

Guidance on the licensing of High Duty Cycle (HDC) Network Relay Points (NRP)

Introduction

1.1 This information leaflet provides some general guidance for applicants wishing to apply for a High Duty Cycle (HDC) Network Relay Points (NRPs) licence in the 870 to 873 MHz band.

1.2 The Internet of Things (IoT) is set to enable large numbers of previously unconnected devices to communicate and share data with one another. This new connectivity has the potential to deliver significant benefits across a range of sectors, including energy, transport and healthcare.

1.3 Given the increase in connected devices both in the home and across the country the data from various devices will need to be connected together. NRPs are used in some networks to connect individual devices together and to connect devices to networks. They aggregate and concentrate data from consumer devices and need to talk and listen to these. The ratio of talk to listen time is referred to as duty cycle. For most NPR devices the duty cycle will likely be below 2.5%. Given the low likelihood of equipment interfering with other devices, due in a large part to the low duty cycle these devices are licence exempt.

1.4 However, there are some circumstances where use of higher duty cycle above 2.5% may be beneficial for operation and/or efficiency of the network. For this reason on 9 December 2014, Ofcom published its Statement on the Authorisation Regime for HDC NRPs⁽¹⁾. Given the increased risk of interference of devices operating with a duty cycle of between 2.5% and 10% we decided to implement a light licence approach.

http://stakeholders.ofcom.org.uk/binaries/consultations/network-relay-points/statement/NRP_statement.pdf

Legislation

1.5 Under the Wireless Telegraphy Act 2006, the use of any radio equipment without a licence (unless specifically exempted from licensing) is unlawful.

1.6 Operating without a licence, or failing to comply with the terms of your licence, increases the risk of harmful interference and can threaten the safety of human life. Consequently, there are penalties for unlicensed or incorrect use, which can include a fine, imprisonment and forfeiture of any equipment associated with the offence.

1.7 As a licensee, you are ultimately responsible for the actions of anyone who uses the equipment covered by your licence. You should therefore study the conditions attached to the licence, and ensure that anyone using your radio equipment is familiar with them.

Licence conditions

1.8 Amongst other things, the licence includes the following obligations:

a) that the licensee shall ensure that the Radio Equipment is operated on a non-interference and non-protected basis;

b) no airborne use is permitted; and

c) that the HDC NRPs must meet the technical conditions in UK Interface Requirement 2095 ~~(-2-)~~

1.9 The licence also specifies the site address for the HDC NRPs, or its location to 10 metres accuracy.

Limitation on licence numbers

1.10 Ofcom will not limit the number of network licences. Competing networks will be able to deploy in the same areas and share the same spectrum in the 870 to 873 MHz band.

Territorial extent

1.11 The licence will authorise the Licensee to establish, install and use the Radio Equipment in that covers the whole of the UK, Isle of Man and Channel Islands.

Permitted frequencies

1.12 HDC NRPs will be licensed to use the 870 to 873 MHz frequency range. This is the same range available to NRPs with a duty cycle of less than 2.5% under the existing licence exemption regulations.

Technical parameters

1.13 The technical parameters of the licence are in line with ECC Report 200 ~~(-3-)~~. Licences will be available for Networks with HDC NRPs having:

- a) duty cycles exceeding 2.5% but not exceeding 10%;
- b) effective radiated power (e.r.p.) = 500 mW;
- c) Adaptive Power Control (APC); and
- d) channel spacing =200 kHz.

1.14 A requirement of the licence is that equipment cannot cause interference to other users. We believe that this can be best achieved through the use of Clear Channel Assessment (CCA) or alternative politeness protocols that manage interference effectively, but we are not mandating CCA as this will be covered by the Harmonised Standard. Accordingly, licensees will have to use equipment that implements CCA or equivalent.

1.15 No airborne use permitted.

1.16 The full details are set out in IR2095. ~~(-4-)~~

Licence duration, fee and revocation notice period

1.17 The licence has no end date but has an annual payment interval. The licence has a fee of £75 payable every year. This is in line with similar licence products issued by Ofcom. The fee is fixed per licence and does not depend on the number of HDC NRPs deployed or the number of deployment locations.

1.18 However, we will be reviewing the licence charges for these types of licences in the future and, as a result of this review, the fees for this product may change. In line with Ofcom policy any proposed changes to these charges would be subject to consultation.

1.19 The licence will be subject to a 2 year minimum notice period for revocation due to spectrum management reasons. We do not expect to give notice before 2016 when we intend to vary out a review of these licensing arrangements.

Trading

1.20 The rights of use can be transferred to another user. In order to permit trading, we need to first make trading regulations. We will do this at the next opportunity that arises. Trading will not be permitted until such regulations are in place.

Record keeping and information provision

1.21 The licence will require the Network Licensee to maintain accurate records of the deployment of HDC NRPs and to provide these to Ofcom upon request.

1.22 Information on Network licensees will be published on Ofcom's UK Wireless Telegraphy Register (WTR) so that licensees can identify each other.

Other licence requirements

1.23 The general terms and conditions of the licence will closely follow those of our other licences set out in the 'Wireless Telegraphy General Licence Conditions Booklet' [\(6\)](#) published February 2006.

- a) licence term, variation and revocation process;
- b) how changes to the licence will be managed;
- c) licence fees and their payment;
- d) the ability of Ofcom employees to access and inspect equipment; and
- e) powers for Ofcom to require the modification restriction and closedown of the radio equipment, or any part thereof.

Licence review

1.24 We intend to review the authorisation regime for Networks in the 870-783 MHz band. This future review may look at whether there:

- i) is further practical evidence on the actual density of HDC NRP deployments and the effectiveness of interference mitigation techniques;
- ii) are any arrangements for co-ordination between network operators, whether they are beneficial and if there is a need for introducing or strengthening arrangements for coordination (e.g. through mandating a coordination procedure); and
- iii) is any evidence suggesting that the number of networks or HDC NRPs needs to be limited through regulatory means in order to manage interference (eg. through an award of a limited number of licences¹²) or whether we should support a non-regulatory method of managing interference.

1.25 We currently expect to review the authorisation of HDC NRPs during 2016. The precise timing of the review will depend on how quickly the demand for HDC NRPs becomes concrete, the progress of European compatibility studies and the development of the European harmonised standard (EN 303 204 parts 1 and 2) for SRDs using the 870-876 MHz and 915-921 MHz bands. It is also possible that Europe may consider the case for and against exempting HDC NRPs in this timeframe. We will engage in these discussions in light of the same experience and evidence that we intend to inform our own review in 2016.

1.26 We expect to update stakeholders on our plans for this future review nearer the time.

Footnotes:

_1.- http://stakeholders.ofcom.org.uk/binaries/consultations/network-relay-points/statement/NRP_statement.pdf

_2.- <http://stakeholders.ofcom.org.uk/spectrum/technical/interface-requirements/>

_3.- <http://www.erodocdb.dk/docs/doc98/official/pdf/ECCRep200.pdf>

_4.- <http://stakeholders.ofcom.org.uk/spectrum/technical/interface-requirements/>

_5.- <http://spectruminfo.ofcom.org.uk/spectrumInfo/licences>

_6.- <http://licensing.ofcom.org.uk/radiocommunication-licences/regulations-technical-reference/rules/policy-manual/>