

**APPENDIX 2: Data of EMI test**

**Conducted Emission  
Tx 11b 11Mbps, Ch:Low**

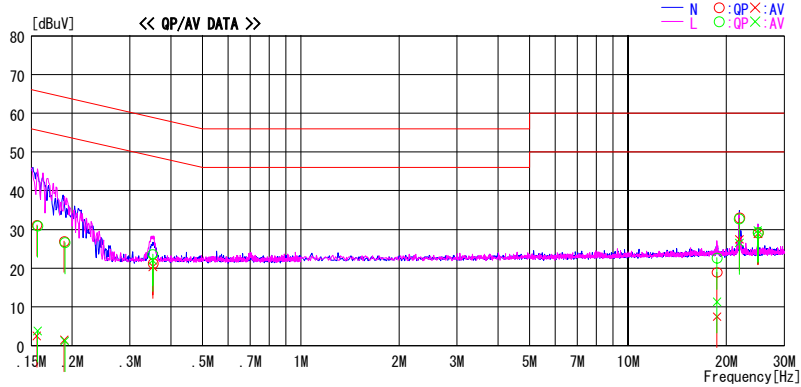
**DATA OF CONDUCTED EMISSION TEST**

UL Japan, Inc. Head Office EMC Lab. No.4 Semi Anechoic Chamber  
Date : 2007/09/13

Company : Nagano Japan Radio Co.,Ltd  
Kind of EUT : Wireless LAN Module  
Model No. : NJT-511  
Serial No. : 0013E099F133  
Report No. : 271E0024-HO  
Power : DC 3.3V  
Temp./Humi. : 26deg. C / 63%  
Operator : Shinya Watanabe

Mode / Remarks : IEEE802.11b 11Mbps Tx 2412MHz

LIMIT : FCC15.207 QP  
FCC15.207 AV



Frequency [MHz]	Reading Level		Corr. Factor	Results		Limit		Margin		Phase
	QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dB]	AV [dB]	
0.15595	30.8	2.2	0.3	31.1	2.5	65.7	55.7	34.6	53.2	N
0.18910	26.6	1.1	0.3	26.9	1.4	64.1	54.1	37.2	52.7	N
0.35315	20.9	20.0	0.3	21.2	20.3	58.9	48.9	37.7	28.6	N
18.72020	17.2	5.8	1.7	18.9	7.5	60.0	50.0	41.1	42.5	N
21.90027	31.2	25.6	1.8	33.0	27.4	60.0	50.0	27.0	22.6	N
24.98034	27.2	27.0	1.9	29.1	28.9	60.0	50.0	30.9	21.1	N
0.15680	30.6	3.5	0.3	30.9	3.8	65.6	55.6	34.7	51.8	L
0.18995	26.3	1.0	0.3	26.6	1.3	64.0	54.0	37.4	52.7	L
0.35227	23.3	21.7	0.3	23.6	22.0	58.9	48.9	35.3	26.9	L
18.72020	20.9	9.6	1.7	22.6	11.3	60.0	50.0	37.4	38.7	L
21.88530	30.9	24.7	1.8	32.7	26.5	60.0	50.0	27.3	23.5	L
24.95230	27.4	27.8	1.9	29.3	29.7	60.0	50.0	30.7	20.3	L

CHART: WITH FACTOR. Peak hold data. CALCULATION: RESULT [dBuV]=READING [dBuV]+C.F [dB] (L1 SN LOSS+CABLE LOSS)  
Except for the above table: adequate margin data below the limits.

\*The test result is rounded off to one or two decimal places, so some differences might be observed.

## Conducted Emission Tx 11b 11Mbps, Ch:Low

### DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No. 4 Semi Anechoic Chamber  
Date : 2007/09/13

Company : Nagano Japan Radio Co., Ltd  
Kind of EUT : Wireless LAN Module  
Model No. : NJT-511  
Serial No. : 0013E099F133  
Report No. : 271E0024-H0  
Power : DC 3.3V  
Temp./Humi. : 26deg. C / 63%  
Operator : Shinya Watanabe

Mode / Remarks : IEEE802.11b 11Mbps Tx 2412MHz

LIMIT : FCC15.207 QP  
FCC15.207 AV

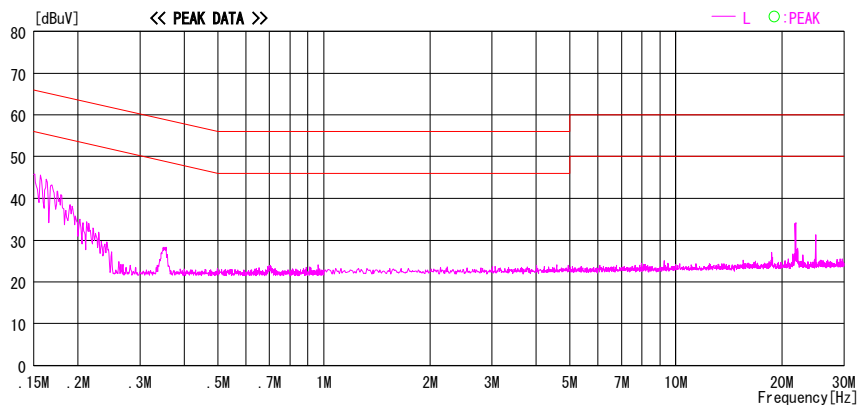
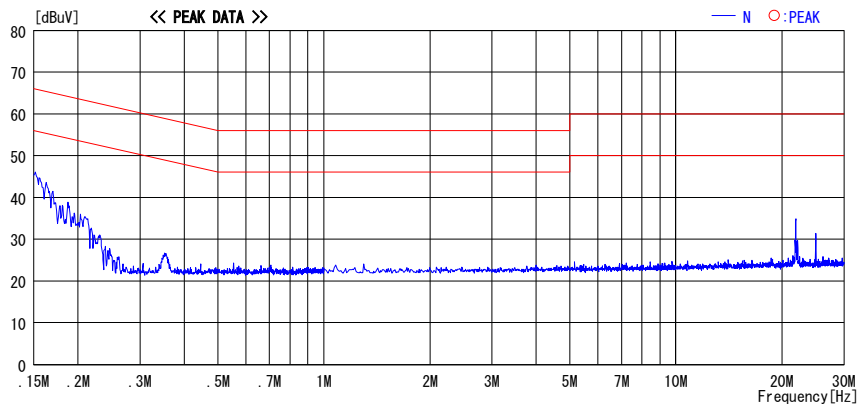


CHART: WITH FACTOR, Peak hold data. CALCULATION: RESULT [dBuV] = READING [dBuV] + C. F [dB] (LISN LOSS + CABLE LOSS)  
Except for the above table: adequate margin data below the limits.

## Conducted Emission

### Tx 11b 11Mbps, Ch:Mid

#### DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.4 Semi Anechoic Chamber  
Date : 2007/09/13

Company	: Nagano Japan Radio Co., Ltd	Report No.	: 271E0024-HO
Kind of EUT	: Wireless LAN Module	Power	: DC 3.3V
Model No.	: NJT-511	Temp./Humi.	: 28deg. C / 63%
Serial No.	: 0013E099F133	Operator	: Shinya Watanabe

Mode / Remarks : IEEE802.11b 11Mbps Tx 2437MHz

LIMIT : FCC15.207 QP  
FCC15.207 AV

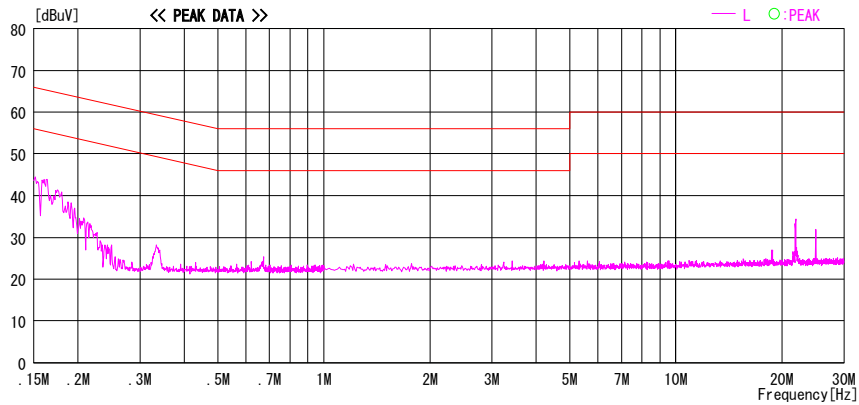
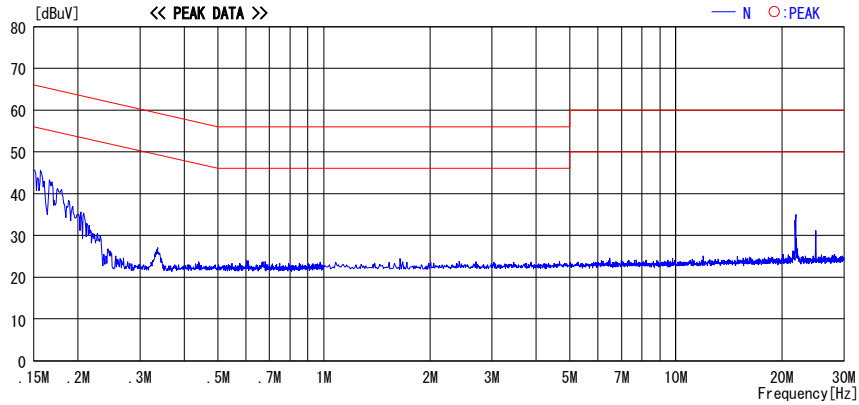


CHART: WITH FACTOR, Peak hold data. CALCULATION: RESULT[dBuV]=READING[dBuV]+C. F[dB] (LISN LOSS+CABLE LOSS)  
Except for the above table: adequate margin data below the limits.

## Conducted Emission

### Tx 11b 11Mbps, Ch:High

#### DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.4 Semi Anechoic Chamber  
Date : 2007/09/13

Company	: Nagano Japan Radio Co., Ltd	Report No.	: 271E0024-HO
Kind of EUT	: Wireless LAN Module	Power	: DC 3.3V
Model No.	: NJT-511	Temp./Humi.	: 28deg. C / 63%
Serial No.	: 0013E099F133	Operator	: Shinya Watanabe

Mode / Remarks : IEEE802.11b 11Mbps Tx 2462MHz

LIMIT : FCC15.207 QP  
FCC15.207 AV

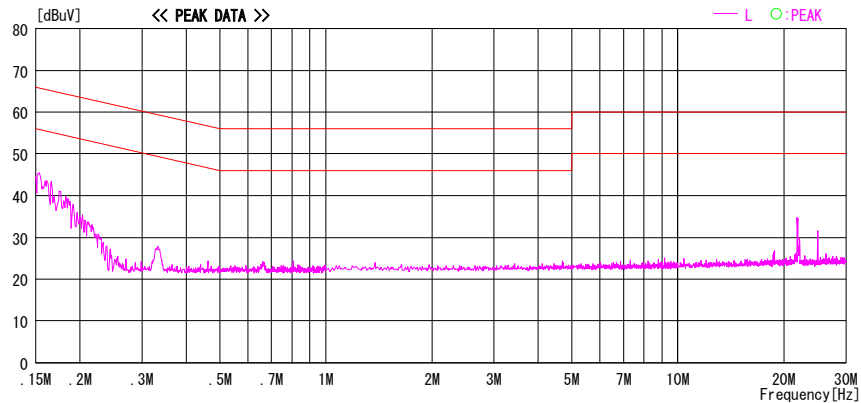
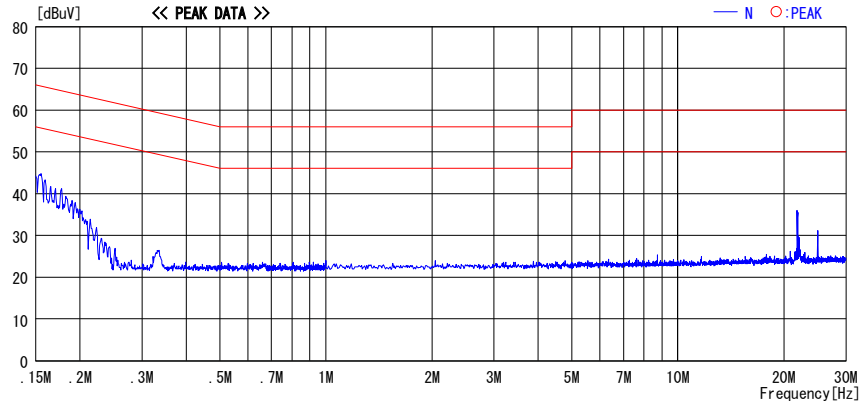


CHART: WITH FACTOR, Peak hold data. CALCULATION: RESULT[dBuV]=READING[dBuV]+C. F[dB] (LISN LOSS+CABLE LOSS)  
Except for the above table: adequate margin data below the limits.

## Conducted Emission Tx 11g 9Mbps, Ch:Low

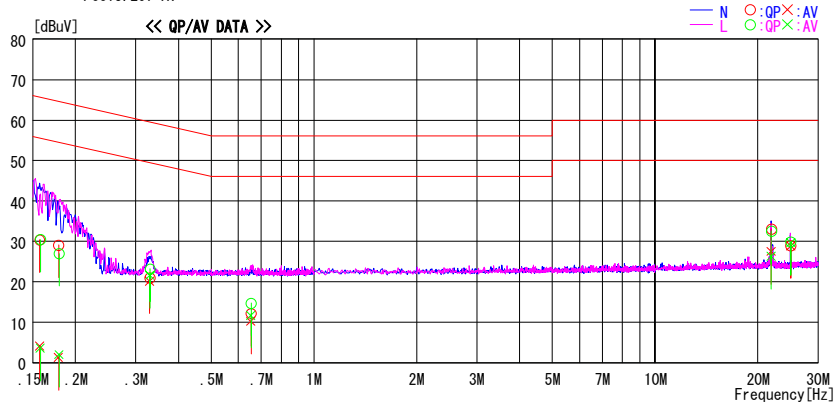
### DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No. 4 Semi Anechoic Chamber  
Date : 2007/09/13

Company : Nagano Japan Radio Co., Ltd  
Kind of EUT : Wireless LAN Module  
Model No. : NJT-511  
Serial No. : 0013E099F133  
Report No. : 271E0024-HO  
Power : DC 3.3V  
Temp./Humi. : 26deg. C / 63%  
Operator : Shinya Watanabe

Mode / Remarks : IEEE802.11g 9Mbps Tx 2412MHz

LIMIT : FCC15.207 QP  
FCC15.207 AV



Frequency [MHz]	Reading Level		Corr. Factor [dB]	Results		Limit		Margin		Phase
	QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dB]	AV [dB]	
0.15680	30.1	3.8	0.3	30.4	4.1	65.6	55.6	35.2	51.5	N
0.17805	28.8	1.0	0.3	29.1	1.3	64.6	54.6	35.5	53.3	N
0.32935	20.7	19.9	0.3	21.0	20.2	59.5	49.5	38.5	29.3	N
0.65320	11.9	9.9	0.3	12.2	10.2	56.0	46.0	43.8	35.8	N
21.90027	31.3	25.7	1.8	33.1	27.5	60.0	50.0	26.9	22.5	N
24.98034	27.0	27.0	1.9	28.9	28.9	60.0	50.0	31.1	21.1	N
0.15765	30.2	3.3	0.3	30.5	3.6	65.6	55.6	35.1	52.0	L
0.17890	26.7	1.7	0.3	27.0	2.0	64.5	54.5	37.5	52.5	L
0.33020	22.9	21.3	0.3	23.2	21.6	59.4	49.4	36.2	27.8	L
0.65320	14.4	11.4	0.3	14.7	11.7	56.0	46.0	41.3	34.3	L
21.90027	30.8	24.5	1.8	32.6	26.3	60.0	50.0	27.4	23.7	L
24.98034	28.0	27.8	1.9	29.9	29.7	60.0	50.0	30.1	20.3	L

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

\*The test result is rounded off to one or two decimal places, so some differences might be observed.

**Conducted Emission**  
**Tx 11g 9Mbps, Ch:Low**

**DATA OF CONDUCTED EMISSION TEST**

UL Japan, Inc. Head Office EMC Lab. No.4 Semi Anechoic Chamber  
Date : 2007/09/13

Company : Nagano Japan Radio Co., Ltd  
Kind of EUT : Wireless LAN Module  
Model No. : NJT-511  
Serial No. : 0013E099F133  
Report No. : 271E0024-HO  
Power : DC 3.3V  
Temp./Humi. : 28deg. C / 63%  
Operator : Shinya Watanabe

Mode / Remarks : IEEE802.11g 9Mbps Tx 2412MHz

LIMIT : FCC15.207 QP  
FCC15.207 AV

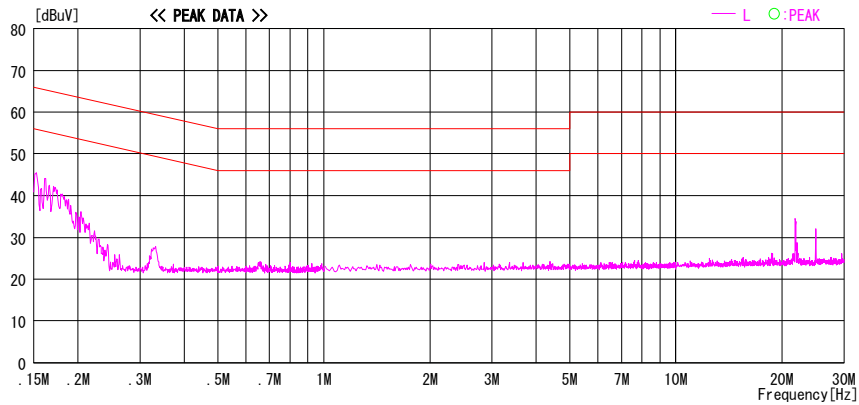
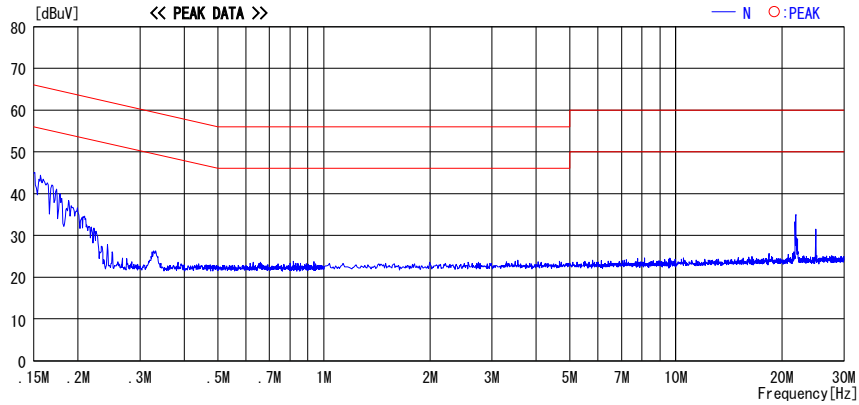


CHART: WITH FACTOR, Peak hold data. CALCULATION: RESULT[dBuV]=READING[dBuV]+C. F[dB] (LISN LOSS+CABLE LOSS)  
Except for the above table: adequate margin data below the limits.

## Conducted Emission Tx 11g 9Mbps, Ch:Mid

### DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.4 Semi Anechoic Chamber  
Date : 2007/09/13

Company	: Nagano Japan Radio Co., Ltd	Report No.	: 271E0024-HO
Kind of EUT	: Wireless LAN Module	Power	: DC 3.3V
Model No.	: NJT-511	Temp./Humi.	: 28deg. C / 63%
Serial No.	: 0013E099F133	Operator	: Shinya Watanabe

Mode / Remarks : IEEE802.11g 9Mbps Tx 2437MHz

LIMIT : FCC15.207 QP  
FCC15.207 AV

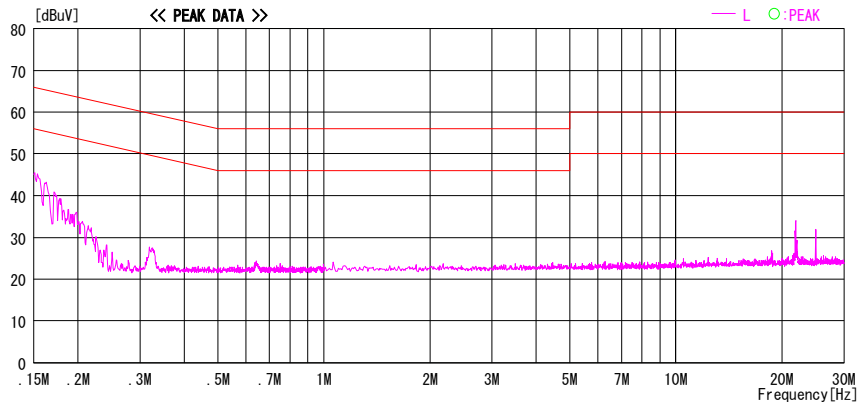
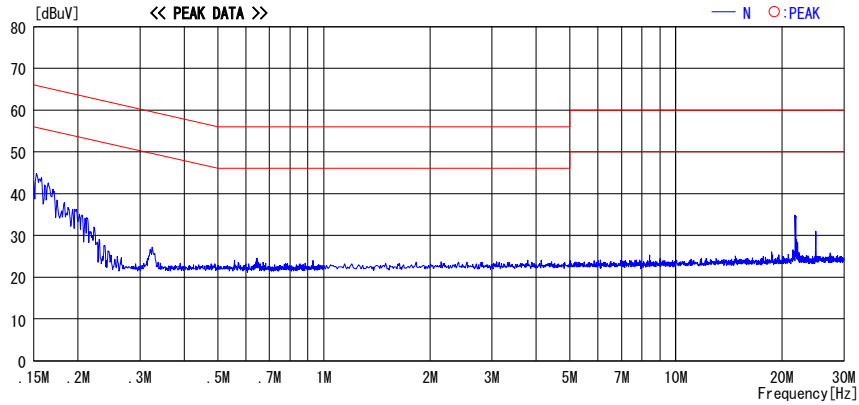


CHART: WITH FACTOR, Peak hold data. CALCULATION: RESULT[dBuV]=READING[dBuV]+C. F[dB] (LISN LOSS+CABLE LOSS)  
Except for the above table: adequate margin data below the limits.

## Conducted Emission Tx 11g 9Mbps, Ch:High

### DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.4 Semi Anechoic Chamber  
Date : 2007/09/13

Company	: Nagano Japan Radio Co., Ltd	Report No.	: 271E0024-HO
Kind of EUT	: Wireless LAN Module	Power	: DC 3.3V
Model No.	: NJT-511	Temp./Humi.	: 28deg. C / 63%
Serial No.	: 0013E099F133	Operator	: Shinya Watanabe

Mode / Remarks : IEEE802.11g 9Mbps Tx 2462MHz

LIMIT : FCC15.207 QP  
FCC15.207 AV

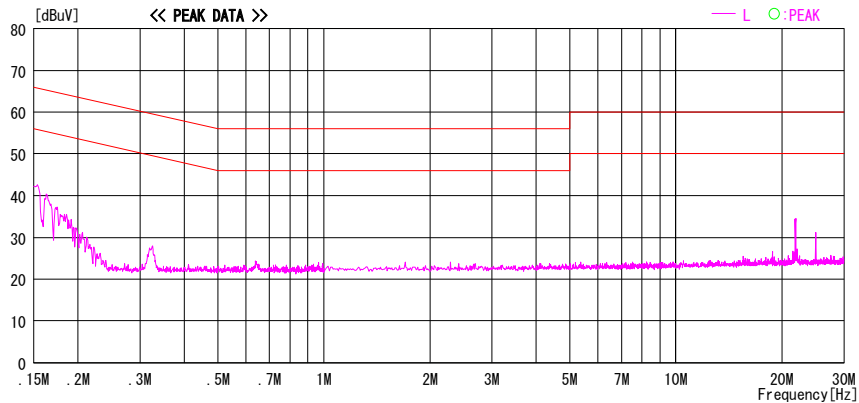
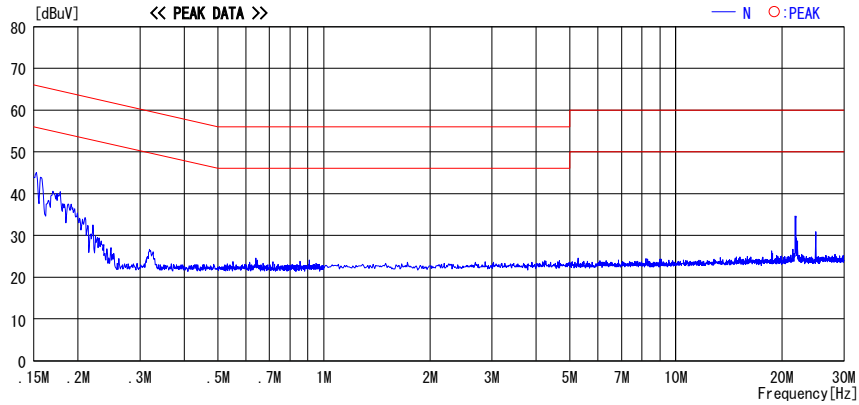


CHART: WITH FACTOR, Peak hold data. CALCULATION: RESULT[dBuV]=READING[dBuV]+C. F[dB] (LISN LOSS+CABLE LOSS)  
Except for the above table: adequate margin data below the limits.



## Conducted Emission

### Rx 11b/g , Ch:Mid

#### DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.4 Semi Anechoic Chamber  
 Date : 2007/09/13

Company	: Nagano Japan Radio Co., Ltd	Report No.	: 271E0024-HO
Kind of EUT	: Wireless LAN Module	Power	: DC 3.3V
Model No.	: NJT-511	Temp./Humi.	: 28deg. C / 63%
Serial No.	: 0013E099F133	Operator	: Shinya Watanabe

Mode / Remarks : IEEE802.11b/g Rx 2437MHz

LIMIT : FCC15.207 QP  
 FCC15.207 AV

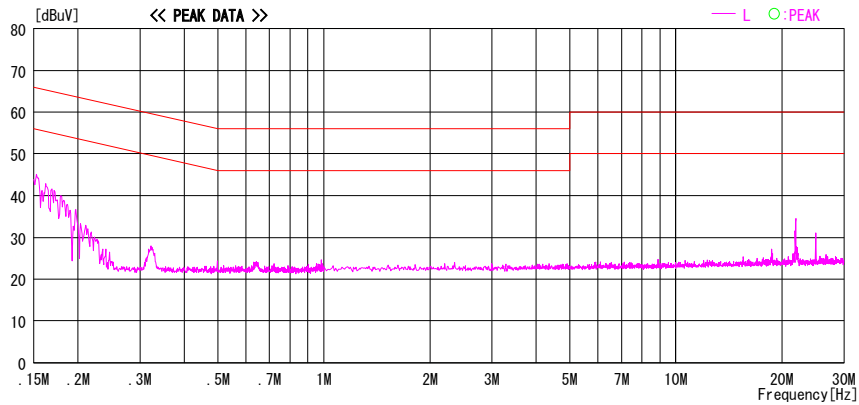
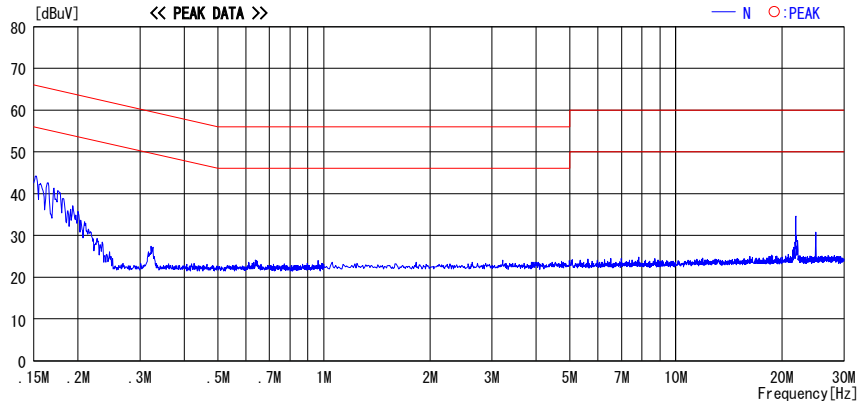


CHART: WITH FACTOR, Peak hold data. CALCULATION: RESULT[dBuV]=READING[dBuV]+C. F[dB] (LISN LOSS+CABLE LOSS)  
 Except for the above table: adequate margin data below the limits.

## 6dB Bandwidth

UL Japan, Inc.  
Head Office EMC Lab. No.6 Shielded Room

Company : Nagano Japan Radio Co., Ltd.  
Equipment : Wireless LAN Module  
Model : NJT-511  
Sample No. : 0013E0999BA0  
Power : DC3.3V  
Mode : IEEE802.11b, Tx (Ch L, M, H)  
: IEEE802.11g, Tx (Ch L, M, H)

REPORT NO : 27IE0024-HO  
REGULATION : FCC15.247(a)(2)/RSS-210A8.2(a)  
TEST DISTANCE : -  
DATE : 09/15/2007  
TEMPERATURE : 25deg.C.  
HUMIDITY : 58%  
ENGINEER : Hisayoshi Sato

### [IEEE802.11b]

Ch	Freq. [MHz]	6dB Bandwidth [MHz]	Limit [kHz]
Low	2412.0	9.954	>500
Mid	2437.0	9.959	>500
High	2462.0	9.543	>500

### [IEEE802.11g]

Ch	Freq. [MHz]	6dB Bandwidth [MHz]	Limit [kHz]
Low	2412.0	16.582	>500
Mid	2437.0	16.589	>500
High	2462.0	16.600	>500

---

**UL Japan, Inc.**

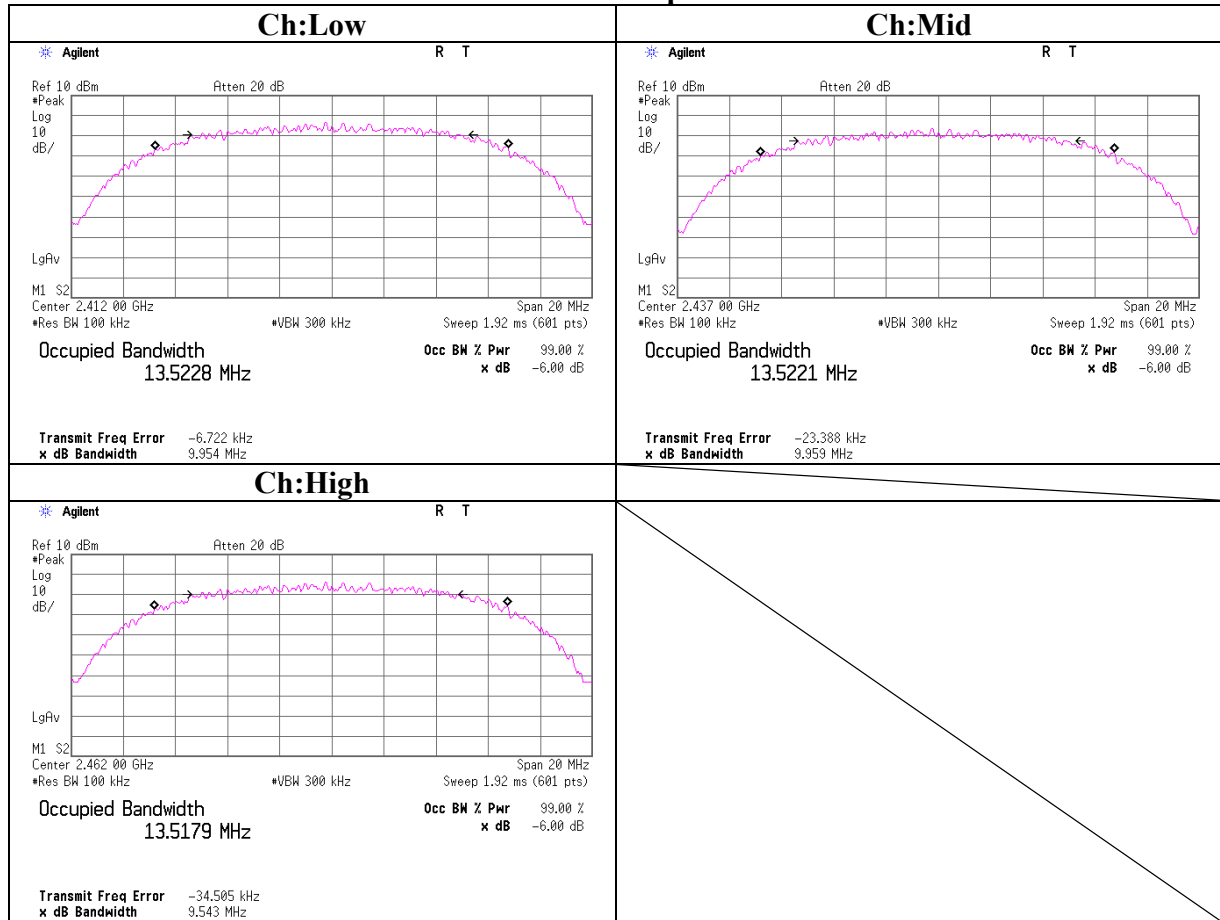
**Head Office EMC Lab.**

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

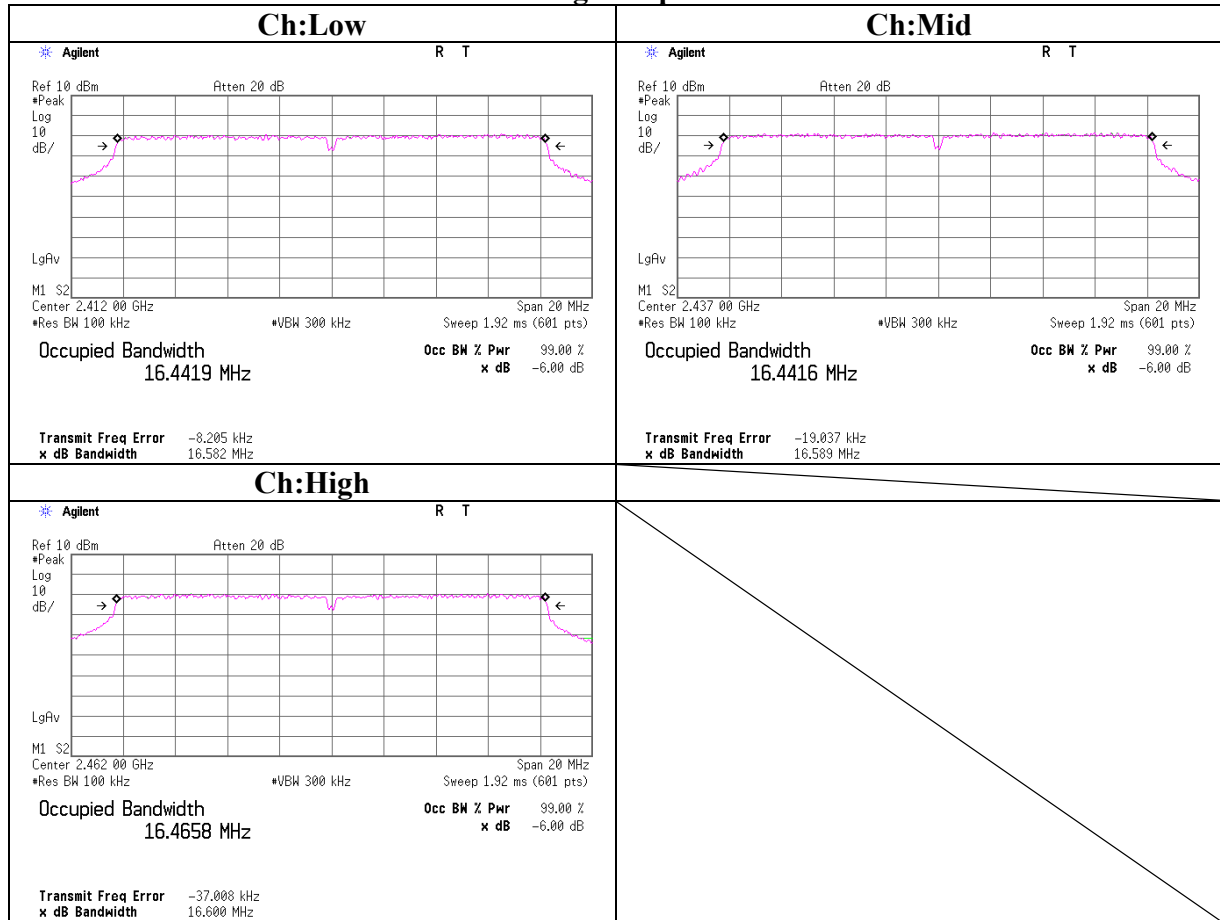
Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

**6dB Bandwidth**  
**11b 11Mbps**



**6dB Bandwidth**  
**11g 9Mbps**



## Maximum Peak Output Power

UL Japan, Inc.  
Head Office EMC Lab. No.6 Shielded Room

Company : Nagano Japan Radio Co., Ltd.	REPORT NO : 27IE0024-HO
Equipment : Wireless LAN Module	REGULATION : FCC15.247(b)(3)/RSS-210A8.4(4)
Model : NJT-511	TEST DISTANCE : -
Sample No. : 0013E0999BA0	DATE : 09/15/2007
Power : DC3.3V	TEMPERATURE : 25deg.C.
Mode : IEEE802.11b, Tx (Ch L, M, H)	HUMIDITY : 58%
: IEEE802.11g, Tx (Ch L, M, H)	ENGINEER : Hisayoshi Sato

### [IEEE802.11b 11Mbps]

Ch	Freq. [MHz]	P/M(PK) Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result		Limit		Margin [dB]
					[dBm]	[mW]	[dBm]	[mW]	
Low	2412.0	8.17	0.88	10.02	19.07	80.72	30.00	1000	10.93
Mid	2437.0	8.46	0.89	10.02	19.37	86.50	30.00	1000	10.63
High	2462.0	7.49	0.89	10.02	18.40	69.18	30.00	1000	11.60

### [IEEE802.11g 9Mbps]

Ch	Freq. [MHz]	P/M(PK) Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result		Limit		Margin [dB]
					[dBm]	[mW]	[dBm]	[mW]	
Low	2412.0	12.92	0.88	10.02	23.82	240.99	30.00	1000	6.18
Mid	2437.0	13.00	0.89	10.02	23.91	246.04	30.00	1000	6.09
High	2462.0	12.65	0.89	10.02	23.56	226.99	30.00	1000	6.44

Sample Calculation:

Result = Reading + Cable Loss (supplied by customer) + Attenuator

### Reference data for SAR testing

#### [IEEE802.11b 11Mbps] Average Power

Ch	Freq. [MHz]	P/M Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result	
					[dBm]	[mW]
Low	2412.0	5.60	0.88	10.02	16.50	44.67
Mid	2437.0	5.79	0.89	10.02	16.70	46.77
High	2462.0	4.79	0.89	10.02	15.70	37.15

#### [IEEE802.11g 9Mbps] Average Power

Ch	Freq. [MHz]	P/M Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result	
					[dBm]	[mW]
Low	2412.0	5.34	0.88	10.02	16.24	42.07
Mid	2437.0	4.79	0.89	10.02	15.70	37.15
High	2462.0	5.74	0.89	10.02	16.65	46.24

Sample Calculation:

Result = Reading + Cable Loss (supplied by customer) + Attenuator

**UL Japan, Inc.**

**Head Office EMC Lab.**

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

**Maximum Peak Output Power**  
**[Maximum rated power check]**

UL Japan, Inc.  
Head Office EMC Lab. No.6 Shielded Room

Company	: Nagano Japan Radio Co., Ltd.	REPORT NO	: 27IE0024-HO
Equipment	: Wireless LAN Module	REGULATION	: FCC15.247(b)(3)/RSS-210A8.4(4)
Model	: NJT-511	TEST DISTANCE	: -
Sample No.	: 0013E0999BA0	DATE	: 09/15/2007
Power	: DC3.3V	TEMPERATURE	: 25deg.C.
Mode	: IEEE802.11b, Tx (Ch L, M, H)	HUMIDITY	: 58%
	: IEEE802.11g, Tx (Ch L, M, H)	ENGINEER	: Hisayoshi Sato

**Rate Check(PK)**

**[IEEE802.11b]**

Rate	Freq. [MHz]	P/M Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result		Limit		Margin [dB]
					[dBm]	[mW]	[dBm]	[mW]	
1	2437.0	7.28	0.89	10.02	18.19	65.92	30.00	1000	11.81
2	2437.0	7.55	0.89	10.02	18.46	70.15	30.00	1000	11.54
5.5	2437.0	7.86	0.89	10.02	18.77	75.34	30.00	1000	11.23
11	2437.0	<b>8.46</b>	0.89	10.02	19.37	86.50	30.00	1000	10.63

**Maximum**

**[IEEE802.11g]**

Rate	Freq. [MHz]	P/M Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result		Limit		Margin [dB]
					[dBm]	[mW]	[dBm]	[mW]	
6	2437.0	12.89	0.89	10.02	23.80	239.88	30.00	1000	6.20
9	2437.0	<b>13.00</b>	0.89	10.02	23.91	246.04	30.00	1000	6.09
12	2437.0	12.75	0.89	10.02	23.66	232.27	30.00	1000	6.34
18	2437.0	12.87	0.89	10.02	23.78	238.78	30.00	1000	6.22
24	2437.0	12.46	0.89	10.02	23.37	217.27	30.00	1000	6.63
36	2437.0	12.76	0.89	10.02	23.67	232.81	30.00	1000	6.33
48	2437.0	12.81	0.89	10.02	23.72	235.50	30.00	1000	6.28
54	2437.0	12.68	0.89	10.02	23.59	228.56	30.00	1000	6.41

**Maximum**

Sample Calculation:

Result = Reading + Cable Loss (supplied by customer) + Attenuator

**Radiated Spurious Emission (below 1GHz)**  
**Tx 11b 11Mbps, Ch:Low**

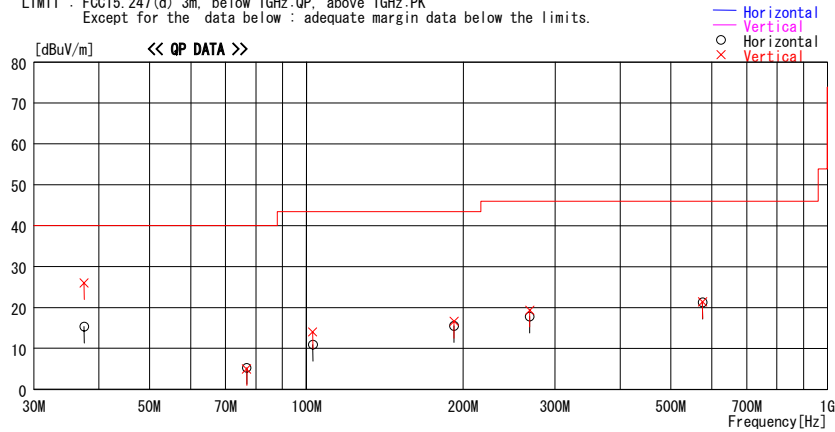
**DATA OF RADIATED EMISSION TEST**

UL Japan, Inc. Head Office EMC Lab. No.4 Semi Anechoic Chamber  
Date : 2007/09/12

Company : Nagano Japan Radio Co.,Ltd  
Kind of EUT : Wireless LAN Module  
Model No. : NJT-511  
Serial No. : 0013E099F133  
Report No. : 271E0024-HO  
Power : DC 3.3V  
Temp./Humi. : 26deg. C / 63%  
Operator : Shinya Watanabe

Mode / Remarks : IEEE802.11b 11Mbps Tx 2412MHz, Max-Axis (Hor: Z, Ver: Y)

LIMIT : FCC15.247(d) 3m, below 1GHz:QP, above 1GHz:PK  
Except for the data below : adequate margin data below the limits.



Frequency [MHz]	Reading [dBuV]	DET	Antenna	Loss&	Level [dBuV/m]	Polar.	Limit [dBuV/m]	Margin [dB]
			Factor [dB/m]	Gain [dB]				
37.434	24.7	QP	15.5	-24.8	15.4	Hori.	40.0	24.6
37.434	35.3	QP	15.5	-24.8	26.0	Vert.	40.0	14.0
76.800	22.5	QP	7.0	-24.2	5.3	Hori.	40.0	34.7
76.800	22.2	QP	7.0	-24.2	5.0	Vert.	40.0	35.0
102.870	23.9	QP	10.9	-23.9	10.9	Hori.	43.5	32.6
102.870	27.0	QP	10.9	-23.9	14.0	Vert.	43.5	29.5
192.000	21.8	QP	16.6	-22.9	15.5	Hori.	43.5	28.0
192.000	22.9	QP	16.6	-22.9	16.6	Vert.	43.5	26.9
268.240	21.9	QP	18.2	-22.3	17.8	Hori.	46.0	28.2
268.240	23.4	QP	18.2	-22.3	19.3	Vert.	46.0	26.7
576.000	21.9	QP	19.9	-20.5	21.3	Hori.	46.0	24.7
576.000	22.0	QP	19.9	-20.5	21.4	Vert.	46.0	24.6

CHART:WITH FACTOR ANT TYPE: -30MHz:LOOP, 30-300MHz:BICONICAL, 300MHz-1000MHz:LOGPERIODIC, 1000MHz:-HORN  
CALCULATION:RESULT = READING + ANT FACTOR + LOSS (CABLE+ATTEN.) - GAIN (AMP)

\*The test result is rounded off to one or two decimal places, so some differences might be observed.

**Radiated Spurious Emission (below 1GHz)**  
**Tx 11b 11Mbps, Ch: Mid**

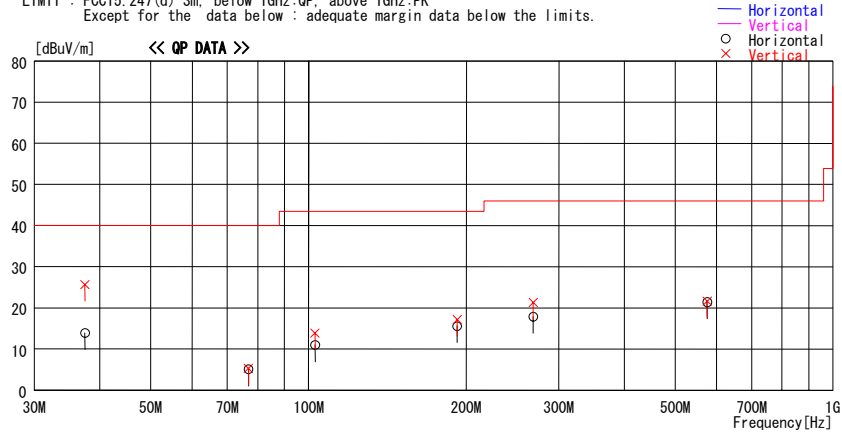
**DATA OF RADIATED EMISSION TEST**

UL Japan, Inc. Head Office EMC Lab. No.4 Semi Anechoic Chamber  
Date : 2007/09/12

Company : Nagano Japan Radio Co.,Ltd  
Kind of EUT : Wireless LAN Module  
Model No. : NJT-511  
Serial No. : 0013E099F133  
Report No. : 271E0024-HO  
Power : DC 3.3V  
Temp./Humi. : 26deg. C / 63%  
Operator : Shinya Watanabe

Mode / Remarks : IEEE802.11b 11Mbps Tx 2437MHz, Max-Axis (Hor: Z, Ver: Y)

LIMIT : FCC15.247(d) 3m, below 1GHz:QP, above 1GHz:PK  
Except for the data below : adequate margin data below the limits.



Frequency [MHz]	Reading [dBuV]	DET	Antenna	Loss&	Level [dBuV/m]	Polar.	Limit [dBuV/m]	Margin [dB]
			Factor [dB/m]	Gain [dB]				
37.445	23.2	QP	15.5	-24.8	13.9	Hori.	40.0	26.1
37.445	35.0	QP	15.5	-24.8	25.7	Vert.	40.0	14.3
76.800	22.3	QP	7.0	-24.2	5.1	Hori.	40.0	34.9
76.800	22.5	QP	7.0	-24.2	5.3	Vert.	40.0	34.7
102.870	24.0	QP	10.9	-23.9	11.0	Hori.	43.5	32.5
102.870	26.9	QP	10.9	-23.9	13.9	Vert.	43.5	29.6
192.000	21.9	QP	16.6	-22.9	15.6	Hori.	43.5	27.9
192.000	23.5	QP	16.6	-22.9	17.2	Vert.	43.5	26.3
268.246	22.0	QP	18.2	-22.3	17.9	Hori.	46.0	28.1
268.246	25.4	QP	18.2	-22.3	21.3	Vert.	46.0	24.7
576.000	22.0	QP	19.9	-20.5	21.4	Hori.	46.0	24.6
576.000	22.2	QP	19.9	-20.5	21.6	Vert.	46.0	24.4

CHART:WITH FACTOR ANT TYPE: <30MHz:LOOP, 30-300MHz:BICONICAL, 300MHz-1000MHz:LOGPERIODIC, 1000MHz->HORN  
CALCULATION:RESULT = READING + ANT FACTOR + LOSS (CABLE+ATTEN.) - GAIN (AMP)

\*The test result is rounded off to one or two decimal places, so some differences might be observed.



**Radiated Spurious Emission (below 1GHz)**  
**Tx 11b 11Mbps, Ch: High**

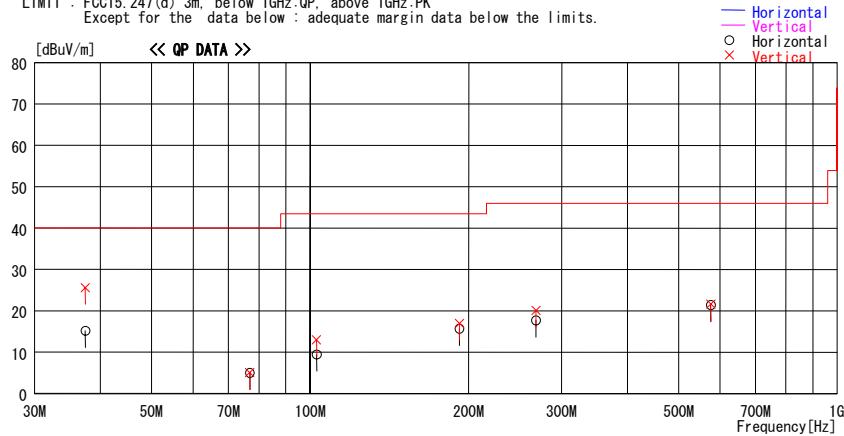
**DATA OF RADIATED EMISSION TEST**

UL Japan, Inc. Head Office EMC Lab. No.4 Semi Anechoic Chamber  
Date : 2007/09/12

Company : Nagano Japan Radio Co.,Ltd  
Kind of EUT : Wireless LAN Module  
Model No. : NJT-511  
Serial No. : 0013E099F133  
Report No. : 271E0024-H0  
Power : DC 3, 3V  
Temp./Humi. : 26deg. C / 63%  
Operator : Shinya Watanabe

Mode / Remarks : IEEE802.11b 11Mbps Tx 2462MHz, Max-Axis (Hor: Z, Ver: Y)

LIMIT : FCC15.247(d) 3m, below 1GHz:QP, above 1GHz:PK  
Except for the data below : adequate margin data below the limits.



Frequency [MHz]	Reading [dBuV]	DET	Antenna	Loss&	Level [dBuV/m]	Polar.	Limit [dBuV/m]	Margin [dB]
			Factor [dB/m]	Gain [dB]				
37.440	24.5	QP	15.5	-24.8	15.2	Hori.	40.0	24.8
37.440	34.9	QP	15.5	-24.8	25.6	Vert.	40.0	14.4
76.800	22.2	QP	7.0	-24.2	5.0	Hori.	40.0	35.0
76.800	22.3	QP	7.0	-24.2	5.1	Vert.	40.0	34.9
102.870	22.5	QP	10.9	-23.9	9.5	Hori.	43.5	34.0
102.870	26.0	QP	10.9	-23.9	13.0	Vert.	43.5	30.5
192.000	22.0	QP	16.6	-22.9	15.7	Hori.	43.5	27.8
192.000	23.2	QP	16.6	-22.9	16.9	Vert.	43.5	26.6
268.240	21.8	QP	18.2	-22.3	17.7	Hori.	46.0	28.3
268.240	24.2	QP	18.2	-22.3	20.1	Vert.	46.0	25.9
576.000	22.0	QP	19.9	-20.5	21.4	Hori.	46.0	24.6
576.000	22.2	QP	19.9	-20.5	21.6	Vert.	46.0	24.4

CHART: WITH FACTOR ANT TYPE: <30MHz>: LOOP, <30-300MHz>: BICONICAL, <300MHz-1000MHz>: LOGPERIODIC, <1000MHz->: HORN  
CALCULATION: RESULT = READING + ANT FACTOR + LOSS (CABLE+ATTEN.) - GAIN (AMP)

\*The test result is rounded off to one or two decimal places, so some differences might be observed.

**Radiated Spurious Emission (below 1GHz)**  
**Tx 11g 9Mbps, Ch:Low**

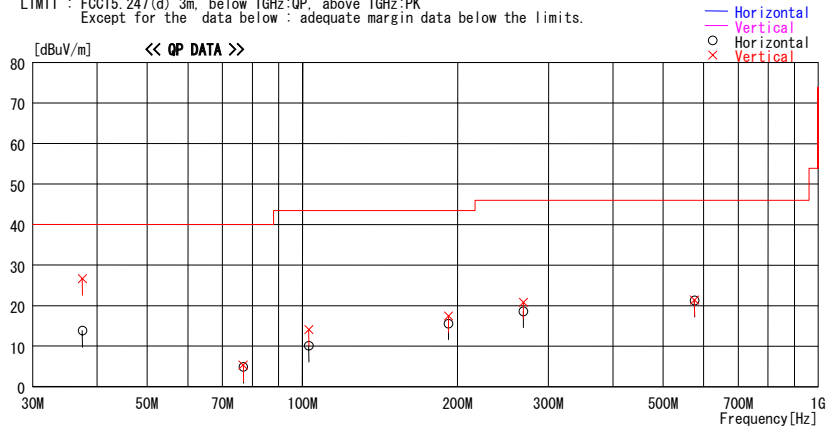
**DATA OF RADIATED EMISSION TEST**

UL Japan, Inc. Head Office EMC Lab. No. 4 Semi Anechoic Chamber  
Date : 2007/09/13

Company : Nagano Japan Radio Co., Ltd  
Kind of EUT : Wireless LAN Module  
Model No. : NJT-511  
Serial No. : 0013E099F133  
Report No. : 271E0024-HO  
Power : DC 3.3V  
Temp./Humi. : 26deg. C / 63%  
Operator : Shinya Watanabe

Mode / Remarks : IEEE802.11g 9Mbps Tx 2412MHz, Max-Axis (Hor: Z, Ver: Y)

LIMIT : FCC15.247(d) 3m, below 1GHz:QP, above 1GHz:PK  
Except for the data below : adequate margin data below the limits.



Frequency [MHz]	Reading [dBuV]	DET	Antenna	Loss&	Level [dBuV/m]	Polar.	Limit [dBuV/m]	Margin [dB]
			Factor [dB/m]	Gain [dB]				
37.434	23.1	QP	15.5	-24.8	13.8	Hori.	40.0	26.2
37.434	35.9	QP	15.5	-24.8	26.6	Vert.	40.0	13.4
76.800	22.1	QP	7.0	-24.2	4.9	Hori.	40.0	35.1
76.800	22.5	QP	7.0	-24.2	5.3	Vert.	40.0	34.7
102.890	23.1	QP	10.9	-23.9	10.1	Hori.	43.5	33.4
102.890	27.1	QP	10.9	-23.9	14.1	Vert.	43.5	29.4
192.000	21.9	QP	16.6	-22.9	15.6	Hori.	43.5	27.9
192.000	23.8	QP	16.6	-22.9	17.5	Vert.	43.5	26.0
268.240	22.7	QP	18.2	-22.3	18.6	Hori.	46.0	27.4
268.240	24.9	QP	18.2	-22.3	20.8	Vert.	46.0	25.2
576.000	21.9	QP	19.9	-20.5	21.3	Hori.	46.0	24.7
576.000	22.0	QP	19.9	-20.5	21.4	Vert.	46.0	24.6

CHART: WITH FACTOR ANT TYPE: -30MHz: LOOP, 30-300MHz: BICONICAL, 300MHz-1000MHz: LOGPERIODIC, 1000MHz-: HORN  
CALCULATION: RESULT = READING + ANT FACTOR + LOSS (CABLE+ATTEN.) - GAIN (AMP)

\*The test result is rounded off to one or two decimal places, so some differences might be observed.

**Radiated Spurious Emission (below 1GHz)**  
**Tx 11g 9Mbps, Ch: Mid**

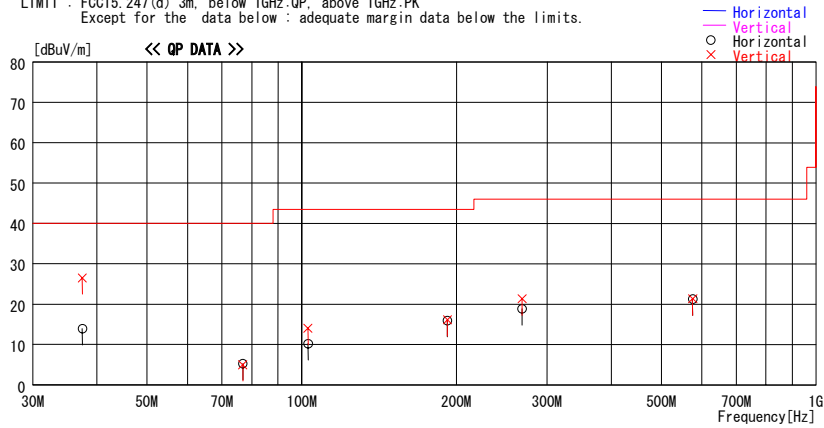
**DATA OF RADIATED EMISSION TEST**

UL Japan, Inc. Head Office EMC Lab. No.4 Semi Anechoic Chamber  
Date : 2007/09/13

Company : Nagano Japan Radio Co.,Ltd  
Kind of EUT : Wireless LAN Module  
Model No. : NJT-511  
Serial No. : 0013E099F133  
Report No. : 271E0024-H0  
Power : DC 3.3V  
Temp./Humi. : 26deg.C / 63%  
Operator : Shinya Watanabe

Mode / Remarks : IEEE802.11g 9Mbps Tx 2437MHz, Max-Axis (Hor: Z, Ver: Y)

LIMIT : FCC15.247(d) 3m, below 1GHz:QP, above 1GHz:PK  
Except for the data below : adequate margin data below the limits.



Frequency [MHz]	Reading [dBuV]	DET	Antenna	Loss&	Level [dBuV/m]	Polar.	Limit [dBuV/m]	Margin [dB]
			Factor [dB/m]	Gain [dB]				
37.434	23.2	QP	15.5	-24.8	13.9	Hori.	40.0	26.1
37.434	35.8	QP	15.5	-24.8	26.5	Vert.	40.0	13.5
76.800	22.5	QP	7.0	-24.2	5.3	Hori.	40.0	34.7
76.800	22.2	QP	7.0	-24.2	5.0	Vert.	40.0	35.0
102.870	23.2	QP	10.9	-23.9	10.2	Hori.	43.5	33.3
102.870	27.0	QP	10.9	-23.9	14.0	Vert.	43.5	29.5
192.000	22.2	QP	16.6	-22.9	15.9	Hori.	43.5	27.6
192.000	22.4	QP	16.6	-22.9	16.1	Vert.	43.5	27.4
268.240	22.9	QP	18.2	-22.3	18.8	Hori.	46.0	27.2
268.240	25.4	QP	18.2	-22.3	21.3	Vert.	46.0	24.7
576.000	21.9	QP	19.9	-20.5	21.3	Hori.	46.0	24.7
576.000	21.9	QP	19.9	-20.5	21.3	Vert.	46.0	24.7

CHART: WITH FACTOR ANT TYPE: -30MHz: LOOP, 30-300MHz: BICONICAL, 300MHz-1000MHz: LOGPERIODIC, 1000MHz-: HORN  
CALCULATION: RESULT = READING + ANT FACTOR + LOSS (CABLE+ATTEN.) - GAIN (AMP)

\*The test result is rounded off to one or two decimal places, so some differences might be observed.

**Radiated Spurious Emission (below 1GHz)**  
**Tx 11g 9Mbps, Ch:High**

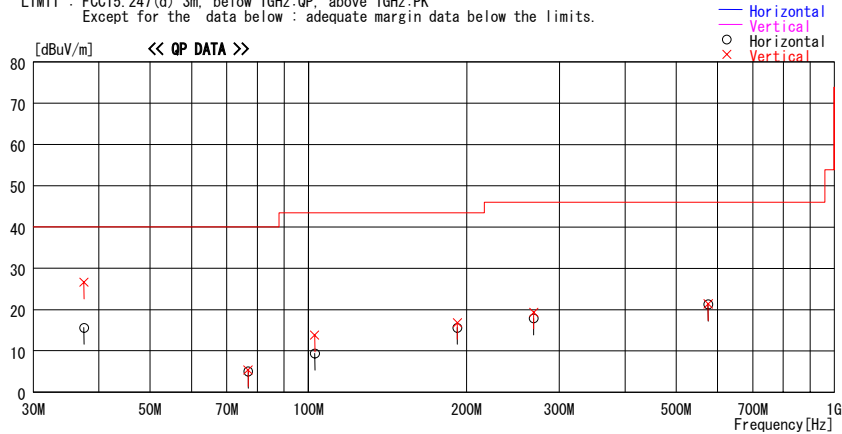
**DATA OF RADIATED EMISSION TEST**

UL Japan, Inc. Head Office EMC Lab. No. 4 Semi Anechoic Chamber  
Date : 2007/09/13

Company : Nagano Japan Radio Co.,Ltd  
Kind of EUT : Wireless LAN Module  
Model No. : NJT-511  
Serial No. : 0013E099F133  
Report No. : 271E0024-HO  
Power : DC 3.3V  
Temp./Humi. : 26deg. C / 63%  
Operator : Shinya Watanabe

Mode / Remarks : IEEE802.11g 9Mbps Tx 2462MHz, Max-Axis (Hor: Z, Ver: Y)

LIMIT : FCC15.247(d) 3m, below 1GHz:QP, above 1GHz:PK  
Except for the data below : adequate margin data below the limits.



Frequency [MHz]	Reading [dBuV]	DET	Antenna	Loss&	Level [dBuV/m]	Polar.	Limit [dBuV/m]	Margin [dB]
			Factor [dB/m]	Gain [dB]				
37.434	24.9	QP	15.5	-24.8	15.6	Hori.	40.0	24.4
37.434	35.9	QP	15.5	-24.8	26.6	Vert.	40.0	13.4
76.800	22.2	QP	7.0	-24.2	5.0	Hori.	40.0	35.0
76.800	22.6	QP	7.0	-24.2	5.4	Vert.	40.0	34.6
102.870	22.4	QP	10.9	-23.9	9.4	Hori.	43.5	34.1
102.870	26.8	QP	10.9	-23.9	13.8	Vert.	43.5	29.7
192.000	21.9	QP	16.6	-22.9	15.6	Hori.	43.5	27.9
192.000	23.1	QP	16.6	-22.9	16.8	Vert.	43.5	26.7
268.240	22.0	QP	18.2	-22.3	17.9	Hori.	46.0	28.1
268.240	23.5	QP	18.2	-22.3	19.4	Vert.	46.0	26.6
576.000	21.9	QP	19.9	-20.5	21.3	Hori.	46.0	24.7
576.000	22.0	QP	19.9	-20.5	21.4	Vert.	46.0	24.6

CHART: WITH FACTOR ANT TYPE: -30MHz: LOOP, 30-300MHz: BICONICAL, 300MHz-1000MHz: LOGPERIODIC, 1000MHz-: HORN  
CALCULATION: RESULT = READING + ANT FACTOR + LOSS (CABLE+ATTEN.) - GAIN (AMP)

\*The test result is rounded off to one or two decimal places, so some differences might be observed.

**Radiated Spurious Emission (below 1GHz)**  
**Rx 11b/g, Ch:Mid**

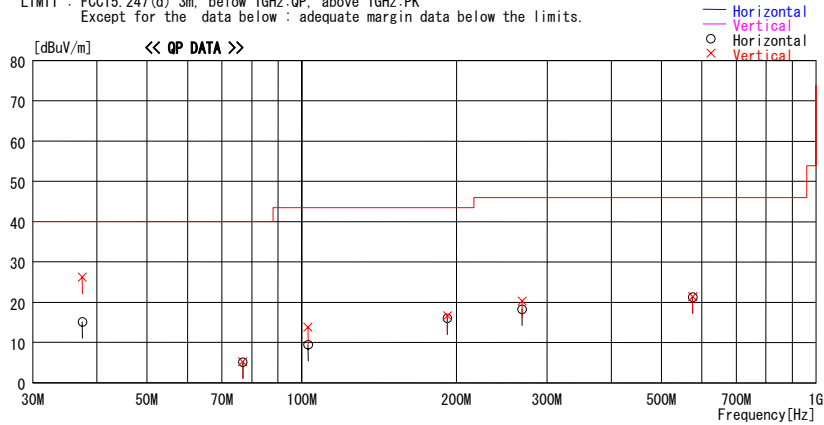
**DATA OF RADIATED EMISSION TEST**

UL Japan, Inc. Head Office EMC Lab. No.4 Semi Anechoic Chamber  
Date : 2007/09/12

Company : Nagano Japan Radio Co.,Ltd  
Kind of EUT : Wireless LAN Module  
Model No. : NJT-511  
Serial No. : 0013E099F133  
Report No. : 271E0024-HO  
Power : DC 3.3V  
Temp./Humi. : 26deg.C / 63%  
Operator : Shinya Watanabe

Mode / Remarks : IEEE802.11b/g Rx 2437MHz, Max-Axis (Hor: Z, Ver: Y)

LIMIT : FCC15.247(d) 3m, below 1GHz:QP, above 1GHz:PK  
Except for the data below : adequate margin data below the limits.



Frequency [MHz]	Reading [dBuV]	DET	Antenna	Loss&	Level [dBuV/m]	Polar.	Limit [dBuV/m]	Margin [dB]
			Factor [dB/m]	Gain [dB]				
37.434	24.4	QP	15.5	-24.8	15.1	Hori.	40.0	24.9
37.434	35.5	QP	15.5	-24.8	26.2	Vert.	40.0	13.8
76.800	22.3	QP	7.0	-24.2	5.1	Hori.	40.0	34.9
76.800	22.4	QP	7.0	-24.2	5.2	Vert.	40.0	34.8
102.870	22.5	QP	10.9	-23.9	9.5	Hori.	43.5	34.0
102.870	26.8	QP	10.9	-23.9	13.8	Vert.	43.5	29.7
192.000	22.3	QP	16.6	-22.9	16.0	Hori.	43.5	27.5
192.000	22.9	QP	16.6	-22.9	16.6	Vert.	43.5	26.9
268.240	22.4	QP	18.2	-22.3	18.3	Hori.	46.0	27.7
268.240	24.4	QP	18.2	-22.3	20.3	Vert.	46.0	25.7
576.000	21.9	QP	19.9	-20.5	21.3	Hori.	46.0	24.7
576.000	22.0	QP	19.9	-20.5	21.4	Vert.	46.0	24.6

CHART: WITH FACTOR ANT TYPE: -30MHz: LOOP, 30-300MHz: BICONICAL, 300MHz-1000MHz: LOGPERIODIC, 1000MHz-: HORN  
CALCULATION: RESULT = READING + ANT FACTOR + LOSS (CABLE+ATTEN.) - GAIN (AMP)

\*The test result is rounded off to one or two decimal places, so some differences might be observed.

**Radiated Spurious Emission (above 1GHz)**  
**Tx 11b 11Mbps, Ch:Low**

UL Japan, Inc.  
Head Office EMC Lab. No.2 Semi Anechoic Chamber

Company	: Nagano Japan Radio Co., Ltd.	REPORT NO	: 27IE0024-HO
Equipment	: Wireless LAN Module	REGULATION	: FCC15.247(d)/RSS-210A8.5
Model	: NJT-511	TEST DISTANCE	: 3/1m
Sample No.	: 0013E099F133	DATE	: 08/03/2007 : 08/05/2007
Power	: DC 3.3V	TEMPERATURE	: 25deg.C : 24deg.C
Mode	: Transmitting mode 11b (11Mbps)	HUMIDITY	: 68% : 59%
Remarks	: Hor Z, Ver Y-axis	ENGINEER	: Shinya Watanabe : Takahiro Hatakeda

**PK DETECT (RBW: 1MHz, VBW: 1MHz)**

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit PK [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2390.0	53.8	51.6	27.1	32.3	3.2	0.0	51.8	49.6	73.9	22.1	24.3
2*	2400.0	62.5	61.3	27.1	32.3	3.3	0.0	60.6	59.4	-	-	-
3	4824.0	41.0	40.1	31.2	31.6	4.5	0.8	45.9	45.0	73.9	28.0	28.9
4	7236.0	41.3	41.4	35.8	31.4	5.3	0.5	51.5	51.6	73.9	22.4	22.3
5	9648.0	41.4	42.0	38.6	31.9	6.2	0.5	54.8	55.4	73.9	19.1	18.5
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
6	24120.0	48.0	48.1	40.7	30.7	10.4	0.0	58.9	59.0	73.9	15.0	14.9

**AV DETECT (RBW: 1MHz, VBW: 10Hz)**

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit AV [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2390.0	40.0	38.3	27.1	32.3	3.2	0.0	38.0	36.3	53.9	15.9	17.6
2*	2400.0	49.8	48.3	27.1	32.3	3.3	0.0	47.9	46.4	-	-	-
3	4824.0	29.2	28.6	31.2	31.6	4.5	0.8	34.1	33.5	53.9	19.8	20.4
4	7236.0	28.8	28.8	35.8	31.4	5.3	0.5	39.0	39.0	53.9	14.9	14.9
5	9648.0	29.0	28.9	38.6	31.9	6.2	0.5	42.4	42.3	53.9	11.5	11.6
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
6	24120.0	34.8	34.9	40.7	30.7	10.4	0.0	45.7	45.8	53.9	8.2	8.1

\* Reference data

**20dBc(Fundamental 2412MHz) (RBW: 100kHz, VBW: 300kHz)**

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit 20dBc [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
0	2412.0	102.9	101.3	27.1	32.3	3.3	0.0	101.0	99.4	-	-	-
2	2400.0	51.7	49.3	27.1	32.3	3.3	0.0	49.8	47.4	Funda-20dB	31.2	32.0

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5dB

\*Except for the above table : All other spurious emissions were less than 20dB for the limit.

\*In the frequency over the fifth harmonic, the noise from the EUT was not seen.The data above is its base noise.

\*The test result is rounded off to one or two decimal places, so some differences might be observed.

\*Hi-Pass Fiter was not used for factor 0.0dB of the above table.

**Radiated Spurious Emission**  
**Tx 11b 11Mbps, Ch:Mid**

UL Japan, Inc.  
Head Office EMC Lab. No.2 Semi Anechoic Chamber

Company	: Nagano Japan Radio Co., Ltd.	REPORT NO	: 27IE0024-HO
Equipment	: Wireless LAN Module	REGULATION	: FCC15.247(d)/RSS-210A8.5
Model	: NJT-511	TEST DISTANCE	: 3/1m
Sample No.	: 0013E099F133	DATE	: 08/03/2007 : 08/05/2007
Power	: DC 3.3V	TEMPERATURE	: 25deg.C : 24deg.C
Mode	: Transmitting mode 11b (11Mbps)	HUMIDITY	: 68% : 59%
Remarks	: Hor Z, Ver Y-axis	ENGINEER	: Shinya Watanabe : Takahiro Hatakeda

**PK DETECT** (RBW: 1MHz, VBW: 1MHz)

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit PK [dBuV/m]	MARGIN	
		HOR [dBuV]	VER					HOR	VER		HOR	VER
<b>Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss</b>												
1	4874.0	40.7	40.7	31.4	31.6	4.5	0.7	45.7	45.7	73.9	28.2	28.2
2	7311.0	40.9	41.2	35.9	31.4	5.3	0.5	51.2	51.5	73.9	22.7	22.4
3	9748.0	40.9	41.3	38.7	32.0	6.2	0.4	54.2	54.6	73.9	19.7	19.3
<b>Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac</b>												
4	24370.0	47.6	47.8	40.7	30.6	10.4	0.0	58.6	58.8	73.9	15.3	15.1

**AV DETECT** (RBW: 1MHz, VBW: 10Hz)

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit AV [dBuV/m]	MARGIN	
		HOR [dBuV]	VER					HOR	VER		HOR	VER
<b>Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss</b>												
1	4874.0	28.1	28.1	31.4	31.6	4.5	0.7	33.1	33.1	53.9	20.8	20.8
2	7311.0	28.1	28.1	35.9	31.4	5.3	0.5	38.4	38.4	53.9	15.5	15.5
3	9748.0	28.6	28.4	38.7	32.0	6.2	0.4	41.9	41.7	53.9	12.0	12.2
<b>Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac</b>												
4	24370.0	34.5	34.5	40.7	30.6	10.4	0.0	45.5	45.5	53.9	8.4	8.4

\* Reference data

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5dB

\*Except for the above table : All other spurious emissions were less than 20dB for the limit.

\*In the frequency over the fifth harmonic, the noise from the EUT was not seen. The data above is its base noise.

\*The test result is rounded off to one or two decimal places, so some differences might be observed.

\*Hi-Pass Fiter was not used for factor 0.0dB of the above table.

**Radiated Spurious Emission**  
**Tx 11b 11Mbps, Ch:High**

UL Japan, Inc.  
Head Office EMC Lab. No.2 Semi Anechoic Chamber

Company	: Nagano Japan Radio Co., Ltd.	REPORT NO	: 27IE0024-HO
Equipment	: Wireless LAN Module	REGULATION	: FCC15.247(d)/RSS-210A8.5
Model	: NJT-511	TEST DISTANCE	: 3/1m
Sample No.	: 0013E099F133	DATE	: 08/03/2007 : 08/05/2007
Power	: DC 3.3V	TEMPERATURE	: 25deg.C : 24deg.C
Mode	: Transmitting mode 11b (11Mbps)	HUMIDITY	: 68% : 59%
Remarks	: Hor Z, Ver Y-axis	ENGINEER	: Shinya Watanabe : Takahiro Hatakeda

**PK DETECT (RBW: 1MHz, VBW: 1MHz)**

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit PK [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
<b>Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss</b>												
1	2483.5	51.5	53.7	27.2	32.3	3.1	0.0	49.5	51.7	73.9	24.4	22.2
2	2550.6	54.5	54.8	27.4	32.3	3.2	0.0	52.8	53.1	73.9	21.1	20.8
3	4924.0	40.8	40.8	31.5	31.6	4.6	0.7	46.0	46.0	73.9	27.9	27.9
4	7386.0	40.7	42.2	36.1	31.4	5.4	0.5	51.3	52.8	73.9	22.6	21.1
5	9848.0	41.1	41.0	38.8	32.0	6.2	0.3	54.4	54.3	73.9	19.5	19.6
<b>Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac</b>												
6	24620.0	47.0	47.0	40.8	30.6	10.6	0.0	58.3	58.3	73.9	15.6	15.6

**AV DETECT (RBW: 1MHz, VBW: 10Hz)**

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit AV [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
<b>Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss</b>												
1	2483.5	38.5	39.7	27.2	32.3	3.1	0.0	36.5	37.7	53.9	17.4	16.2
2	2550.6	41.9	42.0	27.4	32.3	3.2	0.0	40.2	40.3	53.9	13.7	13.6
3	4924.0	28.1	28.6	31.5	31.6	4.6	0.7	33.3	33.8	53.9	20.6	20.1
4	7386.0	28.1	28.0	36.1	31.4	5.4	0.5	38.7	38.6	53.9	15.2	15.3
5	9848.0	28.6	28.5	38.8	32.0	6.2	0.3	41.9	41.8	53.9	12.0	12.1
<b>Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac</b>												
6	24620.0	33.7	33.7	40.8	30.6	10.6	0.0	45.0	45.0	53.9	8.9	8.9

\* Reference data

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5dB

\*Except for the above table : All other spurious emissions were less than 20dB for the limit.

\*In the frequency over the fifth harmonic, the noise from the EUT was not seen. The data above is its base noise.

\*The test result is rounded off to one or two decimal places, so some differences might be observed.

\*Hi-Pass Filter was not used for factor 0.0dB of the above table.



**Radiated Spurious Emission (above 1GHz)**  
**Tx 11g 9Mbps, Ch:Low**

UL Japan, Inc.  
Head Office EMC Lab. No.2 Semi Anechoic Chamber

Company	: Nagano Japan Radio Co., Ltd.	REPORT NO	: 27IE0024-HO
Equipment	: Wireless LAN Module	REGULATION	: FCC15.247(d)/RSS-210A8.5
Model	: NJT-511	TEST DISTANCE	: 3/1m
Sample No.	: 0013E099F133	DATE	: 08/03/2007 : 08/05/2007
Power	: DC 3.3V	TEMPERATURE	: 25deg.C : 24deg.C
Mode	: Transmitting mode 11g (9Mbps)	HUMIDITY	: 68% : 59%
Remarks	: Hor Z, Ver Y-axis	ENGINEER	: Shinya Watanabe : Takahiro Hatakeda

**PK DETECT (RBW: 1MHz, VBW: 1MHz)**

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit PK [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
<b>Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss</b>												
1	2390.0	64.1	61.8	27.1	32.3	3.2	0.0	62.1	59.8	73.9	11.8	14.1
2*	2400.0	78.0	76.8	27.1	32.3	3.3	0.0	76.1	74.9	-	-	-
3	4824.0	41.2	41.4	31.2	31.6	4.5	0.8	46.1	46.3	73.9	27.8	27.6
4	7236.0	41.1	40.7	35.8	31.4	5.3	0.5	51.3	50.9	73.9	22.6	23.0
5	9648.0	41.0	40.8	38.6	31.9	6.2	0.5	54.4	54.2	73.9	19.5	19.7
<b>Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac</b>												
6	24120.0	48.2	48.7	40.7	30.7	10.4	0.0	59.1	59.6	73.9	14.8	14.3

**AV DETECT (RBW: 1MHz, VBW: 10Hz)**

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit AV [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
<b>Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss</b>												
1	2390.0	46.1	44.3	27.1	32.3	3.2	0.0	44.1	42.3	53.9	9.8	11.6
2*	2400.0	56.6	55.1	27.1	32.3	3.3	0.0	54.7	53.2	-	-	-
3	4824.0	28.1	28.6	31.2	31.6	4.5	0.8	33.0	33.5	53.9	20.9	20.4
4	7236.0	28.3	28.8	35.8	31.4	5.3	0.5	38.5	39.0	53.9	15.4	14.9
5	9648.0	28.7	29.0	38.6	31.9	6.2	0.5	42.1	42.4	53.9	11.8	11.5
<b>Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac</b>												
6	24120.0	35.1	35.1	40.7	30.7	10.4	0.0	46.0	46.0	53.9	7.9	7.9

\* Reference data

**20dBc(Fundamental 2412MHz) (RBW: 100kHz, VBW: 300kHz)**

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit 20dBc [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
<b>Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss</b>												
0	2412.0	94.5	93.6	27.1	32.3	3.3	0.0	92.6	91.7	-	-	-
2	2400.0	61.8	60.3	27.1	32.3	3.3	0.0	59.9	58.4	Funda-20dB	12.7	13.3

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5dB

\*Except for the above table : All other spurious emissions were less than 20dB for the limit.

\*In the frequency over the fifth harmonic, the noise from the EUT was not seen.The data above is its base noise.

\*The test result is rounded off to one or two decimal places, so some differences might be observed.

\*Hi-Pass Fiter was not used for factor 0.0dB of the above table.

**Radiated Spurious Emission**  
**Tx 11g 9Mbps, Ch:Mid**

UL Japan, Inc.  
Head Office EMC Lab. No.2 Semi Anechoic Chamber

Company	: Nagano Japan Radio Co., Ltd.	REPORT NO	: 27IE0024-HO
Equipment	: Wireless LAN Module	REGULATION	: FCC15.247(d)/RSS-210A8.5
Model	: NJT-511	TEST DISTANCE	: 3/1m
Sample No.	: 0013E099F133	DATE	: 08/03/2007 : 08/05/2007
Power	: DC 3.3V	TEMPERATURE	: 25deg.C : 24deg.C
Mode	: Transmitting mode 11g (9Mbps)	HUMIDITY	: 68% : 59%
Remarks	: Hor Z, Ver Y-axis	ENGINEER	: Shinya Watanabe : Takahiro Hatakeda

**PK DETECT (RBW: 1MHz, VBW: 1MHz)**

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit PK [dBuV/m]	MARGIN	
		HOR [dBuV]	VER					HOR	VER		HOR	VER
<b>Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss</b>												
1	2570.3	55.1	53.6	27.4	32.3	3.2	0.0	53.4	51.9	73.9	20.5	22.0
2	4874.0	41.0	41.9	31.4	31.6	4.5	0.7	46.0	46.9	73.9	27.9	27.0
3	7311.0	41.9	42.0	35.9	31.4	5.3	0.5	52.2	52.3	73.9	21.7	21.6
4	9748.0	41.9	41.6	38.7	32.0	6.2	0.4	55.2	54.9	73.9	18.7	19.0
<b>Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac</b>												
5	24370.0	48.2	47.7	40.7	30.6	10.4	0.0	59.2	58.7	73.9	14.7	15.2

**AV DETECT (RBW: 1MHz, VBW: 10Hz)**

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit AV [dBuV/m]	MARGIN	
		HOR [dBuV]	VER					HOR	VER		HOR	VER
<b>Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss</b>												
1	2570.3	41.0	41.0	27.4	32.3	3.2	0.0	39.3	39.3	53.9	14.6	14.6
2	4874.0	28.7	28.7	31.4	31.6	4.5	0.7	33.7	33.7	53.9	20.2	20.2
3	7311.0	28.8	28.7	35.9	31.4	5.3	0.5	39.1	39.0	53.9	14.8	14.9
4	9748.0	28.7	29.0	38.7	32.0	6.2	0.4	42.0	42.3	53.9	11.9	11.6
<b>Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac</b>												
5	24370.0	34.4	34.4	40.7	30.6	10.4	0.0	45.4	45.4	53.9	8.5	8.5

\* Reference data

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5dB

\*Except for the above table : All other spurious emissions were less than 20dB for the limit.

\*In the frequency over the fifth harmonic, the noise from the EUT was not seen. The data above is its base noise.

\*The test result is rounded off to one or two decimal places, so some differences might be observed.

\*Hi-Pass Filter was not used for factor 0.0dB of the above table.

**Radiated Spurious Emission**  
**Tx 11g 9Mbps, Ch:High**

UL Japan, Inc.  
Head Office EMC Lab. No.2 Semi Anechoic Chamber

Company	: Nagano Japan Radio Co., Ltd.	REPORT NO	: 27IE0024-HO
Equipment	: Wireless LAN Module	REGULATION	: FCC15.247(d)/RSS-210A8.5
Model	: NJT-511	TEST DISTANCE	: 3/1m
Sample No.	: 0013E099F133	DATE	: 08/03/2007 : 08/05/2007
Power	: DC 3.3V	TEMPERATURE	: 25deg.C : 24deg.C
Mode	: Transmitting mode 11g (9Mbps)	HUMIDITY	: 68% : 59%
Remarks	: Hor Z, Ver Y-axis	ENGINEER	: Shinya Watanabe : Takahiro Hatakeda

**PK DETECT (RBW: 1MHz, VBW: 1MHz)**

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit PK [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
<b>Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss</b>												
1	2483.5	63.7	62.4	27.2	32.3	3.1	0.0	61.7	60.4	73.9	12.2	13.5
2	4924.0	41.7	40.9	31.5	31.6	4.6	0.7	46.9	46.1	73.9	27.0	27.8
3	7386.0	40.9	40.4	36.1	31.4	5.4	0.5	51.5	51.0	73.9	22.4	22.9
4	9848.0	40.4	41.1	38.8	32.0	6.2	0.3	53.7	54.4	73.9	20.2	19.5
<b>Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac</b>												
5	24620.0	46.7	46.8	40.8	30.6	10.6	0.0	58.0	58.1	73.9	15.9	15.8

**AV DETECT (RBW: 1MHz, VBW: 10Hz)**

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit AV [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
<b>Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss</b>												
1	2483.5	46.8	45.4	27.2	32.3	3.1	0.0	44.8	43.4	53.9	9.1	10.5
2	4924.0	28.5	28.6	31.5	31.6	4.6	0.7	33.7	33.8	53.9	20.2	20.1
3	7386.0	28.7	28.7	36.1	31.4	5.4	0.5	39.3	39.3	53.9	14.6	14.6
4	9848.0	29.2	29.2	38.8	32.0	6.2	0.3	42.5	42.5	53.9	11.4	11.4
<b>Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac</b>												
5	24620.0	33.6	33.6	40.8	30.6	10.6	0.0	44.9	44.9	53.9	9.0	9.0

\* Reference data

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5dB

\*Except for the above table : All other spurious emissions were less than 20dB for the limit.

\*In the frequency over the fifth harmonic, the noise from the EUT was not seen.The data above is its base noise.

\*The test result is rounded off to one or two decimal places, so some differences might be observed.

\*Hi-Pass Fiter was not used for factor 0.0dB of the above table.

**Radiated Spurious Emission**  
**Rx 11b/g, Ch:Mid**

UL Japan, Inc.  
Head Office EMC Lab. No.2 Semi Anechoic Chamber

Company	: Nagano Japan Radio Co., Ltd.	REPORT NO	: 27IE0024-HO
Equipment	: Wireless LAN Module	REGULATION	: FCC15.247(d)/RSS-210A8.5
Model	: NJT-511	TEST DISTANCE	: 3m
Sample No.	: 0013E099F133	DATE	: 08/03/2007
Power	: DC 3.3V	TEMPERATURE	: 25deg.C
Mode	: Receiving mode 11b/g	HUMIDITY	: 68%
Remarks	: Hor Z, Ver Y-axis	ENGINEER	: Shinya Watanabe

**PK DETECT** (RBW: 1MHz, VBW: 1MHz)

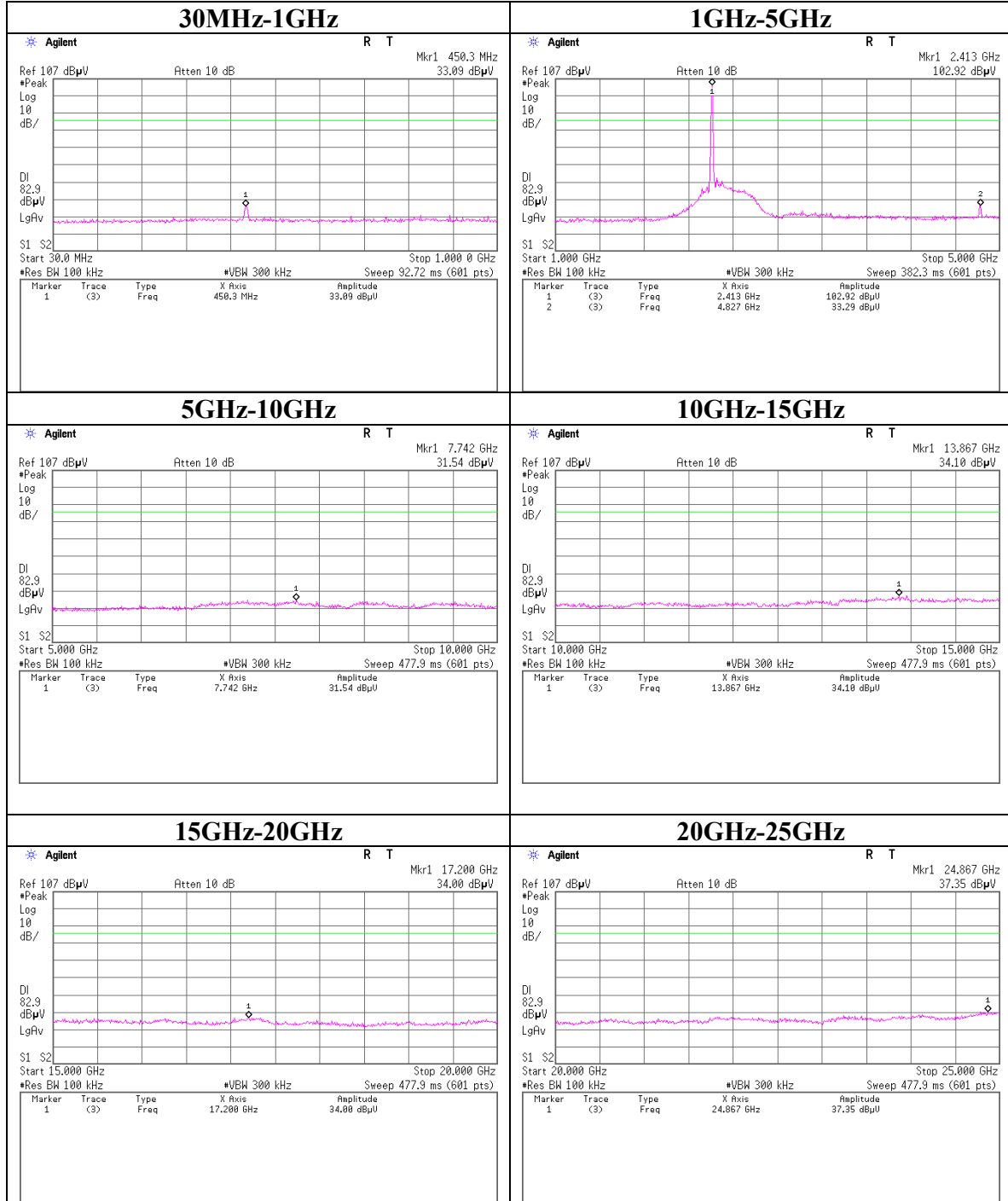
No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit PK [dBuV/m]	MARGIN	
		HOR [dBuV]	VER [dBuV]					HOR [dBuV/m]	VER [dBuV/m]		HOR [dB]	VER [dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2437.0	42.4	42.3	27.2	32.3	3.3	0.0	40.6	40.5	73.9	33.3	33.4
2	4874.0	40.3	40.3	31.4	31.6	4.5	0.0	44.6	44.6	73.9	29.3	29.3
3	7311.0	40.3	40.3	35.9	31.4	5.3	0.0	50.1	50.1	73.9	23.8	23.8
4	9748.0	41.7	41.6	38.7	32.0	6.2	0.0	54.6	54.5	73.9	19.3	19.4

**AV DETECT** (RBW: 1MHz, VBW: 10Hz)

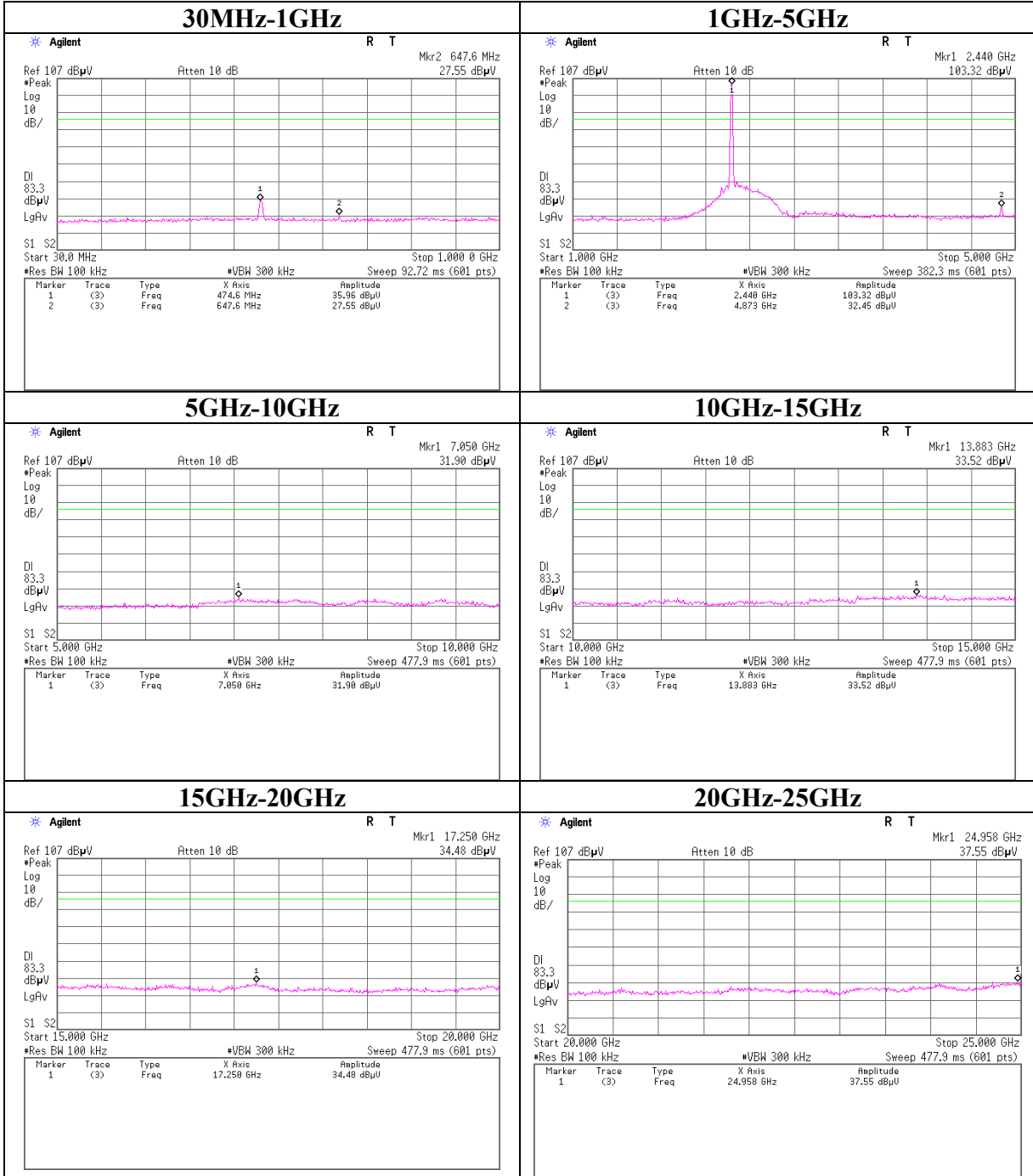
No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit AV [dBuV/m]	MARGIN	
		HOR [dBuV]	VER [dBuV]					HOR [dBuV/m]	VER [dBuV/m]		HOR [dB]	VER [dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2437.0	30.0	30.0	27.2	32.3	3.3	0.0	28.2	28.2	53.9	25.7	25.7
2	4874.0	28.6	28.5	31.4	31.6	4.5	0.0	32.9	32.8	53.9	21.0	21.1
3	7311.0	28.7	28.7	35.9	31.4	5.3	0.0	38.5	38.5	53.9	15.4	15.4
4	9748.0	29.6	29.6	38.7	32.0	6.2	0.0	42.5	42.5	53.9	11.4	11.4

\*Except for the above table : All other spurious emissions were less than 20dB for the limit.  
\*In the frequency over the fifth harmonic, the noise from the EUT was not seen. The data above is its base noise.  
\*The test result is rounded off to one or two decimal places, so some differences might be observed.  
\*Hi-Pass Filter was not used for factor 0.0dB of the above table.

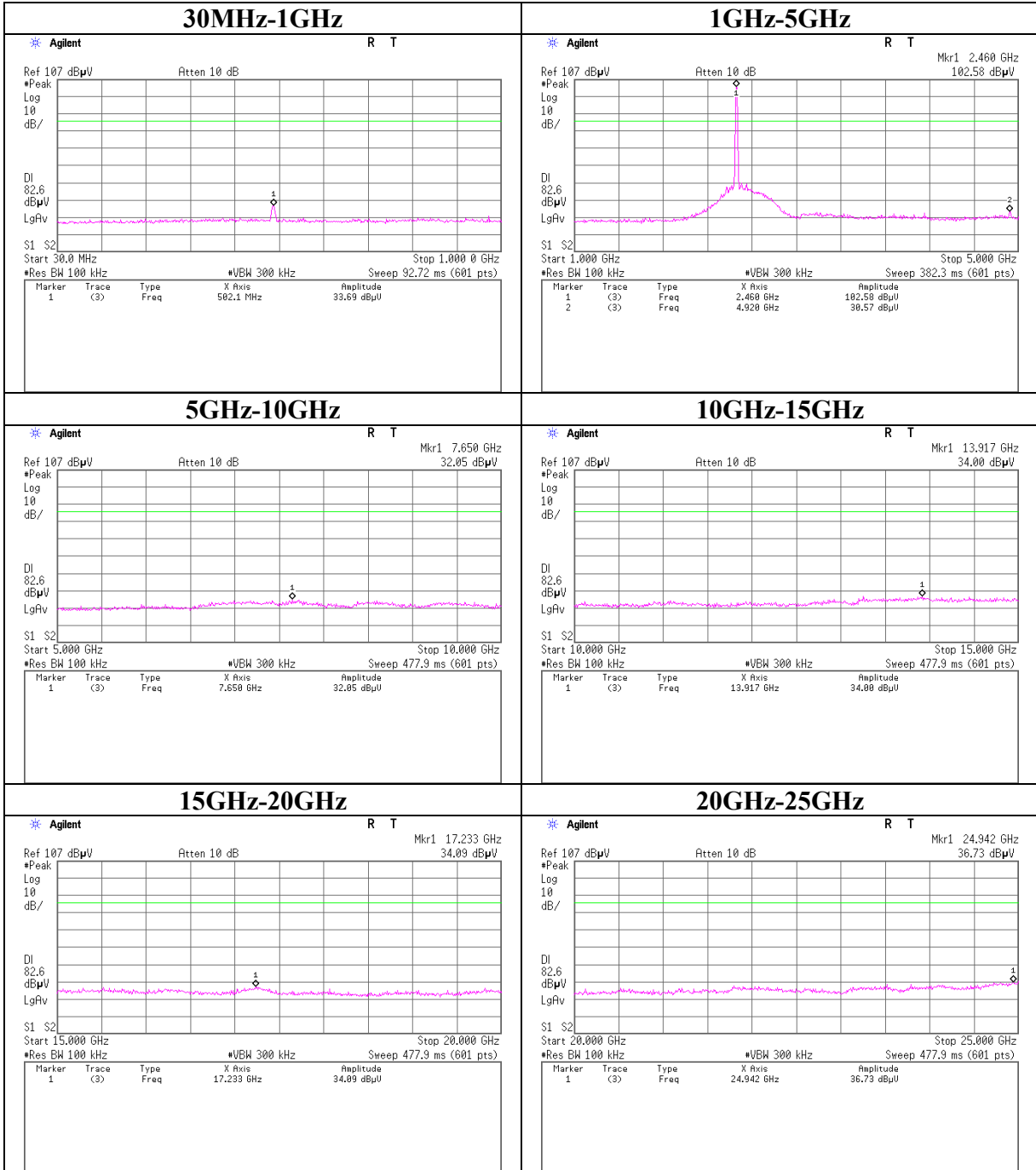
**Conducted Spurious Emission**  
**Tx 11b 11Mbps, Ch: Low**



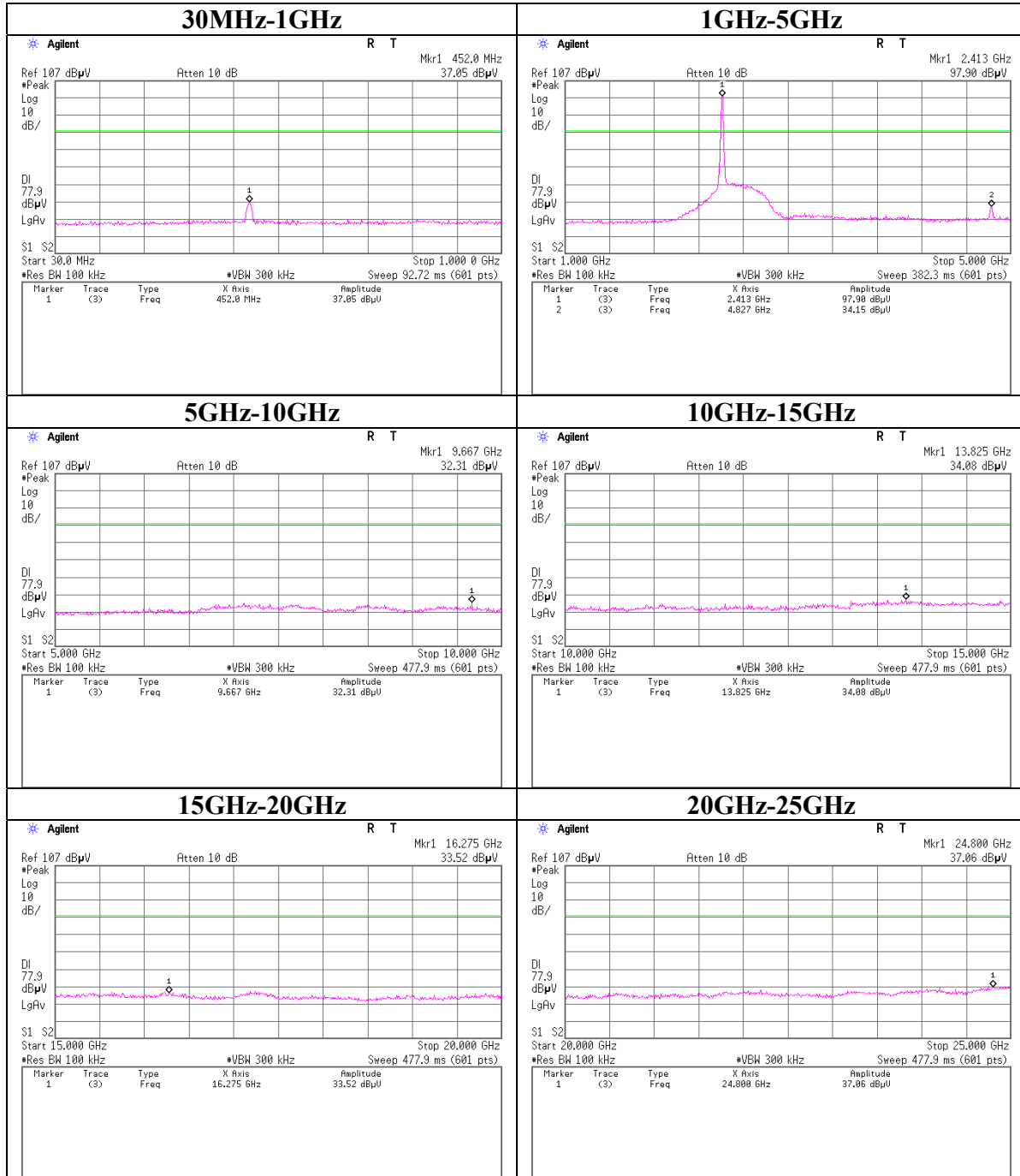
**Conducted Spurious Emission**  
**Tx 11b 11Mbps, Ch: Mid**



**Conducted Spurious Emission**  
**Tx 11b 11Mbps, Ch: High**

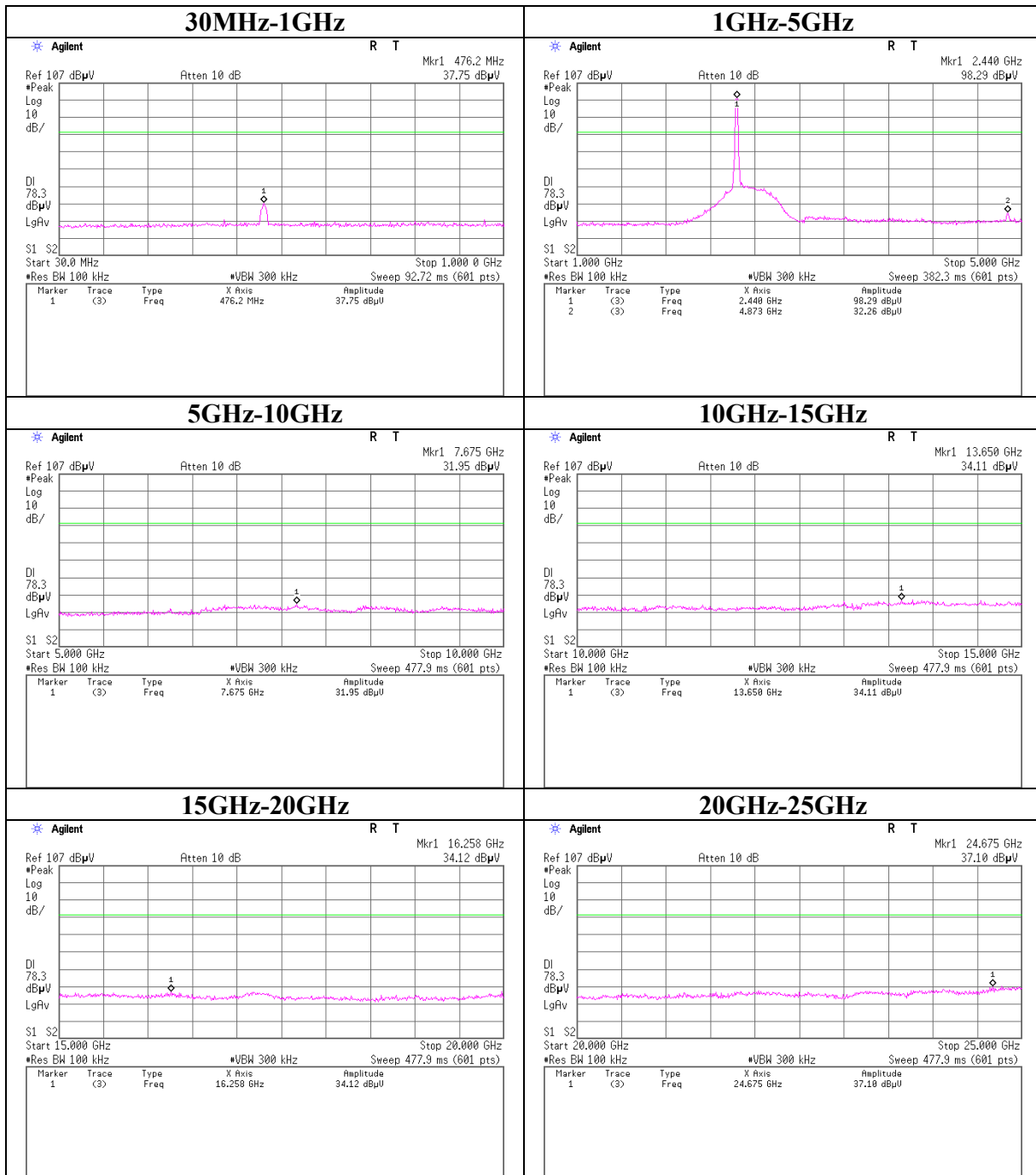


**Conducted Spurious Emission**  
**Tx 11g 9Mbps, Ch: Low**

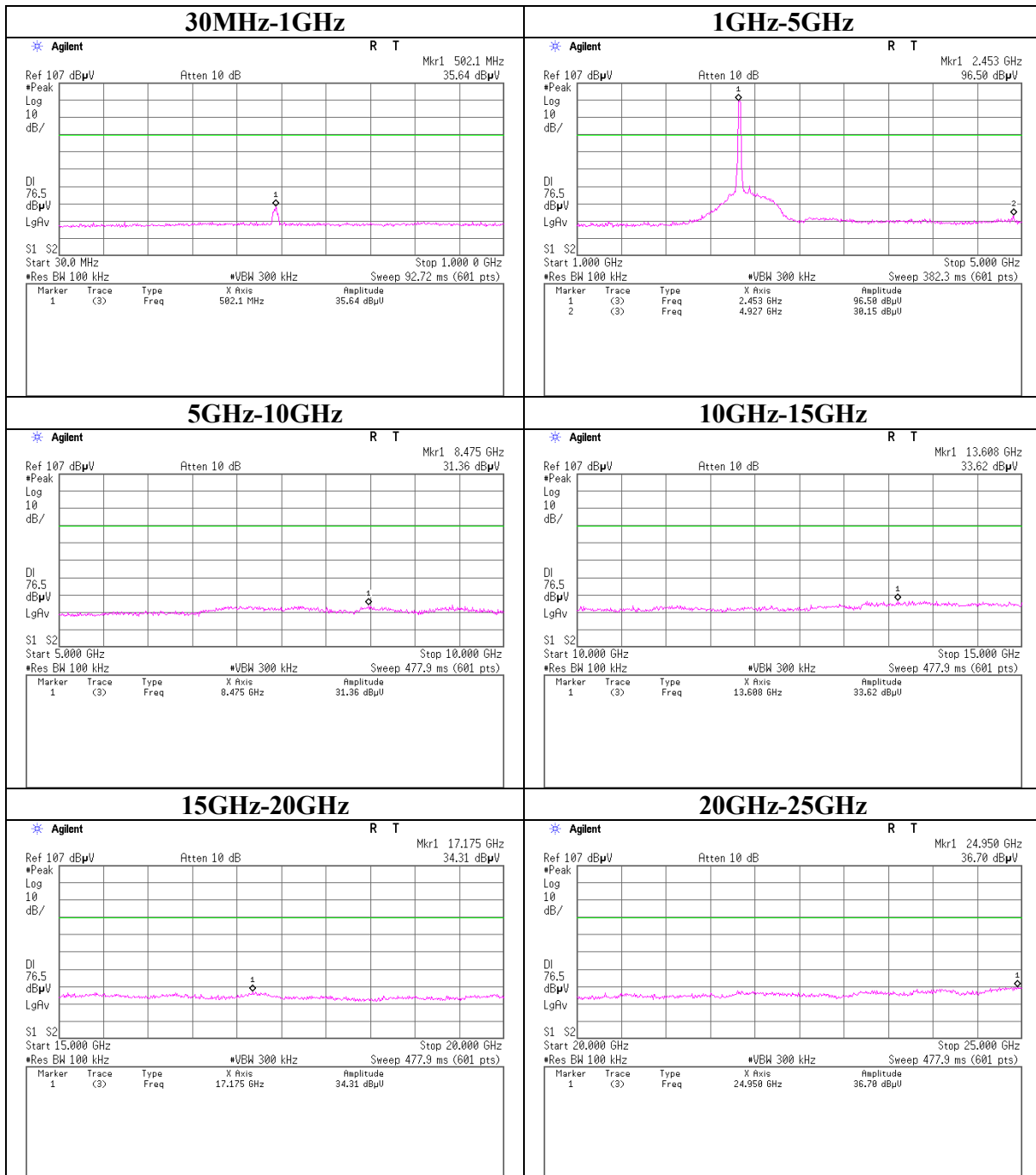




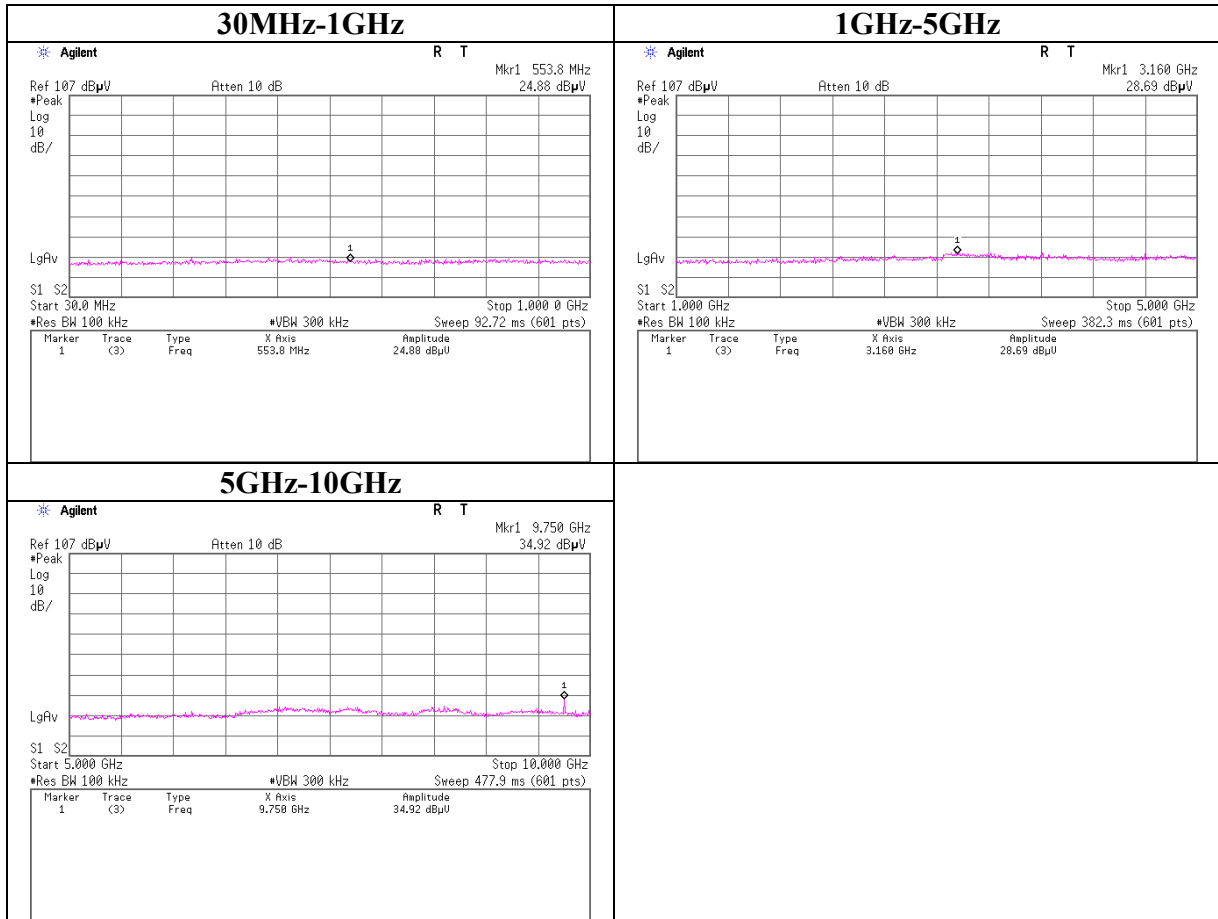
**Conducted Spurious Emission**  
**Tx 11g 9Mbps, Ch: Mid**



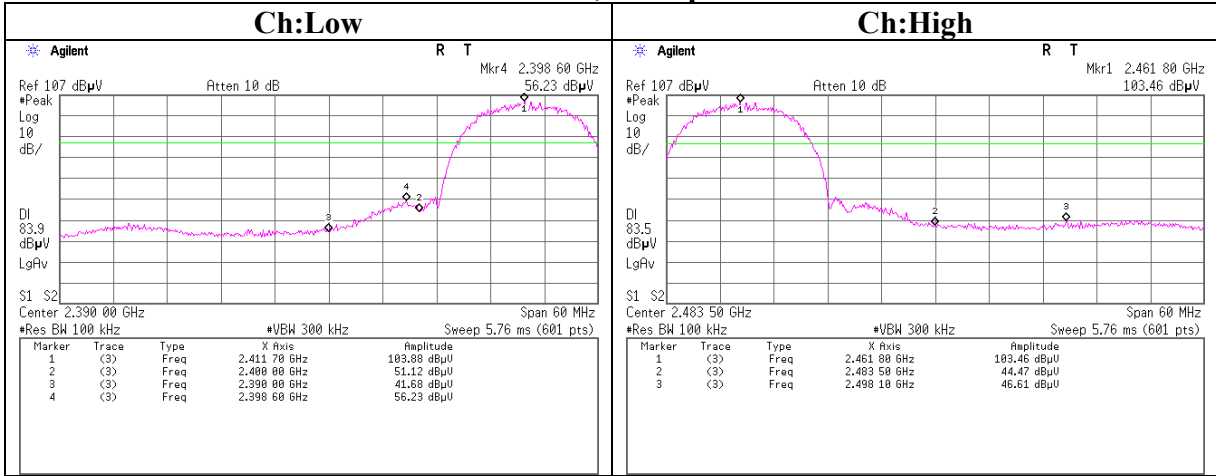
**Conducted Spurious Emission**  
**Tx 11g 9Mbps, Ch: High**



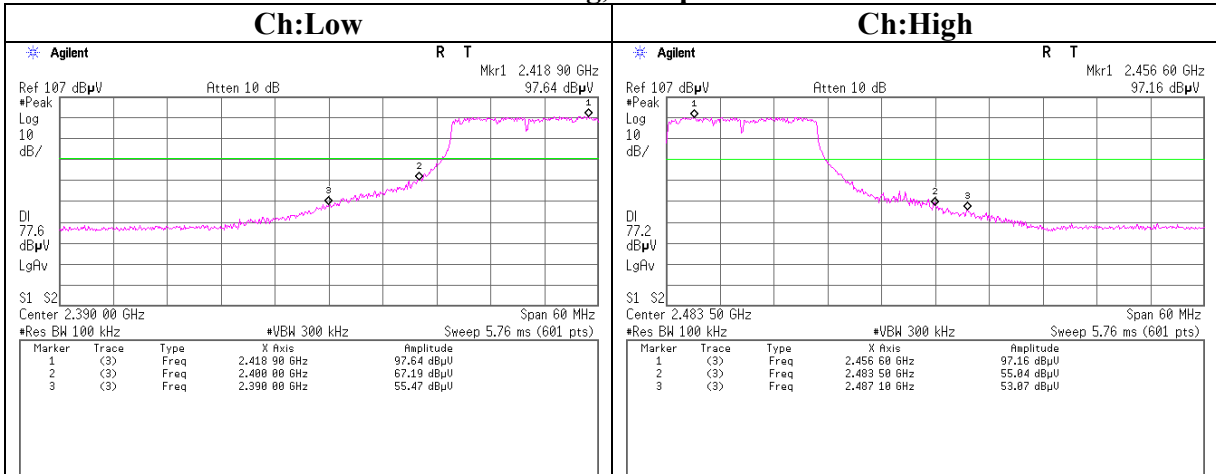
**Conducted Spurious Emission**  
**Rx 11b/g, Ch: Mid**



**Conducted emission Band Edge compliance**  
**11b, 11Mbps**



**11g, 9Mbps**



### Power Density

UL Japan, Inc.  
Head Office EMC Lab. No.6 Shielded Room

Company : Nagano Japan Radio Co., Ltd.      REPORT NO : 27IE0024-HO  
Equipment : Wireless LAN Module      REGULATION : FCC15.247(e)/RSS-210A8.2(b)  
Model : NJT-511      TEST DISTANCE : -  
Sample No. : 0013E0999BA0      DATE : 09/15/2007  
Power : DC3.3V      TEMPERATURE : 25deg.C.  
Mode : IEEE802.11b, Tx (Ch L, M, H)      HUMIDITY : 58%  
         : IEEE802.11g, Tx (Ch L, M, H)      ENGINEER : Hisayoshi Sato

#### **[IEEE802.11b]**

Ch	Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
Low	2411.3	-18.33	0.9	10.0	-7.4	8.0	15.4
Mid	2436.3	-18.11	0.9	10.0	-7.2	8.0	15.2
High	2461.3	-18.68	0.9	10.0	-7.8	8.0	15.8

#### **[IEEE802.11g]**

Ch	Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
Low	2412.0	-21.05	0.9	10.0	-10.2	8.0	18.2
Mid	2437.0	-20.86	0.9	10.0	-10.0	8.0	18.0
High	2462.0	-24.80	0.9	10.0	-13.9	8.0	21.9

Sample Calculation:

Result = Reading + Cable Loss (supplied by customer)+ Attenuator

---

**UL Japan, Inc.**

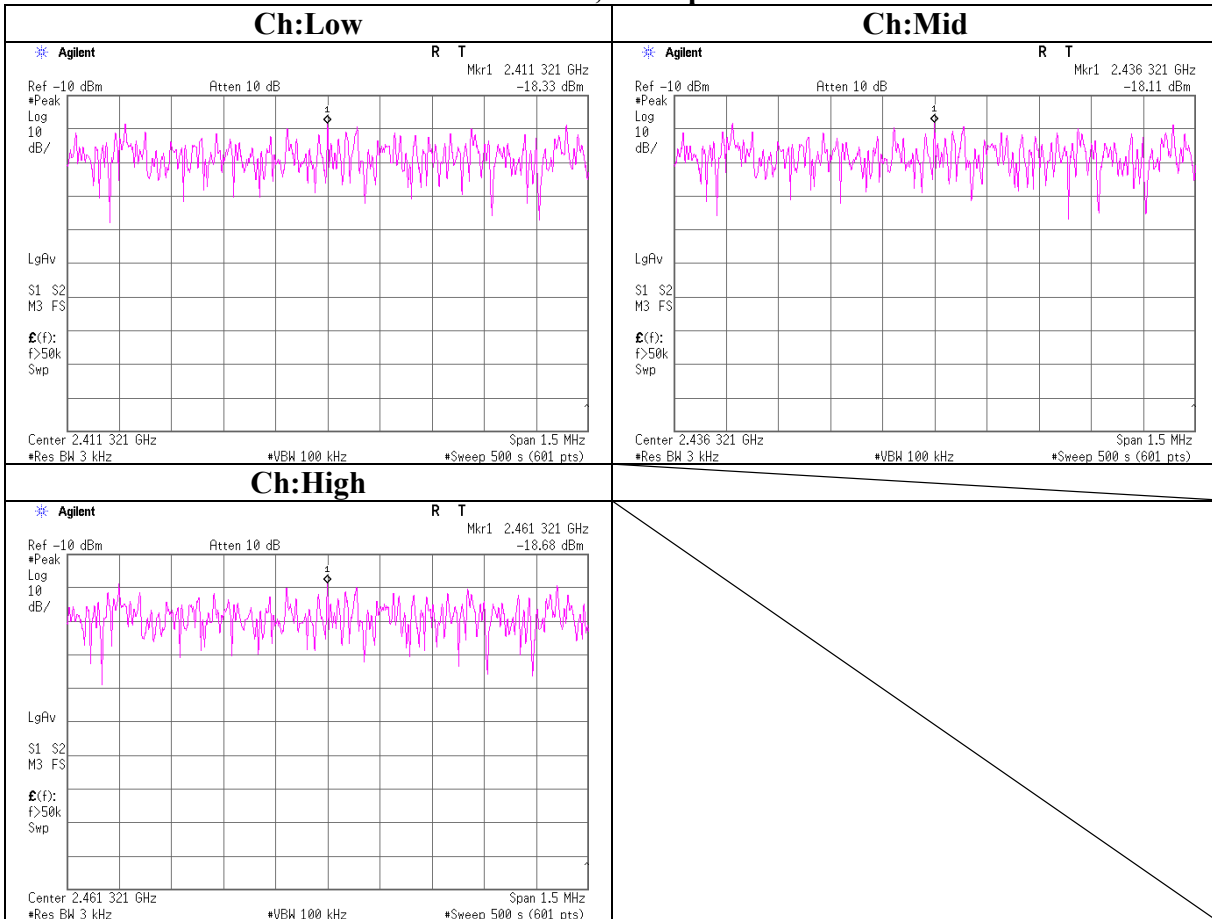
**Head Office EMC Lab.**

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

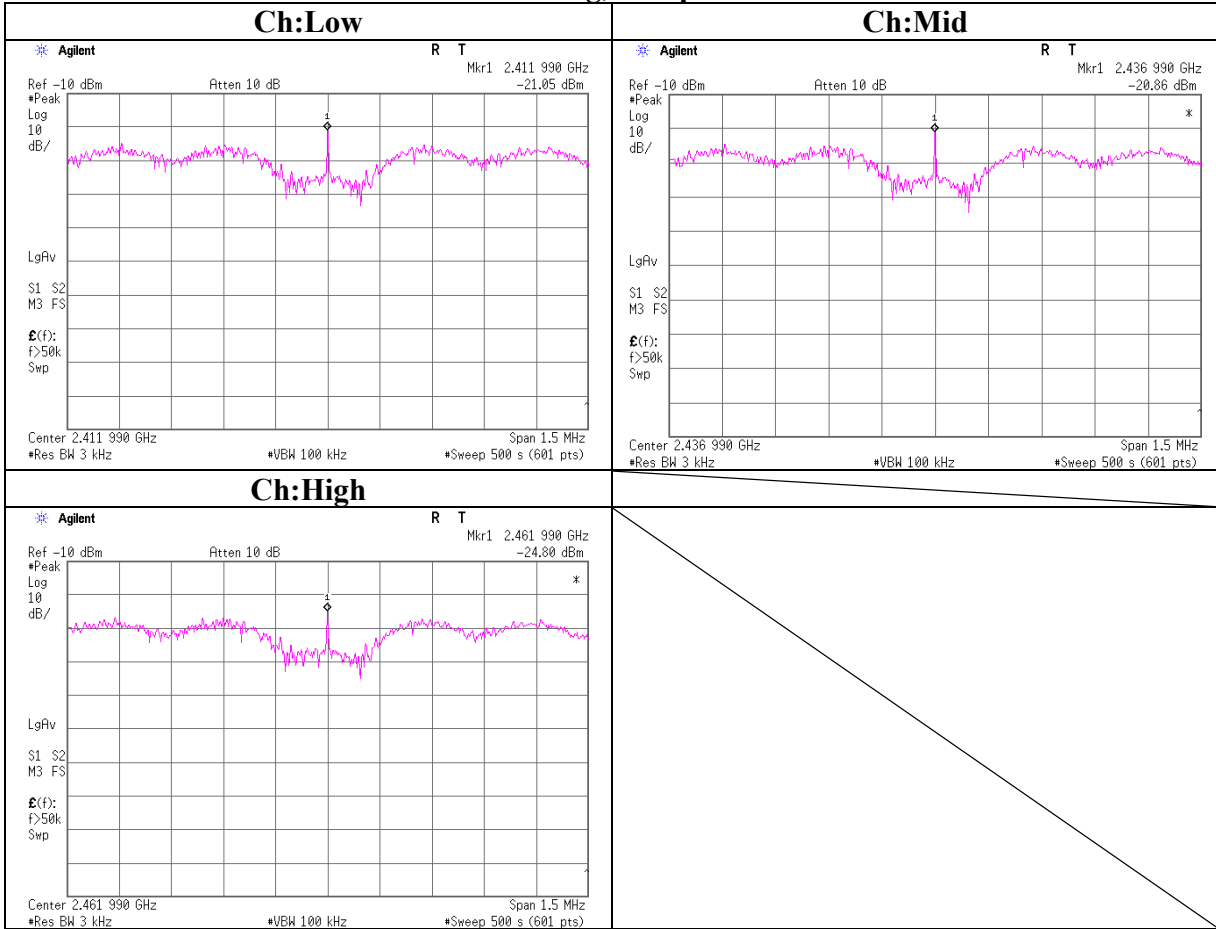
Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

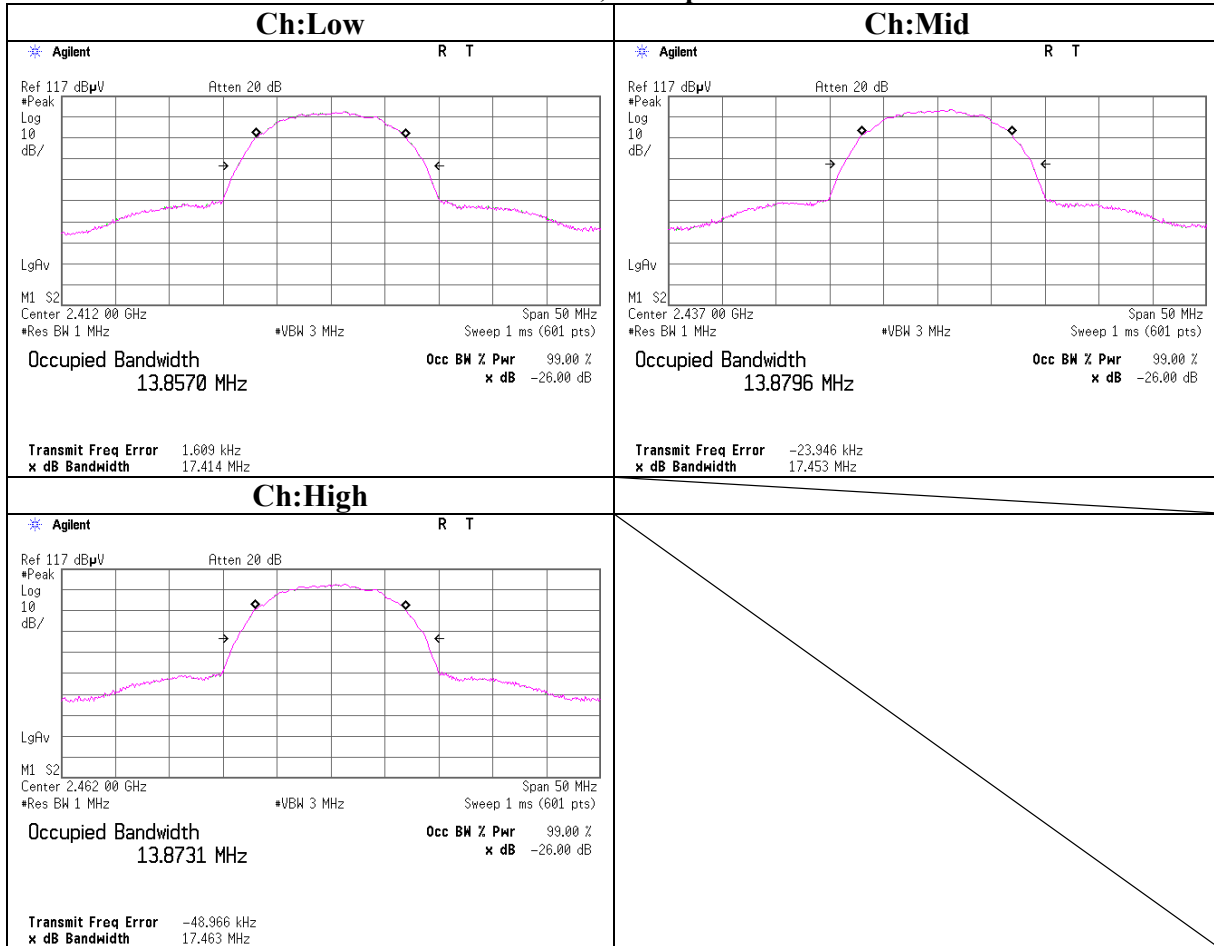
**Power Density**  
**11b, 11Mbps**



**Power Density**  
**11g, 9Mbps**

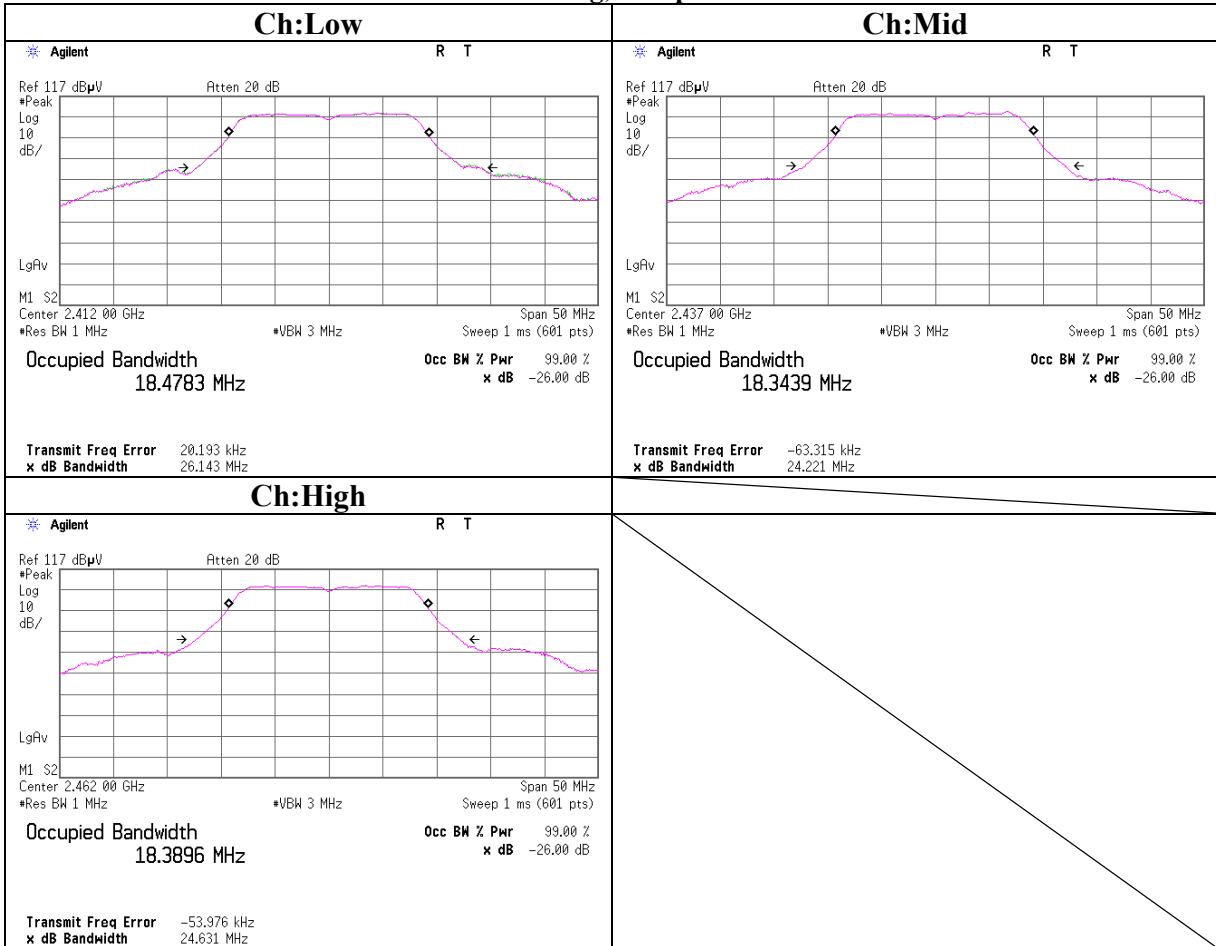


**99% Occupied Bandwidth**  
**11b, 11Mbps**





**99% Occupied Bandwidth**  
**11g, 9Mbps**



### APPENDIX 3: Test instruments

#### EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Test Item	Calibration Date * Interval(month)
MAEC-04	Anechoic Chamber	TDK	Semi Anechoic Chamber 3m	RE / CE	2007/03/03 * 12
MBA-05	Biconical Antenna	Schwarzbeck	BBA9106	RE	2007/01/19 * 12
MLA-08	Logperiodic Antenna	Schwarzbeck	UKLP9140-A	RE	2007/01/19 * 12
MAT-31	Attenuator(6dB)	TME	UFA-01	RE	2007/03/05 * 12
MPA-14	Pre Amplifier	SONOMA INSTRUMENT	310	RE	2007/03/12 * 12
MCC-50	Coaxial cable	UL Japan	-	RE/CE	2007/03/06 * 12
MTR-06	Test Receiver	Rohde & Schwarz	ESCS30	RE/CE	2006/09/12 * 12
MSA-05	Spectrum Analyzer	Advantest	R3273	RE/CE	2007/06/01 * 12
MLS-06	LISN(AMN)	Schwarzbeck	NSLK8127	CE	2007/02/22 * 12
MSTW-14	EMI measurement program	TSJ	TEPTO-DV	RE/CE	-
MOS-15	Thermo-Hygrometer	Custom	CTH-180	RE/CE	2006/01/19 * 24
MJM-07	Measure	PROMART	SEN1955	RE/CE	-
MDPS-04	DC Power Supply	KENWOOD TMI	PW18-1.3AT	CE	Pre Check
MAT-22	Attenuator(10dB) DC-18GHz	Orient Microwave	BX10-0476-00	AT	2007/03/07 * 12
MCC-37	Microwave Cable	Hirose Electric	U.FL-2LP-066-A-(200)	AT	2007/11/07 * 12
MSA-03	Spectrum Analyzer	Agilent	E4448A	AT	2007/09/05 * 12
MPM-09	Power Meter	Anritsu	ML2495A	AT	2007/09/22 * 12
MPSE-12	Power sensor	Anritsu	MA2411B	AT	2007/09/22 * 12
MOS-14	Thermo-Hygrometer	Custom	CTH-180	AT	2006/01/19 * 24
MAEC-02	Anechoic Chamber	TDK	Semi Anechoic Chamber 3m	RE	2007/04/02 * 12
MOS-02	Digital Humidity Indicator	N.T	NT-1800	RE	2007/11/12 * 12
MJM-05	Measure	PROMART	SEN1955	RE	-
MMM-01	Digital Tester	Fluke	FLUKE 26-3	RE	2007/08/21 * 12
MHA-06	Horn Antenna	Schwarzbeck	BBHA9120D	RE	2007/01/30 * 12
MHA-02	Horn Antenna	EMCO	3160-09	RE	2007/01/30 * 12
MCC-16	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX 104	RE	2007/02/22 * 12
MCC-47	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX104	RE	2007/08/28 * 12
MPA-10	Pre Amplifier	Agilent	8449B	RE	2007/09/27 * 12
MHF-06	High Pass Filter 3.5-24GHz	Tokimec	TF323DCA	RE	2007/05/30 * 12
MSA-04	Spectrum Analyzer	Agilent	E4448A	RE	2007/06/20 * 12

**UL Japan, Inc.**

**Head Office EMC Lab.**

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

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.

\*Some calibrations were performed after the tested dates, however those EMI test equipments have been controlled by means of an unbroken chains of calibrations.

Test Item: CE: Conducted Emission  
RE: Radiated Emission  
AT: Antenna Terminal Conducted test