

APPENDIX 2: Data of EMI test

Conducted Emission

DATA OF CONDUCTED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.4 Semi Anechoic Chamber
Date : 2007/01/19

Applicant : Sony EMCS Corporation Saitama TEC
Kind of EUT : RF Stereo Transmitter
Model No. : TMR-RF970R
Serial No. : 14#
Report No. : 27EE0160-HO
Power : AC120V / 60Hz
Temp °C / Humi % : 24deg.C / 30%
Operator : Takumi Shimada

Mode / Remarks: Transmitting ch_1

LIMIT : FCC15.207 QP
FCC15.207 AV

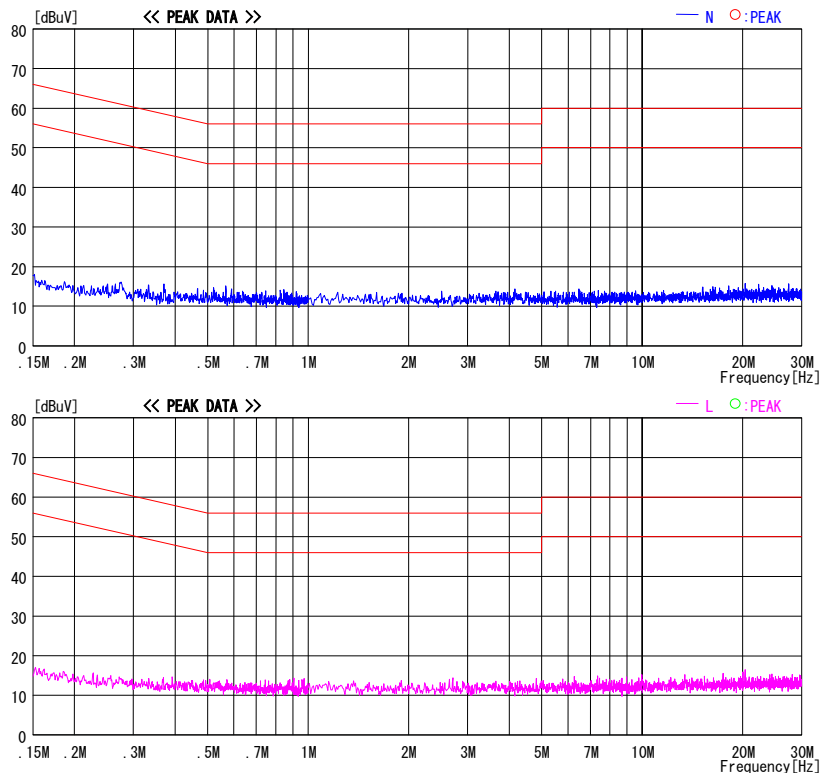


CHART: WITH FACTOR, Peak hold data. Data is uncorrected. CALCULATION: RESULT=READING+C.F (LISN LOSS+CABLE LOSS)
Except for the above table : adequate margin data below the limits.

Test report No. : 27EE0160-HO-F-1
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Revised date : March 5, 2007
FCC ID : AK8TMRRF970R

Conducted Emission

DATA OF CONDUCTED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.4 Semi Anechoic Chamber
Date : 2007/01/19

Applicant : Sony EMCS Corporation Saitama TEC
Kind of EUT : RF Stereo Transmitter
Model No. : TMR-RF970R
Serial No. : 14#
Report No. : 27EE0160-H0
Power : AC120V / 60Hz
Temp°C/Humi% : 24deg. C / 30%
Operator : Takumi Shimada

Mode / Remarks : Transmitting ch_2

LIMIT : FCC15, 207 QP
FCC15, 207 AV

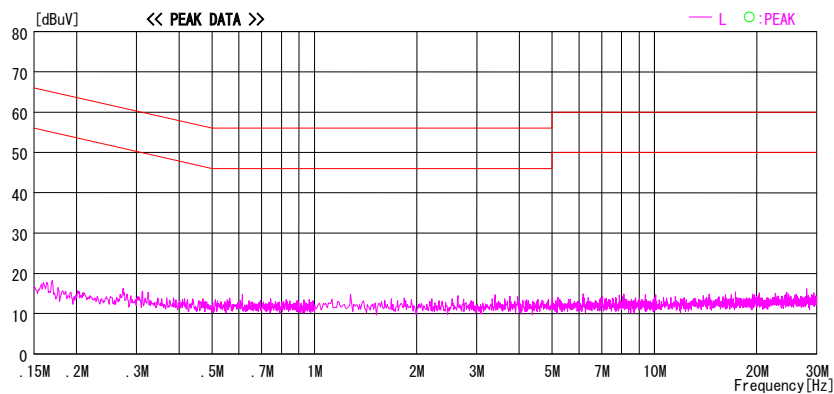
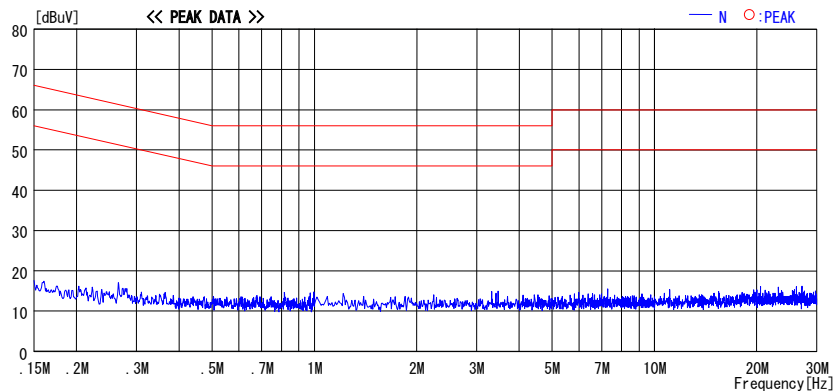


CHART:WITH FACTOR,Peak hold data.Data is uncorrected. CALCURATION:RESULT=READING+C.F(LISN LOSS+CABLE LOSS)
Except for the above table : adequate margin data below the limits.

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MF060b(01.06.05)

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Conducted Emission

DATA OF CONDUCTED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.4 Semi Anechoic Chamber
Date : 2007/01/20

Applicant : Sony EMCS Corporation Saitama TEC
Kind of EUT : RF Stereo Transmitter
Model No. : TMR-RF970R
Serial No. : 14#
Report No. : 27EE0160-H0
Power : AC120V / 60Hz
Temp°C/Humi% : 24deg. C / 30%
Operator : Takumi Shimada

Mode / Remarks : Transmitting ch_3

LIMIT : FCC15, 207 QP
FCC15, 207 AV

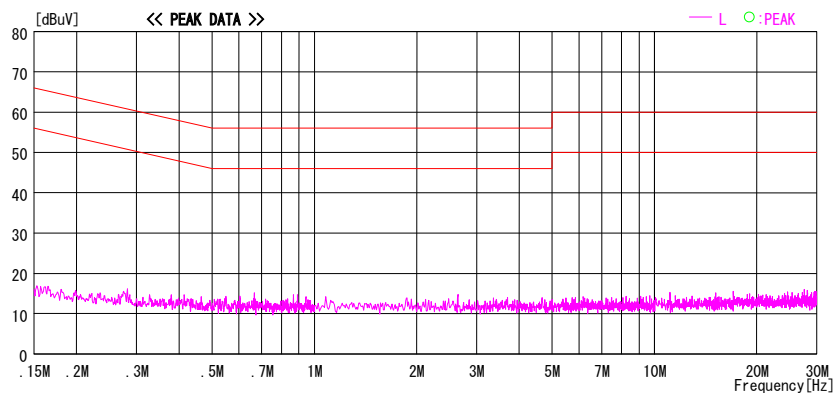
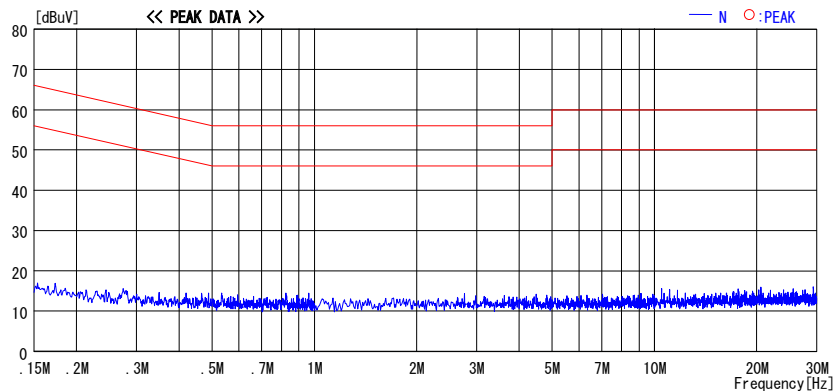


CHART:WITH FACTOR,Peak hold data.Data is uncorrected. CALCURATION:RESULT=READING+C.F(LISN LOSS+CABLE LOSS)
Except for the above table : adequate margin data below the limits.

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Test report No. : 27EE0160-HO-F-1
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Conducted Emission

DATA OF CONDUCTED EMISSION TEST

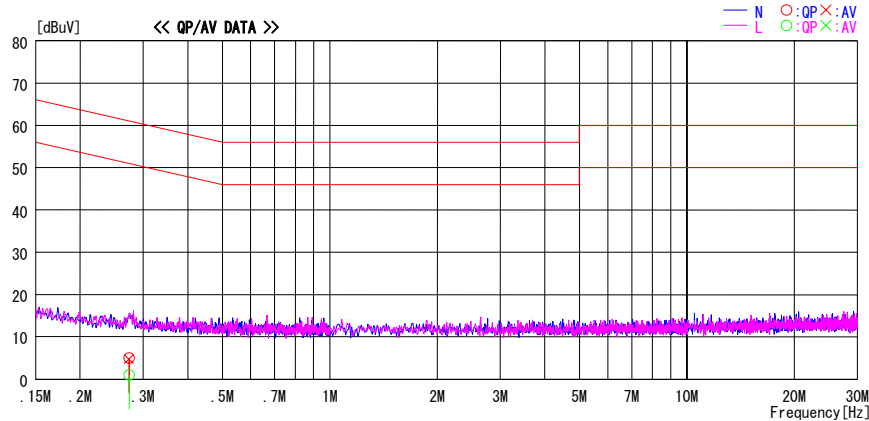
UL Apex Co., Ltd. Head Office EMC Lab. No. 4 Semi Anechoic Chamber
Date : 2007/01/20

Applicant : Sony EMCS Corporation Saitama TEC
Kind of EUT : RF Stereo Transmitter
Model No. : TMR-RF970R
Serial No. : 14#

Report No. : 27EE0160-HO
Power : AC120V / 60Hz
Temp°C/Humi% : 24deg. C / 30%
Operator : Takumi Shimada

Mode / Remarks : Transmitting ch_3

LIMIT : FCC15.207 QP
FCC15.207 AV



Frequency [MHz]	Reading Level		Corr. Factor [dB]	Results		Limit		Margin		Phase
	QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dB]	AV [dB]	
0.27386	4.9	-4.6	0.1	5.0	4.7	61.0	51.0	56.0	46.3	N
0.68197	-2.5	-5.1	0.3	-2.2	-4.8	56.0	46.0	58.2	50.8	N
0.81895	-1.1	-2.8	0.3	-0.8	-2.5	56.0	46.0	56.8	48.5	N
0.95520	-0.4	-1.9	0.3	-0.1	-1.6	56.0	46.0	56.1	47.6	N
1.22832	-2.2	-4.7	0.3	-1.9	-4.4	56.0	46.0	57.9	50.4	N
1.36469	-2.5	-4.9	0.3	-2.2	-4.6	56.0	46.0	58.2	50.6	N
0.27386	0.9	-0.3	0.1	1.0	-0.2	61.0	51.0	60.0	51.2	L
0.68197	-4.3	-7.6	0.3	-4.0	-7.3	56.0	46.0	60.0	53.3	L
0.81895	-2.4	-4.8	0.3	-2.1	-4.5	56.0	46.0	58.1	50.5	L
0.95520	-2.4	-4.7	0.3	-2.1	-4.4	56.0	46.0	58.1	50.4	L
1.22832	-3.2	-5.8	0.3	-2.9	-5.5	56.0	46.0	58.9	51.5	L
1.36469	-3.4	-6.3	0.3	-3.1	-6.0	56.0	46.0	59.1	52.0	L

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

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

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Radiated Emission (Fundamental and Spurious emission)below 1GHz
(Tx: Ch. 1)

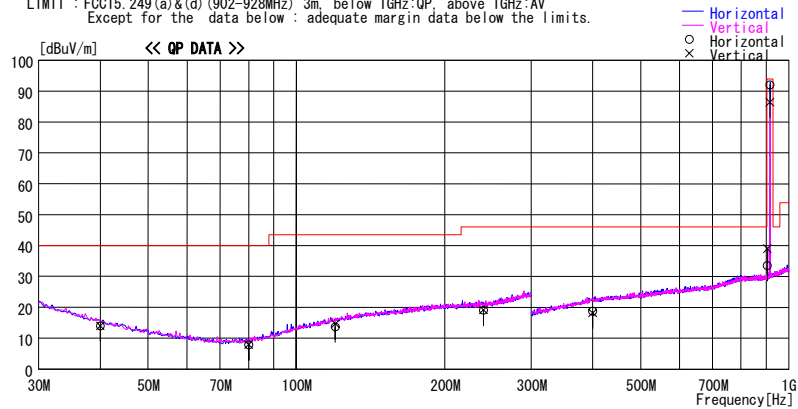
DATA OF RADIATED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.3 Semi Anechoic Chamber
2006/12/26

Company : Sony EMCS Corporation Saitama TEC Report No. : 27EE0160-HO
Kind of EUT : RF Stereo Transmitter Power : AC 120V / 60Hz
Model No. : TMR-RF970R Temp./Humi. : 24deg.C / 38%
Serial No. : 14# Operator : Norihisa Hashimoto

Mode / Remarks: Transmitting ch_1

LIMIT : FCC15.249(a)&(d) (902-928MHz) 3m, below 1GHz:QP, above 1GHz:AV
Except for the data below : adequate margin data below the limits.



Frequency	Reading	DET	Antenna Factor	Loss & Gain	Level	Angle	Height	Polar.	Limit	Margin
[MHz]	[dBuV]		[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]
40.000	24.7	QP	14.2	-24.9	14.0	90	100	Hori.	40.0	26.0
40.000	24.7	QP	14.2	-24.9	14.0	11	100	Vert.	40.0	26.0
80.000	25.0	QP	7.1	-24.2	7.9	92	100	Vert.	40.0	32.1
80.000	25.0	QP	7.1	-24.2	7.9	25	100	Hori.	40.0	32.1
120.000	23.9	QP	13.5	-23.7	13.7	216	100	Hori.	43.5	29.8
120.000	24.9	QP	13.5	-23.7	14.7	331	105	Vert.	43.5	28.8
240.000	24.1	QP	17.8	-22.7	19.2	92	100	Vert.	46.0	26.8
240.000	24.0	QP	17.8	-22.7	19.1	0	100	Hori.	46.0	26.9
400.000	22.5	QP	17.9	-21.7	18.7	280	100	Hori.	46.0	27.3
400.000	22.0	QP	17.9	-21.7	18.2	12	100	Vert.	46.0	27.8
904.790	30.2	QP	21.6	-18.3	33.5	305	239	Hori.	46.0	12.5
904.801	35.7	QP	21.6	-18.3	39.0	97	100	Vert.	46.0	7.0
915.500	82.7	QP	21.8	-18.1	86.4	208	100	Vert.	93.9	7.5 (Fundamental)
915.504	88.3	QP	21.8	-18.1	92.0	170	100	Hori.	93.9	1.9 (Fundamental)

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 limit is rounded down to one decimal place.

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

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FCC ID : AK8TMRRF970R

Radiated Emission (Spurious emission)above 1GHz
(Tx: Ch. 1)

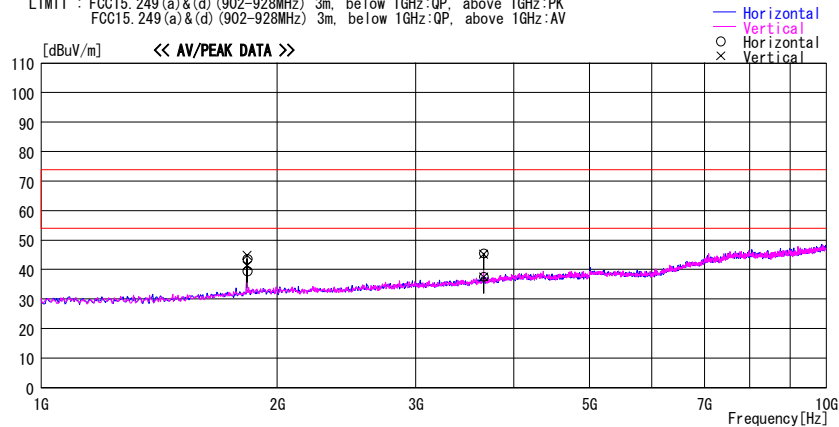
DATA OF RADIATED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No. 3 Semi Anechoic Chamber
2006/12/29

Company : Sony EMCS Corporation Saitama TEC Report No. : 27EE0160-H0
Kind of EUT : RF Stereo Transmitter Power : AC 120V / 60Hz
Model No. : TMR-RF970R Temp./Humi. : 23deg. C. /32%
Serial No. : 14# Operator : Norihisa Hashimoto

Mode / Remarks : Transmitting ch_1

LIMIT : FCC15.249 (a) & (d) (902-928MHz) 3m, below 1GHz:QP, above 1GHz:PK
FCC15.249 (a) & (d) (902-928MHz) 3m, below 1GHz:QP, above 1GHz:AV



Frequency [MHz]	Reading [dBuV]	DET	Antenna	Loss&	Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]
			Factor [dB/m]	Gain [dB]						
1831.000	47.1	PK	27.8	-31.3	43.6	0	100	Hori.	73.9	30.3
1831.000	48.3	PK	27.8	-31.3	44.8	0	100	Vert.	73.9	29.1
1831.000	43.0	AV	27.8	-31.3	39.5	0	100	Hori.	53.9	14.4
1831.000	44.8	AV	27.8	-31.3	41.3	0	100	Vert.	53.9	12.6
3662.000	43.2	PK	31.1	-29.1	45.2	0	100	Vert.	73.9	28.7
3662.000	43.5	PK	31.1	-29.1	45.5	0	100	Hori.	73.9	28.4
3662.000	35.5	AV	31.1	-29.1	37.5	0	100	Vert.	53.9	16.4
3662.000	35.6	AV	31.1	-29.1	37.6	0	100	Hori.	53.9	16.3

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

*The limit is rounded down to one decimal place.

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

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Test report No. : 27EE0160-HO-F-1
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FCC ID : AK8TMRRF970R

Radiated Emission (Spurious emission)above 1GHz
(Tx: Ch. 2)

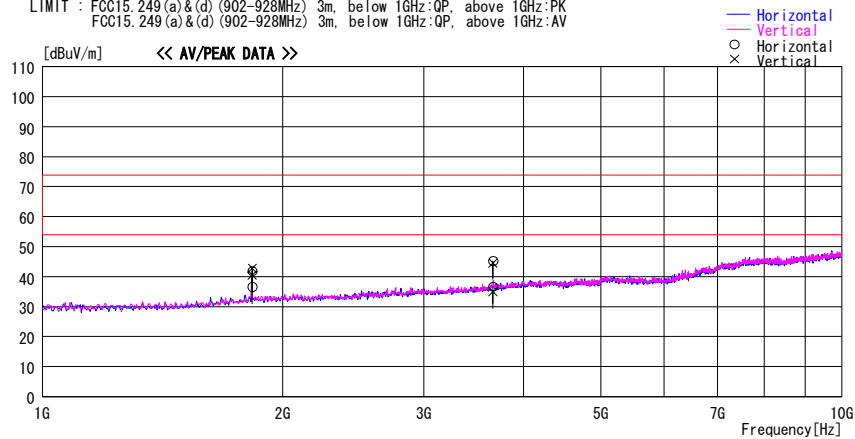
DATA OF RADIATED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.3 Semi Anechoic Chamber
2006/12/29

Company : Sony EMCS Corporation Saitama TEC
Kind of EUT : RF Stereo Transmitter
Model No. : TMR-RF970R
Serial No. : 14#
Report No. : 27EE0160-HO
Power : AC 120V / 60Hz
Temp./Humi. : 23deg. C. /32%
Operator : Norihisa Hashimoto

Mode / Remarks : Transmitting ch.2

LIMIT : FCC15.249(a)&(d)(902-928MHz) 3m, below 1GHz:QP, above 1GHz:PK
FCC15.249(a)&(d)(902-928MHz) 3m, below 1GHz:QP, above 1GHz:AV



Frequency	Reading	DET	Antenna	Loss&	Level	Angle	Height	Polar.	Limit	Margin
			Factor	Gain						
[MHz]	[dBuV]		[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]
1832.000	45.4	PK	27.8	-31.3	41.9	0	100	Hori.	73.9	32.0
1832.000	46.2	PK	27.8	-31.3	42.7	0	100	Vert.	73.9	31.2
1832.000	40.1	AV	27.8	-31.3	36.6	0	100	Hori.	53.9	17.3
1832.000	43.9	AV	27.8	-31.3	40.4	0	100	Vert.	53.9	13.6
3664.000	42.6	PK	31.1	-29.1	44.6	0	100	Vert.	73.9	29.4
3664.000	43.3	PK	31.1	-29.1	45.3	0	100	Hori.	73.9	28.7
3664.000	32.9	AV	31.1	-29.1	34.9	0	100	Vert.	53.9	19.0
3664.000	34.7	AV	31.1	-29.1	36.7	0	100	Hori.	53.9	17.2

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 limit is rounded down to one decimal place.

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

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MF060b(01.06.05)

Test report No. : 27EE0160-HO-F-1
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FCC ID : AK8TMRRF970R

Radiated Emission (Spurious emission)above 1GHz
(Tx: Ch. 3)

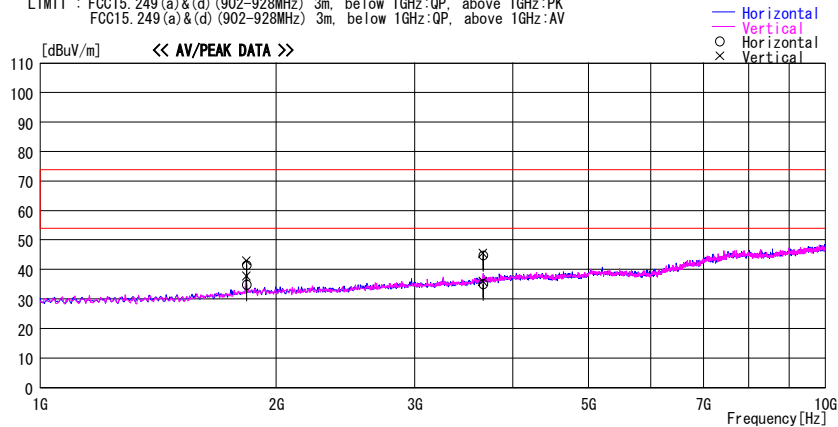
DATA OF RADIATED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No. 3 Semi Anechoic Chamber
2006/12/29

Company : Sony EMCS Corporation Saitama TEC Report No. : 27EE0160-H0
Kind of EUT : RF Stereo Transmitter Power : AC 120V / 60Hz
Model No. : TMR-RF970R Temp./Humi. : 23deg. C. /32%
Serial No. : 14# Operator : Norihisa Hashimoto

Mode / Remarks : Transmitting ch_3

LIMIT : FCC15.249(a)&(d)(902-928MHz) 3m, below 1GHz:QP, above 1GHz:PK
FCC15.249(a)&(d)(902-928MHz) 3m, below 1GHz:QP, above 1GHz:AV



Frequency [MHz]	Reading [dBuV]	DET	Antenna	Loss&	Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]
			Factor [dB/m]	Gain [dB]						
1833.000	45.0	PK	27.8	-31.3	41.5	0	100	Hori.	73.9	32.4
1833.000	46.5	PK	27.8	-31.3	43.0	0	100	Vert.	73.9	30.9
1833.000	38.4	AV	27.8	-31.3	34.9	0	100	Hori.	53.9	19.0
1833.000	41.2	AV	27.8	-31.3	37.7	0	100	Vert.	53.9	16.2
3666.000	43.5	PK	31.1	-29.1	45.5	0	100	Vert.	73.9	28.4
3666.000	42.8	PK	31.1	-29.1	44.8	0	100	Hori.	73.9	29.1
3666.000	34.0	AV	31.1	-29.1	36.0	0	100	Vert.	53.9	17.9
3666.000	33.0	AV	31.1	-29.1	35.0	0	100	Hori.	53.9	18.9

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 limit is rounded down to one decimal place.

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

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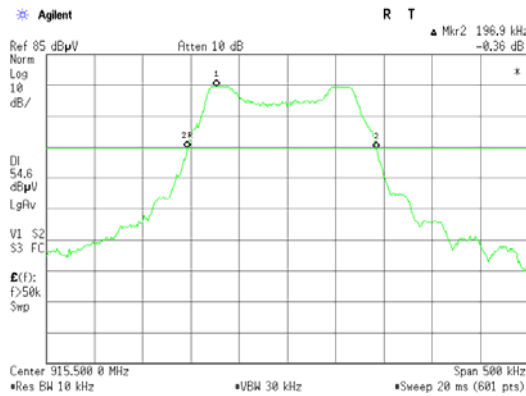
-20dB Bandwidth

Company : SONY EMCS Corporation Saitama TEC
Equipment : RF Stereo Transmitter
Model : TMR-RF970R
S/N : 14#
Power : AC120V/60Hz
Mode : Transmitting

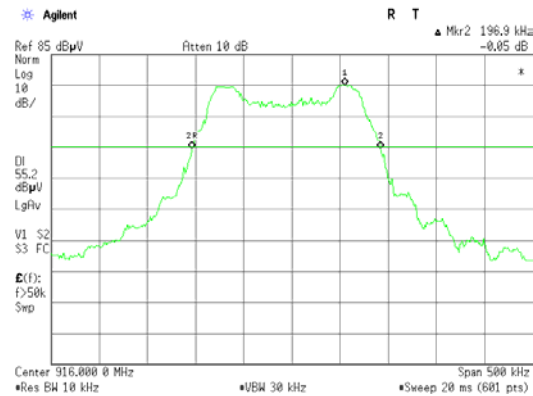
UL-Apex
Head Office EMC Lab. No.7 Shielded room
Regulation : FCC 15.215
Test Distance : 3m
Date : 12/29/2006
Temperature : 23 deg.C.
Humidity : 32 %
Engineer : Norihisa Hashimoto

FREQ [MHz]	-20dB Bandwidth [kHz]
915.5000	196.90
916.0000	196.90
916.5000	205.30

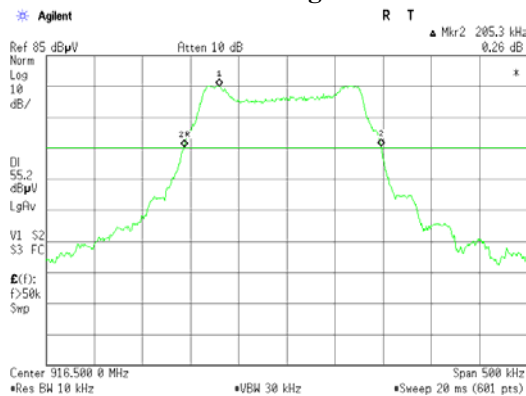
Ch.: Low



Ch.: Mid



Ch.: High



99% Occupied Bandwidth

UL-Apex

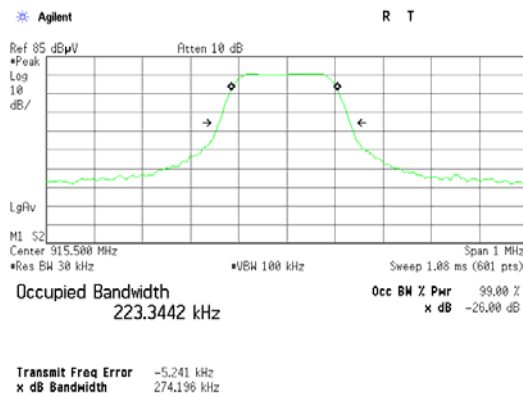
Head Office EMC Lab. No.7 Shielded room

Company : SONY EMCS Corporation Saitama TEC
Equipment : RF Stereo Transmitter
Model : TMR-RF970R
S/N : 14#
Power : AC120V/60Hz
Mode : Transmitting

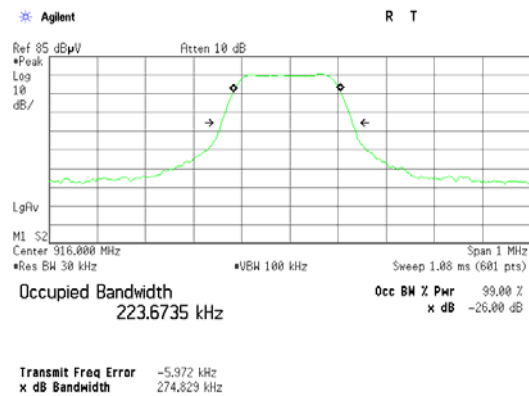
Regulation : FCC 15.215
Test Distance : 3m
Date : 12/29/2006
Temperature : 23 deg.C.
Humidity : 32 %
Engineer : Norihisa Hashimoto

FREQ [MHz]	99% Occupied Bandwidth [kHz]
915.0000	223.34
915.5000	223.67
916.0000	224.01

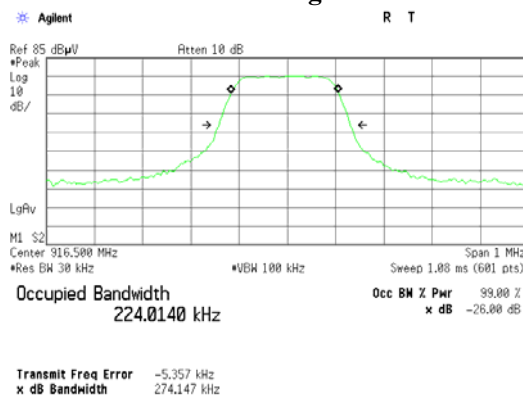
Ch.: Low



Ch.: Mid



Ch.: High



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MF060b(01.06.05)

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	2006/03/03 * 12
MBA-03	Biconical Antenna	Schwarzbeck	BBA9106	RE	2007/01/19 * 12
MLA-03	Logperiodic Antenna	Schwarzbeck	USLP9143	RE	2007/01/19 * 12
MCC-51	Coaxial cable	UL Apex	-	RE	2006/03/11 * 12
MSA-09	Spectrum Analyzer	Advantest	R3273	RE	2006/12/08 * 12
TR-07	Test Receiver	Rohde & Schwarz	ESCS30	RE	2006/09/12 * 12
MAT-30	Attenuator(6dB)	TME	UFA-01	RE	2006/03/11 * 12
MSTW-14	EMI measurement program	TSJ	TEPTO-DV	RE/CE	-
MOS-12	Thermo-Hygrometer	Custom	CTH-180	RE	2006/01/19 * 24
MHA-20	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	RE	2006/04/06 * 12
MCC-56	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX104	RE	2006/04/15 * 12
MPA-11	MicroWave System Amplifier	Agilent	83017A	RE	2006/03/27 * 12
MAEC-04	Anechoic Chamber	TDK	Semi Anechoic Chamber 3m	RE/CE	2006/03/06 * 12
MSA-05	Spectrum Analyzer	Advantest	R3273	RE/CE	2006/05/20 * 12
MTR-02	Test Receiver	Rohde & Schwarz	ESCS30	CE	2006/02/02 * 12
MCC-50	Coaxial cable	UL Apex	-	CE	2006/03/09 * 12
MLS-06	LISN(AMN)	Schwarzbeck	NSLK8127	CE (EUT)	2006/02/06 * 12
MHA-21	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	RE	2006/08/17 * 12
MCC-57	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX104	RE	2006/04/15 * 12
MPA-12	MicroWave System Amplifier	Agilent	83017A	RE	2006/03/27 * 12
MOS-15	Thermo-Hygrometer	Custom	CTH-180	RE/CE	2006/01/19 * 24
MSA-06	Spectrum Analyzer	Agilent	E4408A	RE	2006/06/02

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

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