

## PART 1 Terms of Quotation

### 1. Invitation to Quotation

The Quotation is invited for the execution of the whole (or any part) of the Services more particularly set out in the Particular Specification (Part 3) and the Schedule (Part 4) subject to and in accordance with the Terms of Quotation, the General Conditions set out in Part 2 hereof and the Special Conditions of Contract set out in Part 5.

### 2. Quotation

- (a) The Quotation relates to the execution of all (or any part) of the Services during the contract period as specified in the Particular Specification and the Schedule set out in Part 3 and Part 4 respectively.
- (b) The Schedule issued with the Quotation must not be altered by the Bidder. Any modification of the Schedule considered necessary by the Bidder shall be the subject of a separate letter accompanying the Quotation. Figures shall not be altered or erased; any alteration shall be effected by striking through the incorrect figures and inserting the correct figures in ink above the original figures. All such amendments shall be initialled by the Bidder in ink.
- (c) The Quotation is to be submitted in **duplicate** and is to be completed in ink or typescript. Otherwise, the Quotation may not be considered.
- (d) The Quotation may not be considered if incomplete information is given or if any particulars and data asked for in the Schedule are not furnished in full.

### 3. Quotation to Remain Open

- (a) The Quotation shall, unless otherwise indicated by the Bidder, remain open for not less than 90 days after the Quotation Closing Date. If the Bidder is unable to comply with this requirement, he must clearly state the period for which the Quotation is valid for acceptance below. If before the expiry of the agreed validity period the Bidder's offer is withdrawn, due notice will be taken of his action and this may well prejudice his future standing as a service provider.

"Our offer will remain valid for a period of \_\_\_\_\_ days from the Quotation Closing Date."

Authorised Signature: \_\_\_\_\_

Name in Block Letter: \_\_\_\_\_

Name of the Bidder: \_\_\_\_\_

Company Chop: \_\_\_\_\_

(b) Quotation Closing Date and Time

The Quotation must be submitted before the Quotation Closing Date and Time (Hong Kong time). Late quotation will not be considered.

(c) Quotation Closing Date and Time Extension in case of Rainstorm/Typhoon

In case a black rainstorm warning or typhoon signal No. 8 or above is in force for any duration between 9:00 am (Hong Kong time) and 12:00 noon (Hong Kong time), the Quotation Closing Time will be extended to 12:00 noon (Hong Kong time) on the next weekday (i.e. except Saturday and Sunday) other than public holiday.

#### **4. Charges**

(a) The charges to be quoted by the Bidder shall be in Hong Kong dollars. Prices quoted in foreign currency will not be considered. Such charges shall be net and where applicable, they shall include trade and cash discounts and all expenses incidental to the due and proper performance of the Contract by the Bidder.

(b) If, at the request of the Bidder, assistance of any Centre staff is provided after normal working hours (i.e. Mondays to Fridays, inclusive, 9:00 am to 5:45 pm; Saturdays, Sundays and public holidays excluded), the Bidder will be responsible for the overtime remuneration, subsistence allowances and travelling expenses of such Centre staff directly engaged in such assistance.

(c) Price quoted

It will be assumed, unless the Bidder clearly stipulates otherwise, that his offer will remain valid for the duration of the Contract. Therefore no request for price variation will be considered. If, however, the Bidder wishes to submit a conditional offer which contains a price variation clause, he may do so, with clear understanding that such an offer may prejudice the award of the Contract. In any such case the basis of the price variation formula shall be clearly stipulated and accepted by the Centre in writing.

(d) Accuracy of Quotation Prices

The Bidder shall make certain the prices quoted are accurate before submitting the Quotation. Under no circumstances will the Centre accept any request for price adjustment on grounds that a mistake has been made in the quotation prices.

#### **5. Basis of Acceptance**

The Quotation will be accepted on an “overall” basis. Incomplete quotation will not be considered. The Centre reserves the right to accept none, any or part of the offer.

## **6. Acceptance**

The successful Bidder will receive as an indication of acceptance a fax or a letter of acceptance. This fax or letter of acceptance shall constitute a binding contract. Bidders who do not receive any notification within the validity period of their offers shall assume that their quotations have not been accepted.

## **7. Alternative Proposals and Negotiation**

Alternative proposals which improve the value of the offer may be submitted. The Centre reserves the right to negotiate with any Bidder about the terms of the offer.

## **8. Consideration of Offers**

The Centre is not bound to consider an offer in the event of a claim being received by the Centre alleging or the Centre having grounds to believe that the deliverables to be supplied by the Bidder under the Quotation are infringing copyrights or have otherwise infringed the intellectual property rights in the goods or product of a third party.

## **9. Saving**

The Centre is not bound to accept the lowest or any offer and reserves the right to accept none, all or any part of any offer at any time within the period mentioned in clause 3 hereof.

The appointment of the Contractor to provide the Services and/or Goods is on a non-exclusive basis. The Centre reserves the right to award the Contract to more than one Tenderer.

## **10. Documents of Unsuccessful Bidders**

Documents of unsuccessful Bidders may be destroyed not less than three months after the date the Contract has been awarded.

## **11. Latest Audited/Unaudited Accounts**

The Bidder shall upon request by the Centre and its representatives, whilst his Quotation remains open, submit the latest audited accounts or unaudited accounts as appropriate for checking within 14 days from the date of such request. Late submission will not be considered.

## **12. Complaints about Quotation Invitation Process or Contract Awards**

The quotation invitation process is subject to internal monitoring to ensure that contracts are awarded properly and fairly. Any Bidder who feels that his offer has not been fairly evaluated may write to the Centre's Company Secretarial Manager who will personally examine the complaint and refer it to the approving authority for consideration if it relates to procedures followed. The Bidder shall lodge the complaint before disposal of documents of unsuccessful Bidders which shall be within 3 months after the award of the Contract.

## **13. Personal Data Provided**

- (a) The Bidder's personal data provided in the Quotation will be used for quotation evaluation and contract award purposes. If insufficient and inaccurate information is provided, the Quotation may not be considered.
- (b) The Bidder shall acknowledge and consent that the Bidder's personal data provided in the Quotation may be disclosed to government departments and non-government organisations.
- (c) The Bidder shall have the right of access and correction with respect to personal data as provided for in Sections 18 and 22 Principle 6 of Schedule 1 of the Personal Data (Privacy) Ordinance. The right of access includes the right to obtain a copy of the Bidder's personal data provided in the Quotation.
- (d) Enquiries concerning the personal data collected by means of the Quotation, including the making of access and corrections, shall be addressed to the Procurement Officer issuing the Quotation.

## **14. Contractors' Performance Monitoring**

The Bidder is advised that shall he be awarded the Contract his subsequent performance will be monitored and may be taken into account when his future quotations are evaluated. The Quotation will be rejected if by the Quotation Closing Date, the Bidder is under suspension from submitting quotations for the Centre.

## **15. Cancellation of Quotation**

Without prejudice to the Centre's right to cancel the Quotation, where there are changes of requirement after Quotation Closing Date for operational or whatever reasons, the Centre is not bound to accept any conforming quotation and reserves the right to cancel the Quotation.

## **16. Offers to be Bound**

- (a) All parts of the Quotation Documents submitted and offered by the Bidder will be bound on the Bidder. A Bidder is deemed to have satisfied itself as to the correctness of its quotation. In the event that a Bidder discovers an error in its quotation after the quotation has been deposited, the Bidder may correct the same in a separate letter. No request for adjustment or variation whatsoever will be allowed or entertained after the Quotation Closing Date.

- (b) Should it be found on examination by the Centre after the Quotation Closing Date that a Quotation has made errors in the figures stated in its quotation that may have a significant effect on the quotation, the Bidder may be informed of the errors and asked to confirm in writing whether it is prepared to abide by the corrected figures.
- (c) The Centre may require a Bidder to clarify any aspect of its quotation by way of provision of additional information or documentary proof. A quotation may not be considered if the Bidder fails to comply with the Centre's request for clarification.
- (d) Correspondence exchanged between the Centre and the Bidder about the quotation may upon the parties' agreement form part of the Contract after the Contract has been awarded.
- (e) Variation to any part of the Contract will not be allowed after the Contract has been awarded unless prior approval has been obtained from the Centre Representative.

## **17. Prevention of Bribery Ordinance**

Offering an advantage to any Centre employee is an inducement to or reward for giving assistance in procuring any tender with the Centre will render the quotation null and void.

## **18. Warranty Against Collusion**

- (a) By submitting a quotation, a Bidder is regarded to have represented and warranted to the Centre that in relation to the Invitation to Quotation:
  - (i) save with the prior written consent of the Centre, it has not communicated and will not communicate to any person other than the Centre the amount of any price submitted in its quotation;
  - (ii) it has not fixed and will not fix the amount of any price submitted in its quotation by arrangement with any person;
  - (iii) it has not made and will not make any arrangement with any person as to whether it or that other person will or will not submit a quotation; and
  - (iv) it has not otherwise colluded and will not otherwise collude with any person in any manner whatsoever in the tendering process.
- (b) In the event that a Bidder is in breach of any of the representations and/or warranties in sub-clause (a) above, the Centre shall be entitled to, without compensation to any person or liability on the part of the Centre:
  - (i) reject the Bidder's quotation;
  - (ii) if the Centre has accepted the quotation, withdraw its acceptance of the Bidder's quotation; and

- (iii) if the Centre has entered into the contract with the Bidder, terminate the contract.
- (c) By submitting a quotation, a Bidder is regarded to have undertaken to indemnify and keep indemnified the Centre against all losses, damages, costs or expenses arising out of or in relation to any breach of any of the representations and/or warranties in sub-clause (a).
- (d) A breach by a Bidder of any of the representations and/or warranties in sub-clause (a), may prejudice its future standing as a Centre contractor or service provider.
- (e) Sub-clause (a) shall have no application to Bidder's communications in strict confidence with its own insurers or brokers to obtain an insurance quotation for computation of the prices quoted in its quotation, or with its professional advisers, consultants or sub-contractors to solicit their assistance in preparation of its quotation.
- (f) The rights of the Centre under sub-clauses (b) to (d) are in addition to and without prejudice to any other rights or remedies available to it against the Bidder.
- (g) Nothing in this clause shall limit the Centre's absolute right to determine or to request any other information/supporting documents/items in connection with or arising out of this Invitation to Quotation.

## **19. Environmental Friendly Measures**

The following environment friendly measures are recommended in the preparation of the quotation documents:

- (a) All documents should preferably be printed on both sides and on recycled paper. Papers exceeding 80 gsm are not recommended as a general rule.
- (b) Excessive use of plastic laminates, glossy covers or double covers should be avoided as far as possible. Use of recyclable non-glossy art board paper as document covers is recommended.
- (c) Single line spacing should be used and excessive white space around the borders and in between the paragraphs should be avoided.

## **20. Enquiries**

Any enquiries from the Bidder concerning this quotation invitation document up to the date of lodging their Quotation with the Centre shall be in writing and shall be submitted to:

Attn.: Ms Winnie Lo  
Senior Administration Executive  
Logistics and Supply Chain MultiTech R&D Centre  
Level 11, Cyberport 2  
100 Cyberport Road  
Hong Kong

Telephone: (852) 3973 6277  
Facsimile: (852) 3106 0202  
E-mail Address: wlo@lscm.hk

## **PART 2**

### **General Conditions of Contract**

#### **1. Total Services and Variation**

- (a) The Services to be performed under the Contract shall be as laid down in the Particular Specification, the Schedule and Special Conditions of Contract and shall be carried out, as and when required, to the satisfaction of the Centre Representative or his nominated staff. All orders placed under the Contract shall be issued in writing and the Centre will not be responsible for Services performed on oral instructions issued by any person whomsoever.
- (b) The Contractor shall not extend the Services beyond the requirements specified in the Particular Specification and the Schedule except as directed in writing by the Centre Representative; but the Centre Representative may, subject to the proviso hereinafter contained, at any time during the contract period by notice in writing direct the Contractor to alter, amend, omit, add to, or otherwise vary any of the Services and/or the contract period, and the Contractor shall carry out such variations, and be bound by the same conditions, so far as are applicable, as though the said variations were stated in the Schedule.

Provided that no such variation shall, except with the consent in writing of the Contractor, involve a net addition to or deduction from the contract price of more than twenty per cent or the contract period of more than six months, unless otherwise mutually agreed by the Contractor and Centre.

- (c) Where a variation has been made to the Contract the amount to be added to or deducted from the contract price in accordance with that variation shall be determined in accordance with the rates specified in the Schedule so far as the same may be applicable and where rates are not contained in the said Schedule, or are not applicable, such amount shall be such sum as is reasonable in the circumstances.

Due account shall be taken of any partial execution of the Services which are rendered useless by any such variation.

#### **2. Assignment**

The Contractor shall not, without the written consent of the Centre Representative, assign or otherwise transfer the Contract, or any part share or interest therein, and the performance of the Contract by the Contractor shall be deemed to be personal to him.

#### **3. Quality of Services**

- (a) The Services shall be as specified in the Particular Specification and the Schedule and shall fulfil all the conditions and terms of any drawings and specifications (if any) supplied to the Contractor.
- (b) Any drawings and specifications reasonably required for the Contractor's guidance in the execution of the Contract shall be provided by Centre free of charge but shall be returned on completion of the Contract.



#### **4. Inspection and Acceptance**

All Services performed in pursuance of the Contract shall be subject to inspection and shall not be deemed to have been accepted unless either:

- (a) The Centre Representative shall so certify; or
- (b) The Services are not rejected as being unsatisfactory within 21 days of the date upon which they were executed.

#### **5. Rejections**

- (a) Without prejudice to any statutory rights, the Centre Representative or his nominated staff may reject any Services (or part thereof) which do not strictly conform to the conditions of sub-clause (a) of clause 3 hereof.
- (b) Within 24 hours of being notified in writing of the rejection of any Services the Contractor shall be required to take the necessary action to rectify such rejected Services.

#### **6. Centre Property**

When Centre property is issued to the Contractor under the Contract, the Contractor shall be responsible for the due return of all such property. Should any such property be lost or damaged from any cause whatsoever while in the possession or control of the Contractor or his servants, workmen or agents, the Contractor shall pay for the same at total original cost plus 20%. A count of the articles or material in the possession of the Contractor may be made at any time by the Centre Representative and the Contractor shall render such assistance as is necessary for this purpose.

#### **7. Centre Premises/Contractor's Premises**

- (a) The Contractor, shall ensure that all persons engaged by him in carrying out the Contract keep to such parts of Centre premises as are necessary for the due discharge of the Contractor's obligations under the Contract.
- (b) Where the Services are carried out on the Contractor's premises such premises shall be open to inspection by the Centre Representative or his nominated staff at all reasonable times.
- (c) The safety of any vehicles used by the Contractor and brought alongside or onto Centre premises, as the case may be, shall be the responsibility of the Contractor, who shall indemnify the Centre in respect of any loss or damage to such Centre premises.

## **8. Payment for Services**

Upon completion of each task as described in Part 3, the Contractor shall render an invoice to the Centre nominated staff:-

- (a) an itemized account on or before the 10<sup>th</sup> or the 25<sup>th</sup> day of each month of the charges which he considers due to him for Services completed under the Contract; or
- (b) on completion of any separate portion of the Services (in respect of which a charge is laid down in the Schedule) an account for such portion.

All such accounts shall be signed by the Centre nominated staff. Unless otherwise agreed by the Centre Representative such accounts shall be paid within 30 days of the date upon which:-

- (i) where the said accounts are signed by the Centre Representative or his nominated staff, or
- (ii) where the Services have been accepted pursuant to clause 4 of the General Conditions herein,

whichever date is the earlier.

## **9. Illegal Workers**

- (a) The Contractor undertakes not to employ illegal workers in the execution of any Centre contracts. Should the Contractor be found to have employed illegal workers in breach of this undertaking, the Centre Representative may, on behalf of the Centre, by notice in writing, terminate the Contract and the Contractor is not entitled to claim any compensation.
- (b) The Contractor shall be liable for all expenses necessarily incurred by the Centre as a result of the termination of the Contract.

## **10. Default**

If the Contractor shall fail to carry out all or any of the Services provided for in the Contract within the Contract period or such extended period as may be agreed in accordance with clause 1(b) of the General Conditions hereof, the Centre may at its absolute discretion terminate the whole or any part of the Contract by notice in writing to the Contractor, but without prejudice to any claims by the Centre for breach of Contract including but not limited to its right of Centre to assign the balance of the uncompleted Services to another contractor or contractors whereupon the Contractor shall be liable for any sums so incurred in excess (hereinafter called 'any excess') of the Contract price.

## **11. Recovery of Sums Due**

Whenever under the Contract any sum of money shall be recoverable from or payable by the Contractor, the same may be deducted from any sum then due or which at any time thereafter may become due to the Contractor under the Contract or any other Centre contracts.

## **12. Liability for Damages or Compensation**

- (a) Centre and its employees or agents shall not be under any liability whatsoever for or in respect of:
  - (i) any loss of or damage to any of the Contractor's property or that of its employees or agents however caused (whether by any Negligence of the Centre or any of its employees or agents or otherwise).
  - (ii) any injury to or death of any of the Contractor's employees or agents save and except any such injury or death caused by the Negligence of the Centre or any of its employees or agents.
- (b) The Contractor shall indemnify the Centre and its employees or agents against any claim or demand made against or liability incurred (including all costs, charges or expenses whatsoever) by the Centre or any of its employees or agents in respect of:
  - (i) any loss, damage, injury or death referred to in sub-clause(a) of this clause (save and except injury or death caused by the Negligence of Centre or any of its employees or agents).
  - (ii) any loss or damage sustained by or any injury to or death of any third party in consequence of any Negligence of the Contractor or any of its employees or agents.
- (c) The Contractor shall indemnify the Centre against any loss of or damage to any property of the Centre or of any of its employees or agents or any injury to any employee or agent of the Centre arising out of the Negligence of the Contractor or any of its employees, sub-contractors or agents.
- (d) For the purposes of this clause 'Negligence' shall have the same meaning as that assigned to it in Section 2(1) of the Control of Exemption Clauses Ordinance.

## **13. Policy of Insurance and Compensation**

- (a) The Contractor shall effect a policy of insurance against all claims, demands or liability under the Contract with an insurance company approved by Centre (which approval shall not be unreasonably withheld) and shall continue such insurance during the continuance of the Contract and shall when required, deposit with the Centre Representative for safe keeping during the contract period such policy of insurance together with the receipt of payment of the current premium.
- (b) If the Contractor shall fail to effect and keep in force the insurance referred to or

any other insurance which he may be required to effect under the terms of the Contract then and in any such cases Centre may effect and keep in force any such insurance and pay such premium or premiums as may be necessary for that purpose and from time to time deduct the amount so paid by Centre as aforesaid from any moneys due or which may become due to the Contractor or recover the same as a debt due from the Contractor.

- (c) In the event of any of the Contractor's employees or agents suffering any injury or death in the course of or arising out of the Contract and whether there be a claim for compensation or not, the Contractor shall within 7 clear working days give notice in writing of such injury or death to the Centre Representative.

#### **14. Bankruptcy**

The Centre Representative may at any time by notice in writing summarily terminate the Contract without entitling the Contractor to compensation in any of the following events:

- (a) if the Contractor shall at any time be adjudged bankrupt, or shall have a receiving order or orders for administration of his estate made against him, or shall take any proceedings for liquidation or composition under any Bankruptcy Ordinance for the time being in force, or make any conveyance or assignment of his effects or composition or arrangement for the benefit of his creditors or purports so to do; or
- (b) if the Contractor, being a company shall pass a resolution or the court shall make an order for the liquidation of its assets, or a receiver or manager shall be appointed on behalf of the debenture holders, or circumstances shall have arisen which entitled the court or debenture holders to appoint a receiver or manager.

Provided always that such determination shall not prejudice or affect any right or action or remedy which shall have accrued or shall accrue thereafter to the Centre.

#### **15. Corrupt Gifts**

- (a) If the Contractor or any employee or agent of the Contractor shall be found to have committed an offence under the Prevention of Bribery Ordinance (Chapter 201) or any subsidiary legislation made thereunder or under any law of a similar nature in relation to the Contract or any other Centre contracts, the Centre Representative may, on behalf of the Centre, summarily terminate the Contract, without entitling the Contractor to any compensation therefor.
- (b) The Contractor shall be liable for all expenses necessarily incurred by the Centre as the result of the termination of the Contract.

#### **16. Consent to Disclosure**

The Centre shall have the right to disclose whenever it considers appropriate or upon request by any third party (written or otherwise) information on the awarded Contract, without any further reference to the successful Contractor, the name and address of the successful Contractor, description of Services and the amount of the Contract.

#### **17. Publicity**

The Contractor shall submit to the Centre Representative all advertising or other publicity material relating to the Contract or the products supplied or other work done in connection with the Contract wherein the Centre's name is mentioned or language used from which a connection with the Centre can reasonably be inferred or implied. The Contractor shall not publish or use any advertising or other publicity material without the prior written consent of the Centre Representative.

## **18. Governing Law**

The Contract shall be governed by and construed in accordance with the laws of Hong Kong and the parties hereby agree to submit to the jurisdiction of the courts of Hong Kong in relation to any matters arising out of the Contract.

## **19. Order of Precedence**

In the event that there is any conflict, contradiction or ambiguity between any documents which form part of the Contract, the following order of precedence shall be applied in order to resolve any such conflict, contradiction or ambiguity:

- (a) Special Conditions of Contract;
- (b) Particular Specification;
- (c) General Conditions of Contract; and
- (d) Schedule.

### **Part 3**

#### **Particular Specification**

## **1 Introduction**

- 1.1 Our Centre had developed one sensor to monitor the angle of tree. In support of the continue monitoring, the Centre is sourcing manufacturer to product the sensor used in Hong Kong

## **2 Definitions**

- 2.1 In this Contract, unless the context otherwise specifies, the following expressions have the following meaning:

|                         |                                                                                                                                                                                                                                                               |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| “Contract”              | means the agreement concluded between the Logistics and Supply Chain MultiTech R&D Centre (hereafter “the Centre”) and the Contractor including the letter of acceptance, specifications and other documents, which are incorporated by the reference herein. |
| “Contractor”            | means the party who undertakes to provide Service to the Centre.                                                                                                                                                                                              |
| “Centre Representative” | means the Chief Executive Officer, of the Centre.                                                                                                                                                                                                             |
| “Services”              | means all the deliverables, works, duties and obligations to be carried out by the Contractor pursuant to the provision of this Contract.                                                                                                                     |

- 2.2 Words importing the singular only also include the plural and vice versa where the context requires.

### 3 Services to be Provided

3.1 In this service contract, the Contractor is required to carry out the following tasks:

- i) Design a new casing to fulfill the requirement, concept casing design provided by LSCM for reference
- ii) Mass production of a Tree sensor with inclination, geomagnetic field sensor and two wireless modules (Lora and NB-IoT)
- iii) The production includes :  
1000 LoRa version + 1800 NB-IoT Version
- iv) Success to get certification on RF and IP testing and provide all testing report to LSCM, refer to the requirement in section C.
- v) Provide full production testing, refer to the testing requirement in section D.

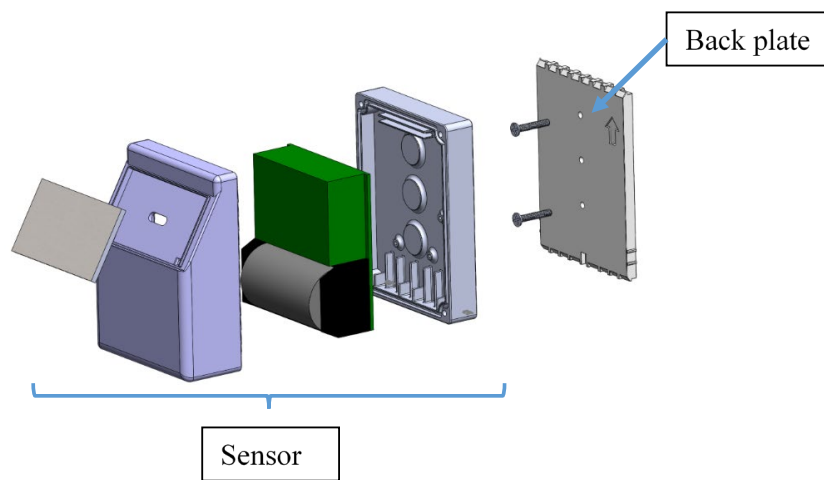
### 3.2 Specifications

The quotation requirements below are mandatory. The Contractor shall provide hardware and service which covers the followings features:

#### **A. Casing Design Requirement**

- i) The mounting method between the sensor and back plate need to be simple. The installation should be done within a few second and no additional tools needed. But a customer made tools are needed to take out the sensor from back plate.
- ii) Provide at least TWO mounting design between the sensor and back plate with prototype, and LSCM will select one of the designs as final production casing.
- iii) The casing should be smooth and avoid sharp corner/edge that may cause danger to public.
- iv) Design a special tool to take out the sensor from back plate.
- v) Suggest a method that without regular maintenance to avoid condensation inside the casing.
- vi) Additional waterproof switch/button, hidden from public after installation. One switch for power on/off, one user button
- vii) Provide all the screws for the casing, and the screw should be hidden from public after installation
- viii) The back plate can use two screws to mount with the tree, a belt type mounting method is not allowed.
- ix) The back plate should consist with a soft pad that can hold the back plate tightly with rough tree surface.
- x) The casing needs to resist sunlight for at least 3 years without deformation  
Material : Polycarbonate or equal materials
- xi) The casing should match the antenna design
- xii) The casing should consist suitable mounting for solar panel, supercapacitor and non-rechargeable battery.
- xiii) A compact, small design is required to keep the case as small as possible.

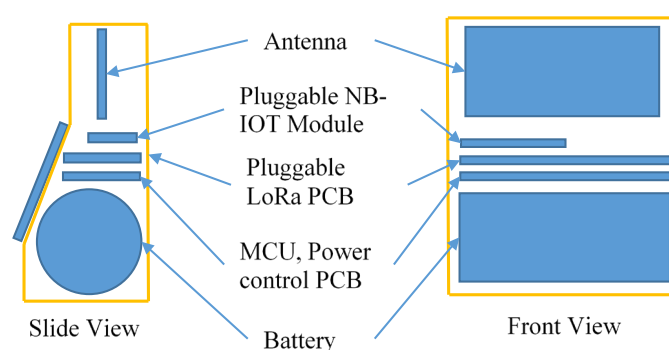
xiv) Waterproof IP66





## **B. PCBA Design**

- i) The sensor with 3 wireless channels, 433MHz, 923MHz, NB-IoT
- ii) Dual power supply: non-rechargeable battery and rechargeable battery for solar system
- iii) For the pluggable NB-IoT module, additional supercapacitor for high pulse current consumption ( $>500\text{mA}$  for 1s) is needed, the supercapacitor should pack parallel with the non-rechargeable battery,
- iv) Tentative antenna provided by LSCM, the contractor needs to fine tune the antenna with new matching circuit base on the Lab Test result
- v) Tentative PCB and SCH design provide by LSCM, the contractor needs to modify the pcb base on the requirement and new casing design, the arrangement of PCB in the casing is shown in the drawing below



- vi) Wireless receiver provided by LSCM for testing
- vii) Firmware provided by LSCM

## **C. Lab Test Requirement**

Tentative Antenna Design provided by LSCM.

- I. Carry out Antenna Testing to optimize the antenna performance
  - a. Measure the 3D pattern and gain of the fabricated antenna
  - b. Measure Antenna frequency shift
  - c. Perform Antenna frequency fine tuning to match the required frequency
  - d. All measurement needs to include PCB, casing, battery, solar panel
  - e. Tentative Antenna Design provided by LSCM
  - f. All of the tests should pass the requirement from LSCM and accept by LSCM before production
- II. Success to get certification on following Hong Kong OFTA standard
  - a. HKCA1061 for 433MHz
  - b. HKCA1078 for 923MHz
  - c. NB-IoT
- III. Success to get certification on IP rating testing: IP66

**D. Production Testing Requirement**

|   | <b>Test Target</b>                                                                                                                                                                                | <b>Method</b>                                                                                                                                                                                                                                                                                                                                                           | <b>Remark</b>                                                                                                                                                                               |
|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2 | LED Lighting                                                                                                                                                                                      | Applying 3V to LED pins to see LED light up or not                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                             |
| 3 | Power Supply Test                                                                                                                                                                                 | Apply 3.7V from Power Socket                                                                                                                                                                                                                                                                                                                                            | Output Voltage: 2.8V                                                                                                                                                                        |
| 4 | Program Loading                                                                                                                                                                                   | Load the program to MCU                                                                                                                                                                                                                                                                                                                                                 | Provided program                                                                                                                                                                            |
| 5 | Change ID                                                                                                                                                                                         | Change of ID                                                                                                                                                                                                                                                                                                                                                            | *Write ID (Hex) to flash of DUT through RS232 commanding. LSCM will provide testing program.                                                                                                |
| 6 | RF Test: (Enter Test Mode)<br>1. Output Power<br>2. Frequency Shift Test<br>3. All of the test should pass the requirement from LSCM<br><br>*conducting test<br>*Two Frequency: 433MHz and 923MHz | 1. Set the Tag to un-modulated transmit mode (done when enter test mode)<br><br>2. Use spectrum/power meter to get the output power and Frequency Shift                                                                                                                                                                                                                 | Mark the output power and Frequency Shift on the table.<br>Recommended spectrum: Agilent E440B ESA-E Series<br>RBW: 1KHz Span: 300kHz<br>The contractor needs to provide testing equipment. |
| 7 | Plug in Battery                                                                                                                                                                                   | Measure voltage from battery                                                                                                                                                                                                                                                                                                                                            | Mark the battery voltage to table                                                                                                                                                           |
| 8 | Functional Transmit Test<br><br>With battery, normal mode<br><br>All of the tests should pass the requirement from LSCM                                                                           | 1. Sensor is placed on inclination platform with different angle, test the measured inclination and geomagnetic field<br>2. Sensor is placed in 3m fixed distance with the receiver, Test whether a receiver can receive the signal from the Sensor after program was loaded.<br>3. Calibrate the sensor in the inclination platform with provided calibration program. | *10 continuous sample data need to be received<br>LSCM will provide testing program.<br>The contractor needs to provide the testing equipment.                                              |
| 9 | Casing and Laser Labeling                                                                                                                                                                         | serial number and ID on case                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                             |

**E. Other Requirements**

1. The Contractor should include material for all proposed products in the acquisition proposal.
2. The Contractor shall have more than **FIVE** years manufacturing experience in antenna turning, RF circuit design, RF product testing, RF product certification and outdoor casing design.
3. All necessary box should be provided
4. Submit editable file of the final design of the sensor after production, including schematic, PCB, casing design, BOM and other related document required by LSCM.

The following information MUST BE provided by Tenderer:

1. Additional information:

|                                                                                                                                                                                                  |                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|
| Time of delivery: No. of days from receipt of order (including shipping time)                                                                                                                    |                                   |
| The delivery time should NOT late after on 31 August 2021.                                                                                                                                       |                                   |
| Detailed schedule of the sensor production process should be provided to guarantee the delivery time.                                                                                            |                                   |
| Suggest at least two mounting method (with detailed description or diagram) between the sensor and back plate                                                                                    |                                   |
| Suggest a mounting method (with detailed description or diagram) between the back plate and rough tree surface that can hold the back plate tightly.                                             |                                   |
| Suggest a method that without regular maintenance to avoid condensation inside the casing                                                                                                        |                                   |
| Submit documentary evidence to substantiate its claim of manufacturing experience in antenna turning, RF circuit design, RF product testing, RF product certification and outdoor casing design. |                                   |
| Compliance with specification<br>If No, please provide details                                                                                                                                   | Yes/No                            |
| Number of Testing sensor given before large production                                                                                                                                           |                                   |
| Testing report of each sensor                                                                                                                                                                    |                                   |
| Procedure documents of production                                                                                                                                                                |                                   |
| Package                                                                                                                                                                                          | Paper BOX / others :<br><br>_____ |

#### **4 Other Requirements**

##### **4.1 Security Requirements**

- (a) All information collected and documents compiled for this work assignment shall not be disclosed to any unauthorized persons.

#### **5 Payment Schedule**

- 5.1 On each completed task, the Contractor shall produce an invoice for each sum becoming payable to the named person to be informed by the Centre in writing.

#### **6 Ownership and Intellectual Property Rights**

- 6.1 The ownership of the any prototypes and all deliverables under 3.2. obtained under this Contract shall belong to the Centre once acceptance of delivery has been confirmed.
- 6.2 The intellectual property rights of any IPR supplied by the Centre, whether directly indicated or otherwise, subsisting in all deliverables under 3.2. shall be owned by the Centre. Nothing under this Contract shall be interpreted to transfer or provide a license to the Contractor to the intellectual property rights owned by the Centre. The Contractor shall comply with all the prevailing legislations related to intellectual property rights in Hong Kong. The Centre will not accept any deliverable which infringes intellectual property rights or has infringed the intellectual property rights in the goods or product of a third party.
- 6.3 The Contractor warrants that it shall not infringe any intellectual property rights of any third party and shall indemnify and keep indemnified the Centre and its affiliates against all actions, claims, losses, damages and costs which may be sustained by the Centre or its affiliates consequent upon any such infringements.

**PART 4****Fee Proposal**

| <b>Item</b> | <b>Description<br/>(refers to<br/>quotation for<br/>detail<br/>specification)</b> | <b>Estimated<br/>Quantity</b> | <b>Unit cost in<br/>HKD</b> | <b>Total in HKD</b> | <b>Time of<br/>Delivery</b> |
|-------------|-----------------------------------------------------------------------------------|-------------------------------|-----------------------------|---------------------|-----------------------------|
| 1           | Casing mold,<br>engineering work<br>on production                                 | 1 set                         |                             |                     |                             |
| 2           | Development Cost<br>on casing design,<br>PCB layout                               | 1                             |                             |                     |                             |
| 3           | Sensor device<br>manufacturing                                                    | 2800                          |                             |                     |                             |
| 4           | Certification Cost<br>on Hong Kong<br>OFTA standard,                              | 3                             |                             |                     |                             |
| 5           | Lab Testing on<br>Antenna<br>measurement, IP<br>rating                            | 1                             |                             |                     |                             |
| 6           | Production Test                                                                   | 2800                          |                             |                     |                             |

Note: Breakdown of Quotation for Collection Service:

- (a) The Bidder is required to indicate in the space provided below a separate quotation for partial performance of the service with respect to each of the following production quantities (on a per unit basis):

| <b>Item</b> | <b>Quantity of<br/>LoRa Version</b> | <b>Unit cost in<br/>HKD</b> | <b>Quantity of NB-<br/>IoT Version</b> | <b>Unit cost in<br/>HKD</b> |
|-------------|-------------------------------------|-----------------------------|----------------------------------------|-----------------------------|
| 1 (Minimum) | 500                                 |                             | 500                                    |                             |
| 2           | 1000                                |                             | 1000                                   |                             |
| 3           | 1000                                |                             | 1800                                   |                             |
| 4(maximum)  | 2000                                |                             | 2000                                   |                             |

- (b) The Bidder is requested to insert the word 'NIL' in the space provided above if he is unable to offer any services for producing a particular quantity.

Signature Authorised to Sign  
this Quotation:

---

Name in Block Letter:

---

Name of the Bidder:  
(With Company Chop)

---

Telephone Number:

---

Facsimile Number:

---

Date:

---

## **PART 5**

### **Special Conditions of Contract**

#### **1. Contractual Period**

This quotation invitation will be concluded as a Service Contract to complete on 31 August 2021. The successful Bidder will be informed in writing.

#### **2. Confidentiality**

All information supplied by the Centre in this quotation invitation and under the subsequent Service Contract shall be treated as confidential. The Bidder and the Contractor shall not pass any information to any person except to their own employees who have a need to know the information for the purpose of this Service. They shall ensure that their employees are fully aware of and comply with the provision of this clause. The foregoing obligations shall survive any termination of the Contract.

#### **3. Payment for the Services**

Payment in respect of the Services provided shall be arranged by the Centre. The invoice shall be sent to Procurement, Level 11, Cyberport 2, 100 Cyberport Road, Hong Kong.

#### **4. Contracts (Rights of Third Parties) Ordinance (Cap. 623)**

The parties hereby declare that nothing in this Contract confers or purports to confer on any third party any benefit or any right to enforce any term of this Contract pursuant to the Contracts (Rights of Third Parties) Ordinance (Chapter 623 of the Laws of Hong Kong).