



RADIO TEST REPORT

Test Report No.: 33CE0266-SH-02-D-R1

Applicant : Toshiba Corporation
Type of Equipment : Notebook Computer
Model No. : Satellite U930
FCC ID : CJ6UPSU7FPC2
Test regulation : FCC Part15 Subpart E: 2012
Test result : Complied

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7. This report is a revised version of 33CE0266-SH-02-D. 33CE0266-SH-02-D is replaced with this report.

Date of test: November 21 to December 5, 2012

Tested by:

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UL Verification Service

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13-EM-F0429

REVISION HISTORY

Original Test Report No.: 33CE0266-SH-02-D

[illegible]

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SECTION 1: Customer information

Company Name : Toshiba Corporation
Address : 2-9, Suehiro-cho, Ome-shi, Tokyo, 198-8710 Japan
Telephone Number : +81 42 834 1050
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Contact Person : Toshiyuki Echigo

SECTION 2: Equipment under test (E.U.T.)**2.1 Identification of E.U.T.**

Type of Equipment : Notebook Computer
Model Number : Satellite U930
Serial Number : Refer to 4.2 in this report.
Rating : DC19V
Country of Mass-production : China
Condition of EUT : Production prototype
(Not for Sale: This sample is equivalent to mass-produced items.)
Receipt Date of Sample : November 14, 2012
Modification of EUT : No modification by the test lab.

2.2 Product description

Model: Satellite U930 (referred to as the EUT in this report) is a Notebook Computer.

Derived models of the EUT:

Model	Touch screen function
Satellite U930 (EUT)	-
Satellite U930t	Yes
Satellite U935	-
Satellite U935t	Yes

Model: Satellite U930/ Satellite U930t has a different sales channel with Satellite U935/Satellite U935t.

Clock frequency(ies) in the system : 40MHz (XTAL)

Radio specification:

Bluetooth:

Equipment type	: Transceiver
Frequency of operation	: 2402-2480MHz
Bandwidth	: 79MHz
Channel spacing	: 1MHz (BDR/EDR mode), 2MHz (Low Energy mode)
Type of modulation	: FHSS, DSSS
Antenna type	: PIFA
Antenna gain with cable loss	: 3.24dBi
Antenna connector type	: U.FL
ITU code	: F1D, G1D

When Bluetooth is used, IEEE 802.11 a/b/g/n is not transmitted.

Wireless LAN:

Equipment type	: Transceiver
Frequency of operation *1)	: 2.4GHz: 2412-2462MHz (IEEE 802.11b, 11g, 11n-HT20) 2422-2452MHz (IEEE 802.11n-HT40)
	W52: 5180-5240MHz (IEEE 802.11a, 11n-HT20) 5190-5230MHz (IEEE 802.11n-HT40)
	W53: 5260-5320MHz (IEEE 802.11a, 11n-HT20) 5270-5310MHz (IEEE 802.11n-HT40)
	W56: 5500-5700MHz (IEEE 802.11a, 11n-HT20) 5510-5670MHz (IEEE 802.11n-HT40)
	W58: 5745-5825MHz (IEEE 802.11a, 11n-HT20) 5755-5795MHz (IEEE 802.11n-HT40)
Bandwidth	: 20MHz (IEEE 802.11a/b/g/n), 40MHz (IEEE 802.11n)
Channel spacing	: 5MHz (2.4GHz), 20MHz (11a, 11n (HT20, 5GHz)), 40MHz (11n (HT40, 5GHz))
Type of modulation	: DSSS, OFDM
Antenna type	: PIFA
Antenna gain with cable loss	: 3.24dBi (2.4GHz), 3.64dBi (W52), 3.73dBi (W53), 4.77dBi (W56), 4.97dBi (W58)
Antenna connector type	: U.FL
ITU code	: D1D, G1D

*1) Refer to the test report 33CE0266-SH-02-A/B/C for FCC 15.247.

Operation temperature range : 0 to +80 deg.C

FCC 15.31 (e)

The EUT provides stable voltage (DC3.3V) constantly to the wireless transmitter regardless of input voltage. Therefore, this EUT complies with the requirement.

FCC 15.203

The EUT has a unique coupling/antenna connector (U.FL). Therefore the equipment complies with the requirement.

SECTION 3: Test specification, procedures & results

3.1 Test specification

Test specification : FCC Part 15 Subpart E: 2012, final revised on August 13, 2012 and effective September 12, 2012

Title : FCC 47CFR Part15 Radio Frequency Device Subpart C Intentional Radiators

Section 15.207 Conducted limits

Section 15.209 Radiated emission limits, general requirements

Section 15.407 General technical requirements

The EUT will be tested for compliance with FCC Part 15 Subpart B by the customer.

3.2 Procedures & Results

Item	Test Procedure *1)	Specification	Remarks	Deviation	Worst Margin	Results
Conducted emission	ANSI C63.4:2009 7. AC powerline conducted emission measurements	FCC 15.407 (b)(6) & 15.207	-	N/A	4.8dB Freq.: 27.64850 MHz Detector: Average Phase: N Mode: Tx 5670MHz, IEEE 802.11n (HT40) Freq.: 27.64800 MHz Detector: Average Phase: N Mode: Tx 5670MHz, IEEE 802.11n (HT40)	Complied
26dB & 20dB emission bandwidth	ANSI C63.4:2009 13. Measurement of intentional radiators	FCC 15.407 (a)(1)(2)(3) FCC 15.215 (c)	Conducted	N/A	See data	-
Maximum conducted output power	ANSI C63.4:2009 13. Measurement of intentional radiators	FCC 15.407 (a)(1)(2)(3)	Conducted	N/A		Complied
Peak power spectral density	ANSI C63.4:2009 13. Measurement of intentional radiators	FCC 15.407 (a)(1)(2)(3)	Conducted	N/A		Complied
Peak excursion ratio	ANSI C63.4:2009 13. Measurement of intentional radiators	FCC 15.407 (a)(6)	Conducted	N/A		Complied
Spurious emission & Restricted band edges	ANSI C63.4:2009 13. Measurement of intentional radiators	FCC 15.109, 15.407 (b), 15.205 & 15.209	Radiated	N/A	0.4dB Freq.: 5470.000 MHz Detector: Peak Polarization: Vertical Mode: Tx 5510MHz, IEEE 802.11n (HT40)	Complied
Dynamic frequency selection	FCC 06-96 APPENDIX	FCC 15.407 (h)	Conducted	*2)	N/A	N/A
*1) These tests were also referred to KDB 789033 (FCC), "Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - Part 15, Subpart E".						
*2) Refer to the test report 33CE0266-SH-02-E.						
Note: UL Japan's Work Procedures No. 13-EM-W0420 and 13-EM-W0422						

3.3 Addition to standard

Item	Test Procedure	Specification	Remarks	Worst Margin	Results
Occupied Bandwidth (99%)	ANSI C63.4:2009 13. Measurement of intentional radiators, RSS-Gen 4.6.1	-	Conducted	-	-
Note: UL Japan's Work Procedures No. 13-EM-W0420 and 13-EM-W0422					

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

3.4 Uncertainty

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

Item	Frequency range	No.1 SAC ^{*1} /SR ^{*2} (±)	No.2 SAC/SR (±)	No.3 SAC/SR (±)
Conducted emission (AC Mains) LISN	150kHz-30MHz	3.6 dB	3.6 dB	3.5 dB
Radiated emission (Measurement distance: 3m)	9kHz-30MHz	3.7 dB	3.7 dB	3.6 dB
	30MHz-300MHz	4.9 dB	5.1 dB	4.9 dB
	300MHz-1GHz	5.0 dB	5.2 dB	4.9 dB
	1GHz-15GHz	4.8 dB	4.8 dB	4.9 dB
Radiated emission (Measurement distance: 1m)	15GHz-18GHz	5.6 dB	5.6 dB	5.6 dB
	18GHz-40GHz	4.6 dB	4.3 dB	4.4 dB

*1: SAC=Semi-Anechoic Chamber

*2: SR= Shielded Room is applied besides radiated emission

Conducted emission test

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

Radiated emission test

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

Antenna port conducted test

Power measurement uncertainty above 1GHz for this test was: (±) 1.5dB

Bandwidth measurement uncertainty for this test was: (±) 5.4%

3.5 Test location

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JAB Accreditation No. : RTL02610

	FCC Registration No.	IC Registration No.	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Maximum measurement distance
☐ No.1 semi-anechoic chamber	697847	2973D-1	20.6 x 11.3 x 7.65	20.6 x 11.3	10m
☐ No.2 semi-anechoic chamber	697847	2973D-2	20.6 x 11.3 x 7.65	20.6 x 11.3	10m
☒ No.3 semi-anechoic chamber	697847	2973D-3	12.7 x 7.7 x 5.35	12.7 x 7.7	5m
☐ 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.7 shielded room	-	-	2.76 x 3.76 x 2.4	2.76 x 3.76	-

3.6 Test setup, Data of test & Test instruments

Refer to APPENDIX 1 to 3.

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SECTION 4: Operation of E.U.T. during testing**4.1 Operating mode**

Test item	Mode	Tested frequency	Worst data mode *1)
Conducted emission Radiated emission (below 1GHz) *2)	Transmitting IEEE 802.11n (HT40) (SISO)	5670MHz	PN9, MCS0
	Transmitting IEEE 802.11n (HT40) (MIMO)	5670MHz	PN9, MCS8
Other items	Transmitting IEEE 802.11a	5180MHz, 5220MHz, 5240MHz	PN9, 6Mbps
		5260MHz, 5300MHz, 5320MHz	PN9, 6Mbps
		5500MHz, 5580MHz, 5700MHz	PN9, 6Mbps
	Transmitting IEEE 802.11n (HT20) (SISO)	5180MHz, 5220MHz, 5240MHz	PN9, MCS0
		5260MHz, 5300MHz, 5320MHz	
		5500MHz, 5580MHz, 5700MHz	
	Transmitting IEEE 802.11n (HT20) (MIMO) *3)	5180MHz, 5220MHz, 5240MHz	PN9, MCS8
		5260MHz, 5300MHz, 5320MHz	
		5500MHz, 5580MHz, 5700MHz	
	Transmitting IEEE 802.11n (HT40) (SISO)	5190MHz, 5230MHz	PN9, MCS0
		5270MHz, 5310MHz	
		5510MHz, 5550MHz, 5670MHz	
	Transmitting IEEE 802.11n (HT40) (MIMO) *3)	5190MHz, 5230MHz	PN9, MCS8
		5270MHz, 5310MHz	
		5510MHz, 5550MHz, 5670MHz	
*1) The worst condition was determined based on the test result of Maximum Conducted Output Power.			
*2) 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.			
*3) As this transmitter has MIMO mode for only MCS8 to MCS15, we need not to consider array gains.			

Antenna port used:

	Single output (11a, 11n (SISO))	Multi output (11n (MIMO))
Maximum conducted output power	- Main - AUX	Main + AUX
Other tests	- Main (worst)	Main + AUX

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EUT has the power settings by the software as follows;

Test software: DRTU version 1.5.7.0432 (Intel)

Power settings:

[W52]

	5180MHz/5190MHz		5220MHz		5240MHz/5230MHz	
	Main	Aux	Main	Aux	Main	Aux
11a	24.5	24.0	24.5	24.0	24.5	24.5
11n (HT20)(SISO)	24.0	24.5	25.0	24.5	25.5	25.0
11n (HT20)(MIMO)	26.0	25.5	26.0	25.5	26.0	25.5
11n (HT40)(SISO)	21.0	21.0	-	-	26.0	26.0
11n (HT40)(MIMO)	23.5	23.0	-	-	27.5	27.0

[W53]

	5260MHz/5270MHz		5300MHz		5320MHz/5310MHz	
	Main	Aux	Main	Aux	Main	Aux
11a	25.0	24.5	25.5	25.0	25.5	25.5
11n (HT20)(SISO)	25.5	25.0	26.0	25.0	26.0	25.5
11n (HT20)(MIMO)	26.0	25.5	26.5	26.0	26.5	26.5
11n (HT40)(SISO)	26.5	26.0	-	-	20.5	22.0
11n (HT40)(MIMO)	27.5	27.0	-	-	27.0	26.5

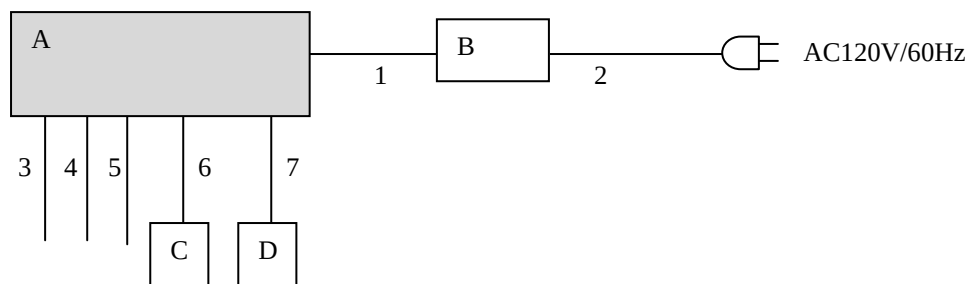
[W56]

	5500MHz/5510MHz		5580MHz/5550MHz		5700MHz/5670MHz	
	Main	Aux	Main	Aux	Main	Aux
11a	27.5	27.5	28.0	28.0	28.5	28.5
11n (HT20)(SISO)	27.5	27.5	28.0	28.0	28.5	28.5
11n (HT20)(MIMO)	28.5	28.5	29.0	29.0	29.5	29.0
11n (HT40)(SISO)	27.5	27.5	29.0	29.0	29.5	29.5
11n (HT40)(MIMO)	30.0	29.5	30.5	30.0	30.5	30.0

* This setting of software is the worst case. Any conditions under the normal use do not exceed the condition of setting.

Justification: The system was configured in typical fashion (as customer would normally use it) for testing.

4.2 Configuration and peripherals



* Test data was taken under worse case conditions.

Description of EUT and support equipment

No.	Item	Model number	Serial number	Manufacturer	Remarks
A	Notebook Computer	Satellite U930	*1)	Toshiba	EUT *2)
B	AC Adaptor	PA5096U-1ACA	G71C000FF1100	Toshiba	-
C	Mouse	MO28UOL	453859	Lenovo	-
D	Headphones	HP-H500N	-	AudioComm	-

*1) XC134402H: Maximum conducted output power test, XC125749H: Other test

*2) Intel® Centrino® Advanced -N 6235 (Model: 6235ANHMW, FCC ID: PD96235ANH) is installed in the EUT.

List of cables used

No.	Cable Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	DC	1.7	Unshielded	Unshielded	-
2	AC	1.7	Unshielded	Unshielded	-
3	HDMI	3.0	Shielded	Shielded	-
4	USB	2.0	Shielded	Shielded	-
5	USB	1.8	Shielded	Shielded	-
6	Audio	1.2	Unshielded	Unshielded	-
7	Mouse	1.8	Unshielded	Unshielded	-

SECTION 5: Conducted emission

5.1 Operating environment

Test place : See test data (APPENDIX 1)
Temperature : See test data (APPENDIX 1)
Humidity : See test data (APPENDIX 1)

5.2 Test configuration

EUT was placed on a platform of nominal size, 1m by 1.5m, raised 0.8m above the conducting ground plane.

The table is made of Styrofoam and covered with polyvinyl chloride. That has very low permittivity.

The rear of tabletop was located 40cm to the vertical conducting plane. The rear of EUT, including peripherals was aligned and was 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 LISN.

Each EUT current-carrying power lead, except the ground (safety) lead, was individually connected through a LISN to the input power source. All unused 50ohm connectors of the LISN were resistively terminated in 50ohm when not connected to the measuring equipment.

Photographs of the set up are shown in APPENDIX 3.

5.3 Test conditions

Frequency range : 0.15 - 30MHz
EUT position : Table top

5.4 Test procedure

The AC Mains Terminal Continuous disturbance Voltage had been measured with the EUT within a Shielded room. The EUT was connected to a Line Impedance Stabilization Network (LISN).

An overview sweep with peak detection has been performed.

The measurements had been performed with a quasi-peak detector and if required, an average detector.

The conducted emission measurements were made with the following detection of the test receiver.

Detection Type : Quasi-Peak/ Average
IF Bandwidth : 9kHz

5.5 Results

Summary of the test results : Pass
Refer to APPENDIX 1

SECTION 6: Radiated emission

6.1 Operating environment

Test place : See test data (APPENDIX 1)
 Temperature : See test data (APPENDIX 1)
 Humidity : See test data (APPENDIX 1)

6.2 Test configuration

EUT was placed on a urethane platform of nominal size, 0.5m by 0.5m, raised 0.8m above the conducting ground plane. The rear of EUT was aligned and flushed with rear of tabletop. Photographs of the set up are shown in APPENDIX 3.

6.3 Test conditions

Frequency range : 9kHz - 40GHz
 EUT position : Table top

6.4 Test procedure

The Radiated Electric Field Strength intensity has been measured on a semi-anechoic chamber with a ground plane and at a distance of 3m (below 15GHz) / 1m (above 15GHz). Measurements were performed with quasi-peak, peak and average detector.

<Below 30MHz>

The EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity.

The measurements were performed for vertical polarization (antenna angle: 0deg.to 360deg.) and horizontal polarization. Drawing of the antenna direction is shown in Figure 1.

<Above 30MHz>

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

The measurements were performed for both vertical and horizontal antenna polarization. Drawing of the antenna direction is shown in Figure 2.

The radiated emission measurements were made with the following detection.

<Below 30MHz>

Frequency	9kHz to 90kHz & 110kHz to 150kHz	90kHz to 110kHz	150kHz to 490kHz	490kHz to 30MHz
Detection type	PK/AV	QP	PK/AV	QP
IF Bandwidth	200Hz	200Hz	9kHz	9kHz

<Above 30MHz>

Frequency	30-1000MHz	1-40GHz
Detection type	Quasi-Peak	Peak Average *1)
IF Bandwidth	120kHz	RBW: 1MHz VBW: 3MHz RBW: 1MHz VBW: *2)

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

*2) Refer to the VBW (Average) Calculation & Duty chart sheet in APPENDIX 1.

Below 30MHz

* FCC Part 15 Section 15.31 (f)(2) (9kHz-30MHz)

9kHz – 490kHz [Limit at 3m]= [Limit at 300m]-40log (3[m]/300[m])

490kHz – 30MHz [Limit at 3m]= [Limit at 30m]-40log (3[m]/30[m])

*1) Average Measurement was measured based on G).6).d) (Method VB) of "Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices Part 15, Subpart E".

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9kHz to 1GHz

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

Above 1GHz

Inside of restricted bands (FCC 15.205): Limit in FCC 15.209 (a)

Outside of the restricted bands: Limit 68.2dBuV/m (-27dBm e.i.r.p.*) in FCC 15.407(b)(1)(2)(3)

Restricted band edge: Limit in FCC 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

$$P [\text{dBm}] = E [\text{dBuV/m}] - 95.2 [\text{dB}]$$

$$P [\text{dBm}] = 10 \times \text{LOG} (\{ 10 ^ { (E [\text{dBuV/m}] / 20) } * 10 ^ { (-6) } * (\text{Distance} = 3[\text{m}]) ^ 2 \} / 30) \times 10 ^ 3 \text{ (uV/m):}$$

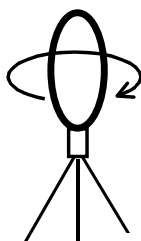
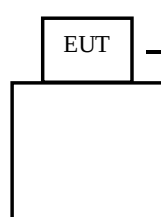
P is the e.i.r.p. (Watts)

* Distance Factor for the measurement at 1m: $20 \times \log (3.0\text{m}/1.0\text{m}) = 9.5\text{dB}$

The carrier level and noise levels were confirmed at each tilt angle of LCD of EUT to see the angle of maximum noise, and the test was made at the tilt angle of 90 deg. that has the maximum noise.

Figure 1. Direction of the Loop Antenna

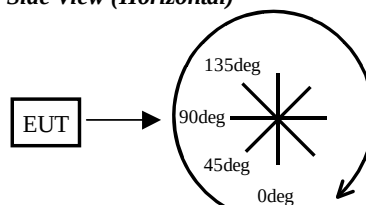
Side View (Vertical)



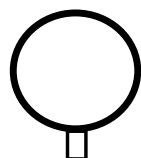
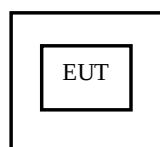
Front side: 0 deg.

Forward direction: clockwise

Side View (Horizontal)

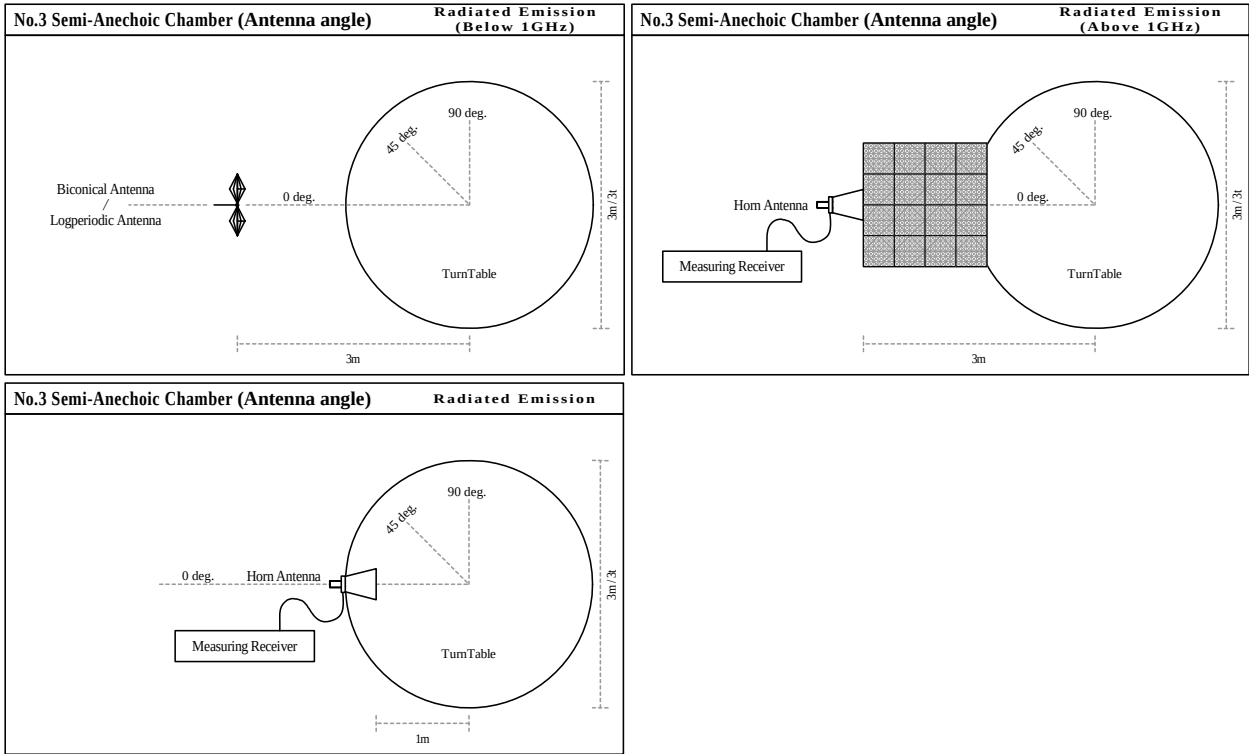


Top View (Horizontal)



Antenna was not rotated.

Figure 2. Antenna angle



6.5 Band edge

Band edge level at 5150MHz, 5350MHz, 5460MHz, and 5725MHz is below the limits of FCC 15.209 and band edge level at 5470MHz is below the limit of -27dBm e.i.r.p.. Refer to the data.

6.6 Results

Summary of the test results : Pass
* No noise was detected other than listed points.

Refer to APPENDIX 1

SECTION 7: Antenna terminal conducted tests**Test Procedure**

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

Test	Span	RBW	VBW	Sweep time	Detector	Trace	Instrument used and Test method
26dB bandwidth	Enough width to display 26dB Bandwidth	Close to 1% of EBW	Greater than RBW	Auto	Peak	Max Hold	Spectrum Analyzer
99% occupied bandwidth	Enough width to display 26dB Bandwidth	Close to 1% of Span	Three times of RBW	Auto	Smple	Max Hold	Spectrum Analyzer
20dB bandwidth	Enough width to display 26dB Bandwidth	Close to 1% of Span	Three times of RBW	Auto	Peak	Max Hold	Spectrum Analyzer
Maximum conducted output power *1)	-	-	50MHz	-	-	-	Power Meter method PM
Peak power spectral density *2)	Enough width to display 26dB Bandwidth	1MHz	3MHz	Auto	Sample Power Averaging (100 times)	Clear Write	Spectrum Analyzer method SA-2
Peak excursion ratio	Enough width to display 26dB Bandwidth	1MHz	3MHz	Auto	Peak Sample Power Averaging (100 times)	Max Hold Clear Write	Spectrum Analyzer method SA-2

*EBW: Emission Bandwidth

*1) Maximum Conducted Output Power was measured based on Method PM of "Guidance for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - Part 15, Subpart E".

*2) PSD was measured based on Method SA-2 of "Guidance for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - Part 15, Subpart E".

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

Summary of the test results : Pass

Refer to APPENDIX 1

Contents of APPENDIXES

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Test instruments

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Radiated emission

APPENDIX 1: Data of Radio test

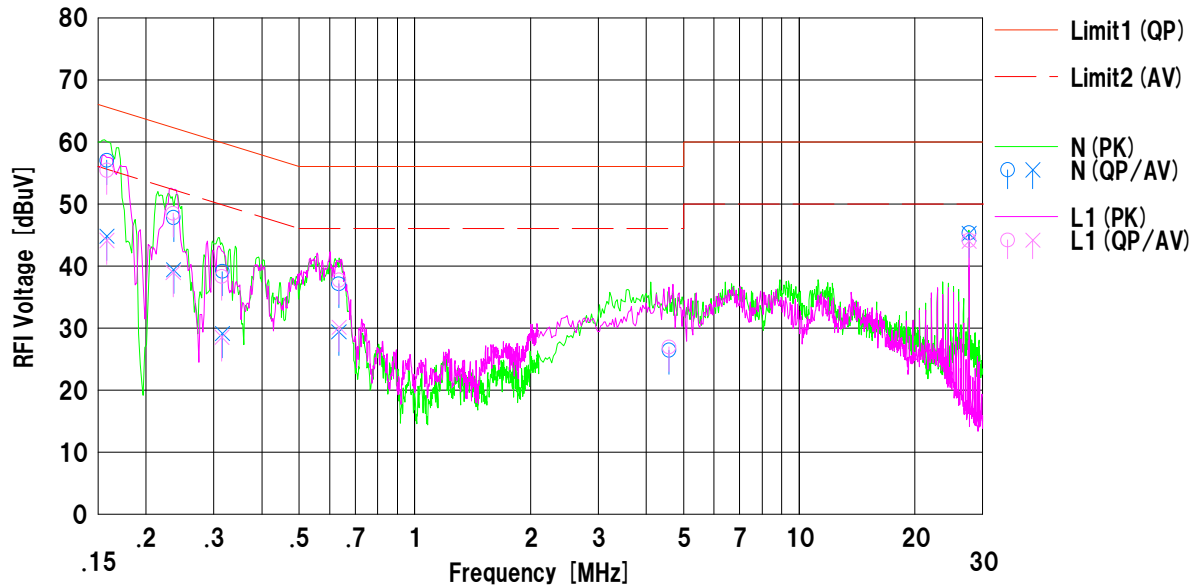
DATA OF CONDUCTED EMISSION TEST

UL Japan,Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2012/12/05

Mode : IEEE802.11n (HT40) , Tx5670MHz,MCS0
Report No. : 33CE0266-SH-02-D-R1
Power : AC 120V / 60Hz
Temp./Humi. : 23deg.C / 38%RH

Limit1 : FCC 15C (15.207) QP
Limit2 : FCC 15C (15.207) AV

Engineer : Tatsuya Arai



No.	Freq. [MHz]	Reading		C.Fac [dB]	Results		Limit		Margin		Phase	Comment
		<QP> [dBuV]	<AV> [dBuV]		<QP> [dBuV]	<AV> [dBuV]	<QP> [dBuV]	<AV> [dBuV]	<QP> [dB]	<AV> [dB]		
1	0.15820	44.3	32.1	12.7	57.0	44.8	65.5	55.5	8.5	10.7	N	
2	0.23600	35.1	26.7	12.7	47.8	39.4	62.2	52.2	14.4	12.8	N	
3	0.31600	26.4	16.4	12.7	39.1	29.1	59.8	49.8	20.7	20.7	N	
4	0.63450	24.4	16.7	12.7	37.1	29.4	56.0	46.0	18.9	16.6	N	
5	4.58400	13.5	---	12.9	26.4	---	56.0	46.0	29.6	---	N	
6	27.64850	31.5	31.4	13.8	45.3	45.2	60.0	50.0	14.7	4.8	N	
7	0.15820	42.7	31.4	12.7	55.4	44.1	65.5	55.5	10.1	11.4	L1	
8	0.23540	35.8	26.2	12.7	48.5	38.9	62.2	52.2	13.7	13.3	L1	
9	0.31450	25.6	15.8	12.7	38.3	28.5	59.8	49.8	21.5	21.3	L1	
10	0.63500	25.0	17.4	12.7	37.7	30.1	56.0	46.0	18.3	15.9	L1	
11	4.58400	14.0	---	12.9	26.9	---	56.0	46.0	29.1	---	L1	
12	27.64850	30.3	30.2	13.8	44.1	44.0	60.0	50.0	15.9	6.0	L1	

Calculation: Result [dBuV] = Reading [dBuV] + C.Fac (LISN+Cable+ATT) [dB]
LISN: SLS-05

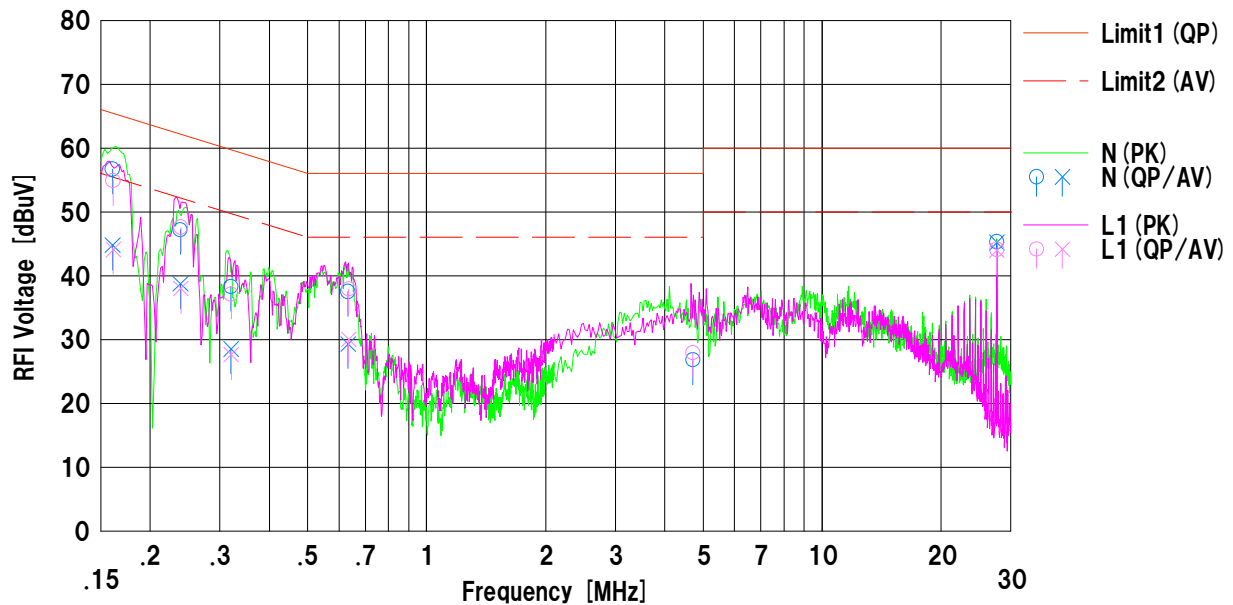
DATA OF CONDUCTED EMISSION TEST

UL Japan,Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2012/12/05

Mode : IEEE802.11n(HT40) , Tx5670MHz,MCS8
Report No. : 33CE0266-SH-02-D-R1
Power : AC 120V / 60Hz
Temp./Humi. : 23deg.C / 38%RH

Limit1 : FCC 15C (15.207) QP
Limit2 : FCC 15C (15.207) AV

Engineer : Tatsuya Arai



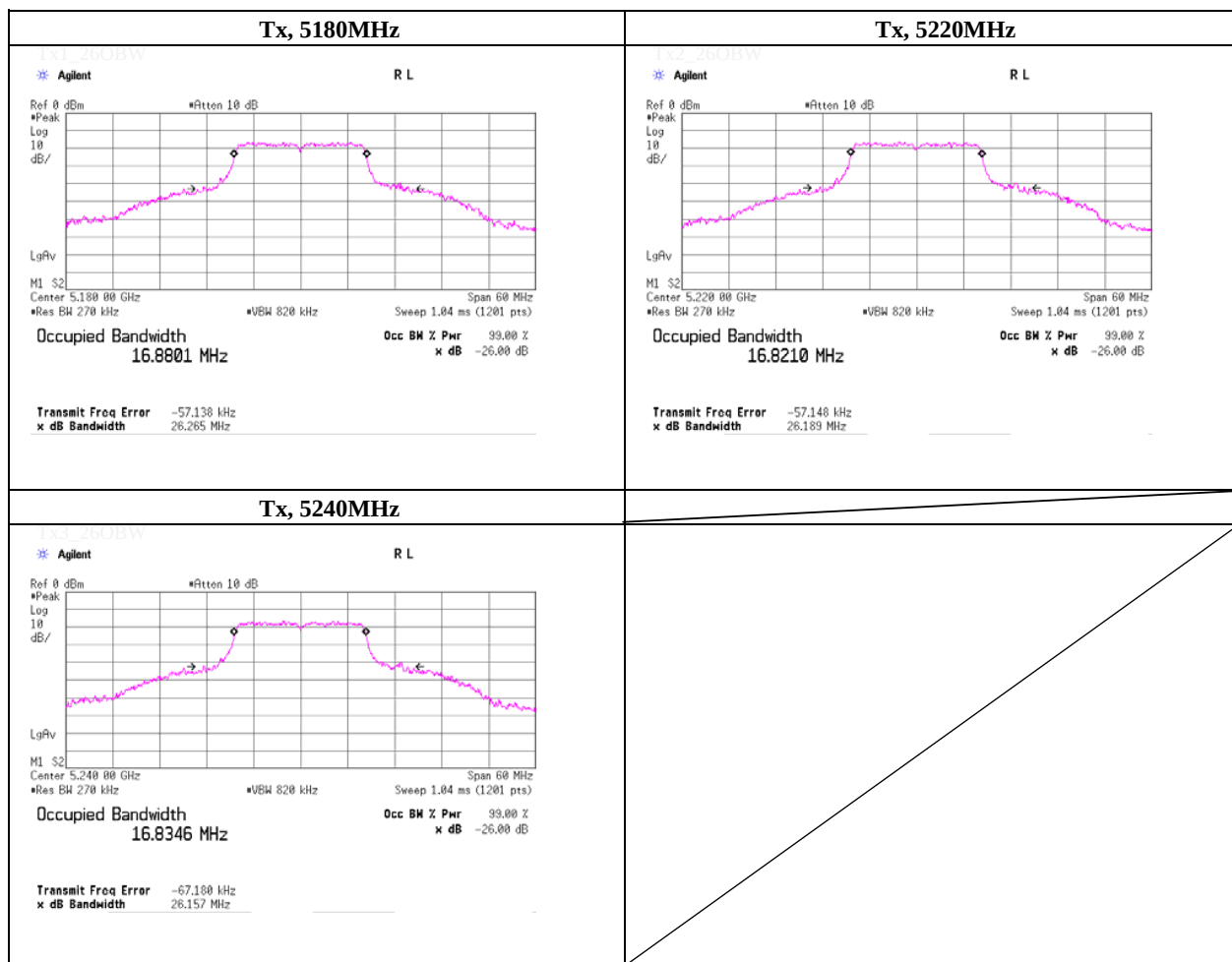
No.	Freq. [MHz]	Reading		C.Fac [dB]	Results		Limit		Margin		Phase	Comment
		<QP> [dBuV]	<AV> [dBuV]		<QP> [dBuV]	<AV> [dBuV]	<QP> [dBuV]	<AV> [dBuV]	<QP> [dB]	<AV> [dB]		
1	0.16070	44.0	32.1	12.7	56.7	44.8	65.4	55.4	8.7	10.6	N	
2	0.23850	34.5	26.0	12.7	47.2	38.7	62.1	52.1	14.9	13.4	N	
3	0.32000	25.6	15.8	12.7	38.3	28.5	59.7	49.7	21.4	21.2	N	
4	0.63250	24.8	16.6	12.7	37.5	29.3	56.0	46.0	18.5	16.7	N	
5	4.71300	13.9	---	12.9	26.8	---	56.0	46.0	29.2	---	N	
6	27.64800	31.5	31.4	13.8	45.3	45.2	60.0	50.0	14.7	4.8	N	
7	0.16130	42.2	31.4	12.7	54.9	44.1	65.3	55.3	10.4	11.2	L1	
8	0.23900	34.9	25.3	12.7	47.6	38.0	62.1	52.1	14.5	14.1	L1	
9	0.32050	24.4	14.9	12.7	37.1	27.6	59.6	49.6	22.5	22.0	L1	
10	0.63550	25.2	17.3	12.7	37.9	30.0	56.0	46.0	18.1	16.0	L1	
11	4.71300	15.0	---	12.9	27.9	---	56.0	46.0	28.1	---	L1	
12	27.64800	30.3	30.2	13.8	44.1	44.0	60.0	50.0	15.9	6.0	L1	

Calculation: Result [dBuV] = Reading [dBuV] + C.Fac (LISN+Cable+ATT) [dB]
LISN: SLS-05

-26dB Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 30, 2012	
Temperature / Humidity	23deg.C , 54 %RH	
Engineer	Akio Hayashi	
Mode	Tx, IEEE802.11a, PN9, worst antenna port Main, worst data mode 6Mbps	

Freq. [MHz]	-26dB Bandwidth [MHz]
5180.0000	26.265
5220.0000	26.189
5240.0000	26.157



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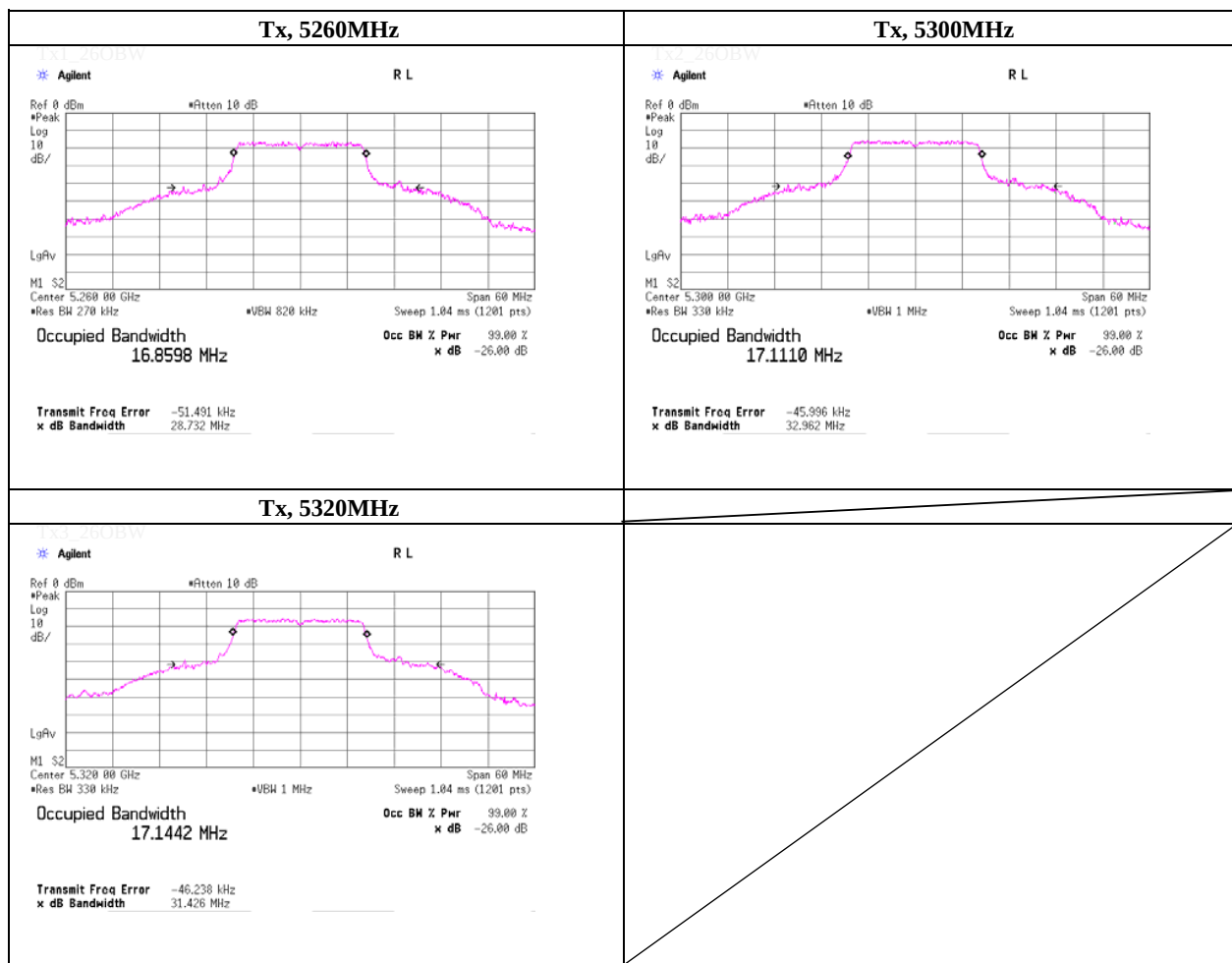
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

-26dB Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 30, 2012	
Temperature / Humidity	23deg.C , 54 %RH	
Engineer	Akio Hayashi	
Mode	Tx, IEEE802.11a, PN9, worst antenna port Main, worst data mode 6Mbps	

Freq. [MHz]	-26dB Bandwidth [MHz]
5260.0000	28.732
5300.0000	32.962
5320.0000	31.426



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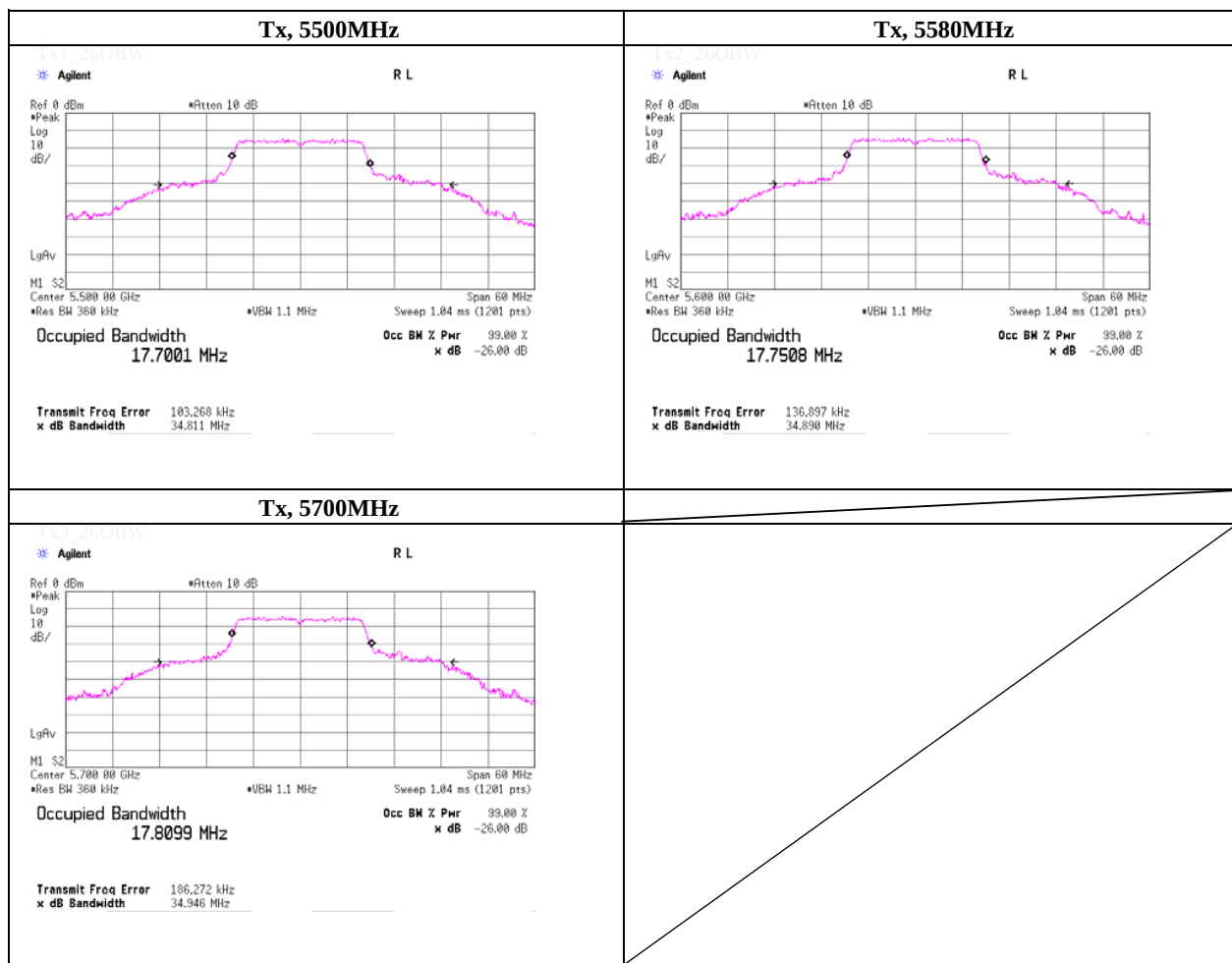
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

-26dB Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 30, 2012	
Temperature / Humidity	23deg.C , 54%RH	
Engineer	Akio Hayashi	
Mode	Tx, IEEE802.11a, PN9, worst antenna port Main, worst data mode 6Mbps	

Freq. [MHz]	-26dB Bandwidth [MHz]
5500.0000	34.811
5580.0000	34.890
5700.0000	34.946



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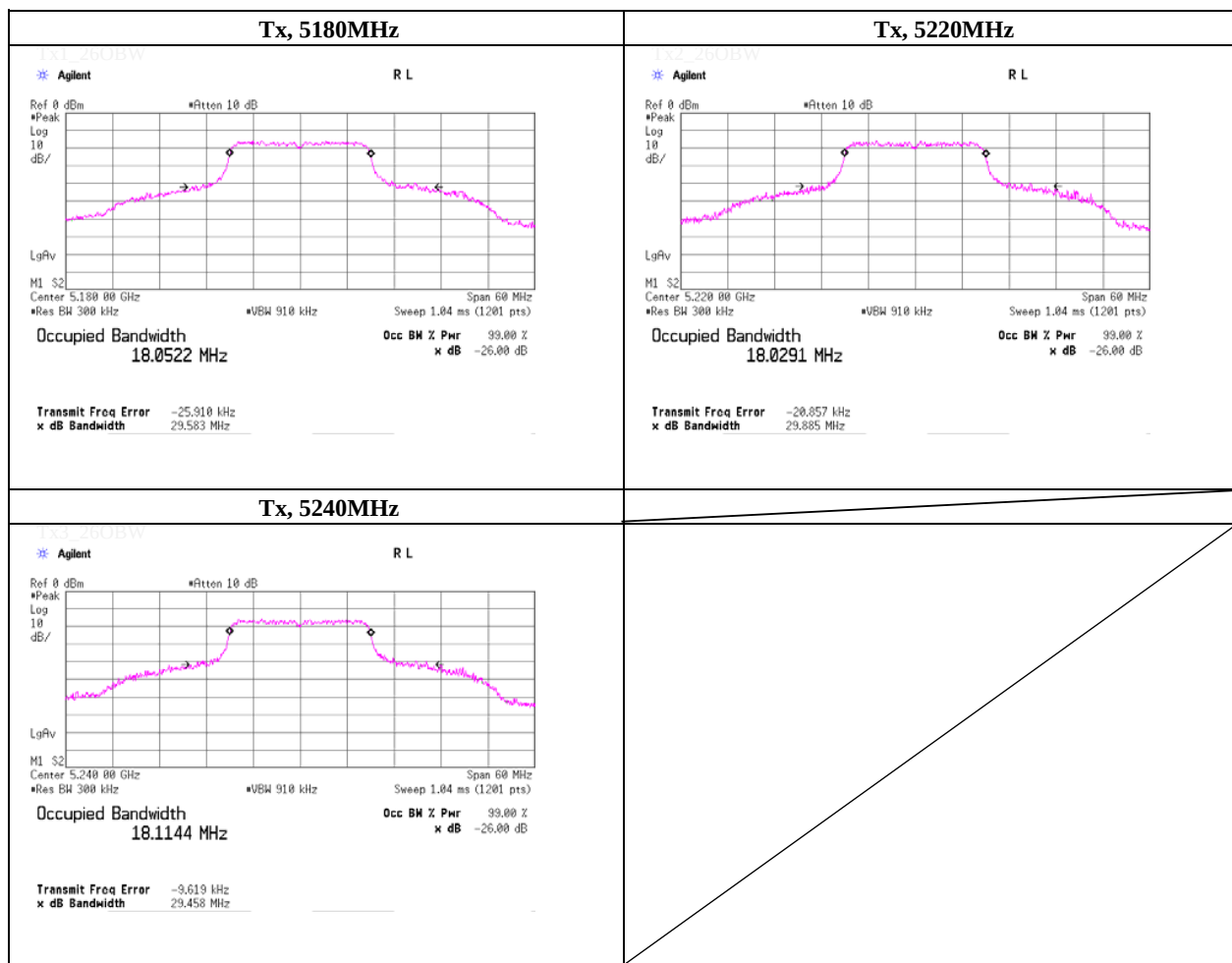
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

-26dB Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 30, 2012	
Temperature / Humidity	23deg.C , 54 %RH	
Engineer	Akio Hayashi	
Mode	Tx, IEEE802.11n (HT20), PN9, worst antenna port Main, worst data mode 0(MCS)	

Freq. [MHz]	-26dB Bandwidth [MHz]
5180.0000	29.583
5220.0000	29.885
5240.0000	29.458



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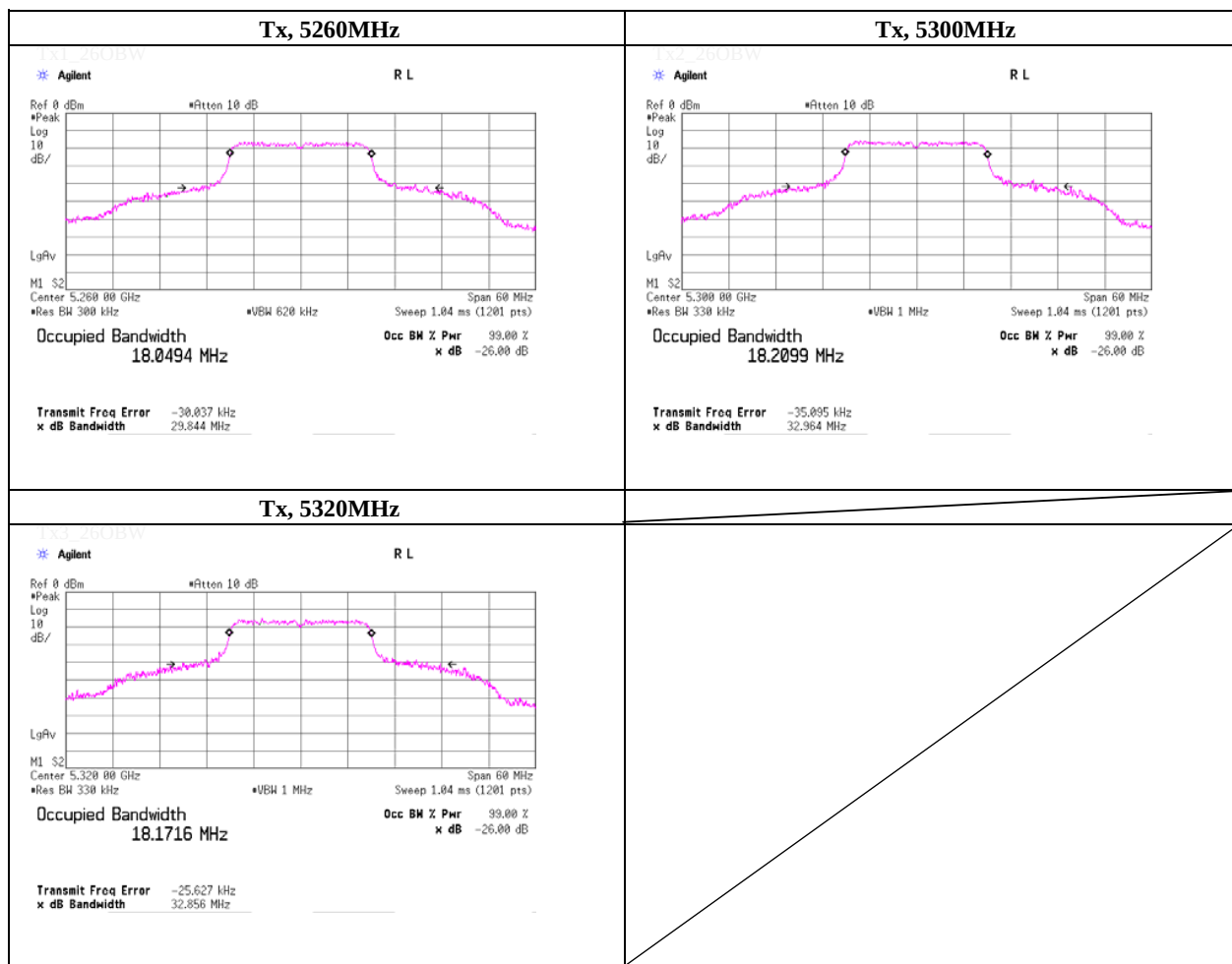
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

-26dB Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 30, 2012	
Temperature / Humidity	23 deg.C , 54 %RH	
Engineer	Akio Hayashi	
Mode	Tx, IEEE802.11n (HT20), PN9, worst antenna port Main, worst data mode 0(MCS)	

Freq. [MHz]	-26dB Bandwidth [MHz]
5260.0000	29.844
5300.0000	32.964
5320.0000	32.856



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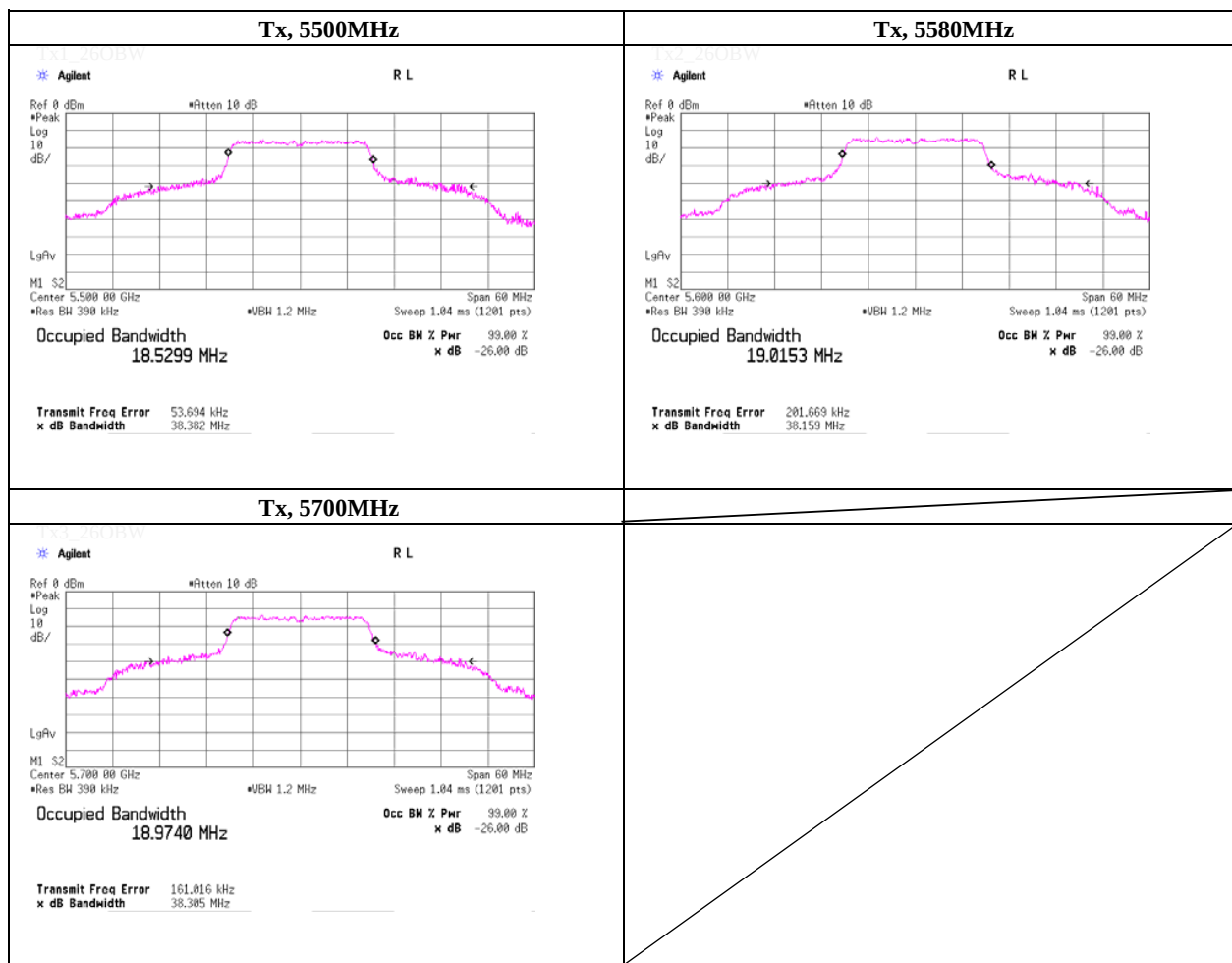
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

-26dB Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 30, 2012	
Temperature / Humidity	23 deg.C , 54 %RH	
Engineer	Akio Hayashi	
Mode	Tx, IEEE802.11n (HT20), PN9, worst antenna port Main, worst data mode 0(MCS)	

Freq. [MHz]	-26dB Bandwidth [MHz]
5500.0000	38.382
5580.0000	38.159
5700.0000	38.305



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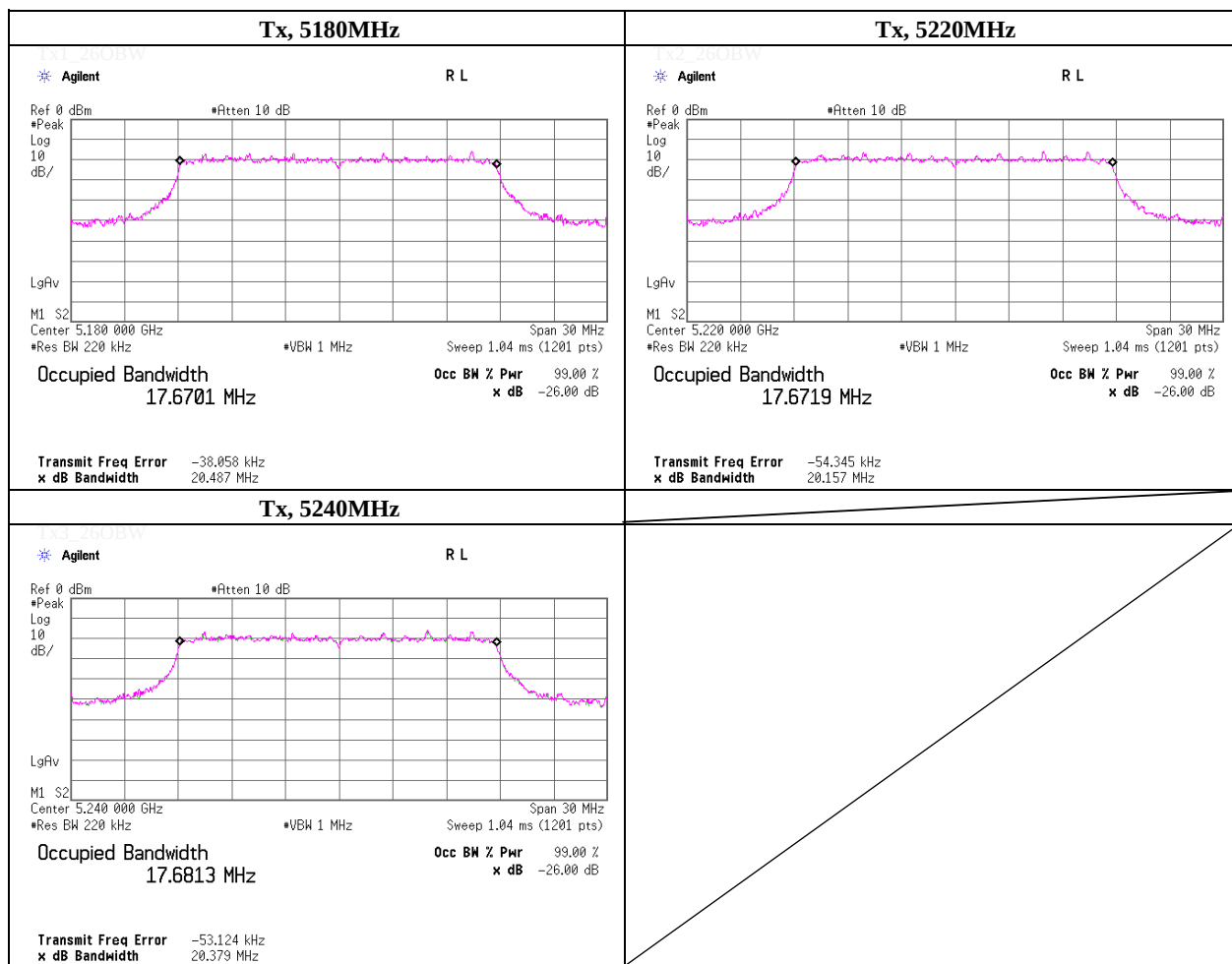
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

-26dB Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	December 4, 2012	
Temperature / Humidity	23deg.C , 39%RH	
Engineer	Hikaru Shirasawa	
Mode	Tx, IEEE802.11n-HT20, PN9, Antenna port Main, worst data mode 8 (MCS)	

Freq. [MHz]	-26dB Bandwidth [MHz]
5180.0000	20.487
5220.0000	20.157
5240.0000	20.379



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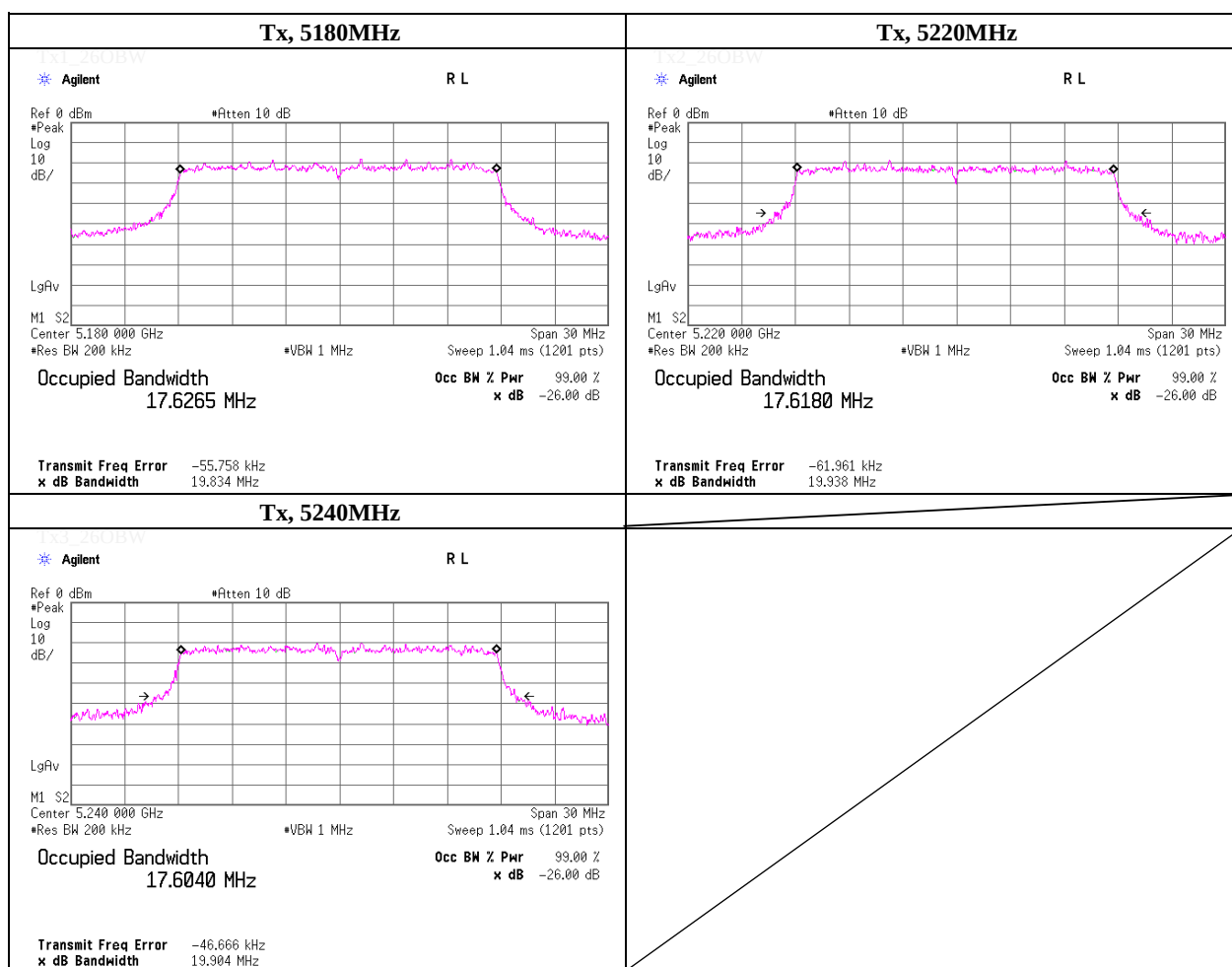
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

-26dB Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	December 4, 2012	
Temperature / Humidity	23deg.C , 39%RH	
Engineer	Hikaru Shirasawa	
Mode	Tx, IEEE802.11n-HT20, PN9, Antenna port Aux, worst data mode 8 (MCS)	

Freq. [MHz]	-26dB Bandwidth [MHz]
5180.0000	19.834
5220.0000	19.938
5240.0000	19.904



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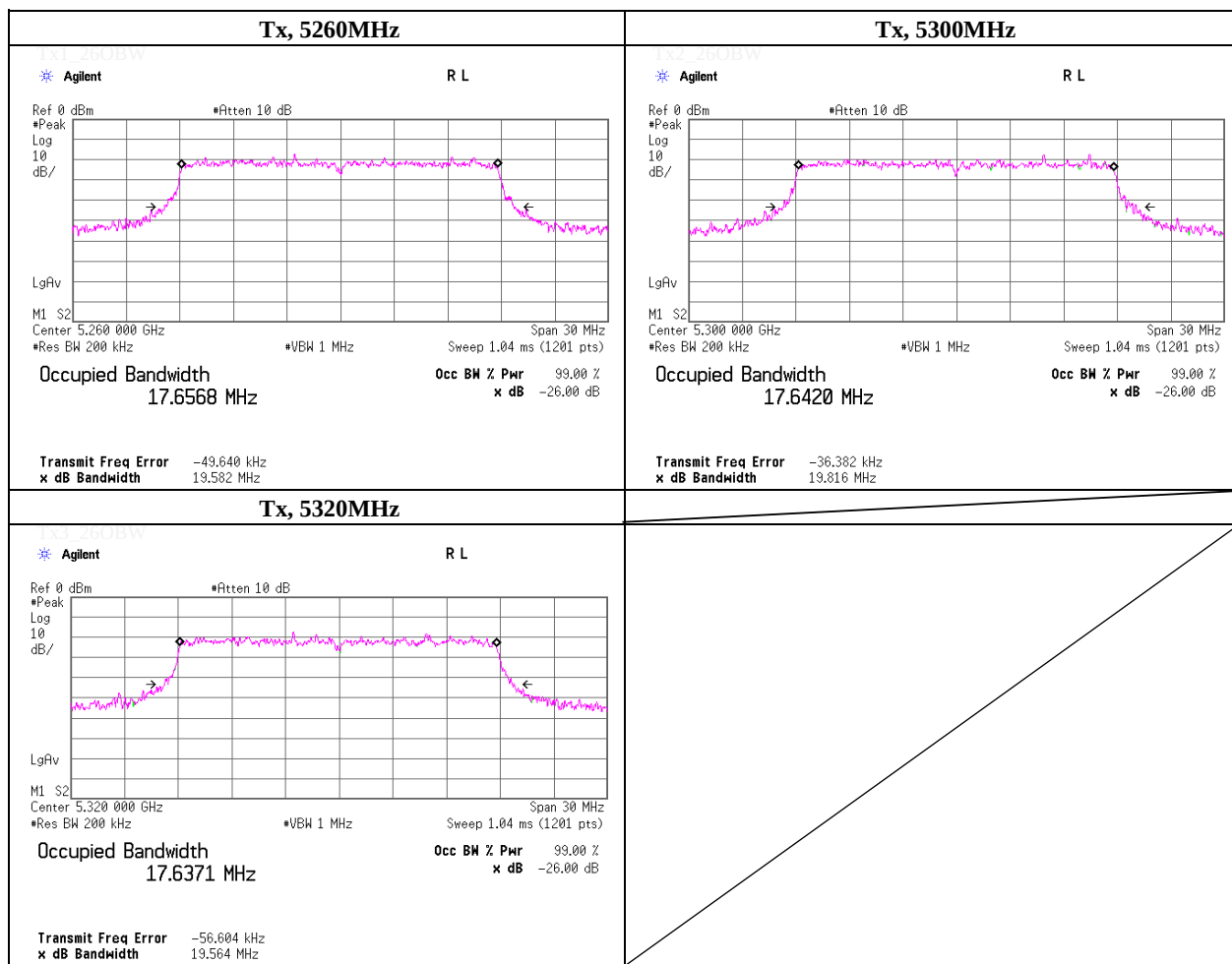
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

-26dB Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	December 4, 2012	
Temperature / Humidity	23deg.C , 39%RH	
Engineer	Hikaru Shirasawa	
Mode	Tx, IEEE802.11n-HT20, PN9, Antenna port Main, worst data mode 8 (MCS)	

Freq. [MHz]	-26dB Bandwidth [MHz]
5260.0000	19.582
5300.0000	19.816
5320.0000	19.564



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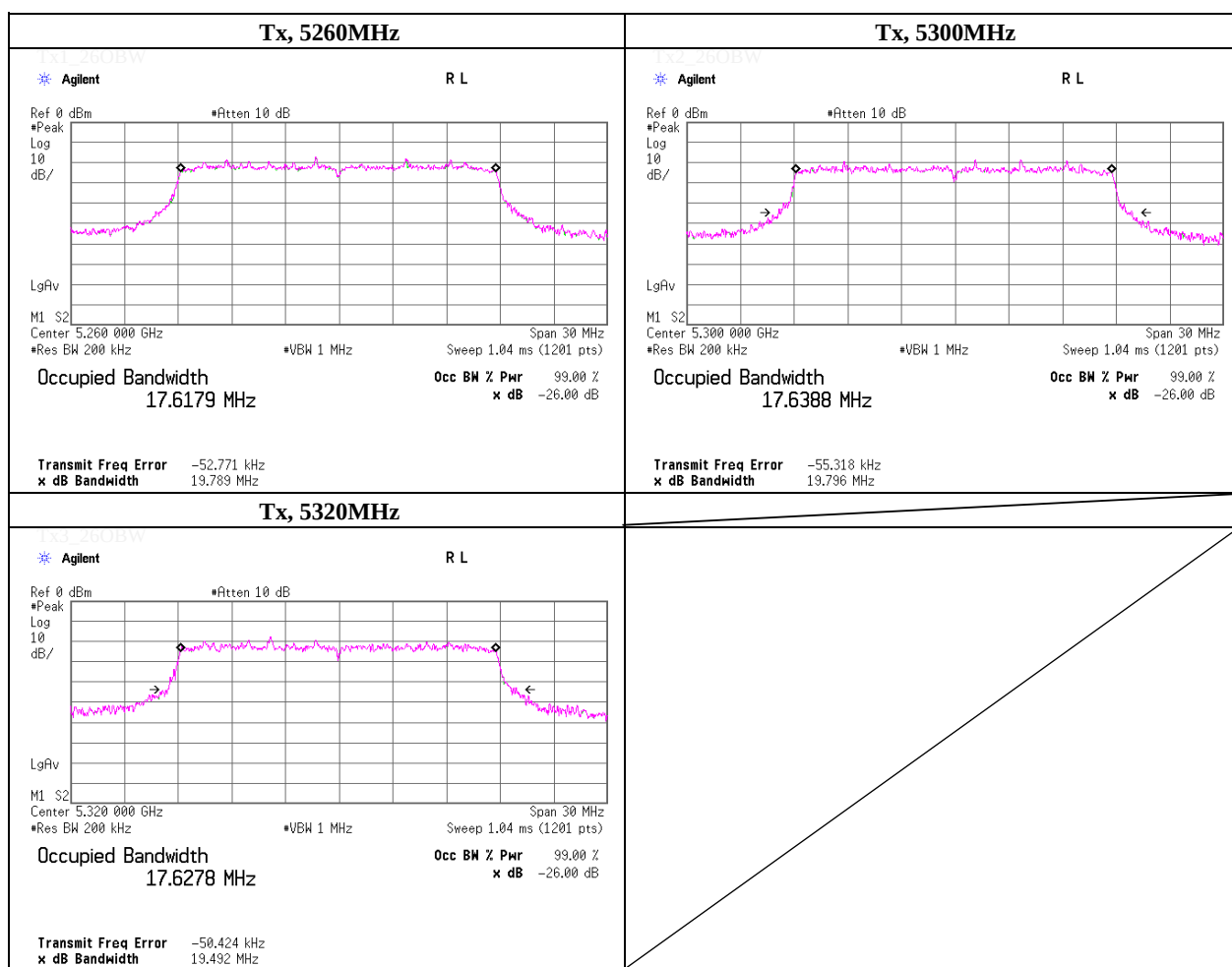
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

-26dB Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	December 4, 2012	
Temperature / Humidity	23deg.C , 39%RH	
Engineer	Hikaru Shirasawa	
Mode	Tx, IEEE802.11n-HT20, PN9, Antenna port Aux, worst data mode 8 (MCS)	

Freq. [MHz]	-26dB Bandwidth [MHz]
5260.0000	19.789
5300.0000	19.796
5320.0000	19.492



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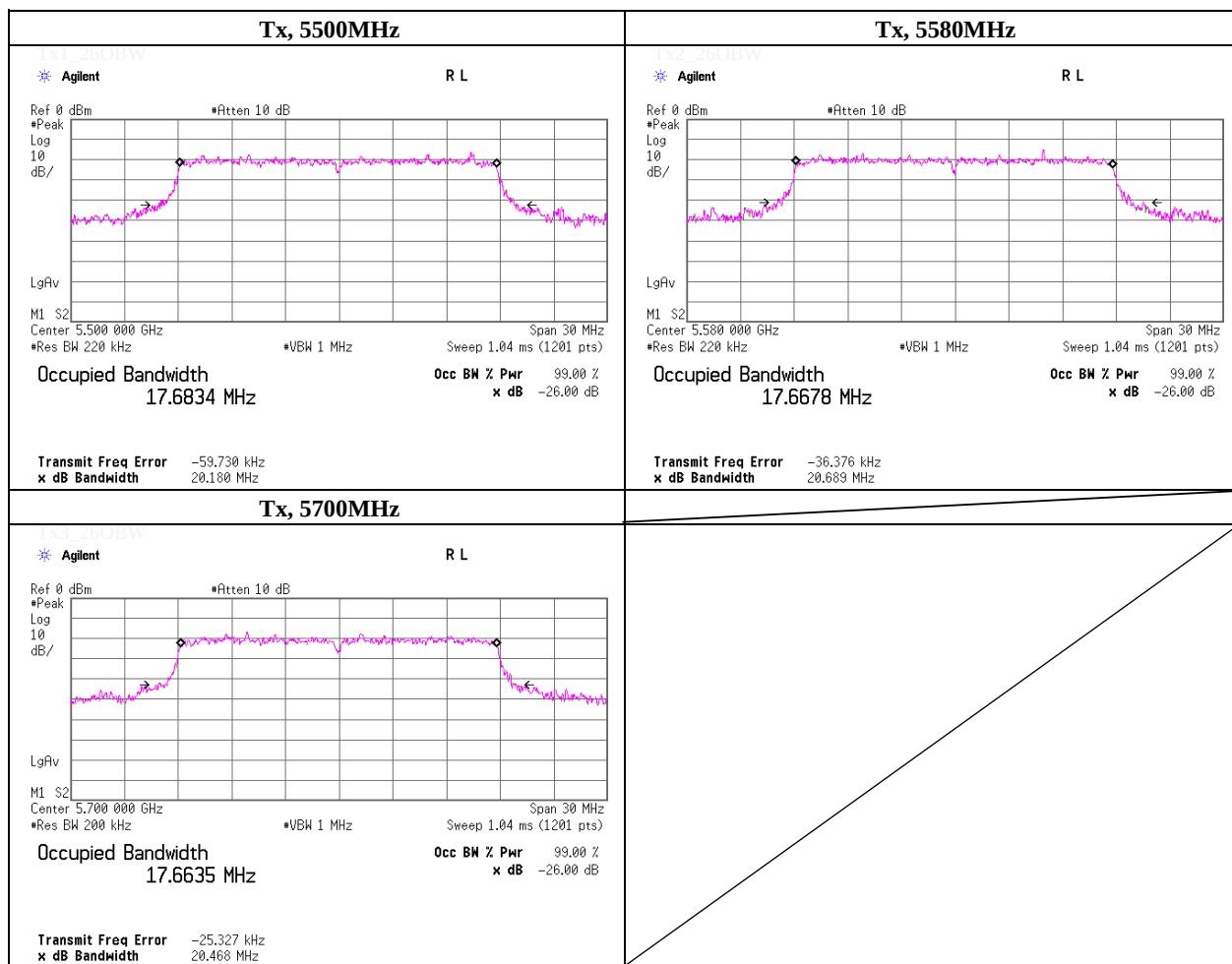
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

-26dB Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	December 4, 2012	
Temperature / Humidity	23deg.C , 39%RH	
Engineer	Hikaru Shirasawa	
Mode	Tx, IEEE802.11n-HT20, PN9, Antenna port Main, worst data mode 8 (MCS)	

Freq. [MHz]	-26dB Bandwidth [MHz]
5500.0000	20.180
5580.0000	20.689
5700.0000	20.468



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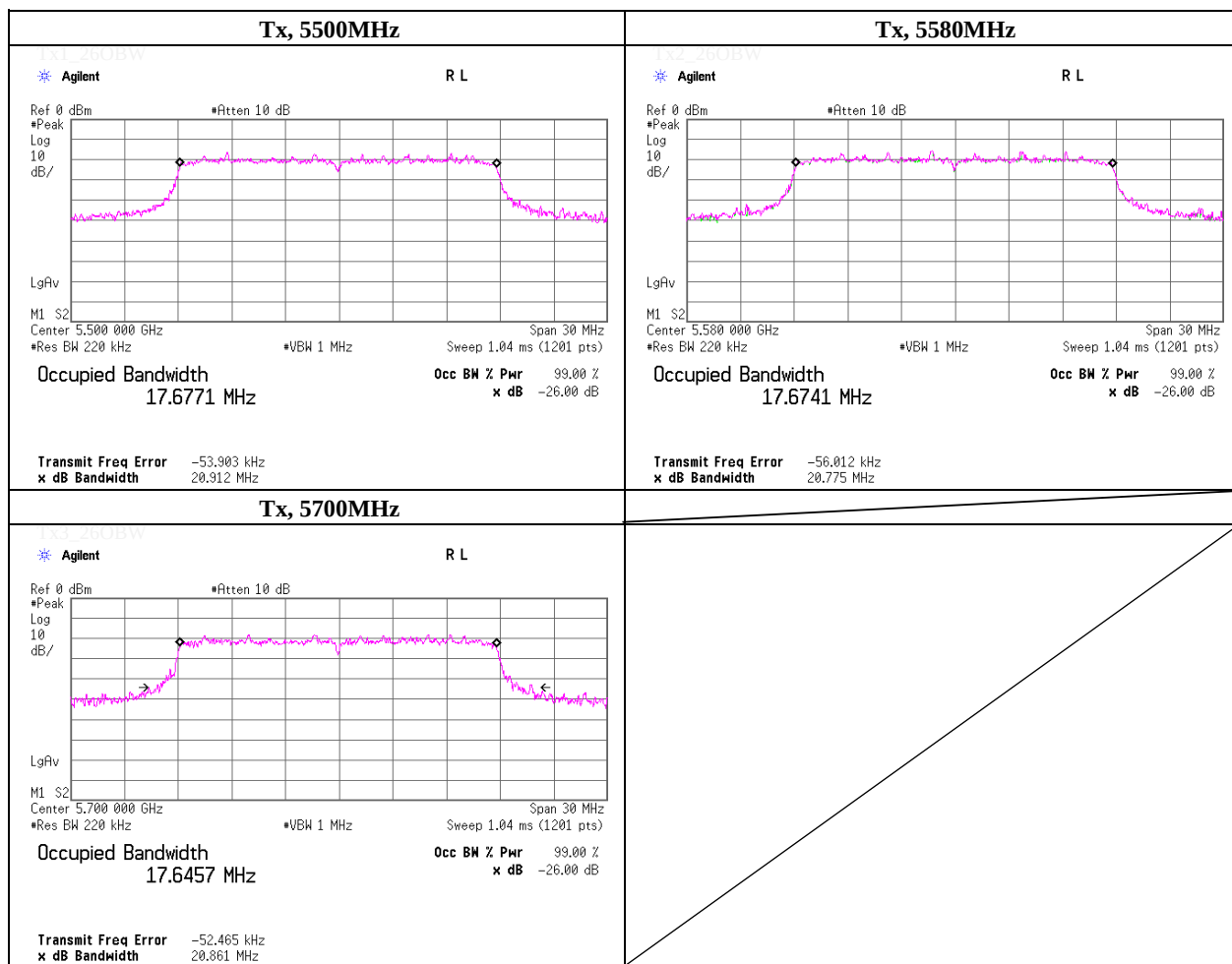
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

-26dB Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	December 4, 2012	
Temperature / Humidity	23deg.C , 39%RH	
Engineer	Hikaru Shirasawa	
Mode	Tx, IEEE802.11n-HT20, PN9, Antenna port Aux, worst data mode 8 (MCS)	

Freq. [MHz]	-26dB Bandwidth [MHz]
5500.0000	20.912
5580.0000	20.775
5700.0000	20.861



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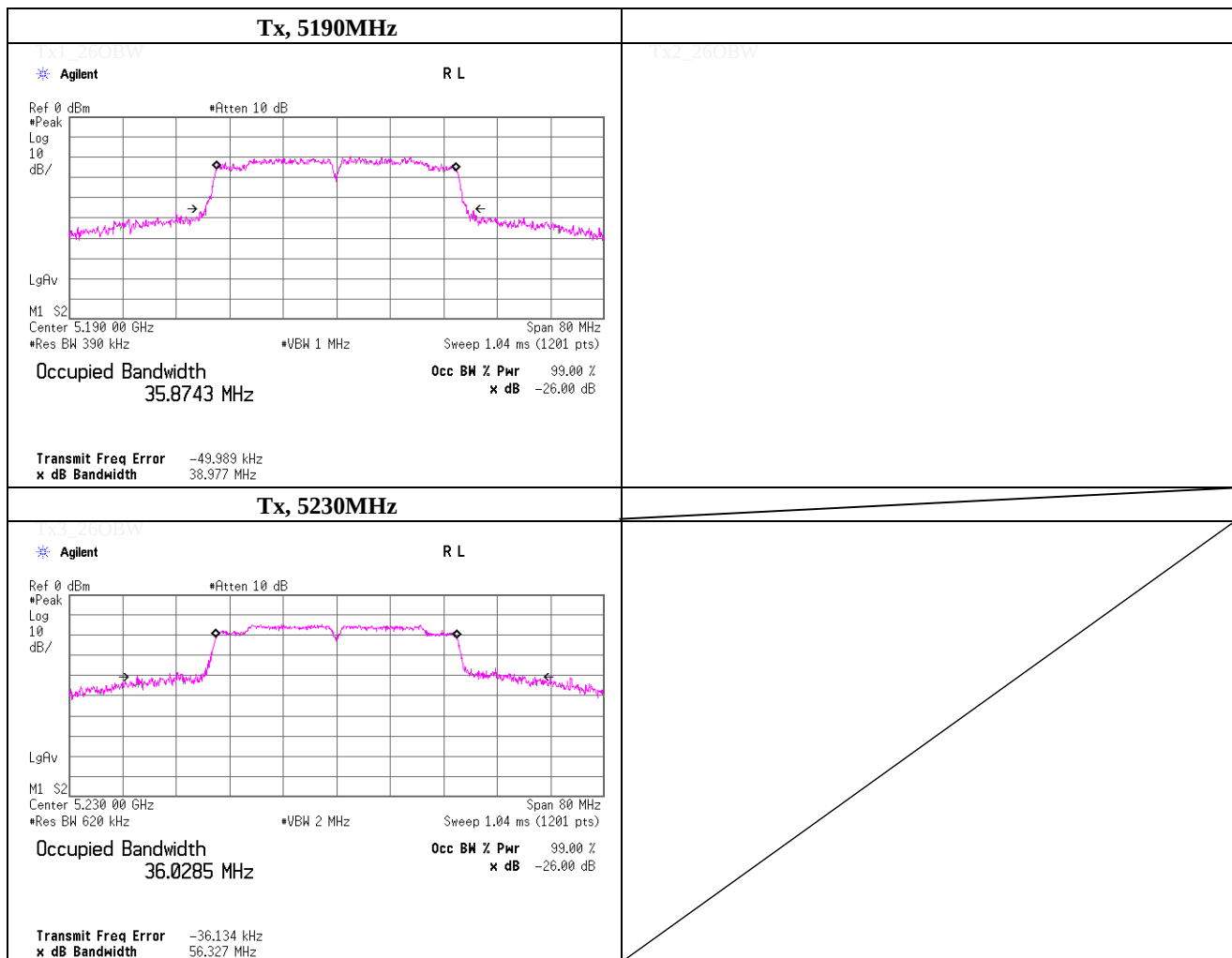
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

-26dB Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	December 4, 2012	
Temperature / Humidity	23 deg.C , 39 %RH	
Engineer	Hikaru Shirasawa	
Mode	Tx, IEEE802.11n (HT40), PN9, worst antenna port Main, worst data mode 0(MCS)	

Freq. [MHz]	-26dB Bandwidth [MHz]
5190.0000	38.977
5230.0000	56.327



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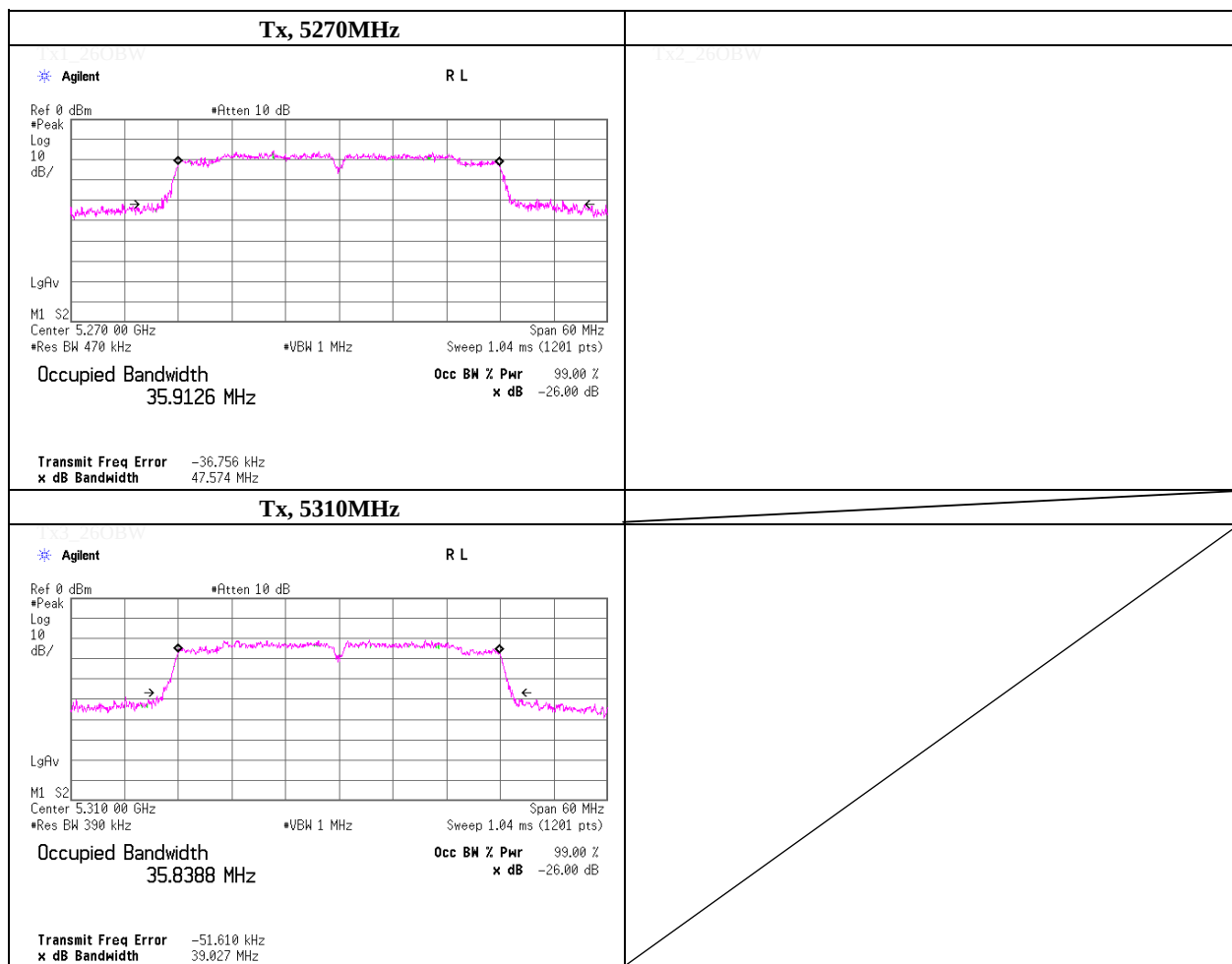
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

-26dB Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	December 4, 2012	
Temperature / Humidity	23 deg.C , 39%RH	
Engineer	Hikaru Shirasawa	
Mode	Tx, IEEE802.11n (HT40), PN9, worst antenna port Main, worst data mode 0(MCS)	

Freq. [MHz]	-26dB Bandwidth [MHz]
5270.0000	47.574
5310.0000	39.027



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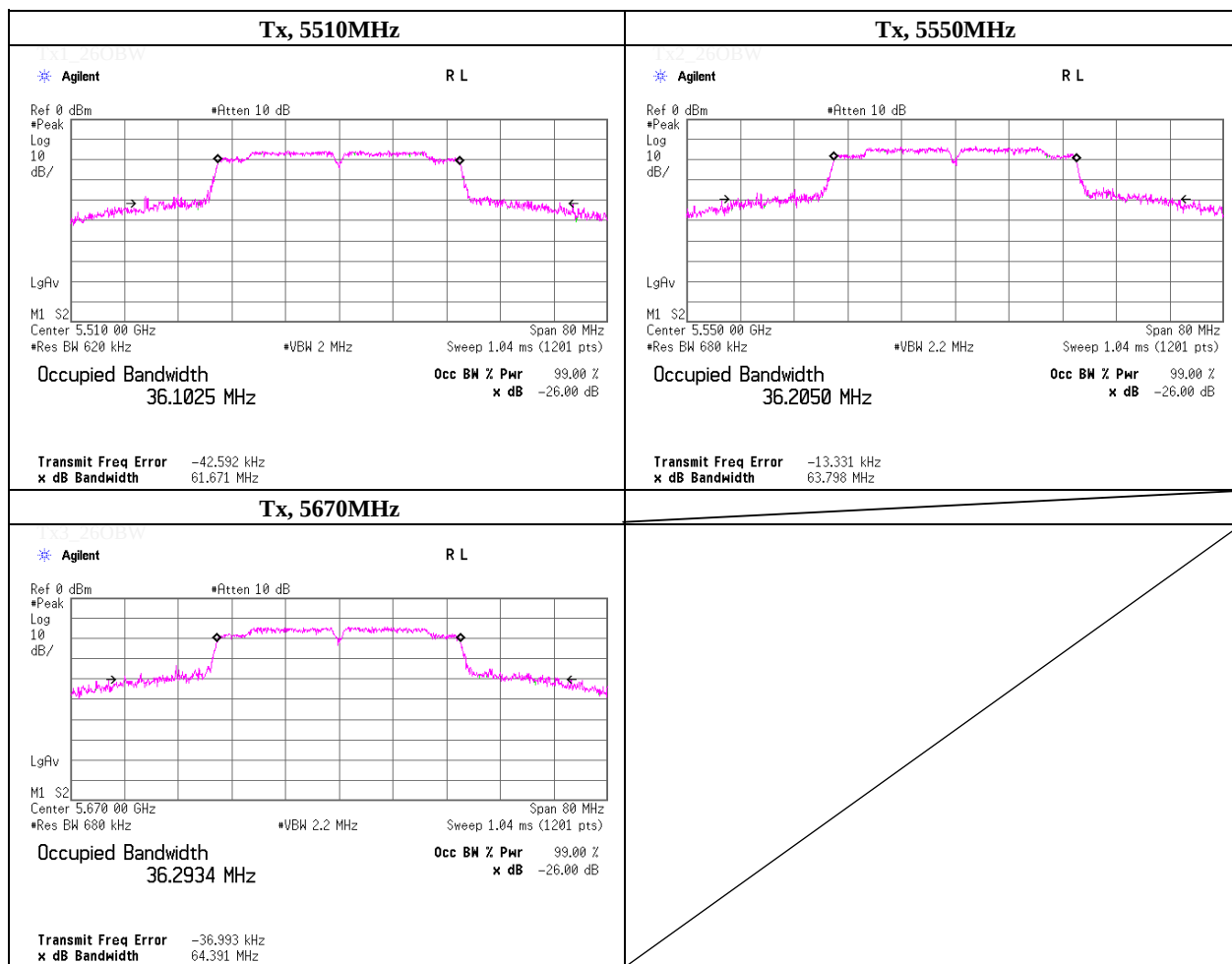
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

-26dB Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	December 4, 2012	
Temperature / Humidity	23 deg.C , 39 %RH	
Engineer	Hikaru Shirasawa	
Mode	Tx, IEEE802.11n (HT40), PN9, worst antenna port Main, worst data mode 0(MCS)	

Freq. [MHz]	-26dB Bandwidth [MHz]
5510.0000	61.671
5550.0000	63.798
5670.0000	64.391



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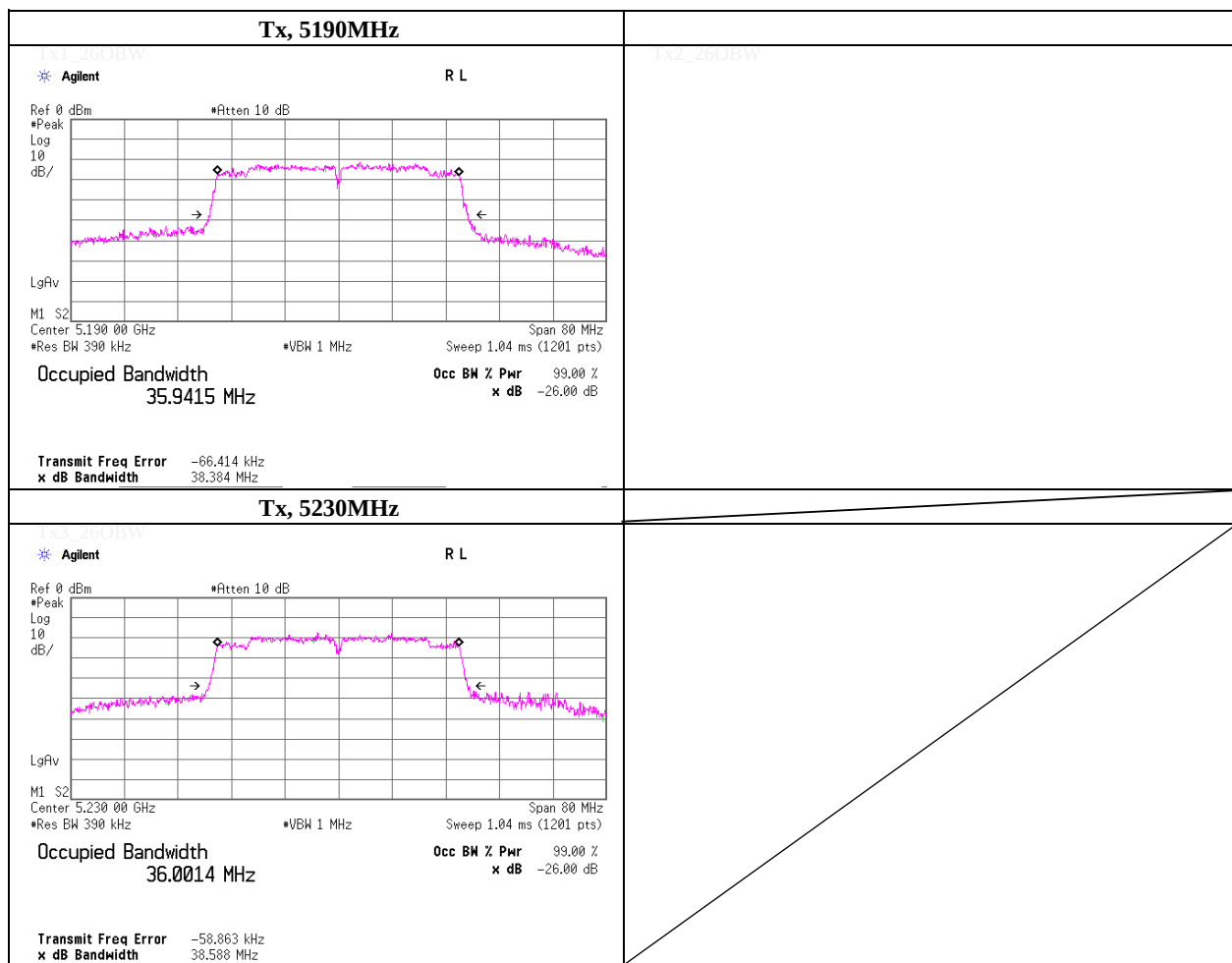
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

-26dB Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	December 5, 2012	
Temperature / Humidity	24deg.C , 35%RH	
Engineer	Kenichi Adachi	
Mode	Tx, IEEE802.11n-HT40, PN9, Antenna port Main, worst data mode 8 (MCS)	

Freq. [MHz]	-26dB Bandwidth [MHz]
5190.0000	38.384
5230.0000	38.588



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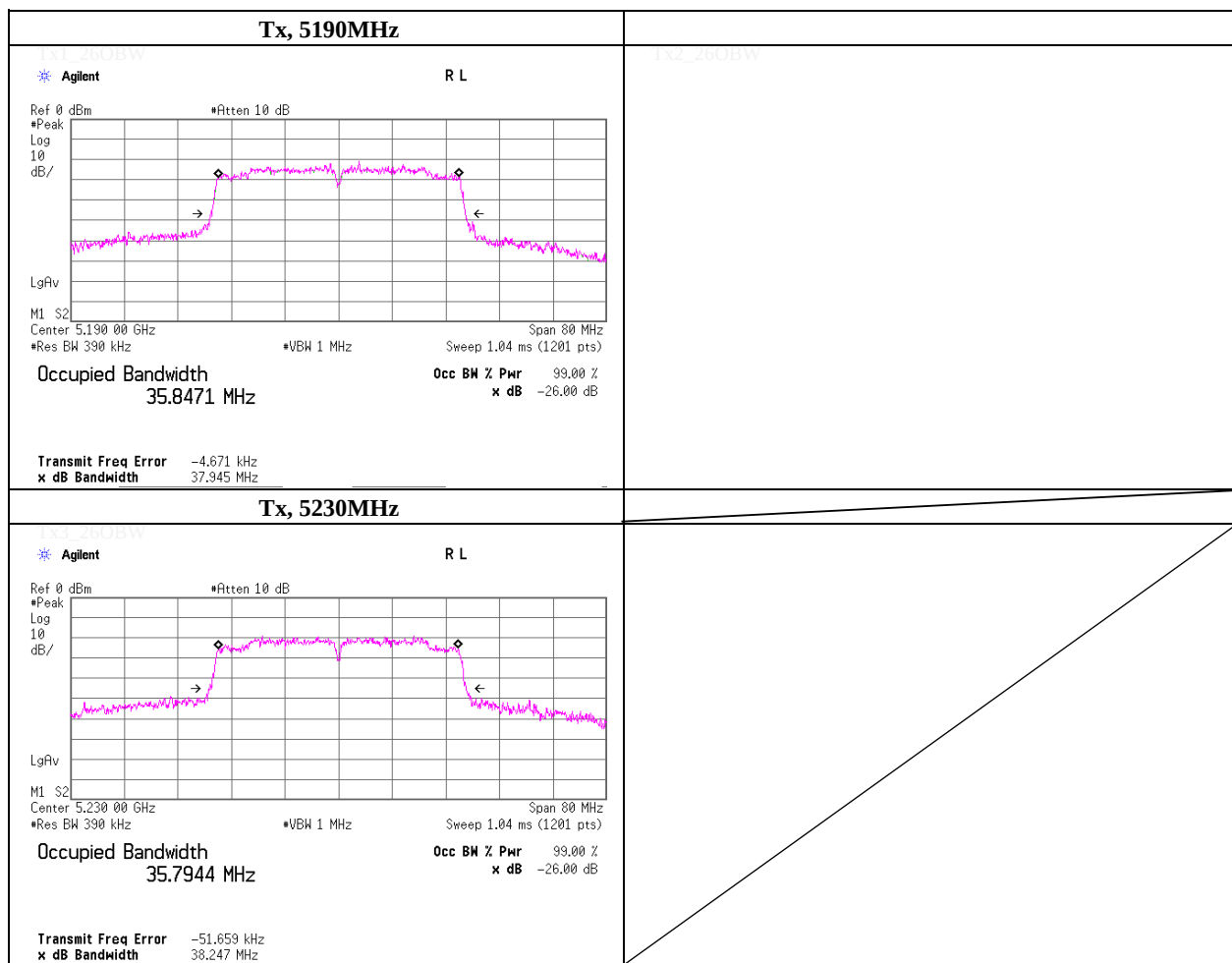
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

-26dB Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	December 5, 2012	
Temperature / Humidity	24deg.C , 35%RH	
Engineer	Kenichi Adachi	
Mode	Tx, IEEE802.11n-HT40, PN9, Antenna port Aux, worst data mode 8 (MCS)	

Freq. [MHz]	-26dB Bandwidth [MHz]
5190.0000	37.945
5230.0000	38.247



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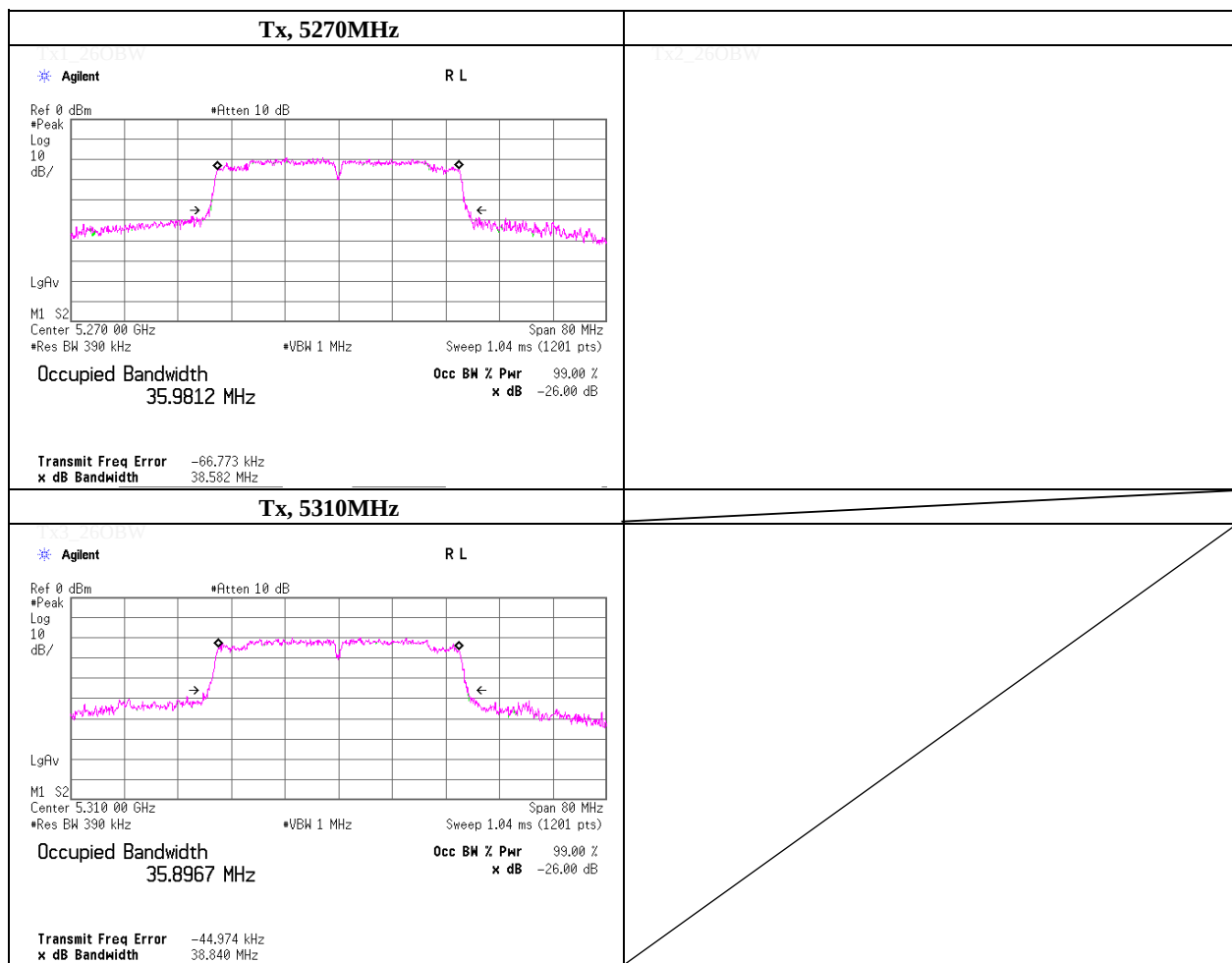
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

-26dB Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	December 5, 2012	
Temperature / Humidity	24deg.C , 35%RH	
Engineer	Kenichi Adachi	
Mode	Tx, IEEE802.11n-HT40, PN9, Antenna port Main, worst data mode 8 (MCS)	

Freq. [MHz]	-26dB Bandwidth [MHz]
5270.0000	38.582
5310.0000	38.840



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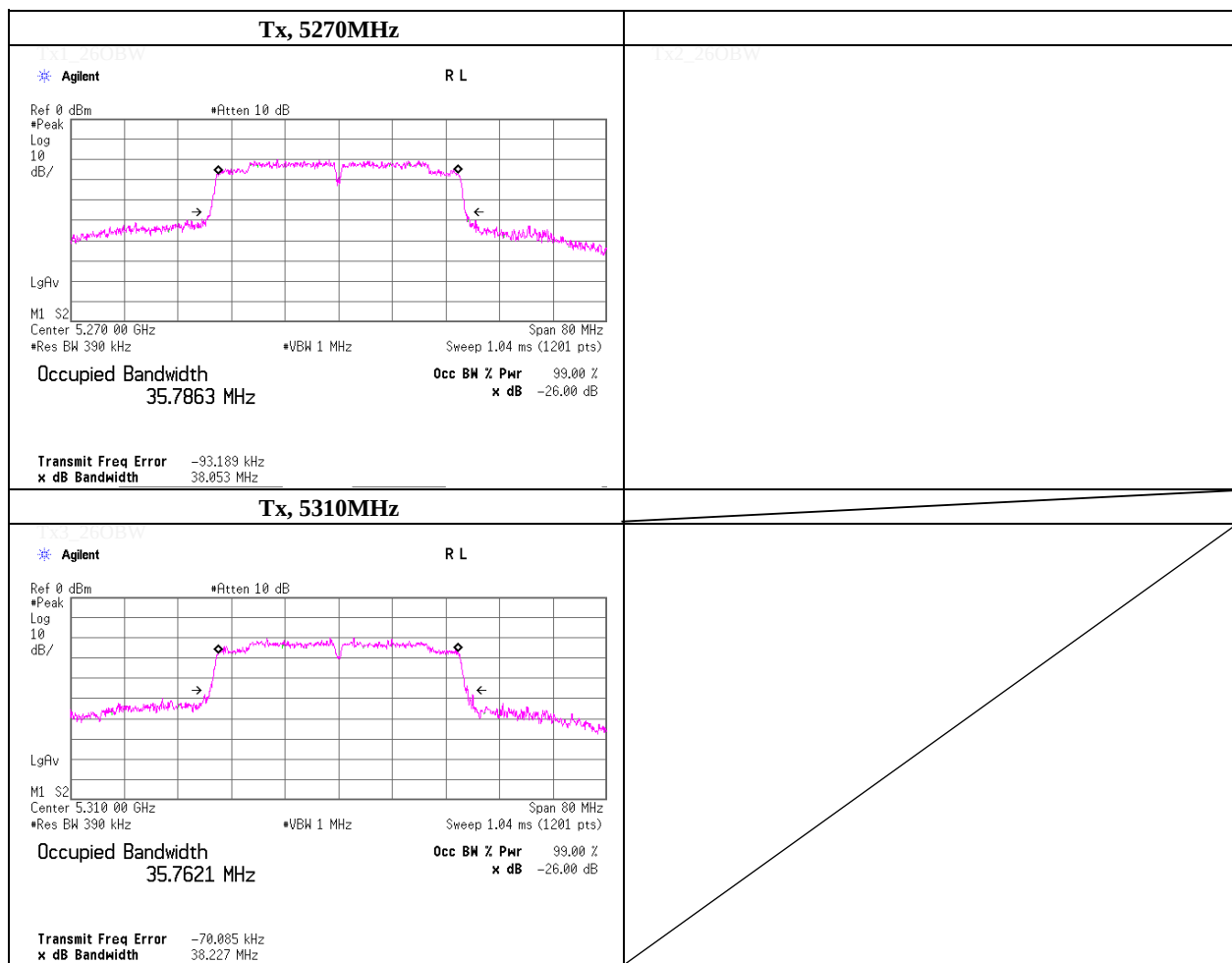
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

-26dB Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	December 5, 2012	
Temperature / Humidity	24deg.C , 35%RH	
Engineer	Kenichi Adachi	
Mode	Tx, IEEE802.11n-HT40, PN9, Antenna port Aux, worst data mode 8 (MCS)	

Freq. [MHz]	-26dB Bandwidth [MHz]
5270.0000	38.053
5310.0000	38.227



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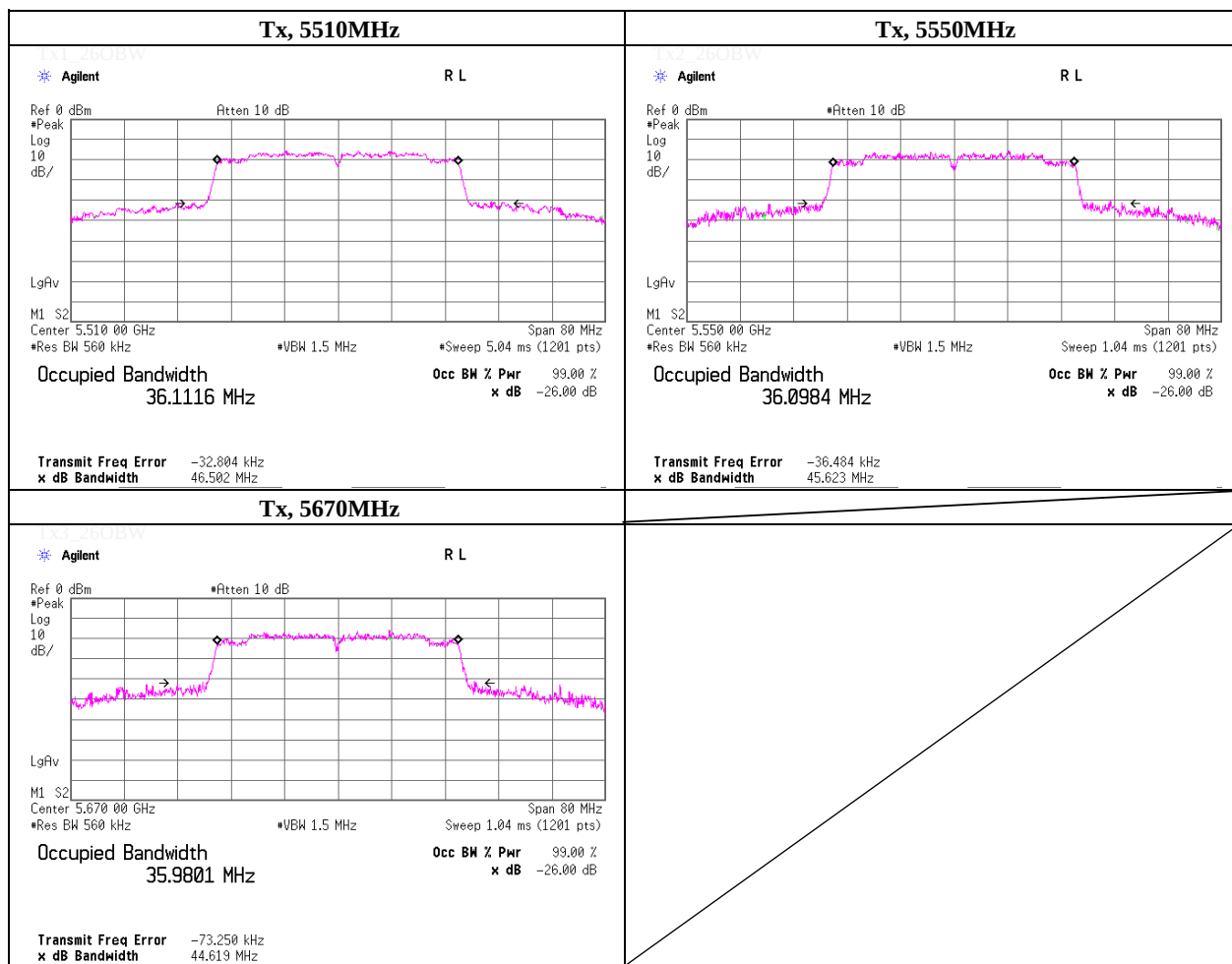
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

-26dB Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	December 5, 2012	
Temperature / Humidity	24deg.C , 35%RH	
Engineer	Kenichi Adachi	
Mode	Tx, IEEE802.11n-HT40, PN9, Antenna port Main, worst data mode 8 (MCS)	

Freq. [MHz]	-26dB Bandwidth [MHz]
5510.0000	46.502
5550.0000	45.623
5670.0000	44.619



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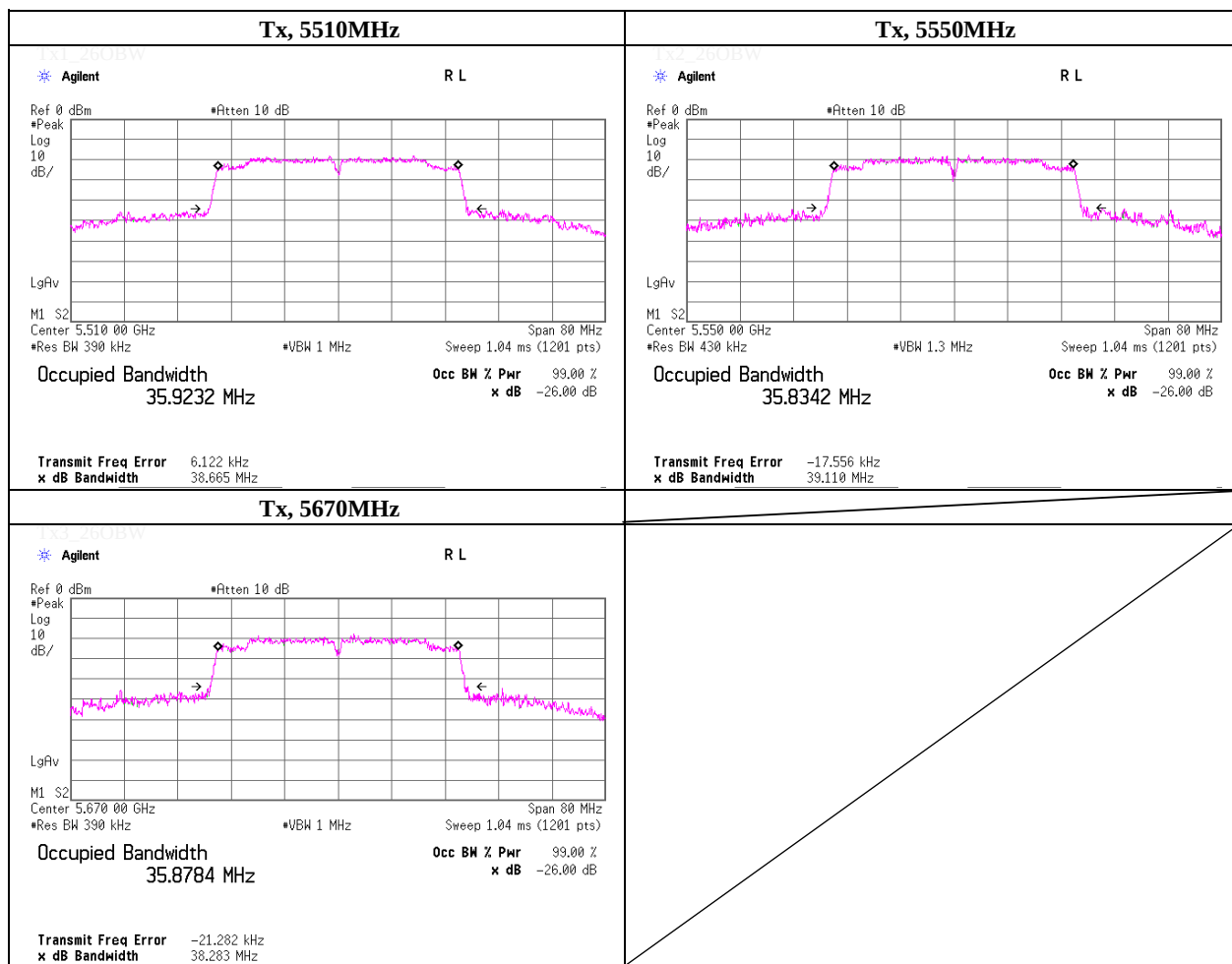
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

-26dB Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	December 5, 2012	
Temperature / Humidity	24deg.C , 35%RH	
Engineer	Kenichi Adachi	
Mode	Tx, IEEE802.11n-HT40, PN9, Antenna port Aux, worst data mode 8 (MCS)	

Freq. [MHz]	-26dB Bandwidth [MHz]
5510.0000	38.665
5550.0000	39.110
5670.0000	38.283



UL Japan, Inc.

Shonan EMC Lab.

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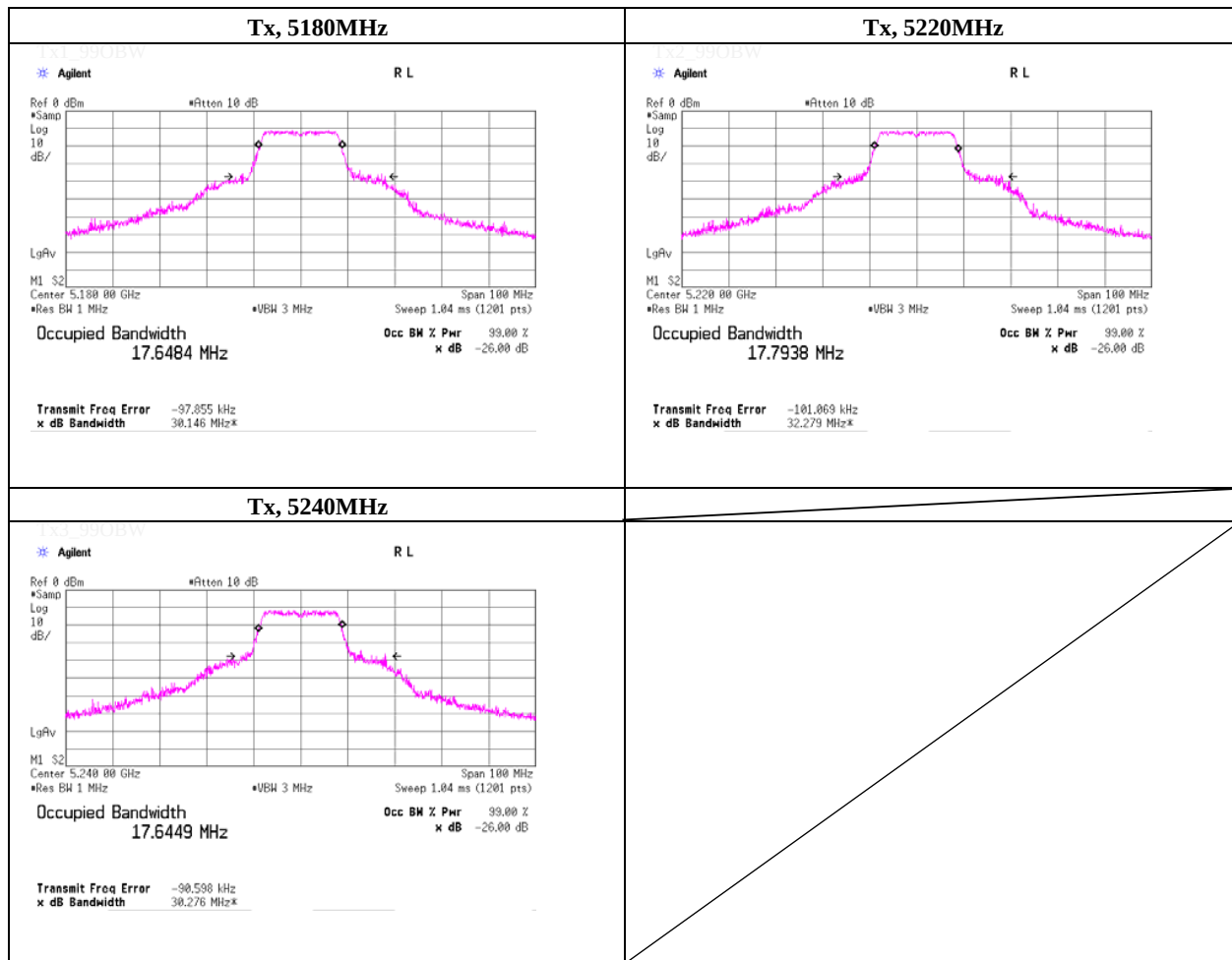
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

99% Occupied Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 30, 2012	
Temperature / Humidity	23deg.C , 54 %RH	
Engineer	Akio Hayashi	
Mode	Tx, IEEE802.11a, PN9, worst antenna port Main, worst data mode 6Mbps	

Freq. [MHz]	99% Occupied Bandwidth [MHz]
5180.0000	17.648
5220.0000	17.794
5240.0000	17.645



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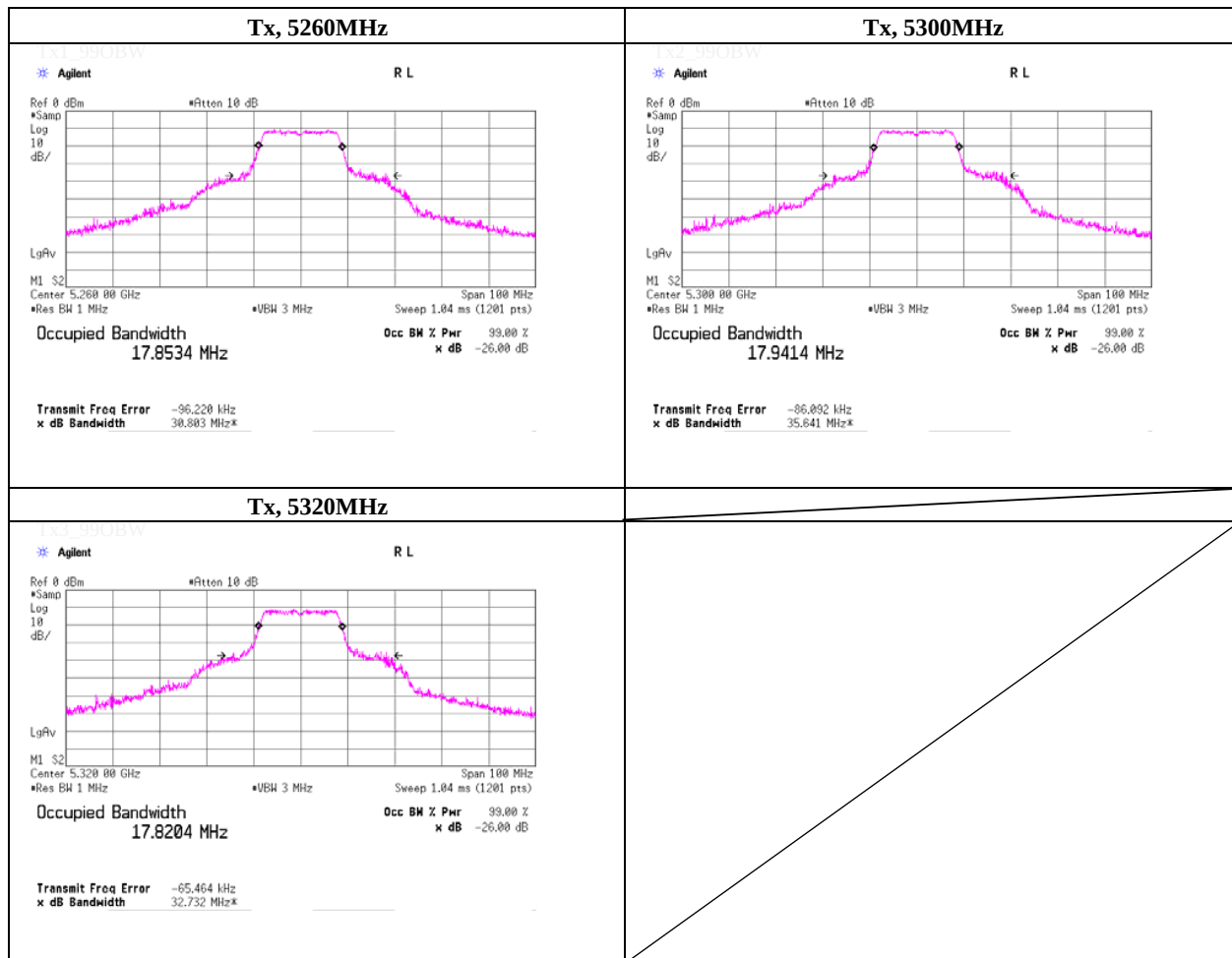
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

99% Occupied Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 30, 2012	
Temperature / Humidity	23deg.C , 54 %RH	
Engineer	Akio Hayashi	
Mode	Tx, IEEE802.11a, PN9, worst antenna port Main, worst data mode 6Mbps	

Freq. [MHz]	99% Occupied Bandwidth [MHz]
5260.0000	17.853
5300.0000	17.941
5320.0000	17.820



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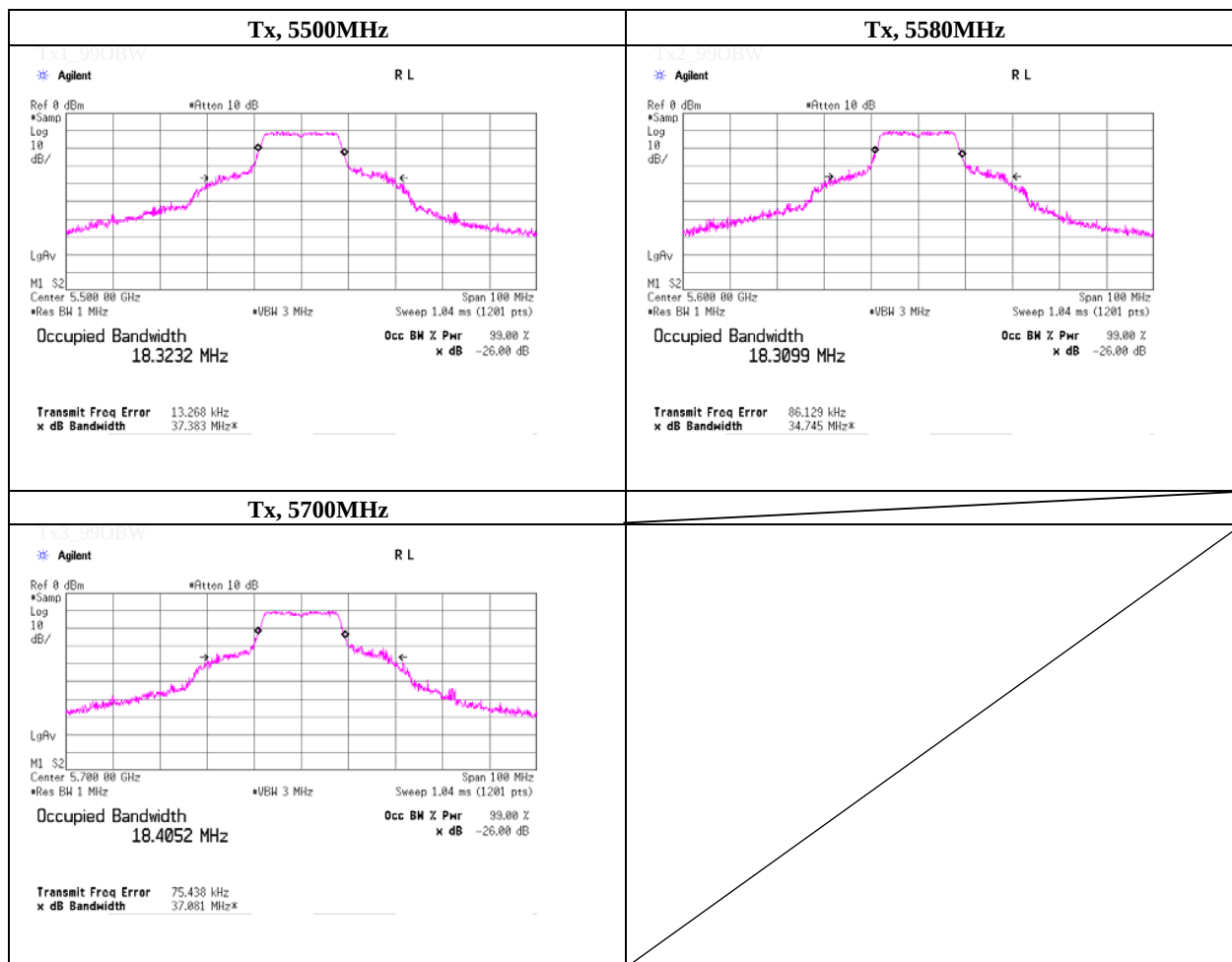
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

99% Occupied Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 30, 2012	
Temperature / Humidity	23deg.C , 54%RH	
Engineer	Akio Hayashi	
Mode	Tx, IEEE802.11a, PN9, worst antenna port Main, worst data mode 6Mbps	

Freq. [MHz]	99% Occupied Bandwidth [MHz]
5500.0000	18.323
5580.0000	18.310
5700.0000	18.405



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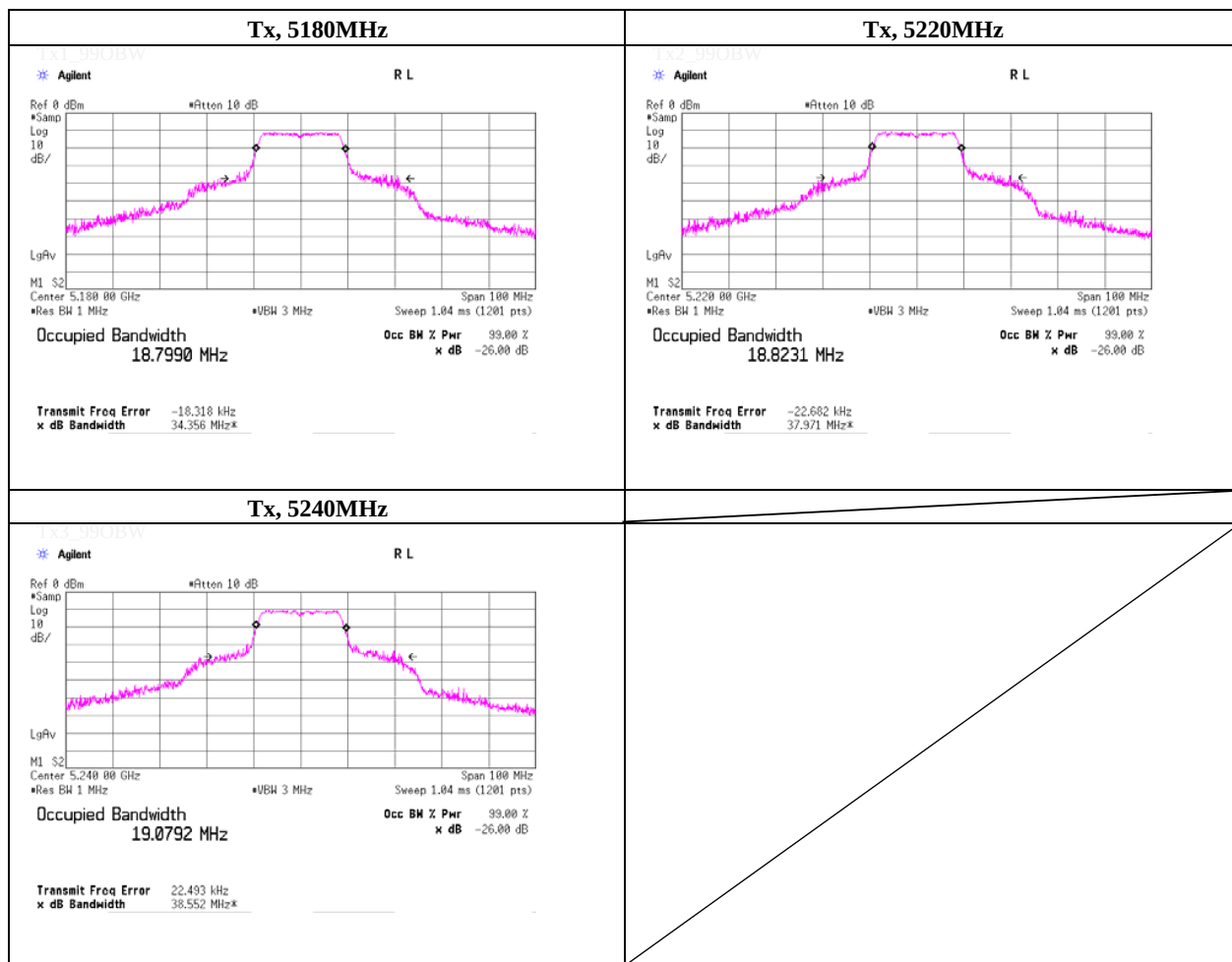
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

99% Occupied Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 30, 2012	
Temperature / Humidity	23deg.C , 54 %RH	
Engineer	Akio Hayashi	
Mode	Tx, IEEE802.11n (HT20), PN9, worst antenna port Main, worst data mode 0(MCS)	

Freq. [MHz]	99% Occupied Bandwidth [MHz]
5180.0000	18.799
5220.0000	18.823
5240.0000	19.079



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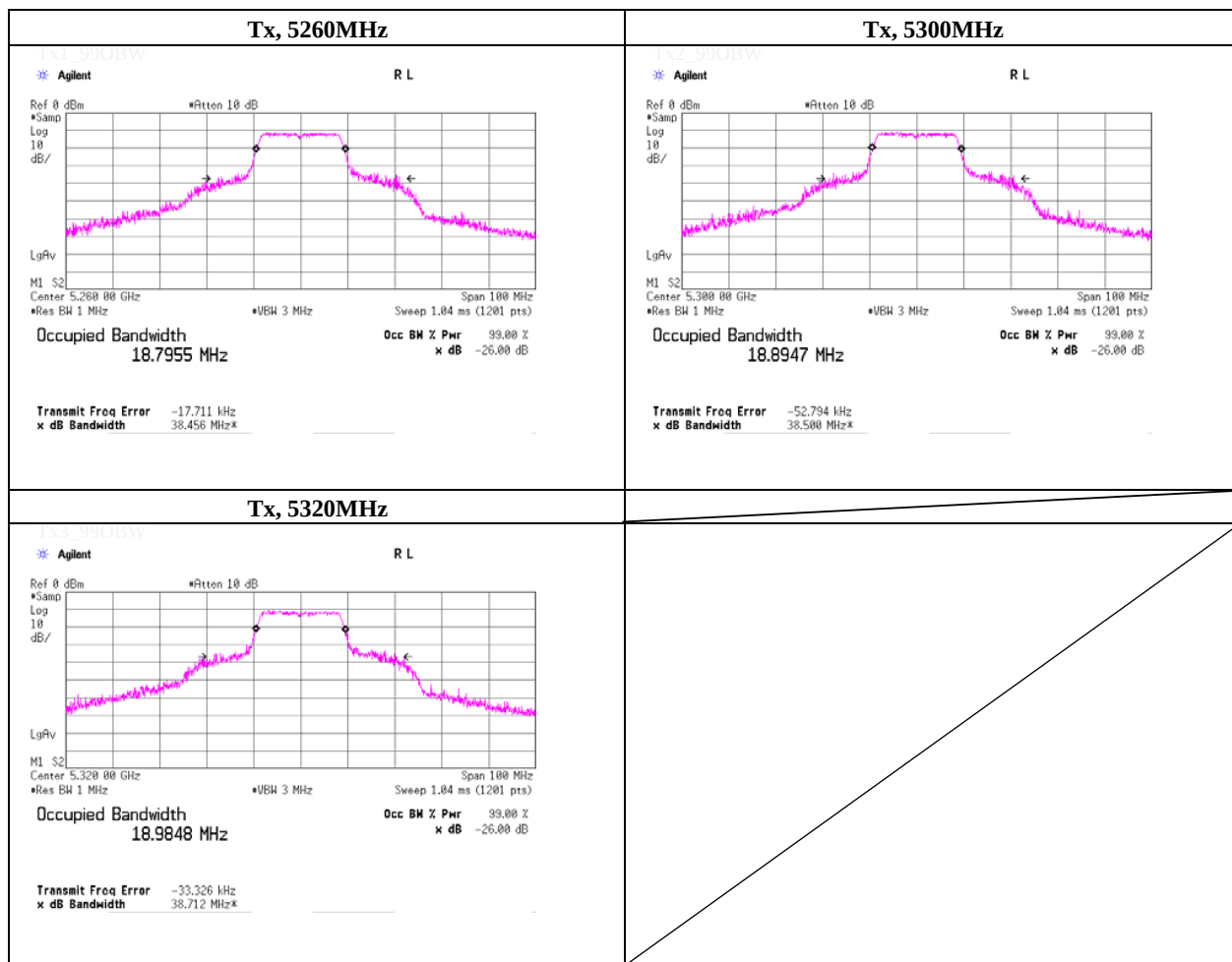
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

99% Occupied Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 30, 2012	
Temperature / Humidity	23 deg.C , 54 %RH	
Engineer	Akio Hayashi	
Mode	Tx, IEEE802.11n (HT20), PN9, worst antenna port Main, worst data mode 0(MCS)	

Freq. [MHz]	99% Occupied Bandwidth [MHz]
5260.0000	18.795
5300.0000	18.895
5320.0000	18.985



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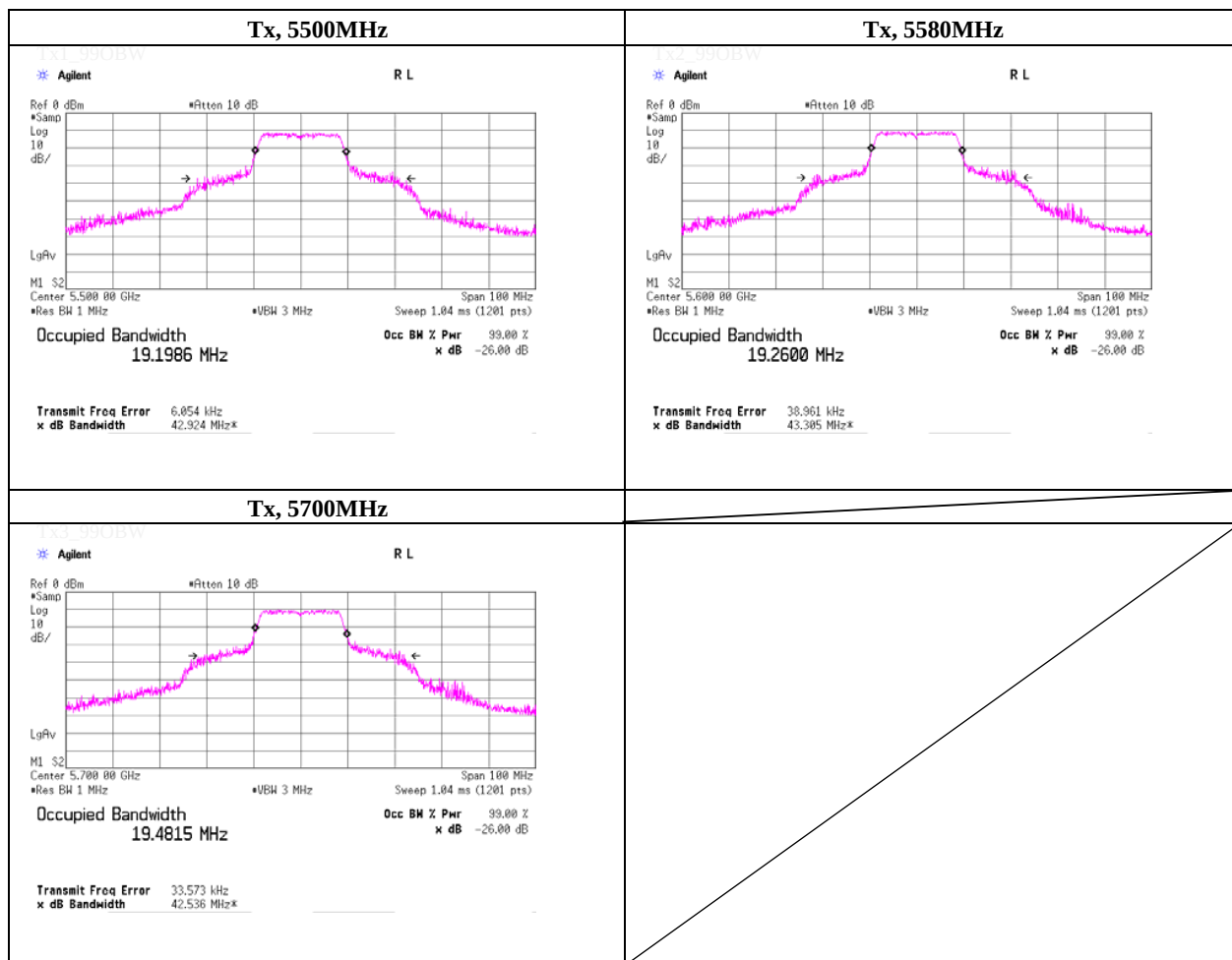
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

99% Occupied Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 30, 2012	
Temperature / Humidity	23 deg.C , 54 %RH	
Engineer	Akio Hayashi	
Mode	Tx, IEEE802.11n (HT20), PN9, worst antenna port Main, worst data mode 0(MCS)	

Freq. [MHz]	99% Occupied Bandwidth [MHz]
5500.0000	19.199
5580.0000	19.260
5700.0000	19.481



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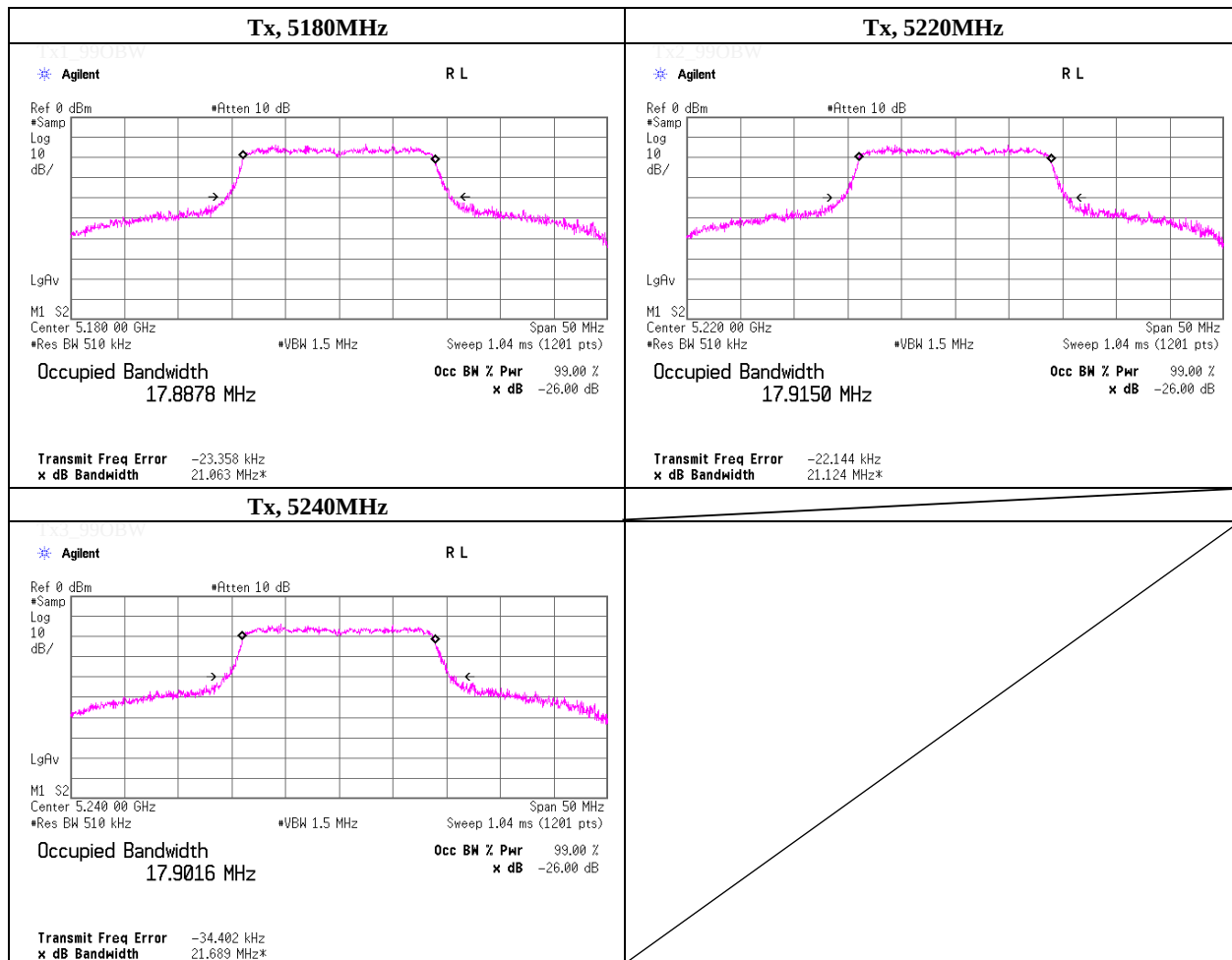
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

99% Occupied Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	December 4, 2012	
Temperature / Humidity	23deg.C , 39%RH	
Engineer	Hikaru Shirasawa	
Mode	Tx, IEEE802.11n-HT20, PN9, Antenna port Main, worst data mode 8 (MCS)	

Freq. [MHz]	99% Occupied Bandwidth [MHz]
5180.0000	17.888
5220.0000	17.915
5240.0000	17.902



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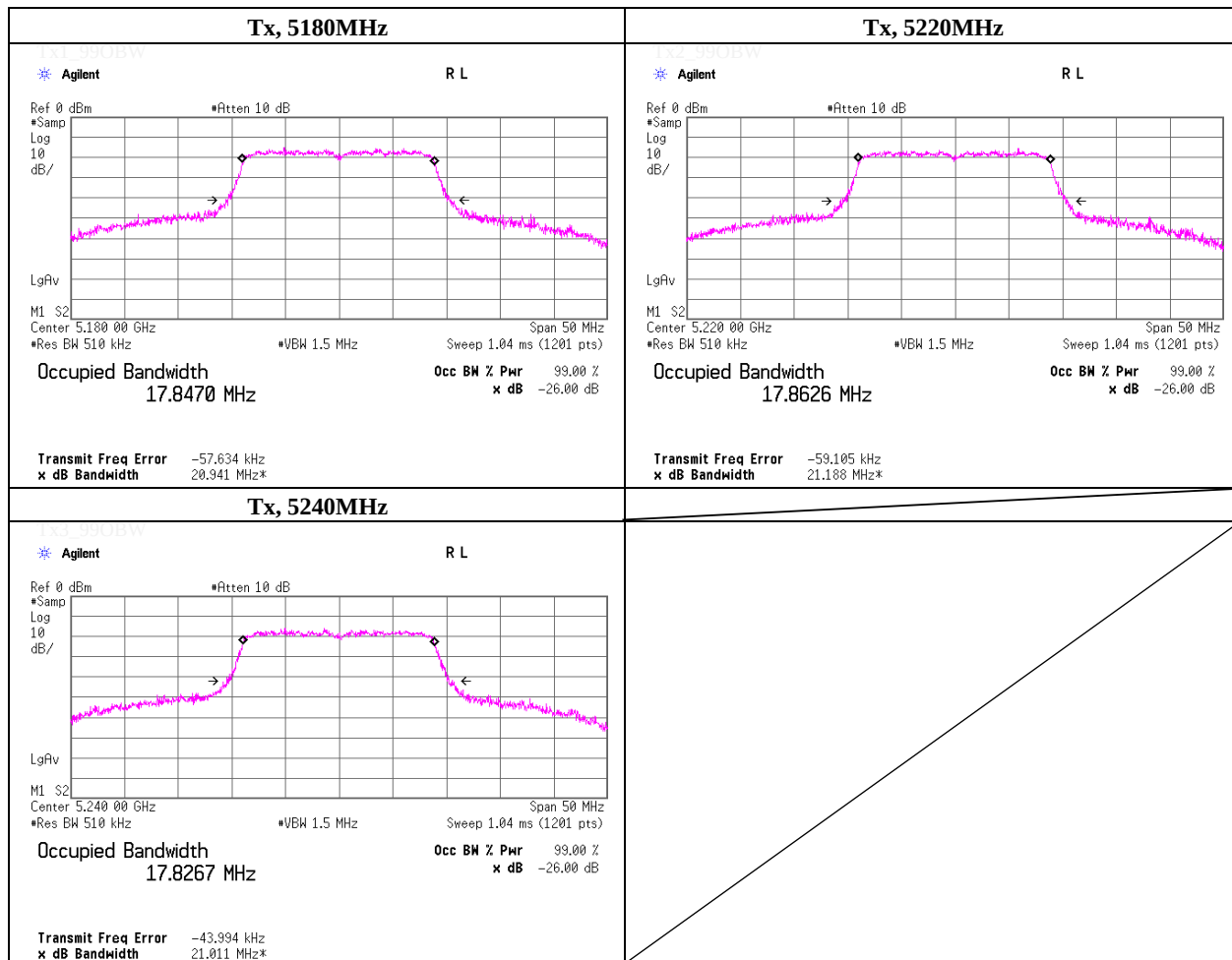
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

99% Occupied Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	December 4, 2012	
Temperature / Humidity	23deg.C , 39%RH	
Engineer	Hikaru Shirasawa	
Mode	Tx, IEEE802.11n-HT20, PN9, Antenna port Aux, worst data mode 8 (MCS)	

Freq. [MHz]	99% Occupied Bandwidth [MHz]
5180.0000	17.847
5220.0000	17.863
5240.0000	17.827



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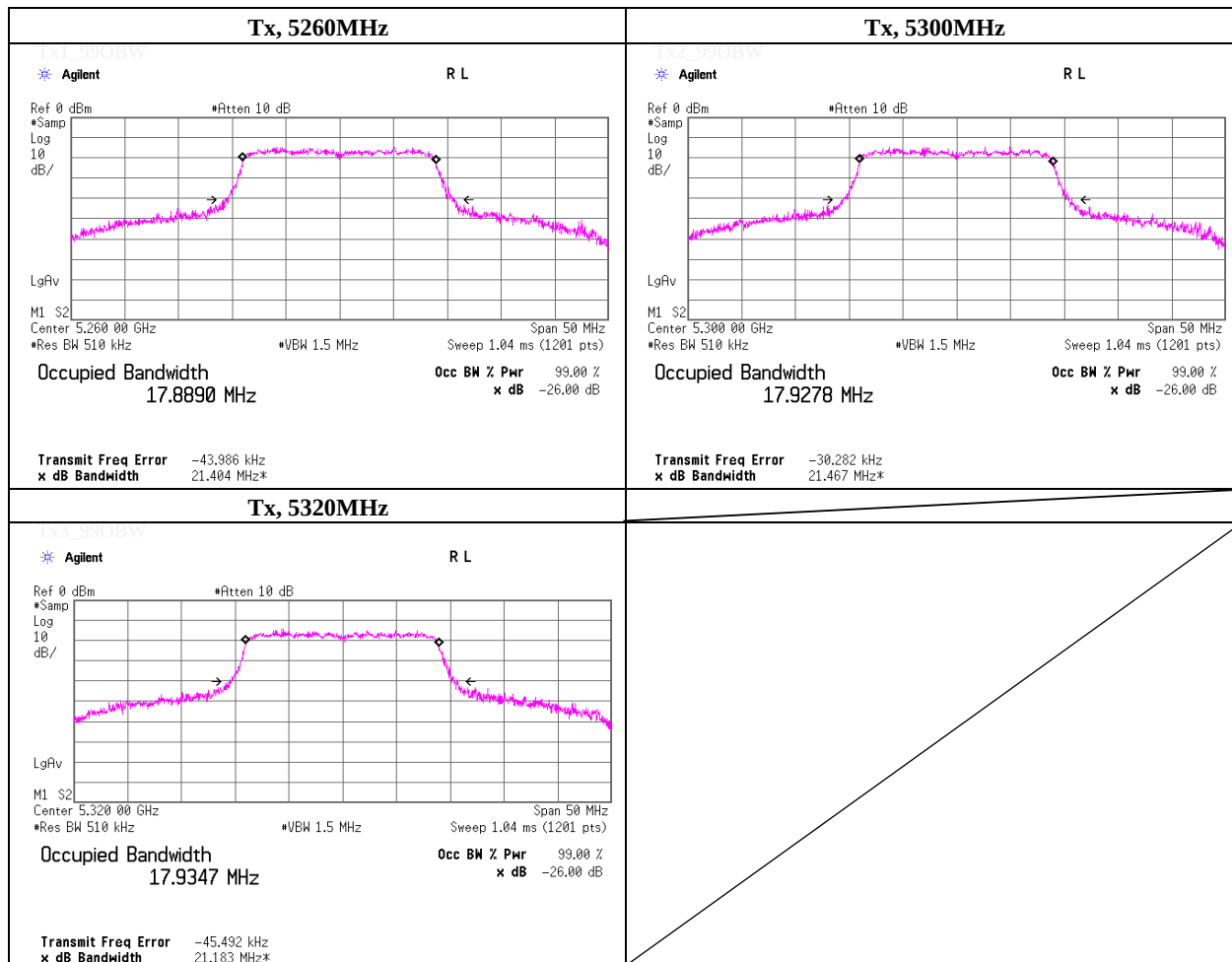
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

99% Occupied Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	December 4, 2012	
Temperature / Humidity	23deg.C , 39%RH	
Engineer	Hikaru Shirasawa	
Mode	Tx, IEEE802.11n-HT20, PN9, Antenna port Main, worst data mode 8 (MCS)	

Freq. [MHz]	99% Occupied Bandwidth [MHz]
5260.0000	17.889
5300.0000	17.928
5320.0000	17.935



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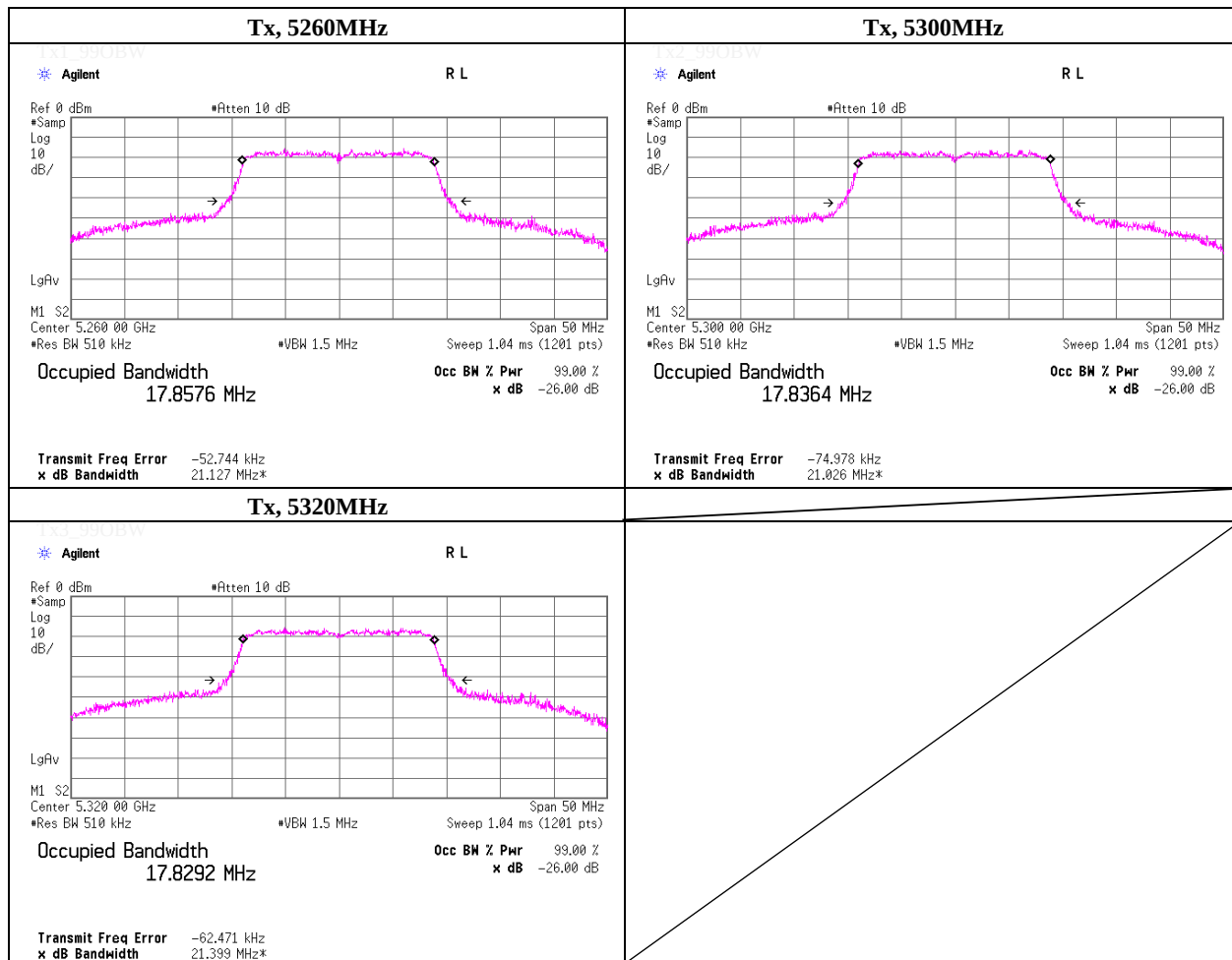
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

99% Occupied Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	December 4, 2012	
Temperature / Humidity	23deg.C , 39%RH	
Engineer	Hikaru Shirasawa	
Mode	Tx, IEEE802.11n-HT20, PN9, Antenna port Aux, worst data mode 8 (MCS)	

Freq. [MHz]	99% Occupied Bandwidth [MHz]
5260.0000	17.858
5300.0000	17.836
5320.0000	17.829



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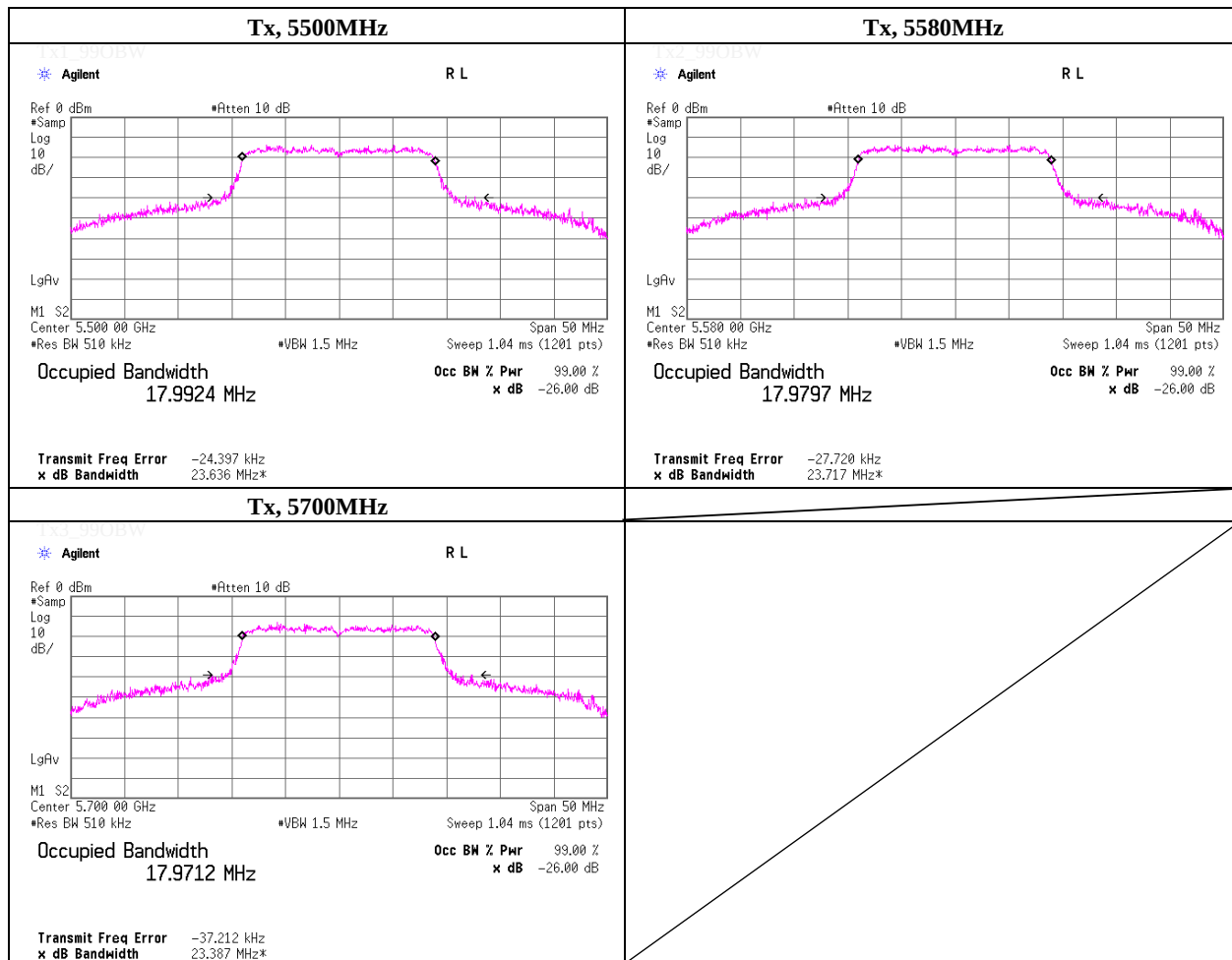
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

99% Occupied Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	December 4, 2012	
Temperature / Humidity	23deg.C , 39%RH	
Engineer	Hikaru Shirasawa	
Mode	Tx, IEEE802.11n-HT20, PN9, Antenna port Main, worst data mode 8 (MCS)	

Freq. [MHz]	99% Occupied Bandwidth [MHz]
5500.0000	17.992
5580.0000	17.980
5700.0000	17.971



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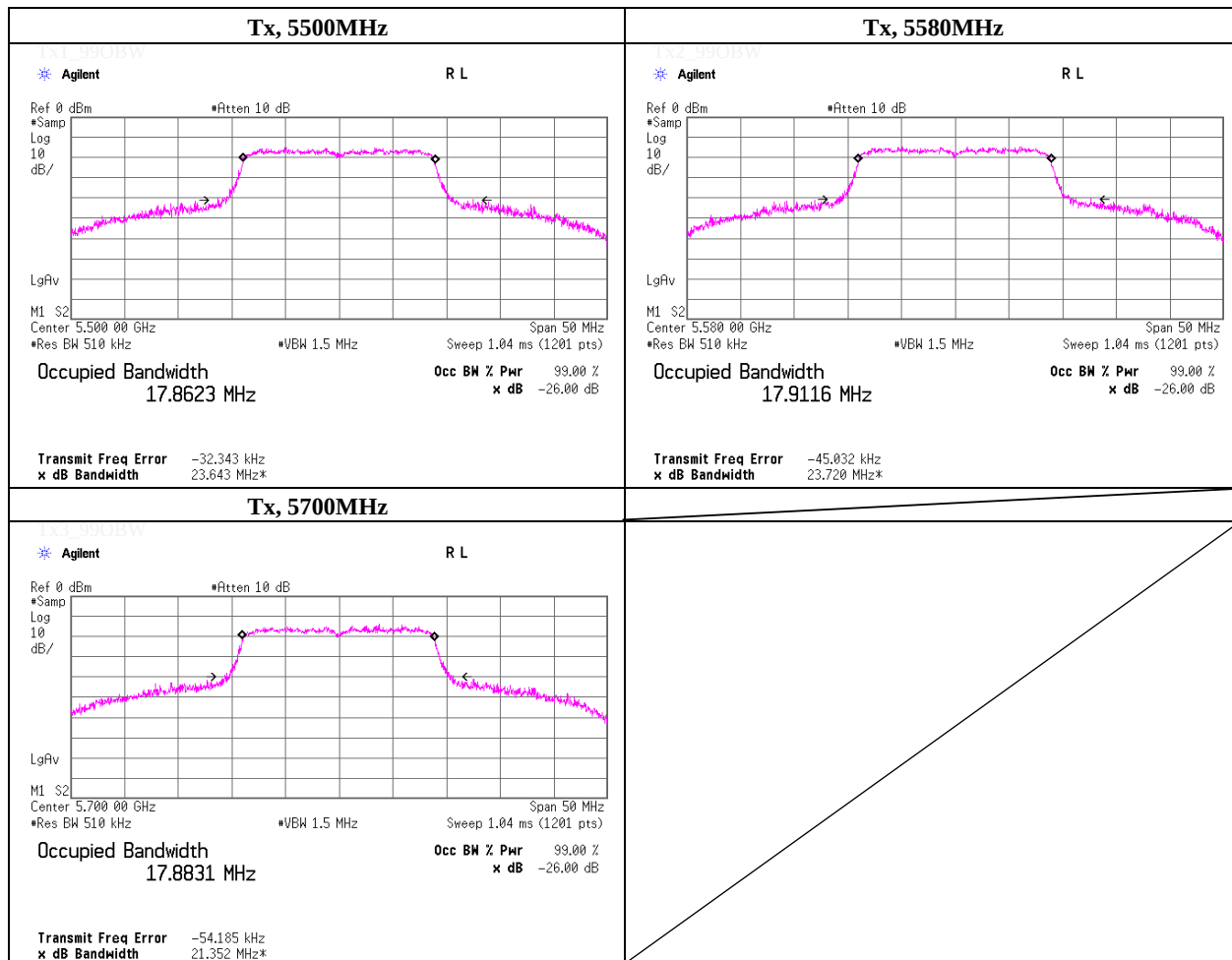
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

99% Occupied Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	December 4, 2012	
Temperature / Humidity	23deg.C , 39%RH	
Engineer	Hikaru Shirasawa	
Mode	Tx, IEEE802.11n-HT20, PN9, Antenna port Aux, worst data mode 8 (MCS)	

Freq. [MHz]	99% Occupied Bandwidth [MHz]
5500.0000	17.862
5580.0000	17.912
5700.0000	17.883



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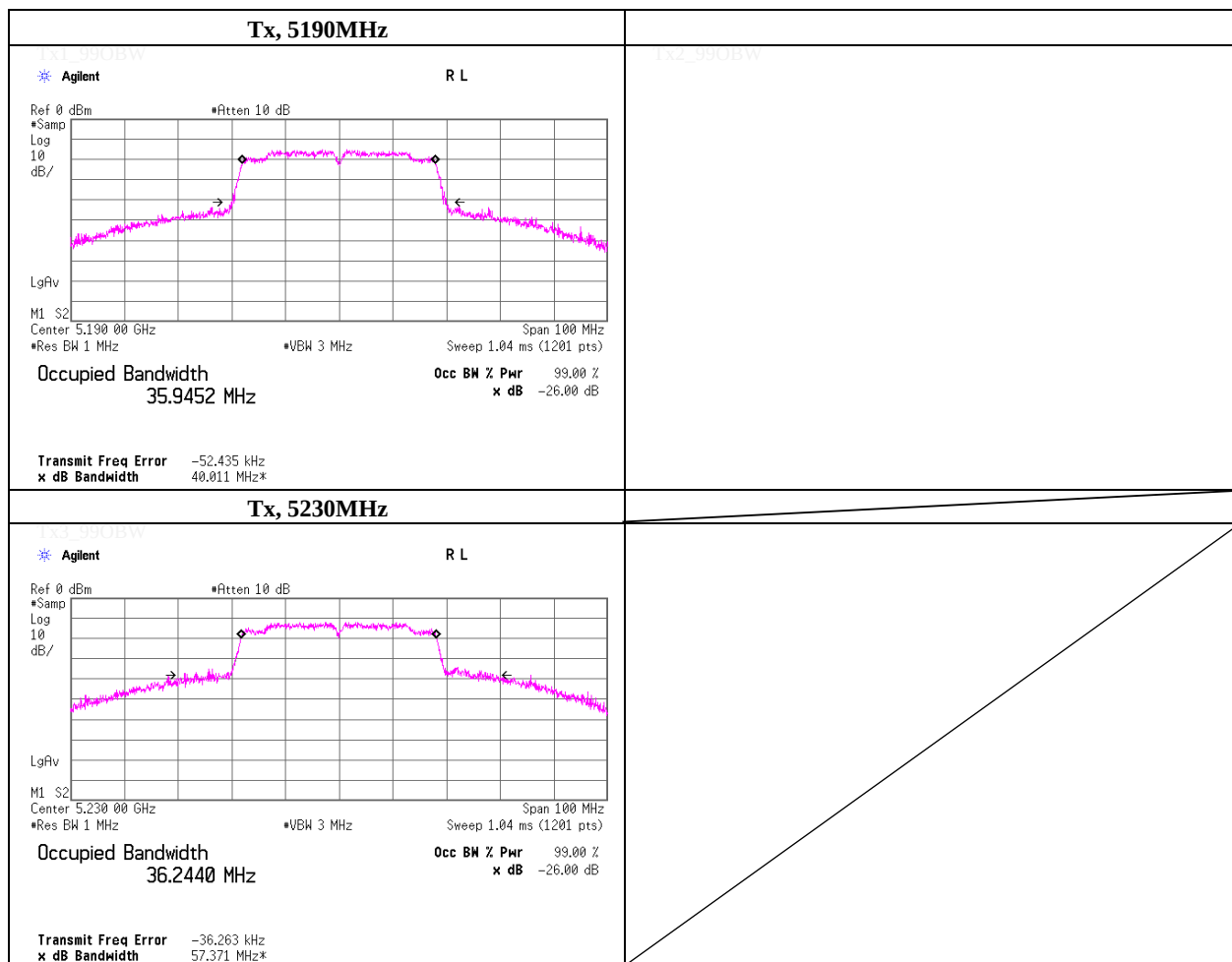
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

99% Occupied Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	December 4, 2012	
Temperature / Humidity	23 deg.C , 39 %RH	
Engineer	Hikaru Shirasawa	
Mode	Tx, IEEE802.11n (HT40), PN9, worst antenna port Main, worst data mode 0(MCS)	

Freq. [MHz]	99% Occupied Bandwidth [MHz]
5190.0000	35.945
5230.0000	36.244



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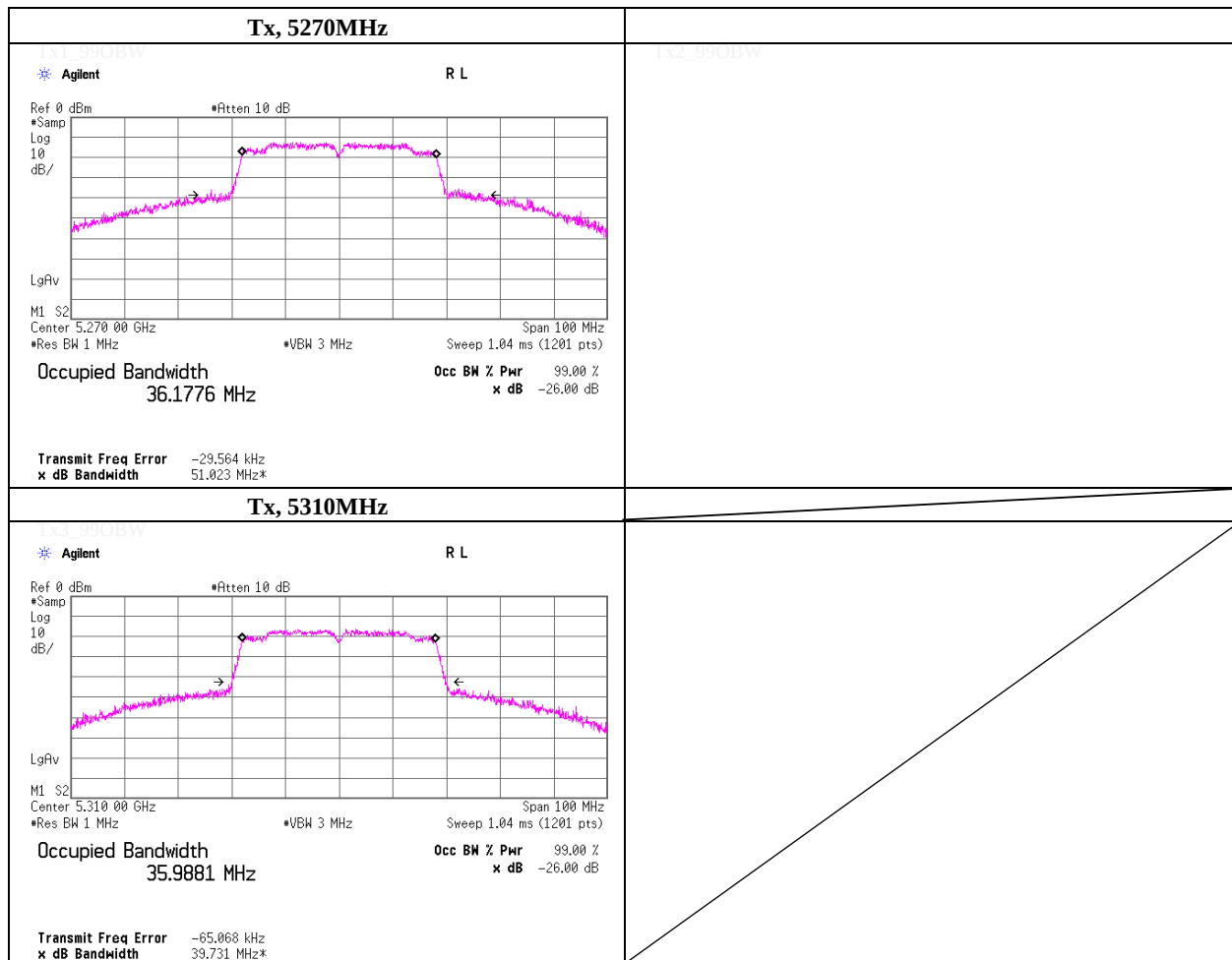
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

99% Occupied Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	December 4, 2012	
Temperature / Humidity	23 deg.C , 39%RH	
Engineer	Hikaru Shirasawa	
Mode	Tx, IEEE802.11n (HT40), PN9, worst antenna port Main, worst data mode 0(MCS)	

Freq. [MHz]	99% Occupied Bandwidth [MHz]
5270.0000	36.178
5310.0000	35.988



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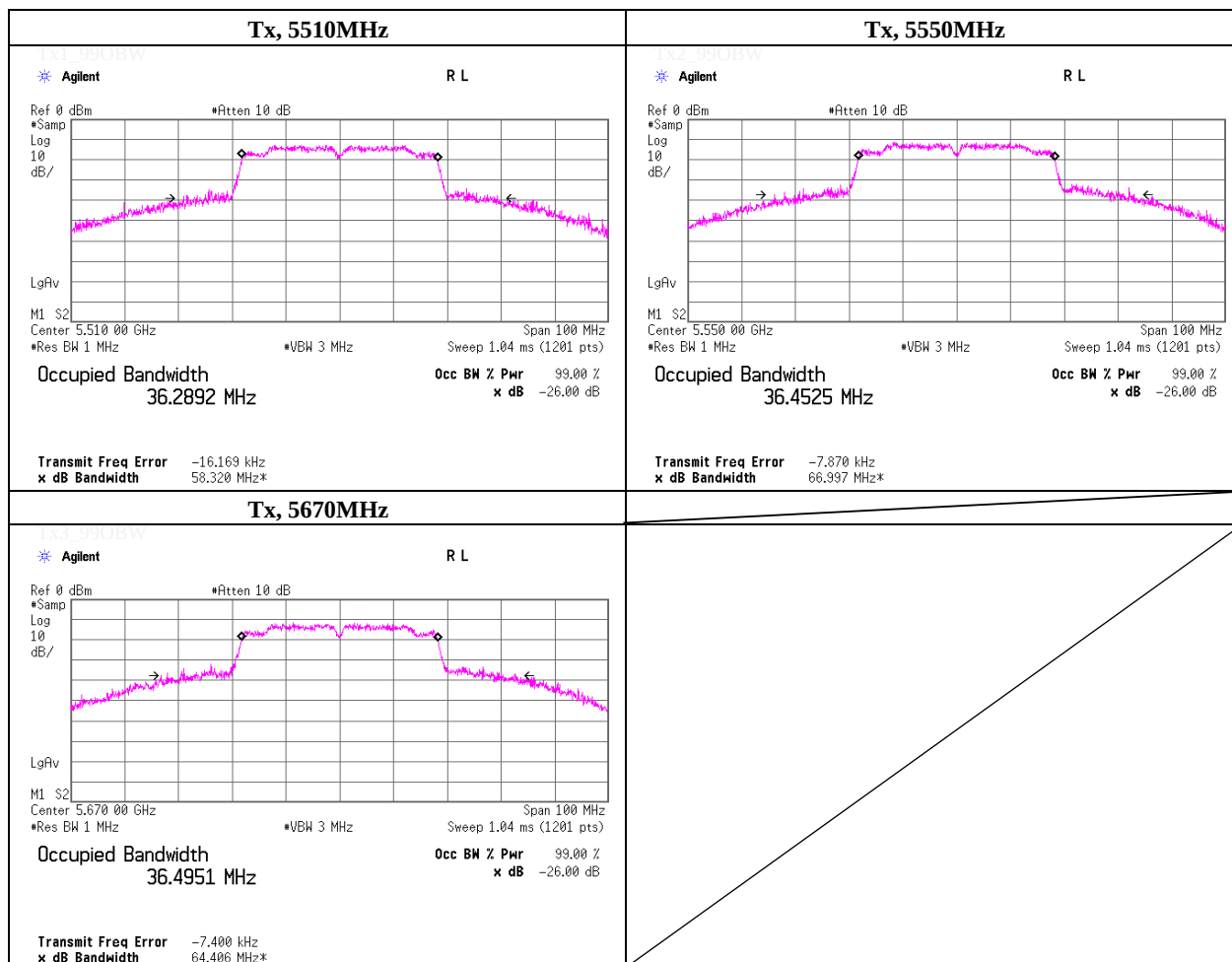
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

99% Occupied Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	December 4, 2012	
Temperature / Humidity	23 deg.C , 39 %RH	
Engineer	Hikaru Shirasawa	
Mode	Tx, IEEE802.11n (HT40), PN9, worst antenna port Main, worst data mode 0(MCS)	

Freq. [MHz]	99% Occupied Bandwidth [MHz]
5510.0000	36.289
5550.0000	36.452
5670.0000	36.495



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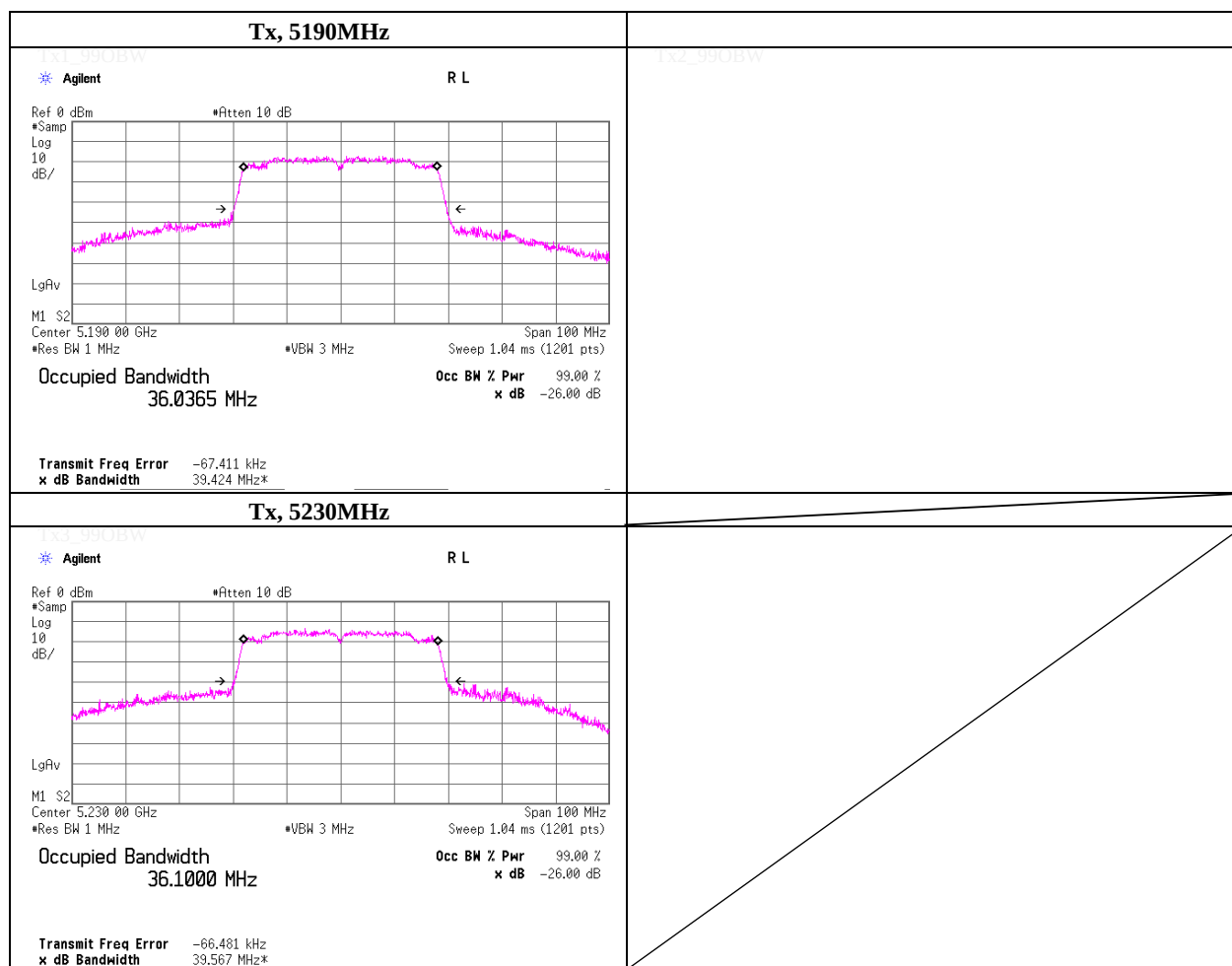
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

99% Occupied Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	December 5, 2012	
Temperature / Humidity	24deg.C , 35%RH	
Engineer	Kenichi Adachi	
Mode	Tx, IEEE802.11n-HT40, PN9, Antenna port Main, worst data mode 8 (MCS)	

Freq. [MHz]	99% Occupied Bandwidth [MHz]
5190.0000	36.037
5230.0000	36.100



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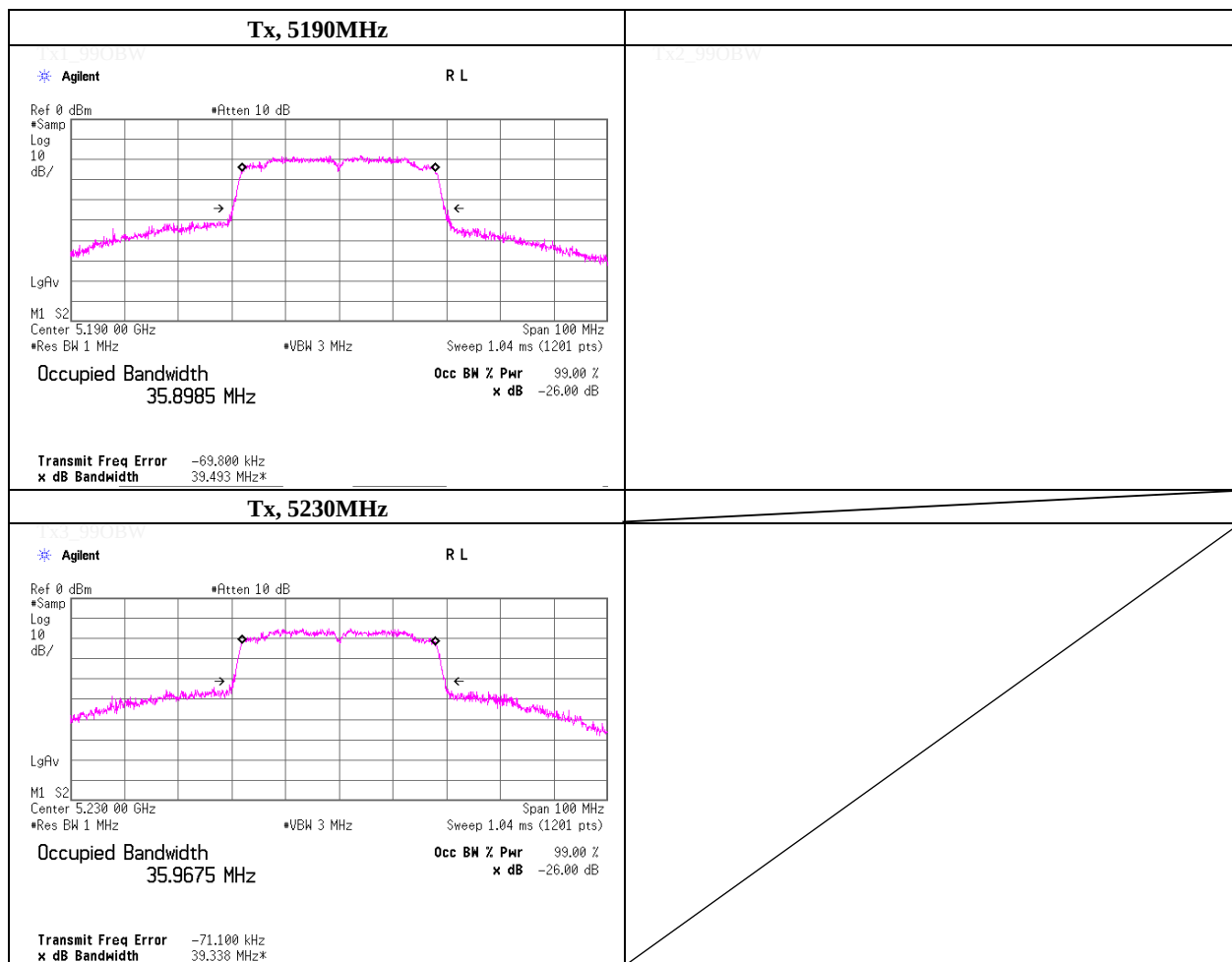
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

99% Occupied Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	December 5, 2012	
Temperature / Humidity	24deg.C , 35%RH	
Engineer	Kenichi Adachi	
Mode	Tx, IEEE802.11n-HT40, PN9, Antenna port Aux, worst data mode 8 (MCS)	

Freq. [MHz]	99% Occupied Bandwidth [MHz]
5190.0000	35.899
5230.0000	35.967



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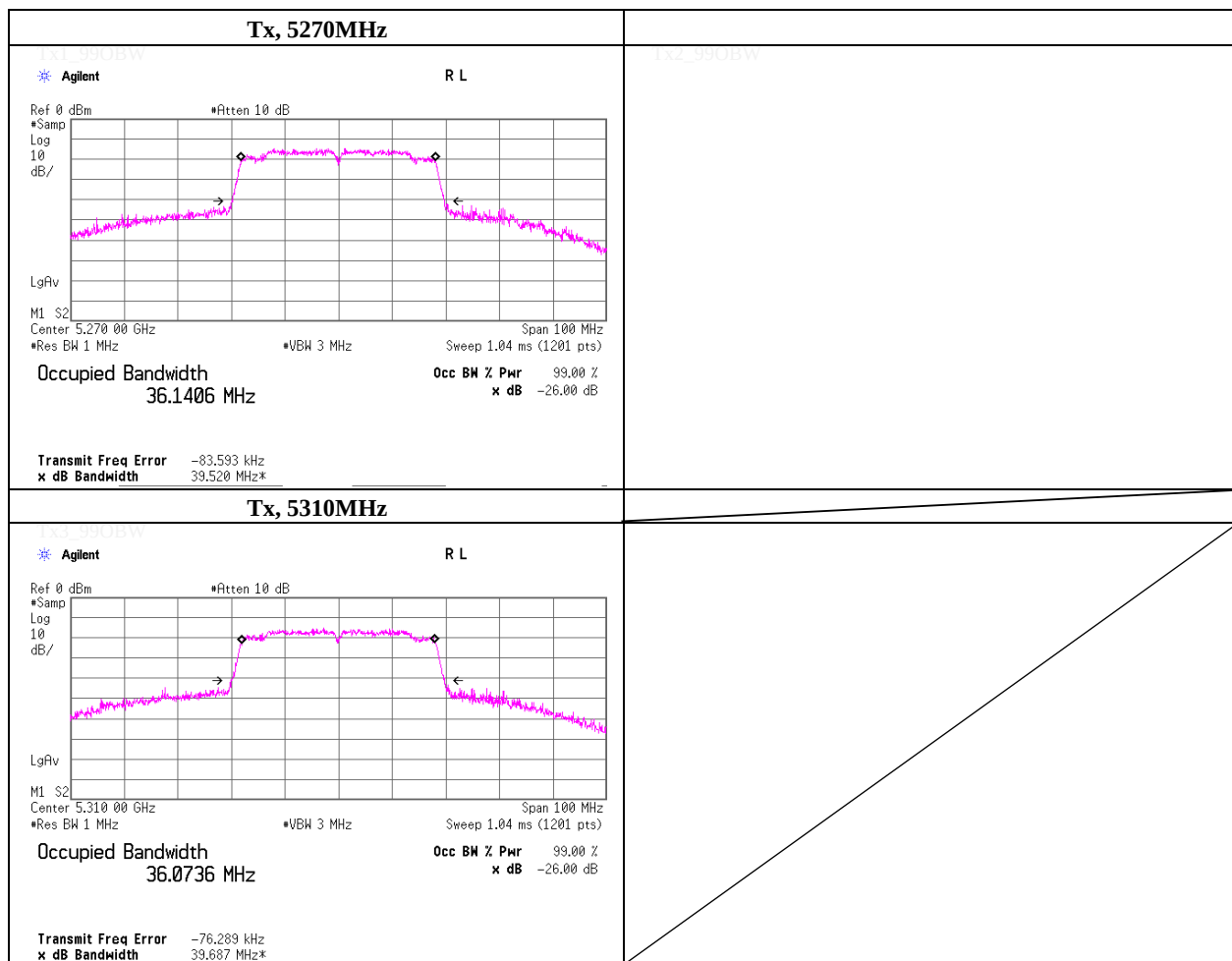
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

99% Occupied Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	December 5, 2012	
Temperature / Humidity	24deg.C , 35%RH	
Engineer	Kenichi Adachi	
Mode	Tx, IEEE802.11n-HT40, PN9, Antenna port Main, worst data mode 8 (MCS)	

Freq. [MHz]	99% Occupied Bandwidth [MHz]
5270.0000	36.141
5310.0000	36.074



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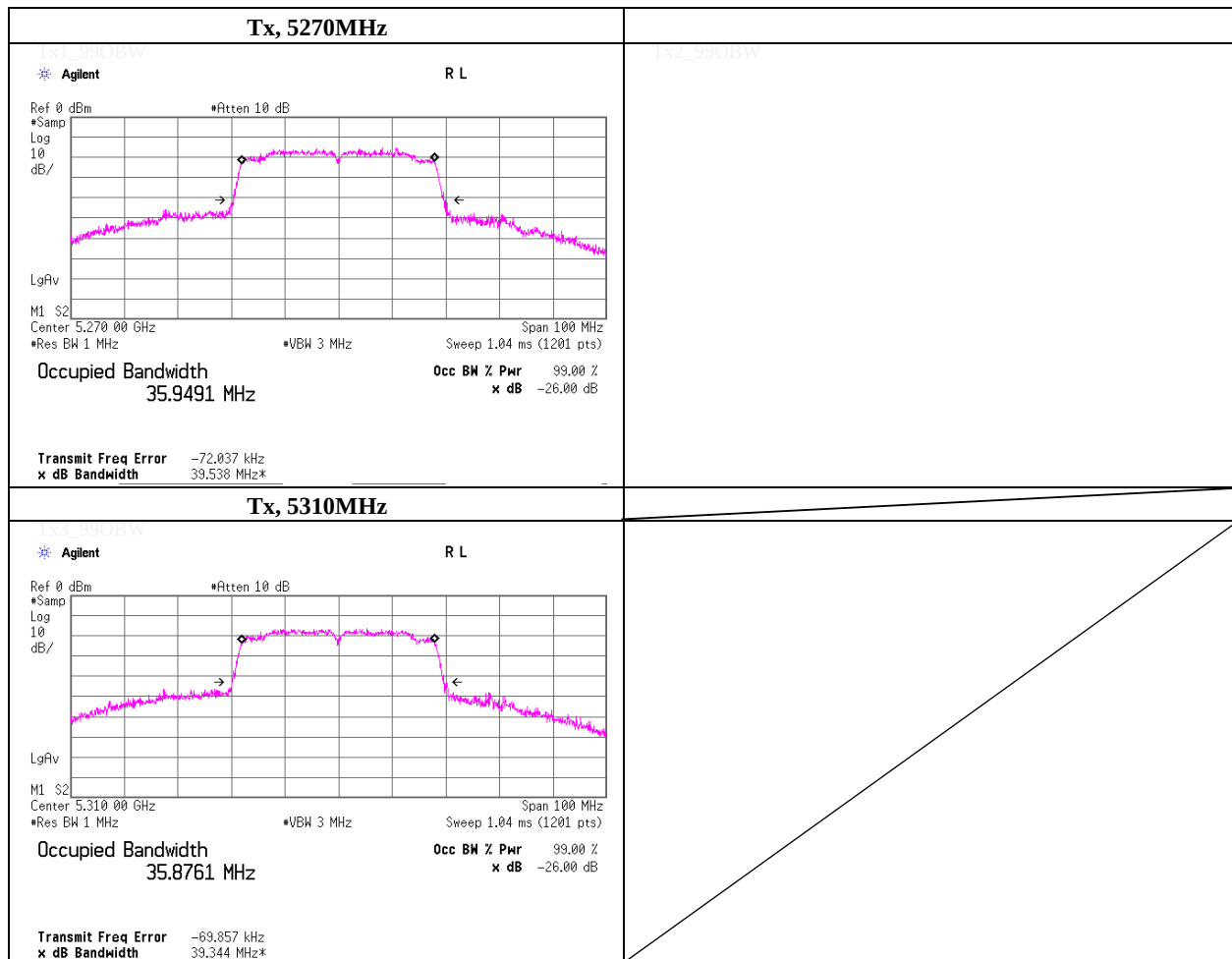
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

99% Occupied Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	December 5, 2012	
Temperature / Humidity	24deg.C , 35%RH	
Engineer	Kenichi Adachi	
Mode	Tx, IEEE802.11n-HT40, PN9, Antenna port Aux, worst data mode 8 (MCS)	

Freq. [MHz]	99% Occupied Bandwidth [MHz]
5270.0000	35.949
5310.0000	35.876



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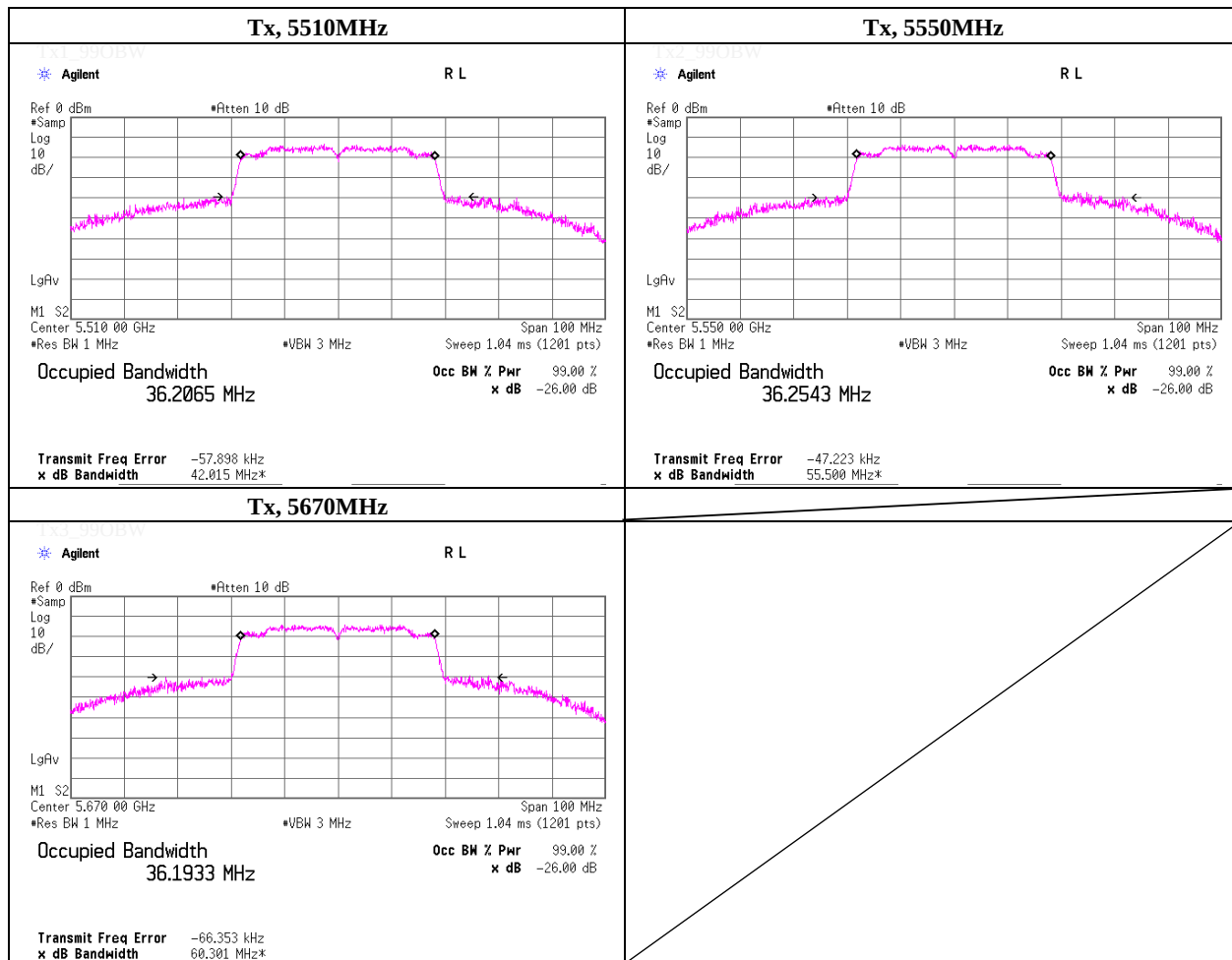
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

99% Occupied Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	December 5, 2012	
Temperature / Humidity	24deg.C , 35%RH	
Engineer	Kenichi Adachi	
Mode	Tx, IEEE802.11n-HT40, PN9, Antenna port Main, worst data mode 8 (MCS)	

Freq. [MHz]	99% Occupied Bandwidth [MHz]
5510.0000	36.207
5550.0000	36.254
5670.0000	36.193



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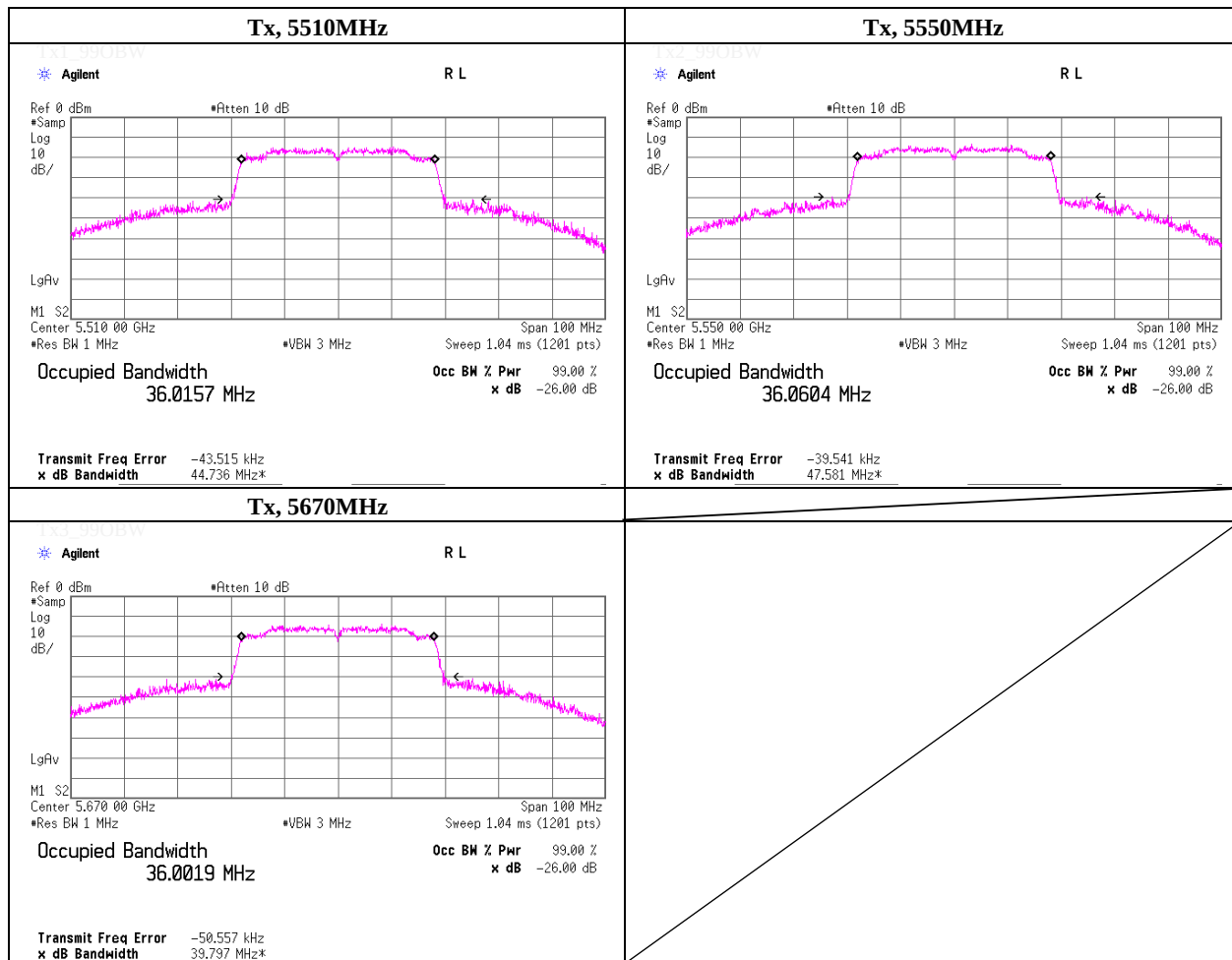
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

99% Occupied Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	December 5, 2012	
Temperature / Humidity	24deg.C , 35%RH	
Engineer	Kenichi Adachi	
Mode	Tx, IEEE802.11n-HT40, PN9, Antenna port Aux, worst data mode 8 (MCS)	

Freq. [MHz]	99% Occupied Bandwidth [MHz]
5510.0000	36.016
5550.0000	36.060
5670.0000	36.002



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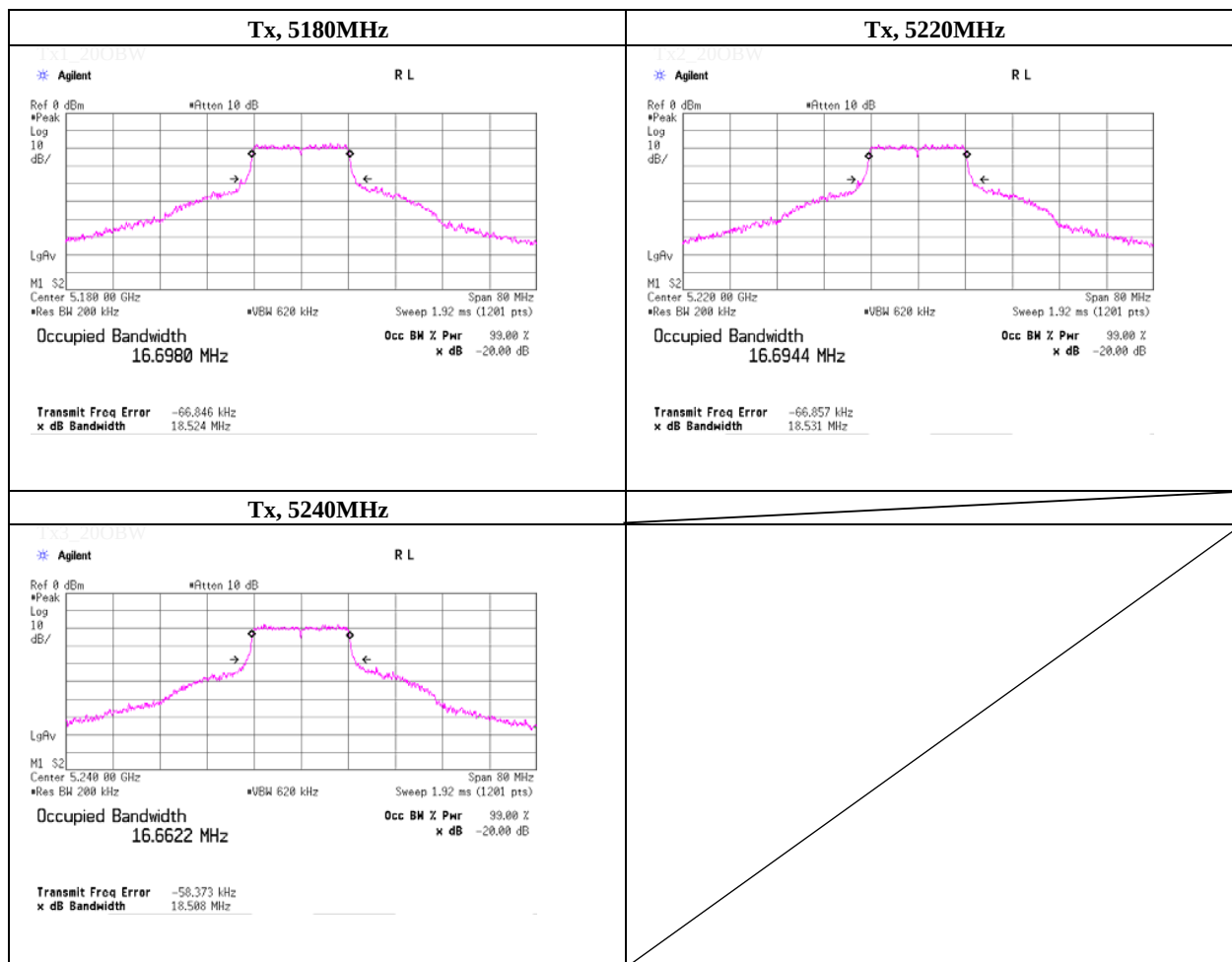
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

-20dB Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 30, 2012	
Temperature / Humidity	23deg.C , 54 %RH	
Engineer	Akio Hayashi	
Mode	Tx, IEEE802.11a, PN9, worst antenna port Main, worst data mode 6Mbps	

Freq. [MHz]	-20dB Bandwidth [MHz]
5180.0000	18.524
5220.0000	18.531
5240.0000	18.508

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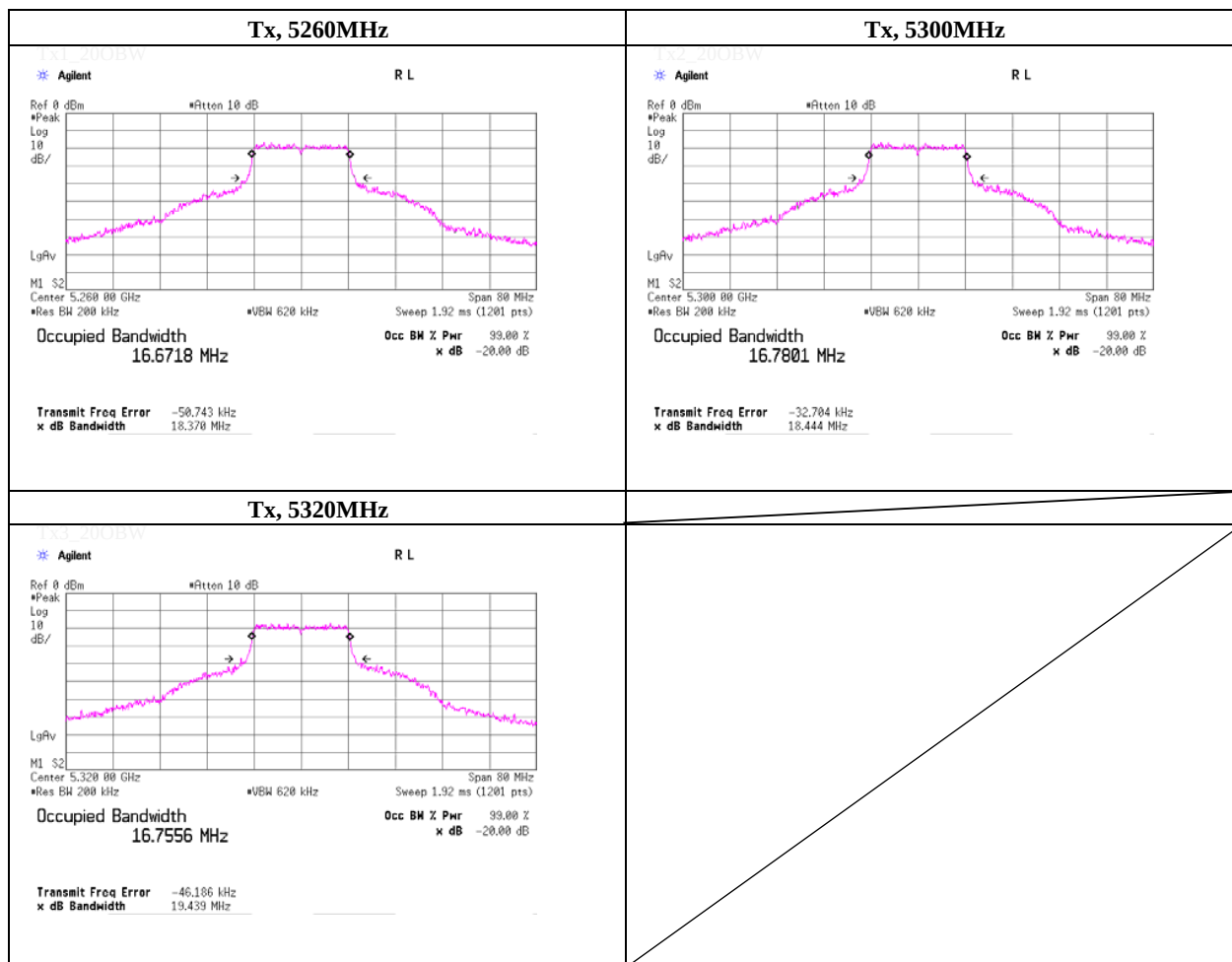
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

-20dB Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 30, 2012	
Temperature / Humidity	23deg.C , 54 %RH	
Engineer	Akio Hayashi	
Mode	Tx, IEEE802.11a, PN9, worst antenna port Main, worst data mode 6Mbps	

Freq. [MHz]	-20dB Bandwidth [MHz]
5260.0000	18.370
5300.0000	18.444
5320.0000	19.439



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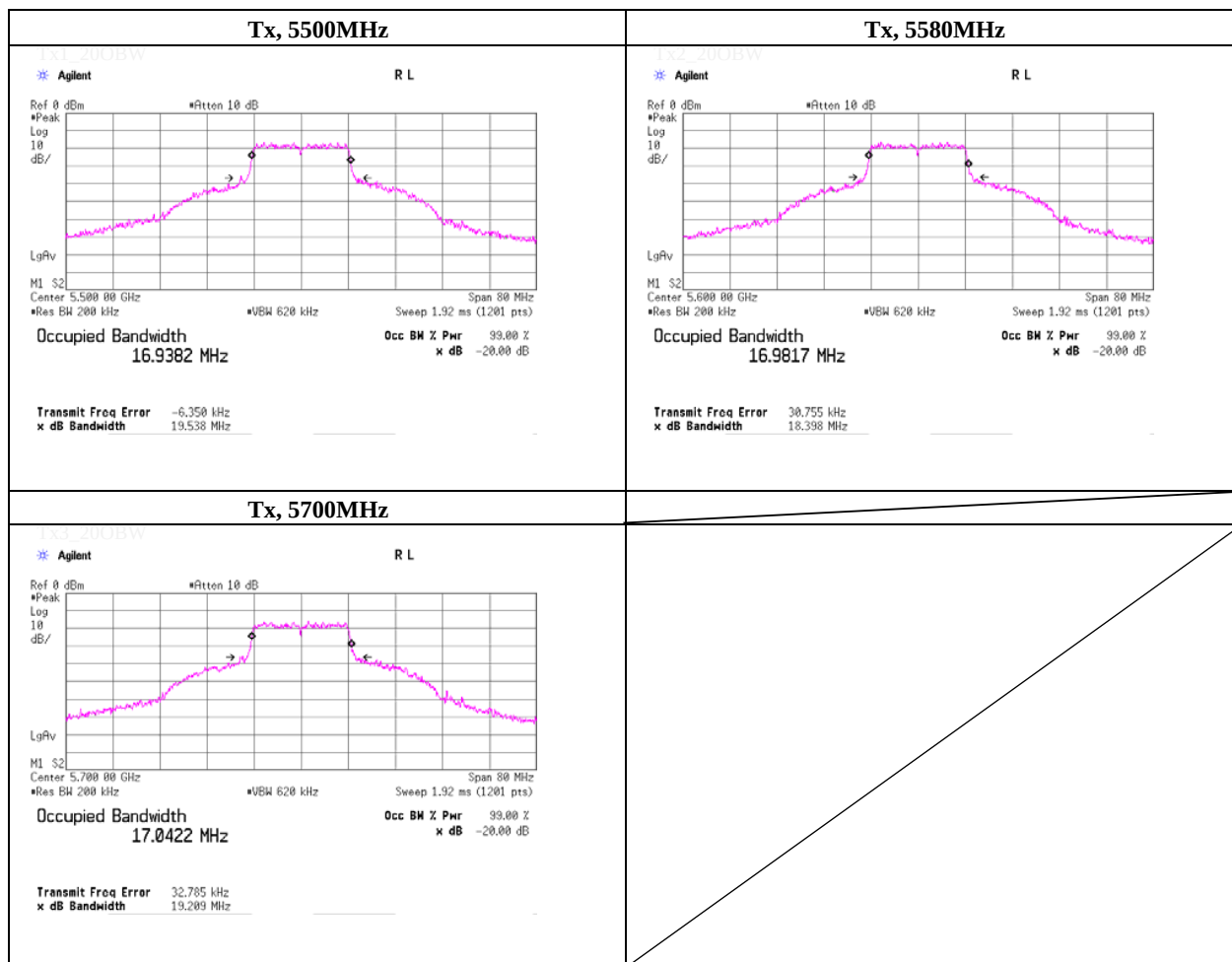
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

-20dB Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 30, 2012	
Temperature / Humidity	23deg.C , 54%RH	
Engineer	Akio Hayashi	
Mode	Tx, IEEE802.11a, PN9, worst antenna port Main, worst data mode 6Mbps	

Freq. [MHz]	-20dB Bandwidth [MHz]
5500.0000	19.538
5580.0000	18.398
5700.0000	19.209



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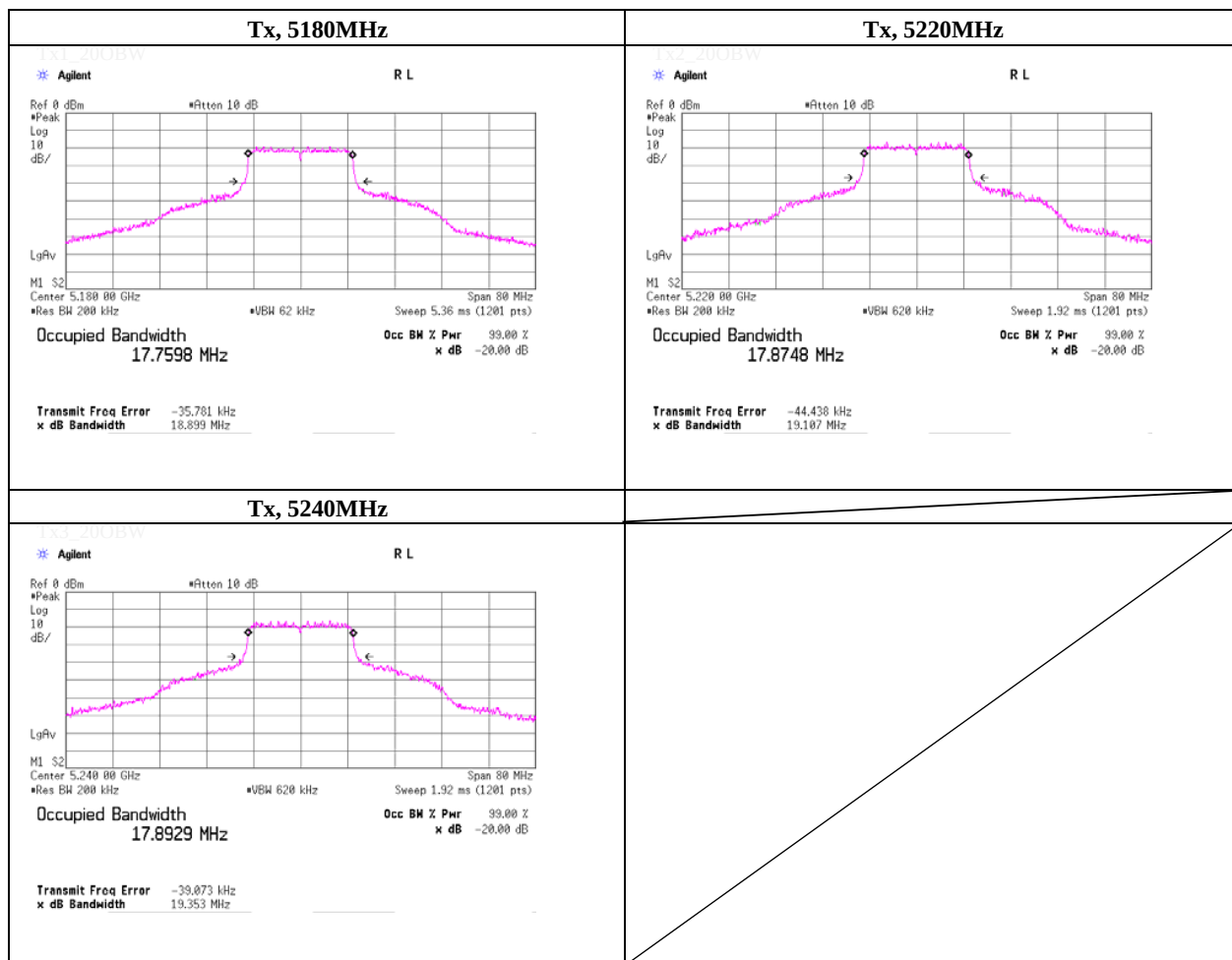
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

-20dB Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 30, 2012	
Temperature / Humidity	23deg.C , 54 %RH	
Engineer	Akio Hayashi	
Mode	Tx, IEEE802.11n (HT20), PN9, worst antenna port Main, worst data mode 0(MCS)	

Freq. [MHz]	-20dB Bandwidth [MHz]
5180.0000	18.899
5220.0000	19.107
5240.0000	19.353

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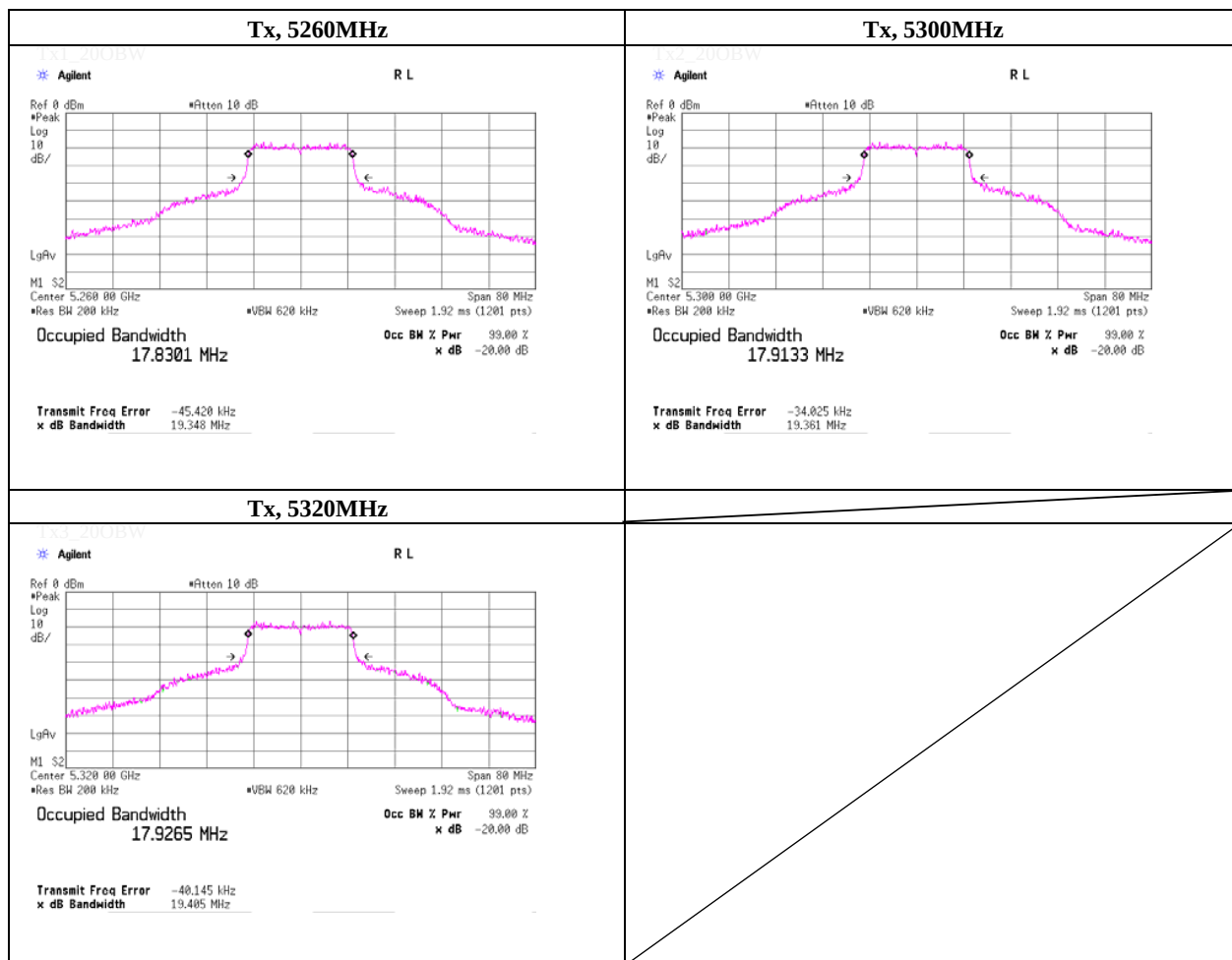
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

-20dB Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 30, 2012	
Temperature / Humidity	23 deg.C , 54 %RH	
Engineer	Akio Hayashi	
Mode	Tx, IEEE802.11n (HT20), PN9, worst antenna port Main, worst data mode 0(MCS)	

Freq. [MHz]	-20dB Bandwidth [MHz]
5260.0000	19.348
5300.0000	19.361
5320.0000	19.405



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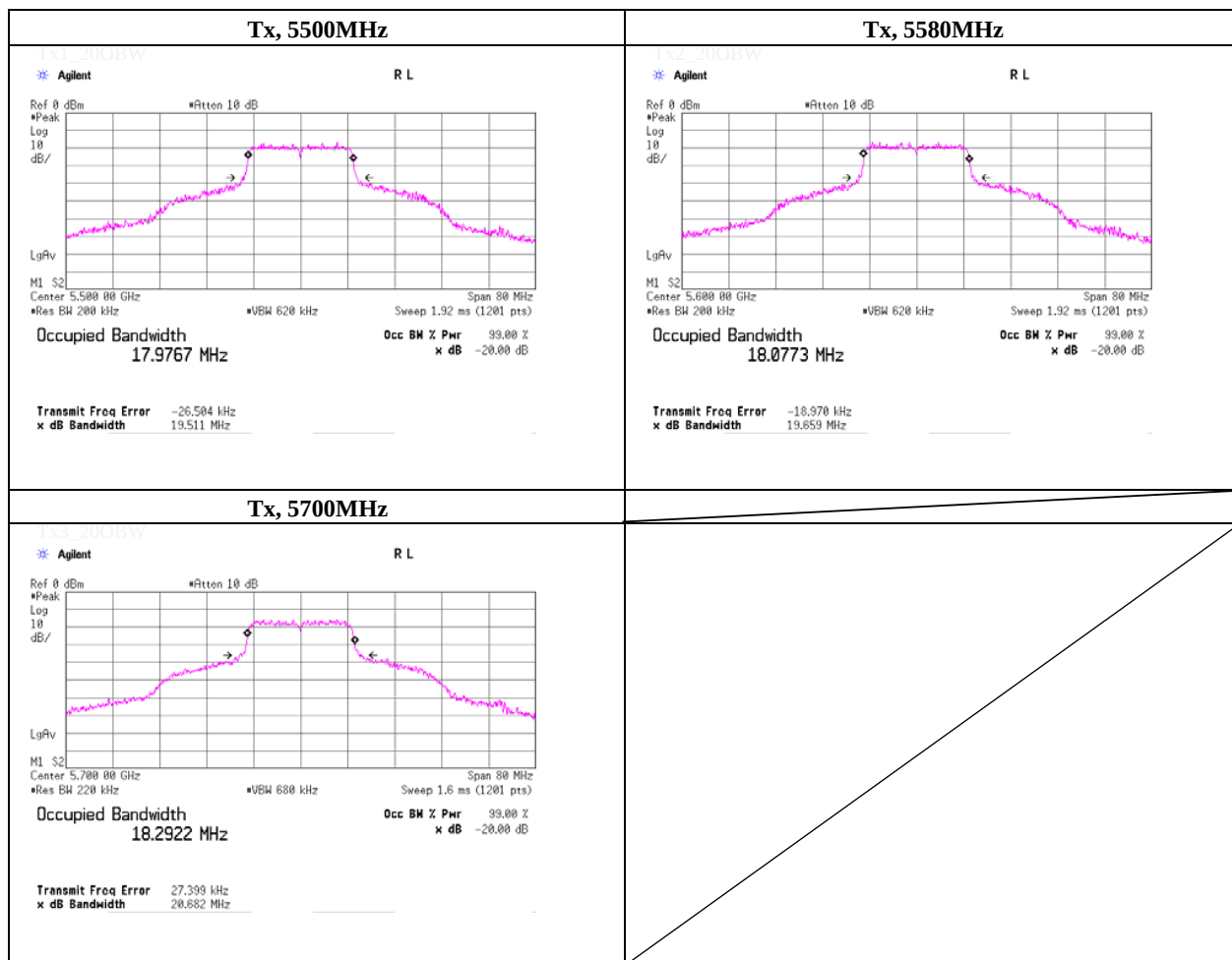
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

-20dB Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 30, 2012	
Temperature / Humidity	23 deg.C , 54 %RH	
Engineer	Akio Hayashi	
Mode	Tx, IEEE802.11n (HT20), PN9, worst antenna port Main, worst data mode 0(MCS)	

Freq. [MHz]	-20dB Bandwidth [MHz]
5500.0000	19.511
5580.0000	19.659
5700.0000	20.682



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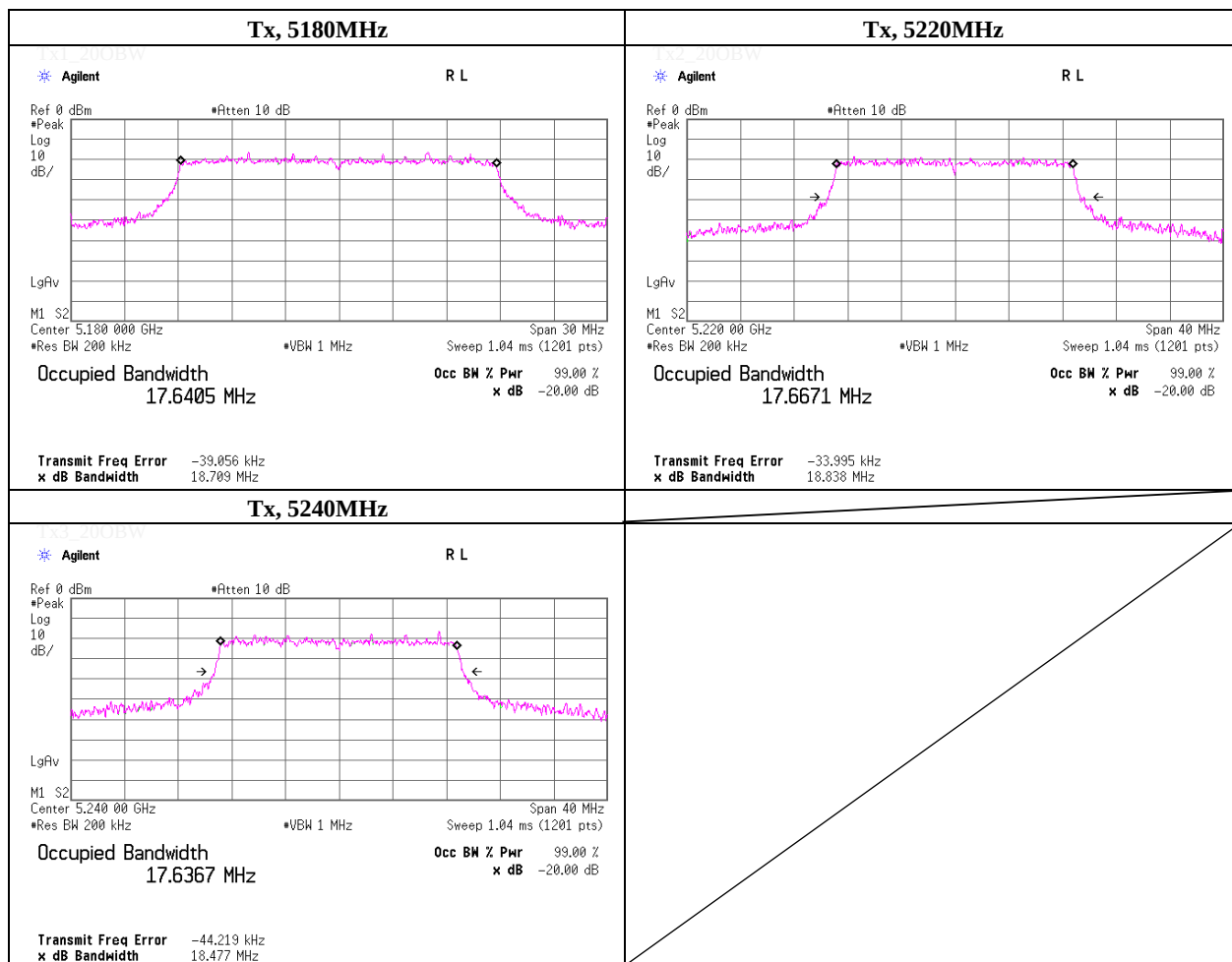
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

-20dB Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	December 4, 2012	
Temperature / Humidity	23deg.C , 39%RH	
Engineer	Hikaru Shirasawa	
Mode	Tx, IEEE802.11n-HT20, PN9, Antenna port Main, worst data mode 8 (MCS)	

Freq. [MHz]	-20dB Bandwidth [MHz]
5180.0000	18.709
5220.0000	18.838
5240.0000	18.477

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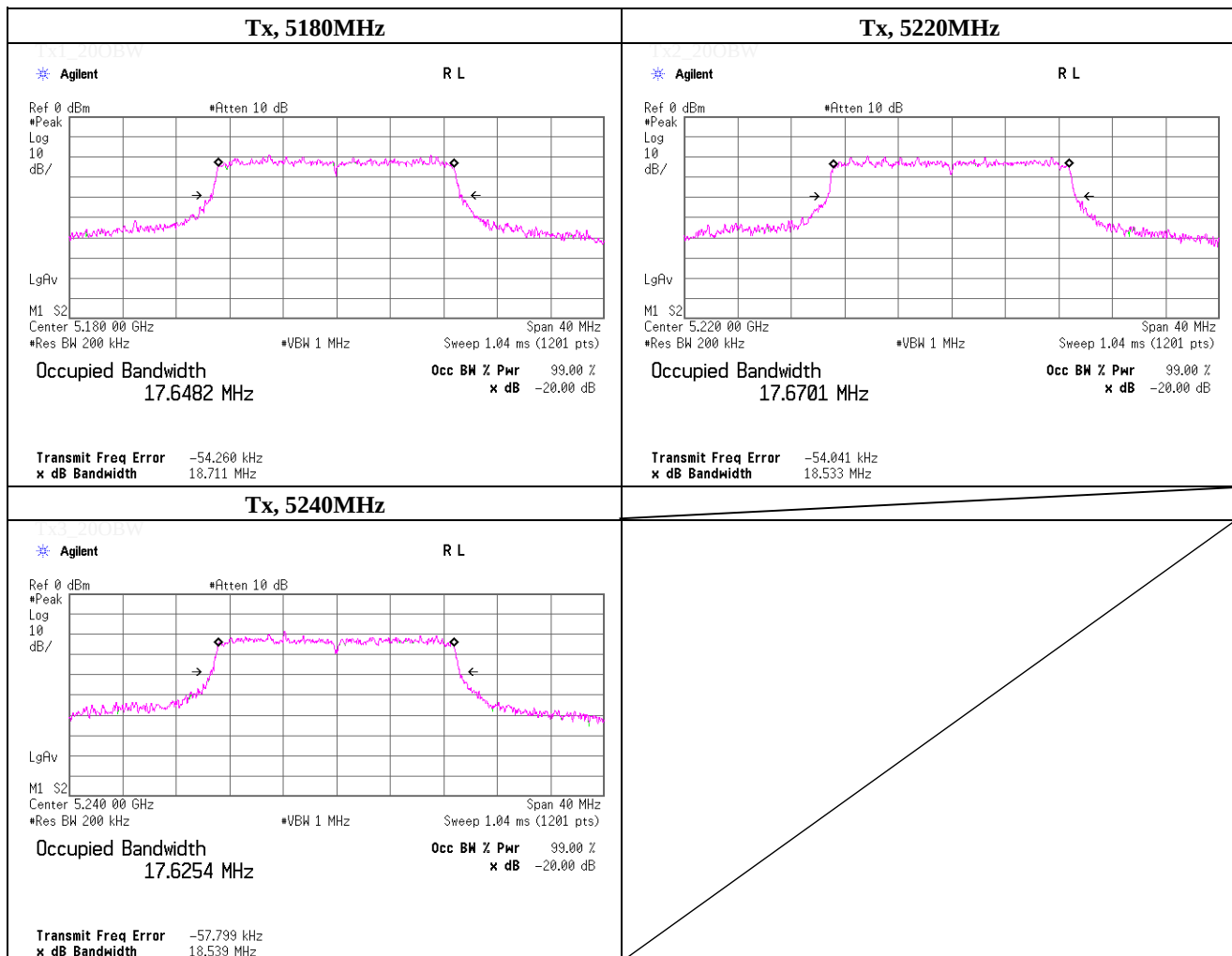
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Facsimile : +81 463 50 6401

-20dB Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	December 4, 2012	
Temperature / Humidity	23deg.C , 39%RH	
Engineer	Hikaru Shirasawa	
Mode	Tx, IEEE802.11n-HT20, PN9, Antenna port Aux, worst data mode 8 (MCS)	

Freq. [MHz]	-20dB Bandwidth [MHz]
5180.0000	18.711
5220.0000	18.533
5240.0000	18.539



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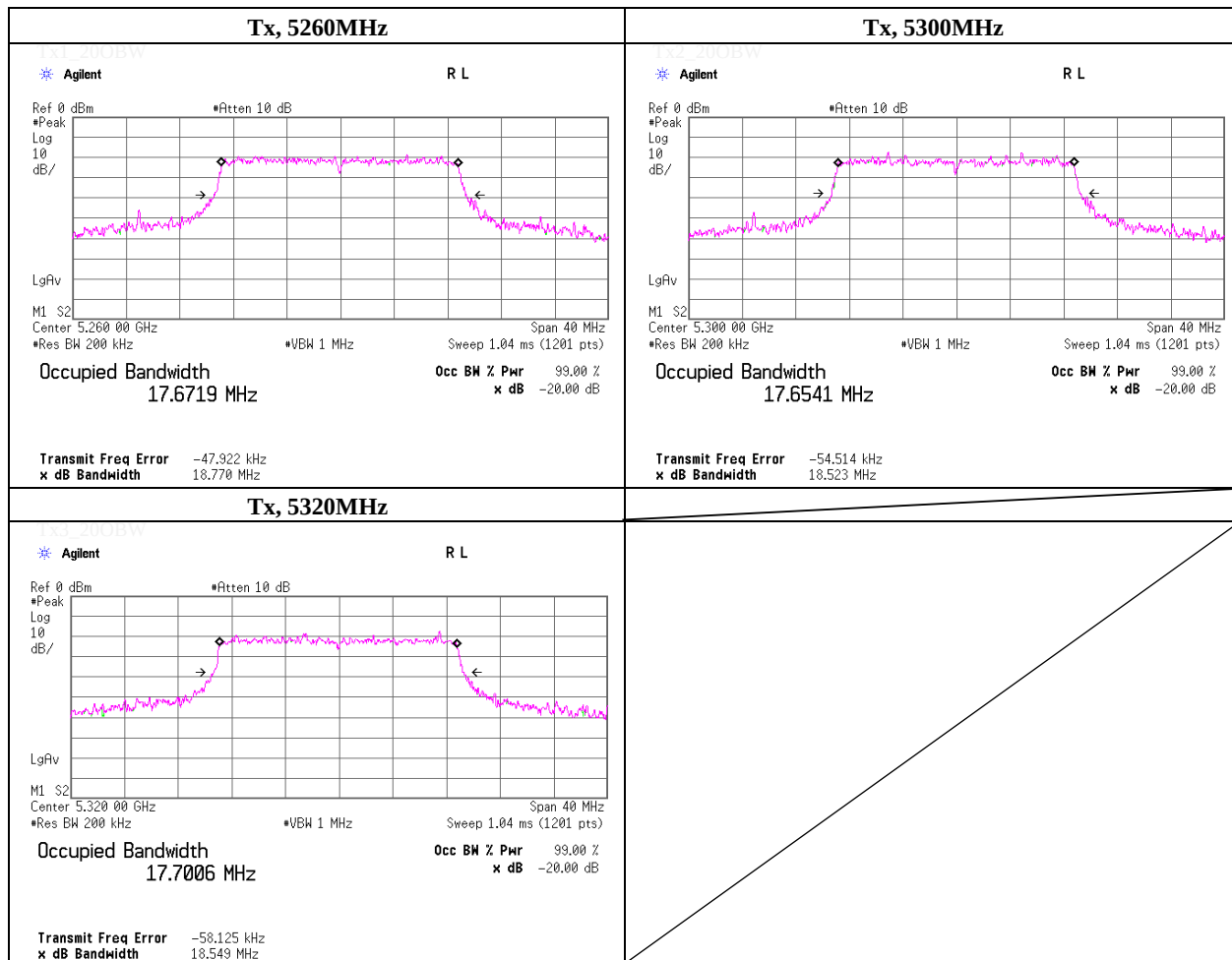
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Facsimile : +81 463 50 6401

-20dB Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	December 4, 2012	
Temperature / Humidity	23deg.C , 39%RH	
Engineer	Hikaru Shirasawa	
Mode	Tx, IEEE802.11n-HT20, PN9, Antenna port Main, worst data mode 8 (MCS)	

Freq. [MHz]	-20dB Bandwidth [MHz]
5260.0000	18.770
5300.0000	18.523
5320.0000	18.549

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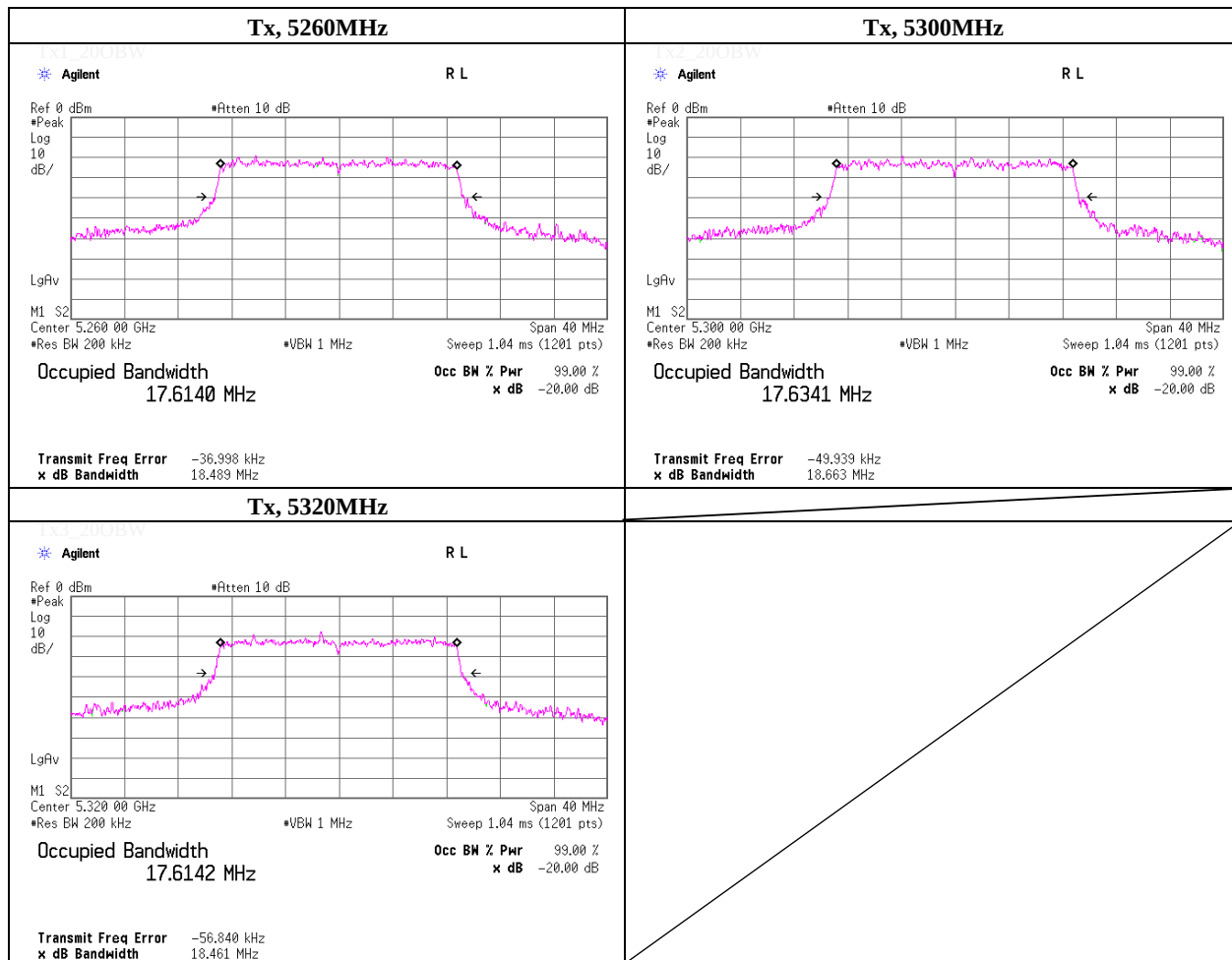
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Facsimile : +81 463 50 6401

-20dB Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	December 4, 2012	
Temperature / Humidity	23deg.C , 39%RH	
Engineer	Hikaru Shirasawa	
Mode	Tx, IEEE802.11n-HT20, PN9, Antenna port Aux, worst data mode 8 (MCS)	

Freq. [MHz]	-20dB Bandwidth [MHz]
5260.0000	18.489
5300.0000	18.663
5320.0000	18.461



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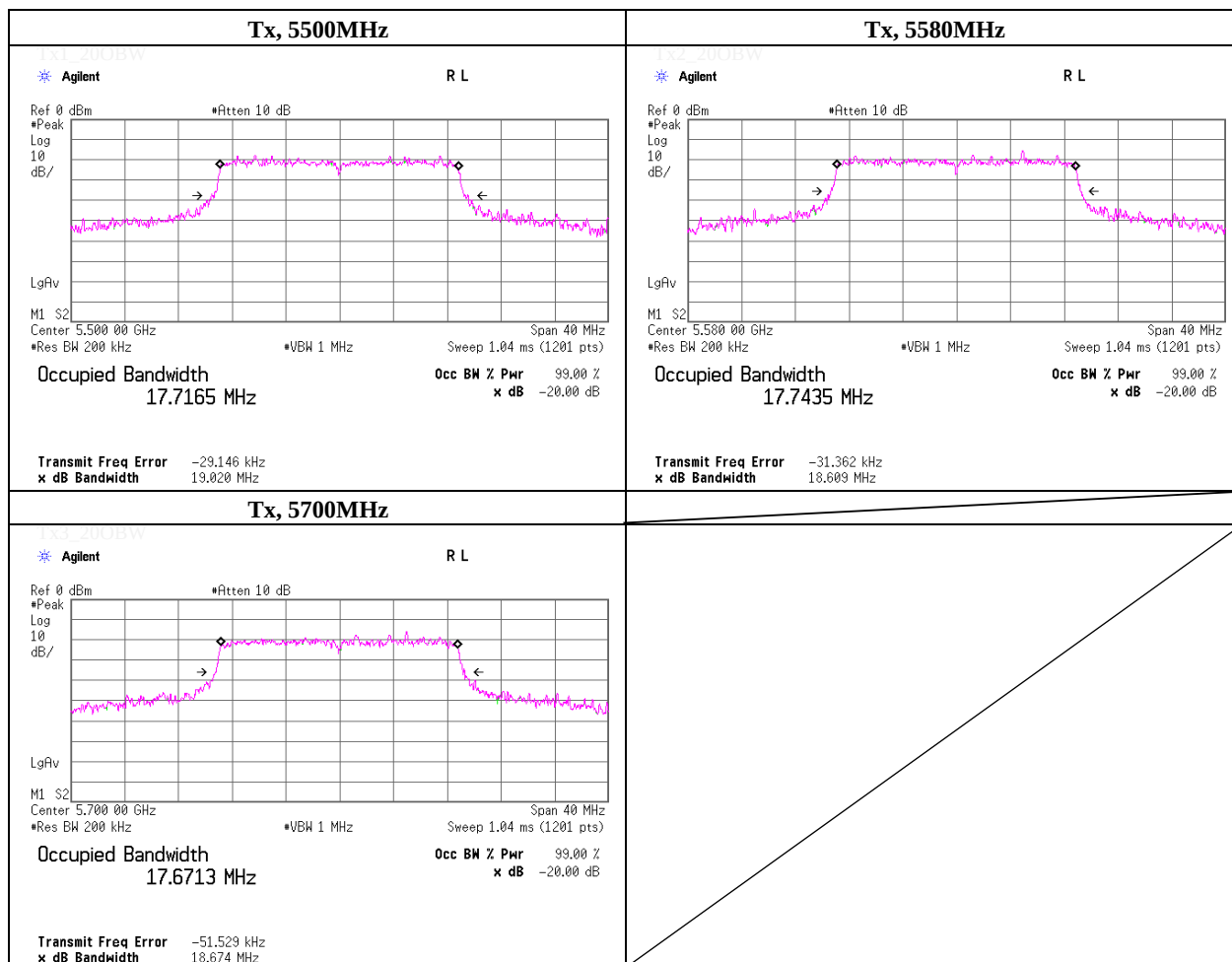
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-20dB Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	December 4, 2012	
Temperature / Humidity	23deg.C , 39%RH	
Engineer	Hikaru Shirasawa	
Mode	Tx, IEEE802.11n-HT20, PN9, Antenna port Main, worst data mode 8 (MCS)	

Freq. [MHz]	-20dB Bandwidth [MHz]
5500.0000	19.020
5580.0000	18.609
5700.0000	18.674



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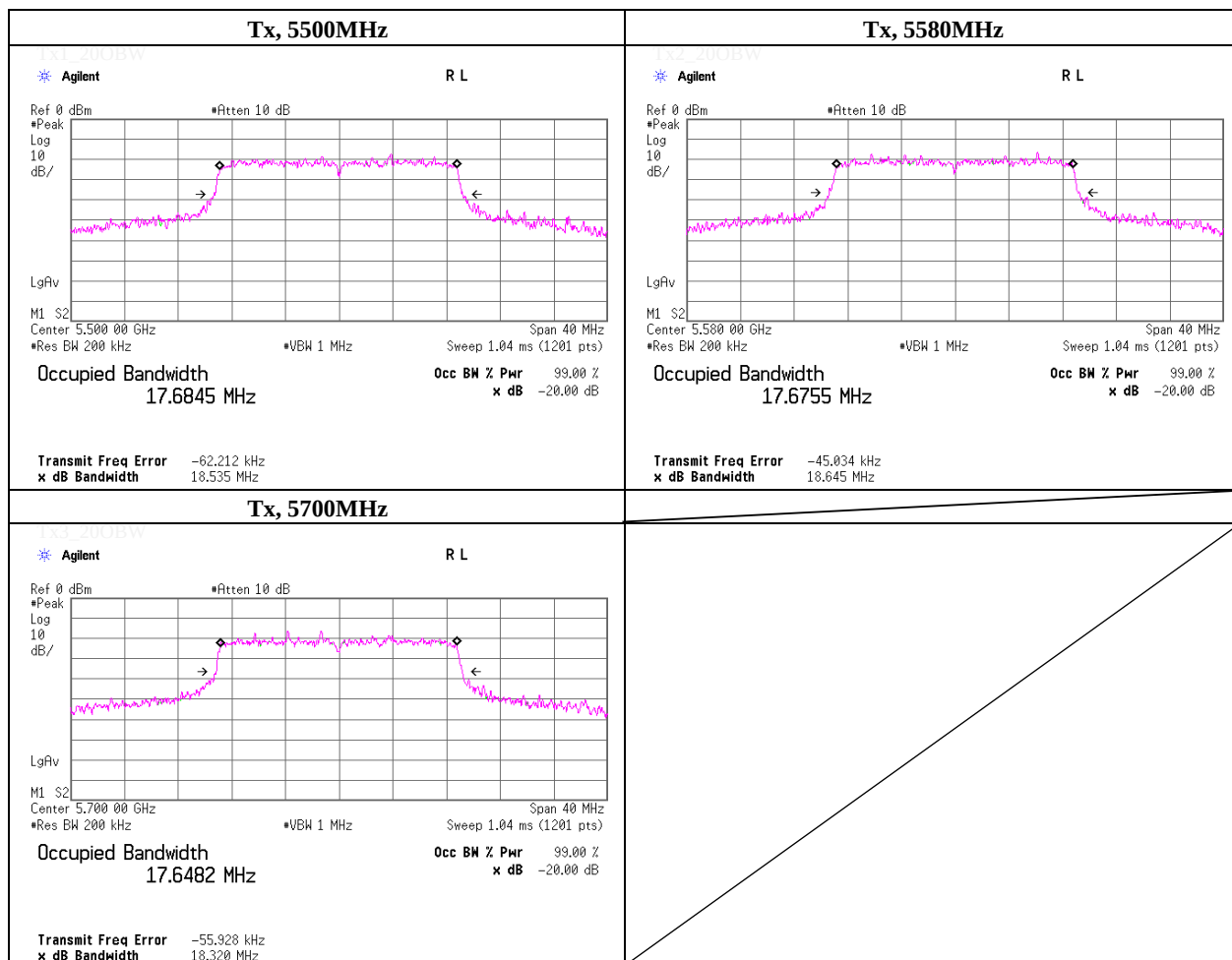
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-20dB Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	December 4, 2012	
Temperature / Humidity	23deg.C , 39%RH	
Engineer	Hikaru Shirasawa	
Mode	Tx, IEEE802.11n-HT20, PN9, Antenna port Aux, worst data mode 8 (MCS)	

Freq. [MHz]	-20dB Bandwidth [MHz]
5500.0000	18.535
5580.0000	18.645
5700.0000	18.320



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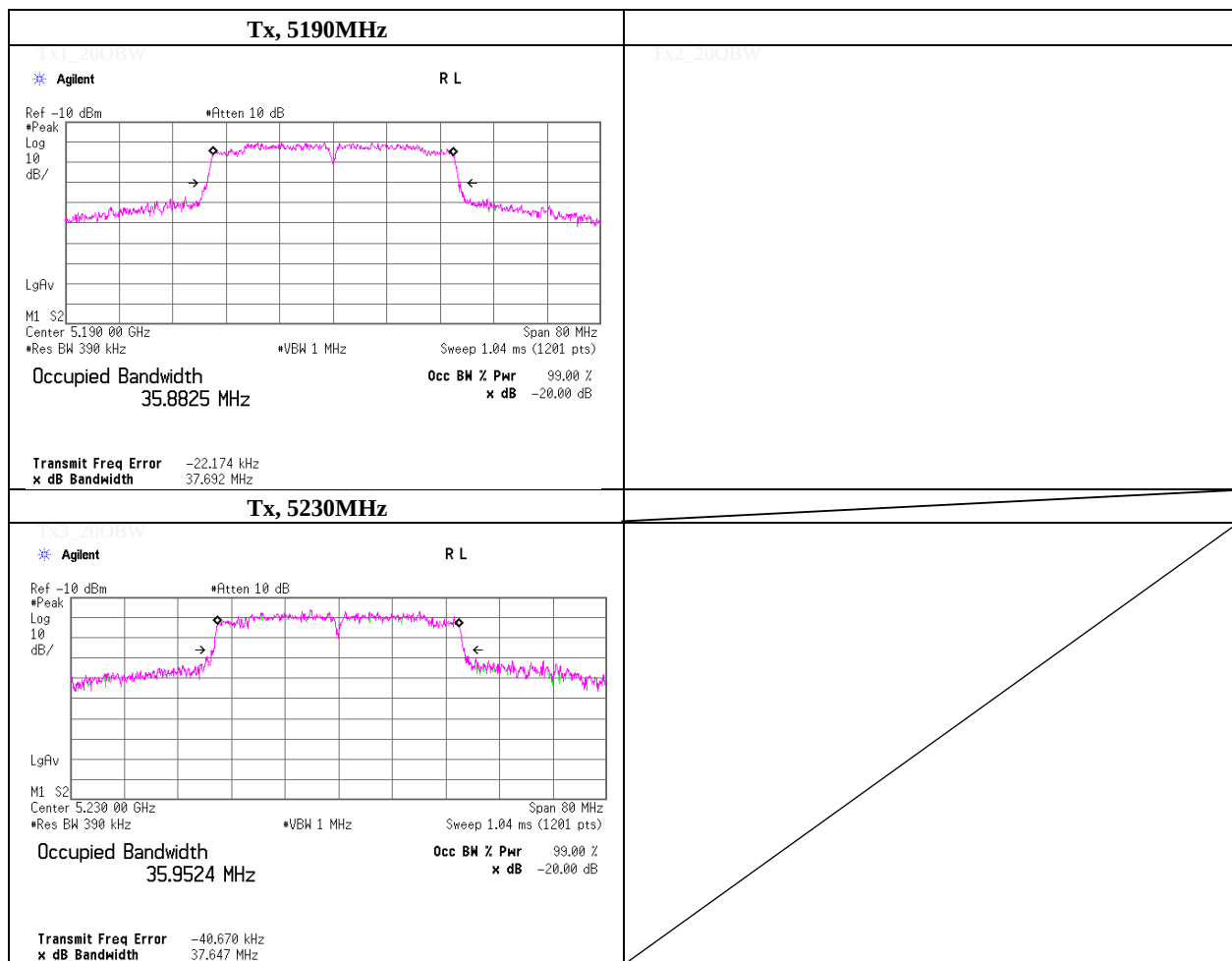
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Facsimile : +81 463 50 6401

-20dB Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	December 4, 2012	
Temperature / Humidity	23 deg.C , 39 %RH	
Engineer	Hikaru Shirasawa	
Mode	Tx, IEEE802.11n (HT40), PN9, worst antenna port Main, worst data mode 0(MCS)	

Freq. [MHz]	-20dB Bandwidth [MHz]
5190.0000	37.692
5230.0000	37.647

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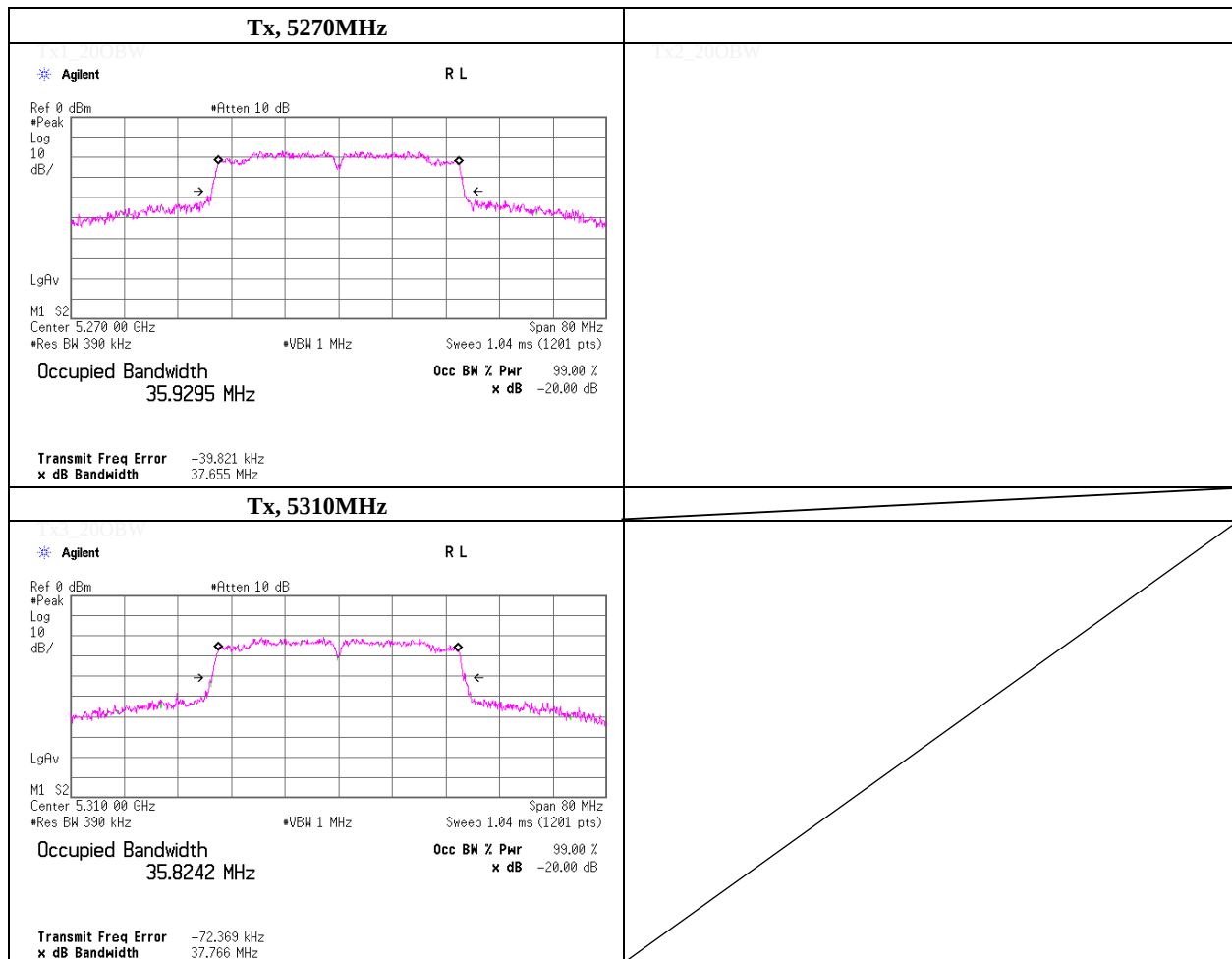
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Facsimile : +81 463 50 6401

-20dB Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	December 4, 2012	
Temperature / Humidity	23 deg.C , 39%RH	
Engineer	Hikaru Shirasawa	
Mode	Tx, IEEE802.11n (HT40), PN9, worst antenna port Main, worst data mode 0(MCS)	

Freq. [MHz]	-20dB Bandwidth [MHz]
5270.0000	37.655
5310.0000	37.766

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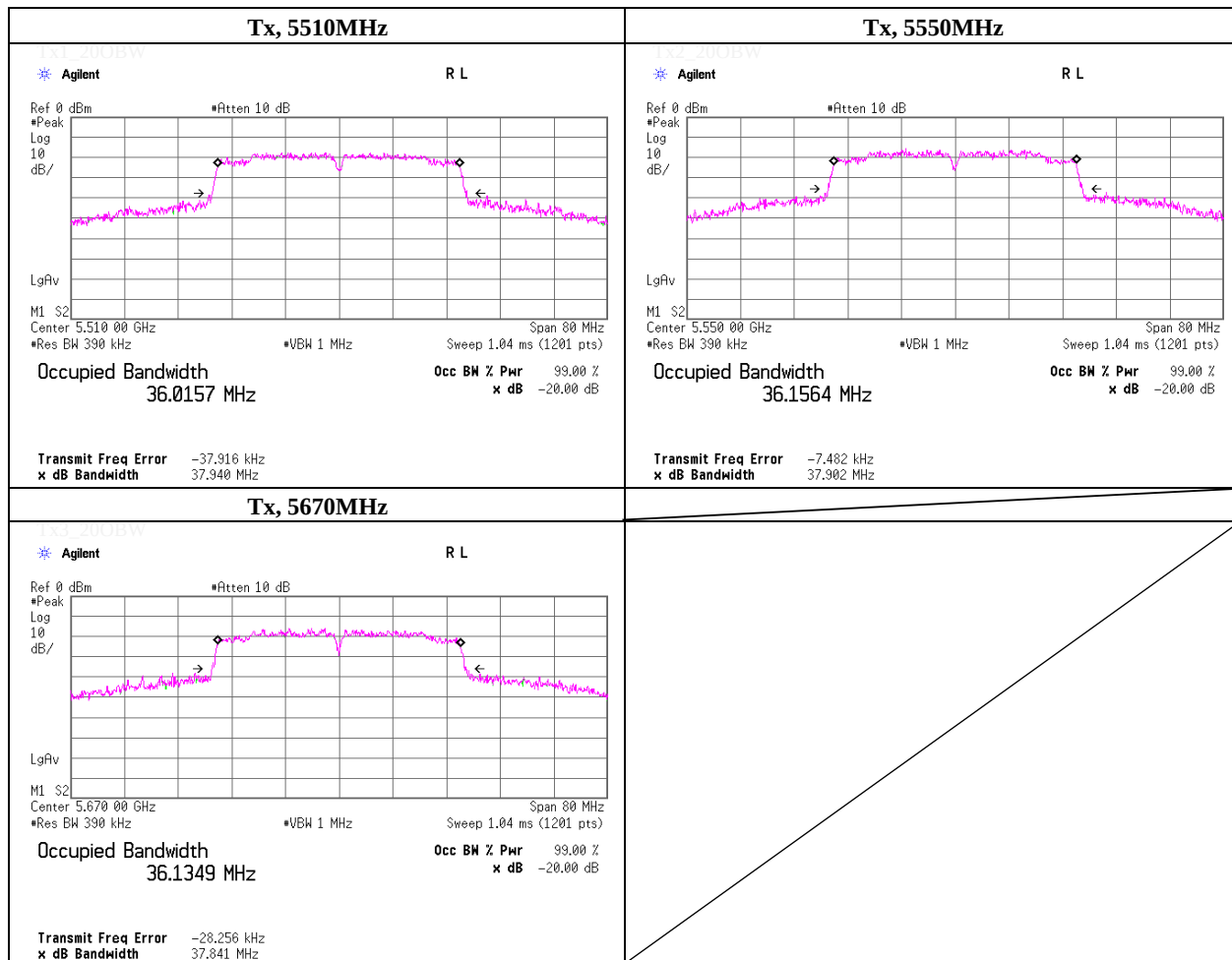
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Facsimile : +81 463 50 6401

-20dB Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	December 4, 2012	
Temperature / Humidity	23 deg.C , 39 %RH	
Engineer	Hikaru Shirasawa	
Mode	Tx, IEEE802.11n (HT40), PN9, worst antenna port Main, worst data mode 0(MCS)	

Freq. [MHz]	-20dB Bandwidth [MHz]
5510.0000	37.940
5550.0000	37.902
5670.0000	37.841



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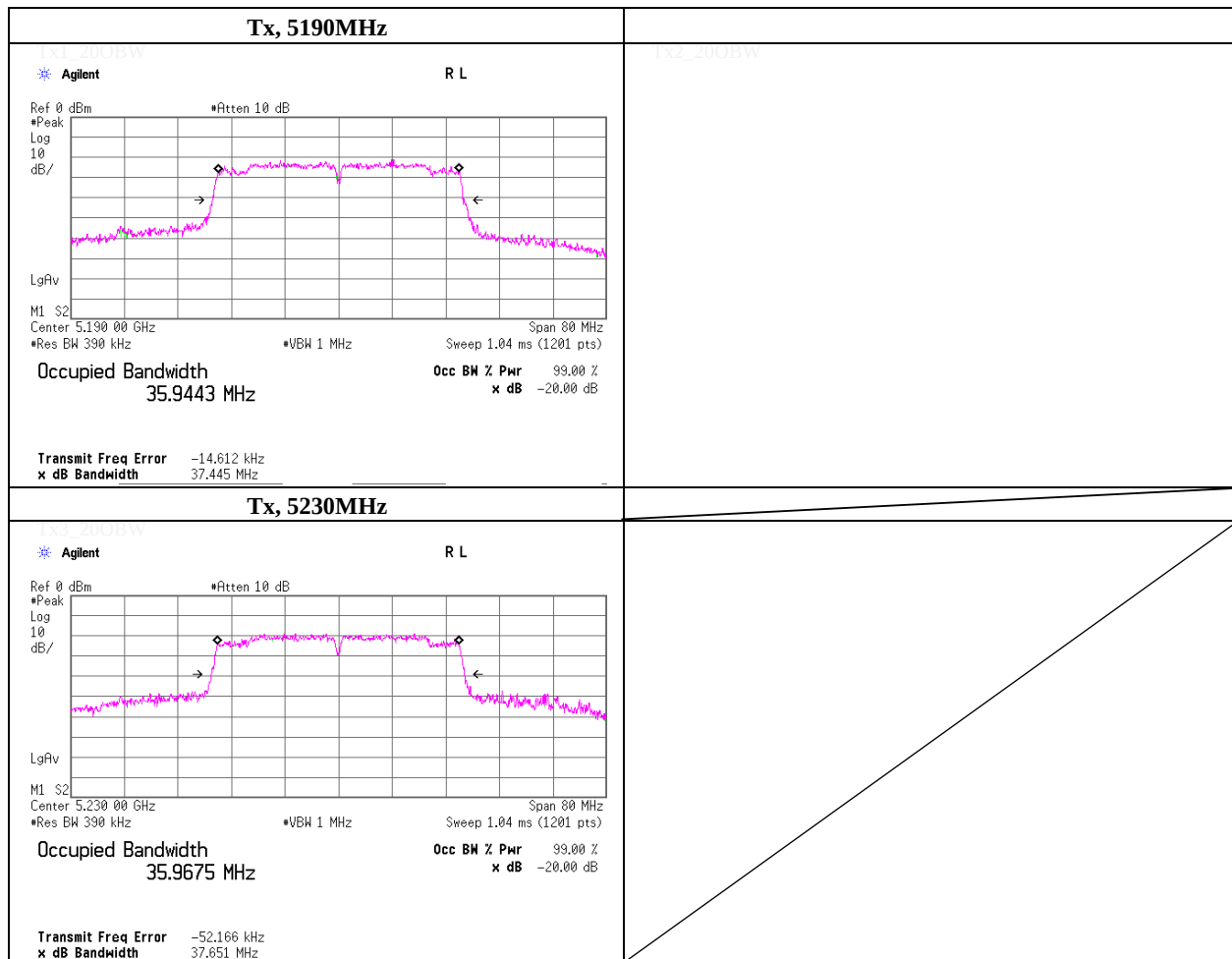
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Facsimile : +81 463 50 6401

-20dB Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	December 5, 2012	
Temperature / Humidity	24deg.C , 35%RH	
Engineer	Kenichi Adachi	
Mode	Tx, IEEE802.11n-HT40, PN9, Antenna port Main, worst data mode 8 (MCS)	

Freq. [MHz]	-20dB Bandwidth [MHz]
5190.0000	37.445
5230.0000	37.651

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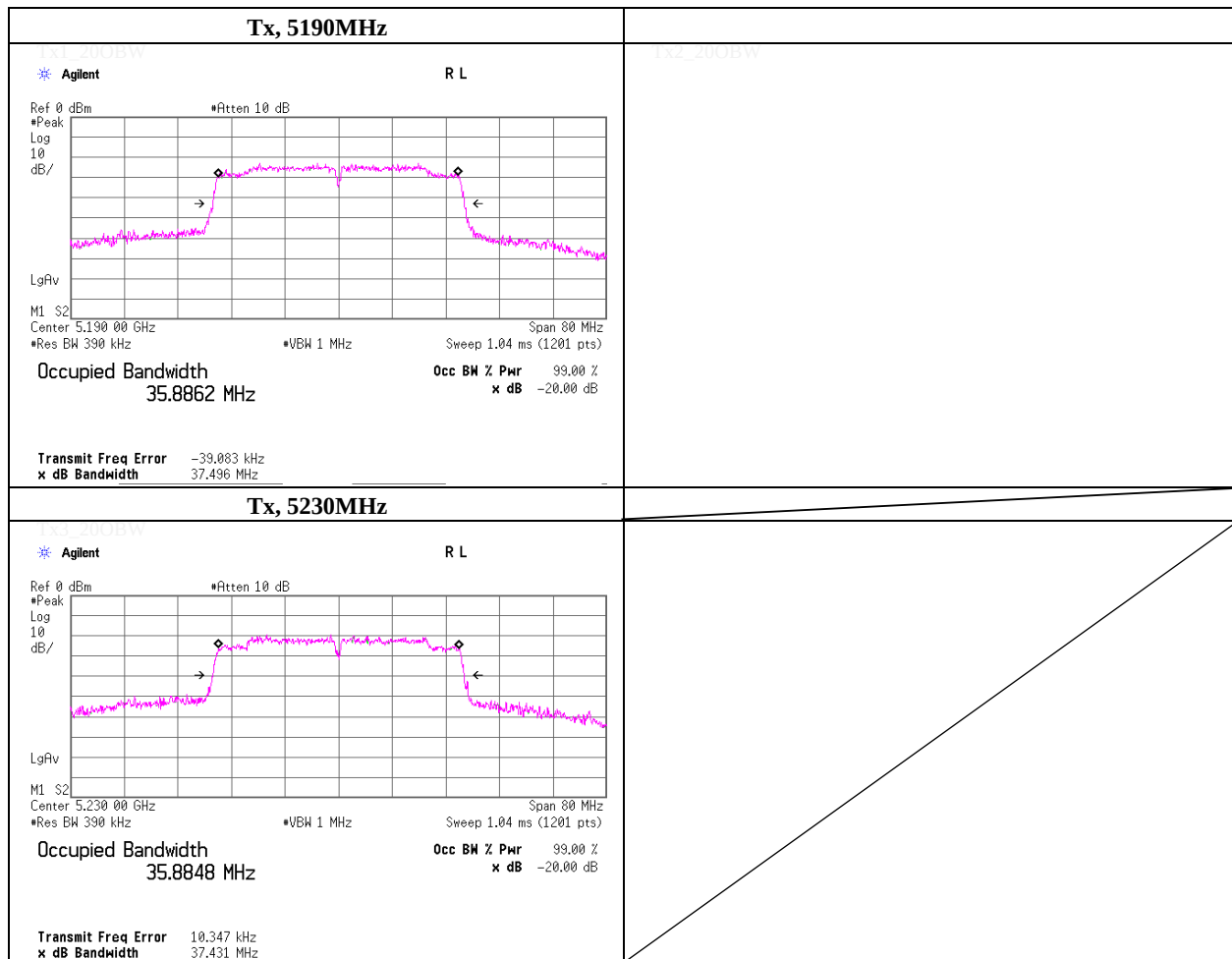
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Facsimile : +81 463 50 6401

-20dB Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	December 5, 2012	
Temperature / Humidity	24deg.C , 35%RH	
Engineer	Kenichi Adachi	
Mode	Tx, IEEE802.11n-HT40, PN9, Antenna port Aux, worst data mode 8 (MCS)	

Freq. [MHz]	-20dB Bandwidth [MHz]
5190.0000	37.496
5230.0000	37.431

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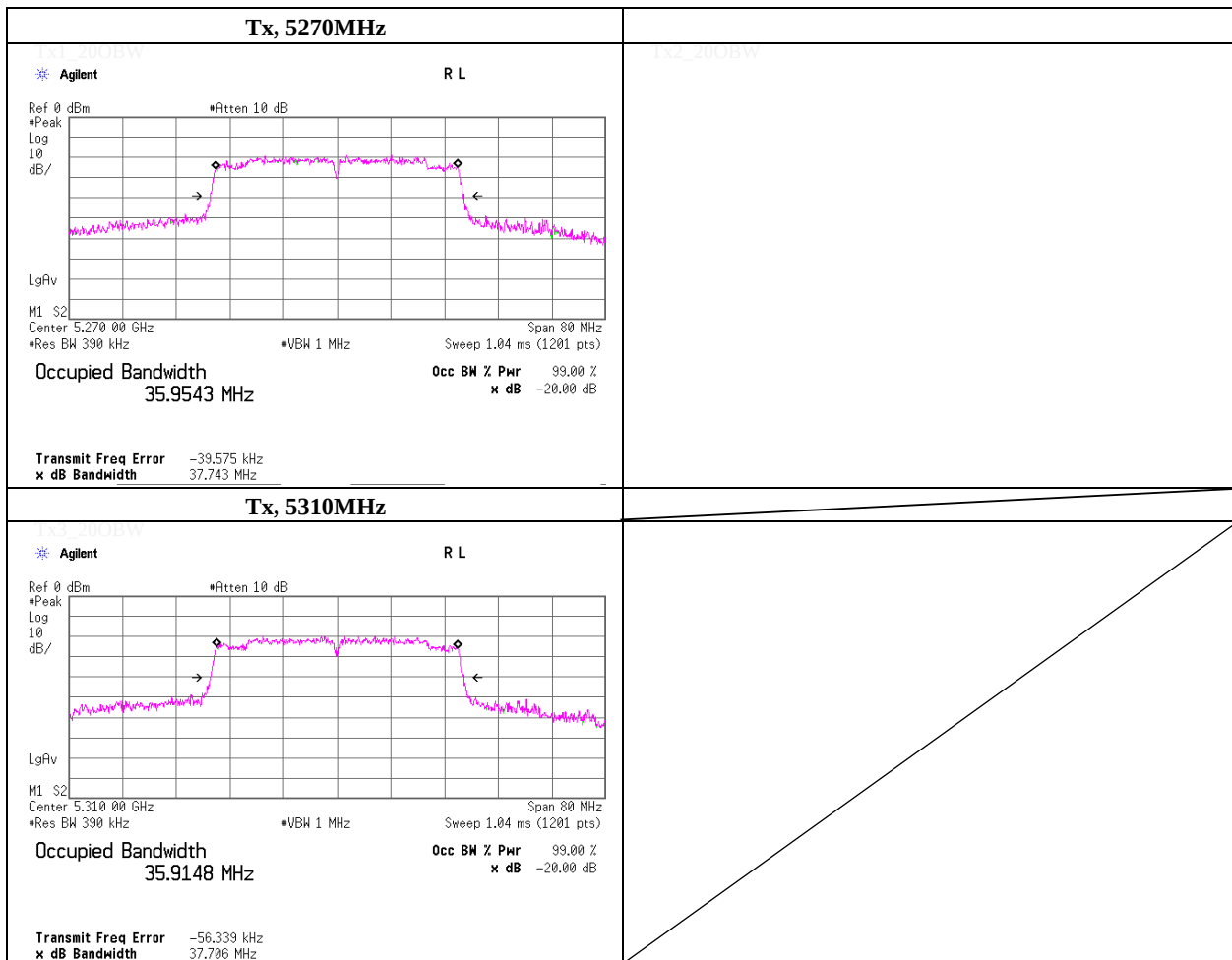
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Facsimile : +81 463 50 6401

-20dB Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	December 5, 2012	
Temperature / Humidity	24deg.C , 35%RH	
Engineer	Kenichi Adachi	
Mode	Tx, IEEE802.11n-HT40, PN9, Antenna port Main, worst data mode 8 (MCS)	

Freq. [MHz]	-20dB Bandwidth [MHz]
5270.0000	37.743
5310.0000	37.706

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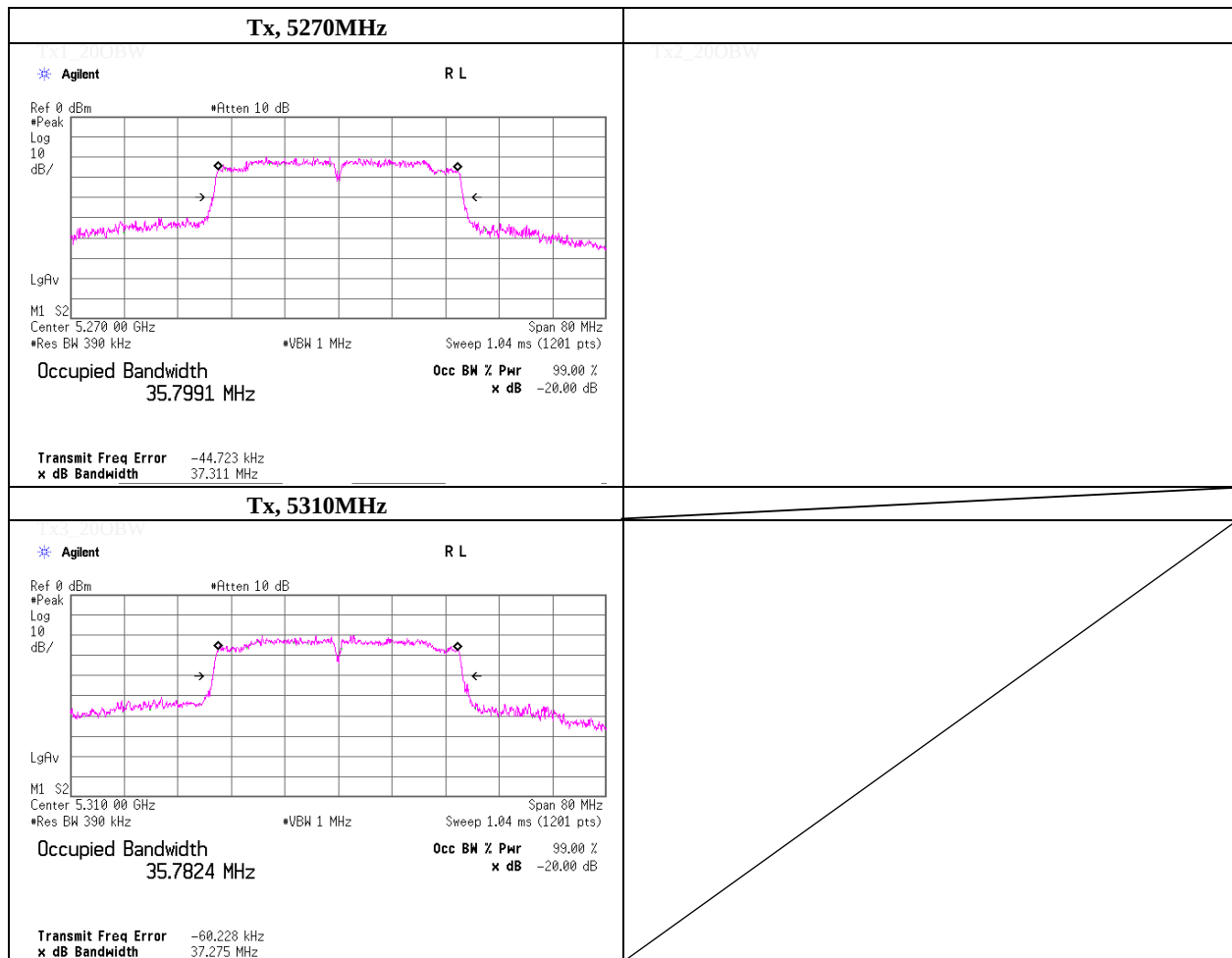
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Facsimile : +81 463 50 6401

-20dB Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	December 5, 2012	
Temperature / Humidity	24deg.C , 35%RH	
Engineer	Kenichi Adachi	
Mode	Tx, IEEE802.11n-HT40, PN9, Antenna port Aux, worst data mode 8 (MCS)	

Freq. [MHz]	-20dB Bandwidth [MHz]
5270.0000	37.311
5310.0000	37.275

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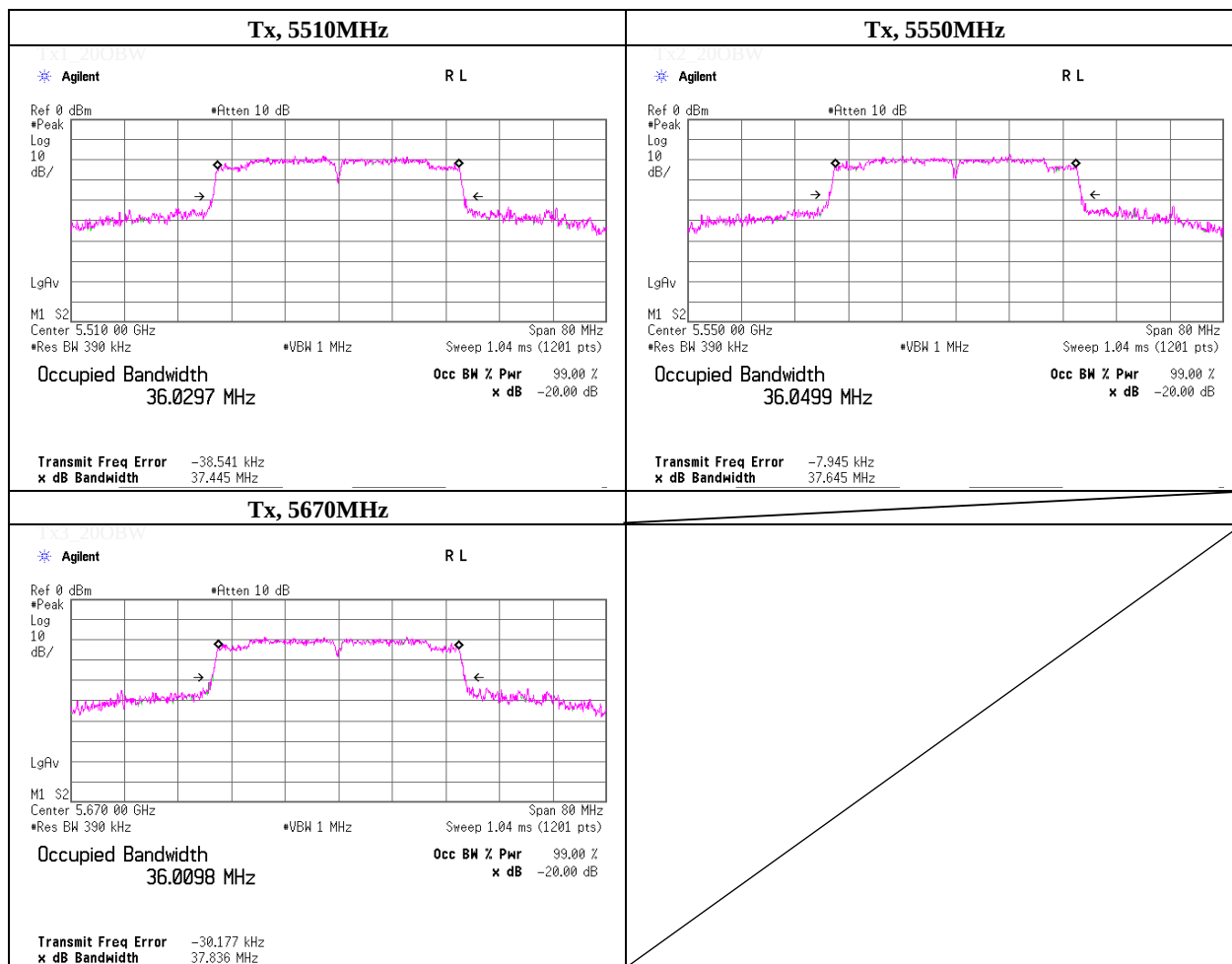
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-20dB Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	December 5, 2012	
Temperature / Humidity	24deg.C , 35%RH	
Engineer	Kenichi Adachi	
Mode	Tx, IEEE802.11n-HT40, PN9, Antenna port Main, worst data mode 8 (MCS)	

Freq. [MHz]	-20dB Bandwidth [MHz]
5510.0000	37.445
5550.0000	37.645
5670.0000	37.836



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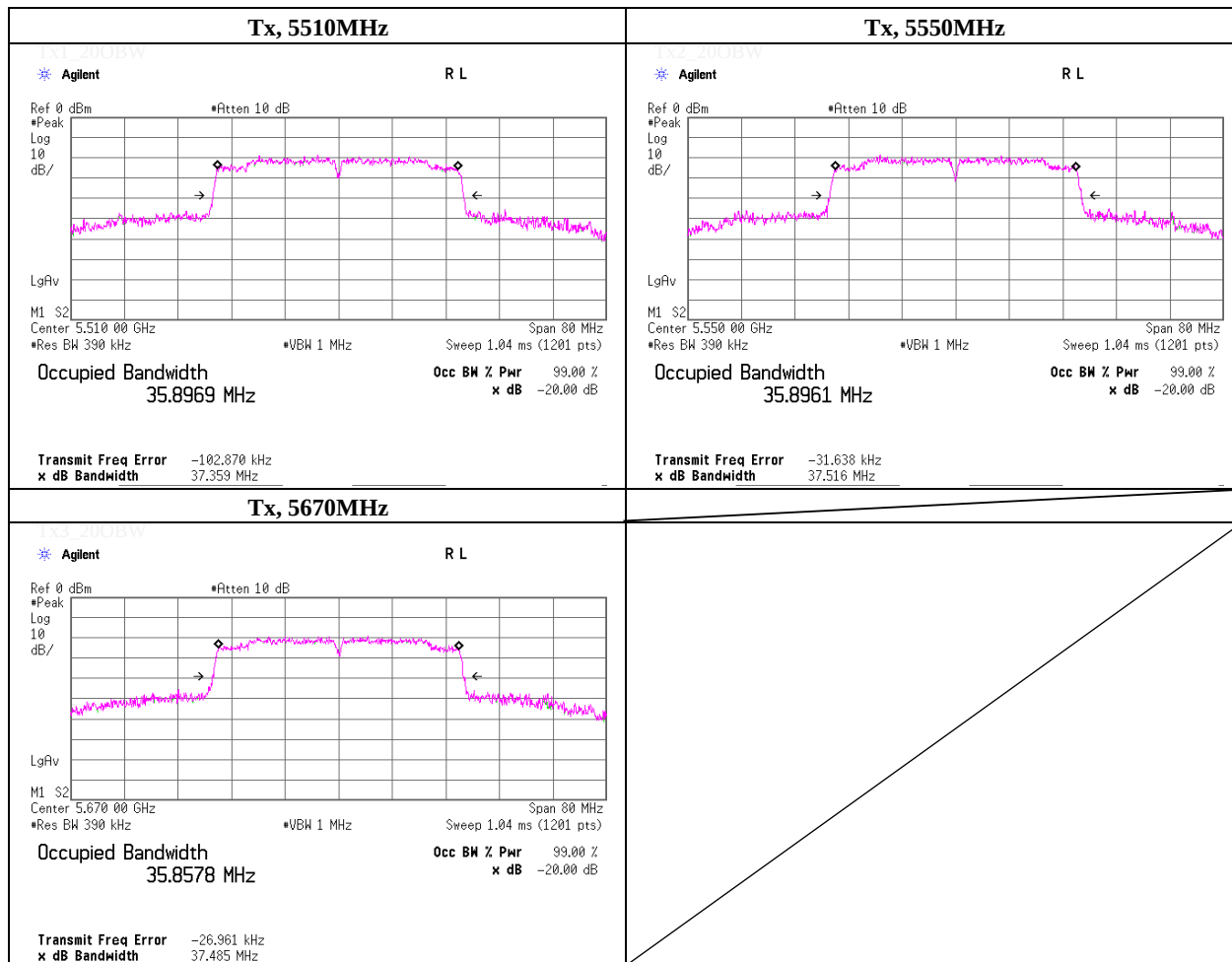
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Facsimile : +81 463 50 6401

-20dB Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	December 5, 2012	
Temperature / Humidity	24deg.C , 35%RH	
Engineer	Kenichi Adachi	
Mode	Tx, IEEE802.11n-HT40, PN9, Antenna port Aux, worst data mode 8 (MCS)	

Freq. [MHz]	-20dB Bandwidth [MHz]
5510.0000	37.359
5550.0000	37.516
5670.0000	37.485



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Maximum Conducted Output Power (Conducted)

(Method: PM)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 21, 2012 November 22, 2012 November 26, 2012	
Temperature / Humidity	22 deg.C , 38 %RH 22 deg.C , 46 %RH 20 deg.C , 30 %RH	
Engineer	Hikaru Shirasawa Hikaru Shirasawa Akio Hayashi	
Mode	Tx, IEEE802.11a, PN9,	worst antenna : Main worst data mode : 6 Mbps

Antenna terminal power

(* P/M: Power Meter with power sensor, AV: Average)

Ch	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Result		Limit		Margin [dB]
						[dBm]	[mW]	[dBm]	[mW]	
Low	5180.0	4.47	2.03	9.61	0.05	16.16	41.30	16.99	50.00	0.83
Mid	5220.0	4.29	2.03	9.61	0.05	15.98	39.63	16.99	50.00	1.01
High	5240.0	4.15	2.18	9.61	0.05	15.99	39.72	16.99	50.00	1.00

Worst Data

Sample Calculation: Result = Reading + Cable Loss + Atten. Loss + Duty factor

EIRP

(* P/M: Power Meter with power sensor, AV: Average)

Reference Data

Ch	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Antenna Gain [dBi]	Result		Limit		Margin [dB]
							(e.i.r.p.) [dBm]	(e.i.r.p.) [mW]	(e.i.r.p.) [dBm]	(e.i.r.p.) [mW]	
Low	5180.0	4.47	2.03	9.61	0.05	3.64	19.80	95.50	-	-	-
Mid	5220.0	4.29	2.03	9.61	0.05	3.64	19.62	91.62	-	-	-
High	5240.0	4.15	2.18	9.61	0.05	3.64	19.63	91.83	-	-	-

Sample Calculation: Result = Reading + Cable Loss + Atten. Loss + Duty factor + Antenna Gain

[Pre check]

Antenna Main

	Data rate [Mbps]	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Result [dBm]
Main	6	5220.0	4.29	2.03	9.61	0.05	15.98
Main	9	5220.0	4.14	2.03	9.61	0.09	15.87
Main	12	5220.0	4.15	2.03	9.61	0.10	15.89
Main	18	5220.0	4.06	2.03	9.61	0.15	15.85
Main	24	5220.0	3.91	2.03	9.61	0.19	15.74
Main	36	5220.0	3.85	2.03	9.61	0.28	15.77
Main	48	5220.0	3.72	2.03	9.61	0.37	15.73
Main	54	5220.0	3.75	2.03	9.61	0.40	15.79

Worst Rate

Antenna Aux

	Data rate [Mbps]	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Result [dBm]
Aux	6	5180.0	4.41	2.03	9.61	0.05	16.10
Aux	6	5220.0	4.22	2.03	9.61	0.05	15.91
Aux	6	5240.0	3.98	2.18	9.61	0.05	15.82

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Maximum Conducted Output Power (Conducted)

(Reference) (duty chart)

Tx, IEEE802.11a, antenna port Main, (Tx 5220MHz)



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Maximum Conducted Output Power (Conducted)

(Reference) (duty chart)

Tx, IEEE802.11a, antenna port Main, (Tx 5220MHz)



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Maximum Conducted Output Power (Conducted)

(Method: PM)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 21, 2012 November 22, 2012 November 26, 2012	
Temperature / Humidity	22 deg.C , 38 %RH 22 deg.C , 46 %RH 20 deg.C , 30 %RH	
Engineer	Hikaru Shirasawa Hikaru Shirasawa Akio Hayashi	
Mode	Tx, IEEE802.11a, PN9,	worst antenna : Main worst data mode : 6 Mbps

Antenna terminal power

(* P/M: Power Meter with power sensor, AV: Average)

Ch	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Result		Limit		Margin [dB]
						[dBm]	[mW]	[dBm]	[mW]	
Low	5260.0	4.11	2.17	9.60	0.05	15.93	39.19	23.98	250.00	8.05
Mid	5300.0	4.34	2.18	9.60	0.05	16.17	41.42	23.98	250.00	7.81
High	5320.0	4.23	2.07	9.60	0.05	15.95	39.37	23.98	250.00	8.03

Worst Data

Sample Calculation: Result = Reading + Cable Loss + Atten. Loss + Duty factor

EIRP

(* P/M: Power Meter with power sensor, AV: Average)

Reference Data

Ch	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Antenna Gain [dBi]	Result		Limit		Margin [dB]
							(e.i.r.p.) [dBm]	(e.i.r.p.) [mW]	(e.i.r.p.) [dBm]	(e.i.r.p.) [mW]	
Low	5260.0	4.11	2.17	9.60	0.05	3.73	19.66	92.51	-	-	-
Mid	5300.0	4.34	2.18	9.60	0.05	3.73	19.90	97.77	-	-	-
High	5320.0	4.23	2.07	9.60	0.05	3.73	19.68	92.94	-	-	-

Sample Calculation: Result = Reading + Cable Loss + Atten. Loss + Duty factor + Antenna Gain

[Pre check]

Antenna Main

	Data rate [Mbps]	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Result [dBm]
Main	6	5300.0	4.34	2.18	9.60	0.05	16.17
Main	9	5300.0	4.28	2.18	9.60	0.09	16.15
Main	12	5300.0	4.17	2.18	9.60	0.10	16.05
Main	18	5300.0	4.11	2.18	9.60	0.15	16.04
Main	24	5300.0	4.06	2.18	9.60	0.19	16.03
Main	36	5300.0	4.04	2.18	9.60	0.28	16.10
Main	48	5300.0	3.99	2.18	9.60	0.37	16.14
Main	54	5300.0	3.98	2.18	9.60	0.40	16.16

Worst Rate

Antenna Aux

	Data rate [Mbps]	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Result [dBm]
Aux	6	5260.0	3.47	2.17	9.60	0.05	15.29
Aux	6	5300.0	3.64	2.18	9.60	0.05	15.47
Aux	6	5320.0	3.65	2.07	9.60	0.05	15.37

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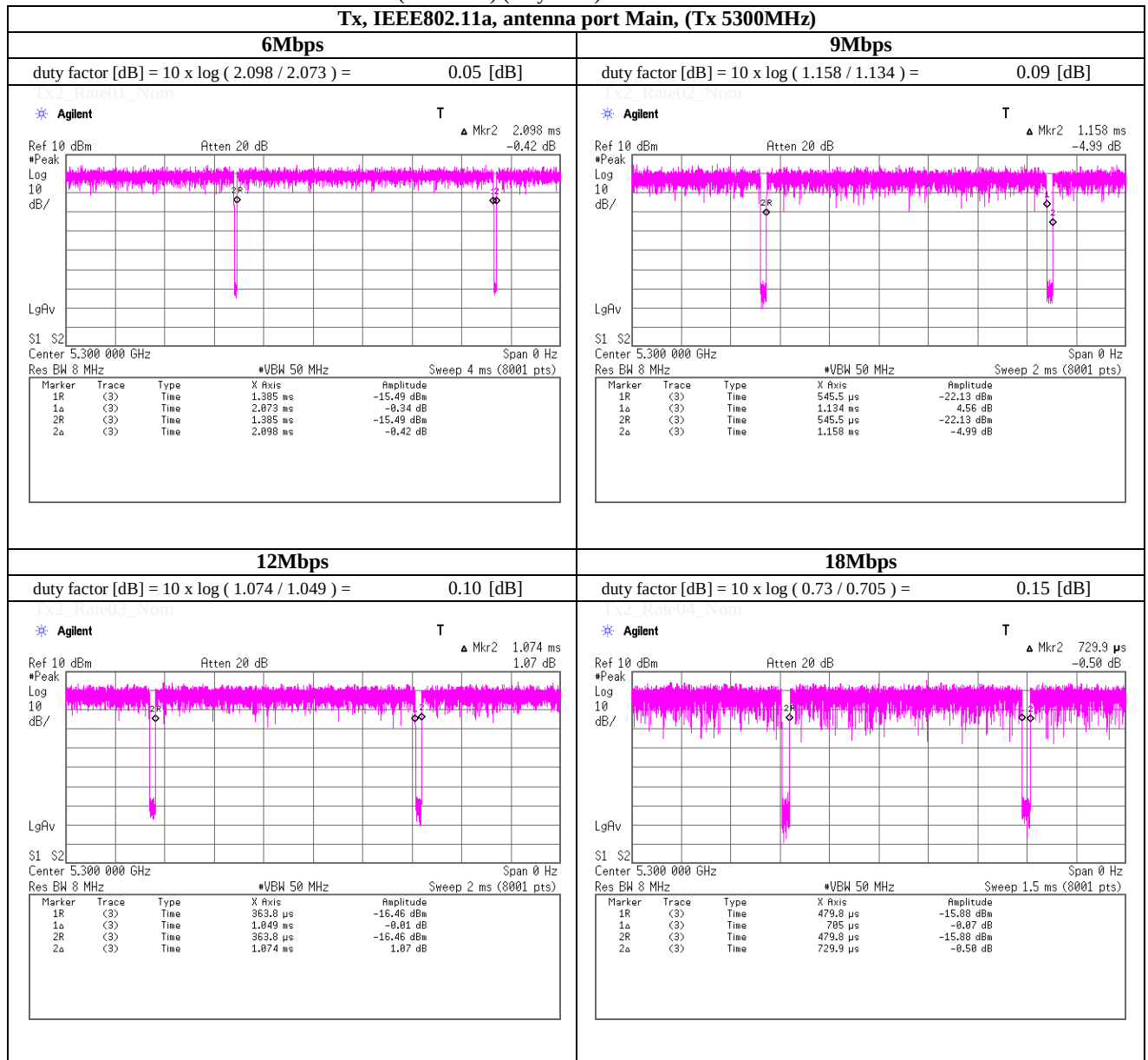
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Maximum Conducted Output Power (Conducted)

(Reference) (duty chart)

Tx, IEEE802.11a, antenna port Main, (Tx 5300MHz)



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Maximum Conducted Output Power (Conducted)

(Reference) (duty chart)

Tx, IEEE802.11a, antenna port Main, (Tx 5300MHz)



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Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

Maximum Conducted Output Power (Conducted)

(Method: PM)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 21, 2012 November 22, 2012 November 26, 2012	
Temperature / Humidity	22 deg.C , 38 %RH 22 deg.C , 46 %RH 20 deg.C , 30 %RH	
Engineer	Hikaru Shirasawa Hikaru Shirasawa Akio Hayashi	
Mode	Tx, IEEE802.11a, PN9,	worst antenna : Main worst data mode : 6 Mbps

Antenna terminal power

(* P/M: Power Meter with power sensor, AV: Average)

Ch	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]		Result		Limit		Margin [dB]
							[dBm]	[mW]	[dBm]	[mW]	
Low	5500.0	6.32	2.05	9.59	0.05		18.01	63.24	23.98	250.00	5.97
Mid	5580.0	6.13	2.07	9.60	0.05		17.85	60.95	23.98	250.00	6.13
High	5700.0	6.01	2.13	9.61	0.05		17.80	60.26	23.98	250.00	6.18

Worst Data

Sample Calculation: Result = Reading + Cable Loss + Atten. Loss + Duty factor

EIRP

(* P/M: Power Meter with power sensor, AV: Average)

Reference Data

Ch	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Antenna Gain [dBi]	Result		Limit		Margin [dB]
							(e.i.r.p.) [dBm]	(e.i.r.p.) [mW]	(e.i.r.p.) [dBm]	(e.i.r.p.) [mW]	
Low	5500.0	6.32	2.05	9.59	0.05	4.77	22.78	189.67	-	-	-
Mid	5580.0	6.13	2.07	9.60	0.05	4.77	22.62	182.81	-	-	-
High	5700.0	6.01	2.13	9.61	0.05	4.77	22.57	180.72	-	-	-

Sample Calculation: Result = Reading + Cable Loss + Atten. Loss + Duty factor + Antenna Gain

[Pre check]

Antenna Main

	Data rate [Mbps]	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Result [dBm]
Main	6	5580.0	6.13	2.07	9.60	0.05	17.85
Main	9	5580.0	5.89	2.07	9.60	0.09	17.65
Main	12	5580.0	5.86	2.07	9.60	0.10	17.63
Main	18	5580.0	5.88	2.07	9.60	0.15	17.70
Main	24	5580.0	5.75	2.07	9.60	0.19	17.61
Main	36	5580.0	5.73	2.07	9.60	0.28	17.68
Main	48	5580.0	5.78	2.07	9.60	0.37	17.82
Main	54	5580.0	5.70	2.07	9.60	0.40	17.77

Worst Rate

Antenna Aux

	Data rate [Mbps]	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Result [dBm]
Aux	6	5500.0	6.21	2.05	9.59	0.05	17.90
Aux	6	5580.0	6.22	2.07	9.60	0.05	17.94
Aux	6	5700.0	6.09	2.13	9.61	0.05	17.88

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Maximum Conducted Output Power (Conducted)

(Reference) (duty chart)

Tx, IEEE802.11a, antenna port Main, (Tx 5580MHz)



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Maximum Conducted Output Power (Conducted)

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Tx, IEEE802.11a, antenna port Main, (Tx 5580MHz)



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Maximum Conducted Output Power (Conducted)

(Method: PM)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 21, 2012 November 22, 2012 November 26, 2012	
Temperature / Humidity	22 deg.C , 38 %RH 22 deg.C , 46 %RH 20 deg.C , 30 %RH	
Engineer	Hikaru Shirasawa Hikaru Shirasawa Akio Hayashi	
Mode	Tx, IEEE802.11n (HT20), PN9,	worst antenna : Main worst data mode : 0 (MCS)

Antenna terminal power

(* P/M: Power Meter with power sensor, AV: Average)

Ch	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Result		Limit		Margin [dB]
						[dBm]	[mW]	[dBm]	[mW]	
Low	5180.0	4.30	2.03	9.61	0.05	15.99	39.72	16.99	50.00	1.00
Mid	5220.0	4.55	2.03	9.61	0.05	16.24	42.07	16.99	50.00	0.75
High	5240.0	4.67	2.18	9.61	0.05	16.51	44.77	16.99	50.00	0.48

Worst Data

Sample Calculation: Result = Reading + Cable Loss + Atten. Loss + Duty factor

EIRP

(* P/M: Power Meter with power sensor, AV: Average)

Reference Data

Ch	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Antenna Gain [dBi]	Result		Limit		Margin [dB]
							(e.i.r.p.) [dBm]	(e.i.r.p.) [mW]	(e.i.r.p.) [dBm]	(e.i.r.p.) [mW]	
Low	5180.0	4.30	2.03	9.61	0.05	3.64	19.63	91.83	-	-	-
Mid	5220.0	4.55	2.03	9.61	0.05	3.64	19.88	97.27	-	-	-
High	5240.0	4.67	2.18	9.61	0.05	3.64	20.15	103.51	-	-	-

Sample Calculation: Result = Reading + Cable Loss + Atten. Loss + Duty factor + Antenna Gain

[Pre check]

Antenna Main

	Mode	Freq.	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Result [dBm]
	(MCS)	[MHz]	[dBm]	[dB]	[dB]	[dB]	[dBm]
Main	0	5220.0	4.55	2.03	9.61	0.05	16.24
Main	1	5220.0	4.34	2.03	9.61	0.10	16.08
Main	2	5220.0	4.42	2.03	9.61	0.15	16.21
Main	3	5220.0	4.38	2.03	9.61	0.20	16.22
Main	4	5220.0	4.30	2.03	9.61	0.28	16.22
Main	5	5220.0	4.20	2.03	9.61	0.37	16.21
Main	6	5220.0	4.16	2.03	9.61	0.40	16.20
Main	7	5220.0	4.16	2.03	9.61	0.43	16.23

Worst Rate

Antenna Aux

	Mode	Freq.	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Result [dBm]
	(MCS)	[MHz]	[dBm]	[dB]	[dB]	[dB]	[dBm]
Aux	0	5180.0	4.26	2.03	9.61	0.05	15.95
Aux	0	5220.0	4.05	2.03	9.61	0.05	15.74
Aux	0	5240.0	4.17	2.18	9.61	0.05	16.01

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Maximum Conducted Output Power (Conducted)

(Reference) (duty chart)

Tx, IEEE802.11n (HT20), antenna port Main, (Tx 5220MHz)



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Maximum Conducted Output Power (Conducted)

(Reference) (duty chart)

Tx, IEEE802.11n (HT20), antenna port Main, (Tx 5220MHz)



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Maximum Conducted Output Power (Conducted)

(Method: PM)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 21, 2012 November 22, 2012 November 26, 2012	
Temperature / Humidity	22 deg.C , 38 %RH 22 deg.C , 46 %RH 20 deg.C , 30 %RH	
Engineer	Hikaru Shirasawa Hikaru Shirasawa Akio Hayashi	
Mode	Tx, IEEE802.11n (HT20), PN9,	worst antenna : Main worst data mode : 0 (MCS)

Antenna terminal power

(* P/M: Power Meter with power sensor, AV: Average)

Ch	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Result		Limit		Margin [dB]
						[dBm]	[mW]	[dBm]	[mW]	
Low	5260.0	4.32	2.17	9.60	0.05	16.14	41.15	23.98	250.00	7.84
Mid	5300.0	4.67	2.18	9.60	0.05	16.50	44.71	23.98	250.00	7.48
High	5320.0	4.85	2.07	9.60	0.05	16.57	45.44	23.98	250.00	7.41

Worst Data

Sample Calculation: Result = Reading + Cable Loss + Atten. Loss + Duty factor

EIRP

(* P/M: Power Meter with power sensor, AV: Average)

Reference Data

Ch	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Antenna Gain [dBi]	Result		Limit		Margin [dB]
							(e.i.r.p.) [dBm]	(e.i.r.p.) [mW]	(e.i.r.p.) [dBm]	(e.i.r.p.) [mW]	
Low	5260.0	4.32	2.17	9.60	0.05	3.73	19.87	97.14	-	-	-
Mid	5300.0	4.67	2.18	9.60	0.05	3.73	20.23	105.54	-	-	-
High	5320.0	4.85	2.07	9.60	0.05	3.73	20.30	107.25	-	-	-

Sample Calculation: Result = Reading + Cable Loss + Atten. Loss + Duty factor + Antenna Gain

[Pre check]

Antenna Main

	Mode	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Result [dBm]
	(MCS)						
Main	0	5300.0	4.67	2.18	9.60	0.05	16.50
Main	1	5300.0	4.58	2.18	9.60	0.10	16.46
Main	2	5300.0	4.52	2.18	9.60	0.15	16.45
Main	3	5300.0	4.47	2.18	9.60	0.20	16.45
Main	4	5300.0	4.40	2.18	9.60	0.28	16.46
Main	5	5300.0	4.34	2.18	9.60	0.37	16.49
Main	6	5300.0	4.31	2.18	9.60	0.40	16.49
Main	7	5300.0	4.27	2.18	9.60	0.43	16.48

Worst Rate

Antenna Aux

	Mode	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Result [dBm]
	(MCS)						
Aux	0	5260.0	3.61	2.17	9.60	0.05	15.43
Aux	0	5300.0	3.56	2.18	9.60	0.05	15.39
Aux	0	5320.0	3.85	2.07	9.60	0.05	15.57

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Maximum Conducted Output Power (Conducted)

(Reference) (duty chart)

Tx, IEEE802.11n (HT20), antenna port Main, (Tx 5300MHz)



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Maximum Conducted Output Power (Conducted)

(Reference) (duty chart)

Tx, IEEE802.11n (HT20), antenna port Main, (Tx 5300MHz)



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Maximum Conducted Output Power (Conducted)

(Method: PM)

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	November 21, 2012 November 22, 2012 November 26, 2012	
Temperature / Humidity	22 deg.C , 38 %RH 22 deg.C , 46 %RH 20 deg.C , 30 %RH	
Engineer	Hikaru Shirasawa Hikaru Shirasawa Akio Hayashi	
Mode	Tx, IEEE802.11n (HT20), PN9,	worst antenna : Main worst data mode : 0 (MCS)

Antenna terminal power

(* P/M: Power Meter with power sensor, AV: Average)

Ch	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Result		Limit		Margin [dB]
						[dBm]	[mW]	[dBm]	[mW]	
Low	5500.0	6.23	2.05	9.59	0.05	17.92	62.00	23.98	250.00	6.06
Mid	5580.0	6.36	2.07	9.60	0.05	18.08	64.33	23.98	250.00	5.90
High	5700.0	6.15	2.13	9.61	0.05	17.94	62.29	23.98	250.00	6.04

Worst Data

Sample Calculation: Result = Reading + Cable Loss + Atten. Loss + Duty factor

EIRP

(* P/M: Power Meter with power sensor, AV: Average)

Reference Data

Ch	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Antenna Gain [dBi]	Result		Limit		Margin [dB]
							(e.i.r.p.) [dBm]	(e.i.r.p.) [mW]	(e.i.r.p.) [dBm]	(e.i.r.p.) [mW]	
Low	5500.0	6.23	2.05	9.59	0.05	4.77	22.69	185.95	-	-	-
Mid	5580.0	6.36	2.07	9.60	0.05	4.77	22.85	192.93	-	-	-
High	5700.0	6.15	2.13	9.61	0.05	4.77	22.71	186.81	-	-	-

Sample Calculation: Result = Reading + Cable Loss + Atten. Loss + Duty factor + Antenna Gain

[Pre check]

Antenna Main

	Mode	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Result [dBm]
	(MCS)						
Main	0	5580.0	6.36	2.07	9.60	0.05	18.08
Main	1	5580.0	6.09	2.07	9.60	0.10	17.86
Main	2	5580.0	6.02	2.07	9.60	0.15	17.84
Main	3	5580.0	6.00	2.07	9.60	0.20	17.87
Main	4	5580.0	5.97	2.07	9.60	0.28	17.92
Main	5	5580.0	5.88	2.07	9.60	0.37	17.92
Main	6	5580.0	5.87	2.07	9.60	0.40	17.94
Main	7	5580.0	5.92	2.07	9.60	0.43	18.02

Worst Rate

Antenna Aux

	Mode	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Result [dBm]
	(MCS)						
Aux	0	5500.0	6.10	2.05	9.59	0.05	17.79
Aux	0	5580.0	6.16	2.07	9.60	0.05	17.88
Aux	0	5700.0	6.17	2.13	9.61	0.05	17.96

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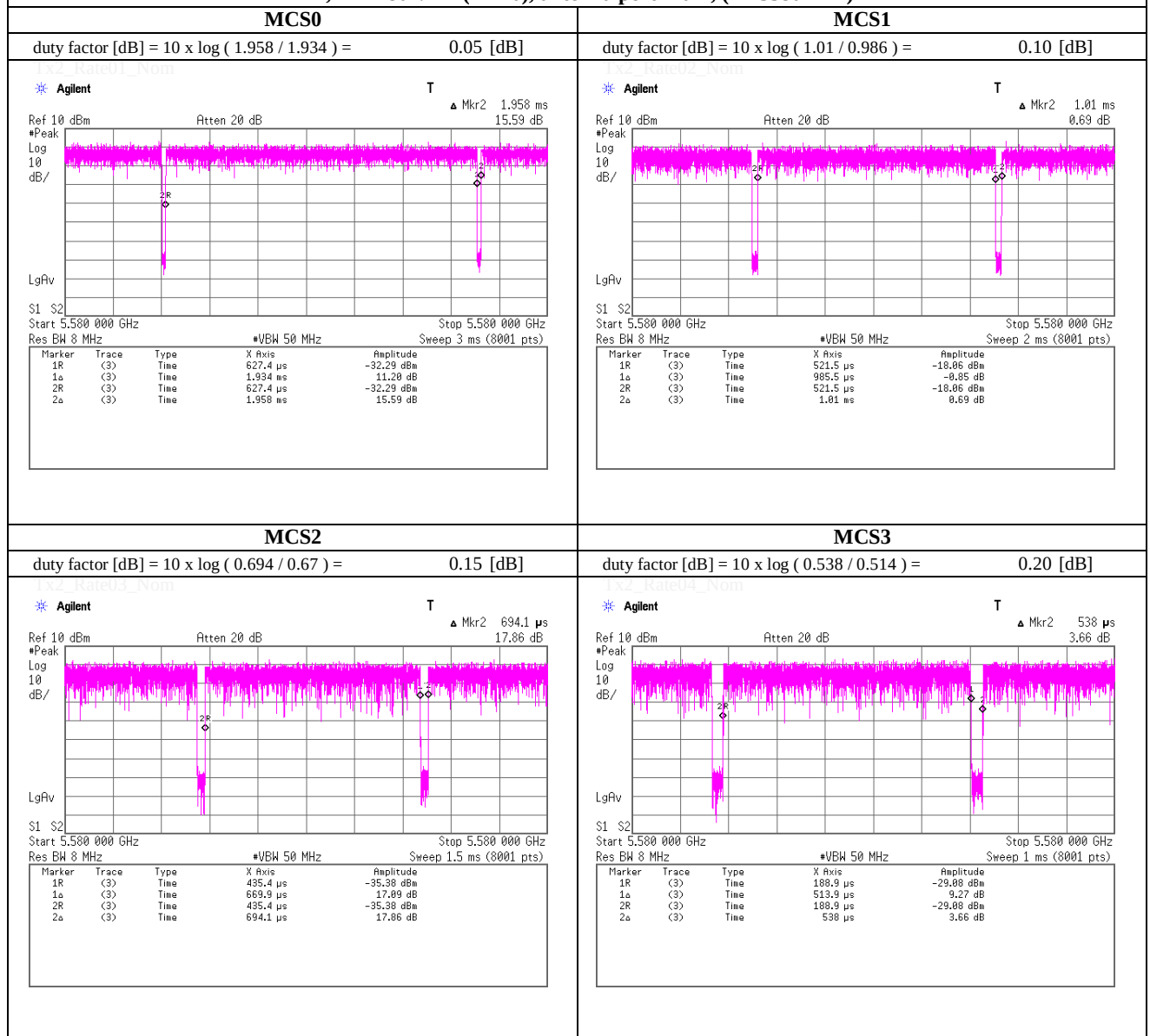
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Maximum Conducted Output Power (Conducted)

(Reference) (duty chart)

Tx, IEEE802.11n (HT20), antenna port Main, (Tx 5580MHz)



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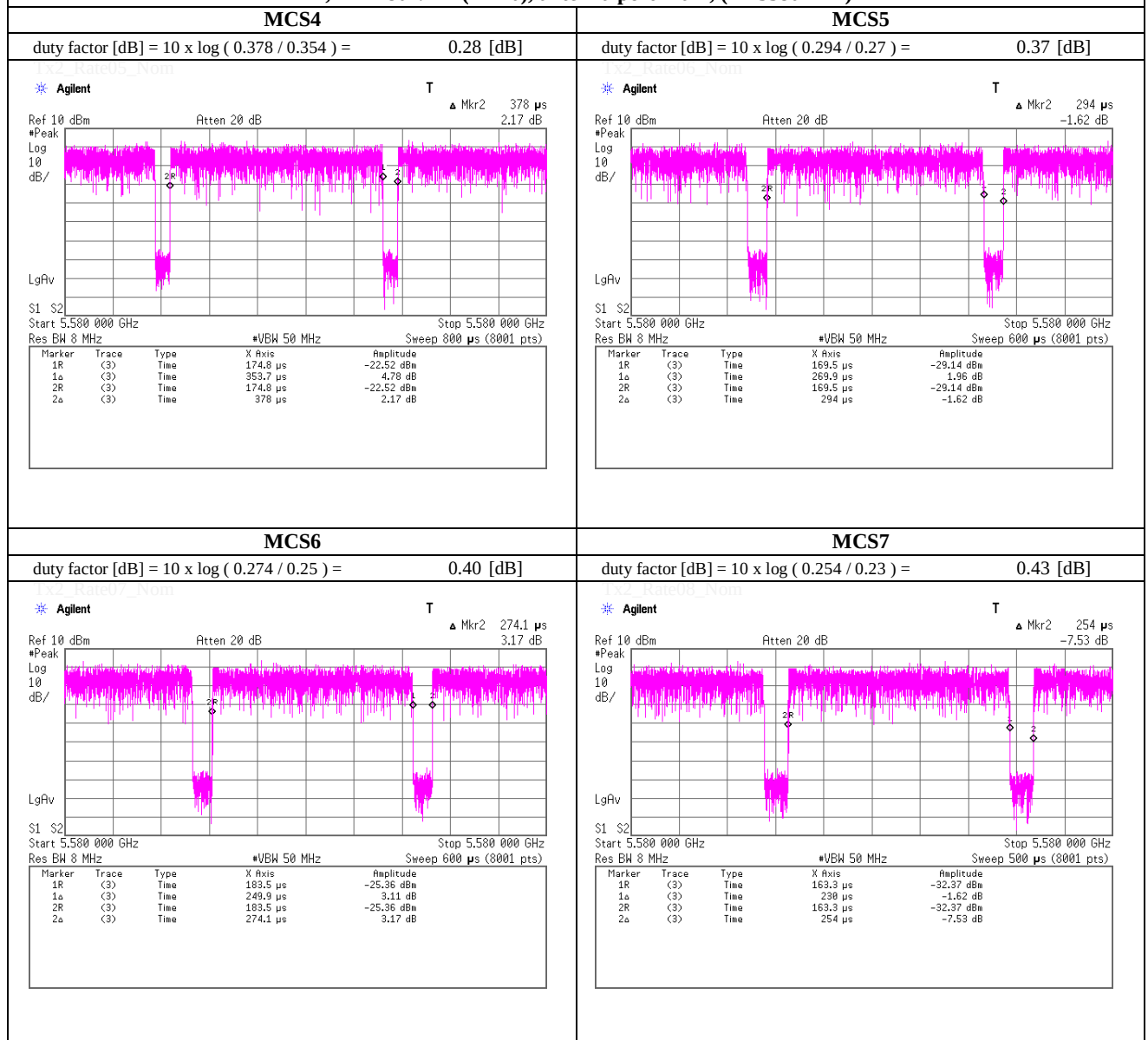
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