



Azymuth Acoustics UK

Professional Acoustic Services

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Planning Noise Assessment Report Ref: AA0171

Ground Floor Café/Restaurant Real Taste

815 – 817 Ashton Old Road
Higher Openshaw
Manchester
M11 2NL

For

Real Taste

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1.0 Introduction

Azymuth Acoustics UK is appointed by Real Taste to provide a noise assessment of a café / restaurant at 815 – 817 Ashton Old Road, Manchester, M11 2NL. The business will occupy the ground floor of the premises. The proposed operating times of the business are understood to be 11:00 – 22:30hrs 7 days a week.

This report addresses the potential impact of entertainment noise on the occupied flats directly above the premises on the 1st floor of the building. Analysis and recommendations on specifications of the building envelope are included, with the aim of compliance with local authority noise control criteria.

This acoustic assessment includes the following aspects:

- The results of a baseline noise survey at the site in order to assist in the assessment of noise as it might affect the nearest residence. These receptors are identified as apartments directly above the proposed commercial premises.
- The results of a sound insulation test through the separating floor between the commercial unit and 1st floor flat.
- The results of noise measurements relating to the kitchen extract system and externally mounted condenser units at the rear of the premises.
- Criteria developed to set acceptable noise levels at sensitive receptors in nearby properties.

2.0 Baseline Noise Survey

2.1 Measurement Procedures

The instrumentation used for the environmental noise survey consisted of a SvanTek 959 type 1 precision sound level meter. The equipment was calibrated before and after the noise measurements. The sound level meter measured at A-weighted (fast response) noise levels as well as octave bands noise levels for all measurement record.

A fixed noise monitoring position was established outside a 1st floor window and this was used to record noise levels continuously over approx. 24 hours from 12:05hrs on Tuesday 5th March until 10:25hrs on Tuesday 6th March 2019.

The ambient noise measurements were undertaken using the sound level meter microphone at the locations shown in figure 1 below.

The sound level meter was positioned at the following measurement locations on the site:

- Position 1: protruding approx. 1m outside a 1st floor window facing towards Wood St & Ashton Old Road
- Various positions at the rear of the premises close to the externally mounted plant and kitchen extract duct

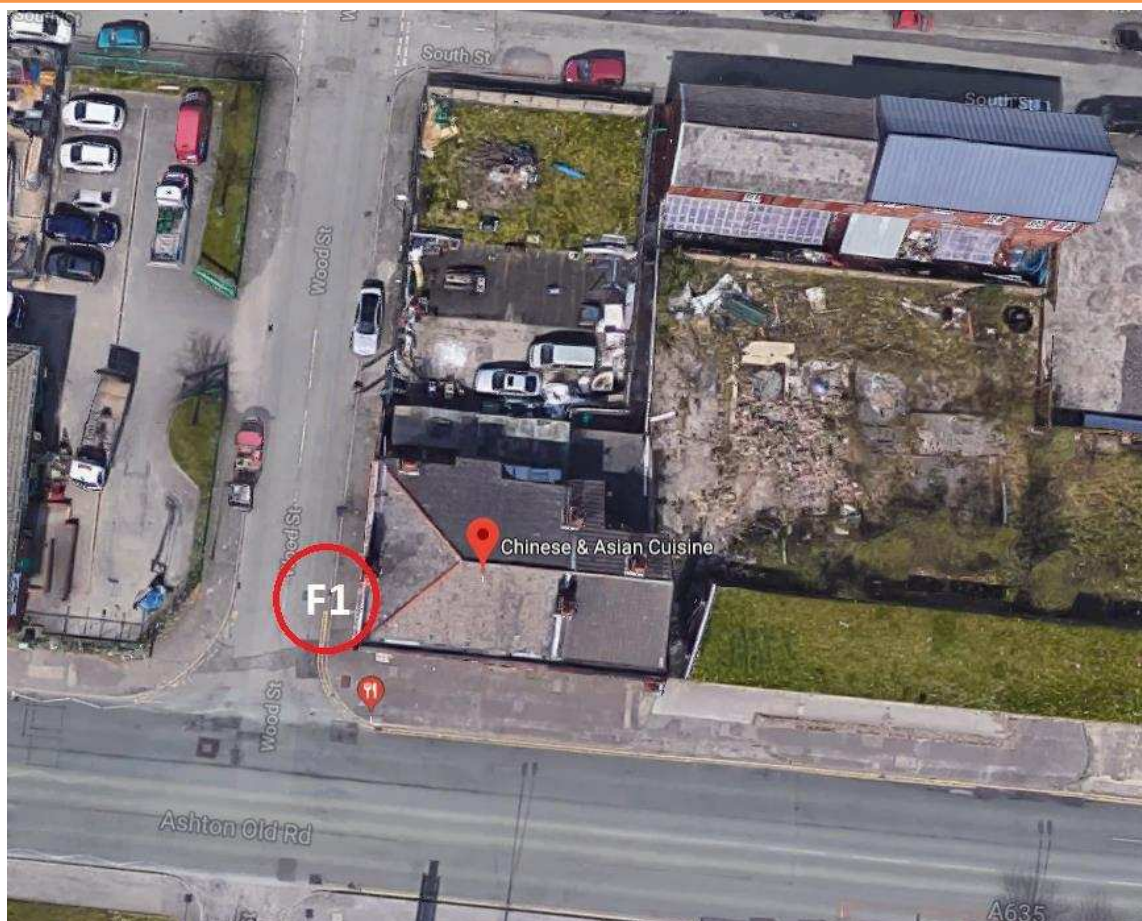


Figure 1: Measurement location circled in red on master plan drawing

2.2 Measurement Results

A summary of averaged noise measurement data is presented in Table 1; full results are set out in Appendix B.

The following table summarises the results of the noise measurements undertaken at the site in terms of averaged day and night time statistical noise levels.

Measurement Location	Time period	L _{Amax}	L _{Aeq}	L _{A1}	L _{A10}	L _{A50}	L _{A90}
1 st floor window	Day (07:00-19:00hr)	87.5	72.0	78.9	74.4	69.5	60.7
1 st floor window	Evening (19:00-23:00hr)	84.8	69.9	78.3	73.7	65.4	54.7
1 st floor window	Night (23:00-07:00hr)	82.2	67.1	76.7	70.2	57.9	49.9
Extract fan on @1m	Daytime	71.7	70.6	71.9	71.3	70.5	70.0
Extract fan off @1m	Daytime	72.8	63.9	69.1	65.9	60.6	58.2

Table 1: Summary of averaged noise measurement results (dBA)

2.3 Description of Noise Climate

The daytime and night time noise climate in the area is dominated by road traffic using Ashton Old Road & Wood Street. In addition, noise from passers-by also contribute to the noise climate. During the daytime, activity from surrounding industrial / commercial units contribute to the noise climate. Between 22:30 – 00:00hrs the survey indicates that the background sound level (BSL) is typically around 46-47dB.

The nearest noise sensitive residential receptor to the proposed premises is understood to be apartments on the 1st floor of the same building. Other surrounding premises are understood to be industrial / commercial units.

The nearest off-site residential receptors would appear to be on Bartlett Street, the nearest part of which is located 125m north east of the premises on the corner of South Street.

3.0 Assessment Criteria

In order to assess the extent of any measures which might be necessary in order to comply with suitable conditions relating to entertainment noise break-out / through, Azymuth Acoustics has reviewed the following guidance documents and standards:

- BS 8233: 2014
- World Health Organisation Guidelines on Community Noise
- Manchester City Council Planning & Noise Technical Guidance (Policy Document GD03: Environmental and Public Protection Information for Developers)
- BS41442: 2014

3.1 BS 8233: 2014

BS 8233 provides a code of practice for the sound insulation of a variety of building types affected by general environmental noise. It provides recommendations for control of noise in and around buildings and suggests appropriate internal ambient noise level criteria / limits for a variety of different situations including residential properties.

The following table summarises the noise limits suggested by BS 8233 applying to residential properties:

Activity	Room	Good Design Range $L_{Aeq,T}$ dB	
		07:00-23:00hrs	23:00-07:00hrs
Resting	Living rooms	35	-
Dining	Dining room / area	40	-
Sleeping (daytime resting)	Bedroom (at night)	35	30

Table 2: Noise Limits for Residential Properties Suggested in BS 8233

3.2 W.H.O Guidelines on Community Noise

In 1980 the World Health Organisation proposed environmental health criteria for community noise including consideration of noise levels at which sleep disturbance may take place. These guidelines were amended by the World Health Organisation in 1999. The guidance suggests that an internal L_{Aeq} below 30dB is required to preserve the restorative process of sleep. This is equivalent to a free-field level of around 42 to 45dB L_{Aeq} or a façade level of 45 to 48dB L_{Aeq} , assuming open windows.

3.3 Manchester City Council Planning & Noise Technical Guidance (Annex to GD03)

The GD03 guidance document provides developers with information related to Manchester City Council policy on discharging planning conditions imposed by the City Wide Environmental and Public Protection Team. The document has specific sections covering policy on noise from entertainment venues, fixed plant and equipment etc. The document states:

‘A planning application for a new entertainment venue that is structurally detached from other building uses should demonstrate that music noise from the proposal will not be ‘audible’ in nearby residential properties, assuming that the residential properties in question have their windows open.

‘Entertainment noise (L_{Aeq}) should be controlled to 10dB below the background noise level (LA_{90}) without the entertainment noise present, in each octave band at the nearest noise sensitive location’. In relation to proposed entertainment venues structurally connected to residential developments the document provides the following criterion: ‘Noise levels in the 63Hz and 125Hz octave frequency bands should be controlled so as not to exceed (in habitable rooms) 47dB and 41dB respectively’.

As relates noise from externally mounted ancillary plant the document states:

‘Externally mounted ancillary plant, equipment and servicing shall be selected and/or acoustically treated in accordance with a scheme designed so as to achieve a rating level of 5dB (L_{Aeq}) below the typical background (LA_{90}) level at the nearest noise sensitive location’.

3.4 BS 4142: 2014

British Standard 4142: 2014 “Methods for assessing and rating industrial sound” describes methods for rating and assessing sound of an industrial and/or commercial nature. The methods described in this British Standard use outdoor sound levels to assess the likely effects of sound on people who might be inside or outside a dwelling or premises used for residential purposes upon which sound is incident.

- a) Typically, the greater this difference, the greater the magnitude of the impact.
- b) A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.
- c) A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context.
- d) The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.

BS 4142 notes that: *Adverse impacts include, but are not limited to, annoyance and sleep disturbance. Not all adverse impacts will lead to complaints and not every complaint is proof of an adverse impact.*

It should be noted however, BS 4142 states that the standard is not intended to be applied to the rating and assessment of sound from recreational activities or music and other entertainment. Hence, the standard is primarily presented here for guidance and to assist in the assessment of any proposed external mechanical equipment / atmosphere connections.

3.5 Recommended Noise Assessment Criteria

Based on the guidance above it is recommended that the following criteria would be reasonable with the aim of minimising the impact of the proposed operation:

- A predicted external level due to entertainment noise from the venue 10dB below the lowest measured Background Sound Level ($L_{A90, 5min}$) at the nearest residential receptor.
- Noise levels inside the nearest flat to comply with the 63Hz and 125Hz octave frequency band noise limits so as not to exceed (in habitable rooms) 47dB and 41dB respectively.
- Daytime and night time (23:00 – 07:00) cumulative noise levels from fixed plant or atmosphere connection(s) not greater than 64 dBA @ 1m this equates to not greater than 49 dBA at the nearest residential properties.

4.0 Assessment of Noise Levels

4.1 Typical Noise Levels in Restaurants and Bars

The following noise levels would typically be expected within entertainment venues (based on Azymuth Acoustics historical survey data and Noise from Pubs and Clubs Phase 1 document):

- Café bars and restaurants during quiet periods, approx. 65-70dB L_{Aeq}
- Café bars and restaurants during busy periods, no music (customer noise only), up to approx. 88dB L_{Aeq}
- Bars playing music (including customer noise), approx. 90-95dB L_{Aeq}
- Dance floor of large night club, up to approx. 105dB L_{Aeq}

Based on the proposal it would be assessed that continuous levels approx. 80dB $L_{Aeq, 5min}$ could be expected internally during busy periods with chatting, customer / staff activity etc. The assessment draws reference to similar projects previously undertaken by Azymuth Acoustics. Table 3 details the predicted spectrum for background music and customer noise for a typical evening period.

Parameter	Period	Octave Band Centre Frequency (Hz)							Total dBA
		63	125	250	500	1k	2k	4k	
Typical level estimate during busy periods $L_{Aeq, 5min}$	Evening to 22:30	73	74	75	79	75	72	67	80

Table 3: Estimate of likely internal level, typical bar and restaurant with background music

4.2 Review of the Existing and Proposed Building Envelope

4.2.1 Existing Separating Floor

Azymuth Acoustics has carried out sound insulation tests on the existing separating floor between the ground and 1st floor levels of the building.

- The overall sound insulation of the floor (as a D_{nw}) is 57 dB or better and the sound insulation in the 125Hz (expressed as D_{125Hz}) octave band being 34 dB. The existing $D_{nw} + Ctr$ is 47 dB. NB the overall measured D_{nw} was limited by the presence of traffic noise break-in and the actual value is likely to be 1 or 2 dB better.
- Hence based on the measured sound insulation it can be seen that the overall original sound insulation targets have generally been met or exceeded.

4.2.2 Proposed Building Envelope (Walls, Windows and Doors)

It is understood that the windows to the façade of the ground floor café / restaurant are standard single glazed window units. The estimated acoustic rating for this glass is R_w 31 dB (and $R_w + Ctr$ 26). The existing external wall construction is masonry and as such would not require up-rating from a noise break-out perspective.

4.3 Noise Break-out Calculations and Assessment against Criteria

Based on the proposed building envelope (primarily the glazed shop front) as described above, the noise limits for activity noise inside the bar / café area should be 80 dBA or less in order to comply with the targets described in Section 3.4. The limits would apply to noise from all sources combined including chatting, customer / staff activity etc.

The following table provides an assessment of calculated noise break-out from the venue for night time operation compared with background levels in the vicinity.

Parameter	Location	Octave Band Centre Frequency (Hz)							Total dBA
		63	125	250	500	1k	2k	4k	
Sound pressure level limit $L_{Aeq,30sec}$	Inside café / restaurant	73	74	75	79	75	72	67	80
Specific sound pressure level (calculated)	Nearest Flat @2m above	35	35	34	32	22	19	19	31
Typical measured Background Sound Level $L_{A90,5min}$ 23:00 hours	External level	58	52	49	48	52	47	36	54
Specific level compared with BSL	Nearest Flat @2m above	-23	-18	-15	-16	-30	-29	-17	-23

Table 4: Assessment of predicted entertainment noise level break-out: receptor 1st floor living room.

4.4 Noise Break-through Calculations and Assessment against Criteria

Based on the existing separating floor construction, the noise limits for the activity noise level inside the ground floor restaurant area should be of nominally 80 dBA in order to comply with the targets described in Section 3.4. The limits would apply to noise from all sources combined including chatting, customer / staff activity etc.

The following table provides an assessment of calculated noise break-through from the venue for night time (worst case) operation.

Parameter	Location	Octave Band Centre Frequency (Hz)							Total dBA
		63	125	250	500	1k	2k	4k	
Sound pressure level limit $L_{Aeq,30sec}$	Inside café / restaurant	73	74	75	79	75	72	67	80
Specific sound pressure level (calculated – based on existing floor / ceiling build-up)	Inside 1 st floor bedroom above café / restaurant	42	36	30	20	8	0	0	25
Typical measured Background Sound Level $L_{A90,5min}$ 22:30 hours	Inside 1 st floor apartment (based on ambient sound level inside bedroom)	47	40	30	22	13	7	1	28
Specific level compared with BSL	Inside 1 st floor bedroom above café / restaurant	-8	-9	-16	-23	-35	-36	-35	-23

Table 5: Assessment of predicted entertainment noise levels break-through: receptor 1st floor living room.

4.5 Noise from Fixed Ventilation and Cooling Plant

4.5.1 Identification of Noise Sources and Receptors

The external plant equipment is situated to the rear of the restaurant. The items of plant associated with the premises can be considered to consist of the following items:

- Toilet Vents
- Kitchen Extraction system
- Condensers for chilled / cold storage equipment.

It is understood that although the nearest residential receptor is the flat directly above the proposed restaurant this is not included in terms of the assessment of the fixed plant as the flat can only be accessed via the restaurant and hence cannot be let or occupied separately from the restaurant itself. Hence, for the purposes of this assessment the nearest off-site receptors that are identified as dwellings are situated along Bartlett Street (approx. 125m in distance).

Parameter	Period	Octave Band Centre Frequency (Hz)							Total dBA
		63	125	250	500	1k	2k	4k	
Measured noise level @1m from rear window $L_{Aeq,2min}$	With kitchen extract and condensers ON	74	76	71	69	65	62	55	71
Noise level extrapolated to 125m, Bartlett St	Externally at the nearest receptor	33	35	30	27	23	21	13	29
Background sound level	External level	58	52	49	48	52	47	36	54
Level relative to background	Externally at the nearest receptor	-21	-16	-19	-25	-23	-13	-14	-22

Table 6: Assessment of noise from the kitchen extract and other external plant

Based on the results set out in table 6 it can be seen that the cumulative noise levels from external plant equipment are significantly below background sound level at the nearest off-site residential receptors (this equates to <29dBA externally at the nearest residential properties).

5.0 Conclusions

Azymuth Acoustics has undertaken an acoustic assessment of potential noise impact from the proposed café / bar situated at the ground floor of 185 – 187 Ashton Old Road, Manchester, M11 2NL. Daytime noise levels in the vicinity are in the range of 70-71dB $L_{Aeq, 5min}$ and 60-62dB $L_{A90, 5min}$ and early night time noise levels are in the range of 70-71dB $L_{Aeq, 5min}$ and 48-54dB $L_{A90, 5min}$.

The existing building envelope and separating floor would allow ground floor activity noise levels up to the limits shown in Table 3 above, with the overall break-through noise level being 25 dBA and as such nominally 23dB below the typical background noise levels in the vicinity of the premises.

The noise break-out levels would also be within the 47 dB and 41 dB limits in the 63 Hz and 125Hz frequency as required in the Manchester city council guidance GD03.

cumulative noise levels from external plant equipment are significantly below background sound level at the nearest off-site residential receptors (this equates to <29dBA externally at the nearest residential properties).

Appendix A – Glossary of Terms

Decibel (dB)

this is the unit used to measure sound. The human ear has an approximately logarithmic response to acoustic pressure over a very large dynamic range (typically 20 micro Pascal to 100 Pascal).

dB (A)

This is a measure of the overall noise level of sound across the audible spectrum with a frequency weighting (i.e. A-weighting) to compensate for the sensitivity of the human ear to sound of different frequencies. The A-weighting curve is implemented in sound level meters using an electronic filter that approximately corresponds to the frequency response of the ear.

Octave Band Noise Level

The human ear is sensitive to sound over a range of frequencies between approximately 20 Hz to 20 kHz. The ear is also generally more sensitive to medium and high frequencies than to low frequencies. In order to define the frequency content of a noise, the spectrum can be divided into frequency bands. The most commonly used frequency bands are octave bands, in which the mid-frequency of each band is twice that of the band below it.

L_{Aeq}

this is the equivalent steady sound level in dB (A) containing the same acoustic energy as the actual fluctuating sound level over a given time period.

Reverberation Time (RT or sometimes T_{30} or T_{60})

This is the time taken for the reverberant sound energy in an enclosure to decay one millionth of its equilibrium value, i.e. by 60 dB, after the source has been switched off, is known as the reverberation time. The reverberation time is frequency dependent and it is customary to measure its value in octave or one-third octave bands. Reverberation occurs when sound waves are repeatedly reflected from each surface of the room.

Sound Reduction Index (SRI)

Difference measured between the amount of energy flowing towards the wall in the source room and the total amount of energy flowing towards the wall in the source room and the total amount of energy entering the receiving room (usual range 100 - 3150 Hz for one third octave band values). The SRI varies with frequency and is measured in a laboratory in either octave or one-third octave bands.

$$SRI = L_1 - L_2 + 10 \log (S/A)$$

Where: L_1 = Noise level in the source room

L_2 = Noise levels in the receiving room

S = Surface area of test specimen

A = Equivalent acoustic absorption area in the receiving room

Weighted Sound Reduction Index (R_w)

this is a weighted single figure descriptor of the sound insulation performance of a partition measured under laboratory conditions. The procedure used to quantify the R_w is to compare the sound reduction index (SRI) in each of the one-third octave bands from 100Hz to 3150Hz against a set of standard reference curves. Appendix B – Graphical Results of Sound Insulation Tests

Appendix B – Full tabulation of results

Start	Position	Time	L _{Amax}	L _{Aeq}	L _{A1}	L _{A10}	L _{A50}	L _{A90}
5 th March 2019 Day								
12:05	F1	10:00	83.1	71	78.3	74.4	69.4	61.9
12:15	F1	10:00	89.8	70.9	77.8	73.8	69	59.8
12:25	F1	10:00	83.7	70.5	77.5	73.7	69.1	60.6
12:35	F1	10:00	84.2	70.9	79.3	74.4	68.7	59.4
12:45	F1	10:00	89.9	71.8	80.3	74.6	69.2	60.5
12:55	F1	10:00	82.2	70.4	77.2	73.6	69.3	60.8
13:05	F1	10:00	92.1	72.6	83.4	74.2	68.5	60.6
13:15	F1	10:00	84	71.3	78.6	74.5	69.8	62.9
13:25	F1	10:00	102.3	76.9	84.1	76.2	70.4	62.2
13:35	F1	10:00	95.4	73.1	81.8	74.9	69.4	61.5
13:45	F1	10:00	86.5	70.8	78.1	74	68.9	61.6
13:55	F1	10:00	95	72.1	81.9	73.7	68.6	57.4
14:05	F1	10:00	86.5	71.3	80.5	74.4	69.1	60.8
14:15	F1	10:00	85.5	71.1	78.3	74.3	69.6	62.2
14:25	F1	10:00	87.9	70.9	78.4	74.1	69.1	60.8
14:35	F1	10:00	89.1	71.1	78.9	74.1	69.1	60.6
14:45	F1	10:00	83.8	70.8	77.5	73.9	69.7	61.5
14:55	F1	10:00	98.2	73.5	78.7	73.8	68.8	60.3
15:05	F1	10:00	89.3	71.2	78.5	74.3	69.4	60.7
15:15	F1	10:00	82.2	71.4	79.2	74.9	69.4	61.4
15:25	F1	10:00	92.4	71.7	79	74.2	69.4	61
15:35	F1	10:00	86	71	78.4	74.7	68.9	60.7
15:45	F1	10:00	84.2	70.9	77.7	74.5	69.3	62
15:55	F1	10:00	92.8	72.5	80.5	75.4	70.5	64.3
16:05	F1	10:00	87.5	70.8	77.7	73.9	69.4	62.6
16:15	F1	10:00	87.5	71	77.6	74.3	69.5	63.3
16:25	F1	10:00	84.9	71.6	78.4	74.9	70	62.6
16:35	F1	10:00	83.1	71	78.7	74.2	69.4	61.5
16:45	F1	10:00	84.6	71	78.4	74.3	69.3	60.9
16:55	F1	10:00	88.2	71.9	79.8	74.9	70	60.5
17:05	F1	10:00	82.6	70.7	77.4	74.2	69.3	59.4
17:15	F1	10:00	104.8	79.5	84.5	74.8	70.2	62.6
17:25	F1	10:00	101	74.9	79.6	75.3	69.4	57.5
17:35	F1	10:00	83.3	71.8	78	75.5	70.5	58.6
17:45	F1	10:00	95.4	73.9	83.3	75.4	70.1	60.7
17:55	F1	10:00	92	71	78.9	74.3	68.5	60.1
18:05	F1	10:00	82.1	70.5	77.8	74.2	68.6	59.3
18:15	F1	10:00	91.7	70.9	77.9	74.2	69	59.8
18:25	F1	10:00	90.1	71.5	79.4	74.9	68.9	57.1



18:35	F1	10:00	83	70	77.3	73.7	68.6	55.7
18:45	F1	10:00	81.3	70.7	77.9	74.1	69.2	58.7
18:55	F1	10:00	82.5	70.5	77.2	74.2	68.5	59.1
19:05	F1	10:00	88.2	70.4	77.9	74.2	68.1	57.1
19:15	F1	10:00	88.5	70.8	78.7	74.6	67.6	59.2
19:25	F1	10:00	84.2	70.4	77.7	74.1	68.2	58
19:35	F1	10:00	83	69.9	77.6	73.6	67.8	56.3
19:45	F1	10:00	91.8	71.3	82.1	73.4	65.7	55.5
19:55	F1	10:00	85.7	69.3	78	72.8	66.1	56.6
20:05	F1	10:00	79.7	69.1	77	73.6	65.2	54
20:15	F1	10:00	83.1	69.8	78.5	73.5	66.5	56.3
20:25	F1	10:00	86.3	69.4	76.8	73	66.7	56.9
20:35	F1	10:00	82.6	69.7	78.6	73.8	66.2	55.2
20:45	F1	10:00	80.7	69.5	77.5	73.7	66.7	55
20:55	F1	10:00	101.4	72.2	80.7	73.7	65	54.6
21:05	F1	10:00	80.8	69.6	78.1	74.1	65.2	55.3
21:15	F1	10:00	84.7	69.6	77.8	73.7	65.8	53.1
21:25	F1	10:00	83	70	78.9	74	66.4	55.1
21:35	F1	10:00	97.8	72.7	80.8	73.8	65.3	54.7
21:45	F1	10:00	80.8	68.7	77.7	73	64.8	54.5
21:55	F1	10:00	85.3	68.8	77.6	73.7	61.8	50.9
22:05	F1	10:00	81.8	68.9	77.7	73.7	62.6	49.9
22:15	F1	10:00	80.7	69.3	77.5	73.7	65	55.4
22:25	F1	10:00	81.2	69.4	78.2	73.8	65.5	54.7
22:35	F1	10:00	80.7	68.8	77.9	73.6	62.9	52.1
22:45	F1	10:00	81.3	68.3	77.3	73	62.9	52.5
6 th March 2019 Night								
22:55	F1	10:00	81.4	68.4	78	73.5	61.2	51
23:05	F1	10:00	80.9	68.4	78.2	73.1	61.4	50.9
23:15	F1	10:00	81	67.5	77	72.6	60.2	51.7
23:25	F1	10:00	82	68.4	78.6	72.8	60.6	52.6
23:35	F1	10:00	80.1	67.3	77.6	72	59.9	50.8
23:45	F1	10:00	88.3	68.2	79.6	71.9	57.2	49.3
23:55	F1	10:00	84.6	67.5	78.1	71.9	58.5	50.3
00:05	F1	10:00	81.3	66.4	77	71.4	57.4	51.3
00:15	F1	10:00	80.5	65.9	77.3	70.6	55.8	48.2
00:25	F1	10:00	79.8	65.2	75.9	70.2	56.9	48.7
00:35	F1	10:00	81	65.2	76.2	70.1	55.4	48.7
00:45	F1	10:00	80.8	64.4	76.1	68.9	53.9	48
00:55	F1	10:00	79.4	65.1	75.6	70.1	57.2	49.8
01:05	F1	10:00	82.3	65.7	77.6	69.4	54.5	46.2
01:15	F1	10:00	84.5	68	80.1	71.6	58.7	49.7
01:25	F1	10:00	77.7	61.5	74.4	63.8	49.8	44.1



01:35	F1	10:00	82.1	64.8	76.6	69	53.1	46.2
01:45	F1	10:00	80.6	62.8	74.4	66.9	52.7	47.2
01:55	F1	10:00	82.7	66.1	78.1	70	56.5	48.1
02:05	F1	10:00	79.3	63.5	75.4	67.2	52.4	44.5
02:15	F1	10:00	82.4	63.8	76.2	66.9	51.1	44.8
02:25	F1	10:00	85.3	65.2	77	68.1	52.8	44.7
02:35	F1	10:00	82.3	63.5	75.7	67.1	50.2	43.7
02:45	F1	10:00	82.1	63.2	74.8	66.9	53.4	46.2
02:55	F1	10:00	81.5	63.6	75.9	67.1	53	45.7
03:05	F1	10:00	81.4	64.1	75.9	68	54.1	46.5
03:15	F1	10:00	82.1	63.4	75	67.6	52.2	44.7
03:25	F1	10:00	81.2	61.5	73.5	64.6	52	45.1
03:35	F1	10:00	83.2	64.2	76.6	67.2	51.4	45.3
03:45	F1	10:00	82.4	62.5	74.1	66.1	51.3	44.5
03:55	F1	10:00	78.5	63.8	74.7	68.1	55.7	47.9
04:05	F1	10:00	85.4	66.3	76.8	70.1	59.3	49.8
04:15	F1	10:00	81.6	65.3	76.9	68.8	56.7	44.9
04:25	F1	10:00	78.3	64.3	75	69.4	54.9	45.9
04:35	F1	10:00	82.2	65	75.2	69.4	57.3	48.7
04:45	F1	10:00	81.9	67.5	77.6	71.9	60.8	52.2
04:55	F1	10:00	77.6	65.2	75.1	70	58.5	49.9
05:05	F1	10:00	86.5	66.5	77.1	70.6	57.5	48.7
05:15	F1	10:00	84.3	64.2	74.4	68.8	56.4	50.3
05:25	F1	10:00	84.2	67.8	76.6	72	63	53.8
05:35	F1	10:00	80.1	67.6	77.5	71.8	60.8	53.7
05:45	F1	10:00	84.3	69.8	79.8	73.8	63.9	55.4
05:55	F1	10:00	82.3	69.9	78.5	73.9	66.9	57.9
06:05	F1	10:00	82.7	68.7	77.2	72.6	65.4	56.3
06:15	F1	10:00	83.5	70.6	77.6	74.2	68.7	59.3
06:25	F1	10:00	83.2	71.2	78.8	74.9	69	59.7
06:35	F1	10:00	89.8	71.8	79.3	75	70	61.2
06:45	F1	10:00	81.2	71.3	77.9	74.9	70	59.7
6 th March 2019 Day								
06:55	F1	10:00	84.6	72.1	79.2	75.2	71	60.3
07:05	F1	10:00	81.5	71.7	79.4	74.7	70.5	61.5
07:15	F1	10:00	86.3	72.2	79.4	75.3	71.1	60.3
07:25	F1	10:00	82.5	72	78.6	74.9	71.1	64
07:35	F1	10:00	80.7	71.2	77.8	74.5	70	60.4
07:45	F1	10:00	90	72.7	82.6	75.1	70.2	59.4
07:55	F1	10:00	86.4	72.1	78.9	75.1	71	63.9
08:05	F1	10:00	81.6	71.4	78	74.8	70	62.4
08:15	F1	10:00	85.8	71.8	78.6	74.9	70.6	62.5
08:25	F1	10:00	87.1	71.8	78.7	75	70.4	63.6



08:35	F1	10:00	86.2	71.5	78.6	74.5	70.4	60.3
08:45	F1	10:00	100.7	74.5	77.8	74.2	69.5	60.1
08:55	F1	10:00	88.3	71.5	78.5	74	70.1	63.2
09:05	F1	10:00	81.8	70.5	77.7	74.1	69	59.3
09:15	F1	10:00	85.1	70.9	78.5	74	69.6	59.3
09:25	F1	10:00	87.8	71.8	79.6	75.2	69.6	61.9
09:35	F1	10:00	88.7	71.3	78.5	74.2	69.6	60.6
09:45	F1	10:00	85.5	71.1	77.8	74.5	69.6	61.9
09:55	F1	10:00	82.6	70.6	77.3	74.2	69.1	59.1
10:05	F1	10:00	87.9	70.8	78.1	74.2	68.9	60.9
10:15	F1	10:00	83.3	70.2	77.4	73.7	68.5	59.7
10:25	F1	10:00	82.8	70.5	77.8	73.4	69.4	60.5