



EMI TEST REPORT

Test Report No. : 25DE0040-HO-1

Applicant : **Pioneer Corporation**
Type of Equipment : **Digital Wireless Speaker System (Transmitter)**
Model No. : **XW-HTP550(T)**
Test standard : **FCC Part 15 Subpart C**
Section 15.207, Section 15.247 : 2004
FCC ID : **AJDT105**
Test Result : **Complied**

1. This test report shall not be reproduced in full or partial, without the written approval of UL Apex 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.

Date of test: November 16 to December 2, 2004

Tested by:

Y. Yoshida

Yutaka Yoshida
EMC Service

Tested by:

N. Hashimoto

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Group Leader of
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Head Office EMC Lab.

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SECTION 1: Client information

Company name	:	Pioneer Corporation
Brand name	:	PIONEER
Address	:	4-2610 Hanazono, Tokorozawa-shi, Saitama, 359-8522, JAPAN
Telephone Number	:	+81-42-990-2438
Facsimile Number	:	+81-42-990-2077
Contact Person	:	Tatsuo Ohnobi

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

2.1 Identification of E.U.T.

Type of Equipment	:	Digital Wireless Speaker System (Transmitter)
Model No.	:	XW-HTP550(T)
Serial No.	:	E3 (for Conducted Emission and Spurious Emission (Radiated) tests) E3-2 (for the other tests)
Rating	:	AC Adapter: AC120V, 60Hz
Country of Manufacture	:	Malaysia
Receipt Date of Sample	:	November 16, 2004
Condition of EUT	:	Engineering prototype (Not for Sale: This sample is equivalent to mass-produced items.)

2.2 Product Description

The model No. XW-HTP550(T) is Digital Wireless Speaker System.

<Series model of EUT>

XW-DV755(T)	There is only difference in its color for XW-HTP550(T)
XW-HT100(T)	XW-HTP550(T) + Signal Converter (AXX7175-A)
*The EUT has been evaluated with Signal Converter connected. Therefore, this test report can be applied to XW-DV755(T) and XW-HT100(T).	

<Feature of EUT>

Equipment Type	Transmitter
Frequency of Operation	From 2400 to 2483.5 MHz Ch1:2412MHz, Ch2:2432MHz, Ch3:2452MHz, Ch4:2467MHz
Channel spacing	20MHz (ch1-ch3), 15MHz (ch3-ch4)
Type of Modulation	DSSS
Antenna Type	Internal Antenna (PIFA)
Antenna Connector Type	Soldering
Antenna Gain	1.7 dBi
Mode of Operation	Simplex
ITU code	G1D
Power Supply	DC 5.0V
Operating voltage	+5deg.C. to +35 deg.C.

FCC 15.31 (e)

This EUT provides stable voltage(DC5.0V) constantly to RF Module regardless of input voltage. Therefore, this EUT complies with the requirement.

FCC Part 15.203 Antenna requirement

It is impossible for end users to replace the antenna, because the antenna is mounted inside of the EUT. Therefore, the equipment complies with the antenna requirement of Section 15.203.

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SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification : FCC Part15 Subpart C : 2004

Title : FCC 47CFR Part15 Radio Frequency Device Subpart C Intentional Radiators
Section 15.207 Conducted limits : 2004
Section 15.247 Operation within the bands 902-928MHz,
2400-2483.5MHz, and 5725-5850MHz : 2004

3.2 Procedures and results

No.	Item	Test Procedure	Specification	Remarks	Deviation	Worst margin	Results
1	Conducted emission	ANSI C63.4:2003 7. AC powerline conducted emission measurements	Section 15.207	-	N/A	20.3dB 0.3157MHz,N	Complied
2	6dB Bandwidth	ANSI C63.4:2003 13. Measurement of intentional radiators	Section 15.247(a)(2)	Conducted	N/A	-	Complied
3	Maximum Peak Output Power	ANSI C63.4:2003 13. Measurement of intentional radiators	Section 15.247(b)(3)	Conducted	N/A	-	Complied
4	Spurious Emission	ANSI C63.4:2003 13. Measurement of intentional radiators	Section 15.247 (d)	Conducted/ Radiated	N/A	4.7dB 2483.5MHz Vertical	Complied
5	Restricted Band Edges	ANSI C63.4:2003 13. Measurement of intentional radiators	Section 15.247 (d)	Conducted	N/A	-	Complied
6	Power Density	ANSI C63.4:2003 13. Measurement of intentional radiators	Section 15.247 (e)	Conducted	N/A	-	Complied

Note: UL Apex's EMI Work Procedures No.QPM05.

Uncertainty:

*In case of the margin below the EMC Head Office's uncertainty.

The data listed in this report meets the limits unless the uncertainty is taken into consideration.

Conducted Emission

The measurement uncertainty (with a 95% confidence level) for this test is $\pm 1.3\text{dB}$.

Spurious Emission (Radiated)

The measurement uncertainty (with a 95% confidence level) for this test using Biconical antenna is $\pm 4.5\text{dB}(3\text{m})/\pm 4.7\text{dB}(10\text{m})$.

The measurement uncertainty (with a 95% confidence level) for this test using Logperiodic antenna is $\pm 5.2\text{dB}(3\text{m})/\pm 3.8\text{dB}(10\text{m})$.

The measurement uncertainty (with a 95% confidence level) for this test using Horn antenna is $\pm 6.6\text{dB}$.

Other test except Conducted Emission and Spurious Emission (Radiated)

The measurement uncertainty (with a 95% confidence level) for this test is $\pm 3.0\text{dB}$.

*These tests were also referred to "Guidance on Measurement for Digital Transmission Systems Section15.247".

*These tests were performed without any deviations from test procedure except for additions or exclusions.

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3.3 Addition to standards

No.	Item	Test Procedure	Specification	Remarks	Deviation	Worst margin	Results
1	99% Occupied Band Width	RSS-210(issue 5): 2001 + Amendment:2002 + Amendment2:2003 + Amendment3:2004 + Amendment4: 2004	RSS-210(issue 5): 2001 + Amendment:2002 + Amendment2:2003 + Amendment3:2004 + Amendment4: 2004	Conducted	N/A	N/A	N/A

3.4 Test Location

UL Apex Co., Ltd. Head Office EMC Lab. *NVLAP Lab. code: 200572-0
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	Listed date (for FCC)	FCC Registration Number	IC Registration Number	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Other rooms
No.1 semi-anechoic chamber	February 01, 2002	313583	IC4247	19.2 x 11.2 x 7.7m	7.0 x 6.0m	Preparation room
No.2 semi-anechoic chamber	June 05, 2002	846015	IC4247-2	7.5 x 5.8 x 5.2m	4.0 x 4.0m	-
No.3 shielded room	-	-	-	4.7 x 7.5 x 2.7m	4.7 x 7.5m	-
No.4 measurement room	-	-	-	3.1 x 5.0 x 2.7m	N/A	-

* Size of vertical conducting plane (for Conducted Emission test) : 2.0 x 2.0m for No.1 and No.2 semi-anechoic and No.3 shielded room.

3.5 Test set up, Test instruments and Data of EMI

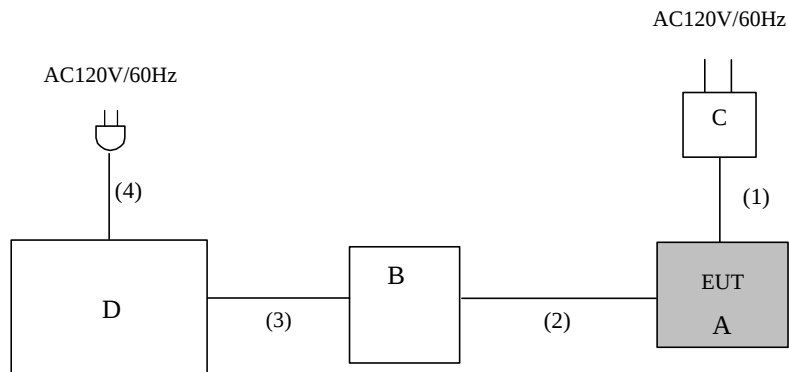
Refer to APPENDIX 1 to 3.

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

4.1 Operating Modes

The mode is used : Transmitting mode
 Low Channel :2412MHz(Ch1)
 Mid Channel :2432MHz(Ch2)
 High channel :2467MHz(Ch4)

4.2 Configuration and peripherals



* Cabling and set-up were taken into consideration and test data was taken under worse case conditions.

Description of EUT and Support equipment

No.	Item	Model number	Serial number	Manufacturer	FCC ID
A	Digital Wireless Speaker System (Transmitter)	XW-HTP550(T)	E3 *1) E3-2 *2)	Pioneer	AJDT105
B	Signal Converter	AXX7175-A	-	Pioneer	-
C	AC Adaptor	AWR7006	-	Pioneer	-
D	Audio/Video multi channel receiver	VSX-D814	-	Pioneer	-

*1: for Conducted Emission and Spurious Emission (Radiated) tests

*2: for the other tests

*The equipment "B" could be used with the equipment "A", therefore testing was conducted under the worst case condition with using both equipment "A" and "B".

List of cables used

No.	Name	Length (m)	Shield	Backshell Material
1	DC power cable	1.9	N	Polyvinyl chloride
2	Audio RCA type cord	1.5	Y	Polyvinyl chloride
3	Speaker cable	1.0	N	Polyvinyl chloride
4	AC power cable	2.0	N	Polyvinyl chloride

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SECTION 5: Spurious Emission

[Conducted]

Test Procedure

The Out of Band Emission was measured with a spectrum analyzer connected to the antenna port.

Test data : APPENDIX 3

Test result : Pass

[Radiated]

Test Procedure

EUT was placed on a platform of nominal size, 0.5m by 0.5m, raised 80cm above the conducting ground plane. The Radiated Electric Field Strength intensity has been measured in a Semi Anechoic Chamber with a ground plane and at a distance of 3m(Below 10GHz) and 1m(Upper 10GHz).

The height of the measuring varied between 1 and 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 with the Test Receiver or the Spectrum Analyzer.

In any 100kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator confirmed 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on a radiated measurement.

20dBc was applied to the frequency over the limit of FCC 15.209 and outside the restricted band of 15.205.

Frequency	Below 1GHz	Above 1GHz
Instrument used	Test Receiver / Spectrum Analyzer	Spectrum Analyzer
Detector	QP: BW 120kHz(T/R)	PK: RBW:1MHz/VBW: 1MHz
IF Bandwidth	20dBc : RBW: 100kHz VBW: 300kHz (S/A)	AV: RBW:1MHz/VBW:10Hz 20dBc : RBW:100kHz VBW:300kHz (S/A)

Test data : APPENDIX 3

Test result : Pass

The test was made on EUT in the normal use position.

SECTION 6: Bandwidth

Test Procedure

The bandwidth was measured with a spectrum analyzer connected to the antenna port.

Test data : APPENDIX 3

Test result : Pass

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SECTION 7: Maximum Peak Output Power

Test Procedure

The test was made with the spectrum analyzer that has a function of channel-power measurements.
The Maximum Peak Output Power was measured with a spectrum analyzer connected to the antenna port.

Test data	: APPENDIX 3
Test result	: Pass

SECTION 8: Peak Power Density

[Conducted]

Test Procedure

The Peak Power Density was measured with a spectrum analyzer connected to the antenna port.

Test data	:	APPENDIX 3
Test result	:	Pass

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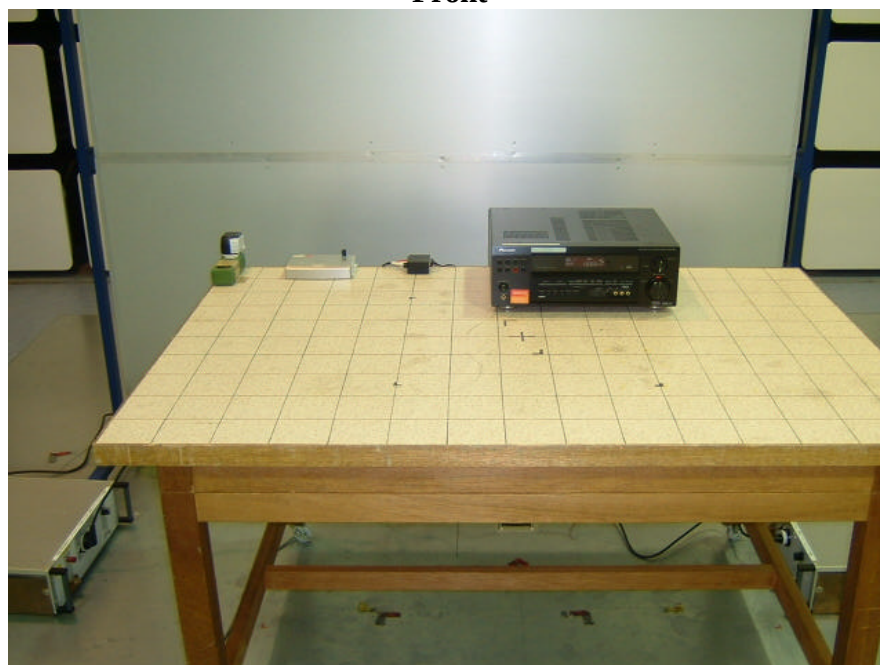
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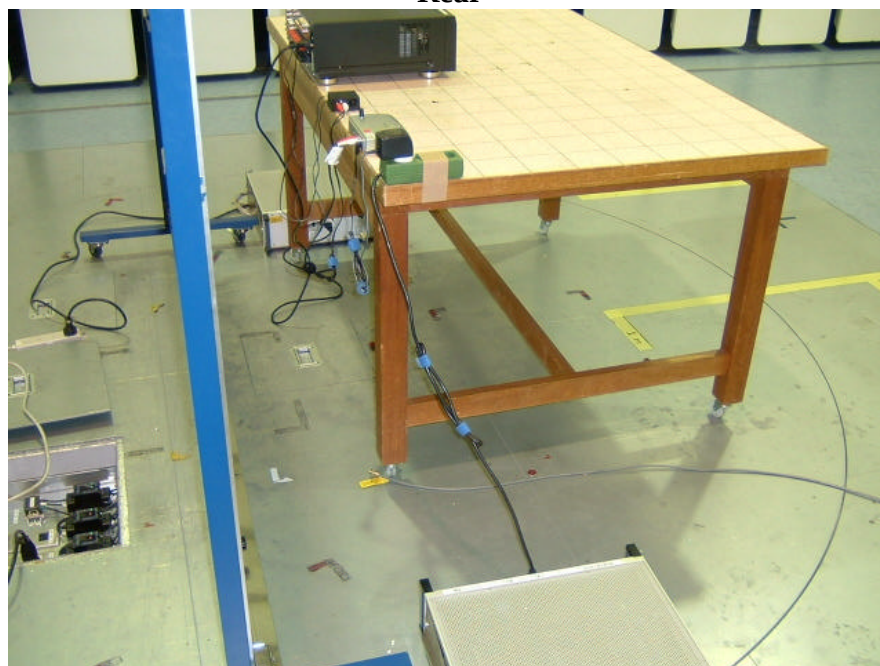
APPENDIX 1: Photographs of test setup

Conducted Emission

Front



Rear



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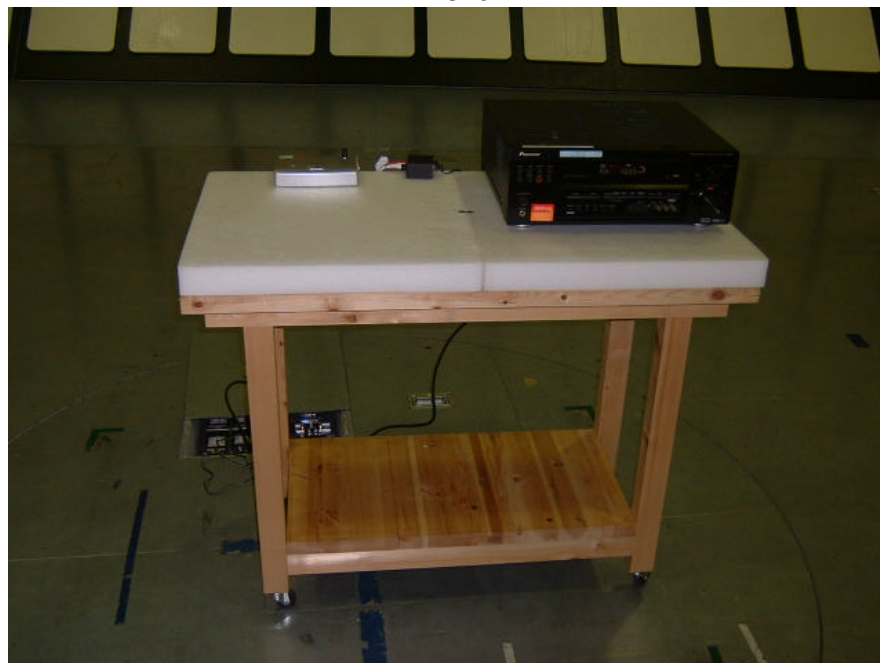
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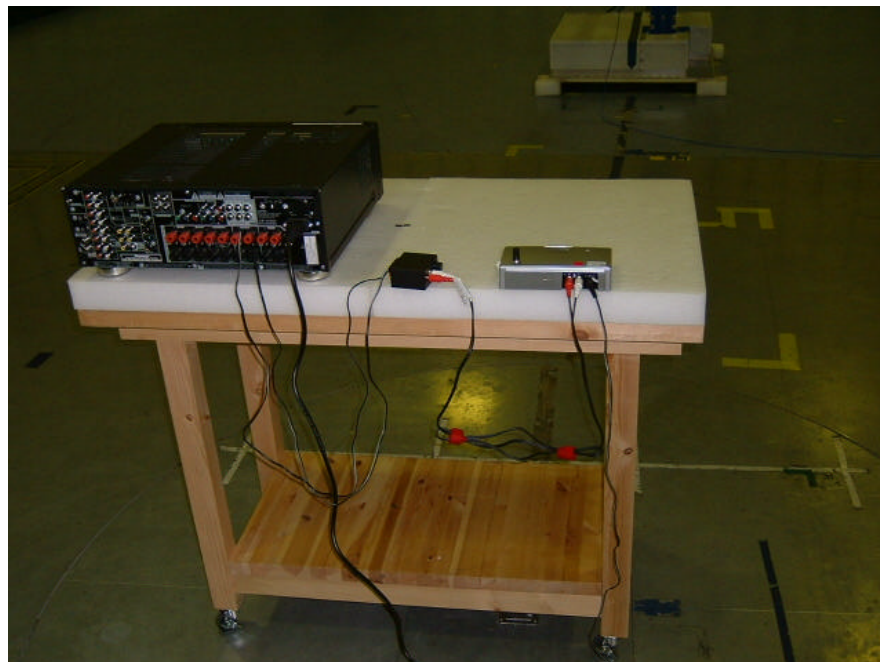
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Spurious Emission (Radiated)

Front



Rear



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APPENDIX 2: Test instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Test Item	Calibration Date * Interval(month)
MSA-03	Spectrum Analyzer	Agilent	E4448A	AT	2004/06/12 * 12
MAT-22	Attenuator(10dB)(above 1GHz)	Orient Microwave	BX10-0476-00	AT	2004/03/30 * 12
MAEC-01	Anechoic Chamber	TDK	Semi Anechoic Chamber 10m	RE	2003/12/27 * 12
MTR-01	Test Receiver	Rohde & Schwarz	ESI40	RE	2004/11/12 * 12
MCC-01	Coaxial Cable	Suhner/storm/Agilent /TSJ	-	RE	2003/12/19 * 12
MAT-07	Attenuator(6dB)	Weinschel Corp	2	RE	2003/12/16 * 12
MPA-04	Pre Amplifier	Agilent	8447D	RE	2004/05/25 * 12
MBA-01	Biconical Antenna	Schwarzbeck	BBA9106	RE	2004/10/14 * 12
MLA-01	Logperiodic Antenna	Schwarzbeck	USLP9143	RE	2004/10/14 * 12
MHA-05	Horn Antenna	Schwarzbeck	BBHA9120D	RE	2004/01/10 * 12
MCC-05	Microwave Cable	Storm	421-011	RE	2004/01/06 * 12
MCC-23	Microwave Cable	Storm	-	RE	2004/05/01 * 12
MHF-02	High Pass Filter	Tokimec	TF323DCA	RE	2004/11/01 * 12
MPA-01	Pre Amplifier	Agilent	8449B	RE	2004/02/06 * 12
MHA-01	Horn Antenna	EMCO	3160-09	RE	2004/01/10 * 12
MAEC-02	Anechoic Chamber	TDK	Semi Anechoic Chamber 3m	CE	2004/04/12 * 12
MCC-13	Coaxial Cable	Fujikura/Agilent	-	CE	2004/02/24 * 12
MRENT-09	Spectrum Analyzer	Advantest	R3273	CE	2004/02/18 * 12
MTR-02	Test Receiver	Rohde & Schwarz	ESCS30	CE	2004/02/03 * 12
MLS-06	LISN(AMN)	Schwarzbeck	NSLK8127	CE(EUT)	2004/02/17 * 12
MLS-07	LISN(AMN)	Schwarzbeck	NSLK8127	CE	2004/02/17 * 12
MTA-04	Termination	MCL	NTRM-50	CE	2004/02/16 * 12

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

Test Item:

CE: AC Main Conducted Emission

RE: Radiated Spurious Emission

AT: Except for RE and CE

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APPENDIX 3: Data of EMI test

Conducted Emission

DATA OF CONDUCTED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2004/12/02 16:13:45

Applicant	: Pioneer Corporation	Report No.	: 25DE0040-HO
Kind of EUT	: Digital Wireless Speaker System	Power	: AC120V/60Hz
Model No.	: XW-HTP550(T)	Temp /Humi%	: 23 deg.C / 35 %
Serial No.	: E3	Operator	: Norihisa Hashimoto

Mode / Remarks: Transmitting (ch1)

LIMIT : FCC15C §15.207 (OP)
FCC15C §15.207 (AV)

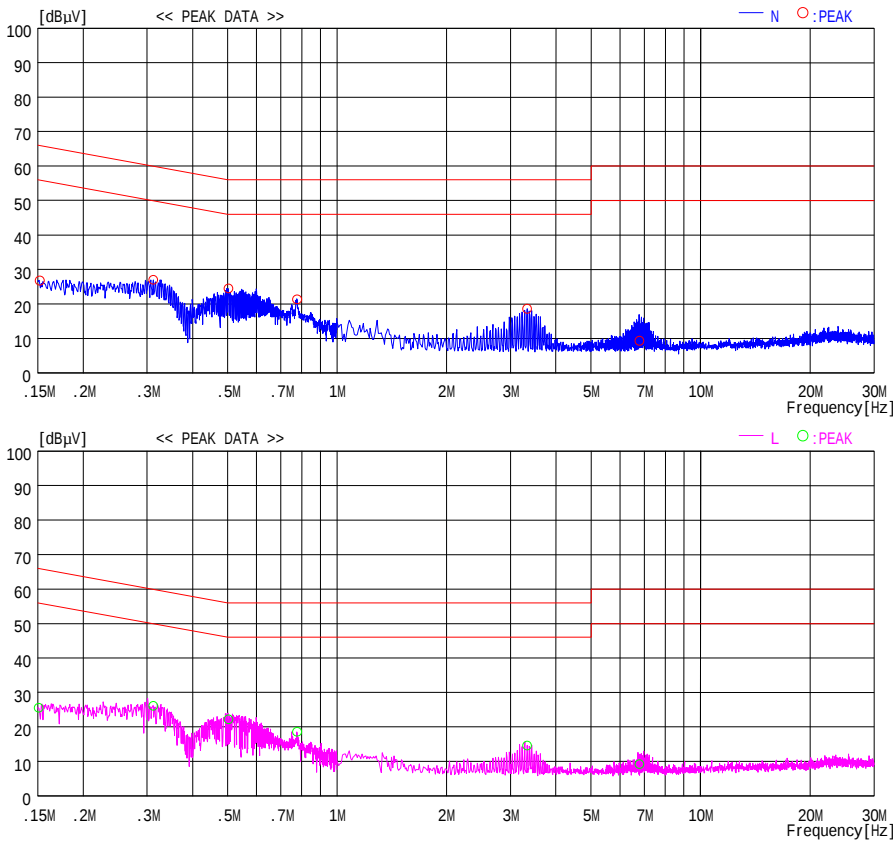


CHART:WITH FACTOR,Peak hold data.Data is uncorrected. CALCURATION:RESULT=READING+C.F(LISN LOSS+CABLE LOSS)
Except for the above table : adequate margin data below the limits.

DATA OF CONDUCTED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2004/12/02 16:36:34

Applicant : Pioneer Corporation
Kind of EUT : Digital Wireless Speaker System
Model No. : XW-HTP550(T)
Serial No. : E3

Report No. : 25DE0040-HO
Power : AC120V/60Hz
Temp /Humi% : 23 deg.C / 35 %
Operator : Norihisa Hashimoto

Mode / Remarks: Transmitting (ch2)

LIMIT : FCC15C §15.207 (QP)
FCC15C §15.207 (AV)

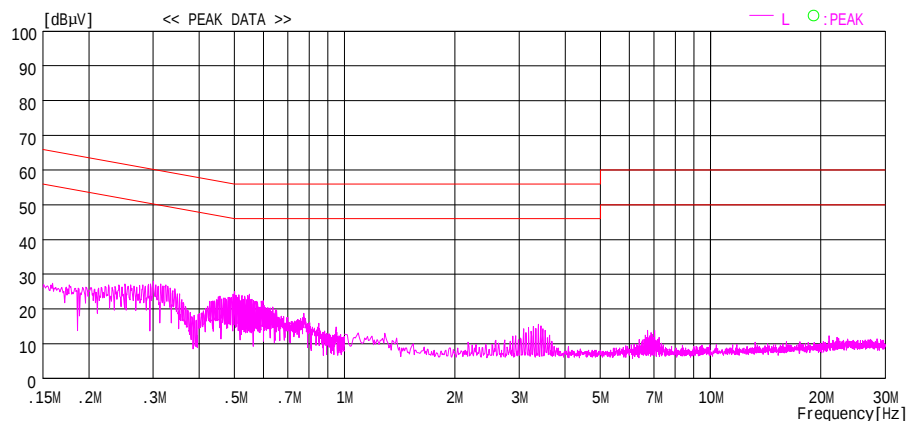
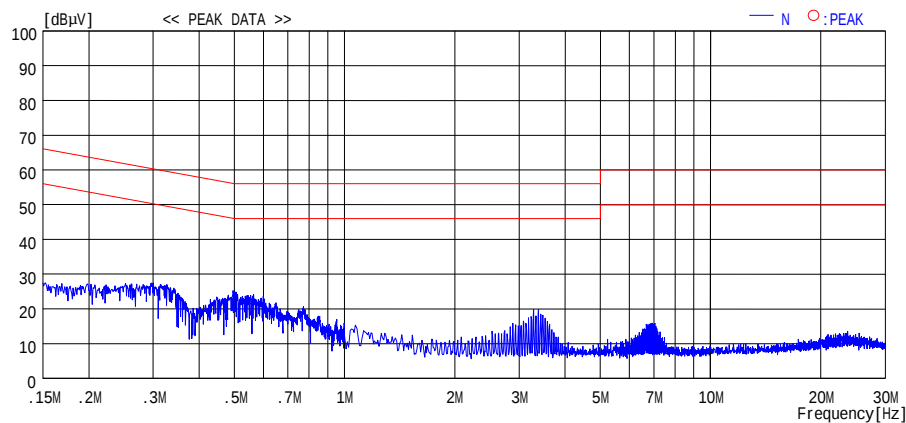


CHART:WITH FACTOR,Peak hold data.Data is uncorrected. CALCURATION:RESULT=READING+C.F(LISN LOSS+CABLE LOSS)
Except for the above table : adequate margin data below the limits.

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DATA OF CONDUCTED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2004/12/02 16:43:19

Applicant : Pioneer Corporation
Kind of EUT : Digital Wireless Speaker System
Model No. : XW-HTP550(T)
Serial No. : E3

Report No. : 25DE0040-HO
Power : AC120V/60Hz
Temp /Humi% : 23 deg.C / 35 %
Operator : Norihisa Hashimoto

Mode / Remarks: Transmitting (ch4)

LIMIT : FCC15C §15.207 (QP)
FCC15C §15.207 (AV)

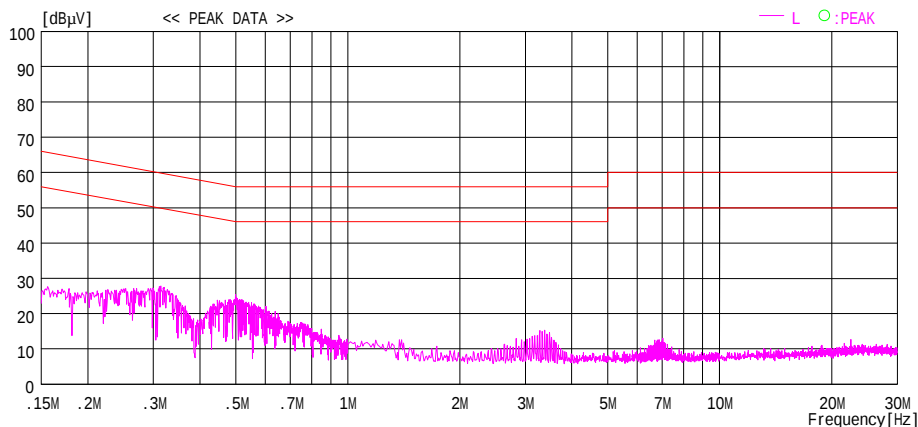
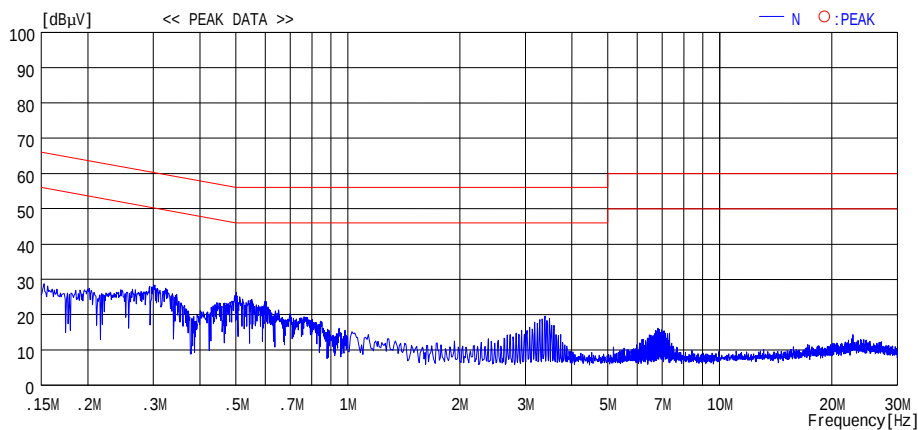


CHART:WITH FACTOR,Peak hold data.Data is uncorrected. CALCURATION:RESULT=READING+C.F(LISN LOSS+CABLE LOSS)
Except for the above table : adequate margin data below the limits.

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DATA OF CONDUCTED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2004/12/02 16:13:45

Applicant : Pioneer Corporation
Kind of EUT : Digital Wireless Speaker System
Model No. : XW-HTP550(T)
Serial No. : E3

Report No. : 25DE0040-HO
Power : AC120V/60Hz
Temp /Humi% : 23 deg.C / 35 %
Operator : Norihisa Hashimoto

Mode / Remarks: Transmitting (ch1)

LIMIT : FCC15C §15.207 (QP)
FCC15C §15.207 (AV)

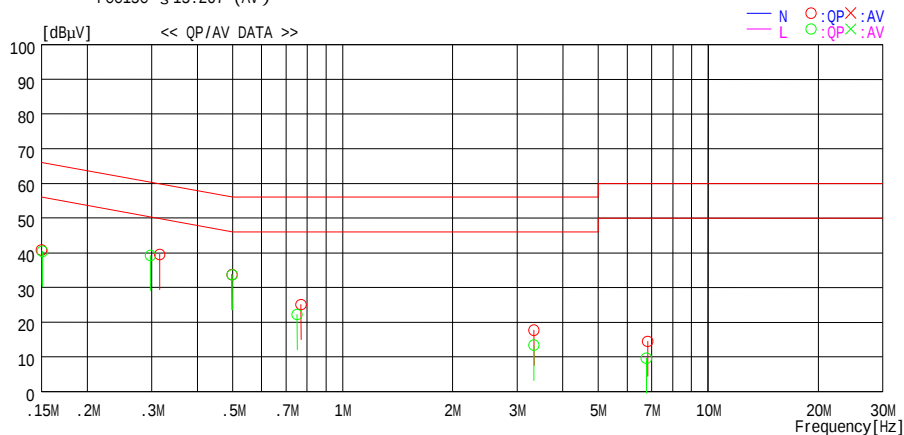


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Except for the above table : adequate margin data below the limits.

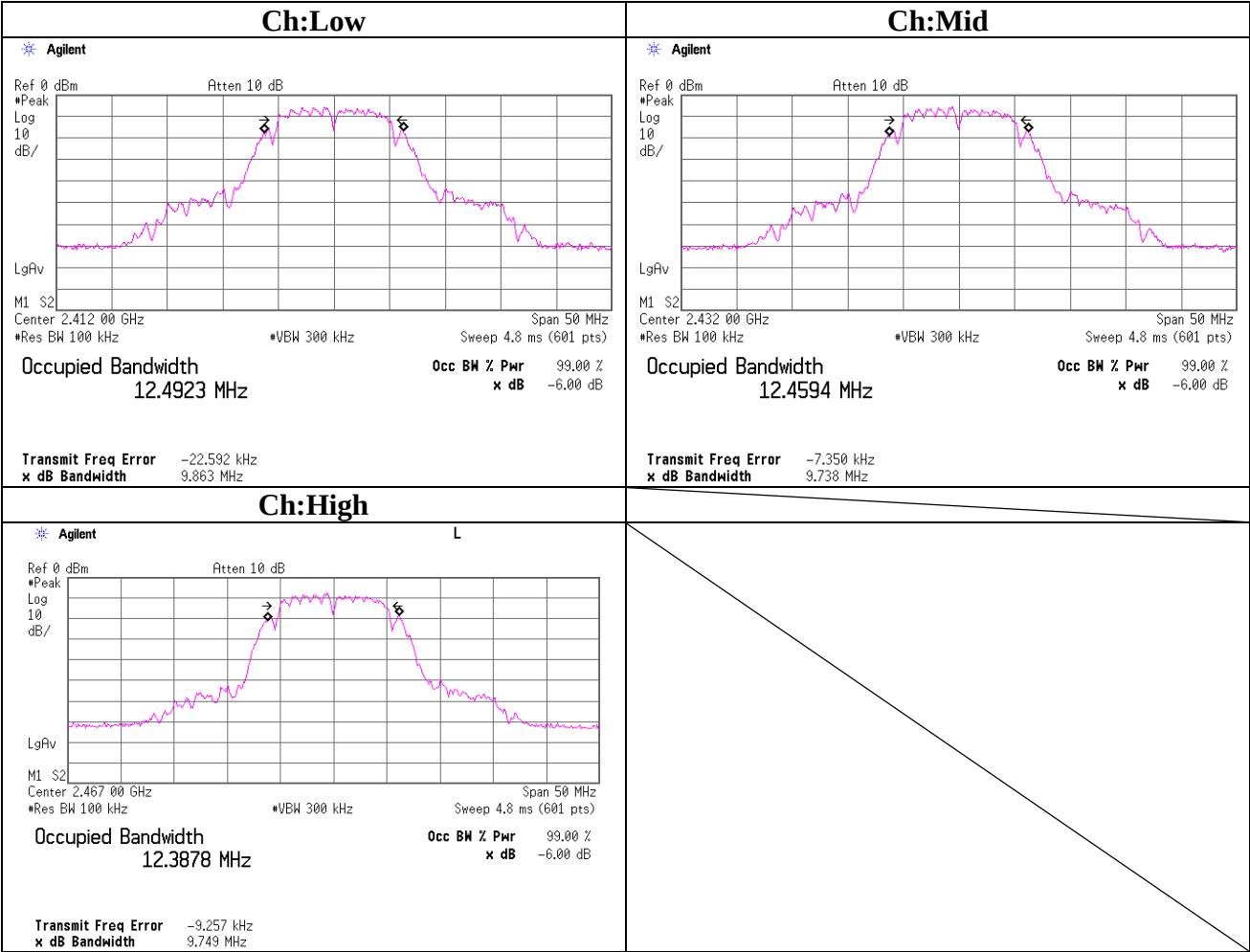
6dB Bandwidth

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Company	: Pioneer Corporation	REPORT NO	: 25DE0040-HO
Equipment	: Digital Wireless Speaker System	REGULATION	: Fcc Part15 Subpart C 15.247(a)(2)
Model	: XW-HTP550	TEST DISTANCE	: -
Sample No.	: E3-2	DATE	: 12/02/2004
Power	: AC120V/60Hz	TEMPERATURE	: 24
Mode	: Tx	HUMIDITY	: 30%
FCC ID	: -	ENGINEER	: Yutaka Yoshida
IC No.	: -		

Ch	Freq.	6dB Bandwidth	Limit
	[MHz]	[MHz]	[kHz]
Low	2412.0	9.863	500.0
Mid	2432.0	9.738	500.0
High	2467.0	9.749	500.0

6dB Bandwidth



Maximum Peak OutPut Power

UL Apex Co., Ltd.
Head Office EMC Lab. No.3 Measurement Room

Company	: Pioneer Corporation	REPORT NO	: 25DE0040-HO
Equipment	: Digital Wireless Speaker System	REGULATION	: Fcc Part15 Subpart C 15.247(b)(3)
Model	: XW-HTP550	TEST DISTANCE	: -
Sample No.	: E3-2	DATE	: 12/02/2004
Power	: AC120V/60Hz	TEMPERATURE	: 24
Mode	: Tx	HUMIDITY	: 30%
FCC ID	: -	ENGINEER	: Yutaka Yoshida
IC No.	: -		

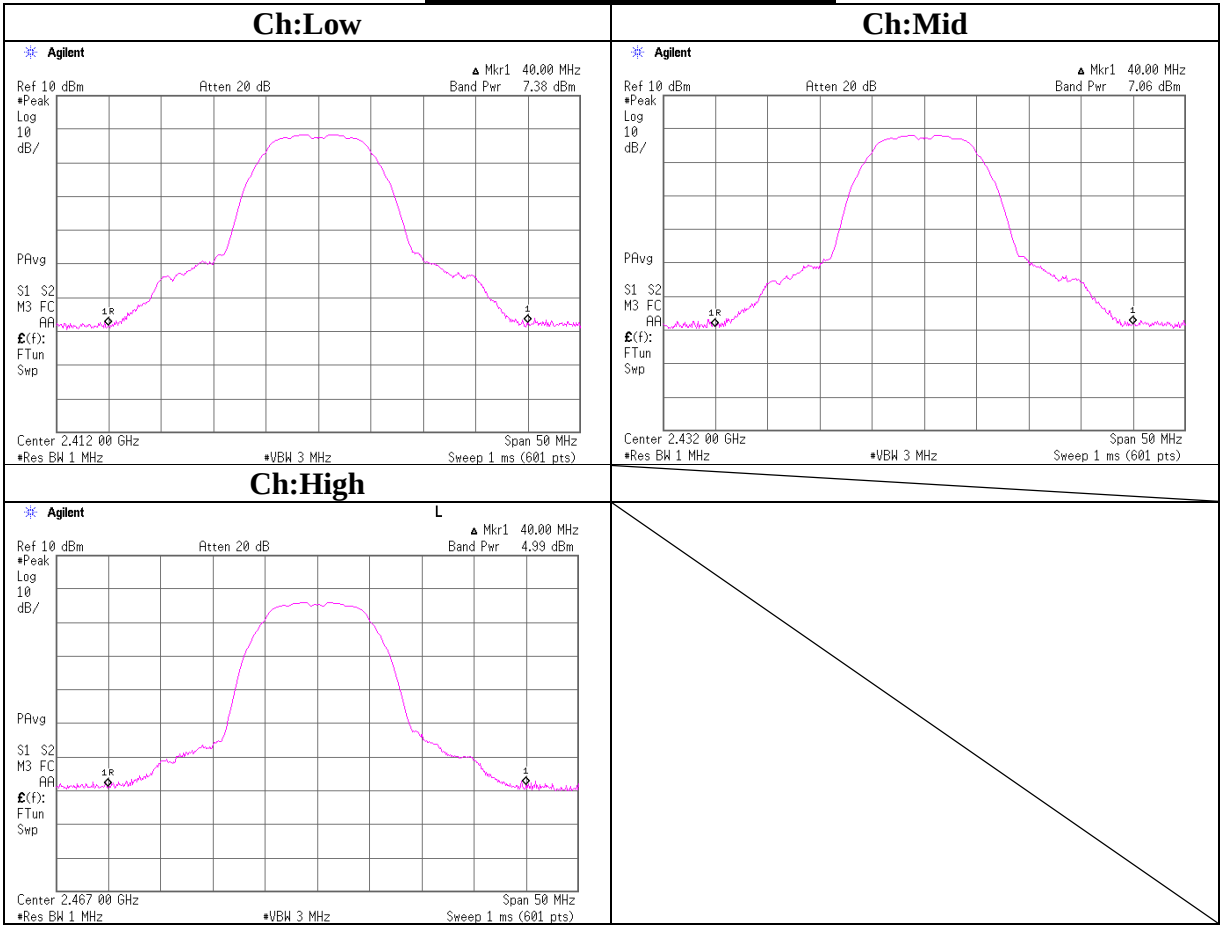
Ch	Freq. [MHz]	S/A Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Limit (1W) [dBm]	Margin [dB]
Low	2412.0	7.38	0.50	10.00	17.88	30.00	12.12
Mid	2432.0	7.06	0.50	10.00	17.56	30.00	12.44
High	2467.0	4.99	0.50	10.00	15.49	30.00	14.51

Sample Calculation:

Result = Reading + Cable Loss (supplied by customer) + Attenuator

* In the above table, factor 0.0dB represents no use of Atten. and/or Filter.

Maximum Peak OutPut Power



Radiated Spurious Emission

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

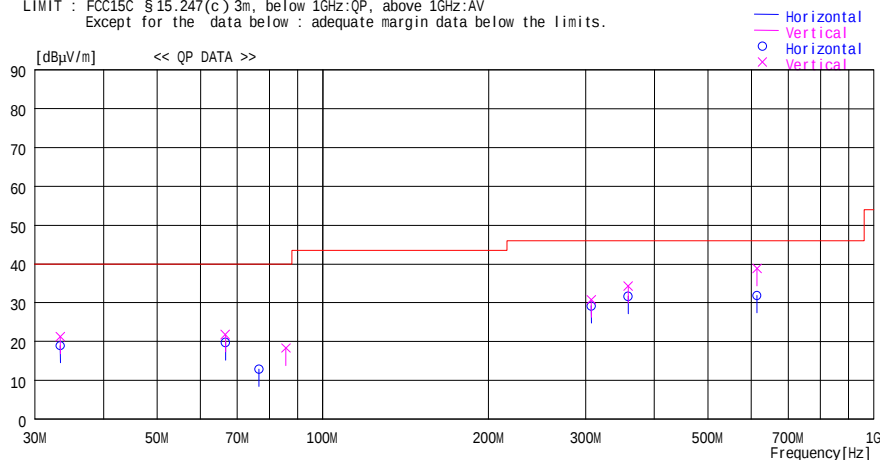
DATA OF RADIATED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2004/11/30 16:07:55

Applicant : Pioneer Corporation
Kind of EUT : Digital Wireless Speaker System
Model No. : XW-HTP550(T)
Serial No. : E3
Report No. : 25DE0040-HO
Power : AC120V/60Hz
Temp /Humi% : 21deg.C / 33%
Operator : Hiroka Umeyama

Mode / Remarks : Tx:2412MHz

LIMIT : FCC15C §15.247(c) 3m, below 1GHz:QP, above 1GHz:AV
Except for the data below : adequate margin data below the limits.



No.	FREQ [MHz]	READING QP [dBμV]	ANT FACTOR [dB/m]	LOSS	GAIN	RESULT	LIMIT	MARGIN	ANTENNA	TABLE
				[dB]	[dB]	[dBμV/m]	[dBμV/m]	[dB]	[cm]	[DEG]
----- Horizontal -----										
1	33.400	22.2	17.4	7.2	27.8	19.0	40.0	21.0	300	0
2	66.580	32.6	7.4	7.5	27.7	19.8	40.0	20.2	300	250
3	76.580	26.4	6.7	7.5	27.7	12.9	40.0	27.1	350	300
4	307.190	31.6	14.8	10.1	27.3	29.2	46.0	16.8	318	100
5	358.385	32.1	16.6	10.4	27.5	31.6	46.0	14.4	200	100
6	614.370	28.9	20.0	11.9	28.9	31.9	46.0	14.1	230	289
----- Vertical -----										
7	33.400	24.5	17.4	7.2	27.8	21.3	40.0	18.7	100	357
8	66.580	34.6	7.4	7.5	27.7	21.8	40.0	18.2	100	357
9	85.690	30.8	7.5	7.8	27.8	18.3	40.0	21.7	100	357
10	307.190	33.2	14.8	10.1	27.3	30.8	46.0	15.2	100	359
11	358.385	34.8	16.6	10.4	27.5	34.3	46.0	11.7	200	359
12	614.370	35.8	20.0	11.9	28.9	38.8	46.0	7.2	100	359

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)

Radiated Spurious Emission

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

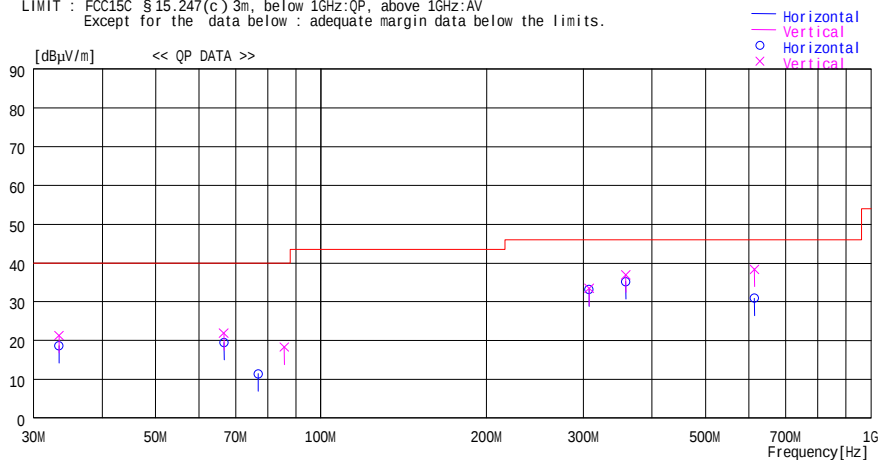
DATA OF RADIATED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2004/11/30 16:32:49

Applicant : Pioneer Corporation
Kind of EUT : Digital Wireless Speaker System
Model No. : XW-HTP550(T)
Serial No. : E3
Report No. : 25DE0040-HO
Power : AC120V/60Hz
Temp /Humi% : 21deg.C / 33%
Operator : Hiroka Umeyama

Mode / Remarks : Tx:2432MHz

LIMIT : FCC15C §15.247(c) 3m, below 1GHz:QP, above 1GHz:AV
Except for the data below : adequate margin data below the limits.



No.	FREQ [MHz]	READING QP [dBμV]	ANT FACTOR [dB/m]	LOSS	GAIN	RESULT	LIMIT	MARGIN	ANTENNA	TABLE
				[dB]	[dB]	[dBμV/m]	[dBμV/m]	[dB]	[cm]	[DEG]
----- Horizontal -----										
1	33.400	21.8	17.4	7.2	27.8	18.6	40.0	21.4	300	0
2	66.580	32.3	7.4	7.5	27.7	19.5	40.0	20.5	300	250
3	76.850	24.9	6.7	7.5	27.7	11.4	40.0	28.6	350	270
4	307.190	35.6	14.8	10.1	27.3	33.2	46.0	12.8	300	6
5	358.385	35.7	16.6	10.4	27.5	35.2	46.0	10.8	215	90
6	614.370	27.9	20.0	11.9	28.9	30.9	46.0	15.1	270	280
----- Vertical -----										
7	33.400	24.5	17.4	7.2	27.8	21.3	40.0	18.7	100	0
8	66.580	34.7	7.4	7.5	27.7	21.9	40.0	18.1	100	0
9	85.690	30.8	7.5	7.8	27.8	18.3	40.0	21.7	100	350
10	307.190	35.8	14.8	10.1	27.3	33.4	46.0	12.6	100	0
11	358.385	37.4	16.6	10.4	27.5	36.9	46.0	9.1	200	0
12	614.370	35.4	20.0	11.9	28.9	38.4	46.0	7.6	100	356

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)

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MF060b(10.04.03)

Radiated Spurious Emission

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

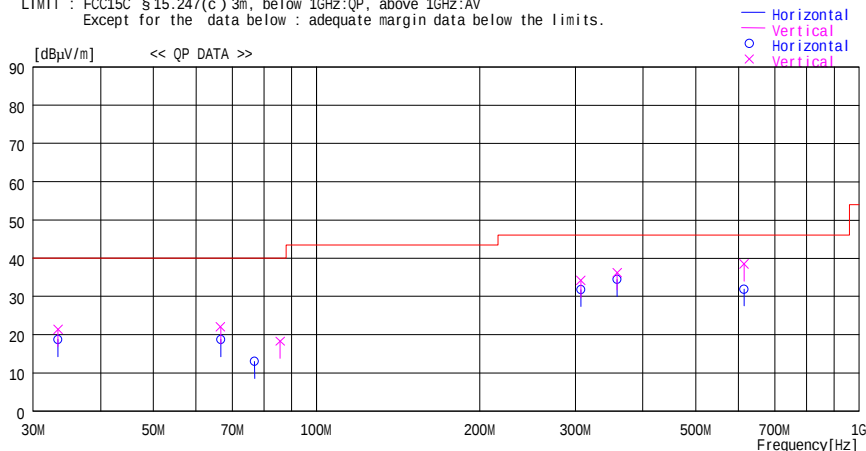
DATA OF RADIATED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2004/11/30 15:35:54

Applicant : Pioneer Corporation
Kind of EUT : Digital Wireless Speaker System
Model No. : XW-HTP550(T)
Serial No. : E3
Report No. : 25DE0040-HO
Power : AC120V/60Hz
Temp /Humi% : 21deg.C / 33%
Operator : Hiroka Umeyama

Mode / Remarks : Tx:2467MHz

LIMIT : FCC15C §15.247(c) 3m, below 1GHz:QP, above 1GHz:AV
Except for the data below : adequate margin data below the limits.



No.	FREQ [MHz]	READING QP [dBμV]	ANT FACTOR [dB/m]	LOSS [dB]	GAIN [dB]	RESULT [dBμV/m]	LIMIT [dBμV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal -----										
1	33.400	21.9	17.4	7.2	27.8	18.7	40.0	21.3	300	0
2	66.580	31.5	7.4	7.5	27.7	18.7	40.0	21.3	300	250
3	76.850	26.5	6.7	7.5	27.7	13.0	40.0	27.0	350	270
4	307.190	34.2	14.8	10.1	27.3	31.8	46.0	14.2	215	280
5	358.385	34.9	16.6	10.4	27.5	34.4	46.0	11.6	215	91
6	614.370	28.9	20.0	11.9	28.9	31.9	46.0	14.1	270	280
----- Vertical -----										
7	33.400	24.6	17.4	7.2	27.8	21.4	40.0	18.6	100	0
8	66.580	34.8	7.4	7.5	27.7	22.0	40.0	18.0	100	359
9	85.690	30.8	7.5	7.8	27.8	18.3	40.0	21.7	100	349
10	307.190	36.6	14.8	10.1	27.3	34.2	46.0	11.8	100	359
11	358.385	36.7	16.6	10.4	27.5	36.2	46.0	9.8	200	8
12	614.370	35.5	20.0	11.9	28.9	38.5	46.0	7.5	100	354

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)

Test report No. : 25DE0040-HO-1
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Issued date : December 10, 2004
Revised date : December 28, 2004
FCC ID : AJDT105

Radiated Spurious Emission

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

UL Apex Co., Ltd.

Head Office EMC Lab. No.1 Semi Anechoic Chambe

Company : Pioneer Corporation
Equipment : Digital Wireless Speaker System
Model : XW-HTP550(T)
Sample No. : E3
Power : AC120V / 60Hz
Mode : Tx CH1(2412MHz)
Remarks : -
(RBW: 1MHz)

REPORT NO : 25DE0040-HO
REGULATION : Fcc Part15 Subpart C 15.247(C)
TEST DISTANCE : 3/1m
DATE : 11/30/2004
TEMPERATURE : 22deg.C
HUMIDITY : 32%
ENGINEER : Hiroka Umeyama

No.	FREQ	T/R READING		ANT	AMP	CABLE	Hi-Pass	RESULT		Limit	MARGIN	
	[MHz]	HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	PK	HOR	VER
		[dBuV]		[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	2390.0	45.8	47.8	30.7	36.3	5.6	0.0	45.8	47.8	74.0	28.2	26.2
2	4824.0	45.8	46.4	35.2	36.1	8.0	1.0	53.9	54.5	74.0	20.1	19.5
3	7236.0	43.5	43.2	37.7	35.6	10.1	0.4	56.1	55.8	74.0	17.9	18.2
4	9648.0	43.2	43.7	37.1	36.3	11.9	0.2	56.1	56.6	74.0	17.9	17.4
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass - Dfac												
5	12060.0	44.2	44.9	40.8	35.7	13.5	0.0	53.3	54.0	74.0	20.7	20.0
6	14472.0	42.7	42.8	42.3	34.6	14.8	0.0	55.7	55.8	74.0	18.3	18.2
7	16884.0	42.1	42.6	46.4	35.5	16.6	0.0	60.1	60.6	74.0	13.9	13.4
8	19296.0	41.9	41.6	41.8	34.9	18.0	0.0	57.3	57.0	74.0	16.7	17.0
9	21708.0	43.3	43.2	41.2	35.3	19.7	0.0	59.4	59.3	74.0	14.6	14.7
10	24120.0	43.8	44.1	41.1	36.0	20.6	0.0	60.0	60.3	74.0	14.0	13.7

AV DETECT (RBW: 1MHz)

No.	FREQ	T/R READING		ANT	AMP	CABLE	Hi-Pass	RESULT		Limit	MARGIN	
	[MHz]	HOR	VER	Factor [dB/m]	GAIN [dB]	LOSS [dB]	Filter [dB]	HOR	VER	AV [dBuV/m]	HOR	VER
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass												
1	2390.0	32.9	34.3	30.7	36.3	5.6	0.0	32.9	34.3	54.0	21.1	19.7
2	4824.0	34.1	35.0	35.2	36.1	8.0	1.0	42.2	43.1	54.0	11.8	10.9
3	7236.0	30.1	30.3	37.7	35.6	10.1	0.4	42.7	42.9	54.0	11.3	11.1
4	9648.0	30.3	30.5	37.1	36.3	11.9	0.2	43.2	43.4	54.0	10.8	10.6
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass - Dfac												
5	12060.0	30.4	33.0	40.8	35.7	13.5	0.0	39.5	42.1	54.0	14.5	11.9
6	14472.0	29.5	29.4	42.3	34.6	14.8	0.0	42.5	42.4	54.0	11.5	11.6
7	16884.0	29.2	29.1	46.4	35.5	16.6	0.0	47.2	47.1	54.0	6.8	6.9
8	19296.0	29.0	29.1	41.8	34.9	18.0	0.0	44.4	44.5	54.0	9.6	9.5
9	21708.0	30.6	30.7	41.2	35.3	19.7	0.0	46.7	46.8	54.0	7.3	7.2
10	24120.0	30.7	30.7	41.1	36.0	20.6	0.0	46.9	46.9	54.0	7.1	7.1

* Reference data

20dBc(Fundamental 2412MHz) (RBW: 100kHz)

No.	FREQ	T/R READING		ANT	AMP	CABLE	ATT	RESULT		Limit	MARGIN	
	[MHz]	HOR	VER	Factor	GAIN	LOSS		HOR	VER	20dBc	HOR	VER
		[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Hi Pass + Dwell Factor												
0	2412.0	92.2	94.9	30.7	36.3	5.6	0.0	92.2	94.9	-	-	-
2	2400.0	49.3	51.9	30.7	36.3	5.6	0.0	49.3	51.9	Funda-20dB	22.9	23.0

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5dB

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

*In the frequency over the fifth harmonic, the noise from the EUT was not seen.The data above is its base noise.

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MF060b(10.04.03)

Test report No. : 25DE0040-HO-1
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Issued date : December 10, 2004
Revised date : December 28, 2004
FCC ID : AJDT105

Radiated Spurious Emission

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

UL Apex Co., Ltd.
Head Office EMC Lab. No.1 Semi Anechoic Chambe

Company : Pioneer Corporation
Equipment : Digital Wireless Speaker System
Model : XW-HTP550(T)
Sample No. : E3
Power : AC120V / 60Hz
Mode : Tx CH2(2432MHz)
Remarks : -

REPORT NO : 25DE0040-HO
REGULATION : Fcc Part15 Subpart C 15.247(C)
TEST DISTANCE : 3/1m
DATE : 11/30/2004
TEMPERATURE : 22deg.C
HUMIDITY : 32%
ENGINEER : Hiroka Umeyama

PK DETECT (RBW:1MHz)

No.	FREQ [MHz]	T/R READING HOR VER [dBuV]		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT HOR VER [dBuV/m]		Limit PK [dBuV/m]	MARGIN HOR VER [dB]	
		Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass										
1	4863.9	47.2	48.1	35.4	36.1	8.0	1.0	55.5	56.4	74.0	18.5	17.6
2	7296.0	43.7	43.4	37.9	35.7	10.2	0.5	56.6	56.3	74.0	17.4	17.7
3	9728.0	43.2	44.6	37.1	36.3	12.0	0.2	56.2	57.6	74.0	17.8	16.4
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass - Dfac												
4	12185.0	43.9	43.4	41.4	35.6	13.6	0.0	53.8	53.3	74.0	20.2	20.7
5	14622.0	42.2	43.6	42.6	34.8	14.9	0.0	55.4	56.8	74.0	18.6	17.2
6	17059.0	42.0	42.6	46.6	35.4	16.6	0.0	60.3	60.9	74.0	13.7	13.1
7	19496.0	41.8	41.8	41.2	34.9	18.0	0.0	56.6	56.6	74.0	17.4	17.4
8	21933.0	45.6	45.3	41.0	35.0	19.9	0.0	62.0	61.7	74.0	12.0	12.3
9	24370.0	44.0	44.0	41.2	36.6	20.7	0.0	59.8	59.8	74.0	14.2	14.2

AV DETECT (RBW:1MHz)

No.	FREQ [MHz]	T/R READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit AV [dBuV/m]	MARGIN	
		HOR [dBuV]	VER [dBuV]					HOR [dB]	VER [dB]			
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass												
1	4863.9	35.6	36.7	35.4	36.1	8.0	1.0	43.9	45.0	54.0	10.1	9.0
2	7296.0	30.3	30.5	37.9	35.7	10.2	0.5	43.2	43.4	54.0	10.8	10.6
3	9728.0	30.2	31.9	37.1	36.3	12.0	0.2	43.2	44.9	54.0	10.8	9.1
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass - Dfac												
4	12185.0	30.8	30.4	41.4	35.6	13.6	0.0	40.7	40.3	54.0	13.3	13.7
5	14622.0	29.7	29.7	42.6	34.8	14.9	0.0	42.9	42.9	54.0	11.1	11.1
6	17059.0	29.1	29.1	46.6	35.4	16.6	0.0	47.4	47.4	54.0	6.6	6.6
7	19496.0	29.0	29.1	41.2	34.9	18.0	0.0	43.8	43.9	54.0	10.2	10.1
8	21933.0	32.5	32.5	41.0	35.0	19.9	0.0	48.9	48.9	54.0	5.1	5.1
9	24370.0	30.6	30.6	41.2	36.6	20.7	0.0	46.4	46.4	54.0	7.6	7.6

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5dB

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

*In the frequency over the fifth harmonic, the noise from the EUT was not seen.The data above is its base noise.

UL Apex Co., Ltd.

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MF060b(10.04.03)

Test report No. : 25DE0040-HO-1
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FCC ID : AJDT105

Radiated Spurious Emission

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

UL Apex Co., Ltd.
Head Office EMC Lab. No.1 Semi Anechoic Chambe

Company : Pioneer Corporation
Equipment : Digital Wireless Speaker System
Model : XW-HTP550(T)
Sample No. : E3
Power : AC120V / 60Hz
Mode : Tx CH4(2467MHz)
Remarks : -

REPORT NO : 25DE0040-HO
REGULATION : Fcc Part15 Subpart C 15.247(C)
TEST DISTANCE : 3/1m
DATE : 11/30/2004
TEMPERATURE : 22deg.C
HUMIDITY : 32%
ENGINEER : Hiroka Umeyama

PK DETECT (RBW:1MHz)

No.	FREQ	T/R READING		ANT	AMP	CABLE	Hi-Pass	RESULT		Limit	MARGIN	
	[MHz]	HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	PK	HOR	VER
		[dBuV]		[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	2483.5	56.9	62.4	30.8	36.2	5.6	0.0	57.1	62.6	74.0	16.9	11.4
2	4934.0	46.8	48.1	35.7	36.1	8.2	1.0	55.6	56.9	74.0	18.4	17.1
3	7401.0	43.4	44.3	38.2	35.7	10.3	0.7	56.9	57.8	74.0	17.1	16.2
4	9868.0	43.3	43.7	37.0	36.3	12.0	0.3	56.3	56.7	74.0	17.7	17.3
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass - Dfac												
5	12335.0	42.9	42.7	42.0	35.5	13.6	0.4	53.9	53.7	74.0	20.1	20.3
6	14802.0	41.9	42.3	42.9	35.0	15.1	0.4	55.8	56.2	74.0	18.2	17.8
7	17269.0	41.9	42.7	45.8	35.3	16.7	1.0	60.6	61.4	74.0	13.4	12.6
8	19736.0	42.5	42.7	41.2	35.2	18.2	0.0	57.2	57.4	74.0	16.8	16.6
9	22203.0	44.1	44.2	41.3	35.0	20.0	0.0	60.9	61.0	74.0	13.1	13.0
10	24670.0	44.5	44.2	41.3	36.7	20.8	0.0	60.4	60.1	74.0	13.6	13.9

AV DETECT (RBW:1MHz)

No.	FREQ	T/R READING		ANT	AMP	CABLE	Hi-Pass	RESULT		Limit	MARGIN	
	[MHz]	HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	AV	HOR	VER
		[dBuV]		[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	2483.5	43.9	49.1	30.8	36.2	5.6	0.0	44.1	49.3	54.0	9.9	4.7
2	4934.0	34.7	39.1	35.7	36.1	8.2	1.0	43.5	47.9	54.0	10.5	6.1
3	7401.0	30.4	30.9	38.2	35.7	10.3	0.7	43.9	44.4	54.0	10.1	9.6
4	9868.0	30.1	31.8	37.0	36.3	12.0	0.3	43.1	44.8	54.0	10.9	9.2
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass - Dfac												
5	12335.0	30.1	30.1	42.0	35.5	13.6	0.4	41.1	41.1	54.0	12.9	12.9
6	14802.0	29.5	29.6	42.9	35.0	15.1	0.4	43.4	43.5	54.0	10.6	10.5
7	17269.0	28.9	28.9	45.8	35.3	16.7	1.0	47.6	47.6	54.0	6.4	6.4
8	19736.0	29.3	29.3	41.2	35.2	18.2	0.0	44.0	44.0	54.0	10.0	10.0
9	22203.0	30.7	30.8	41.3	35.0	20.0	0.0	47.5	47.6	54.0	6.5	6.4
10	24670.0	30.8	30.8	41.3	36.7	20.8	0.0	46.7	46.7	54.0	7.3	7.3

Test Distance 1.0m : Distance Factor(Dfac) = $20\log(3/1.0) = 9.5\text{dB}$

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

*In the frequency over the fifth harmonic, the noise from the EUT was not seen.The data above is its base noise.

UL Apex Co., Ltd.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

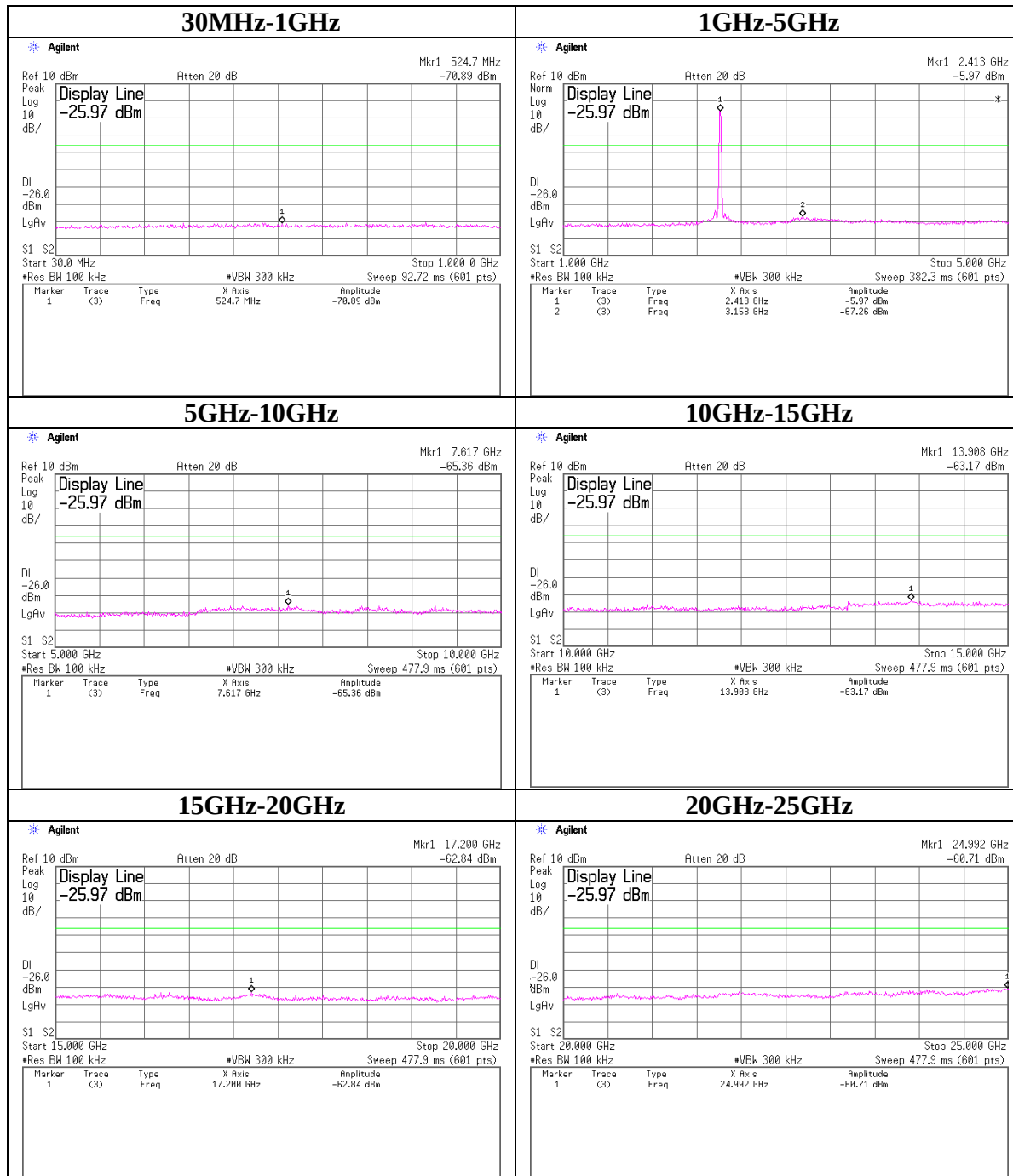
Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

MF060b(10.04.03)

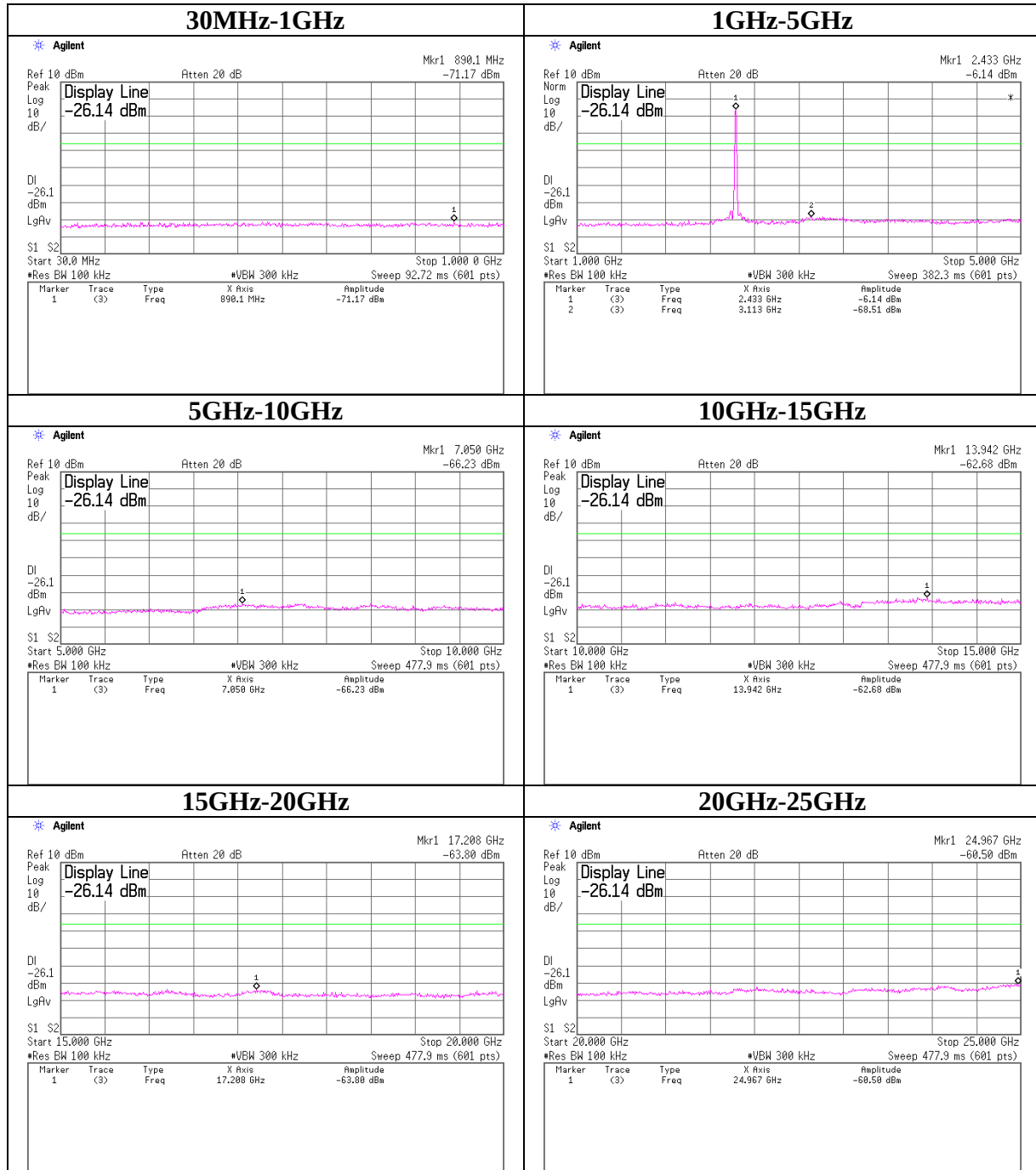
Conducted Spurious Emission

Ch : Low



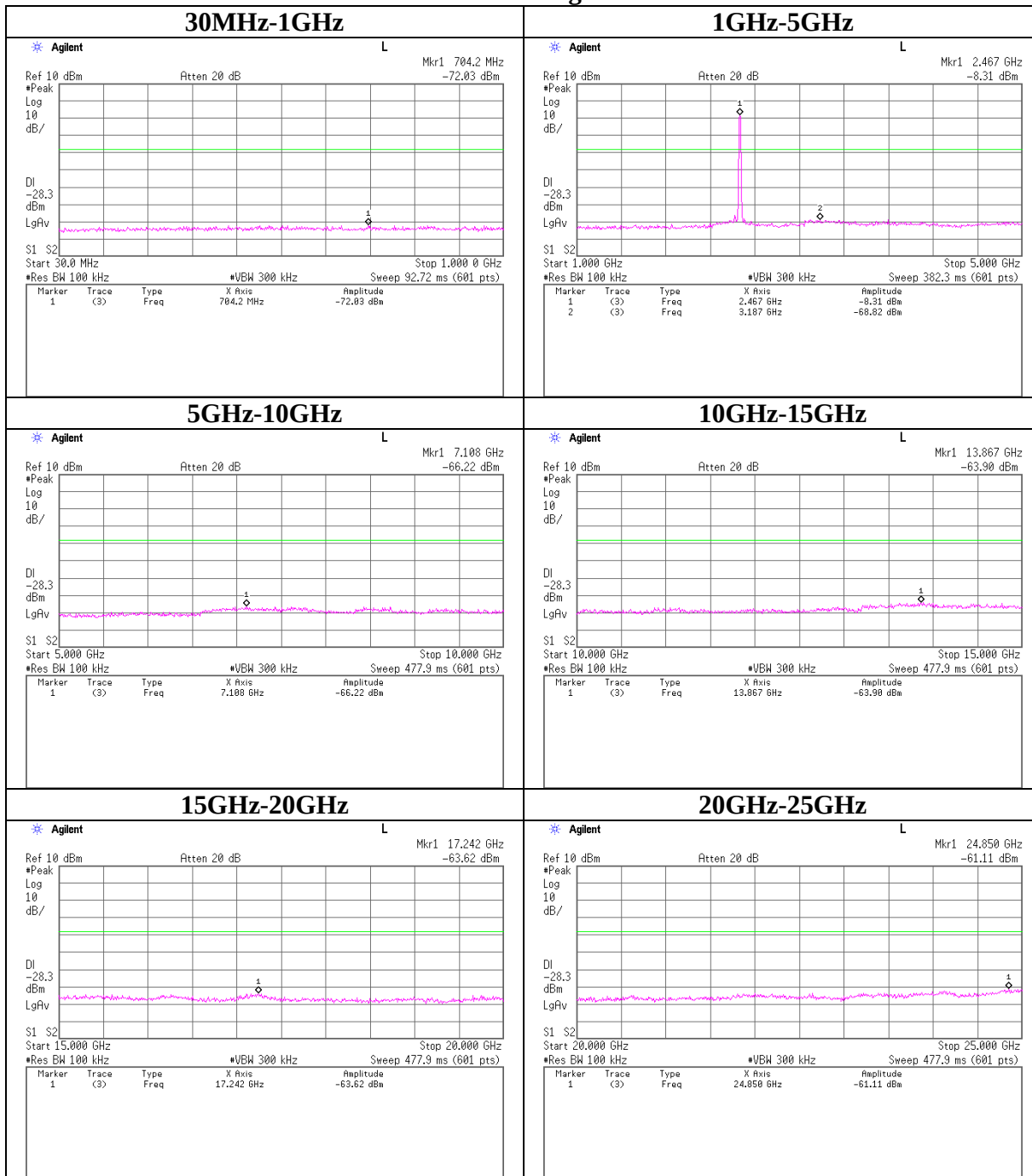
Conducted Spurious Emission

Ch : Mid

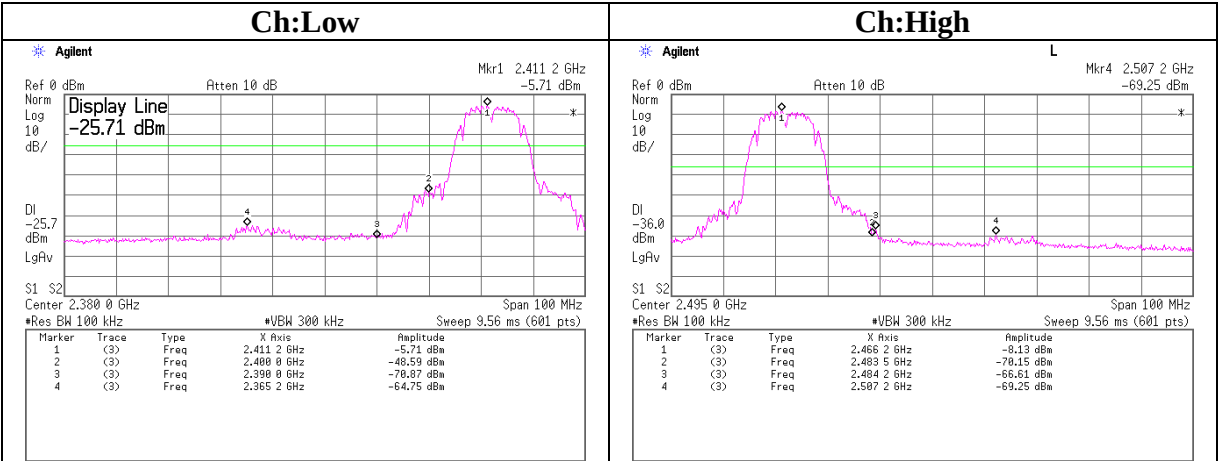


Conducted Spurious Emission

Ch : High



Conducted emission Band Edge compliance



Power Density

UL Apex Co., Ltd.
Head Office EMC Lab. No.3 Measurement Room

COMPANY	: Pioneer Corporation	REGULATION	: Fcc Part15 Subpart C 15.247(d)
EQUIPMENT	: Digital Wireless Speaker System	TEST DISTANCE	: -
MODEL	: XW-HTP550	DATE	: 12/02/2004
SAMPLE NO.	: E3-2	TEMPERATURE	: 24
POWER	: AC120V/60Hz	HUMIDITY	: 30%
MODE	: Tx	ENGINEER	: Yutaka Yoshida

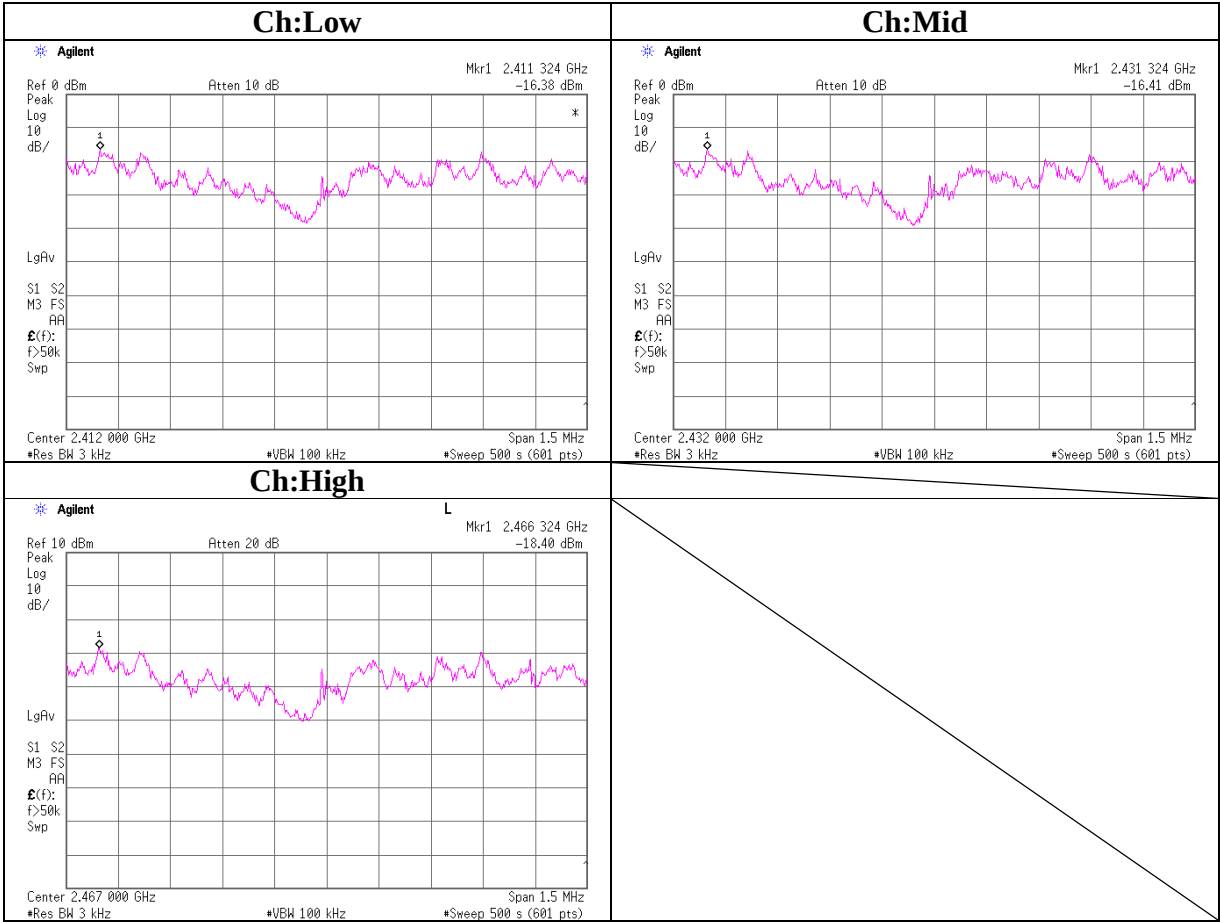
Ch	Freq. [MHz]	Reading [dBm]	Cable [dB]	Atten. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
Low	2411.3	-16.38	0.5	10.0	-5.9	8.0	13.9
Mid	2431.3	-16.41	0.5	10.0	-5.9	8.0	13.9
High	2466.3	-18.40	0.5	10.0	-7.9	8.0	15.9

Sample Calculation:

Result = Reading + Cable Loss (supplied by customer) + Attenuator

* In the above table, factor 0.0dB represents no use of Atten. and/or Filter.

Power Density



99%Occupied Bandwidth

