

DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.3 Shielded room
Date : 2010/01/18

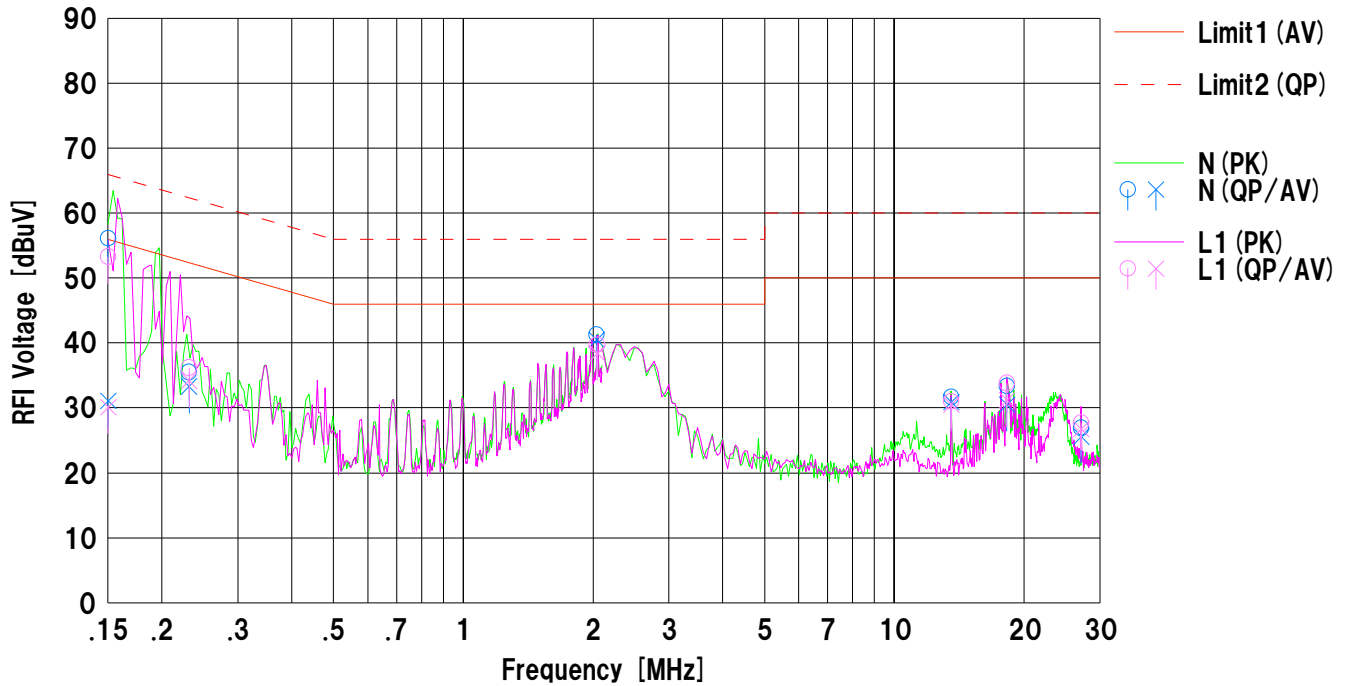
Company : RICOH COMPANY LTD.
Kind of EUT : Color Laser Printer
Model No. : Aficio SP C431DN
Serial No. : S9491117004

Mode : Transmitting (802.11b_2412MHz)
Report No. : 30CE0005-SH-01-B-R2
Power : AC120V/60Hz
Temp./Humi. : 18°C / 25%

Remarks : -

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

Engineer : Hikaru Shirasawa



No.	Freq. [MHz]	Reading		C.Fac [dB]	Results		Limit		Margin		Phase	Comment
		<QP> [dBuV]	<AV> [dBuV]		<QP> [dBuV]	<AV> [dBuV]	<AV> [dBuV]	<QP> [dBuV]	<AV> [dB]	<QP> [dB]		
1	0.15000	45.1	20.1	11.0	56.1	31.1	56.0	66.0	24.9	9.9	N	
2	0.23112	25.5	23.3	10.0	35.5	33.3	52.4	62.4	19.1	26.9	N	
3	2.04030	31.5	30.7	9.8	41.3	40.5	46.0	56.0	5.5	14.7	N	
4	13.56000	21.2	20.4	10.5	31.7	30.9	50.0	60.0	19.1	28.3	N	
5	18.24159	22.6	19.7	10.8	33.4	30.5	50.0	60.0	19.5	26.6	N	
6	27.12000	15.5	14.2	11.4	26.9	25.6	50.0	60.0	24.4	33.1	N	
7	0.15000	42.3	19.1	11.0	53.3	30.1	56.0	66.0	25.9	12.7	L1	
8	0.23112	26.2	24.2	10.0	36.2	34.2	52.4	62.4	18.2	26.2	L1	
9	2.04476	29.9	28.6	9.8	39.7	38.4	46.0	56.0	7.6	16.3	L1	
10	13.56000	20.5	20.0	10.5	31.0	30.5	50.0	60.0	19.5	29.0	L1	
11	18.24344	23.0	20.4	10.8	33.8	31.2	50.0	60.0	18.8	26.2	L1	
12	27.12000	16.3	15.3	11.4	27.7	26.7	50.0	60.0	23.3	32.3	L1	

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

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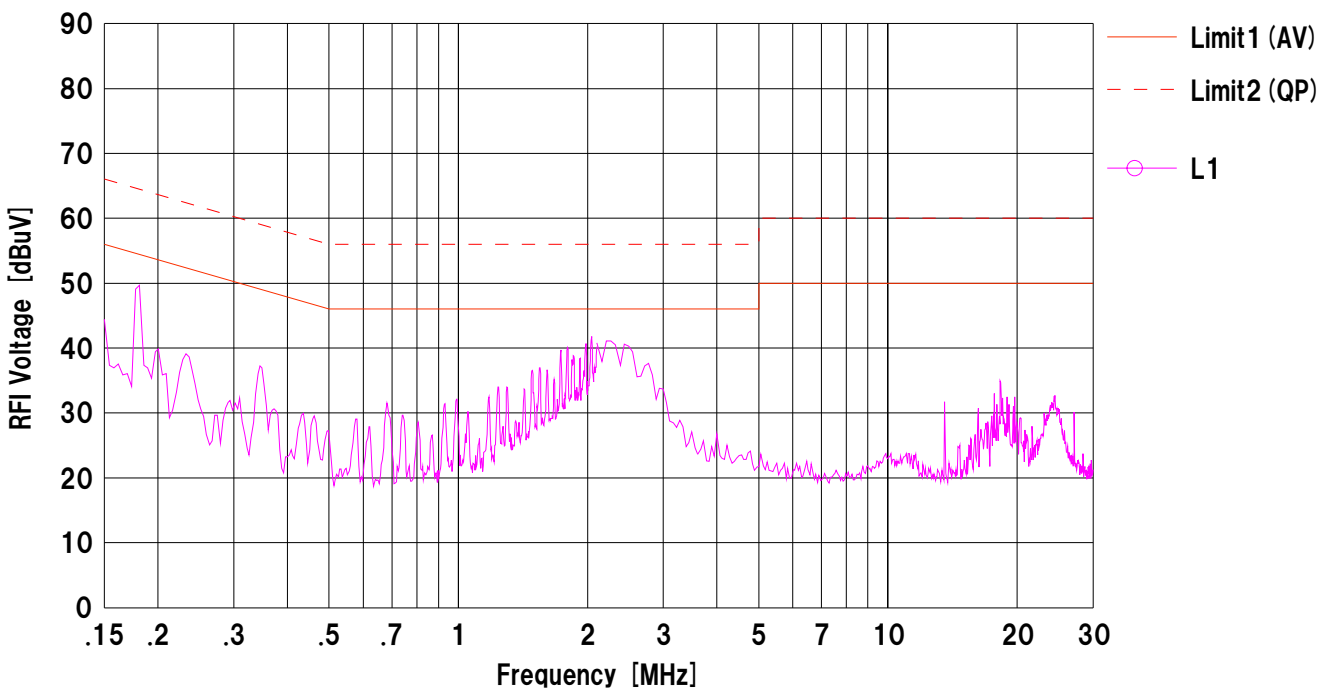
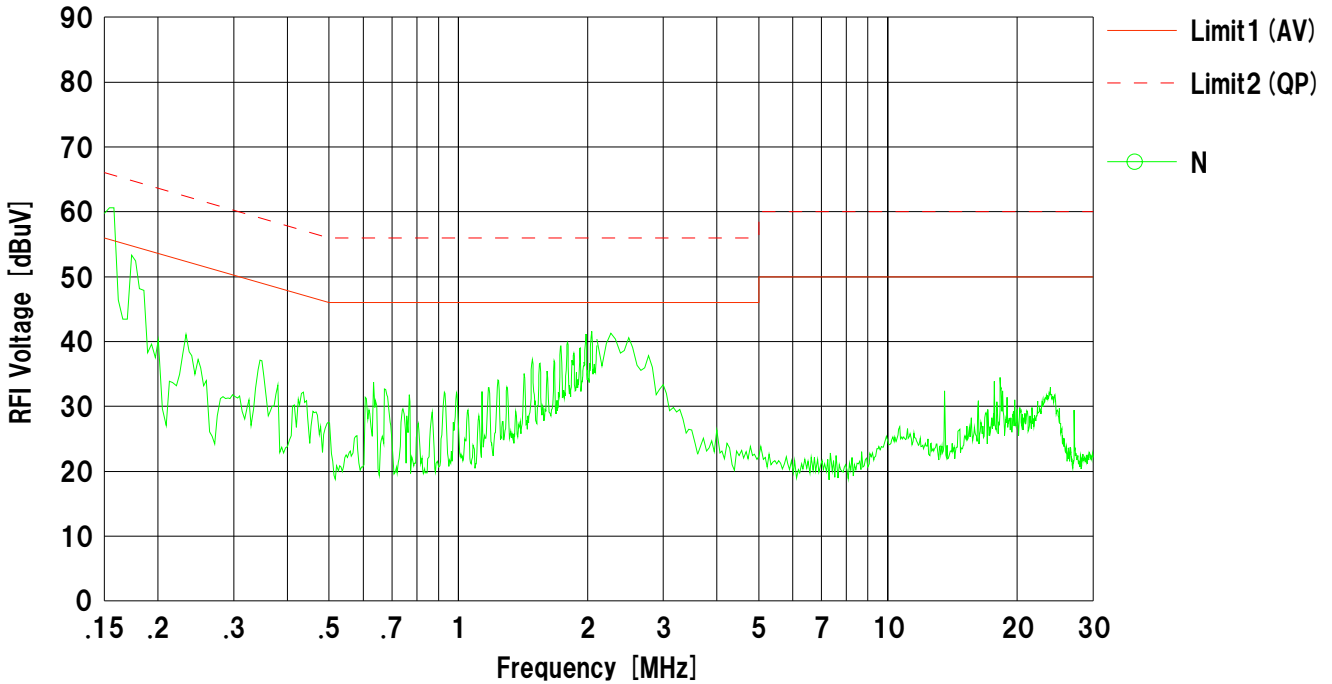
Company : RICOH COMPANY LTD.
Kind of EUT : Color Laser Printer
Model No. : Aficio SP C431DN
Serial No. : S9491117004

Mode : Transmitting (802.11b_2437MHz)
Report No. : 30CE0005-SH-01-B-R2
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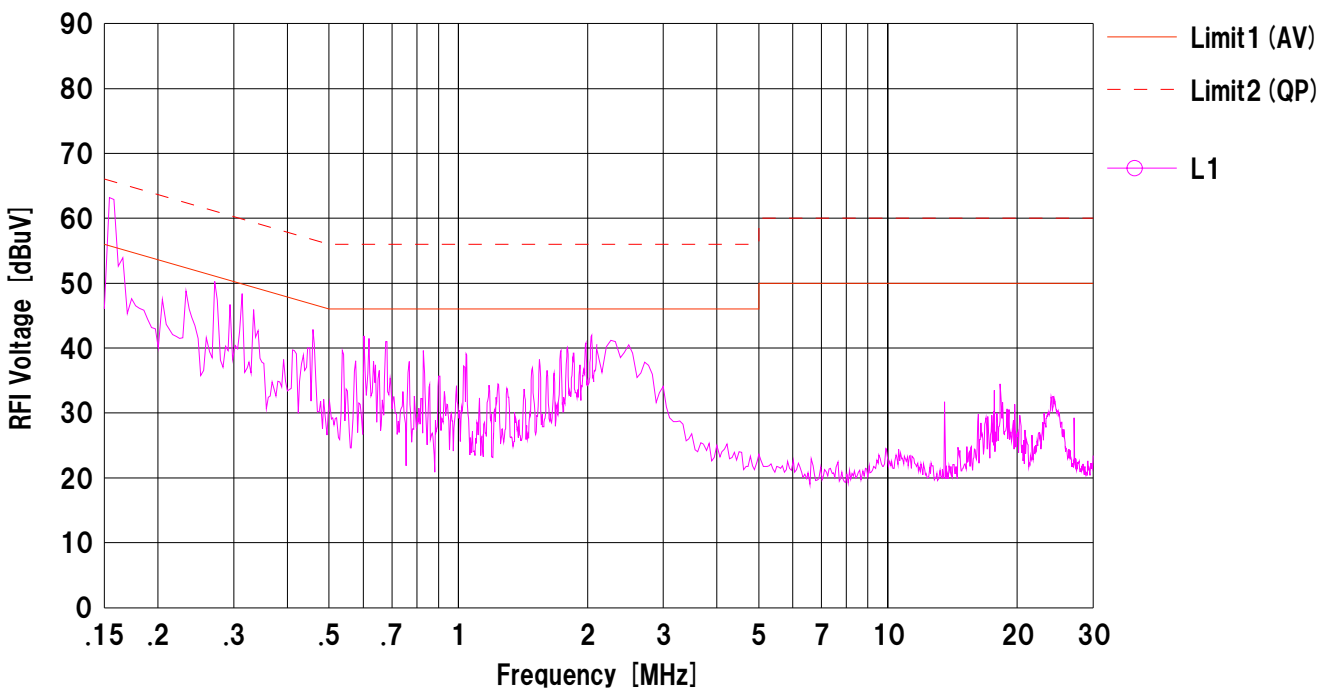
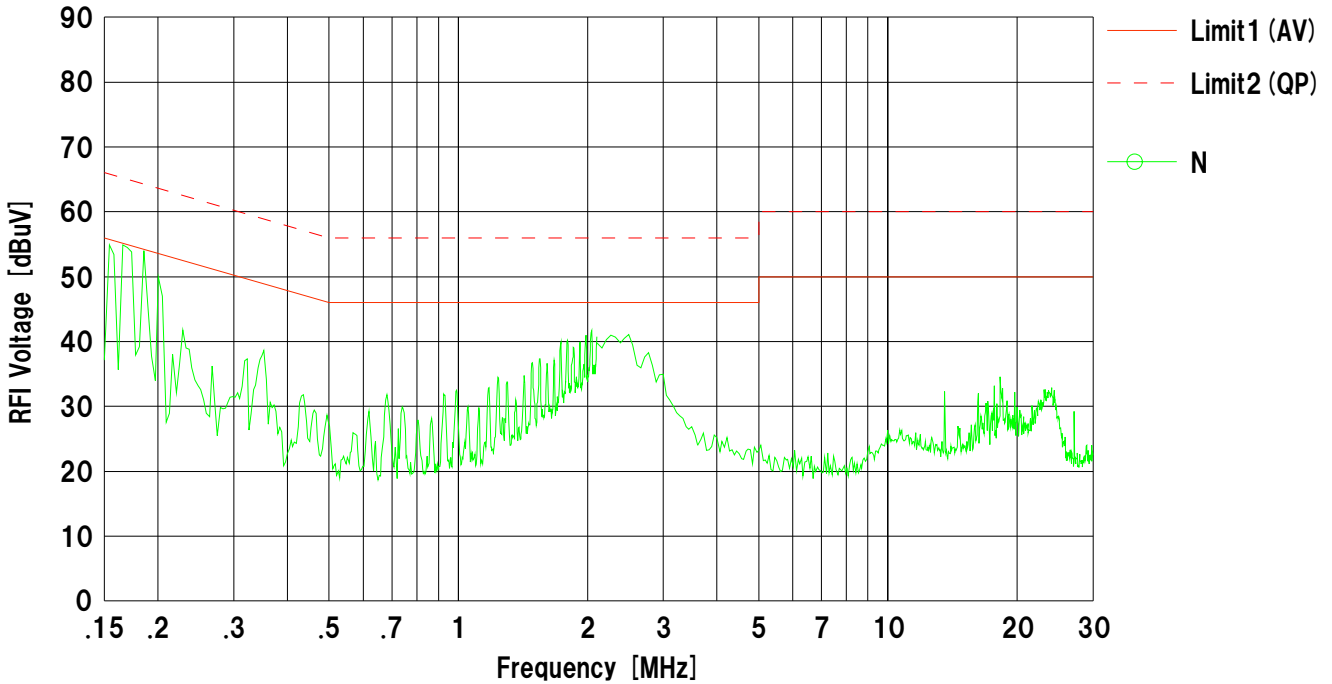
Company : RICOH COMPANY LTD.
Kind of EUT : Color Laser Printer
Model No. : Aficio SP C431DN
Serial No. : S9491117004

Mode : Transmitting (802.11b_2462MHz)
Report No. : 30CE0005-SH-01-B-R2
Power : AC120V/60Hz
Temp./Humi. : 18°C / 25%

Remarks : -

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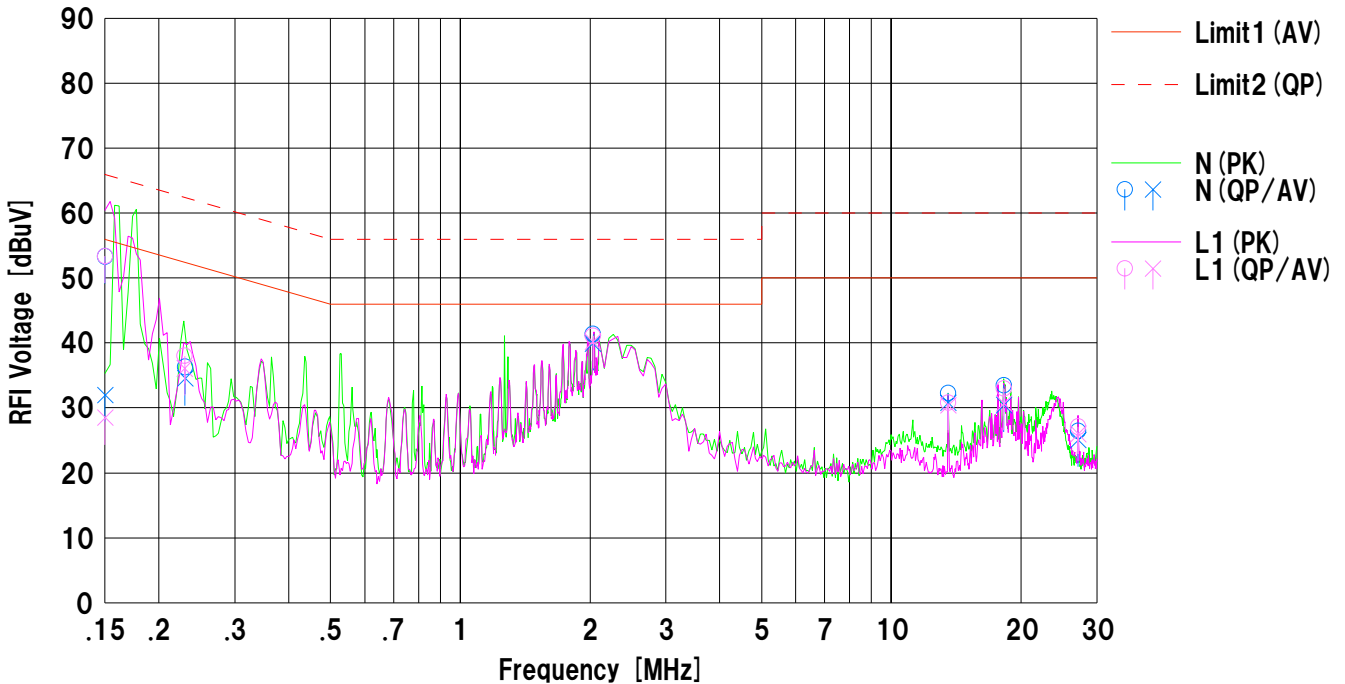
Company : RICOH COMPANY LTD.
Kind of EUT : Color Laser Printer
Model No. : Aficio SP C431DN
Serial No. : S9491117004

Mode : Transmitting (802.11g_2412MHz)
Report No. : 30CE0005-SH-01-B-R2
Power : AC120V/60Hz
Temp./Humi. : 18°C / 25%

Remarks : -

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Limit2 : FCC 15C (15.207) QP

Engineer : Hikaru Shirasawa



No.	Freq. [MHz]	Reading		C.Fac [dB]	Results		Limit		Margin		Phase	Comment
		<QP> [dBuV]	<AV> [dBuV]		<QP> [dBuV]	<AV> [dBuV]	<AV> [dBuV]	<QP> [dBuV]	<AV> [dB]	<QP> [dB]		
1	0.15000	42.3	21.0	11.0	53.3	32.0	56.0	66.0	24.0	12.7	N	
2	0.23001	26.3	24.5	10.0	36.3	34.5	52.4	62.4	17.9	26.1	N	
3	2.03428	31.6	30.1	9.8	41.4	39.9	46.0	56.0	6.1	14.6	N	
4	13.56000	21.8	20.3	10.5	32.3	30.8	50.0	60.0	19.2	27.7	N	
5	18.24365	22.7	19.6	10.8	33.5	30.4	50.0	60.0	19.6	26.5	N	
6	27.12000	15.0	13.7	11.4	26.4	25.1	50.0	60.0	24.9	33.6	N	
7	0.15000	42.4	17.5	11.0	53.4	28.5	56.0	66.0	27.5	12.6	L1	
8	0.22961	28.0	26.1	10.0	38.0	36.1	52.5	62.5	16.4	24.5	L1	
9	2.03589	31.3	30.4	9.8	41.1	40.2	46.0	56.0	5.8	14.9	L1	
10	13.56000	20.3	19.9	10.5	30.8	30.4	50.0	60.0	19.6	29.2	L1	
11	18.24367	22.2	19.9	10.8	33.0	30.7	50.0	60.0	19.3	27.0	L1	
12	27.12000	15.7	14.6	11.4	27.1	26.0	50.0	60.0	24.0	32.9	L1	

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

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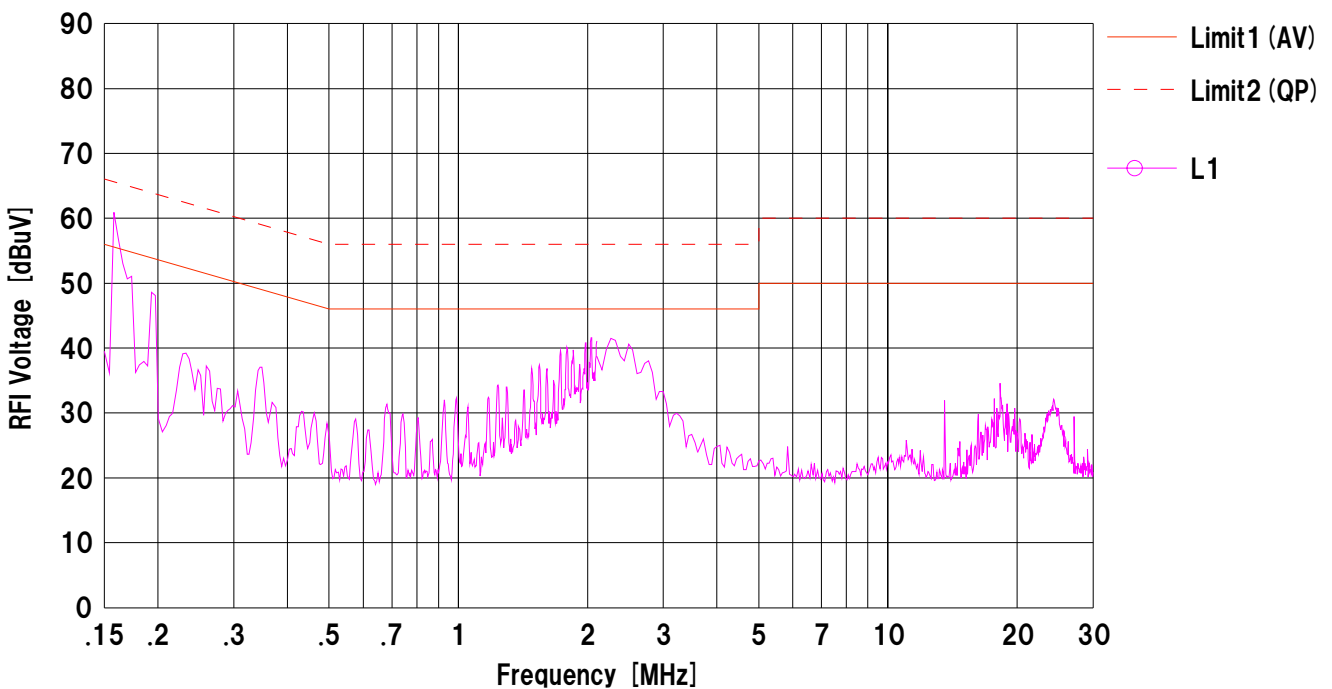
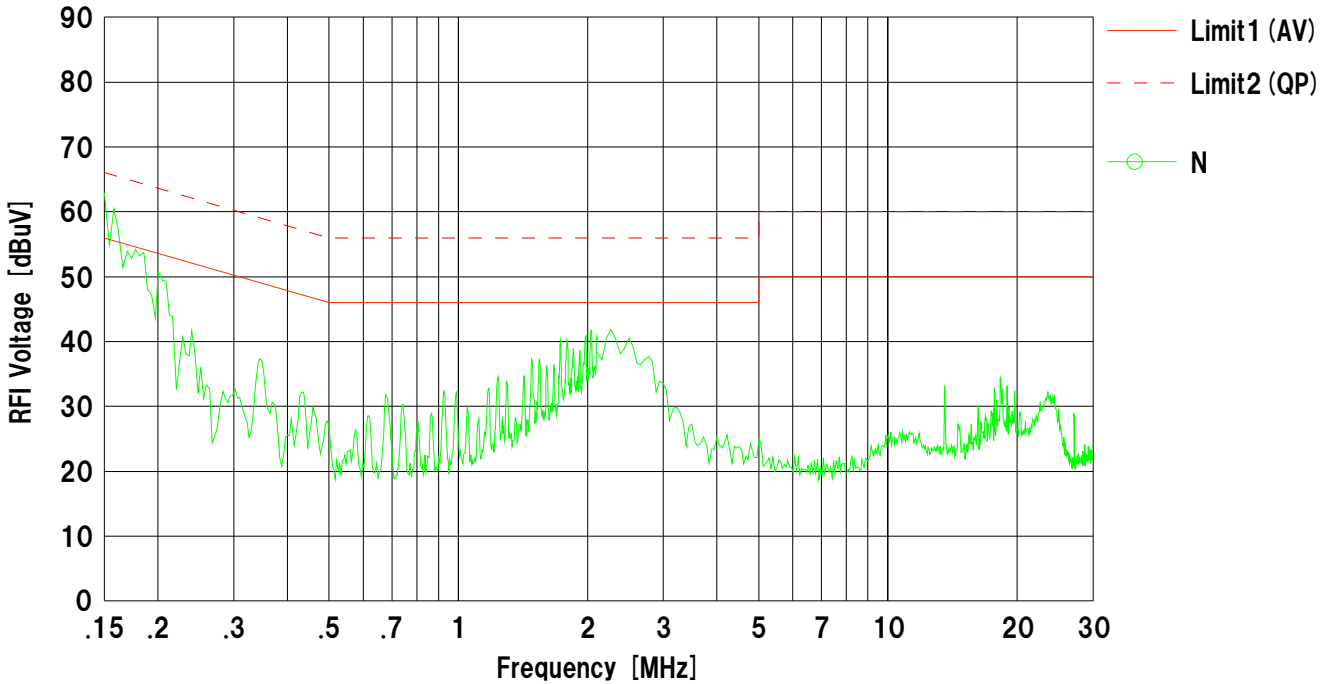
Company : RICOH COMPANY LTD.
Kind of EUT : Color Laser Printer
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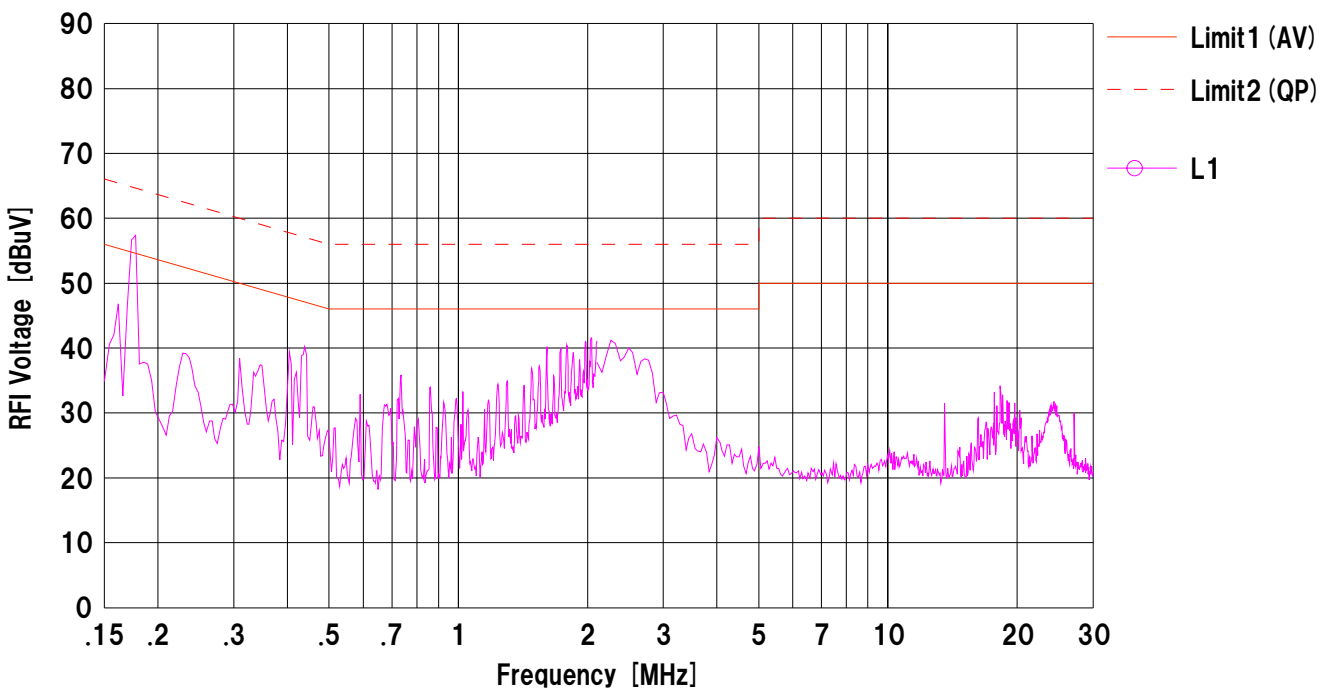
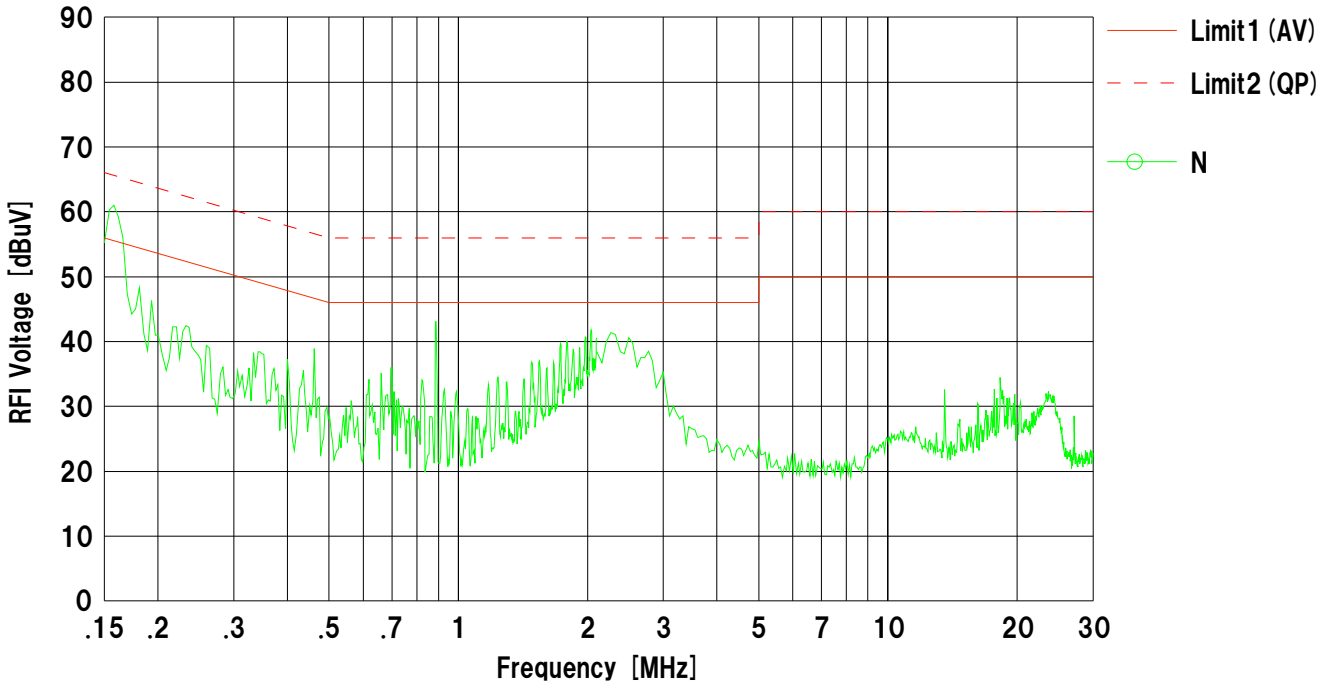
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Engineer : Hikaru Shirasawa



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

DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.3 Semi-Anechoic Chamber
Date : 2010/01/13

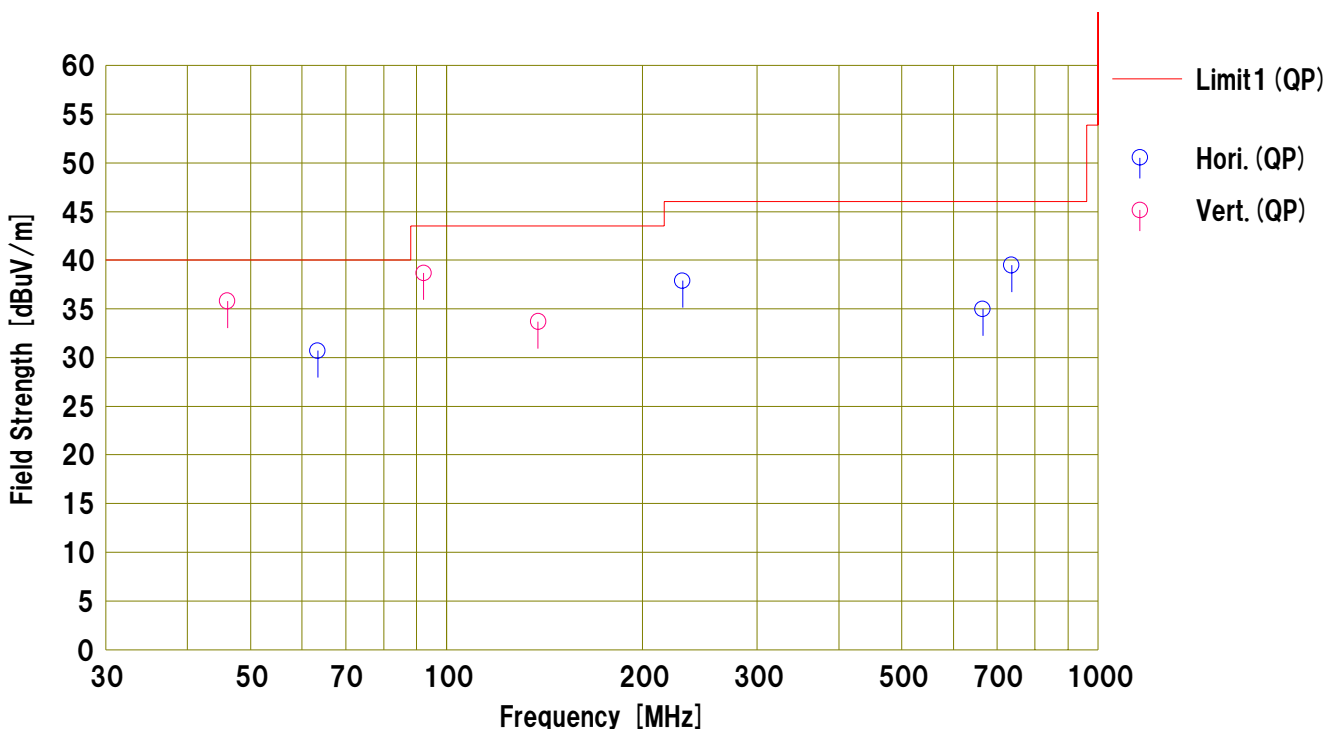
Company : RICOH COMPANY LTD.
Kind of EUT : Color Laser Printer
Model No. : Aficio SP C431DN
Serial No. : S9491117004

Mode : Transmitting (802.11b_2412MHz)
Report No. : 30CE0005-SH-01-B-R2
Power : AC120V/60Hz
Temp./Humi. : 19°C / 32%

Remarks : -

Limit1 : FCC15.209 3m, below 1GHz:QP, above 1GHz:PK

Engineer : Hikaru Shirasawa



No.	Freq. [MHz]	Reading	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result	Limit	Margin	Pola. [H/V]	Height [cm]	Angle [deg]	Ant. Type	Comment
		<QP> [dBuV]				<QP> [dBuV/m]	<QP> [dB]						
1	63.414	47.9	8.1	6.8	32.1	30.7	40.0	9.3	Hori	361	81	BC	
2	230.405	45.0	17.0	7.9	32.0	37.9	46.0	8.1	Hori	145	109	BC	
3	665.949	37.5	19.8	9.6	31.9	35.0	46.0	11.0	Hori	100	199	LP	
4	737.304	40.9	20.4	9.8	31.6	39.5	46.0	6.5	Hori	149	71	LP	
5	46.082	48.3	12.9	6.7	32.1	35.8	40.0	4.2	Vert.	100	187	BC	
6	92.158	55.1	8.6	7.1	32.1	38.7	43.5	4.8	Vert.	107	106	BC	
7	138.247	44.1	14.2	7.4	32.0	33.7	43.5	9.8	Vert.	100	135	BC	

Calculation:Result [dBuV/m] =Reading [dBuV] +Ant.Fac [dB/m] +Loss (Cable+ATT) [dB] -Gain (AMP) [dB]
Ant.Type=BC:Biconical Antenna, LP:Logperiodic Antenna, SHA**:Horn Antenna

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UL Japan, Inc. Shonan EMC Lab. No.3 Semi-Anechoic Chamber
Date : 2010/01/13

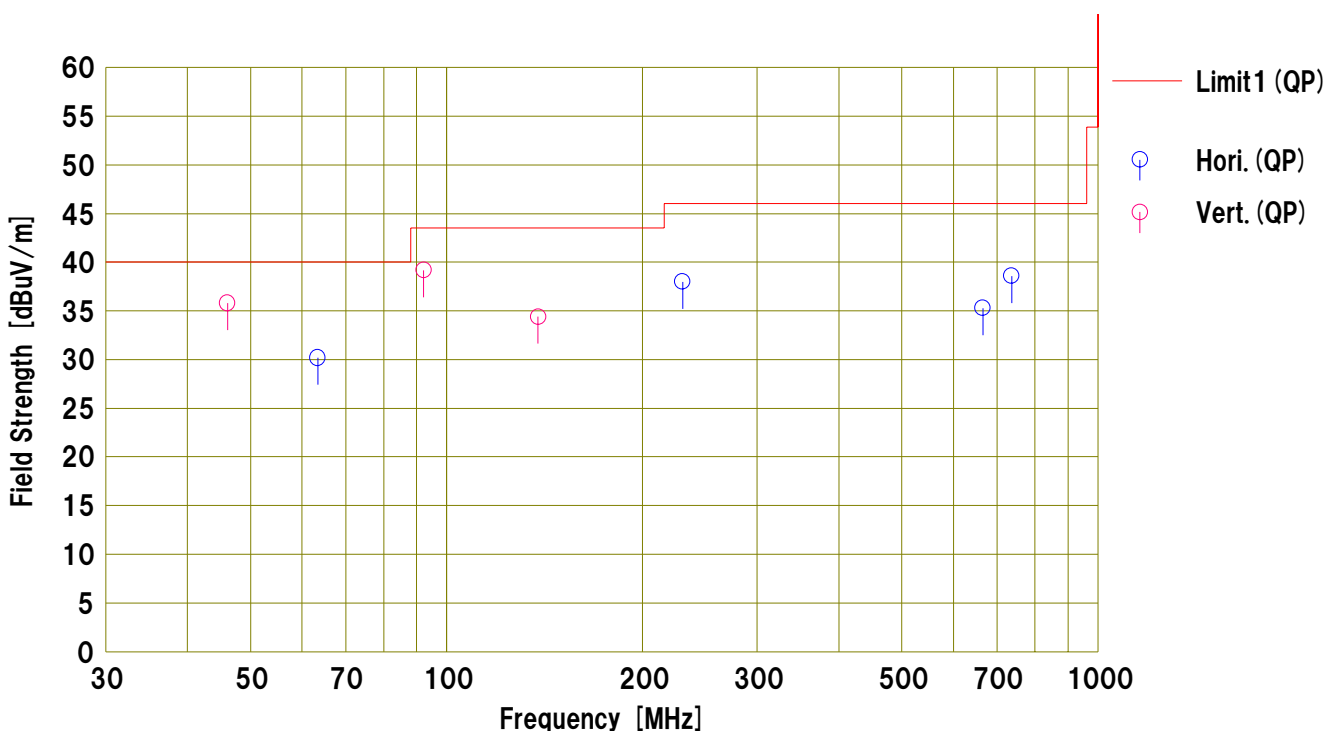
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Engineer : Hikaru Shirasawa



No.	Freq. [MHz]	Reading	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result	Limit	Margin	Pola. [H/V]	Height [cm]	Angle [deg]	Ant. Type	Comment
		<QP> [dBuV]				<QP> [dBuV/m]	<QP> [dB]						
1	63.378	47.4	8.1	6.8	32.1	30.2	40.0	9.8	Hori	361	90	BC	
2	230.410	45.1	17.0	7.9	32.0	38.0	46.0	8.0	Hori	148	111	BC	
3	665.935	37.8	19.8	9.6	31.9	35.3	46.0	10.7	Hori	100	199	LP	
4	737.298	40.0	20.4	9.8	31.6	38.6	46.0	7.4	Hori	152	73	LP	
5	46.081	48.3	12.9	6.7	32.1	35.8	40.0	4.2	Vert.	100	186	BC	
6	92.163	55.6	8.6	7.1	32.1	39.2	43.5	4.3	Vert.	100	112	BC	
7	138.236	44.7	14.3	7.4	32.0	34.4	43.5	9.1	Vert.	100	148	BC	

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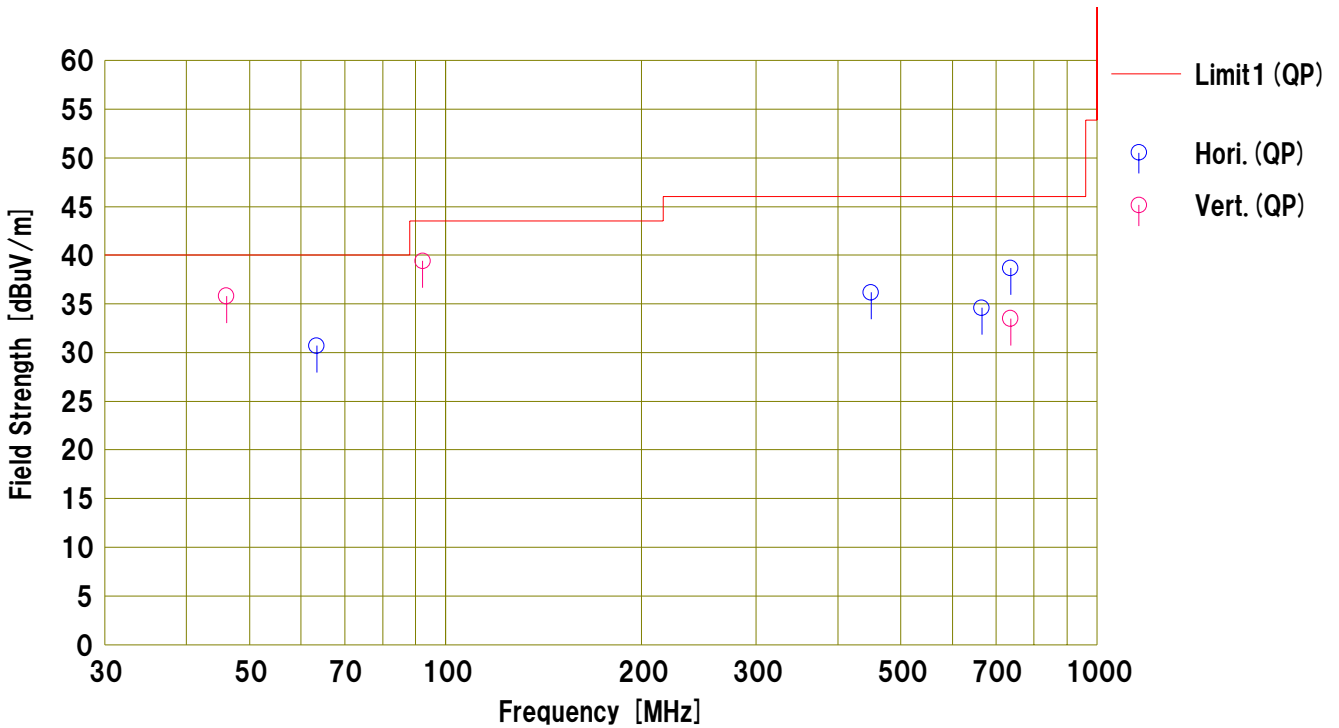
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Engineer : Hikaru Shirasawa



No.	Freq. [MHz]	Reading	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result	Limit	Margin	Pola. [H/V]	Height [cm]	Angle [deg]	Ant. Type	Comment
		<QP> [dBuV]				<QP> [dBuV/m]	<QP> [dB]						
1	63.364	48.0	8.0	6.8	32.1	30.7	40.0	9.3	Hori	389	80	BC	
2	449.912	42.5	16.7	8.9	31.9	36.2	46.0	9.8	Hori	100	188	LP	
3	665.956	37.1	19.8	9.6	31.9	34.6	46.0	11.4	Hori	100	197	LP	
4	737.286	40.1	20.4	9.8	31.6	38.7	46.0	7.3	Hori	140	66	LP	
5	46.086	48.3	12.9	6.7	32.1	35.8	40.0	4.2	Vert.	100	179	BC	
6	92.158	55.8	8.6	7.1	32.1	39.4	43.5	4.1	Vert.	125	90	BC	
7	737.286	34.9	20.4	9.8	31.6	33.5	46.0	12.5	Vert.	100	177	LP	

Calculation:Result [dBuV/m] =Reading [dBuV] +Ant.Fac [dB/m] +Loss (Cable+ATT) [dB] -Gain (AMP) [dB]
Ant.Type=BC:Biconical Antenna, LP:Logperiodic Antenna, SHA**:Horn Antenna

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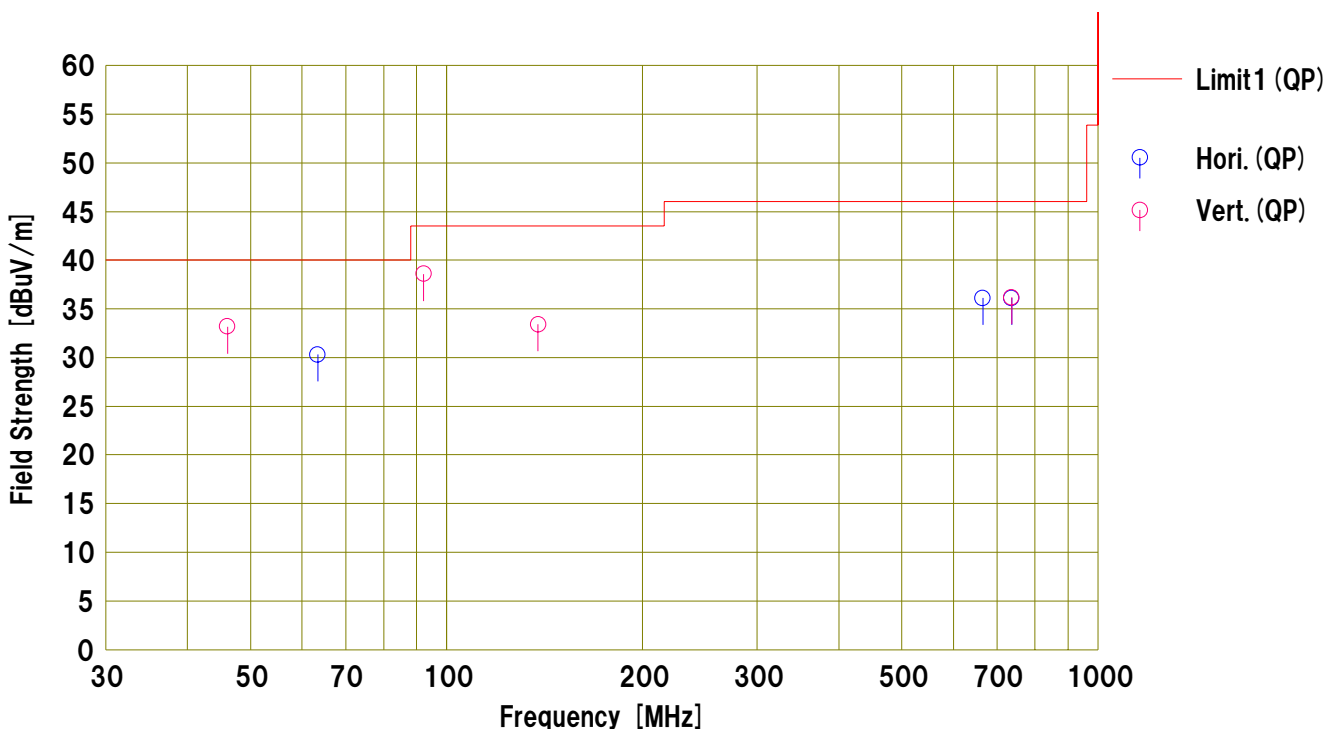
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Model No. : Aficio SP C431DN
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Mode : Transmitting (802.11g_2412MHz)
Report No. : 30CE0005-SH-01-B-R2
Power : AC120V/60Hz
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Remarks : -

Limit1 : FCC15.209 3m, below 1GHz:QP, above 1GHz:PK

Engineer : Hikaru Shirasawa



No.	Freq. [MHz]	Reading	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result	Limit	Margin	Pola. [H/V]	Height [cm]	Angle [deg]	Ant. Type	Comment
		<QP> [dBuV]				<QP> [dBuV/m]	<QP> [dB]						
1	63.384	47.5	8.1	6.8	32.1	30.3	40.0	9.7	Hori	400	82	BC	
2	665.889	38.6	19.8	9.6	31.9	36.1	46.0	9.9	Hori	100	198	LP	
3	737.297	37.5	20.4	9.8	31.6	36.1	46.0	9.9	Hori	100	320	LP	
4	46.080	45.7	12.9	6.7	32.1	33.2	40.0	6.8	Vert.	100	165	BC	
5	92.158	55.0	8.6	7.1	32.1	38.6	43.5	4.9	Vert.	100	98	BC	
6	138.241	43.7	14.3	7.4	32.0	33.4	43.5	10.1	Vert.	100	148	BC	
7	737.297	37.6	20.4	9.8	31.6	36.2	46.0	9.8	Vert.	100	171	LP	

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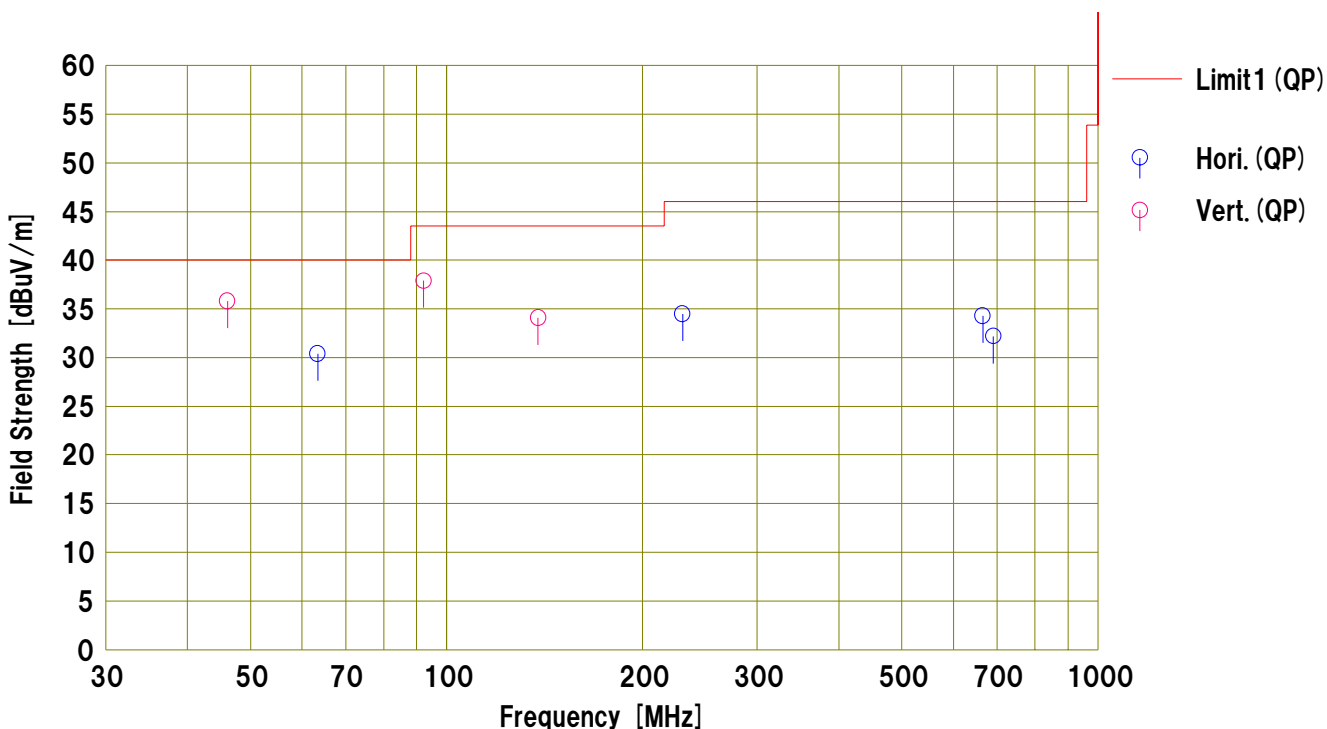
Company : RICOH COMPANY LTD.
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Limit1 : FCC15.209 3m, below 1GHz:QP, above 1GHz:PK

Engineer : Hikaru Shirasawa



No.	Freq. [MHz]	Reading	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result	Limit	Margin	Pola. [H/V]	Height [cm]	Angle [deg]	Ant. Type	Comment
		<QP> [dBuV]				<QP> [dBuV/m]	<QP> [dBuV/m]	<QP> [dB]					
1	63.371	47.9	7.8	6.8	32.1	30.4	40.0	9.6	Hori	384	83	BC	
2	230.404	41.6	17.0	7.9	32.0	34.5	46.0	11.5	Hori	155	125	BC	
3	665.912	36.8	19.8	9.6	31.9	34.3	46.0	11.7	Hori	100	197	LP	
4	691.205	34.2	20.1	9.7	31.8	32.2	46.0	13.8	Hori	100	326	LP	
5	46.077	48.3	12.9	6.7	32.1	35.8	40.0	4.2	Vert.	100	161	BC	
6	92.164	54.3	8.6	7.1	32.1	37.9	43.5	5.6	Vert.	100	101	BC	
7	138.229	44.4	14.3	7.4	32.0	34.1	43.5	9.4	Vert.	100	130	BC	

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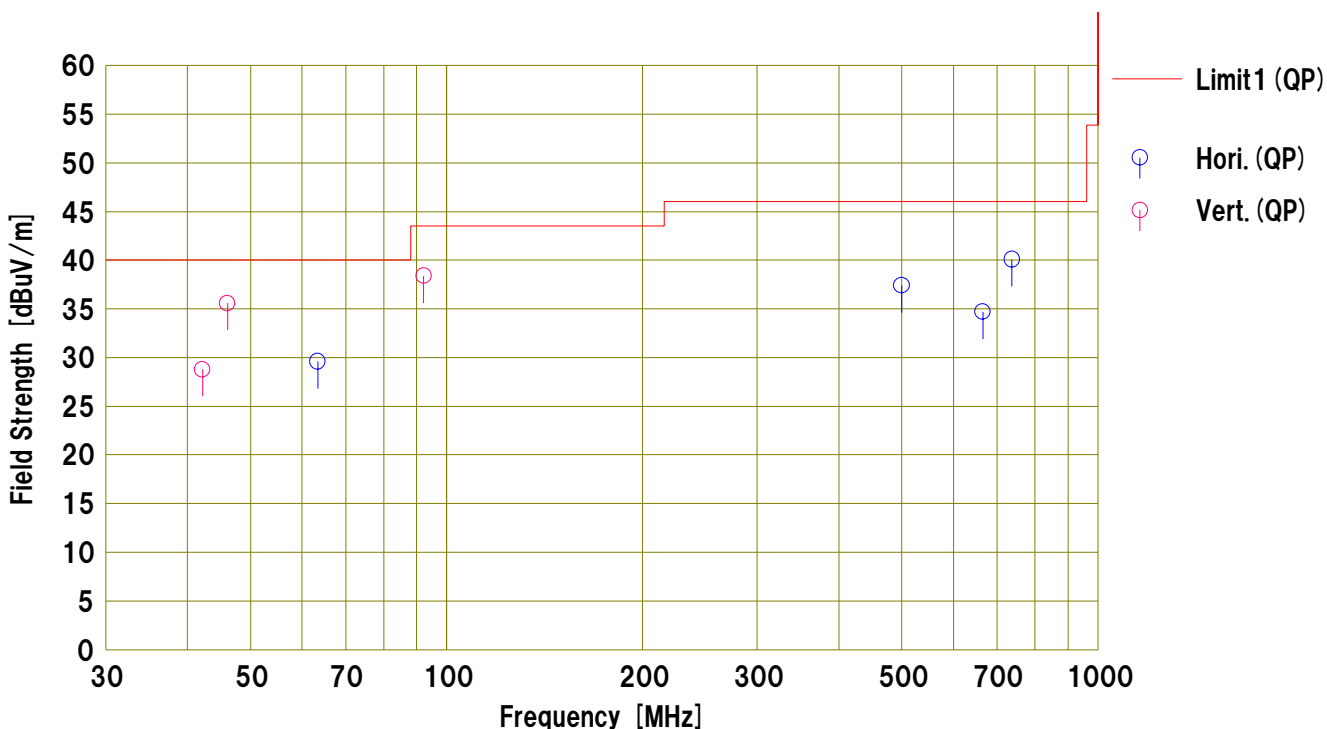
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Limit1 : FCC15.209 3m, below 1GHz:QP, above 1GHz:PK

Engineer : Hikaru Shirasawa



No.	Freq. [MHz]	Reading	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result	Limit	Margin	Pola. [H/V]	Height [cm]	Angle [deg]	Ant. Type	Comment
		[dBuV]				[dBuV/m]	[dBuV/m]	[dB]					
1	63.404	47.1	7.8	6.8	32.1	29.6	40.0	10.4	Hori	363	87	BC	
2	499.916	42.8	17.4	9.1	31.9	37.4	46.0	8.6	Hori	212	180	LP	
3	665.856	37.2	19.8	9.6	31.9	34.7	46.0	11.3	Hori	100	195	LP	
4	738.200	41.5	20.4	9.8	31.6	40.1	46.0	5.9	Hori	150	74	LP	
5	42.205	40.0	14.3	6.6	32.1	28.8	40.0	11.2	Vert.	100	85	BC	
6	46.094	48.1	12.9	6.7	32.1	35.6	40.0	4.4	Vert.	100	169	BC	
7	92.164	54.8	8.6	7.1	32.1	38.4	43.5	5.1	Vert.	100	97	BC	

Calculation: Result [dBuV/m] = Reading [dBuV] + Ant.Fac [dB/m] + Loss (Cable+ATT) [dB] - Gain (AMP) [dB]
Ant.Type=BC:Biconical Antenna, LP:Logperiodic Antenna, SHA**:Horn Antenna

DATA OF RADIATION TEST (Above 1GHz)

UL Japan, Inc.
Shonan NO.3 Semi Anechoic Chamber
Report No. : 30CE0005-SH-01-B-R2

Company : RICOH COMPANY LTD.
Equipment : Color Laser Printer
Model No. : Aficio SP C431DN
Serial No. : S9491117004
Power : AC120V/60Hz
Mode : Transmitting (802.11b 2412MHz)

Regulation : FCC Part15C Section 15.247
Test Distance : 1-10GHz: 3m, 10GHz-40GHz: 1m
Date : 2010/1/14 2010/1/15
Temperature : 19deg.C 20deg.C
Humidity : 26% 25%

ENGINEER : Hikaru Shirasawa

PK DETECT

No.	FREQ [MHz]	READING		ANT Factor [dB]	CABLE LOSS [dB]	AMP GAIN [dB]	Distance Factor [dB]	RESULT		LIMIT [dBuV/m]	MARGIN	
		HOR [dBuV]	VER [dBuV]					HOR [dBuV/m]	VER [dBuV/m]		HOR [dB]	VER [dB]
1	2390.00	48.4	48.2	27.6	13.4	39.8	0.0	49.6	49.4	74.0	24.4	24.6
2	2400.00	53.2	57.2	27.6	13.6	39.8	0.0	54.6	58.6	74.0	19.4	15.4
3	4824.00	50.5	56.0	30.7	5.7	39.5	0.0	47.4	52.9	74.0	26.6	21.1
4	7236.00	47.9	47.3	36.0	7.1	38.4	0.0	52.6	52.0	74.0	21.4	22.0
5	9648.00	46.1	46.3	38.4	7.8	36.9	0.0	55.4	55.6	74.0	18.6	18.4
6	12060.00	47.0	46.4	39.7	8.6	37.9	9.5	47.9	47.3	74.0	26.1	26.7

AV DETECT

No.	FREQ [MHz]	READING		ANT Factor [dB]	CABLE LOSS [dB]	AMP GAIN [dB]	Distance Factor [dB]	RESULT		LIMIT [dBuV/m]	MARGIN	
		HOR [dBuV]	VER [dBuV]					HOR [dBuV/m]	VER [dBuV/m]		HOR [dB]	VER [dB]
1	2390.00	34.8	34.5	27.6	13.4	39.8	0.0	36.0	35.7	54.0	18.0	18.3
2	2400.00	39.5	43.3	27.6	13.6	39.8	0.0	40.9	44.7	54.0	13.1	9.3
3	4824.00	36.4	41.2	30.7	5.7	39.5	0.0	33.3	38.1	54.0	20.7	15.9
4	7236.00	34.9	35.0	36.0	7.1	38.4	0.0	39.6	39.7	54.0	14.4	14.3
5	9648.00	33.0	33.0	38.4	7.8	36.9	0.0	42.3	42.3	54.0	11.7	11.7
6	12060.00	32.6	32.6	39.7	8.6	37.9	9.5	33.5	33.5	54.0	20.5	20.5

Sample Calculation :

RESULT=Reading + ANT Factor + Cabel Loss - Amp Gain - Distance Factor

Distance Factor calculation: $20 \cdot \log(3.0[m]/1.0[m]) = 9.5[dB]$

DATA OF RADIATION TEST (Above 1GHz)

UL Japan, Inc.
Shonan NO.3 Semi Anechoic Chamber
Report No. : 30CE0005-SH-01-B-R2

Company : RICOH COMAPNY LTD.
Equipment : Color Laser Printer
Model No. : Aficio SP C431DN
Serial No. : S9491117004
Power : AC120V/60Hz
Mode : Transmitting (802.11g 2437MHz)

Regulation : FCC Part15C Section 15.247
Test Distance : 1-10GHz: 3m, 10GHz-40GHz: 1m
Date : 2010/1/14 2010/1/15
Temperature : 19deg.C 20deg.C
Humidity : 26% 25%

ENGINEER : Hikaru Shirasawa

PK DETECT

No.	FREQ [MHz]	READING		ANT Factor [dB]	CABLE LOSS [dB]	AMP GAIN [dB]	Distance Factor [dB]	RESULT		LIMIT [dBuV/m]	MARGIN	
		HOR [dBuV]	VER [dBuV]					HOR [dBuV/m]	VER [dBuV/m]		HOR [dB]	VER [dB]
1	4874.00	50.0	52.6	30.8	5.7	39.5	0.0	47.0	49.6	74.0	27.0	24.4
2	7311.00	47.4	47.6	36.0	7.2	38.4	0.0	52.2	52.4	74.0	21.8	21.6
3	9748.00	45.9	45.4	38.4	7.9	37.0	0.0	55.2	54.7	74.0	18.8	19.3
4	12185.00	46.9	47.4	39.7	8.6	37.7	9.5	48.0	48.5	74.0	26.0	25.5

AV DETECT

No.	FREQ [MHz]	READING		ANT Factor [dB]	CABLE LOSS [dB]	AMP GAIN [dB]	Distance Factor [dB]	RESULT		LIMIT [dBuV/m]	MARGIN	
		HOR [dBuV]	VER [dBuV]					HOR [dBuV/m]	VER [dBuV/m]		HOR [dB]	VER [dB]
1	4874.00	36.3	38.1	30.8	5.7	39.5	0.0	33.3	35.1	54.0	20.7	18.9
2	7311.00	34.8	34.9	36.0	7.2	38.4	0.0	39.6	39.7	54.0	14.4	14.3
3	9748.00	32.7	32.7	38.4	7.9	37.0	0.0	42.0	42.0	54.0	12.0	12.0
4	12185.00	33.8	33.9	39.7	8.6	37.7	9.5	34.9	35.0	54.0	19.1	19.0

Sample Calculation :

RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + ATT + Duty Factor - Distance Factor

Distance Factor calculation: $20 \cdot \log(3.0[m]/1.0[m]) = 9.5[dB]$

DATA OF RADIATION TEST (Above 1GHz)

UL Japan, Inc.
Shonan NO.3 Semi Anechoic Chamber
Report No. : 30CE0005-SH-01-B-R2

Company : RICOH COMPANY LTD.
Equipment : Color Laser Printer
Model No. : Aficio SP C431DN
Serial No. : S9491117004
Power : AC120V/60Hz
Mode : Transmitting (802.11b 2462MHz)

Regulation : FCC Part15C Section 15.247
Test Distance : 1-10GHz: 3m, 10GHz-40GHz: 1m
Date : 2010/1/14 2010/1/15
Temperature : 19deg.C 20deg.C
Humidity : 26% 25%

ENGINEER : Hikaru Shirasawa

PK DETECT

No.	FREQ [MHz]	READING		ANT Factor [dB]	CABLE LOSS [dB]	AMP GAIN [dB]	Distance Factor [dB]	RESULT		LIMIT [dBuV/m]	MARGIN	
		HOR [dBuV]	VER [dBuV]					HOR [dBuV/m]	VER [dBuV/m]		HOR [dB]	VER [dB]
1	2483.50	50.0	48.2	27.9	13.6	39.8	0.0	51.7	49.9	74.0	22.3	24.1
2	4924.00	48.4	49.8	31.0	5.9	39.4	0.0	45.9	47.3	74.0	28.1	26.7
3	7386.00	46.7	46.8	35.9	7.3	38.5	0.0	51.4	51.5	74.0	22.6	22.5
4	9848.00	44.8	45.8	38.3	8.0	37.0	0.0	54.1	55.1	74.0	19.9	18.9
5	12310.00	47.6	47.2	39.7	8.8	37.5	9.5	49.1	48.7	74.0	24.9	25.3

AV DETECT

No.	FREQ [MHz]	READING		ANT Factor [dB]	CABLE LOSS [dB]	AMP GAIN [dB]	Distance Factor [dB]	RESULT		LIMIT [dBuV/m]	MARGIN	
		HOR [dBuV]	VER [dBuV]					HOR [dBuV/m]	VER [dBuV/m]		HOR [dB]	VER [dB]
1	2483.50	39.2	38.2	27.9	13.6	39.8	0.0	40.9	39.9	54.0	13.1	14.1
2	4924.00	35.7	36.4	31.0	5.9	39.4	0.0	33.2	33.9	54.0	20.8	20.1
3	7386.00	34.2	34.3	35.9	7.3	38.5	0.0	38.9	39.0	54.0	15.1	15.0
4	9848.00	32.2	32.5	38.3	8.0	37.0	0.0	41.5	41.8	54.0	12.5	12.2
5	12310.00	33.7	33.8	39.7	8.8	37.5	9.5	35.2	35.3	54.0	18.8	18.7

Sample Calculation :

RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + ATT + Duty Factor - Distance Factor

Distance Factor calculation: $20 \cdot \log(3.0[m]/1.0[m]) = 9.5[dB]$

DATA OF RADIATION TEST (Above 1GHz)

UL Japan, Inc.
Shonan NO.3 Semi Anechoic Chamber
Report No. : 30CE0005-SH-01-B-R2

Company : RICOH COMPANY LTD.
Equipment : Color Laser Printer
Model No. : Aficio SP C431DN
Serial No. : S9491117004
Power : AC120V/60Hz
Mode : Transmitting (802.11g 2412MHz)

Regulation : FCC Part15C Section 15.247
Test Distance : 1-10GHz: 3m, 10GHz-40GHz: 1m
Date : 2010/1/14 2010/1/15
Temperature : 19deg.C 20deg.C
Humidity : 26% 25%

ENGINEER : Hikaru Shirasawa

PK DETECT

No.	FREQ [MHz]	READING		ANT Factor [dB]	CABLE LOSS [dB]	AMP GAIN [dB]	Distance Factor [dB]	RESULT		LIMIT [dBuV/m]	MARGIN	
		HOR [dBuV]	VER [dBuV]					HOR [dBuV/m]	VER [dBuV/m]		HOR [dB]	VER [dB]
1	2390.00	46.9	45.9	27.6	13.4	39.8	0.0	48.1	47.1	74.0	25.9	26.9
2	2400.00	58.1	65.4	27.6	13.6	39.8	0.0	59.5	66.8	74.0	14.5	7.2
3	4824.00	49.8	58.0	30.7	5.7	39.5	0.0	46.7	54.9	74.0	27.3	19.1
4	7236.00	47.6	47.0	36.0	7.1	38.4	0.0	52.3	51.7	74.0	21.7	22.3
5	9648.00	45.7	45.4	38.4	7.8	36.9	0.0	55.0	54.7	74.0	19.0	19.3
6	12060.00	46.5	47.3	39.7	8.6	37.9	9.5	47.4	48.2	74.0	26.6	25.8

AV DETECT

No.	FREQ [MHz]	READING		ANT Factor [dB]	CABLE LOSS [dB]	AMP GAIN [dB]	Distance Factor [dB]	RESULT		LIMIT [dBuV/m]	MARGIN	
		HOR [dBuV]	VER [dBuV]					HOR [dBuV/m]	VER [dBuV/m]		HOR [dB]	VER [dB]
1	2390.00	34.3	35.6	27.6	13.4	39.8	0.0	35.5	36.8	54.0	18.5	17.2
2	2400.00	42.8	45.7	27.6	13.6	39.8	0.0	44.2	47.1	54.0	9.8	6.9
3	4824.00	35.0	37.8	30.7	5.7	39.5	0.0	31.9	34.7	54.0	22.1	19.3
4	7236.00	34.9	34.9	36.0	7.1	38.4	0.0	39.6	39.6	54.0	14.4	14.4
5	9648.00	32.9	32.9	38.4	7.8	36.9	0.0	42.2	42.2	54.0	11.8	11.8
6	12060.00	33.5	33.6	39.7	8.6	37.9	9.5	34.4	34.5	54.0	19.6	19.5

Sample Calculation :

RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + ATT + Duty Factor - Distance Factor

Distance Factor calculation: $20 \cdot \log(3.0[m]/1.0[m]) = 9.5[dB]$

DATA OF RADIATION TEST (Above 1GHz)

UL Japan, Inc.
Shonan NO.3 Semi Anechoic Chamber
Report No. : 30CE0005-SH-01-B-R2

Company : RICOH COMPANY LTD.
Equipment : Color Laser Printer
Model No. : Aficio SP C431DN
Serial No. : S9491117004
Power : AC120V/60Hz
Mode : Transmitting (802.11g 2437MHz)

Regulation : FCC Part15C Section 15.247
Test Distance : 1-10GHz: 3m, 10GHz-40GHz: 1m
Date : 2010/1/14 2010/1/15
Temperature : 19deg.C 20deg.C
Humidity : 26% 25%

ENGINEER : Hikaru Shirasawa

PK DETECT

No.	FREQ [MHz]	READING		ANT Factor [dB]	CABLE LOSS [dB]	AMP GAIN [dB]	Distance Factor [dB]	RESULT		LIMIT [dBuV/m]	MARGIN	
		HOR [dBuV]	VER [dBuV]					HOR [dBuV/m]	VER [dBuV/m]		HOR [dB]	VER [dB]
1	4874.00	52.0	56.5	30.8	5.7	39.5	0.0	49.0	53.5	74.0	25.0	20.5
2	7311.00	46.8	47.5	36.0	7.2	38.4	0.0	51.6	52.3	74.0	22.4	21.7
3	9748.00	44.9	45.4	38.4	7.9	37.0	0.0	54.2	54.7	74.0	19.8	19.3
4	12185.00	47.5	47.9	39.7	8.6	37.7	9.5	48.6	49.0	74.0	25.4	25.0

AV DETECT

No.	FREQ [MHz]	READING		ANT Factor [dB]	CABLE LOSS [dB]	AMP GAIN [dB]	Distance Factor [dB]	RESULT		LIMIT [dBuV/m]	MARGIN	
		HOR [dBuV]	VER [dBuV]					HOR [dBuV/m]	VER [dBuV/m]		HOR [dB]	VER [dB]
1	4874.00	34.3	35.5	30.8	5.7	39.5	0.0	31.3	32.5	54.0	22.7	21.5
2	7311.00	34.7	33.9	36.0	7.2	38.4	0.0	39.5	38.7	54.0	14.5	15.3
3	9748.00	32.7	32.6	38.4	7.9	37.0	0.0	42.0	41.9	54.0	12.0	12.1
4	12185.00	33.8	33.9	39.7	8.6	37.7	9.5	34.9	35.0	54.0	19.1	19.0

Sample Calculation :

RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + ATT + Duty Factor - Distance Factor

Distance Factor calculation: $20 \cdot \log(3.0[m]/1.0[m]) = 9.5[dB]$

DATA OF RADIATION TEST (Above 1GHz)

UL Japan, Inc.
Shonan NO.3 Semi Anechoic Chamber
Report No. : 30CE0005-SH-01-B-R2

Company : RICOH COMPANY LTD.
Equipment : Color Laser Printer
Model No. : Aficio SP C431DN
Serial No. : S9491117004
Power : AC120V/60Hz
Mode : Transmitting (802.11g 2462MHz)

Regulation : FCC Part15C Section 15.247
Test Distance : 1-10GHz: 3m, 10GHz-40GHz: 1m
Date : 2010/01/14, 2010/01/15
Temperature : 2010/1/14 2010/1/15
Humidity : 19deg.C 20deg.C
: 26% 25%

ENGINEER : Hikaru Shirasawa

PK DETECT

No.	FREQ [MHz]	READING		ANT Factor [dB]	CABLE LOSS [dB]	AMP GAIN [dB]	Distance Factor [dB]	RESULT		LIMIT [dBuV/m]	MARGIN	
		HOR [dBuV]	VER [dBuV]					HOR [dBuV/m]	VER [dBuV/m]		HOR [dB]	VER [dB]
1	2483.50	59.1	48.6	27.9	13.6	39.8	0.0	60.8	50.3	74.0	13.2	23.7
2	4924.00	54.2	55.0	31.0	5.9	39.4	0.0	51.7	52.5	74.0	22.3	21.5
3	7386.00	46.8	47.5	35.9	7.3	38.5	0.0	51.5	52.2	74.0	22.5	21.8
4	9848.00	45.2	45.3	38.3	8.0	37.0	0.0	54.5	54.6	74.0	19.5	19.4
5	12310.00	47.1	47.7	39.7	8.8	37.5	9.5	48.6	49.2	74.0	25.4	24.8

AV DETECT

No.	FREQ [MHz]	READING		ANT Factor [dB]	CABLE LOSS [dB]	AMP GAIN [dB]	Distance Factor [dB]	RESULT		LIMIT [dBuV/m]	MARGIN	
		HOR [dBuV]	VER [dBuV]					HOR [dBuV/m]	VER [dBuV/m]		HOR [dB]	VER [dB]
1	2483.50	35.1	33.9	27.9	13.6	39.8	0.0	36.8	35.6	54.0	17.2	18.4
2	4924.00	38.5	36.0	31.0	5.9	39.4	0.0	36.0	33.5	54.0	18.0	20.5
3	7386.00	34.2	34.3	35.9	7.3	38.5	0.0	38.9	39.0	54.0	15.1	15.0
4	9848.00	32.7	32.6	38.3	8.0	37.0	0.0	42.0	41.9	54.0	12.0	12.1
5	12310.00	33.7	33.8	39.7	8.8	37.5	9.5	35.2	35.3	54.0	18.8	18.7

Sample Calculation :

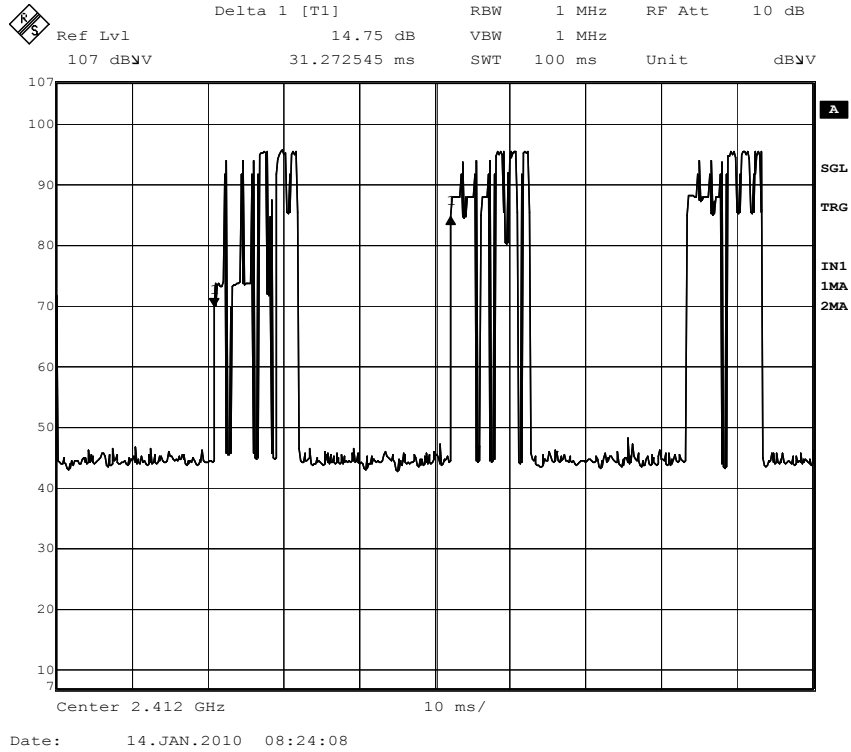
RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + ATT + Duty Factor - Distance Factor

Distance Factor calculation: $20 \cdot \log(3.0[m]/1.0[m]) = 9.5[dB]$

Duty Cycle

COMPANY : RICOH COMPANY LTD.
EQUIPMENT : Color Laser Printer
MODEL NUMBER: Aficio SP C431DN
SERIAL NUMBER: S9491117004
POWER : AC120V/60Hz

REPORT NO : 30CE0005-SH-01-B-R2
DATE : 2010/01/14
TEMP./HUMI : 19deg.C./26%
TEST MODE : Tx IEEE802.11b 2412MHz
ENGINEER : Hikaru Shirasawa



Duty Cycle: 31.273ms

AV Detector VBW: $1000 / 31.273\text{ms} = 32\text{Hz} \rightarrow 100\text{Hz}$

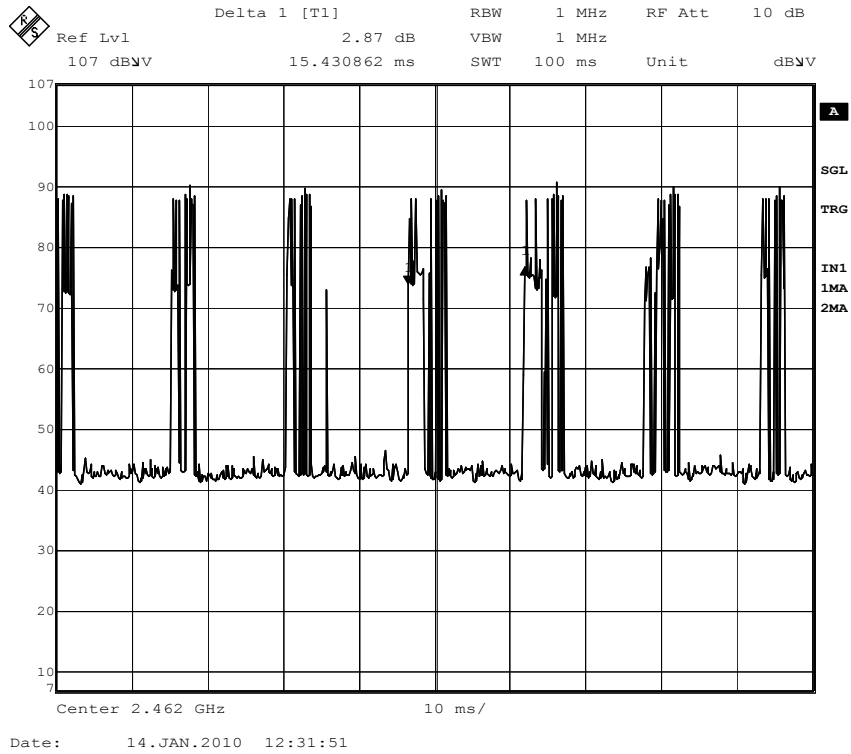
- * All the measured noise was pulse emission.
- * Duty cycle was within 100msec.

This purpose of the Duty Cycle calculation measures the pulse timing that we ensure Spectrum Analyzer can detect the pulse emission correctly. Therefore, If that pulse emission has the intervals during which the transmitter is off for the burst rate, we need to avoid the overlooking at the average value measurement as the similarly when the pulse is less than 20Hz. So if pulse cycle is every 10 msec, we set VBW=100Hz(=1000/10) in order not to overlook a pulse unexpectedly.

Duty Cycle

COMPANY : RICOH COMPANY LTD.
EQUIPMENT : Color Laser Printer
MODEL NUMBER: Aficio SP C431DN
SERIAL NUMBER: S9491117004
POWER : AC120V/60Hz

REPORT NO : 30CE0005-SH-01-B-R2
DATE : 2010/01/14
TEMP./HUMI : 19deg.C./26%
TEST MODE : Tx IEEE802.11g 2462MHz
ENGINEER : Hikaru Shirasawa



Duty Cycle: 15.431ms

AV Detector VBW: $1000 / 15.431\text{ms} = 64.805\text{Hz} \rightarrow 100\text{Hz}$

- * All the measured noise was pulse emission.
- * Duty cycle was within 100msec.

This purpose of the Duty Cycle calculation measures the pulse timing that we ensure Spectrum Analyzer can detect the pulse emission correctly. Therefore, If that pulse emission has the intervals during which the transmitter is off for the burst rate, we need to avoid the overlooking at the average value measurement as the similarly when the pulse is less than 20Hz. So if pulse cycle is every 10 msec, we set VBW=100Hz(=1000/10) in order not to overlook a pulse unexpectedly.

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	2009/02/13 * 12
SAT6-05	Attenuator	JFW	50HF-006N	-	RE	2009/02/13 * 12
SBA-03	Biconical Antenna	Schwarzbeck	BBA9106	91032666	RE	2009/03/20 * 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	2009/04/06 * 12
SLA-03	Logperiodic Antenna	Schwarzbeck	UHALP9108A	UHALP 9108-A0901	RE	2009/03/20 * 12
SOS-05	Humidity Indicator	A&D	AD-5681	4062518	RE	2009/02/04 * 12
STR-02	Test Receiver	Rohde & Schwarz	ESCI	100575	RE	2009/07/24 * 12
SJM-03	Measure	KOMELON	KMC-36	-	RE/CE	-
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	2009/03/26 * 12
SCC-G03	Coaxial Cable	Suhner	SUCOFLEX 104A	46499/4A	RE	2009/04/10 * 12
SCC-G23	Coaxial Cable	Suhner	SUCOFLEX 104	297342/4	RE	2009/05/27 * 12
SHA-03	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-739	RE	2009/08/23 * 12
STR-03	Test Receiver	Rohde & Schwarz	ESI40	100054/040	RE/CE	2009/04/08 * 12
SAF-09	Pre Amplifier	TOYO Corporation	HAP18-26W	00000018	RE	2009/03/27 * 12
SAF-10	Pre Amplifier	TOYO Corporation	HAP26-40W	00000010	RE	2009/06/29 * 12
SHA-05	Horn Antenna	ETS LINDGREN	3160-09	LM4210	RE	2009/04/09 * 12
SHA-06	Horn Antenna	ETS LINDGREN	3160-10	LM3459	RE	2009/04/30 * 12
SFL-02	Highpass Filter	MICRO-TRONICS	HPM50111	051	RE	2009/12/04 * 12
SFL-03	Highpass Filter	MICRO-TRONICS	HPM50112	028	RE	2009/12/04 * 12
SAT10-04	Attenuator(above1GHz)	Agilent	8493C-010	74863	RE	2009/03/24 * 12
SAT10-05	Attenuator(above1GHz)	Agilent	8493C-010	74864	RE	2009/03/24 * 12
SCC-G18	Coaxial Cable	Suhner	SUCOFLEX 104A	46292/4A	RE	2009/03/24 * 12
SCC-G19	Coaxial Cable	Suhner	SUCOFLEX 102A	1188/2A	RE	2009/03/13 * 12
SLP-02	Loop Antenna	Rohde & Schwarz	HFH2-Z2	100218	RE	2009/10/06 * 12
SCC-C9/C10/SRSE-03	Coaxial Cable&RF Selector	Suhner/Suhner/TOYO	RG223U/141PE/NS4906	-/0901-271(RF Selector)	CE	2009/04/06 * 12
SLS-05	LISN	Rohde & Schwarz	ENV216	100516	CE(AE)	2009/02/25 * 12
SOS-06	Humidity Indicator	A&D	AD-5681	4062118	CE	2009/02/04 * 12
STM-05	Terminator	TME	CT-01 BP	-	CE	2010/01/08 * 12
SHF-02	Highpass Filter	Rohde & Schwarz	EZ-25	100022	CE	2009/03/13 * 12
SCC-03	Coaxial Cable	Fujikura	5D2W	-	CE	2009/06/12 * 12
SLS-07	LISN	Schwarzbeck	NSLK8126	8126441	CE(EUT)	2009/04/02 * 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 .

Test Item :

CE: Conducted emission,
RE: Radiated emission,

APPENDIX 4: Similar model description

1.model difference specification

Model (RICOH)	Print speed/minutes	HDD Unit
Aficio SP C430DN	35	Option
Aficio SP C431DN	40	Standard mounting

Print speed/minutes are A4 size print.

The difference is printing speed and HDD Unit as above.

2. model name by brand

Model (RICOH)	Brand name	OEM model
Aficio SP C430DN	Nashuatec	SP C430DN
	Rex-Rotary	SP C430DN
	Gestetner	SP C430DN
	Lanier	SP C430DN
Aficio SP C431DN	Nashuatec	SP C431DN
	Rex-Rotary	SP C431DN
	Gestetner	SP C431DN
	Lanier	SP C431DN