

Test report No. : 27IE0038-HO-A-R1
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Issued date : June 2, 2007
Revised date : June 12, 2007
FCC ID : MMFMB4001-W2

APPENDIX 2: Data of EMI test

Conducted Emission

DATA OF CONDUCTED EMISSION TEST

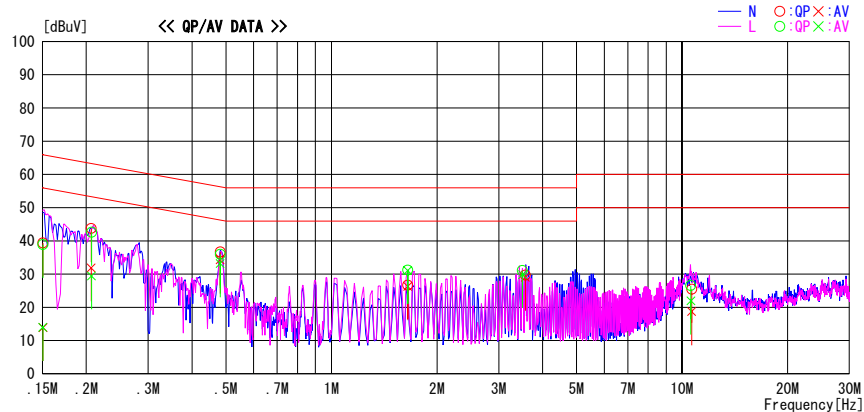
UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2007/05/17

Company : SATO CORPORATION
Kind of EUT : BARCODE PRINTER
Model No. : MB410I-W2
Serial No. : 2

Report No. : 27IE0038-HO
Power : AC120V / 60Hz
Temp./Humi. : 24deg. C / 46%
Operator : Takahiro Hatakeda

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

LIMIT : FCC15.207 QP
FCC15.207 AV



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]		
0.15030	39.2	13.7	0.2	39.4	13.9	66.0	56.0	26.6	42.1	N	
0.20641	43.5	31.7	0.2	43.7	31.9	63.3	53.3	19.6	21.4	N	
0.48149	36.4	34.0	0.3	36.7	34.3	56.3	46.3	19.6	12.0	N	
1.64963	26.2	25.8	0.5	26.7	26.3	56.0	46.0	29.3	19.7	N	
3.57268	28.9	28.3	0.8	29.7	29.1	56.0	46.0	26.3	16.9	N	
10.65349	24.0	17.3	1.5	25.5	18.8	60.0	50.0	34.5	31.3	N	
0.15019	38.8	13.8	0.2	39.0	14.0	66.0	56.0	27.1	42.0	L	
0.20681	42.4	29.3	0.2	42.6	29.5	63.3	53.3	20.7	23.8	L	
0.48139	35.7	32.9	0.3	36.0	33.2	56.3	46.3	20.3	13.1	L	
1.65005	30.7	30.6	0.5	31.2	31.1	56.0	46.0	24.8	14.9	L	
3.50576	30.3	29.1	0.8	31.1	29.9	56.0	46.0	24.9	16.1	L	
10.58511	25.1	20.5	1.5	26.6	22.0	60.0	50.0	33.4	28.0	L	

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

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Conducted Emission

DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2007/05/17

Company

Kind of EUT

Model No.

Serial No.

: SATO CORPORATION

: BARCODE PRINTER

: MB410i-W2

: 2

Report No.

Power

Temp./Humi.

Operator

: 27IE0038-H0

: AC120V / 60Hz

: 24deg. C / 46%

: Takahiro Hatakeda

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

LIMIT : FCC15.207 QP
FCC15.207 AV

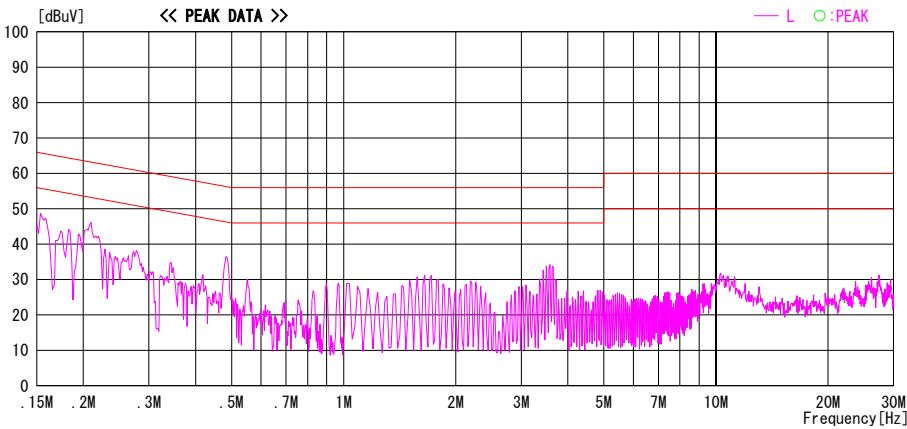
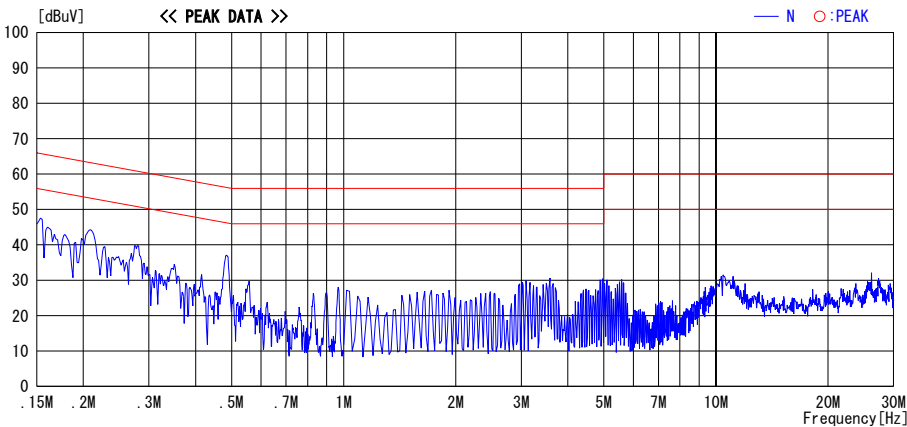


CHART:WITH FACTOR,Peak hold data.Data is uncorrected. CALCURATION:RESULT=READING+C.F(LISN LOSS+CABLE LOSS)
Except for the above table : adequate margin data below the limits.

Conducted Emission

DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2007/05/17

Company : SATO CORPORATION

Kind of EUT : BARCODE PRINTER

Model No. : MB410i-W2

Serial No. : 2

Report No. : 271E0038-H0

Power : AC120V / 60Hz

Temp./Humi. : 24deg. C / 46%

Operator : Takahiro Hatakeda

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

LIMIT : FCC15.207 QP
FCC15.207 AV

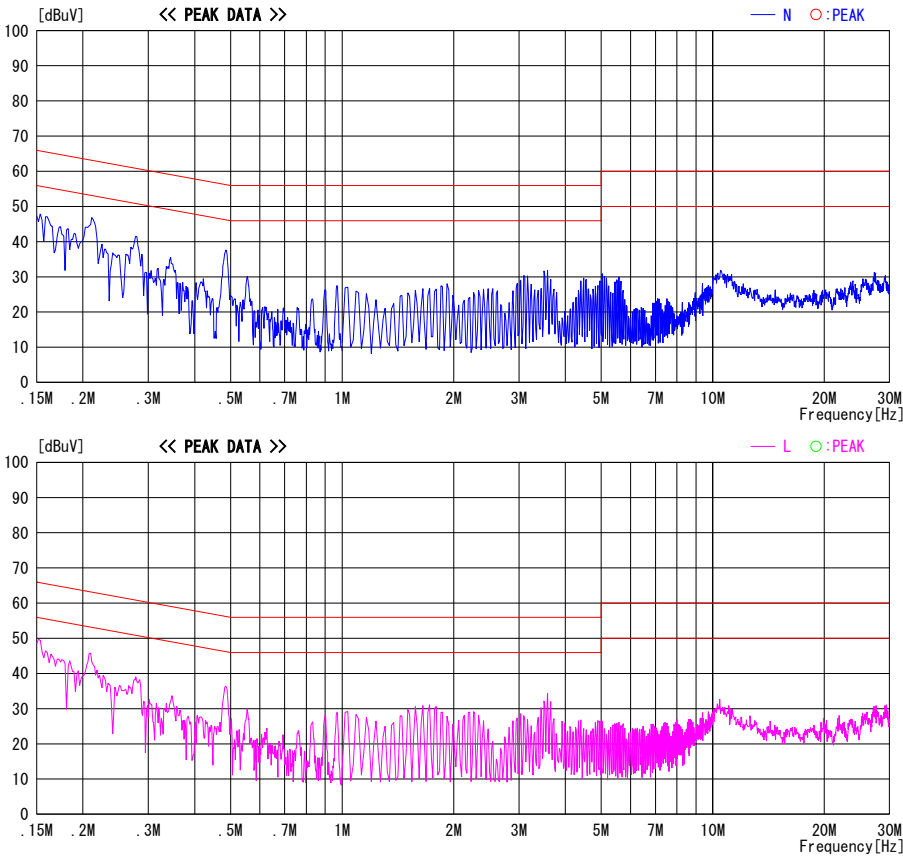


CHART:WITH FACTOR,Peak hold data.Data is uncorrected. CALCURATION:RESULT=READING+C.F(LISN LOSS+CABLE LOSS)
Except for the above table : adequate margin data below the limits.

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Conducted Emission

DATA OF CONDUCTED EMISSION TEST

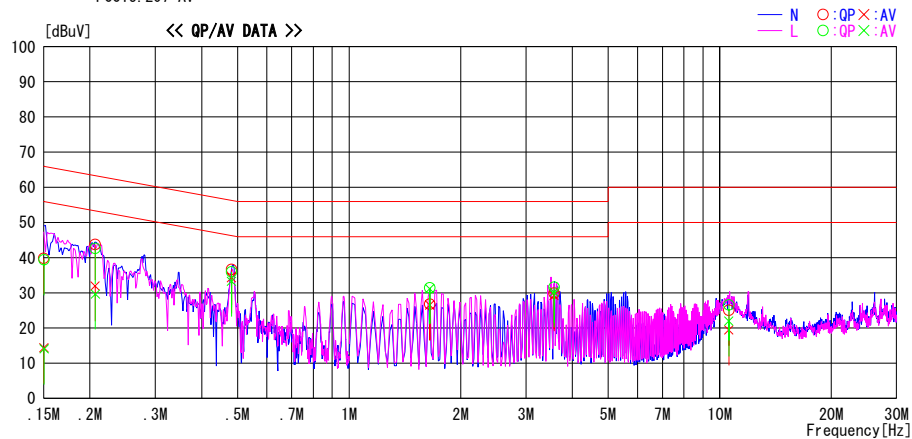
UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2007/05/17

Company : SATO CORPORATION
Kind of EUT : BARCODE PRINTER
Model No. : MB410i-W2
Serial No. : 2

Report No. : 271E0038-H0
Power : AC120V / 60Hz
Temp./Humi. : 24deg. C / 46%
Operator : Takahiro Hatakeda

Mode / Remarks : IEEE802.11g, 54Mbps, Tx 2412MHz

LIMIT : FCC15.207 QP
FCC15.207 AV



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]		
0.15001	39.6	14.2	0.2	39.8	14.4	66.0	56.0	26.2	41.6	N	
0.20631	43.6	31.8	0.2	43.8	32.0	63.4	53.4	19.6	21.4	N	
0.48156	36.4	34.0	0.3	36.7	34.3	56.3	46.3	19.6	12.0	N	
1.64944	26.3	26.0	0.5	26.8	26.5	56.0	46.0	29.2	19.5	N	
3.57274	29.1	28.4	0.8	29.9	29.2	56.0	46.0	26.1	16.8	N	
10.58234	23.6	18.0	1.5	25.1	19.5	60.0	50.0	34.9	30.5	N	
0.15033	39.2	13.9	0.2	39.4	14.1	66.0	56.0	26.6	41.9	L	
0.20656	42.4	29.5	0.2	42.6	29.7	63.3	53.3	20.7	23.6	L	
0.48146	35.7	33.0	0.3	36.0	33.3	56.3	46.3	20.3	13.0	L	
1.64946	30.9	30.7	0.5	31.4	31.2	56.0	46.0	24.6	14.8	L	
3.57365	30.8	29.5	0.8	31.6	30.3	56.0	46.0	24.4	15.7	L	
10.58304	25.1	20.5	1.5	26.6	22.0	60.0	50.0	33.4	28.0	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.

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Conducted Emission

DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2007/05/17

Company : SATO CORPORATION
Kind of EUT : BARCODE PRINTER
Model No. : MB410i-W2
Serial No. : 2

Report No. : 27IE0038-H0
Power : AC120V / 60Hz
Temp./Humi. : 24deg. C / 46%
Operator : Takahiro Hatakeda

Mode / Remarks : IEEE802.11g, 54Mbps, Tx 2437MHz

LIMIT : FCC15.207 QP
FCC15.207 AV

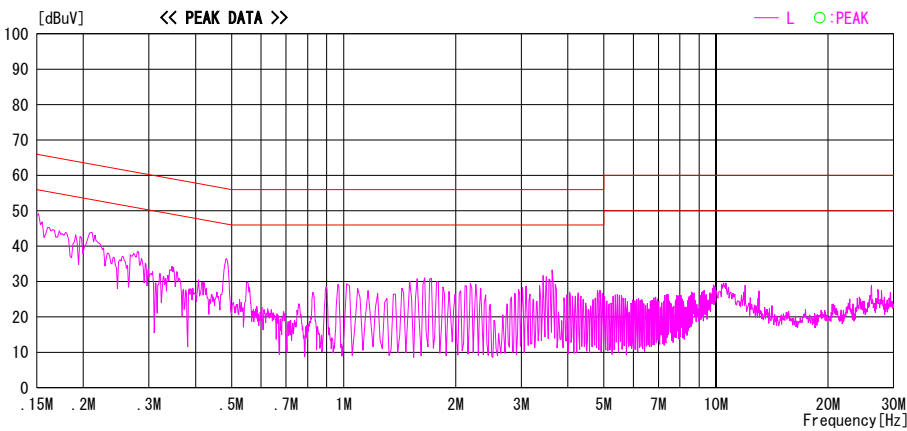
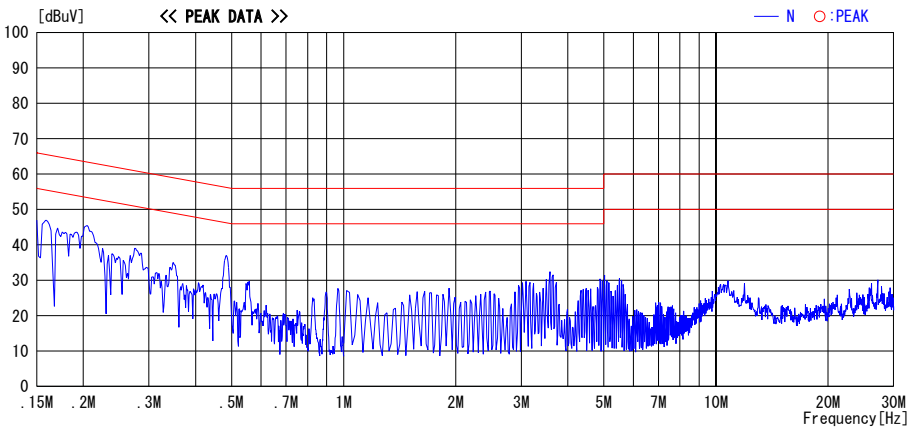


CHART:WITH FACTOR,Peak hold data.Data is uncorrected. CALCURATION:RESULT=READING+C.F(LISN LOSS+CABLE LOSS)
Except for the above table : adequate margin data below the limits.

Conducted Emission

DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2007/05/17

Company : SATO CORPORATION

Kind of EUT : BARCODE PRINTER

Model No. : MB410i-W2

Serial No. : 2

Report No. : 271E0038-H0

Power : AC120V / 60Hz

Temp./Humi. : 24deg. C / 46%

Operator : Takahiro Hatakeda

Mode / Remarks : IEEE802.11g, 54Mbps, Tx 2462MHz

LIMIT : FCC15.207 QP
FCC15.207 AV

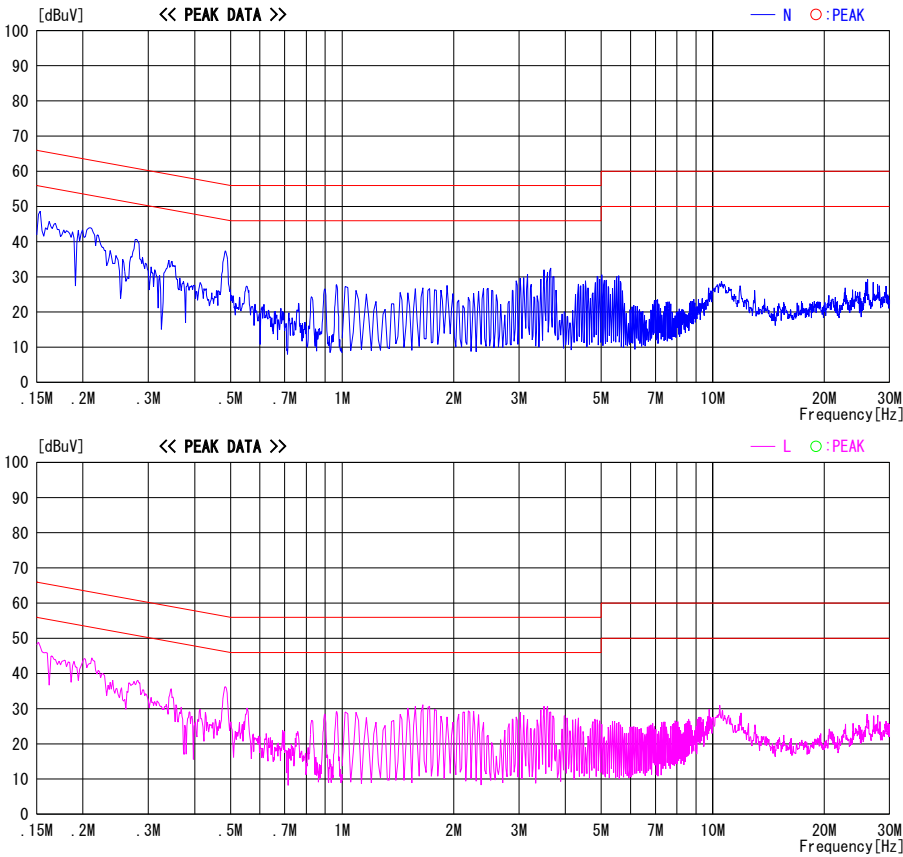


CHART:WITH FACTOR,Peak hold data.Data is uncorrected. CALCURATION:RESULT=READING+C.F(LISN LOSS+CABLE LOSS)
Except for the above table : adequate margin data below the limits.

6dB Bandwidth

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

Company : SATO CORPORATION
Equipment : BARCODE PRINTER
Model : MB410i-W2
Sample No. : 2
Power : AC120V/60Hz
Mode : Tx (Ch L, M, H)

REPORT NO : 27IE0038-HO
REGULATION : FCC15.247(a)(2)/RSS-210A8.2(1)
TEST DISTANCE : -
DATE : 04/17/2007
TEMPERATURE : 22°C
HUMIDITY : 38%
ENGINEER : Takahiro Hatakeda

IEEE802.11b , 11Mbps

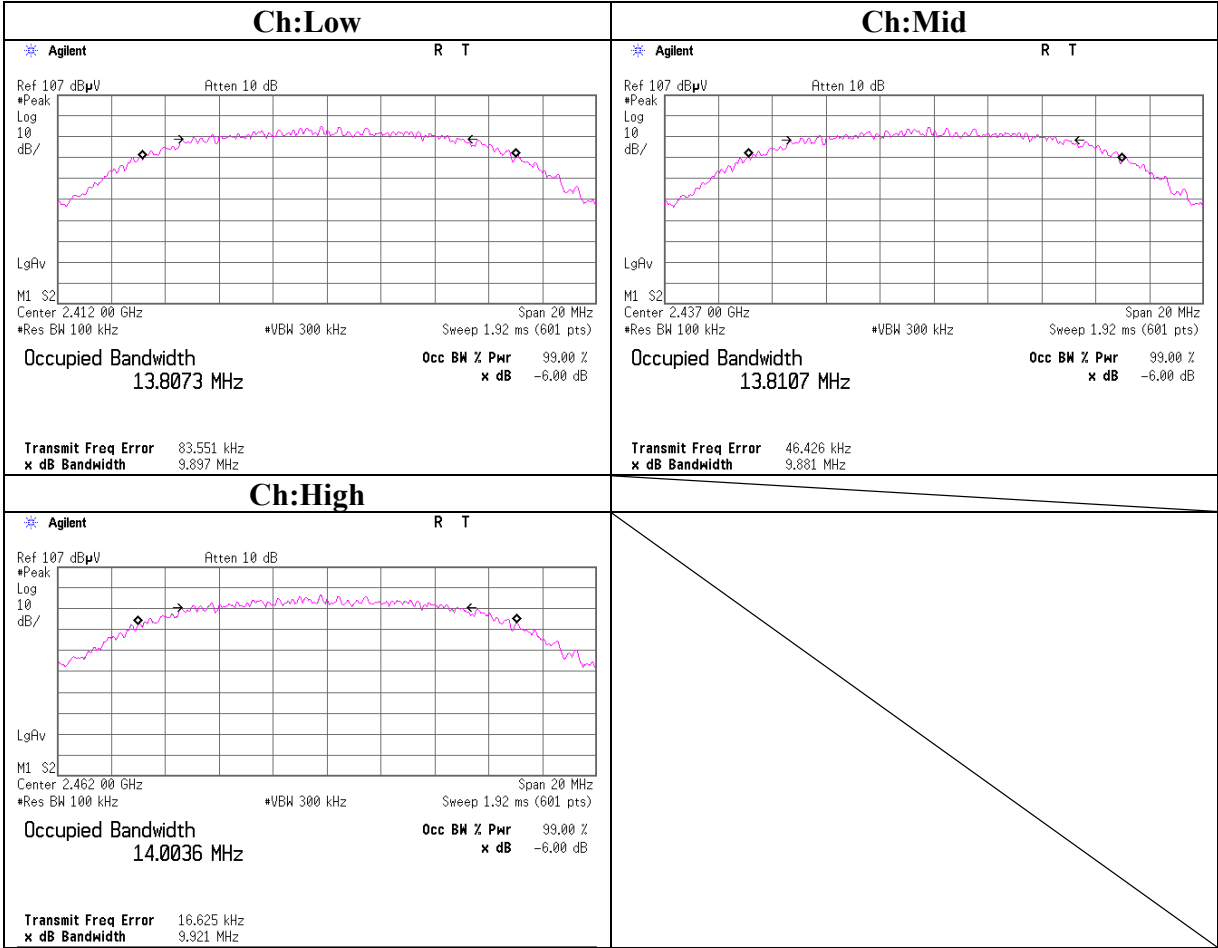
Ch	Freq. [MHz]	6dB Bandwidth [MHz]	Limit [kHz]
Low	2412.0	9.897	>500
Mid	2437.0	9.881	>500
High	2462.0	9.921	>500

IEEE802.11g , 54Mbps

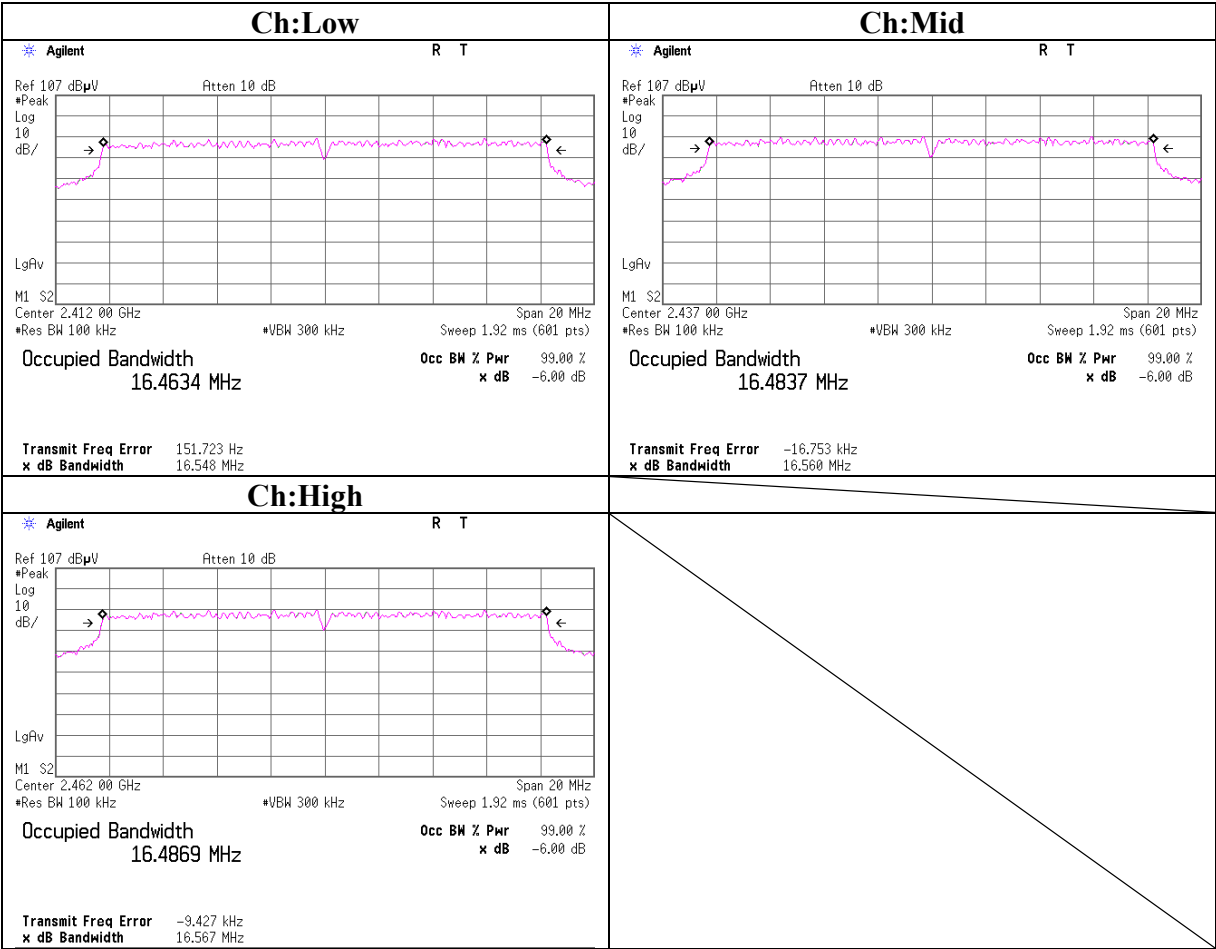
Ch	Freq. [MHz]	6dB Bandwidth [MHz]	Limit [kHz]
Low	2412.0	16.548	>500
Mid	2437.0	16.560	>500
High	2462.0	16.567	>500

6dB Bandwidth

IEEE802.11b(11Mbps)



6dB Bandwidth
IEEE802.11g(54Mbps)



Maximum Peak Output Power

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

Company : SATO CORPORATION
Equipment : BARCODE PRINTER
Model : MB410i-W2
Sample No. : 2
Power : AC120V/60Hz
Mode : Tx (Ch L, M, H)

REPORT NO : 27IE0038-HO
REGULATION : FCC15.247(b)(3)/RSS-210A8.4(4)
TEST DISTANCE : -
DATE : 4/17/2007
TEMPERATURE : 22deg.C.
HUMIDITY : 38%
ENGINEER : Takahiro Hatakeda

IEEE802.11b , 11Mbps

Ch	Freq. [MHz]	P/M (PK) Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result		Limit		Margin [dB]
					[dBm]	[mW]	[dBm]	[mW]	
Low	2412.0	7.14	2.45	10.02	19.61	91.41	30.00	1000	10.39
Mid	2437.0	7.35	2.45	10.02	19.82	95.94	30.00	1000	10.18
High	2462.0	7.12	2.20	10.02	19.34	85.90	30.00	1000	10.66

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 , 54Mbps

Ch	Freq. [MHz]	P/M (PK) Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result		Limit		Margin [dB]
					[dBm]	[mW]	[dBm]	[mW]	
Low	2412.0	8.40	2.45	10.02	20.87	122.18	30.00	1000	9.13
Mid	2437.0	8.14	2.45	10.02	20.61	115.08	30.00	1000	9.39
High	2462.0	7.97	2.20	10.02	20.19	104.47	30.00	1000	9.81

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.

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Radiated Spurious Emission (below 1GHz)
IEEE802.11b
Tx, Ch:Low

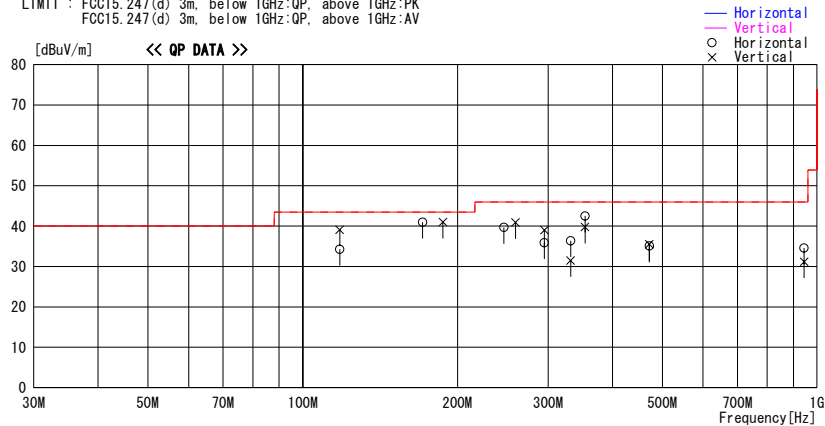
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2007/06/02

Company : SATO CORPORATION
Kind of EUT : BARCODE PRINTER
Model No. : MB410i-W2
Serial No. : 2
Report No. : 27IE0038-HO
Power : AC 120V/60Hz
Temp./Humi. : 26deg.C. / 48%
Operator : Takahiro Hatakeda

Mode / Remarks : WLAN 11b, Tx 2412MHz, 11Mbps, Hor:Y-axis, Ver:X-axis

LIMIT : FCC15.247(d) 3m, below 1GHz:QP, above 1GHz:PK
FCC15.247(d) 3m, below 1GHz:QP, above 1GHz:AV



Frequency	Reading	DET	Antenna	Loss&	Level	Angle	Height	Polar.	Limit	Margin
			Factor	Gain						
[MHz]	[dBuV]		[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]
117.967	47.5	QP	12.6	-21.0	39.1	292	100	Vert.	43.5	4.4
117.968	42.7	QP	12.6	-21.0	34.3	55	149	Hori.	43.5	9.2
171.036	45.5	QP	15.9	-20.4	41.0	169	100	Hori.	43.5	2.5
187.368	44.3	QP	16.8	-20.1	41.0	359	100	Vert.	43.5	2.5
246.077	42.6	QP	16.7	-19.6	39.7	37	220	Hori.	46.0	6.3
259.245	42.9	QP	17.4	-19.4	40.9	188	100	Vert.	46.0	5.1
294.920	38.2	QP	19.8	-19.0	39.0	342	100	Vert.	46.0	7.0
294.921	35.1	QP	19.8	-19.0	35.9	135	371	Hori.	46.0	10.1
331.766	35.0	QP	15.7	-19.2	31.5	26	100	Vert.	46.0	14.5
331.767	39.9	QP	15.7	-19.2	36.4	66	100	Hori.	46.0	9.6
353.905	45.3	QP	16.5	-19.3	42.5	354	100	Hori.	46.0	3.5
353.905	42.6	QP	16.5	-19.3	39.8	170	174	Vert.	46.0	6.2
471.876	36.3	QP	18.3	-19.5	35.1	292	100	Hori.	46.0	10.9
471.876	36.7	QP	18.3	-19.5	35.5	18	158	Vert.	46.0	10.5
943.752	25.1	QP	22.7	-16.6	31.2	356	100	Vert.	46.0	14.8
943.752	28.5	QP	22.7	-16.6	34.6	140	100	Hori.	46.0	11.4

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

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

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Radiated Spurious Emission (below 1GHz)
IEEE802.11b
Tx, Ch:Mid

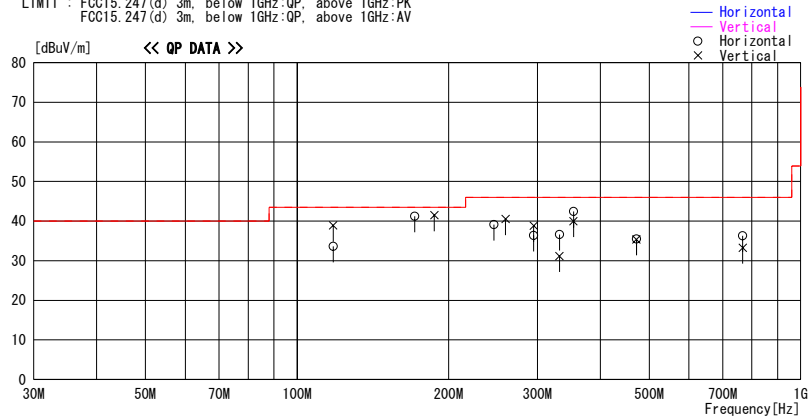
DATA OF RADIATED EMISSION TEST

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Date : 2007/06/02

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Model No. : MB410i-W2
Serial No. : 2
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Mode / Remarks : WLAN 11b, Tx 2437MHz, 11Mbps, Hor:Y-axis, Ver:X-axis

LIMIT : FCC15.247(d) 3m, below 1GHz:QP, above 1GHz:PK
FCC15.247(d) 3m, below 1GHz:QP, above 1GHz:AV



Frequency [MHz]	Reading [dBuV]	DET	Antenna	Loss&	Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]
			Factor [dB/m]	Gain [dB]						
117.967	42.0	QP	12.6	-21.0	33.6	67	133	Hori.	43.5	9.9
117.967	47.3	QP	12.6	-21.0	38.9	280	100	Vert.	43.5	4.6
171.234	45.7	QP	15.9	-20.4	41.2	177	100	Hori.	43.5	2.3
187.334	44.8	QP	16.8	-20.1	41.5	359	100	Vert.	43.5	2.0
259.343	42.5	QP	17.4	-19.4	40.5	181	100	Vert.	46.0	5.5
246.135	42.0	QP	16.7	-19.6	39.1	29	233	Hori.	46.0	6.9
294.920	35.6	QP	19.8	-19.0	36.4	137	355	Hori.	46.0	9.6
294.920	38.0	QP	19.8	-19.0	38.8	343	100	Vert.	46.0	7.2
331.766	40.1	QP	15.7	-19.2	36.6	69	100	Hori.	46.0	9.4
331.765	34.7	QP	15.7	-19.2	31.2	18	100	Vert.	46.0	14.8
353.901	45.2	QP	16.5	-19.3	42.4	351	100	Hori.	46.0	3.6
353.903	42.8	QP	16.5	-19.3	40.0	166	177	Vert.	46.0	6.0
471.876	36.7	QP	18.3	-19.5	35.5	303	100	Hori.	46.0	10.5
471.875	36.6	QP	18.3	-19.5	35.4	22	150	Vert.	46.0	10.6
766.800	32.8	QP	21.5	-18.0	36.3	244	100	Hori.	46.0	9.7
766.799	29.8	QP	21.5	-18.0	33.3	138	100	Vert.	46.0	12.7

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.

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Radiated Spurious Emission (below 1GHz)
IEEE802.11b
Tx, Ch:High

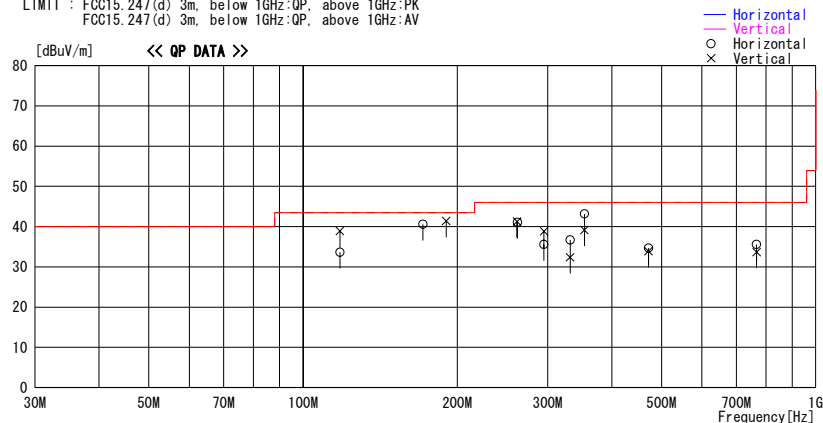
DATA OF RADIATED EMISSION TEST

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Date : 2007/06/02

Company : SATO CORPORATION
Kind of EUT : BARCODE PRINTER
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Serial No. : 2
Report No. : 271E0038-HO
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Operator : Takahiro Hatakeda

Mode / Remarks : WLAN 11b, Tx 2462MHz, 11Mbps, Hor:Y-axis, Ver:X-axis

LIMIT : FCC15.247(d) 3m, below 1GHz:QP, above 1GHz:PK
FCC15.247(d) 3m, below 1GHz:QP, above 1GHz:AV



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]
117.966	42.0	QP	12.6	-21.0	33.6	47	140	Hori.	43.5	9.9
117.966	47.3	QP	12.6	-21.0	38.9	266	100	Vert.	43.5	4.6
171.234	45.1	QP	15.9	-20.4	40.6	155	100	Hori.	43.5	2.9
190.223	44.5	QP	17.0	-20.1	41.4	359	100	Vert.	43.5	2.1
261.311	43.2	QP	17.5	-19.4	41.3	173	100	Vert.	46.0	4.7
261.931	42.9	QP	17.6	-19.4	41.1	41	207	Hori.	46.0	4.9
294.919	34.8	QP	19.8	-19.0	35.6	136	344	Hori.	46.0	10.4
294.920	38.0	QP	19.8	-19.0	38.8	315	100	Vert.	46.0	7.2
331.764	40.2	QP	15.7	-19.2	36.7	67	100	Hori.	46.0	9.3
331.766	35.9	QP	15.7	-19.2	32.4	17	100	Vert.	46.0	13.6
353.906	46.0	QP	16.5	-19.3	43.2	356	100	Hori.	46.0	2.8
353.906	42.0	QP	16.5	-19.3	39.2	162	166	Vert.	46.0	6.8
471.877	35.1	QP	18.3	-19.5	33.9	10	161	Vert.	46.0	12.1
471.878	35.9	QP	18.3	-19.5	34.7	301	100	Hori.	46.0	11.3
766.801	32.1	QP	21.5	-18.0	35.6	221	100	Hori.	46.0	10.4
766.801	30.2	QP	21.5	-18.0	33.7	122	100	Vert.	46.0	12.3

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.

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Radiated Spurious Emission (below 1GHz)
IEEE802.11g
Tx, Ch:Low

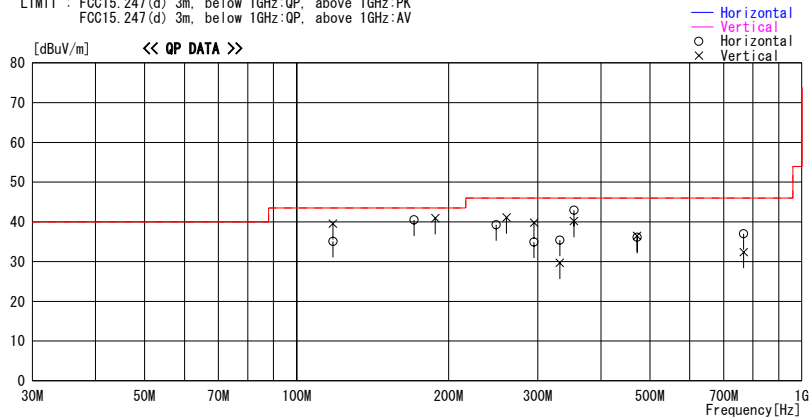
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2007/06/02

Company : SATO CORPORATION
Kind of EUT : BARCODE PRINTER
Model No. : MB410i-W2
Serial No. : 2
Report No. : 27IE0038-HO
Power : AC 120V/60Hz
Temp./Humi. : 26deg.C. / 48%
Operator : Takahiro Hatakeda

Mode / Remarks : WLAN 11g, Tx 2412MHz, 54Mbps, Hor:Y-axis, Ver:X-axis

LIMIT : FCC15.247(d) 3m, below 1GHz:QP, above 1GHz:PK
FCC15.247(d) 3m, below 1GHz:QP, above 1GHz:AV



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]
117.965	48.0	QP	12.6	-21.0	39.6	281	100	Vert.	43.5	3.9
117.966	43.5	QP	12.6	-21.0	35.1	57	161	Hori.	43.5	8.4
170.889	45.0	QP	15.9	-20.4	40.5	161	100	Hori.	43.5	3.0
188.161	44.1	QP	16.9	-20.1	40.9	359	100	Vert.	43.5	2.6
248.378	42.1	QP	16.7	-19.5	39.3	49	201	Hori.	46.0	6.7
260.214	43.1	QP	17.4	-19.4	41.1	194	100	Vert.	46.0	4.9
294.922	34.1	QP	19.8	-19.0	34.9	134	355	Hori.	46.0	11.1
294.923	39.0	QP	19.8	-19.0	39.8	326	100	Vert.	46.0	6.2
331.769	38.9	QP	15.7	-19.2	35.4	68	100	Hori.	46.0	10.6
331.769	33.2	QP	15.7	-19.2	29.7	6	100	Vert.	46.0	16.3
353.899	45.7	QP	16.5	-19.3	42.9	356	100	Hori.	46.0	3.1
353.901	43.0	QP	16.5	-19.3	40.2	136	169	Vert.	46.0	5.8
471.879	37.7	QP	18.3	-19.5	36.5	15	149	Vert.	46.0	9.5
471.880	37.3	QP	18.3	-19.5	36.1	307	100	Hori.	46.0	9.9
766.798	33.5	QP	21.5	-18.0	37.0	237	100	Hori.	46.0	9.0
766.801	28.9	QP	21.5	-18.0	32.4	146	100	Vert.	46.0	13.6

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

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

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Radiated Spurious Emission (below 1GHz)
IEEE802.11g
Tx, Ch:Mid

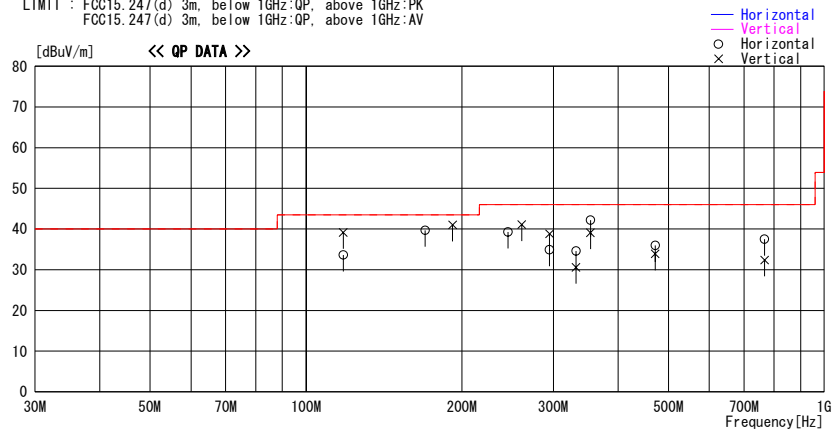
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2007/06/02

Company : SATO CORPORATION
Kind of EUT : BARCODE PRINTER
Model No. : MB410i-W2
Serial No. : 2
Report No. : 27IE0038-HO
Power : AC 120V/60Hz
Temp./Humi. : 26deg. C. / 48%
Operator : Takahiro Hatakeda

Mode / Remarks : WLAN 11g, Tx 2437MHz, 54Mbps, Hor:Y-axis, Ver:X-axis

LIMIT : FCC15.247(d) 3m, below 1GHz:QP, above 1GHz:PK
FCC15.247(d) 3m, below 1GHz:QP, above 1GHz:AV



Frequency	Reading	DET	Antenna	Loss&	Level	Angle	Height	Polar.	Limit	Margin
			Factor	Gain						
[MHz]	[dBuV]		[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]
117.965	47.6	QP	12.6	-21.0	39.2	260	100	Vert.	43.5	4.3
117.965	42.0	QP	12.6	-21.0	33.6	65	132	Hori.	43.5	9.9
169.860	44.2	QP	15.9	-20.4	39.7	179	100	Hori.	43.5	3.8
191.730	44.1	QP	17.0	-20.1	41.0	359	100	Vert.	43.5	2.5
245.191	42.1	QP	16.8	-19.6	39.3	41	195	Hori.	46.0	6.7
260.851	43.0	QP	17.5	-19.4	41.1	183	100	Vert.	46.0	4.9
294.921	38.0	QP	19.8	-19.0	38.8	325	100	Vert.	46.0	7.2
294.923	34.1	QP	19.8	-19.0	34.9	154	351	Hori.	46.0	11.1
331.762	38.1	QP	15.7	-19.2	34.6	77	100	Hori.	46.0	11.4
331.765	34.1	QP	15.7	-19.2	30.6	11	100	Vert.	46.0	15.4
353.899	41.9	QP	16.5	-19.3	39.1	138	188	Vert.	46.0	6.9
353.901	45.0	QP	16.5	-19.3	42.2	359	100	Hori.	46.0	3.8
471.872	35.1	QP	18.3	-19.5	33.9	9	149	Vert.	46.0	12.1
471.873	37.2	QP	18.3	-19.5	36.0	326	100	Hori.	46.0	10.0
766.788	28.9	QP	21.5	-18.0	32.4	123	100	Vert.	46.0	13.6
766.792	34.0	QP	21.5	-18.0	37.5	261	100	Hori.	46.0	8.5

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.

Test report No. : 27IE0038-HO-A-R1
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Radiated Spurious Emission (below 1GHz)
IEEE802.11g
Tx, Ch:High

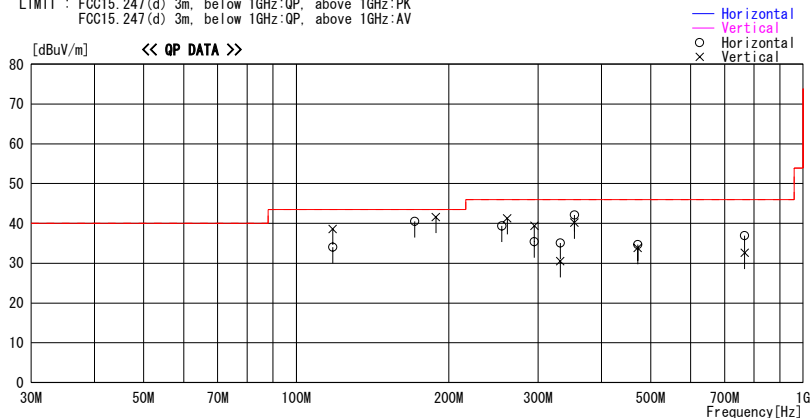
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2007/06/02

Company : SATO CORPORATION
Kind of EUT : BARCODE PRINTER
Model No. : MB410i-W2
Serial No. : 2
Report No. : 27IE0038-HO
Power : AC 120V/60Hz
Temp./Humi. : 26deg.C / 48%
Operator : Takahiro Hatakeda

Mode / Remarks : WLAN 11g, Tx 2462MHz, 54Mbps, Hor:Y-axis, Ver:X-axis

LIMIT : FCC15.247(d) 3m, below 1GHz:QP, above 1GHz:PK
FCC15.247(d) 3m, below 1GHz:QP, above 1GHz:AV



Frequency [MHz]	Reading [dBuV]	DET	Antenna	Loss&	Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]
			Factor [dB/m]	Gain [dB]						
117.966	42.4	QP	12.6	-21.0	34.0	58	135	Hori.	43.5	9.5
117.966	47.0	QP	12.6	-21.0	38.6	259	100	Vert.	43.5	4.9
171.210	45.0	QP	15.9	-20.4	40.5	201	100	Hori.	43.5	3.0
188.490	44.8	QP	16.9	-20.1	41.6	359	100	Vert.	43.5	1.9
254.371	41.8	QP	17.0	-19.4	39.4	42	189	Hori.	46.0	6.6
260.851	43.2	QP	17.5	-19.4	41.3	182	100	Vert.	46.0	4.7
294.918	34.6	QP	19.8	-19.0	35.4	135	344	Hori.	46.0	10.6
294.918	38.6	QP	19.8	-19.0	39.4	306	100	Vert.	46.0	6.6
331.770	38.6	QP	15.7	-19.2	35.1	67	100	Hori.	46.0	10.9
331.773	34.0	QP	15.7	-19.2	30.5	12	100	Vert.	46.0	15.5
353.898	44.9	QP	16.5	-19.3	42.1	355	100	Hori.	46.0	3.9
353.899	43.0	QP	16.5	-19.3	40.2	137	188	Vert.	46.0	5.8
471.871	35.9	QP	18.3	-19.5	34.7	327	100	Hori.	46.0	11.3
471.875	35.0	QP	18.3	-19.5	33.8	11	131	Vert.	46.0	12.2
766.795	33.4	QP	21.5	-18.0	36.9	260	100	Hori.	46.0	9.1
766.799	29.1	QP	21.5	-18.0	32.6	124	100	Vert.	46.0	13.4

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

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

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Radiated Spurious Emission (above 1GHz)

IEEE802.11b

Tx, Ch:Low

UL Japan, Inc.
Head Office EMC Lab. No.2 and No.4 Semi Anechoic Chambers

Company : SATO CORPORATION
Equipment : BARCODE PRINTER
Model : MB410i-W2
Sample No. : 2
Power : AC 120 V / 60 Hz
Mode : WLAN 11b, Tx 2412MHz, 11Mbps
Remarks : Hor Y , Ver X-axis

REPORT NO : 27IE0038-HO
REGULATION : FCC15.247(d)/RSS-210A8.5
TEST DISTANCE : 3/1m
DATE : 04/10/2007 : 04/26/2007
TEMPERATURE : 22deg.C : 24deg.C
HUMIDITY : 31% : 40%
ENGINEER : Hidekazu Tanaka : Hisayoshi Sato

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/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2390.0	48.6	49.1	27.1	32.3	3.2	0.0	46.6	47.1	74.0	27.4	26.9
2*	2400.0	66.5	64.5	27.1	32.3	3.3	0.0	64.6	62.6	74.0	-	-
3	4824.0	45.2	46.1	31.3	31.6	4.5	0.1	49.5	50.4	74.0	24.5	23.6
4	7236.0	43.1	43.3	35.8	31.4	5.3	0.4	53.2	53.4	74.0	20.8	20.6
5	9648.0	43.3	43.7	38.6	31.9	6.2	0.7	56.9	57.3	74.0	17.1	16.7
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
6	24120.0	44.1	44.2	40.7	32.1	8.1	0.0	51.3	51.4	74.0	22.7	22.6

*Reference Data

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/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2390.0	35.2	35.5	27.1	32.3	3.2	0.0	33.2	33.5	54.0	20.8	20.5
2*	2400.0	57.1	55.3	27.1	32.3	3.3	0.0	55.2	53.4	54.0	-	-
3	4824.0	31.2	31.7	31.3	31.6	4.5	0.1	35.5	36.0	54.0	18.5	18.0
4	7236.0	29.5	29.5	35.8	31.4	5.3	0.4	39.6	39.6	54.0	14.4	14.4
5	9648.0	29.9	29.9	38.6	31.9	6.2	0.7	43.5	43.5	54.0	10.5	10.5
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
6	24120.0	33.2	33.3	40.7	32.1	8.1	0.0	40.4	40.5	54.0	13.6	13.5

*Reference data

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

VSWR (1.0) Antenna Loss (2.0-2.5 dB) (Cable Loss) (0.5-1.0 dB) (1.0-1.5 dB) (2.0-3.0 dB)												
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
		[dBuV]						[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2412.0	97.8	96.6	27.1	32.3	3.3	0.0	95.9	94.7	-	-	-
2	2400.0	56.2	53.7	27.1	32.3	3.3	0.0	54.3	51.8	Funda-20dB	21.6	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 third 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.

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FCC ID : MMFMB4001-W2

Radiated Spurious Emission **IEEE802.11b** **Tx, Ch:Mid**

UL Japan, Inc.
Head Office EMC Lab. No.2 and No.4 Semi Anechoic Chambers

Company : SATO CORPORATION
Equipment : BARCODE PRINTER
Model : MB410i-W2
Sample No. : 2
Power : AC 120 V / 60 Hz
Mode : WLAN 11b, Tx 2437MHz, 11Mbps
Remarks : Hor Y , Ver X-axis

REPORT NO : 27IE0038-HO
REGULATION : FCC15.247(d)/RSS-210A8.5
TEST DISTANCE : 3/1m
DATE : 04/10/2007 : 04/26/2007
TEMPERATURE : 22deg.C : 24deg.C
HUMIDITY : 31% : 40%
ENGINEER : Hidekazu Tanaka : Hisayoshi Sato

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

No.	FREQ	S/A READING		ANT Factor	AMP GAIN	CABLE LOSS	Hi-Pass Filter	RESULT		Limit PK	MARGIN	
		HOR	VER					HOR	VER		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	46.8	47.7	31.4	31.6	4.5	0.0	51.1	52.0	74.0	22.9	22.0
2	7311.0	43.4	43.5	35.9	31.4	5.3	0.4	53.6	53.7	74.0	20.4	20.3
3	9748.0	43.3	42.6	38.7	32.0	6.2	0.7	56.9	56.2	74.0	17.1	17.8
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
4	24370.0	44.7	44.0	40.7	32.2	8.2	0.0	51.9	51.2	74.0	22.1	22.8

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
	[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	32.9	31.4	31.6	4.5	0.0	36.5	37.2	54.0	17.5	16.8
2	7311.0	29.6	29.6	35.9	31.4	5.3	0.4	39.8	39.8	54.0	14.2	14.2
3	9748.0	29.7	29.7	38.7	32.0	6.2	0.7	43.3	43.3	54.0	10.7	10.7
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
4	24370.0	33.2	33.1	40.7	32.2	8.2	0.0	40.4	40.3	54.0	13.6	13.7

Test Distance 1.0m : Distance Factor(Dfac) = $20\log(3/1.0) = 9.5\text{dB}$

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

*In the frequency over the third 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.

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Radiated Spurious Emission **IEEE802.11b** **Tx , Ch: High**

UL Japan, Inc.
Head Office EMC Lab. No.2 and No.4 Semi Anechoic Chambers

Company : SATO CORPORATION
Equipment : BARCODE PRINTER
Model : MB410i-W2
Sample No. : 2
Power : AC 120 V / 60 Hz
Mode : WLAN 11b, Tx 2462MHz, 11Mbps
Remarks : Hor Y , Ver X-axis

REPORT NO : 27IE0038-HO
REGULATION : FCC15.247(d)/RSS-210A8.5
TEST DISTANCE : 3/1m
DATE : 04/10/2007 : 04/26/2007
TEMPERATURE : 22deg.C : 24deg.C
HUMIDITY : 31% : 40%
ENGINEER : Hidekazu Tanaka : Hisayoshi Sato

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

No.	FREQ [MHz]	S/A READING		ANT	AMP	CABLE	Hi-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	PK	HOR	VER
		[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	56.1	51.6	27.2	32.3	3.1	0.0	54.1	49.6	74.0	19.9	24.4
2	4924.0	48.4	48.8	31.5	31.6	4.6	0.0	52.9	53.3	74.0	21.1	20.7
3	7386.0	43.2	43.8	36.1	31.4	5.4	0.5	53.8	54.4	74.0	20.2	19.6
4	9848.0	43.2	43.2	38.8	32.0	6.2	0.7	56.9	56.9	74.0	17.1	17.1
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
5	24620.0	39.6	38.4	40.8	32.2	8.2	0.0	46.9	45.7	74.0	27.1	28.3

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

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit AV [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
		[dBuV]						[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2483.5	42.4	38.7	27.2	32.3	3.1	0.0	40.4	36.7	54.0	13.6	17.3
2	4924.0	33.8	33.8	31.5	31.6	4.6	0.0	38.3	38.3	54.0	15.7	15.7
3	7386.0	29.8	29.8	36.1	31.4	5.4	0.5	40.4	40.4	54.0	13.6	13.6
4	9848.0	29.8	29.9	38.8	32.0	6.2	0.7	43.5	43.6	54.0	10.5	10.4
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
5	24620.0	28.6	28.7	40.8	32.2	8.2	0.0	35.9	36.0	54.0	18.1	18.0

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

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

*In the frequency over the third 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.

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Test report No. : 27IE0038-HO-A-R1
Page : 33 of 46
Issued date : June 2, 2007
Revised date : June 12, 2007
FCC ID : MMFMB4001-W2

Radiated Spurious Emission
IEEE802.11g
Tx, Ch:Low

UL Japan, Inc.
Head Office EMC Lab. No.2 and No.4 Semi Anechoic Chambers

Company : SATO CORPORATION
Equipment : BARCODE PRINTER
Model : MB410i-W2
Sample No. : 2
Power : AC 120 V / 60 Hz
Mode : WLAN 11g, Tx 2412MHz, 54Mbps
Remarks : Hor Y , Ver X-axis

REPORT NO : 27IE0038-HO
REGULATION : FCC15.247(d)/RSS-210A8.5
TEST DISTANCE : 3/1m
DATE : 04/10/2007 : 04/26/2007
TEMPERATURE : 22deg.C : 24deg.C
HUMIDITY : 31% : 40%
ENGINEER : Hidekazu Tanaka : Hisayoshi Sato

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/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2390.0	61.6	61.5	27.1	32.3	3.2	0.0	59.6	59.5	74.0	14.4	14.5
2*	2400.0	75.6	74.6	27.1	32.3	3.3	0.0	73.7	72.7	74.0	-	-
3	4824.0	42.5	42.4	31.3	31.6	4.5	0.1	46.8	46.7	74.0	27.2	27.3
4	7236.0	42.9	42.7	35.8	31.4	5.3	0.4	53.0	52.8	74.0	21.0	21.2
5	9648.0	43.0	43.2	38.6	31.9	6.2	0.7	56.6	56.8	74.0	17.4	17.2
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
6	24120.0	44.1	43.8	40.7	32.1	8.1	0.0	51.3	51.0	74.0	22.7	23.0

* Reference data

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/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2390.0	41.9	41.8	27.1	32.3	3.2	0.0	39.9	39.8	54.0	14.1	14.2
2*	2400.0	58.6	57.0	27.1	32.3	3.3	0.0	56.7	55.1	54.0	-	-
3	4824.0	29.1	29.2	31.3	31.6	4.5	0.1	33.4	33.5	54.0	20.6	20.5
4	7236.0	29.6	29.5	35.8	31.4	5.3	0.4	39.7	39.6	54.0	14.3	14.4
5	9648.0	30.0	29.9	38.6	31.9	6.2	0.7	43.6	43.5	54.0	10.4	10.5
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
6	24120.0	33.3	33.2	40.7	32.1	8.1	0.0	40.5	40.4	54.0	13.5	13.6

* Reference data

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

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit 20dBc [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
		[dBuV]						[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2412.0	92.3	90.0	27.1	32.3	3.3	0.0	90.4	88.1	-	-	-
2	2400.0	61.3	59.7	27.1	32.3	3.3	0.0	59.4	57.8	Funda-20dB	11.0	10.3

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

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

*In the frequency over the second 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.

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Test report No. : 27IE0038-HO-A-R1
Page : 34 of 46
Issued date : June 2, 2007
Revised date : June 12, 2007
FCC ID : MMFMB4001-W2

Radiated Spurious Emission **IEEE802.11g** **Tx, Ch:Mid**

UL Japan, Inc.
Head Office EMC Lab. No.2 and No.4 Semi Anechoic Chambers

Company : SATO CORPORATION
Equipment : BARCODE PRINTER
Model : MB410i-W2
Sample No. : 2
Power : AC 120 V / 60 Hz
Mode : WLAN 11g, Tx 2437MHz, 54Mbps
Remarks : Hor Y , Ver X-axis

REPORT NO : 27IE0038-HO
REGULATION : FCC15.247(d)/RSS-210A8.5
TEST DISTANCE : 3/1m
DATE : 04/10/2007 : 04/26/2007
TEMPERATURE : 22deg.C : 24deg.C
HUMIDITY : 31% : 40%
ENGINEER : Hidekazu Tanaka : Hisayoshi Sato

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

No.	FREQ	S/A READING		ANT Factor	AMP GAIN	CABLE LOSS	Hi-Pass Filter	RESULT		Limit PK	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
	[MHz]	[dBuV]	[dB/m]	[dB]	[dB]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]		
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	4874.0	44.1	44.3	31.4	31.6	4.5	0.0	48.4	48.6	74.0	25.6	25.4
2	7311.0	42.5	43.0	35.9	31.4	5.3	0.4	52.7	53.2	74.0	21.3	20.8
3	9748.0	43.0	43.2	38.7	32.0	6.2	0.7	56.6	56.8	74.0	17.4	17.2
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
4	24370.0	45.3	43.5	40.7	32.2	8.2	0.0	52.5	50.7	74.0	21.5	23.3

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

No.	FREQ	S/A READING		ANT Factor	AMP GAIN	CABLE LOSS	Hi-Pass Filter	RESULT		Limit AV	MARGIN	
		HOR	VER					HOR	VER		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	30.7	31.0	31.4	31.6	4.5	0.0	35.0	35.3	54.0	19.0	18.7
2	7311.0	29.6	29.6	35.9	31.4	5.3	0.4	39.8	39.8	54.0	14.2	14.2
3	9748.0	29.6	29.6	38.7	32.0	6.2	0.7	43.2	43.2	54.0	10.8	10.8
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
4	24370.0	35.2	33.2	40.7	32.2	8.2	0.0	42.4	40.4	54.0	11.6	13.6

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 third 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.

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Test report No. : 27IE0038-HO-A-R1
Page : 35 of 46
Issued date : June 2, 2007
Revised date : June 12, 2007
FCC ID : MMFMB4001-W2

Radiated Spurious Emission IEEE802.11g Tx , Ch: High

UL Japan, Inc.
Head Office EMC Lab. No.2 and No.4 Semi Anechoic Chambers

Company : SATO CORPORATION
Equipment : BARCODE PRINTER
Model : MB410i-W2
Sample No. : 2
Power : AC 120 V / 60 Hz
Mode : WLAN 11g, Tx 2462MHz, 54Mbps
Remarks : Hor Y , Ver X-axis

REPORT NO : 27IE0038-HO
REGULATION : FCC15.247(d)/RSS-210A8.5
TEST DISTANCE : 3/1m
DATE : 04/10/2007 : 04/26/2007
TEMPERATURE : 22deg.C : 24deg.C
HUMIDITY : 31% : 40%
ENGINEER : Hidekazu Tanaka : Hisayoshi Sato

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]		[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	66.8	61.2	27.2	32.3	3.1	0.0	64.8	59.2	74.0	9.2	14.8
2	4924.0	43.4	43.4	31.5	31.6	4.6	0.0	47.9	47.9	74.0	26.1	26.1
3	7386.0	43.1	42.7	36.1	31.4	5.4	0.5	53.7	53.3	74.0	20.3	20.7
4	9848.0	42.9	43.3	38.8	32.0	6.2	0.7	56.6	57.0	74.0	17.4	17.0
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
5	24620.0	38.3	39.5	40.8	32.2	8.2	0.0	45.6	46.8	74.0	28.4	27.2

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
		[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	50.1	44.8	27.2	32.3	3.1	0.0	48.1	42.8	54.0	5.9	11.2
2	4924.0	29.5	30.0	31.5	31.6	4.6	0.0	34.0	34.5	54.0	20.0	19.5
3	7386.0	29.8	29.8	36.1	31.4	5.4	0.5	40.4	40.4	54.0	13.6	13.6
4	9848.0	29.8	29.8	38.8	32.0	6.2	0.7	43.5	43.5	54.0	10.5	10.5
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
5	24620.0	28.7	28.7	40.8	32.2	8.2	0.0	36.0	36.0	54.0	18.0	18.0

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

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

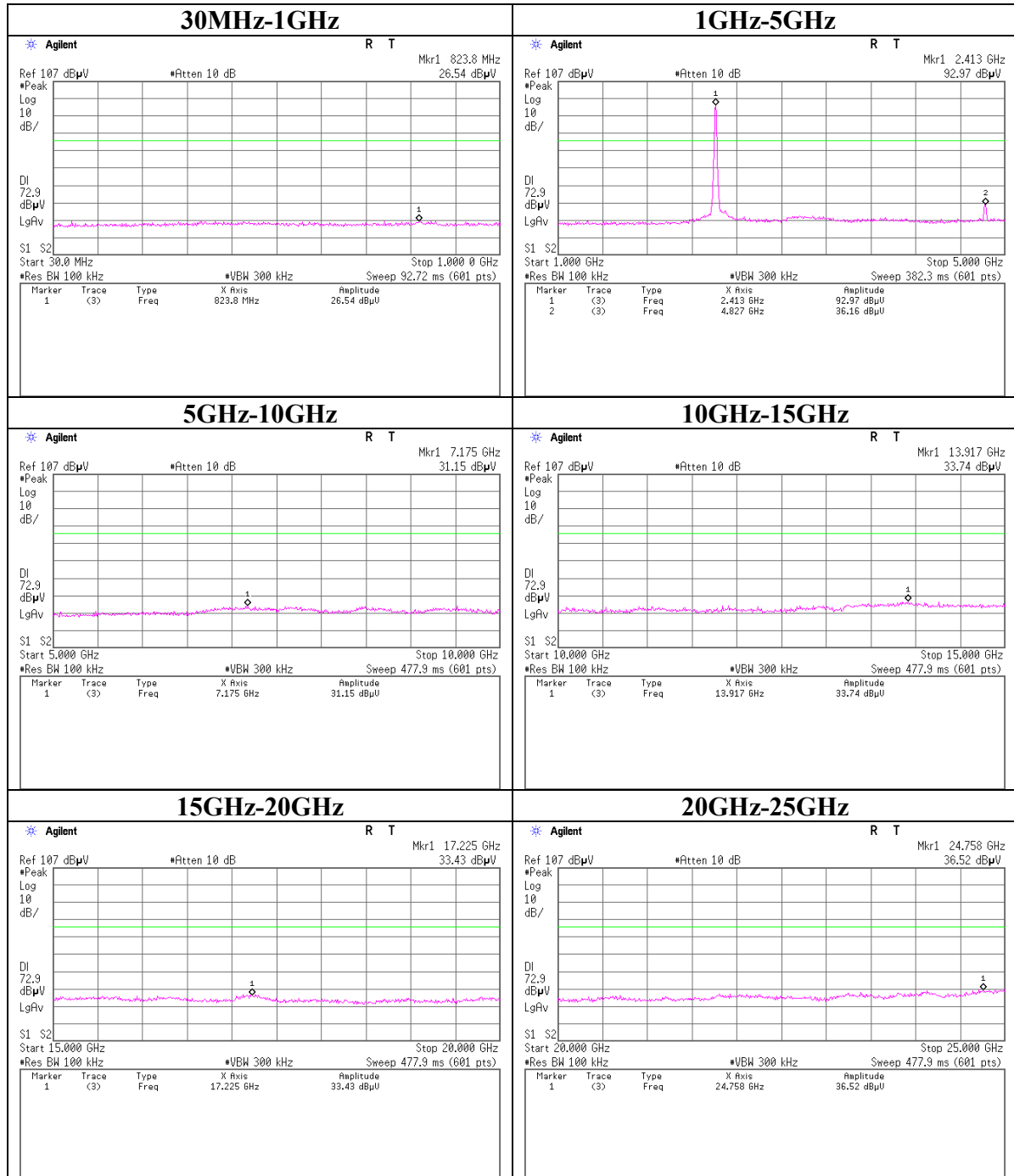
*In the frequency over the second harmonic, the noise from the EUT was not seen. The data above is its base noise.

*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.

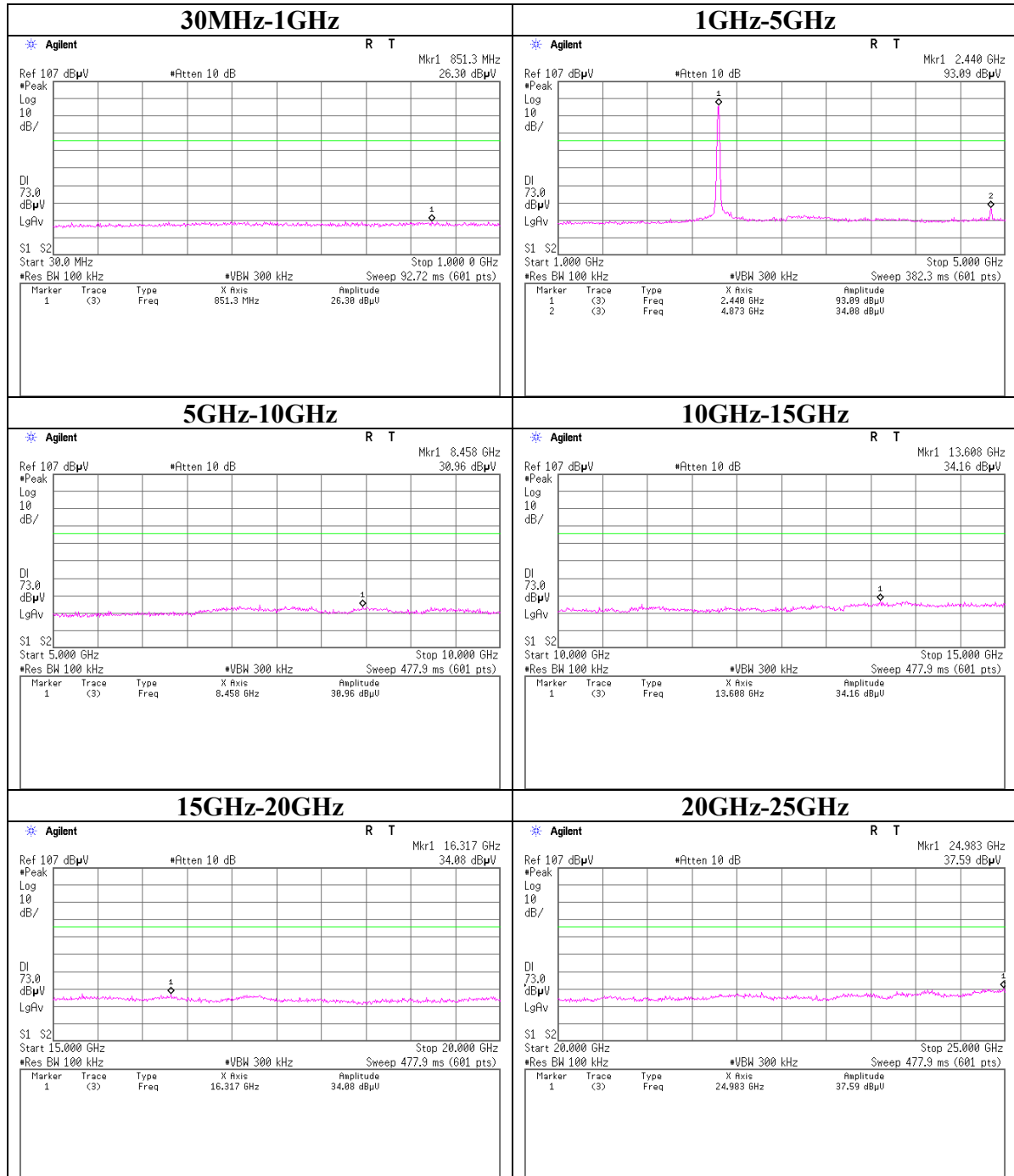
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Conducted Spurious Emission
IEEE802.11b , Tx , Ch: Low , 11Mbps

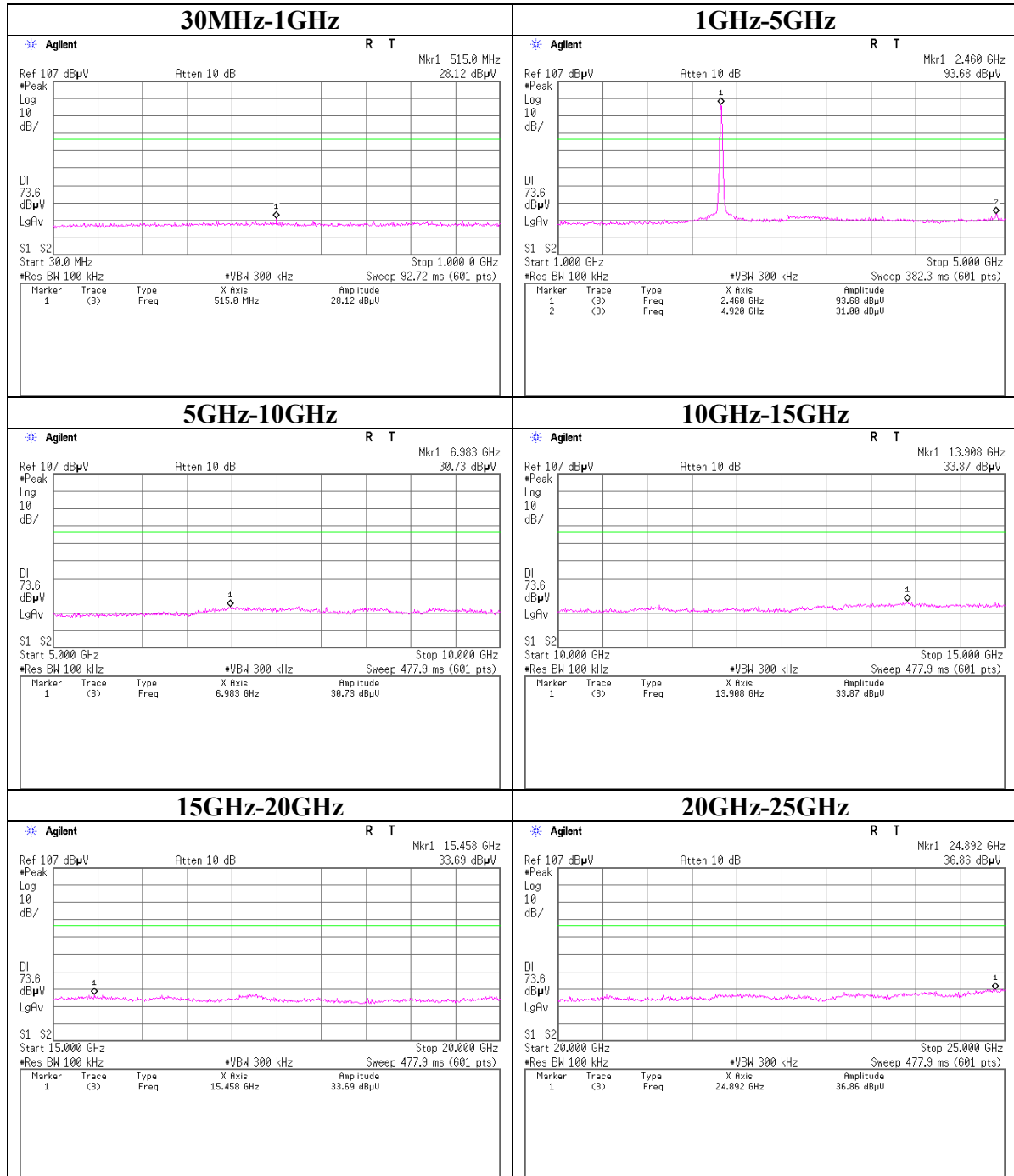


Conducted Spurious Emission

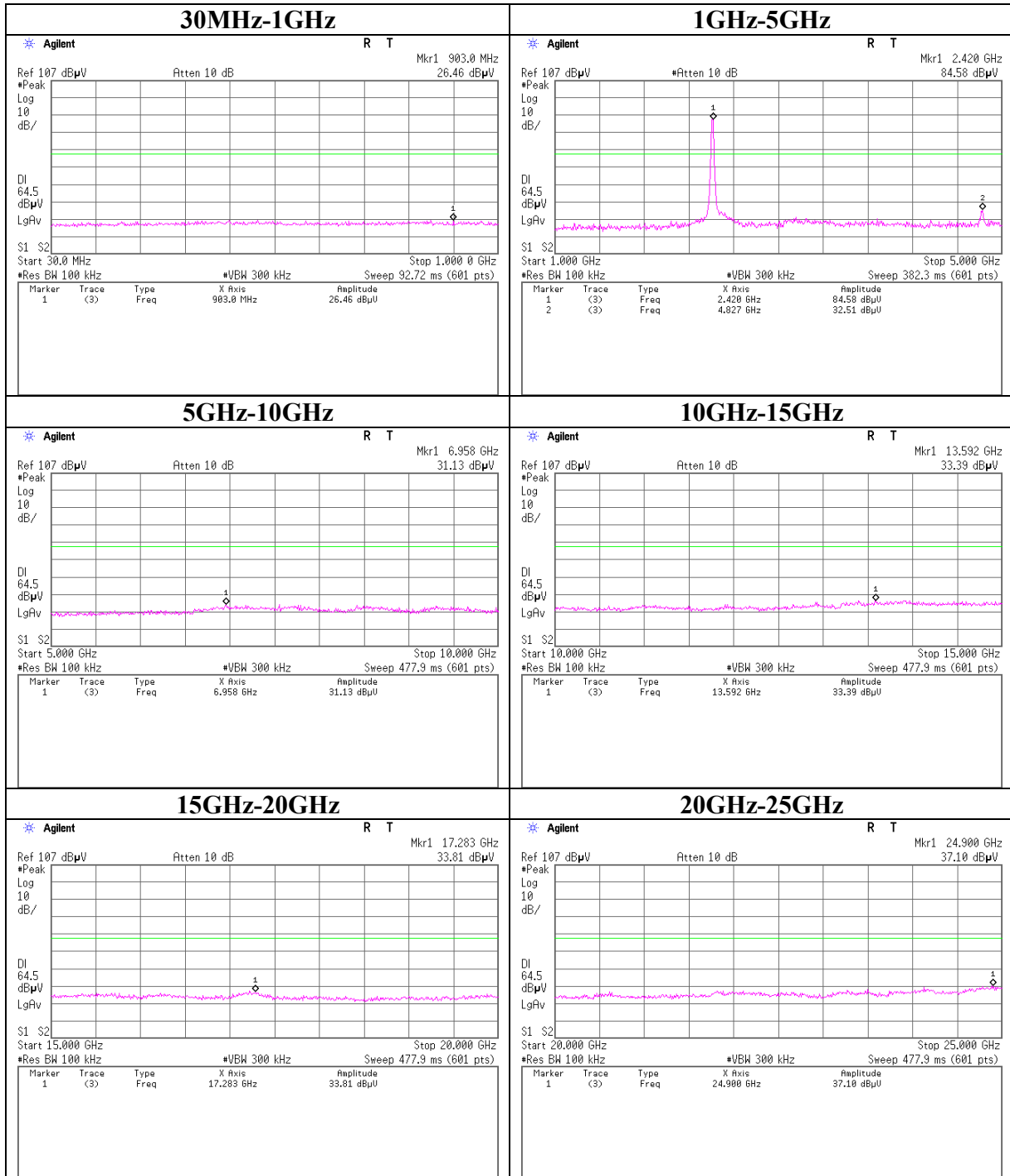
IEEE802.11b , Tx , Ch: Mid , 11Mbps



Conducted Spurious Emission
IEEE802.11b , Tx , Ch: High , 11Mbps

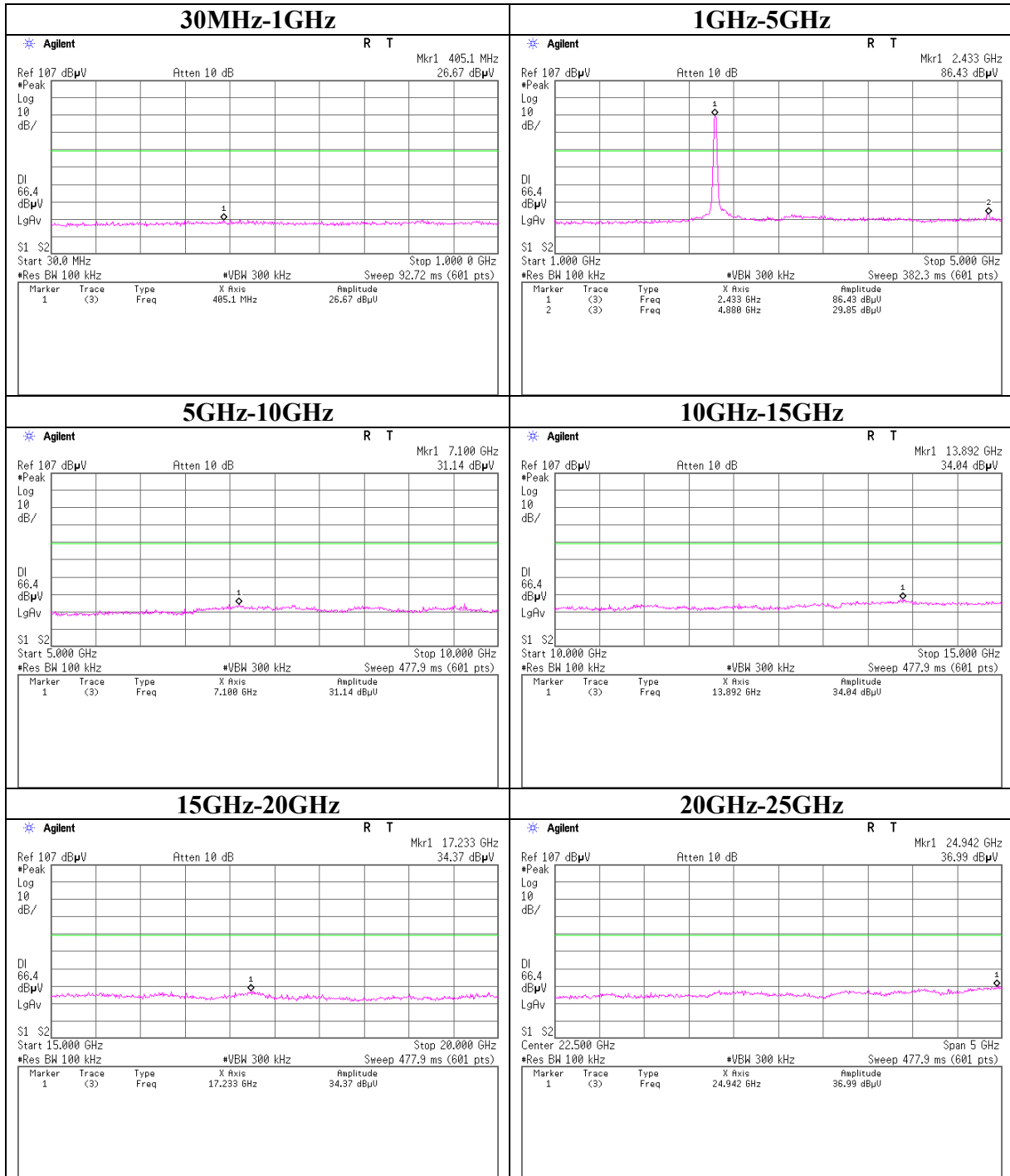


Conducted Spurious Emission
IEEE802.11g, Tx, Ch: Low, 54Mbps



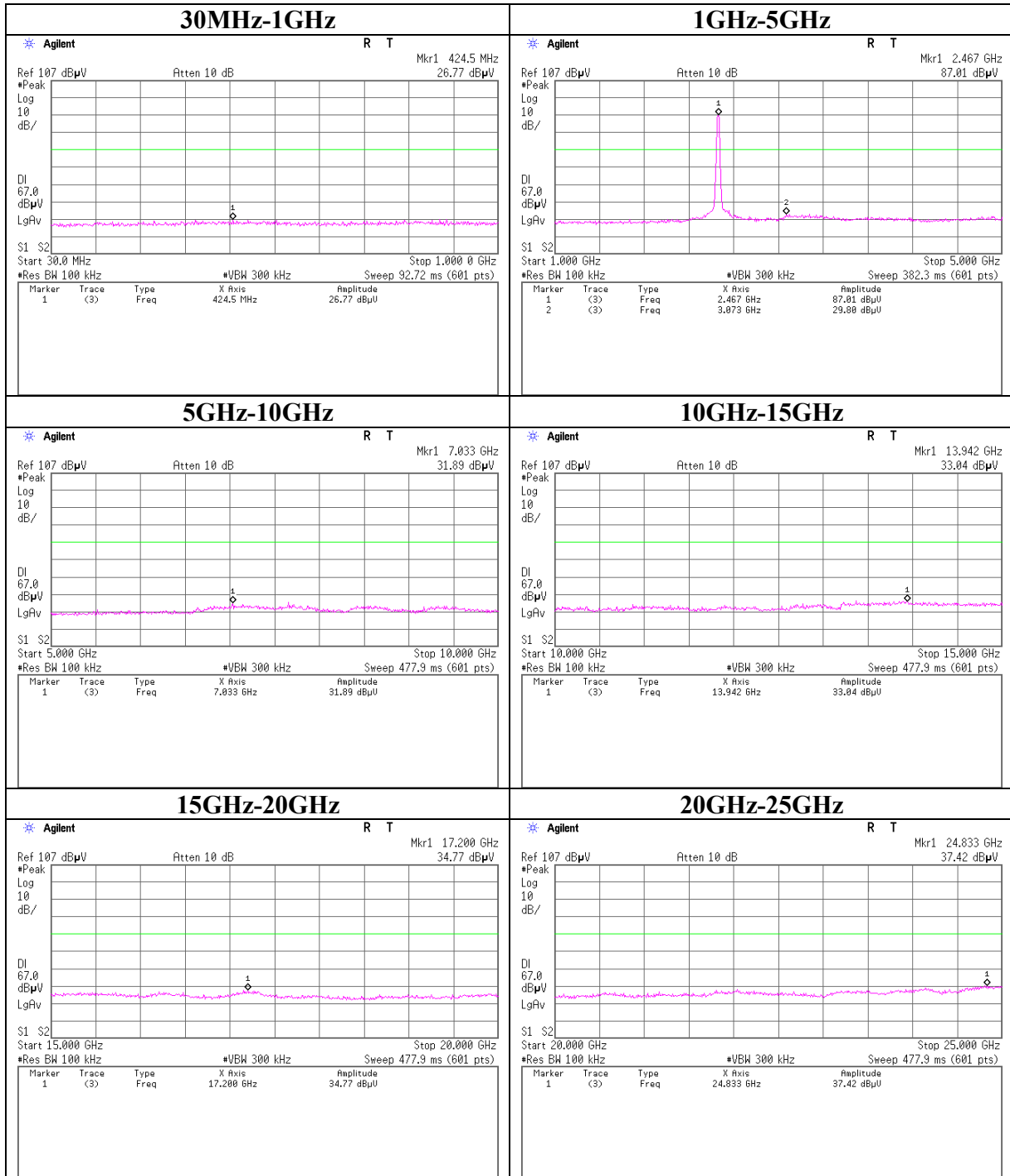
Conducted Spurious Emission

IEEE802.11g , Tx , Ch: Mid , 54Mbps

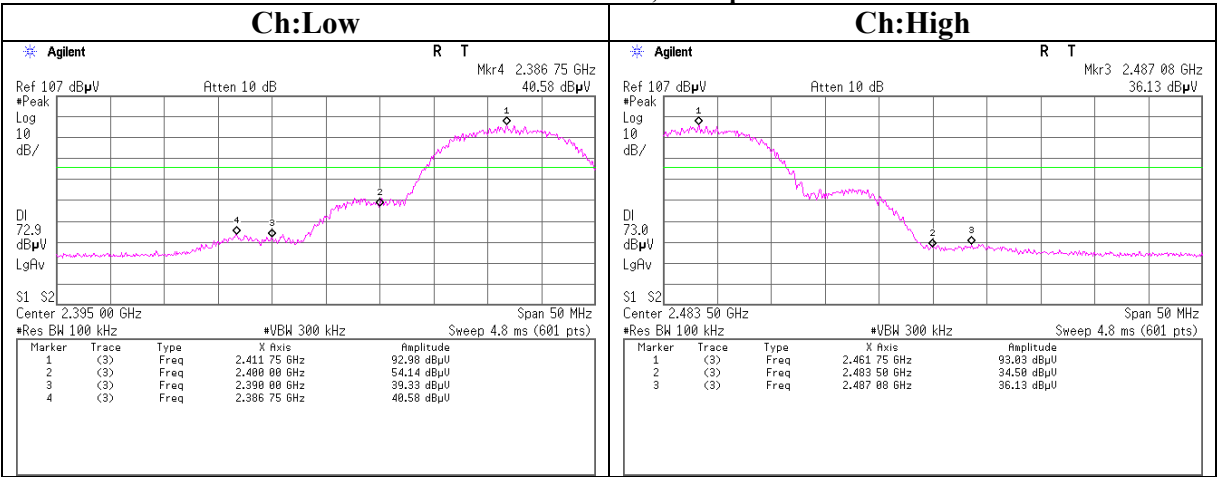


Conducted Spurious Emission

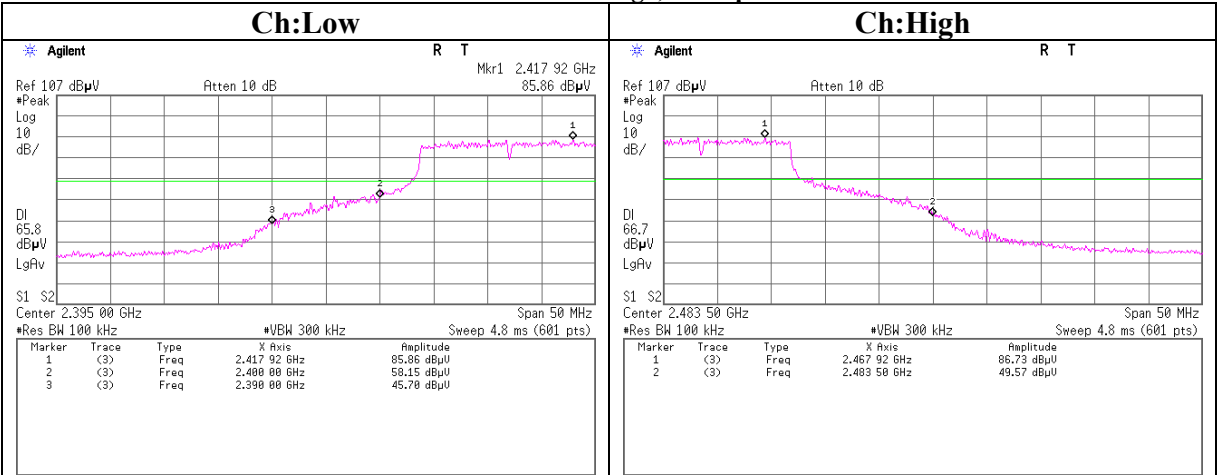
IEEE802.11g , Tx , Ch: High , 54Mbps



Conducted emission Band Edge compliance
IEEE802.11b, 11Mbps



IEEE802.11g , 54Mbps



Power Density

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

Company	: SATO CORPORATION	REGULATION	: FCC15.247(e)/RSS-210A8.2(2)
Equipment	: BARCODE PRINTER	TEST DISTANCE	: -
Model	: MB410i-W2	DATE	: 04/17/2007
SAMPLE NO.	: 2	TEMPERATURE	: 22℃
POWER	: AC120V/60Hz	HUMIDITY	: 38%
MODE	: Tx (Ch L, M, H)	ENGINEER	: Takahiro Hatakeda

IEEE802.11b , 11Mbps

Ch	Freq. [MHz]	Reading [dBm]	Cable [dB]	Atten. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
Low	2411.3	-30.60	2.5	19.8	-8.4	8.0	16.4
Mid	2436.3	-28.45	2.5	19.8	-6.2	8.0	14.2
High	2461.3	-27.69	2.2	19.8	-5.7	8.0	13.7

Sample Calculation:

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

IEEE802.11g , 54Mbps

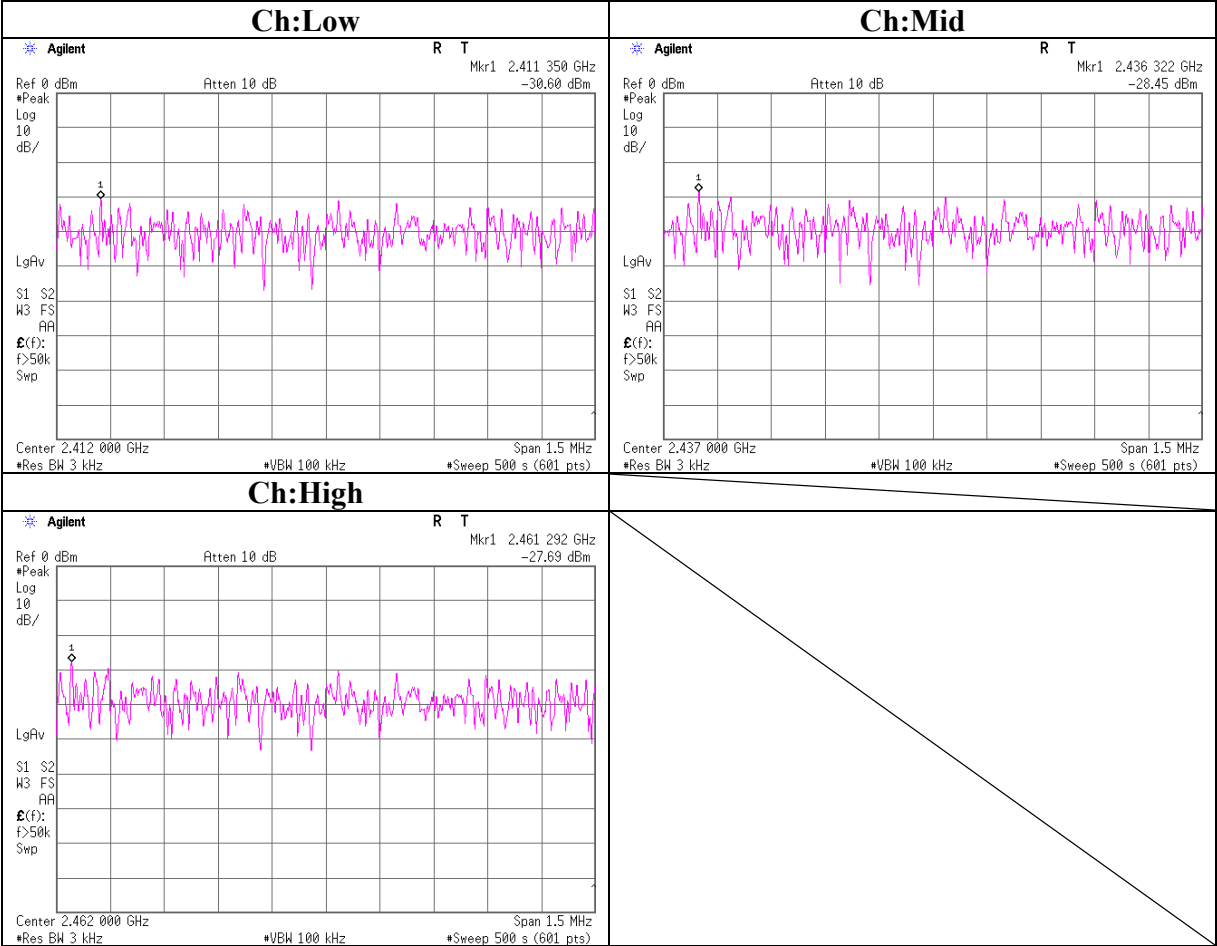
Ch	Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
Low	2411.7	-36.87	2.5	19.8	-14.6	8.0	22.6
Mid	2436.3	-36.26	2.5	19.8	-14.0	8.0	22.0
High	2461.3	-36.06	2.2	19.8	-14.1	8.0	22.1

Sample Calculation:

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

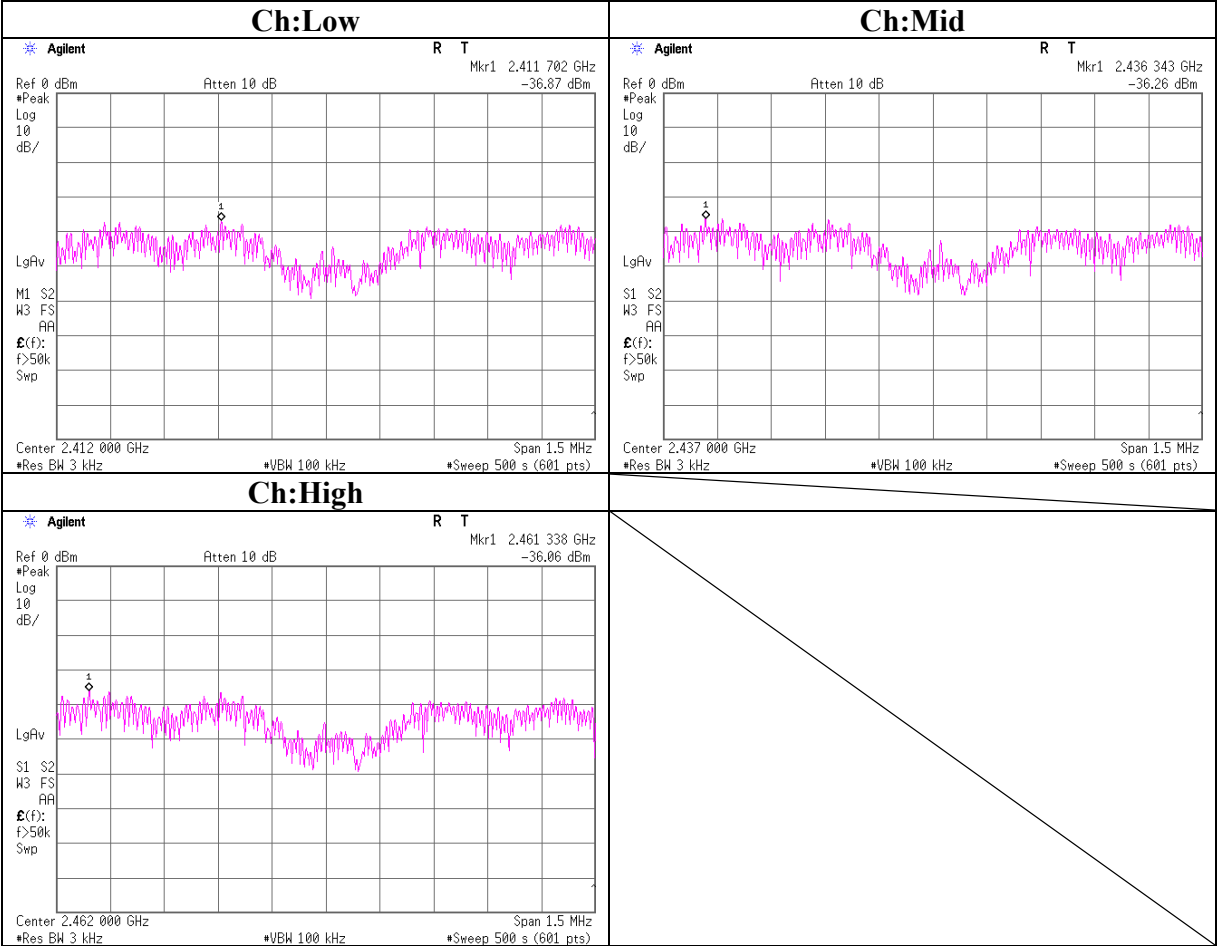
Power Density

IEEE802.11b, 11Mbps



Power Density

IEEE802.11g, 54Mbps



APPENDIX 3:Test instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Test Item	Calibration Date * Interval(month)
MAEC-02	Anechoic Chamber	TDK	Semi Anechoic Chamber 3m	RE	2007/04/02 * 12
MOS-02	Digital Humidity Indicator	N.T	NT-1800	RE	2006/11/27 * 12
MJM-05	Measure	PROMART	SEN1955	RE	-
MSA-05	Spectrum Analyzer	Advantest	R3273	RE	2006/05/20 * 12 ^{*1)}
MAEC-01	Anechoic Chamber	TDK	Semi Anechoic Chamber 10m	CE	2006/11/01 * 12
MOS-01	Digital Humidity Indicator	N.T	NT-1800	CE	2006/11/27 * 12
MJM-01	Measure	KDS	ES19-55	CE	-
MBM-06	Barometer	SATO	Aneroid	CE	2006/06/19 * 60
MSTW-14	EMI measurement program	TSJ	TEPTO-DV	RE/CE	-
MLS-02	LISN(AMN)	Schwarzbeck	NSLK8127	CE(EUT)	2006/06/01 * 12
MLS-03	LISN(AMN)	Schwarzbeck	NSLK8127	CE(AE)	2006/06/01 * 12
MTA-07	Terminator	MCL	BTRM-50	CE	2007/02/01 * 12
MCC-03	Coaxial Cable	Fujikura/Suhner/Agilent/TSJ	-	CE	2006/12/28 * 12
MTR-01	Test Receiver	Rohde & Schwarz	ES140	CE	2006/10/14 * 12
MOS-04	Digital Humidity Indicator	N.T	NT-1800	AT	2006/11/27 * 12
MCC-26	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX104	AT	2006/08/29 * 12
MAT-21	Attenuator(20dB)(above1GHz)	HIROSE ELECTRIC CO.,LTD.	AT-120	AT	2007/01/11 * 12
MPM-09	Power Meter	Anritsu	ML2495A	AT	2006/09/20 * 12
MPSE-12	Power sensor	Anritsu	MA2411B	AT	2006/09/20 * 12
MAT-23	Attenuator(10dB) DC-18GHz	Orient Microwave	BX10-0476-00	AT	2007/03/07 * 12
MSA-03	Spectrum Analyzer	Agilent	E4448A	AT/RE	2006/09/13 * 12
MHA-06	Horn Antenna	Schwarzbeck	BBHA9120D	RE	2007/01/30 * 12
MCC-47	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX104	RE	2006/08/29 * 12
MCC-16	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX 104	RE	2007/02/22 * 12
MPA-10	Pre Amplifier	Agilent	8449B	RE	2006/09/11 * 12
MHF-06	High Pass Filter 3.5-24GHz	Tokimec	TF323DCA	RE	2006/05/20 * 12 ^{*1)}
MAEC-04	Anechoic Chamber	TDK	Semi Anechoic Chamber 3m	RE	2007/03/03 * 12
MOS-15	Thermo-Hygrometer	Custom	CTH-180	RE	2006/01/19 * 24
MPA-12	MicroWave System Amplifier	Agilent	83017A	RE	2007/03/12 * 12
MHA-02	Horn Antenna	EMCO	3160-09	RE	2007/01/30 * 12
MHA-21	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	RE	2006/08/17 * 12
MCC-57	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX104	RE	2007/03/30 * 12
MJM-07	Measure	PROMART	SEN1955	RE	-
MBA-02	Biconical Antenna	Schwarzbeck	BBA9106	RE	2006/10/07 * 12
MLA-02	Logperiodic Antenna	Schwarzbeck	USLP9143	RE	2006/10/07 * 12
MAT-07	Attenuator(6dB)	Weinschel Corp	2	RE	2006/12/27 * 12
MCC-12	Coaxial Cable	Fujikura/Agilent	-	RE	2007/02/27 * 12
MPA-09	Pre Amplifier	Agilent	8447D	RE	2006/09/07 * 12
MTR-06	Test Receiver	Rohde & Schwarz	ESCS30	RE	2006/09/12 * 12

The expiration date of the calibration is the end of the expired month.

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

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

^{*1)} Used on April 10th, 2007

UL Japan, Inc.

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