TV/FM & DAB RECEPTION SURVEY REPORT

THIS POST CONSTRUCTION TV/FM & DAB RECEPTION SURVEY WAS CONDUCTED BY:

SCS Technologies Ltd
Unit 4, Centre 21 Business Park
Bridge Lane
Woolston
Warrington
WA1 4AW
0800 3777 485
www.SCStechnologies.co.uk

DATE OF SURVEY: 24th March 2025
REF NO: TBAER078

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EXECUTIVE SUMMARY/CONCLUSION

The new buildings structures are now complete (some scaffolding is still in place). Subsequently this Post Construction TV Reception Survey has been conducted, to ascertain whether the introduction of the development has caused an impact to existing viewers' television reception in the surrounding area.

Since the Pre- Construction TV Reception Survey, which was undertaken in October 2020, the Winter Hill television transmitter has undergone certain changes (please refer to the Transmitter Technical Background section of this report page 10).
Although these changes have taken place, we are still able to conduct the comparison of the Pre and Post Construction Survey results, as the Winter Hill broadcast powers have remained constant.

There has been a marginal reduction in aerial signal near the southeast of the development. This is as largely as predicted in the initial Pre-construction report, but as the signal in this area is generally good and above recommended minimum signal levels, we do not expect any disruption to viewing households in this area, and as such no further mitigation measures are expected.

A comparison of the remaining pre and post construction test results (*after adjustment for uhf dipole factor in calculation of Received Field Strength*) shows that there has not been any widescale impact to television reception caused by the new development and that the pre-existing signal levels have been generally maintained.

There were no satellite dishes highlighted on the Pre-construction survey that would be affected to the north of the development, and when assessing this on the post construction survey no satellite dishes were visible that were close enough to be affected from ground level.

FM & DAB signals were recorded, and as predicted have not been significantly impacted.

Based on the test results, this therefore demonstrates compliance with Planning Condition 51.

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INTRODUCTION

Theory predicts, and practical evaluation has confirmed, that the introduction of new structures into an area can cause interference to television reception.

This Post-Construction TV/FM/DAB Reception Survey has been undertaken to assess if the introduction of the new development has impacted upon existing viewers' television reception in the surrounding area.

To enable us to make an assessment, an initial desktop study is conducted, followed by a comprehensive field survey.

The desktop study is conducted using plans of the development for example the building's location and elevations, along with maps of the surrounding area and details of local television transmitter broadcast information.

The field survey is then conducted at test point locations as noted in the Pre-Construction survey surrounding the development. Television signal test results and relevant information are recorded at each of the test point locations.

This report includes the information collated during the desktop study and field survey along with an assessment of where, or if, the introduction of the development has the potential to cause interference to existing viewers' television reception, and mitigation if required.

SCOPE

To conduct a desktop study and comprehensive field survey to record television reception signals in the surrounding area to the development. To provide details of any potential impact zone and methods of mitigation if required, and to conform to Local Planning Authority requirements.
The results and information recorded during this field survey assist in assessing if, or where, the introduction of the development has impacted upon existing viewers' television reception.

DISCUSSIONS

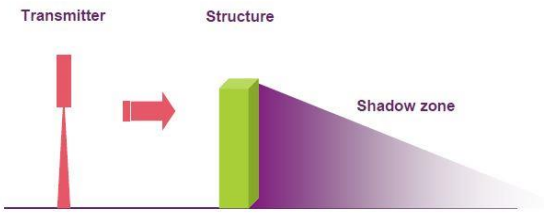
The introduction of a new building or structure into an area has the potential to cause interference to existing viewers' television and listeners radio reception.

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SIGNAL BLOCKING

Wireless signals, especially those using relatively high frequencies such as television, behave much like light. Therefore, it is desirable to have a clear line of sight path between the transmitter and a receiving aerial to achieve the most reliable reception. The presence of a tall structure between the transmitter and receiver will cause a 'shadow' to be cast behind the structure on the side opposite the transmitter. This effect is like the way that an obstruction between a lamp and an observer's eye blocks out the light.

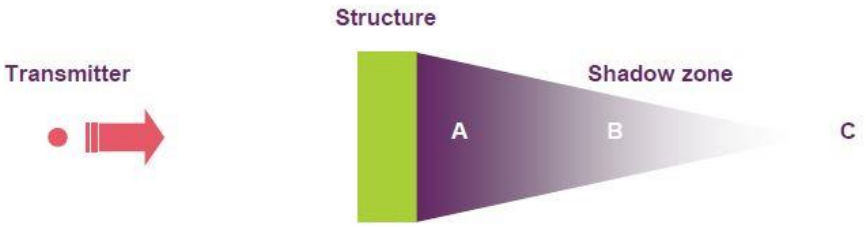


The shadow cast by a structure does not have hard edges though and does not usually extend indefinitely. While there would be a large reduction in signal levels immediately behind the structure, the blocking effect of the structure diminishes with distance because of diffraction. Diffraction is a process where signals appear to bend behind the structure and partially fill in the shadow.

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 resulting shadow is therefore a triangular shape as shown in Figure 2.



It should be noted that the severity of the reduction and the actual size of the shadow will depend upon factors including the construction of the structure and its height – the distances given above are for guidance only.

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FIELD SURVEY METHOD

Tests are conducted at a selection of locations in the area surrounding the development.

Test results are recorded regarding television signal strength and quality: -
Strength is recorded in: dBµv.
Quality is recorded in: VBER (Standard definition SD)
LBER (High-definition HD)

Due to the rollout of the 4G Networks all results are recorded with a CAI approved benchmarked aerial with a balun and LTE filter.

An alternative transmitter is assessed for and where receivable, results are recorded.

All tests are conducted at a 10m height above ground level.

The direction and type of existing viewers' television aerials is noted.

A bearing and distance to the development is recorded at each test point location, for comparison with the bearing and distance to the television transmitter serving the area.

Existing obstructions to television reception are noted.

FIELD SURVEY EQUIPMENT

The field survey is conducted using the following equipment: -

- Specialist vehicle complete with telescopic mast.
- 360^{o} Antenna rotator
- 14 Element CAI approved wideband UHF antenna with balun and LTE filter, one vertical and one horizontal polarisation.
- FM Omni aerial
- DAB Omni aerial
- 20m x WF100 twin screened CAI approved coaxial cable.
- Televes spectrum analyser/field strength meter
- Ordnance survey maps
- Garmin GPS receiver
- Compass
- Digital camera

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SERVICES LIKELY TO BE AFFECTED

TERRESTRIAL TELEVISION RECEPTION

There are two potential ways that the introduction of a new building or extension can cause interference to terrestrial television reception; these are obstruction and reflection.

Obstruction occurs when existing viewers are in an area where their television aerial beam path (direction) to the television transmitter is either through, or within proximity to, the new building or structure. This can result in a reduction of television signal strength and quality and in some cases (if existing viewers are located within proximity to the new building or structure); receiving terrestrial television signals can become problematic and may not be achievable.

Reflection occurs when the new building or extension reflects terrestrial television signals. These unwanted reflected signals are received on the existing viewer's television aerial along with the direct signals from the television transmitter, resulting in irregularities of television signal strength and quality. However, digital terrestrial television broadcasts are less prone to reflections than the previous analogue television broadcasts, but this must still be taken into account when assessing any potential impact.

SATELLITE TELEVISION RECEPTION

Satellite television reception requires a clear line of sight between the satellite antenna and the satellite it is aligned to. In most cases the angle of the satellite antenna to the satellite orbiting the earth is between 20- and 30-degrees elevation.

This elevation must be taken into account when assessing if the introduction of the new building or structure has the potential to obstruct existing viewers' satellite antenna beam path to the satellite.

Satellite reception is very rarely affected on a large scale and is mostly only relevant to existing viewers within proximity to the new building or structure.

FM & DAB RECEPTION

There are two potential ways that the introduction of a new building or extension can cause interference to radio reception; these are obstruction and reflection.

Obstruction occurs when existing listeners are in an area where their radio reception to the radio transmitter is either through, or within proximity to, the new building or structure. This can result in a reduction of radio signal strength and quality and in some cases (if existing listeners are located within proximity to the new building or structure); receiving radio signals can become problematic and may not be achievable.

Reflection occurs when the new building or extension reflects radio signals.

FM & DAB reception is very rarely affected on a large scale and is mostly only relevant to existing listeners within proximity to the new building or structure.

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THE NEW DEVELOPMENT:
Collyhurst Village
Manchester
M40 8AN

CONDUCTED ON BEHALF OF:
DEX Construction Group Ltd
Second Floor
Northern Assurance Building
9-21 Princess St
Manchester, M2 4DN

OVERVIEW OF NEW DEVELOPMENT
Four plots are being presented within the EIA.
Plot A comprises of 28 houses, 50 apartments (6 storeys – 23.100m to the top of the lift overrun).
Plot B comprises of 43 houses.
Plot C comprises of 46 houses, 26 apartments (5 storeys – 17.325m to the top of the lift overrun).
Plot D comprises of 51 houses. All houses are 4 storeys (top level roof garden): 11.2m to roof ridge.

DETAILS OF DEVELOPMENT

Development Type:	New development
Building Height:	maximum elevation of 23.1m

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COORDINATES

Prior to commencement of the survey, coordinates at the development's location are entered into a GPS receiver, along with the coordinates for the television transmitter serving the area. This enables us to record a bearing and distance from each test point location to the development, for comparison with the bearing and distance to the television transmitter. The coordinates used throughout the survey are listed below and shown on Plan A.

LOCATION	NATIONAL GRID REFERENCE
Development Position	SD 85576 00328
Winter Hill Transmitter	SD 66000 14400
Holme Moss FM Transmitter	SE 09497 04077
Sunley Building (city tower) DAB Transmitter	SJ 84268 98194

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TECHNICAL BACKGROUND – WINTER HILL

Transmitter No:	103.00
NGR:	SD 660144
Approximate bearing from the development:	313º
Approximate distance from the development:	25.51 km

Television Broadcasts from the Winter Hill Transmitter at the time of the Pre-Construction Television Reception Survey (October 2020):

UHF Channel	Frequency	Multiplexer	Format	Broadcast Power
55	746.0	COM7	HD	25,700W
49	698.0	ARQA	SD	100,000W
32	562.0	BBCA	SD	100,000W
35	585.8	BBCB	HD	100,000W
37	602.0	ARQB	SD	100,000W
29	538.0	SDN	SD	100,000W
34	578.0	D3+4	SD	100,000W

Television Broadcasts from the Winter Hill Transmitter at the present time (March 2025):

UHF Channel	Frequency	Multiplexer	Format	Broadcast Power
37	602.0	ARQB	SD	14,000W
31	554.0	ARQA	SD	100,000W
32	562.0	BBCA	SD	100,000W
35	585.8	BBCB	HD	100,000W
29	538.0	SDN	SD	100,000W
34	578.0	D3+4	SD	100,000W

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PHOTO A: The New Development



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PHOTO B: The New Development



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TERRESTRIAL TELEVISION SERVICES

Viewers in the surrounding area to the development are receiving their terrestrial television services from the Winter Hill transmitter, located to the northwest of Collyhurst Village, approx. 24 km away.

The Winter Hill transmitter broadcasts 6 digital multiplexers providing the full range of standard definition and high-definition digital terrestrial television services available on Freeview, with regional programming. Please refer to the transmitter details for further information

The test results recorded during the survey show that terrestrial television reception from the Winter Hill transmitter has good signal strengths and at the majority of test points the quality is good. Please note that the results are recorded at a 10mt aerial height, in accordance with TV reception survey specifications and that for existing television aerials sited at multi-storey height reception could be much improved.

During the survey, tests were carried out to receive an alternative transmitter to the Winter Hill transmitter. The result of these tests was that no alternative transmitter could be received at an acceptable quality or strength.

SATELLITE TELEVISION SERVICES

Both Sky TV and Freesat are broadcast from the same fleet of satellites located at an orbital position of 28.2º east of south, with a required satellite dish elevation of approximately 23º.

Sky TV is primarily a subscription-based service offering several packages of various television services at monthly subscription costs.

Freesat is a non-subscription-based service and offers a similar television service line up to Freeview and selectable regional programming.

FM RADIO SERVICES

Listeners in the surrounding area to the development are receiving their radio services from the Holme Moss transmitter, located to the northwest of the building/structure, approx. 25 km away at a compass bearing of 78 degrees.

DAB RADIO SERVICES

Listeners in the surrounding area to the development are receiving their radio services from the Sunley Building, (now city tower) Piccadilly transmitter, located to the east of the building/structure, approx. 2.5km away at a compass bearing of 210 degrees.

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FIELD SURVEY TEST RESULTS AND INFORMATION

TEST POINT 1

Location Thornton Street North
NGR: SD 85728 00368
Alt: 59 m
Mast Height: 10 m

LOCATION	BEARING	DISTANCE
Winter Hill Transmitter	**305°**	**24.2 km**
Development	**237°**	**0.2 km**

Visible Existing Aerial Arrays: 12 Element Aerials situated at rooftop height on 2 storey houses.
Visible Existing Obstructions: Various buildings/Trees in the general direction of the Winter Hill Transmitter.

WINTER HILL UHF TRANSMITTER - REPORT

Post Construction Signal Levels (UHF)

Channel	Frequency	MUX	Format	Level (dBµv)	CN dB	MER	VBER	LBER	Quality
37	**602.0**	**COM6**	**SD**	**69**	**32**	**31**	**-8**		**Pass**
31	**554.0**	**ARQA**	**SD**	**71**	**36**	**33**	**-8**		**Pass**
32	**562.0**	**BBCA**	**SD**	**70**	**42**	**36**	**-8**		**Pass**
35	**585.0**	**BBCB**	**HD**	**69**	**31**	**33**		**-8**	**Pass**
29	**538.0**	**SDN**	**SD**	**71**	**42**	**35**	**-8**		**Pass**
34	**578.0**	**D3+4**	**SD**	**69**	**40**	**33**	**-8**		**Pass**

FM/DAB TRANSMITTER – REPORT

Channel	Frequency FM	Level (dBµv) FM	CN Db FM	Frequency DAB	Level (dBµv) DAB	CN Db DAB
BBC 1	**98.9**	**72**	**42**	**225.64(12B)**	**82**	**45**
BBC 2	**89.3**	**70**	**39**	**225.64(12B)**	**82**	**45**
BBC 3	**91.5**	**71**	**40**	**225.64(12B)**	**82**	**45**
BBC 4	**95.1**	**70**	**39**	**225.64(12B)**	**82**	**45**

Television reception is of a good quality and strength.

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TEST POINT 2

Location Foynes Close
NGR: SD 85818 00163
Alt: 61 m
Mast Height: 10 m

LOCATION	BEARING	DISTANCE
Winter Hill Transmitter	**305°**	**27.3 km**
Development	**301°**	**0.28 km**

Visible Existing Aerial Arrays: 10 Element Aerials situated at rooftop height on 2 storey houses.
Visible Existing Obstructions: Various buildings/Trees in the general direction of the Winter Hill Transmitter.

WINTER HILL UHF TRANSMITTER - REPORT

Post Construction Signal Levels (UHF)

Channel	Frequency	MUX	Format	Level (dBµv)	CN dB	MER	VBER	LBER	Quality
37	**602.0**	**ARQB**	**SD**	**73**	**41**	**32**	**-8**		**Pass**
31	**554.0**	**ARQA**	**SD**	**71**	**36**	**33**	**-8**		**Pass**
32	**562.0**	**BBCA**	**SD**	**72**	**42**	**34**	**-8**		**Pass**
35	**585.0**	**BBCB**	**HD**	**71**	**38**	**32**		**-8**	**Pass**
29	**538.0**	**SDN**	**SD**	**72**	**40**	**32**	**-8**		**Pass**
34	**578.0**	**D3+4**	**SD**	**74**	**36**	**32**	**-8**		**Pass**

FM/DAB TRANSMITTER – REPORT

Channel	Frequency FM	Level (dBµv) FM	CN Db FM	Frequency DAB	Level (dBµv) DAB	CN Db DAB
BBC 1	**98.9**	**66**	**36**	**225.64(12B)**	**70**	**40**
BBC 2	**89.3**	**68**	**38**	**225.64(12B)**	**70**	**40**
BBC 3	**91.5**	**72**	**34**	**225.64(12B)**	**70**	**40**
BBC 4	**95.1**	**70**	**35**	**225.64(12B)**	**70**	**40**

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TEST POINT 3

Location Queens Court
NGR: SD 85876 00095
Alt: 60 m
Mast Height: 10 m

LOCATION	BEARING	DISTANCE
Winter Hill Transmitter	**305°**	**24.4 km**
Development	**306°**	**0.36 km**

Visible Existing Aerial Arrays: 12 Element Aerial situated at rooftop height on 2 storey houses.
Visible Existing Obstructions: Various buildings/Trees in the general direction of the Winter Hill Transmitter

WINTER HILL UHF TRANSMITTER - REPORT

Post Construction Signal Levels (UHF)

Channel	Frequency	MUX	Format	Level (dBµv)	CN dB	MER	VBER	LBER	Quality
37	**602.0**	**ARQB**	**SD**	**70**	**42**	**32**	**-8**		**Pass**
31	**554.0**	**ARQA**	**SD**	**72**	**36**	**32**	**-8**		**Pass**
32	**562.0**	**BBCA**	**SD**	**71**	**42**	**35**	**-8**		**Pass**
35	**585.0**	**BBCB**	**HD**	**70**	**36**	**33**		**-8**	**Pass**
29	**538.0**	**SDN**	**SD**	**71**	**42**	**34**	**-8**		**Pass**
34	**578.0**	**D3+4**	**SD**	**70**	**34**	**32**	**-8**		**Pass**

FM/DAB TRANSMITTER – REPORT

Channel	Frequency FM	Level (dBµv) FM	CN Db FM	Frequency DAB	Level (dBµv) DAB	CN Db DAB
BBC 1	**98.9**	**62**	**43**	**225.64(12B)**	**68**	**40**
BBC 2	**89.3**	**69**	**40**	**225.64(12B)**	**68**	**40**
BBC 3	**91.5**	**62**	**42**	**225.64(12B)**	**68**	**40**
BBC 4	**95.1**	**64**	**42**	**225.64(12B)**	**68**	**40**

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TEST POINT 4

Location Pitsford Road
NGR: SD 86017 00135
Alt: 65 m
Mast Height: 10 m

LOCATION	BEARING	DISTANCE
Winter Hill Transmitter	**305°**	**24.5 km**
Development	**291°**	**0.46 km**

Visible Existing Aerial Arrays: 12 Element Aerials situated at rooftop height on 2 storey houses.
Visible Existing Obstructions: Various buildings/Trees in the general direction of the Winter Hill Transmitter.

WINTER HILL UHF TRANSMITTER - REPORT

Post Construction Signal Levels (UHF)

Channel	Frequency	MUX	Format	Level (dBµv)	CN dB	MER	VBER	LBER	Quality
37	**602.0**	**ARQB**	**SD**	**75**	**42**	**33**	**-8**		**Pass**
31	**554.0**	**ARQA**	**SD**	**73**	**40**	**32**	**-8**		**Pass**
32	**562.0**	**BBCA**	**SD**	**77**	**42**	**34**	**-8**		**Pass**
35	**585.0**	**BBCB**	**HD**	**75**	**40**	**36**		**-8**	**Pass**
29	**538.0**	**SDN**	**SD**	**76**	**42**	**32**	**-8**		**Pass**
34	**578.0**	**D3+4**	**SD**	**72**	**36**	**32**	**-8**		**Pass**

FM/DAB TRANSMITTER – REPORT

Channel	Frequency FM	Level (dBµv) FM	CN Db FM	Frequency DAB	Level (dBµv) DAB	CN Db DAB
BBC 1	**98.9**	**64**	**36**	**225.64(12B)**	**69**	**42**
BBC 2	**89.3**	**68**	**38**	**225.64(12B)**	**69**	**42**
BBC 3	**91.5**	**69**	**42**	**225.64(12B)**	**69**	**42**
BBC 4	**95.1**	**37**	**40**	**225.64(12B)**	**69**	**42**

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TEST POINT 5

Location Churnet Street
NGR: SD 85646 00203
Alt: 58 m
Mast Height: 10 m

LOCATION	BEARING	DISTANCE
Winter Hill Transmitter	**305°**	**24.2 km**
Development	**332°**	**0.1 km**

Visible Existing Aerial Arrays: 10 Element Aerials situated at rooftop height on 2 storey houses.
Visible Existing Obstructions: Various buildings/Trees in the general direction of the Winter Hill Transmitter.

WINTER HILL UHF TRANSMITTER - REPORT

Post Construction Signal Levels (UHF)

Channel	Frequency	MUX	Format	Level (dBµv)	CN dB	MER	VBER	LBER	Quality
37	**602.0**	**ARQB**	**SD**	**74**	**42**	**33**	**-8**		**Pass**
31	**554.0**	**ARQA**	**SD**	**76**	**65**	**34**	**-8**		**Pass**
32	**562.0**	**BBCA**	**SD**	**74**	**40**	**34**	**-8**		**Pass**
35	**585.0**	**BBCB**	**HD**	**76**	**38**	**34**		**-8**	**Pass**
29	**538.0**	**SDN**	**SD**	**77**	**40**	**36**	**-8**		**Pass**
34	**578.0**	**D3+4**	**SD**	**72**	**32**	**32**	**-8**		**Pass**

FM/DAB TRANSMITTER – REPORT

Channel	Frequency FM	Level (dBµv) FM	CN Db FM	Frequency DAB	Level (dBµv) DAB	CN Db DAB
BBC 1	**98.9**	**65**	**38**	**225.64(12B)**	**76**	**44**
BBC 2	**89.3**	**64**	**41**	**225.64(12B)**	**76**	**44**
BBC 3	**91.5**	**68**	**40**	**225.64(12B)**	**76**	**44**
BBC 4	**95.1**	**67**	**38**	**225.64(12B)**	**76**	**44**

Television reception is of a good quality and strength.

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TEST POINT 6

Location Harrowby Drive
NGR: SD 85646 00060
Alt: 60 m
Mast Height: 10 m

LOCATION	BEARING	DISTANCE
Winter Hill Transmitter	**306°**	**24.3 km**
Development	**323°**	**0.25 km**

Visible Existing Aerial Arrays: 10 Element Aerials situated at rooftop height on 2 storey houses.
Visible Existing Obstructions: Various buildings/Trees in the general direction of the Winter Hill Transmitter.

WINTER HILL UHF TRANSMITTER - REPORT

Post Construction Signal Levels (UHF)

Channel	Frequency	MUX	Format	Level (dBµv)	CN dB	MER	VBER	LBER	Quality
37	**602.0**	**ARQB**	**SD**	**70**	**42**	**32**	**-8**		**Pass**
31	**554.0**	**ARQA**	**SD**	**72**	**36**	**32**	**-8**		**Pass**
32	**562.0**	**BBCA**	**SD**	**71**	**42**	**35**	**-8**		**Pass**
35	**586.0**	**BBCB**	**HD**	**70**	**36**	**33**		**-8**	**Pass**
29	**538.0**	**SDN**	**SD**	**71**	**42**	**34**	**-8**		**Pass**
34	**578.0**	**D3+4**	**SD**	**70**	**34**	**32**	**-8**		**Pass**

FM/DAB TRANSMITTER – REPORT

Channel	Frequency FM	Level (dBµv) FM	CN Db FM	Frequency DAB	Level (dBµv) DAB	CN Db DAB
BBC 1	**98.9**	**63**	**44**	**225.64(12B)**	**75**	**43**
BBC 2	**89.3**	**61**	**42**	**225.64(12B)**	**75**	**43**
BBC 3	**91.5**	**66**	**42**	**225.64(12B)**	**75**	**43**
BBC 4	**95.1**	**62**	**38**	**225.64(12B)**	**75**	**43**

Television reception is of a good quality and strength.

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TEST POINT 7

Location Thornton Street North
NGR: SD 85544 00157
Alt: 56 m
Mast Height: 10 m

OCATION	BEARING	DISTANCE
Winter Hill Transmitter	**306°**	**24.1 km**
Development	**010°**	**0.1 km**

Visible Existing Aerial Arrays: 10 Element Aerials situated at rooftop height on 2 storey houses.
Visible Existing Obstructions: Various buildings/Trees in the general direction of the Winter Hill Transmitter.

WINTER HILL UHF TRANSMITTER - REPORT

Post Construction Signal Levels (UHF)

Channel	Frequency	MUX	Format	Level (dBµv)	CN dB	MER	VBER	LBER	Quality
37	**602.0**	**ARQB**	**SD**	**69**	**38**	**30**	**-8**		**Pass**
31	**554.0**	**ARQA**	**SD**	**65**	**34**	**30**	**-8**		**Pass**
32	**562.0**	**BBCA**	**SD**	**66**	**36**	**32**	**-8**		**Pass**
35	**585.0**	**BBCB**	**HD**	**69**	**36**	**32**		**-8**	**Pass**
29	**538.0**	**SDN**	**SD**	**68**	**40**	**34**	**-8**		**Pass**
34	**578.0**	**D3+4**	**SD**	**69**	**42**	**32**	**-8**		**Pass**

FM/DAB TRANSMITTER – REPORT

Channel	Frequency FM	Level (dBµv) FM	CN Db FM	Frequency DAB	Level (dBµv) DAB	CN Db DAB
BBC 1	**98.9**	**60**	**42**	**225.64(12B)**	**62**	**42**
BBC 2	**89.3**	**72**	**42**	**225.64(12B)**	**62**	**42**
BBC 3	**91.5**	**63**	**44**	**225.64(12B)**	**62**	**42**
BBC 4	**95.1**	**75**	**44**	**225.64(12B)**	**62**	**42**

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TEST POINT 8

Location Dalbury Drive
NGR: SD 85466 00352
Alt: 62 m
Mast Height: 10 m

LOCATION	BEARING	DISTANCE
Winter Hill Transmitter	**305°**	**23.9 km**
Development	**112°**	**0.14 km**

Visible Existing Aerial Arrays: 10 Element Aerials situated at rooftop height on 2 storey houses.
Visible Existing Obstructions: Various buildings/Trees in the general direction of the Winter Hill Transmitter.

WINTER HILL UHF TRANSMITTER - REPORT

Post Construction Signal Levels (UHF)

Channel	Frequency	MUX	Format	Level (dBµv)	CN dB	MER	VBER	LBER	Quality
37	**602.0**	**ARQB**	**SD**	**69**	**32**	**31**	**-8**		**Pass**
31	**554.0**	**ARQA**	**SD**	**71**	**36**	**33**	**-8**		**Pass**
32	**562.0**	**BBCA**	**SD**	**70**	**42**	**36**	**-8**		**Pass**
35	**585.0**	**BBCB**	**HD**	**69**	**31**	**33**		**-8**	**Pass**
29	**538.0**	**SDN**	**SD**	**71**	**42**	**35**	**-8**		**Pass**
34	**578.0**	**D3+4**	**SD**	**69**	**40**	**33**	**-8**		**Pass**

FM/DAB TRANSMITTER – REPORT

Channel	Frequency FM	Level (dBµv) FM	CN Db FM	Frequency DAB	Level (dBµv) DAB	CN Db DAB
BBC 1	**98.9**	**74**	**38**	**225.64(12B)**	**79**	**40**
BBC 2	**89.3**	**77**	**40**	**225.64(12B)**	**79**	**40**
BBC 3	**91.5**	**76**	**42**	**225.64(12B)**	**79**	**40**
BBC 4	**95.1**	**73**	**42**	**225.64(12B)**	**79**	**40**

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TEST POINT 9

Location Burgess Street
NGR: SD 85684 00268
Alt: 58 m
Mast Height: 10 m

LOCATION	BEARING	DISTANCE
Winter Hill Transmitter	**305°**	**24.2 km**
Development	**297°**	**0.13 km**

Visible Existing Aerial Arrays: High gain aerial on 1m mast, mounted at rooftop height on 2 storey properties, directed towards the Winter Hill Transmitter

Visible Existing Obstructions: Various buildings/Trees in the general direction of the Winter Hill Transmitter

WINTER HILL UHF TRANSMITTER - REPORT

Post Construction Signal Levels (UHF)

Channel	Frequency	MUX	Format	Level (dBµv)	CN dB	MER	VBER	LBER	Quality
37	**602.0**	**ARQB**	**SD**	**71**	**42**	**34**	**-8**		**Pass**
31	**554.0**	**ARQA**	**SD**	**70**	**36**	**30**	**-8**		**Pass**
32	**562.0**	**BBCA**	**SD**	**73**	**40**	**34**	**-8**		**Pass**
35	**585.0**	**BBCB**	**HD**	**72**	**38**	**32**		**-8**	**Pass**
29	**538.0**	**SDN**	**SD**	**73**	**40**	**32**	**-8**		**Pass**
34	**578.0**	**D3+4**	**SD**	**71**	**32**	**32**	**-8**		**Pass**

FM/DAB TRANSMITTER – REPORT

Channel	Frequency FM	Level (dBµv) FM	CN Db FM	Frequency DAB	Level (dBµv) DAB	CN Db DAB
BBC 1	**98.9**	**72**	**42**	**225.64(12B)**	**74**	**42**
BBC 2	**89.3**	**69**	**40**	**225.64(12B)**	**74**	**42**
BBC 3	**91.5**	**66**	**42**	**225.64(12B)**	**74**	**42**
BBC 4	**95.1**	**69**	**42**	**225.64(12B)**	**74**	**42**

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TEST POINT 10

Location Jonny King Close
NGR: SD 85567 00093
Alt: 57 m
Mast Height: 10 m

LOCATION	BEARING	DISTANCE
Winter Hill Transmitter	**306°**	**24.2 km**
Development	**001°**	**0.2 km**

Visible Existing Aerial Arrays: 10 Element Aerials situated at rooftop height on 2 storey houses.
Visible Existing Obstructions: Various buildings/Trees in the general direction of the Winter Hill Transmitter.

WINTER HILL UHF TRANSMITTER - REPORT

Post Construction Signal Levels (UHF)

Channel	Frequency	MUX	Format	Level (dBµv)	CN dB	MER	VBER	LBER	Quality
37	**602.0**	**ARQB**	**SD**	**74**	**42**	**36**	**-8**		**Pass**
31	**554.0**	**ARQA**	**SD**	**73**	**34**	**32**	**-8**		**Pass**
32	**562.0**	**BBCA**	**SD**	**75**	**38**	**34**	**-8**		**Pass**
35	**585.0**	**BBCB**	**HD**	**77**	**36**	**32**		**-8**	**Pass**
29	**538.0**	**SDN**	**SD**	**73**	**40**	**34**	**-8**		**Pass**
34	**578.0**	**D3+4**	**SD**	**76**	**36**	**32**	**-8**		**Pass**

FM/DAB TRANSMITTER – REPORT

Channel	Frequency FM	Level (dBµv) FM	CN Db FM	Frequency DAB	Level (dBµv) DAB	CN Db DAB
BBC 1	**98.9**	**60**	**40**	**225.64(12B)**	**70**	**42**
BBC 2	**89.3**	**63**	**38**	**225.64(12B)**	**70**	**42**
BBC 3	**91.5**	**65**	**40**	**225.64(12B)**	**70**	**42**
BBC 4	**95.1**	**68**	**40**	**225.64(12B)**	**70**	**42**

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TEST POINT 11

Location Tollard Avenue
NGR: SD 85917 00268
Alt: 65 m
Mast Height: 10 m

LOCATION	BEARING	DISTANCE
Winter Hill Transmitter	**305°**	**24.4 km**
Development	**277°**	**0.35km**

Visible Existing Aerial Arrays: High Gain Communal aerial system at rooftop height on 2 storey building.

Visible Existing Obstructions: Various buildings/Trees in the general direction of the Winter Hill Transmitter

WINTER HILL UHF TRANSMITTER - REPORT

Post Construction Signal Levels (UHF)

Channel	Frequency	MUX	Format	Level (dBµv)	CN dB	MER	VBER	LBER	Quality
37	**602.0**	**ARQB**	**SD**	**71**	**42**	**34**	**-8**		**Pass**
31	**554.0**	**ARQA**	**SD**	**73**	**40**	**36**	**-8**		**Pass**
32	**562.0**	**BBCA**	**SD**	**72**	**42**	**35**	**-8**		**Pass**
35	**585.0**	**BBCB**	**HD**	**72**	**38**	**32**		**-8**	**Pass**
29	**538.0**	**SDN**	**SD**	**72**	**42**	**34**	**-8**		**Pass**
34	**578.0**	**D3+4**	**SD**	**71**	**34**	**32**	**-8**		**Pass**

FM/DAB TRANSMITTER – REPORT

Channel	Frequency FM	Level (dBµv) FM	CN Db FM	Frequency DAB	Level (dBµv) DAB	CN Db DAB
BBC 1	**98.9**	**69**	**40**	**225.64(12B)**	**72**	**44**
BBC 2	**89.3**	**73**	**42**	**225.64(12B)**	**72**	**44**
BBC 3	**91.5**	**70**	**44**	**225.64(12B)**	**72**	**44**
BBC 4	**95.1**	**69**	**42**	**225.64(12B)**	**72**	**44**

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TEST POINT 12

Location Thornton Street North
NGR: SD 85786 00037
Alt: 62 m
Mast Height: 10 m

LOCATION	BEARING	DISTANCE
Winter Hill Transmitter	**306°**	**24.4 km**
Development	**330°**	**0.35 km**

Visible Existing Aerial Arrays: 12 Element Aerials situated at rooftop height on 2 storey houses.
Visible Existing Obstructions: Various buildings/Trees in the general direction of the Winter Hill Transmitter.

WINTER HILL UHF TRANSMITTER - REPORT

Post Construction Signal Levels (UHF)

Channel	Frequency	MUX	Format	Level (dBµv)	CN dB	MER	VBER	LBER	Quality
37	**602.0**	**ARQB**	**SD**	**69**	**40**	**32**	**-8**		**Pass**
31	**554.0**	**ARQA**	**SD**	**71**	**36**	**32**	**-8**		**Pass**
32	**562.0**	**BBCA**	**SD**	**70**	**40**	**34**	**-8**		**Pass**
35	**585.0**	**BBCB**	**HD**	**69**	**35**	**32**		**-8**	**Pass**
29	**538.0**	**SDN**	**SD**	**70**	**40**	**34**	**-8**		**Pass**
34	**578.0**	**D3+4**	**SD**	**68**	**32**	**32**	**-8**		**Pass**

FM/DAB TRANSMITTER – REPORT

Channel	Frequency FM	Level (dBµv) FM	CN Db FM	Frequency DAB	Level (dBµv) DAB	CN Db DAB
BBC 1	**98.9**	**66**	**42**	**225.64(12B)**	**75**	**44**
BBC 2	**89.3**	**65**	**40**	**225.64(12B)**	**75**	**44**
BBC 3	**91.5**	**71**	**42**	**225.64(12B)**	**75**	**44**
BBC 4	**95.1**	**67**	**42**	**225.64(12B)**	**75**	**44**

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MITIGATION

Terrestrial Television Reception

Remedial Aerial Work

One or all the following may assist in rectifying interference being received to terrestrial television reception.

Change of aerial type to one most suited to the type of interference being received.
Redirecting existing television aerial to an alternative transmitter that is not affected, in some cases the existing television aerial may not be suitable for redirecting and the installation of a suitable television aerial may be required.
Re-siting of the television aerial to a position on the property where interference is reduced or not present.
Increase or decrease of aerial height.
Installation of masthead amplification to improve television signal strengths being received.

Remote Television Aerial

When a remote television aerial is positioned at a location with good quality television reception, (which can be a considerable distance from the affected area), and the signals are brought back via a cable network to the affected properties.

Utilising Satellite Reception

Should rectifying terrestrial television reception prove problematic, the installation of satellite systems utilising the Freesat platform can assist in rectifying reception issues.

To provide satellite television reception for individual affected dwellings or commercial units requires the installation of a satellite dish and set top box.

Satellite Television Reception

Remedial Satellite Work

One or all the following may assist in rectifying satellite television reception issues.

Re-siting of the satellite antenna to a position on the property where a clear line of sight can be achieved.
Increase in height of the satellite antenna to achieve a clear line of sight to the satellite.

Remote Satellite Dish

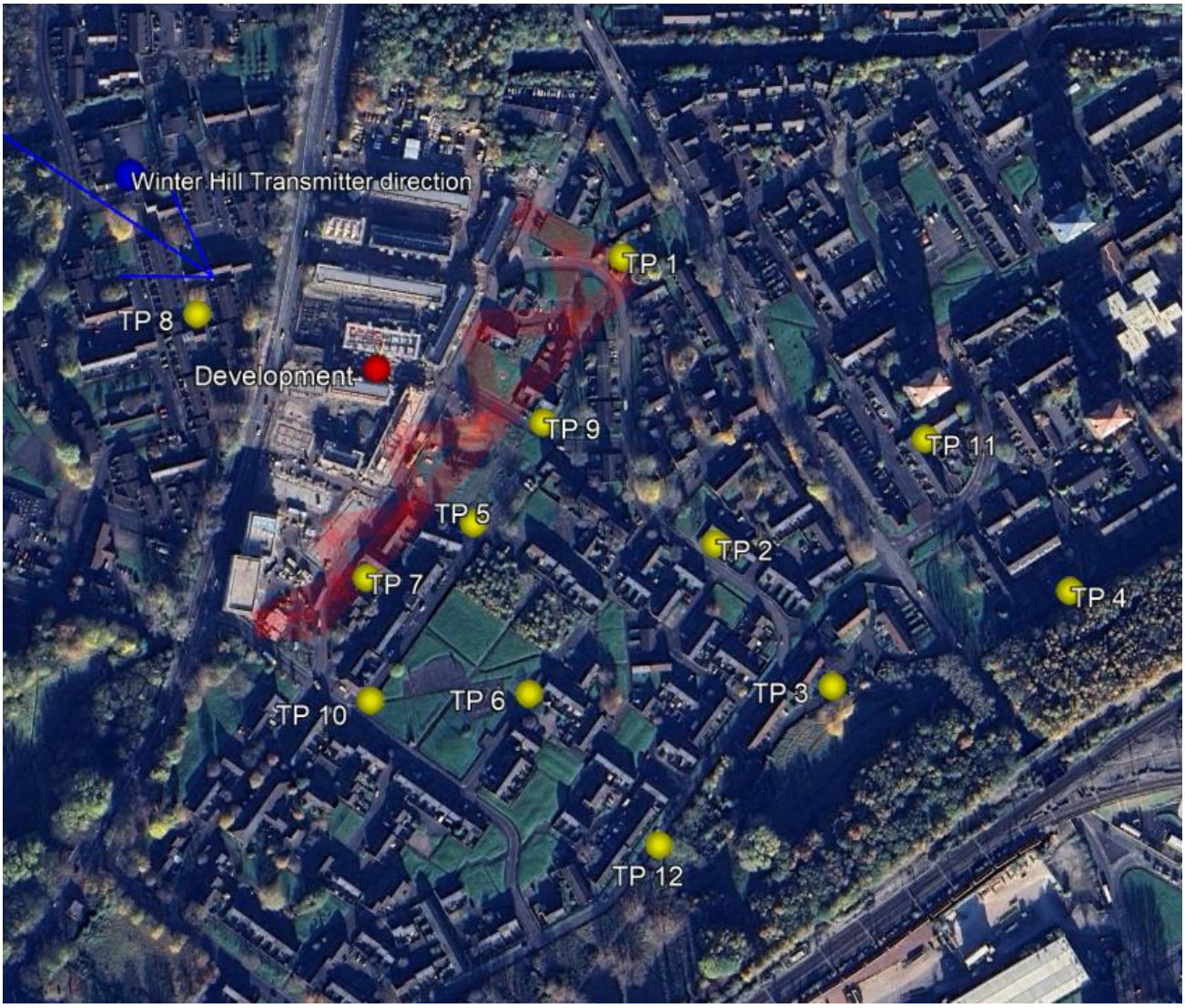
When the receiving satellite dish is sited in a position where a clear line of sight can be achieved; this can sometimes be a considerable distance from the affected property. In some instances, the satellite dish may require siting on the offending property to achieve a clear line of sight, or on an adjoining property where permission will have to be sought. The signals are brought back to the affected property via a cable and amplifier network.

The need for such mitigation would need to be determined on a case-by-case basis.

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IMPACT ZONE – MAP 1



Red area indicates marginal reduction of Signal strength for Freeview.

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REFERENCE OF TERMS

c.	Circa
CH	The UHF Channel allocation from the transmitter.
MUX	The digital multiplexer allocation/operator.
Tx	Transmitter.
dBµv	Carrier strength reading (decibel microvolt).
C/N	Carrier /Noise Ratio
VBER	Measurement for digital signal after error correction (BER after VITERBi)
LBER	BER after been applied the LDPC (low density parity check) error correction.
SD	SD Standard Definition
HD	HD High Definition
NGR	National Grid Reference
ALT	Altitude above sea level at the location.
BRG	Bearing from North.
GPS	Global Positioning System.

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