DATA OF CONDUCTED EMISSION TEST

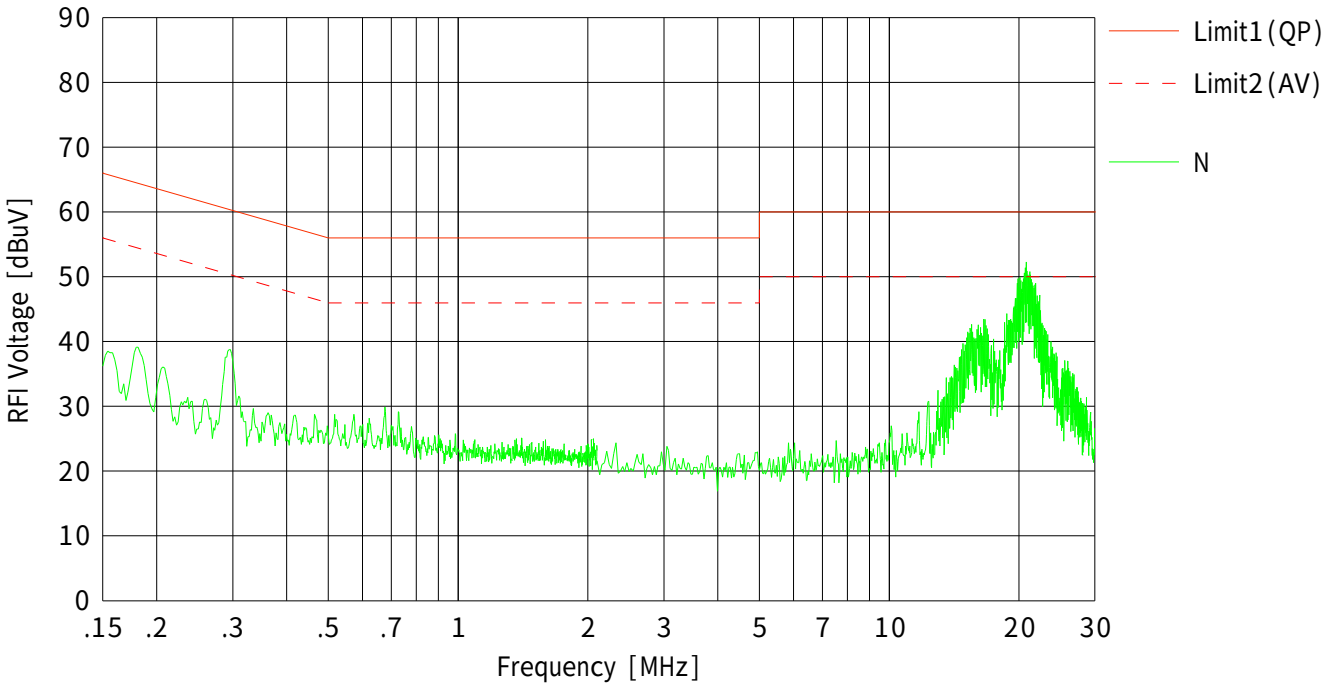
UL Japan, Inc. Shonan EMC Lab. No.1 Shield Room
Date : 2010/03/03

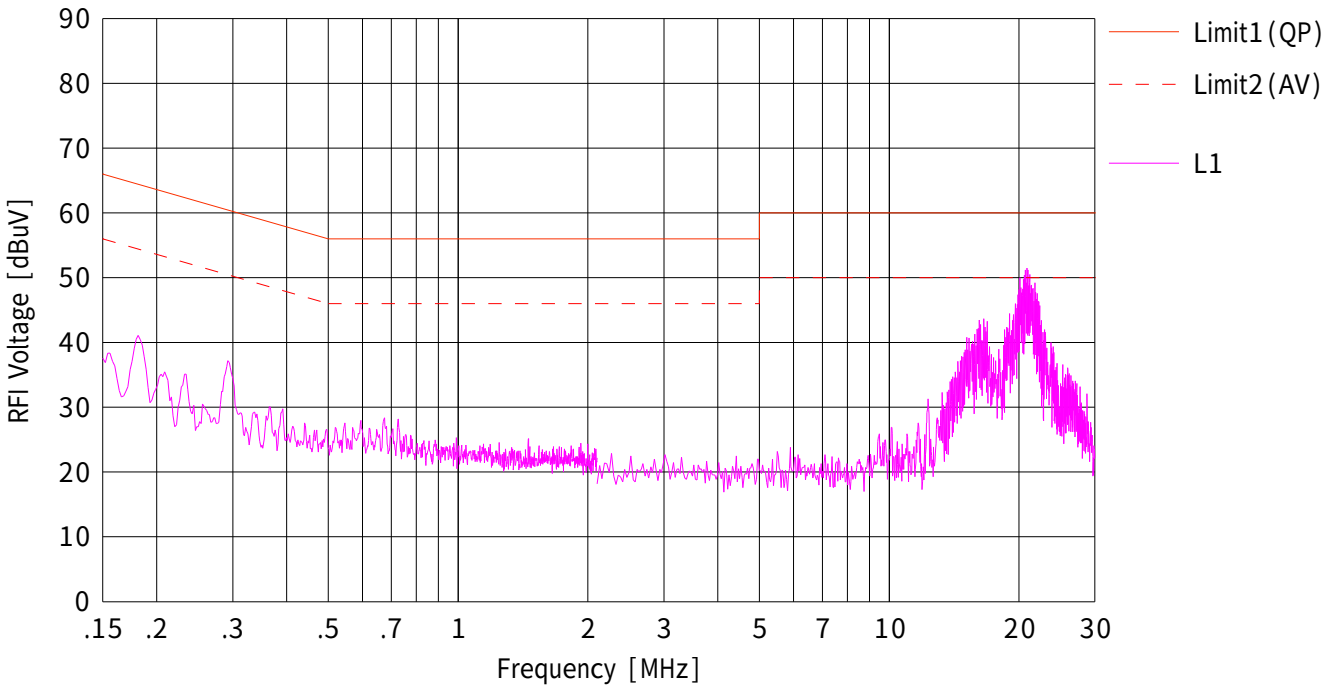
Company	: Ricoh Company, Ltd.	Mode	: IEEE802.11b/Tx.11Mbps,2412MHz
Kind of EUT	: Option(s)for Radiocommunications	Report No.	: 30GE0098-YK-**E-R1**
Model No.	: R-WL54C**1N**	Power	: AC120V /60Hz
Serial No.	: 911S0334	Temp./Humi.	: 22deg.C./35%

Remarks :

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

Engineer : **Tatsuya Arai**





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

DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.1 Shield Room
Date : 2010/03/03

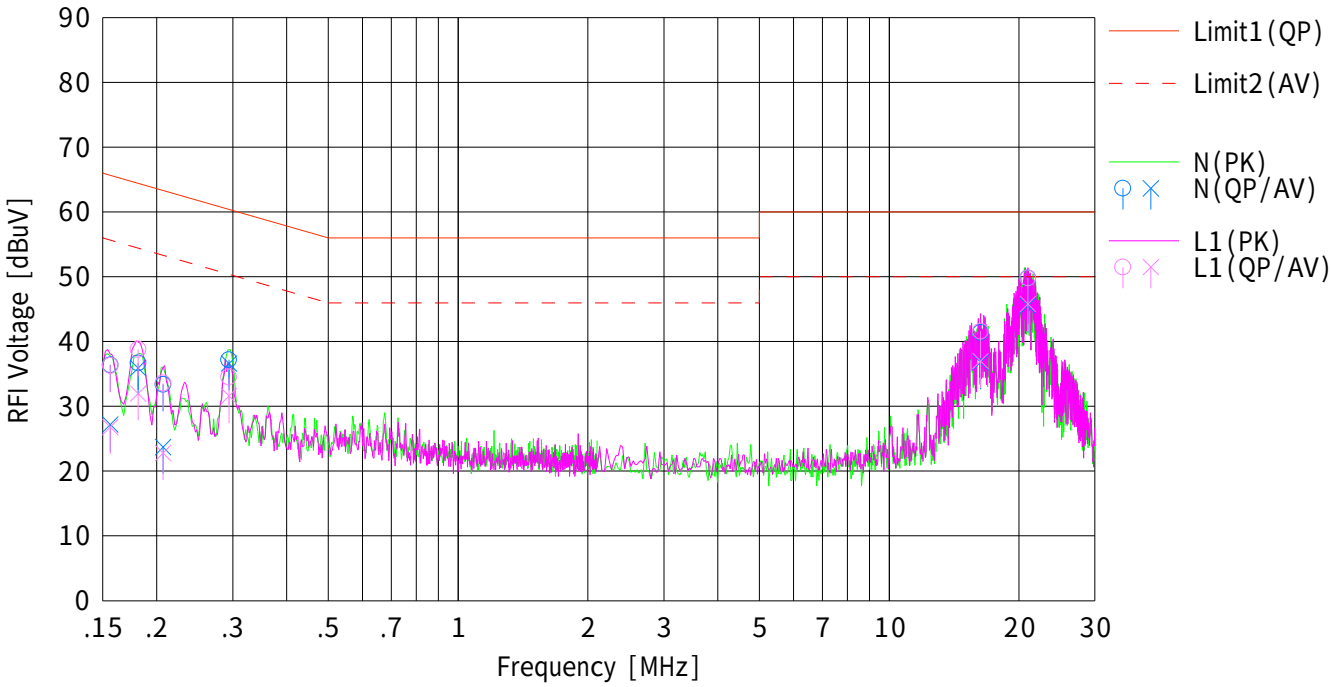
Company : Ricoh Company, Ltd.
Kind of EUT : Option(s)for Radiocommunications
Model No. : **R-WL54C1N**
Serial No. : 911S0334

Mode : IEEE802.11b/Tx.11Mbps,2437MHz
Report No. : 30GE0098-YK-**E-R1**
Power : AC120V /60Hz
Temp./Humi. : 22deg.C./35%

Remarks :

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

Engineer : **Tatsuya Arai**



No.	Freq.	Reading <QP>	Reading <AV>	C.Fac	Results <QP>	Results <AV>	Limit <QP>	Limit <AV>	Margin <QP>	Margin <AV>	Phase	Comment
	[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
1	0.15600	23.6	14.4	12.8	36.4	27.2	65.7	55.7	29.3	28.5	N	
2	0.18100	23.9	23.1	12.8	36.7	35.9	64.4	54.4	27.7	18.5	N	
3	0.20700	20.6	10.9	12.8	33.4	23.7	63.3	53.3	29.9	29.6	N	
4	0.29400	24.4	23.8	12.8	37.2	36.6	60.4	50.4	23.2	13.8	N	
5	16.29210	27.8	23.2	13.6	41.4	36.8	60.0	50.0	18.6	13.2	N	
6	20.97640	36.0	31.7	13.8	49.8	45.5	60.0	50.0	10.2	4.5	N	
7	0.15600	23.5	14.0	12.8	36.3	26.8	65.7	55.7	29.4	28.9	L1	
8	0.18100	26.0	19.2	12.8	38.8	32.0	64.4	54.4	25.6	22.4	L1	
9	0.20700	20.8	10.0	12.8	33.6	22.8	63.3	53.3	29.7	30.5	L1	
10	0.29400	21.7	18.8	12.8	34.5	31.6	60.4	50.4	25.9	18.8	L1	
11	16.29280	28.0	23.4	13.6	41.6	37.0	60.0	50.0	18.4	13.0	L1	
12	20.97300	36.0	32.0	13.8	49.8	45.8	60.0	50.0	10.2	4.2	L1	

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

DATA OF CONDUCTED EMISSION TEST

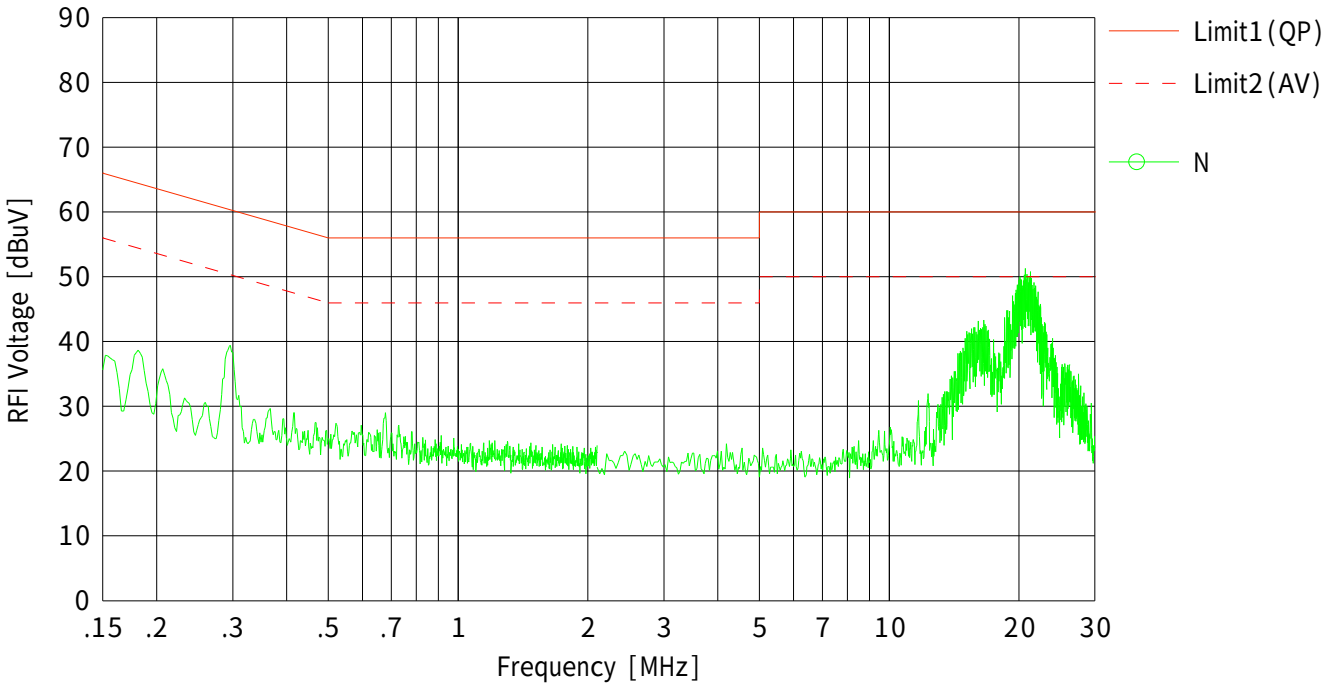
UL Japan, Inc. Shonan EMC Lab. No.1 Shield Room
Date : 2010/03/03

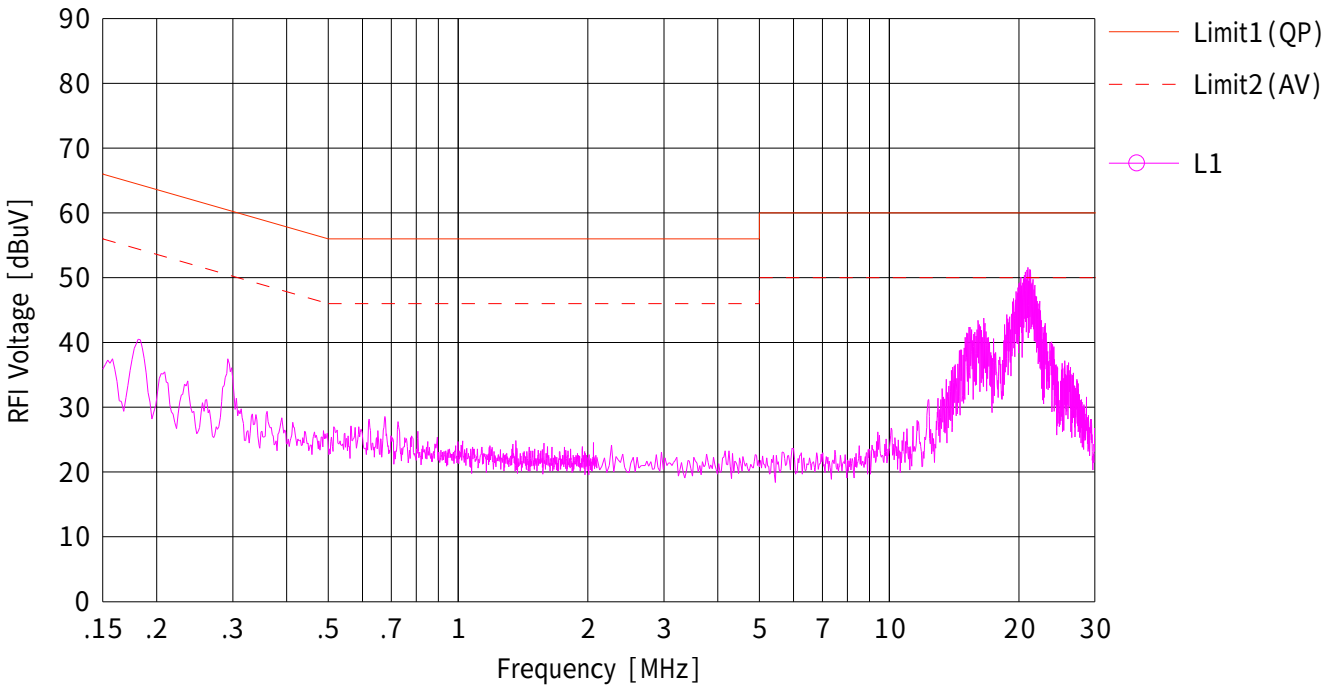
Company	: Ricoh Company, Ltd.	Mode	: IEEE802.11b/Tx.11Mbps,2462MHz
Kind of EUT	: Option(s)for Radiocommunications	Report No.	: 30GE0098-YK-**E-R1**
Model No.	: **R-WL54C1N**	**Power**	: AC120V /60Hz
Serial No.	: 911S0334	Temp./Humi.	: 22deg.C./35%

Remarks :

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

Engineer : **Tatsuya Arai**





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

DATA OF CONDUCTED EMISSION TEST

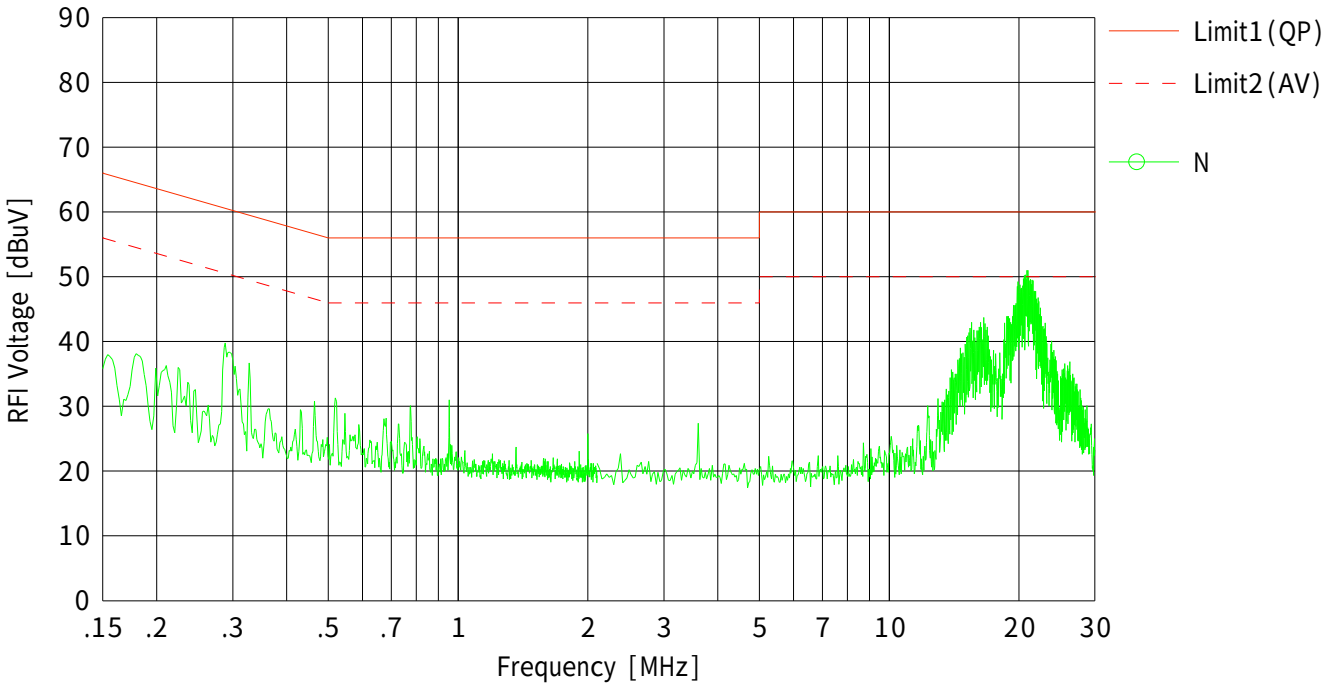
UL Japan, Inc. Shonan EMC Lab. No.1 Shield Room
Date : 2010/03/03

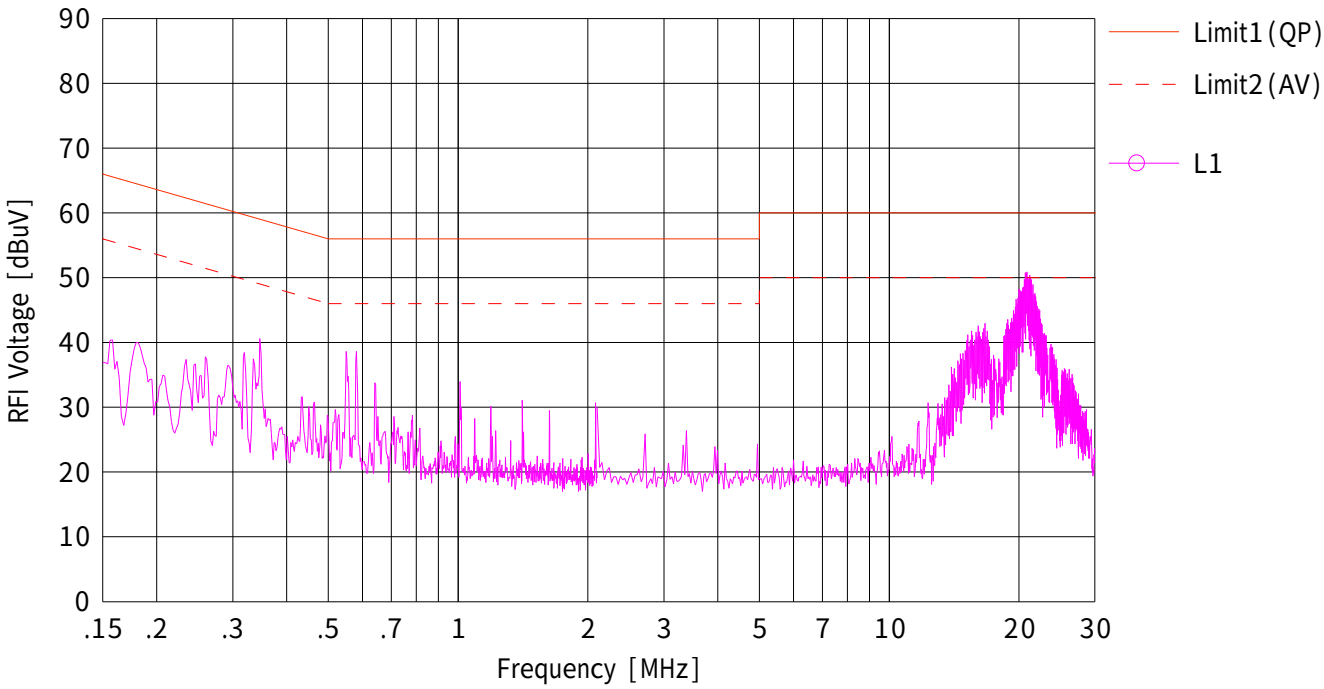
Company	: Ricoh Company, Ltd.	Mode	: IEEE802.11g/Tx.6Mbps,2412MHz
Kind of EUT	: Option(s)for Radiocommunications	Report No.	: 30GE0098-YK-**E-R1**
Model No.	: **R-WL54C1N**	**Power**	: AC120V /60Hz
Serial No.	: 911S0334	Temp./Humi.	: 22deg.C./35%

Remarks :

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

Engineer : **Tatsuya Arai**





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

DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.1 Shield Room
Date : 2010/03/03

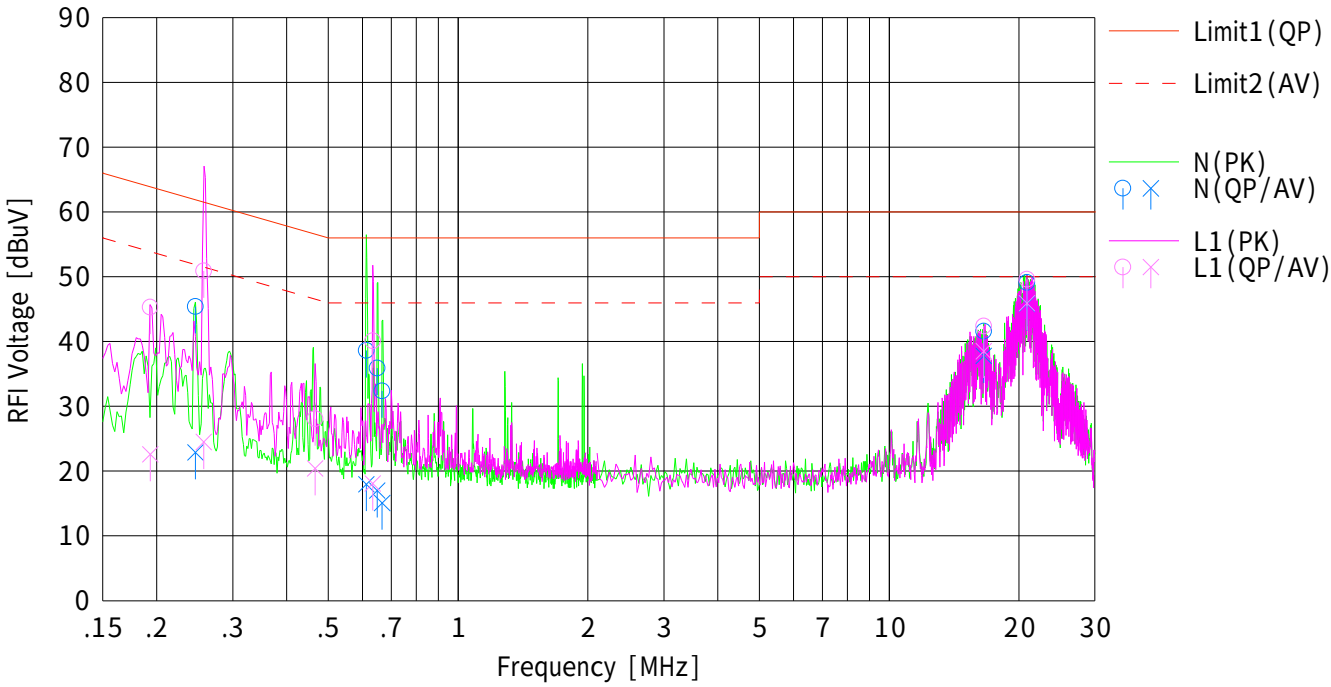
Company : Ricoh Company, Ltd.
Kind of EUT : Option(s)for Radiocommunications
Model No. : **R-WL54C1N**
Serial No. : 911S0334

Mode : IEEE802.11g/Tx.6Mbps,2437MHz
Report No. : 30GE0098-YK-**E-R1**
Power : AC120V /60Hz
Temp./Humi. : 22deg.C./35%

Remarks :

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

Engineer : **Tatsuya Arai**



No.	Freq.	Reading		C.Fac	Results		Limit		Margin		Phase	Comment
		<QP>	<AV>		<QP>	<AV>	<QP>	<AV>	<QP>	<AV>		
	[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
1	0.24600	32.6	10.1	12.8	45.4	22.9	61.9	51.9	16.5	29.0	N	
2	0.61215	25.8	5.2	12.8	38.6	18.0	56.0	46.0	17.4	28.0	N	
3	0.64920	23.1	4.2	12.8	35.9	17.0	56.0	46.0	20.1	29.0	N	
4	0.66675	19.6	2.3	12.8	32.4	15.1	56.0	46.0	23.6	30.9	N	
5	16.58220	28.0	24.2	13.6	41.6	37.8	60.0	50.0	18.4	12.2	N	
6	20.87990	35.3	32.0	13.8	49.1	45.8	60.0	50.0	10.9	4.2	N	
7	0.19300	32.5	9.8	12.8	45.3	22.6	63.9	53.9	18.6	31.3	L1	
8	0.25700	38.1	11.7	12.8	50.9	24.5	61.5	51.5	10.6	27.0	L1	
9	0.46590	15.3	7.6	12.8	28.1	20.4	56.6	46.6	28.5	26.2	L1	
10	0.63360	27.3	5.3	12.8	40.1	18.1	56.0	46.0	15.9	27.9	L1	
11	16.58570	28.8	24.9	13.6	42.4	38.5	60.0	50.0	17.6	11.5	L1	
12	20.87870	35.8	32.1	13.8	49.6	45.9	60.0	50.0	10.4	4.1	L1	

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

DATA OF CONDUCTED EMISSION TEST

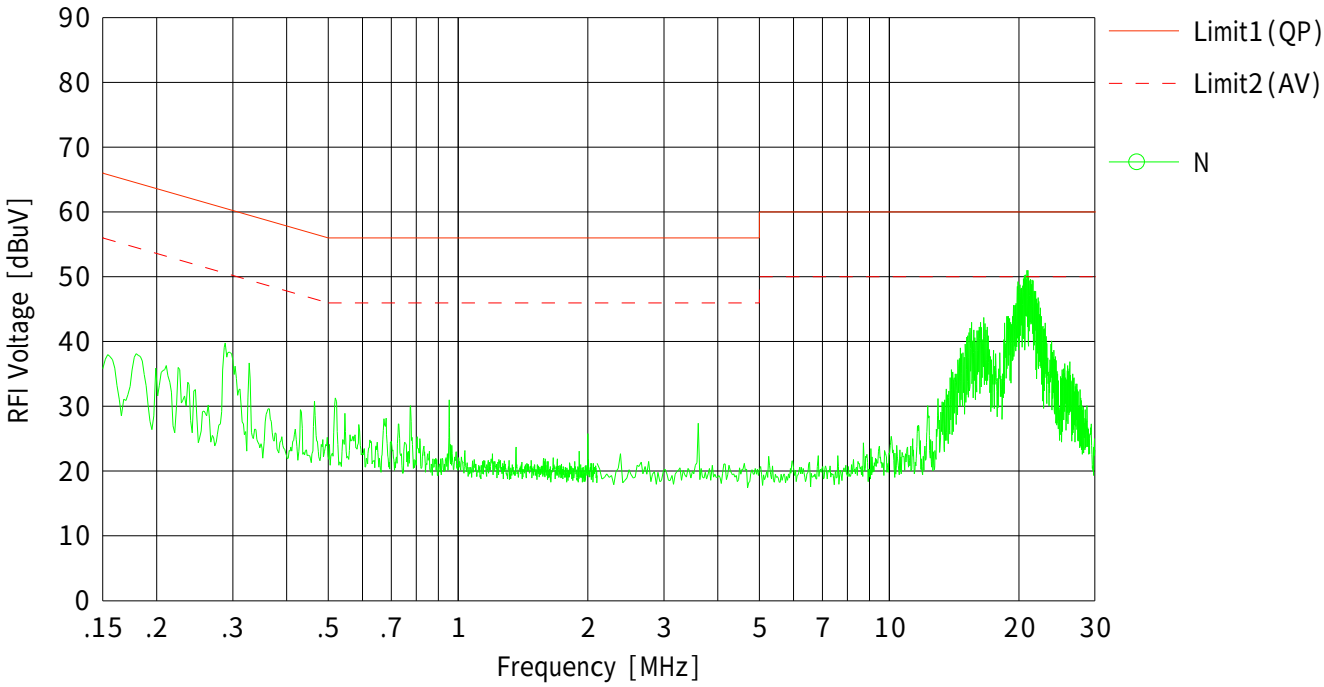
UL Japan, Inc. Shonan EMC Lab. No.1 Shield Room
Date : 2010/03/03

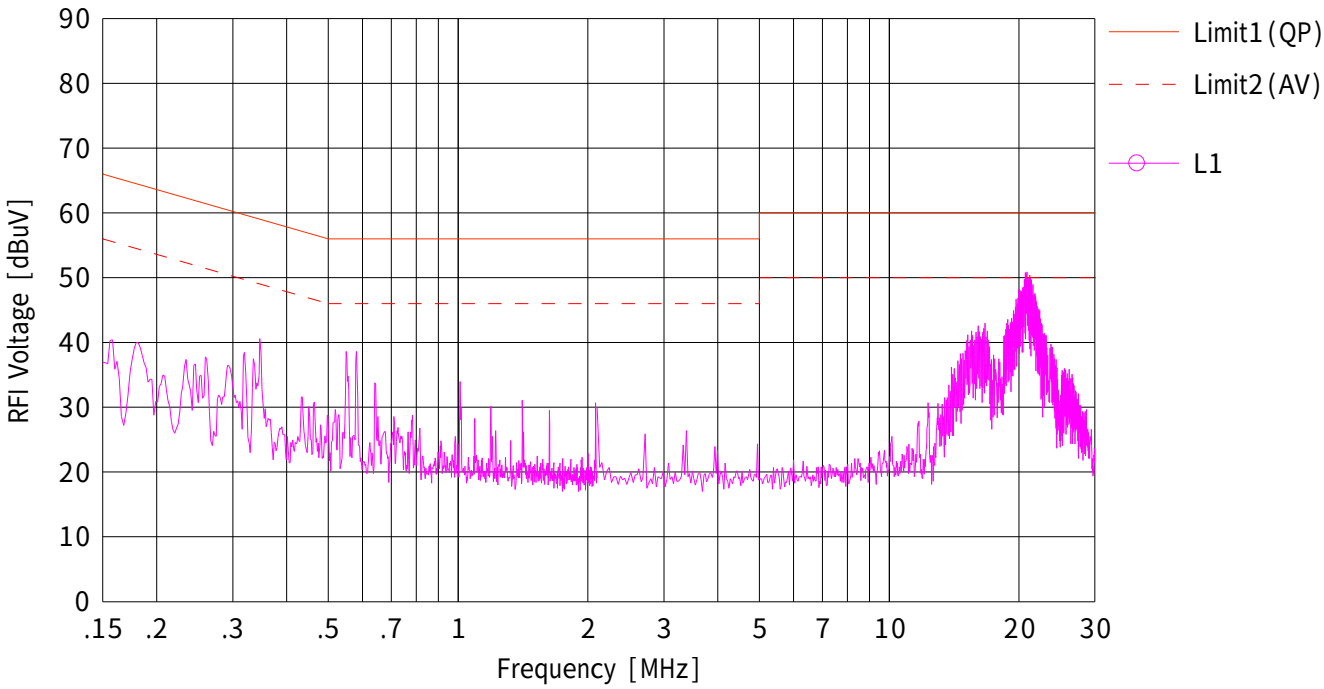
Company	: Ricoh Company, Ltd.	Mode	: IEEE802.11g/Tx.6Mbps,2462MHz
Kind of EUT	: Option(s)for Radiocommunications	Report No.	: 30GE0098-YK-**E-R1**
Model No.	: **R-WL54C1N**	**Power**	: AC120V /60Hz
Serial No.	: 911S0334	Temp./Humi.	: 22deg.C./35%

Remarks :

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

Engineer : **Tatsuya Arai**





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

6dB Bandwidth

Test place	UL Japan, Inc.	Shonan EMC Lab.	No.5 Shielded Room
Date	2010/3/2		
Temperature / Humidity	26deg.C.	, 32%	
Engineer	Akio Hayashi		
Mode	Tx,		

11b

Frequency [MHz]	6dB Bandwidth [MHz]	Limit [kHz]
2412	10.763	>500
2437	12.389	>500
2462	11.040	>500

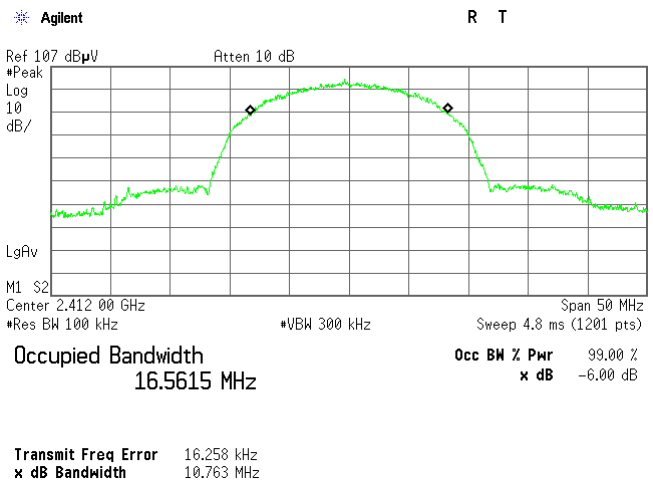
11g

Frequency [MHz]	6dB Bandwidth [MHz]	Limit [kHz]
2412	16.373	>500
2437	16.332	>500
2462	16.364	>500

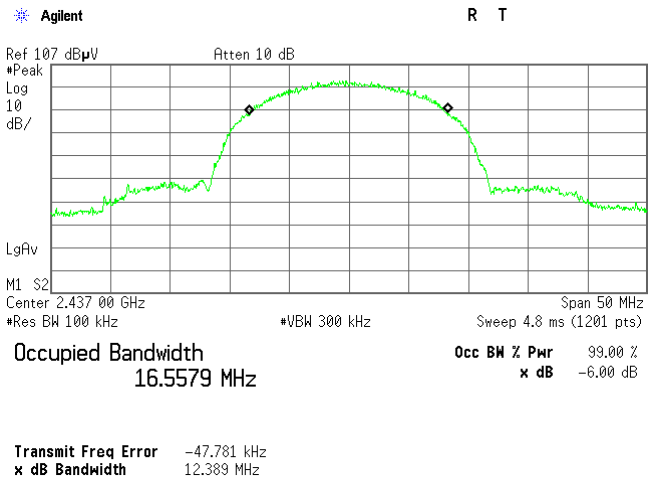
6dB Bandwidth

11b

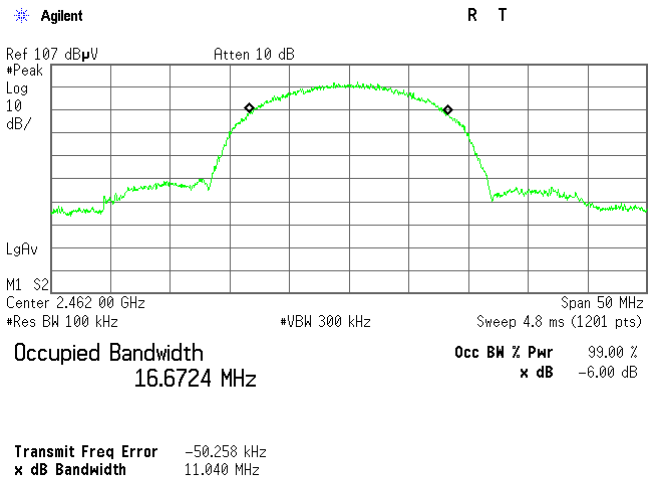
Tx, 2412MHz



Tx, 2437MHz

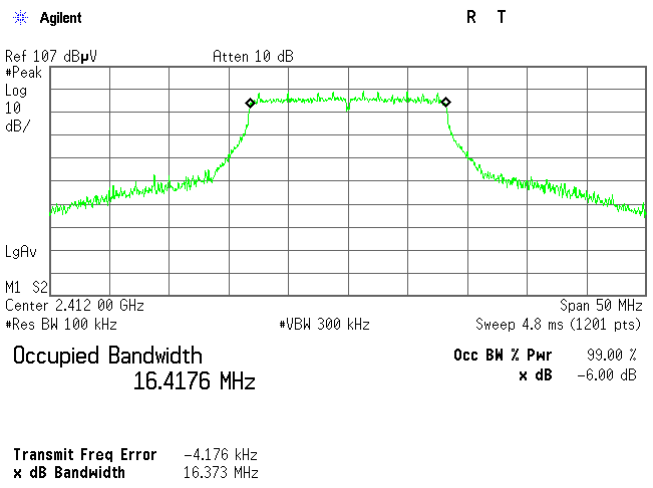


Tx, 2462MHz

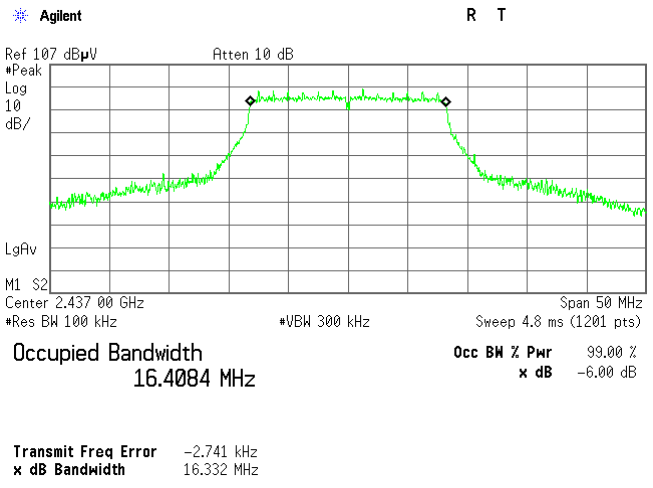


11g

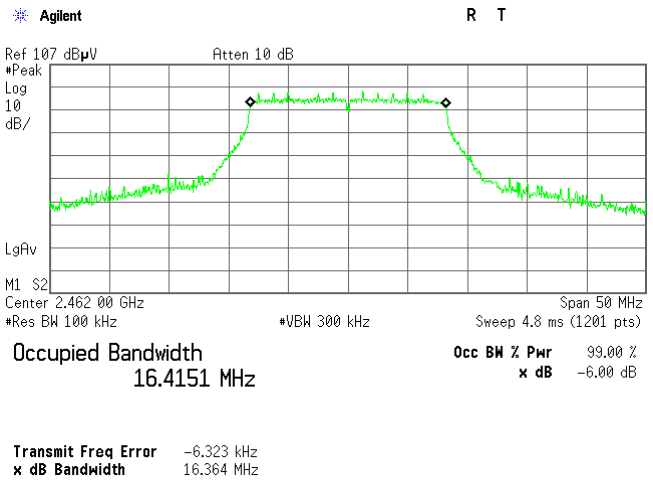
Tx, 2412MHz



Tx, 2437MHz



Tx, 2462MHz



Peak Output Power (Conducted)

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date 2010/2/18
Temperature / Humidity 22deg.C. , 36%
Engineer Akio Hayashi
Mode IEEE802.11b / Transmitting, 11Mbps
IEEE802.11g / Transmitting, 6Mbps

[IEEE802.11b]

Ch	Freq.	P/M Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
Low	2412.0	16.01	0.94	0.00	16.95	49.55	30.00	1000	13.05
Mid	2437.0	15.40	0.94	0.00	16.34	43.05	30.00	1000	13.66
High	2462.0	14.49	0.94	0.00	15.43	34.91	30.00	1000	14.57

[IEEE802.11g]

Ch	Freq.	P/M Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
Low	2412.0	20.98	0.94	0.00	21.92	155.60	30.00	1000	8.08
Mid	2437.0	20.85	0.94	0.00	21.79	151.01	30.00	1000	8.21
High	2462.0	19.95	0.94	0.00	20.89	122.74	30.00	1000	9.11

Sample Calculation:
Result = Reading + Cable Loss (supplied by customer)
* In the above table, factor 0.0dB represents no use of Atten. and/or Filter.
*The test result is rounded off to one or two decimal places, so some differences might be observed.

[Pre check / IEEE802.11b]

Data Rate	Freq.	P/M Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
[Mbps]	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
1	2412.0	15.89	0.94	0.00	16.83	48.19	30.00	1000	13.17
2	2412.0	15.80	0.94	0.00	16.74	47.21	30.00	1000	13.26
5.5	2412.0	15.90	0.94	0.00	16.84	48.31	30.00	1000	13.16
11	2412.0	16.01	0.94	0.00	16.95	49.55	30.00	1000	13.05

[Pre check / IEEE802.11g]

Data Rate	Freq.	P/M Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
[Mbps]	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
6	2412.0	20.98	0.94	0.00	21.92	155.60	30.00	1000	8.08
9	2412.0	20.91	0.94	0.00	21.85	153.11	30.00	1000	8.15
12	2412.0	20.96	0.94	0.00	21.90	154.88	30.00	1000	8.10
18	2412.0	20.90	0.94	0.00	21.84	152.76	30.00	1000	8.16
24	2412.0	20.95	0.94	0.00	21.89	154.53	30.00	1000	8.11
36	2412.0	20.97	0.94	0.00	21.91	155.24	30.00	1000	8.09
48	2412.0	20.96	0.94	0.00	21.90	154.88	30.00	1000	8.10
54	2412.0	20.94	0.94	0.00	21.88	154.17	30.00	1000	8.12

Radiated Emission

Test place: UL Japan, Inc. Shonan EMC Lab. — No.3 Semi Anechoic Chamber
Date: 2010/2/19 — 2010/2/23
Temperature / Humidity: 21 deg.C , 30% — 22 deg.C , 27%
Engineer: Akio Hayashi — Makoto Hosaka
Mode: Tx, 2412 MHz
11b, 11Mbps

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	109.102	QP	44.4	11.6	7.2	32.1	31.1	43.5	12.4	300	174	X-axis
Hori.	240.000	QP	50.9	17.1	8.0	31.9	44.1	46.0	**1.9**	150	233	X-axis
Hori.	320.016	QP	50.2	14.2	8.4	31.9	40.9	46.0	5.1	100	29	X-axis
Vert.	240.004	QP	42.1	17.1	8.0	31.9	35.3	46.0	10.7	100	206	Y-axis
Vert.	320.006	QP	42.9	14.2	8.4	31.9	33.6	46.0	12.4	208	284	Y-axis
Vert.	600.005	QP	39.5	19.0	9.4	31.9	36.0	46.0	10.0	100	76	Y-axis
Hori.	2390.000	PK	51.1	27.6	23.6	39.8	62.5	74.0	11.5	100	189	X-axis
Hori.	3215.992	PK	53.3	28.7	5.0	40.3	46.7	74.0	27.3	106	20	X-axis
Hori.	4824.000	PK	65.2	30.7	5.7	39.5	62.1	74.0	11.9	112	15	X-axis
Hori.	6432.500	PK	50.3	33.9	6.6	38.0	52.8	74.0	21.2	104	92	X-axis
Hori.	7236.000	PK	46.6	36.0	7.1	38.4	51.3	74.0	22.7	100	0	X-axis
Hori.	9648.000	PK	43.2	38.4	7.8	36.9	52.5	74.0	21.6	100	0	X-axis
Hori.	12060.000	PK	44.8	39.7	9.2	37.9	55.8	74.0	18.2	100	0	X-axis
Vert.	2390.000	PK	51.2	27.6	23.6	39.8	62.6	74.0	11.4	100	335	Z-axis
Vert.	3215.992	PK	53.6	28.7	5.0	40.3	47.0	74.0	27.0	111	197	Y-axis
Vert.	4824.000	PK	64.2	30.7	5.7	39.5	61.1	74.0	12.9	100	266	Y-axis
Vert.	6431.958	PK	53.3	33.9	6.6	38.0	55.8	74.0	18.2	121	326	Y-axis
Vert.	7236.000	PK	46.6	36.0	7.1	38.4	51.3	74.0	22.7	100	0	Y-axis
Vert.	9648.000	PK	43.2	38.4	7.8	36.9	52.5	74.0	21.5	100	0	Y-axis
Vert.	12060.000	PK	44.5	39.7	9.2	37.9	55.5	74.0	18.5	100	0	Y-axis
Hori.	2390.000	AV	36.9	27.6	23.6	39.8	48.3	54.0	5.7	100	189	X-axi
Hori.	3215.992	AV	49.8	28.7	5.0	40.3	43.2	54.0	10.8	106	20	X-axi
Hori.	4824.000	AV	53.7	30.7	5.7	39.5	50.6	54.0	3.4	112	15	X-axi
Hori.	6432.500	AV	44.3	33.9	6.6	38.0	46.8	54.0	7.2	104	92	X-axi
Hori.	7236.000	AV	35.0	36.0	7.1	38.4	39.7	54.0	14.3	100	0	X-axi
Hori.	9648.000	AV	32.2	38.4	7.8	36.9	41.5	54.0	12.5	100	0	X-axi
Hori.	12060.000	AV	33.1	39.7	9.2	37.9	44.1	54.0	9.9	100	0	X-axi
Vert.	2390.000	AV	36.5	27.6	23.6	39.8	47.9	54.0	6.1	100	335	Z-axis
Vert.	3215.992	AV	49.9	28.7	5.0	40.3	43.3	54.0	10.7	111	197	Y-axis
Vert.	4824.000	AV	52.5	30.7	5.7	39.5	49.4	54.0	4.6	100	266	Y-axis
Vert.	6431.958	AV	49.5	33.9	6.6	38.0	52.0	54.0	2.0	121	326	Y-axis
Vert.	7236.000	AV	34.4	36.0	7.1	38.4	39.1	54.0	14.9	100	0	Y-axis
Vert.	9648.000	AV	32.2	38.4	7.8	36.9	41.5	54.0	12.5	100	0	Y-axis
Vert.	12060.000	AV	33.2	39.7	9.2	37.9	44.2	54.0	9.8	100	0	Y-axis

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amprifier)

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

Distance factor: 13GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB

Radiated Emission

Test place: UL Japan, Inc. Shonan EMC Lab. — No.3 Semi Anechoic Chamber
Date: 2010/2/19 — 2010/2/23
Temperature / Humidity: 21 deg.C , 30% — 22 deg.C , 27%
Engineer: Akio Hayashi — Makoto Hosaka
Mode: Tx, 2437 MHz
11b, 11Mbps

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	109.102	QP	43.8	11.5	7.2	32.1	30.4	43.5	13.1	300	159	X-axis
Hori.	240.000	QP	46.6	17.1	8.0	31.9	39.8	46.0	6.2	150	245	X-axis
Hori.	320.001	QP	51.5	14.1	8.4	31.9	42.1	46.0	3.9	100	43	X-axis
Vert.	240.004	QP	40.1	17.1	8.0	31.9	33.3	46.0	12.7	100	281	Y-axis
Vert.	320.000	QP	41.4	14.1	8.4	31.9	32.0	46.0	14.0	100	272	Y-axis
Vert.	600.005	QP	40.5	19.0	9.4	31.9	37.0	46.0	9.0	100	65	Y-axis
Hori.	3249.325	PK	53.6	28.7	4.9	40.3	46.9	74.0	27.1	105	23	X-axis
Hori.	4874.000	PK	61.5	30.8	5.7	39.5	58.5	74.0	15.5	110	56	X-axis
Hori.	6498.635	PK	49.1	34.0	6.6	38.0	51.7	74.0	22.3	102	94	X-axis
Hori.	7311.000	PK	46.0	36.0	7.2	38.4	50.8	74.0	23.2	100	0	X-axis
Hori.	9748.000	PK	43.1	38.4	7.9	37.0	52.4	74.0	21.6	100	0	X-axis
Hori.	12185.000	PK	44.4	39.7	9.3	37.7	55.7	74.0	18.3	100	0	X-axis
Vert.	3249.325	PK	54.3	28.7	4.9	40.3	47.6	74.0	26.4	109	198	Y-axis
Vert.	4874.000	PK	59.6	30.8	5.7	39.5	56.6	74.0	17.4	100	288	Y-axis
Vert.	6498.635	PK	53.9	34.0	6.6	38.0	56.5	74.0	17.5	110	343	Y-axis
Vert.	7311.000	PK	47.0	36.0	7.2	38.4	51.8	74.0	22.2	100	0	Y-axis
Vert.	9748.000	PK	43.2	38.4	7.9	37.0	52.5	74.0	21.5	100	0	Y-axis
Vert.	12185.000	PK	43.7	39.7	9.3	37.7	55.0	74.0	19.0	100	0	Y-axis
Hori.	3249.325	AV	49.7	28.7	4.9	40.3	43.0	54.0	11.0	105	23	X-axis
Hori.	4874.000	AV	49.6	30.8	5.7	39.5	46.6	54.0	7.4	110	56	X-axis
Hori.	6498.635	AV	42.4	34.0	6.6	38.0	45.0	54.0	9.0	102	94	X-axis
Hori.	7311.000	AV	34.5	36.0	7.2	38.4	39.3	54.0	14.7	100	0	X-axis
Hori.	9748.000	AV	32.3	38.4	7.9	37.0	41.6	54.0	12.4	100	0	X-axis
Hori.	12185.000	AV	33.2	39.7	9.3	37.7	44.5	54.0	9.5	100	0	X-axis
Vert.	3249.325	AV	51.1	28.7	4.9	40.3	44.4	54.0	9.6	109	198	Y-axis
Vert.	4874.000	AV	47.6	30.8	5.7	39.5	44.6	54.0	9.4	100	288	Y-axis
Vert.	6498.635	AV	49.1	34.0	6.6	38.0	51.7	54.0	**2.3**	110	343	Y-axis
Vert.	7311.000	AV	34.9	36.0	7.2	38.4	39.7	54.0	14.3	100	0	Y-axis
Vert.	9748.000	AV	32.4	38.4	7.9	37.0	41.7	54.0	12.3	100	0	Y-axis
Vert.	12185.000	AV	33.5	39.7	9.3	37.7	44.8	54.0	9.2	100	0	Y-axis

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amprifier)

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

Distance factor: 13GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB

Radiated Emission

Test place	UL Japan, Inc. Shonan EMC Lab.		No.3 Semi Anechoic Chamber
Date	2010/2/19	2010/2/23	
Temperature / Humidity	21 deg.C , 30%	22 deg.C , 27%	
Engineer	Akio Hayashi	Makoto Hosaka	
Mode	Tx, 2462 MHz 11b, 11Mbps		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	109.102	QP	41.5	11.6	7.2	32.1	28.2	43.5	15.3	300	167	X-axis
Hori.	240.000	QP	47.0	17.1	8.0	31.9	40.2	46.0	5.8	134	248	X-axis
Hori.	320.001	QP	51.9	14.1	8.4	31.9	42.5	46.0	3.5	100	85	X-axis
Vert.	240.004	QP	41.8	17.1	8.0	31.9	35.0	46.0	11.0	143	212	Y-axis
Vert.	320.000	QP	41.9	14.2	8.4	31.9	32.6	46.0	13.5	131	286	Y-axis
Vert.	600.005	QP	40.5	19.0	9.4	31.9	37.0	46.0	9.0	100	109	Y-axis
Hori.	2483.500	PK	49.4	27.9	23.8	39.8	61.3	74.0	12.7	100	202	Y-axis
Hori.	3282.653	PK	53.4	28.8	5.0	40.3	46.9	74.0	27.1	105	24	X-axis
Hori.	4924.000	PK	60.1	31.0	5.9	39.4	57.6	74.0	16.4	108	46	X-axis
Hori.	6565.300	PK	48.3	34.3	6.6	38.0	51.2	74.0	22.8	111	94	X-axis
Hori.	7386.000	PK	45.6	35.9	7.3	38.5	50.3	74.0	23.7	100	0	X-axis
Hori.	9848.000	PK	43.9	38.3	8.0	37.0	53.2	74.0	20.8	100	0	X-axis
Hori.	12310.000	PK	44.2	39.7	9.6	37.5	56.0	74.0	18.0	100	0	X-axis
Vert.	2483.500	PK	50.2	27.9	23.8	39.8	62.1	74.0	11.9	100	192	Z-axis
Vert.	3282.653	PK	54.7	28.8	5.0	40.3	48.2	74.0	25.8	108	199	Y-axis
Vert.	4924.000	PK	59.3	31.0	5.9	39.4	56.8	74.0	17.2	127	336	Y-axis
Vert.	6565.300	PK	53.1	34.3	6.6	38.0	56.0	74.0	18.0	100	348	Y-axis
Vert.	7386.000	PK	46.5	35.9	7.3	38.5	51.2	74.0	22.8	100	0	Y-axis
Vert.	9848.000	PK	44.1	38.3	8.0	37.0	53.4	74.0	20.6	100	0	Y-axis
Vert.	12310.000	PK	45.2	39.7	9.6	37.5	57.0	74.0	17.0	100	0	Y-axis
Hori.	2483.500	AV	36.8	27.9	23.8	39.8	48.7	54.0	5.3	100	202	Y-axis
Hori.	3282.653	AV	49.8	28.8	5.0	40.3	43.3	54.0	10.7	105	24	X-axis
Hori.	4924.000	AV	46.9	31.0	5.9	39.4	44.4	54.0	9.6	108	46	X-axis
Hori.	6565.300	AV	40.2	34.3	6.6	38.0	43.1	54.0	10.9	111	94	X-axis
Hori.	7386.000	AV	34.8	35.9	7.3	38.5	39.5	54.0	14.5	100	0	X-axis
Hori.	9848.000	AV	32.9	38.3	8.0	37.0	42.2	54.0	11.8	100	0	X-axis
Hori.	12310.000	AV	33.2	39.7	9.6	37.5	45.0	54.0	9.0	100	0	X-axis
Vert.	2483.500	AV	35.7	27.9	23.8	39.8	47.6	54.0	6.4	100	192	Z-axis
Vert.	3282.653	AV	51.7	28.8	5.0	40.3	45.2	54.0	8.8	108	199	Y-axis
Vert.	4924.000	AV	47.4	31.0	5.9	39.4	44.9	54.0	9.2	127	336	Y-axis
Vert.	6565.300	AV	49.1	34.3	6.6	38.0	52.0	54.0	**2.0**	100	348	Y-axis
Vert.	7386.000	AV	34.8	35.9	7.3	38.5	39.5	54.0	14.5	100	0	Y-axis
Vert.	9848.000	AV	32.7	38.3	8.0	37.0	42.0	54.0	12.0	100	0	Y-axis
Vert.	12310.000	AV	33.5	39.7	9.6	37.5	45.3	54.0	8.7	100	0	Y-axis

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amprifier)

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

Distance factor: 13GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB

Radiated Emission

Test place	UL Japan, Inc. Shonan EMC Lab.		No.3 Semi Anechoic Chamber
Date	2010/2/20	2010/2/23	
Temperature / Humidity	23 deg.C , 29%	22 deg.C , 29%	
Engineer	Akio Hayashi	Makoto Hosaka	
Mode	Tx, 2412 MHz		
	11g, 6Mbps		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	148.584	QP	42.3	14.6	7.5	32.0	32.4	43.5	11.1	225	77	X-axis
Hori.	239.984	QP	46.9	17.1	8.0	31.9	40.1	46.0	5.9	140	226	X-axis
Hori.	319.998	QP	51.8	14.1	8.4	31.9	42.4	46.0	3.6	100	35	X-axis
Hori.	839.998	QP	35.2	21.2	10.1	31.4	35.1	46.0	10.9	111	80	X-axis
Vert.	239.995	QP	38.8	17.1	8.0	31.9	32.0	46.0	14.0	100	236	Y-axis
Vert.	319.954	QP	44.5	14.1	8.4	31.9	35.1	46.0	10.9	181	94	Y-axis
Vert.	495.045	QP	45.5	17.3	9.0	31.9	39.9	46.0	6.1	109	52	Y-axis
Vert.	599.989	QP	38.2	19.0	9.4	31.9	34.7	46.0	11.3	100	123	Y-axis
Hori.	2390.000	PK	55.5	27.6	23.6	39.8	66.9	74.0	7.1	128	200	Y-axis
Hori.	3215.992	PK	53.6	28.7	5.0	40.3	47.0	74.0	27.0	106	22	X-axis
Hori.	4824.000	PK	62.8	30.7	5.7	39.5	59.7	74.0	14.3	112	14	X-axis
Hori.	6431.958	PK	50.1	33.9	6.6	38.0	52.6	74.0	21.4	103	93	X-axis
Hori.	7236.000	PK	45.7	36.0	7.1	38.4	50.4	74.0	23.6	100	0	X-axis
Hori.	9648.000	PK	43.1	38.4	7.8	36.9	52.4	74.0	21.6	100	0	X-axis
Hori.	12060.000	PK	44.5	39.7	9.2	37.9	55.5	74.0	18.5	100	0	X-axis
Vert.	2390.000	PK	54.8	27.6	23.6	39.8	66.2	74.0	7.8	105	333	Z-axis
Vert.	3215.992	PK	53.9	28.7	5.0	40.3	47.3	74.0	26.7	110	197	Y-axis
Vert.	4824.000	PK	61.7	30.7	5.7	39.5	58.6	74.0	15.4	101	267	Y-axis
Vert.	6431.958	PK	53.3	33.9	6.6	38.0	55.8	74.0	18.2	102	326	Y-axis
Vert.	7236.000	PK	46.9	36.0	7.1	38.4	51.6	74.0	22.4	100	0	Y-axis
Vert.	9648.000	PK	43.4	38.4	7.8	36.9	52.7	74.0	21.3	100	0	Y-axis
Vert.	12060.000	PK	44.0	39.7	9.2	37.9	55.0	74.0	19.0	100	0	Y-axis
Hori.	2390.000	AV	40.1	27.6	23.6	39.8	51.5	54.0	2.5	128	200	Y-axis
Hori.	3215.992	AV	50.0	28.7	5.0	40.3	43.4	54.0	10.6	106	22	X-axis
Hori.	4824.000	AV	49.1	30.7	5.7	39.5	46.0	54.0	8.0	112	14	X-axis
Hori.	6431.958	AV	44.6	33.9	6.6	38.0	47.1	54.0	6.9	103	93	X-axis
Hori.	7236.000	AV	34.7	36.0	7.1	38.4	39.4	54.0	14.6	100	0	X-axis
Hori.	9648.000	AV	32.0	38.4	7.8	36.9	41.3	54.0	12.8	100	0	X-axis
Hori.	12060.000	AV	33.1	39.7	9.2	37.9	44.1	54.0	9.9	100	0	X-axis
Vert.	2390.000	AV	38.5	27.6	23.6	39.8	49.9	54.0	4.1	105	333	Z-axis
Vert.	3215.992	AV	50.8	28.7	5.0	40.3	44.2	54.0	9.8	110	197	Y-axis
Vert.	4824.000	AV	48.3	30.7	5.7	39.5	45.2	54.0	8.8	101	267	Y-axis
Vert.	6431.958	AV	49.3	33.9	6.6	38.0	51.8	54.0	**2.2**	102	326	Y-axis
Vert.	7236.000	AV	35.2	36.0	7.1	38.4	39.9	54.0	14.2	100	0	Y-axis
Vert.	9648.000	AV	32.2	38.4	7.8	36.9	41.5	54.0	12.5	100	0	Y-axis
Vert.	12060.000	AV	33.3	39.7	9.2	37.9	44.3	54.0	9.7	100	0	Y-axis

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amprifier)

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

Distance factor: 13GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB

Radiated Emission

Test place	UL Japan, Inc. Shonan EMC Lab.		No.3 Semi Anechoic Chamber
Date	2010/2/20	2010/2/23	
Temperature / Humidity	23 deg.C , 29%	22 deg.C , 29%	
Engineer	Akio Hayashi	Makoto Hosaka	
Mode	Tx, 2437 MHz 11g, 6Mbps		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	159.987	QP	44.2	14.9	7.5	32.0	34.6	43.5	8.9	194	262	X axis
Hori.	239.990	QP	46.2	17.1	8.0	31.9	39.4	46.0	6.6	142	236	X axis
Hori.	319.997	QP	51.8	14.1	8.4	31.9	42.4	46.0	3.6	105	47	X axis
Hori.	839.997	QP	35.6	21.2	10.1	31.4	35.5	46.0	10.5	109	78	X axis
Vert.	92.134	QP	48.0	8.6	7.1	32.1	31.6	43.5	11.9	117	245	Y axis
Vert.	239.987	QP	37.8	17.1	8.0	31.9	31.0	46.0	15.0	100	280	Y axis
Vert.	319.993	QP	42.6	14.1	8.4	31.9	33.2	46.0	12.8	164	271	Y axis
Vert.	495.065	QP	45.4	17.3	9.0	31.9	39.8	46.0	6.2	109	48	Y axis
Vert.	599.996	QP	38.3	19.0	9.4	31.9	34.8	46.0	11.2	100	109	Y axis
Hori.	3249.325	PK	53.0	28.7	4.9	40.3	46.3	74.0	27.7	104	25	X-axis
Hori.	4874.000	PK	61.4	30.8	5.7	39.5	58.4	74.0	15.6	109	55	X-axis
Hori.	6498.635	PK	49.1	34.0	6.6	38.0	51.7	74.0	22.3	102	94	X-axis
Hori.	7311.000	PK	45.4	36.0	7.2	38.4	50.2	74.0	23.8	100	0	X-axis
Hori.	9748.000	PK	43.1	38.4	7.9	37.0	52.4	74.0	21.6	100	0	X-axis
Hori.	12185.000	PK	44.4	39.7	9.3	37.7	55.7	74.0	18.3	100	0	X-axis
Vert.	3249.325	PK	55.1	28.7	4.9	40.3	48.4	74.0	25.6	109	198	Y-axis
Vert.	4874.000	PK	61.8	30.8	5.7	39.5	58.8	74.0	15.2	111	95	Y-axis
Vert.	6498.635	PK	53.4	34.0	6.6	38.0	56.0	74.0	18.0	110	342	Y-axis
Vert.	7311.000	PK	45.6	36.0	7.2	38.4	50.4	74.0	23.6	100	0	Y-axis
Vert.	9748.000	PK	43.3	38.4	7.9	37.0	52.6	74.0	21.4	100	0	Y-axis
Vert.	12185.000	PK	44.5	39.7	9.3	37.7	55.8	74.0	18.2	100	0	Y-axis
Hori.	3249.325	AV	49.6	28.7	4.9	40.3	42.9	54.0	11.1	104	25	X-axis
Hori.	4874.000	AV	46.4	30.8	5.7	39.5	43.4	54.0	10.6	109	55	X-axis
Hori.	6498.635	AV	42.3	34.0	6.6	38.0	44.9	54.0	9.1	102	94	X-axis
Hori.	7311.000	AV	34.3	36.0	7.2	38.4	39.1	54.0	14.9	100	0	X-axis
Hori.	9748.000	AV	32.2	38.4	7.9	37.0	41.5	54.0	12.5	100	0	X-axis
Hori.	12185.000	AV	33.0	39.7	9.3	37.7	44.3	54.0	9.8	100	0	X-axis
Vert.	3249.325	AV	52.0	28.7	4.9	40.3	45.3	54.0	8.7	109	198	Y-axis
Vert.	4874.000	AV	44.9	30.8	5.7	39.5	41.9	54.0	12.1	111	95	Y-axis
Vert.	6498.635	AV	49.2	34.0	6.6	38.0	51.8	54.0	**2.2**	110	342	Y-axis
Vert.	7311.000	AV	34.4	36.0	7.2	38.4	39.2	54.0	14.8	100	0	Y-axis
Vert.	9748.000	AV	32.4	38.4	7.9	37.0	41.7	54.0	12.3	100	0	Y-axis
Vert.	12185.000	AV	33.4	39.7	9.3	37.7	44.7	54.0	9.3	100	0	Y-axis

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amprifier)

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

Distance factor: 13GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB

Radiated Emission

Test place	UL Japan, Inc. Shonan EMC Lab.		No.3 Semi Anechoic Chamber
Date	2010/2/20	2010/2/23	
Temperature / Humidity	23 deg.C , 29%	22 deg.C , 29%	
Engineer	Akio Hayashi	Makoto Hosaka	
Mode	Tx, 2462 MHz		
	11g, 6Mbps		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	159.999	QP	44.3	14.9	7.5	32.0	34.7	43.5	8.8	193	91	X axis
Hori.	239.996	QP	46.6	17.1	8.0	31.9	39.8	46.0	6.2	144	230	X axis
Hori.	319.996	QP	51.7	14.1	8.4	31.9	42.3	46.0	3.7	106	35	X axis
Hori.	839.989	QP	34.8	21.2	10.1	31.4	34.7	46.0	11.3	110	77	X axis
Vert.	92.134	QP	48.1	8.6	7.1	32.1	31.7	43.5	11.8	104	243	Y axis
Vert.	239.987	QP	39.7	17.1	8.0	31.9	32.9	46.0	13.1	100	268	Y axis
Vert.	319.993	QP	42.6	14.1	8.4	31.9	33.2	46.0	12.8	174	283	Y axis
Vert.	495.065	QP	45.5	17.3	9.0	31.9	39.9	46.0	6.1	115	58	Y axis
Vert.	599.990	QP	38.0	19.0	9.4	31.9	34.5	46.0	11.5	103	111	Y axis
Hori.	2483.500	PK	52.7	27.9	23.8	39.8	64.6	74.0	9.4	175	192	Y-axis
Hori.	3282.653	PK	53.5	28.8	5.0	40.3	47.0	74.0	27.1	106	23	X-axis
Hori.	4924.000	PK	59.9	31.0	5.9	39.4	57.4	74.0	16.6	109	49	X-axis
Hori.	6565.300	PK	49.9	34.3	6.6	38.0	52.8	74.0	21.2	121	95	X-axis
Hori.	7386.000	PK	45.9	35.9	7.3	38.5	50.6	74.0	23.4	100	0	X-axis
Hori.	9848.000	PK	44.2	38.3	8.0	37.0	53.5	74.0	20.5	100	0	X-axis
Hori.	12310.000	PK	43.7	39.7	9.6	37.5	55.5	74.0	18.5	100	0	X-axis
Vert.	2483.500	PK	57.8	27.9	23.8	39.8	69.7	74.0	4.3	100	326	Z-axis
Vert.	3282.653	PK	54.9	28.8	5.0	40.3	48.4	74.0	25.6	104	204	Y-axis
Vert.	4924.000	PK	63.6	31.0	5.9	39.4	61.1	74.0	12.9	111	86	Y-axis
Vert.	6565.300	PK	53.2	34.3	6.6	38.0	56.1	74.0	17.9	109	348	Y-axis
Vert.	7386.000	PK	45.6	35.9	7.3	38.5	50.3	74.0	23.7	100	0	Y-axis
Vert.	9848.000	PK	43.8	38.3	8.0	37.0	53.1	74.0	20.9	100	0	Y-axis
Vert.	12310.000	PK	44.5	39.7	9.6	37.5	56.3	74.0	17.7	100	0	Y-axis
Hori.	2483.500	AV	36.7	27.9	23.8	39.8	48.6	54.0	5.4	175	192	Y-axis
Hori.	3282.653	AV	49.6	28.8	5.0	40.3	43.1	54.0	10.9	106	23	X-axis
Hori.	4924.000	AV	45.4	31.0	5.9	39.4	42.9	54.0	11.1	109	49	X-axis
Hori.	6565.300	AV	41.8	34.3	6.6	38.0	44.7	54.0	9.3	121	95	X-axis
Hori.	7386.000	AV	34.8	35.9	7.3	38.5	39.5	54.0	14.5	100	0	X-axis
Hori.	9848.000	AV	32.4	38.3	8.0	37.0	41.7	54.0	12.3	100	0	X-axis
Hori.	12310.000	AV	33.0	39.7	9.6	37.5	44.8	54.0	9.2	100	0	X-axis
Vert.	2483.500	AV	38.1	27.9	23.8	39.8	50.0	54.0	4.0	100	326	Z-axis
Vert.	3282.653	AV	51.7	28.8	5.0	40.3	45.2	54.0	8.8	104	204	Y-axis
Vert.	4924.000	AV	47.5	31.0	5.9	39.4	45.0	54.0	9.0	111	86	Y-axis
Vert.	6565.300	AV	49.1	34.3	6.6	38.0	52.0	54.0	**2.0**	109	348	Y-axis
Vert.	7386.000	AV	34.7	35.9	7.3	38.5	39.4	54.0	14.6	100	0	Y-axis
Vert.	9848.000	AV	32.7	38.3	8.0	37.0	42.0	54.0	12.0	100	0	Y-axis
Vert.	12310.000	AV	33.3	39.7	9.6	37.5	45.1	54.0	8.9	100	0	Y-axis

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amprifier)

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

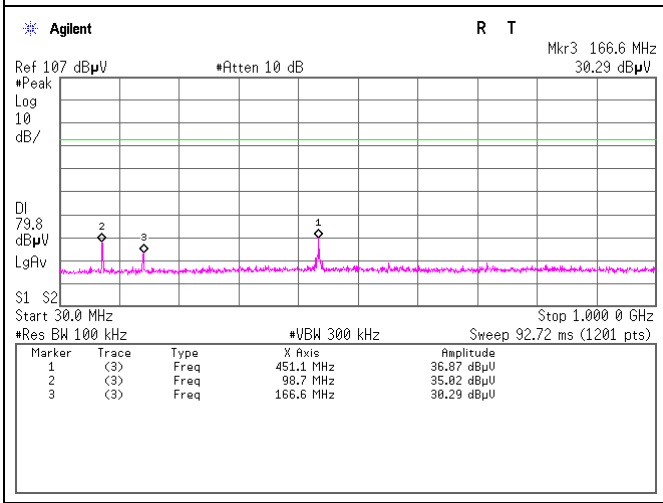
Distance factor: 13GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB

Spurious emission (Conducted)

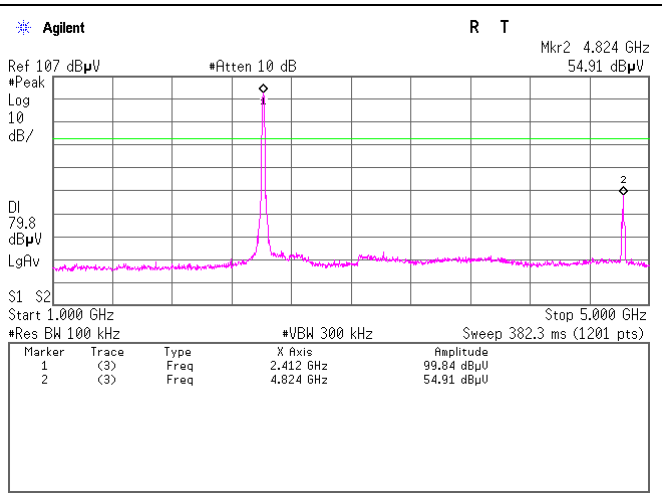
11b,

Tx, 2412MHz

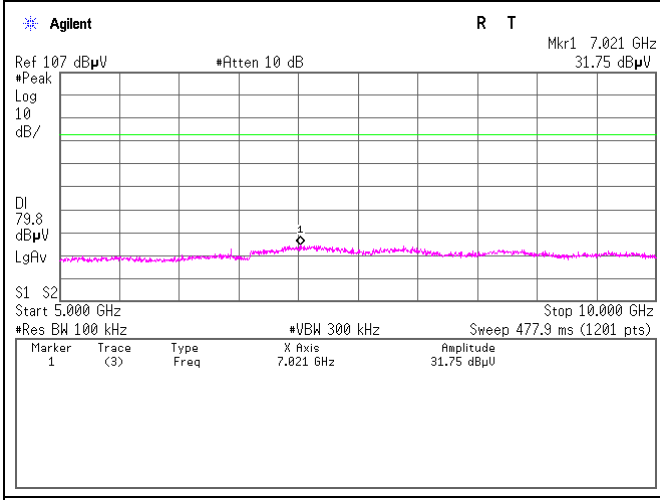
30MHz - 1GHz



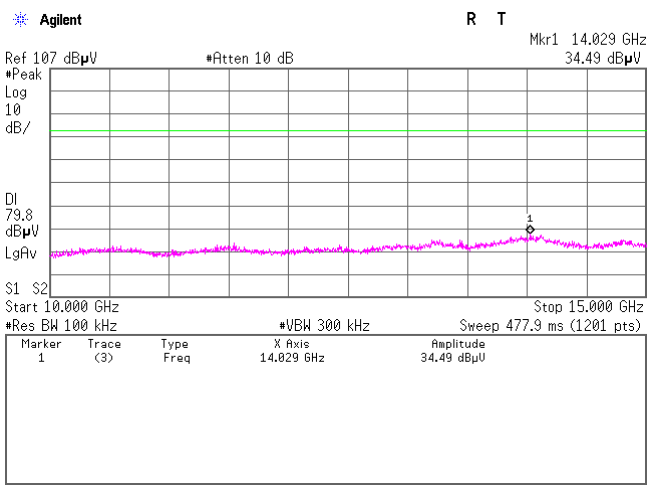
1GHz - 5GHz



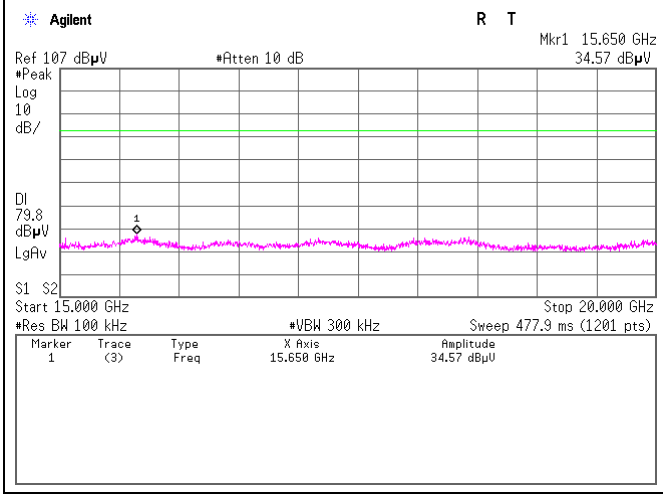
5GHz - 10GHz



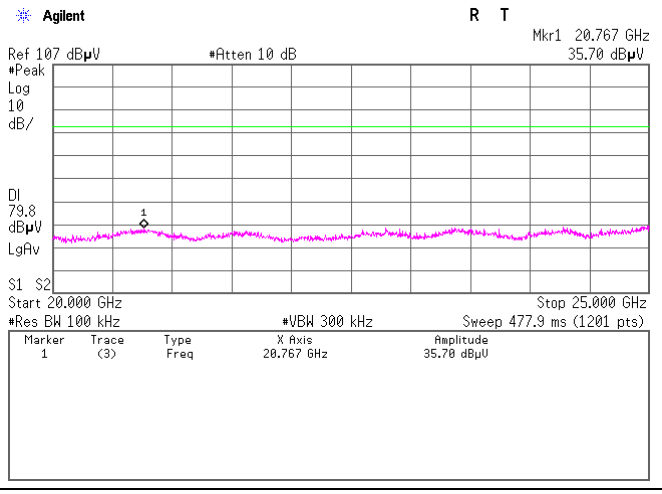
10GHz - 15GHz



15GHz - 20GHz



20GHz - 25GHz



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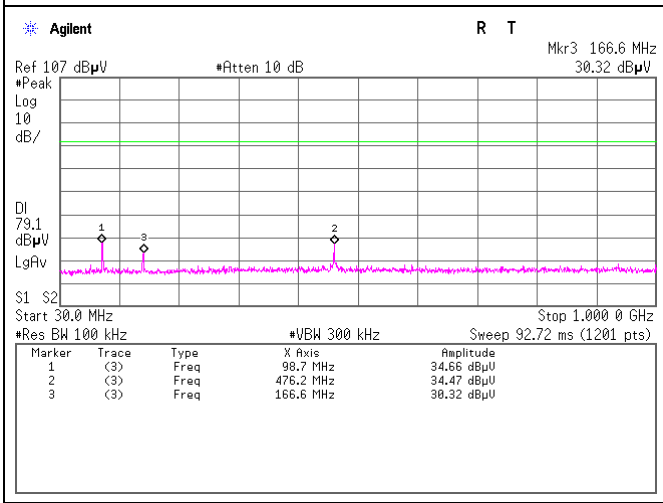
Spurious emission (Conducted)

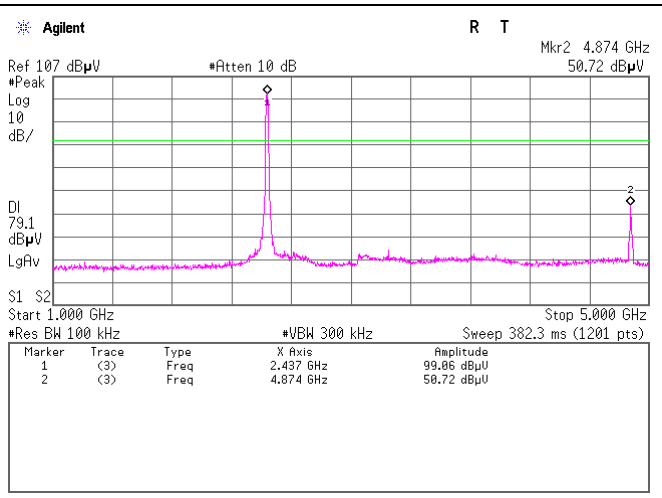
11b,

Tx, 2437MHz

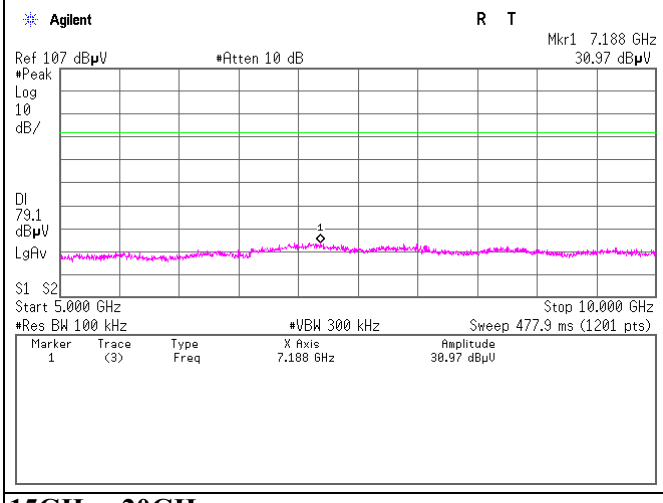
30MHz - 1GHz



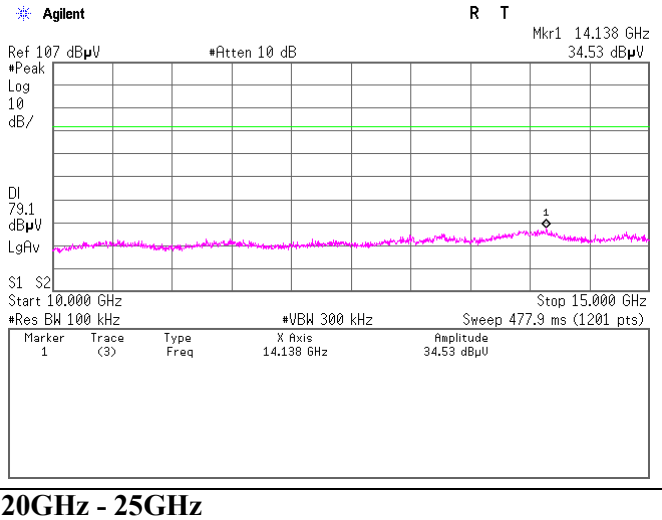
1GHz - 5GHz



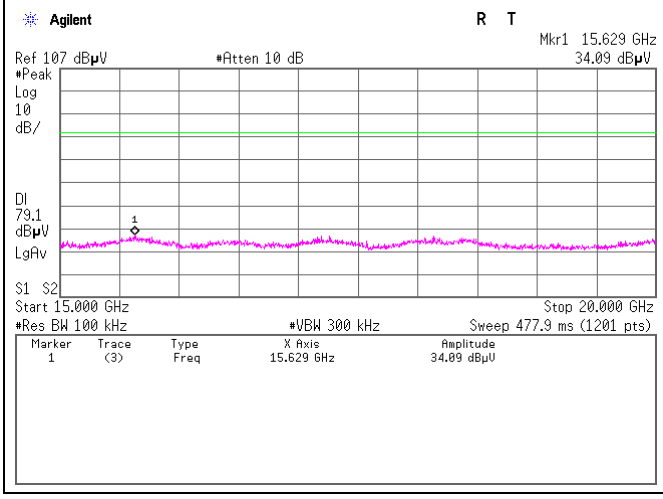
5GHz - 10GHz



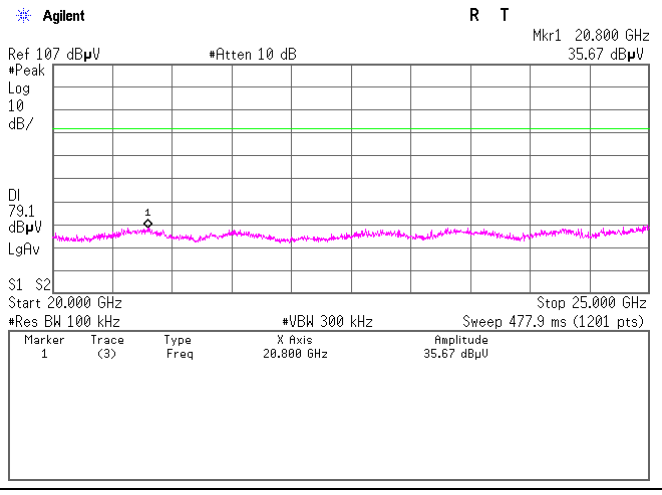
10GHz - 15GHz



15GHz - 20GHz



20GHz - 25GHz

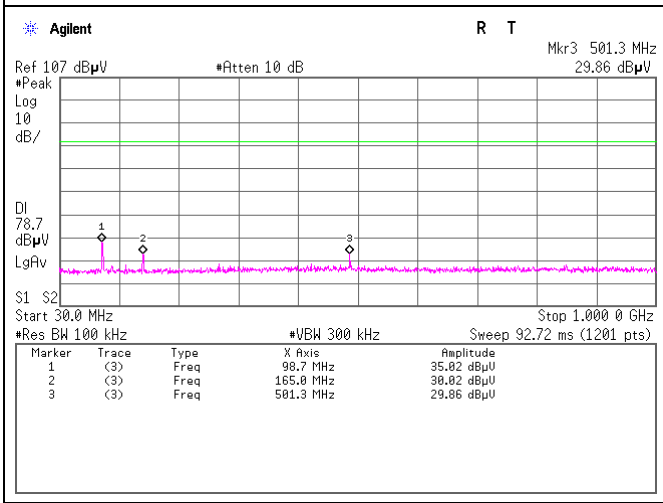


Spurious emission (Conducted)

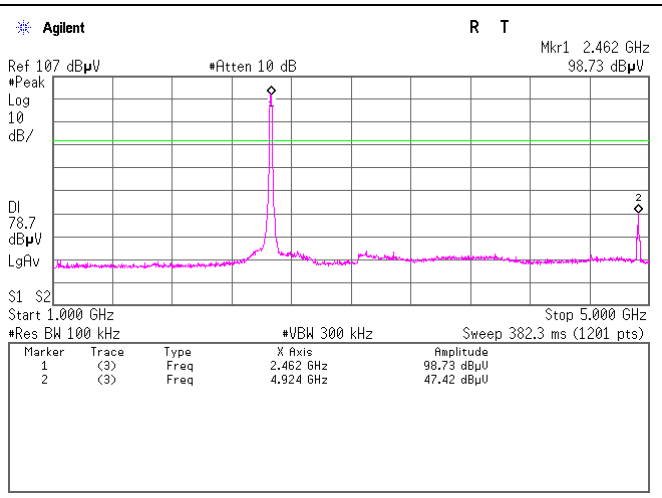
11b,

Tx, 2462MHz

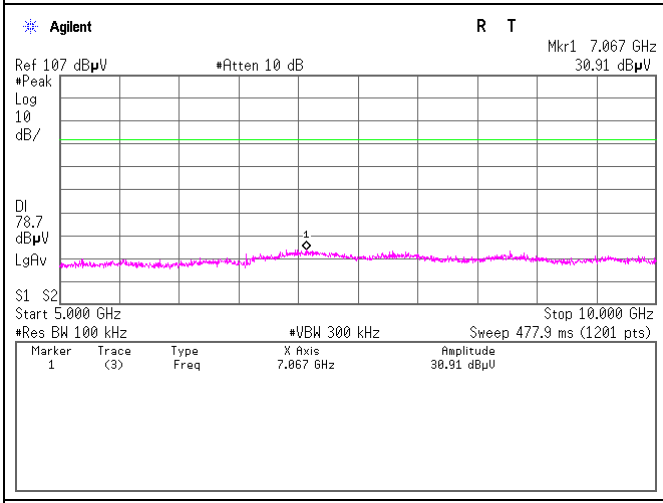
30MHz - 1GHz



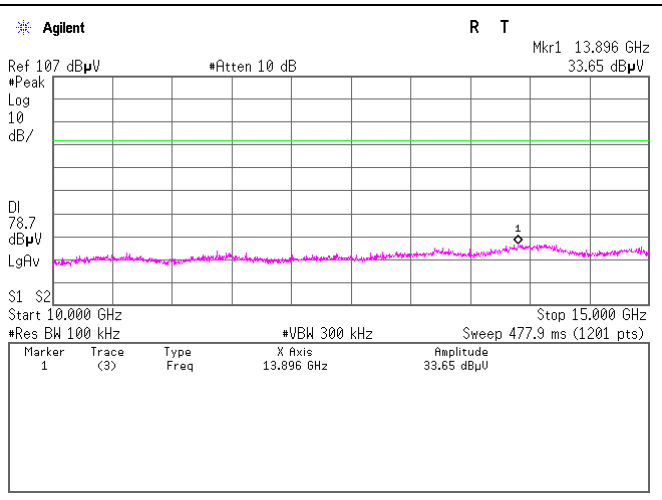
1GHz - 5GHz



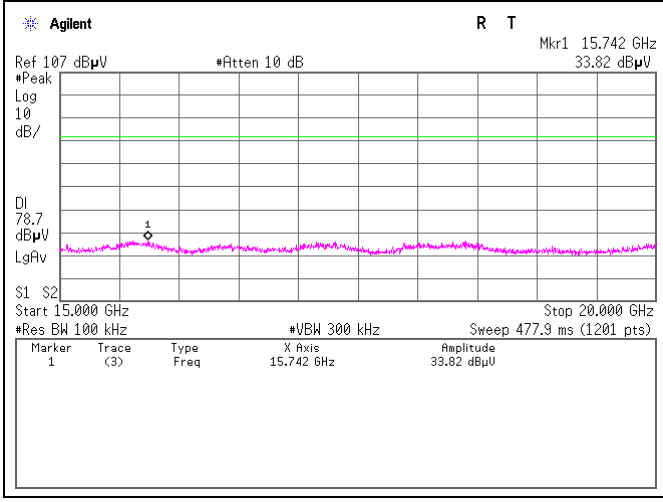
5GHz - 10GHz



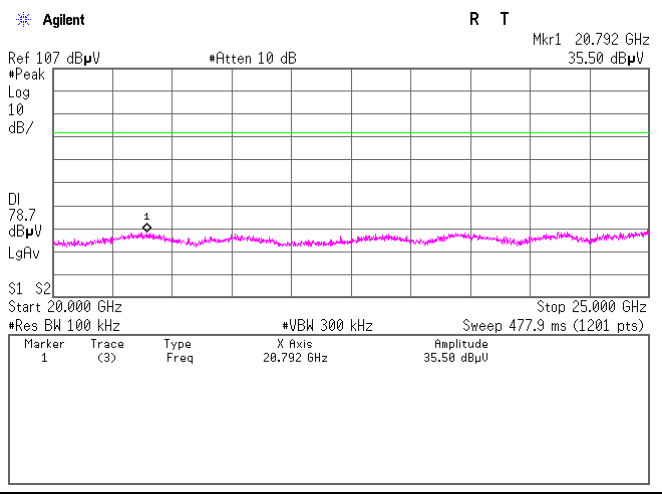
10GHz - 15GHz



15GHz - 20GHz



20GHz - 25GHz



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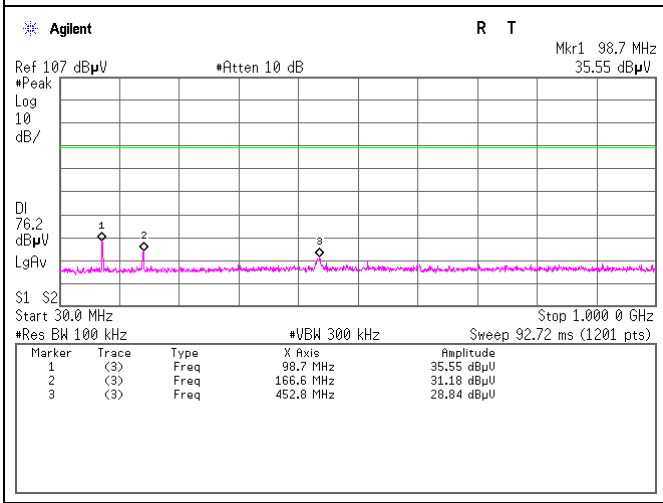
Spurious emission (Conducted)

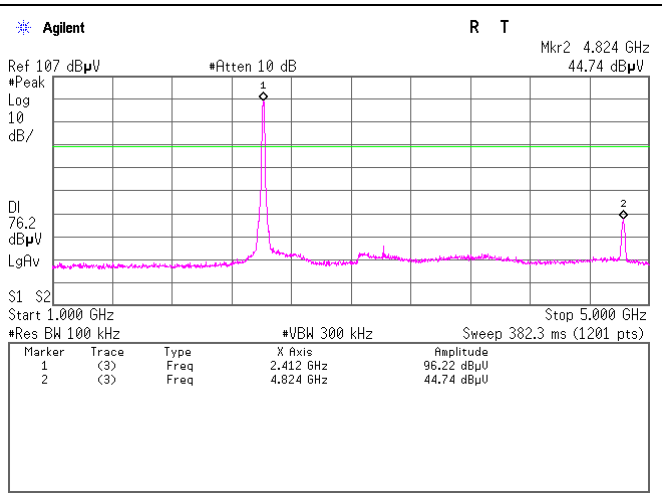
11g,

Tx, 2412MHz

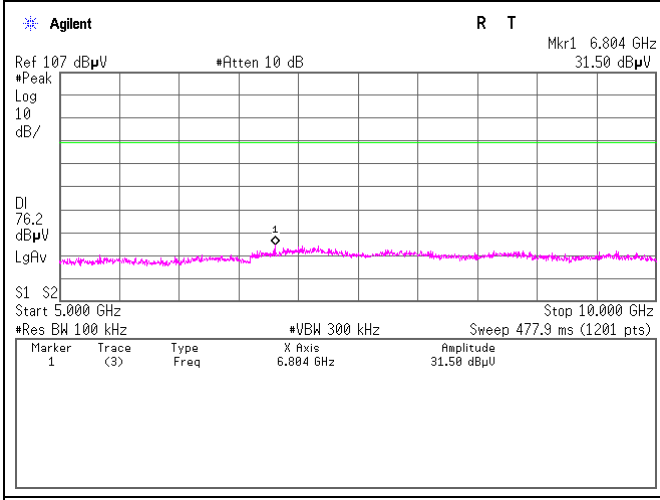
30MHz - 1GHz



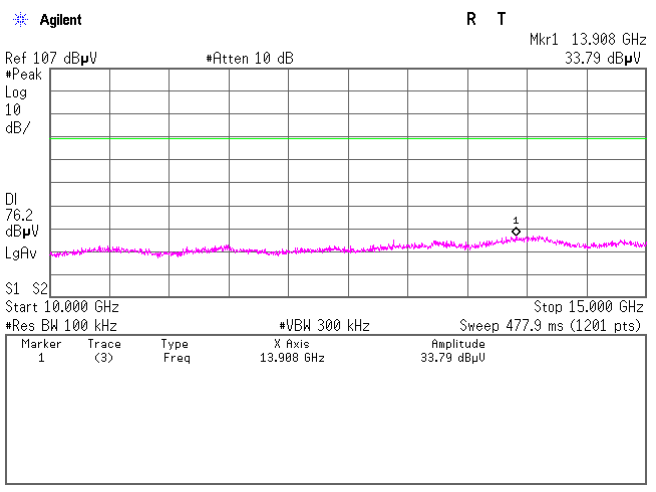
1GHz - 5GHz



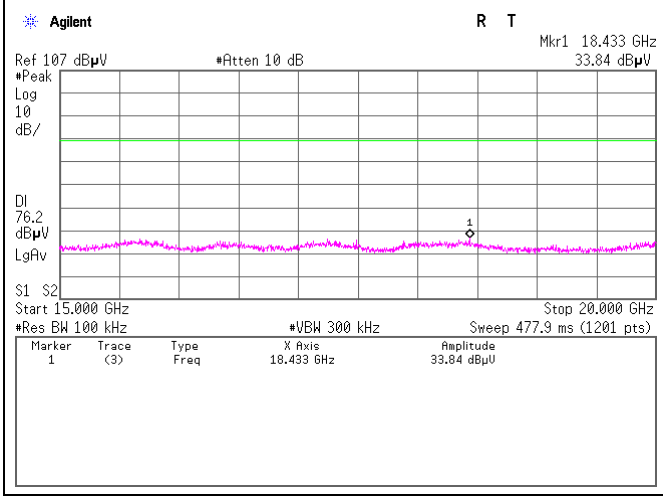
5GHz - 10GHz



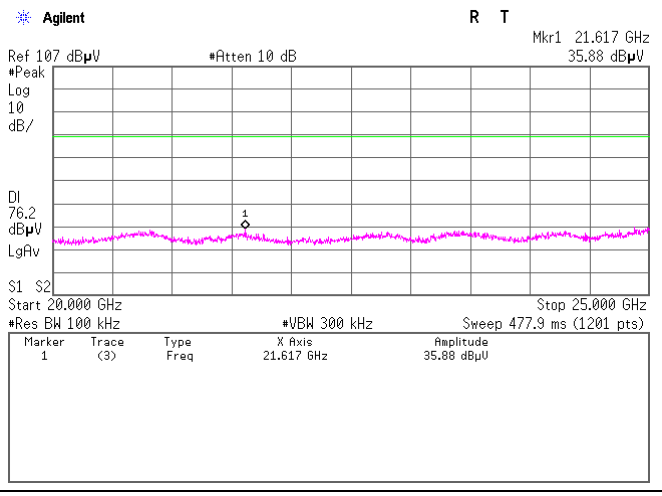
10GHz - 15GHz



15GHz - 20GHz



20GHz - 25GHz



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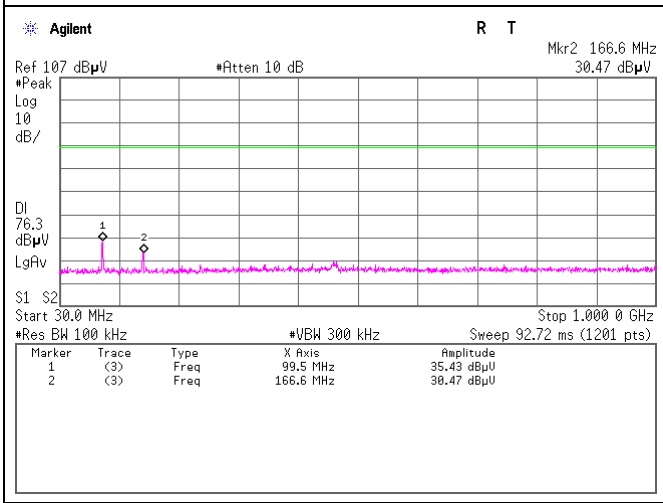
Spurious emission (Conducted)

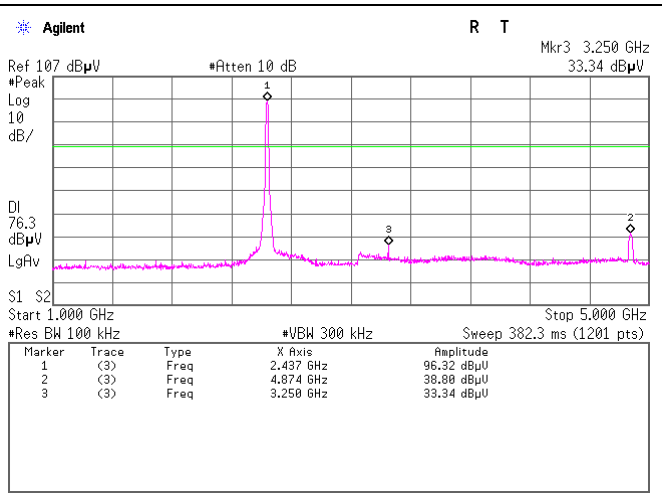
11g,

Tx, 2437MHz

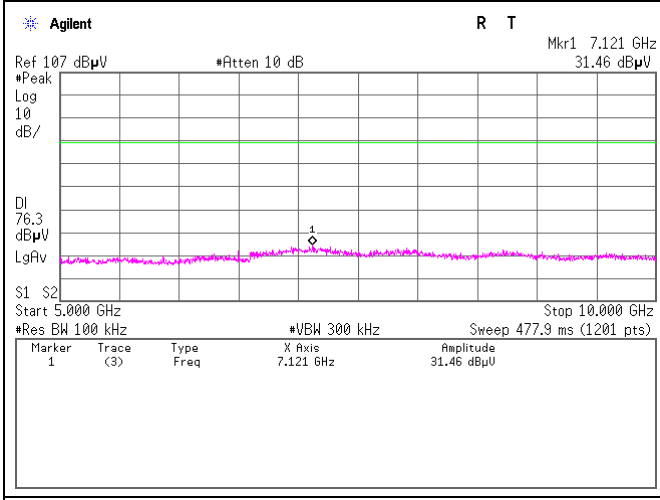
30MHz - 1GHz



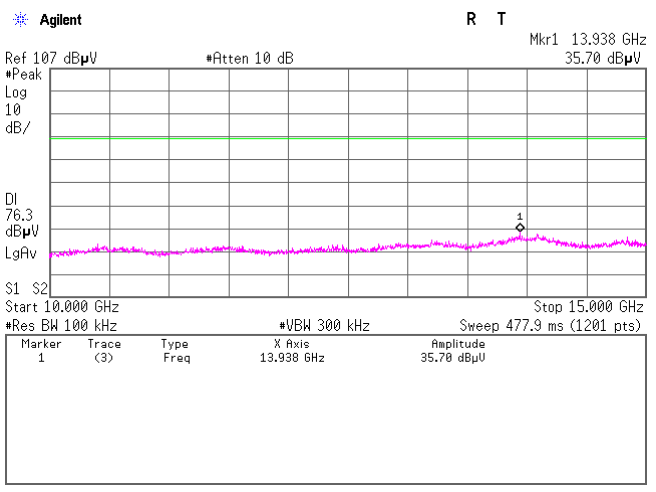
1GHz - 5GHz



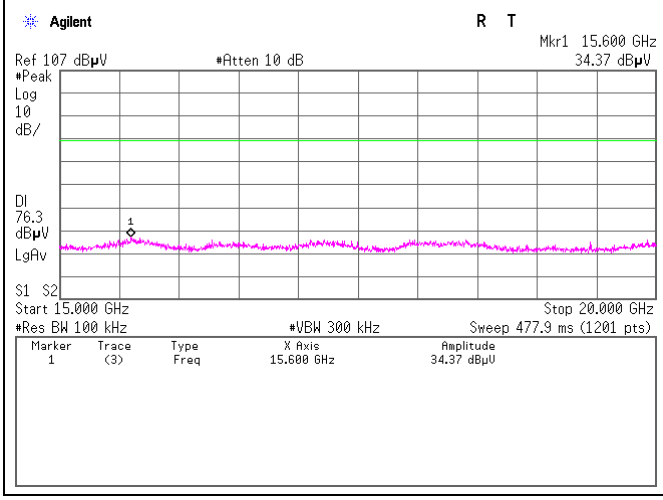
5GHz - 10GHz



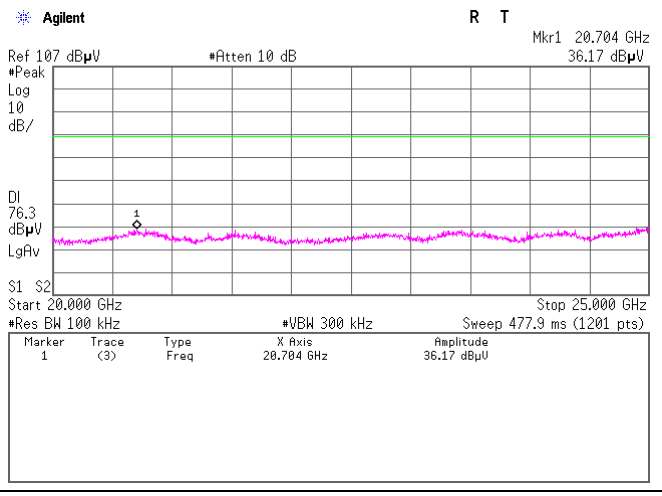
10GHz - 15GHz



15GHz - 20GHz



20GHz - 25GHz

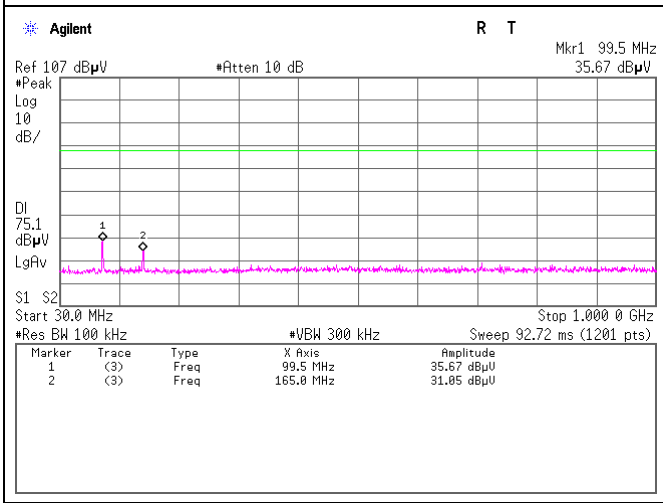


Spurious emission (Conducted)

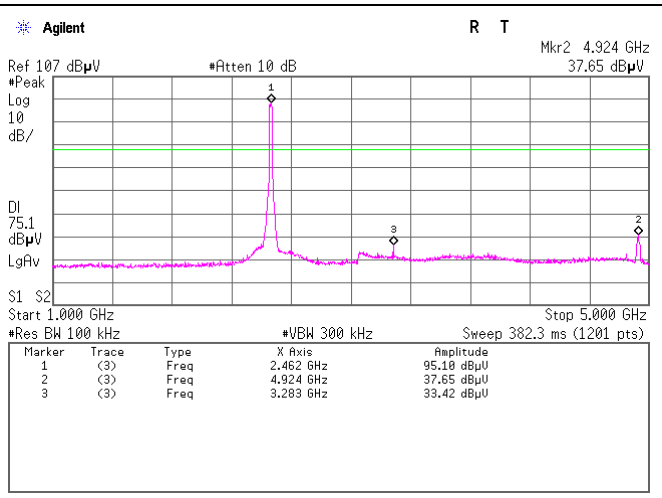
11g,

Tx, 2462MHz

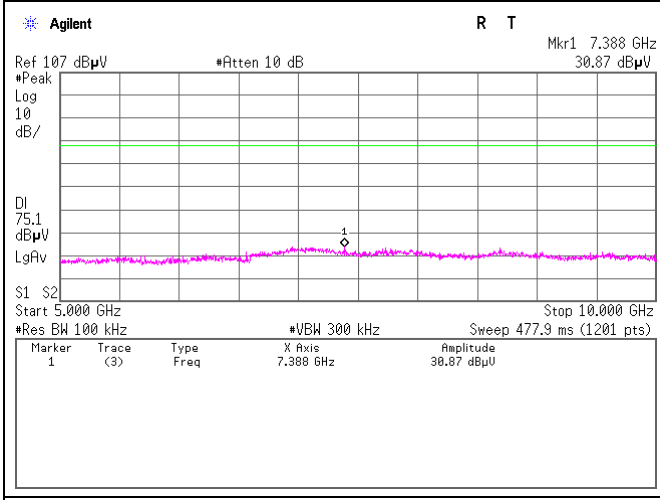
30MHz - 1GHz



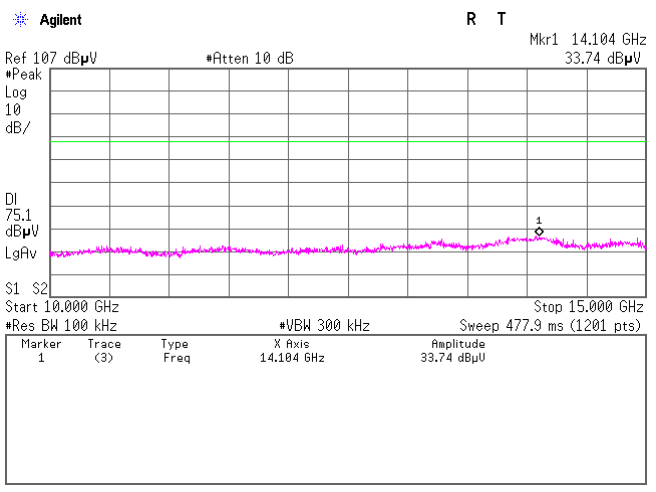
1GHz - 5GHz



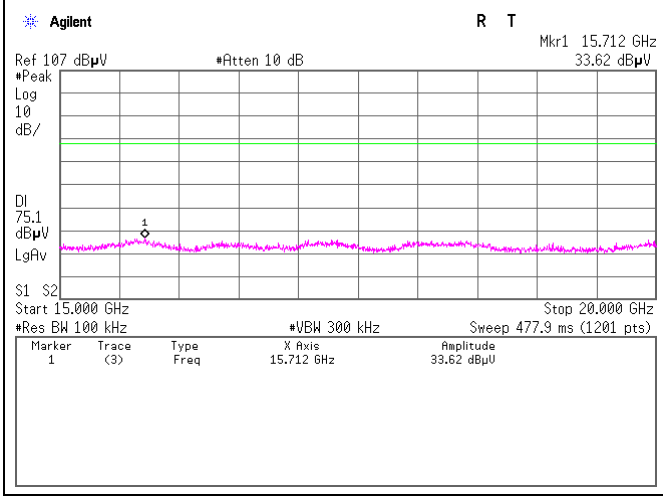
5GHz - 10GHz



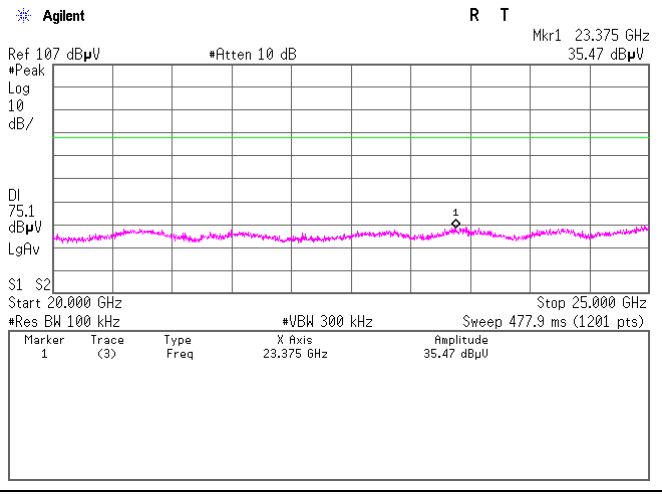
10GHz - 15GHz



15GHz - 20GHz



20GHz - 25GHz



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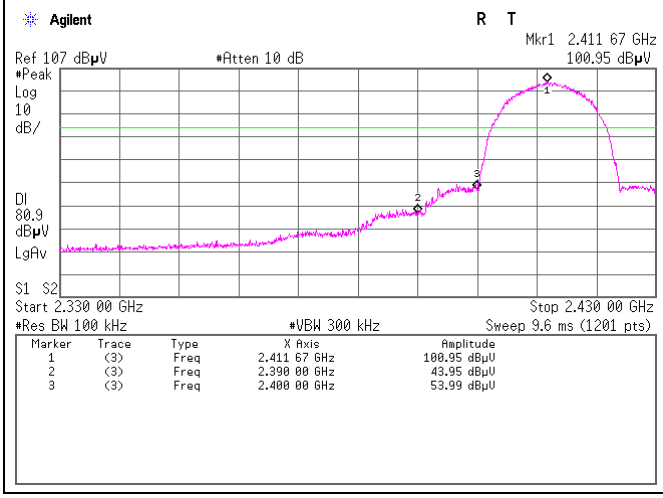
Spurious emission (Conducted)

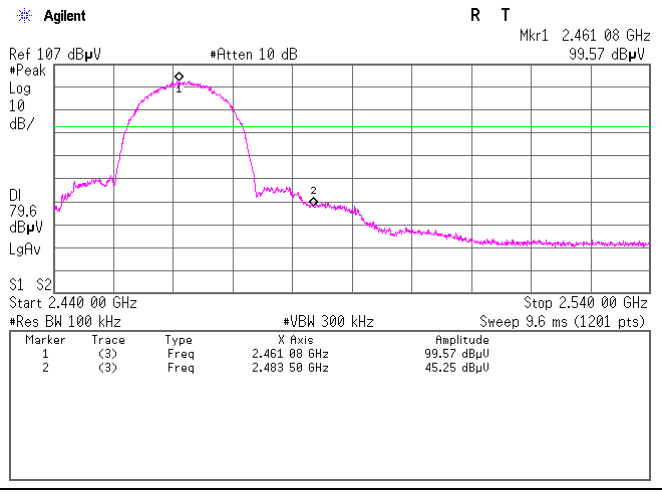
Band Edge compliance

11b,

Tx, 2412MHz

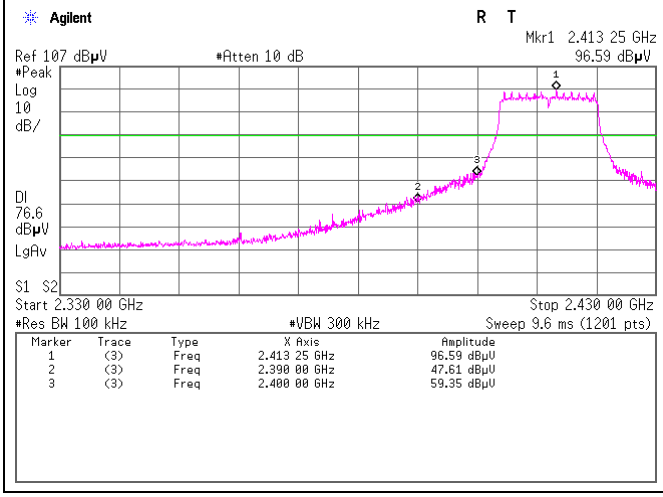


Tx, 2462MHz

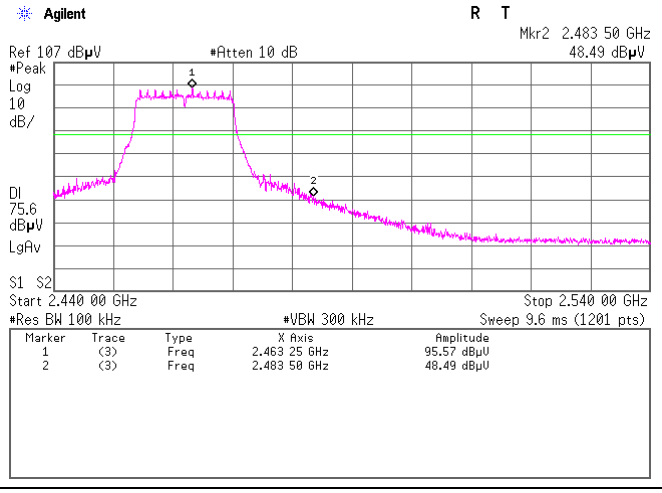


11g,

Tx, 2412MHz



Tx, 2462MHz



Power Density

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	2010/3/2	
Temperature / Humidity	26deg.C. , 32%	
Engineer	Akio Hayashi	
Mode	Tx,	

11b,

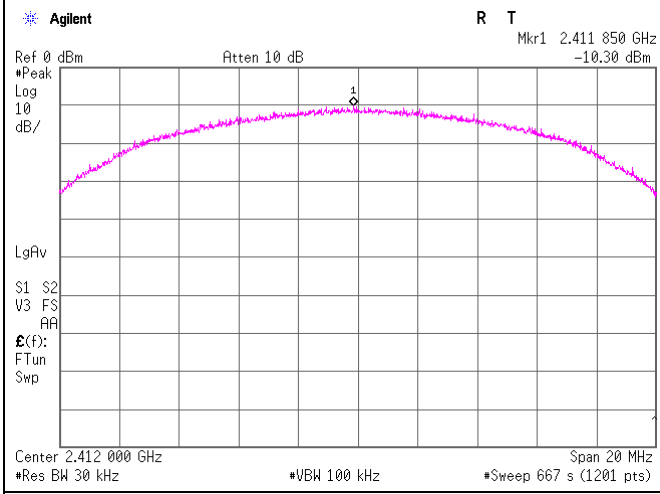
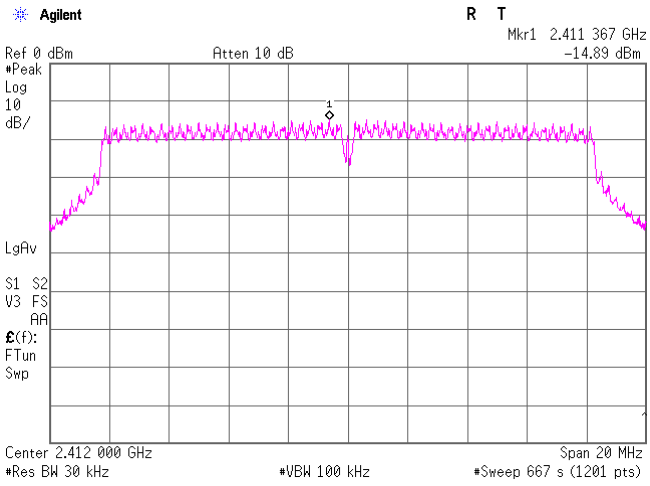
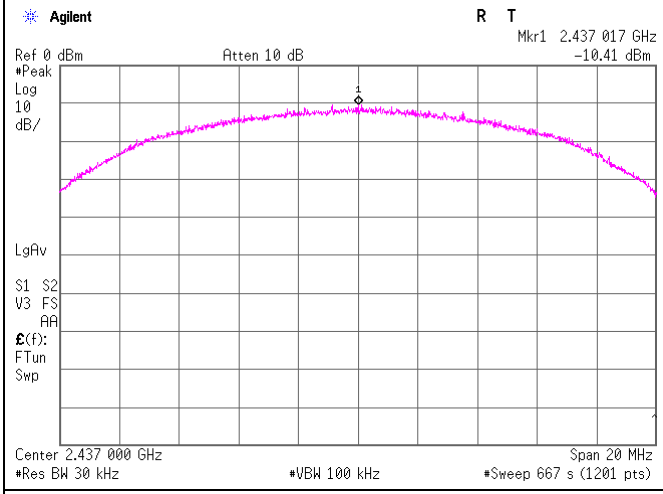
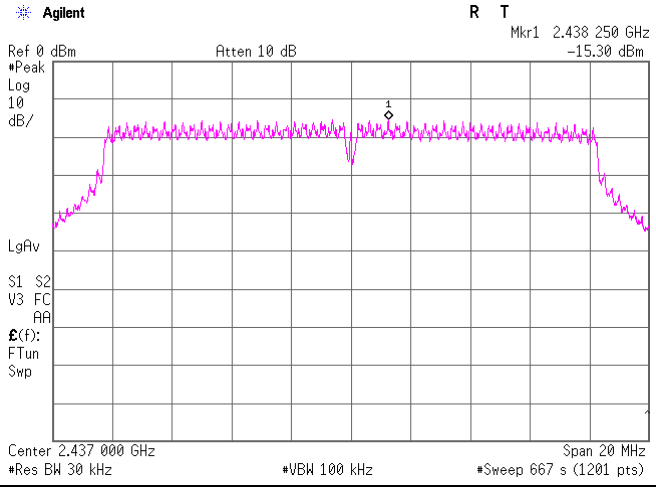
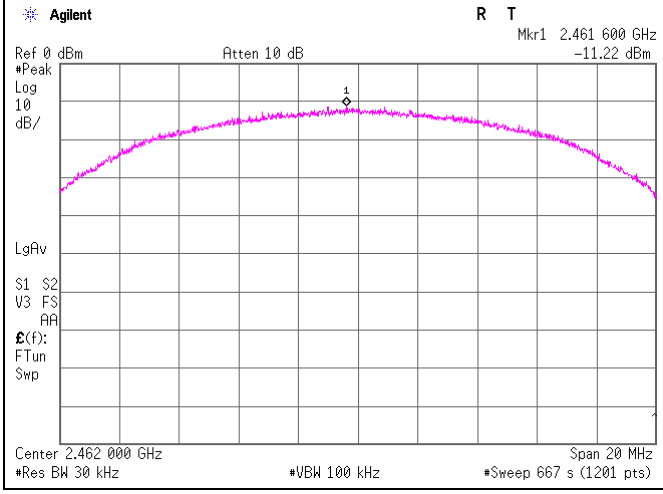
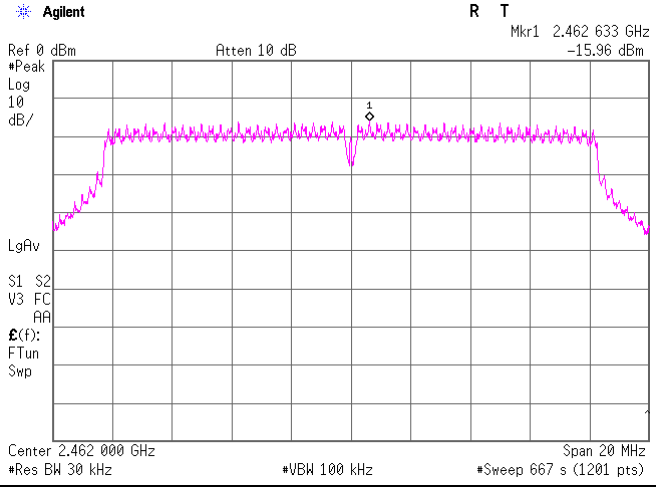
Ch. Freq. [MHz]	Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
2412	2411.85	-10.30	1.51	9.99	1.20	8.00	6.80
2437	2437.02	-10.41	1.51	9.99	1.09	8.00	6.91
2462	2461.60	-11.22	1.51	9.99	0.28	8.00	7.72

11g,

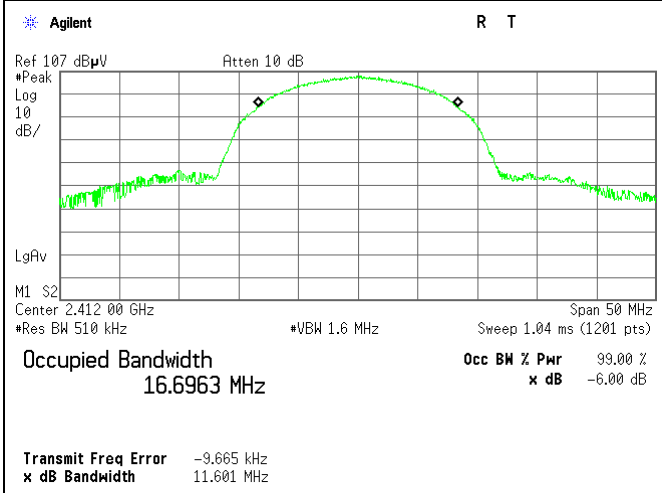
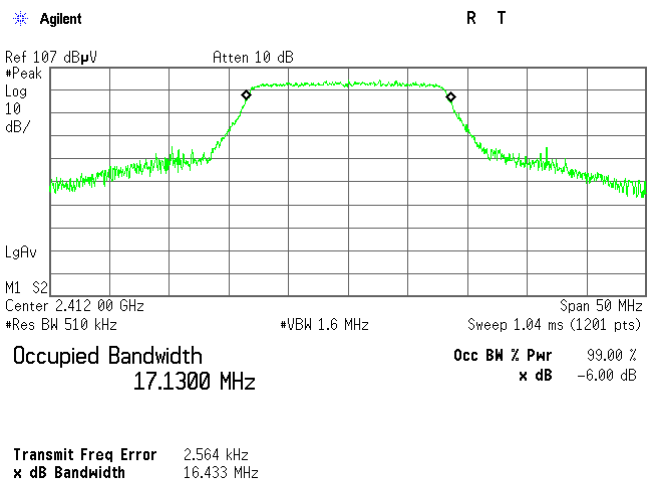
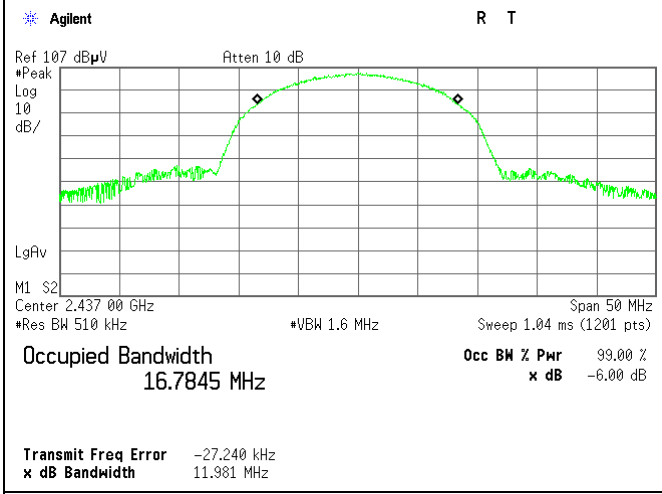
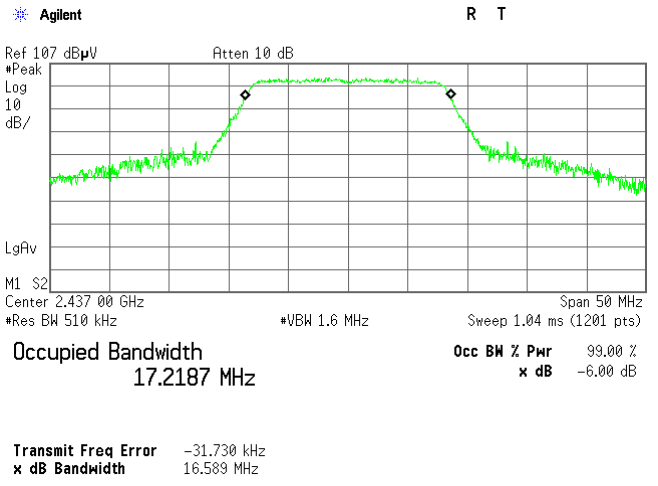
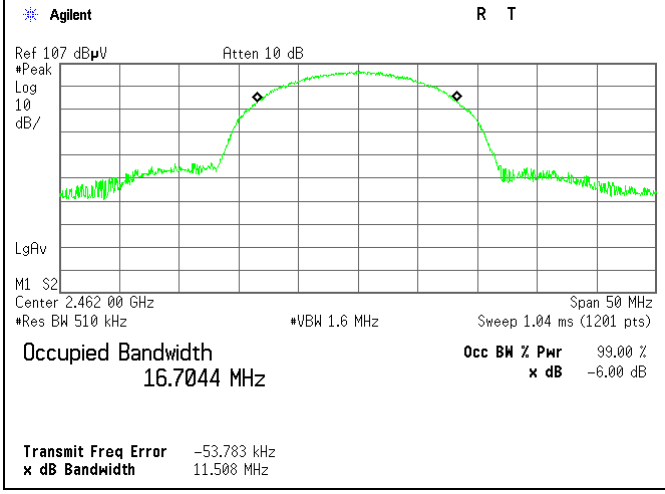
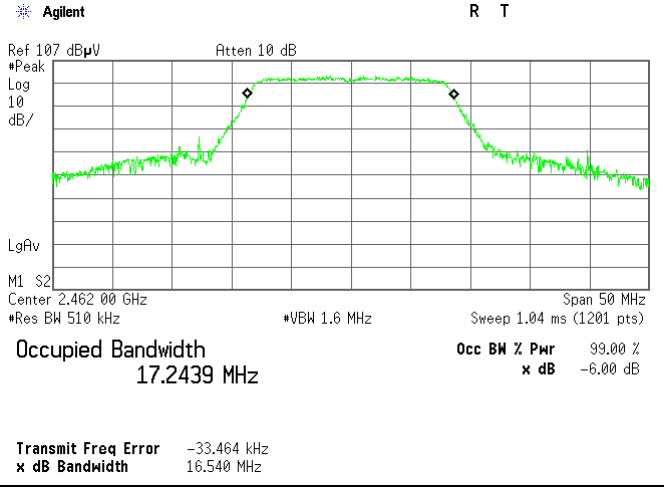
Ch. Freq. [MHz]	Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
2412	2411.37	-14.89	1.51	9.99	-3.39	8.00	11.39
2437	2438.25	-15.30	1.51	9.99	-3.80	8.00	11.80
2462	2462.63	-15.96	1.51	9.99	-4.46	8.00	12.46

Sample Calculation:
Result = Reading + Cable Loss (Including customer's cable loss)+ Attenuator

Power Density

11b	11g
Tx, 2412MHz	Tx, 2412MHz
	
Tx, 2437MHz	Tx, 2437MHz
	
Tx, 2462MHz	Tx, 2462MHz
	

99% Occupied Bandwidth

11b	11g
Tx, 2412MHz	**Tx, 2412MHz**
	
Tx, 2437MHz	**Tx, 2437MHz**
	
Tx, 2462MHz	**Tx, 2462MHz**
	

APPENDIX 3:Test instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No.	Serial No.	Test Item	Calibration Date * Interval(month)
SOS-06	Humidity Indicator	A&D	AD-5681	4062118	AT2/RE	2010/02/17 * 12
KPM-08	Power meter	Anritsu	ML2495A	6K00003356	AT2	2009/10/30 * 12
KPSS-04	Power sensor	Anritsu	MA2411B	12088	AT2	2009/10/30 * 12
SAF-03	Pre Amplifier	SONOMA	310N	290213	RE	2010/02/06 * 12
SAT6-05	Attenuator	JFW	50HF-006N	-	RE	2010/02/06 * 12
SBA-03	Biconical Antenna	Schwarzbeck	BBA9106	91032666	RE	2009/03/20 * 12
SCC-C1/C2/C3/C4/C5/C10/SRSE-03	Coaxial Cable&RF Selector	Fujikura/Fujikura/Suhner/Suhner/Suhner/Suhner/TOYO	8D2W/12DSFA/141PE/141PE/141PE/141PE/NS4906	-/0901-271(RF Selector)	RE	2009/04/06 * 12
SLA-03	Logperiodic Antenna	Schwarzbeck	UHALP9108A	UHALP 9108-A 0901	RE	2009/03/20 * 12
SOS-05	Humidity Indicator	A&D	AD-5681	4062518	RE	2010/02/09 * 12
STR-03	Test Receiver	Rohde & Schwarz	ESI40	100054/040	RE	2009/04/08 * 12
SJM-03	Measure	KOMELON	KMC-36	-	RE	-
SAEC-03(NSA)	Semi-Anechoic Chamber	TDK	SAEC-03(NSA)	3	RE	2009/09/18 * 12
COTS-SEMI-1	EMI Software	TSJ	TEPTO-DV	-	RE	-
SAF-06	Pre Amplifier	TOYO Corporation	TPA0118-36	1440491	RE	2010/03/09 * 12
SCC-G03	Coaxial Cable	Suhner	SUCOFLEX 104A	46499/4A	RE	2009/04/10 * 12
SCC-G23	Coaxial Cable	Suhner	SUCOFLEX 104	297342/4	RE	2009/05/27 * 12
SHA-03	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-739	RE	2009/08/23 * 12
SSA-02	Spectrum Analyzer	Agilent	E4448A	MY48250106	RE	2010/02/02 * 12
SAF-09	Pre Amplifier	TOYO Corporation	HAP18-26W	18	RE	2010/03/02 * 12
SHA-05	Horn Antenna	ETS LINDGREN	Sep-60	LM4210	RE	2009/04/09 * 12
SFL-02	Highpass Filter	MICRO-TRONICS	HPM50111	51	RE	2009/12/04 * 12
SAT20-01	Attenuator(above1GHz)	Agilent	8493C-020	74889	RE	2010/03/05 * 12
SCC-G18	Coaxial Cable	Suhner	SUCOFLEX 104A	46292/4A	RE	2010/03/02 * 12
SAT10-04	Attenuator(above1GHz)	Agilent	8493C-010	74863	AT1,3,4	2010/03/05 * 12
SSA-03	Spectrum Analyzer	Agilent	E4448A	MY48250152	AT1,3,4	2009/06/09 * 12
SCC-G12	Coaxial Cable	Suhner	SUCOFLEX 102	30790/2	AT1,3,4	2010/03/09 * 12
SOS-09	Humidity Indicator	A&D	AD-5681	4061484	AT1,3,4	2010/02/17 * 12
SCC-A12/A13/SRSE-01	Coaxial Cable&RF Selector	Suhner/Suhner/TOYO	RG223U/141PE/NS4906	-/0901-269(RF Selector)	CE	2009/04/06 * 12
SLS-01	LISN	Rohde & Schwarz	ENV216	100511	CE	2010/02/09 * 12
SAT3-03	Attenuator	JFW	50HF-003N	-	CE	2010/02/06 * 12
SOS-02	Humidity Indicator	A&D	AD-5681	4063343	CE	2010/02/17 * 12
STM-01	Terminator	TME	CT-01 BP	-	CE	2010/01/08 * 12
STR-01	Test Receiver	Rohde & Schwarz	ESU40	100093	CE	2009/04/02 * 12
SJM-01	Measure	KOMELON	KMC-36	-	CE	-

The expiration date of the calibration is the end of the expired month.
All equipment is calibrated with traceable calibrations. Each calibration 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 disturbance voltage
1: 6dB bandwidth & Occupied bandwidth (99%)
2: Maximum peak output power
3: Out of band emissions (Antenna port conducted)
4: Power density