



BERMUDA
**REGULATORY
AUTHORITY**

Spectrum Licence Microwave Point-to-Point

Licensee: Telecommunications Networks Limited

Address: P.O. Box CR233
Crawl
Hamilton Parish CR BX

Licence Number: 019-MPP-06

Issue Date: 30 October 2014

Expiry Date: 29 October 2024

The Regulatory Authority of Bermuda, in the exercise of the authority conferred upon it by the Electronic Communications Act 2011, hereby grants to Telecommunications Networks Limited this Radio Spectrum Licence, which provides the right to use the assigned Radio Spectrum in accordance with the terms and conditions of this Licence and its Schedules, the terms and conditions of the Licensee's associated Integrated Communications Operating Licence, the Electronic Communications Act 2011, the Regulatory Authority Act 2011, and any Regulations, General Determinations, Adjudicative Decisions, Orders or Directives made or issued in accordance with these Acts and applicable international treaties and regulations.

1 DEFINITIONS AND INTERPRETATION

1.1 In this Licence, unless the context otherwise requires:

“Assigned Frequencies” means the frequencies assigned to the Licensee, as set forth in Schedule A attached hereto;

“Associated ICOL” means the Integrated Communications Operating Licence granted to the Licensee;

“Authority” means the Regulatory Authority;

“Authorized Use” means the use of the Assigned Frequencies as described in Condition 3.1 of this Licence;

“Bermuda Frequency Assignment Register” means a register containing a table of radio frequency spectrum assignments, including the name of the licensee, the frequencies assigned, the Authorized Use(s) and any other relevant information contained in Schedule A;

“Co-Primary Basis” means the nature of a right granted to the holder of a Radio Spectrum Licence to use the specified frequencies, subject to the condition that the licensee shall coordinate with other Co-Primary licensees to limit Harmful Interference to existing links and services operating in the relevant frequency bands, and facilitate the introduction of additional links and services in the relevant frequency bands. Co-Primary licensees shall refrain from causing Harmful Interference to, and may not require protection from, the links and services of other Co-Primary licensees that were previously authorized and operating in the licensed frequencies. All Co-Primary licensees are authorized to use the frequency bands covered by their respective licenses subject to protection from: (1) Harmful Interference caused by any other licensee that may be authorized to use the same Radio Spectrum on a Secondary Basis; and (2) claims of Harmful Interference from holders of secondary licenses with respect to the frequencies;

“Control” means:

- (a) the power, whether held directly or indirectly, to exercise decisive influence over the Licensee, including by directing its management and policies, whether through ownership of shares, stocks or other securities or voting rights, or through an agreement or arrangement of any type, or otherwise; and

(b) shall, in any event, be deemed to exist in any case involving the ownership of 25 per cent or more of the shares, stock or other securities or voting rights, including through an agreement or arrangement of any type;

“**Distress signal**” means radio signals broadcast to indicate that a person, ship, aircraft or other vehicle is in distress and requires immediate assistance;

“**ECA**” means the Electronic Communications Act 2011;

“**ITU**” means the International Telecommunication Union;

“**Licence**” means this Radio Spectrum Licence granted to the Licensee;

“**Licensee**” means Telecommunications Networks Limited and, for the avoidance of doubt, does not include any Affiliates of the Licensee;

“**Microwave Link**” means a microwave transmission path between two fixed geographical points;

“**Primary Basis**” means the nature of a right granted to the holder of a Radio Spectrum Licence, pursuant to which the licensee is the only Person authorized to use the specified frequency bands who is also entitled to protection from: (1) Harmful Interference caused by any other licensee who may be authorized to use the same spectrum on a Secondary Basis; and (2) claims of Harmful Interference by any such licensee;

“**RAA**” means the Regulatory Authority Act 2011;

“**Secondary Basis**” means the nature of a right granted to a holder of a Radio Spectrum Licence who is authorized to use the specified frequency bands subject to the condition that such licensee does not cause any Harmful Interference to, or claim protection from any Harmful Interference cause by other, licensees who have been granted the right to use the same frequency bands on an Primary or Co-Primary Basis; and

“**Sub-license**” means any segregation or partition of the radio frequency usage rights granted herein and shall include any arrangement by the Licensee to share radio frequency rights with one or more third parties, including any Affiliate.

1.2 For the purpose of interpreting this Licence, words or expressions shall have the meaning assigned to them in the Associated ICOL, unless otherwise specified, and the rules of interpretation in Condition 2 of the Associated ICOL shall apply.

2 ASSIGNED FREQUENCIES AND USAGE RIGHTS

2.1 Subject to the Applicable Regulatory Framework, the Associated ICOL and the terms and conditions of this Licence, the Licensee is hereby authorized to use the Assigned Frequencies, subject to the fixed geographical points identified in Schedule A, on a Co-Primary Basis. Schedule A shall be revised and updated, as necessary, to reflect any authorized changes in the Assigned Frequencies or Microwave Links.

- 2.2 The Licensee shall comply with any technical or other requirements that the Authority may adopt in respect of the Authorized Use.
- 2.3 The Licensee shall utilize the Assigned Frequencies in full conformity with the Bermuda Frequency Allocation Table and the Bermuda Frequency Assignment Register maintained by the Authority, including any amendments thereto, subject to Condition 3 of this Licence.

3 SCOPE OF THE LICENCE

- 3.1 This Licence grants the Licensee the right to use the Assigned Frequencies in conjunction with the Associated ICOL, exclusively for the provision of point-to-point Microwave Links.
- 3.2 This Licence does not grant the Licensee any ownership rights in the Assigned Frequencies, and no such rights shall be created or implied by virtue of the Licensee's use of the Assigned Frequencies.
- 3.3 The Licensee shall not use the Assigned Frequencies in the provision of Public Electronic Communications Services unless the Associated ICOL is and remains valid and effective.
- 3.4 Nothing in this Licence shall relieve the Licensee of the obligation to comply with any other requirement of law or practice to obtain additional consents, permissions, authorizations, licences or permits as may be necessary to operate Radio Apparatus or Radio Stations, establish, construct and operate an Electronic Communications Network, or provide Electronic Communications Services.

4 GRANT AND DURATION OF THE LICENCE

This Licence is valid and effective from the date hereof and shall remain in effect, provided that the Associated ICOL is valid and effective until the earlier of:

- (a) 29 October 2024;
- (b) the date on which the Licensee surrenders this Licence; or
- (c) the date on which this Licence is revoked pursuant to section 93(5) of the RAA.

5 RENEWAL

- 5.1 This Licence may be renewed, at the discretion of the Authority, for a term not to exceed ten years, provided that the duration of the renewed Licence shall not exceed that of the Associated ICOL.
- 5.2 This Licence may only be renewed if the Associated ICOL remains valid and effective.

6 MODIFICATION

This Licence, including its Schedules, may be modified by the Authority:

- (a) with the consent of the Licensee;
- (b) pursuant to the provisions of Section 51 of the RAA and Section 9(2)(c)(i) of the ECA;
- (c) to conform to the terms and conditions of the Associated ICOL, including any modifications thereto;
- (d) to bring the terms of the Licence into conformity with international treaty obligations or regulations or the Applicable Regulatory Framework (including the Bermuda Frequency Allocation Table);
- (e) following an enforcement proceeding, pursuant to the provisions of Section 93 of the RAA; or
- (f) following the conclusion of a spectrum investigation pursuant to Section 78 of the ECA or following an adjudication pursuant to Section 41 of the ECA.

7 OBLIGATIONS UNDER THE LICENCE

- 7.1** The Licensee shall comply with existing and future international coordination requirements and procedures, including the relevant international Radio Regulations issued by the ITU. Upon request of the Authority, the Licensee shall provide technical assistance and support to the Minister and Authority in connection with the Government of Bermuda's participation in regional and international governmental organisations for the purposes of spectrum management and coordination.
- 7.2** The Licensee shall coordinate, when necessary, with other Radio Spectrum licensees in Bermuda to avoid Harmful Interference. In the event of a disagreement between or among licensees regarding the prevention or causation of Harmful Interference, the affected licensees shall be responsible for resolving such disputes expeditiously and, if such efforts are unsuccessful, one or more of the licensees involved may request that the Authority intervene to resolve the dispute.
- 7.3** The Licensee shall assist the Authority in the coordination and management of Radio Spectrum and shall make efficient use of the Assigned Frequencies for the Authorized Use or Uses. The Licensee shall notify the Authority promptly if the Licensee no longer requires the use of any portion of the Assigned Frequencies.
- 7.4** The Licensee shall cooperate fully with the Authority in identifying whether and to what extent the Assigned Frequencies are being used efficiently and whether the Licensee has a reasonable need for all or a portion of the Assigned Frequencies in accordance with Section 78 of the ECA, including as follows:
- (a) The Licensee shall promptly provide any information requested by the Authority concerning the Licensee's actual or proposed use of the Assigned Frequencies and other Radio Spectrum resources.
 - (b) The Licensee shall submit to the Authority no later than six months following the effective date of this Licence, a report approved by the Licensee's Board of

Directors containing a detailed analysis of spectrum usage by the Licensee, in the format prescribed by the Authority, in relation to services that were provided using the Assigned Frequencies for the Authorized Uses as at the date of the commencement of Part 12 of the ECA.

- (c) The Licensee shall comply fully with any timetables established by the Authority for the release of any of the Assigned Frequencies if required by the Authority, provided that the timetable for release shall commence no sooner than 29 October 2014.

7.5 Subject to the provisions of Section 92 of the RAA, the Licensee shall permit the Authority or Persons designated by the Authority to enter the Licensee's premises, and shall facilitate access by them to premises used by the Licensee, to inspect, examine, investigate or audit the Licensee's use of Radio Stations, Radio Apparatus and Radio Spectrum.

7.6 The Licensee shall accept distress signals and messages with absolute priority as required by Section 43(5) of the ECA and take any necessary action as required by the Convention.

7.7 The Licensee shall provide one or more forms of Wholesale wireless access, including a resale offer, on a non-discriminatory basis, if the Authority determines, following a Public Consultation, that such arrangements are necessary for the benefit of consumers.

8 FEES AND PENALTIES

8.1 The Licensee shall pay to the Authority any Government Authorization Fees relating to the Assigned Frequencies in such amounts and at such times as may be prescribed pursuant to Section 40(1) of the ECA, Section 52 of the RAA, and the Government Fees Act 1965.

8.2 The Licensee shall pay to the Authority any Regulatory Authority Fees relating to the Assigned Frequencies in such amounts and at such times as may be prescribed pursuant to Section 40(3) of the ECA and Section 44 of the RAA.

8.3 The Licensee shall pay all applicable fees for Radio Stations and Radio Apparatus using the Assigned Frequencies.

8.4 The Licensee shall continue to pay, or collect and remit, to the Minister any licence fees that it was responsible for paying, or collecting and remitting, for the use of Radiocommunication equipment as at the date of commencement of Part 12 of the ECA in accordance with the Government Fees Regulations 1976 until a new schedule of fees is established.

8.5 The Licensee shall pay to the Authority any penalties and interest that may be imposed on the Licensee by the Authority for failure to make any payment due under this Licence and for any other contraventions of this Licence or the Applicable Regulatory Framework.

9 COMPLIANCE

Failure to comply with the terms of this Licence shall constitute a violation of the terms of this Licence and the Associated ICOL, and violations shall be dealt with in accordance with the procedures set forth in the RAA and ECA.

10 ENFORCEMENT AND REVOCATION

The Authority may initiate enforcement proceedings pursuant to Section 93 of the RAA if there is reason to believe that the Licensee has contravened the conditions of this Licence or the Applicable Regulatory Framework, including failure to pay any fees prescribed for use of the assigned spectrum in full on a timely basis.

11 ASSIGNMENT

The Licensee shall not transfer, assign, Sub-License or lease, in whole or in part, this Licence or the spectrum usage rights granted herein to any third party, including any Affiliate, without the prior written authorization of the Authority acting with the written consent of the Minister. For purposes of this condition, "assignment" shall be deemed to include a change of Control of the Licensee.

12 RECORD-KEEPING OBLIGATIONS

The Licensee shall maintain the following records up-to date and promptly supply the Authority with copies upon request:

- (a) the equipment specifications of all Radio Stations and other Radio Apparatus operating under this Licence;
- (b) the effective radiated power of any Radio Station and its location and height;
- (c) the measures taken to ensure that each Radio Station is not a source of harmful radiation to the public, and the Licensee's employees and contractors;
- (d) any information necessary for the Authority to develop and keep updated the Bermuda Frequency Allocation Table and Bermuda Frequency Assignment Register;
- (e) the emission designation of each Radio Station, as prescribed by the Applicable Regulatory Framework; and
- (f) the types of services provided to the Licensee's End-Users using the Assigned Frequencies.

13 NOTICES

The notice provisions of the Associated ICOL shall apply to this Licence.

SCHEDULE A

ASSIGNMENT OF FREQUENCIES

The frequency links listed in the Schedule below have been assigned for use by the Licensee for point-to-point Microwave Links between the specified geographic locations. Unless otherwise specified below, "Assigned Frequencies" means the paired radio frequencies specified in the table below.

Assigned Frequencies (MHz) ¹		Site Name 1	GPS (Site Name 1)	Site Name 2	GPS (Site Name 2)
Rx	Tx				
7470.00	7624.00	Prospect (Site1)	32°18'01.65"N -64°45'55.64"W	Warwick Camp	32°15'22.80"N -64°49'00.07"W
7498.00	7652.00	Prospect (Site1)	32°18'01.65"N -64°45'55.64"W	Ft. George	32°22'49.28"N -64°40'57.87"W
7526.00	7680.00	Prospect (Site1)	32°18'01.65"N -64°45'55.64"W	Gov Quarry	32°20'22.1"N -64°42'17.7"W
7554.00	7708.00	Ft. Scaur	32°17'09.75"N -64°52'23.07"W	Alton Hill	32°14'56.05"N -64°51'41.44"W
7442.00	7687.00	Prospect (Site1)	32°18'01.65"N -64°45'55.64"W	Alton Hill	32°14'56.05"N -64°51'41.44"W
460.10	465.10	Prospect (Site1)	32°18'01.65"N -64°45'55.64"W	Port Royal	32°15'52.49"N -64°52'14.59"W
22025	23225	Not Deployed	Not Deployed	Not Deployed	Not Deployed
22075	23275	Not Deployed	Not Deployed	Not Deployed	Not Deployed
22125	23325	Not Deployed	Not Deployed	Not Deployed	Not Deployed
22175	23375	Not Deployed	Not Deployed	Not Deployed	Not Deployed

¹ The Licensee has been authorised to establish Microwave Links between 7442 MHz and 7883 MHz. The channels set forth below are in use as at the date of this Spectrum Licence.

Assigned Frequencies (MHz) ²		Site Name 1	GPS (Site Name 1)	Site Name 2	GPS (Site Name 1)
Rx (From)	Tx (To)				
10,210	10,250	BBC Tower	32.298400° - 64.762800°	Warwick Camp	32.256300° - 64.816700°
10,260	10,300	BBC Tower	32.298400° - 64.762800°	Warwick Camp	32.256300° - 64.816700°
10,635	10,655	BAC	32.299000° - 64.799600°	DEPOT	32.297200° - 64.786300°
10,660	10,680	BAC	32.299000° - 64.799600°	DEPOT	32.297200° - 64.786300°
10,010	10,050	BBC Tower	32.298400° - 64.762800°	BAC	32.298900° - 64.799600°
10,060	10,100	BBC Tower	32.298400° - 64.762800°	BAC	32.298900° - 64.799600°
10,110	10,150	BBC Tower	32.298400° - 64.762800°	Peak Tower	32.317300° - 64.733200°
10,160	10,200	BBC Tower	32.298400° - 64.762800°	Peak Tower	32.317300° - 64.733200°
10,370	10,390	BBC Tower	32.298400° - 64.762800°	QV	32.293600° - 64.784600°
10,310	10,330	BBC Tower	32.298400° - 64.762800°	QV	32.293600° - 64.784600°
10,530	10,550	ROSE	32.293700° - 64.788400°	HQ	32.293000° - 64.783900°
10,400	10,420	ROSE	32.293700° - 64.788400°	HQ	32.293000° - 64.783900°
10,370	10,450	DAO	32.366900° - 64.670200°	SITE 1	32.300300° - 64.765300°
10,500	10,580	DAO	32.366900° - 64.670200°	SITE 1	32.300300° - 64.765300°
10,160	10,200	MAXR	32.294100° - 64.787600°	BAC	32.298900° - 64.799600°
10,110	10,150	MAXR	32.294100° - 64.787600°	BAC	32.298900° - 64.799600°
10,635	10,655	MAXR	32.294000° - 64.787200°	BF&M	32.291700° - 64.789500°
10,660	10,680	MAXR	32.294000° - 64.787200°	BF&M	32.291700° - 64.789500°
10,190	10,230	DAO	32.366900° - 64.670200°	Fort George Tower	32.367000° - 64.670200°

² The assigned frequencies can be used in 20, 40, or 80 MHz bandwidths. The 10 GHz frequencies listed do not include: 10000 – 10010, 10330 – 10370, 10450 – 10500, and 10680 – 10700 MHz. For the avoidance of doubt, these frequencies are not permitted to be used.

10,240	10,280	DAO	32.366900° - 64.670200°	Fort George Tower	32.367000° - 64.670200°
9,990	10,070	DAO	32.367000° - 64.670200°	Peak Tower	32.317400° - 64.733200°
10,040	10,120	DAO	32.367000° - 64.670200°	Peak Tower	32.317400° - 64.733200°
10,110	10,150	Peak Tower	32.317300° - 64.733200°	Fort George Tower	32.367000° - 64.670200°
10,290	10,330	Peak Tower	32.317300° - 64.733200°	Fort George Tower	32.367000° - 64.670200°
10,635	10,655	SITE 1	32.300300° - 64.765300°	Admiralty	32.306200° - 64.806100°
10,660	10,680	SITE 1	32.300300° - 64.765300°	Admiralty	32.306200° - 64.806100°
10,060	10,100	SITE 1	32.300300° - 64.765300°	MAXR	32.294000° - 64.787200°
10,010	10,050	SITE 1	32.300300° - 64.765300°	MAXR	32.294000° - 64.787200°
10,260	10,300	SITE 1	32.300300° - 64.765300°	MERCURY	32.292800° - 64.782200°
10,210	10,250	SITE 1	32.300300° - 64.765300°	MERCURY	32.292800° - 64.782200°
10,260	10,300	SITE 1	32.300300° - 64.765300°	Somerset Tower	32.302900° - 64.867000°
10,210	10,250	SITE 1	32.300300° - 64.765300°	Somerset Tower	32.302900° - 64.867000°
10,110	10,150	SITE 1	32.300300° - 64.765300°	WM	32.293100° - 64.785300°
10,160	10,200	SITE 1	32.300300° - 64.765300°	WM	32.293100° - 64.785300°
10,590	10,630	Somerset Tower	32.302900° - 64.867000°	SILO	32.323000° - 64.836600°
10,060	10,100	Somerset Tower	32.302900° - 64.867000°	SILO	32.323000° - 64.836600°
10,160	10,200	Warwick Camp	32.323000° - 64.836600°	SILO	32.323000° - 64.836600°
10,110	10,150	Warwick Camp	32.323000° - 64.836600°	SILO	32.323000° - 64.836600°
10,070	10,090	WM	32.293800° - 64.785100°	QV	32.293600° - 64.784600°
10,020	10,040	WM	32.293800° - 64.785100°	QV	32.293600° - 64.784600°