



RADIO TEST REPORT

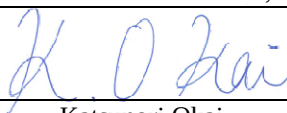
Test Report No. : 32BE0278-HO-J-R2

Applicant : SAMSUNG ELECTRONICS CO., LTD.
Type of Equipment : Cellular/PCS GSM/GPRS/EDGE, Cellular/PCS
WCDMA Tablet with 802.11abgn, BT3.0
Model No. : GT-P6200L
FCC ID : A3LGTP6200L
Test regulation : FCC Part 15 Subpart C: 2011
Test Result : Complied

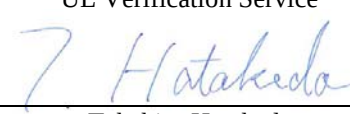
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2. The results in this report apply only to the sample tested.
3. This sample tested is in compliance with the above regulation.
4. The test results in this report are traceable to the national or international standards.
5. This test report must not 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 32BE0278-HO-J-R1. 32BE0278-HO-J-R1 is replaced with this report.

Date of test: September 29 to November 4, 2011

Representative test engineer:


Katsunori Okai
Engineer of WiSE Japan,
UL Verification Service

Approved by:


Takahiro Hatakeda
Leader of WiSE Japan,
UL Verification Service



NVLAP LAB CODE: 200572-0

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

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13-EM-F0429

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SECTION 1: Customer information

Company Name : SAMSUNG ELECTRONICS CO., LTD.
 Address : 416, MAETAN 3-DONG, YEONGTONG-GU SUWON-CITY,
 GYEONGGI-DO 443-742, SOUTH KOREA

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

2.1 Identification of E.U.T.

Type of Equipment : Cellular/PCS GSM/GPRS/EDGE, Cellular/PCS WCDMA Tablet with
 802.11abgn, BT3.0
 Model No. : GT-P6200L
 Serial No. : Refer to Section 4, Clause 4.2
 Rating : DC4.0V
 Receipt Date of Sample : September 27, 2011
 Modification of EUT : No Modification by the test lab

2.2 Product Description

Radio Specification

Bluetooth

Equipment Type	Transceiver
Frequency of Operation	2402-2480MHz
Type of Modulation	FHSS
Bandwidth & Channel spacing	1MHz & 1MHz
Antenna Type	PIFA
Antenna Gain	-0.63 dBi

WLAN (IEEE802.11a/b/g/n-20)

Equipment Type	Transceiver	
Frequency of Operation	2412-2462MHz	5180-5240MHz 5260-5320MHz 5500-5700MHz 5745-5825MHz
Type of Modulation	DSSS, OFDM	OFDM
Bandwidth & Channel spacing	20MHz & 5MHz	20MHz & 20MHz
Antenna Type	SEMI-PIFA	
Antenna Gain	2.4G: -2.85dBi	5G: -4.15dBi

WLAN (IEEE802.11n-40)

Equipment Type	Transceiver
Frequency of Operation	5190-5230MHz 5270-5310MHz 5510-5670MHz 5755-5795MHz
Type of Modulation	OFDM
Bandwidth & Channel spacing	40MHz & 40MHz
Antenna Type	SEMI-PIFA
Antenna Gain	-4.15dBi

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GSM

Equipment Type	Transceiver
Frequency of Operation	[Up Link] GSM850: 824 – 849MHz PCS: 1850 – 1910MHz [Down Link] GSM850: 869 – 894MHz PCS: 1930 – 1990MHz
Type of Modulation	GMSK , 8PSK
Antenna Type	PIFA
Antenna Gain	GSM850: -5.86dBi PCS: -4.02dBi

W-CDMA

Equipment Type	Transceiver
Frequency of Operation	[Up Link] Band V: 824 – 849MHz Band II: 1850 – 1910MHz [Down Link] Band V: 869 – 894MHz Band II: 1930 – 1990MHz
Type of Modulation	QPSK
Antenna Type	PIFA
Antenna Gain	Band V: -5.86dBi Band II: -4.02dBi

SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification : FCC Part 15 Subpart C: 2011, final revised on July 8, 2011 and effective August 8, 2011

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 EUT complies with FCC Part 15 Subpart B: 2011, final revised on July 8, 2011 and effective August 8, 2011.

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 14.4dB, 26.55210MHz, N AV 20.6dB 26.55210MHz, N 26.71210MHz, 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	2.1dB 36.881MHz, QP, Vert.	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.

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						
	(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	4.2dB	5.0dB	5.1dB	5.6dB	5.9dB	4.4dB	4.3dB
No.2	4.1dB	5.2dB	5.1dB	5.7dB	5.8dB	4.3dB	4.2dB
No.3	4.5dB	5.0dB	5.2dB	5.7dB	5.8dB	4.5dB	4.2dB
No.4	4.7dB	5.2dB	5.2dB	5.7dB	5.8dB	5.1dB	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.

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)	1Mbps, PN9
IEEE 802.11g (11g)	24Mbps, PN9
IEEE 802.11n SISO 20MHz BW (11n-20): 2.4G Band	MCS 6, PN9
IEEE 802.11a (11a): 5G Band	24Mbps, PN9
IEEE 802.11n SISO 20MHz BW (11n-20): 5G Band	MCS 6, PN9
IEEE 802.11n SISO 40MHz BW (11n-40): 5G Band	MCS 0, 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:

Software name & version: HW Rev 1.0, SW: P6200L.010

[Power Setting]

11b: 14dBm

11g: 14dBm

11n-20(2.4GHz): 13dBm

11a: 9dBm

11n-20(5GHz): 9dBm

11n-40(5GHz): 9dBm

*The above setting of the software is the worst case. Any conditions under the normal use do not exceed the condition of setting. In addition, end users cannot change the settings of the output power of the product.

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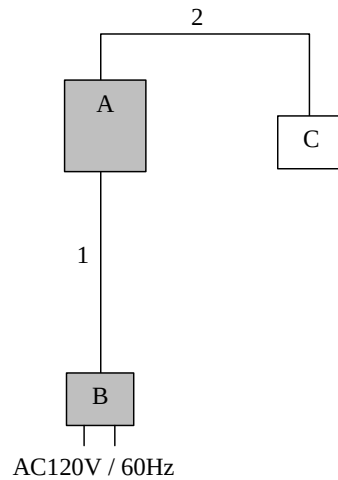
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*Details of Operating mode(s)

Test Item	Operating Mode	Tested frequency
Conducted Emission	11g Tx*1)	2462MHz
6dB Bandwidth 99% Occupied Bandwidth Spurious Emission (Conducted Emission Band Edge Compliance)	11b Tx	2412MHz
	11g Tx	2437MHz
	11n-20(2.4GHz) Tx	2462MHz
	11a Tx	5745MHz
	11n-20(5GHz) Tx	5785MHz 5825MHz
Maximum Peak Output Power Power Density Spurious Emission (Radiated/ Conducted)	11n-40(5GHz) Tx	5755MHz 5795MHz
	11b Tx	2412MHz
	11g Tx *2)	2437MHz
		2462MHz
	11n-20(5GHz) Tx *2)	5745MHz 5785MHz 5825MHz
	11n-40(5GHz) Tx	5755MHz 5795MHz
*1) The mode was tested as a representative, because it had the highest power at antenna terminal test and the noise levels at the mode/tested frequencies were equivalent to those of other modes/tested frequencies. *2) Since 11g/11a 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.		

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 and Support equipment

No.	Item	Model number	Serial number	Manufacturer	Remarks
A	Cellular/PCS GSM/GPRS/EDGE, Cellular /PCS WCDMA Tablet with 802.11abgn, BT3.0	GT-P6200L	R2DB815121V *1) R2DB815124B *2)	SAMSUNG	EUT
B	AC Adapter	ETA-P11X	-	SAMSUNG	EUT
C	Ear phone	-	-	SAMSUNG	-

*1) Used for Antenna Terminal conducted test

*2) Used for Conducted Emission test and Radiated Emission test

List of cables used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	USB Cable	1.0	Shielded	Shielded	-
2	Ear phone Cable	1.2	Unshielded	Unshielded	-

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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 0.5m, 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 Section15.247".

EUT was placed on a urethane platform of nominal size, 1.5m 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	Below 30MHz	30MHz to 300MHz	300MHz to 1GHz	Above 1GHz
Antenna Type	Loop	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: 10Hz *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) As both cycle and Off duration were short enough, 10Hz video bandwidth was used. (See Appendix)

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

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

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

Measurement range : 30M-25GHz
Test data : APPENDIX
Test result : Pass

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SECTION 7: Antenna Terminal Conducted Tests

Test Procedure

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

Test	Span	RBW	VBW	Sweep time	Detector	Trace	Instrument used
6dB Bandwidth	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	Peak	Max Hold *1)	Spectrum Analyzer
Maximum Peak Output Power	-	-	-	Auto	Peak	-	Power Meter (Sensor: 50MHz BW)
Peak Power Density	18, 20, 36MHz	30kHz	100kHz	600, 667, 1200 sec	Peak	Max Hold	Spectrum Analyzer *2) *3)
Conducted Spurious Emission *4)	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) The measurement was performed with Max Hold since the duty cycle was not 100%.

*2) PSD Option 1 of "Guidance on Measurement of Digital Transmission Systems Operating under Section15.247".

*3) 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.

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

Then, wide-band noise near the limit was checked separately, however the noise was not detected as shown in the chart.(9kHz-150kHz:RBW=200Hz, 150kHz-30MHz:RBW=9.1kHz).

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

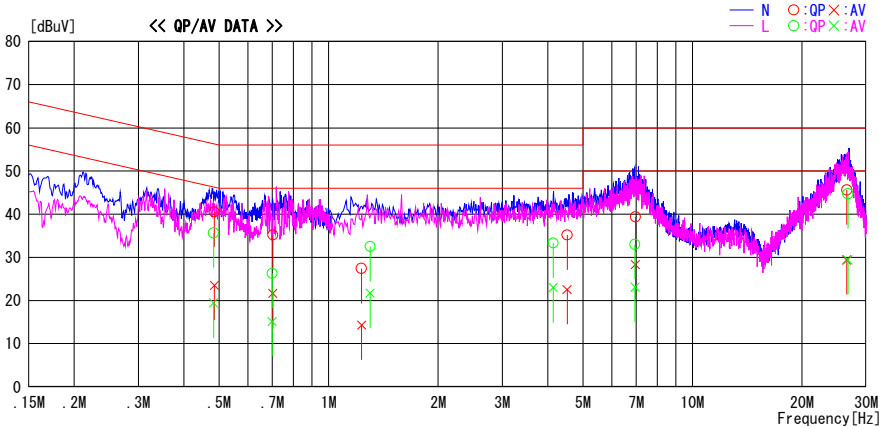
Conducted Emission

DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No. 2 Semi Anechoic Chamber
Date : 2011/10/06

Report No. : 32BE0278-H0
Temp./Humi. : 24deg. C / 52%RH
Engineer : Hisayoshi Sato

Mode / Remarks : Tx WLAN 11g 2462MHz 24Mbps
LIMIT : FCC15. 207 QP
FCC15. 207 AV



Frequency	Reading Level		Corr. Factor	Results		Limit		Margin		Phase	Comment
	QP	AV		QP	AV	QP	AV	QP	AV		
[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
0.48555	27.2	10.2	13.3	40.5	23.5	56.2	46.2	15.7	22.7	N	
0.70213	21.7	8.1	13.5	35.2	21.6	56.0	46.0	20.8	24.4	N	
1.23180	13.9	0.8	13.5	27.4	14.3	56.0	46.0	28.6	31.7	N	
4.52391	20.9	8.2	14.3	35.2	22.5	56.0	46.0	20.8	23.5	N	
6.97320	24.6	13.6	14.8	39.4	28.4	60.0	50.0	20.6	21.6	N	
26.55210	27.2	11.0	18.4	45.6	29.4	60.0	50.0	14.4	20.6	N	
0.48250	22.3	6.1	13.3	35.6	19.4	56.3	46.3	20.7	26.9	L	
0.69931	12.8	1.6	13.5	26.3	15.1	56.0	46.0	29.7	30.9	L	
1.29941	18.9	8.1	13.6	32.5	21.7	56.0	46.0	23.5	24.3	L	
4.14124	19.1	8.8	14.2	33.3	23.0	56.0	46.0	22.7	23.0	L	
6.94797	18.2	8.3	14.8	33.0	23.1	60.0	50.0	27.0	26.9	L	
26.71210	26.3	11.0	18.4	44.7	29.4	60.0	50.0	15.3	20.6	L	

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

6dB Bandwidth

Report No. 32BE0278-HO
Test place Head Office EMC Lab. shielded room
Semi Anechoic Chamber No.7 No.7 No.7
Date 10/07/2011 10/07/2011 11/04/2011
Temperature / Humidity 25 deg. C. / 44 % RH 26 deg. C. / 45 % RH 25 deg. C. / 52 % RH
Engineer Takayuki Shimada Keisuke Kawamura Katsunori Okai
Mode Tx

11b

Frequency [MHz]	6dB Bandwidth [MHz]	Limit [kHz]
2412	10.079	>500
2437	10.046	>500
2462	10.053	>500

11g

Frequency [MHz]	6dB Bandwidth [MHz]	Limit [kHz]
2412	16.474	>500
2437	16.480	>500
2462	16.460	>500

11n-20(2.4GHz)

Frequency [MHz]	6dB Bandwidth [MHz]	Limit [kHz]
2412	17.678	>500
2437	17.655	>500
2462	17.668	>500

11a

Frequency [MHz]	6dB Bandwidth [MHz]	Limit [kHz]
5745	16.368	>500
5785	16.454	>500
5825	16.446	>500

11n-20(5GHz)

Frequency [MHz]	6dB Bandwidth [MHz]	Limit [kHz]
5745	17.577	>500
5785	17.621	>500
5825	17.611	>500

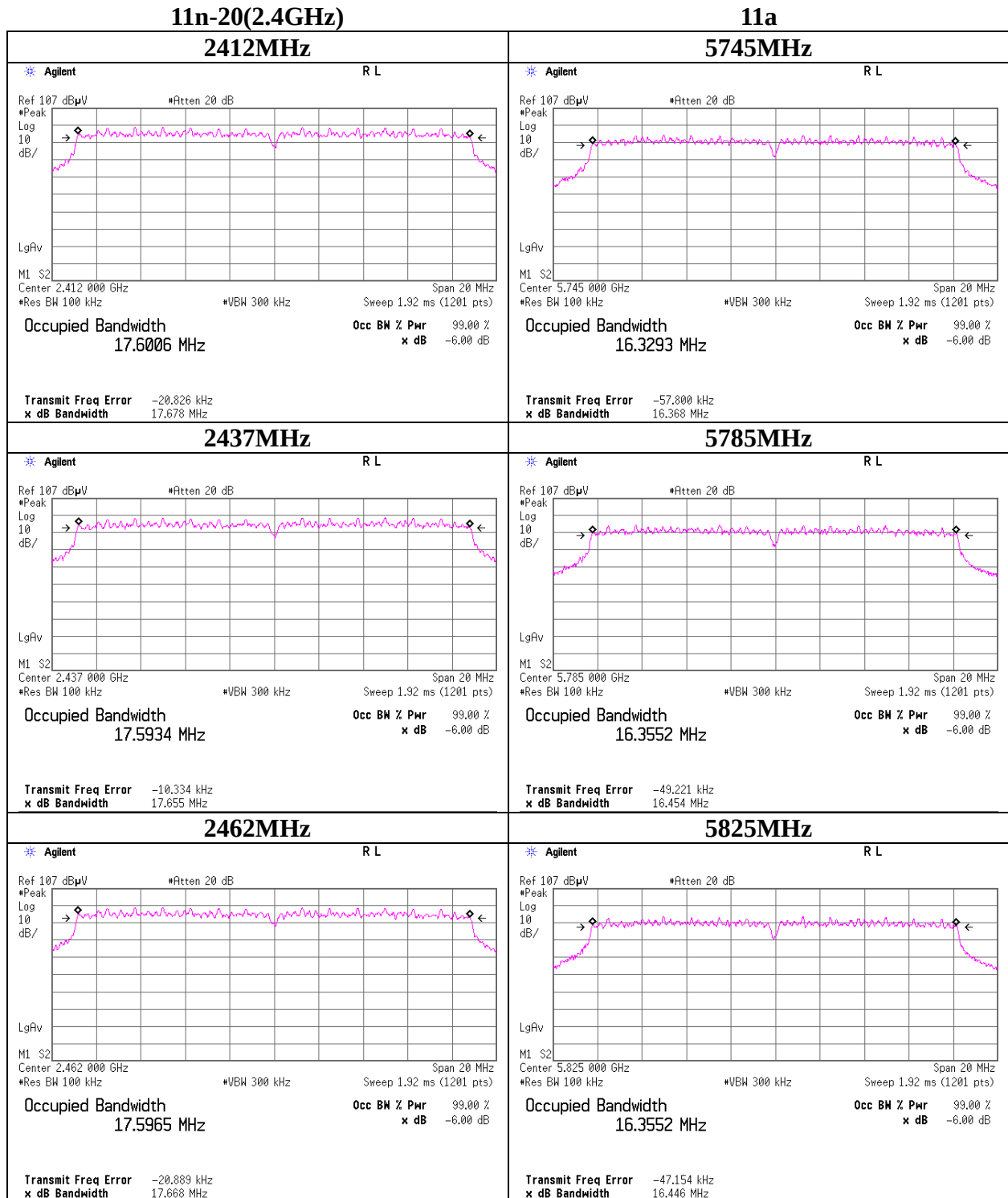
11n-40(5GHz)

Frequency [MHz]	6dB Bandwidth [MHz]	Limit [kHz]
5755	35.329	>500
5795	35.383	>500

6dB Bandwidth



6dB Bandwidth



6dB Bandwidth



Maximum Peak Output Power

Test place Head Office EMC Lab. No.11 Measurement Room
Report No. 32BE0278-HO
Date 09/29/2011
Temperature/ Humidity 21 deg.C / 60% RH
Engineer Satofumi Matsuyama
Mode 11b Tx

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result		Limit		Margin [dB]
				[dBm]	[mW]	[dBm]	[mW]	
2412	5.14	0.50	10.01	15.65	36.73	30.00	1000	14.35
2437	4.74	0.50	10.01	15.25	33.50	30.00	1000	14.75
2462	4.90	0.50	10.01	15.41	34.75	30.00	1000	14.59

Sample Calculation:

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

2437MHz

Rate	Reading	Remark
[Mbps]	[dBm]	
1	4.74	*
2	4.62	
5.5	4.69	
11	4.61	

*: Worst Rate

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

Maximum Peak Output Power

Test place	Head Office EMC Lab. No.11 Measurement Room
Report No.	32BE0278-HO
Date	09/29/2011
Temperature/ Humidity	21 deg.C / 60% RH
Engineer	Satofumi Matsuyama
Mode	11g and 11n-20(2.4GHz) Tx

11g

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result		Limit		Margin [dB]
				[dBm]	[mW]	[dBm]	[mW]	
2412	12.55	0.50	10.01	23.06	202.30	30.00	1000	6.94
2437	12.37	0.50	10.01	22.88	194.09	30.00	1000	7.12
2462	12.87	0.50	10.01	23.38	217.77	30.00	1000	6.62

Sample Calculation:

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

11g
2437MHz

Rate [Mbps]	Reading [dBm]	Remark
6	12.30	
9	11.60	
12	11.83	
18	11.09	
24	12.37	*
36	12.12	
48	12.22	
54	12.15	

11n-20(2.4GHz)
2437MHz

Rate [Mbps]	Reading [dBm]	Remark
MCS0	11.31	
MCS1	11.09	
MCS2	11.77	
MCS3	11.75	
MCS4	11.71	
MCS5	11.25	
MCS6	12.36	*
MCS7	11.42	

*: Worst Rate

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

Maximum Peak Output Power

Test place : Head Office EMC Lab. No.7 shielded room
Report No. : 32BE0278-HO
Date : 10/05/2011
Temperature/ Humidity : 26 deg.C / 52% RH
Engineer : Katsunori Okai
Mode : 11a and 11n-20(5GHz) Tx

11n-20(5GHz)

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result		Limit		Margin [dB]
				[dBm]	[mW]	[dBm]	[mW]	
5745	9.02	1.00	10.07	20.09	102.09	30.00	1000	9.91
5785	8.91	1.00	10.07	19.98	99.54	30.00	1000	10.02
5825	7.52	1.00	10.07	18.59	72.28	30.00	1000	11.41

Sample Calculation:

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

11n-20(5GHz) 5785MHz

Rate [Mbps]	Reading [dBm]	Remark
MCS0	7.61	
MCS1	7.63	
MCS2	7.65	
MCS3	8.01	
MCS4	7.92	
MCS5	8.21	
MCS6	8.91	*
MCS7	8.21	

11a 5785MHz

Rate [Mbps]	Reading [dBm]	Remark
6	8.16	
9	7.73	
12	7.98	
18	7.41	
24	8.28	*
36	8.12	
48	8.19	
54	8.24	

*: Worst Rate

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

Maximum Peak Output Power

Test place Head Office EMC Lab. No.7 shielded room
Report No. 32BE0278-HO
Date 10/05/2011
Temperature/ Humidity 26 deg.C / 52% RH
Engineer Katsunori Okai
Mode 11n-40(5GHz) Tx

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result		Limit		Margin [dB]
				[dBm]	[mW]	[dBm]	[mW]	
5755	9.16	1.00	10.07	20.23	105.44	30.00	1000	9.77
5795	8.51	1.00	10.07	19.58	90.78	30.00	1000	10.42

Sample Calculation:

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

5755MHz

Rate	Reading	Remark
[Mbps]	[dBm]	
MCS0	9.16	*
MCS1	8.54	
MCS2	8.61	
MCS3	8.86	
MCS4	8.68	
MCS5	9.07	
MCS6	8.70	
MCS7	8.16	

*: Worst Rate

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

Maximum Average Output Power (Reference data for SAR testing)

IEEE802.11b 1Mbps

Ch	Frequency [MHz]	P/M Reading	Cable Loss [dB]	Atten. [dB]	Result	
		AVG			[dBm] AVG	[mW] AVG
1	2412	2.65	0.50	10.01	13.16	20.70
6	2437	2.14	0.50	10.01	12.65	18.41
11	2462	2.33	0.50	10.01	12.84	19.23

IEEE802.11g 6Mbps

Ch	Frequency [MHz]	P/M Reading	Cable Loss [dB]	Atten. [dB]	Result	
		AVG			[dBm] AVG	[mW] AVG
1	2412	2.01	0.50	10.01	12.52	17.86
6	2437	1.80	0.50	10.01	12.31	17.02
11	2462	1.99	0.50	10.01	12.50	17.78

IEEE802.11n-20 MCS0

Ch	Frequency [MHz]	P/M Reading	Cable Loss [dB]	Atten. [dB]	Result	
		AVG			[dBm] AVG	[mW] AVG
1	2412	1.55	0.50	10.01	12.06	16.07
6	2437	1.21	0.50	10.01	11.72	14.86
11	2462	1.54	0.50	10.01	12.05	16.03

IEEE802.11a 5745-5825MHz band 6Mbps

Ch	Freq. [MHz]	P/M Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result	
		AVG			[dBm] AVG	[mW] AVG
149	5745.0	-1.95	1.00	10.07	9.12	8.17
153	5765.0	-1.74	1.00	10.07	9.33	8.57
157	5785.0	-1.99	1.00	10.07	9.08	8.09
161	5805.0	-2.29	1.00	10.07	8.78	7.55
165	5825.0	-2.99	1.00	10.07	8.08	6.43

IEEE802.11n-20 5745-5825MHz band MCS3

Ch	Freq. [MHz]	P/M Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result	
		AVG			[dBm] AVG	[mW] AVG
149	5745.0	-1.87	1.00	10.07	9.20	8.32
153*	5765.0	-1.72	1.00	10.07	9.35	8.61
157	5785.0	-1.86	1.00	10.07	9.21	8.34
161	5805.0	-2.43	1.00	10.07	8.64	7.31
165	5825.0	-3.19	1.00	10.07	7.88	6.14

IEEE802.11n-40 5755-5795MHz band MCS0

Ch	Freq. [MHz]	P/M Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result	
		AVG			[dBm] AVG	[mW] AVG
149	5755.0	-1.73	1.00	10.07	9.34	8.59
165	5795.0	-1.91	1.00	10.07	9.16	8.24

Sample Calculation: Result = Reading + Cable Loss + Attenuator

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Radiated Spurious Emission

Test place : Head Office EMC Lab. No.3 Semi Anechoic Chamber
Report No. : 32BE0278-HO
Date : 10/07/2011 10/08/2011
Temperature/ Humidity : 21 deg.C / 64% RH 21 deg.C / 60% RH
Engineer : Katsunori Okai Katsunori Okai
(1-10GHz) (10-26.5GHz)
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	2390.000	PK	60.2	27.4	4.1	36.3	55.4	73.9	18.5	See 20dBc Data Sheet
Hori	2400.000	PK	70.8	27.5	4.1	36.3	66.1	-	-	
Hori	4824.000	PK	50.8	32.1	6.5	36.0	53.4	73.9	20.5	
Hori	7236.000	PK	47.3	36.1	7.7	36.1	55.0	73.9	18.9	
Hori	9648.000	PK	46.3	38.5	9.5	37.0	57.3	73.9	16.6	
Hori	24120.000	PK	44.5	45.4	4.8	38.2	56.5	73.9	17.4	NS
Hori	2390.000	AV	46.5	27.4	4.1	36.3	41.7	53.9	12.2	See 20dBc Data Sheet
Hori	2400.000	AV	54.5	27.5	4.1	36.3	49.8	-	-	
Hori	4824.000	AV	40.0	32.1	6.5	36.0	42.6	53.9	11.3	
Hori	7236.000	AV	34.0	36.1	7.7	36.1	41.7	53.9	12.2	
Hori	9648.000	AV	33.4	38.5	9.5	37.0	44.4	53.9	9.5	
Hori	24120.000	AV	33.3	45.4	4.8	38.2	45.3	53.9	8.6	NS
Vert	2390.000	PK	57.4	27.4	4.1	36.3	52.6	73.9	21.3	See 20dBc Data Sheet
Vert	2400.000	PK	66.4	27.5	4.1	36.3	61.7	-	-	
Vert	4824.000	PK	47.5	32.1	6.5	36.0	50.1	73.9	23.8	
Vert	7236.000	PK	46.6	36.1	7.7	36.1	54.3	73.9	19.6	
Vert	9648.000	PK	45.4	38.5	9.5	37.0	56.4	73.9	17.5	
Vert	24120.000	PK	44.2	45.4	4.8	38.2	56.2	73.9	17.7	NS
Vert	2390.000	AV	43.5	27.4	4.1	36.3	38.7	53.9	15.2	See 20dBc Data Sheet
Vert	2400.000	AV	50.1	27.5	4.1	36.3	45.4	-	-	
Vert	4824.000	AV	38.7	32.1	6.5	36.0	41.3	53.9	12.6	
Vert	7236.000	AV	33.4	36.1	7.7	36.1	41.1	53.9	12.8	
Vert	9648.000	AV	33.0	38.5	9.5	37.0	44.0	53.9	9.9	
Vert	24120.000	AV	33.2	45.4	4.8	38.2	45.2	53.9	8.7	NS

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).

*The 10th harmonic was not seen so the result was its base noise level.

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

NS: No signal detected

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	105.3	27.5	4.1	36.3	100.6	-	-	Carrier
Hori	2400.000	PK	54.6	27.5	4.1	36.3	49.9	80.6	30.7	
Vert	2412.000	PK	101.5	27.5	4.1	36.3	96.8	-	-	Carrier
Vert	2400.000	PK	47.5	27.5	4.1	36.3	42.7	76.8	34.1	

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

Radiated Spurious Emission

Test place Head Office EMC Lab. No.3 Semi Anechoic Chamber
Report No. 32BE0278-HO
Date 10/07/2011 10/08/2011
Temperature/ Humidity 21 deg.C / 64% RH 21 deg.C / 60% RH
Engineer Katsunori Okai Katsunori Okai
(1-10GHz) (10-26.5GHz)
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	4874.000	PK	51.4	32.2	6.5	36.0	54.1	73.9	19.8	
Hori	7311.000	PK	46.4	36.2	7.8	36.0	54.4	73.9	19.5	NS
Hori	9748.000	PK	45.8	38.8	9.4	37.0	57.0	73.9	16.9	NS
Hori	24370.000	PK	43.1	45.4	4.7	38.4	54.8	73.9	19.1	NS
Hori	4874.000	AV	43.2	32.2	6.5	36.0	45.9	53.9	8.0	
Hori	7311.000	AV	35.1	36.2	7.8	36.0	43.1	53.9	10.8	NS
Hori	9748.000	AV	35.0	38.8	9.4	37.0	46.2	53.9	7.7	NS
Hori	24370.000	AV	32.5	45.4	4.7	38.4	44.2	53.9	9.7	NS
Vert	4874.000	PK	47.0	32.2	6.5	36.0	49.7	73.9	24.2	
Vert	7311.000	PK	46.3	36.2	7.8	36.0	54.3	73.9	19.6	NS
Vert	9748.000	PK	47.0	38.8	9.4	37.0	58.2	73.9	15.7	NS
Vert	24370.000	PK	45.0	45.4	4.7	38.4	56.7	73.9	17.2	NS
Vert	4874.000	AV	42.2	32.2	6.5	36.0	44.9	53.9	9.0	
Vert	7311.000	AV	35.2	36.2	7.8	36.0	43.2	53.9	10.7	NS
Vert	9748.000	AV	35.1	38.8	9.4	37.0	46.3	53.9	7.6	NS
Vert	24370.000	AV	32.5	45.4	4.7	38.4	44.2	53.9	9.7	NS

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).

*The 10th harmonic was not seen so the result was its base noise level.

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

NS: No signal detected

Radiated Spurious Emission

Test place Head Office EMC Lab. No.3 Semi Anechoic Chamber
Report No. 32BE0278-HO
Date 10/07/2011 10/08/2011
Temperature/ Humidity 21 deg.C / 64% RH 21 deg.C / 60% RH
Engineer Katsunori Okai Katsunori Okai
(1-10GHz) (10-26.5GHz)
Mode 11b 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	59.2	27.7	4.2	36.3	54.8	73.9	19.1	
Hori	4924.000	PK	52.3	32.3	6.6	36.0	55.2	73.9	18.7	
Hori	7386.000	PK	48.3	36.3	7.8	36.0	56.4	73.9	17.5	
Hori	9848.000	PK	45.3	39.1	9.5	37.1	56.8	73.9	17.1	NS
Hori	24620.000	PK	45.7	45.4	4.8	38.3	57.6	73.9	16.3	NS
Hori	2483.500	AV	39.9	27.7	4.2	36.3	35.5	53.9	18.4	
Hori	4924.000	AV	48.0	32.3	6.6	36.0	50.9	53.9	3.0	
Hori	7386.000	AV	37.9	36.3	7.8	36.0	46.0	53.9	7.9	
Hori	9848.000	AV	34.6	39.1	9.5	37.1	46.1	53.9	7.8	NS
Hori	24620.000	AV	34.7	45.4	4.8	38.3	46.6	53.9	7.3	NS
Vert	2483.500	PK	56.1	27.7	4.2	36.3	51.7	73.9	22.2	
Vert	4924.000	PK	50.7	32.3	6.6	36.0	53.6	73.9	20.3	
Vert	7386.000	PK	48.0	36.3	7.8	36.0	56.1	73.9	17.8	
Vert	9848.000	PK	45.8	39.1	9.5	37.1	57.3	73.9	16.6	NS
Vert	24620.000	PK	44.9	45.4	4.8	38.3	56.8	73.9	17.1	NS
Vert	2483.500	AV	40.2	27.7	4.2	36.3	35.8	53.9	18.1	
Vert	4924.000	AV	45.8	32.3	6.6	36.0	48.7	53.9	5.2	
Vert	7386.000	AV	39.1	36.3	7.8	36.0	47.2	53.9	6.7	
Vert	9848.000	AV	34.7	39.1	9.5	37.1	46.2	53.9	7.7	NS
Vert	24620.000	AV	34.6	45.4	4.8	38.3	46.5	53.9	7.4	NS

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).

*The 10th harmonic was not seen so the result was its base noise level.

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

NS: No signal detected

Radiated Spurious Emission

Test place Head Office EMC Lab. No.3 Semi Anechoic Chamber
Report No. 32BE0278-HO
Date 10/07/2011 10/08/2011
Temperature/ Humidity 21 deg.C / 64% RH 21 deg.C / 60% RH
Engineer Katsunori Okai Katsunori Okai
(1-10GHz) (10-26.5GHz)
Mode 11g 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	2390.000	PK	67.5	27.4	4.1	36.3	62.7	73.9	11.2	- See 20dBc Data Sheet
Hori	2400.000	PK	90.6	27.5	4.1	36.3	85.9	-	-	
Hori	4824.000	PK	46.5	32.1	6.5	36.0	49.1	73.9	24.8	
Hori	7236.000	PK	46.2	36.1	7.7	36.1	53.9	73.9	20.0	
Hori	9648.000	PK	45.7	38.5	9.5	37.0	56.7	73.9	17.2	
Hori	24120.000	PK	44.0	45.4	4.8	38.2	56.0	73.9	17.9	
Hori	2390.000	AV	52.1	27.4	4.1	36.3	47.3	53.9	6.6	- See 20dBc Data Sheet
Hori	2400.000	AV	68.6	27.5	4.1	36.3	63.9	-	-	
Hori	4824.000	AV	34.5	32.1	6.5	36.0	37.1	53.9	16.8	
Hori	7236.000	AV	34.4	36.1	7.7	36.1	42.1	53.9	11.8	
Hori	9648.000	AV	33.9	38.5	9.5	37.0	44.9	53.9	9.0	
Hori	24120.000	AV	33.2	45.4	4.8	38.2	45.2	53.9	8.7	
Vert	2390.000	PK	59.4	27.4	4.1	36.3	54.6	73.9	19.3	- See 20dBc Data Sheet
Vert	2400.000	PK	82.2	27.5	4.1	36.3	77.5	-	-	
Vert	4824.000	PK	45.5	32.1	6.5	36.0	48.1	73.9	25.8	
Vert	7236.000	PK	46.7	36.1	7.7	36.1	54.4	73.9	19.5	
Vert	9648.000	PK	46.2	38.5	9.5	37.0	57.2	73.9	16.7	
Vert	24120.000	PK	44.1	45.4	4.8	38.2	56.1	73.9	17.8	
Vert	2390.000	AV	44.8	27.4	4.1	36.3	40.0	53.9	13.9	- See 20dBc Data Sheet
Vert	2400.000	AV	61.4	27.5	4.1	36.3	56.7	-	-	
Vert	4824.000	AV	34.6	32.1	6.5	36.0	37.2	53.9	16.7	
Vert	7236.000	AV	34.9	36.1	7.7	36.1	42.6	53.9	11.3	
Vert	9648.000	AV	34.6	38.5	9.5	37.0	45.6	53.9	8.3	
Vert	24120.000	AV	33.3	45.4	4.8	38.2	45.3	53.9	8.6	

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).

*The 10th harmonic was not seen so the result was its base noise level.

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

NS: No signal detected

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	107.0	27.5	4.1	36.3	102.3	-	-	Carrier
Hori	2400.000	PK	66.0	27.5	4.1	36.3	61.3	82.3	21.0	
Vert	2412.000	PK	101.5	27.5	4.1	36.3	96.8	-	-	Carrier
Vert	2400.000	PK	60.9	27.5	4.1	36.3	56.2	76.8	20.6	

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. 32BE0278-HO
Date 10/07/2011 10/08/2011
Temperature/ Humidity 21 deg.C / 64% RH 21 deg.C / 60% RH
Engineer Katsunori Okai Katsunori Okai
(1-10GHz) (10-26.5GHz)
Mode 11g 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	4874.000	PK	45.8	32.2	6.5	36.0	48.5	73.9	25.4	NS
Hori	7311.000	PK	46.7	36.2	7.8	36.0	54.7	73.9	19.2	NS
Hori	9748.000	PK	45.4	38.8	9.4	37.0	56.6	73.9	17.3	NS
Hori	24370.000	PK	43.7	45.4	4.7	38.4	55.4	73.9	18.5	NS
Hori	4874.000	AV	33.3	32.2	6.5	36.0	36.0	53.9	17.9	NS
Hori	7311.000	AV	34.5	36.2	7.8	36.0	42.5	53.9	11.4	NS
Hori	9748.000	AV	34.9	38.8	9.4	37.0	46.1	53.9	7.8	NS
Hori	24370.000	AV	32.4	45.4	4.7	38.4	44.1	53.9	9.8	NS
Vert	4874.000	PK	45.1	32.2	6.5	36.0	47.8	73.9	26.1	NS
Vert	7311.000	PK	46.9	36.2	7.8	36.0	54.9	73.9	19.0	NS
Vert	9748.000	PK	46.4	38.8	9.4	37.0	57.6	73.9	16.3	NS
Vert	24370.000	PK	44.1	45.4	4.7	38.4	55.8	73.9	18.1	NS
Vert	4874.000	AV	36.0	32.2	6.5	36.0	38.7	53.9	15.2	NS
Vert	7311.000	AV	35.1	36.2	7.8	36.0	43.1	53.9	10.8	NS
Vert	9748.000	AV	34.9	38.8	9.4	37.0	46.1	53.9	7.8	NS
Vert	24370.000	AV	32.5	45.4	4.7	38.4	44.2	53.9	9.7	NS

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).

*The 10th harmonic was not seen so the result was its base noise level.

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

NS: No signal detected

Radiated Spurious Emission

Test place Head Office EMC Lab. No.3 Semi Anechoic Chamber
Report No. 32BE0278-HO
Date 10/07/2011 10/08/2011 10/10/2011
Temperature/ Humidity 21 deg.C./ 64% RH 21 deg.C./ 60% RH 21 deg.C./ 61% RH
Engineer Katsunori Okai Katsunori Okai Katsunori Okai
(1-10GHz) (10-26.5GHz) (30-1000MHz)
Mode 11g 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	36.882	QP	34.0	15.5	7.0	28.1	28.4	40.0	11.6	
Hori	44.200	QP	33.5	13.3	7.1	27.9	26.0	40.0	14.0	
Hori	106.672	QP	30.3	11.3	8.0	27.9	21.7	43.5	21.8	
Hori	172.800	QP	20.4	15.6	8.6	27.8	16.8	43.5	26.7	
Hori	261.553	QP	20.1	18.0	9.3	27.3	20.1	46.0	25.9	
Hori	292.000	QP	20.0	19.3	9.5	27.3	21.5	46.0	24.5	
Hori	360.002	QP	34.9	16.4	10.0	27.7	33.6	46.0	12.4	
Hori	425.001	QP	26.6	17.7	10.4	28.2	26.5	46.0	19.5	
Hori	480.000	QP	29.3	17.7	10.8	28.5	29.3	46.0	16.7	
Hori	2483.500	PK	63.2	27.7	4.2	36.3	58.8	73.9	15.1	
Hori	4924.000	PK	50.4	32.3	6.6	36.0	53.3	73.9	20.6	NS
Hori	7386.000	PK	46.8	36.3	7.8	36.0	54.9	73.9	19.0	NS
Hori	9848.000	PK	45.2	39.1	9.5	37.1	56.7	73.9	17.2	NS
Hori	24620.000	PK	44.6	45.4	4.8	38.3	56.5	73.9	17.4	NS
Hori	2483.500	AV	44.6	27.7	4.2	36.3	40.2	53.9	13.7	
Hori	4924.000	AV	37.5	32.3	6.6	36.0	40.4	53.9	13.5	NS
Hori	7386.000	AV	36.2	36.3	7.8	36.0	44.3	53.9	9.6	NS
Hori	9848.000	AV	34.8	39.1	9.5	37.1	46.3	53.9	7.6	NS
Hori	24620.000	AV	34.7	45.4	4.8	38.3	46.6	53.9	7.3	NS
Vert	36.881	QP	43.5	15.5	7.0	28.1	37.9	40.0	2.1	
Vert	44.200	QP	42.8	13.3	7.1	27.9	35.3	40.0	4.7	
Vert	106.671	QP	31.4	11.3	8.0	27.9	22.8	43.5	20.7	
Vert	172.800	QP	21.7	15.6	8.6	27.8	18.1	43.5	25.4	
Vert	261.552	QP	24.3	18.0	9.3	27.3	24.3	46.0	21.7	
Vert	292.000	QP	20.1	19.3	9.5	27.3	21.6	46.0	24.4	
Vert	360.002	QP	36.6	16.4	10.0	27.7	35.3	46.0	10.7	
Vert	425.001	QP	26.7	17.7	10.4	28.2	26.6	46.0	19.4	
Vert	480.000	QP	26.9	17.7	10.8	28.5	26.9	46.0	19.1	
Vert	2483.500	PK	61.4	27.7	4.2	36.3	57.0	73.9	16.9	
Vert	4924.000	PK	47.1	32.3	6.6	36.0	50.0	73.9	23.9	NS
Vert	7386.000	PK	44.1	36.3	7.8	36.0	52.2	73.9	21.7	NS
Vert	9848.000	PK	45.5	39.1	9.5	37.1	57.0	73.9	16.9	NS
Vert	24620.000	PK	45.1	45.4	4.8	38.3	57.0	73.9	16.9	NS
Vert	2483.500	AV	43.4	27.7	4.2	36.3	39.0	53.9	14.9	
Vert	4924.000	AV	38.5	32.3	6.6	36.0	41.4	53.9	12.5	NS
Vert	7386.000	AV	35.0	36.3	7.8	36.0	43.1	53.9	10.8	NS
Vert	9848.000	AV	34.7	39.1	9.5	37.1	46.2	53.9	7.7	NS
Vert	24620.000	AV	34.7	45.4	4.8	38.3	46.6	53.9	7.3	NS

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).

*The 10th harmonic was not seen so the result was its base noise level.

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

NS: No signal detected

Radiated Spurious Emission

Test place Head Office EMC Lab. No.3 Semi Anechoic Chamber
Report No. 32BE0278-HO
Date 10/06/2011 10/08/2011
Temperature/ Humidity 23 deg.C./ 61% RH 21 deg.C./ 60% RH
Engineer Katsunori Okai Katsunori Okai
(1-10GHz) (10-40GHz)
Mode 11n-20 5745MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	5304.500	PK	42.5	32.5	6.2	35.7	45.5	73.9	28.4	
Hori	5328.451	PK	40.9	32.5	6.2	35.6	44.0	73.9	29.9	
Hori	5725.000	PK	49.4	32.9	6.5	35.6	53.2	73.9	20.7	
Hori	11490.000	PK	46.4	39.2	9.2	36.2	58.6	73.9	15.3	NS
Hori	17235.000	PK	47.2	41.8	2.1	35.4	55.7	73.9	18.2	NS
Hori	5304.500	AV	33.0	32.5	6.2	35.7	36.0	53.9	17.9	
Hori	5328.451	AV	32.6	32.5	6.2	35.6	35.7	53.9	18.2	
Hori	5725.000	AV	37.1	32.9	6.5	35.6	40.9	53.9	13.0	
Hori	11490.000	AV	33.6	39.2	9.2	36.2	45.8	53.9	8.1	NS
Hori	17235.000	AV	33.9	41.8	2.1	35.4	42.4	53.9	11.5	NS
Vert	5304.500	PK	46.9	32.5	6.2	35.7	49.9	73.9	24.0	
Vert	5328.451	PK	44.2	32.5	6.2	35.6	47.2	73.9	26.7	
Vert	5725.000	PK	56.3	32.9	6.5	35.6	60.1	73.9	13.8	
Vert	11490.000	PK	41.8	39.2	9.2	36.2	54.0	73.9	19.9	NS
Vert	17235.000	PK	46.7	41.8	2.1	35.4	55.2	73.9	18.7	NS
Vert	5304.500	AV	33.5	32.5	6.2	35.7	36.5	53.9	17.4	
Vert	5328.451	AV	35.3	32.5	6.2	35.6	38.3	53.9	15.6	
Vert	5725.000	AV	40.3	32.9	6.5	35.6	44.1	53.9	9.8	
Vert	11490.000	AV	34.9	39.2	9.2	36.2	47.1	53.9	6.8	NS
Vert	17235.000	AV	33.9	41.8	2.1	35.4	42.4	53.9	11.5	NS

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-40GHz 20log(3.0m/1.0m)= 9.5dB

NS: No signal detected

Radiated Spurious Emission

Test place Head Office EMC Lab. No.3 Semi Anechoic Chamber
Report No. 32BE0278-HO
Date 10/07/2011 10/08/2011
Temperature/ Humidity 21 deg.C./ 64% RH 21 deg.C./ 60% RH
Engineer Katsunori Okai Katsunori Okai
(1-10GHz) (10-40GHz)
Mode 11n-20 5785MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	5348.000	PK	51.7	32.5	6.2	35.6	54.8	73.9	19.1	
Hori	5366.400	PK	53.5	32.5	6.2	35.6	56.6	73.9	17.3	
Hori	11570.000	PK	46.0	39.2	9.2	36.1	58.3	73.9	15.6	NS
Hori	17355.000	PK	46.5	42.7	2.1	35.3	56.0	73.9	17.9	NS
Hori	5348.000	AV	41.8	32.5	6.2	35.6	44.9	53.9	9.0	
Hori	5366.400	AV	39.6	32.5	6.2	35.6	42.7	53.9	11.2	
Hori	11570.000	AV	33.3	39.2	9.2	36.1	45.6	53.9	8.3	NS
Hori	17355.000	AV	33.7	42.7	2.1	35.3	43.2	53.9	10.7	NS
Vert	5348.000	PK	53.5	32.5	6.2	35.6	56.6	73.9	17.3	
Vert	5366.400	PK	49.1	32.5	6.2	35.6	52.2	73.9	21.7	
Vert	11570.000	PK	46.8	39.2	9.2	36.1	59.1	73.9	14.8	NS
Vert	17355.000	PK	47.7	42.7	2.1	35.3	57.2	73.9	16.7	NS
Vert	5348.000	AV	37.5	32.5	6.2	35.6	40.6	53.9	13.3	
Vert	5366.400	AV	37.0	32.5	6.2	35.6	40.1	53.9	13.8	
Vert	11570.000	AV	34.8	39.2	9.2	36.1	47.1	53.9	6.8	NS
Vert	17355.000	AV	33.7	42.7	2.1	35.3	43.2	53.9	10.7	NS

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-40GHz $20\log(3.0\text{m}/1.0\text{m})= 9.5\text{dB}$

NS: No signal detected

Radiated Spurious Emission

Test place : Head Office EMC Lab. No.3 Semi Anechoic Chamber
Report No. : 32BE0278-HO
Date : 10/07/2011 10/08/2011
Temperature/ Humidity : 21 deg.C./ 64% RH 21 deg.C./ 60% RH
Engineer : Katsunori Okai Katsunori Okai
(1-10GHz) (10-40GHz)
Mode : 11n-20 Tx 5825MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	5307.330	PK	52.9	32.5	6.2	35.7	55.9	73.9	18.0	
Hori	5348.324	PK	48.9	32.5	6.2	35.6	52.0	73.9	21.9	
Hori	5850.000	PK	60.2	33.1	6.6	35.7	64.2	73.9	9.7	
Hori	11650.000	PK	46.9	39.3	9.3	36.1	59.4	73.9	14.5	NS
Hori	17475.000	PK	45.7	43.6	2.2	35.3	56.2	73.9	17.7	NS
Hori	5307.330	AV	34.9	32.5	6.2	35.7	37.9	53.9	16.0	
Hori	5348.324	AV	34.7	32.5	6.2	35.6	37.8	53.9	16.1	
Hori	5850.000	AV	33.2	33.1	6.6	35.7	37.2	53.9	16.7	
Hori	11650.000	AV	33.2	39.3	9.3	36.1	45.7	53.9	8.2	NS
Hori	17475.000	AV	34.7	43.6	2.2	35.3	45.2	53.9	8.7	NS
Vert	5307.330	PK	51.9	32.5	6.2	35.7	54.9	73.9	19.0	
Vert	5349.926	PK	47.8	32.5	6.2	35.6	50.9	73.9	23.0	
Vert	5850.000	PK	63.1	33.1	6.6	35.7	67.1	73.9	6.8	
Vert	11650.000	PK	46.2	39.3	9.3	36.1	58.7	73.9	15.2	NS
Vert	17475.000	PK	47.4	43.6	2.2	35.3	57.9	73.9	16.0	NS
Vert	5307.330	AV	38.2	32.5	6.2	35.7	41.2	53.9	12.7	
Vert	5349.926	AV	37.9	32.5	6.2	35.6	41.0	53.9	12.9	
Vert	5850.000	AV	39.8	33.1	6.6	35.7	43.8	53.9	10.1	
Vert	11650.000	AV	33.2	39.3	9.3	36.1	45.7	53.9	8.2	NS
Vert	17475.000	AV	34.9	43.6	2.2	35.3	45.4	53.9	8.5	NS

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-40GHz $20\log(3.0\text{m}/1.0\text{m})= 9.5\text{dB}$

NS: No signal detected

Radiated Spurious Emission

Test place Head Office EMC Lab. No.3 Semi Anechoic Chamber
Report No. 32BE0278-HO
Date 10/07/2011 10/08/2011
Temperature/ Humidity 21 deg.C./ 64% RH 21 deg.C./ 60% RH
Engineer Katsunori Okai Katsunori Okai
(1-10GHz) (10-40GHz)
Mode 11n-40 5755MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	5725.000	PK	63.6	32.9	6.5	35.6	67.4	-	-	See 20dBc Data Sheet
Hori	11510.000	PK	46.7	39.2	9.2	36.2	58.9	73.9	15.0	NS
Hori	17265.000	PK	46.4	42.0	2.1	35.4	55.1	73.9	18.8	NS
Hori	5725.000	AV	50.7	32.9	6.5	35.6	54.5	-	-	See 20dBc Data Sheet
Hori	11510.000	AV	33.4	39.2	9.2	36.2	45.6	53.9	8.3	NS
Hori	17265.000	AV	35.3	42.0	2.1	35.4	44.0	53.9	9.9	NS
Vert	5725.000	PK	69.8	32.9	6.5	35.6	73.6	-	-	See 20dBc Data Sheet
Vert	11510.000	PK	43.9	39.2	9.2	36.2	56.1	73.9	17.8	NS
Vert	17265.000	PK	47.3	42.0	2.1	35.4	56.0	73.9	17.9	NS
Vert	5725.000	AV	51.7	32.9	6.5	35.6	55.5	-	-	See 20dBc Data Sheet
Vert	11510.000	AV	33.3	39.2	9.2	36.2	45.5	53.9	8.4	NS
Vert	17265.000	AV	35.3	42.0	2.1	35.4	44.0	53.9	9.9	NS

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-40GHz $20\log(3.0m/1.0m) = 9.5dB$

NS: No signal detected

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	5755.000	PK	93.0	33.0	6.5	35.6	96.9	-	-	Carrier
Hori	5725.000	PK	51.9	32.9	6.5	35.6	55.7	76.9	21.2	
Vert	5755.000	PK	94.5	33.0	6.5	35.6	98.4	-	-	Carrier
Vert	5725.000	PK	53.7	32.9	6.5	35.6	57.5	78.4	20.9	

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. 32BE0278-HO
Date 10/07/2011 10/08/2011
Temperature/ Humidity 21 deg.C./ 64% RH 21 deg.C./ 60% RH
Engineer Katsunori Okai Katsunori Okai
(1-10GHz) (10-40GHz)
Mode 11n-40 5795MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	5344.000	PK	45.8	32.5	6.2	35.6	48.9	73.9	25.0	
Hori	5850.000	PK	59.7	33.1	6.6	35.7	63.7	73.9	10.2	
Hori	11590.000	PK	45.7	39.3	9.3	36.1	58.2	73.9	15.7	NS
Hori	17385.000	PK	46.6	42.9	2.1	35.3	56.3	73.9	17.6	NS
Hori	5344.000	AV	38.9	32.5	6.2	35.6	42.0	53.9	11.9	
Hori	5850.000	AV	35.9	33.1	6.6	35.7	39.9	53.9	14.0	
Hori	11590.000	AV	33.4	39.3	9.3	36.1	45.9	53.9	8.0	NS
Hori	17385.000	AV	35.1	42.9	2.1	35.3	44.8	53.9	9.1	NS
Vert	5344.000	PK	49.9	32.5	6.2	35.6	53.0	73.9	20.9	
Vert	5850.000	PK	61.8	33.1	6.6	35.7	65.8	73.9	8.1	
Vert	11590.000	PK	46.0	39.3	9.3	36.1	58.5	73.9	15.4	NS
Vert	17385.000	PK	46.8	42.9	2.1	35.3	56.5	73.9	17.4	NS
Vert	5344.000	AV	37.8	32.5	6.2	35.6	40.9	53.9	13.0	
Vert	5850.000	AV	36.8	33.1	6.6	35.7	40.8	53.9	13.1	
Vert	11590.000	AV	33.4	39.3	9.3	36.1	45.9	53.9	8.0	NS
Vert	17385.000	AV	35.1	42.9	2.1	35.3	44.8	53.9	9.1	NS

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).

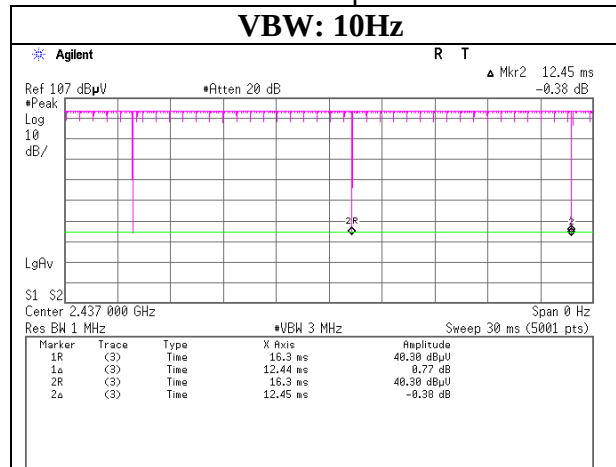
Distance factor: 10GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

NS: No signal detected

VBW (AV) Calculation

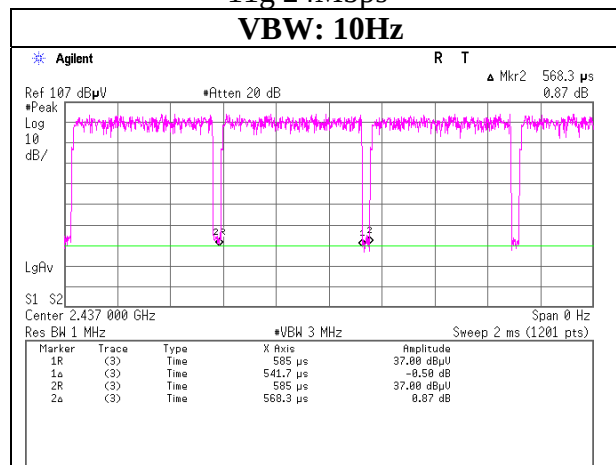
11b 1Mbps

VBW: 10Hz



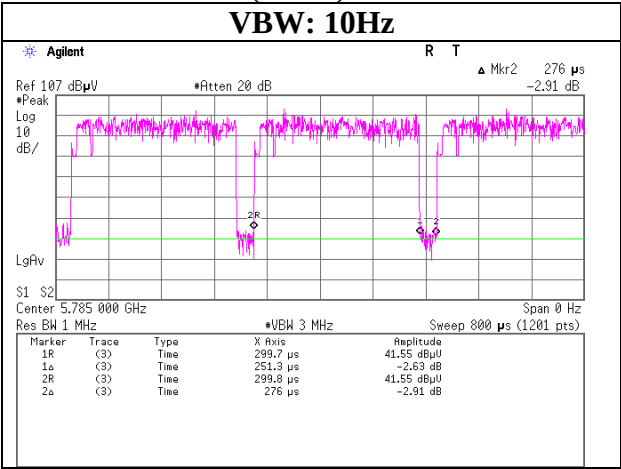
11g 24Mbps

VBW: 10Hz

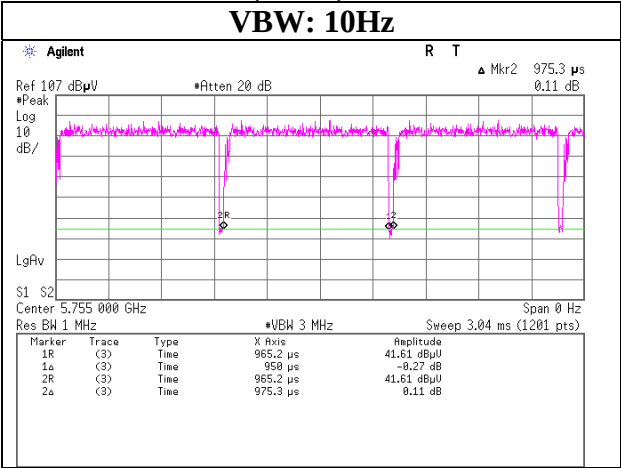


VBW (AV) Calculation

11n-20(5GHz) MCS6

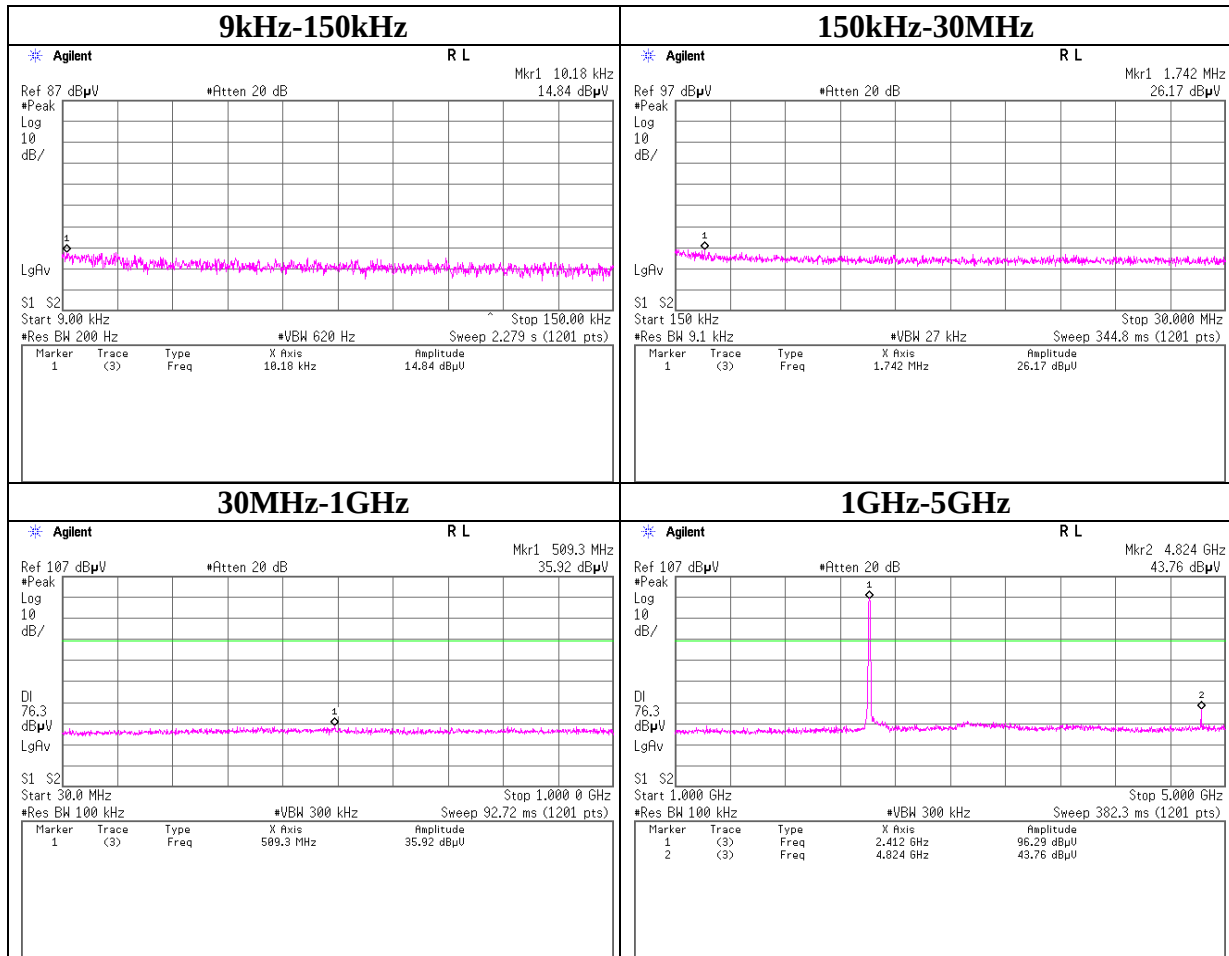


11n-40(5GHz) MCS0



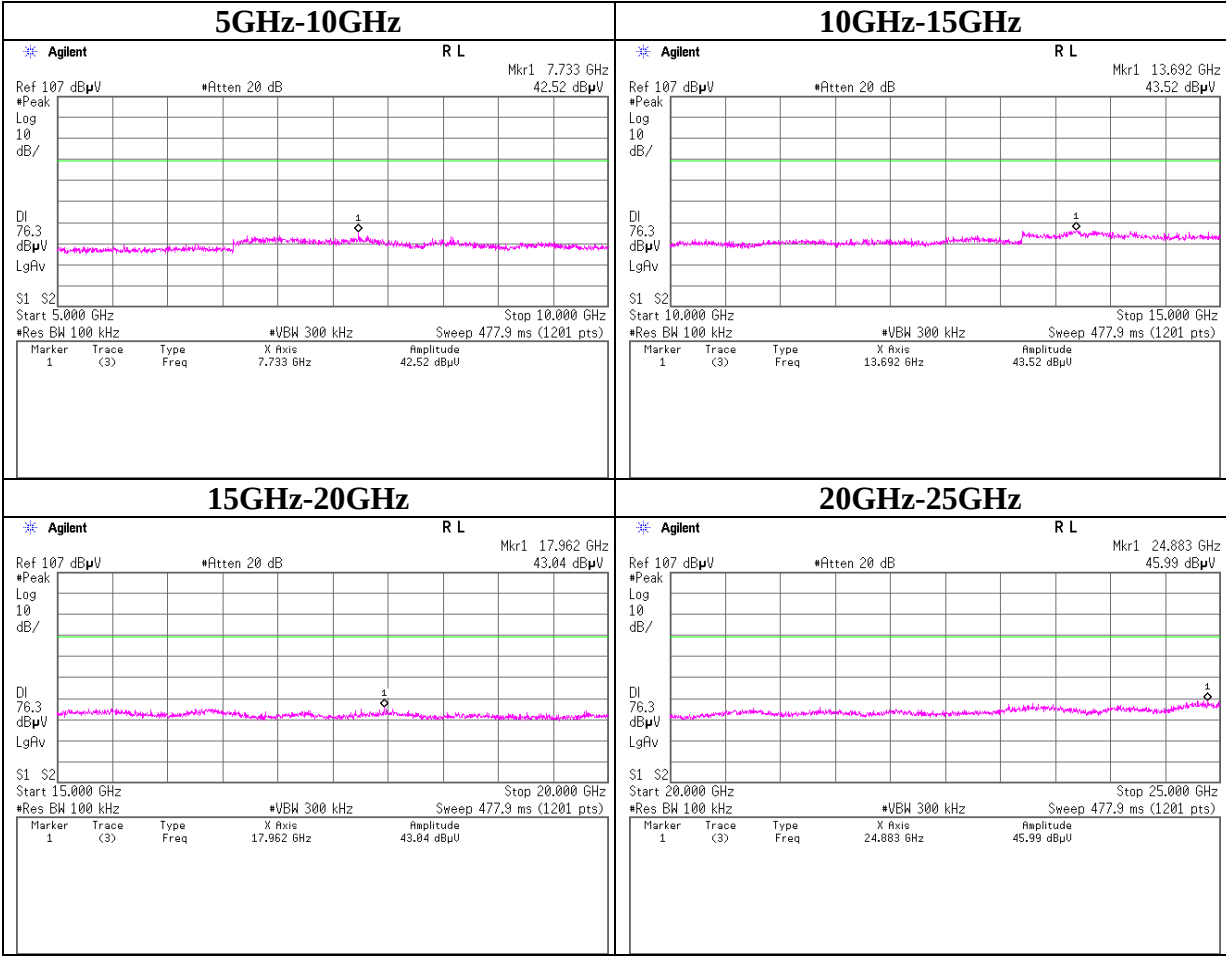
Conducted Spurious Emission

11b Tx 2412MHz



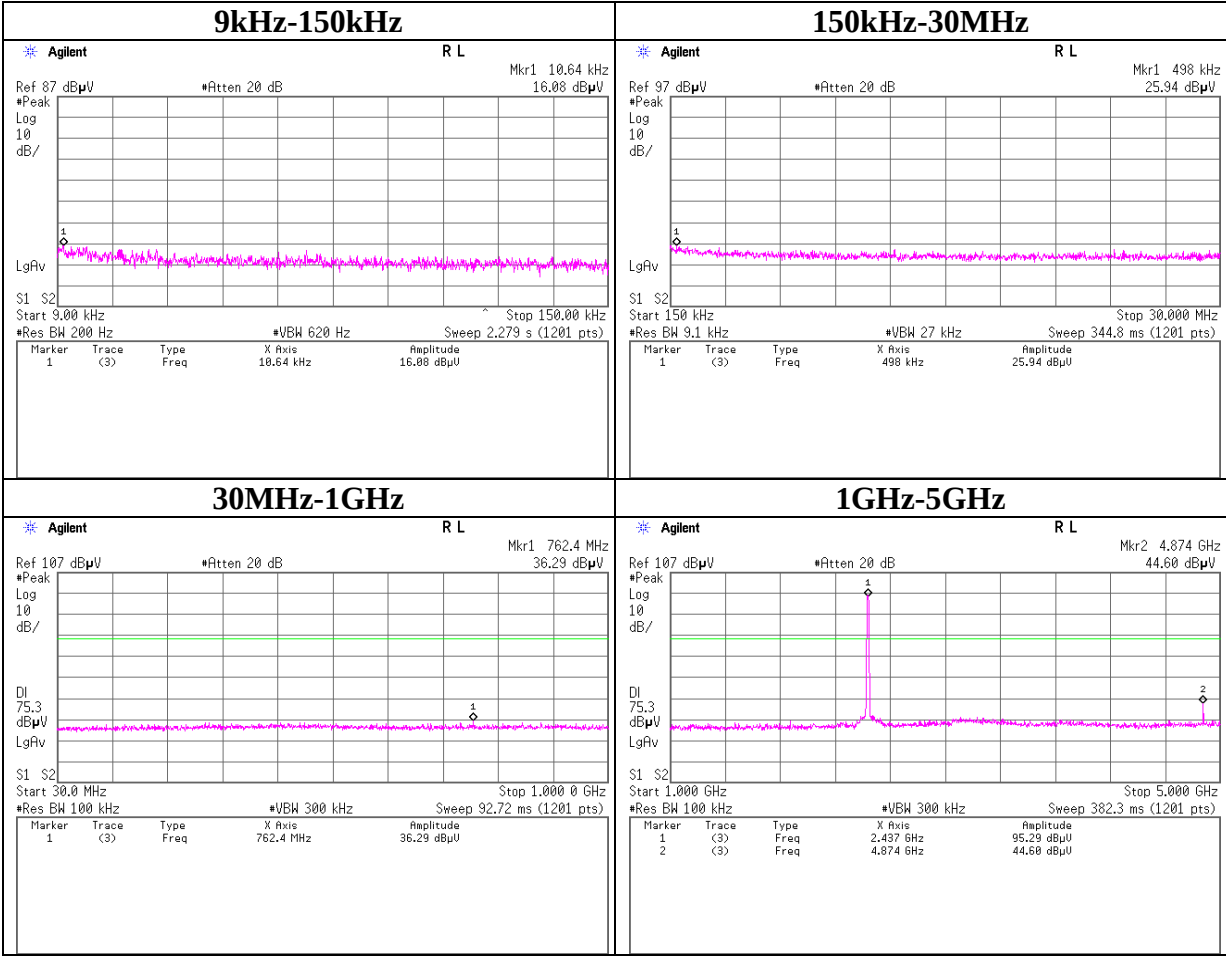
Conducted Spurious Emission

11b Tx 2412MHz



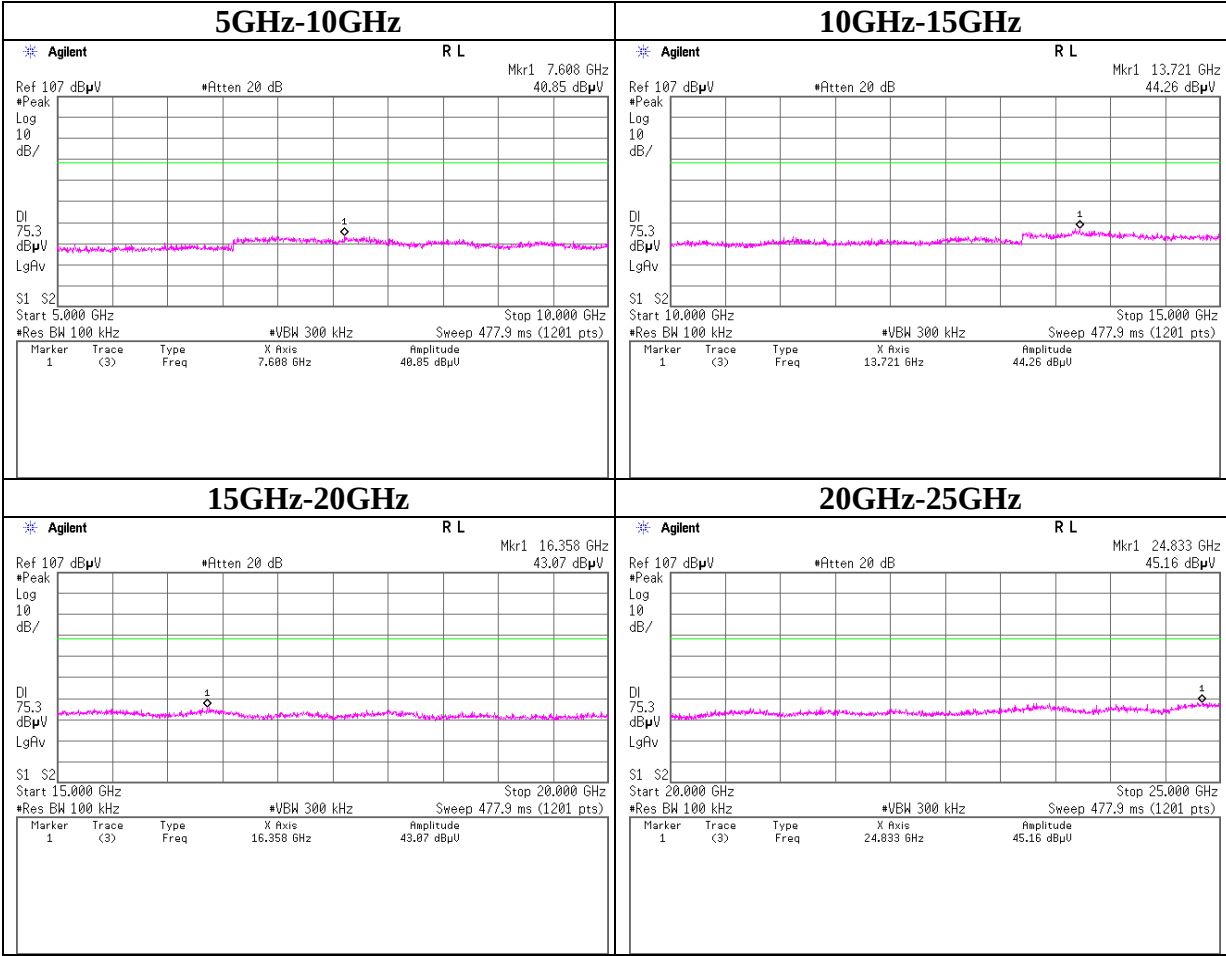
Conducted Spurious Emission

11b Tx 2437MHz



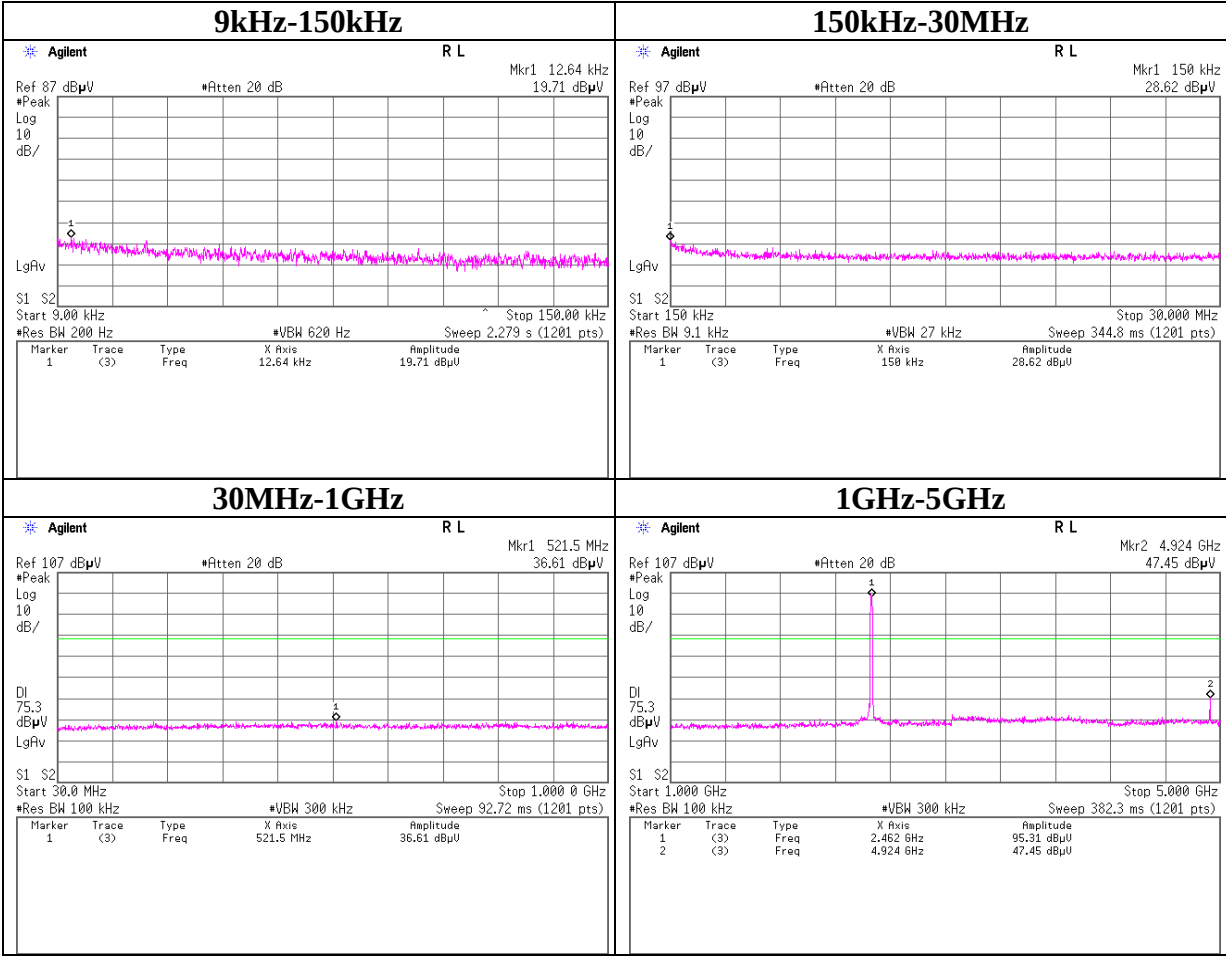
Conducted Spurious Emission

11b Tx 2437MHz



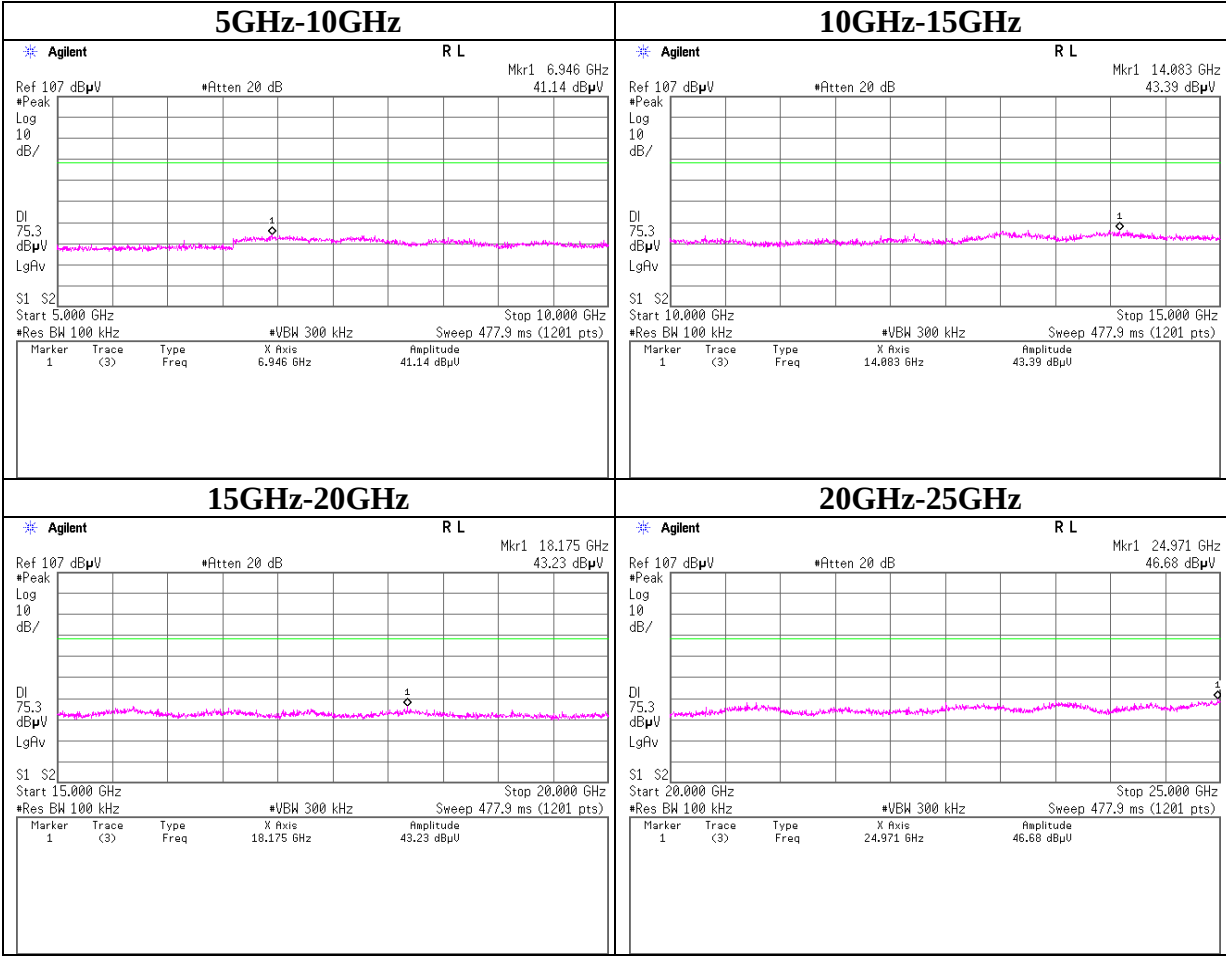
Conducted Spurious Emission

11b Tx 2462MHz



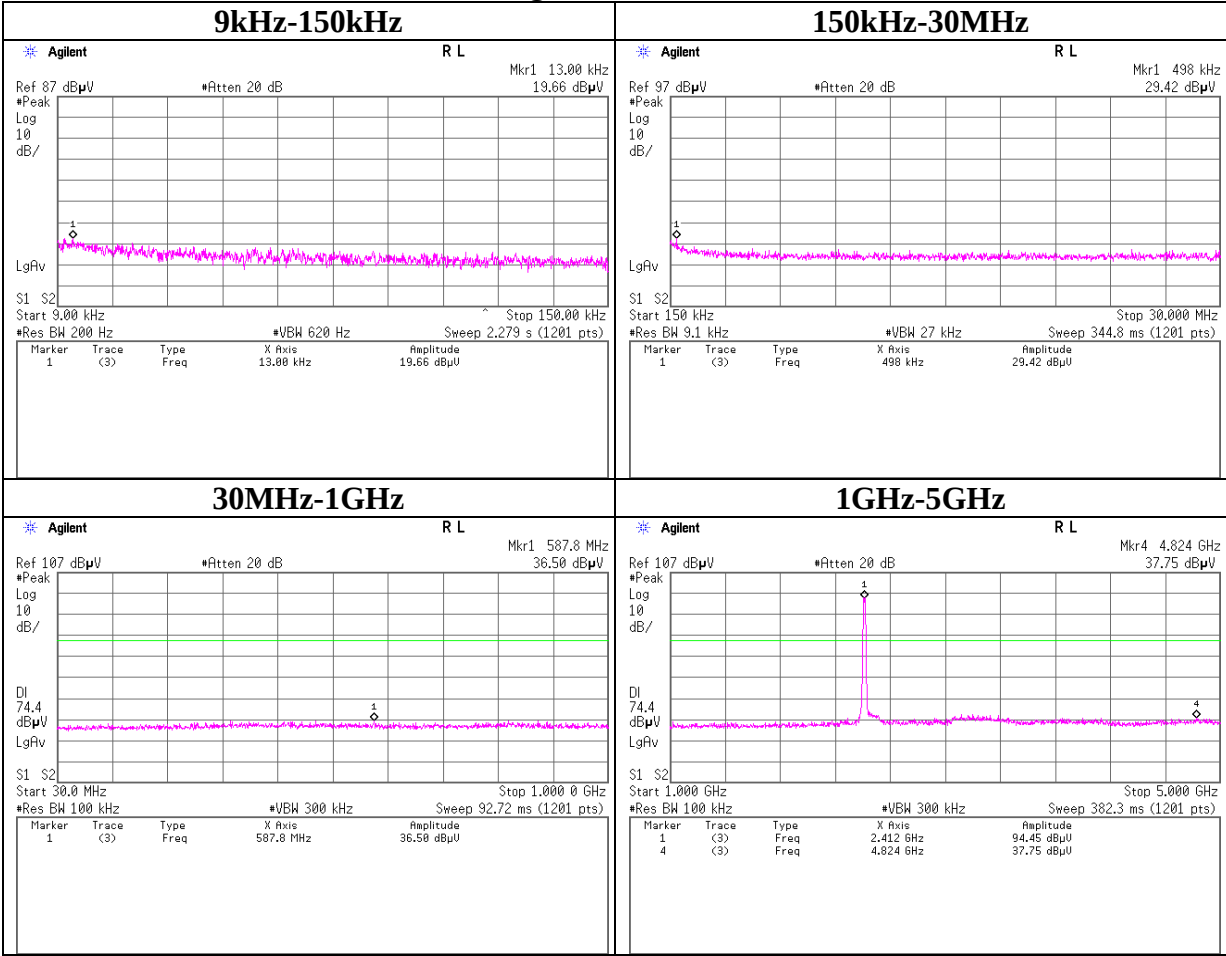
Conducted Spurious Emission

11b Tx 2462MHz



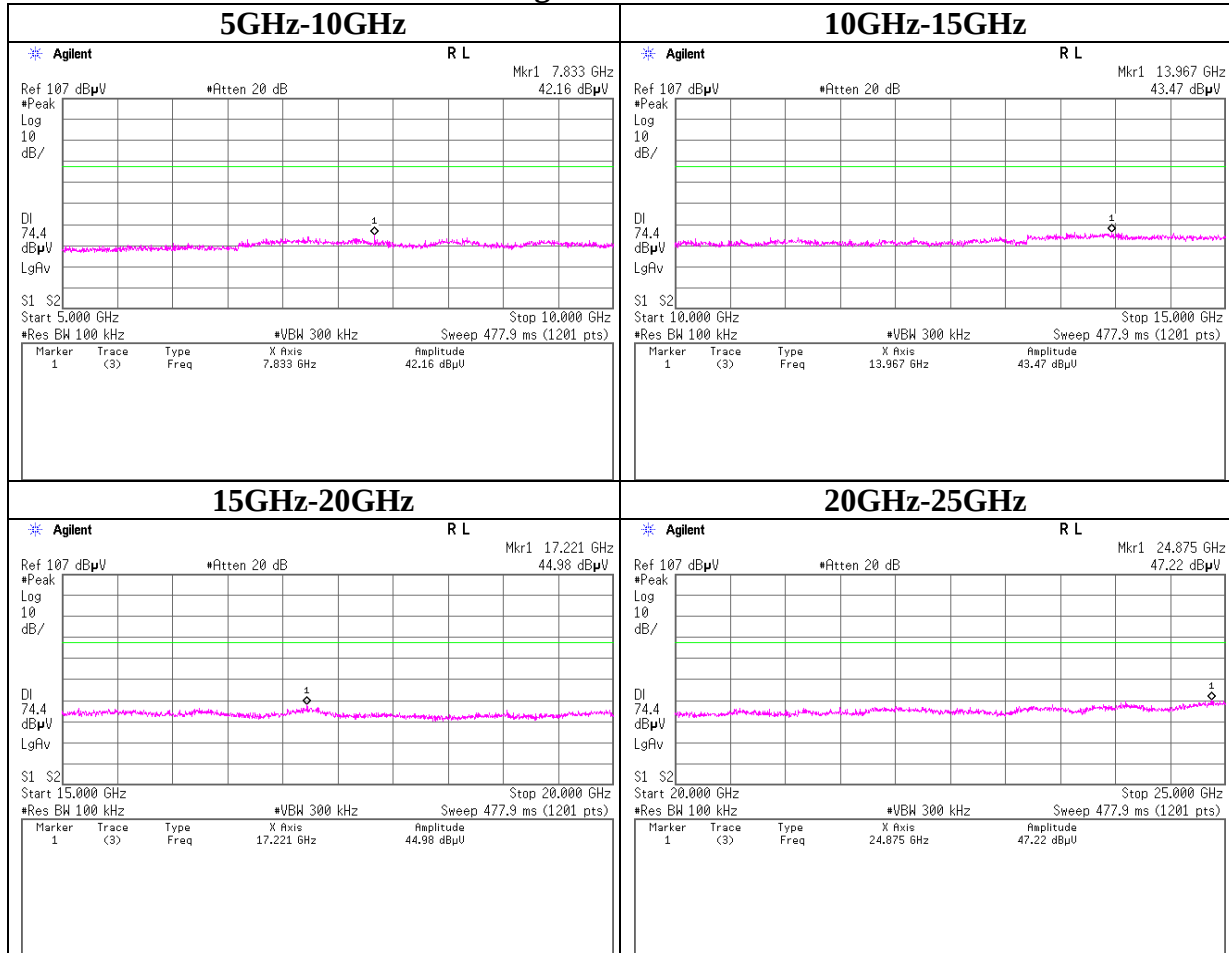
Conducted Spurious Emission

11g Tx 2412MHz



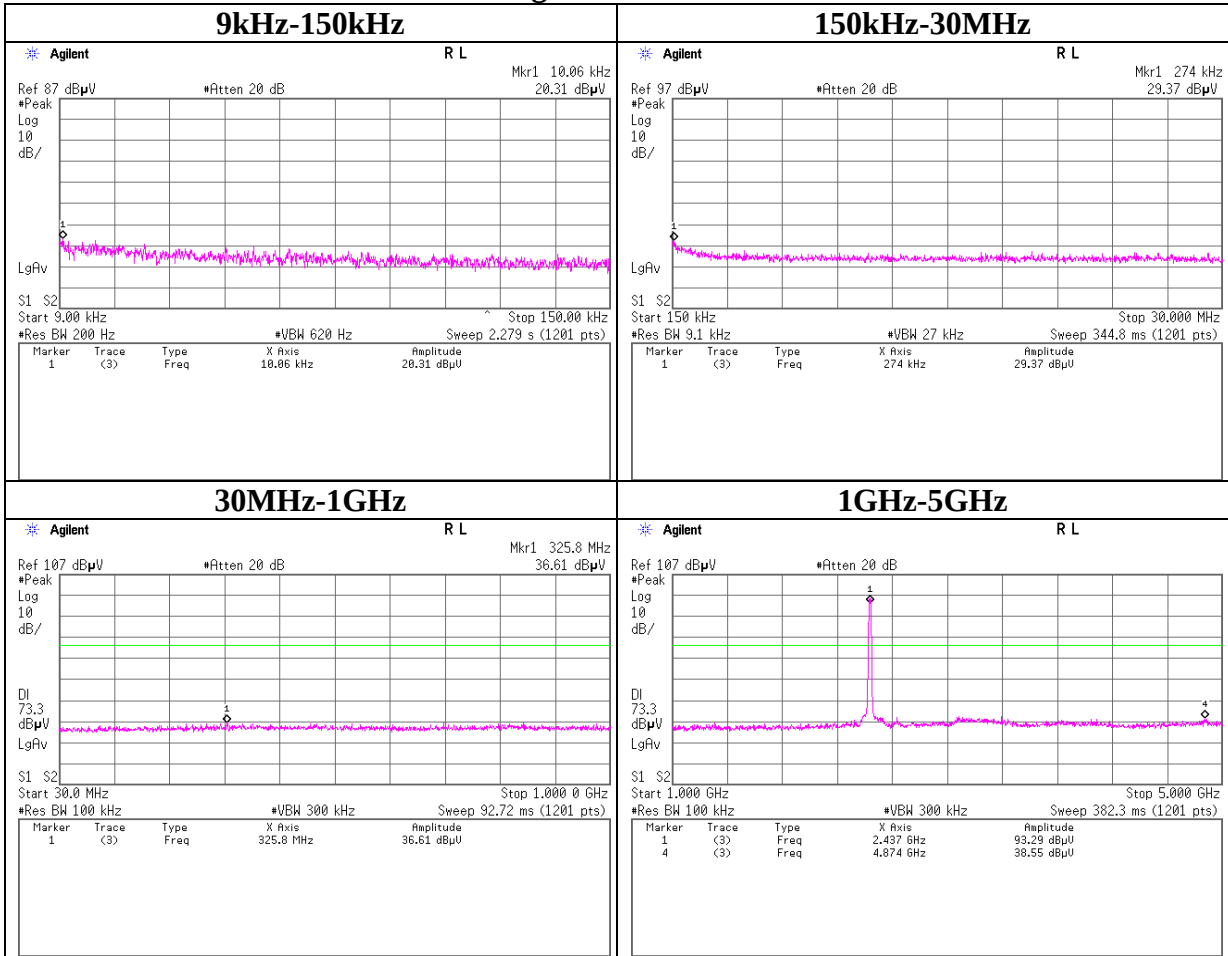
Conducted Spurious Emission

11g Tx 2412MHz



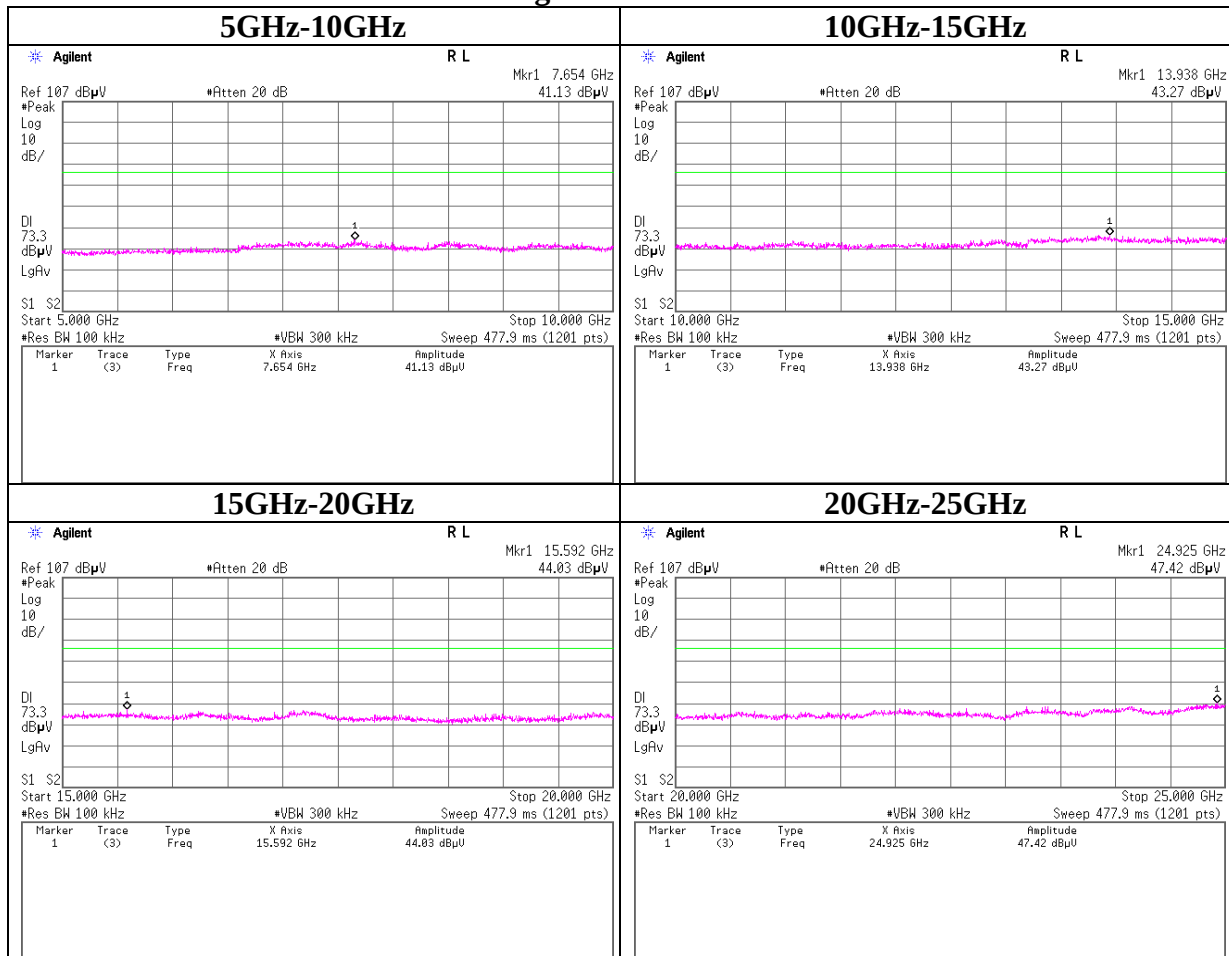
Conducted Spurious Emission

11g Tx 2437MHz



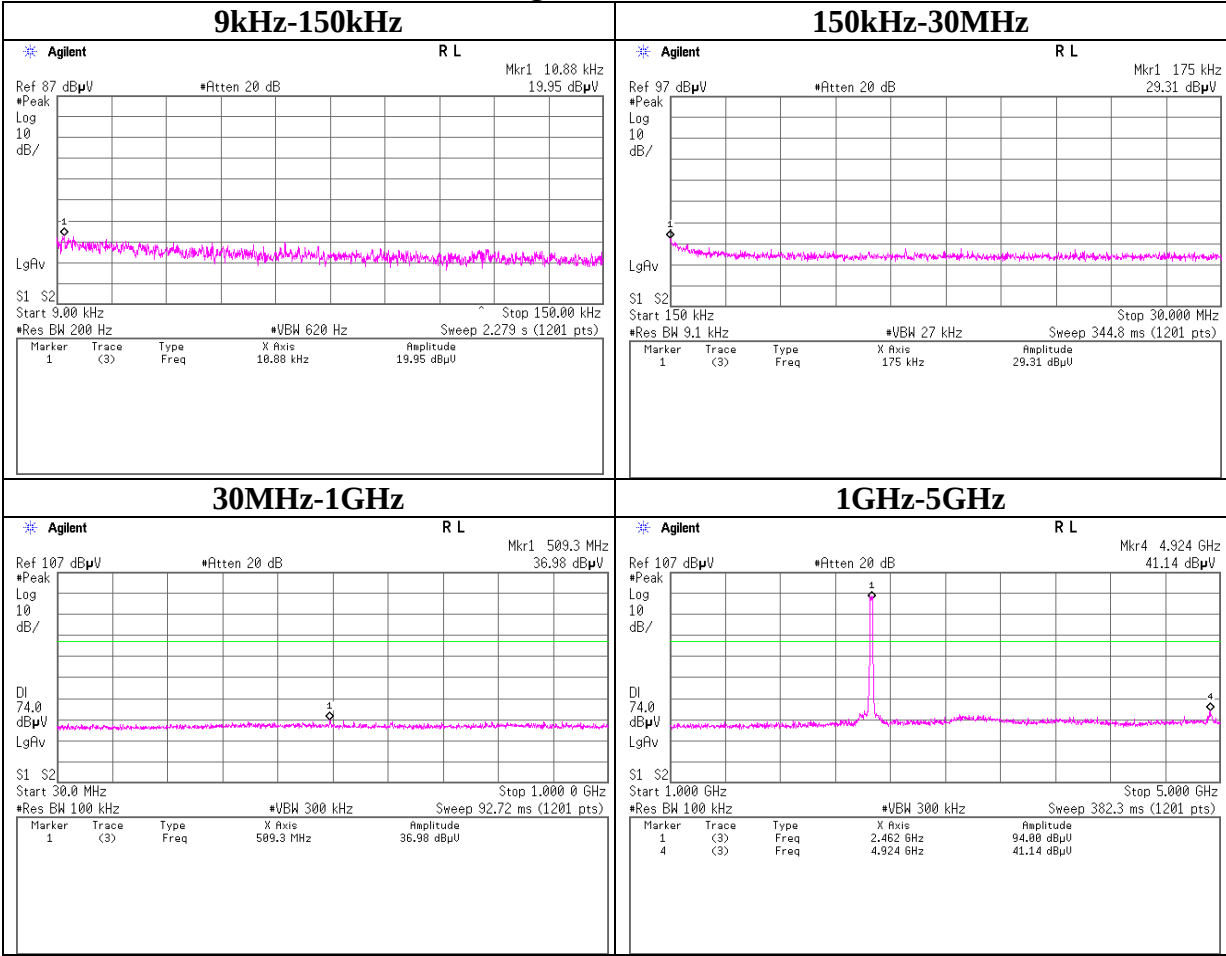
Conducted Spurious Emission

11g Tx 2437MHz



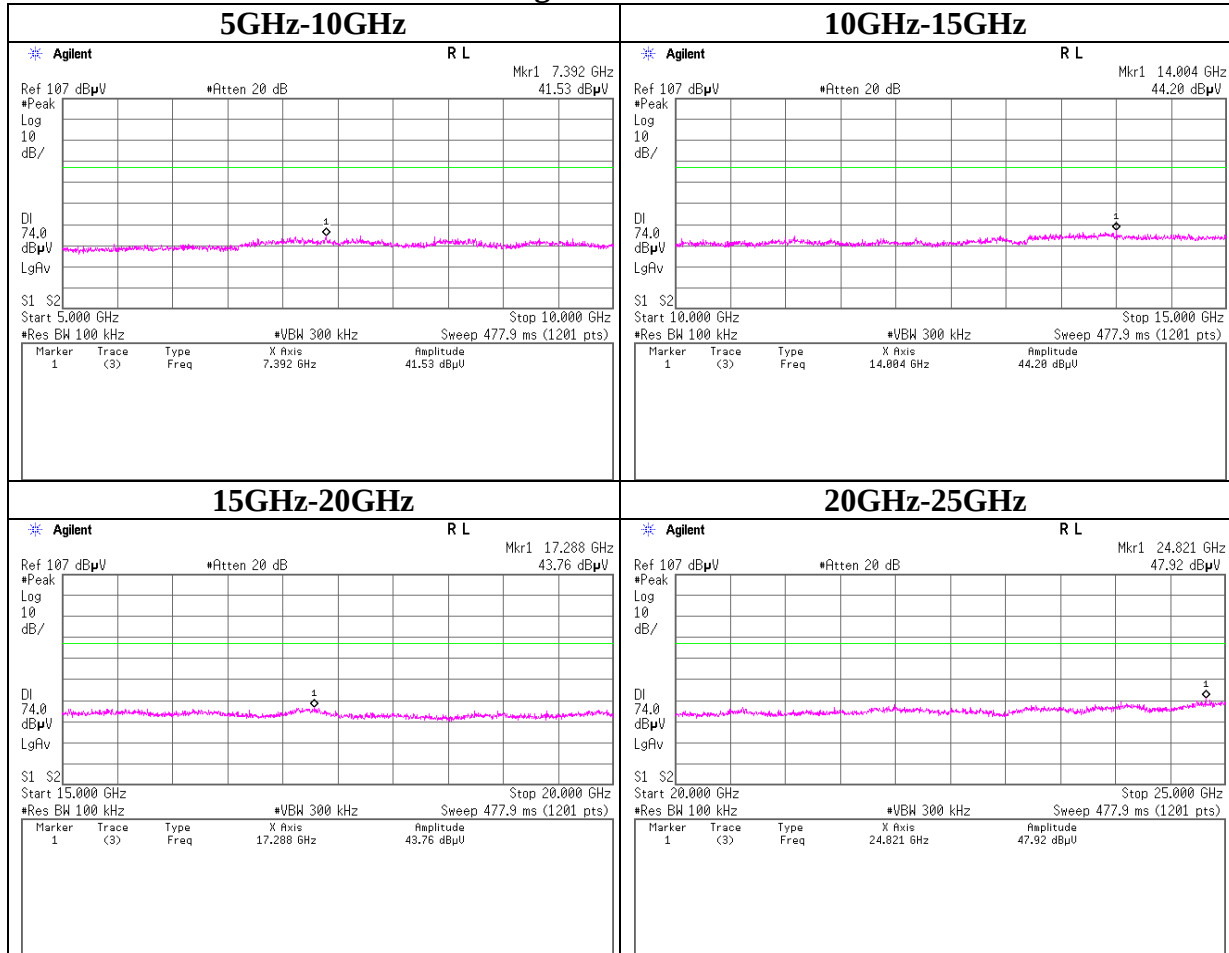
Conducted Spurious Emission

11g Tx 2462MHz



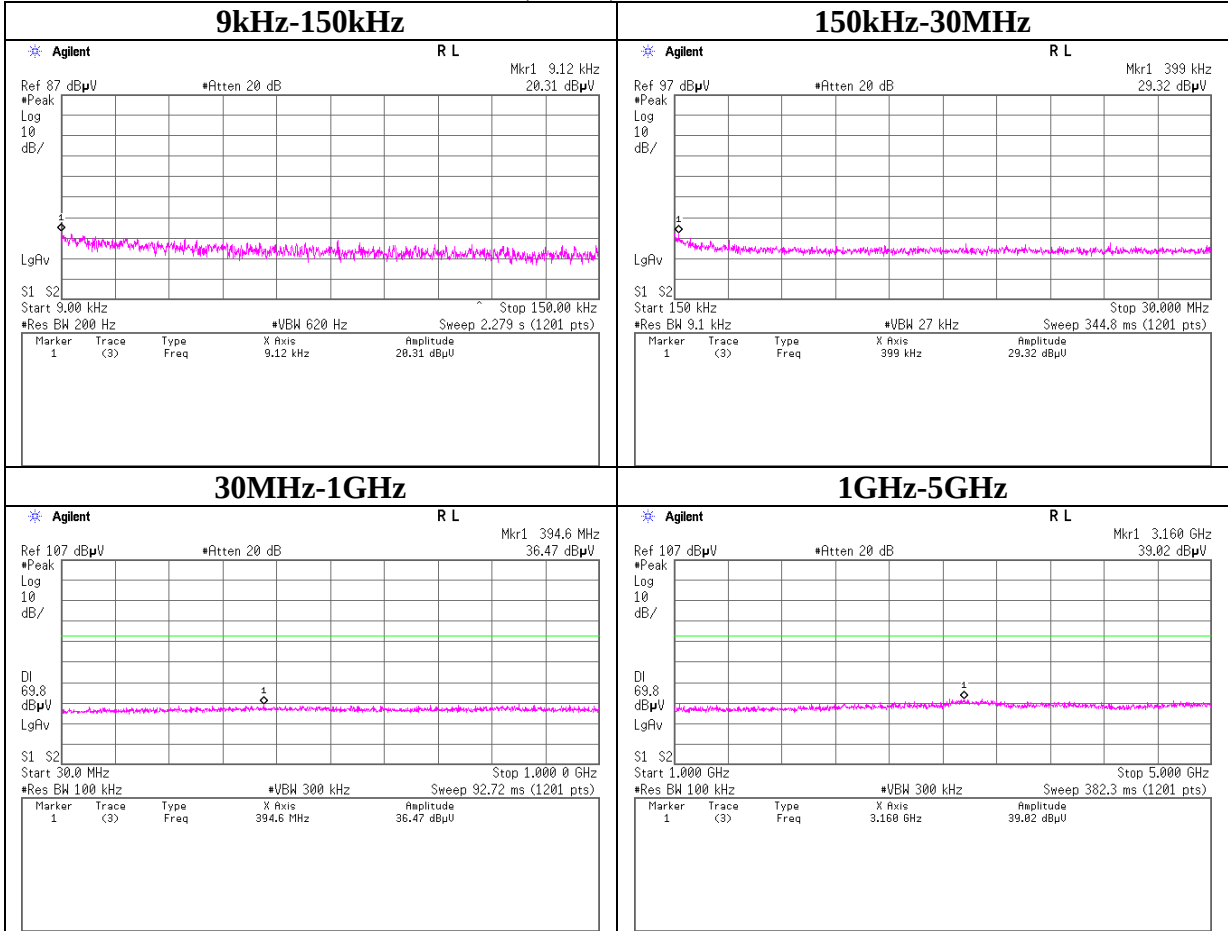
Conducted Spurious Emission

11g Tx 2462MHz



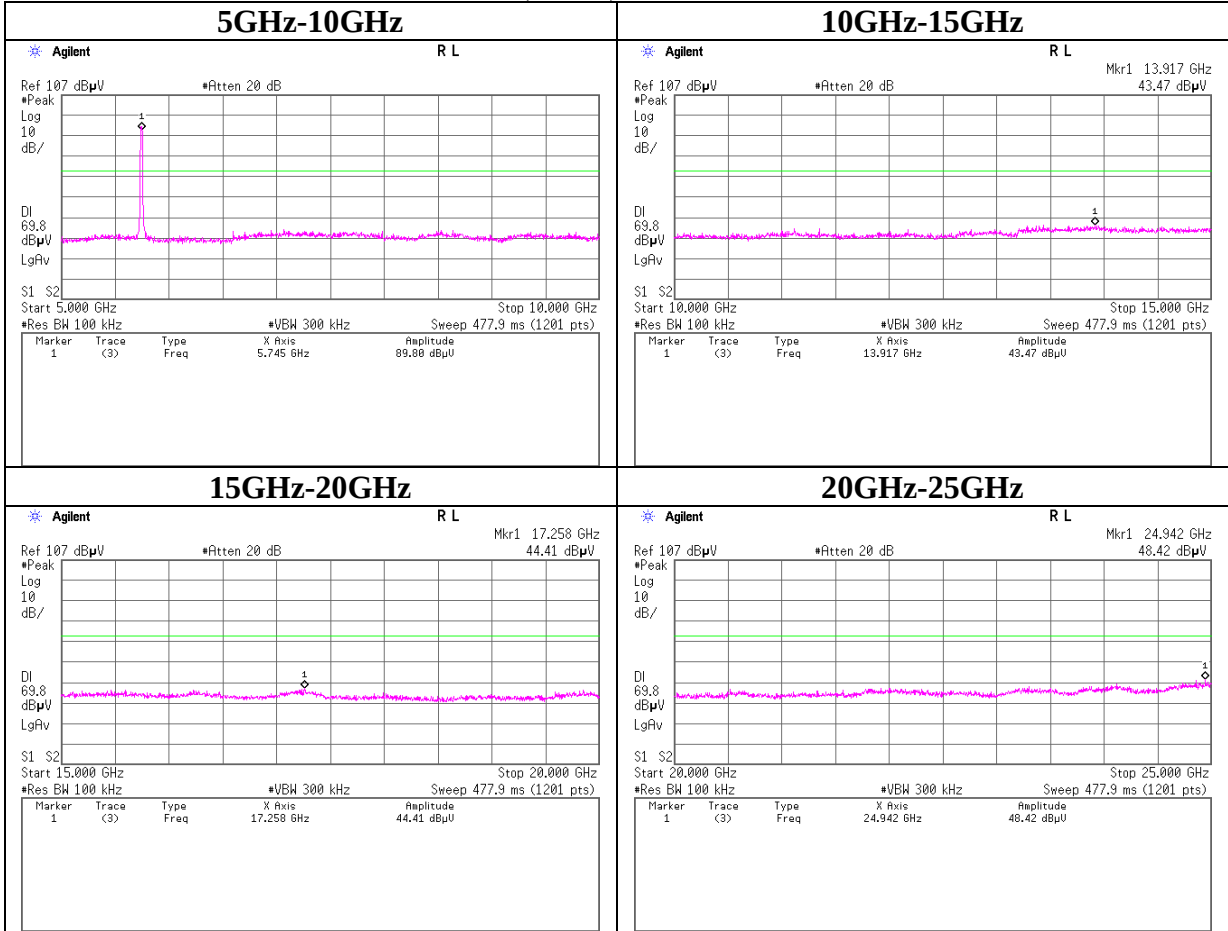
Conducted Spurious Emission

11n-20(5GHz) Tx 5745MHz



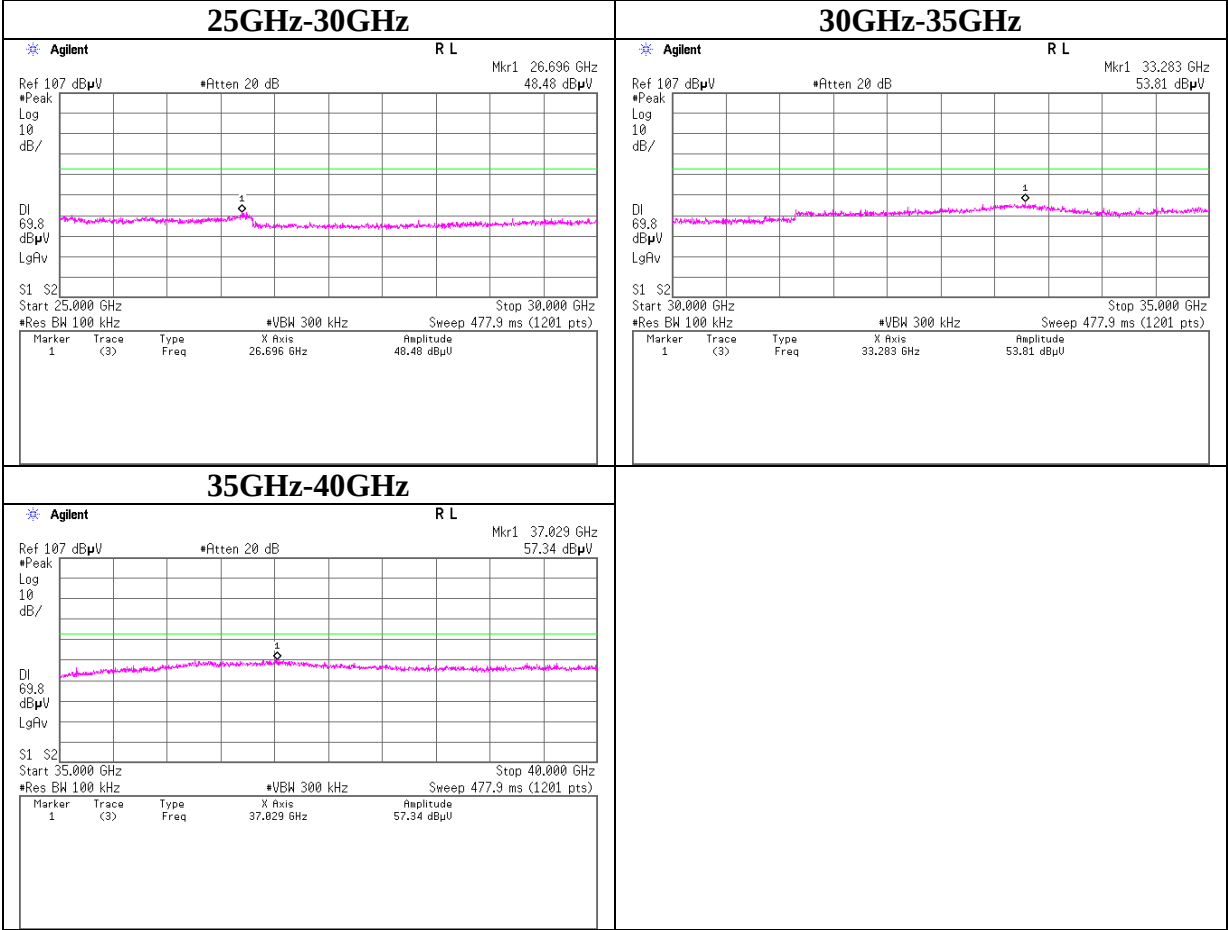
Conducted Spurious Emission

11n-20(5GHz) Tx 5745MHz



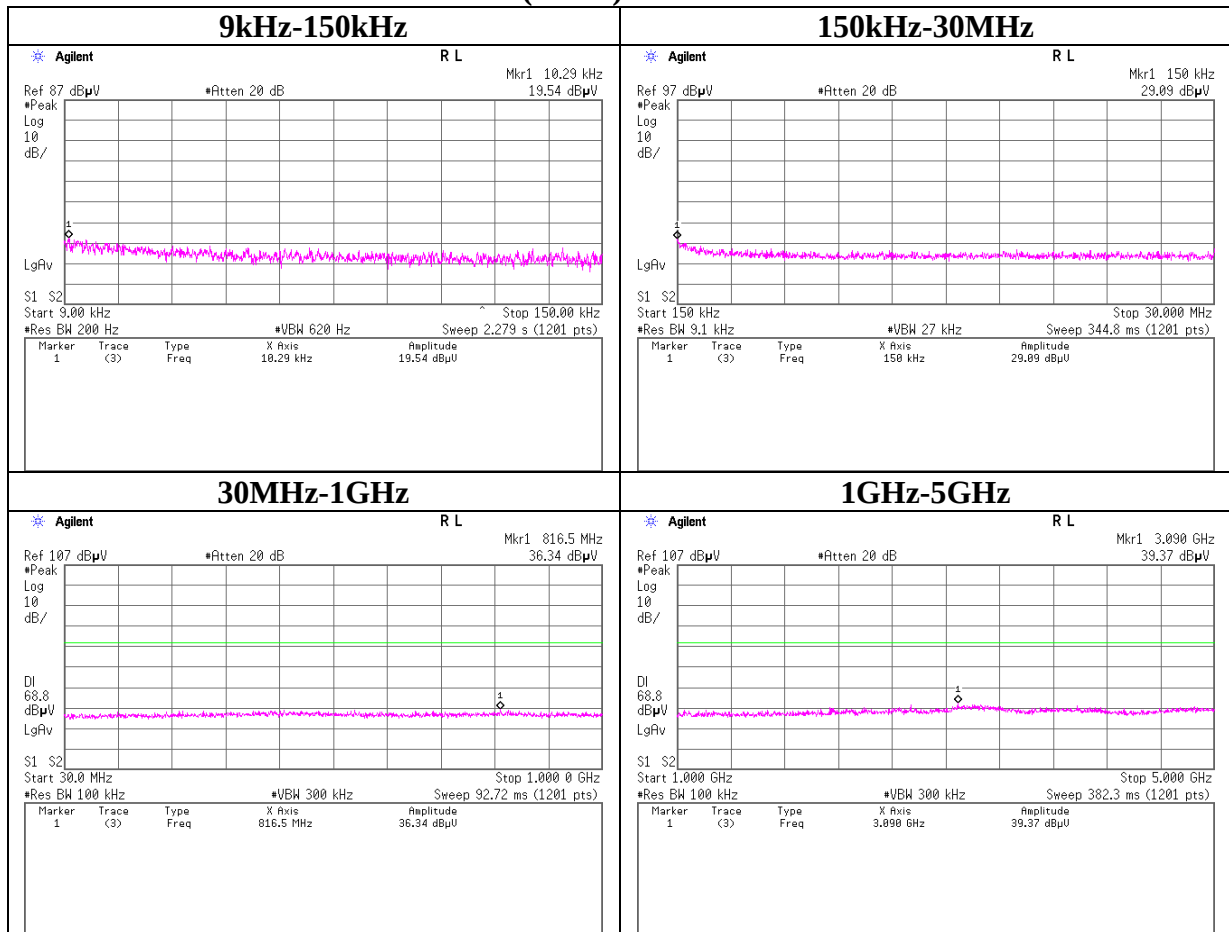
Conducted Spurious Emission

11n-20(5GHz) Tx 5745MHz



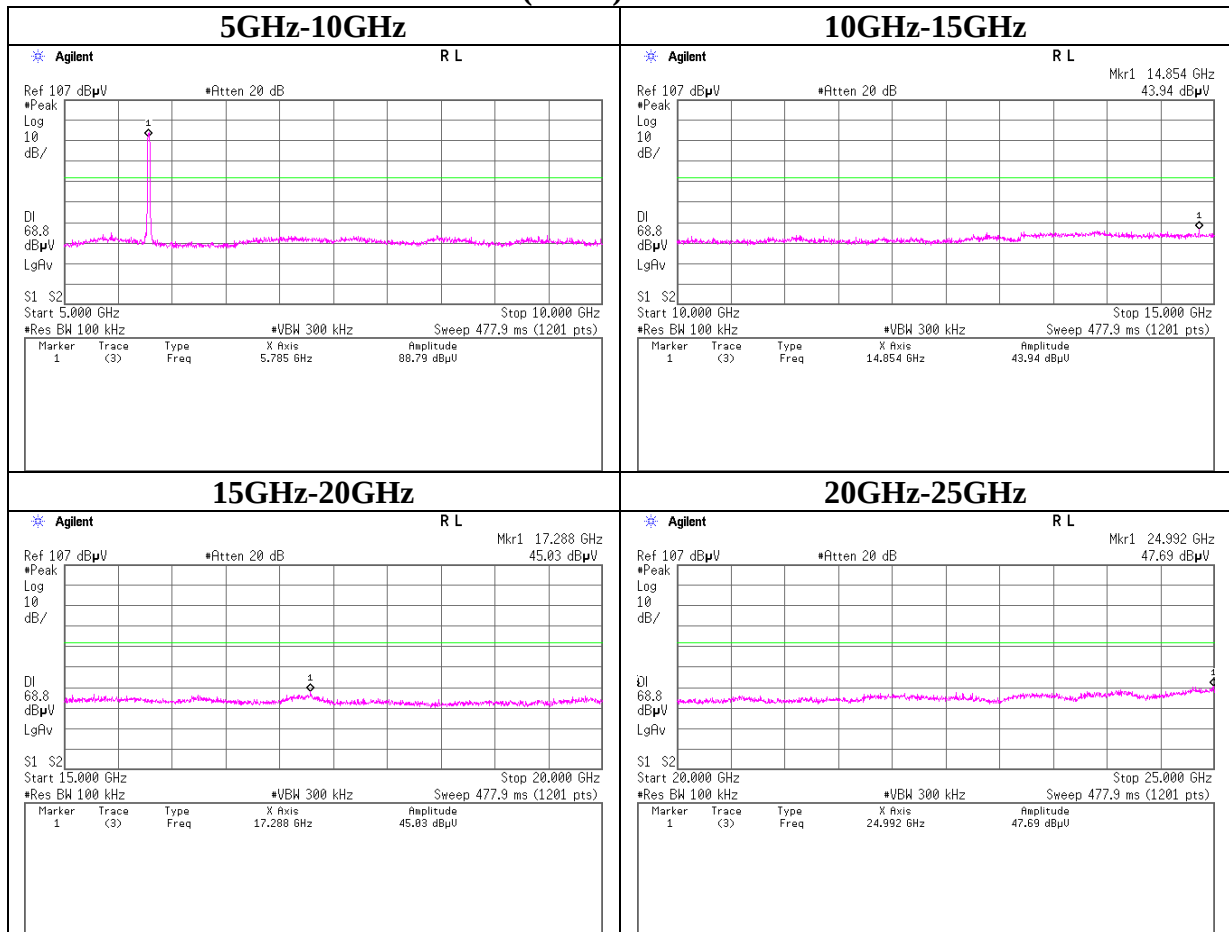
Conducted Spurious Emission

11n-20(5GHz) Tx 5785MHz



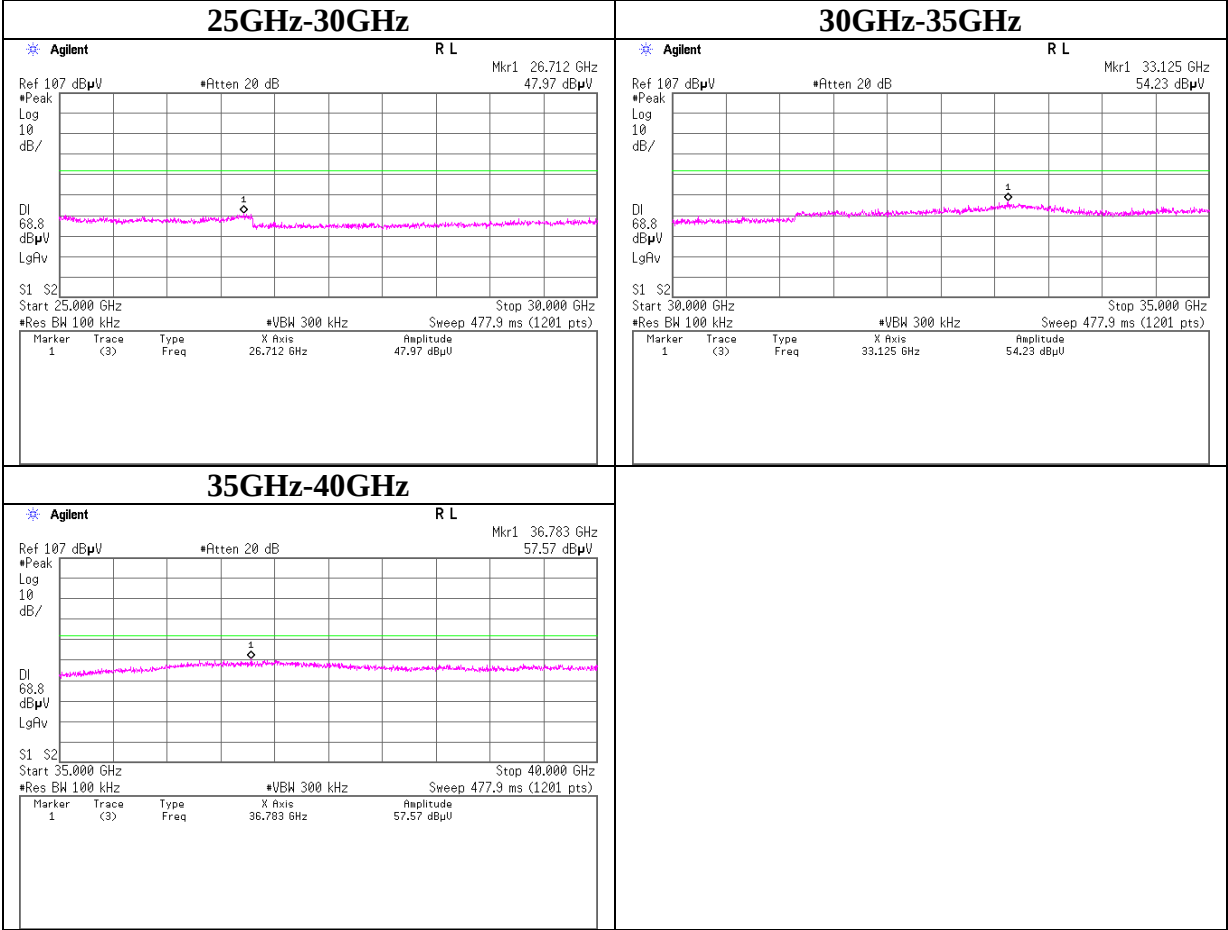
Conducted Spurious Emission

11n-20(5GHz) Tx 5785MHz



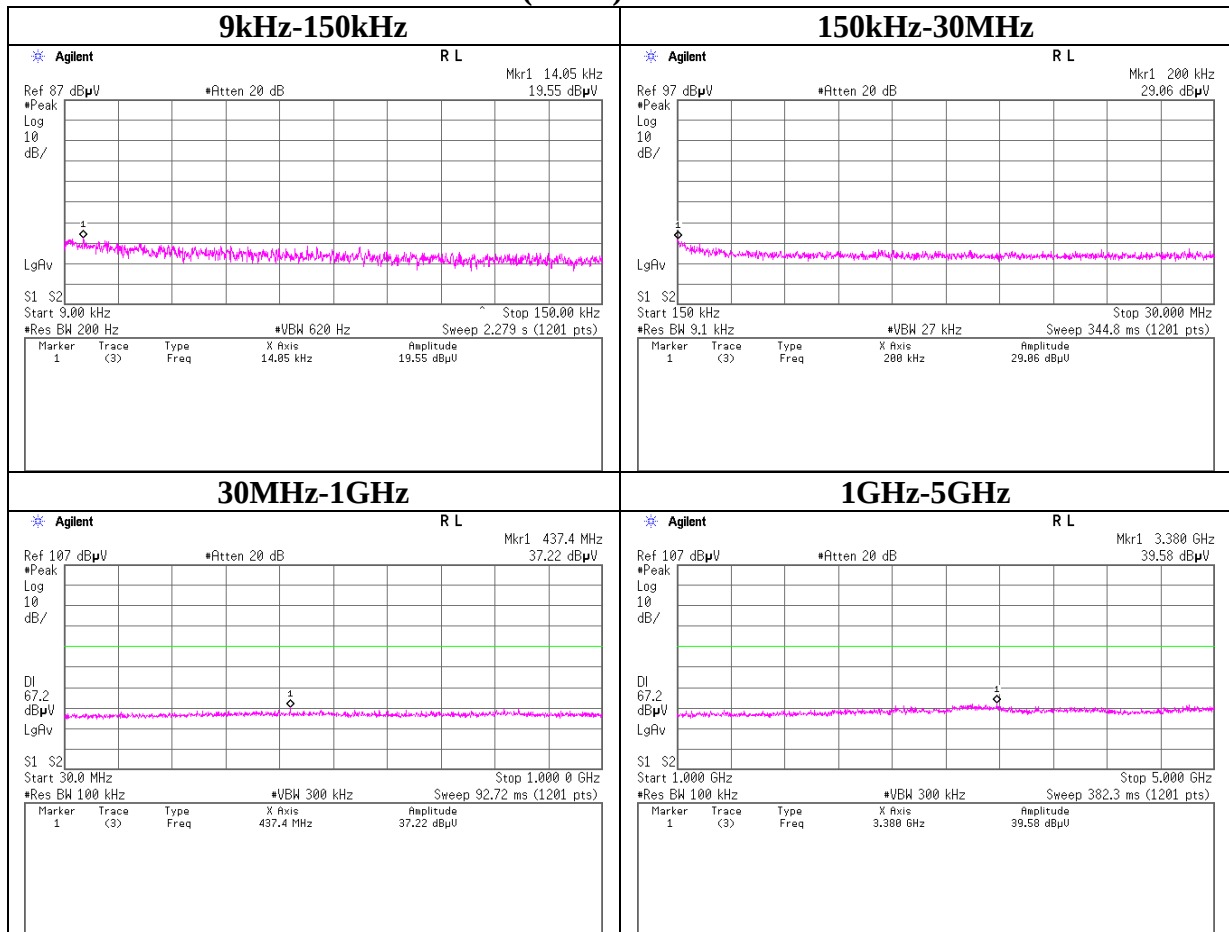
Conducted Spurious Emission

11n-20(5GHz) Tx 5785MHz



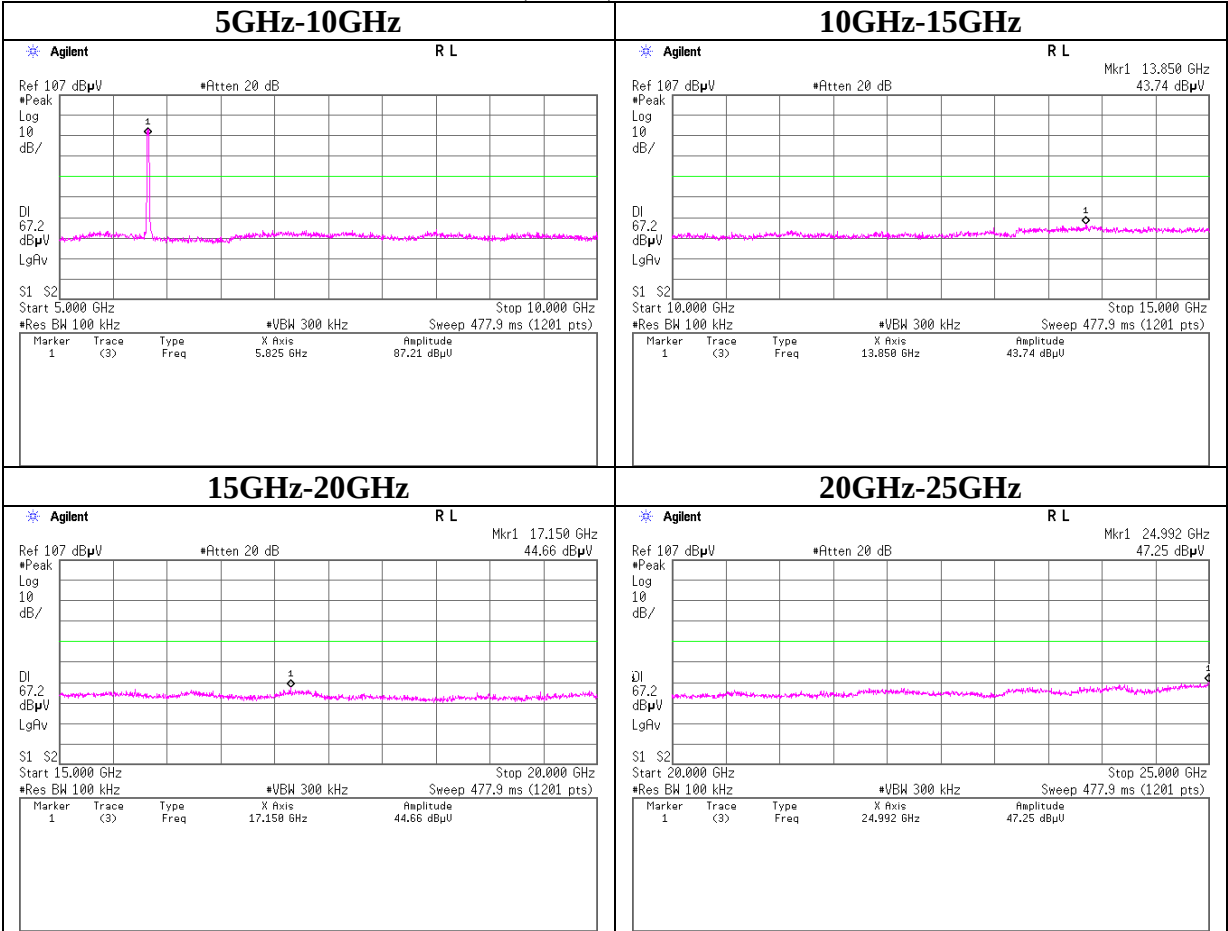
Conducted Spurious Emission

11n-20(5GHz) Tx 5825MHz



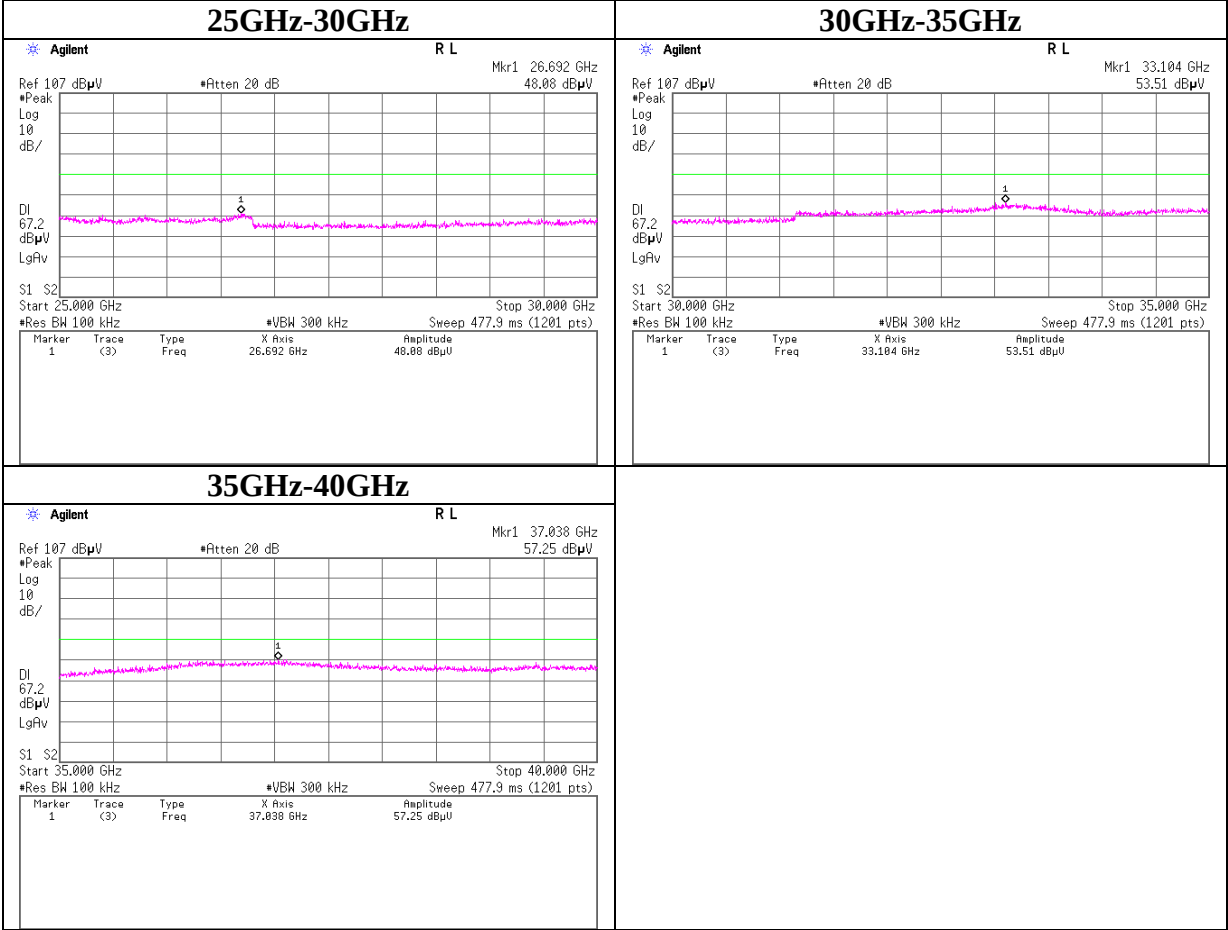
Conducted Spurious Emission

11n-20(5GHz) Tx 5825MHz



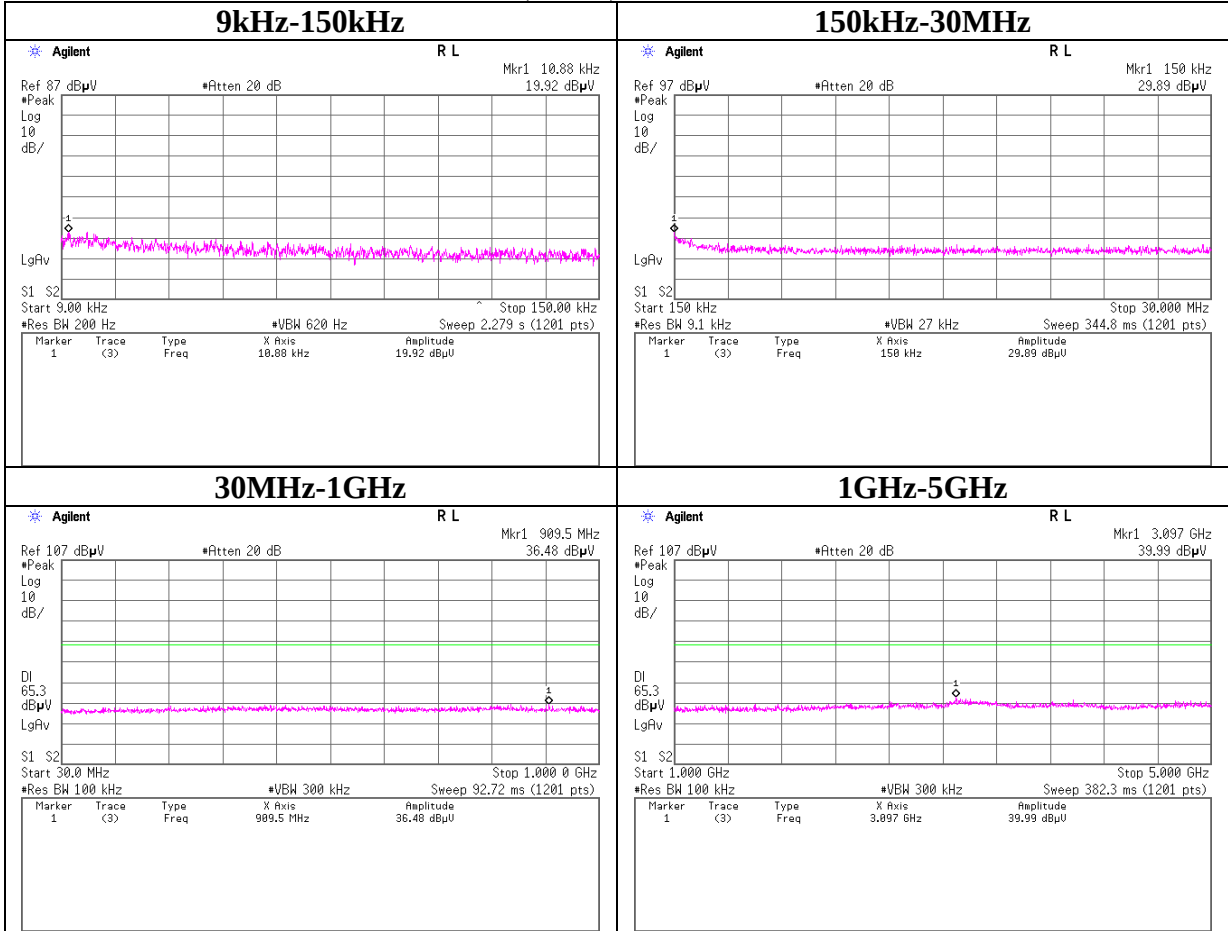
Conducted Spurious Emission

11n-20(5GHz) Tx 5825MHz



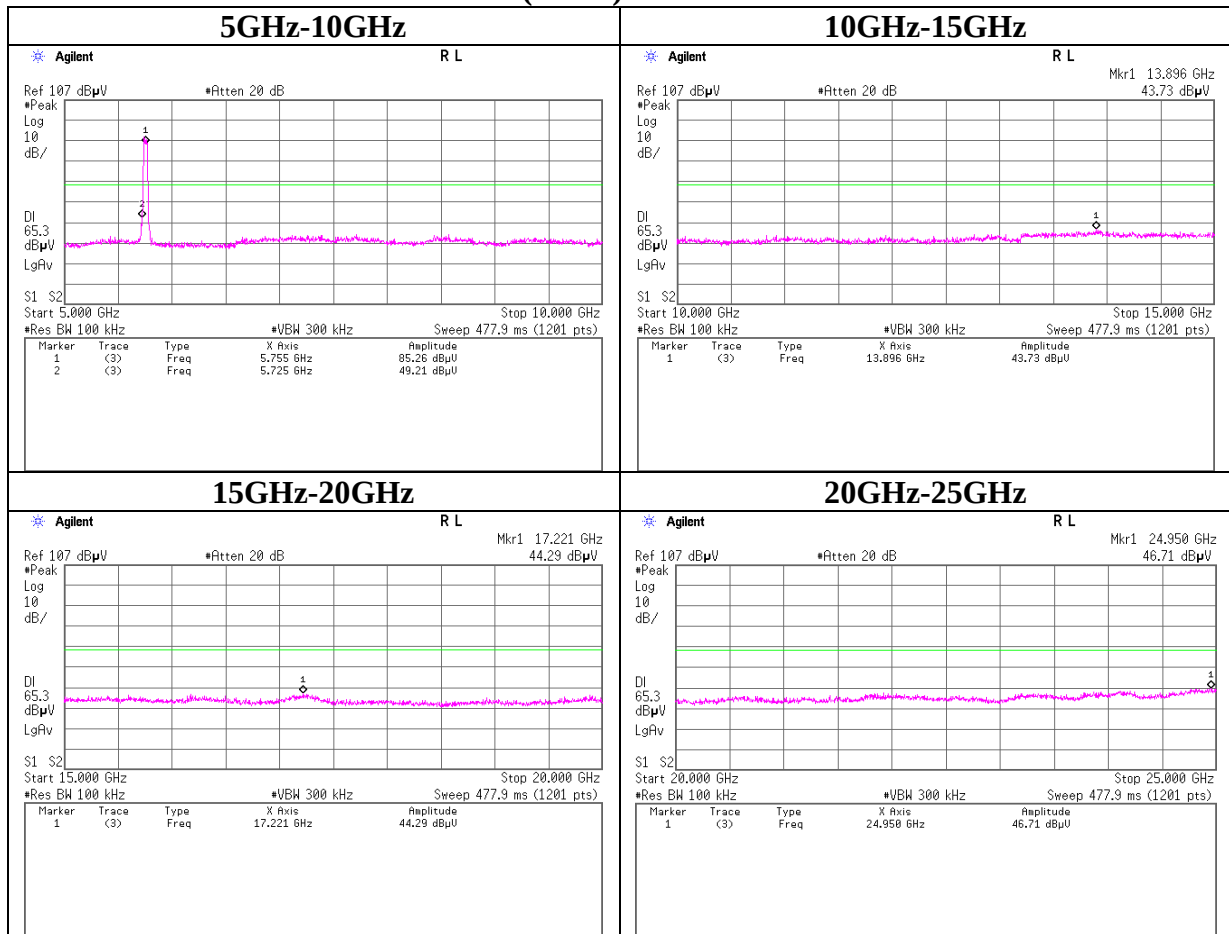
Conducted Spurious Emission

11n-40(5GHz) Tx 5755MHz



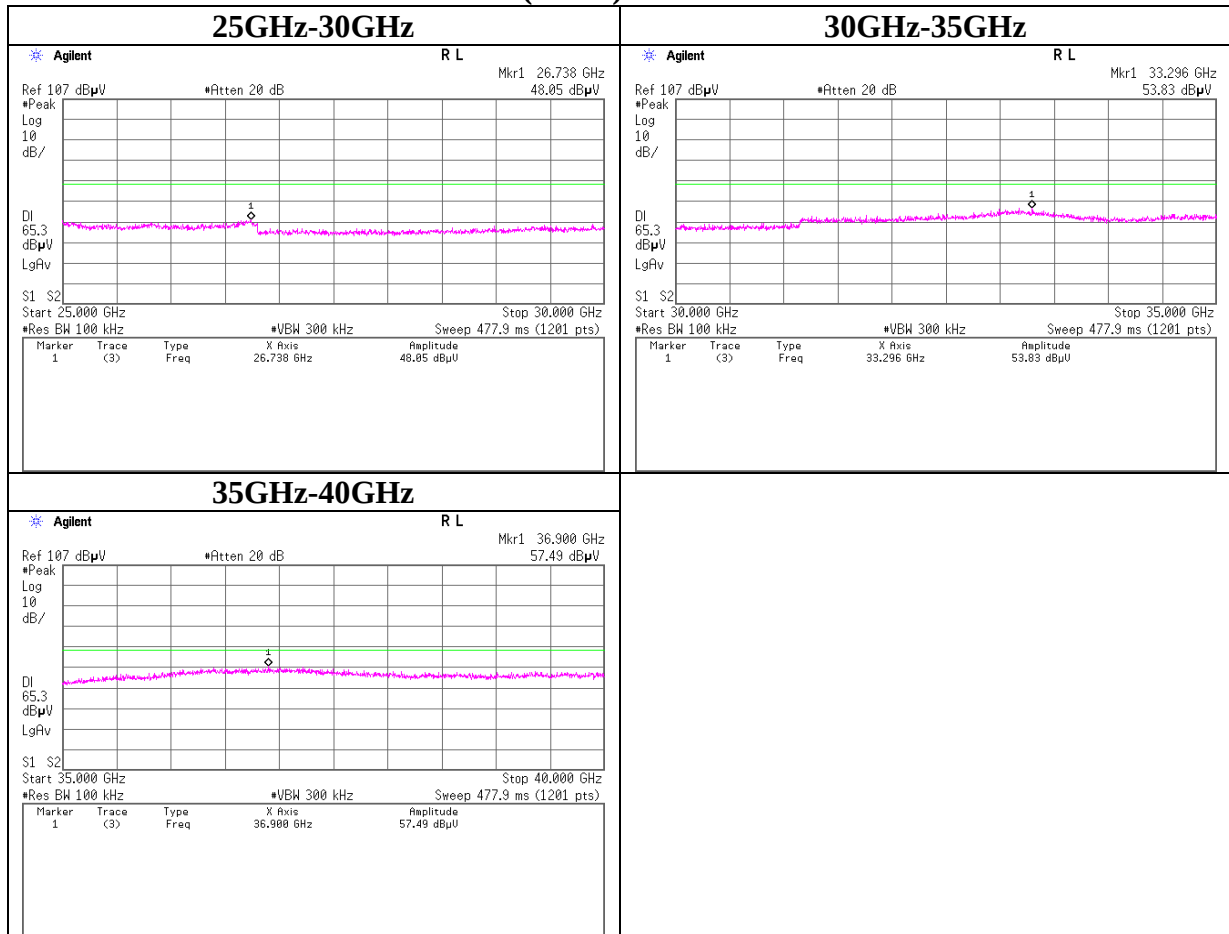
Conducted Spurious Emission

11n-40(5GHz) Tx 5755MHz



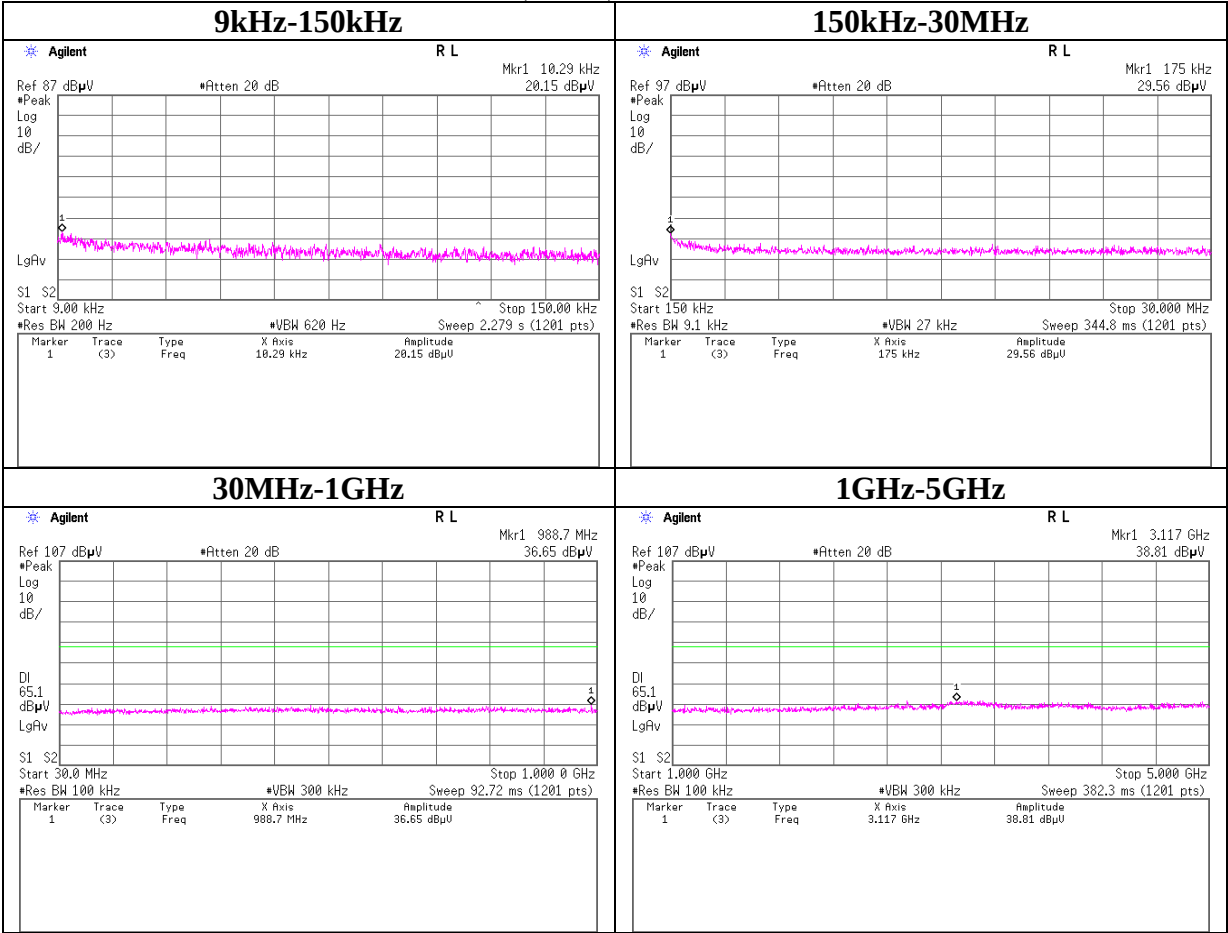
Conducted Spurious Emission

11n-40(5GHz) Tx 5755MHz



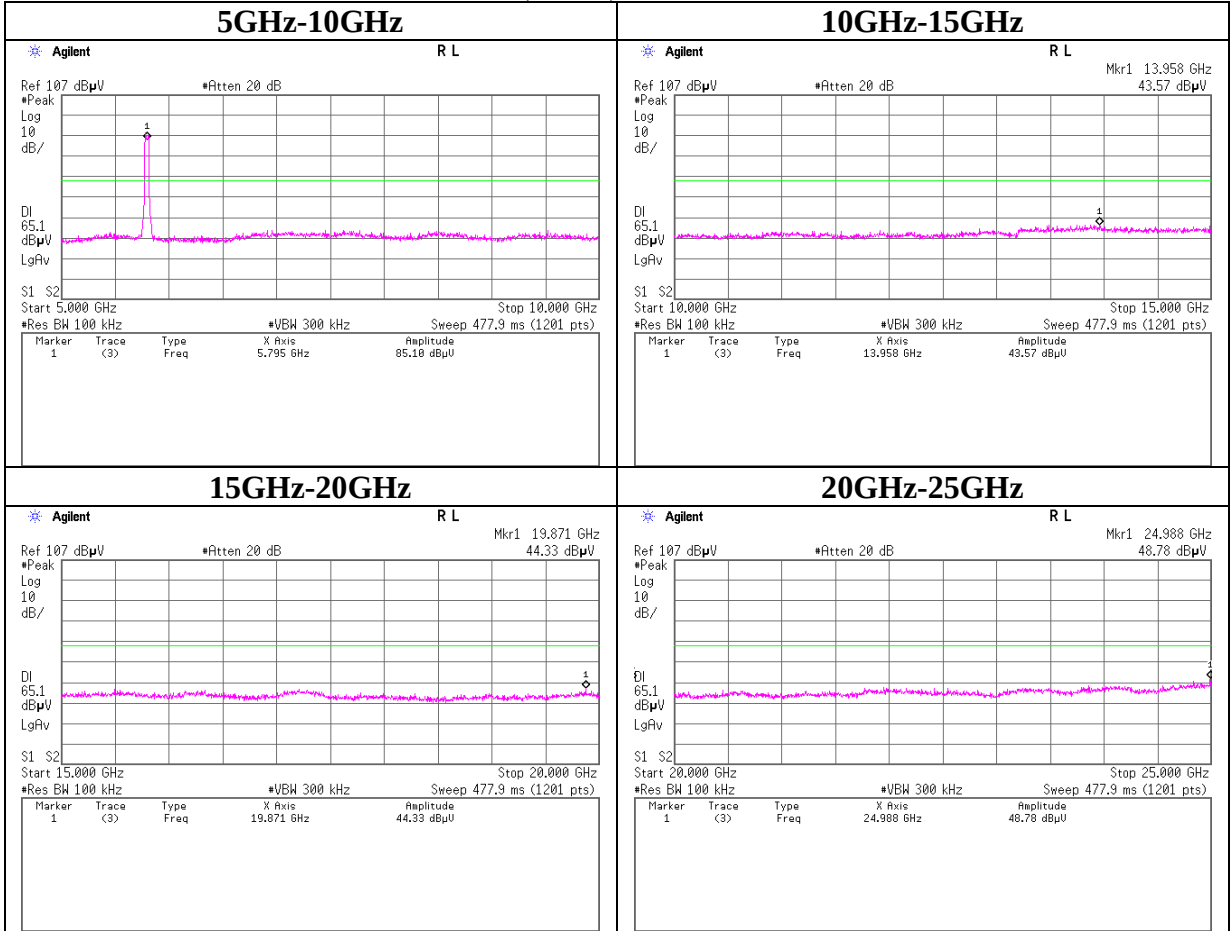
Conducted Spurious Emission

11n-40(5GHz) Tx 5795MHz



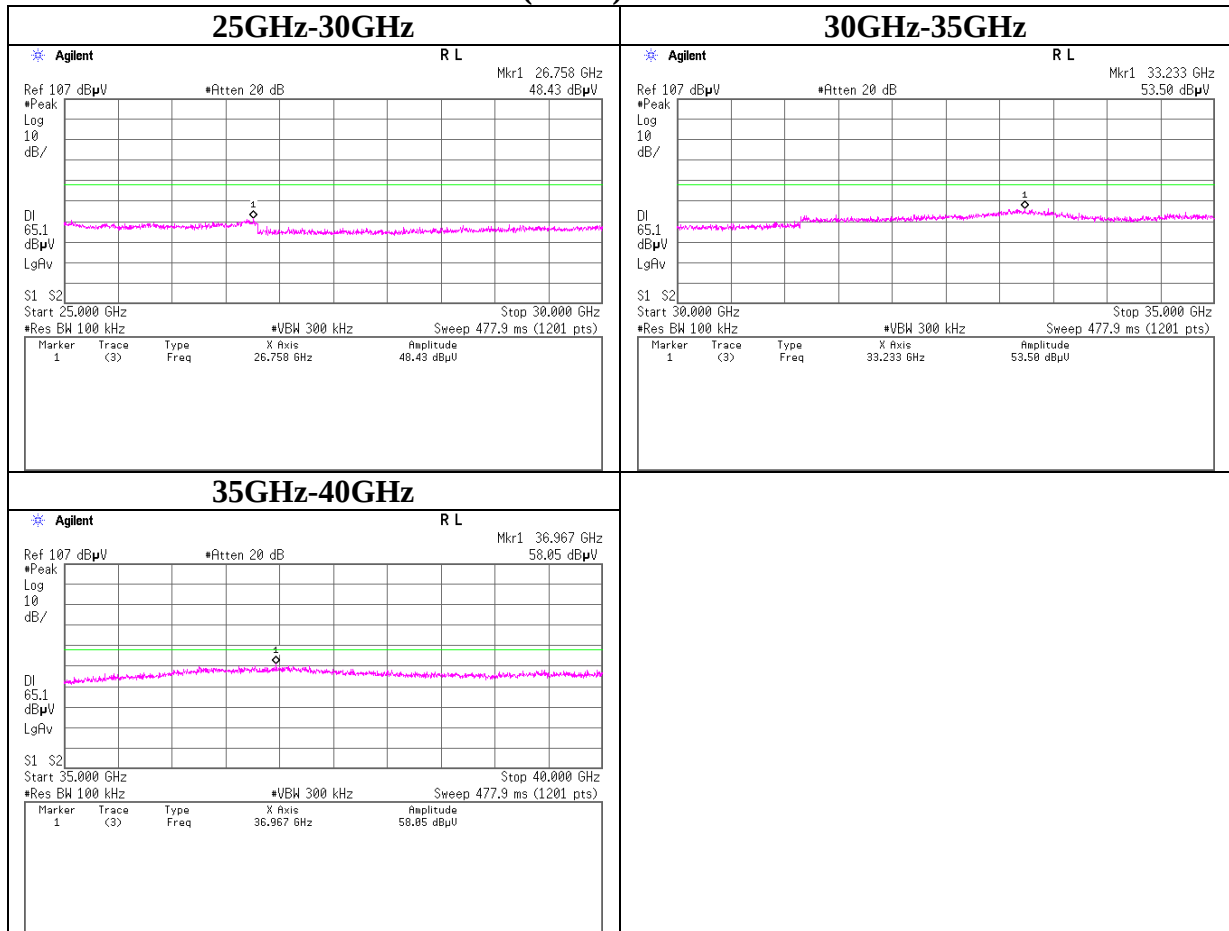
Conducted Spurious Emission

11n-40(5GHz) Tx 5795MHz



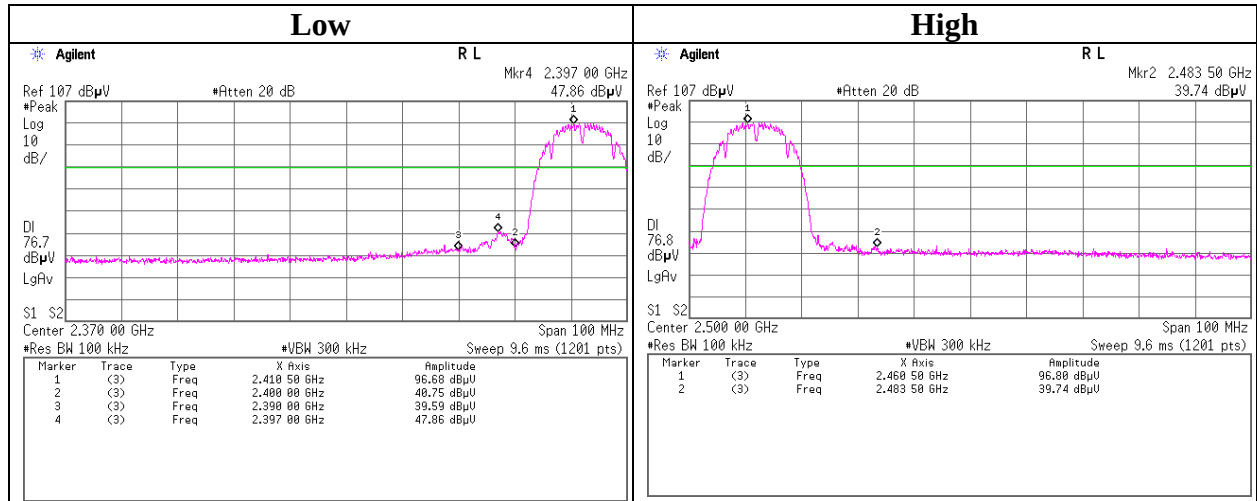
Conducted Spurious Emission

11n-40(5GHz) Tx 5795MHz

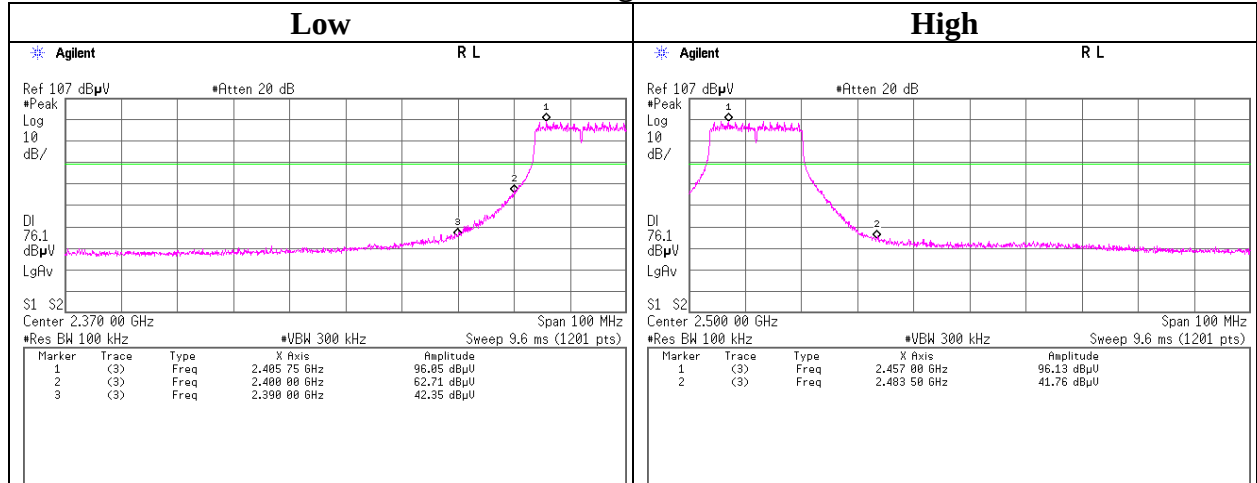


Conducted Emission Band Edge compliance

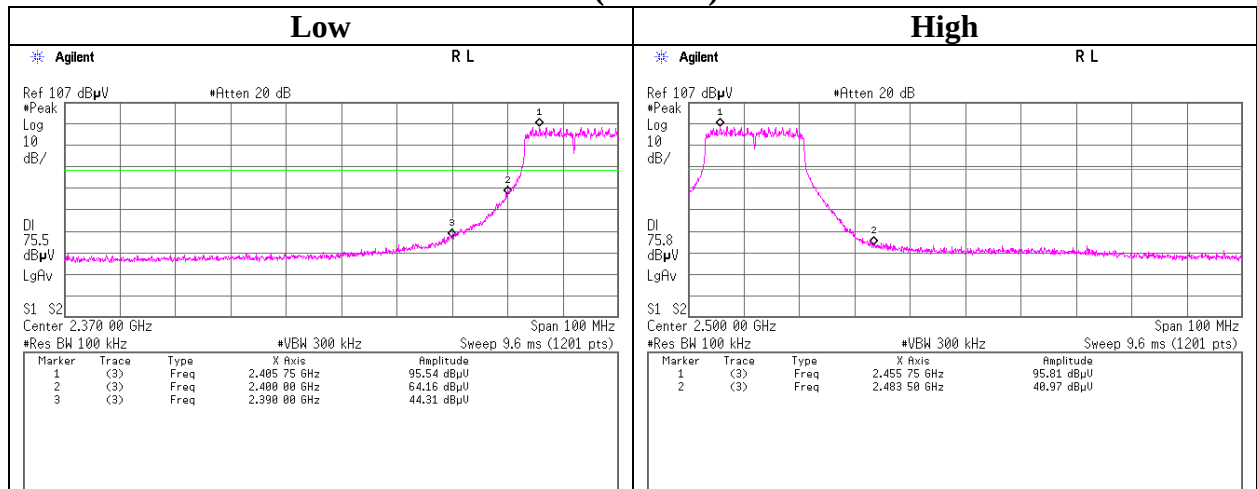
11b Tx



11g Tx

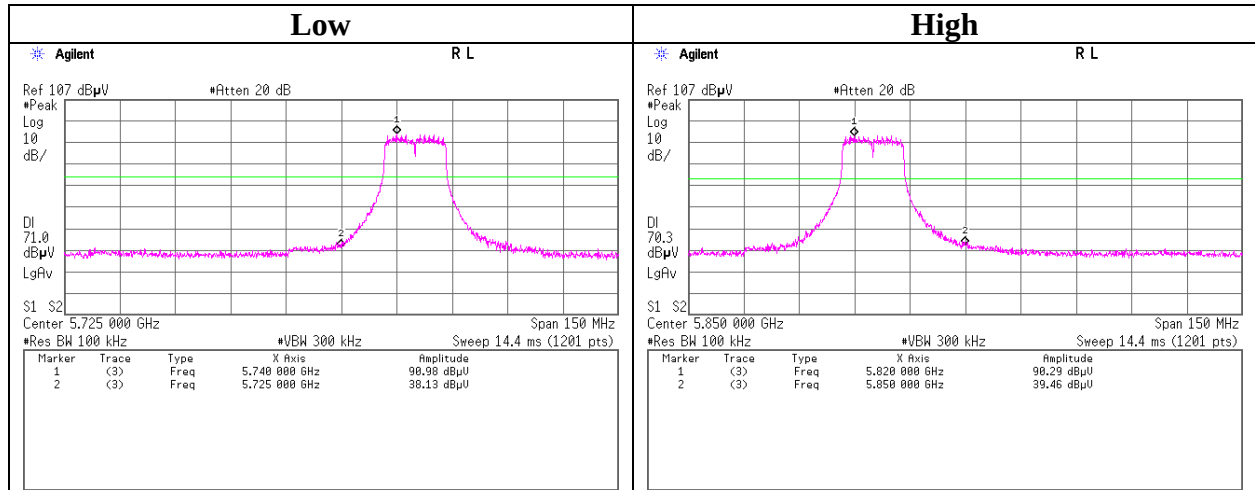


11n-20(2.4GHz) Tx

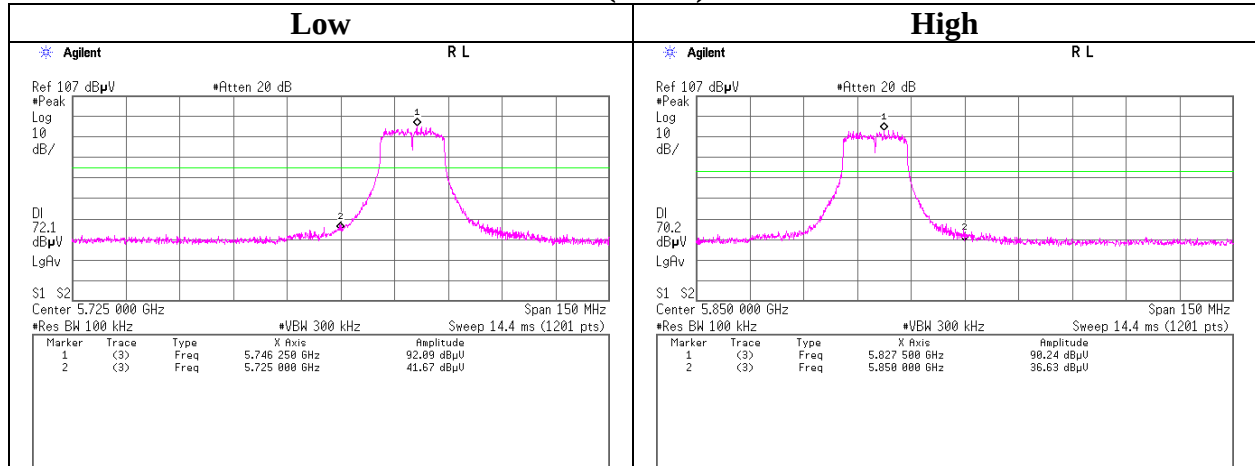


Conducted Emission Band Edge compliance

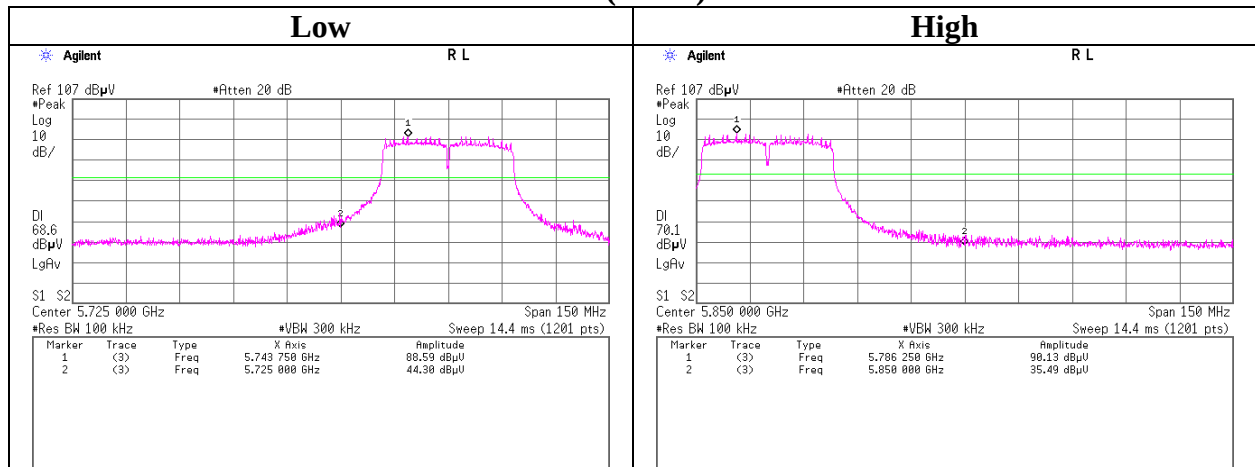
11a Tx



11n-20(5GHz) Tx



11n-40(5GHz) Tx



Power Density

Report No. 32BE0278-HO
Test place Head Office EMC Lab. shielded room
Semi Anechoic Chamber No.7 No.7
Date 10/07/2011 10/07d/2011
Temperature / Humidity 25 deg. C / 44 % RH 26 deg. C / 45 % RH
Engineer Takayuki Shimada Keisuke Kawamura
11g 11g
Mode Tx

11b

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
2412.00	-14.05	0.87	10.01	-3.17	8.00	11.17
2437.00	-14.69	0.88	10.01	-3.80	8.00	11.80
2462.00	-14.31	0.88	10.01	-3.42	8.00	11.42

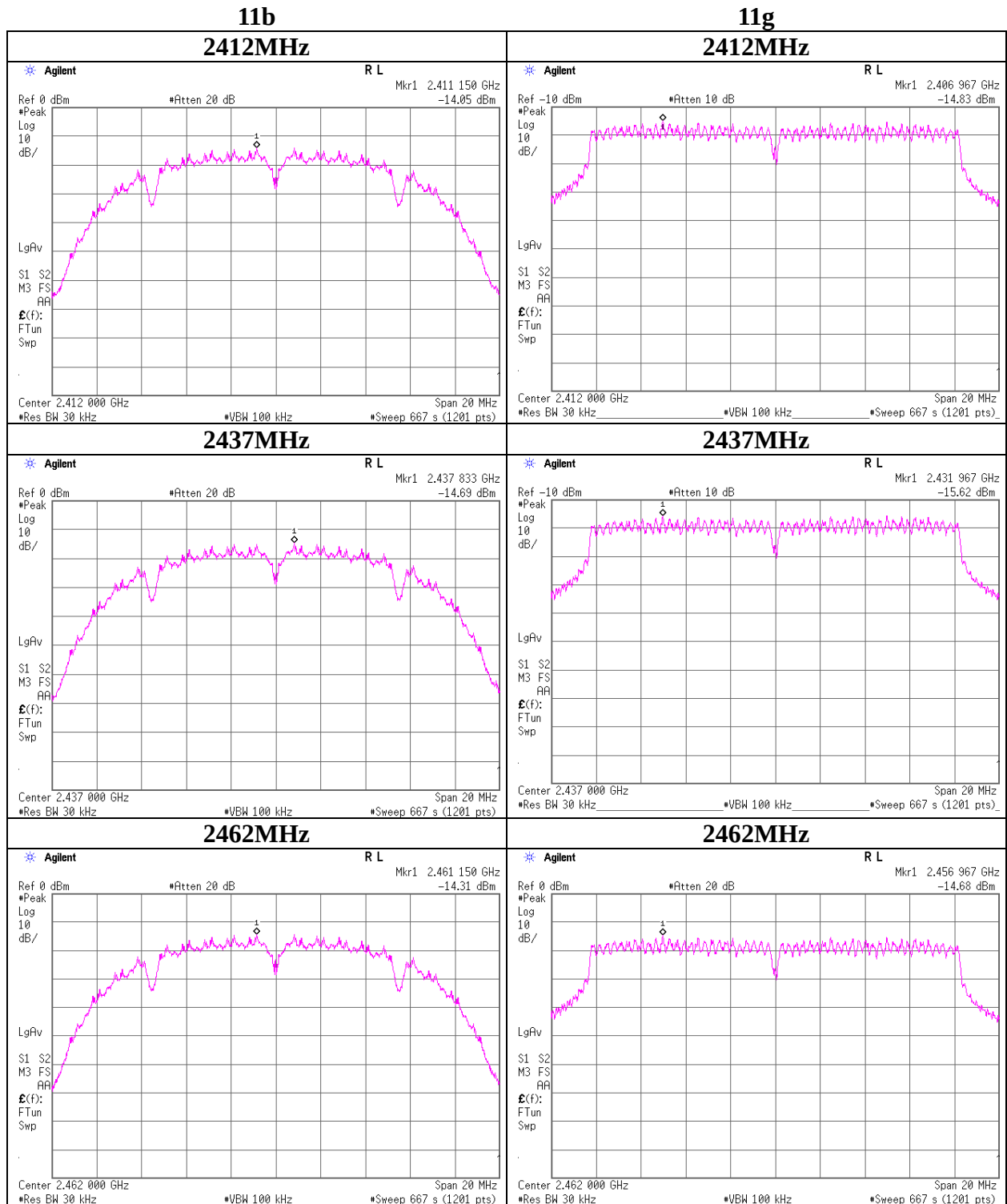
11g

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
2412.00	-14.83	0.87	10.01	-3.95	8.00	11.95
2437.00	-15.62	0.88	10.01	-4.73	8.00	12.73
2462.00	-14.68	0.88	10.01	-3.79	8.00	11.79

Sample Calculation:

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

Power Density



Power Density

Test place Head Office EMC Lab. No.7 Shielded Room
Report No. 32BE0278-HO
Date 10/07/2011
Temperature/ Humidity 26 deg.C / 45% RH
Engineer Keisuke Kawamura
Mode 11n-20(5GHz), 11n-40(5GHz) Tx

11n-20(5GHz)

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result		Limit [dBm]	Margin [dB]
				[dBm]	[mW]		
5745.00	-18.47	1.55	10.07	-6.85	0.21	8.00	14.85
5785.00	-19.33	1.56	10.07	-7.70	0.17	8.00	15.70
5835.00	-20.56	1.56	10.07	-8.93	0.13	8.00	16.93

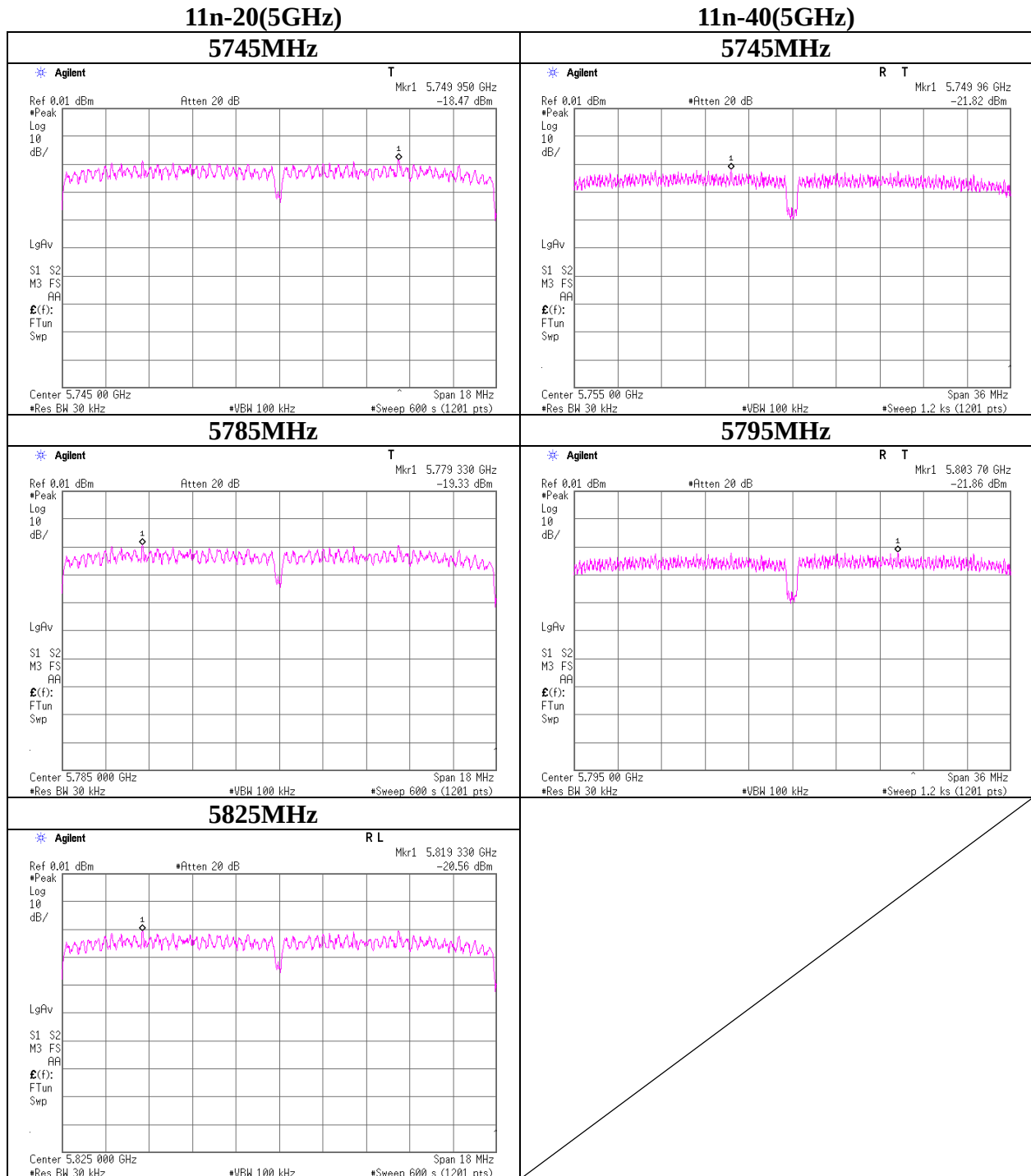
11n-40(5GHz)

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result		Limit [dBm]	Margin [dB]
				[dBm]	[mW]		
5755.00	-21.82	1.56	10.07	-10.19	0.10	8.00	18.19
5795.00	-21.86	1.56	10.07	-10.23	0.09	8.00	18.23

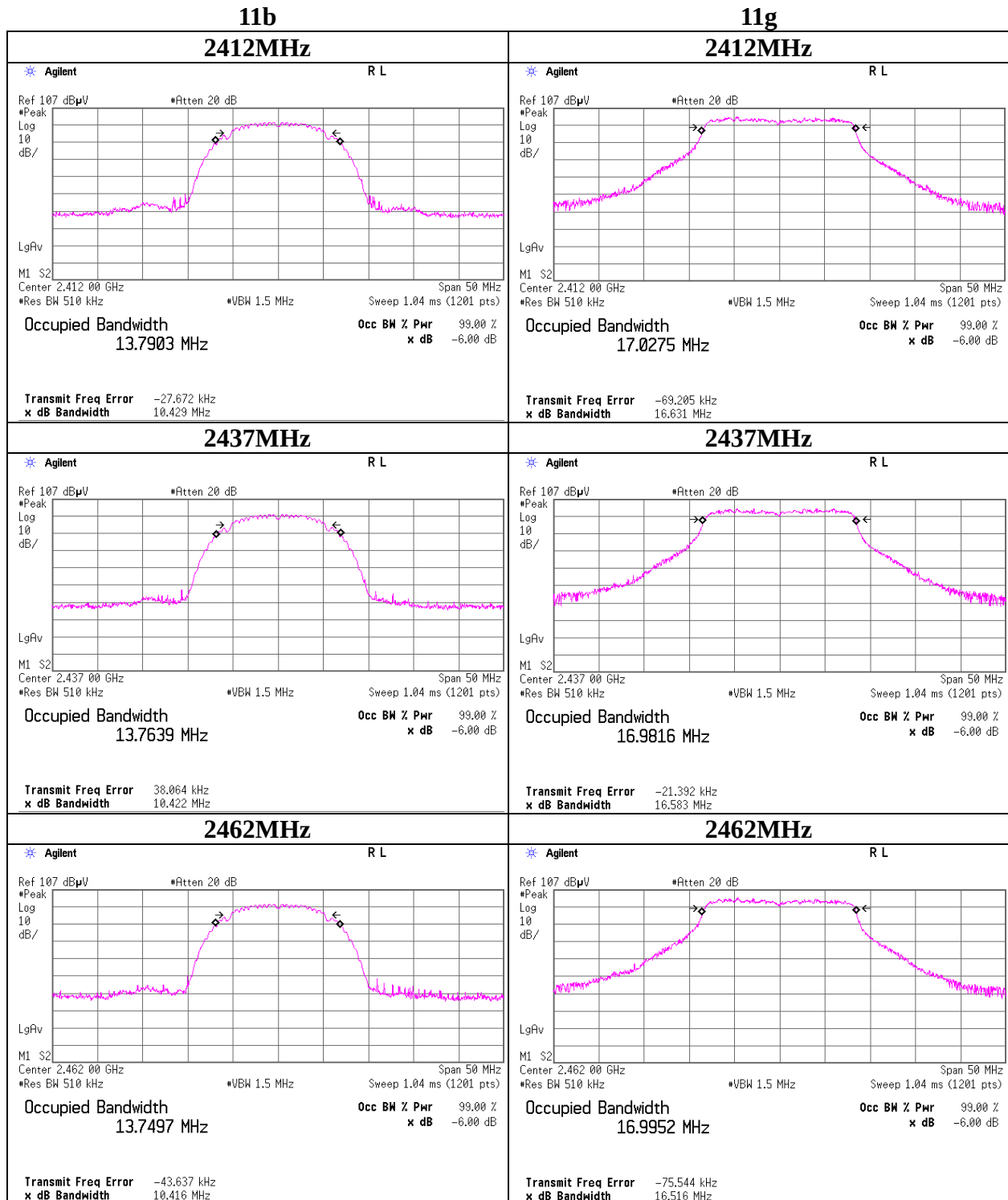
Sample Calculation:

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

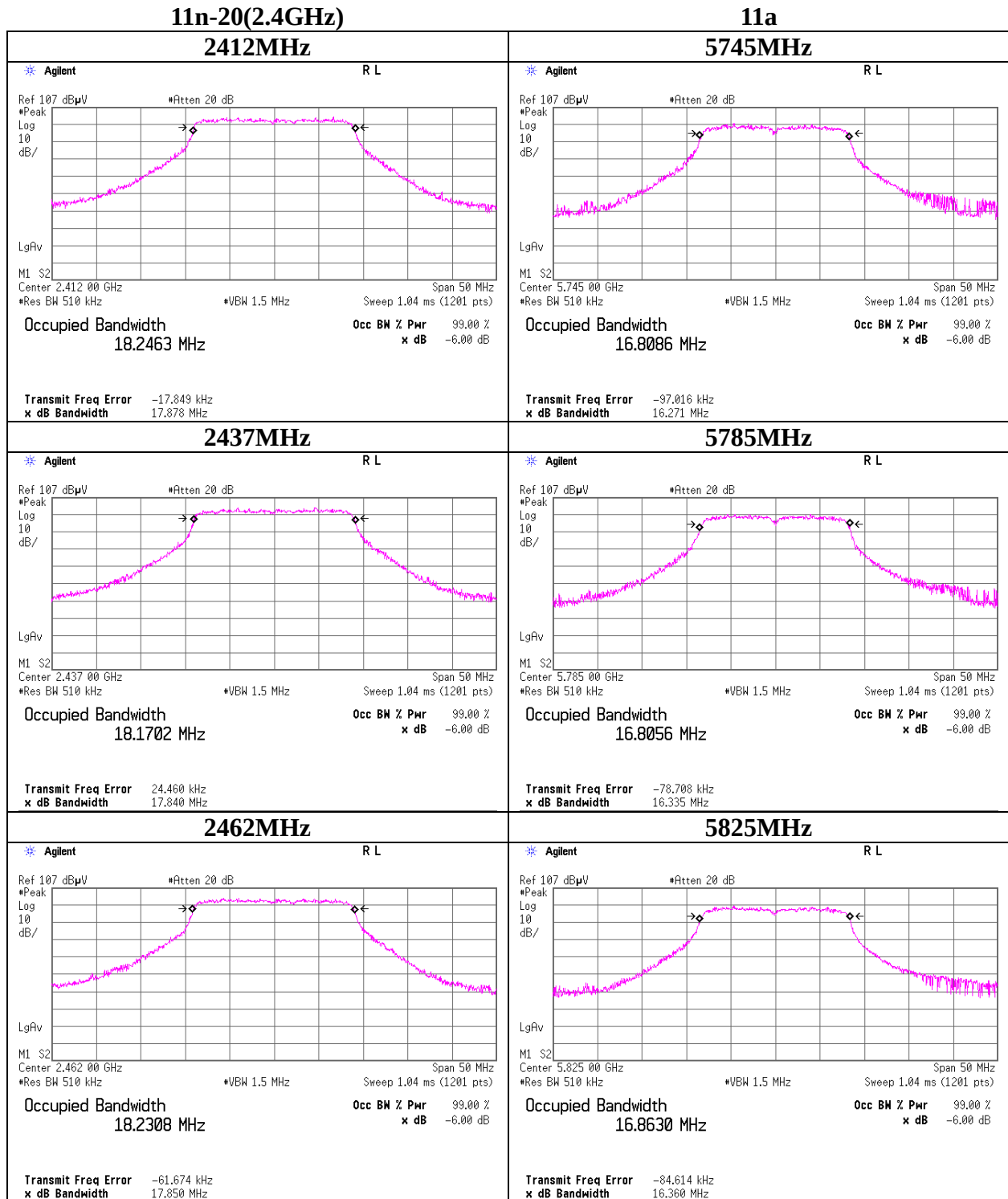
Power Density



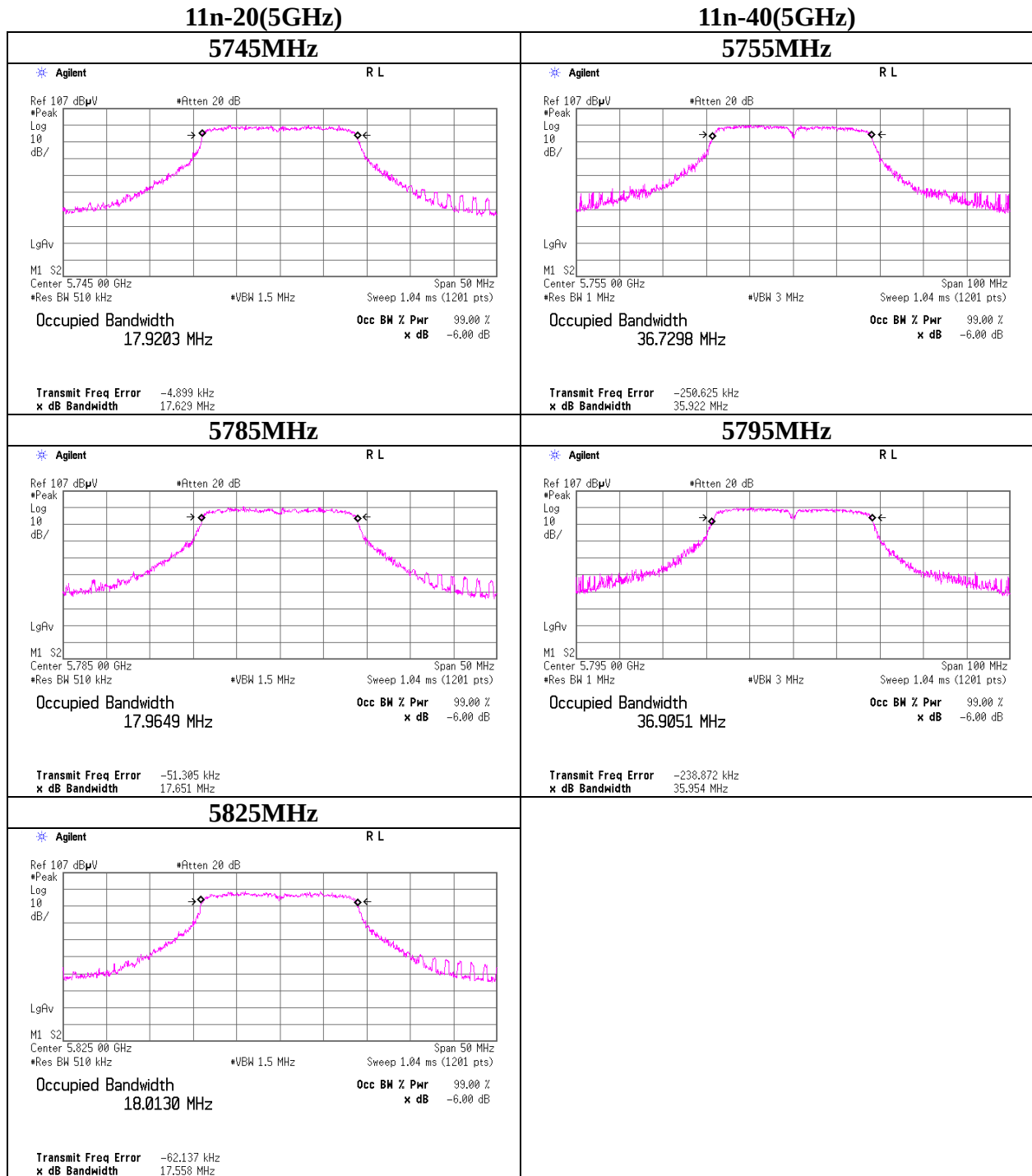
99%Occupied Bandwidth



99% Occupied Bandwidth



99% Occupied Bandwidth



APPENDIX 2: Test instruments

EMI test equipment (1/2)

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MOS-04	Digital Humidity Indicator	N.T	NT-1800	MOS04	AT	2011/02/23 * 12
MAT-25	Attenuator(10dB)(above 1GHz)	Agilent	8493C	71642	AT	2011/06/23 * 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
MTA-09	Terminator	HP	HP 909D	03745	AT	2011/02/01 * 12
MSA-03	Spectrum Analyzer	Agilent	E4448A	MY44020357	RE/AT	2010/11/30 * 12
MOTS-MATM	Antenna Terminal Measurement Software	UL Japan	-	-	AT	-
MCC-93	Microwave Cable 1G-40GHz	Schner	SUCOFLEX102	30814/2	AT	2011/05/27 * 12
MOS-19	Thermo-Hygrometer	Custom	CTH-201	0001	AT	2010/12/13 * 12
MPSE-11	Power sensor	Anritsu	MA2411B	011737	AT	2011/09/13 * 12
MPM-08	Power Meter	Anritsu	ML2495A	6K00003338	AT	2011/09/13 * 12
MSA-04	Spectrum Analyzer	Agilent	E4448A	US44300523	AT	2011/04/08 * 12
MAEC-02	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-06902	CE	2011/06/21 * 12
MOS-22	Thermo-Hygrometer	Custom	CTH-201	0003	CE	2011/02/23 * 12
MJM-14	Measure	KOMELON	KMC-36	-	CE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	RE/CE	-
MSA-05	Spectrum Analyzer	Advantest	R3273	160400285	CE	2010/11/18 * 12
MTR-03	Test Receiver	Rohde & Schwarz	ESCI	100300	CE	2011/04/15 * 12
MLS-06	LISN(AMN)	Schwarzbeck	NSLK8127	8127363	CE(EUT)	2011/02/20 * 12
MTA-31	Terminator	TME	CT-01	-	CE	2011/01/05 * 12
MCC-13	Coaxial Cable	Fujikura	3D-2W(12m)/5D-2W(5m)/5D-2W(0.8m)/5D-2W(1m)	-	CE	2011/02/18 * 12
MAT-65	Attenuator(13dB)	JFW Industries, Inc.	50FP-013H2 N	-	CE	2011/02/21 * 12
MAEC-03	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-10005	RE	2011/02/22 * 12
MOS-13	Thermo-Hygrometer	Custom	CTH-180	-	RE	2011/02/23 * 12
MJM-06	Measure	PROMART	SEN1955	-	RE	
MTR-08	Test Receiver	Rohde & Schwarz	ESCI	100767	RE	2011/08/11 * 12
MBA-03	Biconical Antenna	Schwarzbeck	BBA9106	1915	RE	2010/10/11 * 12 *1)
MLA-03	Logperiodic Antenna	Schwarzbeck	USLP9143	174	RE	2010/10/11 * 12 *1)
MCC-51	Coaxial cable	UL Japan	-	-	RE	2011/07/15 * 12
MAT-09	Attenuator(6dB)	Weinschel Corp	2	BK7973	RE	2010/11/05 * 12
MPA-13	Pre Amplifier	SONOMA INSTRUMENT	310	260834	RE	2011/03/04 * 12
MHA-20	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	258	RE	2011/05/23 * 12
MCC-133	Microwave Cable	HUBER+SUHNER	SUCOFLEX104	336164/4(1m) / 340640(5m)	RE	2011/09/07 * 12

EMI test equipment (2/2)

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MPA-11	MicroWave System Amplifier	Agilent	83017A	MY39500779	RE	2011/03/10 * 12
MHA-16	Horn Antenna 15-40GHz	Schwarzbeck	BBHA9170	BBHA9170306	RE	2011/05/23 * 12
MCC-54	Microwave Cable	Suhner	SUCOFLEX101	2873(1m) / 2876(5m)	RE	2011/03/02 * 12
MPA-03	Microwave System Power Amplifier	Agilent	83050A	3950M00205	RE	2011/06/15 * 12

***1)This test equipment was used for the tests performed before the expiration date of the calibration.**

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**