



Response to Ofcom Consultation

Higher power limits for licence  
exempt devices

# 1 CONNECTED COMMUNITIES NETWORK

## 1.1 General

The Western Isles comprise Lewis, Harris, North Uist, Benbecula, South Uist and Barra and are located some 55 km off the northwest coast of Scotland. The islands cover an area of approximately 2,898 km and extend some 210 km from the north of Lewis to the southern tip of Barra. There is a resident population of 27,000, with the only large town being Stornoway in Lewis, with a population of approximately 6,000. The geographic area of the Western Isles is shown in the figure below.



The Western Isles Connected Communities broadband network delivers broadband services to both public and private sector organisations, including residential customers, throughout the remote rural communities of the Western Isles. The common network infrastructure provides value for money, through economies of scale, to the benefit of all user groups - both private and public sector. The project, led by Highlands and Islands Enterprise was funded through the DTI sponsored Broadband Fund, Western Isles Enterprise, Comhairle nan Eilean Siar (Western Isles Council) and the Highlands and Islands Special Transitional Program.

## **1.2 Network Overview**

Utilising radio as the predominant transmission technology, the communications infrastructure comprise high and medium capacity licensed digital microwave SDH and PDH radio links forming a backbone network spanning the Islands, linking a total of 35 community nodes back to a central hub site in Stornoway. The hub provides both a central traffic interconnection and distribution point for public sector traffic via a Fibre MAN and a point of presence for an off-Island Internet link for residential and business subscribers. At each of the community nodes, FWA technology operating in the 5.8GHz Band C is used to provide broadband access for Subscriber Units (SU) installed at the various user groups premises.

The installation of the network infrastructure commenced in January 2005, and was complete by the end of June 2006.

## **1.3 Service Offerings**

A range of symmetrical broadband internet packages ranging in bandwidths of 512Kbit/s to 4Mbit/s are offered to residential and business subscribers across the Island chain. In addition, the network provides broadband symmetrical VPN connections to some 50 public sector customer premises, including council offices, schools, hospitals, health centres and GP medical practices.

## **1.4 Network Development**

The original system design and hence extent of broadband radio coverage was, in general, dictated by the location of the public sector organisation's premises. Whilst this provided coverage of the majority of the Western Isles larger communities, due to financial, time and topographical constraints, a number of the more remote areas of the Islands were not serviced.

The Community Broadband Initiative is designed to extend the coverage of the broadband network into these areas through the installation of additional low cost broadband relay sites.

## 1.5 Connected Communities response to:

### 6.18 “Options for Increased power at 5GHz”

*Q6: For 5GHz should Ofcom increase the power to 4W EIRP at 5.8GHz in accordance with ECC Recommendation and as set out in the draft IR2007?*

**Answer: Yes**

Whilst the project partners acknowledge that the proposed increase in EIRP to 4W will provide an increase to the current 5.8GHz coverage footprint, our initial desktop propagation studies indicate that this is not significant, (especially when considering an Omni directional antenna) and it is unlikely to have any major impact on the number of required Community Broadband infill sites.

As discussed in section 1.2, licensed digital microwave links have been exclusively used to provide backhaul in the Connected Communities network. For the proposed infill sites, where data bandwidth requirements are limited, a more cost effective solution utilising 5.8GHz point to point link technology is proposed and whilst the increase in EIRP will not have a significant impact on achievable link length, it will provide an improvement.

We note in paragraph 1.11 of the consultation document that the MOD has shown a “willingness to examine whether higher power could be allowed in the bands where it has significant usage but has no resources to devote to this work for the foreseeable future”. **The project partners would request that Ofcom pursue this offer made by the MOD to determine whether there is further scope to increase the EIRP in future.**

*Q6 cont'd: Should Ofcom open the database for public access to facilitate coordination?*

In the interest of security and confidentiality, the Connected Communities would not support the open public access to our customer’s information contained in the 5.8GHz registration database and as such would request that the system remains in its present form.

## APPENDIX A

## **5.8GHZ EIRP INCREASE: COVERAGE BENEFIT ANALYSIS**

The example coverage plots on the next pages seek to quantify the benefit the increase in EIRP will have on the coverage afforded to both existing installations and proposed community infill sites in the Western Isles.

In the case of an existing installation, the first example shows the predicted coverage from a 15dBi, 120 degree sector antenna with an EIRP of 2W and 4W.

The next example is of the predicted coverage from a 5.8GHz Access Unit, with 8dBi Omni directional antenna installed at 5m AGL. Again, the predicted coverage for an EIRP of 2W and 4W are shown.

In all cases, the receive Subscriber Unit Antenna is set at 4m. The receive signal level is commensurate with the min required to support a 6Mbit/s gross throughput.













