



Pre-Construction Signal Reception Impact Survey

Talbot Mill, Ellesmere Street
Manchester

2nd February 2017

This Television Reception Survey was instructed by
CINNS Limited on behalf of Capital & Centric (Adored) Limited

THIS TELEVISION RECEPTION SURVEY HAS BEEN CARRIED OUT ON BEHALF OF:

CINNS Limited on behalf of

Capital & Centric (Adored) Limited
Sun House
2-4 Little Peter Street
Manchester
M15 4PS

Instructed by: Chris McDermott

NAME OF THE DEVELOPMENT:

Talbot Mill
Ellesmere Street
Manchester

PLANNING APPLICATION NUMBER:

TBA

THIS TV RECEPTION SURVEY WAS CARRIED OUT BY:

Astbury
Unit 5b, Albert Street Works
Albert Street
Droylsden
Manchester
M43 7BA

DATE OF SURVEY:

2nd February 2017

SURVEY METHODOLOGY

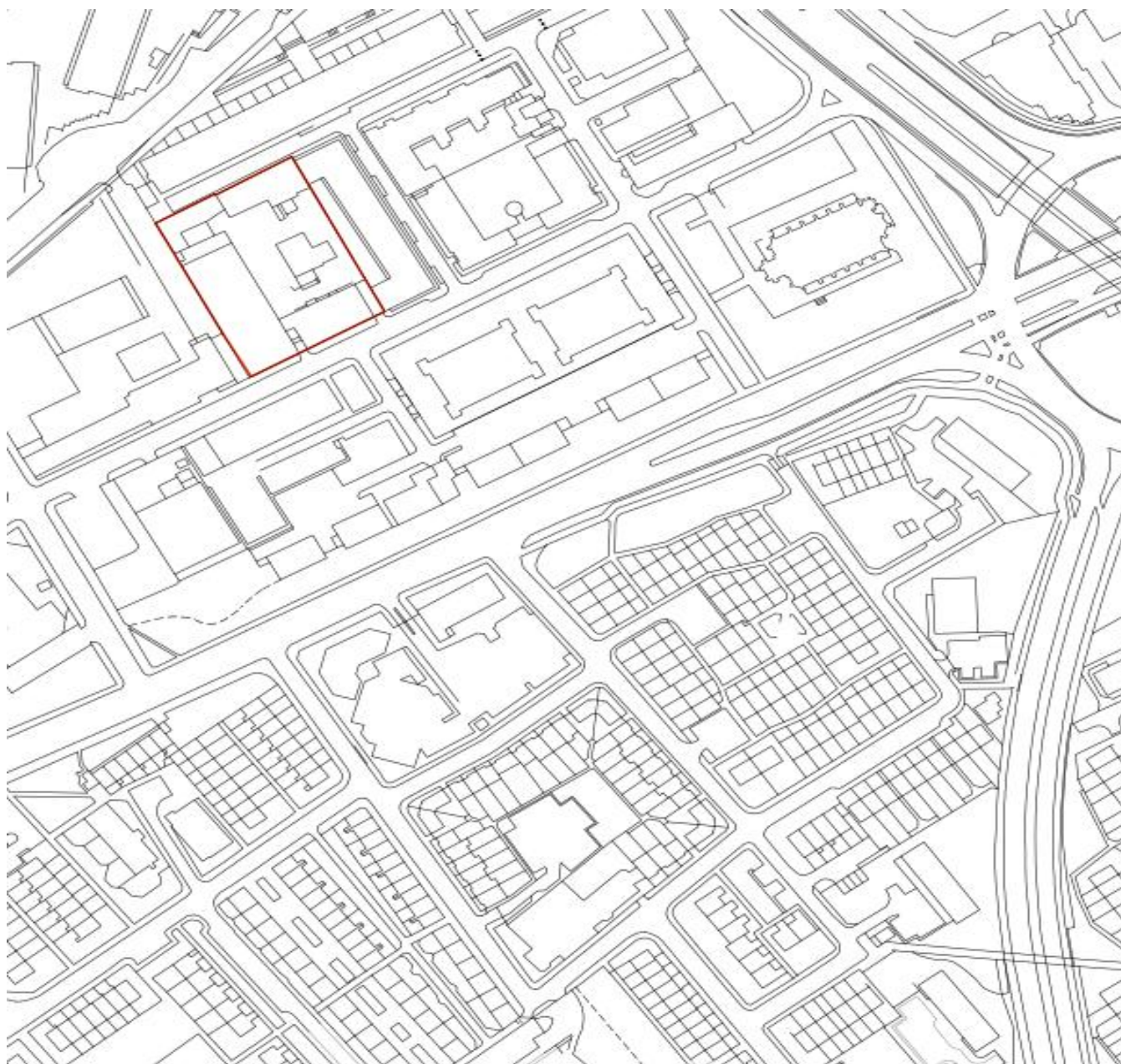
-) During the period of testing, the vehicle will be parked in a safe & legal location, ensuring that no obstruction to the highway and pedestrians is caused.
-) After carrying out a dynamic risk assessment of the location, the test equipment will be erected and signals readings taken.
-) Signal measurements will be taken at pre-selected locations in the area surrounding the development.
-) Results will be recorded regarding all signals including strength and quality.
-) Where more than one transmitter is receivable, signals will be recorded and submitted as part of the report.

The survey is carried out using the following equipment:-

-) Blake SR10 10 Element Wideband UHF Antenna (CAI Approved / Benchmarked). This is the typical type of aerial that would be present on the majority of properties in the area tested.
-) Omni-Directional FM Antenna. This is the typical type of aerial that would be present on the majority of properties in the area tested.
-) Single Element DAB Antenna. This is the typical type of aerial that would be present on the majority of properties in the area tested.
-) 15m x WF100 Twin Screened Coaxial Cable (CAI Approved / Benchmarked). This type of cable is typical of the type of cables that would be present in the majority of properties in the area tested.
-) Promax Explorer Digital Spectrum Analyser with monitor for both Audio and Video
-) Vehicle mounted 12m Fibreglass Telescopic Mast

DEVELOPMENT LOCATION

**Talbot Mill
Ellesmere Street
Manchester**



SIGNAL MEASUREMENT POSITIONS

To ensure the validity of the supplied results the Pre-Construction signal reading locations have been recorded so that the same locations can be tested Post-Construction, as indicated below.



Astbury TV Aerials Limited (T/A Astbury)

Unit 6, Charlestown Industrial Estate
Robinson Street, Ashton-under-Lyne
Lancashire. OL6 8NS
0161 330 5700

Registered in England & Wales: 980805



service@astbury.co.uk
www.astbury.co.uk

TELEVISION TRANSMITTER SERVING THIS AREA

WINTER HILL TRANSMITTER

-) TRANSMITTER No: 103.00
-) NGR: SD 660144
-) AERIAL HEIGHT: 718m AOD
-) Approximate bearing from the Proposed Development: 135.55 Degrees
-) Approximate distance from the Proposed Development: 23.93 Kilometres

TELEVISION BROADCASTS FROM THE WINTER HILL TRANSMITTER

Digital Multiplexes tested:

-) RF Channel 31 (554.00 MHZ) Transmission Power @ 1,000 Watts
-) RF Channel 37 (602.00 MHZ) Transmission Power @ 14,000 Watts
-) RF Channel 49 (698.00 MHZ) Transmission Power @ 100,000 Watts
-) RF Channel 50 (706.00 MHZ) Transmission Power @ 100,000 Watts
-) RF Channel 54 (737.80 MHZ) Transmission Power @ 100,000 Watts
-) RF Channel 55 (746.00 MHZ) Transmission Power @ 100,000 Watts
-) RF Channel 56 (754.00 MHZ) Transmission Power @ 1,000 Watts
-) RF Channel 57 (762.00 MHZ) Transmission Power @ 1,000 Watts
-) RF Channel 58 (770.00 MHZ) Transmission Power @ 100,000 Watts
-) RF Channel 59 (778.00 MHZ) Transmission Power @ 100,000 Watts

RADIO BROADCASTS FROM THE WINTER HILL TRANSMITTER

Analogue Frequencies tested:

)	BBC Radio 2	(89.3 MHZ)	Transmission Power @ 2,000 Watts
)	BBC Radio 3	(91.5 MHZ)	Transmission Power @ 2,000 Watts
)	BBC Radio 4	(93.7 MHZ)	Transmission Power @ 2,000 Watts
)	Rock FM	(97.4 MHZ)	Transmission Power @ 1,000 Watts
)	BBC Radio 1	(98.9 MHZ)	Transmission Power @ 2,000 Watts
)	Smooth Radio	(100.4 MHZ)	Transmission Power @ 2,500 Watts
)	BBC Radio Lancs	(103.9 MHZ)	Transmission Power @ 2,500 Watts
)	Real Radio	(105.4 MHZ)	Transmission Power @ 2,500 Watts

Digital Multiplexes tested:

)	Manchester 11C (218.64 MHZ)	Transmission Power @ 760 Watts
)	D1 National 11D (222.064 MHZ)	Transmission Power @ 10,000 Watts
)	BBC National DAB 12B (225.648 MHZ)	Transmission Power @ 10,000 Watts

Measurement Location No. 1

TYPICAL PROPERTY TYPE AT TEST LOCATION

Residential 2 Storey

Antennae Position and Environmental Conditions

Temperature (°C)	12° C
Relative Humidity (%)	80%
Date	2 nd February 2017
Time	09:06
DAB & VHF Antenna Height	2m AGL
UHF Antenna Height	10m AGL
OS Grid Reference (x,y)	53°28'16" N / 2°15'36"W

Analogue (FM) Radio Transmissions From Winter Hill Transmitter

Channel	Frequency (MHz)	Field Strength (dBµV/m)
BBC Radio 2	89.3	65.9
BBC Radio 3	91.5	59.2
BBC Radio 4	93.7	49.7
Rock FM	97.4	38.3
BBC Radio 1	98.9	56.5
Smooth Radio	100.4	42.3
BBC Radio Lancs	103.9	23.1
Real Radio	105.4	39.2

Digital (DAB) Radio Transmissions From Winter Hill Transmitter

DAB Block	Frequency (MHz)	Field Strength (dBµV/m)
11C	218.64 MHz	16.2
11D	222.064 MHz	55.9
12B	225.648 MHz	55.2

Digital Terrestrial Television from Winter Hill Transmitter

UHF Channel Allocation	31	37	49	50	54	55	56	57	58	59
Frequency (MHz)	554.0	602.0	698.0	706.0	737.8	746.0	754.0	762.0	770.0	778.0
Multiplex	Com7	Com8	COM5 ArqA	PSB1 BBCA	PSB3 BBCB	COM6 ArqB	LM / LL / LPR	GIM	COM4 SDN	PSB D3+4
Field Strength (dBµV/m)	50.8	48.6	53.4	53.2	49.7	53.0	33.0	27.7	39.5	48.8



Measurement Location No. 2

TYPICAL PROPERTY TYPE AT TEST LOCATION

Residential 2 storey

Antennae Position and Environmental Conditions

Temperature (°C)	12° C
Relative Humidity (%)	80%
Date	2 nd February 2017
Time	09:23
DAB & VHF Antenna Height	2m AGL
UHF Antenna Height	10m AGL
OS Grid Reference (x,y)	53°28'14" N / 2°15'36"W

Analogue (FM) Radio Transmissions From Winter Hill Transmitter

Channel	Frequency (MHz)	Field Strength (dBμV/m)
BBC Radio 2	89.3	51.1
BBC Radio 3	91.5	53.4
BBC Radio 4	93.7	52.9
Rock FM	97.4	33.5
BBC Radio 1	98.9	53.4
Smooth Radio	100.4	43.1
BBC Radio Lancs	103.9	30.3
Real Radio	105.4	38.9

Digital (DAB) Radio Transmissions From Winter Hill Transmitter

DAB Block	Frequency (MHz)	Field Strength (dBμV/m)
11C	218.64 MHz	18.3
11D	222.064 MHz	52.5
12B	225.648 MHz	52.5

Digital Terrestrial Television from Winter Hill Transmitter

UHF Channel Allocation	31	37	49	50	54	55	56	57	58	59
Frequency (MHz)	554.0	602.0	698.0	706.0	737.8	746.0	754.0	762.0	770.0	778.0
Multiplex	Com7	Com8	COM5 ArqA	PSB1 BBCA	PSB3 BBCB	COM6 ArqB	LM / LL / LPR	GIM	COM4 SDN	PSB D3+4
Field Strength (dBμV/m)	57.2	50.5	49.5	52.8	54.8	50.3	36.3	30.3	55.1	54.0

Measurement Location No. 3

TYPICAL PROPERTY TYPE AT TEST LOCATION

Residential 2 storey

Antennae Position and Environmental Conditions

Temperature (°C)	12° C
Relative Humidity (%)	80%
Date	2 nd February 2017
Time	09:33
DAB & VHF Antenna Height	2m AGL
UHF Antenna Height	10m AGL
OS Grid Reference (x,y)	53°28'11" N / 2°15'31"W

Analogue (FM) Radio Transmissions From Winter Hill Transmitter

Channel	Frequency (MHz)	Field Strength (dBµV/m)
BBC Radio 2	89.3	48.7
BBC Radio 3	91.5	58.4
BBC Radio 4	93.7	51.9
Rock FM	97.4	33.6
BBC Radio 1	98.9	58.4
Smooth Radio	100.4	37.5
BBC Radio Lancs	103.9	17.8
Real Radio	105.4	35.7

Digital (DAB) Radio Transmissions From Winter Hill Transmitter

DAB Block	Frequency (MHz)	Field Strength (dBµV/m)
11C	218.64 MHz	12.2
11D	222.064 MHz	58.2
12B	225.648 MHz	59.7

Digital Terrestrial Television from Winter Hill Transmitter

UHF Channel Allocation	31	37	49	50	54	55	56	57	58	59
Frequency (MHz)	554.0	602.0	698.0	706.0	737.8	746.0	754.0	762.0	770.0	778.0
Multiplex	Com7	Com8	COM5 ArqA	PSB1 BBCA	PSB3 BBCB	COM6 ArqB	LM / LL / LPR	GIM	COM4 SDN	PSB D3+4
Field Strength (dBµV/m)	55.1	54.3	56.4	56.2	59.2	59.9	37.9	29.2	60.7	62.0

Measurement Location No. 4

TYPICAL PROPERTY TYPE AT TEST LOCATION

Residential 2 storey

Antennae Position and Environmental Conditions

Temperature (°C)	12° C
Relative Humidity (%)	80%
Date	2 nd February 2017
Time	09:47
DAB & VHF Antenna Height	2m AGL
UHF Antenna Height	10m AGL
OS Grid Reference (x,y)	53°28'9" N / 2°15'28"W

Analogue (FM) Radio Transmissions From Winter Hill Transmitter

Channel	Frequency (MHz)	Field Strength (dBµV/m)
BBC Radio 2	89.3	59.3
BBC Radio 3	91.5	60.3
BBC Radio 4	93.7	58.1
Rock FM	97.4	34.3
BBC Radio 1	98.9	67.0
Smooth Radio	100.4	49.5
BBC Radio Lancs	103.9	22.5
Real Radio	105.4	45.7

Digital (DAB) Radio Transmissions From Winter Hill Transmitter

DAB Block	Frequency (MHz)	Field Strength (dBµV/m)
11C	218.64 MHz	16.4
11D	222.064 MHz	55.6
12B	225.648 MHz	68.4

Digital Terrestrial Television from Winter Hill Transmitter

UHF Channel Allocation	31	37	49	50	54	55	56	57	58	59
Frequency (MHz)	554.0	602.0	698.0	706.0	737.8	746.0	754.0	762.0	770.0	778.0
Multiplex	Com7	Com8	COM5 ArqA	PSB1 BBCA	PSB3 BBCB	COM6 ArqB	LM / LL / LPR	GIM	COM4 SDN	PSB D3+4
Field Strength (dBµV/m)	60.3	53.7	55.2	58.2	57.6	58.2	40.8	35.9	58.3	57.4

Measurement Location No. 5

TYPICAL PROPERTY TYPE AT TEST LOCATION

Residential 2 storey

Antennae Position and Environmental Conditions

Temperature (°C)	12° C
Relative Humidity (%)	80%
Date	2 nd February 2017
Time	09:57
DAB & VHF Antenna Height	2m AGL
UHF Antenna Height	10m AGL
OS Grid Reference (x,y)	53°28'7" N / 2°15'23"W

Analogue (FM) Radio Transmissions From Winter Hill Transmitter

Channel	Frequency (MHz)	Field Strength (dBµV/m)
BBC Radio 2	89.3	45.4
BBC Radio 3	91.5	53.5
BBC Radio 4	93.7	40.1
Rock FM	97.4	37.6
BBC Radio 1	98.9	54.3
Smooth Radio	100.4	35.6
BBC Radio Lancs	103.9	52.5
Real Radio	105.4	36.7

Digital (DAB) Radio Transmissions From Winter Hill Transmitter

DAB Block	Frequency (MHz)	Field Strength (dBµV/m)
11C	218.64 MHz	13.8
11D	222.064 MHz	64.8
12B	225.648 MHz	65.2

Digital Terrestrial Television from Winter Hill Transmitter

UHF Channel Allocation	31	37	49	50	54	55	56	57	58	59
Frequency (MHz)	554.0	602.0	698.0	706.0	737.8	746.0	754.0	762.0	770.0	778.0
Multiplex	Com7	Com8	COM5 ArqA	PSB1 BBCA	PSB3 BBCB	COM6 ArqB	LM / LL / LPR	GIM	COM4 SDN	PSB D3+4
Field Strength (dBµV/m)	53.1	51.5	47.5	51.6	53.1	49.0	32.9	18.2	52.3	54.9

Measurement Location No. 6

TYPICAL PROPERTY TYPE AT TEST LOCATION

Residential 2 storey

Antennae Position and Environmental Conditions

Temperature (°C)	12° C
Relative Humidity (%)	83%
Date	2 nd February 2017
Time	10:06
DAB & VHF Antenna Height	2m AGL
UHF Antenna Height	10m AGL
OS Grid Reference (x,y)	53°28'4" N / 2°15'21"W

Analogue (FM) Radio Transmissions From Winter Hill Transmitter

Channel	Frequency (MHz)	Field Strength (dBμV/m)
BBC Radio 2	89.3	53.5
BBC Radio 3	91.5	54.4
BBC Radio 4	93.7	51.4
Rock FM	97.4	46.0
BBC Radio 1	98.9	48.3
Smooth Radio	100.4	40.3
BBC Radio Lancs	103.9	27.8
Real Radio	105.4	37.6

Digital (DAB) Radio Transmissions From Winter Hill Transmitter

DAB Block	Frequency (MHz)	Field Strength (dBμV/m)
11C	218.64 MHz	16.8
11D	222.064 MHz	65.2
12B	225.648 MHz	57.8

Digital Terrestrial Television from Winter Hill Transmitter

UHF Channel Allocation	31	37	49	50	54	55	56	57	58	59
Frequency (MHz)	554.0	602.0	698.0	706.0	737.8	746.0	754.0	762.0	770.0	778.0
Multiplex	Com7	Com8	COM5 ArqA	PSB1 BBCA	PSB3 BBCB	COM6 ArqB	LM / LL / LPR	GIM	COM4 SDN	PSB D3+4
Field Strength (dBμV/m)	55.3	54.6	54.6	54.9	58.7	57.0	41.2	34.8	56.4	56.9

Measurement Location No. 7

TYPICAL PROPERTY TYPE AT TEST LOCATION

Residential 2 Storey

Antennae Position and Environmental Conditions

Temperature (°C)	11° C
Relative Humidity (%)	83%
Date	2 nd February 2017
Time	10:17
DAB & VHF Antenna Height	2m AGL
UHF Antenna Height	10m AGL
OS Grid Reference (x,y)	53°28'2" N / 2°15'18"W

Analogue (FM) Radio Transmissions From Winter Hill Transmitter

Channel	Frequency (MHz)	Field Strength (dBµV/m)
BBC Radio 2	89.3	46.7
BBC Radio 3	91.5	52.1
BBC Radio 4	93.7	50.2
Rock FM	97.4	45.1
BBC Radio 1	98.9	50.2
Smooth Radio	100.4	38.3
BBC Radio Lancs	103.9	22.1
Real Radio	105.4	36.2

Digital (DAB) Radio Transmissions From Winter Hill Transmitter

DAB Block	Frequency (MHz)	Field Strength (dBµV/m)
11C	218.64 MHz	13.8
11D	222.064 MHz	62.6
12B	225.648 MHz	64.1

Digital Terrestrial Television from Winter Hill Transmitter

UHF Channel Allocation	31	37	49	50	54	55	56	57	58	59
Frequency (MHz)	554.0	602.0	698.0	706.0	737.8	746.0	754.0	762.0	770.0	778.0
Multiplex	Com7	Com8	COM5 ArqA	PSB1 BBCA	PSB3 BBCB	COM6 ArqB	LM / LL / LPR	GIM	COM4 SDN	PSB D3+4
Field Strength (dBµV/m)	50.0	45.2	54.6	54.9	55.7	52.9	33.7	26.6	52.8	56.1



Measurement Location No. 8

TYPICAL PROPERTY TYPE AT TEST LOCATION

Residential 2 storey

Antennae Position and Environmental Conditions

Temperature (°C)	11° C
Relative Humidity (%)	83%
Date	2 nd February 2017
Time	10:26
DAB & VHF Antenna Height	2m AGL
UHF Antenna Height	10m AGL
OS Grid Reference (x,y)	53°27'60" N / 2°15'15"W

Analogue (FM) Radio Transmissions From Winter Hill Transmitter

Channel	Frequency (MHz)	Field Strength (dBµV/m)
BBC Radio 2	89.3	52.3
BBC Radio 3	91.5	50.2
BBC Radio 4	93.7	51.7
Rock FM	97.4	36.1
BBC Radio 1	98.9	57.9
Smooth Radio	100.4	43.3
BBC Radio Lancs	103.9	19.5
Real Radio	105.4	36.4

Digital (DAB) Radio Transmissions From Winter Hill Transmitter

DAB Block	Frequency (MHz)	Field Strength (dBµV/m)
11C	218.64 MHz	40.2
11D	222.064 MHz	72.8
12B	225.648 MHz	73.4

Digital Terrestrial Television from Winter Hill Transmitter

UHF Channel Allocation	31	37	49	50	54	55	56	57	58	59
Frequency (MHz)	554.0	602.0	698.0	706.0	737.8	746.0	754.0	762.0	770.0	778.0
Multiplex	Com7	Com8	COM5 ArqA	PSB1 BBCA	PSB3 BBCB	COM6 ArqB	LM / LL / LPR	GIM	COM4 SDN	PSB D3+4
Field Strength (dBµV/m)	59.3	55.8	61.7	61.8	65.5	63.5	45.6	40.9	64.8	65.7

Measurement Location No. 9

TYPICAL PROPERTY TYPE AT TEST LOCATION

Residential 2 Storey

Antennae Position and Environmental Conditions

Temperature (°C)	12° C
Relative Humidity (%)	83%
Date	2 nd February 2017
Time	10:35
DAB & VHF Antenna Height	2m AGL
UHF Antenna Height	10m AGL
OS Grid Reference (x,y)	53°28'1" N / 2°15'12"W

Analogue (FM) Radio Transmissions From Winter Hill Transmitter

Channel	Frequency (MHz)	Field Strength (dBµV/m)
BBC Radio 2	89.3	60.1
BBC Radio 3	91.5	58.5
BBC Radio 4	93.7	55.3
Rock FM	97.4	41.6
BBC Radio 1	98.9	64.4
Smooth Radio	100.4	43.5
BBC Radio Lancs	103.9	17.8
Real Radio	105.4	36.6

Digital (DAB) Radio Transmissions From Winter Hill Transmitter

DAB Block	Frequency (MHz)	Field Strength (dBµV/m)
11C	218.64 MHz	12.2
11D	222.064 MHz	55.6
12B	225.648 MHz	51.8

Digital Terrestrial Television from Winter Hill Transmitter

UHF Channel Allocation	31	37	49	50	54	55	56	57	58	59
Frequency (MHz)	554.0	602.0	698.0	706.0	737.8	746.0	754.0	762.0	770.0	778.0
Multiplex	Com7	Com8	COM5 ArqA	PSB1 BBCA	PSB3 BBCB	COM6 ArqB	LM / LL / LPR	GIM	COM4 SDN	PSB D3+4
Field Strength (dBµV/m)	61.5	55.4	58.7	62.0	56.6	61.0	45.1	42.0	63.2	62.6

Measurement Location No. 10

TYPICAL PROPERTY TYPE AT TEST LOCATION

Residential 2 storey

Antennae Position and Environmental Conditions

Temperature (°C)	12° C
Relative Humidity (%)	83%
Date	2 nd February 2017
Time	10:44
DAB & VHF Antenna Height	2m AGL
UHF Antenna Height	10m AGL
OS Grid Reference (x,y)	53°27'60" N / 2°15'12"W

Analogue (FM) Radio Transmissions From Winter Hill Transmitter

Channel	Frequency (MHz)	Field Strength (dBµV/m)
BBC Radio 2	89.3	51.9
BBC Radio 3	91.5	40.8
BBC Radio 4	93.7	47.9
Rock FM	97.4	30.6
BBC Radio 1	98.9	47.7
Smooth Radio	100.4	39.4
BBC Radio Lancs	103.9	20.2
Real Radio	105.4	32.8

Digital (DAB) Radio Transmissions From Winter Hill Transmitter

DAB Block	Frequency (MHz)	Field Strength (dBµV/m)
11C	218.64 MHz	16.8
11D	222.064 MHz	67.8
12B	225.648 MHz	60.4

Digital Terrestrial Television from Winter Hill Transmitter

UHF Channel Allocation	31	37	49	50	54	55	56	57	58	59
Frequency (MHz)	554.0	602.0	698.0	706.0	737.8	746.0	754.0	762.0	770.0	778.0
Multiplex	Com7	Com8	COM5 ArqA	PSB1 BBCA	PSB3 BBCB	COM6 ArqB	LM / LL / LPR	GIM	COM4 SDN	PSB D3+4
Field Strength (dBµV/m)	59.6	56.0	65.0	64.1	67.9	64.6	45.6	41.8	64.3	64.8

OBSERVATIONS

It is our considered opinion, with regard to the existing residential and commercial properties that are sited adjacent to the proposed development and in the local area, additional signal degradation will be negligible due to the existing high rise buildings that are behind the proposed development at a similar height. However the resilience of digital transmissions would mitigate most issues resulting in continued adequate reception of digital TV and radio transmissions.

Although not a specific requirement of the Pre-Construction Signal Impact Survey, our engineers also carried out satellite signal checks for confirmation and can confirm that satellite signals would not be affected by the development as the satellite signals come from the opposite direction.

Chris Threadgold

Chris Threadgold
Astbury