



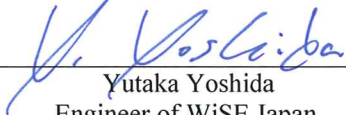
RADIO TEST REPORT


Test Report No. : 32LE0279-HO-01-A-R1

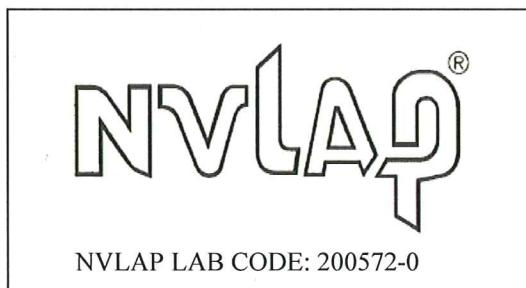
Applicant : silex technology, Inc.
Type of Equipment : SX-DS-3000EWB
Model No. : SX-DS-3000EWB
FCC ID : N6C-DS3000EWB
Test regulation : FCC Part 15 Subpart C: 2012
Test Result : Complied

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2. The results in this report apply only to the sample tested.
3. This sample tested is in compliance with the 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 32LE0279-HO-01-A. 32LE0279-HO-01-A is replaced with this report.

Date of test: July 25 to September 10, 2012

Representative test engineer: 
Yutaka Yoshida
Engineer of WiSE Japan,
UL Verification Service

Approved by: 
Takahiro Hatakeda
Leader of WiSE Japan,
UL Verification Service



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 : silex technology, Inc.
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Contact Person : Toshiro Kometani

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

2.1 Identification of E.U.T.

Type of Equipment : SX-DS-3000EWB
Model No. : SX-DS-3000EWB
Serial No. : Refer to Section 4, Clause 4.2
Rating : DC 4.75 to 5.355V
Receipt Date of Sample : July 25, 2012
Country of Mass-production : Japan
Condition of EUT : Production prototype
(Not for Sale: This sample is equivalent to mass-produced items.)
Modification of EUT : No Modification by the test lab

2.2 Product Description

Model No: SX-DS-3000EWB (referred to as the EUT in this report) is the SX-DS-3000EWB.

General Specification

Clock frequency(ies) in the system : 25MHz

Radio Specification

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

Specification of Wireless LAN (IEEE802.11b/g/n-20/n-40)

Type of radio	IEEE802.11b	IEEE802.11g	IEEE802.11n (20 M band)	IEEE802.11n (40 M band)
Frequency of operation	2412-2462MHz	2412-2462MHz	2412 - 2462MHz	2422 - 2452MHz
Type of modulation	DSSS (CCK, DQPSK, DBPSK)	OFDM-CCK (64QAM, 16QAM, QPSK, BPSK)	OFDM (64QAM, 16QAM, QPSK, BPSK)	
Channel spacing	5MHz			
Antenna type	PIFA antenna			
Antenna Gain: G_{ANT}	2.0dBi (including cableloss)			
Directional Gain	5.01dBi ($G_{ANT} + 10\log 2$)			
Antenna Connector type	U.FL connector			

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SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification : FCC Part 15 Subpart C: 2012, final revised on July 23, 2012 and effective August 22, 2012

Title : FCC 47CFR Part15 Radio Frequency Device Subpart C Intentional Radiators Section 15.207 Conducted limits Section 15.247 Operation within the bands 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz

* The revision on July 23, 2012 does not affect the test specification applied to the EUT.

3.2 Procedures and results

Item	Test Procedure	Specification	Worst margin	Results	Remarks
Conducted Emission	FCC: ANSI C63.4:2003 7. AC powerline Conducted Emission measurements ----- IC: RSS-Gen 7.2.4	FCC: Section 15.207 ----- IC: RSS-Gen 7.2.4	QP 6.1dB, 0.15524MHz, L AV 9.1dB, 0.15524MHz, L	Complied	-
6dB Bandwidth	FCC: "Guidance on Measurement of Digital Transmission Systems Operating under Section15.247" ----- IC: RSS-Gen 4.6.2	FCC: Section 15.247(a)(2) ----- IC: RSS-210 A8.2(a)	See data.	Complied	Conducted
Maximum Peak Output Power	FCC: "Guidance on Measurement of Digital Transmission Systems Operating under Section15.247" ----- IC: RSS-Gen 4.8	FCC: Section 15.247(b)(3) ----- IC: RSS-210 A8.4(4)		Complied	Conducted
Power Density	FCC: "Guidance on Measurement of Digital Transmission Systems Operating under Section15.247" ----- IC: -	FCC: Section 15.247 (e) ----- IC: RSS-210 A8.2(b)		Complied	Conducted
Spurious Emission Restricted Band Edges	FCC: "Guidance on Measurement of Digital Transmission Systems Operating under Section15.247" ----- IC: RSS-Gen 4.9	FCC: Section15.247(d) ----- IC: RSS-210 A8.5 RSS-Gen 7.2.3	1.5dB 1614.682MHz, AV, Hori.	Complied	Conducted/ Radiated

Note: UL Japan, Inc.'s EMI Work Procedures No. 13-EM-W0420 and 13-EM-W0422.

* In case any questions arise about test procedure, ANSI C63.4: 2003 is also referred.

FCC 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 15.203/212 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 15.203/212.

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3.3 Addition to standard

Item	Test Procedure	Specification	Worst margin	Results	Remarks
99% Occupied Bandwidth	IC: RSS-Gen 4.6.1	IC: RSS-Gen 4.6.1	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	3.6dB
No.3	3.6dB
No.4	3.6dB

Test room (semi-anechoic chamber)	Radiated emission (10m*)(+dB)		
	9kHz -30MHz	30MHz -300MHz	300MHz -1GHz
No.1	4.2dB	5.0dB	4.8dB
No.2	-	-	-
No.3	-	-	-
No.4	-	-	-

*10m = Measurement distance

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	4.3dB	5.0dB	5.1dB	4.9dB	5.8dB	4.4dB	4.3dB
No.2	4.3dB	5.2dB	5.1dB	5.0dB	5.7dB	4.3dB	4.2dB
No.3	4.6dB	5.0dB	5.1dB	5.0dB	5.7dB	4.5dB	4.2dB
No.4	4.8dB	5.2dB	5.0dB	5.0dB	5.7dB	5.2dB	4.2dB

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

Power meter (+dB)	
Below 1GHz	Above 1GHz
1.0dB	1.0dB

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	
1.0dB	1.1dB	2.7dB	3.2dB	3.3dB	1.5dB

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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	FCC Registration Number	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	313583	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	655103	2973C-2	7.5 x 5.8 x 5.2m	4.0 x 4.0m	-
No.3 semi-anechoic chamber	148738	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	134570	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	4.75 x 5.4 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	-	-	8.0 x 4.5 x 2.8m	2.0 x 2.0m	-
No.10 measurement room	-	-	2.6 x 2.8 x 2.5m	2.4 x 2.4m	-
No.11 measurement room	-	-	3.1 x 3.4 x 3.0m	2.4 x 3.4m	-

* 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 Mode(s)

Test operating mode was determined as follows according to “Section 1 of 6 802.11 a/b/g/n testing- Managing Complex Regulatory Approvals - ” of TCB Council Workshop October 2009.

Mode	Remarks*
IEEE 802.11b (11b)	11Mbps (Long), PN9
IEEE 802.11g (11g)	6Mbps, PN9
IEEE 802.11n MIMO 20MHz BW (11n-20)	MCS 9 (Long GI, 2 Streams), PN9
IEEE 802.11n MIMO 40MHz BW (11n-40)	MCS 8 (Long GI, 2 Streams), PN9
*The worst condition was determined based on the test result of Maximum Peak Output Power (Mid Channel)	
*Power of the EUT was set by the software as follows; Power settings: Refer to the following table. Software: RT3883 QA Firmware Release Version : 0 RT3883 QA Release Version : 1.0.3.5 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.	

Tested power setting was tuned by software to produce a Target Power*.

Operation	Antenna	Rate	Frequency	Power Setting	Target Power* [dBm]
11b	Antenna 0	11Mbps(Long)	2412MHz	1A	15
			2437MHz	1F	17
			2462MHz	17	12
11g	Antenna 0	6Mbps	2412MHz	16	12
			2437MHz	1B	14
			2462MHz	13	9
11n MIMO 20Mband	Antenna 0&1	MCS9 (LongGI)	2412MHz	Ant0:14	14
				Ant1:13	
			2437MHz	Ant0:1A	16
				Ant1:18	
			2462MHz	Ant0:11	11
				Ant1:10	
11n MIMO 40Mband	Antenna 0&1	MCS8 (ShortGI)	2422MHz	Ant0:15	14
				Ant1:14	
			2437MHz	Ant0:1A	16
				Ant1:18	
			2452MHz	Ant0:11	11
				Ant1:10	

*Target Power (Target power = Maximum specification power (Average Power (on time only) from Antenna terminal))

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*The details of Operating mode(s)

Test Item	Operating Mode	Tested Antenna	Tested frequency
Conducted Emission	11n-40 Tx *3)	Antenna 0&1	2437MHz
Spurious Emission (Radiated)	11b Tx	Antenna 0 *2)	2412MHz
			2437MHz
			2462MHz
	11n-20 Tx *1)	Antenna 0&1	2412MHz
			2437MHz
			2462MHz
11n-40 Tx	Antenna 0&1	2422MHz	
		2437MHz	
		2452MHz	
6dB Bandwidth 99% Occupied Bandwidth	11b Tx 11g Tx 11n-20 Tx	Antenna port 0 *2)	2412MHz
			2437MHz
			2462MHz
	11n-40 Tx	Antenna port 0 *2)	2422MHz
			2437MHz
			2452MHz
Maximum Peak Output Power	11b Tx 11g Tx	Antenna port 0	2412MHz
		Antenna port 1	2437MHz
			2462MHz
	11n-20 Tx	Antenna port 0	2412MHz
		Antenna port 1	2437MHz
		Antenna port 0&1	2462MHz
	11n-40 Tx	Antenna port 0	2422MHz
		Antenna port 1	2437MHz
		Antenna port 0&1	2452MHz
Power Density	11b Tx 11g Tx	Antenna port 0 *2)	2412MHz
			2437MHz
			2462MHz
	11n-20 Tx	Antenna port 0 Antenna port 1 Antenna port 0&1	2412MHz
			2437MHz
			2462MHz
	11n-40 Tx	Antenna port 0 Antenna port 1 Antenna port 0&1	2422MHz
			2437MHz
			2452MHz
Spurious Emission (Conducted)	11b Tx	Antenna 0 *2)	2412MHz
			2437MHz
			2462MHz
	11n-20 Tx *1)	Antenna 0 *2)	2412MHz
			2437MHz
			2462MHz
11n-40 Tx	Antenna 0 *2)	2422MHz	
		2437MHz	
		2452MHz	

*1) Since 11g and 11n-20 have the same modulation method and no differences in transmitting specification, test was performed on the representative mode that had the highest peak output power.

*2) After the comparison between Antenna port 1 and Antenna port 2, test was performed with the antenna that had higher power as a representative.

*3) The mode was tested as a representative, because it had the highest power at antenna terminal test.

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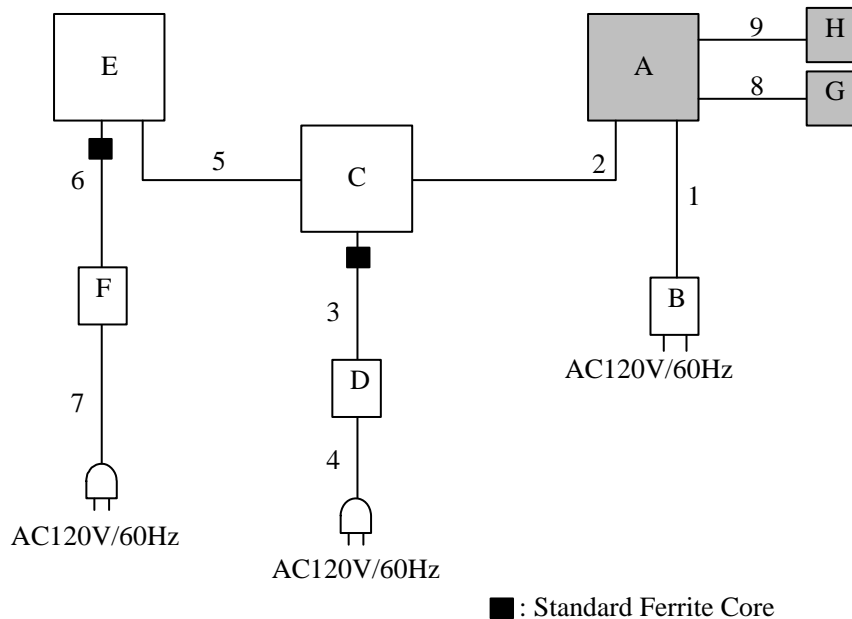
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4.2 Configuration and peripherals



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

Description of EUT

No.	Item	Model number	Serial number	Manufacturer	Remarks
A	SX-DS-3000EWB	SX-DS-3000EWB	WM300075	silex technology, Inc.	EUT
B	AC Adapter	US115-05	A07-0391659	cosmos UNIFIVE	-
C	Router	WZR-AMPG300NH	36636774615598	Buffalo	-
D	AC Adapter	UIA324-12	609-3382547	Buffalo	-
E	Laptop PC	LATITUDE E6510	18958199833	DELL	-
F	AC Adapter	LA90PE0-01	CN-03T6XF-71615-1AK-0927-A01	DELL	-
G	Antenna O	RFA-25-P149-70-100L	001	ARISTOTLE ENTERPRISES	EUT
H	Antenna O	RFA-25-P149-70B-50T	001	ARISTOTLE ENTERPRISES	EUT

List of cables used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	DC Cable	2.0	Unshielded	Unshielded	-
2	LAN Cable	2.9	Unshielded	Unshielded	-
3	DC Cable	1.7	Unshielded	Unshielded	-
4	AC Cable	0.5	Unshielded	Unshielded	-
5	LAN Cable	0.9	Unshielded	Unshielded	-
6	DC Cable	1.8	Unshielded	Unshielded	-
7	AC Cable	0.9	Unshielded	Unshielded	-
8	Antenna Cable	0.1	Shielded	Shielded	-
9	Antenna Cable	0.05	Shielded	Shielded	-

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SECTION 5: Conducted Emission

Test Procedure and conditions

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 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.

The EUT was connected to a LISN (AMN).

An overview sweep with peak detection has been performed.

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

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

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SECTION 6: Radiated Spurious Emission

Test Procedure

It was measured based on "2. Radiated emission test" of "Guidance on Measurement of Digital Transmission Systems Operating under Section 15.247".

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

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

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

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

Test Antennas are used as below;

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

In any 100kHz bandwidth outside the restricted band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator confirmed 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on a radiated measurement.

20dBc was applied to the frequency over the limit of FCC 15.209 / Table 5 of RSS-Gen 7.2.5(IC) and outside the restricted band of FCC15.205 / Table 3 of RSS-Gen 7.2.2 (IC).

Frequency	Below 1GHz	Above 1GHz		20dBc
Instrument used	Test Receiver	Spectrum Analyzer		Spectrum Analyzer
Detector	QP	PK	AV	PK
IF Bandwidth	BW 120kHz(T/R)	RBW: 1MHz VBW: 3MHz	RBW: 1MHz VBW: 1.1kHz, 750Hz, 3kHz *1)	RBW: 100kHz VBW: 300kHz (S/A)
Test Distance	3m	3m (below 10GHz), 1m*2) (above 10GHz)		3m (below 10GHz), 1m*2) (above 10GHz)

*1) Used for the band edge of the carrier and the harmonics that can be measured. The VBW is based on the inverse of the Tx on (see Appendix).

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

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

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

Measurement range : 30M-26.5GHz
Test data : APPENDIX
Test result : Pass

SECTION 7: Antenna Terminal Conducted Tests

Test Procedure

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

Test	Span	RBW	VBW	Sweep time	Detector	Trace	Instrument used
6dB Bandwidth	18MHz, 20MHz, 40MHz	100kHz	300kHz	Auto	Peak	Max Hold	Spectrum Analyzer
99% Occupied Bandwidth	Enough width to display 20dB Bandwidth	1 to 3% of Span	Three times of RBW	Auto	Sample	Clear write	Spectrum Analyzer
Maximum Peak Output Power	-	-	-	Auto	Peak/ Average *4)	-	Power Meter (Sensor: 50MHz BW)
Peak Power Density	3MHz, 20MHz, 40MHz	3kHz 30kHz	10kHz 100kHz	1ksec(11b) 667sec (11g/n-20), 1.334ksec (11n-40)	Peak	Max Hold	Spectrum Analyzer *1) *2)
Conducted Spurious Emission *3)	9kHz to 150kHz	200Hz	620Hz	Auto	Peak	Max Hold	Spectrum Analyzer
	150kHz to 30MHz	9.1kHz	27kHz				
	30MHz to 25GHz (Less or equal to 5GHz)	100kHz	300kHz				

*1) PSD Option 1 of "Guidance on Measurement of Digital Transmission Systems Operating under Section15.247".
*2) 11b: The test was performed at RBW:3kHz.
Except for 11b: The test was not performed at RBW:3kHz however the measurement is to be performed with RBW:3kHz in the regulation, because, the measurement value with RBW:3kHz is less than the value of RBW:30kHz and the test data met the limit with RBW:30kHz.
*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 low enough as shown in the chart.(9kHz-150kHz:RBW=200Hz, 150kHz-30MHz:RBW=9.1kHz).
*4) Testing using an average detector was performed in order to confirm that the output power of the EUT met the exclusion limits stated in FCC Part 2 Section 2.1091 and FCC radio frequency (RF) Exposure Guidelines in Supplement C to OET 65 and the EUT was exempt from RF exposure SAR evaluation.

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

Test data : APPENDIX
Test result : Pass

APPENDIX 1: Data of EMI test

Conducted Emission

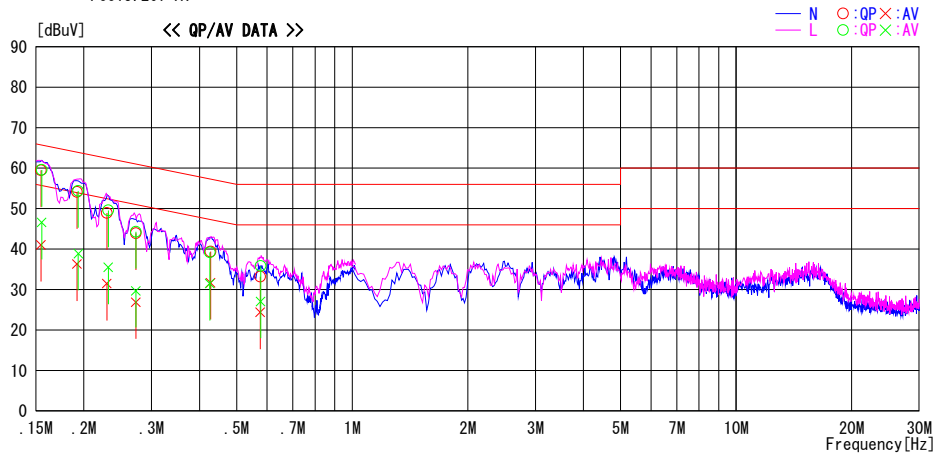
DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.2 Semi Anechoic Chamber
 Date : 2012/08/24

Report No. : 32LE0279-HO-01
 Power : AC 120V / 60Hz
 Temp./Humi. : 22deg. C / 59% RH
 Engineer : Takumi Shimada

Mode / Remarks : Tx 11n40 2437MHz MCS8

LIMIT : FCC15.207 QP
 FCC15.207 AV



Frequency [MHz]	Reading Level		Corr. Factor [dB]	Results		Limit		Margin		Phase	Comment
	QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dB]	AV [dB]		
0.15466	46.3	27.9	13.2	59.5	41.1	65.7	55.7	6.2	14.6	N	
0.19187	40.9	23.1	13.2	54.1	36.3	64.0	54.0	9.9	17.7	N	
0.22940	35.7	18.3	13.2	48.9	31.5	62.5	52.5	13.6	21.0	N	
0.27311	30.7	13.7	13.2	43.9	26.9	61.0	51.0	17.1	24.1	N	
0.42748	26.2	18.5	13.2	39.4	31.7	57.3	47.3	17.9	15.6	N	
0.57608	20.0	11.2	13.2	33.2	24.4	56.0	46.0	22.8	21.6	N	
0.15524	46.4	33.4	13.2	59.6	46.6	65.7	55.7	6.1	9.1	L	
0.19328	41.2	25.7	13.2	54.4	38.9	63.9	53.9	9.5	15.0	L	
0.23156	36.4	22.3	13.2	49.6	35.5	62.4	52.4	12.8	16.9	L	
0.27312	31.1	16.5	13.2	44.3	29.7	61.0	51.0	16.7	21.3	L	
0.42554	26.0	18.3	13.2	39.2	31.5	57.3	47.3	18.1	15.8	L	
0.57701	22.6	13.9	13.2	35.8	27.1	56.0	46.0	20.2	18.9	L	

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

6dB Bandwidth

Test place Head Office EMC Lab. No.11 Measurement Room
Report No. 32LE0279-HO-01
Date 07/25/2012 08/03/2012
Temperature/ Humidity 26 deg.C/ 41% RH 21 deg.C/ 57% RH
Engineer Takeshi Choda Yutaka Yoshida
Mode Tx

11b

Frequency [MHz]	6dB Bandwidth [MHz]	Limit [kHz]
2412	10.482	>500
2437	11.414	>500
2462	10.576	>500

11g

Frequency [MHz]	6dB Bandwidth [MHz]	Limit [kHz]
2412	16.450	>500
2437	16.446	>500
2462	16.426	>500

11n-20

Frequency [MHz]	6dB Bandwidth [MHz]	Limit [kHz]
2412	17.571	>500
2437	17.578	>500
2462	17.572	>500

11n-40

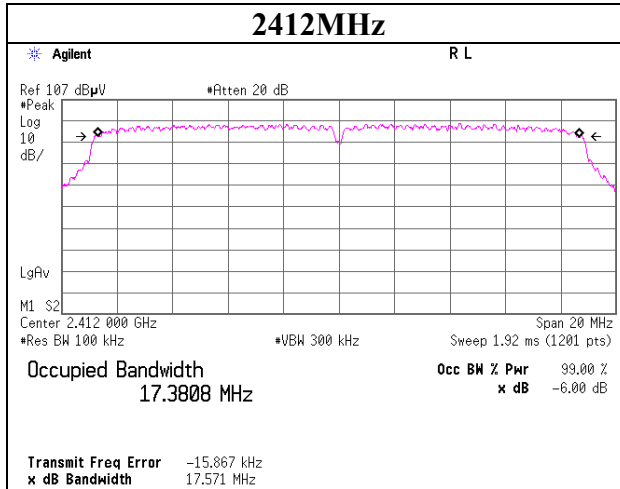
Frequency [MHz]	6dB Bandwidth [MHz]	Limit [kHz]
2422	35.358	>500
2437	35.355	>500
2452	35.359	>500

6dB Bandwidth

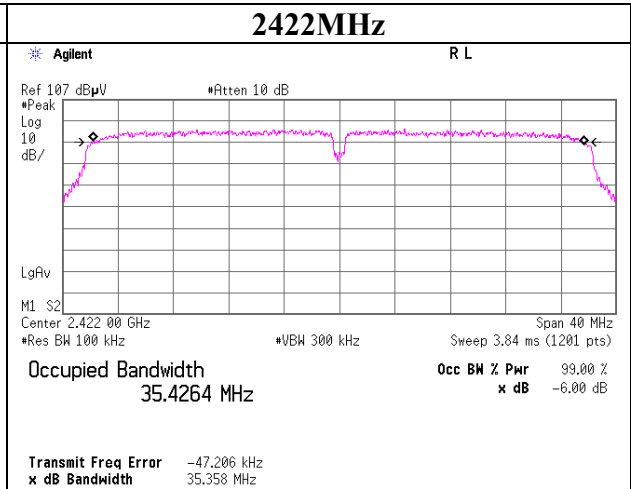


6dB Bandwidth

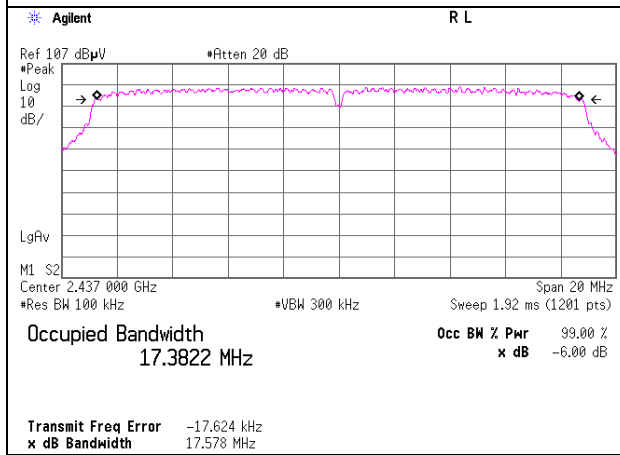
11n-20 Antenna 0 2412MHz



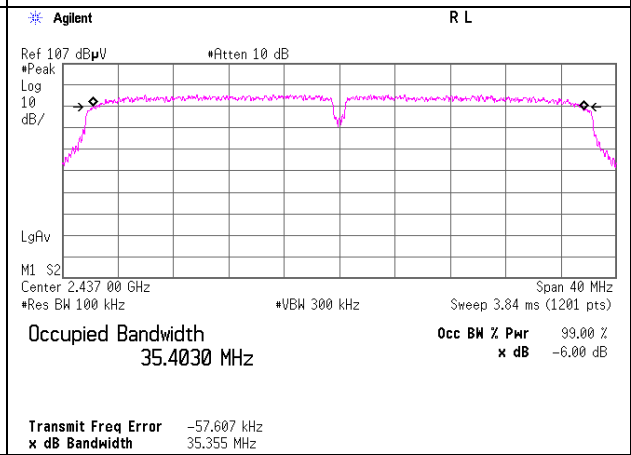
11n-40 Antenna 0 2422MHz



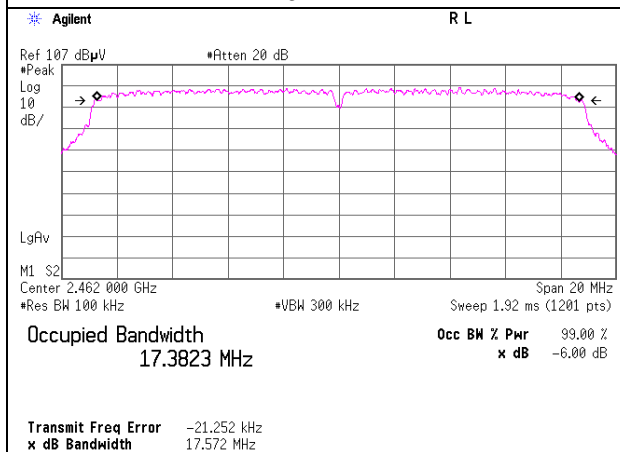
2437MHz



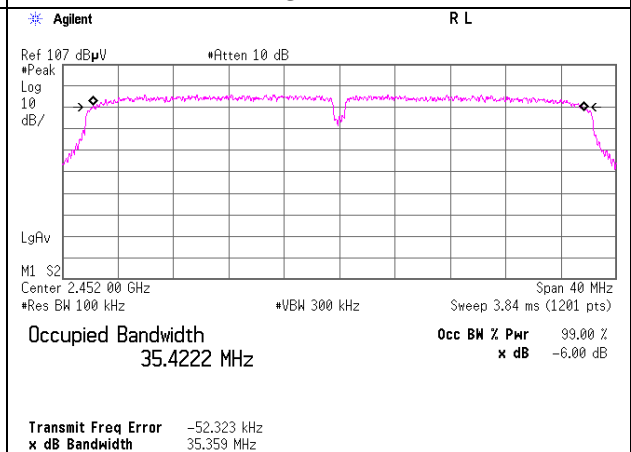
2437MHz



2462MHz



2452MHz



Maximum Peak Output Power

Test place	Head Office EMC Lab. No.6 Measurement Room	
Report No.	32LE0279-HO-01	
Date	08/28/2012	09/04/2012
Temperature/ Humidity	23deg. C / 83% RH	25deg. C / 46% RH
Engineer	Yutaka Yoshida	Yutaka Yoshida
Mode	11b Tx, 11Mbps	

Antenna 0

[MHz]	Reading PK [dBm]	Cable Loss [dB]	Atten. [dB]	Result		Limit Directional Gain < 6dBi		Margin [dB]
				[dBm]	[mW]	[dBm]	[mW]	
2412	7.10	1.11	10.00	18.21	66.22	30.00	1000	11.79
2437	8.08	2.10	9.95	20.13	103.04	30.00	1000	9.87
2462	4.12	1.12	10.00	15.24	33.42	30.00	1000	14.76

Antenna 1

Freq. [MHz]	Reading PK [dBm]	Cable Loss [dB]	Atten. [dB]	Result		Limit Directional Gain < 6dBi		Margin [dB]
				[dBm]	[mW]	[dBm]	[mW]	
2412	7.03	1.11	10.00	18.14	65.16	30.00	1000	11.86
2437	8.07	2.10	9.95	20.12	102.80	30.00	1000	9.88
2462	4.18	1.12	10.00	15.30	33.88	30.00	1000	14.70

Sample Calculation:

Result = Reading + Cable Loss + Attenuator

Antenna 0, 2437MHz

Rate [Mbps]	Reading Long Preamble [dBm]	Remark Short Preamble	Remark
1	6.64	6.61	
2	6.63	6.63	
5.5	6.58	6.56	
11	6.69	6.65*	

Antenna 1, 2437MHz

Rate [Mbps]	Reading Long Preamble [dBm]	Remark Short Preamble [dBm]	Remark
1	6.09	5.91	
2	6.08	5.92	
5.5	6.01	5.85	
11	6.11	5.98*	

*: Worst Rate

All comparizon were carried out on same frequency and measurement factors.

Maximum Peak Output Power

Test place : Head Office EMC Lab. No.6 Measurement Room
Report No. : 32LE0279-HO-01
Date : 08/28/2012
Temperature/ Humidity : 23deg. C / 83% RH
Engineer : Yutaka Yoshida
Mode : 11g Tx, 6Mbps

Antenna 0

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result		Limit Directional Gain < 6dBi		Margin [dB]
				[dBm]	[mW]	[dBm]	[mW]	
2412	9.99	2.09	9.95	22.03	159.59	30.00	1000	7.97
2437	11.20	2.10	9.95	23.25	211.35	30.00	1000	6.75
2462	6.86	2.11	9.95	18.92	77.98	30.00	1000	11.08

Antenna 1

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result		Limit Directional Gain < 6dBi		Margin [dB]
				[dBm]	[mW]	[dBm]	[mW]	
2412	9.05	2.09	9.95	21.09	128.53	30.00	1000	8.91
2437	10.81	2.10	9.95	22.86	193.20	30.00	1000	7.14
2462	6.76	2.11	9.95	18.82	76.21	30.00	1000	11.18

Sample Calculation:

Result = Reading + Cable Loss + Attenuator

Antenna 0, 2437MHz

Rate [Mbps]	Reading [dBm]	Remark
6	11.82	*
9	11.35	
12	11.37	
18	11.46	
24	11.21	
36	10.62	
48	10.30	
54	10.21	

Antenna 1, 2437MHz

Rate [Mbps]	Reading [dBm]	Remark
6	11.25	*
9	10.61	
12	10.86	
18	10.83	
24	10.74	
36	10.06	
48	9.96	
54	9.75	

*: Worst Rate

All comparison were carried out on same frequency and measurement factors.

Maximum Peak Output Power

Test place : Head Office EMC Lab. No.6 Measurement Room
Report No. : 32LE0279-HO-01
Date : 08/28/2012
Temperature/ Humidity : 23deg. C / 83% RH
Engineer : Yutaka Yoshida
Mode : 11n-20 Tx, MCS 9

Antenna 0 + 1

Freq. [MHz]	Antenna 0 Result [mW]	Antenna 1 Result [mW]	Result		Limit Directional Gain < 6dBi		Margin [dB]
			[dBm]	[mW]	[dBm]	[mW]	
2412	101.39	97.27	22.98	198.67	30.00	1000	7.02
2437	166.34	158.85	25.12	325.20	30.00	1000	4.88
2462	50.00	53.33	20.14	103.34	30.00	1000	9.86

Sample Calculation:

Result = Antenna 0 + 1

Antenna 0

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result		Limit Directional Gain < 6dBi		Margin [dB]
				[dBm]	[mW]	[dBm]	[mW]	
2412	8.02	2.09	9.95	20.06	101.39	30.00	1000	9.94
2437	10.16	2.10	9.95	22.21	166.34	30.00	1000	7.79
2462	4.93	2.11	9.95	16.99	50.00	30.00	1000	13.01

Antenna 1

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result		Limit Directional Gain < 6dBi		Margin [dB]
				[dBm]	[mW]	[dBm]	[mW]	
2412	7.84	2.09	9.95	19.88	97.27	30.00	1000	10.12
2437	9.96	2.10	9.95	22.01	158.85	30.00	1000	7.99
2462	5.21	2.11	9.95	17.27	53.33	30.00	1000	12.73

Sample Calculation:

Result = Reading + Cable Loss + Attenuator

Maximum Peak Output Power

Test place : Head Office EMC Lab. No.11 Measurement Room
Report No. : 32LE0279-HO-01
Date : 07/25/2012
Temperature/ Humidity : 26deg. C / 41% RH
Engineer : Takeshi Choda
Mode : 11n-20 Tx

11n-20 2437MHz

MCS Number	Reading Antenna 0		Reading Antenna 1		Result Antenna 0 + 1		Remark
	[dBm]	[mW]	[dBm]	[mW]	[dBm]	[mW]	
0	12.02	15.92	11.37	13.71	-	-	*(SISO)
1	11.65	14.62	11.10	12.88	-	-	
2	11.48	14.06	10.84	12.13	-	-	
3	11.02	12.65	10.54	11.32	-	-	
4	10.10	10.23	9.60	9.12	-	-	
5	10.33	10.79	9.94	9.86	-	-	
6	10.23	10.54	9.73	9.40	-	-	
7	10.02	10.05	9.36	8.63	-	-	
8	11.27	13.40	10.75	11.89	14.03	25.28	
9	11.29	13.46	10.82	12.08	14.07	25.54	*(MIMO)
10	10.66	11.64	10.23	10.54	13.46	22.19	
11	10.85	12.16	10.49	11.19	13.68	23.36	
12	10.77	11.94	10.02	10.05	13.42	21.99	
13	10.62	11.53	9.91	9.79	13.29	21.33	
14	9.41	8.73	9.42	8.75	12.43	17.48	
15	9.73	9.40	9.35	8.61	12.55	18.01	

*: Worst Rate

Sample Calculation:

Result Antenna 0 + 1[dBm] = 10*LOG(Result Antenna 0 + 1[mW])

Result Antenna 0 + 1[mW] = Reading Antenna 0[mW] + Reading Antenna 1[mW]

All comparizon were carried out on same frequency and measurement factors.

Maximum Peak Output Power

Test place : Head Office EMC Lab. No.6 Measurement Room
Report No. : 32LE0279-HO-01
Date : 08/28/2012
Temperature/ Humidity : 23deg. C / 83% RH
Engineer : Yutaka Yoshida
Mode : 11n-40 Tx, MCS 8

Antenna 0 + 1

Freq. [MHz]	Antenna 0 Result [mW]	Antenna 1 Result [mW]	Result		Limit Directional Gain < 6dBi		Margin [dB]
			[dBm]	[mW]	[dBm]	[mW]	
2422	110.15	109.90	23.43	220.05	30.00	1000	6.57
2437	177.01	161.44	25.29	338.45	30.00	1000	4.71
2452	57.28	57.68	20.61	114.96	30.00	1000	9.39

Sample Calculation:

Result = Antenna 0 + 1

Antenna 0

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result		Limit Directional Gain < 6dBi		Margin [dB]
				[dBm]	[mW]	[dBm]	[mW]	
2422	8.38	2.09	9.95	20.42	110.15	30.00	1000	9.58
2437	10.43	2.10	9.95	22.48	177.01	30.00	1000	7.52
2452	5.52	2.11	9.95	17.58	57.28	30.00	1000	12.42

Antenna 1

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result		Limit Directional Gain < 6dBi		Margin [dB]
				[dBm]	[mW]	[dBm]	[mW]	
2422	8.37	2.09	9.95	20.41	109.90	30.00	1000	9.59
2437	10.03	2.10	9.95	22.08	161.44	30.00	1000	7.92
2452	5.55	2.11	9.95	17.61	57.68	30.00	1000	12.39

Sample Calculation:

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

Maximum Peak Output Power

Test place : Head Office EMC Lab. No.11 Measurement Room
Report No. : 32LE0279-HO-01
Date : 07/25/2012
Temperature/ Humidity : 26deg. C / 41% RH
Engineer : Takeshi Choda
Mode : 11n-40 Tx

11n-40 2437MHz

MCS Number	Reading Antenna 0		Reading Antenna 1		Result Antenna 0 + 1		Remark
	[dBm]	[mW]	[dBm]	[mW]	[dBm]	[mW]	
0	11.85	15.31	11.19	13.15	-	-	*(SISO)
1	11.44	13.93	10.87	12.22	-	-	
2	11.01	12.62	10.39	10.94	-	-	
3	11.32	13.55	10.67	11.67	-	-	
4	10.67	11.67	10.01	10.02	-	-	
5	10.76	11.91	10.18	10.42	-	-	
6	10.29	10.69	9.37	8.65	-	-	
7	9.43	8.77	8.63	7.29	-	-	
8	11.72	14.86	11.08	12.82	14.42	27.68	*(MIMO)
9	11.30	13.49	10.68	11.69	14.01	25.18	
10	10.73	11.83	10.17	10.40	13.47	22.23	
11	11.08	12.82	10.38	10.91	13.75	23.74	
12	10.25	10.59	10.03	10.07	13.15	20.66	
13	10.84	12.13	9.81	9.57	13.37	21.71	
14	9.87	9.71	8.80	7.59	12.38	17.29	
15	9.51	8.93	8.69	7.40	12.13	16.33	

*: Worst Rate

Sample Calculation:

Result Antenna 0 + 1[dBm] = 10*LOG(Result Antenna 0 + 1[mW])

Result Antenna 0 + 1[mW] = Reading Antenna 0[mW] + Reading Antenna 1[mW]

All comparizon were carried out on same frequency and measurement factors.

Average Output Power
(for reporting purpose only)

Test place Head Office EMC Lab. No.6 Measurement Room
Report No. 32LE0279-HO-01
Date 08/28/2012
Temperature/ Humidity 23deg. C / 83% RH
Engineer Yutaka Yoshida
Mode 11b Tx, 11Mbps

Antenna 0

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result	
				[dBm]	[mW]
2412	3.51	1.11	10.00	14.62	28.97
2437	4.52	2.10	9.95	16.57	45.39
2462	0.55	1.12	10.00	11.67	14.69

Antenna 1

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result	
				[dBm]	[mW]
2412	3.48	1.11	10.00	14.59	28.77
2437	4.52	2.10	9.95	16.57	45.39
2462	0.63	1.12	10.00	11.75	14.96

Sample Calculation:

Result = Reading + Cable Loss + Attenuator

Average Output Power
(for reporting purpose only)

Test place Head Office EMC Lab. No.6 Measurement Room
Report No. 32LE0279-HO-01
Date 08/28/2012
Temperature/ Humidity 23deg. C / 83% RH
Engineer Yutaka Yoshida
Mode 11g Tx, 6Mbps

Antenna 0

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result	
				[dBm]	[mW]
2412	-0.12	2.09	9.95	11.92	15.56
2437	1.88	2.10	9.95	13.93	24.72
2462	-3.18	2.11	9.95	8.88	7.73

Antenna 1

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result	
				[dBm]	[mW]
2412	-0.86	2.09	9.95	11.18	13.12
2437	1.69	2.10	9.95	13.74	23.66
2462	-3.20	2.11	9.95	8.86	7.69

Sample Calculation:
Result = Reading + Cable Loss + Attenuator

Average Output Power
(for reporting purpose only)

Test place : Head Office EMC Lab. No.6 Measurement Room
Report No. : 32LE0279-HO-01
Date : 08/28/2012
Temperature/ Humidity : 23deg. C / 83% RH
Engineer : Yutaka Yoshida
Mode : 11n-20 Tx, MCS 9

Antenna 0 + 1

Freq. [MHz]	Antenna 0 Result [mW]	Antenna 1 Result [mW]	Result	
			[dBm]	[mW]
2412	8.39	8.53	12.29	16.93
2437	14.32	14.16	14.55	28.48
2462	4.11	4.58	9.39	8.69

Sample Calculation:

Result = Antenna 0 + 1

Antenna 0

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result	
				[dBm]	[mW]
2412	-2.80	2.09	9.95	9.24	8.39
2437	-0.49	2.10	9.95	11.56	14.32
2462	-5.92	2.11	9.95	6.14	4.11

Antenna 1

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result	
				[dBm]	[mW]
2412	-2.73	2.09	9.95	9.31	8.53
2437	-0.54	2.10	9.95	11.51	14.16
2462	-5.45	2.11	9.95	6.61	4.58

Sample Calculation:

Result = Reading + Cable Loss + Attenuator

Average Output Power
(for reporting purpose only)

Test place : Head Office EMC Lab. No.6 Measurement Room
Report No. : 32LE0279-HO-01
Date : 08/28/2012
Temperature/ Humidity : 23deg. C / 83% RH
Engineer : Yutaka Yoshida
Mode : 11n-40 Tx, MCS 8

Antenna 0 + 1

Freq. [MHz]	Antenna 0 Result [mW]	Antenna 1 Result [mW]	Result	
			[dBm]	[mW]
2422	8.43	9.20	12.46	17.64
2437	13.52	13.34	14.29	26.86
2452	4.17	4.43	9.34	8.59

Sample Calculation:
Result = Antenna 0 + 1

Antenna 0

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result	
				[dBm]	[mW]
2422	-2.78	2.09	9.95	9.26	8.43
2437	-0.74	2.10	9.95	11.31	13.52
2452	-5.86	2.11	9.95	6.20	4.17

Antenna 1

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result	
				[dBm]	[mW]
2422	-2.40	2.09	9.95	9.64	9.20
2437	-0.80	2.10	9.95	11.25	13.34
2452	-5.60	2.11	9.95	6.46	4.43

Sample Calculation:
Result = Reading + Cable Loss + Attenuator

Radiated Spurious Emission

Test place : Head Office EMC Lab. No.3 Semi Anechoic Chamber
Report No. : 32LE0279-HO-01
Date : 08/30/2012
Temperature/ Humidity : 24 deg.C / 43% RH
Engineer : Katsunori Okai

Mode : 11b Tx 2412MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	1608.051	PK	54.4	25.4	1.8	33.4	48.2	73.9	25.7	
Hori	2390.000	PK	55.5	27.4	2.2	32.4	52.7	73.9	21.2	
Hori	4824.000	PK	48.3	31.7	4.7	31.4	53.3	73.9	20.6	
Hori	1608.051	AV	53.1	25.4	1.8	33.4	46.9	53.9	7.0	
Hori	2390.000	AV	45.1	27.4	2.2	32.4	42.3	53.9	11.6	
Hori	4824.000	AV	41.4	31.7	4.7	31.4	46.4	53.9	7.5	
Vert	1608.012	PK	52.8	25.4	1.8	33.4	46.6	73.9	27.3	
Vert	2390.000	PK	54.9	27.4	2.2	32.4	52.1	73.9	21.8	
Vert	4824.000	PK	48.3	31.7	4.7	31.4	53.3	73.9	20.6	
Vert	1608.012	AV	50.2	25.4	1.8	33.4	44.0	53.9	9.9	
Vert	2390.000	AV	43.2	27.4	2.2	32.4	40.4	53.9	13.5	
Vert	4824.000	AV	40.5	31.7	4.7	31.4	45.5	53.9	8.4	

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 had enough margin (more than 20dB).

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

20dBc Data Sheet

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	2412.000	PK	103.5	27.5	2.2	32.4	100.8	-	-	Carrier
Hori	2400.000	PK	57.7	27.4	2.2	32.4	54.9	80.8	25.9	
Hori	3215.999	PK	50.0	29.0	2.6	32.0	49.6	80.8	31.2	
Vert	2412.000	PK	103.9	27.5	2.2	32.4	101.2	-	-	Carrier
Vert	2400.000	PK	56.4	27.4	2.2	32.4	53.6	81.2	27.6	
Vert	3216.002	PK	44.2	29.0	2.6	32.0	43.8	81.2	37.4	

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

Radiated Spurious Emission

Test place : Head Office EMC Lab. No.3 Semi Anechoic Chamber
Report No. : 32LE0279-HO-01
Date : 08/30/2012
Temperature/ Humidity : 24 deg.C / 43% RH
Engineer : Katsunori Okai

Mode : 11b Tx 2437MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	1624.675	PK	53.7	25.4	1.8	33.3	47.6	73.9	26.3	
Hori	4874.000	PK	51.8	31.9	4.7	31.4	57.0	73.9	16.9	
Hori	1624.675	AV	51.9	25.4	1.8	33.3	45.8	53.9	8.1	
Hori	4874.000	AV	45.6	31.9	4.7	31.4	50.8	53.9	3.1	
Vert	1624.662	PK	52.4	25.4	1.8	33.3	46.3	73.9	27.6	
Vert	4874.000	PK	49.6	31.9	4.7	31.4	54.8	73.9	19.1	
Vert	1624.662	AV	49.3	25.4	1.8	33.3	43.2	53.9	10.7	
Vert	4874.000	AV	43.8	31.9	4.7	31.4	49.0	53.9	4.9	

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 had enough margin (more than 20dB).

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

20dBc Data Sheet

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	2437.000	PK	105.6	27.6	2.2	32.4	103.0	-	-	Carrier
Hori	3249.283	PK	48.6	28.9	2.6	32.0	48.1	83.0	34.9	
Vert	2437.000	PK	106.0	27.6	2.2	32.4	103.4	-	-	Carrier
Vert	3249.363	PK	43.2	28.9	2.6	32.0	42.7	83.4	40.7	

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

Radiated Spurious Emission

Test place Head Office EMC Lab. No.3 Semi Anechoic Chamber
Report No. 32LE0279-HO-01
Date 08/29/2012
Temperature/ Humidity 25 deg.C / 50% RH
Engineer Katsunori Okai

Mode 11n-20 Tx 2412MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	1608.051	PK	59.0	25.4	1.8	33.4	52.8	73.9	21.1	
Hori	2390.000	PK	56.3	27.4	2.2	32.4	53.5	73.9	20.4	
Hori	4824.000	PK	41.6	31.7	4.7	31.4	46.6	73.9	27.3	
Hori	1608.051	AV	57.7	25.4	1.8	33.4	51.5	53.9	2.4	
Hori	2390.000	AV	45.2	27.4	2.2	32.4	42.4	53.9	11.5	
Hori	4824.000	AV	33.5	31.7	4.7	31.4	38.5	53.9	15.4	
Vert	1608.010	PK	58.0	25.4	1.8	33.4	51.8	73.9	22.1	
Vert	2390.000	PK	53.2	27.4	2.2	32.4	50.4	73.9	23.5	
Vert	4824.000	PK	41.4	31.7	4.7	31.4	46.4	73.9	27.5	
Vert	1608.010	AV	56.2	25.4	1.8	33.4	50.0	53.9	3.9	
Vert	2390.000	AV	44.5	27.4	2.2	32.4	41.7	53.9	12.2	
Vert	4824.000	AV	32.8	31.7	4.7	31.4	37.8	53.9	16.1	

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 had enough margin (more than 20dB).

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

20dBc Data Sheet

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	2412.000	PK	100.2	27.5	2.2	32.4	97.5	-	-	Carrier
Hori	2400.000	PK	57.0	27.4	2.2	32.4	54.2	77.5	23.3	
Hori	3215.957	PK	50.3	29.0	2.6	32.0	49.9	77.5	27.6	
Vert	2412.000	PK	98.2	27.5	2.2	32.4	95.5	-	-	Carrier
Vert	2400.000	PK	54.6	27.4	2.2	32.4	51.8	75.5	23.7	
Vert	3216.025	PK	45.0	29.0	2.6	32.0	44.6	75.5	30.9	

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

Radiated Spurious Emission

Test place : Head Office EMC Lab. No.3 Semi Anechoic Chamber
Report No. : 32LE0279-HO-01
Date : 08/29/2012
Temperature/ Humidity : 25 deg.C / 50% RH
Engineer : Katsunori Okai

Mode : 11n-20 Tx 2437MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	1624.654	PK	58.6	25.4	1.8	33.3	52.5	73.9	21.4	
Hori	4874.000	PK	42.2	31.9	4.7	31.4	47.4	73.9	26.5	
Hori	1624.654	AV	57.0	25.4	1.8	33.3	50.9	53.9	3.0	
Hori	4874.000	AV	32.7	31.9	4.7	31.4	37.9	53.9	16.0	
Vert	1624.654	PK	55.2	25.4	1.8	33.3	49.1	73.9	24.8	
Vert	4874.000	PK	41.8	31.9	4.7	31.4	47.0	73.9	26.9	
Vert	1624.654	AV	53.2	25.4	1.8	33.3	47.1	53.9	6.8	
Vert	4874.000	AV	32.0	31.9	4.7	31.4	37.2	53.9	16.7	

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 had enough margin (more than 20dB).

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

20dBc Data Sheet

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	2437.000	PK	103.8	27.6	2.2	32.4	101.2	-	-	Carrier
Hori	3249.337	PK	50.5	28.9	2.6	32.0	50.0	81.2	31.2	
Vert	2437.000	PK	103.5	27.6	2.2	32.4	100.9	-	-	Carrier
Vert	3249.171	PK	44.1	28.9	2.6	32.0	43.6	80.9	37.3	

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

Radiated Spurious Emission

Test place : Head Office EMC Lab. No.3 Semi Anechoic Chamber
Report No. : 32LE0279-HO-01
Date : 08/29/2012
Temperature/ Humidity : 25 deg.C / 50% RH
Engineer : Katsunori Okai

Mode : 11n-20 Tx 2462MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	2483.500	PK	52.0	27.7	2.2	32.3	49.6	73.9	24.3	
Hori	4924.000	PK	42.1	32.1	4.6	31.4	47.4	73.9	26.5	
Hori	2483.500	AV	40.6	27.7	2.2	32.3	38.2	53.9	15.7	
Hori	4924.000	AV	33.0	32.1	4.6	31.4	38.3	53.9	15.6	
Vert	2483.500	PK	55.4	27.7	2.2	32.3	53.0	73.9	20.9	
Vert	4924.000	PK	41.5	32.1	4.6	31.4	46.8	73.9	27.1	
Vert	2483.500	AV	41.2	27.7	2.2	32.3	38.8	53.9	15.1	
Vert	4924.000	AV	32.6	32.1	4.6	31.4	37.9	53.9	16.0	

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 had enough margin (more than 20dB).

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

20dBc Data Sheet

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	2462.000	PK	97.4	27.6	2.2	32.4	94.8	-	-	Carrier
Hori	1641.340	PK	60.2	25.5	1.8	33.3	54.2	74.8	20.6	
Hori	2514.683	PK	43.2	27.8	2.2	32.3	40.9	74.8	33.9	
Hori	3282.703	PK	47.7	28.9	2.6	32.0	47.2	74.8	27.6	
Vert	2462.000	PK	98.1	27.6	2.2	32.4	95.5	-	-	Carrier
Vert	1641.297	PK	57.6	25.5	1.8	33.3	51.6	75.5	23.9	
Vert	2514.333	PK	42.2	27.8	2.2	32.3	39.9	75.5	35.6	
Vert	3282.697	PK	41.8	28.9	2.6	32.0	41.3	75.5	34.2	

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

Radiated Spurious Emission

Test place : Head Office EMC Lab. No.3 Semi Anechoic Chamber
Report No. : 32LE0279-HO-01
Date : 08/29/2012
Temperature/ Humidity : 25 deg.C / 50% RH
Engineer : Katsunori Okai
Mode : 11n-40 Tx 2422MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	1614.682	PK	59.5	25.4	1.8	33.3	53.4	73.9	20.5	
Hori	2390.000	PK	58.0	27.4	2.2	32.4	55.2	73.9	18.7	
Hori	4844.000	PK	42.3	31.7	4.7	31.4	47.3	73.9	26.6	
Hori	1614.682	AV	58.5	25.4	1.8	33.3	52.4	53.9	1.5	
Hori	2390.000	AV	42.4	27.4	2.2	32.4	39.6	53.9	14.3	
Hori	4844.000	AV	33.2	31.7	4.7	31.4	38.2	53.9	15.7	
Vert	1614.648	PK	56.8	25.4	1.8	33.3	50.7	73.9	23.2	
Vert	2390.000	PK	62.2	27.4	2.2	32.4	59.4	73.9	14.5	
Vert	4844.000	PK	42.1	31.7	4.7	31.4	47.1	73.9	26.8	
Vert	1614.648	AV	55.8	25.4	1.8	33.3	49.7	53.9	4.2	
Vert	2390.000	AV	42.9	27.4	2.2	32.4	40.1	53.9	13.8	
Vert	4844.000	AV	32.2	31.7	4.7	31.4	37.2	53.9	16.7	

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 had enough margin (more than 20dB).

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

20dBc Data Sheet

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	2422.000	PK	96.8	27.5	2.2	32.4	94.1	-	-	Carrier
Hori	2400.000	PK	52.8	27.4	2.2	32.4	50.0	74.1	24.1	
Hori	3229.360	PK	48.7	28.9	2.6	32.0	48.2	74.1	25.9	
Vert	2422.000	PK	98.6	27.5	2.2	32.4	95.9	-	-	Carrier
Vert	2400.000	PK	55.5	27.4	2.2	32.4	52.7	75.9	23.2	
Vert	3229.460	PK	43.3	28.9	2.6	32.0	42.8	75.9	33.1	

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

Radiated Spurious Emission

Test place Head Office EMC Lab. No.2 and 3 Semi Anechoic Chamber
Report No. 32LE0279-HO-01
Date 08/29/2012 08/24/2012
Temperature/ Humidity 25 deg.C / 50% RH 22 deg.C / 59% RH
Engineer Katsunori Okai Takumi Shimada
(Above 1GHz) (Below 1GHz)
Mode 11n-40 Tx 2437MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	99.996	QP	38.3	9.6	7.5	28.4	27.0	43.5	16.5	
Hori	125.001	QP	39.5	13.1	7.7	28.2	32.1	43.5	11.4	
Hori	249.995	QP	45.2	17.3	8.5	27.6	43.4	46.0	2.6	
Hori	375.000	QP	44.2	16.7	9.3	28.1	42.1	46.0	3.9	
Hori	499.998	QP	42.8	18.3	9.8	28.8	42.1	46.0	3.9	
Hori	624.990	QP	39.2	20.0	10.3	28.7	40.8	46.0	5.2	
Hori	1624.662	PK	59.2	25.4	1.8	33.3	53.1	73.9	20.8	
Hori	4874.000	PK	42.3	31.9	4.7	31.4	47.5	73.9	26.4	
Hori	1624.662	AV	58.0	25.4	1.8	33.3	51.9	53.9	2.0	
Hori	4874.000	AV	32.2	31.9	4.7	31.4	37.4	53.9	16.5	
Vert	100.000	QP	47.1	9.6	7.5	28.4	35.8	43.5	7.7	
Vert	124.995	QP	42.7	13.1	7.7	28.2	35.3	43.5	8.2	
Vert	250.010	QP	43.8	17.4	8.5	27.6	42.1	46.0	3.9	
Vert	374.992	QP	37.9	16.7	9.3	28.1	35.8	46.0	10.2	
Vert	499.999	QP	42.7	18.3	9.8	28.8	42.0	46.0	4.0	
Vert	624.990	QP	38.0	20.0	10.3	28.7	39.6	46.0	6.4	
Vert	1624.662	PK	57.8	25.4	1.8	33.3	51.7	73.9	22.2	
Vert	4874.000	PK	41.5	31.9	4.7	31.4	46.7	73.9	27.2	
Vert	1624.662	AV	56.7	25.4	1.8	33.3	50.6	53.9	3.3	
Vert	4874.000	AV	33.3	31.9	4.7	31.4	38.5	53.9	15.4	

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 had enough margin (more than 20dB).

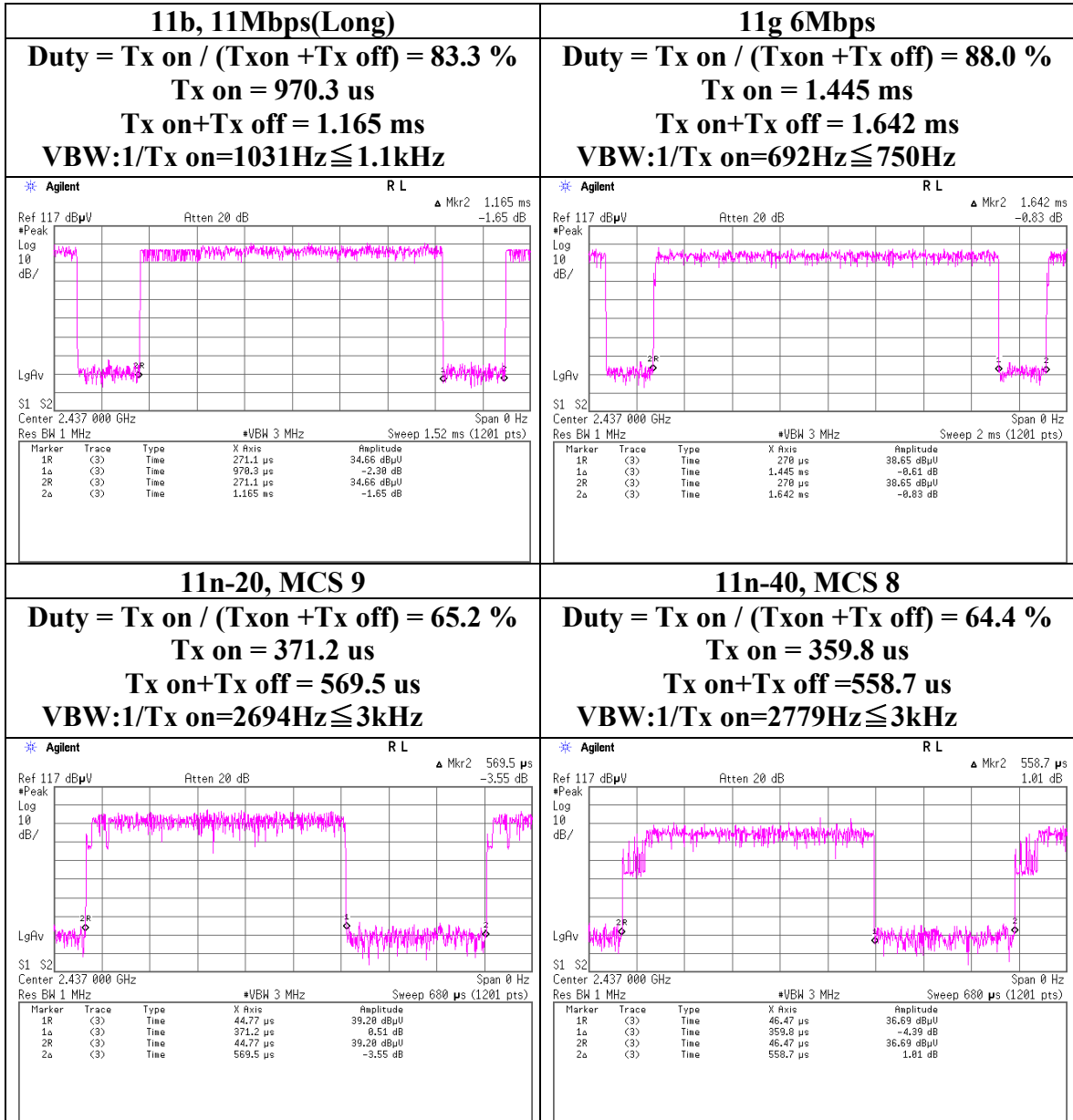
Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB

20dBc Data Sheet

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	2437.000	PK	98.1	27.6	2.2	32.4	95.5	-	-	Carrier
Hori	3249.179	PK	49.7	28.9	2.6	32.0	49.2	75.5	26.3	
Vert	2437.000	PK	99.4	27.6	2.2	32.4	96.8	-	-	Carrier
Vert	3249.179	PK	43.1	28.9	2.6	32.0	42.6	76.8	34.2	

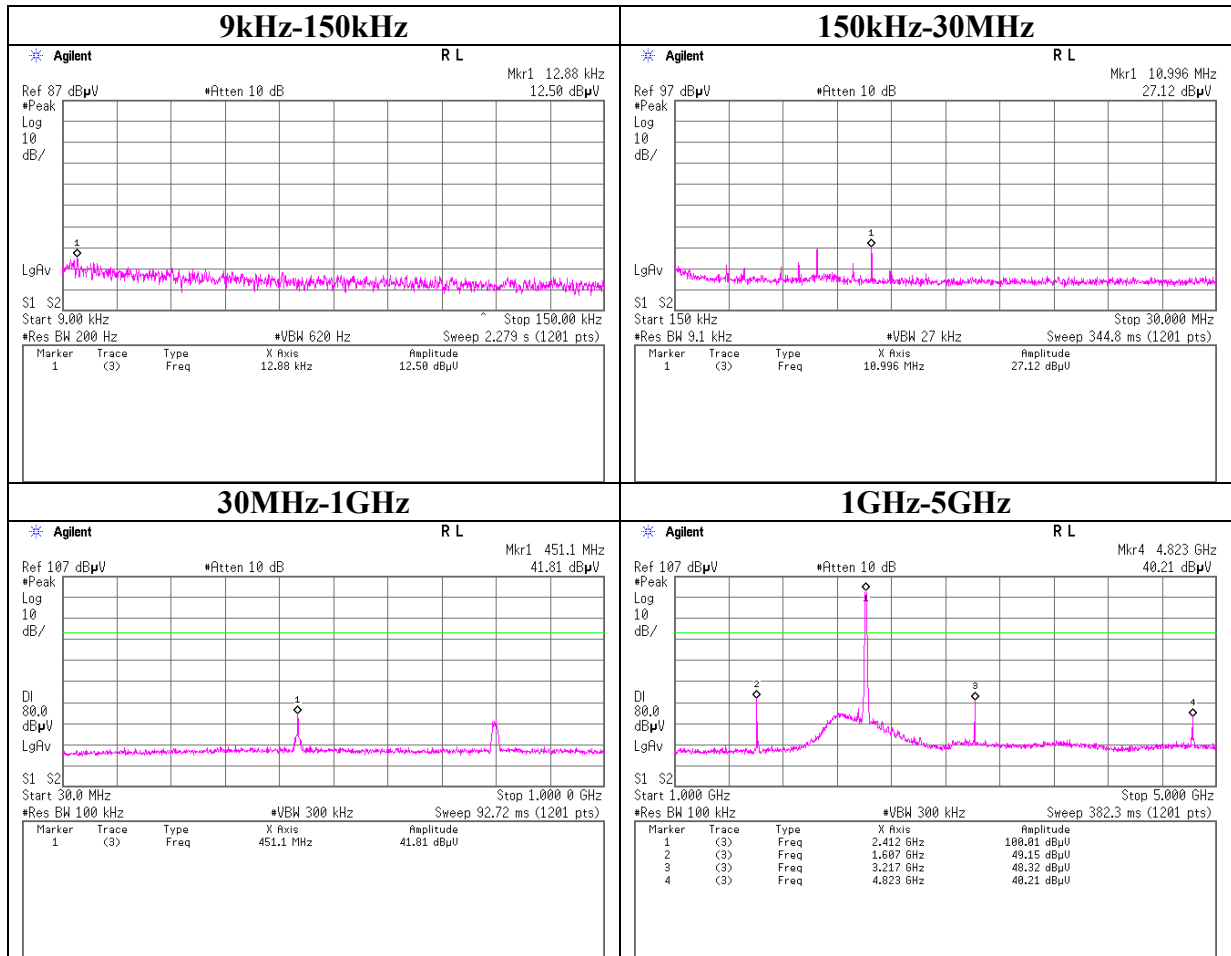
Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

Burst rate confirmation



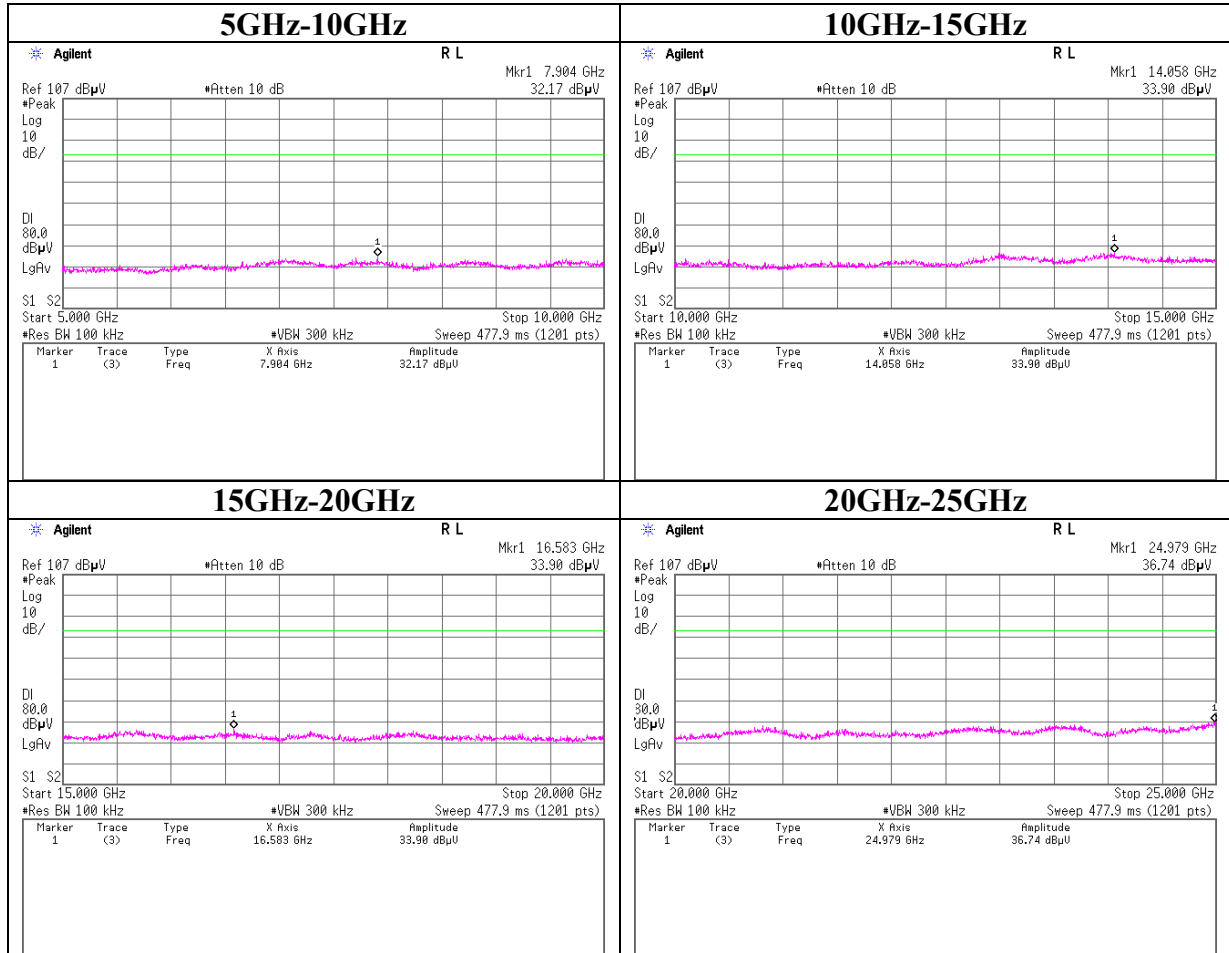
Conducted Spurious Emission

11b Ant0 Tx 2412MHz



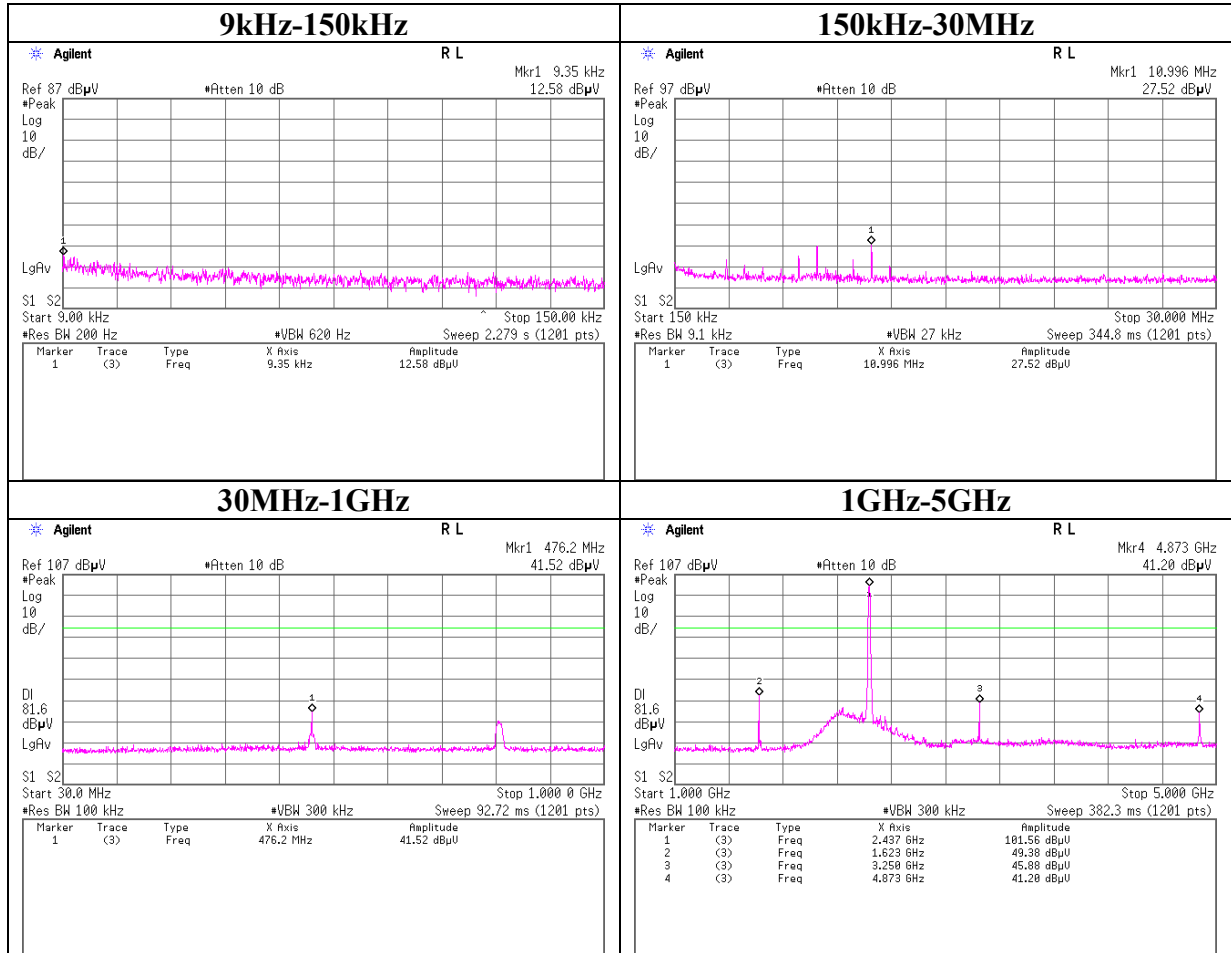
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11b Ant0 Tx 2412MHz



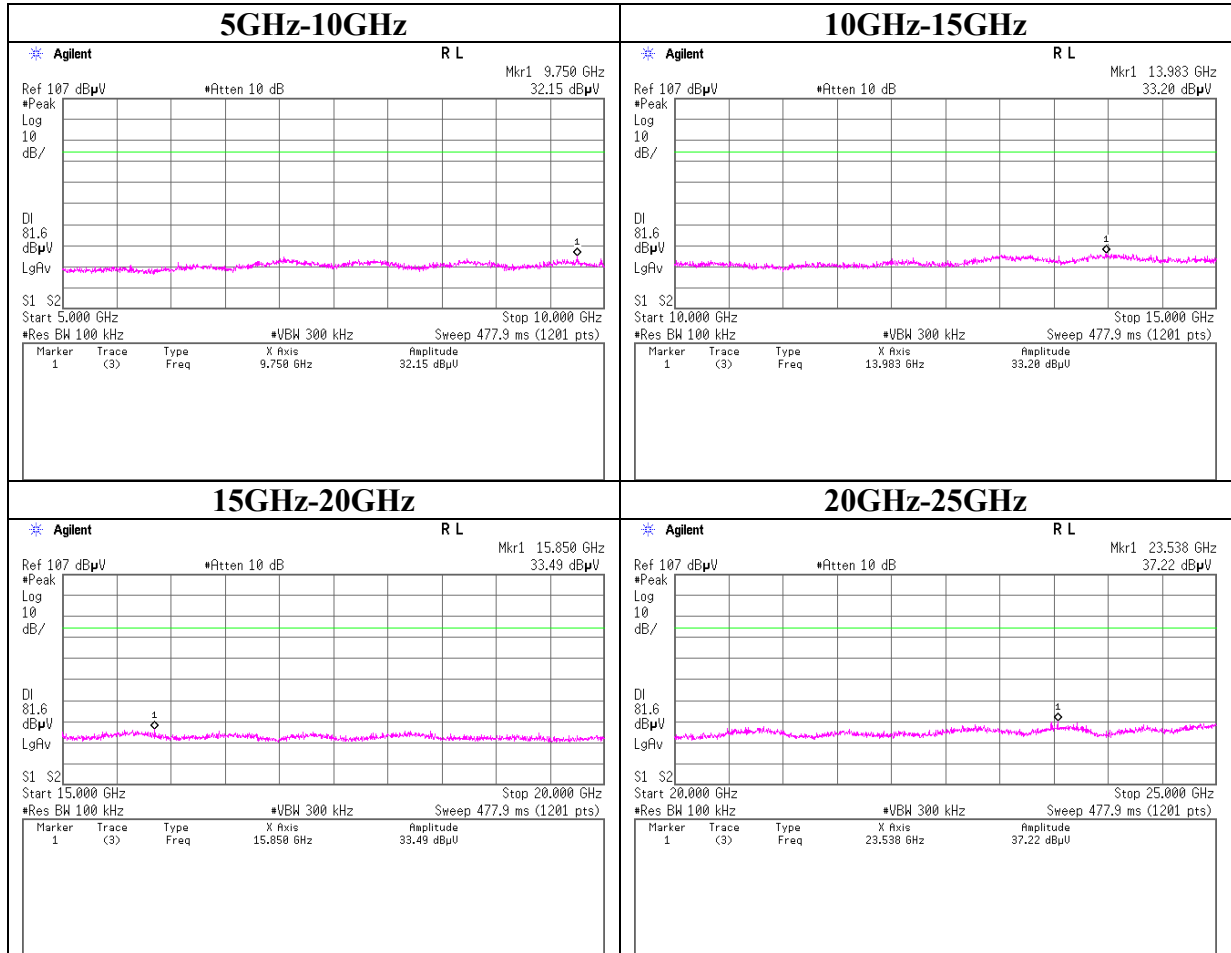
Conducted Spurious Emission

11b Ant0 Tx 2437MHz



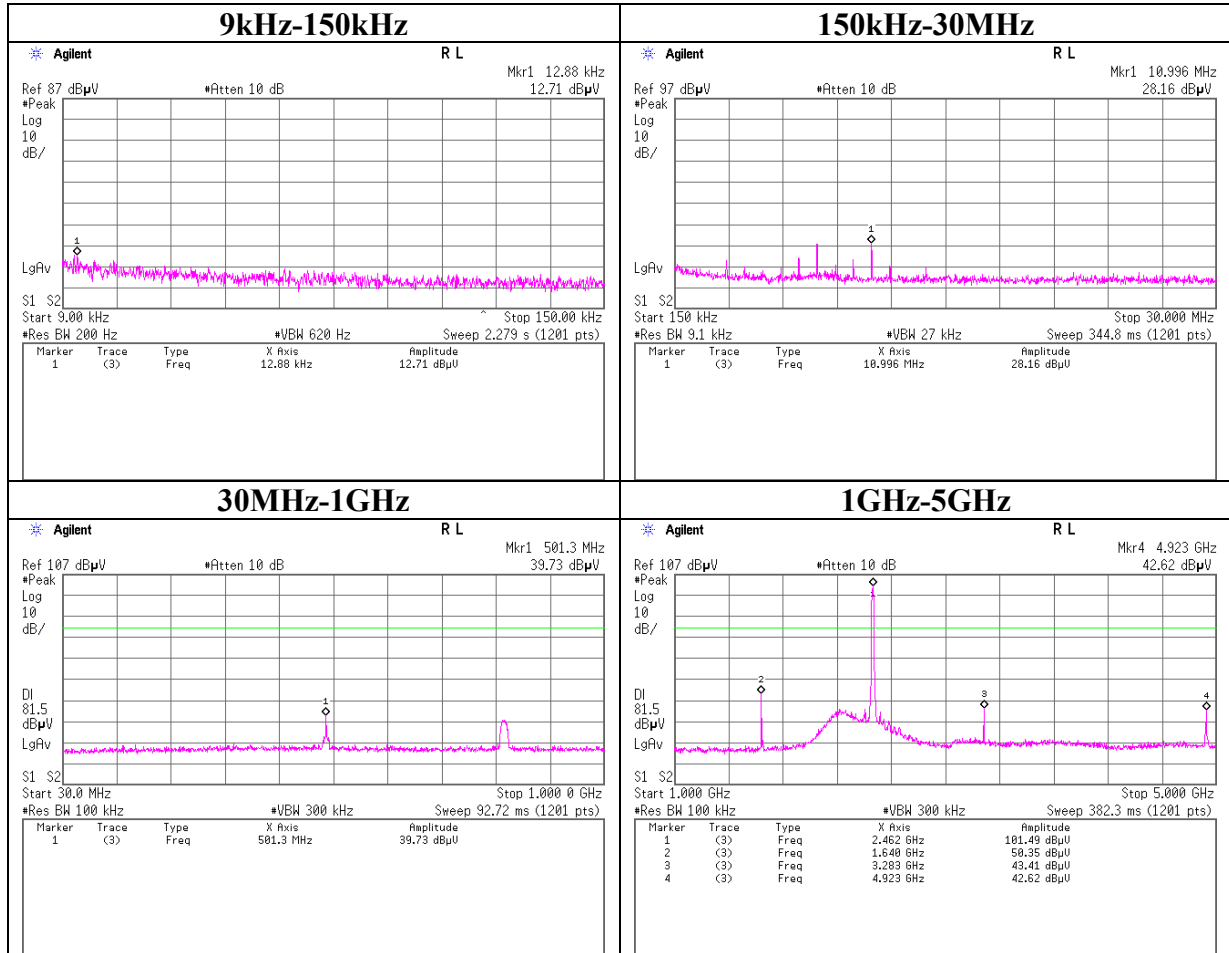
Conducted Spurious Emission

11b Ant0 Tx 2437MHz



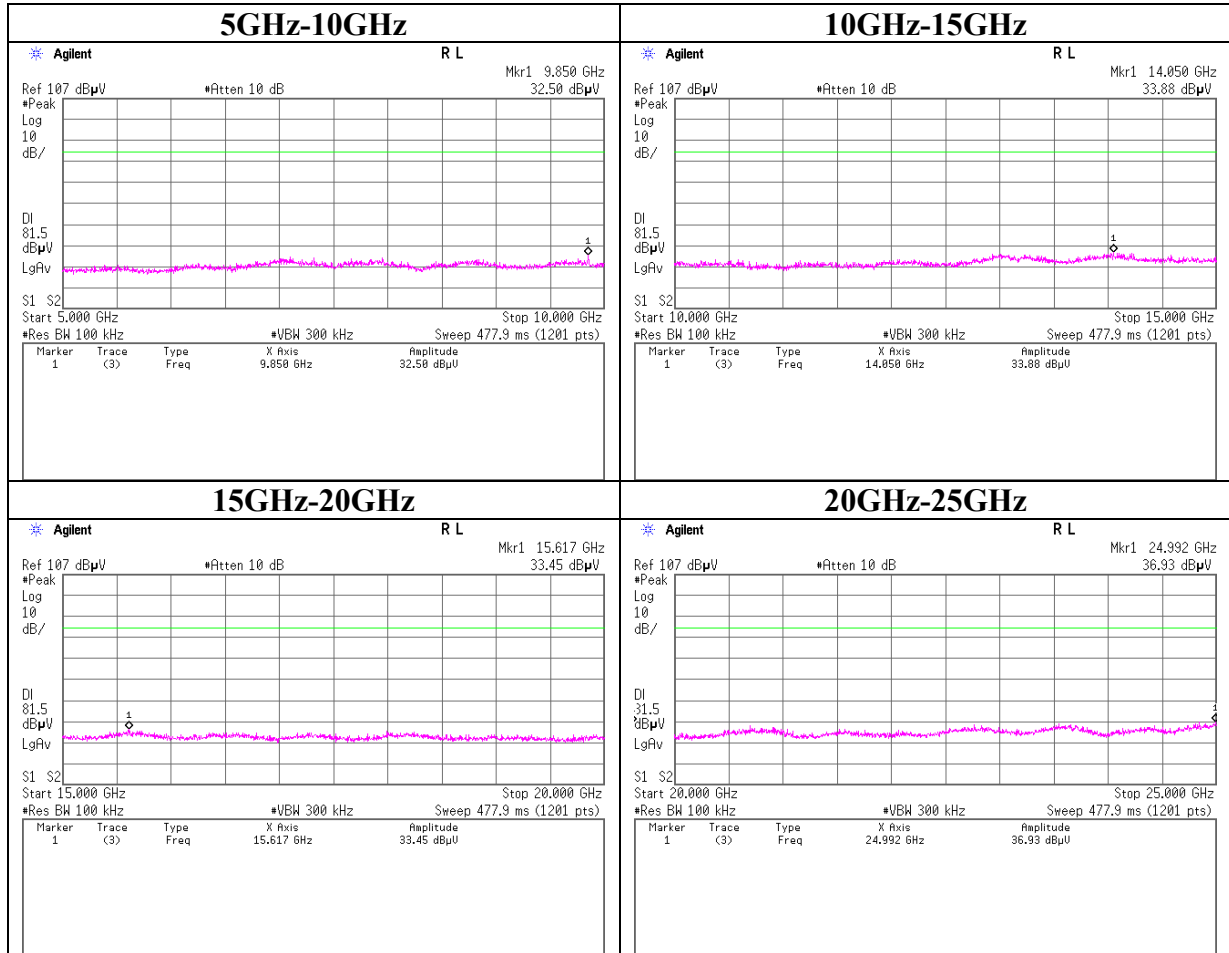
Conducted Spurious Emission

11b Ant0 Tx 2462MHz



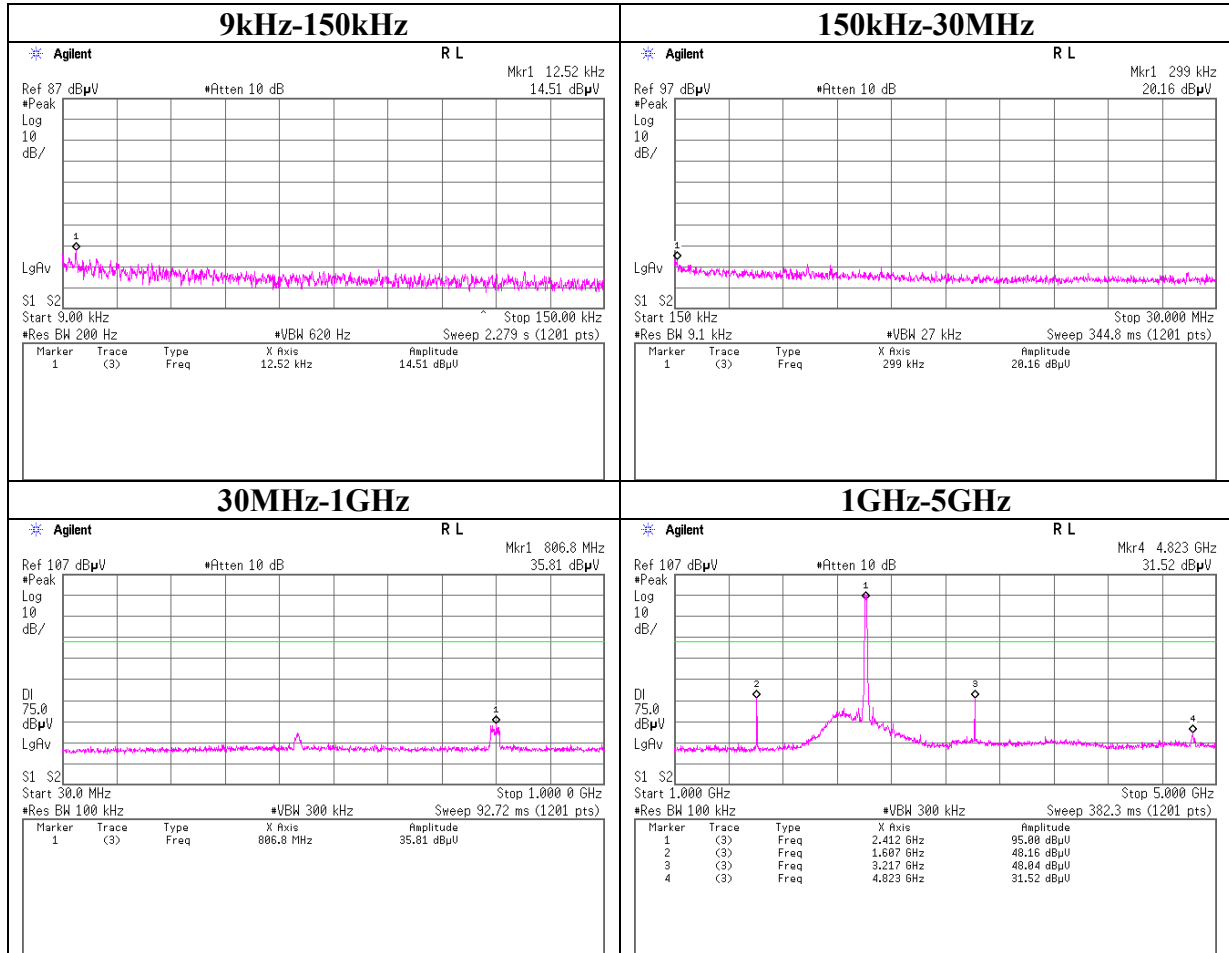
Conducted Spurious Emission

11b Ant0 Tx 2462MHz



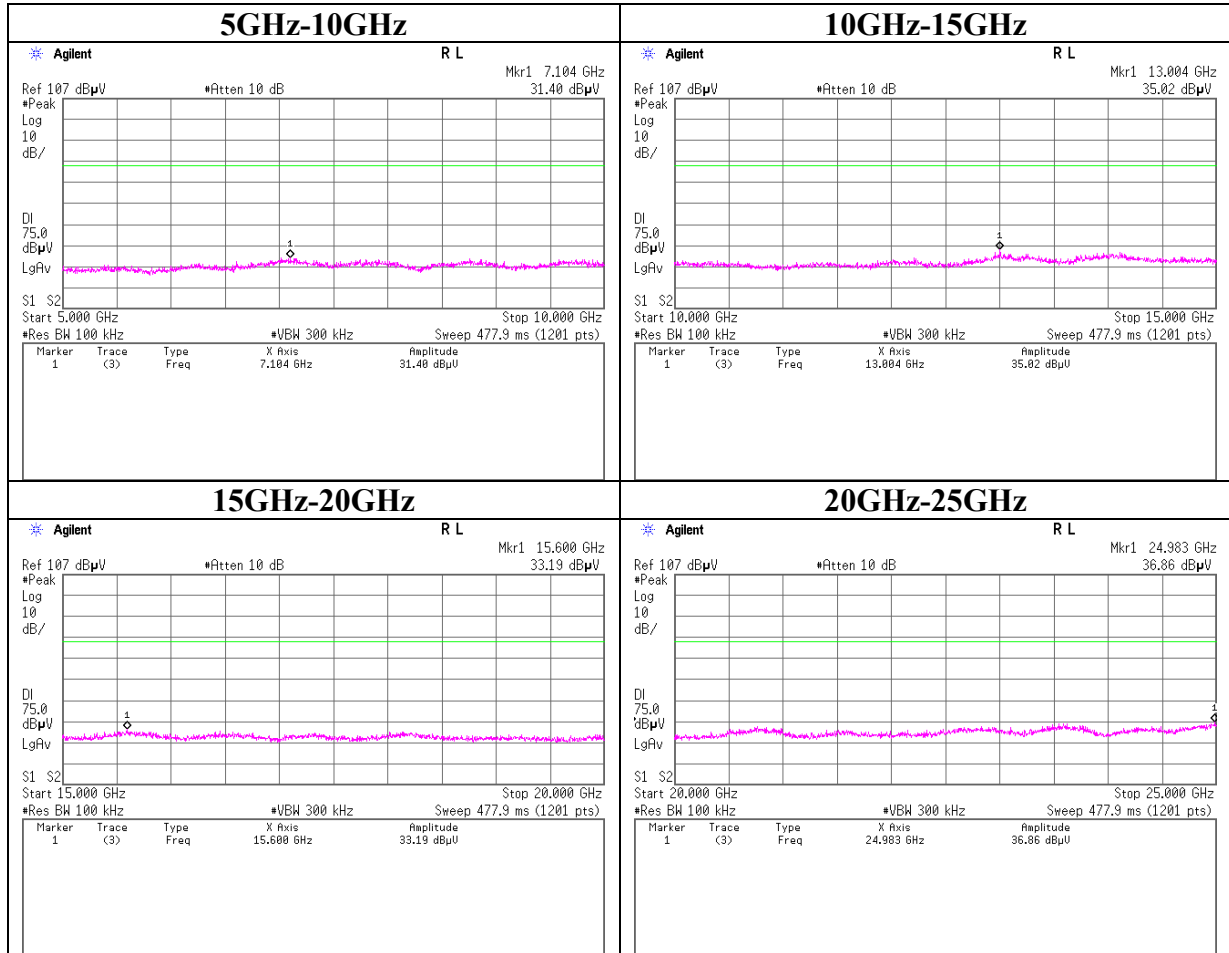
Conducted Spurious Emission

11n-20 Ant0 Tx 2412MHz



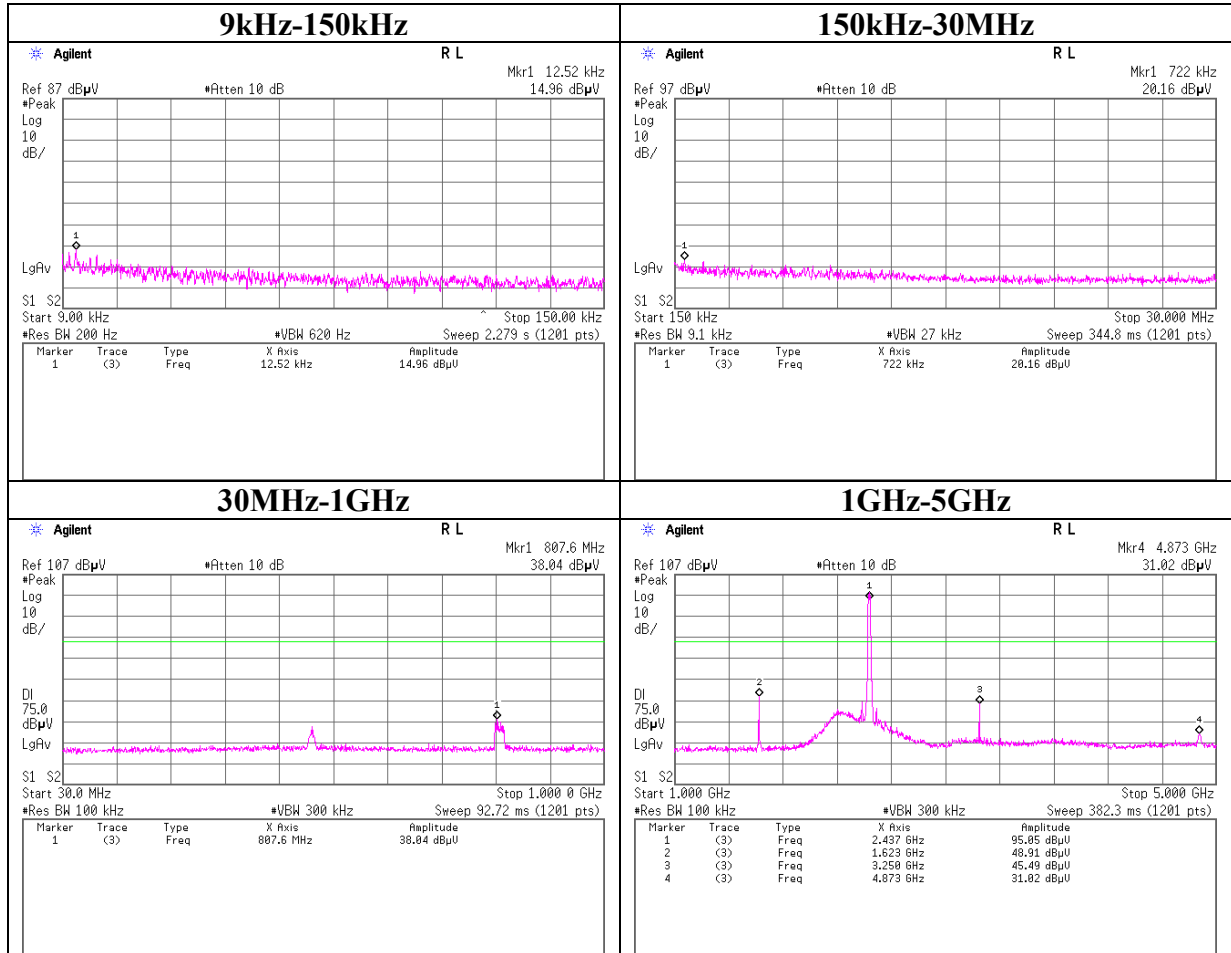
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11n-20 Ant0 Tx 2412MHz



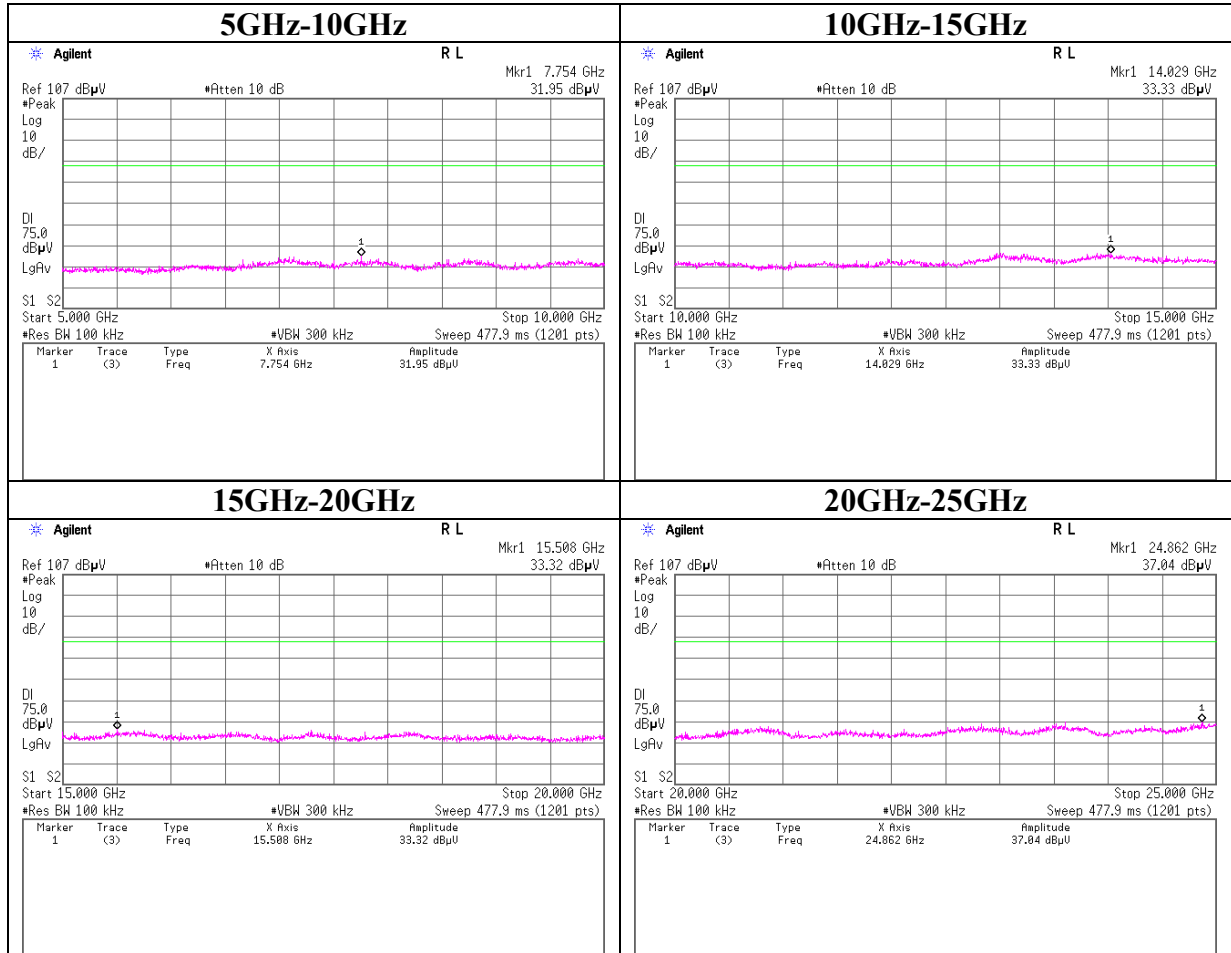
Conducted Spurious Emission

11n-20 Ant0 Tx 2437MHz



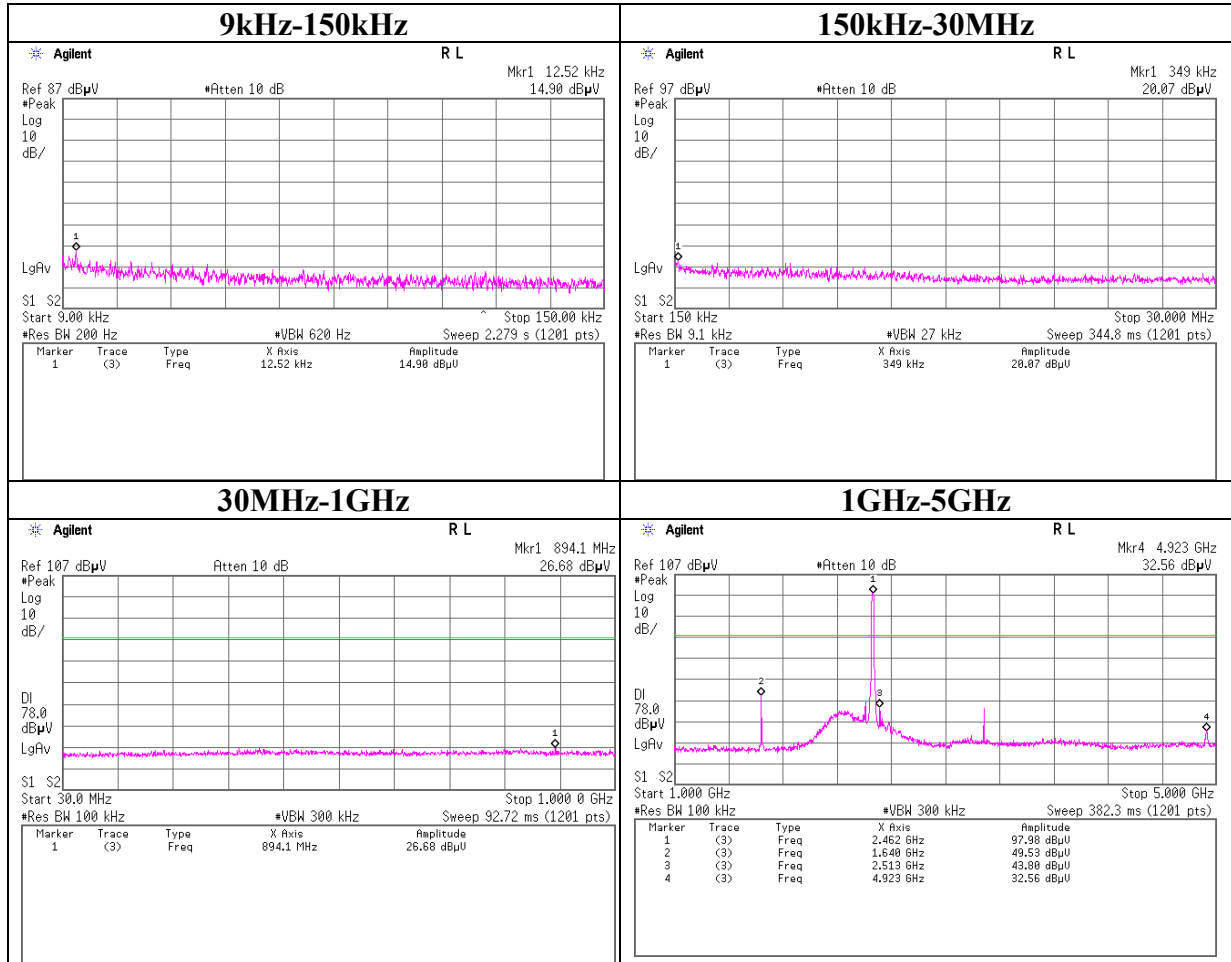
Conducted Spurious Emission

11n-20 Ant0 Tx 2437MHz



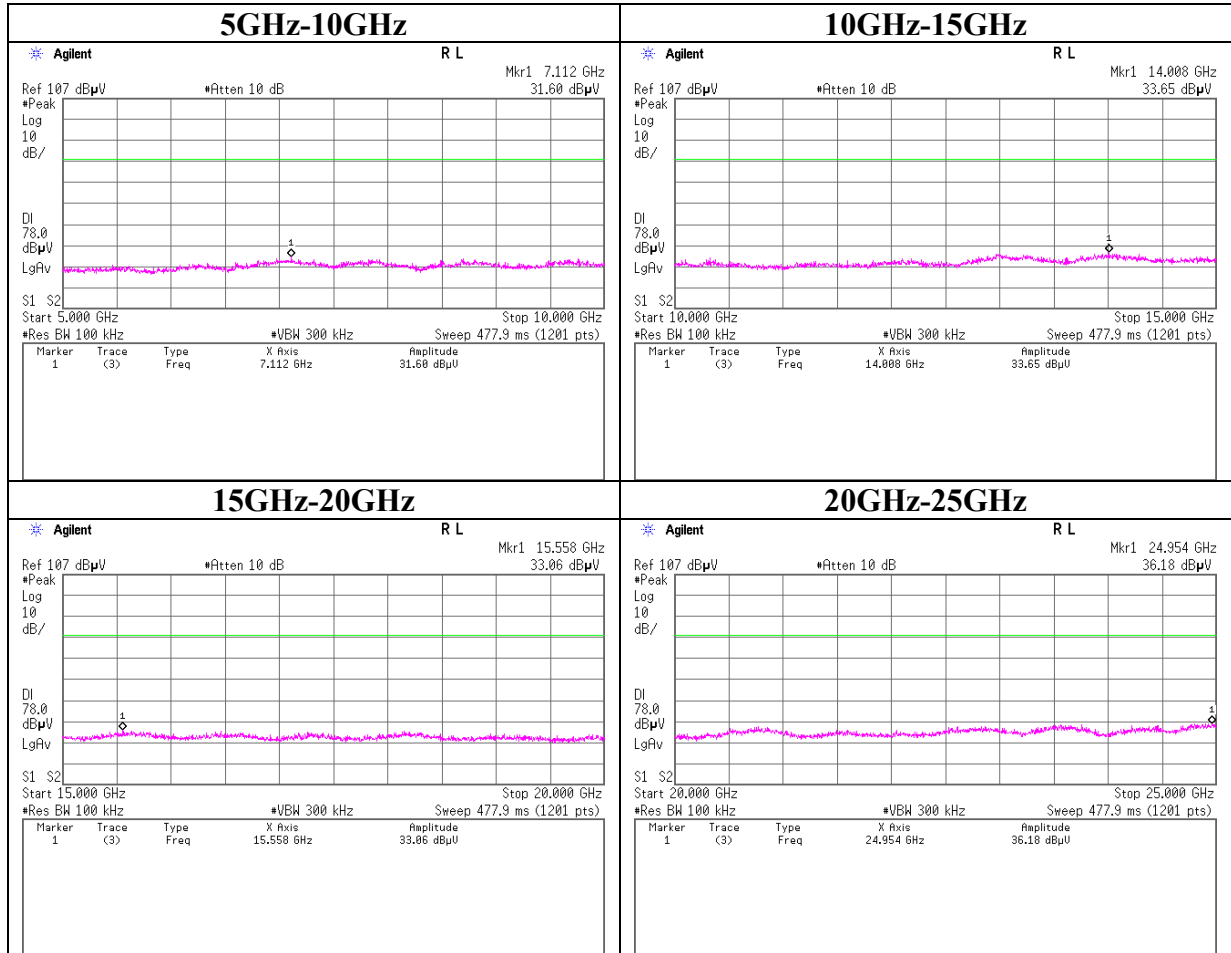
Conducted Spurious Emission

11n-20 Ant0 Tx 2462MHz



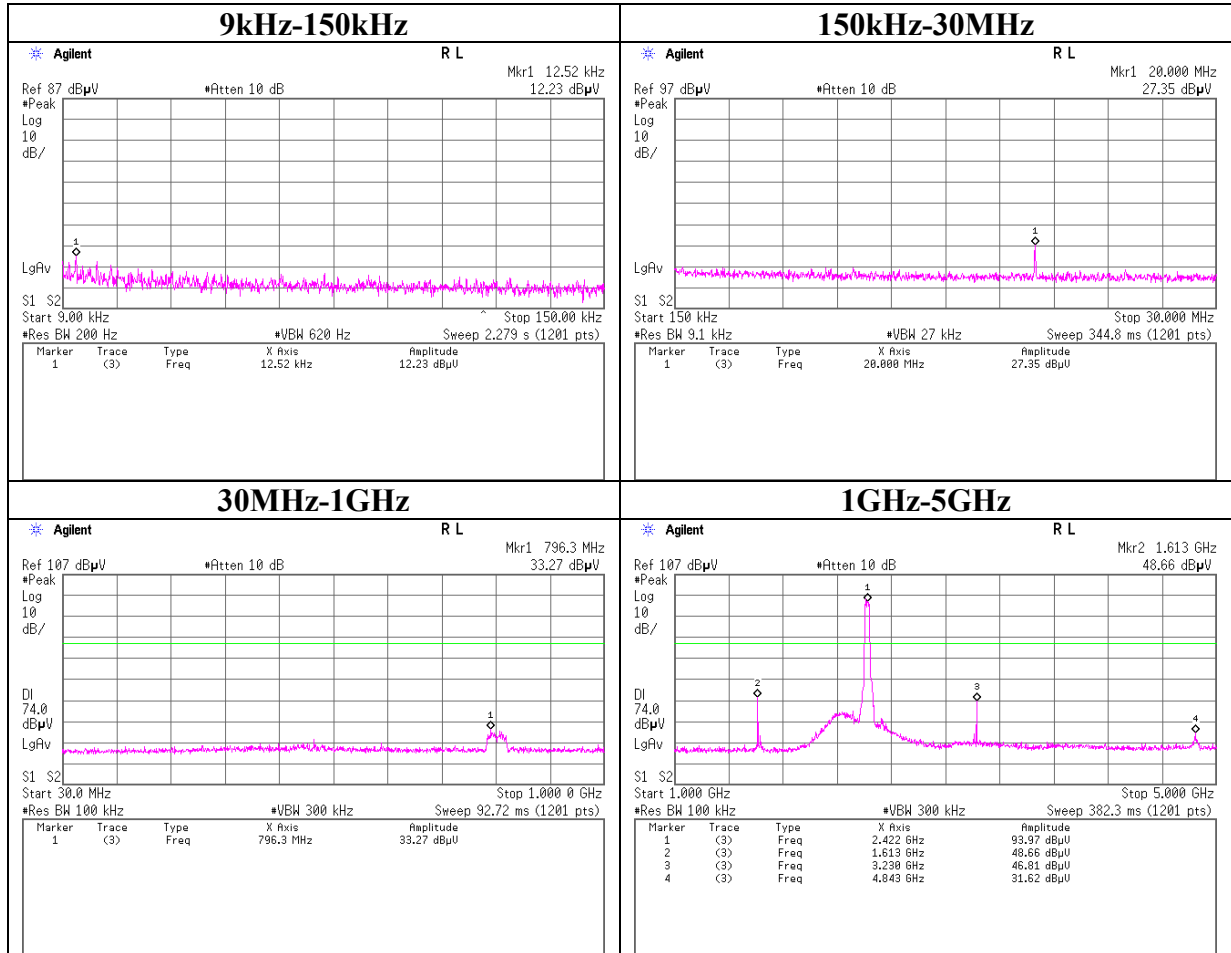
Conducted Spurious Emission

11n-20 Ant0 Tx 2462MHz



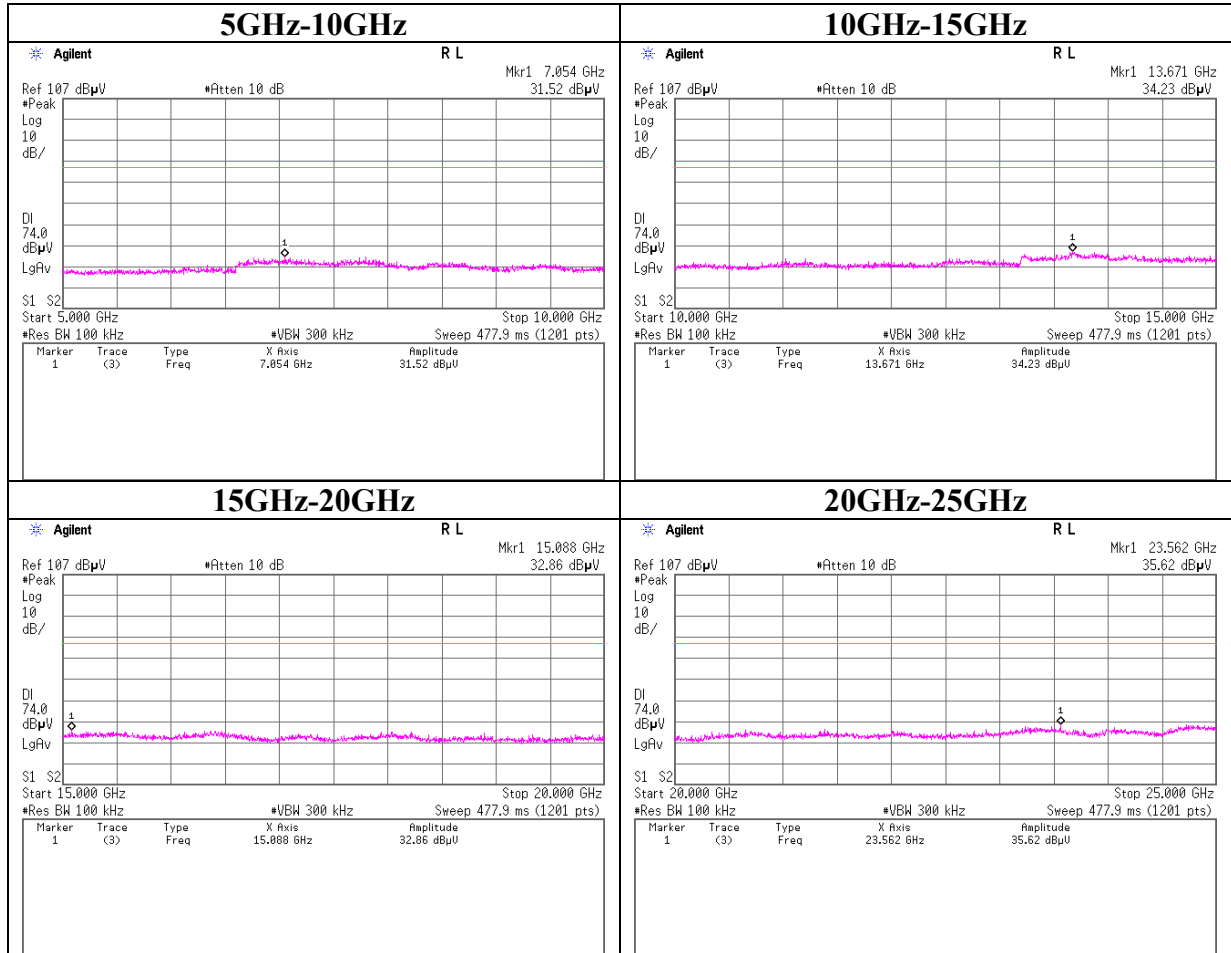
Conducted Spurious Emission

11n-40 Ant0 Tx 2422MHz



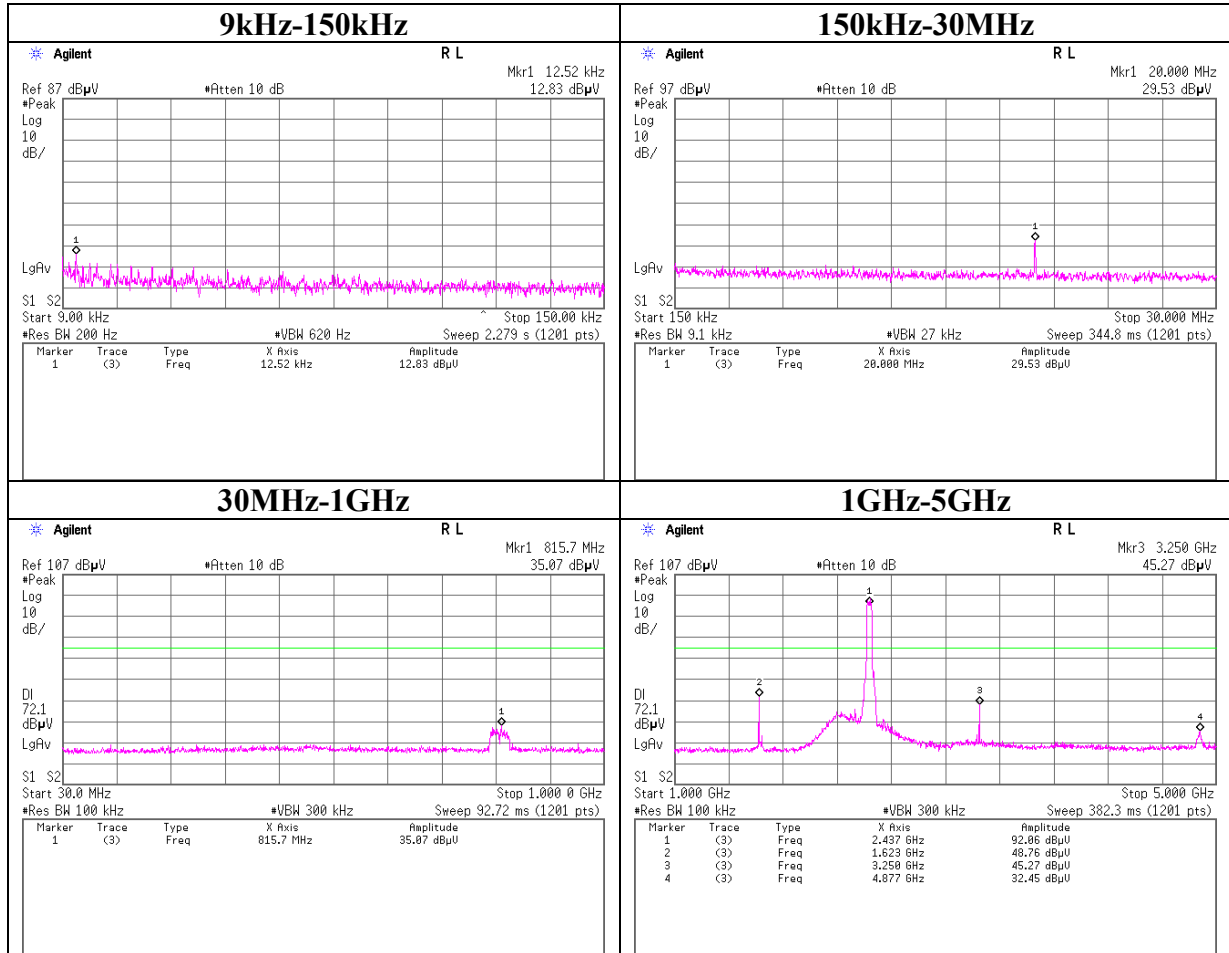
Conducted Spurious Emission

11n-40 Ant0 Tx 2422MHz



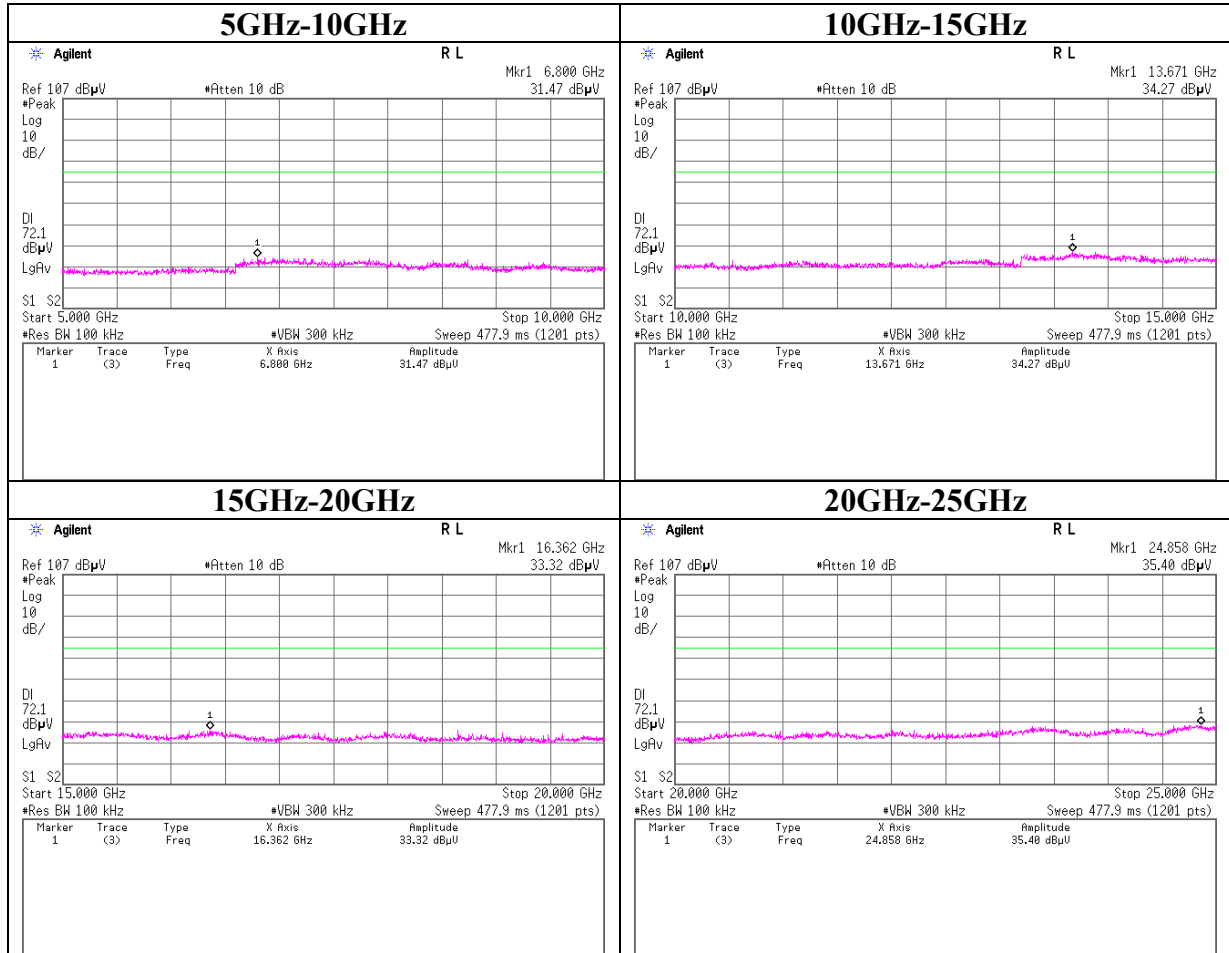
Conducted Spurious Emission

11n-40 Ant0 Tx 2437MHz



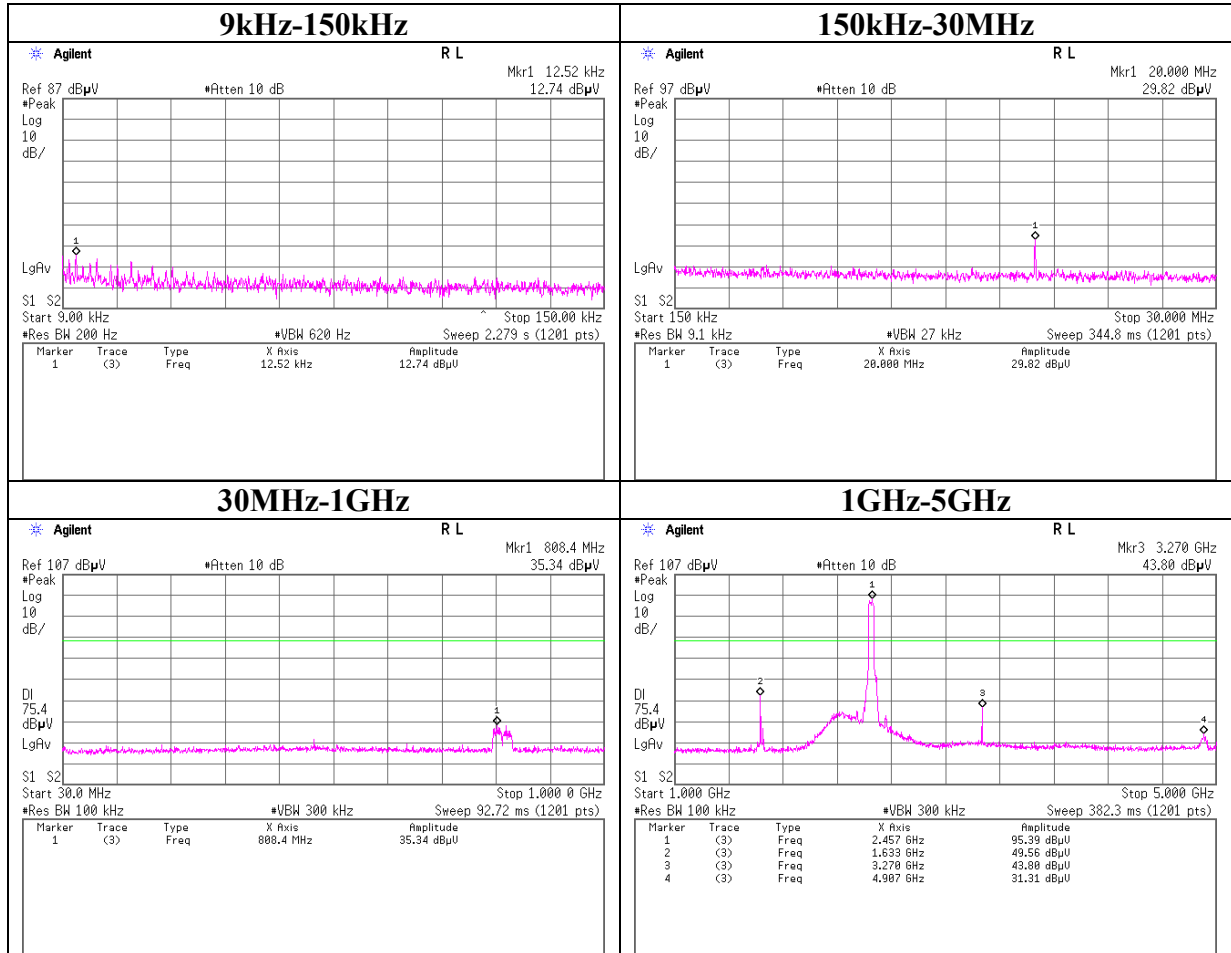
Conducted Spurious Emission

11n-40 Ant0 Tx 2437MHz



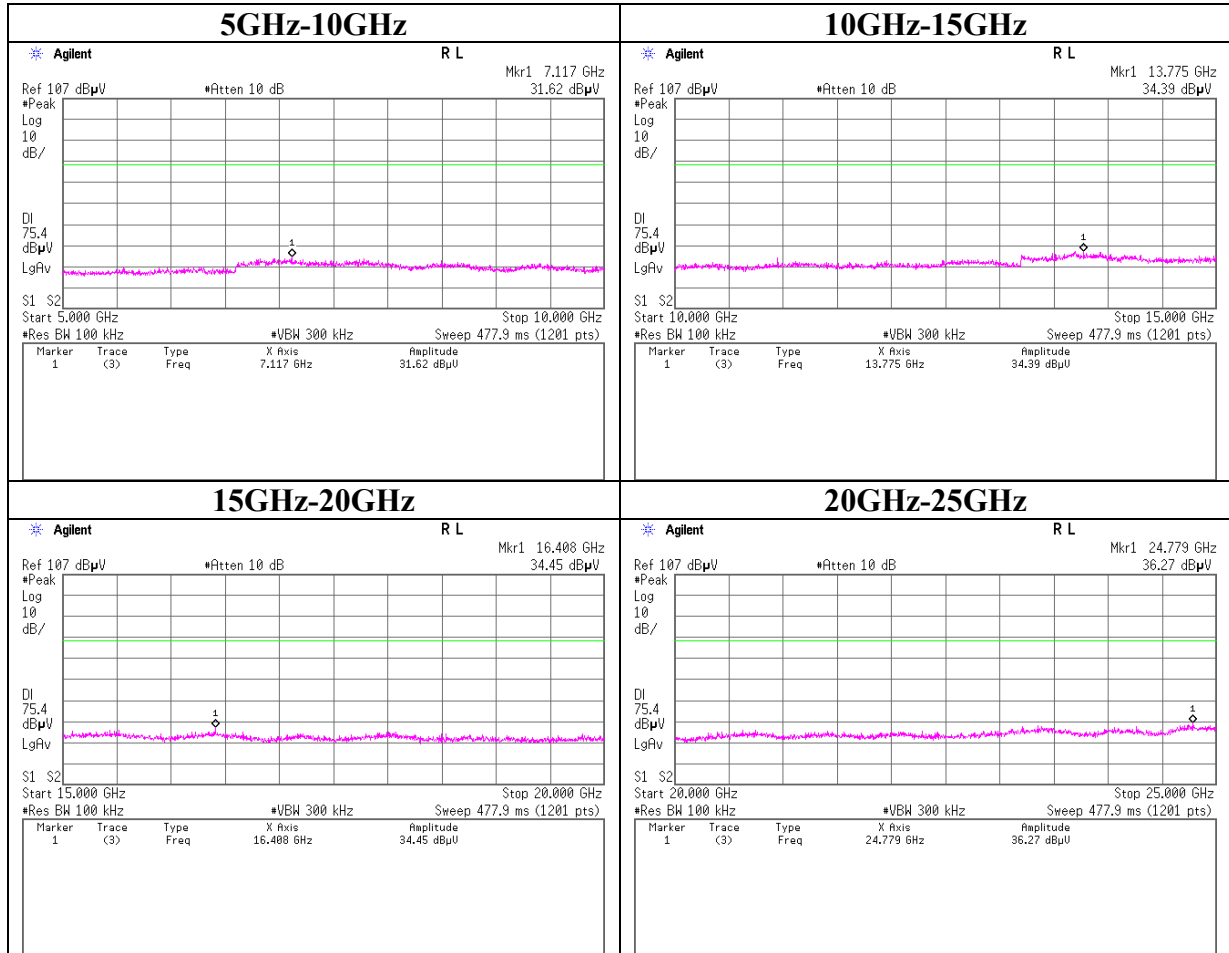
Conducted Spurious Emission

11n-40 Ant0 Tx 2452MHz



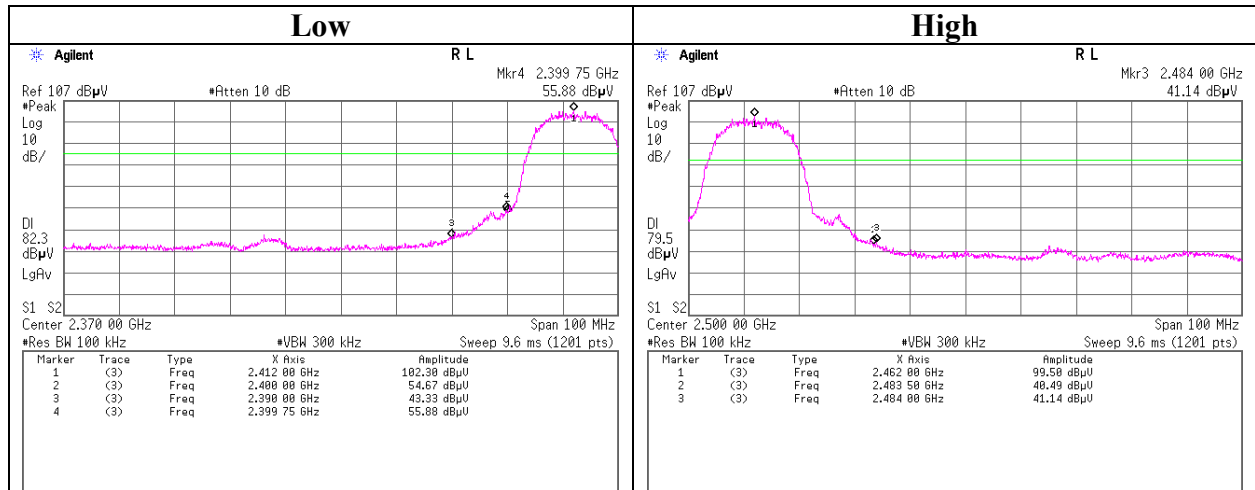
Conducted Spurious Emission

11n-40 Ant0 Tx 2452MHz

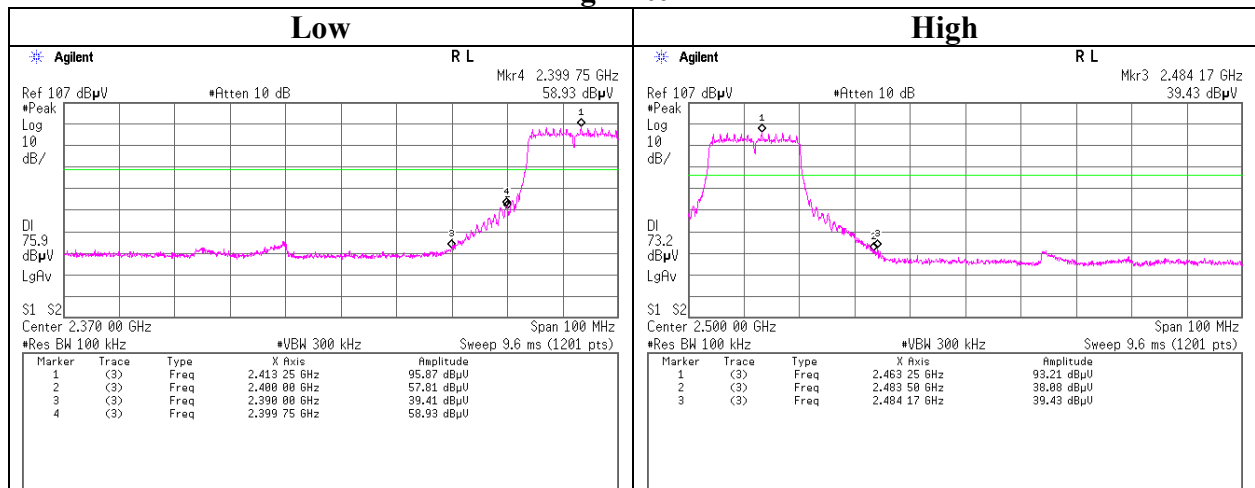


Conducted Emission Band Edge compliance

11b Ant0 Tx

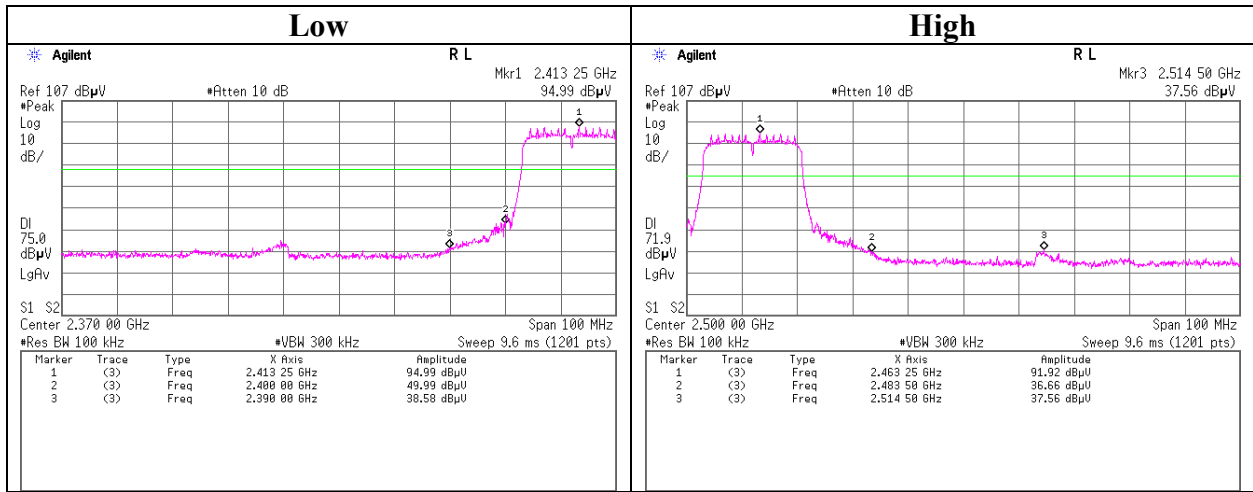


11g Ant0 Tx

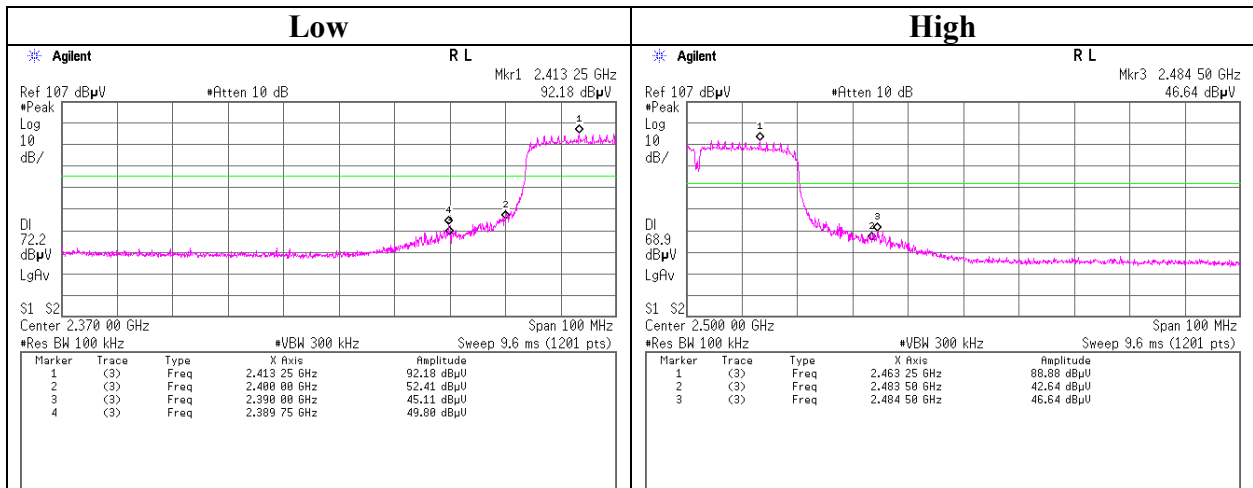


Conducted Emission Band Edge compliance

11n-20 Ant0 Tx



11n-40 Ant0 Tx



Power Density

Test place Head Office EMC Lab. No.6 Measurement Room
Report No. 32LE0279-HO-01
Date 08/28/2012 09/04/2012 09/10/2012
Temperature/ Humidity 23deg. C / 83% RH 25deg. C / 46% RH 25deg. C / 65% RH
Engineer Yutaka Yoshida Yutaka Yoshida Yutaka Yoshida
Mode 11b Tx, 11Mbps(Long) / 11g Tx, 6Mbps

11b Antenna 0

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Limit Directional Gain < 6dBi [dBm]	Margin [dB]
2412.00	-6.14	1.99	10.00	5.85	8.00	2.15
2437.00	-4.22	2.00	10.00	7.78	8.00	0.22
2462.00	-9.36	2.02	10.00	2.66	8.00	5.34

11g Antenna 0

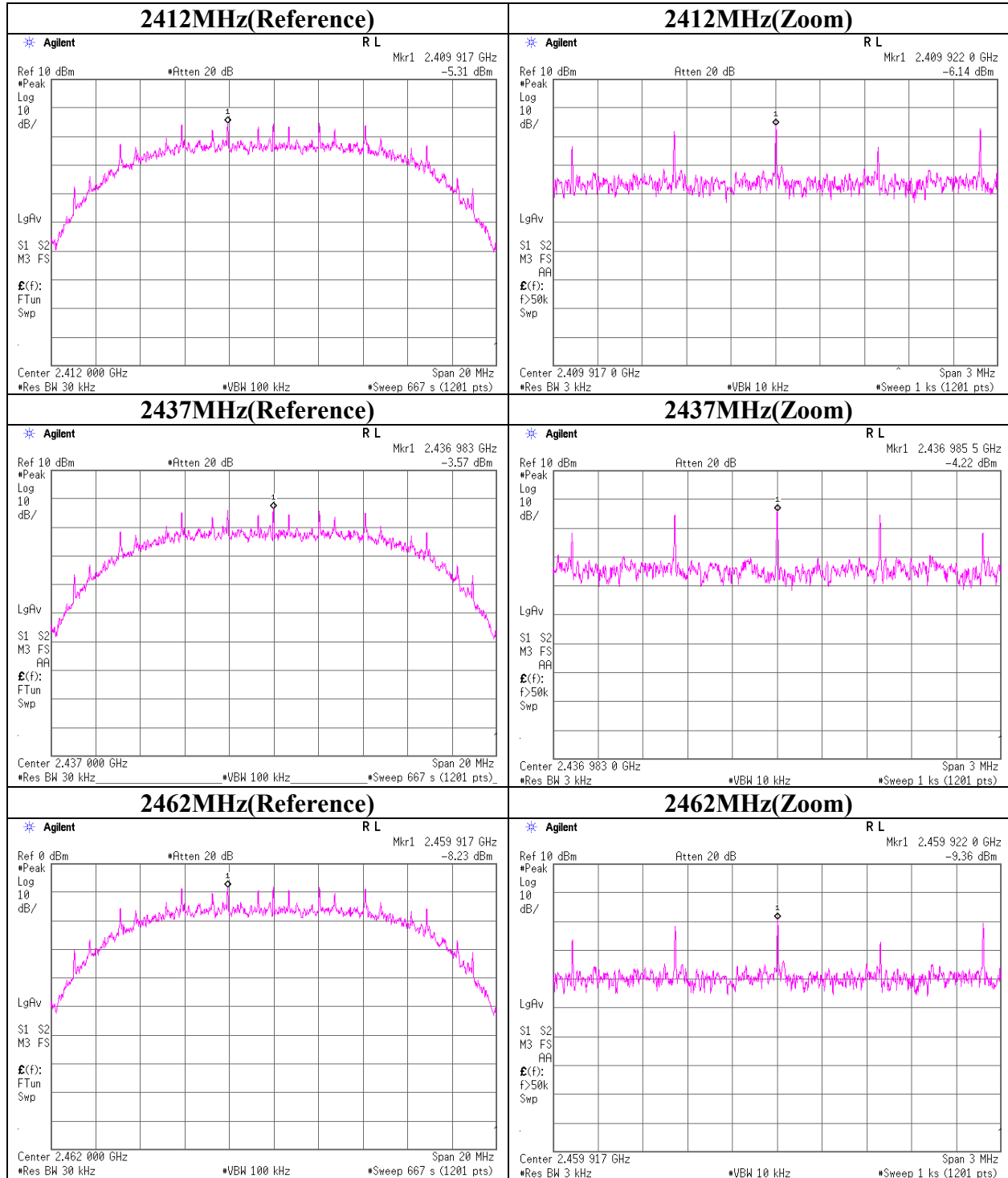
Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Limit Directional Gain < 6dBi [dBm]	Margin [dB]
2412.00	-14.85	2.09	9.95	-2.81	8.00	10.81
2437.00	-13.17	2.10	9.95	-1.12	8.00	9.12
2462.00	-17.91	2.11	9.95	-5.85	8.00	13.85

Sample Calculation:

Result = Reading + Cable Loss + Attenuator

Power Density

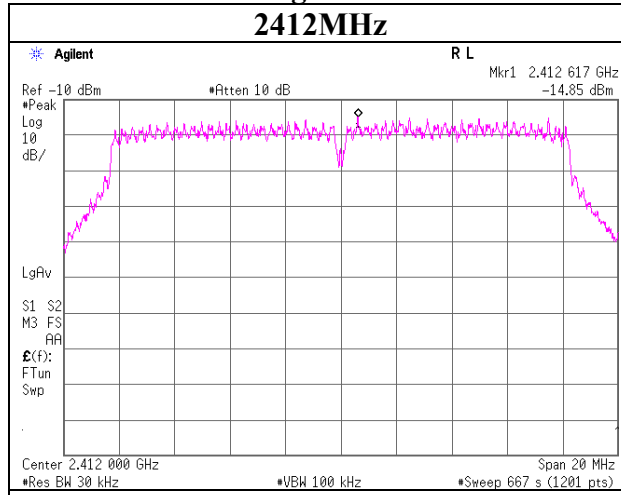
11b Ant0



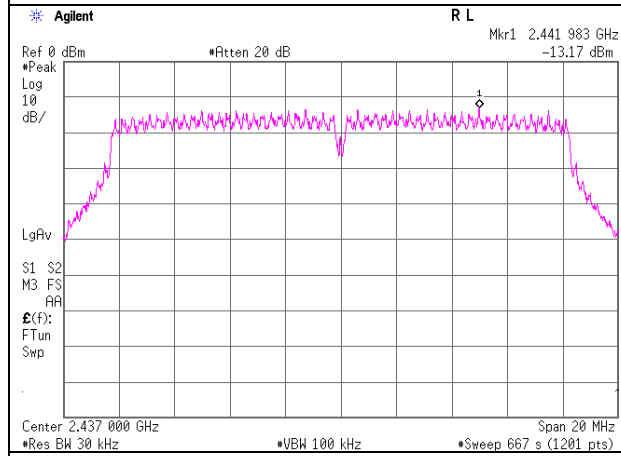
Power Density

11g Ant0

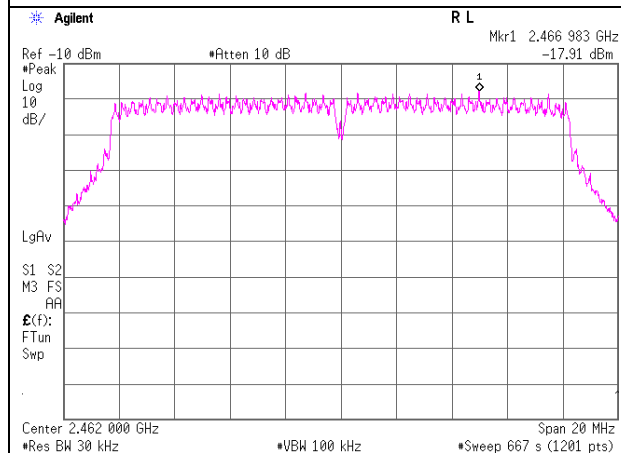
2412MHz



2437MHz



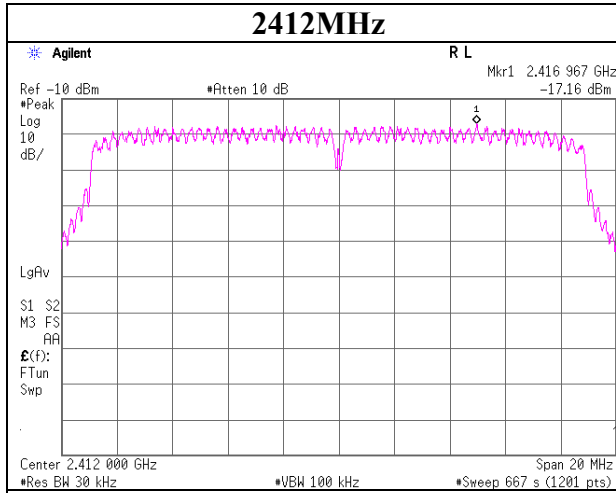
2462MHz



Power Density

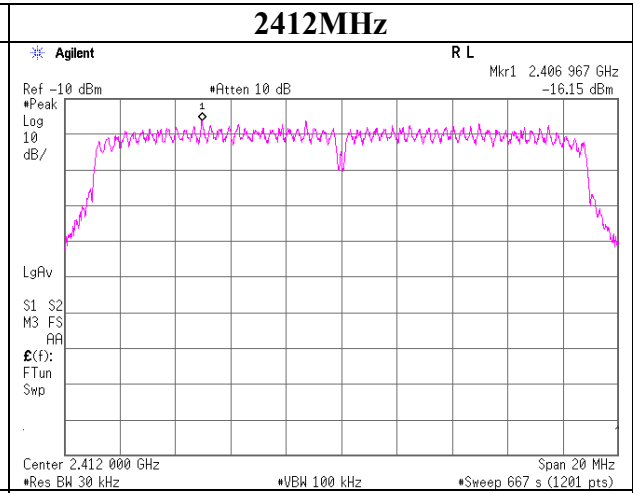
11n-20 Antenna 0

2412MHz

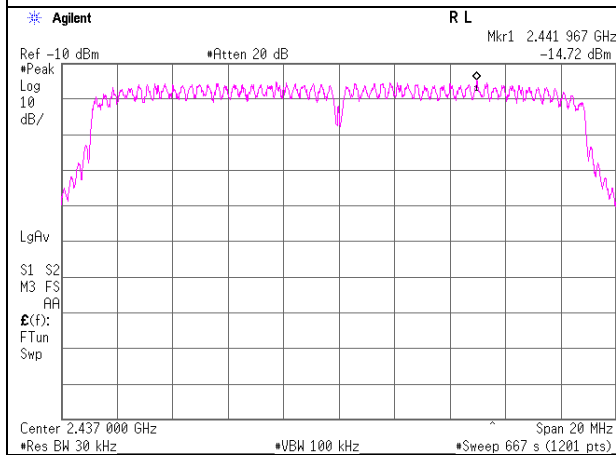


11n-20 Antenna 1

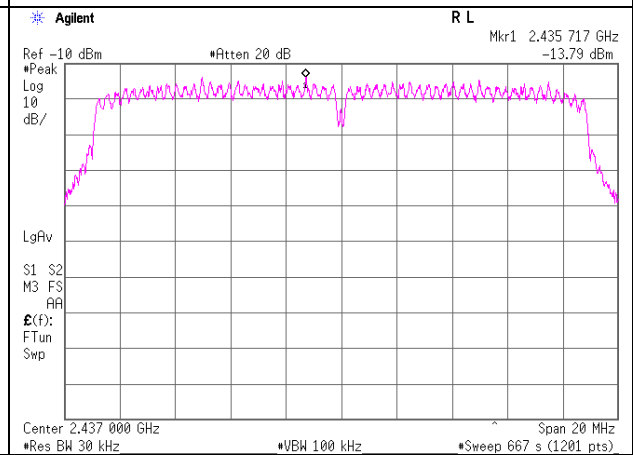
2412MHz



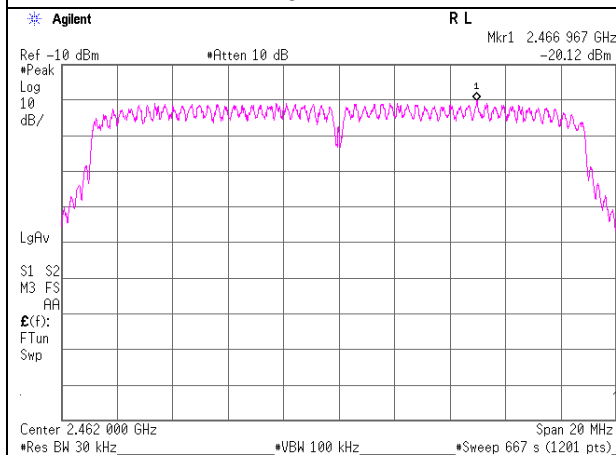
2437MHz



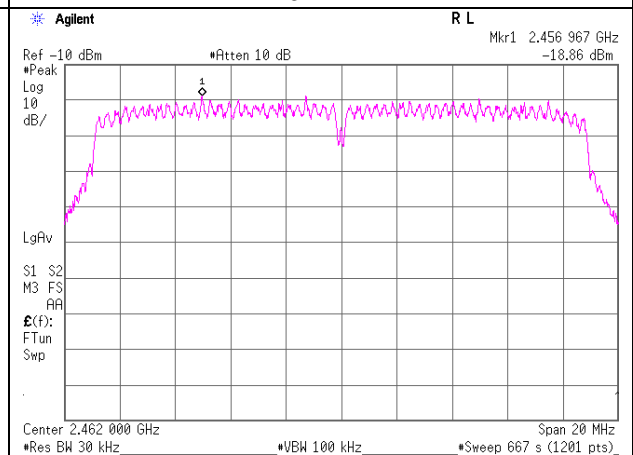
2437MHz



2462MHz



2462MHz



Power Density

Test place Head Office EMC Lab. No.11 Measurement Room
Report No. 32LE0279-HO-01
Date 08/29/2012
Temperature/ Humidity 24deg. C/ 66% RH
Engineer Yutaka Yoshida
Mode 11n-40 Tx

Antenna 0 + 1

Freq. [MHz]	Antenna 0 Result [mW]	Antenna 1 Result [mW]	Result		Limit Directional Gain < 6dBi [dBm]	Margin [dB]
			[dBm]	[mW]		
2422.00	0.15	0.22	-4.34	0.37	8.00	12.34
2437.00	0.24	0.39	-1.95	0.64	8.00	9.95
2452.00	0.08	0.11	-7.20	0.19	8.00	15.20

Sample Calculation:

Result = Antenna 0 + 1

Antenna 0

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result		Limit Directional Gain < 6dBi [dBm]	Margin [dB]
				[dBm]	[mW]		
2412.00	-20.30	2.09	9.95	-8.26	0.15	8.00	16.26
2437.00	-18.17	2.10	9.95	-6.12	0.24	8.00	14.12
2452.00	-23.24	2.11	9.95	-11.18	0.08	8.00	19.18

Antenna 1

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result		Limit Directional Gain < 6dBi [dBm]	Margin [dB]
				[dBm]	[mW]		
2412.00	-18.64	2.09	9.95	-6.60	0.22	8.00	14.60
2437.00	-16.09	2.10	9.95	-4.04	0.39	8.00	12.04
2452.00	-21.48	2.11	9.95	-9.42	0.11	8.00	17.42

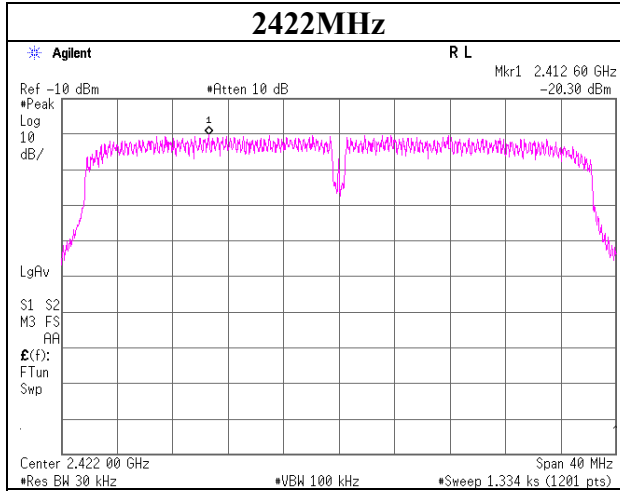
Sample Calculation:

Result = Reading + Cable Loss + Attenuator

Power Density

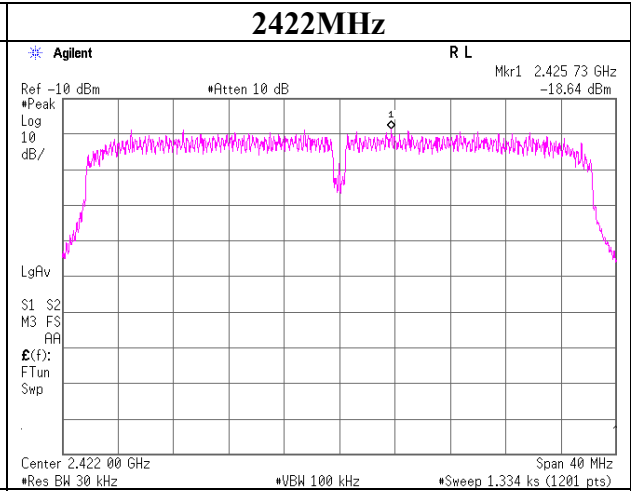
11n-40 Antenna 0

2422MHz

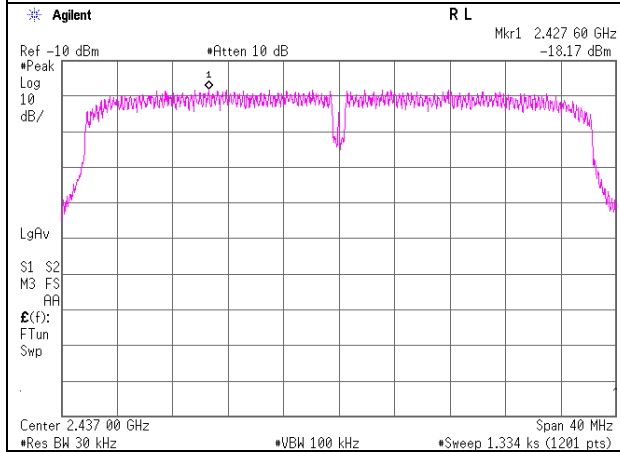


11n-40 Antenna 1

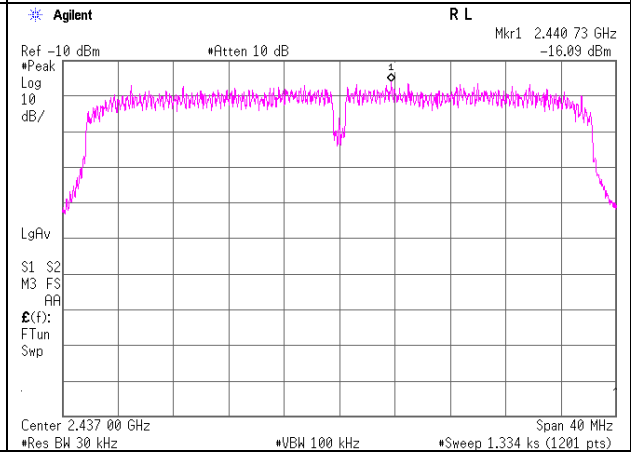
2422MHz



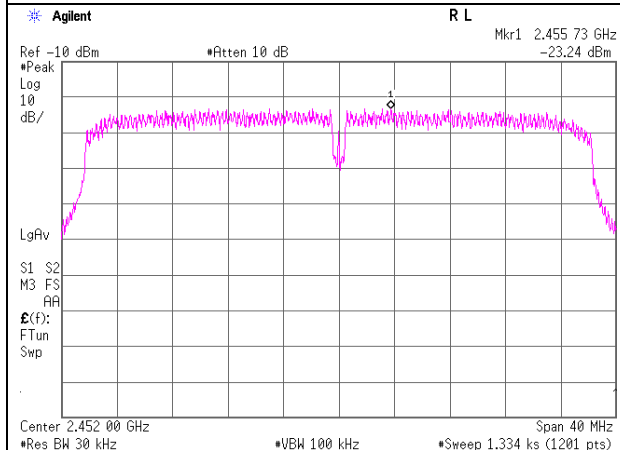
2437MHz



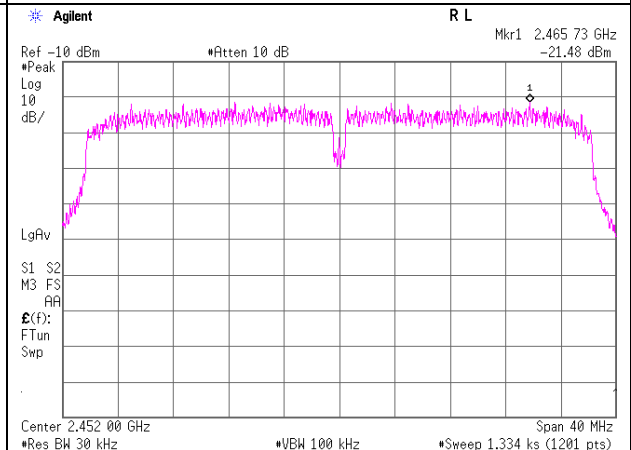
2437MHz



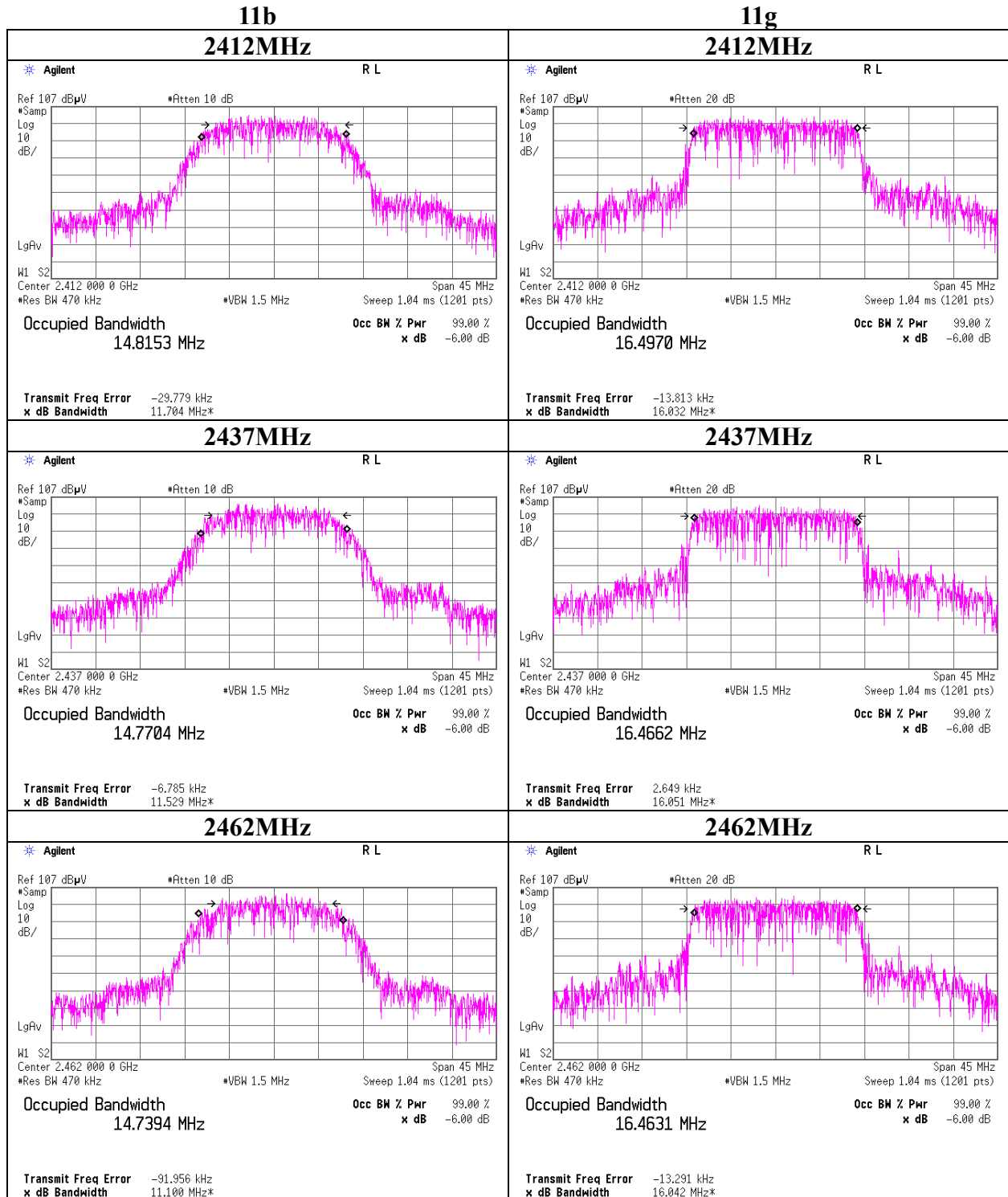
2452MHz



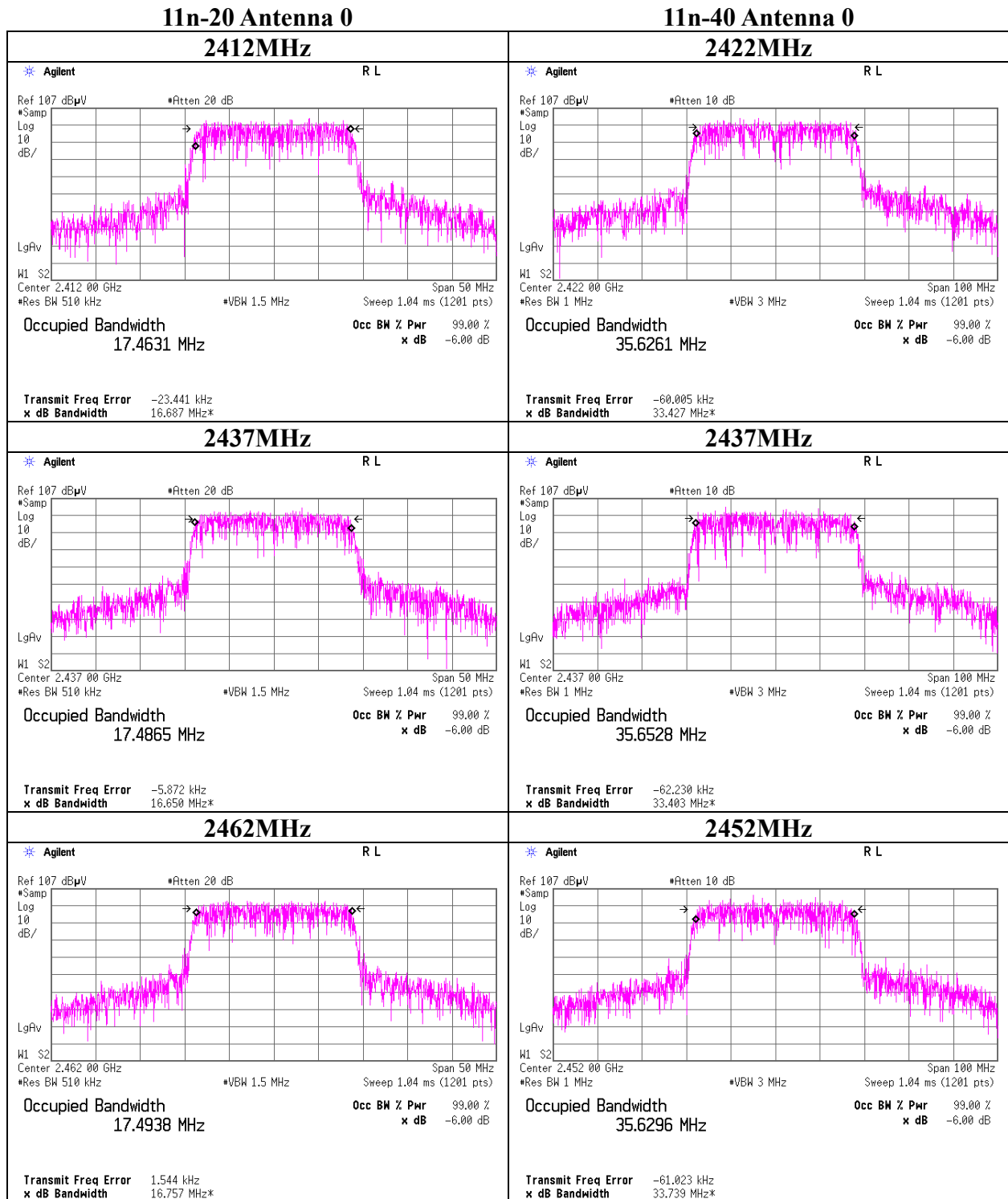
2452MHz



99% Occupied Bandwidth



99% Occupied Bandwidth



APPENDIX 2: Test instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MOS-19	Thermo-Hygrometer	Custom	CTH-201	0001	AT	2011/12/09 * 12
MOS-14	Thermo-Hygrometer	Custom	CTH-201	-	AT	2012/02/06 * 12
MPM-09	Power Meter	Anritsu	ML2495A	6K00003348	AT	2011/09/12 * 12
MPSE-12	Power sensor	Anritsu	MA2411B	011598	AT	2011/09/12 * 12
MPM-08	Power Meter	Anritsu	ML2495A	6K00003338	AT	2011/09/13 * 12
MPSE-11	Power sensor	Anritsu	MA2411B	011737	AT	2011/09/13 * 12
MSA-04	Spectrum Analyzer	Agilent	E4448A	US44300523	AT/RE	2012/04/06 * 12
MCC-67	Microwave Cable 1G-40GHz	Suhner	SUCOFLEX102	28635/2	AT	2012/04/25 * 12
MCC-102	Microwave Cable	Hirose Electric	U.FL-2LP-066J1-A(200)	-	AT	2012/06/27 * 12
MCC-103	Microwave Cable	Hirose Electric	U.FL-2LP-066J1-A(200)	-	AT	2012/06/27 * 12
MTA-09	Terminator	HP	HP 909D	03745	AT	2012/08/09 * 12
MCC-66	Microwave Cable 1G-40GHz	Suhner	SUCOFLEX102	28636/2	AT	2012/04/25 * 12
MCC-105	Microwave Cable	Hirose Electric	U.FL-2LP-066J1-A(200)	-	AT	2012/06/28 * 12
MAT-20	Attenuator(10dB)(above 1GHz)	HIROSE ELECTRIC CO.,LTD.	AT-110	-	AT	2012/01/12 * 12
MCC-138	Microwave cable	HUBER+SUHNER	SUCOFLEX 102	37953/2	AT	2011/10/28 * 12
MAT-24	Attenuator(10dB)(above 1GHz)	Agilent	8493C	71389	AT	2012/06/27 * 12
MCC-99	Microwave Cable 1G-40GHz	Schner	SUCOFLEX102	30820/2	AT	2012/05/09 * 12
MAT-22	Attenuator(10dB) 1-18GHz	Orient Microwave	BX10-0476-00	-	AT	2012/03/27 * 12
MCC-102	Microwave Cable	Hirose Electric	U.FL-2LP-066J1-A(200)	-	AT	2012/06/27 * 12
MRENT-95	Spectrum Analyzer	Agilent	E4440A	MY46185823	AT	2012/06/19 * 12
MCC-66	Microwave Cable 1G-40GHz	Suhner	SUCOFLEX102	28636/2	AT	2012/04/25 * 12
MOS-12	Thermo-Hygrometer	Custom	CTH-180	-	AT	2012/01/06 * 12
MAEC-02	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-06902	RE/CE	2012/06/29 * 12
MOS-22	Thermo-Hygrometer	Custom	CTH-201	0003	RE/CE	2012/02/06 * 12
MJM-14	Measure	KOMELON	KMC-36	-	RE/CE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	RE/CE	-
MHA-06	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	254	RE	2012/02/22 * 12
MPA-10	Pre Amplifier	Agilent	8449B	3008A02142	RE	2012/01/25 * 12
MCC-132	Microwave Cable	HUBER+SUHNER	SUCOFLEX104	336161/4(1m) / 340639(5m)	RE	2011/09/06 * 12
MHF-06	High Pass Filter 3.5-24GHz	TOKIMEC	TF323DCA	601	RE	2012/05/30 * 12
MHA-16	Horn Antenna 15-40GHz	Schwarzbeck	BBHA9170	BBHA9170306	RE	2012/05/21 * 12

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MSA-03	Spectrum Analyzer	Agilent	E4448A	MY44020357	RE/CE	2011/11/23 * 12
MTR-03	Test Receiver	Rohde & Schwarz	ESCI	100300	RE/CE	2012/04/03 * 12
MLS-06	LISN(AMN)	Schwarzbeck	NSLK8127	8127363	CE(EUT)	2012/02/06 * 12
MLS-07	LISN(AMN)	Schwarzbeck	NSLK8127	8127364	CE(AE)	2012/02/09 * 12
MTA-31	Terminator	TME	CT-01	-	CE	2012/01/11 * 12
MCC-13	Coaxial Cable	Fujikura	3D-2W(12m)/5D-2W(5m)/5D-2W(0.8m)/5D-2W(1m)	-	CE	2012/02/16 * 12
MAT-65	Attenuator(13dB)	JFW Industries, Inc.	50FP-013H2 N	-	CE	2012/01/28 * 12
MBA-02	Biconical Antenna	Schwarzbeck	BBA9106	VHA91032008	RE	2011/10/23 * 12
MLA-02	Logperiodic Antenna	Schwarzbeck	USLP9143	201	RE	2011/10/23 * 12
MCC-12	Coaxial Cable	Fujikura/Agilent	-	-	RE	2012/02/16 * 12
MAT-07	Attenuator(6dB)	Weinschel Corp	2	BK7970	RE	2011/11/02 * 12
MPA-09	Pre Amplifier	Agilent	8447D	2944A10845	RE	2011/09/26 * 12
MAEC-03	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-10005	RE	2012/02/24 * 12
MOS-13	Thermo-Hygrometer	Custom	CTH-180	-	RE	2012/02/06 * 12
MJM-06	Measure	PROMART	SEN1955	-	RE	
MHA-20	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	258	RE	2012/05/25 * 12
MCC-133	Microwave Cable	HUBER+SUHNER	SUCOFLEX104	336164/4(1m) / 340640(5m)	RE	2011/09/07 * 12
MPA-11	MicroWave System Amplifier	Agilent	83017A	MY39500779	RE	2012/03/29 * 12
MCC-76	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX104	278967/4	RE	2011/12/08 * 12
MHF-19	High Pass Filter 3.5-18.0GHz	TOKIMEC	TF323DCA	602	RE	2011/09/07 * 12

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
RE: Radiated Emission
AT: Antenna Terminal Conducted test