



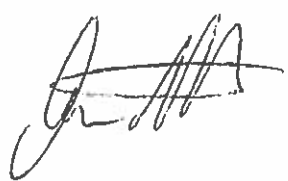
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24 HOUR NOISE LEVEL SURVEY CARRIED OUT ON THE FIRST FLOOR
ROOF OF THE OFFICE BUILDING KNOWN AS TANFIELD CHAMBERS
LOCATED AT 2-5 WARWICK COURT, LONDON WC1
AND A REPORT ON THE NOISE CONTROL
MEASURES REQUIRED TO MINIMISE THE NOISE IMPACT
OF THE PROPOSED NEW AIR CONDITIONING PLANT

Test Engineer : M G Roberts

Report Author : 
M G Roberts

Authorised for Release by : 
I J Marchant

Client : Peter Deer & Associates
Project : Tanfield Chambers, 2-5, Warwick Court, London WC1
Emtec Ref. : QF7403/PF4793/RP1
Date : 18th January 2013

2.0. TEST INSTRUMENTATION

All measurement equipment used during the survey complied with the requirements of BS4142:1997 "Method for Rating Industrial Noise Affecting Mixed Residential and Industrial Areas". Details of the equipment are as follows:

Integrating Sound Level Meters	: Bruel & Kjaer type 2231 fitted with a Bruel & Kjaer type 4155 ½ inch condenser microphone.
Statistical Analysis Modules	: Bruel & Kjaer type BZ 7115 capable of computing, percentile levels L1, L10, L50, L90 and L99 and also the Leq level.
Acoustic Calibrator	: Bruel & Kjaer type 4231 electronic calibrator.

Calibration was performed before and after the surveys and found to be, in all cases, +/- 0.1 dB from the reference source.

3.0. TEST PROCEDURE

The survey was conducted during a continuous 24 hour period from 15:12pm on Wednesday the 16th of January 2013 to 14:52pm on Thursday the 17th of January 2013.

Data was continuously acquired throughout the measurement period with the individual averaging time for statistical noise data set to 20 minutes. The following statistical measurements were recorded concurrently:

LA1	-	The Sound Pressure Level exceeded for 1% of the measurement period.
LA10	-	The Sound Pressure Level exceeded for 10% of the measurement period.
LA50	-	The Sound Pressure Level exceeded for 50% of the measurement period.
LA90	-	The Sound Pressure Level exceeded for 90% of the measurement period. LA90 is considered to represent the "background noise level" during the measurement period and is used for the assessment of noise to determine the likelihood of complaints (See BS 4142).
LA99	-	The Sound Pressure Level exceeded for 99% of the measurement period.
LAeq	-	The continuous steady state Sound Pressure Level that has the same acoustic energy as the real fluctuating level.

All noise levels recorded were filtered using a standard 'A' Weighting filter.

4.1. Summary of Results

The table QF/7403/D1 below summarises the noise levels taken over the 24 hour period in terms of the maximum and minimum Sound Pressure Levels recorded.

Table QF/7403/D1 – Summary of Maximum and Minimum Noise Levels

	LA1	LA10	LA50	LA90	LA99	LAeq
Min.	56.2dBA	55.7 dBA	55.7 dBA	55.2 dBA	54.7 dBA	55.5 dBA
Max.	67.2 dBA	59.2 dBA	58.2 dBA	57.7 dBA	57.2 dBA	58.9 dBA

5.0. DISCUSSION OF RESULTS

The lowest recorded LA90 background noise level was 55.2dBA which occurred during nine time period between 4:12am and 7:12am. The LA90 background noise level was between 57.7dBA and 55.2dBA during the whole 24 hour period and therefore only varied by 2.5dB over the daytime and nighttime period.

The condensing units, heat pumps and extract fans associated with the adjacent buildings were running throughout the test and obviously caused there to be a relatively high background noise level in the locality.

In order for any new Air Conditioning plant to not further elevate this already relatively high LA90 background noise level it will be necessary to select the new plant to achieve a combined noise level of no more than 10dB below the existing lowest LA90 level.

The table QF/7403/D2 below gives the limiting LAeq noise level for the new plant in line with this requirement.

Table QF/7403/D2 – Limiting LAeq Noise Level for New Plant

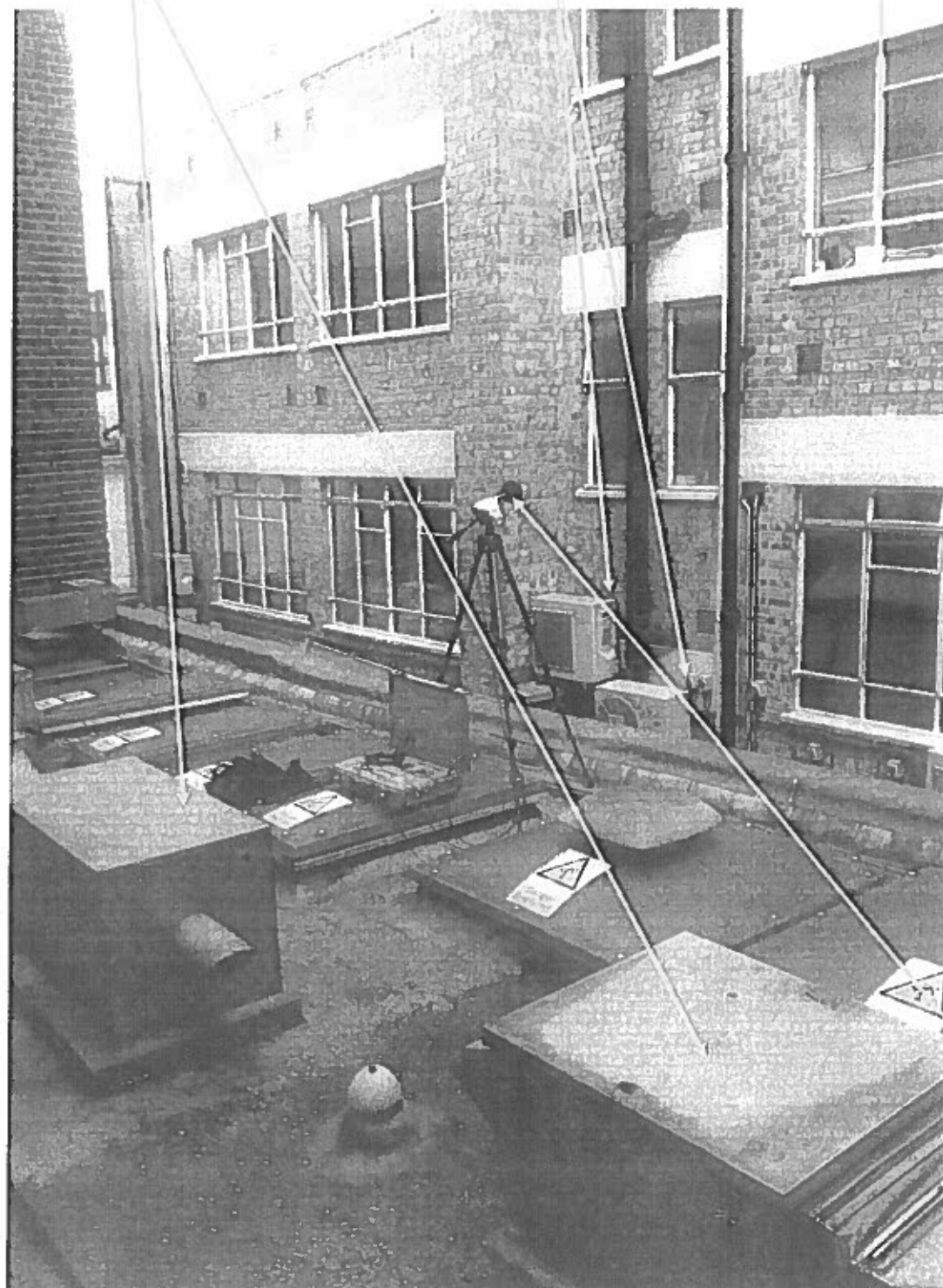
Hours of Operation	Lowest LA90 Background Noise Level	Limiting LAeq Noise Level for New Plant
24 Hours	55.2dBA	45.2dBA *

*Note: - This limiting noise level will apply 1 metre from the nearest property's window with all new plant running.

Tanfield Toilet Extract Fans
(Existing)

Condensing Units Operating by
Adjacent Offices

Adjacent Office Building



Microphone

Photo A – Location of Microphone on Edge of First Floor Roof

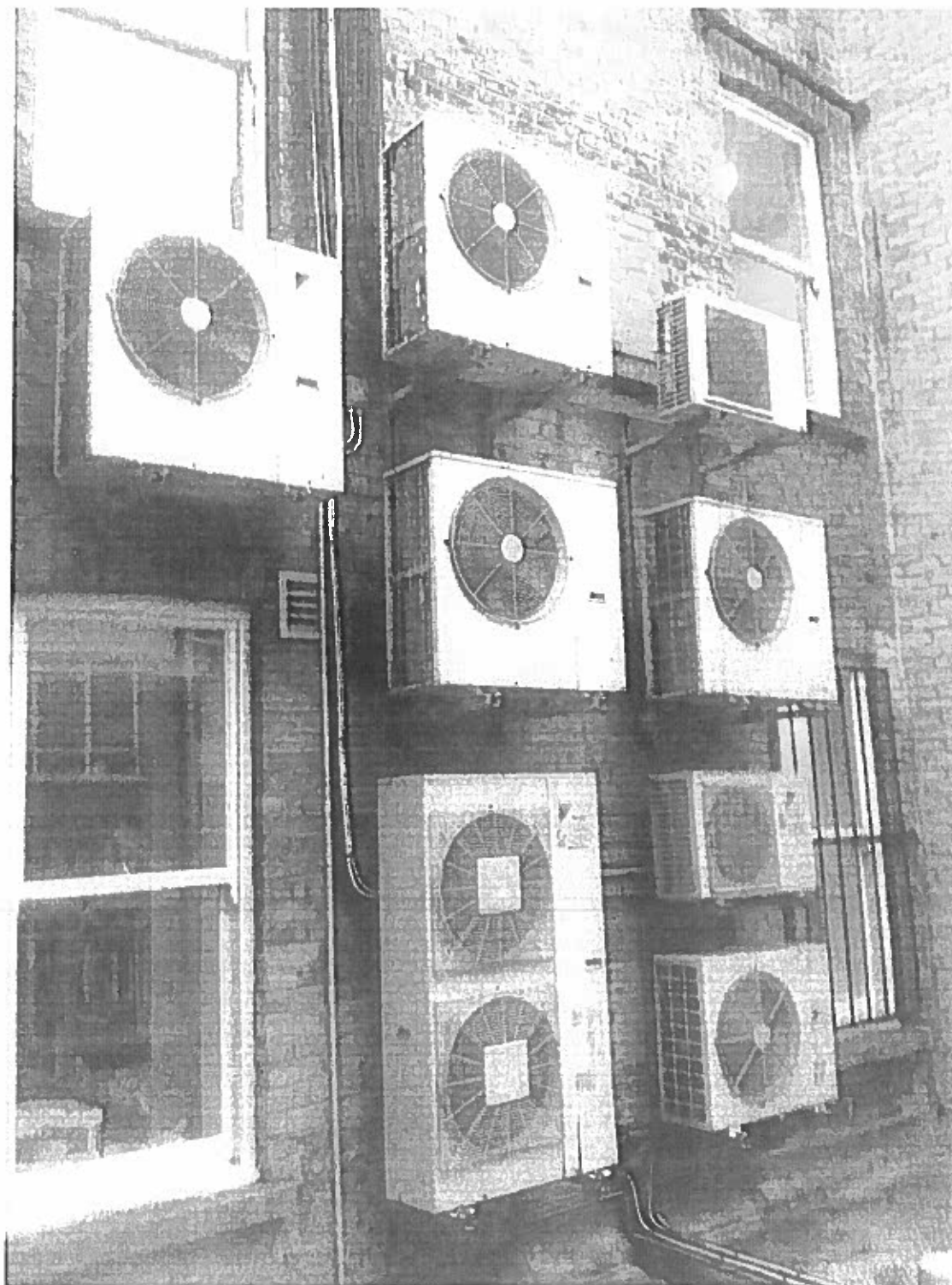
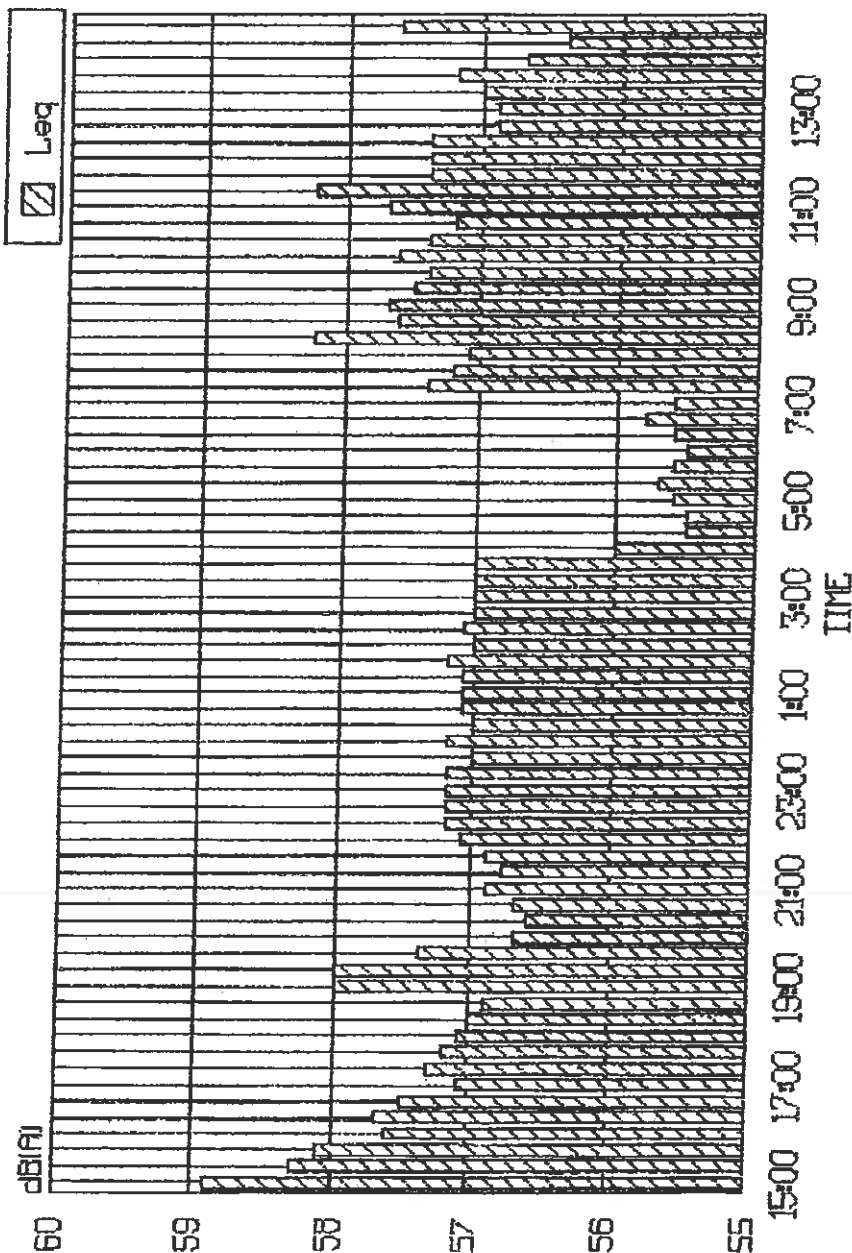


Photo C – Condensing Units Belonging to Tanfield Chambers Looking Over First Floor
Roof (Units Switched Off During Testing.)



Photo E – Single Condensing Unit Owned by Tanfield Chambers Overlooking First Floor Roof
(Switched Off During Testing.)

Tanfield Chambers, London WC1. 16th to 17th January 2013



TITLE: LAeq Levels

ISSUE DATE:
18/01/2013

DRAWN BY:
MGR

A B C D E F G H

CLIENT: Peter Deer & Associates

PF No: 4793

APPROVED BY:
MGR

REVISION

PROJECT: Tanfield Chambers, 2-5 Warwick
Court, London WC1

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DESIGN AUTH:
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SKETCH No. QF/7403/T1



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NOISE SURVEY DATA FROM BACKGROUND NOISE LEVEL SURVEY CARRIED OUT ON THE
REAR FIRST FLOOR ROOF AT TANFIELD CHAMBERS, 2-5 WARWICK COURT, LONDON WC1.

Project : Tanfield Chambers, 2-5 Warwick Court, London WC1.
Client : Peter Dyer and Associates
Ref : QF7403
Date : 18th January 2018

Measure No.	End Time	MaxP (dBA)	L1 (dBA)	L10 (dBA)	L50 (dBA)	L90 (dBA)	L99 (dBA)	Leq (dBA)
1	15:12	107.1	67.2	59.2	57.2	56.7	56.2	58.9
2	15:02	99.5	64.2	58.7	57.2	56.7	56.7	58.0
3	15:52	84.8	67.2	60.2	57.2	56.7	56.7	58.1
4	16:12	81.0	61.7	58.2	57.2	56.2	55.7	57.6
5	16:32	80	61.2	56.2	57.7	57.2	56.7	57.7
6	16:52	78.9	60.7	58.2	57.2	56.7	56.7	57.5
7	17:12	77.3	58.2	57.7	57.2	56.2	55.7	57.1
8	17:32	81.6	58.7	57.7	57.2	56.7	56.7	57.3
9	17:52	70.6	58.2	57.7	57.2	56.7	56.7	57.2
10	18:12	76.4	57.7	57.7	57.2	56.7	56.2	57.1
11	18:32	87.6	57.7	57.2	66.7	56.7	56.2	57
12	18:52	74.3	57.7	57.2	57.2	56.7	56.2	58.9
13	19:12	76.0	58.7	58.2	58.2	57.7	57.2	58
14	19:32	78.7	59.7	58.2	57.7	57.7	57.2	58
15	19:52	82.1	69.7	58.2	58.7	58.2	58.2	57.4
16	20:12	82.1	57.7	57.2	58.7	58.2	58.2	58.7
17	20:32	78.7	57.2	57.2	58.7	58.2	58.2	58.8
18	20:52	78.6	57.7	57.2	56.7	58.2	56.2	58.7
19	21:12	75.1	58.7	57.2	56.7	58.2	58.2	58.9
20	21:32	72.2	57.7	57.2	58.7	58.7	58.2	58.8
21	21:52	72.1	57.7	57.2	58.7	58.7	58.2	58.8
22	22:12	81.7	57.7	57.7	57.2	58.7	58.2	57.1
23	22:32	80.1	58.7	57.7	57.2	58.7	58.7	57.2
24	22:52	80.5	58.2	57.7	57.2	58.7	58.7	57.2
25	23:12	72.9	58.2	57.7	57.2	56.7	56.7	57.2
26	23:32	82.9	59.2	57.7	57.2	58.7	58.2	57.2
27	23:52	78.8	57.7	57.2	57.2	58.7	58.2	57
28	00:12	82.9	57.7	57.7	57.2	58.7	58.7	57.2
29	00:32	72	57.7	57.2	57.2	58.7	58.2	57
30	00:52	82.8	57.7	57.7	57.2	58.7	58.2	57.1
31	01:12	72.2	57.7	57.7	57.2	58.7	58.7	57.1
32	01:32	85	57.7	57.7	57.2	58.7	58.7	57.1
33	01:52	72.8	57.7	57.7	57.2	58.7	58.7	57.2
34	02:12	71.7	57.7	57.2	57.2	58.7	58.2	57
35	02:32	78.2	57.7	57.2	57.2	58.7	58.2	57.1
36	02:52	72.5	57.7	57.2	57.2	58.7	58.2	57
37	03:12	74.4	57.7	57.2	57.2	58.7	58.2	57
38	03:32	71.7	57.7	57.2	57.2	58.7	58.2	57
39	03:52	72	57.7	57.2	57.2	58.7	58.2	57
40	04:12	71.6	57.7	57.2	55.7	55.2	55.2	56
41	04:32	80.5	58.2	55.7	55.7	55.2	54.7	55.6
42	04:52	71.2	58.2	55.7	56.7	55.2	55.2	55.5
43	05:12	80.7	58.2	56.2	55.7	55.2	55.2	55.6
44	05:32	70.8	58.7	58.2	56.7	55.2	55.2	55.7
45	05:52	70.8	58.2	55.7	55.7	55.2	55.2	55.6
46	06:12	78.6	58.2	55.7	55.7	55.2	55.2	55.6
47	06:32	70.8	58.2	58.2	55.7	55.2	55.2	55.9
48	06:52	73.3	57.7	58.2	56.7	55.7	55.2	55.8
49	07:12	81.5	57.2	55.7	55.7	55.2	54.7	55.8
50	07:32	82.8	59.2	57.7	57.2	57.2	56.7	57.4
51	07:52	77.0	58.2	57.7	57.2	56.7	56.7	57.2
52	08:12	72.8	57.7	57.7	57.2	56.7	56.7	57.1
53	08:32	85.9	65.7	58.2	57.2	58.2	55.7	58.2
54	08:52	83.2	58.7	58.2	57.7	57.2	56.7	57.6
55	09:12	91	64.7	57.7	57.2	56.7	56.7	57.7
56	09:32	78.7	59.7	58.2	57.2	58.7	58.2	57.5
57	09:52	80.1	59.2	57.7	57.2	56.7	56.2	57.4
58	10:12	84.4	61.2	58.2	57.2	58.7	58.7	57.6
59	10:32	82.1	59.2	57.7	57.2	58.7	58.7	57.4
60	10:52	89.0	59.7	57.7	57.2	58.2	55.7	57.2
61	11:12	80.8	62.2	58.2	57.2	57.2	56.7	57.7
62	11:32	87.0	66.7	58.2	57.2	58.7	58.7	58.2
63	11:52	82	61.2	57.7	57.2	56.7	56.7	57.4
64	12:12	79.8	61.2	57.7	57.2	58.7	58.2	57.4
65	12:32	81.7	59.7	57.7	57.2	56.7	58.2	57.4
66	12:52	85.8	57.7	57.2	56.7	56.7	58.2	58.9
67	13:12	82.4	58.2	57.2	56.7	56.2	55.7	58.9
68	13:32	76.9	59.7	57.7	57.2	56.7	55.7	57
69	13:52	79.3	58.2	57.7	57.2	58.2	55.7	57.2
70	14:12	79.8	58.2	57.7	56.7	55.7	55.2	58.7
71	14:32	80.7	59.7	57.7	55.7	55.2	55.2	58.4
72	14:52	82	63.2	57.7	57.2	56.7	56.7	57.6