

Terrestrial Television Baseline Survey Report

Etihad Campus

Manchester City Football Club

February 2026



ADMINISTRATION PAGE

Job Reference:	15366A2
Author:	Phillip Charhill
Email:	phillip@pagerpower.com
Telephone:	01787 319 001

Reviewed By:	Cameron Sabouni; Hannah Lucey
Email:	cameron@pagerpower.com; hannah@pagerpower.com

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Stour Valley Business Centre, Brundon Lane, Sudbury, CO10 7GB

T: +44 (0)1787 319001 E: info@pagerpower.com W: www.pagerpower.com

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EXECUTIVE SUMMARY

Report Purpose

Pager Power has been commissioned to investigate the potential impact upon terrestrial television reception in the surrounding area of a proposed building development in Manchester.

The proposed development is located at the Etihad Stadium, off Alan Turing Way. This report serves as a baseline to establish current terrestrial television signal strength and reception quality along with a prediction of the expected impact.

Findings

- A baseline site survey was undertaken on the 28th of January 2026 to record the baseline terrestrial television signal strength and quality. The site survey also confirmed that the Winter Hill transmitter is the main transmitter serving the area surrounding the proposed development;
- The average terrestrial signal strength is very good in the development shadow zone for the main multiplexes and good for the local (lower power) multiplexes;
- Negative effects upon signal strength are typically limited to within 1km of the development and within its shadow zone based on Pager Power's industry experience;
- Commercial properties are predominately located within 1km of the development. The signal strength within this range was recorded as very good for the main multiplexes, and moderate for the local multiplexes. A reduction in signal strength is considered unlikely; however, effects cannot be entirely ruled out considering the baseline signal strength of the local multiplexes;
- Any interference would be due to shadowing effects i.e. the weakening of the transmitted signal due to the physical presence of the buildings;
- At locations beyond 1km and within the shadow zone, the signal strength was on average very good for the main multiplexes, and good for the local multiplexes. Effects at this range are likely to be relatively small based on previous experience.

Mitigation

No requirement for pre-emptive mitigation has been identified.

In the event that effects are reported, it is recommended that a reception measurement is undertaken (post-construction) to investigate the likely cause of the interference.

Mitigation measures should be installed if reported effects are found to be attributable to the development. Solutions are likely to be readily available if required, the most common options are presented in Section 6.



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ABOUT PAGER POWER

Pager Power is a specialist technical consultancy based in the United Kingdom and has been providing independent expertise on planning issues for solar, wind, and building developments for over 20 years.

Established in 1997, the company initially specialised in assessing the impact of wind turbines on radar systems. Pager Power has since expanded into a multidisciplinary technical planning consultancy that offers a comprehensive range of services and has supported renewable and building projects in more than 60 countries.

Pager Power's core competencies now include:

- Aviation and Radar;
- Daylight, Sunlight and Overshadowing;
- Glint and Glare;
- Shadow Flicker;
- Telecommunications.

Using proprietary modelling software, each study is tailored to the individual project, ensuring that results are relevant, defensible, and aligned with current national and international standards. The company also provides planning support and stakeholder consultation across all service areas, helping clients to understand constraints, explore potential mitigation options, and forge a path forward for their projects.

Pager Power's work helps our clients identify potential risks, inform project design, and support the decision-making process, and can provide support at any stage of a project, from initial feasibility through to completion. Pager Power's assessments – recognised for their objectivity, accuracy, and technical integrity – are designed to withstand legal scrutiny and trusted by developers and stakeholders alike.

1 PROPOSED DEVELOPMENT DETAILS

1.1 Introduction

Pager Power has been commissioned to investigate the potential impact upon terrestrial television reception in the surrounding area of a proposed building development in Manchester.

The proposed development is located at the Etihad Stadium, off Alan Turing Way. This report serves as a baseline to establish current terrestrial television signal strength and reception quality along with a prediction of the expected impact.

1.2 Development Location and Details

The site layout plan¹ is shown in Figure 1 below. The maximum height of the proposed development is to be no more than 16m above ground level.

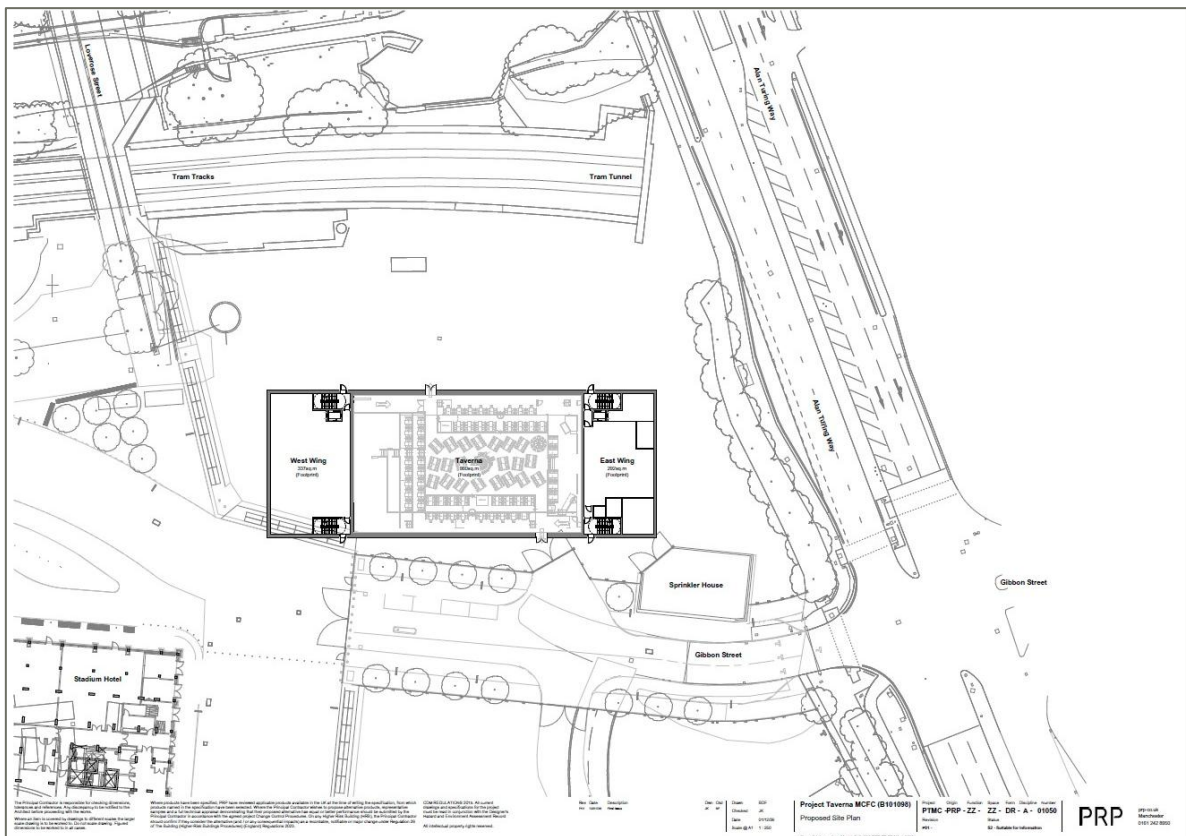


Figure 1 Site layout plan

¹ Source: PTMC-PRP-ZZ-ZZ-DR-A-01050 P01 Proposed Site Plan.pdf

2 TELEVISION TRANSMITTER DETAILS

2.1 Relevant Transmitter

Winter Hill is one of the UK's main television transmitters located approximately 25km northwest of the development. The Winter Hill transmitter serves the area around the development.

Digital television services are broadcast via Ultra High Frequency (UHF) signals; no analogue television signals are broadcast. The transmitter information is presented below².

2.2 Winter Hill Main Transmitter

The main Winter Hill television transmissions are shown in Table 1 below.

	Public (PSB)			Commercial (COM)		
Service	BBC A	Digital 3&4	BBC B	SDN	Arqiva A	Arqiva B
Channel	32	34	35	29	31	37
Power	100 kilo-Watts (kW)					

Table 1 *Winter Hill main transmissions*

Local Winter Hill television transmissions provided in Manchester are shown in Table 2 below.

	Local Multiplexes	
Service	LTVmux	Glmux
Channel	24	27
Power	2 kW	1 kW

Table 2 *Winter Hill additional transmissions*

² Source: Ofcom.

3 BUILDINGS AND TELEVISION INTERFERENCE

3.1 Technical Overview

Terrestrial television services are provided by means of UHF radio waves which propagate from transmitters to receiving aerials which then relay the signal to a television set.

The quality of the image and sound on a television set is dependent on both the strength of the signal received directly from the transmitter (carrier signal) and the strength of any interference signals from other sources.

To achieve good quality reception an aerial must receive a strong carrier signal but weak interference signals.

3.2 Interference mechanisms

There are two ways that buildings can cause interference to television reception, these are described below.

3.2.1 Obstruction of the Signal

This is caused by the building physically blocking the transmitted television signal, reducing the strength of the carrier signal in the shadow of the building. In the case of Winter Hill transmissions, this would affect residences to the southeast of the development. Specifically:

- The highest losses (greatest interference) will be located immediately behind the building;
- Losses near the edge of the shadow zone will be less significant due to diffraction effects (bending of the signal).

The Ofcom document states that:

“In general, there will be three ‘zones’ behind the structure:

Zone A - close behind the structure (typically a few tens of metres) there may be a large reduction in signal level with a possible complete loss of reception

Zone B - further away (typically a few hundred metres) the signal reduction is less severe and the shadow will be smaller as diffraction effects partially fill in the shadow. Depending on the size of the structure, some locations could still lose reception completely

Zone C - some distance away (1-5km) the shadow will effectively have disappeared.”

The zones mentioned are illustrated in Figure 2 on the following page³, taken from Section 3.2 of an Ofcom paper⁴ regarding the impact of buildings on broadcast signals.

³ Source: Ofcom (2009): Tall Structures and their impact on broadcast and other wireless services.

⁴ Reference as above.

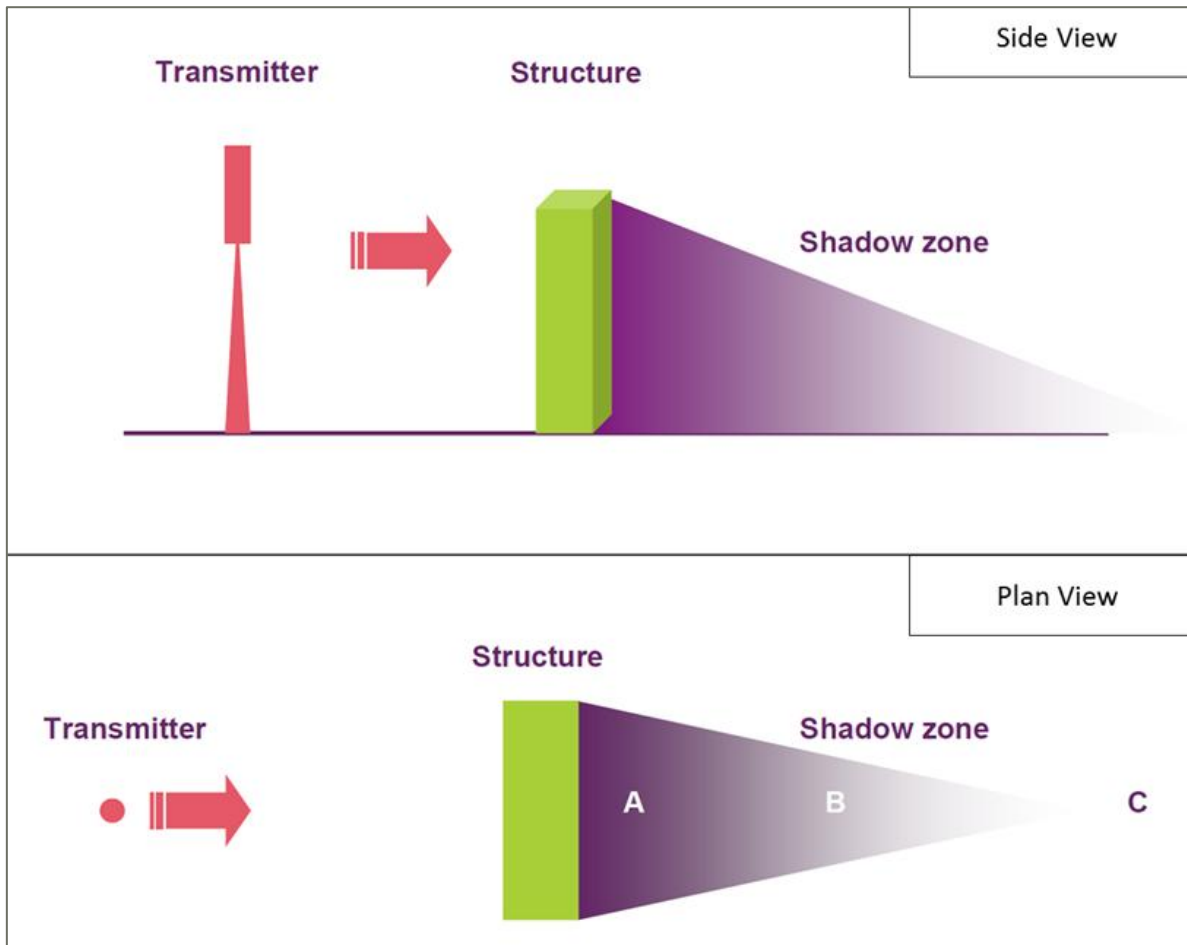


Figure 2 Diffraction loss zones

3.2.2 Reflection of the Signal

For large developments with straight edges, the transmitted signal can be reflected by the building itself. This causes an effect known as ‘multipath interference’ whereby the signal is received twice by an aerial at different times. The direct signal arrives first because it has a shorter distance to travel.

Figure 3 on the following page (taken from Section 3.3 of the Ofcom document referenced above) illustrates this effect.

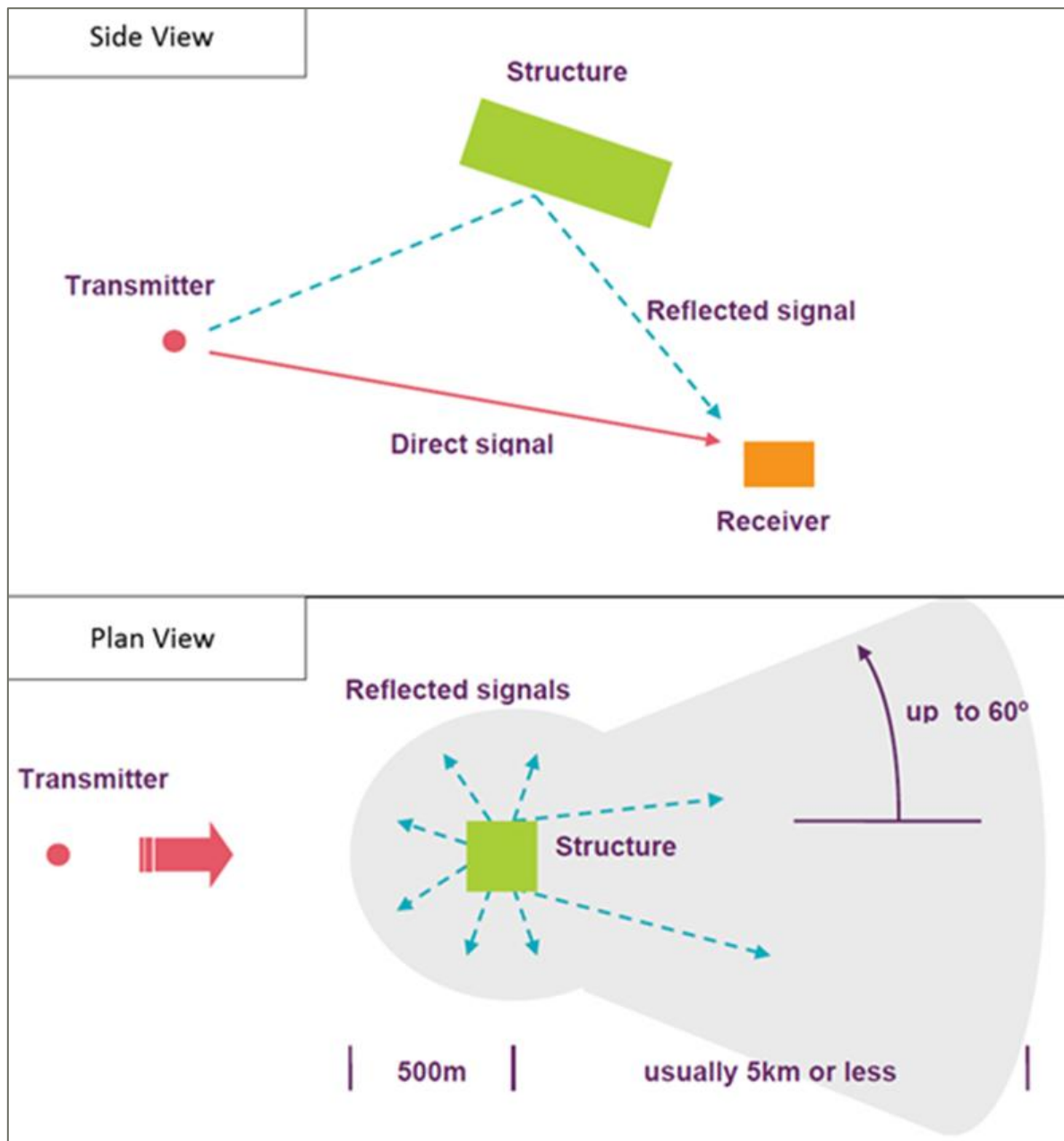


Figure 3 *Reflection zones*

In practice, it is considered highly unlikely that reflections will have an effect for receivers in front of the building or on either side when viewed from the location of the transmitter. For digital transmissions in particular, it is unlikely that issues will occur if the angle between the direct signal and the reflected signal is more than 30 degrees⁵.

⁵ This is known to be the angle that Arqiva considers when safeguarding its Television Re-Broadcast Links with regard to reflections from wind turbines – whilst wind turbines cause issues that are different to buildings this particular issue is similar for the two.

The reflection zone has been constructed in accordance with the Ofcom approach, however the angle considered is 30 degrees rather than 60 degrees. This is in order to represent a more realistic scenario for digital transmissions.

Reflection issues are most likely to cause a noticeable impact if:

- The direct signal from transmitter to receiver is weak (e.g. obstructed by terrain or buildings);
- The reflected signal from the building is strong (e.g. clear radio line of sight from the transmitter to the building and the building to the receiver).

The worst-case scenario is for both of the above conditions to be satisfied. The best-case scenario is for neither of the above conditions to be satisfied.

4 TECHNICAL ASSESSMENT

4.1 Potential Interference Areas

The shadow and reflection zones have been defined based on the geometry as set out in the previous section. Both zones extend to a distance of 5km beyond the development location in accordance with the Ofcom guidance.

In the case of the shadow zone, this has been modelled as having straight sides in order to be conservative. In actuality, due to diffraction effects, the zone would have a more triangular shape as shown in Figure 3 in the previous section. Figure 4 below shows the potential interference areas (reflection and shadow zones) associated with the development.

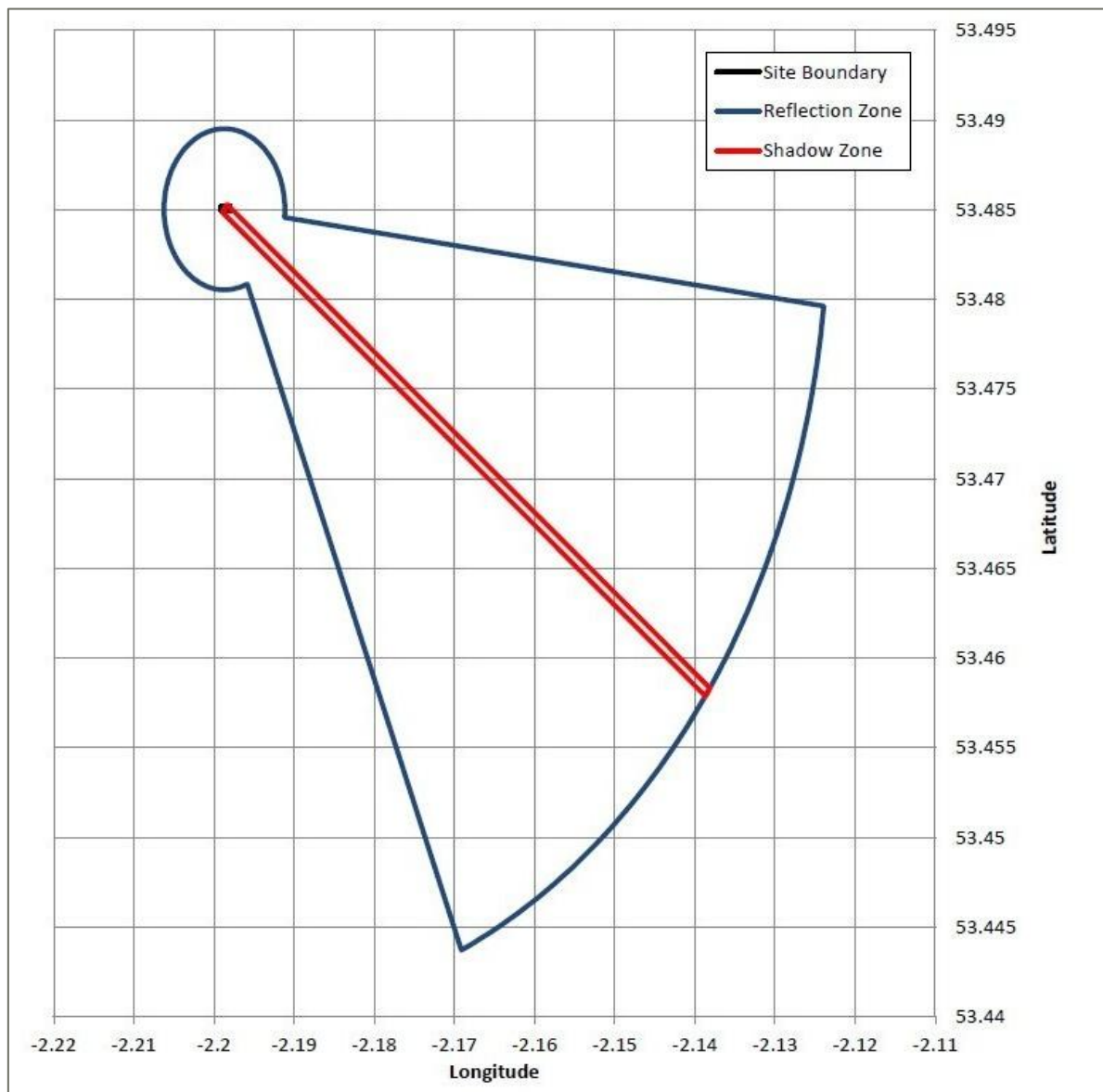


Figure 4 *Interference areas*

Figure 5 below shows the interference zones overlaid upon aerial imagery.

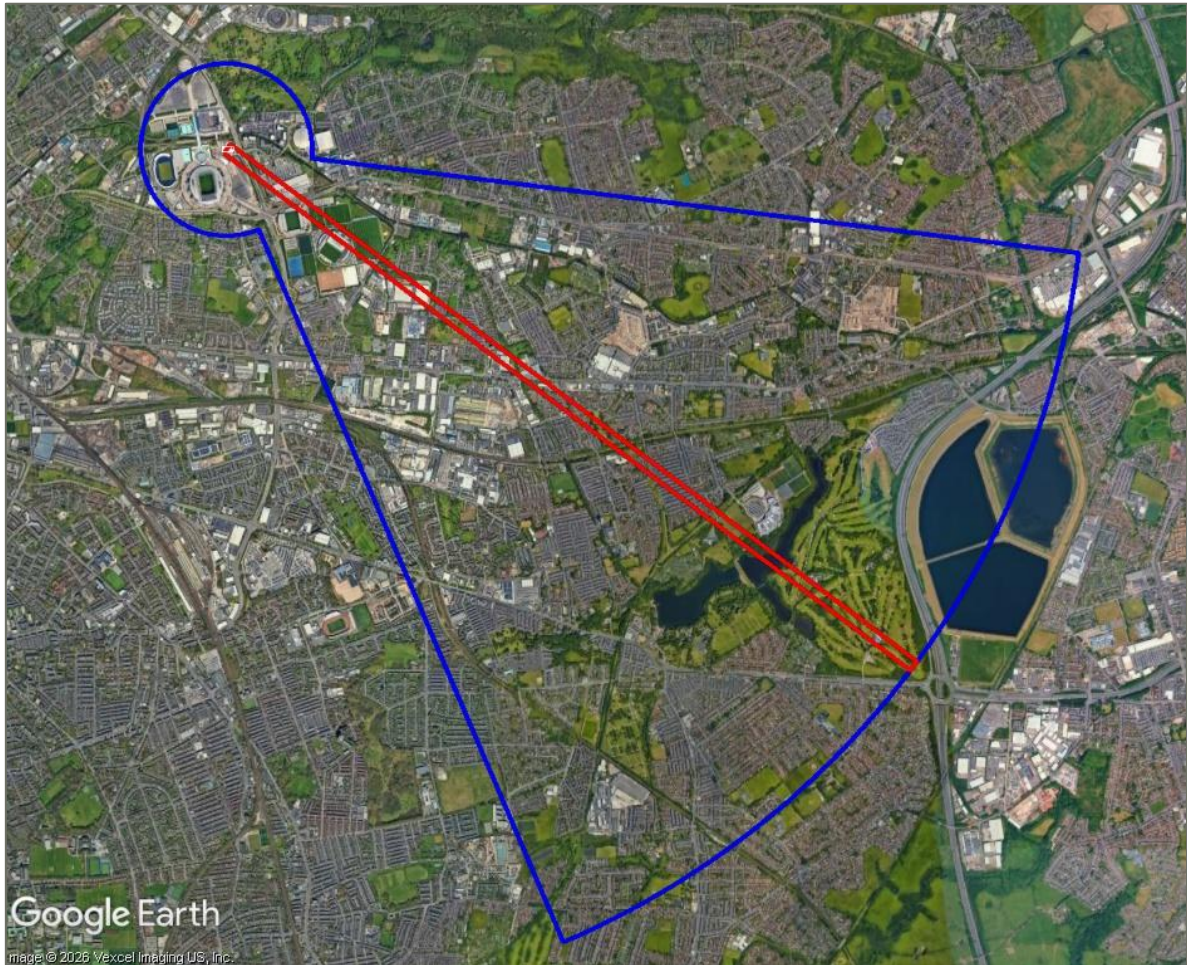


Figure 5 *Interference zones map*

4.2 Potential Diffraction Issues

The shadow zone passes over urban areas that contain commercial and residential buildings. Areas closest to the development are at the highest risk of experiencing television interference. This is typically limited to 1km based on Pager Power's assessment experience. Commercial buildings and playing fields are located within 1km of the development shadow zone. No residential dwellings have been identified within 1km of the development.

4.3 Potential Reflection Issues

Reflection effects are most likely if the transmitter does not have direct radio line of sight to the receiving aerial.

The predicted coverage of the Winter Hill transmitter is generally good in the surrounding area. Interference due to reflections are most likely when:

- The receiving aerial is unobstructed by existing obstacles;
- The reflected signal path via the development is unobstructed;
- The angle between the reflected signal via the development and the direct signal is small.

Interference is most likely if all of the above criteria are met. Interference is least likely if none of the above criteria are met.

In practice it is unlikely that all of the above criteria would be met for the development. In particular, locations that are below radio line of sight from the transmitter are unlikely to have an unobstructed path to the development, due to their relative heights. Impacts due to reflections are considered unlikely.

5 TELEVISION BASELINE SURVEY

5.1 Overview

The purpose of a baseline survey is to establish current signal strength and quality in the area. The baseline survey serves three purposes these are:

1. It confirms which transmitter is serving most homes in the areas surveyed (for television);
2. It provides an indicator regarding the likelihood of interference. If current signals are of good quality, minor degradation is less likely to have a noticeable effect;
3. It allows a 'before and after' comparison to be made in the event that a complaint is received.

A baseline television reception survey was undertaken for the development on the 28th of January 2026.

Survey measurements were taken using Pager Power's custom survey vehicle with a wideband UHF aerial extended to a height of 10 metres above ground level. This was connected to television analyser to record the signal strength and stability.

The strength of the recorded signals is categorised in accordance with Table 3 below.

Average Signal Strength (dB)	Subjective Signal Strength Definition
<35	Low
35 – 45	Moderate
45 – 55	Good
55+	Very Good

Table 3 *Signal strength categories*

5.2 Survey Locations

Figure 6 below shows the survey locations overlaid onto aerial photography. The development location and the shadow zone are also shown. More readings are typically carried out closer to the building. This is because interference is generally more likely the closer the location is to the obstruction. Survey locations were chosen pre-survey (within the shadow zone); however, safe and available access influenced the specific position on the day. The locations in Figure 6 below show the actual survey locations. Television measurements were taken at survey locations 1 to 7.



Figure 6 Survey locations

5.3 Survey Results

A summary of the television survey results is presented in Table 4 below and on the following pages. Detailed survey results are shown in Appendix A. Survey photography is shown in Appendix B.

Location	Average Measured Signal Strength (dB)	Remarks	High Level Conclusion
1	<p>Overall average: 57.2 (Very Good)</p> <p>Main TV MUX⁶: 62.9 (Very Good)</p> <p>Local TV MUX: 40.0 (Moderate)</p>	<p>One horizontally polarised aerial was observed at this location.</p> <p>All main multiplexes displayed fine picture and audio quality. An average of moderate signal strength and signal fluctuations of less than or equal to 0.3dB.</p> <p>Both local multiplexes displayed fine picture and audio quality. An average of low signal strength and signal fluctuations of less than or equal to 0.4dB.</p>	<p>The survey location is approximately 100m from the development and within its shadow zone.</p> <p>Predominately multistorey commercial buildings adjacent to this location.</p> <p>A reduction in signal strength is possible based on the proximity to the development. Effects in this area cannot be entirely ruled out, particularly for the local multiplexes.</p>

⁶ Multiplex.



Location	Average Measured Signal Strength (dB)	Remarks	High Level Conclusion
2	<p>Overall average: 55.5 (Very Good)</p> <p>Main TV MUX: 60.0 (Very Good)</p> <p>Local TV MUX: 42.0 (Moderate)</p>	<p>No aerials or satellite dishes were observed at this location.</p> <p>All main multiplexes displayed fine picture and audio quality. An average of moderate signal strength and signal fluctuations of less than or equal to 0.3dB.</p> <p>Both local multiplexes displayed fine picture and audio quality. An average of low signal strength and signal fluctuations of less than or equal to 0.2dB.</p>	<p>The survey location is approximately 215m from the development and within its shadow zone.</p> <p>Predominately multistorey commercial buildings adjacent to this location.</p> <p>A reduction in signal strength is possible based on the proximity to the development. Effects in this area cannot be entirely ruled out, particularly for the local multiplexes.</p>
3	<p>Overall average: 54.5 (Good)</p> <p>Main TV MUX: 58.5 (Very Good)</p> <p>Local TV MUX: 42.0 (Moderate)</p>	<p>Multiple horizontally polarised aerials and satellite dishes were observed at this location.</p> <p>All main multiplexes displayed fine picture and audio quality. An average of moderate signal strength and signal fluctuations of less than or equal to 1.0dB.</p> <p>Both local multiplexes displayed fine picture and audio quality. An average of low signal strength and signal fluctuations of less than or equal to 0.2dB.</p>	<p>The survey location is approximately 1.19km from the development and within its shadow zone.</p> <p>Predominately low-rise residential housing adjacent to this location.</p> <p>Effects at this range are likely to be relatively small based on previous experience. Based on the current signal quality, effects are unlikely to be noticeable for the main multiplexes. Effects upon local multiplexes are considered possible due to current signal strength.</p>



Location	Average Measured Signal Strength (dB)	Remarks	High Level Conclusion
4	<p>Overall average: 71.0 (Very Good)</p> <p>Main TV MUX: 76.2 (Very Good)</p> <p>Local TV MUX: 55.4 (Very Good)</p>	<p>Multiple horizontally polarised aerials and satellite dishes were observed at this location.</p> <p>All main multiplexes displayed fine picture and audio quality. An average of moderate signal strength and signal fluctuations of less than or equal to 0.2dB.</p> <p>Both local multiplexes displayed fine picture and audio quality. An average of low signal strength and signal fluctuations of less than or equal to 0.3dB.</p>	<p>The survey location is approximately 1.81km from the development and within its shadow zone.</p> <p>Predominately low-rise residential housing adjacent to this location.</p> <p>Effects at this range are likely to be relatively small based on previous experience. Based on the current signal quality, effects are unlikely to be noticeable for the main multiplexes. Effects upon local multiplexes are considered possible due to current signal strength.</p>
5	<p>Overall average: 69.6 (Very Good)</p> <p>Main TV MUX: 74.7 (Very Good)</p> <p>Local TV MUX: 54.2 (Good)</p>	<p>Multiple horizontally polarised aerials and satellite dishes were observed at this location.</p> <p>All main multiplexes displayed fine picture and audio quality. An average of moderate signal strength and signal fluctuations of less than or equal to 0.2dB.</p> <p>Both local multiplexes displayed fine picture and audio quality. An average of low signal strength and signal fluctuations of less than or equal to 0.2dB.</p>	<p>This location is approximately 2.43km from the development.</p> <p>Predominately low-rise residential housing adjacent to this location.</p> <p>Effects at this range are likely to be relatively small based on previous experience. Based on the current signal quality, effects are unlikely to be noticeable for the main multiplexes. Effects upon local multiplexes are considered possible due to current signal strength.</p>



Location	Average Measured Signal Strength (dB)	Remarks	High Level Conclusion
6	<p>Overall average: 68.8 (Very Good)</p> <p>Main TV MUX: 73.9 (Very Good)</p> <p>Local TV MUX: 53.5 (Good)</p>	<p>Multiple horizontally polarised aerials and satellite dishes were observed at this location.</p> <p>All main multiplexes displayed fine picture and audio quality. An average of moderate signal strength and signal fluctuations of less than or equal to 0.2dB.</p> <p>Both local multiplexes displayed fine picture and audio quality. An average of low signal strength and signal fluctuations of less than or equal to 0.2dB.</p>	<p>This location is approximately 3.27km from the development.</p> <p>Predominately low-rise residential housing adjacent to this location.</p> <p>Effects at this range are likely to be relatively small based on previous experience. Based on the current signal quality, effects are unlikely to be noticeable for the main multiplexes. Effects upon local multiplexes are considered possible due to current signal strength.</p>
7	<p>Overall average: 63.0 (Very Good)</p> <p>Main TV MUX: 67.7 (Very Good)</p> <p>Local TV MUX: 49.0 (Good)</p>	<p>Multiple horizontally polarised aerials were observed at this location.</p> <p>All main multiplexes displayed fine picture and audio quality. An average of moderate signal strength and signal fluctuations of less than or equal to 0.2dB.</p> <p>Both local multiplexes displayed fine picture and audio quality. An average of low signal strength and signal fluctuations of less than or equal to 0.3dB.</p>	<p>This location is approximately 4.18km from the development.</p> <p>Predominately low-rise residential housing adjacent to this location.</p> <p>Effects at this range are likely to be relatively small based on previous experience. Based on the current signal quality, effects are unlikely to be noticeable for the main multiplexes. Effects upon local multiplexes are considered possible due to current signal strength.</p>

Table 4 Terrestrial television baselinesurvey results



6 MITIGATION

6.1 Mitigation Requirement

If an adverse effect on television services occurs and is attributable to the development, mitigation may be required. The most effective form of mitigation is dependent on the specific impact. Common options are shown below.

Mitigation options include:

- Replacement of receiving aerial with a more directional or higher gain aerial;
- Repositioning the receiving aerial so that the received signal is stronger;
- Directing the receiving aerial to an alternative transmitter that covers the area and retuning the television accordingly;
- Upgrading antenna cabling and connections;
- Installation of signal amplifiers;
- Development of a bespoke local solution using a receiving aerial some distance from the dwelling;
- A combination of the above;
- Replacing terrestrial reception equipment with satellite reception equipment or cable.

6.2 Recommended Options

If interference were to occur for a small number of dwellings, it is likely that the installation of a satellite television receiver would be the most suitable option.

If effects are experienced for dwellings with poor quality or low receiving aerials, the best option may be to upgrade and/or elevate the existing aerial.

6.3 Recommended Process

It is possible that no adverse effects will occur due to the current reception quality in the surrounding area.

It is therefore recommended to investigate any reports of interference in order to determine whether these are attributable to the development. If this is found to be the case, mitigation can be applied.

There is no reason to install pre-emptive mitigation.

7 OVERALL CONCLUSIONS

7.1 Findings

- A baseline site survey was undertaken on the 28th of January 2026 to record the baseline terrestrial television signal strength and quality. The site survey also confirmed that the Winter Hill transmitter is the main transmitter serving the area surrounding the proposed development;
- The average terrestrial signal strength is very good in the development shadow zone for the main multiplexes and good for the local (lower power) multiplexes;
- Negative effects upon signal strength are typically limited to within 1km of the development and within its shadow zone based on Pager Power's industry experience;
- Commercial properties are predominately located within 1km of the development. The signal strength within this range was recorded as very good for the main multiplexes, and moderate for the local multiplexes. A reduction in signal strength is considered unlikely; however, effects cannot be entirely ruled out considering the baseline signal strength of the local multiplexes;
- Any interference would be due to shadowing effects i.e. the weakening of the transmitted signal due to the physical presence of the buildings;
- At locations beyond 1km and within the shadow zone, the signal strength was on average very good for the main multiplexes, and good for the local multiplexes. Effects at this range are likely to be relatively small based on previous experience.

7.2 Mitigation

No requirement for pre-emptive mitigation has been identified.

In the event that effects are reported, it is recommended that a reception measurement is undertaken (post-construction) to investigate the likely cause of the interference.

Mitigation measures should be installed if reported effects are found to be attributable to the development. Solutions are likely to be readily available if required, the most common options are presented in Section 6.



APPENDIX A – DETAILED SURVEY RESULTS

Location 1

Coordinates: Lon: 53.484460, Lat: -2.197569					
Channel	Service	Signal Strength (dBμV)	BER	Picture	Audio
24	LTVmux	44.0 +/- 0.3	1x10 ⁻⁸	Fine	Fine
27	Glmux	36.0 +/- 0.4	1x10 ⁻⁴	Fine	Fine
29	SDN	61.9 +/- 0.2	1x10 ⁻⁷	Fine	Fine
31	Arqiva A	63.4 +/- 0.2	1x10 ⁻⁷	Fine	Fine
32	BBC A	64.5 +/- 0.2	1x10 ⁻⁷	Fine	Fine
34	Digital 3&4	63.0 +/- 0.3	1x10 ⁻⁷	Fine	Fine
35	BBC B	61.7 +/- 0.1	1x10 ⁻⁷	Fine	Fine
37	Arqiva B	63.0 +/- 0.2	1x10 ⁻⁷	Fine	Fine

Notes: One horizontally polarised aerial observed.

Location 2

Coordinates: Lon: 53.484092, Lat: -2.195903					
Channel	Service	Signal Strength (dBμV)	BER	Picture	Audio
24	LTVmux	47.0 +/- 0.2	1x10 ⁻⁷	Fine	Fine
27	Glmux	37.0 +/- 0.1	1x10 ⁻³	Fine	Fine
29	SDN	60.1 +/- 0.2	1x10 ⁻⁷	Fine	Fine
31	Arqiva A	58.7 +/- 0.3	1x10 ⁻⁷	Fine	Fine
32	BBC A	61.1 +/- 0.2	1x10 ⁻⁷	Fine	Fine
34	Digital 3&4	62.0 +/- 0.2	1x10 ⁻⁷	Fine	Fine
35	BBC B	60.5 +/- 0.2	1x10 ⁻⁷	Fine	Fine
37	Arqiva B	57.5 +/- 0.2	1x10 ⁻⁷	Fine	Fine

Notes: No satellites dishes or aerials observed.

Location 3

Coordinates: Lon: 53.478809, Lat: -2.184083					
Channel	Service	Signal Strength (dBμV)	BER	Picture	Audio
24	LTVmux	44.0 +/- 0.2	1x10 ⁻⁷	Fine	Fine
27	Glmux	40.0 +/- 0.2	1x10 ⁻⁷	Fine	Fine
29	SDN	63.4 +/- 0.2	1x10 ⁻⁷	Fine	Fine
31	Arqiva A	58.7 +/- 0.2	1x10 ⁻⁷	Fine	Fine
32	BBC A	55.0 +/- 0.2	1x10 ⁻⁷	Fine	Fine
34	Digital 3&4	58.0 +/- 0.2	1x10 ⁻⁷	Fine	Fine
35	BBC B	58.2 +/- 0.2	1x10 ⁻⁸	Fine	Fine
37	Arqiva B	57.5 +/- 1.0	1x10 ⁻⁷	Fine	Fine

Notes: Multiple horizontally polarised aerials and satellites dishes observed.

Location 4

Coordinates: Lon: 53.475355, Lat: -2.176883					
Channel	Service	Signal Strength (dBμV)	BER	Picture	Audio
24	LTVmux	59.2 +/- 0.3	1x10 ⁻⁷	Fine	Fine
27	Glmux	51.5 +/- 0.1	1x10 ⁻⁷	Fine	Fine
29	SDN	76.1 +/- 0.1	1x10 ⁻⁷	Fine	Fine
31	Arqiva A	76.8 +/- 0.2	1x10 ⁻⁷	Fine	Fine
32	BBC A	77.0 +/- 0.2	1x10 ⁻⁷	Fine	Fine
34	Digital 3&4	76.0 +/- 0.2	1x10 ⁻⁷	Fine	Fine
35	BBC B	76.2 +/- 0.2	1x10 ⁻⁷	Fine	Fine
37	Arqiva B	75.2 +/- 0.2	1x10 ⁻⁷	Fine	Fine

Notes: Multiple horizontally polarised aerials and satellites dishes observed.

Location 5

Coordinates: Lon: 53.471966, Lat: -2.169322					
Channel	Service	Signal Strength (dBμV)	BER	Picture	Audio
24	LTVmux	55.5 +/- 0.2	1x10 ⁻⁷	Fine	Fine
27	Glmux	52.9 +/- 0.1	1x10 ⁻⁷	Fine	Fine
29	SDN	75.0 +/- 0.2	1x10 ⁻⁷	Fine	Fine
31	Arqiva A	75.0 +/- 0.1	1x10 ⁻⁷	Fine	Fine
32	BBC A	75.0 +/- 0.1	1x10 ⁻⁷	Fine	Fine
34	Digital 3&4	74.3 +/- 0.2	1x10 ⁻⁷	Fine	Fine
35	BBC B	74.6 +/- 0.1	1x10 ⁻⁷	Fine	Fine
37	Arqiva B	74.5 +/- 0.2	1x10 ⁻⁷	Fine	Fine

Notes: Multiple horizontally polarised aerials and satellites dishes observed.

Location 6

Coordinates: Lon: 53.467462, Lat: -2.159178					
Channel	Service	Signal Strength (dBμV)	BER	Picture	Audio
24	LTVmux	54.0 +/- 0.1	1x10 ⁻⁸	Fine	Fine
27	Glmux	53.0 +/- 0.2	1x10 ⁻⁷	Fine	Fine
29	SDN	74.2 +/- 0.2	1x10 ⁻⁷	Fine	Fine
31	Arqiva A	74.5 +/- 0.1	1x10 ⁻⁷	Fine	Fine
32	BBC A	74.6 +/- 0.1	1x10 ⁻⁷	Fine	Fine
34	Digital 3&4	73.6 +/- 0.2	1x10 ⁻⁷	Fine	Fine
35	BBC B	73.7 +/- 0.2	1x10 ⁻⁷	Fine	Fine
37	Arqiva B	73.0 +/- 0.2	1x10 ⁻⁷	Fine	Fine

Notes: Multiple horizontally polarised aerials and satellites dishes observed.

Location 7

Coordinates: Lon: 53.462562, Lat: -2.148239					
Channel	Service	Signal Strength (dBμV)	BER	Picture	Audio
24	LTVmux	50.0 +/- 0.2	1x10 ⁻⁷	Fine	Fine
27	Glmux	48.0 +/- 0.3	1x10 ⁻⁷	Fine	Fine
29	SDN	68.7 +/- 0.2	1x10 ⁻⁷	Fine	Fine
31	Arqiva A	68.1 +/- 0.2	1x10 ⁻⁷	Fine	Fine
32	BBC A	68.0 +/- 0.2	1x10 ⁻⁷	Fine	Fine
34	Digital 3&4	67.7 +/- 0.2	1x10 ⁻⁷	Fine	Fine
35	BBC B	66.7 +/- 0.1	1x10 ⁻⁷	Fine	Fine
37	Arqiva B	66.9 +/- 0.2	1x10 ⁻⁷	Fine	Fine

Notes: Multiple horizontally polarised aerials observed.

APPENDIX B – SURVEY PHOTOGRAPHS



Location 1



Location 2



Location 3



Location 4



Location 5



Location 6



Location 7



Pager Power Limited
Stour Valley Business Centre
Sudbury | Suffolk | CO10 7GB
T +44 (0)1787 319001 | E info@pagerpower.com
www.pagerpower.com

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