



RADIO TEST REPORT

Test Report No. : 10279739H-C-R2

Applicant : KONICA MINOLTA, Inc.
Type of Equipment : AeroDR SYSTEM 2
Model No. : AeroDR_P-51
FCC ID : YR7AERODRP5
Test regulation : FCC Part 15 Subpart E: 2014
(Except for DFS test)
Test Result : Complied

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2. The results in this report apply only to the sample tested.
3. This sample tested is in compliance with above regulation.
4. The test results in this report are traceable to the national or international standards.
5. This test report must not be used by the customer to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.
6. This report is a revised version of 10279739H-C-R1. 10279739H-C-R1 is replaced with this report.

Date of test: July 22 to 29, 2014

Representative test engineer:

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Consumer Technology Division

Approved by:

M. Nishiyama
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NVLAP LAB CODE: 200572-0

This laboratory is accredited by the NVLAP LAB CODE 200572-0, U.S.A. The tests reported herein have been performed in accordance with its terms of accreditation.
*As for the range of Accreditation in NVLAP, you may refer to the WEB address,
<http://www.ul.com/japan/jpn/pages/services/emc/about/mark1/index.jsp#nvlap>

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SECTION 1: Customer information

Company Name	:	KONICA MINOLTA, Inc.
Address	:	1, Sakura-machi, Hino-shi, Tokyo, Japan
Telephone Number	:	+81-42-589-8429
Facsimile Number	:	+81-42-589-8053
Contact Person	:	Masayoshi Inoue

SECTION 2: Equipment under test (E.U.T.)

2.1 Identification of E.U.T.

Type of Equipment	:	AeroDR SYSTEM 2
Model No.	:	AeroDR_P-51
Serial No.	:	Refer to Section 4, Clause 4.2
Rating	:	DC 15V
Receipt Date of Sample	:	July 21, 2014
Country of Mass-production	:	Japan
Condition of EUT	:	Engineering prototype (Not for Sale: This sample is equivalent to mass-produced items.)
Modification of EUT	:	No Modification by the test lab

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2.2 Product Description

General Specification

Clock frequency(ies) in the system : 532MHz

Radio Specification

Radio Type : Transceiver
Method of Frequency Generation : Synthesizer
Power Supply (inner) : DC3.3V

Specification of Wireless LAN (IEEE802.11a/b/g/n-20)

Type of radio	IEEE802.11b	IEEE802.11g	IEEE802.11a	IEEE802.11n (20 M band)
Frequency of operation	2412-2462MHz *1)	2412-2462MHz *1)	5180-5320MHz 5500-5700MHz 5745-5825MHz	2412-2462MHz *1) 5180-5320MHz 5500-5700MHz 5745-5825MHz
Type of modulation	DSSS (CCK, DQPSK, DBPSK)	OFDM-CCK (64QAM, 16QAM, QPSK, BPSK)	OFDM (64QAM, 16QAM, QPSK, BPSK)	
Channel spacing	5MHz		20MHz	<u>2.4GHz band</u> 5MHz <u>5GHz band</u> 20MHz
Antenna type	PIFA Type			
Antenna Gain	<u>2.4GHz band</u> -Main Antenna: -2.27dBi -Sub Antenna: -1.99dBi <u>5GHz band</u> -Main Antenna: -2.39dBi -Sub Antenna: -1.41dBi			
Antenna Connector type	U.FL Type			

*1) 2412-2462MHz is applied for other test report.(Test Report No.: 10279739H-A-R1)

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SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification : FCC Part 15 Subpart E: 2014, final revised on May 1, 2014 and effective June 2, 2014

Title : FCC 47CFR Part15 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 C63.4:2003	FCC: 15.407(b)(6) / 15.207	QP 13.0dB, 16.22810MHz, L AV 5.9dB, 16.22810MHz, L 16.22816MHz, L	Complied	-
	IC: RSS-Gen 7.2.4	IC: RSS-Gen 7.2.4			
26dB Emission Bandwidth	FCC :ANSI C63.4:2003 FCC KDB Publication Number 789033 IC: -	FCC : 15.407(a)(1)(2)(3) IC: -	See data	N/A	Conducted
Maximum Conducted Output Power	FCC :ANSI C63.4:2003, FCC KDB Publication Number 789033 IC: -	FCC : 15.407(a)(1)(2)(3) IC: RSS-210 A9.2(1)(2)(3)		Complied	Conducted
Maximum Power Spectral Density	FCC :ANSI C63.4:2003, FCC KDB Publication Number 789033 IC: -	FCC : 15.407(a)(1)(2)(3) IC: RSS-210 A9.2(1)(2)(3)		Complied	Conducted
Spurious Emission Restricted Band Edge	FCC: ANSI C63.4:2003 IC: -	FCC : 15.407(b), 15.205 and 15.209 IC: RSS-210 A.9.2(1)(2)(3)	0.5dB 5725.000MHz, PK, Hori.	Complied	Conducted / Radiated
20dB Emission Bandwidth	FCC :ANSI C63.4:2003	FCC : 15.215(c)	See data	Complied	Conducted
Note: UL Japan, Inc.'s EMI Work Procedures No. 13-EM-W0420 and 13-EM-W0422. For DFS tests, please see the test report number 10279739H-E issued by UL Japan, Inc.					

FCC Part 15.31 (e)

This EUT provides stable voltage (DC3.3V) constantly to RF Module regardless of input voltage. 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 EUT. Therefore, the equipment complies with the antenna requirement of Section 15.203.

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3.3 Addition to standard

Item	Test Procedure	Specification	Worst margin	Results	Remarks
99% Occupied Band Width	RSS-Gen 4.6.1	RSS-210 A9.2 (1)(2)(3)	N/A	N/A	Conducted

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

3.4 Uncertainty

EMI

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

Test room (semi-anechoic chamber)	Conducted emission (+dB) 150kHz-30MHz
No.1	3.5dB
No.2	3.5dB
No.3	3.6dB
No.4	3.5dB

Test room (semi-anechoic chamber)	Radiated emission						
	(3m*)(+dB)				(1m*)(+dB)		(0.5m*)(+dB)
	9kHz -30MHz	30MHz -300MHz	300MHz -1GHz	1GHz -10GHz	10GHz -18GHz	18GHz -26.5GHz	26.5GHz -40GHz
No.1	4.0dB	5.1dB	5.0dB	5.1dB	6.0dB	4.9dB	4.3dB
No.2	3.9dB	5.2dB	5.0dB	4.9dB	5.9dB	4.7dB	4.2dB
No.3	4.3dB	5.1dB	5.2dB	5.2dB	6.0dB	4.8dB	4.2dB
No.4	4.6dB	5.2dB	5.0dB	5.2dB	6.0dB	5.7dB	4.2dB

*3m/1m/0.5m = Measurement distance

Antenna terminal conducted emission and Power density (+dB)			Antenna terminal conducted emission (+dB)		Channel power (+dB)
Below 1GHz	1GHz-3GHz	3GHz-18GHz	18GHz-26.5GHz	26.5GHz-40GHz	
1.5dB	1.7dB	2.8dB	2.8dB	2.9dB	2.6dB

Conducted Emission test

The data listed in this test report has enough margin, more than the site margin.

Radiated emission test(3m)

The data listed in this report meets the limits unless the uncertainty is taken into consideration.

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3.5 Test Location

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	IC Registration Number	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Other rooms
No.1 semi-anechoic chamber	2973C-1	19.2 x 11.2 x 7.7m	7.0 x 6.0m	No.1 Power source room
No.2 semi-anechoic chamber	2973C-2	7.5 x 5.8 x 5.2m	4.0 x 4.0m	-
No.3 semi-anechoic chamber	2973C-3	12.0 x 8.5 x 5.9m	6.8 x 5.75m	No.3 Preparation room
No.3 shielded room	-	4.0 x 6.0 x 2.7m	N/A	-
No.4 semi-anechoic chamber	2973C-4	12.0 x 8.5 x 5.9m	6.8 x 5.75m	No.4 Preparation room
No.4 shielded room	-	4.0 x 6.0 x 2.7m	N/A	-
No.5 semi-anechoic chamber	-	6.0 x 6.0 x 3.9m	6.0 x 6.0m	-
No.6 shielded room	-	4.0 x 4.5 x 2.7m	4.0 x 4.5 m	-
No.6 measurement room	-	4.75 x 5.4 x 3.0m	4.75 x 4.15 m	-
No.7 shielded room	-	4.7 x 7.5 x 2.7m	4.7 x 7.5m	-
No.8 measurement room	-	3.1 x 5.0 x 2.7m	N/A	-
No.9 measurement room	-	8.8 x 4.6 x 2.8m	2.4 x 2.4m	-
No.11 measurement room	-	6.2 x 4.7 x 3.0m	4.8 x 4.6m	-

* Size of vertical conducting plane (for Conducted Emission test) : 2.0 x 2.0m for No.1, No.2, No.3, and No.4 semi-anechoic chambers and No.3 and No.4 shielded rooms.

3.6 Data of EMI, Test instruments, and Test set up

Refer to APPENDIX.

SECTION 4: Operation of E.U.T. during testing

4.1 Operating Modes

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.

Mode	Remarks*
IEEE 802.11a (11a)	6Mbps, PN9
IEEE 802.11n 20MHz BW (11n-20) for 5GHz band	MCS 0, PN9
*The worst condition was determined based on the test result of Maximum Output Power. *EUT has the power settings by the software as follows; Power settings: 10dBm Software: Wireless authentication test tool version 1.0.0.0 *This setting of software is the worst case. Any conditions under the normal use do not exceed the condition of setting. In addition, end users cannot change the settings of the output power of the product.	

*The details of Operating mode(s)

Test Item	Operating Mode	Tested Antenna	Tested Frequency			
			Low Band	Middle Band	Additional Band	Upper Band
Conducted emission	11a Tx *1)	Main Sub	-	5320MHz	-	5825MHz
26dB Emission Bandwidth, 99% Occupied Bandwidth, Maximum Conducted Output Power	11a Tx 11n-20 Tx	Main Sub	5180MHz 5220MHz 5240MHz	5260MHz 5300MHz 5320MHz	5500MHz 5600MHz 5700MHz	5745MHz 5785MHz 5825MHz
Maximum Power Spectral Density	11a Tx 11n-20 Tx	Sub *2)	5180MHz 5220MHz 5240MHz	5260MHz 5300MHz 5320MHz	5500MHz 5600MHz 5700MHz	5745MHz 5785MHz 5825MHz
Spurious Emission(Conducted)	11a Tx 11n-20 Tx	Sub *2)	5180MHz	5320MHz	5500MHz	5825MHz
Spurious Emission(Radiated)	11a Tx	Main Sub	5180MHz	5260MHz 5320MHz	5500MHz 5580MHz 5700MHz	5745MHz 5785MHz 5825MHz
	11n-20 Tx		5180MHz	5320MHz	5500MHz 5700MHz	5745MHz 5825MHz

*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.

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SECTION 5: Conducted Emission

Test Procedure

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

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

For the tests on EUT with other peripherals (as a whole system)

I/O cable and AC cables that were connected to the peripherals were bundled in center. They were folded back and forth forming a bundle 30cm to 40cm long and were hanged at a 40cm height to the ground plane. All unused 50ohm connectors of the LISN(AMN) were resistivity terminated in 50ohm when not connected to the measuring equipment.

The AC Mains Terminal Continuous disturbance Voltage has been measured with the EUT in a Semi Anechoic Chamber or a Measurement Room.

The EUT was connected to a LISN (AMN).

An overview sweep with peak detection has been performed.

Detector	: QP and CISPR AV
Measurement range	: 0.15-30MHz
Test data	: APPENDIX
Test result	: Pass

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SECTION 6: Radiated Spurious Emission and Band Edge Compliance

Test Procedure

EUT was placed on a urethane platform of nominal size, 0.5m by 1.0m, raised 0.8m above the conducting ground plane.

The Radiated Electric Field Strength has been measured in a Semi Anechoic Chamber with a ground plane.

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

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

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

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 1GHz

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

Above 1GHz

Inside of restricted bands(Section 15.205): Apply to limit in the Section 15.209(a).

Outside of the restricted bands: Apply to limit 68.2dBuV/m(−27dBm e.i.r.p. ^{*})
in the Section 15.407(b)(1)(2)(3).
Apply to limit 68.2dBuV/m(−27dBm e.i.r.p. ^{*}) or
78.2dBuV/m(−17dBm e.i.r.p. ^{*}) in the Section 15.407(b).

Restricted bandedge:

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

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

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Test Antennas are used as below;

Frequency	30MHz to 300MHz	300MHz to 1GHz	Above 1GHz
Antenna Type	Biconical	Logperiodic	Horn

Frequency	Below 1GHz	Above 1GHz	
Instrument used	Test Receiver	Spectrum Analyzer	
Detector	QP	PK	AV
IF Bandwidth	BW 120kHz(T/R)	RBW: 1MHz VBW: 3MHz	Method AD *1) RBW: 1MHz VBW: 3MHz Detector: Power Averaging (RMS) Duty factor was added to the results.
Test Distance	3m	3m (below 10GHz), 1m*2) (above 10GHz), 0.5m*3) (above 26.5GHz)	

*1) The test method was also referred to KDB 789033 D02 General UNII Test Procedures New Rules v01 "Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices Part 15, Subpart E (Issued on June 6, 2014)".

*2) Distance Factor: $20 \times \log (3.0\text{m}/1.0\text{m}) = 9.5\text{dB}$

*3) Distance Factor: $20 \times \log (3.0\text{m}/0.5\text{m}) = 15.6\text{dB}$

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

The worst case was determined to be the EUT without cradle as this had the worse result than that of the EUT with the cradle at the preliminary test.

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

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

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SECTION 7: Antenna Terminal Conducted Tests

Test Procedure

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

Test	Span	RBW	VBW	Sweep time	Detector	Trace	Instrument used and Test method
26dB Bandwidth	40MHz	Close to 1% of EBW	Greater than RBW	Auto	Peak	Max Hold	Spectrum Analyzer
99% Occupied Bandwidth	Enough width to Display 20dB Bandwidth	Close to 1% of Span	Three times of RBW	Auto	Peak	Max Hold*1)	Spectrum Analyzer
Maximum Conducted Output Power	-	-	-	Auto	Averaging	-	Power Meter (Sensor: 50MHz BW)
Maximum Power Spectral Density	26MHz	1MHz, 300kHz*2)	3MHz, 910kHz	Auto	RMS Power Averaging (100 times)	Max Hold	Spectrum Analyzer
Conducted Spurious Emission*3)	9kHz-150kHz	200Hz	620Hz	Auto	Peak	Max Hold	Spectrum Analyzer
	150kHz-30MHz	10kHz	30kHz				

*The test method was also referred to KDB 789033 D02 General UNII Test Procedures New Rules v01 "Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices Part 15, Subpart E (Issued on June 6, 2014)".

*1) The measurement was performed with Max Hold since the duty cycle was not 100%.

*2) FCC standard says that RBW is set to be 500kHz for 5.725-5850GHz, but it is not possible with spectrum analyzer, so $10\log(500\text{kHz}/300\text{kHz})$ was added to the test result.

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

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

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

Test data : APPENDIX
Test result : Pass

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APPENDIX 1: Data of EMI test

Conducted Emission

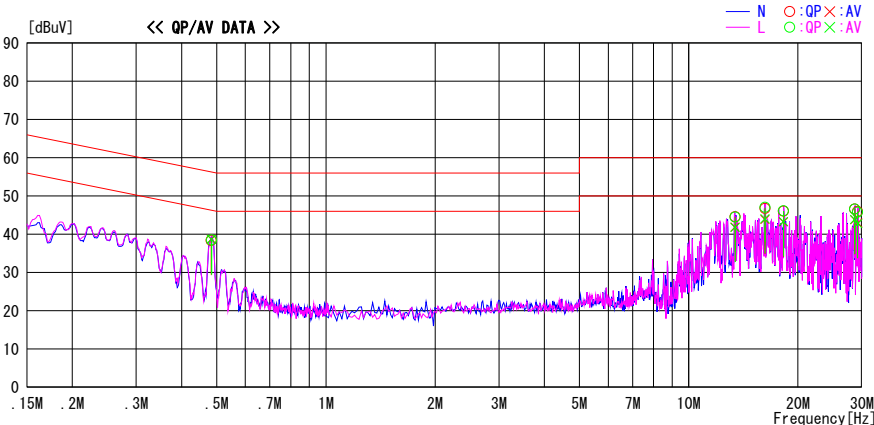
DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Ise EMC Lab. No.2 Semi Anechoic Chamber
Date : 2014/07/29

Report No. : 10279739H
Temp./Humi. : 20deg. C / 53% RH
Engineer : Yuta Moriya

Mode / Remarks : Main Antenna 11a 6Mbps 5320MHz

LIMIT : FCC15.207 QP
FCC15.207 AV



Frequency	Reading Level		Corr.	Results		Limit		Margin		Phase	Comment
	QP	AV		QP	AV	QP	AV	QP	AV		
[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
0.48324	25.2	25.5	13.2	38.4	38.7	56.3	46.3	17.9	7.6	N	
13.41920	30.2	27.5	14.4	44.6	41.9	60.0	50.0	15.4	8.1	N	
16.22904	32.1	29.3	14.6	46.7	43.9	60.0	50.0	13.3	6.1	N	
18.24264	31.3	28.5	14.7	46.0	43.2	60.0	50.0	14.0	6.8	N	
28.68616	31.4	28.6	15.2	46.6	43.8	60.0	50.0	13.4	6.2	N	
29.23492	30.7	27.8	15.2	45.9	43.0	60.0	50.0	14.1	7.0	N	
0.48350	25.3	25.5	13.2	38.5	38.7	56.3	46.3	17.8	7.6	L	
13.41910	30.1	27.4	14.4	44.5	41.8	60.0	50.0	15.5	8.2	L	
16.22810	32.4	29.5	14.6	47.0	44.1	60.0	50.0	13.0	5.9	L	
18.24360	31.4	28.6	14.7	46.1	43.3	60.0	50.0	13.9	6.7	L	
28.68570	31.4	28.7	15.2	46.6	43.9	60.0	50.0	13.4	6.1	L	
29.23470	30.5	27.6	15.2	45.7	42.8	60.0	50.0	14.3	7.2	L	

CHART:WITH FACTOR,Peak hold data. CALCULATION:RESULT[dBuV]=READING[dBuV]+C.F[dB] (LISN+CABLE+ATTEN.)
Except for the above table : adequate margin data below the limits.

Conducted Emission

DATA OF CONDUCTED EMISSION TEST

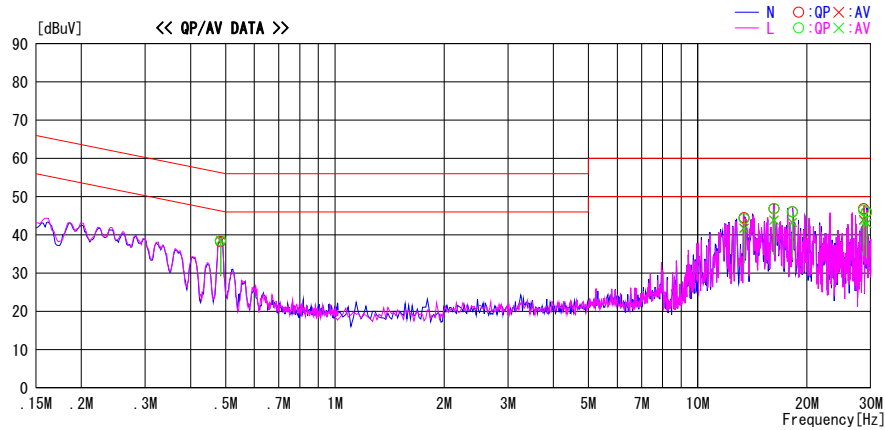
UL Japan, Inc. Ise EMC Lab. No.2 Semi Anechoic Chamber
Date : 2014/07/29

Report No. : 10279739H

Temp./Humi. : 20deg. C / 53% RH
Engineer : Yuta Moriya

Mode / Remarks : Sub Antenna 11a 6Mbps 5320MHz

LIMIT : FCC15.207 QP
FCC15.207 AV



Frequency [MHz]	Reading Level		Corr. Factor	Results		Limit		Margin		Phase	Comment
	QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dB]	AV [dB]		
0.48428	25.1	25.2	13.2	38.3	38.4	56.3	46.3	18.0	7.9	N	
13.41956	30.1	27.4	14.4	44.5	41.8	60.0	50.0	15.5	8.2	N	
16.22876	32.2	29.3	14.6	46.8	43.9	60.0	50.0	13.2	6.1	N	
18.24284	31.3	28.5	14.7	46.0	43.2	60.0	50.0	14.0	6.8	N	
28.68564	31.6	28.8	15.2	46.8	44.0	60.0	50.0	13.2	6.0	N	
29.23536	30.7	27.9	15.2	45.9	43.1	60.0	50.0	14.1	6.9	N	
0.48360	25.3	25.5	13.2	38.5	38.7	56.3	46.3	17.8	7.6	L	
13.41984	29.8	27.2	14.4	44.2	41.6	60.0	50.0	15.8	8.4	L	
16.22840	32.2	29.3	14.6	46.8	43.9	60.0	50.0	13.2	6.1	L	
18.24376	31.3	28.5	14.7	46.0	43.2	60.0	50.0	14.0	6.8	L	
28.68640	31.3	28.5	15.2	46.5	43.7	60.0	50.0	13.5	6.3	L	
29.23488	30.7	27.8	15.2	45.9	43.0	60.0	50.0	14.1	7.0	L	

CHART: WITH FACTOR, Peak hold data. CALCULATION: RESULT [dBuV] = READING [dBuV] + C.F [dB] (LISN+CABLE+ATTEN.)
Except for the above table : adequate margin data below the limits.

Conducted Emission

DATA OF CONDUCTED EMISSION TEST

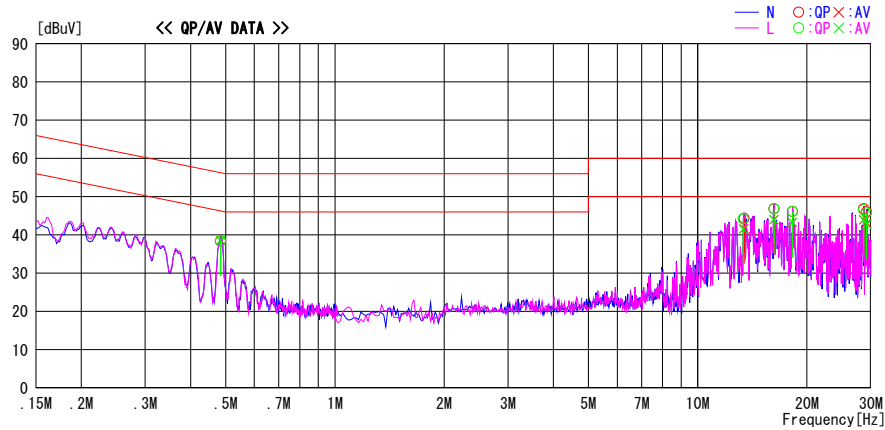
UL Japan, Inc. Ise EMC Lab. No.2 Semi Anechoic Chamber
Date : 2014/07/29

Report No. : 10279739H

Temp./Humi. : 20deg. C / 53% RH
Engineer : Yuta Moriya

Mode / Remarks : Main Antenna 11a 6Mbps 5825MHz

LIMIT : FCC15.207 QP
FCC15.207 AV



Frequency	Reading Level		Corr. Factor	Results		Limit		Margin		Phase	Comment
	QP	AV		QP	AV	QP	AV	QP	AV		
[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
0.48410	25.2	25.3	13.2	38.4	38.5	56.3	46.3	17.9	7.8	N	
13.41990	29.9	27.2	14.4	44.3	41.6	60.0	50.0	15.7	8.4	N	
16.22786	32.2	29.4	14.6	46.8	44.0	60.0	50.0	13.2	6.0	N	
18.24342	31.4	28.5	14.7	46.1	43.2	60.0	50.0	13.9	6.8	N	
28.68536	31.6	28.8	15.2	46.8	44.0	60.0	50.0	13.2	6.0	N	
29.23520	30.8	27.9	15.2	46.0	43.1	60.0	50.0	14.0	6.9	N	
0.48424	25.2	25.4	13.2	38.4	38.6	56.3	46.3	17.9	7.7	L	
13.35844	29.8	27.1	14.4	44.2	41.5	60.0	50.0	15.8	8.5	L	
16.22764	32.2	29.4	14.6	46.8	44.0	60.0	50.0	13.2	6.0	L	
18.24316	31.4	28.6	14.7	46.1	43.3	60.0	50.0	13.9	6.7	L	
28.68576	31.4	28.7	15.2	46.6	43.9	60.0	50.0	13.4	6.1	L	
29.23556	30.5	27.6	15.2	45.7	42.8	60.0	50.0	14.3	7.2	L	

CHART: WITH FACTOR, Peak hold data. CALCULATION: RESULT[dBuV]=READING[dBuV]+C.F[dB] (LISN+CABLE+ATTEN.)
Except for the above table : adequate margin data below the limits.

Conducted Emission

DATA OF CONDUCTED EMISSION TEST

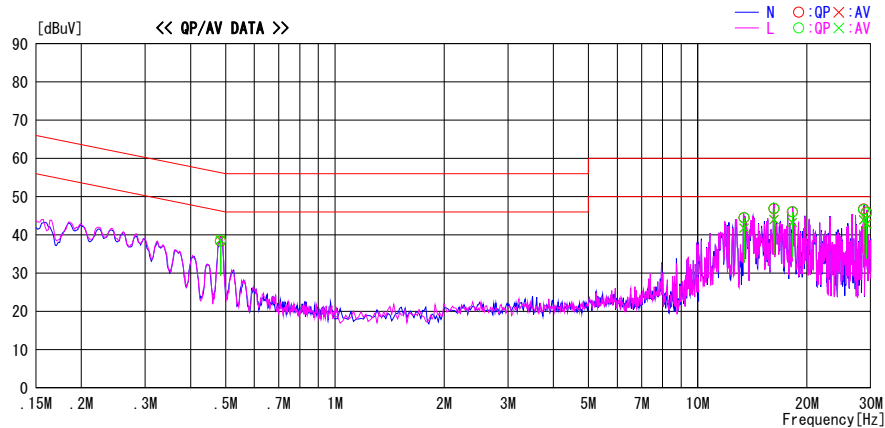
UL Japan, Inc. Ise EMC Lab. No.2 Semi Anechoic Chamber
Date : 2014/07/29

Report No. : 10279739H

Temp./Humi. : 20deg. C / 53% RH
Engineer : Yuta Moriya

Mode / Remarks : Sub Antenna 11a 6Mbps 5825MHz

LIMIT : FCC15.207 QP
FCC15.207 AV



Frequency [MHz]	Reading Level		Corr. Factor	Results		Limit		Margin		Phase	Comment
	QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dB]	AV [dB]		
0.48384	25.2	25.4	13.2	38.4	38.6	56.3	46.3	17.9	7.7	N	
13.41932	30.1	27.4	14.4	44.5	41.8	60.0	50.0	15.5	8.2	N	
16.22858	32.2	29.4	14.6	46.8	44.0	60.0	50.0	13.2	6.0	N	
18.24364	31.3	28.5	14.7	46.0	43.2	60.0	50.0	14.0	6.8	N	
28.68556	31.5	28.8	15.2	46.7	44.0	60.0	50.0	13.3	6.0	N	
29.23544	30.7	27.8	15.2	45.9	43.0	60.0	50.0	14.1	7.0	N	
0.48368	25.3	25.5	13.2	38.5	38.7	56.3	46.3	17.8	7.6	L	
13.41910	30.1	27.4	14.4	44.5	41.8	60.0	50.0	15.5	8.2	L	
16.22816	32.3	29.5	14.6	46.9	44.1	60.0	50.0	13.1	5.9	L	
18.24376	31.3	28.5	14.7	46.0	43.2	60.0	50.0	14.0	6.8	L	
28.68564	31.4	28.7	15.2	46.6	43.9	60.0	50.0	13.4	6.1	L	
29.23554	30.5	27.6	15.2	45.7	42.8	60.0	50.0	14.3	7.2	L	

CHART: WITH FACTOR, Peak hold data. CALCULATION: RESULT [dBuV] = READING [dBuV] + C.F [dB] (LISN+CABLE+ATTEN.)
Except for the above table : adequate margin data below the limits.

UL Japan, Inc.

Ise EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

26dB Emission Bandwidth and 99% Occupied Bandwidth

Test place : Ise EMC Lab. No.6 Measurement Room
Report No. : 10279739H
Date : 07/28/2014
Temperature/ Humidity : 26deg. C / 68% RH
Engineer : Tomohisa Nakagawa
Mode : 11a Tx, 6Mbps

Main Antenna

Frequency [MHz]	26dB Emission Bandwidth [MHz]	99% Occupied Bandwidth [MHz]	Limit [MHz]
5180	21.825	17.1884	-
5220	21.362	17.2623	-
5240	20.993	17.2061	-
5260	21.379	17.2571	-
5300	20.999	17.2430	-
5320	20.997	17.1783	-
5500	21.259	16.5470	-
5600	21.324	16.5466	-
5700	21.269	16.5513	-
5745	21.537	17.2455	-
5785	21.975	17.3155	-
5825	22.805	17.3649	-

Sub Antenna

Frequency [MHz]	26dB Emission Bandwidth [MHz]	99% Occupied Bandwidth [MHz]	Limit [MHz]
5180	21.518	17.2338	-
5220	21.276	17.2076	-
5240	21.115	17.1947	-
5260	21.374	17.1741	-
5300	21.655	17.1931	-
5320	21.804	17.1728	-
5500	21.202	17.1275	-
5600	21.710	17.2120	-
5700	21.473	17.2283	-
5745	21.390	17.1824	-
5785	21.234	17.2307	-
5825	21.912	17.3094	-

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Ise EMC Lab.

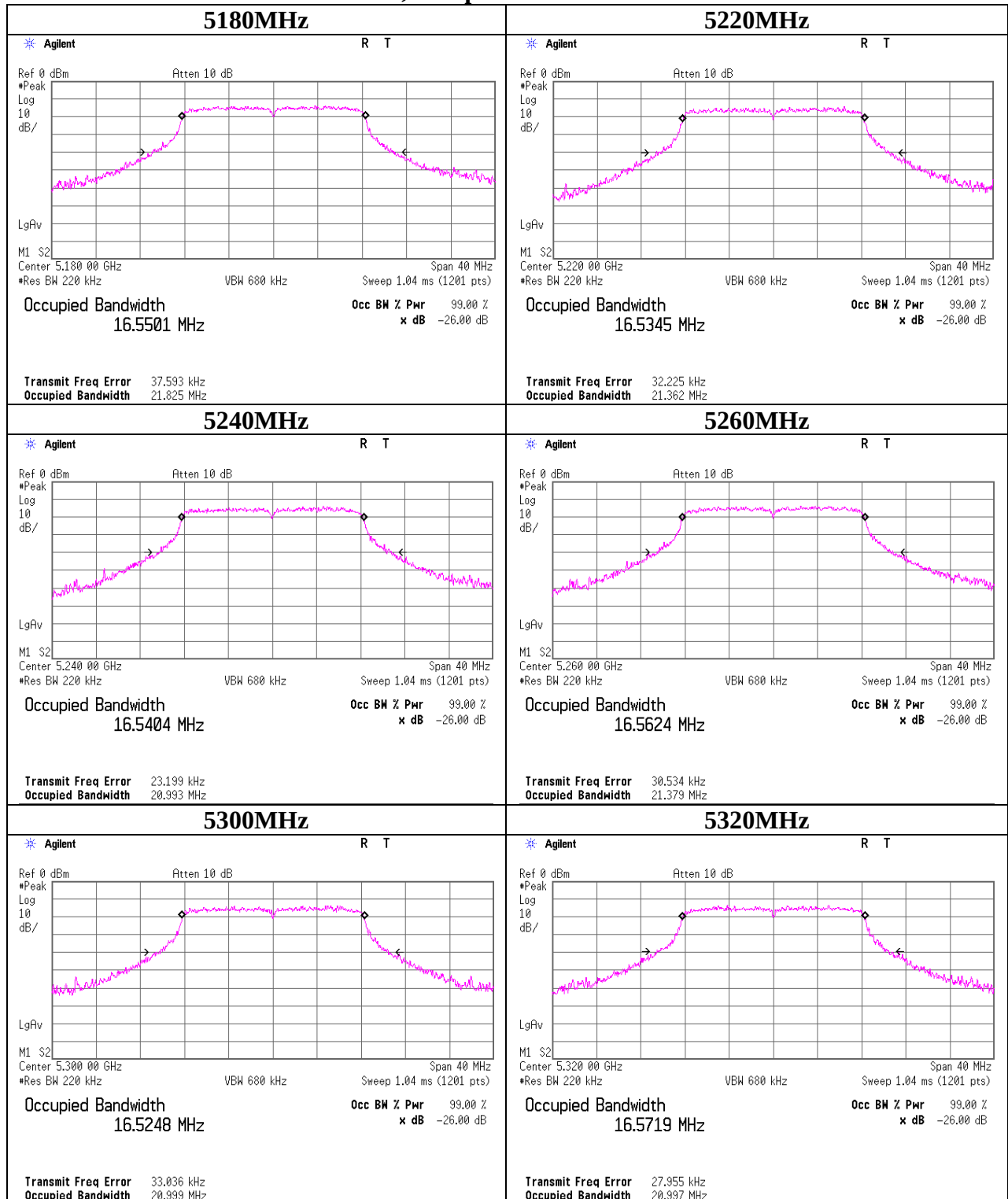
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

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26dB Emission Bandwidth

11a, 6Mbps Main Antenna



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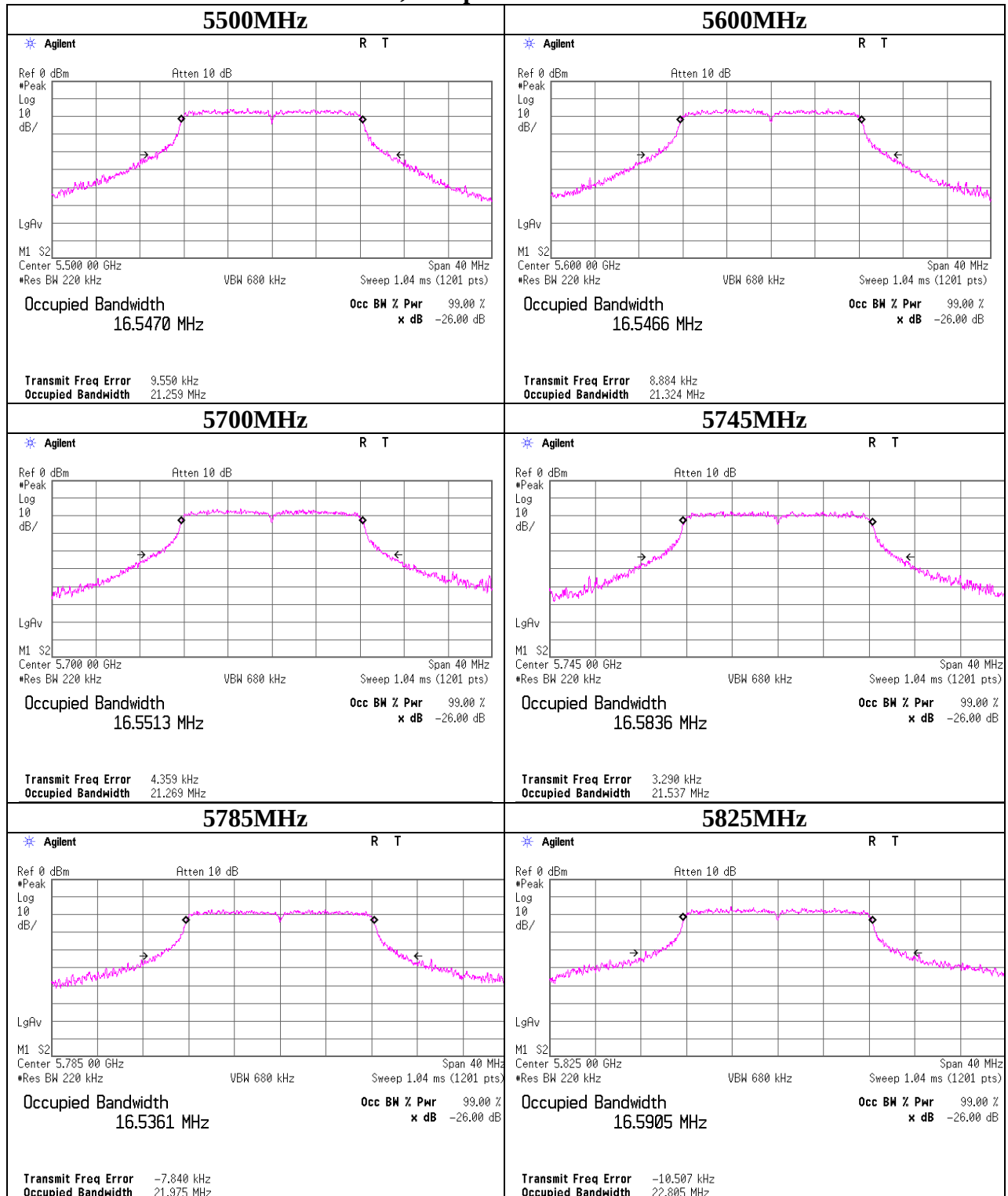
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26dB Emission Bandwidth

11a, 6Mbps Main Antenna



UL Japan, Inc.

Ise EMC Lab.

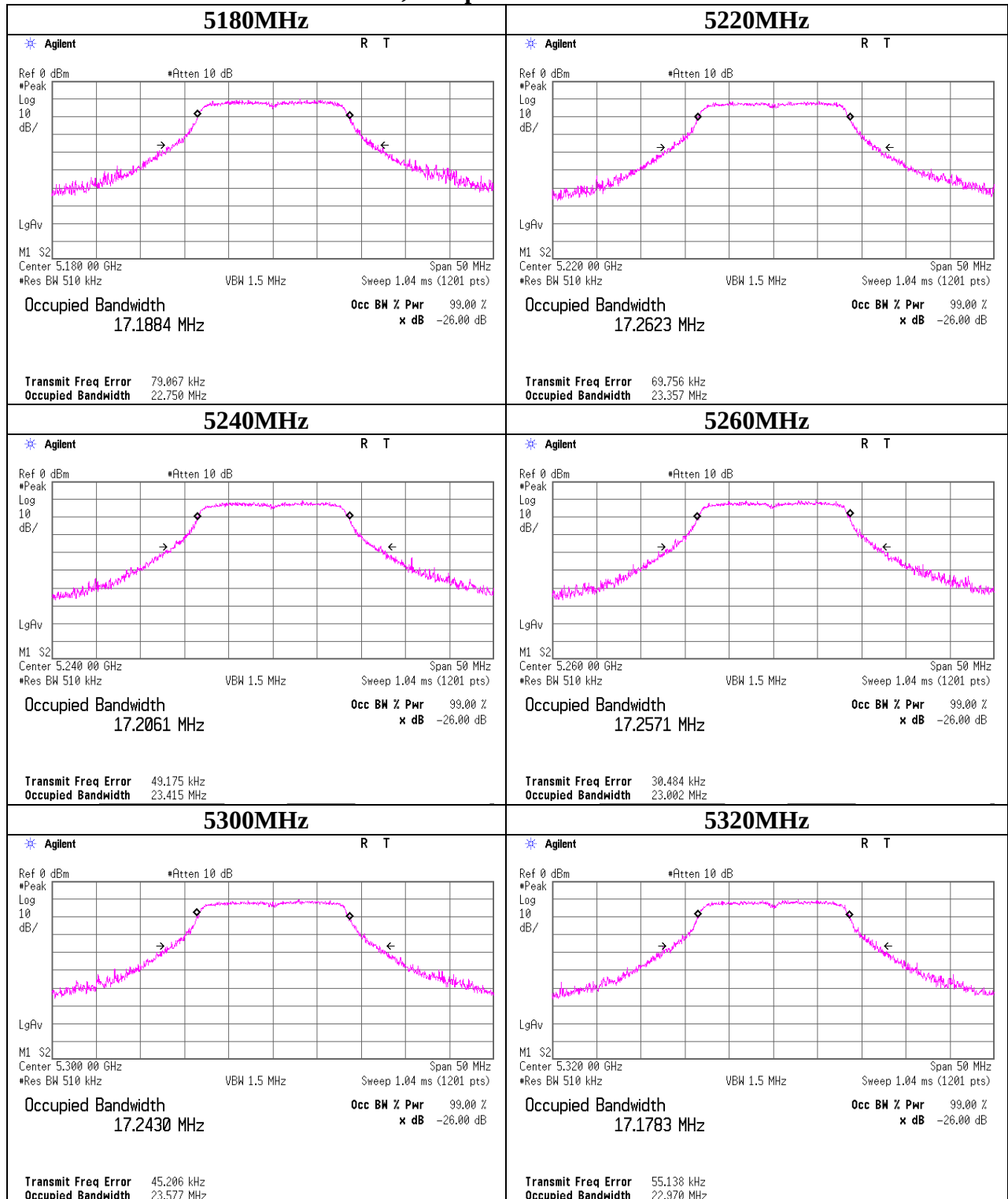
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

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99% Occupied Bandwidth

11a, 6Mbps Main Antenna



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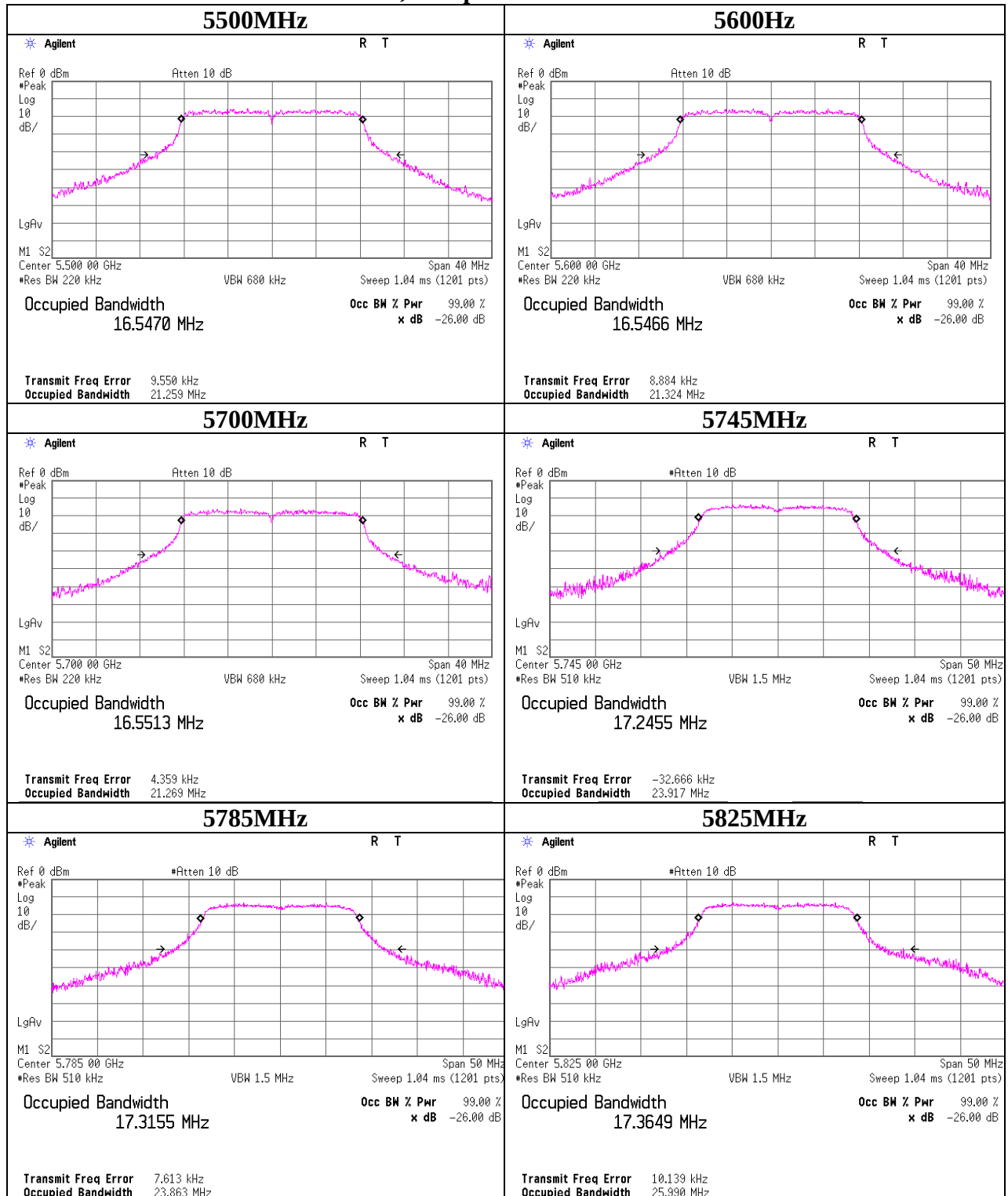
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

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Facsimile : +81 596 24 8124

99% Occupied Bandwidth

11a, 6Mbps Main Antenna



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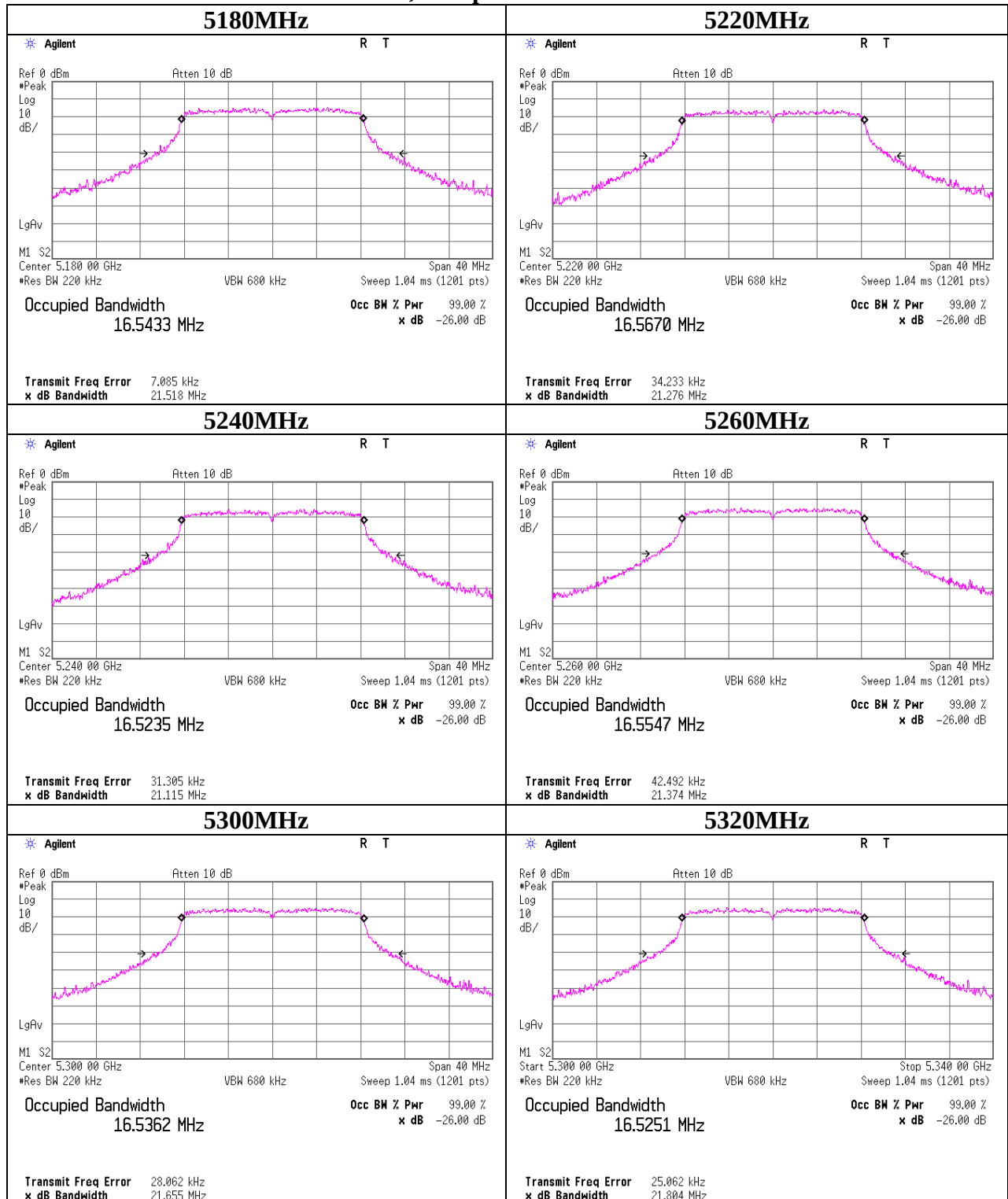
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

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26dB Emission Bandwidth

11a, 6Mbps Sub Antenna



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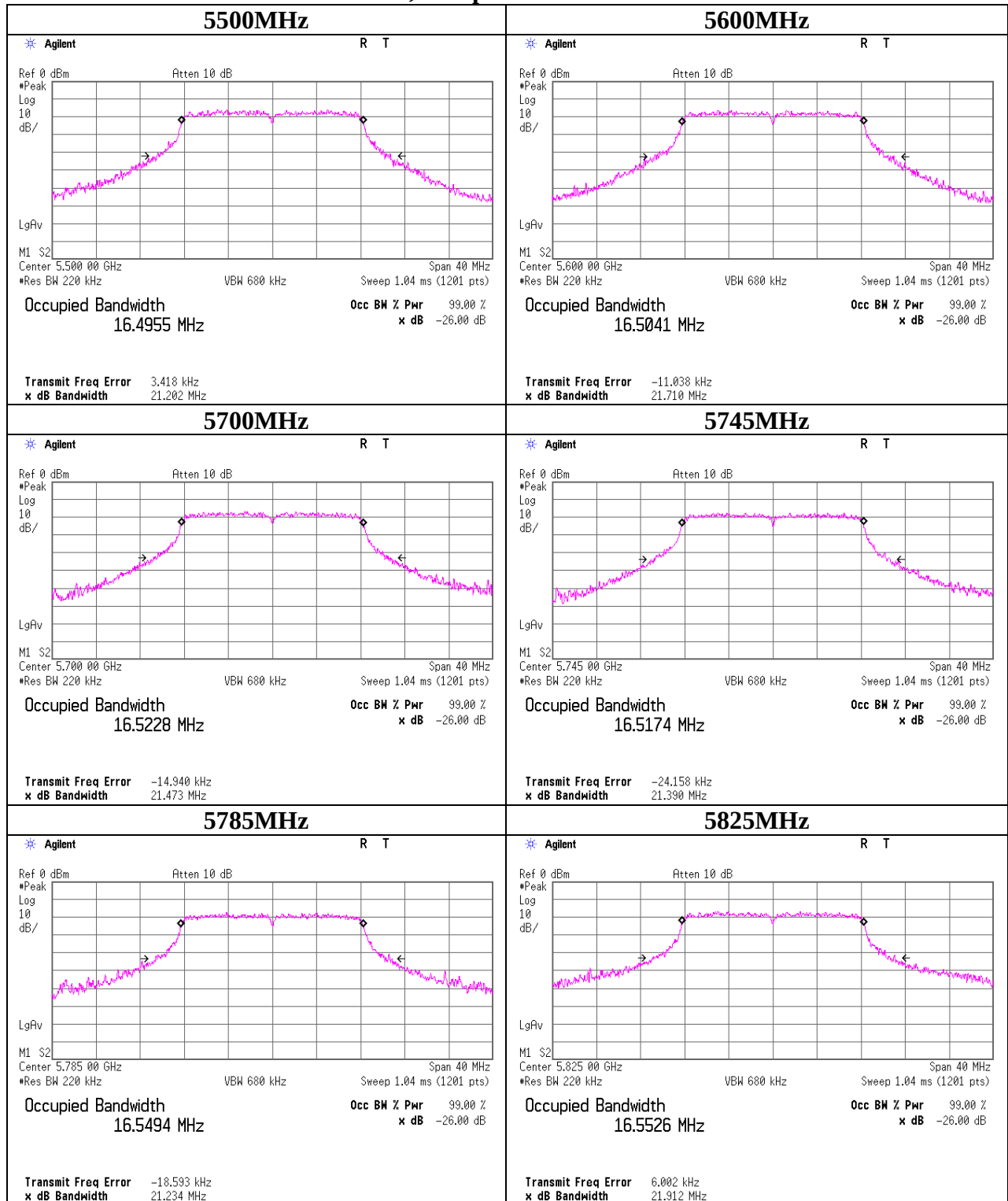
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

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26dB Emission Bandwidth

11a, 6Mbps Sub Antenna



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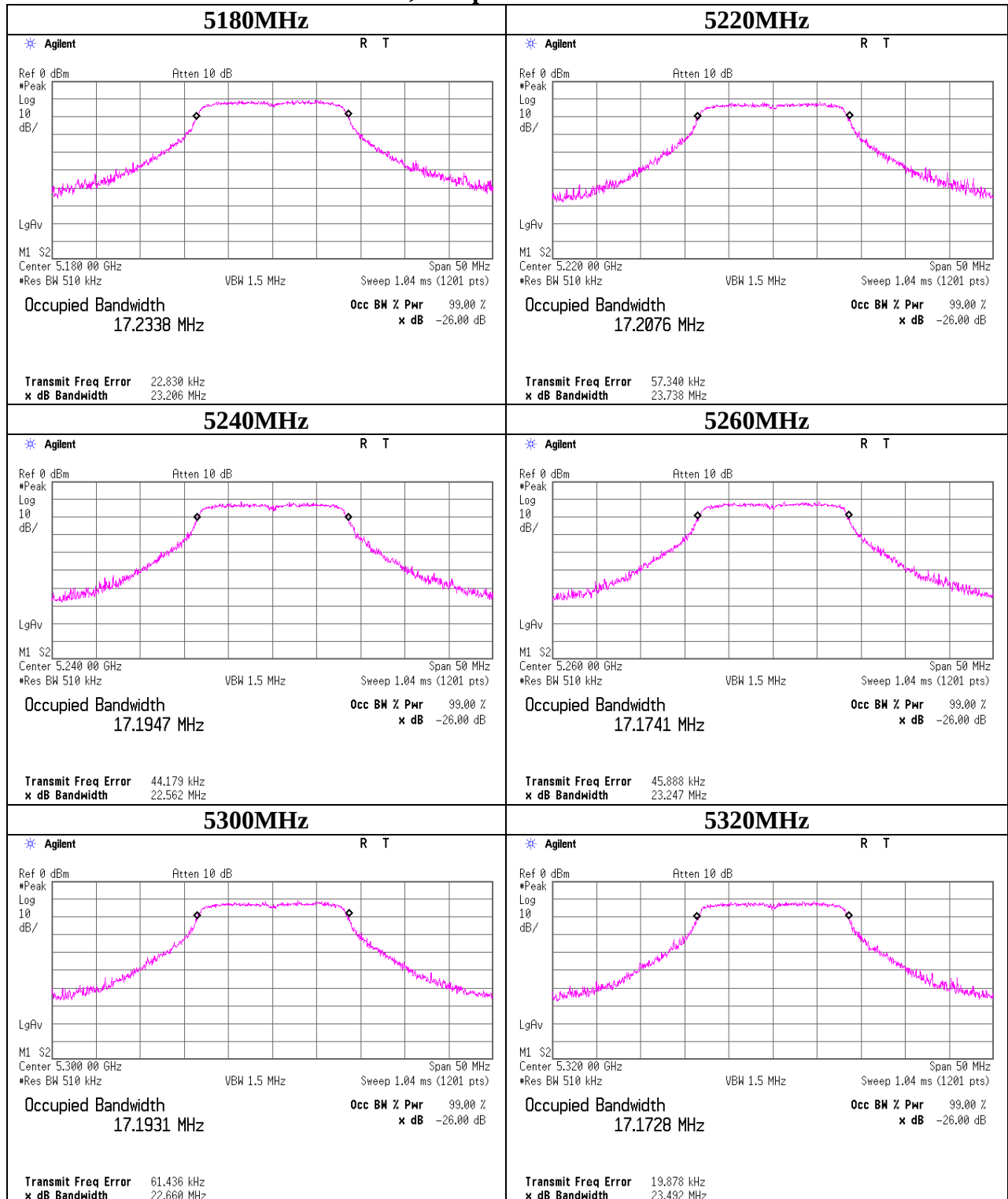
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

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99% Occupied Bandwidth

11a, 6Mbps Sub Antenna



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Ise EMC Lab.

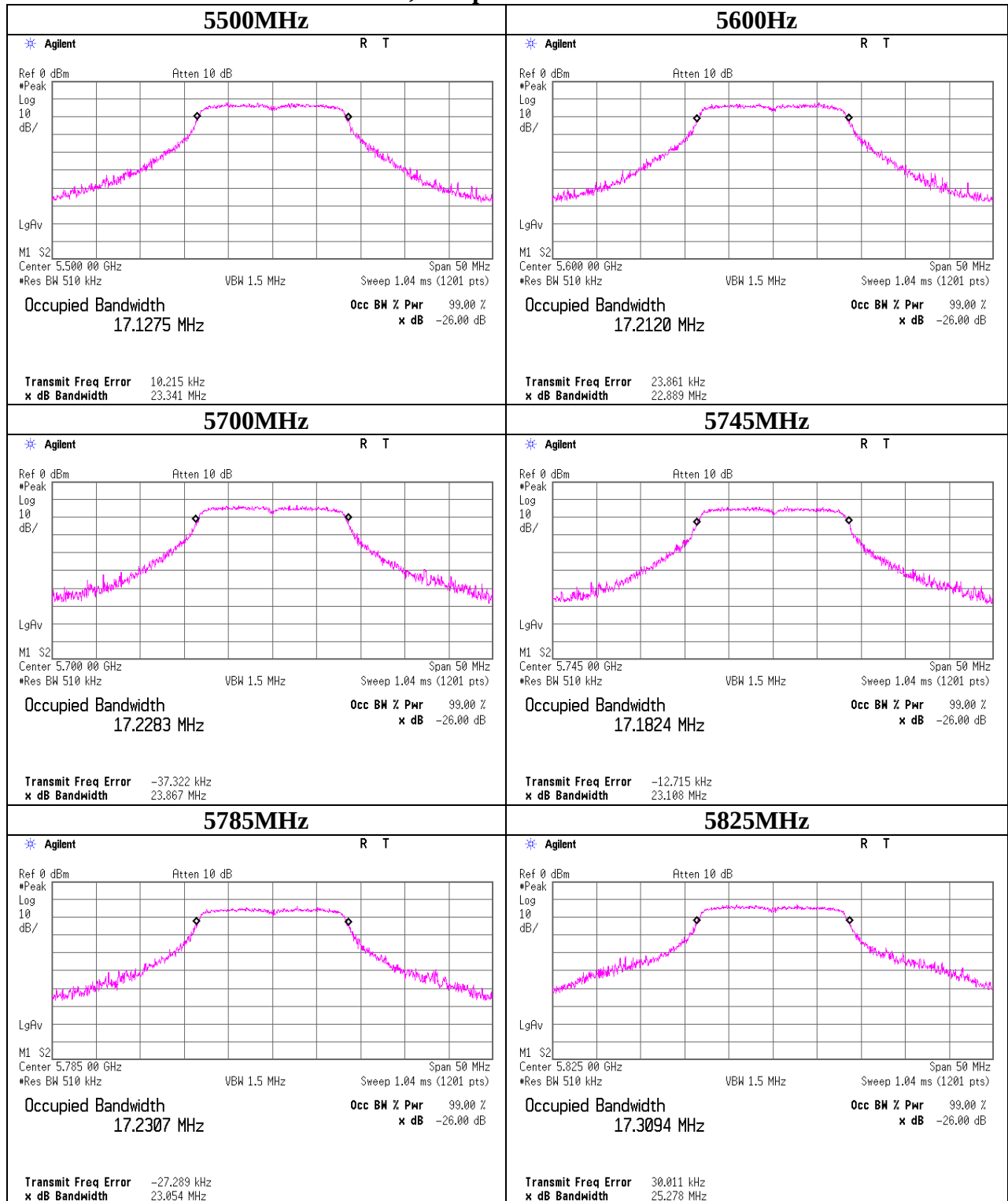
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99% Occupied Bandwidth

11a, 6Mbps Sub Antenna



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26dB Emission Bandwidth and 99% Occupied Bandwidth

Test place : Ise EMC Lab. No.6 Measurement Room
Report No. : 10279739H
Date : 07/28/2014
Temperature/ Humidity : 26deg. C / 68% RH
Engineer : Tomohisa Nakagawa
Mode : 11n-20 Tx, MCS0

Main Antenna

Frequency [MHz]	26dB Emission Bandwidth [MHz]	99% Occupied Bandwidth [MHz]	Limit [MHz]
5180	22.753	18.2093	-
5220	22.905	18.1659	-
5240	22.118	18.2259	-
5260	22.369	18.2967	-
5300	21.955	18.2426	-
5320	22.192	18.1356	-
5500	22.420	17.6561	-
5600	22.060	17.6446	-
5700	21.791	17.6385	-
5745	23.171	18.2598	-
5785	22.370	18.1989	-
5825	22.643	18.3542	-

Sub Antenna

Frequency [MHz]	26dB Emission Bandwidth [MHz]	99% Occupied Bandwidth [MHz]	Limit [MHz]
5180	22.224	18.1576	-
5220	22.636	18.2290	-
5240	21.868	18.1600	-
5260	22.038	18.1726	-
5300	22.115	18.2562	-
5320	21.772	18.2191	-
5500	21.992	18.1998	-
5600	21.787	18.1506	-
5700	22.129	18.1802	-
5745	22.042	18.1685	-
5785	22.248	18.2460	-
5825	22.119	18.2439	-

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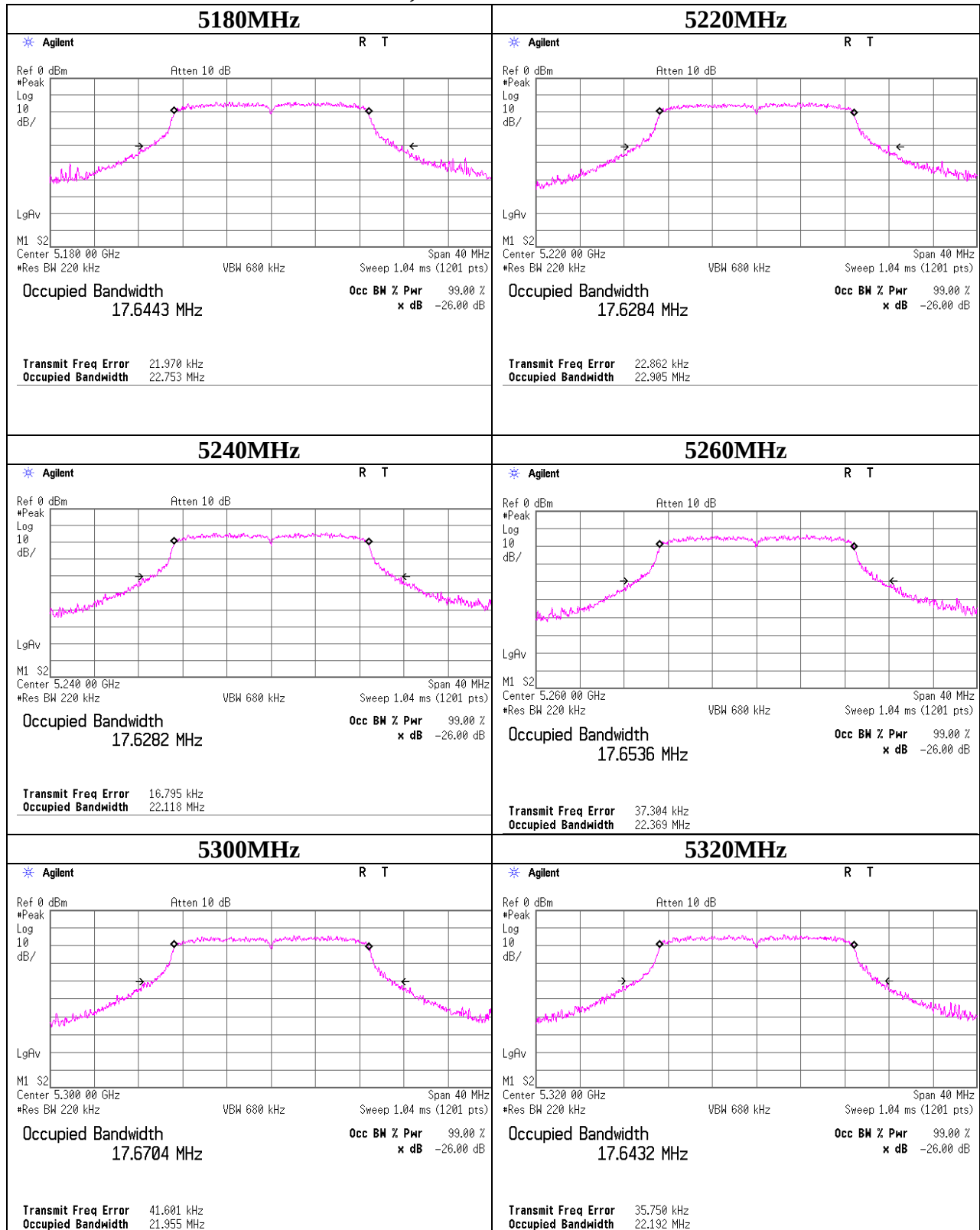
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26dB Emission Bandwidth

11n-20, MCS0 Main Antenna



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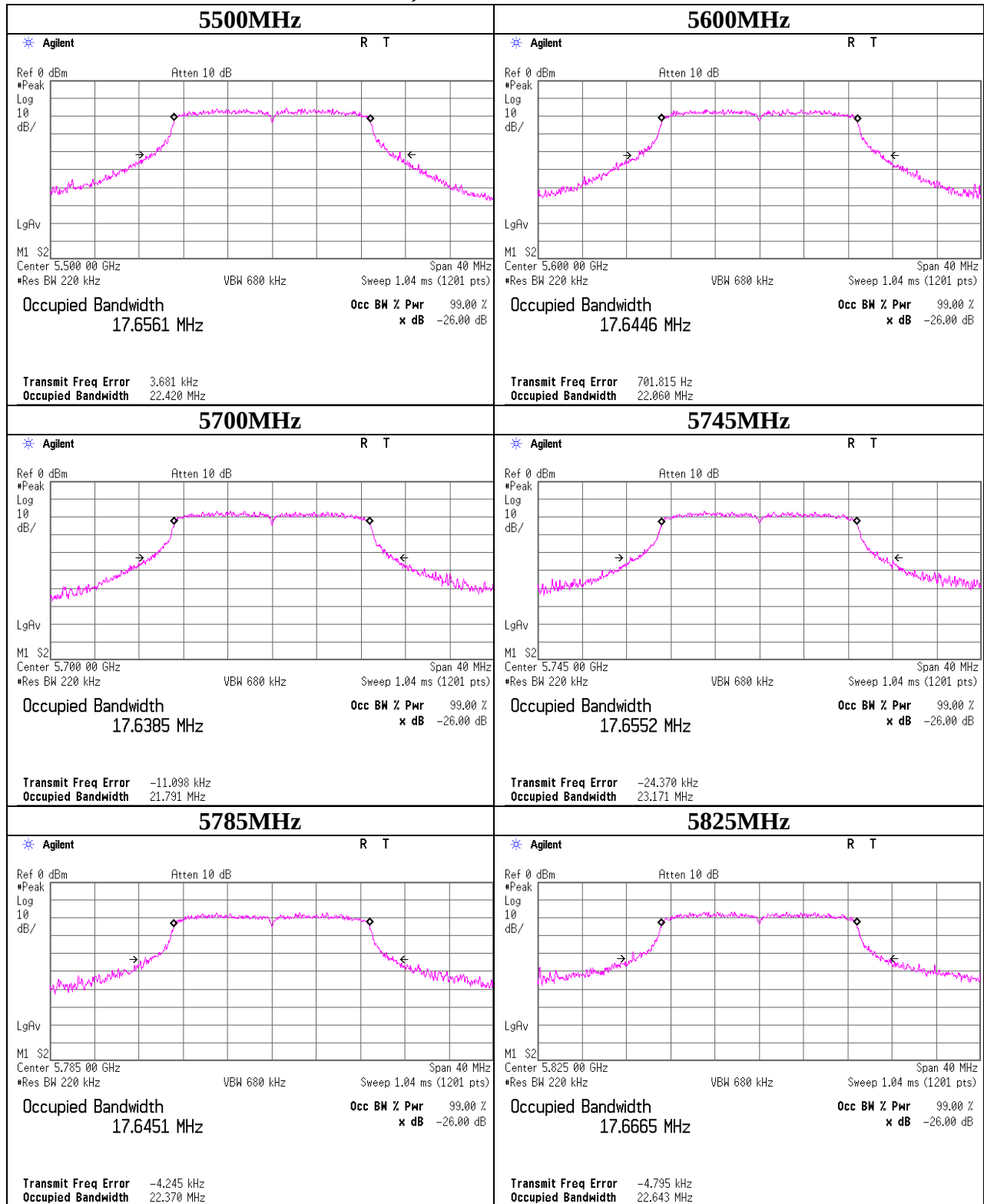
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

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26dB Emission Bandwidth

11n-20, MCS0 Main Antenna



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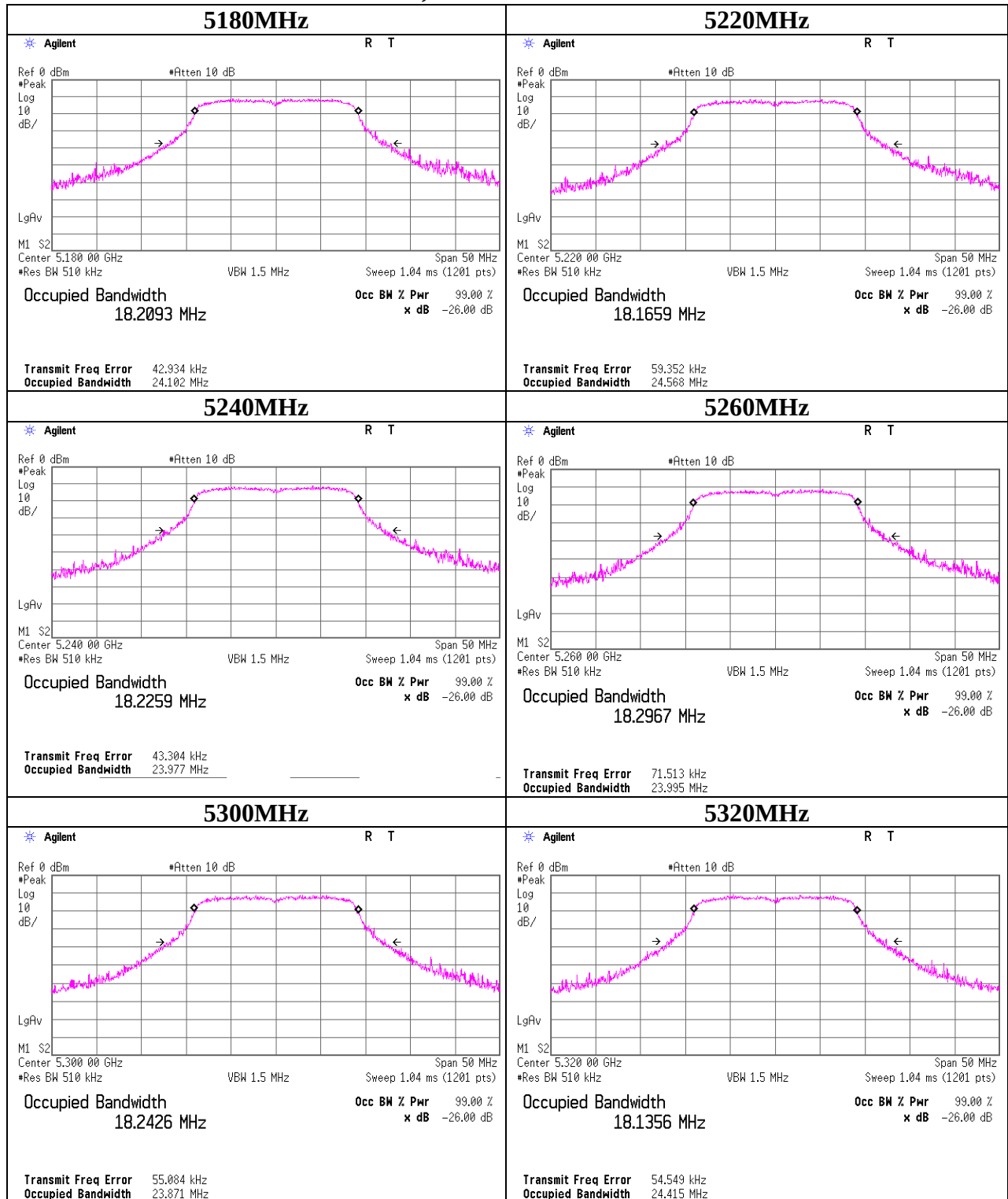
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

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99% Occupied Bandwidth

11n-20, MCS0 Main Antenna



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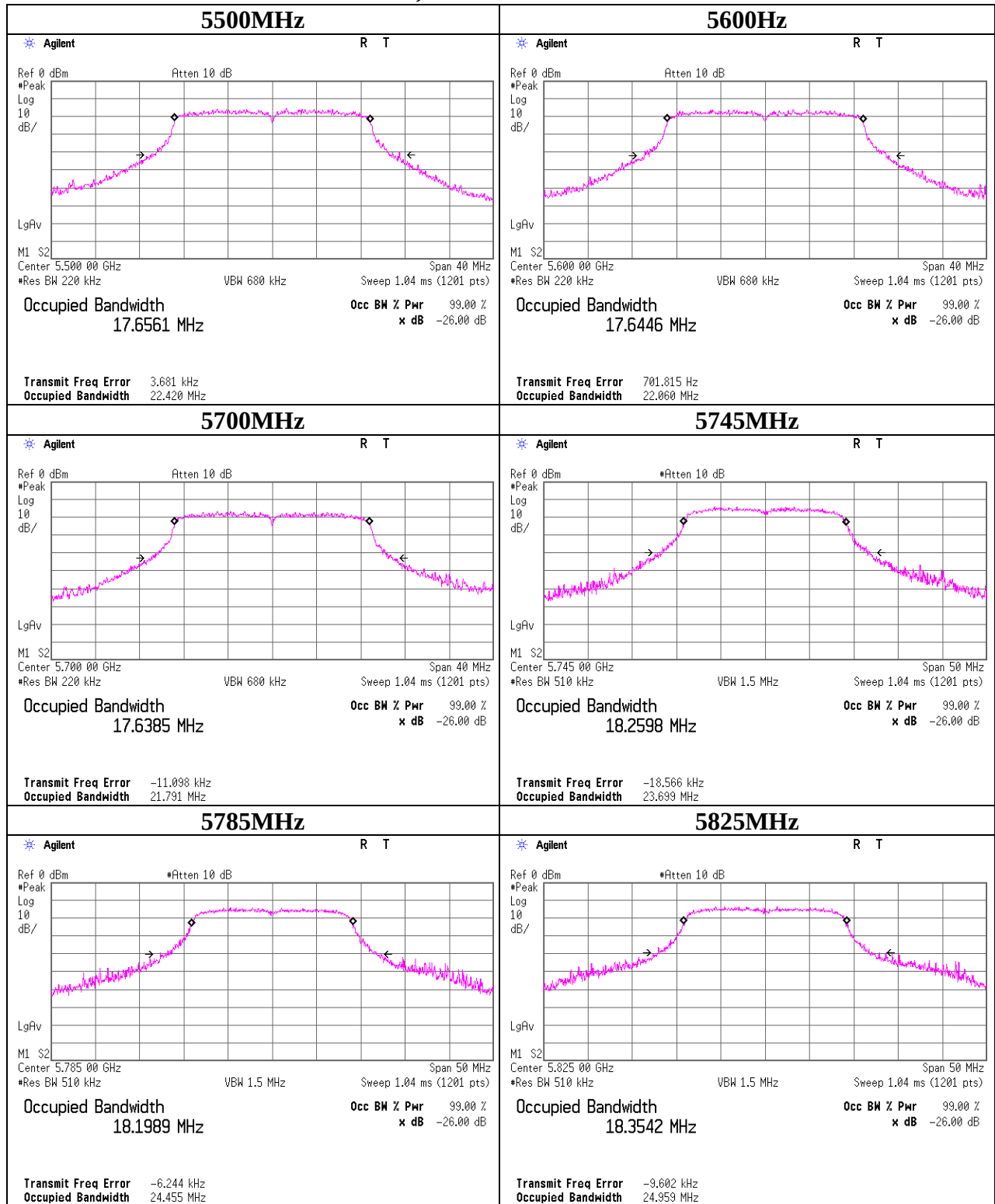
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99% Occupied Bandwidth

11n-20, MCS0 Main Antenna



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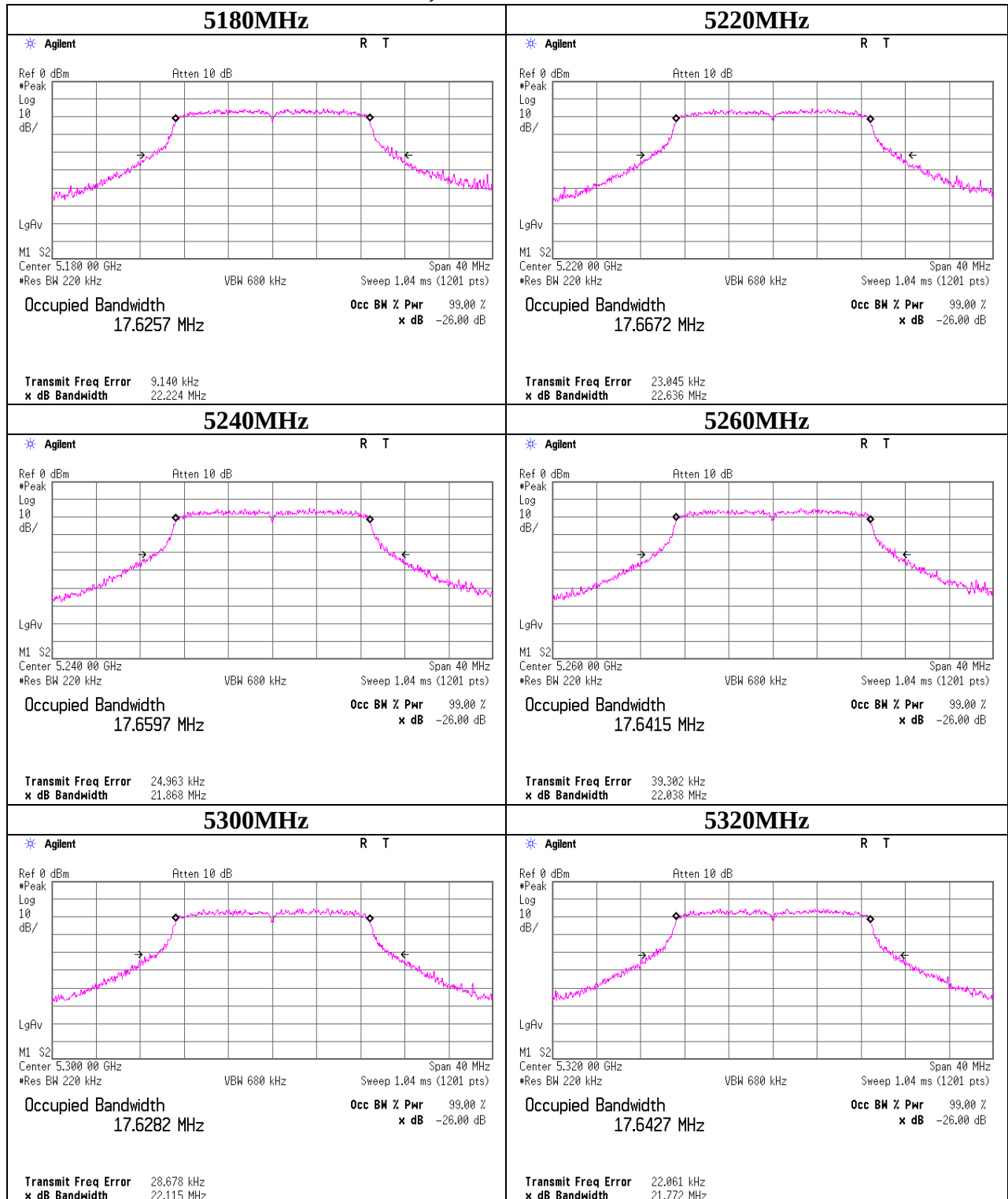
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

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Facsimile : +81 596 24 8124

26dB Emission Bandwidth

11n-20, MCS0 Sub Antenna



UL Japan, Inc.

Ise EMC Lab.

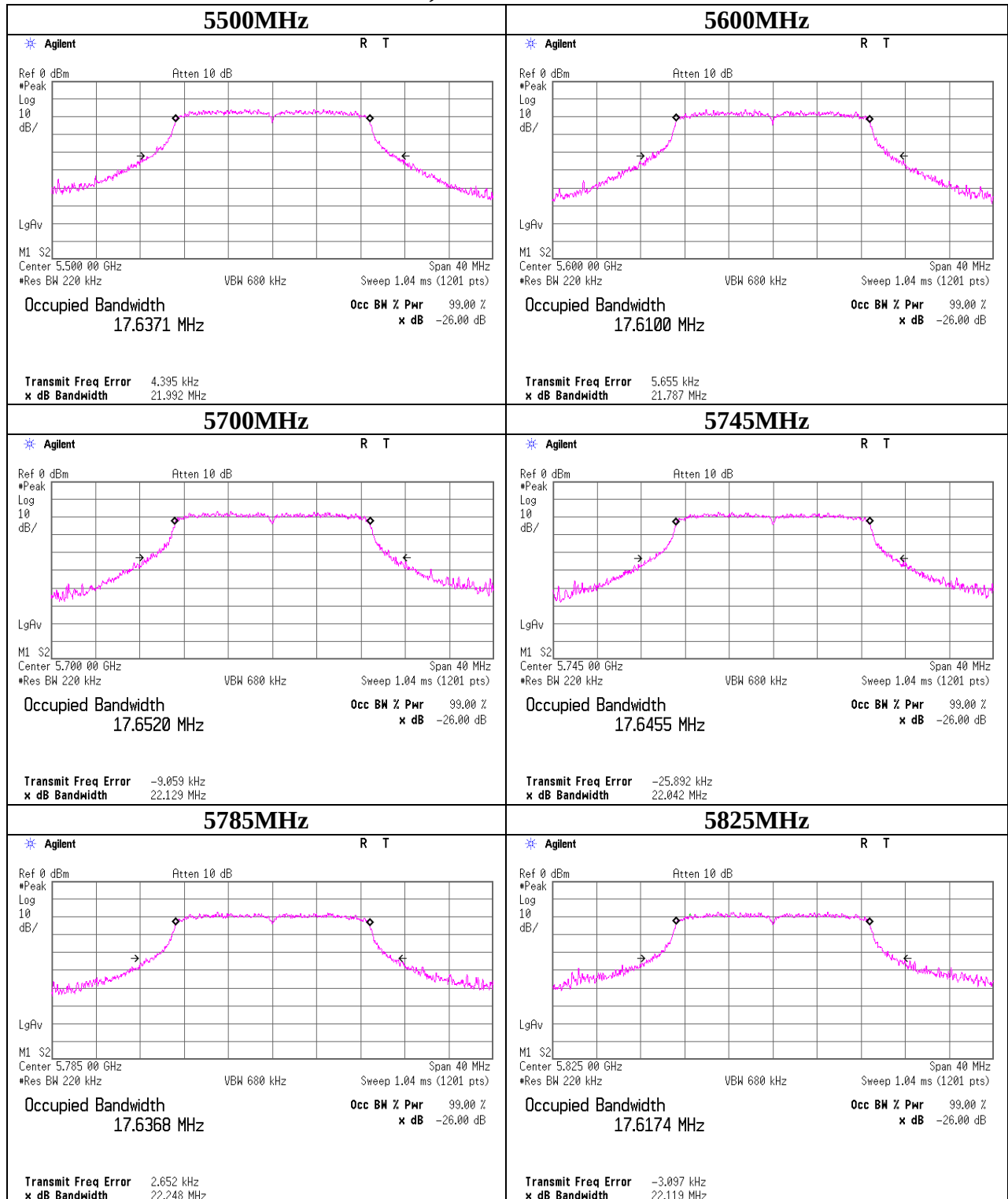
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26dB Emission Bandwidth

11n-20, MCS0 Sub Antenna



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Ise EMC Lab.

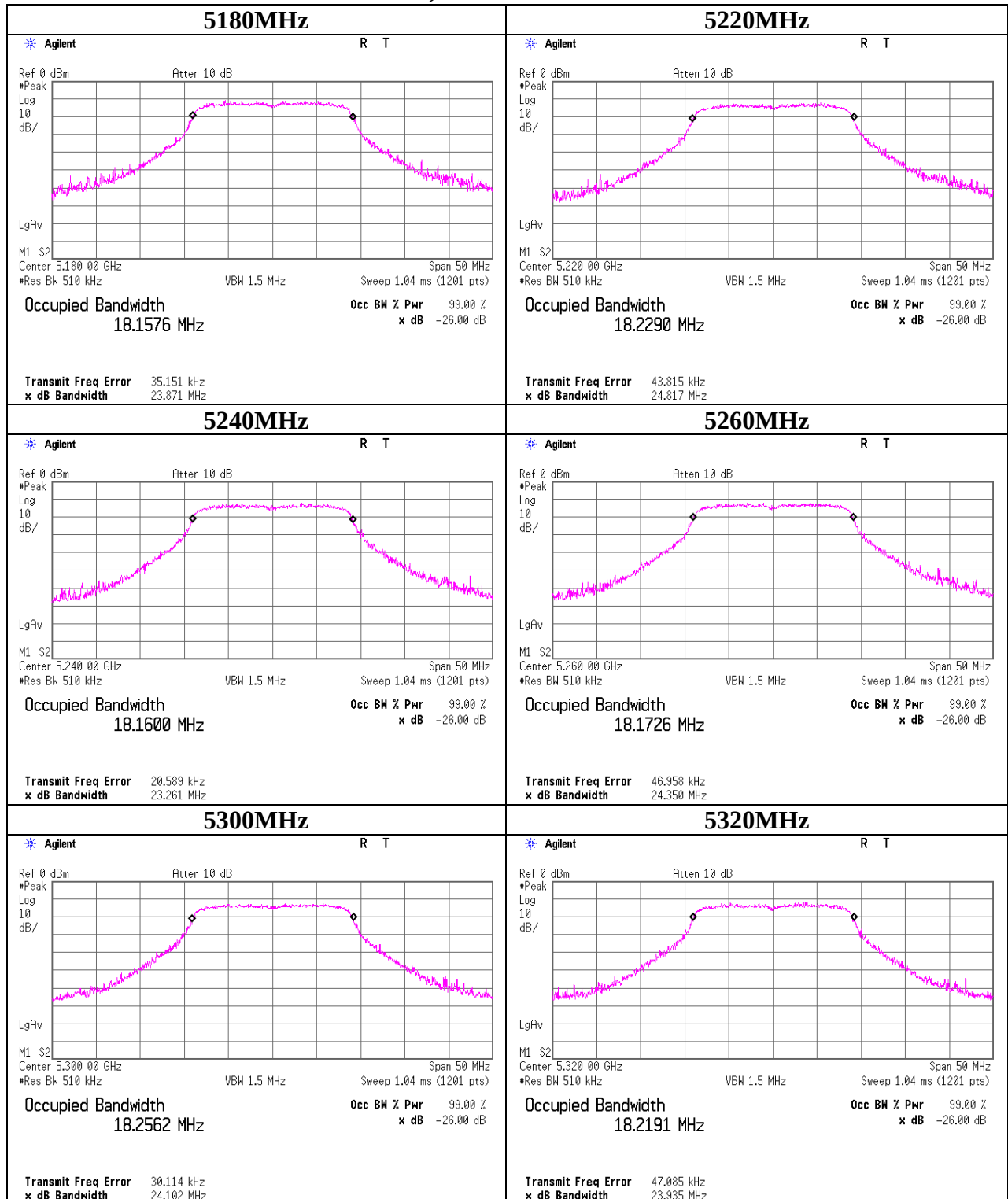
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

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99% Occupied Bandwidth

11n-20, MCS0 Sub Antenna



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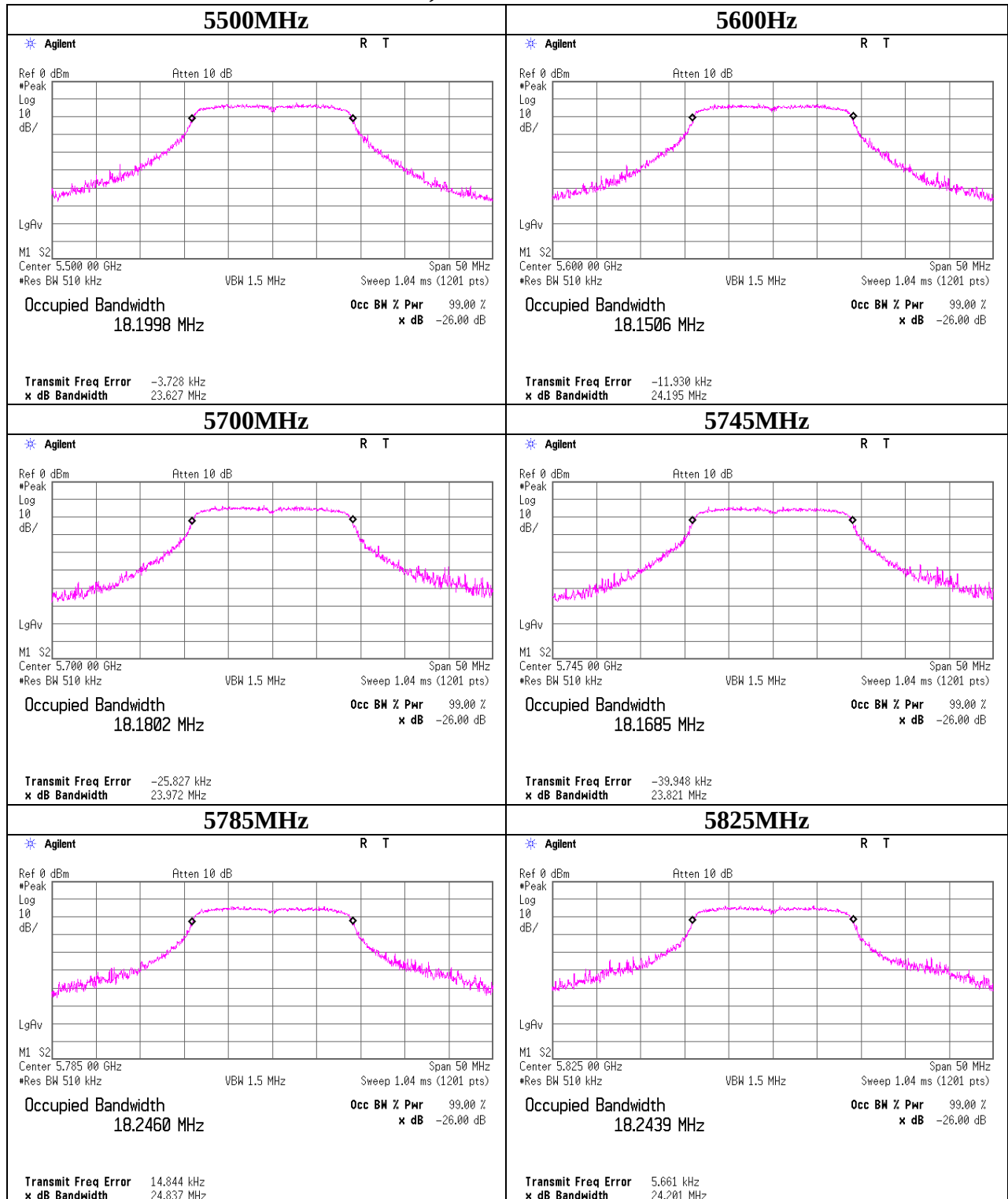
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99% Occupied Bandwidth

11n-20, MCS0 Sub Antenna



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Ise EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

Maximum Conducted Output Power

Test place : Ise EMC Lab. No.7 Shielded Room
Report No. : 10279739H
Date : 07/22/2014
Temperature/ Humidity : 21 deg. C / 61% RH
Engineer : Keisuke Kawamura
Mode : 11a Tx

Main Antenna

Freq. [MHz]	P/M Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Antenna Gain [dBi]	Result (Cond.) [dBm]	Result (e.i.r.p.) [dBm]	Limit (Cond.) [dBm]	Limit (e.i.r.p.) [dBm]	Margin (Cond.) [dB]	Margin (e.i.r.p.) [dB]
5180.0	-3.17	3.21	9.98	0.06	-2.39	10.08	7.69	23.97	-	13.89	-
5220.0	-3.14	3.22	9.97	0.06	-2.39	10.11	7.72	23.97	-	13.86	-
5240.0	-2.88	3.22	9.97	0.06	-2.39	10.37	7.98	23.97	-	13.60	-
5260.0	-3.09	3.23	9.96	0.06	-2.39	10.16	7.77	23.97	-	13.81	-
5300.0	-2.47	3.23	9.95	0.06	-2.39	10.77	8.38	23.97	-	13.20	-
5320.0	-2.34	3.24	9.95	0.06	-2.39	10.91	8.52	23.97	-	13.06	-
5500.0	-3.95	3.27	9.91	0.06	-2.39	9.29	6.90	23.97	-	14.68	-
5600.0	-4.44	3.26	9.94	0.06	-2.39	8.82	6.43	23.97	-	15.15	-
5700.0	-4.50	3.25	9.97	0.06	-2.39	8.78	6.39	23.97	-	15.19	-
5745.0	-5.18	3.25	9.99	0.06	-2.39	8.12	5.73	30.00	-	21.88	-
5785.0	-5.06	3.25	10.00	0.06	-2.39	8.25	5.86	30.00	-	21.75	-
5825.0	-4.88	3.24	10.01	0.06	-2.39	8.43	6.04	30.00	-	21.57	-

Sub Antenna

Freq. [MHz]	P/M Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Antenna Gain [dBi]	Result (Cond.) [dBm]	Result (e.i.r.p.) [dBm]	Limit (Cond.) [dBm]	Limit (e.i.r.p.) [dBm]	Margin (Cond.) [dB]	Margin (e.i.r.p.) [dB]
5180.0	-3.16	3.21	9.98	0.06	-1.41	10.09	8.68	23.97	-	13.88	-
5220.0	-3.41	3.22	9.97	0.06	-1.41	9.84	8.43	23.97	-	14.13	-
5240.0	-3.22	3.22	9.97	0.06	-1.41	10.03	8.62	23.97	-	13.94	-
5260.0	-3.54	3.23	9.96	0.06	-1.41	9.71	8.30	23.97	-	14.26	-
5300.0	-3.12	3.23	9.95	0.06	-1.41	10.12	8.71	23.97	-	13.85	-
5320.0	-2.98	3.24	9.95	0.06	-1.41	10.27	8.86	23.97	-	13.70	-
5500.0	-3.54	3.27	9.91	0.06	-1.41	9.70	8.29	23.97	-	14.27	-
5600.0	-4.03	3.26	9.94	0.06	-1.41	9.23	7.82	23.97	-	14.74	-
5700.0	-4.19	3.25	9.97	0.06	-1.41	9.09	7.68	23.97	-	14.88	-
5745.0	-4.96	3.25	9.99	0.06	-1.41	8.34	6.93	30.00	-	21.66	-
5785.0	-4.95	3.25	10.00	0.06	-1.41	8.36	6.95	30.00	-	21.64	-
5825.0	-4.68	3.24	10.01	0.06	-1.41	8.63	7.22	30.00	-	21.37	-

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

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

UL Japan, Inc.

Ise EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

Maximum Conducted Output Power

Test place : Ise EMC Lab. No.7 Shielded Room
Report No. : 10279739H
Date : 07/22/2014
Temperature/ Humidity : 21 deg. C / 61% RH
Engineer : Keisuke Kawamura
Mode : 11n-20 Tx

Main Antenna

Freq. [MHz]	P/M Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Antenna Gain [dBi]	Result (Cond.) [dBm]	Result (e.i.r.p.) [dBm]	Limit (Cond.) [dBm]	Limit (e.i.r.p.) [dBm]	Margin (Cond.) [dB]	Margin (e.i.r.p.) [dB]
5180.0	-3.40	3.21	9.98	0.15	-2.39	9.94	7.55	23.97	-	14.03	-
5220.0	-3.38	3.22	9.97	0.15	-2.39	9.96	7.57	23.97	-	14.01	-
5240.0	-3.10	3.22	9.97	0.15	-2.39	10.24	7.85	23.97	-	13.73	-
5260.0	-3.33	3.23	9.96	0.15	-2.39	10.01	7.62	23.97	-	13.96	-
5300.0	-2.65	3.23	9.95	0.15	-2.39	10.68	8.29	23.97	-	13.29	-
5320.0	-2.52	3.24	9.95	0.15	-2.39	10.82	8.43	23.97	-	13.15	-
5500.0	-3.70	3.27	9.91	0.15	-2.39	9.63	7.24	23.97	-	14.34	-
5600.0	-4.61	3.26	9.94	0.15	-2.39	8.74	6.35	23.97	-	15.23	-
5700.0	-5.11	3.25	9.97	0.15	-2.39	8.26	5.87	23.97	-	15.71	-
5745.0	-5.34	3.25	9.99	0.15	-2.39	8.05	5.66	30.00	-	21.95	-
5785.0	-5.24	3.25	10.00	0.15	-2.39	8.16	5.77	30.00	-	21.84	-
5825.0	-5.05	3.24	10.01	0.15	-2.39	8.35	5.96	30.00	-	21.65	-

Sub Antenna

Freq. [MHz]	P/M Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Antenna Gain [dBi]	Result (Cond.) [dBm]	Result (e.i.r.p.) [dBm]	Limit (Cond.) [dBm]	Limit (e.i.r.p.) [dBm]	Margin (Cond.) [dB]	Margin (e.i.r.p.) [dB]
5180.0	-3.39	3.21	9.98	0.15	-1.41	9.95	8.54	23.97	-	14.02	-
5220.0	-3.65	3.22	9.97	0.15	-1.41	9.69	8.28	23.97	-	14.28	-
5240.0	-3.52	3.22	9.97	0.15	-1.41	9.82	8.41	23.97	-	14.15	-
5260.0	-3.82	3.23	9.96	0.15	-1.41	9.52	8.11	23.97	-	14.45	-
5300.0	-3.44	3.23	9.95	0.15	-1.41	9.89	8.48	23.97	-	14.08	-
5320.0	-3.25	3.24	9.95	0.15	-1.41	10.09	8.68	23.97	-	13.88	-
5500.0	-3.33	3.27	9.91	0.15	-1.41	10.00	8.59	23.97	-	13.97	-
5600.0	-4.34	3.26	9.94	0.15	-1.41	9.01	7.60	23.97	-	14.96	-
5700.0	-5.01	3.25	9.97	0.15	-1.41	8.36	6.95	23.97	-	15.61	-
5745.0	-5.26	3.25	9.99	0.15	-1.41	8.13	6.72	30.00	-	21.87	-
5785.0	-5.16	3.25	10.00	0.15	-1.41	8.24	6.83	30.00	-	21.76	-
5825.0	-4.92	3.24	10.01	0.15	-1.41	8.48	7.07	30.00	-	21.52	-

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

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

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Ise EMC Lab.

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Maximum Conducted Output Power
(Reference data)

Test place : Ise EMC Lab. No.7 Shielded Room
Report No. : 10279739H
Date : 07/22/2014
Temperature/ Humidity : 21 deg. C / 61% RH
Engineer : Keisuke Kawamura
Mode : 11a Tx

Main Antenna, 5180MHz

Data Rate [Mbps]	Reading [dBm]	Duty Factor [dBm]	Result [dBm]	Remark
6	-3.17	0.06	-3.11	
9	-3.25	0.06	-3.19	
12	-3.27	0.06	-3.21	
18	-3.32	0.06	-3.26	
24	-3.83	0.06	-3.77	
36	-3.97	0.06	-3.91	
48	-3.97	0.06	-3.91	
54	-4.01	0.06	-3.95	

Sub Antenna, 5180MHz

Data Rate [Mbps]	Reading [dBm]	Duty Factor [dBm]	Result [dBm]	Remark
6	-3.16	0.06	-3.10	*
9	-3.21	0.06	-3.15	
12	-3.24	0.06	-3.18	
18	-3.32	0.06	-3.26	
24	-3.85	0.06	-3.79	
36	-3.97	0.06	-3.91	
48	-4.02	0.06	-3.96	
54	-4.06	0.06	-4.00	

* Worst Rate

Result = Reading + Duty Factor

All comparison were carried out on same frequency and easurement actors.

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Maximum Conducted Output Power
(Reference data)

Test place : Ise EMC Lab. No.7 Shielded Room
Report No. : 10279739H
Date : 07/22/2014
Temperature/ Humidity : 21 deg. C / 61% RH
Engineer : Keisuke Kawamura
Mode : 11n-20 Tx

Main Antenna, 5180MHz

MCS Number	Reading [dBm]	Duty Factor [dBm]	Result [dBm]	Remark
0	-3.40	0.15	-3.25	
1	-3.49	0.15	-3.34	
2	-3.53	0.15	-3.38	
3	-4.05	0.15	-3.90	
4	-4.18	0.15	-4.03	
5	-4.28	0.15	-4.13	
6	-4.31	0.15	-4.16	
7	-4.33	0.15	-4.18	

Sub Antenna, 5180MHz

MCS Number	Reading [dBm]	Duty Factor [dBm]	Result [dBm]	Remark
0	-3.39	0.15	-3.24	*
1	-3.48	0.15	-3.33	
2	-3.56	0.15	-3.41	
3	-4.09	0.15	-3.94	
4	-4.20	0.15	-4.05	
5	-4.29	0.15	-4.14	
6	-4.33	0.15	-4.18	
7	-4.37	0.15	-4.22	

* Worst MCS

Result = Reading + Duty Factor

All comparison were carried out on same frequency and easurement actors.

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Maximum Power Spectral Density

Test place : Ise EMC Lab. No.6 Measurement Room
Report No. : 10279739H
Date : 07/28/2014
Temperature/ Humidity : 26deg. C / 68% RH
Engineer : Tomohisa Nakagawa
Mode : 11a Tx

Sub Antenna

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Correction factor [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
5180.0	-7.09	4.02	10.03	0.06	-	7.03	11.00	3.98
5220.0	-7.73	4.03	10.03	0.06	-	6.39	11.00	4.61
5240.0	-7.48	4.03	10.03	0.06	-	6.64	11.00	4.36
5260.0	-7.26	4.04	10.03	0.06	-	6.87	11.00	4.13
5300.0	-6.80	4.05	10.03	0.06	-	7.34	11.00	3.66
5320.0	-6.69	4.05	10.03	0.06	-	7.45	11.00	3.55
5500.0	-8.27	4.09	10.03	0.06	-	5.91	11.00	5.09
5600.0	-7.98	4.11	10.03	0.06	-	6.22	11.00	4.78
5700.0	-9.06	4.12	10.04	0.06	-	5.16	11.00	5.84
5745.0	-15.94	4.13	10.04	0.06	2.22	0.51	30.00	29.49
5785.0	-15.96	4.14	10.04	0.06	2.22	0.50	30.00	29.50
5825.0	-14.99	4.14	10.04	0.06	2.22	1.47	30.00	28.53

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

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Maximum Power Spectral Density

Test place : Ise EMC Lab. No.6 Measurement Room
Report No. : 10279739H
Date : 07/28/2014
Temperature/ Humidity : 26deg. C / 68% RH
Engineer : Tomohisa Nakagawa
Mode : 11n-20 Tx

Sub Antenna

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Duty factor [dB]	Correction factor [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
5180.0	-6.80	4.02	10.03	0.15	-	7.40	11.00	3.60
5220.0	-7.50	4.03	10.03	0.15	-	6.71	11.00	4.29
5240.0	-7.68	4.03	10.03	0.15	-	6.54	11.00	4.47
5260.0	-7.38	4.04	10.03	0.15	-	6.84	11.00	4.16
5300.0	-7.54	4.05	10.03	0.15	-	6.69	11.00	4.31
5320.0	-6.47	4.05	10.03	0.15	-	7.76	11.00	3.24
5500.0	-8.59	4.09	10.03	0.15	-	5.68	11.00	5.32
5600.0	-8.67	4.11	10.03	0.15	-	5.62	11.00	5.38
5700.0	-9.29	4.12	10.04	0.15	-	5.02	11.00	5.98
5745.0	-14.71	4.13	10.04	0.15	2.22	1.83	30.00	28.17
5785.0	-16.06	4.14	10.04	0.15	2.22	0.49	30.00	29.51
5825.0	-15.89	4.14	10.04	0.15	2.22	0.66	30.00	29.34

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

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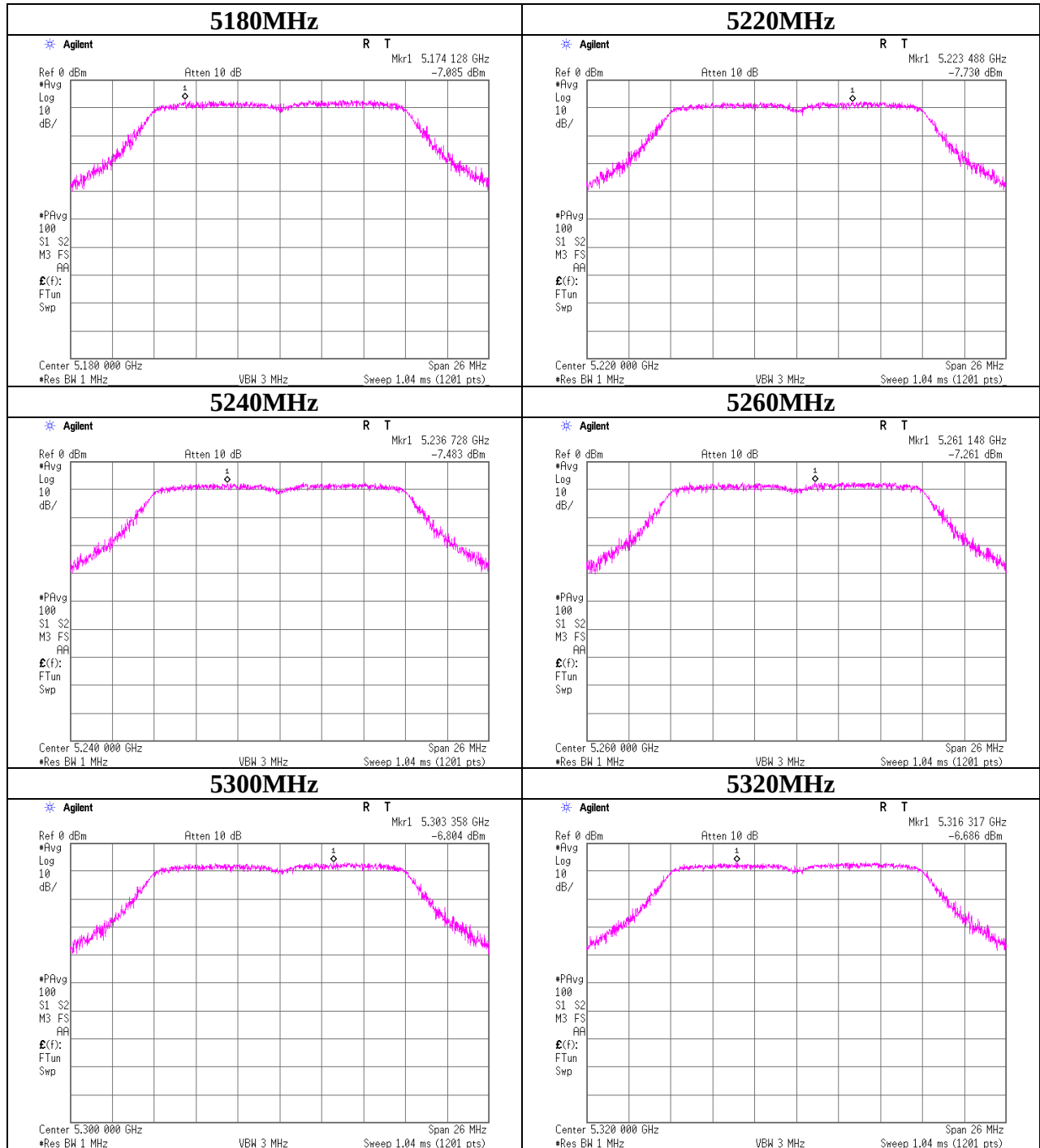
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Maximum Power Spectral Density

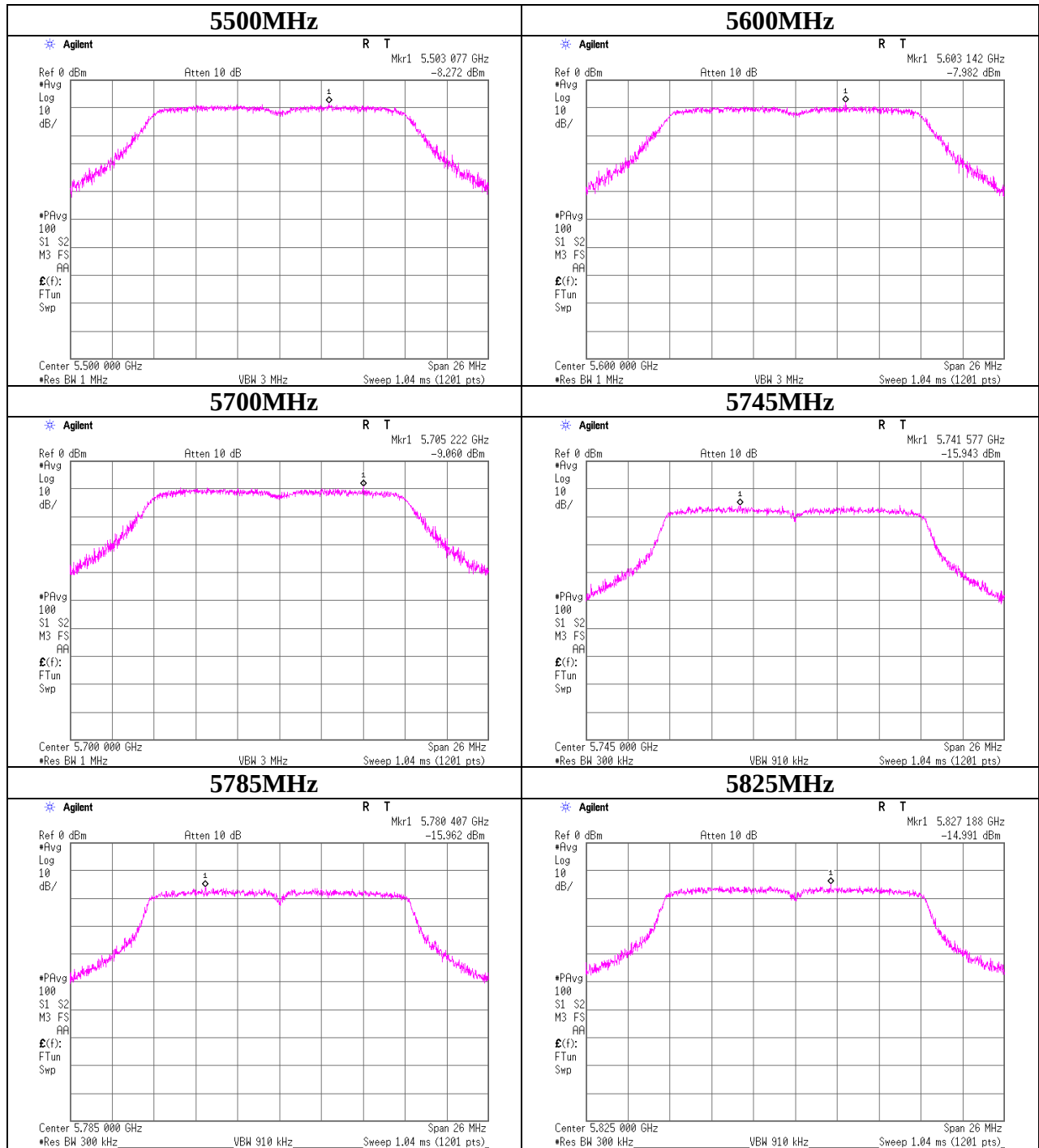
Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10279739H
Date	07/28/2014
Temperature/ Humidity	26deg. C / 68% RH
Engineer	Tomohisa Nakagawa
Mode	11a Tx

11a Sub Antenna



Maximum Power Spectral Density

11a Sub Antenna



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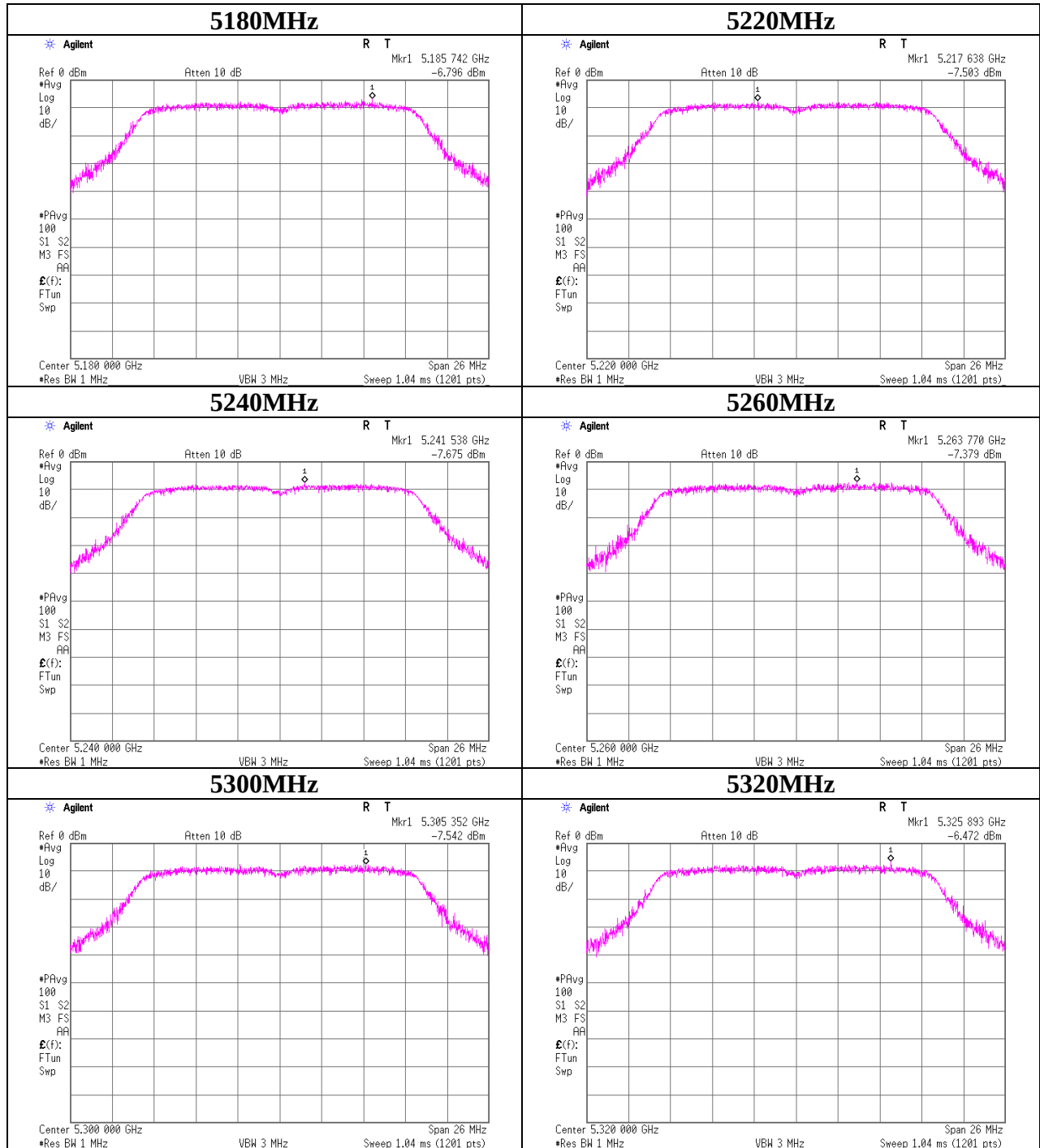
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Maximum Power Spectral Density

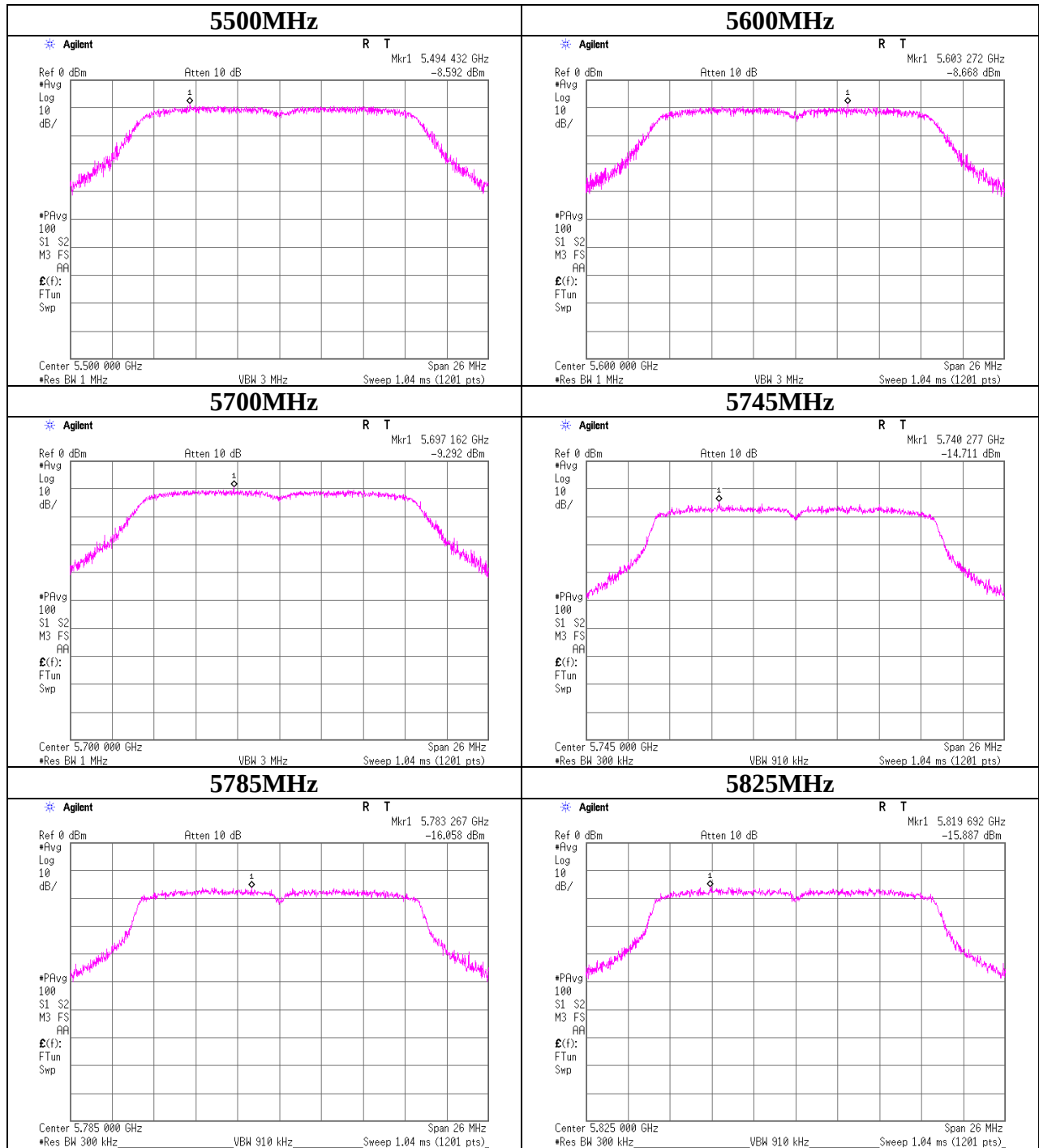
Test place Ise EMC Lab. No.6 Measurement Room
Report No. 10279739H
Date 07/28/2014
Temperature/ Humidity 26deg. C / 68% RH
Engineer Tomohisa Nakagawa
Mode 11n-20 Tx

11n-20 Sub Antenna



Maximum Power Spectral Density

11n-20 Sub Antenna



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Radiated Spurious Emission

Test place	Ise EMC Lab. No.2 Anechoic Chamber		
Report No.	10279739H		
Date	07/23/2014	07/25/2014	07/28/2014
Temperature/ Humidity	22 deg. C / 64% RH	22 deg. C / 59% RH	22 deg. C / 59% RH
Engineer	Takumi Shimada	Takumi Shimada	Takumi Shimada
	(1-10GHz)	(10-26.5GHz)	(26.5-40GHz)
Mode	11a Tx 5180MHz Main Antenna		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	5150.000	PK	54.1	32.2	3.8	33.9	-	56.2	68.2	12.0	Bandedge	Floor Noise
Hori	10360.000	PK	43.9	39.1	-2.5	34.2	-	46.3	68.2	21.9	Outside	
Hori	15540.000	PK	44.9	39.7	-0.8	33.1	-	50.7	73.9	23.2	Inside	
Hori	20720.000	PK	46.0	40.2	-1.6	33.1	-	51.5	73.9	22.4	Inside	
Hori	5150.000	AV	41.6	32.2	3.8	33.9	0.1	43.8	53.9	10.1	Bandedge	Floor Noise
Hori	15540.000	AV	36.4	39.7	-0.8	33.1	-	42.2	53.9	11.7	Inside	
Hori	20720.000	AV	36.7	40.2	-1.6	33.1	-	42.2	53.9	11.7	Inside	
Vert	5150.000	PK	51.7	32.2	3.8	33.9	-	53.8	68.2	14.4	Bandedge	Floor Noise
Vert	10360.000	PK	43.2	39.1	-2.5	34.2	-	45.6	68.2	22.6	Outside	
Vert	15540.000	PK	44.4	39.7	-0.8	33.1	-	50.2	73.9	23.7	Inside	
Vert	20720.000	PK	46.1	40.2	-1.6	33.1	-	51.6	73.9	22.3	Inside	
Vert	5150.000	AV	38.9	32.2	3.8	33.9	0.1	41.1	53.9	12.8	Bandedge	Floor Noise
Vert	15540.000	AV	36.4	39.7	-0.8	33.1	-	42.2	53.9	11.7	Inside	
Vert	20720.000	AV	36.8	40.2	-1.6	33.1	-	42.3	53.9	11.6	Inside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier) + Duty Factor

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

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
 26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

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Radiated Spurious Emission

Test place : Ise EMC Lab. No.2 Anechoic Chamber
Report No. : 10279739H
Date : 07/23/2014 07/25/2014 07/28/2014
Temperature/ Humidity : 22 deg. C / 64% RH 22 deg. C / 59% RH 22 deg. C / 59% RH
Engineer : Takumi Shimada Takumi Shimada Takumi Shimada
Mode : 11a Tx 5260MHz Main Antenna
 (1-10GHz) (10-26.5GHz) (26.5-40GHz)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	10520.000	PK	43.2	39.2	-2.3	34.1	46.0	68.2	22.2	Outside	Floor Noise
Hori	15780.000	PK	44.4	38.9	-0.8	33.3	49.2	73.9	24.7	Inside	Floor Noise
Hori	21040.000	PK	45.6	40.0	-1.5	33.1	51.0	73.9	22.9	Inside	Floor Noise
Hori	15780.000	AV	35.7	38.9	-0.8	33.3	40.5	53.9	13.4	Inside	Floor Noise
Hori	21040.000	AV	36.4	40.0	-1.5	33.1	41.8	53.9	12.1	Inside	Floor Noise
Vert	10520.000	PK	43.4	39.2	-2.3	34.1	46.2	68.2	22.0	Outside	Floor Noise
Vert	15780.000	PK	44.4	38.9	-0.8	33.3	49.2	73.9	24.7	Inside	Floor Noise
Vert	21040.000	PK	45.7	40.0	-1.5	33.1	51.1	73.9	22.8	Inside	Floor Noise
Vert	15780.000	AV	35.7	38.9	-0.8	33.3	40.5	53.9	13.4	Inside	Floor Noise
Vert	21040.000	AV	36.4	40.0	-1.5	33.1	41.8	53.9	12.1	Inside	Floor Noise

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

Distance factor: 10GHz-26.5GHz $20\log(3.0\text{m}/1.0\text{m})= 9.5\text{dB}$
 26.5GHz-40GHz $20\log(3.0\text{m}/0.5\text{m})=15.6\text{dB}$

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Radiated Spurious Emission

Test place : Ise EMC Lab. No.2 Anechoic Chamber
Report No. : 10279739H
Date : 07/23/2014 07/25/2014 07/28/2014 07/29/2014
Temperature/ Humidity : 22 deg. C / 64% RH 22 deg. C / 59% RH 22 deg. C / 59% RH 21 deg. C / 50% RH
Engineer : Takumi Shimada Takumi Shimada Takumi Shimada Yuta Moriya
Mode : (1-10GHz) (10-26.5GHz) (26.5-40GHz) (Below 1GHz)
11a Tx 5320MHz Main Antenna

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	177.330	QP	33.2	16.0	8.0	28.0	-	29.2	43.5	14.3	Outside	
Hori	416.000	QP	31.5	17.4	9.2	28.4	-	29.7	46.0	16.3	Outside	
Hori	544.000	QP	32.5	18.8	9.6	28.8	-	32.1	46.0	13.9	Outside	
Hori	576.333	QP	38.2	19.2	9.8	28.8	-	38.4	46.0	7.6	Outside	
Hori	768.000	QP	34.9	21.3	10.7	28.3	-	38.6	46.0	7.4	Outside	
Hori	800.000	QP	32.6	21.8	10.8	28.2	-	37.0	46.0	9.0	Outside	
Hori	5350.000	PK	57.1	32.2	3.8	33.7	-	59.4	68.2	8.8	Bandedge	
Hori	10640.000	PK	43.1	39.3	-2.3	34.0	-	46.1	73.9	27.8	Inside	Floor Noise
Hori	15960.000	PK	45.2	38.4	-0.7	33.3	-	49.6	73.9	24.3	Inside	Floor Noise
Hori	21280.000	PK	45.6	39.9	-1.5	32.8	-	51.2	73.9	22.7	Inside	Floor Noise
Hori	5350.000	AV	43.1	32.2	3.8	33.7	0.1	45.5	53.9	8.4	Bandedge	
Hori	10640.000	AV	34.1	39.3	-2.3	34.0	-	37.1	53.9	16.8	Inside	Floor Noise
Hori	15960.000	AV	35.8	38.4	-0.7	33.3	-	40.2	53.9	13.7	Inside	Floor Noise
Hori	21280.000	AV	36.4	39.9	-1.5	32.8	-	42.0	53.9	11.9	Inside	Floor Noise
Vert	177.330	QP	35.4	16.0	8.0	28.0	-	31.4	43.5	12.1	Outside	
Vert	416.000	QP	36.3	17.4	9.2	28.4	-	34.5	46.0	11.5	Outside	
Vert	544.000	QP	38.3	18.8	9.6	28.8	-	37.9	46.0	8.1	Outside	
Vert	576.332	QP	35.3	19.2	9.8	28.8	-	35.5	46.0	10.5	Outside	
Vert	768.000	QP	33.0	21.3	10.7	28.3	-	36.7	46.0	9.3	Outside	
Vert	800.000	QP	31.1	21.8	10.8	28.2	-	35.5	46.0	10.5	Outside	
Vert	5350.000	PK	51.9	32.2	3.8	33.7	-	54.2	68.2	14.0	Bandedge	
Vert	10640.000	PK	43.4	39.3	-2.3	34.0	-	46.4	73.9	27.5	Inside	Floor Noise
Vert	15960.000	PK	44.9	38.4	-0.7	33.3	-	49.3	73.9	24.6	Inside	Floor Noise
Vert	21280.000	PK	45.4	39.9	-1.5	32.8	-	51.0	73.9	22.9	Inside	Floor Noise
Vert	5350.000	AV	39.1	32.2	3.8	33.7	0.1	41.5	53.9	12.4	Bandedge	
Vert	10640.000	AV	34.2	39.3	-2.3	34.0	-	37.2	53.9	16.7	Inside	Floor Noise
Vert	15960.000	AV	35.8	38.4	-0.7	33.3	-	40.2	53.9	13.7	Inside	Floor Noise
Vert	21280.000	AV	36.4	39.9	-1.5	32.8	-	42.0	53.9	11.9	Inside	Floor Noise

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier) + Duty Factor

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

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
 26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

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Radiated Spurious Emission

Test place : Ise EMC Lab. No.2 Anechoic Chamber
Report No. : 10279739H
Date : 07/24/2014 07/25/2014 07/28/2014
Temperature/ Humidity : 24 deg. C / 63% RH 22 deg. C / 59% RH 22 deg. C / 59% RH
Engineer : Takumi Shimada Takumi Shimada Takumi Shimada
(1-10GHz) (10-26.5GHz) (26.5-40GHz)
Mode : 11a Tx 5500MHz Main Antenna

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	5460.000	PK	46.8	32.2	3.9	33.7	-	49.2	73.9	24.7	Inside	
Hori	5470.000	PK	51.1	32.2	3.9	33.7	-	53.5	68.2	14.7	Outside	
Hori	11000.000	PK	42.7	39.7	-2.2	33.8	-	46.4	73.9	27.5	Inside	Floor Noise
Hori	16500.000	PK	44.4	39.3	-0.5	32.9	-	50.3	68.2	17.9	Outside	Floor Noise
Hori	22000.000	PK	45.1	39.8	-1.4	31.9	-	51.6	68.2	16.6	Outside	Floor Noise
Hori	5460.000	AV	38.5	32.2	3.9	33.7	0.1	41.0	53.9	12.9	Inside	
Hori	11000.000	AV	33.8	39.7	-2.2	33.8	-	37.5	53.9	16.4	Inside	Floor Noise
Vert	5460.000	PK	44.0	32.2	3.9	33.7	-	46.4	73.9	27.5	Inside	
Vert	5470.000	PK	45.7	32.2	3.9	33.7	-	48.1	68.2	20.1	Outside	
Vert	11000.000	PK	42.9	39.7	-2.2	33.8	-	46.6	73.9	27.3	Inside	Floor Noise
Vert	16500.000	PK	44.6	39.3	-0.5	32.9	-	50.5	68.2	17.7	Outside	Floor Noise
Vert	22000.000	PK	45.3	39.8	-1.4	31.9	-	51.8	68.2	16.4	Outside	Floor Noise
Vert	5460.000	AV	35.3	32.2	3.9	33.7	0.1	37.8	53.9	16.1	Inside	
Vert	11000.000	AV	33.8	39.7	-2.2	33.8	-	37.5	53.9	16.4	Inside	Floor Noise

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier) + Duty Factor

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

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
 26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

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Ise EMC Lab.

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Radiated Spurious Emission

Test place : Ise EMC Lab. No.2 Anechoic Chamber
Report No. : 10279739H
Date : 07/24/2014 07/25/2014 07/28/2014
Temperature/ Humidity : 24 deg. C / 63% RH 22 deg. C / 59% RH 22 deg. C / 59% RH
Engineer : Takumi Shimada Takumi Shimada Takumi Shimada
(1-10GHz)
Mode : 11a Tx 5580MHz Main Antenna

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	11160.000	PK	42.3	39.7	-2.2	33.8	46.0	73.9	27.9	Inside	Floor Noise
Hori	16740.000	PK	44.4	39.8	-0.5	32.7	51.0	68.2	17.2	Outside	Floor Noise
Hori	22320.000	PK	45.2	39.8	-1.3	31.8	51.9	73.9	22.0	Inside	Floor Noise
Hori	11160.000	AV	33.0	39.7	-2.2	33.8	36.7	53.9	17.2	Inside	Floor Noise
Hori	22320.000	AV	36.1	39.8	-1.3	31.8	42.8	53.9	11.1	Inside	Floor Noise
Vert	11160.000	PK	41.9	39.7	-2.2	33.8	45.6	73.9	28.3	Inside	Floor Noise
Vert	16740.000	PK	44.6	39.8	-0.5	32.7	51.2	68.2	17.0	Outside	Floor Noise
Vert	22320.000	PK	44.7	39.8	-1.3	31.8	51.4	73.9	22.5	Inside	Floor Noise
Vert	11160.000	AV	33.0	39.7	-2.2	33.8	36.7	53.9	17.2	Inside	Floor Noise
Vert	22320.000	AV	36.0	39.8	-1.3	31.8	42.7	53.9	11.2	Inside	Floor Noise

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

Distance factor: 10GHz-26.5GHz $20\log(3.0\text{m}/1.0\text{m})= 9.5\text{dB}$
 26.5GHz-40GHz $20\log(3.0\text{m}/0.5\text{m})=15.6\text{dB}$

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Radiated Spurious Emission

Test place Ise EMC Lab. No.2 Anechoic Chamber
Report No. 10279739H
Date 07/24/2014 07/25/2014 07/28/2014
Temperature/ Humidity 24 deg. C / 63% RH 22 deg. C / 59% RH 22 deg. C / 59% RH
Engineer Takumi Shimada Takumi Shimada Takumi Shimada
(1-10GHz) (10-26.5GHz) (26.5-40GHz)
Mode 11a Tx 5700MHz Main Antenna

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	5725.000	PK	58.3	32.7	4.0	33.7	61.3	68.2	6.9	Outside	
Hori	11400.000	PK	41.3	39.7	-2.0	33.7	45.3	73.9	28.6	Inside	Floor Noise
Hori	17100.000	PK	44.4	41.2	-0.3	32.5	52.8	68.2	15.4	Outside	Floor Noise
Hori	22800.000	PK	45.1	39.8	-1.3	31.7	51.9	73.9	22.0	Inside	Floor Noise
Hori	11400.000	AV	32.6	39.7	-2.0	33.7	36.6	53.9	17.3	Inside	Floor Noise
Hori	22800.000	AV	35.9	39.8	-1.3	31.7	42.7	53.9	11.2	Inside	Floor Noise
Vert	5725.000	PK	52.0	32.7	4.0	33.7	55.0	68.2	13.2	Outside	
Vert	11400.000	PK	41.6	39.7	-2.0	33.7	45.6	73.9	28.3	Inside	Floor Noise
Vert	17100.000	PK	44.2	41.2	-0.3	32.5	52.6	68.2	15.6	Outside	Floor Noise
Vert	22800.000	PK	45.2	39.8	-1.3	31.7	52.0	73.9	21.9	Inside	Floor Noise
Vert	11400.000	AV	32.4	39.7	-2.0	33.7	36.4	53.9	17.5	Inside	Floor Noise
Vert	22800.000	AV	36.0	39.8	-1.3	31.7	42.8	53.9	11.1	Inside	Floor Noise

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

Distance factor: 10GHz-26.5GHz $20\log(3.0\text{m}/1.0\text{m})= 9.5\text{dB}$
26.5GHz-40GHz $20\log(3.0\text{m}/0.5\text{m})=15.6\text{dB}$

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Radiated Spurious Emission

Test place : Ise EMC Lab. No.2 Anechoic Chamber
Report No. : 10279739H
Date : 07/24/2014 07/25/2014 07/28/2014
Temperature/ Humidity : 24 deg. C / 63% RH 22 deg. C / 59% RH 22 deg. C / 59% RH
Engineer : Takumi Shimada Takumi Shimada Takumi Shimada
(1-10GHz) (10-26.5GHz) (26.5-40GHz)
Mode : 11a Tx 5745MHz Main Antenna

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	5725.000	PK	60.8	32.7	4.0	33.7	63.8	68.2	4.4	Outside	
Hori	11490.000	PK	41.2	39.7	-2.0	33.7	45.2	73.9	28.7	Inside	Floor noise
Hori	17235.000	PK	44.1	42.3	-0.3	32.5	53.6	68.2	14.6	Outside	Floor noise
Hori	22980.000	PK	45.1	39.8	-1.2	31.7	52.0	73.9	21.9	Inside	Floor noise
Hori	11490.000	AV	32.3	39.7	-2.0	33.7	36.3	53.9	17.6	Inside	Floor noise
Hori	22980.000	AV	36.1	39.8	-1.2	31.7	43.0	53.9	10.9	Inside	Floor noise
Vert	5725.000	PK	53.7	32.7	4.0	33.7	56.7	68.2	11.5	Outside	
Vert	11490.000	PK	41.4	39.7	-2.0	33.7	45.4	73.9	28.5	Inside	Floor noise
Vert	17235.000	PK	44.6	42.3	-0.3	32.5	54.1	68.2	14.1	Outside	Floor noise
Vert	22980.000	PK	44.9	39.8	-1.2	31.7	51.8	73.9	22.1	Inside	Floor noise
Vert	11490.000	AV	32.3	39.7	-2.0	33.7	36.3	53.9	17.6	Inside	Floor noise
Vert	22980.000	AV	36.1	39.8	-1.2	31.7	43.0	53.9	10.9	Inside	Floor noise

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
 26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

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Radiated Spurious Emission

Test place : Ise EMC Lab. No.2 Anechoic Chamber
Report No. : 10279739H
Date : 07/24/2014 07/25/2014 07/28/2014
Temperature/ Humidity : 24 deg. C / 63% RH 22 deg. C / 59% RH 22 deg. C / 59% RH
Engineer : Takumi Shimada Takumi Shimada Takumi Shimada
(1-10GHz) (10-26.5GHz) (26.5-40GHz)
Mode : 11a Tx 5785MHz Main Antenna

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	11570.000	PK	41.4	39.7	-1.9	33.7	45.5	73.9	28.4	Inside	Floor Noise
Hori	17355.000	PK	44.2	43.3	-0.2	32.4	54.9	68.2	13.3	Outside	Floor Noise
Hori	23140.000	PK	45.9	39.8	-1.2	31.7	52.8	68.2	15.4	Outside	Floor Noise
Hori	11570.000	AV	32.2	39.7	-1.9	33.7	36.3	53.9	17.6	Inside	Floor Noise
Vert	11570.000	PK	41.2	39.7	-1.9	33.7	45.3	73.9	28.6	Inside	Floor Noise
Vert	17355.000	PK	44.2	43.3	-0.2	32.4	54.9	68.2	13.3	Outside	Floor Noise
Vert	23140.000	PK	45.9	39.8	-1.2	31.7	52.8	68.2	15.4	Outside	Floor Noise
Vert	11570.000	AV	32.2	39.7	-1.9	33.7	36.3	53.9	17.6	Inside	Floor Noise

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

Distance factor: 10GHz-26.5GHz $20\log(3.0\text{m}/1.0\text{m})= 9.5\text{dB}$
 26.5GHz-40GHz $20\log(3.0\text{m}/0.5\text{m})=15.6\text{dB}$

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Radiated Spurious Emission

Test place : Ise EMC Lab. No.2 Anechoic Chamber
Report No. : 10279739H
Date : 07/24/2014 07/25/2014 07/28/2014 07/29/2014
Temperature/ Humidity : 24 deg. C / 63% RH 22 deg. C / 59% RH 22 deg. C / 59% RH 21 deg. C / 50% RH
Engineer : Takumi Shimada Takumi Shimada Takumi Shimada Yuta Moriya
Mode : (1-10GHz) (10-26.5GHz) (26.5-40GHz) (Below 1GHz)
11a Tx 5825MHz Main Antenna

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	177.330	QP	33.6	16.0	8.0	28.0	29.6	43.5	13.9	Outside	
Hori	416.000	QP	31.6	17.4	9.2	28.4	29.8	46.0	16.2	Outside	
Hori	544.000	QP	32.7	18.8	9.6	28.8	32.3	46.0	13.7	Outside	
Hori	576.332	QP	38.4	19.2	9.8	28.8	38.6	46.0	7.4	Outside	
Hori	768.000	QP	35.0	21.3	10.7	28.3	38.7	46.0	7.3	Outside	
Hori	800.000	QP	32.6	21.8	10.8	28.2	37.0	46.0	9.0	Outside	
Hori	5850.000	PK	59.8	32.9	4.0	33.7	63.0	68.2	5.2	Outside	
Hori	11650.000	PK	43.3	39.7	-1.8	33.7	47.5	73.9	26.4	Inside	Floor Noise
Hori	17475.000	PK	44.1	44.3	-0.2	32.4	55.8	68.2	12.4	Outside	Floor Noise
Hori	23300.000	PK	46.1	39.8	-1.2	31.7	53.0	68.2	15.2	Outside	Floor Noise
Hori	11650.000	AV	32.9	39.7	-1.8	33.7	37.1	53.9	16.8	Inside	Floor Noise
Vert	177.330	QP	35.4	16.0	8.0	28.0	31.4	43.5	12.1	Outside	
Vert	416.000	QP	36.3	17.4	9.2	28.4	34.5	46.0	11.5	Outside	
Vert	544.000	QP	38.5	18.8	9.6	28.8	38.1	46.0	7.9	Outside	
Vert	576.331	QP	35.2	19.2	9.8	28.8	35.4	46.0	10.6	Outside	
Vert	768.000	QP	33.0	21.3	10.7	28.3	36.7	46.0	9.3	Outside	
Vert	800.000	QP	30.9	21.8	10.8	28.2	35.3	46.0	10.7	Outside	
Vert	5850.000	PK	54.7	32.9	4.0	33.7	57.9	68.2	10.3	Outside	
Vert	11650.000	PK	43.5	39.7	-1.8	33.7	47.7	73.9	26.2	Inside	Floor Noise
Vert	17475.000	PK	44.2	44.3	-0.2	32.4	55.9	68.2	12.3	Outside	Floor Noise
Vert	23300.000	PK	46.3	39.8	-1.2	31.7	53.2	68.2	15.0	Outside	Floor Noise
Vert	11650.000	AV	33.1	39.7	-1.8	33.7	37.3	53.9	16.6	Inside	Floor Noise

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
 26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

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Radiated Spurious Emission

Test place : Ise EMC Lab. No.2 Anechoic Chamber
Report No. : 10279739H
Date : 07/23/2014
Temperature/ Humidity : 22 deg. C / 64% RH
Engineer : Takumi Shimada
(1-10GHz)
Mode : 11n-20 Tx 5180MHz Main Antenna

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	5150.000	PK	55.2	32.2	3.8	33.9	-	57.3	68.2	10.9	Bandedge	
Hori	5150.000	AV	41.7	32.2	3.8	33.9	0.2	44.0	53.9	10.0	Bandedge	
Vert	5150.000	PK	53.7	32.2	3.8	33.9	-	55.8	68.2	12.4	Bandedge	
Vert	5150.000	AV	40.4	32.2	3.8	33.9	0.2	42.7	53.9	11.3	Bandedge	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier) + Duty Factor

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

Distance factor: 10GHz-26.5GHz $20\log(3.0\text{m}/1.0\text{m})= 9.5\text{dB}$
 26.5GHz-40GHz $20\log(3.0\text{m}/0.5\text{m})=15.6\text{dB}$

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Radiated Spurious Emission

Test place : Ise EMC Lab. No.2 Anechoic Chamber
Report No. : 10279739H
Date : 07/23/2014
Temperature/ Humidity : 22 deg. C / 64% RH
Engineer : Takumi Shimada
(1-10GHz)
Mode : 11n-20 Tx 5320MHz Main Antenna

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	5350.000	PK	57.3	32.2	3.8	33.7	-	59.6	68.2	8.6	Bandedge	
Hori	5350.000	AV	44.0	32.2	3.8	33.7	0.2	46.5	53.9	7.5	Bandedge	
Vert	5350.000	PK	52.1	32.2	3.8	33.7	-	54.4	68.2	13.8	Bandedge	
Vert	5350.000	AV	38.9	32.2	3.8	33.7	0.2	41.4	53.9	12.6	Bandedge	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier) + Duty Factor

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

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
 26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

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Radiated Spurious Emission

Test place : Ise EMC Lab. No.2 Anechoic Chamber
Report No. : 10279739H
Date : 07/24/2014
Temperature/ Humidity : 24 deg. C / 63% RH
Engineer : Takumi Shimada
(1-10GHz)
Mode : 11n-20 Tx 5500MHz Main Antenna

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	5460.000	PK	47.5	32.2	3.9	33.7	-	49.9	73.9	24.0	Inside	
Hori	5470.000	PK	54.8	32.2	3.9	33.7	-	57.2	68.2	11.0	Outside	
Hori	5460.000	AV	38.8	32.2	3.9	33.7	0.2	41.4	53.9	12.6	Inside	
Vert	5460.000	PK	44.2	32.2	3.9	33.7	-	46.6	73.9	27.3	Inside	
Vert	5470.000	PK	49.3	32.2	3.9	33.7	-	51.7	68.2	16.5	Outside	
Vert	5460.000	AV	35.6	32.2	3.9	33.7	0.2	38.2	53.9	15.8	Inside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier) + Duty Factor

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

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
 26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

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Radiated Spurious Emission

Test place : Ise EMC Lab. No.2 Anechoic Chamber
Report No. : 10279739H
Date : 07/24/2014
Temperature/ Humidity : 24 deg. C / 63% RH
Engineer : Takumi Shimada
(1-10GHz)
Mode : 11n-20 Tx 5700MHz Main Antenna

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	5725.000	PK	58.5	32.7	4.0	33.7	61.5	68.2	6.7	Outside	
Vert	5725.000	PK	54.6	32.7	4.0	33.7	57.6	68.2	10.6	Outside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

Distance factor: 10GHz-26.5GHz $20\log(3.0\text{m}/1.0\text{m})= 9.5\text{dB}$
 26.5GHz-40GHz $20\log(3.0\text{m}/0.5\text{m})=15.6\text{dB}$

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Radiated Spurious Emission

Test place : Ise EMC Lab. No.2 Anechoic Chamber
Report No. : 10279739H
Date : 07/24/2014
Temperature/ Humidity : 24 deg. C / 63% RH
Engineer : Takumi Shimada
(1-10GHz)
Mode : 11n-20 Tx 5745MHz Main Antenna

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	5725.000	PK	64.7	32.7	4.0	33.7	67.7	68.2	0.5	Outside	
Vert	5725.000	PK	60.0	32.7	4.0	33.7	63.0	68.2	5.2	Outside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

Distance factor: 10GHz-26.5GHz $20\log(3.0\text{m}/1.0\text{m})= 9.5\text{dB}$
 26.5GHz-40GHz $20\log(3.0\text{m}/0.5\text{m})=15.6\text{dB}$

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Ise EMC Lab.

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Radiated Spurious Emission

Test place Ise EMC Lab. No.2 Anechoic Chamber
Report No. 10279739H
Date 07/24/2014
Temperature/ Humidity 24 deg. C / 63% RH
Engineer Takumi Shimada
(1-10GHz)
Mode 11n-20 Tx 5825MHz Main Antenna

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	5850.000	PK	61.1	32.9	4.0	33.7	64.3	68.2	3.9	Outside	
Vert	5850.000	PK	57.5	32.9	4.0	33.7	60.7	68.2	7.5	Outside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

Distance factor: 10GHz-26.5GHz $20\log(3.0\text{m}/1.0\text{m})= 9.5\text{dB}$
 26.5GHz-40GHz $20\log(3.0\text{m}/0.5\text{m})=15.6\text{dB}$

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Radiated Spurious Emission

Test place	Ise EMC Lab. No.2 Anechoic Chamber		
Report No.	10279739H		
Date	07/24/2014	07/25/2014	07/28/2014
Temperature/ Humidity	22 deg. C / 64% RH	22 deg. C / 59% RH	22 deg. C / 59% RH
Engineer	Takumi Shimada	Takumi Shimada	Takumi Shimada
	(1-10GHz)	(10-26.5GHz)	(26.5-40GHz)
Mode	11a Tx 5180MHz Sub Antenna		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	5150.000	PK	52.9	32.2	3.8	33.9	-	55.0	68.2	13.2	Bandedge	
Hori	10360.000	PK	43.9	39.1	-2.5	34.2	-	46.3	68.2	21.9	Outside	Floor Noise
Hori	15540.000	PK	44.9	39.7	-0.8	33.1	-	50.7	73.9	23.2	Inside	Floor Noise
Hori	20720.000	PK	46.0	40.2	-1.6	33.1	-	51.5	73.9	22.4	Inside	Floor Noise
Vert	5150.000	AV	40.3	32.2	3.8	33.9	0.1	42.5	53.9	11.4	Bandedge	
Hori	15540.000	AV	36.4	39.7	-0.8	33.1	-	42.2	53.9	11.7	Inside	Floor Noise
Hori	20720.000	AV	36.7	40.2	-1.6	33.1	-	42.2	53.9	11.7	Inside	Floor Noise
Vert	5150.000	PK	52.5	32.2	3.8	33.9	-	54.6	68.2	13.6	Bandedge	
Vert	10360.000	PK	43.2	39.1	-2.5	34.2	-	45.6	68.2	22.6	Outside	Floor Noise
Vert	15540.000	PK	44.4	39.7	-0.8	33.1	-	50.2	73.9	23.7	Inside	Floor Noise
Vert	20720.000	PK	46.1	40.2	-1.6	33.1	-	51.6	73.9	22.3	Inside	Floor Noise
Hori	5150.000	AV	39.8	32.2	3.8	33.9	0.1	42.0	53.9	11.9	Bandedge	
Vert	15540.000	AV	36.4	39.7	-0.8	33.1	-	42.2	53.9	11.7	Inside	Floor Noise
Vert	20720.000	AV	36.8	40.2	-1.6	33.1	-	42.3	53.9	11.6	Inside	Floor Noise

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier) + Duty Factor

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

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
 26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

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Radiated Spurious Emission

Test place : Ise EMC Lab. No.2 Anechoic Chamber
Report No. : 10279739H
Date : 07/23/2014 07/25/2014 07/28/2014
Temperature/ Humidity : 22 deg. C / 64% RH 22 deg. C / 59% RH 22 deg. C / 59% RH
Engineer : Takumi Shimada Takumi Shimada Takumi Shimada
 (1-10GHz) (10-26.5GHz) (26.5-40GHz)
Mode : 11a Tx 5260MHz Sub Antenna

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	10520.000	PK	43.2	39.2	-2.3	34.1	46.0	68.2	22.2	Outside	Floor Noise
Hori	15780.000	PK	44.4	38.9	-0.8	33.3	49.2	73.9	24.7	Inside	Floor Noise
Hori	21040.000	PK	45.6	40.0	-1.5	33.1	51.0	73.9	22.9	Inside	Floor Noise
Hori	15780.000	AV	35.7	38.9	-0.8	33.3	40.5	53.9	13.4	Inside	Floor Noise
Hori	21040.000	AV	36.4	40.0	-1.5	33.1	41.8	53.9	12.1	Inside	Floor Noise
Vert	10520.000	PK	43.4	39.2	-2.3	34.1	46.2	68.2	22.0	Outside	Floor Noise
Vert	15780.000	PK	44.4	38.9	-0.8	33.3	49.2	73.9	24.7	Inside	Floor Noise
Vert	21040.000	PK	45.7	40.0	-1.5	33.1	51.1	73.9	22.8	Inside	Floor Noise
Vert	15780.000	AV	35.7	38.9	-0.8	33.3	40.5	53.9	13.4	Inside	Floor Noise
Vert	21040.000	AV	36.4	40.0	-1.5	33.1	41.8	53.9	12.1	Inside	Floor Noise

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

Distance factor: 10GHz-26.5GHz $20\log(3.0\text{m}/1.0\text{m})= 9.5\text{dB}$
 26.5GHz-40GHz $20\log(3.0\text{m}/0.5\text{m})=15.6\text{dB}$

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Radiated Spurious Emission

Test place	Ise EMC Lab. No.2 Anechoic Chamber		
Report No.	10279739H		
Date	07/23/2014	07/25/2014	07/28/2014
Temperature/ Humidity	22 deg. C / 64% RH	22 deg. C / 59% RH	22 deg. C / 59% RH
Engineer	Takumi Shimada	Takumi Shimada	Takumi Shimada
	(1-10GHz)	(10-26.5GHz)	(26.5-40GHz)
Mode	11a Tx 5320MHz Sub Antenna		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	5350.000	PK	47.9	32.2	3.8	33.7	-	50.2	68.2	18.0	Bandedge	
Hori	10640.000	PK	43.1	39.3	-2.3	34.0	-	46.1	73.9	27.8	Inside	Floor Noise
Hori	15960.000	PK	45.2	38.4	-0.7	33.3	-	49.6	73.9	24.3	Inside	Floor Noise
Hori	21280.000	PK	45.6	39.9	-1.5	32.8	-	51.2	73.9	22.7	Inside	Floor Noise
Vert	5350.000	AV	37.9	32.2	3.8	33.7	0.1	40.3	53.9	13.6	Bandedge	
Hori	10640.000	AV	34.1	39.3	-2.3	34.0	-	37.1	53.9	16.8	Inside	Floor Noise
Hori	15960.000	AV	35.8	38.4	-0.7	33.3	-	40.2	53.9	13.7	Inside	Floor Noise
Hori	21280.000	AV	36.4	39.9	-1.5	32.8	-	42.0	53.9	11.9	Inside	Floor Noise
Vert	5350.000	PK	49.2	32.2	3.8	33.7	-	51.5	68.2	16.7	Bandedge	
Vert	10640.000	PK	43.4	39.3	-2.3	34.0	-	46.4	73.9	27.5	Inside	Floor Noise
Vert	15960.000	PK	44.9	38.4	-0.7	33.3	-	49.3	73.9	24.6	Inside	Floor Noise
Vert	21280.000	PK	45.4	39.9	-1.5	32.8	-	51.0	73.9	22.9	Inside	Floor Noise
Hori	5350.000	AV	38.2	32.2	3.8	33.7	0.1	40.6	53.9	13.3	Bandedge	
Vert	10640.000	AV	34.2	39.3	-2.3	34.0	-	37.2	53.9	16.7	Inside	Floor Noise
Vert	15960.000	AV	35.8	38.4	-0.7	33.3	-	40.2	53.9	13.7	Inside	Floor Noise
Vert	21280.000	AV	36.4	39.9	-1.5	32.8	-	42.0	53.9	11.9	Inside	Floor Noise

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier) + Duty Factor

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

Distance factor: 10GHz-26.5GHz $20\log(3.0\text{m}/1.0\text{m})= 9.5\text{dB}$
 26.5GHz-40GHz $20\log(3.0\text{m}/0.5\text{m})=15.6\text{dB}$

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Radiated Spurious Emission

Test place	Ise EMC Lab. No.2 Anechoic Chamber		
Report No.	10279739H		
Date	07/25/2014	07/25/2014	07/28/2014
Temperature/ Humidity	24 deg. C / 61% RH	22 deg. C / 59% RH	22 deg. C / 59% RH
Engineer	Takumi Shimada	Takumi Shimada	Takumi Shimada
	(1-10GHz)	(10-26.5GHz)	(26.5-40GHz)
Mode	11a Tx 5500MHz Sub Antenna		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	5460.000	PK	45.7	32.2	3.9	33.7	-	48.1	73.9	25.8	Inside	
Hori	5470.000	PK	50.8	32.2	3.9	33.7	-	53.2	68.2	15.0	Outside	
Hori	11000.000	PK	42.7	39.7	-2.2	33.8	-	46.4	73.9	27.5	Inside	Floor Noise
Hori	16500.000	PK	44.4	39.3	-0.5	32.9	-	50.3	68.2	17.9	Outside	Floor Noise
Hori	22000.000	PK	45.1	39.8	-1.4	31.9	-	51.6	68.2	16.6	Outside	Floor Noise
Hori	5460.000	AV	37.5	32.2	3.9	33.7	0.1	40.0	53.9	13.9	Inside	
Hori	11000.000	AV	33.8	39.7	-2.2	33.8	-	37.5	53.9	16.4	Inside	Floor Noise
Vert	5460.000	PK	44.4	32.2	3.9	33.7	-	46.8	73.9	27.1	Inside	
Vert	5470.000	PK	46.3	32.2	3.9	33.7	-	48.7	68.2	19.5	Outside	
Vert	11000.000	PK	42.9	39.7	-2.2	33.8	-	46.6	73.9	27.3	Inside	Floor Noise
Vert	16500.000	PK	44.6	39.3	-0.5	32.9	-	50.5	68.2	17.7	Outside	Floor Noise
Vert	22000.000	PK	45.3	39.8	-1.4	31.9	-	51.8	68.2	16.4	Outside	Floor Noise
Vert	5460.000	AV	35.5	32.2	3.9	33.7	0.1	38.0	53.9	15.9	Inside	
Vert	11000.000	AV	33.8	39.7	-2.2	33.8	-	37.5	53.9	16.4	Inside	Floor Noise

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier) + Duty Factor

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

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
 26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

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Radiated Spurious Emission

Test place : Ise EMC Lab. No.2 Anechoic Chamber
Report No. : 10279739H
Date : 07/25/2014 07/25/2014 07/28/2014
Temperature/ Humidity : 24 deg. C / 61% RH 22 deg. C / 59% RH 22 deg. C / 59% RH
Engineer : Takumi Shimada Takumi Shimada Takumi Shimada
(1-10GHz) (10-26.5GHz) (26.5-40GHz)
Mode : 11a Tx 5700MHz Sub Antenna

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	5725.000	PK	59.4	32.7	4.0	33.7	62.4	68.2	5.8	Outside	
Hori	11400.000	PK	41.3	39.7	-2.0	33.7	45.3	73.9	28.6	Inside	Floor Noise
Hori	17100.000	PK	44.4	41.2	-0.3	32.5	52.8	68.2	15.4	Outside	Floor Noise
Hori	22800.000	PK	45.1	39.8	-1.3	31.7	51.9	73.9	22.0	Inside	Floor Noise
Hori	11400.000	AV	32.6	39.7	-2.0	33.7	36.6	53.9	17.3	Inside	Floor Noise
Hori	22800.000	AV	35.9	39.8	-1.3	31.7	42.7	53.9	11.2	Inside	Floor Noise
Vert	5725.000	PK	52.4	32.7	4.0	33.7	55.4	68.2	12.8	Outside	
Vert	11400.000	PK	41.6	39.7	-2.0	33.7	45.6	73.9	28.3	Inside	Floor Noise
Vert	17100.000	PK	44.2	41.2	-0.3	32.5	52.6	68.2	15.6	Outside	Floor Noise
Vert	22800.000	PK	45.2	39.8	-1.3	31.7	52.0	73.9	21.9	Inside	Floor Noise
Vert	11400.000	AV	32.4	39.7	-2.0	33.7	36.4	53.9	17.5	Inside	Floor Noise
Vert	22800.000	AV	36.0	39.8	-1.3	31.7	42.8	53.9	11.1	Inside	Floor Noise

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
 26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

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Radiated Spurious Emission

Test place Ise EMC Lab. No.2 Anechoic Chamber
Report No. 10279739H
Date 07/25/2014 07/25/2014 07/28/2014
Temperature/ Humidity 24 deg. C / 61% RH 22 deg. C / 59% RH 22 deg. C / 59% RH
Engineer Takumi Shimada Takumi Shimada Takumi Shimada
(1-10GHz) (10-26.5GHz) (26.5-40GHz)
Mode 11a Tx 5745MHz Sub Antenna

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	5725.000	PK	60.8	32.7	4.0	33.7	63.8	68.2	4.4	Outside	
Hori	11490.000	PK	41.2	39.7	-2.0	33.7	45.2	73.9	28.7	Inside	Floor Noise
Hori	17235.000	PK	44.1	42.3	-0.3	32.5	53.6	68.2	14.6	Outside	Floor Noise
Hori	22980.000	PK	45.1	39.8	-1.2	31.7	52.0	73.9	21.9	Inside	Floor Noise
Hori	11490.000	AV	32.3	39.7	-2.0	33.7	36.3	53.9	17.6	Inside	Floor Noise
Hori	22980.000	AV	36.1	39.8	-1.2	31.7	43.0	53.9	10.9	Inside	Floor Noise
Vert	5725.000	PK	56.2	32.7	4.0	33.7	59.2	68.2	9.0	Outside	
Vert	11490.000	PK	41.4	39.7	-2.0	33.7	45.4	73.9	28.5	Inside	Floor Noise
Vert	17235.000	PK	44.6	42.3	-0.3	32.5	54.1	68.2	14.1	Outside	Floor Noise
Vert	22980.000	PK	44.9	39.8	-1.2	31.7	51.8	73.9	22.1	Inside	Floor Noise
Vert	11490.000	AV	32.3	39.7	-2.0	33.7	36.3	53.9	17.6	Inside	Floor Noise
Vert	22980.000	AV	36.1	39.8	-1.2	31.7	43.0	53.9	10.9	Inside	Floor Noise

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

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Radiated Spurious Emission

Test place : Ise EMC Lab. No.2 Anechoic Chamber
Report No. : 10279739H
Date : 07/25/2014 07/25/2014 07/28/2014
Temperature/ Humidity : 24 deg. C / 61% RH 22 deg. C / 59% RH 22 deg. C / 59% RH
Engineer : Takumi Shimada Takumi Shimada Takumi Shimada
(1-10GHz) (10-26.5GHz) (26.5-40GHz)
Mode : 11a Tx 5785MHz Sub Antenna

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	11570.000	PK	41.4	39.7	-1.9	33.7	45.5	73.9	28.4	Inside	Floor Noise
Hori	17355.000	PK	44.2	43.3	-0.2	32.4	54.9	68.2	13.3	Outside	Floor Noise
Hori	23140.000	PK	45.9	39.8	-1.2	31.7	52.8	68.2	15.4	Outside	Floor Noise
Hori	11570.000	AV	32.2	39.7	-1.9	33.7	36.3	53.9	17.6	Inside	Floor Noise
Vert	11570.000	PK	41.2	39.7	-1.9	33.7	45.3	73.9	28.6	Inside	Floor Noise
Vert	17355.000	PK	44.2	43.3	-0.2	32.4	54.9	68.2	13.3	Outside	Floor Noise
Vert	23140.000	PK	45.9	39.8	-1.2	31.7	52.8	68.2	15.4	Outside	Floor Noise
Vert	11570.000	AV	32.2	39.7	-1.9	33.7	36.3	53.9	17.6	Inside	Floor Noise

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

Distance factor: 10GHz-26.5GHz $20\log(3.0\text{m}/1.0\text{m})= 9.5\text{dB}$
26.5GHz-40GHz $20\log(3.0\text{m}/0.5\text{m})=15.6\text{dB}$

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Radiated Spurious Emission

Test place	Ise EMC Lab. No.2 Anechoic Chamber		
Report No.	10279739H		
Date	07/25/2014	07/25/2014	07/28/2014
Temperature/ Humidity	24 deg. C / 61% RH	22 deg. C / 59% RH	22 deg. C / 59% RH
Engineer	Takumi Shimada	Takumi Shimada	Takumi Shimada
	(1-10GHz)	(10-26.5GHz)	(26.5-40GHz)
Mode	11a Tx 5825MHz Sub Antenna		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	177.330	QP	33.6	16.0	8.0	28.0	29.6	43.5	13.9	Outside	
Hori	416.000	QP	31.7	17.4	9.2	28.4	29.9	46.0	16.1	Outside	
Hori	544.000	QP	32.8	18.8	9.6	28.8	32.4	46.0	13.6	Outside	
Hori	576.332	QP	38.5	19.2	9.8	28.8	38.7	46.0	7.3	Outside	
Hori	768.000	QP	35.0	21.3	10.7	28.3	38.7	46.0	7.3	Outside	
Hori	800.000	QP	32.8	21.8	10.8	28.2	37.2	46.0	8.8	Outside	
Hori	5850.000	PK	55.8	32.9	4.0	33.7	59.0	68.2	9.2	Outside	
Hori	11650.000	PK	43.3	39.7	-1.8	33.7	47.5	73.9	26.4	Inside	Floor Noise
Hori	17475.000	PK	44.1	44.3	-0.2	32.4	55.8	68.2	12.4	Outside	Floor Noise
Hori	23300.000	PK	46.1	39.8	-1.2	31.7	53.0	68.2	15.2	Outside	Floor Noise
Hori	11650.000	AV	32.9	39.7	-1.8	33.7	37.1	53.9	16.8	Inside	Floor Noise
Vert	177.330	QP	35.4	16.0	8.0	28.0	31.4	43.5	12.1	Outside	
Vert	416.000	QP	36.4	17.4	9.2	28.4	34.6	46.0	11.4	Outside	
Vert	544.000	QP	38.5	18.8	9.6	28.8	38.1	46.0	7.9	Outside	
Vert	576.331	QP	35.4	19.2	9.8	28.8	35.6	46.0	10.4	Outside	
Vert	768.000	QP	33.0	21.3	10.7	28.3	36.7	46.0	9.3	Outside	
Vert	800.000	QP	31.2	21.8	10.8	28.2	35.6	46.0	10.4	Outside	
Vert	5850.000	PK	51.2	32.9	4.0	33.7	54.4	68.2	13.8	Outside	
Vert	11650.000	PK	43.5	39.7	-1.8	33.7	47.7	73.9	26.2	Inside	Floor Noise
Vert	17475.000	PK	44.2	44.3	-0.2	32.4	55.9	68.2	12.3	Outside	Floor Noise
Vert	23300.000	PK	46.3	39.8	-1.2	31.7	53.2	68.2	15.0	Outside	Floor Noise
Vert	11650.000	AV	33.1	39.7	-1.8	33.7	37.3	53.9	16.6	Inside	Floor Noise

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
 26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

UL Japan, Inc.

Ise EMC Lab.

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Radiated Spurious Emission

Test place : Ise EMC Lab. No.2 Anechoic Chamber
Report No. : 10279739H
Date : 07/23/2014
Temperature/ Humidity : 22 deg. C / 64% RH
Engineer : Takumi Shimada
(1-10GHz)
Mode : 11n-20 Tx 5180MHz Sub Antenna

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	5150.000	PK	53.5	32.2	3.8	33.9	-	55.6	68.2	12.6	Bandedge	
Hori	5150.000	AV	40.6	32.2	3.8	33.9	0.2	42.9	53.9	11.1	Bandedge	
Vert	5150.000	PK	54.1	32.2	3.8	33.9	-	56.2	68.2	12.0	Bandedge	
Vert	5150.000	AV	41.8	32.2	3.8	33.9	0.2	44.1	53.9	9.9	Bandedge	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier) + Duty Factor

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

Distance factor: 10GHz-26.5GHz $20\log(3.0\text{m}/1.0\text{m})= 9.5\text{dB}$
 26.5GHz-40GHz $20\log(3.0\text{m}/0.5\text{m})=15.6\text{dB}$

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Radiated Spurious Emission

Test place : Ise EMC Lab. No.2 Anechoic Chamber
Report No. : 10279739H
Date : 07/23/2014
Temperature/ Humidity : 22 deg. C / 64% RH
Engineer : Takumi Shimada
(1-10GHz)
Mode : 11n-20 Tx 5320MHz Sub Antenna

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	5350.000	PK	50.4	32.2	3.8	33.7	-	52.7	68.2	15.5	Bandedge	
Hori	5350.000	AV	39.0	32.2	3.8	33.7	0.2	41.5	53.9	12.5	Bandedge	
Vert	5350.000	PK	50.1	32.2	3.8	33.7	-	52.4	68.2	15.8	Bandedge	
Vert	5350.000	AV	38.7	32.2	3.8	33.7	0.2	41.2	53.9	12.8	Bandedge	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier) + Duty Factor

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

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
 26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

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Radiated Spurious Emission

Test place : Ise EMC Lab. No.2 Anechoic Chamber
Report No. : 10279739H
Date : 07/25/2014
Temperature/ Humidity : 24 deg. C / 61% RH
Engineer : Takumi Shimada
(1-10GHz)
Mode : 11n-20 Tx 5500MHz Sub Antenna

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	5460.000	PK	45.8	32.2	3.9	33.7	-	48.2	73.9	25.7	Inside	
Hori	5470.000	PK	56.5	32.2	3.9	33.7	-	58.9	68.2	9.3	Outside	
Hori	5460.000	AV	37.3	32.2	3.9	33.7	0.2	39.9	53.9	14.1	Inside	
Vert	5460.000	PK	45.2	32.2	3.9	33.7	-	47.6	73.9	26.3	Inside	
Vert	5470.000	PK	54.3	32.2	3.9	33.7	-	56.7	68.2	11.5	Outside	
Vert	5460.000	AV	36.5	32.2	3.9	33.7	0.2	39.1	53.9	14.9	Inside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier) + Duty Factor

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

Distance factor: 10GHz-26.5GHz $20\log(3.0\text{m}/1.0\text{m})= 9.5\text{dB}$
 26.5GHz-40GHz $20\log(3.0\text{m}/0.5\text{m})=15.6\text{dB}$

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Radiated Spurious Emission

Test place : Ise EMC Lab. No.2 Anechoic Chamber
Report No. : 10279739H
Date : 07/25/2014
Temperature/ Humidity : 24 deg. C / 61% RH
Engineer : Takumi Shimada
(1-10GHz)
Mode : 11n-20 Tx 5700MHz Sub Antenna

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	5725.000	PK	56.9	32.7	4.0	33.7	59.9	68.2	8.3	Outside	
Vert	5725.000	PK	47.2	32.7	4.0	33.7	50.2	68.2	18.0	Outside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

Distance factor: 10GHz-26.5GHz $20\log(3.0\text{m}/1.0\text{m})= 9.5\text{dB}$
 26.5GHz-40GHz $20\log(3.0\text{m}/0.5\text{m})=15.6\text{dB}$

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Radiated Spurious Emission

Test place Ise EMC Lab. No.2 Anechoic Chamber
Report No. 10279739H
Date 07/25/2014
Temperature/ Humidity 24 deg. C / 61% RH
Engineer Takumi Shimada
 (1-10GHz)
Mode 11n-20 Tx 5745MHz Sub Antenna

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	5725.000	PK	64.2	32.7	4.0	33.7	67.2	68.2	1.0	Outside	
Vert	5725.000	PK	60.6	32.7	4.0	33.7	63.6	68.2	4.6	Outside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
 26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

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Radiated Spurious Emission

Test place : Ise EMC Lab. No.2 Anechoic Chamber
Report No. : 10279739H
Date : 07/25/2014
Temperature/ Humidity : 24 deg. C / 61% RH
Engineer : Takumi Shimada
(1-10GHz)
Mode : 11n-20 Tx 5825MHz Sub Antenna

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	5850.000	PK	57.8	32.9	4.0	33.7	61.0	68.2	7.2	Outside	
Vert	5850.000	PK	52.4	32.9	4.0	33.7	55.6	68.2	12.6	Outside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
 26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

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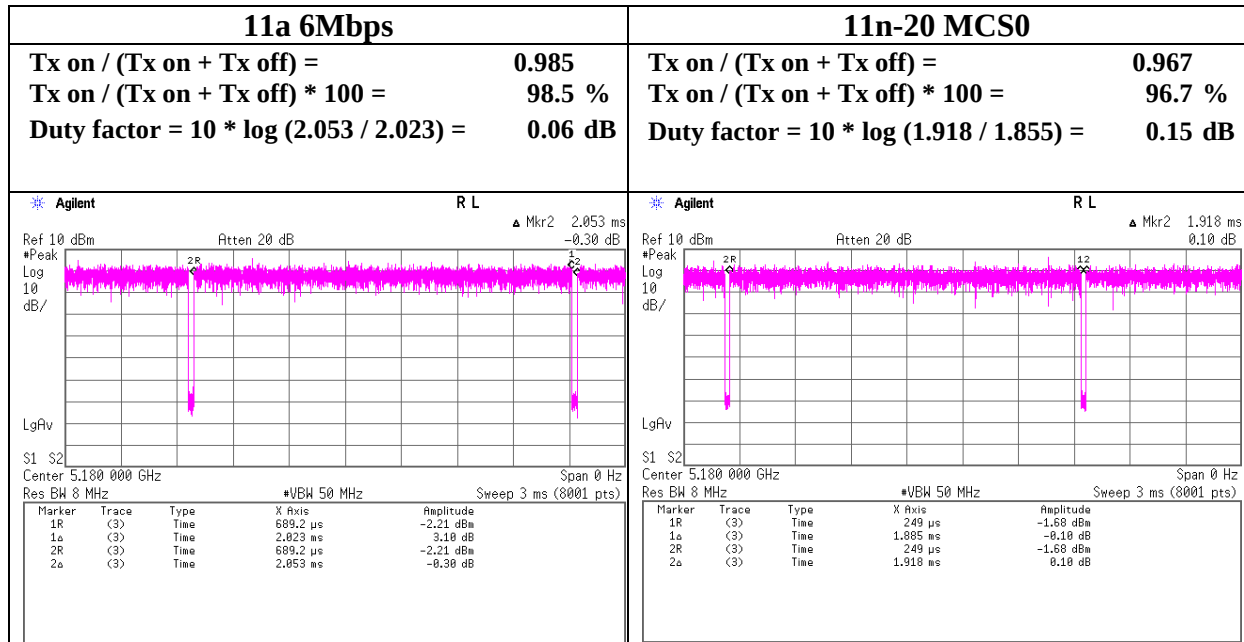
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

Duty cycle

Test place	Ise EMC Lab. No.7 Shielded Room
Report No.	10279739H
Date	07/22/2014
Temperature/ Humidity	21 deg. C / 61% RH
Engineer	Keisuke Kawamura
Mode	11a 6Mbps / 11n-20 MCS0



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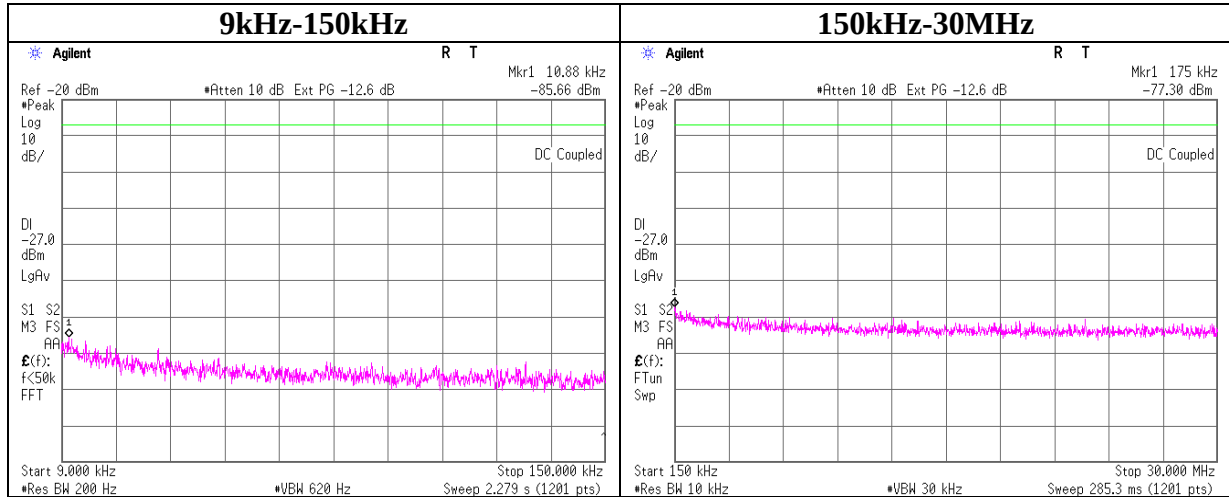
Facsimile : +81 596 24 8124

Conducted Spurious Emission

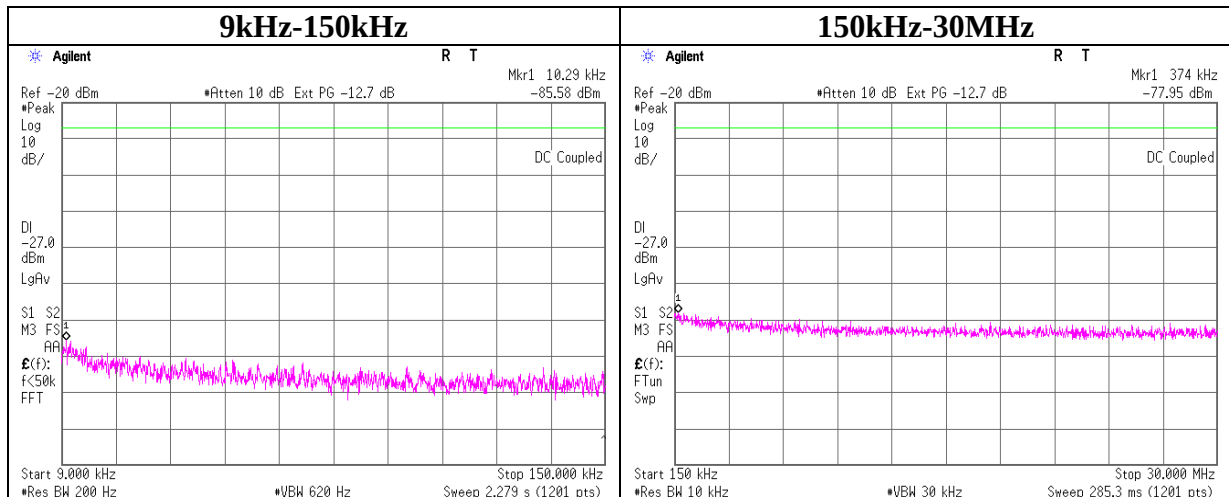
Test place
Report No.
Date
Temperature/ Humidity
Engineer
Mode

Ise EMC Lab. No.6 Measurement Room
10279739H
07/28/2014
26deg. C / 68% RH
Tomohisa Nakagawa
11a Tx

11a Tx 5180MHz Sub Antenna

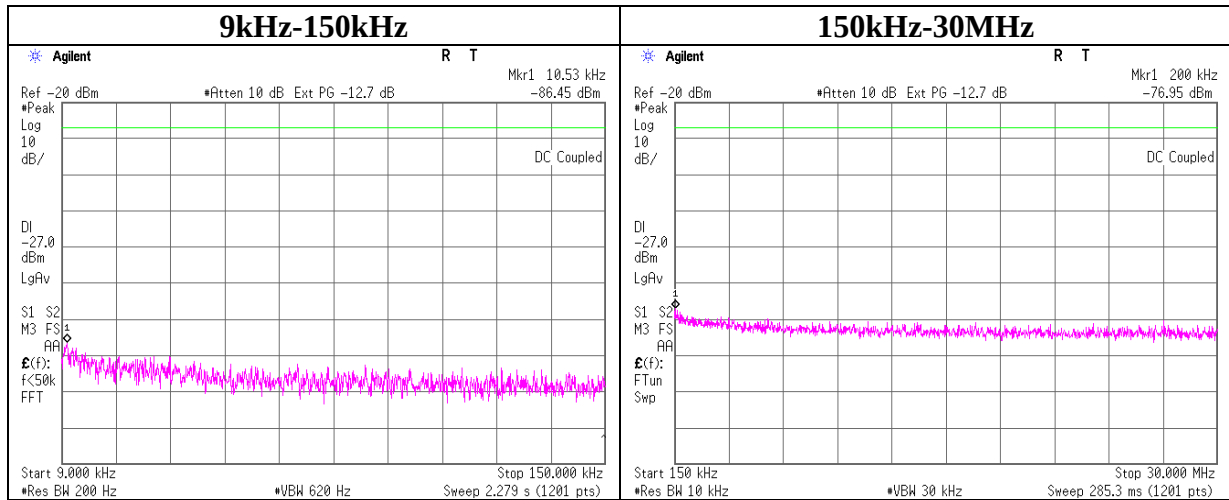


11a Tx 5320MHz Sub Antenna

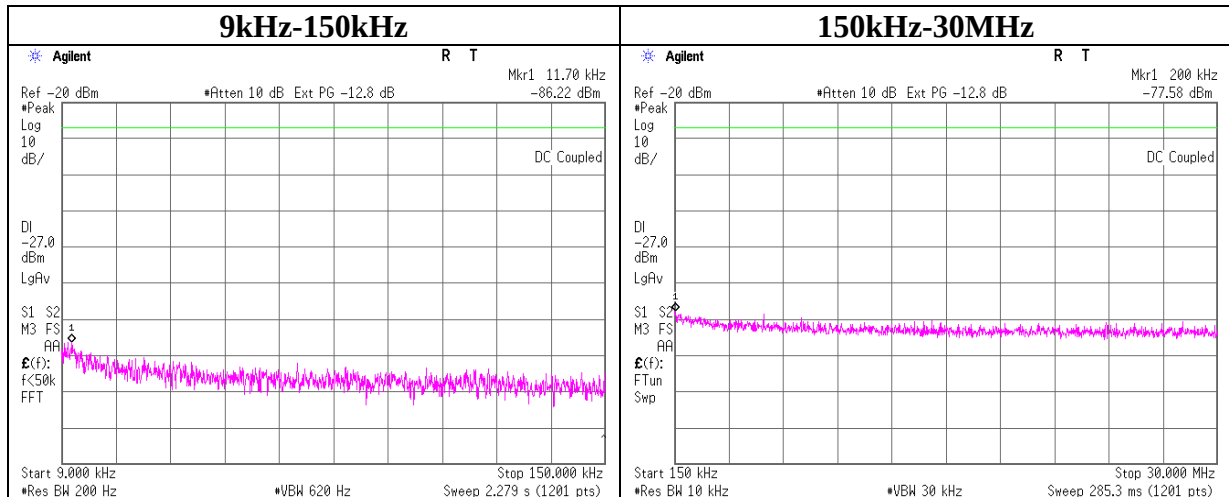


Conducted Spurious Emission

11a Tx 5500MHz Sub Antenna



11a Tx 5825MHz Sub Antenna



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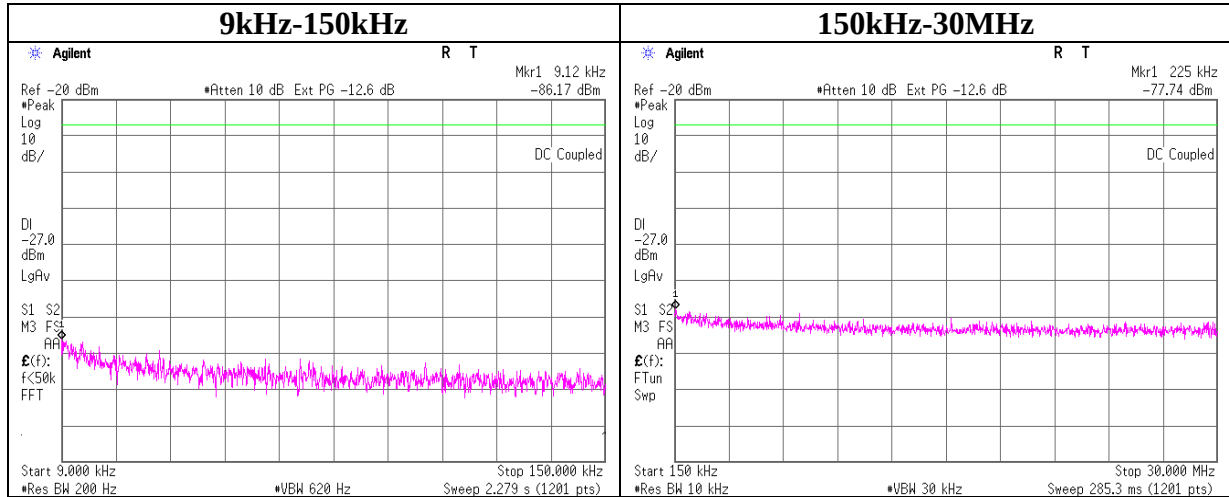
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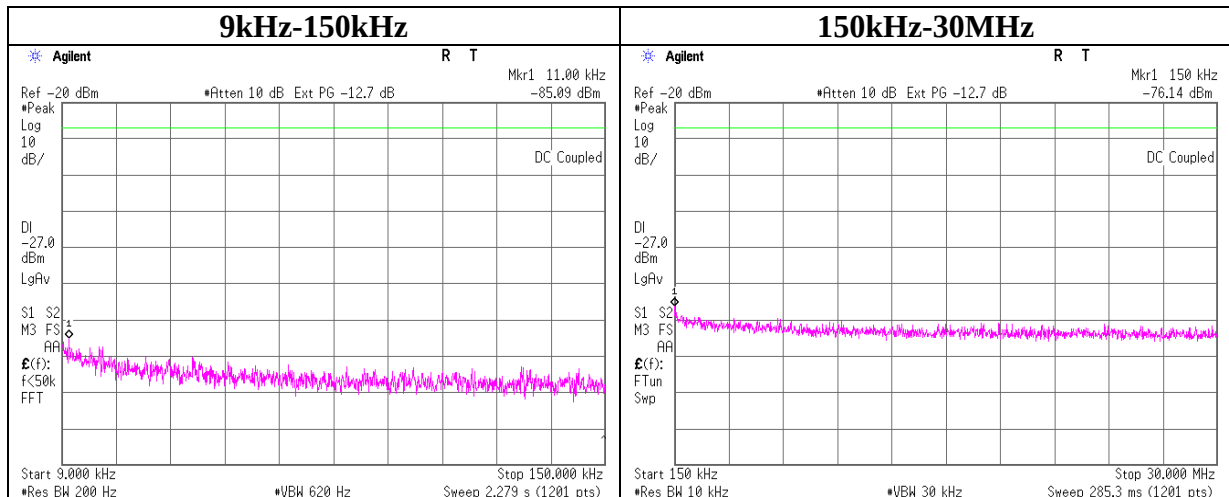
Conducted Spurious Emission

Test place Ise EMC Lab. No.6 Measurement Room
Report No. 10279739H
Date 07/28/2014
Temperature/ Humidity 26deg. C / 68% RH
Engineer Tomohisa Nakagawa
Mode 11n-20 Tx

11n-20 Tx 5180MHz Sub Antenna



11n-20 Tx 5320MHz Sub Antenna



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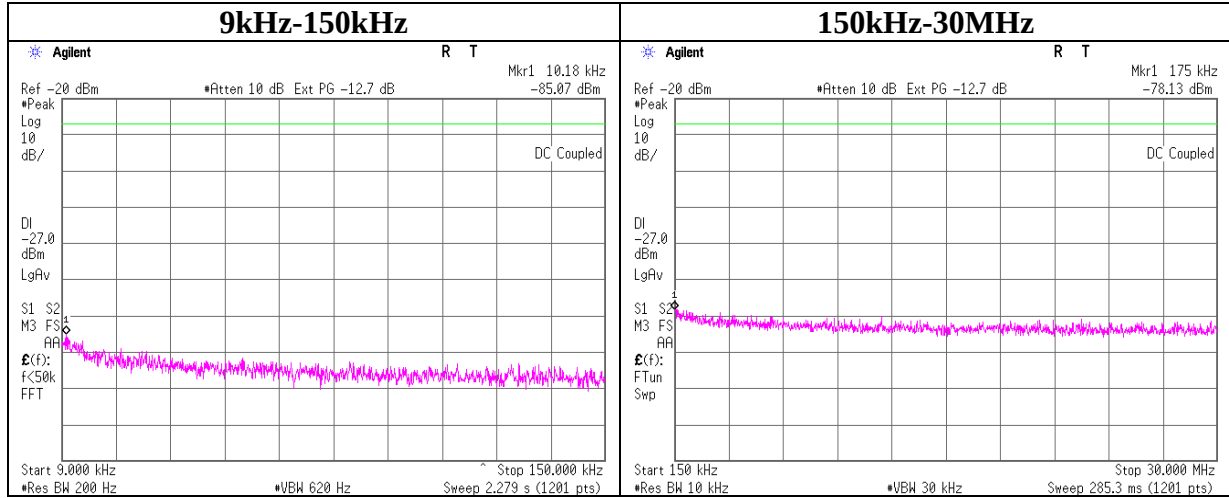
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Telephone : +81 596 24 8999

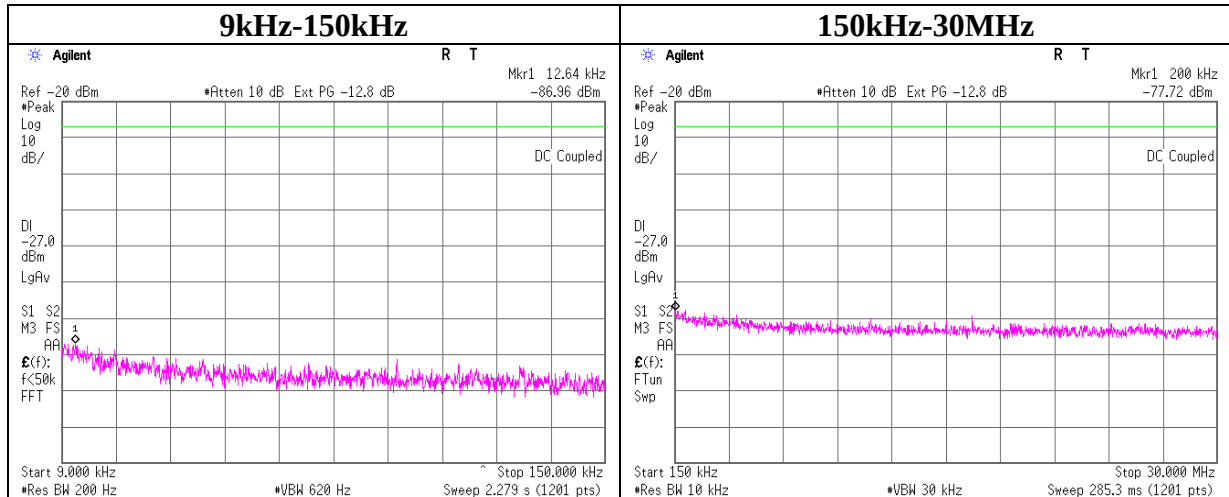
Facsimile : +81 596 24 8124

Conducted Spurious Emission

11n-20 Tx 5500MHz Sub Antenna



11n-20 Tx 5825MHz Sub Antenna



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APPENDIX 2: Test instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MAEC-02	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-06902	RE/CE	2014/06/25 * 12
MOS-22	Thermo-Hygrometer	Custom	CTH-201	0003	RE/CE	2014/02/20 * 12
MJM-14	Measure	KOMELON	KMC-36	-	RE/CE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	RE/CE	-
MRENT-116	Spectrum Analyzer	Agilent	E4440A	MY46187620	RE	2014/03/05 * 12
MHA-06	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	254	RE	2014/02/21 * 12
MCC-166	Microwave Cable	Junkosha	MWX221	1303S120(1m) / 1311S167(5m)	RE	2013/11/27 * 12
MPA-10	Pre Amplifier	Agilent	8449B	3008A02142	RE	2014/01/21 * 12
MHF-16	High Pass Filter 7-20GHz	TOKIMEC	TF37NCCA	7001	RE	2013/09/25 * 12
MCC-76	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX104	278967/4	RE	2013/12/24 * 12
MHA-02	Horn Antenna 18-26.5GHz	EMCO	3160-09	1265	RE	2014/02/21 * 12
MHA-16	Horn Antenna 15-40GHz	Schwarzbeck	BBHA9170	BBHA9170306	RE	2014/05/26 * 12
MPA-03	Microwave System Power Amplifier	Agilent	83050A	3950M00205	RE	2014/06/30 * 12
MPM-08	Power Meter	Anritsu	ML2495A	6K00003338	AT	2013/10/15 * 12
MPSE-11	Power sensor	Anritsu	MA2411B	011737	AT	2013/10/15 * 12
MRENT-115	Spectrum Analyzer	Agilent	E4440A	MY46186390	AT	2014/02/28 * 12
MCC-67	Microwave Cable 1G-40GHz	Suhner	SUCOFLEX102	28635/2	AT	2014/04/14 * 12
MAT-22	Attenuator(10dB) 1-18GHz	Orient Microwave	BX10-0476-00	-	AT	2014/03/13 * 12
MOS-15	Thermo-Hygrometer	Custom	CTH-180	1501	AT	2014/02/20 * 12
MSA-10	Spectrum Analyzer	Agilent	E4448A	MY46180655	RE/CE	2014/02/20 * 12
MTR-03	Test Receiver	Rohde & Schwarz	ESCI	100300	RE/CE	2014/06/03 * 12
MBA-02	Biconical Antenna	Schwarzbeck	BBA9106	VHA91032008	RE	2013/10/13 * 12
MLA-02	Logperiodic Antenna	Schwarzbeck	USLP9143	201	RE	2013/10/13 * 12
MCC-12	Coaxial Cable	Fujikura/Agilent	-	-	RE	2014/02/20 * 12
MAT-07	Attenuator(6dB)	Weinschel Corp	2	BK7970	RE	2013/11/26 * 12
MPA-09	Pre Amplifier	Agilent	8447D	2944A10845	RE	2013/09/12 * 12
MLS-23	LISN(AMN)	Schwarzbeck	NSLK8127	8127-729	CE(EUT)	2014/07/10 * 12
MLS-24	LISN(AMN)	Schwarzbeck	NSLK8127	8127-730	CE(AE)	2014/07/10 * 12
MTA-30	Terminator	TME	CT-01	-	CE	2014/01/20 * 12
MCC-13	Coaxial Cable	Fujikura	3D-2W(12m)/5D-2W(5m)/5D-2W(0.8m)/5D-2W(1m)	-	CE	2014/02/20 * 12
MAT-65	Attenuator(13dB)	JFW Industries, Inc.	50FP-013H2 N	-	CE	2014/01/29 * 12

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

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

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

Test Item: CE: Conducted Emission test

RE: Radiated Emission test

AT: Antenna Terminal Conducted tests

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