TEST REPORT

Report No.: HC70239/2006
Page: 1 of 18
Date: August 4, 2006

ALLOY COMPUTER PRODUCTS
4/585 BLACKBURN RD.,
NOTTING HILL, VICTORIA, AUSTRALIA

The following merchandise was submitted and identified by the vendor as:

Product Description:	24 PORT SNMP MODULAR FIBRE SWITCH
Style/ Item No.:	MS888G2/ No.1
Manufacturer/ Vendor:	Alloy Computer Products
Country of Origin:	Taiwan
Quantity:	Total 1 set

We have tested the submitted sample(s) as requested and the following results were obtained:

Test Required: (According to client's test specification, please see following sheets in detail.)

1. Emission Sound Pressure Level Measurement Test
2. Sound Power Level Measurement Test

Test Results： -PLEASE SEE ATTACHED SHEETS-

*Measured values in this report are for use in planning or in determining declared values. They are not to be confused with the declared values.

Cedric Chen
Asst. Supervisor

1. Emission Sound Pressure Level Measurement Test:

Test Equipment:

Name	Brand	Model	Serial No.
Multichannel Portable PULSE Data Acquisition System	Brüel & Kjær	3560D	2394936
Free-Field 1/2" Microphone Unit (Microphone with 2669C Preamplifer)	Brüel & Kjær	4190-C-001	2387089
Free-Field 1/2" Microphone Unit (Microphone with 2669C Preamplifer)	Brüel & Kjær	4190-C-001	2387093
Free-Field 1/2" Microphone Unit (Microphone with 2669C Preamplifer)	Brüel & Kjær	4190-C-001	2387094
Free-Field 1/2" Microphone Unit (Microphone with 2669C Preamplifer)	Brüel & Kjær	4190-C-001	2387095
Sound Level Calibrator	Brüel & Kjær	4231	2389147

Lab Environmental Conditions:

Ambient temperature: 25±3℃

Relative humidity: 55±20%RH

Test Method/ Specification:

Test Method: Reference to ISO 11201:1995(E)／ISO 7779:1999/ Amd.1:2003(E)

Test Method/ Specification--Continued:

1. Acoustical Environment Description:

Acoustical Environment:	An essential free field over a reflecting plane (Semi-Anechoic Room)
Room Volume (Inner):	L:5.0 m W:5.0 m H:2.8 m
Lowest Cut-Off Frequency:	100 Hz

Absorptive Properties of the Walls and Ceiling

Absorption Material:	PolyUrethane Wedge
Absorption Coefficient:	Minimum 0.99 over 100 Hz to 10 kHz

Acoustic Characteristic of Floor

Material Used:	Stainless Steel Plate
Absorption Coefficient:	Be less than 0.06 over 100 Hz to 10 kHz

Meteorological Conditions During Measurement

Air Temperature:	~24.0 ℃
Ambient Pressure:	~99.2 kPa
Relative Humidity:	~57 %RH
Environmental Correction K_2:	Comply with the qualification procedures for the acoustic environment specified in ISO 3745:1977(E), annex A, section A.3 sound pressure decrease test.

- The test room qualification test was commissioned to and performed by Vibration & Acoustics Measurement Lab, Measurement Standards & Technology Division, Center of Measurement Standards, of Industrial Technology Research Institute. (Report No.:D920900)

2. Measurement Setup:

Filter Bandwidth:	1/3 Octave
Acoustic Weighting:	A-Weighting
Lower centre frequency:	100 Hz
Upper centre frequency:	10 kHz
Measurement Time Interval:	30 seconds

3. Microphone Calibration Method:

Fixed Operating Frequency:	1000 Hz
Reference Sound Level:	94 dB
Acceptable Deviation of Calibration:	1 dB

Test Method/ Specification--Continued:

4. Installation of Equipment Under Test:

Installation and Mounting Condition: See below items marked "●" and figure A1-1~ A1-2 in Appendix I,

	Installation and Mounting Condition
	Be placed on the reflecting floor at a sufficient distance (more than 2 m, if possible) from the walls.
●	Be placed in the center on the top plane of the standard test table
	Be laid with its mounting surface on the floor (more than 2 m, if possible) from any wall of the room for wall-mounted equipment.
	Be recessed into a representative structure for simulating the actual mounting condition for wall-mounted equipment.
	Be supported 0.1 m above the reflecting plane by vibration-isolating elements for hand-held equipment.
	Be supported 0.25 m above the reflecting plane by vibration-isolating elements for sub-assemblies.
	As the installation specification of equipment offered by manufacturer used Detail description:
	As installation conditions specified in ISO 7779:1999/ Amd.1:2003(E), annex C
	Others: Detailed description:

Location of the Equipment in the Test Room: See below items marked "●" and figure A1-1~A1-2 in Appendix I,

	Location in the Test Room
●	Be located in the center inside the test room.
	Others: Detailed description:

Test Method/ Specification--Continued:

5. Equipment Operation During Measurement:

Operating Condition Declaration: See below items marked "●",

Operating Condition Declaration	
	Be based on conditions specified in the ISO 7779:1999/ Amd.1:2003(E), annex C. See the following conditions specified.
●	Operating conditions be specified by the manufacturer/ client to be typical use for the intended application. See the following conditions specified.

Operating Conditions : See below items marked "●",

Operating Conditions		Description
●	Idle Mode	Equipment being tested is energized.(power on status)
	Operating Modes	See following table in detailed.

Operating Modes Description: As specified by client,

Operating Mode Identification	Description/Comment
—	Not specified by client.
Left blank.	

Test Method/ Specification--Continued:

6. Measurement Positions:

Microphone positions: See below items marked "●",

Microphone positions		Description		Number of Microphone
	At the operator position(s) specified in ISO 7779:1999/ Amd.1:2003(E)		Standing position: be located 1.50±0.03 m above the floor and 0.25 m away from the projection of the reference box on the horizontal plane and be centered at the related side of equipment.(Reference to figure A2-1 in Appendix Ⅱ)	
			Seated position: be located 1.20±0.03 m above the floor and 0.25 m away from the projection of the reference box on the horizontal plane and be centered at the related side of equipment. (Reference to figure A2-2, figure A2-3 in Appendix Ⅱ)	
			Seated position: be located 1.20±0.03 m above the floor and 0.50 m away from the projection of the reference box on the horizontal plane and be centered at the related side of equipment. (Reference to figure A2-4 in Appendix Ⅱ)	1
●	At the bystander positions specified in ISO 7779:1999/ Amd.1:2003(E)	Four bystander positions be located 1.50±0.03 m above the floor and 1.00±0.03 m away from the projection of the reference box on the horizontal plane and are centered at the front, rear, right and left sides of the equipment.		4
	At other specified positions according to client's specification		Operator position(s) Detailed description:	
			Bystander position(s) Detailed description:	

Microphone Orientation: 30° below horizontal, and reference to figure A1-1~ A1-2 in Appendix I,

Specimen:

Style/ Item No.: MS888G2/ No.1

Main Dimension: L:44.0 cm W:36.5 cm H:4.5 cm

Rated Input Voltage/
Rated Power Line frequency: See below items marked "●",

	Direct Current	●	Alternating Current
	Vdc		110 Vac/60 Hz

Quantity: 1 set

Test Result:

A-Weighted Sound Pressure Level

Unit: dB(A) reference 20μPa

Style/ Item No.:	Operating Condition	Microphone Position	Measured A-weighted sound pressure level (L'_{pA})	A-weighted background noise level (L''_{pA})	Background noise correction K_{1A}	A-weighted emission sound pressure level (L_{pA})
MS888G2/ No.1	Idle Mode	Bystander Position 1	35.4	15.3	0.0	35.4
		Bystander Position 2	38.5	15.3	0.0	38.5
		Bystander Position 3	35.8	15.2	0.0	35.8
		Bystander Position 4	39.6	15.2	0.0	39.6
		Mean A-weighted emission sound pressure level (L_{pA}): Averaged over all the bystander positions				37.7

2. Sound Power Level Measurement Test:

Test Equipment:

Name	Brand	Model	Serial No.
Multichannel Portable PULSE Data Acquisition System	Brüel & Kjær	3560D	2394936
Free-Field 1/2” Microphone Unit (Microphone with 2669C Preamplifer)	Brüel & Kjær	4190-C-001	2387089
Free-Field 1/2” Microphone Unit (Microphone with 2669C Preamplifer)	Brüel & Kjær	4190-C-001	2387093
Free-Field 1/2” Microphone Unit (Microphone with 2669C Preamplifer)	Brüel & Kjær	4190-C-001	2387094
Free-Field 1/2” Microphone Unit (Microphone with 2669C Preamplifer)	Brüel & Kjær	4190-C-001	2387095
Free-Field 1/2” Microphone Unit (Microphone with 2669C Preamplifer)	Brüel & Kjær	4190-C-001	2387096
Free-Field 1/2” Microphone Unit (Microphone with 2669C Preamplifer)	Brüel & Kjær	4190-C-001	2387097
Free-Field 1/2” Microphone Unit (Microphone with 2669C Preamplifer)	Brüel & Kjær	4190-C-001	2387098
Free-Field 1/2” Microphone Unit (Microphone with 2669C Preamplifer)	Brüel & Kjær	4190-C-001	2387099
Free-Field 1/2” Microphone Unit (Microphone with 2669C Preamplifer)	Brüel & Kjær	4190-C-001	2387100
Free-Field 1/2” Microphone Unit (Microphone with 2669C Preamplifer)	Brüel & Kjær	4190-C-001	2387101
Sound Level Calibrator	Brüel & Kjær	4231	2389147

Lab Environmental Conditions:

Ambient Temperature: 25±3℃
Relative Humidity: 55±20%RH

Test Method/ Specification:

Test Method: Reference to ISO 3744:1994(E)／ ISO 7779:1999/ Amd.1:2003(E)

1. Acoustical Environment Description:

Acoustical Environment: An essential free field over a reflecting plane (Semi-Anechoic Room)
Room Volume (Inner): L:5.0 m W:5.0 m H:2.8 m
Lowest Cut-Off Frequency: 100 Hz

Absorptive Properties of the Walls and Ceiling

Absorption Material: PolyUrethane Wedge
Absorption Coefficient: Minimum 0.99 over 100 Hz to 10 kHz

Acoustic Characteristic of Floor

Material Used: Stainless Steel Plate
Absorption Coefficient: Be less than 0.06 over 100 Hz to 10 kHz

Meteorological Conditions During Measurement

Air Temperature: ~23.3 ℃
Ambient Pressure: ~99.3 kPa
Relative Humidity: ~55 %RH
Environmental Correction K_2: Comply with the qualification procedures for the acoustic environment specified in ISO 3745:1977(E), annex A, section A.3 sound pressure decrease test.

The test room qualification test was commissioned to and performed by Vibration & Acoustics Measurement Lab, Measurement Standards & Technology Division, Center of Measurement Standards, of Industrial Technology Research Institute. (Report No.:D920900)

Test Method/ Specification--Continued:

2. Measurement Setup:

Filter Bandwidth: 1/3 Octave
Acoustic Weighting: A-Weighting
Lower Centre Frequency: 100 Hz
Upper Centre Frequency: 10 kHz
Measurement Time Interval: 30 seconds

3. Microphone Calibration Method:

Fixed Operating Frequency: 1000 Hz
Reference Sound Level: 94 dB
Acceptable Deviation of Calibration: 1 dB

4. Installation of Equipment Under Test:

Installation and Mounting Condition: See below items marked "●"and figure A3-1~ A3-2 in Appendix III,

Installation and Mounting Condition	
●	Be placed on the reflecting (acoustically hard) floor at a sufficient distance (more than 2 m, if possible) from the walls.
	Be placed in the center on the top plane of the standard test table
	Be laid with its mounting surface on the floor (more than 2 m, if possible) from any wall of the room for wall-mounted equipment.
	Be recessed into a representative structure for simulating the actual mounting condition for wall-mounted equipment.
	Be supported 0.1 m above the reflecting plane by vibration-isolating elements for hand-held equipment.
	Be supported 0.25 m above the reflecting plane by vibration-isolating elements for sub-assemblies.
	As the installation specification of equipment offered by manufacturer used Detail description:
	As installation conditions specified in ISO 7779:1999/ Amd.1:2003(E), annex C
	Others: Detailed description:

Location of the Equipment in the Test Room: See below items marked "●"and figure A3-1~ A3-2 in Appendix III,

Location in the Test Room	
●	Be located in the center inside the test room.
	Others: Detailed description:

Test Method/ Specification--Continued:

5. Equipment Operation During Measurement:

Operating Condition Declaration: See below items marked "●",

Operating Condition Declaration	
	Be based on conditions specified in the ISO 7779:1999/ Amd.1:2003(E), annex C. See the following conditions specified.
●	Operating conditions be specified by the manufacturer/ client to be typical use for the intended application. See the following conditions specified.

Operating Conditions : See below items marked "●",

Operating Conditions		Description
●	Idle Mode	Equipment being tested is energized.(power on status)
	Operating Modes	See following table in detailed.

Operating Modes Description: As specified by client,

Operating Mode Identification	Description/Comment
—	Not specified by client.
Left blank.	

Test Method/ Specification--Continued:

6. Measurement Surface and Microphone Positions:

Measurement Surface: See below items marked "●",

Measurement Surface Type Used	
●	Hemispherical Measurement Surface as specified in annex B section B.1 of ISO 3744:1994
	Hemispherical Measurement Surface for equipment emitting discrete tones as specified in annex B of ISO 7779:1999/ Amd.1:2003(E)
	Parallelepiped Measurement Surface as specified in annex C of ISO 3744:1994

Position of the Origin for the Coordinates of the Microphone Positions: See below items marked "●",

Position of the Origin for the Coordinates of the Microphone Positions Used	
●	On the floor in the center of the plane of the reference box which is coplanar with the room floor
	In the center of that plane of the reference box which is coplanar with the mounting surface

Measurement Distance: See below items marked "●",

Measurement Surface Used		Measurement Radius/ Measurement Distance	
●	Hemisphere	●	Hemisphere radius:1 m
	Parallelepiped		Measurement distance:0.25 m
			Measurement distance:0.5 m
			Measurement distance:1 m

The Area of Measurement Surface: 6.28 m^2

Number of Microphone Positions: 10

Location of Microphone Positions: The coordinates of microphone positions on the measurement surface are shown below and figure A4-1~ A4-3 in Appendix IV,

Microphone positions	Coordinates of microphone positions on the measurement surface		
	X (m)	Y (m)	Z (m)
Microphone 1	-0.99	0.00	0.15
Microphone 2	0.50	-0.86	0.15
Microphone 3	0.50	0.86	0.15
Microphone 4	-0.45	0.77	0.45
Microphone 5	-0.45	-0.77	0.45
Microphone 6	0.89	0.00	0.45
Microphone 7	-0.33	0.57	0.75
Microphone 8	-0.66	0.00	0.75
Microphone 9	0.33	-0.57	0.75
Microphone 10	0.00	0.00	1.00

Microphone Orientation: All microphones orient toward the origin of the coordinates of the microphone positions on the floor.

Specimen:

Style/ Item No.: MS888G2/ No. 1

Main Dimension: L:44.0 cm W:36.5 cm H:4.5 cm

Rated Input Voltage/
Rated Power Line Frequency: See below items marked "●",

	Direct Current	●	Alternating Current
	Vdc		110 Vac/60 Hz

Quantity: 1 set

Test Result:

Style/ Item No.: MS888G2/ No. 1

A-Weighted Sound Pressure Level Measured at Each Microphone Position i

Unit: dB(A) reference 20μPa

Microphone Position / Measuring Item	Microphone 1	Microphone 2	Microphone 3	Microphone 4	Microphone 5	Microphone 6	Microphone 7	Microphone 8	Microphone 9	Microphone 10
Background Noise Level at each position i (L''_{piA})	16.0	16.0	15.8	16.2	15.3	15.5	15.2	15.6	15.6	15.3
Sound Pressure Level at each position i (L'_{piA})	43.2	39.3	40.2	40.6	39.4	41.7	40.8	42.4	40.4	42.6

Calculation of A-Weighted Sound Power Level

Unit: dB(A) reference 20μPa				**Unit: B (A) reference 1 pW (1 B=10 dB)**
A-weighted Average background noise level ($\overline{L''_{pA}}$)	A-weighted Surface sound pressure level ($\overline{L'_{pfA}}$)	Background noise correction K_{1A}	Environmental correction K_{2A}	**A-weighted sound power level (L_{wA})**
15.7	41.2	0.0	0.0	**4.92**

Appendix I:

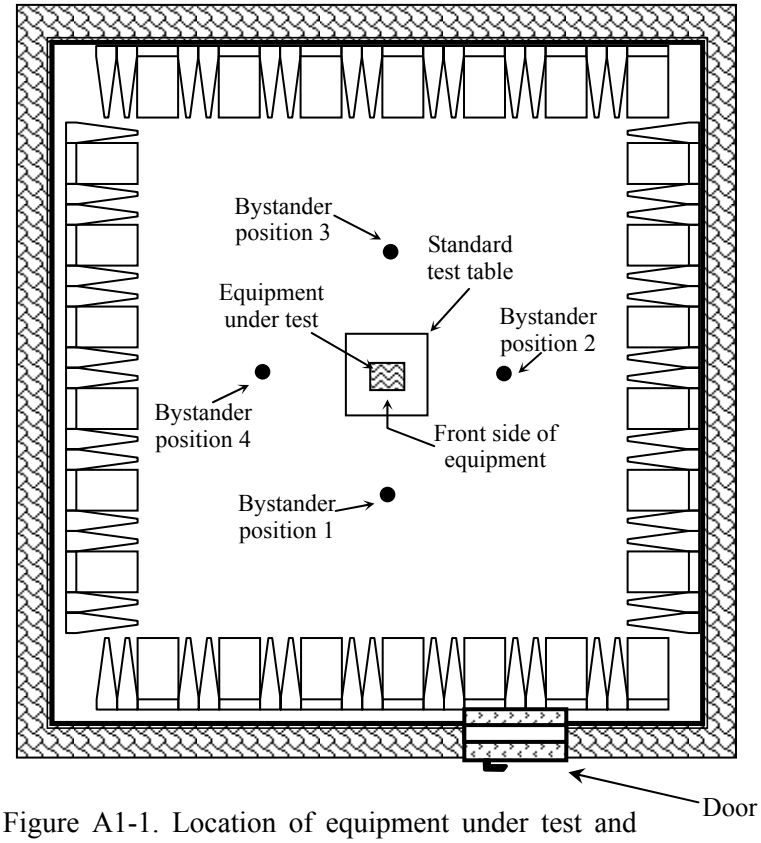

Figure A1-1. Location of equipment under test and microphone position (Top View)

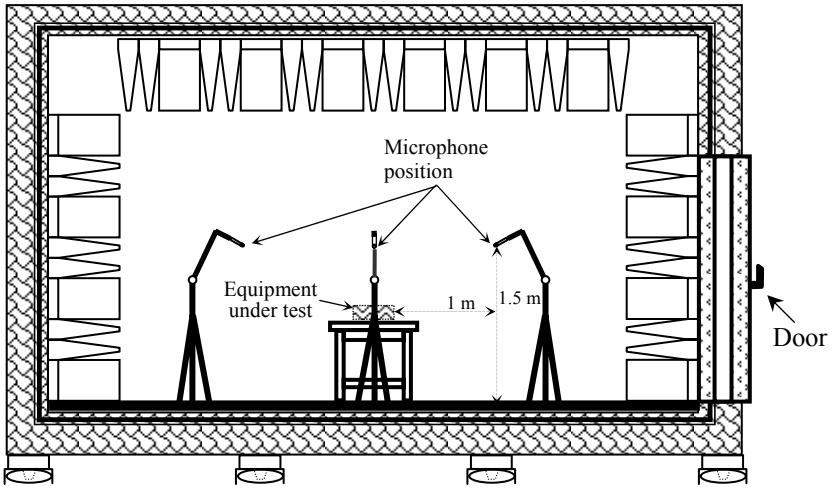

Figure A1-2. Location of equipment under test and microphone position (Side View)

Appendix Ⅱ:

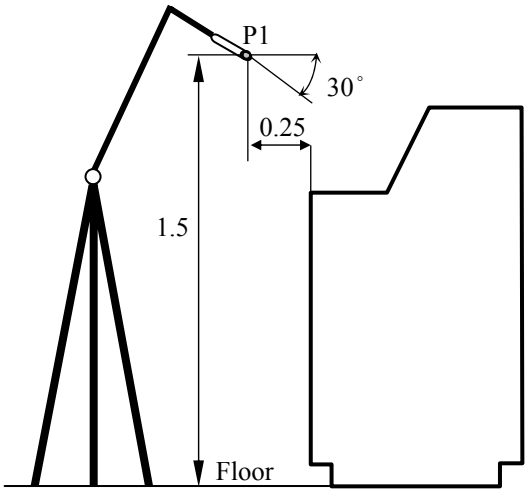

Figure A2-1. Standing operator

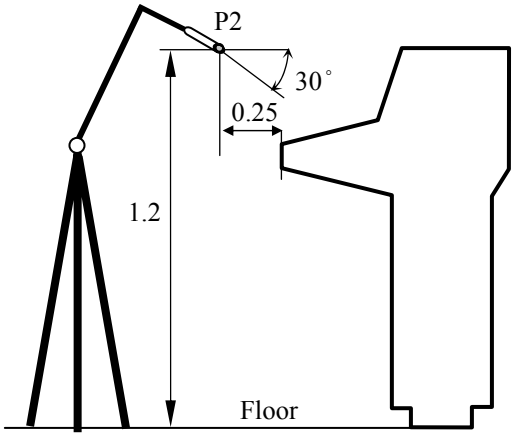

Figure A2-2. Seated operator for floor-standing equipment

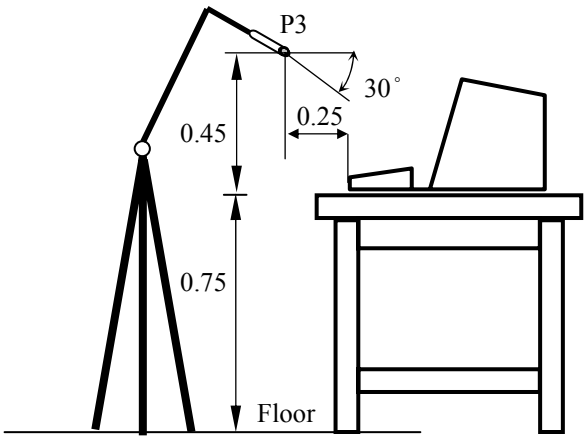

Figure A2-3. Seated operator for table-top equipment (case 1:with keyboard)

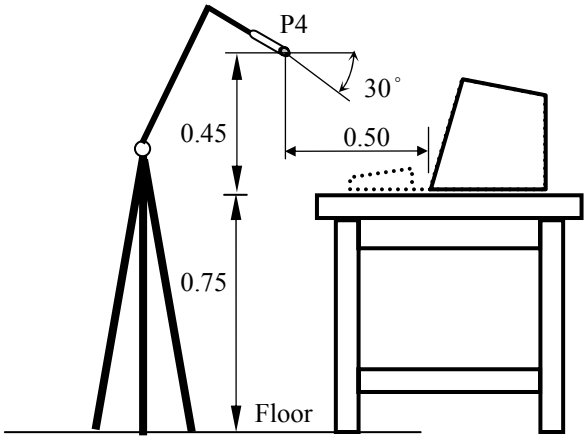

Figure A2-4. Seated operator for table-top equipment (case 2:without keyboard)

Unit: m

Appendix Ⅲ:

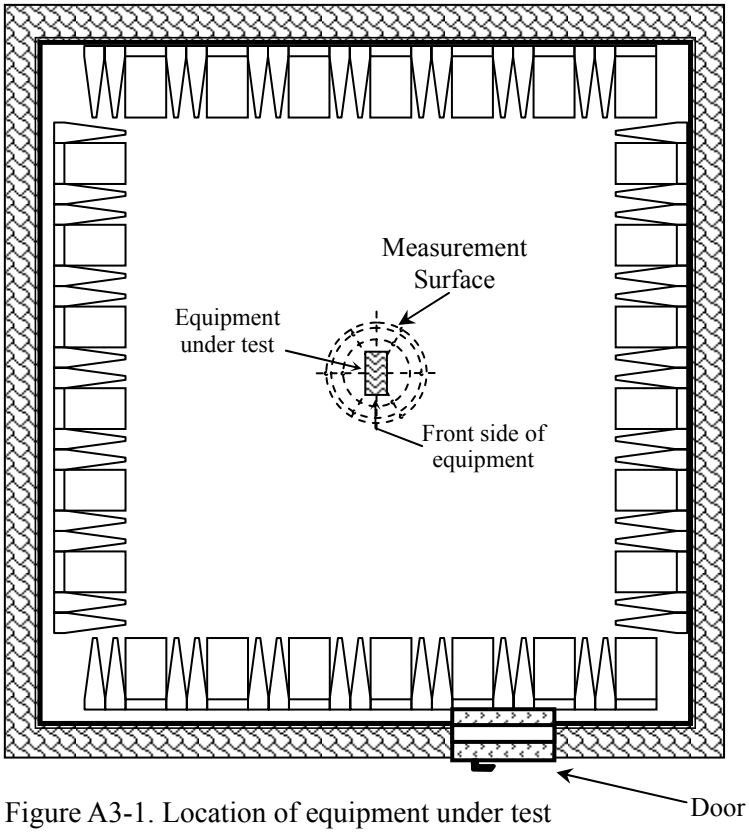

Figure A3-1. Location of equipment under test
(Top View)

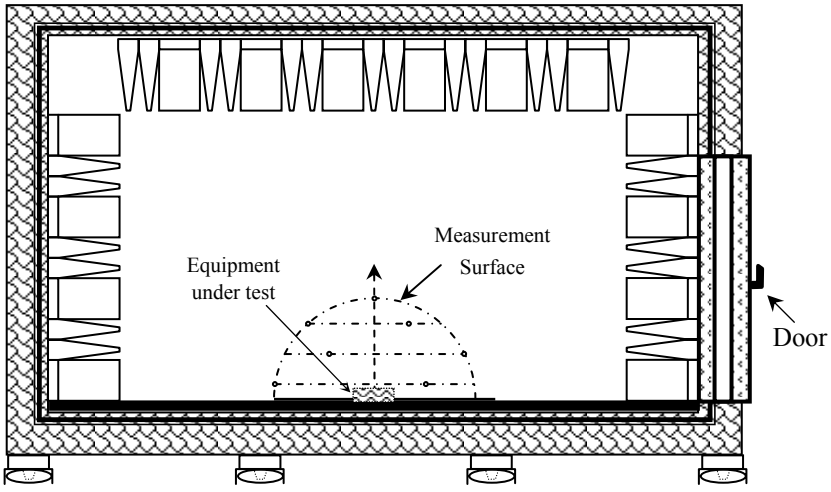

Figure A3-2. Location of equipment under test
(Side View)

Appendix Ⅳ:

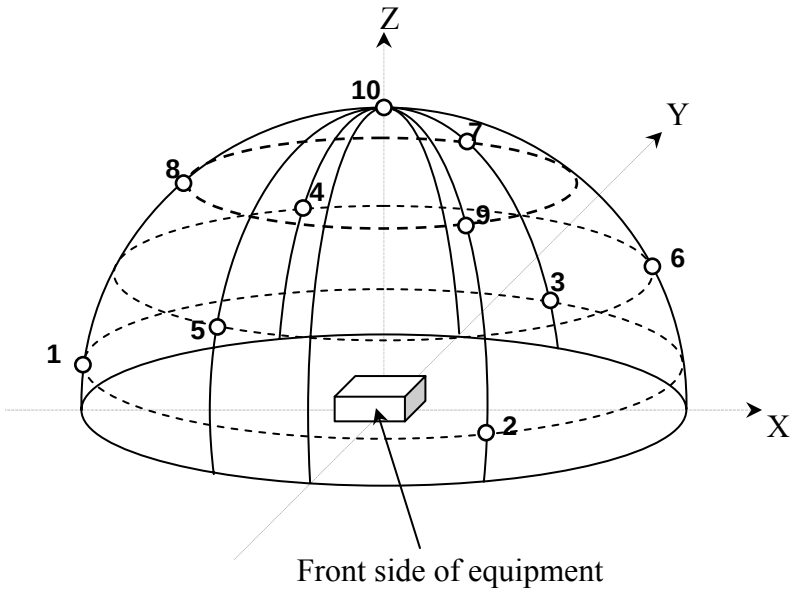

Figure A4-1. Location of Microphone Positions on Measurement Surface

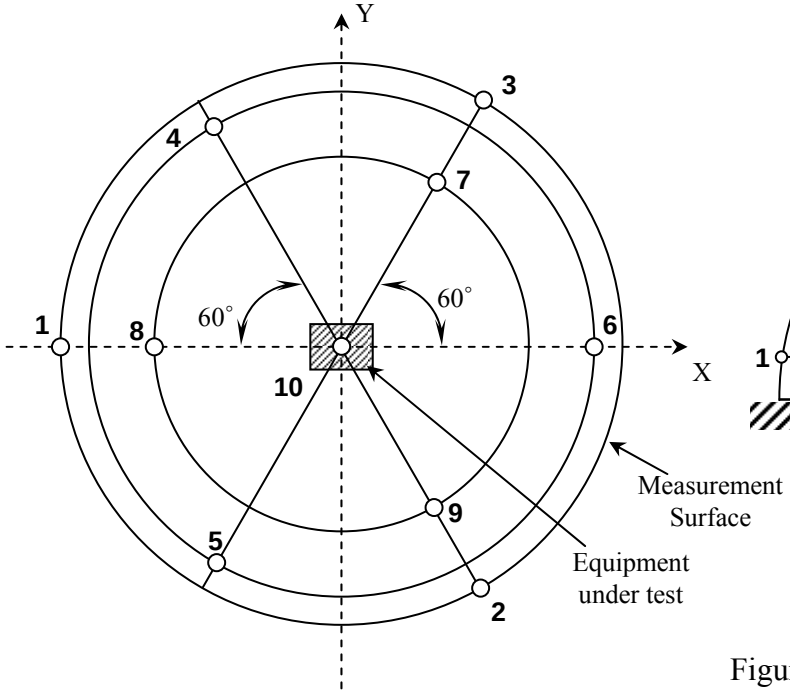

Figure A4-2. Location of Microphone Positions on Measurement Surface (Top View)

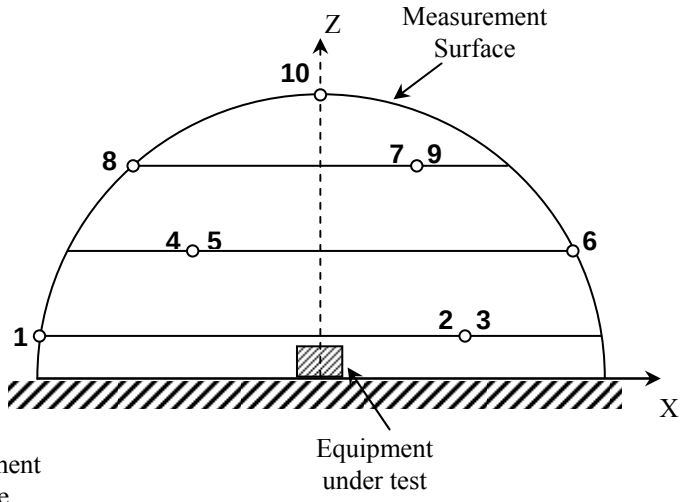

Figure A4-3. Location of Microphone Positions on Measurement Surface (Side View)

Test Photos:

1. Appearance of equipment under test (MS888G2)

2. Emission Sound Pressure Level Measurement Test

3. Emission Sound Pressure Level Measurement Test

4. Sound Power Level Measurement Test

5. Sound Power Level Measurement Test

— — — The End of Test Report — — —