APPENDIX 2: Data of EMI test

Conducted Emission

DATA OF CONDUCTED EMISSION TEST

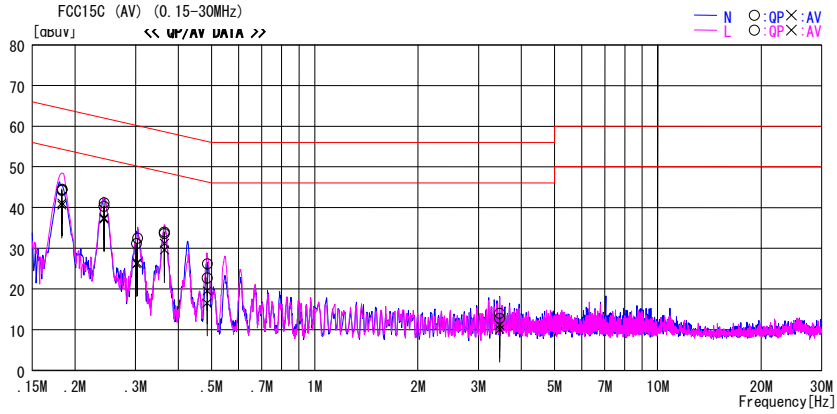
UL Apex Co., Ltd. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2006/05/31 02:35:26

Company : ONKYO CORPORATION
Kind of EUT : Digital Wireless Audio Transmitter
Model No. : UTX-1
Serial No. : pp1

Report No. : 26HE0163-HO
Power : AC 120V / 60Hz
Temp./Humi. : 27deg.C / 48%
Operator : Takumi Shimada

Mode / Remarks : Communication L-Ch 2412MHz

LIN FCC15C (QP) (0.15-30MHz)
FCC15C (AV) (0.15-30MHz)



Frequency	Reading Level		Corr.	Results		Limit		Margin		Phase
	QP	AV	Factor	QP	AV	QP	AV	QP	AV	
[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]	
0.18323	44.0	40.4	0.2	44.2	40.6	64.3	54.3	20.1	13.7	N
0.24304	40.1	37.0	0.2	40.3	37.2	62.0	52.0	21.7	14.8	N
0.30225	31.0	26.0	0.2	31.2	26.2	60.2	50.2	29.0	24.0	N
0.36427	33.8	31.0	0.2	34.0	31.2	58.6	48.6	24.6	17.4	N
0.48545	22.5	16.3	0.2	22.7	16.5	56.2	46.2	33.5	29.7	N
3.46006	12.2	9.5	0.6	12.8	10.1	56.0	46.0	43.2	35.9	N
0.18325	44.3	40.9	0.2	44.5	41.1	64.3	54.3	19.8	13.2	L
0.24325	41.0	37.3	0.2	41.2	37.5	62.0	52.0	20.8	14.5	L
0.30437	32.3	26.2	0.2	32.5	26.4	60.1	50.1	27.6	23.7	L
0.36447	33.4	29.4	0.2	33.6	29.6	58.6	48.6	25.0	19.0	L
0.48587	26.0	19.3	0.2	26.2	19.5	56.2	46.2	30.0	26.7	L
3.45918	13.4	10.5	0.6	14.0	11.1	56.0	46.0	42.0	34.9	L

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.

Conducted Emission

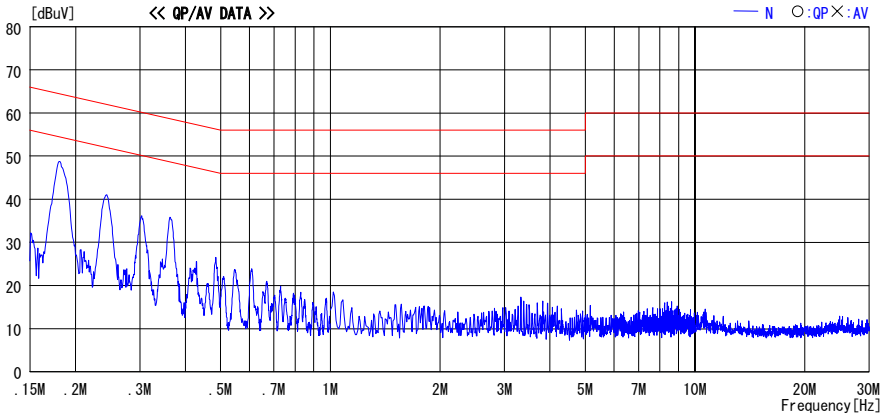
DATA OF CONDUCTED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2006/05/31 03:00:57

Company	: ONKYO CORPORATION	Report No.	: 26HE0163-HO
Kind of EUT	: Digital Wireless Audio Transmitter	Power	: AC 120V / 60Hz
Model No.	: UTX-1	Temp./Humi.	: 27deg.C / 48%
Serial No.	: pp1	Operator	: Takumi Shimada

Mode / Remarks : Communication M-Ch 2437MHz

LIMIT FCC15C (QP) (0.15-30MHz)
FCC15C (AV) (0.15-30MHz)



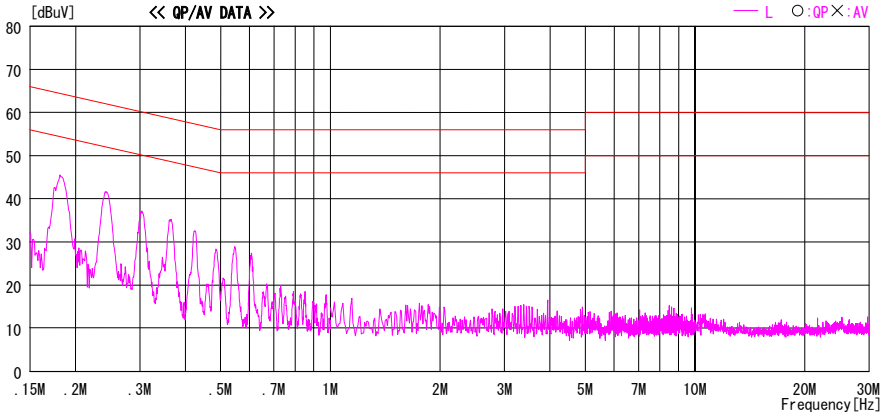


CHART:WITH FACTOR,Peak hold data.Data is uncorrected. CALCURATION:RESULT=READING+C.F(LISN LOSS+CABLE LOSS)
Except for the above table : adequate margin data below the limits.

Conducted Emission

DATA OF CONDUCTED EMISSION TEST

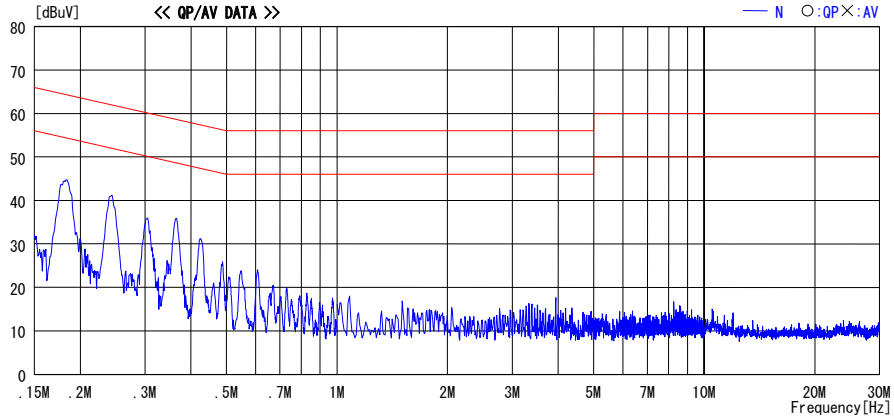
UL Apex Co., Ltd. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2006/05/31 02:54:27

Company : ONKYO CORPORATION
Kind of EUT : Digital Wireless Audio Transmitter
Model No. : UTX-1
Serial No. : pp1

Report No. : 26HE0163-HO
Power : AC 120V / 60Hz
Temp./Humi. : 27deg.C / 48%
Operator : Takumi Shimada

Mode / Remarks : Communication H-Ch 2462MHz

LIMIT FCC15C (QP) (0.15-30MHz)
FCC15C (AV) (0.15-30MHz)



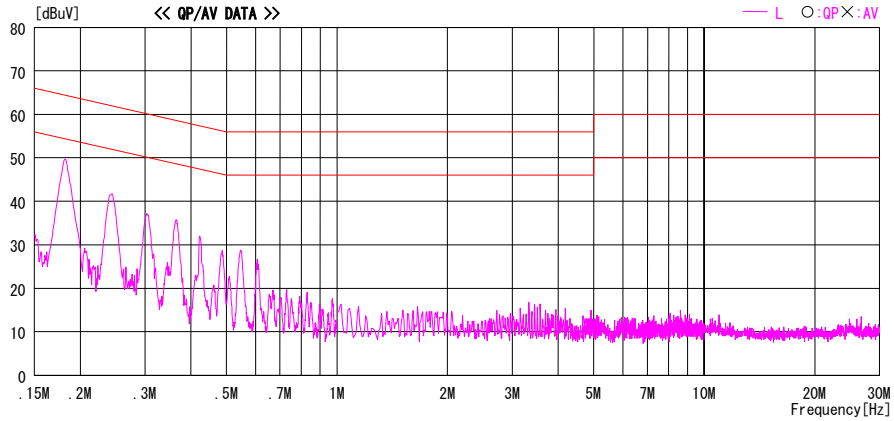


CHART:WITH FACTOR,Peak hold data.Data is uncorrected. CALCURATION:RESULT=READING+C.F(LISN LOSS+CABLE LOSS)
Except for the above table : adequate margin data below the limits.

6dB Bandwidth

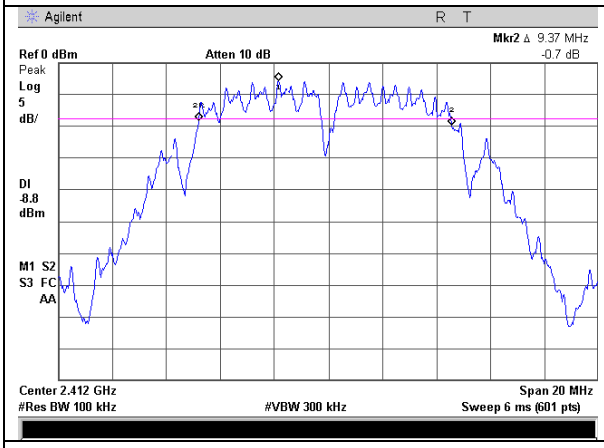
UL Apex Co., Ltd.
Head Office EMC Lab. No.7 Shielded Room

Company	: ONKYO CORPORATION	REPORT NO	: 26HE00163-HO
Equipment	: Digital Wireless Audio Transmitter	REGULATION	: FCC Part15 Subpart C 15.247(a)(2)
Model	: UTX-1	TEST DISTANCE	: -
Sample No.	: pp10	DATE	: 08/24/2006
Power	: AC120V/60Hz	TEMPERATURE	: 26℃
Mode	: Continuous transmitting mode (ch1,6,11)	HUMIDITY	: 56%
		ENGINEER	: Takumi Shimada

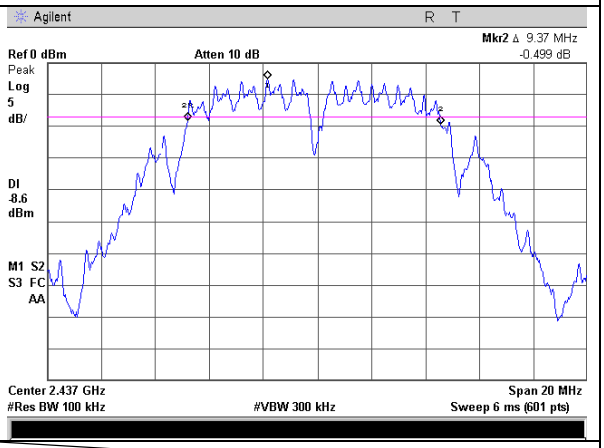
Ch	Freq. [MHz]	6dB Bandwidth [MHz]	Limit [kHz]
Low	2412.0	9.370	500.0
Mid	2437.0	9.370	500.0
High	2462.0	9.370	500.0

6dB Bandwidth

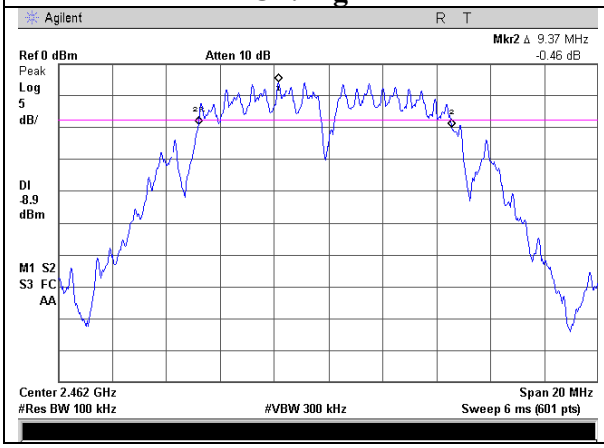
Ch:Low



Ch:Mid



Ch:High



Maximum Peak OutPut Power

UL Apex Co., Ltd.
Head Office EMC Lab. No.7 Shielded Room

Company	: ONKYO CORPORATION	REPORT NO	: 26HE0163-HO
Equipment	: Digital Wireless Audio Transmitter	REGULATION	: FCC Part15 Subpart C 15.247(b)(3)
Model	: UTX-1	TEST DISTANCE	: -
Sample No.	: pp10	DATE	: 09/08/2006
Power	: AC120V/60Hz	TEMPERATURE	: 23℃
Mode	: Continuous transmitting mode (ch1,6,11)	HUMIDITY	: 60%
		ENGINEER	: Takumi Shimada

[IEEE802.11b]

Ch	Freq. [MHz]	PM(PK) Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Result [mW]	Limit [dBm]	Limit [mW]	Margin [dB]
Low	2412.0	6.30	1.45	10.00	17.75	59.57	30.00	1000	12.25
Mid	2437.0	6.42	1.50	10.00	17.92	61.94	30.00	1000	12.08
High	2462.0	6.10	1.55	10.00	17.65	58.21	30.00	1000	12.35

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

<Reference data for SAR testing (Average power)>

Tested Date : September 8, 2006

Ch	Freq. [MHz]	PM (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result [dBm]
Low	2412.00	3.00	1.45	10.00	14.45
Mid	2437.00	3.12	1.50	10.00	14.62
High	2462.00	2.73	1.55	10.00	14.28

Sample Calculation:
Result = Reading + Cable Loss + Attenuator Loss

*Result is calculated to two places of decimals. Therefore, there may be 0.1 difference for the result.

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

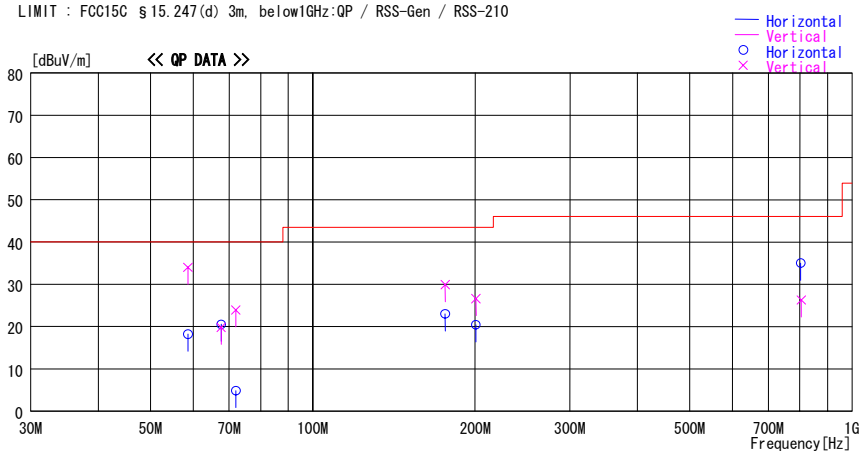
UL Apex Co., Ltd. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2006/05/29 20:16:13

Applicant : ONKYO CORPORATION
Kind of EUT : Digital Wireless Audio Transmitter
Model No. : UTX-1
Serial No. : pp1

Report No. : 26HE0163-HO
Power : AC230V/50Hz
Temp. / Humi. : 26 deg. C / 50 %
Operator : Takumi Shimada

Mode / Remarks : Tx2412MHz_ axis(Hor:Z/Ver:X)

LIMIT : FCC15C §15.247(d) 3m, below1GHz:QP / RSS-Gen / RSS-210



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]
58.671	49.9	QP	8.7	-24.6	34.0	241	100	Vert.	40.0	6.0
58.676	34.1	QP	8.7	-24.6	18.2	255	193	Hori.	40.0	21.8
67.616	36.8	QP	7.5	-24.5	19.8	270	100	Vert.	40.0	20.2
67.579	37.5	QP	7.5	-24.5	20.5	178	299	Hori.	40.0	19.5
72.004	41.2	QP	7.2	-24.5	23.9	148	100	Vert.	40.0	16.1
72.004	22.1	QP	7.2	-24.5	4.8	0	100	Hori.	40.0	35.2
176.005	36.6	QP	16.5	-23.2	29.9	0	100	Vert.	43.5	13.6
176.017	29.7	QP	16.5	-23.2	23.0	124	195	Hori.	43.5	20.5
200.603	26.3	QP	17.1	-23.0	20.4	88	142	Hori.	43.5	23.1
200.758	32.5	QP	17.1	-23.0	26.6	313	100	Vert.	43.5	16.9
803.040	32.3	QP	21.9	-19.2	35.0	203	100	Hori.	46.0	11.0
804.709	23.6	QP	21.9	-19.2	26.3	167	100	Vert.	46.0	19.7

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)

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

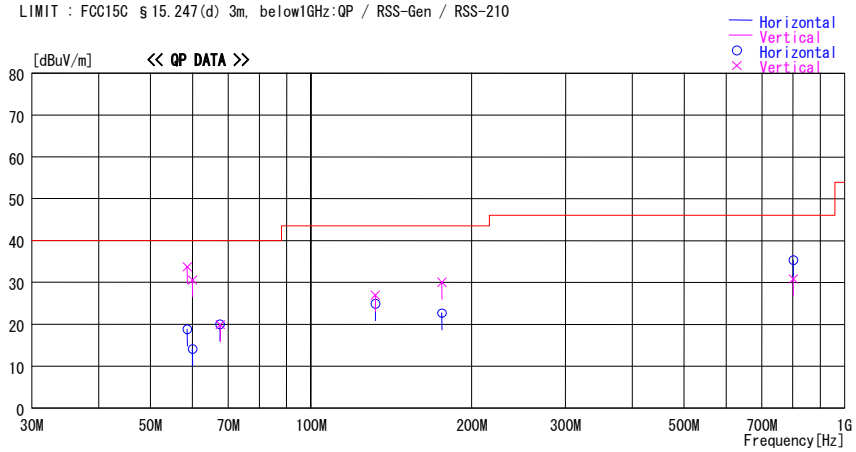
UL Apex Co., Ltd. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2006/05/29 22:51:18

Applicant : ONKYO CORPORATION
Kind of EUT : Digital Wireless Audio Transmitter
Model No. : UTX-1
Serial No. : pp1

Report No. : 26HE0163-HO
Power : AC230V/50Hz
Temp./ Humi. : 26 deg.C / 50 %
Operator : Takumi Shimada

Mode / Remarks : Tx2437MHz_ axis(Hor:Z/Ver:X)

LIMIT : FCC15C §15.247(d) 3m, below1GHz:QP / RSS-Gen / RSS-210



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]
58.661	49.6	QP	8.7	-24.6	33.7	202	100	Vert.	40.0	6.3
58.671	34.7	QP	8.7	-24.6	18.8	245	224	Hori.	40.0	21.2
59.997	30.3	QP	8.4	-24.6	14.1	293	300	Hori.	40.0	25.9
60.001	46.8	QP	8.4	-24.6	30.6	266	100	Vert.	40.0	9.4
67.555	37.0	QP	7.5	-24.5	20.0	175	294	Hori.	40.0	20.0
67.610	36.9	QP	7.5	-24.5	19.9	256	100	Vert.	40.0	20.1
132.000	36.1	QP	14.5	-23.6	27.0	0	100	Vert.	43.5	16.5
132.011	34.0	QP	14.5	-23.6	24.9	244	300	Hori.	43.5	18.6
176.002	29.4	QP	16.5	-23.2	22.7	65	173	Hori.	43.5	20.8
176.014	36.7	QP	16.5	-23.2	30.0	0	100	Vert.	43.5	13.5
801.373	28.1	QP	21.9	-19.2	30.8	221	100	Vert.	46.0	15.2
801.428	32.6	QP	21.9	-19.2	35.3	217	100	Hori.	46.0	10.7

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)

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

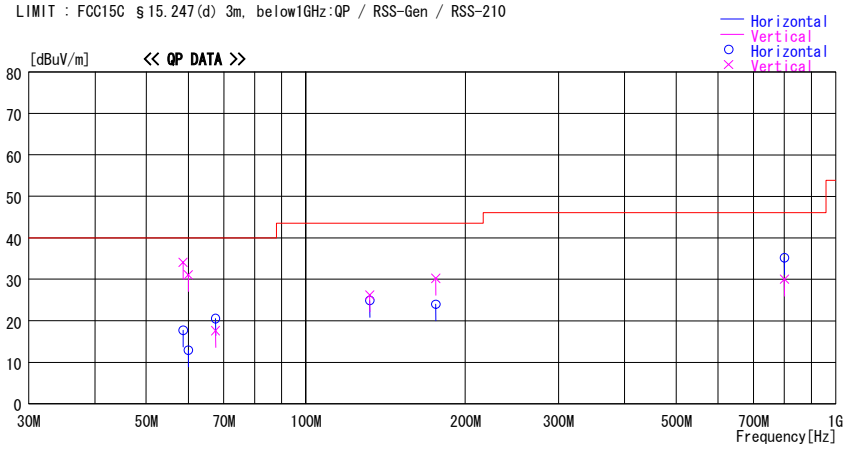
UL Apex Co., Ltd. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2006/05/29 23:59:58

Applicant : ONKYO CORPORATION
Kind of EUT : Digital Wireless Audio Transmitter
Model No. : UTX-1
Serial No. : pp1

Report No. : 26HE0163-HO
Power : AC230V/50Hz
Temp./ Humi. : 26 deg.C / 50 %
Operator : Takumi Shimada

Mode / Remarks : Tx2462MHz_ axis(Hor:Z/Ver:X)

LIMIT : FCC15C §15.247(d) 3m, below1GHz:QP / RSS-Gen / RSS-210



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]
58.665	33.6	QP	8.7	-24.6	17.7	227	155	Hori.	40.0	22.3
58.671	50.0	QP	8.7	-24.6	34.1	208	100	Vert.	40.0	5.9
59.988	29.1	QP	8.4	-24.6	12.9	256	249	Hori.	40.0	27.1
60.009	47.3	QP	8.4	-24.6	31.1	226	100	Vert.	40.0	8.9
67.509	34.6	QP	7.5	-24.5	17.6	79	100	Vert.	40.0	22.4
67.518	37.5	QP	7.5	-24.5	20.5	151	303	Hori.	40.0	19.5
131.997	35.3	QP	14.5	-23.6	26.2	3	100	Vert.	43.5	17.3
132.000	34.0	QP	14.5	-23.6	24.9	50	300	Hori.	43.5	18.6
176.003	36.9	QP	16.5	-23.2	30.2	326	100	Vert.	43.5	13.3
176.004	30.7	QP	16.5	-23.2	24.0	84	180	Hori.	43.5	19.5
800.829	27.3	QP	21.9	-19.2	30.0	224	100	Vert.	46.0	16.0
800.841	32.5	QP	21.9	-19.2	35.2	219	100	Hori.	46.0	10.8

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)

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.3Semi Anechoic Chamber

Company	ONKYO CORPORATION	REPORT NO	26HE0163-HO
Equipment	Digital Wireless Audio Transmitter	REGULATION	Fcc Part15 Subpart C 15.247(d)
Model	UTX-1	TEST DISTANCE	3m/1m/0.5m
Sample No.	pp10	DATE	08/21/2006
Power	DC5.0V(AC230V/50Hz)	TEMPERATURE	25deg.C.
Mode	Continuous Transmitting 2412MHz mode	HUMIDITY	45%
Remarks	Hor Z , Ver X-axis	ENGINEER	Yutaka Yoshida

PK DETECT (RBW: 1MHz, VBW: 1MHz)

No.	FREQ	S/A READING		ANT	AMP	CABLE	Hi-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	PK	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2390.0	56.8	49.8	29.1	32.8	2.2	0.0	55.3	48.3	74.0	18.7	25.7
2	4824.0	43.9	45.0	33.4	31.6	3.5	0.4	49.6	50.7	74.0	24.4	23.3
3	7235.1	43.6	43.2	37.3	32.1	4.3	0.4	53.5	53.1	74.0	20.5	20.9
4	9648.0	41.3	41.8	39.5	33.1	5.0	0.7	53.4	53.9	74.0	20.6	20.1
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
5	12060.0	44.0	43.9	40.6	33.0	5.8	0.0	47.9	47.8	74.0	26.1	26.2
6	14472.0	44.2	44.5	41.4	32.3	6.3	0.0	50.1	50.4	74.0	23.9	23.6
7	16884.0	43.8	44.0	40.6	32.0	6.8	0.0	49.7	49.9	74.0	24.3	24.1
Test distance 0.5meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
8	19296.0	45.2	45.3	39.0	31.8	7.3	0.0	44.1	44.2	74.0	29.9	29.8
9	21708.0	44.6	44.7	39.4	32.2	7.8	0.0	44.0	44.1	74.0	30.0	29.9
10	24120.0	46.9	47.0	39.1	31.4	8.1	0.0	47.1	47.2	74.0	26.9	26.8

AV DETECT (RBW: 1MHz, VBW: 10Hz)

No.	FREQ	S/A READING		ANT	AMP	CABLE	Hi-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	AV	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2390.0	48.2	39.6	29.1	32.8	2.2	0.0	46.7	38.1	54.0	7.3	15.9
2	4824.0	34.1	36.1	33.4	31.6	3.5	0.4	39.8	41.8	54.0	14.2	12.2
3	7235.1	33.6	34.1	37.3	32.1	4.3	0.4	43.5	44.0	54.0	10.5	10.0
4	9648.0	29.0	28.9	39.5	33.1	5.0	0.7	41.1	41.0	54.0	12.9	13.0
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
5	12060.0	30.9	30.8	40.6	33.0	5.8	0.0	34.8	34.7	54.0	19.2	19.3
6	14472.0	32.1	32.6	41.4	32.3	6.3	0.0	38.0	38.5	54.0	16.0	15.5
7	16884.0	32.0	32.0	40.6	32.0	6.8	0.0	37.9	37.9	54.0	16.1	16.1
Test distance 0.5meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
8	19296.0	32.2	32.2	39.0	31.8	7.3	0.0	31.1	31.1	54.0	22.9	22.9
9	21708.0	33.1	33.2	39.4	32.2	7.8	0.0	32.5	32.6	54.0	21.5	21.4
10	24120.0	35.7	35.8	39.1	31.4	8.1	0.0	35.9	36.0	54.0	18.1	18.0

20dBc(Fundamental 2412MHz) (RBW: 100kHz, VBW: 300kHz)

No.	FREQ	S/A READING		ANT	AMP	CABLE	Hi-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	20dBc	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2411.2	105.8	97.2	29.1	32.8	2.2	0.0	104.3	95.7	-	-	-
2	2400.0	69.3	59.8	29.1	32.8	2.2	0.0	67.8	58.3	Funda-20dB	16.5	17.4

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.54dB
Test Distance 0.5m : Distance Factor(Dfac) = 20log(3/0.5) = 15.56dB
*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.
*The result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result.
*Hi-Pass Filter was not used for factor 0.0dB of the above table.

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.3Semi Anechoic Chamber

Company	ONKYO CORPORATION	REPORT NO	26HE0163-HO
Equipment	Digital Wireless Audio Transmitter	REGULATION	Fcc Part15 Subpart C 15.247(d)
Model	UTX-1	TEST DISTANCE	3m/1m/0.5m
Sample No.	pp10	DATE	08/21/2006
Power	DC5.0V(AC230V/50Hz)	TEMPERATURE	25deg.C.
Mode	Continuous Transmitting 2437MHz mode	HUMIDITY	45%
Remarks	Hor Z , Ver X-axis	ENGINEER	Yutaka Yoshida

PK DETECT (RBW: 1MHz, VBW: 1MHz)

No.	FREQ	S/A READING		ANT	AMP	CABLE	Hi-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	PK	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	4874.0	41.3	41.1	33.5	31.6	3.5	0.4	47.1	46.9	74.0	26.9	27.1
2	7311.0	41.7	40.1	37.4	32.2	4.3	0.5	51.7	50.1	74.0	22.3	23.9
3	9748.0	42.3	42.1	39.6	33.1	5.0	0.7	54.5	54.3	74.0	19.5	19.7
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
4	12185.0	43.0	42.6	40.6	32.9	5.8	0.0	47.0	46.6	74.0	27.0	27.4
5	14622.0	44.7	44.8	41.0	32.4	6.3	0.0	50.1	50.2	74.0	23.9	23.8
6	17059.0	44.7	45.1	41.2	32.0	6.8	0.0	51.2	51.6	74.0	22.8	22.4
Test distance 0.5meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
7	19496.0	44.1	44.3	39.1	31.9	7.3	0.0	43.0	43.2	74.0	31.0	30.8
8	21933.0	45.4	45.3	39.5	32.1	7.8	0.0	45.0	44.9	74.0	29.0	29.1
9	24370.0	46.9	46.4	39.1	31.1	8.2	0.0	47.5	47.0	74.0	26.5	27.0

AV DETECT (RBW: 1MHz, VBW: 10Hz)

No.	FREQ	S/A READING		ANT	AMP	CABLE	Hi-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	AV	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	4874.0	28.7	28.7	33.5	31.6	3.5	0.4	34.5	34.5	54.0	19.5	19.5
2	7311.0	28.1	28.0	37.4	32.2	4.3	0.5	38.1	38.0	54.0	15.9	16.0
3	9748.0	29.2	29.2	39.6	33.1	5.0	0.7	41.4	41.4	54.0	12.6	12.6
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
4	12185.0	30.9	30.8	40.6	32.9	5.8	0.0	34.9	34.8	54.0	19.1	19.2
5	14622.0	31.7	31.8	41.0	32.4	6.3	0.0	37.1	37.2	54.0	16.9	16.8
6	17059.0	32.8	32.9	41.2	32.0	6.8	0.0	39.3	39.4	54.0	14.7	14.6
Test distance 0.5meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
7	19496.0	31.9	32.0	39.1	31.9	7.3	0.0	30.8	30.9	54.0	23.2	23.1
8	21933.0	33.6	33.6	39.5	32.1	7.8	0.0	33.2	33.2	54.0	20.8	20.8
9	24370.0	34.9	34.7	39.1	31.1	8.2	0.0	35.5	35.3	54.0	18.5	18.7

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.54dB
Test Distance 0.5m : Distance Factor(Dfac) = 20log(3/0.5) = 15.56dB
*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.
*The result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result.
*Hi-Pass Filter was not used for factor 0.0dB of the above table.

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.3Semi Anechoic Chamber

Company	ONKYO CORPORATION	REPORT NO	26HE0163-HO
Equipment	Digital Wireless Audio Transmitter	REGULATION	Fcc Part15 Subpart C 15.247(d)
Model	UTX-1	TEST DISTANCE	3m/1m/0.5m
Sample No.	pp10	DATE	08/21/2006
Power	DC5.0V(AC230V/50Hz)	TEMPERATURE	25deg.C.
Mode	Continuous Transmitting 2462MHz mode	HUMIDITY	45%
Remarks	Hor Z , Ver X-axis	ENGINEER	Yutaka Yoshida

PK DETECT (RBW: 1MHz, VBW: 1MHz)

No.	FREQ	S/A READING		ANT	AMP	CABLE	Hi-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	PK	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2483.5	53.8	48.3	29.2	32.7	2.3	0.0	52.6	47.1	74.0	21.4	26.9
2	4924.0	46.4	48.9	33.6	31.6	3.5	0.4	52.3	54.8	74.0	21.7	19.2
3	7385.2	44.1	45.7	37.5	32.2	4.3	0.6	54.3	55.9	74.0	19.7	18.1
4	9848.0	40.5	41.5	39.7	33.2	5.0	0.7	52.7	53.7	74.0	21.3	20.3
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
5	12310.0	44.0	43.3	40.6	32.8	5.9	0.0	48.2	47.5	74.0	25.8	26.5
6	14772.0	43.9	43.7	40.7	32.4	6.3	0.0	49.0	48.8	74.0	25.0	25.2
7	17234.0	45.6	45.7	42.1	31.9	6.9	0.0	53.2	53.3	74.0	20.8	20.7
Test distance 0.5meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
8	19696.0	43.3	43.6	39.1	31.9	7.3	0.0	42.2	42.5	74.0	31.8	31.5
9	22158.0	46.2	45.9	39.6	32.1	7.8	0.0	45.9	45.6	74.0	28.1	28.4
10	24620.0	44.9	44.8	39.2	30.8	8.2	0.0	45.9	45.8	74.0	28.1	28.2

AV DETECT (RBW: 1MHz, VBW: 10Hz)

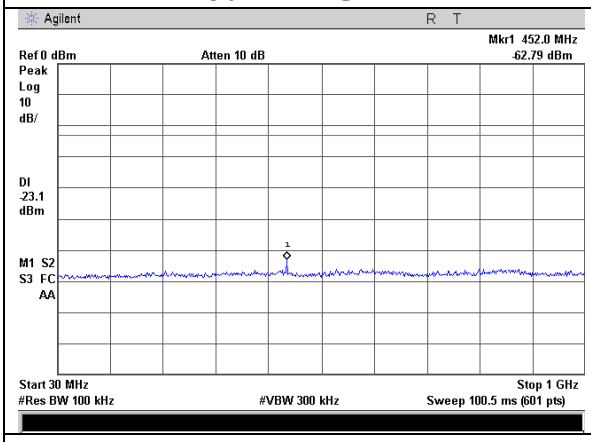
No.	FREQ	S/A READING		ANT	AMP	CABLE	Hi-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	AV	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2483.5	43.6	36.8	29.2	32.7	2.3	0.0	42.4	35.6	54.0	11.6	18.4
2	4924.0	37.4	39.8	33.6	31.6	3.5	0.4	43.3	45.7	54.0	10.7	8.3
3	7385.2	34.7	36.5	37.5	32.2	4.3	0.6	44.9	46.7	54.0	9.1	7.3
4	9848.0	28.9	28.5	39.7	33.2	5.0	0.7	41.1	40.7	54.0	12.9	13.3
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
5	12310.0	30.7	30.6	40.6	32.8	5.9	0.0	34.9	34.8	54.0	19.1	19.2
6	14772.0	32.6	32.0	40.7	32.4	6.3	0.0	37.7	37.1	54.0	16.3	16.9
7	17234.0	33.0	33.1	42.1	31.9	6.9	0.0	40.6	40.7	54.0	13.4	13.3
Test distance 0.5meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
8	19696.0	32.0	32.1	39.1	31.9	7.3	0.0	30.9	31.0	54.0	23.1	23.0
9	22158.0	33.9	34.0	39.6	32.1	7.8	0.0	33.6	33.7	54.0	20.4	20.3
10	24620.0	33.9	33.9	39.2	30.8	8.2	0.0	34.9	34.9	54.0	19.1	19.1

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.54dB
Test Distance 0.5m : Distance Factor(Dfac) = 20log(3/0.5) = 15.56dB
*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.
*The result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result.
*Hi-Pass Filter was not used for factor 0.0dB of the above table.

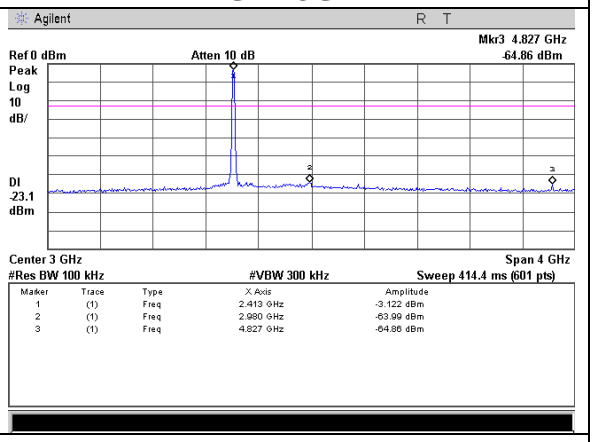
Conducted Spurious Emission

Ch: Low

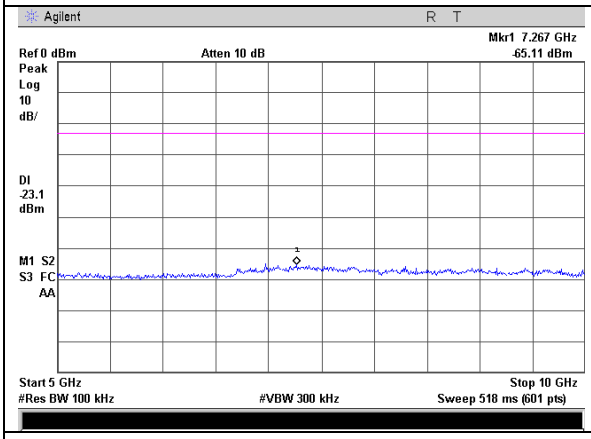
30MHz-1GHz



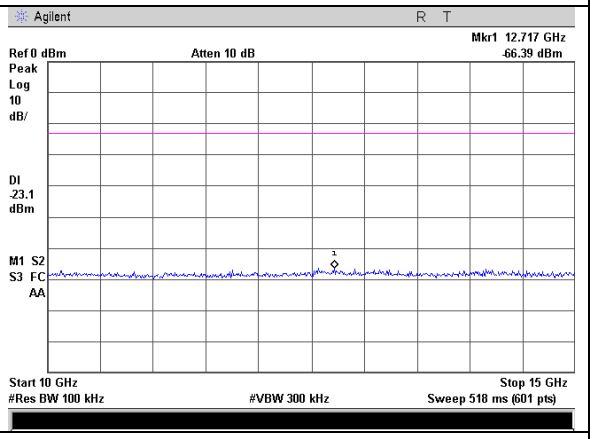
1GHz-5GHz



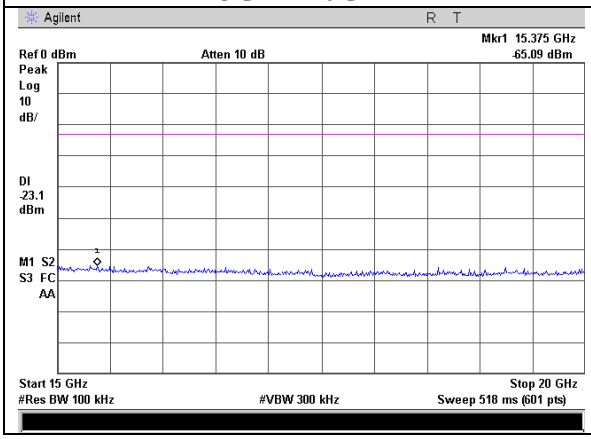
5GHz-10GHz



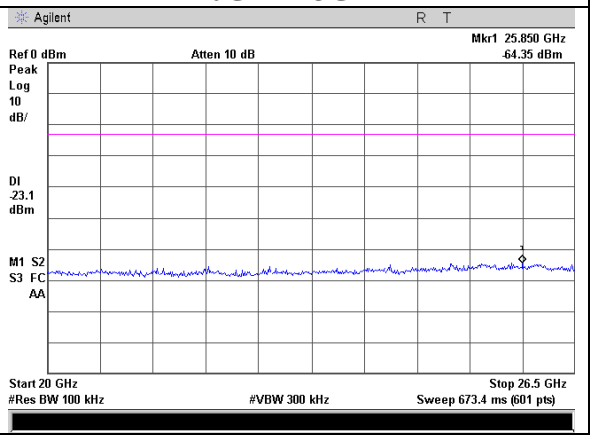
10GHz-15GHz



15GHz-20GHz

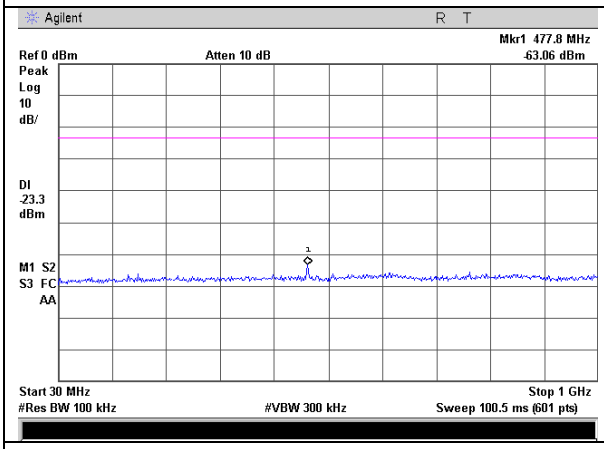


20GHz-25GHz

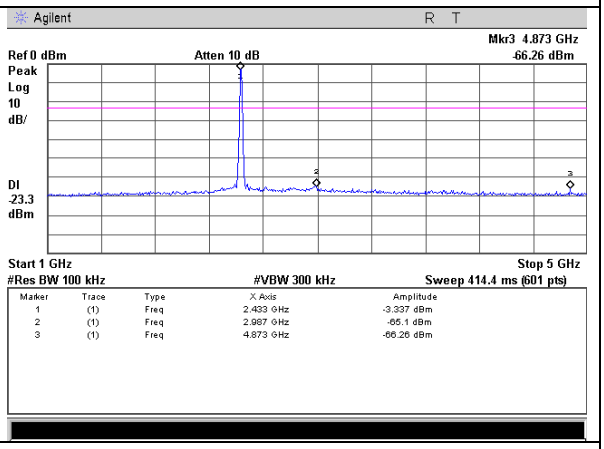


Conducted Spurious Emission
Ch: Mid

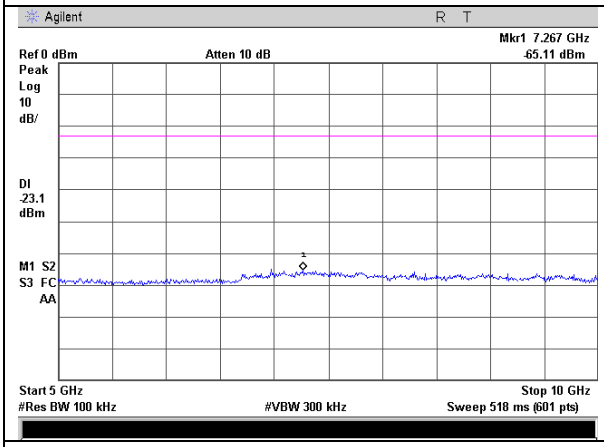
30MHz-1GHz



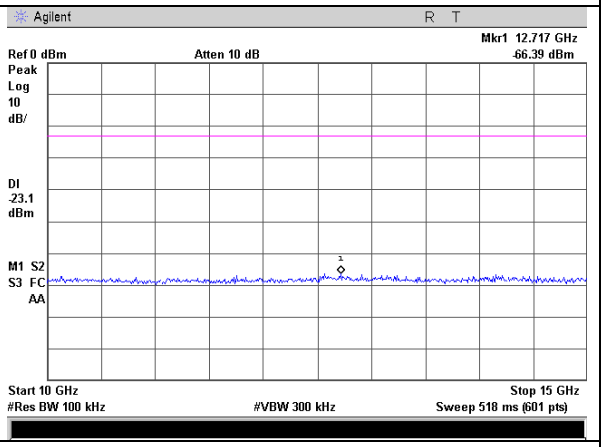
1GHz-5GHz



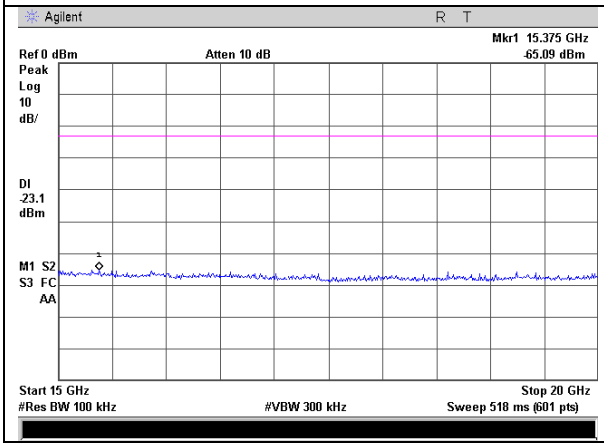
5GHz-10GHz



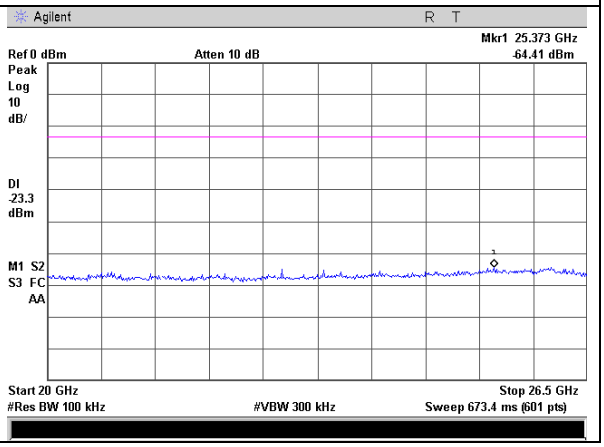
10GHz-15GHz



15GHz-20GHz

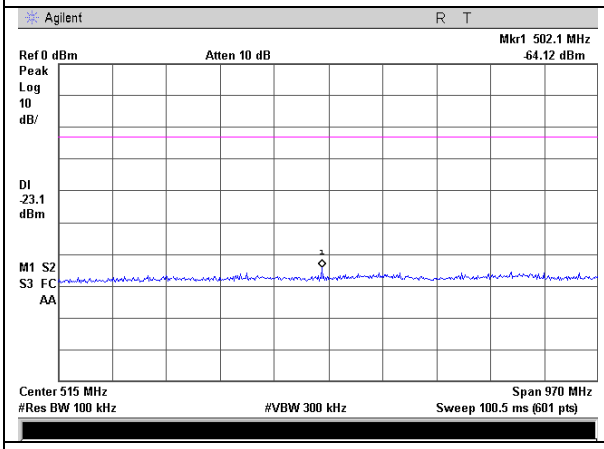


20GHz-25GHz

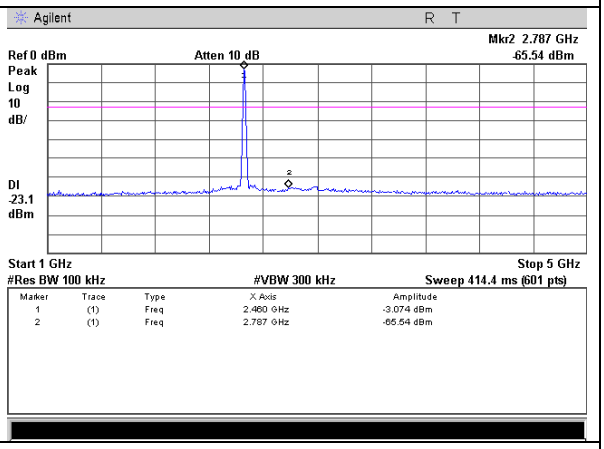


Conducted Spurious Emission
Ch: High

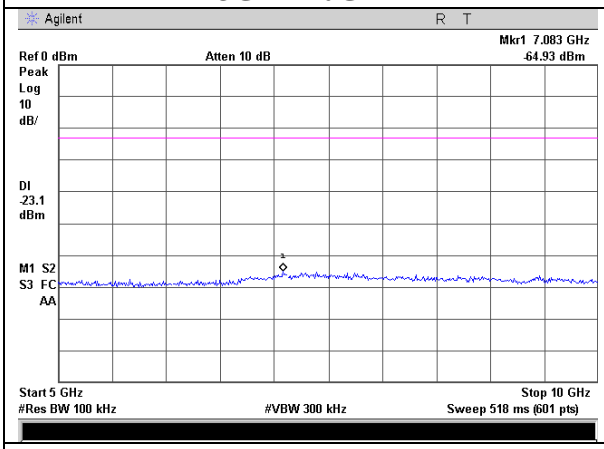
30MHz-1GHz



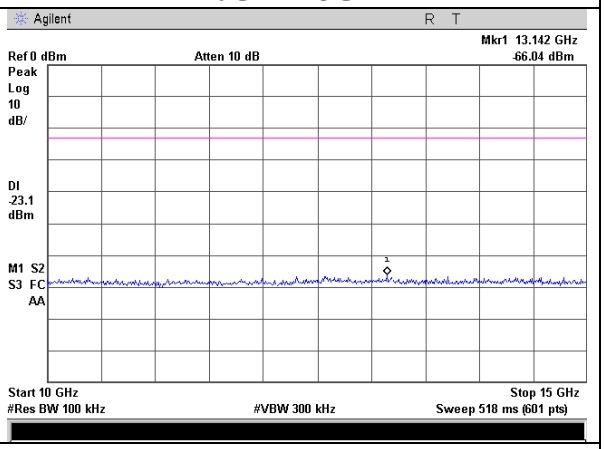
1GHz-5GHz



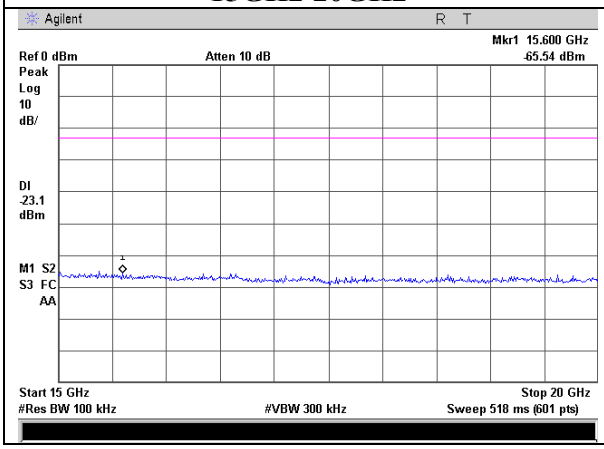
5GHz-10GHz



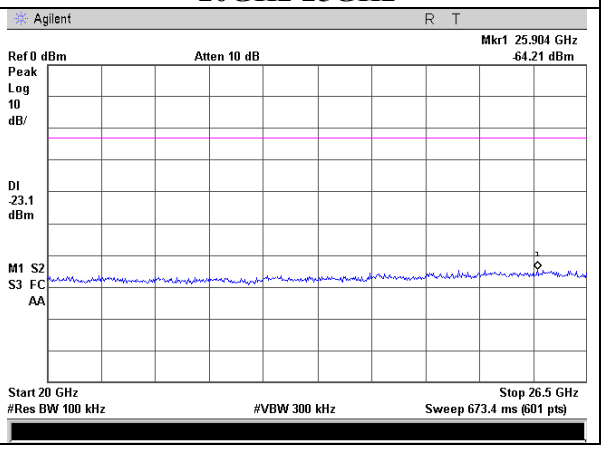
10GHz-15GHz



15GHz-20GHz

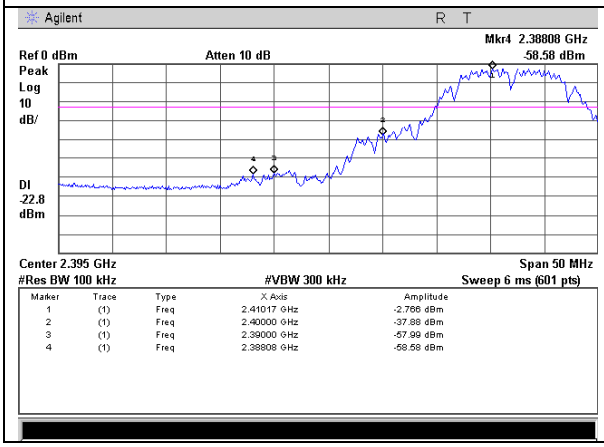


20GHz-25GHz

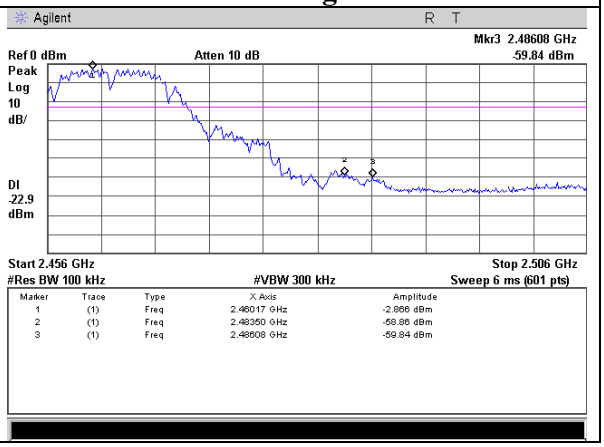


Conducted emission Band Edge compliance

Ch:Low



Ch:High



Power Density

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

COMPANY	: ONKYO CORPORATION	REGULATION	: FCC Part15 Subpart C 15.247(e)
EQUIPMENT	: Digital Wireless Audio Transmitter	TEST DISTANCE	: -
MODEL	: UTX-1	DATE	: 09/08/2006
SAMPLE NO.	: pp10	TEMPERATURE	: 23℃
POWER	: AC120V/60Hz	HUMIDITY	: 60%
MODE	: Continuous Transmitting (ch1,6,11) mode	ENGINEER	: Takumi Shimada

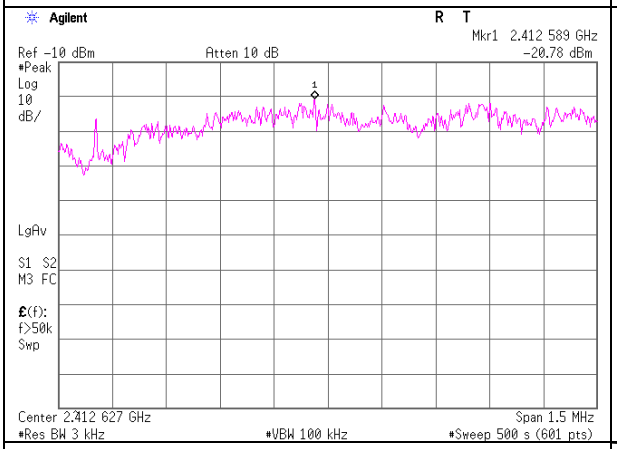
[IEEE802.11b]

Ch	Freq. [MHz]	Reading [dBm]	Cable [dB]	Atten. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
Low	2410.2	-20.78	1.5	10.0	-9.3	8.0	17.3
Mid	2436.1	-20.53	1.5	10.0	-9.0	8.0	17.0
High	2461.1	-21.33	1.6	10.0	-9.8	8.0	17.8

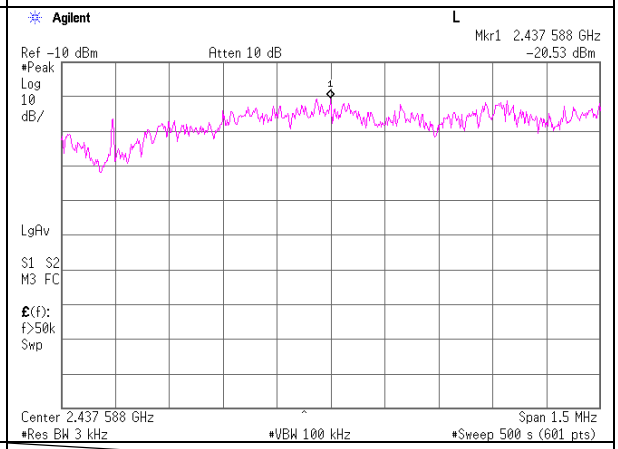
Sample Calculation:
Result = Reading + Cable Loss (spplied by customer) + Attenuator

Power Density

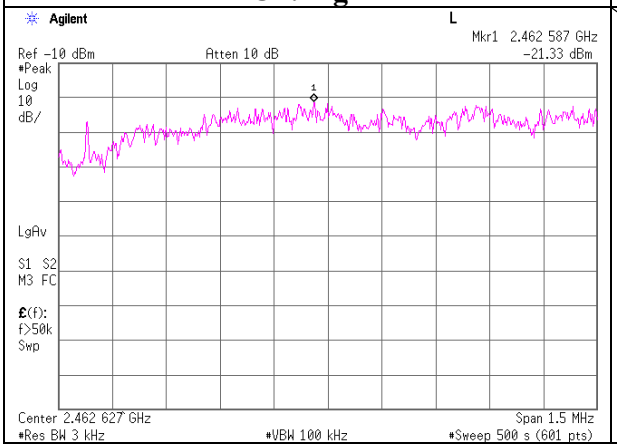
Ch:Low



Ch:Mid

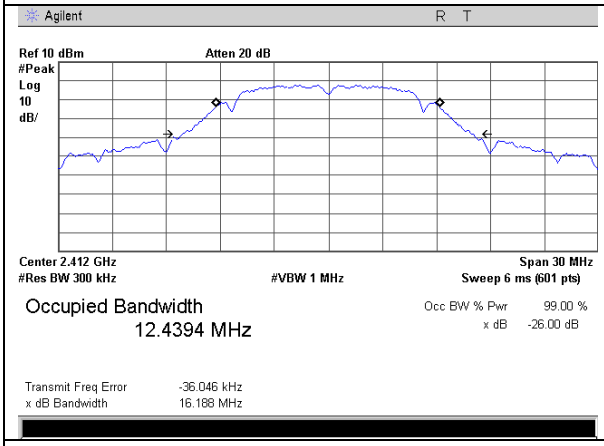


Ch:High

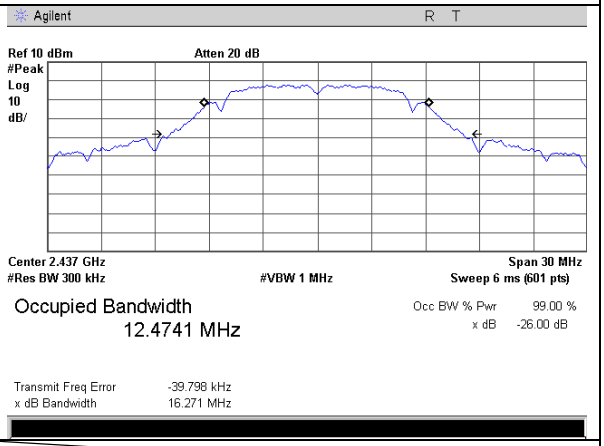


99% Occupied Bandwidth

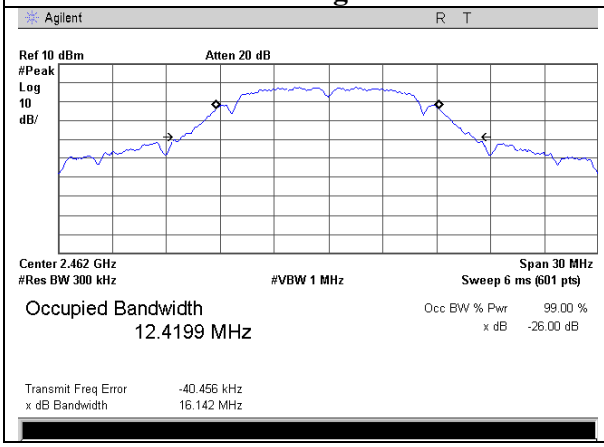
Ch:Low



Ch:Mid



Ch:High



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/CE	2006/03/03 * 12
MOS-12	Thermo-Hygrometer	Custom	CTH-180	RE/CE	2006/01/19 * 24
MSTW-14	EMI measurement program	TSJ	TEPTO-DV	RE/CE	-
MSA-04	Spectrum Analyzer	Agilent	E4448A	RE	2006/06/02 * 12
MHA-20	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	RE	2006/04/06 * 12
MCC-56	Microwave Cable	Suhner	SUCOFLEX104	RE	2006/04/15 * 12
MHF-07	High Pass Filter 3.5-24GHz	Tokimec	TF323DCA	RE	2006/05/20 * 12
MPA-11	MicroWave System Amplifier	Agilent	83017A	RE	2006/03/27 * 12
MBA-03	Biconical Antenna	Schwarzbeck	BBA9106	RE	2006/01/29 * 12
MLA-03	Logperiodic Antenna	Schwarzbeck	USLP9143	RE	2006/01/29 * 12
MCC-51	Coaxial cable	UL Apex	-	RE/CE	2006/03/11 * 12
MAT-30	Attenuator(6dB)	TME	UFA-01	RE	2006/03/11 * 12
MPA-13	Pre Amplifier	SONOA INSTRUMENT	310	RE,CE	2006/03/25 * 12
MLS-06	LISN(AMN)	Schwarzbeck	NSLK8127	CE (AE)	2006/02/06 * 12
MLS-07	LISN(AMN)	Schwarzbeck	NSLK8127	CE (EUT)	2006/02/06 * 12
MTA-04	Terminator	MCL	NTRM-50	CE	2006/02/06 * 12
MRENT-23	Spectrum Analyzer	Advantest	R3273	RE/CE	2006/01/10 * 12
MHA-02	Horn Antenna	EMCO	3160-09	RE	2006/01/09 * 12
MBA-01	Biconical Antenna	Schwarzbeck	BBA9106	RE	2005/10/10 * 12
MLA-01	Logperiodic Antenna	Schwarzbeck	USLP9143	RE	2005/10/14 * 12
MCC-01	Coaxial Cable 0.1-3000MHz	Suhner/storm/Agilent/ TSJ	-	RE	2006/02/20 * 12
MAT-06	Attenuator(6dB)	Weinschel Corp	2	RE	2005/12/16 * 12
MPA-04	Pre Amplifier	Agilent	8447D	RE	2006/05/27 * 12
MTR-01	Test Receiver	Rohde & Schwarz	ESI40	RE	2005/11/10 * 12
MAEC-01	Anechoic Chamber	TDK	Semi Anechoic Chamber 10m	RE	2005/11/14 * 12
MOS-01	Digital Humidity Indicator	N.T	NT-1800	RE	2004/11/25 * 24
MSA-06	Spectrum Analyzer	Agilent	E4407B	AT	2006/05/24 * 12
MCC-06	Microwave Cable 1G-26.5GHz 1m	Suhner	SUCOFLEX 104	AT	2006/02/02 * 12
MAT-23	Attenuator(10dB) DC-18GHz	Orient Microwave	BX10-0476-00	AT	2006/03/18 * 12
MRENT-36	Power Meter	Anritsu	ML2496A	AT	2006/04/25 * 12
MRENT-33	Power sensor	Anritsu	MA2411B	AT	2006/04/25 * 12
MOS-04	Digital Humidity Indicator	N.T	NT-1800	AT	2004/11/25 * 24
MCC-05	Microwave Cable 1G-40GHz 2m	Storm	421-011 (90-1394-079)	AT	2006/01/04 * 12
MSA-03	Spectrum Analyzer	Agilent	E4448A	AT	2005/09/16 * 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.
Test Item:

CE: AC Main Conducted Emission
RE: Radiated Spurious Emission
AT Maximum Peak Output Power, 6dB Bandwidth, Peak Output Power Density, 99% Occupied Bandwidth, Antenna terminal conducted emission