

APPENDIX 2: Data of EMI test

Conducted Emission

DATA OF CONDUCTED EMISSION TEST

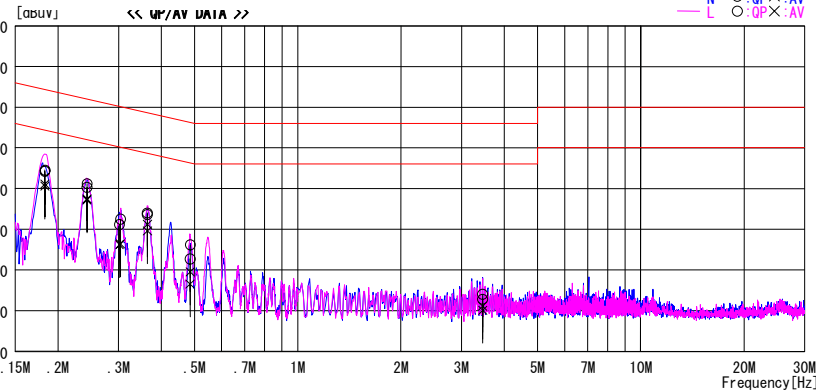
UL Apex Co., Ltd. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2006/05/31 02:35:26

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

LIM FCC15C (QP) (0.15-30MHz)

FCC15C (AV) (0.15-30MHz)



Frequency [MHz]	Reading Level		Corr. Factor	Results		Limit		Margin		Phase
	QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dB]	AV [dB]	
0.18323	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. CALCULATION: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
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 M-Ch 2437MHz

LIMI' FCC15C (QP) (0.15-30MHz)
FCC15C (AV) (0.15-30MHz)

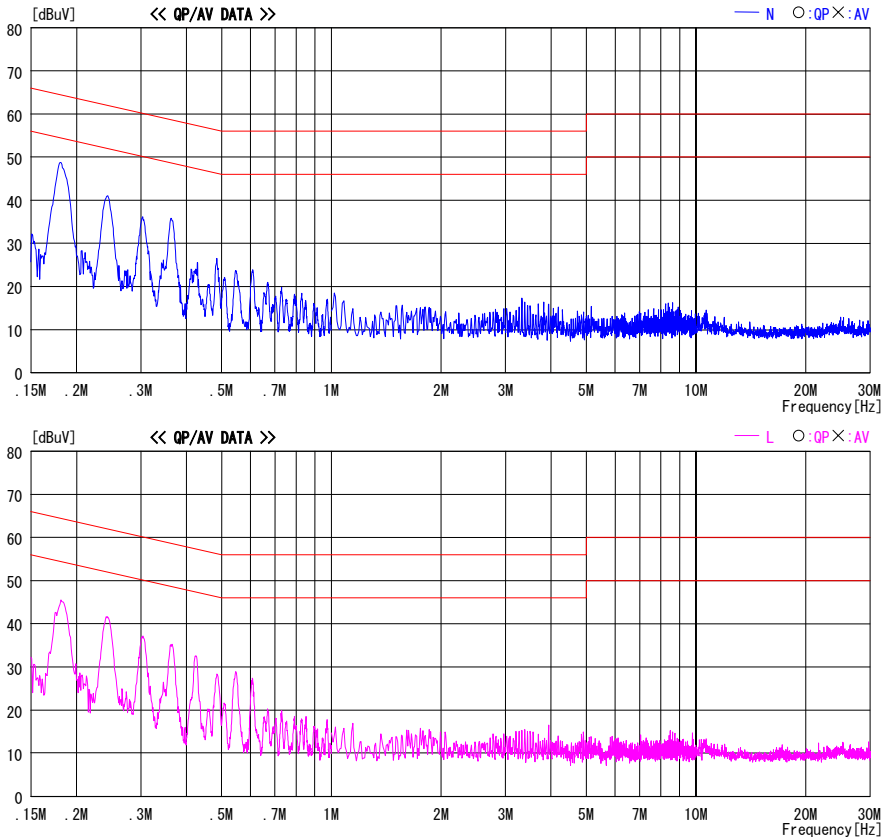


CHART:WITH FACTOR,Peak hold data.Data is uncorrected. CALCURATION:RESULT=READING+C.F(LISN LOSS+CABLE LOSS)
Except for the above table : adequate margin data below the limits.

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. : ppl

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)

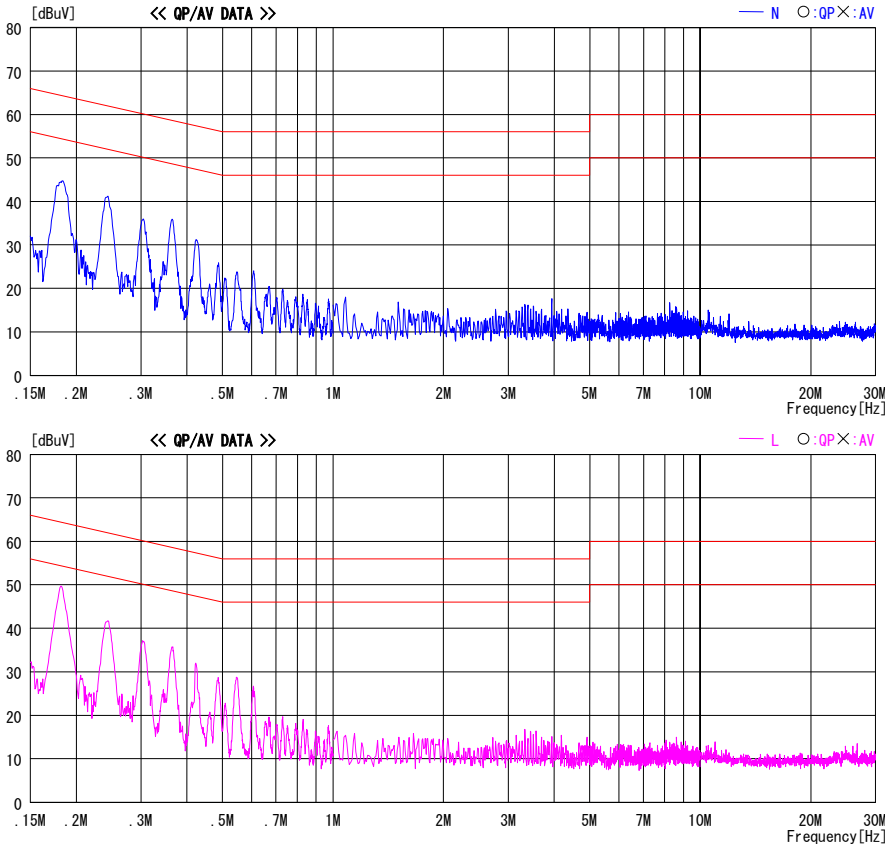


CHART:WITH FACTOR,Peak hold data.Data is uncorrected. CALCURATION:RESULT=READING+C.F(LISN LOSS+CABLE LOSS)
Except for the above table : adequate margin data below the limits.

Test report No. : 26HE0163-HO-B-1
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Issued date : September 22, 2006
Revised date : September 28, 2006
FCC ID : ATMUTX1

6dB Bandwidth

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

Company : ONKYO CORPORATION
Equipment : Digital Wireless Audio Transmitter
Model : UTX-1
Sample No. : pp10
Power : AC120V/60Hz
Mode : Continuous transmitting mode (ch1,6,11)

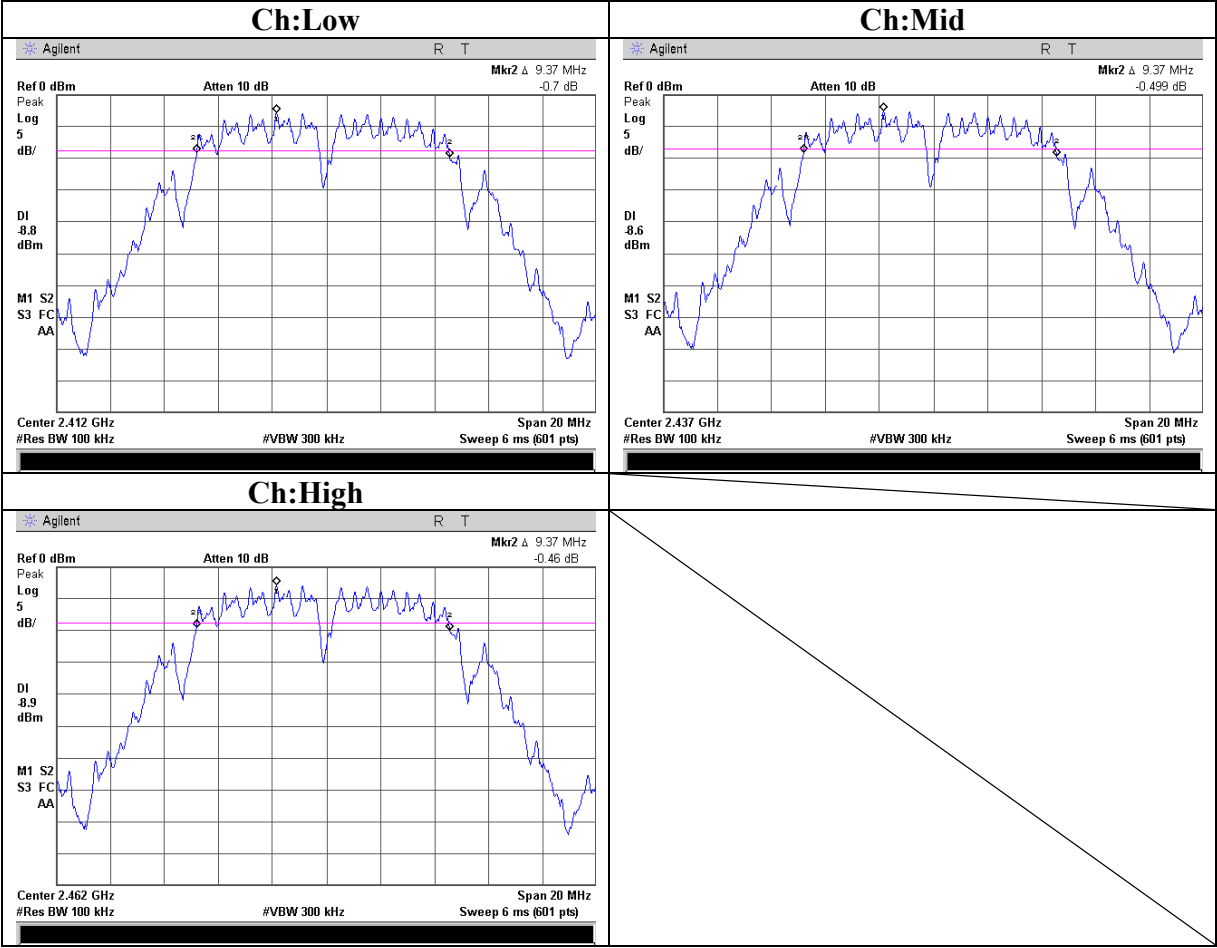
REPORT NO : 26HE00163-HO
REGULATION : FCC Part15 Subpart C 15.247(a)(2)
TEST DISTANCE : -
DATE : 08/24/2006
TEMPERATURE : 26℃
HUMIDITY : 56%
ENGINEER : Takumi Shimada

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

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MF060b(14.06.06)

6dB Bandwidth



Maximum Peak OutPut Power

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

Company : ONKYO CORPORATION Equipment : Digital Wireless Audio Transmitter Model : UTX-1 Sample No. : pp10 Power : AC120V/60Hz Mode : Continuous transmitting mode (ch1,6,11)	REPORT NO : 26HE0163-HO REGULATION : FCC Part15 Subpart C 15.247(b)(3) TEST DISTANCE : - DATE : 09/08/2006 TEMPERATURE : 23℃ HUMIDITY : 60% ENGINEER : Takumi Shimada
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[IEEE802.11b]

Ch	Freq. [MHz]	PM(PK) Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result		Limit		Margin
					[dBm]	[mW]	[dBm]	[mW]	[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

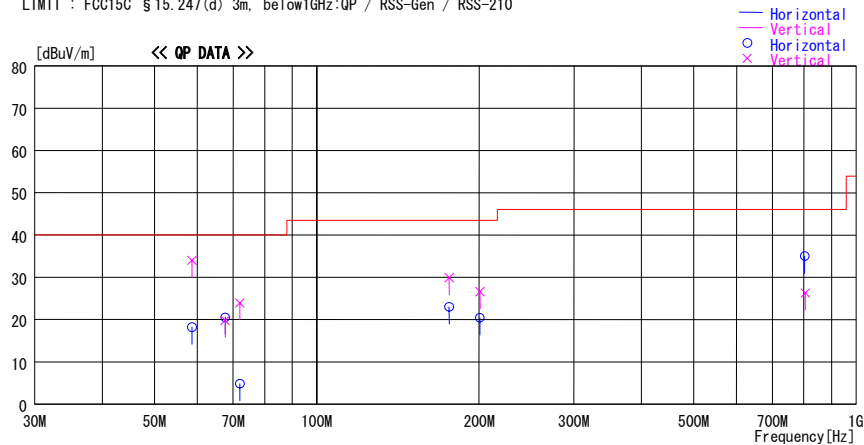
UL Apex Co., Ltd. Head Office EMC Lab. No. 3 Semi Anechoic Chamber
Date : 2006/05/29 20:16:13

Applicant : ONKYO CORPORATION
Kind of EUT : Digital Wireless Audio Transmitter
Model No. : UTX-I
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	Loss&	Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]
			Factor [dB/m]	Gain [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.

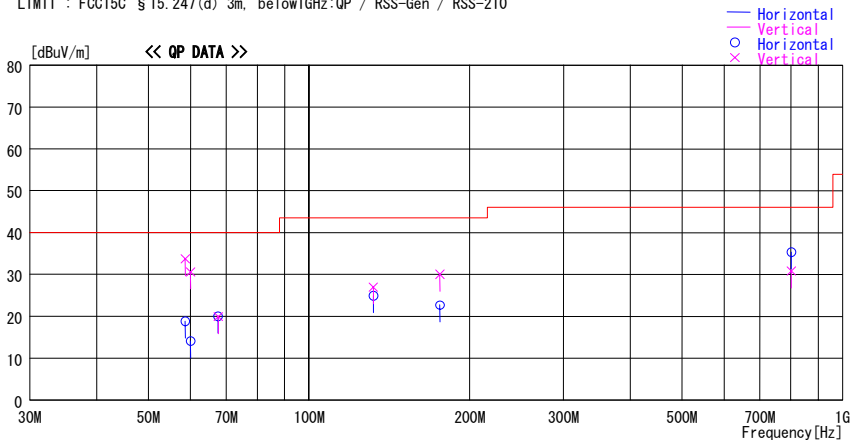
DATA OF RADIATED EMISSION TEST

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-I
Serial No. : ppl
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	Reading	DET	Antenna Factor	Loss Gain	Level	Angle	Height	Polar.	Limit	Margin
[MHz]	[dBuV]		[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[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.

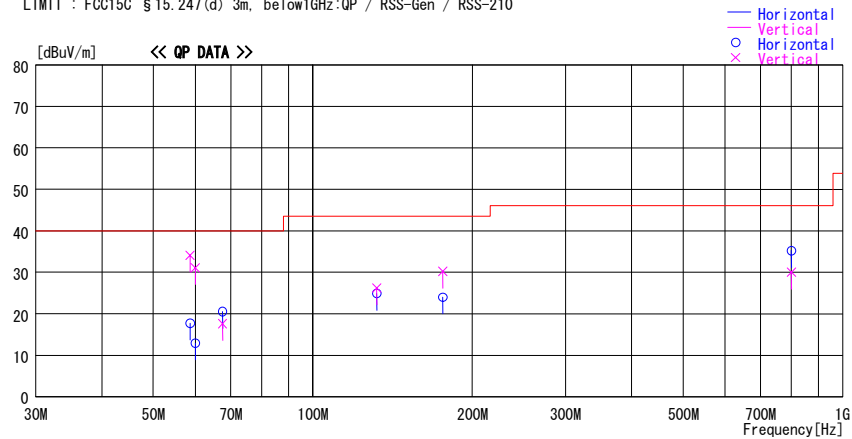
DATA OF RADIATED EMISSION TEST

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		Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]
			Factor [dB/m]	Loss& Gain [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)

Test report No. : 26HE0163-HO-B-1
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FCC ID : ATMUTX1

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
26HE0163-HO
Fcc Part15 Subpart C 15.247(d)
3m/1m/0.5m
08/21/2006
25deg.C.
45%
Yutaka Yoshida

Company ONKYO CORPORATION
Equipment Digital Wireless Audio Transmitter
Model UTX-1
Sample No. pp10
Power DC5.0V(AC230V/50Hz)
Mode Continuous Transmitting 2412MHz mode
Remarks Hor Z , Ver X-axis
PK DETECT (RBW: 1MHz, VBW: 1MHz)

REPORT NO
REGULATION
TEST DISTANCE
DATE
TEMPERATURE
HUMIDITY
ENGINEER

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit PK [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
		[dBuV]						[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 [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit AV [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
		[dBuV]						[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 [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit 20dBc [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
		[dBuV]						[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.

UL Apex Co., Ltd.

Head Office EMC Lab.

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MF060b(14.06.06)

Test report No. : 26HE0163-HO-B-1
Page : 25 of 34
Issued date : September 22, 2006
Revised date : September 28, 2006
FCC ID : ATMUTX1

Radiated Spurious Emission

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

Company ONKYO CORPORATION
Equipment Digital Wireless Audio Transmitter
Model UTX-1
Sample No. pp10
Power DC5.0V(AC230V/50Hz)
Mode Continuous Transmitting 2437MHz mode
Remarks Hor Z , Ver X-axis
PK DETECT (RBW: 1MHz, VBW: 1MHz)

REPORT NO 26HE0163-HO
REGULATION Fcc Part15 Subpart C 15.247(d)
TEST DISTANCE 3m/1m/0.5m
DATE 08/21/2006
TEMPERATURE 25deg.C.
HUMIDITY 45%
ENGINEER Yutaka Yoshida

UL Apex Co., Ltd.
Head Office EMC Lab. No.3Semi Anechoic Chamber

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit PK [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
		[dBuV]						[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 [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit AV [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
		[dBuV]						[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.

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MF060b(14.06.06)

Test report No. : 26HE0163-HO-B-1
Page : 26 of 34
Issued date : September 22, 2006
Revised date : September 28, 2006
FCC ID : ATMUTX1

Radiated Spurious Emission

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

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

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit PK [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
		[dBuV]						[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 [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit AV [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
		[dBuV]						[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.

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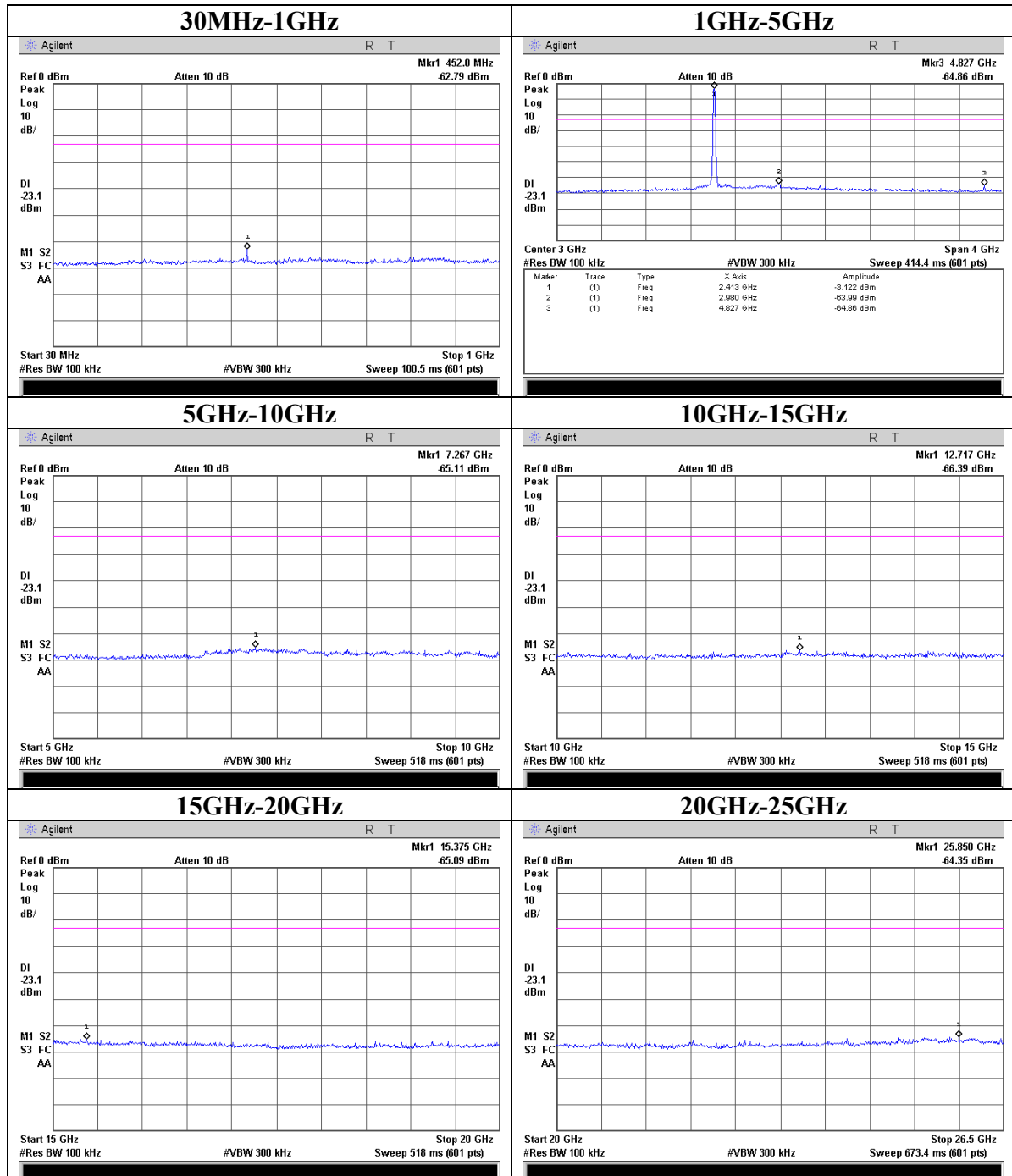
Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

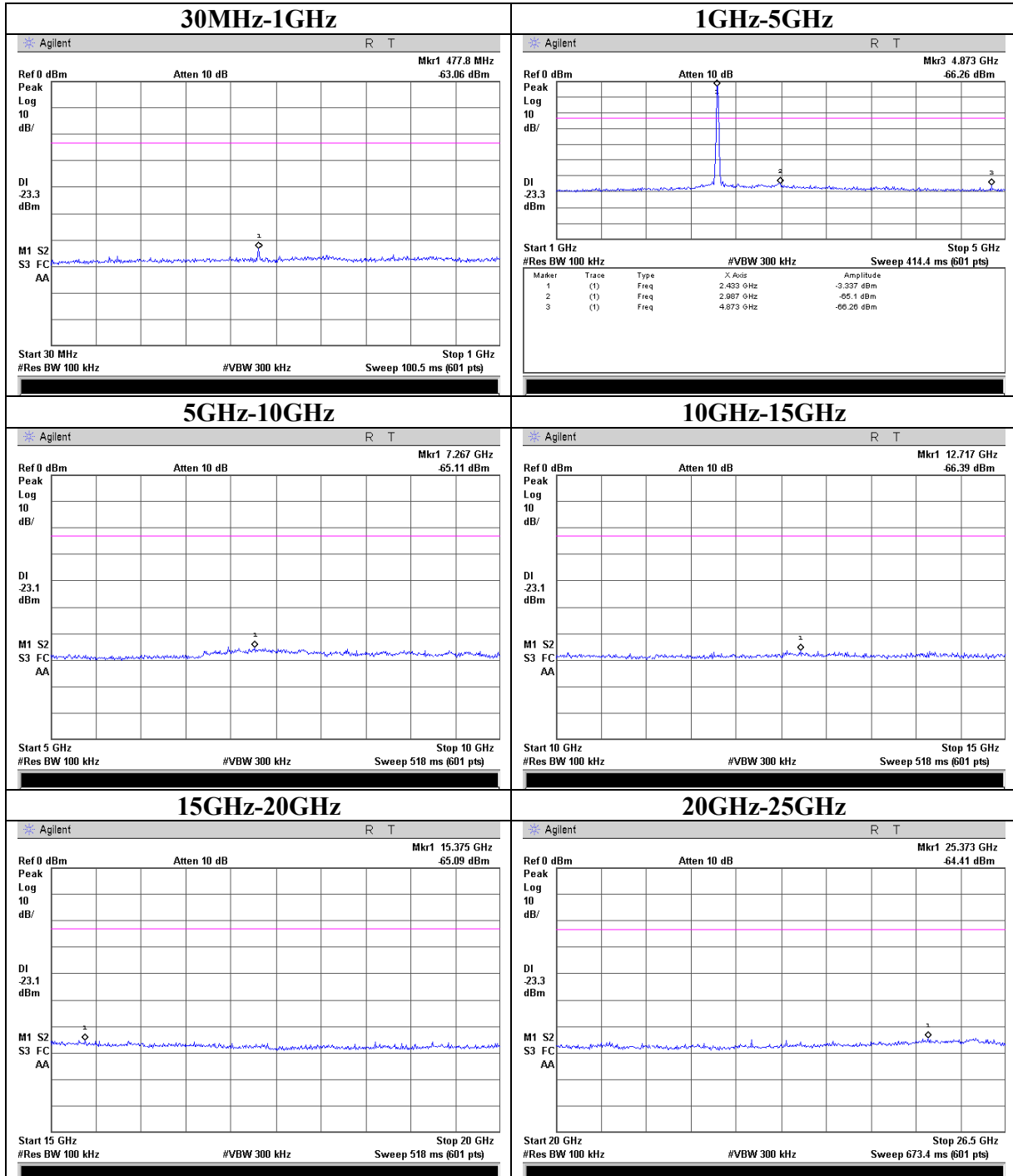
MF060b(14.06.06)

Conducted Spurious Emission

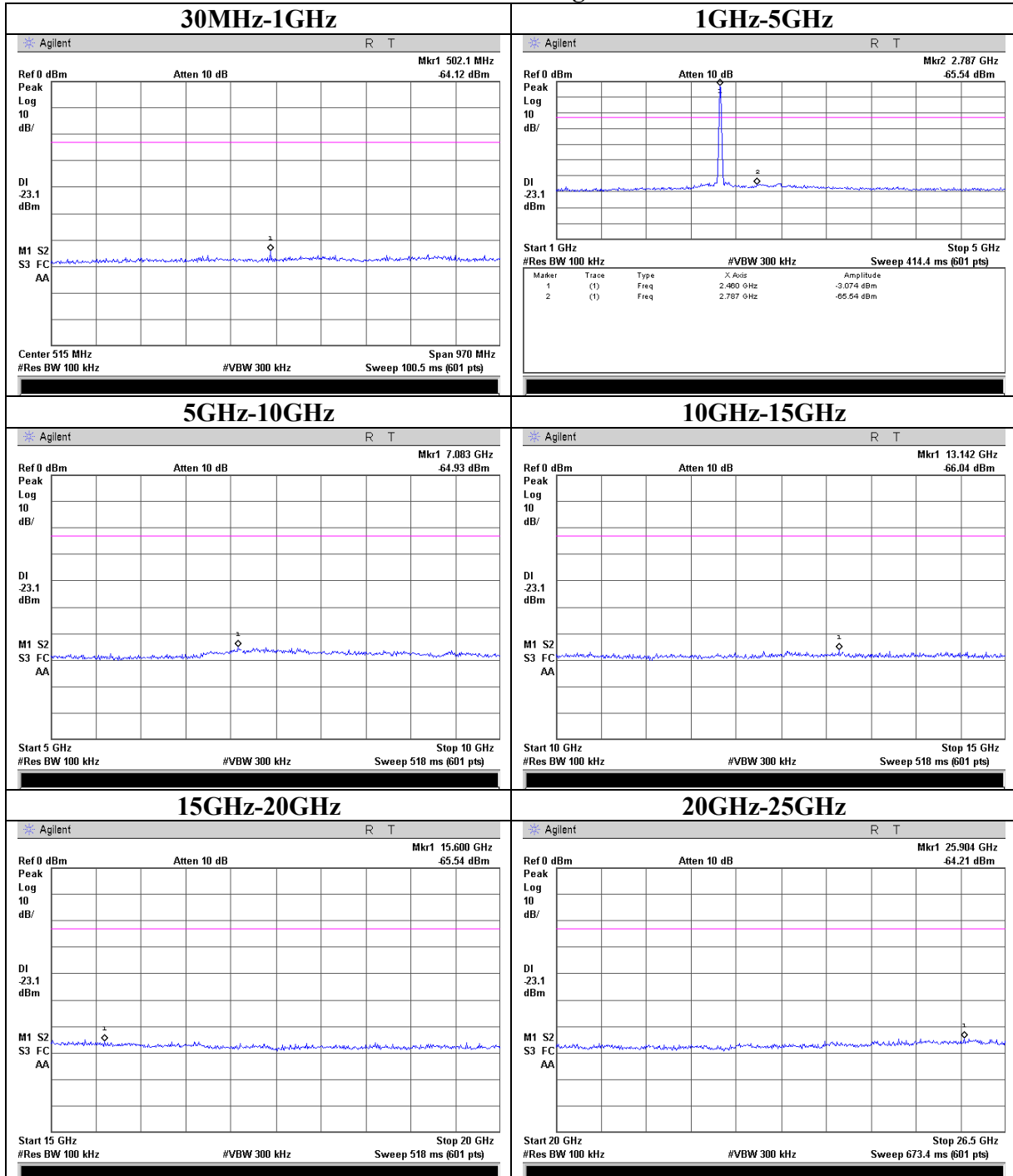
Ch: Low



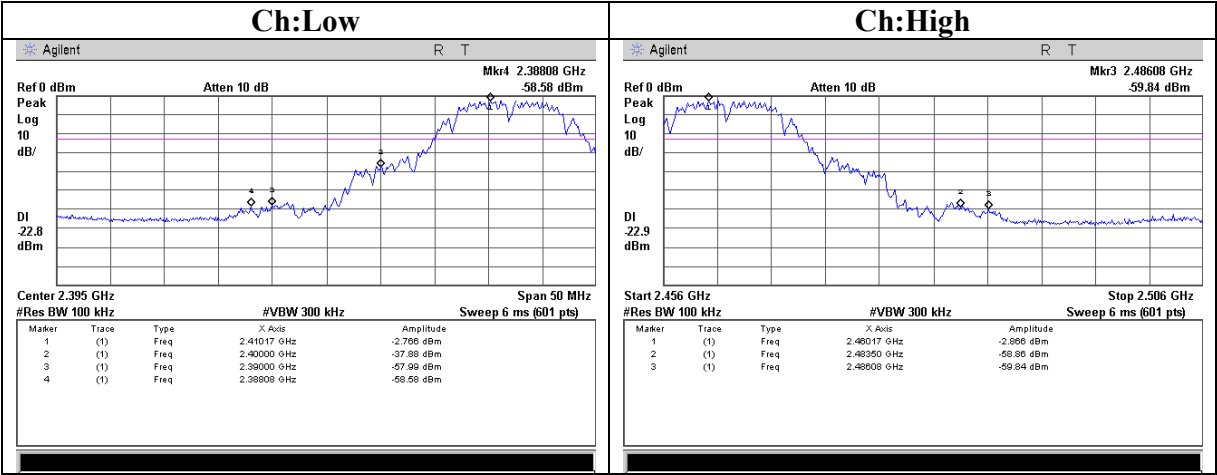
Conducted Spurious Emission
Ch: Mid



Conducted Spurious Emission
Ch: High



Conducted emission Band Edge compliance



Power Density

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

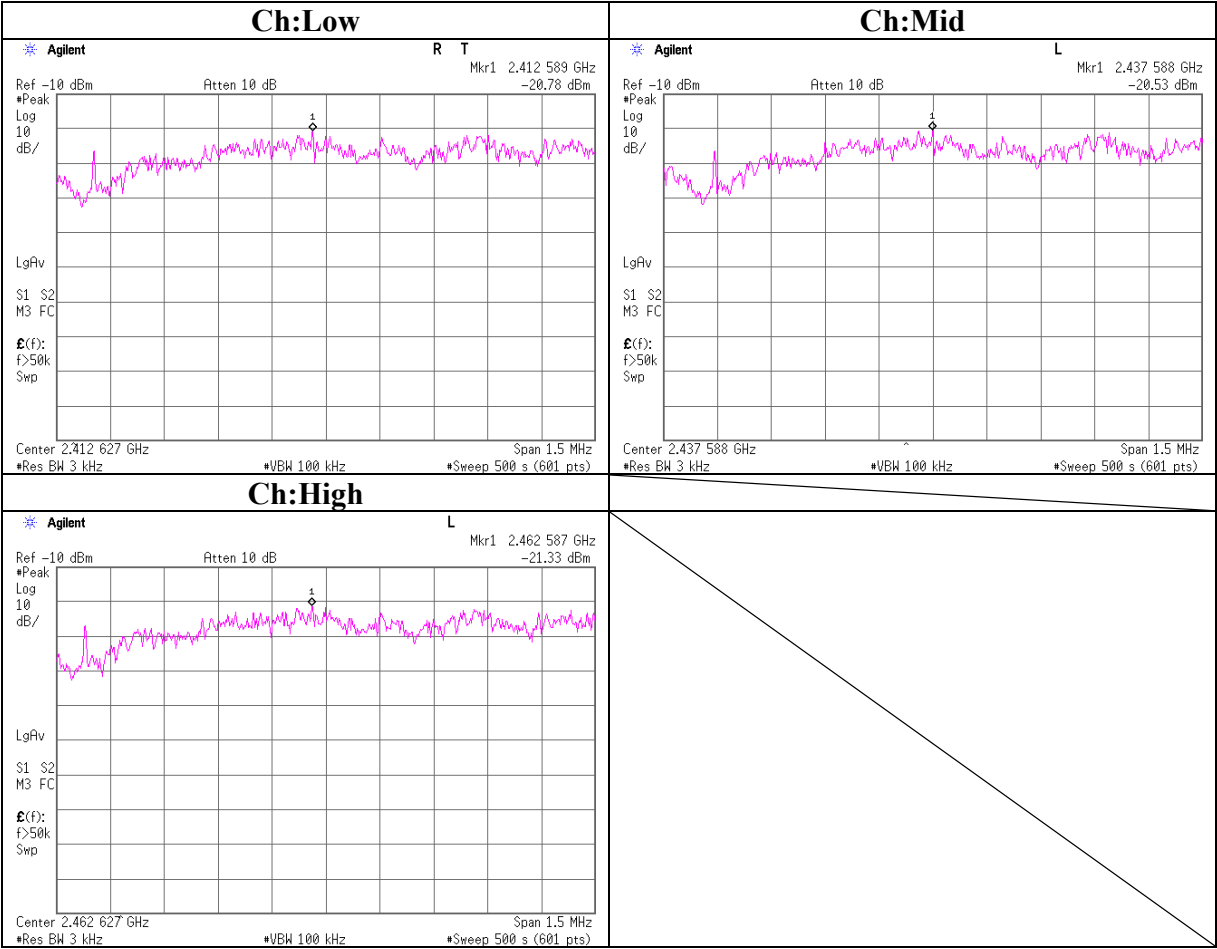
[IEEE802.11b]

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

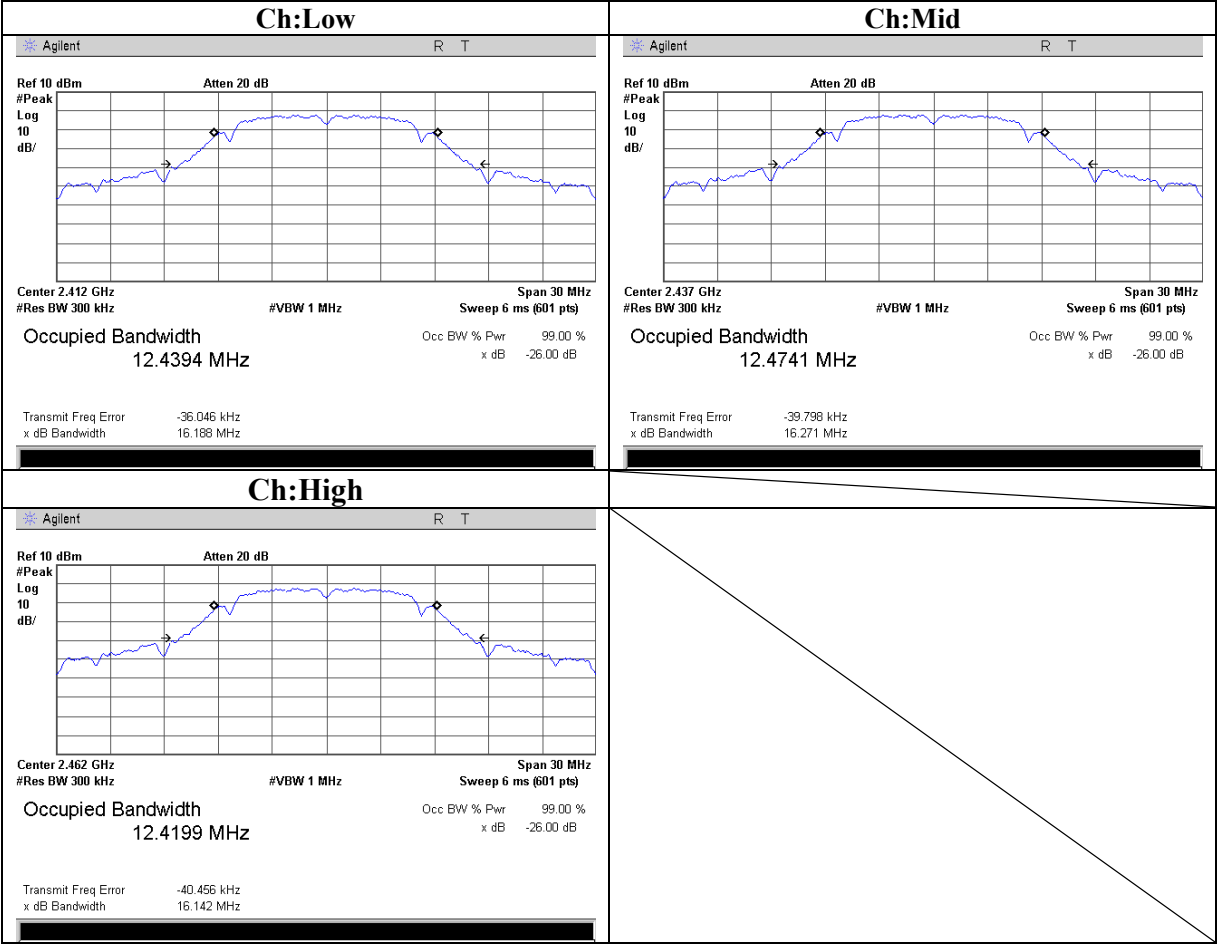
Sample Calculation:

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

Power Density



99% Occupied Bandwidth



APPENDIX 3: Test instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Test Item	Calibration Date * Interval(month)
MAEC-03	Anechoic Chamber	TDK	Semi Anechoic Chamber 3m	RE/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

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