APPENDIX 2: Test instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Test Item	Calibration Date * Interval(month)
MAEC-01	Anechoic Chamber	TDK	Semi Anechoic Chamber 10m	RE	2005/11/14 * 12
MTR-01	Test Receiver	Rohde & Schwarz	ESI40	RE	2005/11/10 * 12
MCC-18	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX 104	RE	2006/02/02 * 12
MCC-22	Microwave Cable 1G-40GHz	Storm	421-011 (90-011-080)	AT	2006/05/12 * 12
MPA-10	Pre Amplifier	Agilent	8449B	RE	2005/09/07 * 12
MHA-01	Horn Antenna	EMCO	3160-09	RE	2006/01/09 * 12
MHA-05	Horn Antenna	Schwarzbeck	BBHA9120D	RE	2006/01/09 * 12
MHF-02	High Pass Filter	Tokimec	TF323DCA	RE	2005/09/27 * 12
MAEC-02	Anechoic Chamber	TDK	Semi Anechoic Chamber 3m	RE	2006/04/10 * 12
MRENT-21	Spectrum Analyzer	Advantest	R3273	RE	2005/08/19 * 12
MTR-02	Test Receiver	Rohde & Schwarz	ESCS30	RE	2006/02/02 * 12
MCC-12	Coaxial Cable	Fujikura/Agilent	-	RE	2006/02/23 * 12
MBA-02	Biconical Antenna	Schwarzbeck	BBA9106	RE	2005/10/10 * 12
MLA-02	Logperiodic Antenna	Schwarzbeck	USLP9143	RE	2005/10/14 * 12
MAT-07	Attenuator(6dB)	Weinschel Corp	2	RE	2005/12/16 * 12
MPA-09	Pre Amplifier	Agilent	8447D	RE	2005/09/07 * 12
MSA-03	Spectrum Analyzer	Agilent	E4448A	AT	2005/09/16 * 12
MOS-01	Digital Humidity Indicator	N.T	NT-1800	RE	2004/11/25 * 24
MOS-02	Digital Humidity Indicator	N.T	NT-1800	RE	2004/11/25 * 24
MSTW-14	EMI measurement program	TSJ	TEPTO-DV	RE	-
MAEC-03	Anechoic Chamber	TDK	Semi Anechoic Chamber 3m	RE	2006/03/03* 12
MOS-12	Thermo-Hygrometer	Custom	CTH-180	RE/AT	2006/01/19* 24
MCC-56	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX104	RE	2006/04/15* 12
MPA-11	Pre Amplifier	Agilent	83017A	RE	2006/03/27* 12
MSA-07	Spectrum Analyzer	Agilent	MY45106766	RE/AT	2006/03/24* 12
MHA-06	Horn Antenna	Schwarzbeck	BBHA9120D	RE	2006/01/09 * 12
MAT-23	Attenuator(10dB)(above1GHz)	Orient Microwave	Attenuator(10dB) (above1GHz)	AT	2006/03/18* 12
MCC-15	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX 104	AT	2006/02/02* 12

All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

Test Item:

AT: Antenna Terminal Conducted Spurious Emission
Maximum Peak Output Power, 6dB Bandwidth, Peak Output Power Density
RE: Radiated Spurious Emission, EIRP Output Power

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

APPENDIX 3: Data of EMI test

6dB Bandwidth

UL Apex Co., Ltd.
Head Office EMC Lab. No.7 Shielded Room

Company	: DENSO WAVE INCORPORATED	REPORT NO	: 26BE0183-HO
Equipment	: Wireless LAN Module	REGULATION	: Fcc Part15 Subpart C 15.247(a)(2)
Model	: WM-G-MR-01	TEST DISTANCE	: -
Sample No.	: 58902833	DATE	: 10/06/2005
Power	: DC3.3V	TEMPERATURE	: 22℃
Mode	: Tx (ch1,6,11)	HUMIDITY	: 53%
		ENGINEER	: Yutaka Yoshida

11b 11Mbps

Ch	Freq. [MHz]	6dB Bandwidth [MHz]	Limit [kHz]
Low	2412.0	9.941	500.0
Mid	2437.0	9.557	500.0
High	2462.0	9.581	500.0

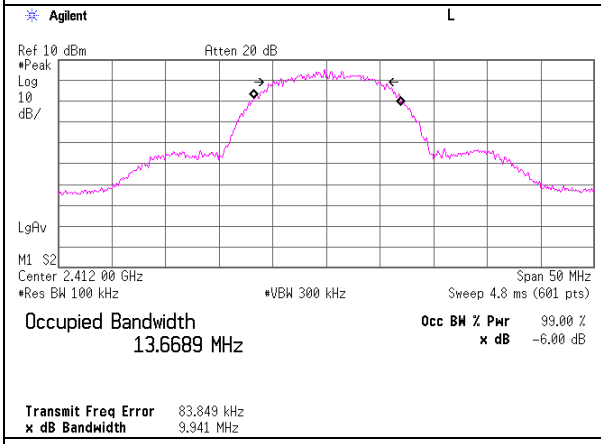
11g 54Mbps

Ch	Freq. [MHz]	6dB Bandwidth [MHz]	Limit [kHz]
Low	2412.0	16.605	500.0
Mid	2437.0	16.613	500.0
High	2462.0	16.610	500.0

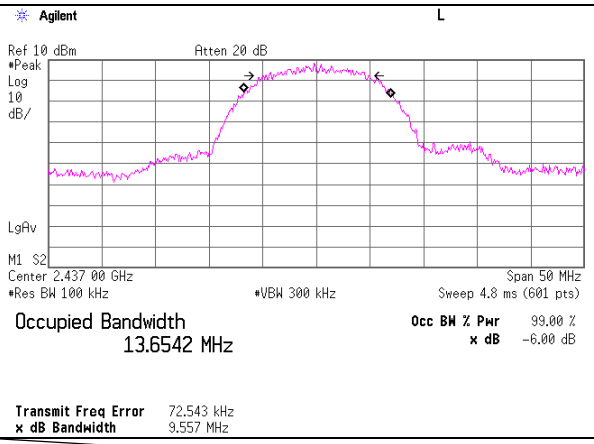
6dB Bandwidth

11b

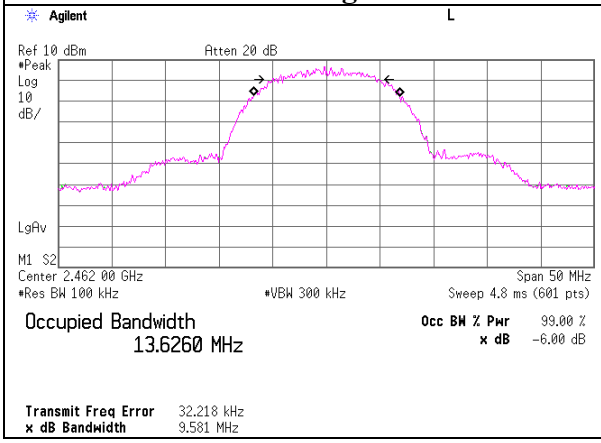
Ch:Low



Ch:Mid



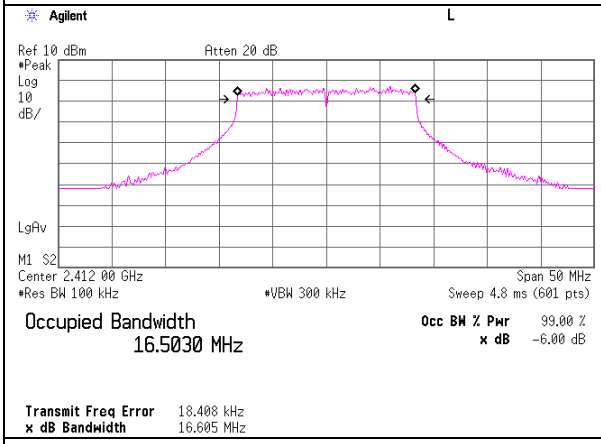
Ch:High



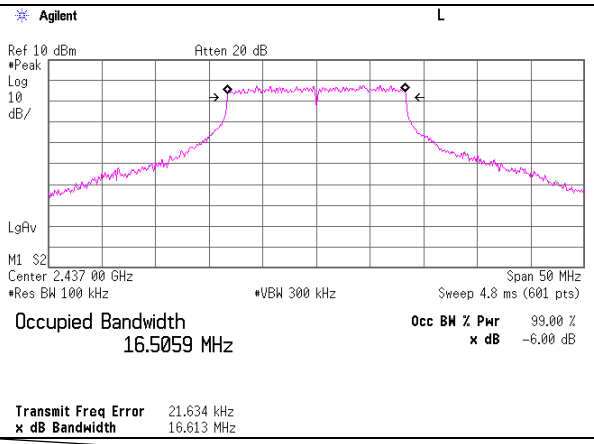
6dB Bandwidth

11g

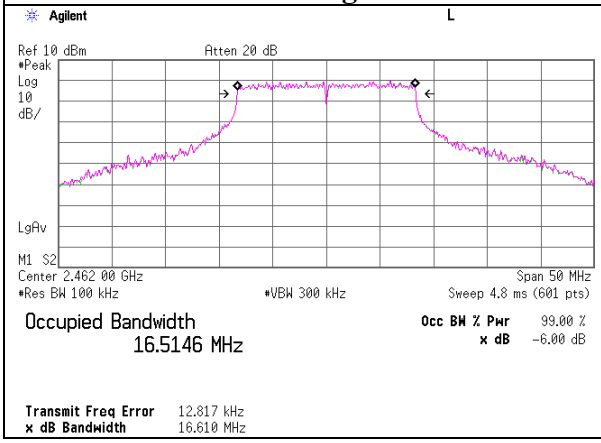
Ch:Low



Ch:Mid



Ch:High



Maximum Peak OutPut Power[Conducted antenna]

UL Apex Co., Ltd.
Head Office EMC Lab. No.6 Shielded Room

Company	: DENSO WAVE INCORPORATED	REPORT NO	: 26BE0183-HO
Equipment	: Wireless LAN Module	REGULATION	: Fcc Part15 Subpart C 15.247(b)(3)
Model	: WM-G-MR-01	TEST DISTANCE	: -
Sample No.	: 63802482	DATE	: 05/24/2006
Power	: DC3.3V	TEMPERATURE	: 25℃
Mode	: Tx(ch1,6,11)	HUMIDITY	: 50%
		ENGINEER	: Yutaka Yoshida

[IEEE802.11b]

Ch	Freq. [MHz]	S/A Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
Low	2412.0	8.16	1.30	10.00	19.46	30.00	10.54
Mid	2437.0	8.35	1.30	10.00	19.65	30.00	10.35
High	2462.0	9.15	1.30	10.00	20.45	30.00	9.55

Sample Calculation:
Result = Reading + Cable Loss (supplied by customer) + Attenuator
* In the above table, factor 0.0dB represents no use of Atten. and/or Filter.

[IEEE802.11g]

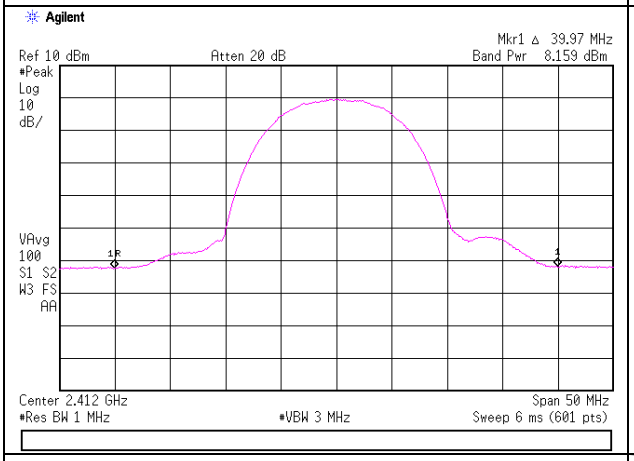
Ch	Freq. [MHz]	S/A Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
Low	2412.0	5.17	1.30	10.00	16.47	30.00	13.53
Mid	2437.0	7.70	1.30	10.00	19.00	30.00	11.00
High	2462.0	6.42	1.30	10.00	17.72	30.00	12.28

Sample Calculation:
Result = Reading + Cable Loss (supplied by customer) + Attenuator
* In the above table, factor 0.0dB represents no use of Atten. and/or Filter.

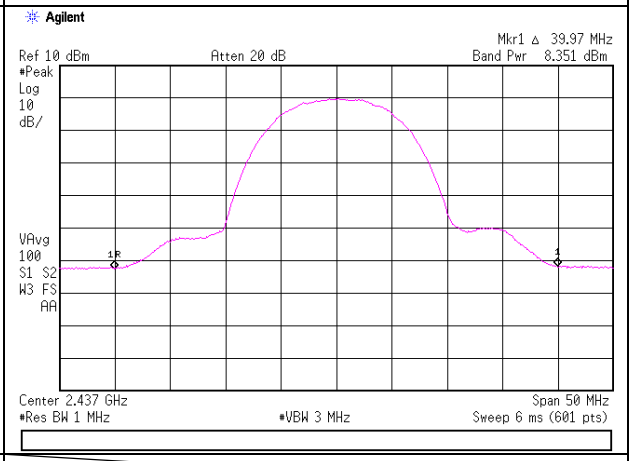
Maximum Peak OutPut Power [Conducted antenna]

11b

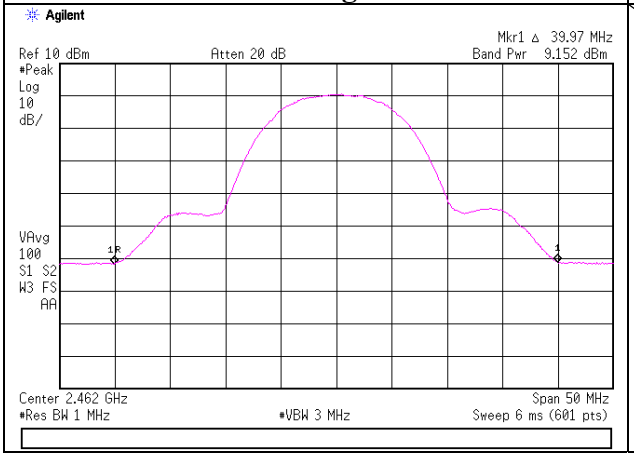
Ch:Low



Ch:Mid



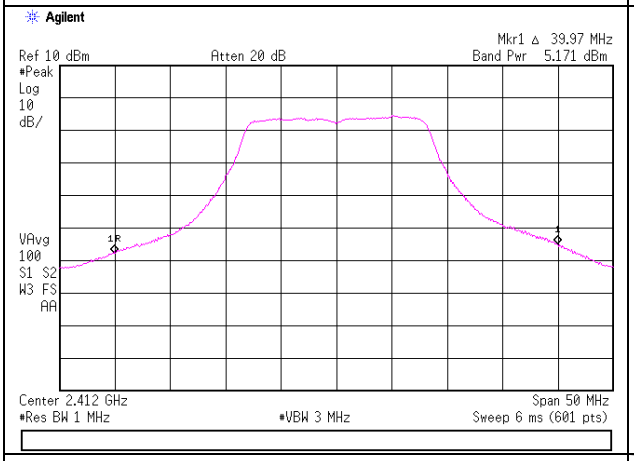
Ch:High



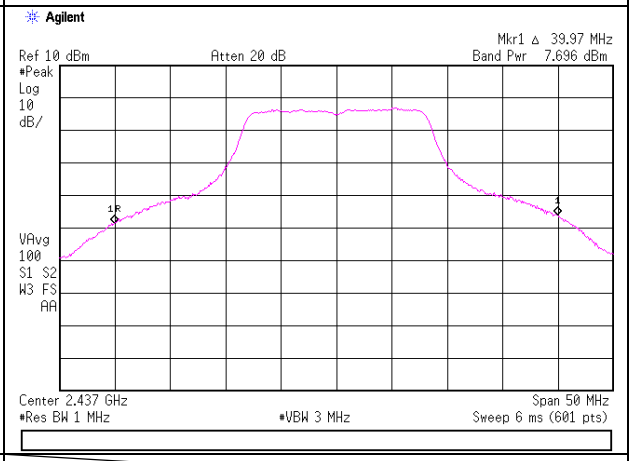
Maximum Peak OutPut Power [Conducted antenna]

11g

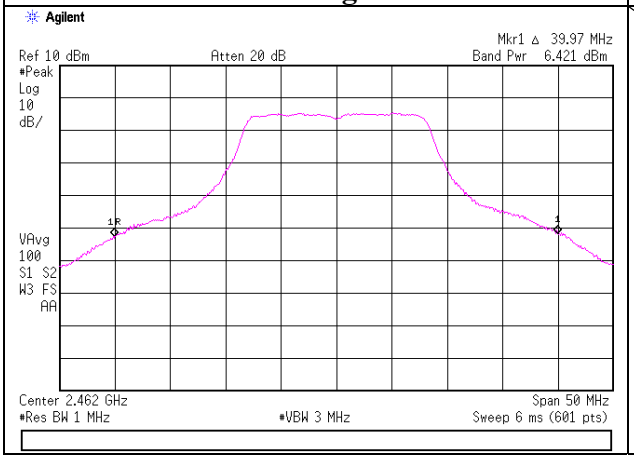
Ch:Low



Ch:Mid



Ch:High



Maximum Peak OutPut Power[Conducted antenna]
(Reference data)

Check data of the data rate

[IEEE802.11b : Antenna Port by the data rate]						
Ch	Modulation (Data rate [bps])	PK Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Converted [mW]
6	DBPSK (1Mbps)	7.13	1.30	10.00	18.43	69.66
6	DQPSK(2Mbps)	7.27	1.30	10.00	18.57	71.94
6	CCK(5.5Mbps)	8.08	1.30	10.00	19.38	86.70
6	CCK(11Mbps)	8.35	1.30	10.00	19.65	92.26

[IEEE802.11g : Antenna Port (by the data rate)]						
Ch	Modulation (Data rate [bps])	PK Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Converted [mW]
6	BPSK (6Mbps)	5.11	1.30	10.00	16.41	43.75
6	BPSK (9Mbps)	5.07	1.30	10.00	16.37	43.35
6	QPSK (12Mbps)	5.20	1.30	10.00	16.50	44.67
6	QPSK (18Mbps)	6.03	1.30	10.00	17.33	54.08
6	16QAM(24Mbps	6.45	1.30	10.00	17.75	59.57
6	16QAM(36Mbps	6.95	1.30	10.00	18.25	66.83
6	64QAM(48Mbps	7.18	1.30	10.00	18.48	70.47
6	64QAM(54Mbps	7.70	1.30	10.00	19.00	79.43

Maximum Peak OutPut Power[EIRP] (Reference data)

UL Apex Co., Ltd.
Head Office EMC Lab. No.3 semi anechoic chamber

Company	: DENSO WAVE INCORPORATED	REPORT NO	: 26BE0183-HO
Equipment	: Wireless LAN Module	REGULATION	: -
Model	: WM-G-MR-01	TEST DISTANCE	: -
Sample No.	: 63802482	DATE	: 05/24/2006
Power	: DC3.3V	TEMPERATURE	: 25℃
Mode	: Tx(ch1,6,11)	HUMIDITY	: 50%
		ENGINEER	: Yutaka Yoshida

EIRP power

Out power measurement method
The Output power has been measured in a Semi Anechoic Chamber with a ground plane and at a distance of 3m.
The highest of the measuring varied between 1 and 4m and EUT was rotated a full revolution in order to obtain the maximum value of the output power.
The measurements were performed for both vertical and horizontal antenna polarization with the Spectrum Analyzer.

Spectrum Analyzer setting
Peak measurement procedure

Function of spectrum analyzer	: Band-power
Center frequency	: equal to the signal source
Resolution BW	: 1MHz
Video BW	: 3MHz
Detector mode	: Peak
Band span	: 40MHz
Trace	: Max hold

Calculation of result
E-field [dBμV/m]= Reading (S/A) + Factor (Measurement equipment)
E-field [dBμV/m] was converted into E[V/m]
EIRP[dBm] = $10\log[((E*d)^2/30G)*10^3]$; d= 3[m], G =1.59

UL Apex Co., Ltd.
Head Office EMC Lab. No.3 semi anechoic chamber

Company	: DENSO WAVE INCORPORATED	REPORT NO	: 26BE0183-HO
Equipment	: Wireless LAN Module	REGULATION	: -
Model	: WM-G-MR-01	TEST DISTANCE	: -
Sample No.	: 63802482	DATE	: 05/24/2006
Power	: DC3.3V	TEMPERATURE	: 25℃
Mode	: Tx(ch1,6,11)	HUMIDITY	: 50%
		ENGINEER	: Yutaka Yoshida

Result of EIRP (Peak power)

	DATA rate	Lch		Mch		Hch	
	[Mbps]	Peak [dBuV]	EIRP[dBm]	Peak[dBuV]	EIRP[dBm]	Peak[dBuV]	EIRP[dBm]
11b	1	116.5	19.68	117.6	20.78	117.2	20.38
	2	-	-	117.9	21.08	-	-
	5.5	-	-	118.8	21.98	-	-
	11	119.6	22.78	120.7	23.88	120.9	24.08
11g	6	119.7	22.88	120.8	23.98	119.7	22.88
	9	-	-	120.7	23.88	-	-
	12	-	-	120.6	23.78	-	-
	18	-	-	120.1	23.28	-	-
	24	-	-	120.5	23.68	-	-
	36	-	-	119.9	23.08	-	-
	48	-	-	119.8	22.98	-	-
	54	117.7	20.88	119.8	22.98	119.6	22.78

Result of EIRP (Average power)

	DATA rate	Lch		Mch		Hch	
	[Mbps]	AVG [dBuV]	EIRP[dBm]	AVG[dBuV]	EIRP[dBm]	AVG[dBuV]	EIRP[dBm]
11b	1	114.0	17.18	115.5	18.68	115.9	19.08
	2	-	-	116.0	19.18	-	-
	5.5	-	-	117.9	21.08	-	-
	11	117.1	20.28	118.3	21.48	118.5	21.68
11g	6	116.2	19.38	117.1	20.28	117.4	20.58
	9	-	-	117.0	20.18	-	-
	12	-	-	117.0	20.18	-	-
	18	-	-	116.6	19.78	-	-
	24	-	-	116.9	20.08	-	-
	36	-	-	116.8	19.98	-	-
	48	-	-	116.0	19.12	-	-
	54	114.1	17.28	115.8	18.98	115.9	19.08

Radiated Spurious Emission

* The result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result.

DATA OF RADIATED EMISSION TEST

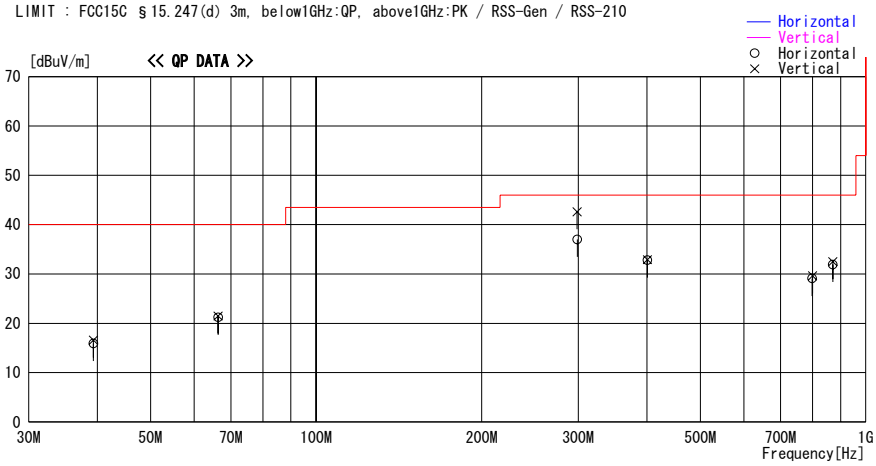
UL Apex Co., Ltd. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2005/11/17 22:04:47

Applicant : DENSO WAVE INCORPORATED
Kind of EUT : Wireless LAN Module
Model No. : WM-G-MR-01
Serial No. : 58902833

Report No. : 26BE0183-HO
Power : DC 3.3V (AC Adapter AC 120V / 60Hz)
Temp./Humi. : 23deg.C. / 32%
Operator : Takumi Shimada

Mode / Remarks : Tx 11b 2412MHz / EUT (H:X-axis , V:Y-axis)

LIMIT : FCC15C §15.247(d) 3m, below1GHz:QP, above1GHz:PK / RSS-Gen / RSS-210



Frequency	Reading	DET	Antenna Factor	Loss& Gain	Level	Angle	Height	Polar.	Limit	Margin
[MHz]	[dBuV]		[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]
39.338	25.3	QP	13.9	-22.6	16.6	360	100	Vert.	40.0	23.4
39.326	24.6	QP	13.9	-22.6	15.9	327	170	Hori.	40.0	24.1
66.314	36.9	QP	7.2	-22.6	21.5	174	100	Vert.	40.0	18.5
66.362	36.6	QP	7.2	-22.6	21.2	360	400	Hori.	40.0	18.8
298.409	42.3	QP	20.0	-19.7	42.6	56	173	Vert.	46.0	3.4
298.645	36.7	QP	20.0	-19.7	37.0	360	400	Hori.	46.0	9.0
400.550	35.1	QP	17.8	-20.1	32.8	360	100	Hori.	46.0	13.2
400.551	35.2	QP	17.8	-20.1	32.9	305	124	Vert.	46.0	13.1
798.783	25.5	QP	21.4	-17.8	29.1	106	115	Hori.	46.0	16.9
800.239	26.0	QP	21.4	-17.8	29.6	207	131	Vert.	46.0	16.4
871.131	28.7	QP	21.0	-17.8	31.9	360	100	Hori.	46.0	14.1
871.150	29.3	QP	21.0	-17.8	32.5	360	145	Vert.	46.0	13.5

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)

Radiated Spurious Emission

* The result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result.

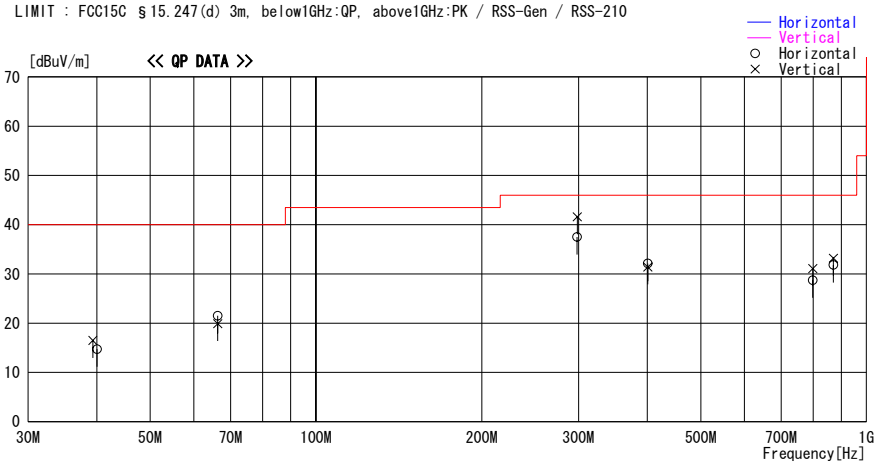
DATA OF RADIATED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2005/11/17 22:59:41

Applicant	: DENSO WAVE INCORPORATED	Report No.	: 26BE0183-HO
Kind of EUT	: Wireless LAN Module	Power	: DC 3.3V (AC Adapter AC 120V / 60Hz)
Model No.	: WM-G-MR-01	Temp./Humi.	: 23deg.C. / 32%
Serial No.	: 58902833	Operator	: Takumi Shimada

Mode / Remarks : Tx 11b 2437MHz / EUT (H:X-axis , V:Y-axis)

LIMIT : FCC15C §15.247(d) 3m, below1GHz:QP, above1GHz:PK / RSS-Gen / RSS-210



Frequency	Reading	DET	Antenna Factor	Loss& Gain	Level	Angle	Height	Polar.	Limit	Margin
[MHz]	[dBuV]		[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]
40.016	23.7	QP	13.6	-22.6	14.7	86	140	Hori.	40.0	25.3
39.327	25.2	QP	13.9	-22.6	16.5	360	169	Vert.	40.0	23.5
66.307	36.9	QP	7.2	-22.6	21.5	360	400	Hori.	40.0	18.5
66.280	35.3	QP	7.2	-22.6	19.9	190	100	Vert.	40.0	20.1
298.441	41.3	QP	20.0	-19.7	41.6	56	163	Vert.	46.0	4.4
298.230	37.2	QP	20.0	-19.7	37.5	360	400	Hori.	46.0	8.5
400.569	34.4	QP	17.8	-20.1	32.1	360	100	Hori.	46.0	13.9
400.574	33.7	QP	17.8	-20.1	31.4	97	106	Vert.	46.0	14.6
798.791	25.1	QP	21.4	-17.8	28.7	108	100	Hori.	46.0	17.3
798.790	27.5	QP	21.4	-17.8	31.1	178	100	Vert.	46.0	14.9
871.145	28.6	QP	21.0	-17.8	31.8	360	100	Hori.	46.0	14.2
871.129	30.0	QP	21.0	-17.8	33.2	360	149	Vert.	46.0	12.8

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)

Radiated Spurious Emission

* The result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result.

DATA OF RADIATED EMISSION TEST

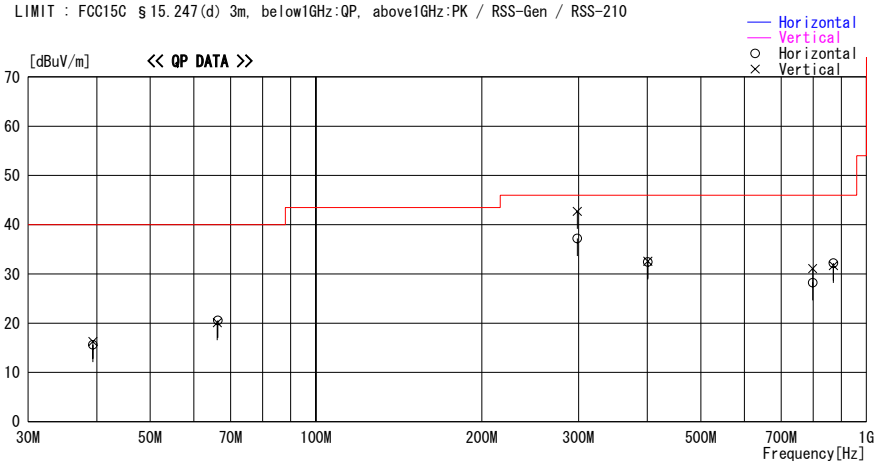
UL Apex Co., Ltd. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2005/11/18 00:08:14

Applicant : DENSO WAVE INCORPORATED
Kind of EUT : Wireless LAN Module
Model No. : WM-G-MR-01
Serial No. : 58902833

Report No. : 26BE0183-HO
Power : DC 3.3V (AC Adapter AC 120V / 60Hz)
Temp./Humi. : 23deg.C. / 32%
Operator : Takumi Shimada

Mode / Remarks : Tx 11b 2462MHz / EUT (H:X-axis , V:Y-axis)

LIMIT : FCC15C §15.247(d) 3m, below1GHz:QP, above1GHz:PK / RSS-Gen / RSS-210



Frequency	Reading	DET	Antenna Factor	Loss& Gain	Level	Angle	Height	Polar.	Limit	Margin
[MHz]	[dBuV]		[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]
39.324	24.3	QP	13.9	-22.6	15.6	287	400	Hori.	40.0	24.4
39.344	25.0	QP	13.9	-22.6	16.3	5	162	Vert.	40.0	23.7
66.228	35.5	QP	7.2	-22.6	20.1	174	104	Vert.	40.0	19.9
66.380	36.0	QP	7.2	-22.6	20.6	360	400	Hori.	40.0	19.4
298.430	42.4	QP	20.0	-19.7	42.7	48	174	Vert.	46.0	3.3
298.413	36.9	QP	20.0	-19.7	37.2	360	400	Hori.	46.0	8.8
400.572	34.7	QP	17.8	-20.1	32.4	360	100	Hori.	46.0	13.6
400.574	34.9	QP	17.8	-20.1	32.6	92	125	Vert.	46.0	13.4
798.782	24.6	QP	21.4	-17.8	28.2	78	100	Hori.	46.0	17.8
798.367	27.5	QP	21.4	-17.8	31.1	100	100	Vert.	46.0	14.9
871.126	29.0	QP	21.0	-17.8	32.2	360	100	Hori.	46.0	13.8
871.132	28.5	QP	21.0	-17.8	31.7	360	151	Vert.	46.0	14.3

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)

Radiated Spurious Emission

*The result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result.

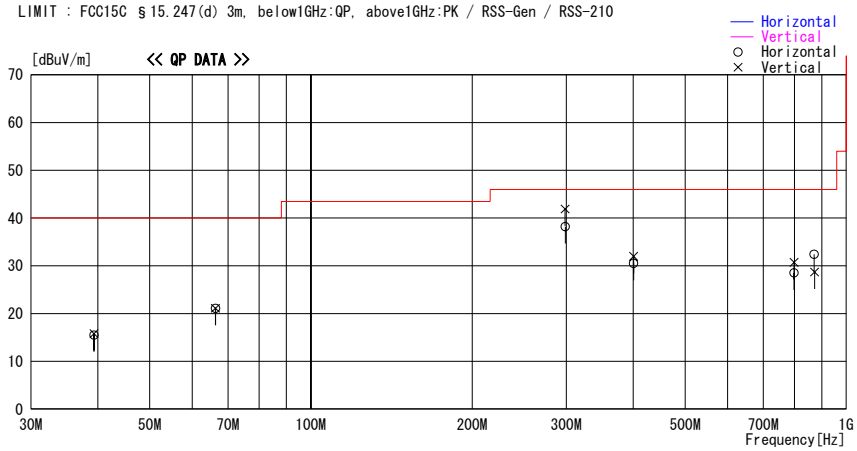
DATA OF RADIATED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2005/11/18 01:34:16

Applicant	: DENSO WAVE INCORPORATED	Report No.	: 26BE0183-HO
Kind of EUT	: Wireless LAN Module	Power	: DC 3.3V (AC Adapter AC 120V / 60Hz)
Model No.	: WM-G-MR-01	Temp./Humi.	: 23deg.C. / 32%
Serial No.	: 58902833	Operator	: Takumi Shimada

Mode / Remarks : Tx 11g 2412MHz / EUT (H:X-axis , V:Y-axis)

LIMIT : FCC15C §15.247(d) 3m, below1GHz:QP, above1GHz:PK / RSS-Gen / RSS-210



Frequency	Reading	DET	Antenna Factor	Loss& Gain	Level	Angle	Height	Polar.	Limit	Margin
[MHz]	[dBuV]		[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]
39.328	24.2	QP	13.9	-22.6	15.5	336	400	Hori.	40.0	24.5
39.323	24.5	QP	13.9	-22.6	15.8	129	194	Vert.	40.0	24.2
66.358	36.5	QP	7.2	-22.6	21.1	360	400	Hori.	40.0	18.9
66.310	36.5	QP	7.2	-22.6	21.1	195	100	Vert.	40.0	18.9
298.282	41.6	QP	20.0	-19.7	41.9	77	187	Vert.	46.0	4.1
298.682	37.9	QP	20.0	-19.7	38.2	360	379	Hori.	46.0	7.8
400.591	32.8	QP	17.8	-20.1	30.5	355	100	Hori.	46.0	15.5
400.587	34.3	QP	17.8	-20.1	32.0	96	119	Vert.	46.0	14.0
798.789	24.9	QP	21.4	-17.8	28.5	73	100	Hori.	46.0	17.5
798.769	27.1	QP	21.4	-17.8	30.7	224	100	Vert.	46.0	15.3
871.141	29.2	QP	21.0	-17.8	32.4	355	100	Hori.	46.0	13.6
872.521	25.5	QP	21.0	-17.8	28.7	188	100	Vert.	46.0	17.3

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)

Radiated Spurious Emission

*The result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result.

DATA OF RADIATED EMISSION TEST

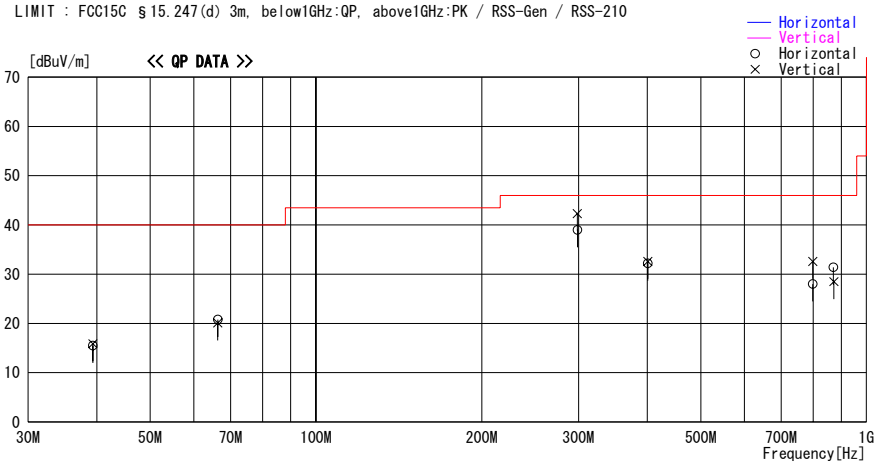
UL Apex Co., Ltd. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2005/11/18 02:05:49

Applicant : DENSO WAVE INCORPORATED
Kind of EUT : Wireless LAN Module
Model No. : WM-G-MR-01
Serial No. : 58902833

Report No. : 26BE0183-HO
Power : DC 3.3V (AC Adapter AC 120V / 60Hz)
Temp./Humi. : 23deg.C. / 32%
Operator : Takumi Shimada

Mode / Remarks : Tx 11g 2437MHz / EUT (H:X-axis , V:Y-axis)

LIMIT : FCC15C §15.247(d) 3m, below1GHz:QP, above1GHz:PK / RSS-Gen / RSS-210



Frequency	Reading	DET	Antenna Factor	Loss& Gain	Level	Angle	Height	Polar.	Limit	Margin
[MHz]	[dBuV]		[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]
39.326	24.2	QP	13.9	-22.6	15.5	360	400	Hori.	40.0	24.5
39.335	24.6	QP	13.9	-22.6	15.9	155	176	Vert.	40.0	24.1
66.290	35.5	QP	7.2	-22.6	20.1	182	100	Vert.	40.0	19.9
66.339	36.2	QP	7.2	-22.6	20.8	360	400	Hori.	40.0	19.2
298.698	38.7	QP	20.0	-19.7	39.0	360	372	Hori.	46.0	7.0
298.408	42.0	QP	20.0	-19.7	42.3	61	187	Vert.	46.0	3.7
400.581	34.9	QP	17.8	-20.1	32.6	83	123	Vert.	46.0	13.4
400.582	34.5	QP	17.8	-20.1	32.2	360	100	Hori.	46.0	13.8
798.790	24.4	QP	21.4	-17.8	28.0	70	100	Hori.	46.0	18.0
798.791	29.0	QP	21.4	-17.8	32.6	159	126	Vert.	46.0	13.4
871.133	28.2	QP	21.0	-17.8	31.4	213	100	Hori.	46.0	14.6
872.519	25.3	QP	21.0	-17.8	28.5	185	100	Vert.	46.0	17.5

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)

Radiated Spurious Emission

*The result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result.

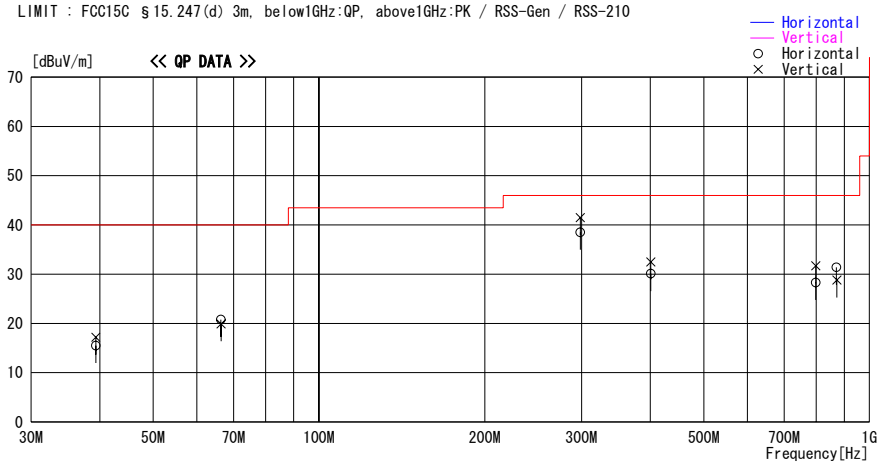
DATA OF RADIATED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2005/11/18 00:51:00

Applicant	: DENSO WAVE INCORPORATED	Report No.	: 26BE0183-HO
Kind of EUT	: Wireless LAN Module	Power	: DC 3.3V (AC Adapter AC 120V / 60Hz)
Model No.	: WM-G-MR-01	Temp./Humi.	: 23deg.C. / 32%
Serial No.	: 58902833	Operator	: Takumi Shimada

Mode / Remarks : Tx 11g 2462MHz / EUT (H:X-axis , V:Y-axis)

LIMIT : FCC15C §15.247(d) 3m, below1GHz:QP, above1GHz:PK / RSS-Gen / RSS-210



Frequency	Reading	DET	Antenna Factor	Loss& Gain	Level	Angle	Height	Polar.	Limit	Margin
[MHz]	[dBuV]		[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]
39.329	24.2	QP	13.9	-22.6	15.5	266	400	Hori.	40.0	24.5
39.329	25.9	QP	13.9	-22.6	17.2	360	162	Vert.	40.0	22.8
66.423	35.4	QP	7.1	-22.6	19.9	210	100	Vert.	40.0	20.1
66.361	36.2	QP	7.2	-22.6	20.8	360	400	Hori.	40.0	19.2
298.435	41.2	QP	20.0	-19.7	41.5	41	160	Vert.	46.0	4.5
298.324	38.2	QP	20.0	-19.7	38.5	360	377	Hori.	46.0	7.5
400.586	32.4	QP	17.8	-20.1	30.1	51	123	Hori.	46.0	15.9
400.589	34.8	QP	17.8	-20.1	32.5	98	119	Vert.	46.0	13.5
798.788	24.7	QP	21.4	-17.8	28.3	71	100	Hori.	46.0	17.7
798.779	28.1	QP	21.4	-17.8	31.7	203	100	Vert.	46.0	14.3
871.129	28.2	QP	21.0	-17.8	31.4	338	100	Hori.	46.0	14.6
872.516	25.6	QP	21.0	-17.8	28.8	205	100	Vert.	46.0	17.2

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)

Radiated Spurious Emission

*The result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result.

DATA OF RADIATED EMISSION TEST

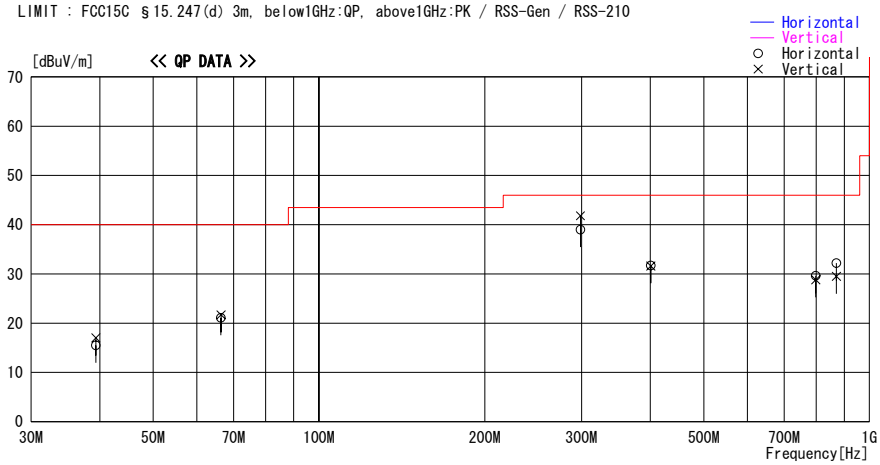
UL Apex Co., Ltd. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2005/11/18 02:34:49

Applicant : DENSO WAVE INCORPORATED
Kind of EUT : Wireless LAN Module
Model No. : WM-G-MR-01
Serial No. : 58902833

Report No. : 26BE0183-HO
Power : DC 3.3V (AC Adapter AC 120V / 60Hz)
Temp./Humi. : 23deg.C. / 32%
Operator : Takumi Shimada

Mode / Remarks : Rx 2437MHz / EUT (H:X-axis , V:Y-axis)

LIMIT : FCC15C §15.247(d) 3m, below1GHz:QP, above1GHz:PK / RSS-Gen / RSS-210



Frequency	Reading	DET	Antenna Factor	Loss& Gain	Level	Angle	Height	Polar.	Limit	Margin
[MHz]	[dBuV]		[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]
39.322	24.2	QP	13.9	-22.6	15.5	360	400	Hori.	40.0	24.5
39.340	25.7	QP	13.9	-22.6	17.0	97	200	Vert.	40.0	23.0
66.358	36.5	QP	7.2	-22.6	21.1	360	400	Hori.	40.0	18.9
66.424	37.2	QP	7.1	-22.6	21.7	195	100	Vert.	40.0	18.3
298.570	38.7	QP	20.0	-19.7	39.0	360	362	Hori.	46.0	7.0
298.465	41.5	QP	20.0	-19.7	41.8	70	172	Vert.	46.0	4.2
400.581	34.0	QP	17.8	-20.1	31.7	360	100	Hori.	46.0	14.3
400.583	33.9	QP	17.8	-20.1	31.6	88	125	Vert.	46.0	14.4
798.784	26.0	QP	21.4	-17.8	29.6	346	100	Hori.	46.0	16.4
798.738	25.2	QP	21.4	-17.8	28.8	230	100	Vert.	46.0	17.2
871.147	29.0	QP	21.0	-17.8	32.2	356	100	Hori.	46.0	13.8
871.163	26.3	QP	21.0	-17.8	29.5	175	100	Vert.	46.0	16.5

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)

Radiated Spurious Emission

* The result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result.

UL Apex Co., Ltd.
Head Office EMC Lab. No.1 Semi Anechoic Chamber

Company	: DENSO WAVE INCORPORATED	REPORT NO	: 26BE0183-HO
Equipment	: Wireless LAN Module	REGULATION	: Fcc Part15 Subpart C 15.247(d)
Model	: WM-G-MR-01	TEST DISTANCE	: 3/1m
Sample No.	: 58902833	DATE	: 11/16/2005
Power	: AC 120 V / 60 Hz	TEMPERATURE	: 25deg.C
Mode	: 11b 11Mbps, Tx 2412MHz	HUMIDITY	: 42%
Remarks	: Hor X-axis , Ver Y-axis	ENGINEER	: Takumi Shimada

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

No.	FREQ	S/A READING		ANT	AMP	CABLE	Hi-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	or ATT	HOR	VER	PK	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2390.0	53.2	53.4	30.9	32.4	3.6	0.0	55.3	55.5	74.0	18.7	18.5
2	4824.0	44.2	48.5	35.0	31.9	5.3	0.8	53.4	57.7	74.0	20.6	16.3
3	7236.0	42.9	42.7	37.6	31.5	6.7	0.3	56.0	55.8	74.0	18.0	18.2
4	9648.0	42.7	42.1	36.3	31.7	8.0	0.7	56.0	55.4	74.0	18.0	18.6
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
5	12060.0	42.2	41.8	41.4	31.2	9.1	1.4	53.4	53.0	74.0	20.6	21.0
6	14472.0	43.1	41.9	41.8	31.1	9.7	0.4	54.4	53.2	74.0	19.6	20.8
7	16884.0	41.9	40.9	44.6	30.7	10.9	0.5	57.7	56.7	74.0	16.3	17.3
8	19296.0	40.9	40.9	41.6	29.9	11.7	0.0	54.8	54.8	74.0	19.2	19.2
9	21708.0	42.7	43.0	40.4	30.4	12.3	0.0	55.5	55.8	74.0	18.5	18.2
10	24120.0	42.9	43.3	41.0	30.4	12.8	0.0	56.8	57.2	74.0	17.2	16.8

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

No.	FREQ	S/A READING		ANT	AMP	CABLE	Hi-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	AV	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2390.0	40.3	40.3	30.9	32.4	3.6	0.0	42.4	42.4	54.0	11.6	11.6
2	4824.0	30.1	33.4	35.0	31.9	5.3	0.8	39.3	42.6	54.0	14.7	11.4
3	7236.0	29.1	29.2	37.6	31.5	6.7	0.3	42.2	42.3	54.0	11.8	11.7
4	9648.0	29.1	29.1	36.3	31.7	8.0	0.7	42.4	42.4	54.0	11.6	11.6
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
5	12060.0	29.2	29.3	41.4	31.2	9.1	1.4	40.4	40.5	54.0	13.6	13.5
6	14472.0	29.2	29.2	41.8	31.1	9.7	0.4	40.5	40.5	54.0	13.5	13.5
7	16884.0	28.3	28.3	44.6	30.7	10.9	0.5	44.1	44.1	54.0	9.9	9.9
8	19296.0	28.2	28.1	41.6	29.9	11.7	0.0	42.1	42.0	54.0	11.9	12.0
9	21708.0	30.3	30.3	40.4	30.4	12.3	0.0	43.1	43.1	54.0	10.9	10.9
10	24120.0	30.1	30.1	41.0	30.4	12.8	0.0	44.0	44.0	54.0	10.0	10.0

* Reference data

20dBc(Fundamental 2402MHz) (RBW: 100kHz, VBW: 300kHz)

No.	FREQ	S/A READING		ANT	AMP	CABLE	Hi-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	20dBc	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
0	2412.0	98.8	97.4	30.9	30.9	3.7	0.0	102.5	101.1	-	-	-
	2400.0	57.3	56.3	30.9	30.9	3.6	0.0	60.9	59.9	Funda-20dB	21.6	21.2

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 result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result.
*Hi-Pass Fiter was not used for factor 0.0dB of the above table.

Radiated Spurious Emission

* The result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result.

UL Apex Co., Ltd.
Head Office EMC Lab. No.1 Semi Anechoic Chamber

Company	: DENSO WAVE INCORPORATED	REPORT NO	: 26BE0183-HO
Equipment	: Wireless LAN Module	REGULATION	: Fcc Part15 Subpart C 15.247(d)
Model	: WM-G-MR-01	TEST DISTANCE	: 3/1m
Sample No.	: 58902833	DATE	: 11/16/2005
Power	: AC 120 V / 60 Hz	TEMPERATURE	: 25deg.C
Mode	: 11b 11Mbps, Tx 2437MHz	HUMIDITY	: 42%
Remarks	: Hor X-axis , Ver Y-axis	ENGINEER	: Takumi Shimada

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

No.	FREQ	S/A READING		ANT	AMP	CABLE	Hi-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	or ATT	HOR	VER	PK	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	4874.0	47.3	44.6	35.3	35.3	5.3	0.8	53.4	50.7	74.0	20.6	23.3
2	7311.0	41.7	41.8	37.7	37.7	6.7	0.3	48.7	48.8	74.0	25.3	25.2
3	9748.0	42.6	42.7	36.2	36.2	8.0	0.6	51.2	51.3	74.0	22.8	22.7
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
4	12185.0	42.3	42.7	41.5	31.0	9.1	1.2	53.6	54.0	74.0	20.4	20.0
5	14622.0	43.2	42.5	42.1	31.1	9.8	0.5	55.0	54.3	74.0	19.0	19.7
6	17059.0	40.8	42.0	44.6	30.7	11.0	0.5	56.7	57.9	74.0	17.3	16.1
7	19496.0	40.9	41.1	41.4	29.7	11.8	0.0	54.9	55.1	74.0	19.1	18.9
8	21933.0	45.9	45.9	40.5	30.7	12.3	0.0	58.5	58.5	74.0	15.5	15.5
9	24370.0	42.5	42.2	41.1	30.5	12.8	0.0	56.4	56.1	74.0	17.6	17.9

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

No.	FREQ	S/A READING		ANT	AMP	CABLE	Hi-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	AV	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	4874.0	32.2	29.5	35.3	35.3	5.3	0.8	38.3	35.6	54.0	15.7	18.4
2	7311.0	28.8	29.2	37.7	37.7	6.7	0.3	35.8	36.2	54.0	18.2	17.8
3	9748.0	28.8	29.0	36.2	36.2	8.0	0.6	37.4	37.6	54.0	16.6	16.4
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
4	12185.0	29.2	29.2	41.5	31.0	9.1	1.2	40.5	40.5	54.0	13.5	13.5
5	14622.0	29.8	29.7	42.1	31.1	9.8	0.5	41.6	41.5	54.0	12.4	12.5
6	17059.0	28.4	28.4	44.6	30.7	11.0	0.5	44.3	44.3	54.0	9.7	9.7
7	19496.0	28.0	28.0	41.4	29.7	11.8	0.0	42.0	42.0	54.0	12.0	12.0
8	21933.0	32.6	32.6	40.5	30.7	12.3	0.0	45.2	45.2	54.0	8.8	8.8
9	24370.0	29.4	29.4	41.1	30.5	12.8	0.0	43.3	43.3	54.0	10.7	10.7

* 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 result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result.
*Hi-Pass Fiter was not used for factor 0.0dB of the above table.

Radiated Spurious Emission

* The result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result.

UL Apex Co., Ltd.
Head Office EMC Lab. No.1 Semi Anechoic Chamber

Company	: DENSO WAVE INCORPORATED	REPORT NO	: 26BE0183-HO
Equipment	: Wireless LAN Module	REGULATION	: Fcc Part15 Subpart C 15.247(d)
Model	: WM-G-MR-01	TEST DISTANCE	: 3/1m
Sample No.	: 58902833	DATE	: 11/16/2005
Power	: AC 120 V / 60 Hz	TEMPERATURE	: 25deg.C
Mode	: 11b 11Mbps, Tx 2462MHz	HUMIDITY	: 42%
Remarks	: Hor X-axis , Ver Y-axis	ENGINEER	: Takumi Shimada

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

No.	FREQ	S/A READING		ANT	AMP	CABLE	Hi-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	or ATT	HOR	VER	PK	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2483.5	55.8	54.1	30.8	32.4	3.6	0.0	57.8	56.1	74.0	16.2	17.9
2	4924.0	43.9	48.2	35.6	31.8	5.3	0.8	53.8	58.1	74.0	20.2	15.9
3	7386.0	42.4	42.6	37.8	31.8	6.7	0.3	55.4	55.6	74.0	18.6	18.4
4	9848.0	42.6	41.2	36.2	31.9	8.1	0.6	55.6	54.2	74.0	18.4	19.8
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
5	12310.0	41.9	41.9	41.5	30.8	9.1	1.1	53.3	53.3	74.0	20.7	20.7
6	14772.0	41.9	42.9	42.4	31.0	9.9	0.5	54.2	55.2	74.0	19.8	18.8
7	17234.0	41.6	41.4	44.5	30.8	11.2	0.9	57.9	57.7	74.0	16.1	16.3
8	19696.0	41.0	41.5	41.2	30.0	11.7	0.0	54.4	54.9	74.0	19.6	19.1
9	22158.0	43.4	30.5	40.5	30.7	12.3	0.0	56.0	43.1	74.0	18.0	30.9
10	24620.0	41.9	42.3	41.1	30.6	13.0	0.0	55.9	56.3	74.0	18.1	17.7

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

No.	FREQ	S/A READING		ANT	AMP	CABLE	Hi-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	AV	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2483.5	42.3	40.7	30.8	32.4	3.6	0.0	44.3	42.7	54.0	9.7	11.3
2	4924.0	29.7	33.0	35.6	31.8	5.3	0.8	39.6	42.9	54.0	14.4	11.1
3	7386.0	29.3	29.4	37.8	31.8	6.7	0.3	42.3	42.4	54.0	11.7	11.6
4	9848.0	28.8	28.9	36.2	31.9	8.1	0.6	41.8	41.9	54.0	12.2	12.1
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
5	12310.0	29.2	29.2	41.5	30.8	9.1	1.1	40.6	40.6	54.0	13.4	13.4
6	14772.0	29.0	29.0	42.4	31.0	9.9	0.5	41.3	41.3	54.0	12.7	12.7
7	17234.0	28.2	28.2	44.5	30.8	11.2	0.9	44.5	44.5	54.0	9.5	9.5
8	19696.0	28.5	28.5	41.2	30.0	11.7	0.0	41.9	41.9	54.0	12.1	12.1
9	22158.0	30.5	30.5	40.5	30.7	12.3	0.0	43.1	43.1	54.0	10.9	10.9
10	24620.0	29.8	29.8	41.1	30.6	13.0	0.0	43.8	43.8	54.0	10.2	10.2

* 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 result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result.
*Hi-Pass Fiter was not used for factor 0.0dB of the above table.

Radiated Spurious Emission

* The result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result.

UL Apex Co., Ltd.
Head Office EMC Lab. No.1 Semi Anechoic Chamber

Company	: DENSO WAVE INCORPORATED	REPORT NO	: 26BE0183-HO
Equipment	: Wireless LAN Module	REGULATION	: Fcc Part15 Subpart C 15.247(d)
Model	: WM-G-MR-01	TEST DISTANCE	: 3/1m
Sample No.	: 58902833	DATE	: 11/16/2005
Power	: AC 120 V / 60 Hz	TEMPERATURE	: 25deg.C
Mode	: 11g 54Mbps, Tx 2412MHz	HUMIDITY	: 42%
Remarks	: Hor X-axis , Ver Y-axis	ENGINEER	: Takumi Shimada

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

No.	FREQ	S/A READING		ANT	AMP	CABLE	Hi-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	or ATT	HOR	VER	PK	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2390.0	59.9	60.0	30.9	32.4	3.6	0.0	62.0	62.1	74.0	12.0	11.9
2	4824.0	41.8	42.6	35.0	31.9	5.3	0.8	51.0	51.8	74.0	23.0	22.2
3	7236.0	41.9	41.8	37.6	31.5	6.7	0.3	55.0	54.9	74.0	19.0	19.1
4	9648.0	42.5	43.2	36.3	31.7	8.0	0.7	55.8	56.5	74.0	18.2	17.5
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
5	12060.0	42.5	42.4	41.4	31.2	9.1	1.4	53.7	53.6	74.0	20.3	20.4
6	14472.0	41.9	42.5	41.8	31.1	9.7	0.4	53.2	53.8	74.0	20.8	20.2
7	16884.0	41.1	41.9	44.6	30.7	10.9	0.5	56.9	57.7	74.0	17.1	16.3
8	19296.0	40.8	41.2	41.6	29.9	11.7	0.0	54.7	55.1	74.0	19.3	18.9
9	21708.0	43.3	43.4	40.4	30.4	12.3	0.0	56.1	56.2	74.0	17.9	17.8
10	24120.0	42.9	43.7	41.0	30.4	12.8	0.0	56.8	57.6	74.0	17.2	16.4

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

No.	FREQ	S/A READING		ANT	AMP	CABLE	Hi-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	AV	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2390.0	42.0	42.1	30.9	32.4	3.6	0.0	44.1	44.2	54.0	9.9	9.8
2	4824.0	27.7	29.4	35.0	31.9	5.3	0.8	36.9	38.6	54.0	17.1	15.4
3	7236.0	29.0	29.0	37.6	31.5	6.7	0.3	42.1	42.1	54.0	11.9	11.9
4	9648.0	29.0	29.0	36.3	31.7	8.0	0.7	42.3	42.3	54.0	11.7	11.7
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
5	12060.0	29.4	29.4	41.4	31.2	9.1	1.4	40.6	40.6	54.0	13.4	13.4
6	14472.0	29.3	29.3	41.8	31.1	9.7	0.4	40.6	40.6	54.0	13.4	13.4
7	16884.0	28.4	28.4	44.6	30.7	10.9	0.5	44.2	44.2	54.0	9.8	9.8
8	19296.0	28.1	28.2	41.6	29.9	11.7	0.0	42.0	42.1	54.0	12.0	11.9
9	21708.0	30.4	30.4	40.4	30.4	12.3	0.0	43.2	43.2	54.0	10.8	10.8
10	24120.0	30.1	30.1	41.0	30.4	12.8	0.0	44.0	44.0	54.0	10.0	10.0

* Reference data

20dBc(Fundamental 2402MHz) (RBW: 100kHz, VBW: 300kHz)

No.	FREQ	S/A READING		ANT	AMP	CABLE	Hi-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	20dBc	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
0	2412.0	93.5	93.3	30.9	30.9	3.7	0.0	97.2	97.0	-	-	-
	2400.0	57.6	56.8	30.9	30.9	3.6	0.0	61.2	60.4	Funda-20dB	16.0	16.6

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 result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result.
*Hi-Pass Fiter was not used for factor 0.0dB of the above table.

Radiated Spurious Emission

* The result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result.

UL Apex Co., Ltd.
Head Office EMC Lab. No.1 Semi Anechoic Chamber

Company	: DENSO WAVE INCORPORATED	REPORT NO	: 26BE0183-HO
Equipment	: Wireless LAN Module	REGULATION	: Fcc Part15 Subpart C 15.247(d)
Model	: WM-G-MR-01	TEST DISTANCE	: 3/1m
Sample No.	: 58902833	DATE	: 11/16/2005
Power	: AC 120 V / 60 Hz	TEMPERATURE	: 25deg.C
Mode	: 11g 54Mbps, Tx 2437MHz	HUMIDITY	: 42%
Remarks	: Hor X-axis , Ver Y-axis	ENGINEER	: Takumi Shimada

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

No.	FREQ	S/A READING		ANT	AMP	CABLE	Hi-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	or ATT	HOR	VER	PK	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	4874.0	41.8	40.8	35.3	31.8	5.3	0.8	51.4	50.4	74.0	22.6	23.6
2	7311.0	42.8	44.1	37.7	31.6	6.7	0.3	55.9	57.2	74.0	18.1	16.8
3	9748.0	41.6	42.5	36.2	31.8	8.0	0.6	54.6	55.5	74.0	19.4	18.5
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
4	12185.0	42.7	42.1	41.5	31.0	9.1	1.2	54.0	53.4	74.0	20.0	20.6
5	14622.0	42.1	43.0	42.1	31.1	9.8	0.5	53.9	54.8	74.0	20.1	19.2
6	17059.0	41.1	40.9	44.6	30.7	11.0	0.5	57.0	56.8	74.0	17.0	17.2
7	19496.0	41.0	41.3	41.4	29.7	11.8	0.0	55.0	55.3	74.0	19.0	18.7
8	21933.0	44.2	45.9	40.5	30.7	12.3	0.0	56.8	58.5	74.0	17.2	15.5
9	24370.0	42.3	42.6	41.1	30.5	12.8	0.0	56.2	56.5	74.0	17.8	17.5

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

No.	FREQ	S/A READING		ANT	AMP	CABLE	Hi-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	AV	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	4874.0	28.6	27.8	35.3	31.8	5.3	0.8	38.2	37.4	54.0	15.8	16.6
2	7311.0	29.2	31.1	37.7	31.6	6.7	0.3	42.3	44.2	54.0	11.7	9.8
3	9748.0	28.9	28.9	36.2	31.8	8.0	0.6	41.9	41.9	54.0	12.1	12.1
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
4	12185.0	29.2	29.2	41.5	31.0	9.1	1.2	40.5	40.5	54.0	13.5	13.5
5	14622.0	29.7	29.7	42.1	31.1	9.8	0.5	41.5	41.5	54.0	12.5	12.5
6	17059.0	28.4	28.4	44.6	30.7	11.0	0.5	44.3	44.3	54.0	9.7	9.7
7	19496.0	28.2	28.3	41.4	29.7	11.8	0.0	42.2	42.3	54.0	11.8	11.7
8	21933.0	32.8	30.8	40.5	30.7	12.3	0.0	45.4	43.4	54.0	8.6	10.6
9	24370.0	29.6	29.5	41.1	30.5	12.8	0.0	43.5	43.4	54.0	10.5	10.6

* 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 result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result.
*Hi-Pass Fiter was not used for factor 0.0dB of the above table.

Radiated Spurious Emission

* The result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result.

UL Apex Co., Ltd.
Head Office EMC Lab. No.1 Semi Anechoic Chamber

Company	: DENSO WAVE INCORPORATED	REPORT NO	: 26BE0183-HO
Equipment	: Wireless LAN Module	REGULATION	: Fcc Part15 Subpart C 15.247(d)
Model	: WM-G-MR-01	TEST DISTANCE	: 3/1m
Sample No.	: 58902833	DATE	: 11/16/2005
Power	: AC 120 V / 60 Hz	TEMPERATURE	: 25deg.C
Mode	: 11g 54Mbps, Tx 2462MHz	HUMIDITY	: 42%
Remarks	: Hor X-axis , Ver Y-axis	ENGINEER	: Takumi Shimada

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

No.	FREQ	S/A READING		ANT	AMP	CABLE	Hi-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	or ATT	HOR	VER	PK	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2483.5	61.2	61.7	30.8	32.4	3.6	0.0	63.2	63.7	74.0	10.8	10.3
2	4924.0	41.5	41.8	35.6	31.8	5.3	0.8	51.4	51.7	74.0	22.6	22.3
3	7386.0	42.7	41.9	37.8	31.8	6.7	0.3	55.7	54.9	74.0	18.3	19.1
4	9848.0	41.9	42.8	36.2	31.9	8.1	0.6	54.9	55.8	74.0	19.1	18.2
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
5	12310.0	41.7	42.2	41.5	30.8	9.1	1.1	53.1	53.6	74.0	20.9	20.4
6	14772.0	42.2	42.1	42.4	31.0	9.9	0.5	54.5	54.4	74.0	19.5	19.6
7	17234.0	41.3	40.6	44.5	30.8	11.2	0.9	57.6	56.9	74.0	16.4	17.1
8	19696.0	41.6	41.0	41.2	30.0	11.7	0.0	55.0	54.4	74.0	19.0	19.6
9	22158.0	43.4	43.0	40.5	30.7	12.3	0.0	56.0	55.6	74.0	18.0	18.4
10	24620.0	42.0	42.3	41.1	30.6	13.0	0.0	56.0	56.3	74.0	18.0	17.7

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

No.	FREQ	S/A READING		ANT	AMP	CABLE	Hi-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	AV	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2483.5	45.2	41.8	30.8	32.4	3.6	0.0	47.2	43.8	54.0	6.8	10.2
2	4924.0	28.4	28.1	35.6	31.8	5.3	0.8	38.3	38.0	54.0	15.7	16.0
3	7386.0	29.8	29.4	37.8	31.8	6.7	0.3	42.8	42.4	54.0	11.2	11.6
4	9848.0	29.4	29.8	36.2	31.9	8.1	0.6	42.4	42.8	54.0	11.6	11.2
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
5	12310.0	29.3	29.3	41.5	30.8	9.1	1.1	40.7	40.7	54.0	13.3	13.3
6	14772.0	29.1	29.1	42.4	31.0	9.9	0.5	41.4	41.4	54.0	12.6	12.6
7	17234.0	28.2	28.3	44.5	30.8	11.2	0.9	44.5	44.6	54.0	9.5	9.4
8	19696.0	28.5	28.5	41.2	30.0	11.7	0.0	41.9	41.9	54.0	12.1	12.1
9	22158.0	30.5	30.5	40.5	30.7	12.3	0.0	43.1	43.1	54.0	10.9	10.9
10	24620.0	29.7	29.8	41.1	30.6	13.0	0.0	43.7	43.8	54.0	10.3	10.2

* Reference data

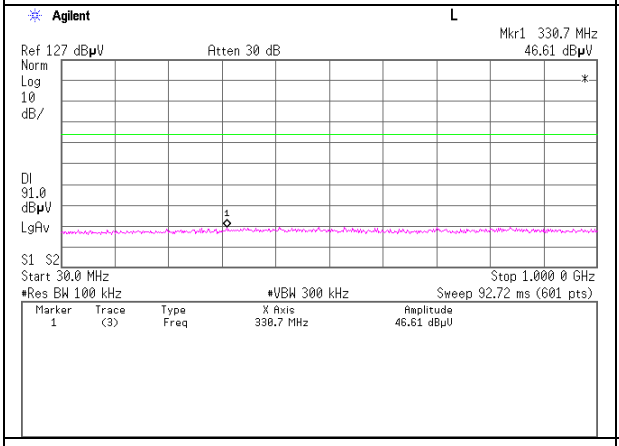
Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5dB
*Except for the above table : All other spurious emissions were less than 20dB for the limit.
*In the frequency over the fifth harmonic, the noise from the EUT was not seen.The data above is its base noise.
*The result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result.
*Hi-Pass Fiter was not used for factor 0.0dB of the above table.

Conducted Spurious Emission

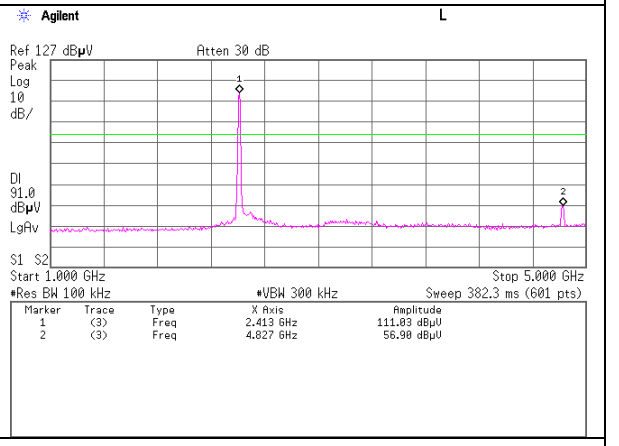
11b

Ch : Low

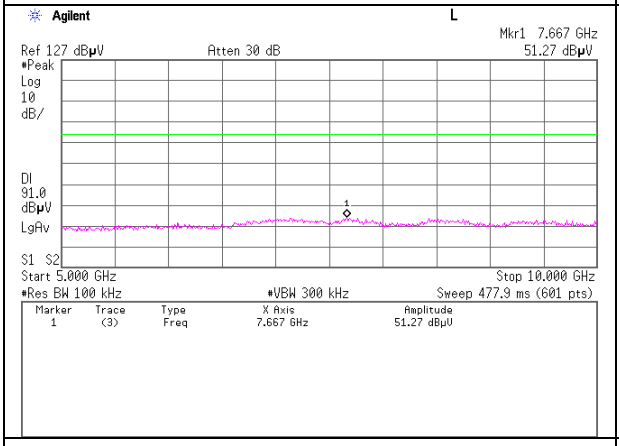
30MHz-1GHz



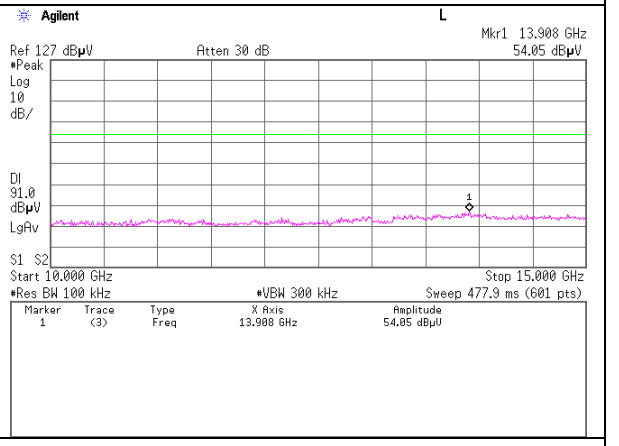
1GHz-5GHz



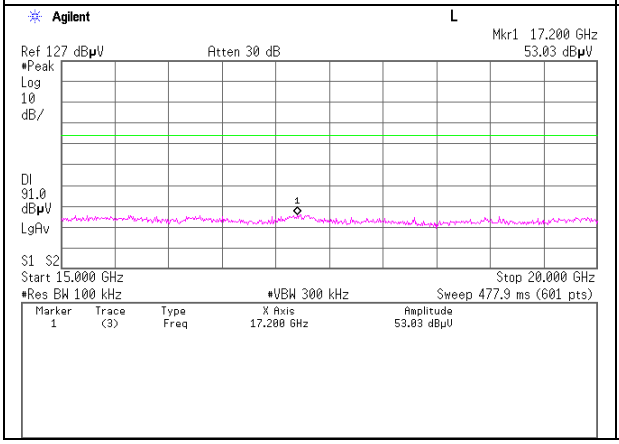
5GHz-10GHz



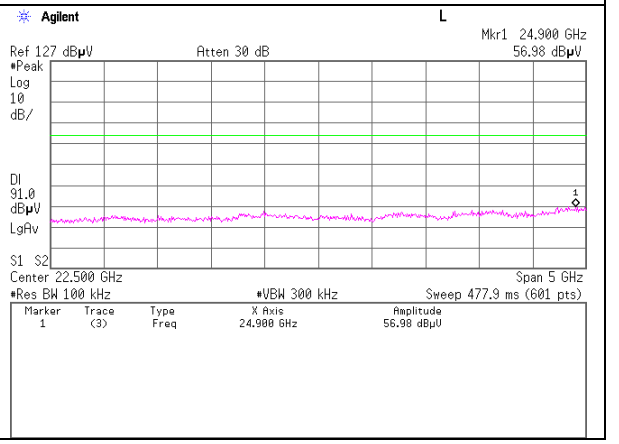
10GHz-15GHz



15GHz-20GHz



20GHz-25GHz

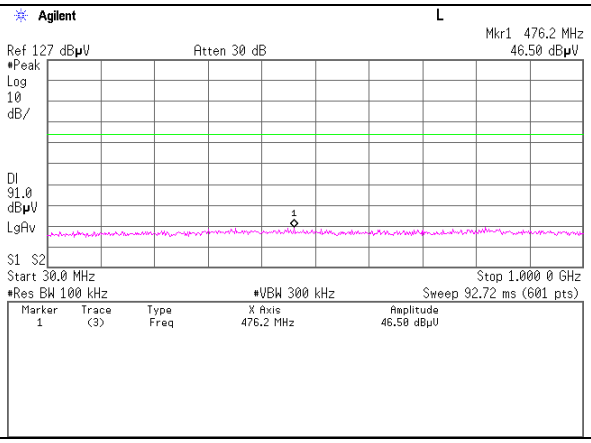


Conducted Spurious Emission

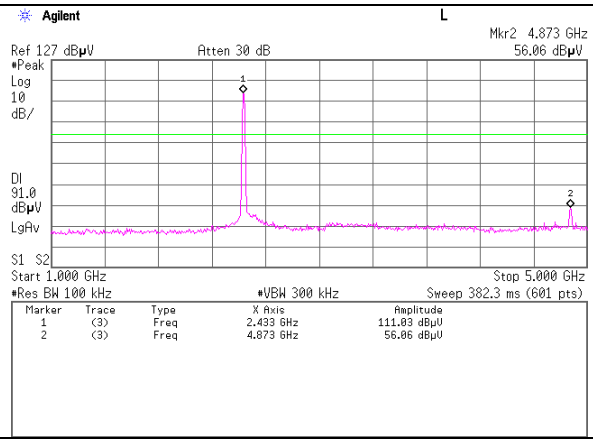
11b

Ch : Mid

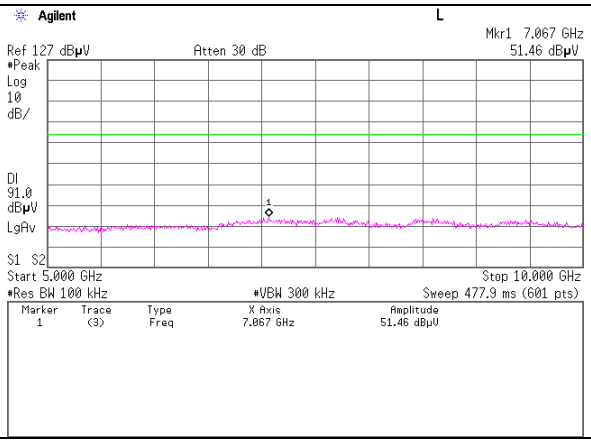
30MHz-1GHz



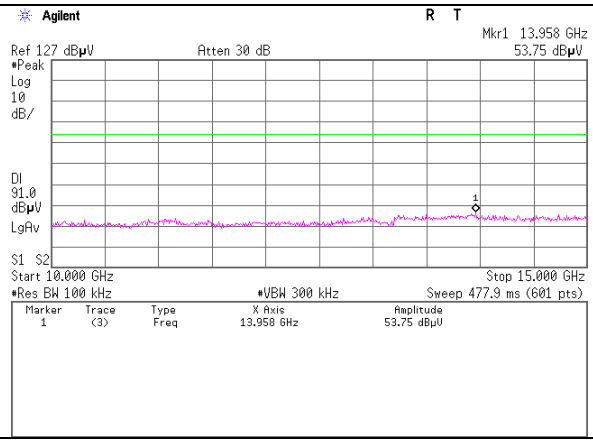
1GHz-5GHz



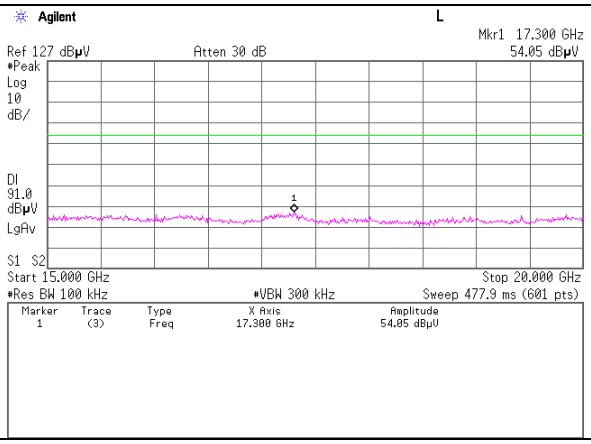
5GHz-10GHz



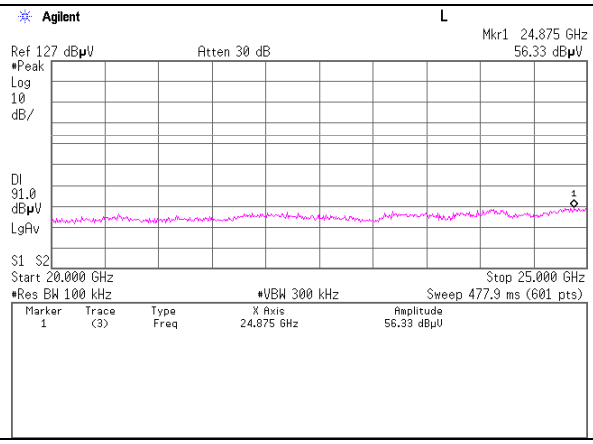
10GHz-15GHz



15GHz-20GHz



20GHz-25GHz

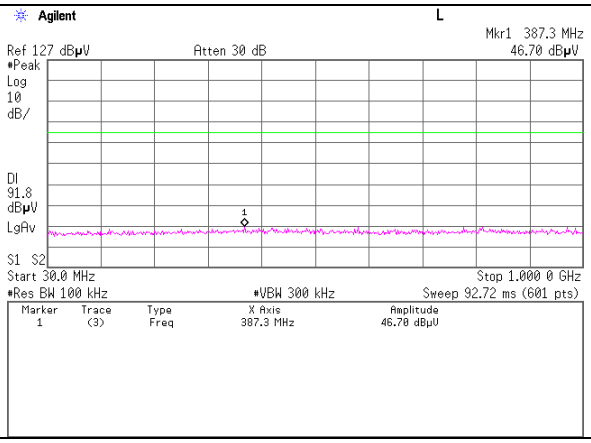


Conducted Spurious Emission

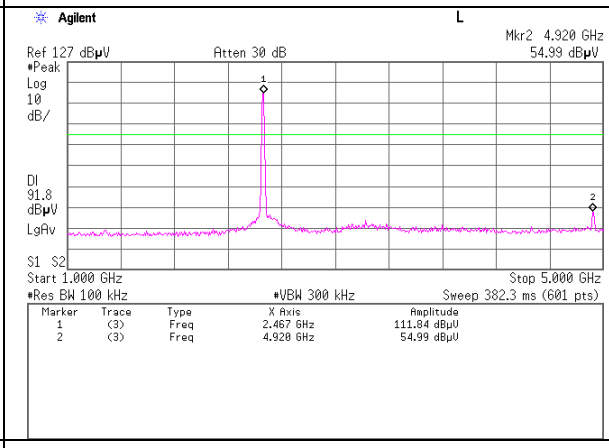
11b

Ch : High

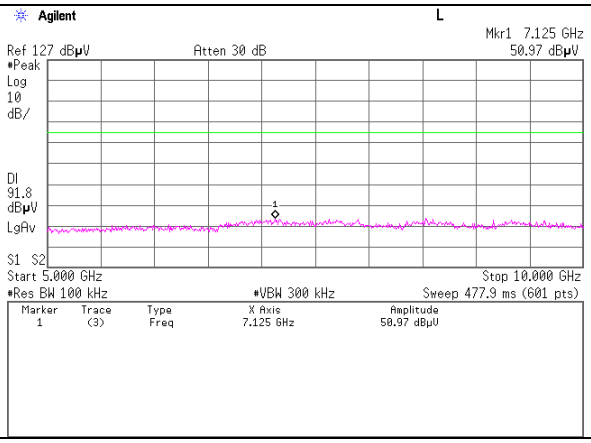
30MHz-1GHz



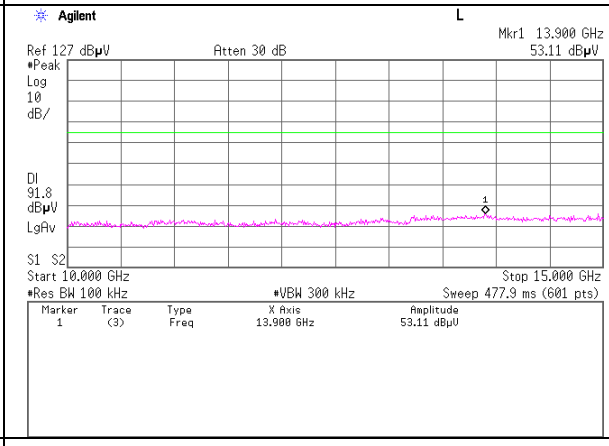
1GHz-5GHz



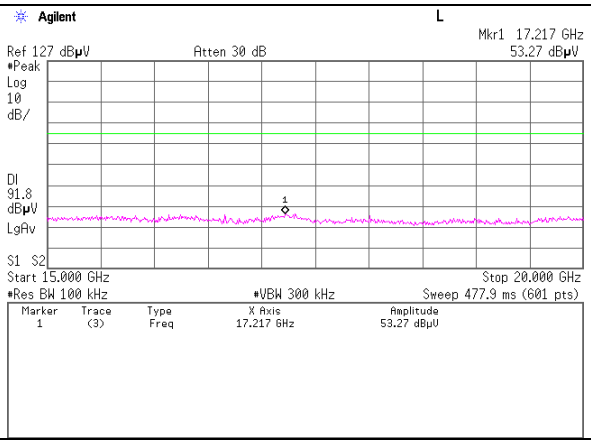
5GHz-10GHz



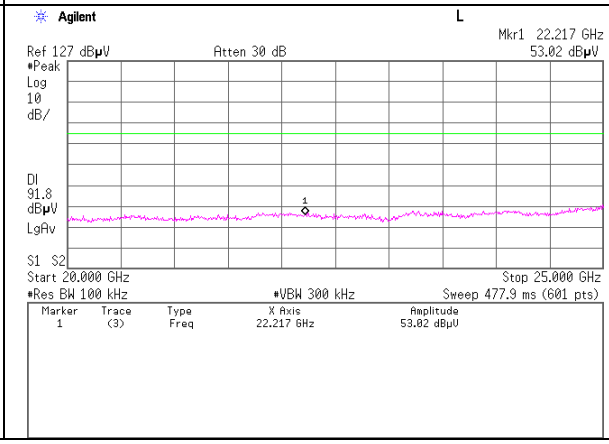
10GHz-15GHz



15GHz-20GHz



20GHz-25GHz

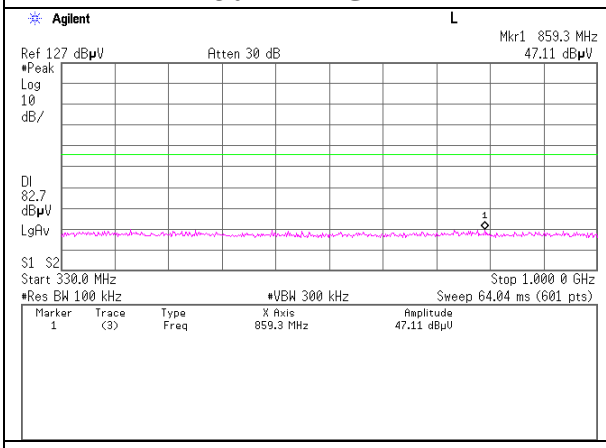


Conducted Spurious Emission

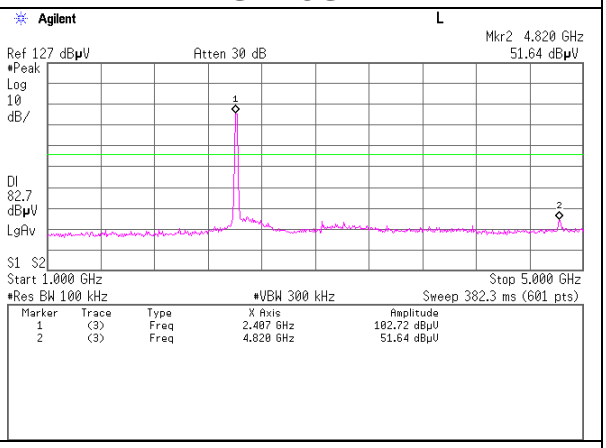
11g

Ch : Low

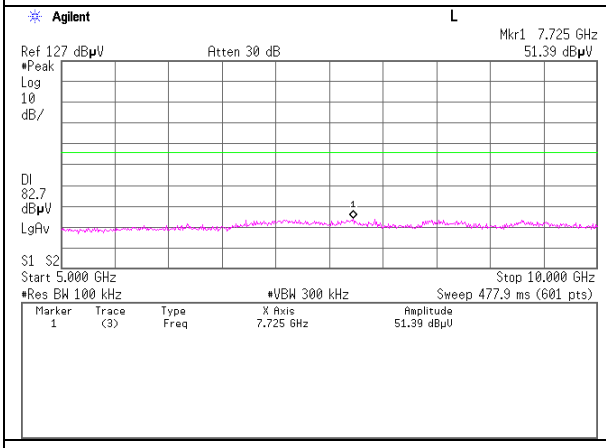
30MHz-1GHz



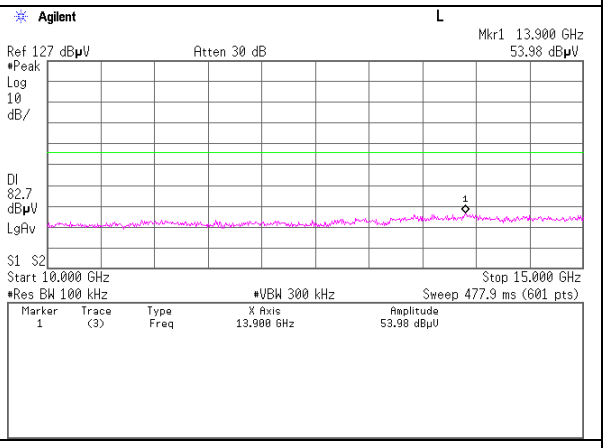
1GHz-5GHz



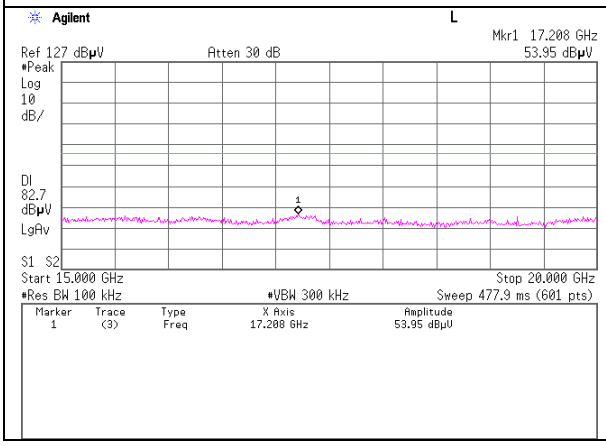
5GHz-10GHz



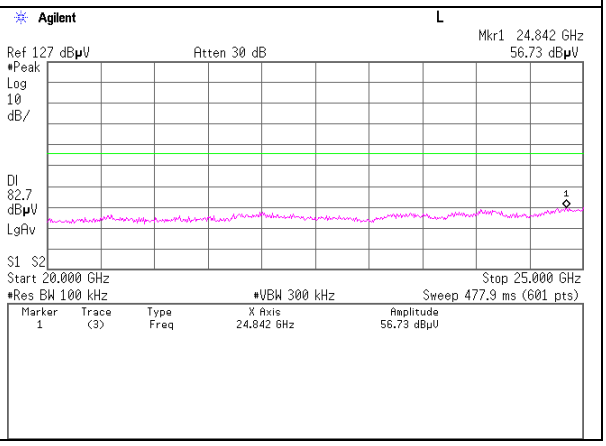
10GHz-15GHz



15GHz-20GHz



20GHz-25GHz

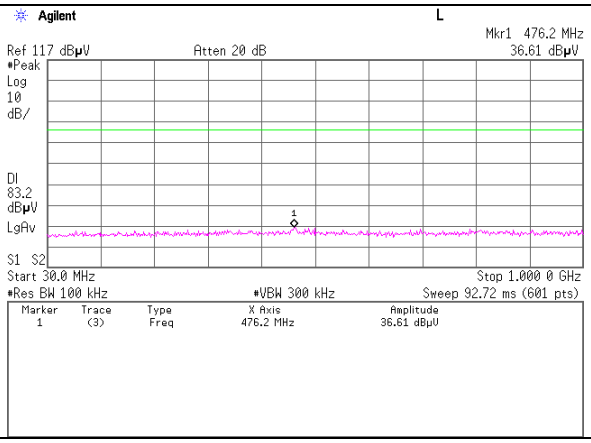


Conducted Spurious Emission

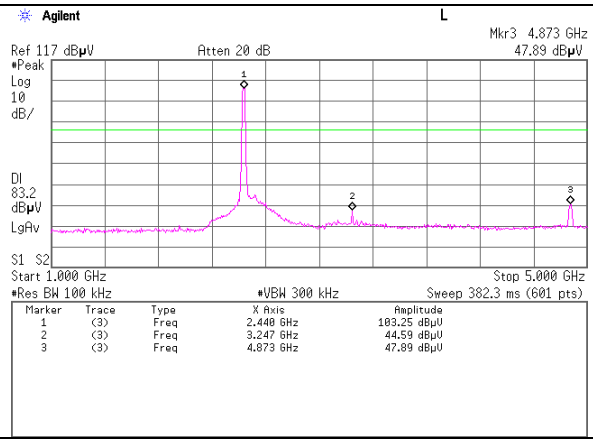
11g

Ch : Mid

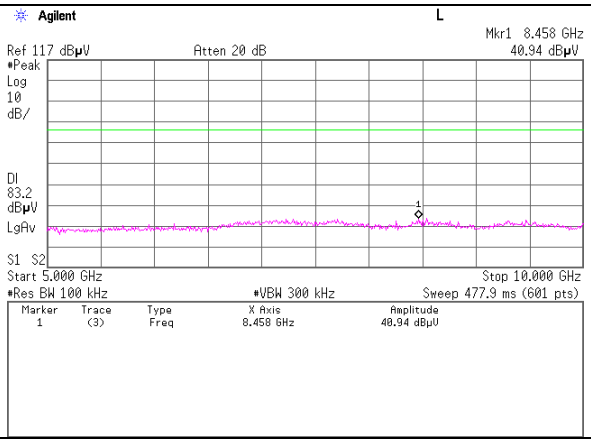
30MHz-1GHz



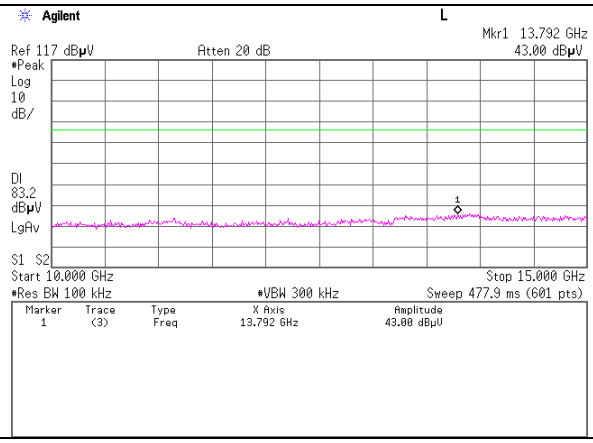
1GHz-5GHz



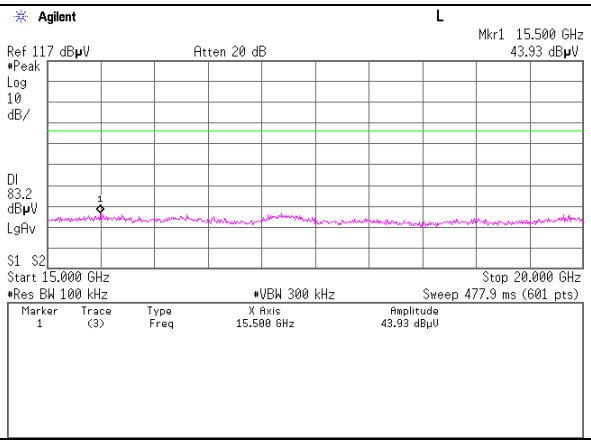
5GHz-10GHz



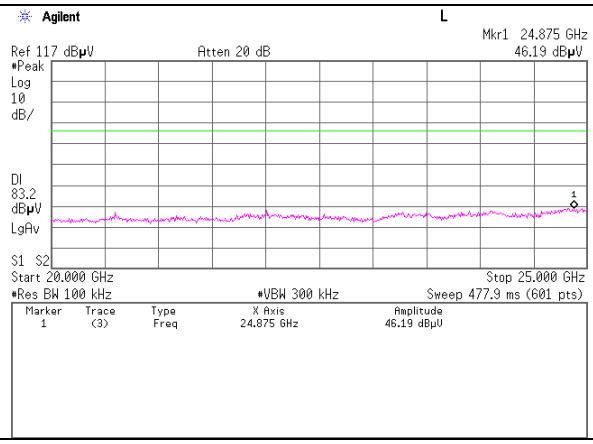
10GHz-15GHz



15GHz-20GHz



20GHz-25GHz

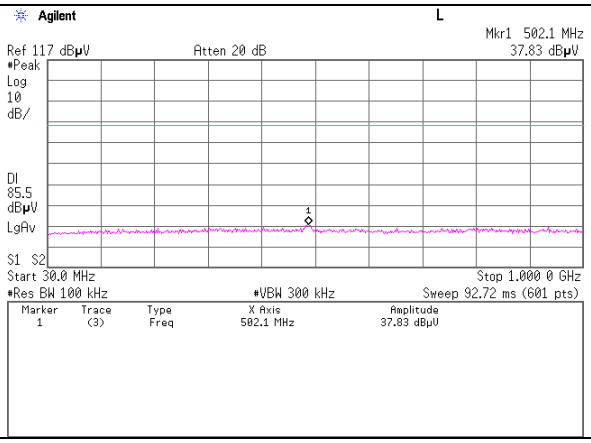


Conducted Spurious Emission

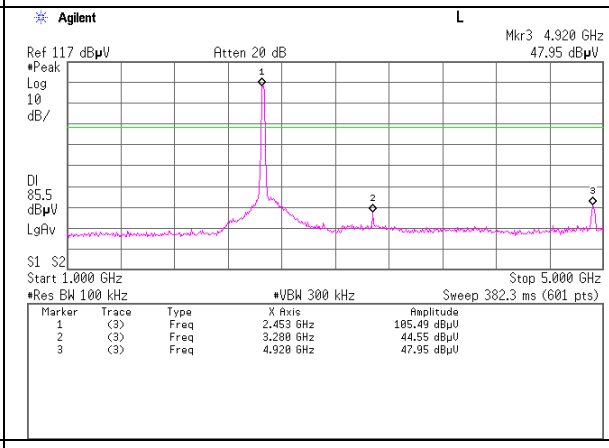
11g

Ch : High

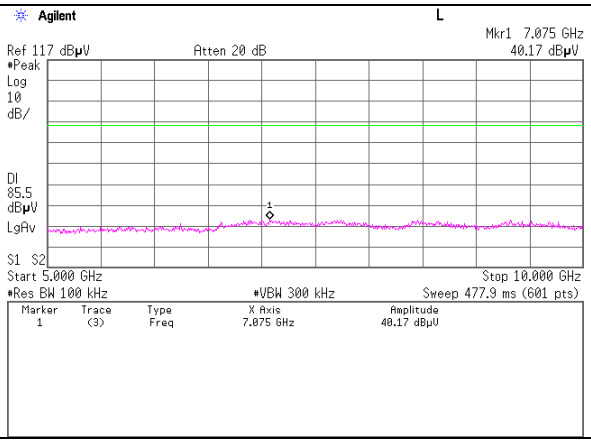
30MHz-1GHz



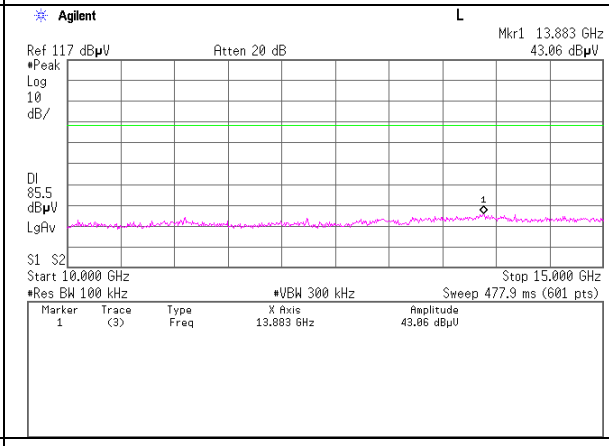
1GHz-5GHz



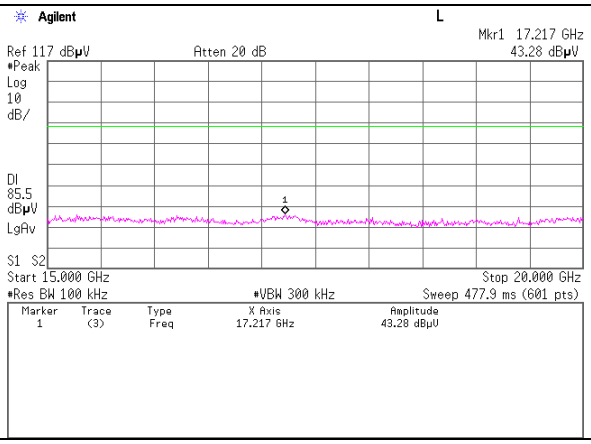
5GHz-10GHz



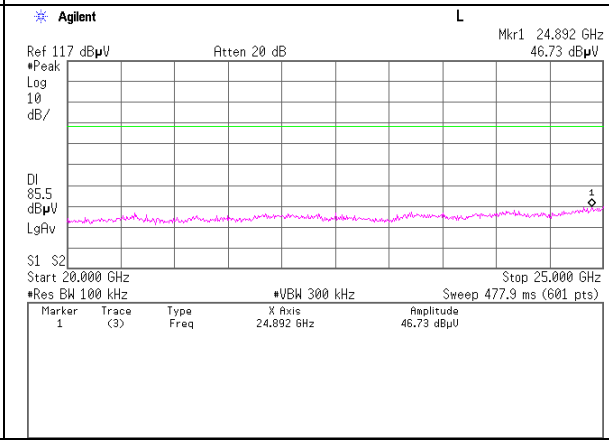
10GHz-15GHz



15GHz-20GHz



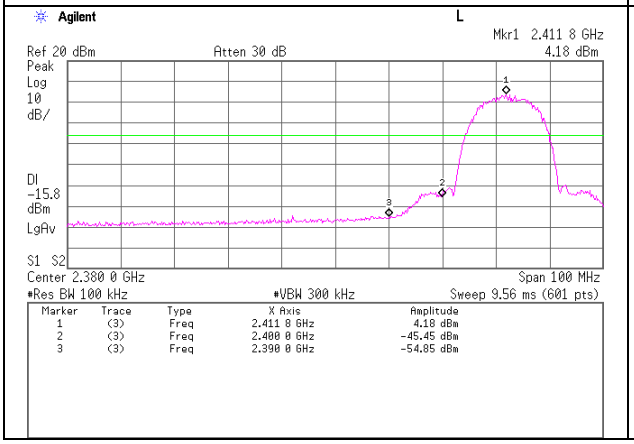
20GHz-25GHz



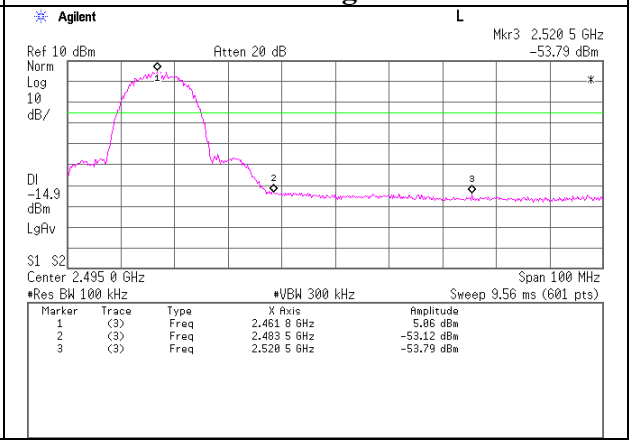
Conducted emission Band Edge compliance

11b

Ch:Low

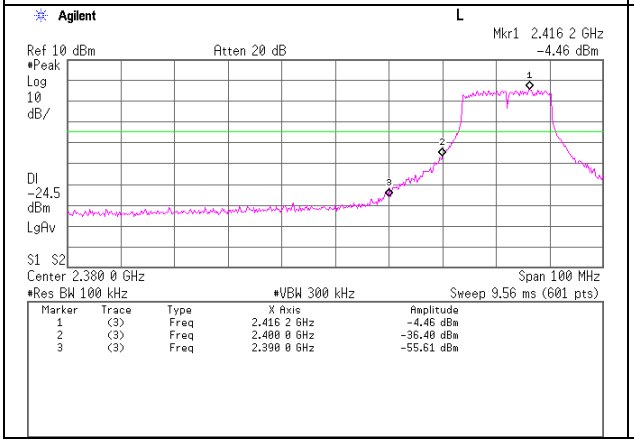


Ch:High

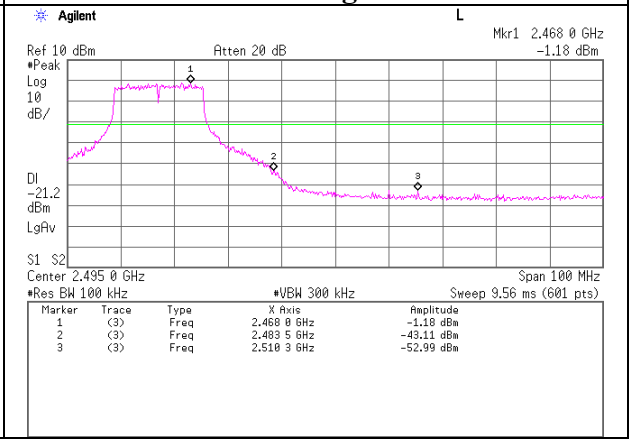


11g

Ch:Low



Ch:High



Power Density

UL Apex Co., Ltd.
Head Office EMC Lab. No.7 Measurement Room

COMPANY	: DENSO WAVE INCORPORATED	REGULATION	: FCC Part15 Subpart C 15.247(e)
QUIPMENT	: Wireless LAN Module	TEST DISTANCE	: -
MODEL	: WM-G-MR-01	DATE	: 10/06/2005
SAMPLE NO.	: 58902833	TEMPERATURE	: 22℃
POWER	: DC3.3V	HUMIDITY	: 53%
MODE	: Tx (ch1,6,11)	ENGINEER	: Yutaka Yoshida

[IEEE802.11b]

Ch	Freq. [MHz]	Reading [dBm]	Cable [dB]	Atten. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
Low	2412.7	-10.51	0.9	0.0	-9.6	8.0	17.6
Mid	2437.7	-10.36	0.9	0.0	-9.5	8.0	17.5
High	2462.4	-9.39	0.9	0.0	-8.5	8.0	16.5

Sample Calculation:
Result = Reading + Cable Loss (spplied by customer) + Attenuator

[IEEE802.11g]

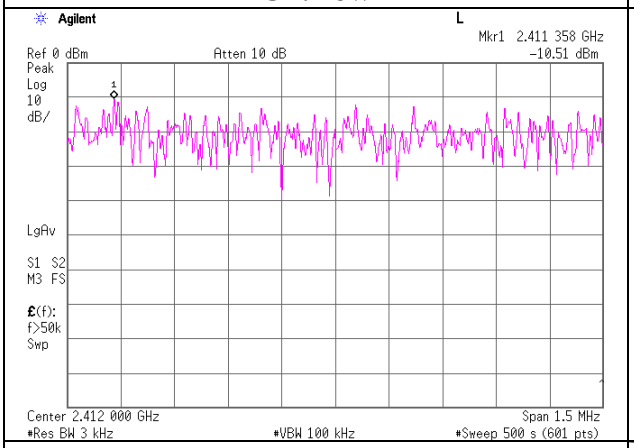
Ch	Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
Low	2412.4	-19.22	0.9	0.0	-18.3	8.0	26.3
Mid	2437.6	-18.23	0.9	0.0	-17.3	8.0	25.3
High	2461.4	-16.75	0.9	0.0	-15.9	8.0	23.9

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

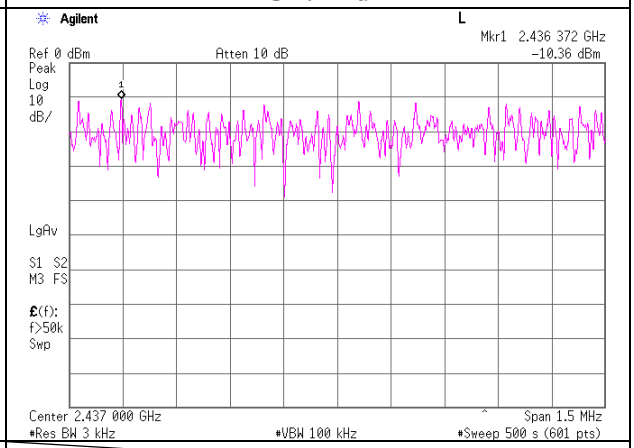
Power Density

11b

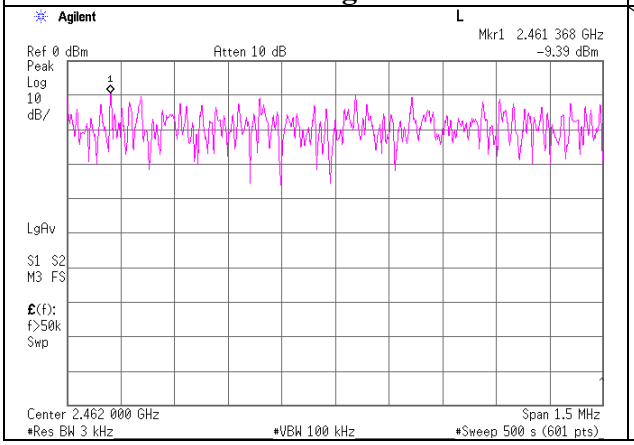
Ch:Low



Ch:Mid



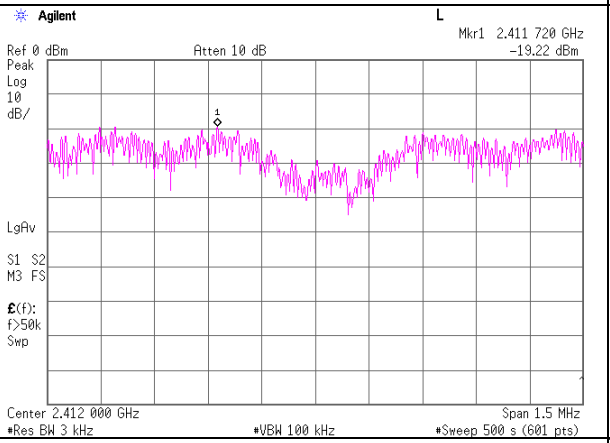
Ch:High



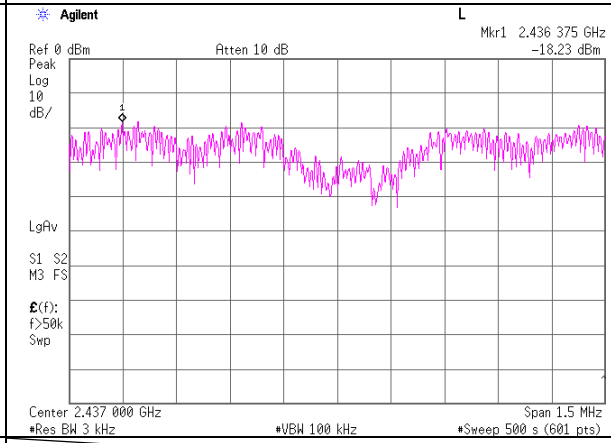
Power Density

11g

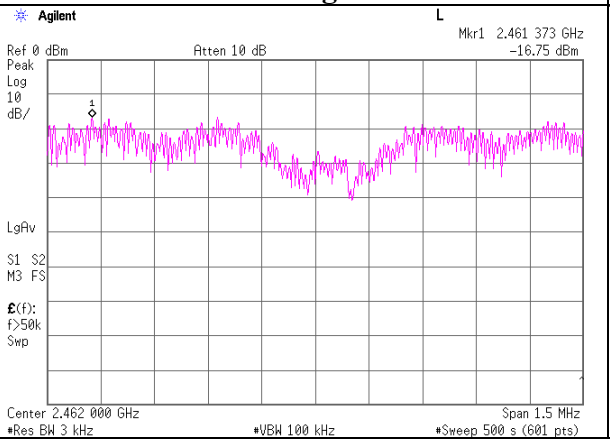
Ch:Low



Ch:Mid



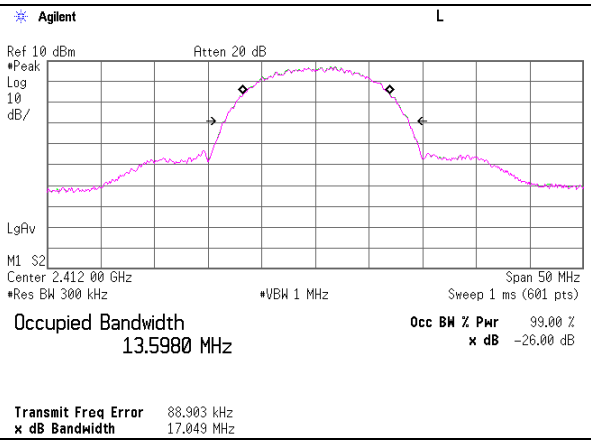
Ch:High



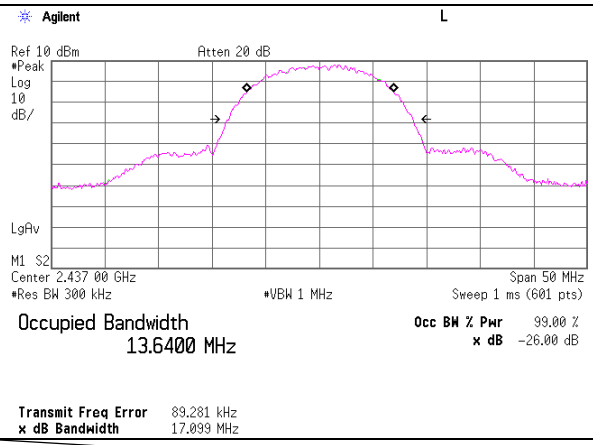
99%Occupied Bandwidth

11b

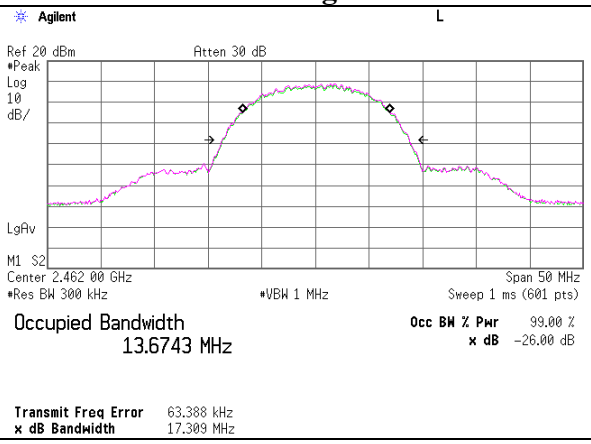
Ch:Low



Ch:Mid



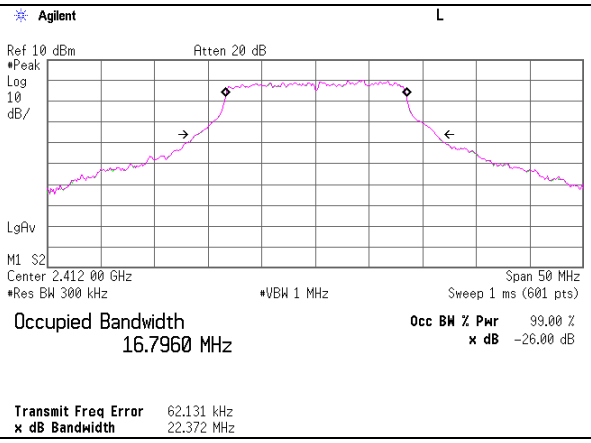
Ch:High



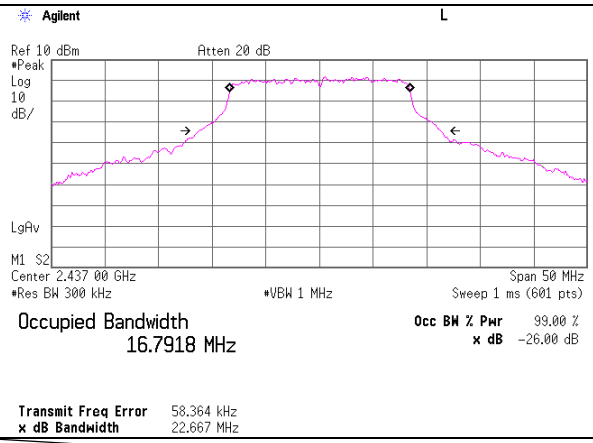
99%Occupied Bandwidth

11g

Ch:Low



Ch:Mid



Ch:High