

DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2010/11/22

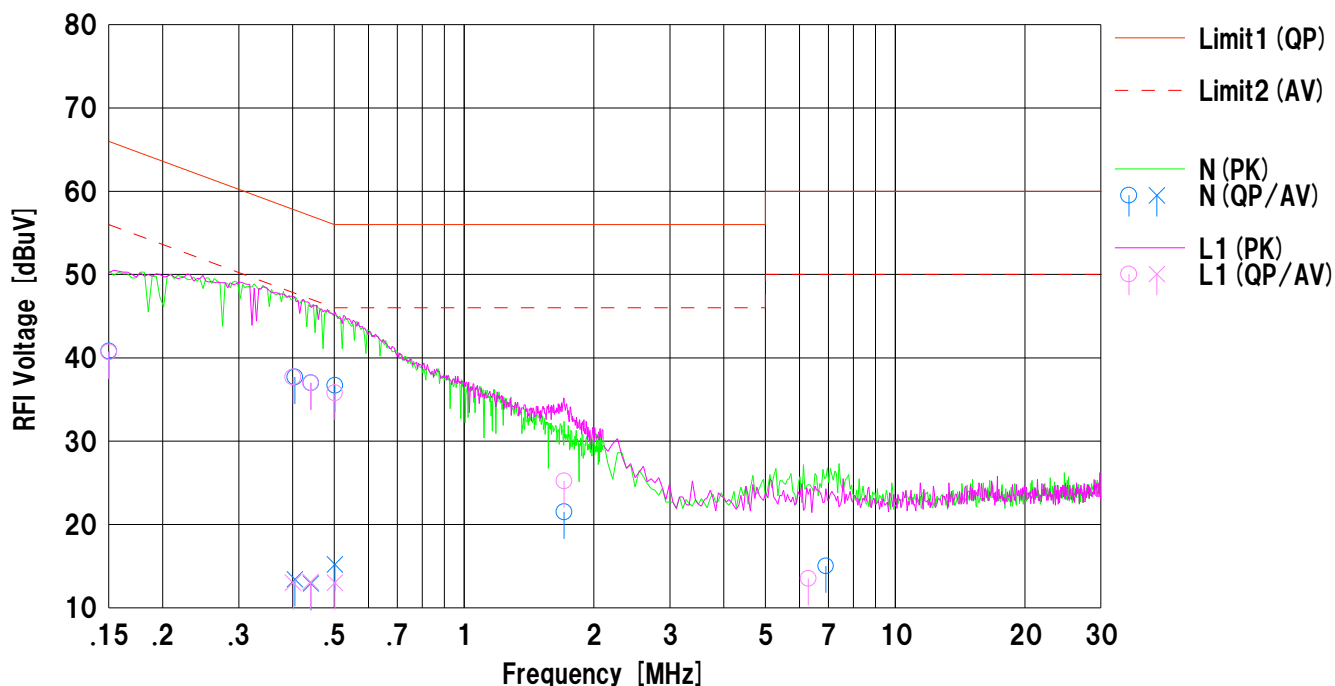
Company : CANON INC.
Kind of EUT : Wireless LAN Module
Model No. : FM48944
Serial No. : 4020

Mode : 11b Tx 2437MHz
Report No. : 31CE0126-SH-01-A
Power : DC3.3V (PowerSupply:AC120V/60Hz)
Temp./Humi. : 23deg.C/44%

Remarks : 11Mbps

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

Engineer : Akio Hayashi



No.	Freq. [MHz]	Reading		C.Fac [dB]	Results		Limit		Margin		Phase	Comment
		<QP> [dBuV]	<AV> [dBuV]		<QP> [dBuV]	<AV> [dBuV]	<QP> [dBuV]	<AV> [dBuV]	<QP> [dB]	<AV> [dB]		
1	0.15000	28.1	---	12.7	40.8	---	66.0	56.0	25.2	---	N	
2	0.40481	25.0	0.7	12.7	37.7	13.4	57.7	47.7	20.0	34.3	N	
3	0.44130	24.3	0.2	12.7	37.0	12.9	57.0	47.0	20.0	34.1	N	
4	0.50140	24.0	2.5	12.7	36.7	15.2	56.0	46.0	19.3	30.8	N	
5	1.70533	8.8	---	12.7	21.5	---	56.0	46.0	34.5	---	N	
6	6.90280	2.0	---	13.0	15.0	---	60.0	50.0	45.0	---	N	
7	0.15000	28.0	---	12.7	40.7	---	66.0	56.0	25.3	---	L1	
8	0.40123	25.0	0.3	12.7	37.7	13.0	57.8	47.8	20.1	34.8	L1	
9	0.44013	24.3	0.4	12.7	37.0	13.1	57.0	47.0	20.0	33.9	L1	
10	0.50115	23.1	0.3	12.7	35.8	13.0	56.0	46.0	20.2	33.0	L1	
11	1.70541	12.5	---	12.7	25.2	---	56.0	46.0	30.8	---	L1	
12	6.29259	0.5	---	13.0	13.5	---	60.0	50.0	46.5	---	L1	

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UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
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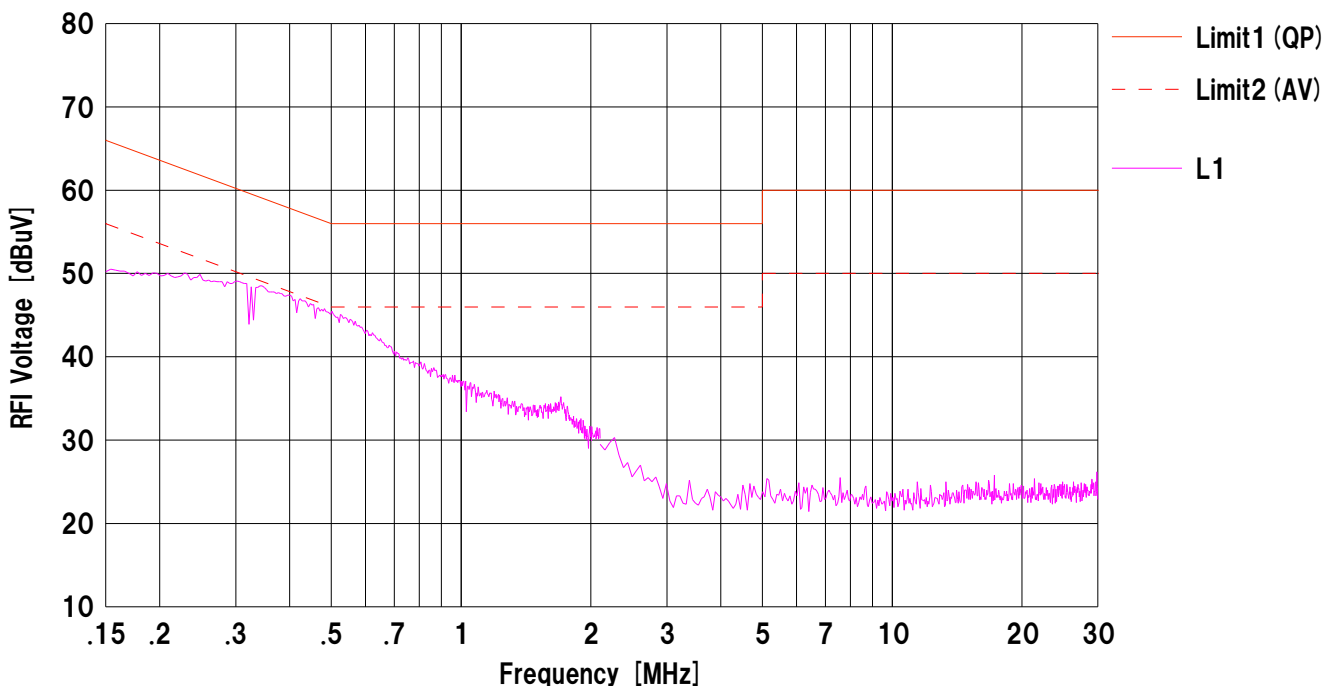
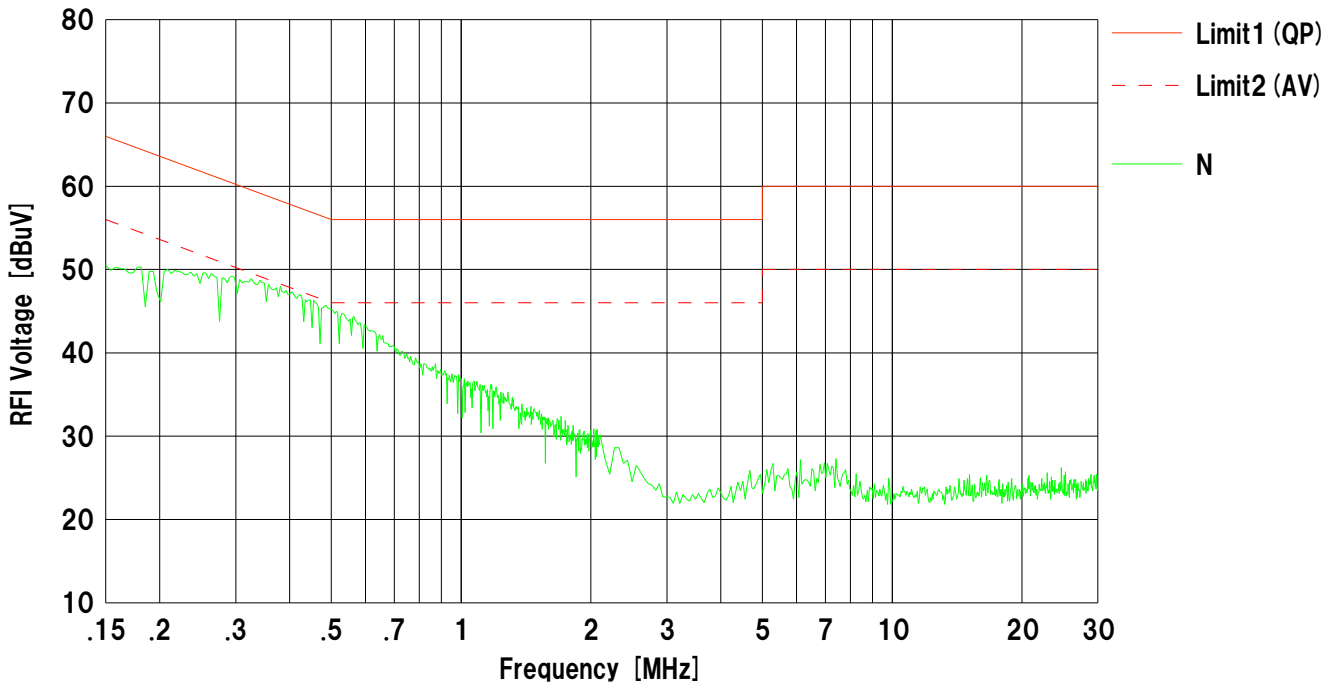
Company : CANON INC.
Kind of EUT : Wireless LAN Module
Model No. : FM48944
Serial No. : 4020

Mode : 11b Tx 2412MHz
Report No. : 31CE0126-SH-01-A
Power : DC3.3V (PowerSupply:AC120V/60Hz)
Temp./Humi. : 23deg.C/44%

Remarks : 11Mbps

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

Engineer : Akio Hayashi



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UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2010/11/22

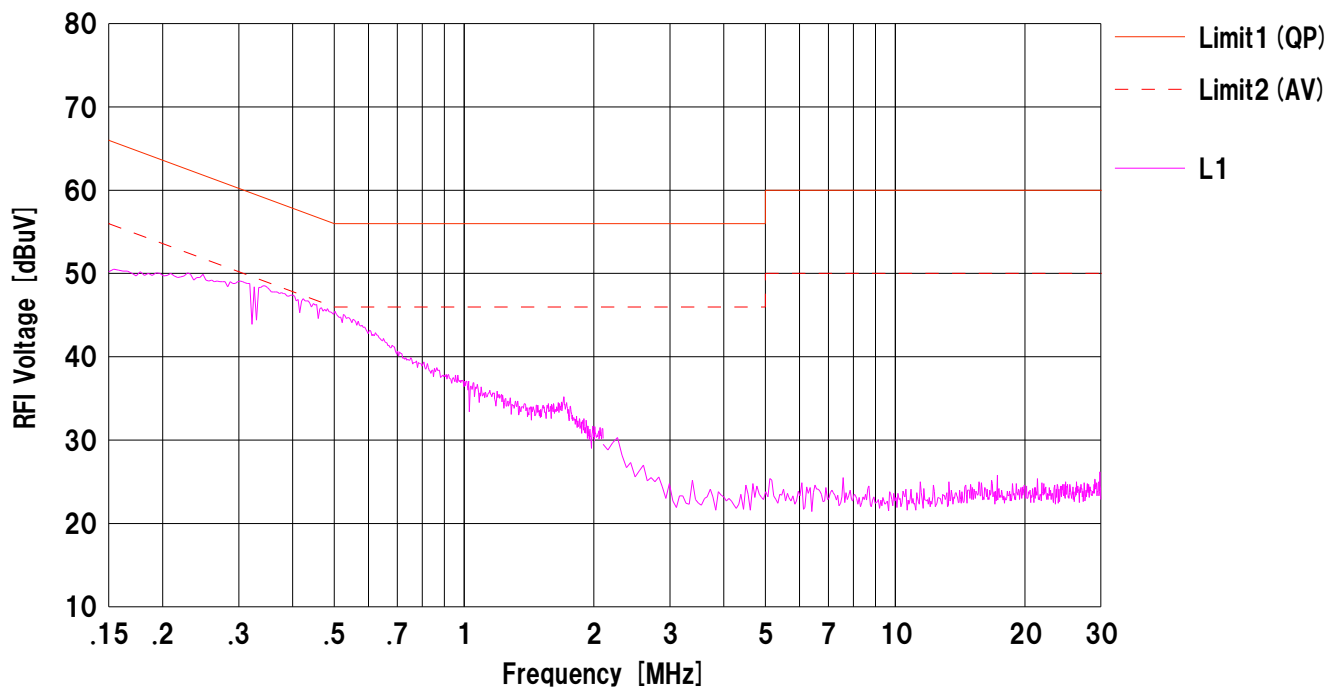
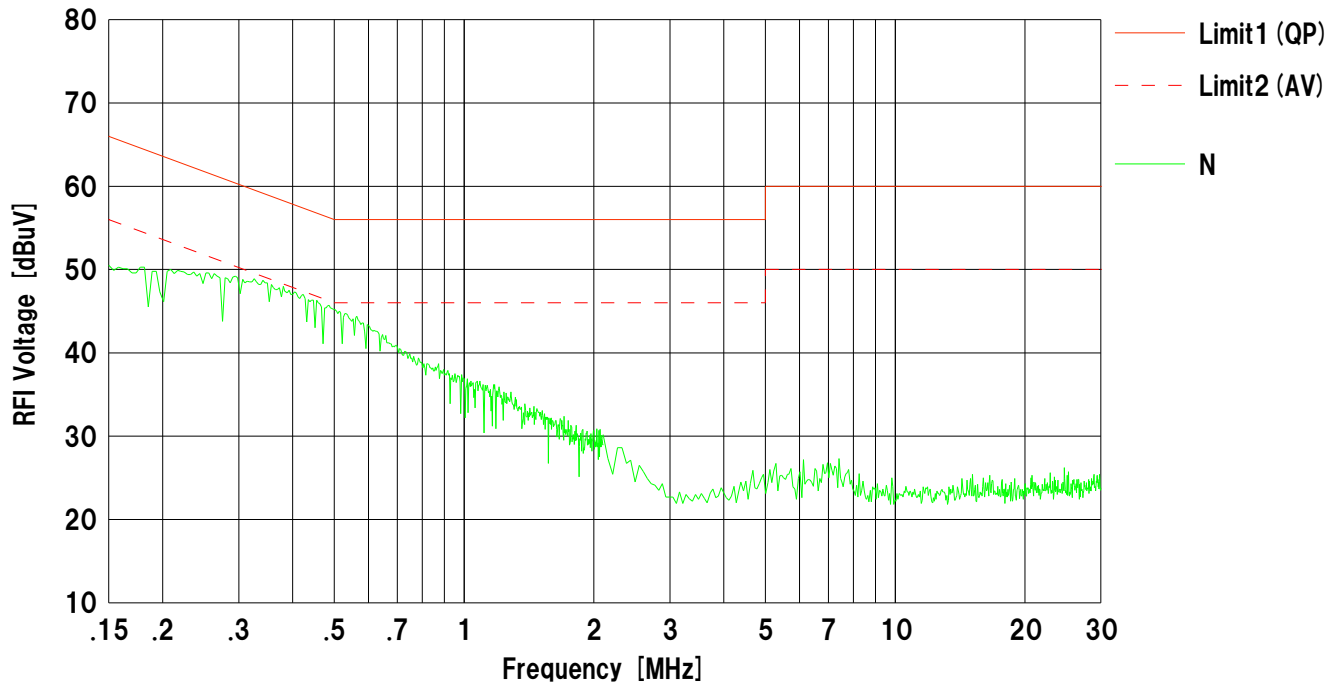
Company : CANON INC.
Kind of EUT : Wireless LAN Module
Model No. : FM48944
Serial No. : 4020

Mode : 11b Tx 2437MHz
Report No. : 31CE0126-SH-01-A
Power : DC3.3V (PowerSupply:AC120V/60Hz)
Temp./Humi. : 23deg.C/44%

Remarks : 11Mbps

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

Engineer : Akio Hayashi



DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2010/11/22

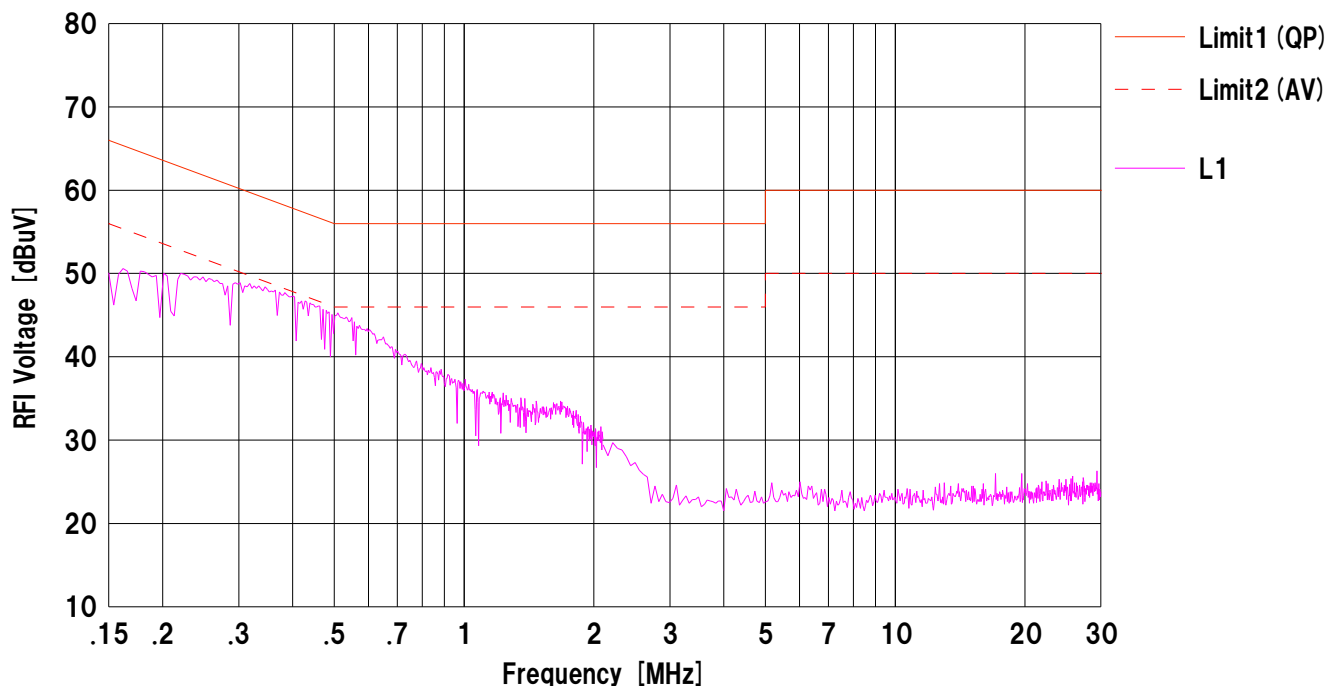
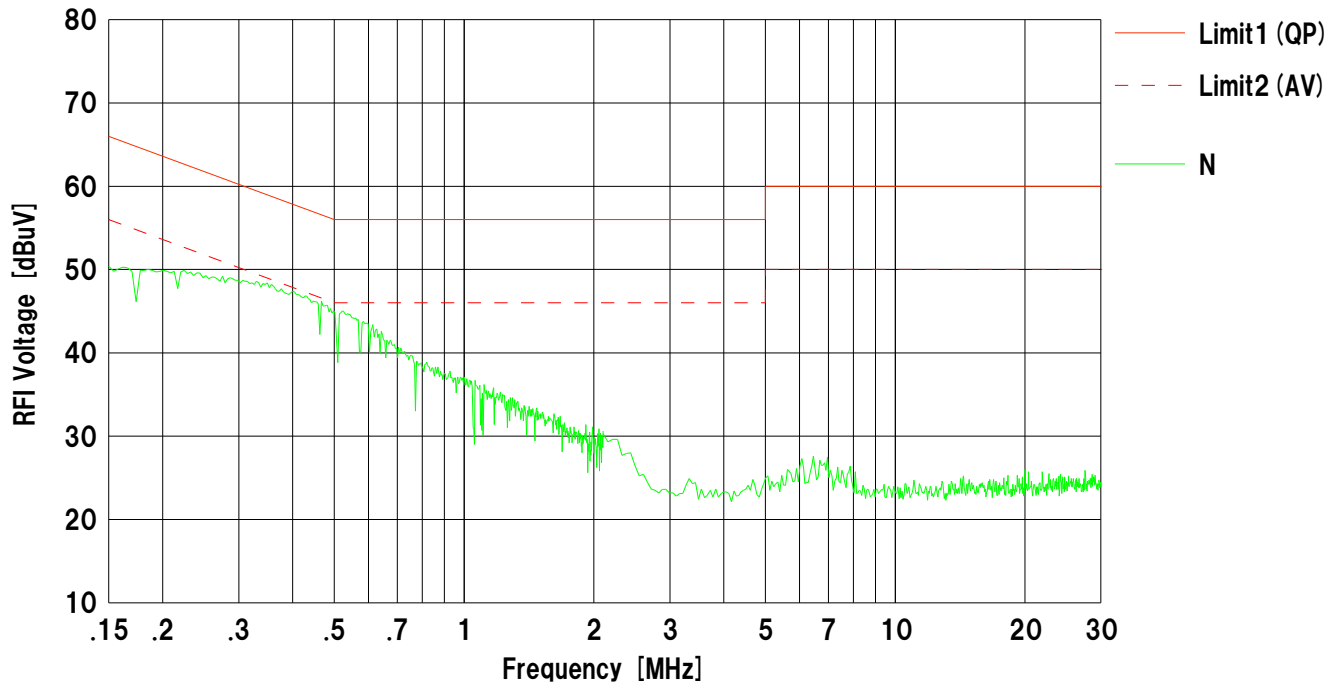
Company : CANON INC.
Kind of EUT : Wireless LAN Module
Model No. : FM48944
Serial No. : 4020

Mode : 11b Tx 2462MHz
Report No. : 31CE0126-SH-01-A
Power : DC3.3V (PowerSupply:AC120V/60Hz)
Temp./Humi. : 23deg.C/44%

Remarks : 11Mbps

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

Engineer : Akio Hayashi



DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
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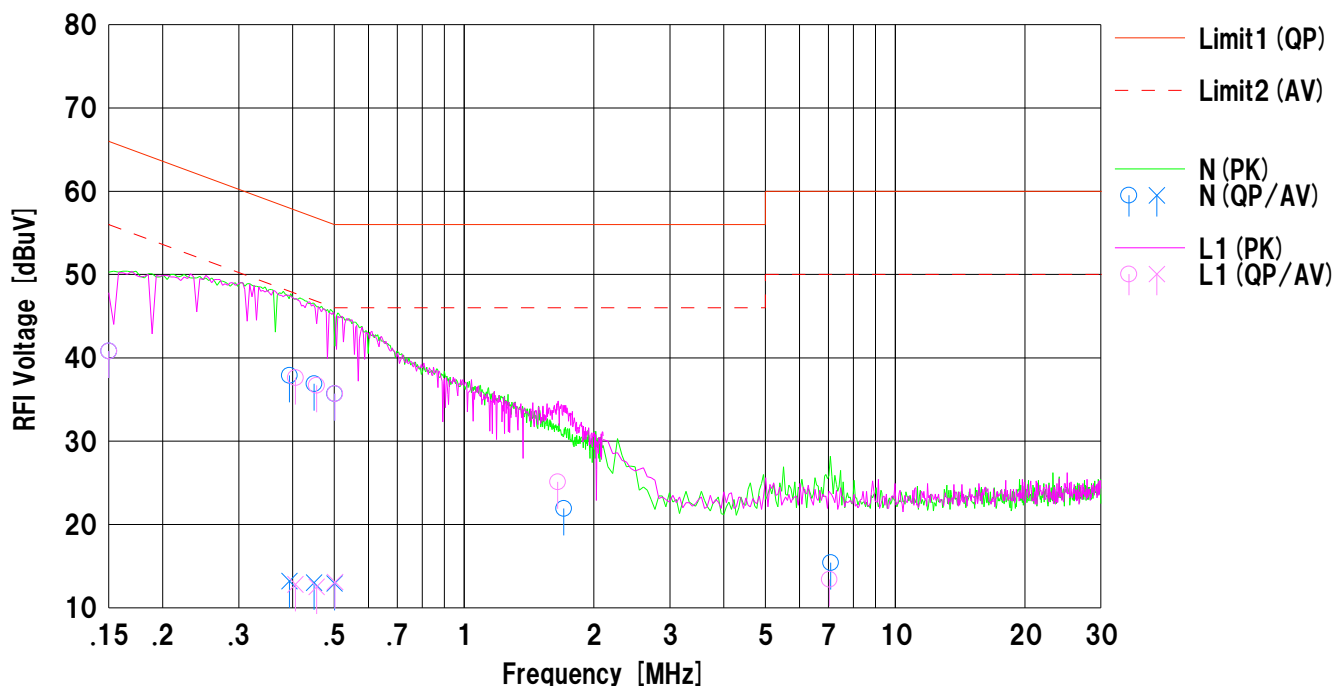
Company : CANON INC.
Kind of EUT : Wireless LAN Module
Model No. : FM48944
Serial No. : 4020

Mode : 11g Tx 2437MHz
Report No. : 31CE0126-SH-01-A
Power : DC3.3V (PowerSupply:AC120V/60Hz)
Temp./Humi. : 23deg.C/44%

Remarks : 12Mbps

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

Engineer : Akio Hayashi



No.	Freq. [MHz]	Reading		C.Fac [dB]	Results		Limit		Margin		Phase	Comment
		<QP> [dBuV]	<AV> [dBuV]		<QP> [dBuV]	<AV> [dBuV]	<QP> [dBuV]	<AV> [dBuV]	<QP> [dB]	<AV> [dB]		
1	0.15000	28.1	---	12.7	40.8	---	66.0	56.0	25.2	---	N	
2	0.39334	25.2	0.5	12.7	37.9	13.2	57.9	47.9	20.0	34.7	N	
3	0.44900	24.2	0.3	12.7	36.9	13.0	56.8	46.8	19.9	33.8	N	
4	0.50070	23.0	0.2	12.7	35.7	12.9	56.0	46.0	20.3	33.1	N	
5	1.70357	9.2	---	12.7	21.9	---	56.0	46.0	34.1	---	N	
6	7.08817	2.4	---	13.0	15.4	---	60.0	50.0	44.6	---	N	
7	0.15000	28.1	---	12.7	40.8	---	66.0	56.0	25.2	---	L1	
8	0.40661	24.9	0.1	12.7	37.6	12.8	57.7	47.7	20.1	34.9	L1	
9	0.45491	24.0	-0.2	12.7	36.7	12.5	56.7	46.7	20.0	34.2	L1	
10	0.50200	23.0	0.4	12.7	35.7	13.1	56.0	46.0	20.3	32.9	L1	
11	1.64893	12.4	---	12.7	25.1	---	56.0	46.0	30.9	---	L1	
12	7.03410	0.4	---	13.0	13.4	---	60.0	50.0	46.6	---	L1	

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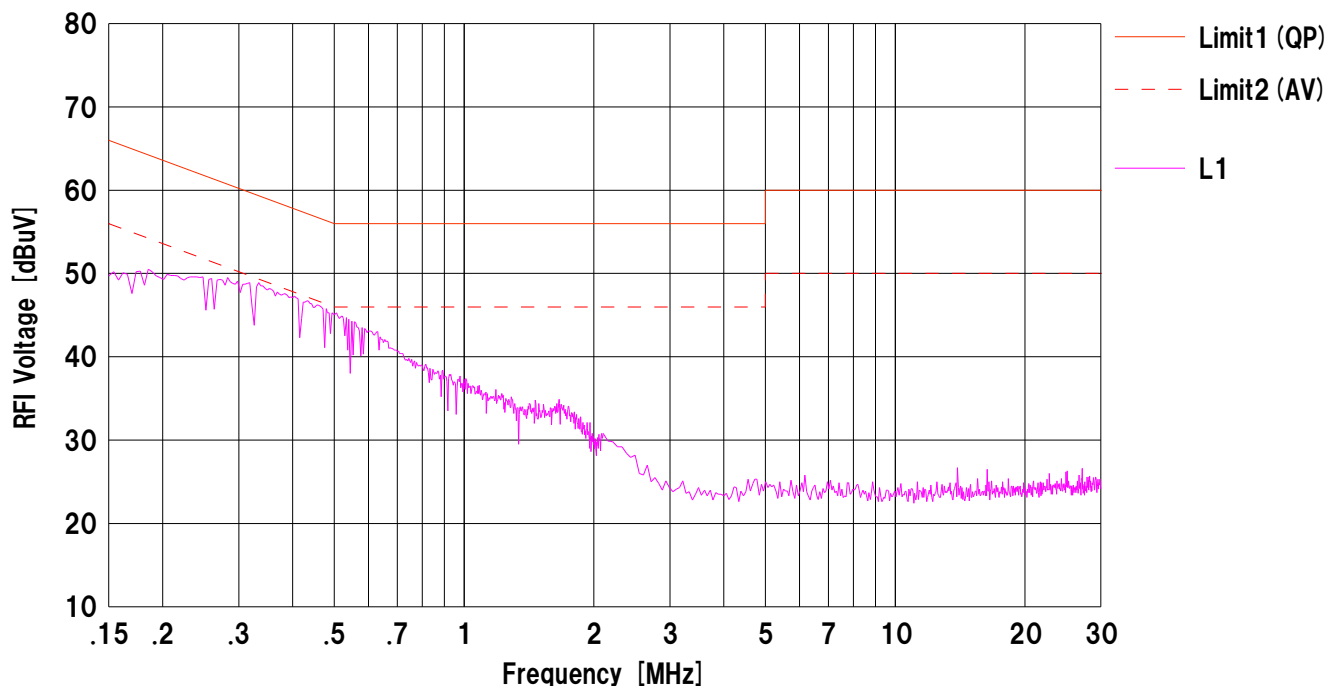
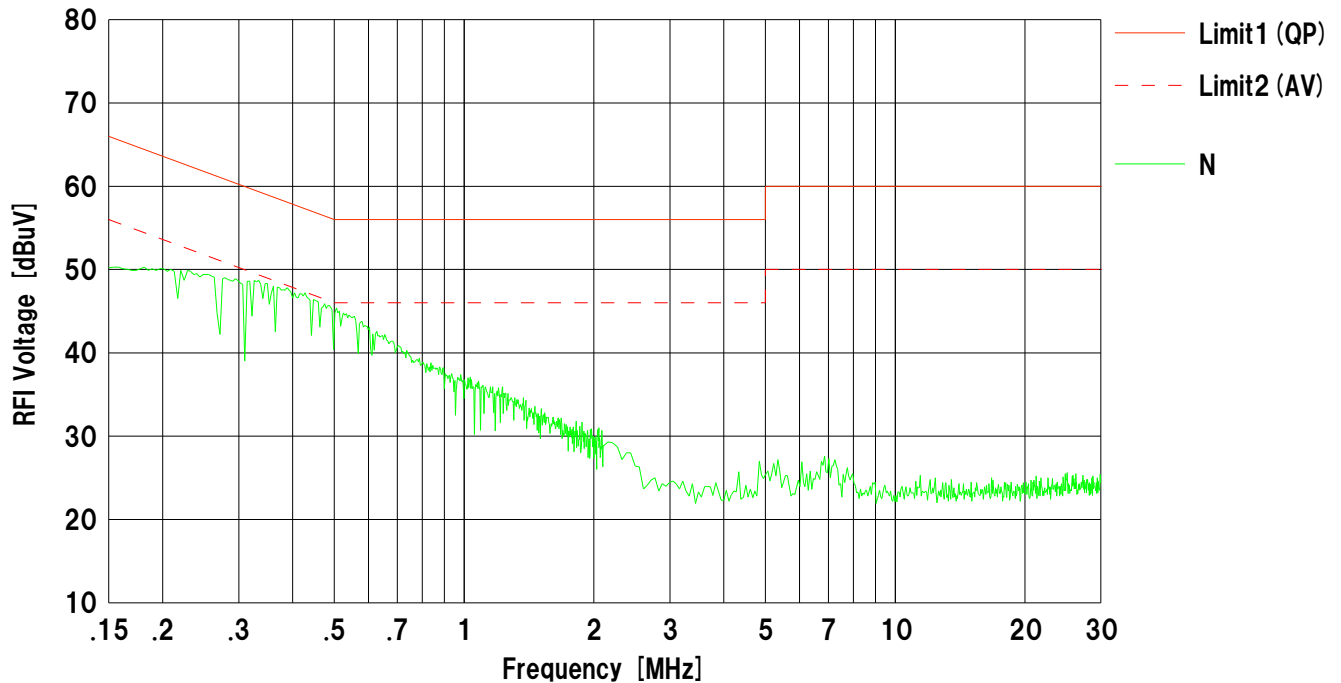
Company : CANON INC.
Kind of EUT : Wireless LAN Module
Model No. : FM48944
Serial No. : 4020

Mode : 11g Tx 2412MHz
Report No. : 31CE0126-SH-01-A
Power : DC3.3V (PowerSupply:AC120V/60Hz)
Temp./Humi. : 23deg.C/44%

Remarks : 12Mbps

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

Engineer : Akio Hayashi



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UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2010/11/22

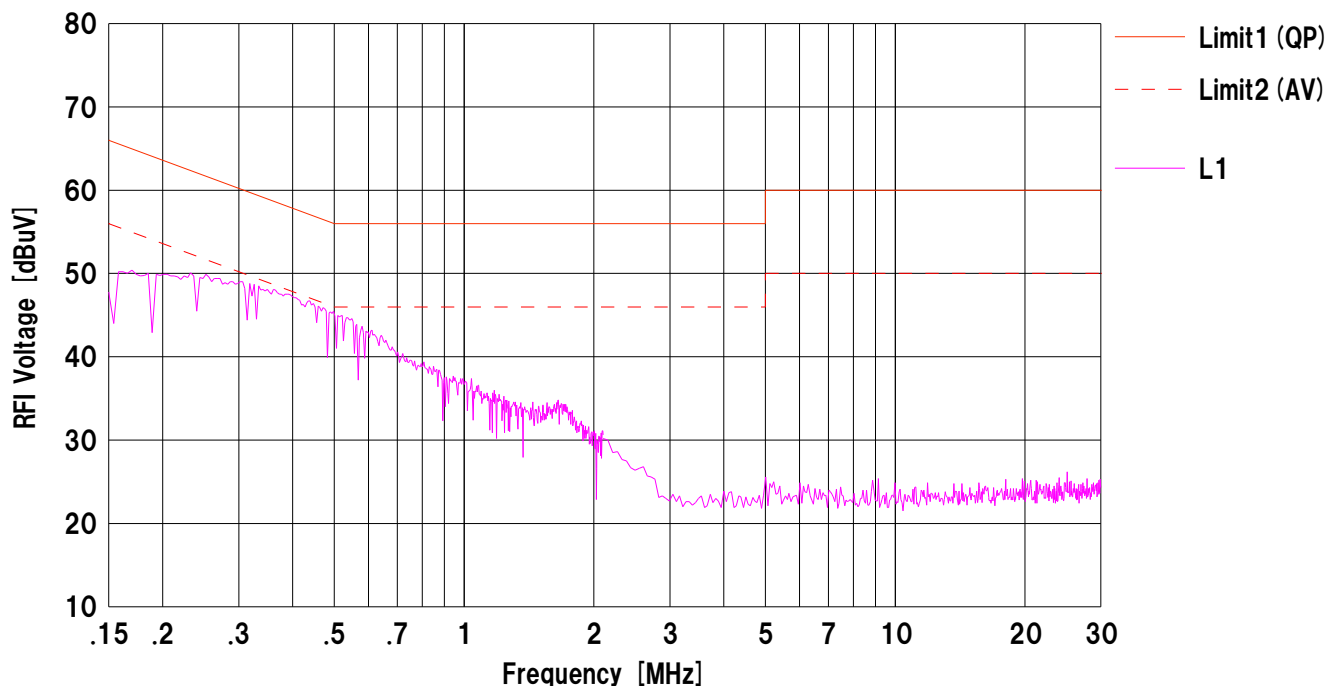
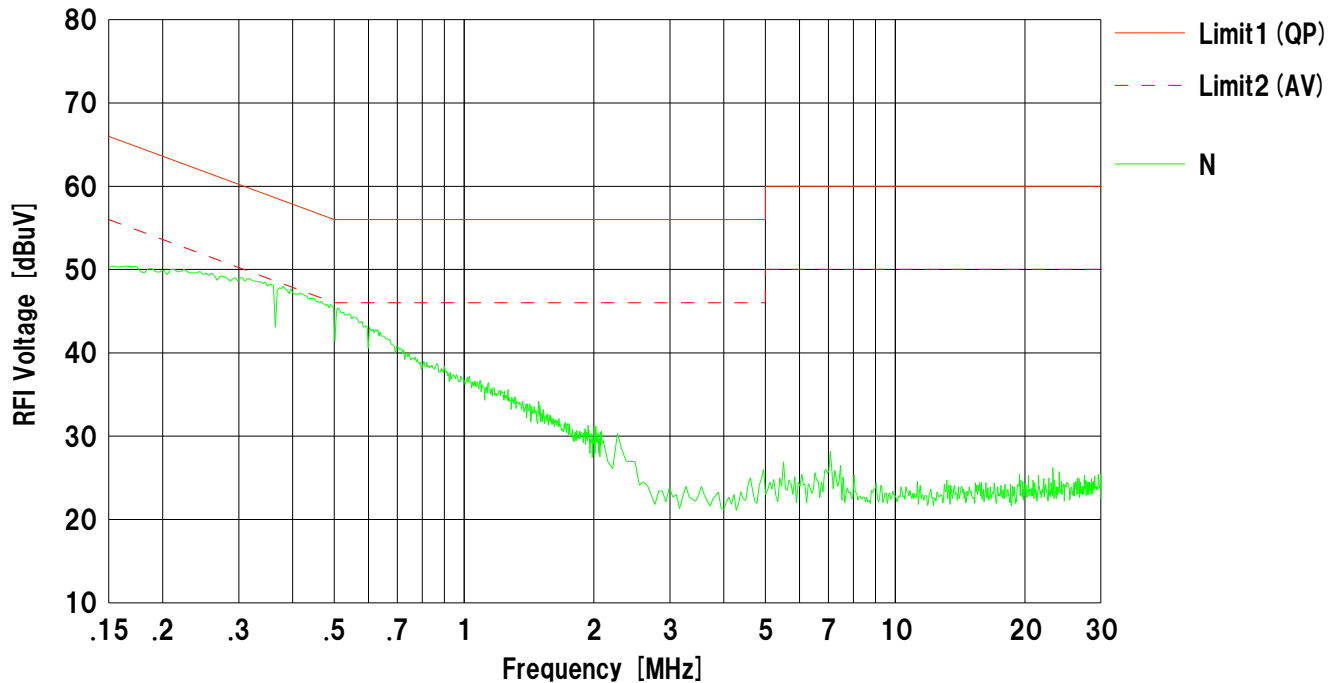
Company : CANON INC.
Kind of EUT : Wireless LAN Module
Model No. : FM48944
Serial No. : 4020

Mode : 11g Tx 2437MHz
Report No. : 31CE0126-SH-01-A
Power : DC3.3V (PowerSupply:AC120V/60Hz)
Temp./Humi. : 23deg.C/44%

Remarks : 12Mbps

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

Engineer : Akio Hayashi



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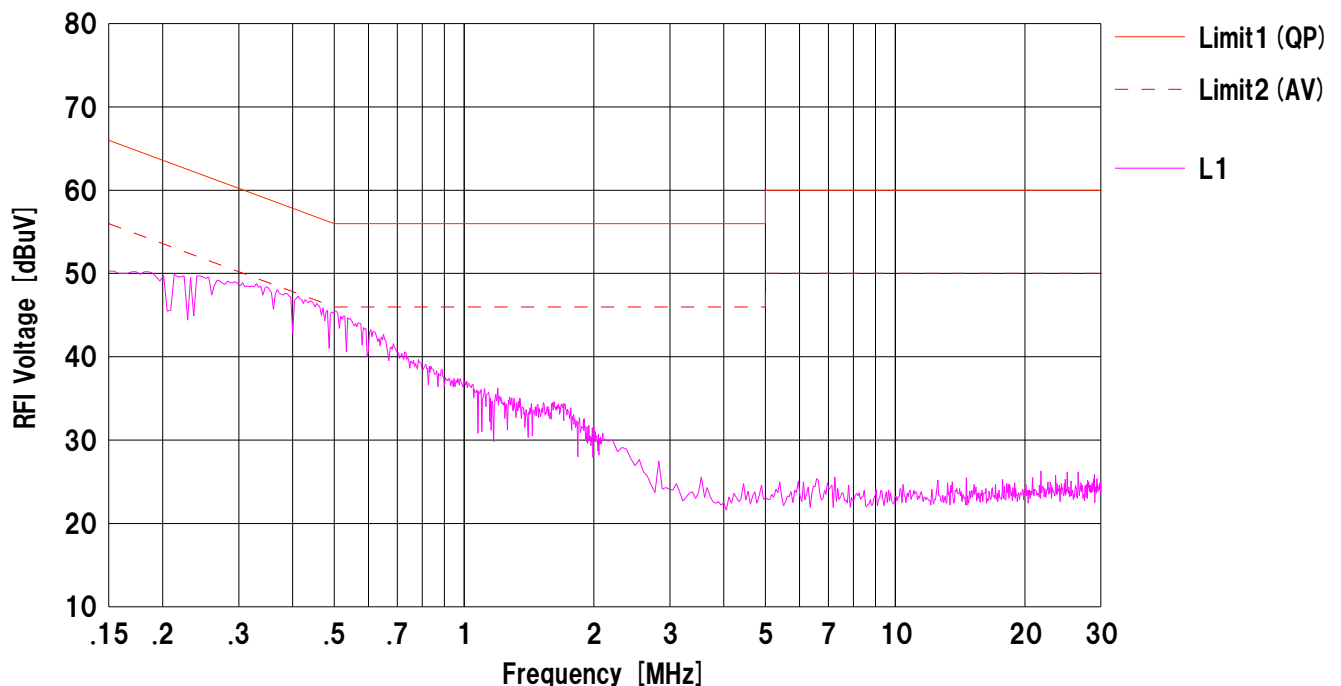
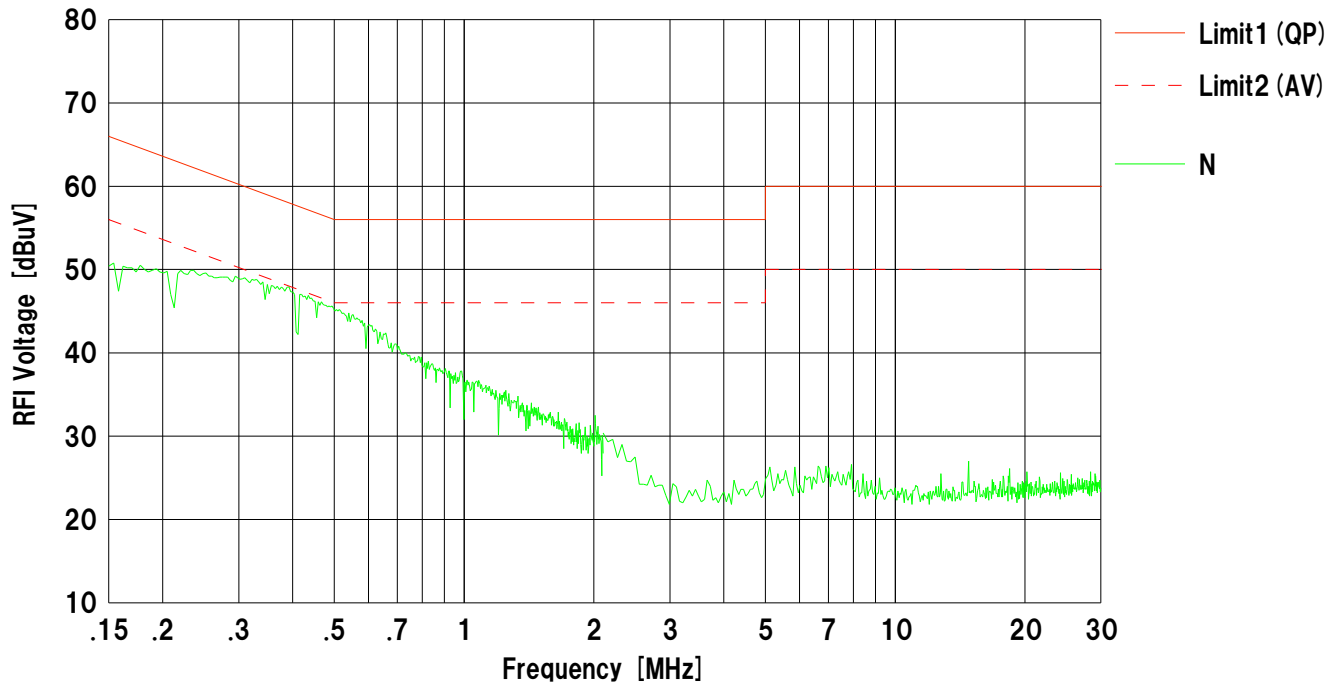
Company : CANON INC.
Kind of EUT : Wireless LAN Module
Model No. : FM48944
Serial No. : 4020

Mode : 11g Tx 2462MHz
Report No. : 31CE0126-SH-01-A
Power : DC3.3V (PowerSupply:AC120V/60Hz)
Temp./Humi. : 23deg.C/44%

Remarks : 12Mbps

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

Engineer : Akio Hayashi



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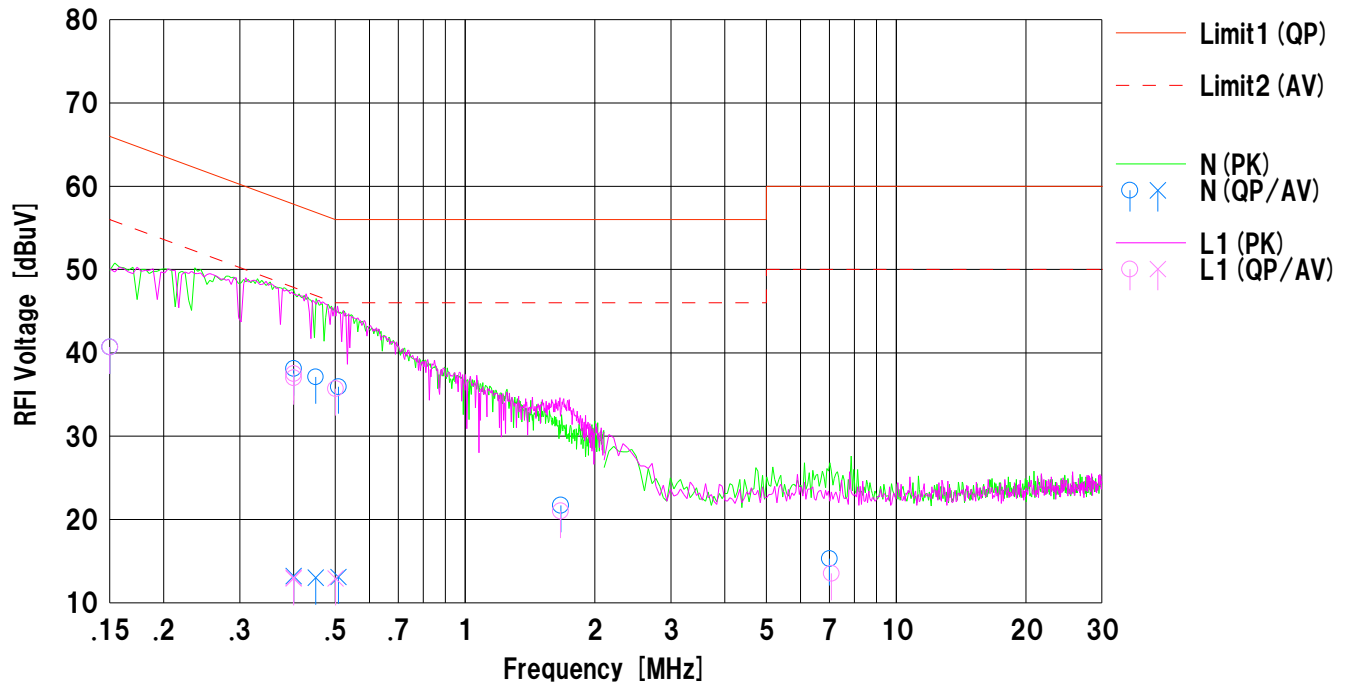
Company : CANON INC.
Kind of EUT : Wireless LAN Module
Model No. : FM48944
Serial No. : 4020

Mode : 11n-20 Tx 2437MHz
Report No. : 31CE0126-SH-01-A
Power : DC3.3V (PowerSupply:AC120V/60Hz)
Temp./Humi. : 23deg.C/44%

Remarks : MCS2

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

Engineer : Akio Hayashi



No.	Freq. [MHz]	Reading		C.Fac [dB]	Results		Limit		Margin		Phase	Comment
		<QP> [dBuV]	<AV> [dBuV]		<QP> [dBuV]	<AV> [dBuV]	<QP> [dBuV]	<AV> [dBuV]	<QP> [dB]	<AV> [dB]		
1	0.15000	28.0	---	12.7	40.7	---	66.0	56.0	25.3	---	N	
2	0.39997	25.4	0.5	12.7	38.1	13.2	57.8	47.8	19.7	34.6	N	
3	0.45001	24.4	0.3	12.7	37.1	13.0	56.8	46.8	19.7	33.8	N	
4	0.50830	23.2	0.4	12.7	35.9	13.1	56.0	46.0	20.1	32.9	N	
5	1.66703	9.0	---	12.7	21.7	---	56.0	46.0	34.3	---	N	
6	7.00070	2.3	---	13.0	15.3	---	60.0	50.0	44.7	---	N	
7	0.15000	28.0	---	12.7	40.7	---	66.0	56.0	25.3	---	L1	
8	0.40000	24.8	0.2	12.7	37.5	12.9	57.8	47.8	20.3	34.9	L1	
9	0.40001	24.3	0.3	12.7	37.0	13.0	57.8	47.8	20.8	34.8	L1	
10	0.50058	23.0	0.2	12.7	35.7	12.9	56.0	46.0	20.3	33.1	L1	
11	1.66623	8.3	---	12.7	21.0	---	56.0	46.0	35.0	---	L1	
12	7.07515	0.5	---	13.0	13.5	---	60.0	50.0	46.5	---	L1	

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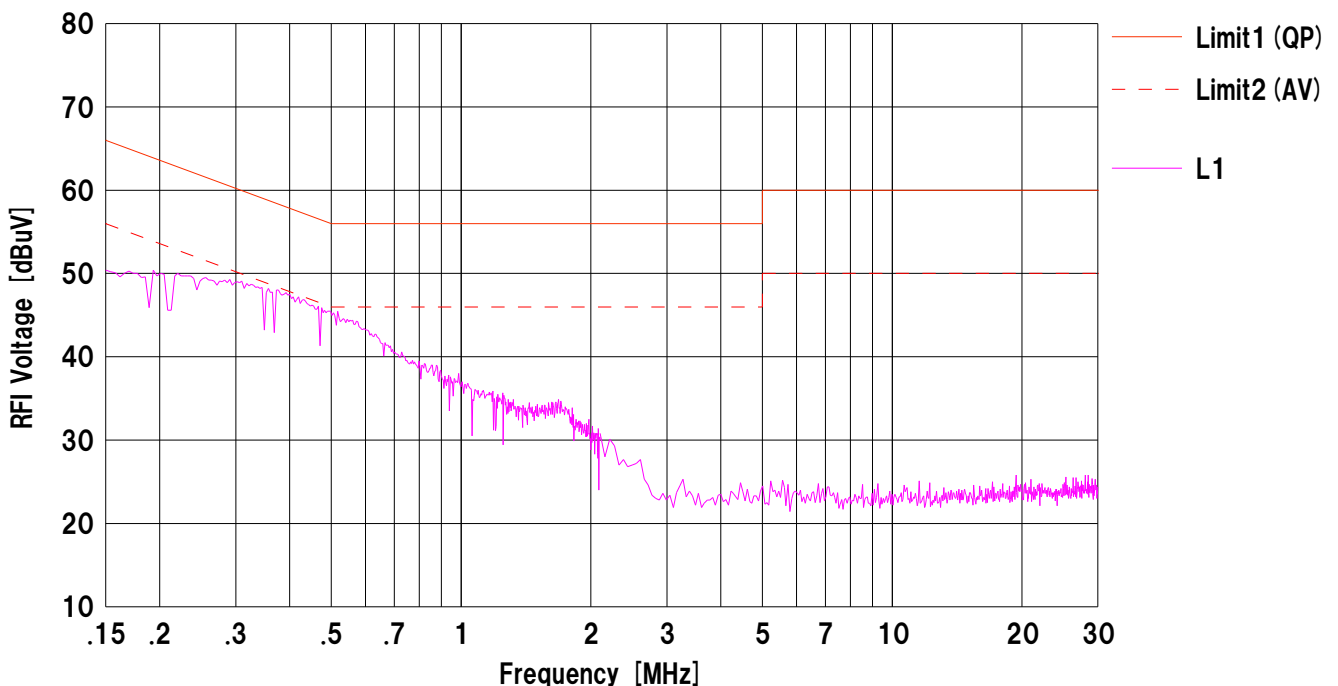
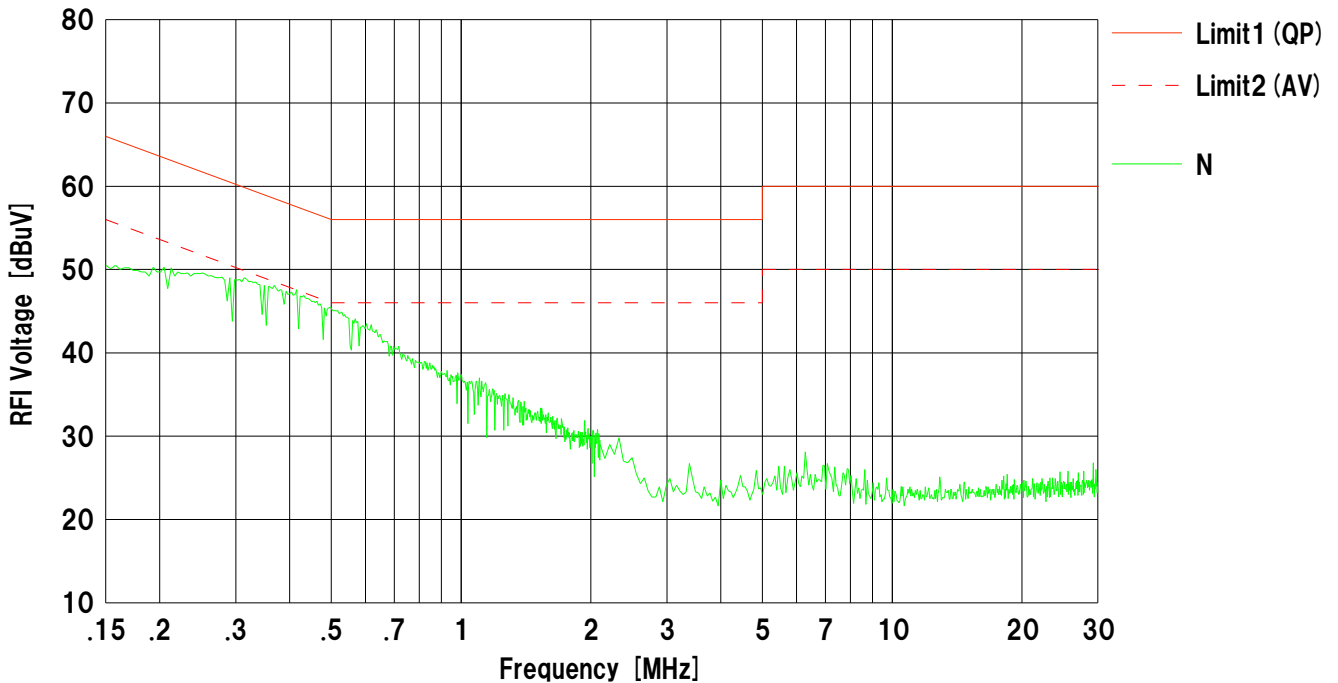
Company : CANON INC.
Kind of EUT : Wireless LAN Module
Model No. : FM48944
Serial No. : 4020

Mode : 11n-20 Tx 2412MHz
Report No. : 31CE0126-SH-01-A
Power : DC3.3V (PowerSupply:AC120V/60Hz)
Temp./Humi : 23deg.C/44%

Remarks : MCS2

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

Engineer : Akio Hayashi



DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2010/11/22

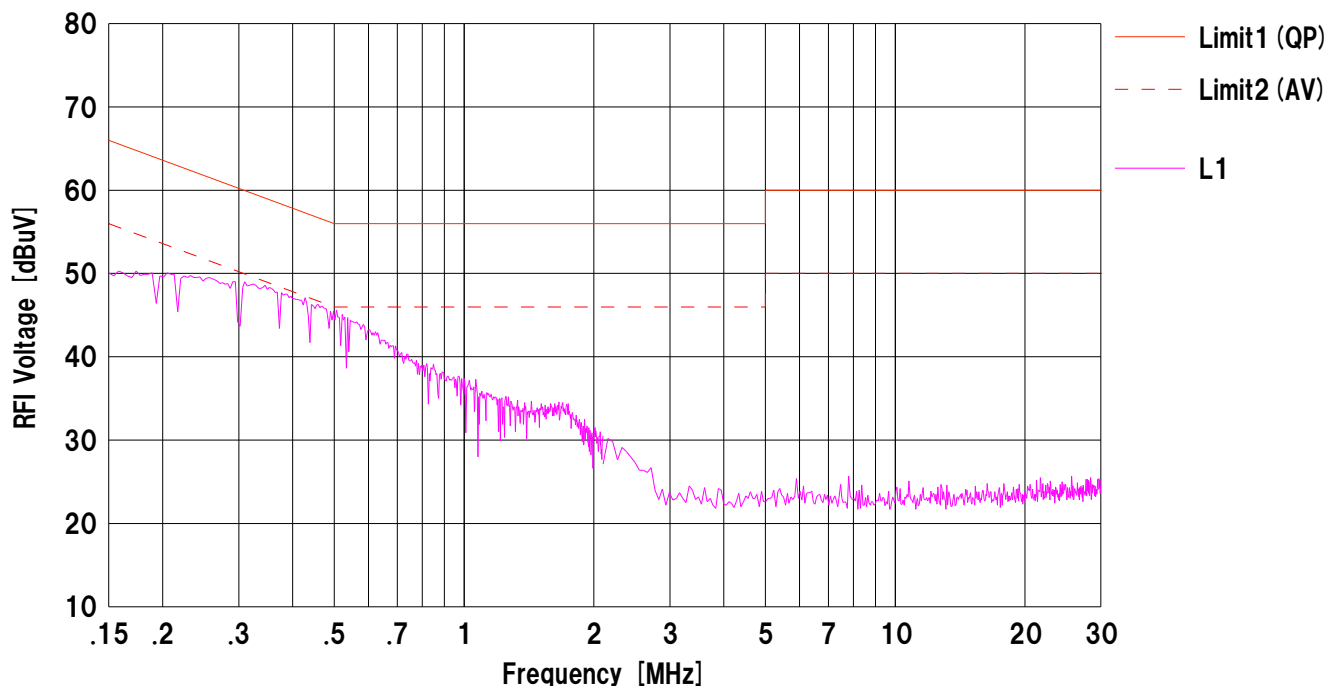
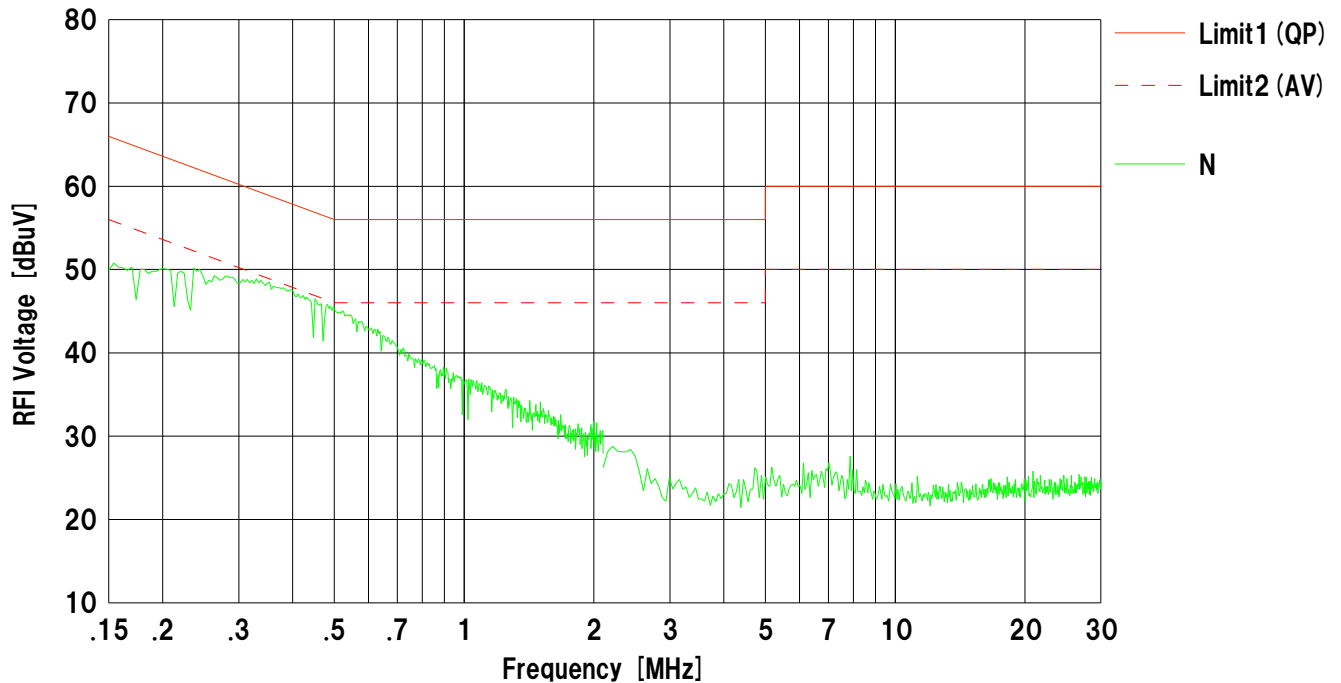
Company : CANON INC.
Kind of EUT : Wireless LAN Module
Model No. : FM48944
Serial No. : 4020

Mode : 11n-20 Tx 2437MHz
Report No. : 31CE0126-SH-01-A
Power : DC3.3V (PowerSupply:AC120V/60Hz)
Temp./Humi. : 23deg.C/44%

Remarks : MCS2

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

Engineer : Akio Hayashi



DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2010/11/22

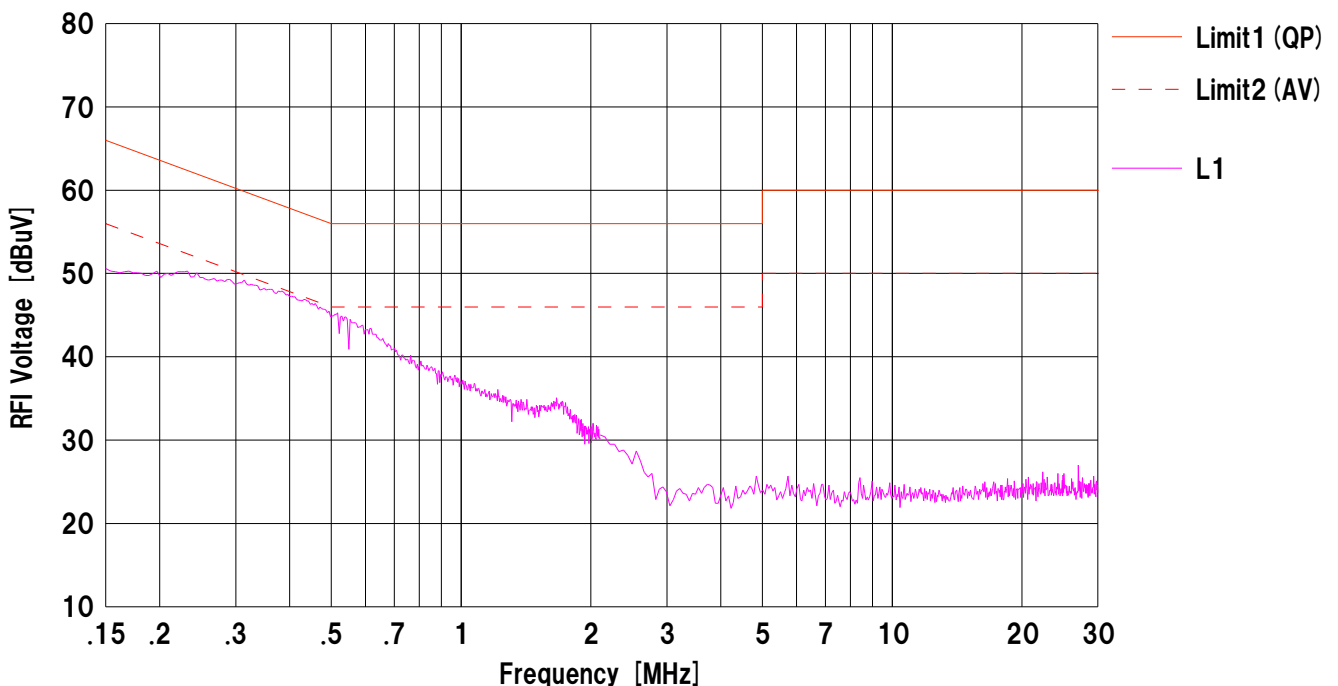
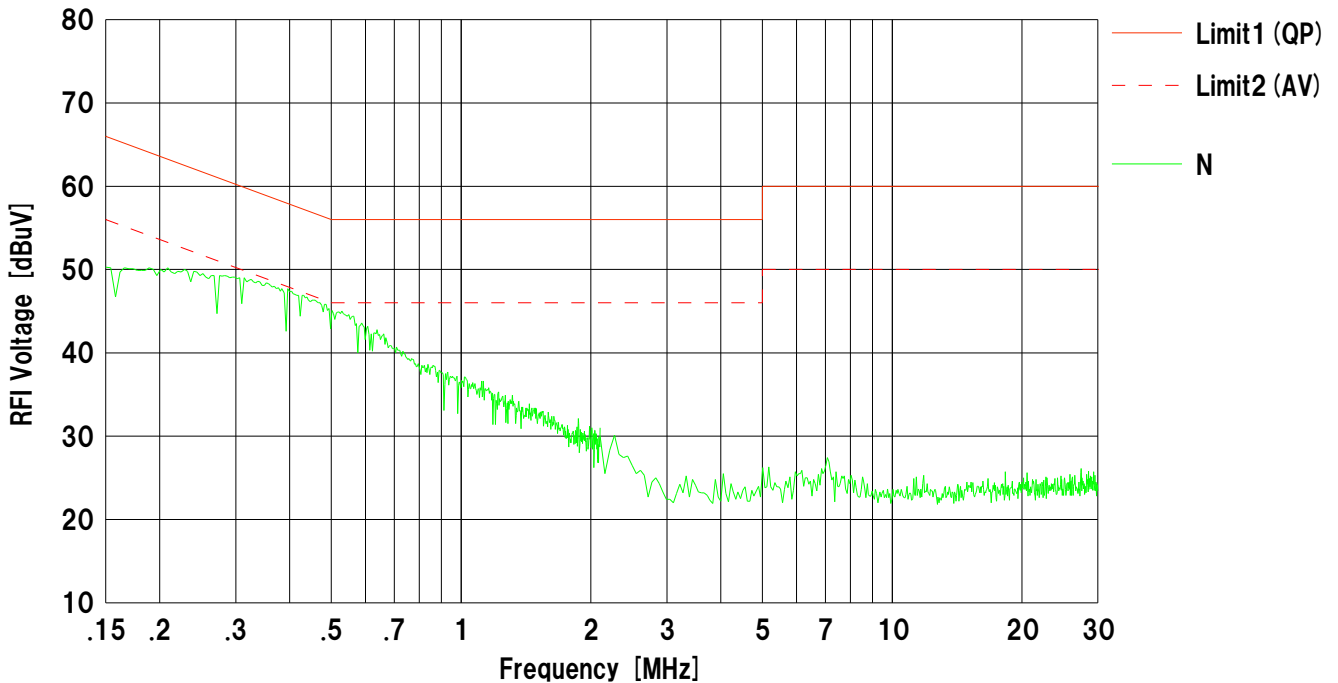
Company : CANON INC.
Kind of EUT : Wireless LAN Module
Model No. : FM48944
Serial No. : 4020

Mode : 11n-20 Tx 2462MHz
Report No. : 31CE0126-SH-01-A
Power : DC3.3V (PowerSupply:AC120V/60Hz)
Temp./Humi. : 23deg.C/44%

Remarks : MCS2

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

Engineer : Akio Hayashi



DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2010/11/22

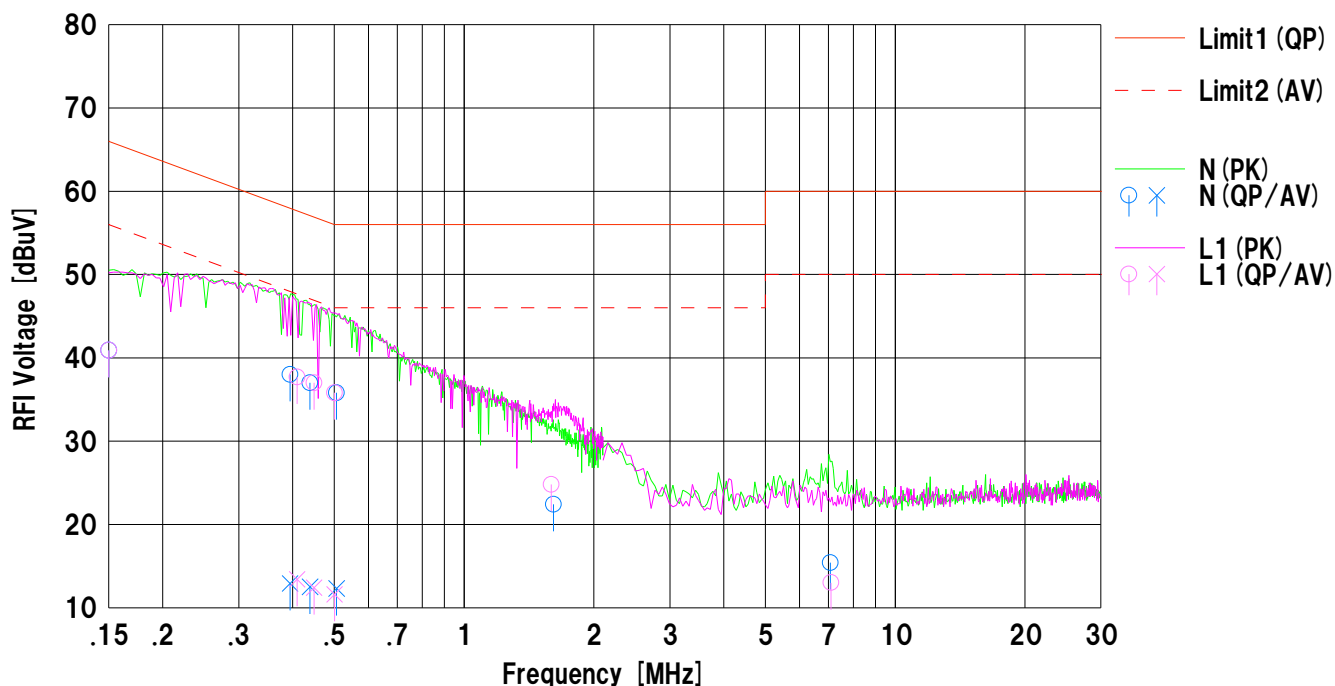
Company : CANON INC.
Kind of EUT : Wireless LAN Module
Model No. : FM48944
Serial No. : 4020

Mode : 11n-40 Tx 2437MHz
Report No. : 31CE0126-SH-01-A
Power : DC3.3V (PowerSupply:AC120V/60Hz)
Temp./Humi. : 23deg.C/44%

Remarks : MCS3

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

Engineer : Akio Hayashi



No.	Freq. [MHz]	Reading		C.Fac [dB]	Results		Limit		Margin		Phase	Comment
		<QP> [dBuV]	<AV> [dBuV]		<QP> [dBuV]	<AV> [dBuV]	<QP> [dBuV]	<AV> [dBuV]	<QP> [dB]	<AV> [dB]		
1	0.15000	28.2	---	12.7	40.9	---	66.0	56.0	25.1	---	N	
2	0.39454	25.3	0.2	12.7	38.0	12.9	57.9	47.9	19.9	35.0	N	
3	0.43913	24.3	-0.2	12.7	37.0	12.5	57.0	47.0	20.0	34.5	N	
4	0.50612	23.1	-0.4	12.7	35.8	12.3	56.0	46.0	20.2	33.7	N	
5	1.61222	9.7	---	12.7	22.4	---	56.0	46.0	33.6	---	N	
6	7.07691	2.4	---	13.0	15.4	---	60.0	50.0	44.6	---	N	
7	0.15000	28.2	---	12.7	40.9	---	66.0	56.0	25.1	---	L1	
8	0.40972	25.0	0.7	12.7	37.7	13.4	57.6	47.6	19.9	34.2	L1	
9	0.44907	24.3	-0.3	12.7	37.0	12.4	56.8	46.8	19.8	34.4	L1	
10	0.50030	23.1	-1.1	12.7	35.8	11.6	56.0	46.0	20.2	34.4	L1	
11	1.59168	12.1	---	12.7	24.8	---	56.0	46.0	31.2	---	L1	
12	7.10196	0.0	---	13.0	13.0	---	60.0	50.0	47.0	---	L1	

DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2010/11/22

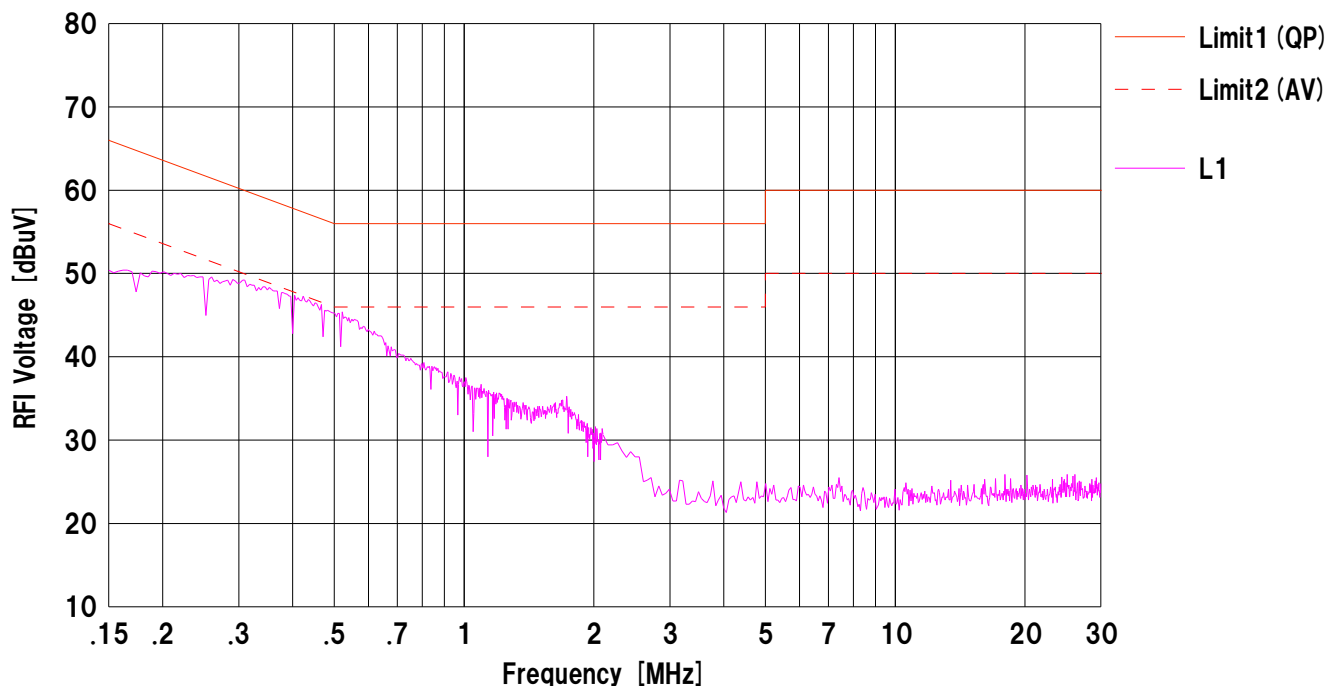
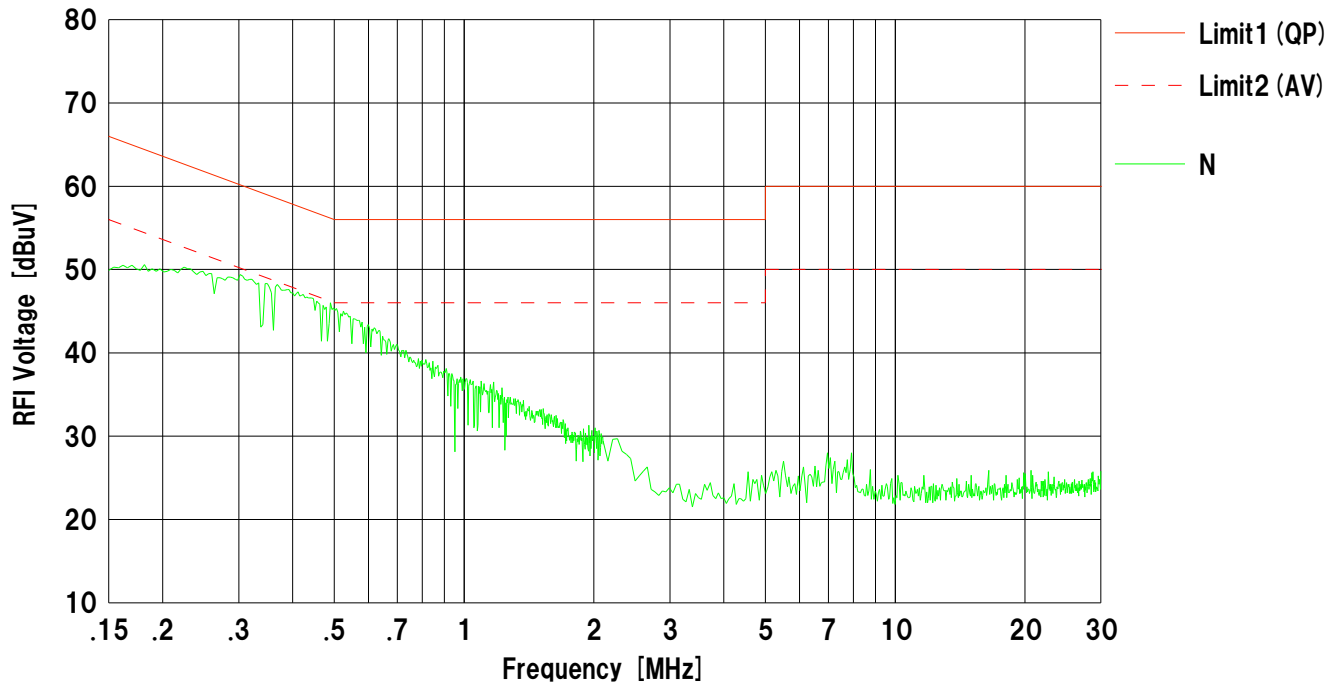
Company : CANON INC.
Kind of EUT : Wireless LAN Module
Model No. : FM48944
Serial No. : 4020

Mode : 11n-40 Tx 2422MHz
Report No. : 31CE0126-SH-01-A
Power : DC3.3V (PowerSupply:AC120V/60Hz)
Temp./Humi. : 23deg.C/44%

Remarks : MCS3

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

Engineer : Akio Hayashi



DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2010/11/22

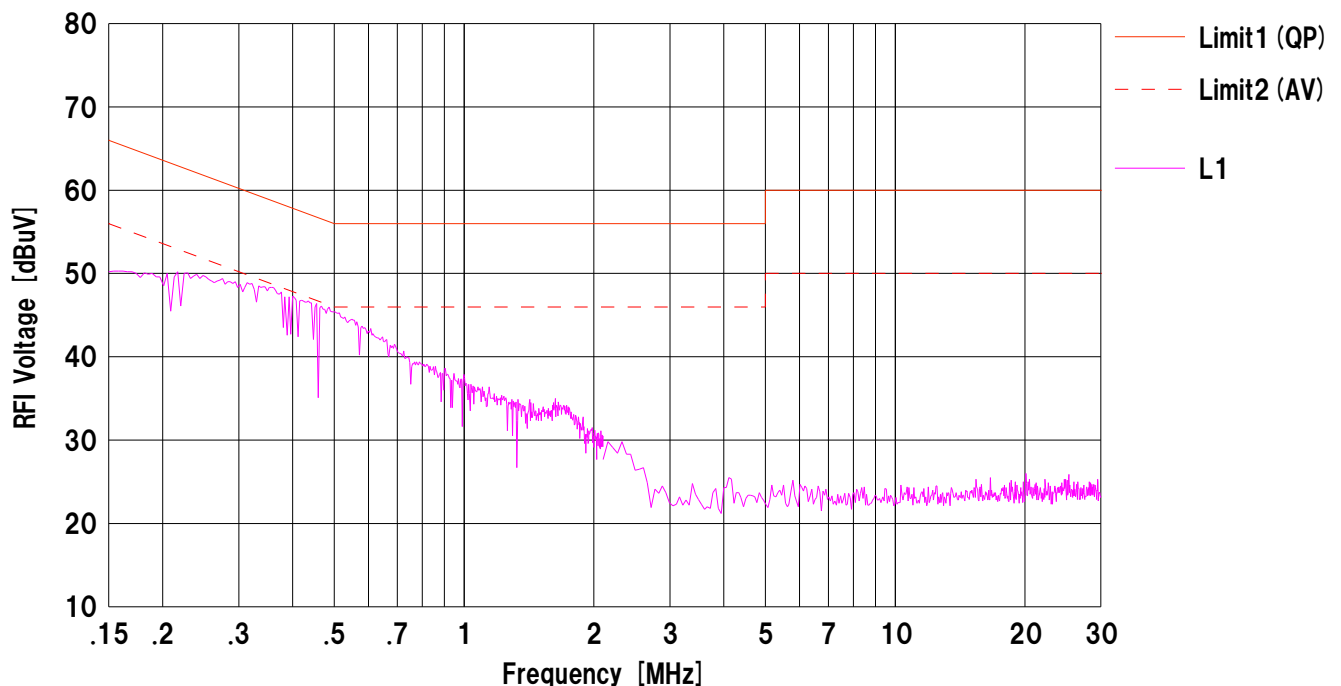
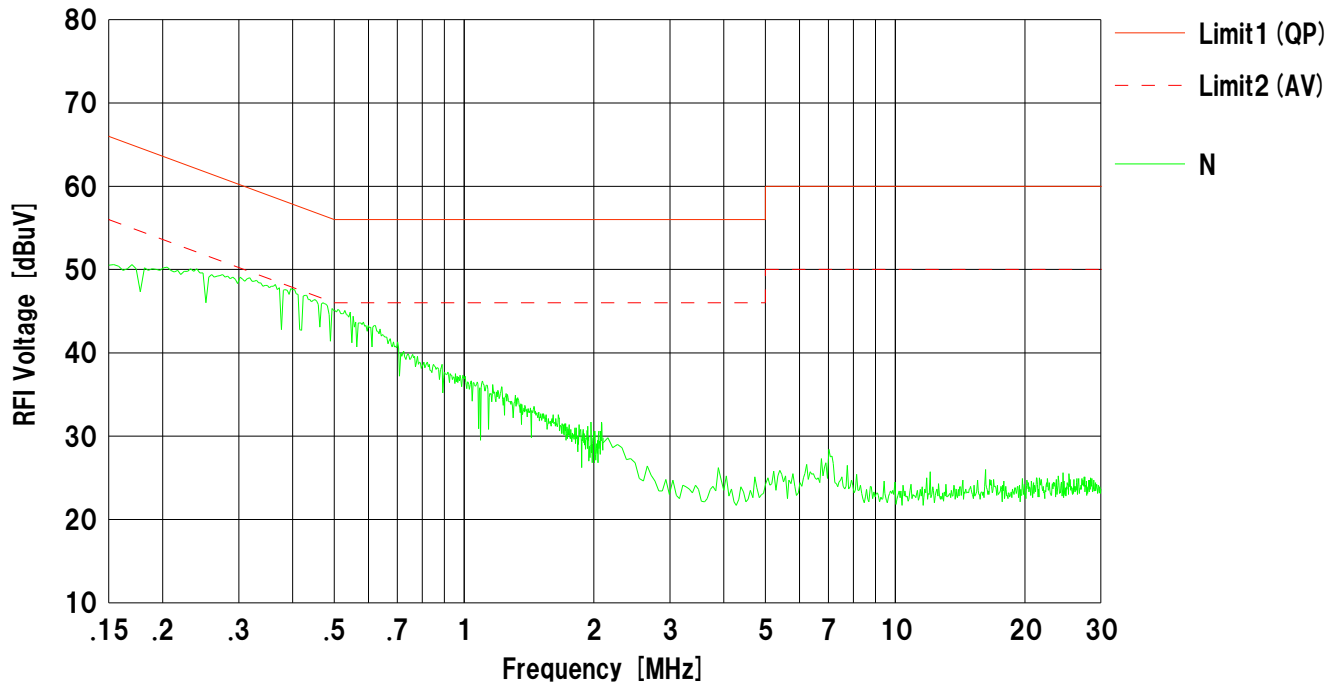
Company : CANON INC.
Kind of EUT : Wireless LAN Module
Model No. : FM48944
Serial No. : 4020

Mode : 11n-40 Tx 2437MHz
Report No. : 31CE0126-SH-01-A
Power : DC3.3V (PowerSupply:AC120V/60Hz)
Temp./Humi. : 23deg.C/44%

Remarks : MCS3

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

Engineer : Akio Hayashi



DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2010/11/22

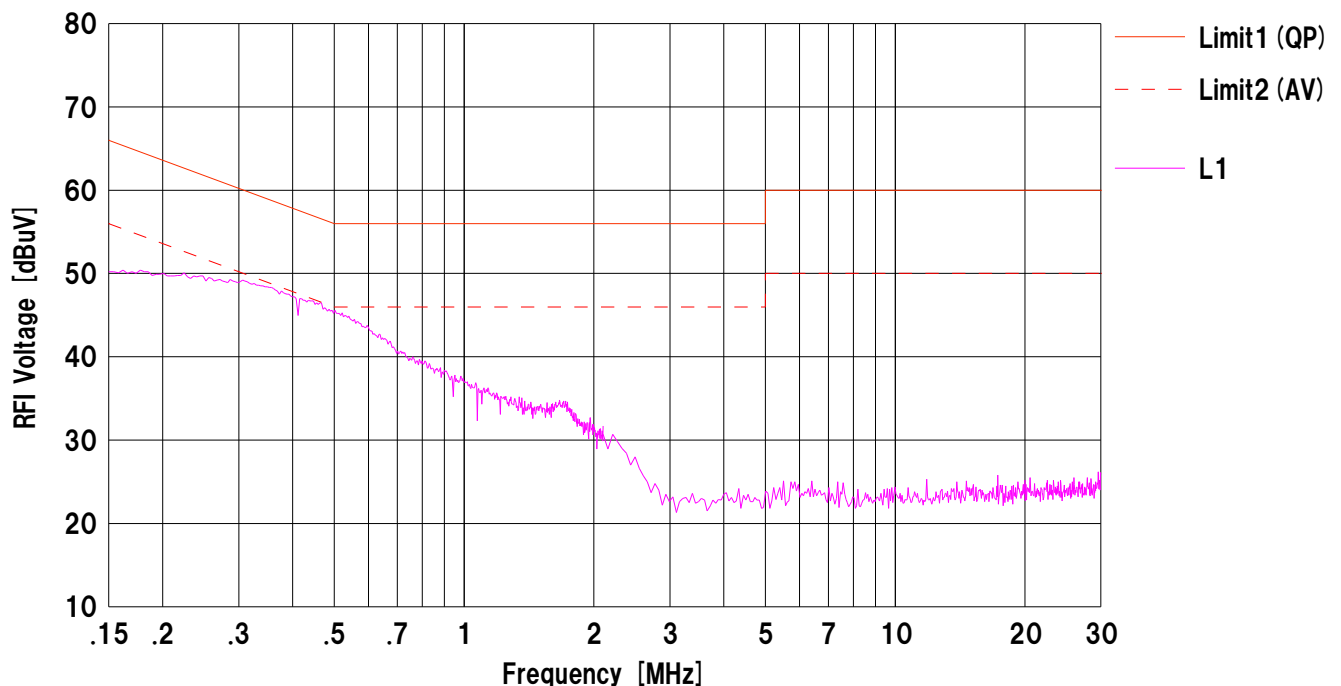
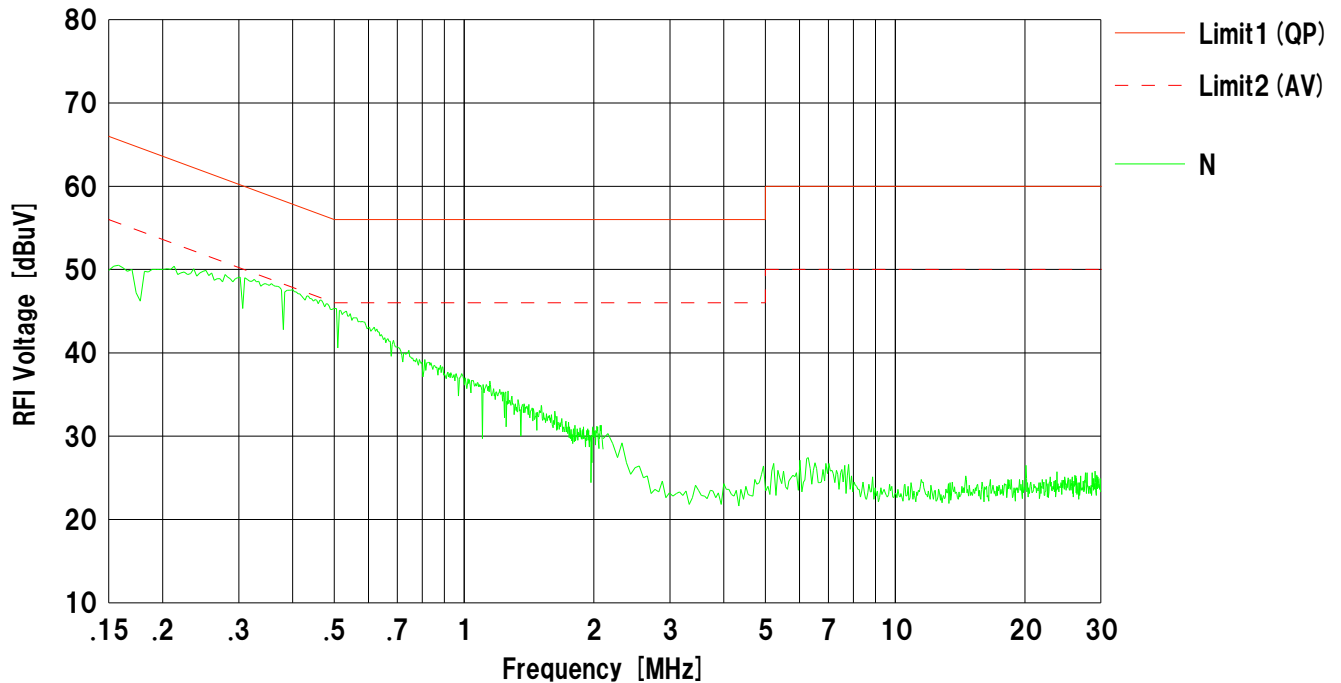
Company : CANON INC.
Kind of EUT : Wireless LAN Module
Model No. : FM48944
Serial No. : 4020

Mode : 11n-40 Tx 2452MHz
Report No. : 31CE0126-SH-01-A
Power : DC3.3V (PowerSupply:AC120V/60Hz)
Temp./Humi. : 23deg.C/44%

Remarks : MCS3

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

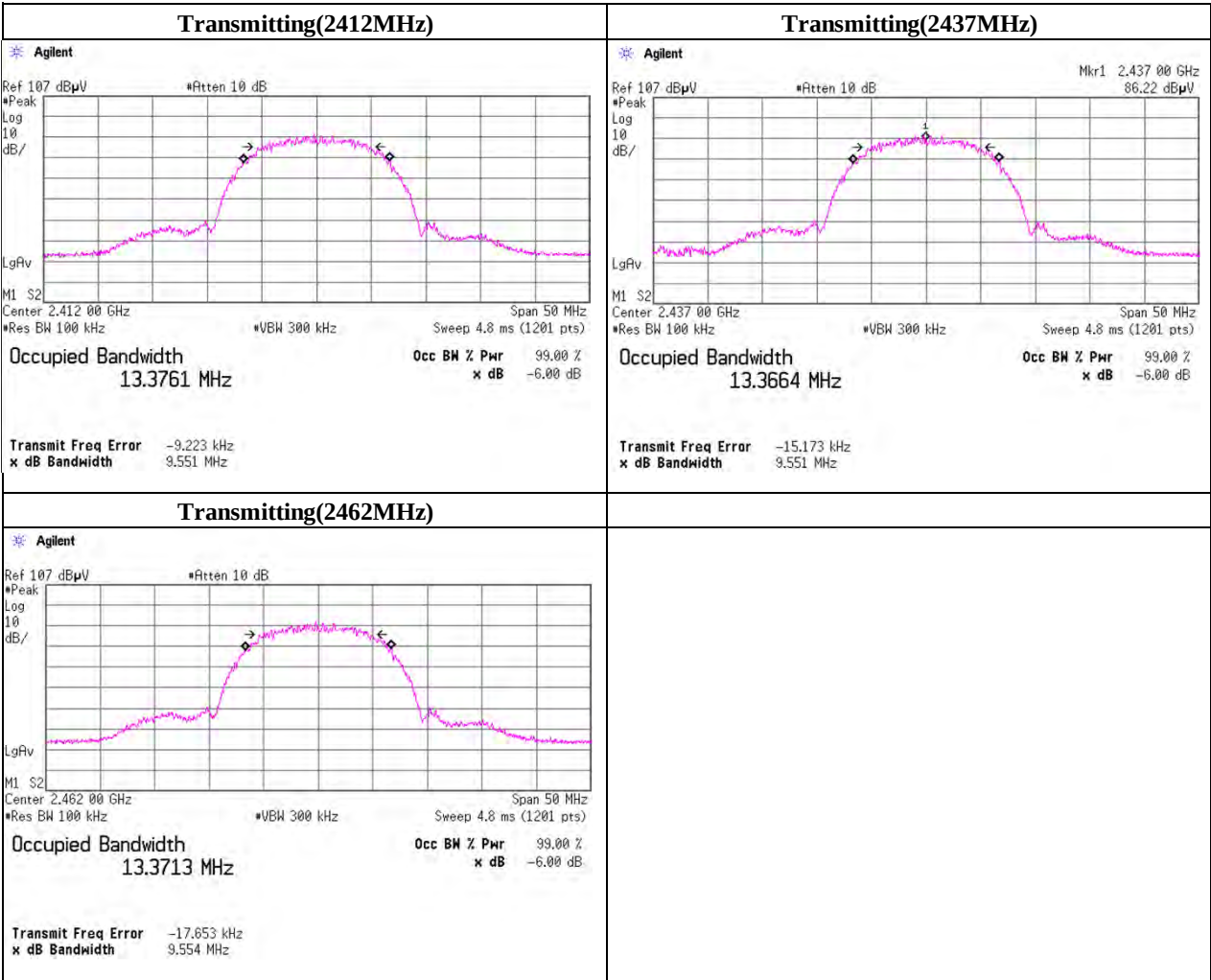
Engineer : Akio Hayashi



-6dB Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	2010/11/15	
Temperature / Humidity	23deg.C. / 45 %	
Engineer	Makoto Hosaka	
Mode	Tx, IEEE802.11b, 11Mbps, PN9, -	

Freq. [MHz]	-6dB Bandwidth [MHz]	Limit [MHz]
2412.0000	9.551	> 0.500
2437.0000	9.551	> 0.500
2462.0000	9.554	> 0.500

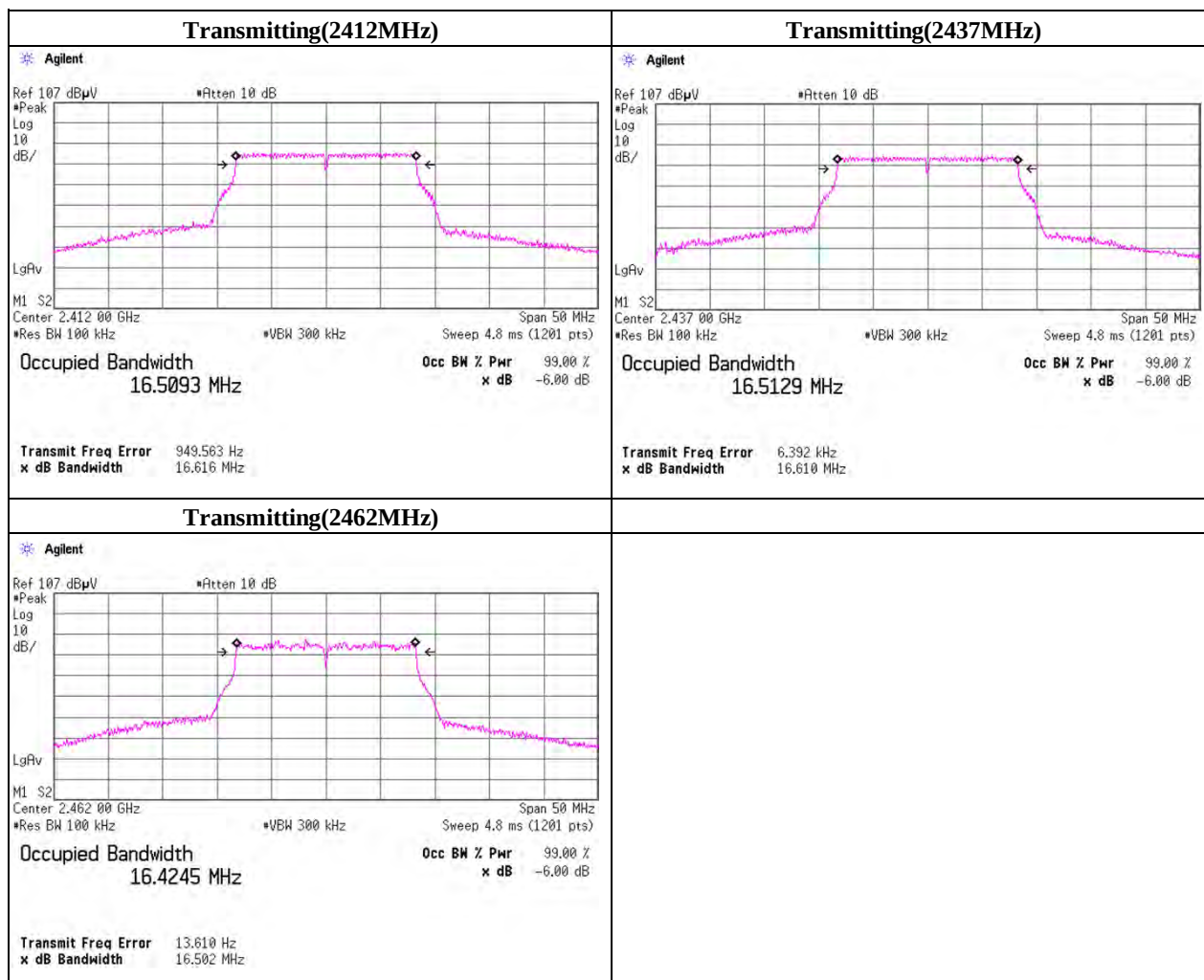


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-6dB Bandwidth

Test place UL Japan, Inc. Shonan EMC Lab. No.5 Shielded Room
Date 2010/11/15
Temperature / Humidity 23deg.C. / 45 %
Engineer Makoto Hosaka
Mode Tx, IEEE802.11g, 12Mbps, PN9, -

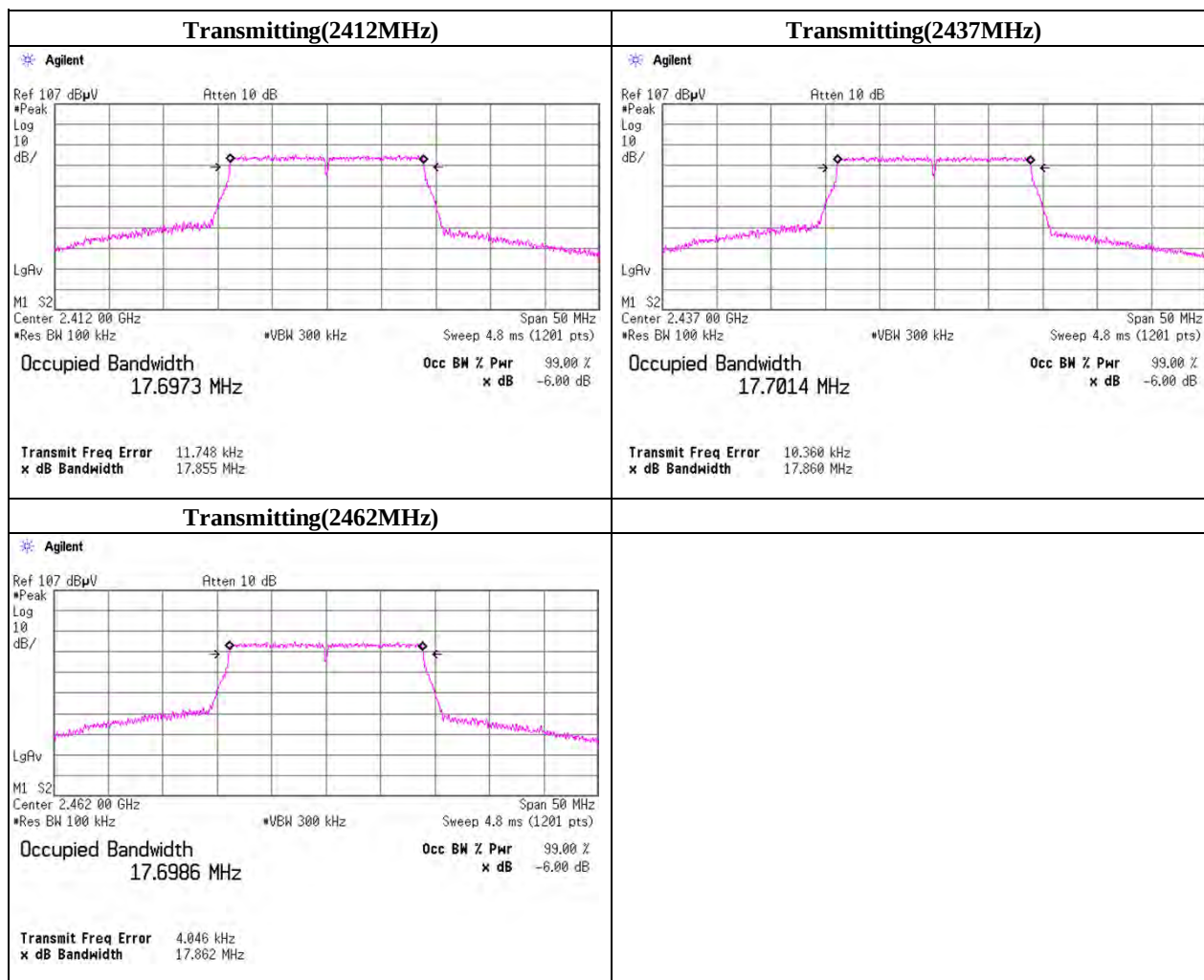
Freq. [MHz]	-6dB Bandwidth [MHz]	Limit [MHz]
2412.0000	16.616	> 0.500
2437.0000	16.610	> 0.500
2462.0000	16.502	> 0.500



-6dB Bandwidth

Test place UL Japan, Inc. Shonan EMC Lab. No.5 Shielded Room
Date 2010/11/15
Temperature / Humidity 23deg.C. / 45 %
Engineer Makoto Hosaka
Mode Tx, IEEE802.11n (20MHz)(SISO), MCS2, PN9, -

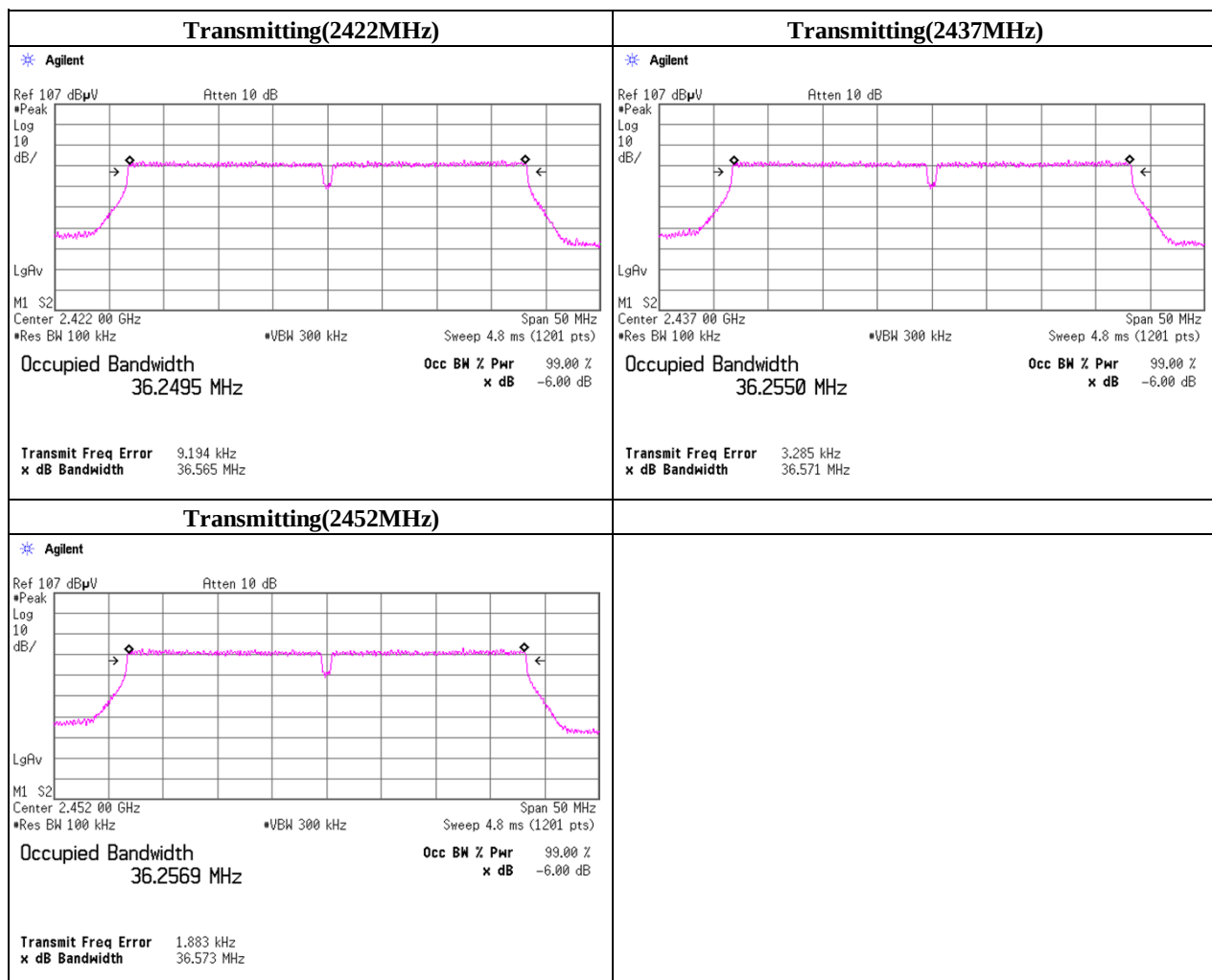
Freq. [MHz]	-6dB Bandwidth [MHz]	Limit [MHz]
2412.0000	17.855	> 0.500
2437.0000	17.860	> 0.500
2462.0000	17.862	> 0.500



-6dB Bandwidth

Test place UL Japan, Inc. Shonan EMC Lab. No.5 Shielded Room
 Date 2010/11/15
 Temperature / Humidity 23deg.C. / 45 %
 Engineer Makoto Hosaka
 Mode Tx, IEEE802.11n (40MHz)(SISO), MCS3, PN9, -

Freq. [MHz]	-6dB Bandwidth [MHz]	Limit [MHz]
2422.0000	36.565	> 0.500
2437.0000	36.571	> 0.500
2452.0000	36.573	> 0.500

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Peak Output Power (Conducted)

Test place UL Japan, Inc. Shonan EMC Lab. No.5 Shielded Room
Date 2010/11/15
Temperature / Humidity 23deg.C. 45 %
Engineer Makoto Hosaka
Mode Tx, IEEE802.11b, 11Mbps, PN9, -

Ch	Freq. [MHz]	P/M (PK) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Limit		Margin [dB]
					[dBm]	[mW]	[dBm]	[mW]	
Low	2412.0	-7.55	1.75	20.16	14.36	27.28	30.00	1000	15.64
Mid	2437.0	-6.99	1.75	20.16	14.92	31.08	30.00	1000	15.08
High	2462.0	-7.01	1.76	20.16	14.91	30.98	30.00	1000	15.09

Sample Calculation:

Result = Reading + Cable Loss (supplied by customer) + Atten. Loss

* 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]

Data Rate [Mbps]	Freq. [MHz]	P/M (PK) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Limit		Margin [dB]
					[dBm]	[mW]	[dBm]	[mW]	
1	2437.0	-7.05	1.75	20.16	14.86	30.65	30.00	1000	15.14
2	2437.0	-7.15	1.75	20.16	14.76	29.96	30.00	1000	15.24
5.5	2437.0	-7.78	1.75	20.16	14.13	25.91	30.00	1000	15.87
11	2437.0	-6.99	1.75	20.16	14.92	31.08	30.00	1000	15.08

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Peak Output Power (Conducted)

Test place UL Japan, Inc. Shonan EMC Lab. No.5 Shielded Room
Date 2010/11/15
Temperature / Humidity 23deg.C. 45 %
Engineer Makoto Hosaka
Mode Tx, IEEE802.11g, 12Mbps, PN9, -

Ch	Freq. [MHz]	P/M (PK) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Limit		Margin [dB]
					[dBm]	[mW]	[dBm]	[mW]	
Low	2412.0	-0.22	1.75	20.16	21.69	147.53	30.00	1000	8.31
Mid	2437.0	-0.88	1.75	20.16	21.03	126.91	30.00	1000	8.97
High	2462.0	-1.17	1.76	20.16	20.75	118.87	30.00	1000	9.25

Sample Calculation:

Result = Reading + Cable Loss (supplied by customer) + Atten. Loss

* 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]

Data Rate [Mbps]	Freq. [MHz]	P/M (PK) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Limit		Margin [dB]
					[dBm]	[mW]	[dBm]	[mW]	
6	2437.0	-0.98	1.75	20.16	20.93	124.02	30.00	1000	9.07
9	2437.0	-1.67	1.75	20.16	20.24	105.80	30.00	1000	9.76
12	2437.0	-0.88	1.75	20.16	21.03	126.91	30.00	1000	8.97
18	2437.0	-1.72	1.75	20.16	20.19	104.59	30.00	1000	9.81
24	2437.0	-0.99	1.75	20.16	20.92	123.73	30.00	1000	9.08
36	2437.0	-0.98	1.75	20.16	20.93	124.02	30.00	1000	9.07
48	2437.0	-1.08	1.75	20.16	20.83	121.20	30.00	1000	9.17
54	2437.0	-1.64	1.75	20.16	20.27	106.53	30.00	1000	9.73

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Peak Output Power (Conducted)

Test place UL Japan, Inc. Shonan EMC Lab. No.5 Shielded Room
Date 2010/11/15
Temperature / Humidity 23deg.C. 45 %
Engineer Makoto Hosaka
Mode Tx, IEEE802.11n (20MHz)(SISO), MCS2, PN9, -

Ch	Freq. [MHz]	P/M (PK) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Limit		Margin [dB]
					[dBm]	[mW]	[dBm]	[mW]	
Low	2412.0	-0.75	1.75	20.16	21.16	130.58	30.00	1000	8.84
Mid	2437.0	-1.01	1.75	20.16	20.90	123.17	30.00	1000	9.10
High	2462.0	-0.89	1.76	20.16	21.03	126.79	30.00	1000	8.97

Sample Calculation:

Result = Reading + Cable Loss (supplied by customer) + Atten. Loss

* 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]

Data mode	Freq. [MHz]	P/M (PK) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Limit		Margin [dB]
					[dBm]	[mW]	[dBm]	[mW]	
MCS									
0	2437.0	-1.02	1.75	20.16	20.89	122.88	30.00	1000	9.11
1	2437.0	-1.05	1.75	20.16	20.86	122.04	30.00	1000	9.14
2	2437.0	-1.01	1.75	20.16	20.90	123.17	30.00	1000	9.10
3	2437.0	-1.04	1.75	20.16	20.87	122.32	30.00	1000	9.13
4	2437.0	-1.05	1.75	20.16	20.86	122.04	30.00	1000	9.14
5	2437.0	-1.10	1.75	20.16	20.81	120.64	30.00	1000	9.19
6	2437.0	-1.10	1.75	20.16	20.81	120.64	30.00	1000	9.19
7	2437.0	-1.09	1.75	20.16	20.82	120.92	30.00	1000	9.18

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Peak Output Power (Conducted)

Test place UL Japan, Inc. Shonan EMC Lab. No.5 Shielded Room
Date 2010/11/15
Temperature / Humidity 23deg.C. 45 %
Engineer Makoto Hosaka
Mode Tx, IEEE802.11n (40MHz)(SISO), MCS3, PN9, -

Ch	Freq. [MHz]	P/M (PK) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Limit		Margin [dB]
					[dBm]	[mW]	[dBm]	[mW]	
Low	2422.0	-0.86	1.75	20.16	21.05	127.32	30.00	1000	8.95
Mid	2437.0	-0.99	1.75	20.16	20.92	123.73	30.00	1000	9.08
High	2452.0	-0.74	1.76	20.16	21.18	131.25	30.00	1000	8.82

Sample Calculation:

Result = Reading + Cable Loss (supplied by customer) + Atten. Loss

* 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]

Data mode	Freq. [MHz]	P/M (PK) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Limit		Margin [dB]
					[dBm]	[mW]	[dBm]	[mW]	
MCS									
0	2437.0	-2.12	1.75	20.16	19.79	95.39	30.00	1000	10.21
1	2437.0	-2.57	1.75	20.16	19.34	86.00	30.00	1000	10.66
2	2437.0	-1.34	1.75	20.16	20.57	114.15	30.00	1000	9.43
3	2437.0	-0.99	1.75	20.16	20.92	123.73	30.00	1000	9.08
4	2437.0	-1.45	1.75	20.16	20.46	111.30	30.00	1000	9.54
5	2437.0	-1.17	1.75	20.16	20.74	118.71	30.00	1000	9.26
6	2437.0	-1.85	1.75	20.16	20.06	101.51	30.00	1000	9.94
7	2437.0	-2.17	1.75	20.16	19.74	94.29	30.00	1000	10.26

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Radiated Emission

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
Date 2010/11/17 2010/11/22 2010/11/24 2010/11/25 2010/11/26
Temperature / Humidity 25de.C/36% 22de.C/53% 24de.C/38% 24de.C/39% 23de.C/40%
Engineer Tatsuya Arai Wataru Kojima Makoto Hosaka Wataru Kojima Tatsuya Arai
Mode Tx, 2412 MHz
 IEEE802.11b, 11Mbps, PN9, -

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.	71.995	QP	28.5	6.4	7.0	32.1	9.8	40.0	30.2	300	358	
Hori.	127.837	QP	27.8	12.8	7.4	32.1	15.9	43.5	27.6	182	296	
Hori.	2390.000	PK	17.2	27.5	3.3	0.0	48.0	73.9	25.9	118	117	
Hori.	4824.000	PK	50.9	31.6	5.6	40.1	48.0	73.9	25.9	100	33	
Hori.	7236.000	PK	46.8	36.5	6.8	38.3	51.8	73.9	22.1	100	0	
Hori.	12060.000	PK	48.7	39.3	-0.5	38.3	49.1	73.9	24.8	100	335	
Hori.	19296.000	PK	56.6	40.1	-2.9	47.5	46.3	73.9	27.6	100	319	
Hori.	2390.000	AV	5.8	27.5	3.3	0.0	36.6	53.9	17.3	118	117	
Hori.	4824.000	AV	37.4	31.6	5.6	40.1	34.5	53.9	19.4	100	33	
Hori.	7236.000	AV	34.2	36.5	6.8	38.3	39.2	53.9	14.7	100	0	
Hori.	12060.000	AV	37.9	39.3	-0.5	38.3	38.4	53.9	15.5	100	335	
Hori.	19296.000	AV	53.1	40.1	-2.9	47.5	42.7	53.9	11.2	100	319	
Vert.	62.795	QP	29.8	7.6	6.9	32.1	12.2	40.0	27.8	100	336	
Vert.	73.044	QP	32.7	6.3	7.0	32.1	13.9	40.0	26.1	100	297	
Vert.	89.831	QP	29.4	7.9	7.1	32.1	12.3	43.5	31.2	100	293	
Vert.	128.477	QP	29.8	12.8	7.4	32.1	17.9	43.5	25.6	100	134	
Vert.	2390.000	PK	21.6	27.5	3.3	0.0	52.4	73.9	21.5	100	91	
Vert.	4824.000	PK	53.2	31.6	5.6	40.1	50.3	73.9	23.6	100	329	
Vert.	7236.000	PK	47.3	36.5	6.8	38.3	52.3	73.9	21.6	100	0	
Vert.	12060.000	PK	54.6	39.3	-0.5	38.3	55.1	73.9	18.8	271	105	
Vert.	19296.000	PK	54.9	40.1	-2.9	47.5	44.6	73.9	29.3	100	0	
Vert.	2390.000	AV	9.8	27.5	3.3	0.0	40.6	53.9	13.3	100	91	
Vert.	4824.000	AV	40.0	31.6	5.6	40.1	37.1	53.9	16.8	100	329	
Vert.	7236.000	AV	33.9	36.5	6.8	38.3	38.9	53.9	15.0	100	0	
Vert.	12060.000	AV	45.4	39.3	-0.5	38.3	45.8	53.9	8.1	271	105	
Vert.	19296.000	AV	50.4	40.1	-2.9	47.5	40.1	53.9	13.8	100	0	

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

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

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

20dBc Data Sheet (RBW 100kHz, VBW 300kHz)

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	66.6	27.6	3.3	0.0	97.5	-	-	Carrier
Hori.	2398.630	PK	19.2	27.5	3.3	0.0	50.0	77.5	27.5	
Hori.	2400.000	PK	16.8	27.5	3.3	0.0	47.6	77.5	29.9	
Hori.	9648.000	PK	35.6	37.9	7.8	37.4	43.9	77.5	33.6	
Vert.	2412.000	PK	70.5	27.6	3.3	0.0	101.4	-	-	Carrier
Vert.	2398.540	PK	25.6	27.5	3.3	0.0	56.4	81.4	25.0	
Vert.	2400.000	PK	22.2	27.5	3.3	0.0	53.0	81.4	28.4	
Vert.	9648.000	PK	41.8	37.9	7.8	37.4	50.1	81.4	31.3	

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

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Radiated Emission

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
Date 2010/11/17 2010/11/22 2010/11/24 2010/11/25 2010/11/26
Temperature / Humidity 25de.C/36% 22de.C/53% 24de.C/38% 24de.C/39% 23de.C/40%
Engineer Tatsuya Arai Wataru Kojima Makoto Hosaka Wataru Kojima Tatsuya Arai
Mode Tx, 2437 MHz
 IEEE802.11b, 11Mbps, PN9, -

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.	71.972	QP	27.6	6.4	7.0	32.1	8.9	40.0	31.1	300	125	
Hori.	127.837	QP	27.4	12.8	7.4	32.1	15.5	43.5	28.0	200	160	
Hori.	4874.000	PK	50.3	31.7	5.6	40.0	47.6	73.9	26.3	100	311	
Hori.	7311.000	PK	47.3	36.7	6.9	38.5	52.4	73.9	21.5	100	0	
Hori.	12185.000	PK	47.7	39.2	-0.4	38.2	48.3	73.9	25.6	100	333	
Hori.	19496.000	PK	55.7	40.1	-2.9	47.4	45.5	73.9	28.4	100	333	
Hori.	4874.000	AV	37.4	31.7	5.6	40.0	34.7	53.9	19.2	100	311	
Hori.	7311.000	AV	33.8	36.7	6.9	38.5	38.9	53.9	15.0	100	0	
Hori.	12185.000	AV	36.9	39.2	-0.4	38.2	37.5	53.9	16.4	100	333	
Hori.	19496.000	AV	52.8	40.1	-2.9	47.4	42.6	53.9	11.3	100	333	
Vert.	62.795	QP	29.4	7.6	6.9	32.1	11.8	40.0	28.2	100	336	
Vert.	73.431	QP	27.8	6.3	7.0	32.1	9.0	40.0	31.0	100	287	
Vert.	89.598	QP	28.6	7.8	7.1	32.1	11.4	43.5	32.1	100	205	
Vert.	128.467	QP	28.3	12.8	7.4	32.1	16.4	43.5	27.1	100	358	
Vert.	4874.000	PK	54.3	31.7	5.6	40.0	51.6	73.9	22.3	100	328	
Vert.	7311.000	PK	46.0	36.7	6.9	38.5	51.1	73.9	22.8	100	0	
Vert.	12185.000	PK	54.6	39.2	-0.4	38.2	55.2	73.9	18.7	105	272	
Vert.	19496.000	PK	53.1	40.1	-2.9	47.4	42.9	73.9	31.0	100	0	
Vert.	4874.000	AV	41.9	31.7	5.6	40.0	39.2	53.9	14.7	100	328	
Vert.	7311.000	AV	34.6	36.7	6.9	38.5	39.7	53.9	14.2	100	0	
Vert.	12185.000	AV	45.2	39.2	-0.4	38.2	45.8	53.9	8.1	105	272	
Vert.	19496.000	AV	48.4	40.1	-2.9	47.4	38.2	53.9	15.7	100	0	

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

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

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

20dBc Data Sheet (RBW 100kHz, VBW 300kHz)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2437.000	PK	66.1	27.6	3.3	0.0	97.0	-	-	Carrier
Hori.	9748.000	PK	37.3	38.1	7.8	37.4	45.8	77.0	31.2	
Vert.	2437.000	PK	64.7	27.6	3.3	0.0	95.6	-	-	Carrier
Vert.	9748.000	PK	49.2	38.1	7.8	37.4	57.7	75.6	17.9	

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

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Radiated Emission

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
 Date 2010/11/17 2010/11/22 2010/11/24 2010/11/25 2010/11/26
 Temperature / Humidity 25de.C/36% 22de.C/53% 24de.C/38% 24de.C/39% 23de.C/40%
 Engineer Tatsuya Arai Wataru Kojima Makoto Hosaka Wataru Kojima Tatsuya Arai
 Mode Tx, 2462 MHz
 IEEE802.11b, 11Mbps, PN9, -

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.	72.061	QP	27.1	6.4	7.0	32.1	8.4	40.0	31.6	297	318	
Hori.	127.837	QP	27.2	12.8	7.4	32.1	15.3	43.5	28.2	200	153	
Hori.	2483.500	PK	19.3	27.6	3.4	0.0	50.3	73.9	23.6	134	33	
Hori.	4924.000	PK	52.0	31.8	5.6	40.0	49.4	73.9	24.5	100	307	
Hori.	7386.000	PK	46.6	36.8	7.0	38.6	51.8	73.9	22.1	100	0	
Hori.	12310.000	PK	49.6	39.2	-0.2	38.0	50.6	73.9	23.3	100	337	
Hori.	19696.000	PK	57.3	40.2	-2.9	47.4	47.2	73.9	26.7	100	333	
Hori.	2483.500	AV	8.1	27.6	3.4	0.0	39.1	53.9	14.8	134	33	
Hori.	4924.000	AV	38.6	31.8	5.6	40.0	36.0	53.9	17.9	100	307	
Hori.	7386.000	AV	32.2	36.8	7.0	38.6	37.4	53.9	16.5	100	0	
Hori.	12310.000	AV	39.4	39.2	-0.2	38.0	40.4	53.9	13.5	100	337	
Hori.	19696.000	AV	54.6	40.2	-2.9	47.4	44.5	53.9	9.4	100	333	
Vert.	62.766	QP	29.5	7.6	6.9	32.1	11.9	40.0	28.1	100	63	
Vert.	73.342	QP	27.9	6.3	7.0	32.1	9.1	40.0	30.9	100	55	
Vert.	89.620	QP	28.4	7.8	7.1	32.1	11.2	43.5	32.3	100	200	
Vert.	128.439	QP	29.4	12.8	7.4	32.1	17.5	43.5	26.0	100	218	
Vert.	2483.500	PK	22.5	27.6	3.4	0.0	53.5	73.9	20.4	100	98	
Vert.	4924.000	PK	56.0	31.8	5.6	40.0	53.4	73.9	20.5	100	174	
Vert.	7386.000	PK	47.8	36.8	7.0	38.6	53.0	73.9	20.9	100	0	
Vert.	12310.000	PK	60.5	39.2	-0.2	38.0	61.5	73.9	12.4	270	106	
Vert.	19696.000	PK	50.5	40.2	-2.9	47.4	40.3	73.9	33.6	100	356	
Vert.	2483.500	AV	11.5	27.6	3.4	0.0	42.5	53.9	11.4	100	98	
Vert.	4924.000	AV	41.8	31.8	5.6	40.0	39.2	53.9	14.7	100	174	
Vert.	7386.000	AV	34.3	36.8	7.0	38.6	39.5	53.9	14.4	100	0	
Vert.	12310.000	AV	51.9	39.2	-0.2	38.0	52.9	53.9	1.0	270	106	
Vert.	19696.000	AV	45.1	40.2	-2.9	47.4	35.0	53.9	18.9	100	356	

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

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

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

20dBc Data Sheet (RBW 100kHz, VBW 300kHz)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2462.000	PK	64.6	27.6	3.4	0.0	95.6	-	-	Carrier
Hori.	9848.000	PK	44.1	38.3	8.0	37.5	52.9	75.6	22.7	
Vert.	2462.000	PK	63.4	27.6	3.4	0.0	94.4	-	-	Carrier
Vert.	9848.000	PK	51.5	38.3	8.0	37.5	60.3	74.4	14.1	

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

UL Japan, Inc.

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Radiated Emission

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
 Date 2010/11/17 2010/11/22 2010/11/24 2010/11/25 2010/11/26
 Temperature / Humidity 25de.C/36% 22de.C/53% 24de.C/38% 24de.C/39% 23de.C/40%
 Engineer Tatsuya Arai Wataru Kojima Makoto Hosaka Wataru Kojima Tatsuya Arai
 Mode Tx, 2412 MHz
 IEEE802.11g, 12Mbps, PN9, -

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.	72.062	QP	30.4	6.4	7.0	32.1	11.7	40.0	28.3	300	174	
Hori.	124.689	QP	27.5	12.6	7.4	32.1	15.4	43.5	28.1	200	358	
Hori.	2390.000	PK	28.6	27.5	3.3	0.0	59.4	73.9	14.5	109	30	
Hori.	4824.000	PK	52.8	31.6	5.6	40.1	49.9	73.9	24.0	102	58	
Hori.	7236.000	PK	46.9	36.5	6.8	38.3	51.9	73.9	22.0	100	76	
Hori.	12060.000	PK	48.8	39.3	-0.5	38.3	49.3	73.9	24.6	100	335	
Hori.	19296.000	PK	54.5	40.1	-2.9	47.5	44.1	73.9	29.8	100	324	
Hori.	2390.000	AV	15.0	27.5	3.3	0.0	45.8	53.9	8.1	109	30	
Hori.	4824.000	AV	39.3	31.6	5.6	40.1	36.4	53.9	17.5	102	58	
Hori.	7236.000	AV	36.5	36.5	6.8	38.3	41.5	53.9	12.4	100	76	
Hori.	12060.000	AV	36.9	39.3	-0.5	38.3	37.4	53.9	16.5	100	335	
Hori.	19296.000	AV	51.0	40.1	-2.9	47.5	40.7	53.9	13.2	100	324	
Vert.	62.530	QP	28.8	7.7	6.9	32.1	11.3	40.0	28.7	100	89	
Vert.	71.025	QP	28.4	6.4	6.9	32.1	9.6	40.0	30.4	100	355	
Vert.	88.984	QP	28.3	7.7	7.1	32.1	11.0	43.5	32.5	100	102	
Vert.	117.963	QP	29.1	12.0	7.3	32.1	16.3	43.5	27.2	100	194	
Vert.	2390.000	PK	36.6	27.5	3.3	0.0	67.4	73.9	6.5	100	88	
Vert.	4824.000	PK	54.2	31.6	5.6	40.1	51.3	73.9	22.6	154	271	
Vert.	7236.000	PK	49.7	36.5	6.8	38.3	54.7	73.9	19.2	100	36	
Vert.	12060.000	PK	56.2	39.3	-0.5	38.3	56.7	73.9	17.2	106	276	
Vert.	19296.000	PK	52.6	40.1	-2.9	47.5	42.2	73.9	31.7	100	357	
Vert.	2390.000	AV	21.4	27.5	3.3	0.0	52.2	53.9	1.7	100	88	
Vert.	4824.000	AV	42.4	31.6	5.6	40.1	39.5	53.9	14.4	154	271	
Vert.	7236.000	AV	36.5	36.5	6.8	38.3	41.5	53.9	12.4	100	36	
Vert.	12060.000	AV	44.7	39.3	-0.5	38.3	45.2	53.9	8.7	106	276	
Vert.	19296.000	AV	47.6	40.1	-2.9	47.5	37.2	53.9	16.7	100	357	

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

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

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

20dBc Data Sheet (RBW 100kHz, VBW 300kHz)

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	62.0	27.6	3.3	0.0	92.9	-	-	Carrier
Hori.	2400.000	PK	24.0	27.5	3.3	0.0	54.8	72.9	18.1	
Hori.	9648.000	PK	39.4	37.9	7.8	37.4	47.7	72.9	25.2	
Vert.	2412.000	PK	76.5	27.6	3.3	0.0	107.4	-	-	Carrier
Vert.	2400.000	PK	28.9	27.5	3.3	0.0	59.7	87.4	27.7	
Vert.	9648.000	PK	44.3	37.9	7.8	37.4	52.6	87.4	34.8	

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

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Radiated Emission

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
 Date 2010/11/17 2010/11/22 2010/11/24 2010/11/25 2010/11/26
 Temperature / Humidity 25de.C/36% 22de.C/53% 24de.C/38% 24de.C/39% 23de.C/40%
 Engineer Tatsuya Arai Wataru Kojima Makoto Hosaka Wataru Kojima Tatsuya Arai
 Mode Tx, 2437 MHz
 IEEE802.11g, 12Mbps, PN9, -

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.	72.104	QP	28.7	6.4	7.0	32.1	10.0	40.0	30.0	300	328	
Hori.	124.639	QP	27.6	12.6	7.4	32.1	15.5	43.5	28.0	200	38	
Hori.	4874.000	PK	52.0	31.7	5.6	40.0	49.3	73.9	24.6	174	228	
Hori.	7311.000	PK	46.6	36.7	6.9	38.5	51.7	73.9	22.2	100	359	
Hori.	12185.000	PK	47.2	39.2	-0.4	38.2	47.7	73.9	26.2	100	330	
Hori.	19496.000	PK	56.4	40.1	-2.9	47.4	46.2	73.9	27.7	100	334	
Hori.	4874.000	AV	39.6	31.7	5.6	40.0	36.9	53.9	17.0	174	228	
Hori.	7311.000	AV	35.8	36.7	6.9	38.5	40.9	53.9	13.0	100	359	
Hori.	12185.000	AV	35.2	39.2	-0.4	38.2	35.8	53.9	18.1	100	330	
Hori.	19496.000	AV	52.7	40.1	-2.9	47.4	42.5	53.9	11.4	100	334	
Vert.	62.342	QP	28.6	7.7	6.9	32.1	11.1	40.0	28.9	100	204	
Vert.	71.026	QP	32.9	6.4	6.9	32.1	14.1	40.0	25.9	100	358	
Vert.	88.505	QP	29.7	7.7	7.1	32.1	12.4	43.5	31.1	100	344	
Vert.	118.002	QP	32.3	12.1	7.3	32.1	19.6	43.5	23.9	100	1	
Vert.	4874.000	PK	54.1	31.7	5.6	40.0	51.4	73.9	22.5	100	293	
Vert.	7311.000	PK	47.1	36.7	6.9	38.5	52.2	73.9	21.7	100	55	
Vert.	12185.000	PK	54.7	39.2	-0.4	38.2	55.3	73.9	18.6	105	272	
Vert.	19496.000	PK	52.5	40.1	-2.9	47.4	42.3	73.9	31.6	100	354	
Vert.	4874.000	AV	42.7	31.7	5.6	40.0	40.0	53.9	13.9	100	293	
Vert.	7311.000	AV	35.7	36.7	6.9	38.5	40.8	53.9	13.1	100	55	
Vert.	12185.000	AV	43.2	39.2	-0.4	38.2	43.8	53.9	10.1	105	272	
Vert.	19496.000	AV	46.9	40.1	-2.9	47.4	36.6	53.9	17.3	100	354	

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

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

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

20dBc Data Sheet (RBW 100kHz, VBW 300kHz)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2437.000	PK	64.6	27.6	3.3	0.0	95.5	-	-	Carrier
Hori.	9748.000	PK	41.4	38.1	7.8	37.4	49.9	75.5	25.6	
Vert.	2437.000	PK	60.2	27.6	3.3	0.0	91.1	-	-	Carrier
Vert.	9748.000	PK	42.1	38.1	7.8	37.4	50.6	71.1	20.5	

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

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Radiated Emission

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
 Date 2010/11/17 2010/11/22 2010/11/24 2010/11/25 2010/11/26
 Temperature / Humidity 25de.C/36% 22de.C/53% 24de.C/38% 24de.C/39% 23de.C/40%
 Engineer Tatsuya Arai Wataru Kojima Makoto Hosaka Wataru Kojima Tatsuya Arai
 Mode Tx, 2462 MHz
 IEEE802.11g, 12Mbps, PN9, -

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.	72.261	QP	28.4	6.4	7.0	32.1	9.7	40.0	30.3	300	349	
Hori.	124.626	QP	27.2	12.6	7.4	32.1	15.1	43.5	28.4	200	58	
Hori.	2483.500	PK	27.2	27.6	3.4	0.0	58.2	73.9	15.7	108	36	
Hori.	4924.000	PK	50.6	31.8	5.6	40.0	48.0	73.9	25.9	185	342	
Hori.	7386.000	PK	47.9	36.8	7.0	38.6	53.1	73.9	20.8	100	0	
Hori.	12310.000	PK	49.2	39.2	-0.2	38.0	50.2	73.9	23.7	100	328	
Hori.	19696.000	PK	56.0	40.2	-2.9	47.4	45.8	73.9	28.1	100	322	
Hori.	2483.500	AV	15.1	27.6	3.4	0.0	46.1	53.9	7.8	108	36	
Hori.	4924.000	AV	38.5	31.8	5.6	40.0	35.9	53.9	18.0	185	342	
Hori.	7386.000	AV	35.8	36.8	7.0	38.6	41.0	53.9	12.9	100	0	
Hori.	12310.000	AV	37.1	39.2	-0.2	38.0	38.1	53.9	15.8	100	328	
Hori.	19696.000	AV	53.2	40.2	-2.9	47.4	43.0	53.9	10.9	100	322	
Vert.	63.126	QP	28.8	7.6	6.9	32.1	11.2	40.0	28.8	100	261	
Vert.	71.012	QP	32.2	6.4	6.9	32.1	13.4	40.0	26.6	100	176	
Vert.	88.521	QP	28.7	7.7	7.1	32.1	11.4	43.5	32.1	100	314	
Vert.	117.998	QP	32.3	12.1	7.3	32.1	19.6	43.5	23.9	100	167	
Vert.	2483.500	PK	34.0	27.6	3.4	40.1	65.0	73.9	8.9	100	91	
Vert.	4924.000	PK	56.0	31.8	5.6	40.0	53.4	73.9	20.5	112	190	
Vert.	7386.000	PK	47.4	36.8	7.0	38.6	52.6	73.9	21.3	100	0	
Vert.	12310.000	PK	58.3	39.2	-0.2	38.0	59.3	73.9	14.6	104	274	
Vert.	19696.000	PK	51.4	40.2	-2.9	47.4	41.2	73.9	32.7	100	354	
Vert.	2483.500	AV	21.4	27.6	3.4	40.1	52.4	53.9	1.5	100	91	
Vert.	4924.000	AV	43.1	31.8	5.6	40.0	40.5	53.9	13.4	112	190	
Vert.	7386.000	AV	34.2	36.8	7.0	38.6	39.4	53.9	14.5	100	0	
Vert.	12310.000	AV	46.5	39.2	-0.2	38.0	47.5	53.9	6.4	104	274	
Vert.	19696.000	AV	44.7	40.2	-2.9	47.4	34.6	53.9	19.3	100	354	

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

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

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

20dBc Data Sheet (RBW 100kHz, VBW 300kHz)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2462.000	PK	65.9	27.6	3.4	0.0	96.9	-	-	Carrier
Hori.	9848.000	PK	41.8	38.3	8.0	37.5	50.6	76.9	26.3	
Vert.	2462.000	PK	59.2	27.6	3.4	0.0	90.2	-	-	Carrier
Vert.	9848.000	PK	46.8	38.3	8.0	37.5	55.6	70.2	14.6	

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

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Radiated Emission

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 Date 2010/11/17 2010/11/22 2010/11/24 2010/11/25 2010/11/26
 Temperature / Humidity 25de.C/36% 22de.C/53% 24de.C/38% 24de.C/39% 23de.C/40%
 Engineer Tatsuya Arai Wataru Kojima Makoto Hosaka Wataru Kojima Tatsuya Arai
 Mode Tx, 2412 MHz
 IEEE802.11n (20MHz)(SISO), MCS2, PN9, -

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.	72.594	QP	26.4	6.4	7.0	32.1	7.7	40.0	32.3	300	231	
Hori.	124.536	QP	27.3	12.6	7.4	32.1	15.2	43.5	28.3	153	158	
Hori.	2390.000	PK	32.6	27.5	3.3	0.0	63.4	73.9	10.5	136	136	
Hori.	4824.000	PK	52.6	31.6	5.6	40.1	49.7	73.9	24.2	100	59	
Hori.	7236.000	PK	48.3	36.5	6.8	38.3	53.3	73.9	20.6	100	0	
Hori.	12060.000	PK	51.3	39.3	-0.5	38.3	51.8	73.9	22.1	100	331	
Hori.	19296.000	PK	54.5	40.1	-2.9	47.5	44.2	73.9	29.7	100	319	
Hori.	2390.000	AV	15.8	27.5	3.3	0.0	46.6	53.9	7.3	136	136	
Hori.	4824.000	AV	39.6	31.6	5.6	40.1	36.7	53.9	17.2	100	59	
Hori.	7236.000	AV	36.6	36.5	6.8	38.3	41.6	53.9	12.3	100	0	
Hori.	12060.000	AV	36.5	39.3	-0.5	38.3	36.9	53.9	17.0	100	331	
Hori.	19296.000	AV	51.0	40.1	-2.9	47.5	40.6	53.9	13.3	100	319	
Vert.	63.257	QP	26.4	7.5	6.9	32.1	8.7	40.0	31.3	100	230	
Vert.	71.015	QP	29.7	6.4	6.9	32.1	10.9	40.0	29.1	100	238	
Vert.	94.930	QP	27.6	8.9	7.2	32.1	11.6	43.5	31.9	100	240	
Vert.	123.532	QP	28.6	12.5	7.4	32.1	16.4	43.5	27.1	100	182	
Vert.	2390.000	PK	35.4	27.5	3.3	0.0	66.2	73.9	7.7	100	86	
Vert.	4824.000	PK	54.5	31.6	5.6	40.1	51.6	73.9	22.3	100	189	
Vert.	7236.000	PK	46.8	36.5	6.8	38.3	51.8	73.9	22.1	100	0	
Vert.	12060.000	PK	59.9	39.3	-0.5	38.3	60.4	73.9	13.5	105	274	
Vert.	19296.000	PK	52.4	40.1	-2.9	47.5	42.0	73.9	31.9	100	355	
Vert.	2390.000	AV	20.5	27.5	3.3	0.0	51.3	53.9	2.6	100	86	
Vert.	4824.000	AV	41.8	31.6	5.6	40.1	38.9	53.9	15.0	100	189	
Vert.	7236.000	AV	35.3	36.5	6.8	38.3	40.3	53.9	13.6	100	0	
Vert.	12060.000	AV	44.1	39.3	-0.5	38.3	44.6	53.9	9.3	105	274	
Vert.	19296.000	AV	47.8	40.1	-2.9	47.5	37.4	53.9	16.5	100	355	

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

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

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

20dBc Data Sheet (RBW 100kHz, VBW 300kHz)

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	57.4	27.6	3.3	0.0	88.3	-	-	Carrier
Hori.	2400.000	PK	23.0	27.5	3.3	0.0	53.8	68.3	14.5	
Hori.	9648.000	PK	39.8	37.9	7.8	37.4	48.1	68.3	20.2	
Vert.	2412.000	PK	64.9	27.6	3.3	0.0	95.8	-	-	Carrier
Vert.	2400.000	PK	27.3	27.5	3.3	0.0	58.1	75.8	17.7	
Vert.	9648.000	PK	44.8	37.9	7.8	37.4	53.1	75.8	22.7	

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

UL Japan, Inc.

Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

Radiated Emission

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
 Date 2010/11/17 2010/11/22 2010/11/24 2010/11/25 2010/11/26
 Temperature / Humidity 25de.C/36% 22de.C/53% 24de.C/38% 24de.C/39% 23de.C/40%
 Engineer Tatsuya Arai Wataru Kojima Makoto Hosaka Wataru Kojima Tatsuya Arai
 Mode Tx, 2437 MHz
 IEEE802.11n (20MHz)(SISO), MCS2, PN9, -

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.	72.083	QP	26.2	6.4	7.0	32.1	7.5	40.0	32.5	300	293	
Hori.	124.553	QP	27.2	12.6	7.4	32.1	15.1	43.5	28.4	152	218	
Hori.	4874.000	PK	51.4	31.7	5.6	40.0	48.7	73.9	25.2	100	11	
Hori.	7311.000	PK	46.2	36.7	6.9	38.5	51.3	73.9	22.6	100	359	
Hori.	12185.000	PK	49.0	39.2	-0.4	38.2	49.5	73.9	24.4	100	330	
Hori.	19496.000	PK	55.7	40.1	-2.9	47.4	45.5	73.9	28.4	100	326	
Hori.	4874.000	AV	38.4	31.7	5.6	40.0	35.7	53.9	18.2	100	11	
Hori.	7311.000	AV	34.4	36.7	6.9	38.5	39.5	53.9	14.4	100	359	
Hori.	12185.000	AV	34.3	39.2	-0.4	38.2	34.9	53.9	19.0	100	330	
Hori.	19496.000	AV	52.7	40.1	-2.9	47.4	42.5	53.9	11.4	100	326	
Vert.	62.387	QP	28.7	7.7	6.9	32.1	11.2	40.0	28.8	100	145	
Vert.	71.016	QP	30.0	6.4	6.9	32.1	11.2	40.0	28.8	100	186	
Vert.	94.973	QP	30.1	9.0	7.2	32.1	14.2	43.5	29.3	100	148	
Vert.	122.351	QP	29.7	12.4	7.4	32.1	17.4	43.5	26.1	100	129	
Vert.	4874.000	PK	53.5	31.7	5.6	40.0	50.8	73.9	23.1	100	265	
Vert.	7311.000	PK	46.6	36.7	6.9	38.5	51.7	73.9	22.2	100	0	
Vert.	12185.000	PK	57.7	39.2	-0.4	38.2	58.3	73.9	15.6	106	271	
Vert.	19496.000	PK	52.2	40.1	-2.9	47.4	41.9	73.9	32.0	100	358	
Vert.	4874.000	AV	41.2	31.7	5.6	40.0	38.5	53.9	15.4	100	265	
Vert.	7311.000	AV	34.4	36.7	6.9	38.5	39.5	53.9	14.4	100	0	
Vert.	12185.000	AV	41.7	39.2	-0.4	38.2	42.3	53.9	11.6	106	271	
Vert.	19496.000	AV	46.9	40.1	-2.9	47.4	36.7	53.9	17.2	100	358	

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

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

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

20dBc Data Sheet (RBW 100kHz, VBW 300kHz)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2437.000	PK	62.9	27.6	3.3	0.0	93.8	-	-	Carrier
Hori.	9748.000	PK	40.8	38.1	7.8	37.4	49.3	73.8	24.5	
Vert.	2437.000	PK	60.0	27.6	3.3	0.0	90.9	-	-	Carrier
Vert.	9748.000	PK	43.5	38.1	7.8	37.4	52.0	70.9	18.9	

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

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Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

Radiated Emission

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
 Date 2010/11/17 2010/11/22 2010/11/24 2010/11/25 2010/11/26
 Temperature / Humidity 25de.C/36% 22de.C/53% 24de.C/38% 24de.C/39% 23de.C/40%
 Engineer Tatsuya Arai Wataru Kojima Makoto Hosaka Wataru Kojima Tatsuya Arai
 Mode Tx, 2462 MHz
 IEEE802.11n (20MHz)(SISO), MCS2, PN9, -

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.	72.127	QP	26.9	6.4	7.0	32.1	8.2	40.0	31.8	300	220	
Hori.	124.550	QP	27.1	12.6	7.4	32.1	15.0	43.5	28.5	164	262	
Hori.	2483.500	PK	26.0	27.6	3.4	0.0	57.0	73.9	16.9	106	74	
Hori.	4924.000	PK	60.4	31.8	5.6	40.0	57.8	73.9	16.1	131	116	
Hori.	7386.000	PK	51.7	36.8	7.0	38.6	56.9	73.9	17.0	100	0	
Hori.	12310.000	PK	49.5	39.2	-0.2	38.0	50.5	73.9	23.4	100	293	
Hori.	19696.000	PK	56.1	40.2	-2.9	47.4	46.0	73.9	27.9	100	321	
Hori.	2483.500	AV	14.5	27.6	3.4	0.0	45.5	53.9	8.4	106	74	
Hori.	4924.000	AV	41.8	31.8	5.6	40.0	39.2	53.9	14.7	131	116	
Hori.	7386.000	AV	34.8	36.8	7.0	38.6	40.0	53.9	13.9	100	0	
Hori.	12310.000	AV	36.0	39.2	-0.2	38.0	37.0	53.9	16.9	100	293	
Hori.	19696.000	AV	53.3	40.2	-2.9	47.4	43.2	53.9	10.7	100	321	
Vert.	62.298	QP	29.4	7.7	6.9	32.1	11.9	40.0	28.1	100	2	
Vert.	71.011	QP	32.4	6.4	6.9	32.1	13.6	40.0	26.4	100	274	
Vert.	95.057	QP	31.3	9.0	7.2	32.1	15.4	43.5	28.1	100	84	
Vert.	122.353	QP	31.0	12.4	7.4	32.1	18.7	43.5	24.8	100	184	
Vert.	2483.500	PK	33.4	27.6	3.4	0.0	64.4	73.9	9.5	100	91	
Vert.	4924.000	PK	56.3	31.8	5.6	40.0	53.7	73.9	20.2	113	184	
Vert.	7386.000	PK	47.0	36.8	7.0	38.6	52.2	73.9	21.7	100	0	
Vert.	12310.000	PK	60.9	39.2	-0.2	38.0	61.9	73.9	12.0	103	271	
Vert.	19696.000	PK	50.6	40.2	-2.9	47.4	40.5	73.9	33.4	100	357	
Vert.	2483.500	AV	20.9	27.6	3.4	0.0	51.9	53.9	2.0	100	91	
Vert.	4924.000	AV	43.0	31.8	5.6	40.0	40.4	53.9	13.5	113	184	
Vert.	7386.000	AV	35.1	36.8	7.0	38.6	40.3	53.9	13.6	100	0	
Vert.	12310.000	AV	45.6	39.2	-0.2	38.0	46.5	53.9	7.4	103	271	
Vert.	19696.000	AV	45.0	40.2	-2.9	47.4	34.9	53.9	19.0	100	357	

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

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

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

20dBc Data Sheet (RBW 100kHz, VBW 300kHz)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2462.000	PK	64.9	27.6	3.4	0.0	95.9	-	-	Carrier
Hori.	9848.000	PK	39.5	38.3	8.0	37.5	48.3	75.9	27.6	
Vert.	2462.000	PK	59.8	27.6	3.4	0.0	90.8	-	-	Carrier
Vert.	9848.000	PK	45.1	38.3	8.0	37.5	53.9	70.8	16.9	

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

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Radiated Emission

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
Date 2010/11/17 2010/11/22 2010/11/24 2010/11/25 2010/11/26
Temperature / Humidity 25de.C/36% 22de.C/53% 24de.C/38% 24de.C/39% 23de.C/40%
Engineer Tatsuya Arai Wataru Kojima Makoto Hosaka Wataru Kojima Tatsuya Arai
Mode Tx, 2422 MHz
 IEEE802.11n (40MHz)(SISO), MCS3, PN9, -

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.	79.999	QP	28.5	6.2	7.0	32.1	9.6	40.0	30.4	295.0	89.0	
Hori.	117.983	QP	28.5	12.1	7.3	32.1	15.8	43.5	27.7	295.0	175.0	
Hori.	2390.000	PK	30.0	27.5	3.3	0.0	60.8	73.9	13.1	146.0	166.0	
Hori.	4844.000	PK	48.4	31.6	5.6	40.1	45.5	73.9	28.4	175.0	8.0	
Hori.	7266.000	PK	47.8	36.6	6.8	38.4	52.8	73.9	21.1	100.0	0.0	
Hori.	12110.000	PK	44.6	39.3	-0.4	38.3	45.2	73.9	28.7	100.0	332.0	
Hori.	19376.000	PK	55.3	40.1	-2.9	47.5	45.0	73.9	28.9	100.0	324.0	
Hori.	2390.000	AV	18.0	27.5	3.3	0.0	48.8	53.9	5.1	146.0	166.0	
Hori.	4844.000	AV	37.0	31.6	5.6	40.1	34.1	53.9	19.8	175.0	8.0	
Hori.	7266.000	AV	36.5	36.6	6.8	38.4	41.5	53.9	12.4	100.0	0.0	
Hori.	12110.000	AV	33.5	39.3	-0.4	38.3	34.0	53.9	19.9	100.0	332.0	
Hori.	19376.000	AV	51.9	40.1	-2.9	47.5	41.5	53.9	12.4	100.0	324.0	
Vert.	62.275	QP	28.7	7.7	6.9	32.1	11.2	40.0	28.8	100.0	120.0	
Vert.	71.037	QP	32.2	6.4	6.9	32.1	13.4	40.0	26.6	100.0	295.0	
Vert.	95.060	QP	33.5	9.0	7.2	32.1	17.6	43.5	25.9	100.0	147.0	
Vert.	122.614	QP	31.2	12.4	7.4	32.1	18.9	43.5	24.6	100.0	284.0	
Vert.	2390.000	PK	33.8	27.5	3.3	0.0	64.6	73.9	9.3	100.0	89.0	
Vert.	4844.000	PK	50.5	31.6	5.6	40.1	47.6	73.9	26.3	100.0	294.0	
Vert.	7266.000	PK	48.5	36.6	6.8	38.4	53.5	73.9	20.4	100.0	0.0	
Vert.	12110.000	PK	49.9	39.3	-0.4	38.3	50.5	73.9	23.4	107.0	274.0	
Vert.	19376.000	PK	52.3	40.1	-2.9	47.5	42.0	73.9	31.9	100.0	356.0	
Vert.	2390.000	AV	22.0	27.5	3.3	0.0	52.8	53.9	1.1	100.0	89.0	
Vert.	4844.000	AV	38.9	31.6	5.6	40.1	36.0	53.9	17.9	100.0	294.0	
Vert.	7266.000	AV	36.5	36.6	6.8	38.4	41.5	53.9	12.4	100.0	0.0	
Vert.	12110.000	AV	38.6	39.3	-0.4	38.3	39.2	53.9	14.7	107.0	274.0	
Vert.	19376.000	AV	47.2	40.1	-2.9	47.5	36.9	53.9	17.0	100.0	356.0	

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

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

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

20dBc Data Sheet (RBW 100kHz, VBW 300kHz)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2422.000	PK	58.4	27.6	3.3	0.0	89.3	-	-	Carrier
Hori.	2400.000	PK	20.0	27.5	3.3	0.0	50.8	69.3	18.5	
Hori.	9688.000	PK	40.7	38.0	7.8	37.4	49.1	69.3	20.2	
Vert.	2422.000	PK	58.1	27.6	3.3	0.0	89.0	-	-	Carrier
Vert.	2400.000	PK	24.7	27.5	3.3	0.0	55.5	69.0	13.5	
Vert.	9688.000	PK	42.3	38.0	7.8	37.4	50.7	69.0	18.3	

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

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Radiated Emission

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
 Date 2010/11/17 2010/11/22 2010/11/24 2010/11/25 2010/11/26
 Temperature / Humidity 25de.C/36% 22de.C/53% 24de.C/38% 24de.C/39% 23de.C/40%
 Engineer Tatsuya Arai Wataru Kojima Makoto Hosaka Wataru Kojima Tatsuya Arai
 Mode Tx, 2437 MHz
 IEEE802.11n (40MHz)(SISO), MCS3, PN9, -

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.	80.01	QP	28.6	6.2	7	32.1	9.7	40	30.3	300	198	
Hori.	118.004	QP	28.6	12.1	7.3	32.1	15.9	43.5	27.6	200	302	
Hori.	4874	PK	48.8	31.7	5.6	40	46.1	73.9	27.8	160	96	
Hori.	7311	PK	47	36.7	6.9	38.5	52.1	73.9	21.8	100	0	
Hori.	12185	PK	44.3	39.2	-0.4	38.2	44.9	73.9	29	100	326	
Hori.	19496	PK	55.8	40.1	-2.9	47.4	45.5	73.9	28.4	100	327	
Hori.	4874.000	AV	37.1	31.7	5.6	40	34.4	53.9	19.5	160	96	
Hori.	7311.000	AV	35.7	36.7	6.9	38.5	40.8	53.9	13.1	100	0	
Hori.	12185.000	AV	32.3	39.2	-0.4	38.2	32.8	53.9	21.1	100	326	
Hori.	19496.000	AV	52.7	40.1	-2.9	47.4	42.5	53.9	11.4	100	327	
Vert.	62.431	QP	28.4	7.7	6.9	32.1	10.9	40	29.1	100	163	
Vert.	71.024	QP	32.1	6.4	6.9	32.1	13.3	40	26.7	100	357	
Vert.	95.037	QP	32.6	9	7.2	32.1	16.7	43.5	26.8	100	2	
Vert.	122.359	QP	30.7	12.4	7.4	32.1	18.4	43.5	25.1	100	300	
Vert.	4874.000	PK	50.8	31.7	5.6	40	48.1	73.9	25.8	100	269	
Vert.	7311.000	PK	47.5	36.7	6.9	38.5	52.6	73.9	21.3	100	0	
Vert.	12185.000	PK	48	39.2	-0.4	38.2	48.6	73.9	25.3	106	271	
Vert.	19496.000	PK	51.7	40.1	-2.9	47.4	41.5	73.9	32.4	100	357	
Vert.	4874.000	AV	38.8	31.7	5.6	40	36.1	53.9	17.8	100	269	
Vert.	7311.000	AV	35.7	36.7	6.9	38.5	40.8	53.9	13.1	100	0	
Vert.	12185.000	AV	36.7	39.2	-0.4	38.2	37.3	53.9	16.6	106	271	
Vert.	19496.000	AV	46.8	40.1	-2.9	47.4	36.6	53.9	17.3	100	357	

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

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

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

20dBc Data Sheet (RBW 100kHz, VBW 300kHz)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2437.000	PK	57.3	27.6	3.3	0.0	88.2	-	-	Carrier
Hori.	9748.001	PK	41.0	38.1	7.8	37.4	49.5	68.2	18.7	
Vert.	2437.000	PK	56.4	27.6	3.3	0.0	87.3	-	-	Carrier
Vert.	9748.001	PK	42.9	38.1	7.8	37.4	51.4	67.3	15.9	

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

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Radiated Emission

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
Date 2010/11/17 2010/11/22 2010/11/24 2010/11/25 2010/11/26
Temperature / Humidity 25de.C/36% 22de.C/53% 24de.C/38% 24de.C/39% 23de.C/40%
Engineer Tatsuya Arai Wataru Kojima Makoto Hosaka Wataru Kojima Tatsuya Arai
Mode Tx, 2452 MHz
 IEEE802.11n (40MHz)(SISO), MCS3, PN9, -

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.	80.005	QP	28.6	6.2	7.0	32.1	9.7	40.0	30.3	300	278	
Hori.	118.003	QP	29.4	12.1	7.3	32.1	16.7	43.5	26.8	200	292	
Hori.	2483.500	PK	24.5	27.6	3.4	0.0	55.5	73.9	18.4	115	140	
Hori.	4904.000	PK	49.1	31.8	5.6	40.0	46.5	73.9	27.4	100	150	
Hori.	7356.000	PK	47.3	36.8	7.0	38.5	52.6	73.9	21.3	100	0	
Hori.	12260.000	PK	44.9	39.2	-0.3	38.1	45.7	73.9	28.2	100	332	
Hori.	19616.000	PK	56.0	40.2	-2.9	47.4	45.8	73.9	28.1	100	325	
Hori.	2483.500	AV	12.8	27.6	3.4	0.0	43.8	53.9	10.1	115	140	
Hori.	4904.000	AV	37.0	31.8	5.6	40.0	34.4	53.9	19.5	100	150	
Hori.	7356.000	AV	36.0	36.8	7.0	38.5	41.3	53.9	12.6	100	0	
Hori.	12260.000	AV	33.3	39.2	-0.3	38.1	34.1	53.9	19.8	100	332	
Hori.	19616.000	AV	53.1	40.2	-2.9	47.4	43.0	53.9	10.9	100	325	
Vert.	62.429	QP	28.2	7.7	6.9	32.1	10.7	40.0	29.3	100	186	
Vert.	71.010	QP	31.8	6.4	6.9	32.1	13.0	40.0	27.0	100	108	
Vert.	95.046	QP	32.7	9.0	7.2	32.1	16.8	43.5	26.7	100	231	
Vert.	122.350	QP	30.8	12.4	7.4	32.1	18.5	43.5	25.0	100	301	
Vert.	2483.500	PK	33.4	27.6	3.4	0.0	64.4	73.9	9.5	100	265	
Vert.	4904.000	PK	48.8	31.8	5.6	40.0	46.2	73.9	27.7	139	120	
Vert.	7356.000	PK	47.6	36.8	7.0	38.5	52.9	73.9	21.0	100	0	
Vert.	12260.000	PK	51.1	39.2	-0.3	38.1	51.9	73.9	22.0	106	271	
Vert.	19616.000	PK	52.1	40.2	-2.9	47.4	42.0	73.9	31.9	100	356	
Vert.	2483.500	AV	20.7	27.6	3.4	0.0	51.7	53.9	2.2	100	265	
Vert.	4904.000	AV	37.4	31.8	5.6	40.0	34.8	53.9	19.1	139	120	
Vert.	7356.000	AV	36.1	36.8	7.0	38.5	41.4	53.9	12.5	100	0	
Vert.	12260.000	AV	39.7	39.2	-0.3	38.1	40.5	53.9	13.4	106	271	
Vert.	19616.000	AV	46.4	40.2	-2.9	47.4	36.2	53.9	17.7	100	356	

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

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

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

20dBc Data Sheet (RBW 100kHz, VBW 300kHz)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2452.000	PK	62.0	27.6	3.3	0.0	92.9	-	-	Carrier
Hori.	9808.001	PK	40.4	38.2	7.9	37.5	49.0	72.9	23.9	
Vert.	2452.000	PK	57.6	27.6	3.3	0.0	88.5	-	-	Carrier
Vert.	9808.001	PK	44.1	38.2	7.9	37.5	52.7	68.5	15.8	

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

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