



<b>Project:</b>	58 Regent's Park Road			
<b>Client:</b>	DOLCE & GABBANA S.r.l.			
<b>Report Title:</b>	Environmental Noise Assessment			
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## **Appendix A: Site Drawings**

## **Appendix B: Measurement Data**

## **1.0 Introduction**

As part of refurbishment works to the property of address 58 Regent's Park Road, it is proposed that a number of items of air-conditioning plant be installed within the site demise.

Paragon Acoustic Consultants Ltd has been commissioned to conduct an environmental noise survey to obtain statistical noise data to characterise the existing local background and ambient noise climate at the site and to derive noise limits to atmosphere based on Local Authority Noise Policy and other relevant guideline documents. This information is used to determine if the proposed new mechanical plant selections meet with the derived noise limits and noise mitigation measures required.

The client has advised that in certain instances the operational period of the proposed mechanical plant shall be 24 hours.

## **2.0 Site Description & Proposed Plant Location**

### **2.1 Site Description**

The property under consideration (also referred to as "the site") is a three storey (plus basement) detached dwelling situated on the north elevation of Regent's Park Road.

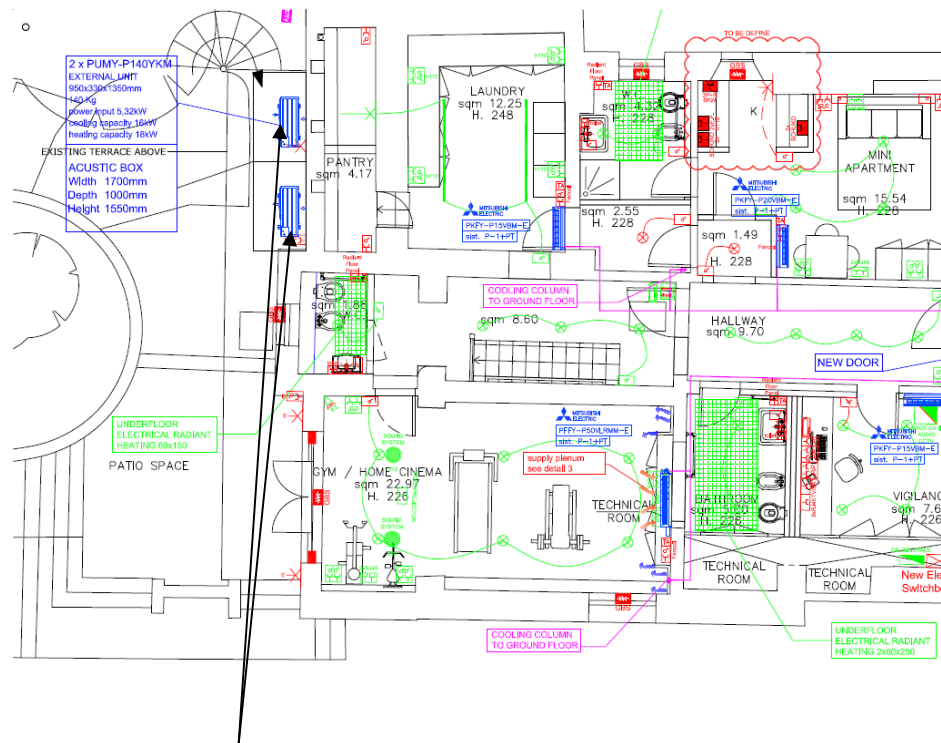
To the west lies the adjacent detached dwelling of number 60 Regent's Park Road, being of similar height to the site. Beyond this property lie other residential dwellings. To the east lies the adjacent semi detached dwelling of number 56 Regent's Park Road, being of similar height to the site. Beyond this property lie other residential dwellings.

The rear garden of 58 Regent's Park Road lies to the north of the property. To the north of the gardens of the site lie the third party dwellings and gardens with their frontage on Kingston Street. The garden of 58 Regent's Park Road is bounded to the west and east by gardens of 60 and 56 Regent's Park Road. The gardens of the site lie to the south of the main property, beyond which is the pavement and highway of Regent's Park Road. To the south west lies Primrose Hill Park.

The site is illustrated by plan in Appendix A.

### **2.2 Proposed Plant Location**

Extracts of drawings showing the proposed plant location are indicated as follows:



Proposed condensing units at rear of site under balcony. (final arrangement may vary slightly to allow airflow around condenser enclosures)

### 3.0 Existing Noise Climate

#### 3.1 Road Traffic

Noise emanating from vehicular road traffic was deemed to provide a significant contribution to the ambient noise climate proximal to the nearest affected residential premises. The overall noise comprises both individual “event” type emissions from vehicles passing along local roads, and also continuous low frequency “rumble” due to middle distance traffic flows.

#### 3.2 Rail Traffic

Rail traffic was not observed during the manned period at the start and end of the survey.

#### 3.3 Aircraft

Aircraft over flights were observed sporadically during the manned survey at the start and end of the period. Their contribution to the background noise climate will have been included within the measurements taken.

### 3.4 Mechanical Noise Sources

No other mechanical noise sources were observed at the site.

## 4.0 Environmental Noise Survey

### 4.1 Measurements

The noise monitoring took place between the following dates / times:

Start date: 23 / 01 / 2015

Start Time: Approx 10:00 hours

End date: 26 / 01 / 2015

End Time: Approx 10:00 hours

The noise monitoring was generally un-manned and was undertaken at the assessment location as described below.

- **MP1:** Rear of the site
- **MP2:** Front of the site

The measurement locations are illustrated on the site layout drawing in Appendix A.

Various statistical broad-band and spectral sound pressure level measurements were obtained during the survey. A measurement time interval  $T_m = 15$  minutes was used for sampling. Measurements of the percentile level  $L_{A90,T}$  were made using the sound level meter fast time constant (125ms), as per clause 3.10 of BS 4142:1997.

The quantities recorded included:

- **$L_{Aeq}$ : the equivalent continuous noise level over the measurement period**
- **$L_{Amax}$ : the maximum sound pressure level (Fast time-weighting)**
- **$L_{A10}$ : the noise level exceeded for 10% of the measurement period**
- **$L_{A90}$ : the noise level exceeded for 90% of the measurement period**

### 4.2 Weather during Survey Period

The weather conditions at the start of the manned period of the survey were dry and mild with a slight breeze. At the end of the survey the weather conditions were similar. Precipitation is likely to have occurred during the survey period; however, it is considered that the data obtained provided sufficient data to give the lowest likely background noise level for the plant operational period.

### 4.3 Instrumentation

Sound pressure level measurements were obtained using the following instrumentation complying with the Type 1 specification of IEC 60651, IEC 60804, IEC 61260 and IEC 61672:

#### Meter 1

- Norsonic Type 118 Sound level analyser, serial number 31990
- Norsonic Type 1225 ½" microphone

#### Meter 2.

- Norsonic Type 118 Sound level analyser, serial number 31663
- Norsonic Type 1225 ½" microphone

Additionally, the following equipment was used for each set of equipment:

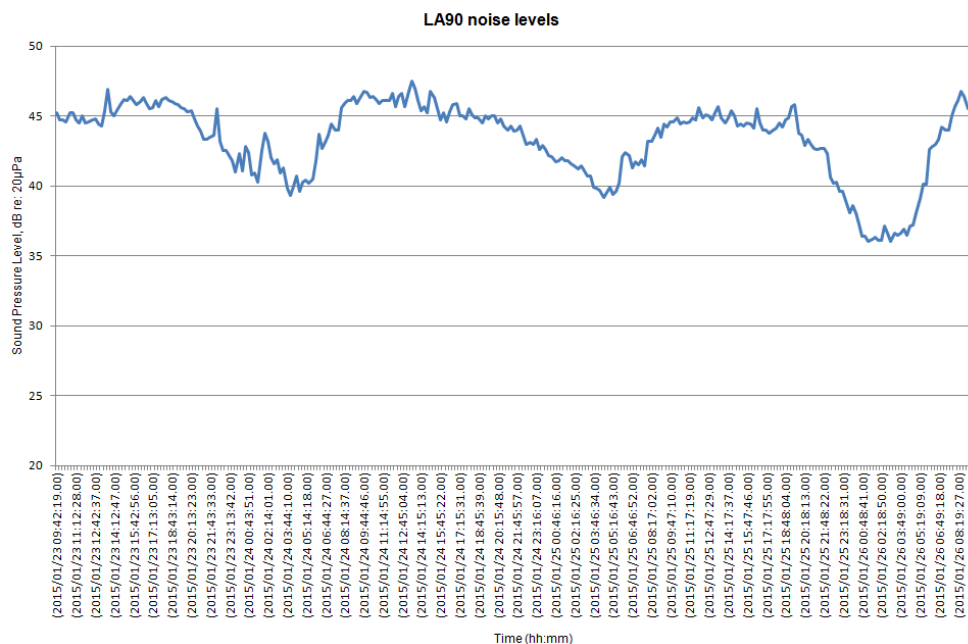
- Weather protection kit
- NOR 1212 microphone outdoor protection kit

Calibration checks were made prior to and after completion of measurements using a Norsonic Type 1251 acoustical calibrator complying with Class 1 of IEC 942 (1988), calibration level 114.0 dB  $\pm$  0.3 dB, @ 1.0 kHz. All instrumentation carries a current manufacturer's certificate of conformance a copy of which is available upon request.

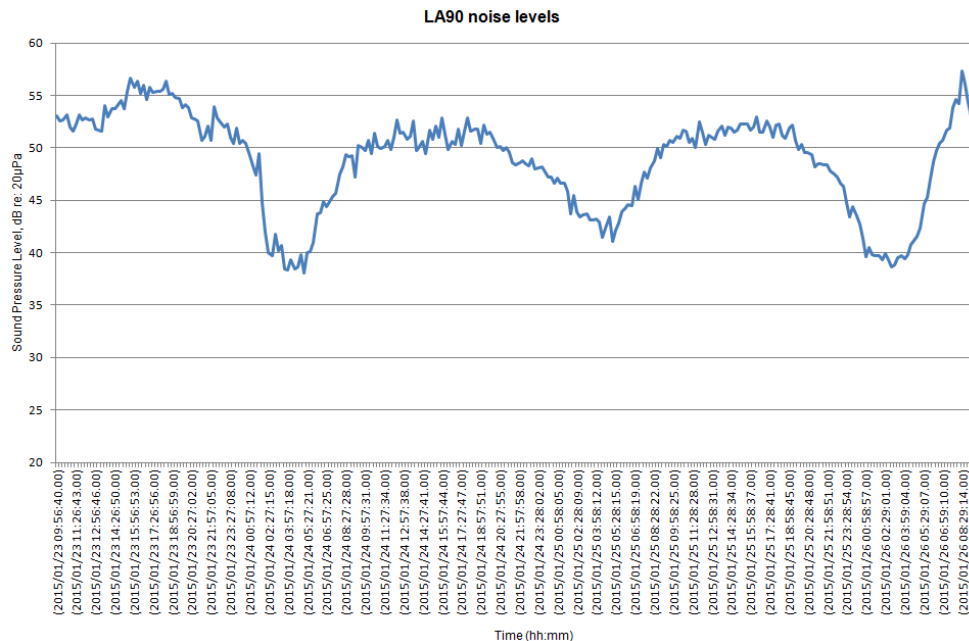
## 4.4 Results

The recorded statistical broadband sound pressure levels are shown within Appendix B, and the LA90 background noise levels indicated graphically below:

MP1: Rear of the site



MP2: Front of the site



The recorded statistical broad-band sound pressure levels are shown within Appendix B, and the lowest representative daytime and night-time background noise levels obtained are summarised in Table 1.

**Table 1:** Lowest Background Sound Pressure Level Measurements

Measurement Position	Day time L <sub>A90</sub> (07:00-23:00)	Night time L <sub>A90</sub> (23:00-07:00)
MP1 Rear of site	40 dB	36 dB
MP2 Front of site	44 dB	38 dB

## 5.0 Evaluation of External Noise Criteria

The local vicinity contains mixed commercial and residential premises, both of which must be given due consideration in terms of acceptable levels of noise exposure from the new plant.

In order to establish the Local Authority Noise Policy this practice visited the Camden Council web site and downloaded their noise strategy from the following web link page:

[http://search.camden.gov.uk/search?site=default\\_collection&client=camden\\_frontend&output=xml\\_no\\_dtd&proxystylesheet=camden\\_frontend&sort=date%3AD%3AL%3Ad1&oe=UTF-8&ie=UTF-8&ud=1&q=mechanical+plant+noise+policy+&x=15&y=7](http://search.camden.gov.uk/search?site=default_collection&client=camden_frontend&output=xml_no_dtd&proxystylesheet=camden_frontend&sort=date%3AD%3AL%3Ad1&oe=UTF-8&ie=UTF-8&ud=1&q=mechanical+plant+noise+policy+&x=15&y=7)

The policy is reproduced in italicised text as follows:

***Ventilation ducts and air handling equipment***

*16.33 The following standard applies to all air-cooling, heating, ventilation, extraction and conditioning systems and to any ancillary plant, ducting and equipment which would have an impact on the external environment. The Council seeks to ensure that noise level output from all such systems does not increase*

*existing ambient noise levels, in order to protect existing levels and prevent "creep" (a rise in background noise levels). This may require close co-operation between an environmental or air handling engineer and the architect to agree an acceptable design solution for the particular premises and uses for which the system is designed.*

*16.34 The Council considers that for new developments involving noisy plant/equipment or other uses, design measures should be taken to ensure that noise levels predicted at a point 1 metre external to sensitive facades are at least 5dB(A) less than the existing background measurement (LA90) when the equipment is in operation. Where it is anticipated that equipment will have a noise that has a distinguishable, discrete continuous note (whine, hiss, screech, hum) and/or if there are distinct impulses in the noise (bangs, clicks, clatters, thumps), special attention should be given to reducing the noise levels from plant and equipment at any sensitive facade to at least 10dB(A) below the LA90 level.*

Our interpretation of the wordage relating to "sensitive facades" is that this will refer to third party noise sensitive facades, i.e. not including the facades of the dwelling known as 58 Regent's Park Road.

## 5.1 External Noise Criteria

The derived external noise criteria to which the new building services plant shall be required to achieve are summarised in Table 2:

**Table 2:** Limiting Noise Criteria Applicable @ 1m From the Affected Premises

Plant location	Receptor	Rating level Daytime (07:00-23:00) L <sub>ArT</sub>	Rating level Night time (23:00-07:00) L <sub>ArT</sub>
Any location on site	Third party dwellings to the north of the site, including rear and side facades of the two adjacent residential properties of 60 and 56 Regent's Park Road	35 dB	31 dB
	Third party dwellings to the south of the site, including south facing facades of the two adjacent residential properties of 60 and 56 Regent's Park Road	39 dB	33 dB

If mechanical plant contains noise of a distinguishable, discrete continuous note (whine, hiss, screech, hum) and/or distinct impulses (bangs, clicks, clatters, thumps) a 5 dB penalty shall be included within the assessment as described within the Local Authority Noise Policy.

Note that the limiting noise criteria apply to the noise level at 1m from the receptor location with all mechanical plant operating. The selection of future mechanical plant items must allow for the combined effect of all plant noise to be introduced to the site.



## 6.0 Review of Proposed External Condensers

Detailed calculations have been carried out in order to determine the likely level of airborne noise transmission outside the identified assessment locations due to the operation of the proposed new plant to be installed at the rear of the clients building. Section 2.2 details the plant location/s used in the assessment.

The following sections provide a record of the proposed new plant, the operational sound levels used as the basis for this assessment, and a specification for noise mitigation treatments.

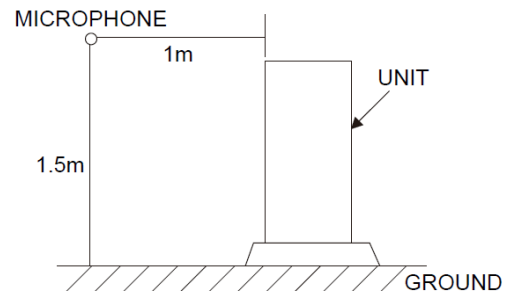
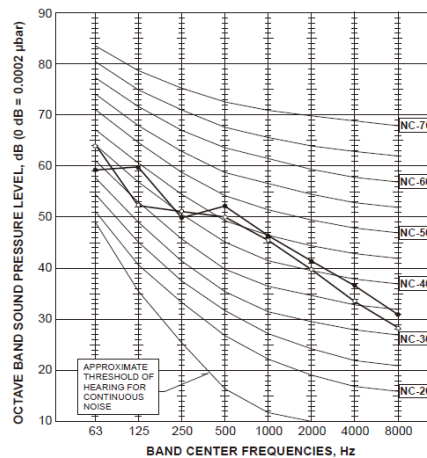
### 6.1 Condenser Noise Levels

The manufacturers published operational noise levels for the selected item of plant are reproduced as follows:

2 Number type Mitsubishi model P140 YKM

PUMY-P140VKM(-BS)  
 PUMY-P140YKM(-BS)

MODE	SPL(dB)	LINE
COOLING	51	○—○
HEATING	53	●—●



### 6.2 Predicted Condenser Noise Levels

The predicted noise levels of the condensers exceed the derived noise limits established herein. It is understood that there is not a less noise sensitive location is available for the mechanical equipment and that a 10+ dB(A) reduction in mechanical plant noise emissions is not achievable for equipment of similar capacity. As such, it is considered appropriate to introduce noise mitigation measures to the condenser plant area.

### 6.3 Noise mitigation to External Condensers

Either a single acoustic enclosure to each condensing unit or an enclosure to house both condensing units shall be used. A specialist supplier shall provide fit for purpose acoustic enclosure/s to provide the following minimum acoustic performance:

**Table 3:** Minimum insertion loss requirements for each enclosure

Quantity	1/1 octave band centre frequency, Hz							
	63	125	250	500	1000	2000	4000	8000
Minimum insertion loss (dB)	10	10	15	20	20	14	12	10

The insertion loss is hereby defined as the difference in sound pressure level with and without the enclosure in place.

In order for this potential reduction in acoustic performance to be evaluated the enclosure supplier shall submit their product acoustic test data to Paragon Acoustic Consultants Limited prior to procurement / manufacture. Test data shall be provided for all of the proposed hardware products used in the construction of the enclosure and shall be obtained from an independent UKAS accredited test laboratory to provide proof that the foregoing acoustic performance will be maintained.

The dimensions of the enclosure are to be determined by the noise mitigation hardware supplier and agreed with the client.

Paragon Acoustic Consultants has considered the acoustic performance of the enclosure. The introduction of this type of structure has implications in other areas of design. As such, the client shall employ the services of other specialists to take responsibility for other areas of design associated with the introduction of such a structure. The following list is provided as an example of other areas to be considered as a minimum:

**Airflow to and from condensing units:** The installation of an enclosure will restrict the airflow around the condensing units. This will potential give rise to two adverse effects as follows:

- The resistance to airflow will increase
- Heated discharge air from the condenser coils may re-circulate back into the condenser coils

The supplier of close fitting enclosure and the mechanical services consultant shall guarantee that their enclosures shall not adversely affect the performance of condensing units.

**Structural:** A suitably qualified consultant shall assess all structural loading as necessary.

**Aesthetics:** The visual appearance of the enclosures is to be agreed by the client's architect. The architect shall also consider all necessary statutory approvals and address design issues not covered by the relevant specialist consultant.

**Alteration to existing services:** The installation of each enclosure may require alteration to certain of the existing mechanical and electrical services in the vicinity of the proposed enclosure. In addition, the condensing units may require to be moved into close fitting enclosures. The client shall co-ordinate any such works.

**Delivery and installation access:** The enclosure supplier shall make appropriate arrangements for the delivery and installation of enclosures, including equipment such as cranes and scaffolding requirements.

**Guarantees:** The client shall obtain the necessary guarantees that the enclosure will meet the minimum insertion loss requirements as specified by this practice in the foregoing section. In addition, the client shall obtain all other guarantees as required.

**Maintenance / repair / replacement:** The enclosures shall allow maintenance / repair / replacement of the condensing unit equipment enclosed.

**Warrantees:** The client shall ensure that the warrantees provided by the condensing unit supplier/manufacture are not invalidated by the introduction of the noise mitigation works.

**Submission of final enclosure designs:** The final design of the enclosures shall be submitted to Paragon Acoustic Consultants for comment prior to manufacture.

## 6.4 Vibration – Mechanical Plant

It is recommended that the client provisions for appropriate vibration isolation mountings for the proposed mechanical plant items. It is recommended that the plant be installed on vibration isolation mounts providing a minimum of 98% isolation efficiency at the lowest forcing frequency using an isolation mount system approved by the plant supplier. In addition, all pipework should be suitably isolated from the building structure.

## 6.5 Predicted Condenser Noise Levels Following Noise Mitigation

Calculations have been carried out to determine the predicted noise levels at the most exposed receiver location based on the insertion loss of the enclosures proposed as detailed in Table 3. The predicted results summarised in Table 4 as follows.

**Table 4:** Predicted Noise Levels @ Nearest Exposed Residential Dwelling following noise mitigation

Plant under consideration	Worst case Assessment location	Approximate source – receiver distance	Direct line of sight Y or N	Predicted Lp at receiver	Derived noise limit Daytime / night time L <sub>A/T</sub>
2 Number type Mitsubishi model P140 YKM	Residential property to the east - 56 Regent's Park Road	3	Y	23+5* dB = 28 dB	35 / 31 dB

\* In the interest of robust assessment a 5 dB acoustic feature correction has been added. Thus predicted noise levels are predicted to be at least 10dB(A) below the LA90 levels required by the Local Authority noise policy.

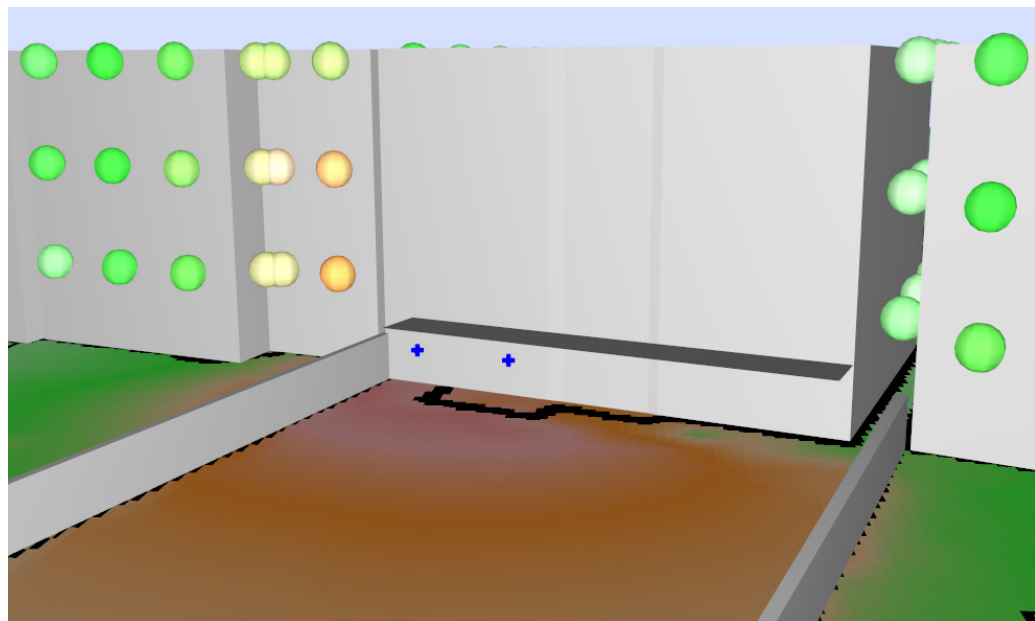
It can be seen from the results indicated in Table 4 that the proposed plant together with the noise mitigation measures details in Section 6 **will maintain** the Local Authority Noise Policy requirements for residential properties.

Screenshots of the CadnaA model are reproduced as follows:

Fig 1: plan view of area local to the proposed plant including noise mitigation measures



Fig 2: 3D view of area local to the proposed plant including noise mitigation measures



## **7.0 Conclusions**

A background noise survey has been undertaken to determine the noise climate likely to exist in the vicinity of the 58 Regent's Park Road, where the positioning of mechanical plant is proposed. Appropriate external criteria have been identified on the basis of Local Authority noise policy and predictions of the proposed mechanical plant noise emissions have been undertaken.

Predictions of noise emission from the proposed plant indicate that the noise mitigation measures will be required in order to meet with the derived noise limits and as such specification for the noise mitigation measures has been provided herein. Following implementation and achievement of the noise mitigation recommended to the proposed condensing unit it is predicted that its noise emissions will meet the existing noise policy operated by Camden Council. On this basis, reservations are not expected from the planning authority on the grounds of noise.

## Appendix A: Site Drawings



## Appendix B: Measurement Data

### MP1: Rear of the site

1st day	L <sub>Aeq</sub>	L <sub>A</sub> F(max)	L <sub>10</sub>	L <sub>90</sub>	2nd day	L <sub>Aeq</sub>	L <sub>A</sub> F(max)	L <sub>10</sub>	L <sub>90</sub>	3rd day	L <sub>Aeq</sub>	L <sub>A</sub> F(max)	L <sub>10</sub>	L <sub>90</sub>	4th day	L <sub>Aeq</sub>	L <sub>A</sub> F(max)	L <sub>10</sub>	L <sub>90</sub>
07:00	0.00	0.00	0.00	0.00	(2015/01/24 06:59:29.00)	49.70	66.50	52.90	43.60	(2015/01/25 07:01:54.00)	52.30	66.40	56.70	41.70	(2015/01/26 07:04:19.00)	50.20	71.70	52.10	44.20
07:15	0.00	0.00	0.00	0.00	(2015/01/24 07:14:30.00)	48.60	66.30	50.30	44.40	(2015/01/25 07:16:56.00)	49.40	64.00	53.60	41.50	(2015/01/26 07:19:21.00)	51.80	69.80	53.50	44.00
07:30	0.00	0.00	0.00	0.00	(2015/01/24 07:29:32.00)	49.80	67.30	51.10	44.00	(2015/01/25 07:31:57.00)	51.10	71.80	52.90	41.90	(2015/01/26 07:34:22.00)	47.60	68.00	49.30	44.00
07:45	0.00	0.00	0.00	0.00	(2015/01/24 07:44:33.00)	51.50	76.70	52.40	44.00	(2015/01/25 07:46:59.00)	46.30	65.50	48.20	41.40	(2015/01/26 07:49:23.00)	48.70	71.10	50.10	45.00
08:00	0.00	0.00	0.00	0.00	(2015/01/24 07:59:35.00)	49.90	66.80	52.00	45.60	(2015/01/25 08:02:00.00)	48.00	62.30	50.80	43.20	(2015/01/26 08:04:25.00)	49.10	63.30	51.20	45.70
08:15	0.00	0.00	0.00	0.00	(2015/01/24 08:14:37.00)	50.90	66.20	53.50	45.90	(2015/01/25 08:17:02.00)	47.50	62.60	49.80	43.20	(2015/01/26 08:19:27.00)	55.80	78.50	55.70	46.10
08:30	0.00	0.00	0.00	0.00	(2015/01/24 08:29:38.00)	49.00	60.40	51.10	46.10	(2015/01/25 08:32:03.00)	46.80	64.80	48.30	43.60	(2015/01/26 08:34:28.00)	49.30	67.20	51.10	46.80
08:45	0.00	0.00	0.00	0.00	(2015/01/24 08:44:40.00)	51.90	67.90	54.30	46.10	(2015/01/25 08:47:05.00)	48.30	70.10	50.20	44.10	(2015/01/26 08:49:30.00)	49.50	63.50	51.70	46.40
09:00	0.00	0.00	0.00	0.00	(2015/01/24 08:59:41.00)	49.80	63.30	52.20	46.40	(2015/01/25 09:02:06.00)	48.50	65.30	50.20	43.50	(2015/01/26 09:04:32.00)	48.20	62.00	50.20	45.50
09:15	0.00	0.00	0.00	0.00	(2015/01/24 09:14:43.00)	48.50	65.30	52.00	45.90	(2015/01/25 09:17:07.00)	49.00	65.00	51.00	44.40	(2015/01/26 09:19:33.00)	48.60	62.70	50.70	45.80
09:30	0.00	0.00	0.00	0.00	(2015/01/24 09:29:44.00)	51.10	77.50	52.10	46.40	(2015/01/25 09:32:09.00)	48.60	74.90	49.20	44.20	(2015/01/26 09:34:35.00)	63.80	89.60	60.90	46.60
(2015/01/23 09:42:19.00)	54.20	82.90	53.00	45.20	(2015/01/24 09:44:46.00)	51.30	69.10	53.20	46.80	(2015/01/25 09:47:10.00)	48.50	63.10	50.70	44.60	09:45	0.00	0.00	0.00	0.00
(2015/01/23 09:57:21.00)	48.90	73.40	50.80	44.70	(2015/01/24 09:59:47.00)	50.70	66.80	52.90	46.70	(2015/01/25 10:02:12.00)	49.70	73.30	51.60	44.60	10:00	0.00	0.00	0.00	0.00
(2015/01/23 10:12:22.00)	47.20	59.80	48.50	44.70	(2015/01/24 10:14:49.00)	48.40	64.00	49.90	46.30	(2015/01/25 10:17:13.00)	48.80	64.90	50.90	44.90	10:15	0.00	0.00	0.00	0.00
(2015/01/23 10:27:24.00)	47.50	62.00	49.10	44.60	(2015/01/24 10:29:51.00)	50.80	66.30	52.90	46.40	(2015/01/25 10:32:15.00)	48.10	60.60	50.00	44.40	10:30	0.00	0.00	0.00	0.00
(2015/01/23 10:42:25.00)	50.30	64.00	53.70	45.20	(2015/01/24 10:44:52.00)	50.20	67.80	52.30	46.20	(2015/01/25 10:47:17.00)	48.90	66.20	51.00	44.60	10:45	0.00	0.00	0.00	0.00
(2015/01/23 10:57:27.00)	48.30	59.00	50.70	45.20	(2015/01/24 10:59:54.00)	49.90	66.00	51.20	45.90	(2015/01/25 11:02:18.00)	50.30	65.90	53.30	44.50					
(2015/01/23 11:12:28.00)	48.00	68.00	49.80	44.70	(2015/01/24 11:14:55.00)	48.70	60.00	50.70	46.10	(2015/01/25 11:17:19.00)	49.50	66.00	51.90	44.60					
(2015/01/23 11:27:30.00)	47.80	74.70	48.60	44.50	(2015/01/24 11:29:57.00)	48.40	61.70	50.20	46.30	(2015/01/25 11:32:21.00)	49.60	63.30	52.80	44.90					
(2015/01/23 11:42:31.00)	48.50	64.40	51.60	45.00	(2015/01/24 11:44:58.00)	49.00	67.10	50.20	46.10	(2015/01/25 11:37:23.00)	47.80	61.80	49.80	44.70					
(2015/01/23 11:57:33.00)	46.60	60.00	48.10	44.50	(2015/01/24 12:00:00.00)	50.70	65.60	52.40	46.60	(2015/01/25 12:02:24.00)	51.00	67.40	54.20	45.60					
(2015/01/23 12:12:34.00)	47.30	60.90	49.10	44.60	(2015/01/24 12:15:01.00)	48.00	63.90	49.40	45.70	(2015/01/25 12:17:36.00)	49.20	65.50	51.80	44.90					
(2015/01/23 12:27:36.00)	51.20	71.60	52.90	44.70	(2015/01/24 12:30:03.00)	50.30	67.30	52.40	46.40	(2015/01/25 12:32:27.00)	49.70	64.30	53.00	45.10					
(2015/01/23 12:42:37.00)	50.50	69.30	52.90	44.80	(2015/01/24 12:45:04.00)	51.80	70.80	54.50	46.60	(2015/01/25 12:47:29.00)	50.60	66.10	53.60	45.00					
(2015/01/23 12:57:39.00)	48.30	69.30	49.30	44.40	(2015/01/24 13:00:06.00)	52.50	78.10	51.70	45.70	(2015/01/25 13:02:30.00)	48.40	63.60	50.50	44.70					
(2015/01/23 13:12:40.00)	47.10	59.10	48.80	44.30	(2015/01/24 13:15:07.00)	57.10	80.40	58.20	46.80	(2015/01/25 13:17:31.00)	50.10	65.00	52.80	45.20					
(2015/01/23 13:27:42.00)	49.10	60.80	51.50	45.40	(2015/01/24 13:30:08.00)	55.30	82.40	55.40	47.50	(2015/01/25 13:32:33.00)	49.90	66.80	52.50	45.70					
(2015/01/23 13:42:43.00)	55.30	65.20	60.50	46.90	(2015/01/24 13:45:10.00)	52.30	69.10	55.20	47.00	(2015/01/25 13:37:34.00)	49.10	73.40	50.20	44.90					
(2015/01/23 13:57:45.00)	51.30	64.50	54.20	45.30	(2015/01/24 14:00:11.00)	50.40	63.80	53.00	46.30	(2015/01/25 14:02:36.00)	48.30	65.30	49.80	44.50					
(2015/01/23 14:12:47.00)	48.90	61.10	50.20	45.00	(2015/01/24 14:15:13.00)	48.60	61.90	50.50	45.40	(2015/01/25 14:17:37.00)	49.30	69.30	51.20	44.90					
(2015/01/23 14:27:48.00)	50.40	60.80	54.20	45.50	(2015/01/24 14:30:14.00)	52.60	70.90	55.40	45.70	(2015/01/25 14:32:39.00)	47.70	58.80	49.40	45.40					
(2015/01/23 14:42:49.00)	52.20	69.60	55.70	45.90	(2015/01/24 14:45:16.00)	54.90	80.10	54.70	45.20	(2015/01/25 14:47:40.00)	49.60	67.30	51.90	45.00					
(2015/01/23 14:57:51.00)	50.30	65.30	52.20	46.20	(2015/01/24 15:00:17.00)	59.10	79.50	62.10	46.80	(2015/01/25 15:02:42.00)	48.40	77.40	50.70	44.30					
(2015/01/23 15:12:53.00)	50.20	70.40	50.70	46.10	(2015/01/24 15:15:19.00)	57.40	77.30	60.80	46.30	(2015/01/25 15:17:43.00)	50.00	70.60	49.50	44.40					
(2015/01/23 15:27:54.00)	50.60	61.40	55.40	45.40	(2015/01/24 15:30:20.00)	47.20	58.40	48.70	45.50	(2015/01/25 15:32:44.00)	47.20	61.10	49.20	44.30					
(2015/01/23 15:42:56.00)	49.10	61.00	51.20	46.10	(2015/01/24 15:45:22.00)	46.50	56.50	47.90	44.70	(2015/01/25 15:47:48.00)	51.70	67.70	54.60	44.50					
(2015/01/23 15:57:57.00)	49.00	64.40	51.20	45.80	(2015/01/24 16:00:23.00)	47.20	63.10	48.90	45.20	(2015/01/25 16:02:48.00)	48.80	65.60	51.30	44.40					
(2015/01/23 16:12:58.00)	49.30	63.40	51.20	46.00	(2015/01/24 16:15:25.00)	47.00	61.70	48.50	44.60	(2015/01/25 16:17:49.00)	48.90	63.00	51.80	44.10					
(2015/01/23 16:28:00.00)	52.80	76.20	53.00	46.30	(2015/01/24 16:30:26.00)	52.60	72.20	55.20	45.30	(2015/01/25 16:32:51.00)	50.20	64.20	53.30	45.50					
(2015/01/23 16:43:01.00)	51.20	69.40	54.00	45.90	(2015/01/24 16:45:28.00)	47.90	59.70	49.60	45.80	(2015/01/25 16:47:53.00)	49.50	65.40	52.60	44.50					
(2015/01/23 16:58:03.00)	48.90	63.50	50.70	45.50	(2015/01/24 17:00:29.00)	52.30	68.30	55.70	45.90	(2015/01/25 17:02:54.00)	50.00	69.90	52.10	44.00					
(2015/01/23 17:13:05.00)	47.80	58.70	48.70	45.60	(2015/01/24 17:15:31.00)	47.30	59.60	49.10	45.00	(2015/01/25 17:17:55.00)	47.50	62.20	49.70	44.00					
(2015/01/23 17:28:06.00)	51.70	78.30	49.30	46.10	(2015/01/24 17:30:32.00)	47.40	56.30	49.30	45.00	(2015/01/25 17:32:56.00)	49.40	64.10	52.50	43.80					
(2015/01/23 17:43:08.00)	47.80	57.40	49.70	45.70	(2015/01/24 17:45:33.00)	46.80	64.60	48.00	44.80	(2015/01/25 17:47:58.00)	47.10	60.90	48.90	44.00					
(2015/01/23 17:58:10.00)	49.10	61.10	51.10	46.20	(2015/01/24 18:00:35.00)	47.20	55.60	48.60	45.50	(2015/01/25 18:02:49.00)	48.40	62.80	51.30	44.10					
(2015/01/23 18:13:11.00)	49.10	61.10	51.20	46.30	(2015/01/24 18:15:36.00)	47.00	58.80	48.20	45.10	(2015/01/25 18:18:01.00)	49.00	65.20	50.10	44.50					
(2015/01/23 18:28:13.00)	48.10	58.10	49.50	46.10	(2015/01/24 18:30:38.00)	47.90	62.50	48.90	44.90	(2015/01/25 18:33:02.00)	48.10	62.10	50.90	44.20					
(2015/01/23 18:43:14.00)	48.10	60.30	50.00	46.00	(2015/01/24 18:45:41.00)	47.70	63.50	48.60	44.90	(2015/01/25 18:48:04.00)	47.50	61.20	49.60	44.70					
(2015/01/23 18:58:16.00)	47.90	55.80	49.70	45.90	(2015/01/24 19:00:41.00)	46.20	53.50	47.50	44.50	(2015/01/25 19:09:06.00)	48.70	59.30	51.40	44.90					
(2015/01/23 19:13:17.00)	48.70	62.90	50.50	45.80	(2015/01/24 19:15:42.00)	47.20	56.80	49.30	45.00	(2015/01/25 19:18:30.00)	49.80	60.60	52.50	45.70					
(2015/01/23 19:28:18.00)	48.30	62.70	50.30	45.60	(2015/01/24 19:30:44.00)	48.30	66.30	48.70	44.80	(2015/01/25 19:33:09.00)	50.30	68.10	52.30	45.80					
(2015/01/23 19:43:20.00)	49																		

MP2: Front of the site

1st day	L(Aeq)	LAF(max)	L10	L90
07:00	0.00	0.00	0.00	0.00
07:15	0.00	0.00	0.00	0.00
07:30	0.00	0.00	0.00	0.00
07:45	0.00	0.00	0.00	0.00
08:00	0.00	0.00	0.00	0.00
08:15	0.00	0.00	0.00	0.00
08:30	0.00	0.00	0.00	0.00
08:45	0.00	0.00	0.00	0.00
09:00	0.00	0.00	0.00	0.00
09:15	0.00	0.00	0.00	0.00
09:30	0.00	0.00	0.00	0.00
09:45	0.00	0.00	0.00	0.00
2015/01/23 09:56:40.00	63.00	83.30	65.50	53.10
2015/01/23 10:11:40.00	61.20	77.50	64.50	52.40
2015/01/23 10:26:41.00	62.30	80.40	65.40	52.70
2015/01/23 10:41:41.00	60.90	77.30	64.30	51.20
2015/01/23 10:56:42.00	60.90	78.00	63.90	52.00
2015/01/23 11:11:43.00	61.30	74.70	64.60	51.60
2015/01/23 11:26:43.00	61.70	75.40	65.00	52.30
2015/01/23 11:41:44.00	61.30	76.00	64.60	53.20
2015/01/23 11:56:44.00	61.40	80.00	64.30	52.70
2015/01/23 12:11:45.00	61.30	72.90	64.00	52.90
2015/01/23 12:26:45.00	60.90	73.90	64.00	52.70
2015/01/23 12:41:46.00	60.80	68.60	63.50	52.40
2015/01/23 12:56:46.00	60.90	74.60	64.50	51.80
2015/01/23 13:11:47.00	59.80	71.60	63.50	51.70
2015/01/23 13:26:47.00	60.30	71.30	63.80	51.60
2015/01/23 13:41:48.00	62.40	76.00	65.50	54.00
2015/01/23 13:56:48.00	60.90	76.00	64.10	53.00
2015/01/23 14:11:49.00	61.80	77.90	64.70	53.70
2015/01/23 14:26:50.00	61.30	75.70	64.50	53.70
2015/01/23 14:41:50.00	63.20	81.20	65.90	54.10
2015/01/23 14:56:50.00	62.10	77.90	65.30	54.50
2015/01/23 15:11:51.00	61.60	72.20	64.80	53.70
2015/01/23 15:26:51.00	62.40	79.80	65.00	54.00
2015/01/23 15:41:52.00	63.30	79.50	66.30	56.70
2015/01/23 15:56:52.00	62.80	80.10	65.70	55.80
2015/01/23 16:11:53.00	63.20	80.50	66.80	56.40
2015/01/23 16:26:54.00	66.90	94.30	69.40	55.20
2015/01/23 16:41:54.00	62.40	79.80	65.00	54.00
2015/01/23 16:56:55.00	62.20	82.30	65.00	54.60
2015/01/23 17:11:55.00	62.20	78.80	65.00	55.80
2015/01/23 17:26:56.00	61.60	75.60	64.60	55.30
2015/01/23 17:41:56.00	61.70	76.50	64.30	55.40
2015/01/23 17:56:57.00	62.40	81.40	64.90	55.40
2015/01/23 18:11:58.00	61.80	75.60	64.60	55.60
2015/01/23 18:26:58.00	62.40	76.20	65.40	56.40
2015/01/23 18:41:59.00	61.50	74.40	64.40	55.10
2015/01/23 18:56:59.00	61.20	74.10	63.90	55.20
2015/01/23 19:12:00.00	61.30	74.90	64.10	54.80
2015/01/23 19:27:00.00	61.10	73.80	63.40	54.70
2015/01/23 19:42:00.00	60.20	71.90	63.40	53.80
2015/01/23 19:57:01.00	60.20	74.60	63.00	54.10
2015/01/23 20:12:01.00	59.70	75.10	62.90	53.80
2015/01/23 20:27:02.00	59.90	75.70	62.80	52.90
2015/01/23 20:42:03.00	59.30	73.30	62.70	52.80
2015/01/23 20:57:03.00	59.20	73.30	62.40	52.60
2015/01/23 21:12:03.00	57.70	76.10	61.20	50.70
2015/01/23 21:27:04.00	57.60	68.40	61.30	51.10
2015/01/23 21:42:04.00	59.00	75.50	62.80	52.10
2015/01/23 21:57:05.00	58.90	78.00	62.60	50.70
2015/01/23 22:12:05.00	59.20	73.50	62.60	51.90
2015/01/23 22:27:06.00	59.60	75.20	63.30	52.90
2015/01/23 22:42:07.00	59.50	70.60	63.30	52.50
2015/01/23 22:57:07.00	59.40	69.40	63.10	52.00
2015/01/23 23:12:08.00	59.60	76.50	63.10	52.30
2015/01/23 23:27:08.00	58.00	72.10	61.60	51.00
2015/01/23 23:42:09.00	57.40	71.20	61.20	50.40
2015/01/23 23:57:10.00	58.50	70.10	62.20	51.90
2015/01/24 00:12:10.00	58.20	72.50	62.20	50.40
2015/01/24 00:27:11.00	57.80	72.60	61.40	50.70
2015/01/24 00:42:11.00	57.20	70.90	61.20	50.40
2015/01/24 00:57:12.00	57.00	71.60	60.60	49.30
2015/01/24 01:12:12.00	55.50	72.80	58.30	48.30
2015/01/24 01:27:13.00	54.40	66.80	58.10	47.40
2015/01/24 01:42:13.00	57.20	72.60	60.90	49.50
2015/01/24 01:57:14.00	53.40	70.10	56.50	44.80
2015/01/24 02:12:14.00	53.60	69.30	57.30	42.00
2015/01/24 02:27:15.00	53.10	71.40	57.50	40.00
2015/01/24 02:42:16.00	52.20	71.00	54.30	39.70
2015/01/24 02:57:16.00	53.90	72.20	58.00	41.80
2015/01/24 03:12:17.00	52.50	73.00	53.40	40.20
2015/01/24 03:27:17.00	51.80	72.50	55.00	40.70
2015/01/24 03:42:18.00	51.20	75.60	53.80	38.50
2015/01/24 03:57:18.00	49.30	73.70	50.90	38.40
2015/01/24 04:12:19.00	51.10	78.20	51.00	39.30
2015/01/24 04:27:19.00	51.10	72.50	53.20	38.50
2015/01/24 04:42:20.00	48.90	68.80	52.50	38.60
2015/01/24 04:57:20.00	51.30	71.50	53.80	39.80
2015/01/24 05:12:21.00	50.10	72.00	49.90	38.10
2015/01/24 05:27:21.00	51.00	71.80	51.00	40.00
2015/01/24 05:42:22.00	49.90	69.70	50.00	40.10
2015/01/24 05:57:22.00	51.00	72.20	52.50	41.00
2015/01/24 06:12:23.00	57.80	81.50	58.80	43.70
2015/01/24 06:27:23.00	54.90	75.30	57.70	43.80
2015/01/24 06:42:24.00	57.20	78.10	58.60	44.90

2nd day	L(Aeq)	LAF(max)	L10	L90
2015/01/24 06:57:25.00	54.00	73.20	56.30	44.40
2015/01/24 07:12:25.00	55.60	74.90	58.60	44.90
2015/01/24 07:27:26.00	56.10	74.80	59.70	45.40
2015/01/24 07:42:26.00	55.70	70.80	59.60	45.70
2015/01/24 07:57:27.00	58.60	77.30	62.00	47.50
2015/01/24 08:12:28.00	59.00	77.00	63.10	48.20
2015/01/24 08:27:28.00	60.00	81.00	63.40	49.40
2015/01/24 08:42:28.00	59.60	75.60	63.30	49.20
2015/01/24 08:57:29.00	61.70	82.40	64.40	49.30
2015/01/24 09:12:29.00	59.30	74.50	63.80	47.20
2015/01/24 09:27:30.00	60.40	78.50	64.00	50.20
2015/01/24 09:42:30.00	61.40	78.30	64.90	50.00
2015/01/24 09:57:31.00	61.20	76.30	65.00	49.70
2015/01/24 10:12:32.00	61.50	77.20	64.80	50.70
2015/01/24 10:27:32.00	60.80	74.50	64.60	49.50
2015/01/24 10:42:32.00	60.90	74.50	64.70	51.40
2015/01/24 10:57:33.00	60.50	73.60	64.60	50.10
2015/01/24 11:12:34.00	60.00	74.00	63.50	49.90
2015/01/24 11:27:34.00	61.40	78.70	64.30	50.10
2015/01/24 11:42:35.00	60.60	75.30	64.20	50.70
2015/01/24 11:57:35.00	60.20	73.20	63.90	49.80
2015/01/24 12:12:36.00	60.90	74.20	64.60	51.00
2015/01/24 12:27:37.00	61.10	82.10	64.10	52.70
2015/01/24 12:42:37.00	60.60	76.60	63.80	51.40
2015/01/24 12:57:38.00	60.40	73.00	63.80	51.50
2015/01/24 13:12:38.00	60.90	80.70	63.90	50.80
2015/01/24 13:27:39.00	59.90	73.80	63.40	51.10
2015/01/24 13:42:39.00	61.00	78.60	64.00	52.60
2015/01/24 13:57:39.00	60.90	82.60	64.00	49.70
2015/01/24 14:12:40.00	59.30	72.30	63.00	50.10
2015/01/24 14:27:41.00	60.10	73.60	63.90	50.60
2015/01/24 14:42:41.00	59.30	74.30	62.90	49.50
2015/01/24 14:57:42.00	60.30	72.10	63.80	51.70
2015/01/24 15:12:43.00	60.70	76.80	64.20	50.80
2015/01/24 15:27:43.00	60.20	71.10	63.60	52.10
2015/01/24 15:42:44.00	59.70	76.50	62.90	51.00
2015/01/24 15:57:44.00	60.30	72.60	63.50	52.90
2015/01/24 16:12:45.00	60.30	73.20	63.50	51.30
2015/01/24 16:27:45.00	59.40	71.60	63.00	49.80
2015/01/24 16:42:46.00	59.50	72.90	62.30	50.60
2015/01/24 16:57:46.00	60.00	77.00	63.30	50.30
2015/01/24 17:12:47.00	60.80	77.50	64.00	51.80
2015/01/24 17:27:47.00	59.70	73.20	63.30	50.20
2015/01/24 17:42:48.00	60.60	74.50	64.00	51.60
2015/01/24 17:57:49.00	61.30	76.10	63.50	52.90
2015/01/24 18:12:49.00	59.60	72.20	62.90	51.60
2015/01/24 18:27:50.00	60.00	72.00	63.50	51.80
2015/01/24 18:42:50.00	60.60	76.20	63.80	51.80
2015/01/24 18:57:51.00	60.00	76.40	63.40	50.40
2015/01/24 19:12:52.00	60.20	73.20	63.60	52.20
2015/01/24 19:27:52.00	59.80	72.80	62.30	51.70
2015/01/24 19:42:53.00	60.10	74.70	63.60	51.50
2015/01/24 19:57:53.00	59.90	77.00	63.30	50.90
2015/01/24 20:12:54.00	59.50	76.90	63.00	50.00
2015/01/24 20:27:55.00	58.70	73.60	62.60	50.10
2015/01/24 20:42:55.00	58.70	73.80	62.30	49.70
2015/01/24 20:57:56.00	57.00	74.50	61.60	50.00
2015/01/24 21:12:56.00	58.10	76.00	61.80	49.60
2015/01/24 21:27:57.00	58.10	81.20	61.50	48.60
2015/01/24 21:42:58.00	57.80	76.50	61.50	48.40
2015/01/24 21:57:58.00	58.00	78.90	61.50	48.60
2015/01/24 22:12:59.00	57.40	72.40	61.40	48.80
2015/01/24 22:27:59.00	57.80	73.40	61.90	48.50
2015/01/24 22:42:00.00	57.50	73.30	61.30	48.30
2015/01/24 22:57:01.00	58.20	73.00	61.80	49.00
2015/01/24 23:12:01.00	57.40	73.10	61.50	48.00
2015/01/24 23:27:02.00	56.70	76.40	60.10	48.10
2015/01/24 23:42:03.00	57.10	72.60	60.90	48.20
2015/01/24 23:57:03.00	57.20	71.30	61.30	47.70
2015/01/25 00:12:04.00	56.30	71.70	60.40	47.20
2015/01/25 00:27:04.00	55.80	72.10	59.90	47.20
2015/01/25 00:42:05.00	55.50	72.50	58.50	46.60
2015/01/25 00:57:05.00	55.70	70.00	59.90	47.10
2015/01/25 01:12:06.00	54.40	71.20	58.30	46.60
2015/01/25 01:27:06.00	55.50	71.60	59.60	46.60
2015/01/25 01:42:07.00	56.00	77.80	59.20	45.90
2015/01/25 01:57:08.00	57.00	82.50	56.80	43.70
2015/01/25 02:12:08.00	54.10	75.50	58.00	45.50
201				