

BIDDING FORMS

Issued on: November 22, 2021

for

Procurement of MPLS Routers, Fixed Wireless Access Points & Wireless Backhaul

Bid No: *RFP NS2021 Q3/4*

Procuring entity:



Section IV. Bidding Forms

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Bidder Information Form

[The bidder shall fill in this Form in accordance with the instructions indicated below. No alterations to its format shall be permitted and no substitutions shall be accepted.]

Date: *[insert date (as day, month and year) of bid submission]*
Ref No.: *[insert number of bidding process]*

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1. Bidder's Legal Name <i>[insert bidder's legal name]</i>
2. In case of JV, legal name of each party: <i>[insert legal name of each party in JV]</i>
3. Bidder's actual or intended Country of Registration: <i>[insert actual or intended Country of Registration]</i>
4. Bidder's Year of Registration: <i>[insert bidder's year of registration]</i>
5. Bidder's Legal Address in Country of Registration: <i>[insert bidder's legal address in country of registration]</i>
6. Bidder's Authorized Representative Information Name: <i>[insert Authorized Representative's name]</i> Address: <i>[insert Authorized Representative's Address]</i> Telephone/Fax numbers: <i>[insert Authorized Representative's telephone/fax numbers]</i> Email Address: <i>[insert Authorized Representative's email address]</i>
7. Attached are copies of original documents of: <i>[check the box(es) of the attached original documents]</i> <input type="checkbox"/> Articles of Incorporation or Registration of bidders legal name named in 1, above, in accordance with ITB Sub-Clauses 4.1 and 4.2. <input type="checkbox"/> In case of JV, letter of intent to form JV or JV agreement, in accordance with ITB Sub-Clause 4.1.

Joint Venture Partner Information Form

[The bidder shall fill in this Form in accordance with the instructions indicated below].

Date: *[insert date (as day, month and year) of bid submission]*

Ref No.: *[insert number of bidding process]*

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1. Bidder's Legal Name: <i>[insert bidder's legal name]</i>
2. JV's Party legal name: <i>[insert JV's Party legal name]</i>
3. JV's Party Country of Registration: <i>[insert JV's Party country of registration]</i>
4. JV's Party Year of Registration: <i>[insert JV's Party year of registration]</i>
5. JV's Party Legal Address in Country of Registration: <i>[insert JV's Party legal address in country of registration]</i>
6. JV's Party Authorized Representative Information Name: <i>[insert name of JV's Party authorized representative]</i> Address: <i>[insert address of JV's Party authorized representative]</i> Telephone/Fax numbers: <i>[insert telephone/fax numbers of JV's Party authorized representative]</i> Email Address: <i>[insert email address of JV's Party authorized representative]</i>
7. Attached are copies of original documents of: <i>[check the box(es) of the attached original documents]</i> <input type="checkbox"/> Articles of Incorporation or Registration of firm named in 2, above, in accordance with ITB Sub-Clauses 4.1 and 4.2.

Bid Submission Form

[The bidder shall fill in this Form in accordance with the instructions indicated. No alterations to its format shall be permitted and no substitutions shall be accepted.]

Date: *[insert date (as day, month and year) of bid submission]*

Ref No.: *[insert number of bidding process]*

Alternative No.: *[insert identification No if this is a bid for an alternative]*

To: *[insert complete name of procuring entity]*

We, the undersigned, declare that:

- (a) We have examined and have no reservations to the bidding documents, including Addenda No.: *[insert the number and issuing date of each Addenda]*;
- (b) We offer to supply in conformity with the bidding documents and in accordance with the Delivery Schedules specified in the Schedule of Requirements the following goods and related services *[insert a brief description of the goods and related services]*;
- (c) We attach evidence of our fulfilment of the non-price criteria of award set out in Section III, Evaluation and Qualification Criteria;
- (d) The total price of our bid, excluding any discounts offered in item (e) below, is: *[insert the total bid price in words and figures, indicating the various amounts and the respective currencies]*;
- (e) The discounts offered and the methodology for their application are:
 - Discounts.** If our bid is accepted, the following discounts shall apply. *[Specify in detail each discount offered and the specific item of the Schedule of Requirements to which it applies or state none]*;
 - Methodology of Application of the Discounts.** The discounts shall be applied using the following method: *[Specify in detail the method that shall be used to apply the discounts or state not applicable]*;
- (f) Our bid shall be valid for the period of time specified in ITB Sub-Clause 19.1, from the date fixed for the bid submission deadline in accordance with ITB Sub-Clause 23.1 and it shall remain binding upon us and may be accepted at any time before the expiration of that period;
- (g) If our bid is accepted, we commit to obtain a performance security in accordance with ITB Clause 43 and GCC Clause 17 for the due performance of the Contract;
- (h) We have no conflict of interest in accordance with ITB Sub-Clause 4.5;
- (i) Our firm, its affiliates or subsidiaries—including any Subcontractors or suppliers for any part of the contract—has not been declared ineligible in accordance with ITB Sub-Clause 4.7;

- (j) We hereby agree that in competing for (and, if the award is made to us, in executing) the Contract, we undertake to observe the laws against fraud and corruption, including bribery, in force in Jamaica;
- (k) The following commissions, gratuities, or fees have been paid or are to be paid with respect to the bidding process or execution of the Contract: *[insert complete name of each Recipient, its full address, the reason for which each commission or gratuity was paid and the amount and currency of each such commission or gratuity]*

Name of Recipient	Address	Reason	Amount
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

(If none has been paid or is to be paid, indicate “none.”)

- (l) We understand that this bid, together with your written acceptance thereof included in your notification of award, shall constitute a binding contract between us, until a formal contract is prepared and executed.
- (m) We understand that you are not bound to accept the lowest responsive bid or any other bid that you may receive. We understand that the procuring entity may cancel a procurement at any time prior to the acceptance of the successful bid or after the successful bid is accepted if
- (i) the bidder presenting the bid is disqualified under the Act or the regulations of the Public Procurement Act, 2015;
 - (ii) the procurement is cancelled;
 - (iii) the bidder presenting the successful bid is excluded on the grounds of corruption, unfair competition and a conflict of interest; or
 - (iv) the procurement, the bid or the bidder contravenes or is otherwise not compliant with the provisions of the Public Procurement Act, 2015.

Signed: _____ *[insert signature of person whose name and capacity are shown]*

In the capacity of _____ *[insert legal capacity of person signing the Bid Submission Form]*

Name: _____ *[insert complete name of person signing the Bid Submission Form]*

Duly authorized to sign the bid for and on behalf of: _____ *[insert complete name of bidder]*

Dated on _____ day of _____, _____ *[insert date of signing]*

Price Schedule Forms

Price Schedule: Goods Manufactured Outside Jamaica, to be Imported

Lot 1 - Procurement MPLS Routers

(Group C bids, goods to be imported)						Date: _____		
						Ref No: _____		
Currencies in accordance with ITB Sub-Clause 16						Alternative No: _____		
						Page N° _____ of _____		
Item	Description	Country of Origin	Delivery Date as defined by Incoterms	Quantity	Unit price CIP <i>[insert place of destination]</i> in accordance with ITB Sub-Clause 15.7(b)(i)	CIP Price per line item (Col. 5x6)	Price per line item for inland transportation and other services required in Jamaica to convey the goods to their final destination specified in BDS	Total Price per Line item (Col. 7+8)
1	Lot 1 - Procurement MPLS Routers	<i>[insert country of origin of the Good]</i>	<i>[insert quoted Delivery Date]</i>	<i>[insert quantity below]</i>	<i>[insert unit price CIP per unit below]</i>	<i>[insert total CIP price per line item]</i>	<i>[insert the corresponding price per line item]</i>	<i>[insert total price of the line item]</i>
	Cisco N540-24Z8Q2C-Sys / -48V P/S			6				
	CISCO Gigabit 1000 Base-gbic Sfp Transceiver. (SFP to 1Gbps ethernet)			20				
							Sub-total	
							Total Price	

Name of bidder *[insert complete name of bidder]* Signature of bidder *[signature of person signing the bid]* Date *[Insert Date]*

Price Schedule Forms

Price Schedule: Goods Manufactured Outside Jamaica, to be Imported Lot 2 - Procurement and Installation of Fixed Wireless Access Points and Subscribers Unit

(Group C bids, goods to be imported)								Date: _____
Currencies in accordance with ITB Sub- Clause 16								Ref No: _____
Alternative No: _____								Page N° _____ of _____
Item	Description	Country of Origin	Delivery Date as defined by Incoterms	Quant ity	Unit price CIP [<i>insert place of destination</i>] in accordance with ITB Sub- Clause 15.7(b)(i)	CIP Price per line item (Col. 5x6)	Price per line item for inland transportation and other services required in Jamaica to convey the goods to their final destination specified in BDS	Total Price per Line item (Col. 7+8)
2	Lot 2 - Procurement and Installation of Fixed Wireless Access Points and Subscribers Unit							
	Wireless Multipoint AP Radios			20				
	120 Degrees Sectoral Antenna			20				
	Fixed Wireless Subscribers			150				
	Wireless AP Controller Sync Unit with POE and GPS Sync			9				

Price Schedule: Goods Manufactured Outside Jamaica, to be Imported Lot 2 - Procurement and Installation of Fixed Wireless Access Points and Subscribers Unit

(Group C bids, goods to be imported)						Date: _____		
						Ref No: _____		
Currencies in accordance with ITB Sub- Clause 16						Alternative No: _____		
						Page N° _____ of _____		
Item	Description	Country of Origin	Delivery Date as defined by Incoterms	Quantity	Unit price CIP [<i>insert place of destination</i>] in accordance with ITB Sub- Clause 15.7(b)(i)	CIP Price per line item (Col. 5x6)	Price per line item for inland transportation and other services required in Jamaica to convey the goods to their final destination specified in BDS	Total Price per Line item (Col. 7+8)

Lot 2 - Procurement and Installation of Fixed Wireless Access Points and Subscribers Unit ([page continued](#))

	24" Stand Off Wall Mast Mount - Deluxe Y Style Extra 3rd Leg Support			25				
	18" Stand Off Wall Mast Mount - Deluxe Y Style Extra 3rd Leg Support (Complete Kit)			175				
	Outdoor Shielded Ethernet Cable with grounding drain wire (Box)			15				
	Cable Grommet for Wireless Installations			250				

Price Schedule: Goods Manufactured Outside Jamaica, to be Imported Lot 2 - Procurement and Installation of Fixed Wireless Access Points and Subscribers Unit

(Group C bids, goods to be imported)						Date: _____		
						Ref No: _____		
Currencies in accordance with ITB Sub- Clause 16						Alternative No: _____		
						Page N° _____ of _____		
Item	Description	Country of Origin	Delivery Date as defined by Incoterms	Quantity	Unit price CIP <i>[insert place of destination]</i> in accordance with ITB Sub-Clause 15.7(b)(i)	CIP Price per line item (Col. 5x6)	Price per line item for inland transportation and other services required in Jamaica to convey the goods to their final destination specified in BDS	Total Price per Line item (Col. 7+8)
	Shielded RJ45 Connectors (Metal)			500				
	Installation cost to related equipment			120				
	Maintenance support (1 to 3 years)							
	Any other cost (please stipulate)							
							Sub-total	
							Total Price	

Name of bidder *[insert complete name of bidder]* Signature of bidder *[signature of person signing the bid]* Date *[Insert Date]*

Price Schedule: Goods Manufactured Outside Jamaica, to be Imported Lot 3 - Procurement and Installation of Wireless Backhaul Radios

Item	Description	Country of Origin	Delivery Date as defined by Incoterms	Quantity	Unit price CIP [<i>insert place of destination</i>] in accordance with ITB Sub-Clause 15.7(b)(i)	CIP Price per line item (Col. 5x6)	Price per line item for inland transportation and other services required in Jamaica to convey the goods to their final destination specified in BDS	Total Price per Line item (Col. 7+8)
(Group C bids, goods to be imported) Date: _____ Currencies in accordance with ITB Sub-Clause 16 Ref No: _____ Alternative No: _____ Page N° _____ of _____								
	ODU RF Processing Unit(XMC-3E_8GHz) 52414981			16				
	Dual Polarization Antenna Unit(UHP HATC_7&8GHz 52430820			16				
	Dual Polarization Antenna Unit(UHP HATC_11GHz 52430821			10				
	Flexible Waveguide 52440607			32				
	Flexible Waveguide 52440608			20				
	Value-Added Function							
	● 88030AFX			52				

Price Schedule: Goods Manufactured Outside Jamaica, to be Imported Lot 3 - Procurement and Installation of Wireless Backhaul Radios

Item	Description	Country of Origin	Delivery Date as defined by Incoterms	Quantity	Unit price CIP [<i>insert place of destination</i>] in accordance with ITB Sub-Clause 15.7(b)(i)	CIP Price per line item (Col. 5x6)	Price per line item for inland transportation and other services required in Jamaica to convey the goods to their final destination specified in BDS	Total Price per Line item (Col. 7+8)
(Group C bids, goods to be imported)						Date: _____ Ref No: _____		
Currencies in accordance with ITB Sub-Clause 16						Alternative No: _____ Page N° _____ of _____		
	Installation Cable - RTN900,16E1 Cable Suite 04120372			16				
	Accessories							
	25050014			320				
	02230CJP			52				
	21150785			52				
	52443074			52				
	Installation cost for all equipment			1				
	Maintenance support (1 to 3 years)							
	Any other cost (please stipulate)							

Price Schedule: Goods Manufactured Outside Jamaica, to be Imported Lot 3 - Procurement and Installation of Wireless Backhaul Radios

(Group C bids, goods to be imported)							Date: _____		
							Ref No: _____		
Currencies in accordance with ITB Sub- Clause 16							Alternative No: _____		
							Page N° _____ of _____		
Item	Description	Country of Origin	Delivery Date as defined by Incoterms	Quantity	Unit price CIP <i>[insert place of destination]</i> in accordance with ITB Sub- Clause 15.7(b)(i)	CIP Price per line item (Col. 5x6)	Price per line item for inland transportation and other services required in Jamaica to convey the goods to their final destination specified in BDS	Total Price per Line item (Col. 7+8)	
							Sub-total		
Total Price									

Name of bidder *[insert complete name of bidder]* Signature of bidder *[signature of person signing the bid]* Date *[Insert Date]*

Bid-Securing Declaration

[The bidder shall fill in this Form in accordance with the instructions indicated.]

Date: *[date (as day, month and year)]*

Ref No.: *[number of bidding process]*

Alternative No.: *[identification No if this is a bid for an alternative]*

To: *[complete name of procuring entity]*

We, the undersigned, declare that:

We understand that, according to your conditions, bids must be supported by a Bid-Securing Declaration.

We accept that we will automatically be suspended from being eligible for bidding in any contract with the procuring entity for the period of time of *[number of months or years]* starting on *[date]*, if we are in breach of our obligation(s) under the bid conditions, because we:

- (a) have materially modified or withdrawn our bid during the period of bid validity specified in the Bid Submission Form; or
- (b) does not accept a correction of errors; or
- (c) having been notified of the acceptance of our bid by the procuring entity during the period of bid validity, fail or refuse to execute the Contract; or
(ii) fail or refuse to furnish the performance security, if required, in accordance with the ITB.

We understand this Bid Securing Declaration shall expire if we are not the successful bidder, upon the earlier of (i) our receipt of your notification to us advising the execution of the contract with of the name of the successful bidder; or (ii) twenty-eight days after the expiration of our bid.

Signed: *[signature of person whose name and capacity are shown]* In the capacity of *[legal capacity of person signing the Bid Securing Declaration]*

Name: *[complete name of person signing the Bid Securing Declaration]*

Duly authorized to sign the bid for and on behalf of: *[complete name of bidder]*

Dated *[date of signing]*

Corporate Seal (where appropriate)

[Note: In case of a Joint Venture, the Bid Securing Declaration must be in the name of all partners to the Joint Venture that submits the bid.]

Manufacturer's Authorization

[The bidder shall require the Manufacturer to fill in this Form in accordance with the instructions indicated. This letter of authorization should be on the letterhead of the Manufacturer and should be signed by a person with the proper authority to sign documents that are binding on the Manufacturer. The bidder shall include it in its bid, if so indicated in the BDS.]

Date: *[insert date (as day, month and year) of Bid Submission]*

Ref No.: *[insert number of bidding process]*

Alternative No.: *[insert identification No if this is a bid for an alternative]*

To: *[insert complete name of procuring entity]*

WHEREAS

We *[insert complete name of Manufacturer]*, who are official manufacturers of *[insert type of goods manufactured]*, having factories at *[insert full address of Manufacturer's factories]*, do hereby authorize *[insert complete name of bidder]* to submit a bid the purpose of which is to provide the following goods, manufactured by us *[insert name and or brief description of the goods]*, and to subsequently negotiate and sign the Contract.

We hereby extend our full guarantee and warranty in accordance with Clause 27 of the General Conditions of Contract, with respect to the goods offered by the above firm.

Signed: *[insert signature(s) of authorized representative(s) of the Manufacturer]*

Name: *[insert complete name(s) of authorized representative(s) of the Manufacturer]*

Title: *[insert title]*

Duly authorized to sign this Authorization on behalf of: *[insert complete name of bidder]*

Dated on _____ day of _____, _____ *[insert date of signing]*

CLIENT'S REFERRAL FORM

To be completed, signed and, stamped by the client and must be addressed as stated below and included in the Tender package.

**To: The Department Head, Enterprise Procurement
eGov Jamaica Limited
235B Old Hope Road
Kingston 6**

REFERRAL FOR (COMPANY NAME)

Three (3) references from three (3) different institutions for the equivalent service being bid on and is required in the format provided in this bid document.

Re: Procurement and Installation of MPLS Routers, Fixed Wireless Access Points & Wireless Backhaul – RFP NS2021 Q3/4

CLIENT'S REFERRAL

Please rate the quality of service offered by circling the relevant score for the quality criteria
Excellent = 4 Good = 3 Satisfactory = 1 Poor = 0

1. Conduct of Staff	4	3	1	0
2. Customer Relations	4	3	1	0
3. Service Quality	4	3	1	0
4. Supervision of Staff	4	3	1	0
5. Responsiveness of Management	4	3	1	0
6. Completing Task on Time	4	3	1	0

Do you currently have a contract with this company? Yes _____ No _____

If yes, period worked to date _____.

If no, please indicate the period during which you were provided services by the firm in the past _____.

Would you recommend the services of this company? Yes () No ()

Please give general comments on the company's performance during your contract with them in the space provided. (Attach additional sheet if space is inadequate)

Name _____

Signature _____

Title _____

Company _____

PART 2 - Supply Requirements

Section V. Schedule of Requirements

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1. List of Goods and Delivery Schedule

[The procuring entity shall fill in this table, with the exception of the column “bidder’s offered Delivery date” to be filled by the bidder]

Line Item N°	Description of Goods	Quantity	Physical unit	Final (Project Site) Destination as specified in BDS	Delivery (as per Incoterms) Date		
					Earliest Delivery Date	Latest Delivery Date	bidder’s offered Delivery date <i>[to be provided by the bidder]</i>
1	Lot 1 - MLPS Routers						
	Cisco N540-24Z8Q2C-Sys / -48V P/S		6	eGov Jamaica Limited	45 of days following the date of effectiveness the Contract]	60 days following the date of effectiveness the Contract]	<i>[insert the number of days following the date of effectiveness the Contract]</i>
	CISCO Gigabit 1000 Base-gbic Sfp Transceiver. (SFP to 1Gbps ethernet)		20	eGov Jamaica Limited	45 of days following the date of effectiveness the Contract]	60 days following the date of effectiveness the Contract]	<i>[insert the number of days following the date of effectiveness the Contract]</i>
2	Lot 2 - Fixed Wireless Access Points and Subscribers Unit						
	Fixed Wireless Access Points and Subscribers Unit		20	eGov Jamaica Limited	45 of days following the date of effectiveness the Contract]	60 days following the date of effectiveness the Contract]	<i>[insert the number of days following the date of effectiveness the Contract]</i>
	120 Degrees Sectoral Antenna		20	eGov Jamaica Limited	45 of days following the date of effectiveness the Contract]	60 days following the date of effectiveness the Contract]	<i>[insert the number of days following the date of effectiveness the Contract]</i>

1. List of Goods and Delivery Schedule

[The procuring entity shall fill in this table, with the exception of the column “bidder’s offered Delivery date” to be filled by the bidder]

Line Item N°	Description of Goods	Quantity	Physical unit	Final (Project Site) Destination as specified in BDS	Delivery (as per Incoterms) Date		
					Earliest Delivery Date	Latest Delivery Date	bidder’s offered Delivery date <i>[to be provided by the bidder]</i>
	Fixed Wireless Subscribers		150	eGov Jamaica Limited	45 of days following the date of effectiveness the Contract]	60 days following the date of effectiveness the Contract]	<i>[insert the number of days following the date of effectiveness the Contract]</i>
	Wireless AP Controller Sync Unit with POE and GPS Sync		9	eGov Jamaica Limited	45 of days following the date of effectiveness the Contract]	60 days following the date of effectiveness the Contract]	<i>[insert the number of days following the date of effectiveness the Contract]</i>
	24" Stand Off Wall Mast Mount - Deluxe Y Style Extra 3rd Leg Support		25	eGov Jamaica Limited	45 of days following the date of effectiveness the Contract]	60 days following the date of effectiveness the Contract]	<i>[insert the number of days following the date of effectiveness the Contract]</i>
	18" Stand Off Wall Mast Mount - Deluxe Y Style Extra 3rd Leg Support (Complete Kit)		175	eGov Jamaica Limited	45 of days following the date of effectiveness the Contract]	60 days following the date of effectiveness the Contract]	<i>[insert the number of days following the date of effectiveness the Contract]</i>

1. List of Goods and Delivery Schedule

[The procuring entity shall fill in this table, with the exception of the column “bidder’s offered Delivery date” to be filled by the bidder]

Line Item N°	Description of Goods	Quantity	Physical unit	Final (Project Site) Destination as specified in BDS	Delivery (as per Incoterms) Date		
					Earliest Delivery Date	Latest Delivery Date	bidder’s offered Delivery date <i>[to be provided by the bidder]</i>
	Outdoor Shielded Ethernet Cable with grounding (Box)		15	eGov Jamaica Limited	45 of days following the date of effectiveness the Contract]	60 days following the date of effectiveness the Contract]	<i>[insert the number of days following the date of effectiveness the Contract]</i>
	Cable Grommet for Wireless Installations		250	eGov Jamaica Limited	45 of days following the date of effectiveness the Contract]	60 days following the date of effectiveness the Contract]	<i>[insert the number of days following the date of effectiveness the Contract]</i>
	Shielded RJ45 Connectors (Metal)		500	eGov Jamaica Limited	45 of days following the date of effectiveness the Contract]	60 days following the date of effectiveness the Contract]	<i>[insert the number of days following the date of effectiveness the Contract]</i>
	CISCO Gigabit 1000 Base-gbic Sfp Transceiver. (SFP to 1Gbps ethernet)		20	eGov Jamaica Limited	45 of days following the date of effectiveness the Contract]	60 days following the date of effectiveness the Contract]	<i>[insert the number of days following the date of effectiveness the Contract]</i>
3	See Lot 3 below for description and quantity - Wireless Backhaul Radios						

1. List of Goods and Delivery Schedule

[The procuring entity shall fill in this table, with the exception of the column “bidder’s offered Delivery date” to be filled by the bidder]

Line Item N°	Description of Goods	Quantity	Physical unit	Final (Project Site) Destination as specified in BDS	Delivery (as per Incoterms) Date		
					Earliest Delivery Date	Latest Delivery Date	bidder’s offered Delivery date [<i>to be provided by the bidder</i>]
	Wireless Backhaul Radios Refer to excel sheet		20	eGov Jamaica Limited	<i>45 of days following the date of effectiveness the Contract]</i>	<i>60 days following the date of effectiveness the Contract]</i>	<i>[insert the number of days following the date of effectiveness the Contract]</i>
	Battery Backup System with inverters (6KVA + 12KW+8hr Backup) 3 (6KVA + 8KW+4hr Backup) 10		13	eGov Jamaica Limited	<i>45 of days following the date of effectiveness the Contract]</i>	<i>60 days following the date of effectiveness the Contract]</i>	<i>[insert the number of days following the date of effectiveness the Contract]</i>

2. List of Related Services and Completion Schedule

[This table shall be filled in by the procuring entity. The Required Completion Dates should be realistic, and consistent with the required goods Delivery Dates (as per Incoterms)]

Service	Description of Service	Quantity	Physical Unit	Place where Services shall be performed	Final Completion Date(s) of Services
<i>[insert Service No]</i>	<i>[insert description of related services]</i>	<i>[insert quantity of items to be supplied]</i>	<i>[insert physical unit for the items]</i>	<i>[insert name of the Place]</i>	<i>[insert required Completion Date(s)]</i>
1	Procuring of MPLS Routers (6) (Lot 1) Transceivers (20)	26	26	Tower Locations	
2	Procurement and installation of Fixed Wireless + Subscriber Units (Lot 2) Fixed Wireless (20) Subscriber Units (150)	170	170	Tower Locations + Subscriber Sites	
3	Procurement and installation of Wireless Backhaul Radios (20) & Battery Backup System (13) (Lot 3)	33	33	Tower Locations	

LOT 1 - MPLS Routers

<i>Item No</i>	<i>Name of Goods or Related Service</i>	<i>Qty</i>	<i>Technical Specifications and Standards</i>
1.	Cisco N540-24Z8Q2C-Sys / -48V P/S	6	Equipment
2.	CISCO Gigabit 1000 Base-gbic Sfp Transceiver. (SFP to 1Gbps ethernet)	20	Equipment

LOT 2 - Fixed Wireless & Subscriber Units

<i>Item No</i>	<i>Name of Goods or Related Service</i>	<i>Qty</i>	<i>Technical Specifications and Standards</i>
1.	Wireless Multipoint AP Radios	20	Equipment
2.	120 Degrees Sectoral Antenna	20	Equipment
3.	Fixed Wireless Subscribers	150	Equipment
4.	Wireless AP Controller Sync Unit with POE and GPS Sync	9	Equipment
5.	24" Stand Off Wall Mast Mount - Deluxe Y Style Extra 3rd Leg Support	25	Equipment
6.	18" Stand Off Wall Mast Mount - Deluxe Y Style Extra 3rd Leg Support (Complete Kit)	175	Equipment
7.	Outdoor Shielded Ethernet Cable with grounding (Box)	15	Equipment
8.	Cable Grommet for Wireless Installations	250	Equipment
9.	Shielded RJ45 Connectors (Metal)	500	Equipment

LOT 3 - Wireless Backhaul Radios

No.	Part Number	Model	Description	Qty.
2	RTN 950A			
2.1	IDU			
2.1.1	Basal Configuration Units			
	02311DEN	SLFMSITE08	RTN 950A Basal Configuration 4*GE(RJ45)+2*GE(SFP)+16*E1+2*STM-1(SFP) Include IDU Installation Materials	16
2.1.2	Common Unit			
	03024QLM	SL91ISM8	Versatile Dual IF Board	26
2.2	ODU Unit			
2.2.1	ODU Unit(XMC-2H)			
	ODU RF Processing Unit(XMC-2H_11GHz)			
	52413712	ODU(XMC-2H-11G)	Microwave ODU,RTN XMC,11G,-2H,500/490MHz,Sub Band A,Low site,H,10700MHz,10980MHz,Without doc,WR-90,H01	10
	52413713	ODU(XMC-2H-11G)	Microwave ODU,RTN XMC,11G,-2H,500/490MHz,Sub Band A,High site,H,11200MHz,11480MHz,Without doc,WR-90,H01	10
2.2.2	ODU Unit(XMC-3E)			
	ODU RF Processing Unit(XMC-3E_8GHz)			
	52414980	ODU(XMC-8G-3E)	Microwave ODU,RTN XMC,8G,-3E,Low site,H,8043MHz,8113MHz,8251MHz,8321MHz,Without doc,WR-112,H01,208MHz,Sub Band A,8043MHz,8113MHz	16
	52414981	ODU(XMC-8G-3E)	Microwave ODU,RTN XMC,8G,-3E,High site,H,8251MHz,8321MHz,8043MHz,8113MHz,Without doc,WR-112,H01,208MHz,Sub Band A,8251MHz,8321MHz	16
2.3	Antenna Unit			
2.3.1	Antenna(UHP HATC)			
	Dual Polarization Antenna Unit(UHP HATC_7&8GHz)			
	52430820	AAA78DS30	Microwave Antenna,A07D30HS,7&8G,3000mm,HP,Dual,Separate Mount,45dBi,0.9deg,67dB,30dB,With English doc	16
	Dual Polarization Antenna Unit(UHP HATC_11GHz)			

No.	Part Number	Model	Description	Qty.
	52430821	AAA11DS30	Microwave Antenna,A11D30HS,11G,3000mm,HP,Dual,Separate Mount,48.1dBi,0.6deg,70dB,30dB,With English doc	10
2.4	Flexible Waveguide			
2.4.1	Flexible Waveguide			
	52440607	AFOCBA00	Microwave Accessory,Flexible Waveguide,7/8G,0.9m,PBR84,With English doc	32
	52440608	AFOECA00	Microwave Accessory,Flexible Waveguide,10/11G,0.9m,PBR100,With English doc	20
2.5	Value-Added Function			
	88030AFX	SL6S000AMF01	AM Function License	52
	88031CVK	LSL9RLAGL1	Radio L1 LAG License	16
	88031EFL	SLAS1024QAM1	1024QAM License (Per IF)	52
	88031MQU	SLF1024QAMUP01	1024QAM Upgrade to 2048QAM Modulation Function(Per IF)	52
2.5.1	Hardware RTU			
	88034WHP	LSL9600S0R	RTU-Link Transmission Capacity 600M	52
	88034WGP	LSL9GEPS0R	RTU-GE Port (Per Port)	32
	88034WGW	LSL9XANS0R	RTU-XPIC MW Access node (Per IF&RF)	40
2.6	Software			
2.6.1	Quotation & Charge Item Collection			
	88036NFS	SLFS00V1R020	RTN 950A Basic Software Package,V100R020(Per Subrack)	16
2.7	Installation Materials			
2.7.1	IF Cable			
	25070149	RF CABLE-5D	Coaxial Cable ,Copper-clad Aluminium Wire,50ohm,7.6mm,4.8mm,1.8mm,Black,5D	2600
2.7.2	Installation Cable			
	RTN900,16E1 Cable Suite			
	04120372	SLAC0016E105	Trunk Cable,5m,75ohm,16E1,1.6mm,Anea 96F-III,SYFVZP75-1.1/0.26*32(S),+45deg	16
2.7.3	Accessories			
	25050014	C0000FE00	Twisted-Pair Cable,100ohm,Category 5e UTP,0.51mm,24AWG,8Cores,PANTONE 430U,Use with Plug:14080082	320
	02230CJP	IFODU-5D01	IF/ODU Installation Accessories(5D)	52
	21150785	Twistflex Hanger 6G-13G	Twistflex Hanger 6G~13G	52
	52443074	MountingBracket	Microwave structural Accessory,ODU Separate Mounting Bracket with Pole Installation Kit,With English doc	52

Lot 1: MPLS Routers

N.B All specifications listed in the tables below are minimum mandatory specifications

Ref No.	Description	Specifications	COMMENTS	COMPLY	
				YES	NO
1	Model	<ul style="list-style-type: none"> • Cisco N540-24Z8Q2C-Sys 			
2	Interfaces	<ul style="list-style-type: none"> • 2x 100/40GE • 8x25/10/1GE • 24x10/1GE 			
3	Throughput	<ul style="list-style-type: none"> • 300G • Max Interface 640 G 			
4	Timing	<ul style="list-style-type: none"> • GNSS Class B • 1pps/10Mhz/ToD 			
5	Power	<ul style="list-style-type: none"> • 1+1 -48V Modular P/S 			
6	Licenses	<ul style="list-style-type: none"> • Minimum Advanced Port Licenses • Aggregate account will be provided for licenses to be assigned 			
7	Warranty / support	<ul style="list-style-type: none"> • 5 yrs 			

Lot 2: Fixed Wireless Access Points and Subscribers Unit
N.B All specifications listed in the tables below are minimum mandatory specifications

REF	REQUIRED SPECIFICATIONS		COMMENT S	COMPLY	
				YES	NO
#					
1	Multipoint Fixed Wireless AP Throughput	<ul style="list-style-type: none"> 600Mbps - 1.2Gbps (or higher) 			
2	Frequency Range International Version	<ul style="list-style-type: none"> Wide Band Operation 4910 - 5970 MHz / Option to utilize licensed frequency bands Licensed Frequency bands to be provided once vendor has been selected 			
3	Channel Width MHz	<ul style="list-style-type: none"> 20 40 80 			
4	Channel Spacing	<ul style="list-style-type: none"> Configurable in 5 MHz increments 			
5	Physical Layer	<ul style="list-style-type: none"> 4x4 MUMIMO/OFDM 			
6	Ethernet Interface	<ul style="list-style-type: none"> 100/1000 BaseT, rate auto negotiated, 802.3at compliant & Aux SFP port 			
7	Supported Protocols	<ul style="list-style-type: none"> IPv4, Ipv6, UDP, TCP/IP, ICMP, Telnet, SNMP, HTTP, FTP 			
8	Network Management	<ul style="list-style-type: none"> HTTPS, SNMPv2c, SSH 			
9	MTU	<ul style="list-style-type: none"> 1700 bytes 			
10	VLAN Technologies	<ul style="list-style-type: none"> 802.1Q with 802.1p priority 			
11	Subscribers Per Sector	<ul style="list-style-type: none"> Up to 120 			
12	Modulation Levels	<ul style="list-style-type: none"> MCS 0 (BPSK) to MCS 9 (256 QAM-5/6) 			
13	Max Transmit Power	<ul style="list-style-type: none"> +28 dBm (MIMO, Combined H+V) 			
14	Power Control	<ul style="list-style-type: none"> ATPC (Automatic Transmit Power Control) at system level, all Subscribers implement ATPC 			
15	Security	<ul style="list-style-type: none"> 128-bit Over-the-Air Encryption 128 bit AES (CCMP mode) 			
16	Certifications	<ul style="list-style-type: none"> FCC / Industry Canada / CE 			
17	GPS Synchronization	<ul style="list-style-type: none"> via Autosync (CMM5 or UGPS) 1 x 50 ohm, RP (Reverse Polarity) SMA 			
18	Transmit Power Range	<ul style="list-style-type: none"> 0 to +32 dBm (combined, to regional EIRP limit) (1 dB interval) 			

REF	REQUIRED SPECIFICATIONS		COMMENT TS	COMPLY	
				YES	NO
#					
19	Quality of Service	<ul style="list-style-type: none"> • Diffserve QoS 			
20	Latencies	<ul style="list-style-type: none"> • < 5 ms 			
21	Dual-Horn Support	<ul style="list-style-type: none"> • Dual-Horn MU-MIMO 			
	Sector Antenna Connection	<ul style="list-style-type: none"> • 2 x 50 ohm, RP (Reverse Polarity) SMA 			
22	Surge Suppression	<ul style="list-style-type: none"> • 1 Joule Integrated. Gigabit surge suppressor 			
23	Input Voltage	<ul style="list-style-type: none"> • 30 Volts Nominal (14V to 30V Range) 			
24	Environmental	<ul style="list-style-type: none"> • IP55 			
25	Beamforming	<ul style="list-style-type: none"> • Optional part antenna for UL Beamforming 			
26	Temperature	<ul style="list-style-type: none"> • -30°C to 55°C (-22°F to 131°F) 			

Fixed Wireless Subscriber Modules Specifications

NB: All specification listed in the table below are minimum mandatory specifications

REF	REQUIRED SPECIFICATIONS		COMM ENTS	COMPLY	
				YES	NO
#					
1	All subscriber Units Must be 100% Compatible with Fixed Wireless AP	<ul style="list-style-type: none"> • 75% Integrated Parabolic Antenna • 500+ Mbps peak throughput ----- • 25% integrated Horizontal Orientation • 500+ Mbps peak throughput 			
2	Frequency Range	<ul style="list-style-type: none"> • Wide Band Operation 4910 - 5970 MHz / Option to utilize licensed frequency bands • Licensed Frequency bands to be provided once vendor has been selected 			
3	Channel Width	<ul style="list-style-type: none"> • Range 20 - 80 			
4	Channel Spacing	<ul style="list-style-type: none"> • Configurable in 5 MHz increments 			
5	Physical Layer	<ul style="list-style-type: none"> • Air Interface on top of 802.11ac Wave 2 technology (2x2 MIMO/OFDM) 			
6	Ethernet Interface	<ul style="list-style-type: none"> • 10/100/1000 BaseT, Compatible with Cambium PoE & Standard PoE pinouts 			
7	Supported Protocols	<ul style="list-style-type: none"> • IPv4/IPv6 (Dual Stack), UDP, TCP, ICMP, SNMPv2c, NTP, STP, IGMP, SSH 			

REF	REQUIRED SPECIFICATIONS		COMM ENTS	COMPLY	
				YES	NO
#					
8	Network Management	<ul style="list-style-type: none"> IPv4/IPv6 (dual stack), HTTP, HTTPS, Telnet, FTP, SNMPv2c and v3, 			
9	MTU	<ul style="list-style-type: none"> 1700 bytes 			
10	VLAN Technologies	<ul style="list-style-type: none"> 802.1Q with 802.1p priority 			
11	Input Voltage	<ul style="list-style-type: none"> Passive PoE (30 VDC Nominal); 14-30 VDC range 			
12	Modulation Levels	<ul style="list-style-type: none"> MCS 0 (BPSK) to MCS 9 (256 QAM-5/6) 			
13	Max Transmit Power	<ul style="list-style-type: none"> 0 to +29 dBm (combined, to regional EIRP limit) (1 dB interval) 			
14	Power Control	<ul style="list-style-type: none"> ATPC (Automatic Transmit Power Control) at system level, all Subscribers implement ATPC 			
15	Security	<ul style="list-style-type: none"> FIPS-197 128-bit AES, 			
16	Certifications	<ul style="list-style-type: none"> 109AO-50450I QWP-50450I 			
17	Quality of Service	<ul style="list-style-type: none"> Three level priority (Voice, High, Low) with packet classification by DSCP, COS, VLAN ID, IP & MAC Address, Broadcast, Multicast and Station Priority, MIR/CIR* support 			
18	Nominal Receive Sensitivity (w/FEC) @80 MHz Channel	<ul style="list-style-type: none"> MCS 0 = -84 dBm to MCS 9 (256 QAM-5/6) = -61 dBm (per chain) 			
19	Nominal Receive Sensitivity (w/FEC) @40 MHz Channel	<ul style="list-style-type: none"> MCS 0 = -87 dBm to MCS 9 (256 QAM-5/6) = -66 dBm (per chain) 			
20	Nominal Receive Sensitivity (w/FEC) @20 MHz Channel	<ul style="list-style-type: none"> MCS 0 = -89 dBm to MCS 8 (256 QAM-3/4) = -68 dBm (per chain) 			
21	Environmental	<ul style="list-style-type: none"> IP55 			
22	Surge Suppression	<ul style="list-style-type: none"> * 1 Joule Integrated 			
23	Temperature	<ul style="list-style-type: none"> -30°C to 60°C (-22°F to 140°F) 			

120 Degree Multipoint Sector Antennas Specifications

NB: All specification listed in the table below are minimum mandatory specifications

REF #	REQUIRED SPECIFICATIONS	COMMENTS	COMPLY	
			YES	NO
1	Frequency Range	• 5 GHz : 4900 - 5970 MHz		
2	Gain	• 18dBi		
3	Electrical Down tilt	• -2 degrees		
4	Port-Port Isolation	• > -30dB		
5	Front to Back Ratio	• 35dB		
6	Maximum Input Power	• 5W		
7	Input Impedance	• 50 ohms		
8	Mounting Connectors	• 2x RP SMA		
9	Mounting Hardware	• Mounting mast and hardware to connect AP to the back of the antenna		
10	Environmental	• IP65		
11	Radome Material	• UV Protected ABS		
12	Operating temperature	• -40 deg. C to 60 deg. C		
13	Wind load	• Able to withstand 120 MPH		
14	Compatibility	• Original Manufactured Sector designed to operate with Wireless AP – Third Party Vendor Sectors not permitted.		

Wireless AP Controller Sync Unit with POE and GPS Sync

NB: All specification listed in the table below are minimum mandatory specifications

REF #	REQUIRED SPECIFICATIONS	COMMENTS	COMPLY	
			YES	NO
1	Throughput	112 Gbps		
	Form Factor	1 U Rackmount		
2	Forwarding Rate in Mpps (64 Byte Packets)	120		
3	Ethernet Ports	16 10/100/1000 Mbps RJ45 Ports		

REF #	REQUIRED SPECIFICATIONS	COMMENTS	COMPLY	
			YES	NO
4	POE Technology	PoE+ Enabled Ports 802.3af/at/bt 802.3af/at/bt PoE (54V 24V Passive PoE - up to 15W 54V Passive PoE - up to 90W 54V Passive PoE - up to 30W PoE Max Power Per Port		
5	Voltage	Low Voltage Passive PoE (24 V)		
6	Number of GPS Sync Ports	16		
7	DC Power Supplies	Fully Isolated – Supports positive/negative input voltages • 36V–72V • 600W, 930W, & 1200W options • Grounding lug nut located on front panel Dual redundant removable power supplies AC supplies • 600W, 930W, & 1200W options CRPS dependent		
8	Intelligent PoE solution	802.3af/at/bt - up to 90W • 24V Passive PoE - up to 15W • 54V Passive PoE - up to 90W		
9	GPS Sync Technology	Redundant Input Sync sources » Internal GPS module (with external antenna) » cnPulse • Full per-port control with stats available		
10	Port Specification	8X1 Gbps Fiber Ports (SFP) 4X 10 Gbps Fiber Ports (SFP+) Low Voltage Passive PoE (24 V) High Power 4 PPOE (up to 90 W)		
11	Temperature Ranges	-10°C up to 65°C		
12	Operating Humidity	55°C at 95% RH		
13	Storage Temperature	-40°C to 70°C (-40°F to 158°F)		
14	Quality of Service	ACL mapping to priority queue DiffServ support Honoring DSCP and 802.1p (CoS) Traffic shaping/metering		

REF #	REQUIRED SPECIFICATIONS	COMMENTS	COMPLY	
			YES	NO
		Priority queue management using Weighted Round Robin (WRR), Strict Priority (SP) and a combination of WRR and SP		
15	Traffic Management	ACL-based inbound rate limiting policies Broadcast, multicast and unknown unicast rate limiting Inbound rate limiting per port Outbound rate limiting per port/queue		
16	Security	802.1x authentication MAC authentication* DHCP snooping RADIUS authentication/authorization Radius/Tacacs/Tacacs+ Authentication, Authorization, and Accounting (AAA) Secure shell Secure copy (SCP)* Local username/password		
17	Layer 3 Feature Set	Inter-VLAN Routing Static ARPs Static Routes DHCP Relay Dynamic Routing – RIPv1/v2 Dynamic Routing – OSPFv2 Route Redistribution		
18	Layer 2 Feature Set	802.1s multiple spanning tree VLAN, Port, Protocol, 802.1q 802.1d 802.1x authentication Auto MDI/MDIX BPDU Guard, Root Guard IGMP Snooping v1/v2/v3*, Fast Leave LLDP/LLDP MED IGMP Proxy Static MAC Flow Control per port Per VLAN STP (PVST/PVRST) Port Mirroring: port based, ACL based, VLAN based Port Isolation/Private VLAN Edge Link Aggregation Groups (Static/LACP)		

REF	REQUIRED SPECIFICATIONS	COMMENTS	COMPLY	
#			YES	NO
		Rate Limiting/Storm Control Jumbo frame (9k) DHCP Snooping		
19	Management	cnMaestro (cloud management) Industry standard Command Line Interface (CLI) DHCP Client Embedded web management (HTTP/HTTPS) Embedded DHCP server USB file management and storage Out-of-Band Ethernet Management SSH / SSH v2 SNMP v1/v2/v3 DHCP relay Simple Network Time Protocol (SNTP) Local/remote system logging Policy Based Automation Display log messages multiple terminals TFTP/SFTP Telnet client/server IPv6 management Password management Autoinstall support for firmware images and config files		

Fixed Wireless Antenna Brackets

NB: All specification listed in the table below are minimum mandatory specifications

REF	REQUIRED SPECIFICATIONS	COMMENTS	COMPLY	
#			YES	NO
1	Key Features	75% of Brackets Provides 18" of clearance from wall, which is great for overcoming large eaves Strong way to mount your antenna that doesn't require drilling holes in the roof		

REF	REQUIRED SPECIFICATIONS		COMMENTS	COMPLY	
#				YES	NO
		<p>Bottom mount has an extra support leg to secure mount for long lasting performance Supports masts from 1.25"-1.75" outer diameter One-year manufacturer's warranty</p> <p>25% of Brackets 24" Stand Off Wall Mast Mount - Deluxe Y Style Extra 3rd Leg Support</p> <ul style="list-style-type: none"> • DELUXE Y STYLE MOUNT IS DESIGNED TO MOUNT 1" - 1.75" ANTENNA MAST TO WALL (1.25" - 1.50" MAST IS IDEAL) • UNIQUE DESIGN FEATURES A THIRD LEG FOR EXTRA STABILITY • WILL STAND OFF WALL 24" • MADE OF 1-1/4" WIDE X 12 GAUGE GALVANIZED STEEL • ASSEMBLY HARDWARE IS INCLUDED. KIT INCLUDES 2 MOUNTS + THIRD LEG. <p>Key Features</p> <ul style="list-style-type: none"> • Galvanized finish provides durability 			

REF #	REQUIRED SPECIFICATIONS	COMMENTS	COMPLY	
			YES	NO
		and corrosion-protection • Hardware included for quick, easy installation		
	What's Included	• 1 - Upper mount bracket • 1 - Lower support bracket • 4 - 1/4" x 2" lag screws for mounting		

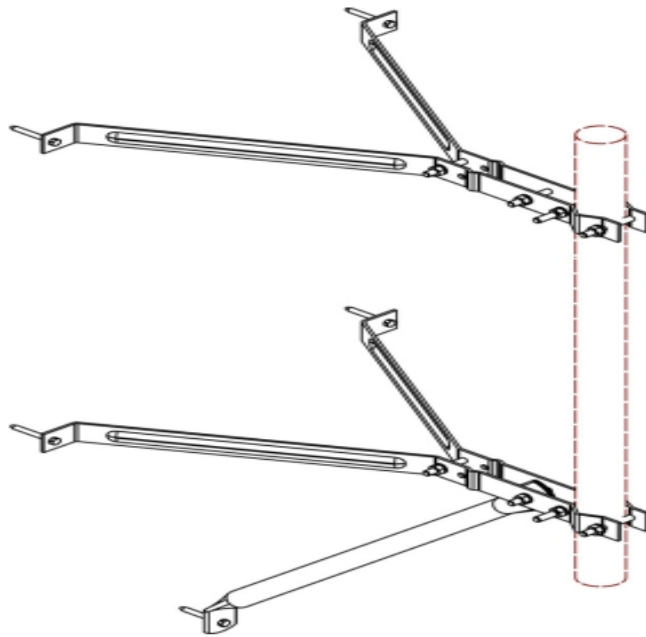
Lot 2: Installation of Fixed Wireless & Subscriber Units

NB: All specification listed in the table below are MANDATORY specifications

REF #	REQUIRED SPECIFICATIONS	COMMENTS	COMPLY	
			YES	NO
1	Installation of Fixed Wireless access points and subscriber units. Multipoint locations Bamboo Bonny Gate Coopers Hill Huntley Murphy Hill Shafton Mt. Airy Paradise	<ul style="list-style-type: none"> • Transportation of equipment to tower sites • Installation of Fixed Wireless access points and subscriber units • Configuration of APs • Configuration of Subscriber Radios • Testing and verification of Aps and subscriber units • Optimization of wireless links to achieve optimal signal levels • Proper grounding of all installed equipment (outdoor & indoor) • Software upgrade of all radios to latest firmware • Installation of grounding and lightening protection for all equipment • Installation of fixed wireless controller GPS sync system 		

REF	REQUIRED SPECIFICATIONS		COMMENTS	COMPLY	
#				YES	NO

Antenna Wall Mount Kit Sample Design For (1) Kit



Lot 3: Wireless Backhaul Radios

NB: All specification listed in the table below are MANDATORY specifications

No.	Part Number	Model	Description	COMPLY	
				YES	NO
2	RTN 950A				
2.1	IDU				
2.1.1	Basal Configuration Units				
	02311DEN	SLFMSITE08	RTN 950A Basal Configuration 4*GE(RJ45)+2*GE(SFP)+16*E1+2*STM-1(SFP) Include IDU Installation Materials		
2.1.2	Common Unit				
	03024QLM	SL91ISM8	Versatile Dual IF Board		
2.2	ODU Unit				
2.2.1	ODU Unit(XMC-2H)				
	ODU RF Processing Unit(XMC-2H_11GHz)				
	52413712	ODU(XMC-2H-11G)	Microwave ODU,RTN XMC,11G,-2H,500/490MHz,Sub Band A,Low site,H,10700MHz,10980MHz,Without doc,WR-90,H01		
	52413713	ODU(XMC-2H-11G)	Microwave ODU,RTN XMC,11G,-2H,500/490MHz,Sub Band A,High site,H,11200MHz,11480MHz,Without doc,WR-90,H01		
2.2.2	ODU Unit(XMC-3E)				
	ODU RF Processing Unit(XMC-3E_8GHz)				
	52414980	ODU(XMC-8G-3E)	Microwave ODU,RTN XMC,8G,-3E,Low site,H,8043MHz,8113MHz,8251MHz,8321MHz,Without doc,WR-112,H01,208MHz,Sub Band A,8043MHz,8113MHz		
	52414981	ODU(XMC-8G-3E)	Microwave ODU,RTN XMC,8G,-3E,High site,H,8251MHz,8321MHz,8043MHz,8113MHz,Without doc,WR-112,H01,208MHz,Sub Band A,8251MHz,8321MHz		
2.3	Antenna Unit				
2.3.1	Antenna(UHP HATC)				
	Dual Polarization Antenna Unit(UHP HATC_7&8GHz)				
	52430820	AAA78DS30	Microwave Antenna,A07D30HS,7&8G,3000mm,HP,Dual,Separate Mount,45dBi,0.9deg,67dB,30dB,With English doc		
	Dual Polarization Antenna Unit(UHP HATC_11GHz)				

No.	Part Number	Model	Description	COMPLY	
				YES	NO
2	RTN 950A				
	52430821	AAA11DS30	Microwave Antenna,A11D30HS,11G,3000mm,HP,Dual,Separate Mount,48.1dBi,0.6deg,70dB,30dB,With English doc		
2.4	Flexible Waveguide				
2.4.1	Flexible Waveguide				
	52440607	AF0CBA00	Microwave Accessory,Flexible Waveguide,7/8G,0.9m,PBR84,With English doc		
	52440608	AF0ECA00	Microwave Accessory,Flexible Waveguide,10/11G,0.9m,PBR100,With English doc		
2.5	Value-Added Function				
	88030AFX	SL6S000AMF01	AM Function License		
	88031CVK	LSL9RLAGL1	Radio L1 LAG License		
	88031EFL	SLAS1024QAM1	1024QAM License (Per IF)		
	88031MQU	SLF1024QAMUP01	1024QAM Upgrade to 2048QAM Modulation Function(Per IF)		
2.5.1	Hardware RTU				
	88034WHP	LSL9600S0R	RTU-Link Transmission Capacity 600M		
	88034WGP	LSL9GEPS0R	RTU-GE Port (Per Port)		
	88034WGW	LSL9XANS0R	RTU-XPIC MW Access node (Per IF&RF)		
2.6	Software				
2.6.1	Quotation & Charge Item Collection				
	88036NFS	SLFS00V1R020	RTN 950A Basic Software Package,V100R020(Per Subrack)		
2.7	Installation Materials				
2.7.1	IF Cable				
	25070149	RF CABLE-5D	Coaxial Cable ,Copper-clad Aluminium Wire,50ohm,7.6mm,4.8mm,1.8mm,Black,5D		
2.7.2	Installation Cable				
	RTN900,16E1 Cable Suite				
	04120372	SLAC0016E105	Trunk Cable,5m,75ohm,16E1,1.6mm,Anea 96F-III,SYFVZP75-1.1/0.26*32(S),+45deg		
2.7.3	Accessories				
	25050014	C0000FE00	Twisted-Pair Cable,100ohm,Category 5e UTP,0.51mm,24AWG,8Cores,PANTONE 430U,Use with Plug:14080082		
	02230CJP	IFODU-5D01	IF/ODU Installation Accessories(5D)		
	21150785	Twistflex Hanger 6G-13G	Twistflex Hanger 6G~13G		
	52443074	MountingBracket	Microwave structural Accessory,ODU Separate Mounting Bracket with Pole Installation Kit,With English doc		

Lot 3: Installation of Wireless Backhaul Radios

NB: All specification listed in the table below are MANDATORY specifications

REF	REQUIRED SPECIFICATIONS		COMMENTS	COMPLY	
				YES	NO
1	Transportation and installation of Wireless Backhaul Radios	<ul style="list-style-type: none"> • Transportation of equipment to tower sites • Installation of backhaul radios and associated antennas • Configuration of Backhaul Radios • Configuration of Fixed Radios • Configuration of Subscriber Radios • Testing and verification of Backhaul Links • Optimization of wireless backhaul links • Installation of mounts / miscellaneous items • Installation of Inverter/Battery Backup System • Proper grounding of all installed equipment (outdoor & indoor) • Software upgrade of all radios to latest firmware • Installation of grounding and lightening protection for all equipment 			
2	Pre-assessment surveys	<ul style="list-style-type: none"> • Pre-assessment of sites to determine installation material list 			

Wireless Links Frequency & Distances

#	Site A	Site B	Distance	Proposed Frequencies	Spatial Diversity
1	Bamboo	Kempshot	39.4 Miles	8.0 Ghz	Yes
2	Kempshot	Paradise	6.80 Miles	11.0 Ghz	No
3	Paradise	Airy Hill	32.3 Miles	8.0 Ghz	Yes
4	Airy Hill	Huntley	11.0 Miles	11.0 Ghz	No
5	Airy Hill	Coopers Hill	44.3 Miles	8.0 Ghz	Yes
6	Airy Hill	Bamboo	19.3 Miles	11 Ghz	No
7	Coopers Hill	NWA HQ	5.64 Miles	11.0 Ghz	No
8	Huntley	Shafton	27.2 Miles	8.0 Ghz	No

Tower Sites

List of Tables		
Tables Nr.	Table Name	Purpose
1	Tower Sites Longitude and Latitude	To show physical locations of tower sites
2	Distance and frequency usage	To show the list of information attained from path assessments

Wireless Backhaul Coordinates

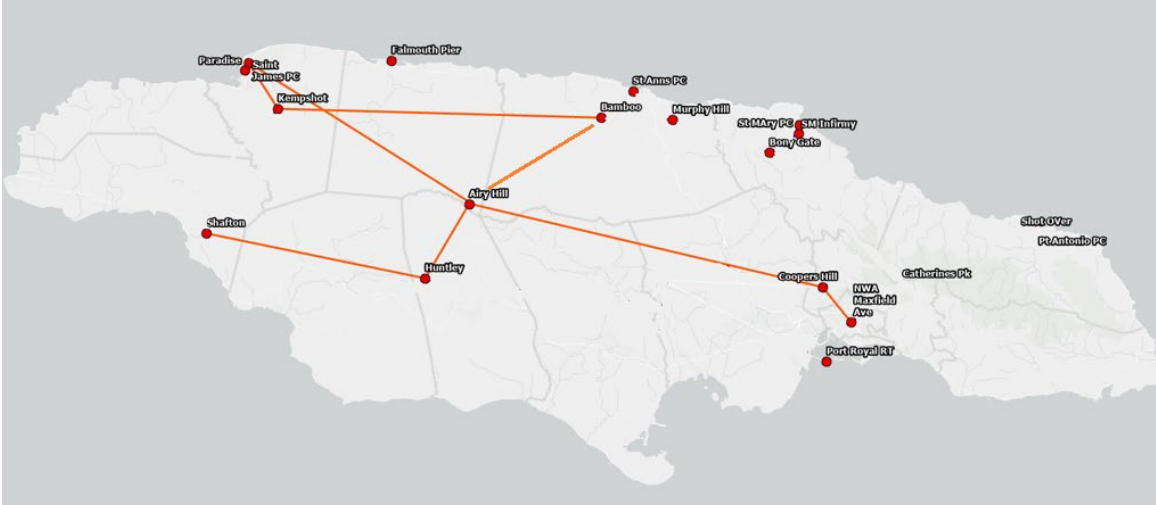
REF	Wireless Backhaul Sites					
#	Site A	Site B	Site A Lat	Site A Long	Site B Lat.	Site B Long
1	Bamboo	Kempshot	18.3891710°N	77.2615352°W	18.4035019°N	77.8607213°W
2	Kempshot	Paradise	18.4035019°N	77.8607213°W	18.4886290°N	77.9150117°W
3	Paradise	Airy Hill	18.4886290°N	77.9150117°W	18.2265324°N	77.5061686°W
4	Airy Hill	Huntley	18.2265324°N	77.5061686°W	18.0891730°N	77.5884251°W
5	Airy Hill	Coopers Hill	18.2265324°N	77.5061686°W	18.0728356°N	76.8518163°W
6	Airy Hill	Bamboo	18.2265324°N	77.5061686°W	18.3891710°N	77.2615352°W
7	Coopers Hill	NWA HQ	18.0728356°N	76.8518163°W	18.0082292°N	76.8034111°W
8	Huntley	Shafton	18.0891730°N	77.5884251°W	18.17239°N	77.327°W

Drawings

These bidding documents includes [1] drawing.

Drawings		
Drawing No.	Drawing Name	Purpose
1	Physical Network Structure	The highlight lines represent the proposed path for each wireless backhaul link.

Figure 1.0 Proposed Wireless Links



Inspections and Tests

All devices will be tested according to the following standards:

Physical checks:

- Each physical equipment will be inspected for signs of damage or wear
- Verification of all package contents including; cables (where applicable), brackets, screws, antennas, IDU, ODU and other peripherals

Power checks:

- Hardware equipment will be powered to ensure system startup procedures are completed successfully

Software/License check:

- Devices will be checked to ensure all required licenses are matched according to technical specifications in RFB.