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Digital Broadcast Radio Predicted On-Air Coverage Northern Ireland Block 12D Local DAB Multiplex

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DAB coverage maps

All local digital radio (DAB) services have a specified licence area which is shown on the following maps. Any coverage falling outside of this licence area is neither counted as part of the coverage nor does Ofcom seek to protect it from interference.

Ofcom DAB coverage maps and figures are produced using the BBC software implementation of the UK planning model (UKPM). The UKPM methodology has been agreed between Ofcom, Arqiva, and the BBC. However, the actual implementation of the UKPM processes does vary between the organisations due to factors such as operating platform and program coding. As a result, predictions and coverage figures produced for the same set of wanted and interfering transmitter parameters by different organisations can be expected to exhibit small variations.

The coverage indicated does not represent or imply any warranty by Ofcom that the technical conditions which form the basis of its definition are satisfied at all points within the area shown, nor that these conditions would not be satisfied at locations outside of that area. The associated technical conditions represent a conservative average threshold (for each relevant measure) for generally acceptable reception for most circumstances: some listeners find these thresholds too low to deliver what they would like, and others enjoy what they regard as adequate reception under worse conditions than those corresponding to these thresholds. Reception quality can differ rapidly with changing location, to a more detailed extent than is shown on the map.

These maps do not take account of adjacent channel interference which may cause localised blocking around any DAB transmitter site not used by the wanted service. Furthermore, they only take account of interference from other services present at the time the maps were produced.

These maps represent the percentage of locations served[1] rather than the specific field strength level predicted at a point, as depicted on Ofcom AM and FM coverage maps. The reason for using this measure is that DAB services provide coverage using multiple transmitters on the same frequency; a single frequency network (SFN). There are two advantages of such a network;

- Firstly, the signals from several wanted transmitters may add constructively at the reception point giving a higher wanted signal level,
- Secondly, in many locations contributing transmitters may be in different directions from the receive point. So while the path to one transmitter may be obstructed the path to another might not.

The following four maps model a range of DAB coverage scenarios:

- Indoor coverage under enhanced propagation conditions.
- Indoor coverage under normal propagation conditions.

[1] Percentage of locations served is a measure of how many random points the receiver is expected to work at in a 100m square area (the size of a prediction pixel). For example, if we state that 95% of locations should be served the radio should work at 95 out of every 100 randomly chosen places within the prediction pixel.

- Mobile coverage under enhanced propagation conditions.
- Mobile coverage under normal propagation conditions.

Propagation conditions

The prevailing propagation conditions will have an impact on the levels of incoming interference within the wanted service area. As a result, we have predicted the interference limited coverage for:

- The effect of interference during enhanced propagation conditions that occur around 1% of the time, usually during high pressure weather conditions.
- Normal propagation conditions which occur for the majority of the time.

Ofcom's definition of what constitutes coverage is based on the worst case (enhanced) interference propagation conditions. Actual coverage will therefore generally be significantly more extensive than this.

Mobile and indoor reception

- Mobile coverage indicates where car and portable radios used outdoors are predicted to receive a signal. Ofcom's definition of mobile coverage is based upon providing a service to motorways and A roads within the licence area with 99% location and time availability. High percentage location and time requirements are deemed necessary in order to minimise the possibility that a stationary vehicle, at traffic lights or road works, might be in an unserved location. Consequently, when vehicles are in motion reception may well be possible beyond the licensed coverage and areas of lower percentage location availability are shown to indicate this.

- Indoor coverage indicates where a radio with an indoor aerial will receive a signal. This measure takes account of losses as the signal passes through the walls of the building. In the case of indoor coverage, we consider 80% locations to be a usable signal and consider 95% of locations to provide robust coverage. We do not believe that coverage at 99% locations is necessary indoors as the listener has the opportunity to position the radio at a number of places. We measure household coverage using a proportional counting system that operates as follows:
    - In pixels where coverage is predicted to be at or above 95% locations we consider all households in the pixel to be served.
    - In pixels where coverage is predicted to be available at only 80% of locations we will count only 80% of households to be served
    - For pixels predicted to have above 80% but less than 95% locations served we will count that percentage of households served. For example, if there were 100 households in a pixel predicted to be served at 87% locations we would consider 87 households to be served and 13 households to be unserved.
    - While reception will be possible in pixels predicted to have coverage of less than 80% of locations, Ofcom will consider all households within them to be unserved.

Northern Ireland Local DAB multiplex (Block 12D) coverage data.

Indoor Coverage	1% Time Propagation (HH)	Normal Propagation (HH)	Map Colour
95% Locations	651,639 (81.74%)	655,161 (82.19%)	
80% Locations	703,286 (88.22%)	705,022 (88.44%)	
70% Locations	718,836 (90.17%)	720,177 (90.34%)	
Proportional count: 80% to 95% Locations	697,619 (87.51%)	699,548 (87.75%)	**Not Applicable**

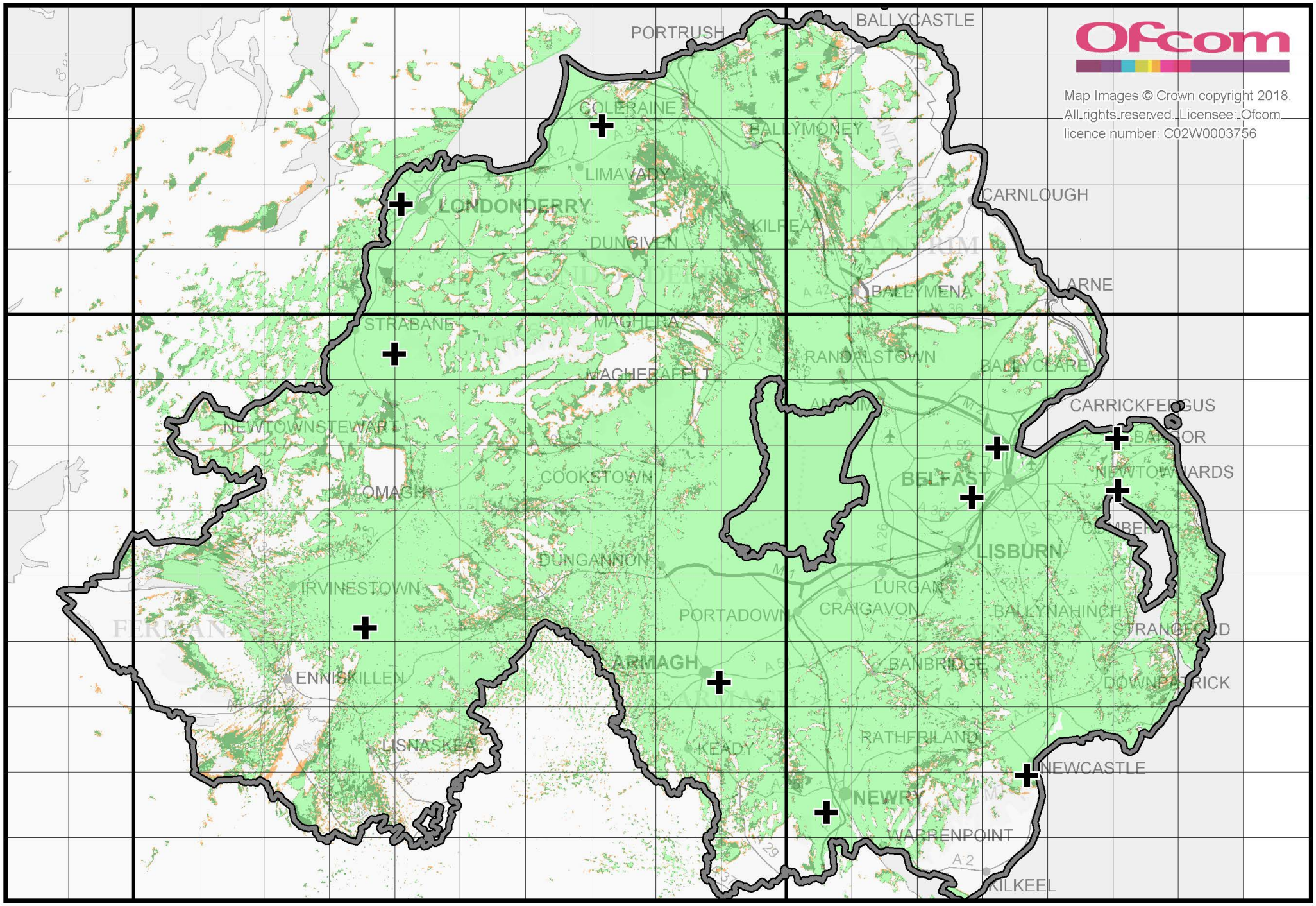
Total Households within the Northern Ireland Digital Licence Area: 797,166 Households.

Outdoor Mobile Coverage	1% Time Propagation (km)	Normal Propagation (km)	Map Colour
99% Locations	2,094.1 (87.84%)	2,148.6 (90.13%)	
95% Locations	2,158.1 (90.52%)	2191.1 (91.91%)	
90% Locations	2,184.6 (91.64%)	2211.8 (92.78%)	
70% Locations	2,232.2 (93.63%)	2,250.4 (94.40%)	

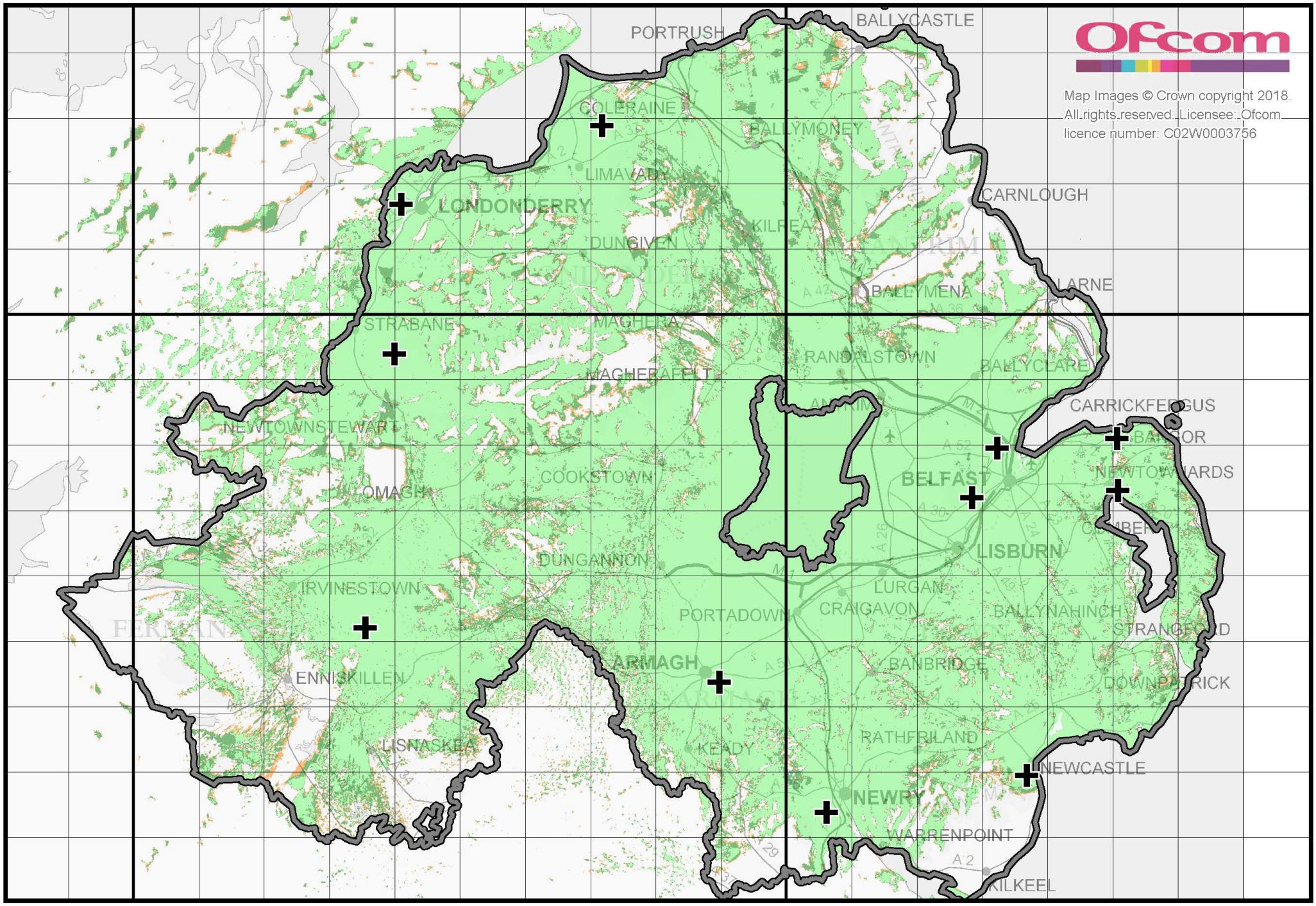
Total Motorway and ‘A’ road length within the Northern Ireland Digital Licence Area: 2,384.0 kilometres

Site Name	NIGR	Site height (m)	Aerial Height (m)	Radiated Power (kW)	Antenna & Bearing
Armagh	IH 891 446	109m	52 m	5.0	Dipoles on 30°
Bangor	IJ 500 817	21 m	19 m	0.024	Dipoles on 180°
Black Mountain	IJ 279 727	301 m	208 m	7.0	Panels
Brougher Mountain	IH 349 528	305 m	46 m	4.35	Dipoles on FM panels
Camlough	IJ 055 247	340 m	38 m	3.0	Dipoles on 20°
Colinward	IJ 318 803	335 m	35 m	1.0	Dipoles on 50°
Limavady	IC 711 296	350 m	29 m	6.2	Dipoles on FM panels
Londonderry	IC 404 176	175 m	99 m	5.0	Dipoles on 120°
Newcastle NI	IJ 362 302	234 m	42 m	2.0	Dipoles on 20°
Newtownards	IJ 501 738	20 m	16 m	0.015	Collinear
Strabane	IH 393 947	274 m	231 m	3.3	Screened Dipoles 90°

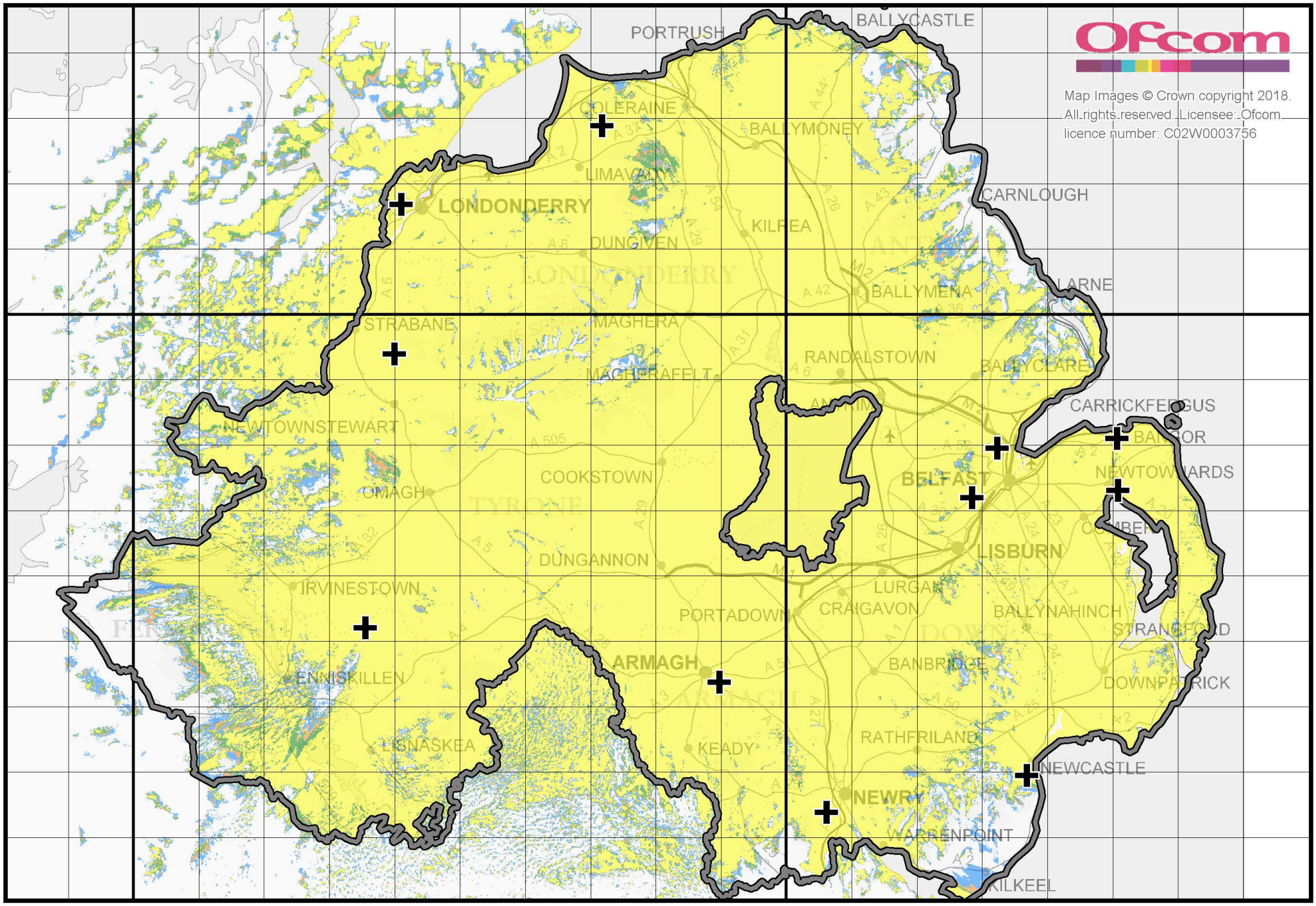
Transmitters in use for the Northern Ireland Digital multiplex.



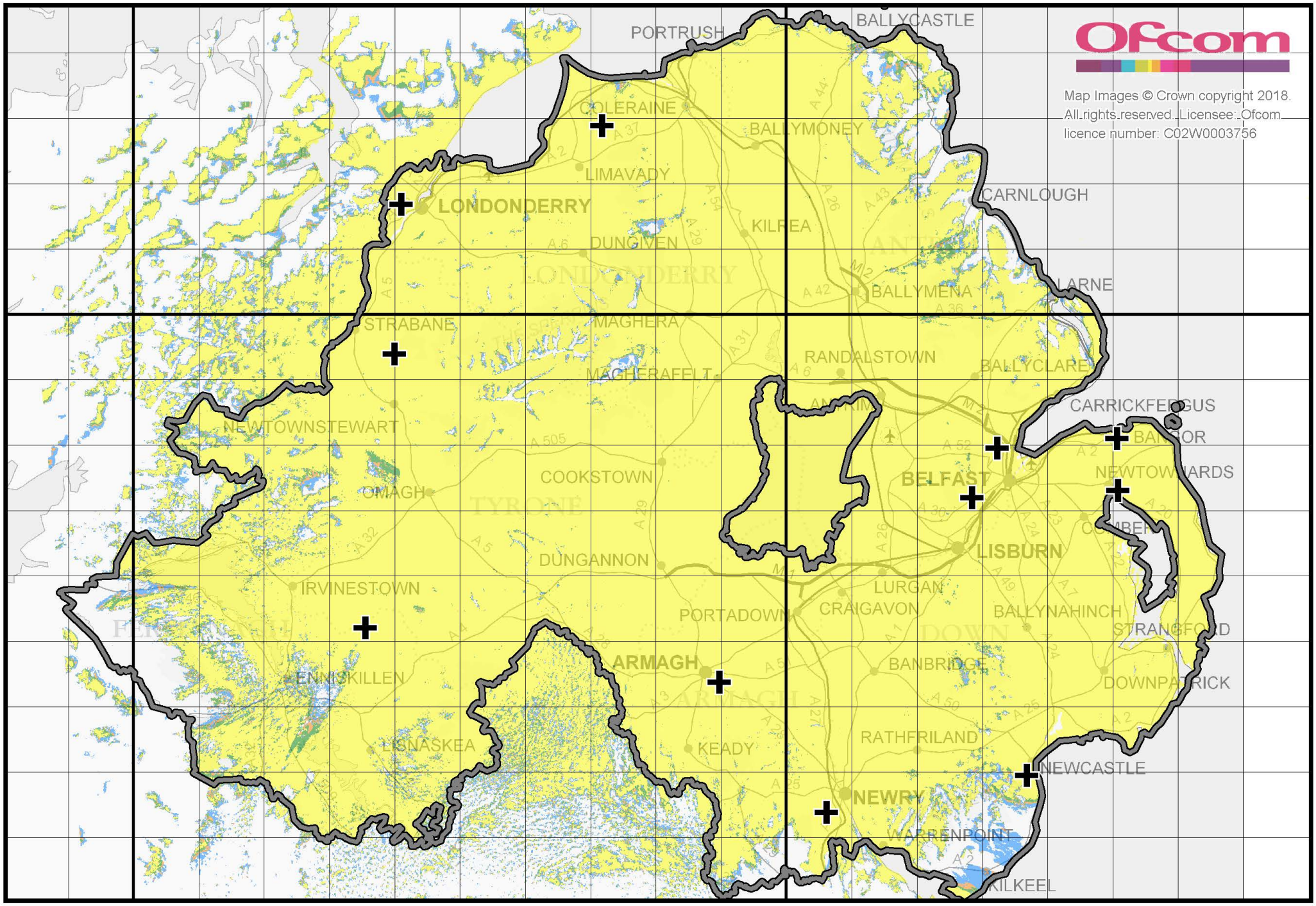
Northern Ireland regional DAB multiplex service (Bauer Digital) indoor coverage enhanced propagation conditions, August 2018



Northern Ireland regional DAB multiplex service (Bauer Digital) indoor coverage normal propagation conditions, August 2018



Northern Ireland regional DAB multiplex service (Bauer Digital) mobile coverage enhanced propagation conditions, August 2018



Northern Ireland regional DAB multiplex service (Bauer Digital) mobile coverage normal propagation conditions, August 2018