Republic of the Philippines
Civil Aviation Authority of the Philippines

PURCHASE/INSTALLATION OF ILS FOR ILOILO INTERNATIONAL AIRPORT

Bid No. 24-058-08 BRAVO

Government of the Republic of the Philippines

DATE
date of posting (*8 CD before pre-bid conference*)

Revision No. 080824

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Glossary of Acronyms, Terms, and Abbreviations

ABC – Approved Budget for the Contract.

BAC – Bids and Awards Committee.

Bid – A signed offer or proposal to undertake a contract submitted by a bidder in response to and in consonance with the requirements of the bidding documents. Also referred to as *Proposal* and *Tender.* (2016 revised IRR, Section 5[c])

Bidder – Refers to a contractor, manufacturer, supplier, distributor and/or consultant who submits a bid in response to the requirements of the Bidding Documents. (2016 revised IRR, Section 5[d])

Bidding Documents – The documents issued by the Procuring Entity as the bases for bids, furnishing all information necessary for a prospective bidder to prepare a bid for the Goods, Infrastructure Projects, and/or Consulting Services required by the Procuring Entity. (2016 revised IRR, Section 5[e])

BIR – Bureau of Internal Revenue.

BSP – Bangko Sentral ng Pilipinas.

Consulting Services – Refer to services for Infrastructure Projects and other types of projects or activities of the GOP requiring adequate external technical and professional expertise that are beyond the capability and/or capacity of the GOP to undertake such as, but not limited to: (i) advisory and review services; (ii) pre-investment or feasibility studies; (iii) design; (iv) construction supervision; (v) management and related services; and (vi) other technical services or special studies. (2016 revised IRR, Section 5[i])

CDA - Cooperative Development Authority.

Contract – Refers to the agreement entered into between the Procuring Entity and the Supplier or Manufacturer or Distributor or Service Provider for procurement of Goods and Services; Contractor for Procurement of Infrastructure Projects; or Consultant or Consulting Firm for Procurement of Consulting Services; as the case may be, as recorded in the Contract Form signed by the parties, including all attachments and appendices thereto and all documents incorporated by reference therein.

CIF – Cost Insurance and Freight.

CIP – Carriage and Insurance Paid.
CPI – Consumer Price Index.

DDP – Refers to the quoted price of the Goods, which means “delivered duty paid.”

DTI – Department of Trade and Industry.

EXW – Ex works.

FCA – “Free Carrier” shipping point.

FOB – “Free on Board” shipping point.

Foreign-funded Procurement or Foreign-Assisted Project– Refers to procurement whose funding source is from a foreign government, foreign or international financing institution as specified in the Treaty or International or Executive Agreement. (2016 revised IRR, Section 5[b]).

Framework Agreement – Refers to a written agreement between a procuring entity and a supplier or service provider that identifies the terms and conditions, under which specific purchases, otherwise known as "Call-Offs," are made for the duration of the agreement. It is in the nature of an option contract between the procuring entity and the bidder(s) granting the procuring entity the option to either place an order for any of the goods or services identified in the Framework Agreement List or not buy at all, within a minimum period of one (1) year to a maximum period of three (3) years. (GPPB Resolution No. 27-2019)

GFI – Government Financial Institution.

GOCC – Government-owned and/or –controlled corporation.

Goods – Refer to all items, supplies, materials and general support services, except Consulting Services and Infrastructure Projects, which may be needed in the transaction of public businesses or in the pursuit of any government undertaking, project or activity, whether in the nature of equipment, furniture, stationery, materials for construction, or personal property of any kind, including non-personal or contractual services such as the repair and maintenance of equipment and furniture, as well as trucking, hauling, janitorial, security, and related or analogous services, as well as procurement of materials and supplies provided by the Procuring Entity for such services. The term "related" or "analogous services" shall include, but is not limited to, lease or purchase of office space, media advertisements, health maintenance services, and other services essential to the operation of the Procuring Entity. (2016 revised IRR, Section 5[r])

GOP – Government of the Philippines.

GPPB – Government Procurement Policy Board.
INCOTERMS – International Commercial Terms.
Infrastructure Projects – Include the construction, improvement, rehabilitation, demolition, repair, restoration or maintenance of roads and bridges, railways, airports, seaports, communication facilities, civil works components of information technology projects, irrigation, flood control and drainage, water supply, sanitation, sewerage and solid waste management systems, shore protection, energy/power and electrification facilities, national buildings, school buildings, hospital buildings, and other related construction projects of the government. Also referred to as *civil works or works*. (2016 revised IRR, Section 5[u])

LGUs – Local Government Units.

NFCC – Net Financial Contracting Capacity.

NGA – National Government Agency.

PhilGEPS - Philippine Government Electronic Procurement System.

Procurement Project – refers to a specific or identified procurement covering goods, infrastructure project or consulting services. A Procurement Project shall be described, detailed, and scheduled in the Project Procurement Management Plan prepared by the agency which shall be consolidated in the procuring entity's Annual Procurement Plan. (GPPB Circular No. 06-2019 dated 17 July 2019)

PSA – Philippine Statistics Authority.

SEC – Securities and Exchange Commission.

SLCC – Single Largest Completed Contract.

Supplier – refers to a citizen, or any corporate body or commercial company duly organized and registered under the laws where it is established, habitually established in business and engaged in the manufacture or sale of the merchandise or performance of the general services covered by his bid. (Item 3.8 of GPPB Resolution No. 13-2019, dated 23 May 2019). Supplier as used in these Bidding Documents may likewise refer to a distributor, manufacturer, contractor, or consultant.

UN – United Nations.

Section I. Invitation to Bid

Republic of the Philippines
Civil Aviation Authority of the Philippines
Bids and Awards Committee

INVITATION TO BID FOR
Purchase/Installation of ILS for Iloilo International Airport
Bid No. 24-058-08 (Bravo)

1. The **Civil Aviation Authority of the Philippines (CAAP)**, through the *Supplemental Corporate Operating Budget for CY2024-2025,* intends to apply the sum of **Php 56,535,521.85** being the ABC to payments under the contract for ***Purchase/Installation of ILS for Iloilo International Airport***. Bids received in excess of the ABC shall be automatically rejected at bid opening.

2. The **CAAP** now invites bids for the ***Supply, Delivery, Installation, Training and Commissioning Flight Check of ILS and its ancillaries (refer to Section VI Schedule of Requirements and Section VII Technical Specifications)*** for the above Procurement Project. Delivery of the Goods is required *within the contract duration of 365 calendar days*. Bidders shall provide proof (e.g. certification issued by airport authority) that the offered equipment have been installed in international airports from three (3) different countries other than the country of origin where the offered equipment is manufactured; and, the Original Equipment Manufacturer of the offered Instrument Landing System equipment shall have been in the manufacturing business of Instrument Landing System equipment for at least the last ten (10) years. The description of an eligible bidder is contained in the Bidding Documents, particularly, in Section II (Instructions to Bidders).

3. Bidding will be conducted through open competitive bidding procedures using a non-discretionary "*pass/fail*" criterion as specified in the 2016 revised Implementing Rules and Regulations (IRR) of Republic Act (RA) No. 9184.

   Bidding is restricted to Filipino citizens/sole proprietorships, partnerships, or organizations with at least sixty percent (60%) interest or outstanding capital stock belonging to citizens of the Philippines, and to citizens or organizations of a country the laws or regulations of which grant similar rights or privileges to Filipino citizens, pursuant to RA No. 5183.

4. Prospective Bidders may obtain further information from CAAP and inspect the Bidding Documents at the address given below during 8:00am to 5pm at the BAC Office – Civil Aviation Authority of the Philippines (CAAP), MIA Road, Pasay City, 1300.

5. A complete set of Bidding Documents may be acquired by interested Bidders on **14 August 2024 until the deadline of submission of bids** from the given address and website(s) below and upon payment of the applicable fee for the Bidding Documents, pursuant to the latest Guidelines issued by the GPPB, in the amount of **Php 56,000.00 (inclusive of 12% VAT**). The Procuring Entity shall allow the bidder to present its proof of payment for the fees presenting the Official Receipt.

   Civil Aviation Authority of the Philippines, BAC Office, MIA Road, Pasay City. It may also be downloaded free of charge from the website of the Philippine Government Electronic Procurement System (PhilGEPS) https://www.philgeps.gov.ph/ and the website of the

Procuring Entity, provided that Bidders shall pay the applicable fee for the Bidding Documents not later than the submission of their bids.

6. The **Civil Aviation Authority of the Philippines** will hold a Pre-Bid Conference on **23 August 2024** @ **9:30 AM** through via Zoom/Google Meet, which shall be open to prospective bidders.

7. Bids must be duly received by the BAC Secretariat through manual submission at **Civil Aviation Authority of the Philippines**, on or before **04 September 2024** @ **9:30 AM**. Late bids shall not be accepted.

8. All Bids must be accompanied by a bid security in any of the acceptable forms and in the amount stated in **ITB** Clause 14.

9. Bid opening shall be on **04 September 2024** @ **9:30 AM** at **Civil Aviation Authority of the Philippines.** Bids will be opened in the presence of the bidders' representatives who choose to attend the activity.

10. The **Civil Aviation Authority of the Philippines** reserves the right to reject any and all bids, declare a failure of bidding, or not award the contract at any time prior to contract award in accordance with Sections 35.6 and 41 of the 2016 revised IRR of RA No. 9184, without thereby incurring any liability to the affected bidder or bidders.

11. Upon payment of the bid documents, bidders must provide their respective email addresses to the BAC Secretariat. All communications, including but not limited to Notices, Resolutions, and Replies, among others, will be sent to the email address provided by the bidder/s. The date when such email was sent shall be considered the date of receipt of the bidder/s for purposes of complying with the requirements under RA 9184.

12. Bidders must also check the PhilGEPS website, CAAP website, and BAC Secretariat for any bid bulletins and announcements related to the bidding.

13. For further information, please refer to:
    ENGR. LEANDRO R. VARQUEZ
    Head, BAC Secretariat
    3rd Floor Supply, Procurement Building
    Civil Aviation Authority of the Philippines
    MIA Road, Pasay City
    Telefax No.:(02) 8246-4988 loc. 2236
    Email: bac@caap.gov.ph

ATTY. DANJUN G. LUCAS

Chairman, Bids and Awards Committee (Bravo)

Section II. Instructions to Bidders

1. Scope of Bid

The Procuring Entity, **Civil Aviation Authority of the Philippines** wishes to receive Bids for the ***Purchase/Installation of ILS for Iloilo International Airport***, with identification number **BID NO. 24-058-08 BRAVO.**

2. Funding Information

2.1. The GOP through the source of funding as indicated below for **CY2024-2025** in the amount of **Php 56,535,521.85**.

2.2. The source of funding is:

Supplemental Corporate Operating Budget for CY2024-2025 APP item No. **10603050-2234.**

3. Bidding Requirements

The Bidding for the Project shall be governed by all the provisions of RA No. 9184 and its 2016 revised IRR, including its Generic Procurement Manuals and associated policies, rules and regulations as the primary source thereof, while the herein clauses shall serve as the secondary source thereof.

Any amendments made to the IRR and other GPPB issuances shall be applicable only to the ongoing posting, advertisement, or **IB** by the BAC through the issuance of a supplemental or bid bulletin.

The Bidder, by the act of submitting its Bid, shall be deemed to have verified and accepted the general requirements of this Project, including other factors that may affect the cost, duration and execution or implementation of the contract, project, or work and examine all instructions, forms, terms, and project requirements in the Bidding Documents and in the **BDS**.

4. Corrupt, Fraudulent, Collusive, and Coercive Practices

The Procuring Entity, as well as the Bidders and Suppliers, shall observe the highest standard of ethics during the procurement and execution of the contract. They or through an agent shall not engage in corrupt, fraudulent, collusive, coercive, and obstructive practices defined under Annex "I" of the 2016 revised IRR of RA No. 9184 or other integrity violations in competing for the Project.

5. Eligible Bidders

5.1. Only Bids of Bidders found to be legally, technically, and financially capable will be evaluated.

5.2. Foreign ownership limited to those allowed under the rules may participate in this Project.

5.3. Pursuant to Section 23.4.1.3 of the 2016 revised IRR of RA No.9184, the Bidder shall have an SLCC that is at least one (1) contract similar to the Project the value of which, adjusted to current prices using the PSA's CPI, must be at least equivalent to:

For the procurement of Non-expendable Supplies and Services: The Bidder must have completed a single contract that is similar to this Project, equivalent to at least fifty percent (50%) of the ABC specified in **BDS**.

5.4. The Bidders shall comply with the eligibility criteria under Section 23.4.1 of the 2016 IRR of RA No. 9184.

6. Origin of Goods

There is no restriction on the origin of goods other than those prohibited by a decision of the UN Security Council taken under Chapter VII of the Charter of the UN, subject to Domestic Preference requirements under **ITB** Clause 18.

7. Subcontracts

7.1. The Bidder may subcontract portions of the Project to the extent allowed by the Procuring Entity as stated herein, but in no case more than twenty percent (20%) of the Project.

The Procuring Entity has prescribed that:

a. Subcontracting is allowed. The portions of Project and the maximum percentage allowed to be subcontracted are indicated in the **BDS**, which shall not exceed twenty percent (20%) of the contracted Goods.

7.2. The Bidder must submit together with its Bid the documentary requirements of the subcontractor(s) complying with the eligibility criteria stated in **ITB** Clause 5 in accordance with Section 23.4 of the 2016 revised IRR of RA No. 9184 pursuant to Section 23.1 thereof.

7.3. The Supplier may identify its subcontractor during the contract implementation stage. Subcontractors identified during the bidding may be changed during the implementation of this Contract. Subcontractors must submit the documentary requirements under Section 23.1 of the 2016 revised IRR of RA No. 9184 and comply with the eligibility criteria specified in **ITB** Clause 5 to the implementing or end-user unit.

7.4. Subcontracting of any portion of the Project does not relieve the Supplier of any liability or obligation under the Contract. The Supplier will be responsible for the acts, defaults, and negligence of any subcontractor, its agents, servants, or workmen as fully as if these were the Supplier's own acts, defaults, or negligence, or those of its agents, servants, or workmen.

8. Pre-Bid Conference

The Procuring Entity will hold a pre-bid conference for this Project on the specified date and time and either at CAAP address and/or through videoconferencing / webcasting as indicated in paragraph 6 of the **IB.**

9. Clarification and Amendment of Bidding Documents

Prospective bidders may request for clarification on and/or interpretation of any part of the Bidding Documents. Such requests must be in writing and received by the Procuring Entity, either at its given address or through electronic mail indicated in the **IB**, at least ten (10) calendar days before the deadline set for the submission and receipt of Bids.

10. Documents comprising the Bid: Eligibility and Technical Components

10.1. The first envelope shall contain the eligibility and technical documents of the Bid as specified in **Section VIII (Checklist of Technical and Financial Documents)** and **BDS**.

10.2. The Bidder's SLCC as indicated in **ITB** Clause 5.3 should have been completed within ***10 years*** prior to the deadline for the submission and receipt of bids.

10.3. If the eligibility requirements or statements, the bids, and all other documents for submission to the BAC are in foreign language other than English, it must be accompanied by a translation in English, which shall be authenticated by the appropriate Philippine foreign service establishment, post, or the equivalent office having jurisdiction over the foreign bidder's affairs in the Philippines. Similar to the required authentication above, for Contracting Parties to the Apostille Convention, only the translated documents shall be authenticated through an apostille pursuant to GPPB Resolution No. 13-2019 dated 23 May 2019. The English translation shall govern, for purposes of interpretation of the bid.

11. Documents comprising the Bid: Financial Component

11.1. The second bid envelope shall contain the financial documents for the Bid as specified in **Section VIII (Checklist of Technical and Financial Documents)** and in **BDS**.

11.2. If the Bidder claims preference as a Domestic Bidder or Domestic Entity, a certification issued by DTI shall be provided by the Bidder in accordance with Section 43.1.3 of the 2016 revised IRR of RA No. 9184.

11.3. Any bid exceeding the ABC indicated in paragraph 1 of the **IB** shall not be accepted.

11.4. For Foreign-funded Procurement, a ceiling may be applied to bid prices provided the conditions are met under Section 31.2 of the 2016 revised IRR of RA No. 9184.

12. Bid Prices

12.1. Prices indicated on the Price Schedule shall be entered separately in the following manner:

a. For Goods offered from within the Procuring Entity's country:

i. The price of the Goods quoted EXW (ex-works, ex-factory, ex-warehouse, ex-showroom, or off-the-shelf, as applicable);

ii. The cost of all customs duties and sales and other taxes already paid or payable;

iii. The cost of transportation, insurance, and other costs incidental to delivery of the Goods to their final destination; and

iv. The price of other (incidental) services, if any, listed and specified in **BDS**.

b. For Goods offered from abroad:

i. Unless otherwise stated in the **BDS**, the price of the Goods shall be quoted delivered duty paid (DDP) with the place of destination in the

Philippines as specified in the **BDS**. In quoting the price, the Bidder shall be free to use transportation through carriers registered in any eligible country. Similarly, the Bidder may obtain insurance services from any eligible source country.

ii. The price of other (incidental) services, if any, as listed in **Section VII (Technical Specifications)** specified in **BDS.**

13. Bid and Payment Currencies

13.1. For Goods that the Bidder will supply from outside the Philippines, the bid prices may be quoted in the local currency or tradeable currency accepted by the BSP at the discretion of the Bidder. However, for purposes of bid evaluation, Bids denominated in foreign currencies, shall be converted to Philippine currency based on the exchange rate as published in the BSP reference rate bulletin on the day of the bid opening.

13.2. Payment of the contract price shall be made in:

Philippine Pesos.

14. Bid Security

14.1. The Bidder shall submit a Bid Securing Declaration or any form of Bid Security in the amount indicated in the **BDS**, which shall be not less than the percentage of the ABC in accordance with the schedule in the **BDS**.

14.2. The Bid and bid security shall be valid 120 calendar days from the date of the opening of bids and shall be callable on demand. Any Bid not accompanied by an acceptable bid security shall be rejected by the Procuring Entity as non-responsive.

15. Sealing and Marking of Bids

Each Bidder shall submit one copy of the first and second components of its Bid as specified in **BDS**.

The Procuring Entity may request additional hard copies and/or electronic copies of the Bid. However, failure of the Bidders to comply with the said request shall not be a ground for disqualification.

If the Procuring Entity allows the submission of bids through online submission or any other electronic means, the Bidder shall submit an electronic copy of its Bid, which must be digitally signed. An electronic copy that cannot be opened or is corrupted shall be considered non-responsive and, thus, automatically disqualified.

16. Deadline for Submission of Bids

16.1. The Bidders shall submit on the specified date and time and either at its physical address or through online submission as indicated in paragraph 7 of the **IB** and **BDS.**

17. Opening and Preliminary Examination of Bids

17.1. The BAC shall open the Bids in public at the time, on the date, and at the place specified in paragraph 9 of the **IB**. The Bidders' representatives who are present shall sign a register evidencing their attendance. In case of videoconferencing, webcasting or other similar technologies will be used, attendance of participants shall likewise be recorded by the BAC Secretariat.

In case the Bids cannot be opened as scheduled due to justifiable reasons, the rescheduling requirements under Section 29 of the 2016 revised IRR of RA No. 9184 shall prevail.

17.2. The preliminary examination of bids shall be governed by Section 30 of the 2016 revised IRR of RA No. 9184.

18. Domestic Preference

18.1. The Procuring Entity will grant a margin of preference for the purpose of comparison of Bids in accordance with Section 43.1.2 of the 2016 revised IRR of RA No. 9184.

19. Detailed Evaluation and Comparison of Bids

19.1. The Procuring BAC shall immediately conduct a detailed evaluation of all Bids rated "*passed*," using non-discretionary pass/fail criteria. The BAC shall consider the conditions in the evaluation of Bids under Section 32.2 of the 2016 revised IRR of RA No. 9184.

19.2. If the Project allows partial bids, bidders may submit a proposal on any of the lots or items, and evaluation will be undertaken on a per lot or item basis, as the case maybe. In this case, the Bid Security as required by **ITB** Clause 14 shall be submitted for each lot or item separately.

19.3. The descriptions of the lots or items shall be indicated in **Section VII (Technical Specifications)**, although the ABCs of these lots or items are indicated in the **BDS** for purposes of the NFCC computation pursuant to Section 23.4.2.6 of the 2016 revised IRR of RA No. 9184. The NFCC must be sufficient for the total of the ABCs for all the lots or items participated in by the prospective Bidder.

19.4. The Project shall be awarded as follows:

One Project having several items that shall be awarded as one contract.

19.5. Except for bidders submitting a committed Line of Credit from a Universal or Commercial Bank in lieu of its NFCC computation, all Bids must include the NFCC computation pursuant to Section 23.4.1.4 of the 2016 revised IRR of RA No. 9184, which must be sufficient for the total of the ABCs for all the lots or items participated in by the prospective Bidder. For bidders submitting the committed Line of Credit, it must be at least equal to ten percent (10%) of the ABCs for all the lots or items participated in by the prospective Bidder.

20. Post-Qualification

20.2 Within a non-extendible period of five (5) calendar days from receipt by the Bidder of the notice from the BAC that it submitted the Lowest Calculated Bid, the Bidder shall submit its latest income and business tax returns filed and paid through the BIR Electronic Filing and Payment System (eFPS) and other appropriate licenses and permits required by law and stated in the **BDS**.

21. Signing of the Contract

21.1. The documents required in Section 37.2 of the 2016 revised IRR of RA No. 9184 shall form part of the Contract. Additional Contract documents are indicated in the **BDS**.

Section III. Bid Data Sheet

Bid Data Sheet

ITB Clause	
5.3	For this purpose, contracts similar to the Project shall be: **Supply, Delivery, Installation, Testing, and Commissioning of ILS and/or DVOR.** Completed within last 10 years prior to the deadline for the submission and receipt of bids.
7.1	Subcontracting of site preparation and incidental electrical works alone is allowed. Construction of the electrical/civil works component shall be done by a company with a valid PCAB Small "B" Size Range, C or D License Category in General Engineering **or** General Building; **and** Electrical **or** Navigational Aids Works Classification.
12.1(a)(iv)	Incidental Services (for Goods offered from within Philippines) include but are not limited to the following: 1. All expenses for the processing of permits and licenses shall be part of the price schedule of the equipment; 2. Provision and installation of cables, grounding, surge protection and other additional or auxiliary electronic/electrical adapter, signal converters, connectors, components, fixtures, interface, fittings/mounting kits, cable management etc. for the different equipment to meet operational and functional requirements. Prices for these incidentals shall be incorporated to the equipment listed in the BOQ of the Schedule of Requirements to which it is primarily related; 3. Importation Licenses / Permits; 4. Civil/Electrical Engineering Services and Installation costs; 5. Training; 6. Project Management Services; 7. As-Built Plans and Drawings; and 8. Design Frangibility Certificate compliant to ICAO requirements (ICAO Doc. 9157, Part 6);

12.1(b)(ii)	Incidental Services (for Goods offered from abroad) include but are not limited to the following: 1. Provision and installation of cables, grounding, surge protection and other additional or auxiliary electronic/electrical adapter, signal converters, connectors, components, fixtures, interface, fittings, cable management, etc. for the different equipment to meet operational and functional requirements. Prices for these incidentals shall be incorporated to the equipment listed in the BOQ of the Schedule of Requirements to which it is primarily related; 2. Export Licenses / Permits; 3. Engineering Services required for design & configurations; 4. Equipment Installation costs; 5. FAT/Training & related documents; 6. Related equipment tests; 7. Site Technical Training to be conducted by certified/authorized technical personnel from the Original Equipment Manufacturer (OEM); 8. Installation, Operational, Maintenance and other forms of Manuals, System & Circuit Diagrams, Equipment As-Built Plans and Drawings; and 9. Design Frangibility Certificate compliant to ICAO requirements (ICAO Doc. 9157, Part 6).
14.1	The bid security shall be in the form of a Bid Securing Declaration, or any of the following forms and amounts: a. The amount of not less than ***Php 1,130,710.44***, if bid security is in cash, cashier's/manager's check, bank draft/guarantee or irrevocable letter of credit; or b. The amount of not less than ***Php 2,826,776.09,*** if bid security is in Surety Bond.
19.2	Partial Bid is not allowed. The goods are grouped in a single lot and the lot shall not be divided into sub-lots for the purpose of bidding, evaluation, and contract award.
20.2	A. The Contractor shall be responsible for securing all necessary permits (i.e. Electrical/Civil work Permits, Permit to Import, NTC, Security Pass, other local permits, etc.) from respective offices that may be necessary for the installation of the equipment at site. The cost of acquiring such permits including its processing shall be borne by the Contractor. B. Additional contract, documents relevant to the project required by the CAAP during contract agreement signing:

	1. Project implementation schedule 2. Cash Flow by quarter
21.1	Additional Contract Documents: 1. A Certificate under oath attesting that the bidder has no pending case(s) against the Government; 2. Legal Clearance to be issued by the CAAP Enforcement and Legal Service with respect to the non-pendency of any cases of prospective bidders against the Authority.

Section IV. General Conditions of Contract

1. Scope of Contract

This Contract shall include all such items, although not specifically mentioned, that can be reasonably inferred as being required for its completion as if such items were expressly mentioned herein. All the provisions of RA No. 9184 and its 2016 revised IRR, including the Generic Procurement Manual, and associated issuances, constitute the primary source for the terms and conditions of the Contract, and thus, applicable in contract implementation. Herein clauses shall serve as the secondary source for the terms and conditions of the Contract.

This is without prejudice to Sections 74.1 and 74.2 of the 2016 revised IRR of RA No. 9184 allowing the GPPB to amend the IRR, which shall be applied to all procurement activities, the advertisement, posting, or invitation of which were issued after the effectivity of the said amendment.

Additional requirements for the completion of this Contract shall be provided in the **Special Conditions of Contract** (**SCC).**

2. Advance Payment and Terms of Payment

2.1. Advance payment of the contract amount is provided under Annex "D" of the revised 2016 IRR of RA No. 9184.

2.2. The Procuring Entity is allowed to determine the terms of payment on the partial or staggered delivery of the Goods procured, provided such partial payment shall correspond to the value of the goods delivered and accepted in accordance with prevailing accounting and auditing rules and regulations. The terms of payment are indicated in the **SCC**.

3. Performance Security

Within ten (10) calendar days from receipt of the Notice of Award by the Bidder from the Procuring Entity but in no case later than prior to the signing of the Contract by both parties, the successful Bidder shall furnish the performance security in any of the forms prescribed in Section 39 of the 2016 revised IRR of RA No. 9184

4. Inspection and Tests

The Procuring Entity or its representative shall have the right to inspect and/or to test the Goods to confirm their conformity to the Project specifications at no extra cost to the Procuring Entity in accordance with the Generic Procurement Manual. In addition to tests in the **SCC**, **Section IV (Technical Specifications)** shall specify what inspections and/or tests the Procuring Entity requires, and where they are to be conducted. The Procuring Entity shall notify the Supplier in writing, in a timely manner, of the identity of any representatives retained for these purposes.
All reasonable facilities and assistance for the inspection and testing of Goods, including access to drawings and production data, shall be provided by the Supplier to the authorized inspectors at no charge to the Procuring Entity.

5. Warranty

6.1. In order to assure that manufacturing defects shall be corrected by the Supplier, a warranty shall be required from the Supplier as provided under Section 62.1 of the 2016 revised IRR of RA No. 9184.

6.2. The Procuring Entity shall promptly notify the Supplier in writing of any claims arising under this warranty. Upon receipt of such notice, the Supplier shall, repair or replace the defective Goods or parts thereof without cost to the Procuring Entity, pursuant to the Generic Procurement Manual.

6. Liability of the Supplier

The Supplier's liability under this Contract shall be as provided by the laws of the Republic of the Philippines.

If the Supplier is a joint venture, all partners to the joint venture shall be jointly and severally liable to the Procuring Entity.

Section V. Special Conditions of Contract

Special Conditions of Contract

GCC Clause	
1	**Delivery and Documents –** For purposes of the Contract, "EXW," "FOB," "FCA," "CIF," "CIP," "DDP" and other trade terms used to describe the obligations of the parties shall have the meanings assigned to them by the current edition of INCOTERMS published by the International Chamber of Commerce, Paris. The Delivery terms of this Contract shall be as follows: The delivery terms applicable to the Contract are DDP delivered at sites defined in Section VI. Schedule of Requirements. In accordance with INCOTERMS." The delivery terms applicable to this Contract are delivered *at sites defined in Section VI. Schedule of Requirements.* Risk and title will pass from the Supplier to the Procuring Entity upon receipt and final acceptance of the Goods at their final destination." Delivery of the Goods shall be made by the Supplier in accordance with the terms specified in Section VI. Schedule of Requirements. The details of shipping and/or other documents to be furnished by the Supplier are as follows: *For Goods supplied from within the Philippines:* Upon delivery of the Goods to the Project Site, the Supplier shall notify the Procuring Entity and present the following documents to the Procuring Entity: (i) Original and four copies of the Supplier's invoice showing Goods' description, quantity, unit price, and total amount; (ii) Original and four copies delivery receipt/note, railway receipt, or truck receipt; (iii) Original Supplier's factory inspection report; (iv) Original and four copies of the Manufacturer's and/or Supplier's warranty certificate; (v) Original and four copies of the certificate of origin (for imported Goods); (vi) Delivery receipt detailing number and description of items received signed by the authorized receiving personnel; (vii) Certificate of Acceptance/Inspection Report signed by the Procuring Entity's representative at the Project Site; (viii) Design Frangibility Certificate compliant to ICAO requirements (ICAO Doc. 9157, Part 6); and (ix) Four copies of the Invoice Receipt for Property signed by the Procuring Entity's representative at the Project Site. *For Goods supplied from abroad:*

Upon shipment, the Supplier shall notify the Procuring Entity and the insurance company by cable the full details of the shipment, including Contract Number, description of the Goods, quantity, vessel, bill of lading number and date, port of loading, date of shipment, port of discharge etc. Upon delivery to the Project Site, the Supplier shall notify the Procuring Entity and present the following documents as applicable with the documentary requirements of any letter of credit issued taking precedence:

(i) Original and four copies of the Supplier's invoice showing Goods' description, quantity, unit price, and total amount;

(ii) Original and four copies of the negotiable, clean shipped on board bill of lading marked "freight pre-paid" and five copies of the non-negotiable bill of lading;

(iii) Original Supplier's factory inspection report;

(iv) Original and four copies of the Manufacturer's and/or Supplier's warranty certificate;

(v) Original and four copies of the certificate of origin (for imported Goods);

(vi) Delivery receipt detailing number and description of items received signed by the Procuring Entity's representative at the Project Site;

(vii) Certificate of Acceptance/Inspection Report signed by the Procuring Entity's representative at the Project Site;

(viii) Design Frangibility Certificate compliant to ICAO requirements (ICAO Doc. 9157, Part 6); and

(ix) Four copies of the Invoice Receipt for Property signed by the Procuring Entity's representative at the Project Site.

For purposes of this Clause the Procuring Entity's Representative at the Project Site is **Engr. Ramon Chong, Jr.** or his authorized representative, CAAP**-ANS Facility-In-Charge authorized at site.**

Incidental Services –

The Supplier is required to provide all of the following services, including additional services, if any, specified in Section VI. Schedule of Requirements:

(a) performance or supervision of on-site assembly and/or start-up of the supplied Goods;

(b) furnishing of tools required for assembly and/or maintenance of the supplied Goods;

(c) furnishing of a detailed operations and maintenance manual for each appropriate unit of the supplied Goods;

(d) performance or supervision or maintenance and/or repair of the supplied Goods, for a period of time agreed by the parties, provided that this service shall not relieve the Supplier of any warranty obligations under this Contract; and

(e) training of the Procuring Entity's personnel, at the Supplier's plant and/or on-site, in assembly, start-up, operation, maintenance, and/or repair of the supplied Goods.

(f) Incidental Services (for Goods offered from within Philippines) include but are not limited to the following:

1. All expenses for the processing of permits and licenses shall be part of the price schedule of the equipment.
2. Provision and installation of cables, grounding, surge protection and other additional or auxiliary electronic/electrical adapter, signal converters, connectors, components, fixtures, interface, fittings/mounting kits, cable management etc. for the different equipment to meet operational and functional requirements. Prices for these incidentals shall be incorporated to the equipment listed in the BOQ of the Schedule of Requirements to which it is primarily related.
3. Importation Licenses / Permits
4. Civil/ Electrical Engineering Services and Installation costs
5. Training
6. Project Management Services
7. As-Built Plans and Drawings

(g) Incidental Services (for Goods offered from abroad) include but are not limited to the following:

1. Provision and installation of cables, grounding, surge protection and other additional or auxiliary electronic/electrical adapter, signal converters, connectors, components, fixtures, interface, fittings, cable management, etc. for the different equipment to meet operational and functional requirements. Prices for these incidentals shall be incorporated to the equipment listed in the BOQ of the Schedule of Requirements to which it is primarily related.
2. Export Licenses / Permits
3. Engineering Services required for design & configurations.
4. Equipment Installation Costs
5. FAT/ Training & related documents
6. Related equipment tests
7. Site Technical Training to be conducted by certified/authorized technical personnel from the Original Equipment Manufacturer (OEM).
8. Installation, Operational, Maintenance and other forms of Manuals, System & Circuit Diagrams, Equipment As-Built Plans and Drawings.

The Contract price for the Goods shall include the prices charged by the Supplier for incidental services and shall not exceed the prevailing rates charged to other parties by the Supplier for similar services.

Spare Parts –

The Supplier is required to provide all of the following materials, notifications, and information pertaining to spare parts manufactured or distributed by the Supplier:

(a) such spare parts as the Procuring Entity may elect to purchase from the Supplier, provided that this election shall not relieve the Supplier of any warranty obligations under this Contract; and

(b) in the event of termination of production of the spare parts:

i. advance notification to the Procuring Entity of the pending termination, in sufficient time to permit the Procuring Entity to procure needed requirements; and

ii. following such termination, furnishing at no cost to the Procuring Entity, the blueprints, drawings, and specifications of the spare parts, if requested.

The spare parts required are listed in Section VI. Schedule of Requirements and the cost thereof are included in the Contract Price

The Supplier shall carry sufficient inventories to assure ex-stock supply of consumable spares for the Goods for a period of *ten (10) years.*

Other spare parts and components shall be supplied as promptly as possible, but in any case, within **60 days** of placing the order.

Packaging –

The Supplier shall provide such packaging of the Goods as required to prevent their damage or deterioration during transit to their final destination, as indicated in this Contract. The packaging shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit, and open storage. Packaging case size and weights shall take into consideration, where appropriate, the remoteness of the GOODS' final destination and the absence of heavy handling facilities at all points in transit.

The packaging, marking, and documentation within and outside the packages shall comply strictly with such special requirements as shall be expressly provided for in the Contract, including additional requirements, if any, specified below, and in any subsequent instructions ordered by the Procuring Entity.

The outer packaging must be clearly marked on at least four (4) sides as follows:

Name of the Procuring Entity: **Civil Aviation Authority of the Philippines (CAAP)**

Name of the Supplier

Contract Description

Final Destination

Gross weight

Any special lifting instructions

Any special handling instructions

Any relevant HAZCHEM classifications

A packaging list identifying the contents and quantities of the package is to be placed on an accessible point of the outer packaging if practical. If not practical the packaging list is to be placed inside the outer packaging but outside the secondary packaging.

Insurance –

The Goods supplied under this Contract shall be fully insured by the Supplier in a freely convertible currency against loss or damage incidental to manufacture or acquisition, transportation, storage, and delivery. The Goods remain at the risk and title of the Supplier until their final acceptance by the Procuring Entity.

Transportation –

Where the Supplier is required under Contract to deliver the Goods CIF, CIP or DDP, transport of the Goods to the port of destination or such other named place of destination in the Philippines, as shall be specified in this Contract, shall be arranged and paid for by the Supplier, and the cost thereof shall be included in the Contract Price.

Where the Supplier is required under this Contract to transport the Goods to a specified place of destination within the Philippines, defined as the Project Site, transport to such place of destination in the Philippines, including insurance and storage, as shall be specified in this Contract, shall be arranged by the Supplier, and related costs shall be included in the Contract Price.

Where the Supplier is required under Contract to deliver the Goods CIF, CIP or DDP, Goods are to be transported on carriers of Philippine registry. In the event that no carrier of Philippine registry is available, Goods may be shipped by a carrier which is not of Philippine registry provided that the Supplier obtains and presents to the Procuring Entity certification to this effect from the nearest Philippine consulate to the port of dispatch. In the event that carriers of Philippine registry are available but their schedule delays the Supplier in its performance of this Contract the period from when the Goods were first ready for shipment and the actual date of shipment the period of delay will be considered *force majeure*.

The Procuring Entity accepts no liability for the damage of Goods during transit other than those prescribed by INCOTERMS for DDP Deliveries. In the case of Goods supplied from within the Philippines or supplied by domestic Suppliers risk and title will not be deemed to have passed to the Procuring Entity until their receipt and final acceptance at the final destination.

Patent Rights –

The Supplier shall indemnify the Procuring Entity against all third-party claims of infringement of patent, trademark, or industrial design rights arising from use of the Goods or any part thereof.

2.2	This is a Turn-Key Project, payment will be after issuance of project completion Certification of CAAP.
4	The inspections and tests that will be conducted are: *A. Verification/Inspection of I L S equipment and conformity to Contract Specification;* *B. Verification/Inspection of manhole construction, power cable within conduits laying, trenching and backfilling;* *C. Periodic inspections at site, FAT, Commissioning and SAT.*
5	Contractor/Supplier shall warrant the entire equipment, assemblies, software and related integration/site works for one (1) year Defect Liability Period (DLP) (parts and service) plus (1) year Warranty Period (parts and service).

Section VI. Schedule of Requirements

The delivery schedule expressed as weeks/months stipulates hereafter a delivery date which is the date of delivery to the project site.

Item Number	Description	Quantity	Total	Delivered, Weeks/Months
A	**Instrument Landing System**			**365 calendar days** **(Project Site: Iloilo International Airport, Iloilo City) Upon receipt of NTP.**
I.	**Localizer Equipment and Subsystems (Rwy 20)**	1 set		
	Localizer (LLZ) equipment set 2-Frequency (Dual System) with the following: *Transmitters, Control and Switching, Power Supply, Frangible antenna System, antenna distribution unit including antenna mast and frangible platform with foundation, Equipment Rack/Cabinet*			
	Dual Monitor, Integral and Frangible Field Monitor Antenna with antenna mast, grounding and foundation, check points markers			
	Lightning and Surge Protection, Connectors, RF/Control/Power cables, mountings, dual obstruction lights, accessories, subsystems and subassemblies for full operation of LLZ			
	DC Backup Power Supply (at least 3 hours backup time)			
	Operation, Maintenance, Technical manuals in English Language including as-built plans and diagrams			
II.	**Glide Path (GP) Equipment and Subsystems**	1 set		
	GP equipment set 2-Frequency (Dual System) with the following:			
	Transmitters, Control and Switching, Power Supply and Battery Backup, antenna System including and its ancillaries, Equipment Rack/Cabinet, Reflecting Plane, Check Point Markers			
	Frangible antenna mast/tower (glass fiber reinforced plastic or any other material compliant to ICAO frangibility requirements (ICAO Doc. 9157, Part 6) including foundation and ancillaries.			
	Dual Monitor, Integral and Frangible Field Monitor Antenna with antenna mast, grounding and foundation			
	Lightning and Surge Protection, Connectors, RF/Control/Power cables, mountings, dual obstruction lights, accessories, subsystems and subassemblies for full operation of GP			
	Operation, Maintenance, Technical manuals in English Language including as-built plans and diagrams			
III.	**I-DME Equipment and Subsystems**	1 set		
	Low Power DME equipment set 100 Watt (Dual System):			
	Antenna, Monitoring system, Cabinet/Rack, DC Backup power supply, RF/Control/Power cables and ancillaries			

	Operation, Maintenance, Technical manuals in English Language including as-built plans and diagrams			
IV.	**System Monitoring and Control Equipment**	1 set		
	RCMS set including:			
	Modems, network appliance and other configuring items			
	Coaxial cabling including mechanical protection			
	Terminal Board with Communication Cabling			
	Power Distribution board and Power Cabling			
	Workstation (Maintenance PC, Monitor and Printer)			
	ILS Fiber Optic Link System			
V.	**Localizer and Glide Path Equipment Shelter and ancillaries**	2 sets		
	Standard Equipment Shelter set for LLZ and GP/I-DME: *Shelter foundations, Electrical System, interior lighting, Air-Conditioning auto switchovers, Heat Sensor, Smoke Detector, Battery Shelf, Table & Chairs, Dual LED Obstruction Lights, Shelf for tools, Intrusion Detection System, Lightning Protection, Grounding System*			
VI.	**Spare Parts**			
	ILS Spare Parts set for CAT1 (for LLZ, GP and I-DME):			
	Transmitter Group	3 sets		
	Receiver Group (for I-DME)	1 set		
	Control and Monitoring including fiber optic link	3 sets		
	Antenna Assembly Group	3 sets		
	Shelter Sensors Group	3 sets		
	Backup Power Supply Group	3 sets		
VII.	**Test Equipment and Tools**			
	Multi-Use Communication Analyzer (Cable & Antenna, Vector Network and Spectrum)	1 set		
	Oscilloscope mixed signal dual trace 500 MHz, portable (analog/digital)	1 unit		
	Portable ILS Signal Analyzer/Receiver	1 set		
	Frequency Counter (400MHz)	1 unit		
	Truline Watt meter with 1, 5, 10, 25, 50 & 100 Watt plug-in elements	1 set		
	Extender Boards	1 lot		
	Directional Coupler (100MHz-2GHz), Terminating Resistor, Attenuators (6/10/20/30 dB), Adapters & RF Test Cables and other tools accessories	1 lot		
	Optical Time-Domain Reflectometer (OTDR) with inspection kit, Wifi and accessories	1 set		
	Optical Fiber Fusion Splicer	1 set		
	Ruggedized Service Notebook Computer Terminal with case, connectors and power supply	1 unit		
VIII.	**Site Works (refer to Site Works VIII)**			
	*Provision of Powerline, Fiber Optic Link & ancillaries and other works***	1 lot		
IX.	**Training and FAT**			
	Training and Factory Acceptance Test detailed as:			

	On-Site Test Equipment Training (Multi-Use Communication Analyzer, Optical Fiber Fusion Splicer and OTDR) (15 persons) (5 days)	1 lot		
	On-Site Facility Training (15 persons) (5 days)	1 lot		
	Factory Acceptance Test (5 persons) (5 days)	1 lot		
	Factory Training (5 persons) (min. 10 days)	1 lot		
X.	**Commissioning Flight Check**	1 lot		
	Commissioning Flight Check including support			
XI.	**ILS Warranty**	1 lot		
	Defect Liability Period			
	Warranty			

**** Detail of Item VIII - Site Works: Provision of Powerline, Fiber Optic Link & ancillaries and other works**

Item No.	Description	QTY	Unit	Unit Cost	Amount
1.0.	**DISMANTLING/REMOVAL OF EXISTING ELECTRICAL POWER SYSTEM OF ILS AND GP/GS**				
	Dismantling/Removal of Generator Control Cubicle Panel (2 sets)				
	Dismantling/Removal of 15KVA, 230V, 1Ø Standby Generator including fuel line, fuel storage tank (2 sets)				
	Dismantling/Removal of electrical cables, outlets, switches and panel board				
	Dismantling/Removal of existing 14mm sq 2x1C 6.6KV Cable from Central Plant Building to ILS and GP/GS Shelter 15kva transformer				
	Dismantling of ILS and GP/GS Concrete Shelter and hauling of concrete debris to location identified by ANS Iloilo				
	Dismantling/Removal of 15KVA,1Ø, 4160/230V Transformer and its protection accessories at ILS and GP/GS Shelter Power room (all dismantled equipment: transformer, panel board, cables, generator control cubicle etc. will be turned over to ANS Iloilo for safe keeping)				
1.1.	**PROVISION OF POWERLINE AND ANCILLARIES** **Provision of Power Cables**				
	Power Cable, #14mm sq (#6 AWG), 5 KV, 100% BIL cross link polyethylene, xlpe shielded				
	Ground wire, #14mm Bare Copper wire				
	Supply/Installation of Outdoor Heavy-Duty Loose Tube OS2 6 Fibers, Fiber Optic Cable, from GP20 to Control Tower; Localizer 20 to Control Tower				

	Interconnection of AWOS/MET Power System to GP Shelter				
1.2.	**Provision of Step Up / Step Down Transformers and Ancillaries (at ILS Shelter Side receiving end)**				
1.2.1.	**Step Up / Step Down Transformers/accessories**				
	Panel Board Main: 100AT, 1phase, 600V Branch: 1- 50AT/AF, 1phase, 600V 2- 20AT 50AF, 1phase, 600V 1-15AT 50AF, 1phase, 600v 1-spare Bolt-on type, NEMA 1				
	Manual Transfer Switch, 230V, 1phase, Molded Case Circuit Breaker Type with Mechanical Interlock in NEMA 1 housing				
	22 mm sq THHN/THWN-2 power cable, 600V				
	63mm dia PVC Pipe thickwall				
	2" dia PVC Elbow				
	2" dia PVC End bell				
	2" dia Flexible pipe and fittings				
	100cc Solvent Cement				
	15 KVA Dry Type Transformer and accessories (installation) Contractor to install existing 15KVA 4160/230V transformer and its protection accessories to new ILS Shelter				
1.2.2.	**Provision of Grounding**				
	Grounding Rod 5/8 x 3mtrs with clamp				
	60mm sq bare copper wire				
1.2.3.	**Provision of Step Up / Step Down Transformers and Ancillaries at (receiving end side GP/GS Shelter) Step Up / Step Down Transformers/accessories**				
	Panel Board Main: 100AT, 1phase, 600V Branch: 1- 50AT/AF, 1phase, 600V 2- 20AT 50AF, 1phase, 600V 1-15AT 50AF, 1phase, 600v 1-spare Bolt-on type, NEMA 1				
	Manual Transfer Switch, 230V, 1phase, Molded Case Circuit Breaker Type with Mechanical Interlock in NEMA 1 housing				
	22 mm sq THHN power cable, 600V				
	63mm dia PVC Pipe thickwall				
	2" dia PVC Elbow				
	2" dia PVC End bell				
	2" dia Flexible pipe and fittings				

	100cc Solvent Cement				
	15 KVA Dry Type Transformer and accessories (installation) Contractor to install existing 15KVA 4160/230V transformer and its protection accessories to new GP/GS Shelter				
1.2.4.	**Provision of Grounding**				
	Grounding Rod 5/8 x 3mtrs with clamp				
	60mm sq bare copper wire				
1.2.5.	**Provision of Transformer cage (2 sets) for ILS and GP/GS Shelter**				
	4" thk CHB				
	deformed bar 12mm x 6m				
	deformed bar 10mm x 6m				
	6' x 7.5mtrs cyclone wire #10				
	50mm G.I pipeS-40				
	Steel / G.I cross arm 10'				
	epoxy paint w color top coat				
	silver alum paint, QDE				
	Cement				
	Sand				
	Gravel				
	100AT, MCCB in NEMA 3R Enclosure				
	50mmØ Service entrance Cap				
	50mmØ Electrical PVC Pipe (Thick wall)				
	50mmØ Electrical PVC Long Elbow				
	Consumables				
1.2.6.	**Supply of 15KVA Portable Generator and Hand Pallet Truck**				
	2 sets of 15KVA, 230V, 1 phase, 60Hz Portable Movable Generator Battery Start, Silent type, Diesel Fuel				
	1 unit Heavy Duty Hand Pallet Truck, Capacity: 2500Kg				
	Transient Voltage Surge Suppressor (TVSS) 50kA/phase, 230V				
1.2.7.	**Provision of Handhole three (3) sets**				
	400mm steel cover with frame, cast iron				
	Concrete, 3000psi				
	Gravel				
	Sand				
	Reinforcing Steel Bar, 12mm				
	Formworks				
	GI wire				
	Common Wire nail				
	20mm plain Round bar, cable hook				
	20mm plain Round bar, cable ladder				
	2" PVC end bell				
	duct seal				

	Layout of PVC pipe from existing manhole to handhole of ILS and GP/GS Shelter (100 mtr away from manhole)				
	63mmØ PVC pipe				
	63mmØ PVC pipe elbow				
	Excavation:				
	Excavation for handhole and lay -out of 63mm pvc pipe				
	Backfilling				
x-x-x-x-x NOTHING FOLLOWS x-x-x-x-x					

NOTE: 1. *Refer to Technical Specifications and Design Drawings for detailed requirements.*

Section VII. Technical Specifications

Technical Specifications

Bidders must state here either “Comply” or “Not Comply” against each of the individual parameters of each Specification stating the corresponding performance parameter of the equipment offered. Statements of “Comply” or “Not Comply” must be supported by evidence in a Bidders Bid and cross-referenced to that evidence. Evidence shall be in the form of manufacturer’s un-amended sales literature, unconditional statements of specification and compliance issued by the manufacturer, samples, independent test data etc., as appropriate. A statement that is not supported by evidence or is subsequently found to be contradicted by the evidence presented will render the Bid under evaluation liable for rejection. A statement either in the Bidders statement of compliance or the supporting evidence that is found to be false either during Bid evaluation, post-qualification or the execution of the Contract may be regarded as fraudulent and render the Bidder or supplier liable for prosecution subject to the provisions of **ITB Clause 4**.

The Bidder shall also indicate the appropriate reference section including its page number in documents submitted to support the compliance statement indicated in the table of Technical Specifications. The Bidder shall indicate “Will Supply” if items required are to be supplied by the Bidder with corresponding prices indicated in the Financial Proposal.

Section	Specification-	Compliance Statement	Reference to support statement (also INDICATE PAGE No.)
1.	**General Requirement**		
1.1	Construction design drawings and installation plans shall be submitted after the receipt of Notice-to-Proceed (NTP) for approval of CAAP (design review) prior to its installation/implementation. As-built drawings shall be submitted prior to commissioning flight check.		
1.2	The equipment to be delivered and installed including its ancillaries shall be brand new and of latest model.		
1.3	For non-OEM bidders (whether sole or JV partner), the CAAP requires that the bidder is an exclusive or authorized distributor of the ILS equipment with after-sales support capability agreement with the OEM.		
1.4	The Contractor and/or its authorized representative shall secure a certificate of site inspection from the Iloilo Navaids ANS Facility-In-Charge or his authorized representative of Iloilo International Airport.		
1.5	The Bidder shall refer to published ATC procedures of Iloilo International Airport; and Reference Drawings for this Project as installation/design reference of proposed systems.		
1.6	A. Accomplished Revised Annex A – ITB 10.1 For applicable items, the Bidder shall indicate in the **Technical Component** (on a separate sheet using Revised Annex A –ITB 10.1 Form) the Brand, Type and /or Model/Version and Quantities/Unit of each of the proposed equipment/subsystems and ancillaries. This document shall be signed by the Bidder’s authorized representative. The bill of quantities with corresponding price schedules in the accomplished financial form shall		

Section	Specification-	Compliance Statement	Reference to support statement (also INDICATE PAGE No.)
	be consistent with and referenced to all plans, designs and layouts submitted in the technical bid proposal. B. Design Requirements and Certificate of Site Inspection Design requirements as specified in Section VIII (Checklist of Technical and Financial Documents) **Site Inspection Certificate shall be part of bid submission.** Bidder shall coordinate with ANS on their schedule of site inspection. Bidder shall propose the schedule and send the details of their visiting personnel (e.g. name, photocopy of ID) to ANS. Certificate of Site Inspection form is attached in this document for reference. 1. Copy of company ID of the person who conducted the site inspection; 2. Copy of the airport/facility visitor's logbook appearing the names and signatures of inspectors &; 3. Picture of the proposed site including the personnel who conducted the site inspection together with ANS Facility-in-charge or his/her duly authorized representative. **Bids not complying with the above instructions shall be disqualified**.		
1.7	The following documents shall form part of the contract and **shall be submitted together with the Technical Proposal** during bidding. 1. System Interconnection Design Diagram signed and sealed by a Professional ECE (PECE); 2. Siting/Location Design Plan (*Localizer, Glidepath, and Cable Layout plan) The document shall be signed and sealed by a PECE*; 3. Power/Electrical/Grounding, Transformers & cages, handholes and Cabling System Design Plan including electrical system single line diagram, *signed and sealed by Professional Electrical Engineer (PEE)*; 4. RCMS Interconnection Plan signed and sealed by a Professional ECE (PECE); 5. Project Work Schedule/Plan (365 calendar days); 6. Original latest versions of OEM Equipment Technical Characteristics/ Specification, manuals and brochures of proposed products; 7. Copy of the PRC Certificate or clear photocopy of PECE/PEE License of the signing PECE/PEE; 8. Copy of PTR of the signing PECE/PEE;		

Section	Specification-	Compliance Statement	Reference to support statement (also INDICATE PAGE No.)
	9. Certificate of Good Standing from Accredited Professional Organization shall be submitted by the signing PECE/PEE; 10. Signed Compliance Statement to relevant sections of the ICAO Annex 10, Vol 1 – Radio Navigational Aids; 11. Item 1.5 of Section VII. Technical Specifications – Certificate of Site Inspection as prescribed in the BDS. In addition to the required documents the following documents shall be: **submitted during the Post Qualifications stage:** 1. Certificate of Exclusive or Authorized Distributorship issued by the Original Equipment Manufacturer (OEM) of supplied equipment. 2. Valid ISO 9001 and 14001 Certificates (or its internationally recognized equivalent) of Company and Product.		
2.	**INSTRUMENT LANDING SYSTEM (ILS)**		
2.1	**General Requirement**		
2.1.1	The Civil Aviation Authority of the Philippines (CAAP) intends to replace the existing Instrument Landing System (ILS) of Runway 20 of Iloilo International Airport with a brand new, of latest model, complete dual system 2-frequency Category II - ILS with I-DME, including its subsystems, antennae, switchover units, DC Power Supplies and ancillaries, Remote Control and Monitoring System (RCMS), fiber optic link system, spare parts, lightning and surge protection systems, equipment shelters ancillaries, provision of new power system, test equipment and its commissioning flight check within the published budget.		
2.1.2	**Design Conditions**		
2.1.2.1	The ILS equipment shall meet the standards and recommendations of the ICAO (Annex 10 related to the ILS facility performance Category-II).		
2.1.2.2	The Contractor and/or Original Equipment Manufacturer (OEM) together with the Technical Proposal, shall submit compliance statements for each related paragraph of the ICAO Annex 10 Volume 1 (ILS).		
2.1.2.3	Established ATC procedures of Iloilo International Airport shall not be change with the installation of the new ILS system.		
2.1.2.4	The ILS central equipment shall be single-brand, solid state, duplicated, equipped with automatic and manual normal/standby switchover and can operate from a D.C. Power Supply System in case of main power failure.		
2.1.2.5	All electrical installations shall be in accordance with the provisions of the latest edition Philippine Electrical Code, the laws and ordinances of the local code enforcing authority and requirements of the local power company.		
2.1.2.6	The existing ILS frequency allocation for **Localizer 20** is **111.5 MHz CH52X** and station identification is **"IIO".**		

Section	Specification-	Compliance Statement	Reference to support statement (also INDICATE PAGE No.)
2.1.2.7	The ILS System shall have an interlock and shall ensure that only one facility shall radiate at a time. When switching from one ILS facility to another, radiation from both shall be suppressed for not less than 20 seconds.		
2.1.2.8	The Power Supply System performance shall be in accordance with the 99.99% availability requirements. New step/up-step/down transformers, including transformer cages and its ancillaries shall be provided to supply electricity from the Main Power Plant to the ILS facilities to attain the availability requirements.		
2.1.2.9	The main power source shall be supplied from the Main Power Plant with a voltage of 240V, 1 phase, 2 wires, 60 Hz with appropriate conversion to meet power requirements of the equipment.		
2.1.2.10	The parts (i.e. component units of the equipment) shall be compatible / interchangeable as much as possible and integrated to provide functions and operations as intended.		
2.1.2.11	Permanent Ground Check Point Markers for LLZ shall be provided.		
2.1.2.12	Permanent GP Field Monitor antenna shall be installed.		
2.1.2.13	The RCMS for the ILS shall include a GUI-based PC monitoring touch display with Access Control.		
2.1.2.14	The LLZ and GP antenna to be installed shall be brand new and designed for the purpose.		
2.1.2.15	The LLZ and GP antenna shall have an aggregate concrete base to prevent antenna misalignment.		
2.1.3	**Equipment** The Contractor shall supply and install the following equipment:		
2.1.3.1	**Localizer, Glide Path and I-DME equipment and subsystems**		
2.1.3.1.1	System of transmitting and monitoring antennas with frangible masts and tower installed on concrete steel-reinforced bases, platform, standard markings and lighting (LED) for denoting obstacles;		
2.1.3.1.2	Dual transmitting system (one is normal operation, other standby);		
2.1.3.1.3	Dual monitoring system;		
2.1.3.1.4	Control and normal/standby switchover unit;		
2.1.3.1.5	Remote control and monitoring unit;		
2.1.3.1.6	Integral and Near Field Monitor (On-Course), (near field monitor for Width - Optional);		
2.1.3.1.7	The LLZ and GP equipment shelters are to be fully equipped with new dual inverter window type air-conditioning with programmable switch on/off timer and automatic restart function, LED interior lighting, dual photo-controlled LED obstruction lights, distribution switchboard, equipment rack/cabinet, terminal boards, fire extinguishers, shelter room temperature sensors, smoke detector, intrusion detector, battery shelf, cable racks and duct, shelf for tools, table & chair;		
2.1.3.1.8	Provision of Grounding System (Equipment & System);		
2.1.3.1.9	ILS Fiber Optic Link System for RCMS;		
2.1.3.1.10	Distribution cables including connectors;		

Section	Specification-	Compliance Statement	Reference to support statement (also INDICATE PAGE No.)
2.1.3.1.11	Reflecting plane (for GP) and feeder cables;		
2.1.3.1.12	Lightning and surge protection system;		
2.1.3.1.13	related ancillaries for the complete operation of the system;		
2.1.3.2	**Remote Control and Monitoring System**		
2.1.3.2.1	Remote control and monitoring unit;		
2.1.3.2.2	Communications/Control cables including connectors;		
2.1.3.2.3	related ancillaries for the complete operation of the system;		
2.1.3.3	**Ground Calibration Equipment and Tools**		
2.1.3.3.1	Standard antenna set;		
2.1.3.3.2	Portable LLZ ground calibration equipment;		
2.1.3.3.3	related ancillaries for the complete operation of the system;		
2.1.4	**Approval Requirement**		
2.1.4.1	The Contractor shall submit together with the Technical Proposal a proposed Project Management Schedule taking into consideration equipment downtime and activities described in **Section 9.**		
2.1.4.2	Prior to implementation/installation, the Contractor shall meet with CAAP representatives to discuss the proposed location of the ILS and monitor antenna, scheduling/ work stages and possible downtime of existing ILS, personnel and equipment safety and security at site and other concerns for the projects.		
2.1.4.3	The CAAP has the right to inspect and/or reject workmanship and/or materials used in the project (e.g. transformers, switches, connectors, power cables, air-conditioning, ancillaries) to ensure compliance with Philippine electrical standards and National Building Code.		
2.1.4.4	Design plans/technical drawings submitted in the Technical Proposal and in the As-Built plan shall be respectively signed by a Licensed Professional Engineer, and; the Bidder/Contractor or in the case of Joint Venture (JV), its authorized representative.		
2.1.4.5	Details for coverage and field strength of the ILS system shall be proposed by the Bidder.		
2.1.4.6	The type and radiation pattern of the antenna system of the ILS shall be proposed by the Bidder and included in the Technical Proposal.		
2.2	**Localizer Equipment (LLZ)**		
2.2.1	**General requirements**		
2.2.1.1	A brand new and of latest model, completely equipped VHF localizer system shall consist of the following:		
2.2.1.1.1	A dual (main and standby) course and clearance transmitters with associated modulation, control and automatic changeover equipment;		
2.2.1.1.2	Localizer antenna array (frangible) with associated feed line and integral monitor cabling, signal distribution units, integral monitor pickup devices and combining unit, obstruction lights and antenna support structures;		
2.2.1.1.3	Dual (main and standby) localizer monitor group		
2.2.1.1.4	Remote monitoring and control group;		

Section	Specification-	Compliance Statement	Reference to support statement (also INDICATE PAGE No.)
2.2.1.1.5	Integral and Far Field monitor group including cable trenches and foundations		
2.2.2	**Performance Requirements**		
2.2.2.1	**System**		
2.2.2.1.1	Course Coverage: 25NM		
2.2.2.1.2	Clearance: 17NM		
2.2.2.1.3	Course Width: 2° to 6° (adjustable)		
2.2.2.2	**Transmitter**		
2.2.2.2.1	Frequency Type: Dual		
2.2.2.2.2	Frequency Range: 108 MHz to 111.975MHz		
2.2.2.2.3	Operating Frequency (**IIO**) 111.5MHz		
2.2.2.2.4	Frequency Tolerance: ±0.0005 % or better		
2.2.2.2.5	Maximum CSB Power Output: 20 Watts or more (adjustable)		
2.2.2.2.6	Carrier Frequency Control: Synthesized		
2.2.2.2.7	Spurious: -60dB or better		
2.2.2.3	**Modulator**		
2.2.2.3.1	Modulation Depth 90/150 Hz: 20%		
2.2.2.3.2	SDM Stability: ±0.50% or better		
2.2.2.3.3	DDM Stability: ±0.30% or better		
2.2.2.3.4	Frequency Tolerance 90/150 Hz: ±0.01 %		
2.2.2.3.5	Harmonic Distortion: 1% or better		
2.2.2.3.6	Identification Code: **IIO** in Morse Code		
2.2.2.3.7	Identification Modulation Frequency: 1020 Hz ± 0.5 Hz		
2.2.2.3.8	Identification Modulation Depth: 15% max. adjustable		
2.2.2.4	**Monitoring**		
2.2.2.4.1	Number of Monitors: Dual with Fail-Safe feature		
2.2.2.4.2	Integral Monitor: Equipped		
2.2.2.4.3	Field Monitor: Far Field with obstruction light		
2.2.2.4.4	Alarm Parameters:		
(a)	Change in Operating Frequency		
(b)	Change in RF Power Level		
(c)	Change of Modulation Depth		
(d)	Change in Course Path		
(e)	Change in Clearance Path		
(f)	Change in Course Width		
(g)	Loss of Ident Tone		
(h)	Monitor Failure		
(i)	Power Supply Failure		
(j)	Pre-alarm		
2.2.2.5	**Antenna**		
2.2.2.5.1	Type: Log-Periodic dipole antenna		
2.2.2.5.2	VSWR: 1.2:1 at 50Ω or better		
2.2.2.5.3	No. of elements: 20 minimum		
2.2.2.5.4	Half Power Beam Width: ± 4° or less		
2.2.2.6	**Environment (Indoor)**		
2.2.2.6.1	Operating Temperature: 0°C to 50°C		
2.2.2.6.2	Relative Humidity: Up to 90%		
2.2.2.7	**Environment (Outdoor)**		
2.2.2.7.1	Operating Temperature: 0°C to 50°C		
2.2.2.7.2	Relative Humidity: Up to 95%		
2.2.2.7.3	Wind: up to 160 km/h		

Section	Specification-	Compliance Statement	Reference to support statement (also INDICATE PAGE No.)
2.2.2.8	**Power Supply**		
2.2.2.8.1	Voltage: 230Vac		
2.2.2.8.2	Phase: single		
2.2.2.8.3	Frequency: 60Hz		
2.2.2.9	**Other Requirements**		
2.2.2.9.1	Integrity: 1 – 0.5 x 10^{-9} in any one landing; or better		
2.2.2.9.2	Continuity of Service: 1 - 2 x 10^{-6} in any period of 15 seconds; or better		
2.2.2.9.3	MTBF: System/subsystem MTBF shall be submitted to serve as basis for required spare parts.		
2.2.3	**Functional Requirements**		
2.2.3.1	**BITE**		
2.2.3.1.1	All modules and cards shall have BITE function to facilitate maintenance activities. The BITE function shall be independent from monitoring operation.		
2.2.3.1.2	The Localizer equipment BITE shall minimize the lead time required to repair and to carry out the system checking / monitoring functions for fault reporting to the local status monitor unit at site and Remote Control and Monitoring System (RCMS) at ANS Equipment Room.		
2.2.3.2	**Localizer Antenna Array**		
2.2.3.2.1	The localizer antenna shall consist of a highly directional localizer antenna array. The array shall be wide aperture type using Log Periodic Dipole Antenna (LPDA), and operate through the range of 108 to 112 MHz without adjustments. The array shall operate as a two-frequency system and shall have its own integral monitor system. Alternative localizer antenna array configurations may be proposed with supporting documents that proves it can deliver the required performance.		
2.2.3.2.2	The antenna system shall include interconnecting shielded RF cables, photo-controlled LED obstruction lights and AC power cables. The interconnecting RF cables shall be low loss, phase stabilized and designed to suit local weather conditions.		
2.2.3.2.3	Antenna system shall be of a suitable and recognized type of appropriate numbers of element, and capable of operation over the entire 108 to 112 MHz band.		
2.2.3.2.4	The antenna system shall radiate horizontally polarized electromagnetic waves effectively within the assigned frequency band without tuning requirements.		
2.2.3.2.5	The carrier with sideband and sideband only patterns in horizontal plane, and DDM and SDM patterns shall be submitted by the Contractor.		
2.2.3.2.6	The power distribution network shall be free from any tuning and making extensive use of strip line techniques.		
2.2.3.2.7	The LLZ antenna shall be located in a position so as not to obstruct the normal operation of aircraft during landing and/or take-off and shall not infringe the obstacle limitation surface.		
2.2.3.2.8	The Contractor shall use sealed underground PVC conduits for the LLZ antenna cabling going from equipment shelter to antenna towers.		
2.2.3.3	**Mechanical Design and Frangibility**		

Section	Specification-	Compliance Statement	Reference to support statement (also INDICATE PAGE No.)
2.2.3.3.1	The antenna structure(s) shall be weatherproofed (i.e. galvanized steel) against corrosion. The antenna element, supporting structure, cable raceways and distribution unit housing(s) shall be as light weight as possible.		
2.2.3.3.2	Design Frangibility Certificate compliant to ICAO requirements shall be submitted by the Bidder/Manufacturer together with their Technical Proposal.		
2.2.3.3.3	The antenna system shall be provided with photo-controlled LED obstruction lighting consisting of a set of steady red lights uniformly distributed and obstruction markings in accordance with ICAO Annex 14.		
2.2.3.3.4	Antenna concrete base shall be designed and constructed by the Contractor based on the Antenna System requirements of the Original Equipment Manufacturer (OEM).		
2.2.3.4	**Radiation Pattern Characteristics** The Contractor shall provide a figure showing the critical and sensitive aerodrome areas required for his products. Radiation patterns of the Course Carrier (CS CSB), Course Sideband (CSB SBO) and Course to Clearance Carrier relationships shall also be provided. A diagram of the localizer antenna array including aperture size and other required diagrams/data shall also be provided. The Contractor shall present the characteristics of the proposed RF cable that is low loss and phase-stabilized with respect to weather changes.		
2.2.3.5	**RF Distribution Unit** The design characteristic impedance of the “carrier” input ports and the “sideband only” input ports shall be 50 ohms. The input voltage standing wave ratio (VSWR) at each of the inputs shall not exceed 1.2 over the frequency band service conditions of temperature and humidity. A weather proof box designed to be mounted above ground and equipped with hinged covers and hasp shall be provided to house all the RF distribution circuits. A terminal block shall be provided inside the box for connecting power to the obstruction lights.		
2.2.3.5.1	A weatherproof, three wire exterior, ground fault type duplex convenience outlets shall be available for maintenance purposes. The convenience outlets shall be controlled by an on/off switch mounted inside the box.		
2.2.3.6	**Carrier Modulation** The Contractor shall specify the adjustment procedures and intervals for carrier modulation on his products in his technical proposal.		
2.2.3.7	**Sideband Amplitude Control** A sideband amplitude control shall be provided to enable adjustment of the localizer course width.		
2.2.3.8	**RF Phase Control** A course and clearance phasing control shall be provided for shifting the RF phase of the signals appearing at the sideband output over a range of at least ±30 degrees from normal.		
2.2.3.9	**Modulator Navigation Tone Control**		

Section	Specification-	Compliance Statement	Reference to support statement (also INDICATE PAGE No.)
	A control shall be provided to enable independent or simultaneous removal of the navigation tones from the RF carrier.		
2.2.3.10	**Power and Modulation Measurements** For maintenance and test purpose, means shall be provided to measure course and clearance carrier and sideband powers and carrier modulation percentage at the individual outputs to the antenna system's signal distribution unit.		
2.2.3.11	**DME Keying Output** Provisions for synchronous keying of an associated ILS-DME (I-DME) facility shall be provided. When I-DME identification is desired, every fourth cycle of localizer transmitter identification keying shall be omitted and presented instead in the form of continuity keying of the I-DME output terminals. Thus, the I-DME will be keyed with one cycle of Morse Code Identification approximately every 30 seconds, followed by three (3) localizer keying cycles.		
2.2.3.12	**Automatic Change Over Unit** The automatic changeover unit shall cause the main transmitter to cease radiation when a station fault is detected and cause the standby transmitter to radiate.		
2.2.4	**Monitoring System**		
2.2.4.1	The localizer system shall be provided with a high level of integrity. The localizer subsystem shall have dual, parallel monitors for both course and clearance signals such that each radiated course and clearance parameter are examined by two identical monitor channels.		
2.2.4.2	Whenever two monitors detect an alarm status, the equipment shall transfer to standby and if two monitors still detect an alarm, the monitor shall initiate a shutdown. For the full dual localizer, the total period of out-of-tolerance radiation of the main and standby equipment, including the period of zero radiation during equipment transfer action, shall not exceed five (5) seconds.		
2.2.4.3	The monitors shall have adjustable sensitivity controls for each of the parameters being monitored. It is required that the alarm sensitivity of all monitored parameters be capable of verification without changing the localizer radiation characteristics.		
2.2.4.4	The monitors shall also have an override switch (by-pass) that disables monitor action during adjustments and maintenance. Activation of the override switch shall energize the monitor alarm by-pass light.		
2.2.4.5	The monitoring system shall include integral and field detectors.		
2.2.4.6	The alarm shall cause the automatic switchover or shutdown if the standby transmitter is non-operational.		
2.2.4.7	Monitors shall furnish full indications of all parameters together with their associated local alarm indications and selected remote alarm indications.		

Section	Specification-	Compliance Statement	Reference to support statement (also INDICATE PAGE No.)
2.2.4.8	The alarms generated by monitors, and having caused transfer or shutdown shall be automatically logged (Event Logs) so as to facilitate trouble shooting.		
2.2.4.9	An Operational Status Monitor shall be provided at the Control Tower Cab Room for ATC use. The monitoring system shall be mounted on the ATC console.		
2.2.4.10	The localizer monitor shall be fail-safe such that failure of any part of the monitor shall either result directly in an alarm condition, or shall not alter any alarm threshold level such as to allow an out-of-tolerance condition to occur. These fail-safe requirements shall be verified at Site Acceptance Test.		
2.2.4.11	Indicator lights shall be provided to indicate status of application of power, local and remote control.		
2.2.5	**Control and Switchover Unit**		
2.2.5.1	This unit shall be responsible for all the necessary supervision and control functions, especially:		
2.2.5.1.1	A switch or control shall be provided to switch transmitter output on and off;		
2.2.5.1.2	During maintenance operations, it shall be possible to select either local control or remote control;		
2.2.5.1.3	Selection of the normal transmitting unit;		
2.2.5.1.4	Automatic switchover (or shutdown) of the transmitting unit in case of general alarm generated by the monitoring system in the conditions defined in this part.		
2.2.6	**Localizer Field Monitor**		
2.2.6.1	The localizer Field Monitor subsystems shall be suitable for CAT I-ILS operation and shall consist of the following:		
2.2.6.1.1	The Contractor shall build a support structure for localizer Field Monitor at the appropriate Runways to provide satisfactory monitoring performance when mounted;		
2.2.6.1.2	Configurations, functions, parameters to be monitored, and circuitry connected with the localizer monitor to meet CAT I requirements in the technical proposal must be presented;		
2.2.6.1.3	DDM and RF signal strength information to the localizer local control status unit (LCSU) and RCMS at the ANS Equipment Room;		
2.2.6.1.4	The LLZ field monitor antenna shall be located in a position so as not to obstruct the normal operation of aircraft during landing and/or take-off and shall not infringe the Obstacle Limitation Surface.		
2.3	**Glide Path Equipment (GP)**		
2.3.1	**General Requirements**		
2.3.1.1	The Glide Path subsystem shall be of two frequency design for use in a “Capture Effect” configuration. A complete capture effect UHF Glide Path shall consist of the following:		
2.3.1.1.1	Dual (main and standby) path and clearance transmitters with associated modulation, control and automatic changeover equipment;		
2.3.1.1.2	One complete Glide Path antenna group consisting of a frangible tower, three identical transmitting antennas and associated coaxial cabling and concrete reflecting		

Section	Specification-	Compliance Statement	Reference to support statement (also INDICATE PAGE No.)
	plane. The antennas shall include power distribution networks, integral monitoring probes, and combining networks;		
2.3.1.1.3	Dual Glide Path monitor group including cable trenches and foundations;		
2.3.2	**Performance Requirements**		
2.3.2.1	**System**		
2.3.2.1.1	Coverage: 10NM		
2.3.2.1.2	Glide Path angle: 2° to 4° (adjustable)		
2.3.2.2	**Transmitter**		
2.3.2.2.1	Frequency Type: Dual		
2.3.2.2.2	Frequency Range: 328.6 MHz to 335.4 MHz		
2.3.2.2.3	Operating Frequency **(IIO) 332.9 MHz**		
2.3.2.2.4	Frequency Tolerance: ±0.0005 % or better		
2.3.2.2.5	Maximum CSB Power Output: 5 Watts or more (adjustable)		
2.3.2.2.6	Carrier Frequency Control: Synthesized		
2.3.2.2.7	Frequency Spacing (Course/Clearance): Not less than 4 kHz, not more than 32 kHz		
2.3.2.3	**Modulator**		
2.3.2.3.1	Modulation Depth 90/150 Hz: 40%		
2.3.2.3.2	SDM Stability: ±0.80% or better		
2.3.2.3.3	DDM Stability: ±0.30% or better		
2.3.2.3.4	Frequency Tolerance 90/150 Hz: ±0.01%		
2.3.2.3.5	Harmonic Distortion: 1% or better		
2.3.2.4	**Monitoring**		
2.3.2.4.1	Number of Monitors: Dual		
2.3.2.4.2	Integral Monitor: Equipped		
2.3.2.4.3	Field Monitor: Near Field with obstruction light		
2.3.2.4.4	Alarm Parameters:		
(a)	Change in Operating Frequency		
(b)	Change in RF Power Level		
(c)	Change of Modulation Depth		
(d)	Change in Glide Path angle		
(e)	Change in Clearance SDM		
(f)	Change in Course Width		
(g)	Monitor Failure		
(h)	Power Supply Failure		
(i)	Pre-alarm		
2.3.2.5	**Antenna**		
2.3.2.5.1	Type: Capture Effect (Dual Frequency)		
2.3.2.5.2	VSWR: 1.2:1 at 50Ω or better		
2.3.2.5.3	No. of array: 3		
2.3.2.5.4	Half Power Beam Width: ± 12.5°		
2.3.2.5.5	Gain: 12dBi		
2.3.2.5.6	Polarization: Horizontal		
2.3.2.5.7	Weather Protection: Fiberglass reinforced polyester cover		
2.3.2.5.8	Positioning of Dipole: Variable		
2.3.2.6	**Environment (Indoor)**		
2.3.2.6.1	Operating Temperature: 0°C to 50°C		
2.3.2.6.2	Relative Humidity: Up to 90%		
2.3.2.7	**Environment (Outdoor)**		

Section	Specification-	Compliance Statement	Reference to support statement (also INDICATE PAGE No.)
2.3.2.7.1	Operating Temperature: °C to 50°C		
2.3.2.7.2	Relative Humidity: Up to 95%		
2.3.2.7.3	Wind: up to 160 km/h		
2.3.2.8	**Power Supply**		
2.3.2.8.1	Voltage: 230v		
2.3.2.8.2	Phase: Single		
2.3.2.8.3	Frequency: 60Hz		
2.3.2.9	**Other Requirements**		
2.3.2.9.1	Integrity: 1 – 0.5 x 10^{-9} in any one landing; or better		
2.3.2.9.2	Continuity of Service: 1 - 2 x 10^{-6} in any period of 15 seconds; or better		
2.3.2.9.3	MTBF: System/subsystem MTBF shall be submitted to serve as basis for required spare parts.		
2.3.3	**Functional Requirements**		
2.3.3.1	**Displacement Sensitivity**		
2.3.3.1.1	The angular displacement sensitivity shall be as symmetrical as practicable. The nominal angular displacement sensitivity shall correspond to a DDM of 0.0875 at an angular displacement of:		
(a)	0.12 times 3degrees below path with a tolerance of plus or minus 0.02 times 3 degrees;		
(b)	0.12 times 3 degrees above path with a tolerance of plus 0.02 times 3 degrees and minus 0.05 times 3 degrees		
2.3.3.2	**Glide path Monitor**		
2.3.3.2.1	The Glide Path subsystem shall be provided with integrity monitor system that meets the requirements of the Glide path monitor including a reflecting pad.		
2.3.3.2.2	Rehabilitation of reflecting pad if necessary, shall be done by the contractor.		
2.3.3.2.3	To ensure the integrity of the Glide Path signals, monitor signals shall be provided by pickup devices located at each antenna array and by suitable combining of these signals, the integral monitoring of path, path width, power level, carrier percent modulation.		
2.3.3.2.4	The Contractor shall describe the configuration, performances and characteristics of his Glide Path monitor in his technical proposal.		
(a)	**Fault Conditions**		
(a.1)	The monitor shall detect a fault and initiate appropriate action if any of the following persist:		
(a.1.1)	A shift of the mean Glide Path angle equivalent more than minus 0.075 θ to plus 0.10 θ from θ.		
(a.1.2)	A change in Glide Path half sector width exceeding ±0.17 degrees of nominal.		
(a.1.3)	A reduction of power output for either carrier to less than 80 percent of normal.		
(a.1.4)	A change of the 90 and 150 Hz modulation percentages of the path transmitter outside the 37.5 to 42.5 percent limit.		
(a.1.5)	A change of the angle between the Glide Path and the line below the Glide Path (150 kHz predominating) at which a DDM of 0.0875 is realized by more than ±0.0375 degrees.		
(a.1.6)	A reduction of DDM to less than 0.175 within the specified coverage below the Glide Path sector.		

Section	Specification-	Compliance Statement	Reference to support statement (also INDICATE PAGE No.)
(a.1.7)	An out-of-tolerance separation between reference (path) and clearance transmitter frequencies.		
(b)	**Monitor Actions**		
(b.1)	If a fault is detected by both monitors and persists for a preset period of time (adjustable range of 1.0 to 10 seconds, the monitor shall initiate the following actions.		
(b.1.1)	Cause radiation of the Glide Path transmitters to cease.		
(b.1.2)	Cause transfer to standby transmitters and activate the standby transmitters. If the fault persists for the balance of the preset period of time following the transfer, the station shall shut down and prevent restoration for a period of at least 20 seconds.		
(b.1.3)	Following transfer or shut down, initiate a local visual and aural alarm and transmit the alarm indications to RCSU.		
(b.2)	Single Monitor Fault If only one monitor fault (the other monitor senses a normal status), and it persists beyond the preset period of time, an indication of the single monitor alarm status shall be transmitted to the RCSU.		
(b.3)	Glide Path Monitor Fail-Safe The Glide Path monitors shall be fail-safe such that failure of any parts of the monitors shall either result directly in the alarm condition, or shall not alter any alarm threshold level such as to allow an out-of-tolerance condition to occur. These fail-safe requirements shall be verified during the site acceptance test		
2.3.4	**Antenna System**		
2.3.4.1	Antenna system shall be capable of operation over entire 328 to 336 MHz		
2.3.4.2	The antenna system shall radiate horizontally polarized electromagnetic waves effectively within the assigned frequency band without tuning requirements		
2.3.4.3	The antenna mast shall be frangible, and shall comply with the ICAO Obstruction Limitation Surface (Annex 14) and Siting requirements for the Glide Path Antenna (Annex 10).		
2.3.4.4	The GP antenna mast is preferably tiltable for maintenance purposes. Fixed GP antenna mast is acceptable provided access to antenna for maintenance purposes is available and the mast complies with the ICAO frangibility requirements.		
2.3.4.5	The antenna structures shall be weatherproofed against corrosion.		
2.3.4.6	The GP frangible antenna mast (GP Tower) shall be :		
(a)	Made from glass fiber reinforced plastic or any other material compliant to ICAO frangibility requirements (ICAO Doc. 9157, Part 6);		
(b)	UV resistant colors, Scratch resistant surface;		
(c)	Non-flammable, fully insulated, non-conductive;		
(d)	Poles to withstand more than 50°C temperatures;		
(e)	Lifetime: 25 years or longer (Contractor or OEM shall submit certification)		
(f)	3 pole construction;		

Section	Specification-	Compliance Statement	Reference to support statement (also INDICATE PAGE No.)
(g)	Supports supplied GP antenna;		
(h)	Equipped with Lightning Arresters;		
(i)	Withstand 160 km/h wind;		
(j)	Equipped with guide rails for cable fixation;		
(k)	Complies to ICAO Document 9157, Part 6, Frangibility (Contractor shall submit Test Report complying to said ICAO requirements)		
(l)	Complies to ISO 9001:2008 standards		
(m)	Complies to ISO 4001:2004 standards		
(n)	Different design of GP frangible antenna mast shall be accompanied with OEM certification and proof of use in airports.		
2.3.4.7	The antenna system shall be provided with obstruction lighting consisting of a set of red lights (photo-controlled LED) uniformly distributed and with obstruction marking consisting of alternatively orange and white paint (refer to Annex 14 – Chapter 6, for standard obstacle markings).		
2.3.4.8	The capture effect Glide Path antenna shall consist of three identical antennas. All antennas shall be interchangeable. Each antenna may consist of single or multiple horizontally polarized elements combined with reflector to meet the required gain, vertical and horizontal pattern requirements. Antenna element reflectors shall be of the same metal type to prevent electrolytic action where they join together. Antenna radomes shall be utilized to satisfy the total requirements for operation under environmental conditions for severe temperature, rain, strong wind, salty atmosphere.		
2.3.4.9	**Characteristic Impedance** The design characteristics impedance of the components and assemblies shall be 50 ohms.		
2.3.4.10	**Coaxial Cable** RF cable shall be low-loss, phase-stable with abrupt weather changes. The RF cables shall be UL rated or its equivalent with UV protection.		
2.3.4.11	**External RF Network** An external RF network shall be provided to combine pickup network outputs of the upper, middle and the lower antenna arrays. The external RF network shall be designed for mounting in the Glide Path shelter.		
2.3.4.12	**Response to Open and Short Circuits in Antenna Array** The pickup devices and associated RF networks shall be designed to detect out-of-tolerance changes in the radiated signal of any antenna array due to short or open circuits in the distribution network or pick-up probes in the individual antenna elements.		
2.3.4.13	**Antenna Mounting** The antennas and associated distribution units (when utilized) shall include mounting provisions to enable vertical mounting on the tower to produce glide angles between 2 to 4 degrees. Means shall also be provided to laterally offset the antennas, in 1 inch increments, at least 18 inches from the center position of the tower.		

Section	Specification-	Compliance Statement	Reference to support statement (also INDICATE PAGE No.)
2.3.4.14	**Antenna Towers** The Contractor shall dismantle the existing GP antenna tower and shall supply and install new frangible Glide Path (GP) antenna towers. The antenna tower shall have provisions for maintenance accessibility, dual obstruction lights, safety climbing-equipment as necessary, and anchor and other related installation hardware. The antenna tower siting shall comply with the latest provisions of the CARANS Part 6 and shall be painted according to standard obstruction markings specified in MOS for Aerodromes/ICAO Annex 14.		
2.3.4.15	**Obstruction Lights** A photo controlled dual LED obstruction light in accordance with the criteria as specified by CAAP Regulations shall be provided on the top of the antenna tower.		
2.3.4.16	The Contractor shall use sealed underground PVC conduits for the GP antenna cabling going from equipment shelter to antenna towers.		
2.3.5	**Transmitting Unit**		
2.3.5.1	**TRANSMITTER**		
2.3.5.1.1	The transmitter shall include an RF function, a modulator function and remote monitoring sensors as required and shall meet the following characteristics:		
(a)	Frequency band: 328.6 to 335.4 MHz		
(b)	Frequency tolerance: Plus or minus 0.001% or better (Two radio frequency carriers are used)		
(c)	Output impedance: 50 ohms (nominal)		
(d)	Output power: Adjustable		
2.3.5.2	**PATH TRANSMITTER**		
2.3.5.2.1	**Transmitter Power Output** The path transmitter carrier output power shall be adjustable over the range of at least 40 percent to 100 percent of the rated transmitter output power		
2.3.5.2.2	**Control Functions** A control or switch shall be provided to switch the transmitter output on and off. In addition, it shall be possible to select either local or remote control		
2.3.5.2.3	**Indicator Lights** Indicator lights shall be provided to indicate the application of power, local and remote control		
2.3.5.2.4	**Modulator Design** The modulator design shall provide an output containing the RF carrier modulated by the navigation tones, and an output containing only the separate sideband frequencies of the navigation tones. The modulator shall be of electronic and solid state design.		
2.3.5.2.5	**Modulating Tones** The modulating tones shall be 90 Hz and 150 Hz within ± 1.5 percent. The total harmonic content of the 90 Hz tone shall not exceed 10 percent.		
2.3.5.2.6	**Audio Phase of Modulation Tones** The modulation of course and clearance transmitter shall be phase locked so that within the ILS half Glide Path sector, the modulated 90 and 150 Hz wave forms		

Section	Specification-	Compliance Statement	Reference to support statement (also INDICATE PAGE No.)
	pass through zero in the same direction within 20 degrees of phase relative to the 150 Hz component, every half cycle of the combined 90 Hz and 150 Hz wave forms. In addition, the 90 Hz modulating tone of one carrier shall be phased locked to the 90 Hz modulating tone of the other carrier so that the demodulated wave forms pass through zero in the same direction within 20 degrees of the phase relative to 90 Hz. Similarly, the 150 Hz tones of the two carriers shall be phased-locked so that the demodulated wave forms pass through zero in the same direction within 20 degrees of phase relative to 150 Hz.		
2.3.5.2.7	**Carrier Modulation** Modulation of the carrier output signals shall be accomplished by the use of an adjustable control.		
2.3.5.2.8	**Sideband Amplitude Control** A sideband amplitude control shall be provided to enable adjustment of the Glide Path full sector width.		
2.3.5.2.9	**RF Phaser Control** A phasing control shall be provided for shifting the RF Phase of the signals at the sideband output range of at least ±30 degrees from normal.		
2.3.5.2.10	**Modulator Navigation Tone Control** A control shall be provided to enable independent removal of the navigation tones from the RF carrier.		
2.3.5.2.11	**Power and Modulation Measurements** For maintenance and test purposes, means shall be provided to measure path and clearance carrier and sideband power and carrier modulation percentage at the output to each Glide Path antenna.		
2.3.5.2.12	**Navigation Tones Test Points** Output Test Points for carrier and sideband signals shall be available to test the navigation tones.		
2.3.5.3	**CLEARANCE TRANSMITTER**		
2.3.5.3.1	**Clearance Transmitter Power Output** The transmitted carrier power shall be adjustable over the range of at least 40 to 100 percent of the rated transmitter output power. The power output of the transmitter shall be such that when operating with the specified antenna array and with the power reduced to the alarm point, all coverage requirements for Glide Path signal shall be met.		
2.3.5.3.2	**Modulation** A control shall be provided which allows adjustment of modulation. The 150 Hz clearance transmitter modulation will be phase locked with the 150 Hz modulation from the path transmitter.		
2.3.5.3.3	**Transmitter Control** The clearance transmitter will be controlled by application and removal of primary power from the path transmitter or by the application of control signals from the local control unit. Additionally, a switch or control independent from the path transmitter while not interfering with monitoring of the path signals shall be provided.		

Section	Specification-	Compliance Statement	Reference to support statement (also INDICATE PAGE No.)
2.3.5.3.4	**Frequency Separation** The path and clearance transmitters shall be designed to maintain a preset frequency separation of less than 4 kHz and not more than 32 kHz.		
2.3.6	**Capture Effect Amplitude and Phase Control Unit**		
2.3.6.1	The capture effect amplitude and phase control unit shall be designed to combine the separate carrier, sideband and signals from the path and clearance transmitter in the appropriate amplitude and phase relationship for delivery to three transmitting antennas. Carrier signals will be radiated from the lower and middle antennas. Sideband signals will be radiated from all three antennas.		
2.3.6.2	**Capture Effect Phase** Phaser shall be provided in each of the antenna outputs. At the Contractor's option these phasers may be either be an integral part of the Amplitude and Phase Control Unit (APCU) or external to the APCU assembly. The Contractor shall specify the option offered and describe the characteristics and technique employed in the offered systems.		
2.3.6.3	**Capture Effect Antenna Power Ratio** Continuously adjustable controls shall be provided to divide the power as required to:		
2.3.6.3.1	Establish the proper ratio of the carrier power delivered to the lower and middle antenna outputs.		
2.3.6.3.2	Establish proper ratio of sideband power delivered to the upper and lower antenna outputs.		
2.3.6.3.3	Establish the proper ratio of the sideband power delivered to the middle antenna output with respect to the upper and lower antenna outputs.		
2.3.6.3.4	Adjustment of each power divider throughout its range shall not significantly change the RF phase between the antenna outputs.		
2.3.7	**Variable Attenuator Assembly**		
2.3.7.1	To perform antenna signal attenuation testing during flight inspection, a variable attenuator- constant phase assembly shall be provided. The attenuator assembly shall prelude inter-antenna feed-line. The attenuator assembly shall prelude inter-antenna phasing changes when the assembly is inserted.		
2.3.8	**Automatic Changeover Unit**		
2.3.8.1	The automatic changeover unit shall cause the main transmitter to cease radiation and cause the standby transmitter to radiate. The changeover unit shall configure the antenna system to the transmitters. The changeover time shall be configurable for both hot-standby and cold-standby operation.		
2.3.9	**Monitoring System**		
2.3.9.1	The monitoring system shall include integral and field detectors.		
2.3.9.2	Monitors shall furnish full indications of all parameters together with their associated local alarm indications and selected remote alarm indications.		

Section	Specification-	Compliance Statement	Reference to support statement (also INDICATE PAGE No.)
2.3.9.3	The alarm generated by monitors, and having caused transfer or shutdown shall be automatically logged so as to facilitate trouble-shooting.		
2.3.9.4	Monitor alarm signal shall be sent to the local control to initiate changeover with any one or a combination of deviations from established conditions arising and persisting for a period ranging from 1 to 6 seconds.		
2.3.9.5	The monitors shall have adjustable sensitivity controls for each for each of the parameters being monitored. The monitors shall also have an override switch (by-pass) that disables monitor action during adjustments and maintenance. Activation of the override switch shall energize the monitor alarm by-pass light.		
2.3.10	**Control and Switchover Unit**		
2.3.10.1	This unit shall be responsible for all the necessary supervision and control function, especially:		
2.3.10.1.1	Setting the transmitters into and out of operation.		
2.3.10.1.2	Maintenance during maintenance operations, it shall be possible to select either local control or remote control functions.		
2.3.10.1.3	Selection of the normal/standby transmitting unit.		
2.3.10.1.4	Automatic switchover (or shutdown) of the transmitting unit in case of general alarm generated by the monitoring system in the conditions defined in this part.		
2.4	**I-DME EQUIPMENT**		
2.4.1	**General Requirements**		
2.4.1.1	The I-DME equipment shall conform to the standards and recommendations in ICAO Annex 10, Volume I (Para 3.5 DME/N).		
2.4.1.2	The I-DME equipment shall be fully solid state and composed of modules, units and printed circuit boards.		
2.4.1.3	Dual I-DME equipment shall be contained in cabinet to operate as main and stand-by equipment. Maintenance on one equipment shall be accomplished without disturbing the other equipment.		
2.4.1.4	The I-DME equipment shall be designed to be fully remote controlled and all necessary interface equipment shall be supplied and installed.		
2.4.1.5	The I-DME equipment shall be equipped with Built-In Test Equipment (BITE) to minimize the lead time required to repair and to carry out the system checking / monitoring functions for fault reporting to the local status monitor unit at site and Remote Maintenance Monitoring System (RMMS) at remote site.		
2.4.1.6	The I-DME system shall comprise dual transponders, dual power supply, dual local monitoring unit, control and status monitor, and antenna system.		
2.4.1.7	The I-DME equipment shall be installed inside the GP Equipment Shelter.		
2.4.2	**Performance Requirements**		
2.4.2.1	**General**		
2.4.2.1.1	Transponder capacity: 100 interrogators		
2.4.2.1.2	Frequency range : 960 to 1,215 MHz		
2.4.2.1.3	Frequency setting: Synthesizer controlled		

Section	Specification-	Compliance Statement	Reference to support statement (also INDICATE PAGE No.)
2.4.2.1.4	Channels: 252 (X and Y)		
2.4.2.1.5	Reply delay: X ch: 35 to 55 microseconds, adjustable Y ch: 44 to 60 microseconds, adjustable		
2.4.2.2	**Transmitter**		
2.4.2.2.1	Operating Channel: **(IIO) CH 52X**		
2.4.2.2.2	Frequency stability: Plus or minus 0.001% or better		
2.4.2.2.3	Peak output power: 100 W		
2.4.2.2.4	Pulse width: 3.5 plus or minus 0.5 microseconds		
2.4.2.2.5	Spectrum: DME/N, per ICAO Annex 10		
2.4.2.2.6	Transmission rate: 700 to 2,700 pps plus or minus 90 pps		
2.4.2.2.7	Spurious radiation: 80 dB below the peak pulse power output		
2.4.2.3	**Receiver**		
2.4.2.3.1	Operating Channel: **(IIO) CH 52X**		
2.4.2.3.2	Frequency stability: Plus or minus 0.001% or better		
2.4.2.3.3	Sensitivity: -90 dBm or better		
2.4.2.3.4	Recovery time: 8 microseconds		
2.4.2.3.5	Dead time: 60 microseconds		
2.4.2.3.6	Echo suppression: Long and short distance		
2.4.3	**Local Monitoring Unit**		
2.4.3.1	The I-DME equipment shall be provided with dual local monitors for parallel operation.		
2.4.3.2	Local monitors shall furnish full indications of all parameters together with their associated local alarm indications and selected remote alarm indications. The monitor system shall be based on digital signal processing.		
2.4.3.3	Local monitors shall be capable of operation with the local or remote control and status unit arrangements providing aural and visual indications of the I-DME status.		
2.4.3.4	Provision shall be included for continuous monitoring and execution of changeover from selected transponder to stand-by, or to shutdown if the performance is beyond specified tolerances.		
2.4.3.5	Monitor data shall be maintained to indicate the existence of an out-of-limit condition, to transfer automatically after a programmable delay to the stand-by transponder or to shutdown all radiation in case of malfunction. In addition, any indication given or action taken shall be stored in an event log.		
2.4.3.6	Monitoring parameters and alarm limits:		
2.4.3.6.1	Delay Time: 0.8µSec ±0.2 µSec, adjustable		
2.4.3.6.2	Pulse spacing: 0.8 µSec ±0.2 µSec, adjustable		
2.4.3.6.3	Reply efficiency: 10% below nominal, adjustable		
2.4.3.6.4	Power: - 3 dB, adjustable		
2.4.3.6.5	Transmitter pulse rate: Manufacturer data to be provided by the Bidder		
2.4.3.6.6	Identification: Absence: 45 sec. ±5 sec, adjustable Continuous: 5 sec. ±0.5 sec, adjustable		
2.4.3.6.7	Pulse width: 3.5 µSec ±0.5 µsec, adjustable		
2.4.3.6.8	Pulse rise time: Exceed 3.5 µSec, adjustable		

Section	Specification-	Compliance Statement	Reference to support statement (also INDICATE PAGE No.)
2.4.3.6.9	Receiver sensitivity: -6 dB, adjustable		
2.4.3.6.10	Failure of monitor: Self-check on monitoring system		
2.4.3.6.11	Associated power supply : Out of tolerance		
2.4.3.7	Failure of one monitor assembly shall not affect the operation of the I-DME but shall provide a warning.		
2.4.4	**Local Control and Status Monitor**		
2.4.4.1	This function shall be integrated with local control and status monitor of ILS as described previously.		
2.4.4.2	The control and status display unit associated with the transponder cabinet shall be provided with the following functions.		
2.4.4.2.1	Control item		
(a)	Local / remote selection		
(b)	Transponder ON / OFF		
(c)	No. 1 Transponder/ No. 2 Transponder selection		
(d)	Shutdown		
(e)	Transfer reset		
(f)	Alarm silence		
(g)	Alarm bypass		
(h)	Equipment parameters		
2.4.4.2.2	Display item		
(a)	Local / remote		
(b)	No. 1 Transponder ON		
(c)	No. 2 Transponder ON		
(d)	Shutdown		
(e)	Transfer		
(f)	Equipment parameters		
2.4.4.3	Means shall be provided to disable monitor and control function actions during equipment calibration (monitor bypass, local / remote control).		
2.4.5	**Automatic Changeover and Measurement Requirements**		
2.4.5.1	The changeover circuits shall provide the function of interchange between the working transponder and stand-by transponder, when an alarm signal is detected. When the alarm condition continues after the transponder is automatically changed over, the equipment shall shutdown.		
2.4.5.2	Measurement functions shall be built into the transponder circuitry to check waveforms and power levels of the I-DME signals for alignment and maintenance purposes.		
2.4.5.3	Test points shall be provided for necessary measurements of different parameters with controls for calibration of all alarms.		
2.4.5.4	RF dummy loads shall be provided to terminate the unused transponder outputs.		
2.4.5.5	When AC input source fails, the Backup Battery Unit shall automatically take over the load without interrupting the operation of the equipment.		
2.4.5.6	During normal operation, the battery shall be float charged, ready for back-up operation.		
2.4.6	**Operational Status Monitor Unit**		

Section	Specification-	Compliance Statement	Reference to support statement (also INDICATE PAGE No.)
2.4.6.1	The operational status monitor unit shall be provided with the visual indication of the operating status of the I-DME equipment.		
2.4.6.2	The operational status monitor unit shall be provided with the following functions:		
2.4.6.2.1	Operation / failure indication;		
2.4.6.2.2	Alarm for failure and shut down;		
2.4.6.2.3	Alarm silence control		
2.4.6.3	An operational status indicator unit shall be provided at the VFR console at the Davao Control Tower cab room.		
2.4.7	**Remote Control and Status Monitor**		
2.4.7.1	This function shall be integrated with ILS as described previously.		
2.4.7.2	The remote control and status unit shall be provided with the following functions:		
2.4.7.2.1	Visual indication of the operation status of I-DME equipment;		
2.4.7.2.2	An aural and visual indication of a subsystem of abnormal monitor condition, and an abnormal power supply condition;		
2.4.7.2.3	Alarm silence;		
2.4.7.2.4	Start or stop or changeover the transponder;		
2.4.7.2.5	Select either the main or stand-by transponder;		
2.4.7.3	The remote control system shall be capable of reading and recording all parameters of equipment including its BITE, providing remote trend analysis and remote fault analysis via PC terminal.		
2.4.7.4	The GUI-PC based terminal for the remote control and status monitor shall be capable of generating event logs for the I-DME system.		
2.4.8	**Antenna System**		
2.4.8.1.1	A fiberglass reinforced polyester cover for weather protection shall enclose the antenna elements.		
2.4.8.1.2	Type: Uni-directional antenna		
2.4.8.1.3	Frequency range: 960 to 1,215 MHz		
2.4.8.1.4	Polarization: Vertical		
2.4.8.1.5	Impedance: 50 ohms (nominal)		
2.4.8.1.6	Gain: 9 dB or better		
2.4.8.1.7	VSWR: 2:1 or better		
2.4.9	**Built-In Test Equipment (BITE)**		
2.4.9.1	As maintenance will be greatly reduced by the provision of built-in test equipment, all replaceable units and cards shall have BITE function.		
2.4.9.2	The BITE function shall be kept completely independent from the monitoring operation.		
2.5	**ILS Equipment Shelter and Ancillaries**		
2.5.1	**General Requirements**		
2.5.1.1	The LLZ & GP equipment shelters shall conform to the standards and recommendations of ICAO safety requirements.		
2.5.1.2	The LLZ & GP equipment shelters shall be replaced with frangible shelters. DME Shelter location can be placed within 20m to 57m from the existing shelter depending on OEM equipment operational characteristics that still		

Section	Specification-	Compliance Statement	Reference to support statement (also INDICATE PAGE No.)
	maintains an optimal performance. However, DME antenna mast shall be collocated with the GP antenna to maintain the published ATC procedures. (Refer to Reference Drawing 02/07 & 03/07 for location of Shelters.		
2.5.1.4	The Shelter shall be able to withstand local environmental conditions, with thermal protection, protected against insects, and Radio Frequency Interference (RFI). The shelter itself shall be splash−proof, resistant against sea climate and insensitive to salt water, fungus and termites.		
2.5.1.5	In order to prevent premature damage to the Shelter roof, the shelter roofing shall be designed such that water ponding on the roof is avoided. A slightly sloping roof is recommended.		
2.5.1.6	The Shelter shall be provided with a concrete pedestal/platform to elevate the shelter flooring to at least 1 foot from normal ground level.		
2.5.1.7	The entrance door of the equipment shelter shall be provided with a canopy and rubber seals to protect from water and moisture from entering the equipment shelter.		
2.5.1.8	The Equipment shelter shall be designed to have a minimum life of at least 10 years based on local operating conditions. The Contractor shall submit together with the Technical Proposal a certification that the supplied equipment shelter complies with the required minimum life.		
2.5.1.9	The supplied equipment shelter shall comply with the Philippine Wind (maximum wind speed of 200 KPH) and Seismic Zone structural requirements. The Contractor shall submit together with the Technical Proposal a certification signed by a Professional Structural or Civil Engineer wherein supplied equipment shelter design conforms to the structural requirements of the site.		
2.5.2	The Contractor shall provide an OEM approved equipment shelters each for the LLZ and GP, equipped with the following:		
2.5.2.1	Shelter intrusion detection system;		
2.5.2.2	Two Air-Conditioning Units (ACU) (inverter window-type, with each unit cooling capacity sized (2HP) according to equipment and room size requirements;		
2.5.2.2.1	The ACU shall have a default thermostat setting of 18°C (or to an appropriate temperature as maybe required by OEM) and shall have an auto-restart function. The purpose is to maintain the desired room temperature without the need for re-setting the thermostat at site in case of recovery from mains power failure.		
2.5.2.2.2	Each ACU shall operate one at a time and shall be provided with a configurable/programmable digital (not mechanical) time-controlled Automatic Transfer Switch to automatically transfer ACU #1 to ACU #2 or vice versa up to 24 hours.		

Section	Specification-	Compliance Statement	Reference to support statement (also INDICATE PAGE No.)
2.5.2.2.3	As a minimum, the outdoor unit of the ACU shall be elevated by a concrete base to at least 1 foot from normal ground level.		
2.5.2.3	Shelter room temperature sensors;		
2.5.2.4	Smoke detector;		
2.5.2.5	Fitted with required electrical installations (e.g. circuit breakers, LED lighting (interior and dual photo-controlled obstruction lighting), switches, panel boards, power cables, cable trays, lightning and surge protection for power and RF, etc.);		
2.5.2.6	One (1) foldable working table and One (1) foldable chair appropriately sized according to shelter;		
2.5.2.7	Shelf for storage of manuals and tools;		
2.5.2.8	Battery Shelf (for the DC power supply);		
2.5.2.9	Non-residue, non-corrosive, non-conductive portable fire extinguisher (preferably Halotron/HCFC-123 based or equivalent) for telecommunication facilities application.		
2.5.3	All receptacle outlets shall be provided with a grounding system.		
2.5.4	All cables shall be properly tagged and managed for easy identification of Maintenance personnel. Tags shall be listed in order and shall form part of the as-built documents to be submitted.		
2.5.5	Shelter intrusion detection, shelter room temperature and smoke detector status shall be displayed only at the Operational Status Monitor Unit at the ANS Equipment Room.		
2.5.6	The Contractor shall be responsible for the connection of the shelter power supply to the airport power system.		
2.5.7	The LLZ, GP/I-DME shelter door locks shall be provided with a common Key for easy accessibility of Maintenance Personnel.		
2.5.8	The equipment shelter floor shall be provided with anti-static mat to protect the equipment and maintenance personnel from static electricity.		
2.5.9	The Equipment Shelter shall be painted/marked accordingly as an obstacle. The Contractor shall refer to MOS for Aerodromes Section 8.10 – Obstacle Markings for the standard markings of obstacles.		
2.6	**DC BACK UP Power Supply**		
2.6.1	**General Requirements**		
2.6.1.1	The LLZ, GP and I-DME shall be equipped with a backup DC power supply.		
2.6.1.2	The batteries shall have the capacity to supply power and operate the above-cited equipment for at least three (3) hour in case of AC power failure.		
2.6.1.3	The batteries shall be continuously float-charged.		
2.6.1.4	The battery charger shall be capable of charging batteries from a completely discharged condition.		
2.6.1.5	Automatic protection against battery over-charging shall be incorporated in the power supply unit		
2.6.1.6	In the event of AC power failure, the batteries shall automatically take over the power supply without disrupting the operation of the LLZ, GP and I-DME.		

Section	Specification-	Compliance Statement	Reference to support statement (also INDICATE PAGE No.)
2.6.1.7	Charger shall be equipped with indicating instruments, switches and indication lamps for maintenance purposes. The instruments and switches shall indicate and control at least the following items:		
2.6.1.7.1	*Voltage monitoring meter of DC output*		
2.6.1.7.2	*Current monitoring meter of DC output*		
2.6.1.7.3	*Switches for AC input and DC output*		
2.6.1.7.4	*Switch for select DC output or battery*		
2.6.1.7.5	*AC source indicator*		
2.6.1.7.6	*Operation indicator for charger, charging condition*		
2.6.2	**Performance Requirement**		
2.6.2.1	*No. of batteries:* ***(refer to Section 2.6.1.2)***		
2.6.2.2	*Battery type:* ***Sealed, Maintenance Free***		
2.6.2.3	*Protection against overcharging:* ***Equipped***		
2.6.2.4	*Rating:* ***based on ILS and subsystem power requirements***		
2.6.2.5	*Cooling method:* ***Air-Cooling***		
2.6.2.6	*AC Input:* ***Single Phase, 220V, 60Hz, 2 wires***		
2.6.2.7	*DC Output:* ***DC 22 to 48 V, according to nominal DC input of ILS & GP/I- DME***		
2.6.2.8	*Shall be equipped with alarm and status indicators*		
2.6.2.9	*The DC Power Supply system shall have operational control functions.*		
2.6.3	**SECURE RCMS FIBER-OPTIC LINK SYSTEM**		
2.6.3.1	The ILS system shall be equipped with a Fiber-optic linked connection for Remote Control and Monitoring System (RCMS).		
2.6.3.2	The main RCMS equipment shall be installed at the ANS Room.		
2.6.3.3	A Fiber-optic link system shall be used as the scheme for the interconnection of the RCMS of the LLZ and GP facility to: (1) the ANS Equipment Room		
2.6.3.4	The Fiber-optic link shall be protected from unauthorized access or hacking to prevent any unauthorized modification of ILS system configuration. The Contractor shall be responsible for the complete supply and installation of the RCMS and the Fiber-optic Link System including the necessary appliances, patch panels, cables, mounting, interfaces, connectors, data converters and its ancillaries.		
2.6.3.5	The Fiber-optic link system shall be designed so that there shall be no disruption/interruption of remote control and monitoring functions of the ILS system even during busy aircraft operation and/or even in bad weather conditions at the airport.		
2.6.3.6	The Fiber-optic link cable specifications.		
2.6.3.6.1	Fiber type : OS2 Single Mode (Armored Single Mode)		
2.6.3.6.1	Fiber count : 6		
2.6.3.6.1	Construction type: Multi-loose Tube		
2.6.3.6.1	Application : Outdoor		
2.6.3.6.1	Buffer Material : Loose tube – Gel-filled		
	Strength Member: Aramid yarn		

Section	Specification-	Compliance Statement	Reference to support statement (also INDICATE PAGE No.)
2.6.3.6.1	Central strength Members : Aramid/E-glass		
2.6.3.6.1	Cable core water Blocking : Waterblocking tape		
	Number of Jackets: Double Jacket		
	Type of Armor : Corrugated steel tape		
	Number of inner Jacket Ripcords : 2		
	Inner Jacket Material : PE - Polyethylene		
	Outer Jacket Material : Thermoplastic; 0.59 in nominal dia.		
	Optical Wavelength : 1310nM/1550nM		
	Min Bend Radius During Installation: 20x Outside Diameter Long term : 15x Outside Diameter		
	Tensile Strength Installation : 2670N; 600lbs-f Operation : 890N; 200lbs-f		
	Crush Resistance : 440N		
	Impact Resistance : 4.4 N/cm		
	Temperature: Operating Range : -40C to 70C Installation Range: -30C to 60C		
	Standards/Similar Compliance Rating: UL Rating/Flame Test: OSP C (UL) US : FT6 Telecom Standards : ANSI/ICEA S-87-640 RoHS : Yes		
3.	**NAVAIDS REMOTE CONTROL AND STATUS MONITORING SYSTEM (RCMS)**		
3.1	**General Requirements**		
3.1.1	The ILS system shall be equipped with a Navaids OEM Remote Control and Status Monitoring System (RCMS). The system shall be PC based terminal.		
3.1.2	The PC terminal shall be of latest model and a product of an ISO 9001 certified manufacturer or its internationally recognized equivalent.		
3.1.3	The PC based terminal shall be capable of generating event logs for the ILS system.		
3.1.4	The ILS system RCMS terminal shall be protected by user password security feature with different access levels.		
3.1.5	The ILS system RCMS shall be GUI based and shall have menu-driven interface.		
3.1.6	The ILS system RCMS shall be provided with but not limited to the following basic functions:		
3.1.6.1	Color coded visual indication of the operational status of navigational aids equipment;		
3.1.6.2	An aural and visual indication of a subsystem of abnormal monitor condition, and an abnormal power supply condition;		
3.1.6.3	Alarm silence;		
3.1.6.4	Capability to start or stop or changeover the system;		

<table>
<tr><th>Section</th><th>Specification-</th><th>Compliance Statement</th><th>Reference to support statement (also INDICATE PAGE No.)</th></tr>
<tr><td>3.1.6.5</td><td>Capability to select either the main or stand-by system;</td><td></td><td></td></tr>
<tr><td>3.1.6.6</td><td>Setting of all relevant data and parameters</td><td></td><td></td></tr>
<tr><td>3.1.7</td><td>The ILS system RCMS shall be capable of reading and logging of all parameters of the equipment including its BITE data, alarm history, and remote trend analysis and remote fault analysis via PC terminal.</td><td></td><td></td></tr>
<tr><td>3.1.8</td><td>The following status information shall also be incorporated in the ILS system Remote Control and Monitoring System and shall be monitored at the ANS Equipment Room.</td><td></td><td></td></tr>
<tr><td>3.1.8.1</td><td>Equipment Shelter status (intrusion)</td><td></td><td></td></tr>
<tr><td>3.1.8.2</td><td>Air-Conditioning System status (room temperature, On/Off)</td><td></td><td></td></tr>
<tr><td>3.1.8.3</td><td>Smoke alarm;</td><td></td><td></td></tr>
<tr><td>3.1.9</td><td>Setting and /or changing of parameters shall only be possible under a Maintenance Level/Mode.</td><td></td><td></td></tr>
<tr><td>3.2</td><td>Distribution</td><td></td><td></td></tr>
<tr><td>3.2.1</td><td>CAAP requires the following distribution and setup for the ILS system RCMS:</td><td></td><td></td></tr>
<tr><td>3.2.1.1</td><td>
<table>
<tr><th>Equipment</th><th>Location</th><th>Control</th><th>Status Monitoring</th></tr>
<tr><td>RCMS Master Unit</td><td>ANS Equipment Room</td><td>Yes</td><td>Yes</td></tr>
<tr><td rowspan="3">RCMS Station</td><td>ANS Room (Station 1)</td><td>No</td><td>Yes</td></tr>
<tr><td>Control Tower (Aerodrome Position)</td><td>No</td><td>Yes</td></tr>
<tr><td>Control Tower (Supervisor)</td><td>Yes (RWY In-Use)</td><td>Yes</td></tr>
</table>
</td><td></td><td></td></tr>
<tr><td>4.</td><td>DEVIATIONS TO THE SPECIFIED REQUIREMENTS</td><td></td><td></td></tr>
<tr><td>4.1</td><td>If the Bidder’s proposed configuration differs from the stated specifications but are within the specified minimum performance requirements in order to employ new technology, the Bidder shall explain the rationale/benefit of offering such in the Technical Proposal. The explanation shall be detailed as possible and supported by references. The deviation shall not be of lesser or lower quality/performance and that it shall meet the objectives of the Project.
The following items are primary areas of concern:</td><td></td><td></td></tr>
<tr><td>4.1.1</td><td>Reliability and Maintainability;</td><td></td><td></td></tr>
<tr><td>4.1.2</td><td>Status Monitoring and Self-Diagnostics;</td><td></td><td></td></tr>
<tr><td>4.1.3</td><td>Transmitter Group;</td><td></td><td></td></tr>
<tr><td>4.1.4</td><td>Receiver Group (DME Only);</td><td></td><td></td></tr>
<tr><td>4.1.5</td><td>Monitoring Group;</td><td></td><td></td></tr>
<tr><td>4.1.6</td><td>Antenna Assembly Group;</td><td></td><td></td></tr>
<tr><td>4.1.7</td><td>Back-Up Power Supply Group;</td><td></td><td></td></tr>
<tr><td>4.1.8</td><td>Convenience for flight inspection</td><td></td><td></td></tr>
<tr><td>4.1.9</td><td>The flight inspection shall be conducted in accordance with the Philippine Flight Inspection Procedures. If there are any functions or features intended to promote the</td><td></td><td></td></tr>
</table>

Section	Specification-	Compliance Statement	Reference to support statement (also INDICATE PAGE No.)
	convenience of flight inspection, the Contactor should describe them in detail in the Technical Proposal, in the same order as the Philippine Flight Inspection Procedures.		
5.	**SITE REQUIREMENTS**		
5.1	The Contractor shall be responsible for the site preparation of the facility that is necessary for the installation of the new ILS system		
5.2	CAAP requires the following: • Removal/dismantling of existing ILS shelters, equipment, antenna, cables, power system and related ancillaries and its storage to CAAP designated area; • Provision of new Fiber Optic Link, Power Line, transformers and cages, and Ancillaries. • Interconnection of AWOS/MET Power System (*including materials needed*) to GP Shelter		
5.3	All materials to be used shall be brand new and installed in applications for which they are intended and complies with Philippine Electrical and Building standards. CAAP reserves the right to reject materials and/or workmanship that are not industry standard.		
5.4	The Contractor shall be responsible for the provision of handholes, underground primary airfield power cables encased in PVC conduits, step-up/step-down transformers in its ancillaries, transformer cages with concrete pad, new grounding system, lightning/surge protection, cable trays, cable management and other ILS facility ancillaries.		
5.5	Although the existing GP critical area is generally a flat surface, the area within the reflecting plane shall be secured from any water ponding. Likewise, at the LLZ area.		
5.6	Transformer cages shall be provided with a conspicuous “DANGER High Voltage 2400 Volts” signage on all of its sides and marked with the voltage ratings.		
5.7	The transformer cage shall be provided with a 100mm thick concrete pad.		
5.8	A means shall be provided to secure the HV transformers to the concrete pad. Appropriate stainless steel or galvanized bolt or fastening material shall be provided.		
5.9	The Contractor shall submit standard Transformer Test results conducted by authorized testing centers to CAAP specifying the serial number, brand/model, rating of the transformers. This document shall be submitted prior to delivery and installation at site.		
5.10	A standard disconnecting stick for the fuse cut-out shall be provided for the site.		
5.11	The PVC electrical conduits shall be thick walled and be laid at least 0.60m in depth and provided with a yellow caution tape along its route at least 6 inches from ground level. Runway pavement shall not be cut or excavated for the installation electrical cables crossing the runway.		

Section	Specification-	Compliance Statement	Reference to support statement (also INDICATE PAGE No.)
5.12	The Contractor shall be responsible for the removal and dismantling of materials/ items (e.g. old shelters, old equipment, old cables, structure, old antennas and ancillaries, etc.) from the site and its transport to CAAP designated area for storage and/or disposal.		
5.13	The Contractor shall provide CAAP an inventory list of all dismantled equipment/ materials prior to transport to CAAP designated area.		
5.14	The ILS system shall be connected to the Airport Power Plant as its main power source. Termination of electrical power supply to the Airport Power Plant shall be done by the Contractor.		
5.15	The Bidder shall provide equipment Nameplates (waterproof sticker or metal engrave) for each equipment/system supplied (e.g. LLZ, GP, and Test Equipment) that will indicate the following information: The name Civil Aviation Authority of the Philippines and Logo; Equipment Name; Date Installed; Name of Contractor; Airport/ANF.		
5.16	The Bidder shall refer to Schedule of Requirements (Item VIII-Site Works) for minimum requirements; and Reference Drawings for the Project.		
5.17	**ELECTRICAL and AIR CONDITIONING SYSTEM**		
5.17.1	**Electrical System**		
5.17.1.1	**General Requirements**		
5.17.1.1.1	The Contractor shall include in its works the integration of the ILS power supply system to the power system of the Airport. Brand new step-up/step-down transformers, brand new power and grounding cables and its ancillaries shall be supplied and installed by the Contractor.		
5.17.1.1.2	ILS with its ancillaries shall be interconnected within the same circuit and with separate Electrical Connections.		
5.17.1.1.3	Maximum of 2 electrical cable splices in between the step-up/step-down transformers from the power source up to the shelter/s is allowed. Appropriately rated splicing kits and HV connectors shall be used.		
5.17.1.1.4	Electrical as-built plan with splices shall be submitted as part of documentation.		
5.17.1.1.5	Electrical installations shall be in accordance with the latest provisions of the Philippine Electrical Code.		
5.17.1.1.6	The Contractor shall submit standard Transformer Test results conducted by authorized testing centers to CAAP specifying the serial number, brand/model, rating of the transformers upon delivery.		
5.17.1.1.7	Surge and lightning protection devices shall be supplied/installed by the Contractor. The system shall be designed and rated so as not to incur damage to Equipment during occurrences of surges/lightning strikes.		
5.17.1.1.8	All electrical devices installed shall be of high standard, designed and used for the purpose, UL listed or compliant to equivalent standard.		
5.17.1.2	**Grounding System**		

Section	Specification-	Compliance Statement	Reference to support statement (also INDICATE PAGE No.)
5.17.1.2.1	The Contractor shall provide new grounding systems. With considerations to local terrain, the ground resistance for the equipment shall not be greater than 5 ohms.		
5.17.1.2.2	Ground conductor configuration shall be in accordance with the Original Equipment Manufacturer (OEM) standard specification.		
5.17.1.2.3	Equipment grounding shall be separate from the grounding system of the shelter/mast and/or in accordance with OEM standards/requirements.		
5.17.1.2.4	Connections to grounding rods shall be exothermic.		
5.17.1.3	**For Power of Glideslope & Localizer**		
5.17.1.3.1	Install new shielded 6 AWG XLPE Cable 99.9% copper, 5KV insulation.		
5.17.1.3.2	The required transformer for the project is a dry-type transformer that shall be housed securely within the new shelter in conformance with the electrical code of the Philippines or be provided by separate transformer cage designed for outdoor service as required in item 1.2.5.		
5.17.1.3.3	Install existing 2-sets 15kVA Transformer 4160/230V, complete with primary protection, ancillaries, pad mounted including concrete pad, cable trench and standard transformer ancillaries.		
5.17.1.3.4	Use re-usable primary connector braided type in splicing.		
5.17.1.3.5	Contractor may also use pad mounted type transformers and its ancillaries for the installation.		
6.	**SYSTEMS SUPPORT REQUIREMENT**		
6.1	**Quality Plan**		
6.1.1	The Contractor/Manufacturer shall be responsible for the quality assurance, configuration management, safety and acceptance testing being in accordance with known standards and procedures.		
6.1.2	The CAAP has the right to reject workmanship and materials supplied/installed related to the project that is not in accordance to standards.		
6.2	**Maintenance Plan**		
6.2.1	The Contractor shall submit **together with the Technical Proposal** a plan on how the Contractor/OEM will conduct maintenance services during the warranty period and during the life cycle of the system. The plan shall detail the procedures:		
6.2.1.1	of repair/replacement of defective hardware components;		
6.2.1.2	of software maintenance and repair;		
6.2.1.3	of help desk support;		
6.2.1.4	management of components obsolescence		
6.3	**Training Plan**		
6.3.1	**General Requirements**		
6.3.1.1	The Contractor shall submit together with the Technical Proposal a plan for each of the identified training courses that include a description of the following elements:		
6.3.1.1.1	Type of training;		

Section	Specification-	Compliance Statement	Reference to support statement (also INDICATE PAGE No.)
6.3.1.1.2	Course Title;		
6.3.1.1.3	Course Objectives;		
6.3.1.1.4	Course Contents;		
6.3.1.1.5	Duration in Days;		
6.3.1.1.6	Location;		
6.3.1.1.7	Maximum number of Trainees per course;		
6.3.1.1.8	Training Materials and Training Aids		
6.3.1.2	Training courses and materials shall enable the trainees to later instruct other technical staff according to the obtained knowledge.		
6.3.1.3	Training courses shall be of a high standard and apply the latest teaching techniques.		
6.3.1.4	Trainings shall be conducted for the maintenance (hardware/software) and operation of the ILS and RCMS system		
6.3.1.5	The Contractor or OEM shall provide the trainees with OEM standard training documents in soft and hard copies.		
6.3.1.6	The OEM shall issue a Training Certificate to ANS personnel who attended the training. The Certificate shall indicate the following:		
6.3.1.6.1	name of the trainee;		
6.3.1.6.2	course title;		
6.3.1.6.3	place of training;		
6.3.1.6.4	date and duration of the training with the OEM company logo on the Certificate.		
6.3.2	**Factory Training (FT)**		
6.3.2.1	Factory Training (FT) for a minimum of 10 training days for ILS and RCMS system shall be scheduled for Five (5) personnel.		
6.3.2.2	The Training course shall be designed to bring up the trainees to a sufficient level for the proper operation and maintenance of the delivered systems.		
6.3.2.3	CAAP requires that the Factory Training be conducted first prior to the installation of the navigational aids equipment and the conduct of site training.		
6.3.2.4	All training materials and training aids utilized shall be provided by the supplier in softcopy and hardcopy		
6.3.2.5	All travel expenses including its processing (VISA, airfare, hotel accommodations, meals, daily allowances including day-offs between the training duration, and health/accident insurance for the duration of the stay) shall be borne by the Contractor. As a minimum, allowances shall be in accordance with the UNDP Daily Subsistence Allowance (DSA) rates. Cost of the travel expenses shall be included/reflected in the Contractor's Financial Bid Proposal.		
6.3.3	**Site Training (ST)**		
6.3.3.1	Site Training (ST) for ILS, RCMS system and Test equipment (Multi-Use Communication Analyzer, Optical Fiber Fusion Splicer and OTDR) shall be scheduled for Fifteen (15) personnel.		
6.3.3.2	The Training course shall be designed to bring up the trainees to a sufficient level for the proper operation and maintenance of the delivered systems.		

Section	Specification-	Compliance Statement	Reference to support statement (also INDICATE PAGE No.)
6.3.3.3	The training cost shall be reflected in the Contractor's Financial Bid Proposal.		
6.4	**Documentations**		
6.4.1	Aside from training materials, the following documents shall be delivered for each site:		
6.4.1.1	2 sets of operations manual (ILS/I-DME, RCMS and its ancillaries)		
6.4.1.2	2 sets of maintenance (hardware/software) manual(ILS/I-DME, RCMS and its ancillaries)		
6.4.1.3	2 sets of software manual (ILS/I-DME, RCMS and its ancillaries)		
6.4.1.4	2 sets of inventory list of equipment to include test instruments, tools and spare parts (ILS/I-DME, RCMS and its ancillaries)		
6.4.1.5	2 sets of as-built drawings. (As-built drawings shall be submitted on or before final acceptance.)		
6.4.2	2 Softcopy of all delivered documents shall be provided to CAAP in a USB / thumb drive.		
6.5	**Qualified Installer / Systems Engineer**		
6.5.1	The CAAP requires that only OEM qualified personnel will do the installations/commissioning of the ILS equipment. CAAP requires submission of Certificate of qualification of installer from the OEM.		
6.5.2	The Bidder shall submit **together with its Technical Proposal** resumés of qualified installers/personnel including the name of the Project Manager and Safety officer who will be involved in the Project. The Bidder shall specify/describe the responsibilities of these` personnel with regards to the implementation of the project.		
7.	**SPARES AND TEST EQUIPMENT**		
7.1	**General Requirements**		
7.1.1	The Contractor shall supply/deliver the required spare units/modules to attain the required Category II (ILS) level operation and attain the required performance requirements based on submitted MTBF.		
7.1.2	The Contractor shall provide an appropriately sized lockable metal cabinet for the storage of Spares and Test Equipment at the ANS Equipment Room.		
7.1.3	The Contractor shall supply critical system spare parts and quantities defined in the proposal to operate the installed Category II level operation ILS equipment at least 99.99% availability.		
7.1.4	The contractor shall add spares at their own cost if the availability 99.99% of equipment is not attained at the end of Defect Liability Period.		
7.2	**Spares**		
7.2.1	Spare units/modules are defined as repairable items which are kept in store to be exchanged for the same items in case of failure.		
7.2.2	The Contractor is required to supply ILS (Category II) recommended spare units/modules for each system of equipment.		

Section	Specification-	Compliance Statement	Reference to support statement (also INDICATE PAGE No.)
7.2.3	The spare parts list shall be submitted with the Technical Proposal and shall be certified by the OEM that the standard spare parts to be supplied are designed/quantified for ILS (Category II) operation and in accordance with respective Availability and submitted MTBFs requirements. This certification shall be included as part of the Technical Proposal document.		
7.2.4	The Contractor must indicate the turnaround time for different types of spares during the lifetime of the supplies, and shall not be more than what is stated in previous **Section**.		
7.2.5	The spare parts shall be brand new and quantity of spare units/modules must be balanced against the maintenance philosophy, cost and probability of situations of spare shortage.		
7.2.6	A brief description of the calculations associated with the proposed spares supply and probability value used in the calculations must be included in the Technical Proposal.		
7.2.7	The Contractor shall submit together with its Technical Bid a certification from the Manufacturer ensuring the availability of spare parts for at least the next ten (10) years after the Warranty Period.		
7.2.8	The delivered spare units/modules for the Project shall not be used within the DLP and Warranty periods. In cases where the delivered spare units/modules were used within the DLP and Warranty periods, the Contractor is obliged to replace the used spare units/modules with a new spare set. This is to maintain the exact spare parts stock level after the Warranty period.		
7.2.9	The Contractor/Manufacturer shall be able to supply the required spare parts after the warranty up to the period specified.		
7.2.10	A Spare Provision Conference, if necessary, may be held for the contractor to present basis for spare allocation in order to make the final selection of all spares.		
7.2.11	As a minimum, the Contractor/OEM shall provide spare parts for the following sub-systems based on submitted MTBF:		
7.2.11.1	Transmitter Group (3 sets)		
7.2.11.2	Receiver Group (DME only) (1 sets)		
7.2.11.3	Control & Monitoring Group(local/remote) including link (3 sets)		
7.2.11.4	Antenna Assembly Group (3 sets)		
7.2.11.5	Back-up and Power Supply Group (3 sets)		
7.2.11.6	Sensors group (3 sets)		
7.2.12	Spares must be of the same quality as the originally installed parts and equipment, and must be subject to the same parts selection criteria, quality control, testing and burn-in as the original equipment.		
7.2.13	Modules that are critical to the operation of System 1 and System 2 of the equipment shall have specific spares provision (e.g. RF Monitor module, etc.) in addition to the minimum requirements specified in 7		

Section	Specification-	Compliance Statement	Reference to support statement (also INDICATE PAGE No.)
	.2.11. This is to maintain availability requirements after the warranty period and prevent facility downtime caused by failure of this single module and enable the facility to operate at least on single system. Cost of this items shall be included in the financial proposal.		
7.2.14	Turn-around time if a unit is returned to the Contractor for repair shall be sixty (60) days.		
7.2.15	A brief description of the calculations associated with the proposed spares supply and probability value used in the calculations must be included in the proposal.		
7.2.16	If the equipment performance and quantity of spare parts supplied was found to be insufficient to achieve the required 99.99% availability requirements within the DLP, the Contractor is responsible to augment the system design, and deliver additional necessary spare parts to meet the availability requirement without cost to CAAP.		
7.2.17	The Contractor shall secure a certification from the Manufacturer ensuring the availability of spare parts for at least the next ten (10) years after the Warranty Period.		
7.2.18	The delivered spare units/modules for the Project shall not be used within the Warranty period.		
7.2.19	In emergency cases where the delivered spare units/modules were used within these periods, the Contractor is obliged to replace the used spare units/modules with a brand-new spare set. This is to maintain the exact spare parts stock level/status after the end of the Warranty period.		
7.2.20	The Contractor/Manufacturer shall be able to supply the required spare parts after the warranty up to the period specified.		
7.2.21	The CAAP shall not be exclusively limited to the Contractor for the procurement of spare parts. The Procuring Entity shall have the option to procure spare parts of supplied ILS system at other authorized distributors and/or direct to the Original Equipment Manufacturer (OEM).		
7.2.22	The bidder shall also include in their Technical Proposal a list of spare parts necessary for the maintenance of the equipment with corresponding cost in US$ including price validity. The spare parts costing shall not be evaluated as part of the bid but shall be used by CAAP for budgetary purposes in future procurement of spare parts.		
7.3	**Test Equipment and Tools**		
7.3.1	All test and fault location facilities which are built-in and form an integral part of the equipment must be listed and described in the Proposal.		
7.3.2	Test Instruments shall have the appropriate compliances to internationally accepted standards for test instruments (e,g, CE certified, UL certified, EN certified and/or its equivalents)		
7.3.3	All applicable test equipment shall be calibrated prior to delivery.		

Section	Specification-	Compliance Statement	Reference to support statement (also INDICATE PAGE No.)
7.3.4	The Contractor shall provide the original certificate of calibration for the Oscilloscopes, and the PIR instruments upon delivery to the site.		
7.3.5	Each equipment shelter shall be equipped with a complete set of OEM-approved standard tools necessary for the conduct of corrective and preventive maintenance of the equipment (1-set each for **ILS & GP/I-DME**).		
7.3.6	Standard and special instruments/test equipment (*of latest model*) which are necessary for fault location, testing, maintenance and major overhaul of ILS such as but not limited to the following (minimum requirement):		
7.3.6.1.1	**For ILS:**		
(a)	One (1) Oscilloscope (mixed signal dual trace) 500 MHz, Portable (analog-digital)		
(b)	One (1) Frequency Counter (400MHz)		
(c)	One (1) set True-line Watt Meter with 1, 5, 10, 25, 50, 100-Watt plug-n elements		
(d)	One (1) lot Extender Boards		
(e)	One (1) lot Directional Coupler (100Mhz-2GHz), Terminating Resistor, Attenuators (6/10/20/30 dB), Adapters & RF Test Cables and other accessories		
(f)	One (1) Standard Tool Set		
(g)	One (1) set Ruggedized Service Notebook Computer Terminal (latest year model) (ruggedized with appropriate MIL-STD and/or IP rating or its equivalent) with corresponding interfaces/ connectors, and latest licensed software for servicing the ILS.		
7.3.7	All test instruments to be supplied shall include the necessary interfaces/connectors, cables, cases, power supplies and probes for its complete operation.		
7.3.8	Test Instruments not identified above but are necessary for the operation and maintenance of the supplied ILS system shall also be supplied as identified by the OEM.		
7.4	**Special Tools**		
7.4.1	**Supply of one (1) latest model Portable ILS Receiver (PIR) with harmonic distortion measurement capability designed and configured to analyze ILS navigational signals.**		
7.4.1.1	Shall be portable with data storage functions, GUI based user interface, equipped with audio jack for voice monitoring including function for night measurements.		
7.4.1.2	Shall be able to operate on battery mode for at least 5 hours operation and can be charged under local power conditions.		
7.4.1.3	Shall have protection against dust and water splash (IP54 or its equivalent).		
7.4.1.4	Shall include all the necessary connectors, adaptors, interfaces, cables, battery, carrying case, antenna and antenna mast for the complete operation of the PIR.		
7.4.1.5	Other additional manufacturer defined special tool needed for CAT-I maintenance shall be supplied by the Contractor.		
7.4.1.6	**Supply of one (1) latest model Optical Fusion Splicer kit complete with spare electrode, Cooling tray,**		

Section	Specification-	Compliance Statement	Reference to support statement (also INDICATE PAGE No.)
	Cleaning brush, Tackle Box, Allen key, Screwdriver, USB cable, carrying case, user manual and Accessories with the following specifications:		
7.4.1.7	Optical Fusion Splicer Fiber alignment: IPAAS, active V-groove alignment.		
7.4.1.8	Applicable fiber types: 0.25 mm, 0.9 mm, 2.0 mm, 3.0 mm indoor cable.		
7.4.1.9	Fiber count: Single fiber		
7.4.1.10	Applicable fiber dimensions: Cladding diameter: 125 ㎛, coating diameter: 150 ㎛ to 3mm		
7.4.1.11	Fiber setting and cleaved length: 5 mm to 16 mm		
7.4.1.12	Splicing modes: Splice mode: 300, heat mode: 100		
7.4.1.13	Typical splice loss: SM: 0.02 dB, MM: 0.01 dB, DS: 0.04 dB, NZDS: 0.04 dB		
7.4.1.14	Return loss: > 60 dB		
7.4.1.15	Splicing time: Typically, 7 seconds with SM		
7.4.1.16	Splice loss estimate: Available		
7.4.1.17	Sleeve heating time: Typically, 13 sec with IS-60 mode, IS-60 sleeve		
7.4.1.18	Applicable protection sleeve: 60 mm, 40 mm and micro sleeves		
7.4.1.19	Storage of splice result: Up to 5,000 data sets and 5,000 images		
7.4.1.20	Tension test: 1.96N to 2.25N		
7.4.1.21	Operating condition: Temperature: -10℃ to 50℃, humidity: 0 to 95%, wind: 15 m/s, non-condensing, dust proof, waterproof, shock proof		
7.4.1.22	Storage condition: Temperature: -40℃ to 80℃, humidity: 0 to 95%		
7.4.1.23	Viewing method and display: LCD monitors		
7.4.1.24	Fiber view and magnification: X/Y : 130X , max :260X		
7.4.1.25	Power supply: Lithium-ion battery; 100 to 240V AC charger		
7.4.1.26	No. of splice cycles with battery: Typically 200 cycles		
7.4.1.27	Electrode life: 3,000 splices		
7.4.1.28	External port: USB		
7.4.1.29	**Supply of one (1) set of latest model Portable Optical Time-Domain Reflectometer (OTDR) complete with visual fault locator, fiber inspection kit, WiFi and accessories**		
7.4.1.30	Wavelengths: 1310nm ±25nm and 1550nm ±30nm		
7.4.1.31	Compatible fiber types: Single mode		
7.4.1.32	Event dead zone: 1310 nm: 0.6 m (typical) 1550 nm: 0.6 m (typical)		
7.4.1.33	Attenuation dead zone: 1310 nm: 3.6 m (typical) 1550 nm: 3.7 m (typical)		
7.4.1.34	Dynamic range: 1310 nm: 32 dB (typical) 1550 nm: 30 dB (typical)		
7.4.1.35	Max distance range setting: 130 km		
7.4.1.36	Distance measurement range: 1310 nm: 80 km 1550 nm: 130 km		
7.4.1.37	Reflectance range: 1310 nm: -14 dB to -65 dB (typical)		

Section	Specification-	Compliance Statement	Reference to support statement (also INDICATE PAGE No.)
	1550 nm: -14 dB to -65 dB (typical)		
7.4.1.38	Sample resolution: 3 cm to 400 cm		
7.4.1.39	Pulse widths (nominal): 3, 10, 30, 100, 300, 1000, 3000, 10000, 20000 ns		
7.4.1.40	Test time (per wavelength): Auto setting: 10 sec (typical) Quick test setting: 5 sec (typical) Best resolution setting: 5 to 180 sec Fault Map setting: 10 sec (typical), 180 sec (max) Data Center OTDR setting: 20 sec (typical), 40 sec (max) Manual setting: 3, 5, 10, 20, 40, 60, 90, 120, 180 sec		
7.4.1.41	Fiber Inspector probe specifications: Magnification: ~ 200X Light source: Blue LED Power source: TFS mainframe Field of View (FOV): Horizontal: 425 µm, Vertical: 320 µm Minimum detectable particle size: 0.5 µm Temperature range: Operating: (0 °C to +50 °C), Storage: (-20°C to +70°C)		
7.4.1.42	Battery: Lithium ion battery pack		
7.4.1.43	Battery life: 8-hr Auto OTDR operation, dual wavelength no video probe connected, 150 m of fiber		
7.4.1.44	Power supply: 100 to 240V AC charger		
7.4.1.45	Integrated Wi-Fi: Meets IEEE 802.11 a/b/g/n; dual band (2.4 GHz and 5 GHz)		
7.4.1.46	Operating temperature: -18º C to 45º C		
7.4.1.47	Non-operating temperature: -30º C to 60º C		
7.4.1.48	Electromagnetic compatibility: EN 61326-1 or equivalent		
7.4.1.49	Accessories: OTDR kit with inspection kit. This kit includes (1) Single mode OTDR module, Shoulder Strap, USB Interface Cable, Open Source Software CD, AC Charger, (2) Quick Clean Cleaners (1.25/2.50 mm), (2) SC/LC Single mode Launch Cables (1) OTDR source port interchangeable LC adapters, USB Fiber Inspection Video Probe with 4 Tips, SC/SC Simplex Adaptor, (2) Launch Fiber Hanging straps and magnets, Wi-Fi adapter, Statement of Calibration and Getting Started Guides		
7.4.1.50	**Supply of one (1) set of latest model handheld Multi-Use Communication Analyzer (Cable & Antenna, Vector Network and Spectrum).**		
7.4.1.51	Frequency Range: 100 kHz to 9 GHz		
7.4.1.52	System Impedance: 50 ohms		
7.4.1.53	Sensitivity: -148 dBm (typical)		
7.4.1.54	Frequency Stability: 1 part per million (ppm)/yr.		
7.4.1.55	RF Input DC Block: ± 50VDC		
7.4.1.56	Dynamic Range: 96 dB		
7.4.1.57	Rugged and weather-resistant for outdoor or field use; meets IP53 and MIL-PRF-28800 Class 2 standards		

Section	Specification-	Compliance Statement	Reference to support statement (also INDICATE PAGE No.)
7.4.1.58	Rechargeable lithium-ion battery, field swappable		
7.4.1.59	With Built-in Data Storage Port		
7.4.1.60	With USB Ports		
7.4.1.61	Output Port for Analysis of Signal Spectrum		
7.4.1.62	LAN Port for Connectivity		
7.4.1.63	Built-in GPS Receiver		
7.4.1.64	Anti-glare colored LCD display with LED backlight		
7.4.1.65	Remote control and viewing capability		
7.4.1.66	**Cable and Antenna Analysis:** Distance to Fault and Time Domain Reflectometry Insertion Loss and Cable Loss Return Loss/VSWR Measurements Built-in Calibration Capability		
7.4.1.67	**Vector Network Analysis:** VNA Full 2-port S-parameters VNA Transmission/Reflection Vector Voltmeter		
7.4.1.68	**Spectrum Analysis:** Amplitude Accuracy of up to ± 0.5 dB Interference Analysis with Spectrogram & Waterfall Displays Real-time Spectrum Analysis with Recording and Playback Function AM/FM Analog Demodulation Channel Scanner for Field Strength Measurements Built-in Power Meter		
7.4.1.69	Calibration Kit Accessories, 4-in-1, (open, short, load and through)		
7.4.1.70	**Cables Accessories:** 1 set - 12 ft. (3.6 m) Rugged Phase-stable RF Cable, N-type male to N-type male 1 set - 3.28 ft. (1 m) Rugged Phase-stable RF Cable, N-type male to N-type male 1 set - Appropriate RF Cable and Adapter for the Handheld DF Antennas		
7.4.1.71	**Power Adapter and Battery:** AC/DC Power Adapter DC Car Charger and Adapter External Battery Charger Extra Set of Battery Soft Carrying Case with Backpack and Carrying Strap		
7.4.1.72	Current Calibration Certificate of the Test Equipment (ISO17025 or equivalent)		
7.4.1.73	Three (3) year Manufacturer's Warranty		
8.	**DELIVERY, STORAGE AND HANDLING**		
8.1	Equipment shall be protected against extreme temperature and humidity, and shall be stored in a conditioned place to prevent corrosion and/or contamination.		
8.2	Equipment shall be wrapped up in dust-tight covers and kept away from construction activities in order to be protected against dust and debris.		

Section	Specification-	Compliance Statement	Reference to support statement (also INDICATE PAGE No.)
8.3	Contractor shall be responsible for correct storage and safety of the equipment under the conditions as specified.		
8.4	Contractor shall handle the equipment and materials in accordance with the manufacturer's recommendations.		
8.5	Contractor shall be responsible for facilitating the delivery/shipment including security of equipment from the supplier's premise up to the installation site.		
8.6	All dismantled equipment/items shall be packaged in a standard wood crate designed to accommodate the equipment of each system for ready transport. A duplicate copy of the inventory list shall also be attached in front of the crate to identify its contents. Handling instructions and crate identification number shall also be included.		
9.	**PROJECT MANAGEMENT SCHEDULE**		
9.1	**General Requirements**		
9.1.1	The Bidder shall include in their proposal a project activity schedule for the project starting from the Notice of Proceed.		
9.1.2	CAAP specifies that the project be **completed within 365 calendar days exclusive of DLP and warranty period**.		
9.1.3	CAAP requires minimal downtime of ILS service at Iloilo International Airport. The Contractor is allowed a **total of 30 calendar days downtime for the ILS** from the shutdown of the old system/facility until the commissioning of the new facility.		
9.1.4	The Contractor shall be responsible for the excess downtime caused by the installation of the new equipment and shall be deductive to the Contract Cost in the amount of **0.1% for every day of downtime** but shall be **not more than 10% of the Contract Cost**.		
9.1.5	NOTAMs issued regarding downtimes of the ILS service will be the basis for the computation of the downtimes.		
9.1.6	For Force Majeure, Section 22 of the General Conditions of the Contract applies.		
9.1.7	The Contractor shall submit as detailed as possible together with the Technical Proposal preliminary project management schedule highlighting the following project component activities:		
9.1.7.1	**Site Works;**		
9.1.7.2	**Equipment Manufacturing;**		
9.1.7.2.1	ILS		
9.1.7.3	**Factory Acceptance Test;**		
9.1.7.3.1	ILS		
9.1.7.4	**Shipment / Delivery;**		
9.1.7.5	**Installation;**		
9.1.7.5.1	ILS		
9.1.7.5.2	Power System		
9.1.7.6	**Expected downtime (Total 30 cd)** (*from the shutdown of the old system until the commissioning of the new facility);*		
9.1.7.6.1	ILS		

Section	Specification-	Compliance Statement	Reference to support statement (also INDICATE PAGE No.)
9.1.7.7	**Training;**		
9.1.7.7.1	Factory		
(a)	ILS		
9.1.7.7.2	Site		
(a)	ILS		
(b)	Test Equipment		
9.1.7.8	**Final Configuration;**		
9.1.7.9	**Site Acceptance Test;**		
9.1.7.10	**Reliability Test (2 cd);**		
9.1.7.11	**Submission of As-Built Drawings/Plans;**		
9.1.7.12	**Flight Check Commissioning;**		
9.1.7.13	**Project Completion;**		
9.1.7.14	**Defect Liability Period (1 Year);**		
9.1.7.15	**Warranty Period (1 Year);**		
9.1.8	The Project Management Schedule shall be in accordance with the approved contract time.		
9.1.9	The Contractor shall submit a final Project Management Schedule to CAAP as part of the Methods of Working Plan (MOWP) requirement prior to implementation of the project.		
9.1.10	**Project Cash Flow by Quarter** to be submitted prior to start of project implementation and to be updated during & every quarter in the implementation stage by the contractor.		
10.	**TESTS**		
10.1	**Factory Acceptance Test**		
10.1.1	Prior to delivery, the Contractor shall conduct a Factory Acceptance Test in order to ensure that their equipment operates as intended and meets all the contractual requirements.		
10.1.2	Prior to Factory Acceptance Testing, a copy of initial test result certified by OEM shall be submitted to CAAP for initial evaluation.		
10.1.3	The CAAP requires that the ILS equipment and subsystems have passed all tests in the factory (OEM) prior to shipment to the site.		
10.1.4	The factory tests shall be witnessed by 5 CAAP personnel for the ILS equipment. The conduct of all test procedures shall be for **5** days.		
10.1.5	The Bidder shall provide in their proposal information on:		
10.1.5.1	the place;		
10.1.5.2	the schedule;		
10.1.5.3	activities for the equipment testing		
10.1.5.4	The result of Internal Factory Test		
10.1.6	All travel expenses including its processing (VISA, airfare, hotel accommodations, meals, daily allowances, and health/accident insurance for the duration of the stay) shall be borne by the Contractor. As a minimum, allowances shall be in accordance with the UNDP Daily Subsistence Allowance (DSA) rates. Cost of the travel expenses shall be included/reflected in the Contractor's Financial Bid Proposal.		
10.2	**Site Acceptance Test**		

Section	Specification-	Compliance Statement	Reference to support statement (also INDICATE PAGE No.)
10.2.1	A Site Acceptance Test shall be conducted after the completion of the installation. The Contractor shall be responsible for notifying the CAAP that the installation is complete and that a Site Acceptance Test is to be conducted.		
10.2.2	The supplier shall submit for approval of CAAP a detailed Site Acceptance Test (SAT) plan (2 sets) four weeks before the beginning of the SAT.		
10.2.3	The CAAP requires submission of a proposed Site Acceptance Test plan for the ILS and RCMS prior to commissioning. The Site Test plan may be revised by CAAP as necessary.		
10.2.4	The SAT plan shall consist of a subset of functional tests, plus specific tests taking into account the site environment.		
10.2.5	The SAT plan shall consist of a set of functional and performance tests aiming at validating the compliance of the system with this specification.		
10.2.6	SAT shall be performed for all hardware and software deliverables.		
10.2.7	At the beginning of the SAT, the contractor shall provide introduction/briefing and the baseline for the installed system.		
10.2.8	Each test executed at the SAT shall be described at least with the following information:		
10.2.8.1	test identifier and title;		
10.2.8.2	the procedure to follow for performing the test;		
10.2.8.3	the system configuration required for the test;		
10.2.8.4	the expected result(s) of the test;		
10.2.8.5	the way to control whether the test has succeeded or not;		
10.2.8.6	comments where appropriate		
10.3	**Reliability Test**		
10.3.1	Prior to conducting the commissioning flight test, a Reliability Test shall be conducted by the Contractor. The start of the test shall be announced by the Contractor.		
10.3.2	A **Reliability Test** shall be conducted for a period of **2 days** each for ILS and RCMS by the Contractor after a successful Site Acceptance Testing.		
10.3.3	A Reliability Test Check List shall be prepared by the Contractor/Manufacturer for documentation of the results of the daily tests. If the equipment passes the Reliability Test, a Commissioning Flight test shall follow.		
10.3.4	After the conduct of a successful Reliability Test (no alarms of any type observed for 2 continuous days), the Contractor shall immediately inform CAAP of its completion and schedule/conduct a Commissioning Flight Test for the new equipment.		
10.4	**Commissioning Flight Test**		
10.4.1	A Commissioning Flight Test shall be conducted by the Contractor for the ILS system. The test shall be in accordance with the Philippine Flight Inspection Procedures and ICAO Manual Doc. 8071, Annex 10 and Annex 14.		

Section	Specification-	Compliance Statement	Reference to support statement (also INDICATE PAGE No.)
10.4.2	The Contractor shall make arrangements for the aircraft and personnel necessary for the conduct of the flight test. Cost of the commissioning Flight Test shall be included in the Contractor's Financial Bid Proposal.		
10.4.3	The aircraft to be used in the Commissioning Flight Test including its flight check equipment shall be authorized/ certified for the purpose by the Civil Aviation Authority of the Philippines (CAAP).		
10.4.4	Flight Check activities shall be attended by authorized Flight Inspection and Calibration Group (FICG) personnel of CAAP.		
10.4.5	Costs related to flight check shall be borne by the Contractor. In the event that the Flight Check of the ILS systems were not completed within the specified flight, the Contractor shall be responsible of any additional cost that may incur until the ILS system completes and passes the Commissioning Flight Check.		
10.4.6	Original Flight Test result document in "Passing Marks" shall be given to the CAAP upon completion of the test and certified by FICG before Final acceptance of the Project.		
11.	**PROJECT COMPLETION**		
11.1	A Certificate of Project Completion shall be issued by CAAP to the Contractor upon successful conduct of Commissioning Flight Check of the ILS system is completed.		
11.2	The following documents shall be the attachment for the approval of the Certificate of Project Completion:		
11.2.1	Copy of approved Contract including the Terms of Reference;		
11.2.2	Factory Acceptance Test Report;		
11.2.3	Project Progress Report;		
11.2.4	Training Report including photocopy of the training certificates issued;		
11.2.5	Site Acceptance Test Report;		
11.2.6	Reliability Test Report;		
11.2.7	Operation/User and Service Manuals;		
11.2.8	As-Built Drawings;		
11.2.9	Inventory of newly installed equipment including test instruments, special tools, spare parts;		
11.2.10	Inventory of newly dismantled equipment/items for CAAP storage;		
11.2.11	Commissioning Flight Test Report		
12.	**DEFECTS LIABILITY AND WARRANTY PERIODS**		
12.1	All hardware and software components to be delivered, including the RCMS (Remote Control Monitoring System), Workmanship, Ancillaries, shall have a Defects Liability Period (DLP) of 12 months. All components to be delivered shall be brand new and of latest model.		
12.2	The DLP shall start after the date of issuance of the Certificate of Project Completion by the CAAP, wherein		

Section	Specification-	Compliance Statement	Reference to support statement (also INDICATE PAGE No.)
	all of the works were executed, completed by the Contractor as per Contract.		
12.3	A Facility Availability Report shall be submitted by the Contractor to CAAP after the end of the DLP to determine if the system installed is within the required availability requirements of 99.99%.		
12.4	A Certificate of Final Acceptance shall be issued by CAAP after the end of the DLP period.		
12.5	In addition to the Defect's Liability Period, a Warranty Period of One (1) year for the hardware/software (parts and service) components is required.		
12.6	All software components to be delivered, including the operating system, shall have a minimum of two (2) years complete support services.		
12.7	Software and/or hardware licenses shall be valid for the entire lifetime of the system.		
12.8	All spare parts delivered for the purpose shall not be used under the Defect Liability and Warranty period as replacements of defective parts. If so ever, it shall be replaced by the Contactor to maintain the spare parts stock level of the facility and its turnaround time shall be in accordance as stated in **Spares Section**.		
13.	**OTHER REQUIREMENTS**		
13.1	**Compliance to Standards**		
13.1.1	**Permits**		
13.1.1.1	The Contractor shall be responsible for securing all necessary permits (i.e. Electrical/Civil work Permits, Permit to Import, NTC, Security Pass, Occupancy permits, other local permits, etc.) from respective offices for the installation of the navigational equipment at site. The cost of acquiring such permits including its processing shall be borne by the Contractor.		
13.1.2	**MOS for Aerodromes/Method of Working Plan (MOWP)**		
13.1.2.1	The Contractor shall comply with the latest applicable provisions of the Civil Aviation Authority of the Philippines (CAAP) Manual of Standards (MOS) for Aerodromes. A Method of Working Plan (MOWP) shall be submitted to CAAP prior to project implementation. The MOWP shall be in accordance with Section 10.11 of the CAAP MOS.		
13.1.3	**ICAO Compliance**		
13.1.3.1	The supplied ILS equipment shall be compliant to ICAO. The Bidder shall include in their Technical Proposal a compliance statement on the relative provisions of the ICAO Annex 10 Volume 1 Standards and Recommended Practices (SARPs) for ILS.		
13.1.4	**WGS-84 Coordinates**		
13.1.4.1	After completion of the project, the Contractor shall provide a certified geographical coordinate in WGS-84 datum for the LLZ and GP/I-DME sites from accredited surveyor. The cost of acquiring such shall be borne by the Contractor.		
13.1.5	**Airport Safety and Security**		

Section	Specification-	Compliance Statement	Reference to support statement (also INDICATE PAGE No.)
13.1.5.1	The Contractor including its authorized personnel shall strictly comply/adhere with the Safety and Security requirements of the airport specially when entering the airport premises and near vital navigational aids systems.		
13.1.5.2	The Contractor shall be responsible for the establishment of temporary facilities and cost of utilities at sites approved by CAAP.		
13.1.5.3	The Contractor shall be liable for the safety and security of its personnel during the installation/construction period.		
13.1.6	**Quality Certification**		
13.1.6.1	The ILS equipment and its manufacturer shall be ISO 9001 and 14001 Certified or its internationally recognized equivalent. The Bidder shall include in their Technical Proposal certified true copy of ISO Certification of their proposed equipment and its manufacturer.		
13.1.7	**Test Standards**		
13.1.7.1	The equipment shall be compliant to internationally recognized test standards when obtaining values given in the technical specifications. The Bidder shall include in their Technical Proposal copy of the certification of the ILS equipment complying to the test standards (*e.g. EN, FCC, ASTM, UL, or internationally recognized equivalent*) for the testing of equipment such as but not limited to:		
13.1.7.1.1	the transmitter system;		
13.1.7.1.2	the receiver system;		
13.1.7.1.3	the RCMS;		
13.1.7.1.4	the antenna system;		
13.1.7.1.5	the power supply system		
	END OF SPECIFICATIONS		

ANNEX A – ITB 10.1 Form

Name of the Project: _____
Name of Bidder: _____
Calendar Year: _____

(1)	(2)	(3)	(3.1)	(3.2)	(4)	(4.1)
Item	Country of origin	Description	Brand	Type / Model / Version	Quantity	Unit

_____ _____
[signature] *[in the capacity of]*

Duly authorized to sign Bid for and on behalf of_____

Date _____.

NOTE: All equipment/items offered must be reflected in this form.
Columns 3.1 & 3.2 for applicable items.

Page ___ of Pages ___.

Omnibus Sworn Statement

REPUBLIC OF THE PHILIPPINES)
CITY/MUNICIPALITY OF _____) S.S.

A F F I D A V I T

I, *[Name of Affiant]*, of legal age, *[Civil Status]*, *[Nationality]*, and residing at *[Address of Affiant]*, after having been duly sworn in accordance with law, do hereby depose and state that:

1. ***Select one, delete the other:***

   If a sole proprietorship: I am the sole proprietor or authorized representative of *[Name of Bidder]* with office address at *[address of Bidder]*;

   If a partnership, corporation, cooperative, or joint venture: I am the duly authorized and designated representative of *[Name of Bidder]* with office address at *[address of Bidder]*;

2. ***Select one, delete the other:***

   If a sole proprietorship: As the owner and sole proprietor, or authorized representative of *[Name of Bidder]*, I have full power and authority to do, execute and perform any and all acts necessary to participate, submit the bid, and to sign and execute the ensuing contract for *[Name of the Project]* of the *[Name of the Procuring Entity], as shown in the attached duly notarized Special Power of Attorney*;

   If a partnership, corporation, cooperative, or joint venture: I am granted full power and authority to do, execute and perform any and all acts necessary to participate, submit the bid, and to sign and execute the ensuing contract for *[Name of the Project]* of the *[Name of the Procuring Entity],* as shown in the attached *[state title of attached document showing proof of authorization (e.g., duly notarized Secretary's Certificate, Board/Partnership Resolution, or Special Power of Attorney, whichever is applicable;)]*;

3. *[Name of Bidder]* is not "blacklisted" or barred from bidding by the Government of the Philippines or any of its agencies, offices, corporations, or Local Government Units, foreign government/foreign or international financing institution whose blacklisting rules have been recognized by the Government Procurement Policy Board;

4. Each of the documents submitted in satisfaction of the bidding requirements is an authentic copy of the original, complete, and all statements and information provided therein are true and correct;

5. *[Name of Bidder]* is authorizing the Head of the Procuring Entity or its duly authorized representative(s) to verify all the documents submitted;

6. ***Select one, delete the rest:***

   If a sole proprietorship: The owner or sole proprietor is not related to the Head of the Procuring Entity, members of the Bids and Awards Committee (BAC), the Technical

Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

If a partnership or cooperative: None of the officers and members of *[Name of Bidder]* is related to the Head of the Procuring Entity, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

If a corporation or joint venture: None of the officers, directors, and controlling stockholders of *[Name of Bidder]* is related to the Head of the Procuring Entity, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

7. *[Name of Bidder]* complies with existing labor laws and standards; and

8. *[Name of Bidder]* is aware of and has undertaken the following responsibilities as a Bidder:

   a) Carefully examine all of the Bidding Documents;

   b) Acknowledge all conditions, local or otherwise, affecting the implementation of the Contract;

   c) Made an estimate of the facilities available and needed for the contract to be bid, if any; and

   d) Inquire or secure Supplemental/Bid Bulletin(s) issued for the *[Name of the Project]*.

9. *[Name of Bidder]* did not give or pay directly or indirectly, any commission, amount, fee, or any form of consideration, pecuniary or otherwise, to any person or official, personnel or representative of the government in relation to any procurement project or activity.

IN WITNESS WHEREOF, I have hereunto set my hand this __ day of ___, 20__ at _____, Philippines.

_____
Bidder's Representative/Authorized Signatory

SUBSCRIBED AND SWORN to before me this ___ day of *[month] [year]* at *[place of execution],* Philippines. Affiant/s is/are personally known to me and was/were identified by me through competent evidence of identity as defined in the 2004 Rules on Notarial Practice (A.M. No. 02-8-13-SC). Affiant/s exhibited to me his/her [insert type of government identification card used], with his/her photograph and signature appearing thereon, with no. _____ and his/her Community Tax Certificate No. _____ issued on ____ at _____.

Witness my hand and seal this ___ day of *[month] [year]*.

NAME OF NOTARY PUBLIC

Serial No. of Commission _____
Notary Public for _____ until _____
Roll of Attorneys No. _____
PTR No. _____ *[date issued], [place issued]*
IBP No. _____ *[date issued], [place issued]*

Doc. No. _____
Page No. _____
Book No. _____
Series of _____

* This form will not apply for WB funded projects.

Section VIII. Checklist of Technical and Financial Documents

Checklist of Technical and Financial Documents

I. TECHNICAL COMPONENT ENVELOPE

Class "A" Documents

Legal Documents

☐ (a) Valid PhilGEPS Registration Certificate (Platinum Membership) (all pages) in accordance with Section 8.5.2 of the IRR;

Technical Documents

☐ (b) Statement of the prospective bidder of all its ongoing government and private contracts, including contracts awarded but not yet started, if any, whether similar or not similar in nature and complexity to the contract to be bid; **and**

☐ (c) Statement of the bidder's Single Largest Completed Contract (SLCC) similar to the contract to be bid, except under conditions provided for in Sections 23.4.1.3 and 23.4.2.4 of the 2016 revised IRR of RA No. 9184, within the relevant period as provided in the Bidding Documents; **and**

☐ (d) Original copy of Bid Security. If in the form of a Surety Bond, submit also a certification issued by the Insurance Commission;
or
Original copy of Notarized Bid Securing Declaration; **and**

☐ (e) Conformity with the Technical Specifications, which may include production/delivery schedule, manpower requirements, and/or after-sales/parts, if applicable; **and**

☐ (f) Original duly signed Omnibus Sworn Statement (OSS);
and if applicable, Original Notarized Secretary's Certificate in case of a corporation, partnership, or cooperative; or Original Special Power of Attorney of all members of the joint venture giving full power and authority to its officer to sign the OSS and do acts to represent the Bidder.

Financial Documents

☐ (g) The prospective bidder's computation of Net Financial Contracting Capacity (NFCC);
or
A committed Line of Credit from a Universal or Commercial Bank in lieu of its NFCC computation.

Class "B" Documents

☐ (h) If applicable, a duly signed joint venture agreement (JVA) in case the joint venture is already in existence;
or
duly notarized statements from all the potential joint venture partners stating that they will enter into and abide by the provisions of the JVA in the instance that the bid is successful.

II. FINANCIAL COMPONENT ENVELOPE

☐ (i) Original of duly signed and accomplished Financial Bid Form; **and**

☐ (j) Original of duly signed and accomplished Price Schedule(s).

Other documentary requirements under RA No. 9184 (as applicable)

☐ (k) *[For foreign bidders claiming by reason of their country's extension of reciprocal rights to Filipinos]* Certification from the relevant government office of their country stating that Filipinos are allowed to participate in government procurement activities for the same item or product.

☐ (l) Certification from the DTI if the Bidder claims preference as a Domestic Bidder or Domestic Entity.


Republic of the Philippines
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Government Procurement Policy Board