



**Environmental Noise Impact Assessment  
Proposed Residential Development  
Hatton Mains Edinburgh**

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## Executive Summary

Hatton Mains Ltd propose to make an application for planning permission in principle to the City of Edinburgh Council (CEC) to develop agricultural land at Hatton Mains for a mixed residential development consisting of up to 1200 new houses and associated community infrastructure.

Noise from road traffic on the A71 has the potential to affect the residential uses within the proposed development. The proposed scheme will generate road traffic, which has the potential to increase road traffic noise at receptors living close to the A71 and Dalmahoy Road. The Airshed has been appointed by Clarendon Planning Ltd on behalf of the applicant to conduct the environmental noise impact assessment for the proposed scheme.

A baseline noise survey has been conducted at three locations along the A71 to help quantify existing ambient noise levels from road traffic.

Noise from road traffic has been predicted in accordance with the Department of Transport approved method for the *Calculation of Road Traffic Noise* using a computer-based noise prediction model implemented by SoundPlan 8.1. The noise prediction model has been used to help inform the level of mitigation required to protect health and amenity.

The masterplan for the proposed scheme includes buffer zones which should ensure that current agricultural and commercial activities are unlikely to adversely affect noise sensitive receptors.

This assessment identifies zones where mitigation measures are required to protect health and amenity.

A further noise assessment will be conducted at detailed planning stage to ensure that the impacts on future residents and the proposed school are minimised.

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## Acronyms

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ATC	Automatic Traffic Counter
BS	British Standard
CRTN	Calculation of Road Traffic Noise (a method specified by the UK Department of Transport)
dB	decibels – the logarithmic scale used to measure noise
dBA	A weighted dB – measured levels adjusted for the effect on human hearing
EHO	Environmental Health Officer
EIA	Environmental Impact Assessment (a series of organised activities – a process)
EPA	Environmental Protection Act 1990
ES	Environmental Statement (a document or documents)
ISO	International Standards Organisation
$LA_{eq\ T}$	The equivalent (eq) A weighted (A) average noise level (L) over a given period of time (T)
$LA_{90\ T}$	The A weighted (A) noise level (L) exceeded over 90% ( $_{90}$ ) of a given period of time (T)
$L_{WA}$	Sound Power Level – a convenient unit of noise measurement independent of distance
m/s	metres per second
WHO	World Health Organisation

## GLOSSARY

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Acoustic studies make use of terminology that is specific to this type of assessment. The terminology employed in the report is discussed in this section.

### **dB**

Noise is defined as unwanted sound. The range of audible sound is from 0 dB to 140 dB. The frequency response of the ear is usually taken to be about 18 Hz (number of oscillations per second) to 18000 Hz. The ear does not respond equally to different frequencies at the same level. It is more sensitive in the mid-frequency range than the lower and higher frequencies and because of this, the low and high frequency components of a sound are reduced in importance by applying a weighting (filtering) circuit to the noise measuring instrument. The weighting which is most widely used and which correlates best with subjective response to noise is the dB(A) weighting. This is an internationally accepted standard for noise measurements.

### **Loudness**

For variable noise sources such as traffic, a difference of 3 dB(A) is just perceptible by most people. In addition, a doubling of traffic flow will increase the overall noise by 3 dB(A). The "loudness" of a noise is a purely subjective parameter but it is generally accepted that an increase/decrease of 10 dB(A) corresponds to a doubling/halving in perceived loudness. Road traffic noise changes as flow varies during the day and will also fluctuate within shorter time periods as vehicles pass the reception point.

### **Free Field**

Free field measurements are taken at least 3.5m from any building or other hard reflecting surface. Noise standards within the UK are normally specified as external free field limits for ease of enforcement e.g. to avoid the necessity of gaining access to people's houses late at night. Noise standards at sensitive receptors can be expressed as the noise level measured or predicted inside a habitable room as in the case of the World Health Organisation sleep disturbance criteria; or as an external level where it is considered important to protect the amenity of the garden. Some noise standards are specified as façade levels as in the case of road traffic noise.

### **Statistical Level, $L_N$**

The most commonly used statistical levels are the  $LA_{10}$  and  $LA_{90}$ .

The  $LA_{10}$  is a statistical sound level, being the dBA level exceeded for 10% of a given time. For example, if the hourly  $LA_{10}$  is 70 then during that hour the noise level was greater than 70dBA for 6 minutes (10%) and less than or equal to 70dBA for the remaining 54 minutes.

$LA_{90}$  is the level exceeded for 90% of the time, which corresponds to the "quieter" periods. The  $LA_{90}$  is defined in *BS4142: 1990 Rating Industrial Noise Affecting Mixed Residential and Industrial Areas*, as the background noise level.

### **$LA_{eq}$**

The  $LA_{eq}$  is used to describe ambient sound. The Noise Advisory Council Guide to the measurement and prediction of the Equivalent Continuous sound level, defined the  $LA_{eq}$  as follows:

*The equivalent continuous noise level,  $LA_{eq}$ , is the level of notional steady sound which, at a given position and over a defined period of time would have the same A-weighted acoustic energy as the fluctuating noise.*

### **A-Weighted**

The "A" in  $LA_{eq}$  (or  $LA_{90}$ ) refers to the A-weighted sound pressure level of the noise in decibels. Weighting is a filter contained in the sound level meter which is designed to produce the relative response of the human ear to sound at different frequencies.

## 1.0 INTRODUCTION

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### Background to Report

- 1.1. Hatton Mains Ltd of 56 George Street, Edinburgh EH2 2LR propose to make an application for planning permission in principle to the City of Edinburgh Council (CEC) to develop agricultural land at Hatton Mains for a mixed residential development consisting of up to 1200 new houses and associated community infrastructure. The development traffic will access the site off Dalmahoy Road. The location of the proposed development site is shown in Figure 1.
- 1.2. Noise from road traffic on the A71 has the potential to affect the residential uses within the proposed development. The proposed scheme will generate road traffic which has the potential to increase road traffic noise at receptors living close to the A71 and Dalmahoy Road. Noise from adjacent land uses also have the potential to affect the amenity of future residents within the proposed development. These include noise from the adjacent public house on Dalmahoy Road and the agricultural buildings at Hatton Mains.
- 1.3. A scoping study was conducted for the proposed development.<sup>1</sup> This proposed that an environmental noise impact assessment would be conducted as part of the Environmental Impact Assessment (EIA) for the planning application. The Airshed has been appointed by Clarendon Planning & Development Ltd on behalf of the applicant to conduct the environmental noise impact assessment.

**Table 1.1 – Baseline and Scheme Flows - 2030**

No.	Description	Baseline	Scheme	Increase
1	A71 west of B7031	15,618	16,268	650
2	A71 west of B7015	14,861	15,510	650
3	B7015 east of Camps	4,674	4,674	0
4	A71 west of B7030	18,988	19,638	650
5	A71 west of Dalmahoy Road	18,097	18,774	677
6	Dalmahoy Road	2,695	6,426	3,732
7	Main Street Ratho	3,960	4,588	628
8	A71 east of Dalmahoy Road	20,430	23,485	3,055
9	Curriehill Road	3,251	3,421	170
10	A71 west of Curriehill Road	18,556	21,442	2,886
11	A71 east of Riccarton Mains	34,450	37,335	2,886
12	A71 west of Wester Hailes	43,103	45,080	1,977
13	A71 east of Wester Hailes	38,443	40,193	1,750
14	A71 west of Saughton Road	36,356	37,973	1,617
15	A71 east of Saughton Road	34,589	36,171	1,581
16	Harvest Road	3,359	3,987	628

Flows = 16 hour AAWT

- 1.4. AECOM has conducted a transport assessment (TA) on behalf of the applicant.<sup>2</sup> This study considered baseline and scheme flows for the study area along the A71, from the junction with the B7015 to Camps, east to the junction with Saughton Road. This assessment includes baseline traffic flows for the year 2019, and baseline, committed development and scheme traffic flows for the year 2030. The predicted baseline and scheme traffic

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<sup>1</sup> Babbity Environmental. September 2018. Hatton Mains Village City of Edinburgh EIA Scoping Report

<sup>2</sup> AECOM March 2019. Transportation Assessment

flows for the year of development (2030) are summarised in Table 1.1 above. Further details on the traffic flows are presented in Appendix 1. The extent of the study area for the TA was agreed in consultation with the City of Edinburgh Council.

### **Potential Adverse Impacts**

- 1.5. Noise from the existing environment may affect future residents and other noise sensitive uses e.g. the school. Sources of existing noise include agricultural activity at Hatton Mains and commercial operations at the Ratho Park Hotel on Dalmahoy Road.
- 1.6. Existing residents living near the A71 may be affected by the noise from road traffic generated by the proposed scheme.
- 1.7. These noise sources have the potential to adversely affect the health and amenity of existing noise sensitive receptors and future residents within the development.
- 1.8. The proposed development is adjacent to existing residential properties. Noise and vibration during the construction phase have the potential to adversely affect amenity.

### **Scope of Assessment**

- 1.9. A baseline noise survey has been conducted to quantify the existing ambient and background sound levels affecting the proposed development site. This survey was conducted by The Airshed in February/March 2019.
- 1.10. The proposed methods and approach were submitted in advance to the local authority (CVEC) as part of the scoping exercise.
- 1.11. The assessment considers impacts from road traffic in accordance with the methods set out in Technical Advice Note (TAN)<sup>3</sup> which forms part of the Scottish Government's Planning and Noise Advice 2011/1<sup>4</sup>.
- 1.12. This report describes the potential noise impacts likely to arise from the proposal, reviews the assessment criteria that have been used to consider the impacts, and reports the results of the baseline survey. Noise levels from road traffic have been predicted across the development area and assessed against appropriate environmental noise criteria intended to protect human health and residential amenity.
- 1.13. This application is based on a conceptual Masterplan and there is no detailed housing layout available for the site. Accordingly, this assessment aims to identify constraints from existing and proposed noisy activities that could affect health or amenity, to ensure that these are taken into account when determining the proposed land uses.
- 1.14. The site layout shows a significant buffer between the Ratho Park Hotel and the agricultural buildings at Easter Hatton Mains. Noise from these adjacent land uses is unlikely to be significant and has not been quantitatively assessed.

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<sup>3</sup> Scottish Government 2011. Technical Advice Note. Assessment of Noise

<sup>4</sup> Scottish Government 2011. Planning Advice Note 1/2011 Planning and Noise

- 1.15. This noise assessment has been conducted by Steve Fraser BSc MPhil MICWM MIOA CEnv who has more than 35 years of professional experience as an environmental consultant, Environmental Health Officer and Environmental Protection Officer. The baseline survey was conducted by Jon Champion BSc who has an Institute of Acoustics Certificate of Competence for Measurement of Environmental Noise and a Diploma in Acoustics and Noise Control with more than 10 years practical experience in noise survey fieldwork.
- 1.16. Construction impacts have not been assessed quantitatively, as the programme for site clearance and construction has not yet been developed. Mitigation measures for the construction phase are set out in Section 6.

### **Report Layout**

- 1.17. Relevant noise standards are discussed in Section 2. Baseline sound is described in Section 3. The noise prediction methodology is outlined in Section 4. The results from the prediction exercise are presented in Section 5. Mitigation measures are proposed in Section 6. The overall significance of the noise arising from the proposed development is considered in Section 7.

## 2.0 ENVIRONMENTAL NOISE CRITERIA

### Planning Advice Note (PAN)

- 2.1. The Technical Advice Note (TAN) issued to accompany the PAN for the assessment of noise proposes methods to consider how noise from a proposed new road could affect existing noise sensitive receptors. The change in ambient noise level resulting from the proposed scheme is used to determine the magnitude of the impact, as described in Table 2.1 below.

**Table 2.1 – Assessing Significance of Change in Road Traffic on Existing Receptors**

Change in Noise Level, x LA <sub>10,18</sub> hours	Magnitude of Impact
$x \geq 5$	Major adverse
$3 \leq x < 5$	Moderate adverse
$1 \leq x < 3$	Minor adverse
$0 < x < 1$	Negligible adverse
$x = 0$	No change
$-1 < x < 0$	Negligible beneficial
$-3 < x \leq -1$	Minor beneficial
$-5 < x \leq -3$	Moderate beneficial
$x \leq -5$	Major beneficial

- 2.2. A different approach is adopted when assessing the potential impacts from transport noise on proposed residential uses, where the ambient noise at the proposed dwellings is compared to a target noise level, usually based on World Health Organisation environmental noise criteria. This approach is set out in Table 2.2 below.

**Table 2.2 – Assessing Significance of Proposed New Road on New Receptors**

(Existing – Target) Noise Level (x) dB LA <sub>eq</sub> (07:00-23:00) dB	Magnitude of Impact
$x \geq 10$	Major adverse
$5 \leq x < 10$	Moderate adverse
$3 \leq x < 5$	Minor adverse
$0 \leq x < 3$	Negligible adverse
$x < 0$	No change

### BS 5228:2009 - Control of Noise from Construction Sites

- 2.3. Noise impacts from construction and open sites may be predicted and assessed using BS 5228:2009. BS 5228 provides base data for noise emissions from a variety of plant and operations and a methodology for the prediction of noise levels at receptors. The annoyance from construction site noise is likely to depend on a number of factors such as site location, existing ambient noise levels, and duration of operations. As with all aspects of noise, the time of day and duration of the event are significant, as is the extent to which noise from the activity exceeds the existing background (LA<sub>90</sub>) or ambient noise levels (LA<sub>eq</sub>). The current version of the Standard includes an assessment framework for assessing the significance of impacts, where daytime levels < 65 dB LA<sub>eq</sub> (07:00 – 19:00) are deemed to be insignificant.<sup>5</sup> BS 5228 acknowledges that stricter

<sup>5</sup> This category also applies to construction operations that are planned on Saturdays between 07:00 and 13:00. Stricter limits would apply outwith these hours.

standards should apply to some forms of construction operations where these are likely to last for more than six months.

### World Health Organisation Guidelines for Community Noise

- 2.4. The World Health Organisation (WHO) has published Guidelines for Community Noise, the outcome of a WHO expert task force meeting in 1999.<sup>6</sup> The WHO Guidelines advise that noise impacts within dwellings include annoyance and speech interference. These criteria are summarised in Table 2.3 below.

**Table 2.3 – Summary of WHO Environmental Noise Criteria<sup>7</sup>**

Environment	Critical Health Effect	Sound Level dB LA <sub>eq T</sub>	Time (hours)
Outdoor living areas	Annoyance	50 - 55	16
Outside dwellings (long term average)	Sleep disturbance	45	N/A
Inside dwellings	Speech intelligibility	35	16
Bedrooms	Sleep disturbance	30	8
School, playground outdoor	Annoyance (external sources)	55	during play

### Noise Assessment Criteria

- 2.5 The following assessment criteria have been adopted to help determine the significance of the environmental noise impacts. These criteria are set out in Table 2.4 below.

**Table 2.4 - Environmental Noise Assessment Criteria**

Predicted Noise Level	Justification
50 - 55 dB LA <sub>eq 16 hour</sub>	WHO criteria propose a daytime limit at houses and outdoor living areas to protect amenity (for transport noise). This level may also be used to assess impacts on outdoor learning areas in schools.
45 dB L <sub>night</sub>	WHO criteria propose a night-time sleep disturbance limit at dwellings based on the long-term average outdoor noise level. This is the predicted or measured level at the façade of any exposed elevation, but not taking the effect of that façade into account. This standard is intended to prevent sleep disturbance and to protect human health. The design of the new development should take this standard into account as a precautionary measure.
30 dB LA <sub>eq 1 hour</sub>	Critical noise level to prevent sleep disturbance inside bedrooms, based on WHO criteria.

<sup>6</sup> World Health Organisation Geneva 1999. Guidelines for Community Noise.

<sup>7</sup> <http://www.who.int/mediacentre/factsheets/fs258/en/>



### 3.0. BASELINE

#### Baseline Sound Survey

- 3.1. A baseline survey was conducted between 12<sup>th</sup> February and 30<sup>th</sup> March 2019. The aim of the baseline survey was to assess existing ambient and background sound levels at the development site boundary adjacent to the A71. The locations of the baseline sites are shown in Figure 2. The survey locations were selected to represent typical conditions within the study area adjacent to the A71.
- 3.2. Noise levels were recorded at 1 minute intervals, to help identify specific noisy events. The parameters LA<sub>90</sub>, LA<sub>max</sub> and LA<sub>eq</sub> are reported. Measurements were taken using Norsonic Type 1 sound level meters. The instrumentation was calibrated at the beginning and end of the survey periods. The instrumentation was contained within sealed weather-proof cases with full outdoor microphone protection. Weather conditions during the survey periods were suitable, typically with light winds and no precipitation. The temperature, wind speed and wind direction were noted at the beginning and end of each survey period. These are recorded in the survey log. Further details of the baseline survey are contained within Appendix 2. Details of the character of the noise at the survey locations are summarised in Table 3.1 below.

**Table 3.1 – Summary of Survey Site Details**

Site	Site Conditions
Site 1	The ambient noise is dominated by noise from road traffic on the A71.
Site 2	The ambient noise is dominated by noise from road traffic on the A71.
Site 3	The ambient noise is dominated by noise from road traffic on the A71. Traffic travelling east is on a slight gradient which generates greater noise from HGVs.

- 3.3. The baseline survey data is presented in Appendix 2 and summarised in Table 3.2 below.

**Table 3.2 – Summary of Baseline Noise 2019 (Sites 1 – 3)**

Site	Date	Time Start	LA <sub>eq</sub>	LA <sub>max</sub>	LA <sub>90</sub>
1	12-Feb-19	14:15	74	92	59
	14-Feb-19	10:12	75	91	59
	25-Feb-19	16:18	73	94	63
	26-Mar-19	06:00	76	96	61
	26-Mar-19	07:00	76	90	65
2	27-Mar-19	23:30	63	84	37
	12-Feb-19	13:10	74	91	62
	14-Feb-19	08:00	77	93	65
	25-Feb-19	15:45	75	94	64
	26-Mar-19	01:25	63	87	36
3	27-Mar-19	22:27	70	103	44
	12-Feb-19	12:00	75	94	60
	14-Feb-19	09:06	74	91	62
	25-Feb-19	17:30	74	88	65
	26-Mar-19	00:15	65	87	42
	27-Mar-19	21:20	70	87	54

N.B. Units = dB LA<sub>1 hour</sub>

- 3.4. Noise from road traffic dominates the acoustic environment close to the A71. The measurement locations are exposed to traffic noise throughout the daytime, and only reduce after 23:00 hours. The daytime ambient

noise is 74 – 75 dB LA<sub>eq daytime</sub> at all three sites.

### **Proposed Design Criteria**

- 3.5. The most robust criterion to protect human health is the WHO 45 dB L<sub>night</sub>. This is typically based over a year and requires complex methods to calculate for the effects of meteorological conditions and source variability. The aim should be to minimise the exposure of bedrooms in dwellings that are at risk of exceeding this level. Where this is not practicable, mitigation measures shall be incorporated within the development to achieve less than 30 dB LA<sub>eq 8 hours</sub> inside bedrooms at night.
- 3.6. This assessment assumes the noise from road traffic in outdoor living areas should not exceed 55 dB LA<sub>eq 07:00 – 23:00</sub>.

## 4.0 METHODOLOGY

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### Justification for Approach

- 4.1 Noise from road traffic was measured at three locations adjacent to the A71 in suitable weather conditions. These measured levels provide a reasonable representation of existing ambient sound.
- 4.2 The prediction method for road traffic noise is based on the method set out in *Calculation of Road Traffic Noise (CRTN)*<sup>8</sup>. CRTN LA<sub>10 18 hour</sub> predictions have been converted to LA<sub>eq 16 hour</sub> in accordance with the Transport Research Laboratory (TRL) method adopted for noise mapping in the UK<sup>9</sup> where LA<sub>eq 16 hour</sub> = 0.94 \* LA<sub>10 18 hour</sub> + 0.77 dB. CRTN includes methods for the calculation of road traffic noise levels in most situations, taking into account factors such as distance between the road and receptor, road configuration, ground cover, screening, angle of view, reflection from facades, and traffic flow, speed and composition. The method is suitable for calculating noise levels from free flowing traffic at properties more than 4m from the carriageway, defined as the nearside kerb. The traffic data used to conduct the assessment are based on the findings reported by AECOM. The data used in the CRTN computer model (implemented by SoundPlan 8.1) includes a three-dimensional digital map of surrounding topography.
- 4.3 The terrain data used for transport noise sources is based on OS Terrain 5 spot heights on a 5m resolution grid. The topography is shown in Figure 3. The noise model layout is shown in Figure 4.

### Scenarios Considered

- 4.7. Scenario 1 has been used help calibrate the sound prediction model (Scenario 1). Scenario 2 considers the baseline for the year 2030. Scenario 3 predicts the noise across the proposed development once the scheme is in place. The traffic flow data used for Scenario 3 is summarised in Table 4.1 below. Further details on the traffic flows used for Scenarios 1 – 3 are presented in Appendix 1.

**Table 4.1 - Road Traffic Flows 2030 – with scheme (Scenario 3)**

No	Location	Day		Night	
		LDV	HDV	LDV	HDV
5	A71 west of Dalmahoy Road	1041	17	132	2
6	Dalmahoy Road	343	6	59	1
8	A71 east of Dalmahoy Road	1310	21	157	3

N.B. Flows = hourly annual average weekday flows

- 4.8. Further Scenarios examine the options for noise mitigation. These are all based on 2030 traffic flows with the scheme in place.
- Scenario 4 – mitigation option 1 – with 2.5m high acoustic barriers
  - Scenario 5 – mitigation option 2 – as Scenario 4 with indicative masterplan
  - Scenario 6 – mitigation option 3 – as Scenario 4 with amended layout
  - Scenario 7 – mitigation option 4 – with 4m barrier and amended layout

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<sup>8</sup> Department of Transport 1988. Calculation of Road Traffic Noise.

<sup>9</sup> Abbot PG & Nelson PM. Converting the UK traffic noise index LA<sub>10 18 hour</sub> to EU noise indicators for noise mapping TRL PR/SE/45/02 EPG 1/2/37

## 5.0 ASSESSMENT RESULTS

- 5.1 This assessment reports the predicted noise from road traffic to identify the constraints on the proposed development site and help inform the layout for the scheme.

### Scenario 1 - Noise from Road Traffic – Baseline 2019

- 5.2 The predicted and measured levels of road traffic noise at Baseline Sites 1 – 3 are summarised in Table 5.1 below. This indicates that the noise model predictions are robust.

**Table 5.1 - Comparison of Measured and Predicted Road Traffic Noise**

Location	Predicted Noise (Scenario 1)	Measured Noise 2019
Baseline Site 1	75	75
Baseline Site 2	75	75
Baseline Site 3	74	74

N.B. units = dB LA<sub>eq</sub> daytime

### Predicted Impact on Existing Receptors

- 5.3 The predicted noise from road traffic in 2030 for baseline and scheme are presented in Table 5.2 below. The predicted change in noise from road traffic is of minor adverse significance or less at all sensitive receptors considered within the study area with the exception of the dwellings at Ransfield Cottages on Dalmahoy Road. The impacts at Ransfield Cottages is predicted to be of Moderate Adverse Significance in terms of the assessment framework set out in Table 2.1.

**Table 5.2 – Predicted Noise from Road Traffic – 2030**

No	Receptor	Floor	Façade	S2 Baseline	S3 Scheme	Change
1	Dalmahoy Gatehouse	GF	SW	66	67	1
2	Dalmahoy Gatehouse	GF	NE	65	65	0
3	Dovecote Lodge	GF	SE	59	60	1
4	East Gateside	GF	SE	76	76	0
5	Easter Hatton Cottages	GF	S	66	66	0
6	Easter Hatton Cottages	GF	S	69	69	0
7	Easter Hatton Mains	GF	S	65	65	0
8	Entry Head	GF	SW	60	60	0
9	Entry Head	GF	NE	62	62	0
11	Hatton Mains	GF	N	72	72	0
12	Hatton Mains Cottage	GF	NW	69	69	0
14	New Dalmahoy	GF	N	63	64	1
15	Ransfield Cottages	GF	N	57	60	3
18	Ratho Park Hotel	GF	S	62	63	1
19	St Mary's Hall	GF	W	60	61	1
21	The Elms	GF	N	64	64	0

N.B. Units = dB LA<sub>eq</sub> 07:00 – 23:00

### Predicted Impact Across the Proposed Development Site

- 5.4 The results have been calculated over the study area at 5m intervals. The resulting predictions have been contoured using Surfer ® and plotted on an OS map base at 1:10,000. The noise predictions are at 1.5m height

above ground level. This is considered to represent noise exposure in gardens and at ground floor windows. The predicted daytime noise from road traffic for Scenario 3 is plotted in Figure 5. The results from this prediction exercise indicate that noise from road traffic on the adjacent roads is a significant development constraint.

- 5.5 Scenario 4 considers the benefit of erecting 2.5m high acoustic barriers along the A71. This measure only slightly reduces ambient noise and is unlikely to provide sufficient mitigation unless combined with other measures. The results from this assessment are plotted in Figure 6.
- 5.6 Scenario 5 includes the 2.5m roadside acoustic barriers along with an indicative layout. This shows that noise levels are predicted to comply with the WHO outdoor living area criterion in some locations near the A71, where building orientation provides sheltered elevations. The results from this assessment are plotted in Figure 7.
- 5.7 Scenario 6 rotates the buildings to the west of Dalmahoy Road near the A71 to provide more effective shielding of private garden areas. The results are plotted in Figure 8. This indicates that noise levels in private gardens can be reduced to below 55 dB LA<sub>eq</sub> 07:00 - 23:00 by changing the layout of the development. Based on this indicative layout noise levels can be reduced to comply with WHO's criterion for outdoor living areas.
- 5.8 Scenario 7 considers the erection of a 4m high acoustic barrier (2m bund topped with a 2m fence). In this Scenario the buildings are set further back to accommodate the bund. The results for Scenario 7 are plotted in Figure 9. This shows that the predicted external noise levels at the area zones as community education is below 55 dB LA<sub>eq</sub> 07:00 - 23:00 and would comply with WHO criteria for outdoor learning.
- 5.9 The predicted noise levels at fixed receptor locations at the exposed and sheltered elevations of houses at ground and first floor levels are summarised in Table 5.3. The worst case predicted levels 65 dB LA<sub>eq</sub> 07:00 - 23:00 and night-time noise levels are ~13 dBA lower. The detailed results are presented in Appendix 3.

**Table 5.3 – Worst Case Traffic Noise at Exposed Elevations (Scenario 7)**

Daytime	Night-time
65	52

Units = dB LA<sub>eq,T</sub> free field at most exposed dwelling

- 5.10 Noise levels on the sheltered elevations are typically at least 10 dBA lower than the exposed elevations and in the case of dwellings along the A71 are predicted to be < 55 dB LA<sub>eq</sub> 07:00 - 23:00 in private garden areas with the 4m barrier/bund and appropriate site layout measures in place.
- 5.11 Internal noise levels with open windows shown in Table 5.4 and subsequent Tables assume a reduction of 15 dBA based on WHO rule of thumb estimates. Noise levels have also been calculated inside dwellings in accordance with the method set out in BS 8233:2014. These results are presented in Appendix 4.
- 5.12 Based on the BS 8233 calculations, noise is predicted to comply with internal target levels inside all dwellings provided all windows on exposed elevations are fitted with an improved specification for glazing units and improved trickle vents. These results are summarised in Table 5.4 below.

**Table 5.4 – Worst Case - Exposed Elevation**

Location	Daytime	Night-time
External	65	52
Internal (open window)	50	37
Internal (with trickle vent)	35	25

Units = dB LA<sub>eq T</sub>

- 5.13 The predicted noise levels at sheltered elevations indicate that trickle vents would be advisable to protect amenity and prevent sleep disturbance. See Table 5.5 below.

**Table 5.5 – Worst Case - Sheltered Elevation**

Location	Daytime	Night-time
External	55	44
Internal (open window)	40	29
Internal (with trickle vent)	30	<20

Units = dB LA<sub>eq T</sub>

### Uncertainty

- 5.14 The method used to predict noise from road traffic is based on the statutory method prescribed by the Noise Insulation Regulations. This does not include an estimate for uncertainty. The results from the comparison between measured and predicted levels for Scenario 1 indicate that the model predictions are robust.

## 6.0 MITIGATION

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### Mitigation Measures for Proposed New Development

- 6.1. The final layout for the proposed development shall be amended to ensure that noise from road traffic does not exceed 55 dB LA<sub>eq</sub> 07:00 – 23:00 in all private gardens. This shall include measures to optimise the orientation of buildings and the erection of a 4m high acoustic barrier next to the A71.
- 6.2. Following the revision of the proposed layout the applicant shall submit details of the scheme for acoustic insulation to ensure that noise from road traffic inside habitable rooms does not exceed the WHO criteria set out in Table 2.3. This shall include:
- The adoption of appropriate measures in the design and layout of buildings, where all windows of habitable rooms exposed to a predicted noise level >59 dB LA<sub>eq</sub> 07:00 – 23:00 shall be fitted with an *improved* scheme of acoustic insulation. All windows within *improved* mitigation shall be fitted with double glazing with a minimum sound reduction index of 33 dB R<sub>w</sub>, and trickle vents with a minimum sound reduction index of 39 dB D<sub>n,ew</sub> C<sub>tr</sub>. The zone for *improved* acoustic insulation is shown in Figure 10.
  - All windows with *standard* mitigation shall be fitted with double glazing with a minimum sound reduction index of 33 dB R<sub>w</sub>, and trickle vents with a minimum sound reduction index of 39 dB D<sub>n,e</sub>. These acoustic ratings are based on the standard values provided within BS 8233:2014. The zone for *standard* acoustic insulation is shown in Figure 10.

### Construction Noise

- 6.3. Noise during construction has the potential to cause annoyance. The following procedures shall be adopted to ensure that noise impacts from construction operations are minimised, to protect local amenity:
- Prior to the commencement of each phase of construction, the appointed contractors shall prepare a method statement for the project. This shall include an assessment of potential noisy operations and outline the noise mitigation measures proposed. The construction noise impact assessment shall be used to help inform the development of the detailed construction methods.
  - The contractors shall be required to select the quietest item of suitable plant available for all site operations. The work programme on site shall also be phased to reduce the combined impacts arising from several noisy construction operations, to reduce adverse impacts. Where practicable, noise from fixed plant and equipment shall be contained within suitable acoustic enclosures or behind acoustic screens.
  - Any plant and equipment required for operation at night (23:00 – 07:00) e.g. for dewatering and security lighting shall be mains electric powered where practicable.
  - The site contractors shall conduct all site operations in accordance with

accredited documented procedures. This shall include a complaint investigation procedure.

- All sub-contractors appointed by the main contractor shall be formally required through contract to comply with all environmental noise conditions.



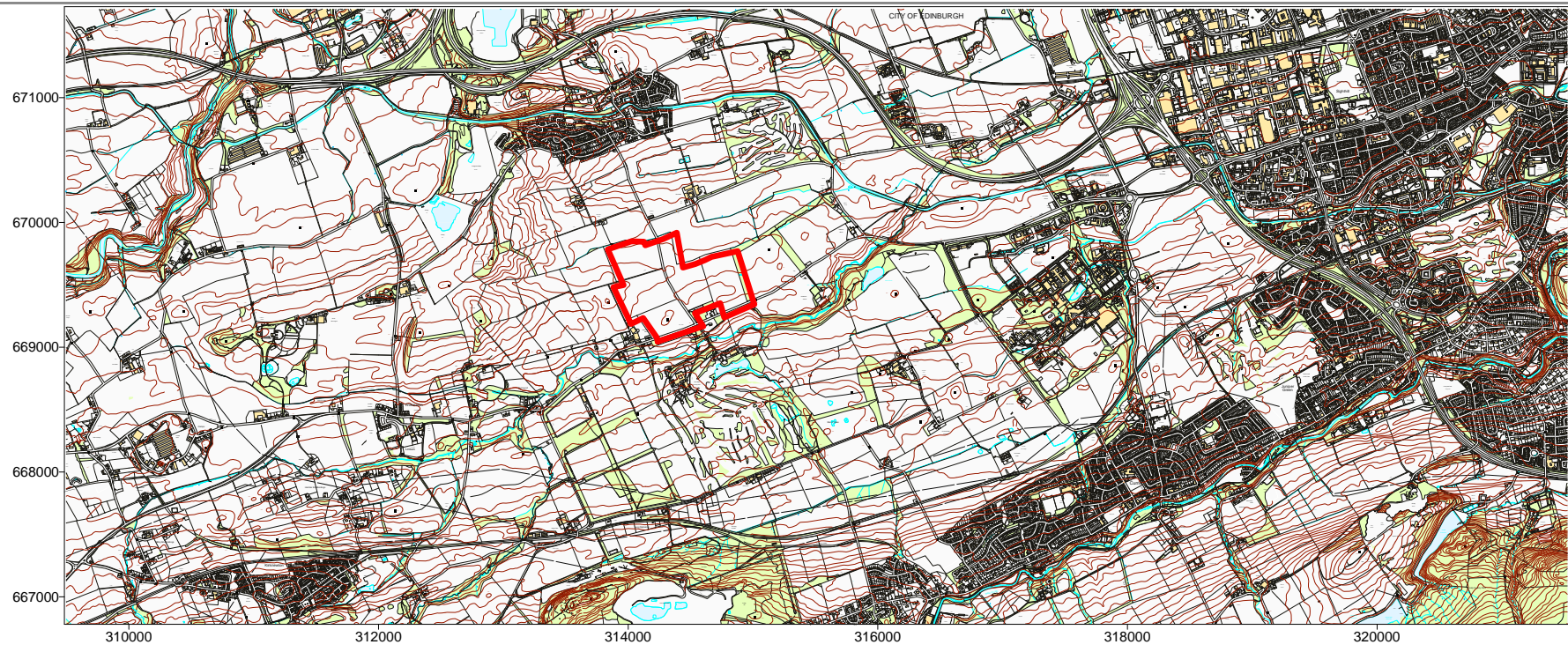
## 7.0 CONCLUSIONS

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- 7.1 The predicted change in noise from road traffic is of minor adverse significance or less at all sensitive receptors considered within the study area with the exception of the dwellings at Ransfield Cottages on Dalmahoy Road. The impacts at Ransfield Cottages is predicted to be of Moderate Adverse Significance in terms of the assessment framework set out in Table 2.1.
- 7.2 The impacts have been assessed in accordance with WHO environmental noise criteria. Noise levels along the A71 are relatively high and substantial mitigation measures are likely to be required to protect health and residential amenity.
- 7.3 The proposed stand-off buffer zones and zoning of land uses within the Masterplan should ensure that noise from the agricultural buildings and the hotel are unlikely to adversely affect noise sensitive receptors. Impacts from road traffic are limited to areas adjacent to roads.
- 7.4 The predicted noise levels at the school comply with the WHO criterion for outdoor learning.
- 7.5 This assessment identifies zones where mitigation measures are required to protect health and amenity. These mitigation measures may include avoiding noise sensitive development in noisy areas, use of layout and design to reduce noise in private gardens and, where appropriate, use of double glazing to ensure that noise inside dwellings will comply with WHO criteria. A further noise assessment will be conducted at detailed planning stage to ensure that the impacts on future residents are minimised.

## Figures

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*Site Location*

 indicative planning boundary

**Figure 1**





### Baseline Survey


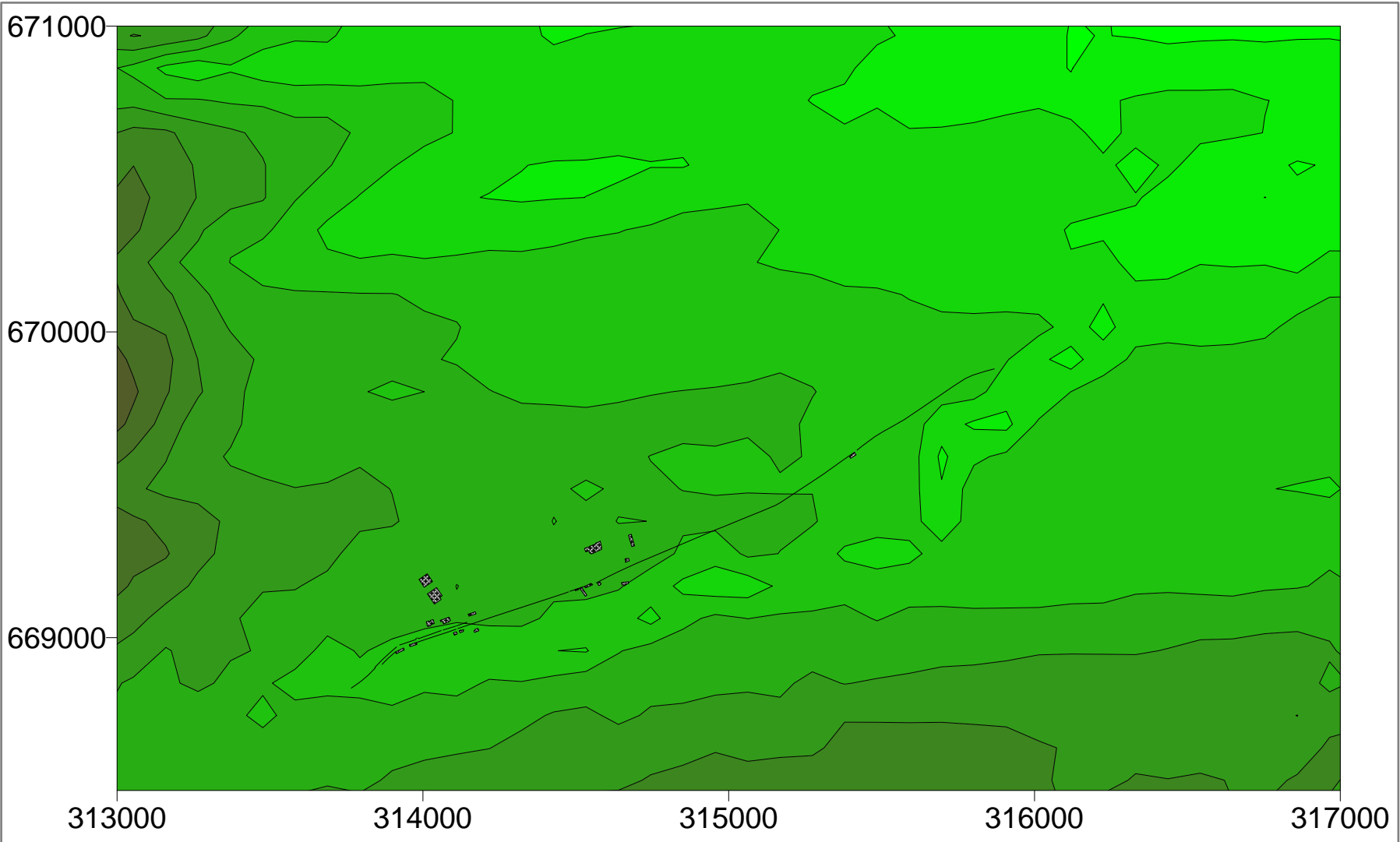

 location of baseline noise survey adjacent to A71

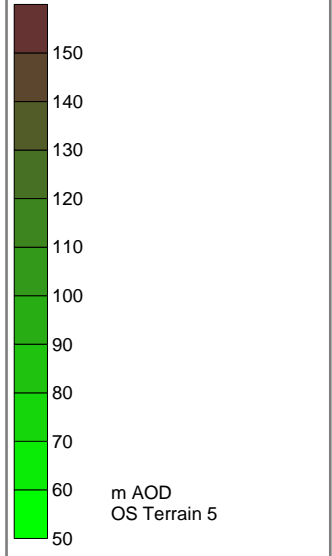
Figure 2





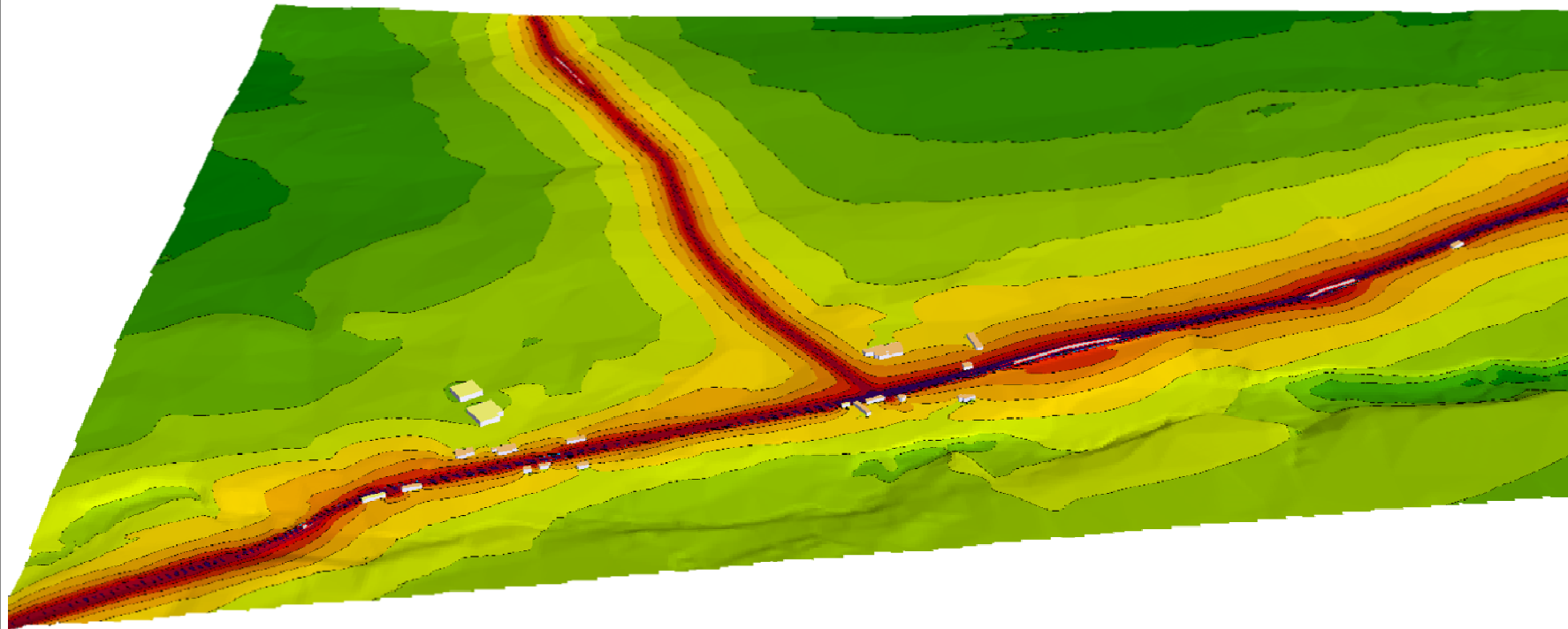
**Topography**

 building adjacent to A71 considered in baseline Scenario



**Figure 2**



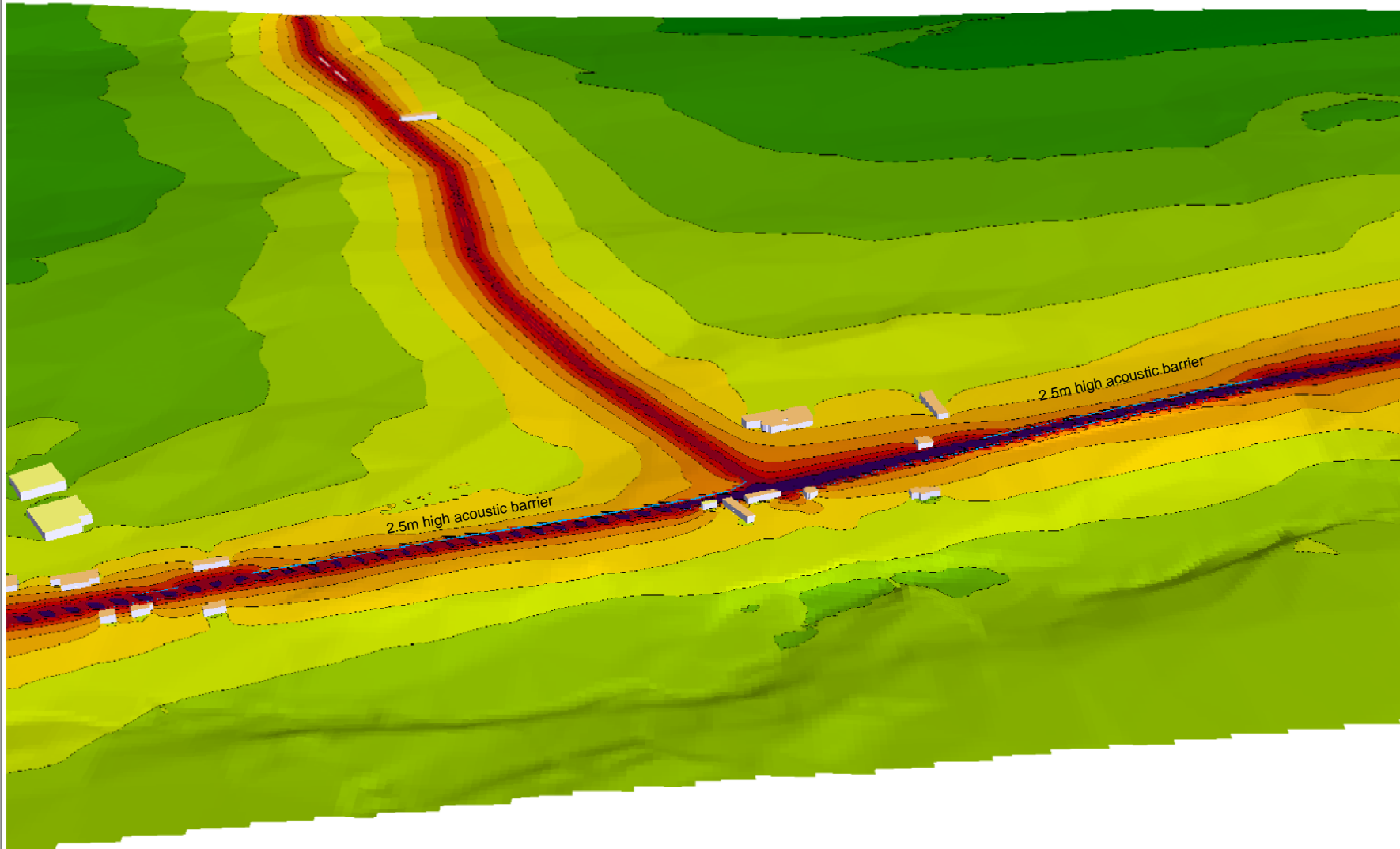


## Model Layout

Prediction Model  
SoundPlan 8.1  
Scenario - 2030 scheme  
Model includes existing buildings  
16 hour noise  
Prediction Method CRTN  
Topography based on OS Terrain 5  
prediction grid 5m  
contours dB LAeq 07:00 - 23:00  
1.5m above ground level  
assumes soft ground across domain  
units = dB LAeq daytime

**Figure 4.1**

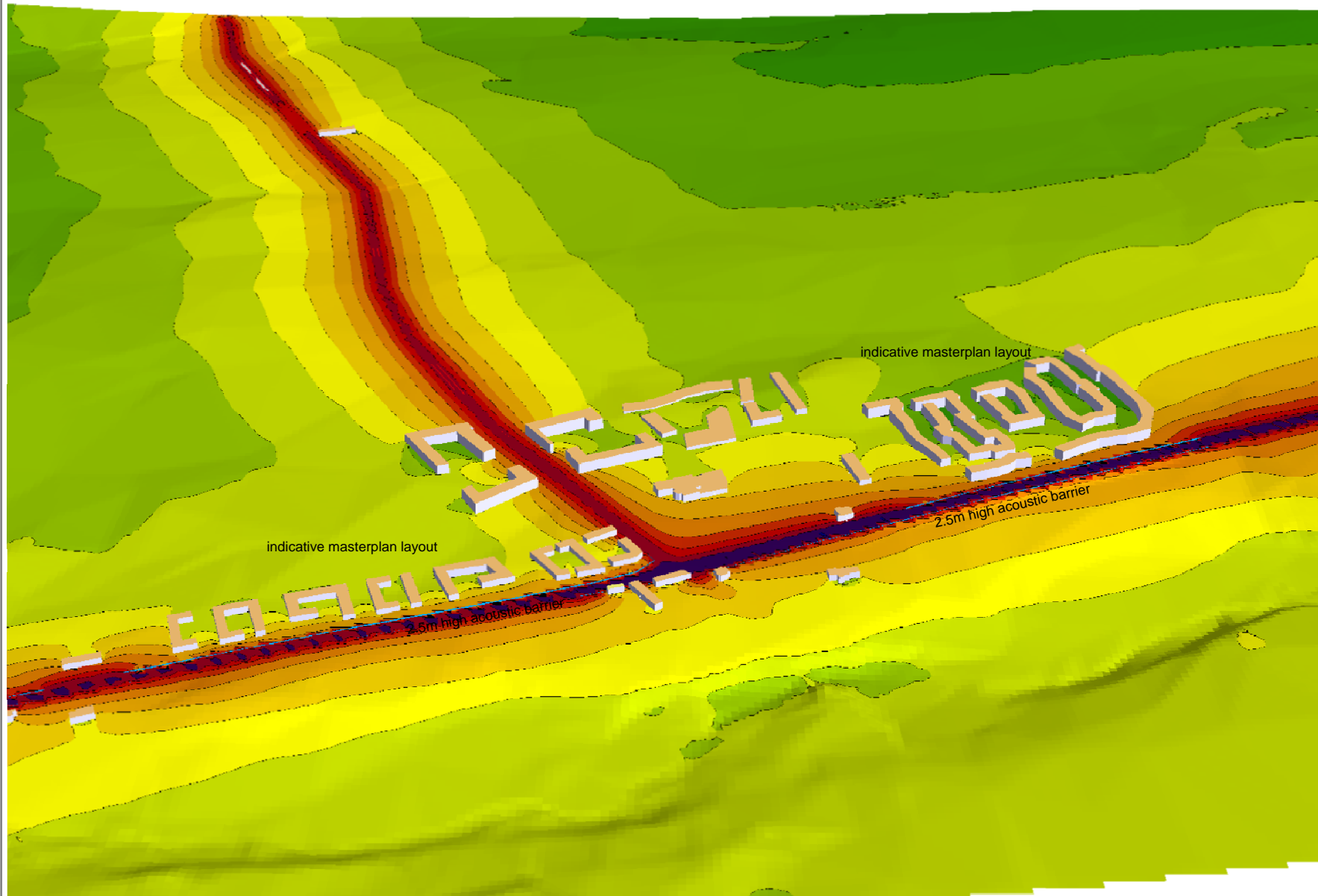




## Model Layout

Prediction Model  
 SoundPlan 8.1  
 Scenario - 2030 scheme  
 mitigation option 1 - 2.5m barriers  
 Model includes existing buildings  
 16 hour noise  
 Prediction Method CRTN  
 Topography based on OS Terrain 5  
 prediction grid 5m  
 contours dB LAeq 07:00 - 23:00  
 1.5m above ground level  
 assumes soft ground across domain  
 units = dB LAeq daytime

**Figure 4.2**



## Model Layout

Prediction Model  
 SoundPlan 8.1  
 Scenario - 2030 scheme  
 mitigation option 2 - 2.5m barriers  
 Model includes existing buildings  
 and indicative layout masterplan  
 16 hour noise  
 Prediction Method CRTN  
 Topography based on OS Terrain 5  
 prediction grid 5m  
 contours dB LAeq 07:00 - 23:00  
 1.5m above ground level  
 assumes soft ground across domain  
 units = dB LAeq daytime

**Figure 4.3**



## Model Layout

Prediction Model  
SoundPlan 8.1  
Scenario - 2030 scheme  
mitigation option 4 - 4m barriers  
Model includes existing buildings  
and indicative layout masterplan  
(tweaked)  
16 hour noise  
Prediction Method CRTN  
Topography based on OS Terrain 5  
prediction grid 5m  
contours dB LAeq 07:00 - 23:00  
1.5m above ground level  
assumes soft ground across domain  
units = dB LAeq daytime

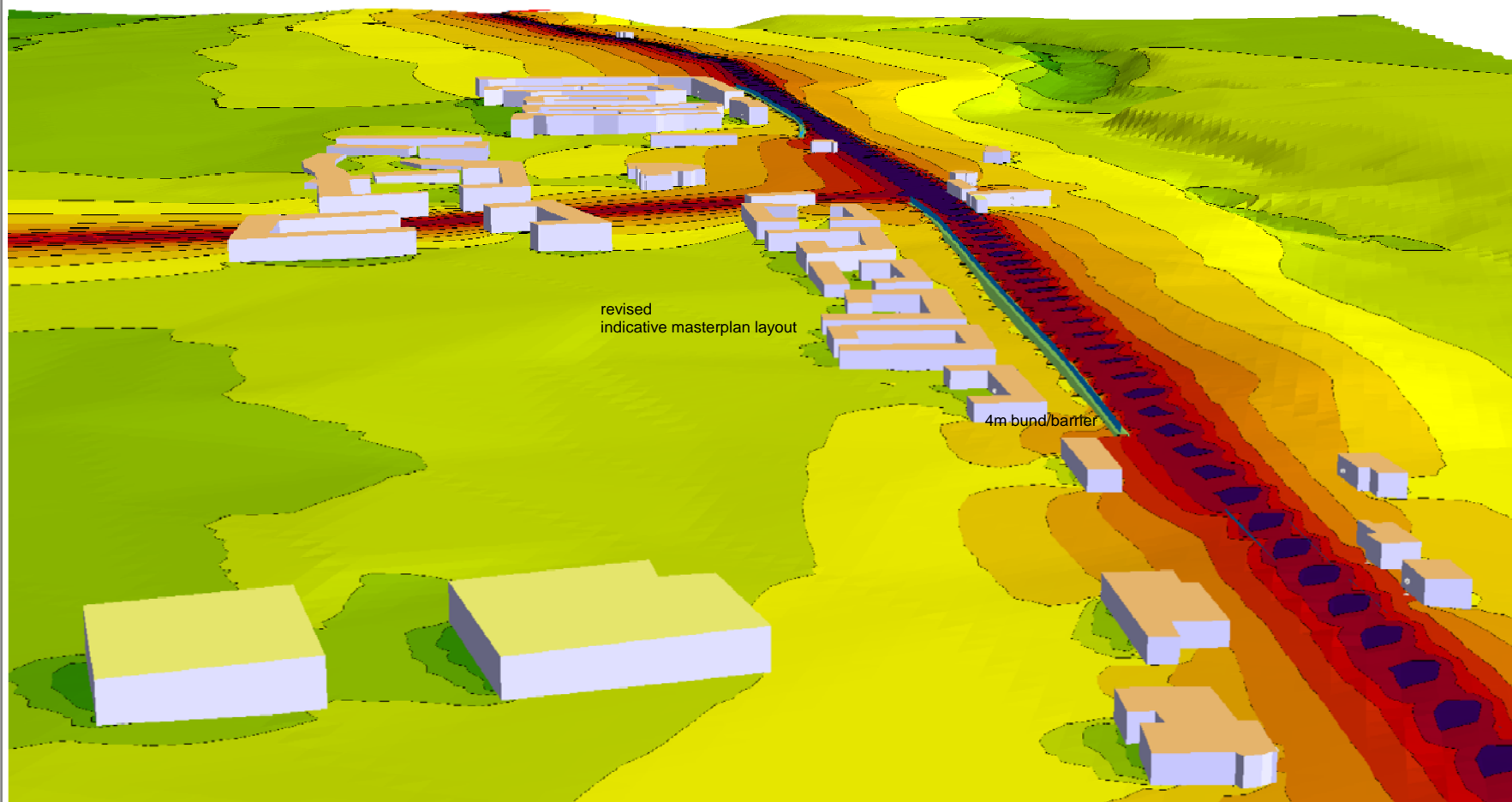
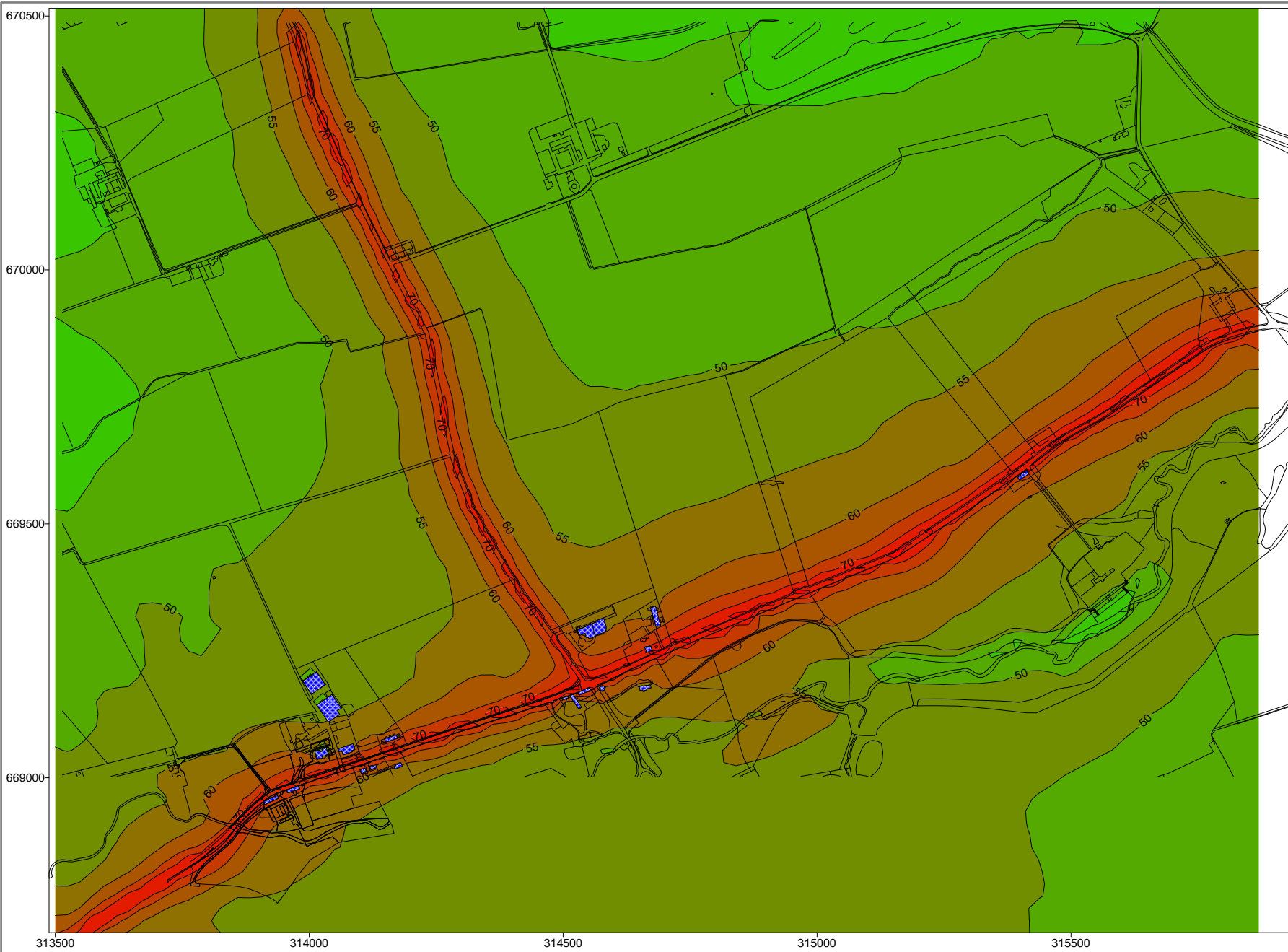
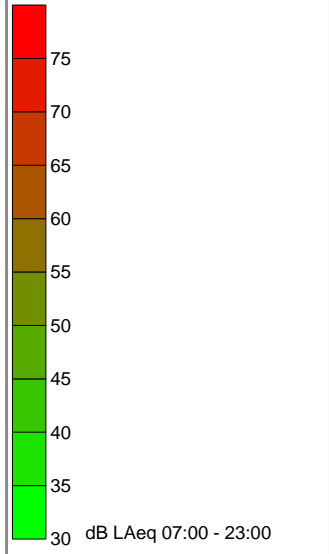


Figure 4.4



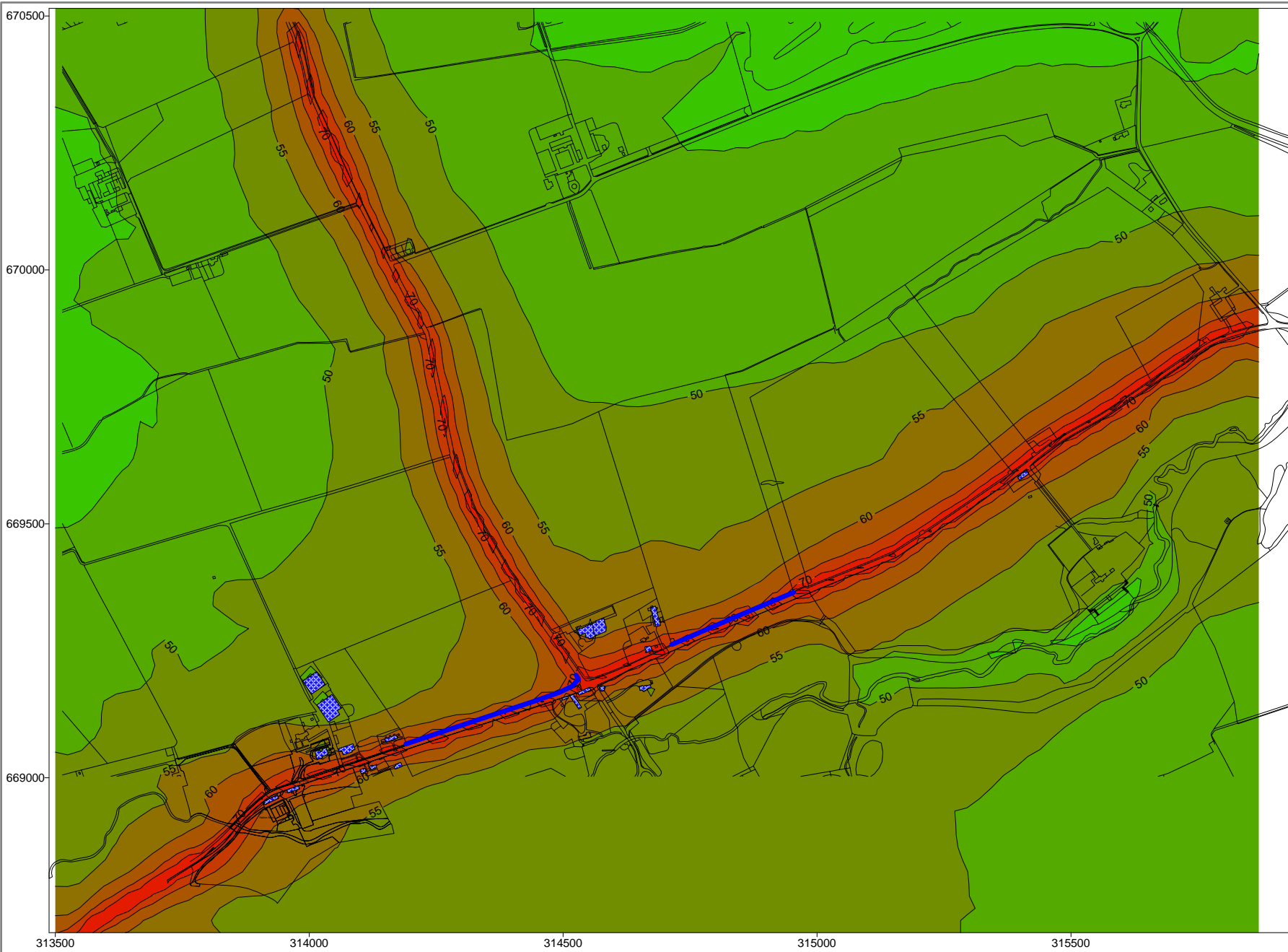
**Scheme 2030**

Prediction Model  
 SoundPlan 8.1  
 Scenario - 2030 scheme  
 Model includes existing buildings  
 16 hour noise  
 Prediction Method CRTN  
 Topography based on OS Terrain 5  
 prediction grid 5m  
 contours dB LAeq 07:00 - 23:00  
 1.5m above ground level  
 assumes soft ground across domain  
 units = dB LAeq daytime



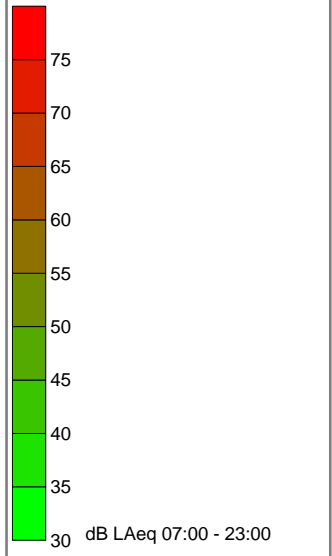
**Figure 5**





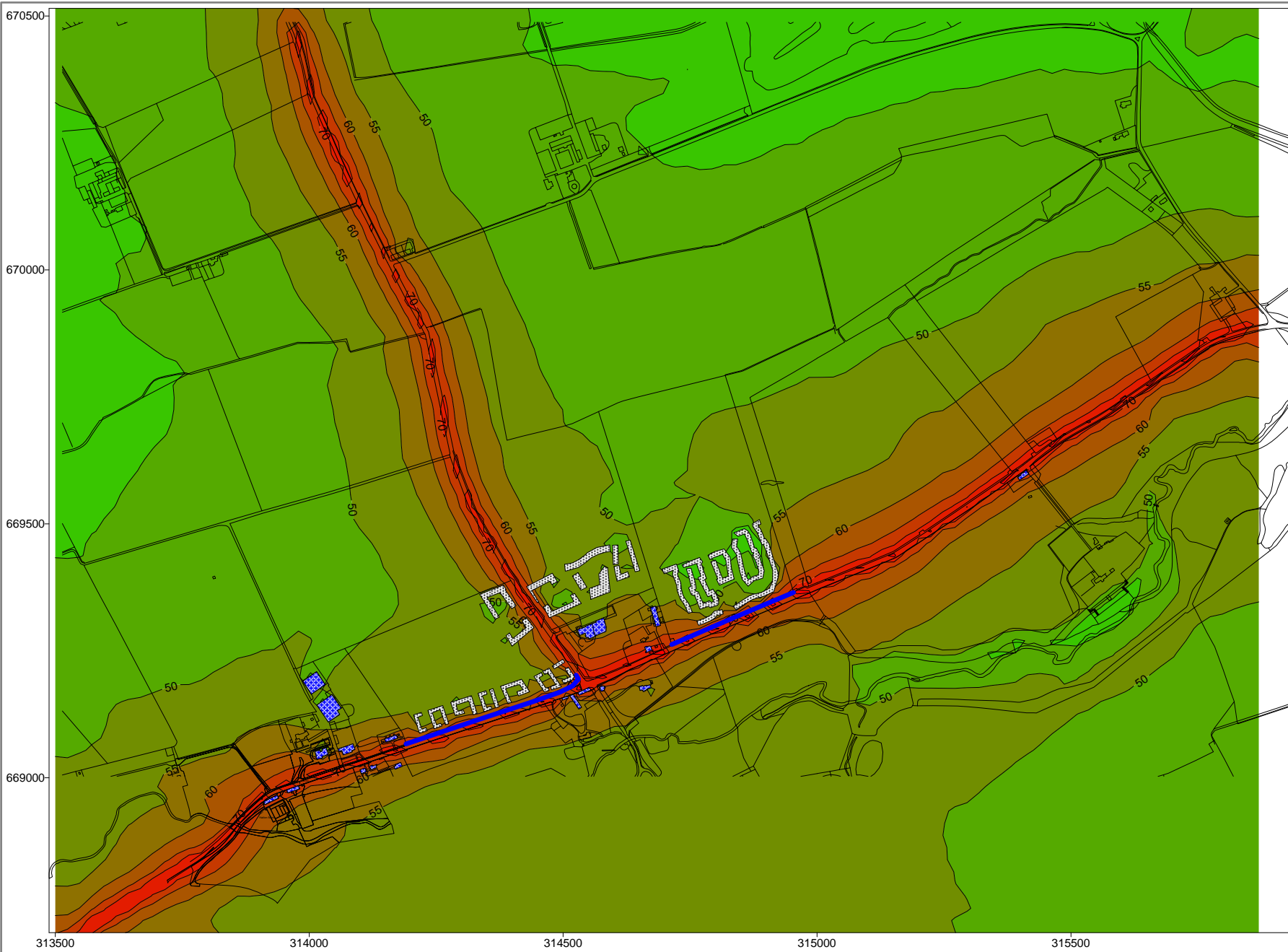
**Scheme 2030  
Mitigation Option 1**

Prediction Model  
SoundPlan 8.1  
Scenario - 2030 scheme  
mitigation option 1  
acoustic barriers 2.5m high  
Model includes existing buildings  
16 hour noise  
Prediction Method CRTN  
Topography based on OS Terrain 5  
prediction grid 5m  
contours dB LAeq 07:00 - 23:00  
1.5m above ground level  
assumes soft ground across domain  
units = dB LAeq daytime



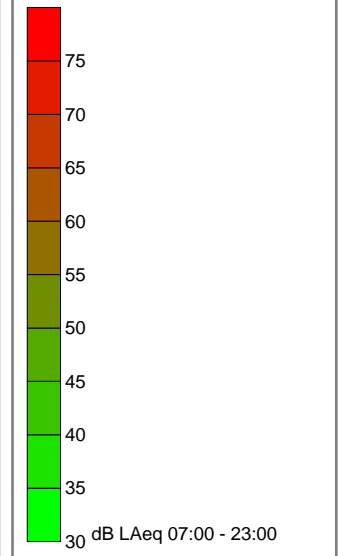
**Figure 6**





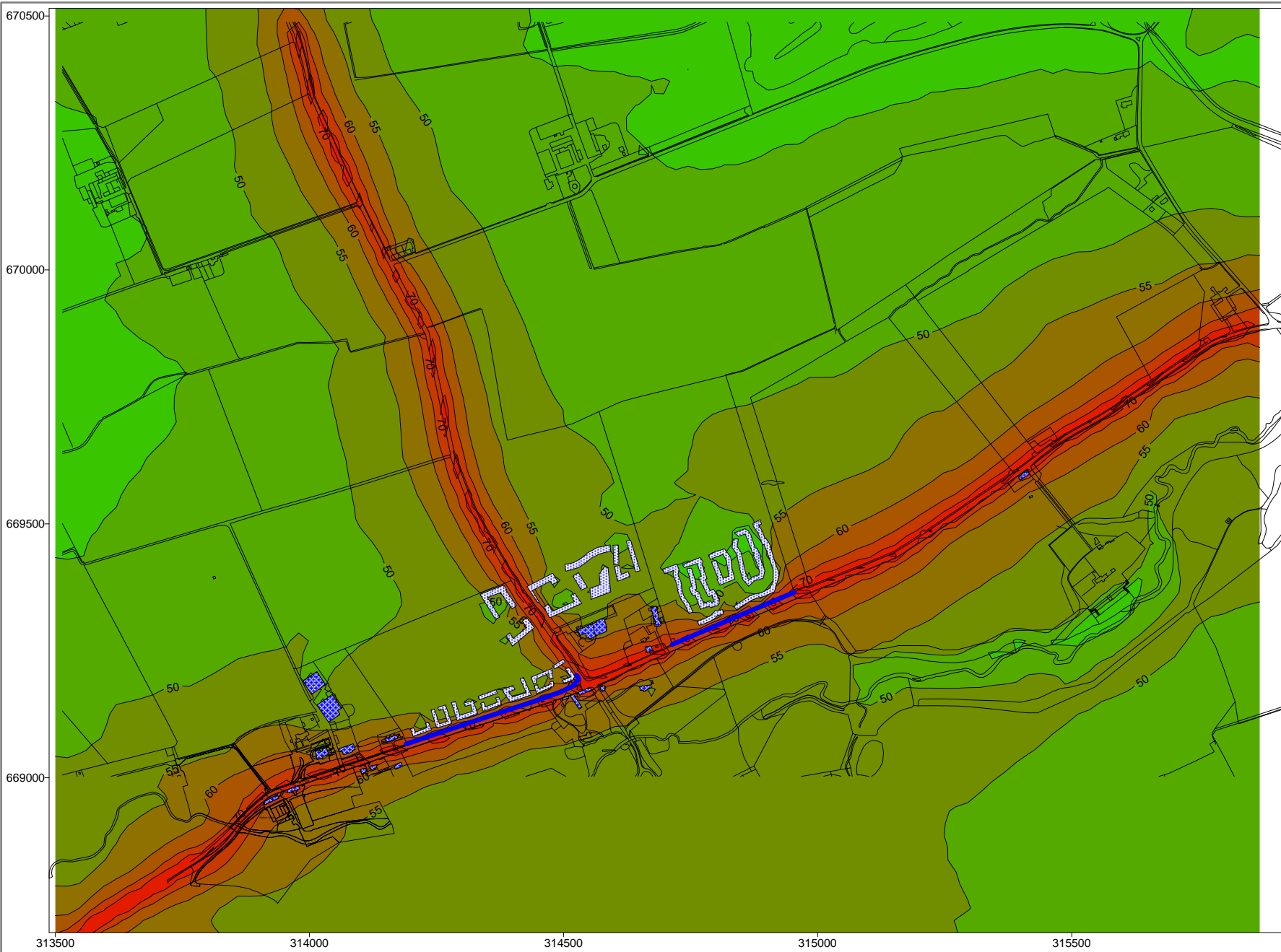
**Scheme 2030  
Mitigation Option 2**

Prediction Model  
SoundPlan 8.1  
Scenario - 2030 scheme  
mitigation option 2  
acoustic barriers 2.5m high  
Model includes existing buildings  
and indicative masterplan layout  
16 hour noise  
Prediction Method CRTN  
Topography based on OS Terrain 5  
prediction grid 5m  
contours dB LAeq 07:00 - 23:00  
1.5m above ground level  
assumes soft ground across domain  
units = dB LAeq daytime



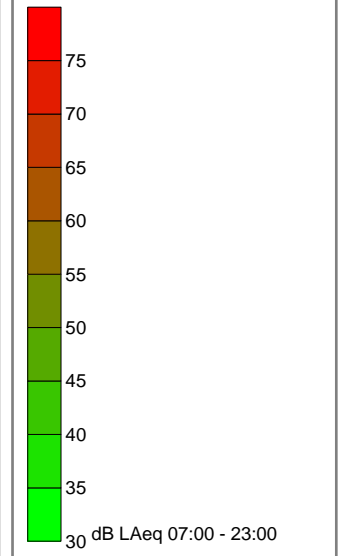
**Figure 7**





**Scheme 2030  
Mitigation Option 3**

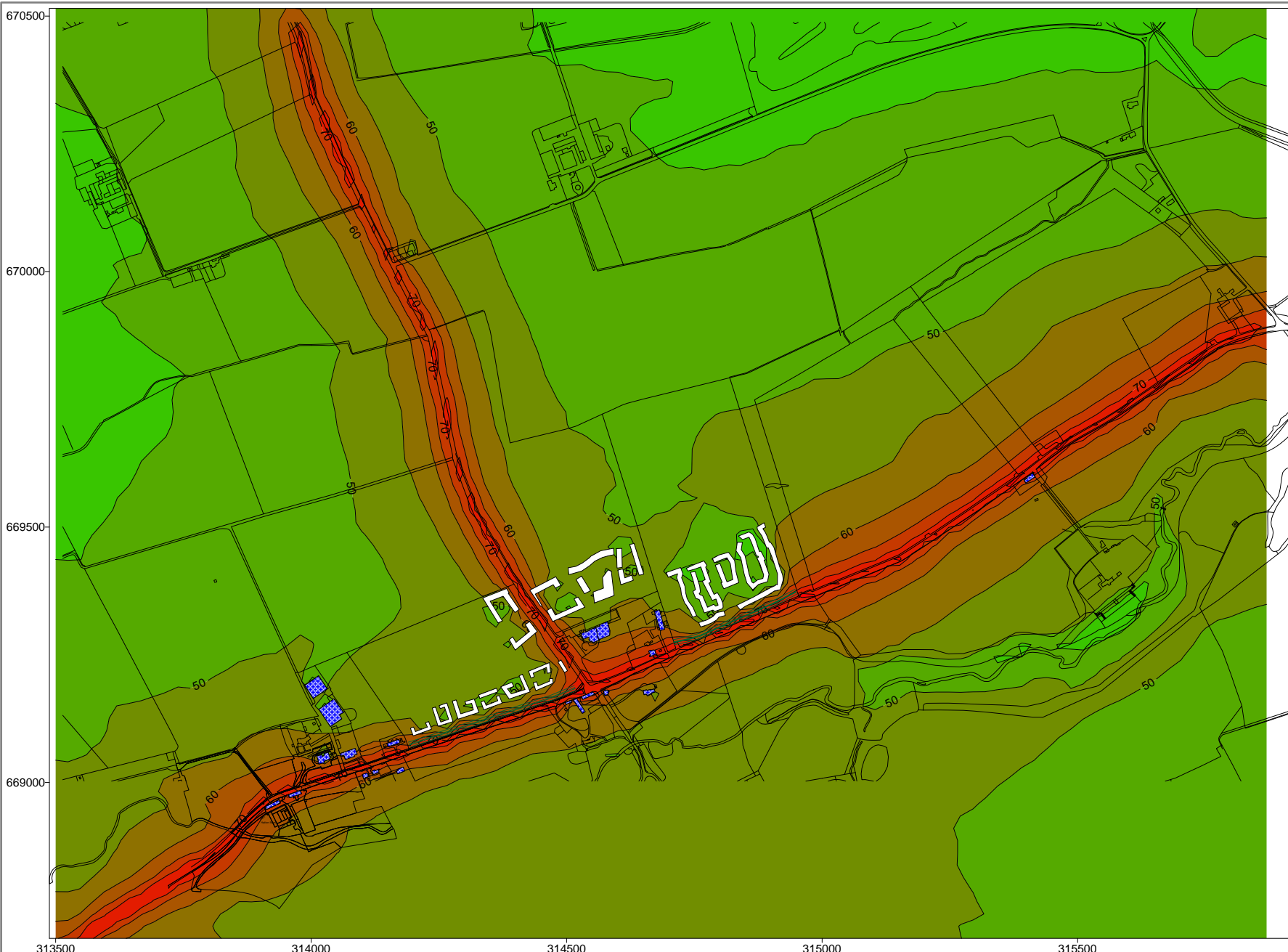
Prediction Model  
 SoundPlan 8.1  
 Scenario - 2030 scheme  
 mitigation option 3  
 acoustic barriers 2.5m high  
 Model includes existing buildings  
 and indicative masterplan layout  
 airshed tweak  
 16 hour noise  
 Prediction Method CRTN  
 Topography based on OS Terrain 5  
 prediction grid 5m  
 contours dB LAeq 07:00 - 23:00  
 1.5m above ground level  
 assumes soft ground across domain  
 units = dB LAeq daytime



**Figure 8**

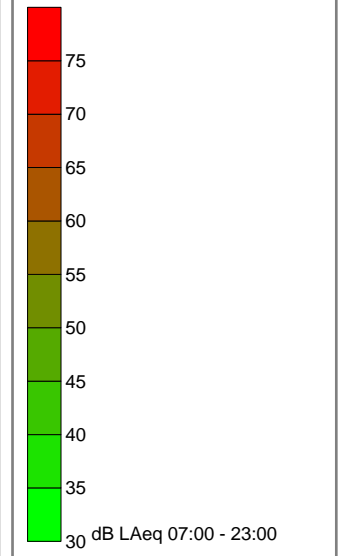






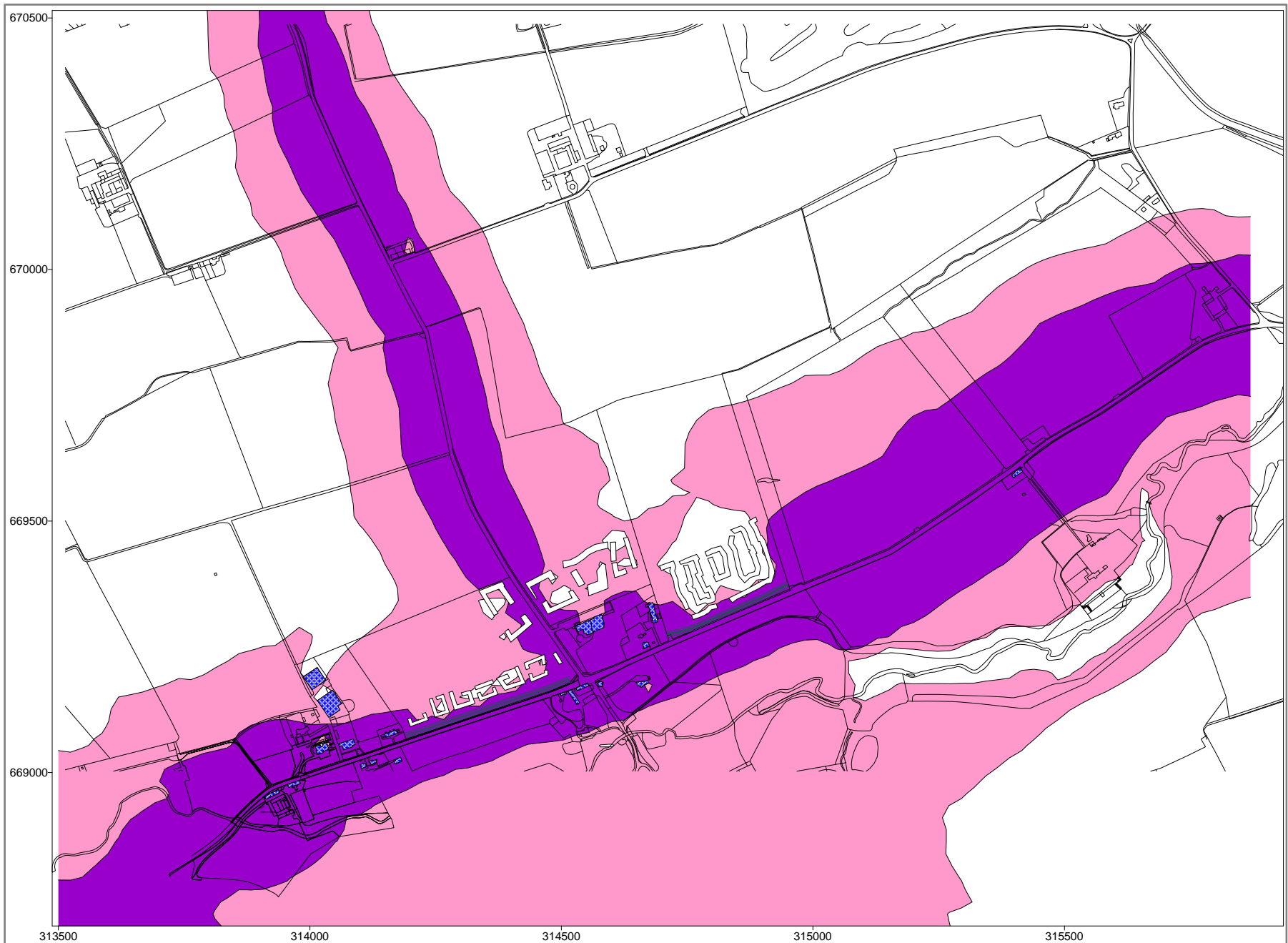
**Scheme 2030  
Mitigation Option 4**

Prediction Model  
SoundPlan 8.1  
Scenario - 2030 scheme  
mitigation option 4  
acoustic barriers 4.0m high  
Model includes existing buildings  
and indicative masterplan layout  
airshed tweak  
16 hour noise  
Prediction Method CRTN  
Topography based on OS Terrain 5  
prediction grid 5m  
contours dB LAeq 07:00 - 23:00  
1.5m above ground level  
assumes soft ground across domain  
units = dB LAeq daytime



**Figure 9**





**Scheme 2030  
Constraints**

- Improved Noise Mitigation
- Standard Noise Mitigation

**Figure 10**



## Appendix 1 – Traffic Data

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No.	Description	Baseline 2019				Cars		Trucks		Cars		Trucks	
		18 hour	16 hour	8 hour	%HGV	Day	Night	Day	Night	Day	Night	Day	Night
1	A71 west of B7031	13,653	13,544	109	11%								
2	A71 west of B7015	12,987	12,884	104	11%								
3	B7015 east of Camps	4,092	4,059	33	14%								
4	A71 west of B7030	16,615	16,482	133	11%								
5	A71 west of Dalmahoy	15,832	15,706	127	11%	13,935	112	1771	14	871	14	111	2
6	Dalmahoy Road	2,145	2,128	17	15%	1,817	15	311	3	114	2	19	0
7	Main Street Ratho	3,267	3,241	26	14%								
8	A71 east of Dalmahoy	17,764	17,621	142	11%	15,732	127	1890	15	983	16	118	2
9	Curriehill Road	2,858	2,835	23	10%								
10	A71 west of Curriehill Road	16,116	15,987	129	13%								
11	A71 east of Riccarton Mains	28,636	28,407	229	11%								
12	A71 west of Wester Hailes	36,569	36,276	293	13%								
13	A71 east of Wester Hailes	32,749	32,487	262	12%								
14	A71 west of Saughton Road	30,998	30,750	248	13%								
15	A71 east of Saughton Road	29,465	29,229	236	13%								
16	Harvest Road	2,774	2,752	22	16%								

where 18 hour AAWF have been factored by (1-0.992) (from ATC site 8) to obtain 8 hour flows

where 18 hour AAWF have been factored by 0.992 (from ATC site 8) to obtain 16 hour flows

No.	Description	Scheme 2030				Cars		Trucks		Cars		Trucks	
		18 hour	16 hour	8 hour	%HGV	Day	Night	Day	Night	Day	Night	Day	Night
1	A71 west of B7031	15,744	15,618	126	11%								
2	A71 west of B7015	14,980	14,861	120	11%								
3	B7015 east of Camps	4,712	4,674	38	14%								
4	A71 west of B7030	19,141	18,988	153	11%								
5	A71 west of Dalmahoy	18,243	18,097	146	11%	16,057	129	2040	16	1,004	16	128	2
6	Dalmahoy Road	2,716	2,695	22	15%	2,300	19	394	3	144	2	25	0
7	Main Street Ratho	3,992	3,960	32	14%								
8	A71 east of Dalmahoy	20,595	20,430	165	11%	18,239	147	2191	18	1,140	18	137	2
9	Curriehill Road	3,278	3,251	26	10%								
10	A71 west of Curriehill Road	18,706	18,556	150	13%								
11	A71 east of Riccarton Mains	34,727	34,450	278	11%								
12	A71 west of Wester Hailes	43,450	43,103	348	13%								
13	A71 east of Wester Hailes	38,753	38,443	310	12%								
14	A71 west of Saughton Road	36,649	36,356	293	13%								
15	A71 east of Saughton Road	34,868	34,589	279	13%								
16	Harvest Road	3,386	3,359	27	16%								

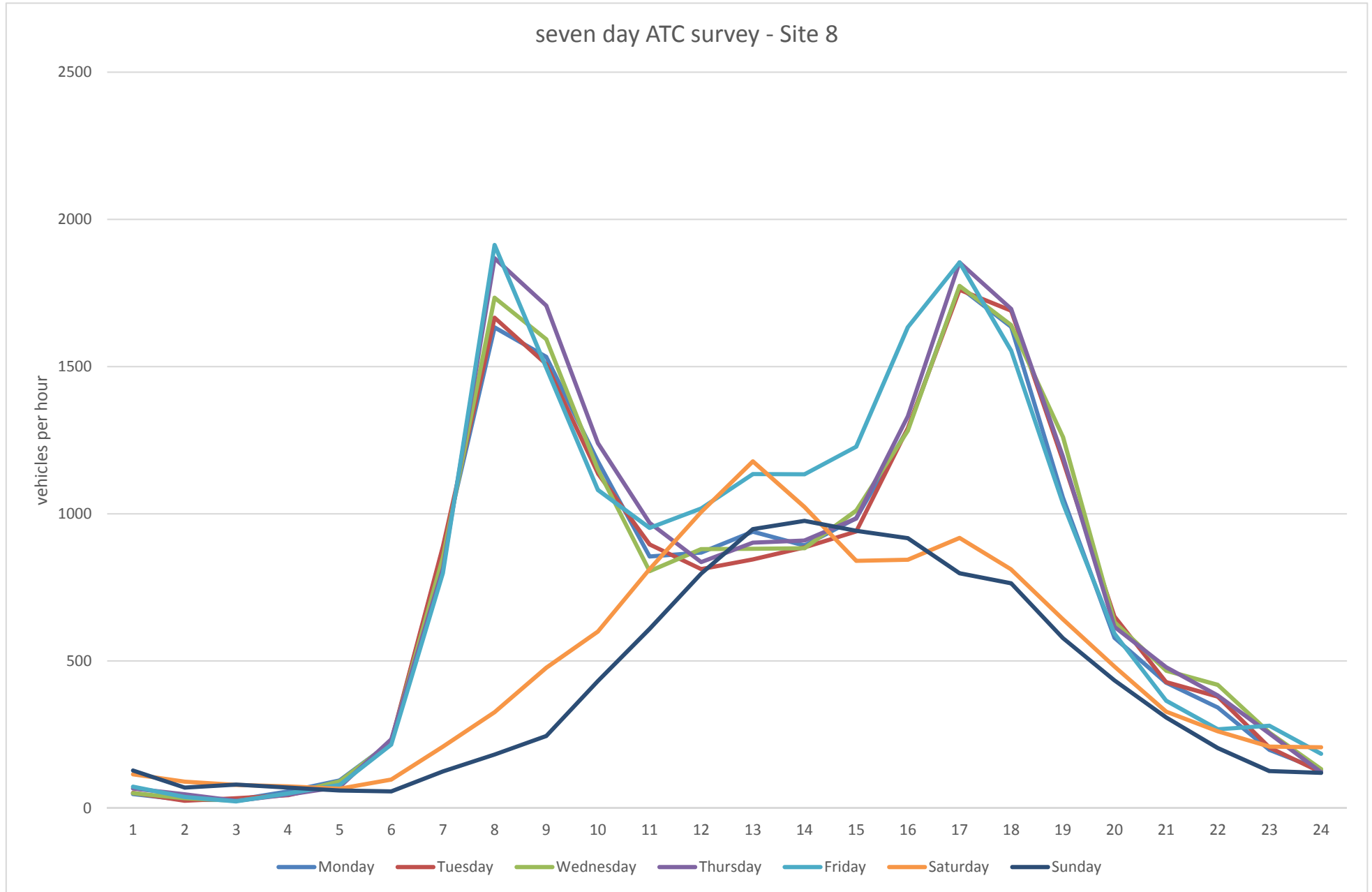
where 18 hour AAWF have been factored by (1-0.992) (from ATC site 8) to obtain 8 hour flows

where 18 hour AAWF have been factored by 0.992 (from ATC site 8) to obtain 16 hour flows

No.	Description	Scheme 2030				Cars		Trucks		Cars		Trucks	
		18 hour	16 hour	8 hour	%HGV	Day	Night	Day	Night	Day	Night	Day	Night
1	A71 west of B7031	16,399	16,268	131	11%								
2	A71 west of B7015	15,635	15,510	125	11%								
3	B7015 east of Camps	4,712	4,674	38	14%								
4	A71 west of B7030	19,796	19,638	158	11%								
5	A71 west of Dalmahoy	18,925	18,774	151	11%	16,657	134	2117	17	1,041	17	132	2
6	Dalmahoy Road	6,478	6,426	52	15%	5,486	44	941	8	343	6	59	1
7	Main Street Ratho	4,625	4,588	37	14%								
8	A71 east of Dalmahoy	23,675	23,485	189	11%	20,967	169	2519	20	1,310	21	157	3
9	Curriehill Road	3,449	3,421	28	10%								
10	A71 west of Curriehill Road	21,615	21,442	173	13%								
11	A71 east of Riccarton Mains	37,636	37,335	301	11%								
12	A71 west of Wester Hailes	45,443	45,080	364	13%								
13	A71 east of Wester Hailes	40,517	40,193	324	12%								
14	A71 west of Saughton Road	38,279	37,973	306	13%								
15	A71 east of Saughton Road	36,462	36,171	292	13%								
16	Harvest Road	4,019	3,987	32	16%								

where 18 hour AAWF have been factored by (1-0.992) (from ATC site 8) to obtain 8 hour flows

where 18 hour AAWF have been factored by 0.992 (from ATC site 8) to obtain 16 hour flows



Time	hourly flows						
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
01:00	48	52	51	67	73	115	128
02:00	28	25	34	47	38	90	70
03:00	28	34	25	25	23	79	80
04:00	57	44	48	46	50	74	70
05:00	94	83	91	72	79	66	60
06:00	224	227	225	234	216	97	57
07:00	883	889	852	814	799	209	125
08:00	1633	1666	1734	1868	1913	326	182
09:00	1533	1508	1593	1707	1496	477	245
10:00	1178	1137	1151	1240	1081	600	432
11:00	855	896	805	969	952	812	609
12:00	868	812	880	836	1018	1006	797
13:00	939	845	881	902	1135	1178	948
14:00	892	886	883	909	1134	1023	976
15:00	985	940	1011	984	1228	840	942
16:00	1288	1291	1282	1331	1634	844	917
17:00	1770	1761	1774	1854	1854	918	798
18:00	1635	1690	1641	1696	1554	811	764
19:00	1056	1181	1262	1195	1036	642	578
20:00	579	651	632	616	593	481	434
21:00	426	428	467	479	365	328	308
22:00	342	379	419	383	268	261	204
23:00	198	206	257	254	280	209	126
00:00	129	122	133	122	185	207	120

summary flows/hour		
5 days	Sat	Sun
58	115	128
34	90	70
27	79	80
49	74	70
84	66	60
225	97	57
847	209	125
1763	326	182
1567	477	245
1157	600	432
895	812	609
883	1006	797
940	1178	948
941	1023	976
1030	840	942
1365	844	917
1803	918	798
1643	811	764
1146	642	578
614	481	434
433	328	308
358	261	204
239	209	126
138	207	120

summary flows/hour		
5 days	Sat	Sun
0.039	0.078	0.087
0.023	0.061	0.047
0.018	0.053	0.054
0.033	0.050	0.047
0.057	0.045	0.041
0.152	0.066	0.039
0.573	0.141	0.085
1.193	0.221	0.123
1.060	0.323	0.166
0.783	0.406	0.292
0.606	0.549	0.412
0.597	0.681	0.539
0.636	0.797	0.641
0.637	0.692	0.660
0.697	0.568	0.637
0.924	0.571	0.620
1.220	0.621	0.540
1.112	0.549	0.517
0.775	0.434	0.391
0.416	0.325	0.294
0.293	0.222	0.208
0.242	0.177	0.138
0.162	0.141	0.085
0.094	0.140	0.081

seven day ATC survey Site 8

## Appendix 2 – Baseline Noise Survey

---

**Noise Survey**

**Project Number:** AS 0684  
**Log Book Number:** 111

**Project Name:** Hatton Mains

Norsonic Nor-140 Sound Level Meter 6 Serial No. 1406914  
 Norsonic Nor-1225 Microphone Serial No. 212990  
 Norsonic Nor-1217 Outdoor Protection Kit Serial No. 12175403  
 Calibration Factor 113.8

Norsonic Nor-140 Sound Level Meter 7 Serial No. 1405074  
 Gras 40AF Microphone Serial No. 114655  
 Norsonic Nor-1217 Outdoor Protection Kit Serial No. 12175404  
 Calibration Factor 113.8

Norsonic Nor-1251 Acoustic Calibrator A Serial No. 31060  
 Norsonic Nor-1251 Acoustic Calibrator B Serial No. 34961



Site No:	1	2	3	Sound Level Meter	Calibration End:	Calibrator:
<b>Location :</b>	A71 East	Planet Flowers	Knowehead Cottage			
<b>Start Date/Time:</b>						
Tuesday 12th February 2109	14:15	13:10	12:00	Meter 6	113.8	B
Thursday 14th February 2019	10:12	08:00	09:06	Meter 6	113.8	B
Monday 25th February 2019	15:45	16:18	17:30	Meter 7	113.8	B
Tuesday 26th February 2019	-	01:25	00:15	Meter 7	113.8	B
Tuesday 26th March 2019	06:00 (120 mins)	-	-	Meter 7	113.5	B
Wednesday 27th March 2019	23:30	22:17	21:20	Meter 7	113.7	A
Friday 29th March 2019	-	06:18	05:12	Meter 7	113.7	A



Date	LAeq	LAmax	LA90	20 Hz	30 Hz	40 Hz	50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1,000 Hz	1,250 Hz	1,600 Hz	2,000 Hz	2,500 Hz	3,150 Hz	4,000 Hz	5,000 Hz	6,300 Hz	8,000 Hz	10,000 Hz	12,500 Hz	16,000 Hz	20,000 Hz		
(2019/02/12 14:13:33.00)	75.1	83.1	58.4	62.1	61.8	61.1	65.5	69.0	66.2	63.4	60.7	65.5	60.7	65.9	64.8	62.5	65.6	66.8	67.8	68.6	66.3	65.1	62.6	58.1	54.1	50.9	47.2	43.2	40.3	37.6	34.2	30.3	26.6		
(2019/02/12 14:14:02.00)	72.0	80.0	56.9	61.8	58.6	59.1	59.5	60.7	64.9	58.8	57.1	58.0	55.8	56.7	58.9	58.3	58.4	59.5	61.1	64.6	66.2	63.9	62.2	60.4	55.5	50.9	47.6	43.4	39.7	37.0	34.8	31.7	28.1	23.7	
(2019/02/12 14:15:02.00)	72.9	78.9	57.4	59.8	58.5	59.8	62.1	64.2	62.5	58.9	58.3	57.7	57.2	58.3	59.9	59.1	59.0	60.3	62.5	65.3	66.7	64.9	63.8	61.6	57.3	53.2	49.7	45.7	42.2	39.0	35.4	30.9	26.6	21.6	
(2019/02/12 14:16:02.00)	70.3	80.2	52.1	66.2	63.0	64.7	62.6	60.3	59.7	57.4	57.7	59.5	59.5	59.0	60.0	60.1	61.2	63.0	63.0	63.5	62.1	60.3	58.0	54.4	50.6	48.0	46.4	41.1	38.2	35.1	45.7	34.0	21.7		
(2019/02/12 14:17:02.00)	75.7	86.5	68.1	68.4	66.9	67.9	71.2	72.2	69.2	69.5	73.8	69.2	69.9	70.5	71.2	69.7	68.5	66.7	66.6	67.6	67.5	66.0	65.1	62.2	59.2	58.4	52.9	50.4	48.0	45.0	42.0	37.7	33.2	29.0	
(2019/02/12 14:18:02.00)	73.6	80.5	60.4	62.5	59.8	58.5	60.6	68.6	66.0	59.9	62.2	58.0	57.5	58.7	60.5	60.0	59.3	60.9	62.9	66.0	67.1	65.9	65.0	62.3	57.9	53.9	50.5	46.4	42.6	39.5	36.0	31.0	22.0		
(2019/02/12 14:19:02.00)	74.0	83.8	55.3	67.2	65.1	65.5	62.4	69.0	70.4	60.8	62.4	62.1	62.5	62.9	62.1	61.1	61.3	61.9	63.5	67.2	68.1	65.5	64.3	62.1	57.9	53.6	50.6	46.5	42.6	39.6	36.9	34.2	26.6	22.1	
(2019/02/12 14:20:02.00)	74.2	82.0	66.3	67.4	65.8	65.0	63.1	64.8	64.2	63.9	59.4	58.2	58.1	60.4	61.2	60.5	60.3	61.7	63.8	66.8	68.2	66.2	65.1	62.6	58.3	53.9	50.6	46.5	42.9	39.8	36.2	32.5	28.4	24.3	
(2019/02/12 14:21:02.00)	69.8	69.7	52.7	60.2	59.2	60.2	61.8	63.4	64.5	60.2	59.8	56.5	55.3	57.4	56.1	57.0	57.5	57.0	58.1	61.8	63.0	61.5	60.9	58.3	54.5	50.1	47.0	43.5	40.2	38.1	35.4	31.7	27.9		
(2019/02/12 14:22:02.00)	72.7	83.7	56.7	61.8	62.1	61.0	60.9	61.2	63.0	60.8	59.1	57.1	54.7	56.5	58.3	57.7	58.3	59.1	62.0	65.9	66.4	64.5	64.1	61.1	56.8	52.8	49.2	45.4	41.9	39.8	36.8	32.4	28.2	23.6	
(2019/02/12 14:23:02.00)	74.1	81.0	57.5	62.9	63.1	61.2	60.7	70.9	69.8	65.2	61.7	60.5	59.6	59.8	60.4	59.9	60.3	61.6	64.3	67.0	67.7	66.2	64.8	62.2	58.2	54.2	51.3	47.6	44.9	41.9	38.4	34.1	29.0	24.6	
(2019/02/12 14:24:02.00)	74.4	84.2	61.4	62.0	59.6	60.3	62.8	64.3	66.4	62.8	59.4	59.8	59.1	59.4	60.7	60.5	60.6	61.6	64.0	67.4	68.3	66.5	65.3	62.4	58.2	54.4	51.5	47.8	44.5	41.2	37.3	33.3	29.1	24.5	
(2019/02/12 14:25:02.00)	75.5	87.6	60.8	60.7	58.8	61.3	62.4	65.8	69.9	63.3	61.3	62.8	62.5	63.7	62.1	61.7	62.3	63.7	66.4	68.9	69.0	67.2	66.3	63.4	58.9	54.8	52.0	48.6	45.0	41.7	39.5	35.8	30.7	24.7	
(2019/02/12 14:26:02.00)	73.5	80.9	55.2	67.8	66.4	64.1	64.8	66.7	68.5	59.9	59.7	60.8	60.9	61.0	62.6	60.8	61.9	63.6	66.2	67.5	65.6	63.8	61.5	57.2	52.9	49.4	45.4	42.2	39.0	35.7	32.2	29.2	26.3		
(2019/02/12 14:27:02.00)	72.4	80.8	60.6	61.8	59.6	58.9	61.2	64.3	64.3	57.4	57.4	55.7	55.3	57.3	59.3	58.7	57.9	59.5	62.0	65.2	66.6	64.3	63.1	60.7	56.4	52.2	48.9	45.2	41.7	38.8	36.2	31.7	27.1	22.5	
(2019/02/12 14:28:02.00)	74.6	82.4	63.3	68.5	65.5	64.6	63.6	66.9	66.2	62.1	58.9	59.4	58.4	59.0	60.3	60.0	59.7	62.5	65.7	68.3	66.3	65.5	62.9	58.7	54.8	51.0	48.7	44.7	42.2	38.7	35.0	30.8	26.6		
(2019/02/12 14:29:02.00)	71.3	80.6	51.3	68.1	67.1	63.3	61.0	61.4	59.1	63.0	57.1	56.1	61.2	55.9	58.5	58.0	56.7	58.2	62.0	63.6	65.3	63.0	61.9	59.9	55.7	51.5	48.1	43.9	40.0	37.0	33.5	29.9	25.5	21.1	
(2019/02/12 14:30:02.00)	73.1	81.6	54.6	63.1	62.1	62.0	64.1	68.4	67.3	62.4	60.8	60.4	59.6	59.5	60.2	60.6	60.2	62.2	65.2	65.9	66.8	64.7	63.3	60.8	56.8	52.9	49.3	45.4	42.1	39.5	35.8	32.2	27.1	22.8	
(2019/02/12 14:31:02.00)	72.9	82.2	50.8	62.6	63.2	60.7	61.0	65.4	66.0	61.8	58.8	61.5	65.6	58.3	60.5	59.5	58.8	60.1	62.6	65.5	66.6	64.8	63.6	61.5	57.4	53.5	50.0	46.1	42.8	40.4	37.7	34.3	31.8	28.3	
(2019/02/12 14:32:02.00)	74.8	84.6	61.3	60.3	59.5	59.5	65.3	67.6	66.1	63.6	60.7	60.8	59.5	60.2	68.3	66.0	61.6	64.1	64.9	67.2	68.5	66.1	65.3	62.9	58.3	54.1	50.9	46.7	43.4	40.2	36.7	32.4	28.3	23.7	
(2019/02/12 14:33:02.00)	75.2	87.6	68.2	60.1	65.2	62.0	63.8	67.5	68.8	61.1	60.9	61.0	60.5	62.2	61.9	61.5	64.6	67.2	68.1	68.6	66.9	65.3	62.7	58.9	55.0	51.7	47.6	43.8	40.5	36.7	32.4	28.3	23.2		
(2019/02/12 14:34:02.00)	73.7	79.8	60.7	65.1	65.5	63.9	64.9	66.7	65.7	61.2	68.8	59.1	58.1	60.6	61.0	60.4	60.3	61.5	63.0	66.1	67.6	65.6	64.4	62.0	58.0	54.3	51.1	47.6	44.2	41.3	38.1	33.7	29.9	23.7	
(2019/02/12 14:35:02.00)	74.8	82.0	58.2	61.8	61.4	59.8	60.1	64.2	65.0	63.6	60.5	59.0	58.0	59.6	62.3	60.4	60.5	62.9	64.4	67.3	68.6	67.0	65.8	63.1	58.7	54.3	50.7	46.6	43.2	40.0	37.0	32.4	27.5	23.1	
(2019/02/12 14:36:02.00)	72.6	81.3	56.7	59.9	58.7	57.7	61.1	64.8	64.3	56.5	56.7	56.4	56.5	59.6	58.0	58.6	58.1	59.2	61.0	66.6	66.9	63.6	62.6	60.0	55.4	51.0	47.4	43.3	40.6	36.9	32.4	27.9	23.8		
(2019/02/12 14:37:02.00)	75.7	88.5	56.2	60.3	58.8	59.2	61.6	65.9	68.9	68.0	60.7	62.2	63.2	70.5	67.0	62.2	67.0	65.9	66.4	69.9	68.1	66.5	64.9	62.7	59.0	55.8	53.9	50.8	47.5	44.2	38.5	35.5	30.5	25.9	
(2019/02/12 14:38:02.00)	76.5	88.8	57.2	72.2	70.5	70.0	69.4	70.4	71.2	64.0	63.2	63.6	61.9	63.1	72.1	69.3	66.8	68.7	68.0	68.8	69.1	67.1	65.6	63.2	59.8	57.0	54.9	51.3	47.7	44.2	38.1	34.8	34.5	31.8	
(2019/02/12 14:39:02.00)	73.2	81.6	55.7	60.3	61.2	60.3	59.3	64.2	64.4	62.9	59.0	58.6	60.3	59.1	60.4	59.4	59.8	59.8	60.8	63.1	66.1	67.3	65.2	63.5	61.0	57.0	52.9	49.7	45.7	42.1	38.9	35.3	31.0	26.6	22.2
(2019/02/12 14:40:02.00)	73.8	82.3	53.7	60.1	58.6	58.3	59.8	63.3	63.3	59.9	58.7	59.1	57.2	58.4	59.4	59.0	59.7	60.2	62.6	66.6	67.8	66.0	64.5	61.7	58.0	54.1	51.2	47.6	44.6	42.2	38.9	34.9	31.1	28.5	
(2019/02/12 14:41:02.00)	71.8	79.6	57.4	59.9	58.7	57.7	61.1	64.8	64.3	56.5	57.4	56.1	56.4	56.5	59.0	58.6	58.0	59.2	61.0	66.6	66.9	63.6	62.6	60.0	55.4	51.0	47.4	43.3	40.6	36.9	32.4	27.9	23.8		
(2019/02/12 14:42:02.00)	75.2	83.9	63.3	62.9	63.3	62.3	68.5	65.6	65.6	63.1	61.8	61.3	60.3	60.8	62.2	62.2	63.4	64.4	64.9	68.5	69.9	68.1	66.5	64.9	62.7	59.0	55.8	51.9	48.2	44.6	41.3	38.6	34.1	27.8	
(2019/02/12 14:43:02.00)	74.7	80.3	62.1	64.3	61.8	60.7	62.9	66.9	69.3	61.8	60.0	61.5	60.5	60.5	62.3	60.5	60.2	61.8	64.3	67.3	68.6	66.8	65.6	63.1	58.7	54.3	50.9	47.0	43.4	40.1	36.5	32.2	27.5	23.0	
(2019/02/12 14:44:02.00)	75.8	87.4	55.1	60.1	60.0	59.1	63.6	74.6	65.4	61.6	64.3	60.4	60.6	62.0	61.1	60.4	61.1	61.9	64.9	69.2	70.0	67.6	66.6	64.0	59.6	55.1	51.5	4							



Table with 27 columns (dates from 2019/02/14 04:00:00 to 2019/02/14 11:03:00) and 27 rows of numerical data.

Table with 27 columns (dates from 2019/02/25 16:18 to 2019/03/02 17:18) and 27 rows of numerical data.

Table with 27 columns (dates from 2019/03/26 06:01:01 to 2019/03/26 06:07:01) and 27 rows of numerical data.

2019/03/26/06:08:01.00	73.0	84.8	54.7	64.0	60.5	62.6	60.3	64.5	62.3	62.2	59.0	58.0	67.5	71.6	61.0	61.0	61.0	61.6	61.4	63.5	66.0	66.0	64.2	62.7	59.8	56.4	54.2	52.3	49.0	45.9	43.0	40.3	37.6	34.7	32.1	095243	
2019/03/26/06:09:01.00	75.7	88.2	59.0	67.5	64.6	64.5	65.2	66.5	70.2	67.6	63.0	65.3	63.3	64.7	62.3	62.8	64.2	65.5	67.9	69.0	69.0	66.3	65.1	62.5	59.1	55.2	52.8	49.0	45.7	42.3	39.9	35.6	32.0	28.1	1152323		
2019/03/26/06:10:01.00	75.1	84.8	55.2	66.8	65.4	65.8	65.1	67.5	71.3	67.1	64.2	61.0	61.9	61.4	62.4	63.9	66.3	63.6	66.3	68.7	68.6	66.3	65.1	62.5	58.2	54.3	46.6	44.6	42.2	39.1	35.0	32.2	29.7	0951068			
2019/03/26/06:11:01.00	70.2	80.0	57.0	57.4	60.4	60.7	58.4	59.4	60.4	60.7	58.4	59.4	60.4	60.7	58.4	59.4	60.4	60.7	58.4	59.4	60.4	60.7	58.4	59.4	60.4	60.7	58.4	59.4	60.4	60.7	58.4	59.4	60.4	60.7	58.4	59.4	0951945
2019/03/26/06:12:01.00	74.3	82.9	59.7	58.1	57.2	58.5	59.4	62.3	63.5	62.7	59.3	58.3	56.5	57.0	58.8	59.5	59.4	61.2	63.7	67.1	68.3	66.5	65.3	62.6	57.7	52.9	49.0	44.2	40.3	37.6	35.1	31.7	28.3	23.4	0951480		
2019/03/26/06:13:01.00	74.2	81.1	55.9	60.1	59.8	58.5	59.5	62.5	64.0	60.5	60.2	58.3	56.5	57.3	59.1	59.7	59.4	60.7	63.8	67.2	68.7	66.4	64.8	62.1	57.0	52.4	48.5	43.6	39.6	36.6	33.6	30.6	26.5	21.2	0951860		
2019/03/26/06:14:01.00	71.0	83.7	53.3	61.6	58.6	58.6	60.5	60.9	63.8	59.7	56.3	55.7	55.8	55.7	56.6	57.3	57.6	58.5	61.3	64.7	64.7	62.6	61.4	58.8	54.4	50.5	47.2	42.2	38.6	35.8	33.1	28.9	25.1	19.6	0959254		
2019/03/26/06:15:01.00	72.0	83.6	50.7	63.8	62.7	60.9	58.1	61.8	65.4	60.8	57.9	57.6	56.2	56.6	57.9	57.8	57.9	58.6	62.2	65.7	66.3	64.1	62.2	59.1	54.6	50.4	46.3	42.2	38.5	35.8	32.3	28.3	25.1	20.7	0959282		
2019/03/26/06:16:01.00	72.7	85.2	56.9	69.1	68.1	61.4	62.6	64.7	68.4	61.8	59.0	62.0	61.6	62.6	62.9	60.8	60.3	62.1	65.2	67.4	67.5	65.1	63.3	60.9	57.1	53.1	49.6	45.6	43.2	40.2	37.0	33.4	26.5	21.9	0959288		
2019/03/26/06:17:01.00	71.4	80.9	54.9	62.6	58.7	57.7	57.0	59.5	63.7	60.4	57.1	57.5	57.0	59.1	58.0	60.7	62.3	60.1	61.8	64.8	65.2	63.1	61.1	58.5	54.4	50.2	47.4	44.5	39.0	36.2	33.1	28.8	25.8	20.6	0959493		
2019/03/26/06:18:01.00	75.4	82.8	57.6	62.4	62.2	60.1	59.5	67.1	64.0	62.7	59.2	60.9	59.0	60.2	60.7	60.8	62.1	65.1	68.6	69.6	67.5	66.0	63.1	58.2	53.4	49.9	45.7	41.8	38.9	36.2	33.1	28.1	22.9	0959585			
2019/03/26/06:19:01.00	76.3	91.7	57.0	59.5	59.5	59.3	58.6	63.4	65.3	60.3	61.1	60.2	64.6	66.0	61.0	62.5	65.5	64.5	66.8	71.3	70.6	67.4	65.2	61.8	57.0	52.7	50.0	44.7	41.3	38.6	35.5	31.7	27.7	26.6	0957952		
2019/03/26/06:20:01.00	75.2	87.2	60.4	63.8	63.3	64.1	60.3	64.5	65.1	64.1	61.1	60.8	59.2	59.6	66.2	61.0	61.9	64.8	65.7	68.6	68.6	67.4	65.3	62.5	57.9	53.5	52.2	47.0	41.6	38.3	35.6	31.2	27.2	22.1	1111111		
2019/03/26/06:21:01.00	74.6	82.4	56.6	69.1	68.4	61.4	60.1	66.4	67.1	65.5	59.8	60.9	59.1	57.7	61.1	61.1	61.7	64.2	67.6	68.5	66.6	65.5	62.8	57.8	53.3	52.2	45.9	41.2	38.8	35.7	31.5	28.7	25.6	20.4	0959161		
2019/03/26/06:22:01.00	76.7	90.0	65.1	72.4	68.1	65.9	67.0	70.7	67.4	65.4	63.8	64.0	63.0	62.2	66.2	64.0	63.1	67.1	68.3	70.0	70.0	68.4	66.8	64.1	60.0	55.8	53.6	48.7	45.9	41.6	37.6	33.1	30.3	25.0	0957354		
2019/03/26/06:23:01.00	76.3	86.9	67.2	68.6	68.4	64.7	68.0	68.8	69.8	66.0	63.2	61.8	61.2	61.5	62.0	64.9	66.9	63.9	67.2	69.8	69.9	68.8	66.4	63.8	59.3	54.9	52.0	47.9	44.6	42.5	40.6	38.0	32.4	28.0	0957952		
2019/03/26/06:24:01.00	74.1	82.6	56.3	61.2	60.0	61.5	62.0	68.1	64.3	64.1	66.2	59.7	59.7	59.5	60.1	60.9	60.2	61.2	64.0	67.9	67.8	66.0	64.7	61.6	57.2	53.1	50.2	46.0	41.9	39.1	36.4	33.3	28.7	24.0	0957959		
2019/03/26/06:25:01.00	76.4	83.3	68.8	62.6	62.4	61.3	63.2	67.3	67.5	63.8	62.3	59.1	60.5	60.5	61.8	62.4	62.6	64.1	66.6	69.6	70.2	68.4	67.3	64.4	59.8	55.1	51.6	47.2	43.3	40.5	37.9	34.0	30.1	25.3	0958098		
2019/03/26/06:26:01.00	72.8	80.3	53.9	59.8	58.0	56.7	56.8	64.3	61.7	59.1	57.2	55.5	56.1	55.9	57.6	58.4	58.3	59.5	62.2	65.6	66.6	64.0	64.1	61.2	56.0	51.8	48.5	43.7	39.5	36.6	33.5	29.5	25.3	20.4	0958098		
2019/03/26/06:27:01.00	75.3	82.8	61.1	57.4	58.6	59.6	63.3	68.3	66.6	61.5	60.5	60.1	58.4	59.1	60.9	61.6	61.3	62.7	65.2	68.4	69.4	67.3	66.0	63.5	58.7	53.9	50.6	46.0	42.1	39.1	36.5	32.1	28.7	23.3	0959415		
2019/03/26/06:28:01.00	74.1	81.5	58.2	60.9	59.0	61.6	66.3	68.7	64.2	63.8	62.2	61.7	60.5	59.1	60.1	60.3	60.6	61.7	64.1	67.4	68.1	66.2	64.6	62.0	57.4	52.9	50.7	46.8	42.9	41.2	37.1	34.8	34.8	30.3	0959258		
2019/03/26/06:29:01.00	78.1	91.6	62.5	58.5	59.9	59.6	62.8	66.5	74.6	78.9	76.7	74.4	76.1	78.0	70.1	70.5	68.6	68.2	71.4	69.6	70.4	68.1	66.7	64.2	59.6	54.7	51.5	47.4	43.9	40.6	37.7	34.0	30.4	24.9	0958423		
2019/03/26/06:30:01.00	75.6	82.2	62.2	55.9	57.5	58.6	62.1	66.9	65.5	63.7	60.0	58.2	59.0	59.0	60.9	61.3	61.4	62.4	65.2	68.3	69.4	67.9	66.8	64.2	59.4	54.3	50.3	45.9	41.3	38.4	35.2	31.1	27.3	22.2	0958098		
2019/03/26/06:31:01.00	75.2	82.9	59.2	57.1	57.2	58.1	62.5	68.7	64.7	63.3	60.8	58.2	58.1	58.5	60.0	61.0	61.0	62.2	65.1	68.1	68.7	67.3	66.3	63.6	58.9	54.4	52.2	46.6	41.6	39.0	36.3	31.8	27.5	22.5	1111112		
2019/03/26/06:32:01.00	74.8	80.7	57.2	56.2	57.4	59.1	60.2	63.8	69.4	63.5	59.4	63.6	57.9	58.9	59.7	60.6	60.2	61.2	63.9	67.1	68.7	67.1	65.9	63.6	58.5	53.6	50.2	45.7	41.5	38.2	34.9	31.5	28.7	23.0	0959517		
2019/03/26/06:34:01.00	76.2	82.0	61.3	60.8	59.6	59.9	60.9	65.1	65.3	64.1	61.1	60.9	59.5	59.9	60.9	61.6	62.2	62.9	66.1	69.4	70.3	68.4	66.9	64.0	59.3	54.4	52.8	47.2	42.6	39.6	36.6	32.3	28.6	25.4	0958098		
2019/03/26/06:35:01.00	75.3	81.3	66.8	59.3	59.7	58.8	61.9	69.0	71.6	66.5	61.2	59.6	59.5	60.0	61.0	61.4	61.6	62.6	65.1	68.3	69.2	67.3	66.1	63.4	58.7	54.2	51.3	48.3	43.1	40.8	37.0	32.4	29.0	24.0	0958416		
2019/03/26/06:36:01.00	76.4	80.8	66.4	63.8	63.8	61.4	60.0	67.7	67.2	66.0	64.9	63.9	63.9	63.3	65.3	65.3	66.3	68.7	68.8	68.8	68.1	66.3	64.8	62.0	58.7	54.2	52.8	49.3	46.7	42.8	39.4	35.7	31.9	27.2	0958098		
2019/03/26/06:37:01.00	75.4	82.3	62.0	65.3	64.7	61.3	63.3	65.3	67.5	63.8	60.9	60.3	60.1	60.8	61.0	61.6	62.0	63.4	66.1	69.9	68.9	67.9	66.4	63.6	59.0	54.5	51.8	47.5	43.6	40.5	37.5	32.1	28.4	23.1	0958098		
2019/03/26/06:38:01.00	80.7	95.6	65.8	59.3	61.0	61.4	62.8	67.5	70.1	65.2	63.3	69.8	63.7	67.0	72.1	71.5	72.0	69.6	68.8	66.3	63.0	61.3	58.2	54.2	51.4	49.4	47.1	43.8	41.6	38.1	34.8	31.6	28.0	23.0	0957008		
2019/03/26/06:39:01.00	76.8	87.1	71.0	61.4	65.4	63.0	64.5	69.3	66.6	63.3	65.8	66.6	61.5	62.5	64.5	66.3	69.0	65.6	68.0	70.1	70.2	68.2	66.9	64.3	59.8	55.2	51.7	47.3	44.1	41.6	38.7	34.4	31.3	27.6	0957959		
2019/03/26/06:40:01.00	76.3	86.0	69.6	63.7	61.2	61.0	63.7	67.6	70.6	66.6	61.5	61.2	60.1	58.6	60.4	62.6	62.4	62.5	64.2	66.0	68.9	70.1	68.5	67.2	64.6	59.9	55.5	52.6	50.9	46.9	43.2	39.9	34.9	29.6	0957959		
2019/03/26/06:41:01.00	76.6	81.5	66.7	61.3	59.7	60.5	62.4	66.9	67.1	64.4	66.9	66.6	62.9	61.0	65.8	63.2	63.0	64.4	66.4	69.4	70.3	68.7	67.6	64.8	60.0	55.3	51.5	47.8	44.1	41.3	38.3	33.9	30.1	24.9	0958098		
2019/03/26/06:42:01.00	76.0	80.6	60.8	60.3	60.7	61.2	68.3	69.9	60.7	61.2	68.3	69.9	60.4	60.8	61.0	61.6	62.0	63.4	66.1	69.4	69.4	68.1	66.3	63.8	59.1	54.0	50.7	46.0	42.1	39.2	36.4	32.7	29.0	24.4	0958098		
2019/03/26/06:43:01.00	74.3	83.3	59.2	63.8	61.7	60.1	62.0	66.0	65.1	63.3	60.2	61.3	62.3	59.5	60.5	61.3	60.7	62.7	65.0	67.4	68.2	66.1	64.7	62.1	57.7	53.2	50.0	46.3	44.0	43.4	43.8	44.1	43.2	40.0	0951480		
2019/03/26/06:4																																					

(2019/03/26 07:47:01.00)	76.2	85.8	67.4	66.1	66.2	65.2	66.3	68.9	68.2	64.6	63.1	62.9	61.4	61.7	65.3	66.0	66.6	66.9	68.5	70.1	69.3	67.4	65.3	62.4	58.7	55.0	52.5	53.4	51.0	46.3	45.5	42.1	39.1	34.9
(2019/03/26 07:48:01.00)	76.0	85.7	70.6	68.1	66.2	65.6	64.9	68.3	69.3	65.5	62.2	62.9	60.3	61.6	65.4	65.2	62.8	65.5	67.9	69.2	69.5	67.6	66.1	63.4	58.5	54.3	50.9	46.3	42.7	40.2	38.4	34.2	31.9	26.5
(2019/03/26 07:49:01.00)	76.6	84.6	63.4	68.0	68.5	66.7	66.6	69.4	74.3	67.6	64.1	67.5	62.6	62.8	62.6	61.0	65.1	65.4	67.4	69.5	70.0	68.6	66.7	63.8	59.4	55.3	50.8	46.8	44.0	39.6	34.4	30.5	25.7	
(2019/03/26 07:50:01.00)	74.5	80.6	55.3	62.1	60.1	60.3	65.6	67.4	65.4	60.6	58.3	59.7	56.5	58.2	60.2	63.1	64.4	67.1	68.6	68.6	66.6	65.0	61.8	58.4	52.6	48.6	44.5	41.9	37.7	36.4	31.6	29.1	23.5	
(2019/03/26 07:51:01.00)	74.1	86.3	54.2	64.3	61.7	61.1	60.5	65.1	70.9	63.0	62.4	62.2	61.0	61.0	61.1	61.9	66.3	64.3	65.5	68.1	66.9	65.7	63.6	60.3	56.3	52.1	48.6	44.8	41.4	40.2	44.4	37.9	35.1	33.5
(2019/03/26 07:52:01.00)	74.6	82.1	60.0	59.1	58.2	61.0	59.3	65.3	61.5	60.5	58.0	57.3	58.0	60.1	61.1	60.3	62.0	64.5	67.6	66.5	65.6	62.5	62.5	58.0	53.0	48.6	43.7	39.8	37.2	34.1	29.7	25.9	20.5	
(2019/03/26 07:53:01.00)	76.0	87.0	58.2	68.1	66.8	67.9	66.3	67.7	70.7	65.8	64.1	63.0	61.8	61.9	62.7	65.2	63.7	67.7	67.4	69.0	70.1	67.4	65.2	62.5	58.8	55.1	51.6	47.9	45.6	41.4	38.1	34.6	31.3	27.0
(2019/03/26 07:54:01.00)	75.1	88.4	56.2	65.4	63.1	62.6	65.3	68.3	64.0	61.4	61.1	59.2	59.4	60.7	69.4	63.2	62.6	67.6	67.2	68.6	68.2	66.4	64.3	61.7	57.5	53.7	50.0	45.5	42.1	39.2	36.5	32.5	29.1	23.9
(2019/03/26 07:55:01.00)	75.5	81.4	65.8	64.6	61.4	61.4	67.1	69.1	66.1	61.5	60.5	62.4	61.4	61.6	62.1	62.9	61.5	62.6	63.4	63.4	62.6	61.2	60.6	57.9	53.9	50.0	45.9	43.9	40.7	37.8	34.6	31.2	27.6	24.1
(2019/03/26 07:56:01.00)	76.1	82.8	62.9	65.5	62.7	61.5	61.3	68.0	66.5	63.1	65.0	59.5	60.0	61.8	61.9	61.9	62.7	63.3	65.8	69.0	70.0	68.4	66.8	64.2	59.1	54.0	50.3	46.3	43.0	40.2	39.2	35.8	32.0	30.6
(2019/03/26 07:57:01.00)	75.5	83.9	62.1	66.9	64.0	64.0	65.3	67.6	69.6	62.8	61.3	68.6	61.3	61.8	62.3	64.0	62.7	63.4	66.1	68.5	69.3	67.5	65.9	61.3	58.6	54.0	50.8	46.5	43.2	41.0	38.5	36.4	34.8	30.9
(2019/03/26 07:58:01.00)	74.7	82.3	55.5	66.2	64.5	63.0	61.8	66.5	66.1	61.7	60.6	59.5	58.5	59.3	61.1	61.1	61.0	62.3	64.8	67.9	68.9	66.8	65.1	62.0	57.3	52.7	48.6	44.1	40.2	37.5	34.3	30.2	26.4	21.6
(2019/03/26 07:59:01.00)	75.4	85.5	64.8	62.8	63.0	61.8	65.2	70.8	64.6	62.6	65.8	70.1	60.7	61.1	62.7	62.7	62.0	65.8	67.3	68.4	69.1	66.8	65.5	62.7	58.0	53.5	51.3	47.1	42.2	38.7	35.6	31.6	27.5	22.4
(2019/03/26 08:00:01.00)	75.7	84.4	65.3	71.8	68.2	67.0	65.2	68.9	67.0	65.3	63.3	63.8	63.1	63.5	62.9	67.5	62.8	64.8	67.0	69.1	69.2	67.2	65.7	63.2	58.6	54.6	51.5	47.4	43.6	40.8	37.6	34.5	31.1	26.2
	76	90	65																															
(2019/03/27 23:35:01.00)	53.5	47.7	36.6	50.5	53.8	47.7	46.3	48.0	46.6	43.4	42.4	42.6	40.8	42.9	43.0	43.9	42.9	42.6	42.7	44.6	45.9	46.6	45.1	41.6	36.3	33.2	30.3	24.7	24.4	24.7	24.7	23.1	18.9	
(2019/03/27 23:36:01.00)	64.9	76.6	49.0	51.5	48.6	47.4	50.0	53.1	56.2	53.2	53.5	51.6	51.3	49.8	52.2	51.9	51.9	52.7	54.9	58.7	59.5	57.0	54.6	51.0	45.6	40.8	36.5	31.9	29.2	26.3	23.7	19.6	15.5	11.3
(2019/03/27 23:37:01.00)	69.2	82.9	41.2	49.2	49.6	50.7	59.9	64.7	58.7	53.7	55.4	52.9	51.6	52.9	54.4	54.3	54.5	55.6	58.4	62.4	63.7	61.3	59.6	57.1	52.6	47.4	43.0	38.0	33.5	30.6	27.2	22.4	18.2	13.3
(2019/03/27 23:38:01.00)	62.7	78.6	38.6	47.9	45.7	46.2	47.1	49.4	50.3	49.4	52.0	50.6	50.3	47.8	49.5	48.6	49.7	50.3	51.7	55.6	56.4	55.3	54.0	50.1	45.5	41.5	37.6	33.2	30.3	28.2	27.1	24.5	21.5	16.3
(2019/03/27 23:39:01.00)	37.0	43.1	35.7	43.9	41.8	42.1	41.8	43.0	41.2	38.1	36.7	35.6	31.8	28.1	27.9	30.0	32.1	32.3	30.8	31.1	29.1	23.6	17.8	10.3	6.7	6.3	6.2	6.3	6.3	6.2	5.4	3.6	4.0	
(2019/03/27 23:40:01.00)	36.1	39.2	35.2	44.0	41.8	41.7	42.7	43.4	42.3	38.9	36.9	35.6	32.8	28.5	28.2	29.6	30.9	31.9	29.4	29.8	28.3	21.7	15.0	8.9	7.1	6.9	6.7	6.7	6.6	6.2	5.4	3.5	4.0	
(2019/03/27 23:41:01.00)	35.3	37.3	34.2	48.0	44.3	42.6	41.6	42.6	41.4	38.5	36.6	35.1	31.8	27.7	27.6	28.8	29.3	29.2	28.4	29.7	28.0	22.1	16.1	9.7	7.4	7.1	6.9	6.7	6.7	6.8	6.5	5.8	4.1	4.2
(2019/03/27 23:42:01.00)	35.7	38.8	34.5	45.8	42.8	42.3	42.1	43.1	42.5	40.4	37.7	36.6	34.7	28.8	28.5	29.9	30.0	29.7	28.8	29.6	27.8	22.1	15.8	9.9	7.7	7.4	7.2	7.1	7.0	6.9	6.5	5.6	3.8	4.1
(2019/03/27 23:43:01.00)	64.9	77.4	36.2	51.4	50.1	52.3	52.3	53.3	58.2	58.4	54.4	53.4	51.9	51.4	52.5	53.2	53.8	54.3	56.3	58.4	58.8	57.0	54.5	50.5	46.6	42.6	38.4	34.0	30.3	28.1	25.5	21.5	18.0	13.6
(2019/03/27 23:44:01.00)	70.4	81.8	48.8	63.9	64.3	61.1	59.7	58.3	62.4	58.5	57.9	59.3	58.1	56.8	57.6	57.2	57.2	58.8	60.7	63.8	64.7	62.6	59.8	56.8	53.2	49.2	45.7	41.4	40.4	37.3	34.6	31.7	28.6	25.0
(2019/03/27 23:45:01.00)	57.5	71.5	41.5	58.0	54.3	52.2	51.1	50.2	49.5	50.8	46.9	44.8	45.7	47.3	49.0	46.3	46.8	47.3	48.0	51.0	51.5	49.0	46.8	44.2	40.1	36.3	32.6	28.2	24.5	22.5	20.3	16.8	13.1	9.2
(2019/03/27 23:46:01.00)	68.8	83.1	41.9	53.8	50.9	50.8	51.2	55.0	60.4	56.5	54.8	53.3	52.9	52.5	54.0	53.4	53.5	55.4	57.4	60.8	62.8	61.5	60.2	57.5	52.9	47.4	42.7	38.0	33.6	31.2	28.2	24.4	21.1	16.8
(2019/03/27 23:47:01.00)	62.1	76.7	39.3	60.0	57.2	54.9	53.1	55.2	57.0	53.4	52.9	53.2	51.3	49.9	50.6	51.8	52.2	51.9	54.5	56.2	55.0	54.1	51.4	47.0	42.1	38.0	33.8	29.6	26.8	24.1	21.0	17.2	13.9	10.3
(2019/03/27 23:48:01.00)	66.3	82.4	38.9	50.7	50.2	51.7	51.6	53.2	54.3	52.7	51.6	49.7	47.8	48.5	50.4	51.9	52.7	57.6	60.6	60.1	57.6	57.2	53.8	48.4	42.9	38.0	33.3	29.7	26.3	23.2	20.0	15.8	11.3	
(2019/03/27 23:49:01.00)	61.7	77.7	40.2	47.8	47.7	47.2	50.1	51.2	57.6	50.3	47.9	47.5	44.9	45.7	46.9	45.8	46.5	48.6	50.6	53.5	54.5	54.5	51.1	46.0	41.8	37.6	32.5	28.8	26.4	23.7	19.6	15.3	10.7	
(2019/03/27 23:50:01.00)	68.2	81.6	38.3	52.2	51.4	52.7	51.6	53.7	54.3	56.3	70.3	56.6	55.4	58.7	54.1	56.1	56.2	57.3	58.7	61.7	61.6	59.2	58.0	55.9	52.5	48.8	45.5	40.0	38.0	35.3	32.2	27.5	26.2	22.9
(2019/03/27 23:51:01.00)	49.4	61.4	37.1	47.6	44.5	43.4	42.4	43.3	42.4	39.8	38.0	35.8	33.1	29.7	30.3	32.0	33.5	36.1	42.3	46.8	43.7	36.7	32.1	28.3	23.4	17.3	10.4	7.6	7.0	6.9	6.6	5.8	4.0	4.1
(2019/03/27 23:52:01.00)	63.7	74.8	37.2	56.3	54.2	52.2	53.9	60.1	62.3	53.6	50.7	52.8	49.6	52.7	52.0	52.8	52.5	54.5	54.9	57.0	57.4	55.2	53.7	49.9	45.8	41.9	37.9	34.7	33.3	31.2	28.2	25.4	24.8	15.8
(2019/03/27 23:53:01.00)	42.9	50.4	38.4	49.8	45.7	44.7	42.6	42.6	41.1	38.4	36.9	34.2	30.6	31.4	34.6	36.7	35.6	36.1	37.4	35.2	31.6	31.0	28.3	21.8	16.6	11.2	8.0	7.0	6.1	4.4	4.4	4.4	4.3	
(2019/03/27 23:54:01.00)	37.5	40.4	36.4	57.0	53.9	50.5	47.6	46.2	43.5	40.0	37.7	36.2	33.9	31.3	31.0	32.7	32.3	31.5	30.9	31.1	29.4	24.1	19.1	15.1	13.0	11.8	10.8	10.1	9.8	9.6	8.2	6.7	5.0	
(2019/03/27 23:55:01.00)	59.4	74.1	38.0	52.5	50.0	48.6	46.4	48.0	49.6	48.9	46.8	44.4	45.6	45.5	46.8	46.5	47.3	49.0	49.6	52.3	52.8	51.1	50.3	47.4	43.2	38.8	34.3	30.4	26.2	23.8	21.3	17.8	14.4	10.0
(2019/03/27 23:56:01.00)	61.4	74.1	40.0	59.7	58.8	53.6	56.3	64.8	55.4	51.7	61.1	53.4	54.6	51.5	53.4	54.6	51.8	52.9	53.5	54.4	54.5	52.4	49.3	46.9	43.9	40.0	37.6	34.0	32.3	29.5	27.4	24.1	20.8	
(2019/03/27 23:57:01.00)	66.5	79.5	45.0	55.8</																														



2019/02/14 08:22:02.00	77.7	84.5	71.8	63.8	66.4	63.9	64.5	69.0	69.2	65.5	64.8	61.7	60.6	63.9	64.7	63.6	64.1	66.3	68.3	69.8	71.7	69.3	68.1	66.4	61.8	57.7	54.5	50.4	46.6	43.4	39.7	35.1	29.9	25.2			
2019/02/14 08:23:01.00	78.2	84.3	71.3	62.3	61.9	60.1	66.8	67.4	72.2	67.5	58.2	64.2	64.4	62.0	62.5	63.2	63.8	65.8	67.1	69.9	72.5	70.5	68.7	67.2	63.2	59.2	55.6	52.1	50.0	46.7	42.7	40.4	35.1	31.1			
2019/02/14 08:24:01.00	79.3	92.6	73.2	62.8	62.9	62.2	62.2	73.2	77.5	63.3	64.4	67.9	62.2	63.7	64.4	75.2	64.8	66.3	69.2	71.6	73.2	71.0	69.0	67.2	63.2	58.4	55.0	51.0	47.4	44.3	40.3	35.8	31.2	26.3			
2019/02/14 08:25:02.00	76.1	82.5	62.1	56.7	56.8	58.5	62.0	67.2	67.5	62.7	58.3	58.5	57.7	58.8	60.7	61.0	60.8	62.6	64.4	67.7	70.1	68.3	67.0	65.5	61.1	56.4	52.8	48.5	45.3	43.2	40.5	36.6	37.2	31.7			
2019/02/14 08:26:01.00	76.2	83.1	64.3	55.6	55.5	59.3	61.4	66.1	65.7	66.9	58.8	59.4	58.6	59.4	61.1	63.6	63.5	63.1	65.3	68.4	69.8	69.3	66.9	65.2	60.7	56.5	52.9	48.6	45.2	42.6	39.0	34.5	31.4	25.4			
2019/02/14 08:27:01.00	78.1	85.6	73.2	61.0	60.2	59.0	63.2	70.4	67.5	63.0	62.5	61.1	62.0	63.6	70.1	64.2	64.2	67.1	68.5	70.7	71.8	69.8	68.5	66.8	62.5	58.7	55.3	51.6	47.7	44.1	41.3	37.2	32.5	27.2			
2019/02/14 08:28:01.00	75.5	82.6	61.3	56.6	55.4	57.4	69.0	68.1	64.6	60.4	61.1	58.3	57.8	58.7	59.6	62.6	61.5	62.4	64.9	68.1	69.6	67.7	66.0	64.0	59.8	55.3	51.7	47.5	43.8	40.8	37.3	32.7	27.1	22.1			
2019/02/14 08:29:01.00	77.2	86.5	55.5	61.8	59.3	59.4	72.0	61.7	65.9	66.8	64.6	60.2	65.3	58.7	60.2	60.2	64.9	61.8	64.1	68.1	69.7	71.3	68.8	67.4	66.1	61.7	57.4	54.0	51.0	48.8	47.2	44.5	41.2	37.4	32.4		
2019/02/14 08:30:01.00	76.4	84.1	66.8	62.2	61.7	61.7	64.4	68.3	71.4	61.3	60.8	63.6	59.7	61.2	64.6	63.9	63.0	65.6	66.6	68.5	69.7	68.2	67.1	65.3	61.2	57.8	54.4	50.7	47.8	44.6	40.8	38.1	36.4	29.4			
2019/02/14 08:31:01.00	76.2	87.4	65.0	63.1	68.6	63.7	62.5	78.0	74.3	62.6	62.1	64.2	64.7	61.5	62.2	64.4	63.7	65.6	69.2	69.0	67.6	66.1	64.1	60.3	56.3	53.3	50.0	47.4	44.2	40.4	35.4	30.6	26.2				
2019/02/14 08:32:02.00	77.2	86.1	68.4	60.7	59.2	62.8	68.1	72.8	70.8	60.2	61.8	62.3	61.0	61.3	64.2	64.3	64.8	65.9	67.7	69.7	69.8	61.0	68.5	67.7	65.9	61.9	58.4	55.7	52.7	49.5	45.6	42.2	38.2	33.3	28.3		
2019/02/14 08:33:01.00	78.4	88.0	70.4	64.7	64.1	63.9	63.3	69.5	68.3	74.4	64.1	63.6	63.4	61.0	72.8	64.6	65.8	69.7	68.8	70.9	71.8	70.0	68.3	66.3	62.3	58.5	55.8	53.0	51.2	49.5	46.4	42.7	39.0	37.2			
2019/02/14 08:34:02.00	76.2	84.8	68.6	64.4	62.4	60.6	62.3	67.9	65.5	61.7	64.8	70.9	59.2	67.1	73.4	64.2	63.8	64.4	65.6	68.5	69.5	67.4	66.3	64.3	60.5	57.1	54.8	51.0	48.5	46.3	43.5	40.3	37.2	35.0			
2019/02/14 08:35:02.00	77.2	84.0	69.6	60.9	62.0	60.8	66.4	69.1	64.9	61.2	61.9	60.8	59.9	60.7	63.9	68.7	64.7	66.1	67.2	69.2	70.8	69.2	67.5	65.6	61.2	56.6	53.2	49.4	45.6	42.6	38.7	34.7	29.5	24.7			
2019/02/14 08:36:02.00	77.9	86.2	67.6	60.8	61.4	62.0	70.1	76.8	67.9	69.0	69.3	66.4	62.7	65.5	68.8	66.0	64.6	68.3	68.6	70.8	71.5	69.2	67.8	65.6	61.7	58.0	55.5	53.0	50.8	49.6	48.1	48.4	44.8	43.3			
2019/02/14 08:37:02.00	77.5	84.7	64.3	58.2	56.5	59.0	60.9	66.5	68.6	63.7	58.8	60.4	58.4	59.1	60.3	60.7	61.7	63.7	65.7	69.7	69.7	69.7	69.6	68.5	66.7	62.2	57.7	53.9	49.6	46.3	43.5	39.9	35.1	30.3	26.0		
2019/02/14 08:38:01.00	78.3	86.9	69.0	57.8	59.1	59.5	73.7	76.3	66.5	66.3	68.3	62.0	63.2	63.2	63.2	63.2	63.2	63.2	63.2	63.2	63.2	63.2	63.2	63.2	63.2	63.2	63.2	63.2	63.2	63.2	63.2	63.2	63.2	63.2	63.2	63.2	63.2
2019/02/14 08:39:03.00	75.8	83.0	64.3	60.2	57.4	55.9	61.5	63.1	64.1	58.5	56.1	56.8	56.0	58.8	60.3	59.8	60.2	62.7	64.7	68.7	70.0	67.5	66.4	64.7	60.0	55.7	51.9	47.8	44.5	41.0	37.0	32.4	26.6	22.0			
2019/02/14 08:40:02.00	76.6	83.6	65.0	58.4	57.7	59.6	62.9	68.0	64.8	58.0	60.0	58.6	57.5	58.8	60.3	61.5	61.2	62.5	65.1	69.1	70.9	68.4	67.3	65.9	61.2	56.8	53.1	49.0	45.6	42.9	39.1	34.7	29.6	24.5			
2019/02/14 08:41:01.00	76.2	87.4	66.1	60.1	63.8	58.1	61.5	63.6	69.5	57.9	58.7	62.0	58.3	60.3	63.2	66.2	61.8	64.3	66.1	68.6	70.1	67.9	66.7	64.7	60.9	56.7	53.2	49.3	46.0	43.1	39.5	34.4	28.8	23.8			
2019/02/14 08:42:02.00	77.5	86.7	64.8	63.0	60.4	59.1	63.2	69.9	65.5	60.0	60.4	59.9	60.6	62.3	67.5	68.4	64.8	67.5	68.6	70.3	70.7	69.0	67.8	65.5	61.0	57.2	54.2	50.4	46.8	44.1	40.3	36.0	31.2	27.1			
2019/02/14 08:43:01.00	74.9	83.0	56.6	61.1	56.5	57.2	65.6	63.9	68.4	62.3	58.9	61.5	57.1	58.3	59.2	60.9	60.0	61.4	64.4	68.1	68.6	66.6	65.8	63.7	59.6	55.2	51.6	48.1	45.3	42.6	39.3	35.3	30.1	25.2			
2019/02/14 08:44:02.00	78.2	87.6	70.4	63.2	61.9	61.8	69.7	67.5	66.5	65.5	63.2	64.6	60.3	62.3	65.9	63.8	64.6	67.7	68.9	70.4	71.8	70.1	68.3	66.8	62.8	58.6	55.5	52.2	48.6	45.7	42.0	37.9	34.9	34.4			
2019/02/14 08:45:01.00	76.0	87.7	56.3	66.3	65.6	62.4	63.9	68.2	69.3	66.2	64.1	64.2	64.2	66.4	66.2	66.8	64.8	66.6	67.4	68.2	68.9	67.0	65.9	64.5	60.9	57.1	54.0	51.0	48.7	47.6	47.8	45.9	44.6	43.2			
2019/02/14 08:46:01.00	75.2	85.8	54.6	58.8	58.5	62.5	62.2	65.9	66.2	57.1	61.4	60.2	57.9	57.4	60.2	59.5	58.9	61.6	63.6	67.3	69.9	67.4	65.5	64.0	59.5	55.2	51.4	47.1	43.6	40.7	37.5	33.7	30.0	25.0			
2019/02/14 08:47:02.00	76.6	80.6	72.3	58.3	57.8	59.9	65.0	66.9	68.3	61.2	58.1	62.3	59.5	61.8	61.5	62.1	62.5	64.3	65.8	68.9	70.8	68.8	67.2	65.3	61.0	56.6	53.4	49.4	45.7	42.8	39.3	34.4	29.9	25.0			
2019/02/14 08:48:01.00	76.8	91.2	63.8	58.1	56.9	57.3	58.8	64.4	62.8	59.1	57.1	57.3	58.2	59.8	61.4	71.2	62.5	66.3	68.5	69.9	70.4	67.8	65.7	63.9	59.2	55.5	51.9	47.6	44.2	41.2	37.8	33.0	28.3	24.3			
2019/02/14 08:49:01.00	78.3	86.9	69.0	57.8	59.1	59.5	73.7	76.3	66.5	66.3	68.3	62.0	63.2	63.2	63.2	63.2	63.2	63.2	63.2	63.2	63.2	63.2	63.2	63.2	63.2	63.2	63.2	63.2	63.2	63.2	63.2	63.2	63.2	63.2	63.2	63.2	
2019/02/14 08:50:02.00	77.2	86.1	66.9	55.1	54.4	54.8	64.1	68.4	68.8	58.4	60.6	64.0	59.8	64.8	67.8	69.9	65.3	66.9	67.8	69.4	70.6	68.2	67.6	65.9	61.4	57.2	53.7	50.2	47.3	44.7	41.2	37.3	33.4	29.5			
2019/02/14 08:51:01.00	76.2	83.8	60.5	58.6	56.6	62.4	69.8	59.4	63.5	73.7	62.7	59.0	67.1	60.5	63.1	60.9	61.0	61.6	63.4	65.2	68.7	70.1	68.0	67.0	65.2	60.6	56.2	52.7	48.2	45.9	44.1	38.7	33.9	31.7	27.3		
2019/02/14 08:52:01.00	77.9	83.9	68.6	60.4	60.4	59.2	61.8	66.8	67.8	63.6	60.1	59.7	59.1	61.0	62.2	62.3	62.5	64.6	66.7	70.4	72.3	69.9	68.5	66.9	62.4	57.9	54.1	49.9	46.4	43.3	39.3	34.3	30.4	25.4			
2019/02/14 08:53:01.00	77.9	86.9	65.7	59.5	59.5	62.8	63.6	66.2	69.6	63.2	60.9	62.9	62.9	64.2	62.7	67.3	63.4	66.2	68.6	70.8	71.8	69.4	67.9	66.9	62.2	58.9	55.4	51.8	48.3	46.2	42.3	37.8	33.3	32.2			
2019/02/14 08:54:02.00	75.8	82.8	62.0	58.8	56.4	55.9	59.6	67.8	64.2	61.7	60.9	56.4	57.3	57.5	59.0	59.2	59.3	61.1	63.8	68.1	70.4	68.0	66.1	64.7	60.3	56.0	52.1	47.6	43.8	41.2	36.7	32.2	27.4	22.9			
2019/02/14 08:55:02.00	76.2	82.3	61.3	63.4	61.4	59.8	60.4	66.2	65.9	61.3	59.4	58.7	56.8	58.7	60.2	60.1	61.0	62.2	64.8	68.1	70.1	68.7	67.3	65.2	60.9	56.6	53.1	48.7	45.2	42.6	39.1	35.0	30.2	25.5			
2019/02/14 08:56:02.00	76.5	86.9	58.5	58.1	57.7	58.6	59.1	62.1	68.5	66.2	58.7	62.5	61.0	60.0	61.6	62.7	66.1	64.0	67.1	69.9	70.2	68.3	66.7	64.4	60.1	56.1	52.5	49.1	46.2	43.9	40.4	35.4	30.1	26.3			
2019/02/14 08:57:01.00	77.1	83.2	61.5	63.2</																																	

2019/02/27 01:41:01.00	35.9	44.3	30.3	44.6	40.2	38.1	37.2	36.9	38.9	34.8	32.6	33.5	29.1	27.7	26.1	26.1	27.0	29.8	29.5	29.4	29.2	26.3	21.5	16.8	9.7	6.2	5.9	6.1	6.4	6.7	6.6	6.2	5.3	6.2	1890/451		
2019/02/27 01:42:02.00	66.7	83.6	38.8	64.0	60.1	54.8	52.2	53.3	66.8	56.1	52.5	63.2	56.1	54.4	52.6	52.9	54.6	55.5	60.0	60.4	58.2	59.1	55.0	53.0	52.0	48.0	45.1	44.1	42.8	40.5	38.4	35.1	33.8	30.8	467/731		
2019/02/27 01:43:01.00	43.2	53.5	33.9	44.0	41.6	39.6	40.2	40.8	41.7	39.1	33.8	37.7	31.6	29.8	30.2	34.8	35.5	34.7	35.9	36.0	35.9	35.7	31.6	27.8	24.1	18.8	12.5	8.0	6.8	7.0	6.7	6.3	5.3	6.2	2082/36		
2019/02/27 01:44:01.00	67.2	84.1	33.0	50.0	48.5	46.3	47.7	51.5	59.5	48.1	45.8	50.4	47.5	49.5	49.0	50.2	54.7	54.2	56.4	58.7	59.8	59.3	59.2	53.2	48.3	43.3	39.5	37.5	34.5	31.5	27.8	24.8	27.9	543/8075			
2019/02/27 01:45:01.00	37.3	52.8	31.5	42.2	39.4	36.9	36.6	37.6	37.5	38.2	34.4	31.5	30.3	27.7	27.5	26.1	25.9	27.6	36.6	33.1	28.1	26.6	22.5	15.3	9.7	7.7	5.9	5.8	6.1	6.4	6.7	6.6	6.2	5.3	6.2	193/018	
2019/02/27 01:46:02.00	40.7	49.6	33.6	44.4	41.8	38.1	40.7	38.4	40.5	39.0	33.2	32.6	31.1	29.1	30.6	31.5	31.4	34.3	34.7	34.2	33.9	34.5	27.6	22.7	17.0	11.5	7.0	6.2	6.6	6.2	5.7	6.3	6.2	117/688			
2019/02/27 01:47:02.00	67.8	82.7	43.6	63.5	59.5	54.5	54.2	54.6	63.8	58.9	53.2	59.0	56.7	54.7	54.6	54.7	55.4	57.1	59.3	60.3	59.8	61.2	57.8	55.3	52.7	48.6	45.3	42.1	40.8	39.3	40.0	40.2	40.2	37.5	198/1072		
2019/02/27 01:48:01.00	66.0	81.7	45.2	45.8	46.1	44.9	47.0	47.6	53.3	62.7	50.1	49.3	54.4	51.8	51.9	50.7	52.5	52.7	54.8	56.9	59.9	59.1	56.6	55.2	51.4	46.0	41.6	36.9	33.0	30.2	27.1	22.8	19.8	16.1	998/1072		
2019/02/27 01:49:01.00	55.9	70.5	40.8	42.7	42.9	44.1	43.6	42.6	43.3	41.2	49.5	43.6	48.9	43.7	45.5	44.8	44.3	44.1	45.3	45.3	47.7	47.5	47.7	46.7	42.5	37.8	33.6	28.2	24.1	20.6	17.1	12.7	10.2	8.3	989/015		
2019/02/27 01:50:01.00	37.5	42.9	35.3	42.5	38.3	38.8	39.6	40.2	43.2	42.0	35.2	33.1	31.3	29.3	29.5	30.5	32.5	31.7	30.3	31.3	30.3	25.3	21.7	17.2	10.6	6.5	6.1	6.2	6.5	6.8	6.7	6.2	5.3	6.2	963/413		
2019/02/27 01:51:02.00	64.6	78.1	42.8	46.1	46.3	44.8	46.2	46.0	58.8	48.2	53.6	54.0	50.2	48.7	49.9	49.6	49.8	51.2	54.0	57.2	58.1	56.5	55.7	53.7	49.6	45.3	40.7	35.0	30.1	26.8	23.0	18.6	15.8	11.9	188/001		
2019/02/27 01:52:01.00	50.3	68.8	35.5	46.6	41.4	39.2	43.8	46.2	48.5	46.8	39.2	37.8	31.2	31.2	33.6	35.4	36.8	35.4	36.2	42.0	45.0	43.5	40.6	38.5	34.4	29.1	23.1	15.9	11.6	8.7	7.1	6.2	5.3	6.2	1071/51.9		
2019/02/27 01:53:02.00	65.8	79.7	35.8	48.9	47.4	46.9	51.4	51.5	55.9	51.5	54.0	51.6	50.7	50.2	50.4	51.6	52.2	52.6	54.9	58.6	60.0	57.6	56.4	54.7	50.4	46.2	41.5	36.1	30.8	27.1	23.8	19.7	17.0	12.8	980/1894		
2019/02/27 01:54:01.00	54.1	71.0	35.0	48.8	42.7	40.0	39.4	41.7	53.4	41.6	37.5	40.2	37.8	35.2	37.8	42.7	39.5	40.1	41.9	45.2	48.7	47.3	44.6	42.7	37.6	32.6	27.4	21.3	16.3	11.7	8.0	6.4	5.3	6.2	25/7936.9		
2019/02/27 01:55:01.00	68.0	86.3	42.4	48.6	49.7	47.1	47.3	63.0	66.9	51.6	55.3	56.4	51.3	51.3	51.4	52.5	53.7	53.2	54.7	59.0	62.1	61.1	59.0	57.5	53.3	48.5	43.7	38.0	33.7	30.7	27.4	23.1	20.5	16.8	493/973		
2019/02/27 01:56:01.00	57.5	71.6	38.6	46.8	42.7	43.9	54.5	53.9	42.2	40.9	40.9	40.1	40.2	42.6	44.9	44.1	43.9	44.8	45.9	49.0	51.6	49.9	48.5	46.3	41.4	38.8	34.5	25.6	21.2	18.0	14.4	10.2	7.8	7.2	967/411.3		
2019/02/27 01:57:02.00	61.3	76.9	34.1	44.9	42.0	44.6	46.8	46.8	61.4	48.6	43.2	53.8	42.8	47.2	47.0	47.2	46.6	48.7	48.7	50.5	54.0	54.5	52.7	51.2	48.3	43.3	38.7	34.0	29.7	28.7	25.7	21.8	17.9	14.1	184/863		
2019/02/27 01:58:02.00	61.7	77.5	33.7	44.9	41.5	41.0	47.1	46.1	43.5	45.9	44.5	43.0	43.0	44.2	46.9	47.6	46.4	47.9	49.4	53.3	56.2	53.1	52.4	51.6	46.9	43.9	40.1	36.2	32.1	28.3	24.9	20.9	18.7	15.5	147/848		
2019/02/27 01:59:02.00	31.5	36.2	29.4	42.0	37.7	36.1	36.3	39.5	38.4	31.9	30.9	28.7	27.2	26.7	25.8	25.7	25.1	26.4	26.3	24.8	22.0	16.8	12.8	10.2	7.3	5.8	5.8	6.1	6.4	6.7	6.6	6.2	5.3	6.2	441/738		
2019/02/27 02:00:02.00	33.1	37.1	29.9	40.5	37.2	37.4	37.1	37.8	37.7	32.7	30.9	28.6	27.9	26.9	26.6	27.5	26.6	28.2	27.3	26.4	25.0	20.1	16.3	13.0	8.1	5.9	5.9	6.1	6.4	6.7	6.6	6.2	5.3	6.2	2047/298		
2019/02/27 02:01:01.00	56.0	68.9	35.5	42.5	41.5	49.4	42.8	44.5	42.1	44.8	40.1	39.3	42.1	41.6	44.4	46.0	45.2	44.5	45.4	47.7	50.3	48.0	46.4	44.6	44.0	40.6	39.2	34.0	29.2	23.8	19.4	16.4	13.2	9.3	6.9	6.6	1988/107.2
2019/02/27 02:02:01.00	57.8	71.9	41.8	46.0	45.6	46.6	47.3	58.8	46.7	43.6	44.3	44.0	44.6	45.1	46.2	46.2	46.3	47.6	49.7	50.1	50.3	49.7	48.5	46.3	42.8	38.9	35.3	31.4	28.1	24.1	19.1	14.6	13.1	10.6	405/559.6		
2019/02/27 02:03:01.00	37.4	45.5	32.4	41.3	37.6	37.2	36.8	38.2	36.7	35.5	33.1	30.1	27.6	27.5	27.5	27.8	28.3	29.9	30.1	31.6	31.7	27.8	23.3	17.9	11.6	7.3	6.1	6.1	6.4	6.7	6.6	6.2	5.3	6.2	1495/409		
2019/02/27 02:04:01.00	31.0	36.1	29.2	42.4	38.7	35.8	37.4	36.9	35.5	33.7	32.8	29.5	26.6	26.0	25.3	24.8	24.2	25.3	24.4	25.3	23.0	16.3	10.6	8.3	6.8	6.5	6.3	6.6	6.7	7.0	6.8	6.4	5.7	6.3	1258/925		
2019/02/27 02:05:01.00	36.7	45.2	30.6	46.5	39.8	37.5	38.8	41.6	39.1	38.4	40.8	37.8	33.8	30.1	30.7	31.4	29.9	31.3	29.4	31.7	28.3	22.3	14.0	9.5	7.5	7.1	6.1	6.2	6.4	6.7	6.6	6.2	5.3	6.2	4677/351		
2019/02/27 02:06:01.00	36.4	41.3	33.2	47.6	41.8	36.7	38.3	38.5	40.4	36.6	34.8	33.0	29.4	30.3	28.6	28.7	29.5	30.1	29.3	31.4	29.0	24.4	20.9	15.3	9.5	6.6	6.0	6.2	6.5	6.7	6.6	6.2	5.3	6.2	4963/158		
2019/02/27 02:07:01.00	66.0	80.0	38.3	50.8	49.5	49.9	48.5	58.0	59.1	49.5	50.0	49.1	48.9	49.2	50.4	51.3	52.3	53.8	56.2	58.2	58.8	58.4	57.4	54.9	50.7	46.7	42.2	37.5	34.6	31.1	27.8	23.6	21.4	17.0	988/1072		
2019/02/27 02:08:02.00	65.6	81.4	38.5	46.6	46.3	44.4	46.2	47.6	52.1	57.5	54.8	47.7	49.4	48.0	48.6	49.1	49.6	52.0	56.0	59.5	58.5	57.0	55.5	51.8	46.9	42.4	38.8	34.2	30.6	27.0	22.7	19.7	15.3	181/971			
2019/02/27 02:09:01.00	62.6	75.0	38.8	47.3	50.1	47.0	49.2	55.5	52.7	51.1	50.3	48.5	47.7	48.1	48.8	49.7	49.8	51.0	51.8	53.4	55.7	55.4	54.1	51.6	47.5	43.7	39.4	35.1	30.8	27.7	24.5	20.0	16.8	11.9	181/971		
2019/02/27 02:10:01.00	34.1	38.6	29.6	42.3	39.0	36.6	37.0	37.3	37.8	32.6	29.2	27.0	26.0	25.2	25.5	25.6	25.8	27.5	26.4	27.9	28.3	24.8	19.4	13.5	8.7	6.3	5.9	6.1	6.4	6.7	6.6	6.2	5.3	6.2	25/7936.9		
2019/02/27 02:11:01.00	40.5	51.9	27.8	44.3	39.7	36.0	36.0	36.8	35.2	33.7	30.9	27.6	25.5	24.2	27.3	28.1	30.5	30.3	30.6	34.1	34.2	31.8	32.0	26.6	19.7	14.2	7.2	6.2	6.5	6.7	6.6	6.2	5.3	6.2	112/20.18		
2019/02/27 02:12:02.00	61.0	74.9	34.4	47.3	44.4	46.7	49.9	57.4	46.8	44.1	44.7	43.6	44.5	45.6	46.3	46.0	47.8	49.7	50.4	54.0	55.0	52.8	52.0	49.1	44.2	39.6	34.8	29.6	25.4	22.6	19.4	15.7	13.2	10.0	125/8925		
2019/02/27 02:13:01.00	63.2	77.7	38.3	48.4	47.0	43.0	43.6	55.2	53.1	47.3	50.0	48.7	47.2	46.9	48.3	50.8	49.2	50.0	54.1	57.1	56.2	54.5	54.5	51.4	46.6	42.4	38.4	32.8	28.6	25.6	22.3	18.4	15.7	11.6	208/296		
2019/02/27 02:14:02.00	35.8	42.8	33.5	47.0	42.6	38.7	40.2	40.9	36.8	35.4	34.1	31.7	29.9	29.2	28.2	29.0	28.9	28.9	28.3	30.9	29.1	25.2	20.3	14.7	8.8	6.2	6.1	6.2	6.5	6.8	6.6	6.2	5.3	6.2	1801/894		
2019/02/27 02:15:02.00	34.6	40.9	33.0	41.7	37.7	37.0	38.2	37.1	36.2	34.1	34.0	30.0	28.4	27.7	26.9	28.6	31.5	28.6	27.8	28.9	27.0	19.9	12.9	8.6	7.5	5.9	5.8	6.1	6.4	6.7	6.6	6.2	5.3	6.2	2884/012		
2019/02/27 02:16:02.00	60.4	74.9	33.1	45.4	48.2	45.5	48.8	44.8	44.5																												

(2019/03/27 23:09:01.00)	67.5	81.3	42.6	46.4	46.0	46.5	48.3	49.5	51.5	51.6	47.8	47.5	48.6	51.9	53.4	53.3	52.2	54.1	56.4	59.3	61.8	59.5	58.5	56.7	51.7	46.7	42.2	37.5	33.9	31.1	28.5	25.2	22.7	16.7	05238113	
(2019/03/27 23:10:01.00)	68.3	83.2	41.0	47.1	47.6	51.9	57.3	49.8	59.1	66.7	54.5	58.8	64.4	55.7	56.0	54.2	53.5	54.3	57.6	61.3	60.6	59.4	59.7	57.8	54.3	50.3	46.0	42.5	39.7	36.1	33.1	30.8	26.6	22.0	07608300	
(2019/03/27 23:11:01.00)	69.2	82.2	46.6	52.2	50.4	50.9	52.8	57.5	56.1	54.7	53.6	51.1	52.4	54.5	56.3	55.2	56.7	58.8	62.0	63.7	61.3	59.4	57.0	52.8	48.5	44.4	40.1	37.0	33.8	30.1	25.1	21.6	16.6	03176138		
(2019/03/27 23:12:01.00)	66.2	81.2	44.4	46.7	46.7	47.6	47.6	49.5	50.4	50.7	45.6	45.7	50.1	49.3	51.0	51.4	50.8	52.6	55.9	58.2	59.6	57.9	57.7	55.9	51.7	48.1	42.8	37.7	33.3	29.3	27.1	23.5	20.5	15.7	4168694	
(2019/03/27 23:13:01.00)	59.7	74.1	37.9	52.7	54.2	47.4	49.6	53.6	50.2	48.1	48.2	45.2	45.1	45.8	49.4	48.8	48.1	49.7	50.2	51.2	51.4	51.3	51.6	49.4	45.6	41.0	35.9	31.3	26.9	25.1	22.8	16.2	12.6	9.8	09345433	
(2019/03/27 23:14:01.00)	70.3	84.2	46.8	60.4	57.1	55.2	52.8	52.2	63.0	59.5	54.4	61.1	57.8	57.0	55.1	55.8	55.9	58.6	62.4	64.3	63.4	61.4	60.2	57.5	55.1	51.5	47.0	44.1	41.6	40.3	35.4	32.0	28.5	23.7	09718189	
(2019/03/27 23:15:01.00)	67.8	85.1	38.8	47.0	44.6	46.2	47.2	50.3	48.8	53.3	53.3	49.9	51.1	51.0	50.4	49.4	49.0	51.8	54.6	60.2	61.1	59.3	60.3	57.0	53.5	49.4	44.4	40.0	35.8	33.8	31.5	29.1	25.5	21.1	13.5	00118722
(2019/03/27 23:16:01.00)	67.0	83.5	35.1	47.9	47.9	49.4	45.6	46.8	46.8	52.3	55.5	46.9	47.1	63.1	53.5	52.4	50.0	52.5	52.6	55.1	58.4	61.2	59.2	57.3	56.3	52.5	47.5	42.3	37.4	32.5	29.3	26.3	21.9	18.1	13.1	90118722
(2019/03/27 23:17:01.00)	58.5	71.9	36.2	44.0	42.9	44.8	45.6	46.7	55.9	45.2	44.5	47.0	45.1	45.2	47.2	46.1	45.2	45.8	46.7	50.0	52.2	50.8	49.4	47.9	43.8	39.2	34.7	30.5	26.4	23.4	20.4	17.0	13.8	10.0	70795486	
(2019/03/27 23:18:01.00)	70.2	82.2	50.0	49.6	48.5	49.0	49.7	53.8	56.3	57.5	58.6	53.9	55.0	57.4	56.2	56.1	55.5	56.3	58.5	61.7	64.0	62.5	61.2	59.9	56.0	51.4	47.1	42.9	38.6	36.0	33.1	29.7	26.0	21.0	04712185	
(2019/03/27 23:19:01.00)	65.8	82.8	38.3	51.3	49.9	48.3	47.7	47.7	49.2	51.1	48.4	48.0	49.4	49.3	51.8	50.3	50.2	51.8	52.2	55.1	58.6	59.0	58.0	55.7	52.5	48.3	43.2	37.9	33.4	30.1	27.3	24.0	20.8	16.7	3801894	
(2019/03/27 23:20:01.00)	72.8	88.1	54.2	59.2	56.8	61.0	60.0	71.2	67.2	57.1	68.1	65.3	71.6	63.4	61.2	61.6	61.6	60.5	62.7	64.4	66.5	64.8	62.5	60.7	56.9	52.7	49.3	44.8	41.4	39.0	36.0	30.7	26.5	21.3	00546007	
(2019/03/27 23:21:01.00)	68.1	83.8	44.3	49.3	46.7	46.9	50.4	49.1	50.1	50.5	48.6	46.6	47.4	47.9	50.6	51.7	52.0	53.7	55.6	60.3	62.6	60.3	58.6	57.5	53.7	49.0	44.1	38.9	33.4	30.5	27.7	23.5	22.1	18.0	04505412	
(2019/03/27 23:22:01.00)	63.9	76.3	39.1	48.9	46.8	46.3	47.3	48.1	58.3	51.6	54.5	53.1	47.0	48.2	50.6	50.2	49.8	51.4	53.1	56.0	58.0	55.2	54.7	53.3	49.1	44.8	40.5	36.2	31.3	28.4	24.9	20.9	16.7	13.5	24547079	
(2019/03/27 23:23:01.00)	62.2	75.1	37.4	56.1	54.7	50.4	48.8	49.8	50.6	48.0	48.1	46.8	47.4	48.4	50.3	50.0	49.1	50.3	51.6	53.4	55.2	54.2	53.6	52.0	48.3	44.0	39.6	34.6	30.0	26.6	23.5	18.5	14.5	10.2	1659567	
(2019/03/27 23:24:01.00)	68.5	83.3	46.7	58.2	52.1	52.9	55.9	63.8	60.8	48.0	48.8	52.8	53.6	52.3	52.4	52.7	53.0	53.6	55.1	58.1	61.8	62.5	59.8	59.2	57.1	52.7	48.8	44.5	40.6	36.7	33.9	31.0	27.0	25.2	20.9	07949458
(2019/03/27 23:25:01.00)	65.5	82.8	35.9	53.1	50.7	47.2	46.4	47.6	46.1	53.2	45.2	43.3	44.4	46.2	49.2	47.7	48.2	49.9	53.9	55.7	61.1	58.8	54.8	52.8	48.7	43.7	39.5	35.0	30.3	28.2	26.3	22.7	18.9	14.4	05181384	
(2019/03/27 23:26:01.00)	62.2	77.7	34.7	51.6	49.6	48.1	47.2	48.6	49.2	49.4	49.8	47.7	49.5	49.0	49.7	50.1	48.9	48.8	50.5	54.2	56.5	54.6	52.8	50.7	47.1	42.4	38.6	33.8	29.4	27.0	24.3	21.0	17.9	13.7	1859567	
(2019/03/27 23:27:01.00)	66.8	81.3	47.3	61.7	58.8	57.0	54.9	56.2	60.5	57.6	56.3	55.6	56.3	56.4	55.7	55.6	55.7	57.3	58.1	59.7	58.8	56.9	55.9	53.0	49.5	46.0	42.0	36.7	33.7	30.1	25.6	22.8	16.9	04980071		
(2019/03/27 23:28:01.00)	64.9	80.3	44.9	48.3	46.7	46.7	46.9	50.5	58.6	52.4	48.1	50.3	51.2	50.4	51.1	51.2	49.9	51.1	53.4	57.5	58.9	56.4	56.4	53.7	49.5	44.7	40.2	36.3	32.6	30.2	27.6	23.8	20.4	16.3	30992025	
(2019/03/27 23:29:01.00)	68.4	85.2	35.3	52.1	49.4	46.9	45.7	47.0	47.9	51.5	54.1	48.8	51.8	51.2	49.3	48.7	48.8	50.4	54.2	58.5	62.5	60.6	60.2	59.0	54.3	49.2	44.4	40.2	35.5	32.6	27.3	27.4	23.0	18.4	05183110	
<b>70</b>	<b>103</b>	<b>44</b>																																		
(2019/03/29 06:18:01.00)	73.3	82.8	51.3	63.6	59.0	60.0	60.2	62.3	62.4	63.3	56.5	57.1	57.8	57.6	59.3	57.7	58.6	61.4	63.4	66.4	67.1	65.3	63.9	61.4	57.6	53.6	50.2	47.1	42.4	40.1	37.0	33.4	30.6	26.2	21.3	1762121
(2019/03/29 06:19:01.00)	76.6	85.3	62.7	59.8	60.4	62.1	61.4	61.6	65.0	66.4	64.4	62.2	60.9	64.5	64.8	63.7	62.6	66.3	66.1	68.9	70.7	68.6	66.8	64.9	60.7	56.7	53.1	49.5	46.2	43.4	39.9	35.6	34.3	30.9	05708619	
(2019/03/29 06:20:01.00)	67.8	77.5	52.2	54.7	53.6	52.7	53.5	60.2	56.5	55.8	53.9	51.6	52.7	52.9	54.5	53.9	54.4	55.3	58.2	60.6	60.8	59.7	59.1	56.4	52.2	48.1	43.8	39.7	35.7	32.4	28.3	24.0	20.4	16.3	40259596	
(2019/03/29 06:21:01.00)	75.7	83.9	61.8	60.5	60.2	61.7	62.0	65.9	63.8	63.9	59.8	58.1	57.7	58.5	59.5	59.8	60.0	61.8	63.8	67.9	69.7	67.5	65.7	63.6	59.3	54.5	50.6	47.1	43.5	40.7	37.4	33.8	30.9	25.7	09118112	
(2019/03/29 06:22:01.00)	76.8	85.5	60.3	57.9	56.5	55.3	58.0	62.6	63.4	68.8	58.5	57.0	59.0	58.0	59.3	59.7	60.3	62.2	64.5	68.0	70.0	68.0	66.9	65.0	60.2	55.2	51.4	47.1	43.2	40.6	37.7	33.2	28.5	24.8	02004998	
(2019/03/29 06:23:01.00)	78.3	85.6	66.4	59.1	58.6	57.9	61.1	66.3	63.4	63.1	59.4	58.2	59.6	59.7	61.0	61.5	62.0	64.2	66.7	70.6	72.7	70.4	68.4	68.9	67.4	62.7	57.6	53.6	49.4	45.7	43.1	40.2	36.0	33.3	28.1	07608300
(2019/03/29 06:24:01.00)	75.8	85.6	49.0	55.6	55.4	57.4	60.4	67.0	61.0	57.1	56.7	56.1	56.6	57.4	59.1	59.4	59.0	60.5	63.3	67.6	70.1	68.6	66.3	65.0	61.2	55.6	51.3	46.7	42.8	41.9	36.2	31.9	28.8	23.1	08018940	
(2019/03/29 06:25:01.00)	71.8	83.0	50.6	62.4	60.8	57.4	58.9	59.9	63.9	61.1	67.5	65.6	64.8	59.4	58.3	57.3	57.8	58.9	61.9	65.4	66.3	62.9	61.9	59.4	54.9	50.6	48.6	43.5	38.9	36.2	33.4	29.5	25.5	20.5	01515612	
(2019/03/29 06:26:01.00)	76.0	83.4	61.3	62.9	61.4	59.5	60.7	66.0	63.6	59.1	58.5	57.3	60.2	58.1	59.5	59.6	60.0	63.3	64.7	68.3	70.2	67.8	66.9	65.1	60.1	54.8	50.9	45.6	45.9	41.2	41.9	35.3	37.8	30.7	09881071	
(2019/03/29 06:27:01.00)	76.5	88.5	63.9	61.8	60.2	59.0	61.8	68.3	64.9	60.6	60.0	63.3	71.1	68.7	65.0	73.0	69.7	67.5	66.8	68.5	68.6	67.2	66.1	63.6	59.5	56.1	53.4	50.3	47.7	45.8	43.6	40.7	38.2	36.0	04668593	
(2019/03/29 06:28:01.00)	75.4	85.8	62.4	60.3	58.4	57.2	59.5	65.2	65.4	62.8	59.3	65.1	58.7	58.1	62.4	59.9	61.3	64.4	68.8	69.5	67.1	66.3	64.0	58.9	54.1	50.1	46.0	42.3	39.5	36.0	32.1	28.1	22.8	14.7	04673685	
(2019/03/29 06:29:01.00)	76.1	86.9	61.1	61.0	64.2	61.0	65.0	68.6	69.4	61.2	60.5	59.5	58.5	60.1	63.6	62.4	64.0	65.0	66.6	69.3	69.8	67.9	66.3	64.0	59.8	55.2	51.9	48.5	44.4	41.8	38.4	35.2	32.2	29.3	00738028	
(2019/03/29 06:30:01.00)	77.2	86.1	62.7	61.5	59.1	58.3	61.6	68.6	69.7	59.2	59.2	59.0	58.6	59.7	61.3	61.5	61.7	63.5	66.3	70.3	71.6	68.9	67.8	66.0	61.1	56.2	52.3	48.4	44.6	42.1	39.6	35.7	32.2	27.1	02480746	
(2019/03/29 06:31:01.00)	76.5	84.8	60.6	60.0	59.4	57.5	59.1																													





2019/02/14 09:43:01.00	69.6	80.0	57.2	65.2	62.2	60.5	60.3	61.8	58.4	60.4	56.9	56.1	56.2	57.7	59.4	57.9	56.7	58.1	60.4	63.5	64.1	61.5	58.7	54.7	50.1	46.6	43.1	39.6	36.4	33.5	29.6	25.4	19.6	14.8	1210108			
2019/02/14 09:44:01.00	75.1	83.5	63.7	64.5	65.0	70.0	66.3	70.4	65.7	63.9	68.0	65.2	65.0	67.2	67.5	65.3	64.8	66.3	68.1	69.0	69.9	67.7	65.2	62.1	58.0	54.4	51.8	49.2	45.3	41.2	38.3	33.7	28.5	23.5	1709206			
2019/02/14 09:45:01.00	76.3	86.3	64.1	66.7	66.7	68.3	68.3	70.4	66.7	64.8	68.9	66.1	66.0	68.2	68.5	65.8	65.3	66.8	68.6	69.4	69.4	67.2	64.7	60.6	57.0	53.4	50.8	47.2	43.3	39.4	36.3	31.7	26.6	21.6	1509304			
2019/02/14 09:46:01.00	75.4	83.0	63.8	63.8	62.7	62.6	62.3	64.4	66.1	63.4	63.9	63.0	63.5	64.3	65.1	62.0	62.6	64.6	65.5	67.0	67.0	67.5	65.0	62.0	57.4	53.1	49.8	45.7	42.1	39.2	35.6	31.1	25.8	20.5	1409402			
2019/02/14 09:47:02.00	75.5	85.5	65.3	60.8	61.8	65.0	67.6	70.9	66.6	64.3	66.5	64.2	66.6	65.7	67.3	67.5	65.5	66.6	66.8	68.4	69.1	66.9	64.4	61.4	57.8	54.1	51.0	50.0	47.0	46.6	44.0	40.5	36.8	33.2	29.7	24.9	1819508	
2019/02/14 09:48:02.00	74.1	82.4	67.1	62.4	62.9	60.8	62.3	60.7	66.0	61.6	59.7	59.7	59.5	61.7	63.3	61.9	60.3	61.2	62.8	66.4	68.4	66.7	64.9	61.7	57.0	52.5	48.5	44.3	40.8	38.1	34.7	30.3	24.8	19.7	1709606			
2019/02/14 09:49:02.00	70.5	91.0	63.3	65.8	66.1	66.7	72.3	69.8	67.8	65.8	67.8	67.9	67.3	66.5	68.0	74.7	66.0	69.0	70.0	69.8	68.9	65.8	62.9	60.0	56.7	53.8	51.6	48.3	45.1	42.8	40.1	36.1	31.1	26.1	1609704			
2019/02/14 09:50:01.00	75.5	80.9	62.3	66.8	67.9	67.1	68.3	69.1	63.9	66.1	64.0	63.4	64.8	67.3	65.1	64.0	65.2	68.4	70.1	67.5	65.4	62.1	57.7	53.7	51.2	46.5	43.3	40.3	37.3	32.7	24.5	19.5	14.5	919193				
2019/02/14 09:52:02.00	73.2	81.3	60.7	64.2	62.6	62.8	62.8	66.4	65.6	59.8	62.6	60.5	61.1	61.1	63.5	62.1	60.5	61.6	63.6	66.6	67.5	65.0	63.2	59.6	55.2	51.3	48.1	44.7	41.4	38.5	34.7	29.9	24.8	20.0	1509806			
2019/02/14 09:53:02.00	66.2	76.3	56.0	63.8	62.0	59.5	59.9	61.4	58.3	56.1	57.8	54.8	54.1	55.0	57.3	55.3	58.0	54.7	55.7	58.6	60.7	57.9	56.0	53.0	49.0	45.3	42.1	37.7	34.5	31.6	27.6	22.2	16.3	11.6	1109904			
2019/02/14 09:54:02.00	75.8	88.0	65.4	65.7	64.9	66.0	68.3	71.5	73.1	73.5	73.1	70.2	73.6	69.0	69.4	68.3	71.9	65.3	65.9	66.5	67.6	66.6	64.4	63.2	60.4	58.2	54.9	51.5	48.9	46.4	43.2	39.5	35.3	29.9	24.9	1910008		
2019/02/14 09:55:01.00	75.5	80.9	62.3	66.8	67.9	67.1	68.3	69.1	63.9	66.1	64.0	63.4	64.8	67.3	65.1	64.0	65.2	68.4	70.1	67.5	65.4	62.1	57.7	53.7	51.2	46.5	43.3	40.3	37.3	32.7	24.5	19.5	14.5	919193				
2019/02/14 09:56:02.00	71.5	79.3	56.6	59.9	59.9	62.4	61.4	60.2	59.4	58.6	58.9	58.9	60.0	58.7	58.9	60.9	63.9	65.8	64.2	61.3	58.1	53.5	49.7	45.1	40.1	37.5	34.3	29.7	24.5	18.9	13.9	8.9	3.9	1010108				
2019/02/14 09:57:02.00	73.8	82.5	58.2	60.8	60.1	60.7	59.7	62.3	62.8	60.1	60.6	59.5	60.2	61.0	63.1	61.9	59.9	60.9	62.5	66.2	66.6	66.5	64.0	60.2	55.5	51.1	47.7	43.7	39.9	37.3	33.8	29.3	23.4	18.0	1809208			
2019/02/14 09:58:02.00	71.7	80.3	59.1	65.4	65.0	65.4	60.4	65.3	67.7	63.4	60.3	60.4	58.3	60.1	62.4	60.5	58.6	59.2	60.8	64.2	66.4	64.5	61.3	57.9	53.4	49.3	46.0	42.6	39.3	36.7	33.2	28.8	23.9	18.7	1799306			
2019/02/14 09:59:02.00	73.5	80.9	63.3	66.2	64.1	67.5	64.4	70.1	66.4	64.0	65.7	63.6	62.1	62.1	64.0	63.9	61.2	63.2	64.7	66.3	67.4	65.2	63.1	60.3	56.1	52.4	49.5	46.3	43.1	40.3	37.2	33.7	30.4	27.2	24.0	2100408		
2019/02/14 10:00:02.00	74.4	84.0	66.7	64.4	62.6	62.6	61.4	67.5	63.4	62.2	62.2	61.9	61.1	63.0	63.9	62.9	62.6	63.6	65.1	66.9	68.5	66.6	64.5	61.1	56.9	53.0	50.1	46.8	43.8	41.4	38.2	34.0	29.3	22.4	1700506			
2019/02/14 10:01:02.00	73.8	80.6	64.2	67.0	67.2	66.4	67.0	67.2	63.8	63.1	63.9	62.1	62.2	63.0	65.1	62.2	63.3	63.9	66.9	67.9	65.5	63.5	59.9	55.6	51.4	48.2	44.6	41.3	38.3	34.3	30.1	25.3	20.7	1610608				
2019/02/14 10:02:02.00	74.5	86.6	64.4	69.2	67.5	65.9	67.7	67.0	64.8	64.2	67.2	65.2	64.6	70.5	70.0	65.3	66.1	66.5	66.9	67.0	67.5	65.3	62.7	59.2	55.3	52.2	49.6	46.3	43.3	41.8	38.6	35.2	30.5	25.7	1810708			
2019/02/14 10:03:02.00	74.3	85.0	59.2	67.7	66.5	65.8	64.7	69.9	66.0	65.6	67.8	65.7	64.8	64.7	67.1	66.2	65.3	66.6	67.7	68.0	67.3	64.7	61.8	58.7	55.0	52.3	49.9	46.6	43.4	40.8	37.8	33.7	30.8	24.0	1911306			
2019/02/14 10:04:02.00	71.0	79.5	58.0	67.3	65.8	61.0	60.8	64.1	69.3	59.2	58.9	57.1	67.1	58.7	60.4	58.8	57.4	59.3	61.5	64.2	65.3	63.1	61.0	57.3	52.6	49.0	45.9	42.7	44.1	45.7	45.9	43.9	41.4	37.9	34.0	29.9	24.0	1809808
2019/02/14 10:05:02.00	74.5	83.1	57.4	64.2	64.2	63.6	64.1	66.2	66.2	63.5	64.6	62.6	63.3	63.8	65.9	65.5	64.4	65.1	66.2	67.5	68.2	66.0	63.5	60.5	56.5	52.7	49.9	46.6	43.9	41.5	38.5	33.3	28.0	23.4	1810908			
2019/02/14 10:06:02.00	73.7	82.8	66.6	68.8	65.2	64.2	61.7	67.0	67.2	61.8	63.2	64.3	60.5	63.1	63.4	62.1	61.2	64.0	65.0	66.5	67.7	65.1	63.5	60.7	56.8	53.1	50.0	47.5	45.1	42.1	39.3	35.7	32.1	27.6	24.1	1612008		
	74	91	62																																			

2019/02/25 17:30	69.9	82.9	59.0	64.3	68.0	63.9	66.8	69.5	63.8	63.8	63.0	59.3	57.9	58.4	57.8	57.2	56.8	58.5	61.7	64.8	63.5	61.4	59.1	55.2	51.0	47.2	44.0	41.3	38.6	37.0	35.3	31.2	26.9	20.7	1777208																																																																																																																																																																																																																																													
2019/02/25 17:31	77.1	87.6	63.0	65.0	68.6	70.1	73.4	71.4	70.1	67.8	67.9	66.5	65.7	66.8	67.4	66.0	65.2	67.6	69.2	70.3	71.0	68.7	66.1	62.8	58.7	54.9	51.3	48.5	47.1	45.4	42.4	40.6	39.1	35.3	31.0	26.9	21.6	1620108																																																																																																																																																																																																																																										
2019/02/25 17:32	67.8	79.7	61.2	60.7	63.2	62.8	70.6	74.8	63.7	66.0	62.9	59.9	59.6	57.2	56.7	57.2	57.8	59.7	61.0	60.1	57.9	55.1	51.9	48.5	46.0	42.2	39.8	37.0	34.0	30.9	27.0	21.5	15.5	10.5	5.5	0.5	0.5	0.5																																																																																																																																																																																																																																										
2019/02/25 17:33	73.6	81.1	60.8	59.0	64.7	67.8	66.8	68.5	66.5	65.2	62.8	61.3	61.5	63.4	64.1	62.1	60.8	61.9	63.8	66.8	68.2	65.5	63.1	59.4	55.0	50.8	47.4	44.1	41.0	38.2	35.1	31.2	27.9	24.5	21.1	17.6	13.1	8.6	4.1	0.6	0.6																																																																																																																																																																																																																																							
2019/02/25 17:34	72.6	83.0	63.2	64.2	71.2	71.5	71.7	71.8	65.1	66.6	68.8	73.5	68.9	66.3	66.3	66.6	65.0	68.2	68.8	68.2	64.0	64.6	62.8	60.6	56.5	54.7	53.4	53.7	49.9	49.0	47.7	45.5	45.0	42.5	40.0	37.5	35.0	32.5	30.0	27.5	25.0	22.5	20.0	17.5	15.0	12.5	10.0	7.5	5.0	2.5	0.0	-0.5	-1.0	-1.5	-2.0	-2.5	-3.0	-3.5	-4.0	-4.5	-5.0	-5.5	-6.0	-6.5	-7.0	-7.5	-8.0	-8.5	-9.0	-9.5	-10.0	-10.5	-11.0	-11.5	-12.0	-12.5	-13.0	-13.5	-14.0	-14.5	-15.0	-15.5	-16.0	-16.5	-17.0	-17.5	-18.0	-18.5	-19.0	-19.5	-20.0	-20.5	-21.0	-21.5	-22.0	-22.5	-23.0	-23.5	-24.0	-24.5	-25.0	-25.5	-26.0	-26.5	-27.0	-27.5	-28.0	-28.5	-29.0	-29.5	-30.0	-30.5	-31.0	-31.5	-32.0	-32.5	-33.0	-33.5	-34.0	-34.5	-35.0	-35.5	-36.0	-36.5	-37.0	-37.5	-38.0	-38.5	-39.0	-39.5	-40.0	-40.5	-41.0	-41.5	-42.0	-42.5	-43.0	-43.5	-44.0	-44.5	-45.0	-45.5	-46.0	-46.5	-47.0	-47.5	-48.0	-48.5	-49.0	-49.5	-50.0	-50.5	-51.0	-51.5	-52.0	-52.5	-53.0	-53.5	-54.0	-54.5	-55.0	-55.5	-56.0	-56.5	-57.0	-57.5	-58.0	-58.5	-59.0	-59.5	-60.0	-60.5	-61.0	-61.5	-62.0	-62.5	-63.0	-63.5	-64.0	-64.5	-65.0	-65.5	-66.0	-66.5	-67.0	-67.5	-68.0	-68.5	-69.0	-69.5	-70.0	-70.5	-71.0	-71.5	-72.0	-72.5	-73.0	-73.5	-74.0	-74.5	-75.0	-75.5	-76.0	-76.5	-77.0	-77.5	-78.0	-78.5	-79.0	-79.5	-80.0	-80.5	-81.0	-81.5	-82.0	-82.5	-83.0	-83.5	-84.0	-84.5	-85.0	-85.5	-86.0	-86.5	-87.0	-87.5	-88.0	-88.5	-89.0	-89.5	-90.0	-90.5	-91.0	-91.5	-92.0	-92.5	-93.0	-93.5	-94.0	-94.5	-95.0	-95.5	-96.0	-96.5	-97.0	-97.5	-98.0	-98.5	-99.0	-99.5	-100.0	-100.5	-101.0	-101.5	-102.0	-102.5	-103.0	-103.5	-104.0	-104.5	-105.0	-105.5	-106.0	-106.5	-107.0	-107.5	-108.0	-108.5	-109.0	-109.5	-110.0	-110.5

2019/02/27 00:16:01.00	66.9	81.6	46.9	57.6	60.3	54.3	61.8	58.1	50.8	52.1	51.1	53.5	52.4	53.9	53.7	53.5	52.6	53.1	54.2	59.1	62.4	59.5	56.4	53.2	48.6	44.2	40.7	36.5	34.0	32.2	30.4	29.1	28.3	24.9	1077788		
2019/02/27 00:17:01.00	62.7	76.1	51.3	46.1	44.7	45.7	45.6	52.7	50.0	45.2	51.0	45.6	46.7	49.2	48.7	48.3	47.8	48.7	51.9	55.6	57.0	54.6	53.7	51.0	45.5	40.7	36.0	30.8	26.9	24.8	23.7	16.5	12.7	8.6	1065087		
2019/02/27 00:18:01.00	49.3	48.3	49.3	52.5	53.7	52.5	51.8	52.3	51.5	51.7	52.5	51.7	51.9	52.4	51.9	52.0	51.4	51.7	52.9	57.2	52.2	54.0	54.2	52.1	46.6	41.9	35.5	32.0	31.0	29.7	28.1	26.7	25.1	23.9	21.1	19.8	1077901
2019/02/27 00:19:01.00	63.3	77.7	50.9	41.9	43.1	45.4	52.0	45.6	44.6	52.1	50.6	51.2	50.6	51.9	53.0	49.4	50.1	50.6	55.0	58.5	57.8	53.6	52.0	47.8	43.3	39.6	34.0	30.2	29.0	27.2	13.8	18.8	14.7	10.3	1179965		
2019/02/27 00:20:01.00	67.7	80.2	54.9	43.8	48.1	46.9	50.3	55.1	60.4	57.6	51.8	53.7	53.7	54.6	54.7	54.4	54.3	54.5	56.9	60.2	62.5	60.0	58.0	55.4	50.4	45.7	41.1	36.3	32.7	30.5	27.2	22.2	17.9	13.2	1086457		
2019/02/27 00:21:01.00	49.5	58.4	33.1	40.5	41.0	41.9	43.2	45.1	40.0	38.8	36.1	31.3	31.4	33.1	34.0	35.5	37.3	37.2	40.0	43.5	45.7	41.7	36.7	32.4	22.8	14.6	8.7	7.3	7.0	6.9	6.7	6.3	5.4	6.2	1012109		
2019/02/27 00:22:01.00	64.8	77.3	45.6	43.1	44.7	45.7	49.2	55.3	48.1	51.4	50.7	50.1	49.6	50.1	52.5	52.5	51.2	51.6	53.7	56.8	59.4	56.6	55.2	53.4	48.7	44.7	39.8	34.7	30.5	27.3	23.7	18.1	13.4	9.3	1019192		
2019/02/27 00:23:01.00	42.2	51.8	34.8	48.1	45.5	46.2	48.4	45.1	50.0	45.2	54.7	50.5	54.7	50.5	54.7	50.5	54.7	50.5	54.7	50.5	54.7	50.5	54.7	50.5	47.7	42.1	35.3	31.4	29.7	28.1	26.7	25.1	23.9	21.1	19.8	1077901	
2019/02/27 00:24:01.00	69.8	81.8	49.2	48.9	50.2	52.1	54.6	55.2	54.1	54.4	53.3	54.7	59.9	57.8	64.5	69.3	64.3	57.2	56.5	59.8	60.3	61.9	60.9	58.6	56.8	53.5	49.9	47.1	42.8	38.0	33.9	30.6	25.3	21.1	15.9	1049290	
2019/02/27 00:25:01.00	39.7	46.7	33.9	45.2	42.7	43.1	43.5	42.6	39.0	41.0	38.8	37.8	36.7	30.3	41.5	34.7	31.3	29.6	31.4	32.2	31.8	28.3	24.1	19.5	11.9	8.0	6.8	6.5	6.6	6.8	6.6	6.2	5.3	6.2	1121545		
2019/02/27 00:26:01.00	34.5	41.3	31.7	44.7	42.0	41.5	42.9	42.5	38.8	35.5	34.6	35.9	36.7	27.3	28.8	28.0	25.7	26.2	26.3	27.7	27.7	23.4	19.5	14.4	8.8	6.8	7.0	6.9	6.7	6.8	6.6	6.2	5.3	6.1	1018130		
2019/02/27 00:27:01.00	62.4	77.3	40.6	48.5	47.2	44.9	45.4	48.5	48.7	53.3	53.1	49.6	48.1	48.2	50.4	50.2	49.6	50.4	51.6	54.0	56.7	55.3	52.5	50.1	46.2	42.2	38.7	35.0	31.2	28.5	25.2	20.0	15.2	10.9	1178901		
2019/02/27 00:28:01.00	42.2	51.8	34.8	48.1	45.5	46.2	48.4	45.1	50.0	45.2	54.7	50.5	54.7	50.5	54.7	50.5	54.7	50.5	54.7	50.5	54.7	50.5	54.7	50.5	47.7	42.1	35.3	31.4	29.7	28.1	26.7	25.1	23.9	21.1	19.8	1077901	
2019/02/27 00:29:01.00	65.8	77.1	47.5	64.1	63.4	62.2	57.3	60.2	66.7	59.1	56.9	58.8	58.8	58.8	58.8	58.8	58.8	58.8	58.8	58.8	58.8	58.8	58.8	58.8	58.8	58.8	58.8	58.8	58.8	58.8	58.8	58.8	58.8	58.8	58.8	1018130	
2019/02/27 00:30:01.00	64.3	77.6	43.9	47.8	47.7	49.1	46.4	47.6	54.8	52.2	51.9	49.7	50.3	51.2	51.8	50.5	51.3	52.1	53.4	55.9	59.2	56.3	54.8	52.0	47.1	43.0	39.3	35.0	31.8	29.5	26.6	22.8	19.4	14.2	1015135		
2019/02/27 00:31:01.00	70.7	86.5	51.8	60.3	60.6	57.5	60.5	61.8	59.7	72.3	64.7	64.4	64.0	64.7	62.3	59.7	60.3	61.2	63.3	64.4	62.7	61.2	59.3	57.3	54.6	52.3	51.1	49.5	47.3	46.5	46.1	47.3	41.4	38.9	1178901		
2019/02/27 00:32:01.00	60.4	77.4	35.5	43.2	43.3	45.4	54.6	45.5	47.5	50.7	45.2	47.4	45.9	46.6	47.6	45.6	47.6	49.4	53.5	55.8	53.9	50.5	48.5	45.7	42.0	37.3	33.6	30.1	28.3	26.0	22.4	17.3	13.2	9.3	1087901		
2019/02/27 00:33:01.00	55.0	60.3	33.5	46.4	48.8	47.6	48.5	48.3	52.6	50.4	50.2	49.4	49.1	50.2	51.4	50.9	51.1	52.4	53.8	55.8	57.8	56.3	55.0	53.4	47.0	43.9	39.5	35.1	32.2	29.0	26.0	22.0	19.0	14.6	1019186		
2019/02/27 00:34:01.00	65.0	64.7	40.1	48.0	47.9	45.2	43.2	46.2	44.0	39.7	38.7	35.9	34.8	37.3	40.1	41.9	43.8	44.6	45.6	48.0	45.3	45.5	44.9	41.7	36.2	28.3	18.6	10.7	7.3	6.9	6.6	6.2	5.3	6.1	1022778		
2019/02/27 00:35:01.00	66.6	79.3	42.2	55.9	58.2	62.7	58.0	53.7	61.3	58.3	59.3	58.3	56.7	59.1	56.5	55.3	56.3	58.8	60.7	59.7	58.9	57.3	55.2	53.3	49.0	45.0	44.1	39.6	37.1	34.8	30.9	25.5	21.0	15.0	1070882		
2019/02/27 00:36:01.00	64.3	77.5	40.9	48.0	48.7	47.7	47.3	47.0	50.4	53.6	49.9	49.2	50.5	49.7	51.3	52.8	51.3	51.3	53.3	56.1	56.9	56.2	55.2	54.1	49.2	45.1	40.9	36.5	33.4	30.8	27.6	22.3	17.5	12.8	1015135		
2019/02/27 00:37:01.00	63.1	77.2	40.2	50.4	50.1	47.6	46.8	46.8	51.3	52.6	47.6	52.8	51.2	50.3	53.8	54.4	51.2	50.5	50.9	53.4	56.9	56.7	54.1	50.5	45.5	40.6	36.3	32.4	28.9	26.0	22.8	19.8	15.7	10.2	1041788		
2019/02/27 00:38:01.00	65.1	76.9	46.8	49.6	48.7	45.8	52.0	52.6	52.7	54.3	52.6	52.9	52.0	52.3	54.1	52.1	52.0	52.9	54.3	58.2	59.9	56.8	55.1	52.0	47.3	43.7	40.2	35.5	31.5	29.1	26.3	21.8	17.4	12.6	1015997		
2019/02/27 00:39:01.00	34.1	39.2	32.1	45.6	49.0	48.8	47.7	47.7	43.1	37.8	35.0	30.3	30.0	29.0	29.1	28.9	29.0	27.7	26.7	26.8	26.0	22.3	18.1	13.4	8.2	6.8	6.4	6.3	6.5	6.2	5.3	6.1	5.7	5.6	1170136		
2019/02/27 00:40:01.00	61.5	75.3	37.0	46.3	46.6	46.4	48.5	50.1	45.7	49.1	46.3	48.4	46.4	47.2	48.6	49.0	48.8	48.9	49.8	52.2	54.1	54.8	53.2	51.2	46.0	40.9	37.2	32.8	28.9	26.5	23.4	18.3	13.3	9.2	1121545		
2019/02/27 00:41:01.00	68.8	81.2	53.3	62.2	63.2	60.1	55.0	61.2	69.9	58.0	61.6	61.3	59.2	59.2	57.4	57.2	58.0	58.7	61.3	62.1	63.3	60.7	57.6	55.8	52.8	50.1	46.8	44.5	42.2	37.8	33.1	28.5	24.3	19.6	14.7	1087901	
2019/02/27 00:42:01.00	66.2	81.2	45.3	48.3	48.0	48.3	48.0	48.3	53.0	57.5	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	1087901	
2019/02/27 00:43:01.00	68.5	80.9	49.0	62.1	60.2	62.3	58.0	61.0	66.0	58.2	59.5	57.8	57.0	58.3	57.3	57.1	57.2	58.3	60.5	60.8	62.5	60.0	57.7	55.5	52.3	49.2	45.9	42.9	41.9	37.5	33.7	29.1	25.8	22.0	18.2	1070882	
2019/02/27 00:44:01.00	69.1	82.8	57.0	48.3	51.8	51.2	53.0	56.0	56.9	56.9	56.4	56.1	54.3	55.9	56.0	56.6	56.6	56.6	56.6	56.6	56.6	56.6	56.6	56.6	56.6	56.6	56.6	56.6	56.6	56.6	56.6	56.6	56.6	56.6	56.6	1121545	
2019/02/27 00:45:01.00	68.1	80.7	54.7	47.9	50.0	55.0	57.3	54.9	60.9	54.5	52.5	52.9	55.1	54.9	56.4	56.7	56.6	57.6	61.6	62.2	62.9	59.9	57.3	54.7	50.2	45.8	41.7	37.3	33.5	30.6	26.7	22.2	17.9	12.9	1045042		
2019/02/27 00:46:01.00	42.5	51.5	31.0	35.5	42.7	41.1	43.6	44.3	40.0	35.5	33.2	26.8	26.7	26.7	28.2	32.7	33.9	33.9	34.1	36.1	37.8	39.9	38.1	34.8	15.8	8.0	6.5	6.3	6.5	6.7	6.6	6.2	5.3	6.2	1170136		
2019/02/27 00:47:01.00	42.5	51.5	31.0	35.5	42.7	41.1	43.6	44.3	40.0	35.5	33.2	26.8	26.7	26.7	28.2	32.7	33.9	33.9	34.1	36.1	37.8	39.9	38.1	34.8	15.8	8.0	6.5	6.3	6.5	6.7	6.6	6.2	5.3	6.2	1170136		
2019/02/27 00:48:01.00	29.1	34.6	27.9	45.6	41.8	38.7	40.2	41.7	38.6	34.8	33.9	26.5	25.5	23.8	23.4	23.4	21.6	22.1	21.5	22.8	21.7	15.1	10.4	8.3	7.1	6.6	6.5	6.3	6.5	6.8	6.6	6.2	5.3	6.1	1121545		
2019/02/27 00:49:01.00	30.9	36.3	29.0	40.3	39.3	38.8	39.0	41.9	38.2	34.4	33.4	27.0	26.8	25.3	23.2	22.5	22.4	24.1	24.5	25.3	24.1	17.4	12.0	8.7	7.2	6.5	6.3	6.3	6.5	6.7	6.6	6.2	5.3	6.2	1121545		
2019/02/27 00:50:01.00	35.7	42.3	29.3	41.6	40.1	39.9	39.8	41.3	38.1	35.6	33.8	29.6	27.5	25.9	25.0	26.0	30.1	30.6	29.6	29.5	28.4	24.1	20.0	14.3	8.4	6.7	6.4	6.2	6.5	6.7	6.6	6.2	5.3	6.2			

2019/03/27 21:58:01.00	70.8	82.6	56.1	51.4	52.5	51.5	50.6	54.3	56.4	55.6	59.4	56.7	58.8	61.0	60.0	56.8	56.5	58.4	62.0	64.9	65.7	62.2	59.7	56.6	51.6	47.4	43.9	39.7	36.7	34.1	30.8	26.2	22.1	16.6	0020844
2019/03/27 21:59:01.00	73.4	82.4	61.7	65.5	65.3	72.9	71.1	76.7	65.9	63.7	68.6	65.0	68.2	64.4	62.0	61.1	62.3	64.5	66.2	67.5	65.4	62.6	59.7	55.7	52.2	49.4	46.0	43.6	40.8	38.2	35.0	32.1	27.9	1877666	
2019/03/27 22:00:01.00	69.7	82.1	54.7	54.7	52.5	55.9	64.1	60.9	54.7	58.9	58.2	58.2	58.2	66.7	67.4	62.3	62.8	61.8	62.7	62.3	62.8	61.8	57.3	53.0	48.6	45.3	42.1	37.8	36.0	32.9	27.6	24.8	1816449		
2019/03/27 22:01:02.00	67.7	78.1	58.0	59.6	63.3	77.7	68.3	57.5	58.0	54.1	55.1	54.0	54.2	56.7	56.5	54.7	56.7	56.3	60.7	60.0	61.4	67.5	59.7	55.1	49.1	44.7	41.6	37.5	33.9	31.6	28.8	26.1	24.1	20.9	0086929
2019/03/27 22:02:02.00	60.5	67.7	48.5	59.6	62.9	71.8	61.8	59.8	62.6	66.5	49.6	52.9	54.4	53.3	52.8	51.1	50.5	51.2	51.9	53.2	54.3	51.3	48.7	46.6	43.1	40.3	39.5	35.6	32.6	30.4	28.7	24.5	21.9	16.5	125018
2019/03/27 22:03:02.00	67.2	79.8	47.8	55.4	67.6	63.3	60.3	57.9	57.6	57.9	55.6	56.7	55.4	57.6	58.0	55.5	55.0	57.3	57.8	60.4	61.2	59.3	56.7	53.3	49.9	46.4	43.7	41.1	38.3	35.0	31.6	27.5	27.0	19.4	126075
2019/03/27 22:04:02.00	73.1	84.4	60.7	52.9	65.2	60.2	62.7	59.2	63.6	60.4	60.4	60.7	58.8	61.3	63.3	60.9	60.2	61.3	64.0	66.7	67.4	64.9	62.8	59.2	54.3	50.1	46.6	43.3	40.0	36.9	33.7	29.3	25.0	19.2	0017797
2019/03/27 22:05:02.00	71.2	84.1	43.7	48.2	47.8	50.9	52.7	61.4	56.1	58.0	57.4	58.1	57.3	59.8	60.3	59.0	58.7	61.2	64.2	66.3	63.3	60.0	57.1	52.4	48.2	44.8	40.7	37.4	35.1	31.7	26.9	22.5	17.4	0060308	
2019/03/27 22:06:02.00	69.6	79.5	59.5	46.5	52.3	51.7	54.7	66.6	55.5	64.4	58.0	54.6	56.7	58.0	58.2	56.5	55.0	56.9	59.7	62.8	62.5	60.7	58.1	54.3	50.1	47.4	44.1	40.1	37.5	34.9	32.5	29.0	26.6	19.8	0120508
2019/03/27 22:07:02.00	72.2	81.0	59.9	57.1	59.3	57.7	57.5	61.8	62.5	60.7	59.0	60.9	59.4	61.7	61.9	59.9	59.0	60.3	62.0	64.5	66.3	64.3	62.0	59.4	55.3	51.1	47.4	43.6	41.1	37.7	35.2	33.0	31.6	28.7	0049437
2019/03/27 22:08:02.00	72.0	83.2	63.8	50.9	52.9	56.6	54.4	60.8	60.5	57.6	58.8	57.2	58.5	62.2	61.6	60.2	58.9	59.8	62.8	65.5	66.7	64.8	61.8	58.6	53.7	48.9	44.8	40.6	36.8	34.4	31.0	26.7	22.8	17.5	0084930
2019/03/27 22:09:02.00	68.5	77.3	59.5	48.8	50.1	50.6	52.4	63.6	58.3	57.2	56.1	55.8	55.7	58.0	58.1	56.0	55.0	56.9	59.2	61.8	62.4	60.9	58.3	54.8	50.3	46.4	43.3	40.9	39.2	34.8	31.4	27.8	24.4	18.4	0799808
2019/03/27 22:10:02.00	71.2	84.1	43.7	48.2	47.8	50.9	52.7	61.4	56.1	58.0	57.4	58.1	57.3	59.8	60.3	59.0	58.7	61.2	64.2	66.3	63.3	60.0	57.1	52.4	48.2	44.8	40.7	37.4	35.1	31.7	26.9	22.5	17.4	0060308	
2019/03/27 22:11:02.00	68.7	79.5	57.9	54.5	52.3	51.7	54.7	66.6	55.5	64.4	58.0	54.6	56.7	58.0	58.2	56.5	55.0	56.9	59.7	62.8	62.5	60.7	58.1	54.3	50.1	47.4	44.1	40.1	37.5	34.9	32.5	29.0	26.6	19.8	0141002
2019/03/27 22:12:02.00	72.2	82.8	56.2	61.5	62.4	60.9	61.7	66.1	66.5	60.0	62.5	61.0	59.2	61.4	60.2	59.3	58.2	60.4	62.1	63.9	66.4	64.5	62.0	59.6	56.0	53.2	52.1	52.1	51.0	50.7	51.1	50.1	49.4	46.9	0059669
2019/03/27 22:13:02.00	69.8	79.3	59.3	45.9	48.9	63.8	57.7	51.5	57.1	56.4	55.3	57.7	55.6	58.6	58.9	56.6	56.1	57.5	59.6	62.7	64.1	62.8	59.5	55.9	51.5	47.0	43.0	38.8	35.4	32.8	29.2	25.1	20.8	15.2	0049629
2019/03/27 22:14:02.00	69.0	80.9	49.4	45.7	49.6	48.4	52.9	60.5	61.7	58.0	53.8	59.5	55.7	57.7	57.1	55.8	55.7	56.8	59.2	61.7	63.6	61.1	58.9	55.6	50.9	46.8	42.8	38.8	35.6	33.3	29.8	25.4	21.3	16.2	0049629
2019/03/27 22:15:02.00	71.6	81.6	58.3	49.5	50.8	50.9	54.1	59.7	55.8	56.7	53.7	58.5	59.0	60.4	59.9	57.9	57.2	58.6	61.1	64.2	66.2	64.1	61.6	58.3	53.1	48.7	45.3	41.0	37.6	35.3	32.1	28.0	23.4	17.9	0049629
2019/03/27 22:16:02.00	66.6	78.3	52.1	49.7	52.6	53.7	53.2	51.6	51.5	53.9	52.9	54.8	52.8	56.3	57.3	54.8	53.5	54.7	57.0	59.8	60.8	58.6	56.6	53.6	48.9	44.4	40.7	36.3	32.7	31.0	27.8	23.3	19.2	14.0	0070962
2019/03/27 22:17:02.00	69.4	78.6	55.1	59.9	56.9	63.1	58.2	61.7	59.3	59.6	60.1	60.0	58.2	60.4	60.5	58.9	57.9	60.3	60.7	62.4	63.3	61.2	58.8	55.7	51.0	47.0	44.1	40.4	37.1	34.4	32.0	28.7	25.5	19.1	0070962
2019/03/27 22:18:02.00	73.5	81.0	59.9	51.0	53.6	54.7	60.3	60.6	60.4	61.2	60.3	62.3	60.6	63.2	64.8	63.1	62.7	62.8	64.2	65.7	67.6	65.8	63.2	60.7	55.7	51.3	47.7	43.6	40.0	37.9	35.2	30.2	25.5	19.7	0087211
2019/03/27 22:19:01.00	69.1	79.9	41.5	46.6	47.8	47.9	56.2	59.0	54.5	56.3	54.1	55.9	56.0	57.8	58.3	55.7	54.7	56.5	59.1	62.7	63.2	61.0	59.3	56.0	51.7	47.2	43.3	38.6	35.4	32.9	29.8	25.8	21.1	15.2	0120508
2019/03/27 22:20:01.00	69.8	82.4	54.7	49.7	49.1	49.1	51.4	52.3	56.8	60.9	57.0	54.7	56.3	57.1	57.4	56.1	55.3	56.4	58.2	60.7	63.9	62.6	60.9	58.4	53.9	49.4	45.7	41.8	38.1	35.3	32.5	28.7	25.2	20.0	0049629
2019/03/27 22:21:01.00	66.3	77.2	52.5	53.0	50.5	55.3	53.2	57.3	52.4	52.3	53.8	54.5	53.3	57.4	54.4	54.8	56.7	58.7	60.3	58.7	56.2	53.9	49.5	45.6	42.2	38.0	34.7	33.0	28.9	23.4	18.8	13.0	0059295		
2019/03/27 22:22:01.00	62.4	75.3	51.0	48.6	51.0	51.5	52.1	55.4	56.0	55.2	52.7	53.0	52.2	53.4	55.9	53.3	51.5	50.9	50.6	52.5	55.9	55.7	52.8	49.6	45.4	41.1	37.7	35.1	33.0	31.5	30.2	30.7	27.6	23.8	1737001

70	87	54
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2019/03/29 05:12:01.00	45.6	63.4	40.1	58.0	60.7	55.4	52.3	52.3	48.3	45.4	39.6	39.8	39.5	40.0	36.4	36.1	35.2	36.1	36.0	34.2	34.4	34.9	33.8	35.8	33.6	32.5	33.7	29.4	25.4	23.3	22.1	20.6	20.0	16.7	0007101	
2019/03/29 05:13:01.00	68.7	81.1	42.7	48.9	50.3	49.4	54.4	54.7	54.9	57.0	57.3	54.3	54.8	54.6	56.0	58.0	60.0	63.0	61.8	59.3	55.9	51.0	46.8	42.9	38.8	34.8	31.8	28.7	24.7	21.2	16.0	11.6	0411002			
2019/03/29 05:14:01.00	64.0	78.2	42.8	60.9	62.8	59.9	55.2	58.3	61.7	54.3	56.0	53.5	55.6	51.9	52.2	52.5	56.0	56.6	55.8	57.3	55.7	52.3	50.4	49.7	45.9	43.5	37.7	36.0	32.1	26.9	21.5	17.0	11.7	0318866		
2019/03/29 05:15:01.00	71.6	81.3	45.6	35.3	53.4	52.0	57.4	55.2	55.8	58.6	57.5	58.6	57.4	58.4	58.6	59.1	58.8	57.5	62.4	61.5	64.6	65.6	64.1	62.0	59.0	54.3	49.8	45.9	41.3	37.4	36.8	26.4	22.6	17.4	0049629	
2019/03/29 05:16:01.00	61.9	76.6	43.2	47.8	46.8	46.6	48.8	46.8	52.9	51.6	48.0	46.2	49.9	50.8	50.8	49.5	48.1	50.0	50.9	54.3	57.0	54.6	50.9	47.6	43.4	39.7	37.3	32.1	27.7	26.8	18.3	14.8	9.9	0049629		
2019/03/29 05:17:01.00	61.5	81.8	56.7	52.0	51.4	51.8	54.1	56.2	52.5	54.1	56.0	57.7	55.7	58.3	59.3	57.6	56.1	58.0	60.2	63.3	65.8	64.5	62.3	59.3	54.6	50.6	46.3	40.8	36.4	33.8	30.2	25.5	21.4	16.9	0123370	
2019/03/29 05:18:01.00	79.9	80.2	50.0	51.7	53.9	54.3	56.3	55.8	57.5	58.0	54.6	55.6	56.8	58.0	57.6	56.8	56.5	58.4	59.8	62.9	64.0	62.3	60.8	56.5	51.3	46.8	43.3	38.6	35.2	32.3	29.2	24.8	20.3	15.5	0722372	
2019/03/29 05:19:01.00	74.0	84.2	63.0	61.2	62.2	66.1	62.5	64.3	67.3	63.5	65.1	65.2	64.5	67.9	63.0	63.8	63.5	64.8	66.4	66.9	67.0	65.4	63.4	60.3	56.7	53.0	51.1	48.1	44.2	41.9	39.3	36.0	33.2	29.3	0110844	
2019/03/29 05:20:01.00	72.2	84.1	50.2	59.5	60.9	58.8	61.2	61.7	64.5	64.1	60.7	61.6	60.9	61.5	61.7	61.9	60.0	61.8	62.9	64.8	66.1	64.6	61.7	58.7	54.7	50.9	47.6	44.3	42.0	39.1	36.7	34.1	30.2	26.6	19.2	0087211
2019/03/29 05:21:01.00	59.0	75.5	44.2	48.6	48.4	48.0	47.9	50.8	57.1	49.0	49.1	50.2	45.8	46.2	47.0	47.4	45.5	46.7	48.0	50.1	52.1	51.2	51.1	48.1	42.6	39.2	34.8	30.5	26.0	22.4	17.7	12.				

**Data Summary****Site 1**

<b>Date</b>	<b>Time</b>	<b>LAeq</b>	<b>LAmx</b>	<b>LA90</b>
Tuesday 12th February 2019	14:15	74	92	59
Wednesday 14th February 2019	10:12	75	91	59
Monday 25th February 2019	16:18	73	94	63
Tuesday 26th February 2019	06:00	76	96	61
Tuesday 26th March 2019	07:00	76	90	65
Wednesday 27th March 2019	23:30	63	84	37

**Site 2**

<b>Date</b>	<b>Time</b>	<b>LAeq</b>	<b>LAmx</b>	<b>LA90</b>
Tuesday 12th February 2019	13:10	74	91	62
Wednesday 14th February 2019	08:00	77	93	65
Monday 25th February 2019 (30 mins)	15:45	75	94	64
Tuesday 26th February 2019	01:25	63	87	36
Wednesday 27th March 2019	22:27	70	103	44
Friday 29th March 2019	06:18	77	96	63

**Site 3**

<b>Date</b>	<b>Time</b>	<b>LAeq</b>	<b>LAmx</b>	<b>LA90</b>
Tuesday 12th February 2019	12:00	75	94	60
Wednesday 14th February 2019	09:06	74	91	62
Monday 25th February 2019 (90 mins)	17:30	74	88	65
Tuesday 26th February 2019	00:15	65	87	42
Wednesday 27th March 2019	21:20	70	87	54
Friday 29th March 2019	05:12	71	89	53

**Weather Log**

Date	Site	Time	Temperature (Celsius)	Cloud Cover (Oktas)	Wind Speed (m/s)	Wind Direction
Tuesday 12th February 2019	2	12:00	11	8	1	W
	3	13:10	11	6	1	W
	1	14:14	11	7	2(3)	W
Wednesday 14th February 2019	2	08:00	8	4	0	-
	3	09:06	9	3	1	SW
	1	10:12	10	5	1(2)	SW
Monday 25th February 2019	2	15:44	13	6	0	-
	1	16:18	11	7	0	-
	3	17:25	8	6	0	-
Tuesday 26th February 2019	1	23:10	1	0	0	-
	3	00:17	0	0	0	-
	2	01:25	-1	0	0	-
Tuesday 26th March 2019	1	06:00	7	5	1(3)	W
	1	07:00	6	4	1(3)	W
Wednesday 27th March 2019	3	21:20	9	0	1	SW
	2	22:27	7	0	1	SW
Friday 29th March 2019	3	05:12	3	0	1	SW
	2	06:18	4	1	1(2)	SW

# Certificate of Calibration

Certificate No.: 4715719250

**Object:** Sound Analyser Nor140  
**Supplier:** Norsonic AS  
**Type:** Nor140  
**Serial number:** 1406914  
**Client:** AIR560

This instrument is tested and calibrated in accordance to the Norsonic production standard set for Nor140, ensuring that the instrument conforms to the following standards;

IEC 61672-1:2002 class 1  
IEC 61260-1 class 1 Ed 1.0 2014-02  
ANSI S1.4-1983 (R2001) with amd. S1.4A-1985 class 1  
ANSI S1.43-1997 (R2002) class 1  
ANSI S1.11-2004 class 1  
DIN 45 657, Applicable parts  
IEC 61094 part 4

## Instrumentation used for calibration traceable to:

Electrical Parameters: IKM, Norway  
Acoustical Parameters: PTB, Germany  
Environmental Parameters: Justervesenet, Norway

**Adjustments:** None

**Comments:** None

**Date of calibration:** 2017-06-08  
**Calibration interval recommended:** 2 years

The environmental parameters applicable to this calibration are kept well within limits ensuring negligible deviation on obtained measurement results.

**Calibrated by:**

Sign.

  
  
P.O. BOX 24, N-3420 LIERSKOGEN, NORWAY  
TEL: +47 32 85 89 00

Norsonic AS, P.B 24, 3421 Lierskogen. Visitor address: Gunnersbråtan 2, Tranby, Norway.  
Phone +47 32858900 Fax.: +47 32852208. email: info@norsonic.com



# Warranty

Norsonic products are thoroughly inspected before they leave the factory. Carefully check the shipment for any physical damage in transit. Notify the factory or the distributor and file the claim with the carrier if there is any such damage.

**Product type:** Sound Analyser Nor140

**Serial no.:** 1406914

**Power:** 11-15 Volt DC

**Option included:** 69

**Option**

**description:**

- 00: Tmax 5 and LeqI according to German standards
- 01: 1/1 octave real time frequency filters 0,5 - 16.000Hz
- 02: Reference spectrum comparison with digital Go/No Go TTL output
- 03: 1/3 octave real time filters 0,4 - 20.000Hz, require opt 2
- 04: Statistical Calculations for weighting network and 1/n octave filters
- 05: Parallel calculation of F, S, I time constants
- 06: Profile. L/t measuring mode w / multi spectrum if opt 2 or 3 are installed
- 07: Enhanced profile including 4 markers and time resolution from 50ms
- 08 Sound recording
- 09: Reverberation time decay and calculation of T20 and T30
- 10: Noise generator with pink or white noise
- 11: Building acoustic mode according to ISO140, ISO10052 and ISO717/1 & /2
- 12: SweptSine measurement technique
- 13: Speech Transmission Index mode
- 14: FFT measuring mode with absolute units 8000 lines,
- 15: Survey Sound Power mode for LwA measurements according to ISO-3746
- 16: Enhanced global trigger
- 17: Audiometer calibration with measurement of Lzeq, frequency and distortion
- 18: Extended measurement range to 150dBpeak including self noise compensation
- 19: Special options for Noise Monitoring

**Application**

**version:**

4.0.1120 2017-03-23 10:33r

**Id no.:**

15719250

**Accessories:**

Preamplifier 1209 Serial No.: 21121  
Microphone 1225 Serial No.: 212990

**Related to order:** SO1721015

**Checked and approved by:**

**Date:** 2017-06-08

  
**Norsonic**  
P.O. BOX 24, N-3420 LIERSKOGEN, NORWAY  
TEL: +47 32 85 89 00

**Warranty statement**

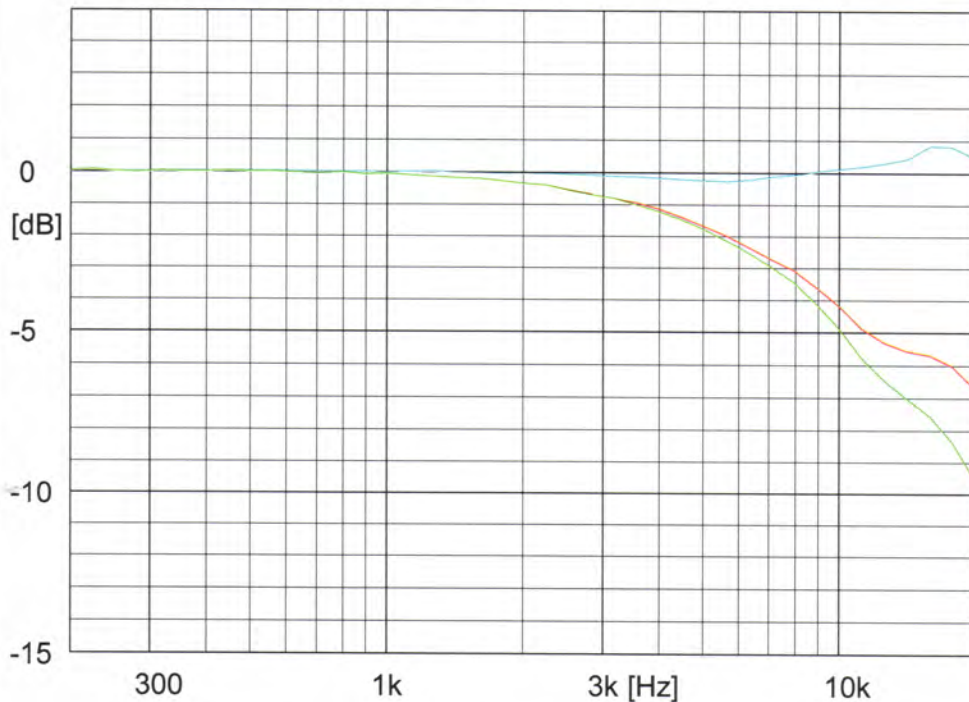
Norsonic products are warranted against defects in material and workmanship. This warranty applies to 36 months from date of delivery.

Norsonic AS will repair or replace equipment, which proves to be defective during the warranty period. This warranty includes labour and parts. Equipment returned to the factory, for repair must be shipped freight prepaid. Repair due to misuse of the equipment and/or use of hardware, software or interfacing not provided by Norsonic AS are not covered by this warranty.

No other warranty is expressed or implied, included, but not limited to, the implied warranties of merchantability and fitness for a particular purpose.

Norsonic AS shall not be liable for consequential damages

# Microphone Calibration Certificate



Norsonic  
Type: 1225

Serial no: 212990

Sensitivity: 52,80 mV/Pa

-25,55 dB re. 1 V/Pa

Capacitance: 22,19 pF

Date: 2017-06-06

Signature:

Measurement conditions:

Polarisation voltage: 200,0 V

Pressure: 97,60 kPa

Temperature: 23,1 °C

Relative humidity: 44,0 %RH

Results are normalized to the reference conditions.

Free field response

Diffuse field response

Pressure (Actuator) response

Norsonic AS

[www.norsonic.com](http://www.norsonic.com)



# Campbell Associates Ltd

5b Chelmsford Road Industrial Estate  
GREAT DUNMOW, Essex, GB-CM6 1HD  
[www.campbell-associates.co.uk](http://www.campbell-associates.co.uk)  
Phone 01371 871030 Facsimile 01371879106



CALIBRATION



0789

## Certificate of Calibration and Conformance

Certificate No.: U26097

**Test object:** Sound Level Meter, BS EN IEC 61672-1:2003 Class 1 (Precision)  
**Manufacturer:** Norsonic  
**Type:** 140  
**Serial no:** 1405074

**Customer:** The Airshed Ltd  
**Address:** 5 Lauder Place, East Linton,  
East Lothian. EH40 3DB.  
**Contact Person:** Hilary Fraser  
**Order No:** AS 17-04

### Method :

Calibration has been performed as set out in CA Technical Procedures TP01 & 02 as appropriate. These are based on the procedures for periodic verification set out in BS EN IEC 61672-3:2006. Results and conformance statement are overleaf and detailed results are in the attached Test Report.

	Producer:	Type:	Serial No:	Certificate number
Microphone	GRAS	40AF	114655	26096
Calibrator*	Norsonic	1251	31060	U25588
Preamplifier	Norsonic	1209	21254	Included

Additional items that also have been submitted for verification


Wind shield	None
Attenuator	None
Extension cable	None

These items have been taken into account wherever appropriate.

Environmental conditions:	Pressure:	Temperature:	Relative humidity:
Reference conditions:	101.325 kPa	23.0 °C	50 %RH
Measurement conditions:	101.33 ± 0.01kPa	21.4 ± 0.2°C	51.3 ± 2%RH

Date received : 11/07/2017  
Date of calibration: 17/07/2017  
Date of issue: 18/07/2017

Engineer

  
Palanivel Marappan B.Eng (Hons), M.Sc

Supervisor

  
Darren Batten Tech IOA

This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to recognized national standards, and to the units of measurement realized at the National Physical Laboratory or other recognized national standards laboratories. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

# Certificate of Calibration and Conformance

## UKAS Laboratory Number 0789

---

Certificate No.: U26097

### Conformance

From markings on the sound level meter or by reference to the manufacturer's published literature it has been determined that the instrument submitted for verification was originally manufactured to BS EN IEC 61672-1:2002 and similarly that the associated sound calibrator conforms to BS EN IEC 60942.

### Statement of conformance

The sound level meter submitted for testing has successfully completed the class 1 periodic tests of BS EN IEC 61672-3:2006, for the environmental conditions under which the tests were performed. As public evidence was available<sup>1</sup>, from an independent testing organisation responsible for approving the results of pattern evaluation tests performed in accordance with BS EN IEC 61672-2:2003, to demonstrate that the model of sound level meter fully conformed to the requirements in BS EN IEC 61672-1:2002, and that the sound level meter submitted for testing conforms to the class 1 requirements of BS EN IEC 61672-1:2003.

<sup>1</sup> This evidence is held on file at the calibration laboratory

### Measurement Results:

Indication at the calibration check frequency - IEC61672-3 Ed.1 #9	Passed
Self-generated noise - IEC 61672-3 Ed.1 #10	Passed
Acoustical signal tests of a frequency weighting - IEC 61672-3 Ed.1 #11	Passed
Frequency weightings: A Network - IEC 61672-3 Ed.1 #12.3	Passed
Frequency weightings: C Network - IEC 61672-3 Ed.1 #12.3	Passed
Frequency weightings: Z Network - IEC 61672-3 Ed.1 #12.3	Passed
Frequency and time weightings at 1 kHz IEC 61672-3 Ed.1 #13	Passed
Level linearity on the reference level range - IEC 61672-3 Ed.1 #14	Passed
Toneburst response - IEC 61672-3 Ed.1 #16	Passed
Peak C sound level - IEC 61672-3 Ed.1 #17	Passed
Overload indication - IEC 61672-3 Ed.1 #18	Passed
Electrical signal tests of frequency weightings - IEC 61672-3 Ed.1 #12	Passed

### Comment

Correct level with associated calibrator is 113.9dB(A).

### Observations

No information on the uncertainty of measurement, required by 11.7 of BS EN IEC 61672-3:2006 of the adjustment data given in the instruction manual or obtained from the manufacturer of supplier of the sound level meter, or the manufacturer of the microphone, or the manufacturer of the electrostatic actuator was published in the instruction manual or made available by the manufacturer or supplier. The uncertainty of measurement of the adjustment data has therefore been assumed to be numerically zero for the purposes of this periodic test. If these uncertainties are not actually zero, there is a possibility that the frequency response of the sound level meter may not conform to the requirements of BS EN IEC 61672-1:2003.

The details of the uncertainty for each measurement is available from the Calibration Laboratory on request and is based on the standard uncertainty multiplied by a coverage factor K=2, providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements. Details on the sources of corrections and their associated uncertainties that relate to this verification are contained the detailed test report accompanying this certificate.



# Calibration Report

Certificate No.:26096

**Manufacturer:** GRAS  
**Type:** 40AF  
**Serial no:** 114655

**Customer:** The Airshed Ltd  
**Address:** 5 Lauder Place, East Linton,  
East Lothian. EH40 3DB.  
**Order No:** AS 17-04  
**Contact Person:** Hilary Fraser

## Measurement Results:

	Sensitivity: (dB re 1V/Pa)	Capacitance: (pF)
1:	-26.70	22.3
2:	-26.70	22.3
3:	-26.71	22.3
<b>Result (Average):</b>	<b>-26.71</b>	<b>22.3</b>
Expanded Uncertainty:	0.10	2.00
Degree of Freedom:	>100	>100
Coverage Factor:	2.00	2.00

The following correction factors have been applied during the measurement:  
Pressure:-0.010 dB/kPa Temperature:-0.007 dB/°C Relative humidity:0.000 dB/%RH

Reference Calibrator: WSC1 - Nor1253-24269 Volume correction: 0.000 dB  
Records:K:\C A\Calibration\Nor-1504\Nor-1017 MicCal\2017\GRAS40AF\_114655\_M1.nmf  
Measurement procedure: TP05

All results quoted are directly traceable to National Physical Laboratory, London

The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor  $k = 2$ , which for a normal distribution corresponds to coverage probability of approximately 95%. The standard uncertainty of measurement has been determined in accordance with EA publication EA-4/02.

## Comment:

### Environmental conditions:

Pressure: 101.591 ± 0.042 kPa    Temperature: 22.4 ± 0.1 °C    Relative humidity: 44.1 ± 0.8 %RH

Date of calibration: 17/07/2017

Date of issue: 17/07/2017

Supervisor : Darren Batten TechIOA  
Engineer :



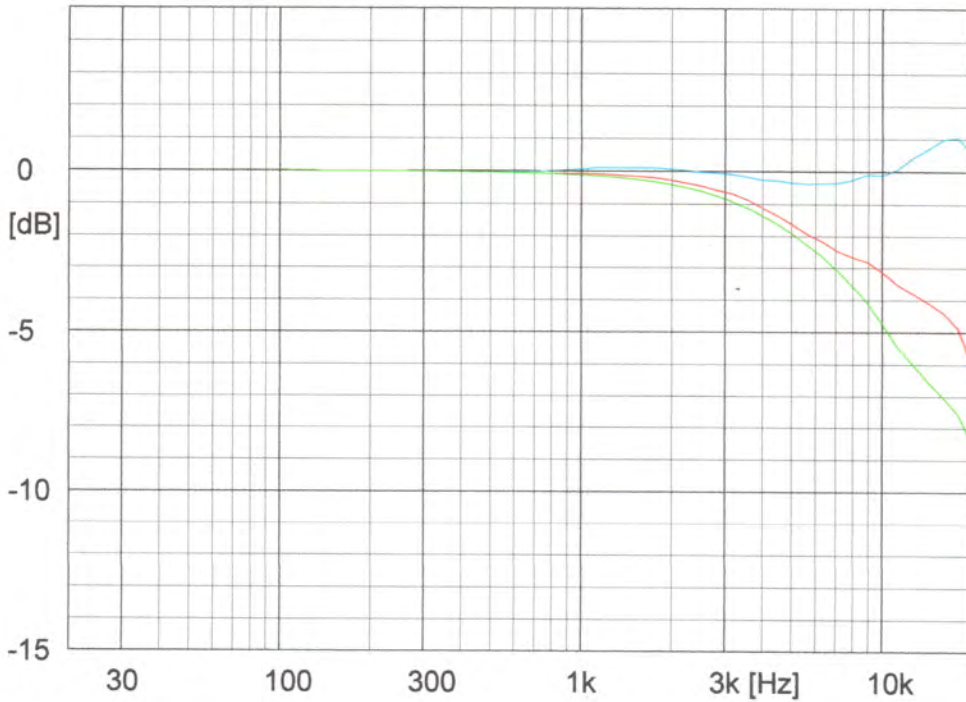
Palanivel Marappan B.Eng (Hons), M.Sc  
Software version: 6.0h



**Campbell Associates**

www.campbell-associates.co.uk

# Microphone Calibration Certificate



**GRAS**  
**Type: 40AF**

Serial no: 114655

Sensitivity: 46.21 mV/Pa  
-26.71 ±0.10 dB re. 1 V/Pa  
Capacitance: 22.3 ±2.0 pF  
Date: 17/07/2017

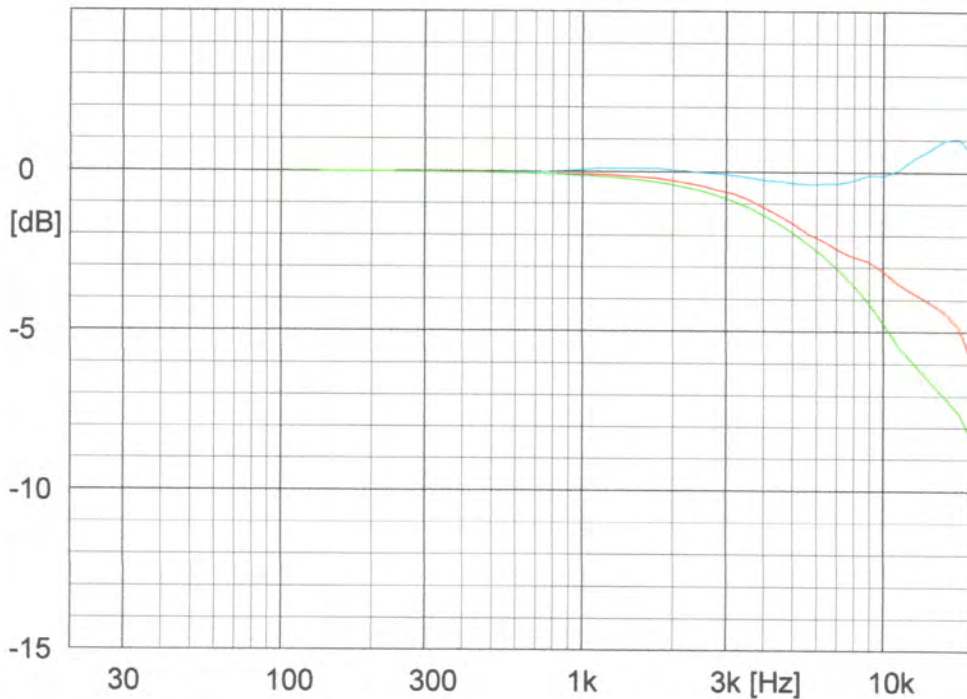
Signature: *M. Hanivel*

Measurement conditions:  
Polarisation voltage: 200.0 V  
Pressure: 101.59 ±0.04 kPa  
Temperature: 22.4 ±0.1 °C  
Relative humidity: 44.1 ±0.8 %RH  
Results are normalized to the reference conditions.

Free field response  
Diffuse field response  
Pressure (Actuator) response

**Campbell Associates**  
www.campbell-associates.co.uk

# Microphone Calibration Certificate



**GRAS**  
**Type: 40AF**

Serial no: 114655

Sensitivity: 46.21 mV/Pa  
-26.71 ±0.10 dB re. 1 V/Pa  
Capacitance: 22.3 ±2.0 pF  
Date: 17/07/2017

Signature: *M. Hanivel*

Measurement conditions:  
Polarisation voltage: 200.0 V  
Pressure: 101.59 ±0.04 kPa  
Temperature: 22.4 ±0.1 °C  
Relative humidity: 44.1 ±0.8 %RH  
Results are normalized to the reference conditions.

Free field response  
Diffuse field response  
Pressure (Actuator) response

**Campbell Associates**  
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Comment:





CALIBRATION



0789

**Certificate number: U28460**

## Certificate of Calibration and Conformance

**Test object:** Sound Calibrator  
**Manufacturer:** Norsonic  
**Type:** 1251  
**Serial no:** 31060

**Customer:** The Airshed Limited  
**Address:** 5 Lauder Place,  
 East Linton. EH40 3DB.  
**Contact Person:** Hilary Fraser.

Measurement Results:	Level	Level Stability	Frequency	Frequency Stability	Distortion
1:	114.06 dB	0.06 dB	1000.24 Hz	0.00 %	<0.3 %
2:	114.05 dB	0.06 dB	1000.24 Hz	0.00 %	<0.3 %
3:	114.06 dB	0.06 dB	1000.24 Hz	0.00 %	<0.3 %
<b>Result (Average):</b>	<b>114.06 dB</b>	<b>0.06 dB</b>	<b>1000.24 Hz</b>	<b>0.00 %</b>	<b>&lt;0.3 %</b>
Expanded Uncertainty:	0.10 dB	0.02 dB	1.00 Hz	0.01 %	0.10 %
Degree of Freedom:	>100	>100	>100	>100	>100
Coverage Factor:	2.00	2.00	2.00	2.00	2.00

The stated level is relative to 20µPa. The level is traceable to National Standards.

The stated level is valid at reference conditions. The following correction factors have been applied during the measurement: Pressure: 0.0005 dB/kPa Temperature: 0.003 dB/°C Relative humidity: 0.000 dB/%RH Load volume : 0.0003 dB/mm<sup>3</sup>

The reported expanded uncertainty of measurements is based on a standard uncertainty multiplied by the coverage factor of k=2, providing a level of confidence of approximately 95%. Where the degrees of freedom are insufficient to maintain this confidence level, the coverage factor is increased to maintain this confidence level. The uncertainty has been determined in accordance with UKAS requirements.

Records: K:\C A\Calibration\Nor-1504\Nor-1018 CalCal\2018\NOR1251\_31060\_M1.nmf

Environmental conditions:	Pressure:	Temperature:	Relative humidity:
Reference conditions:	101.325 kPa	23.0 °C	50 %RH
Measurement conditions:	99.736 ± 0.042 kPa	22.0 ± 0.2 °C	38.2 ± 1.9 %RH

Date received for calibration: 25/04/2018  
 Date of calibration: 30/04/2018  
 Date of issue: 30/04/2018  
 Engineer

Supervisor

  
 Michael Tickner

  
 Darren Batten TechIOA

This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to recognised national standards, and to the units of measurement realised at an accredited national physical laboratory or other recognised standards laboratories. This certificate may not be reproduced other than in full without the prior written approval of the issuing laboratory.



Certificate number: U28460

#### Preconditioning

The equipment was preconditioned for more than 4 hours in the specified calibration environment.

#### Measurements

The calibrator has been tested as described in the following annexes to BS EN IEC60942:2003 Sound Calibrators; B3.4 for sound pressure level, B3.5 for frequency, B3.6 for total distortion and A4.4 for short term stability of the pressure level.

#### Method

Calibration has been performed as set out in the current version of CA Technical procedure TP01

#### Instruments and program

A complete list of equipment, hardware and software that has been used in this calibration is available from the calibration laboratory on request.

#### Traceability

The measured values are traceable to an accredited national physical laboratory within the EU or EFTA.

#### Comment

Calibrated as received, no adjustments made.

#### Statement of conformance

**As public evidence was available<sup>1</sup>, from a testing organisation responsible for approving the results of pattern evaluation tests, to demonstrate that the model of sound calibrator fully conformed to the requirements for pattern evaluation described in annex A of BS EN IEC 60942:2003, the sound calibrator tested is considered to conform to all the class 1 requirements of that BS EN IEC 60942:2003.**

<sup>1</sup> This evidence is held on file at the calibration laboratory.

#### Notes:

The sound pressure level generated by the calibrator in its ½ inch configuration was measured five times and averaged by a WS2P working standard microphone for class 1 or 2 devices or a LS2P reference microphone for class 0 or LS devices as specified in the International Standard BS EN 61094-4. The results of three replications and the mean of the measurements obtained are given in the measurement results table of this certificate. The frequency and distortion were measured in a similar manner. The figures in **BOLD** are the final results; a small correction factor may need to be added to the sound pressure level quoted here if the device is used to calibrate a sound level meter that is fitted with a free field response microphone. See manufacturer's handbooks for full details of this and other corrections that may be applicable.

Measurements performed by



**Campbell  
Associates**

Sonitus House, 5b Chelmsford Road Industrial Estate, Great Dunmow, GB-CM6 1HD  
Tel (+44) 01371 871030 Fax (+44) 01371 879106  
email calibration@campbell-associates.co.uk

Page 2 of 2





CALIBRATION



0789

**Certificate number: U28261**

## Certificate of Calibration and Conformance

**Test object:** Sound Calibrator  
**Manufacturer:** Norsonic  
**Type:** 1251  
**Serial no:** 34961

**Customer:** The Airshed Ltd  
**Address:** 5 Lauder Place, East Linton,  
 East Lothian. EH40 3DB.  
**Contact Person:** Hilary Fraser.

Measurement Results:	Level	Level Stability	Frequency	Frequency Stability	Distortion
1:	114.10 dB	0.06 dB	1000.61 Hz	0.00 %	0.32 %
2:	114.11 dB	0.06 dB	1000.61 Hz	0.00 %	0.36 %
3:	114.11 dB	0.06 dB	1000.61 Hz	0.00 %	0.33 %
<b>Result (Average):</b>	<b>114.11 dB</b>	<b>0.06 dB</b>	<b>1000.61 Hz</b>	<b>0.00 %</b>	<b>0.34 %</b>
Expanded Uncertainty:	0.10 dB	0.02 dB	1.00 Hz	0.01 %	0.10 %
Degree of Freedom:	>100	>100	>100	>100	>100
Coverage Factor:	2.00	2.00	2.00	2.00	2.00

The stated level is relative to 20µPa. The level is traceable to National Standards.  
 The stated level is valid at reference conditions. The following correction factors have been applied during the measurement: Pressure: 0.0005 dB/kPa Temperature: 0.003 dB/°C Relative humidity: 0.000 dB/%RH Load volume : 0.0003 dB/mm<sup>3</sup>

The reported expanded uncertainty of measurements is based on a standard uncertainty multiplied by the coverage factor of k=2, providing a level of confidence of approximately 95%. Where the degrees of freedom are insufficient to maintain this confidence level, the coverage factor is increased to maintain this confidence level. The uncertainty has been determined in accordance with UKAS requirements.

Records: K:\C A\Calibration\Nor-1504\Nor-1018 CalCal\2018\NOR1251\_34961\_M1.nmf

Environmental conditions:	Pressure:	Temperature:	Relative humidity:
Reference conditions:	101.325 kPa	23.0 °C	50 %RH
Measurement conditions:	100.708 ± 0.042 kPa	21.8 ± 0.2 °C	35.5 ± 0.9 %RH

Date received for calibration: 29/03/2018  
 Date of calibration: 05/04/2018  
 Date of issue: 05/04/2018  
 Engineer

Supervisor

  
 Michael Tickner

  
 Darren Batten TechIOA

This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to recognised national standards, and to the units of measurement realised at an accredited national physical laboratory or other recognised standards laboratories. This certificate may not be reproduced other than in full without the prior written approval of the issuing laboratory.



Certificate number: U28261

#### Preconditioning

The equipment was preconditioned for more than 4 hours in the specified calibration environment.

#### Measurements

The calibrator has been tested as described in the following annexes to BS EN IEC60942:2003 Sound Calibrators; B3.4 for sound pressure level, B3.5 for frequency, B3.6 for total distortion and A4.4 for short term stability of the pressure level.

#### Method

Calibration has been performed as set out in the current version of CA Technical procedure TP01

#### Instruments and program

A complete list of equipment, hardware and software that has been used in this calibration is available from the calibration laboratory on request.

#### Traceability

The measured values are traceable to an accredited national physical laboratory within the EU or EFTA.

#### Comment

Calibrated as received, no adjustments made.

#### Statement of conformance

**As public evidence was available<sup>1</sup>, from a testing organisation responsible for approving the results of pattern evaluation tests, to demonstrate that the model of sound calibrator fully conformed to the requirements for pattern evaluation described in annex A of BS EN IEC 60942:2003, the sound calibrator tested is considered to conform to all the class 1 requirements of that BS EN IEC 60942:2003.**

<sup>1</sup> This evidence is held on file at the calibration laboratory.

#### Notes:

The sound pressure level generated by the calibrator in its ½ inch configuration was measured five times and averaged by a WS2P working standard microphone for class 1 or 2 devices or a LS2P reference microphone for class 0 or LS devices as specified in the International Standard BS EN 61094-4. The results of three replications and the mean of the measurements obtained are given in the measurement results table of this certificate. The frequency and distortion were measured in a similar manner. The figures in **BOLD** are the final results; a small correction factor may need to be added to the sound pressure level quoted here if the device is used to calibrate a sound level meter that is fitted with a free field response microphone. See manufacturer's handbooks for full details of this and other corrections that may be applicable.

Measurements performed by



Sonitus House, 5b Chelmsford Road Industrial Estate, Great Dunmow, GB-CM6 1HD  
Tel (+44) 01371 871030 Fax (+44) 01371 879106  
email calibration@campbell-associates.co.uk



## Appendix 3 – Noise Model Outputs

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# AS 0684 Hatton Mains

## Run info

### baseline 2019

#### Project description

Project title: AS 0684 Hatton Mains  
 Project No.: AS 0684  
 Project engineer: Steve Fraser  
 Customer:

Description:  
 Noise Impact Assessment for proposed new housing next to A71

#### Run description

Calculation type: Single Point Sound  
 Title: baseline 2019  
 Group:  
 Run file: RunFile.runx  
 Result number: 2  
 Local calculation (ThreadCount=4)  
 Calculation start: 28/03/2019 22:44:19  
 Calculation end: 28/03/2019 22:44:40  
 Calculation time: 00:01:193 [m:s:ms]  
 No. of points: 3  
 No. of calculated points: 3  
 Kernel version: SoundPLAN 8.1 (31/10/2018) - 32 bit

#### Run parameters

Reflection order:	3	
Maximum reflection distance to receiver		200 m
Maximum reflection distance to source		50 m
Search radius	5000 m	
Weighting:	dB(A)	
Allowed tolerance (per individual source):		0.100 dB
Create ground effect areas from road surfaces:		No

Standards:

Road:	CoRTN: 1988
Driving on right side	
Emission according to:	CoRTN
Reflection order limited to:	1
Road gradient smoothed with smooth length of:	15 m
Disable low flow correction:	No
Method for L10 to Leq conversion:	TRL formula
Side diffraction:	disabled
Attenuation	
Foliage:	No attenuation
Built-up area:	No attenuation
Industrial site:	No attenuation
Assessment:	PPG24 (day/night)

The Airshed

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AS 0684 Hatton Mains  
Run info  
baseline 2019

Reflection of "own" facade is suppressed

**Geometry data**

Baseline.sit	28/03/2019 22:44:10	
- contains:		
baseline survey.geo	28/03/2019 22:44:10	
calculation area.geo	28/03/2019 21:54:32	
existing buildings.geo	28/03/2019 22:44:10	
ground conditions.geo	28/03/2019 21:53:44	
Mastermap - rev01.geo	28/03/2019 21:52:00	
road traffic baseline 2019.geo		28/03/2019 22:44:10
RDGM0001.dgm	28/03/2019 21:05:48	

AS 0684 Hatton Mains  
Assessed receiver levels  
baseline 2019

Receiver	Dir	X m	Y m	Z m	LrD dB(A)	LrN dB(A)	
Baseline Survey 1		314951	669364	94.5	75	56	
Baseline Survey 2		314703	669259	94.1	75	57	
Baseline Survey 3		313917	668971	89.5	74	55	

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	The Airshed	1
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# AS 0684 Hatton Mains

## Run info

### baseline 2030

#### Project description

Project title: AS 0684 Hatton Mains  
Project No.: AS 0684  
Project engineer: Steve Fraser  
Customer:

Description:  
Noise Impact Assessment for proposed new housing next to A71

#### Run description

Calculation type: Single Point Sound  
Title: baseline 2030  
Group:  
Run file: RunFile.runx  
Result number: 4  
Local calculation (ThreadCount=4)  
Calculation start: 29/03/2019 10:44:31  
Calculation end: 29/03/2019 10:44:52  
Calculation time: 00:01:724 [m:s:ms]  
No. of points: 21  
No. of calculated points: 21  
Kernel version: SoundPLAN 8.1 (31/10/2018) - 32 bit

#### Run parameters

Reflection order:	3	
Maximum reflection distance to receiver		200 m
Maximum reflection distance to source		50 m
Search radius	5000 m	
Weighting:	dB(A)	
Allowed tolerance (per individual source):		0.100 dB
Create ground effect areas from road surfaces:		No

Standards:

Road:	CoRTN: 1988
Driving on right side	
Emission according to:	CoRTN
Reflection order limited to:	1
Road gradient smoothed with smooth length of:	15 m
Disable low flow correction:	No
Method for L10 to Leq conversion:	TRL formula
Side diffraction:	disabled
Attenuation	
Foliage:	No attenuation
Built-up area:	No attenuation
Industrial site:	No attenuation

Assessment: PPG24 (day/night)

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AS 0684 Hatton Mains  
Run info  
baseline 2030

Reflection of "own" facade is suppressed

**Geometry data**

Scenario 2 Baseline 2030.sit	29/03/2019 10:34:34	
- contains:		
calc area.geo	28/03/2019 22:52:56	
calculation area.geo	28/03/2019 21:54:32	
existing buildings.geo	29/03/2019 10:34:34	
ground conditions.geo	28/03/2019 21:53:44	
Mastermap - rev01.geo	28/03/2019 21:52:00	
road traffic baseline 2030.geo		29/03/2019 10:44:12
existing receptors.geo	29/03/2019 10:34:34	
RDGM0001.dgm	28/03/2019 21:05:48	

AS 0684 Hatton Mains  
Assessed receiver levels  
baseline 2030

2

RNo	Receiver	Fl	Dir	X	Y	Z	LrD	LrN
				m	m	m	dB(A)	dB(A)
1	Dalmahoy gatehouse	GF	SW	314573	669172	93.7	66	52
2	Dalmahoy Gatehouse	GF	NE	314582	669179	93.7	65	51
3	Dovecote Lodge	GF	SE	315408	669591	90.2	59	47
4	East Gateside	GF	SE	314669	669248	93.7	76	58
		F 1				96.2	76	58
5	Easter Hatton Cottage	GF	S	314076	669047	92.6	66	52
		F 1				95.1	68	54
6	Easter Hatton Cottages	GF	S	314163	669073	92.9	69	55
7	Easter Hatton Mains	GF	S	314021	669037	92.9	65	53
		F 1				95.4	67	54
8	Entrey Head	GF	SW	314521	669148	93.9	60	49
		F 1				96.4	63	51
9	Entry Head	GF	NE	314529	669152	93.9	62	51
		F 1				96.4	65	52
10	Entry Head	GF	SE	314538	669164	93.8	58	47
		F 1				96.3	61	49
11	Hatton Mains	GF	N	313967	668981	90.3	72	53
12	Hatton Mains Cottage	GF	NW	314121	669025	91.2	69	53
13	Hatton Mains Cottage	GF	N	314105	669018	91.3	69	53
		F 1				93.8	73	56
14	New Dalmahoy	GF	N	314653	669181	92.9	63	47
15	Ransfield Cottages	GF	N	314179	670036	91.1	57	45
16	Ransfield Cottages	GF	S	314182	670025	91.1	60	47
17	Ransfield Cottages	GF	W	314161	670024	91.1	69	50
18	Ratho Park Hotel	GF	S	314574	669283	92.4	62	46
		F 1				94.9	64	48
19	St Mary's Hall	GF	W	314677	669316	93.1	60	43
20	St Mary's Hall	GF	E	314688	669320	93.1	63	46
21	The Elms	GF	N	314175	669029	91.1	64	51
		F 1				93.6	66	53

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# AS 0684 Hatton Mains Run info scheme 2030

## Project description

Project title: AS 0684 Hatton Mains  
 Project No.: AS 0684  
 Project engineer: Steve Fraser  
 Customer:

Description:  
 Noise Impact Assessment for proposed new housing next to A71

## Run description

Calculation type: Single Point Sound  
 Title: scheme 2030  
 Group:  
 Run file: RunFile.runx  
 Result number: 5  
 Local calculation (ThreadCount=4)  
 Calculation start: 29/03/2019 10:37:55  
 Calculation end: 29/03/2019 10:38:15  
 Calculation time: 00:01:569 [m:s:ms]  
 No. of points: 21  
 No. of calculated points: 21  
 Kernel version: SoundPLAN 8.1 (31/10/2018) - 32 bit

## Run parameters

Reflection order:	3	
Maximum reflection distance to receiver		200 m
Maximum reflection distance to source		50 m
Search radius	5000 m	
Weighting:	dB(A)	
Allowed tolerance (per individual source):		0.100 dB
Create ground effect areas from road surfaces:		No

Standards:

Road:	CoRTN: 1988
Driving on right side	
Emission according to:	CoRTN
Reflection order limited to:	1
Road gradient smoothed with smooth length of:	15 m
Disable low flow correction:	No
Method for L10 to Leq conversion:	TRL formula
Side diffraction:	disabled
Attenuation	
Foliage:	No attenuation
Built-up area:	No attenuation
Industrial site:	No attenuation
Assessment:	PPG24 (day/night)

The Airshed

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AS 0684 Hatton Mains  
Run info  
scheme 2030

Reflection of "own" facade is suppressed

**Geometry data**

Scenario 3 Scheme 2030.sit	29/03/2019 10:35:54	
- contains:		
calc area.geo	28/03/2019 22:52:56	
calculation area.geo	28/03/2019 21:54:32	
existing buildings.geo	29/03/2019 10:34:34	
ground conditions.geo	28/03/2019 21:53:44	
Mastermap - rev01.geo	28/03/2019 21:52:00	
road traffic scheme 2030.geo		28/03/2019 22:49:06
existing receptors.geo	29/03/2019 10:34:34	
RDGM0001.dgm	28/03/2019 21:05:48	

AS 0684 Hatton Mains  
Assessed receiver levels  
scheme 2030

2

RNo	Receiver	Fl	Dir	X	Y	Z	LrD	LrN
				m	m	m	dB(A)	dB(A)
1	Dalmahoy gatehouse	GF	SW	314573	669172	93.7	67	54
2	Dalmahoy Gatehouse	GF	NE	314582	669179	93.7	65	52
3	Dovecote Lodge	GF	SE	315408	669591	90.2	60	48
4	East Gateside	GF	SE	314669	669248	93.7	76	58
		F 1				96.2	77	59
5	Easter Hatton Cottage	GF	S	314076	669047	92.6	66	53
		F 1				95.1	68	55
6	Easter Hatton Cottages	GF	S	314163	669073	92.9	69	56
7	Easter Hatton Mains	GF	S	314021	669037	92.9	65	53
		F 1				95.4	67	55
8	Entrey Head	GF	SW	314521	669148	93.9	60	50
		F 1				96.4	63	52
9	Entry Head	GF	NE	314529	669152	93.9	62	52
		F 1				96.4	65	54
10	Entry Head	GF	SE	314538	669164	93.8	58	48
		F 1				96.3	61	50
11	Hatton Mains	GF	N	313967	668981	90.3	72	54
12	Hatton Mains Cottage	GF	NW	314121	669025	91.2	69	54
13	Hatton Mains Cottage	GF	N	314105	669018	91.3	69	54
		F 1				93.8	73	56
14	New Dalmahoy	GF	N	314653	669181	92.9	64	48
15	Ransfield Cottages	GF	N	314179	670036	91.1	60	50
16	Ransfield Cottages	GF	S	314182	670025	91.1	63	52
17	Ransfield Cottages	GF	W	314161	670024	91.1	72	55
18	Ratho Park Hotel	GF	S	314574	669283	92.4	63	48
		F 1				94.9	65	50
19	St Mary's Hall	GF	W	314677	669316	93.1	61	45
20	St Mary's Hall	GF	E	314688	669320	93.1	64	47
21	The Elms	GF	N	314175	669029	91.1	64	52
		F 1				93.6	66	53

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# AS 0684 Hatton Mains

## Run info

### Scenario 7 - receptors

#### Project description

Project title: AS 0684 Hatton Mains  
 Project No.: AS 0684  
 Project engineer: Steve Fraser  
 Customer:

Description:  
 Noise Impact Assessment for proposed new housing next to A71

#### Run description

Calculation type: Single Point Sound  
 Title: Scenario 7 - receptors  
 Group:  
 Run file: RunFile.runx  
 Result number: 10  
 Local calculation (ThreadCount=4)  
 Calculation start: 29/03/2019 16:30:09  
 Calculation end: 29/03/2019 16:30:32  
 Calculation time: 00:03:816 [m:s:ms]  
 No. of points: 33  
 No. of calculated points: 33  
 Kernel version: SoundPLAN 8.1 (31/10/2018) - 32 bit

#### Run parameters

Reflection order:	3	
Maximum reflection distance to receiver		200 m
Maximum reflection distance to source		50 m
Search radius	5000 m	
Weighting:	dB(A)	
Allowed tolerance (per individual source):		0.100 dB
Create ground effect areas from road surfaces:		No

Standards:

Road:	CoRTN: 1988
Driving on right side	
Emission according to:	CoRTN
Reflection order limited to:	1
Road gradient smoothed with smooth length of:	15 m
Disable low flow correction:	No
Method for L10 to Leq conversion:	TRL formula
Side diffraction:	disabled
Attenuation	
Foliage:	No attenuation
Built-up area:	No attenuation
Industrial site:	No attenuation
Assessment:	PPG24 (day/night)

The Airshed

1

AS 0684 Hatton Mains  
Run info  
Scenario 7 - receptors

Reflection of "own" facade is suppressed

**Geometry data**

Scenario 7 Scheme 2030 - mitigation option 4.sit	29/03/2019 16:29:44
- contains:	
4m acoustic bund & fence.geo	29/03/2019 16:16:22
calc area.geo	28/03/2019 22:52:56
calculation area.geo	28/03/2019 21:54:32
existing buildings.geo	29/03/2019 10:34:34
existing receptors.geo	29/03/2019 10:34:34
ground conditions.geo	28/03/2019 21:53:44
Mastermap - rev01.geo	28/03/2019 21:52:00
road traffic scheme 2030.geo	29/03/2019 16:16:22
masterplan March 29 Airshed tweak 2.geo	29/03/2019 16:29:44
RDGM0001.dgm	28/03/2019 21:05:48

AS 0684 Hatton Mains  
Assessed receiver levels  
Scenario 7 - receptors

2

RNo	Receiver	Fl	Dir	X	Y	Z	LrD	LrN
				m	m	m	dB(A)	dB(A)
1	block 4	GF	S	314218	669096.86	93.6	61	52
		F 1				96.1	64	53
2	block 4	GF	N	314215	669105.13	93.6	51	40
		F 1				96.1	55	43
3	block 5	GF	SE	314789	669314.44	94.3	60	49
		F 1				96.8	63	51
4	block 5	GF	NW	314780	669322.36	94.3	49	43
		F 1				96.8	51	44
5	block 6	GF	N	314353	669156.49	93.4	50	42
		F 1				95.9	55	44
6	block 6	GF	S	314356	669147.86	93.4	59	50
		F 1				95.9	61	52
7	block 7	GF	N	314261	669121.95	94.1	50	39
		F 1				96.6	54	42
8	block 7	GF	S	314263	669113.67	94.1	60	50
		F 1				96.6	63	52
9	block 9	GF	N	314405	669178.74	94.1	51	40
		F 1				96.6	55	43
10	block 9	GF	S	314408	669169.43	94.1	60	48
		F 1				96.6	62	52
11	block 19	GF	NW	314892	669378.64	94.4	48	31
		F 1				96.9	50	33
12	block 19	GF	SE	314900	669369.39	94.4	63	51
		F 1				96.9	65	52
13	Dalmahoy gatehouse	GF	SW	314573	669171.61	93.7	67	54
14	Dalmahoy Gatehouse	GF	NE	314582	669178.97	93.7	65	52
15	Dovecote Lodge	GF	SE	315408	669591.31	90.2	59	48
16	East Gateside	GF	SE	314669	669247.93	93.7	76	58
		F 1				96.2	77	59
17	Easter Hatton Cottage	GF	S	314076	669047.17	92.6	66	53
		F 1				95.1	68	55
18	Easter Hatton Cottages	GF	S	314163	669072.92	92.9	69	55
19	Easter Hatton Mains	GF	S	314021	669036.83	92.9	65	53
		F 1				95.4	67	55
20	Entrey Head	GF	SW	314521	669148.01	93.9	61	50
		F 1				96.4	63	52
21	Entry Head	GF	NE	314529	669152.22	93.9	62	52
		F 1				96.4	65	54
22	Entry Head	GF	SE	314538	669164.38	93.8	56	47
		F 1				96.3	61	50
23	Hatton Mains	GF	N	313967	668981.09	90.3	72	54
24	Hatton Mains Cottage	GF	NW	314121	669024.55	91.2	69	54

	The Airshed	1
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AS 0684 Hatton Mains  
Assessed receiver levels  
Scenario 7 - receptors

2

RNo	Receiver	Fl	Dir	X	Y	Z	LrD	LrN
				m	m	m	dB(A)	dB(A)
25	Hatton Mains Cottage	GF	N	314105	669018.38	91.3	69	54
		F 1					73	56
26	New Dalmahoy	GF	N	314653	669181.49	92.9	62	47
27	Ransfield Cottages	GF	W	314161	670023.77	91.1	72	55
28	Ransfield Cottages	GF	N	314179	670035.96	91.1	60	50
29	Ransfield Cottages	GF	S	314182	670025.21	91.1	63	52
30	Ratho Park Hotel	GF	S	314574	669282.89	92.4	62	48
		F 1					64	49
31	St Mary's Hall	GF	W	314677	669315.67	93.1	60	44
32	St Mary's Hall	GF	E	314688	669319.52	93.1	57	41
33	The Elms	GF	N	314175	669029.15	91.1	64	52
		F 1					66	54

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	The Airshed	2
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## Appendix 4 – BS 8233 Calculations

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AS 0684 Hatton Mains		Sheet 1	Dimensions m <sup>2</sup>				Walls and Roof				Results				
Example Room Types	Receptor No.	Façade	Roof	Glazing	Floor Area/Ceiling	Improved Structural Specification Report				Room Usage and Design	External Noise Level	Internal Noise Level	Specification		
						Wall	R <sub>w</sub>	Roof	R <sub>rr</sub>				Window	Trickle Vent	
						S <sub>f</sub>	S <sub>rr</sub>	S <sub>wi</sub>	m <sup>2</sup>				R <sub>wi</sub>	D <sub>n,e</sub>	
Lounge/Dayroom GF No Roof	Model	7.2	12.0	1.7	12.0	None	-	None	-	Daytime/No Roof/With Trickle Vent	65	34.6	30	39	
Lounge/Dayroom GF No Roof Corner Room	Model	16.8	12.0	2.7	12.0	None	-	None	-	Daytime/No Roof/With Trickle Vent	65	34.8	33	39	
Bedroom GF No Roof	Model	7.2	12.0	1.7	12.0	None	-	None	-	Night-time/No Roof/With Trickle Vent	52	21.6	30	39	
Bedroom GF No Roof Corner Room	Model	16.8	12.0	2.7	12.0	None	-	None	-	Night-time/No Roof/With Trickle Vent	52	23.1	30	39	
Bedroom UF with Roof	Model	7.2	12.0	1.7	12.0	None	-	None	-	Night-time/With Roof/With Trickle Vent	52	23.4	30	39	
Bedroom UF with Roof Corner Room	Model	16.8	12.0	2.7	12.0	None	-	None	-	Night-time/With Roof/With Trickle Vent	52	25.0	30	39	

Notes:

S <sub>f</sub> Surface area of the façade	R <sub>w</sub> The sound reduction index of the walls	R <sub>wi</sub> Industry rated, single figure, attenuation value for the Window
S <sub>rr</sub> Surface area of the roof	R <sub>rr</sub> The sound reduction index of the roof	D <sub>n,e</sub> Industry rated, single figure, attenuation value for the Trickle Vent
S <sub>wi</sub> Surface area of the windows	(Default values are R <sub>w</sub> 50 for walls and R <sub>rr</sub> 43 for the roof unless an improved value is reported as above)	

Options used in the model for the calculation of the Insulation Values

Dual Seal Glazing (Unless otherwise stated)	R <sub>wi</sub>
4 / 16 / 4	30
Pilkington 8mm/4mm Insulating Glass	33
4 / 16 / 6	34
4 / 16 / 8	35
6 / 16 / 8.8	38
8 / 16 / 8.8SC	42
10 / 16 / 8.8SC	44
10 / 16 / 9.5SC	45
Trickle Vents	D <sub>n,e</sub>
Greenwood 5000EAW.AC.1 2670mm2	39
Greenwood 1600 DNFW 1400mm2	37
Greenwood 5000EAW.AC.2 5350mm2	42.2
Greenwood 2500EAW.AC.1 2670mm2	42.1
Greenwood 2500EAW.AC.2 2670mm2	45

Note:

AC.1 One Acoustic External Module  
AC.2 Two Acoustic External Modules