Office of Communications (Ofcom)

BROADBAND FIXED WIRELESS ACCESS - OPERATOR LICENCE (28GHz band)

This Licence is issued by Ofcom on 18 January 2005 to Wave Telecom Ltd.

Licence no. 280678
Date of issue: 18 January 2005
Fee payment date: 31 January (Annually)

1. The Office of Communications (Ofcom) grants this licence to

Wave Telecom Ltd
Company Reg No 39971
("the Licensee")
Suite 7, Provident House
Havilland Street
St Peter Port
Guernsey
GY1 2QE

to establish, install and use radio transmitting and receiving stations and/or radio apparatus as described in the schedule(s) (herein after together called "the Radio Equipment") subject to the terms, provisions and limitations set out below.

Licence Term

2. This Licence shall continue in force until revoked by Ofcom or surrendered by the Licensee.

Licence Variation and Revocation

3. (1) Pursuant to Section 4 of the Wireless Telegraphy Act 1998 (the 1998 Act), Ofcom may not revoke or vary this Licence under section 1(4) of the Wireless Telegraphy Act 1949 save at the request or with the consent of the Licensee except:

   (a) if there is no longer in force a licence granted to the Licensee by the Office of Utility Regulations Guernsey, for the provision of a electronic communications service in that territory;
(b) in accordance with clause 6 of this Licence;

(c) in accordance with section 4 (5) of the 1998 Act;

(d) if there has been a material breach of any of the terms of this Licence or the schedule(s) hereto; or

(e) if it appears to Ofcom to be necessary or expedient to revoke the Licence for the purposes of complying with a direction by the Secretary of State given to Ofcom under section 5 or section 156 of the Communications Act 2003.

(2) Pursuant to section 4 of the 1998 Act Ofcom may not vary this Licence under section 1(4) of the 1949 Act save at the request or with the consent of the Licensee except:

(a) in the circumstances specified in paragraphs (a) to (c) of sub-paragraph (1) of this paragraph;

(b) if Ofcom has reasonable grounds for concluding that use of the Radio Equipment in accordance with paragraphs 5-8 of schedule 1 causes or will cause undue interference to other authorised users of radio equipment; or;

(c) if it appears to Ofcom to be necessary or expedient to revoke the Licence for the purposes of complying with a direction by the Secretary of State given to Ofcom under section 5 or section 156 of the Communications Act 2003.

Transfer and Changes

4. This Licence may not be transferred.

5. The Licensee must give prior or immediate notice to Ofcom in writing of any change in the details of the name and/or address recorded above.

Fees

6. The Licensee shall pay Ofcom the relevant fee as provided in section 1 (2) of the Wireless Telegraphy Act 1998 and the Regulations made there under:

(a) on or before the date of issue of this Licence; and/or

(b) on or before the fee payment date shown above each year, or on or before such dates as shall be notified in writing to the Licensee,

failing which Ofcom may revoke this Licence.
Radio Equipment Use

7. The Licensee must ensure that the Radio Equipment relevant to each Licence is constructed, established, installed and used only in accordance with the provisions specified in the individual Licence schedules. Any proposal to amend any details specified in those schedules must be agreed with Ofcom in advance and implemented only after that Licence has been varied or reissued accordingly.

8. The Licensee must ensure that the Radio Equipment is only used on its behalf by persons who have been authorised by the Licensee to do so, and that such persons are made aware of, and of the requirements to comply with, the terms of the Licence.

Access and Inspection

9. The Licensee shall permit a person authorised by Ofcom:
   (a) to have access to the Radio Equipment; and
   (b) to inspect this Licence and the Radio Equipment,

   at any and all reasonable times or, when in the opinion of that person an urgent situation exists, at any time to ensure the Radio Equipment is being used in accordance with the terms of this Licence.

Modification, Restriction and Closedown

10. A person authorised by Ofcom may require the Radio Equipment, or any part thereof, to be modified or restricted in use, or temporarily or permanently closed down immediately if in the opinion of the person authorised by Ofcom:
   (a) a breach of this Licence has occurred; and/or;
   (b) the use of the Radio Equipment is causing or contributing to undue interference to the authorised use of other radio equipment.

11. Ofcom may require the Radio Equipment to be modified or restricted in use, or temporarily or permanently closed down either immediately or on the expiry of such period as may be specified in the event of a national or local state of emergency being declared. Ofcom may only exercise this power after a written notice is served on the Licensee or a general notice applicable to holders of a named class of Licence is published.

Geographical Scope

12. This Licence authorises the establishment, installation and use of the Radio Equipment only in the Bailiwick of Guernsey.
Interpretation

13. In this Licence:

(a) the establishment, installation and use of the Radio Equipment shall be interpreted as establishment and use of stations and installation and use of apparatus for wireless telegraphy as specified in section 1 of the Wireless Telegraphy Act 1949;

(b) the expression "undue interference" shall have the same meaning that it has under the Wireless Telegraphy Act 1949;

(c) the expression "inspect" includes examines and tests;

(d) the schedule(s) form(s) part of this Licence together with any subsequent schedule(s) which Ofcom may issue as a variation to this Licence at a later date; and

(e) the Interpretation Act 1978 shall apply to the Licence as it applies to an Act of Parliament.

Issued by Ofcom.

Brian Last
Head of Mobile and Broadband
Office of Communications
SCHEDULE 1 TO LICENCE NUMBER: 280678
DESCRIPTION OF RADIO EQUIPMENT COVERED BY THIS LICENCE

Licence Category: Broadband Fixed Wireless Access

This schedule forms part of licence no 280678, issued to Wave Telecom Ltd, the Licensee on 18 January 2005, and describes the Radio Equipment covered by the Licence and the purpose for which the Radio Equipment may be used.

1. Description of Radio Equipment Licensed

In this Licence, the Radio Equipment means the transmitting and receiving stations and/or radio apparatus used as broadband fixed wireless access transceivers. This includes Base Station, Nodes, Central Stations, Hub Stations, Access Point Transceivers, Customer Premises Equipment, Terminal Stations and Radio Relay Repeaters which are connected within a BFWA network.

2. Purpose of the Radio Equipment

The Licensee shall install, maintain and use the Radio Equipment in such a way that it forms part of a Broadband Fixed Wireless Access telecommunications network (“the BFWA Network”), providing wireless telegraphy connection between end user premises and/or between telecommunications network.

3. Records and Information

(a) During the period that this Licence remains in force and for 6 months thereafter, the Licensee shall compile and maintain accurate written records of:

   i. The following details relating to the Radio Equipment:

      (a) postal address;
      (b) National Grid Reference, (to 10 Metres resolution);
      (c) antenna height (AGL) and type;
      (d) antenna azimuth, elevation and polarisation;
      (e) specific radio frequencies and bandwidths (emission codes) in operation;
      (f) EIRP of individual stations

   ii. a statement of the number of subscribing customers using the Network;

   iii. frequencies in operation;
and the Licensee must produce the above records when a person authorised by Ofcom requires him to do so.

(b) The details of the parameters listed in paragraph 3(a) above, must, for each Assignment, be communicated to Ofcom no later than 3 months after, but not more than one year prior to, the commencement of transmission.

(c) The Licensee shall inform Ofcom of the address of the premises at which this Licence and the information detailed at sub-paragraph (a) above shall be kept.

(d) The Licensee shall, upon request, supply Ofcom or any person authorised in their behalf with the name and address of any subscribing customers to the Network, or require its agents to provide such information on its behalf.

4. Site Clearance Requirements

A valid site clearance certificate, issued by Ofcom is required for all the Radio Equipment except Base transceiver stations incorporating transmitters radiating not more than 17dBW ERP per channel and aerial systems, the highest point of which is less than 30 metres above ground level and which does not increase the height of a building by more than 5 metres (whichever is the higher).

5. Coordination Procedures

The Radio Equipment shall be operated in compliance with such co-ordination and sharing procedures as may be considered necessary and notified to the Licensee by Ofcom.

6. Frequencies of Operation and Emission Limits

(a) The Radio Equipment must operate only using the frequency ranges shown in Table 1 below and;

(b) the Radio Equipment’s transmissions, at the -3dB bandwidth points, must operate only between the frequency ranges shown in Table 1 below:

Table 1

<table>
<thead>
<tr>
<th>Lower Frequency Range</th>
<th>Upper Frequency Range</th>
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<tbody>
<tr>
<td>28.0525 - 28.1645 GHz</td>
<td>29.0605 to 29.1725 GHz</td>
</tr>
<tr>
<td>(112 MHz)</td>
<td>(112 MHz)</td>
</tr>
</tbody>
</table>
7. **Conformity Assessment Requirements**

The Radio Equipment must comply with the Ofcom Interface Requirement IR2043 for; “Broadband Fixed Wireless Access Radio Systems operating in the 28 GHz Frequency Band Administered by Ofcom”.

8. **Interpretation**

In this Schedule:

a) “-3dB Bandwidth Points”; means the bandwidth of an individual transmission at a point -3dB (minus three decibels) of the maximum level of that transmission. This is sometimes referred to as the “half power point”;

b) “Access Point Transceiver” means any station that provides connection between the BFWA Network and another telecommunications network;

c) “AGL” is an abbreviation for Above Ground Level, which is a height measurement.

d) “Assignment” means the collection of technical items which describes the particular radio installation and transmission parameters including but not limited to; specific frequency bandwidth, emission code, transmitter or receiver location, radiated radio frequency power, antenna type and direction of radiation and antenna height above ground;

e) "Base Station" means any station that is normally in a central position to associated terminal stations, customer premises or access point transceiver equipment and is connected to a telecommunications network;

f) “Broadband Fixed Wireless Access” (BFWA) means the provision by means of a wireless communications system of 2-way wireless communications links over which data may be transmitted and received at rates of at least 2 Mbits/second on demand;

g) “Central Station” another description of either a "Base Station" or a "Hub Station";

h) “Customer Premises Equipment” means any station that provides connection between the BFWA Network and an end user, not including connection to any telecommunication equipment forming part of any other public telecommunication system;

i) "EIRP" means the effective isotropically radiated power. This is the product of the power supplied to the antenna and the antenna gain in a given direction relative to an isotropic antenna (absolute or isotropic gain);

j) “Emission Code” shall have the meaning as defined in the ITU Radio Regulations RR 4-2 and Appendix 6 Parts A & B.

k) "Hub Station" another description of either a "Base Station" or a "Central Station";

m) “Node” means a radio transceiver unit that can transmit and receive in a number of directions at differing times or frequencies;

n) “Radio Relay Repeater” means any station of the network that forwards a communication to another station of the network;

o) “Terminal Stations” means any station of the network that receives information from the BFWA Network where that connection would be to an end user or another electronic communications network;

Mobile and Broadband Team
The Office of Communications (Ofcom)