

EMI TEST REPORT

Test Report No. : 23DE0077-HO-3

Applicant : Sony EMCS Corporation
Type of Equipment : Transmitter
Model No. : TMR-GSX100
Test standard : FCC Part 15 Subpart C Section 15.207, Section 15.249
FCC ID : AK8GSX100
Test Result : Complied

1. This test report shall not be reproduced in full or partial, without the written approval of A-Pex International Co., Ltd.
2. The results in this report apply only to the sample tested.
3. This equipment is in compliance with above regulation. We hereby certify that the data contain a true representation of the EMC profile.
4. The test results in this report are traceable to the national or international standards.
5. This test report does not constitute an endorsement by NIST/NVLAP or U.S. Government.

Date of test : December 10 and 11, 2002

Tested by : Sumio Nishii
Sumio Nishii
EMC Head Office Division

Approved by : Hironobu Shimoji
Hironobu Shimoji
Group Leader of EMC Head Office Division

A-Pex International Co., Ltd. EMC Head Office Division.

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SECTION 1: Client information

Company name : Sony EMCS Corporation
Brand name : SONY
Address : Sinagawa Intercity C tower Shinagawa Tec.
2-15-3, Konan Minato-ku, Tokyo, 108-6201, Japan
Telephone Number : +81-3-5769-5293
Facsimile Number : +81-3-5769-5849
Contact Person : Shoji Kohara

SECTION 2: Equipment under test (E.U.T.)

2.1 Identification of E.U.T.

Type of Equipment : Transmitter
Model No. : TMR-GSX100
Serial No. : 1
Rating : TMR-GSX100 : DC IN 9.0V
AC-GSX100 : Input:AC120V/ 60Hz, 4W Output : DC9V, 100mA
Country of Manufacture : Korea
Receipt Date of Sample : December 2, 2002
Condition of EUT : Engineering prototype

2.2 Product Description

TMR-GSX100 is a Transmitter of Sony Mini Hi-Fi Component System, MHC-GSX100W.

The specification is as following

Carrier Frequency : CH1:913.5MHz / CH2:914.0MHz / CH3:914.5MHz
Type of Modulation : FM
Antenna Type : Integral Antenna (Mono Pole Antenna)

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SECTION 3: Test specification, procedures and results

3.1 Test Specification

Test Specification : FCC Part 15 Subpart C Section 15.207 and Section 15.249
Title : FCC 47CFR Part 15 Radio Frequency Device Subpart C Intentional Radiators
Section 15.207 Conducted emission limits; general requirements
Section 15.249 Operation within the bands 902-928MHz, 2400-2483.5MHz,
5725-5785MHz and 24.0-24.25GHz

3.2 Procedures and results

No.	Item	Test Procedure	Specification	Deviation	Worst margin	Results
1	Conducted Emission	ANSI C63.4:2001	Section 15.207(a)	N/A	27.7dB(0.4048MHz, L1):CH1	Complied
2	Radiated Emission	ANSI C63.4:2001	Section 15.249	N/A	<u>Fundamental</u> 6.4dB(913.55MHz, Vertical): CH1 6.4dB(914.08MHz, Vertical): CH2 6.8dB(914.63MHz, Vertical): CH3 <u>Spurious</u> 12.8dB(3654.1MHz, Vertical): CH1 9.3dB(2742.0MHz, Vertical): CH2 7.2dB(2743.8MHz, Vertical): CH3	Complied

3.3 Additions to standards

No addition, deviation or exclusion has been made from standards.

3.4 Confirmation

A-Pex International Co., Ltd. hereby confirms that E.U.T. , in the configuration tested, complies with the specifications FCC Part 15 Subpart C Section 15.207 and Section 15.249.

3.5 Uncertainty

Conducted emission test

The measurement uncertainty (with a 95% confidence level) for this test was ± 1.3 dB.

The data listed in this test report may exceed the test limit because it does not have enough margin.

■ The data listed in this test report has enough margin, more than the site margin.

Radiated emission test

The measurement uncertainty (with a 95% confidence level) for this test using Biconical antenna (3m) is ± 4.5 dB.

The measurement uncertainty (with a 95% confidence level) for this test using Logperiodic antenna (3m) is ± 5.2 dB.

The measurement uncertainty (with a 95% confidence level) for this test using Horn antenna (3m) is ± 6.6 dB.

The data listed in this test report may exceed the test limit because it does not have enough margin.

■ The data listed in this test report has enough margin, more than the site margin.

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3.6 Test Location

A-Pex International Co., Ltd. EMC Head Office Division. No.1 semi anechoic chamber, 19.2 x 11.2 x 7.7m.

A-Pex International Co., Ltd. EMC Head Office Division. No.2 semi anechoic chamber, 7.5 x 5.8 x 5.2m.

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This site has been fully described in a report submitted to FCC office, and listed on February 01, 2002 / June 05, 2002 (Registration number: 313583 / 846015).

*NVLAP Lab. code: 200572-0

3.7 Test setup, Data of EMI & Test instruments

Refer to Appendix 1 to 3.

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SECTION 4: Operation of E.U.T. during testing

4.1 Operating Modes

The EUT exercise program used during radiated testing was designed to exercise the various system components in a manner similar to typical use.

The operating mode/system was as follows:

Operation mode : Transmitting

CH1:913.5MHz

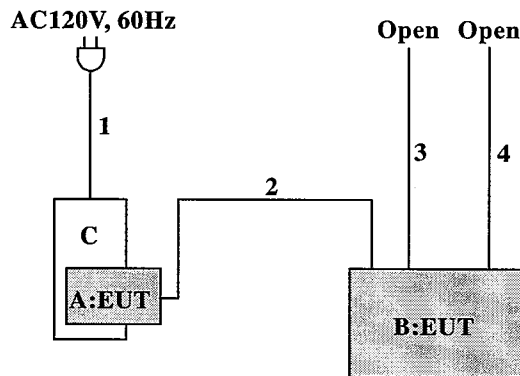
CH2:914.0MHz

CH3:914.5MHz

Justification: The system was configured in typical fashion (as a customer would normally use it) for testing.

4.2 Configuration and peripherals

Front View



* Test data was taken under worse case conditions.

Description of EUT

No.	Item	Model number	Serial number	Manufacturer	Remark
A	AC Adapter	AC-GSX100	1	Sony EMCS Corporation	EUT FCC ID : AK8GSX100
B	Transmitter	TMR-GSX100	1	Sony EMCS Corporation	EUT FCC ID : AK8GSX100
C	Table tap	-	-	-	-

List of cables used

No.	Item	Length (m)	Shield	Backshell Material	Remark
1	AC Cable	1.4	N	Polyvinyl chloride	-
2	DC Cable	2.0	N	Polyvinyl chloride	-
3	Connecting cord phone	1.0	N	Polyvinyl chloride	-
4	Audio Cable	1.5	N	Polyvinyl chloride	-

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SECTION 5: Conducted emission

5.1 Operating environment

The test was carried out on a reference ground plane 4.0 x 4.0m in No.2 semi Anechoic Chamber, 7.5 x 5.8 x 5.2 m.

Temperature : See data
Humidity : See data

5.2 Test configuration

EUT was placed on a platform of nominal size, 1m by 1.5m, raised 80cm above the conducting ground plane. The rear of tabletop was located 40cm to the vertical conducting plane. The rear of EUT and its peripherals was aligned and flushed with rear of tabletop. All other surfaces of tabletop were at least 80cm from any other grounded conducting surface. EUT was located 80cm from LISN and excess AC cable was bundled in center. I/O cables that were connected to the peripherals were bundled in center. They were folded back and forth forming a bundle 30cm to 40cm long and were hanged at a 40cm height to the ground plane. Each EUT current-carrying power lead, except the ground (safety) lead, was individually connected through a LISN to the input power source. All unused 50 ohm connectors of the LISN were resistively terminated in 50 ohm when not connected to the measuring equipment. A drawing of the set up is shown in the photos of APPENDIX 1.

5.3 Test conditions

Frequency range : 0.15MHz-30MHz
EUT position : Table top
EUT operation mode: Transmitting
CH1:913.5MHz
CH2:914.0MHz
CH3:914.5MHz

5.4 Test procedure

The AC Mains Terminal Continuous disturbance Voltage has been measured with the EUT within a screened room. The EUT was connected to a Line Impedance Stabilization Network (LISN). An overview sweep with peak detection has been performed. The measurements have been performed with a quasi-peak detector and if required, with an average detector. The conducted emission measurements were made with the following detector function of the test receiver.

Detector Type : Quasi-Peak
IF Bandwidth : 9 kHz

5.5 Results

Summary of the test results: Pass

Date: December 11, 2002

Test engineer: Sumio Nishii

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SECTION 6: Radiated emission (Fundamental and Spurious Emission)

6.1 Operating environment

The test below 1GHz was carried out in a No.2 semi anechoic chamber, 7.5 x 5.8 x 5.2m.
The test above 1GHz was carried out in a No.1 semi anechoic chamber, 19.2 x 11.2 x 7.7m.

Temperature : See data
Humidity : See data

6.2 Test configuration

EUT was placed on a platform of nominal size, 1m by 1.5m, raised 80cm above the conducting ground plane.
The EUT was set on the center of the tabletop and the rear the peripheral was aligned and flushed with rear of tabletop.
Test was made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna was varied in height above the conducting ground plane to obtain the maximum signal strength.
A drawing of the set up is shown in the photos of Appendix 1.

6.3 Test conditions

Frequency range : 30MHz – 300MHz(Biconical antenna) / 300MHz – 1000MHz(Logperiodic antenna) /
1GHz - 10GHz(Horn antenna)
Test distance : 3m
EUT position : Tabletop
EUT operation mode : Transmitting
CH1:913.5MHz
CH2:914.0MHz
CH3:914.5MHz

6.4 Test procedure

The Radiated Electric Field Strength intensity has been measured on No.1 and No.2 semi anechoic chamber with a ground plane and at a distance of 3m.
Measurements were performed with a quasi-peak detector, average detector or peak detector.
The measuring antenna height was varied between 1 to 4m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity.
The measurements were performed for both vertical and horizontal antenna polarization.
The radiated emission measurements were made with the following detector function of the test receiver.

	Below 1GHz	Above 1GHz
Detector Type	Quasi-Peak	Average/Peak
IF Bandwidth	120kHz	1MHz

5.5 Results

Summary of the test results: Pass

Date: December 10 and 11, 2002

Tested by: S. Nishii

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APPENDIX 1: Photographs of test setup

Page 10 : Conducted emission

Page 11 : Radiated emission

APPENDIX 2: Test instruments

Page 12 : Test instruments

APPENDIX 3: Data of EMI test

Page 13-17 : Conducted Emission

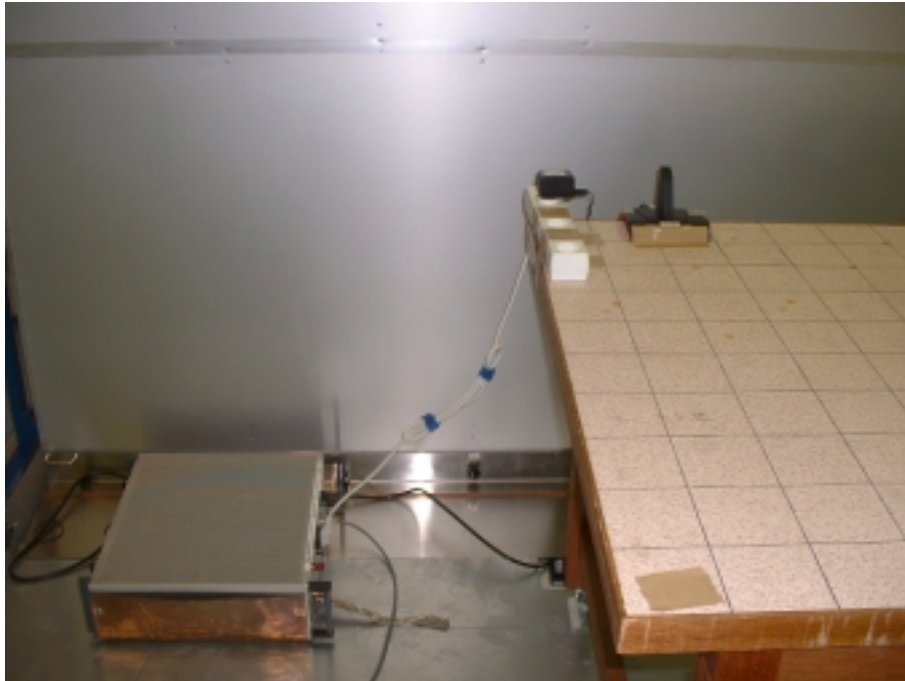
Page 18-20 : Radiated Emission (Electric Field Strength of Fundamental and Spurious Emission)

Page 21-23 : -20dB Bandwidth

Page 24 : Frequency Stability

APPENDIX 1: Photographs of test setup

Conducted emission

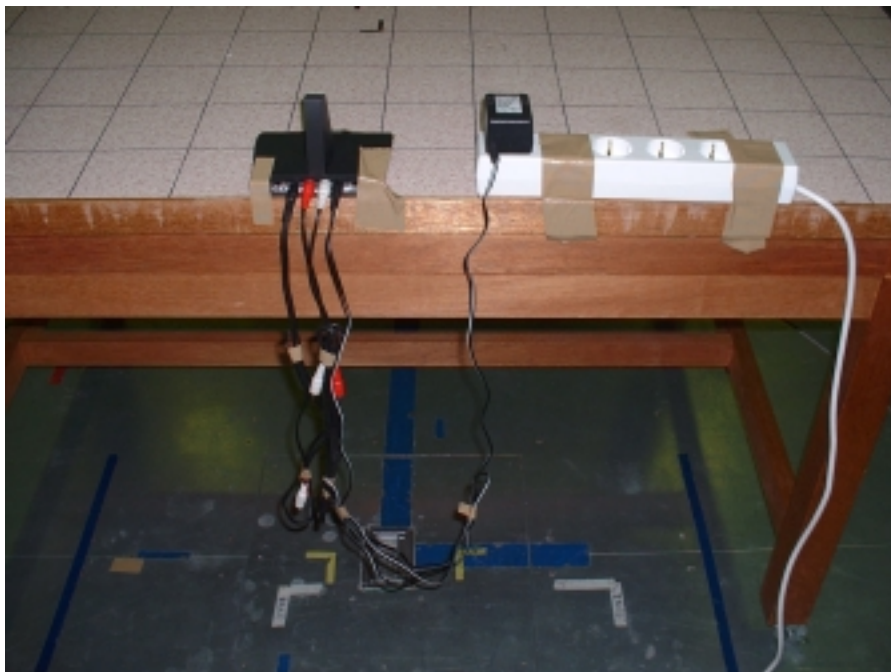
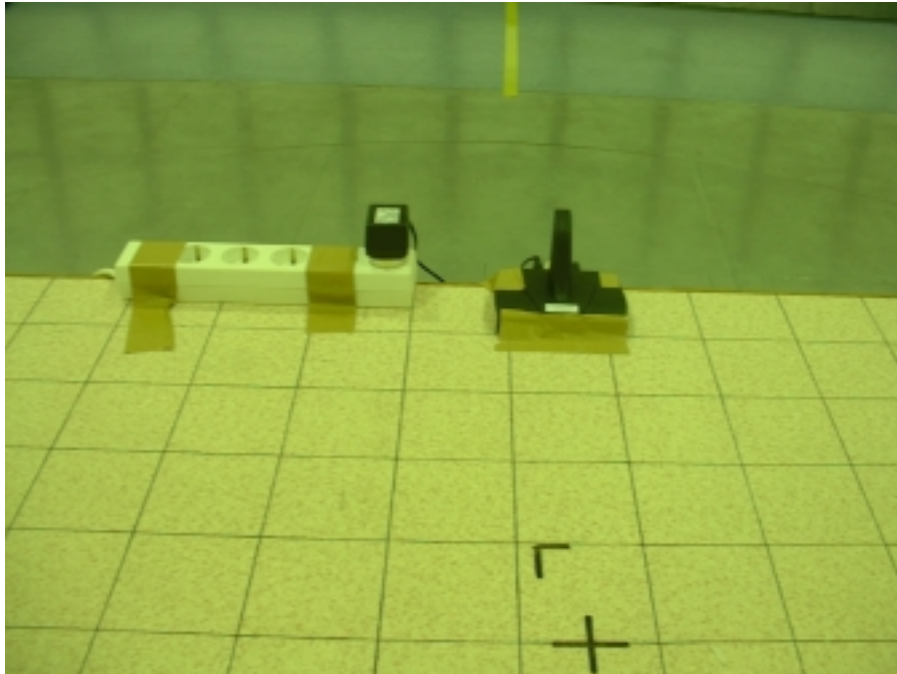


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Radiated emission



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APPENDIX 2

Test Instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No.	Test Item	Calibration Date * Interval(month)
MAEC-01	Anechoic Chamber	TDK	Semi Anechoic Chamber 10m	RE	2001/12/29 * 12
MAEC-02	Anechoic Chamber	TDK	Semi Anechoic Chamber 3m	RE / CE	2002/04/12 * 12
MLS-06	LISN	Schwarzbeck	NSLK8127	CE(EUT)	2002/03/19 * 12
MCC-13	Coaxial Cable	Fujikura/Agilent	MCC-13-01(3D-2W-5m) MCC-13-02(3D-2W-7m) MCC-13-03(5D-2W-5m) MCC-12-05(RF SW) MCC-12-03(5D-2W-0.8m) MCC-12-06(RF SW) MCC-13-04(5D-2W-1m)	CE	2002/05/09 * 12
MSA-02	Spectrum Analyzer	Advantest	R3265A	RE/CE	2002/09/20 * 12
MTR-02	Test Receiver	Rohde & Schwarz	ESCS30	RE/CE	2002/10/11 * 12
MBA-03	Biconical Antenna	Schwarzbeck	BBA9106	RE	2002/05/02 * 12
MLA-03	Logperiodic Antenna	Schwarzbeck	USLP9143	RE	2002/05/02 * 12
MAT-07	Attenuator(6dB)	Weinschel Corp	2	RE	2001/12/27 * 12
MCC-12	Coaxial Cable	Fujikura/Agilent	MCC-12-01(8D-2W-15m) MCC-12-02(5D-2W-0.7m) MCC-12-05(RF SW) MCC-12-03(5D-2W-0.8m) MCC-12-06(RF SW) MCC-12-04(5D-2W-1m)	RE	2002/05/09 * 12
MPA-04	Pre Amplifier	Agilent	8447D	RE	2002/03/13 * 12
MHA-05	Horn Antenna	Schwarzbeck	BBHA9120D	RE	2002/01/13 * 12
MPA-01	Pre Amplifier	Agilent	8449B	RE	2002/02/09 * 12
MCC-04	Microwave Cable	Storm	421-011	RE	2002/01/14 * 12
MCC-06	Microwave Cable	Storm	421-011	RE	2002/01/14 * 12
MTR-01	Test Receiver	Rohde & Schwarz	ES140	RE	2002/11/01 * 12

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,

DATA OF CONDUCTION TEST

A-Pex International Co., Ltd.
No.2 SEMI ANECHOIC CHAMBER
Report No. : 23DE0077-H0-3

Applicant : Sony Corporation
Kind of Equipment : Transmitter
Model No. : TMR-GSX100
Serial No. : 1
Power : AC120V/60Hz
Mode : Transmitting 913.5MHz
Remarks : FCC ID : AK8GSX100 / IC Number : 409B-GSX100
Date : 12/11/2002
Phase : Single Phase
Temperature : 25 °C
Humidity : 35 %
Regulation : FCC 15.207 (0.15-30MHz)

Sumio Nishii
Engineer : Sumio Nishii

No.	FREQ. [MHz]	READING(N)		READING(L1)		LISN FACTOR [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS		MARGIN	
		QP [dBuV]	AV	QP [dBuV]	AV				QP [dBuV]	AV	QP [dBuV]	AV	QP [dB]	AV
1.	0.1500	28.8	-	29.9	-	0.4	0.1	0.0	30.4	-	66.0	56.0	35.6	-
2.	0.4048	24.9	-	29.7	-	0.3	0.1	0.0	30.1	-	57.8	47.8	27.7	-
3.	0.3180	25.1	-	29.9	-	0.4	0.1	0.0	30.4	-	59.8	49.8	29.4	-
4.	0.2604	26.3	-	29.1	-	0.4	0.1	0.0	29.6	-	61.4	51.4	31.8	-
5.	0.1912	28.3	-	22.6	-	0.4	0.1	0.0	28.8	-	64.0	54.0	35.2	-
6.	0.2975	25.6	-	21.7	-	0.4	0.1	0.0	26.1	-	60.3	50.3	34.2	-

CALCULATION: READING + LISN FACTOR + CABLE LOSS + ATTEN.

Except for the above table : adequate margin data below the limits.
LISN:MLS-06

DATA OF CONDUCTION TEST

A-Pex International Co., Ltd.
No.2 SEMI ANECHOIC CHAMBER
Report No. : 23DE0077-H0- 3

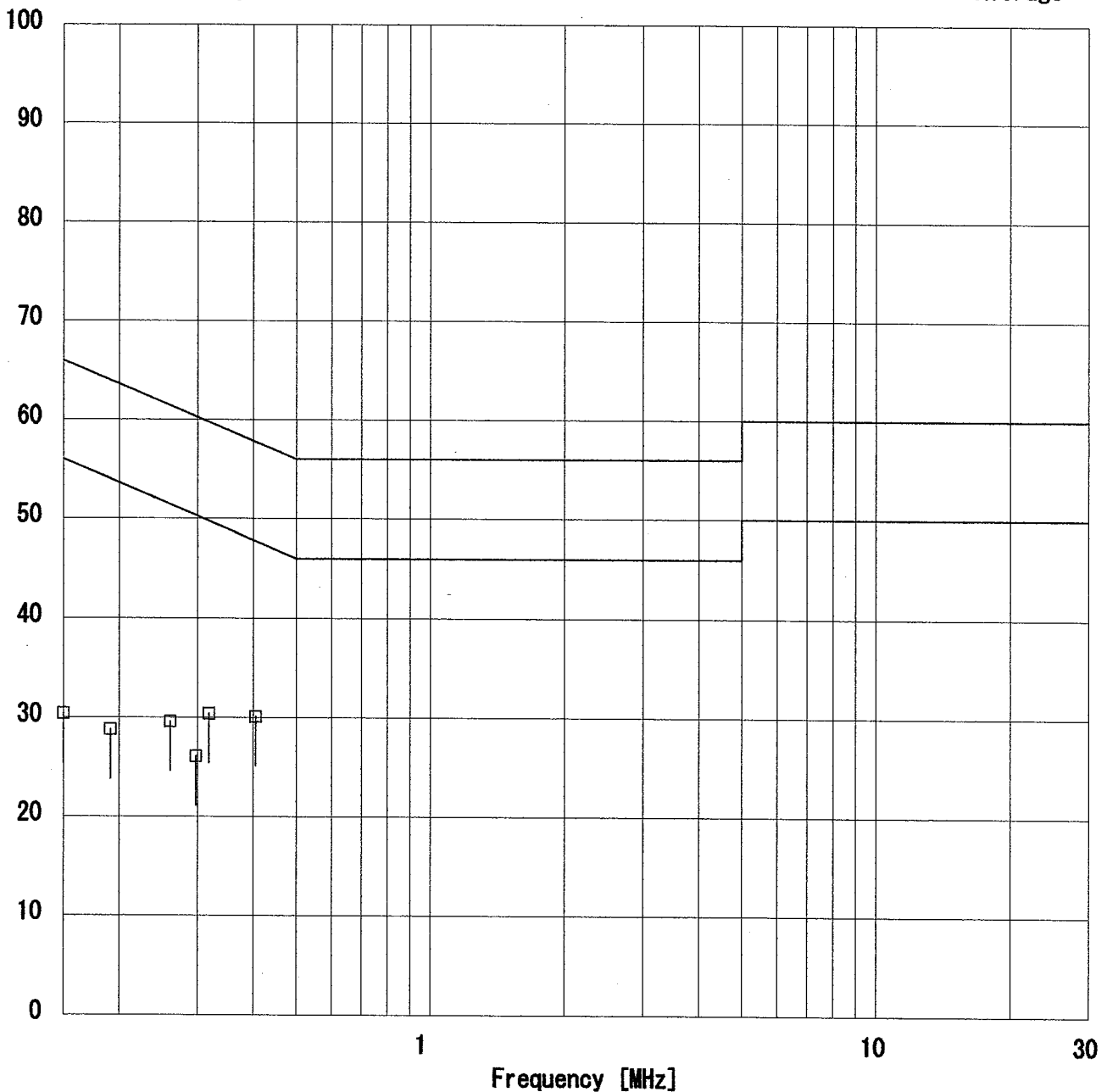
Applicant : Sony Corporation
Kind of Equipment : Transmitter
Model No. : TMR-GSX100
Serial No. : 1
Power : AC120V/60Hz
Mode : Transmitting 913.5MHz
Remarks : FCC ID : AK8GSX100 / IC Number : 409B-GSX100
Date : 12/11/2002
Phase : Single Phase
Temperature : 25 °C
Humidity : 35 %
Regulation : FCC 15.207 (0.15-30MHz)

Engineer : Sumio Nishii
: Sumio Nishii

Emission Level [dB μ V]

□ Quasi-Peak

× Average



DATA OF CONDUCTION TEST CHART

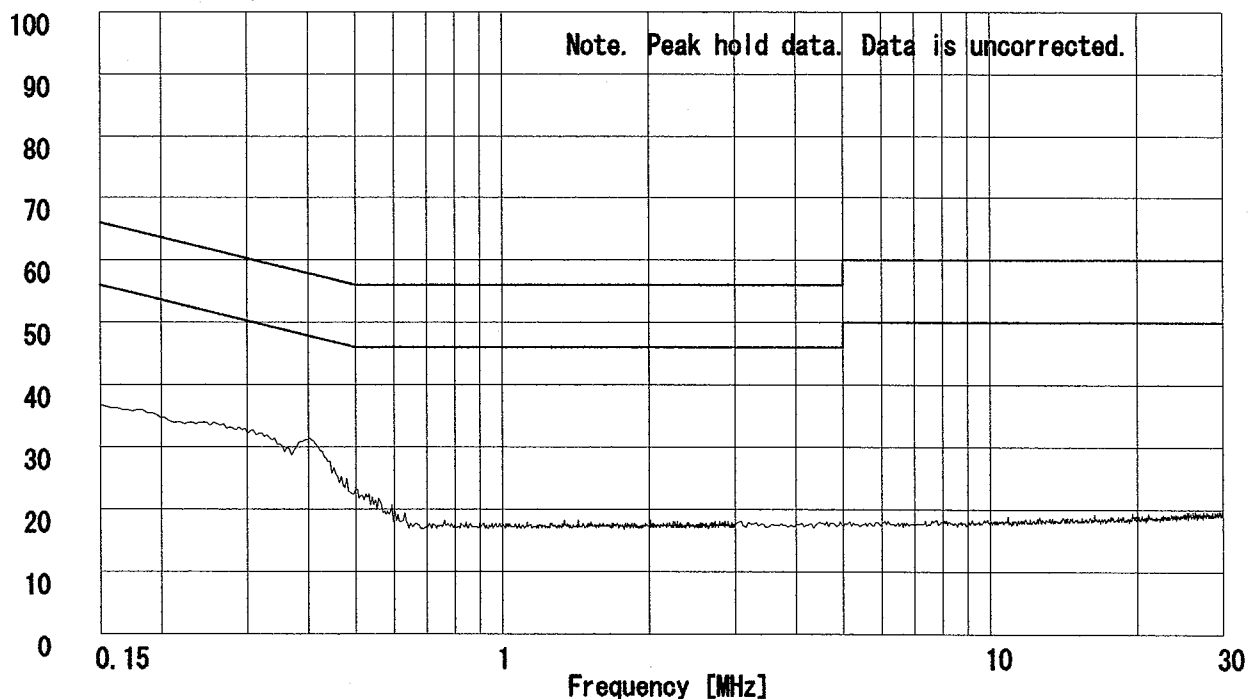
A-Pex International Co., Ltd.
No.2 SEMI ANECHOIC CHAMBER
Report No. : 23DE0077-H0- 3

Applicant : Sony Corporation
Kind of Equipment : Transmitter
Model No. : TMR-GSX100
Serial No. : 1
Power : AC120V/60Hz
Mode : Transmitting 913.5MHz
Remarks : FCC ID:AK8GSX100 / IC Number:409B-GSX100
Date : 12/11/2002
Phase : Single Phase
Temperature : 25 °C
Humidity : 35 %
Regulation 1 : FCC 15.207 (0.15-30MHz)
Regulation 2 : None

Engineer : Sumio Nishii

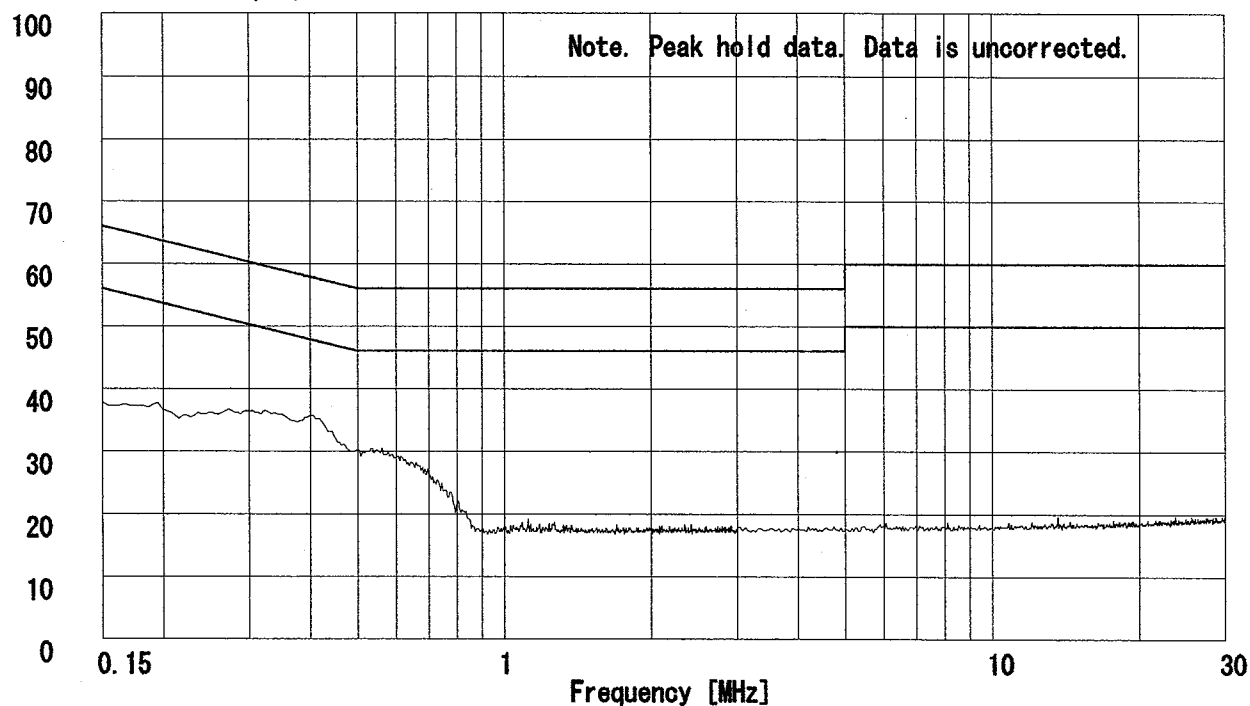
Emission Level [dB μ V]

PHASE:N



Emission Level [dB μ V]

PHASE:L1



DATA OF CONDUCTION TEST CHART

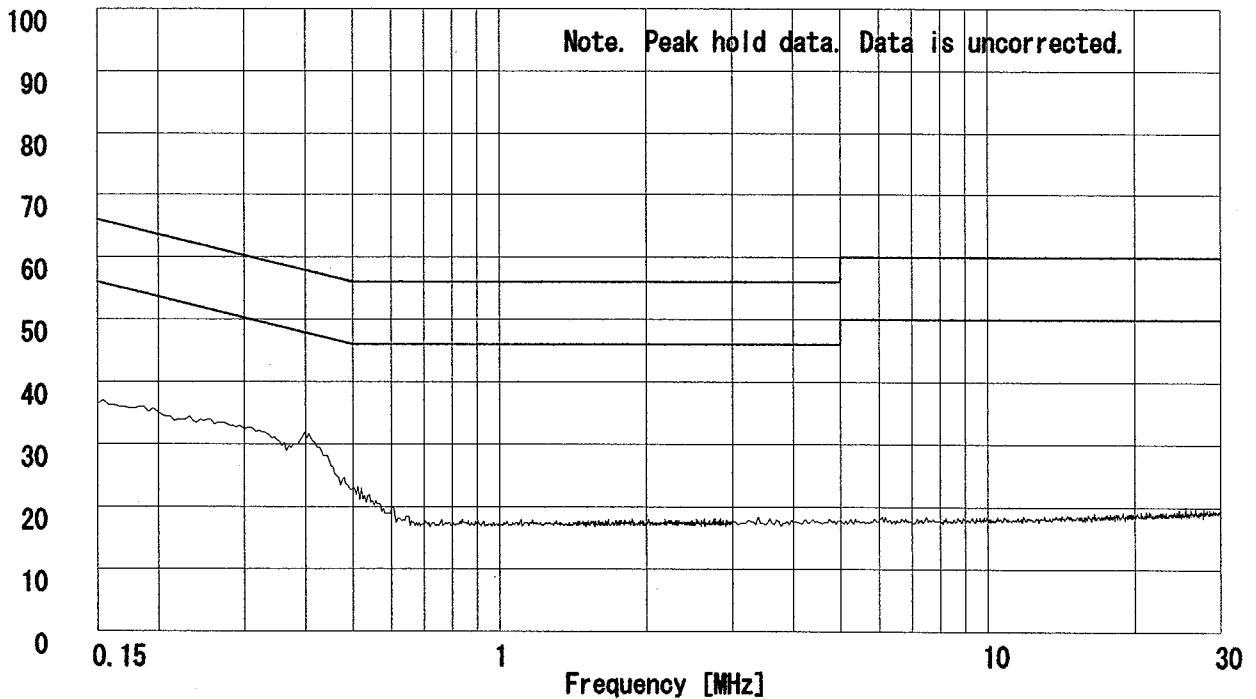
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Report No. : 23DE0077-H0-3

Applicant : Sony Corporation
Kind of Equipment : Transmitter
Model No. : TMR-GSX100
Serial No. : 1
Power : AC120V/60Hz
Mode : Transmitting 914MHz
Remarks : FCC ID:AK8GSX100 / IC Number:409B-GSX100
Date : 12/11/2002
Phase : Single Phase
Temperature : 25 °C
Humidity : 35 %
Regulation 1 : FCC 15.207 (0.15-30MHz)
Regulation 2 : None

Engineer : Sumio Nishii

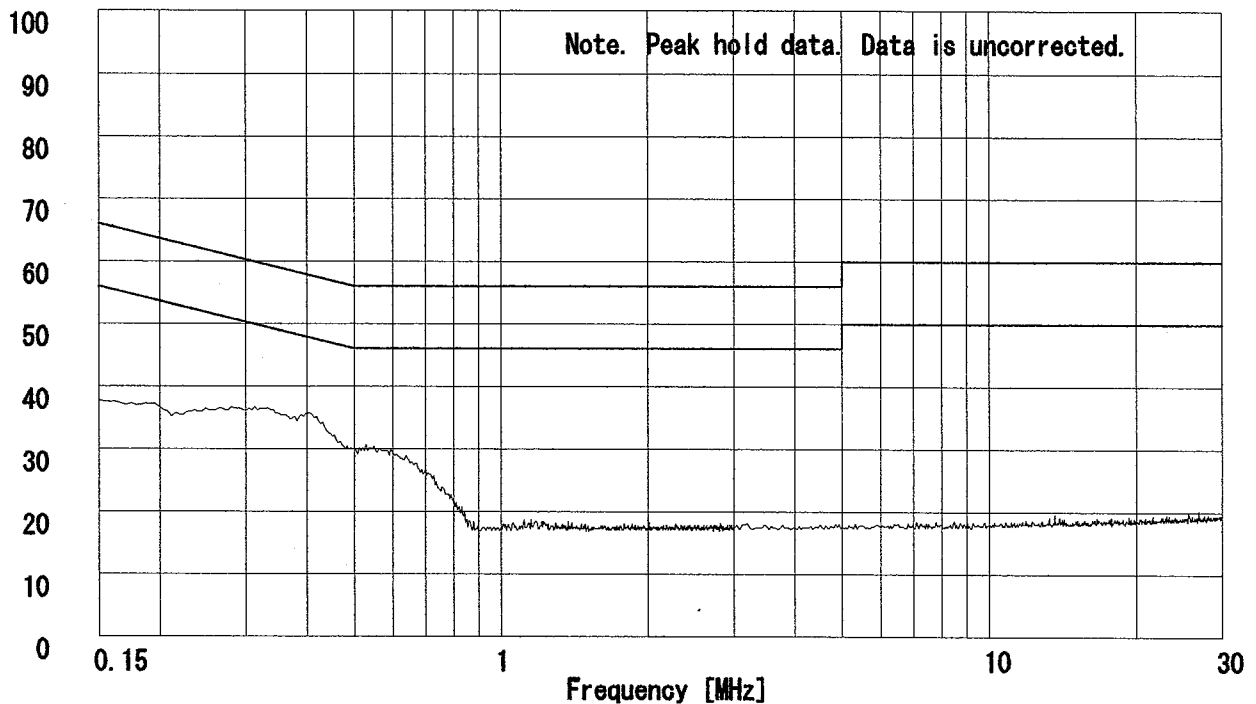
Emission Level [dB μ V]

PHASE:N



Emission Level [dB μ V]

PHASE:L1

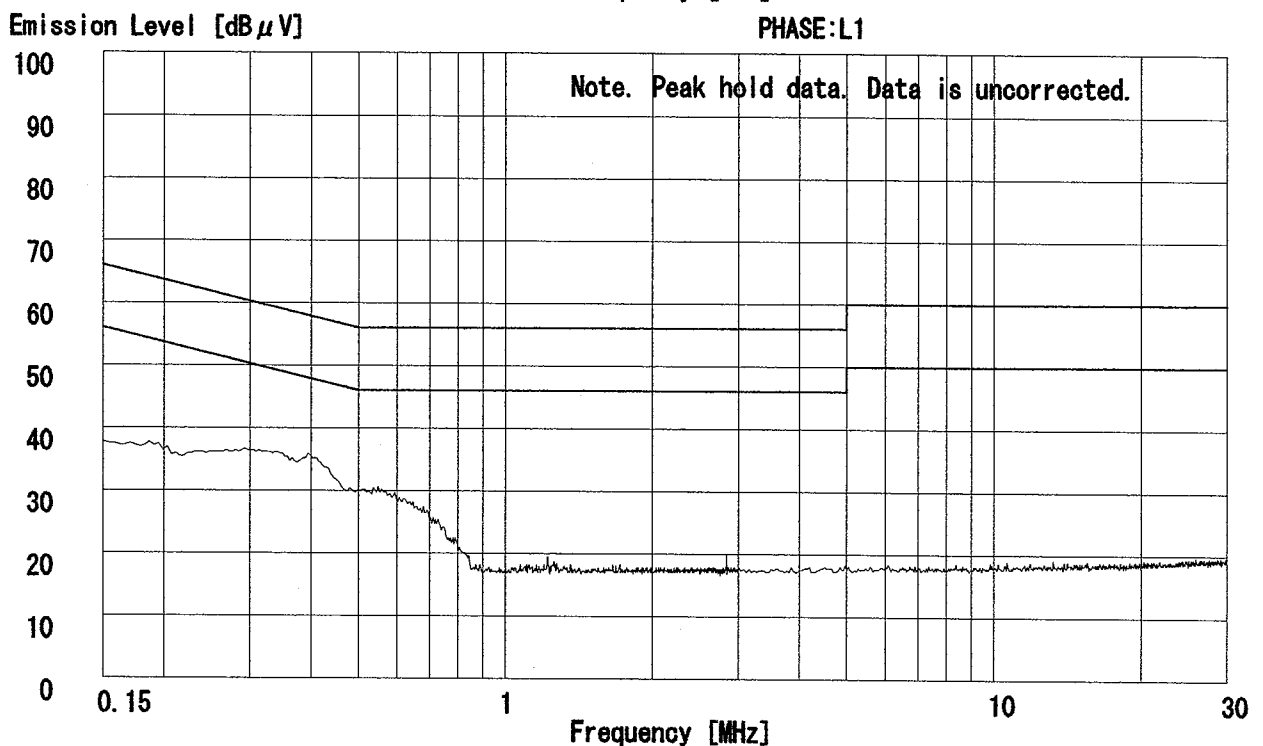
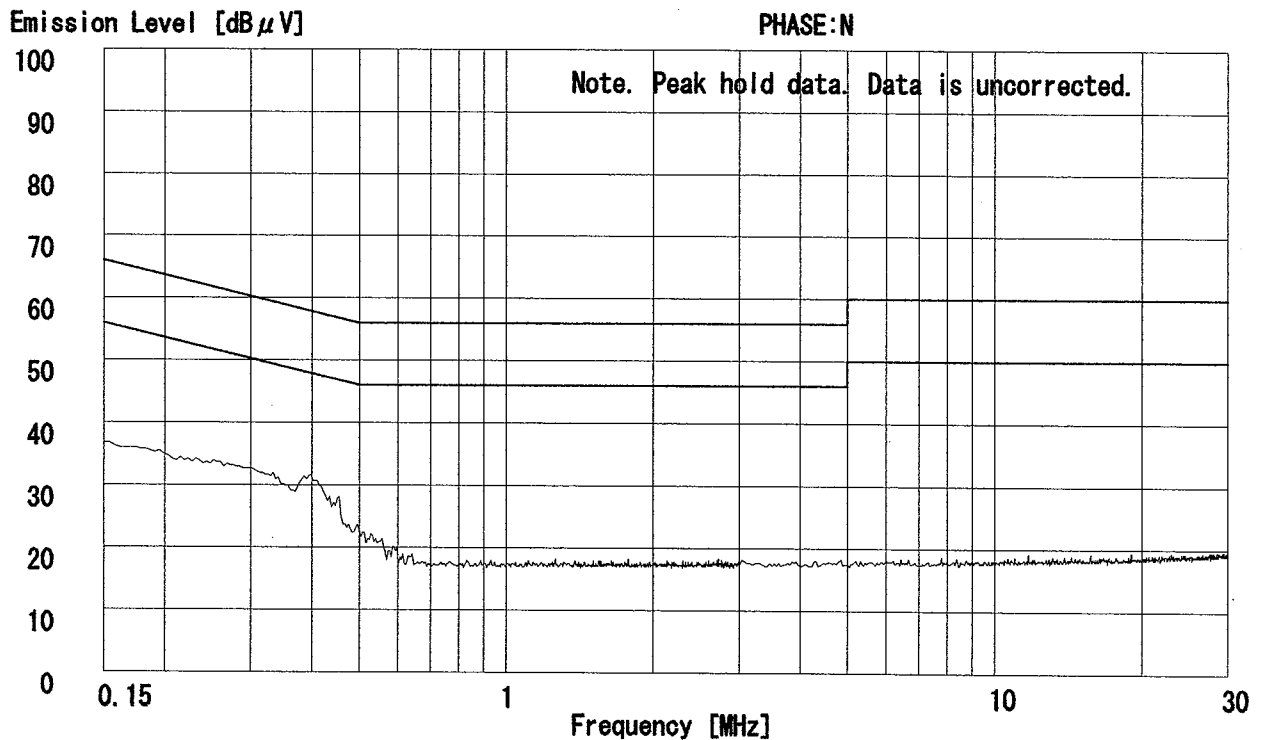


DATA OF CONDUCTION TEST CHART

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Report No. : 23DE0077-H0-3

Applicant : Sony Corporation
Kind of Equipment : Transmitter
Model No. : TMR-GSX100
Serial No. : 1
Power : AC120V/60Hz
Mode : Transmitting 914.5MHz
Remarks : FCC ID:AK8GSX100 / IC Number:409B-GSX100
Date : 12/11/2002
Phase : Single Phase
Temperature : 25 °C
Humidity : 35 %
Regulation 1 : FCC 15.207 (0.15-30MHz)
Regulation 2 : None

Engineer : Sumio Nishii



DATA OF SPURIOUS EMISSIONS(30MHz to 10GHz)

A-Pex International Co., Ltd.

EMC HEAD OFFICE DIVISION No.1 SEMI ANECHOIC CHAMBER

EMC HEAD OFFICE DIVISION No.2 SEMI ANECHOIC CHAMBER

COMPANY : Sony Corporation
EQUIPMENT : Transmitter
MODEL : TMR-GSX100
S/N : 1
POWER : AC120V / 60Hz
MODE : Transmitting (913.5MHz)
FCC ID : AK8GSX100
IC Number : 409B-GSX100

REPORT NO : 23DE0077-HO-3
REGULATION : Fcc Part15 Subpart C 15.249
TEST DISTANCE : 3 m
DATE : 12/10/2002
TEMPERATURE : 26°C
HUMIDITY : 41%

Sumio Nishii
Engineer : Sumio Nishii

QP DETECT

No.	FREQ [MHz]	T/R READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Atten. [dB]	RESULT		Limit PK [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
		[dBuV/m]	[dBuV/m]					[dB]	[dB]		[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Atten.												
0	913.55	73.0	82.3	22.7	27.1	4.0	5.7	78.3	87.6	94.0	15.7	6.4

PK DETECT

No.	FREQ [MHz]	T/R READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Band-Pass Filter [dB]	RESULT		Limit PK [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass												
1	1827.1	49.4	49.5	26.2	36.9	4.0	0.0	42.7	42.8	74.0	31.3	31.2
2	2740.5	49.6	49.6	28.0	36.8	5.3	0.0	46.1	46.1	74.0	27.9	27.9
3	3654.1	48.2	48.2	29.0	36.6	6.2	0.0	46.8	46.8	74.0	27.2	27.2
4	4567.5	42.5	42.5	30.6	36.4	7.0	0.0	34.2	34.2	74.0	39.8	39.8
5	5481.0	43.5	43.4	31.7	36.6	7.8	0.0	36.9	36.8	74.0	37.1	37.2
6	6394.5	44.5	44.3	33.4	36.4	8.7	0.0	40.7	40.5	74.0	33.3	33.5
7	7308.0	44.3	43.7	35.4	36.6	9.4	0.0	43.0	42.4	74.0	31.0	31.6
8	8221.5	44.2	44.2	37.0	37.0	9.9	0.0	44.6	44.6	74.0	29.4	29.4
9	9135.0	44.2	44.5	37.3	36.9	10.9	0.0	46.0	46.3	74.0	28.0	27.7

AV DETECT

No.	FREQ	T/R READING		ANT	AMP	CABLE	Band-Pass	RESULT		Limit	MARGIN	
	[MHz]	HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	AV	HOR	VER
		[dBuV/m]		[dB/m]	[dB]	[dB]	[dB]		[dBuV/m]	[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass												
1	1827.1	43.6	43.2	26.2	36.9	4.0	0.0	36.9	36.5	54.0	17.1	17.5
2	2740.5	43.0	44.4	28.0	36.8	5.3	0.0	39.5	40.9	54.0	14.5	13.1
3	3654.1	42.1	42.6	29.0	36.6	6.2	0.0	40.7	41.2	54.0	13.3	12.8
4	4567.5	29.7	29.9	30.6	36.4	7.0	0.0	21.4	21.6	54.0	32.6	32.4
5	5481.0	30.4	30.4	31.7	36.6	7.8	0.0	23.8	23.8	54.0	30.2	30.2
6	6394.5	31.5	31.5	33.4	36.4	8.7	0.0	27.7	27.7	54.0	26.3	26.3
7	7308.0	30.6	30.6	35.4	36.6	9.4	0.0	29.3	29.3	54.0	24.7	24.7
8	8221.5	30.7	30.8	37.0	37.0	9.9	0.0	31.1	31.2	54.0	22.9	22.9
9	9135.0	30.9	30.9	37.3	36.9	10.9	0.0	32.7	32.7	54.0	21.4	21.3

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

DATA OF SPURIOUS EMISSIONS(30MHz to 10GHz)

A-Pex International Co., Ltd.

EMC HEAD OFFICE DIVISION No.1 SEMI ANECHOIC CHAMBER

EMC HEAD OFFICE DIVISION No.2 SEMI ANECHOIC CHAMBER

COMPANY : Sony Corporation
EQUIPMENT : Transmitter
MODEL : TMR-GSX100
S/N : 1
POWER : AC120V / 60Hz
MODE : Transmitting (914MHz)
FCC ID : AK8GSX100
IC Number : 409B-GSX100

REPORT NO : 23DE0077-HO-3
REGULATION : Fcc Part15 Subpart C 15.249
TEST DISTANCE : 3 m
DATE : 12/10/2002
TEMPERATURE : 26°C
HUMIDITY : 41%

Engineer : Sumio Nishii
Sumio Nishii

QP DETECT

No.	FREQ [MHz]	T/R READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Atten. [dB]	RESULT		Limit PK [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
		[dBuV/m]	[dBuV/m]					[dBuV/m]	[dBuV/m]		[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Atten.												
0	914.08	72.9	82.3	22.7	27.1	4.0	5.7	78.2	87.6	94.0	15.8	6.4

PK DETECT

No.	FREQ [MHz]	T/R READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Band-Pass Filter [dB]	RESULT		Limit PK [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
		[dBuV/m]	[dBuV/m]					[dBuV/m]	[dBuV/m]		[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass												
1	1828.1	50.1	50.4	26.2	36.9	4.0	0.0	43.4	43.7	74.0	30.6	30.3
2	2742.0	51.5	52.0	28.0	36.8	5.3	0.0	48.0	48.5	74.0	26.0	25.5
3	3656.2	49.0	48.8	29.0	36.6	6.2	0.0	47.6	47.4	74.0	26.4	26.6
4	4570.0	43.4	42.4	30.6	36.4	7.0	0.0	35.1	34.1	74.0	38.9	39.9
5	5484.0	43.4	43.3	31.7	36.6	7.8	0.0	36.8	36.7	74.0	37.2	37.3
6	6398.0	44.8	44.5	33.4	36.4	8.7	0.0	41.0	40.7	74.0	33.0	33.3
7	7312.0	44.3	45.0	35.4	36.6	9.4	0.0	43.0	43.7	74.0	31.0	30.3
8	8226.0	45.0	44.2	37.0	37.0	9.9	0.0	45.4	44.6	74.0	28.6	29.4
9	9140.0	44.0	43.9	37.3	36.9	10.9	0.0	45.8	45.7	74.0	28.2	28.3

AV DETECT

No.	FREQ [MHz]	T/R READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Band-Pass Filter [dB]	RESULT		Limit AV [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
		[dBuV/m]	[dBuV/m]					[dBuV/m]	[dBuV/m]		[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass												
1	1828.1	44.9	44.3	26.2	36.9	4.0	0.0	38.2	37.6	54.0	15.8	16.4
2	2742.0	47.3	48.2	28.0	36.8	5.3	0.0	43.8	44.7	54.0	10.2	9.3
3	3656.2	42.9	42.9	29.0	36.6	6.2	0.0	41.5	41.5	54.0	12.5	12.5
4	4570.0	29.6	29.6	30.6	36.4	7.0	0.0	21.3	21.3	54.0	32.7	32.7
5	5484.0	30.5	30.5	31.7	36.6	7.8	0.0	23.9	23.9	54.0	30.1	30.1
6	6398.0	31.5	31.5	33.4	36.4	8.7	0.0	27.7	27.7	54.0	26.3	26.3
7	7312.0	30.6	30.6	35.4	36.6	9.4	0.0	29.3	29.3	54.0	24.7	24.7
8	8226.0	30.7	30.7	37.0	37.0	9.9	0.0	31.1	31.1	54.0	22.9	22.9
9	9140.0	30.8	30.8	37.3	36.9	10.9	0.0	32.6	32.6	54.0	21.4	21.4

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

DATA OF SPURIOUS EMISSIONS(30MHz to 10GHz)

A-Pex International Co., Ltd.

EMC HEAD OFFICE DIVISION No.1 SEMI ANECHOIC CHAMBER

EMC HEAD OFFICE DIVISION No.2 SEMI ANECHOIC CHAMBER

COMPANY : Sony Corporation
EQUIPMENT : Transmitter
MODEL : TMR-GSX100
S/N : 1
POWER : AC120V / 60Hz
MODE : Transmitting (914.5MHz)
FCC ID : AK8GSX100
IC Number : 409B-GSX100

REPORT NO : 23DE0077-HO-3
REGULATION : Fcc Part15 Subpart C 15.249
TEST DISTANCE : 3 m
DATE : 12/10/2002
TEMPERATURE : 26°C
HUMIDITY : 41%

Engineer : Sumio Nishii
Sumio Nishii

QP DETECT

No.	FREQ	T/R READING		ANT Factor	AMP GAIN	CABLE LOSS	Atten.	RESULT		Limit PK	MARGIN	
	HOR	VER	HOR					VER	HOR		VER	
	[MHz]	[dBuV/m]	[dB/m]					[dB]	[dB]		[dB]	[dBuV/m]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Atten.												
0	914.63	72.7	81.9	22.7	27.1	4.0	5.7	78.0	87.2	94.0	16.0	6.8

PK DETECT

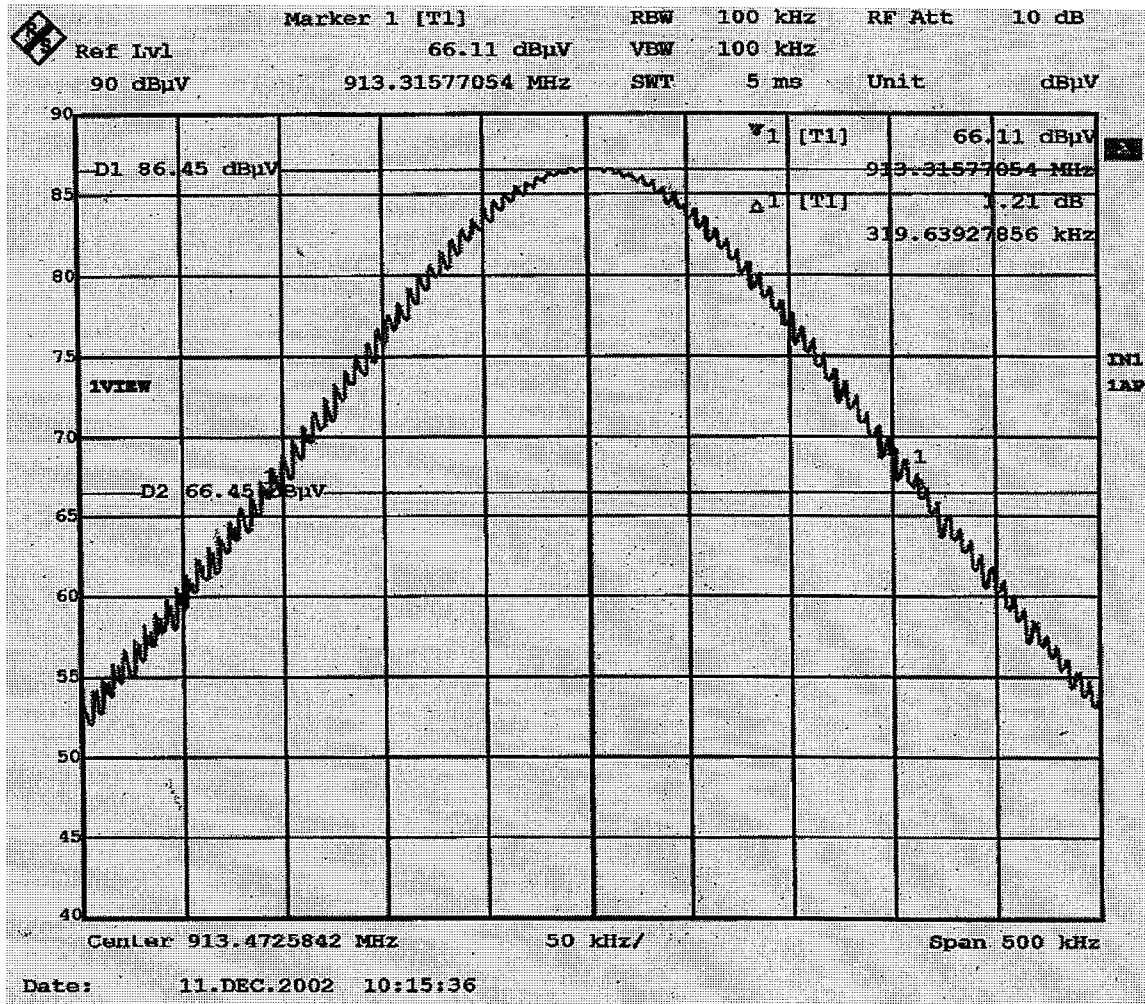
No.	FREQ	T/R READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Band-Pass Filter [dB]	RESULT		Limit PK [dBuV/m]	MARGIN	
	HOR	VER	HOR					VER	HOR		VER	
	[MHz]	[dBuV/m]	[dB]					[dB]	[dB]		[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass												
1	1829.2	49.3	50.8	26.2	36.9	4.0	0.0	42.6	44.1	74.0	31.4	29.9
2	2743.8	52.0	53.5	28.0	36.8	5.3	0.0	48.5	50.0	74.0	25.5	24.0
3	3658.4	48.3	48.3	29.0	36.6	6.2	0.0	46.9	46.9	74.0	27.1	27.1
4	4572.5	42.6	42.5	30.6	36.4	7.0	0.0	34.3	34.2	74.0	39.7	39.8
5	5487.0	44.3	43.8	31.7	36.6	7.8	0.0	37.7	37.2	74.0	36.3	36.8
6	6401.5	44.8	44.5	33.4	36.4	8.7	0.0	41.0	40.7	74.0	33.0	33.3
7	7316.0	44.2	43.5	35.4	36.6	9.4	0.0	42.9	42.2	74.0	31.1	31.8
8	8230.5	43.9	43.7	37.0	37.0	9.9	0.0	44.3	44.1	74.0	29.7	29.9
9	9145.0	44.0	44.4	37.3	36.9	10.9	0.0	45.8	46.2	74.0	28.2	27.8

AV DETECT

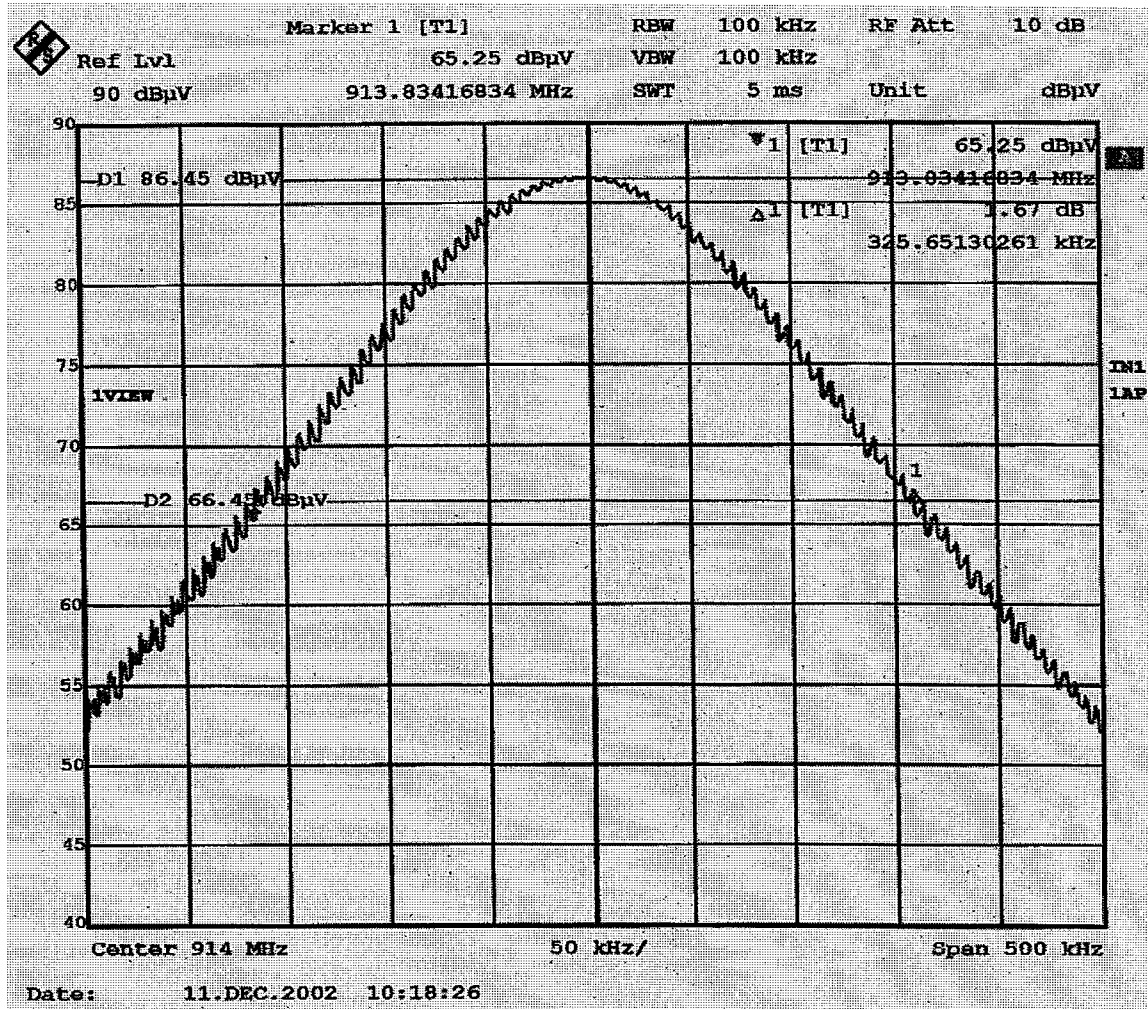
No.	FREQ [MHz]	T/R READING HOR VER [dBuV/m]		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Band-Pass Filter [dB]	RESULT HOR VER [dBuV/m]		Limit AV [dBuV/m]	MARGIN HOR VER [dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass												
1	1829.2	42.3	45.6	26.2	36.9	4.0	0.0	35.6	38.9	54.0	18.4	15.1
2	2743.8	47.1	50.3	28.0	36.8	5.3	0.0	43.6	46.8	54.0	10.4	7.2
3	3658.4	41.9	42.4	29.0	36.6	6.2	0.0	40.5	41.0	54.0	13.5	13.0
4	4572.5	29.5	29.6	30.6	36.4	7.0	0.0	21.2	21.3	54.0	32.8	32.7
5	5487.0	30.5	30.5	31.7	36.6	7.8	0.0	23.9	23.9	54.0	30.1	30.1
6	6401.5	31.4	31.4	33.4	36.4	8.7	0.0	27.6	27.6	54.0	26.4	26.4
7	7316.0	30.6	30.6	35.4	36.6	9.4	0.0	29.3	29.3	54.0	24.7	24.7
8	8230.5	30.7	30.7	37.0	37.0	9.9	0.0	31.1	31.1	54.0	22.9	22.9
9	9145.0	30.8	30.8	37.3	36.9	10.9	0.0	32.6	32.6	54.0	21.4	21.4

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

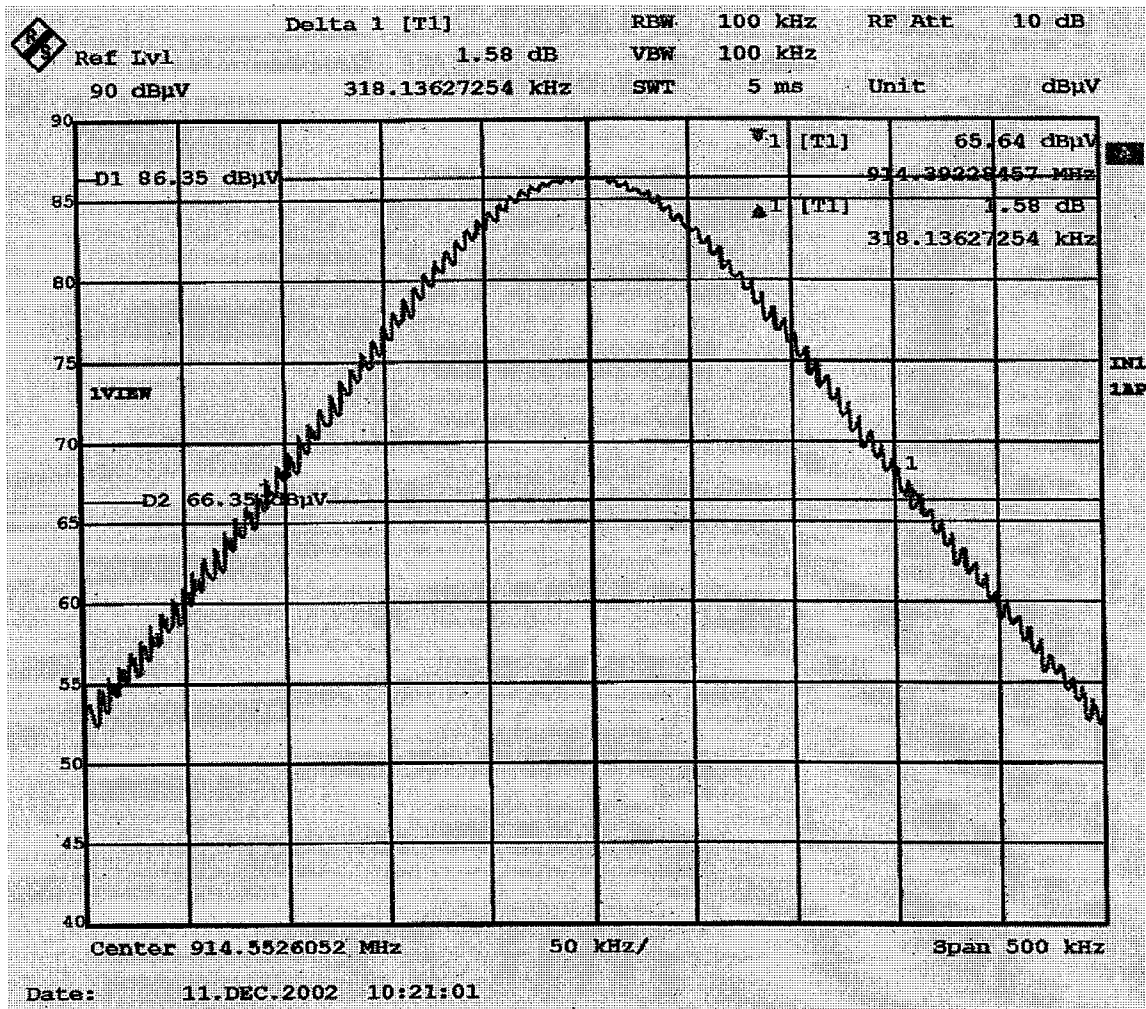
20dB Bandwidth (Transmitting 913.5MHz)



20dB Bandwidth (Transmitting 914MHz)



20dB Bandwidth (Transmitting 914.5MHz)



DATA OF FREQUENCY STABILITY

A-Pex International Co., Ltd.

EMC HEAD OFFICE DIVISION No.1 SEMI ANECHOIC CHAMBER

COMPANY : Sony Corporation
EQUIPMENT : Transmitter
MODEL : TMR-GSX100
S/N : 1
POWER : AC120V / 60Hz
MODE : Transmitting
FCC ID : AK8GSX100
IC Number : 409B-GSX100

REPORT NO : 23DE0077-HO-3
REGULATION : Fcc Part15 Subpart C 15.249
DATE : 12/10/2002
TEMPERATURE : 26°C
HUMIDITY : 41%

Engineer : Sumio Nishii

		0min.	2min.	5min.	10min.
AC102V(85%)	CH1	913.5828MHz	913.5826MHz	913.5825MHz	913.5828MHz
	CH2	914.0716MHz	914.0719MHz	914.0721MHz	914.0724MHz
	CH3	914.5897MHz	914.5899MHz	914.5902MHz	914.5909MHz
AC120V(100%)	CH1	913.5777MHz	913.5778MHz	913.5782MHz	913.5786MHz
	CH2	914.0655MHz	914.0656MHz	914.0662MHz	914.0666MHz
	CH3	914.5855MHz	914.5822MHz	914.5825MHz	914.5826MHz
AC120V(115%)	CH1	913.5729MHz	913.5724MHz	913.5729MHz	913.5733MHz
	CH2	914.0622MHz	914.0624MHz	914.0626MHz	914.0631MHz
	CH3	914.5811MHz	914.5815MHz	914.5821MHz	914.5826MHz