

APPENDIX 2: Data of EMI test

Conducted Emission

Transmitting 121.21kHz

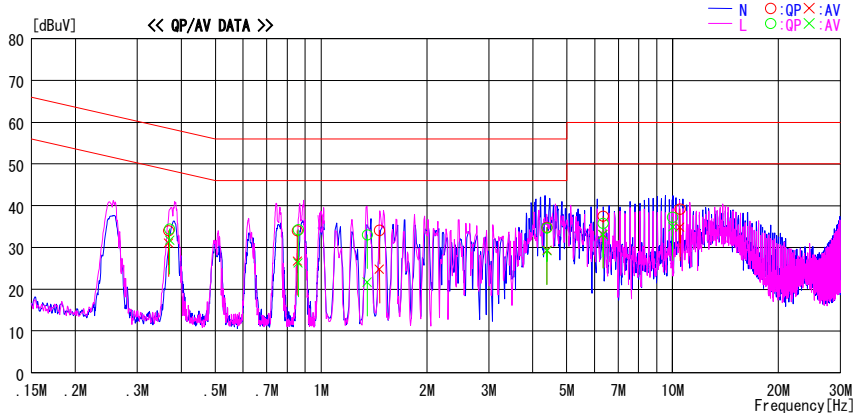
DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.4 Semi Anechoic Chamber
Date : 2008/08/22

Company : SEIKO EPSON CORPORATION
Kind of EUT : Contact-less power transmission module
Model No. : S4E964000110000
Serial No. : 003
Report No. : 28KE0185-HO-01
Power : DC5.4V (AC120V / 60Hz)
Temp./Humi. : 25deg.C / 58%
Engineer : Takayuki Shimada

Mode / Remarks : Transmitting 121.21kHz Cable:11cm

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]		
0.36794	33.6	30.7	0.4	34.0	31.1	58.5	48.5	24.5	17.4	N	
0.37090	34.0	31.3	0.4	34.4	31.7	58.5	48.5	24.1	16.8	L	
0.85592	33.6	26.3	0.4	34.0	26.7	56.0	46.0	22.0	19.3	N	
0.86080	33.9	25.9	0.4	34.3	26.3	56.0	46.0	21.7	19.7	L	
1.35260	32.6	21.2	0.5	33.1	21.7	56.0	46.0	22.9	24.3	L	
1.46388	33.6	24.3	0.5	34.1	24.8	56.0	46.0	21.9	21.2	N	
4.39218	33.6	28.1	1.2	34.8	29.3	56.0	46.0	21.2	16.7	N	
4.39164	33.5	28.0	1.2	34.7	29.2	56.0	46.0	21.3	16.8	L	
6.34314	36.0	31.7	1.5	37.5	33.2	60.0	50.0	22.5	16.8	N	
6.34288	34.3	31.6	1.5	35.8	33.1	60.0	50.0	24.2	16.9	L	
10.00292	35.1	32.8	2.2	37.3	35.0	60.0	50.0	22.7	15.0	L	
10.49060	36.9	32.6	2.3	39.2	34.9	60.0	50.0	20.8	15.1	N	

CHART: WITH FACTOR, Peak hold data. CALCULATION: RESULT [dBuV]=READING [dBuV]+C.F [dB] (L1SN LOSS+CABLE LOSS)
Except for the above table : adequate margin data below the limits.

*The test result is rounded off to one or two decimal places, so some differences might be observed.

Conducted Emission
Reference Data
 Transmitting 121.21kHz

DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No. 4 Semi Anechoic Chamber
 Date : 2008/08/22

Company	: SEIKO EPSON CORPORATION	Report No.	: 28KE0185-HO-01
Kind of EUT	: Contact-less power transmission module	Power	: DC5.4V (AC120V / 60Hz)
Model No.	: S4E964000110000	Temp./Humi.	: 25deg. C / 58%
Serial No.	: 003	Engineer	: Takayuki Shimada

Mode / Remarks : Transmitting 121.21kHz, Cable:5cm

LIMIT : FCC15.207 QP
FCC15.207 AV

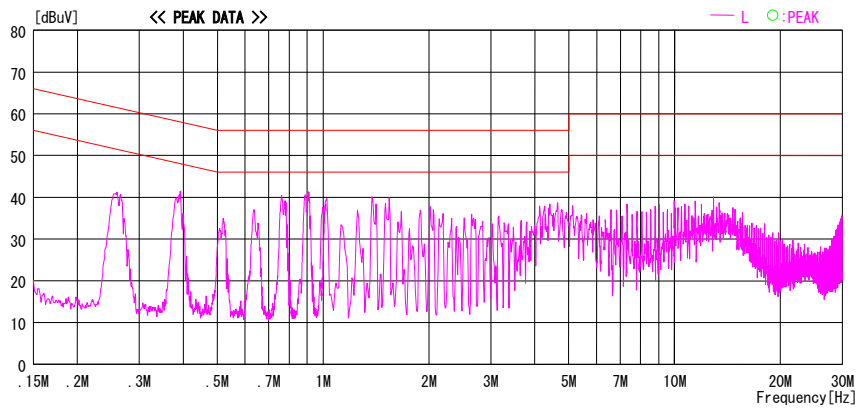
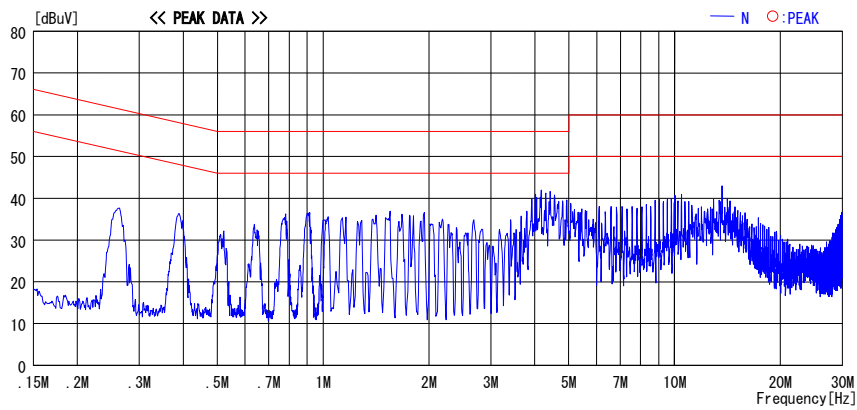


CHART: WITH FACTOR, Peak hold data. CALCURATION: RESULT[dBuV]=READING[dBuV]+C.F[dB] (LISN LOSS+CABLE LOSS)
 Except for the above table : adequate margin data below the limits.

Conducted Emission
 Transmitting 129.03kHz

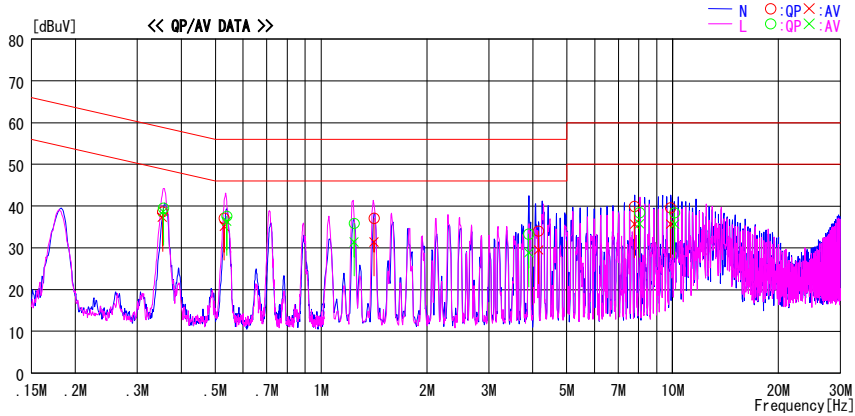
DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No. 4 Semi Anechoic Chamber
 Date : 2008/08/22

Company : SEIKO EPSON CORPORATION
 Kind of EUT : Contact-less power transmission module
 Model No. : S4E964000110000
 Serial No. : 003
 Report No. : 28KE0185-HO-01
 Power : DC5.4V (AC120V / 60Hz)
 Temp./Humi. : 25deg.C / 58%
 Engineer : Takayuki Shimada

Mode / Remarks : Transmitting 129.03kHz, Cable:11cm

LIMIT : FCC15.207 QP
 FCC15.207 AV



Frequency [MHz]	Reading Level		Corr. Factor	Results		Limit		Margin		Phase	Comment
	QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dB]	AV [dB]		
0.35372	38.2	36.9	0.4	38.6	37.3	58.9	48.9	20.3	11.6	N	
0.52993	36.7	34.8	0.4	37.1	35.2	56.0	46.0	18.9	10.8	N	
1.41328	36.6	30.9	0.5	37.1	31.4	56.0	46.0	18.9	14.6	N	
4.15646	32.9	28.4	1.1	34.0	29.5	56.0	46.0	22.0	16.5	N	
7.79288	38.1	33.9	1.8	39.9	35.7	60.0	50.0	20.1	14.3	N	
9.87100	37.5	33.6	2.1	39.6	35.7	60.0	50.0	20.4	14.3	N	
0.35580	39.1	38.3	0.4	39.5	38.7	58.8	48.8	19.3	10.1	L	
0.53889	37.2	35.9	0.4	37.6	36.3	56.0	46.0	18.4	9.7	L	
1.24106	35.4	30.9	0.5	35.9	31.4	56.0	46.0	20.1	14.6	L	
3.89650	32.3	27.8	1.0	33.3	28.8	56.0	46.0	22.7	17.2	L	
8.05270	36.6	33.9	1.9	38.5	35.8	60.0	50.0	21.5	14.2	L	
10.13080	36.2	33.5	2.2	38.4	35.7	60.0	50.0	21.6	14.3	L	

CHART: WITH FACTOR, Peak hold data. CALCULATION: RESULT[dBuV]=READING[dBuV]+C.F[dB] (LISN LOSS+CABLE LOSS)
 Except for the above table : adequate margin data below the limits.

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Conducted Emission
 Transmitting 114.29kHz

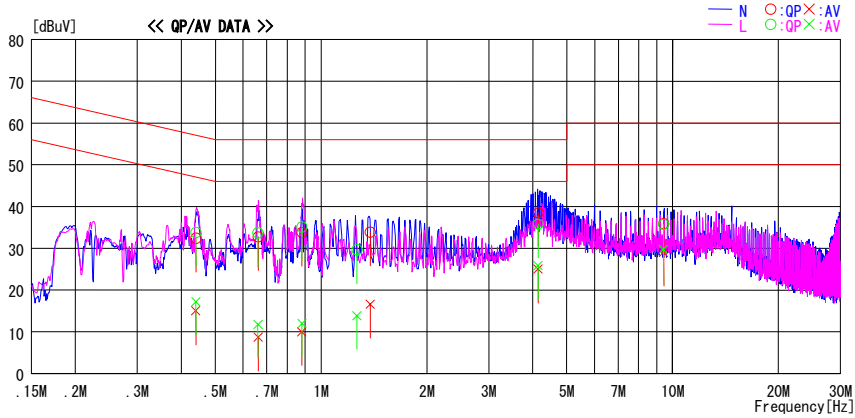
DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No. 4 Semi Anechoic Chamber
 Date : 2008/08/22

Company : SEIKO EPSON CORPORATION
 Kind of EUT : Contact-less power transmission module
 Model No. : S4E964000110000
 Serial No. : 003
 Report No. : 28KE0185-HO-01
 Power : DC5.4V (AC120V / 60Hz)
 Temp./Humi. : 25deg. C / 58%
 Engineer : Takayuki Shimada

Mode / Remarks : Transmitting 114.29kHz, Cable:11cm

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]		
0.44020	32.0	14.6	0.4	32.4	15.0	57.1	47.1	24.7	32.1	N	
0.66240	32.3	8.3	0.4	32.7	8.7	56.0	46.0	23.3	37.3	N	
0.88168	33.4	9.6	0.4	33.8	10.0	56.0	46.0	22.2	36.0	N	
1.38050	33.4	16.1	0.5	33.9	16.6	56.0	46.0	22.1	29.4	N	
4.14090	37.5	24.0	1.0	38.5	25.0	56.0	46.0	17.5	21.0	N	
9.43170	33.9	27.0	2.0	35.9	29.0	60.0	50.0	24.1	21.0	N	
0.44039	33.4	16.8	0.4	33.8	17.2	57.1	47.1	23.3	29.9	L	
0.66100	33.3	11.4	0.4	33.7	11.8	56.0	46.0	22.3	34.2	L	
0.88266	34.7	11.6	0.4	35.1	12.0	56.0	46.0	20.9	34.0	L	
1.26530	29.2	13.4	0.5	29.7	13.9	56.0	46.0	26.3	32.1	L	
4.14040	34.8	24.8	1.0	35.8	25.8	56.0	46.0	20.2	20.2	L	
9.41300	33.7	27.7	2.0	35.7	29.7	60.0	50.0	24.3	20.3	L	

CHART: WITH FACTOR, Peak hold data. CALCULATION: RESULT[dBuV]=READING[dBuV]+C.[dB] (LISN LOSS+CABLE LOSS)
 Except for the above table : adequate margin data below the limits.

*The test result is rounded off to one or two decimal places, so some differences might be observed.

Conducted Emission
Transmitting 121.21kHz/129.03kHz

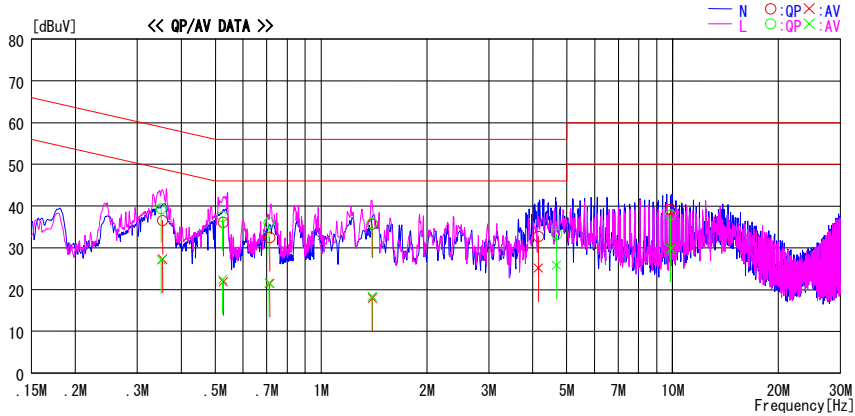
DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.4 Semi Anechoic Chamber
Date : 2008/08/22

Company : SEIKO EPSON CORPORATION
Kind of EUT : Contact-less power transmission module
Model No. : S4E964000110000
Serial No. : 003
Report No. : 28KE0185-HO-01
Power : DC5.4V (AC120V / 60Hz)
Temp./Humi. : 25deg.C / 58%
Engineer : Takayuki Shimada

Mode / Remarks : Transmitting 121.21kHz/129.03kHz, PN9, Cable:11cm

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]		
0.35400	36.1	26.9	0.4	36.5	27.3	58.9	48.9	22.4	21.6	N	
0.52680	35.7	21.5	0.4	36.1	21.9	56.0	46.0	19.9	24.1	N	
0.71380	32.1	21.1	0.4	32.5	21.5	56.0	46.0	23.5	24.5	N	
1.40016	35.2	17.5	0.5	35.7	18.0	56.0	46.0	20.3	28.0	N	
4.15110	31.6	24.1	1.1	32.7	25.2	56.0	46.0	23.3	20.8	N	
9.86980	37.1	28.0	2.1	39.2	30.1	60.0	50.0	20.8	19.9	N	
0.35076	39.0	26.7	0.4	39.4	27.1	58.9	48.9	19.5	21.8	L	
0.52434	37.1	22.0	0.4	37.5	22.4	56.0	46.0	18.5	23.6	L	
0.71060	35.6	21.2	0.4	36.0	21.6	56.0	46.0	20.0	24.4	L	
1.39720	35.4	17.9	0.5	35.9	18.4	56.0	46.0	20.1	27.6	L	
4.67599	32.0	24.5	1.3	33.3	25.8	56.0	46.0	22.7	20.2	L	
9.86992	35.8	27.6	2.1	37.9	29.9	60.0	50.0	22.1	20.1	L	

CHART: WITH FACTOR, Peak hold data. CALCULATION: RESULT[dBuV]=READING[dBuV]+C.F[dB] (LISN LOSS+CABLE LOSS)
Except for the above table : adequate margin data below the limits.

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Conducted Emission
Power Transfer 121.21kHz

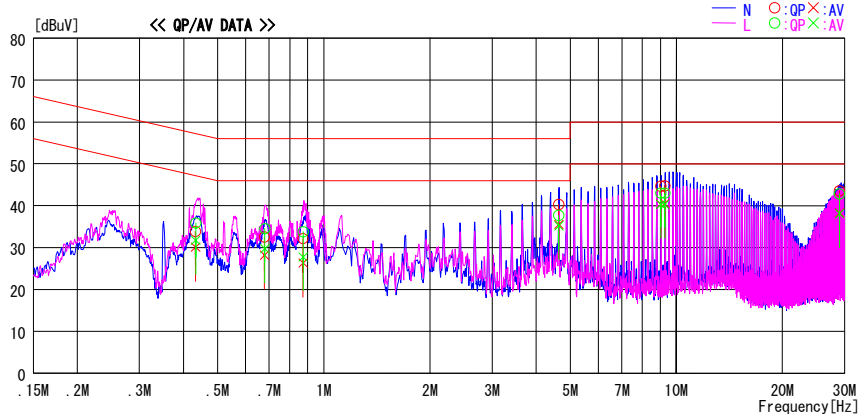
DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.4 Semi Anechoic Chamber
Date : 2008/08/22

Company : SEIKO EPSON CORPORATION
Kind of EUT : Contact-less power transmission module
Model No. : S4E964000110000
Serial No. : 003
Report No. : 28KE0185-HO-01
Power : DC5.4V (AC120V / 60Hz)
Temp./Humi. : 25deg.C / 56%
Engineer : Akio Hayashi

Mode / Remarks : Power Transfer 121.21kHz, Cable(Pri.:11cm, Sec.:20cm(Wire))

LIMIT : FCC15.207 QP
FCC15.207 AV



Frequency [MHz]	Reading Level		Corr. Factor	Results		Limit		Margin		Phase	Comment
	QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dB]	AV [dB]		
0.43278	33.5	29.7	0.4	33.9	30.1	57.2	47.2	23.3	17.1	N	
0.43338	35.5	31.3	0.4	35.9	31.7	57.2	47.2	21.3	15.5	L	
0.67884	32.2	27.8	0.4	32.6	28.2	56.0	46.0	23.4	17.8	N	
0.68004	34.1	29.3	0.4	34.5	29.7	56.0	46.0	21.5	16.3	L	
0.87333	31.8	25.9	0.4	32.2	26.3	56.0	46.0	23.8	19.7	N	
0.87426	33.4	27.4	0.4	33.8	27.8	56.0	46.0	22.2	18.2	L	
4.63726	36.4	33.9	1.3	37.7	35.2	56.0	46.0	18.3	10.8	L	
4.63736	39.0	34.2	1.3	40.3	35.5	56.0	46.0	15.7	10.5	N	
9.03080	41.0	38.3	2.0	43.0	40.3	60.0	50.0	17.0	9.7	L	
9.03120	42.7	38.4	2.0	44.7	40.4	60.0	50.0	15.3	9.6	N	
9.27470	41.0	38.3	2.0	43.0	40.3	60.0	50.0	17.0	9.7	L	
9.27491	42.8	38.5	2.0	44.8	40.5	60.0	50.0	15.2	9.5	N	
29.04490	37.6	32.3	6.0	43.6	38.3	60.0	50.0	16.4	11.7	N	
29.04520	36.8	32.1	6.0	42.8	38.1	60.0	50.0	17.2	11.9	L	

CHART: WITH FACTOR, Peak hold data. CALCULATION: RESULT [dBuV] = READING [dBuV] + C. F. [dB] (L: ISN LOSS + CABLE LOSS)
Except for the above table : adequate margin data below the limits.

*The test result is rounded off to one or two decimal places, so some differences might be observed.

Conducted Emission
Reference Data
 Power Transfer 121.21kHz

DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No. 4 Semi Anechoic Chamber
 Date : 2008/08/22

Company	: SEIKO EPSON CORPORATION	Report No.	: 28KE0185-HO-01
Kind of EUT	: Contact-less power transmission module	Power	: DC5.4V (AC120V / 60Hz)
Model No.	: S4E964000110000	Temp./Humi.	: 25deg.C / 58%
Serial No.	: 003	Engineer	: Takayuki Shimada

Mode / Remarks : Power Transfer 121.21kHz, Cable(Pri.:5cm, Sec.:20cm(Wire))

LIMIT : FCC15.207 QP
FCC15.207 AV

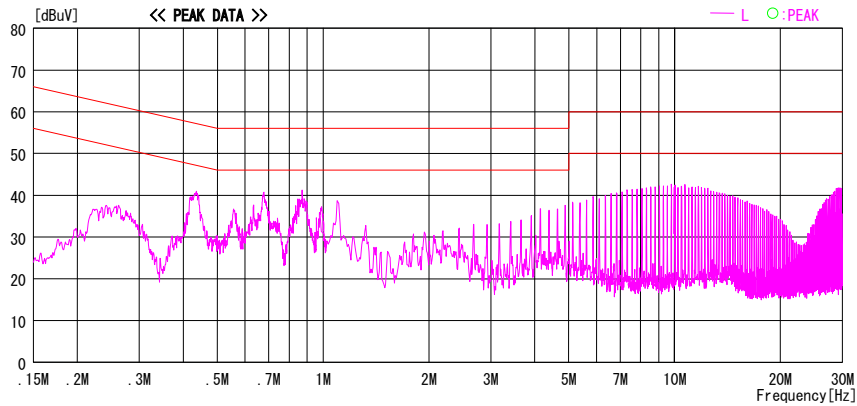
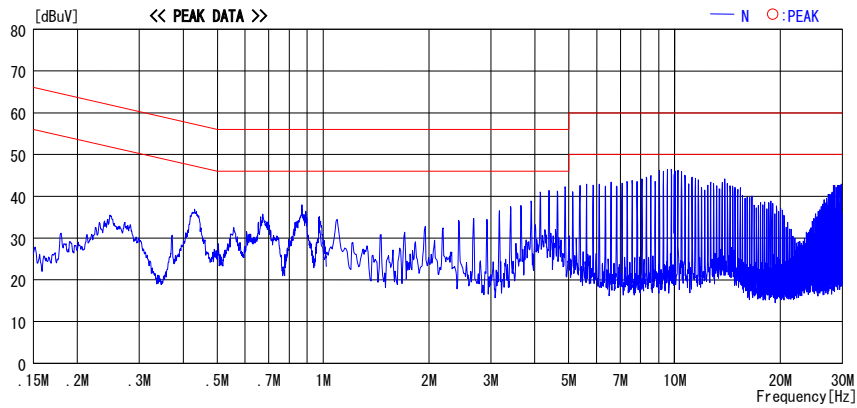


CHART: WITH FACTOR, Peak hold data. CALCULATION: RESULT[dBuV]=READING[dBuV]+C.F[dB] (LISN LOSS+CABLE LOSS)
 Except for the above table : adequate margin data below the limits.

Conducted Emission
Reference Data
 Power Transfer 121.21kHz

DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No. 4 Semi Anechoic Chamber
 Date : 2008/08/22

Company	: SEIKO EPSON CORPORATION	Report No.	: 28KE0185-HO-01
Kind of EUT	: Contact-less power transmission module	Power	: DC5.4V (AC120V / 60Hz)
Model No.	: S4E964000110000	Temp./Humi.	: 25deg.C / 58%
Serial No.	: 003	Engineer	: Takayuki Shimada

Mode / Remarks : Power Transfer 121.21kHz, Cable(Pri.:11cm, Sec.:20cm(PCB))

LIMIT : FCC15.207 QP
FCC15.207 AV

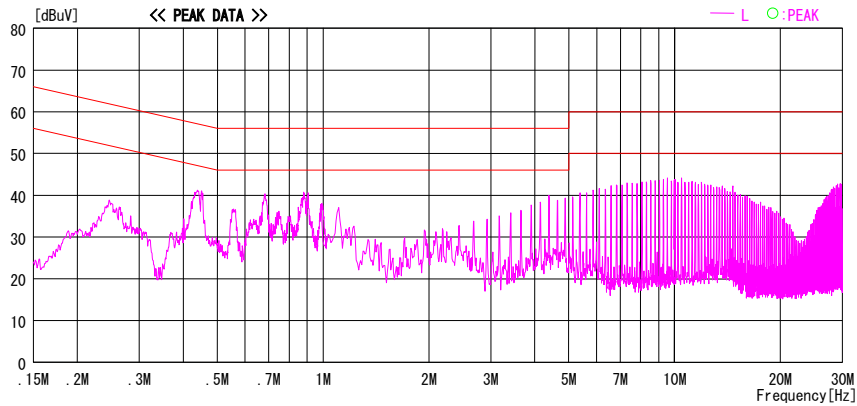
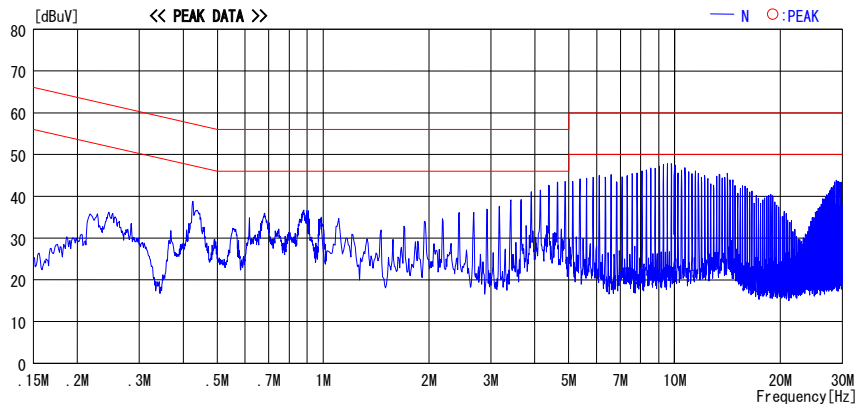


CHART: WITH FACTOR, Peak hold data. CALCULATION: RESULT[dBuV]=READING[dBuV]+C.F[dB] (LISN LOSS+CABLE LOSS)
 Except for the above table : adequate margin data below the limits.

Conducted Emission
Reference Data
 Power Transfer 121.21kHz

DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No. 4 Semi Anechoic Chamber
 Date : 2008/08/22

Company	: SEIKO EPSON CORPORATION	Report No.	: 28KE0185-HO-01
Kind of EUT	: Contact-less power transmission module	Power	: DC5.4V (AC120V / 60Hz)
Model No.	: S4E964000110000	Temp./Humi.	: 25deg.C / 58%
Serial No.	: 003	Engineer	: Takayuki Shimada

Mode / Remarks : Power Transfer 121.21kHz, Cable(Pri.:11cm, Sec.:10cm(Wire))

LIMIT : FCC15.207 QP
FCC15.207 AV

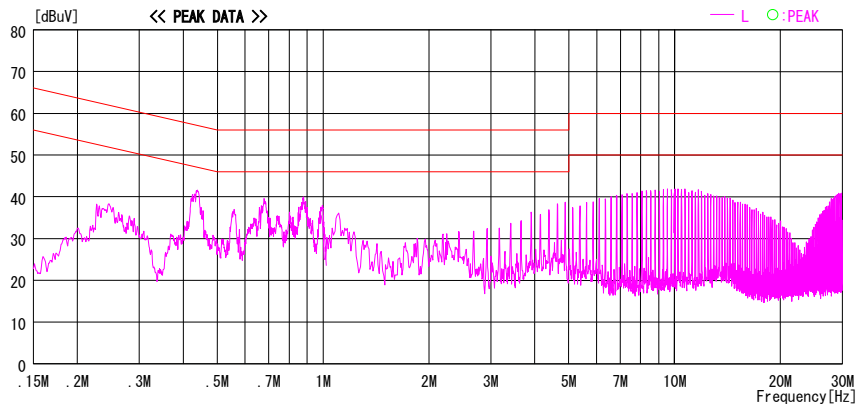
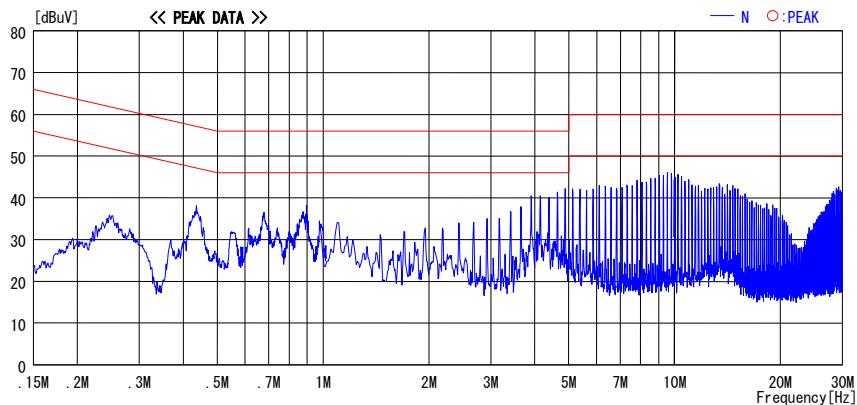


CHART: WITH FACTOR, Peak hold data. CALCULATION: RESULT[dBuV]=READING[dBuV]+C.F[dB] (LISN LOSS+CABLE LOSS)
 Except for the above table : adequate margin data below the limits.

Conducted Emission
Reference Data
 Power Transfer 121.21kHz

DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No. 4 Semi Anechoic Chamber
 Date : 2008/08/22

Company	: SEIKO EPSON CORPORATION	Report No.	: 28KE0185-HO-01
Kind of EUT	: Contact-less power transmission module	Power	: DC5.4V (AC120V / 60Hz)
Model No.	: S4E964000110000	Temp./Humi.	: 25deg.C / 58%
Serial No.	: 003	Engineer	: Takayuki Shimada

Mode / Remarks : Power Transfer 121.21kHz, Cable(Pri.:11cm, Sec.:10cm(PCB))

LIMIT : FCC15.207 QP
FCC15.207 AV

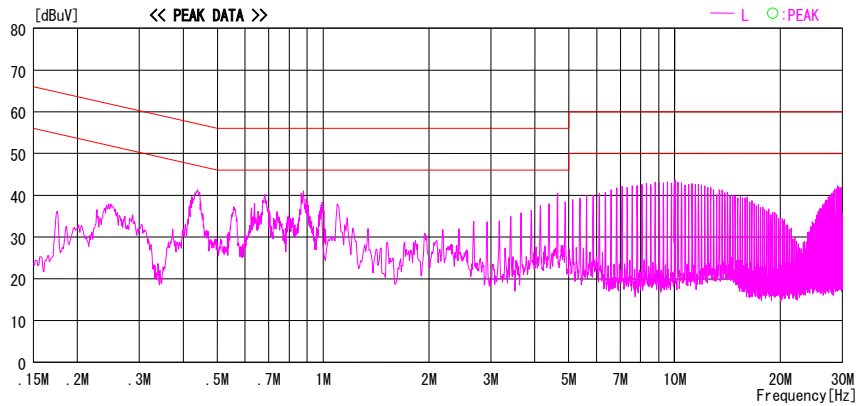
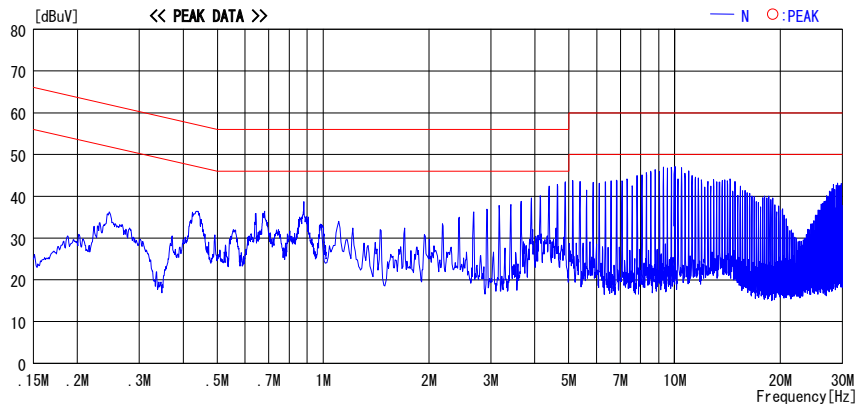


CHART: WITH FACTOR, Peak hold data. CALCURATION: RESULT[dBuV]=READING[dBuV]+C.F[dB] (LISN LOSS+CABLE LOSS)
 Except for the above table : adequate margin data below the limits.

Conducted Emission
Reference Data
 Power Transfer 121.21kHz

DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No. 4 Semi Anechoic Chamber
 Date : 2008/08/22

Company	: SEIKO EPSON CORPORATION	Report No.	: 28KE0185-HO-01
Kind of EUT	: Contact-less power transmission module	Power	: DC5.4V (AC120V / 60Hz)
Model No.	: S4E964000110000	Temp./Humi.	: 25deg.C / 58%
Serial No.	: 003	Engineer	: Takayuki Shimada

Mode / Remarks : Power Transfer 121.21kHz, Cable(Pri.:11cm, Sec.:5cm(Wire))

LIMIT : FCC15.207 QP
FCC15.207 AV

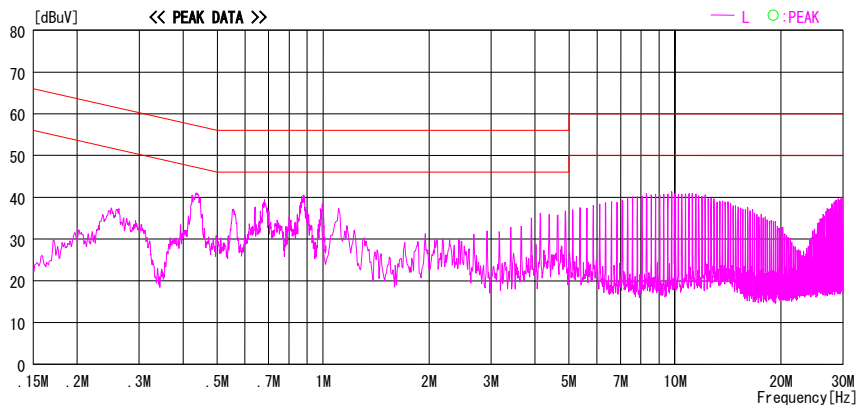
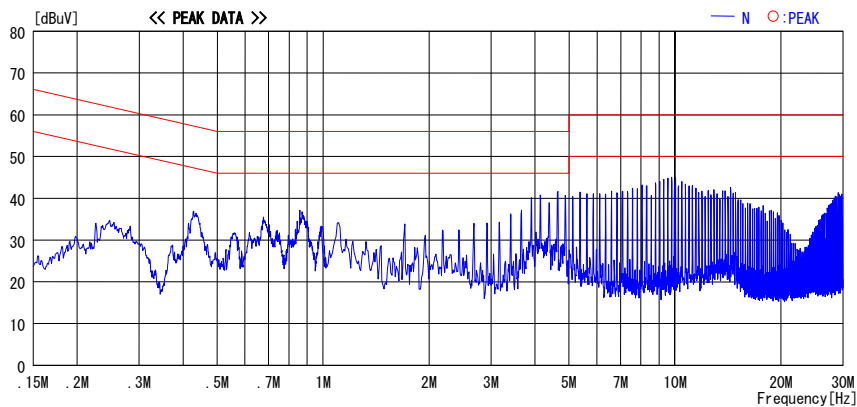


CHART: WITH FACTOR, Peak hold data. CALCULATION: RESULT[dBuV]=READING[dBuV]+C.F[dB] (LISN LOSS+CABLE LOSS)
 Except for the above table : adequate margin data below the limits.

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 Power Transfer 121.21kHz

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UL Japan, Inc. Head Office EMC Lab. No. 4 Semi Anechoic Chamber
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Company	: SEIKO EPSON CORPORATION	Report No.	: 28KE0185-HO-01
Kind of EUT	: Contact-less power transmission module	Power	: DC5.4V (AC120V / 60Hz)
Model No.	: S4E964000110000	Temp./Humi.	: 25deg.C / 58%
Serial No.	: 003	Engineer	: Takayuki Shimada

Mode / Remarks : Power Transfer 121.21kHz, Cable(Pri.:11cm, Sec.:5cm(PCB))

LIMIT : FCC15.207 QP
FCC15.207 AV

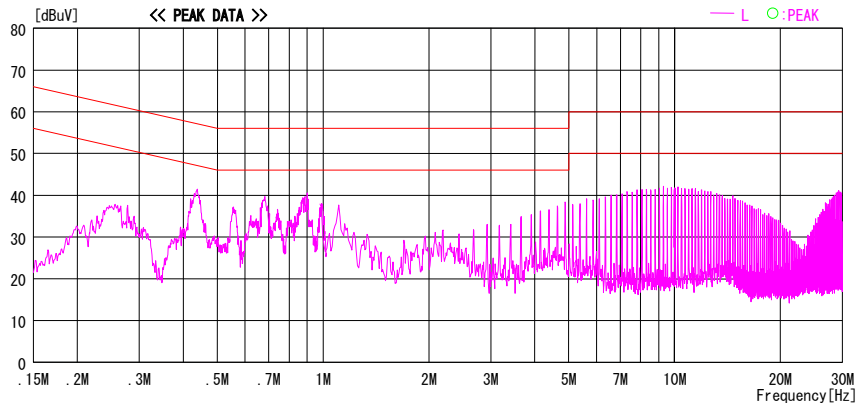
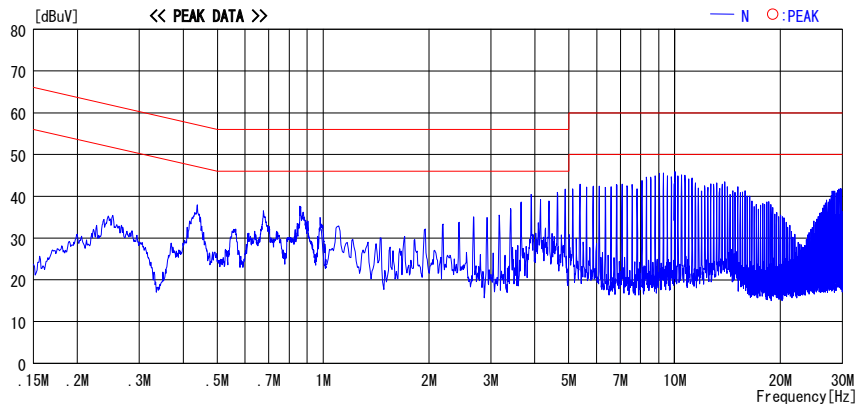


CHART: WITH FACTOR, Peak hold data. CALCURATION: RESULT[dBuV]=READING[dBuV]+C.F[dB] (LISN LOSS+CABLE LOSS)
 Except for the above table : adequate margin data below the limits.

Conducted Emission
Reference Data
 Power Transfer 121.21kHz

DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No. 4 Semi Anechoic Chamber
 Date : 2008/08/22

Company	: SEIKO EPSON CORPORATION	Report No.	: 28KE0185-HO-01
Kind of EUT	: Contact-less power transmission module	Power	: DC5.4V (AC120V / 60Hz)
Model No.	: S4E964000110000	Temp./Humi.	: 25deg.C / 58%
Serial No.	: 003	Engineer	: Takayuki Shimada

Mode / Remarks : Power Transfer 121.21kHz, Cable(Pri.:11cm, Sec.:Direct)

LIMIT : FCC15.207 QP
FCC15.207 AV

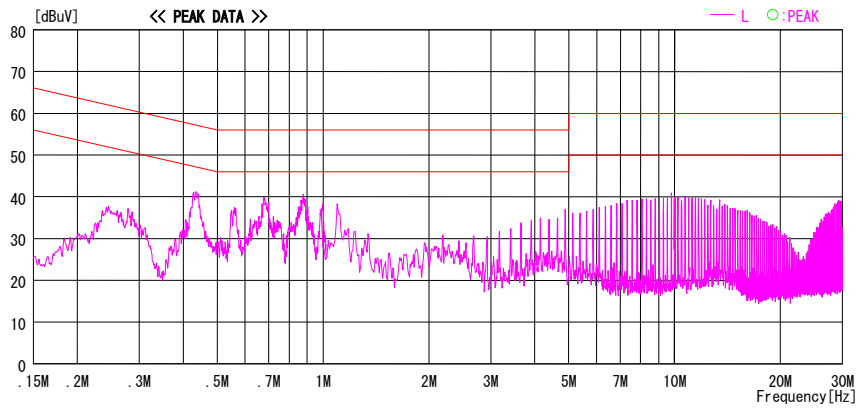
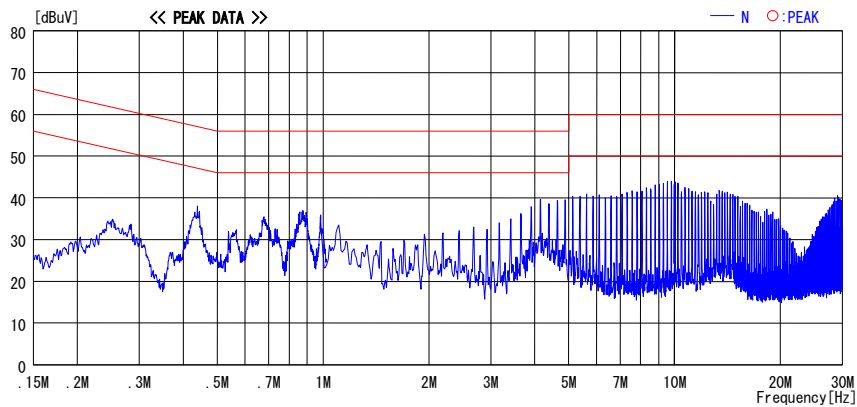


CHART: WITH FACTOR, Peak hold data. CALCULATION: RESULT[dBuV]=READING[dBuV]+C.F[dB] (LISN LOSS+CABLE LOSS)
 Except for the above table : adequate margin data below the limits.

Conducted Emission
Power Transfer 121.21kHz, Max load

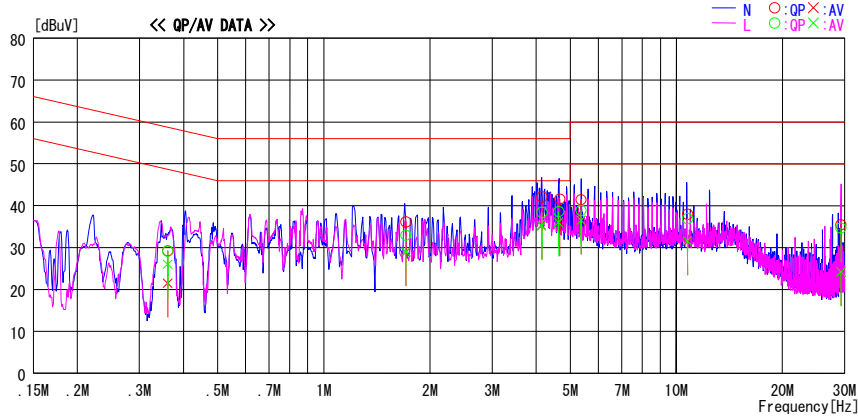
DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.4 Semi Anechoic Chamber
Date : 2008/08/22

Company : SEIKO EPSON CORPORATION
Kind of EUT : Contact-less power transmission module
Model No. : S4E964000110000
Serial No. : 003
Report No. : 28KE0185-HO-01
Power : DC5.4V (AC120V / 60Hz)
Temp./Humi. : 25deg.C / 56%
Engineer : Akio Hayashi

Mode / Remarks : Power Transfer 121.21kHz, Cable(Pri.:11cm, Sec.:20cm(Wire)), Max Load

LIMIT : FCC15.207 QP
FCC15.207 AV



Frequency [MHz]	Reading Level		Corr. Factor	Results		Limit		Margin		Phase
	QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dB]	AV [dB]	
0.36078	28.9	21.1	0.4	29.3	21.5	58.7	48.7	29.4	27.2	N
0.36078	28.8	25.6	0.4	29.2	26.0	58.7	48.7	29.5	22.7	L
1.70823	32.4	28.4	0.6	33.0	29.0	56.0	46.0	23.0	17.0	L
1.70833	35.5	28.3	0.6	36.1	28.9	56.0	46.0	19.9	17.1	N
4.14849	37.4	34.1	1.1	38.5	35.2	56.0	46.0	17.5	10.8	L
4.14859	41.1	34.2	1.1	42.2	35.3	56.0	46.0	13.8	10.7	N
4.63619	37.3	34.7	1.3	38.6	36.0	56.0	46.0	17.4	10.0	L
4.66365	40.3	34.8	1.3	41.6	36.1	56.0	46.0	14.4	9.9	N
5.36865	37.5	35.1	1.4	38.9	36.5	60.0	50.0	21.1	13.5	L
5.36875	40.1	35.1	1.4	41.5	36.5	60.0	50.0	18.5	13.5	N
10.73752	34.5	29.2	2.4	36.9	31.6	60.0	50.0	23.1	18.4	L
10.73761	35.6	29.1	2.4	38.0	31.5	60.0	50.0	22.0	18.5	N
29.28405	29.5	18.2	6.0	35.5	24.2	60.0	50.0	24.5	25.8	N
29.28415	28.7	18.2	6.0	34.7	24.2	60.0	50.0	25.3	25.8	L

CHART: WITH FACTOR, Peak hold data. CALCULATION: RESULT [dBuV] = READING [dBuV] + C.F [dB] (LISN LOSS + CABLE LOSS)
Except for the above table : adequate margin data below the limits.

*The test result is rounded off to one or two decimal places, so some differences might be observed.

Conducted Emission

Reference Data

Power Transfer 121.21kHz, Max load

DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No. 4 Semi Anechoic Chamber
Date : 2008/08/22

Company : SEIKO EPSON CORPORATION	Report No. : 28KE0185-HO-01
Kind of EUT : Contact-less power transmission module	Power : DC5.4V (AC120V / 60Hz)
Model No. : S4E964000110000	Temp./Humi. : 25deg.C / 58%
Serial No. : 003	Engineer : Takayuki Shimada

Mode / Remarks : Power Transfer 121.21kHz, Cable(Pri.:11cm, Sec.:20cm(PCB)), Max Load

LIMIT : FCC15.207 QP
FCC15.207 AV

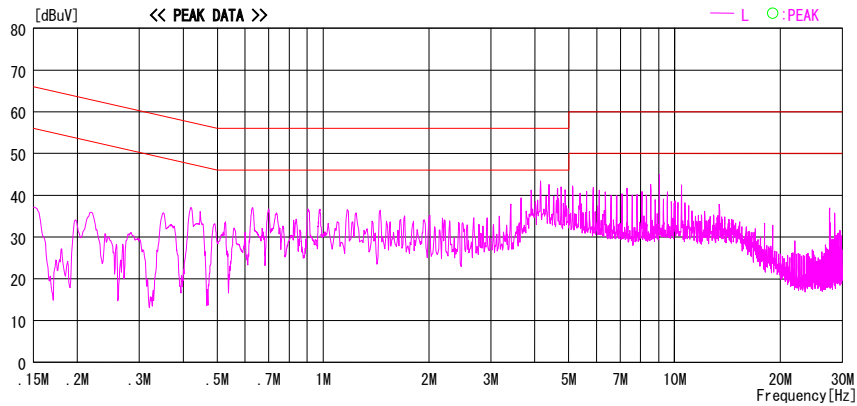
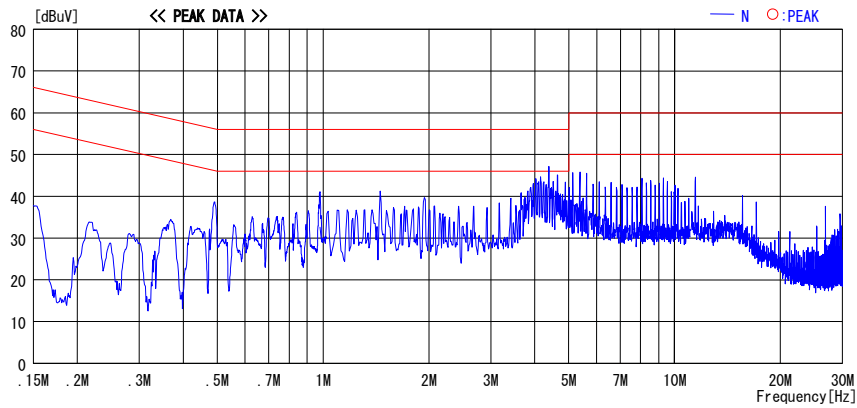


CHART: WITH FACTOR, Peak hold data. CALCULATION: RESULT[dBuV]=READING[dBuV]+C.F[dB] (LISN LOSS+CABLE LOSS)
Except for the above table : adequate margin data below the limits.

Radiated Emission below 30MHz (Fundamental and Spurious Emission)
Transmitting 121.21kHz

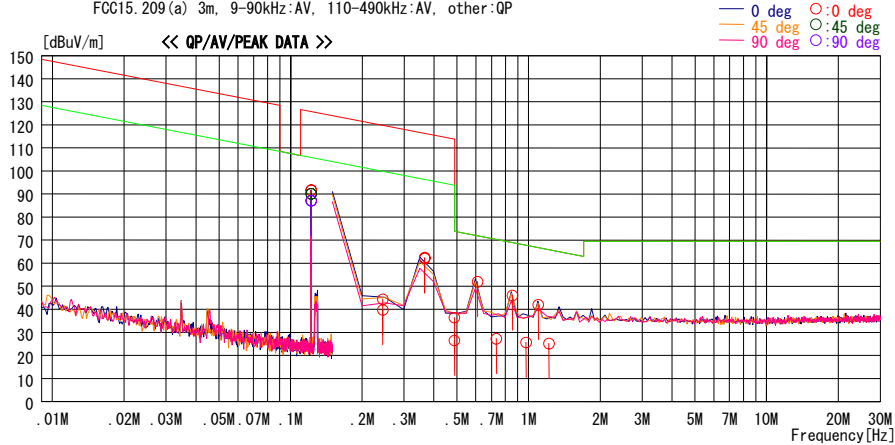
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2008/08/21

Company : SEIKO EPSON CORPORATION
Kind of EUT : Contact-less power transmission module
Model No. : S4E964000110000
Serial No. : 003
Report No. : 28KE0185-HO-01
Power : DC5.4V (AC120V / 60Hz)
Temp./ Humi. : 25deg. C. / 58%
Engineer : Takayuki Shimada

Mode / Remarks : Transmitting 121.21kHz, Max-axis, Cable:11cm

LIMIT : FCC15.209(a) 3m, 9-90kHz:PK, 110-490kHz:PK, other:QP
FCC15.209(a) 3m, 9-90kHz:AV, 110-490kHz:AV, other:QP



Freq.	Reading	DET	Ant. Fac	Loss	Gain	Result	Limit	Margin	Antenna	Table	Comment
[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]		[deg]	
0.12200	71.3	PEAK	20.3	0.1	0.0	91.7	125.8	34.1	0deg	359	
0.12200	71.3	AV	20.3	0.1	0.0	91.7	105.9	14.2	0deg	359	
0.12200	69.8	PEAK	20.3	0.1	0.0	90.2	125.8	35.6	45deg	329	
0.12200	69.8	AV	20.3	0.1	0.0	90.2	105.9	15.7	45deg	329	
0.12200	66.8	PEAK	20.3	0.1	0.0	87.2	125.8	38.6	90deg	271	
0.12200	66.8	AV	20.3	0.1	0.0	87.2	105.9	18.7	90deg	271	
0.24398	24.0	PEAK	20.2	0.2	0.0	44.4	119.8	75.4	0deg	87	
0.24398	19.3	AV	20.2	0.2	0.0	39.7	99.9	60.2	0deg	87	
0.36598	42.1	PEAK	20.2	0.2	0.0	62.5	116.3	53.8	0deg	359	
0.36598	41.8	AV	20.2	0.2	0.0	62.2	96.3	34.1	0deg	359	
0.48797	16.0	PEAK	20.2	0.2	0.0	36.4	113.8	77.4	0deg	35	
0.48797	6.2	AV	20.2	0.2	0.0	26.6	93.8	67.2	0deg	35	
0.60996	31.7	QP	20.1	0.2	0.0	52.0	71.9	19.9	0deg	359	
0.73195	7.0	QP	20.1	0.2	0.0	27.3	70.3	43.0	0deg	51	
0.85394	25.8	QP	20.1	0.2	0.0	46.1	68.9	22.8	0deg	359	
0.97597	5.3	QP	20.1	0.2	0.0	25.6	67.8	42.2	0deg	97	
1.09793	21.7	QP	20.1	0.2	0.0	42.0	66.7	24.7	0deg	359	
1.21996	4.8	QP	20.1	0.3	0.0	25.2	65.8	40.6	0deg	92	

CHART : WITH FACTOR , ANT TYPE : LOOP , Except for the data below : adequate margin data below the limits.
CALCULATION : READING + ANT FACTOR + CABLE LOSS

*The test result is rounded off to one or two decimal places, so some differences might be observed.

Radiated Emission below 30MHz (Fundamental and Spurious Emission)

Reference Data
Transmitting 121.21kHz

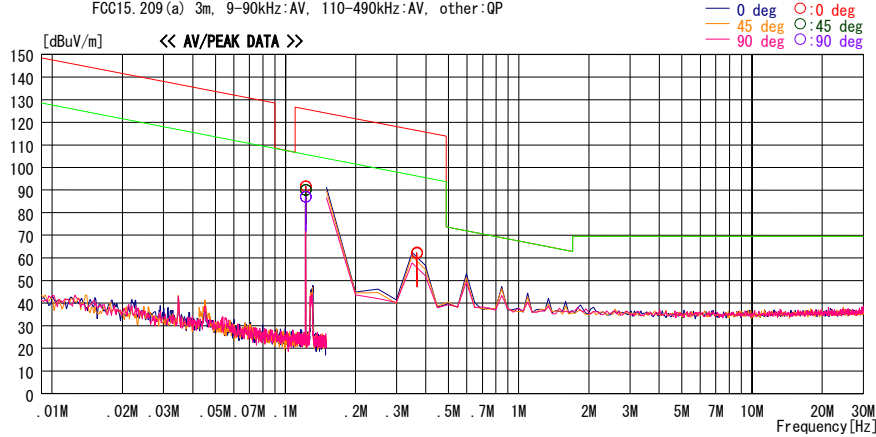
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2008/08/21

Company : SEIKO EPSON CORPORATION
Kind of EUT : Contact-less power transmission module
Model No. : S4E964000110000
Serial No. : 003
Report No. : 28KE0185-HO-01
Power : DC5.4V (AC120V / 60Hz)
Temp./ Humi. : 25deg. C. / 58%
Engineer : Takayuki Shimada

Mode / Remarks : Transmitting 121.21kHz, Max-axis, Cable:5cm

LIMIT : FCC15.209(a) 3m, 9-90kHz:PK, 110-490kHz:PK, other:QP
FCC15.209(a) 3m, 9-90kHz:AV, 110-490kHz:AV, other:QP



Freq.	Reading	DET	Ant. Fac	Loss	Gain	Result	Limit	Margin	Antenna	Table	Comment
[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[deg]		
0.12199	71.3	PEAK	20.3	0.1	0.0	91.7	125.8	34.1	0deg	359	
0.12199	71.3	AV	20.3	0.1	0.0	91.7	105.9	14.2	0deg	359	
0.12199	69.8	PEAK	20.3	0.1	0.0	90.2	125.8	35.6	45deg	333	
0.12199	69.8	AV	20.3	0.1	0.0	90.2	105.9	15.7	45deg	333	
0.12199	66.8	PEAK	20.3	0.1	0.0	87.2	125.8	38.6	90deg	272	
0.12199	66.8	AV	20.3	0.1	0.0	87.2	105.9	18.7	90deg	272	
0.36598	42.1	PEAK	20.2	0.2	0.0	62.5	116.3	53.8	0deg	359	
0.36598	41.8	AV	20.2	0.2	0.0	62.2	96.3	34.1	0deg	359	

CHART : WITH FACTOR , ANT TYPE : LOOP Except for the data below : adequate margin data below the limits.
CALCULATION : READING + ANT FACTOR + CABLE LOSS

*The test result is rounded off to one or two decimal places, so some differences might be observed.

Radiated Emission below 30MHz (Fundamental and Spurious Emission)
Transmitting 129.03kHz

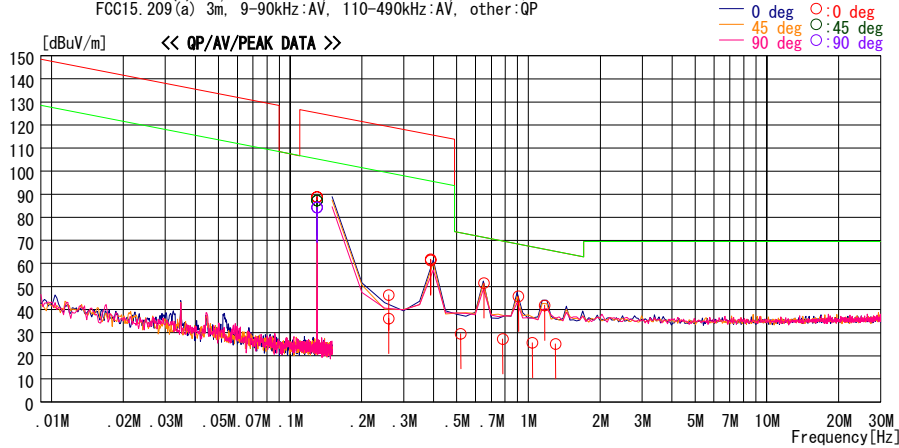
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2008/08/21

Company : SEIKO EPSON CORPORATION Report No. : 28KE0185-HO-01
Kind of EUT : Contact-less power transmission module Power : DC5.4V (AC120V / 60Hz)
Model No. : S4E964000110000 Temp./ Humi. : 25deg. C. / 58%
Serial No. : 003 Engineer : Takayuki Shimada

Mode / Remarks : Transmitting 129.03kHz, Max-axis, Cable:11cm

LIMIT : FCC15.209(a) 3m, 9-90kHz:PK, 110-490kHz:PK, other:QP
FCC15.209(a) 3m, 9-90kHz:AV, 110-490kHz:AV, other:QP



Freq.	Reading	DET	Ant. Fac	Loss	Gain	Result	Limit	Margin	Antenna	Table	Comment
[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]		[deg]	
0.12989	68.4	PEAK	20.3	0.1	0.0	88.8	125.3	36.5	0deg	359	
0.12989	68.4	AV	20.3	0.1	0.0	88.8	105.3	16.5	0deg	359	
0.12989	66.9	PEAK	20.3	0.1	0.0	87.3	125.3	38.0	45deg	332	
0.12989	66.9	AV	20.3	0.1	0.0	87.3	105.3	18.0	45deg	332	
0.12989	63.8	PEAK	20.3	0.1	0.0	84.2	125.3	41.1	90deg	275	
0.12989	63.8	AV	20.3	0.1	0.0	84.2	105.3	21.1	90deg	275	
0.25977	26.0	PEAK	20.2	0.2	0.0	46.4	119.3	72.9	0deg	86	
0.25977	15.7	AV	20.2	0.2	0.0	36.1	99.3	63.2	0deg	86	
0.38966	41.4	PEAK	20.2	0.2	0.0	61.8	115.8	54.0	0deg	359	
0.38966	41.0	AV	20.2	0.2	0.0	61.4	95.8	34.4	0deg	359	
0.51954	9.2	QP	20.2	0.2	0.0	29.6	73.3	43.7	0deg	36	
0.64943	31.3	QP	20.1	0.2	0.0	51.6	71.3	19.7	0deg	359	
0.77932	7.0	QP	20.1	0.2	0.0	27.3	69.7	42.4	0deg	58	
0.90920	25.5	QP	20.1	0.2	0.0	45.8	68.4	22.6	0deg	359	
1.03909	5.3	QP	20.1	0.2	0.0	25.6	67.2	41.6	0deg	96	
1.16897	21.4	QP	20.1	0.3	0.0	41.8	66.2	24.4	0deg	359	
1.29886	4.8	QP	20.1	0.3	0.0	25.2	65.3	40.1	0deg	91	

CHART : WITH FACTOR , ANT TYPE : LOOP , Except for the data below : adequate margin data below the limits.
CALCULATION : READING + ANT FACTOR + CABLE LOSS

*The test result is rounded off to one or two decimal places, so some differences might be observed.

Radiated Emission below 30MHz (Fundamental and Spurious Emission)
Transmitting 114.29kHz

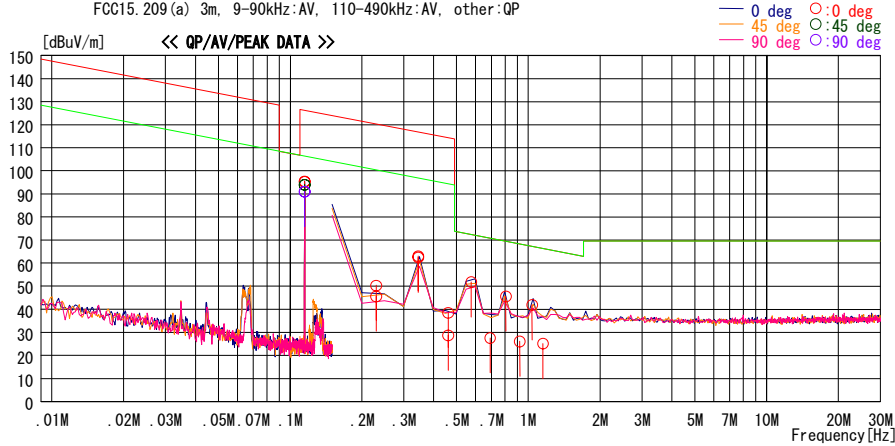
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2008/08/21

Company : SEIKO EPSON CORPORATION
Kind of EUT : Contact-less power transmission module
Model No. : S4E964000110000
Serial No. : 003
Report No. : 28KE0185-HO-01
Power : DC5.4V (AC120V / 60Hz)
Temp. / Humi. : 25deg.C. / 58%
Engineer : Takayuki Shimada

Mode / Remarks : Transmitting 114.29kHz, Max-axis, Cable:11cm

LIMIT : FCC15.209(a) 3m, 9-90kHz:PK, 110-490kHz:PK, other:QP
FCC15.209(a) 3m, 9-90kHz:AV, 110-490kHz:AV, other:QP



Freq. [MHz]	Reading [dBuV]	DET	Ant. Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Antenna	Table [deg]	Comment
0.11505	75.1	PEAK	20.3	0.1	0.0	95.5	126.3	30.8	0deg	359	
0.11505	74.9	AV	20.3	0.1	0.0	95.3	106.4	11.1	0deg	359	
0.11502	73.6	PEAK	20.3	0.1	0.0	94.0	126.3	32.3	45deg	330	
0.11502	73.6	AV	20.3	0.1	0.0	94.0	106.4	12.4	45deg	330	
0.11502	70.6	PEAK	20.3	0.1	0.0	91.0	126.3	35.3	90deg	273	
0.11502	70.5	AV	20.3	0.1	0.0	90.9	106.4	15.5	90deg	273	
0.23004	29.9	PEAK	20.2	0.2	0.0	50.3	120.3	70.0	0deg	87	
0.23004	25.2	AV	20.2	0.2	0.0	45.6	100.4	54.8	0deg	359	
0.34507	42.7	PEAK	20.2	0.2	0.0	63.1	116.8	53.7	0deg	359	
0.34507	42.1	AV	20.2	0.2	0.0	62.5	96.8	34.3	0deg	359	
0.46013	18.1	PEAK	20.2	0.2	0.0	38.5	114.3	75.8	0deg	36	
0.46013	8.3	AV	20.2	0.2	0.0	28.7	94.3	65.6	0deg	36	
0.57512	31.6	QP	20.1	0.2	0.0	51.9	72.4	20.5	0deg	359	
0.69015	7.3	QP	20.1	0.2	0.0	27.6	70.8	43.2	0deg	51	
0.80516	25.4	QP	20.1	0.2	0.0	45.7	69.5	23.8	0deg	359	
0.92016	5.8	QP	20.1	0.2	0.0	26.1	68.3	42.2	0deg	97	
1.03518	21.5	QP	20.1	0.2	0.0	41.8	67.3	25.5	0deg	359	
1.15020	4.8	QP	20.1	0.3	0.0	25.2	66.3	41.1	0deg	92	

CHART : WITH FACTOR , ANT TYPE : LOOP , Except for the data below : adequate margin data below the limits.
CALCULATION : READING + ANT FACTOR + CABLE LOSS

*The test result is rounded off to one or two decimal places, so some differences might be observed.

Radiated Emission below 30MHz (Fundamental and Spurious Emission)
Transmitting 121.21kHz/129.03kHz

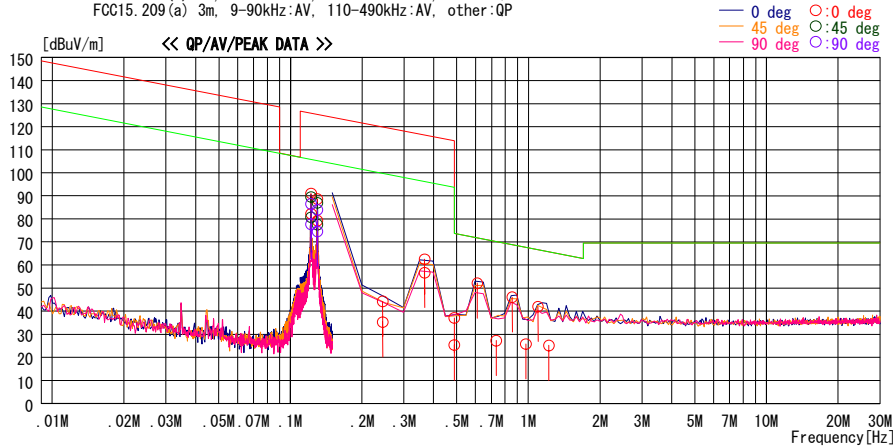
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2008/08/21

Company : SEIKO EPSON CORPORATION Report No. : 28KE0185-HO-01
Kind of EUT : Contact-less power transmission module Power : DC5.4V (AC120V / 60Hz)
Model No. : S4E964000110000 Temp./ Humi. : 25deg. C. / 58%
Serial No. : 003 Engineer : Takayuki Shimada

Mode / Remarks : Transmitting 121.21kHz/129.03kHz, PN9, Max-axis, Cable:11cm

LIMIT : FCC15.209(a) 3m, 9-90kHz:PK, 110-490kHz:PK, other:QP
FCC15.209(a) 3m, 9-90kHz:AV, 110-490kHz:AV, other:QP



Freq.	Reading	DET	Ant. Fac.	Loss	Gain	Result	Limit	Margin	Antenna	Table	Comment
[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]		[deg]	
0.12203	70.7	PEAK	20.3	0.1	0.0	91.1	125.8	34.7	0deg	359	
0.12203	61.9	AV	20.3	0.1	0.0	82.3	105.9	23.6	0deg	359	
0.12203	69.2	PEAK	20.3	0.1	0.0	89.6	125.8	36.2	45deg	331	
0.12203	60.4	AV	20.3	0.1	0.0	80.8	105.9	25.1	45deg	331	
0.12203	66.1	PEAK	20.3	0.1	0.0	86.5	125.8	39.3	90deg	274	
0.12203	57.3	AV	20.3	0.1	0.0	77.7	105.9	28.2	90deg	274	
0.12989	66.6	PEAK	20.3	0.1	0.0	87.0	125.3	38.3	45deg	331	
0.12989	57.2	AV	20.3	0.1	0.0	77.6	105.3	27.7	45deg	331	
0.12989	63.5	PEAK	20.3	0.1	0.0	83.9	125.3	41.4	90deg	274	
0.12989	54.1	AV	20.3	0.1	0.0	74.5	105.3	30.8	90deg	274	
0.12989	68.2	PEAK	20.3	0.1	0.0	88.6	125.3	36.7	0deg	359	
0.12989	58.8	AV	20.3	0.1	0.0	79.2	105.3	26.1	0deg	359	
0.24392	23.8	PEAK	20.2	0.2	0.0	44.2	119.8	75.6	0deg	88	
0.24392	14.9	AV	20.2	0.2	0.0	35.3	99.9	64.6	0deg	88	
0.36604	42.2	PEAK	20.2	0.2	0.0	62.6	116.3	53.7	0deg	359	
0.36604	36.3	AV	20.2	0.2	0.0	56.7	96.3	39.6	0deg	359	
0.48808	16.7	PEAK	20.2	0.2	0.0	37.1	113.8	76.7	0deg	39	
0.48808	4.9	AV	20.2	0.2	0.0	25.3	93.8	68.5	0deg	39	
0.60998	31.9	QP	20.1	0.2	0.0	52.2	71.9	19.7	0deg	359	
0.73218	7.0	QP	20.1	0.2	0.0	27.3	70.3	43.0	0deg	75	
0.85356	25.8	QP	20.1	0.2	0.0	46.1	68.9	22.8	0deg	359	
0.97620	5.5	QP	20.1	0.2	0.0	25.8	67.8	42.0	0deg	98	
1.09806	21.7	QP	20.1	0.2	0.0	42.0	66.7	24.7	0deg	359	
1.22020	4.8	QP	20.1	0.3	0.0	25.2	65.8	40.6	0deg	98	

CHART : WITH FACTOR, ANT TYPE : LOOP, Except for the data below : adequate margin data below the limits.
CALCULATION : READING + ANT FACTOR + CABLE LOSS

*The test result is rounded off to one or two decimal places, so some differences might be observed.

Radiated Emission below 30MHz (Fundamental and Spurious Emission)
Power Transfer 121.21kHz

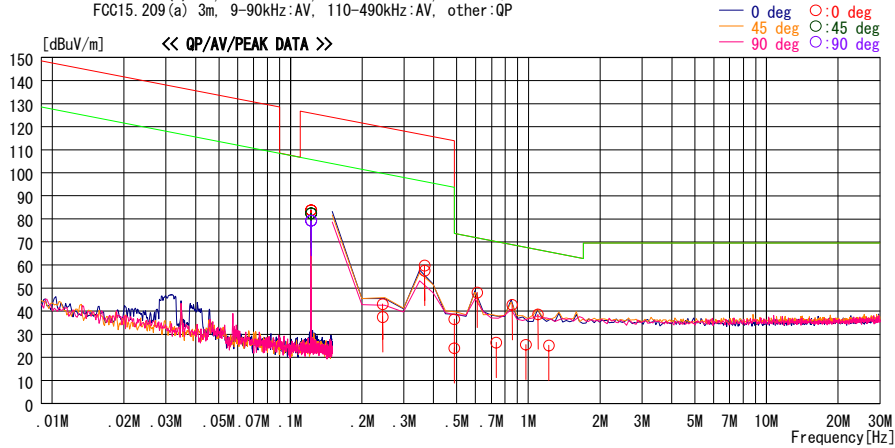
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2008/08/21

Company : SEIKO EPSON CORPORATION
Kind of EUT : Contact-less power transmission module
Model No. : S4E964000110000
Serial No. : 003
Report No. : 28KE0185-HO-01
Power : DC5.4V (AC120V / 60Hz)
Temp./ Humi. : 25deg.C. / 58%
Engineer : Takayuki Shimada

Mode / Remarks : Power Transfer 121.21kHz, Max-axis, Cable(Pri.:11cm, Sec.:20cm(Wire))

LIMIT : FCC15.209(a) 3m, 9-90kHz:PK, 110-490kHz:PK, other:QP
FCC15.209(a) 3m, 9-90kHz:AV, 110-490kHz:AV, other:QP



Freq.	Reading	DET	Ant. Fac.	Loss	Gain	Result	Limit	Margin	Antenna	Table	Comment
[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]		[deg]	
0.12204	63.4	PEAK	20.3	0.1	0.0	83.8	125.8	42.0	Odeg		177
0.12204	63.4	AV	20.3	0.1	0.0	83.8	105.9	22.1	Odeg		177
0.12204	62.0	PEAK	20.3	0.1	0.0	82.4	125.8	43.4	45deg		148
0.12204	62.0	AV	20.3	0.1	0.0	82.4	105.9	23.5	45deg		148
0.12204	58.9	PEAK	20.3	0.1	0.0	79.3	125.8	46.5	90deg		91
0.12204	58.9	AV	20.3	0.1	0.0	79.3	105.9	26.6	90deg		91
0.24408	22.7	PEAK	20.2	0.2	0.0	43.1	119.8	76.7	Odeg		91
0.24408	17.0	AV	20.2	0.2	0.0	37.4	99.8	62.4	Odeg		91
0.36612	39.5	PEAK	20.2	0.2	0.0	59.9	116.3	56.4	Odeg		177
0.36612	37.2	AV	20.2	0.2	0.0	57.6	96.3	38.7	Odeg		177
0.48815	16.2	PEAK	20.2	0.2	0.0	36.6	113.8	77.2	Odeg		72
0.48815	3.5	AV	20.2	0.2	0.0	23.9	93.8	69.9	Odeg		72
0.61019	27.8	QP	20.1	0.2	0.0	48.1	71.9	23.8	Odeg		177
0.73223	6.1	QP	20.1	0.2	0.0	26.4	70.3	43.9	Odeg		83
0.85427	22.5	QP	20.1	0.2	0.0	42.8	68.9	26.1	Odeg		177
0.97631	5.2	QP	20.1	0.2	0.0	25.5	67.8	42.3	Odeg		268
1.09835	18.3	QP	20.1	0.2	0.0	38.6	66.7	28.1	Odeg		177
1.22039	4.8	QP	20.1	0.3	0.0	25.2	65.8	40.6	Odeg		78

CHART : WITH FACTOR, ANT TYPE : LOOP, Except for the data below : adequate margin data below the limits.
CALCULATION : READING + ANT FACTOR + CABLE LOSS

*The test result is rounded off to one or two decimal places, so some differences might be observed.

Radiated Emission below 30MHz (Fundamental and Spurious Emission)

Reference Data
Power Transfer 121.21kHz

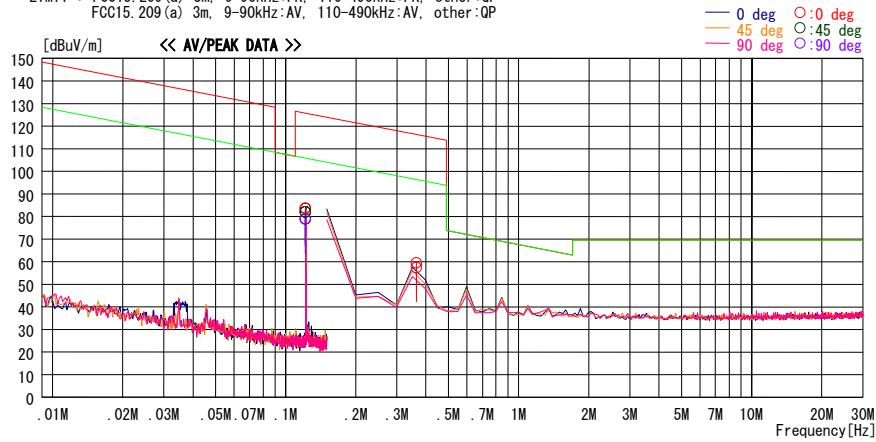
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No. 3 Semi Anechoic Chamber
Date : 2008/08/21

Company : SEIKO EPSON CORPORATION
Kind of EUT : Contact-less power transmission module
Model No. : S4E964000110000
Serial No. : 003
Report No. : 28KE0185-HO-01
Power : DC5.4V (AC120V / 60Hz)
Temp./ Humi. : 25deg.C / 58%
Engineer : Akio Hayashi

Mode / Remarks : Power Transfer 121.21kHz, Max-axis, Cable(Pri.:11cm, Sec.:10cm(Wire))

LIMIT : FCC15. 209 (a) 3m, 9-90kHz:PK, 110-490kHz:PK, other:QP
FCC15. 209 (a) 3m, 9-90kHz:AV, 110-490kHz:AV, other:QP



Freq.	Reading	DET	Ant. Fac	Loss	Gain	Result	Limit	Margin	Antenna	Table	Comment
[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]		[deg]	
0.12120	58.6	PEAK	20.3	0.1	0.0	79.0	125.9	46.9	90deg	95	
0.12120	58.6	AV	20.3	0.1	0.0	79.0	105.9	26.9	90deg	95	
0.12120	61.8	PEAK	20.3	0.1	0.0	82.2	125.9	43.7	45deg	150	
0.12120	61.8	AV	20.3	0.1	0.0	82.2	105.9	23.7	45deg	150	
0.12120	63.3	PEAK	20.3	0.1	0.0	83.7	125.9	42.2	0deg	182	
0.12120	63.3	AV	20.3	0.1	0.0	83.7	105.9	22.2	0deg	182	
0.36360	39.2	PEAK	20.2	0.2	0.0	59.6	116.4	56.8	0deg	4	
0.36360	37.0	AV	20.2	0.2	0.0	57.4	96.4	39.0	0deg	4	

CHART : WITH FACTOR, ANT TYPE : LOOP, Except for the data below : adequate margin data below the limits.
CALCULATION : READING + ANT FACTOR + CABLE LOSS

*The test result is rounded off to one or two decimal places, so some differences might be observed.

Radiated Emission below 30MHz (Fundamental and Spurious Emission)

Reference Data
Power Transfer 121.21kHz

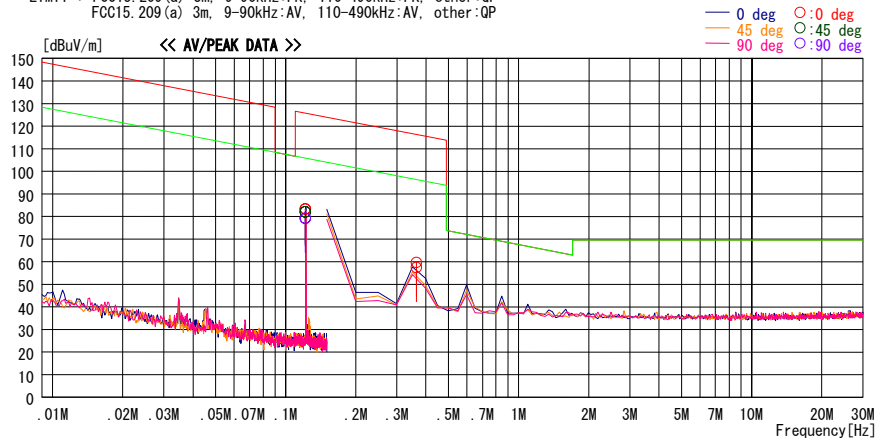
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No. 3 Semi Anechoic Chamber
Date : 2008/08/21

Company : SEIKO EPSON CORPORATION
Kind of EUT : Contact-less power transmission module
Model No. : S4E964000110000
Serial No. : 003
Report No. : 28KE0185-HO-01
Power : DC5.4V (AC120V / 60Hz)
Temp./ Humi. : 25deg.C / 58%
Engineer : Akio Hayashi

Mode / Remarks : Power Transfer 121.21kHz, Max-axis, Cable(Pri.:11cm, Sec.:5cm(Wire))

LIMIT : FCC15.209(a) 3m, 9-90kHz:PK, 110-490kHz:PK, other:QP
FCC15.209(a) 3m, 9-90kHz:AV, 110-490kHz:AV, other:QP



Freq.	Reading	DET	Ant. Fac	Loss	Gain	Result	Limit	Margin	Antenna	Table	Comment
[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]		[deg]	
0.12120	58.8	PEAK	20.3	0.1	0.0	79.2	125.9	46.7	90deg	89	
0.12120	58.8	AV	20.3	0.1	0.0	79.2	105.9	26.7	90deg	89	
0.12120	61.8	PEAK	20.3	0.1	0.0	82.2	125.9	43.7	45deg	157	
0.12120	61.8	AV	20.3	0.1	0.0	82.2	105.9	23.7	45deg	157	
0.12120	63.0	PEAK	20.3	0.1	0.0	83.4	125.9	42.5	0deg	174	
0.12120	63.0	AV	20.3	0.1	0.0	83.4	105.9	22.5	0deg	174	
0.36360	39.3	PEAK	20.2	0.2	0.0	59.7	116.4	56.7	0deg	171	
0.36360	37.1	AV	20.2	0.2	0.0	57.5	96.4	38.9	0deg	171	

CHART : WITH FACTOR, ANT TYPE : LOOP, Except for the data below : adequate margin data below the limits.
CALCULATION : READING + ANT FACTOR + CABLE LOSS

*The test result is rounded off to one or two decimal places, so some differences might be observed.

Radiated Emission below 30MHz (Fundamental and Spurious Emission)

Reference Data
 Power Transfer 121.21kHz

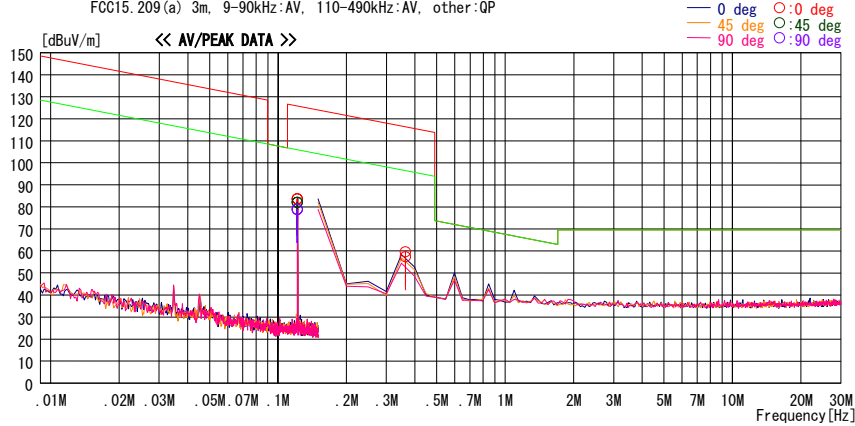
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber
 Date : 2008/08/21

Company : SEIKO EPSON CORPORATION
 Kind of EUT : Contact-less power transmission module
 Model No. : S4E964000110000
 Serial No. : 003
 Report No. : 28KE0185-HO-01
 Power : DC5.4V (AC120V / 60Hz)
 Temp./ Humi. : 25deg.C / 58%
 Engineer : Akio Hayashi

Mode / Remarks : Power Transfer 121.21kHz, Max-axis, Cable(Pri.:11cm, Sec.:0cm(Wire))

LIMIT : FCC15.209(a) 3m, 9-90kHz:PK, 110-490kHz:PK, other:QP
 FCC15.209(a) 3m, 9-90kHz:AV, 110-490kHz:AV, other:QP



Freq	Reading	DET	Ant. Fac	Loss	Gain	Result	Limit	Margin	Antenna	Table	Comment
[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]		[deg]	
0.12120	58.6	PEAK	20.3	0.1	0.0	79.0	125.9	46.9	90deg	101	
0.12120	58.6	AV	20.3	0.1	0.0	79.0	105.9	26.9	90deg	101	
0.12120	61.7	PEAK	20.3	0.1	0.0	82.1	125.9	43.8	45deg	150	
0.12120	61.7	AV	20.3	0.1	0.0	82.1	105.9	23.8	45deg	150	
0.12120	63.2	PEAK	20.3	0.1	0.0	83.6	125.9	42.3	0deg	183	
0.12120	63.2	AV	20.3	0.1	0.0	83.6	105.9	22.3	0deg	183	
0.36360	39.3	PEAK	20.2	0.2	0.0	59.7	116.4	56.7	0deg	176	
0.36360	37.1	AV	20.2	0.2	0.0	57.5	96.4	38.9	0deg	176	

CHART : WITH FACTOR, ANT TYPE : LOOP, Except for the data below : adequate margin data below the limits.
 CALCULATION : READING + ANT FACTOR + CABLE LOSS

*The test result is rounded off to one or two decimal places, so some differences might be observed.

Radiated Emission below 30MHz (Fundamental and Spurious Emission)

Reference Data
Power Transfer 121.21kHz

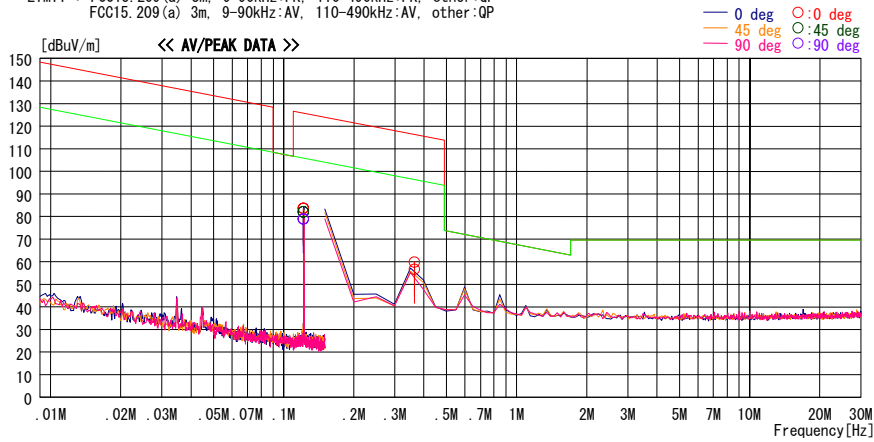
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No. 3 Semi Anechoic Chamber
Date : 2008/08/21

Company : SEIKO EPSON CORPORATION
Kind of EUT : Contact-less power transmission module
Model No. : S4E964000110000
Serial No. : 003
Report No. : 28KE0185-HO-01
Power : DC5.4V (AC120V / 60Hz)
Temp./ Humi. : 25deg. C. / 58%
Engineer : Akio Hayashi

Mode / Remarks : Power Transfer 121.21kHz, Max-axis, Cable(Pri.:11cm, Sec.:20cm(PCB))

LIMIT : FCC15. 209 (a) 3m, 9-90kHz:PK, 110-490kHz:PK, other:QP
FCC15. 209 (a) 3m, 9-90kHz:AV, 110-490kHz:AV, other:QP



Freq.	Reading	DET	Ant. Fac	Loss	Gain	Result	Limit	Margin	Antenna	Table	Comment
[MHz]	[dBUV]		[dB/m]	[dB]	[dB]	[dBUV/m]	[dBUV/m]	[dB]		[deg]	
0.12120	58.5	PEAK	20.3	0.1	0.0	78.9	125.9	47.0	90deg	98	
0.12120	58.5	AV	20.3	0.1	0.0	78.9	105.9	27.0	90deg	98	
0.12120	61.8	PEAK	20.3	0.1	0.0	82.2	125.9	43.7	45deg	156	
0.12120	61.8	AV	20.3	0.1	0.0	82.2	105.9	23.7	45deg	156	
0.12120	63.3	PEAK	20.3	0.1	0.0	83.7	125.9	42.2	0deg	185	
0.12120	63.3	AV	20.3	0.1	0.0	83.7	105.9	22.2	0deg	185	
0.36360	39.4	PEAK	20.2	0.2	0.0	59.8	116.4	56.6	0deg	359	
0.36360	36.3	AV	20.2	0.2	0.0	56.7	96.4	39.7	0deg	359	

CHART : WITH FACTOR , ANT TYPE : LOOP , Except for the data below : adequate margin data below the limits.
CALCULATION : READING + ANT FACTOR + CABLE LOSS

*The test result is rounded off to one or two decimal places, so some differences might be observed.

Radiated Emission below 30MHz (Fundamental and Spurious Emission)

Reference Data
 Power Transfer 121.21kHz

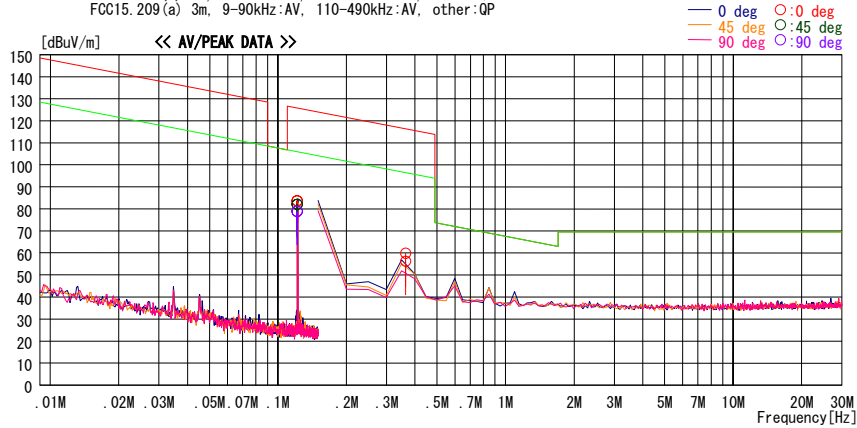
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No. 3 Semi Anechoic Chamber
 Date : 2008/08/22

Company : SEIKO EPSON CORPORATION
 Kind of EUT : Contact-less power transmission module
 Model No. : S4E964000110000
 Serial No. : 003
 Report No. : 28KE0185-HO-01
 Power : DC5.4V (AC120V / 60Hz)
 Temp. / Humi. : 25deg.C. / 58%
 Engineer : Akio Hayashi

Mode / Remarks : Power Transfer 121.21kHz, Max-axis, Cable(Pri.:11cm, Sec.:10cm(PCB))

LIMIT : FCC15.209(a) 3m, 9-90kHz:PK, 110-490kHz:PK, other:QP
 FCC15.209(a) 3m, 9-90kHz:AV, 110-490kHz:AV, other:QP



Freq.	Reading	DET	Ant. Fac	Loss	Gain	Result	Limit	Margin	Antenna	Table	Comment
[MHz]	[dBUV]		[dB/m]	[dB]	[dB]	[dBUV/m]	[dBUV/m]	[dB]	[deg]	[deg]	
0.12120	58.6	PEAK	20.3	0.1	0.0	79.0	125.9	46.9	90deg	84	
0.12120	58.6	AV	20.3	0.1	0.0	79.0	105.9	26.9	90deg	84	
0.12120	61.7	PEAK	20.3	0.1	0.0	82.1	125.9	43.8	45deg	158	
0.12120	61.7	AV	20.3	0.1	0.0	82.1	105.9	23.8	45deg	158	
0.12120	63.3	PEAK	20.3	0.1	0.0	83.7	125.9	42.2	0deg	188	
0.12120	63.3	AV	20.3	0.1	0.0	83.7	105.9	22.2	0deg	188	
0.36360	39.4	PEAK	20.2	0.2	0.0	59.8	116.4	56.6	0deg	175	
0.36360	35.8	AV	20.2	0.2	0.0	56.2	96.4	40.2	0deg	175	

CHART : WITH FACTOR, ANT TYPE : LOOP, Except for the data below : adequate margin data below the limits.
 CALCULATION : READING + ANT FACTOR + CABLE LOSS

*The test result is rounded off to one or two decimal places, so some differences might be observed.

Radiated Emission below 30MHz (Fundamental and Spurious Emission)

Reference Data
Power Transfer 121.21kHz

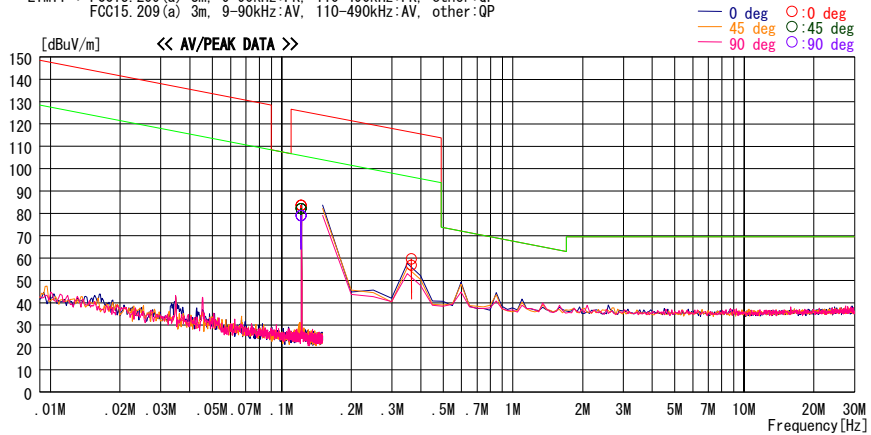
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No. 3 Semi Anechoic Chamber
Date : 2008/08/22

Company : SEIKO EPSON CORPORATION Report No. : 28KE0185-HO-01
Kind of EUT : Contact-less power transmission module Power : DC5.4V (AC120V / 60Hz)
Model No. : S4E964000110000 Temp./ Humi. : 25deg. C. / 58%
Serial No. : 003 Engineer : Akio Hayashi

Mode / Remarks : Power Transfer 121.21kHz, Max-axis, Cable(Pri.:11cm, Sec.:5cm(PCB))

LIMIT : FCC15.209(a) 3m, 9-90kHz:PK, 110-490kHz:PK, other:QP
FCC15.209(a) 3m, 9-90kHz:AV, 110-490kHz:AV, other:QP



Freq.	Reading	DET	Ant. Fac	Loss	Gain	Result	Limit	Margin	Antenna	Table	Comment
[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]		[deg]	
0.12120	58.7	PEAK	20.3	0.1	0.0	79.1	125.9	46.8	90deg	87	
0.12120	58.7	AV	20.3	0.1	0.0	79.1	105.9	26.8	90deg	87	
0.12120	61.8	PEAK	20.3	0.1	0.0	82.2	125.9	43.7	45deg	154	
0.12120	61.8	AV	20.3	0.1	0.0	82.2	105.9	23.7	45deg	154	
0.12120	63.3	PEAK	20.3	0.1	0.0	83.7	125.9	42.2	0deg	187	
0.12120	63.3	AV	20.3	0.1	0.0	83.7	105.9	22.2	0deg	187	
0.36360	39.3	PEAK	20.2	0.2	0.0	59.7	116.4	56.7	0deg	170	
0.36360	36.5	AV	20.2	0.2	0.0	56.9	96.4	39.5	0deg	170	

CHART : WITH FACTOR , ANT TYPE : LOOP , Except for the data below : adequate margin data below the limits.
CALCULATION : READING + ANT FACTOR + CABLE LOSS

*The test result is rounded off to one or two decimal places, so some differences might be observed.

Radiated Emission below 30MHz (Fundamental and Spurious Emission)

Reference Data

Power Transfer 121.21kHz, Max load

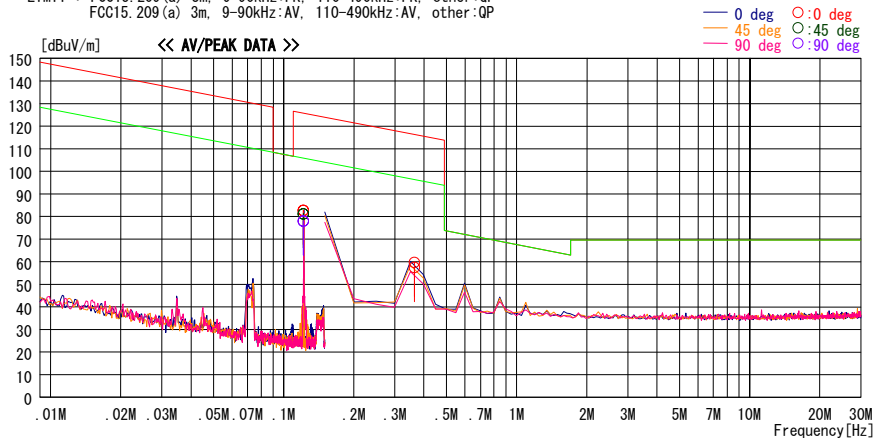
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No. 3 Semi Anechoic Chamber
Date : 2008/08/22

Company : SEIKO EPSON CORPORATION
 Kind of EUT : Contact-less power transmission module
 Model No. : S4E964000110000
 Serial No. : 003
 Report No. : 28KE0185-HO-01
 Power : DC5.4V (AC120V / 60Hz)
 Temp./ Humi. : 25deg. C. / 58%
 Engineer : Akio Hayashi

Mode / Remarks : Power Transfer 121.21kHz, Max-axis, Cable(Pri.:11cm, Sec.:20cm(PCB)), Max Load

LIMIT : FCC15.209(a) 3m, 9-90kHz:PK, 110-490kHz:PK, other:QP
 FCC15.209(a) 3m, 9-90kHz:AV, 110-490kHz:AV, other:QP



Freq.	Reading	DET	Ant. Fac	Loss	Gain	Result	Limit	Margin	Antenna	Table	Comment
[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]		[deg]	
0.12120	57.7	PEAK	20.3	0.1	0.0	78.1	125.9	47.8	90deg	99	
0.12120	57.7	AV	20.3	0.1	0.0	78.1	105.9	27.8	90deg	99	
0.12120	60.9	PEAK	20.3	0.1	0.0	81.3	125.9	44.6	45deg	147	
0.12120	60.9	AV	20.3	0.1	0.0	81.3	105.9	24.6	45deg	147	
0.12120	62.3	PEAK	20.3	0.1	0.0	82.7	125.9	43.2	0deg	175	
0.12120	62.3	AV	20.3	0.1	0.0	82.7	105.9	23.2	0deg	175	
0.36360	39.3	PEAK	20.2	0.2	0.0	59.7	116.4	56.7	0deg	186	
0.36360	37.0	AV	20.2	0.2	0.0	57.4	96.4	39.0	0deg	186	

CHART : WITH FACTOR , ANT TYPE : LOOP , Except for the data below : adequate margin data below the limits.
 CALCULATION : READING + ANT FACTOR + CABLE LOSS

*The test result is rounded off to one or two decimal places, so some differences might be observed.

Radiated Emission below 30MHz (Fundamental and Spurious Emission)
Power Transfer 121.21kHz, Max load

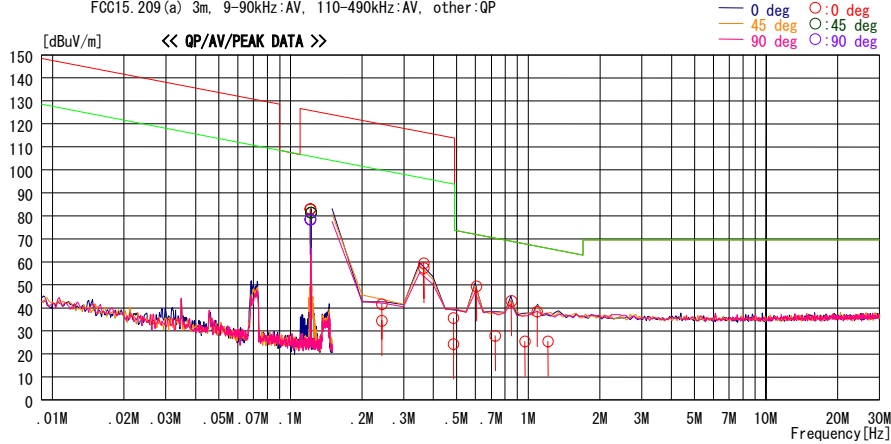
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No. 3 Semi Anechoic Chamber
Date : 2008/08/21

Company : SEIKO EPSON CORPORATION
Kind of EUT : Contact-less power transmission module
Model No. : S4E964000110000
Serial No. : 003
Report No. : 28KE0185-HO-01
Power : DC5.4V (AC120V / 60Hz)
Temp./ Humi. : 25deg.C / 58%
Engineer : Akio Hayashi

Mode / Remarks : Power Transfer 121.21kHz, Max-axis, Cable(Pri.:11cm, Sec.:20cm(Wire)), Max Load

LIMIT : FCC15.209(a) 3m, 9-90kHz:PK, 110-490kHz:PK, other:QP
FCC15.209(a) 3m, 9-90kHz:AV, 110-490kHz:AV, other:QP



Freq.	Reading	DET	Ant. Fac	Loss	Gain	Result	Limit	Margin	Antenna	Table	Comment
[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]		[deg]	
0.12120	58.1	PEAK	20.3	0.1	0.0	78.5	125.9	47.4	90deg	89	
0.12120	58.0	AV	20.3	0.1	0.0	78.4	105.9	27.5	90deg	89	
0.12120	62.6	PEAK	20.3	0.1	0.0	83.0	125.9	42.9	0deg	171	
0.12120	62.5	AV	20.3	0.1	0.0	82.9	105.9	23.0	0deg	171	
0.12200	61.1	PEAK	20.3	0.1	0.0	81.5	125.8	44.3	45deg	141	
0.12200	61.1	AV	20.3	0.1	0.0	81.5	105.9	24.4	45deg	141	
0.24240	21.1	PEAK	20.2	0.2	0.0	41.5	119.9	78.4	0deg	78	
0.24240	14.0	AV	20.2	0.2	0.0	34.4	99.9	65.5	0deg	78	
0.36360	39.0	PEAK	20.2	0.2	0.0	59.4	116.4	57.0	0deg	354	
0.36360	37.0	AV	20.2	0.2	0.0	57.4	96.4	39.0	0deg	354	
0.48480	15.2	PEAK	20.2	0.2	0.0	35.6	113.9	78.3	0deg	92	
0.48480	3.9	AV	20.2	0.2	0.0	24.3	93.9	69.6	0deg	92	
0.60600	29.1	QP	20.1	0.2	0.0	49.4	71.9	22.5	0deg	171	
0.72720	7.6	QP	20.1	0.2	0.0	27.9	70.3	42.4	0deg	197	
0.84840	22.7	QP	20.1	0.2	0.0	43.0	69.0	26.0	0deg	181	
0.96960	5.2	QP	20.1	0.2	0.0	25.5	67.8	42.3	0deg	170	
1.09080	18.1	QP	20.1	0.2	0.0	38.4	66.8	28.4	0deg	183	
1.21200	5.0	QP	20.1	0.3	0.0	25.4	65.9	40.5	0deg	188	

CHART : WITH FACTOR , ANT TYPE : LOOP , Except for the data below : adequate margin data below the limits.
CALCULATION : READING + ANT FACTOR + CABLE LOSS

*The test result is rounded off to one or two decimal places, so some differences might be observed.

Radiated Emission below 30MHz (Fundamental and Spurious Emission)

Reference Data
 Power Transfer 121.21kHz

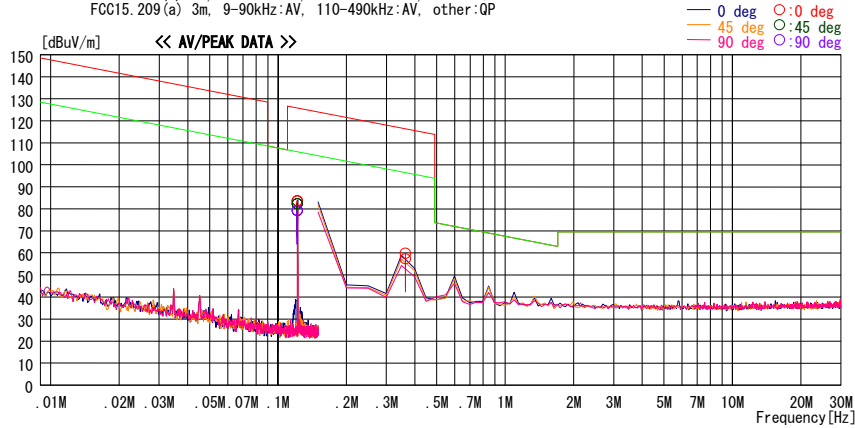
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No. 3 Semi Anechoic Chamber
 Date : 2008/08/21

Company : SEIKO EPSON CORPORATION Kind of EUT : Contact-less power transmission module Model No. : S4E964000110000 Serial No. : 003	Report No. : 28KE0185-HO-01 Power : DC5.4V (AC120V / 60Hz) Temp./ Humi. : 25deg. C. / 58% Engineer : Akio Hayashi
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Mode / Remarks : Power Transfer 121.21kHz, Max-axis, Cable(Pri.:5cm, Sec.:20cm(Wire))

LIMIT : FCC15.209(a) 3m, 9-90kHz:PK, 110-490kHz:PK, other:QP
 FCC15.209(a) 3m, 9-90kHz:AV, 110-490kHz:AV, other:QP



Freq [MHz]	Reading [dBuV]	DET	Ant. Fac	Loss	Gain	Result	Limit	Margin	Antenna	Table	Comment
			[dB/m]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]		[deg]	
0.12120	58.9	PEAK	20.3	0.1	0.0	79.3	125.9	46.6	90deg	90	
0.12120	58.9	AV	20.3	0.1	0.0	79.3	105.9	26.6	90deg	90	
0.12120	62.0	PEAK	20.3	0.1	0.0	82.4	125.9	43.5	45deg	155	
0.12120	62.0	AV	20.3	0.1	0.0	82.4	105.9	23.5	45deg	155	
0.12120	63.3	PEAK	20.3	0.1	0.0	83.7	125.9	42.2	0deg	179	
0.12120	63.3	AV	20.3	0.1	0.0	83.7	105.9	22.2	0deg	179	
0.36360	39.4	PEAK	20.2	0.2	0.0	59.8	116.4	56.6	0deg	190	
0.36360	37.1	AV	20.2	0.2	0.0	57.5	96.4	38.9	0deg	190	

CHART : WITH FACTOR, ANT TYPE : LOOP, Except for the data below : adequate margin data below the limits.
 CALCULATION : READING + ANT FACTOR + CABLE LOSS

*The test result is rounded off to one or two decimal places, so some differences might be observed.

Radiated Emission above 30MHz (Spurious Emission)
Transmitting 121.21kHz

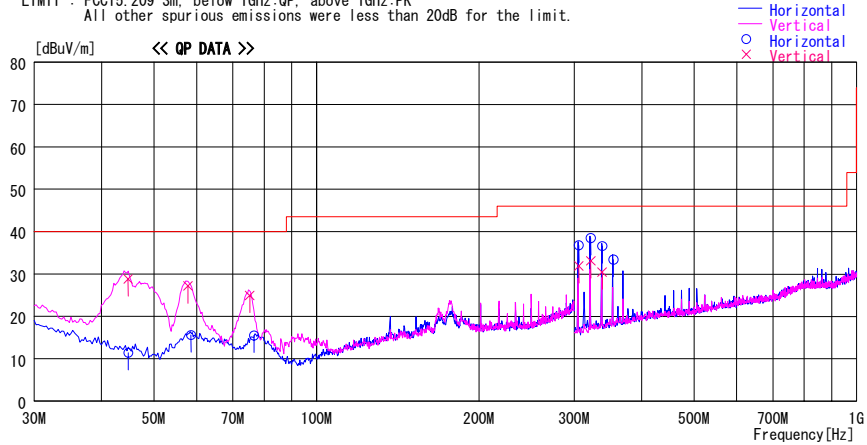
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No. 3 Semi Anechoic Chamber
Date : 2008/08/20

Company : SEIKO EPSON CORPORATION
Kind of EUT : Contact-less power transmission module
Model No. : S4E964000110000
Serial No. : 003
Report No. : 28KE0185-HO-01
Power : DC5.4V (AC120V / 60Hz)
Temp./Humi. : 26 deg. C. / 55%
Engineer : Akio Hayashi

Mode / Remarks : Transmitting 121.21kHz, Max-axis, Cable:11cm

LIMIT : FCC15.209 3m, below 1GHz:QP, above 1GHz:PK
All other spurious emissions were less than 20dB for the limit.



Frequency [MHz]	Reading [dBuV]	DET	Antenna		Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
			Factor [dB/m]	Loss& Gain [dB]							
44.768	41.9	QP	11.7	-24.8	28.8	243	100	Vert.	40.0	11.2	
44.812	24.5	QP	11.7	-24.8	11.4	350	332	Hori.	40.0	28.6	
57.819	43.3	QP	8.3	-24.4	27.2	132	100	Vert.	40.0	12.8	
58.552	31.9	QP	8.1	-24.4	15.6	186	331	Hori.	40.0	24.4	
75.263	42.6	QP	6.5	-24.2	24.9	221	100	Vert.	40.0	15.1	
76.603	33.3	QP	6.4	-24.2	15.5	192	247	Hori.	40.0	24.5	
305.932	44.0	QP	14.7	-21.9	36.8	1	100	Hori.	46.0	9.2	
305.934	39.1	QP	14.7	-21.9	31.9	276	155	Vert.	46.0	14.1	
322.035	39.7	QP	15.2	-21.8	33.1	283	145	Vert.	46.0	12.9	
322.037	45.1	QP	15.2	-21.8	38.5	1	100	Hori.	46.0	7.5	
338.135	36.4	QP	15.7	-21.7	30.4	284	141	Vert.	46.0	15.6	
338.137	42.6	QP	15.7	-21.7	36.6	1	100	Hori.	46.0	9.4	
354.242	38.8	QP	16.2	-21.6	33.4	1	100	Hori.	46.0	12.6	

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 test result is rounded off to one or two decimal places, so some differences might be observed.

Radiated Emission above 30MHz (Spurious Emission)
Reference Data
Transmitting 121.21kHz

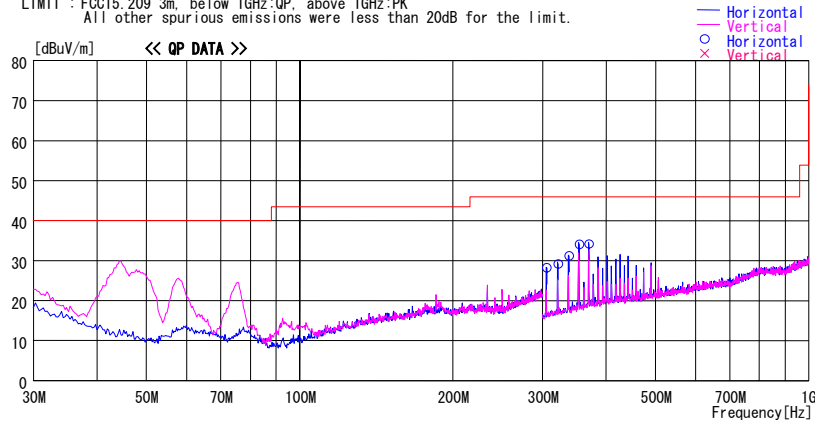
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No. 3 Semi Anechoic Chamber
Date : 2008/08/20

Company : SEIKO EPSON CORPORATION Report No. : 28KE0185-HO-01
Kind of EUT : Contact-less power transmission module Power : DC5.4V (AC120V / 60Hz)
Model No. : S4E964000110000 Temp./Humi. : 26 deg.C. / 55%
Serial No. : 003 Engineer : Akio Hayashi

Mode / Remarks : Transmitting 121.21kHz, Max-axis, Cable:5cm

LIMIT : FCC15.209 3m, below 1GHz:QP, above 1GHz:PK
All other spurious emissions were less than 20dB for the limit.



Frequency [MHz]	Reading [dBuV]	DET	Antenna		Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
			Factor [dB/m]	Loss Gain [dB]							
305.934	35.4	QP	14.7	-21.9	28.2	1	100	Hori.	46.0	17.8	
322.032	35.8	QP	15.2	-21.8	29.2	1	100	Hori.	46.0	16.8	
338.135	37.2	QP	15.7	-21.7	31.2	1	100	Hori.	46.0	14.8	
354.238	39.5	QP	16.2	-21.6	34.1	1	100	Hori.	46.0	11.9	
370.339	39.1	QP	16.6	-21.5	34.2	1	100	Hori.	46.0	11.8	

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

*The test result is rounded off to one or two decimal places, so some differences might be observed.

Radiated Emission above 30MHz (Spurious Emission)
Transmitting 129.03kHz

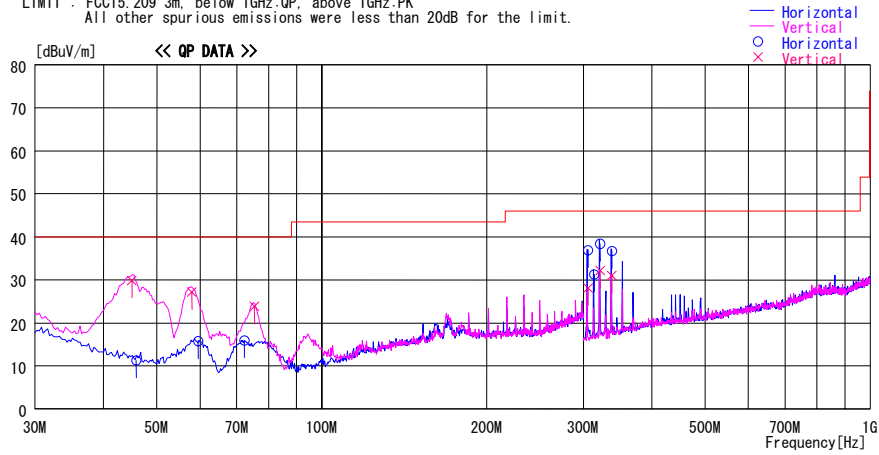
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No. 3 Semi Anechoic Chamber
Date : 2008/08/20

Company : SEIKO EPSON CORPORATION Report No. : 28KE0185-HO-01
Kind of EUT : Contact-less power transmission module Power : DC5.4V (AC120V / 60Hz)
Model No. : S4E964000110000 Temp./Humi. : 26 deg. C. / 55%
Serial No. : 003 Engineer : Akio Hayashi

Mode / Remarks : Transmitting 129.03kHz, Max-axis, Cable:11cm

LIMIT : FCC15.209 3m, below 1GHz:QP, above 1GHz:PK
All other spurious emissions were less than 20dB for the limit.



Frequency [MHz]	Reading [dBuV]	DET	Antenna	Loss&	Level	Angle	Height	Polar.	Limit	Margin	Comment
			Factor	Gain							
			[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]	
45.066	43.0	QP	11.6	-24.7	29.9	184	100	Vert.	40.0	10.1	
45.866	24.7	QP	11.3	-24.7	11.3	196	189	Hori.	40.0	28.7	
59.486	32.3	QP	7.9	-24.4	15.8	193	324	Hori.	40.0	24.2	
57.927	43.4	QP	8.2	-24.4	27.2	126	100	Vert.	40.0	12.8	
75.332	41.5	QP	6.5	-24.2	23.8	88	100	Vert.	40.0	16.2	
72.220	33.5	QP	6.6	-24.2	15.9	195	252	Hori.	40.0	24.1	
305.991	44.1	QP	14.7	-21.9	36.9	1	100	Hori.	46.0	9.1	
305.992	35.3	QP	14.7	-21.9	28.1	61	102	Vert.	46.0	17.9	
314.042	38.2	QP	15.0	-21.9	31.3	1	100	Hori.	46.0	14.7	
322.096	45.0	QP	15.2	-21.8	38.4	1	100	Hori.	46.0	7.6	
322.099	38.8	QP	15.2	-21.8	32.2	60	124	Vert.	46.0	13.8	
338.199	42.7	QP	15.7	-21.7	36.7	1	100	Hori.	46.0	9.3	
338.201	37.0	QP	15.7	-21.7	31.0	67	132	Vert.	46.0	15.0	

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

*The test result is rounded off to one or two decimal places, so some differences might be observed.

Radiated Emission above 30MHz (Spurious Emission)
Transmitting 114.29kHz

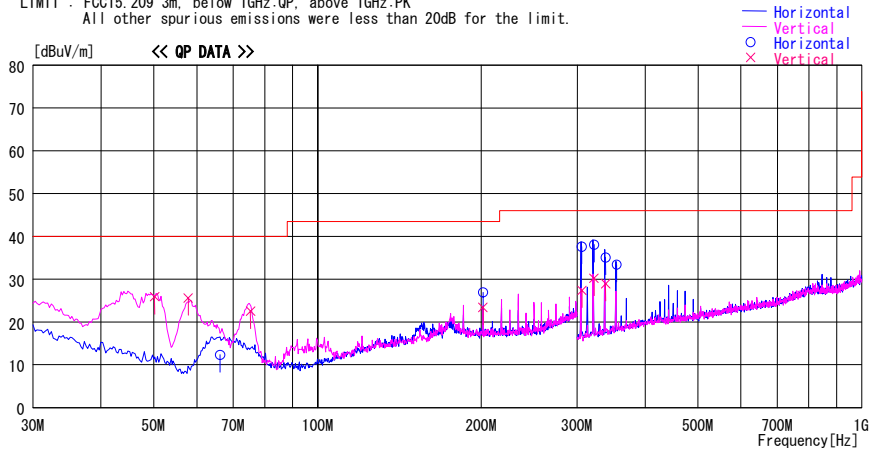
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No. 3 Semi Anechoic Chamber
Date : 2008/08/21

Company : SEIKO EPSON CORPORATION Report No. : 28KE0185-HO-01
Kind of EUT : Contact-less power transmission module Power : DC5.4V (AC120V / 60Hz)
Model No. : S4E964000110000 Temp./Humi. : 26 deg. C. / 55%
Serial No. : 003 Engineer : Akio Hayashi

Mode / Remarks : Transmitting 114.29kHz, Max-axis, Cable:11cm

LIMIT : FCC15.209 3m, below 1GHz:QP, above 1GHz:PK
All other spurious emissions were less than 20dB for the limit.



Frequency [MHz]	Reading [dBuV]	DET	Antenna	Loss&	Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
			Factor [dB/m]	Gain [dB]							
50.160	40.4	QP	10.1	-24.6	25.9	269	100	Vert.	40.0	14.1	
57.852	41.8	QP	8.2	-24.4	25.6	193	100	Vert.	40.0	14.4	
66.180	29.6	QP	7.0	-24.3	12.3	1	319	Hori.	40.0	27.7	
75.314	40.2	QP	6.5	-24.2	22.5	92	100	Vert.	40.0	17.5	
201.389	33.7	QP	16.2	-23.0	26.9	353	174	Hori.	43.5	16.6	
201.389	30.2	QP	16.2	-23.0	23.4	80	134	Vert.	43.5	20.1	
306.026	44.8	QP	14.7	-21.9	37.6	1	100	Hori.	46.0	8.4	
306.104	34.6	QP	14.7	-21.9	27.4	75	121	Vert.	46.0	18.6	
322.175	44.7	QP	15.2	-21.8	38.1	1	100	Hori.	46.0	7.9	
322.211	36.8	QP	15.2	-21.8	30.2	76	138	Vert.	46.0	15.8	
338.289	41.1	QP	15.7	-21.7	35.1	1	100	Hori.	46.0	10.9	
338.317	34.9	QP	15.7	-21.7	28.9	262	133	Vert.	46.0	17.1	
354.409	38.8	QP	16.2	-21.6	33.4	1	100	Hori.	46.0	12.6	

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 test result is rounded off to one or two decimal places, so some differences might be observed.

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Radiated Emission above 30MHz (Spurious Emission)
Transmitting 121.21kHz/129.03kHz

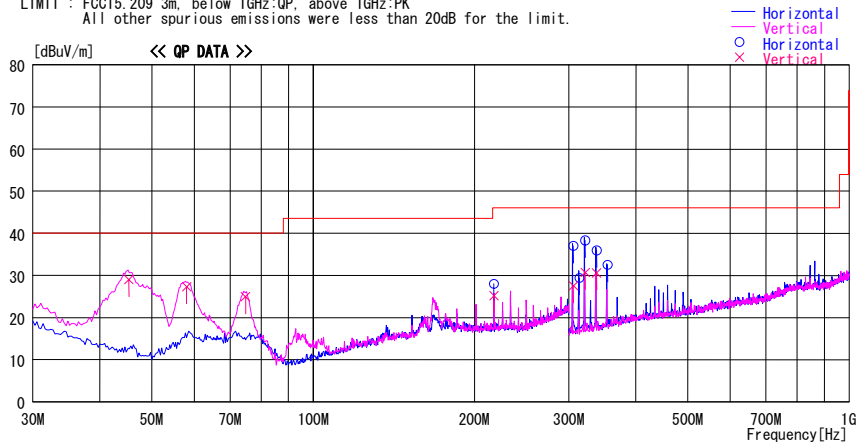
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No. 3 Semi Anechoic Chamber
Date : 2008/08/21

Company : SEIKO EPSON CORPORATION
Kind of EUT : Contact-less power transmission module
Model No. : S4E964000110000
Serial No. : 003
Report No. : 28KE0185-HO-01
Power : DC5.4V (AC120V / 60Hz)
Temp./Humi. : 26 deg. C. / 55%
Engineer : Akio Hayashi

Mode / Remarks : Transmitting 121.21kHz/129.03kHz, PN9, Max-axis, Cable:11cm

LIMIT : FCC15.209 3m, below 1GHz:QP, above 1GHz:PK
All other spurious emissions were less than 20dB for the limit.



Frequency [MHz]	Reading [dBuV]	DET	Antenna	Loss&	Level	Angle	Height	Polar.	Limit	Margin	Comment
			Factor	Gain							
			[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]	
45.312	42.2	QP	11.5	-24.7	29.0	196	100	Vert.	40.0	11.0	
58.073	43.5	QP	8.2	-24.4	27.3	142	100	Vert.	40.0	12.7	
74.786	42.6	QP	6.5	-24.2	24.9	220	100	Vert.	40.0	15.1	
217.400	34.4	QP	16.3	-22.7	28.0	20	300	Hori.	46.0	18.0	
217.402	31.6	QP	16.3	-22.7	25.2	82	100	Vert.	46.0	20.8	
305.969	44.2	QP	14.7	-21.9	37.0	1	100	Hori.	46.0	9.0	
305.967	34.7	QP	14.7	-21.9	27.5	56	103	Vert.	46.0	18.5	
314.020	36.3	QP	15.0	-21.9	29.4	1	100	Hori.	46.0	16.6	
322.072	44.9	QP	15.2	-21.8	38.3	1	100	Hori.	46.0	7.7	
322.071	37.3	QP	15.2	-21.8	30.7	58	133	Vert.	46.0	15.3	
338.174	42.0	QP	15.7	-21.7	36.0	1	100	Hori.	46.0	10.0	
338.174	36.6	QP	15.7	-21.7	30.6	280	133	Vert.	46.0	15.4	
354.279	37.9	QP	16.2	-21.6	32.5	1	100	Hori.	46.0	13.5	

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

*The test result is rounded off to one or two decimal places, so some differences might be observed.

Radiated Emission above 30MHz (Spurious Emission)
Power Transfer 121.21kHz

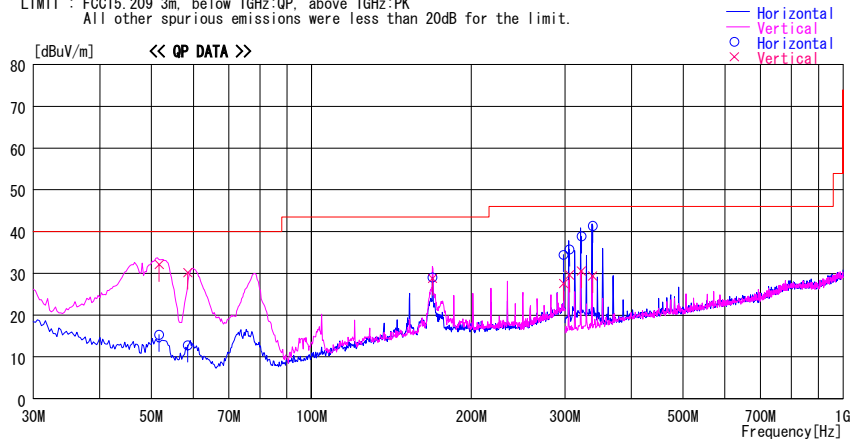
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2008/08/20

Company : SEIKO EPSON CORPORATION
Kind of EUT : Contact-less power transmission module
Model No. : S4E964000110000
Serial No. : 003
Report No. : 28KE0185-HO-01
Power : DC5.4V (AC120V / 60Hz)
Temp./Humi. : 26deg. C. / 55%
Engineer : Takayuki Shimada

Mode / Remarks : Power Transfer 121.21kHz, Max-axis, Cable (Pri.:11cm, Sec.:20cm(Wire))

LIMIT : FCC15.209 3m, below 1GHz:QP, above 1GHz:PK
All other spurious emissions were less than 20dB for the limit.



Frequency [MHz]	Reading [dBuV]	DET	Antenna		Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
			Factor [dB/m]	Loss&Gain [dB]							
51.739	30.1	QP	9.7	-24.5	15.3	330	356	Hori.	40.0	24.7	
51.739	46.9	QP	9.7	-24.5	32.1	255	100	Vert.	40.0	7.9	
58.573	29.1	QP	8.1	-24.4	12.8	323	353	Hori.	40.0	27.2	
58.573	46.5	QP	8.1	-24.4	30.2	258	100	Vert.	40.0	9.8	
169.129	36.3	QP	15.9	-23.2	29.0	3	185	Hori.	43.5	14.5	
169.129	36.0	QP	15.9	-23.2	28.7	70	100	Vert.	43.5	14.8	
297.988	36.5	QP	19.9	-22.0	34.4	9	114	Hori.	46.0	11.6	
297.988	29.7	QP	19.9	-22.0	27.6	210	225	Vert.	46.0	18.4	
306.035	42.9	QP	14.7	-21.9	35.7	9	100	Hori.	46.0	10.3	
306.035	36.8	QP	14.7	-21.9	29.6	285	172	Vert.	46.0	16.4	
322.142	45.5	QP	15.2	-21.8	38.9	9	100	Hori.	46.0	7.1	
322.142	37.2	QP	15.2	-21.8	30.6	224	141	Vert.	46.0	15.4	
338.248	47.4	QP	15.7	-21.7	41.4	9	100	Hori.	46.0	4.6	
338.248	35.4	QP	15.7	-21.7	29.4	225	116	Vert.	46.0	16.6	

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 test result is rounded off to one or two decimal places, so some differences might be observed.

Radiated Emission above 30MHz (Spurious Emission)

Reference Data
 Power Transfer 121.21kHz

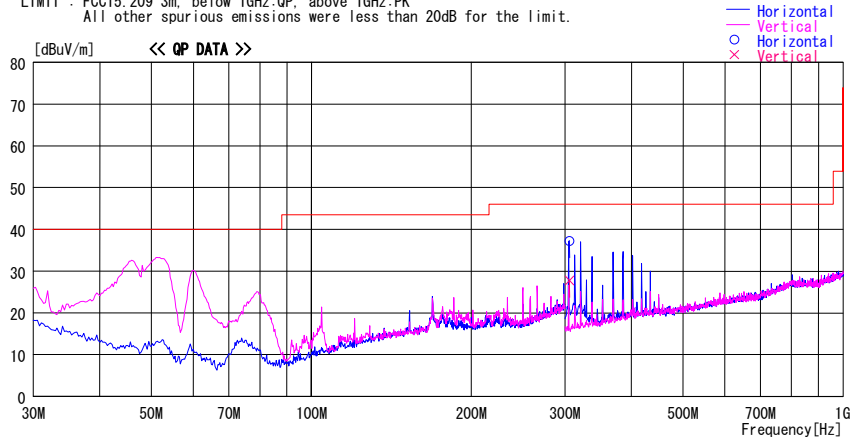
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No. 3 Semi Anechoic Chamber
 Date : 2008/08/20

Company	: SEIKO EPSON CORPORATION	Report No.	: 28KE0185-HO-01
Kind of EUT	: Contact-less power transmission module	Power	: DC5.4V (AC120V / 60Hz)
Model No.	: S4E964000110000	Temp./Humi.	: 26deg. C. / 55%
Serial No.	: 003	Engineer	: Takayuki Shimada

Mode / Remarks : Power Transfer 121.21kHz, Max-axis, Cable(Pri.:5cm, Sec.:20cm(Wire))

LIMIT : FCC15.209 3m, below 1GHz:QP, above 1GHz:PK
 All other spurious emissions were less than 20dB for the limit.



Frequency [MHz]	Reading [dBuV]	DET	Antenna		Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
			Factor [dB/m]	Loss& Gain [dB]							
306.029	44.5	QP	14.7	-21.9	37.3	9	100	Hori.	46.0	8.7	
306.029	35.0	QP	14.7	-21.9	27.8	299	132	Vert.	46.0	18.2	

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

*The test result is rounded off to one or two decimal places, so some differences might be observed.

Radiated Emission above 30MHz (Spurious Emission)

Reference Data
 Power Transfer 121.21kHz

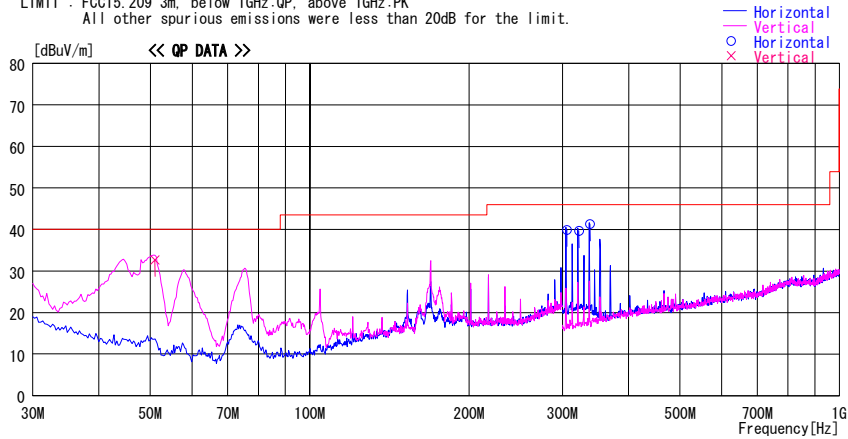
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No. 3 Semi Anechoic Chamber
 Date : 2008/08/20

Company : SEIKO EPSON CORPORATION
 Kind of EUT : Contact-less power transmission module
 Model No. : S4E964000110000
 Serial No. : 003
 Report No. : 28KE0185-HO-01
 Power : AC120V / 60Hz
 Temp./Humi. : 26 deg. C. / 55%
 Engineer : Akio Hayashi

Mode / Remarks : Power Transfer 121.21kHz, Max-axis, Cable(Pri.:11cm, Sec.:20cm(PCB))

LIMIT : FCC15, 209 3m, below 1GHz:QP, above 1GHz:PK
 All other spurious emissions were less than 20dB for the limit.



Frequency [MHz]	Reading [dBuV]	DET	Antenna	Loss	Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
			Factor [dB/m]	Gain [dB]							
51.006	47.3	QP	9.9	-24.5	32.7	170	100	Vert.	40.0	7.3	
306.050	47.1	QP	14.7	-21.9	39.9	8	100	Hori.	46.0	6.1	
322.159	46.3	QP	15.2	-21.8	39.7	8	100	Hori.	46.0	6.3	
338.265	47.3	QP	15.7	-21.7	41.3	8	100	Hori.	46.0	4.7	

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 test result is rounded off to one or two decimal places, so some differences might be observed.

Radiated Emission above 30MHz (Spurious Emission)

Reference Data
Power Transfer 121.21kHz

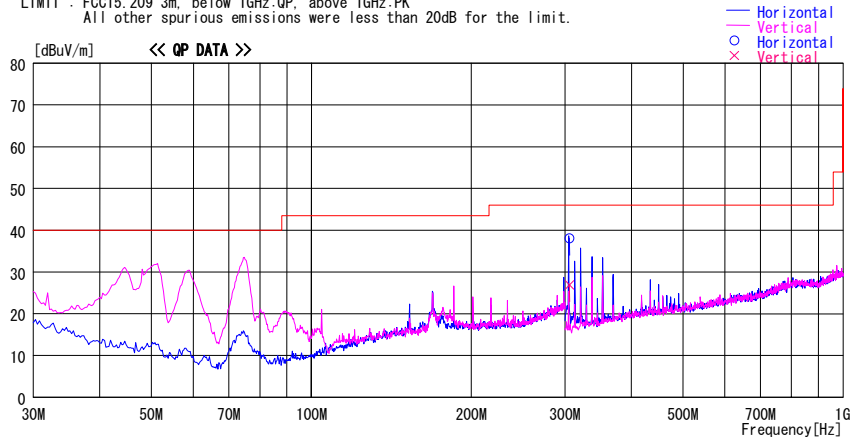
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No. 3 Semi Anechoic Chamber
Date : 2008/08/20

Company : SEIKO EPSON CORPORATION
Kind of EUT : Contact-less power transmission module
Model No. : S4E964000110000
Serial No. : 003
Report No. : 28KE0185-HO-01
Power : DC5.4V (AC120V / 60Hz)
Temp./Humi. : 26deg. C. / 55%
Engineer : Takayuki Shimada

Mode / Remarks : Power Transfer 121.21kHz, Max-axis, Cable(Pri.:11cm, Sec.:10cm(Wire))

LIMIT : FCC15.209 3m, below 1GHz:QP, above 1GHz:PK
All other spurious emissions were less than 20dB for the limit.



Frequency [MHz]	Reading [dBuV]	DET	Antenna	Loss&	Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
			Factor [dB/m]	Gain [dB]							
306.043	45.3	QP	14.7	-21.9	38.1	9	100	Hori.	46.0	7.9	
306.043	34.1	QP	14.7	-21.9	26.9	75	123	Vert.	46.0	19.1	

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 test result is rounded off to one or two decimal places, so some differences might be observed.

Radiated Emission above 30MHz (Spurious Emission)

Reference Data
Power Transfer 121.21kHz

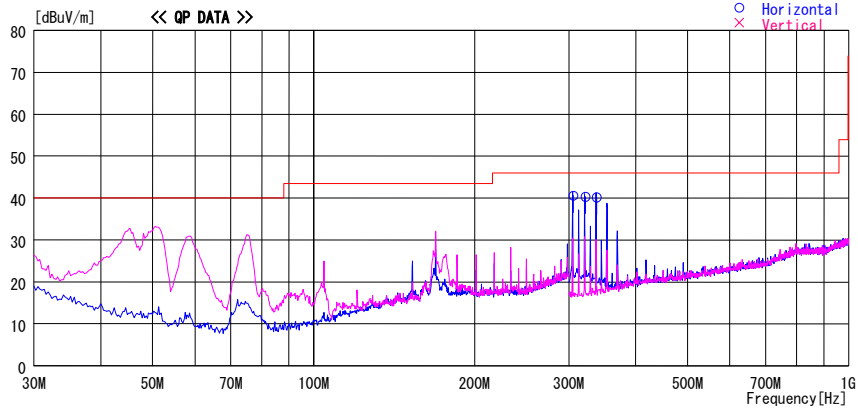
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No. 3 Semi Anechoic Chamber
Date : 2008/08/20

Company : SEIKO EPSON CORPORATION Report No. : 28KE0185-HO-01
Kind of EUT : Contact-less power transmission module Power : AC120V / 60Hz
Model No. : S4E964000110000 Temp./Humi. : 26 deg. C. / 55%
Serial No. : 003 Engineer : Akio Hayashi

Mode / Remarks : Power Transfer 121.21kHz, Max-axis, Cable (Pri.:11cm, Sec.:10cm(PCB))

LIMIT : FCC15.209 3m, below 1GHz:QP, above 1GHz:PK
All other spurious emissions were less than 20dB for the limit.



Frequency [MHz]	Reading [dBuV]	DET	Antenna Factor [dB/m]	Loss & Gain [dB]	Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
306.053	47.8	QP	14.7	-21.9	40.6	8	100	Hori.	46.0	5.4	
322.160	46.9	QP	15.2	-21.8	40.3	8	100	Hori.	46.0	5.7	
338.270	46.2	QP	15.7	-21.7	40.2	8	100	Hori.	46.0	5.8	

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

*The test result is rounded off to one or two decimal places, so some differences might be observed.

Radiated Emission above 30MHz (Spurious Emission)
Reference Data
Power Transfer 121.21kHz

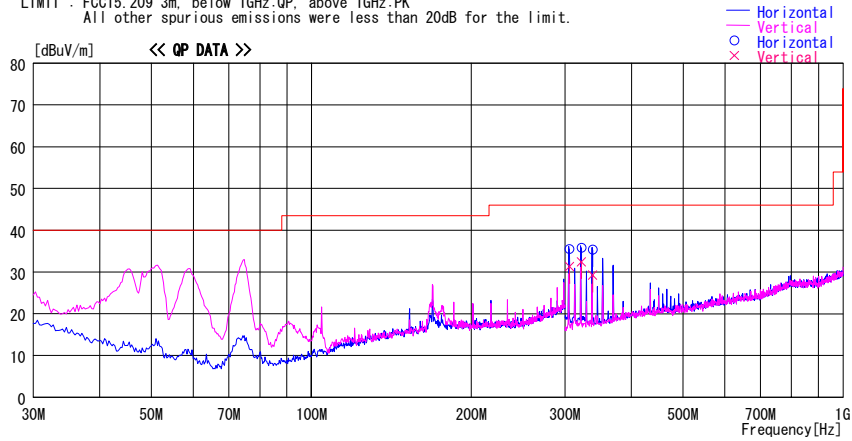
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2008/08/20

Company : SEIKO EPSON CORPORATION
Kind of EUT : Contact-less power transmission module
Model No. : S4E964000110000
Serial No. : 003
Report No. : 28KE0185-HO-01
Power : DC5.4V (AC120V / 60Hz)
Temp./Humi. : 26deg.C / 55%
Engineer : Takayuki Shimada

Mode / Remarks : Power Transfer 121.21kHz, Max-axis, Cable(Pri.:11cm, Sec.:5cm(Wire))

LIMIT : FCC15.209 3m, below 1GHz:QP, above 1GHz:PK
All other spurious emissions were less than 20dB for the limit.



Frequency [MHz]	Reading [dBuV]	DET	Antenna	Loss&	Level	Angle	Height	Polar.	Limit	Margin	Comment
			Factor	Gain							
			[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]	
306.044	42.7	QP	14.7	-21.9	35.5	9	100	Hori.	46.0	10.5	
306.044	38.5	QP	14.7	-21.9	31.3	286	170	Vert.	46.0	14.7	
322.151	42.4	QP	15.2	-21.8	35.8	9	100	Hori.	46.0	10.2	
322.151	39.0	QP	15.2	-21.8	32.4	279	136	Vert.	46.0	13.6	
338.258	41.3	QP	15.7	-21.7	35.3	3	100	Hori.	46.0	10.7	
338.258	35.2	QP	15.7	-21.7	29.2	245	157	Vert.	46.0	16.8	

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

*The test result is rounded off to one or two decimal places, so some differences might be observed.

Radiated Emission above 30MHz (Spurious Emission)

Reference Data
 Power Transfer 121.21kHz

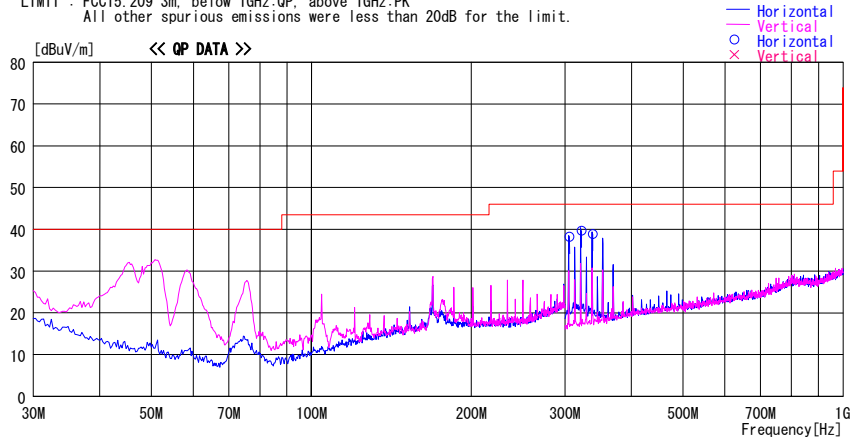
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No. 3 Semi Anechoic Chamber
 Date : 2008/08/20

Company : SEIKO EPSON CORPORATION	Report No. : 28KE0185-HO-01
Kind of EUT : Contact-less power transmission module	Power : DC5.4V (AC120V / 60Hz)
Model No. : S4E964000110000	Temp./Humi. : 26deg. C. / 55%
Serial No. : 003	Engineer : Akio Hayashi

Mode / Remarks : Power Transfer 121.21kHz, Max-axis, Cable (Pri.:11cm, Sec.:5cm (PCB))

LIMIT : FCC15.209 3m, below 1GHz:QP, above 1GHz:PK
 All other spurious emissions were less than 20dB for the limit.



Frequency [MHz]	Reading [dBuV]	DET	Antenna		Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
			Factor [dB/m]	Loss& Gain [dB]							
306.055	45.4	QP	14.7	-21.9	38.2	8	100	Hori.	46.0	7.8	
322.164	46.3	QP	15.2	-21.8	39.7	8	100	Hori.	46.0	6.3	
338.269	44.9	QP	15.7	-21.7	38.9	8	100	Hori.	46.0	7.1	

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 test result is rounded off to one or two decimal places, so some differences might be observed.

Radiated Emission above 30MHz (Spurious Emission)
Reference Data
Power Transfer 121.21kHz

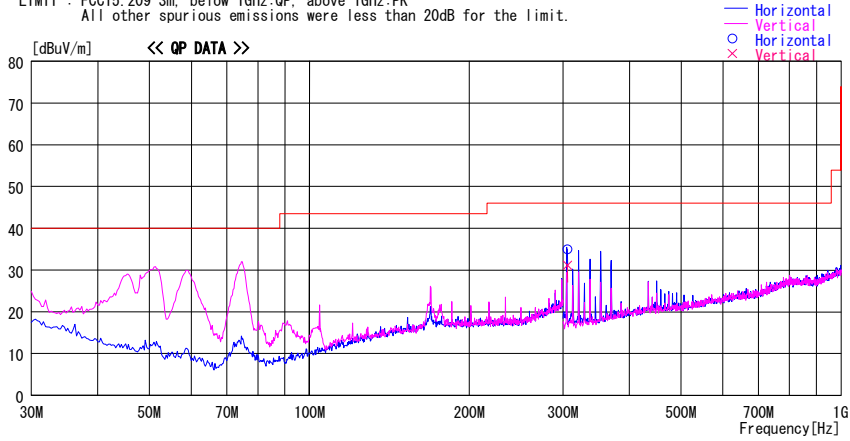
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No. 3 Semi Anechoic Chamber
Date : 2008/08/20

Company : SEIKO EPSON CORPORATION
Kind of EUT : Contact-less power transmission module
Model No. : S4E964000110000
Serial No. : 003
Report No. : 28KE0185-HO-01
Power : DC5.4V (AC120V / 60Hz)
Temp./Humi. : 26deg. C. / 55%
Engineer : Takayuki Shimada

Mode / Remarks : Power Transfer 121.21kHz, Max-axis, Cable(Pri.:11cm, Sec.:Direct)

LIMIT : FCC15.209 3m, below 1GHz:QP, above 1GHz:PK
All other spurious emissions were less than 20dB for the limit.



Frequency [MHz]	Reading [dBuV]	DET	Antenna		Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
			Factor [dB/m]	Loss& Gain [dB]							
306.045	42.2	QP	14.7	-21.9	35.0	9	100	Hor i.	46.0	11.0	
306.045	38.4	QP	14.7	-21.9	31.2	222	180	Vert.	46.0	14.9	

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 test result is rounded off to one or two decimal places, so some differences might be observed.

Radiated Emission above 30MHz (Spurious Emission)
Power Transfer 121.21kHz, Max load

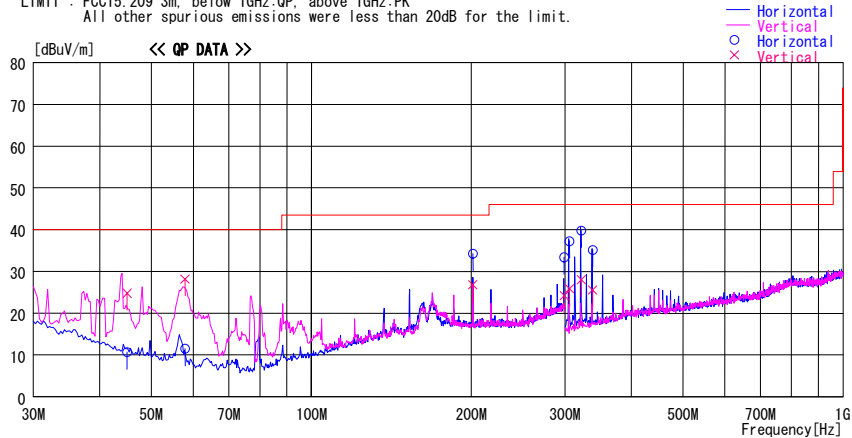
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2008/08/20

Company : SEIKO EPSON CORPORATION
Kind of EUT : Contact-less power transmission module
Model No. : S4E964000110000
Serial No. : 003
Report No. : 28KE0185-HO-01
Power : DC5.4V (AC120V / 60Hz)
Temp./Humi. : 26deg. C. / 55%
Engineer : Takayuki Shimada

Mode / Remarks : Power Transfer 121.21kHz, Max-axis, Cable(Pri.:11cm, Sec.:20cm(Wire)), Max Load

LIMIT : FCC15.209 3m, below 1GHz:QP, above 1GHz:PK
All other spurious emissions were less than 20dB for the limit.



Frequency [MHz]	Reading [dBuV]	DET	Antenna		Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
			Factor [dB/m]	Loss&Gain [dB]							
45.023	23.8	QP	11.6	-24.7	10.7	6	400	Hori.	40.0	29.3	
45.023	37.9	QP	11.6	-24.7	24.8	280	100	Vert.	40.0	15.2	
57.832	27.6	QP	8.3	-24.4	11.5	359	337	Hori.	40.0	28.5	
57.832	44.3	QP	8.3	-24.4	28.2	199	100	Vert.	40.0	11.8	
201.312	41.1	QP	16.2	-23.0	34.3	359	157	Hori.	43.5	9.2	
201.312	33.6	QP	16.2	-23.0	26.8	63	137	Vert.	43.5	16.7	
298.920	35.4	QP	20.0	-22.0	33.4	7	115	Hori.	46.0	12.6	
298.920	26.2	QP	20.0	-22.0	24.2	85	185	Vert.	46.0	21.8	
305.996	44.5	QP	14.7	-21.9	37.3	9	100	Hori.	46.0	8.7	
305.996	33.0	QP	14.7	-21.9	25.8	270	336	Vert.	46.0	20.2	
322.099	46.4	QP	15.2	-21.8	39.8	9	100	Hori.	46.0	6.2	
322.099	34.6	QP	15.2	-21.8	28.0	77	304	Vert.	46.0	18.0	
338.201	41.2	QP	15.7	-21.7	35.2	9	100	Hori.	46.0	10.8	
338.201	31.6	QP	15.7	-21.7	25.6	85	305	Vert.	46.0	20.4	

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 test result is rounded off to one or two decimal places, so some differences might be observed.

Radiated Emission above 30MHz (Spurious Emission)

Reference Data

Power Transfer 121.21kHz, Max load

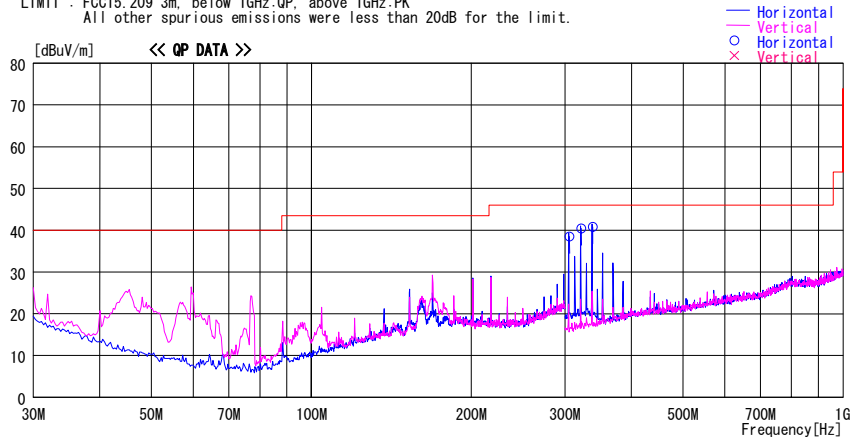
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No. 3 Semi Anechoic Chamber
Date : 2008/08/20

Company : SEIKO EPSON CORPORATION Report No. : 28KE0185-HO-01
Kind of EUT : Contact-less power transmission Power : DC5.4V (AC120V / 60Hz)
Model No. : S4E964000110000 Temp./Humi. : 26deg. C. / 55%
Serial No. : 003 Engineer : Akio Hayashi

Mode / Remarks : Power Transfer 121.21kHz, Max-axis, Cable(Pri.:11cm, Sec.:20cm(PCB)), Max Load

LIMIT : FCC15.209 3m, below 1GHz:QP, above 1GHz:PK
All other spurious emissions were less than 20dB for the limit.

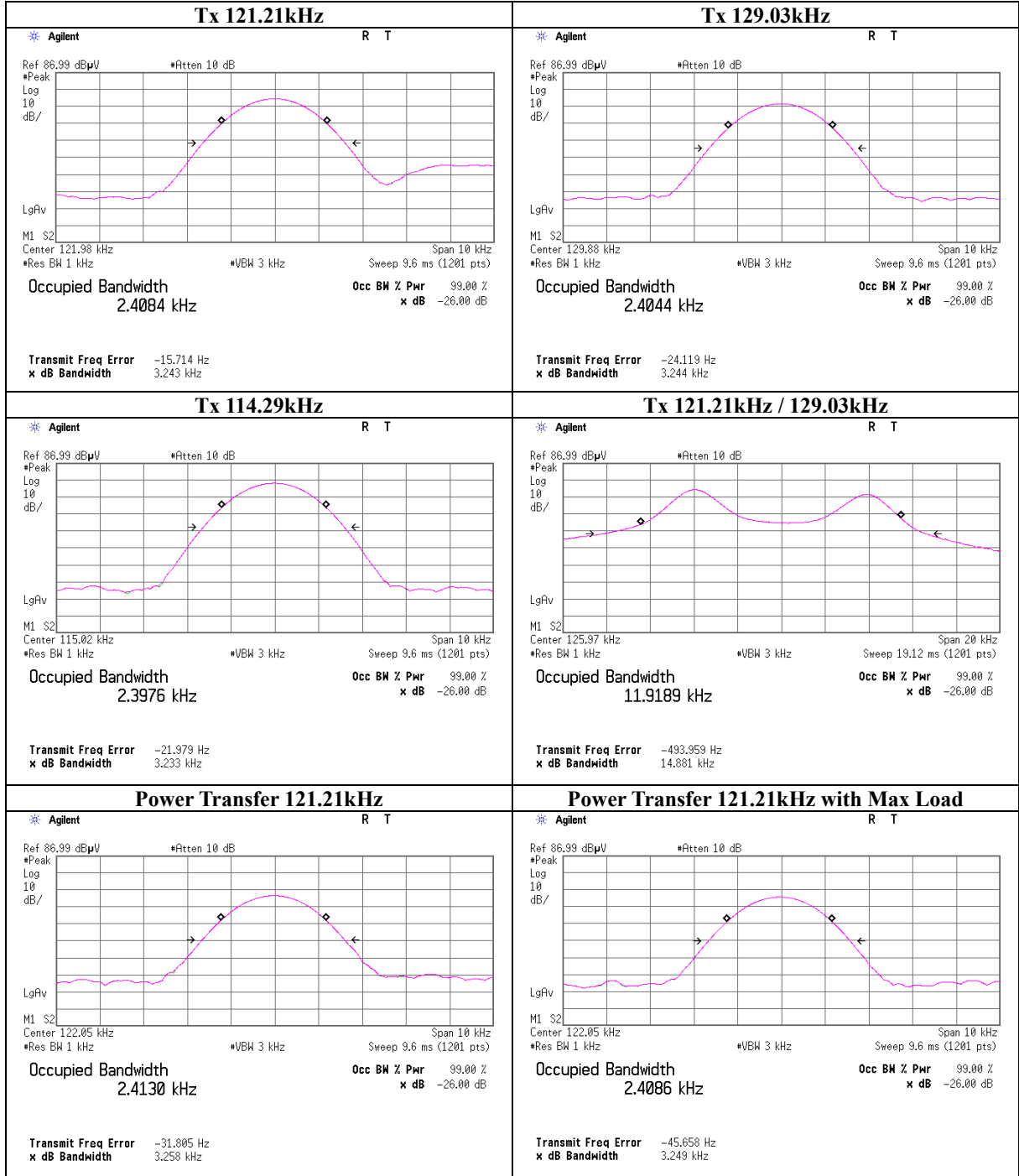


Frequency [MHz]	Reading [dBuV]	DET	Antenna	Loss&	Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
			Factor [dB/m]	Gain [dB]							
306.005	45.7	QP	14.7	-21.9	38.5	8	100	Hori.	46.0	7.5	
322.110	47.0	QP	15.2	-21.8	40.4	8	100	Hori.	46.0	5.6	
338.218	46.8	QP	15.7	-21.7	40.8	8	100	Hori.	46.0	5.2	

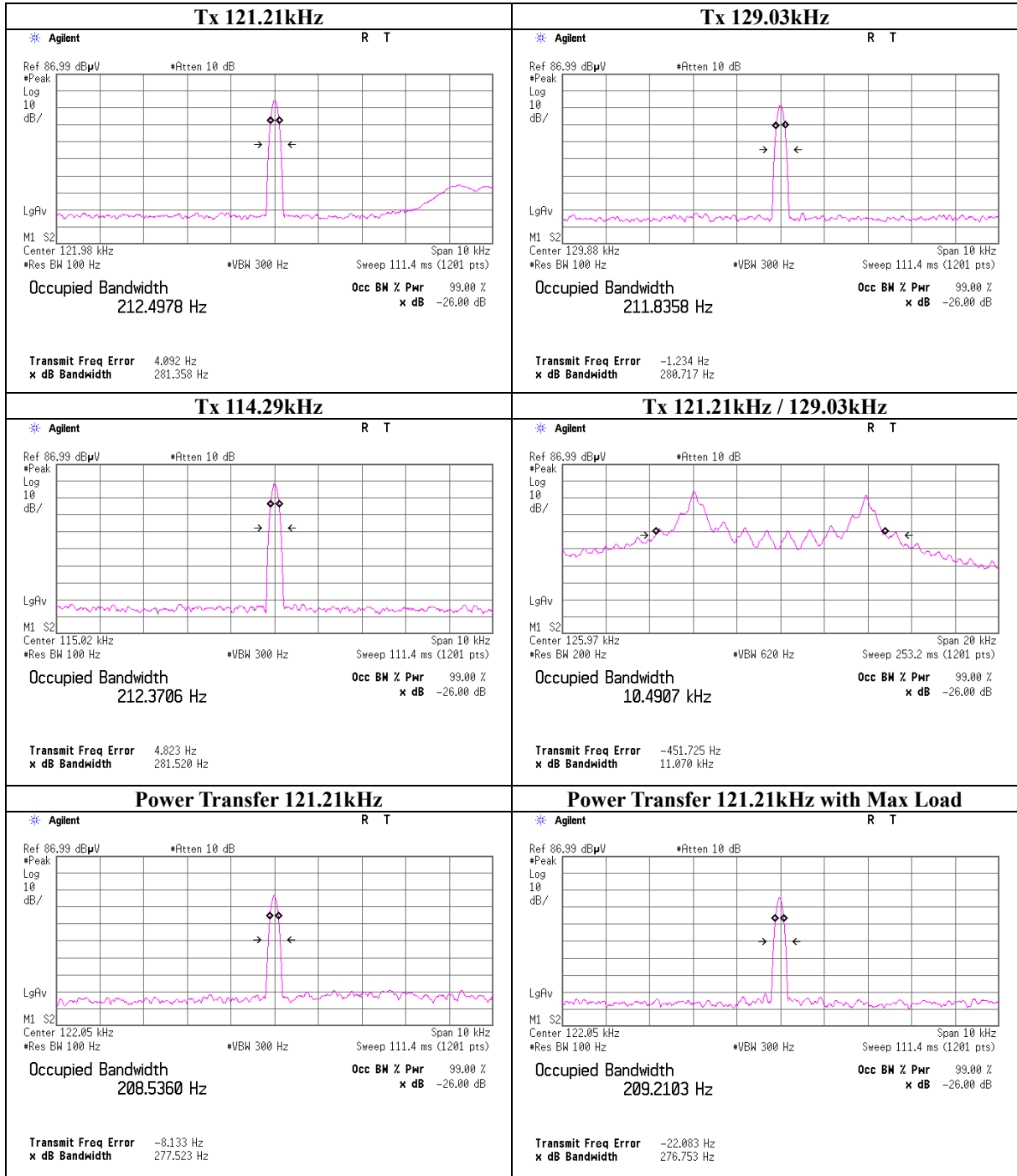
CHART: WITH FACTOR ANT TYPE: -30MHz: LOOP, 30-300MHz: BICONICAL, 300MHz-1000MHz: LOGPERIODIC, 1000MHz--HORN
CALCULATION: RESULT = READING + ANT FACTOR + LOSS (CABLE+ATTEN.) - GAIN (AMP)

*The test result is rounded off to one or two decimal places, so some differences might be observed.

-26dB Bandwidth



99% Occupied Bandwidth



APPENDIX 3: Test instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Test Item	Calibration Date * Interval(month)
MAEC-03	Anechoic Chamber	TDK	Semi Anechoic Chamber 3m	RE	2008/03/25 * 12
MOS-13	Thermo-Hygrometer	Custom	CTH-180	RE	2008/01/10 * 12
MJM-06	Measure	PROMART	SEN1955	RE	-
MSTW-14	EMI measurement program	TSJ	TEPTO-DV	RE/CE	-
MSA-09	Spectrum Analyzer	Advantest	R3273	RE	2007/12/21 * 12
MTR-08	Test Receiver	Rohde & Schwarz	ESCI	RE	2008/06/12 * 12
MBA-03	Biconical Antenna	Schwarzbeck	BBA9106	RE	2008/01/12 * 12
MLA-03	Logperiodic Antenna	Schwarzbeck	USLP9143	RE	2008/01/12 * 12
MCC-51	Coaxial cable	UL Japan	-	RE	2008/07/18 * 12
MAT-30	Attenuator(6dB)	TME	UFA-01	RE	2008/03/10 * 12
MPA-13	Pre Amplifier	SONOMA INSTRUMENT	310	RE	2008/03/06 * 12
MLPA-01	Loop Antenna	Rohde & Schwarz	HFH2-Z2	RE	2007/11/06 * 12
MCC-112	Coaxial cable	Fujikura/Suhner/TSJ	-	RE	2008/07/03 * 12
MSA-04	Spectrum Analyzer	Agilent	E4448A	RE	2008/08/18 * 12
MAEC-04	Anechoic Chamber	TDK	Semi Anechoic Chamber 3m	CE	2008/03/27 * 12
MOS-15	Thermo-Hygrometer	Custom	CTH-180	CE	2008/01/10 * 12
MJM-07	Measure	PROMART	SEN1955	CE	-
MSA-05	Spectrum Analyzer	Advantest	R3273	CE	2008/06/25 * 12
MTR-07	Test Receiver	Rohde & Schwarz	ESCI	CE	2007/09/14 * 12
MLS-06	LISN(AMN)	Schwarzbeck	NSLK8127	CE(EUT)	2008/02/19 * 12
MCC-113	Coaxial cable	Fujikura/Suhner/TSJ	-	CE	2008/07/03 * 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.

As for some calibrations performed after the tested dates, those test equipment have been controlled by means of an unbroken chains of calibrations.

Test Item:

CE: Conducted emission

RE: Spurious emission

UL Japan, Inc.

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