

## APPENDIX 2: Test instruments

### EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Test Item	Calibration Date * Interval(month)
MAEC-03	Anechoic Chamber	TDK	Semi Anechoic Chamber 3m	RE	2006/03/03 * 12
MCC-56	Microwave Cable	Suhner	SUCOFLEX104	RE	2006/04/15 * 12
MPA-11	MicroWave System Amplifier	Agilent	83017A	RE	2006/03/27 * 12
MHA-05	Horn Antenna	Schwarzbeck	BBHA9120D	RE	2006/01/09 * 12
MRENT-23	Spectrum Analyzer	Advantest	R3273	RE/CE	2006/01/10 * 12
MOS-13	Thermo-Hygrometer	Custom	CTH-180	RE	2006/01/19 * 24
MHA-01	Horn Antenna	EMCO	3160-09	RE	2006/01/09 * 12
MPA-01	Pre Amplifier	Agilent	8449B	RE	2006/02/09 * 12
MCC-56	Microwave Cable	Suhner	SUCOFLEX104	RE	2006/04/15 * 12
MRENT-23	Spectrum Analyzer	Advantest	R3273	RE	2006/01/10 * 12
TR-07	Test Receiver	Rohde & Schwarz	ESCS30	RE /CE	2005/09/14 * 12
MCC-51	Coaxial cable	UL Apex	-	RE	2006/03/11 * 12
MPA-13	Pre Amplifier	SONOA INSTRUMENT	310	RE	2006/03/25 * 12
MBA-03	Biconical Antenna	Schwarzbeck	BBA9106	RE	2006/01/29 * 12
MLA-03	Logperiodic Antenna	Schwarzbeck	USLP9143	RE	2006/01/29 * 12
MAT-30	Attenuator(6dB)	TME	UFA-01	RE	2006/03/11 * 12
MLS-07	LISN(AMN)	Schwarzbeck	NSLK8127	CE (EUT)	2006/02/06 * 12
MCC-59	Coaxial cable	UL Apex	-	CE	2006/04/13 * 12
MSA-03	Spectrum Analyzer	Agilent	E4448A	AT	2005/09/16 * 12
MAT-23	Attenuator(10dB) (above1GHz)	Orient Microwave	BX10-0476-00	AT	2006/03/18 * 12
MOS-04	Digital Humidity Indicator	N.T	NT-1800	AT	2004/11/25 * 24
MRENT-36	Power Meter	Anritsu	ML2496A	AT	2006/04/25 * 12
MRENT-33	Power sensor	Anritsu	MA2411B	AT	2006/04/25 * 12
MAT-22	Attenuator(10dB)(above 1GHz)	Orient Microwave	BX10-0476-00	AT	2006/03/18 * 12

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

Test Item:

CE: AC Main Conducted Emission, RE: Radiated Spurious Emission

AT: Antenna Terminal Conducted measurement

**UL Apex Co., Ltd.**

**Head Office EMC Lab.**

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MF060b(14.06.06)

**APPENDIX 3: Data of EMI test**

**Conducted Emission**

**DATA OF CONDUCTED EMISSION TEST**

UL Apex Co., Ltd. Head Office EMC Lab. No.3 Semi Anechoic Chamber  
Date : 2006/06/27 11:31:39

Applicant	: Nikon Corporation	Report No.	: 26IE0215-HO
Kind of EUT	: WLAN Module	Power	: DC3.7V (AC adapter AC120V/60Hz)
Model No.	: 2143EB	Temp./Humi.	: 24deg.C / 59%
Serial No.	: 41	Operator	: Mitsuru Fujimura

Mode / Remarks : WLAN IEEE802.11b, Transmitting ch01

LIMIT : FCC15C § 15.207 (QP) / RSS-Gen / RSS-210  
FCC15C § 15.207 (AV) / RSS-Gen / RSS-210

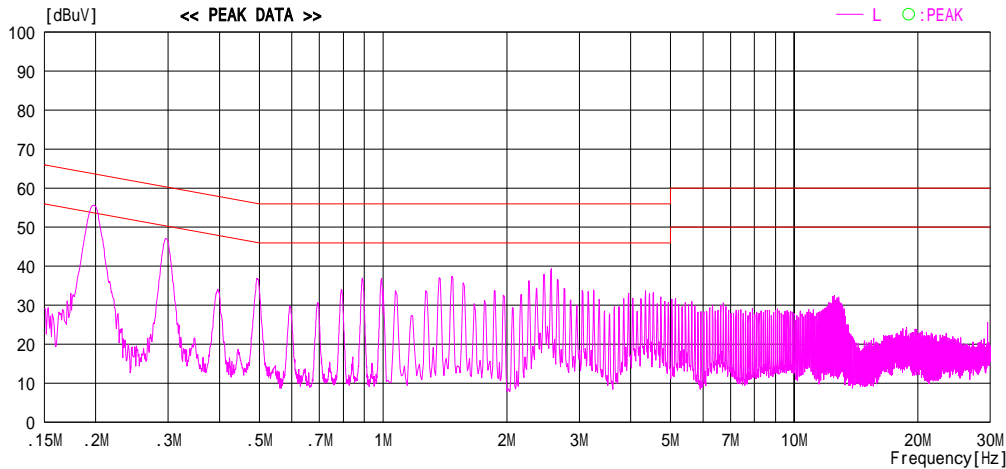
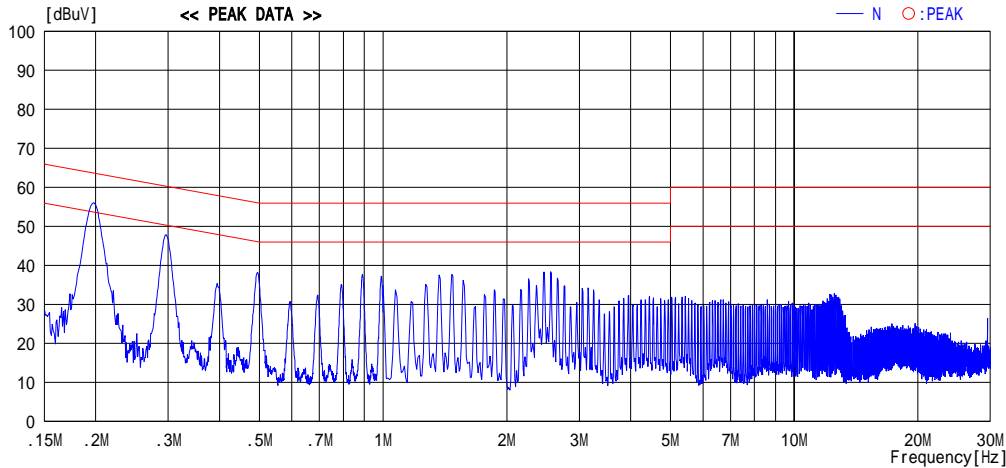


CHART:WITH FACTOR,Peak hold data.Data is uncorrected. CALCURATION:RESULT=READING+C.F(LISN LOSS+CABLE LOSS)  
Except for the above table : adequate margin data below the limits.

## Conducted Emission

### DATA OF CONDUCTED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.3 Semi Anechoic Chamber  
 Date : 2006/06/27 11:39:57

Applicant : Nikon Corporation  
 Kind of EUT : WLAN Module  
 Model No. : 2143EB  
 Serial No. : 41

Report No. : 261E0215-H0  
 Power : DC3.7V (AC adapter AC120V/60Hz)  
 Temp./Humi. : 24deg.C / 59%  
 Operator : Mitsuru Fujimura

Mode / Remarks : WLAN IEEE802.11b, Transmitting ch06

LIMIT : FCC15C § 15.207 (QP) / RSS-Gen / RSS-210  
 FCC15C § 15.207 (AV) / RSS-Gen / RSS-210

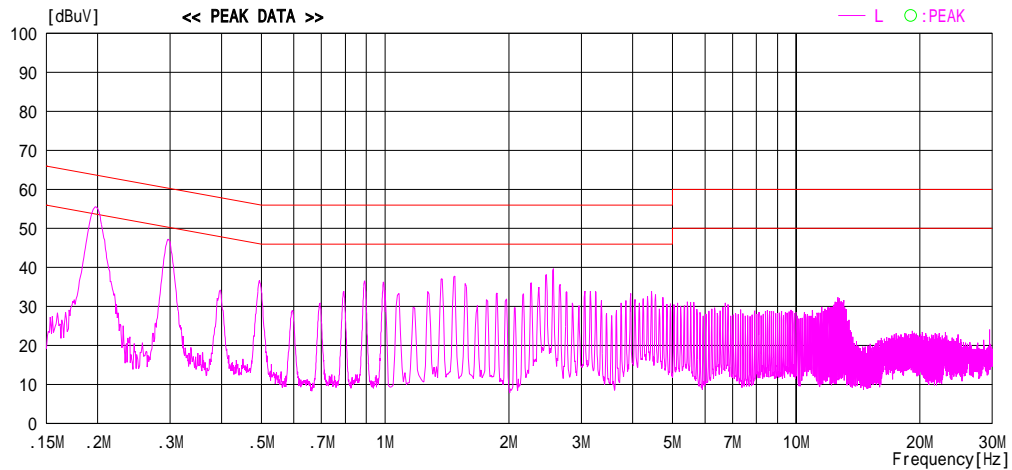
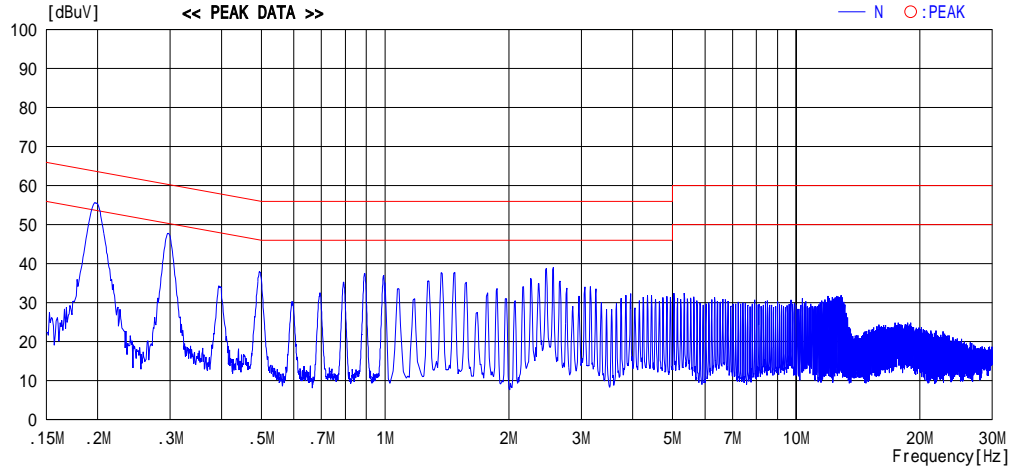


CHART:WITH FACTOR,Peak hold data.Data is uncorrected. CALCURATION:RESULT=READING+C.F(LISN LOSS+CABLE LOSS)  
 Except for the above table : adequate margin data below the limits.

**Conducted Emission**

**DATA OF CONDUCTED EMISSION TEST**

UL Apex Co., Ltd. Head Office EMC Lab. No.3 Semi Anechoic Chamber  
 Date : 2006/06/27 11:46:19

Applicant : Nikon Corporation  
 Kind of EUT : WLAN Module  
 Model No. : 2143EB  
 Serial No. : 41

Report No. : 26IE0215-HO  
 Power : DC3.7V (AC adapter AC120V/60Hz)  
 Temp./Humi. : 24deg.C / 59%  
 Operator : Mitsuru Fujimura

Mode / Remarks : WLAN IEEE802.11b, Transmitting ch11

LIMIT : FCC15C § 15.207 (QP) / RSS-Gen / RSS-210  
 FCC15C § 15.207 (AV) / RSS-Gen / RSS-210

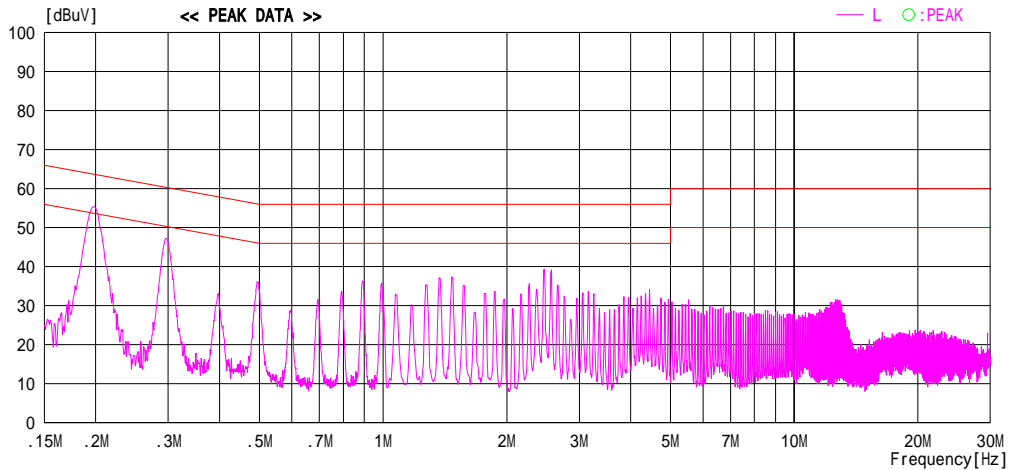
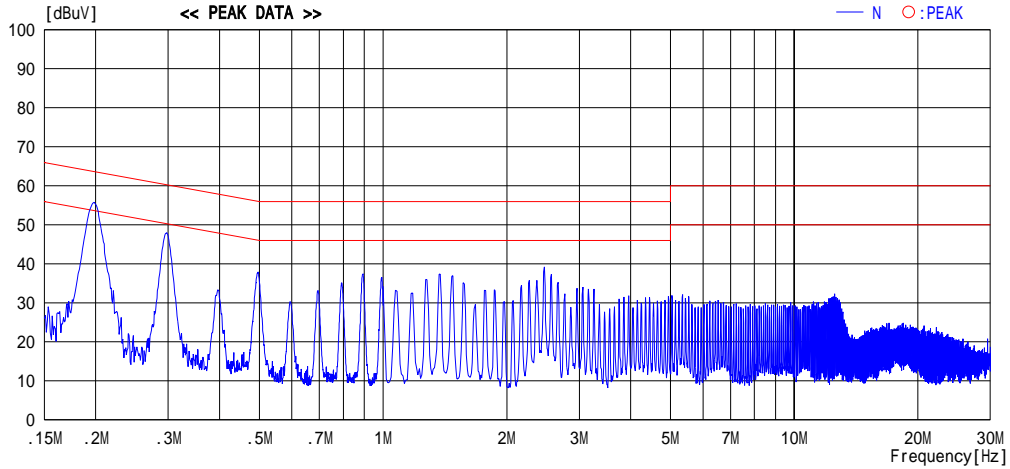


CHART:WITH FACTOR,Peak hold data.Data is uncorrected. CALCURATION:RESULT=READING+C.F(LIEN LOSS+CABLE LOSS)  
 Except for the above table : adequate margin data below the limits.

## Conducted Emission

### DATA OF CONDUCTED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.3 Semi Anechoic Chamber  
 Date : 2006/06/27 11:54:36

Applicant : Nikon Corporation Kind of EUT : WLAN Module Model No. : 2143EB Serial No. : 41	Report No. : 261E0215-HO Power : DC3.7V (AC adapter AC120V/60Hz) Temp./Humi. : 24deg.C / 59% Operator : Mitsuru Fujimura
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Mode / Remarks : WLAN IEEE802.11g, Transmitting ch01

LIMIT : FCC15C § 15.207 (QP) / RSS-Gen / RSS-210  
 FCC15C § 15.207 (AV) / RSS-Gen / RSS-210

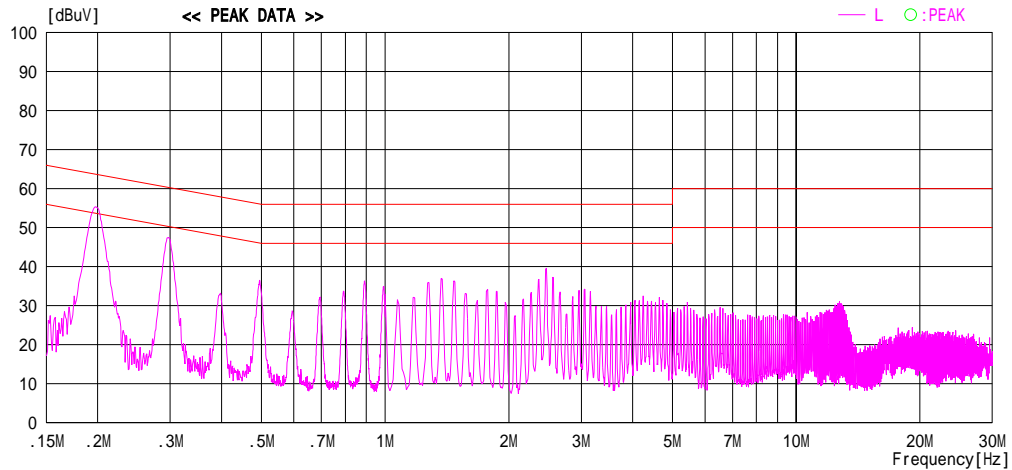
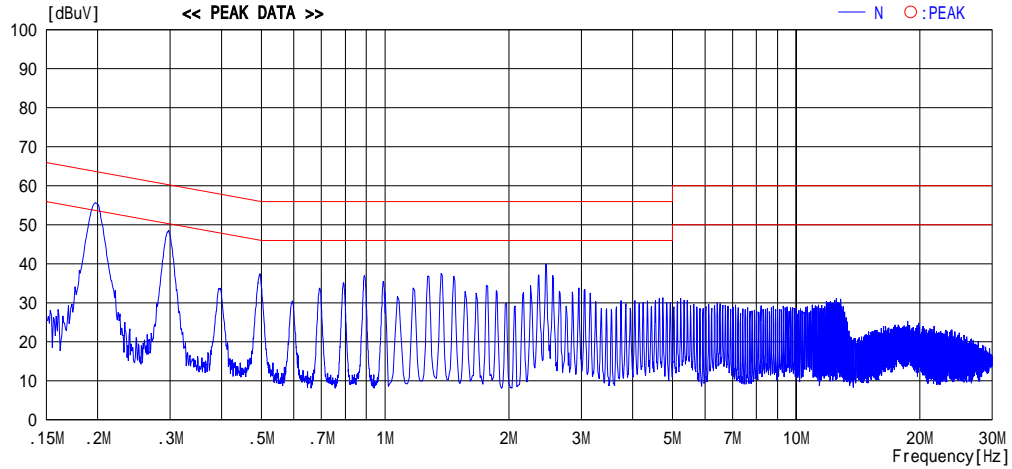


CHART:WITH FACTOR, Peak hold data. Data is uncorrected. CALCURATION: RESULT=READING+C.F(LIN LOSS+CABLE LOSS)  
 Except for the above table : adequate margin data below the limits.

## Conducted Emission

### DATA OF CONDUCTED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.3 Semi Anechoic Chamber  
 Date : 2006/06/27 11:59:49

Applicant : Nikon Corporation  
 Kind of EUT : WLAN Module  
 Model No. : 2143EB  
 Serial No. : 41

Report No. : 261E0215-HO  
 Power : DC3.7V (AC adapter AC120V/60Hz)  
 Temp./Humi. : 24deg.C / 59%  
 Operator : Mitsuru Fujimura

Mode / Remarks : WLAN IEEE802.11g, Transmitting ch06

LIMIT : FCC15C § 15.207 (QP) / RSS-Gen / RSS-210  
 FCC15C § 15.207 (AV) / RSS-Gen / RSS-210

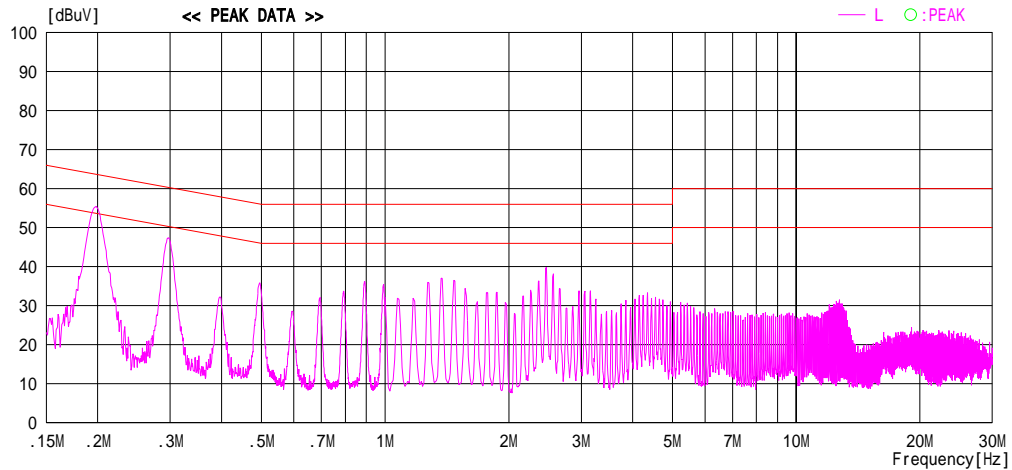
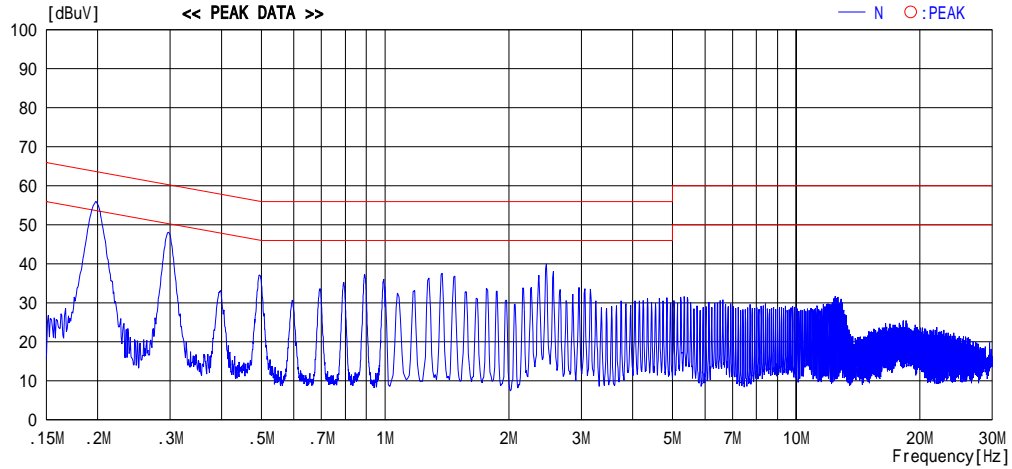


CHART:WITH FACTOR,Peak hold data.Data is uncorrected. CALCURATION:RESULT=READING+C.F(LISN LOSS+CABLE LOSS)  
 Except for the above table : adequate margin data below the limits.

## Conducted Emission

### DATA OF CONDUCTED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.3 Semi Anechoic Chamber  
 Date : 2006/06/27 12:44:23

Applicant : Nikon Corporation Kind of EUT : WLAN Module Model No. : 2143EB Serial No. : 41	Report No. : 261E0215-HO Power : DC3.7V (AC adapter AC120V/60Hz) Temp./Humi. : 24deg.C / 59% Operator : Mitsuru Fujimura
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Mode / Remarks : WLAN IEEE802.11g, Transmitting ch11

LIMIT : FCC15C § 15.207 (QP) / RSS-Gen / RSS-210  
 FCC15C § 15.207 (AV) / RSS-Gen / RSS-210

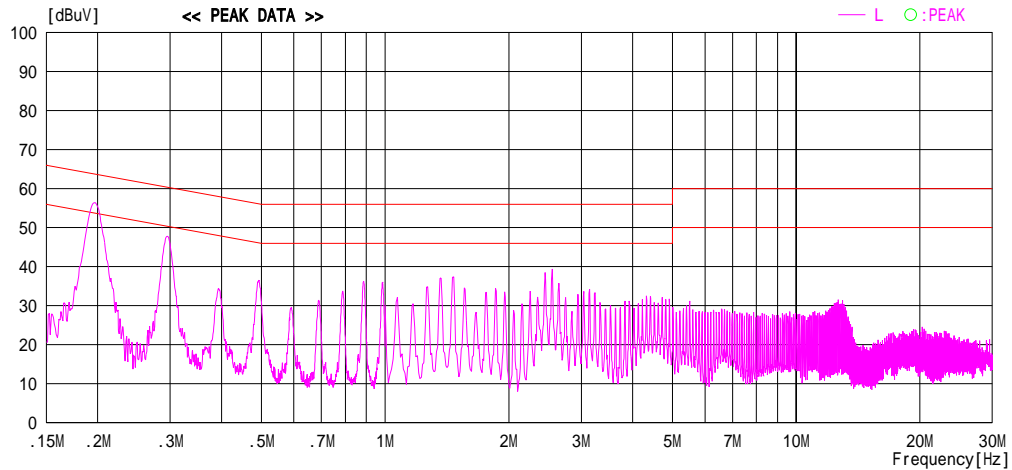
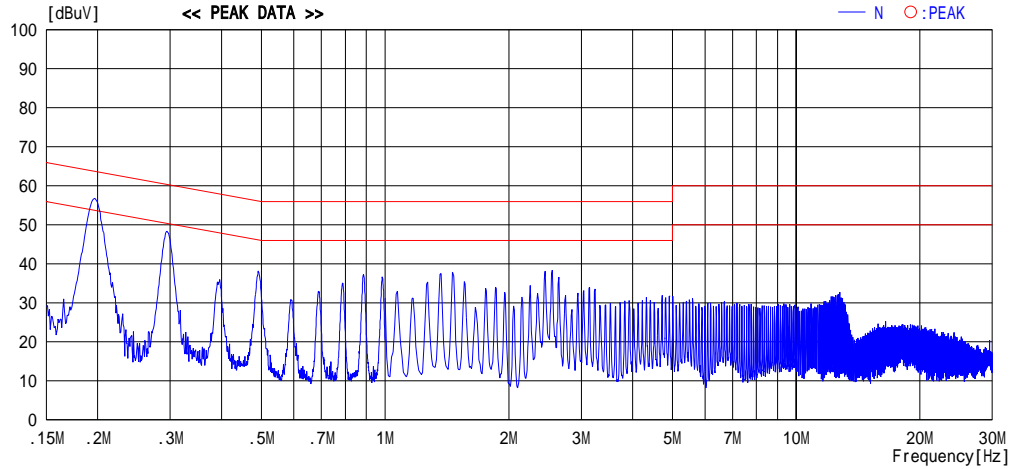


CHART:WITH FACTOR,Peak hold data.Data is uncorrected. CALCURATION:RESULT=READING+C.F(LIEN LOSS+CABLE LOSS)  
 Except for the above table : adequate margin data below the limits.

## Conducted Emission

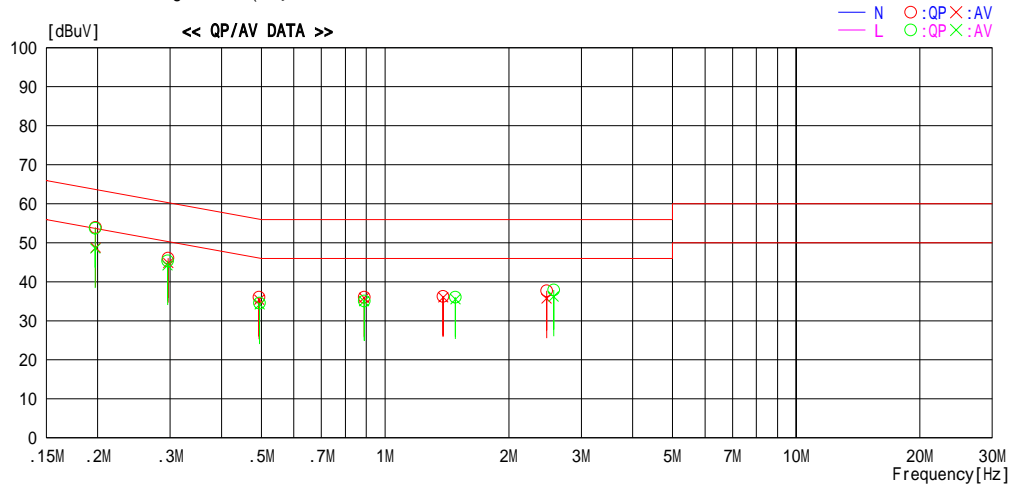
### DATA OF CONDUCTED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.3 Semi Anechoic Chamber  
Date : 2006/06/27 11:39:57

Applicant : Nikon Corporation	Report No. : 26IE0215-HO
Kind of EUT : WLAN Module	Power : DC3.7V (AC adapter AC120V/60Hz)
Model No. : 2143EB	Temp./Humi. : 24deg.C / 59%
Serial No. : 41	Operator : Mitsuru Fujimura

Mode / Remarks : WLAN IEEE802.11b, Transmitting ch06

LIMIT : FCC15C § 15.207 (QP) / RSS-Gen / RSS-210  
FCC15C § 15.207 (AV) / RSS-Gen / RSS-210



Frequency [MHz]	Reading Level		Corr. Factor [dB]	Results		Limit		Margin		Phase	Comment
	QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dB]	AV [dB]		
0.19730	53.7	48.4	0.1	53.8	48.5	63.7	53.7	9.9	5.2	L	
0.19768	53.9	48.6	0.1	54.0	48.7	63.7	53.7	9.7	5.0	N	
0.29590	45.2	44.0	0.2	45.4	44.2	60.4	50.4	15.0	6.2	L	
0.29684	45.9	44.6	0.2	46.1	44.8	60.3	50.3	14.2	5.5	N	
0.49416	35.8	35.1	0.3	36.1	35.4	56.1	46.1	20.0	10.7	N	
0.49490	34.3	33.9	0.3	34.6	34.2	56.1	46.1	21.5	11.9	L	
0.88919	34.8	34.7	0.3	35.1	35.0	56.0	46.0	20.9	11.0	L	
0.88962	35.8	35.6	0.3	36.1	35.9	56.0	46.0	19.9	10.1	N	
1.38452	36.0	35.7	0.3	36.3	36.0	56.0	46.0	19.7	10.0	N	
1.48282	35.8	35.2	0.3	36.1	35.5	56.0	46.0	19.9	10.5	L	
2.47184	37.3	35.3	0.4	37.7	35.7	56.0	46.0	18.3	10.3	N	
2.57016	37.5	35.8	0.4	37.9	36.2	56.0	46.0	18.1	9.8	L	

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



## Conducted Emission

### DATA OF CONDUCTED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.3 Semi Anechoic Chamber  
 Date : 2006/06/27 12:52:06

Applicant : Nikon Corporation  
 Kind of EUT : WLAN Module  
 Model No. : 2143EB  
 Serial No. : 41

Report No. : 261E0215-H0  
 Power : DC3.7V (AC adapter AC120V/60Hz)  
 Temp./Humi. : 24deg.C / 59%  
 Operator : Mitsuru Fujimura

Mode / Remarks : WLAN IEEE802.11b/g, Receiving ch06

LIMIT : FCC15C § 15.207 (QP) / RSS-Gen / RSS-210  
 FCC15C § 15.207 (AV) / RSS-Gen / RSS-210

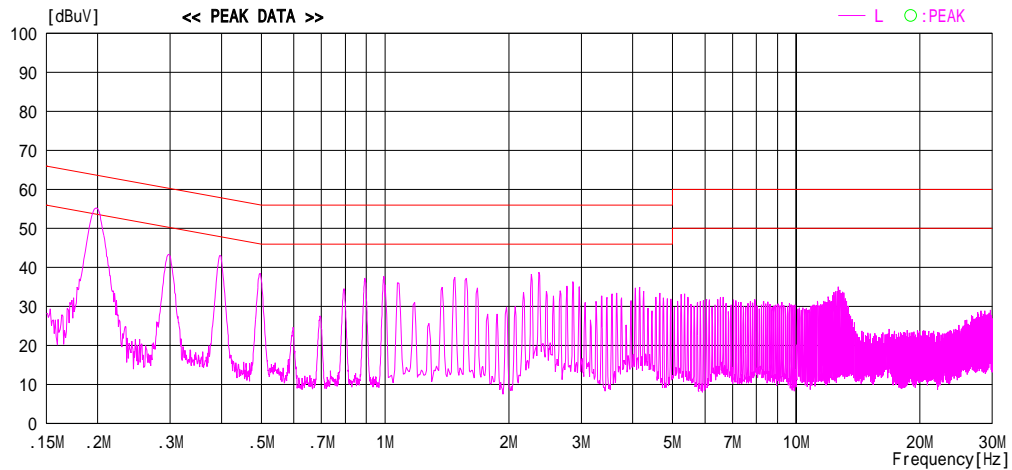
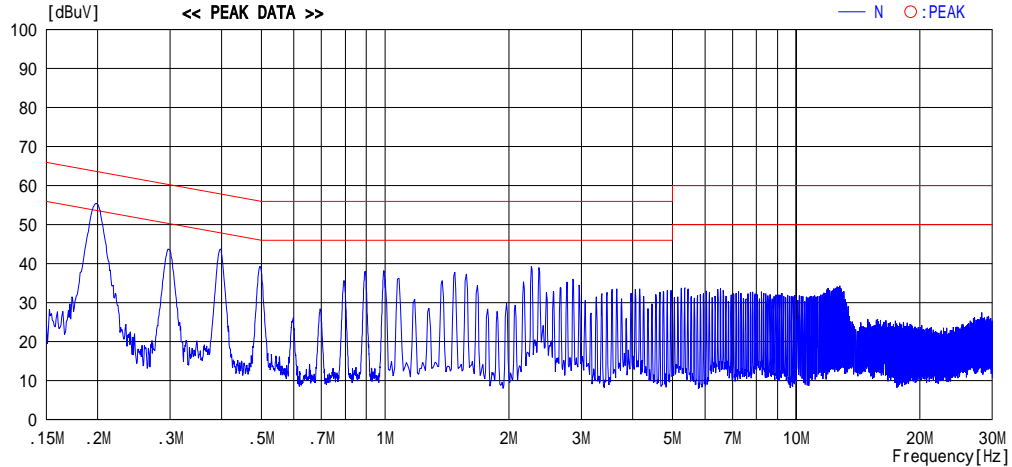


CHART:WITH FACTOR,Peak hold data.Data is uncorrected. CALCURATION:RESULT=READING+C.F(LISN LOSS+CABLE LOSS)  
 Except for the above table : adequate margin data below the limits.

### Conducted Emission

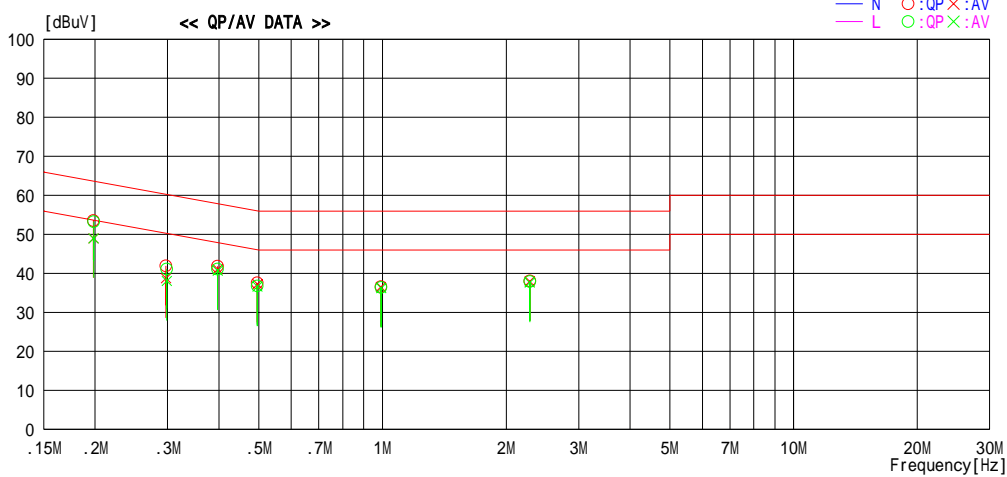
### DATA OF CONDUCTED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.3 Semi Anechoic Chamber  
Date : 2006/06/27 12:52:06

Applicant : Nikon Corporation  
Kind of EUT : WLAN Module  
Model No. : 2143EB  
Serial No. : 41  
Report No. : 26IE0215-HO  
Power : DC3.7V (AC adapter AC120V/60Hz)  
Temp./Humi. : 24deg.C / 59%  
Operator : Mitsuru Fujimura

Mode / Remarks : WLAN IEEE802.11b/g, Receiving ch06

LIMIT : FCC15C § 15.207 (QP) / RSS-Gen / RSS-210  
FCC15C § 15.207 (AV) / RSS-Gen / RSS-210



Frequency [MHz]	Reading Level		Corr. Factor [dB]	Results		Limit		Margin		Phase	Comment
	QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dB]	AV [dB]		
0.19803	53.4	48.9	0.1	53.5	49.0	63.7	53.7	10.2	4.7	N	
0.29748	41.7	38.5	0.2	41.9	38.7	60.3	50.3	18.4	11.6	N	
0.39713	41.5	40.8	0.3	41.8	41.1	57.9	47.9	16.1	6.8	N	
0.49635	37.3	36.9	0.3	37.6	37.2	56.1	46.1	18.5	8.9	N	
0.99135	36.3	36.2	0.3	36.6	36.5	56.0	46.0	19.4	9.5	N	
2.28144	37.8	37.6	0.3	38.1	37.9	56.0	46.0	17.9	8.1	N	
0.19830	53.1	48.9	0.1	53.2	49.0	63.7	53.7	10.5	4.7	L	
0.29858	40.9	37.8	0.2	41.1	38.0	60.3	50.3	19.2	12.3	L	
0.39712	40.8	40.4	0.3	41.1	40.7	57.9	47.9	16.8	7.2	L	
0.49628	36.5	36.3	0.3	36.8	36.6	56.1	46.1	19.3	9.5	L	
0.99257	36.1	35.9	0.3	36.4	36.2	56.0	46.0	19.6	9.8	L	
2.28282	37.6	37.3	0.3	37.9	37.6	56.0	46.0	18.1	8.4	L	

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

## 6dB Bandwidth

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

Company : Nikon Corporation  
Equipment : WLAN Module  
Model : 2143EB  
Sample No. : 17  
Power : DC3.7V(AC120V/60Hz)  
Mode : Tx (ch1,6,11)

REPORT NO : 26IE0215-HO  
REGULATION : FCC Part15 Subpart C 15.247(a)(2)  
TEST DISTANCE : -  
DATE : 06/28/2006  
TEMPERATURE : 26  
HUMIDITY : 65%  
ENGINEER : Yutaka Yoshida

### 11b 11Mbps

Ch	Freq. [MHz]	6dB Bandwidth [MHz]	Limit [kHz]
Low	2412.0	9.536	500.0
Mid	2437.0	9.851	500.0
High	2462.0	9.537	500.0

### 11g 54Mbps

Ch	Freq. [MHz]	6dB Bandwidth [MHz]	Limit [kHz]
Low	2412.0	16.553	500.0
Mid	2437.0	16.557	500.0
High	2462.0	16.543	500.0

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**UL Apex Co., Ltd.**

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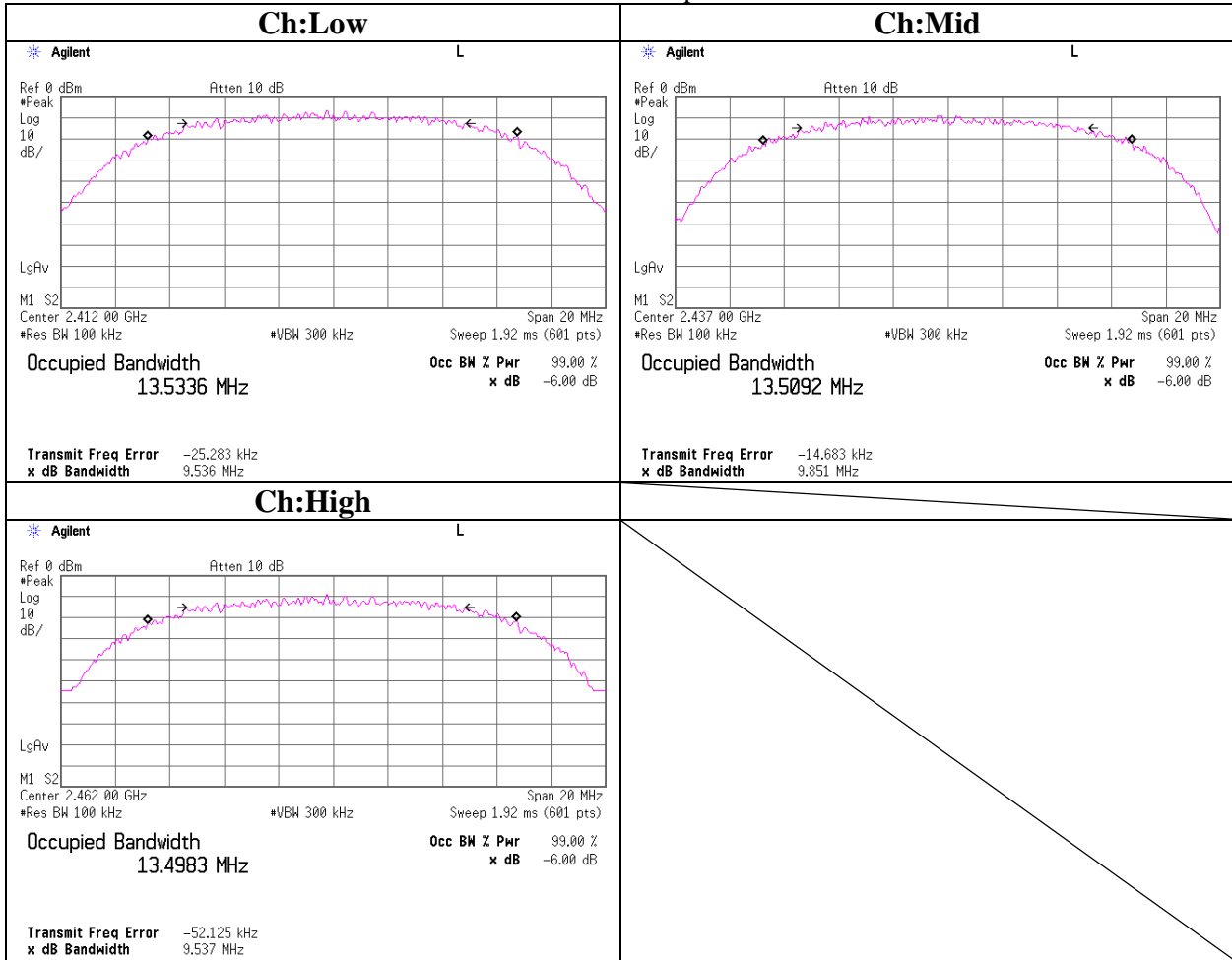
Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

MF060b(14.06.06)

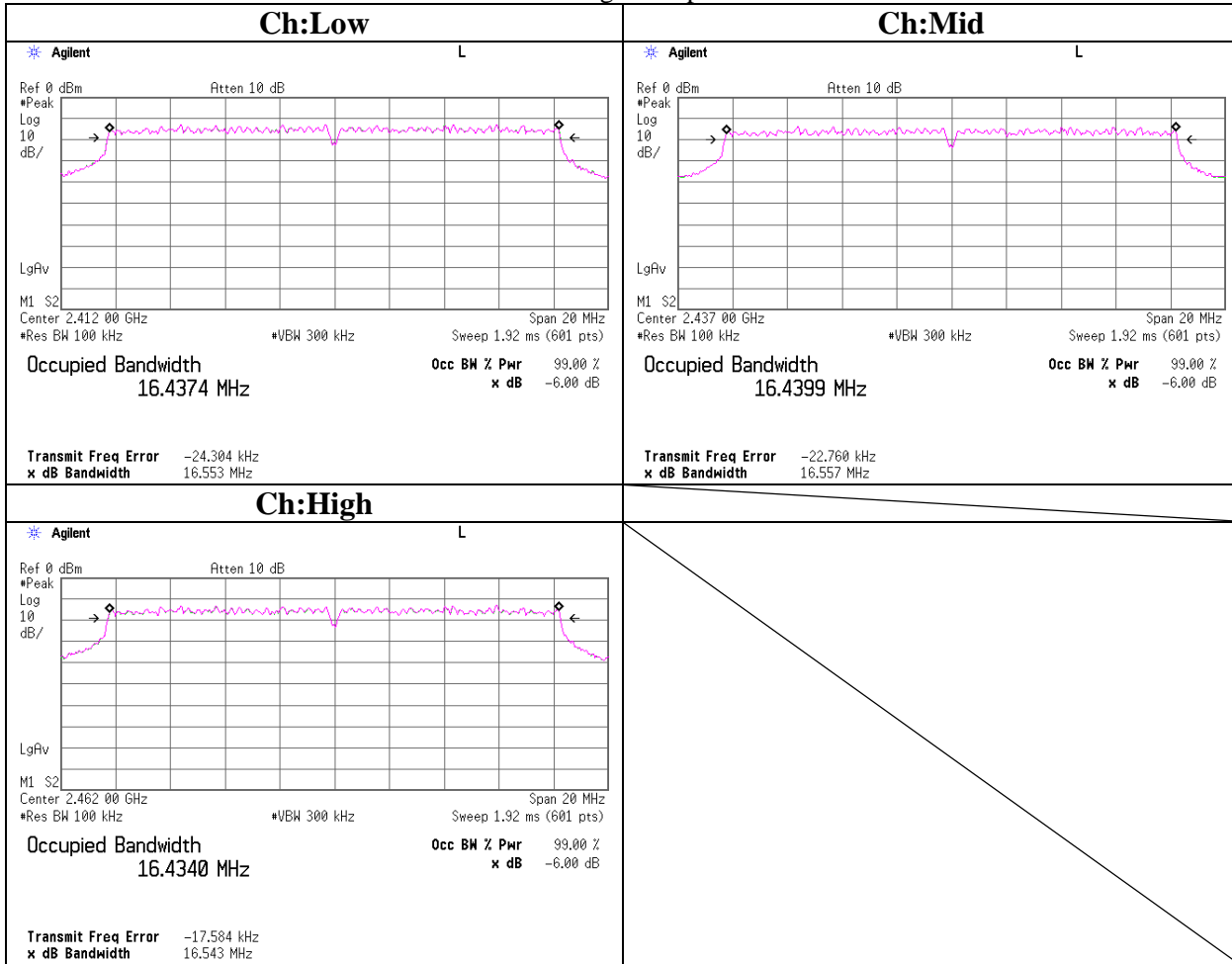
**6dB Bandwidth**

11b 11Mbps



### 6dB Bandwidth

11g 54Mbps



### Maximum Peak OutPut Power

UL Apex Co., Ltd.  
Head Office EMC Lab. No.3 Shielded Room

Company : Nikon Corporation  
Equipment : WLAN Module  
Model : 2143EB  
Sample No. : 17  
Power : DC3.7V(AC120V/60Hz)  
Mode : Tx (ch1,6,11)

REPORT NO : 26IE0215-HO  
REGULATION : FCC Part15 Subpart C 15.247(b)(3)  
TEST DISTANCE : -  
DATE : 06/26/2006  
TEMPERATURE : 23deg.C.  
HUMIDITY : 45%  
ENGINEER : MitsuruFujimura

**[IEEE802.11b]**

Ch	Freq. [MHz]	PM Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result		Limit		Margin [dB]
					[dBm]	[mW]	[dBm]	[mW]	
Low	2412.0	1.98	0.95	10.00	12.93	19.63	30.00	1000	17.07
Mid	2437.0	1.57	0.95	10.00	12.52	17.86	30.00	1000	17.48
High	2462.0	1.74	0.95	10.00	12.69	18.58	30.00	1000	17.31

Sample Calculation:

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

**[IEEE802.11g]**

Ch	Freq. [MHz]	P/M Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result		Limit		Margin [dB]
					[dBm]	[mW]	[dBm]	[mW]	
Low	2412.0	7.32	0.95	10.00	18.27	67.14	30.00	1000	11.73
Mid	2437.0	7.04	0.95	10.00	17.99	62.95	30.00	1000	12.01
High	2462.0	7.02	0.95	10.00	17.97	62.66	30.00	1000	12.03

Sample Calculation:

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

## Maximum Peak OutPut Power

### (Reference data for SAR testing)

UL Apex Co., Ltd.

Head Office EMC Lab. No.3 Shielded Room

Company : Nikon Corporation  
Equipment : WLAN Module  
Model : 2143EB  
Sample No : 17  
Power : DC3.7V(AC120V/60Hz)  
Mode : Tx (ch1,6,11)

REPORT NO : 26IE0215-HO  
REGULATION : FCC Part15 Subpart C 15.247(b)(3)  
TEST DISTANCE : -  
DATE : 06/26/2006  
TEMPERATURE : 23deg.C.  
HUMIDITY : 45%  
ENGINEER : MitsuruFujimura

[IEEE802.11b : 2437MHz]						
Ch	Modulation (Data rate [bps])	PM Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Converted [mW]
6	DBPSK (1Mbps)	1.51	0.95	10.00	12.46	17.62
6	DQPSK(2Mbps)	1.50	0.95	10.00	12.45	17.58
6	CCK(5.5Mbps)	1.48	0.95	10.00	12.43	17.50
6	CCK(11Mbps)	1.57	0.95	10.00	12.52	17.86

[IEEE802.11g : 2437MHz]						
Ch	Modulation (Data rate [bps])	PM Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Converted [mW]
6	BPSK (6Mbps)	7.01	0.95	10.00	17.96	62.52
6	BPSK (9Mbps)	6.82	0.95	10.00	17.77	59.84
6	QPSK(12Mbps)	6.81	0.95	10.00	17.76	59.70
6	QPSK(18Mbps)	6.72	0.95	10.00	17.67	58.48
6	16QAM(24Mbps)	6.90	0.95	10.00	17.85	60.95
6	16QAM(36Mbps)	6.96	0.95	10.00	17.91	61.80
6	64QAM(48Mbps)	6.99	0.95	10.00	17.94	62.23
6	64QAM(54Mbps)	7.04	0.95	10.00	17.99	62.95

**UL Apex Co., Ltd.**

**Head Office EMC Lab.**

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MF060b(14.06.06)

**Radiated Spurious Emission**  
**(30MHz to 1GHz)**

**DATA OF RADIATED EMISSION TEST**

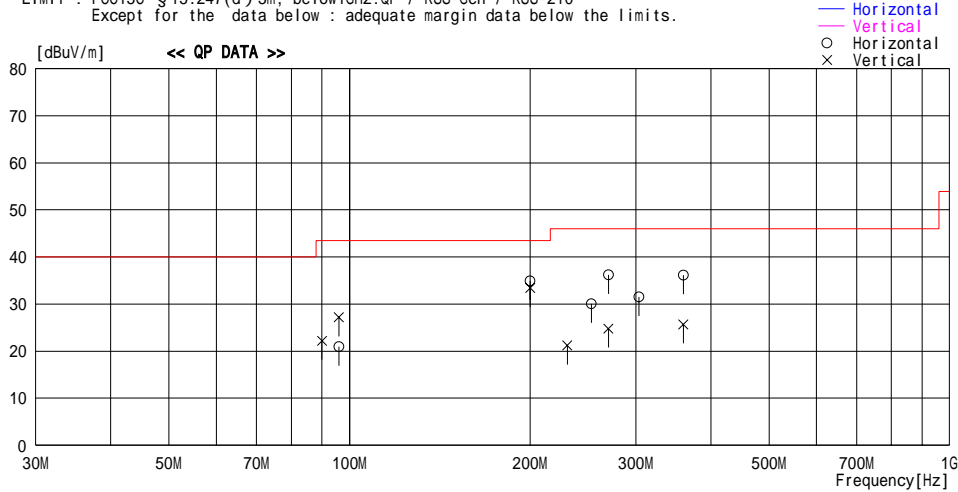
UL Apex Co., Ltd. Head Office EMC Lab. No.3 Semi Anechoic Chamber  
Date : 2006/06/26 23:09:20

Applicant : Nikon Corporation  
Kind of EUT : WLAN Module  
Model No. : 2143EB  
Serial No. : 41

Report No. : 26IE0215-HO  
Power : DC 3.7V  
Temp./Humi. : 22deg.C / 70%  
Operator : Mitsuru Fujimura

Mode / Remarks : WLAN IEEE802.11b, Transmitting CH01

LIMIT : FCC15C §15.247(d) 3m, below1GHz:QP / RSS-Gen / RSS-210  
Except for the data below : adequate margin data below the limits.



Frequency [MHz]	Reading [dBuV]	DET	Antenna		Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]
			Factor [dB/m]	Loss& Gain [dB]						
89.986	37.4	QP	8.9	-24.1	22.2	185	109	Vert.	43.5	21.3
95.993	34.7	QP	10.2	-24.0	20.9	160	168	Hori.	43.5	22.6
96.014	41.0	QP	10.2	-24.0	27.2	178	100	Vert.	43.5	16.3
199.998	39.3	QP	17.1	-23.0	33.4	336	100	Vert.	43.5	10.1
200.005	40.8	QP	17.1	-23.0	34.9	360	170	Hori.	43.5	8.6
230.618	26.2	QP	17.7	-22.7	21.2	310	100	Vert.	46.0	24.8
253.149	34.5	QP	18.2	-22.6	30.1	247	125	Hori.	46.0	15.9
269.991	39.5	QP	19.1	-22.4	36.2	65	139	Hori.	46.0	9.8
270.011	28.1	QP	19.1	-22.4	24.8	88	125	Vert.	46.0	21.2
303.750	39.2	QP	14.6	-22.3	31.5	36	100	Hori.	46.0	14.5
359.988	41.4	QP	16.6	-21.9	36.1	235	100	Hori.	46.0	9.9
360.010	31.0	QP	16.6	-21.9	25.7	232	100	Vert.	46.0	20.3

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)

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



## Radiated Spurious Emission (30MHz to 1GHz)

### DATA OF RADIATED EMISSION TEST

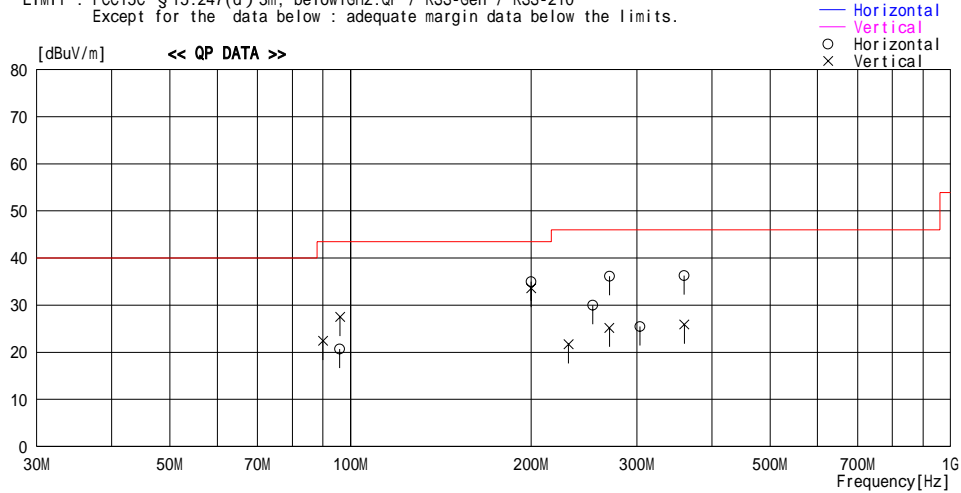
UL Apex Co., Ltd. Head Office EMC Lab. No.3 Semi Anechoic Chamber  
Date : 2006/06/27 01:23:37

Applicant : Nikon Corporation  
Kind of EUT : WLAN Module  
Model No. : 2143EB  
Serial No. : 41

Report No. : 26IE0215-H0  
Power : DC 3.7V  
Temp./Humi. : 22deg.C / 70%  
Operator : Mitsuru Fujimura

Mode / Remarks : WLAN IEEE802.11b, Transmitting CH06

LIMIT : FCC15C § 15.247(d) 3m, below1GHz:QP / RSS-Gen / RSS-210  
Except for the data below : adequate margin data below the limits.



Frequency [MHz]	Reading [dBuV]	DET	Antenna		Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]
			Factor [dB/m]	Loss& Gain [dB]						
89.970	37.6	QP	8.9	-24.1	22.4	180	110	Vert.	43.5	21.1
95.990	34.5	QP	10.2	-24.0	20.7	160	160	Hori.	43.5	22.8
96.080	41.3	QP	10.2	-24.0	27.5	180	100	Vert.	43.5	16.0
200.003	40.9	QP	17.1	-23.0	35.0	0	170	Hori.	43.5	8.5
200.000	39.5	QP	17.1	-23.0	33.6	320	100	Vert.	43.5	9.9
230.801	26.7	QP	17.7	-22.7	21.7	300	100	Vert.	46.0	24.3
253.190	34.4	QP	18.2	-22.6	30.0	248	130	Hori.	46.0	16.0
270.044	28.5	QP	19.1	-22.4	25.2	90	130	Vert.	46.0	20.8
270.001	39.4	QP	19.1	-22.4	36.1	66	140	Hori.	46.0	9.9
303.755	33.2	QP	14.6	-22.3	25.5	40	100	Hori.	46.0	20.5
360.015	31.2	QP	16.6	-21.9	25.9	235	100	Vert.	46.0	20.1
359.851	41.6	QP	16.6	-21.9	36.3	237	100	Hori.	46.0	9.7

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

## Radiated Spurious Emission (30MHz to 1GHz)

### DATA OF RADIATED EMISSION TEST

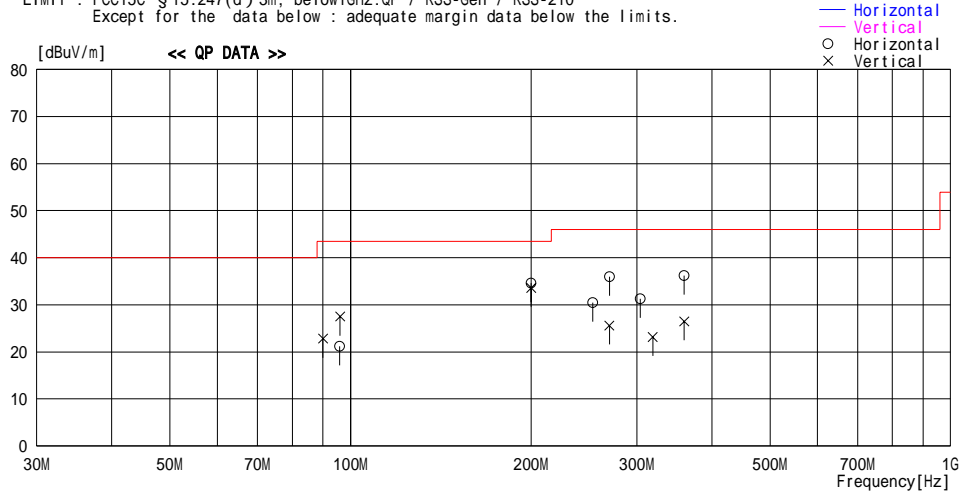
UL Apex Co., Ltd. Head Office EMC Lab. No.3 Semi Anechoic Chamber  
Date : 2006/06/27 01:35:52

Applicant : Nikon Corporation  
Kind of EUT : WLAN Module  
Model No. : 2143EB  
Serial No. : 41

Report No. : 26IE0215-H0  
Power : DC 3.7V  
Temp./Humi. : 22deg.C / 70%  
Operator : Mitsuru Fujimura

Mode / Remarks : WLAN IEEE802.11b, Transmitting CH11

LIMIT : FCC15C § 15.247(d) 3m, below1GHz:QP / RSS-Gen / RSS-210  
Except for the data below : adequate margin data below the limits.



Frequency [MHz]	Reading [dBuV]	DET	Antenna		Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]
			Factor [dB/m]	Loss& Gain [dB]						
89.972	38.0	QP	8.9	-24.1	22.8	190	110	Vert.	43.5	20.7
95.989	35.0	QP	10.2	-24.0	21.2	160	170	Hori.	43.5	22.3
96.082	41.3	QP	10.2	-24.0	27.5	165	100	Vert.	43.5	16.0
200.007	40.5	QP	17.1	-23.0	34.6	0	170	Hori.	43.5	8.9
199.979	39.5	QP	17.1	-23.0	33.6	330	100	Vert.	43.5	9.9
253.191	34.9	QP	18.2	-22.6	30.5	250	130	Hori.	46.0	15.5
270.001	39.3	QP	19.1	-22.4	36.0	70	140	Hori.	46.0	10.0
270.001	28.9	QP	19.1	-22.4	25.6	90	130	Vert.	46.0	20.4
303.997	39.0	QP	14.6	-22.3	31.3	40	100	Hori.	46.0	14.7
318.920	30.3	QP	15.1	-22.2	23.2	270	100	Vert.	46.0	22.8
359.891	41.5	QP	16.6	-21.9	36.2	220	100	Hori.	46.0	9.8
359.891	31.8	QP	16.6	-21.9	26.5	249	100	Vert.	46.0	19.5

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)

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

## Radiated Spurious Emission (30MHz to 1GHz)

### DATA OF RADIATED EMISSION TEST

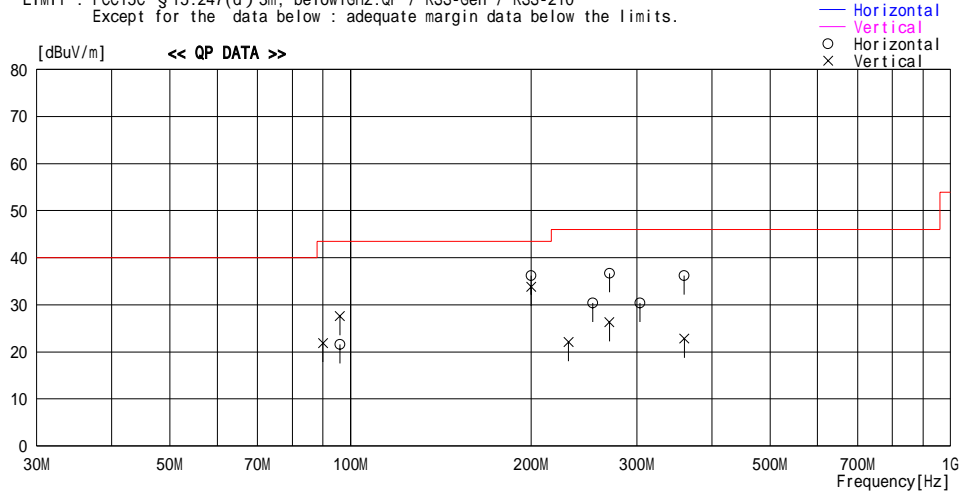
UL Apex Co., Ltd. Head Office EMC Lab. No.3 Semi Anechoic Chamber  
Date : 2006/06/27 03:04:44

Applicant : Nikon Corporation  
Kind of EUT : WLAN Module  
Model No. : 2143EB  
Serial No. : 41

Report No. : 26IE0215-H0  
Power : DC 3.7V  
Temp./Humi. : 22deg.C / 70%  
Operator : Mitsuru Fujimura

Mode / Remarks : WLAN IEEE802.11g, Transmitting CH01

LIMIT : FCC15C § 15.247(d) 3m, below1GHz:QP / RSS-Gen / RSS-210  
Except for the data below : adequate margin data below the limits.



Frequency	Reading	DET	Antenna		Level	Angle	Height	Polar.	Limit	Margin
			Factor	Loss& Gain						
[MHz]	[dBuV]		[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]
96.081	35.4	QP	10.2	-24.0	21.6	177	174	Hori.	43.5	21.9
200.030	42.1	QP	17.1	-23.0	36.2	0	160	Hori.	43.5	7.3
253.291	34.8	QP	18.2	-22.6	30.4	250	130	Hori.	46.0	15.6
270.001	40.0	QP	19.1	-22.4	36.7	70	140	Hori.	46.0	9.3
303.800	38.1	QP	14.6	-22.3	30.4	270	100	Hori.	46.0	15.6
359.854	41.5	QP	16.6	-21.9	36.2	220	100	Hori.	46.0	9.8
89.998	37.1	QP	8.9	-24.1	21.9	178	112	Vert.	43.5	21.6
96.030	41.4	QP	10.2	-24.0	27.6	170	100	Vert.	43.5	15.9
200.089	39.7	QP	17.1	-23.0	33.8	345	100	Vert.	43.5	9.7
230.880	27.1	QP	17.7	-22.7	22.1	80	100	Vert.	46.0	23.9
270.026	29.6	QP	19.1	-22.4	26.3	300	130	Vert.	46.0	19.7
360.002	28.1	QP	16.6	-21.9	22.8	220	150	Vert.	46.0	23.2

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)

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

## Radiated Spurious Emission (30MHz to 1GHz)

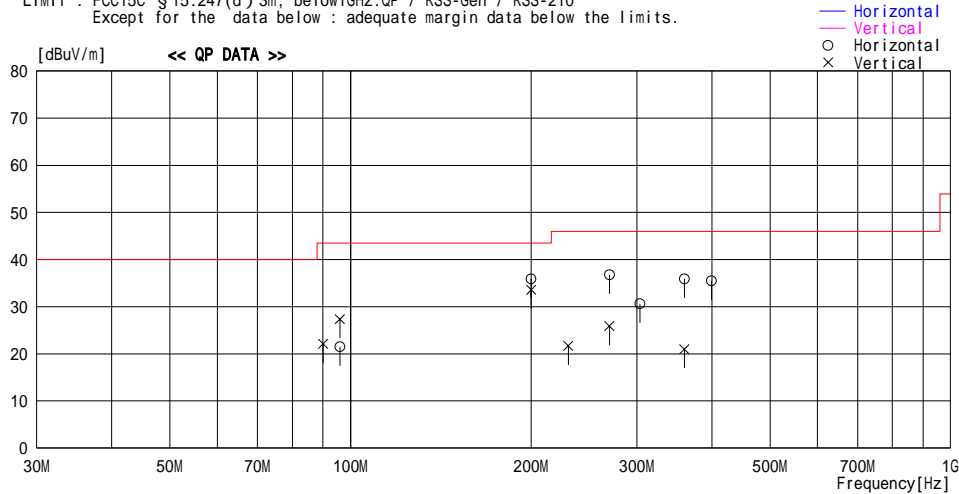
### DATA OF RADIATED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.3 Semi Anechoic Chamber  
Date : 2006/06/27 02:59:15

Applicant : Nikon Corporation	Report No. : 261E0215-H0
Kind of EUT : WLAN Module	Power : DC 3.7V
Model No. : 2143EB	Temp./Humi. : 22deg.C / 70%
Serial No. : 41	Operator : Mitsuru Fujimura

Mode / Remarks : WLAN IEEE802.11g, Transmitting CH06

LIMIT : FCC15C §15.247(d) 3m, below1GHz:QP / RSS-Gen / RSS-210  
Except for the data below : adequate margin data below the limits.



Frequency	Reading	DET	Antenna		Level	Angle	Height	Polar.	Limit	Margin
			Factor	Loss&Gain						
[MHz]	[dBuV]		[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]
90.025	37.3	QP	8.9	-24.1	22.1	180	110	Vert.	43.5	21.4
96.015	41.2	QP	10.2	-24.0	27.4	175	100	Vert.	43.5	16.1
96.023	35.3	QP	10.2	-24.0	21.5	177	174	Hori.	43.5	22.0
200.011	41.8	QP	17.1	-23.0	35.9	360	162	Hori.	43.5	7.6
200.020	39.5	QP	17.1	-23.0	33.6	341	100	Vert.	43.5	9.9
230.635	26.7	QP	17.7	-22.7	21.7	76	100	Vert.	46.0	24.3
270.005	29.2	QP	19.1	-22.4	25.9	91	130	Vert.	46.0	20.1
270.006	40.1	QP	19.1	-22.4	36.8	70	140	Hori.	46.0	9.2
303.756	38.3	QP	14.6	-22.3	30.6	281	100	Hori.	46.0	15.4
360.005	26.3	QP	16.6	-21.9	21.0	232	151	Vert.	46.0	25.0
360.150	41.2	QP	16.6	-21.9	35.9	236	100	Hori.	46.0	10.1
399.402	39.3	QP	17.9	-21.7	35.5	38	100	Hori.	46.0	10.5

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)

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

**Radiated Spurious Emission**  
**(30MHz to 1GHz)**

**DATA OF RADIATED EMISSION TEST**

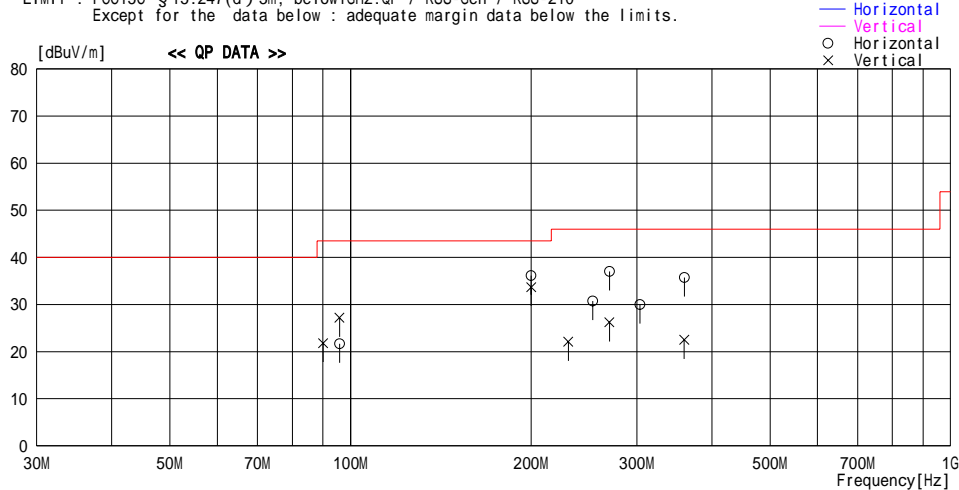
UL Apex Co., Ltd. Head Office EMC Lab. No.3 Semi Anechoic Chamber  
Date : 2006/06/27 04:07:07

Applicant : Nikon Corporation  
Kind of EUT : WLAN Module  
Model No. : 2143EB  
Serial No. : 41

Report No. : 26IE0215-HO  
Power : DC 3.7V  
Temp./Humi. : 22deg.C / 70%  
Operator : Mitsuru Fujimura

Mode / Remarks : WLAN IEEE802.11g, Transmitting CH11

LIMIT : FCC15C § 15.247(d) 3m, below1GHz:QP / RSS-Gen / RSS-210  
Except for the data below : adequate margin data below the limits.



Frequency [MHz]	Reading [dBuV]	DET	Antenna		Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
			Factor [dB/m]	Loss& Gain [dB]							
90.070	37.0	QP	8.9	-24.1	21.8	180	110	Vert.	43.5	21.7	
95.990	35.5	QP	10.2	-24.0	21.7	180	170	Hori.	43.5	21.8	
95.899	41.0	QP	10.2	-24.0	27.2	180	100	Vert.	43.5	16.3	
200.004	42.0	QP	17.1	-23.0	36.1	0	160	Hori.	43.5	7.4	
200.010	39.6	QP	17.1	-23.0	33.7	340	100	Vert.	43.5	9.8	
230.661	27.1	QP	17.7	-22.7	22.1	80	100	Vert.	46.0	23.9	
253.330	35.1	QP	18.2	-22.6	30.7	230	130	Hori.	46.0	15.3	
270.003	29.5	QP	19.1	-22.4	26.2	100	130	Vert.	46.0	19.8	
270.101	40.3	QP	19.1	-22.4	37.0	60	130	Hori.	46.0	9.0	
303.800	37.7	QP	14.6	-22.3	30.0	256	100	Hori.	46.0	16.0	
359.891	27.8	QP	16.6	-21.9	22.5	200	150	Vert.	46.0	23.5	
359.987	41.0	QP	16.6	-21.9	35.7	230	100	Hori.	46.0	10.3	

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)

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

## Radiated Spurious Emission (30MHz to 1GHz)

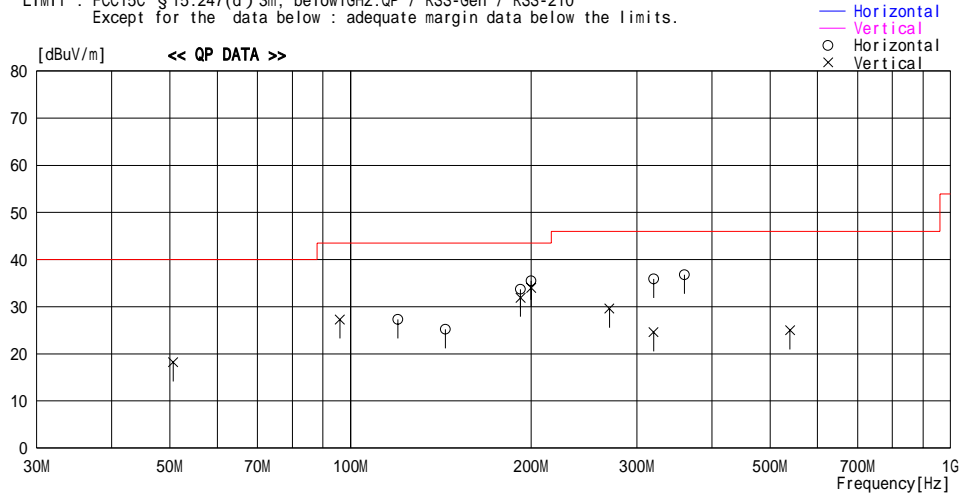
### DATA OF RADIATED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.3 Semi Anechoic Chamber  
Date : 2006/06/27 09:12:38

Applicant : Nikon Corporation	Report No. : 26IE0215-HO
Kind of EUT : WLAN Module	Power : DC 3.7V
Model No. : 2143EB	Temp./Humi. : 24deg.C / 67%
Serial No. : 41	Operator : Mitsuru Fujimura

Mode / Remarks : WLAN IEEE802.11b/g, Receiving CH06

LIMIT : FCC15C §15.247(d) 3m, below1GHz:QP / RSS-Gen / RSS-210  
Except for the data below : adequate margin data below the limits.



Frequency	Reading	DET	Antenna		Level	Angle	Height	Polar.	Limit	Margin	Comment
			Factor	Loss&Gain							
[MHz]	[dBuV]		[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]	
50.635	32.7	QP	10.4	-24.9	18.2	0	100	Vert.	40.0	21.8	
95.994	41.1	QP	10.2	-24.0	27.3	161	100	Vert.	43.5	16.2	
120.003	37.5	QP	13.5	-23.7	27.3	98	279	Hori.	43.5	16.2	
144.002	33.5	QP	15.2	-23.5	25.2	248	220	Hori.	43.5	18.3	
191.993	38.0	QP	16.9	-23.0	31.9	110	100	Vert.	43.5	11.6	
192.000	39.8	QP	16.9	-23.0	33.7	61	172	Hori.	43.5	9.8	
199.996	41.4	QP	17.1	-23.0	35.5	25	164	Hori.	43.5	8.0	
199.996	39.9	QP	17.1	-23.0	34.0	278	100	Vert.	43.5	9.5	
269.989	32.9	QP	19.1	-22.4	29.6	244	100	Vert.	46.0	16.4	
319.990	31.6	QP	15.2	-22.2	24.6	240	100	Vert.	46.0	21.4	
319.997	42.9	QP	15.2	-22.2	35.9	232	100	Hori.	46.0	10.1	
360.002	42.1	QP	16.6	-21.9	36.8	57	100	Hori.	46.0	9.2	
539.987	26.8	QP	19.2	-21.0	25.0	262	100	Vert.	46.0	21.0	

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

**Radiated Spurious Emission**  
**11b 11Mbps Ch: Low (1GHz to 26GHz)**

UL Apex Co., Ltd.  
Head Office EMC Lab. No.3 Semi Anechoic Chamber

Company	: Nikon Corporation	Report No.	: 26IE0215-HO
Equipment	: WLAN Module	Regulation	: Fcc Part15 Subpart C 15.247(d)
Model	: 2143EB	Test distance	: 3/1m
Sample No.	: 41	Date	: 06/26/2006
Power	: DC 3.7V	Temperature	: 22deg.C
Mode	: WLAN IEEE802.11b, Tx 2412MHz	Humidity	: 70%
Remarks	: Hor Y-axis / Ver Z-axis	Engineer	: Mitsuru Fujimura

**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	46.2	45.4	30.5	32.8	2.2	0.0	46.1	45.3	74.0	27.9	28.7
2	2398.7	53.8	53.0	30.5	32.8	2.2	0.0	53.7	52.9	74.0	20.3	21.1
3	4824.0	46.9	44.7	35.3	31.6	3.5	0.0	54.1	51.9	74.0	19.9	22.1
4	7236.0	41.2	41.4	37.7	32.1	4.3	0.0	51.1	51.3	74.0	22.9	22.7
5	9648.0	42.5	43.6	36.6	33.1	5.0	0.0	51.0	52.1	74.0	23.0	21.9
<b>Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac</b>												
6	24120.0	46.7	45.8	39.8	35.5	8.1	0.0	43.5	42.6	74.0	30.5	31.4

**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	VER					HOR	VER		HOR	VER
<b>Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss</b>												
1	2390.0	35.0	34.5	30.5	32.8	2.2	0.0	34.9	34.4	54.0	19.1	19.6
2	2398.7	44.6	43.9	30.5	32.8	2.2	0.0	44.5	43.8	54.0	9.5	10.2
3	4824.0	34.8	32.0	35.3	31.6	3.5	0.0	42.0	39.2	54.0	12.0	14.8
4	7236.0	29.4	29.6	37.7	32.1	4.3	0.0	39.3	39.5	54.0	14.7	14.5
5	9648.0	30.8	30.9	36.6	33.1	5.0	0.0	39.3	39.4	54.0	14.7	14.6
<b>Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac</b>												
6	24120.0	34.8	34.8	39.8	35.5	8.1	0.0	31.6	31.6	54.0	22.4	22.4

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**  
**11b 11Mbps Ch: Mid (1GHz to 26GHz)**

\* 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.3 Semi Anechoic Chamber

Company	: Nikon Corporation	Report No.	: 26IE0215-HO
Equipment	: WLAN Module	Regulation	: Fcc Part15 Subpart C 15.247(d)
Model	: 2143EB	Test distance	: 3/1m
Sample No.	: 41	Date	: 06/26/2006
Power	: DC 3.7V	Temperature	: 22deg.C
Mode	: WLAN IEEE802.11b, Tx 2437MHz	Humidity	: 70%
Remarks	: Hor Y-axis / Ver Z-axis	Engineer	: Mitsuru Fujimura

**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	4874.0	45.8	41.4	35.6	31.6	3.5	0.0	53.3	48.9	74.0	20.7	25.1
2	7311.0	41.2	40.8	37.7	32.2	4.3	0.0	51.0	50.6	74.0	23.0	23.4
3	9748.0	42.9	42.8	36.5	33.1	5.0	0.0	51.3	51.2	74.0	22.7	22.8
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
4	24370.0	45.2	45.5	39.8	35.8	8.2	0.0	41.8	42.1	74.0	32.2	31.9

**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	4874.0	33.0	30.2	35.6	31.6	3.5	0.0	40.5	37.7	54.0	13.5	16.3
2	7311.0	29.3	28.8	37.7	32.2	4.3	0.0	39.1	38.6	54.0	14.9	15.4
3	9748.0	30.9	31.1	36.5	33.1	5.0	0.0	39.3	39.5	54.0	14.7	14.5
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
4	24370.0	34.8	34.7	39.8	35.8	8.2	0.0	31.4	31.3	54.0	22.6	22.7

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**  
**11b 11Mbps Ch: High (1GHz to 26GHz)**

UL Apex Co., Ltd.  
Head Office EMC Lab. No.3 Semi Anechoic Chamber

Company	: Nikon Corporation	Report No.	: 26IE0215-HO
Equipment	: WLAN Module	Regulation	: Fcc Part15 Subpart C 15.247(d)
Model	: 2143EB	Test distance	: 3/1m
Sample No.	: 41	Date	: 06/26/2006
Power	: DC 3.7V	Temperature	: 22deg.C
Mode	: WLAN IEEE802.11b, Tx 2462MHz	Humidity	: 70%
Remarks	: Hor Y-axis / Ver Z-axis	Engineer	: Mitsuru Fujimura

**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	49.5	48.7	30.3	32.7	2.3	0.0	49.4	48.6	74.0	24.6	25.4
2	4924.0	45.3	44.5	35.8	31.6	3.5	0.0	53.0	52.2	74.0	21.0	21.8
3	7386.0	41.4	42.0	37.8	32.2	4.3	0.0	51.3	51.9	74.0	22.7	22.1
4	9848.0	43.6	42.9	36.4	33.2	5.0	0.0	51.8	51.1	74.0	22.2	22.9
<b>Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac</b>												
5	24620.0	45.9	44.8	39.9	35.8	8.2	0.0	42.6	41.5	74.0	31.4	32.5

**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	38.1	36.9	30.3	32.7	2.3	0.0	38.0	36.8	54.0	16.0	17.2
2	4924.0	33.0	32.8	35.8	31.6	3.5	0.0	40.7	40.5	54.0	13.3	13.5
3	7386.0	29.8	29.5	37.8	32.2	4.3	0.0	39.7	39.4	54.0	14.3	14.6
4	9848.0	30.7	30.7	36.4	33.2	5.0	0.0	38.9	38.9	54.0	15.1	15.1
<b>Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac</b>												
5	24620.0	34.5	34.4	39.9	35.8	8.2	0.0	31.2	31.1	54.0	22.8	22.9

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 Filter was not used for factor 0.0dB of the above table.

## Radiated Spurious Emission 11g 54Mbps Ch: Low (1GHz to 26GHz)

UL Apex Co., Ltd.  
Head Office EMC Lab. No.3 Semi Anechoic Chamber

Company : Nikon Corporation	Report No. : 26IE0215-HO
Equipment : WLAN Module	Regulation : Fcc Part15 Subpart C 15.247(d)
Model : 2143EB	Test distance : 3/1m
Sample No. : 41	Date : 06/26/2006
Power : DC 3.7V	Temperature : 22deg.C
Mode : WLAN IEEE802.11g, Tx 2412MHz	Humidity : 70%
Remarks : Hor Y-axis / Ver Z-axis	Engineer : Mitsuru Fujimura

**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	55.3	49.3	30.5	32.8	2.2	0.0	55.2	49.2	74.0	18.8	24.8
2*	2400.0	73.4	66.8	30.5	32.8	2.2	0.0	73.3	66.7	74.0	0.7	7.3
3	4824.0	41.1	43.0	35.3	31.6	3.5	0.0	48.3	50.2	74.0	25.7	23.8
4	7236.0	40.7	41.6	37.7	32.1	4.3	0.0	50.6	51.5	74.0	23.4	22.5
5	9648.0	42.2	42.9	36.6	33.1	5.0	0.0	50.7	51.4	74.0	23.3	22.6
<b>Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac</b>												
6	24120.0	45.2	45.4	39.8	35.5	8.1	0.0	42.0	42.2	74.0	32.0	31.8

**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	2390.0	40.1	35.6	30.5	32.8	2.2	0.0	40.0	35.5	54.0	14.0	18.5
2*	2400.0	52.9	45.6	30.5	32.8	2.2	0.0	52.8	45.5	54.0	1.2	8.5
3	4824.0	29.4	30.4	35.3	31.6	3.5	0.0	36.6	37.6	54.0	17.4	16.4
4	7236.0	28.9	28.9	37.7	32.1	4.3	0.0	38.8	38.8	54.0	15.2	15.2
5	9648.0	30.7	31.0	36.6	33.1	5.0	0.0	39.2	39.5	54.0	14.8	14.5
<b>Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac</b>												
6	24120.0	34.7	34.6	39.8	35.5	8.1	0.0	31.5	31.4	54.0	22.5	22.6

\* Reference data

**20dBc(Fundamental 2402MHz)** (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	90.8	85.6	30.5	32.8	2.2	0.0	90.7	85.5	-	-	-
2	2400.0	59.6	52.9	30.5	32.8	2.2	0.0	59.5	52.8	Funda-20dB	11.2	12.7

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 Filter was not used for factor 0.0dB of the above table.

**Radiated Spurious Emission**  
**11g 54Mbps Ch: Mid (1GHz to 26GHz)**

\* 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.3 Semi Anechoic Chamber

Company	: Nikon Corporation	Report No.	: 26IE0215-HO
Equipment	: WLAN Module	Regulation	: Fcc Part15 Subpart C 15.247(d)
Model	: 2143EB	Test distance	: 3/1m
Sample No.	: 41	Date	: 06/26/2006
Power	: DC 3.7V	Temperature	: 22deg.C
Mode	: WLAN IEEE802.11g, Tx 2437MHz	Humidity	: 70%
Remarks	: Hor Y-axis / Ver Z-axis	Engineer	: Mitsuru Fujimura

**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	4874.0	42.4	40.9	35.6	31.6	3.5	0.0	49.9	48.4	74.0	24.1	25.6
2	7311.0	41.3	40.4	37.7	32.2	4.3	0.0	51.1	50.2	74.0	22.9	23.8
3	9748.0	42.6	42.6	36.5	33.1	5.0	0.0	51.0	51.0	74.0	23.0	23.0
<b>Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac</b>												
4	24370.0	45.8	46.0	39.8	35.8	8.2	0.0	42.4	42.6	74.0	31.6	31.4

**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	VER					HOR	VER		HOR	VER
<b>Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss</b>												
1	4874.0	30.4	28.6	35.6	31.6	3.5	0.0	37.9	36.1	54.0	16.1	17.9
2	7311.0	28.7	28.5	37.7	32.2	4.3	0.0	38.5	38.3	54.0	15.5	15.7
3	9748.0	30.7	30.7	36.5	33.1	5.0	0.0	39.1	39.1	54.0	14.9	14.9
<b>Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac</b>												
4	24370.0	34.8	34.8	39.8	35.8	8.2	0.0	31.4	31.4	54.0	22.6	22.6

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 11g 54Mbps Ch: High (1GHz to 26GHz)

\* 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.3 Semi Anechoic Chamber

Company : Nikon Corporation	Report No. : 26IE0215-HO
Equipment : WLAN Module	Regulation : Fcc Part15 Subpart C 15.247(d)
Model : 2143EB	Test distance : 3/1m
Sample No. : 41	Date : 06/26/2006
Power : DC 3.7V	Temperature : 22deg.C
Mode : WLAN IEEE802.11g, Tx 2462MHz	Humidity : 70%
Remarks : Hor Y-axis / Ver Z-axis	Engineer : Mitsuru Fujimura

**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	65.2	63.2	30.3	32.7	2.3	0.0	65.1	63.1	74.0	8.9	10.9
2	4924.0	43.7	41.4	35.8	31.6	3.5	0.0	51.4	49.1	74.0	22.6	24.9
3	7386.0	41.8	41.2	37.8	32.2	4.3	0.0	51.7	51.1	74.0	22.3	23.0
4	9848.0	43.4	43.7	36.4	33.2	5.0	0.0	51.6	51.9	74.0	22.4	22.1
<b>Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac</b>												
5	24620.0	45.0	45.1	39.9	35.8	8.2	0.0	41.7	41.8	74.0	32.3	32.2

**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	VER					HOR	VER		HOR	VER
<b>Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss</b>												
1	2483.5	46.7	44.6	30.3	32.7	2.3	0.0	46.6	44.5	54.0	7.4	9.5
2	4924.0	31.9	29.6	35.8	31.6	3.5	0.0	39.6	37.3	54.0	14.4	16.7
3	7386.0	29.7	29.2	37.8	32.2	4.3	0.0	39.6	39.1	54.0	14.4	14.9
4	9848.0	30.9	31.1	36.4	33.2	5.0	0.0	39.1	39.3	54.0	14.9	14.7
<b>Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac</b>												
5	24620.0	34.4	34.4	39.9	35.8	8.2	0.0	31.1	31.1	54.0	22.9	22.9

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**  
**11b/g Rx Ch: Mid (1GHz to 26GHz)**

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

Company	: Nikon Corporation	UL Apex Co., Ltd.
Equipment	: WLAN Module	Head Office EMC Lab. No.3 Semi Anechoic Chamber
Model	: 2143EB	Report No. : 26IE0215-HO
Sample No.	: 41	Regulation : FCC Part15 Subpart C 15.247(d)
Power	: DC 3.7V	Test distance : 3/1m
Mode	: WLAN IEEE802.11b/g, Rx 2437MHz	Date : 06/26/2006
Remarks	: Hor Y-axis / Ver Z-axis	Temperature : 22deg.C
		Humidity : 70%
		Engineer : Mitsuru Fujimura

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

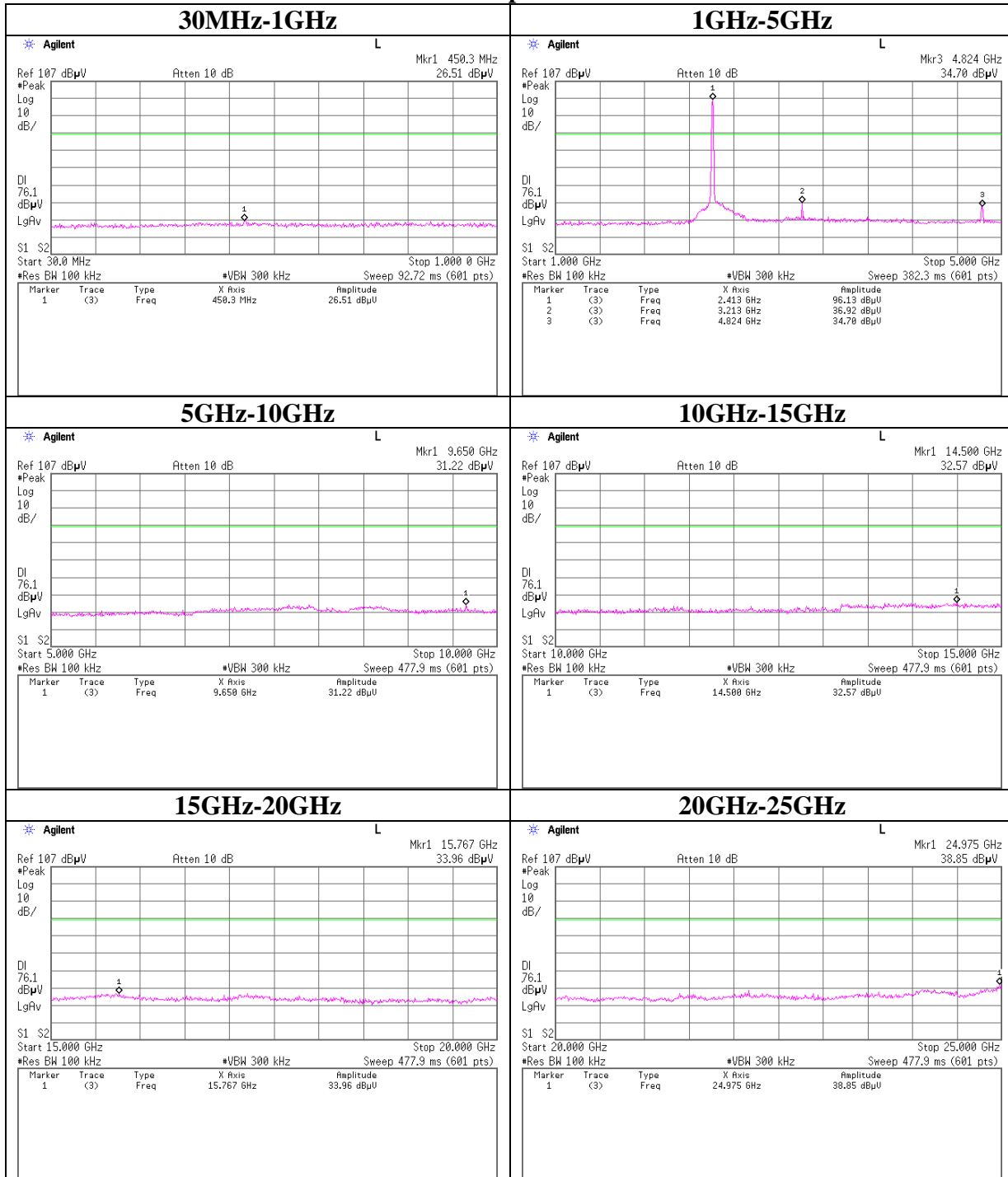
No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit PK [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
		[dBuV]	[dBuV]	[dB]	[dB]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2437.0	42.7	43.3	30.4	32.7	2.2	0.0	42.6	43.2	74.0	31.4	30.8

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

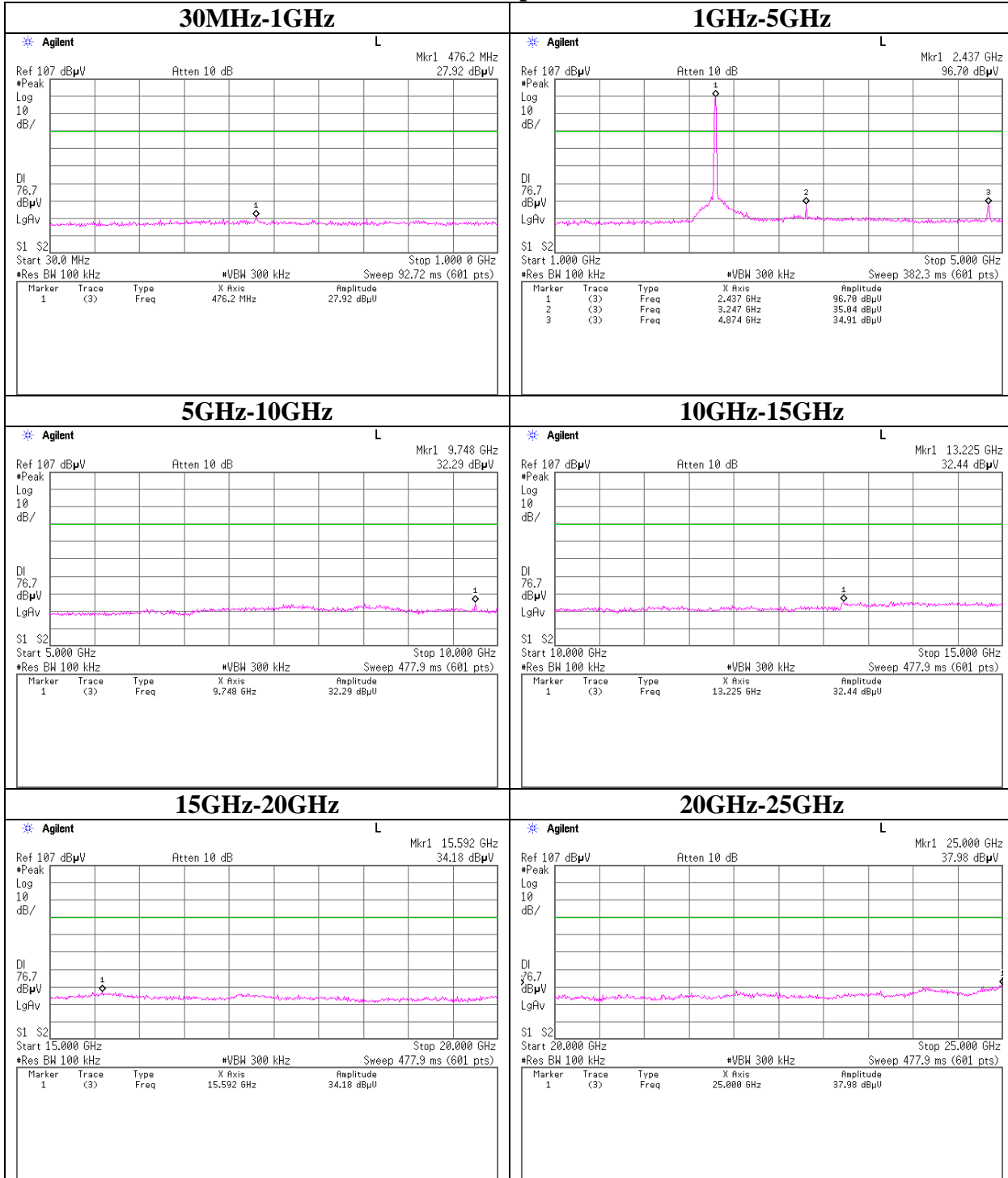
No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit AV [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
		[dBuV]	[dBuV]	[dB]	[dB]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2437.0	30.4	30.4	30.4	32.7	2.2	0.0	30.3	30.3	54.0	23.7	23.7

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.  
\*Except for the above frequency, the noise from the EUT was not seen. The data 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.

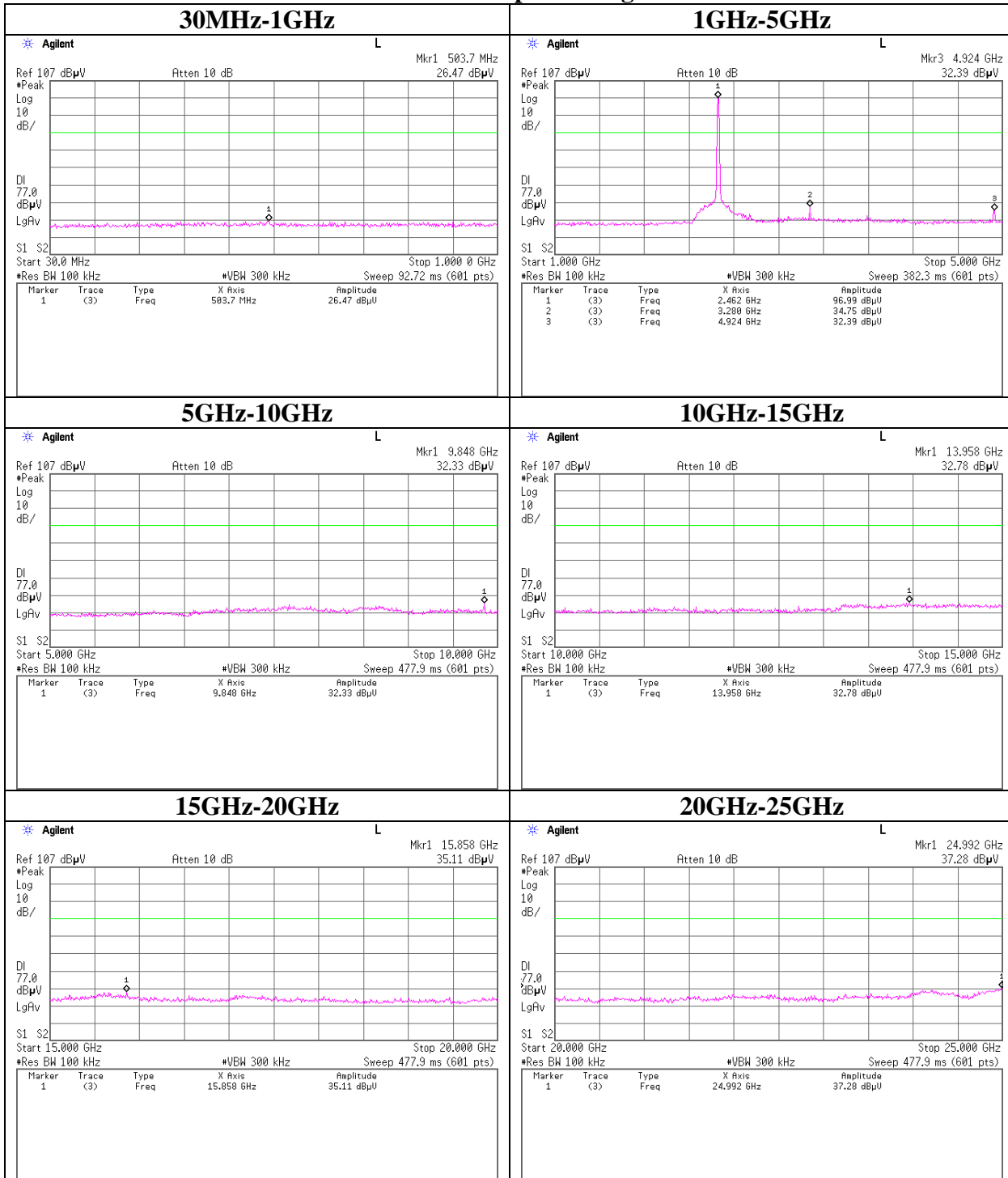
**Conducted Spurious Emission**  
**11b 11Mbps Ch: Low**



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

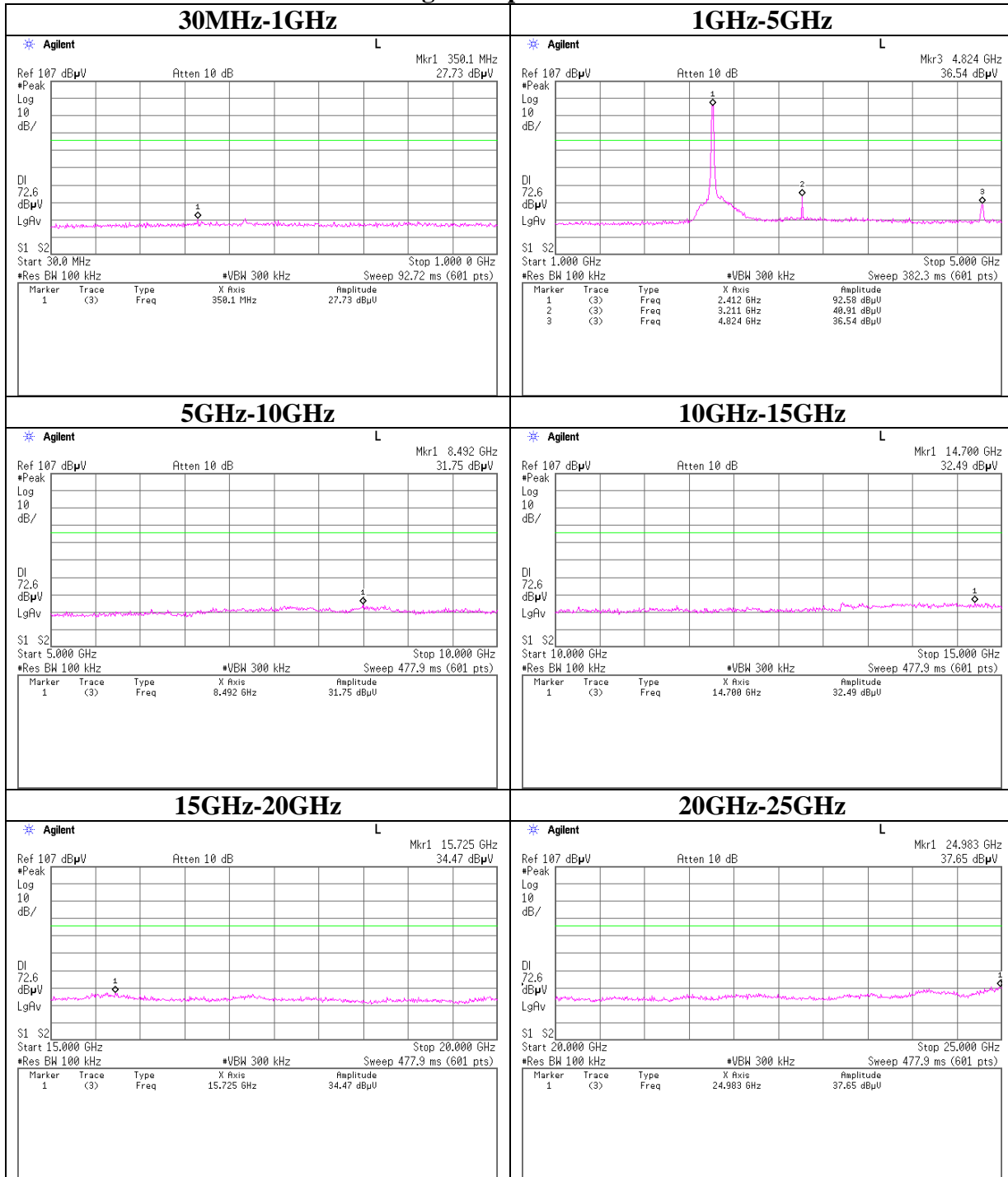


**Conducted Spurious Emission**  
**11b 11Mbps Ch: High**

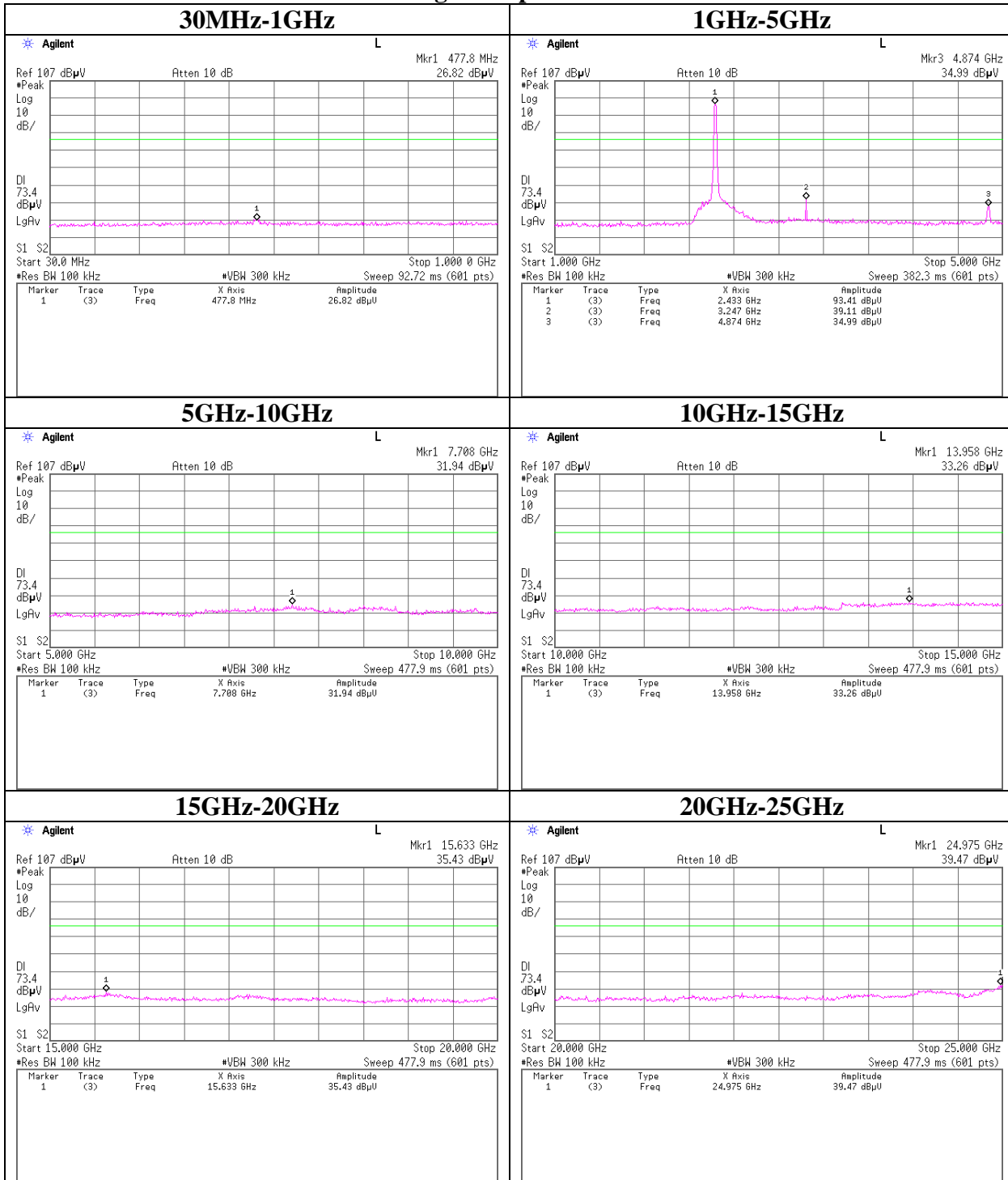




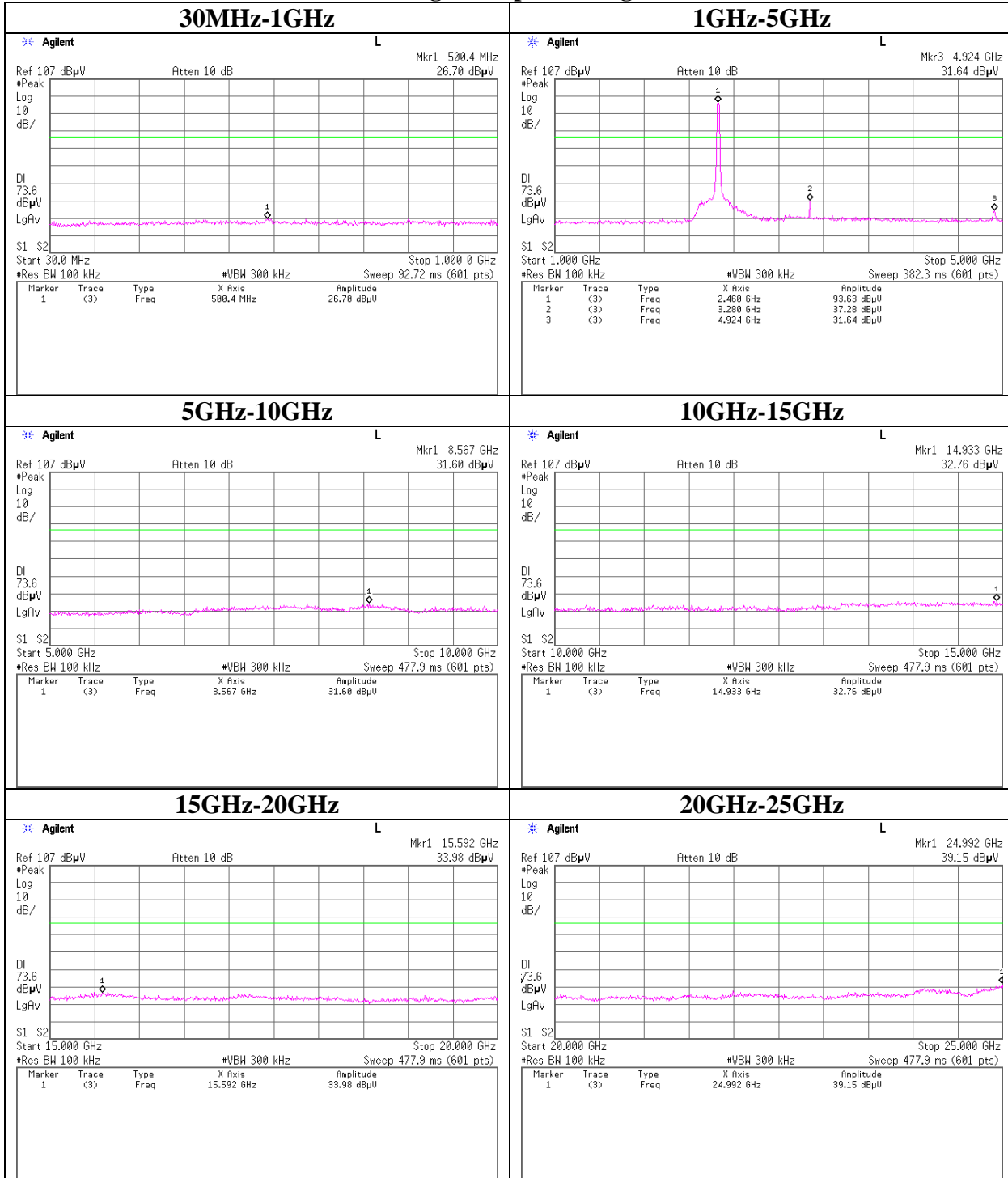
**Conducted Spurious Emission**  
**11g 54Mbps Ch: Low**



**Conducted Spurious Emission**  
**11g 54Mbps Ch: Mid**

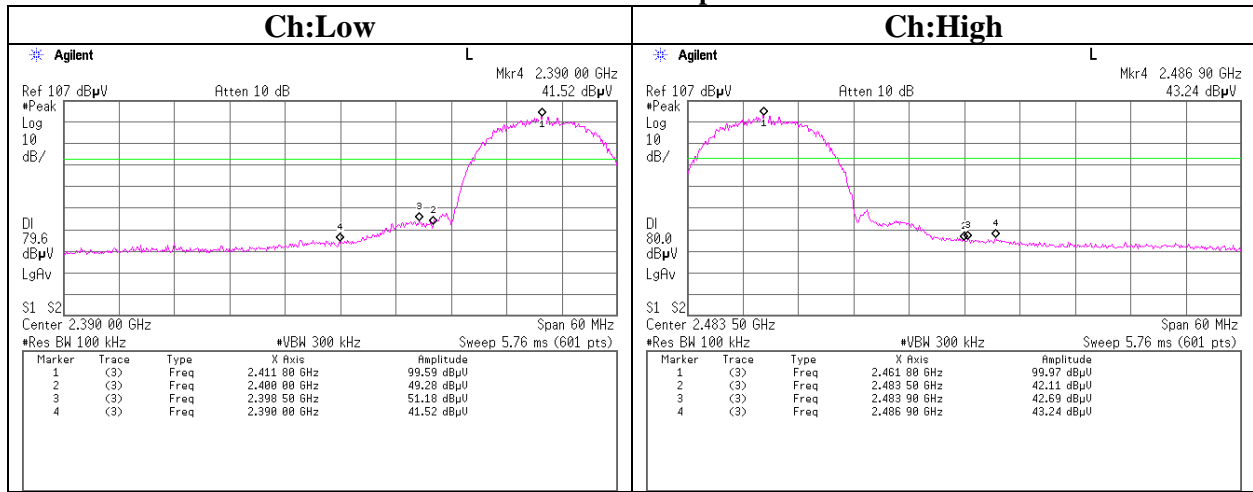


**Conducted Spurious Emission**  
**11g 54Mbps Ch: High**

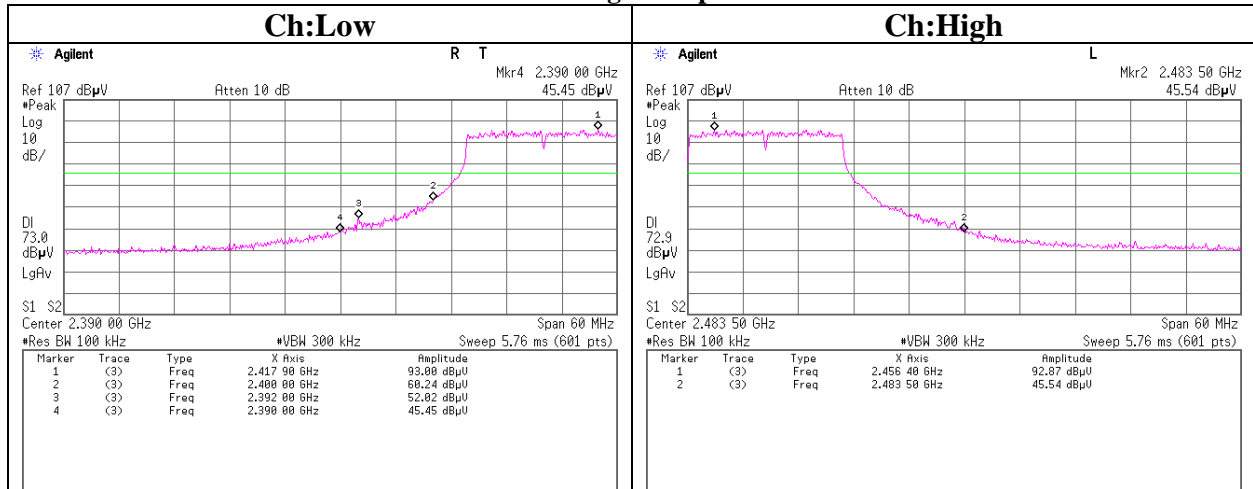


### Conducted emission Band Edge compliance

#### 11b 11Mbps



#### 11g 54Mbps



## Power Density

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

COMPANY : Nikon Corporation  
EQUIPMENT : WLAN Module  
MODEL : 2143EB  
SAMPLE NO. : 17  
POWER : DC3.7V(AC120V/60Hz)  
MODE : Tx (ch1,6,11)

REGULATION : FCC Part15 Subpart C 15.247(e)  
TEST DISTANCE : -  
DATE : 06/28/2006  
TEMPERATURE : 26  
HUMIDITY : 65%  
ENGINEER : Yutaka Yoshida

### [IEEE802.11b]

Ch	Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
Low	2411.3	-23.47	1.0	10.2	-12.4	8.0	20.4
Mid	2436.3	-23.98	1.0	10.2	-12.9	8.0	20.9
High	2461.3	-23.72	1.0	10.2	-12.6	8.0	20.6

Sample Calculation:

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

### [IEEE802.11g]

Ch	Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
Low	2411.7	-27.47	1.0	10.2	-16.3	8.0	24.3
Mid	2436.7	-28.59	1.0	10.2	-17.4	8.0	25.4
High	2461.3	-28.60	1.0	10.2	-17.5	8.0	25.5

Sample Calculation:

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

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**UL Apex Co., Ltd.**

**Head Office EMC Lab.**

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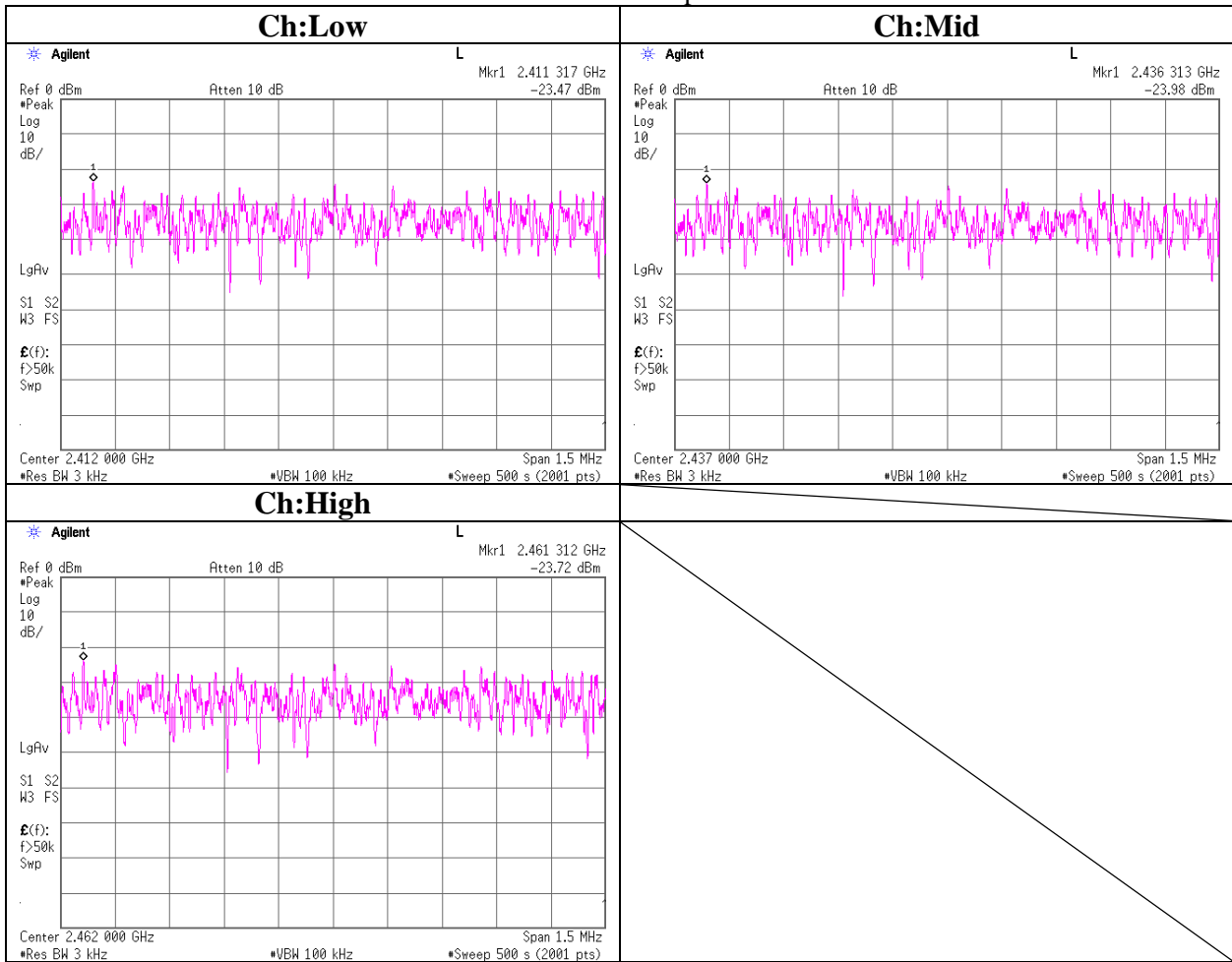
Telephone : +81 596 24 8116

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MF060b(14.06.06)

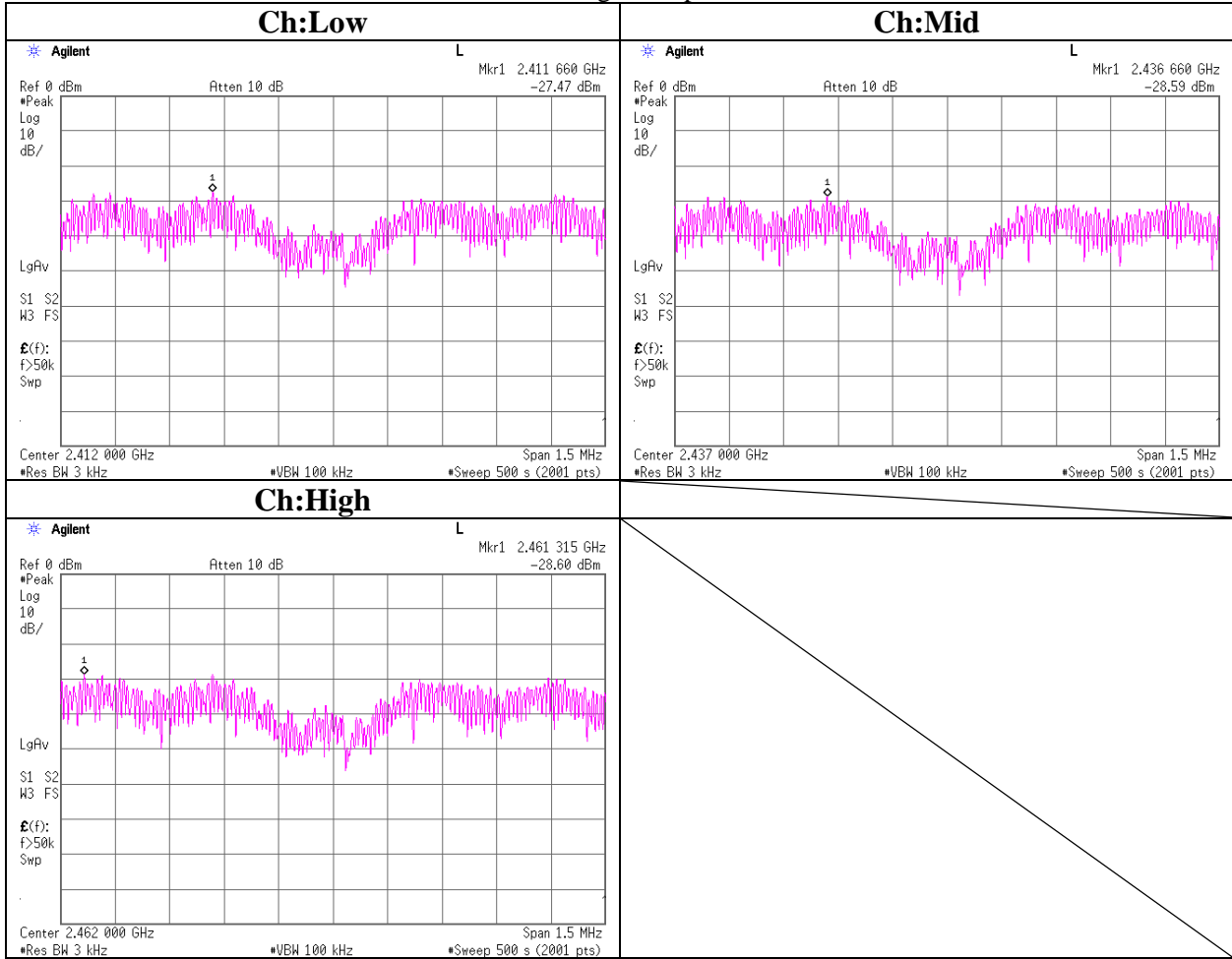
**Power Density**

11b 11Mbps

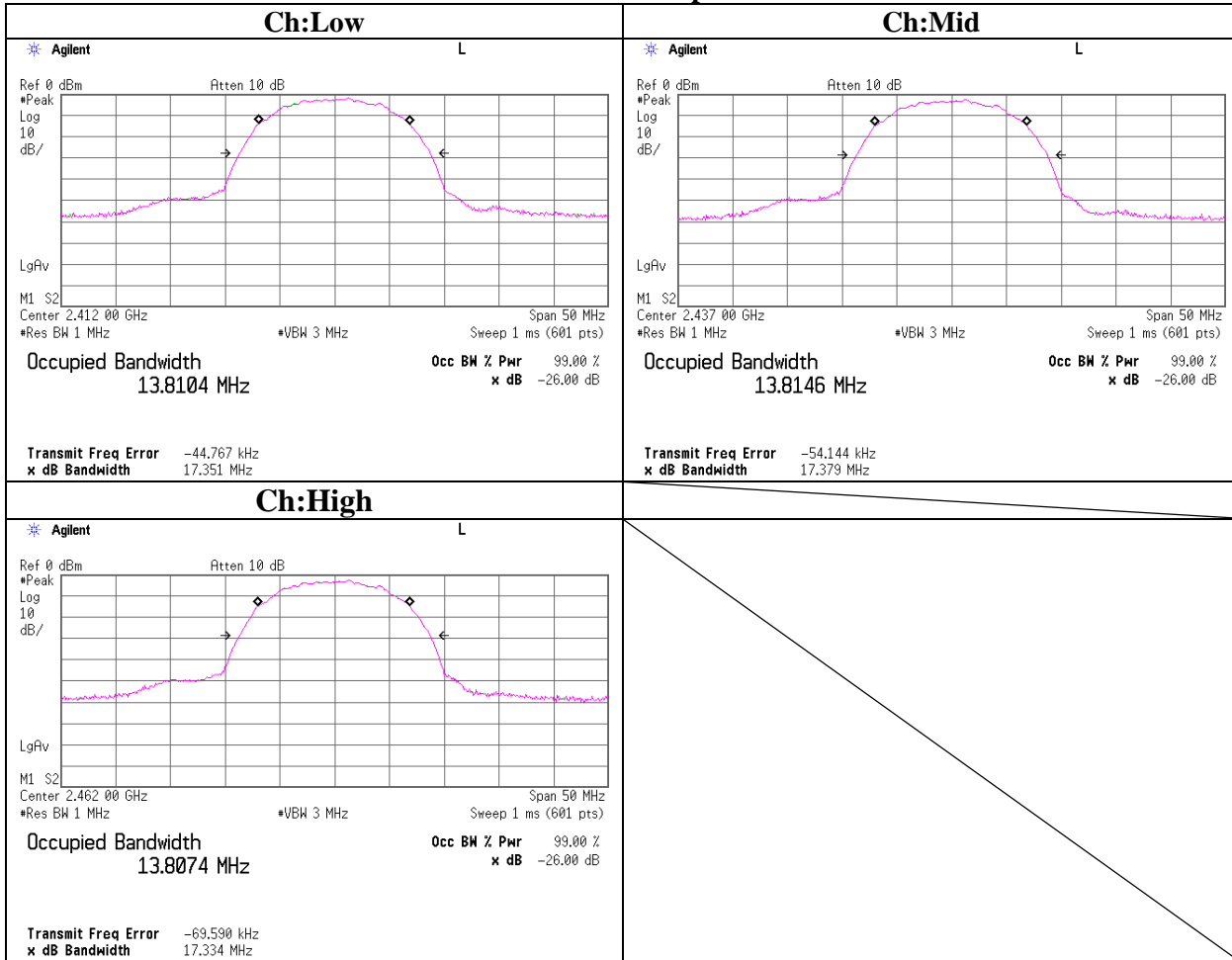


**Power Density**

11g 54Mbps



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





**99% Occupied Bandwidth**  
**11g 54Mbps**

