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APPENDIX

Appendix A
Equipment Apparatus

A.1 Brüel & Kjaer Modular Precision Sound Level Meter Apparatus

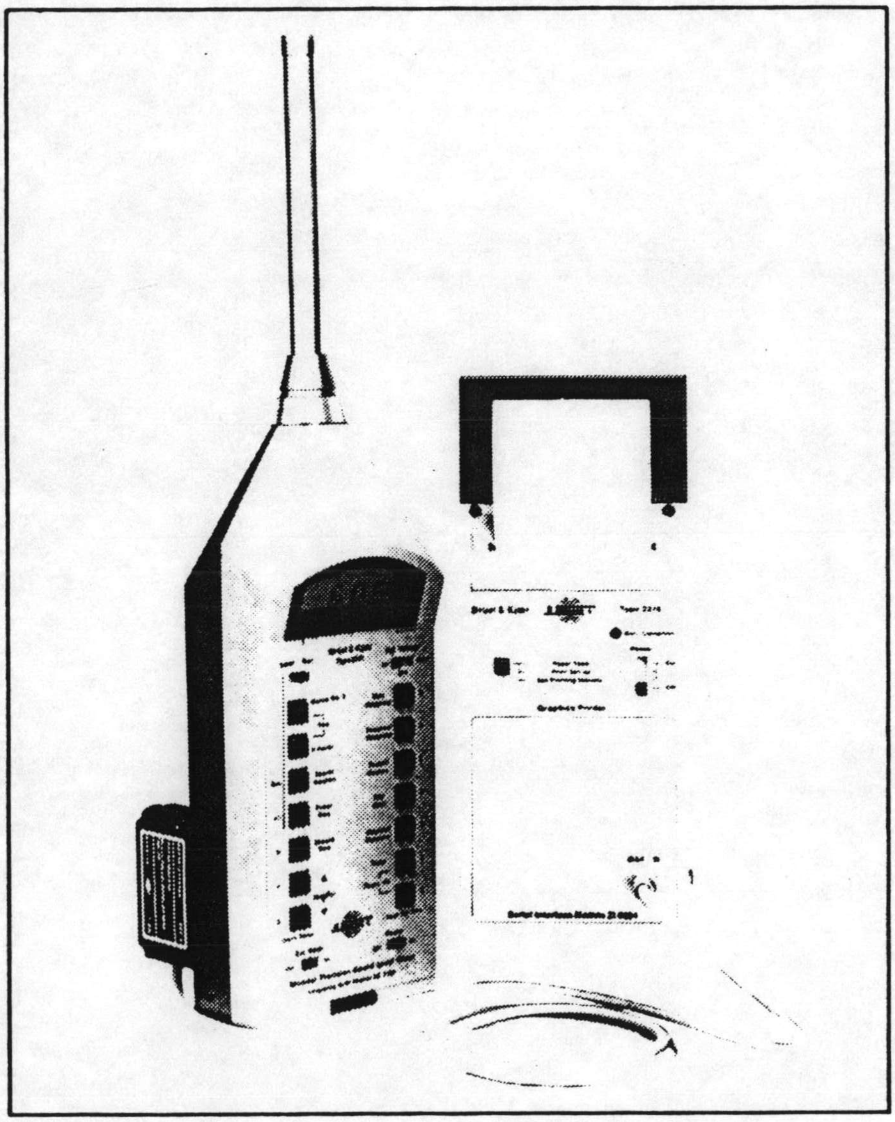


Figure A.1 Brüel & Kjaer Modular Precision Sound Level Meter

1. Loading module and check the module status

- Switch the intrument off and attach the front plate
- Insert BZ 7107 module into the rear of the intrument
- Set the Power to **On** and Load/Run to **Load**
- Press Module no. 08 to load the program from application module
- Set Load/Run to **Run** and Power to **Off**
- Pull the BZ 7101 out of the intrument and put the cover back
- Set Power to **On** to begin measurements
- Set Load/Run to **Run**
- Press Module No. 08

*** When module is loaded the default status of the instrument was;**

Time weighting	: Fast	Threshold Level	: 60
Frequency Weighting	: A	Real Time Clock	: 00:00
Frontal/Random	: Frontal	Start Time	: 00:00
FSD (Meas.Range)	: 120 dB	Min.Duration	: 01
Displayed Parameter	: SPL	Status	: Stop
K_0 factor	: 0.0	No. of Records	: >00<
Sp.Function	: F000	Event Duration	: 00:00

2. Test and K-Factor

- Set Load/Run to **Run**
- Press **Test** to test the digital display
- Set Load/Run to **Load**
- Press K-Factor to set the microphone correction factor that is shown in the calibration sheet supplied within the microphone box.
- Use pushkeys **0** to **9** and **+/-** to key-in the correct K-factor
- Set Load/Run to **Run**
- Press K-Factor to check the setting K-factor

3. Status and Time weighting

The following time weightings may be applied to the incoming signal: " Fast", "Slow" and "Impulse". They correspond to the "F", "S" and "T" time weightings defined by IEC. This study use **"Slow"** mode to collect the data.

- Checking the time weighting by press Time W.
- Changing the time weighting by press Time W. plus Selector > or < simultaneously.

4. Frequency weighting

Four frequency weighting are built-in and the following symbols are used to indicate the selected weighting: (Use **"Linear"** when octave filter operated)

A	: "A" as per IEC 651
C	: "C" as per IEC 651
L	: Linear 10 Hz to 20 kHz or All Pass 2 Hz to 70 kHz

- Checking by press Freq.W.
- Changing by press Freq.W. plus Selector > or < simultaneously.

5. Full Scale Deflection (FSD)

- Checking by press FSD (Set to fit the actual range)
- Changing by press FSD plus SelectorSelector > or < simultaneously.

* Changing the FSD automatically sets the threshold at the bottom of the new measuring range selected.

6. Displayed Parameter

With application module BZ7107 Sound level meter can display any of the following parameters associated with the incoming acoustic signal:

SPL : Max. RMS level in 1 second interval (in accordance with IEC 651)
LEQ : L_{eq} (in accordance with IEC 804)
SEL : SEL (in accordance with IEC 804)
LEQ- : Average SPL in the previous second
MAXL : Max.RMS level
MAXP : Max.Peak level
INST : Sampled RMS level in 1 second interval
PEAK : Max.Peak level in 1 second interval

- Checking displayed parameter by press Displayed Parameter
- Changing displayed parameter by press Displayed Parameter plus Selector > or < simultaneously.

7. Transferation and storation of noise data from sound level meter.

Special functions allows the user to choose between different event recording, print-out and display modes, etc. The choice is implemented by keying-in a three digit Special Function code.

Format of Special Functions : **F ###** (# : user selectable decimal digits)

F ###	
F 0AB	Manual Start/Stop
F 1AB	Auto " Threshold Level"
F 2AB	Auto with preset start
F 3CD	Re-Call (to display)
F 4CD	Print Format 1 (Short format)
F 5CD	Print Format 2 (Long format)
F 6AB	F 0AB
F 7AB	F 0AB
F 8AB	F 0AB
F 999	Erase of the entire data store

A = 0	Normal DC-Output
A = 1	Relay
B = 0	-
B = 1	Trace
CD	Record No. (01-99)
CD = 00	All records

Selection of Special Function

- Checking by set Load/Run to Run and press Special Function
- Keying-in by set Load/Run to Load, press Special Function and us Record recall display and use keys 0 to 9 to key-in the desired function code
- Set Load/Run to Run to apply the Special Function keyed-in.

* If the F4###, F5###, F9### have been executed, the Special Function F000 is automatically selected.

Print-Out and Erase Modes

There are two type of hard-copy from print-out function;
- Long Print-Out (F4###)
- Short Print-Out (F5###)
- Erase all (F999)

All of this functions can be done after conecting the SLM to graphic printer or personal computer using ZI 9100 Interface modules. The method of establishing control of the 2231 from monitor program, is as follows;

1. Connect a terminal or computer to the 2231 Sound Level Meter using the Interface Module.
2. Set the terminal or computer and the Interface Module to the same baud rate and set the echo function as required. If a terminal is used in full-duplex mode, then the echo function of the Interface Module should be on, so that data sent to the 2231 is also sent to the terminal screen by the 2231. For half-duplex operation, the echo should be off. The factory-set baud rate for the Interface Module is 1200 baud without echo.
3. If using a terminal, set its " CAPS LOCK" key to "on"
4. Set the Load/Run to Load
5. Press and release Module No.... and the display now shows M-Mo
6. Set the Load/Run to Run and the monitor now transmits;
   2231 MONITOR [Bel] [Bel] [Bel]
   [Bel] [Bel] [Bel] [Bel] [Bel]
   [CR] [LF]
   : [CR]

A.2 SA-25 RION Real-Time Analyzer

1. Connect microphone to preamplifier and analyzer
2. Turn the power and CRT button **on**
3. Adjust **CRT density**
4. Setting input signal mode from **Preamplifier**
5. Set sensitivity at **-20 dB/Pa**
6. Set frequency range and 1/1 octave band filter
7. Set time constant at **slow** mode
8. Calibrate microphone using acoustic calibrator
9. Set **manual/auto** to store data during measurement

A.3 Equipment Diagram

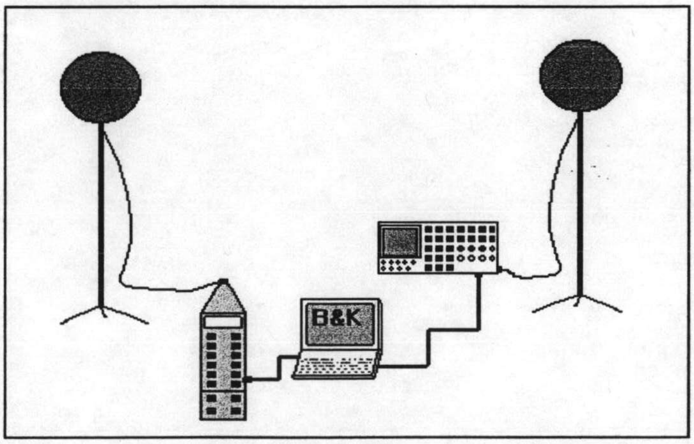


Figure A.3 Equipments Occupied during the noise measurement.

Appendix B
Measured SPL Data

B.1 Sound Pressure Level (SPL) of noise source in decibels.

Table B.1(a) Sound Pressure Level of Cooling tower.

Cooling Tower noise level from Rayong Power Plant — Full operation

Pos.no.	63	125	250	500	1000	2000	4000	8000	SPL
1	59.2	62.7	65.2	72.6	74.5	76	74.6	75.1	81.9
2	59.2	62.6	65.7	72.5	74.9	75	76.2	75.3	82.1
3	59.4	63	66.3	72.3	75.2	75.5	76.8	76	82.6
4	59.3	63	66.8	72.5	75	75.2	76.4	75.6	82.3
5	52.6	61.1	58.3	57.8	59.5	59.2	58.1	54.6	67.3
6	59.1	63.2	66.4	72.1	75	74.9	76.2	75.3	82.1
7	58.7	62.2	64.8	72.1	74.8	74.8	76.1	75.3	81.9
8	58.4	61.6	64.8	71.8	74.4	74.5	75.8	74.8	81.6
9	58.4	61.7	64.8	72.1	74.5	76.1	75.2	47.8	80.9
10	53.5	50.6	53.1	52.1	50.8	51.6	51.4	48.9	60.7
11	63.1	65.9	66.7	68	66.2	64.7	62.7	58.1	74.2
12	63.4	65	66	67	66.1	64.2	62.8	58.4	73.7
13	63.8	68.1	70	71.4	70.3	66.8	63.8	59.3	77.1
14	62.8	65.9	64.5	66.6	66.4	64.2	62.6	59.1	73.6
15	63.7	64.8	65.2	69	69.1	66.5	65.2	61.6	75.3
16	63.7	66.2	65.7	68.7	67.8	64.7	63.1	58.5	74.7
17	62.9	66.8	65.7	70.4	71.2	67.2	69.2	59.6	76.9
18	61	66.6	64.2	65.3	64	59.9	56.9	52.9	72.0
Sum	73.3	76.5	77.9	82.6	84.5	84.7	85.2	83.9	91.7

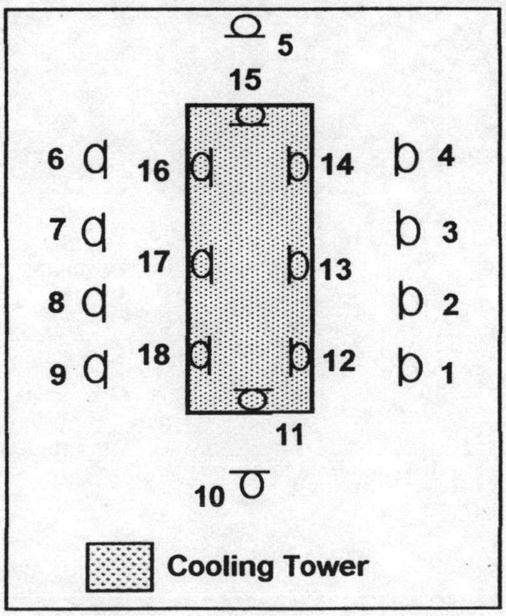


Figure B.1(a) Measurement Position of Cooling Tower.

Table B.1(b) Sound Pressure Level of Air Inlet.

Air inlet noise level from Rayong Power Plant Full operation

Pos.no.	63	125	250	500	1000	2000	4000	8000	SPL
1	44.1	51.9	60	66.1	67.7	69.7	68	55.7	74.34
2	43.6	43.9	48.8	51.3	50.9	50.2	47.4	35.7	57.36
SUM	46.9	52.5	60.3	66.2	67.8	69.7	68.0	55.7	74.4

Table B.1(c) Sound Pressure Level of Cooling Fin Fan.

Cooling fin fan noise level from Rayong Power Plant Full operation

Pos.no.	63	125	250	500	1000	2000	4000	8000	SPL
1	48.2	48.8	51.2	54.3	57.9	57.1	52.8	43.9	67.3
2	46.6	50.6	50.8	54.4	57.1	56.1	51.5	41.6	67.2
3	46.4	50.4	51	52.9	57.6	54.2	50.1	39.8	66.8
4	46.4	50.7	50.1	54.9	58.5	56.4	51.9	42.3	67.8
5	47.4	51.2	53.7	54	58.9	54.1	49.9	40.2	67.6
6	44.9	49.3	52.2	54.1	59.5	54.9	50.3	40.8	67
7	49.9	56.8	55.9	61.1	69.5	62.9	57.6	46.3	75.8
8	49.3	49.3	52.9	59.5	65.9	61.7	57	47.8	72.8
9	47	51	51.8	55	59.8	57.8	52.8	42.9	69.4
10	45.3	53.1	51	54.9	57.3	55.4	50.8	41.6	68
11	47.4	48.3	50.4	54.5	58.2	59	54.8	44.1	69.1
12	47.4	51.5	51.2	54.6	60.1	54.7	49.8	38.9	68.4
13	47.3	51.2	51.3	54.6	61.1	57.3	51.8	41.6	69.7
14	46.6	50.7	51.7	56.4	62.4	62.4	57.8	47.7	71.9
15	45	51	53.1	57.5	64.9	67.1	63.5	54.2	75.2
SUM	59.0	63.2	63.9	67.9	74.2	71.8	67.5	57.7	82.5

Table B.1(d) Sound Pressure Level of Air-Compressor.

Air compressor noise level from Rayong Power Plant Full operation

Pos.no.	63	125	250	500	1000	2000	4000	8000	SPL
1	49.2	56.6	73.6	70.4	70.6	69.1	62	52.9	77.5
2	52.4	54.6	71	72	68.5	68.2	60.4	50.7	76.4
3	48.3	53	68.4	66.2	66.8	67.3	58.7	50.7	73.5
4	51.1	54.3	73.9	67.3	65.3	62.5	56.2	49.2	75.6
5	50.5	58	75.8	72.9	71.4	70.7	64.2	58.2	79.4
6	53.6	56.5	79.6	75.4	74.4	74.4	68.5	59	82.8
Sum	59.0	63.6	82.9	79.6	78.3	77.9	71.3	62.9	86.4

Table B.1(e) Sound Pressure Level of Cooling Fin Fan Motor.

Cooling fin fan motor noise level from Rayong Power Plant Full operation

Pos.no.	63	125	250	500	1000	2000	4000	8000	SPL
1	49.3	55.8	57.9	64.9	70	67.1	60.7	50.3	78.2
2	50.7	49.6	57.2	69.9	75.5	74	67.7	57.2	84.5
3	48.8	48.3	59.9	66.2	74.7	72	66.5	56.8	82.1
4	48.7	49.5	55.9	67.9	72.7	69.6	64.9	55.3	80.8
SUM	55.5	58.0	64.0	73.7	79.7	77.4	71.6	61.6	88.0

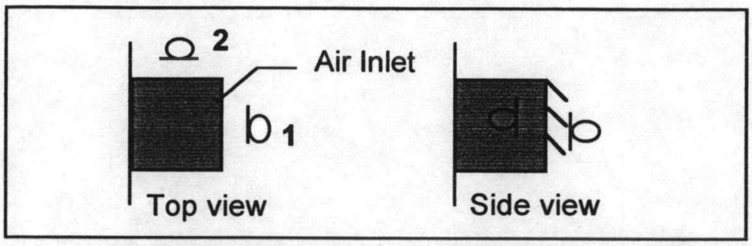


Figure B.1(b) Measurement position of Air Inlet.

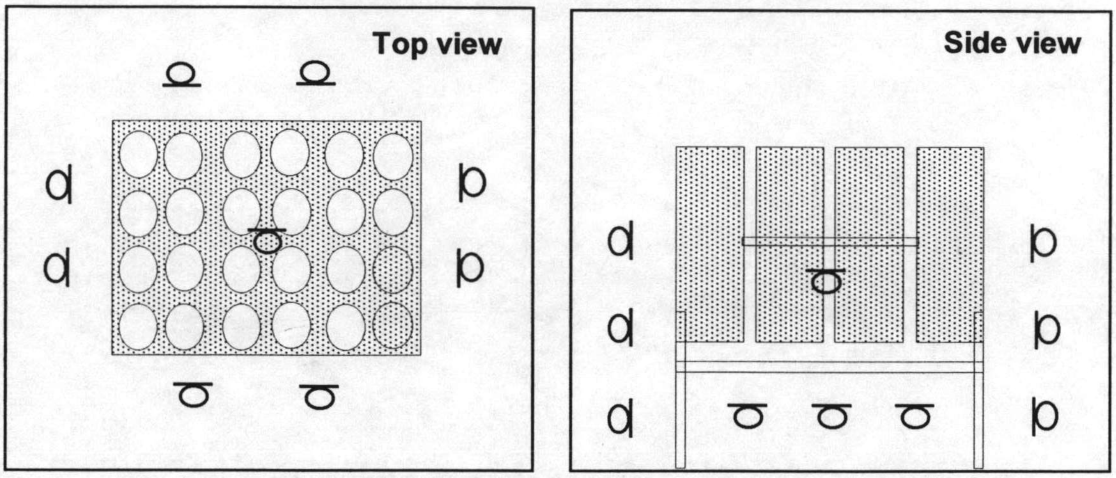


Figure B.1(c) Measurement position of Cooling Fin Fan.

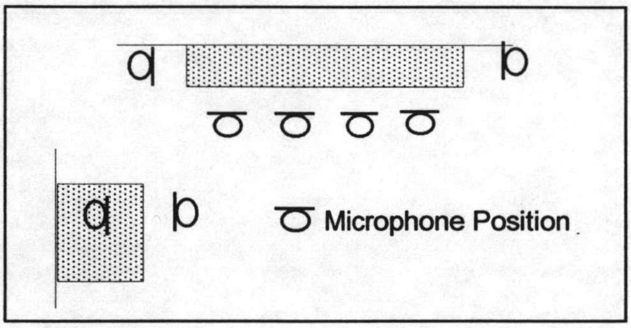


Figure B.1(d) Measurement position of Air-Compressor.

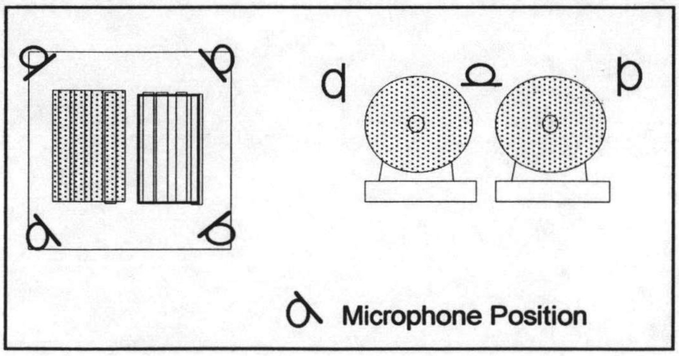


Figure B.1(e) Measurement position of Cooling Fin Fan Motor.

Table B.1(f) Measured SPL of Noise Source of RPP in decibels.

Pos.	X	Y	Z	63	125	250	500	1000	2000	4000	8000	SPL
26	652	2688	1.5	34.0	37.9	39.0	44.1	48.6	45.7	43.2	34.7	52.4
27	1048	2688	1.5	35.1	36.4	39.8	44.2	47.0	46.5	44.0	33.1	52.2
28	1444	2688	1.5	34.6	37.0	41.1	43.3	45.6	48.7	43.4	32.3	52.5
29	1817	2688	1.5	34.4	37.2	43.3	46.1	46.0	46.0	43.0	30.8	52.3
30	2237	2688	1.5	33.7	40.3	46.9	47.8	50.8	49.8	45.3	38.3	55.8
31	2633	2688	1.5	35.2	46.0	56.0	53.4	55.9	51.0	46.7	35.5	60.9
32	3124	2688	1.5	35.5	40.8	51.5	52.5	55.2	51.8	47.6	35.2	59.4
33	3639	2688	1.5	34.8	43.8	49.2	49.6	53.5	48.5	44.7	33.8	57.2
34	4035	2688	1.5	33.1	40.2	46.1	44.4	48.0	45.2	44.1	30.2	53.1
35	4511	2688	1.5	32.5	37.2	42.2	44.8	45.9	46.1	44.1	30.5	52.0
36	5144	2688	1.5	33.0	34.7	37.7	39.5	42.1	47.7	41.4	32.7	50.4
37	4511	2990	1.5	41.5	41.9	44.2	54.0	54.1	52.3	41.7	32.2	58.8
38	3322	2990	1.5	42.6	45.7	46.4	55.8	51.5	52.1	45.7	37.0	59.2
39	2292	2990	1.5	44.2	41.0	46.8	56.1	52.7	55.7	52.6	38.7	60.9
40	1500	2990	1.5	45.3	43.4	47.6	52.6	53.4	55.1	54.0	41.4	60.4
45	1500	4320	1.5	44.4	48.3	48.2	54.6	58.2	55.5	50.7	41.4	62.0
46	2292	4320	1.5	44.1	47.1	48.7	55.9	55.1	55.0	50.7	38.3	61.2
47	3480	4320	1.5	45.4	49.3	49.4	57.1	59.5	57.0	51.7	45.0	63.6
48	4273	4320	1.5	45.1	48.3	48.7	52.0	57.4	57.4	52.7	43.0	62.1
49	4669	4545	1.5	44.0	46.9	53.8	49.5	54.5	52.9	52.0	41.9	60.2
50	4312	4545	1.5	44.5	57.7	51.4	50.2	55.5	53.8	50.7	43.9	62.0
52	3480	4545	1.5	45.6	49.4	49.7	51.0	58.2	54.8	51.1	43.8	61.6
57	1103	4545	1.5	43.7	48.9	48.8	52.0	58.9	54.6	51.2	45.6	62.0
76	1214	4652	1.5	46.5	49.4	51.3	51.3	54.8	53.4	53.6	50.5	61.0
77	1103	5013	1.5	45.0	45.9	48.8	48.8	50.2	49.5	50.5	49.0	57.8
78	2046	4606	1.5	43.1	48.5	51.1	51.6	55.4	54.0	54.8	51.8	61.5
79	3727	4606	1.5	46.9	52.1	51.5	52.8	54.6	52.2	49.1	43.5	60.4
80	5024	3508	1.5	42.7	52.7	56.0	50.7	51.3	52.4	48.7	40.2	60.5
81	5142	3508	1.5	42.8	48.6	54.4	53.1	53.6	53.9	49.0	39.6	60.5
82	907	3481	1.5	41.2	51.9	53.6	51.7	61.1	58.6	54.7	46.5	64.6
83	749	3481	1.5	41.5	52.5	57.1	54.2	60.9	57.0	53.1	44.9	64.7
84	974	3748	1.5	45.0	45.7	49.8	56.6	64.8	63.9	59.8	52.4	68.6
85	974	3928	1.5	39.9	43.8	47.2	51.8	57.4	62.5	56.2	49.3	64.9
86	974	4159	1.5	45.4	49.2	50.8	51.4	58.7	59.5	53.8	45.6	63.6
87	1112	4159	1.5	56.9	61.2	65.2	71.3	73.1	69.0	61.7	50.5	76.9
88	1191	4159	1.5	54.9	54.4	56.1	63.1	62.8	61.3	55.8	45.6	68.3
89	1270	4159	1.5	51.6	58.0	56.7	60.5	62.7	60.7	55.2	43.6	67.6
90	1270	3928	1.5	54.6	55.1	59.6	58.4	58.9	58.7	53.3	43.9	66.0
91	1270	3748	1.5	39.2	39.8	49.1	49.6	51.3	50.1	45.2	34.4	56.7
92	1350	4159	1.5	44.0	53.5	52.6	54.5	48.3	54.6	48.6	33.0	60.6
93	1429	4159	1.5	48.7	55.5	53.4	56.5	55.6	57.9	53.6	38.5	63.6
94	2214	4159	1.5	57.6	64.3	63.8	62.1	61.9	60.9	55.7	46.0	70.2
95	2214	3928	1.5	50.4	56.2	65.2	61.3	62.6	60.2	55.4	46.4	69.3
96	2214	3748	1.5	55.2	57.8	59.0	58.2	62.2	63.2	54.4	44.9	68.1
97	2293	4159	1.5	49.3	58.0	57.8	61.6	65.9	65.6	60.5	49.4	70.6
98	2372	4159	1.5	44.4	60.2	65.5	66.5	69.5	69.4	64.4	56.6	74.8
99	2399	4159	1.5	52.7	61.8	61.3	62.1	65.3	66.7	62.9	52.7	71.7
100	2479	4159	1.5	51.0	56.4	59.1	58.4	62.0	61.2	58.9	47.6	67.6
101	2479	3928	1.5	49.1	53.3	54.3	56.5	63.8	67.0	64.7	52.5	70.6
102	2479	3748	1.5	52.5	55.9	59.6	63.7	69.1	70.6	68.7	56.7	75.0
103	2558	4159	1.5	52.7	61.3	61.1	62.6	64.0	65.8	62.1	50.4	71.0
104	2637	4159	1.5	43.0	52.1	56.6	58.1	61.8	63.6	58.3	45.6	67.6
105	3439	4159	1.5	52.1	58.6	59.5	63.9	63.0	63.9	57.6	46.9	69.7
106	3518	4159	1.5	49.7	56.8	56.6	56.9	61.1	59.4	53.1	44.4	65.9
107	3597	4159	1.5	53.8	57.6	57.5	61.8	62.4	61.4	55.9	45.7	68.1
108	3597	3928	1.5	52.9	59.9	62.7	62.3	66.6	64.8	58.2	50.7	71.2
109	3597	3748	1.5	57.9	57.1	61.8	60.9	65.2	65.1	57.6	46.5	70.4
110	4291	3748	1.5	58.6	60.3	68.0	69.5	71.3	70.7	63.5	52.2	76.5
111	4291	3928	1.5	54.4	59.0	64.1	65.9	66.9	55.5	59.4	48.7	71.4
112	4291	4159	1.5	47.8	56.0	60.1	63.2	64.2	64.4	57.3	46.4	69.8
113	4350	4159	1.5	53.8	60.6	64.9	66.0	66.9	65.7	61.1	49.1	72.7
114	4429	4159	1.5	57.5	61.5	62.5	67.0	70.4	71.0	66.3	53.2	75.7

Table B.1(f) Measured SPL of Noise Source of RPP in decibels.(Cont.)

Pos.	X	Y	Z	63	125	250	500	1000	2000	4000	8000	SPL
115	4519	4159	1.5	63.0	64.5	64.3	68.6	67.0	67.2	64.2	52.0	74.4
116	4588	4159	1.5	55.9	64.8	65.4	67.6	65.5	67.5	64.3	50.2	73.9
117	4519	3928	1.5	53.3	53.1	59.8	64.6	66.1	69.0	65.4	56.1	73.0
118	4519	3748	1.5	53.9	56.2	62.9	67.9	68.2	68.1	65.2	56.3	74.1
120	3417	5112	1.5	59.2	62.6	65.7	72.5	74.9	75.0	76.2	75.3	82.1
123	3005	5559	1.5	52.6	61.1	58.3	57.8	59.5	59.2	58.1	54.6	67.3
125	3037	5130	1.5	58.7	62.2	64.8	72.1	74.8	74.8	76.1	75.3	81.9
127	3243	4760	1.5	58.4	61.7	64.8	72.1	74.5	76.1	75.2	47.8	80.9
128	3630	4697	1.5	53.5	50.6	53.1	52.1	50.8	51.6	51.4	48.9	60.7
129	907	3527	1.5	50.3	54.8	53.3	56.9	65.2	62.9	58.7	50.7	68.6
130	939	3572	1.5	49.2	53.0	51.1	52.1	61.3	60.4	55.0	46.5	65.3
132	739	3518	1.5	51.8	54.8	56.5	59.2	65.9	72.5	69.3	61.8	75.2
134	739	3463	1.5	49.5	51.7	50.8	54.4	58.4	63.1	59.5	51.7	66.4
135	3005	3527	1.5	54.7	58.5	55.7	59.0	65.4	68.0	66.1	59.4	72.3
136	3037	3572	1.5	52.3	56.7	55.3	58.9	62.8	64.9	58.8	48.9	68.8
138	3037	3518	1.5	53.8	57.9	57.4	61.0	67.0	72.6	67.7	60.5	75.2
140	3037	3463	1.5	53.4	57.5	56.0	58.3	63.0	66.3	63.7	55.0	70.3
141	3306	3391	1.5	71.5	51.1	55.2	55.6	58.5	59.6	59.9	59.1	72.6
142	3425	3391	1.5	50.2	49.2	53.9	54.6	57.8	59.7	61.7	59.1	66.6
143	3560	3391	1.5	50.0	52.1	51.8	54.4	58.0	58.8	61.6	58.0	66.2
144	3679	3391	1.5	50.0	51.5	53.1	53.3	55.6	56.2	56.5	53.2	63.2
145	3797	3391	1.5	46.6	54.5	61.1	57.5	59.8	62.2	61.9	57.5	68.4
146	3916	3391	1.5	48.4	59.6	63.0	63.2	63.3	68.0	68.2	63.1	73.5
147	4748	3391	1.5	56.3	46.9	51.8	50.8	54.4	55.4	57.4	56.9	63.8
148	4614	3391	1.5	46.2	50.6	52.0	51.1	54.4	59.7	64.2	58.2	66.9
149	4415	3391	1.5	53.4	46.2	48.5	52.0	52.4	54.5	55.4	53.7	61.8
150	4297	3391	1.5	43.6	52.3	60.3	55.9	55.6	57.6	59.9	55.3	65.9
151	3370	3888	1.5	51.8	55.2	63.4	67.9	72.5	74.6	70.0	61.4	78.3
152	3370	3978	1.5	52.3	55.5	61.5	67.6	73.0	74.9	69.9	62.2	78.4
153	3370	4068	1.5	51.7	57.0	62.3	65.8	71.8	73.4	68.6	59.7	77.1
154	3370	4158	1.5	49.4	55.1	61.3	64.0	68.0	71.1	65.9	57.2	74.5
155	3425	3978	1.5	64.6	70.1	71.7	78.8	77.9	78.9	74.1	65.9	84.4
176	3148	3870	1.5	49.3	55.8	57.9	64.9	70.0	67.1	60.7	50.3	73.1
177	3179	3861	1.5	49.3	49.3	52.9	59.5	65.9	61.7	57.0	47.8	68.6
190	3623	3427	1.5	58.1	59.9	64.4	64.7	65.3	66.5	59.5	50.2	72.1
191	3631	3427	1.5	57.8	62.5	67.5	66.7	70.2	70.4	63.5	55.0	75.6
192	3639	3427	1.5	55.1	58.4	64.3	65.3	68.4	70.7	65.0	50.7	74.6
193	3694	3427	1.5	46.8	56.6	61.3	60.5	64.2	68.0	60.4	52.3	71.2
194	3702	3427	1.5	56.4	67.3	71.7	71.1	67.2	66.3	60.8	51.5	76.5
195	3758	3427	1.5	53.9	56.7	64.3	60.5	61.2	61.4	55.7	45.9	68.8
196	3766	3427	1.5	54.1	59.3	63.7	64.1	65.5	66.7	61.7	53.6	72.0
197	3774	3427	1.5	47.4	55.9	63.1	65.7	69.6	72.1	68.3	62.5	76.0
198	3782	3427	1.5	45.2	52.1	54.3	55.9	59.5	60.0	54.6	47.3	64.9
199	3790	3427	1.5	44.0	52.3	52.8	55.1	56.8	57.3	51.5	44.0	62.8
200	3797	3427	1.5	40.7	54.3	50.2	47.8	50.7	53.2	47.7	39.1	59.2
201	3805	3427	1.5	41.2	48.0	48.4	48.1	49.5	50.4	46.4	37.3	56.6
202	3813	3427	1.5	43.2	44.9	49.3	50.5	55.0	49.4	47.4	35.8	58.5
203	961	3391	1.5	71.5	51.1	55.2	55.6	58.5	59.6	59.9	59.1	72.6
204	1103	3391	1.5	50.2	49.2	53.9	54.6	57.8	59.7	61.7	59.1	66.6
205	1222	3391	1.5	50.0	52.1	51.8	54.4	58.0	58.8	61.6	58.0	66.2
206	1341	3391	1.5	50.0	51.5	53.1	53.3	55.6	56.2	56.5	53.2	63.2
207	1500	3391	1.5	46.6	54.5	61.1	57.5	59.8	62.2	61.9	57.5	68.4
208	1658	3391	1.5	48.4	59.6	63.0	63.2	63.3	68.0	68.2	63.1	73.5
209	1856	3391	1.5	56.3	46.9	51.8	50.8	54.4	55.4	57.4	56.9	63.8
210	1975	3391	1.5	46.2	50.6	52.0	51.1	54.4	59.7	64.2	58.2	66.9
211	2094	3391	1.5	53.4	46.2	48.5	52.0	52.4	54.5	55.4	53.7	61.8
212	2213	3391	1.5	43.6	52.3	60.3	55.9	55.6	57.6	59.9	55.3	65.9

Table B.1(f) Measured SPL of Noise Source of RPP in decibels.(Cont.)

Pos.	X	Y	Z	63	125	250	500	1000	2000	4000	8000	SPL
213	1500	2827	1.5	61.5	66.4	69.8	69.6	69.3	69.6	64.4	53.1	76.5
214	1539	3427	1.5	55.1	58.4	64.3	65.3	68.4	70.7	65.0	50.7	74.6
215	1658	3427	1.5	53.9	56.7	64.3	60.5	61.2	61.4	55.7	45.9	68.8
216	1714	3427	1.5	44.0	52.3	52.8	55.1	56.8	57.3	51.5	44.0	62.8
217	1753	3427	1.5	43.2	44.9	49.3	50.5	55.0	49.4	47.4	35.8	58.5
218	588	5112	1.5	59.2	62.6	65.7	72.5	74.9	75.0	76.2	75.3	82.1
219	592	5559	1.5	52.6	61.1	58.3	57.8	59.5	59.2	58.1	54.6	67.3
220	945	5130	1.5	58.7	62.2	64.8	72.1	74.8	74.8	76.1	75.3	81.9
221	755	4760	1.5	58.4	61.7	64.8	72.1	74.5	76.1	75.2	47.8	80.9
222	1214	4697	1.5	53.5	50.6	53.1	52.1	50.8	51.6	51.4	48.9	60.7
223	1484	5112	1.5	59.2	62.6	65.7	72.5	74.9	75.0	76.2	75.3	82.1
224	1397	5559	1.5	52.6	61.1	58.3	57.8	59.5	59.2	58.1	54.6	67.3
225	1822	5130	1.5	58.7	62.2	64.8	72.1	74.8	74.8	76.1	75.3	81.9
226	1935	4760	1.5	58.4	61.7	64.8	72.1	74.5	76.1	75.2	47.8	80.9
227	1975	4697	1.5	53.5	50.6	53.1	52.1	50.8	51.6	51.4	48.9	60.7
228	3885	5112	1.5	59.2	62.6	65.7	72.5	74.9	75.0	76.2	75.3	82.1
229	3996	5559	1.5	52.6	61.1	58.3	57.8	59.5	59.2	58.1	54.6	67.3
230	4368	5130	1.5	58.7	62.2	64.8	72.1	74.8	74.8	76.1	75.3	81.9
231	4582	4760	1.5	58.4	61.7	64.8	72.1	74.5	76.1	75.2	47.8	80.9
232	4471	4697	1.5	53.5	50.6	53.1	52.1	50.8	51.6	51.4	48.9	60.7

Table B.2 Measured SPL of Immission Point of RPP in Decibels.

Pos.No.	X	Y	Z	63	125	250	500	1000	2000	4000	8000	SPL
1	5144	2563	1.5	32.8	34.9	31.8	37.6	39.1	39.5	36.6	29.3	45.4
2	4511	2563	1.5	34.0	35.4	35.0	40.8	41.4	43.4	41.0	29.3	48.5
3	3718	2563	1.5	34.2	38.4	36.1	42.0	42.1	42.8	38.9	40.7	49.3
4	2926	2563	1.5	37.5	52.6	59.9	62.8	60.9	55.4	47.4	34.0	66.7
5	2134	2563	1.5	34.4	37.5	37.3	40.2	42.7	43.4	39.7	31.6	48.8
6	1341	2563	1.5	35.1	37.3	38.1	41.6	46.2	44.3	41.0	30.4	50.5
7	5382	2909	1.5	33.6	35.0	34.9	39.4	42.0	42.3	39.7	29.3	47.8
8	6254	1586	1.5	32.8	34.9	31.8	37.6	39.1	39.5	36.6	34.0	45.6
9	5461	1450	1.5	35.4	35.0	40.8	41.4	43.4	41.0	29.3	34.2	48.5
10	4946	1483	1.5	38.4	36.1	42.0	42.1	42.8	38.9	40.7	37.5	49.4
11	4669	796	1.5	52.6	59.9	62.8	60.9	55.4	47.4	34.0	34.4	66.7
12	3877	796	1.5	37.5	37.3	40.2	42.7	43.4	39.7	31.6	35.1	48.8
13	3084	796	1.5	37.3	38.1	41.6	46.2	44.3	41.0	30.4	33.6	50.4
14	2292	1031	1.5	35.0	34.9	39.4	42.0	42.3	39.7	29.3	29.3	47.7
15	1975	1483	1.5	36.2	33.9	40.5	38.9	37.8	35.4	41.5	29.3	47.0
16	1204	1473	1.5	30.2	35.5	35.0	39.1	38.7	39.6	34.7	29.3	45.6
17	1204	2286	1.5	31.0	36.7	34.5	44.8	39.9	40.9	36.3	29.3	48.2
19	303	2127	1.5	32.3	35.8	41.5	47.8	43.9	45.4	36.8	34.2	51.7
20	7165	2909	1.5	29.8	32.7	36.6	34.3	37.2	45.0	36.7	34.1	47.3
21	6254	2909	1.5	33.2	39.0	39.1	38.8	41.0	39.0	34.8	29.3	47.0
22	6254	3391	1.5	32.7	34.2	33.2	33.2	36.6	36.9	38.8	34.2	44.5
23	7165	1089	1.5	29.3	31.1	30.8	40.2	38.5	37.7	29.3	29.3	44.5
24	6320	4294	1.5	35.0	36.4	44.5	45.0	49.0	53.7	44.8	29.3	56.2
25	5342	4294	1.5	41.7	45.7	49.0	52.2	57.7	53.7	48.8	37.5	60.8
26	652	2688	1.5	34.0	37.9	39.0	44.1	48.6	45.7	43.2	34.7	52.4
27	1048	2688	1.5	35.1	36.4	39.8	44.2	47.0	46.5	44.0	33.1	52.2
28	1444	2688	1.5	34.6	37.0	41.1	43.3	45.6	48.7	43.4	32.3	52.5
29	1817	2688	1.5	34.4	37.2	43.3	46.1	46.0	46.0	43.0	30.8	52.3
30	2237	2688	1.5	33.7	40.3	46.9	47.8	50.8	49.8	45.3	38.3	55.8
31	2633	2688	1.5	35.2	46.0	56.0	53.4	55.9	51.0	46.7	35.5	60.9
32	3124	2688	1.5	35.5	40.8	51.5	52.5	55.2	51.8	47.6	35.2	59.4
33	3639	2688	1.5	34.8	43.8	49.2	49.6	53.5	48.5	44.7	33.8	57.2
34	4035	2688	1.5	33.1	40.2	46.1	44.4	48.0	45.2	44.1	30.2	53.1
35	4511	2688	1.5	32.5	37.2	42.2	44.8	45.9	46.1	44.1	30.5	52.0
36	5144	2688	1.5	33.0	34.7	37.7	39.5	42.1	47.7	41.4	32.7	50.4
37	4511	2990	1.5	41.5	41.9	44.2	54.0	54.1	52.3	41.7	32.2	58.8
38	3322	2990	1.5	42.6	45.7	46.4	55.8	51.5	52.1	45.7	37.0	59.2
39	2292	2990	1.5	44.2	41.0	46.8	56.1	52.7	55.7	52.6	38.7	60.9
40	1500	2990	1.5	45.3	43.4	47.6	52.6	53.4	55.1	54.0	41.4	60.4
41	628	4545	1.5	44.2	47.9	48.9	54.4	56.7	55.4	50.1	42.5	61.4
42	472	4590	1.5	45.0	48.4	47.0	51.8	55.3	54.7	53.4	49.2	60.9
43	432	5422	1.5	47.1	50.4	50.1	52.6	58.8	57.7	56.5	56.1	64.2
44	472	5780	1.5	43.2	45.0	42.6	55.2	56.7	51.7	47.1	40.3	60.3
45	1500	4320	1.5	44.4	48.3	48.2	54.6	58.2	55.5	50.7	41.4	62.0
46	2292	4320	1.5	44.1	47.1	48.7	55.9	55.1	55.0	50.7	38.3	61.2
47	3480	4320	1.5	45.4	49.3	49.4	57.1	59.5	57.0	51.7	45.0	63.6
48	4273	4320	1.5	45.1	48.3	48.7	52.0	57.4	57.4	52.7	43.0	62.1
49	4669	4545	1.5	44.0	46.9	53.8	49.5	54.5	52.9	52.0	41.9	60.2
50	4312	4545	1.5	44.5	57.7	51.4	50.2	55.5	53.8	50.7	43.9	62.0
51	3877	4545	1.5	45.9	51.0	49.7	51.2	54.2	53.7	50.0	45.9	60.1
52	3480	4545	1.5	45.6	49.4	49.7	51.0	58.2	54.8	51.1	43.8	61.6
53	3084	4545	1.5	45.2	49.6	51.0	50.4	55.5	54.7	52.2	46.2	60.9
54	2688	4545	1.5	43.0	48.5	49.9	48.4	53.7	52.9	49.0	38.2	58.9
55	2292	4545	1.5	43.2	46.9	48.9	48.5	57.3	52.8	46.9	37.7	60.0
56	1896	4545	1.5	43.9	48.0	48.1	50.0	56.5	53.4	49.7	44.2	60.2
57	1103	4545	1.5	43.7	48.9	48.8	52.0	58.9	54.6	51.2	45.6	62.0
60	6730	5377	1.5	25.0	31.3	33.1	27.1	25.9	18.5	15.0	10.0	40.9
62	2371	5780	1.5	32.9	40.2	37.7	37.5	37.3	38.1	35.8	32.1	51.8

Table B.2 Measured SPL of Immission Point of RPP in Decibels. (Cont.)

Pos.No.	X	Y	Z	63	125	250	500	1000	2000	4000	8000	SPL
63	1500	5780	1.5	37.8	45.4	49.2	49.4	46.5	42.7	42.1	40.2	58.7
68	1937	2286	1.5	35.3	39.5	45.9	43.7	40.0	34.1	29.4	20.6	54.0
70	6967	2353	1.5	43.4	53.0	54.3	49.5	47.2	40.0	34.6	27.3	61.1
71	6927	1947	1.5	43.9	49.4	47.8	50.6	50.5	51.7	52.5	46.0	63.6
72	6135	4926	1.5	44.2	49.9	50.0	47.2	46.2	43.2	38.4	26.2	60.0
73	5699	4881	1.5	44.0	53.3	53.8	52.2	50.2	47.5	38.9	28.6	62.6
74	5105	4606	1.5	36.1	48.0	51.4	52.5	47.2	45.0	44.5	34.8	62.9
76	1214	4652	1.5	46.5	49.4	51.3	51.3	54.8	53.4	53.6	50.5	65.9
78	2046	4606	1.5	43.1	48.5	51.1	51.6	55.4	54.0	54.8	51.8	66.2
79	3727	4606	1.5	46.9	52.1	51.5	52.8	54.6	52.2	49.1	43.5	65.4
86	974	4159	1.5	45.4	49.2	50.8	51.4	58.7	59.5	53.8	45.6	68.1
87	1112	4159	1.5	56.9	61.2	65.2	71.3	73.1	69.0	61.7	50.5	81.5
88	1191	4159	1.5	54.9	54.4	56.1	63.1	62.8	61.3	55.8	45.6	72.8
89	1270	4159	1.5	51.6	58.0	56.7	60.5	62.7	60.7	55.2	43.6	72.7
92	1350	4159	1.5	44.0	53.5	52.6	54.5	48.3	54.6	48.6	33.0	63.6
93	1429	4159	1.5	48.7	55.5	53.4	56.5	55.6	57.9	53.6	38.5	68.0
94	2214	4159	1.5	57.6	64.3	63.8	62.1	61.9	60.9	55.7	46.0	74.8
97	2293	4159	1.5	49.3	58.0	57.8	61.6	65.9	65.6	60.5	49.4	76.1
98	2372	4159	1.5	44.4	60.2	65.5	66.5	69.5	69.4	64.4	56.6	79.4
99	2399	4159	1.5	52.7	61.8	61.3	62.1	65.3	66.7	62.9	52.7	77.2
100	2479	4159	1.5	51.0	56.4	59.1	58.4	62.0	61.2	58.9	47.6	72.6
103	2558	4159	1.5	52.7	61.3	61.1	62.6	64.0	65.8	62.1	50.4	76.3
104	2637	4159	1.5	43.0	52.1	56.6	58.1	61.8	63.6	58.3	45.6	73.1
105	3439	4159	1.5	52.1	58.6	59.5	63.9	63.0	63.9	57.6	46.9	74.1
106	3518	4159	1.5	49.7	56.8	56.6	56.9	61.1	59.4	53.1	44.4	70.5
107	3597	4159	1.5	53.8	57.6	57.5	61.8	62.4	61.4	55.9	45.7	73.0
112	4291	4159	1.5	47.8	56.0	60.1	63.2	64.2	64.4	57.3	46.4	75.1
113	4350	4159	1.5	53.8	60.6	64.9	66.0	66.9	65.7	61.1	49.1	77.5
114	4429	4159	1.5	57.5	61.5	62.5	67.0	70.4	71.0	66.3	53.2	81.2
115	4519	4159	1.5	63.0	64.5	64.3	68.6	67.0	67.2	64.2	52.0	79.9
116	4588	4159	1.5	55.9	64.8	65.4	67.6	65.5	67.5	64.3	50.2	78.8
123	3005	5559	1.5	52.6	61.1	58.3	57.8	59.5	59.2	58.1	54.6	67.3
128	3630	4697	1.5	53.5	50.6	53.1	52.1	50.8	51.6	51.4	48.9	60.7
154	3370	4158	1.5	49.4	55.1	61.3	64.0	68.0	71.1	65.9	57.2	79.1

Table B.3 Measured SPL inside the main building in decibels of first floor.

Pos.No.	X	Y	Z	63	125	250	500	1000	2000	4000	8000	SPL
2	-754.1	68.3	1.5	41.7	46.1	51.0	52.2	59.0	64.5	60.8	55.0	74.4
3	-671.4	68.3	1.5	43.0	47.8	54.2	53.8	57.3	65.6	62.5	57.9	76.1
4	-588.7	68.3	1.5	41.6	48.3	53.8	54.5	55.7	62.4	58.6	53.4	71.1
5	-506.1	68.3	1.5	39.4	48.3	52.1	52.4	57.3	62.3	56.4	50.6	70.0
6	-423.4	68.3	1.5	41.5	46.7	50.0	53.3	60.5	66.7	60.7	55.1	74.0
7	-340.7	68.3	1.5	41.9	48.0	51.5	54.1	58.8	68.4	63.2	57.6	78.6
8	-258.0	68.3	1.5	43.4	48.8	53.1	54.4	59.1	65.4	59.1	54.3	76.4
9	-175.4	68.3	1.5	41.8	49.1	52.8	56.5	62.5	66.3	58.6	50.9	74.4
10	-92.7	147.5	1.5	52.0	62.3	63.9	67.2	72.6	76.5	69.5	60.0	84.7
11	-92.7	75.3	1.5	49.9	62.5	64.4	66.7	72.4	76.1	67.9	59.2	84.0
12	10.0	10.2	1.5	42.3	52.5	59.1	60.9	65.3	68.7	60.9	52.3	76.7
13	93.1	10.2	1.5	44.5	54.5	61.8	62.0	64.8	66.2	59.3	52.1	75.6
14	176.2	10.2	1.5	45.0	53.2	62.6	62.2	65.6	63.3	67.6	49.2	74.0
15	259.2	10.2	1.5	42.8	50.3	60.7	59.6	61.5	60.3	55.7	45.8	71.6
16	342.3	10.2	1.5	41.4	50.7	58.2	60.0	62.9	60.7	56.7	47.8	71.6
17	425.3	10.2	1.5	51.2	59.7	68.3	70.1	71.3	72.7	68.7	60.8	82.5
18	508.4	10.2	1.5	48.3	59.4	66.0	69.3	72.3	75.0	71.5	65.0	84.0
19	591.5	10.2	1.5	47.3	59.4	64.4	68.3	73.3	77.0	73.8	67.5	85.8
20	674.5	31.8	1.5	47.2	56.0	61.0	65.4	69.7	72.0	68.8	61.8	81.2
21	757.6	31.8	1.5	48.9	56.9	61.8	64.1	69.5	72.0	68.7	62.0	81.0
22	840.7	31.8	1.5	48.6	55.5	61.4	65.5	67.5	70.2	66.7	61.5	79.9
23	923.7	31.8	1.5	45.5	52.8	59.1	60.8	65.1	68.1	64.0	59.3	78.1
24	1006.8	31.8	1.5	43.4	49.5	56.6	59.8	63.1	65.5	61.0	57.5	75.8
25	1089.8	31.8	1.5	40.8	48.1	55.5	60.8	60.9	62.8	60.3	57.9	73.9
26	1172.9	31.8	1.5	50.4	60.1	67.5	73.0	72.7	71.9	66.6	59.4	83.6
27	1256.0	31.8	1.5	43.6	57.2	63.6	71.6	70.5	66.9	60.1	50.0	80.0
28	1339.0	31.8	1.5	39.3	51.2	61.2	67.4	66.7	62.3	55.9	46.1	75.6
30	591.5	75.4	1.5	47.3	58.3	65.6	71.8	77.9	81.0	77.7	72.4	89.8
31	591.5	147.5	1.5	47.8	55.7	66.1	69.5	76.2	80.0	77.9	73.2	88.6
32	591.5	249.0	1.5	57.1	64.5	72.8	77.4	84.0	86.1	84.2	77.4	95.2
33	508.4	249.0	1.5	58.1	68.1	74.2	78.1	84.4	87.8	83.9	77.1	95.4
34	508.4	147.5	1.5	57.2	67.3	77.9	80.3	88.6	90.7	87.5	82.4	98.5
35	425.3	147.5	1.5	60.7	68.0	82.4	82.5	87.1	87.2	83.3	77.1	96.0
36	342.3	147.5	1.5	60.7	69.7	85.5	83.1	87.2	85.1	79.2	71.0	95.0
37	259.2	147.5	1.5	62.5	71.6	79.2	81.8	85.7	86.1	79.5	70.4	94.6
38	176.2	147.5	1.5	53.5	64.3	73.2	73.5	83.5	79.7	72.7	63.9	88.5
39	176.2	249.0	1.5	62.8	71.9	80.6	82.1	85.7	86.4	79.3	69.9	94.8
40	93.1	249.0	1.5	60.4	72.3	79.3	80.8	84.6	89.3	82.0	71.5	96.4
41	10.0	249.0	1.5	53.2	59.2	68.0	70.8	77.8	79.4	73.7	63.2	87.2
42	10.0	147.5	1.5	53.4	61.8	67.2	70.7	78.8	82.8	78.5	69.0	90.3
43	93.1	147.5	1.5	56.2	63.2	70.7	73.4	87.6	83.5	77.4	66.8	91.4
44	10.0	183.4	1.5	53.0	64.0	69.4	72.8	79.6	85.0	78.0	69.3	92.0
45	-754.1	31.8	1.5	49.0	57.1	64.6	63.6	65.6	70.7	68.5	63.0	82.4
46	-713.2	31.8	1.5	49.3	54.6	61.2	61.6	65.9	72.4	68.9	62.2	83.6
47	-671.4	31.8	1.5	49.6	54.6	61.0	63.6	67.9	72.3	69.2	62.9	84.2
48	-630.5	31.8	1.5	57.1	57.1	64.9	63.8	67.4	73.5	69.4	61.7	82.8
49	-588.7	31.8	1.5	49.9	56.4	68.1	65.5	66.2	71.5	67.3	59.0	83.6
50	-547.8	31.8	1.5	50.3	57.6	62.8	64.1	67.1	71.6	65.8	58.5	82.0
51	-506.1	31.8	1.5	45.5	57.5	62.8	64.2	66.7	70.7	67.3	59.1	80.4
52	-465.2	31.8	1.5	59.9	65.1	67.9	71.8	74.2	77.9	73.5	65.2	86.3
53	-423.4	31.8	1.5	62.4	67.1	73.7	74.2	76.5	82.8	77.7	69.8	92.8
54	-382.5	31.8	1.5	54.7	68.9	72.7	73.5	78.6	85.1	79.3	72.2	96.6
55	-340.7	31.8	1.5	55.3	64.4	70.1	68.1	73.8	81.7	76.9	69.0	91.9
56	-299.8	31.8	1.5	57.5	64.3	70.6	71.8	78.0	82.6	78.5	72.1	91.2
57	-258.0	31.8	1.5	54.4	61.0	61.4	63.9	69.7	76.5	70.1	63.4	87.8
58	-217.1	31.8	1.5	49.6	55.4	64.2	65.9	69.3	75.2	68.2	61.4	83.0
59	-175.4	31.8	1.5	51.4	56.2	63.1	64.7	70.6	74.9	67.9	59.8	82.7
60	-134.5	31.8	1.5	59.5	66.8	71.2	74.6	81.4	84.5	78.3	69.6	93.0

Table B.3 Measured SPL inside the main building in decibels of first floor. (Cont.)

Pos.No.	X	Y	Z	63	125	250	500	1000	2000	4000	8000	SPL
61	-92.7	31.8	1.5	56.9	68.8	70.1	73.1	79.1	82.5	74.9	66.3	90.4
62	-92.7	155.3	1.5	57.7	66.4	72.5	73.3	80.1	86.1	78.0	68.9	93.2
63	-92.7	104.7	1.5	57.9	66.9	67.6	70.5	78.2	82.6	74.4	66.3	89.2
64	-754.1	104.7	1.5	54.5	65.1	67.8	69.9	78.3	83.7	80.9	73.4	92.9
65	-754.1	147.5	1.5	53.0	59.9	63.1	68.8	75.8	79.0	77.4	70.0	88.3
66	-754.1	182.7	1.5	58.2	62.3	67.2	69.6	76.0	82.4	79.1	71.7	90.2
67	-713.2	182.7	1.5	62.2	63.7	67.9	69.0	71.4	75.7	75.2	68.4	88.3
68	-671.4	182.7	1.5	61.9	64.7	68.2	70.0	73.3	76.1	74.1	67.4	88.0
69	10.0	183.4	1.5	54.4	64.4	71.9	73.0	81.1	85.8	77.0	70.2	92.6
70	30.0	104.7	1.5	54.3	61.4	69.2	73.6	79.2	84.9	79.3	69.5	91.6
71	113.1	183.4	1.5	57.3	65.2	72.4	79.3	78.3	78.1	73.7	66.8	88.5
72	113.1	68.3	1.5	58.0	67.9	74.1	76.5	78.5	77.2	72.5	67.2	87.8
73	154.7	68.3	1.5	58.7	65.7	74.1	76.0	75.4	75.7	71.4	64.7	86.2
74	196.2	68.3	1.5	65.8	76.3	80.3	81.9	83.2	82.7	78.0	70.6	93.4
75	196.2	183.4	1.5	59.6	68.9	78.4	78.5	80.1	79.9	74.8	67.4	89.7
76	237.5	183.4	1.5	63.7	64.7	75.3	78.8	80.3	79.4	74.6	65.7	89.2
77	279.0	183.4	1.5	54.6	62.0	73.4	72.6	74.7	73.9	68.3	60.9	84.8
78	279.0	68.3	1.5	61.9	71.0	74.9	81.0	81.1	79.9	76.0	68.0	91.3
79	237.5	68.3	1.5	59.7	72.1	79.5	80.4	83.2	82.0	77.2	68.4	93.4
80	320.5	183.4	1.5	64.5	70.6	79.6	82.7	82.0	82.9	79.3	73.8	93.7
81	320.5	68.3	1.5	58.1	65.2	70.4	83.8	75.9	73.7	71.4	64.6	85.3
82	362.1	68.3	1.5	55.1	65.5	71.8	76.6	77.1	75.5	74.5	70.6	87.0
83	403.6	68.3	1.5	63.6	66.1	74.4	76.8	77.1	76.7	76.6	71.7	88.4
84	403.6	183.4	1.5	66.2	67.8	69.9	78.1	79.9	77.4	76.7	73.1	89.2
85	419.6	183.4	1.5	53.0	64.1	65.1	73.2	78.6	84.0	86.1	68.3	91.3
86	419.6	68.3	1.5	55.6	64.4	72.6	75.9	81.6	85.6	75.8	71.0	92.6
91	-588.7	104.7	1.5	45.1	48.6	52.1	55.4	59.0	69.0	65.0	60.9	77.5
95	-620.6	104.7	1.5	40.0	50.3	55.4	64.9	69.4	80.5	79.3	76.8	88.0
97	-565.9	161.6	1.5	56.3	59.4	61.3	67.2	68.0	75.4	69.8	63.4	83.5
100	1278.7	68.4	1.5	56.3	60.5	64.6	67.0	72.8	73.7	71.3	67.0	84.8
101	1320.1	104.7	1.5	53.1	63.2	66.7	68.4	72.8	76.1	71.8	65.5	85.2
102	1320.1	147.5	1.5	49.9	60.5	64.6	69.3	76.4	79.4	74.8	68.3	87.3
103	1320.1	182.7	1.5	49.5	53.0	56.1	63.4	76.4	74.5	71.5	65.3	83.4
104	1239.9	182.7	1.5	50.4	59.6	62.1	68.9	70.3	79.2	75.4	69.1	87.6
105	1156.9	182.7	1.5	54.1	63.7	65.6	69.0	76.9	83.9	75.3	68.8	89.6
106	1278.6	68.4	1.5	48.7	55.8	56.7	60.7	63.7	67.1	62.0	56.8	78.0
107	1239.9	68.4	1.5	48.7	57.6	61.4	74.8	67.0	69.2	64.0	62.0	82.0
108	1198.4	68.4	1.5	51.9	56.4	64.4	61.8	67.0	70.0	67.1	66.6	80.0
109	1156.9	68.4	1.5	59.0	68.0	74.1	74.0	77.1	82.2	76.1	72.0	91.4
110	1115.3	68.4	1.5	49.0	57.8	57.3	62.9	69.5	75.4	64.9	57.9	82.2
111	1073.8	68.4	1.5	56.8	67.4	72.5	75.4	78.3	80.4	73.5	66.2	89.9
112	1032.3	68.4	1.5	59.8	65.5	68.5	75.4	76.2	79.4	74.1	65.6	88.8
113	990.7	68.4	1.5	58.2	68.5	68.0	71.1	73.8	77.2	72.5	63.4	86.8
114	990.7	104.7	1.5	60.4	67.3	70.4	76.4	75.3	78.3	73.4	66.2	88.1
115	990.7	147.5	1.5	60.6	66.3	68.3	74.3	78.9	80.1	75.7	68.8	89.3
116	990.7	182.7	1.5	60.8	68.3	68.9	79.3	80.1	85.3	81.2	73.9	93.4
117	1048.3	161.6	1.5	62.0	67.3	68.7	74.8	75.3	75.9	73.6	63.3	87.2
118	949.2	182.7	1.5	49.7	58.5	62.1	71.4	74.9	79.8	77.3	69.7	88.7
119	866.1	182.7	1.5	53.8	59.8	62.4	70.6	76.2	85.2	79.6	70.8	91.6
120	949.2	68.4	1.5	51.3	60.9	64.1	68.5	71.7	75.3	69.2	60.1	84.2
121	907.7	68.4	1.5	60.5	65.5	70.2	74.5	76.9	78.7	73.3	66.6	88.9
122	866.1	68.4	1.5	56.7	67.0	72.3	71.3	76.3	79.2	75.7	67.0	91.2
123	824.6	68.4	1.5	58.4	69.5	69.5	74.2	76.2	79.8	74.1	66.0	89.4
124	783.1	68.4	1.5	51.8	59.9	61.5	67.0	69.9	71.3	65.8	57.8	81.1
125	741.5	68.4	1.5	48.2	57.2	60.2	64.7	71.1	72.9	65.5	55.4	81.6
126	700.0	68.4	1.5	53.0	57.9	65.0	66.9	70.8	75.5	66.3	57.9	83.0
127	658.5	68.4	1.5	56.8	67.1	72.6	75.1	79.5	83.5	75.7	67.0	91.4
128	616.5	68.4	1.5	57.0	68.8	71.2	73.8	79.3	84.8	74.6	67.3	91.5
129	616.5	104.7	1.5	54.5	62.4	65.8	69.6	75.1	79.4	71.0	62.0	87.2

Table B.3 Measured SPL inside the main building in decibels of first floor. (Cont.)

Pos.No.	X	Y	Z	63	125	250	500	1000	2000	4000	8000	SPL
130	-426.8	104.7	1.5	60.4	67.3	70.4	76.4	75.3	78.3	73.4	66.2	88.1
131	-426.8	147.5	1.5	60.6	66.3	68.3	74.3	78.9	80.1	75.7	68.8	89.3
132	-426.8	182.7	1.5	60.8	68.3	68.9	79.3	80.1	85.3	81.2	73.9	93.4
134	-385.3	182.7	1.5	49.7	58.5	62.1	71.4	74.9	79.8	77.3	69.7	88.7
135	-385.1	182.7	1.5	53.8	59.8	62.4	70.6	76.2	85.2	79.6	70.8	91.6

Table B.3 Measured SPL inside the main building in decibels of second floor.

Pos.No.	X	Y	Z	63	125	250	500	1000	2000	4000	8000	SPL
45	10.0	210.0	6.5	62.8	69.7	77.0	78.5	84.5	89.3	80.5	70.7	91.4
46	10.0	130.0	6.5	53.0	61.6	69.2	71.7	79.5	84.6	76.4	66.8	86.5
47	80.0	130.0	6.5	64.9	72.6	81.3	82.8	87.8	90.1	83.3	74.4	93.5
48	10.0	80.0	6.5	44.7	54.1	60.5	65.0	74.6	78.9	71.2	64.6	81.0
49	10.0	10.0	6.5	41.4	56.2	57.4	58.8	64.5	69.4	60.4	51.7	71.6
50	80.0	10.0	6.5	55.5	62.5	70.4	71.6	76.1	79.1	71.4	64.0	82.2
51	80.0	210.0	6.5	53.9	59.7	70.9	69.9	81.3	79.4	70.0	60.3	84.1
52	190.0	210.0	6.5	51.1	59.7	74.0	69.5	78.7	74.3	67.4	57.8	81.5
53	190.0	130.0	6.5	53.6	64.6	76.8	74.1	78.1	76.7	71.5	63.2	83.1
1	520.0	80.0	6.5	53.9	64.4	70.5	75.3	84.2	89.0	81.0	74.7	91.0
2	520.0	10.0	6.5	51.6	68.8	71.8	74.0	79.0	81.5	72.9	65.6	84.7
3	590.0	10.0	6.5	57.7	66.4	70.1	70.6	75.7	78.2	69.4	60.9	81.5
4	590.0	80.0	6.5	59.4	61.1	70.9	74.5	80.9	85.1	76.1	70.2	87.3
5	590.0	120.0	6.5	54.8	60.7	69.5	75.5	79.6	84.5	75.0	69.8	86.6
6	520.0	120.0	6.5	56.4	63.9	72.9	75.8	81.3	84.8	76.4	69.8	87.4
7	560.0	200.0	6.5	57.3	72.3	78.6	80.6	83.1	88.1	78.6	69.8	90.6
8	450.0	200.0	6.5	56.9	62.6	70.7	71.6	74.7	78.4	70.1	62.4	81.4
9	410.0	150.0	6.5	62.8	67.7	74.8	75.1	77.7	78.8	72.5	65.7	83.6
10	380.0	100.0	6.5	59.6	65.7	75.4	75.8	77.0	77.0	74.1	68.0	83.2
11	300.0	40.0	6.5	52.3	62.9	68.7	75.8	76.5	74.3	71.8	64.6	81.4

Table B.3 Measured SPL inside the main building in decibels of third floor.

Pos.No.	X	Y	Z	63	125	250	500	1000	2000	4000	8000	SPL
55	80.0	80.0	11.5	55.3	61.5	72.0	80.0	83.9	82.2	76.3	73.3	87.7
56	5.0	80.0	11.5	49.8	57.6	58.7	60.6	66.1	70.0	61.4	52.2	72.6
57	5.0	5.0	11.5	51.9	55.2	57.4	60.1	66.4	69.2	61.0	51.2	72.1
58	80.0	5.0	11.5	66.6	74.5	77.0	78.9	83.7	85.6	79.3	68.4	89.3
59	180.0	5.0	11.5	56.5	64.2	68.1	71.7	74.5	75.9	70.6	59.5	80.2
60	275.0	5.0	11.5	55.0	64.1	70.0	71.4	73.9	75.6	71.8	59.1	80.1
61	275.0	80.0	11.5	47.8	55.5	58.2	59.2	63.6	65.3	60.7	47.8	69.5
62	375.0	80.0	11.5	56.0	63.7	67.9	69.8	73.7	76.3	72.2	59.1	80.1
63	375.0	5.0	11.5	65.2	72.9	78.1	78.6	83.4	85.1	81.8	68.7	89.3
64	450.0	5.0	11.5	45.5	52.6	56.5	60.2	64.2	66.4	63.6	50.4	70.5
65	550.0	5.0	11.5	44.3	52.1	57.3	59.8	65.1	66.4	62.9	50.0	70.5
66	630.0	5.0	11.5	53.3	63.2	67.6	69.7	74.8	76.7	73.3	62.4	80.7
67	630.0	80.0	11.5	54.5	64.3	69.2	72.4	75.1	77.9	72.8	64.2	81.6
68	550.0	80.0	11.5	48.9	56.0	72.1	80.1	84.2	84.3	75.7	70.1	88.4
69	630.0	145.0	11.5	46.4	49.8	58.3	62.9	66.6	69.3	68.0	62.1	73.8
70	550.0	145.0	11.5	45.4	55.3	58.9	62.3	66.8	71.5	72.9	64.4	76.4
71	450.0	145.0	11.5	49.1	53.2	57.2	62.6	64.7	66.3	64.6	53.5	71.1
72	375.0	145.0	11.5	59.5	64.7	66.2	69.4	72.9	74.3	49.5	56.4	78.0
73	275.0	145.0	11.5	60.5	67.0	71.3	73.1	74.9	75.6	69.6	58.6	80.7
74	180.0	145.0	11.5	58.3	68.5	70.8	72.1	77.8	77.3	70.3	60.6	82.1
75	80.0	145.0	11.5	58.7	65.2	68.4	70.4	74.6	77.3	69.4	59.0	80.6

Table B.3 Measured SPL inside the main building in decibels of forth floor.

Pos.No.	X	Y	Z	63	125	250	500	1000	2000	4000	8000	SPL
80	515.0	60.0	16.5	54.8	62.8	68.9	75.5	79.6	84.3	79.9	69.6	87.1
81	475.0	60.0	16.5	55.0	64.7	68.6	75.7	82.5	84.4	80.4	69.2	87.9
82	420.0	60.0	16.5	58.3	64.6	68.7	75.4	79.8	82.0	79.9	67.0	86.0
83	380.0	90.0	16.5	53.4	65.1	67.1	76.4	79.1	80.3	76.8	63.9	84.6
84	360.0	60.0	16.5	55.4	63.1	65.4	72.6	77.5	78.9	76.7	63.5	83.2
85	280.0	60.0	16.5	56.4	64.5	66.1	70.1	73.8	74.8	72.1	58.9	79.5
86	245.0	90.0	16.5	55.9	62.0	66.6	71.1	73.4	74.3	70.3	58.1	79.0
87	200.0	60.0	16.5	53.8	65.1	67.9	70.4	74.5	76.6	70.6	58.6	80.3
88	160.0	90.0	16.5	55.9	64.3	69.8	68.2	73.0	76.0	66.4	57.2	79.2
89	130.0	60.0	16.5	58.1	66.5	68.5	69.9	76.6	78.0	69.0	59.9	81.5
90	50.0	60.0	16.5	57.6	66.6	70.7	72.8	82.1	83.1	71.4	63.8	86.2
1	515.0	45.0	16.5	47.0	54.3	58.8	61.6	70.5	77.9	66.2	58.8	79.0
2	515.0	30.0	16.5	43.0	52.3	57.8	58.5	66.2	71.0	60.0	52.8	72.9
3	495.0	90.0	16.5	43.3	55.8	61.6	61.8	68.3	72.7	60.0	52.5	74.8
4	445.0	90.0	16.5	47.8	54.9	57.2	57.3	61.8	64.4	54.1	47.6	67.8
5	280.0	90.0	16.5	47.3	53.6	56.2	58.8	66.4	65.0	54.5	45.8	69.7
6	200.0	90.0	16.5	45.3	54.5	60.4	59.6	68.9	73.0	60.8	53.4	75.0
7	50.0	90.0	16.5	46.2	53.1	58.1	61.4	71.6	77.4	65.1	57.5	78.8
8	50.0	115.0	16.5	41.4	53.1	57.8	57.4	74.7	71.2	59.6	52.0	76.5

Table B.4 Transmission path data of cooling tower

Cl.No.	pos.no.	dsi(m.)	Temp	%RH	Gs	Gi	Gc	Ldi	A/B	lo	Pae	dsc	diame.	Hscr	Lscr	SKR	SKL	IKL	IKR
1	41	84.643	30	70	0.7	0.9	None	None	None	None	None	None	None	None	None	None	None	None	None
1	42	85.761	30	70	0.7	0.9	None	None	None	None	None	None	None	None	None	None	None	None	None
1	43	57.461	30	70	0.2	0.4	None	None	None	None	None	None	None	None	None	None	None	None	None
1	44	94.508	30	70	0	0	None	-5	None	None	None	None	None	None	None	None	None	None	None
1	45	153.5	30	70	0.5	0.8	None	None	None	None	None	None	None	None	None	None	None	None	None
1	57	96.109	30	70	0	0	None	-5	1	1.8	None	None	None	None	None	None	None	None	None
1	63	134.35	30	70	0.8	0.9	None	None	1	1	None	None	None	None	None	None	None	None	None
1	77	52.043	30	70	0	0	None	None	None	None	None	None	None	None	None	None	None	None	None
1	218	22.79	30	70	0.6	0	None	None	None	None	None	None	None	None	None	None	None	None	None
1	219	60.171	30	70	0	0	None	-5	None	None	None	None	None	None	None	None	None	None	None
1	220	26.918	30	70	0.6	0.4	None	None	None	None	None	None	None	None	None	None	None	None	None
1	221	53.541	30	70	0.2	0.1	None	None	None	None	None	None	None	None	None	None	None	None	None
1	222	88.995	30	70	0	0	None	None	1	0.8	None	None	None	None	None	None	None	None	None
1	223	100.82	30	70	0.6	0.8	None	None	None	None	None	None	None	None	None	None	None	None	None
1	224	105	30	70	0.6	0.1	None	None	1	1	None	None	None	None	None	None	None	None	None
2	44	183.34	30	70	0.8	0.9	None	None	None	None	None	None	None	None	None	None	None	None	None
2	45	115.79	30	70	0.8	0.7	None	None	None	None	None	None	None	None	None	None	None	None	None
2	46	144.01	30	70	0	0.6	None	None	None	None	None	None	None	None	None	None	None	None	None
2	54	164.84	30	70	0.8	0.1	None	None	None	None	None	None	None	None	None	None	None	None	None
2	55	121.01	30	70	0.3	0.4	None	None	None	None	None	None	None	None	None	None	None	None	None
2	56	89.567	30	70	0	0	None	None	None	None	None	None	None	None	None	None	None	None	None
2	61	97.269	30	70	0.6	0.9	None	None	None	None	None	None	None	None	None	None	None	None	None
2	62	131.39	30	70	0.6	0.9	None	None	None	None	None	None	None	None	None	None	None	None	None
2	63	88.869	30	70	0.6	0.9	None	None	None	None	None	None	None	None	None	None	None	None	None
2	64	137.43	30	70	0.6	0.9	None	None	1	1	None	None	None	None	None	None	None	None	None
2	77	77.319	30	70	0.6	1	None	None	None	None	None	None	None	None	None	None	None	None	None
2	78	92.267	30	70	0	0	None	-5	0	None	None	None	None	None	None	None	None	None	None
2	219	155.6	30	70	0.7	0.8	None	None	None	None	None	None	None	None	None	None	None	None	None
2	220	96.766	30	70	0.7	1	None	None	None	None	None	None	None	None	None	None	None	None	None
2	222	86.312	30	70	0.6	0.9	None	None	1	0.8	None	None	None	None	None	None	None	None	None
2	223	23.413	30	70	0.6	0	None	None	None	None	None	None	None	None	None	None	None	None	None
2	224	66.035	30	70	0.4	0	None	-5	None	None	None	None	None	None	None	None	None	None	None
2	225	23.714	30	70	0.7	0.6	None	None	None	None	None	None	None	None	None	None	None	None	None
2	226	66.288	30	70	0	0	None	-5	None	None	None	None	None	None	None	None	None	None	None
2	227	76.498	30	70	0	0	None	-5	None	None	None	None	None	None	None	None	None	None	None
3	47	120	30	70	0.4	0.7	None	None	None	None	None	None	None	None	None	None	None	None	None
3	51	123.9	30	70	0	0	None	None	None	None	None	None	None	None	None	None	None	None	None
3	52	91.121	30	70	0	0	None	-5	1	0.8	None	None	None	None	None	None	None	None	None
3	53	84.637	30	70	0.8	0.9	None	None	None	None	None	None	None	None	None	None	None	None	None
3	54	109.24	30	70	0.3	0	None	None	None	None	None	None	None	None	None	None	None	None	None
3	62	143.49	30	70	0.8	0.9	None	None	None	None	None	None	None	None	None	None	None	None	None
3	64	77.246	30	70	0.8	0.7	None	None	None	None	None	None	None	None	None	None	None	None	None
3	65	78.335	30	70	0.8	0.7	None	None	None	None	None	None	None	None	None	None	None	None	None
3	66	74.743	30	70	0.8	1	None	None	None	None	None	None	None	None	None	None	None	None	None
3	67	69.111	30	70	0.8	1	None	None	None	None	None	None	None	None	None	None	None	None	None
3	120	29.449	30	70	0.2	0	None	None	None	None	None	None	None	None	None	None	None	None	None
3	123	62.548	30	70	0.1	0	None	-5	None	None	None	None	None	None	None	None	None	None	None
3	125	23.4	30	70	0.1	0	None	None	None	None	None	None	None	None	None	None	None	None	None
3	127	53.774	30	70	0	0	None	None	None	None	None	None	None	None	None	None	None	None	None
3	128	85.215	30	70	0	0	None	None	None	None	None	None	None	None	None	None	None	None	None
4	25	212.7	30	70	0.8	1	None	None	None	None	None	None	None	None	None	None	None	None	None
4	47	138.16	30	70	0.8	0.9	None	None	None	None	None	None	None	None	None	None	None	None	None
4	48	117.97	30	70	0.8	0.9	None	None	1	0.8	None	None	None	None	None	None	None	None	None
4	49	118.73	30	70	0	0	None	None	1	0.4	None	None	None	None	None	None	None	None	None
4	50	90.45	30	70	0	0	None	-5	1	0.8	None	None	None	None	None	None	None	None	None
4	51	86.315	30	70	0.7	0.9	None	None	None	None	None	None	None	None	None	None	None	None	None
4	74	162.81	30	70	0.8	1	None	None	None	None	None	None	None	None	None	None	None	None	None
4	79	86.785	30	70	0.6	0.8	None	None	None	None	None	None	None	None	None	None	None	None	None
4	120	86.995	30	70	0.8	1	None	None	None	None	None	None	None	None	None	None	None	None	None
4	123	153.96	30	70	0.8	0.8	None	None	None	None	None	None	None	None	None	None	None	None	None
4	228	23.238	30	70	0.8	0.4	None	None	None	None	None	None	None	None	None	None	None	None	None
4	229	56.643	30	70	0.8	0.4	None	None	None	None	None	None	None	None	None	None	None	None	None
4	230	43.715	30	70	0.8	0.4	None	None	None	None	None	None	None	None	None	None	None	None	None
4	231	90.502	30	70	0	0	None	None	None	None	None	None	None	None	None	None	None	None	None
4	232	84.88	30	70	0	0	None	None	1	0.4	None	None	None	None	None	None	None	None	None

Table B.4 Transmission path data of main building

Zone	pos.no.	dsl (m)	Temp	%RH	Gs	Gl	Gc	Ldl	A/B	lo	Pae	dsc	diame.	Scmo.	Hscr	Lscr	SKR	SKL	IKL	IKR
2	1	219.13	30	70	0.4	0.6	None	None	None	None	None	None	None	None	None	None	None	None	None	None
2	2	163.1	30	70	0.4	0.6	None	None	None	None	None	None	None	None	None	None	None	None	None	None
2	3	145.27	30	70	0.4	0.6	None	None	None	None	None	None	None	None	None	None	None	None	None	None
2	4	198.09	30	70	0.4	0.6	None	None	None	None	None	None	None	None	None	None	None	None	None	None
2	7	220.64	30	70	0	0	None	None	None	None	None	None	None	None	None	None	None	None	None	None
2	22	320.09	30	70	0.4	1	None	None	1	0.8	None	None	None	None	None	None	None	None	None	None
2	32	166.96	30	70	0.4	0.1	None	None	None	None	None	None	None	None	None	None	None	None	None	None
2	33	131.31	30	70	0.4	0.1	None	None	None	None	None	None	None	None	None	None	None	None	None	None
2	34	125.92	30	70	0.4	0.1	None	None	None	None	None	None	None	None	None	None	None	None	None	None
2	35	148.29	30	70	0.4	0.1	None	None	None	None	None	None	None	None	None	None	None	None	None	None
2	36	208.34	30	70	0.4	0.1	None	None	None	None	None	None	None	None	None	None	None	None	None	None
2	47	116.41	30	70	0.4	0.5	None	None	None	None	None	None	None	None	None	None	None	None	None	None
2	48	109.37	30	70	0.4	0.5	None	None	None	None	None	None	None	None	None	None	None	None	None	None
2	105	102.06	30	70	0	0	None	None	None	None	None	None	None	None	None	None	None	None	None	None
2	106	95.239	30	70	0	0	None	None	1	1	None	None	None	None	None	None	None	None	None	None
2	107	89.221	30	70	0	0	None	None	1	1	None	None	None	None	None	None	None	None	None	None
2	112	91.271	30	70	0	0	None	None	None	None	None	None	None	None	None	None	None	None	None	None
2	113	95.923	30	70	0	0	None	None	None	None	None	None	None	None	None	None	None	None	None	None
2	114	102.82	30	70	0	0	None	None	None	None	None	None	None	None	None	None	None	None	None	None
2	115	111.36	30	70	0	0	None	None	None	None	None	None	None	None	None	None	None	None	None	None
2	116	118.43	30	70	0	0	None	None	None	None	None	None	None	None	None	None	None	None	None	None
2	154	108.56	30	70	0	0	None	None	None	None	None	None	None	None	None	None	None	None	None	None
1	5	146.52	30	70	0.4	0.6	None	None	None	None	None	None	None	None	None	None	None	None	None	None
1	6	160.38	30	70	0.4	0.6	None	None	None	None	None	None	None	None	None	None	None	None	None	None
1	17	202.8	30	70	0.1	0.2	None	None	None	None	None	None	None	None	None	None	None	None	None	None
1	26	209.85	30	70	0.4	0.1	None	None	None	None	None	None	None	None	None	None	None	None	None	None
1	27	169.34	30	70	0.4	0.1	None	None	None	None	None	None	None	None	None	None	None	None	None	None
1	28	138.64	30	70	0.4	0.1	None	None	None	None	None	None	None	None	None	None	None	None	None	None
1	29	125.39	30	70	0.4	0.1	None	None	None	None	None	None	None	None	None	None	None	None	None	None
1	30	134.31	30	70	0.4	0.1	None	None	None	None	None	None	None	None	None	None	None	None	None	None
1	31	162.21	30	70	0.4	0.1	None	None	None	None	None	None	None	None	None	None	None	None	None	None
1	45	111.68	30	70	0.4	0.5	None	None	None	None	None	None	None	None	None	None	None	None	None	None
1	46	113.77	30	70	0.4	0.5	None	None	1	0.8	None	None	None	None	None	None	None	None	None	None
1	86	146.02	30	70	0	0	None	None	None	None	None	None	None	None	None	None	None	None	None	None
1	87	130.32	30	70	0	0	None	None	None	None	None	None	None	None	None	None	None	None	None	None
1	88	121.69	30	70	0	0	None	None	None	None	None	None	None	None	None	None	None	None	None	None
1	89	113.46	30	70	0	0	None	None	None	None	None	None	None	None	None	None	None	None	None	None
1	92	105.7	30	70	0	0	None	None	None	None	None	None	None	None	None	None	None	None	None	None
1	93	98.534	30	70	0	0	None	None	None	None	None	None	None	None	None	None	None	None	None	None
1	94	89.288	30	70	0	0	None	None	1	0.8	None	None	None	None	None	None	None	None	None	None
1	97	95.318	30	70	0	0	None	None	None	None	None	None	None	None	None	None	None	None	None	None
1	98	102.15	30	70	0	0	None	None	None	None	None	None	None	None	None	None	None	None	None	None
1	100	112.35	30	70	0	0	None	None	1	0.8	None	None	None	None	None	None	None	None	None	None
1	103	120.52	30	70	0	0	None	None	None	None	None	None	None	None	None	None	None	None	None	None
1	104	129.1	30	70	0	0	None	None	1	0.8	None	None	None	None	None	None	None	None	None	None

Appendix C
Details of Determination Procedures

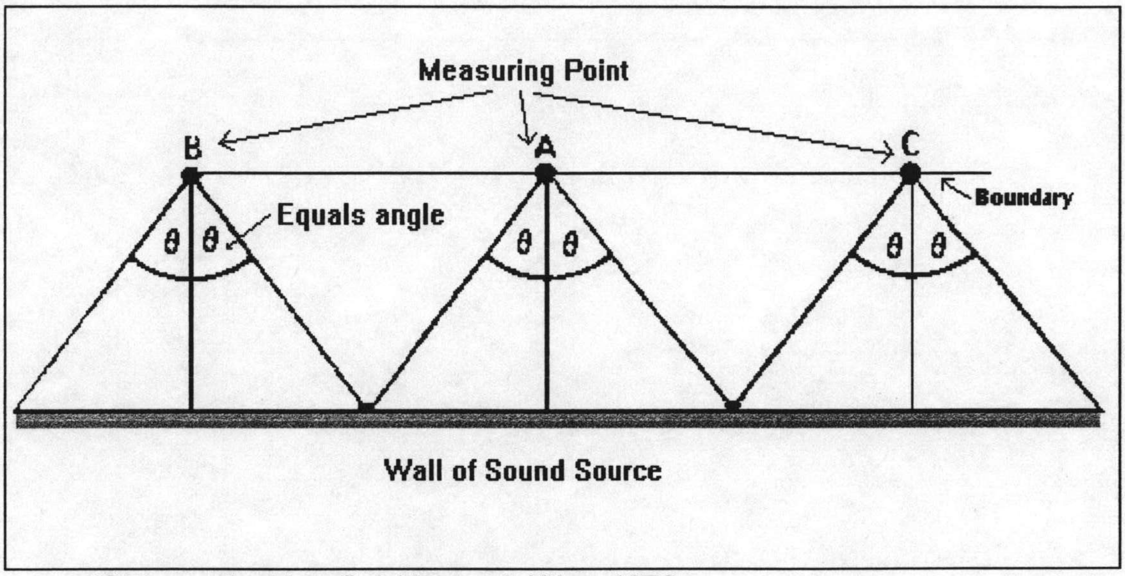
C.1 Equal Angle Method

Equal angle method is a method of selecting measurement positions, developed by Building Research Establishment (BRE) during the course of its exploratory investigations. This methods is illustrated in figure C.1(a). The points A, B and C are measurement positions at or close to the boundary of the site. Suppose line is drawn perpendicular to the wall of the factory building to point A. A pair of lines are then drawn from A to points X and Y at the factory wall. These lines are at equal angle θ to the original line and point A is considered to monitor the noise from the length of the building from X to Y. Points B and C are then arranged to monitor the adjacent lengths of the building again using an angle θ

The spacing of the measurement positions will depend upon the angle θ chosen and the distance from the factory building to the boundary of the site. Generally an angle of 45^o was found to give an adequate number of measurement positions. Furthermore, the choice of 45^o for θ gives considerable practical advantages in determining the position of measurement. This is because the distance between positions will be equal to twice the distance between the perimeter line and the side of the building where the site boundary was very close to the factory building it was considered that the use of 45^o would lead to an unnecessarily large number of positions and that in many cases an angle of about 65^o would be more appropriate.

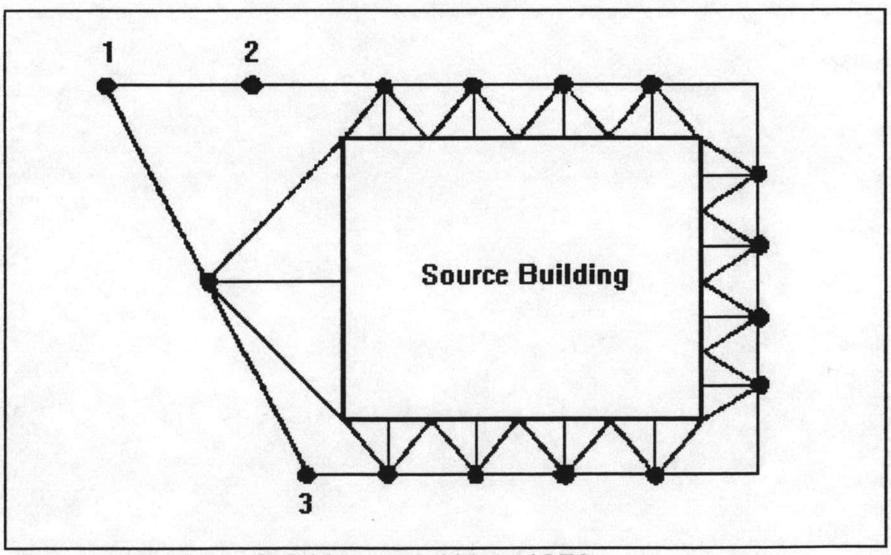
Figure C.1(b) shows how this method could be used to arrange a set of points round a simple site. The first point is selected arbitrarily and then the equal angle technique is used to fix the positions of the rest of the measurement points. An array of points chosen in this way would normally be sufficient to measure the noise output from existing buildings. However in some situations extra measurement positions might be required to cover parts of the site where new noise sources might be built in the future. In figure C.1(b) extra points are shown as 1,2 and 3.

Others methods for determining the measurement positions which were tried during the investigations included the use of a fixed distance between points, the use of positions close to predominant noise sources and the use of positions chosen so that the noise level varied by 5 dB between positions. For general use, none were found to be as good as the equal angle method supplemented with extra points to cover undeveloped areas and possibly prominent sources. (Jenkins, Salvidge and Utley, 1976)



Source : Jenkins, Salvidge and Utley, 1976

Figure C.1(a) The equal angle method



Source : Jenkins, Salvidge and Utley, 1976

Figure C.1(b) Application of equal angle method to a single factory.

C.2 Müller's Equation

Müller's equation was the equation that is used for estimating PWL of machines using their mechanical power and characterization of noise generation. Bies and Hassen (1988) suggested the calculation equation of this methods as below :

Cooling tower :

Water Splashing noise

$$L_W = 71 + 10 \log_{10} q \quad \text{dB}$$

Fan noise

$$L_W = 96 + 10 \log_{10} (\text{kW}) \quad \text{dB}$$

Casing noise

$$L_W = 63 + 12 \log_{10} (\text{kW}) \quad \text{dB}$$

Steam Turbine

Large

$$L_W = 113 + 4 \log_{10} (\text{MW}) \quad \text{dB}$$

Small

$$L_W = 93 + 4 \log_{10} (\text{kW}) \quad \text{dB}$$

Ventilation Fan :

$$L_W = 10 + 10 \log_{10} Q + 20 \log (\text{TP}) \text{dB}$$

Air compressor :

Centrifugal air compressor

$$L_W = 90 + 10 \log_{10} (\text{kW}) \quad \text{dB}$$

Rotary or reciprocating air compressor

$$L_W = 79 + 10 \log_{10} (\text{kW}) \quad \text{dB}$$

Centrifugal inlet air compressor

$$L_W = 80 + 10 \log_{10} (\text{kW}) \quad \text{dB}$$

at which
MW : Mechanical power in Mega-Watt
kW : mechanical power in watt
q : water flow rate cubic meter per hour
Q : fan flow rate in cubic per minute of medium
TP : fan total pressure rate in n/m^2

C.3 Ray-Tracing Technique or Grid-System Methods

This technique was used for illustrating the distribution of sound energy rays particularly for intensity measurement. SPL measurement can also applied this technique to explain the sound pattern of source in industrial areas.

Ray-tracing technique or grid-system method can use for making the noise contour map of industrial areas using SPL measurement in one minute at node of rectangular grid-box. (See figure C.3) Grid-mesh was depending on the area dimension, source position, typical sound, purpose of measurement, and so on. SPL measurement for making contour map generally used 10x10 meters mesh size. This method was very useful for occupational noise control in factories.

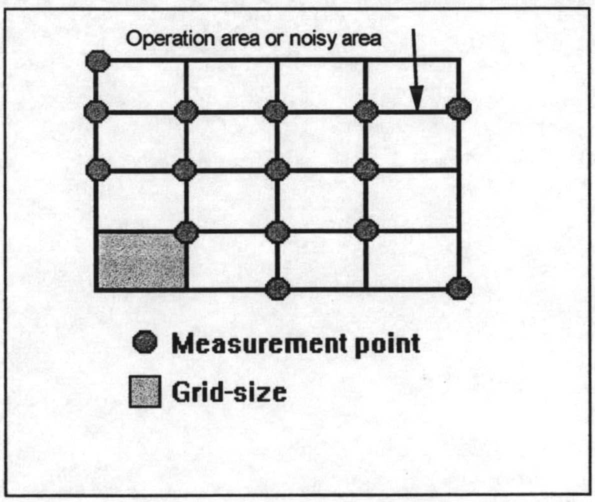


Figure C.3 Grid-size and Measurement position of Ray-tracing technique

C.4 Programming Procedure

Coding Procedure of Power Plant Noise Prediction Model

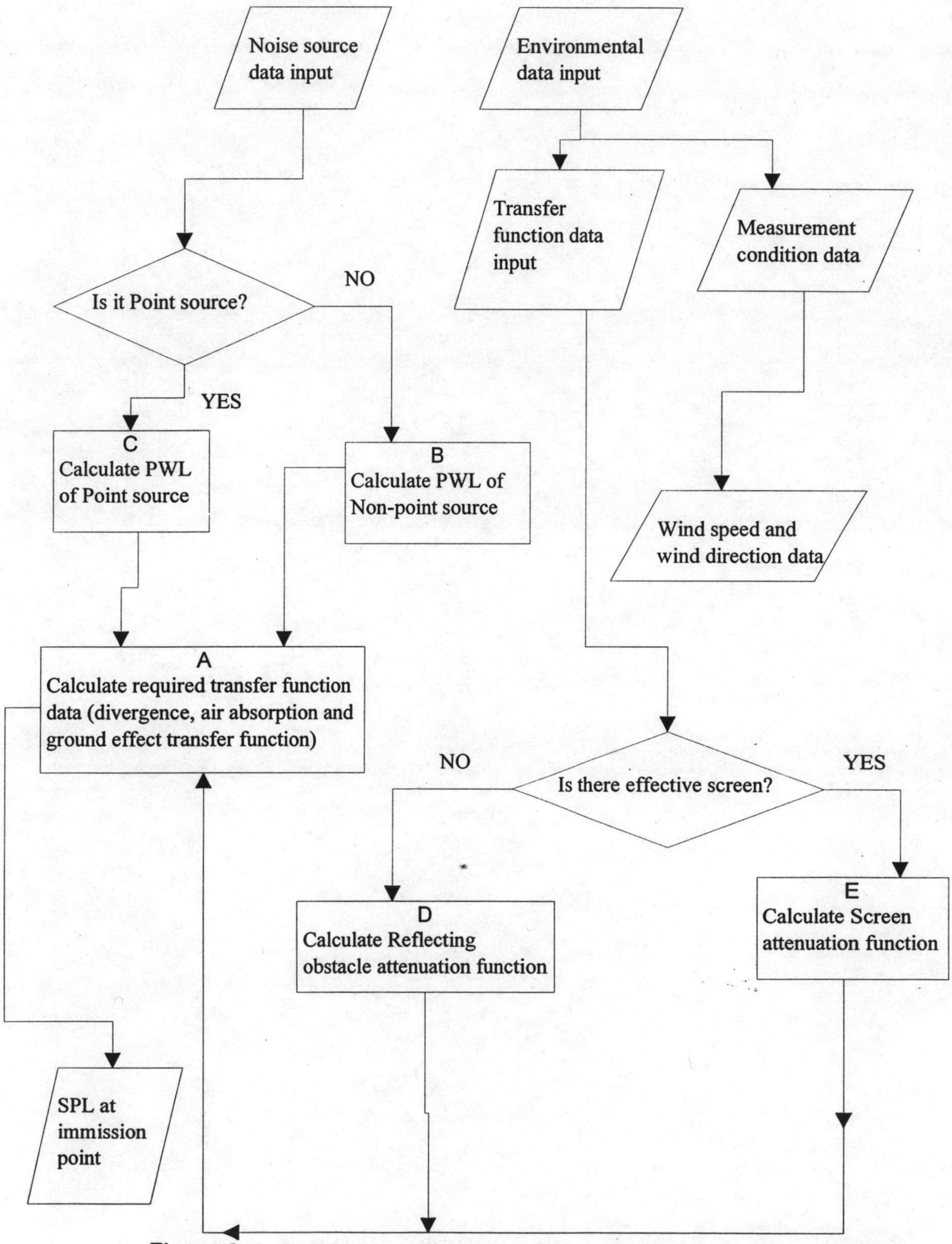


Figure C.4 Details procedure using for programming the Sonic software

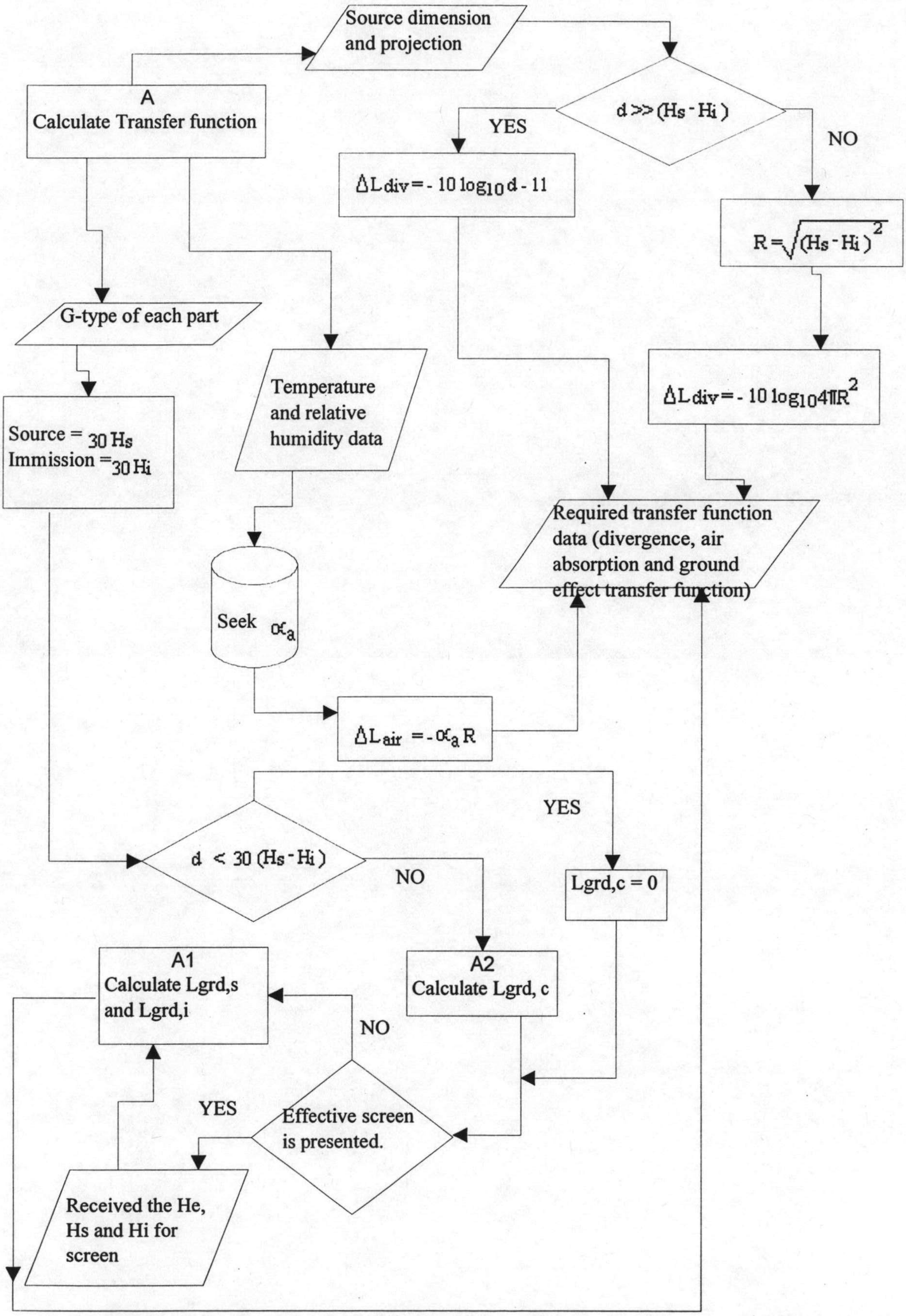


Figure C.4 Details procedure using for programming the Sonic software (Cont.)

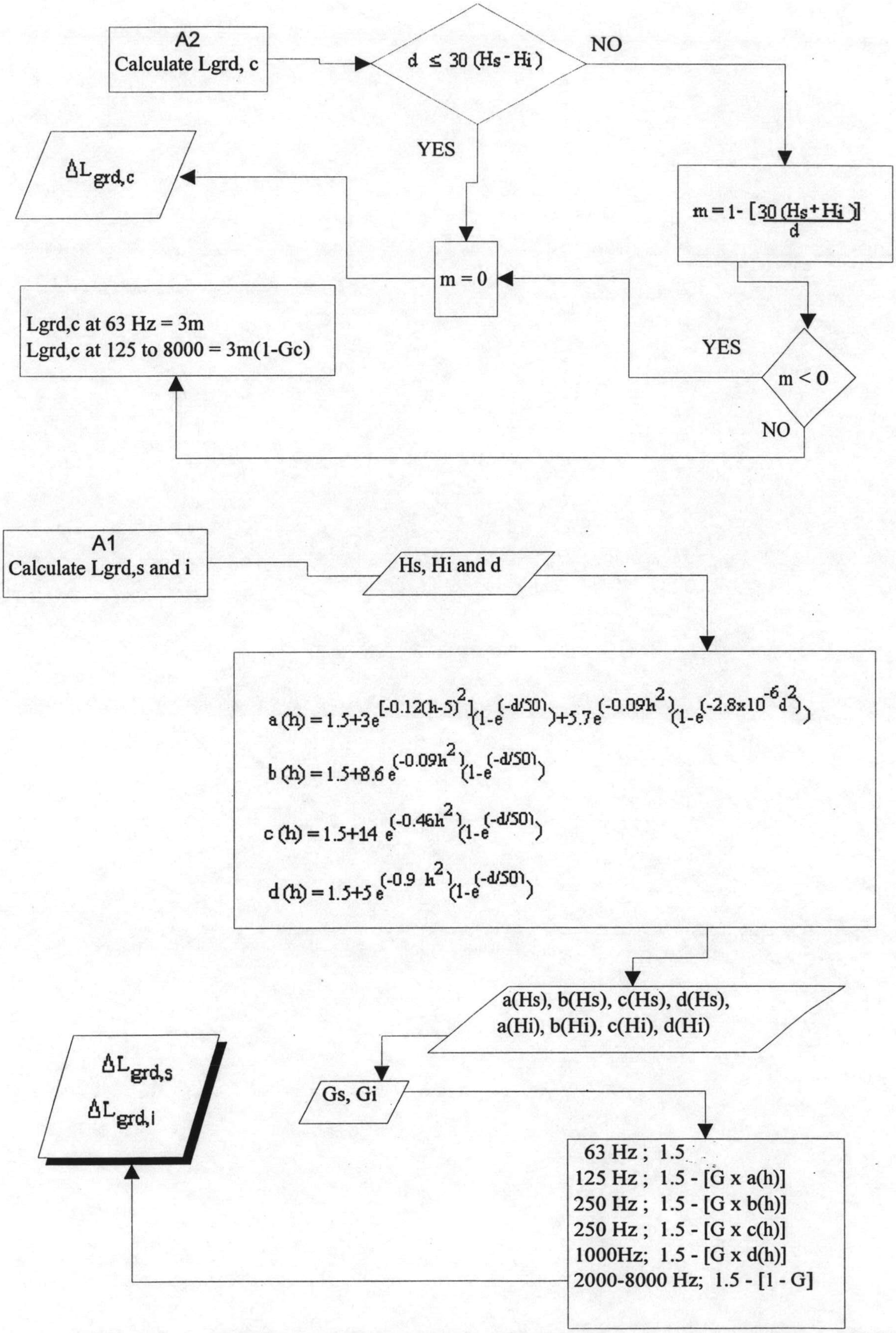


Figure C.4 Details procedure using for programming the Sonic software (Cont.)

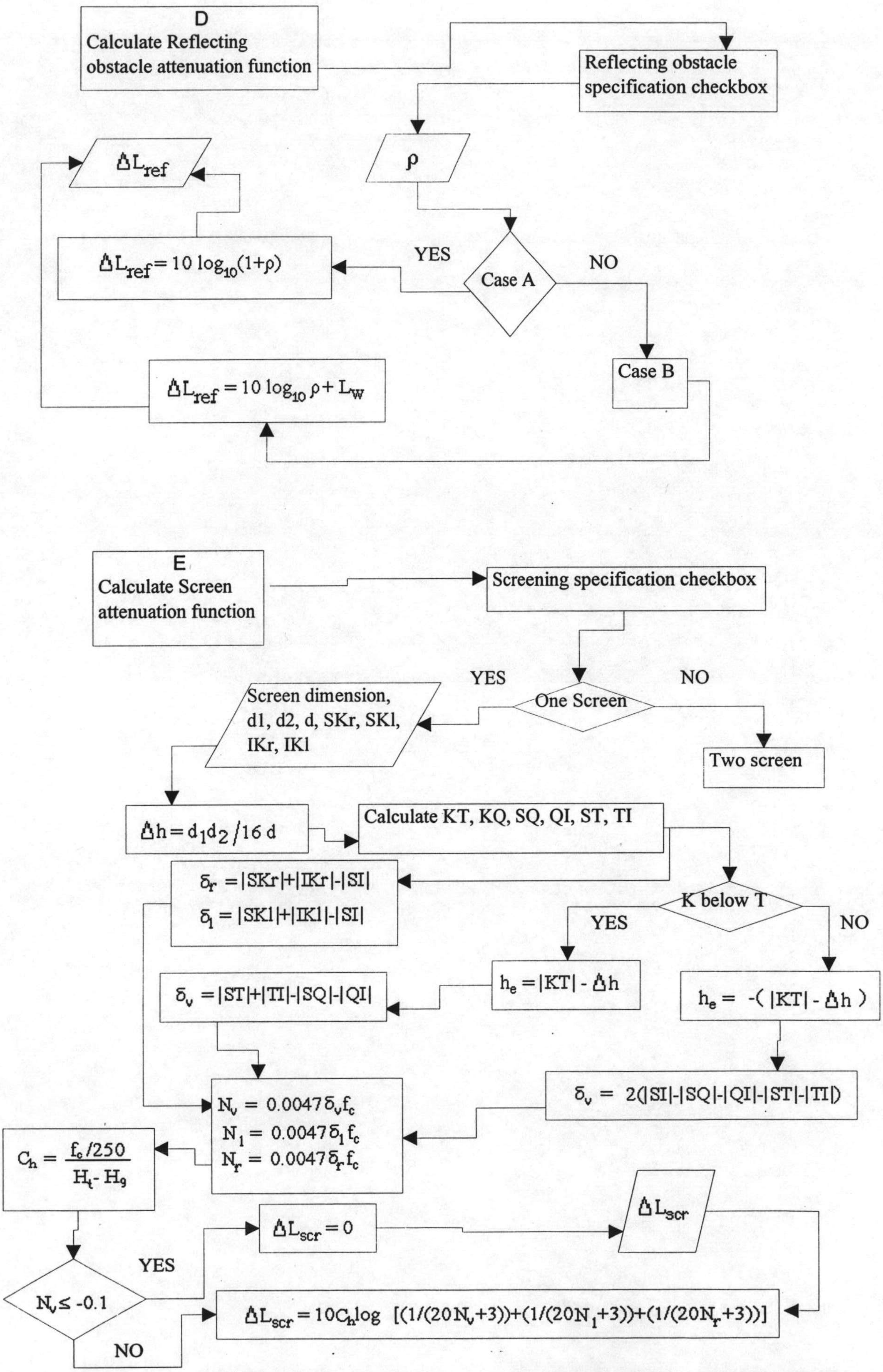


Figure C.4 Details procedure using for programming the Sonic software (Cont.)

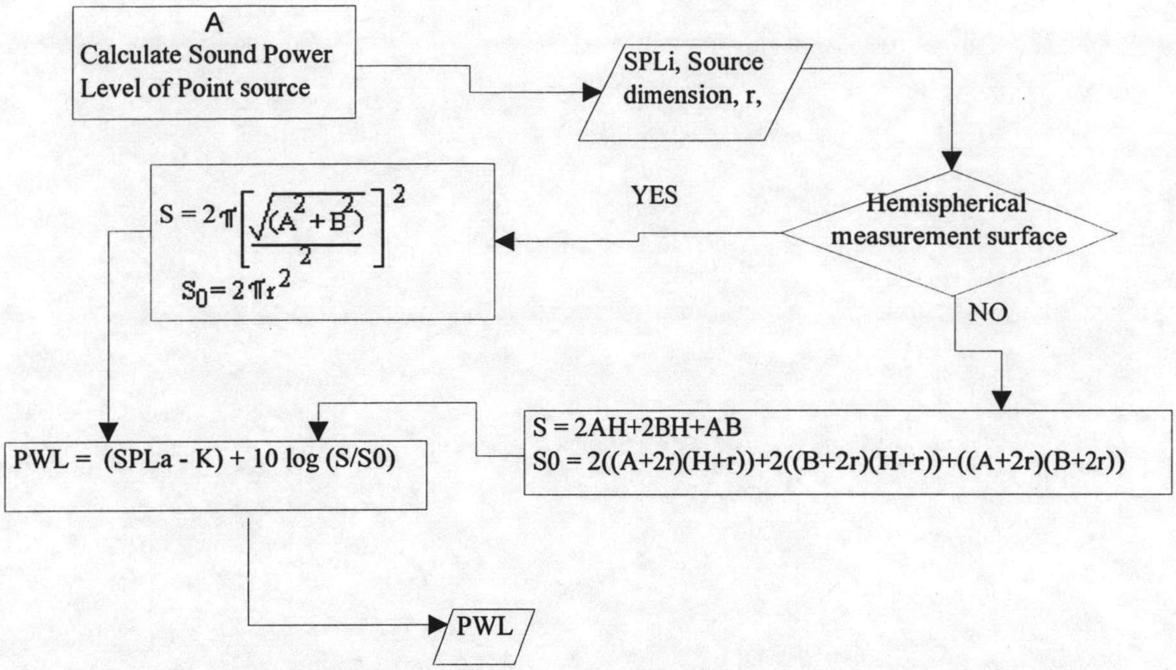


Figure C.4 Details procedure using for programming the Sonic software (Cont.)

C.5 User's Diagram of Sonic Software

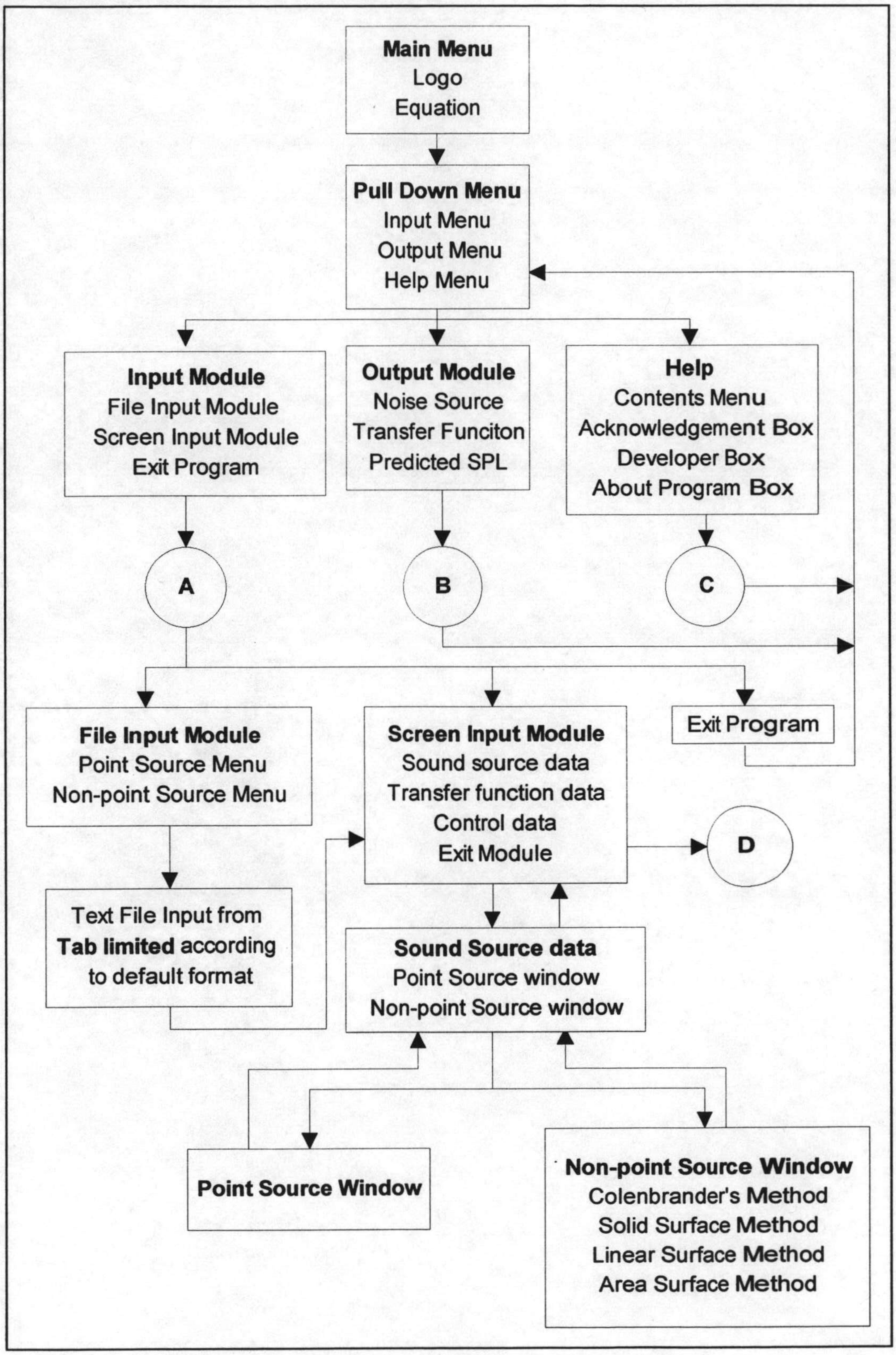


Figure C.5 User Manual Diagram of Sonic Software

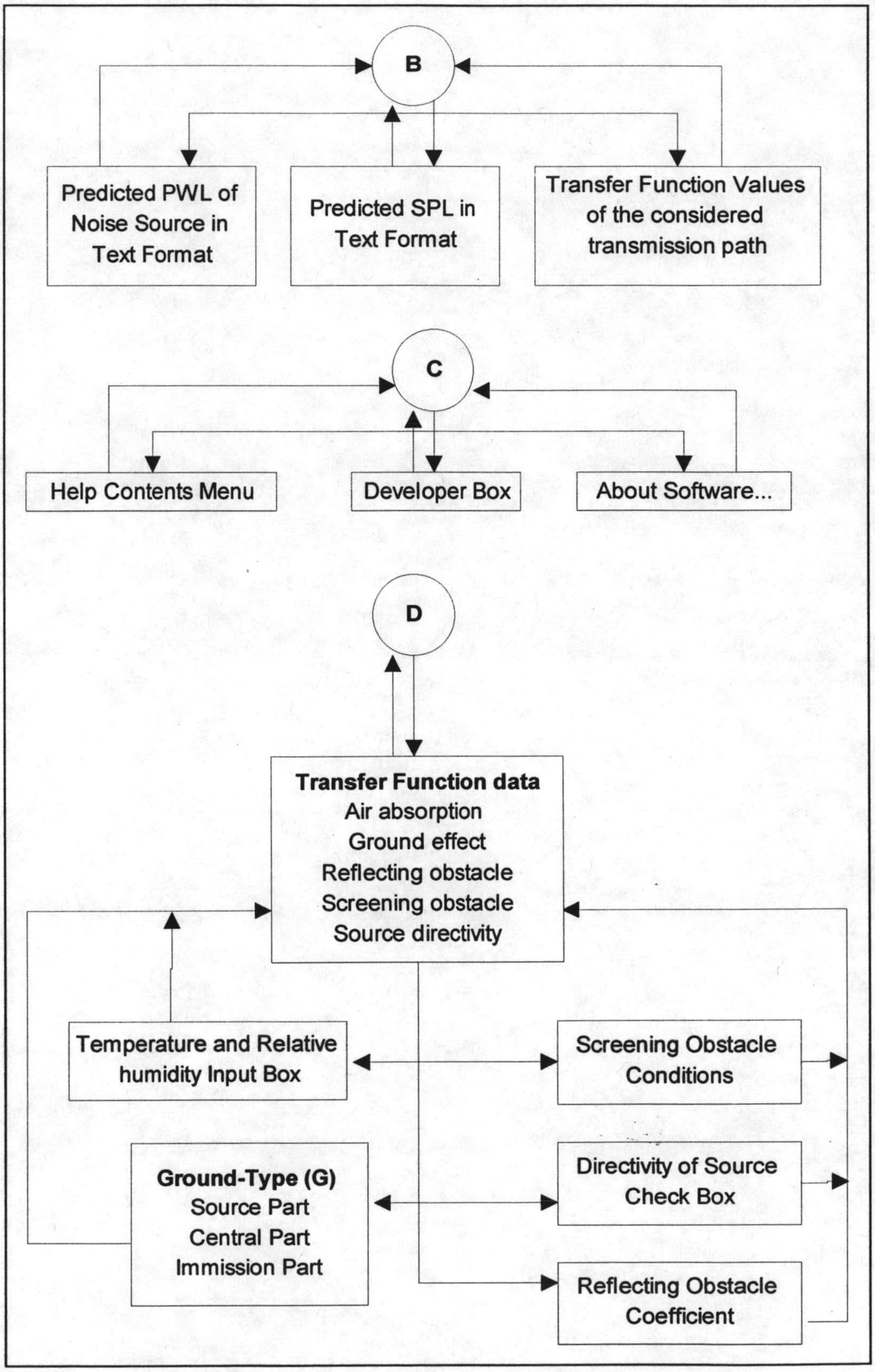


Figure C.5 User Manual Diagram of Sonic Software (Cont.)

Appendix D
Predicted Sound Pressure Levels Data

Table D.1 Predicted SPL at cooling tower zone

CI zone	I_no.	63Hz	125Hz	250Hz	500Hz	1000Hz	2000Hz	4000Hz	8000Hz
1	1	44.25	47.95	50.85	57.25	59.85	60.35	60.95	59.75
1	2	44.71	47.83	50.73	57.13	59.73	60.23	60.83	59.63
1	3	48.12	51.24	54.14	60.54	63.14	63.64	64.24	63.04
1	4	43.87	46.99	49.89	56.29	58.89	59.39	59.99	58.79
1	5	39.66	42.78	45.68	52.08	54.68	55.18	55.78	54.58
1	6	43.73	47.6	50.82	57.09	59.47	59.94	60.54	59.34
1	7	40.81	44.51	47.41	53.81	56.41	56.91	57.51	56.31
1	8	48.98	52.1	55	61.4	64	64.5	65.1	63.9
1	9	55.79	59.49	62.39	68.79	71.39	71.89	72.49	71.29
1	10	47.79	51.29	54.19	60.59	63.19	63.69	64.29	63.09
1	11	54.47	58.17	61.07	67.47	70.07	70.57	71.17	69.97
1	12	48.74	51.86	54.76	61.16	63.76	64.26	64.86	63.66
1	13	44.39	47.52	50.41	56.81	59.42	59.93	60.53	59.33
1	14	43.31	47.01	49.91	56.31	58.91	59.41	60.01	58.81
1	15	42.96	46.08	48.98	55.38	57.98	58.48	59.08	57.88
2	1	37.54	41.24	44.14	50.54	53.14	53.64	54.24	53.04
2	2	42.11	45.23	48.13	54.53	57.13	57.63	58.23	57.03
2	3	40.22	43.33	46.23	52.63	55.23	55.73	56.33	55.13
2	4	39.04	42.54	45.44	51.84	54.44	54.94	55.54	54.34
2	5	41.73	44.85	47.74	54.14	56.75	57.26	57.86	56.66
2	6	44.34	47.45	50.35	56.75	59.35	59.85	60.45	59.25
2	7	43.62	47.32	50.22	56.62	59.22	59.72	60.32	59.12
2	8	41.01	44.13	47.03	53.43	56.03	56.53	57.13	55.93
2	9	44.4	47.52	50.42	56.82	59.42	59.92	60.52	59.32
2	10	40.62	43.74	46.64	53.04	55.64	56.14	56.74	55.54
2	11	45.62	48.74	51.64	58.04	60.64	61.14	61.74	60.54
2	12	44.08	47.47	50.2	56.64	59.37	59.9	60.5	59.3
2	13	39.54	43.24	46.14	52.54	55.14	55.64	56.24	55.04
2	14	43.67	46.78	49.68	56.08	58.68	59.18	59.78	58.58
2	15	44.66	47.78	50.68	57.08	59.69	60.2	60.8	59.6
2	16	55.58	58.7	61.6	68	70.6	71.1	71.7	70.5
2	17	46.99	50.49	53.39	59.79	62.39	62.89	63.49	62.29
2	18	55.48	58.98	61.88	68.28	70.88	71.38	71.98	70.78
2	19	46.95	50.07	52.97	59.37	61.97	62.47	63.07	61.87
2	20	45.71	49.41	52.31	58.71	61.31	61.81	62.41	61.21
3	1	41.8	45.5	48.4	54.8	57.4	57.9	58.5	57.3
3	2	41.52	44.64	47.54	53.94	56.54	57.04	57.64	56.44
3	3	44.19	47.89	50.79	57.19	59.79	60.29	60.89	59.69
3	4	44.84	48.54	51.44	57.84	60.44	60.94	61.54	60.34
3	5	42.62	45.74	48.64	55.04	57.64	58.14	58.74	57.54
3	6	40.25	43.75	46.65	53.05	55.65	56.15	56.75	55.55
3	7	45.63	48.75	51.65	58.05	60.65	61.15	61.75	60.55
3	8	45.51	48.62	51.52	57.92	60.52	61.02	61.62	60.42
3	9	45.92	49.03	51.93	58.33	60.93	61.43	62.03	60.83
3	10	46.59	49.72	52.61	59.01	61.62	62.13	62.73	61.53
3	11	53.75	56.87	59.77	66.17	68.77	69.29	69.89	68.69
3	12	47.47	50.96	53.87	60.27	62.87	63.37	63.97	62.77
3	13	55.58	59.09	61.99	68.39	70.99	71.49	72.09	70.89
3	14	48.69	52.2	55.1	61.5	64.1	64.6	65.2	64
3	15	44.77	48.47	51.37	57.77	60.37	60.87	61.47	60.27
4	1	36.83	40.53	43.43	49.83	52.43	52.93	53.53	52.33
4	2	40.56	43.64	46.38	52.32	54.02	53.41	51.79	42.89
4	3	41.94	45.06	47.96	54.36	56.96	57.46	58.06	56.86
4	4	41.89	45.01	47.91	54.31	56.91	57.41	58.01	56.81
4	5	44.26	47.96	50.86	57.26	59.86	60.36	60.96	59.76
4	6	44.66	48.36	51.26	57.66	60.26	60.76	61.36	60.16
4	7	39.15	42.27	45.17	51.57	54.17	54.67	55.27	54.07
4	8	44.61	47.73	50.63	57.03	59.63	60.15	60.75	59.55
4	9	44.59	47.71	50.61	57.01	59.61	60.11	60.71	59.51
4	10	39.63	43.02	45.75	52.19	54.92	55.45	56.05	54.85
4	11	55.65	58.77	61.67	68.07	70.67	71.17	71.77	70.57
4	12	48.26	51.38	54.28	60.68	63.28	63.78	64.38	63.18
4	13	50.45	53.57	56.47	62.87	65.47	65.97	66.57	65.37
4	14	44.25	47.37	50.27	56.67	59.27	59.77	60.37	59.17
4	15	44.8	48.5	51.4	57.8	60.4	60.9	61.5	60.3

Table D.1 Predicted SPL at main building zone

BI/NE	I_no.	63Hz	125Hz	250Hz	500Hz	1000Hz	2000Hz	4000Hz	8000Hz
1l	1	37.9	38.5	47.8	48.3	50	48.8	43.9	33.1
1l	2	39.3	39.9	49.2	49.7	51.4	50.2	45.3	34.5
1l	3	39.54	40.14	49.44	49.94	51.64	50.44	45.54	34.74
1l	4	39.59	40.19	49.49	49.99	51.69	50.49	45.59	34.79
1l	5	39.45	40.05	49.35	49.85	51.55	50.35	45.45	34.65
1l	6	39.1	39.7	49	49.5	51.2	50	45.1	34.3
1c	1	46.98	66.38	57.08	56.48	54.88	48.88	39.48	30.38
1c	2	46.66	66.06	56.76	56.16	54.56	48.56	39.16	30.06
1c	3	49.28	68.68	59.38	58.78	57.18	51.18	41.78	32.68
1c	4	48.31	67.71	58.41	57.81	56.21	50.21	40.81	31.71
1r	1	51.71	55.11	58.81	62.91	68.31	69.81	67.91	55.91
1r	2	52.47	55.87	59.57	63.67	69.07	70.57	68.67	56.67
1r	3	52.58	55.98	59.68	63.78	69.18	70.68	68.78	56.78
1r	4	52.83	56.23	59.93	64.03	69.43	70.93	69.03	57.03
1r	5	52.78	56.18	59.88	63.98	69.38	70.88	68.98	56.98
1r	6	52.6	56	59.7	63.8	69.2	70.7	68.8	56.8
2c	1	46.45	65.85	56.55	55.95	54.35	48.35	38.95	29.85
2c	2	46.16	65.56	56.26	55.66	54.06	48.06	38.66	29.56
2c	3	47.55	66.95	57.65	57.05	55.45	49.45	40.05	30.95
2c	4	48.43	67.83	58.53	57.93	56.33	50.33	40.93	31.83
2c	5	49.28	68.68	59.38	58.78	57.18	51.18	41.78	32.68
2c	6	48.88	68.28	58.98	58.38	56.78	50.78	41.38	32.28
2c	7	46.79	66.19	56.89	56.29	54.69	48.69	39.29	30.19
2l	1	36.91	37.51	46.81	47.31	49.01	47.81	42.91	32.11
2l	2	39.29	39.89	49.19	49.69	51.39	50.19	45.29	34.49
2l	3	38.87	39.47	48.77	49.27	50.97	49.77	44.87	34.07
2l	4	38.32	38.92	48.22	48.72	50.42	49.22	44.32	33.52
2l	5	39.47	40.07	49.37	49.87	51.57	50.37	45.47	34.67
2r	1	49.83	53.23	56.93	61.03	66.43	67.93	66.03	54.03
2r	2	51.91	55.31	59.01	63.11	68.51	70.01	68.11	56.11
2r	3	52.28	55.68	59.38	63.48	68.88	70.38	68.48	56.48
2r	4	52.61	56.01	59.71	63.81	69.21	70.71	68.81	56.81
2r	5	52.95	56.35	60.05	64.15	69.55	71.05	69.15	57.15
2r	6	52.82	56.22	59.92	64.02	69.42	70.92	69.02	57.02

Table D.1 Predicted SPL at main building (Cont.)

BL/SW	I_no.	63Hz	125Hz	250Hz	500Hz	1000Hz	2000Hz	4000Hz	8000Hz
1l	1	45.43	44.73	49.43	50.13	53.33	55.23	57.23	54.63
1l	2	43.21	42.51	47.21	47.91	51.11	53.01	55.01	52.41
1l	3	44.56	43.86	48.56	49.26	52.46	54.36	56.36	53.76
1l	4	39.97	39.27	43.97	44.67	47.87	49.77	51.77	49.17
1l	5	44.8	44.05	48.59	48.78	50.99	51.66	51.25	40.24
1l	6	46.61	45.91	50.61	51.31	54.51	56.41	58.41	55.81
1l	7	46.62	45.92	50.62	51.32	54.52	56.42	58.42	55.82
1l	8	44.99	44.29	48.99	49.69	52.89	54.79	56.79	54.19
1l	9	50.15	49.45	54.15	54.85	58.05	59.95	61.95	59.35
1c	1	48.17	38.77	43.67	42.67	46.27	47.27	49.27	48.77
1c	2	51.62	42.22	47.12	46.12	49.72	50.72	52.72	52.22
1c	3	50.63	41.23	46.13	45.13	48.73	49.73	51.73	51.23
1c	4	48.37	38.97	43.87	42.87	46.47	47.47	49.47	48.97
1c	5	51.84	42.44	47.34	46.34	49.94	50.94	52.94	52.44
1c	6	51.12	41.72	46.62	45.62	49.22	50.22	52.22	51.72
1c	7	52.09	42.69	47.59	46.59	50.19	51.19	53.19	52.69
1c	8	53.32	43.92	48.82	47.82	51.42	52.42	54.42	53.92
1c	9	52.42	43.02	47.92	46.92	50.52	51.52	53.52	53.02
1c	10	50.31	40.91	45.81	44.81	48.41	49.41	51.41	50.91
1c	11	55.07	45.67	50.57	49.57	53.17	54.17	56.17	55.67
1c	12	55.46	46.06	50.96	49.96	53.56	54.56	56.56	56.06
1r	1	29.97	33.27	37.67	41.47	38.17	32.37	23.57	17.97
1r	2	33.66	36.92	41.18	44.53	40.34	33.45	22.49	9.4
1r	3	33.89	37.19	41.59	45.39	42.09	36.29	27.49	21.89
1r	4	33.34	36.64	41.04	44.84	41.54	35.74	26.94	21.34
1r	5	35.41	38.71	43.11	46.91	43.61	37.81	29.01	23.41
1r	6	35.77	39.07	43.47	47.27	43.97	38.17	29.37	23.77
1r	7	33.67	36.97	41.37	45.17	41.87	36.07	27.27	21.67
1r	8	34.05	37.35	41.75	45.55	42.25	36.45	27.65	22.05
1r	9	39.4	42.7	47.1	50.9	47.6	41.8	33	27.4
2c	1	50.4	41	45.9	44.9	48.5	49.5	51.5	51
2c	2	50.4	41	45.9	44.9	48.5	49.5	51.5	51
2c	3	52.74	43.34	48.24	47.24	50.84	51.84	53.84	53.34
2c	4	53.21	43.81	48.71	47.71	51.31	52.31	54.31	53.81
2c	5	51.28	41.88	46.78	45.78	49.38	50.38	52.38	51.88
2c	6	53.49	44.09	48.99	47.99	51.59	52.59	54.59	54.09
2l	1	44.6	43.9	48.6	49.3	52.5	54.4	56.4	53.8
2l	2	44.76	44.06	48.76	49.46	52.66	54.56	56.56	53.96
2l	3	41.28	40.58	45.28	45.98	49.18	51.08	53.08	50.48
2l	4	46.01	45.31	50.01	50.71	53.91	55.81	57.81	55.21
2l	5	43.94	43.24	47.94	48.64	51.84	53.74	55.74	53.14
2l	6	51.09	50.39	55.09	55.79	58.99	60.89	62.89	60.29
2r	1	47.34	40.08	42.13	44.86	43.75	43.98	41.2	26.71
2r	2	48.96	41.76	44.06	47.56	47.96	50.06	50.96	49.26
2r	3	48	40.8	43.1	46.6	47	49.1	50	48.3
2r	4	48.67	41.47	43.77	47.27	47.67	49.77	50.67	48.97
2r	5	50.29	43.09	45.39	48.89	49.29	51.39	52.29	50.59
2r	6	48.23	41.03	43.33	46.83	47.23	49.33	50.23	48.53
2r	7	54.56	47.36	49.66	53.16	53.56	55.66	56.56	54.86

Table D.2 Transfer function data of main building zone from the prediction model

Bl/NE	I_no.	63Hz	125Hz	250Hz	500Hz	1000Hz	2000Hz	4000Hz	8000Hz
2c	1	-50.05	-50.05	-50.05	-50.05	-50.05	-50.05	-50.05	-50.05
2c	2	-50.34	-50.34	-50.34	-50.34	-50.34	-50.34	-50.34	-50.34
2c	3	-48.95	-48.95	-48.95	-48.95	-48.95	-48.95	-48.95	-48.95
2c	4	-48.07	-48.07	-48.07	-48.07	-48.07	-48.07	-48.07	-48.07
2c	5	-47.22	-47.22	-47.22	-47.22	-47.22	-47.22	-47.22	-47.22
2c	6	-47.62	-47.62	-47.62	-47.62	-47.62	-47.62	-47.62	-47.62
2c	7	-49.71	-49.71	-49.71	-49.71	-49.71	-49.71	-49.71	-49.71
2l	1	-49.99	-49.99	-49.99	-49.99	-49.99	-49.99	-49.99	-49.99
2l	2	-47.61	-47.61	-47.61	-47.61	-47.61	-47.61	-47.61	-47.61
2l	3	-48.03	-48.03	-48.03	-48.03	-48.03	-48.03	-48.03	-48.03
2l	4	-48.58	-48.58	-48.58	-48.58	-48.58	-48.58	-48.58	-48.58
2l	5	-47.43	-47.43	-47.43	-47.43	-47.43	-47.43	-47.43	-47.43
2r	1	-50.37	-50.37	-50.37	-50.37	-50.37	-50.37	-50.37	-50.37
2r	2	-48.29	-48.29	-48.29	-48.29	-48.29	-48.29	-48.29	-48.29
2r	3	-47.92	-47.92	-47.92	-47.92	-47.92	-47.92	-47.92	-47.92
2r	4	-47.59	-47.59	-47.59	-47.59	-47.59	-47.59	-47.59	-47.59
2r	5	-47.25	-47.25	-47.25	-47.25	-47.25	-47.25	-47.25	-47.25
2r	6	-47.38	-47.38	-47.38	-47.38	-47.38	-47.38	-47.38	-47.38
1l	1	-53.76	-53.76	-53.76	-53.76	-53.76	-53.76	-53.76	-53.76
1l	2	-61.42	-61.42	-61.42	-61.42	-61.42	-61.42	-61.42	-61.42
1l	3	-59.67	-59.74	-60	-60.78	-62.31	-64.21	-67.95	-80.95
1l	4	-53.27	-53.33	-53.53	-54.17	-55.42	-56.97	-60.02	-70.63
1l	5	-52.42	-52.42	-52.42	-52.42	-52.42	-52.42	-52.42	-52.42
1l	6	-53.02	-53.02	-53.02	-53.02	-53.02	-53.02	-53.02	-53.02
1l	7	-50.58	-50.58	-50.58	-50.58	-50.58	-50.58	-50.58	-50.58
1l	8	-50.33	-50.33	-50.33	-50.33	-50.33	-50.33	-50.33	-50.33
1l	9	-51.11	-51.11	-51.11	-51.11	-51.11	-51.11	-51.11	-51.11
1l	10	-51.32	-51.48	-51.48	-51.48	-51.48	-51.48	-51.48	-51.48
1l	11	-57.94	-58.09	-58.09	-58.09	-58.09	-58.09	-58.09	-58.09
1l	12	-53.25	-53.29	-53.47	-53.99	-55.02	-56.29	-58.8	-67.51
1l	13	-52.44	-52.82	-52.82	-52.82	-52.82	-52.82	-52.82	-52.82
1l	14	-54.71	-55.09	-55.09	-55.09	-55.09	-55.09	-55.09	-55.09
1l	15	-59.9	-60.29	-60.29	-60.29	-60.29	-60.29	-60.29	-60.29
1l	16	-55.57	-56.01	-56.22	-56.88	-58.17	-59.76	-62.9	-73.82
1l	17	-50.01	-50.01	-50.01	-50.01	-50.01	-50.01	-50.01	-50.01
1l	18	-49.1	-49.25	-49.25	-49.25	-49.25	-49.25	-49.25	-49.25
1l	19	-49.79	-49.94	-49.94	-49.94	-49.94	-49.94	-49.94	-49.94
1l	20	-53.78	-53.93	-53.93	-53.93	-53.93	-53.93	-53.93	-53.93
1l	21	-46.23	-46.38	-46.38	-46.38	-46.38	-46.38	-46.38	-46.38
1l	22	-44.1	-44.48	-44.48	-44.48	-44.48	-44.47	-44.47	-44.47
1c	1	-49.52	-49.52	-49.52	-49.52	-49.52	-49.52	-49.52	-49.52
1c	2	-49.84	-49.84	-49.84	-49.84	-49.84	-49.84	-49.84	-49.84
1c	3	-47.22	-47.22	-47.22	-47.22	-47.22	-47.22	-47.22	-47.22
1c	4	-48.19	-48.19	-48.19	-48.19	-48.19	-48.19	-48.19	-48.19
1r	1	-48.49	-48.49	-48.49	-48.49	-48.49	-48.49	-48.49	-48.49
1r	2	-47.73	-47.73	-47.73	-47.73	-47.73	-47.73	-47.73	-47.73
1r	3	-47.62	-47.62	-47.62	-47.62	-47.62	-47.62	-47.62	-47.62
1r	4	-47.37	-47.37	-47.37	-47.37	-47.37	-47.37	-47.37	-47.37
1r	5	-47.42	-47.42	-47.42	-47.42	-47.42	-47.42	-47.42	-47.42
1r	6	-47.6	-47.6	-47.6	-47.6	-47.6	-47.6	-47.6	-47.6

Table D.2 Transfer function data of main building zone from the prediction model (Cont.)

Bl/SW	l_no.	63Hz	125Hz	250Hz	500Hz	1000Hz	2000Hz	4000Hz	8000Hz
1l	1	-52.17	-52.17	-52.17	-52.17	-52.17	-52.17	-52.17	-52.17
1l	2	-54.39	-54.39	-54.39	-54.39	-54.39	-54.39	-54.39	-54.39
1l	3	-53.04	-53.04	-53.04	-53.04	-53.04	-53.04	-53.04	-53.04
1l	4	-57.63	-57.63	-57.63	-57.63	-57.63	-57.63	-57.63	-57.63
1l	5	-52.8	-52.85	-53.01	-53.52	-54.51	-55.74	-58.15	-66.56
1l	6	-50.99	-50.99	-50.99	-50.99	-50.99	-50.99	-50.99	-50.99
1l	7	-50.98	-50.98	-50.98	-50.98	-50.98	-50.98	-50.98	-50.98
1l	8	-52.61	-52.61	-52.61	-52.61	-52.61	-52.61	-52.61	-52.61
1l	9	-47.45	-47.45	-47.45	-47.45	-47.45	-47.45	-47.45	-47.45
1c	1	-55.93	-55.93	-55.93	-55.93	-55.93	-55.93	-55.93	-55.93
1c	2	-52.48	-52.48	-52.48	-52.48	-52.48	-52.48	-52.48	-52.48
1c	3	-53.47	-53.47	-53.47	-53.47	-53.47	-53.47	-53.47	-53.47
1c	4	-55.73	-55.73	-55.73	-55.73	-55.73	-55.73	-55.73	-55.73
1c	5	-52.26	-52.26	-52.26	-52.26	-52.26	-52.26	-52.26	-52.26
1c	6	-52.98	-52.98	-52.98	-52.98	-52.98	-52.98	-52.98	-52.98
1c	7	-52.01	-52.01	-52.01	-52.01	-52.01	-52.01	-52.01	-52.01
1c	8	-50.78	-50.78	-50.78	-50.78	-50.78	-50.78	-50.78	-50.78
1c	9	-51.68	-51.68	-51.68	-51.68	-51.68	-51.68	-51.68	-51.68
1c	10	-53.79	-53.79	-53.79	-53.79	-53.79	-53.79	-53.79	-53.79
1c	11	-49.03	-49.03	-49.03	-49.03	-49.03	-49.03	-49.03	-49.03
1c	12	-48.64	-48.64	-48.64	-48.64	-48.64	-48.64	-48.64	-48.64
1r	1	-56.73	-56.73	-56.73	-56.73	-56.73	-56.73	-56.73	-56.73
1r	2	-53.04	-53.08	-53.22	-53.67	-54.56	-55.65	-57.81	-65.3
1r	3	-52.81	-52.81	-52.81	-52.81	-52.81	-52.81	-52.81	-52.81
1r	4	-53.36	-53.36	-53.36	-53.36	-53.36	-53.36	-53.36	-53.36
1r	5	-51.29	-51.29	-51.29	-51.29	-51.29	-51.29	-51.29	-51.29
1r	6	-50.93	-50.93	-50.93	-50.93	-50.93	-50.93	-50.93	-50.93
1r	7	-53.03	-53.03	-53.03	-53.03	-53.03	-53.03	-53.03	-53.03
1r	8	-52.65	-52.65	-52.65	-52.65	-52.65	-52.65	-52.65	-52.65
1r	9	-47.3	-47.3	-47.3	-47.3	-47.3	-47.3	-47.3	-47.3
2c	1	-53.7	-53.7	-53.7	-53.7	-53.7	-53.7	-53.7	-53.7
2c	2	-53.7	-53.7	-53.7	-53.7	-53.7	-53.7	-53.7	-53.7
2c	3	-51.36	-51.36	-51.36	-51.36	-51.36	-51.36	-51.36	-51.36
2c	4	-50.89	-50.89	-50.89	-50.89	-50.89	-50.89	-50.89	-50.89
2c	5	-52.82	-52.82	-52.82	-52.82	-52.82	-52.82	-52.82	-52.82
2c	6	-50.61	-50.61	-50.61	-50.61	-50.61	-50.61	-50.61	-50.61
2l	1	-53	-53	-53	-53	-53	-53	-53	-53
2l	2	-52.84	-52.84	-52.84	-52.84	-52.84	-52.84	-52.84	-52.84
2l	3	-56.32	-56.32	-56.32	-56.32	-56.32	-56.32	-56.32	-56.32
2l	4	-51.59	-51.59	-51.59	-51.59	-51.59	-51.59	-51.59	-51.59
2l	5	-53.66	-53.66	-53.66	-53.66	-53.66	-53.66	-53.66	-53.66
2l	6	-46.51	-46.51	-46.51	-46.51	-46.51	-46.51	-46.51	-46.51
2r	1	-53.76	-53.82	-54.07	-54.84	-56.35	-58.22	-61.9	-74.69
2r	2	-52.14	-52.14	-52.14	-52.14	-52.14	-52.14	-52.14	-52.14
2r	3	-53.1	-53.1	-53.1	-53.1	-53.1	-53.1	-53.1	-53.1
2r	4	-52.43	-52.43	-52.43	-52.43	-52.43	-52.43	-52.43	-52.43
2r	5	-50.81	-50.81	-50.81	-50.81	-50.81	-50.81	-50.81	-50.81
2r	6	-52.87	-52.87	-52.87	-52.87	-52.87	-52.87	-52.87	-52.87
2r	7	-46.54	-46.54	-46.54	-46.54	-46.54	-46.54	-46.54	-46.54

Table D.2 Transfer function data of cooling tower zone from the prediction model

Cl.Zone	I_no.	63Hz	125Hz	250Hz	500Hz	1000Hz	2000Hz	4000Hz	8000Hz
1	1	-49.55	-49.55	-49.55	-49.55	-49.55	-49.55	-49.55	-49.55
1	2	-49.09	-49.67	-49.67	-49.67	-49.67	-49.67	-49.67	-49.67
1	3	-45.68	-46.26	-46.26	-46.26	-46.26	-46.26	-46.26	-46.26
1	4	-49.93	-50.51	-50.51	-50.51	-50.51	-50.51	-50.51	-50.51
1	5	-54.14	-54.72	-54.72	-54.72	-54.72	-54.72	-54.72	-54.72
1	6	-50.07	-49.9	-49.58	-49.71	-49.93	-49.96	-49.96	-49.96
1	7	-52.99	-52.99	-52.99	-52.99	-52.99	-52.99	-52.99	-52.99
1	8	-44.82	-45.4	-45.4	-45.4	-45.4	-45.4	-45.4	-45.4
1	9	-38.01	-38.01	-38.01	-38.01	-38.01	-38.01	-38.01	-38.01
1	10	-46.01	-46.21	-46.21	-46.21	-46.21	-46.21	-46.21	-46.21
1	11	-39.33	-39.33	-39.33	-39.33	-39.33	-39.33	-39.33	-39.33
1	12	-45.06	-45.64	-45.64	-45.64	-45.64	-45.64	-45.64	-45.64
1	13	-49.41	-49.98	-49.99	-49.99	-49.98	-49.97	-49.97	-49.97
1	14	-50.49	-50.49	-50.49	-50.49	-50.49	-50.49	-50.49	-50.49
1	15	-50.84	-51.42	-51.42	-51.42	-51.42	-51.42	-51.42	-51.42
2	1	-56.26	-56.26	-56.26	-56.26	-56.26	-56.26	-56.26	-56.26
2	2	-51.69	-52.27	-52.27	-52.27	-52.27	-52.27	-52.27	-52.27
2	3	-53.58	-54.17	-54.17	-54.17	-54.17	-54.17	-54.17	-54.17
2	4	-54.76	-54.96	-54.96	-54.96	-54.96	-54.96	-54.96	-54.96
2	5	-52.07	-52.65	-52.66	-52.66	-52.65	-52.64	-52.64	-52.64
2	6	-49.46	-50.05	-50.05	-50.05	-50.05	-50.05	-50.05	-50.05
2	7	-50.18	-50.18	-50.18	-50.18	-50.18	-50.18	-50.18	-50.18
2	8	-52.79	-53.37	-53.37	-53.37	-53.37	-53.37	-53.37	-53.37
2	9	-49.4	-49.98	-49.98	-49.98	-49.98	-49.98	-49.98	-49.98
2	10	-53.18	-53.76	-53.76	-53.76	-53.76	-53.76	-53.76	-53.76
2	11	-48.18	-48.76	-48.76	-48.76	-48.76	-48.76	-48.76	-48.76
2	12	-49.72	-50.03	-50.2	-50.16	-50.03	-50	-50	-50
2	13	-54.26	-54.26	-54.26	-54.26	-54.26	-54.26	-54.26	-54.26
2	14	-50.13	-50.72	-50.72	-50.72	-50.72	-50.72	-50.72	-50.72
2	15	-49.14	-49.72	-49.72	-49.72	-49.71	-49.7	-49.7	-49.7
2	16	-38.22	-38.8	-38.8	-38.8	-38.8	-38.8	-38.8	-38.8
2	17	-46.81	-47.01	-47.01	-47.01	-47.01	-47.01	-47.01	-47.01
2	18	-38.32	-38.52	-38.52	-38.52	-38.52	-38.52	-38.52	-38.52
2	19	-46.85	-47.43	-47.43	-47.43	-47.43	-47.43	-47.43	-47.43
2	20	-48.09	-48.09	-48.09	-48.09	-48.09	-48.09	-48.09	-48.09
3	1	-52	-52	-52	-52	-52	-52	-52	-52
3	2	-52.28	-52.86	-52.86	-52.86	-52.86	-52.86	-52.86	-52.86
3	3	-49.61	-49.61	-49.61	-49.61	-49.61	-49.61	-49.61	-49.61
3	4	-48.96	-48.96	-48.96	-48.96	-48.96	-48.96	-48.96	-48.96
3	5	-51.18	-51.76	-51.76	-51.76	-51.76	-51.76	-51.76	-51.76
3	6	-53.55	-53.75	-53.75	-53.75	-53.75	-53.75	-53.75	-53.75
3	7	-48.17	-48.75	-48.75	-48.75	-48.75	-48.75	-48.75	-48.75
3	8	-48.29	-48.88	-48.88	-48.88	-48.88	-48.88	-48.88	-48.88
3	9	-47.88	-48.47	-48.47	-48.47	-48.47	-48.47	-48.47	-48.47
3	10	-47.21	-47.78	-47.79	-47.79	-47.78	-47.77	-47.77	-47.77
3	11	-40.05	-40.63	-40.63	-40.63	-40.63	-40.61	-40.61	-40.61
3	12	-46.33	-46.54	-46.53	-46.53	-46.53	-46.53	-46.53	-46.53
3	13	-38.22	-38.41	-38.41	-38.41	-38.41	-38.41	-38.41	-38.41
3	14	-45.11	-45.3	-45.3	-45.3	-45.3	-45.3	-45.3	-45.3
3	15	-49.03	-49.03	-49.03	-49.03	-49.03	-49.03	-49.03	-49.03
4	1	-56.97	-56.97	-56.97	-56.97	-56.97	-56.97	-56.97	-56.97
4	2	-53.24	-53.86	-54.02	-54.48	-55.38	-56.49	-58.71	-66.41
4	3	-51.86	-52.44	-52.44	-52.44	-52.44	-52.44	-52.44	-52.44
4	4	-51.91	-52.49	-52.49	-52.49	-52.49	-52.49	-52.49	-52.49
4	5	-49.54	-49.54	-49.54	-49.54	-49.54	-49.54	-49.54	-49.54
4	6	-49.14	-49.14	-49.14	-49.14	-49.14	-49.14	-49.14	-49.14
4	7	-54.65	-55.23	-55.23	-55.23	-55.23	-55.23	-55.23	-55.23
4	8	-49.19	-49.77	-49.77	-49.77	-49.77	-49.75	-49.75	-49.75
4	9	-49.21	-49.79	-49.79	-49.79	-49.79	-49.79	-49.79	-49.79
4	10	-54.17	-54.48	-54.65	-54.61	-54.48	-54.45	-54.45	-54.45
4	11	-38.15	-38.73	-38.73	-38.73	-38.73	-38.73	-38.73	-38.73
4	12	-45.54	-46.12	-46.12	-46.12	-46.12	-46.12	-46.12	-46.12
4	13	-43.35	-43.93	-43.93	-43.93	-43.93	-43.93	-43.93	-43.93
4	14	-49.55	-50.13	-50.13	-50.13	-50.13	-50.13	-50.13	-50.13
4	15	-49	-49	-49	-49	-49	-49	-49	-49

BIOGRAPHY

Miss Krittika Lertsawat was born on February 19, 1971 in Bangkok, Thailand. She received her Bachelor of science in Environmental Science from Faculty of Science and Technology, Thammasat University, Bangkok, Thailand, in 1992. After graduation, she studied in Inter-disciplinary Programme in Environmental Science, Graduate School, Chulalongkorn University. She also has been a research assistant of noise pollution specialist at Chula Unisearch from November 1993 - May 1996, specialized on noise pollution study. At the present, she works as an environmental scientist in the Research and Development of Air and Noise pollution Division, Environmental Research and Training Center, Environmental Promotion Department of Thailand.