



Public Utilities Commission

Note for the guidance of Applicants for a Spectrum Authorization under the (Licensing Classification, Authorization and Fee Structure) Regulations, 2002 as amended from time to time.

1. Unless the Commission states otherwise, two **copies (one clearly marked CONFIDENTIAL INFORMATION which will be for PUC use only and one excluding confidential information for public scrutiny)** of the completed application form should be provided in addition to a completed soft copy submission to telecom@puc.bz. The application forms should be submitted in an envelope clearly marked “Application for Class Telecommunication Service Provider License” addressed to:

The Public Utilities Commission
P.O. Box 300
Belize City, Belize
Central America

2. If any question is considered not applicable, please mark ‘N/A’ with further explanation if necessary.
3. The application fee for the License, and where appropriate, for the necessary Spectrum Authorization, must accompany an application in the form of a cheque made payable to the Public Utilities Commission in accordance with the Telecommunication (Licensing Classification, Authorization and Fee Structure) Regulations 2002.
4. Please note that the applicant is required to publish a notice of this application within 14 days after the making of the application in accordance with the Telecommunication (Licensing Classification, Authorization and Fee Structure) Regulation 2002.
5. Failure to comply with any of these requirements may render the application liable to disqualification without refund of the application fee(s).

APPLICATION FOR SPECTRUM AUTHORIZATION

1. PART I – THE APPLICANT

(Please complete fully in type or block letters)

1.1 Contact Details

1.1.1 Name and business address of applicant:

Central Information Technology Office, Ministry of Finance
Corner Dry Creek Street & Mountain View Blvd
Belmopan

1.1.2 Designated contact person: Ian Smith

1.1.3 Telephone Number: 822-4822 / 2478

1.1.4 Fax Number N/A

1.1.5 E-mail address: ian.smith@cito.gov.bz

1.2 Business Details

1.2.1 If the applicant is a company, partnership, or other body please give the name(s) and private address (es) of each of the current directors, company secretary, or partners:

Name: Ian Smith

Address: 93 Lecture Lane University Heights Phase II, Belmopan

1.2.2 Name under which applicant proposes to trade, and registered office address if different to above:

Central Information Technology Office, Ministry of Finance
Corner Dry Creek Street & Mountain View Blvd
Belmopan

1.2.3 In the case of a company or other body corporate, please attach a copy of the company's Registration Certificate. [OBJ]

N/A

1.2.4 Address in Belize for service of process or other notices (in case of overseas applicant)

N/A

1.3 **History of the Applicant**

1.3.1 Has the applicant ever applied for a Frequency Authorization or registration under any Act in Belize and been refused?

(YES)

(NO)

1.3.2 Has the applicant ever been issued a Frequency Authorization under the Telecommunications Act 2002?

(YES)

(NO)

1.3.3 If the answer to question 1.3.2 is YES, has any such Frequency Authorization been revoked?

(YES)

(NO)

1.3.4 Has any Affiliate of the applicant previously been granted a Frequency Authorization under the Telecommunications Act 2002, which was revoked?

(YES)

(NO)

1.3.5 Is the applicant the holder of a frequency authorization in any other country? If yes, please specify the country.

(YES)

(NO)

1.3.6 Has the applicant or any Affiliate been refused a frequency authorization mentioned in question 1.3.5 above, or had a frequency authorization revoked?

(YES) (NO)

1.3.7 Has the applicant operated under or carried on business under any name other than in this application? (If Yes please attached company details)

(YES) (NO)

2. PART II – THE APPLICANT’S BUSINESS AND THE PROPOSED NETWORK AND/OR SERVICE(S)

2.1 The Applicant

2.1.1 Please provide a diagrammatic representation of the applicant’s group structure, including the percentage of shares held. Please indicate which affiliates have, or intend to apply for, other telecommunications licenses or frequency authorizations.

N/A

2.1.2 Does the applicant have any shareholdings in any other licensed telecommunications provider or frequency authorization holder in the Belize or elsewhere?

(YES) (NO)

2.1.3 Has any member of the applicant’s managerial staff been bankrupt, or been a director of a company which has been insolvent?

(YES) (NO)

If the answer is YES, please attach a certified copy of the discharge.

2.1.4 Has the applicant or any member of the applicant’s managerial staff ever been the defendant or respondent in any proceedings in any court in any jurisdiction involving dishonesty, fraud, theft or violence, or is the applicant or any member of the applicant’s managerial staff currently the subject of a charge or indictment under the law of any country for (contravention of any law or for) any conduct involving dishonesty, fraud, theft or violence?

(YES) (NO)

2.2 Applicant's Current Activities

Please provide answers to the following questions in relation to (a) the applicant's activities in Belize; (b) the applicant's activities elsewhere in the Caribbean; and (c) the applicant's activities elsewhere in the world.

Networks

- 2.2.1 Please provide a summary of any radio-based infrastructure, which the applicant currently has in place.

CITO currently has private backup point-to-multipoint links using Cambium PMP450 at 3410MHz and 3510MHz with Channel Width 20 MHz used to connect Government of Belize (GoB) offices From CITO main office in Belmopan City area only.

- 2.2.2 If the applicant is using radio frequency spectrum, please provide details of any frequency authorizations held, including the number of frequency authorizations and the reference number of each frequency authorization.

PUC REF: PUC/TELECOM/DT/GOB (01) 2017
Frequencies: 3410MHz \pm 10 MHz and 3510MHz \pm 10MHz
Transmit Power Range: \pm 25dBm

Services

- 2.2.3 Please provide details of the services currently being provided by the applicant through its existing radio-based infrastructure.

Private Backup link used to connect the Office of the Supervisor of Insurance & Private Pensions, Government of Belize (GoB) for redundancy in GOB IT services provided by CITO .

Obligations

- 2.2.4 Please provide details of how the applicant currently complies with any other emissions of electromagnetic radiation from equipment of any description.

CITO will only utilize FCC certified Equipment that should meet or exceed the current regulations and will not operate outside of FCC rules. We operate only within the PUC allocated frequency bands ensuring that the electromagnetic radiation remains within acceptable levels. Regular spectral analysis is conducted to help identify sources of interference from other wireless networks and corrective action is promptly initiated after consultation with the PUC.

2.3 Applicant's Proposed Activities

Radiocommunication Station

2.3.1 Is the frequency authorization for which the applicant is applying to be used in relation to a satellite earth station?

(YES)

(NO)

2.3.2 If the answer to question 2.3.1 is YES, please provide the following information:

- (a) A letter from the satellite provider, indicating its contact person and any assigned frequencies for the proposed service and the station to be communicated with.
- (b) A copy of the manufacturer's technical specification for the transmitter, receiver and antenna.
- (c) The following information in respect of the satellite earth station receiving characteristics:
 - (i) Make and model
 - (ii) Assigned frequencies (downlink)
 - (iii) Assigned frequency band
 - (iv) Date of bringing into use
 - (v) Location of station, including country and geographic coordinates
 - (vi) Class of emission
 - (vii) Antenna size, antenna gain and receive G/T
 - (viii) Horizontal elevation angle and min/max elevation angle
 - (ix) Azimuth
 - (x) Altitude

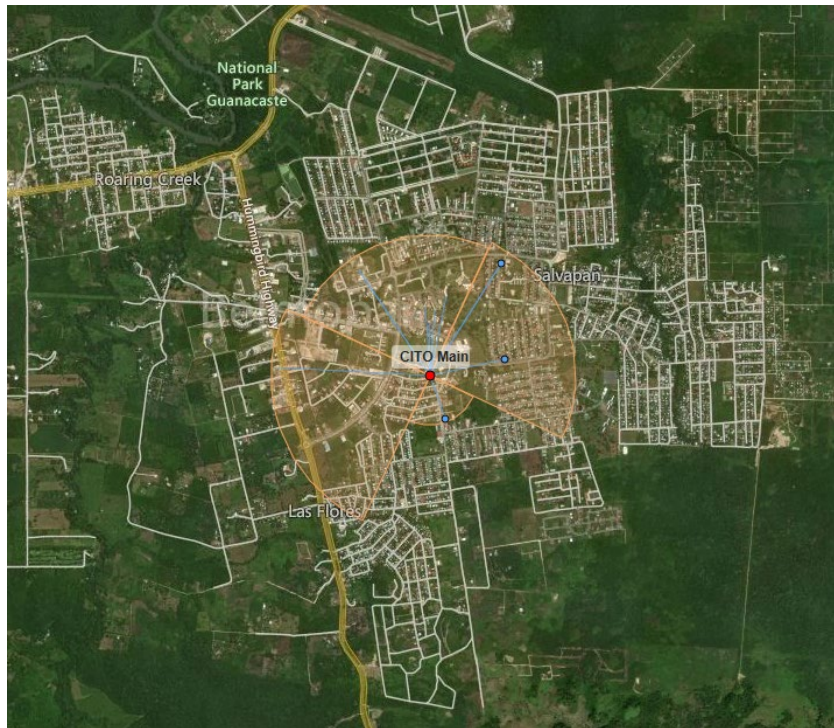
- (xi) Polarization
 - (xii) Receive noise temperature
 - (xiii) Regular hours of operation
 - (xiv) Maintenance of system
- (d) The following information in respect of the satellite earth station transmitting characteristics:
- (i) Make and model
 - (ii) Assigned frequencies (uplink)
 - (iii) Assigned frequency band
 - (iv) Proposed date of bringing into use
 - (v) Transmitter power, including saturated transmitter power and maximum radiated power
 - (vi) Antenna gain
 - (vii) Polarization
 - (viii) Modulation (including FDM-FM, PCM/PSK, TV, and other)
 - (ix) Regular hours of operation
 - (x) Agreements with satellite provider
 - (xi) Operating satellite
 - (xii) Name of receiving earth station
 - (xiii) Location of receiving earth station.

2.3.3 Please provide a summary of the radio-based infrastructure that the applicant is planning to put in place within the next (three) years. In particular, please provide details of the proposed Radiocommunication Station, including:

Purpose of application (what is being applied for)?

Private Backup point-to-point backup link used to connect Government of Belize (GoB) offices in Belmopan area only. A total for 9 Government offices in Belmopan will be connected.

(a) Geographical location (GPS Coordinates) & Coverage Map
Access Point: Cito Main 17.245720° -88.772990°



(b) Type of equipment and system (including manufacturer, model number, FCC Certificate & Current/Valid Type Approval).

Brand and Model of radio unit.

Cambium networks Fixed cnRanger Platform

2 GHz cnRanger 220 RRH: **2LTE-RRH-220** FCCID: Z8H89FT0045

cnRanger 800 Baseband Unit: **LTE-BBU-800**

cnRanger Sector Antenna - 90 degree, 16 dBi: **2LTE-ANT-90**

2 GHz cnRanger 101 SM: **2LTE-SM-101-US** FCCID: Z8H89FT0053

Note: Applicant must include the Vendor Technical Specifications for the radio unit

- (c) Radio frequency and direction of frequency (whether link applied for is uni-directional or bi-directional, and relevant transmission details?)

Channel widths: Two (2) 20MHz channels in 2300Mhz – 2700 MHz frequency range.

Bi-directional Links

Table A *All bi-directional Links*

Name	Latitude	Longitude	Height (ft)	Azimuth	BAND	Power MAX
CITO Main	17.245720N	88.772990 W	100	Omni	2300-2700 MHz	2W (33 dBm)
Assets & Utilities	17.25314N	088.77819 W	20	146°	2300-2700 MHz	0.24W(23dBm)
Audit	17.24275N	088.77183 W	50	339.4°	2300-2700 MHz	0.24W(23dBm)
CITO Sub-Office	17.24947N	088.77302 W	20	179.6°	2300-2700 MHz	0.24W(23dBm)
East Block	17.25031N	088.77259 W	30	176°	2300-2700 MHz	0.24W(23dBm)
BTS	17.24634N	088.78422 W	75	93.3°	2300-2700 MHz	0.24W(23dBm)
OSI	17.24689N	088.76743 W	20	257.6°	2300-2700 MHz	0.24W(23dBm)
Sir Edney Cain	17.25129N	088.77178 W	75	191.8°	2300-2700 MHz	0.24W(23dBm)
Treasury (Payroll)	17.25360N	088.76769 W	30	212.9°	2300-2700 MHz	0.24W(23dBm)
West Block	17.25054N	088.77334 W	33	176°	2300-2700 MHz	0.24W(23dBm)

- (d) Transmission power level
- a. Cito Main: Max 2W (33 dBm) Per Chain 2 per sector
 - b. Subscribers: Max 0.24W(23dBm)

(e) Preferred polarization of emissions (i.e. vertical, horizontal, co-channel dual polar)

a. All Dual polarity

(f) Preferred equipment carrier frequency range for channel assignment

Equipment tuning range: lower frequency to upper frequency

Lower: 2300MHZ Upper:2700Mhz

Channel widths: Two (2) 20MHz channels in 2300Mhz – 2700 MHz frequency range.

(g) Is system intended to be duplicated? (If Yes, please Specify)

a. No duplicate System

(h) Type of antenna, including details of antenna height

Site A & B: Brand and Model

Note: Applicant must include the Vendor Technical Specifications for the proposed antenna(s)

Cito Main: Sector Antenna - 90°, 16 dBi

Subscribers: Patch antenna - 30°, 5 dBi

Name	Latitude	Longitude	Height (ft)	
CITO Main	17.245720N	88.772990W	100	cnRanger Sector 90°
Assets & Utilities	17.25314N	088.77819W	20	cnRanger 101 SM 30°
Audit	17.24275N	088.77183W	50	cnRanger 101 SM 30°
CITO Sub-Office	17.24947N	088.77302W	20	cnRanger 101 SM 30°
East Block	17.25031N	088.77259W	30	cnRanger 101 SM 30°
BTS	17.24634N	088.78422W	75	cnRanger 101 SM 30°
OSI	17.24689N	088.76743W	20	cnRanger 101 SM 30°
Sir Edney Cain	17.25129N	088.77178W	75	cnRanger 101 SM 30°
Treasury (Payroll)	17.25360N	088.76769W	30	cnRanger 101 SM 30°
West Block	17.25054N	088.77334W	33	cnRanger 101 SM 30°

(i) Station ID (if applicable)

a. Not Applicable

(j) Address of location from where equipment is to be operated (if different from Radiocommunication Station's location). Not Applicable

(j) Radio frequency feeder loss and hot-standby loss, rounded up to nearest dB. Any radio frequency feeder loss over 10 dB or hot-standby loss over 4 dB must be justified.

CITO Main: VSWR 2:1 max / 9.5 dB Max no hot-standby
 Subscribers: Integrated Patch Antenna

(k) Guaranteed maximum boresight gain relative to an isotropic radiator for any antenna specified rounded up to nearest dB.

- a. CITO Main: > 25 dB
- b. Subscribers: > 25 dB

(l) Path profile for the proposed point-to-point link(s).

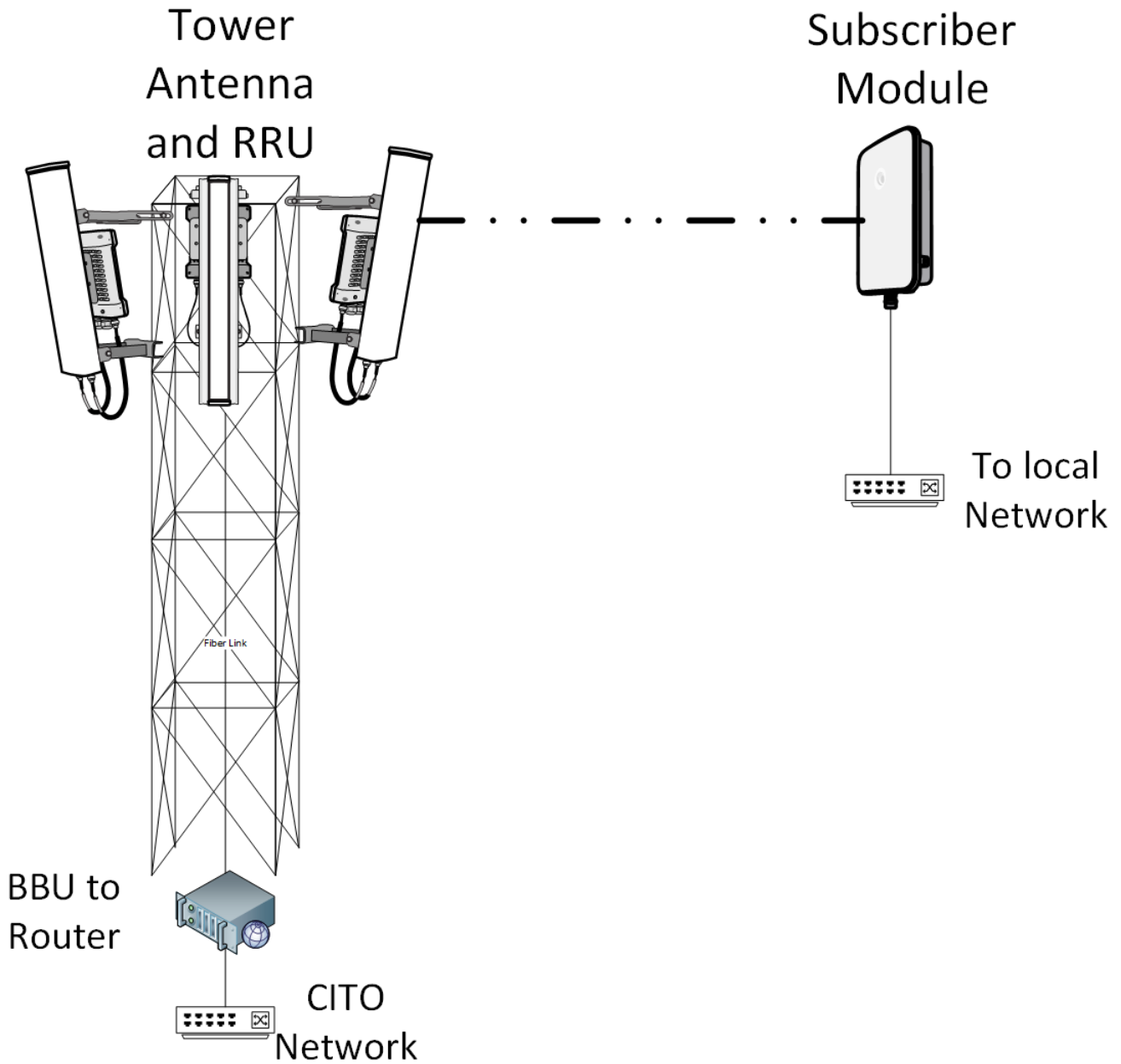
Name	Path profile to CITO Main	Throughput capacity
Assets & Utilities		79Mbps
Audit		79Mbps
CITO Sub-Office		79Mbps
East Block		79Mbps
BTS		79Mbps
OSI		79Mbps

Sir Edney Cain Building		79Mbps
Treasury (Payroll)		79Mbps
West Block		79Mbps

(n) Throughput capacity for the proposed link(s).
See Above table

Services

2.3.4 Please provide a description of the service, which the applicant proposes to provide using the frequency band for which it is applying. (Including an Architectural Diagram).



Will be a private backup point-to-point link used to connect Government of Belize (GoB) offices in Belmopan area only.

Obligations

2.3.5 Please provide details of how the applicant proposes to comply with the obligations in the frequency authorization (and in the Frequency Authorization Regulations) in

respect of harmful interference, and any other technical regulations in respect of emissions of electromagnetic radiation from equipment of any description.

CITO will only utilize FCC certified Equipment that should meet or exceed the current regulations and will not operate outside of FCC rules. CITO will operate only within the PUC allocated frequency bands ensuring that the electromagnetic radiation remains within acceptable levels. Our organization will conduct regular spectral analysis to help identify sources of interference from other wireless networks and will work with the PUC and other stakeholders to ensure compliance with regulations. CITO will collaborate with the PUC as the regulatory authority to stay informed about any updates or changes in regulations to ensure ongoing compliance with evolving standards.

PART III

DECLARATION BY THE APPLICANT

Application is hereby made on behalf of Central Information Technology Office (CITO)
(Name of individual or company) for the issue of an Authorization to install, hold and use wireless sending and receiving apparatus – as detailed above – for the purposes stated.

In accordance with the Belize Telecommunications Act, 2002 and any other Regulations thereunder, I accept responsibility for the installation, maintenance and operation of the system if approved.

I confirm that no change will be made in any of the foregoing without prior approval of The Public Utilities Commission.

Signature of applicant: _____

Name in Block Letters: IAN SMITH



Date: 11 March 2024

THE APPLICANT/LICENSEE SHOULD BE AWARE THAT HE/SHE IS RESPONSIBLE IN LAW FOR THE RADIO SYSTEM AND ITS OPERATION REGARDLESS OF WHO SUPPLIES THE EQUIPMENT OR WHO OPERATES IT ON HIS/HER BEHALF

The completed Application Form and the appropriate fee should be submitted to: Office of the Chairman of Public Utilities Commission, P. O. Box 300, Belize City, Belize.