



# FCC TEST REPORT

**REPORT NO.:** RF921103R02

**MODEL NO.:** XA1

**RECEIVED:** Nov. 03, 2003

**TESTED:** Nov. 04 ~ Dec. 11, 2003

**APPLICANT:** Addvalue Communications Pte Ltd.

**ADDRESS:** 750D Chai Chee Road #03-03 Technopark @ Chai Chee Singapore 469004

**ISSUED BY:** Advance Data Technology Corporation

**LAB LOCATION:** 47 14th Lin, Chiapau Tsun, Linko, Taipei, Taiwan, R.O.C.

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0528  
ILAC MRA



Lab Code: 200102-0



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## 1 CERTIFICATION

**PRODUCT :** Audio Communicator  
**MODEL NO.:** XA1  
**BRAND:** Wideye  
**APPLICANT :** Addvalue Communications Pte Ltd.  
**TEST ITEM:** ENGINEERING SAMPLE  
**STANDARDS :** FCC 47 CFR Part 15, Subpart C (Section 15.249), ANSI C63.4-1992

We, **Advance Data Technology Corporation**, hereby certify that four samples of the designation have been tested in our facility from Nov. 04 to Dec. 11, 2003. The test record, data evaluation and Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions herein specified.

**PREPARED BY:** Windy Chou , **DATE:** Dec. 12, 2003

Windy Chou

**APPROVED BY:** Ellis Wu , **DATE:** Dec. 12, 2003

Ellis Wu, Manager



## 2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

<b>APPLIED STANDARD: 47 CFR Part 15, Subpart C</b>			
<b>STANDARD PARAGRAPH</b>	<b>TEST TYPE</b>	<b>RESULT</b>	<b>REMARK</b>
15.207	Conducted Emission Test	PASS	Minimum passing margin is -15.71dB at 0.177MHz
15.209 15.249	Radiated Emission Test	PASS	Minimum passing margin is -3.37dB at 902.68MHz
15.249	Band Edge Measurement Limit: 50 dB less than the peak value of fundamental frequency	PASS	Meet the requirement of limit

**NOTE2:** The information of measurement uncertainty is available upon the customer's request.



### 3. GENERAL INFORMATION

#### 3.1 GENERAL DESCRIPTION OF EUT

<b>PRODUCT</b>	Audio Communicator
<b>MODEL NO.</b>	XA1
<b>BRAND</b>	Wideye
<b>POWER SUPPLY</b>	5Vdc from X-Box game Console
<b>MODULATION TYPE</b>	FM
<b>CARRIER FREQUENCY OF EACH CHANNEL</b>	902.70 ~ 906.75 MHz
<b>BANDWIDTH OF EACH CHANNEL</b>	450kHz
<b>NUMBER OF CHANNEL</b>	10
<b>ANTENNA TYPE</b>	Integral Loop antenna (antenna gain: 1dBi)
<b>DATA CABLE</b>	NA
<b>I/O PORTS</b>	NA

**NOTE:**

1. This EUT has function of auto data rate transmitter. During Xbox Live Online gaming where voice communication feature is present.
2. For more detailed features description, please refer to the manufacturer's specifications or User's Manual.



### 3.2 DESCRIPTION OF TEST MODES

Ten channels are provided in the EUT

Channel	Frequency	Channel	Frequency
1	902.70MHz	6	904.95MHz
2	903.15MHz	7	905.40MHz
3	903.60MHz	8	905.85MHz
4	904.05MHz	9	906.30MHz
5	904.50MHz	10	906.75MHz

**NOTE:**

1. Below 1000MHz, the channel 1, 10 were pre-tested in chamber. Channel 10, the worst case, were chosen for final test.
2. Above 1000MHz, the channel 1, 10 were tested individually.

### 3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a Audio Communicator. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

**FCC 47 CFR Part 15, Subpart C. (15.249)**

**ANSI C63.4: 1992**

All test items have been performed and recorded as per the above standards.



### 3.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

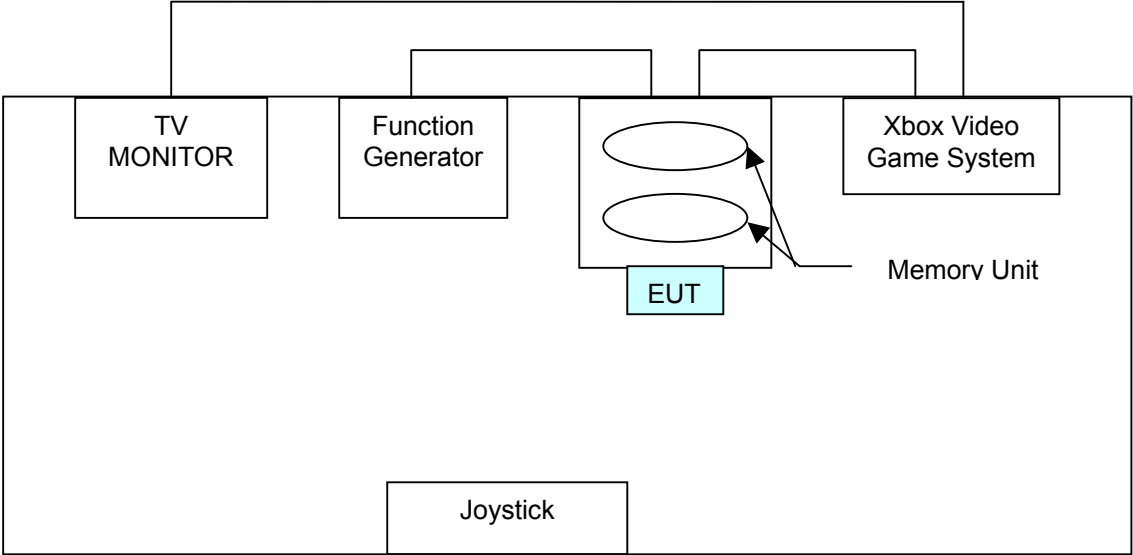
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	TV MONITOR	Matsushita Electric industrial Co.,Ltd	BT-H1390Y	EM9642284	VERIFICATION
2	Function Generator	Topward	8120	984801	NA
3	Xbox Video Game System	Microsoft Corporation	F23-00064	5029397300105	NA
4	JoysTick	Wideye	XA1	NA	NA
5	Base	Wideye	XA1	NA	NA
6	Memory Unit (1)	NA	X0-25319	NA	NA
7	Memory Unit (2)	NA	X0-25319	NA	NA

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA
2	1m BNC cable.
3	1.8m power cord with core.
4	NA
5	NA
6	NA
7	NA

**NOTE:** All power cords of the above support units are non shielded (1.8m).



### 3.5 CONFIGURATION OF SYSTEM UNDER TEST







## 4. TEST TYPES AND RESULTS

### 4.1 CONDUCTED EMISSION MEASUREMENT

#### 4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dB $\mu$ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

- NOTE:**
1. The lower limit shall apply at the transition frequencies.
  2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.
  3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

#### 4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
ROHDE & SCHWARZ Test Receiver	ESCS 30	838251/021	Jan. 20, 2004
ROHDE & SCHWARZ Artificial Mains Network (for EUT)	ESH3-Z5	100218	Dec. 09, 2004
ROHDE & SCHWARZ Artificial Mains Network (for peripherals)	ESH3-Z5	100219	Dec. 09, 2004
ROHDE & SCHWARZ Artificial Mains Network (for peripherals)	ESH3-Z5	100220	Dec. 09, 2004
*ROHDE & SCHWARZ 4-wire ISN	ENY41	837032/016	Nov. 19, 2004
*ROHDE & SCHWARZ 2-wire ISN	ENY22	837497/016	Nov. 19, 2004
Software	Cond-V2M3	NA	NA
RF cable (JYEBAO)	5D-FB	Cable-C10.01	May 01, 2004
SUHNER Terminator (For ROHDE & SCHWARZ LISN)	65BNC-5001	E1-010770	Mar. 24, 2004
SUHNER Terminator (For ROHDE & SCHWARZ LISN)	65BNC-5001	E1-010773	Apr. 06, 2004

- NOTE:**
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
  2. “\*”: These equipment are used for conducted telecom port test only (if tested).
  3. The test was performed in ADT Shielded Room No. 10.
  4. The VCCI Site Registration No. is C-1312.



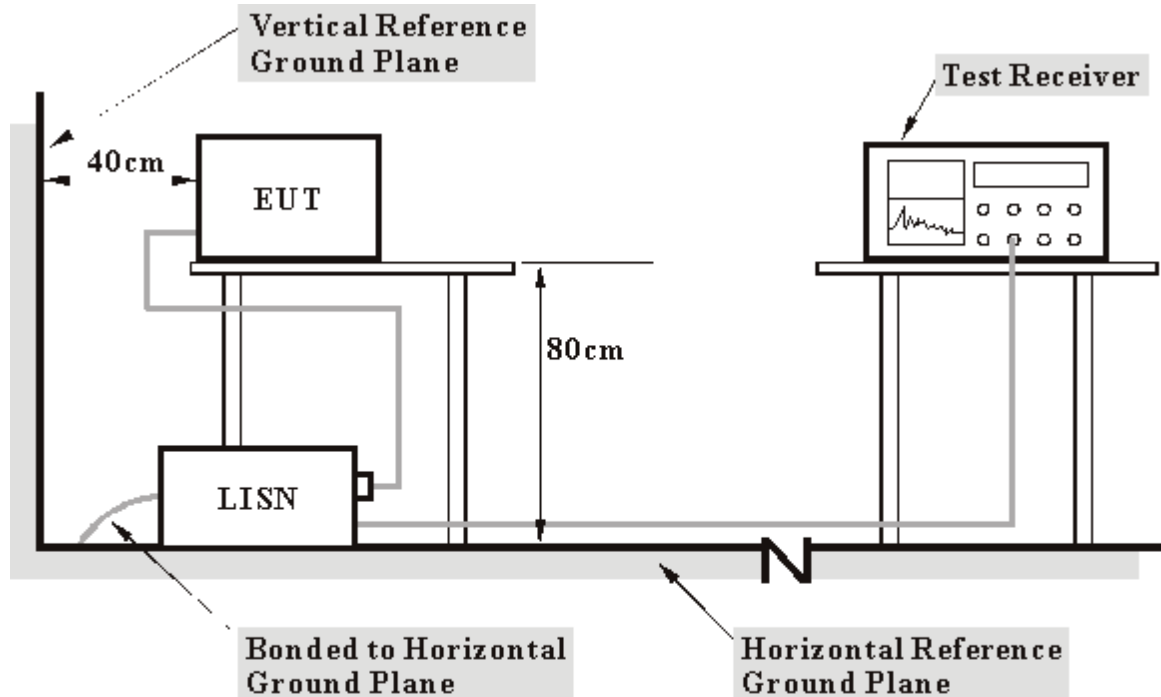
#### 4.1.3 TEST PROCEDURES

- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- c. The frequency range from 150 kHz to 30 MHz was searched. Emission levels over 10dB under the prescribed limits could not be reported.

#### 4.1.4 DEVIATION FROM TEST STANDARD

No deviation

#### 4.1.5 TEST SETUP



- Note:**
1. Support units were connected to second LISN.
  2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

#### 4.1.6 EUT OPERATING CONDITIONS

1. Insert the base audio card to the base of EUT.
2. Set the EUT under transmission condition continuously at specific channel frequency.
3. Connect a 1KHz tone with amplitude between 300 to 1000Vrms to the "Audio IN" of the base unit.

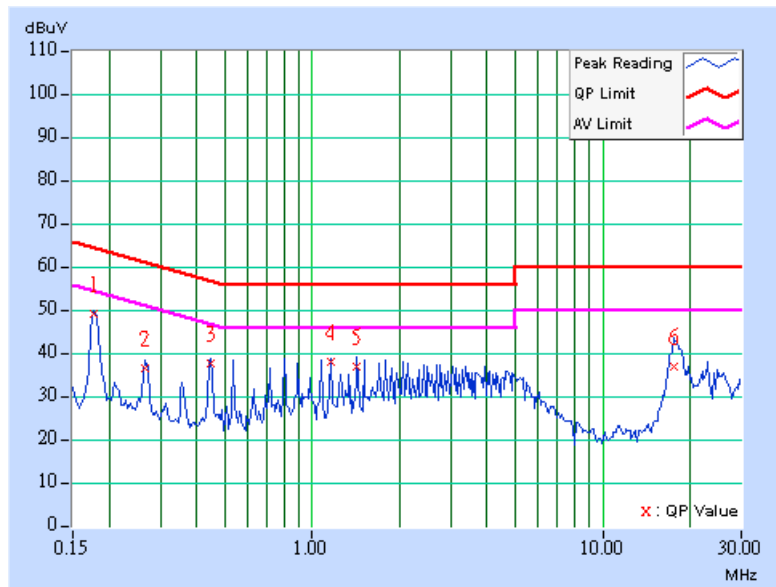


4.1.7 TEST RESULTS

<b>EUT</b>	Audio Communicator	<b>MODEL</b>	XA1
<b>MODE</b>	Channel 1	<b>6dB BANDWIDTH</b>	9kHz
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>PHASE</b>	Line (L)
<b>ENVIRONMENTAL CONDITIONS</b>	22deg. C, 70%RH, 991hPa	<b>TESTED BY:</b> Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.177	0.06	48.84	-	48.90	-	64.61	54.61	-15.71	-
2	0.267	0.06	35.98	-	36.04	-	61.20	51.20	-25.16	-
3	0.447	0.07	37.19	-	37.26	-	56.93	46.93	-19.68	-
4	1.160	0.16	37.55	-	37.71	-	56.00	46.00	-18.29	-
5	1.430	0.17	36.40	-	36.57	-	56.00	46.00	-19.43	-
6	17.488	0.60	36.33	-	36.93	-	60.00	50.00	-23.07	-

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
  2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
  3. The emission levels of other frequencies were very low against the limit.
  4. Margin value = Emission level - Limit value
  5. Correction factor = Insertion loss + Cable loss
  6. Emission Level = Correction Factor + Reading Value.

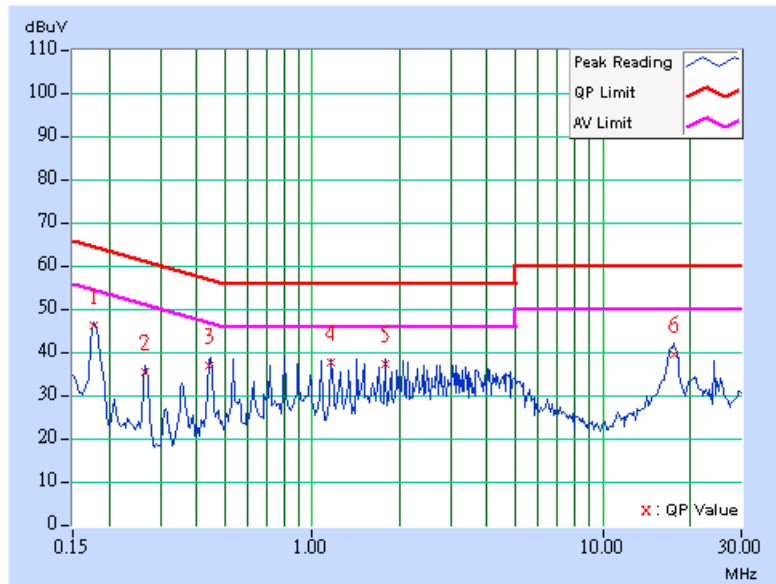




<b>EUT</b>	Audio Communicator	<b>MODEL</b>	XA1
<b>MODE</b>	Channel 1	<b>6dB BANDWIDTH</b>	9kHz
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>PHASE</b>	Neutral (N)
<b>ENVIRONMENTAL CONDITIONS</b>	22deg. C, 70%RH, 991hPa	<b>TESTED BY:</b> Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.177	0.05	45.83	-	45.88	-	64.61	54.61	-18.73	-
2	0.267	0.05	34.97	-	35.02	-	61.20	51.20	-26.18	-
3	0.443	0.06	36.63	-	36.69	-	57.01	47.01	-20.32	-
4	1.160	0.16	37.21	-	37.37	-	56.00	46.00	-18.63	-
5	1.785	0.18	36.92	-	37.10	-	56.00	46.00	-18.90	-
6	17.574	0.50	39.25	-	39.75	-	60.00	50.00	-20.25	-

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
  2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
  3. The emission levels of other frequencies were very low against the limit.
  4. Margin value = Emission level - Limit value
  5. Correction factor = Insertion loss + Cable loss
  6. Emission Level = Correction Factor + Reading Value.

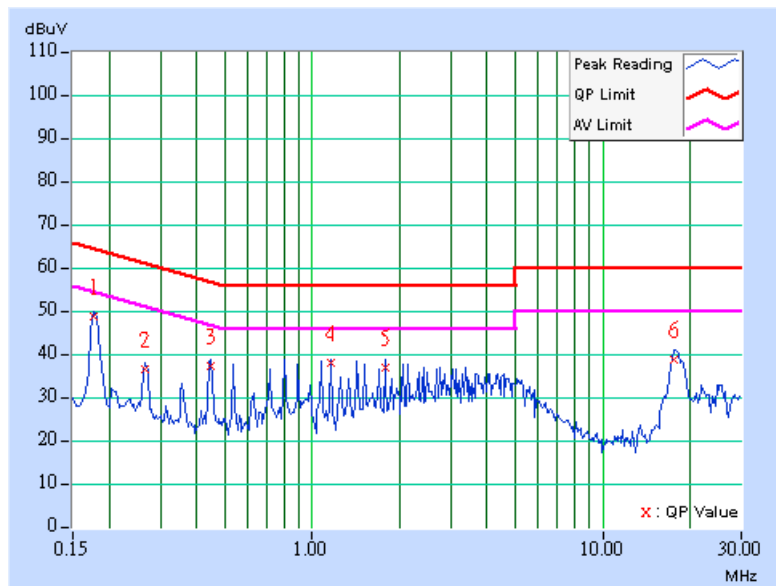




<b>EUT</b>	Audio Communicator	<b>MODEL</b>	XA1
<b>MODE</b>	Channel 10	<b>6dB BANDWIDTH</b>	9kHz
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>PHASE</b>	Line (L)
<b>ENVIRONMENTAL CONDITIONS</b>	22deg. C, 70%RH, 991hPa	<b>TESTED BY:</b> Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.177	0.06	48.43	-	48.49	-	64.61	54.61	-16.12	-
2	0.267	0.06	36.09	-	36.15	-	61.20	51.20	-25.05	-
3	0.447	0.07	36.85	-	36.92	-	56.93	46.93	-20.02	-
4	1.160	0.16	37.49	-	37.65	-	56.00	46.00	-18.35	-
5	1.781	0.18	36.59	-	36.77	-	56.00	46.00	-19.23	-
6	17.660	0.60	38.28	-	38.88	-	60.00	50.00	-21.12	-

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
  2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
  3. The emission levels of other frequencies were very low against the limit.
  4. Margin value = Emission level - Limit value
  5. Correction factor = Insertion loss + Cable loss
  6. Emission Level = Correction Factor + Reading Value.

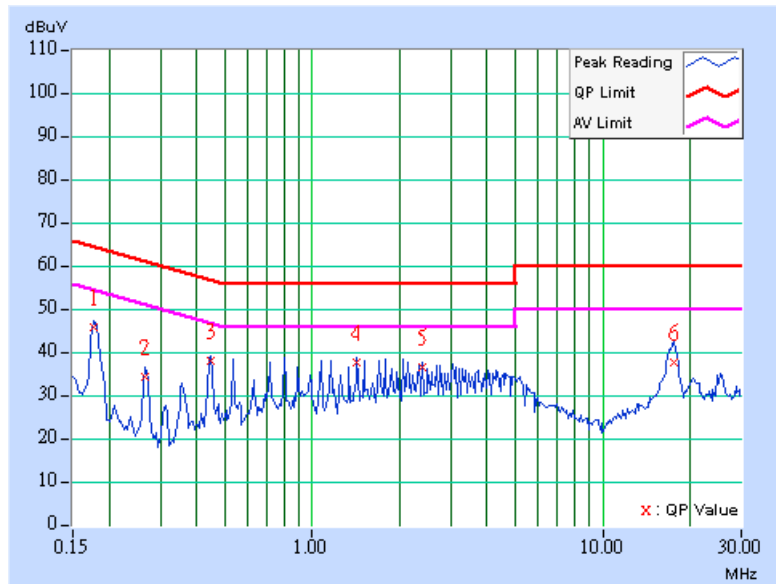




<b>EUT</b>	Audio Communicator	<b>MODEL</b>	XA1
<b>MODE</b>	Channel 10	<b>6dB BANDWIDTH</b>	9kHz
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>PHASE</b>	Neutral (N)
<b>ENVIRONMENTAL CONDITIONS</b>	22deg. C, 70%RH, 991hPa	<b>TESTED BY:</b> Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.177	0.05	45.61	-	45.66	-	64.61	54.61	-18.95	-
2	0.267	0.05	34.07	-	34.12	-	61.20	51.20	-27.08	-
3	0.447	0.06	37.67	-	37.73	-	56.93	46.93	-19.21	-
4	1.426	0.17	37.37	-	37.54	-	56.00	46.00	-18.46	-
5	2.406	0.19	36.25	-	36.44	-	56.00	46.00	-19.56	-
6	17.656	0.50	37.41	-	37.91	-	60.00	50.00	-22.09	-

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
  2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
  3. The emission levels of other frequencies were very low against the limit.
  4. Margin value = Emission level - Limit value
  5. Correction factor = Insertion loss + Cable loss
  6. Emission Level = Correction Factor + Reading Value.





## 4.2 RADIATED EMISSION MEASUREMENT

### 4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

According to 15.249(a) the field strength of emissions from intentional radiators operated under these frequencies bands shall not exceed the following:

Fundamental Frequency (MHz)	Field Strength of Fundamental (dBuV/m)	
	Peak	Average
902 ~ 928	114	94

According to 15.249(d), emissions radiated outside of the specified frequency bands (902 ~ 928MHz), except for harmonics, shall be attenuated by at least 50dB below the level of the fundamental or to the general radiated emission limits in 15.209 as below table, whichever is the lesser attenuation.

Frequencies (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

**NOTE:**

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.





## 4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
* HP Spectrum Analyzer	8594E	3911A07465	July 07, 2004
* HP Preamplifier	8447D	2432A03504	June 10, 2004
HP Preamplifier	8449B	3008A01201	Dec. 11, 2004
* HP Preamplifier	8449B	3008A01292	Aug. 11, 2004
SCHAFFNER Tunable Dipole Antenna	VHBA 9123	459	Jun. 26, 2004
SCHWARZBECK Tunable Dipole Antenna	UHA 9105	977	
* ROHDE & SCHWARZ TEST RECEIVER	ESMI	839013/007 839379/002	Feb. 13, 2004
*Schwarzbeck Antenna	VULB9168	137	Apr. 03, 2004
* SCHWARZBECK Horn Antenna	BBHA9120-D1	D130	June 30, 2004
*ADT. Turn Table	TT100	0306	NA
*ADT. Tower	AT100	0306	NA
*Software	ADT_Radiated_V 5.14	NA	NA
*TIMES RF cable	LL142	CABLE-CH6-01	Apr. 30, 2004

- NOTE:** 1. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to NML/ROC and NIST/USA.
2. "\*" = These equipment are used for the final measurement.
3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
4. The test was performed in ADT Chamber No. 6.



#### 4.2.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 dB margin would be re-tested one by one using the quasi-peak method or average method as specified and then reported in Data sheet peak mode and QP mode.

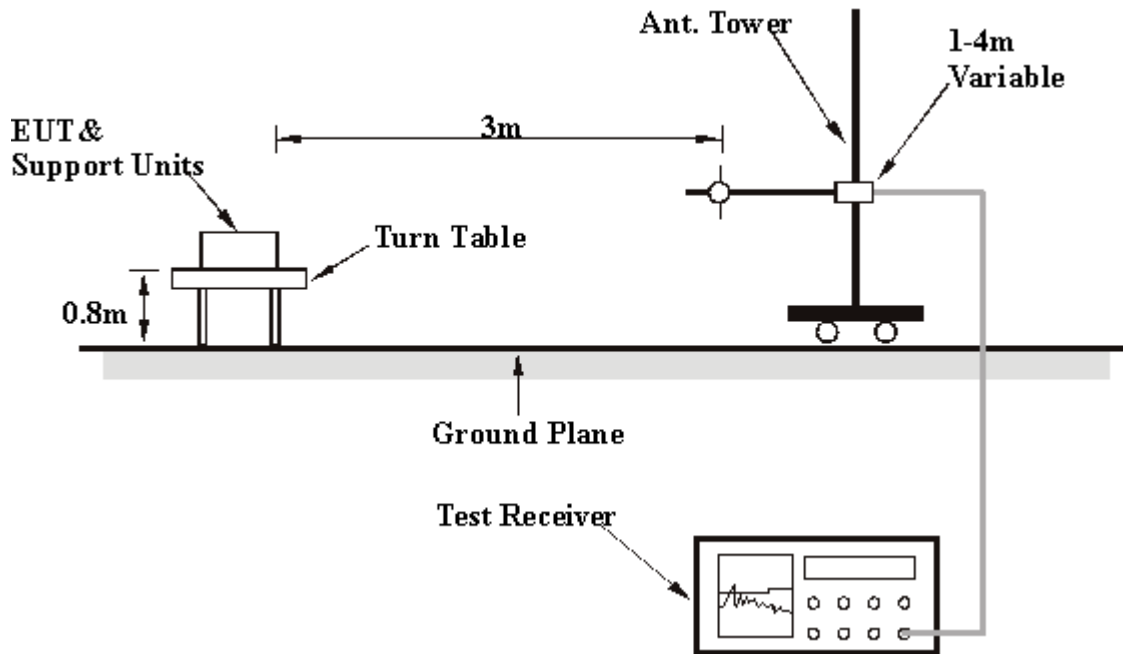
**NOTE:**

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz for Average detection (AV) at frequency above 1GHz.

#### 4.2.4 DEVIATION FROM TEST STANDARD

No deviation

#### 4.2.5 TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

#### 4.2.6 EUT OPERATING CONDITIONS

Same as item 4.1.6



4.2.7 TEST RESULTS

<b>EUT</b>	Audio Communicator	<b>MODEL</b>	XA1
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>FREQUENCY RANGE</b>	Below 1000MHz
<b>ENVIRONMENTAL CONDITIONS</b>	25deg. C, 60%RH, 991hPa	<b>DETECTOR FUNCTION</b>	Quasi-Peak
<b>TESTED BY:</b> Jamison Chang			

<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	70.82	24.33 QP	40.00	-15.67	3.00 H	331	12.61	11.72
2	319.64	33.73 QP	46.00	-12.27	2.50 H	304	18.12	15.61
3	415.00	30.40 QP	46.00	-15.60	1.34 H	62	12.21	18.19
4	624.83	27.65 QP	46.00	-18.35	2.50 H	58	4.72	22.92
5	780.34	31.54 QP	46.00	-14.46	2.50 H	28	6.02	25.51
6	830.88	31.58 QP	46.00	-14.42	2.00 H	10	5.64	25.94

<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	37.78	35.36 QP	40.00	-4.64	1.00 V	1	21.36	14.00
2	96.09	35.01 QP	43.50	-8.49	1.25 V	28	25.05	9.97
3	319.64	33.21 QP	46.00	-12.79	1.00 V	43	17.59	15.61
4	424.00	27.00 QP	46.00	-19.00	1.12 V	35	8.53	18.47
5	780.34	33.70 QP	46.00	-12.30	1.50 V	97	8.18	25.51
6	830.88	36.05 QP	46.00	-9.95	1.25 V	64	10.11	25.94

- REMARKS:**
1. Emission level (dBuV/m)=Raw Value (dBuV) + Correction Factor (dB/m)
  2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
  3. The other emission levels were very low against the limit.
  4. Margin value = Emission level – Limit value.



<b>EUT</b>	Audio Communicator	<b>MODEL</b>	XA1
<b>CHANNEL</b>	Channel 1		
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>FREQUENCY RANGE</b>	Below 1000MHz
<b>ENVIRONMENTAL CONDITIONS</b>	22deg. C, 60%RH, 991hPa	<b>DETECTOR FUNCTION</b>	Peak (PK) Average (AV)
<b>TESTED BY:</b> Steven Lu			

<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3M</b>								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*902.68	90.67 PK	114.00	-23.33	1.00 H	248	63.50	27.17
2	<b>*902.68</b>	<b>90.63 AV</b>	<b>94.00</b>	<b>-3.37</b>	<b>1.00 H</b>	<b>248</b>	<b>63.46</b>	<b>27.17</b>

<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3M</b>								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*902.68	83.67 PK	114.00	-30.33	1.40 V	160	56.50	27.17
2	*902.68	83.62 AV	94.00	-10.38	1.40 V	160	56.45	27.17

- REMARKS:**
1. Emission level (dBuV/m)=Raw Value (dBuV) + Correction Factor (dB)
  2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
  3. The other emission levels were very low against the limit.
  4. Margin value = Emission level – Limit value.
  5. “ \* “ : Fundamental frequency.



<b>EUT</b>	Audio Communicator	<b>MODEL</b>	XA1
<b>CHANNEL</b>	Channel 1		
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>FREQUENCY RANGE</b>	Above 1000MHz
<b>ENVIRONMENTAL CONDITIONS</b>	22deg. C, 60%RH, 991hPa	<b>DETECTOR FUNCTION</b>	Peak (PK) Average (AV)
<b>TESTED BY:</b> Steven Lu			

**ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3M**

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1805.00	46.43 PK	74.00	-27.57	1.57 H	266	16.42	30.00
2	2708.00	47.81 PK	74.00	-26.19	1.68 H	258	15.32	32.50
3	3610.00	48.86 PK	74.00	-25.14	1.09 H	273	13.22	35.64

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3M**

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1805.00	47.43 PK	74.00	-26.57	1.33 V	197	17.42	30.00
2	2708.00	49.14 PK	74.00	-24.86	1.05 V	152	16.65	32.50
3	3610.00	46.86 PK	74.00	-27.14	1.00 V	185	11.22	35.64

- REMARKS:**
1. Emission level (dBuV/m)=Raw Value (dBuV) + Correction Factor (dB)
  2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
  3. The other emission levels were very low against the limit.
  4. Margin value = Emission level – Limit value.



<b>EUT</b>	Audio Communicator	<b>MODEL</b>	XA1
<b>CHANNEL</b>	Channel 10		
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>FREQUENCY RANGE</b>	Below 1000MHz
<b>ENVIRONMENTAL CONDITIONS</b>	22deg. C, 60%RH, 991hPa	<b>DETECTOR FUNCTION</b>	Peak (PK) Average (AV)
<b>TESTED BY:</b> Steven Lu			

#### ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*906.73	90.28 PK	114.00	-23.72	1.00 H	249	63.06	27.22
2	*906.73	90.23 AV	94.00	-3.77	1.00 H	249	63.01	27.22

#### ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*906.73	83.78 PK	114.00	-30.22	1.48 V	161	56.57	27.22
2	*906.73	83.70 AV	94.00	-10.30	1.48 V	161	56.48	27.22

- REMARKS:**
1. Emission level (dBuV/m)=Raw Value (dBuV) + Correction Factor (dB)
  2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
  3. The other emission levels were very low against the limit.
  4. Margin value = Emission level – Limit value.
  5. “ \* “ : Fundamental frequency.



<b>EUT</b>	Audio Communicator	<b>MODEL</b>	XA1
<b>CHANNEL</b>	Channel 10		
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>FREQUENCY RANGE</b>	Above 1000MHz
<b>ENVIRONMENTAL CONDITIONS</b>	22deg. C, 60%RH, 991hPa	<b>DETECTOR FUNCTION</b>	Peak (PK) Average (AV)
<b>TESTED BY:</b> Steven Lu			

#### ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1813.00	47.14 PK	74.00	-26.86	1.56 H	267	17.10	30.04
2	2720.00	46.86 PK	74.00	-27.14	1.02 H	218	14.31	32.55
3	3626.00	48.25 PK	74.00	-25.75	1.16 H	312	12.56	35.69

#### ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1813.00	46.97 PK	74.00	-27.03	1.29 V	183	16.93	30.04
2	2720.00	47.66 PK	74.00	-26.34	1.06 V	167	15.11	32.55
3	3626.00	49.59 PK	74.00	-24.41	1.68 V	181	13.90	35.69

- REMARKS:**
1. Emission level (dBuV/m)=Raw Value (dBuV) + Correction Factor (dB)
  2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
  3. The other emission levels were very low against the limit.
  4. Margin value = Emission level – Limit value.





### 4.3 BAND EDGES MEASUREMENT

#### 4.3.1 LIMITS OF BAND EDGES MEASUREMENT

Emission radiated outside of the specified frequency bands (902 ~ 928MHz), except for harmonics, shall be attenuated by at least 50dB below the level of the fundamental or to the general radiated emission limits in 15.209, whichever is the lesser attenuation.

#### 4.3.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
SPECTRUM ANALYZER	FSEK30	100049	August 12, 2004

**NOTE:**

- 1.The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
- 2.The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

#### 4.3.3 TEST PROCEDURE

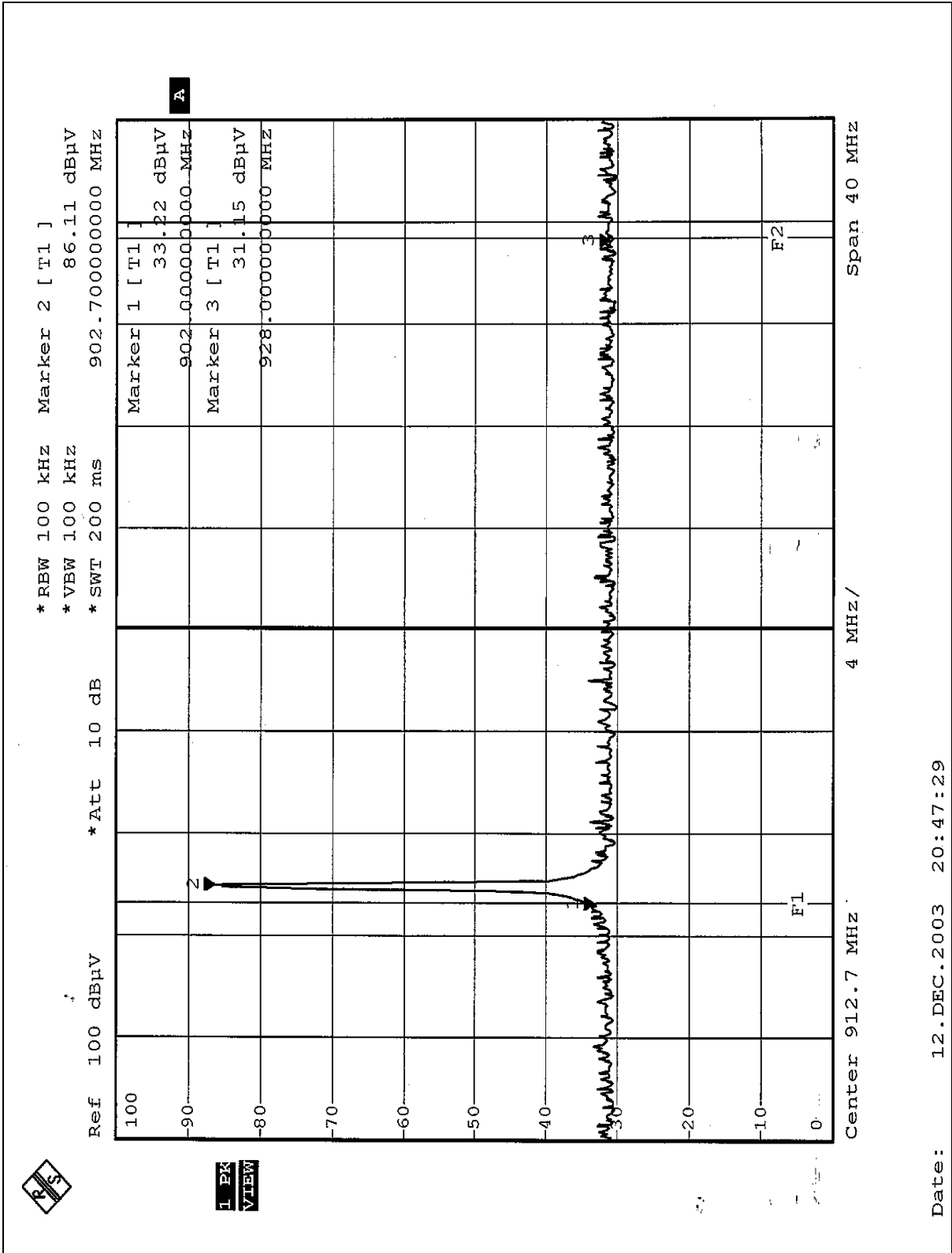
The transmitter output was connected to the spectrum analyzer via a low lose cable. Set both RBW and VBW of spectrum analyzer to 100 kHz with suitable frequency span including 100 MHz bandwidth from band edge. The band edges was measured and recorded.

#### 4.3.4 EUT OPERATING CONDITION

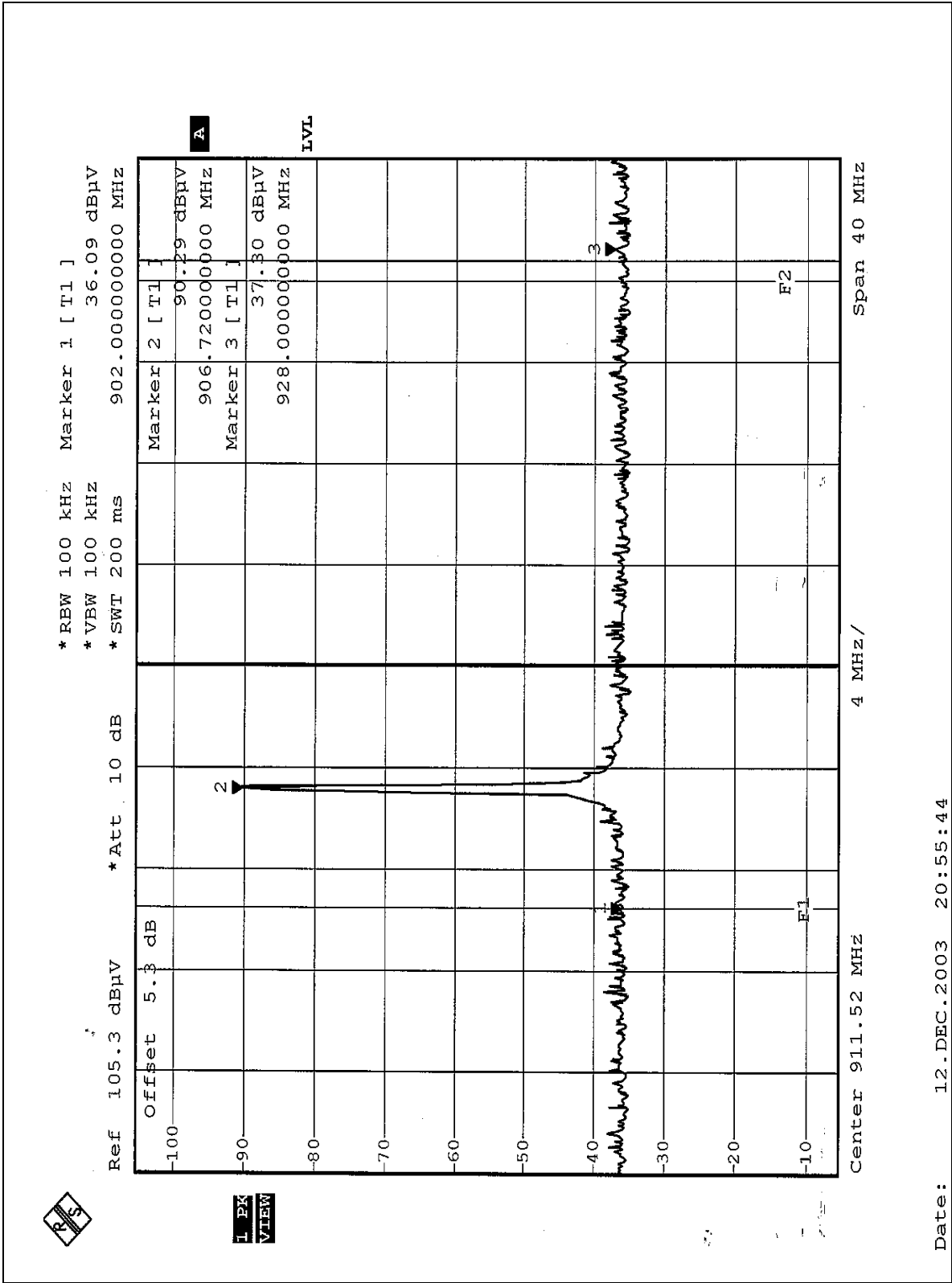
Enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

#### 4.3.5 TEST RESULTS

The spectrum plots are attached on the following 2 pages. It shows compliance with the requirement of emissions level outside of the specified frequency bands shall be attenuated by at least 50dB below the level of the fundamental frequency.

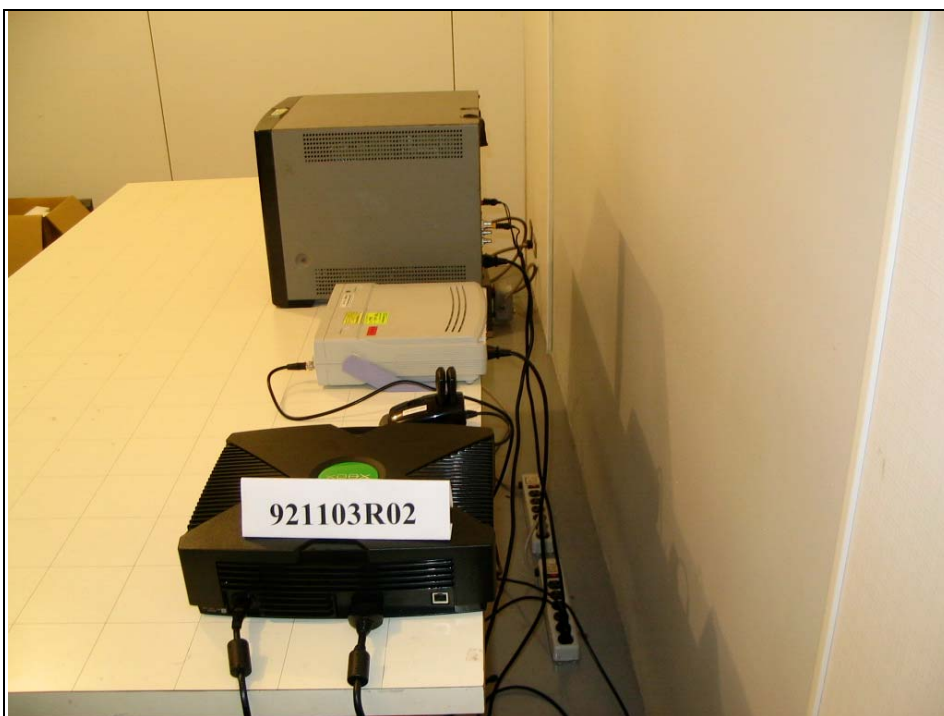


Date: 12.DEC.2003 20:47:29

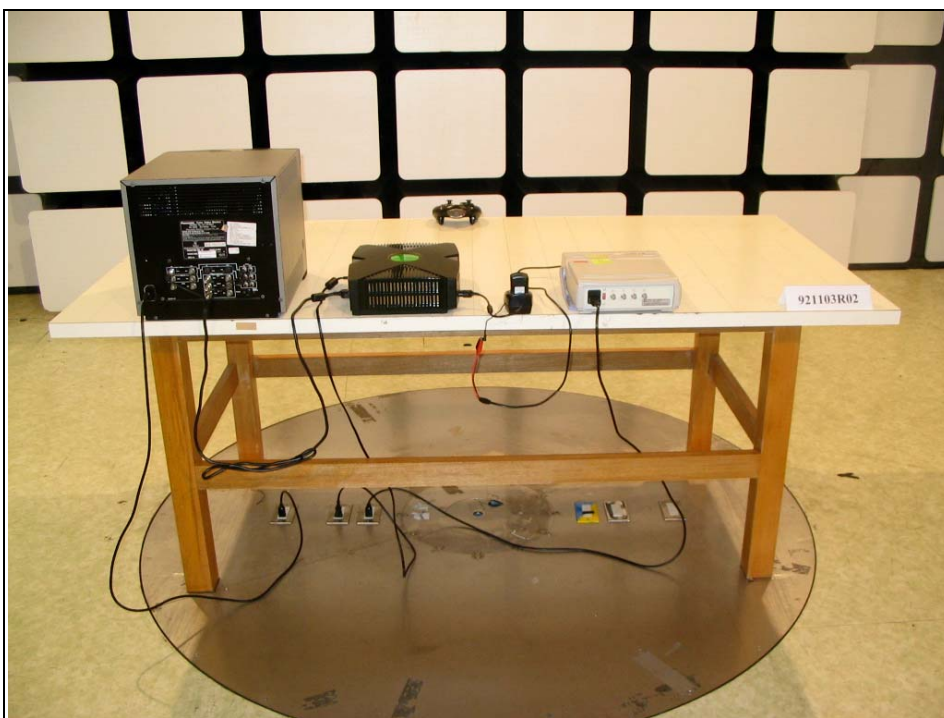


## 5. PHOTOGRAPHS OF THE TEST CONFIGURATION

### CONDUCTED EMISSION TEST



### RADIATED EMISSION TEST





## 6. INFORMATION ON THE TESTING LABORATORIES

We, ADT Corp., were founded in 1988 to provide our best service in EMC and Safety consultation. Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025, Guide 25 or EN 45001:

<b>USA</b>	FCC, NVLAP
<b>Germany</b>	TUV Rheinland
<b>Japan</b>	VCCI
<b>New Zealand</b>	MoC
<b>Norway</b>	NEMKO
<b>R.O.C.</b>	BSMI, DGT, CNLA

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site:

[www.adt.com.tw/index.5/phtml](http://www.adt.com.tw/index.5/phtml).

If you have any comments, please feel free to contact us at the following:

**Lin Kou EMC Lab:**

Tel: 886-2-26052180

Fax: 886-2-26052943

**Hsin Chu EMC Lab:**

Tel: 886-35-935343

Fax: 886-35-935342

**Lin Kou Safety Lab:**

Tel: 886-2-26093195

Fax: 886-2-26093184

**Lin Kou RF&Telecom Lab**

Tel: 886-3-3270910

Fax: 886-3-3270892

**Email:** [service@mail.adt.com.tw](mailto:service@mail.adt.com.tw)

**Web Site:** [www.adt.com.tw](http://www.adt.com.tw)

The address and road map of all our labs can be found in our web site also.