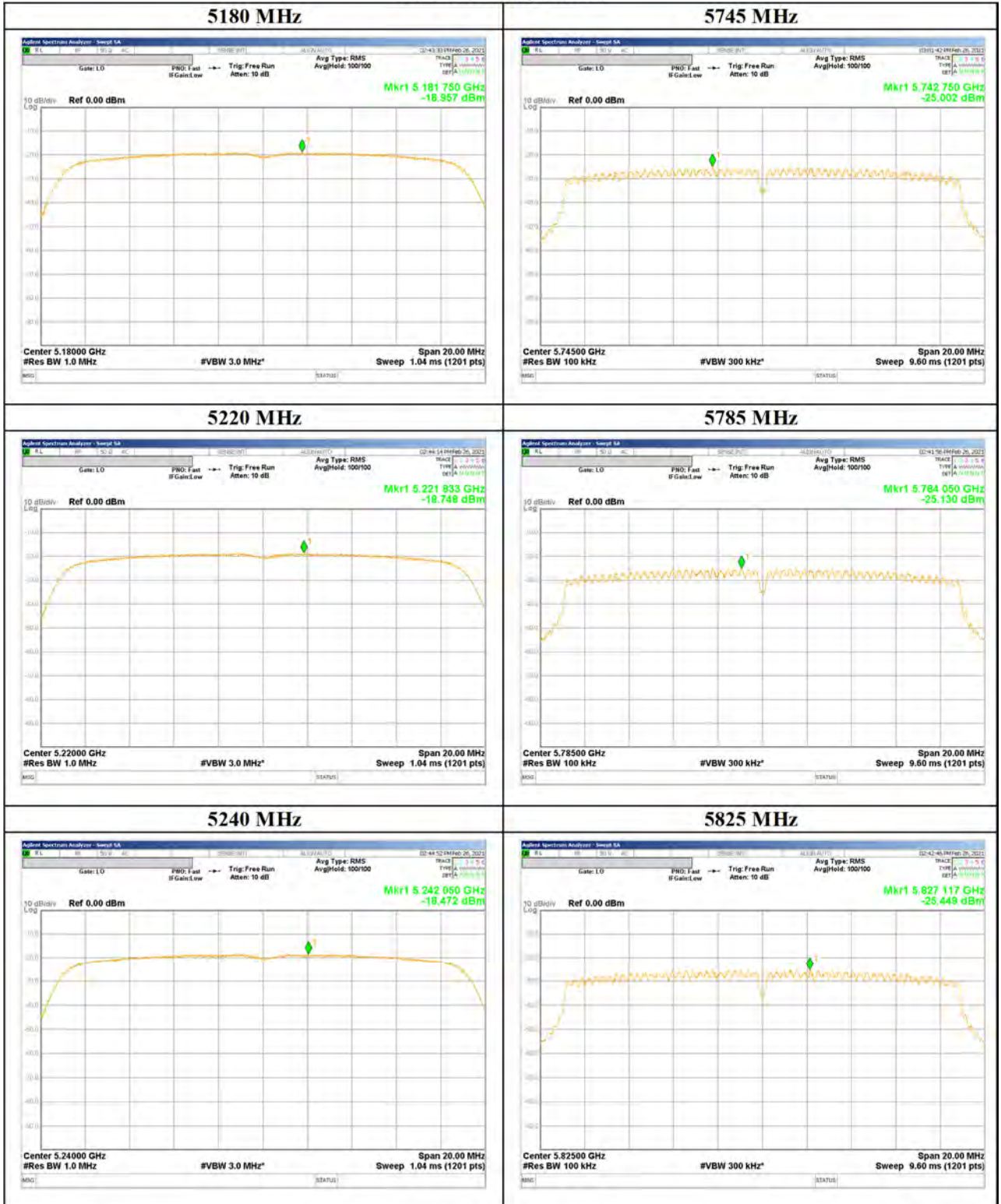
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Facsimile : +81 463 50 6401

Maximum Power Spectral Density

11n-20 MIMO, Chain 0

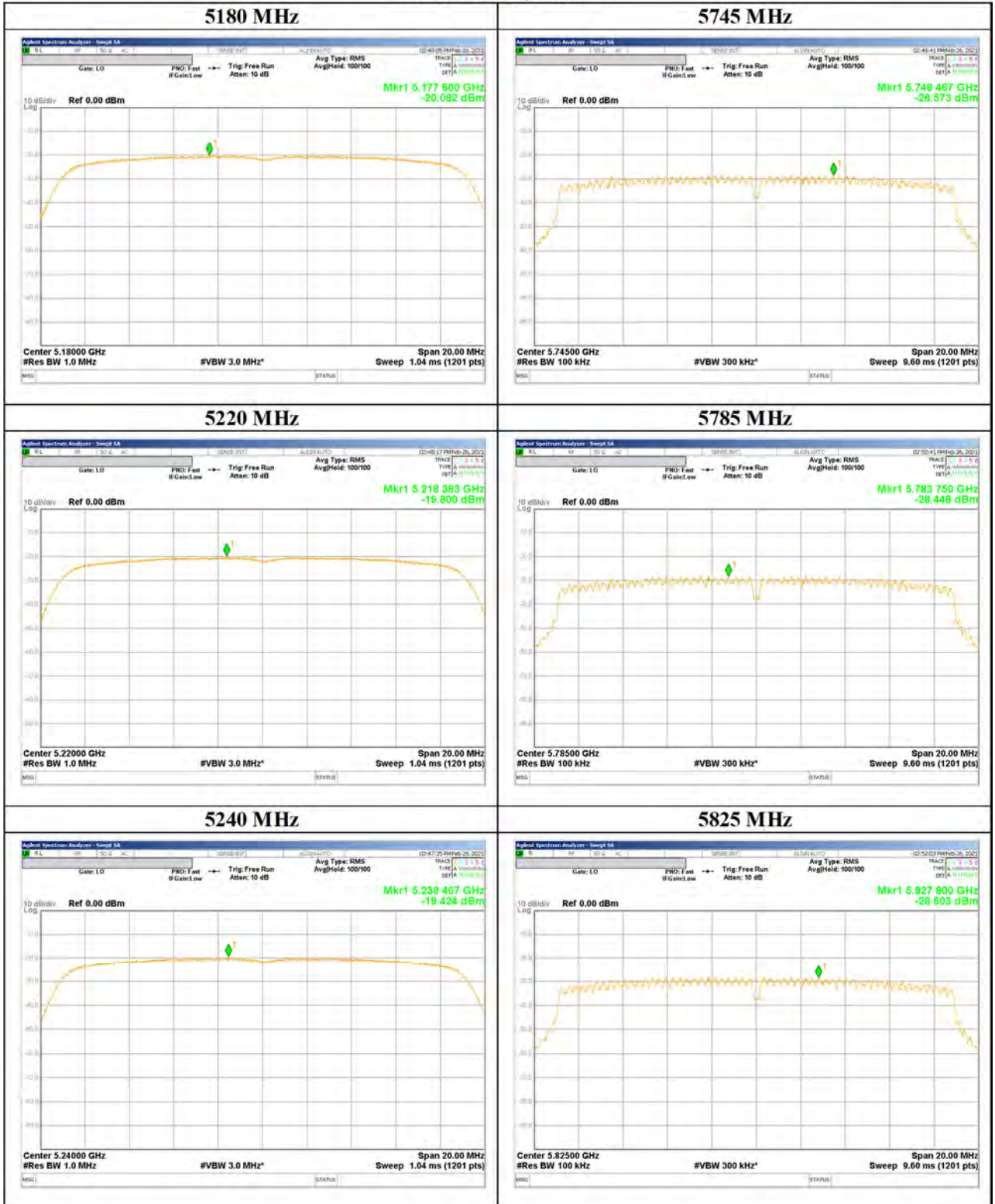


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Maximum Power Spectral Density

11n-20 MIMO, Chain 1

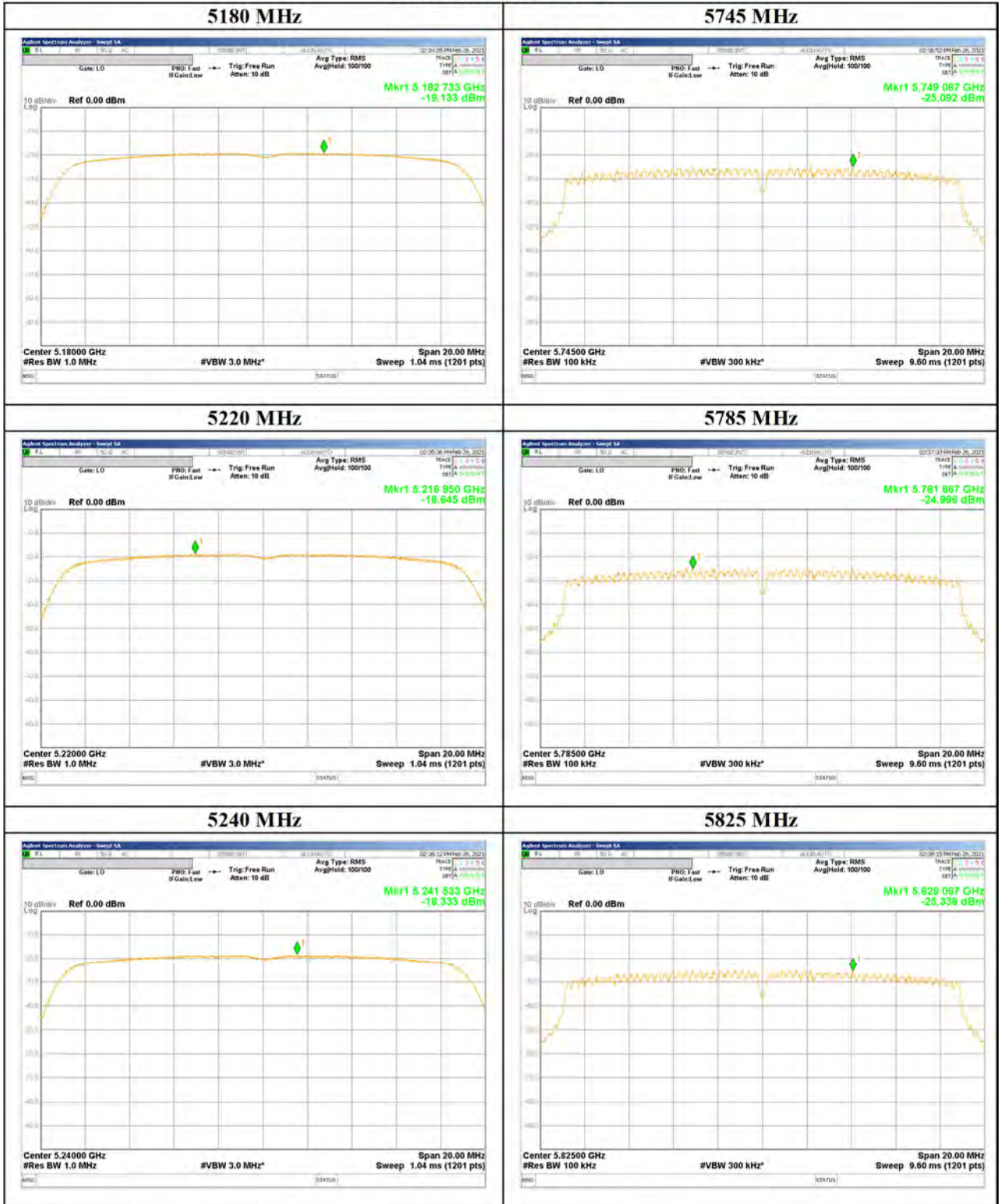


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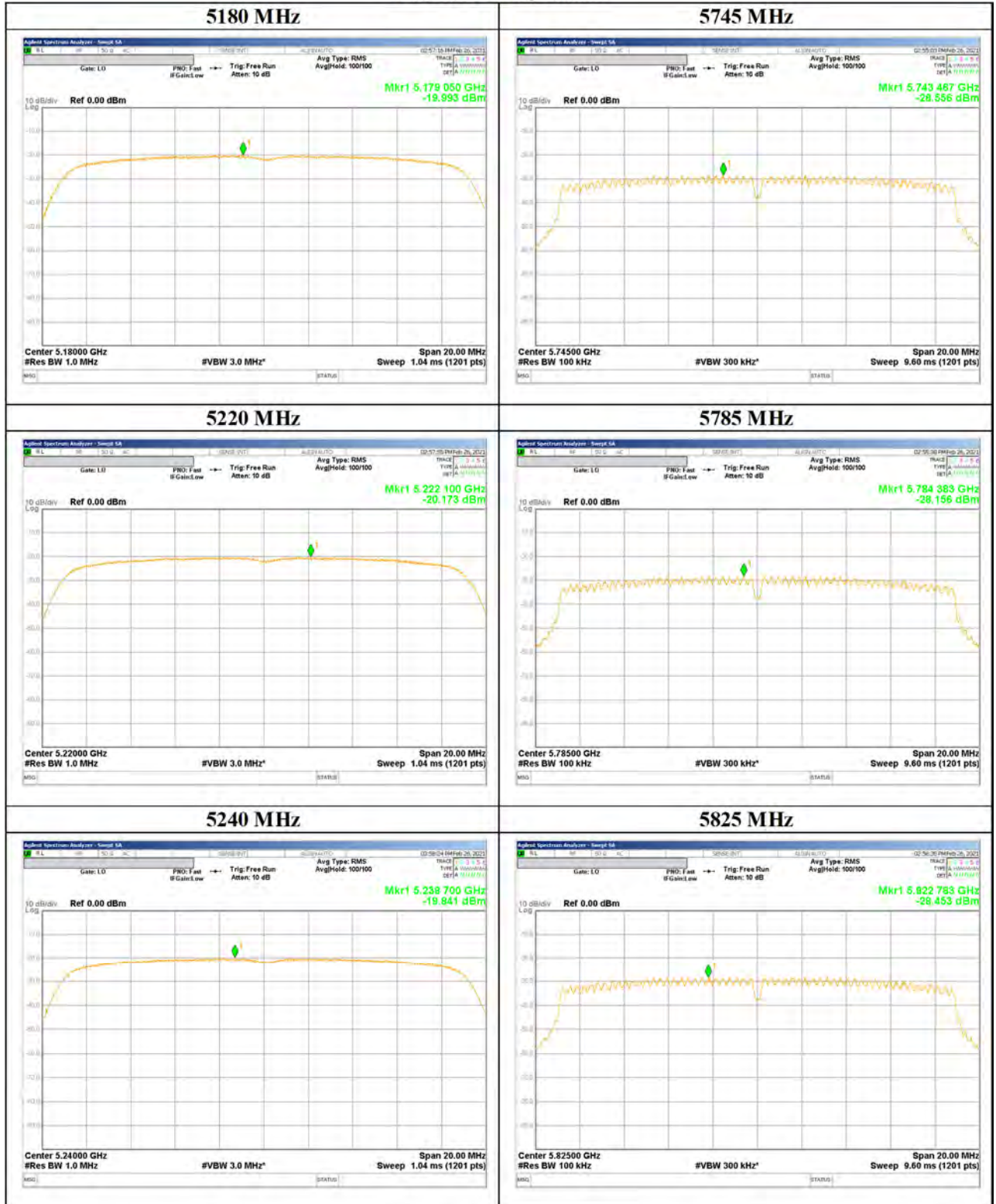
Maximum Power Spectral Density

11ac-20 MIMO, Chain 0



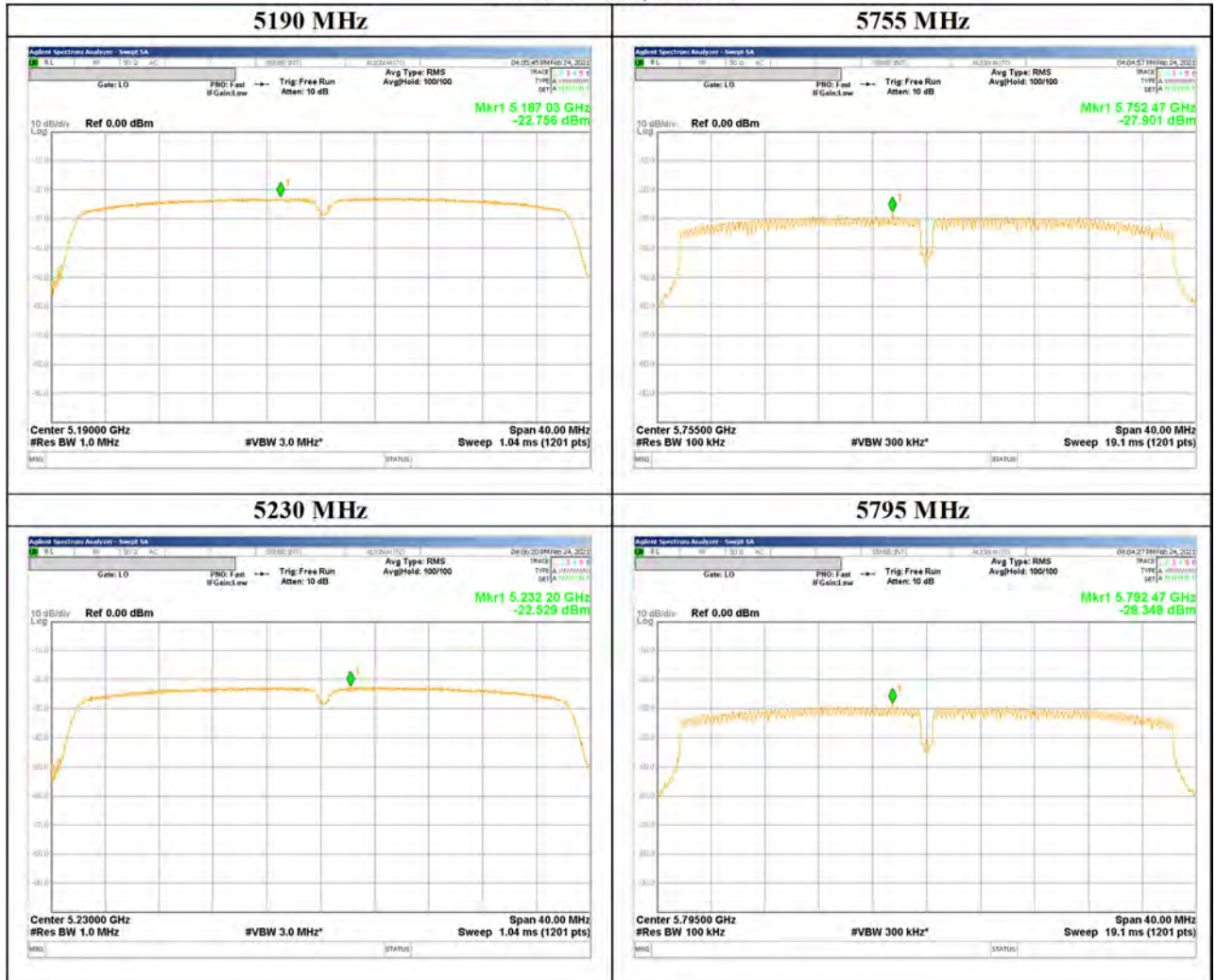
Maximum Power Spectral Density

11ac-20 MIMO, Chain 1



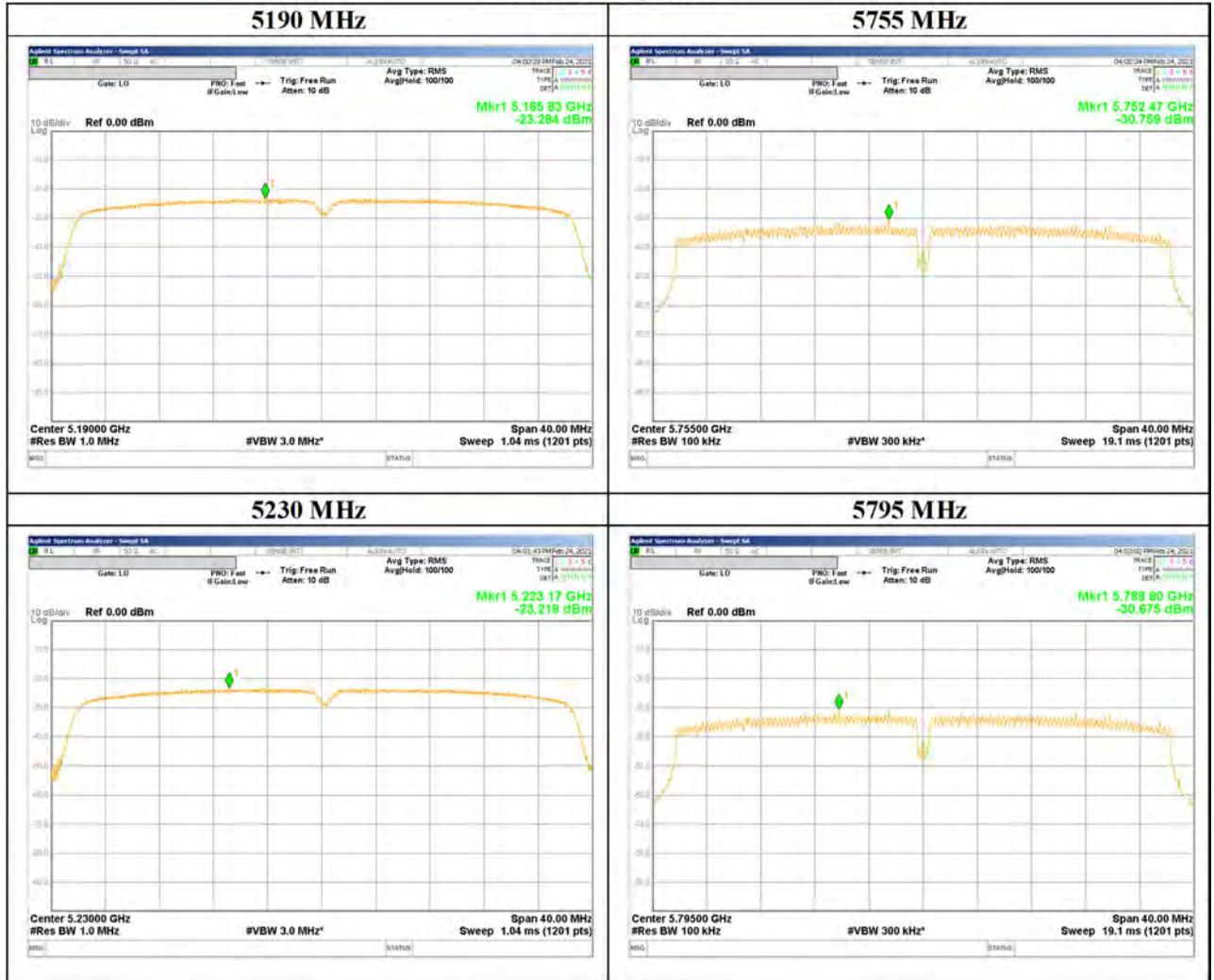
Maximum Power Spectral Density

11n-40 MIMO, Chain 0



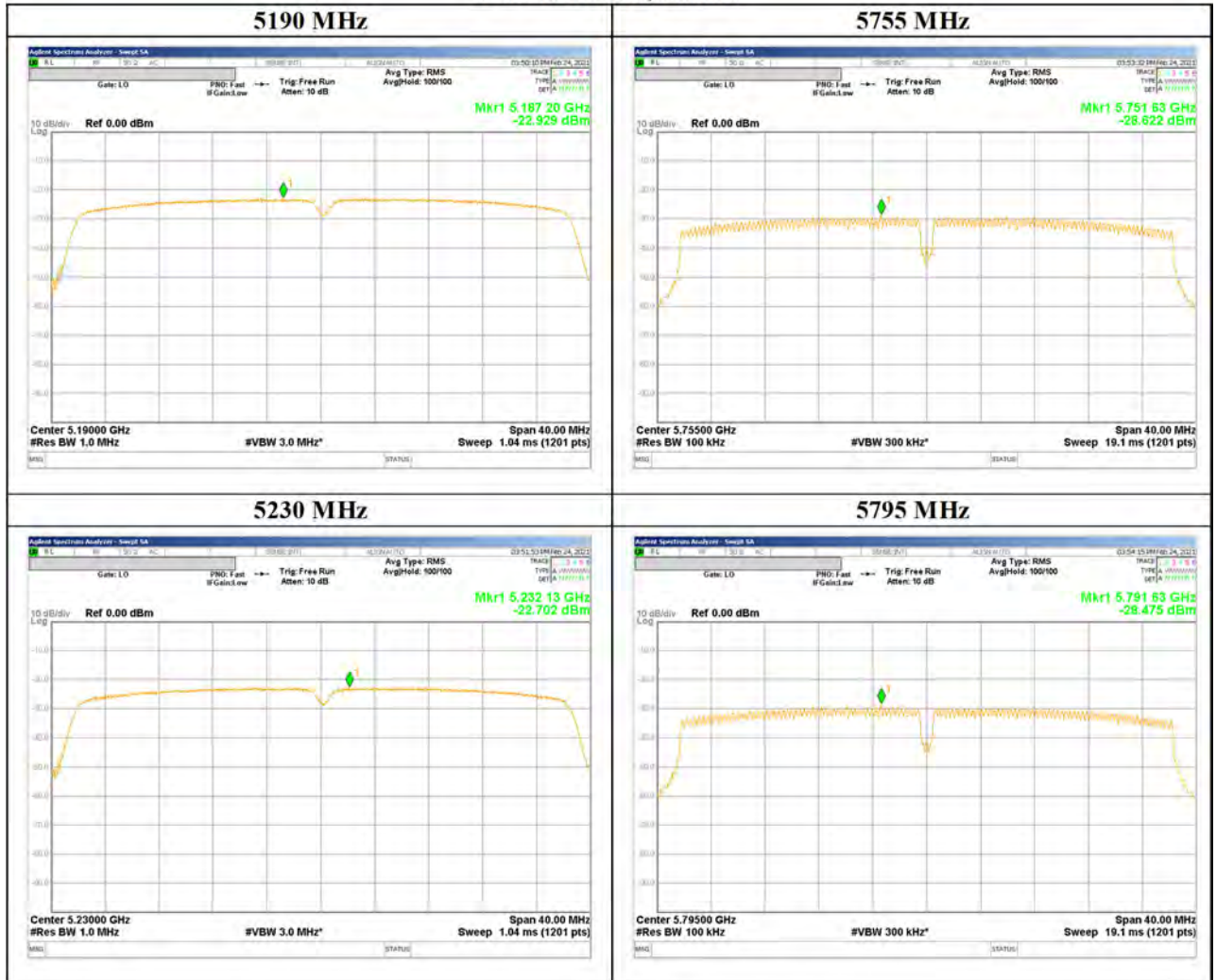
Maximum Power Spectral Density

11n-40 MIMO, Chain 1



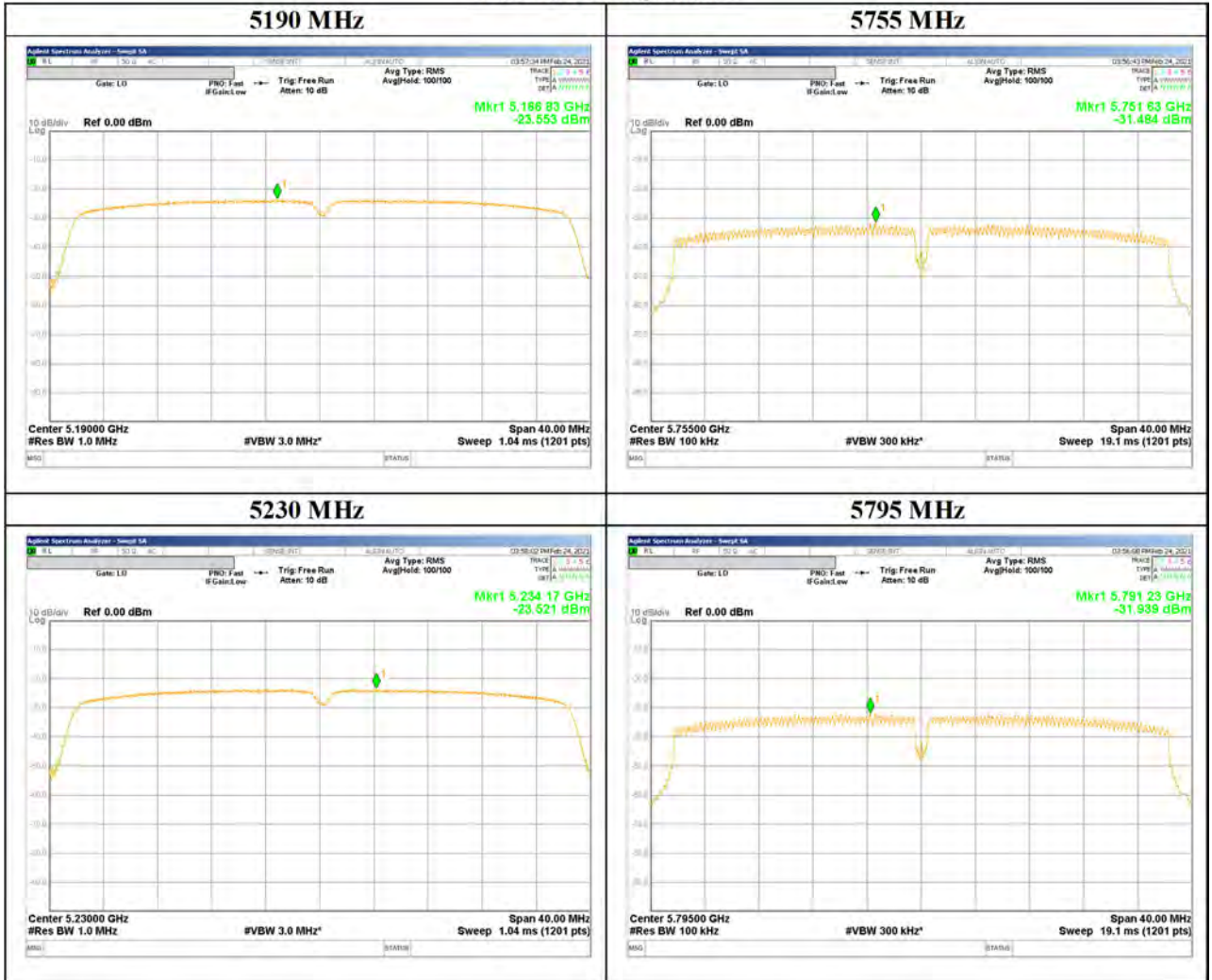
Maximum Power Spectral Density

11ac-40 MIMO, Chain 0

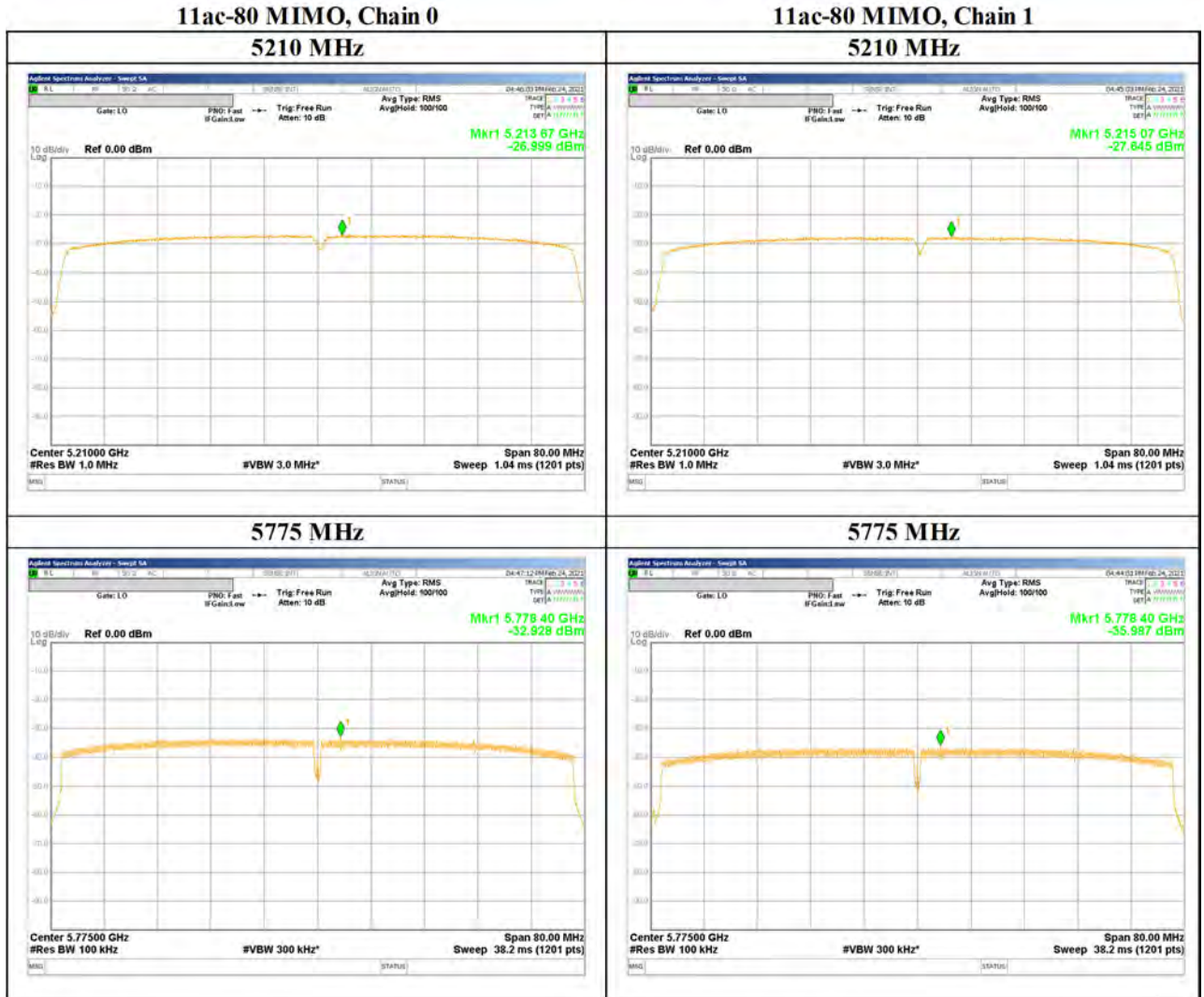


Maximum Power Spectral Density

11ac-40 MIMO, Chain 1



Maximum Power Spectral Density



Radiated Spurious Emission

Report No.	13692701S-C-R2		
Test place	Shonan EMC Lab.		
Semi Anechoic Chamber	No.2	No.2	No.2
Date	February 5, 2021	February 7, 2021	February 10, 2021
Temperature / Humidity	21 deg. C / 37 % RH	22 deg. C / 34 % RH	23 deg. C / 34 % RH
Engineer	Takahiro Suzuki	Yosuke Murakami	Hiromasa Sato
	(1 GHz - 10 GHz)	(10 GHz - 18 GHz)	(18 GHz - 40 GHz)
Mode	Tx 11a 5180 MHz		

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5150.000	PK	45.17	32.34	16.28	38.63	2.06	57.22	73.9	16.6	151	290	-
Hori.	15540.000	PK	46.16	39.51	11.75	37.21	-9.54	50.67	73.9	23.2	150	0	floor noise
Hori.	5150.000	AV	31.95	32.34	16.28	38.63	2.06	44.00	53.9	9.9	151	290	VBW:1.5kHz
Hori.	15540.000	AV	34.01	39.51	11.75	37.21	-9.54	38.52	53.9	15.3	150	0	VBW:1.5kHz, floor noise
Vert.	5150.000	PK	47.37	32.34	16.28	38.63	2.06	59.42	73.9	14.4	138	17	-
Vert.	15540.000	PK	45.52	39.51	11.75	37.21	-9.54	50.03	73.9	23.8	150	0	floor noise
Vert.	5150.000	AV	33.77	32.34	16.28	38.63	2.06	45.82	53.9	8.0	138	17	VBW:1.5kHz
Vert.	15540.000	AV	33.91	39.51	11.75	37.21	-9.54	38.42	53.9	15.4	150	0	VBW:1.5kHz, floor noise

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

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

Distance factor : 1 GHz - 10 GHz : 20log (3.80 m / 3.0 m) = 2.06 dB

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

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	10360.000	PK	47.51	36.35	9.42	40.03	-9.54	43.71	-51.52	-27.0	24.5	153	192	-
Vert.	10360.000	PK	46.34	36.35	9.42	40.03	-9.54	42.54	-52.69	-27.0	25.6	145	219	-

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

Result (EIRP [dBm]) = 10 * LOG ((10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance : 3 [m]) ^ 2 / 30 * 10 ^ 3)

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

Distance factor : 1 GHz - 10 GHz : 20log (3.80 m / 3.0 m) = 2.06 dB

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

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Shonan EMC Lab.

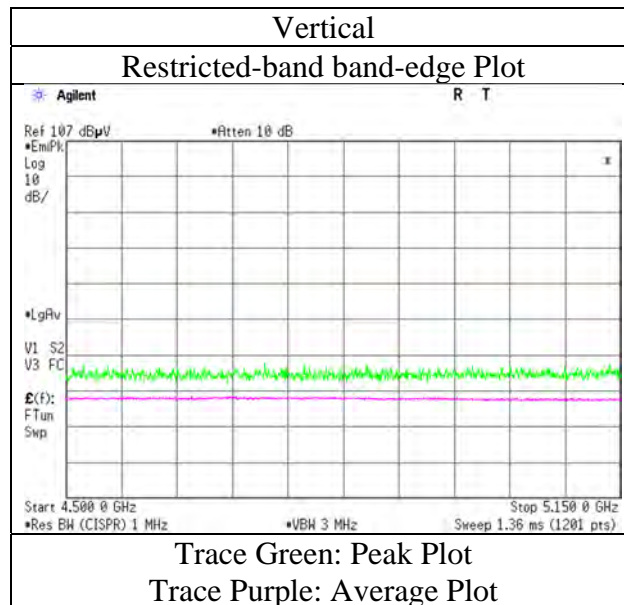
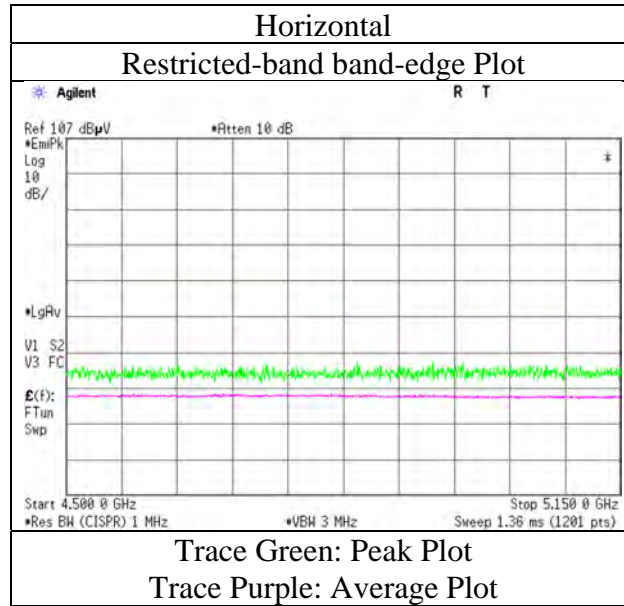
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Radiated Spurious Emission

Report No.	13692701S-C-R2
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.2
Date	February 5, 2021
Temperature / Humidity	21 deg. C / 37 % RH
Engineer	Takahiro Suzuki
	(1 GHz – 6.4 GHz)
Mode	Tx 11a 5180 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Report No.	13692701S-C-R2		
Test place	Shonan EMC Lab.		
Semi Anechoic Chamber	No.2	No.2	No.2
Date	February 5, 2021	February 7, 2021	February 10, 2021
Temperature / Humidity	21 deg. C / 37 % RH	22 deg. C / 34 % RH	23 deg. C / 34 % RH
Engineer	Takahiro Suzuki	Yosuke Murakami	Hiromasa Sato
	(1 GHz - 10 GHz)	(10 GHz - 18 GHz)	(18 GHz - 40 GHz)
Mode	Tx 11a 5220 MHz		

(above 1 GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	15660.000	PK	46.30	39.68	11.73	37.23	-9.54	50.94	73.9	22.9	150		0 floor noise
Hori.	15660.000	AV	35.23	39.68	11.73	37.23	-9.54	39.87	53.9	14.0	150		0 VBW:1.5 kHz, floor noise
Vert.	15660.000	PK	46.61	39.68	11.73	37.23	-9.54	51.25	73.9	22.6	150		0 floor noise
Vert.	15660.000	AV	35.47	39.68	11.73	37.23	-9.54	40.11	53.9	13.7	150		0 VBW:1.5 kHz, floor noise

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

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

Distance factor : 1 GHz - 10 GHz : 20log (3.80 m / 3.0 m) = 2.06 dB

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

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	10440.000	PK	49.86	36.47	9.45	40.16	-9.54	46.08	-49.15	-27.0	22.1	151	181	-
Vert.	10440.000	PK	49.13	36.47	9.45	40.16	-9.54	45.35	-49.88	-27.0	22.8	153	193	-

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

Result (EIRP [dBm]) = 10 * LOG ((10 ^ (Electric Field Strength [dBuV/m] / 20)) * 10 ^ (-6) * Distance : 3 [m]) ^ 2 / 30 * 10 ^ 3)

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

Distance factor : 1 GHz - 10 GHz : 20log (3.80 m / 3.0 m) = 2.06 dB

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

Radiated Spurious Emission

Report No.	13692701S-C-R2		
Test place	Shonan EMC Lab.		
Semi Anechoic Chamber	No.2	No.2	No.2
Date	February 5, 2021	February 7, 2021	February 10, 2021
Temperature / Humidity	21 deg. C / 37 % RH	22 deg. C / 34 % RH	23 deg. C / 34 % RH
Engineer	Takahiro Suzuki	Yosuke Murakami	Hiromasa Sato
	(1 GHz – 10 GHz)	(10 GHz - 18 GHz)	(18 GHz - 40 GHz)
Mode	Tx 11a 5240 MHz		

(above 1 GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5350.000	PK	44.89	32.06	16.42	38.74	2.06	56.69	73.9	17.2	100	0	-
Hori.	15720.000	PK	46.89	39.76	11.71	37.24	-9.54	51.58	73.9	22.3	150	0	floor noise
Hori.	5350.000	AV	32.36	32.06	16.42	38.74	2.06	44.16	53.9	9.7	100	0	VBW:1.5 kHz
Hori.	15720.000	AV	34.95	39.76	11.71	37.24	-9.54	39.64	53.9	14.2	150	0	VBW:1.5 kHz, floor noise
Vert.	5350.000	PK	44.56	32.06	16.42	38.74	2.06	56.36	73.9	17.5	141	16	-
Vert.	15720.000	PK	46.73	39.76	11.71	37.24	-9.54	51.42	73.9	22.4	150	0	floor noise
Vert.	5350.000	AV	33.31	32.06	16.42	38.74	2.06	45.11	53.9	8.7	141	16	VBW:1.5 kHz
Vert.	15720.000	AV	34.97	39.76	11.71	37.24	-9.54	39.66	53.9	14.2	150	0	VBW:1.5 kHz, floor noise

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

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

Distance factor: 1 GHz - 10 GHz: 20log (3.80 m / 3.0 m) = 2.06 dB

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

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	10480.000	PK	47.97	36.57	9.46	40.22	-9.54	44.24	-50.99	-27.0	23.9	154	189	-
Vert.	10480.000	PK	48.92	36.57	9.46	40.22	-9.54	45.19	-50.04	-27.0	23.0	153	195	-

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

Result (EIRP [dBm]) = 10 * LOG ((10 ^ (Electric Field Strength [dBuV/m] / 20)) * 10 ^ (-6) * Distance : 3 [m]) ^ 2 / 30 * 10 ^ 3)

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

Distance factor: 1 GHz - 10 GHz: 20log (3.80 m / 3.0 m) = 2.06 dB

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

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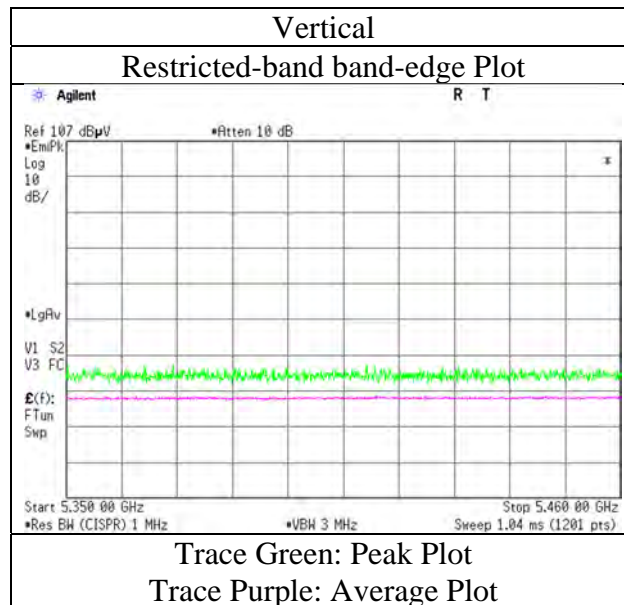
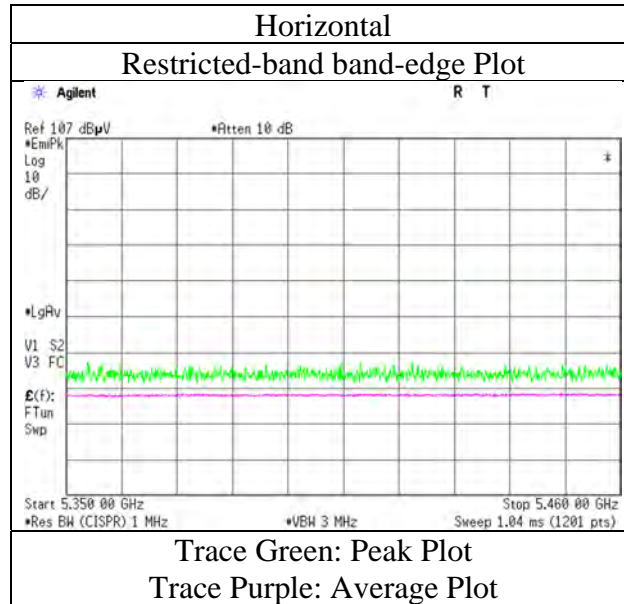
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

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Radiated Spurious Emission

Report No.	13692701S-C-R2
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.2
Date	February 5, 2021
Temperature / Humidity	21 deg. C / 37 % RH
Engineer	Takahiro Suzuki (1 GHz – 6.4 GHz)
Mode	Tx 11a 5240 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Report No.	13692701S-C-R2		
Test place	Shonan EMC Lab.		
Semi Anechoic Chamber	No.2	No.2	No.2
Date	February 5, 2021	February 7, 2021	February 10, 2021
Temperature / Humidity	21 deg. C / 37 % RH	22 deg. C / 34 % RH	23 deg. C / 34 % RH
Engineer	Takahiro Suzuki (1 GHz - 10 GHz)	Yosuke Murakami (10 GHz - 18 GHz)	Hiromasa Sato (18 GHz - 40 GHz)
Mode	Tx 11a 5745 MHz		

(above 1 GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11490.000	PK	51.74	37.98	9.92	40.08	-9.54	50.02	73.9	23.8	157	219	-
Hori.	11490.000	AV	40.33	37.98	9.92	40.08	-9.54	38.61	53.9	15.2	157	219	VBW:1.5 kHz
Vert.	11490.000	PK	52.51	37.98	9.92	40.08	-9.54	50.79	73.9	23.1	141	309	-
Vert.	11490.000	AV	41.54	37.98	9.92	40.08	-9.54	39.82	53.9	14.0	141	309	VBW:1.5 kHz

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

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

Distance factor : 1 GHz - 10 GHz : 20log (3.80 m / 3.0 m) = 2.06 dB

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

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5650.000	PK	43.71	32.64	16.60	38.91	2.06	56.10	-39.13	-27.0	12.1	110	355	-
Hori.	5700.000	PK	45.29	32.71	16.62	38.93	2.06	57.75	-37.48	10.0	47.4	110	355	-
Hori.	5720.000	PK	45.86	32.75	16.63	38.94	2.06	58.36	-36.87	15.6	52.4	110	355	-
Hori.	5725.000	PK	49.48	32.77	16.64	38.94	2.06	62.01	-33.22	27.0	60.2	110	355	-
Hori.	17235.000	PK	45.55	39.94	12.68	37.25	-9.54	51.38	-43.85	-27.0	16.8	150	0	-
Vert.	5650.000	PK	46.23	32.64	16.60	38.91	2.06	58.62	-36.61	-27.0	9.6	136	129	-
Vert.	5700.000	PK	47.21	32.71	16.62	38.93	2.06	59.67	-35.56	10.0	45.5	136	129	-
Vert.	5720.000	PK	47.01	32.75	16.63	38.94	2.06	59.51	-35.72	15.6	51.3	136	129	-
Vert.	5725.000	PK	50.49	32.77	16.64	38.94	2.06	63.02	-32.21	27.0	59.2	136	129	-
Vert.	17235.000	PK	45.34	39.94	12.68	37.25	-9.54	51.17	-44.06	-27.0	17.0	150	0	-

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

Result (EIRP [dBm]) = 10 * LOG ((10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance : 3 [m]) ^ 2 / 30 * 10 ^ 3)

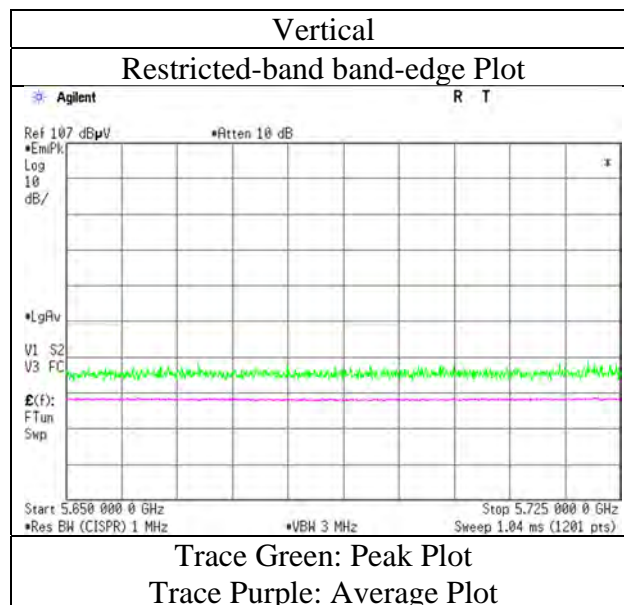
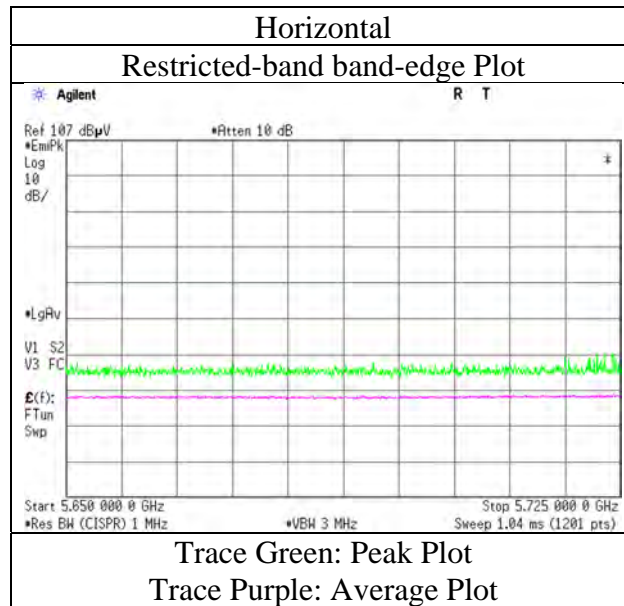
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).

Distance factor : 1 GHz - 10 GHz : 20log (3.80 m / 3.0 m) = 2.06 dB

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

Radiated Spurious Emission

Report No.	13692701S-C-R2
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.2
Date	February 5, 2021
Temperature / Humidity	21 deg. C / 37 % RH
Engineer	Takahiro Suzuki (1 GHz – 6.4 GHz)
Mode	Tx 11a 5745 MHz



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Report No.	13692701S-C-R2			
Test place	Shonan EMC Lab.			
Semi Anechoic Chamber	No.2	No.2	No.2	No.2
Date	February 21, 2021	February 5, 2021	February 7, 2021	February 10, 2021
Temperature / Humidity	21 deg.C, 32 %RH	21 deg. C / 37 % RH	22 deg. C / 34 % RH	23 deg. C / 34 % RH
Engineer	Yusuke Tanikawara	Takahiro Suzuki	Yosuke Murakami	Hhiromasa Sato
	(30 MHz - 1 GHz)	(1 GHz - 10 GHz)	(10 GHz - 18 GHz)	(18 GHz - 40 GHz)
Mode	Tx 11a 5785 MHz			

(below 1 GHz and above 1 GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	63.870	QP	44.30	7.43	7.01	31.89	0.00	26.85	40.0	13.1	340	122	-
Hori.	213.636	QP	46.60	11.19	5.76	31.76	0.00	31.79	43.5	11.7	162	282	-
Hori.	286.033	QP	45.40	13.43	6.29	31.70	0.00	33.42	46.0	12.5	159	64	-
Hori.	317.124	QP	47.80	14.04	6.52	31.67	0.00	36.69	46.0	9.3	100	248	-
Hori.	362.735	QP	42.40	15.11	6.81	31.63	0.00	32.69	46.0	13.3	100	290	-
Hori.	479.995	QP	43.70	17.27	7.50	31.62	0.00	36.85	46.0	9.1	100	245	-
Hori.	11570.000	PK	51.10	38.06	9.96	40.13	-9.54	49.45	73.9	24.4	133	282	-
Hori.	11570.000	AV	40.23	38.06	9.96	40.13	-9.54	38.58	53.9	15.3	133	282	VBW:1.5kHz
Vert.	42.965	QP	37.70	13.79	7.12	31.91	0.00	26.70	40.0	13.3	100	1	-
Vert.	190.454	QP	36.40	16.36	8.88	31.89	0.00	29.75	43.5	13.7	100	293	-
Vert.	259.019	QP	49.70	12.12	6.10	31.71	0.00	36.21	46.0	9.7	100	248	-
Vert.	11570.000	PK	53.01	38.06	9.96	40.13	-9.54	51.36	73.9	22.5	144	311	-
Vert.	11570.000	AV	42.56	38.06	9.96	40.13	-9.54	40.91	53.9	12.9	144	311	VBW:1.5kHz

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

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

Distance factor : 1 GHz - 10 GHz : 20log (3.80 m / 3.0 m) = 2.06 dB

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

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	17355.000	PK	45.87	40.15	12.68	37.31	-9.54	51.85	-43.38	-27.0	16.3	150	0	-
Vert.	17355.000	PK	46.52	40.15	12.68	37.31	-9.54	52.50	-42.73	-27.0	15.7	150	0	-

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

Result (EIRP [dBm]) = 10 * LOG ((10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance : 3 [m]) ^ 2 / 30 * 10 ^ 3)

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

Distance factor : 1 GHz - 10 GHz : 20log (3.80 m / 3.0 m) = 2.06 dB

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

UL Japan, Inc.

Shonan EMC Lab.

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Radiated Spurious Emission

Report No.	13692701S-C-R2		
Test place	Shonan EMC Lab.		
Semi Anechoic Chamber	No.2	No.2	No.2
Date	February 5, 2021	February 7, 2021	February 10, 2021
Temperature / Humidity	21 deg. C / 37 % RH	22 deg. C / 34 % RH	23 deg. C / 34 % RH
Engineer	Takahiro Suzuki	Yosuke Murakami	Hiromasa Sato
	(1 GHz - 10 GHz)	(10 GHz - 18 GHz)	(18 GHz - 40 GHz)
Mode	Tx 11a 5825 MHz		

(above 1 GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11650.000	PK	50.29	38.11	10.02	40.19	-9.54	48.69	73.9	25.2	152	285	-
Hori.	11650.000	AV	39.48	38.11	10.02	40.19	-9.54	37.88	53.9	16.0	152	285	VBW:1.5 kHz
Vert.	11650.000	PK	52.61	38.11	10.02	40.19	-9.54	51.01	73.9	22.8	142	311	-
Vert.	11650.000	AV	41.66	38.11	10.02	40.19	-9.54	40.06	53.9	13.8	142	311	VBW:1.5 kHz

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

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

Distance factor : 1 GHz - 10 GHz : 20log (3.80 m / 3.0 m) = 2.06 dB

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

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5850.000	PK	44.35	33.11	16.72	39.01	2.06	57.23	-38.00	27.0	65.0	137	356	-
Hori.	5855.000	PK	44.25	33.12	16.72	39.01	2.06	57.14	-38.09	15.6	53.6	137	356	-
Hori.	5875.000	PK	43.23	33.16	16.75	39.02	2.06	56.18	-39.05	10.0	49.0	137	356	-
Hori.	5925.000	PK	44.81	33.23	16.78	39.04	2.06	57.84	-37.39	-27.0	10.3	137	356	-
Hori.	17475.000	PK	45.51	40.25	12.67	37.37	-9.54	51.52	-43.71	-27.0	16.7	150	0	-
Vert.	5850.000	PK	44.52	33.11	16.72	39.01	2.06	57.40	-37.83	27.0	64.8	106	354	-
Vert.	5855.000	PK	44.53	33.12	16.72	39.01	2.06	57.42	-37.81	15.6	53.4	106	354	-
Vert.	5875.000	PK	44.65	33.16	16.75	39.02	2.06	57.60	-37.63	10.0	47.6	106	354	-
Vert.	5925.000	PK	45.06	33.23	16.78	39.04	2.06	58.09	-37.14	-27.0	10.1	106	354	-
Vert.	17475.000	PK	45.49	40.25	12.67	37.37	-9.54	51.50	-43.73	-27.0	16.7	150	0	-

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

Result (EIRP [dBm]) = 10 * LOG ((10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance [m]) ^ 2 / 30 * 10 ^ 3)

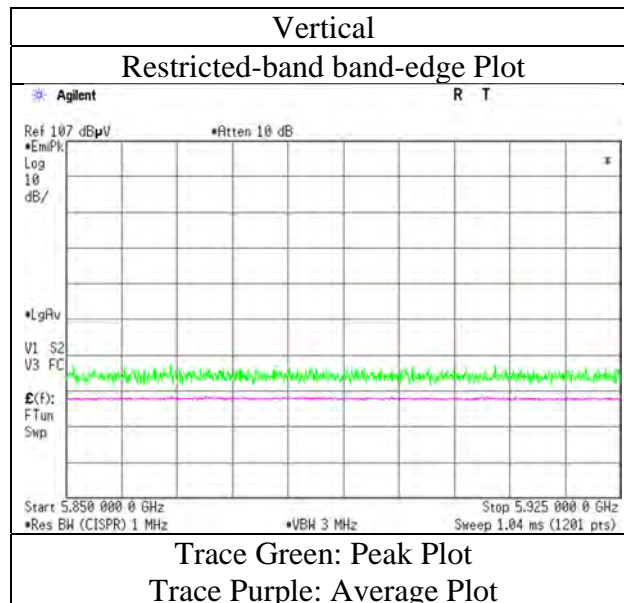
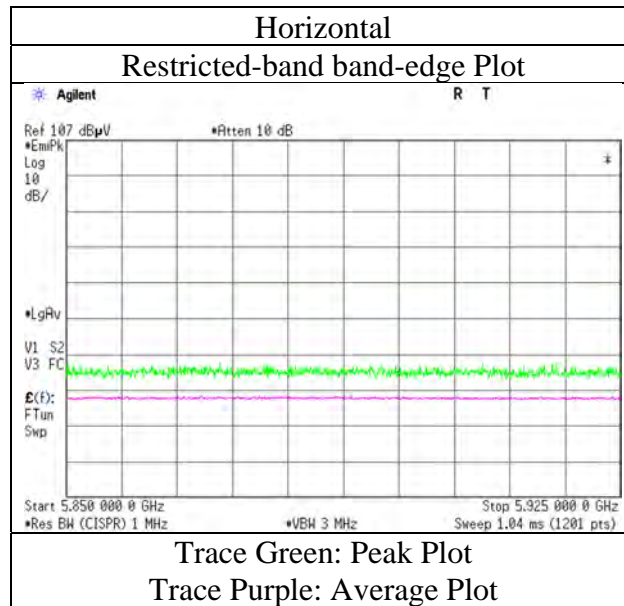
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).

Distance factor : 1 GHz - 10 GHz : 20log (3.80 m / 3.0 m) = 2.06 dB

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

Radiated Spurious Emission

Report No.	13692701S-C-R2
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.2
Date	February 5, 2021
Temperature / Humidity	21 deg. C / 37 % RH
Engineer	Takahiro Suzuki (1 GHz – 6.4 GHz)
Mode	Tx 11a 5825 MHz



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

Radiated Spurious Emission

Report No. 13692701S-C-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.2
Date February 6, 2021
Temperature / Humidity 22 deg. C / 34 % RH
Engineer Yohsuke Matsuzawa
(1 GHz – 6.4 GHz)
Mode Tx 11n-20 5180 MHz (SISO)

(above 1 GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5150.000	PK	45.96	32.34	16.28	38.63	2.06	58.01	73.9	15.8	153	290	-
Hori.	5150.000	AV	33.69	32.34	16.28	38.63	2.06	45.74	53.9	8.1	153	290	VBW:1.5 kHz
Vert.	5150.000	PK	45.17	32.34	16.28	38.63	2.06	57.22	73.9	16.6	140	15	-
Vert.	5150.000	AV	33.65	32.34	16.28	38.63	2.06	45.70	53.9	8.2	140	15	VBW:1.5 kHz

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

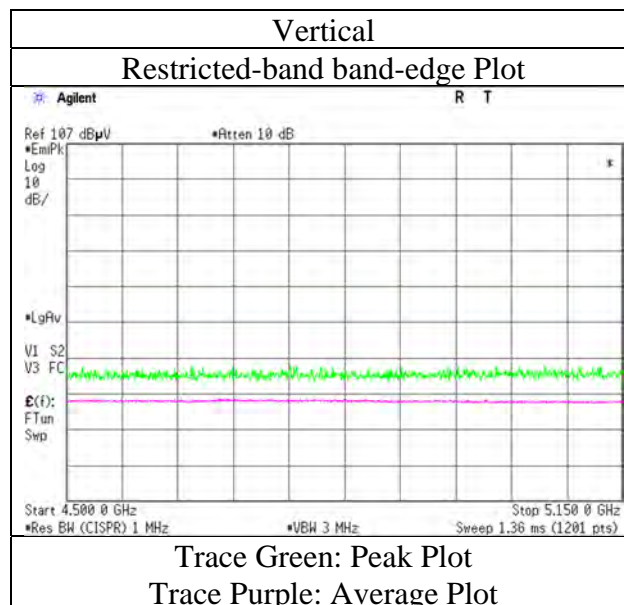
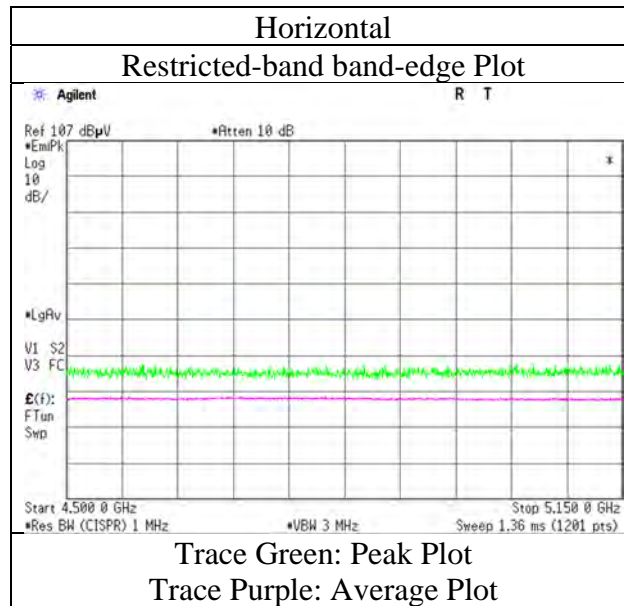
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).

Distance factor : 1 GHz - 10 GHz : $20\log(3.80\text{ m} / 3.0\text{ m}) = 2.06\text{ dB}$

10 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

Radiated Spurious Emission

Report No.	13692701S-C-R2
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.2
Date	February 6, 2021
Temperature / Humidity	22 deg. C / 34 % RH
Engineer	Yohsuke Matsuzawa
	(1 GHz – 6.4 GHz)
Mode	Tx 11n-20 5180 MHz (SISO)



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

Radiated Spurious Emission

Report No. 13692701S-C-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.2
Date February 6, 2021
Temperature / Humidity 22 deg. C / 34 % RH
Engineer Yohsuke Matsuzawa
(1 GHz – 6.4 GHz)
Mode Tx 11n-20 5240 MHz (SISO)

(above 1 GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5350.000	PK	45.38	32.06	16.42	38.74	2.06	57.18	73.9	16.7	155	288	-
Hori.	5350.000	AV	33.87	32.06	16.42	38.74	2.06	45.67	53.9	8.2	155	288	VBW:1.5 kHz
Vert.	5350.000	PK	45.12	32.06	16.42	38.74	2.06	56.92	73.9	16.9	242	14	-
Vert.	5350.000	AV	33.84	32.06	16.42	38.74	2.06	45.64	53.9	8.2	242	14	VBW:1.5 kHz

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

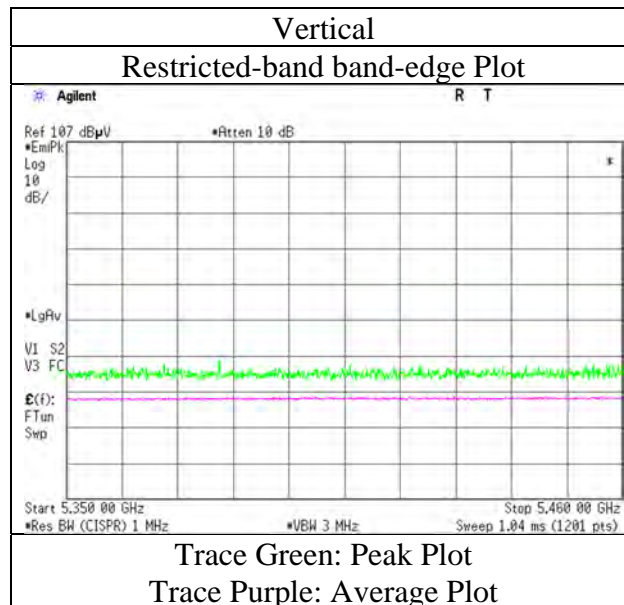
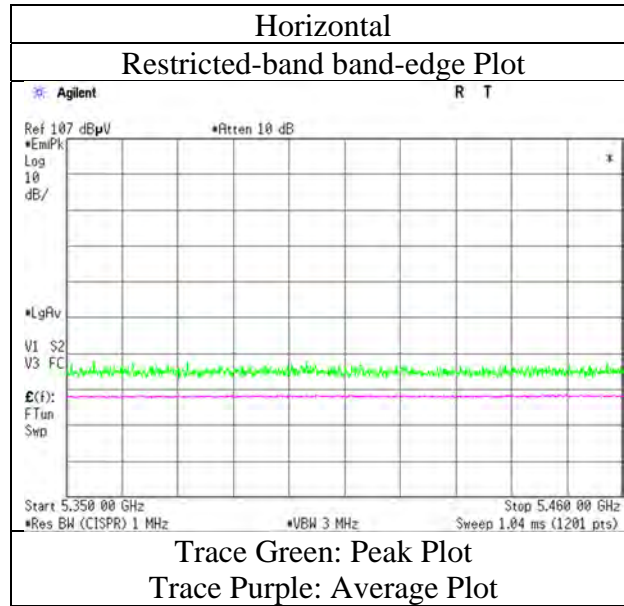
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).

Distance factor : 1 GHz - 10 GHz : $20\log(3.80\text{ m} / 3.0\text{ m}) = 2.06\text{ dB}$

10 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

Radiated Spurious Emission

Report No.	13692701S-C-R2
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.2
Date	February 6, 2021
Temperature / Humidity	22 deg. C / 34 % RH
Engineer	Yohsuke Matsuzawa
	(1 GHz – 6.4 GHz)
Mode	Tx 11n-20 5240 MHz (SISO)



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

Final result of restricted band edge was shown in tabular data.

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Radiated Spurious Emission

Report No. 13692701S-C-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.2
Date February 6, 2021
Temperature / Humidity 22 deg. C / 34 % RH
Engineer Yohsuke Matsuzawa
(1 GHz – 6.4 GHz)
Mode Tx 11n-20 5745 MHz (SISO)

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5650.000	PK	44.77	32.64	16.60	38.91	2.06	57.16	-38.07	-27.0	11.0	179	50	-
Hori.	5700.000	PK	45.27	32.71	16.62	38.93	2.06	57.73	-37.50	10.0	47.5	179	50	-
Hori.	5720.000	PK	47.49	32.75	16.63	38.94	2.06	59.99	-35.24	15.6	50.8	179	50	-
Hori.	5725.000	PK	47.84	32.77	16.64	38.94	2.06	60.37	-34.86	27.0	61.8	179	50	-
Vert.	5650.000	PK	45.58	32.64	16.60	38.91	2.06	57.97	-37.26	-27.0	10.2	156	127	-
Vert.	5700.000	PK	45.53	32.71	16.62	38.93	2.06	57.99	-37.24	10.0	47.2	156	127	-
Vert.	5720.000	PK	45.40	32.75	16.63	38.94	2.06	57.90	-37.33	15.6	52.9	156	127	-
Vert.	5725.000	PK	47.18	32.77	16.64	38.94	2.06	59.71	-35.52	27.0	62.5	156	127	-

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

Result (EIRP [dBm]) = 10 * LOG ((10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance : 3 [m]) ^ 2 / 30 * 10 ^ 3)

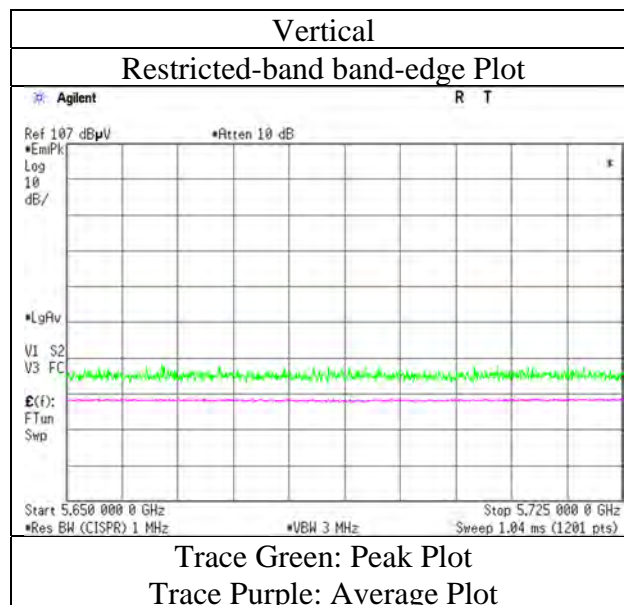
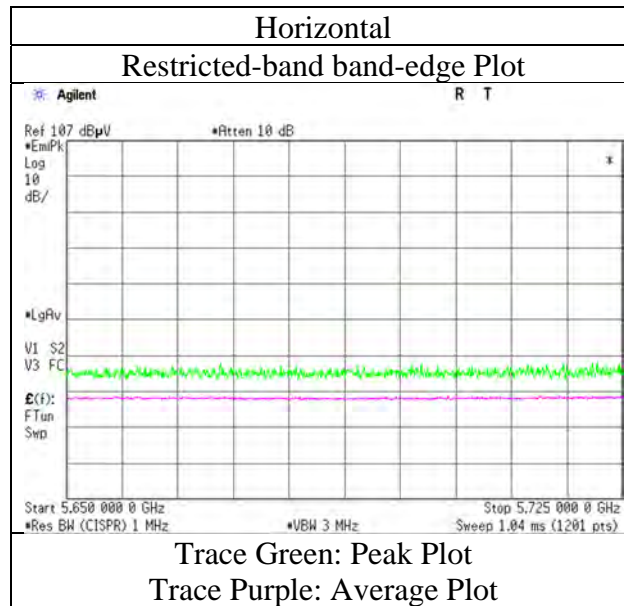
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).

Distance factor : 1 GHz - 10 GHz : 20log (3.80 m / 3.0 m) = 2.06 dB

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

Radiated Spurious Emission

Report No.	13692701S-C-R2
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.2
Date	February 6, 2021
Temperature / Humidity	22 deg. C / 34 % RH
Engineer	Yohsuke Matsuzawa
	(1 GHz – 6.4 GHz)
Mode	Tx 11n-20 5745 MHz (SISO)



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Report No. 13692701S-C-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.2
Date February 6, 2021
Temperature / Humidity 22 deg. C / 34 % RH
Engineer Yohsuke Matsuzawa
(1 GHz – 6.4 GHz)
Mode Tx 11n-20 5825 MHz (SISO)

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5850.000	PK	46.34	33.11	16.72	39.01	2.06	59.22	-36.01	27.0	63.0	146	357	-
Hori.	5855.000	PK	44.58	33.12	16.72	39.01	2.06	57.47	-37.76	15.6	53.3	146	357	-
Hori.	5875.000	PK	45.04	33.16	16.75	39.02	2.06	57.99	-37.24	10.0	47.2	146	357	-
Hori.	5925.000	PK	44.41	33.23	16.78	39.04	2.06	57.44	-37.79	-27.0	10.7	146	357	-
Vert.	5850.000	PK	45.89	33.11	16.72	39.01	2.06	58.77	-36.46	27.0	63.4	147	126	-
Vert.	5855.000	PK	45.42	33.12	16.72	39.01	2.06	58.31	-36.92	15.6	52.5	147	126	-
Vert.	5875.000	PK	45.50	33.16	16.75	39.02	2.06	58.45	-36.78	10.0	46.7	147	126	-
Vert.	5925.000	PK	44.81	33.23	16.78	39.04	2.06	57.84	-37.39	-27.0	10.3	147	126	-

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

Result (EIRP [dBm]) = 10 * LOG ((10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance : 3 [m]) ^ 2 / 30 * 10 ^ 3)

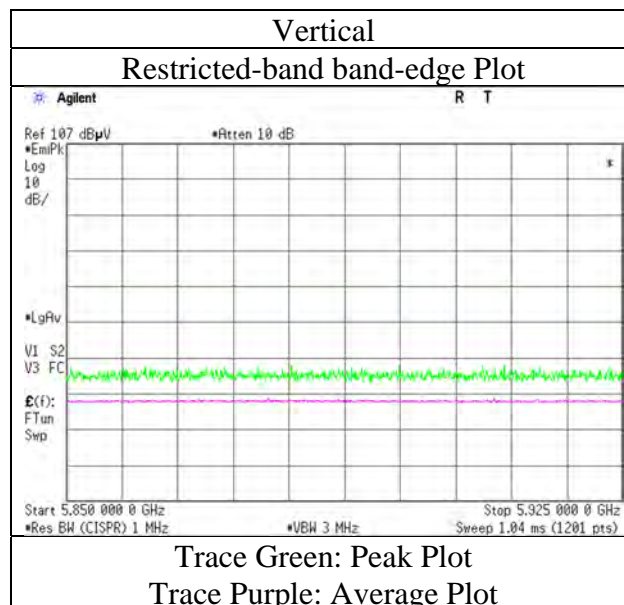
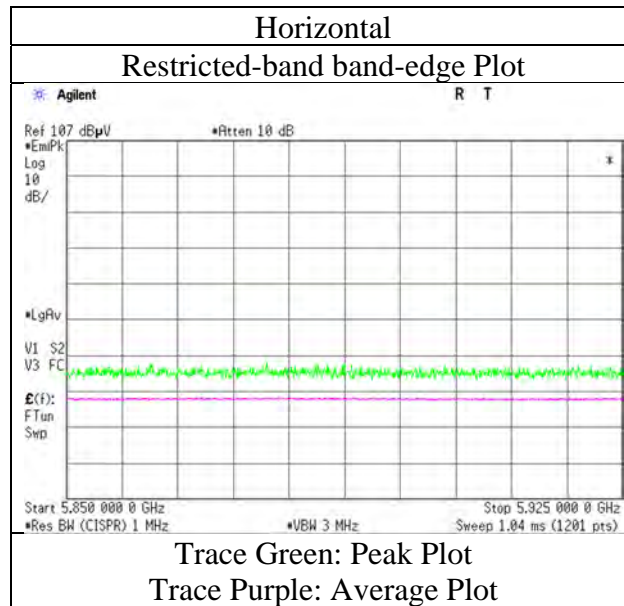
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).

Distance factor : 1 GHz - 10 GHz : 20log (3.80 m / 3.0 m) = 2.06 dB

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

Radiated Spurious Emission

Report No.	13692701S-C-R2
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.2
Date	February 6, 2021
Temperature / Humidity	22 deg. C / 34 % RH
Engineer	Yohsuke Matsuzawa
	(1 GHz – 6.4 GHz)
Mode	Tx 11n-20 5825 MHz (SISO)



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

Final result of restricted band edge was shown in tabular data.

UL Japan, Inc.

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Radiated Spurious Emission

Report No. 13692701S-C-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.2
Date February 5, 2021
Temperature / Humidity 21 deg. C / 37 % RH
Engineer Takahiro Suzuki
(1 GHz – 6.4 GHz)
Mode Tx 11ac-20 5180 MHz (SISO)

(above 1 GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5150.000	PK	44.39	32.34	16.28	38.63	2.06	56.44	73.9	17.4	122	282	-
Hori.	5150.000	AV	32.14	32.34	16.28	38.63	2.06	44.19	53.9	9.7	122	282	VBW:1.5 kHz
Vert.	5150.000	PK	45.97	32.34	16.28	38.63	2.06	58.02	73.9	15.8	114	20	-
Vert.	5150.000	AV	32.24	32.34	16.28	38.63	2.06	44.29	53.9	9.6	114	20	VBW:1.5 kHz

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

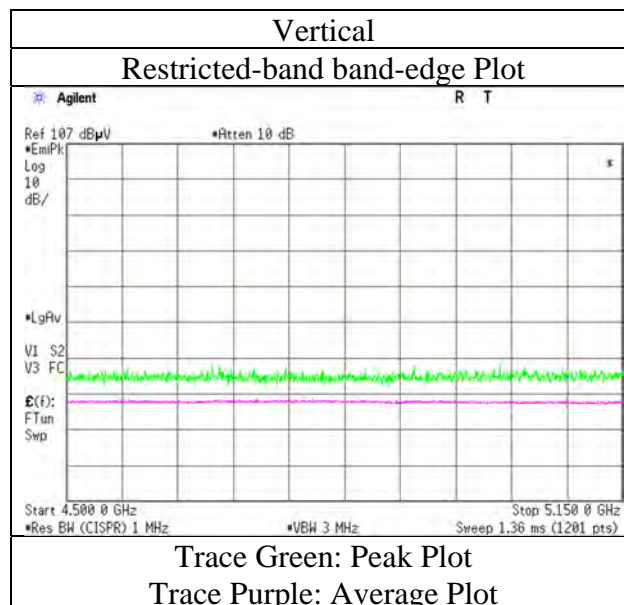
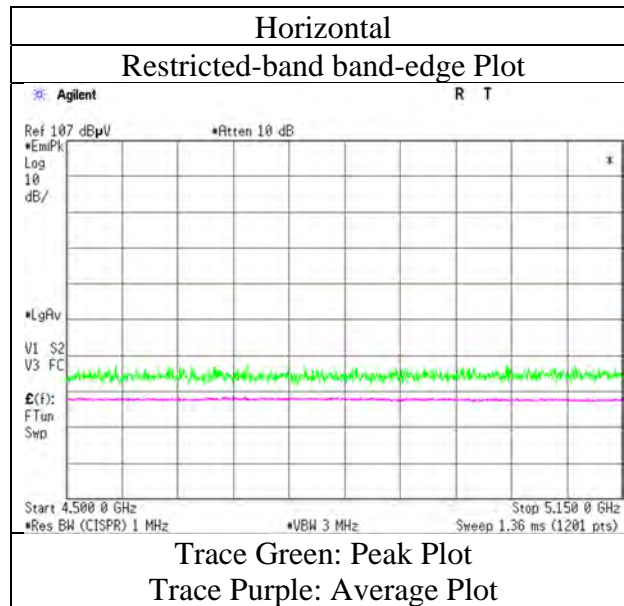
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).

Distance factor : 1 GHz - 10 GHz : $20\log(3.80\text{ m} / 3.0\text{ m}) = 2.06\text{ dB}$

10 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

Radiated Spurious Emission

Report No.	13692701S-C-R2
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.2
Date	February 5, 2021
Temperature / Humidity	21 deg. C / 37 % RH
Engineer	Takahiro Suzuki
	(1 GHz – 6.4 GHz)
Mode	Tx 11ac-20 5180 MHz (SISO)



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

Radiated Spurious Emission

Report No. 13692701S-C-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.2
Date February 5, 2021
Temperature / Humidity 21 deg. C / 37 % RH
Engineer Takahiro Suzuki
(1 GHz – 6.4 GHz)
Mode Tx 11ac-20 5240 MHz (SISO)

(above 1 GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5350.000	PK	44.23	32.06	16.42	38.74	2.06	56.03	73.9	17.8	100	279	-
Hori.	5350.000	AV	32.14	32.06	16.42	38.74	2.06	43.94	53.9	9.9	100	279	VBW:1.5 kHz
Vert.	5350.000	PK	44.69	32.06	16.42	38.74	2.06	56.49	73.9	17.4	100	331	-
Vert.	5350.000	AV	32.38	32.06	16.42	38.74	2.06	44.18	53.9	9.7	100	331	VBW:1.5 kHz

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

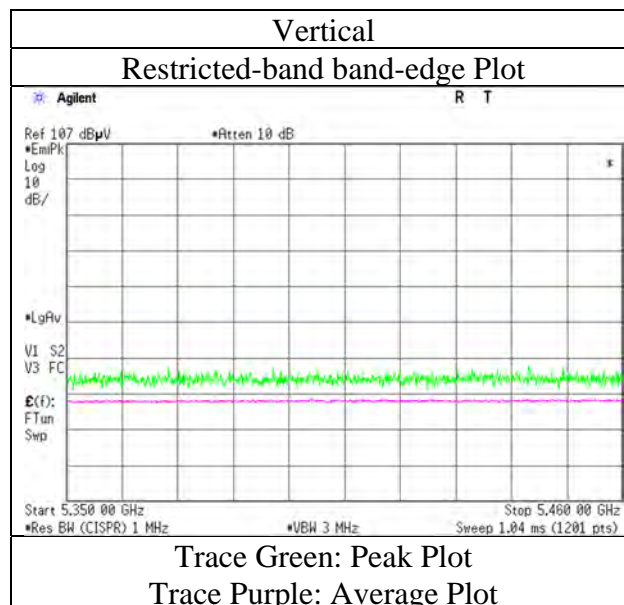
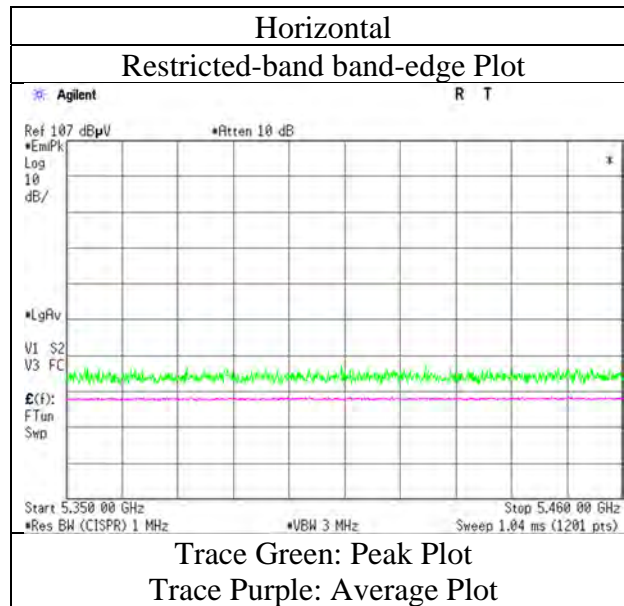
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).

Distance factor : 1 GHz - 10 GHz : $20\log(3.80\text{ m} / 3.0\text{ m}) = 2.06\text{ dB}$

10 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

Radiated Spurious Emission

Report No.	13692701S-C-R2
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.2
Date	February 5, 2021
Temperature / Humidity	21 deg. C / 37 % RH
Engineer	Takahiro Suzuki
	(1 GHz – 6.4 GHz)
Mode	Tx 11ac-20 5240 MHz (SISO)



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

Final result of restricted band edge was shown in tabular data.

UL Japan, Inc.

Shonan EMC Lab.

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Radiated Spurious Emission

Report No. 13692701S-C-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.2
Date February 5, 2021
Temperature / Humidity 21 deg. C / 37 % RH
Engineer Takahiro Suzuki
(1 GHz – 6.4 GHz)
Mode Tx 11ac-20 5745 MHz (SISO)

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5650.000	PK	45.06	32.64	16.60	38.91	2.06	57.45	-37.78	-27.0	10.7	157	51	-
Hori.	5700.000	PK	45.40	32.71	16.62	38.93	2.06	57.86	-37.37	10.0	47.3	157	51	-
Hori.	5720.000	PK	45.87	32.75	16.63	38.94	2.06	58.37	-36.86	15.6	52.4	157	51	-
Hori.	5725.000	PK	48.90	32.77	16.64	38.94	2.06	61.43	-33.80	27.0	60.8	157	51	-
Vert.	5650.000	PK	45.16	32.64	16.60	38.91	2.06	57.55	-37.68	-27.0	10.6	152	127	-
Vert.	5700.000	PK	45.45	32.71	16.62	38.93	2.06	57.91	-37.32	10.0	47.3	152	127	-
Vert.	5720.000	PK	45.55	32.75	16.63	38.94	2.06	58.05	-37.18	15.6	52.7	152	127	-
Vert.	5725.000	PK	46.93	32.77	16.64	38.94	2.06	59.46	-35.77	27.0	62.7	152	127	-

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

Result (EIRP [dBm]) = 10 * LOG((10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance : 3 [m]) ^ 2 / 30 * 10 ^ 3)

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

Distance factor : 1 GHz - 10 GHz : 20log (3.80 m / 3.0 m) = 2.06 dB

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

UL Japan, Inc.

Shonan EMC Lab.

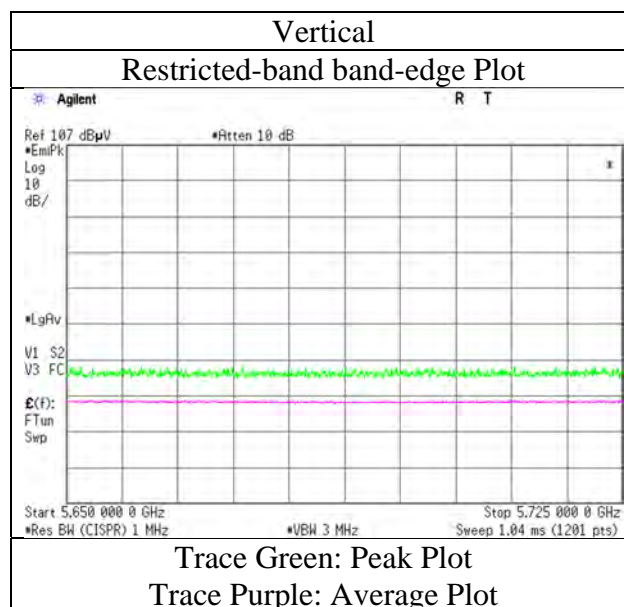
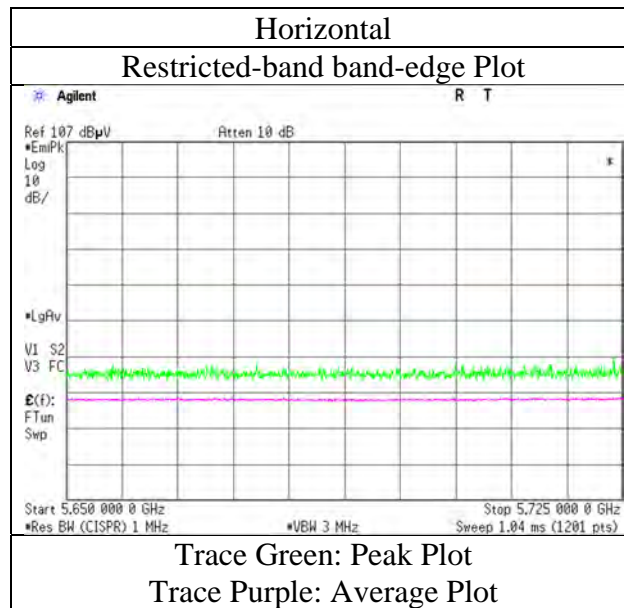
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

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Radiated Spurious Emission

Report No. 13692701S-C-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.2
Date February 5, 2021
Temperature / Humidity 21 deg. C / 37 % RH
Engineer Takahiro Suzuki
(1 GHz – 6.4 GHz)
Mode Tx 11ac-20 5745 MHz (SISO)



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Report No. 13692701S-C-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.2
Date February 5, 2021
Temperature / Humidity 21 deg. C / 37 % RH
Engineer Takahiro Suzuki
(1 GHz – 6.4 GHz)
Mode Tx 11ac-20 5825MHz (SISO)

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5850.000	PK	45.52	33.11	16.72	39.01	2.06	58.40	-36.83	27.0	63.8	146	356	-
Hori.	5855.000	PK	45.95	33.12	16.72	39.01	2.06	58.84	-36.39	15.6	51.9	146	356	-
Hori.	5875.000	PK	45.45	33.16	16.75	39.02	2.06	58.40	-36.83	10.0	46.8	146	356	-
Hori.	5925.000	PK	44.94	33.23	16.78	39.04	2.06	57.97	-37.26	-27.0	10.2	146	356	-
Vert.	5850.000	PK	46.08	33.11	16.72	39.01	2.06	58.96	-36.27	27.0	63.2	146	128	-
Vert.	5855.000	PK	45.15	33.12	16.72	39.01	2.06	58.04	-37.19	15.6	52.7	146	128	-
Vert.	5875.000	PK	45.36	33.16	16.75	39.02	2.06	58.31	-36.92	10.0	46.9	146	128	-
Vert.	5925.000	PK	45.02	33.23	16.78	39.04	2.06	58.05	-37.18	-27.0	10.1	100	128	-

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

Result (EIRP [dBm]) = 10 * LOG((10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance : 3 [m]) ^ 2 / 30 * 10 ^ 3)

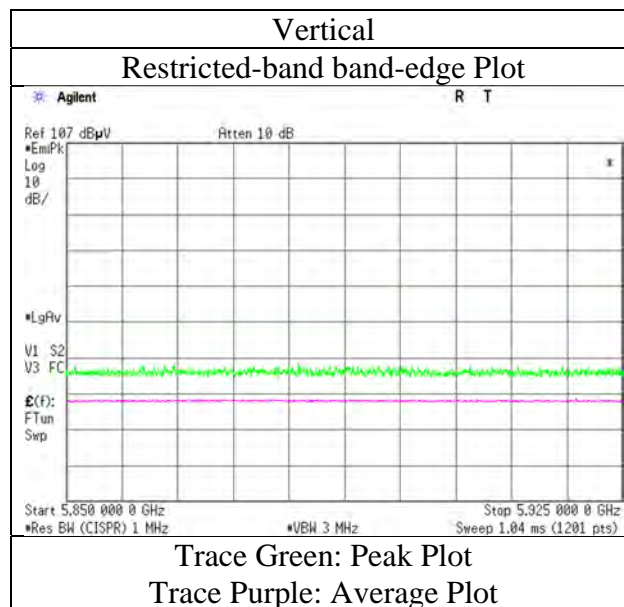
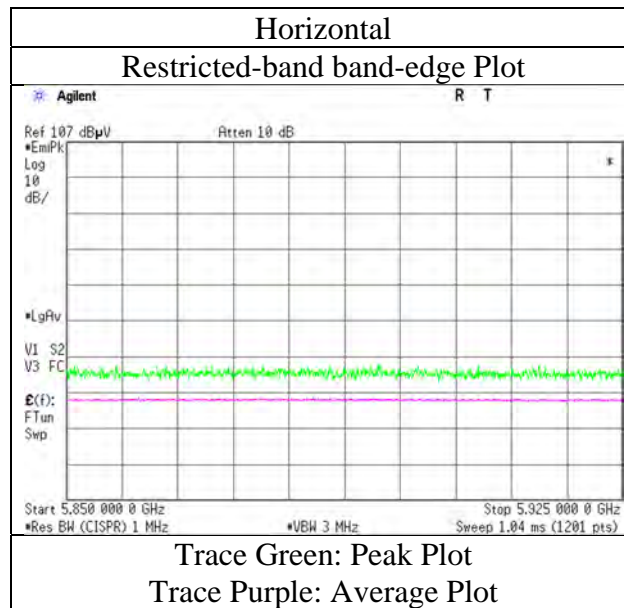
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).

Distance factor : 1 GHz - 10 GHz : 20log (3.80 m / 3.0 m) = 2.06 dB

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

Radiated Spurious Emission

Report No. 13692701S-C-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.2
Date February 5, 2021
Temperature / Humidity 21 deg. C / 37 % RH
Engineer Takahiro Suzuki
(1 GHz – 6.4 GHz)
Mode Tx 11ac-20 5825 MHz (SISO)



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Report No. 13692701S-C-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.2
Date February 6, 2021
Temperature / Humidity 22 deg. C / 34 % RH
Engineer Yohsuke Matsuzawa
(1 GHz – 6.4 GHz)
Mode Tx 11n-40 5190 MHz (SISO)

(above 1 GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5150.000	PK	45.05	32.34	16.28	38.63	2.06	57.10	73.9	16.8	155	290	-
Hori.	5150.000	AV	35.06	32.34	16.28	38.63	2.06	47.11	53.9	6.7	155	290	VBW:5.6 kHz
Vert.	5150.000	PK	45.60	32.34	16.28	38.63	2.06	57.65	73.9	16.2	137	17	-
Vert.	5150.000	AV	34.90	32.34	16.28	38.63	2.06	46.95	53.9	6.9	137	17	VBW:5.6 kHz

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

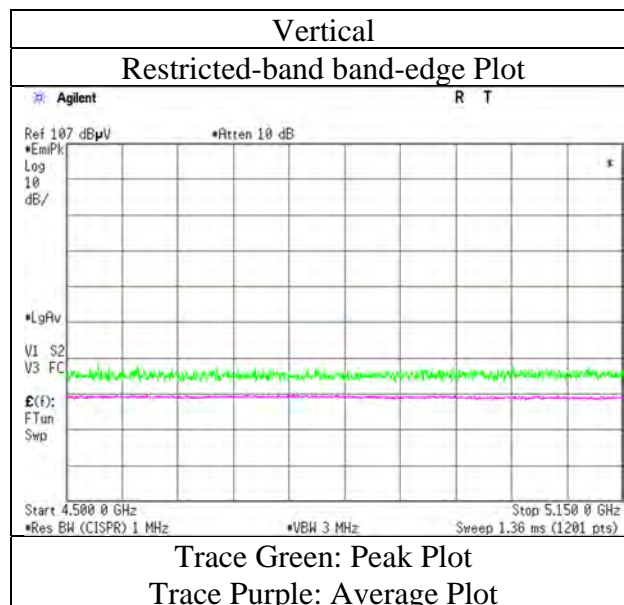
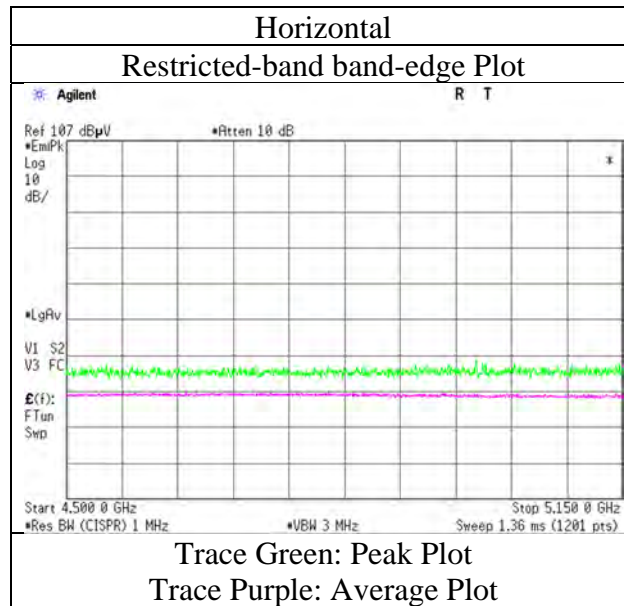
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).

Distance factor : 1 GHz - 10 GHz : $20\log(3.80\text{ m} / 3.0\text{ m}) = 2.06\text{ dB}$

10 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

Radiated Spurious Emission

Report No.	13692701S-C-R2
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.2
Date	February 6, 2021
Temperature / Humidity	22 deg. C / 34 % RH
Engineer	Yohsuke Matsuzawa
	(1 GHz – 6.4 GHz)
Mode	Tx 11n-40 5190 MHz (SISO)



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Report No. 13692701S-C-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.2
Date February 6, 2021
Temperature / Humidity 22 deg. C / 34 % RH
Engineer Yohsuke Matsuzawa
(1 GHz – 6.4 GHz)
Mode Tx 11n-40 5230 MHz (SISO)

(above 1 GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5350.000	PK	44.56	32.06	16.42	38.74	2.06	56.36	73.9	17.5	154	289	-
Hori.	5350.000	AV	35.27	32.06	16.42	38.74	2.06	47.07	53.9	6.8	154	289	VBW:5.6 kHz
Vert.	5350.000	PK	45.85	32.06	16.42	38.74	2.06	57.65	73.9	16.2	257	15	-
Vert.	5350.000	AV	35.39	32.06	16.42	38.74	2.06	47.19	53.9	6.7	257	15	VBW:5.6 kHz

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

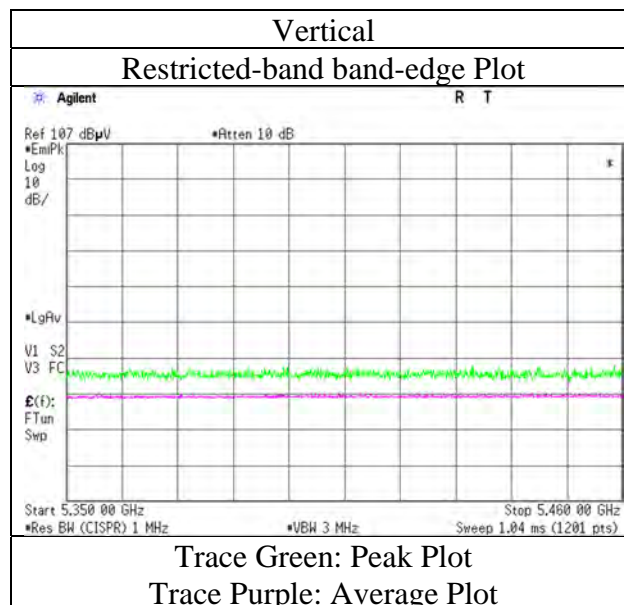
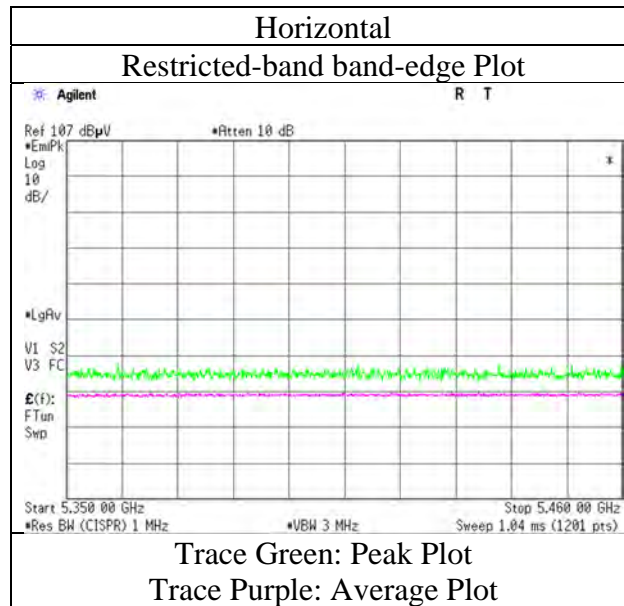
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).

Distance factor : 1 GHz - 10 GHz : $20\log(3.80\text{ m} / 3.0\text{ m}) = 2.06\text{ dB}$

10 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

Radiated Spurious Emission

Report No.	13692701S-C-R2
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.2
Date	February 6, 2021
Temperature / Humidity	22 deg. C / 34 % RH
Engineer	Yohsuke Matsuzawa
	(1 GHz – 6.4 GHz)
Mode	Tx 11n-40 5230 MHz (SISO)



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Report No. 13692701S-C-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.2
Date February 6, 2021
Temperature / Humidity 22 deg. C / 34 % RH
Engineer Yohsuke Matsuzawa
(1 GHz – 6.4 GHz)
Mode Tx 11n-40 5755 MHz (SISO)

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5650.000	PK	45.43	32.64	16.60	38.91	2.06	57.82	-37.41	-27.0	10.4	103	356	-
Hori.	5700.000	PK	45.81	32.71	16.62	38.93	2.06	58.27	-36.96	10.0	46.9	103	356	-
Hori.	5720.000	PK	45.60	32.75	16.63	38.94	2.06	58.10	-37.13	15.6	52.7	103	356	-
Hori.	5725.000	PK	46.03	32.77	16.64	38.94	2.06	58.56	-36.67	27.0	63.6	103	356	-
Vert.	5650.000	PK	45.54	32.64	16.60	38.91	2.06	57.93	-37.30	-27.0	10.3	149	127	-
Vert.	5700.000	PK	45.16	32.71	16.62	38.93	2.06	57.62	-37.61	10.0	47.6	149	127	-
Vert.	5720.000	PK	45.04	32.75	16.63	38.94	2.06	57.54	-37.69	15.6	53.2	149	127	-
Vert.	5725.000	PK	45.09	32.77	16.64	38.94	2.06	57.62	-37.61	27.0	64.6	149	127	-

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

Result (EIRP [dBm]) = 10 * LOG ((10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance : 3 [m]) ^ 2 / 30 * 10 ^ 3)

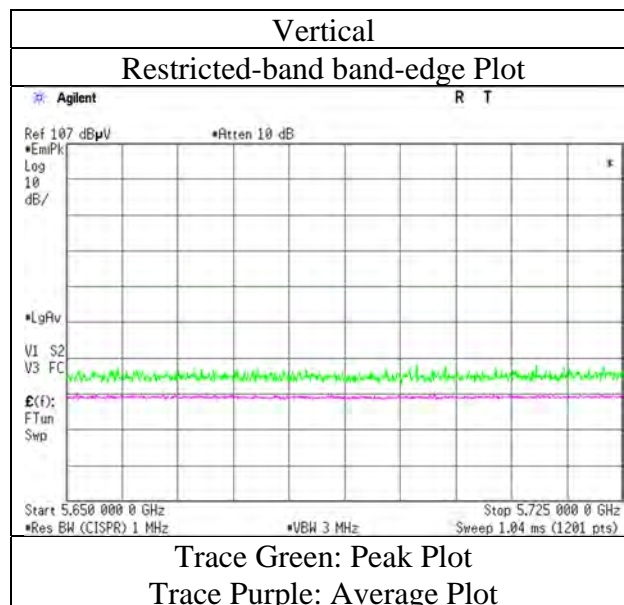
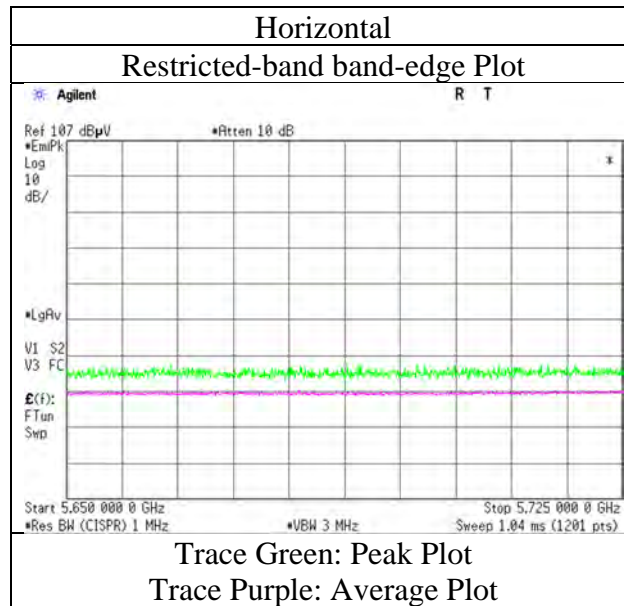
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).

Distance factor : 1 GHz - 10 GHz : 20log (3.80 m / 3.0 m) = 2.06 dB

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

Radiated Spurious Emission

Report No.	13692701S-C-R2
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.2
Date	February 6, 2021
Temperature / Humidity	22 deg. C / 34 % RH
Engineer	Yohsuke Matsuzawa
	(1 GHz – 6.4 GHz)
Mode	Tx 11n-40 5755 MHz (SISO)



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

Radiated Spurious Emission

Report No. 13692701S-C-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.2
Date February 6, 2021
Temperature / Humidity 22 deg. C / 34 % RH
Engineer Yohsuke Matsuzawa
(1 GHz – 6.4 GHz)
Mode Tx 11n-40 5795 MHz (SISO)

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5850.000	PK	45.31	33.11	16.72	39.01	2.06	58.19	-37.04	27.0	64.0	159	353	-
Hori.	5855.000	PK	45.66	33.12	16.72	39.01	2.06	58.55	-36.68	15.6	52.2	159	353	-
Hori.	5875.000	PK	45.18	33.16	16.75	39.02	2.06	58.13	-37.10	10.0	47.1	159	353	-
Hori.	5925.000	PK	45.91	33.23	16.78	39.04	2.06	58.94	-36.29	-27.0	9.2	159	353	-
Vert.	5850.000	PK	45.06	33.11	16.72	39.01	2.06	57.94	-37.29	27.0	64.2	154	353	-
Vert.	5855.000	PK	45.81	33.12	16.72	39.01	2.06	58.70	-36.53	15.6	52.1	154	353	-
Vert.	5875.000	PK	45.40	33.16	16.75	39.02	2.06	58.35	-36.88	10.0	46.8	154	353	-
Vert.	5925.000	PK	45.47	33.23	16.78	39.04	2.06	58.50	-36.73	-27.0	9.7	154	353	-

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

Result (EIRP [dBm]) = 10 * LOG ((10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance : 3 [m]) ^ 2 / 30 * 10 ^ 3)

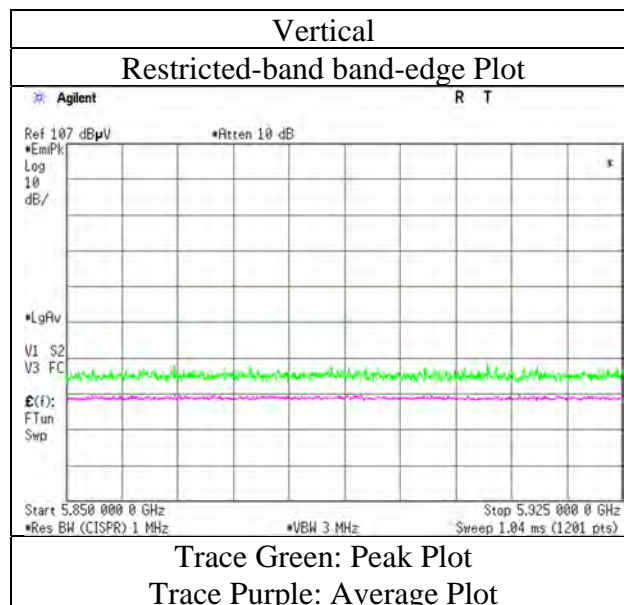
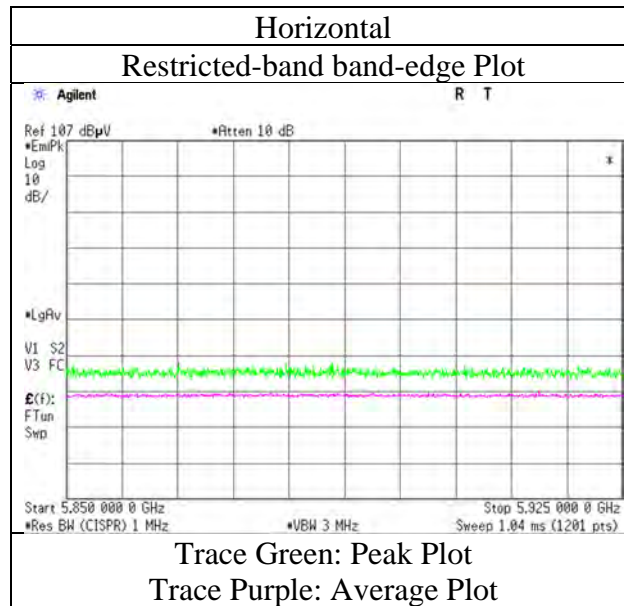
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).

Distance factor : 1 GHz - 10 GHz : 20log (3.80 m / 3.0 m) = 2.06 dB

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

Radiated Spurious Emission

Report No.	13692701S-C-R2
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.2
Date	February 6, 2021
Temperature / Humidity	22 deg. C / 34 % RH
Engineer	Yohsuke Matsuzawa
	(1 GHz – 6.4 GHz)
Mode	Tx 11n-40 5795 MHz (SISO)



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Report No. 13692701S-C-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.2
Date February 8, 2021
Temperature / Humidity 22 deg. C / 35 % RH
Engineer Hiromasa Sato
(1 GHz – 6.4 GHz)
Mode Tx 11ac-40 5190 MHz (SISO)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5150.000	PK	44.95	32.34	16.28	38.63	2.06	57.00	73.9	16.9	152	282	-
Hori.	5150.000	AV	35.33	32.34	16.28	38.63	2.06	47.38	53.9	6.5	152	282	VBW:7.5 kHz
Vert.	5150.000	PK	45.00	32.34	16.28	38.63	2.06	57.05	73.9	16.8	143	330	-
Vert.	5150.000	AV	35.40	32.34	16.28	38.63	2.06	47.45	53.9	6.4	143	330	VBW:7.5 kHz

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

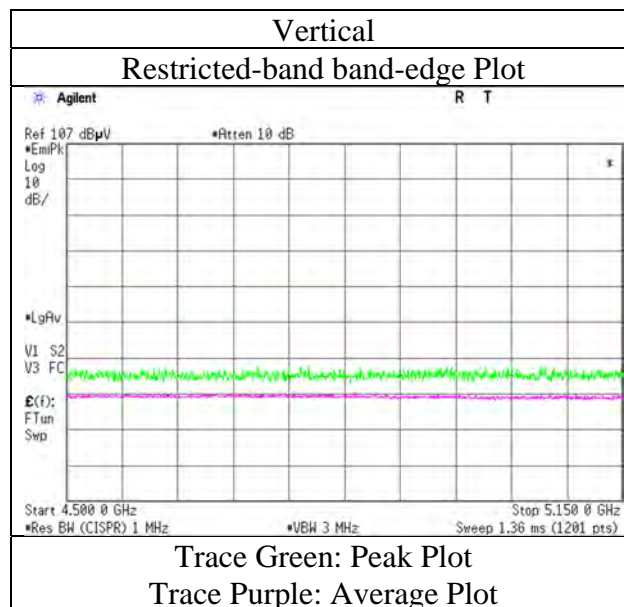
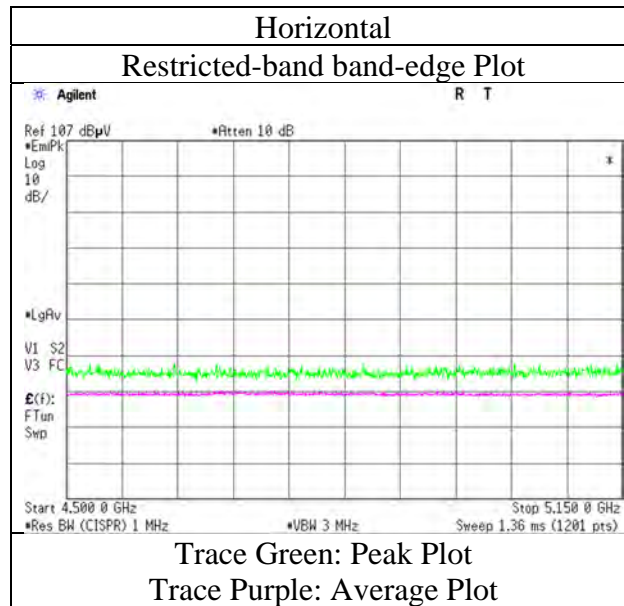
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).

Distance factor : 1 GHz - 10 GHz : $20\log(3.80\text{ m} / 3.0\text{ m}) = 2.06\text{ dB}$

10 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

Radiated Spurious Emission

Report No.	13692701S-C-R2
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.2
Date	February 8, 2021
Temperature / Humidity	22 deg. C / 35 % RH
Engineer	Hiromasato Sato
	(1 GHz – 6.4 GHz)
Mode	Tx 11ac-40 5190 MHz (SISO)



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

Radiated Spurious Emission

Report No. 13692701S-C-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.2
Date February 8, 2021
Temperature / Humidity 22 deg. C / 35 % RH
Engineer Hiromasa Sato
(1 GHz – 6.4 GHz)
Mode Tx 11ac-40 5230 MHz (SISO)

(above 1 GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5350.000	PK	45.26	32.06	16.42	38.74	2.06	57.06	73.9	16.8	139	283	-
Hori.	5350.000	AV	35.52	32.06	16.42	38.74	2.06	47.32	53.9	6.5	139	283	VBW:7.5 kHz
Vert.	5350.000	PK	45.89	32.06	16.42	38.74	2.06	57.69	73.9	16.2	147	330	-
Vert.	5350.000	AV	35.29	32.06	16.42	38.74	2.06	47.09	53.9	6.8	147	330	VBW:7.5 kHz

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

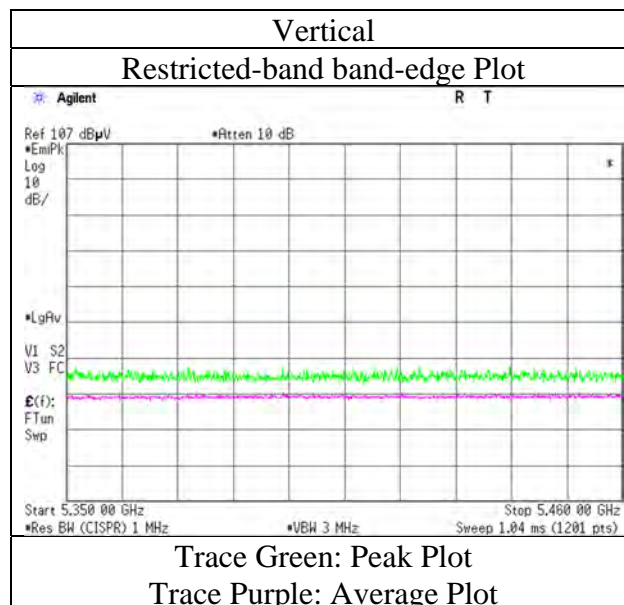
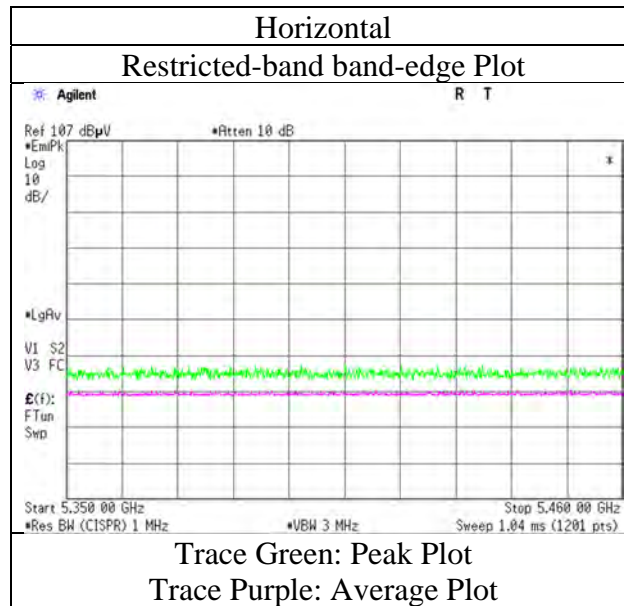
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).

Distance factor : 1 GHz - 10 GHz : $20\log(3.80\text{ m} / 3.0\text{ m}) = 2.06\text{ dB}$

10 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

Radiated Spurious Emission

Report No.	13692701S-C-R2
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.2
Date	February 8, 2021
Temperature / Humidity	22 deg. C / 35 % RH
Engineer	Hiomasa Sato
	(1 GHz – 6.4 GHz)
Mode	Tx 11ac-40 5230 MHz (SISO)



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

Final result of restricted band edge was shown in tabular data.

UL Japan, Inc.

Shonan EMC Lab.

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

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Radiated Spurious Emission

Report No. 13692701S-C-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.2
Date February 8, 2021
Temperature / Humidity 22 deg. C / 35 % RH
Engineer Hiromasa Sato
(1 GHz – 6.4 GHz)
Mode Tx 11ac-40 5755 MHz (SISO)

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5650.000	PK	45.17	32.64	16.60	38.91	2.06	57.56	-37.67	-27.0	10.6	152	354	-
Hori.	5700.000	PK	45.36	32.71	16.62	38.93	2.06	57.82	-37.41	10.0	47.4	152	354	-
Hori.	5720.000	PK	45.79	32.75	16.63	38.94	2.06	58.29	-36.94	15.6	52.5	152	354	-
Hori.	5725.000	PK	45.98	32.77	16.64	38.94	2.06	58.51	-36.72	27.0	63.7	152	354	-
Vert.	5650.000	PK	45.92	32.64	16.60	38.91	2.06	58.31	-36.92	-27.0	9.9	140	351	-
Vert.	5700.000	PK	45.68	32.71	16.62	38.93	2.06	58.14	-37.09	10.0	47.0	140	351	-
Vert.	5720.000	PK	45.25	32.75	16.63	38.94	2.06	57.75	-37.48	15.6	53.0	140	351	-
Vert.	5725.000	PK	45.90	32.77	16.64	38.94	2.06	58.43	-36.80	27.0	63.8	140	351	-

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

Result (EIRP [dBm]) = 10 * LOG ((10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance : 3 [m]) ^ 2 / 30 * 10 ^ 3)

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

Distance factor : 1 GHz - 10 GHz : 20log (3.80 m / 3.0 m) = 2.06 dB

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

UL Japan, Inc.

Shonan EMC Lab.

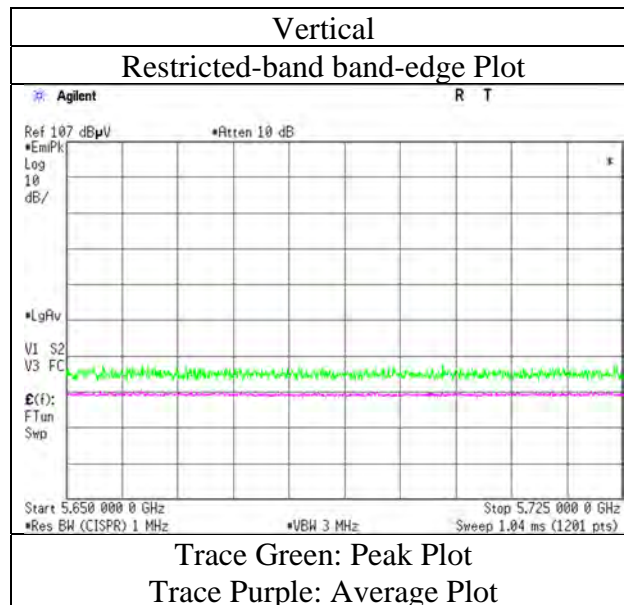
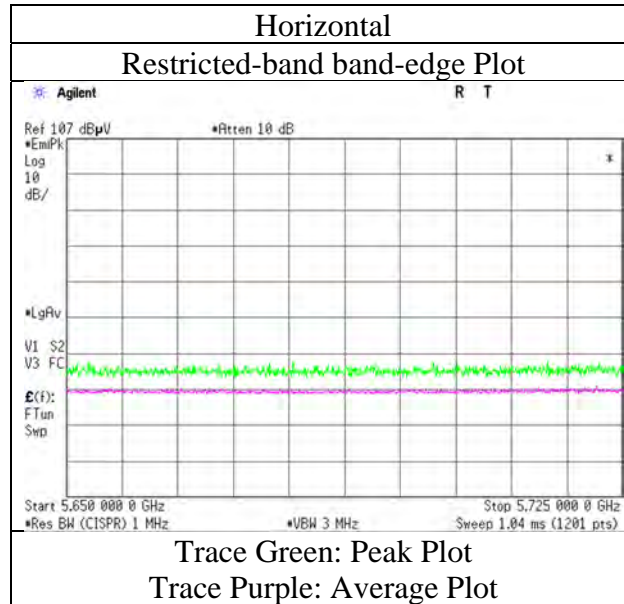
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

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Radiated Spurious Emission

Report No.	13692701S-C-R2
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.2
Date	February 8, 2021
Temperature / Humidity	22 deg. C / 35 % RH
Engineer	Hiomasa Sato
	(1 GHz – 6.4 GHz)
Mode	Tx 11ac-40 5755 MHz (SISO)



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

Final result of restricted band edge was shown in tabular data.

UL Japan, Inc.

Shonan EMC Lab.

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

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Facsimile : +81 463 50 6401

Radiated Spurious Emission

Report No. 13692701S-C-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.2
Date February 8, 2021
Temperature / Humidity 22 deg. C / 35 % RH
Engineer Hiromasa Sato
(1 GHz – 6.4 GHz)
Mode Tx 11ac-40 5795 MHz (SISO)

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5850.000	PK	44.75	33.11	16.72	39.01	2.06	57.63	-37.60	27.0	64.6	152	355	-
Hori.	5855.000	PK	44.27	33.12	16.72	39.01	2.06	57.16	-38.07	15.6	53.6	152	355	-
Hori.	5875.000	PK	45.28	33.16	16.75	39.02	2.06	58.23	-37.00	10.0	47.0	152	355	-
Hori.	5925.000	PK	45.33	33.23	16.78	39.04	2.06	58.36	-36.87	-27.0	9.8	152	355	-
Vert.	5850.000	PK	45.21	33.11	16.72	39.01	2.06	58.09	-37.14	27.0	64.1	153	355	-
Vert.	5855.000	PK	45.06	33.12	16.72	39.01	2.06	57.95	-37.28	15.6	52.8	153	355	-
Vert.	5875.000	PK	45.70	33.16	16.75	39.02	2.06	58.65	-36.58	10.0	46.5	153	355	-
Vert.	5925.000	PK	45.60	33.23	16.78	39.04	2.06	58.63	-36.60	-27.0	9.6	153	355	-

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

Result (EIRP [dBm]) = 10 * LOG ((10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance : 3 [m]) ^ 2 / 30 * 10 ^ 3)

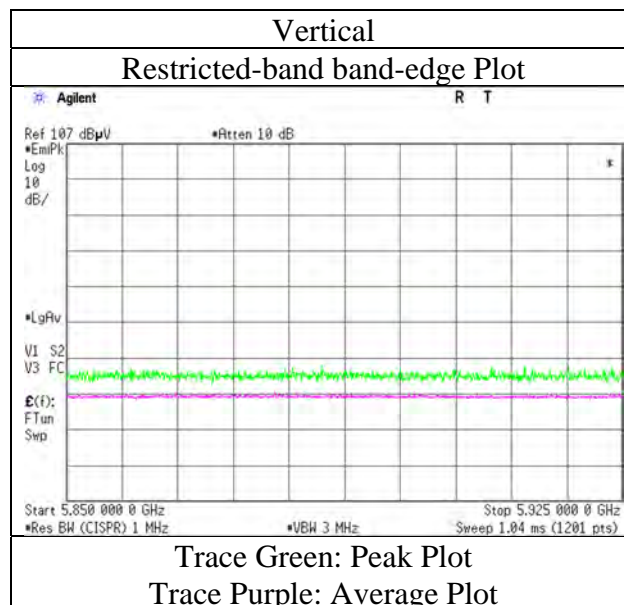
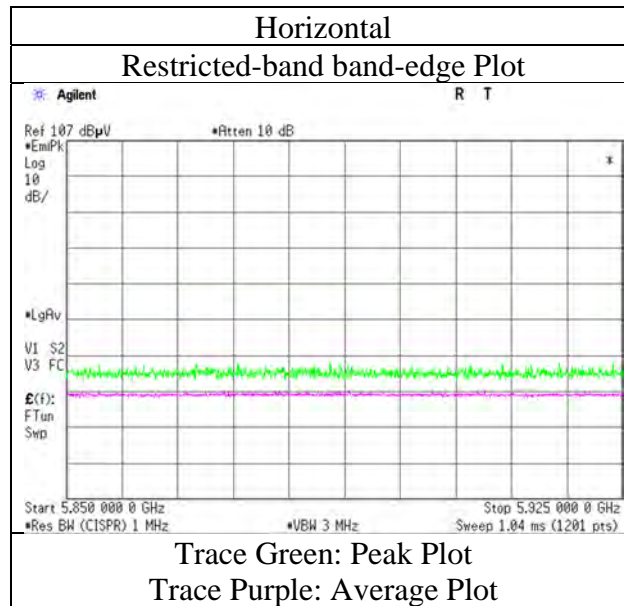
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).

Distance factor : 1 GHz - 10 GHz : 20log (3.80 m / 3.0 m) = 2.06 dB

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

Radiated Spurious Emission

Report No.	13692701S-C-R2
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.2
Date	February 8, 2021
Temperature / Humidity	22 deg. C / 35 % RH
Engineer	Hikomasa Sato
	(1 GHz – 6.4 GHz)
Mode	Tx 11ac-40 5795 MHz (SISO)



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Report No. 13692701S-C-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.2
Date February 11, 2021
Temperature / Humidity 24 deg. C / 31 % RH
Engineer Hiromasa Sato
(1 GHz – 6.4 GHz)
Mode Tx 11ac-80 5210 MHz (SISO)

(above 1 GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5150.000	PK	45.52	32.34	16.28	38.63	2.06	57.57	73.9	16.3	148	283	-
Hori.	5350.000	PK	45.29	32.06	16.42	38.74	2.06	57.09	73.9	16.8	148	283	-
Hori.	5150.000	AV	35.19	32.34	16.28	38.63	2.06	47.24	53.9	6.6	148	283	VBW:5.6 kHz
Hori.	5350.000	AV	35.23	32.06	16.42	38.74	2.06	47.03	53.9	6.8	148	283	VBW:5.6 kHz
Vert.	5150.000	PK	44.79	32.34	16.28	38.63	2.06	56.84	73.9	17.0	148	332	-
Vert.	5350.000	PK	45.09	32.06	16.42	38.74	2.06	56.89	73.9	17.0	148	332	-
Vert.	5150.000	AV	35.14	32.34	16.28	38.63	2.06	47.19	53.9	6.7	148	332	VBW:5.6 kHz
Vert.	5350.000	AV	35.27	32.06	16.42	38.74	2.06	47.07	53.9	6.8	148	332	VBW:5.6 kHz

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

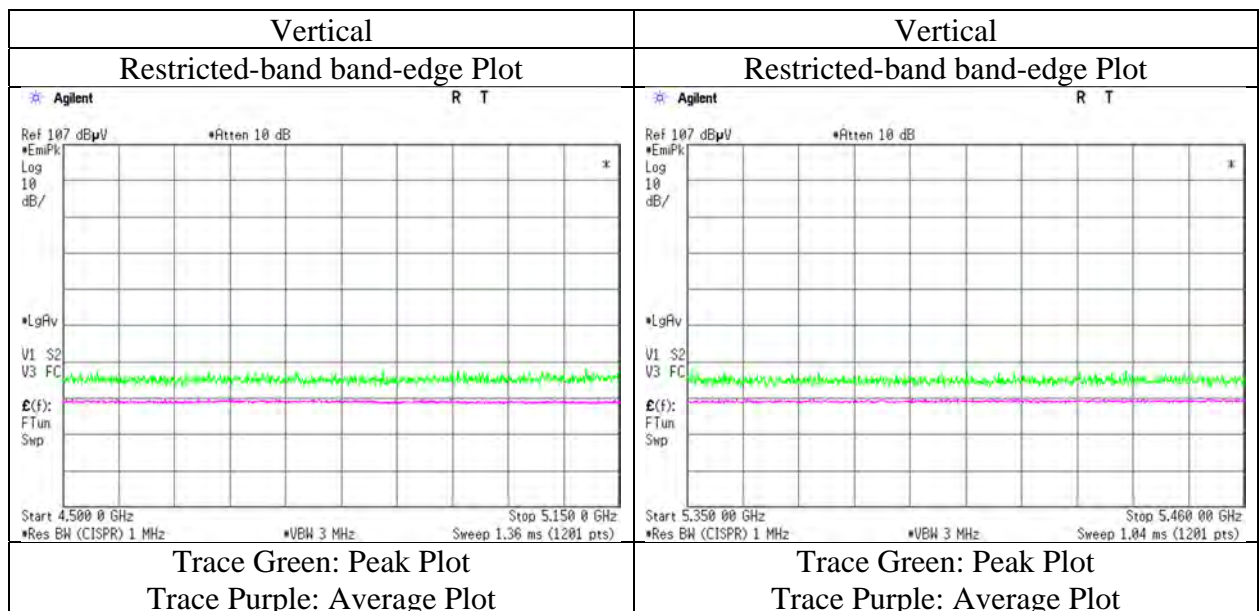
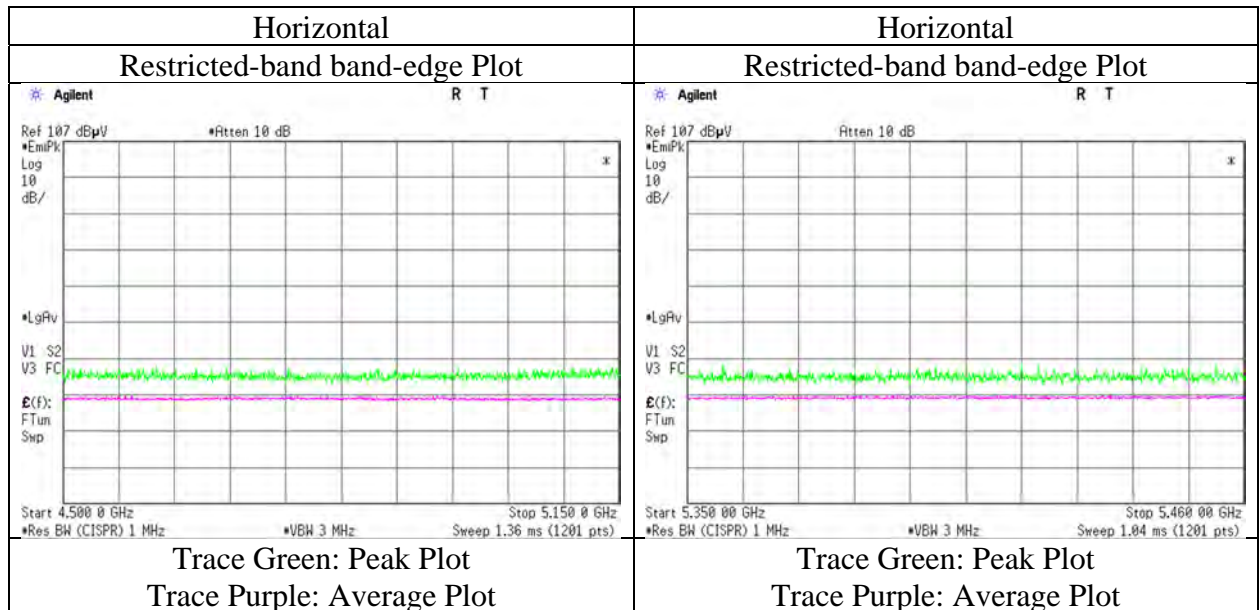
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).

Distance factor : 1 GHz - 10 GHz : $20\log(3.80\text{ m} / 3.0\text{ m}) = 2.06\text{ dB}$

10 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

Radiated Spurious Emission

Report No.	13692701S-C-R2
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.2
Date	February 8, 2021
Temperature / Humidity	22 deg. C / 35 % RH
Engineer	Hiromasu Sato
	(1 GHz – 6.4 GHz)
Mode	Tx 11ac-80 5210 MHz (SISO)



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

Final result of restricted band edge was shown in tabular data.

UL Japan, Inc.

Shonan EMC Lab.

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

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Radiated Spurious Emission

Report No. 13692701S-C-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.2
Date February 11, 2021
Temperature / Humidity 24 deg. C / 31 % RH
Engineer Hiromasa Sato
(1 GHz – 6.4 GHz)
Mode Tx 11ac-80 5775 MHz (SISO)

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5650.000	PK	45.73	32.64	16.60	38.91	2.06	58.12	-37.11	-27.0	10.1	155	355	-
Hori.	5700.000	PK	45.58	32.71	16.62	38.93	2.06	58.04	-37.19	10.0	47.1	155	355	-
Hori.	5720.000	PK	45.92	32.75	16.63	38.94	2.06	58.42	-36.81	15.6	52.4	155	355	-
Hori.	5725.000	PK	46.28	32.77	16.64	38.94	2.06	58.81	-36.42	27.0	63.4	155	355	-
Hori.	5850.000	PK	45.51	33.11	16.72	39.01	2.06	58.39	-36.84	27.0	63.8	155	355	-
Hori.	5855.000	PK	45.22	33.12	16.72	39.01	2.06	58.11	-37.12	15.6	52.7	155	355	-
Hori.	5875.000	PK	45.87	33.16	16.75	39.02	2.06	58.82	-36.41	10.0	46.4	155	355	-
Hori.	5925.000	PK	45.32	33.23	16.78	39.04	2.06	58.35	-36.88	-27.0	9.8	155	355	-
Vert.	5650.000	PK	45.37	32.64	16.60	38.91	2.06	57.76	-37.47	-27.0	10.4	148	350	-
Vert.	5700.000	PK	45.21	32.71	16.62	38.93	2.06	57.67	-37.56	10.0	47.5	148	350	-
Vert.	5720.000	PK	45.41	32.75	16.63	38.94	2.06	57.91	-37.32	15.6	52.9	148	350	-
Vert.	5725.000	PK	45.85	32.77	16.64	38.94	2.06	58.38	-36.85	27.0	63.8	148	350	-
Vert.	5850.000	PK	45.03	33.11	16.72	39.01	2.06	57.91	-37.32	27.0	64.3	148	350	-
Vert.	5855.000	PK	45.49	33.12	16.72	39.01	2.06	58.38	-36.85	15.6	52.4	148	350	-
Vert.	5875.000	PK	45.13	33.16	16.75	39.02	2.06	58.08	-37.15	10.0	47.1	148	350	-
Vert.	5925.000	PK	45.30	33.23	16.78	39.04	2.06	58.33	-36.90	-27.0	9.9	148	350	-

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

Result (EIRP [dBm]) = 10 * LOG ((10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance : 3 [m]) ^ 2 / 30 * 10 ^ 3)

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

Distance factor : 1 GHz - 10 GHz : 20log (3.80 m / 3.0 m) = 2.06 dB

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

UL Japan, Inc.

Shonan EMC Lab.

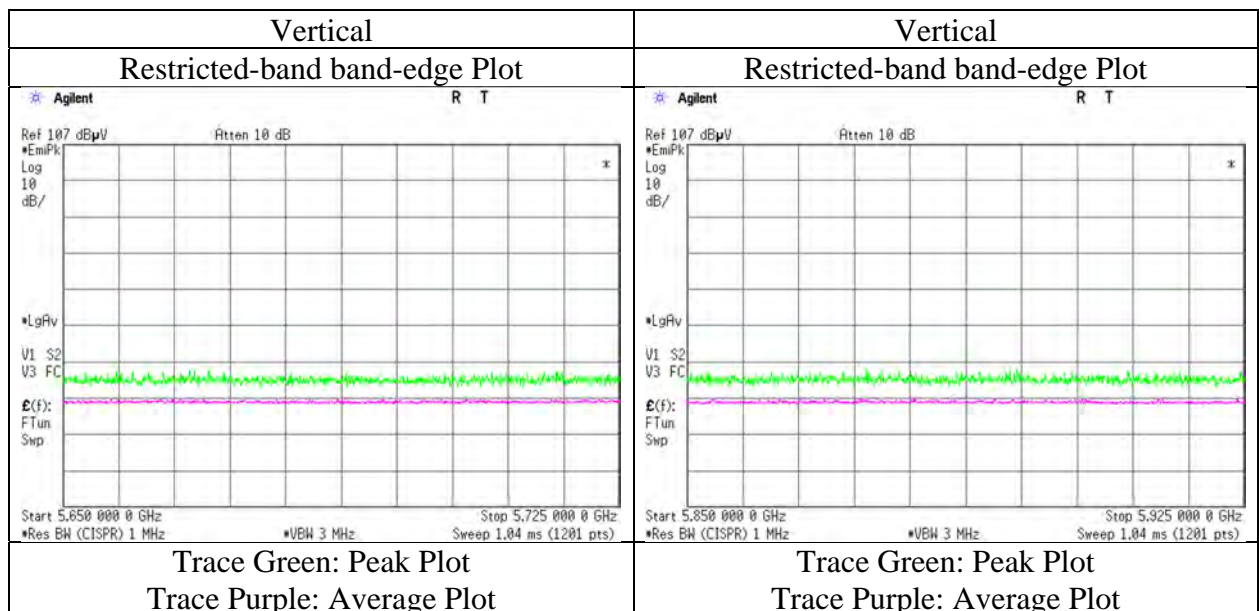
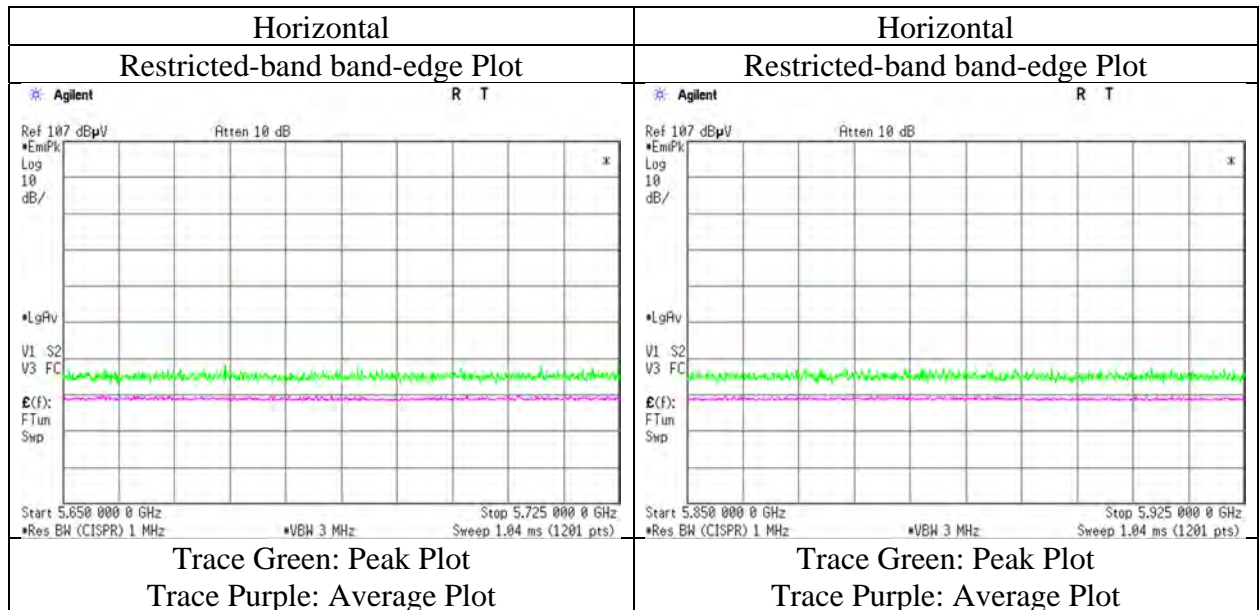
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

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Facsimile : +81 463 50 6401

Radiated Spurious Emission

Report No.	13692701S-C-R2
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.2
Date	February 11, 2021
Temperature / Humidity	24 deg. C / 31 % RH
Engineer	Hiromasato Sato
	(1 GHz – 6.4 GHz)
Mode	Tx 11ac-80 5775 MHz (SISO)



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

Final result of restricted band edge was shown in tabular data.

UL Japan, Inc.

Shonan EMC Lab.

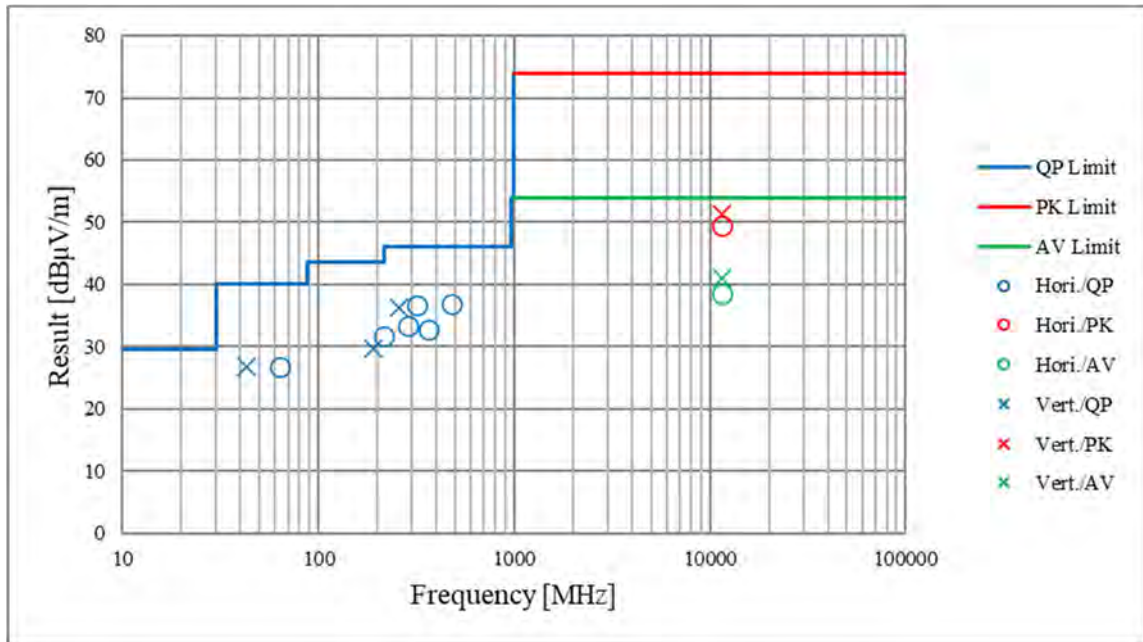
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

Radiated Spurious Emission
(Plot data, Worst case for SISO)

Report No.	13692701S-C-R2	No.2	No.2	No.2
Test place	Shonan EMC Lab.	February 5, 2021	February 7, 2021	February 10, 2021
Semi Anechoic Chamber	No.2	21 deg. C / 37 % RH	22 deg. C / 34 % RH	23 deg. C / 34 % RH
Date	February 21, 2021	Takahiro Suzuki	Yosuke Murakami	Hiromasa Sato
Temperature / Humidity	21 deg.C, 32 %RH	(1 GHz - 10 GHz)	(10 GHz - 18 GHz)	(18 GHz - 40 GHz)
Engineer	Yusuke Tanikawara			
Mode	Tx 11a 5785 MHz			



*These plots data contains sufficient number to show the trend of characteristic features for EUT.

Radiated Spurious Emission

Report No. 13692701S-C-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.2
Date February 22, 2021
Temperature / Humidity 22 deg. C / 32 % RH
Engineer Toshinori Yamada
(1 GHz – 6.4 GHz)
Mode Tx 11n-20 5180 MHz (MIMO)

(above 1 GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5150.000	PK	45.55	32.34	16.28	38.63	2.06	57.60	73.9	16.3	176	4	-
Hori.	5150.000	AV	34.32	32.34	16.28	38.63	2.06	46.37	53.9	7.5	176	4	VBW:3 kHz
Vert.	5150.000	PK	45.41	32.34	16.28	38.63	2.06	57.46	73.9	16.4	140	329	-
Vert.	5150.000	AV	34.23	32.34	16.28	38.63	2.06	46.28	53.9	7.6	140	329	VBW:3 kHz

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

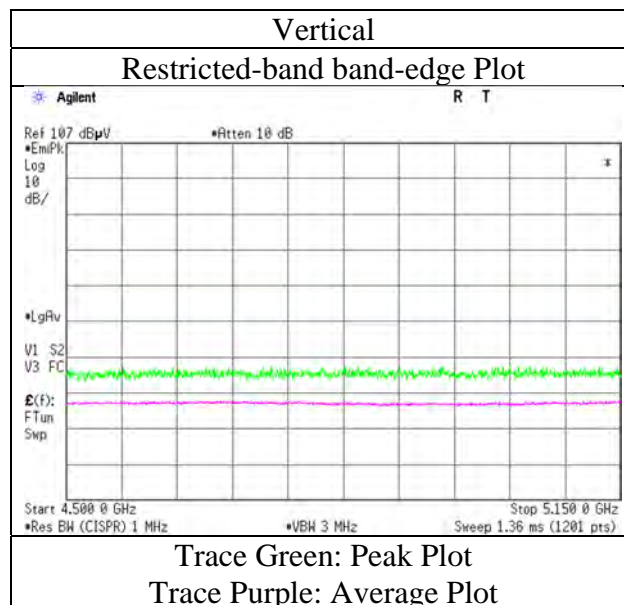
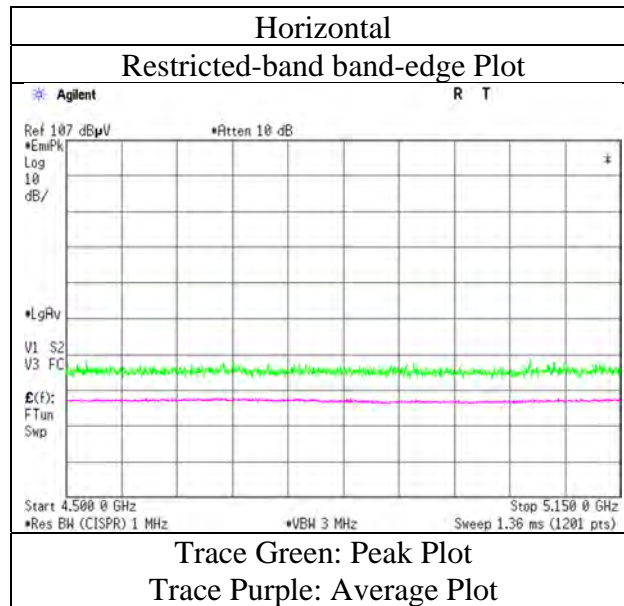
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).

Distance factor : 1 GHz - 10 GHz : $20\log(3.80\text{ m} / 3.0\text{ m}) = 2.06\text{ dB}$

10 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

Radiated Spurious Emission

Report No.	13692701S-C-R2
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.2
Date	February 22, 2021
Temperature / Humidity	22 deg. C / 32 % RH
Engineer	Toshinori Yamada
	(1 GHz – 6.4 GHz)
Mode	Tx 11n-20 5180 MHz (MIMO)



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

Radiated Spurious Emission

Report No. 13692701S-C-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.2
Date February 22, 2021
Temperature / Humidity 22 deg. C / 32 % RH
Engineer Toshinori Yamada
(1 GHz – 6.4 GHz)
Mode Tx 11n-20 5240 MHz (MIMO)

(above 1 GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5350.000	PK	45.47	32.06	16.42	38.74	2.06	57.27	73.9	16.6	174	287	-
Hori.	5350.000	AV	34.70	32.06	16.42	38.74	2.06	46.50	53.9	7.4	174	287	VBW:3 kHz
Vert.	5350.000	PK	45.35	32.06	16.42	38.74	2.06	57.15	73.9	16.7	139	328	-
Vert.	5350.000	AV	34.55	32.06	16.42	38.74	2.06	46.35	53.9	7.5	139	328	VBW:3 kHz

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

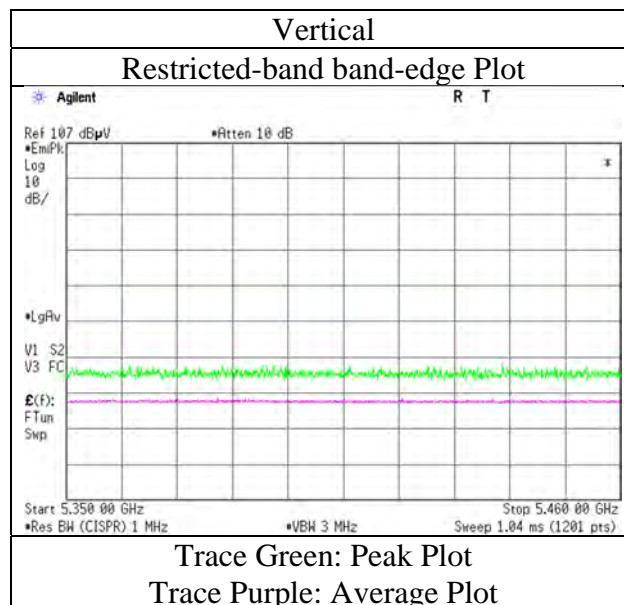
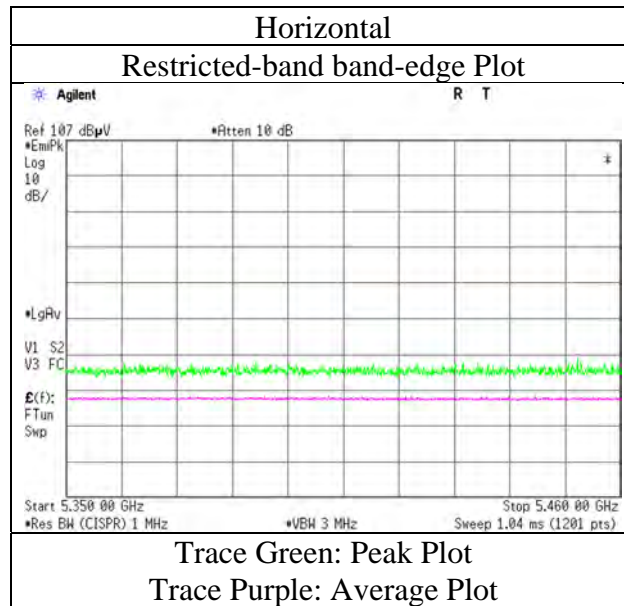
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).

Distance factor : 1 GHz - 10 GHz : $20\log(3.80\text{ m} / 3.0\text{ m}) = 2.06\text{ dB}$

10 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

Radiated Spurious Emission

Report No.	13692701S-C-R2
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.2
Date	February 22, 2021
Temperature / Humidity	22 deg. C / 32 % RH
Engineer	Toshinori Yamada
	(1 GHz – 6.4 GHz)
Mode	Tx 11n-20 5240 MHz (MIMO)



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

Radiated Spurious Emission

Report No. 13692701S-C-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.2
Date February 22, 2021
Temperature / Humidity 22 deg. C / 32 % RH
Engineer Toshinori Yamada
(1 GHz – 6.4 GHz)
Mode Tx 11n-20 5745 MHz (MIMO)

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5650.000	PK	46.06	32.64	16.60	38.91	2.06	58.45	-36.78	-27.0	9.7	149	1	-
Hori.	5700.000	PK	46.03	32.71	16.62	38.93	2.06	58.49	-36.74	10.0	46.7	149	1	-
Hori.	5720.000	PK	45.94	32.75	16.63	38.94	2.06	58.44	-36.79	15.6	52.3	149	1	-
Hori.	5725.000	PK	46.00	32.77	16.64	38.94	2.06	58.53	-36.70	27.0	63.7	149	1	-
Vert.	5650.000	PK	45.53	32.64	16.60	38.91	2.06	57.92	-37.31	-27.0	10.3	264	339	-
Vert.	5700.000	PK	45.99	32.71	16.62	38.93	2.06	58.45	-36.78	10.0	46.7	264	339	-
Vert.	5720.000	PK	45.81	32.75	16.63	38.94	2.06	58.31	-36.92	15.6	52.5	264	339	-
Vert.	5725.000	PK	45.61	32.77	16.64	38.94	2.06	58.14	-37.09	27.0	64.0	264	339	-

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

Result (EIRP [dBm]) = 10 * LOG ((10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance : 3 [m]) ^ 2 / 30 * 10 ^ 3)

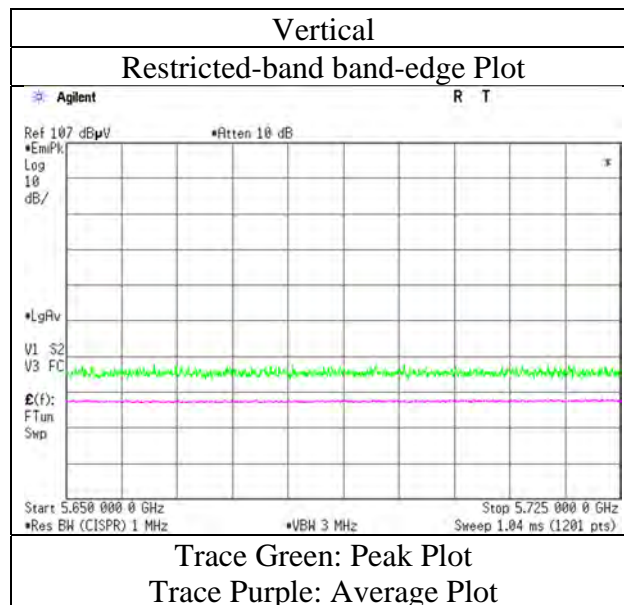
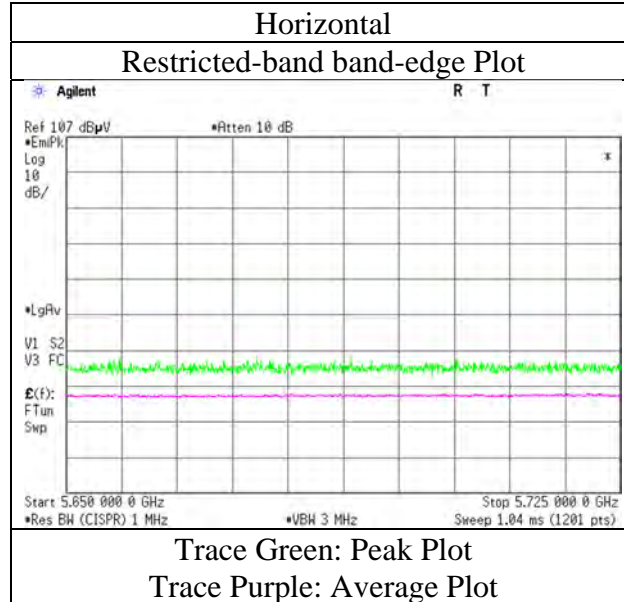
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).

Distance factor : 1 GHz - 10 GHz : 20log (3.80 m / 3.0 m) = 2.06 dB

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

Radiated Spurious Emission

Report No.	13692701S-C-R2
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.2
Date	February 22, 2021
Temperature / Humidity	22 deg. C / 32 % RH
Engineer	Toshinori Yamada
Mode	Tx 11n-20 5745 MHz (MIMO)



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

Final result of restricted band edge was shown in tabular data.

UL Japan, Inc.

Shonan EMC Lab.

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Radiated Spurious Emission

Report No. 13692701S-C-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.2
Date February 22, 2021
Temperature / Humidity 22 deg. C / 32 % RH
Engineer Toshinori Yamada
(1 GHz – 6.4 GHz)
Mode Tx 11n-20 5825 MHz (MIMO)

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5850.000	PK	44.97	33.11	16.72	39.01	2.06	57.85	-37.38	27.0	64.3	151	1	-
Hori.	5855.000	PK	45.12	33.12	16.72	39.01	2.06	58.01	-37.22	15.6	52.8	151	1	-
Hori.	5875.000	PK	45.49	33.16	16.75	39.02	2.06	58.44	-36.79	10.0	46.7	151	1	-
Hori.	5925.000	PK	45.77	33.23	16.78	39.04	2.06	58.80	-36.43	-27.0	9.4	151	1	-
Vert.	5850.000	PK	45.36	33.11	16.72	39.01	2.06	58.24	-36.99	27.0	63.9	149	344	-
Vert.	5855.000	PK	45.40	33.12	16.72	39.01	2.06	58.29	-36.94	15.6	52.5	149	344	-
Vert.	5875.000	PK	45.60	33.16	16.75	39.02	2.06	58.55	-36.68	10.0	46.6	149	344	-
Vert.	5925.000	PK	45.89	33.23	16.78	39.04	2.06	58.92	-36.31	-27.0	9.3	149	344	-

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

Result (EIRP [dBm]) = 10 * LOG ((10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance : 3 [m]) ^ 2 / 30 * 10 ^ 3)

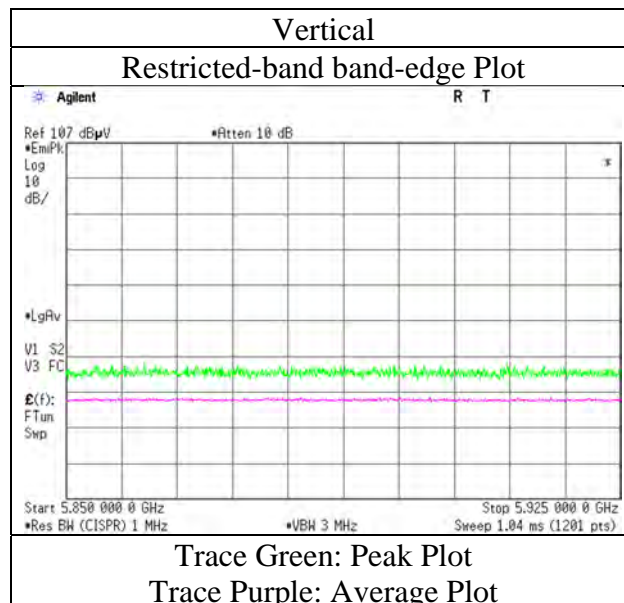
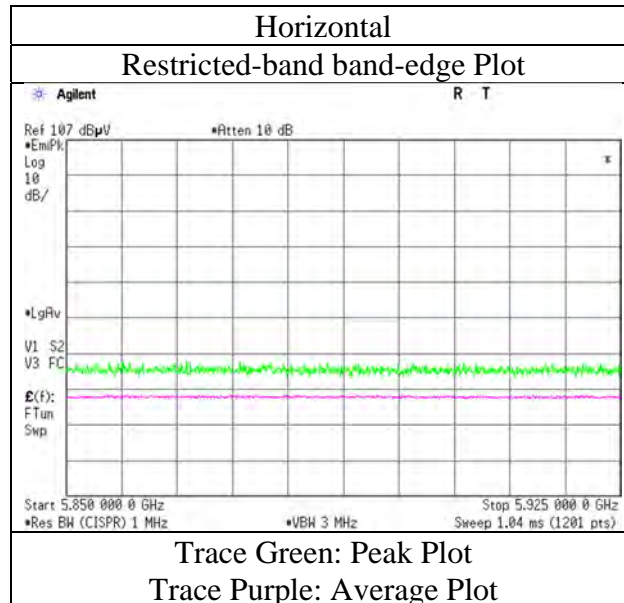
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).

Distance factor : 1 GHz - 10 GHz : 20log (3.80 m / 3.0 m) = 2.06 dB

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

Radiated Spurious Emission

Report No.	13692701S-C-R2
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.2
Date	February 22, 2021
Temperature / Humidity	22 deg. C / 32 % RH
Engineer	Toshinori Yamada
Mode	Tx 11n-20 5825 MHz (MIMO)



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

Final result of restricted band edge was shown in tabular data.

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Radiated Spurious Emission

Report No.	13692701S-C-R2		
Test place	Shonan EMC Lab.		
Semi Anechoic Chamber	No.2	No.2	No.3
Date	February 22, 2021	February 26, 2021	March 5, 2021
Temperature / Humidity	22 deg. C / 32 % RH	27 deg. C / 38 % RH	22 deg. C / 35 % RH
Engineer	Toshinori Yamada	Takahiro Suzuki	Hiromasa Sato
	(1 GHz – 10 GHz)	(10 GHz – 26.5 GHz)	(26.5 GHz – 40 GHz)
Mode	Tx 11ac-20 5180 MHz (MIMO)		

(above 1 GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5150.000	PK	44.26	32.34	16.28	38.63	2.06	56.31	73.9	17.5	162	19	-
Hori.	15540.000	PK	45.62	39.51	11.34	37.21	-9.54	49.72	73.9	24.1	135	32	-
Hori.	5150.000	AV	34.95	32.34	16.28	38.63	2.06	47.00	53.9	6.9	162	19	VBW:3 kHz
Hori.	15540.000	AV	35.03	39.51	11.34	37.21	-9.54	39.13	53.9	14.7	135	32	VBW:3 kHz
Vert.	5150.000	PK	45.52	32.34	16.28	38.63	2.06	57.57	73.9	16.3	100	0	-
Vert.	15540.000	PK	46.56	39.51	11.34	37.21	-9.54	50.66	73.9	23.2	133	331	-
Vert.	5150.000	AV	34.00	32.34	16.28	38.63	2.06	46.05	53.9	7.8	100	0	VBW:3 kHz
Vert.	15540.000	AV	34.72	39.51	11.34	37.21	-9.54	38.82	53.9	15.0	133	331	VBW:3 kHz

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

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

Distance factor : 1 GHz - 10 GHz : 20log (3.80 m / 3.0 m) = 2.06 dB

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

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	10360.000	PK	48.36	36.35	9.03	40.03	-9.54	44.17	-51.06	-27.0	24.0	151	201	-
Vert.	10360.000	PK	49.61	36.35	9.03	40.03	-9.54	45.42	-49.81	-27.0	22.8	143	149	-

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

Result (EIRP [dBm]) = 10 * LOG ((10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance : 3 [m]) ^ 2 / 30 * 10 ^ 3)

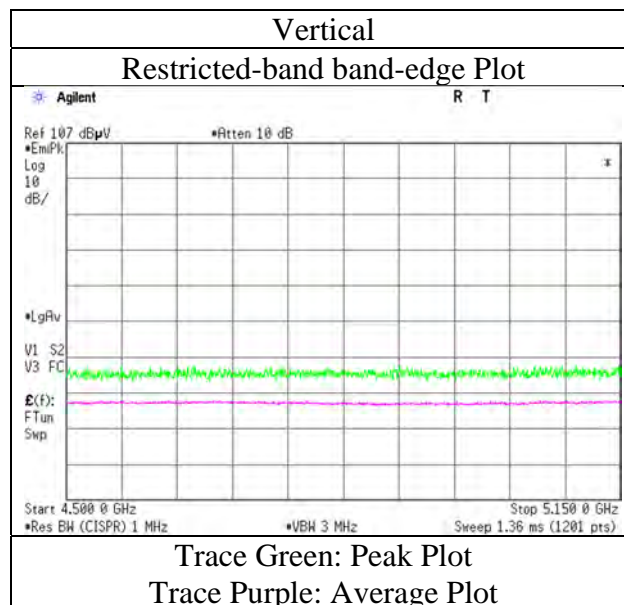
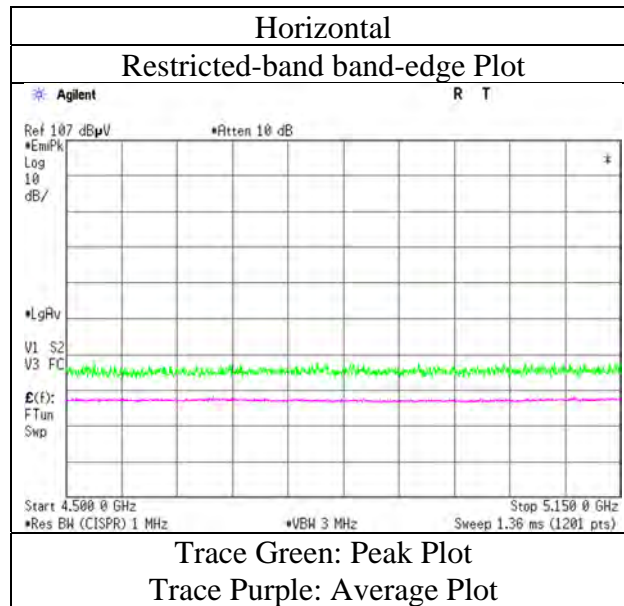
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).

Distance factor : 1 GHz - 10 GHz : 20log (3.80 m / 3.0 m) = 2.06 dB

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

Radiated Spurious Emission

Report No.	13692701S-C-R2
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.2
Date	February 22, 2021
Temperature / Humidity	22 deg. C / 32 % RH
Engineer	Toshinori Yamada (1 GHz – 6.4 GHz)
Mode	Tx 11ac-20 5180 MHz (MIMO)



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

Radiated Spurious Emission

Report No.	13692701S-C-R2		
Test place	Shonan EMC Lab.		
Semi Anechoic Chamber	No.2	No.2	No.3
Date	February 22, 2021	February 26, 2021	March 5, 2021
Temperature / Humidity	22 deg. C / 32 % RH	27 deg. C / 38 % RH	22 deg. C / 35 % RH
Engineer	Toshinori Yamada	Takahiro Suzuki	Hiromasa Sato
	(1 GHz – 10 GHz)	(10 GHz – 26.5 GHz)	(26.5 GHz – 40 GHz)
Mode	Tx 11ac-20 5220 MHz (MIMO)		

(above 1 GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	15660.000	PK	45.84	39.68	11.34	37.23	-9.54	50.09	73.9	23.8	137	39	-
Hori.	15660.000	AV	34.62	39.68	11.34	37.23	-9.54	38.87	53.9	15.0	137	39	VBW:3kHz
Vert.	15660.000	PK	47.06	39.68	11.34	37.23	-9.54	51.31	73.9	22.5	135	328	-
Vert.	15660.000	AV	34.36	39.68	11.34	37.23	-9.54	38.61	53.9	15.2	135	328	VBW:3kHz

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

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

Distance factor : 1 GHz - 10 GHz : 20log (3.80 m / 3.0 m) = 2.06 dB

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

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	10440.000	PK	49.13	36.47	9.06	40.16	-9.54	44.96	-50.27	-27.0	23.2	151	192	-
Vert.	10440.000	PK	49.22	36.47	9.06	40.16	-9.54	45.05	-50.18	-27.0	23.1	153	148	-

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

Result (EIRP [dBm]) = 10 * LOG ((10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance : 3 [m]) ^ 2 / 30 * 10 ^ 3)

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

Distance factor : 1 GHz - 10 GHz : 20log (3.80 m / 3.0 m) = 2.06 dB

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

Radiated Spurious Emission

Report No.	13692701S-C-R2		
Test place	Shonan EMC Lab.		
Semi Anechoic Chamber	No.2	No.2	No.3
Date	February 22, 2021	February 26, 2021	March 5, 2021
Temperature / Humidity	22 deg. C / 32 % RH	27 deg. C / 38 % RH	22 deg. C / 35 % RH
Engineer	Toshinori Yamada (1 GHz – 10 GHz)	Takahiro Suzuki (10 GHz – 26.5 GHz)	Hiromasa Sato (26.5 GHz – 40 GHz)
Mode	Tx 11ac-20 5240 MHz (MIMO)		

(above 1 GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5350.000	PK	45.03	32.06	16.42	38.74	2.06	56.83	73.9	17.0	166	282	-
Hori.	15720.000	PK	46.07	39.76	11.33	37.24	-9.54	50.38	73.9	23.5	133	37	-
Hori.	5350.000	AV	34.46	32.06	16.42	38.74	2.06	46.26	53.9	7.6	166	282	VBW:3 kHz
Hori.	15720.000	AV	34.29	39.76	11.33	37.24	-9.54	38.60	53.9	15.3	133	37	VBW:3 kHz
Vert.	5350.000	PK	45.38	32.06	16.42	38.74	2.06	57.18	73.9	16.7	145	326	-
Vert.	15720.000	PK	45.99	39.76	11.33	37.24	-9.54	50.30	73.9	23.6	136	330	-
Vert.	5350.000	AV	34.67	32.06	16.42	38.74	2.06	46.47	53.9	7.4	145	326	VBW:3 kHz
Vert.	15720.000	AV	34.47	39.76	11.33	37.24	-9.54	38.78	53.9	15.1	136	330	VBW:3 kHz

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

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

Distance factor : 1 GHz - 10 GHz : 20log (3.80 m / 3.0 m) = 2.06 dB

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

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	10480.000	PK	47.99	36.57	9.07	40.22	-9.54	43.87	-51.36	-27.0	24.3	150	208	-
Vert.	10480.000	PK	48.36	36.57	9.07	40.22	-9.54	44.24	-50.99	-27.0	23.9	146	149	-

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

Result (EIRP [dBm]) = 10 * LOG ((10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance : 3 [m]) ^ 2 / 30 * 10 ^ 3)

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

Distance factor : 1 GHz - 10 GHz : 20log (3.80 m / 3.0 m) = 2.06 dB

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

UL Japan, Inc.

Shonan EMC Lab.

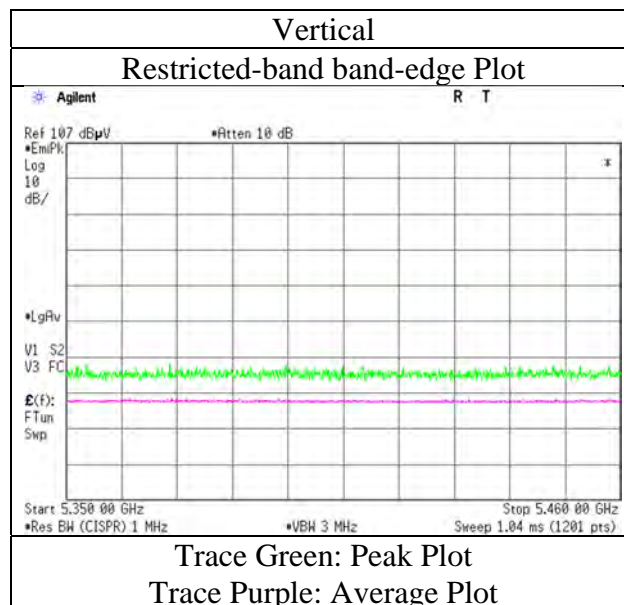
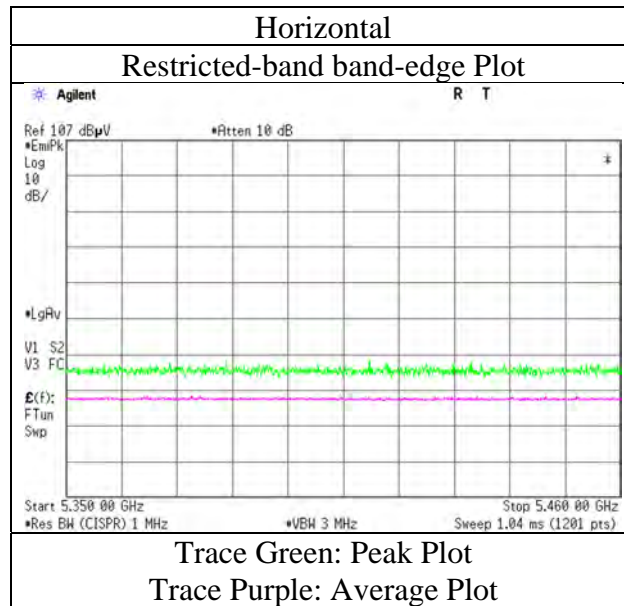
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Radiated Spurious Emission

Report No.	13692701S-C-R2
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.2
Date	February 22, 2021
Temperature / Humidity	22 deg. C / 32 % RH
Engineer	Toshinori Yamada (1 GHz – 6.4 GHz)
Mode	Tx 11ac-20 5240 MHz (MIMO)



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Report No. 13692701S-C-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.2 No.2 No.2 No.3
Date February 21, 2021 February 22, 2021 February 26, 2021 March 5, 2021
Temperature / Humidity 21 deg. C / 32 % RH 22 deg. C / 32 % RH 27 deg. C / 38 % RH 22 deg. C / 35 % RH
Engineer Yusuke Tanikawara Toshinori Yamada Takahiro Suzuki Hiromasa Sato
(30 MHz – 1 GHz) (1 GHz – 10 GHz) (10 GHz – 26.5 GHz) (26.5 GHz – 40 GHz)
Mode Tx 11ac-20 5745 MHz (MIMO)

(below 1 GHz and above 1 GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	63.844	QP	44.80	7.44	7.01	31.89	0.00	27.36	40.0	12.6	327	122	-
Hori.	213.932	QP	46.50	11.19	5.76	31.76	0.00	31.69	43.5	11.8	161	294	-
Hori.	257.551	QP	47.10	12.05	6.09	31.71	0.00	33.53	46.0	12.4	121	323	-
Hori.	303.936	QP	45.00	13.67	6.43	31.69	0.00	33.41	46.0	12.5	103	39	-
Hori.	316.947	QP	47.70	14.04	6.52	31.67	0.00	36.59	46.0	9.4	100	248	-
Hori.	362.844	QP	42.70	15.11	6.81	31.63	0.00	32.99	46.0	13.0	100	291	-
Hori.	473.175	QP	40.10	17.05	7.47	31.62	0.00	33.00	46.0	13.0	100	196	-
Hori.	11490.000	PK	45.99	37.98	9.55	40.08	-9.54	43.90	73.9	30.0	173	186	-
Hori.	11490.000	AV	34.81	37.98	9.55	40.08	-9.54	32.72	53.9	21.1	173	186	VBW:3 kHz
Vert.	42.967	QP	37.60	13.79	7.12	31.91	0.00	26.60	40.0	13.4	100	13	-
Vert.	213.160	QP	43.80	11.20	5.75	31.76	0.00	28.99	43.5	14.5	100	260	-
Vert.	259.247	QP	50.00	12.13	6.10	31.71	0.00	36.52	46.0	9.4	100	249	-
Vert.	11490.000	PK	47.04	37.98	9.55	40.08	-9.54	44.95	73.9	28.9	133	195	-
Vert.	11490.000	AV	35.64	37.98	9.55	40.08	-9.54	33.55	53.9	20.3	133	195	VBW:3 kHz

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

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

Distance factor : 1 GHz - 10 GHz : 20log (3.80 m / 3.0 m) = 2.06 dB
10 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5650.000	PK	44.93	32.64	16.60	38.91	2.06	57.32	-37.91	-27.0	10.9	144	2	-
Hori.	5700.000	PK	46.50	32.71	16.62	38.93	2.06	58.96	-36.27	10.0	46.2	144	2	-
Hori.	5720.000	PK	45.72	32.75	16.63	38.94	2.06	58.22	-37.01	15.6	52.6	144	2	-
Hori.	5725.000	PK	45.59	32.77	16.64	38.94	2.06	58.12	-37.11	27.0	64.1	144	2	-
Hori.	17235.000	PK	46.12	39.94	12.33	37.25	-9.54	51.60	-43.63	-27.0	16.6	138	35	-
Vert.	5650.000	PK	46.61	32.64	16.60	38.91	2.06	59.00	-36.23	-27.0	9.2	263	338	-
Vert.	5700.000	PK	45.86	32.71	16.62	38.93	2.06	58.32	-36.91	10.0	46.9	263	338	-
Vert.	5720.000	PK	44.65	32.75	16.63	38.94	2.06	57.15	-38.08	15.6	53.6	263	338	-
Vert.	5725.000	PK	44.27	32.77	16.64	38.94	2.06	56.80	-38.43	27.0	65.4	263	338	-
Vert.	17235.000	PK	45.59	39.94	12.33	37.25	-9.54	51.07	-44.16	-27.0	17.1	139	329	-

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

Result (EIRP [dBm]) = 10 * LOG ((10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance : 3 [m]) ^ 2 / 30 * 10 ^ 3)

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

Distance factor : 1 GHz - 10 GHz : 20log (3.80 m / 3.0 m) = 2.06 dB
10 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

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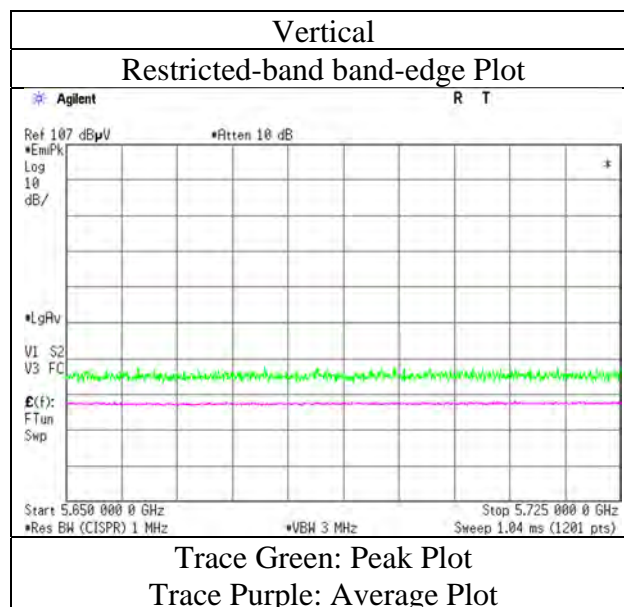
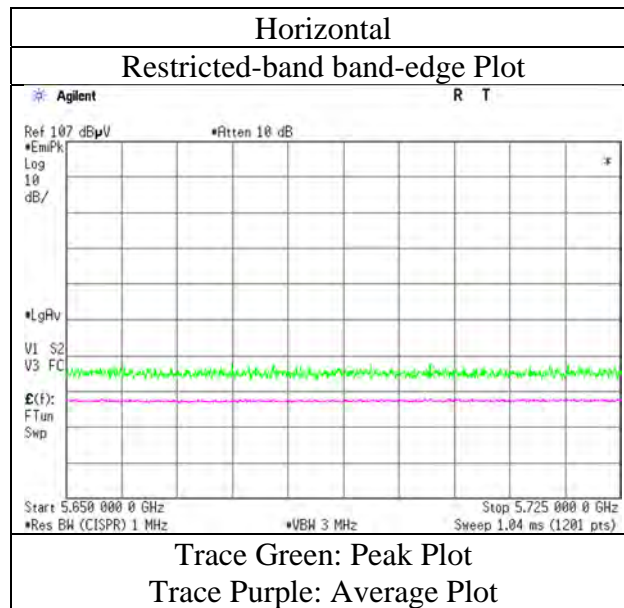
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Radiated Spurious Emission

Report No. 13692701S-C-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.2
Date February 22, 2021
Temperature / Humidity 22 deg. C / 32 % RH
Engineer Toshinori Yamada
(1 GHz – 6.4 GHz)
Mode Tx 11ac-20 5745 MHz (MIMO)



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Report No.	13692701S-C-R2		
Test place	Shonan EMC Lab.		
Semi Anechoic Chamber	No.2	No.2	No.3
Date	February 22, 2021	February 26, 2021	March 5, 2021
Temperature / Humidity	22 deg. C / 32 % RH	27 deg. C / 38 % RH	22 deg. C / 35 % RH
Engineer	Toshinori Yamada	Takahiro Suzuki	Hiromasa Sato
	(1 GHz – 10 GHz)	(10 GHz – 26.5 GHz)	(26.5 GHz – 40 GHz)
Mode	Tx 11ac-20 5785 MHz (MIMO)		

(above 1 GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11570.000	PK	47.38	38.06	9.59	40.13	-9.54	45.36	73.9	28.5	176	166	-
Hori.	11570.000	AV	35.25	38.06	9.59	40.13	-9.54	33.23	53.9	20.6	176	166	VBW:3 kHz
Vert.	11570.000	PK	47.26	38.06	9.59	40.13	-9.54	45.24	73.9	28.6	140	198	-
Vert.	11570.000	AV	35.66	38.06	9.59	40.13	-9.54	33.64	53.9	20.2	140	198	VBW:3 kHz

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

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

Distance factor : 1 GHz - 10 GHz : 20log (3.80 m / 3.0 m) = 2.06 dB

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

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	17355.000	PK	45.46	40.15	12.35	37.31	-9.54	51.11	-44.12	-27.0	17.1	131	36	-
Vert.	17355.000	PK	45.76	40.15	12.35	37.31	-9.54	51.41	-43.82	-27.0	16.8	137	333	-

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

Result (EIRP [dBm]) = 10 * LOG ((10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance : 3 [m]) ^ 2 / 30 * 10 ^ 3)

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

Distance factor : 1 GHz - 10 GHz : 20log (3.80 m / 3.0 m) = 2.06 dB

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

Radiated Spurious Emission

Report No.	13692701S-C-R2		
Test place	Shonan EMC Lab.		
Semi Anechoic Chamber	No.2	No.2	No.3
Date	February 22, 2021	February 26, 2021	March 5, 2021
Temperature / Humidity	22 deg. C / 32 % RH	27 deg. C / 38 % RH	22 deg. C / 35 % RH
Engineer	Toshinori Yamada (1 GHz – 10 GHz)	Takahiro Suzuki (10 GHz – 26.5 GHz)	Hiromasa Sato (26.5 GHz – 40 GHz)
Mode	Tx 11ac-20 5825MHz (MIMO)		

(above 1 GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11650.000	PK	47.38	38.11	9.64	40.19	-9.54	45.40	73.9	28.5	138	227	-
Hori.	11650.000	AV	36.75	38.11	9.64	40.19	-9.54	34.77	53.9	19.1	138	227	VBW:3 kHz
Vert.	11650.000	PK	47.37	38.11	9.64	40.19	-9.54	45.39	73.9	28.5	141	197	-
Vert.	11650.000	AV	35.87	38.11	9.64	40.19	-9.54	33.89	53.9	20.0	141	197	VBW:3 kHz

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

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

Distance factor : 1 GHz - 10 GHz : 20log (3.80 m / 3.0 m) = 2.06 dB

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

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5850.000	PK	45.65	33.11	16.72	39.01	2.06	58.53	-36.70	27.0	63.7	154	2	-
Hori.	5855.000	PK	45.70	33.12	16.72	39.01	2.06	58.59	-36.64	15.6	52.2	154	2	-
Hori.	5875.000	PK	45.06	33.16	16.75	39.02	2.06	58.01	-37.22	10.0	47.2	154	2	-
Hori.	5925.000	PK	45.05	33.23	16.78	39.04	2.06	58.08	-37.15	-27.0	10.1	154	2	-
Hori.	17475.000	PK	44.94	40.25	12.35	37.37	-9.54	50.63	-44.60	-27.0	17.6	132	28	-
Vert.	5850.000	PK	44.91	33.11	16.72	39.01	2.06	57.79	-37.44	27.0	64.4	148	343	-
Vert.	5855.000	PK	45.11	33.12	16.72	39.01	2.06	58.00	-37.23	15.6	52.8	148	343	-
Vert.	5875.000	PK	45.50	33.16	16.75	39.02	2.06	58.45	-36.78	10.0	46.7	148	343	-
Vert.	5925.000	PK	45.22	33.23	16.78	39.04	2.06	58.25	-36.98	-27.0	9.9	148	343	-
Vert.	17475.000	PK	44.56	40.25	12.35	37.37	-9.54	50.25	-44.98	-27.0	17.9	139	336	-

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

Result (EIRP [dBm]) = 10 * LOG ((10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance : 3 [m]) ^ 2 / 30 * 10 ^ 3)

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

Distance factor : 1 GHz - 10 GHz : 20log (3.80 m / 3.0 m) = 2.06 dB

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

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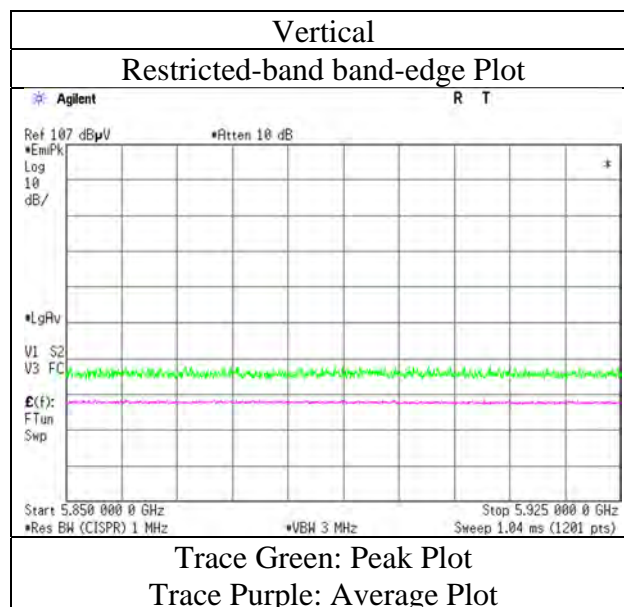
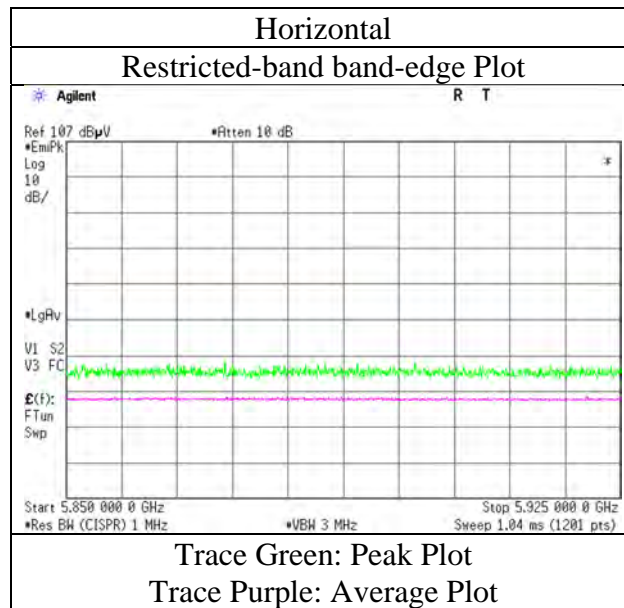
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Radiated Spurious Emission

Report No. 13692701S-C-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.2
Date February 22, 2021
Temperature / Humidity 22 deg. C / 32 % RH
Engineer Toshinori Yamada
(1 GHz – 6.4 GHz)
Mode Tx 11ac-20 5825 MHz (MIMO)



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Report No. 13692701S-C-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.2
Date February 24, 2021
Temperature / Humidity 23 deg. C / 68 % RH
Engineer Kenichi Adachi
(1 GHz – 6.4 GHz)
Mode Tx 11n-40 5190 MHz (MIMO)

(above 1 GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5150.000	PK	44.45	32.34	16.28	38.63	2.06	56.50	73.9	17.4	273	316	-
Hori.	5150.000	AV	35.46	32.34	16.28	38.63	2.06	47.51	53.9	6.3	273	316	VBW:5.6 kHz
Vert.	5150.000	PK	44.43	32.34	16.28	38.63	2.06	56.48	73.9	17.4	168	332	-
Vert.	5150.000	AV	35.40	32.34	16.28	38.63	2.06	47.45	53.9	6.4	168	332	VBW:5.6 kHz

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

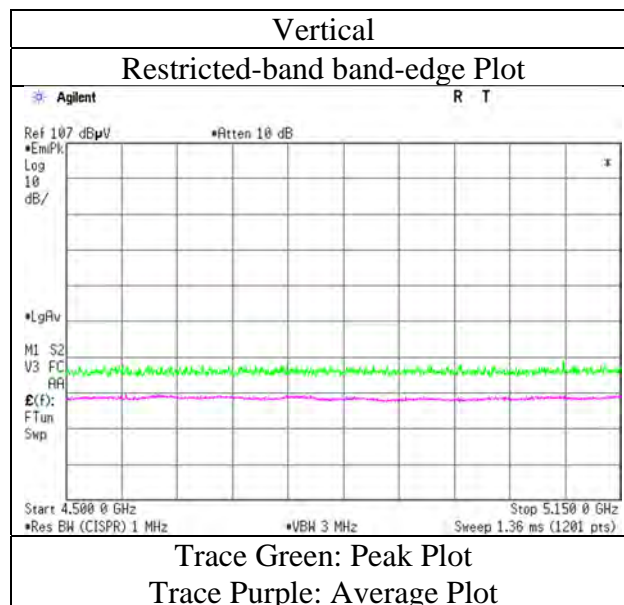
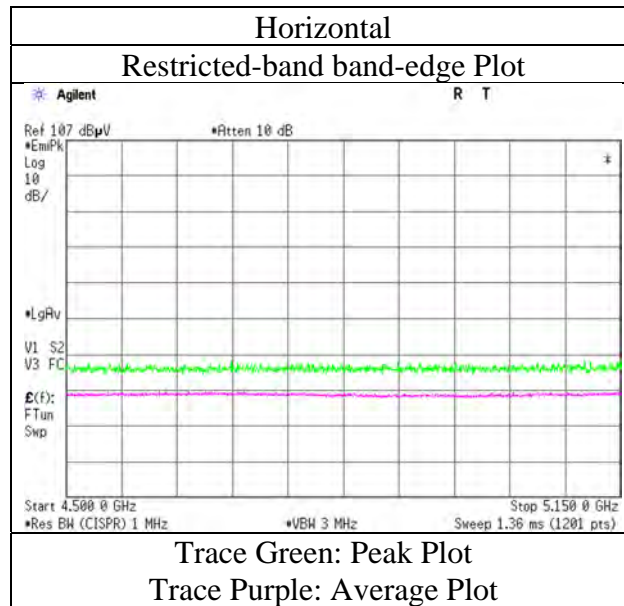
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).

Distance factor : 1 GHz - 10 GHz : $20\log(3.80\text{ m} / 3.0\text{ m}) = 2.06\text{ dB}$

10 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

Radiated Spurious Emission

Report No.	13692701S-C-R2
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.2
Date	February 24, 2021
Temperature / Humidity	23 deg. C / 68 % RH
Engineer	Kenichi Adachi
	(1 GHz – 6.4 GHz)
Mode	Tx 11n-40 5190 MHz (MIMO)



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Report No. 13692701S-C-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.2
Date February 24, 2021
Temperature / Humidity 23 deg. C / 68 % RH
Engineer Kenichi Adachi
(1 GHz – 6.4 GHz)
Mode Tx 11n-40 5230 MHz (MIMO)

(above 1 GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5350.000	PK	55.56	32.06	16.42	38.74	2.06	67.36	73.9	6.5	274	314	-
Hori.	5350.000	AV	35.48	32.06	16.42	38.74	2.06	47.28	53.9	6.6	274	314	VBW:5.6 kHz
Vert.	5350.000	PK	44.68	32.06	16.42	38.74	2.06	56.48	73.9	17.4	162	329	-
Vert.	5350.000	AV	35.52	32.06	16.42	38.74	2.06	47.32	53.9	6.5	162	329	VBW:5.6 kHz

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

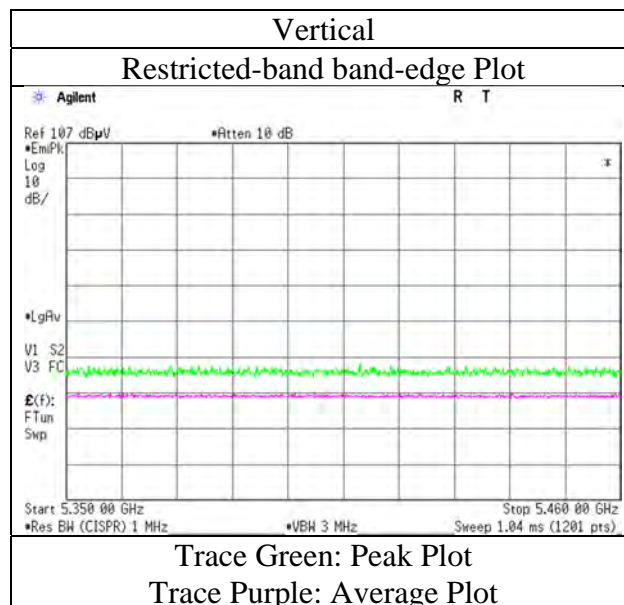
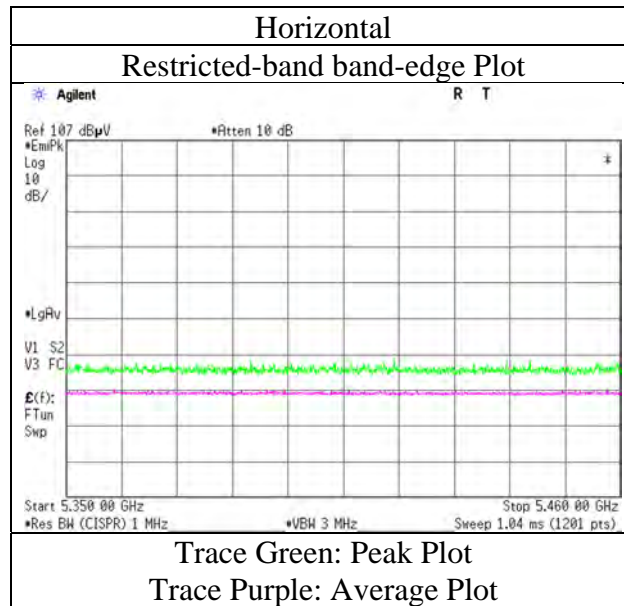
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).

Distance factor : 1 GHz - 10 GHz : $20\log(3.80\text{ m} / 3.0\text{ m}) = 2.06\text{ dB}$

10 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

Radiated Spurious Emission

Report No.	13692701S-C-R2
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.2
Date	February 24, 2021
Temperature / Humidity	23 deg. C / 68 % RH
Engineer	Kenichi Adachi
	(1 GHz – 6.4 GHz)
Mode	Tx 11n-40 5230 MHz (MIMO)



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

Final result of restricted band edge was shown in tabular data.

UL Japan, Inc.

Shonan EMC Lab.

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Radiated Spurious Emission

Report No. 13692701S-C-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.2
Date February 24, 2021
Temperature / Humidity 23 deg. C / 68 % RH
Engineer Kenichi Adachi
(1 GHz – 6.4 GHz)
Mode Tx 11n-40 5755 MHz (MIMO)

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]
Hori.	5650.000	PK	46.24	32.64	16.60	38.91	2.06	58.63	-36.60	-27.0	9.6	270	276
Hori.	5700.000	PK	46.32	32.71	16.62	38.93	2.06	58.78	-36.45	10.0	46.4	270	276
Hori.	5720.000	PK	46.44	32.75	16.63	38.94	2.06	58.94	-36.29	15.6	51.8	270	276
Hori.	5725.000	PK	46.72	32.77	16.64	38.94	2.06	59.25	-35.98	27.0	62.9	270	276
Vert.	5650.000	PK	46.29	32.64	16.60	38.91	2.06	58.68	-36.55	-27.0	9.5	172	224
Vert.	5700.000	PK	46.36	32.71	16.62	38.93	2.06	58.82	-36.41	10.0	46.4	172	224
Vert.	5720.000	PK	46.46	32.75	16.63	38.94	2.06	58.96	-36.27	15.6	51.8	172	224
Vert.	5725.000	PK	46.76	32.77	16.64	38.94	2.06	59.29	-35.94	27.0	62.9	172	224

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

Result (EIRP [dBm]) = 10 * LOG ((10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance : 3 [m]) ^ 2 / 30 * 10 ^ 3)

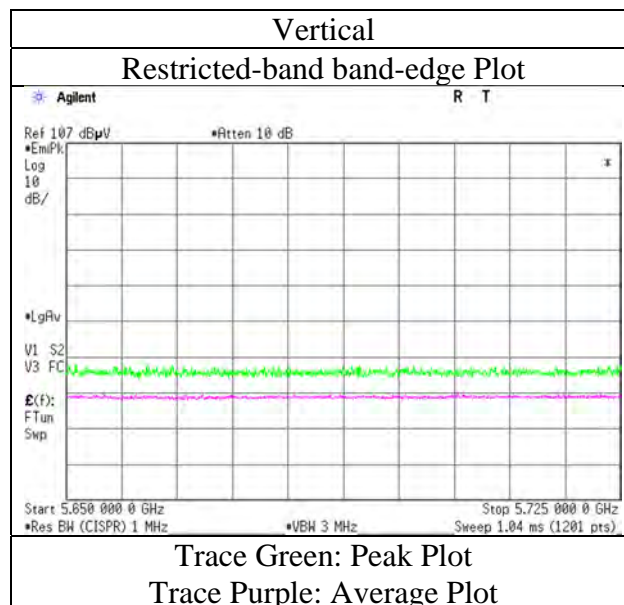
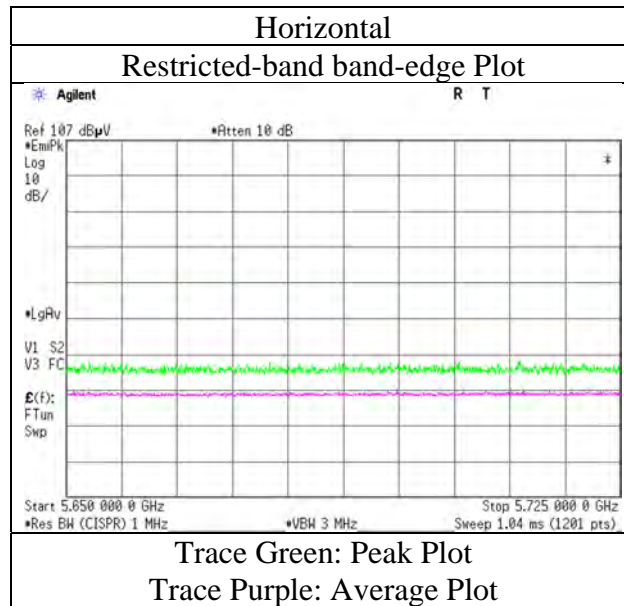
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).

Distance factor : 1 GHz - 10 GHz : 20log (3.80 m / 3.0 m) = 2.06 dB

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

Radiated Spurious Emission

Report No.	13692701S-C-R2
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.2
Date	February 24, 2021
Temperature / Humidity	23 deg. C / 68 % RH
Engineer	Kenichi Adachi
	(1 GHz – 6.4 GHz)
Mode	Tx 11n-40 5755 MHz (MIMO)



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Report No. 13692701S-C-R2
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.2
Date February 24, 2021
Temperature / Humidity 23 deg. C / 68 % RH
Engineer Kenichi Adachi
(1 GHz – 6.4 GHz)
Mode Tx 11n-40 5795 MHz (MIMO)

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5850.000	PK	45.98	33.11	16.72	39.01	2.06	58.86	-36.37	27.0	63.3	269	282	-
Hori.	5855.000	PK	45.89	33.12	16.72	39.01	2.06	58.78	-36.45	15.6	52.0	269	282	-
Hori.	5875.000	PK	45.86	33.16	16.75	39.02	2.06	58.81	-36.42	10.0	46.4	269	282	-
Hori.	5925.000	PK	45.82	33.23	16.78	39.04	2.06	58.85	-36.38	-27.0	9.3	269	282	-
Vert.	5850.000	PK	45.96	33.11	16.72	39.01	2.06	58.84	-36.39	27.0	63.3	170	346	-
Vert.	5855.000	PK	45.94	33.12	16.72	39.01	2.06	58.83	-36.40	15.6	52.0	170	346	-
Vert.	5875.000	PK	45.88	33.16	16.75	39.02	2.06	58.83	-36.40	10.0	46.4	170	346	-
Vert.	5925.000	PK	45.86	33.23	16.78	39.04	2.06	58.89	-36.34	-27.0	9.3	170	346	-

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

Result (EIRP [dBm]) = 10 * LOG ((10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance : 3 [m]) ^ 2 / 30 * 10 ^ 3)

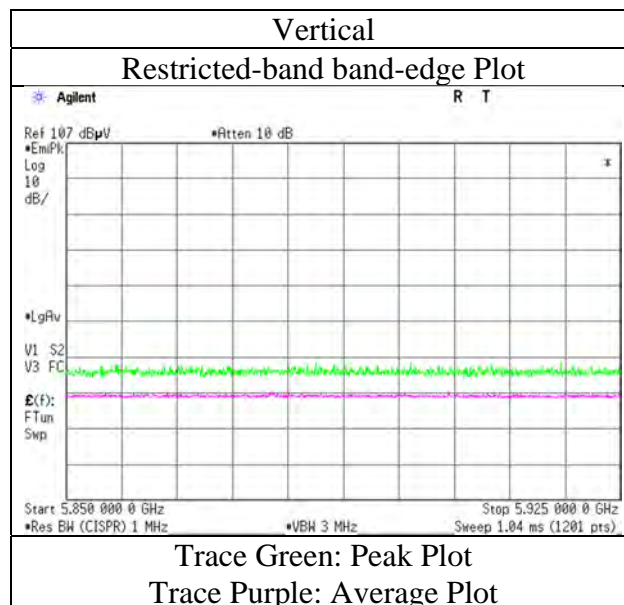
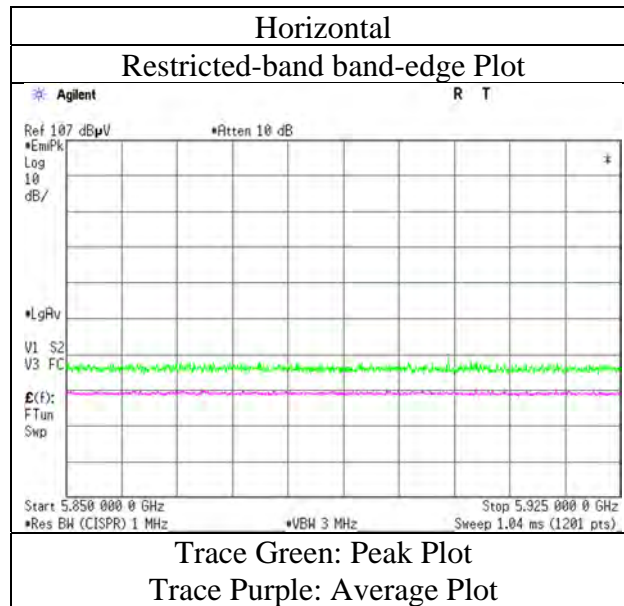
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).

Distance factor : 1 GHz - 10 GHz : 20log (3.80 m / 3.0 m) = 2.06 dB

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

Radiated Spurious Emission

Report No.	13692701S-C-R2
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.2
Date	February 24, 2021
Temperature / Humidity	23 deg. C / 68 % RH
Engineer	Kenichi Adachi
	(1 GHz – 6.4 GHz)
Mode	Tx 11n-40 5795 MHz (MIMO)



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

Final result of restricted band edge was shown in tabular data.

UL Japan, Inc.

Shonan EMC Lab.

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

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Radiated Spurious Emission

Report No.	13692701S-C-R2		
Test place	Shonan EMC Lab.		
Semi Anechoic Chamber	No.3	No.2	No.3
Date	March 5, 2021	February 26, 2021	March 5, 2021
Temperature / Humidity	25 deg. C / 35 % RH	27 deg. C / 38 % RH	25 deg. C / 35 % RH
Engineer	Hiromasato	Takahiro Suzuki	Hiromasato
	(1 GHz - 10 GHz)	(10 GHz - 26.5 GHz)	(26.5 GHz - 40 GHz)
Mode	Tx 11ac-40 5190 MHz (MIMO)		

(above 1 GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5150.000	PK	48.53	32.12	16.64	43.05	2.06	56.30	73.9	17.6	203	286	-
Hori.	15570.000	PK	46.79	39.57	11.33	37.22	-9.54	50.93	73.9	22.9	135	328	-
Hori.	5150.000	AV	38.31	32.12	16.64	43.05	2.06	46.08	53.9	7.8	203	286	VBW:5.1 kHz
Hori.	15570.000	AV	35.48	39.57	11.33	37.22	-9.54	39.62	53.9	14.2	135	328	VBW:5.1 kHz
Vert.	5150.000	PK	48.74	32.12	16.64	43.05	2.06	56.51	73.9	17.3	146	169	-
Vert.	15570.000	PK	47.94	39.57	11.33	37.22	-9.54	52.08	73.9	21.8	137	327	-
Vert.	5150.000	AV	38.67	32.12	16.64	43.05	2.06	46.44	53.9	7.4	146	169	VBW:5.1 kHz
Vert.	15570.000	AV	35.08	39.57	11.33	37.22	-9.54	39.22	53.9	14.6	137	327	VBW:5.1 kHz

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

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

Distance factor : 1 GHz - 10 GHz : 20log (3.80 m / 3.0 m) = 2.06 dB

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

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	10380.000	PK	48.08	36.36	9.04	40.06	-9.54	43.88	-51.35	-27.0	24.3	141	179	-
Vert.	10380.000	PK	48.34	36.36	9.04	40.06	-9.54	44.14	-51.09	-27.0	24.0	149	147	-

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

Result (EIRP [dBm]) = 10 * LOG ((10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance : 3 [m]) ^ 2 / 30 * 10 ^ 3)

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

Distance factor : 1 GHz - 10 GHz : 20log (3.80 m / 3.0 m) = 2.06 dB

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

UL Japan, Inc.

Shonan EMC Lab.

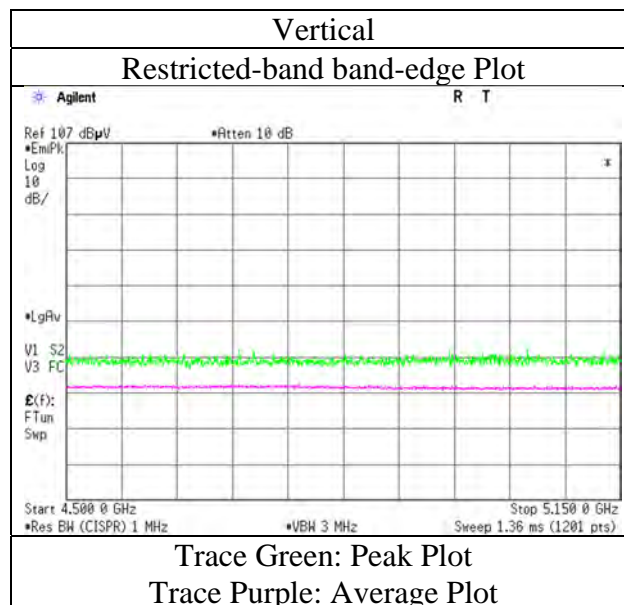
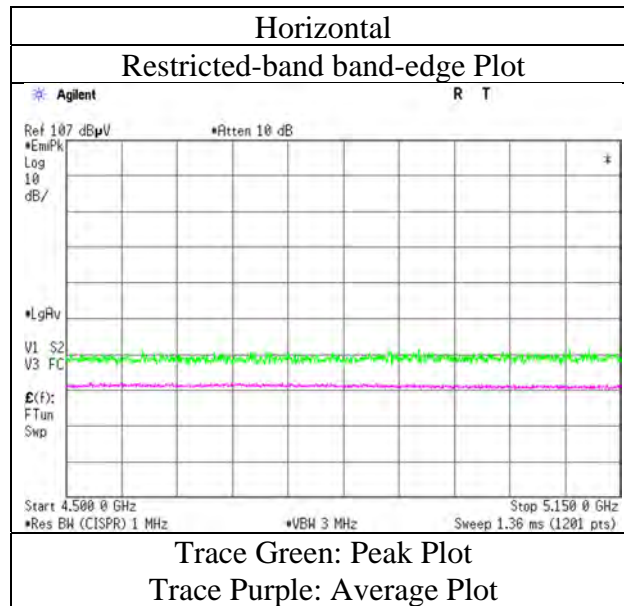
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

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Facsimile : +81 463 50 6401

Radiated Spurious Emission

Report No.	13692701S-C-R2
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	March 5, 2021
Temperature / Humidity	25 deg. C / 35 % RH
Engineer	Hiromasato Sato
	(1 GHz – 6.4 GHz)
Mode	Tx 11ac-40 5190 MHz (MIMO)



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

Radiated Spurious Emission

Report No.	13692701S-C-R2		
Test place	Shonan EMC Lab.		
Semi Anechoic Chamber	No.3	No.2	No.3
Date	March 5, 2021	February 26, 2021	March 5, 2021
Temperature / Humidity	25 deg. C / 35 % RH	27 deg. C / 38 % RH	25 deg. C / 35 % RH
Engineer	Hiromasato	Takahiro Suzuki	Hiromasato
	(1 GHz - 10 GHz)	(10 GHz - 26.5 GHz)	(26.5 GHz - 40 GHz)
Mode	Tx 11ac-40 5230 MHz (MIMO)		

(above 1 GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5350.000	PK	48.71	31.83	16.76	43.26	2.06	56.10	73.9	17.8	211	283	-
Hori.	15690.000	PK	46.71	39.74	11.33	37.23	-9.54	51.01	73.9	22.8	139	28	-
Hori.	5350.000	AV	38.63	31.83	16.76	43.26	2.06	46.02	53.9	7.8	211	283	VBW:5.1 kHz
Hori.	15690.000	AV	34.83	39.74	11.33	37.23	-9.54	39.13	53.9	14.7	139	28	VBW:5.1 kHz
Vert.	5350.000	PK	48.33	31.83	16.76	43.26	2.06	55.72	73.9	18.1	147	171	-
Vert.	15690.000	PK	46.30	39.74	11.33	37.23	-9.54	50.60	73.9	23.3	127	329	-
Vert.	5350.000	AV	38.73	31.83	16.76	43.26	2.06	46.12	53.9	7.7	147	171	VBW:5.1 kHz
Vert.	15690.000	AV	34.93	39.74	11.33	37.23	-9.54	39.23	53.9	14.6	127	329	VBW:5.1 kHz

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

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

Distance factor : 1 GHz - 10 GHz : 20log (3.80 m / 3.0 m) = 2.06 dB

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

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	10460.000	PK	48.38	36.52	9.06	40.19	-9.54	44.23	-51.00	-27.0	24.0	171	207	-
Vert.	10460.000	PK	48.79	36.52	9.06	40.19	-9.54	44.64	-50.59	-27.0	23.5	172	163	-

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

Result (EIRP [dBm]) = 10 * LOG ((10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance : 3 [m]) ^ 2 / 30 * 10 ^ 3)

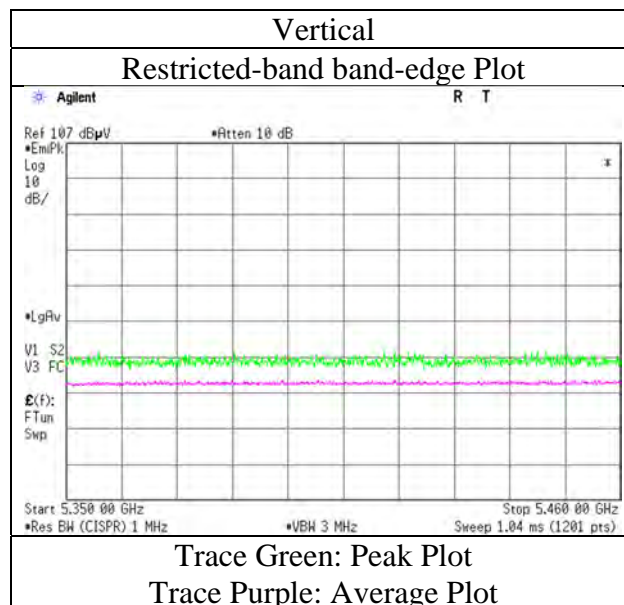
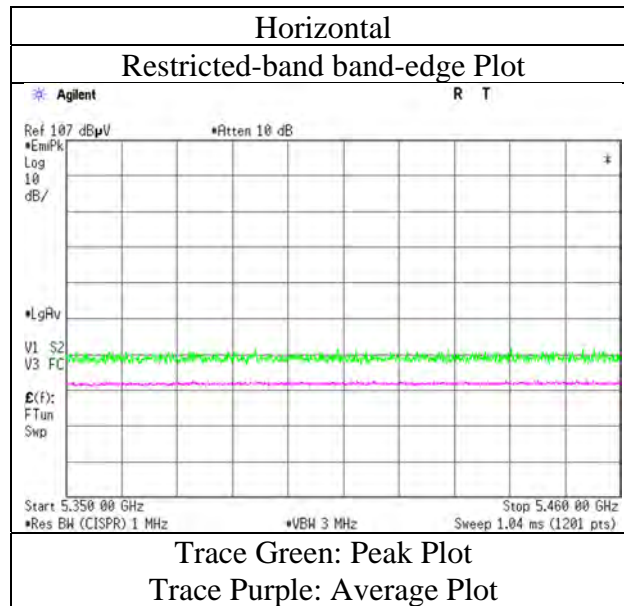
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).

Distance factor : 1 GHz - 10 GHz : 20log (3.80 m / 3.0 m) = 2.06 dB

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

Radiated Spurious Emission

Report No.	13692701S-C-R2
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	March 5, 2021
Temperature / Humidity	25 deg. C / 35 % RH
Engineer	Hiromasato Sato
	(1 GHz – 6.4 GHz)
Mode	Tx 11ac-40 5230 MHz (MIMO)



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission

Report No.	13692701S-C-R2		
Test place	Shonan EMC Lab.		
Semi Anechoic Chamber	No.3	No.2	No.3
Date	March 5, 2021	February 26, 2021	March 5, 2021
Temperature / Humidity	25 deg. C / 35 % RH	27 deg. C / 38 % RH	25 deg. C / 35 % RH
Engineer	Hiromasato Sato	Takahiro Suzuki	Hiromasato Sato
	(1 GHz - 10 GHz)	(10 GHz - 26.5 GHz)	(26.5 GHz - 40 GHz)
Mode	Tx 11ac-40 5755 MHz (MIMO)		

(above 1 GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11510.000	PK	45.51	38.00	9.55	40.09	-9.54	43.43	73.9	30.4	172	188	-
Hori.	11510.000	AV	34.53	38.00	9.55	40.09	-9.54	32.45	53.9	21.4	172	188	VBW:5.1 kHz
Vert.	11510.000	PK	47.22	38.00	9.55	40.09	-9.54	45.14	73.9	28.7	138	194	-
Vert.	11510.000	AV	34.97	38.00	9.55	40.09	-9.54	32.89	53.9	21.0	138	194	VBW:5.1 kHz

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

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

Distance factor : 1 GHz - 10 GHz : 20log (3.80 m / 3.0 m) = 2.06 dB

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

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5650.000	PK	48.66	32.49	16.96	43.42	2.06	56.75	-38.48	-27.0	11.4	193	335	-
Hori.	5700.000	PK	48.95	32.60	16.98	43.42	2.06	57.17	-38.06	10.0	48.0	193	335	-
Hori.	5720.000	PK	48.89	32.66	16.99	43.42	2.06	57.18	-38.05	15.6	53.6	193	335	-
Hori.	5725.000	PK	48.60	32.68	17.00	43.42	2.06	56.92	-38.31	27.0	65.3	193	335	-
Hori.	17265.000	PK	46.21	39.99	12.33	37.26	-9.54	51.73	-43.50	-27.0	16.5	140	41	-
Vert.	5650.000	PK	48.46	32.49	16.96	43.42	2.06	56.55	-38.68	-27.0	11.6	140	7	-
Vert.	5700.000	PK	48.52	32.60	16.98	43.42	2.06	56.74	-38.49	10.0	48.4	140	7	-
Vert.	5720.000	PK	48.41	32.66	16.99	43.42	2.06	56.70	-38.53	15.6	54.1	140	7	-
Vert.	5725.000	PK	48.31	32.68	17.00	43.42	2.06	56.63	-38.60	27.0	65.6	140	7	-
Vert.	17265.000	PK	45.48	39.99	12.33	37.26	-9.54	51.00	-44.23	-27.0	17.2	139	325	-

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

Result (EIRP [dBm]) = 10 * LOG ((10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance [m]) ^ 2 / 30 * 10 ^ 3)

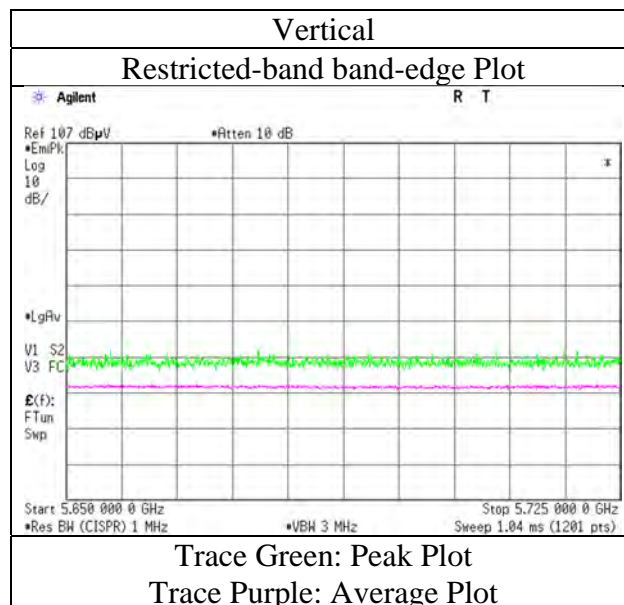
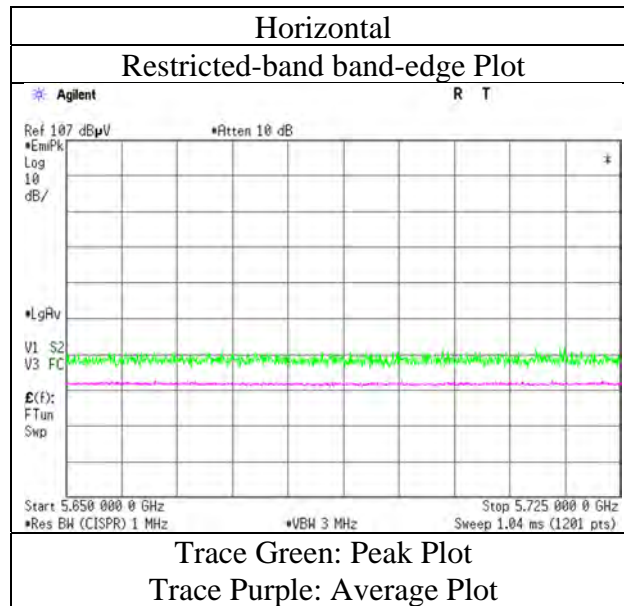
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).

Distance factor : 1 GHz - 10 GHz : 20log (3.80 m / 3.0 m) = 2.06 dB

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

Radiated Spurious Emission

Report No.	13692701S-C-R2
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	March 5, 2021
Temperature / Humidity	25 deg. C / 35 % RH
Engineer	Hiromasato Sato
	(1 GHz – 6.4 GHz)
Mode	Tx 11ac-40 5755 MHz (MIMO)



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

Final result of restricted band edge was shown in tabular data.

UL Japan, Inc.

Shonan EMC Lab.

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

Telephone : +81 463 50 6400

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Radiated Spurious Emission

Report No.	13692701S-C-R2		
Test place	Shonan EMC Lab.		
Semi Anechoic Chamber	No.3	No.2	No.3
Date	March 5, 2021	February 26, 2021	March 5, 2021
Temperature / Humidity	25 deg. C / 35 % RH	27 deg. C / 38 % RH	25 deg. C / 35 % RH
Engineer	Hiromasato	Takahiro Suzuki	Hiromasato
	(1 GHz - 10 GHz)	(10 GHz - 26.5 GHz)	(26.5 GHz - 40 GHz)
Mode	Tx 11ac-40 5795 MHz (MIMO)		

(above 1 GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11590.000	PK	46.45	38.08	9.60	40.15	-9.54	44.44	73.9	29.4	147	227	-
Hori.	11590.000	AV	35.78	38.08	9.60	40.15	-9.54	33.77	53.9	20.1	147	227	VBW:5.1 kHz
Vert.	11590.000	PK	47.53	38.08	9.60	40.15	-9.54	45.52	73.9	28.3	141	197	-
Vert.	11590.000	AV	37.47	38.08	9.60	40.15	-9.54	35.46	53.9	18.4	141	197	VBW:5.1 kHz

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

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

Distance factor : 1 GHz - 10 GHz : 20log (3.80 m / 3.0 m) = 2.06 dB

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

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5850.000	PK	48.40	33.07	17.07	43.43	2.06	57.17	-38.06	27.0	65.0	192	334	-
Hori.	5855.000	PK	48.26	33.08	17.07	43.43	2.06	57.04	-38.19	15.6	53.7	192	334	-
Hori.	5875.000	PK	48.17	33.12	17.11	43.43	2.06	57.03	-38.20	10.0	48.2	192	334	-
Hori.	5925.000	PK	48.03	33.21	17.13	43.43	2.06	57.00	-38.23	-27.0	11.2	192	334	-
Hori.	17385.000	PK	45.53	40.18	12.35	37.32	-9.54	51.20	-44.03	-27.0	17.0	140	39	-
Vert.	5850.000	PK	48.50	33.07	17.07	43.43	2.06	57.27	-37.96	27.0	64.9	164	6	-
Vert.	5855.000	PK	48.10	33.08	17.07	43.43	2.06	56.88	-38.35	15.6	53.9	164	6	-
Vert.	5875.000	PK	48.47	33.12	17.11	43.43	2.06	57.33	-37.90	10.0	47.9	164	6	-
Vert.	5925.000	PK	48.27	33.21	17.13	43.43	2.06	57.24	-37.99	-27.0	10.9	164	6	-
Vert.	17385.000	PK	45.59	40.18	12.35	37.32	-9.54	51.26	-43.97	-27.0	16.9	128	325	-

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

Result (EIRP [dBm]) = 10 * LOG ((10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance [m]) ^ 2 / 30 * 10 ^ 3)

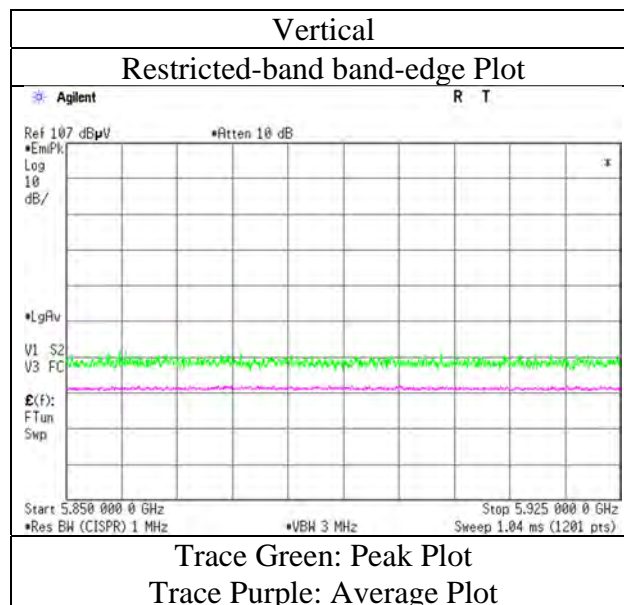
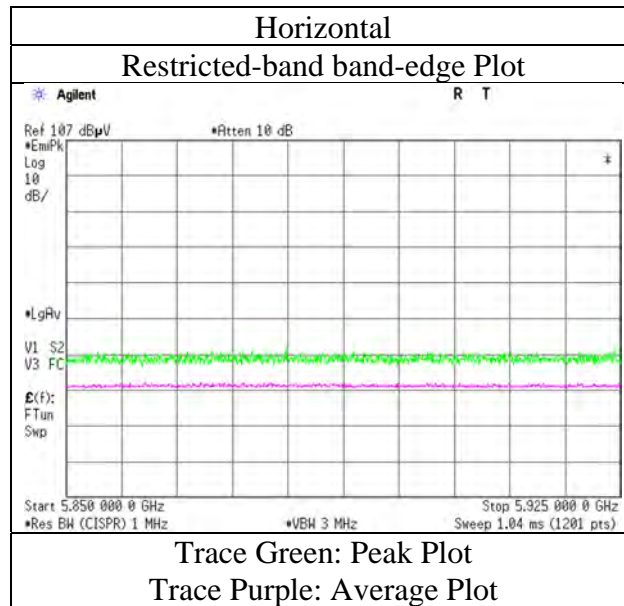
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).

Distance factor : 1 GHz - 10 GHz : 20log (3.80 m / 3.0 m) = 2.06 dB

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

Radiated Spurious Emission

Report No.	13692701S-C-R2
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	March 5, 2021
Temperature / Humidity	25 deg. C / 35 % RH
Engineer	Hikomasa Sato
	(1 GHz – 6.4 GHz)
Mode	Tx 11ac-40 5795 MHz (MIMO)



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

Final result of restricted band edge was shown in tabular data.

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Radiated Spurious Emission

Report No.	13692701S-C-R2		
Test place	Shonan EMC Lab.		
Semi Anechoic Chamber	No.3	No.2	No.3
Date	March 5, 2021	February 26, 2021	March 5, 2021
Temperature / Humidity	25 deg. C / 35 % RH	27 deg. C / 38 % RH	25 deg. C / 35 % RH
Engineer	Hiromasato Sato	Takahiro Suzuki	Hiromasato Sato
	(1 GHz - 10 GHz)	(10 GHz - 26.5 GHz)	(26.5 GHz - 40 GHz)
Mode	Tx 11ac-80 5210 MHz (MIMO)		

(above 1 GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5150.000	PK	48.94	32.12	16.64	43.05	2.06	56.71	73.9	17.1	235	289	-
Hori.	5350.000	PK	48.22	31.83	16.76	43.26	2.06	55.61	73.9	18.2	235	289	-
Hori.	15630.000	PK	46.25	39.61	11.34	37.23	-9.54	50.43	73.9	23.4	132	321	-
Hori.	5150.000	AV	38.96	32.12	16.64	43.05	2.06	46.73	53.9	7.1	235	289	VBW:9.1 kHz
Hori.	5350.000	AV	39.43	31.83	16.76	43.26	2.06	46.82	53.9	7.0	235	289	VBW:9.1 kHz
Hori.	15630.000	AV	35.37	39.61	11.34	37.23	-9.54	39.55	53.9	14.3	132	321	VBW:9.1 kHz
Vert.	5150.000	PK	48.40	32.12	16.64	43.05	2.06	56.17	73.9	17.7	146	62	-
Vert.	5350.000	PK	48.48	31.83	16.76	43.26	2.06	55.87	73.9	18.0	146	62	-
Vert.	15630.000	PK	47.01	39.61	11.34	37.23	-9.54	51.19	73.9	22.7	136	323	-
Vert.	5150.000	AV	39.13	32.12	16.64	43.05	2.06	46.90	53.9	7.0	146	62	VBW:9.1 kHz
Vert.	5350.000	AV	39.57	31.83	16.76	43.26	2.06	46.96	53.9	6.9	146	62	VBW:9.1 kHz
Vert.	15630.000	AV	35.88	39.61	11.34	37.23	-9.54	40.06	53.9	13.8	136	323	VBW:9.1 kHz

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

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

Distance factor : 1 GHz - 10 GHz : 20log (3.80 m / 3.0 m) = 2.06 dB

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

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	10420.000	PK	48.65	36.43	9.06	40.13	-9.54	44.47	-50.76	-27.0	23.7	175	206	-
Vert.	10420.000	PK	48.37	36.43	9.06	40.13	-9.54	44.19	-51.04	-27.0	24.0	170	183	-

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

Result (EIRP [dBm]) = 10 * LOG ((10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance : 3 [m]) ^ 2 / 30 * 10 ^ 3)

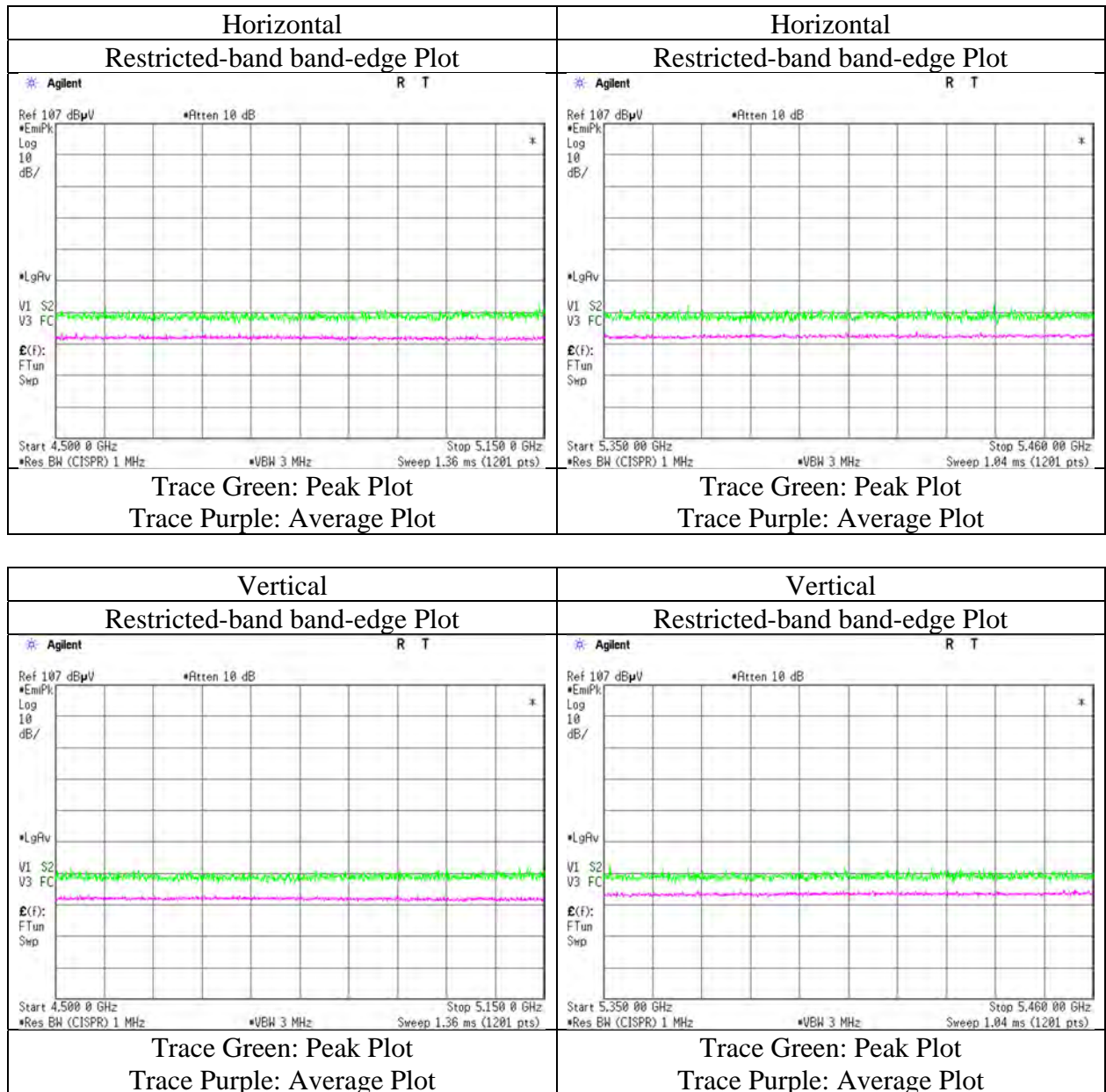
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20 dB).

Distance factor : 1 GHz - 10 GHz : 20log (3.80 m / 3.0 m) = 2.06 dB

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

Radiated Spurious Emission

Report No.	13692701S-C-R2
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	March 5, 2021
Temperature / Humidity	25 deg. C / 35 % RH
Engineer	Hiromasa Sato
	(1 GHz – 6.4 GHz)
Mode	Tx 11ac-80 5210 MHz (MIMO)



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

Final result of restricted band edge was shown in tabular data.

UL Japan, Inc.

Shonan EMC Lab.

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Radiated Spurious Emission

Report No.	13692701S-C-R2		
Test place	Shonan EMC Lab.		
Semi Anechoic Chamber	No.3	No.2	No.3
Date	March 5, 2021	February 26, 2021	March 5, 2021
Temperature / Humidity	25 deg. C / 35 % RH	27 deg. C / 38 % RH	25 deg. C / 35 % RH
Engineer	Hiromasato	Takahiro Suzuki	Hiromasato
	(1 GHz - 10 GHz)	(10 GHz - 26.5 GHz)	(26.5 GHz - 40 GHz)
Mode	Tx 11ac-80 5775 MHz (MIMO)		

(above 1 GHz Inside of the restricted band)

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11550.000	PK	45.79	38.03	9.58	40.12	-9.54	43.74	73.9	30.1	137	215	-
Hori.	11550.000	AV	35.53	38.03	9.58	40.12	-9.54	33.48	53.9	20.4	137	215	VBW:9.1 kHz
Vert.	11550.000	PK	46.71	38.03	9.58	40.12	-9.54	44.66	73.9	29.2	161	208	-
Vert.	11550.000	AV	35.58	38.03	9.58	40.12	-9.54	33.53	53.9	20.3	161	208	VBW:9.1 kHz

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

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

Distance factor : 1 GHz - 10 GHz : 20log (3.80 m / 3.0 m) = 2.06 dB

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

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

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP) [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5650.000	PK	48.80	32.49	16.96	43.42	2.06	56.89	-38.34	-27.0	11.3	192	335	-
Hori.	5700.000	PK	48.31	32.60	16.98	43.42	2.06	56.53	-38.70	10.0	48.7	192	335	-
Hori.	5720.000	PK	48.33	32.66	16.99	43.42	2.06	56.62	-38.61	15.6	54.2	192	335	-
Hori.	5725.000	PK	48.27	32.68	17.00	43.42	2.06	56.59	-38.64	27.0	65.6	192	335	-
Hori.	5850.000	PK	48.76	33.07	17.07	43.43	2.06	57.53	-37.70	27.0	64.7	192	335	-
Hori.	5855.000	PK	48.41	33.08	17.07	43.43	2.06	57.19	-38.04	15.6	53.6	192	335	-
Hori.	5875.000	PK	48.33	33.12	17.11	43.43	2.06	57.19	-38.04	10.0	48.0	192	335	-
Hori.	5925.000	PK	48.67	33.21	17.13	43.43	2.06	57.64	-37.59	-27.0	10.5	192	335	-
Hori.	17325.000	PK	45.38	40.11	12.34	37.29	-9.54	51.00	-44.23	-27.0	17.2	142	28	-
Vert.	5650.000	PK	48.44	32.49	16.96	43.42	2.06	56.53	-38.70	-27.0	11.7	161	6	-
Vert.	5700.000	PK	48.47	32.60	16.98	43.42	2.06	56.69	-38.54	10.0	48.5	161	6	-
Vert.	5720.000	PK	48.26	32.66	16.99	43.42	2.06	56.55	-38.68	15.6	54.2	161	6	-
Vert.	5725.000	PK	48.82	32.68	17.00	43.42	2.06	57.14	-38.09	27.0	65.0	161	6	-
Vert.	5850.000	PK	48.31	33.07	17.07	43.43	2.06	57.08	-38.15	27.0	65.1	161	6	-
Vert.	5855.000	PK	48.33	33.08	17.07	43.43	2.06	57.11	-38.12	15.6	53.7	161	6	-
Vert.	5875.000	PK	48.40	33.12	17.11	43.43	2.06	57.26	-37.97	10.0	47.9	161	6	-
Vert.	5925.000	PK	48.73	33.21	17.13	43.43	2.06	57.70	-37.53	-27.0	10.5	161	6	-
Vert.	17325.000	PK	45.63	40.11	12.34	37.29	-9.54	51.25	-43.98	-27.0	16.9	126	319	-

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

Result (EIRP [dBm]) = 10 * LOG ((10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance : 3 [m]) ^ 2 / 30 * 10 ^ 3)

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

Distance factor : 1 GHz - 10 GHz : 20log (3.80 m / 3.0 m) = 2.06 dB

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

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Shonan EMC Lab.

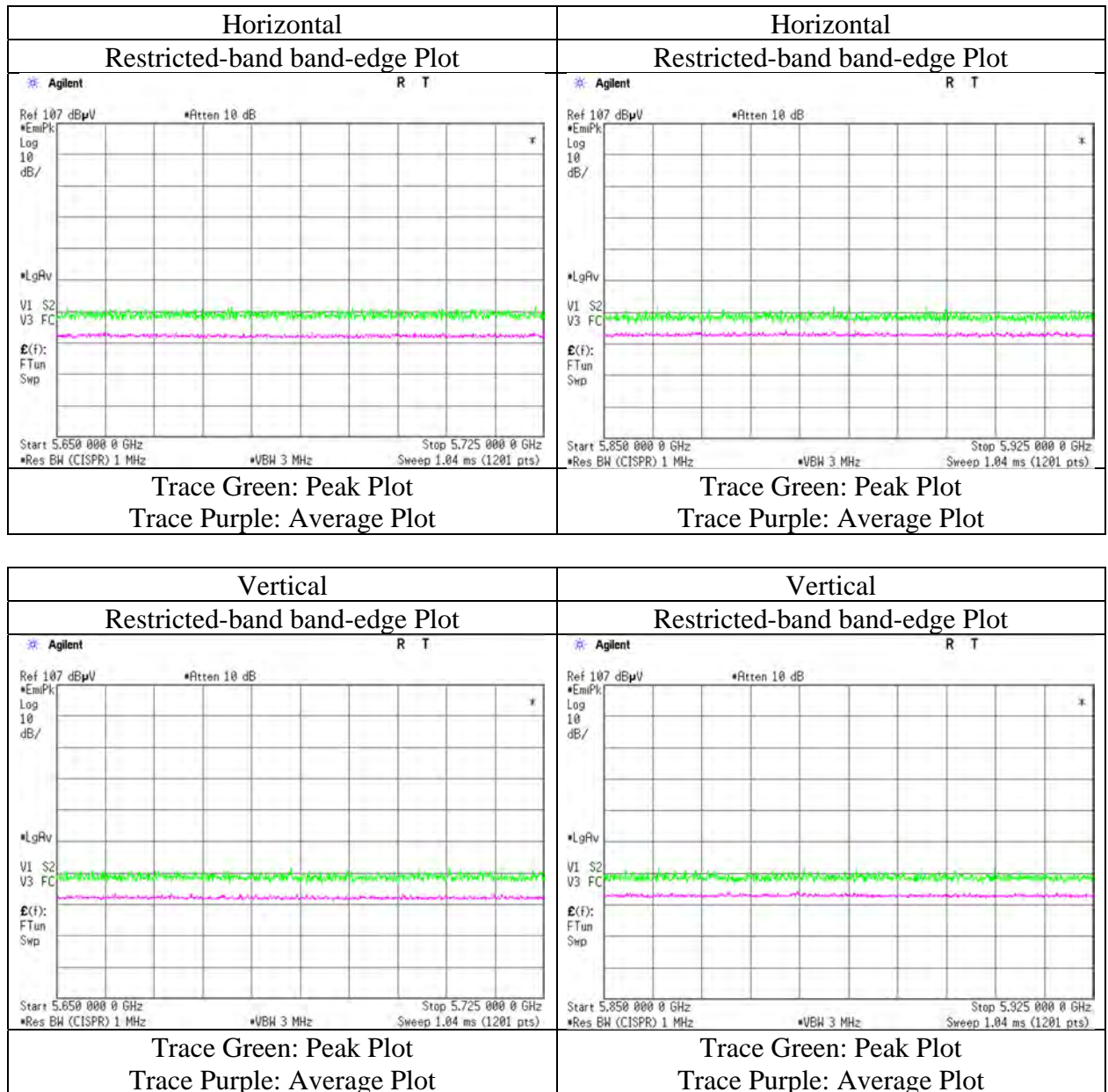
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Radiated Spurious Emission

Report No.	13692701S-C-R2
Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	March 5, 2021
Temperature / Humidity	25 deg. C / 35 % RH
Engineer	Hiromasa Sato
	(1 GHz – 6.4 GHz)
Mode	Tx 11ac-80 5775 MHz (MIMO)



* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

Final result of restricted band edge was shown in tabular data.

UL Japan, Inc.

Shonan EMC Lab.

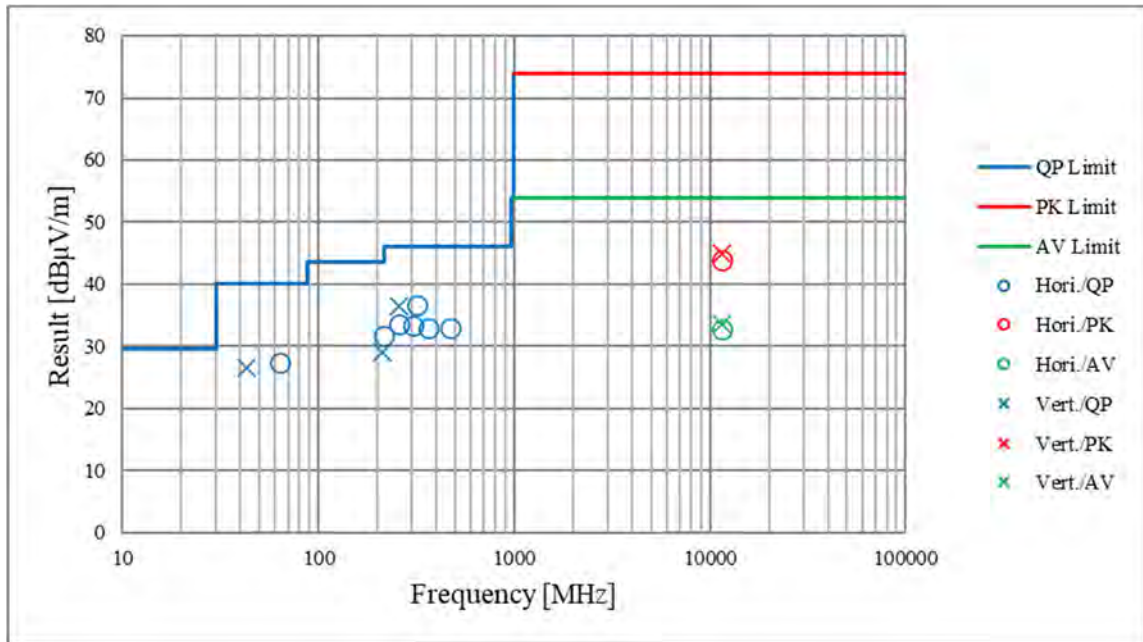
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Radiated Spurious Emission
(Plot data, Worst case for MIMO)

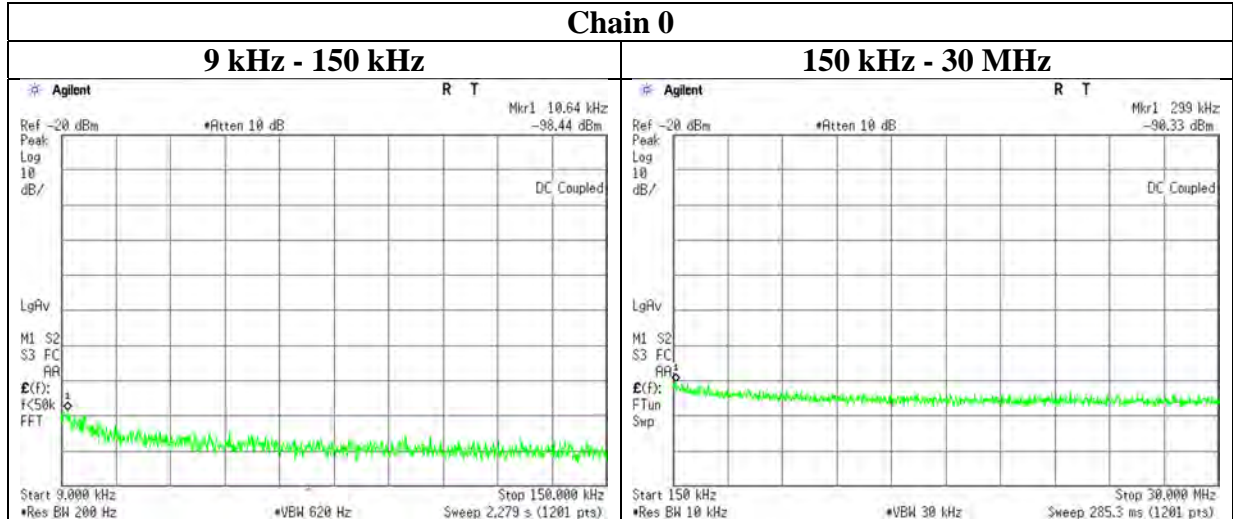
Report No.	13692701S-C-R2			
Test place	Shonan EMC Lab.			
Semi Anechoic Chamber	No.2	No.2	No.2	No.3
Date	February 21, 2021	February 22, 2021	February 26, 2021	March 5, 2021
Temperature / Humidity	21 deg. C / 32 % RH	22 deg. C / 32 % RH	27 deg. C / 38 % RH	22 deg. C / 35 % RH
Engineer	Yusuke Tanikawara (30 MHz – 1 GHz)	Toshinori Yamada (1 GHz – 10 GHz)	Takahiro Suzuki (10 GHz – 26.5 GHz)	Hiromasa Sato (26.5 GHz – 40 GHz)
Mode	Tx 11ac-20 5745 MHz (MIMO)			



*These plots data contains sufficient number to show the trend of characteristic features for EUT.

Conducted Spurious Emission

Report No. 13692701S-C-R2
Test place Shonan EMC Lab. No.5 Shielded Room
Date February 24, 2021
Temperature / Humidity 24 deg. C / 46 % RH
Engineer Shiro Kobayashi
Mode Tx 11a 5785 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
10.64	-98.44	0.01	9.82	2.00	1	-86.6	300	6.0	-25.4	47.0	72.4	-
299.00	-90.33	0.02	9.82	2.00	1	-78.5	300	6.0	-17.2	18.0	35.2	-

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

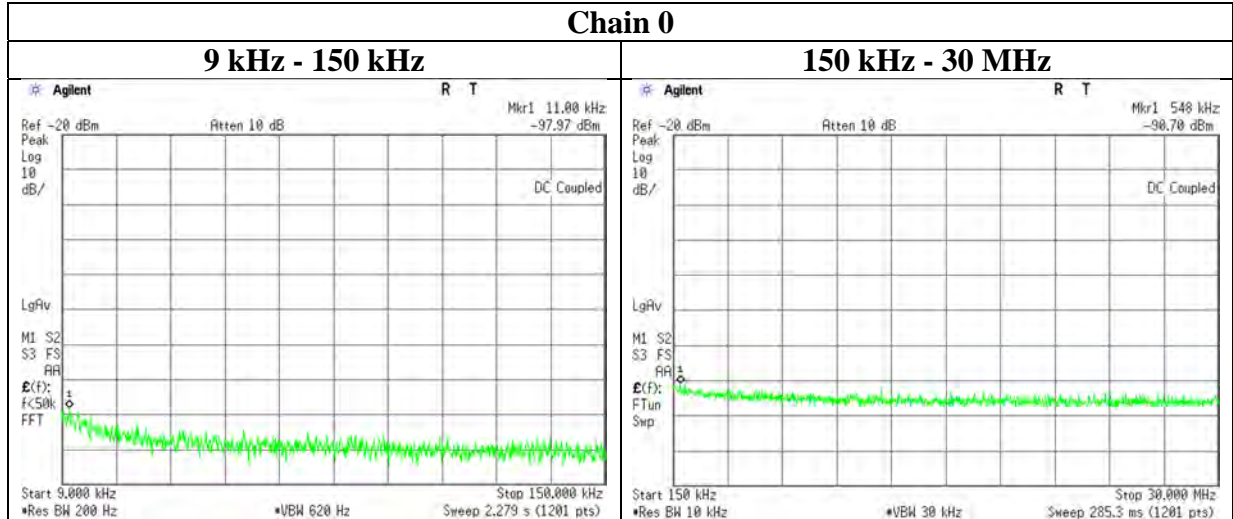
$\text{EIRP [dBm]} = \text{Reading [dBm]} + \text{Cable loss [dB]} + \text{Attenuator Loss [dB]} + \text{Antenna gain [dBi]} + 10 * \log (N)$

N: Number of output

*2.0 dBi was applied to the test result based on KDB 789033 since antenna gain was less than 2.0 dBi.

Conducted Spurious Emission

Report No. 13692701S-C-R2
Test place Shonan EMC Lab. No.5 Shielded Room
Date February 24, 2021
Temperature / Humidity 24 deg. C / 46 % 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
11.00	-97.97	0.01	9.82	2.00	2	-83.1	300	6.0	-21.9	46.7	68.6	-
548.00	-90.70	0.02	9.82	2.00	2	-75.8	30	6.0	5.4	32.8	27.4	-

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

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

N: Number of output

*2.0 dBi was applied to the test result based on KDB 789033 since antenna gain was less than 2.0 dBi.

APPENDIX 2: Test instruments

Test equipment (1 / 3)

Test Name	Local ID	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Calibration Interval (Month)
AT	KTS-07	145111	Digital Tester	SANWA	PC500	7019232	2020/10/21	12
AT	SAT10-13	151610	Attenuator	Weinschel Corp.	54A-10	81626	2020/03/02	12
AT	SAT10-16	160494	Attenuator	Weinschel Corp.	54A-10	83420	2020/12/21	12
AT	SCC-G63	196946	Coaxial Cable	Huber+Suhner	SUCOFLEX 102	803411/2	2020/03/10	12
AT	SCC-G65	196942	Coaxial Cable	Huber+Suhner	SUCOFLEX 102	803416/2	2020/03/10	12
AT	SOS-27	191845	Humidity Indicator	CUSTOM. Inc	CTH-201	-	2020/09/29	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	2021/01/26	12
AT	SSA-01	146223	Spectrum Analyzer	Keysight Technologies Inc	N9010A-526	MY48031482	2020/11/23	12
AT	STM-G8	171615	Terminator	Weinschel - API Technologies Corp	M1459A	88997	2020/06/03	12
AT	STS-05	146212	Digital Hitester	HIOKI E.E. CORPORATION	3805-50	80997828	2020/10/19	12
AT,RE	SSA-02	145800	Spectrum Analyzer	Keysight Technologies Inc	E4448A	MY48250106	2020/04/16	12

Test equipment (2 / 3)

Test Name	Local ID	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Calibration Interval (Month)
RE	COTS-SEMI-5	170932	EMI Software	TSJ (Techno Science Japan)	TEPTO-DV3(RE,CE,M E,PE)	-	-	-
RE	KJM-02	146432	Measure	TAJIMA	GL19-55	-	-	-
RE	KJM-10	146454	Measure	KOMELON	KMC-36	-	-	-
RE	KSA-08	145089	Spectrum Analyzer	Keysight Technologies Inc	E4446A	MY46180525	2020/11/24	12
RE	SAEC-02(NSA)	145563	Semi-Anechoic Chamber	TDK	SAEC-02(NSA)	2	2020/03/20	12
RE	SAEC-02(SVS WR)	145598	Semi-Anechoic Chamber	TDK	SAEC-02(SVSWR)	2	2020/05/07	12
RE	SAEC-03(SVS WR)	145566	Semi-Anechoic Chamber	TDK	SAEC-03(SVSWR)	3	2020/05/11	12
RE	SAF-02	145004	Pre Amplifier	SONOMA	310N	290212	2021/02/10	12
RE	SAF-05	145128	Pre Amplifier	Toyo Corporation	TPA0118-36	1440490	2020/06/03	12
RE	SAF-06	145005	Pre Amplifier	Toyo Corporation	TPA0118-36	1440491	2021/02/08	12
RE	SAF-08	145007	Pre Amplifier	Toyo Corporation	HAP18-26W	19	2020/03/03	12
RE	SAF-10	145129	Pre Amplifier	Toyo Corporation	HAP26-40W	10	2020/03/03	12
RE	SAT10-05	145136	Attenuator	Keysight Technologies Inc	8493C-010	74864	2020/10/05	12
RE	SAT10-06	145137	Attenuator	Keysight Technologies Inc	8493C-010	74865	2020/10/05	12
RE	SAT3-11	150921	Attenuator	JFW	50HF-003N	-	2021/01/26	12
RE	SAT6-14	167095	Attenuator	JFW	50HF-006N	-	2021/02/10	12
RE	SBA-02	145022	Biconical Antenna	Schwarzbeck Mess - Elektronik	BBA9106	91032665	2020/04/04	12
RE	SCC-B1/B3/B5/B7/B8/B13/SRSE-02	144975	Coaxial Cable&RF Selector	Fujikura/Fujikura/Suhner/Suhner/TOYO	8D2W/12DSFA/141PE/141PE/141PE/141PE/NS4906	-/0901-270(RF Selector)	2020/04/17	12
RE	SCC-B2/B4/B6/B7/B8/B13/SRSE-02	144976	Coaxial Cable&RF Selector	Fujikura/Fujikura/Suhner/Suhner/TOYO	8D2W/12DSFA/141PE/141PE/141PE/141PE/NS4906	-/0901-270(RF Selector)	2020/04/17	12
RE	SCC-G15	145176	Coaxial Cable	Suhner	SUCOFLEX 102	32703/2	2020/03/04	12
RE	SCC-G40	166491	Coaxial Cable	Junkosha	MWX221-01000NFSNMS/B	1612S005	2021/01/19	12
RE	SCC-G41	151617	Coaxial Cable	Junkosha	MWX221-01000NFSNMS/B	1612S006	2021/01/19	12
RE	SCC-G43	156380	Coaxial Cable	Huber+Suhner	SUCOFLEX_104_E	SN MY 13406/4E	2020/06/04	12
RE	SCC-G44	168300	Coaxial Cable	Huber+Suhner	SUCOFLEX 104	800375/4A	2020/11/20	12

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Test equipment (3 / 3)

Test Name	Local ID	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Calibration Interval (Month)
RE	SCC-G50	178573	Coaxial Cable	Huber+Suhner	SUCOFLEX_104_E	MY13407/4E	2020/03/09	12
RE	SCC-G51	178572	Coaxial Cable	Huber+Suhner	SUCOFLEX 104	800288 /4A	2020/03/09	12
RE	SCC-G57	179540	Coaxial Cable	Huber+Suhner	SUCOFLEX 102	802815/2	2020/05/12	12
RE	SFL-03	145377	Highpass Filter	MICRO-TRONICS	HPM50112	28	2020/10/05	12
RE	SHA-02	145384	Horn Antenna	Schwarzbeck Mess - Elektronik	BBHA9120D	9120D-726	2020/06/15	12
RE	SHA-03	145501	Horn Antenna	Schwarzbeck Mess - Elektronik	BBHA9120D	9120D-739	2020/06/15	12
RE	SHA-04	145512	Horn Antenna	ETS-Lindgren	3160-09	00094868	2020/06/15	12
RE	SHA-06	145514	Horn Antenna	ETS-Lindgren	3160-10	00092383	2020/07/16	12
RE	SHA-09	194684	Horn Antenna	Schwarzbeck Mess - Elektronik	BBHA 9120 C	695	2021/03/03	12
RE	SLA-06	145528	Logperiodic Antenna	Schwarzbeck Mess - Elektronik	VUSLP9111B	195	2020/04/04	12
RE	SOS-21	191838	Humidity Indicator	CUSTOM. Inc	CTH-201	-	2020/09/28	12
RE	SOS-23	191840	Humidity Indicator	CUSTOM. Inc	CTH-201	-	2020/09/28	12
RE	STR-07	146209	Receiver, EMI	Rohde & Schwarz	ESU26	100484	2020/09/07	12
RE	STS-02	145793	Digital Hitester	HIOKI E.E. CORPORATION	3805-50	80997819	2020/04/09	12
RE	STS-03	146210	Digital Hitester	HIOKI E.E. CORPORATION	3805-50	80997823	2020/10/19	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:

RE: Radiated Emission

AT: Antenna Terminal Conducted test

UL Japan, Inc.

Shonan EMC Lab.

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