

Conducted Emission

UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2010/06/29

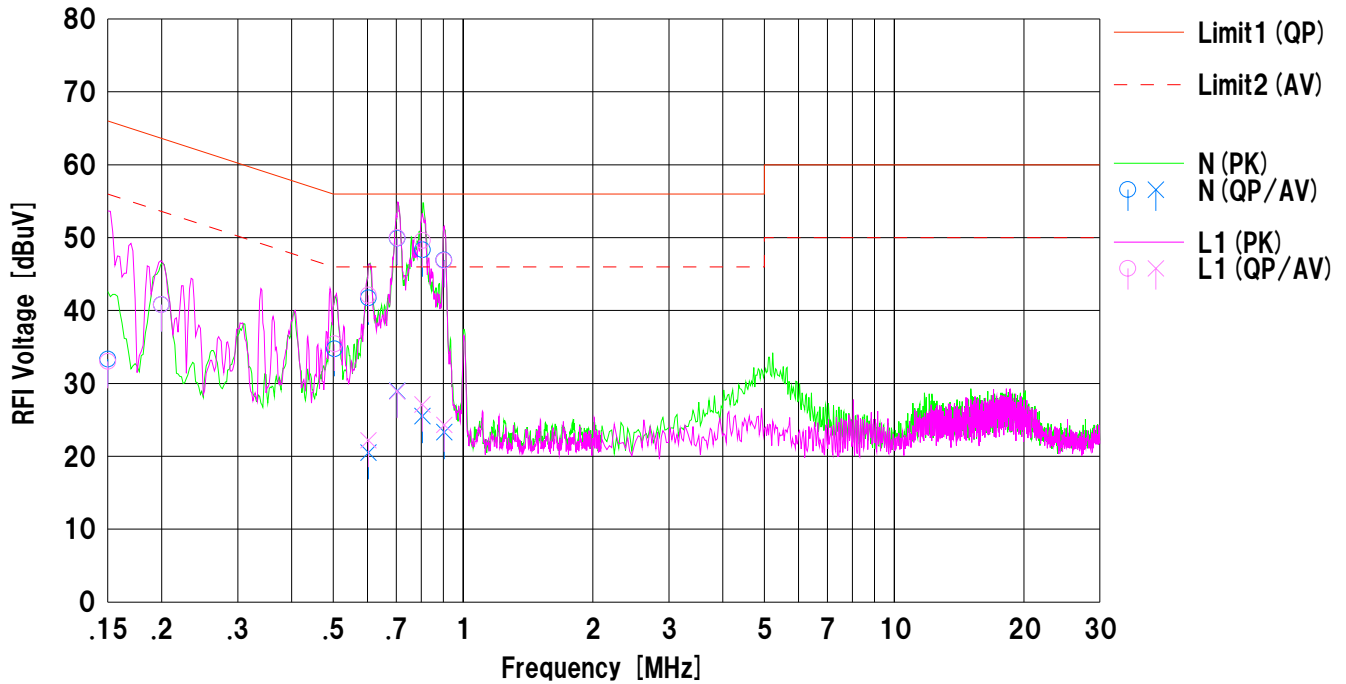
Company : RICOH COMPANY LTD.
Kind of E.U.T. : Color Copier
Model No. : Aficio MP C5501
Serial No. : V9610100004

Mode : Transmitting (802.11a_5200MHz)
Report No. : 30IE0112-SH-01-D
Power : AC120V/60Hz
Temp./Humi. : 25deg.C. / 51%

Remarks : -

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

Engineer : Makoto Hosaka



No.	Freq. [MHz]	Reading		C.Fac [dB]	Results		Limit		Margin		Phase	Comment
		<QP> [dBuV]	<AV> [dBuV]		<QP> [dBuV]	<AV> [dBuV]	<QP> [dBuV]	<AV> [dBuV]	<QP> [dB]	<AV> [dB]		
1	0.15000	19.4	---	13.9	33.3	---	66.0	56.0	32.7	---	N	
2	0.19961	27.9	---	12.9	40.8	---	63.6	53.6	22.8	---	N	
3	0.50338	22.1	---	12.6	34.7	---	56.0	46.0	21.3	---	N	
4	0.60324	29.1	7.9	12.6	41.7	20.5	56.0	46.0	14.3	25.5	N	
5	0.70331	37.3	16.4	12.6	49.9	29.0	56.0	46.0	6.1	17.0	N	
6	0.80574	35.7	12.9	12.6	48.3	25.5	56.0	46.0	7.7	20.5	N	
7	0.90373	34.3	10.7	12.6	46.9	23.3	56.0	46.0	9.1	22.7	N	
8	0.15000	19.1	---	13.9	33.0	---	66.0	56.0	33.0	---	L1	
9	0.19961	27.9	---	12.9	40.8	---	63.6	53.6	22.8	---	L1	
10	0.50338	22.8	---	12.6	35.4	---	56.0	46.0	20.6	---	L1	
11	0.60324	29.5	9.6	12.6	42.1	22.2	56.0	46.0	13.9	23.8	L1	
12	0.70331	37.4	16.3	12.6	50.0	28.9	56.0	46.0	6.0	17.1	L1	
13	0.80574	37.0	14.5	12.6	49.6	27.1	56.0	46.0	6.4	18.9	L1	
14	0.90373	34.2	11.7	12.6	46.8	24.3	56.0	46.0	9.2	21.7	L1	

Calculation: Result [dBuV] = Reading [dBuV] + C.Fac (LISN+Cable+Highpass Filter+ATT) [dB]

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UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2010/06/29

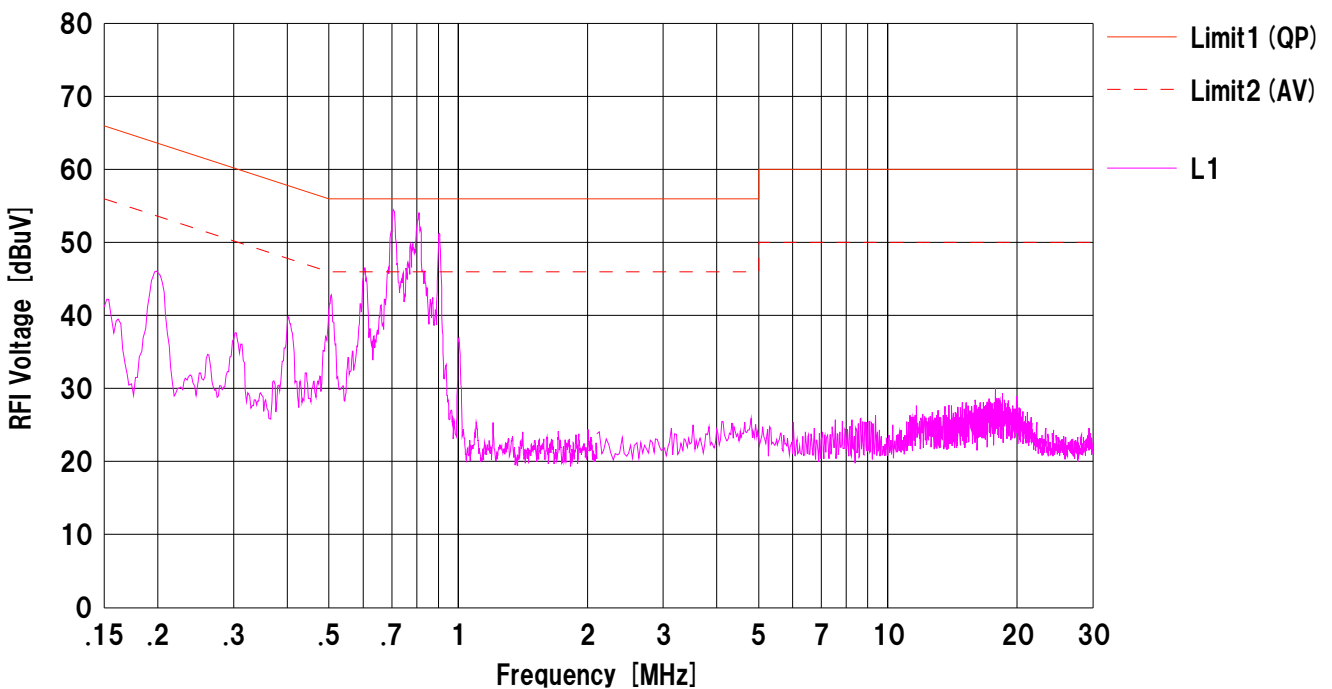
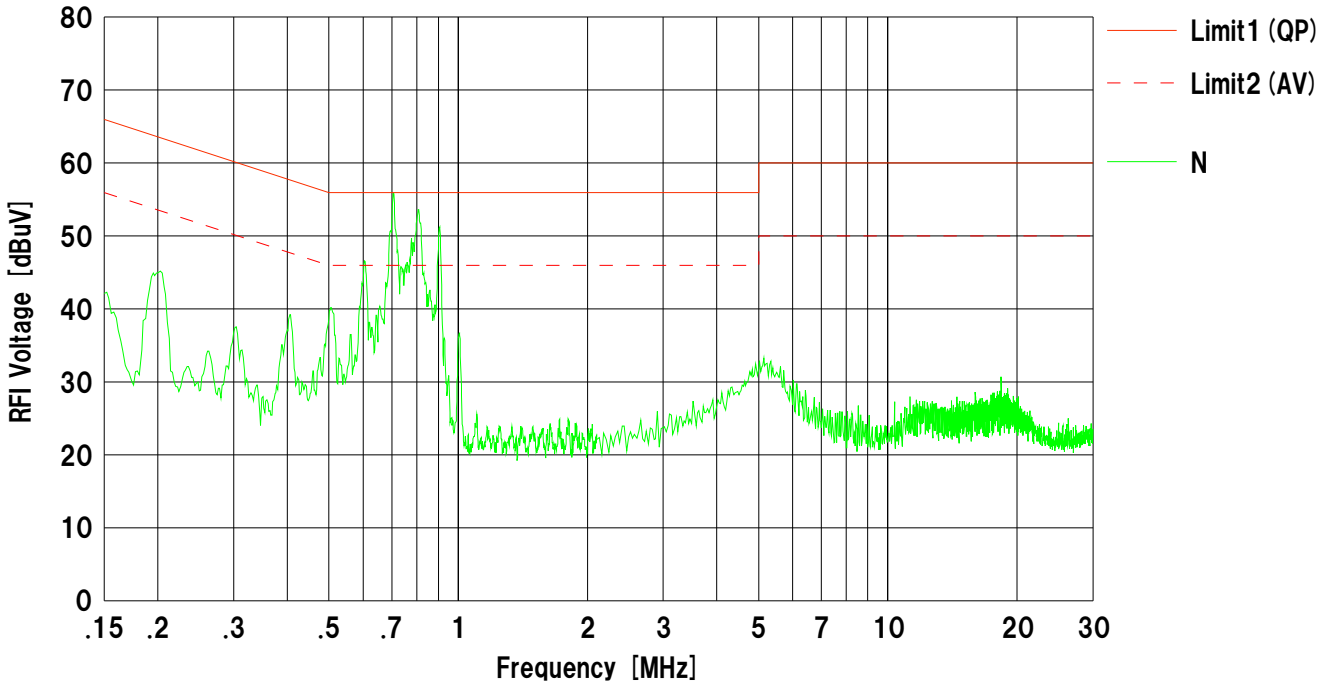
Company : RICOH COMPANY LTD.
Kind of E.U.T. : Color Copier
Model No. : Aficio MP C5501
Serial No. : V9610100004

Mode : Transmitting (802.11a_5180MHz)
Report No. : 30IE0112-SH-01-D
Power : AC120V/60Hz
Temp./Humi. : 25deg.C. / 51%

Remarks : -

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

Engineer : Makoto Hosaka



Calculation: Result [dBuV] = Reading [dBuV] + C.Fac (LISN+Cable+Highpass Filter+ATT) [dB]

Conducted Emission

UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2010/06/29

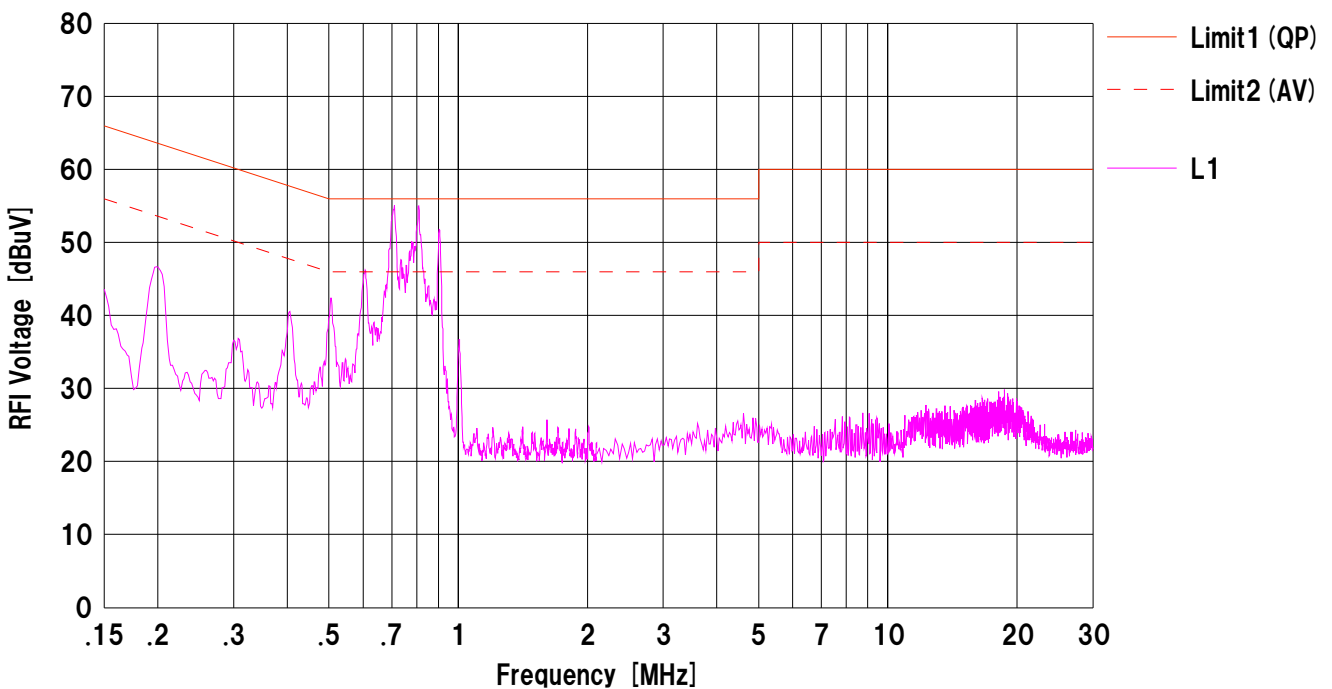
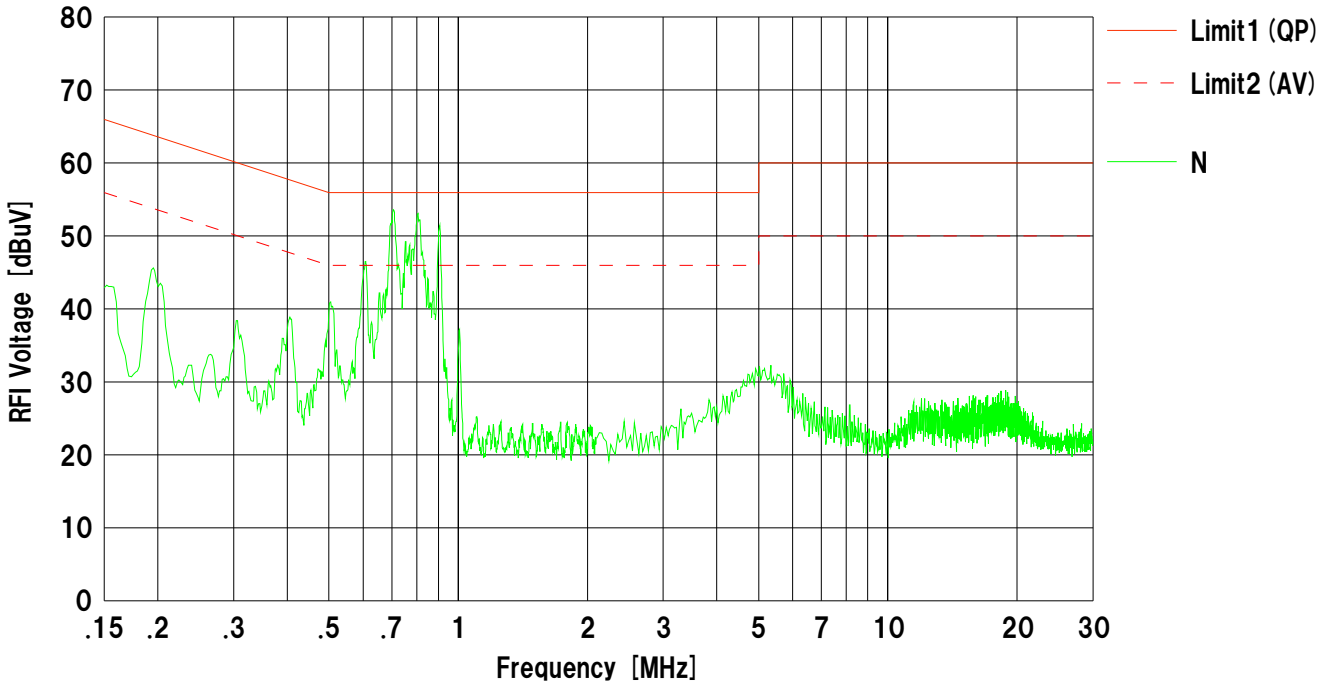
Company : RICOH COMPANY LTD.
Kind of E.U.T. : Color Copier
Model No. : Aficio MP C5501
Serial No. : V9610100004

Mode : Transmitting (802.11a_5240MHz)
Report No. : 30IE0112-SH-01-D
Power : AC120V/60Hz
Temp./Humi. : 25deg.C. / 51%

Remarks : -

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

Engineer : Makoto Hosaka



Calculation: Result [dBuV] = Reading [dBuV] + C.Fac (LISN+Cable+Highpass Filter+ATT) [dB]

Conducted Emission

UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2010/06/29

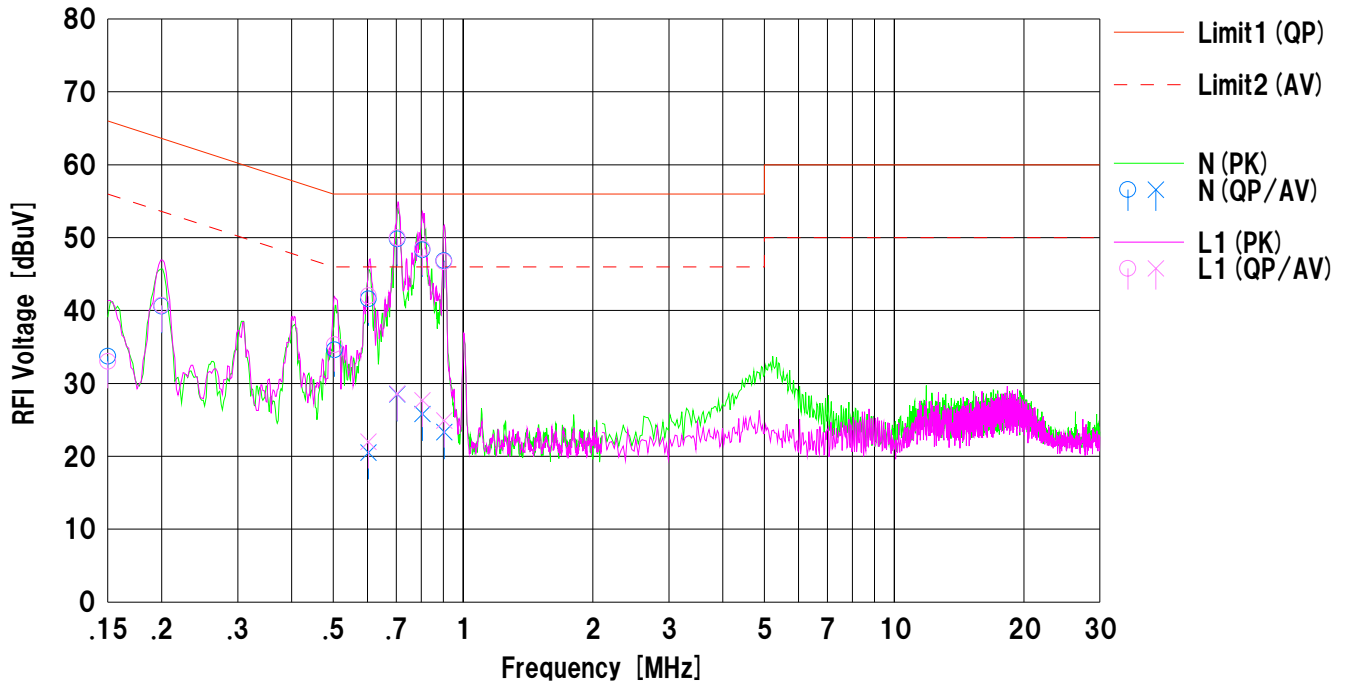
Company : RICOH COMPANY LTD.
Kind of E.U.T. : Color Copier
Model No. : Aficio MP C5501
Serial No. : V9610100004

Mode : Transmitting (802.11a_5280MHz)
Report No. : 30IE0112-SH-01-D
Power : AC120V/60Hz
Temp./Humi. : 25deg.C. / 51%

Remarks : -

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

Engineer : Makoto Hosaka



No.	Freq. [MHz]	Reading		C.Fac [dB]	Results		Limit		Margin		Phase	Comment
		<QP> [dBuV]	<AV> [dBuV]		<QP> [dBuV]	<AV> [dBuV]	<QP> [dBuV]	<AV> [dBuV]	<QP> [dB]	<AV> [dB]		
1	0.15000	19.8	---	13.9	33.7	---	66.0	56.0	32.3	---	N	
2	0.19971	27.7	---	12.9	40.6	---	63.6	53.6	23.0	---	N	
3	0.50334	22.0	---	12.6	34.6	---	56.0	46.0	21.4	---	N	
4	0.60336	29.0	7.9	12.6	41.6	20.5	56.0	46.0	14.4	25.5	N	
5	0.70374	37.2	15.9	12.6	49.8	28.5	56.0	46.0	6.2	17.5	N	
6	0.80467	35.7	13.2	12.6	48.3	25.8	56.0	46.0	7.7	20.2	N	
7	0.90360	34.2	10.7	12.6	46.8	23.3	56.0	46.0	9.2	22.7	N	
8	0.15000	19.1	---	13.9	33.0	---	66.0	56.0	33.0	---	L1	
9	0.19971	27.8	---	12.9	40.7	---	63.6	53.6	22.9	---	L1	
10	0.50334	22.7	---	12.6	35.3	---	56.0	46.0	20.7	---	L1	
11	0.60336	29.4	9.4	12.6	42.0	22.0	56.0	46.0	14.0	24.0	L1	
12	0.70374	37.4	16.0	12.6	50.0	28.6	56.0	46.0	6.0	17.4	L1	
13	0.80467	35.9	15.1	12.6	48.5	27.7	56.0	46.0	7.5	18.3	L1	
14	0.90360	34.1	12.3	12.6	46.7	24.9	56.0	46.0	9.3	21.1	L1	

Calculation: Result [dBuV] = Reading [dBuV] + C.Fac (LISN+Cable+Highpass Filter+ATT) [dB]

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UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2010/06/29

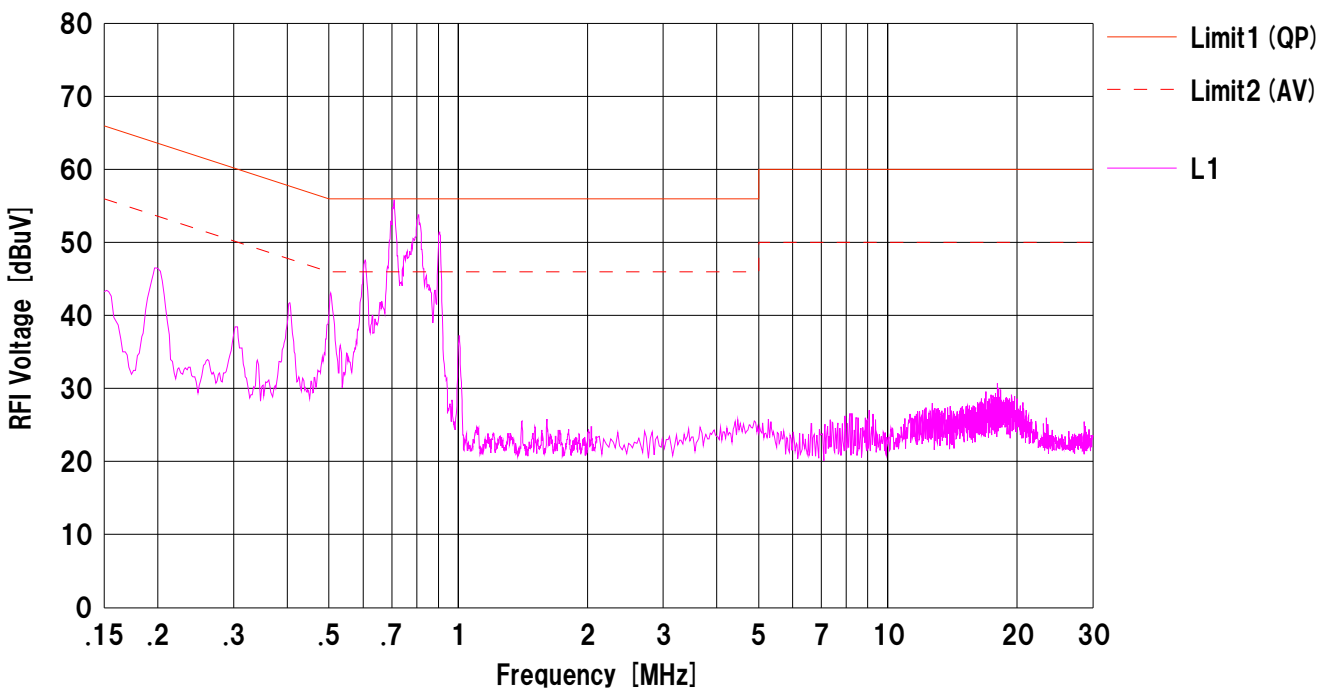
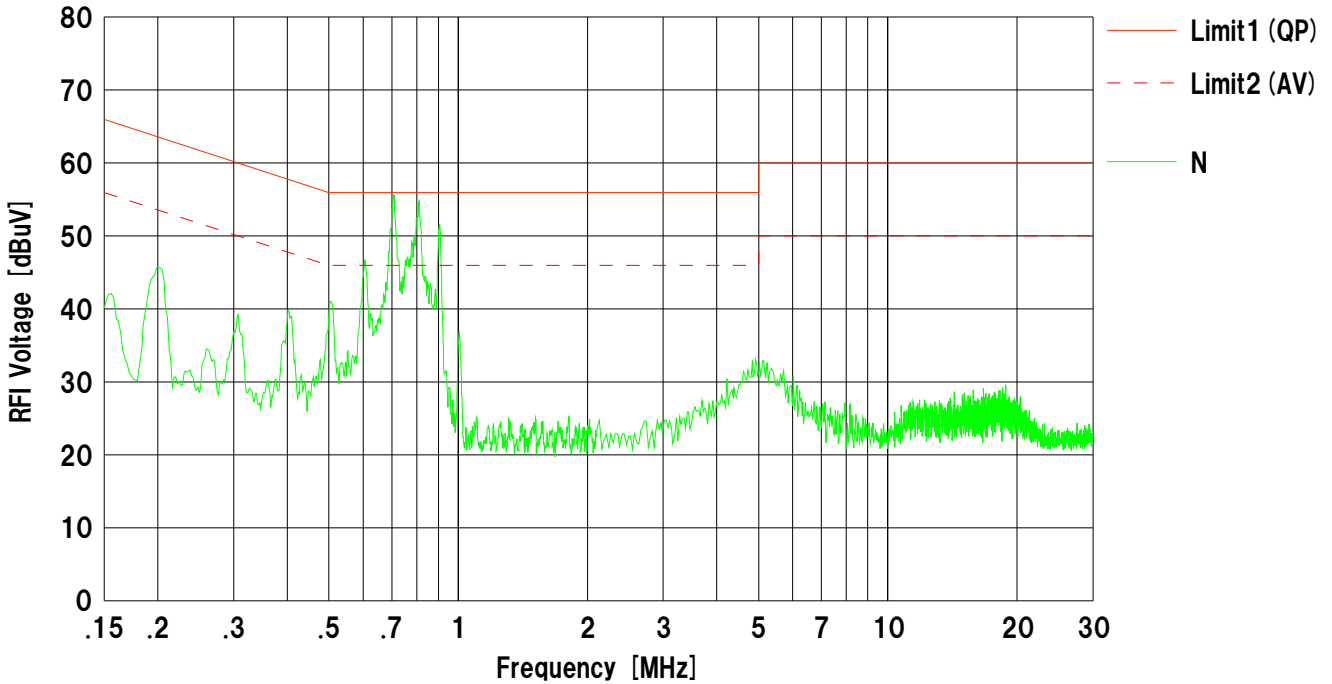
Company : RICOH COMPANY LTD.
Kind of E.U.T. : Color Copier
Model No. : Aficio MP C5501
Serial No. : V9610100004

Mode : Transmitting (802.11a_5260MHz)
Report No. : 30IE0112-SH-01-D
Power : AC120V/60Hz
Temp./Humi. : 25deg.C. / 51%

Remarks : -

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

Engineer : Makoto Hosaka



Calculation: Result [dBuV] = Reading [dBuV] + C.Fac (LISN+Cable+Highpass Filter+ATT) [dB]

Conducted Emission

UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2010/06/29

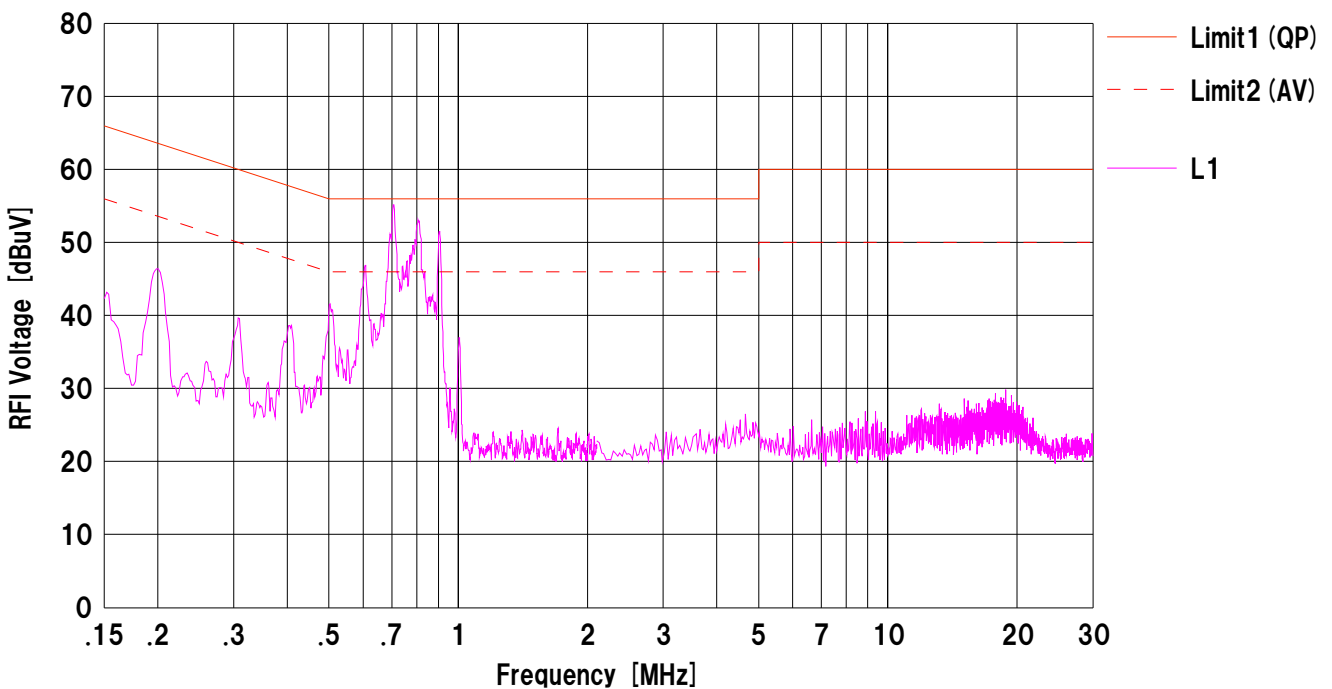
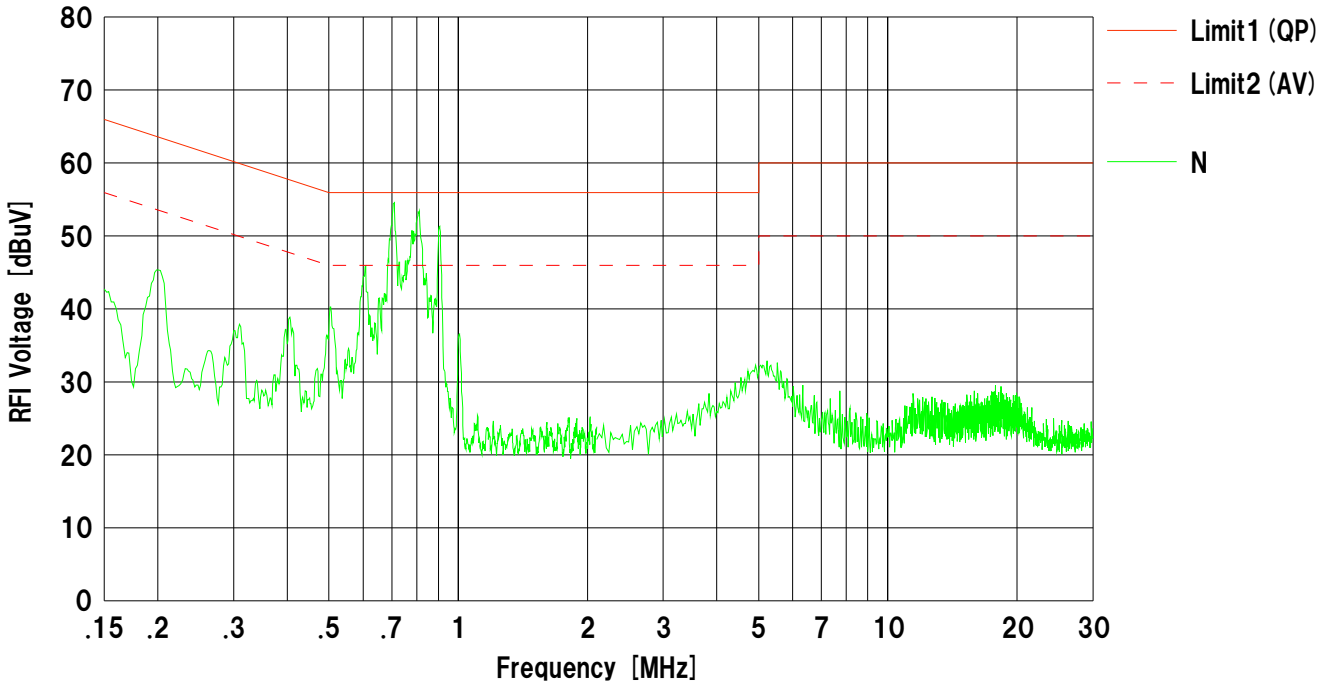
Company : RICOH COMPANY LTD.
Kind of E.U.T. : Color Copier
Model No. : Aficio MP C5501
Serial No. : V9610100004

Mode : Transmitting (802.11a_5320MHz)
Report No. : 30IE0112-SH-01-D
Power : AC120V/60Hz
Temp./Humi. : 25deg.C. / 51%

Remarks : -

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

Engineer : Makoto Hosaka



Calculation: Result [dBuV] = Reading [dBuV] + C.Fac (LISN+Cable+Highpass Filter+ATT) [dB]

Radiated Emission (below 1GHz and above 1GHz Inside of the restricted band)

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
Date 2010/6/23 2010/6/25
Temperature / Humidity 25deg.C. , 54% 24deg.C. , 52%
Engineer Hikaru Shirasawa Akio Hayashi
Mode Tx, 5180 MHz
11a, 54Mbps

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	255.593	QP	37.3	17.6	8.2	32	31.1	46	14.9	145	68	
Hori.	299.322	QP	35.6	19.3	8.4	32	31.3	46	14.7	100	5	
Hori.	619.333	QP	36.1	19.2	9.7	31.9	33.1	46	12.9	100	214	
Hori.	688.129	QP	38.4	20.1	10	31.9	36.6	46	9.4	100	229	
Vert.	668.367	QP	33.9	19.8	9.9	31.9	31.7	46	14.3	100	197	
Vert.	737.294	QP	31.9	20.4	10.2	31.8	30.7	46	15.3	100	167	
Hori.	1500.000	PK	52.4	24.9	12.6	40.1	49.8	74	24.2	127	198	
Hori.	5150.000	PK	52.3	31.5	15	39.7	59.1	74	14.9	121	5	
Hori.	15540.000	PK	48.6	39.6	0.1	37.1	51.2	74	22.8	100	0	
Hori.	36260.000	PK	61	42.9	5.7	70.3	39.3	74	34.7	100	0	Not Detected
Vert.	1375.000	PK	50.6	24.6	12.4	40	47.6	74	26.4	100	217	
Vert.	1500.000	PK	50.5	24.9	12.6	40.1	47.9	74	26.1	100	206	
Vert.	5150.000	PK	55.3	31.5	15	39.7	62.1	74	11.9	147	62	
Vert.	15540.000	PK	49	39.6	0.1	37.1	51.6	74	22.4	100	0	
Vert.	36260.000	PK	61.2	42.9	5.7	70.3	39.5	74	34.5	100	0	Not Detected
Hori.	1500.000	AV	39.2	24.9	12.6	40.1	36.6	54	17.4	127	198	VBW: 10Hz
Hori.	5150.000	AV	35.2	31.5	15	39.7	42	54	12.0	121	5	VBW: 43Hz
Hori.	15540.000	AV	35.2	39.6	0.1	37.1	37.8	54	16.2	100	0	VBW: 43Hz
Hori.	36260.000	AV	50	42.9	5.7	70.3	28.3	54	25.7	100	0	Not Detected
Vert.	1375.000	AV	42.8	24.6	12.4	40	39.8	54	14.2	100	217	VBW: 10Hz
Vert.	1500.000	AV	42.8	24.9	12.6	40.1	40.2	54	13.8	100	206	VBW: 10Hz
Vert.	5150.000	AV	35.2	31.5	15	39.7	42	54	12.0	147	62	VBW: 43Hz
Vert.	15540.000	AV	35.2	39.6	0.1	37.1	37.8	54	16.2	100	0	VBW: 43Hz
Vert.	36260.000	AV	50	42.9	5.7	70.3	28.3	54	25.7	100	0	Not Detected

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

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

*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 13GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

Radiated Emission (below 1GHz and above 1GHz Inside of the restricted band)

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
Date 2010/6/23 2010/6/25
Temperature / Humidity 25deg.C. , 54% 24deg.C. , 52%
Engineer Hikaru Shirasawa Akio Hayashi
Mode Tx, 5200 MHz
 11a, 54Mbps

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	255.593	QP	38.2	17.6	8.2	32	32	46	14.0	132	81	
Hori.	298.885	QP	36.4	19.3	8.4	32	32.1	46	13.9	119	5	
Hori.	589.827	QP	33.4	18.8	9.6	31.9	29.9	46	16.1	138	107	
Hori.	619.304	QP	34.4	19.2	9.7	31.9	31.4	46	14.6	100	220	
Hori.	688.158	QP	38.6	20.1	10	31.9	36.8	46	9.2	100	225	
Vert.	668.677	QP	36.7	19.8	9.9	31.9	34.5	46	11.5	100	193	
Hori.	1500.000	PK	54.3	24.9	12.6	40.1	51.7	74	22.3	173	130	
Hori.	15600.000	PK	48	39.4	0.3	37.1	50.6	74	23.4	100	0	
Hori.	36400.000	PK	60.4	43	5.8	70	39.2	74	34.8	100	0	Not Detected
Vert.	1375.000	PK	51.1	24.6	12.4	40	48.1	74	25.9	100	232	
Vert.	1500.000	PK	52.4	24.9	12.6	40.1	49.8	74	24.2	100	203	
Vert.	15600.000	PK	48.8	39.4	0.3	37.1	51.4	74	22.6	100	0	
Vert.	36400.000	PK	61.2	43	5.8	70	40	74	34.0	100	0	Not Detected
Hori.	1500.000	AV	41.3	24.9	12.6	40.1	38.7	54	15.3	173	130	VBW: 10Hz
Hori.	15600.000	AV	35.1	39.4	0.3	37.1	37.7	54	16.3	100	0	VBW: 43Hz
Hori.	36400.000	AV	49.9	43	5.8	70	28.7	54	25.3	100	0	Not Detected
Vert.	1375.000	AV	42.8	24.6	12.4	40	39.8	54	14.2	100	232	VBW: 10Hz
Vert.	1500.000	AV	43.6	24.9	12.6	40.1	41	54	13.0	100	203	VBW: 10Hz
Vert.	15600.000	AV	35	39.4	0.3	37.1	37.6	54	16.4	100	0	VBW: 43Hz
Vert.	36400.000	AV	50.2	43	5.8	70	29	54	25.0	100	0	Not Detected

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

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

*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 13GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

Radiated Emission (below 1GHz and above 1GHz Inside of the restricted band)

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
Date 2010/6/23 2010/6/25
Temperature / Humidity 25deg.C. , 54% 24deg.C. , 52%
Engineer Hikaru Shirasawa Akio Hayashi
Mode Tx, 5240 MHz
11a, 54Mbps

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	170.192	QP	37.3	15.8	7.7	32	28.8	43.5	14.7	178	243	
Hori.	222.591	QP	36.4	17.1	8	32	29.5	46	16.5	170	213	
Hori.	481.693	QP	38.1	17	9.2	31.9	32.4	46	13.6	100	146	
Hori.	619.328	QP	35.4	19.2	9.7	31.9	32.4	46	13.6	100	214	
Hori.	688.141	QP	37.6	20.1	10	31.9	35.8	46	10.2	100	226	
Vert.	565.865	QP	33.3	18.3	9.5	32	29.1	46	16.9	100	129	
Hori.	1500.000	PK	54.2	24.9	12.6	40.1	51.6	74	22.4	166	129	
Hori.	5350.000	PK	48.2	31.8	15.1	39.3	55.8	74	18.2	117	359	
Hori.	15720.000	PK	48.2	39	0.3	37.1	50.4	74	23.6	100	0	
Vert.	1375.000	PK	50.8	24.6	12.4	40	47.8	74	26.2	100	225	
Vert.	1500.000	PK	51.4	24.9	12.6	40.1	48.8	74	25.2	100	203	
Vert.	5350.000	PK	48.1	31.8	15.1	39.3	55.7	74	18.3	126	28	
Vert.	15720.000	PK	46.8	39	0.3	37.1	49	74	25.0	100	0	
Hori.	1500.000	AV	39.8	24.9	12.6	40.1	37.2	54	16.8	166	129	VBW: 10Hz
Hori.	5350.000	AV	34.9	31.8	15.1	39.3	42.5	54	11.5	117	359	VBW: 43Hz
Hori.	15720.000	AV	35.1	39	0.3	37.1	37.3	54	16.7	100	0	VBW: 43Hz
Vert.	1375.000	AV	44.5	24.6	12.4	40	41.5	54	12.5	100	225	VBW: 10Hz
Vert.	1500.000	AV	43.4	24.9	12.6	40.1	40.8	54	13.2	100	203	VBW: 10Hz
Vert.	5350.000	AV	35	31.8	15.1	39.3	42.6	54	11.4	126	28	VBW: 43Hz
Vert.	15720.000	AV	35	39	0.3	37.1	37.2	54	16.8	100	0	VBW: 43Hz

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

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

*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 13GHz-40GHz $20\log(3.0m/1.0m) = 9.5dB$

Radiated Emission (below 1GHz and above 1GHz Inside of the restricted band)

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
Date 2010/6/23 2010/6/25
Temperature / Humidity 25deg.C. , 54% 24deg.C. , 52%
Engineer Hikaru Shirasawa Akio Hayashi
Mode Tx, 5260 MHz
 11a, 54Mbps

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	255.585	QP	38.3	17.6	8.2	32	32.1	46	13.9	121	76	
Hori.	298.067	QP	35.6	19.2	8.4	32	31.2	46	14.8	121	7	
Hori.	481.699	QP	38.6	17	9.2	31.9	32.9	46	13.1	100	148	
Hori.	556.987	QP	34.9	18.2	9.5	32	30.6	46	15.4	105	132	
Hori.	619.287	QP	35.4	19.2	9.7	31.9	32.4	46	13.6	100	218	
Hori.	688.141	QP	38.4	20.1	10	31.9	36.6	46	9.4	100	227	
Vert.	564.857	QP	33.1	18.3	9.5	32	28.9	46	17.1	100	144	
Hori.	1500.000	PK	52.7	24.9	12.6	40.1	50.1	74	23.9	162	129	
Hori.	5150.000	PK	48.2	31.5	15	39.7	55	74	19.0	100	89	
Hori.	10520.000	PK	47.5	39.8	7.7	37.3	57.5	74	16.3	100	25	
Vert.	1375.000	PK	51.2	24.6	12.4	40	48.2	74	25.8	112	228	
Vert.	1500.000	PK	50.9	24.9	12.6	40.1	48.3	74	25.7	100	207	
Vert.	5150.000	PK	48.4	31.5	15	39.7	55.2	74	18.8	100	43	
Vert.	10520.000	PK	47.3	39.8	7.7	37.3	57.5	74	16.5	100	0	
Hori.	1500.000	AV	39.8	24.9	12.6	40.1	37.2	54	16.8	162	129	VBW: 10Hz
Hori.	5150.000	AV	35.2	31.5	15	39.7	42	54	12.0	100	89	VBW: 43Hz
Hori.	10520.000	AV	33.6	38.9	7.7	37.3	43.8	54	10.2	100	25	VBW: 43Hz
Vert.	1375.000	AV	43.9	24.6	12.4	40	40.9	54	13.1	112	228	VBW: 10Hz
Vert.	1500.000	AV	42.8	24.9	12.6	40.1	40.2	54	13.8	100	207	VBW: 10Hz
Vert.	5150.000	AV	35.2	31.5	15	39.7	42	54	12.0	100	43	VBW: 43Hz
Vert.	15780.000	AV	33.5	39.8	7.7	37.3	43.7	54	10.3	100	0	VBW: 43Hz

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

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

*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 13GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

Radiated Emission (below 1GHz and above 1GHz Inside of the restricted band)

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
Date 2010/6/23 2010/6/25
Temperature / Humidity 25deg.C. , 54% 24deg.C. , 52%
Engineer Hikaru Shirasawa Akio Hayashi
Mode Tx, 5280 MHz
11a, 54Mbps

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	255.592	QP	37.2	17.6	8.2	32	31	46	15.0	127	68	
Hori.	298.871	QP	36.5	19.3	8.4	32	32.2	46	13.8	119	11	
Hori.	481.689	QP	38.5	17	9.2	31.9	32.8	46	13.2	100	143	
Hori.	556.819	QP	35.2	18.2	9.5	32	30.9	46	15.1	100	139	
Hori.	619.338	QP	41.2	19.2	9.7	31.9	38.2	46	7.8	157	131	
Hori.	688.166	QP	38.2	20.1	10	31.9	36.4	46	9.6	100	225	
Vert.	565.044	QP	33.1	18.3	9.5	32	28.9	46	17.1	100	141	
Hori.	1500.000	PK	55	24.9	12.6	40.1	52.4	74	21.6	100	129	
Hori.	15840.000	PK	47.9	38.7	0.5	37.2	49.9	74	24.1	100	0	
Vert.	1375.000	PK	52.4	24.6	12.4	40	49.4	74	24.6	106	224	
Vert.	1500.000	PK	52.2	24.9	12.6	40.1	49.6	74	24.4	100	203	
Vert.	15840.000	PK	48.4	38.7	0.5	37.2	50.4	74	23.6	100	0	
Hori.	1500.000	AV	41.7	24.9	12.6	40.1	39.1	54	14.9	100	129	VBW: 10Hz
Hori.	15840.000	AV	34.8	38.7	0.5	37.2	36.8	54	17.2	100	0	VBW: 43Hz
Vert.	1375.000	AV	45.1	24.6	12.4	40	42.1	54	11.9	106	224	VBW: 10Hz
Vert.	1500.000	AV	43.7	24.9	12.6	40.1	41.1	54	12.9	100	203	VBW: 10Hz
Vert.	15840.000	AV	34.8	38.7	0.5	37.2	36.8	54	17.2	100	0	VBW: 43Hz

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

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

*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 13GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

Radiated Emission (below 1GHz and above 1GHz Inside of the restricted band)

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
Date 2010/6/23 2010/6/25
Temperature / Humidity 25deg.C. , 54% 24deg.C. , 52%
Engineer Hikaru Shirasawa Akio Hayashi
Mode Tx, 5320 MHz
11a, 54Mbps

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	176.962	QP	36.4	16	7.7	32	28.1	43.5	15.4	149	91	
Hori.	298.193	QP	36.1	19.2	8.4	32	31.7	46	14.3	118	358	
Hori.	481.712	QP	38.7	17	9.2	31.9	33	46	13.0	100	147	
Hori.	556.614	QP	33.6	18.2	9.5	32	29.3	46	16.7	100	124	
Hori.	619.338	QP	34.9	19.2	9.7	31.9	31.9	46	14.1	100	216	
Hori.	688.128	QP	37.7	20.1	10	31.9	35.9	46	10.1	100	231	
Vert.	668.504	QP	36	19.8	9.9	31.9	33.8	46	12.2	100	195	
Hori.	1500.000	PK	54.5	24.9	12.6	40.1	51.9	74	22.1	109	132	
Hori.	5350.000	PK	53.5	31.8	15.1	39.3	61.1	74	12.9	124	26	
Hori.	10640.000	PK	47	39.9	7.8	37.6	57.1	74	16.9	100	95	
Hori.	15960.000	PK	47.6	38.3	0.6	37.3	49.2	74	24.8	100	0	
Vert.	1375.000	PK	50.6	24.6	12.4	40	47.6	74	26.4	100	225	
Vert.	1500.000	PK	51	24.9	12.6	40.1	48.4	74	25.6	100	204	
Vert.	5350.000	PK	54.7	31.8	15.1	39.3	62.3	74	11.7	100	36	
Vert.	10640.000	PK	46.9	39.9	7.8	37.6	57	74	17.0	100	53	
Vert.	15960.000	PK	47.5	38.3	0.6	37.3	49.1	74	24.9	100	0	
Hori.	1500.000	AV	41.3	24.9	12.6	40.1	38.7	54	15.3	109	132	VBW: 10Hz
Hori.	5350.000	AV	35.1	31.8	15.1	39.3	42.7	54	11.3	124	26	VBW: 43Hz
Hori.	10640.000	AV	34.1	39.9	7.8	37.6	44.2	54	9.8	100	95	VBW: 43Hz
Hori.	15960.000	AV	34.6	38.3	0.6	37.3	36.2	54	17.8	100	0	VBW: 43Hz
Vert.	1375.000	AV	44.2	24.6	12.4	40	41.2	54	12.8	100	225	VBW: 10Hz
Vert.	1500.000	AV	43.1	24.9	12.6	40.1	40.5	54	13.5	100	204	VBW: 10Hz
Vert.	5350.000	AV	35.3	31.8	15.1	39.3	42.9	54	11.1	100	36	VBW: 43Hz
Vert.	10640.000	AV	34.3	39.9	7.8	37.6	44.4	54	9.6	100	53	VBW: 43Hz
Vert.	15960.000	AV	34.7	38.3	0.6	37.3	36.3	54	17.7	100	0	VBW: 43Hz

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

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

*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 13GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

Data of Spurious Emissions (Calculation)(above 1GHz Outside of the restricted band)

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
Date 2010/6/23 2010/6/25
Temperature / Humidity 25deg.C. , 54% 24deg.C. , 52%
Engineer Hikaru Shirasawa Akio Hayashi
Mode Tx, 5180 MHz
11a, 54Mbps

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Result (EIRP [dBm])	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5150.000	PK	52.3	31.5	15	39.7	59.1	-36.13	-27.00	9.1	121	5	
Hori.	10360.000	PK	46.3	39.4	7.7	37.4	56	-39.23	-27.00	12.2	100	5	
Vert.	5150.000	PK	55.3	31.5	15	39.7	62.1	-33.13	-27.00	6.1	147	62	
Vert.	10360.000	PK	46	39.4	7.7	37.4	55.7	-39.53	-27.00	12.5	129	115	

Result[dBuV/m] = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)
Result(EIRP[dBm])=10*LOG(({ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor: 13GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

Data of Spurious Emissions (Calculation)(above 1GHz Outside of the restricted band)

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
Date 2010/6/23 2010/6/25
Temperature / Humidity 25deg.C. , 54% 24deg.C. , 52%
Engineer Hikaru Shirasawa Akio Hayashi
Mode Tx, 5200 MHz
11a, 54Mbps

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Result (EIRP [dBm])	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	10400.000	PK	47.7	39.5	7.7	37.4	57.5	-37.73	-27.00	10.7	100	0	
Vert.	10400.000	PK	47.2	39.5	7.7	37.4	57	-38.23	-27.00	11.2	100	32	

Result[dBuV/m]= Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)
Result(EIRP[dBm])=10*LOG(({ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) * 10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Distance factor: 13GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

Data of Spurious Emissions (Calculation)(above 1GHz Outside of the restricted band)

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
Date 2010/6/23 2010/6/25
Temperature / Humidity 25deg.C. , 54% 24deg.C. , 52%
Engineer Hikaru Shirasawa Akio Hayashi
Mode Tx, 5240 MHz
11a, 54Mbps

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Result (EIRP [dBm])	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5350.000	PK	48.2	31.8	15.1	39.3	55.8	-39.43	-27.00	12.4	117	359	
Hori.	10480.000	PK	47.6	39.8	7.7	37.3	57.8	-37.43	-27.00	10.4	112	38	
Hori.	36680.000	PK	61.5	43	15.3	70.4	49.4	-45.83	-27.00	18.8	100	0	Not Detected
Vert.	5350.000	PK	48.1	31.8	15.1	39.3	55.7	-39.53	-27.00	12.5	126	28	
Vert.	10480.000	PK	47.4	39.8	7.7	37.3	57.6	-37.63	-27.00	10.6	100	33	
Vert.	36680.000	PK	61.8	43	15.3	70.4	49.7	-45.53	-27.00	18.5	100	0	Not Detected

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

Result(EIRP[dBm])=10*LOG(({ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) *10^3)

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

Distance factor: 13GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

Data of Spurious Emissions (Calculation)(above 1GHz Outside of the restricted band)

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
Date 2010/6/23 2010/6/25
Temperature / Humidity 25deg.C. , 54% 24deg.C. , 52%
Engineer Hikaru Shirasawa Akio Hayashi
Mode Tx, 5260 MHz
 11a, 54Mbps

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Result (EIRP [dBm])	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5150.000	PK	48.2	31.5	15	39.7	55	-40.23	-27.00	13.2	100	89	
Hori.	10520.000	PK	47.5	39.8	7.7	37.3	57.7	-37.53	-27.00	10.5	100	25	
Hori.	36820.000	PK	62.4	43	15.2	70.8	49.8	-45.43	-27.00	18.4	100	0	Not Detected
Vert.	5150.000	PK	48.4	31.5	15	39.7	55.2	-40.03	-27.00	13.0	100	43	
Vert.	10520.000	PK	47.3	39.8	7.7	37.3	57.5	-37.73	-27.00	10.7	100	0	
Vert.	36820.000	PK	63	43	15.2	70.8	50.4	-44.83	-27.00	17.8	100	0	Not Detected

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

Result(EIRP[dBm])=10*LOG(({ 10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) *10^3)

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

Distance factor: 13GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

Data of Spurious Emissions (Calculation)(above 1GHz Outside of the restricted band)

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
Date 2010/6/23 2010/6/25
Temperature / Humidity 25deg.C. , 54% 24deg.C. , 52%
Engineer Hikaru Shirasawa Akio Hayashi
Mode Tx, 5280 MHz
11a, 54Mbps

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Result (EIRP [dBm])	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	10560.000	PK	47.1	39.8	7.8	37.4	57.3	-37.93	-27.00	10.9	126	359	
Hori.	36960.000	PK	62.2	43.1	15.2	71.3	49.2	-46.03	-27.00	19.0	100	0	Not Detected
Vert.	10560.000	PK	47.5	39.8	7.8	37.4	57.7	-37.53	-27.00	10.5	100	115	
Vert.	36960.000	PK	62.8	43.1	15.2	71.3	49.8	-45.43	-27.00	18.4	100	0	Not Detected

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

Result(EIRP[dBm])=10*LOG((10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) *10^3)

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

Distance factor: 13GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

Data of Spurious Emissions (Calculation)(above 1GHz Outside of the restricted band)

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
Date 2010/6/23 2010/6/25
Temperature / Humidity 25deg.C. , 54% 24deg.C. , 52%
Engineer Hikaru Shirasawa Akio Hayashi
Mode Tx, 5320 MHz
11a, 54Mbps

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Result (EIRP [dBm])	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5350.000	PK	53.5	31.8	15.1	39.3	61.1	-34.13	-27.00	7.1	124	26	
Hori.	37240.000	PK	62.7	42.9	15.6	70.8	50.4	-44.83	-27.00	17.8	100	0	Not Detected
Vert.	5350.000	PK	54.7	31.8	15.1	39.3	62.3	-32.93	-27.00	5.9	100	36	
Vert.	37240.000	PK	62.9	42.9	15.6	70.8	50.6	-44.63	-27.00	17.6	100	0	Not Detected

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

Result(EIRP[dBm])=10*LOG((10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m]) ^ 2 } / 30) *10^3)

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

Distance factor: 13GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

Spurious emission (Radiated)

11a

VBW (AV) Calculation



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APPENDIX 3 Test Instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
SAF-03	Pre Amplifier	SONOMA	310N	290213	RE	2010/02/06 * 12
SAT6-03	Attenuator	JFW	50HF-006N	-	RE	2010/02/06 * 12
SBA-03	Biconical Antenna	Schwarzbeck	BBA9106	91032666	RE	2010/03/22 * 12
SCC-C1/C2/C3/C4/C5/C10/SRSE-03	Coaxial Cable&RF Selector	Fujikura/Fujikura/Suhner/Suhner/Suhner/Suhner/TOYO	8D2W/12DSFA/141PE/141PE/141PE/141PE/NS4906	--/0901-271(RF Selector)	RE	2010/04/02 * 12
SLA-03	Logperiodic Antenna	Schwarzbeck	UHALP9108A	UHALP 9108-A0901	RE	2010/03/22 * 12
SOS-05	Humidity Indicator	A&D	AD-5681	4062518	RE	2010/02/09 * 12
STR-03	Test Receiver	Rohde & Schwarz	ESI40	100054/040	RE	2010/04/12 * 24
SJM-07	Measure	PROMART	SEN1935	-	RE	-
SAEC-03(NSA)	Semi-Anechoic Chamber	TDK	SAEC-03(NSA)	3	RE	2009/09/18 * 12
COTS-SEMI-1	EMI Software	TSJ	TEPTO-DV	-	RE/CE	-
SAF-06	Pre Amplifier	TOYO Corporation	TPA0118-36	1440491	RE	2010/03/09 * 12
SCC-G03	Coaxial Cable	Suhner	SUCOFLEX 104A	46499/4A	RE	2010/04/16 * 12
SCC-G23	Coaxial Cable	Suhner	SUCOFLEX 104	297342/4	RE	2010/05/27 * 12
SHA-03	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-739	RE	2009/08/23 * 12
SJM-10	Measure	PROMART	SEN1935	-	RE	-
SSA-03	Spectrum Analyzer	Agilent	E4448A	MY48250152	RE	2009/06/09 * 24
SSA-01	Spectrum Analyzer	Agilent	N9010A-526	MY48031482	RE	2010/04/05 * 12
SHA-04	Horn Antenna	ETS LINDGREN	3160-09	LM3640	RE	2010/03/29 * 12
SAF-08	Pre Amplifier	TOYO Corporation	HAP18-26W	00000019	RE	2010/03/02 * 12
SCC-G17	Coaxial Cable	Suhner	SUCOFLEX 104A	46291/4A	RE	2010/03/02 * 12
SHA-06	Horn Antenna	ETS LINDGREN	3160-10	LM3459	RE	2010/04/09 * 12
SAF-10	Pre Amplifier	TOYO Corporation	HAP26-40W	00000010	RE	2010/06/22 * 12
SCC-G19	Coaxial Cable	Suhner	SUCOFLEX 102A	1188/2A	RE	2010/03/09 * 12
STR-01	Test Receiver	Rohde & Schwarz	ESU40	100093	RE	2009/04/02 * 24
STR-04	Test Receiver	Rohde & Schwarz	ESVS30	826638/003	RE	2009/11/13 * 12
SAT10-04	Attenuator(above1GHz)	Agilent	8493C-010	74863	RE	2010/03/05 * 12
SFL-03	Highpass Filter	MICRO-TRONICS	HPM50112	028	RE	2009/12/04 * 12
SCC-05/06	Coaxial Cable	Fujikura	5D2W	-	CE	2010/04/09 * 12
SLS-06	LISN	Schwarzbeck	NSLK8126	8126440	CE(EUT)	2010/03/29 * 12
SAT3-06	Attenuator	JFW	50HF-003N	-	CE	2010/02/06 * 12
SHF-01	Highpass Filter	Rohde & Schwarz	EZ-25	100021	CE	2010/03/29 * 12
SSA-01	Spectrum Analyzer	Agilent	N9010A-526	MY48031482	CE	2010/04/05 * 12
STR-05	Test Receiver	Rohde & Schwarz	ESHS20	827129/007	CE	2009/11/13 * 12
SLS-05	LISN	Rohde & Schwarz	ENV216	100516	CE(AE)	2010/02/19 * 12
STM-07	Terminator	TME	CT-01 BP	-	CE	2010/01/08 * 12
SOS-06	Humidity Indicator	A&D	AD-5681	4062118	CE	2010/02/17 * 12

The expiration date of the calibration is the end of the expired month .
As for some calibrations performed after the tested dates , those test equipment have been controlled by means of an unbroken chains of calibrations .

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

1.model difference specification

Model (RICOH)	Print speed/minutes
Aficio MP C3001 Aficio MP C3001G	30
Aficio MP C3501 Aficio MP C3501G	35
Aficio MP C4501 Aficio MP C4501G	45
Aficio MP C5501 Aficio MP C5501G	55

The model difference is a print speed.

As for the difference between Aficio MP Cxxxx and Aficio MP CxxxxG, the production factory is different.

2.model name by brand

Model (RICOH)	Brand name	OEM model
Aficio MP C3001	Lanier	LD630C
	Savin	C9130
Aficio MP C3001G	Lanier	LD630CG
	Savin	C9130G
Aficio MP C3501	Lanier	LD635C
	Savin	C9135
Aficio MP C3501G	Lanier	LD635CG
	Savin	C9135G
Aficio MP C4501	Lanier	LD645C
	Savin	C9145
Aficio MP C4501G	Lanier	LD645CG
	Savin	C9145G
Aficio MP C5501	Lanier	LD655C
	Savin	C9155
Aficio MP C5501G	Lanier	LD655CG
	Savin	C9155G