



MR 260/2017

**PREFERRED SUPPLIER
for
REAL TIME SATELLITE-SYNCHRONIZED CLOCKS**

FIJI ELECTRICITY AUTHORITY

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REVISION HISTORY & DOCUMENT CONTROL

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1 INTRODUCTION AND SCOPE OF WORK

Fiji Electricity Authority (“FEA”) is responsible for generation, transmission and distribution of electricity in Viti Levu, Vanua Levu, Ovalau and Tavueni in Fiji. By the end of 2016, the FEA had 174,530 customers. This included residential, commercial and institutional customers.

FEA operates five independent power systems on the islands of Viti Levu, Vanua Levu, Ovalau and Taveuni. It has 9,246km of 11kV and 415V electricity distribution lines, 534.86km of 33kV sub-transmission lines and 147.2km of 132kV transmission lines. It has twenty (20) power stations and forty (40) sub-transmission switching stations and zone substations.

FEA is seeking tender bids from reputable manufacturers and suppliers for design, manufacture, testing and supply of satellite-synchronized real time satellite-synchronized clocks for time synchronization of various protection and control devices.

The tenderer shall state any non-compliance with the specification in the tender submission using the forms in the Appendices. FEA reserves its right to accept or reject any non-compliance.

2 INSTRUCTIONS TO BIDDERS

2.1 Eligible Bidders

This invitation is open to all Bidders who have sound Financial Background, and have previous experience in design, manufacture, testing and supply of such real time satellite-synchronized clocks.

Bidders shall provide such evidence of their continued eligibility satisfactory to FEA as FEA shall reasonably request. Bidders who are not manufacturers of such real time satellite-synchronized clocks shall provide evidence of agency.

Bidders shall not be under a declaration of ineligibility for corrupt or fraudulent practice.

2.2 Eligible Materials, Equipment and Services

The materials, equipment, and services to be supplied under the Contract shall have their origin from reputable companies as specified by FEA and from various countries and all expenditures made under the Contract will be limited to such materials, equipment, and services. Upon request, bidders may be required to provide evidence of the origin of materials, equipment, and services.

For purposes of this Contract, "services" means the works and all related services including design services.

For purposes of this Contract, "origin" means the place where the materials and equipment are mined, grown, produced or manufactured, and from which the services are provided. Materials and equipment are produced when, through manufacturing, processing or substantial or major assembling of components, a commercial recognized product results that is substantially different in basic characteristics or in purpose or utility from its components.

The materials, equipment and services to be supplied under the Contract shall not infringe or violate any industrial property or intellectual property rights or claim of any third party.

2.3 One Bid per Bidder

Each bidder shall submit only one bid. A bidder who submits or participates in more than one bid will cause all those bids to be rejected.

2.4 Cost of Bidding

The bidder shall bear all costs associated with the preparation and submission of its bid and FEA will in no case be responsible or liable for those costs.

2.5 Site Visits

No site visits are required for this project.

2.6 Contents of Bidding Documents

The bidder is expected to examine carefully the contents of this Bidding document. Failure to comply with the requirements of bid submission will be at the bidder's own risk. Bids which are not substantially responsive to the requirements of the bidding documents will be rejected.

2.7 Clarification of Bidding Documents

A prospective bidder requiring any clarification of the bidding documents may notify FEA in writing by fax (hereinafter the term "fax" is deemed to include electronic transmission such as facsimile, cable and telex), or email addressed to:

Tuvitu Delairewa
General Manager Commercial
2 Marlow Street, Suva, FIJI.
Phone: 679 3224 185
Facsimile: 679 331 1882
Email: TuvituD@fea.com.fj

FEA will respond to any request for clarification which it receives earlier than 10 days prior to the deadline for submission of bids.

2.8 Amendment of Bidding Document

At any time prior to the deadline for submission of bids, FEA may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective bidder, modify the bidding documents by issuing addenda.

2.9 Language of Bid

The bid, and all correspondence and documents related to the bid, exchanged between the bidder and the FEA shall be written in the English language.

2.10 Bid Prices

Unless specified otherwise, Bidders shall quote for the entire facilities on a "single responsibility" basis such that the total bid price covers all the Supplier's obligations mentioned in or to be reasonably inferred from the bidding documents in respect of the design, manufacture, including procurement and subcontracting (if any), testing and delivery.

Bidders shall give a breakdown of the prices in the manner and detail called for in this bidding document, or any issued addenda.

Bids shall be given on CIF or CPT basis. The point of delivery shall preferably be FEA's Navutu Depot in Lautoka. The term CIF or CPT shall be governed by the rules prescribed in the current edition of Incoterms, published by the International Chamber of Commerce, Paris.

2.11 Bid Currencies

Prices shall be quoted in a single currency only.

2.12 Bid Validity

Bids shall remain valid for a period of **180 days** from the date of Deadline for Submission of Bids specified in Sub-Clause 2.15.

2.13 Format and Signing of Bids

The bidder shall prepare one original and four (4) copies of the technical and financial proposals, clearly marking each one as: "ORIGINAL-TECHNICAL & PRICE PROPOSAL", "COPY NO. 1 - TECHNICAL & PRICE PROPOSAL", etc. as appropriate. In the event of discrepancy between the original and any copy, the original shall prevail.

The original and all copies of the bid shall be typed or written in indelible ink (in the case of copies, Photostats are also acceptable) and shall be signed by a person or persons duly authorized to sign on behalf of the bidder. All pages of the bid where entries or amendments have been made shall be initialed by the person or persons signing the bid.

The bidder shall provide one electronic copy of the Technical and Financial proposals on FEA's electronic tender hosting website, <https://www.tenderlink.com/fea>.

The bid shall contain no alterations, omissions or additions, except those to comply with instructions issued by FEA, or as necessary to correct errors made by the bidder, in which case such corrections shall be initialed by the person or persons signing the bid.

2.14 Sealing and Marking of Bids

The bidder shall seal the original copy of the technical proposal and the original copy of the price proposal and each copy of the technical proposal and each copy of the price proposal in separate envelopes clearly marking each one as: "ORIGINAL-TECHNICAL & PRICE PROPOSAL", "COPY NO. 1 - TECHNICAL & PRICE PROPOSAL", etc. as appropriate.

The bidder shall seal the original bids and each copy of the bids in an inner and an outer envelope, duly marking the envelopes as "ORIGINAL", "COPY No. 1", etc.

The inner and outer envelopes shall

- a) be addressed to FEA at the following address:

Tuvitu Delairewa
General Manager Commercial
2 Marlow Street, Suva, FIJI.
Phone: 679 3224 185
Facsimile: 679 331 1882
Email: TuvituD@fea.com.fj

And

- b) bear the following identification:
 - Bid for: Preferred Supplier for Real time Satellite-synchronized Clocks
 - Bid Tender Number: MR 260/2017

- DO NOT OPEN BEFORE: 1600hrs on 1st November 2017.

In addition to the identification required, the inner envelope shall indicate the name and address of the bidder to enable the bid to be returned unopened in case it is declared "late" pursuant to Deadline for Submission of Bids.

If the outer envelope is not sealed and marked as above, FEA will assume no responsibility for the misplacement or premature opening of the bid.

2.15 Deadline for Submission of Bids

Bids must be received by FEA at the address specified above no later than 1600 hours (Fiji Time) 1/11/2017.

FEA may, at its discretion, extend the deadline for submission of bids by issuing an addendum, in which case all rights and obligations of FEA and the bidders previously subject to the original deadline will thereafter be subject to the deadlines extended.

2.16 Late Bids

Any bid received by FEA after the deadline for submission of bids prescribed above will be rejected and returned unopened to the bidder.

2.17 Modification and Withdrawal of Bids

The bidder may modify or withdraw its bid after bid submission, provided that written notice of the modification or withdrawal is received by FEA prior to the deadline for submission of bids.

The bidder's modification or withdrawal notice shall be prepared, sealed, marked and delivered in accordance with Sealing and Marking of Bids, with the outer and inner envelopes additionally marked "MODIFICATION" or "WITHDRAWAL", as appropriate. A withdrawal notice may also be sent by fax but must be followed by a signed confirmation copy.

No bid may be modified by the bidder after the deadline for submission of bids.

2.18 Rejection of One or All Bids

FEA reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids, at any time prior to award of Contract, without thereby incurring any liability to the affected bidder or bidders or any obligation to inform the affected bidder or bidders of the grounds for the rejection.

2.19 Process to be Confidential

Information relating to the examination, clarification, evaluation and comparison of bids and recommendations for the award of a contract shall not be disclosed to bidders or any other persons not officially concerned with such process. Any effort by a bidder to influence FEA's processing of bids or award decisions may result in the rejection of the bidder's bid.

2.20 Clarification of Bids

To assist in the examination, evaluation and comparison of bids, FEA may, at its discretion, ask any bidder for clarification of its bid. The request for clarification and the response shall be in writing or by fax, but no change in the price or substance of the bid shall be sought, offered or permitted except as required to confirm the correction of arithmetic errors discovered by FEA in the evaluation of the bids.

3 GENERAL CONDITIONS OF CONTRACT

The General Conditions of Contract shall be based upon AS 4912 – 2002 General Conditions of Contract for Periodic Supply of Goods.

The Conditions of Contract comprises two parts:

1. Part 1 – General Conditions; and
2. Part 2 – Conditions of Particular Application

4 CONDITIONS OF PARTICULAR APPLICATION

1. Interpretation and Construction of Contract

Add the following:

“Bid has the same meaning as tender.”

Replace

“Base contract sum means the sum of the products ascertained by multiplying the quantities of goods stated in Item 13 by the corresponding unit prices, excluding any additions or deductions which may be required to be made under the Contract.”

With

“Contract sum means:

- (a) Where the Purchaser accepted a lump sum, the lump sum;*
 - (b) Where the Purchaser accepted unit prices, the sum of the products ascertained by multiplying the quantities of goods and the corresponding unit prices in the schedule of unit prices; or*
 - (c) Where the Purchaser accepted a lump sum and unit prices, the aggregate of the sums referred to in paragraphs (a) and (b),*
- Excluding any additions or deductions which may be required to be made under the Contract.”*

7. Assignment

Replace “7. Assignment” with “7. Assignment and Subcontracting”

Add “7.1 Assignment” after “7. Assignment and Subcontracting”

Add the following after paragraph 7.1 Assignment.

“7.2 Subcontracting

The Supplier shall not subcontract any part of the Contract without the prior written approval of the Purchaser, which approval shall not be unreasonably withheld. Any sub subcontracting shall not relieve the Supplier from any liability or obligation under the Contract. The Supplier shall if requested by the Purchaser provide copies of the proposed subcontract documents without prices.”

9. Warranties

Replace “9. Designated Items” and its contents with the following

“9. Warranties

9.1 Ownership

The Supplier represents and warrants that:

- a) *It is the legal and beneficial owner of the goods; and*
- b) *that upon payment of the contract sum no person other than the Purchaser will be entitled to hold any interests in, or hold any encumbrance over, the goods.*

9.2 Supplier’s Warranty

The Supplier represents and warrants that the goods will upon delivery:

- a) *comply in all respects with the Contract;*
- b) *be suitable for the purpose stated in Item 5;*
- c) *be of merchantable quality;*
- d) *conform to any sample provided by the Supplier and approved by the Purchaser.*
- e) *in the absence of any specific provision of the Contract, meet any relevant Australian Standard and industry best practice;*
- f) *be free of design defects;*
- g) *be, unless otherwise agreed, new.*

If the Supplier is in breach of any of the warranties in this clause 9, the Purchaser may, in addition to the Purchaser’s other rights and remedies, at any time give 7 days’ written notice to the Supplier to rectify such breach, and if the Supplier fails to comply with such notice, the Purchaser may employ others to carry out works required to satisfy the warranty. The cost thereby incurred shall be moneys due and payable to the Purchaser.

The representation and warranties in this clause survive the completion or earlier termination of the Contract and each warranty in this clause is independent of, and is not limited by, reference to any other warranty.

The Supplier shall obtain all warranties relevant to the goods from manufacturer or suppliers or as otherwise specified in the Contract, including any warranties that are provided by any sub-contract and ensure that the Purchaser has the benefit of those warranties. “

19. Delivery

Add the following to 19.1 Date and Place for Delivery, at the end,

“The Supplier must ensure that all goods are properly, safely and securely packaged and labeled for identification and safety as follows:

- a) *the goods must be individually packaged for transport so that they are protected from all reasonably foreseeable condition which might cause corrosion, deterioration or physical or bearing damage during handlings and transport. All packaging and preservation materials must be supplied by the Supplier; and*
- b) *each package must be clearly and indelibly inscribed with the Purchaser’s name, the address of the delivery place, the Purchaser’s contract number and any safety warnings for the contents.”*

24. Payment

Under 24.1 Invoices and Time for Payment, make the following change.

Replace

“Within 14 days after receiving an invoice under this Sub-clause, the Purchaser shall pay to the Supplier the amount then due to the Supplier pursuant to the Contract.”

With

“Within 30 days after receiving an invoice under this Sub-clause, the Purchaser shall pay to the Supplier the amount then due to the Supplier pursuant to the Contract.”

28. Dispute Resolution

Replace “28.2 Conference” and contents with the following:

“28.2 Conference

Within 14 days after receiving a notice of dispute, the parties shall confer at least once to resolve the dispute or to agree on methods of doing so, including, but not limited to, mediation, conciliation, binding expert determination and arbitration, of the whole of any part of the dispute. Where arbitration is agreed method of resolution, the arbitration shall be conducted in accordance with the rules of Item 38(b) and the arbitrator, unless otherwise agreed, shall be nominated by the President of the Fiji Institute of Engineers.

At every such conference, each part shall be represented by a person having authority to agree to such resolution or methods. All aspects of every such conference except the fact of occurrence shall be privileged.

If the dispute has not been resolved nor a method of resolution agreed within 56 days of service of the notice of dispute, that dispute shall be dealt with in accordance with subclause 28.3.”

Replace “28.3 Arbitration” and contents with the following

“28.3 Elevation of Disputes

If the parties are unable to resolve the dispute or agree a method of resolution in accordance with sub clause 28.2:

- a) the dispute shall be referred to the Chief Executive Officer, or a duly authorized representative, of the Purchaser and the Chief Executive Officer/Managing Director, or a duly authorized representative, of the Supplier to resolve the dispute or agree on a method of resolution;*
- b) the individuals referred to in sub clause 28.3 (a) shall meet within 14 days after referral of the dispute in an effort to resolve the dispute or agree a method of resolution;*
- c) if the individuals referred to in sub clause 28.3 (b) are unable to resolve the dispute but agree at that meeting on a method of resolution, they shall also nominate a timeframe for the commencement and conclusion of the method of resolution; and*
- d) if the individuals so referred to in sub clause 28.3(b) are unable to resolve the dispute or agree a method of resolution, each within 14 days of the dispute being referred, either parts may give written notice to the other stating that the parties have been unable to resolve the dispute or agree a method of resolution.*

*Where arbitration is the agreed method of resolution, the arbitration shall be conducted in accordance with the Rules stated in Item 38(b) and the arbitrator, unless otherwise agreed, shall be nominated by the **President of the Fiji Institute of Engineers.**”*

Replace “28.4 Summary Relief” and the contents with the following:

“28.4 Instituting Proceedings

Neither party shall proceed to resolve a dispute by instituting court proceedings until issuing to, or receiving from, the other party, a notice in accordance with sub clause 28.3(d).”

Add the following after 28.4 Institutional Proceedings

“28.5 Summary Relief

Nothing herein shall prejudice the right of a party to institute proceedings to enforce payment due under the Contract or to seek injunctive or urgent declaratory relief.”

Annexure A

Replace Annexure Part A with the following:

Item		
1	Purchaser (Clause 1)	Fiji Electricity Authority
2	Purchaser’s Address	2 Marlow Street, Suva
3	Supplier (clause 1)	Supplier to provide
4	Supplier’s Address	Supplier to provide
5	Stated purposes (clause 1 definition of acceptable)	As stated in tender specifications and/or purchase order
6	a) Jurisdiction (legislative requirements)	Fiji
	b) Governing Law	Laws of Fiji
7	a) Currency (clause 1(g))	Supplier to state
	b) Place for payments (clause 1 (g))	Same as Item 2
	c) Place of Business of bank (clause 1(c)- definition of security)	
8	Term (clause 1)	3 years
9	The Goods clause 1	As stated in tender specifications
10	Minimum <i>purchase</i> order quantity subclause 2.2 (a)(i)	1
11	Minimum reorder intervals subclause 2.2 (a)(i)	Not applicable
12	Maximum <i>purchase</i> order quantity subclause 2.2 (b)(ii)	Supplier to state
13	Minimum quantity to be ordered during term subclause 2.2 (a)(iii)	Not applicable
14	Maximum quantity to be ordered during term subclause 2.2 (b)(iii)	Not applicable
15	Supply lead time subclause 2.3(c)	Supplier to provide
17	Supplier’s security	Not Applicable
18	Purchaser’s security	Not Applicable
19	Purchaser – Supplied documents (subclause 6.2)	As stated in tender specifications
20	Supplier- supplied documents (subclause 6.3)	As stated in tender specifications
21	Time for Purchaser’s direction about	14 days

	documents (sub clause 6.3 (b))	
22	Legislative requirements, those expected (subclause 10.1)	Not applicable
23	Reference date (subclause 10.2 (b))	Date of closing of Tender
24	Time by which the insurance cover of goods is to be effected (subclause 13.1)	Time at which order is placed
25	Public and product liability insurance (subclause 13.2)	Supplier to provide
26	Qualifying causes of delay, causes of delay for which EOTs will not be granted	Not applicable
27	Liquidated damages, rate (subclause 17.5)	Not applicable
28	Delay Damages	Not applicable
29	Date for completion of acceptance testing (subclause 18.1 and 21.1)	As stated in tender specification
30	Party responsible for unloading the <i>goods</i> (subclause 19.1)	Supplier
31	a) When risk in the <i>goods</i> passes (subclause 20.1)	At time of acceptance by Purchaser.
	b) Time at which ownership of the <i>goods</i> passes to the Purchaser (subclause 20.2)	Upon payment of the purchase order value
32	Period for <i>Purchaser's</i> notice that <i>goods</i> are rejected (subclause 21.1)	14 calendar days
33	Period for <i>Purchaser's</i> notice accepting or rejecting <i>Supplier's</i> proposal (subclause 21.4)	14 calendar days
34	Defects liability period (clause 22)	24 months
35	Invoice (subclause 24.1) Time for Invoice	Within 30 days of delivery
36	Interest rate on overdue payments (subclause 24.3)	Nil.
37	Supplier's default (subclause 25.2 (c))	28 days
38	Arbitration (subclause 28.3) • Person to nominate an arbitrator	President of Fiji Institute of Engineers
	• Rules for arbitration	Laws of Fiji
39	The Supplier's liability is limited as follows (clause 29)	Purchase order value
40	The Purchaser's liability is limited as follows (clause 29)	Purchase order value

5 REFERENCES

5.1 Applicable Standards

The real time satellite synchronized clock shall be designed, manufactured and tested in accordance with the following engineering standards and their respective amendments issued prior to the date of closing of tenders except where varied by this Specification.

IEC 60068	Environmental Testing (All parts)
IEC 60255-1:2009	Measuring relays and protection equipment - Part 1: Common requirements
IEC 60255-21-1:1988	Electrical relays - Part 21: Vibration, shock, bump and seismic tests on measuring relays and protection equipment - Section One: Vibration tests (sinusoidal)
IEC 60255-21-2:1988	Electrical relays - Part 21: Vibration, shock, bump and seismic tests on measuring relays and protection equipment - Section Two: Shock and bump tests
IEC 60255-21-3:1993	Electrical relays - Part 21: Vibration, shock, bump and seismic tests on measuring relays and protection equipment - Section 3: Seismic tests
IEC 60255-26:2013	Measuring relays and protection equipment - Part 26: Electromagnetic compatibility requirements
IEC 60255-27:2013	Measuring relays and protection equipment - Part 27: Product safety requirements
IEC 60721-3-3	Classification of groups of environmental parameters and their severities – stationary use at weather protected locations
IEC 60834-1:1999	Teleprotection equipment of power systems - Performance and testing - Part 1: Command systems
IEC 60870	Telecontrol equipment and systems – All parts
IEC 61000-4	Electromagnetic compatibility (EMC) - All parts
IEC 61850	Communication networks and systems for power utility automation – All Parts
IEC 62439-3	Industrial communication networks - High availability automation networks - Part 3: Parallel Redundancy Protocol (PRP) and High-availability Seamless Redundancy (HSR)
IEEE 1613	Environmental and Testing Requirements for Communications Networking Devices Installed in Electric Power Substations
IEEE C37.90-1989	IEEE Standard for Relays and Relay Systems Associated with Electric Power Apparatus
IEEE C37.90.1-2012	IEEE Standard for Surge Withstand Capability (SWC) Tests for Relays and Relay Systems Associated with Electric Power Apparatus
IEEE C37.90.2-2004	IEEE Standard for Withstand Capability of Relay Systems to Radiated Electromagnetic Interference from Transceivers
IEEE C37.90.3	IEEE Standard Electrostatic Discharge Tests for Protective Relays
ISO 9001	Quality Systems Model for Quality Assurance in Design, Development,
ISO/IEC 17025	General requirements for the competence of testing and calibration laboratories Production, Installation and Servicing

Should inconsistencies be defined between Standards and this Specification, this Specification will take precedence. However, significant inconsistencies shall be referred to FEA for resolution.

5.2 Applicable Laws

The Bidder warrants (without limiting any other warranties or conditions implied by law) that all Goods have been produced, sold and delivered to FEA in compliance with all applicable laws (including all workplace health and safety and electrical safety legislations and codes of conduct).

6 DESIGN AND PERFORMANCE CRITERIA

6.1 General

The real time satellite-synchronized clock shall be designed in accordance with standard industry practice and comply with all aspects of these specifications.

The real time satellite-synchronized clock shall be free of a requirement for planned maintenance. It shall include self-monitoring.

The real time satellite-synchronized clock shall be designed to operate over a wide temperature range, from -10deg C to 70 deg C, in tropical climate with high humidity and shall not employ any method of forced cooling.

The real time satellite-synchronized clock may be installed in a polluted environment; therefore, the internal electronic components shall have protective coating to prevent premature failure of components, or malfunctioning in such harsh operating conditions.

The real time satellite-synchronized clock will typically be installed either on 11kV or 33kV switchgear low-voltage compartment or in 19U racks, in substations and switching stations. Its dimensions must therefore not be any larger than 485mmx45mmx255mm (Length, Height, Depth).

The real time satellite-synchronized clock shall not weigh any more than 5kg. Bidders shall provide the required technical particulars for the real time satellite-synchronized clock and accessories offered.

The real time satellite-synchronized clock shall distribute precise time via multiple output protocols, including IRIG-B

6.2 Power Supply and Monitoring

The real time satellite-synchronized clock shall be designed to be operated with a power supply voltage of 110 Volts DC nominal. It shall be designed to be operated within a range of 85 Volts to 125 Volts DC.

There shall be provision to monitor the power supply and report the power supply voltage variation either through internal settings or through external relay contacts.

The real time satellite-synchronized clock power supply shall have a quiescent burden of less than 50W.

6.3 Earthing

There shall be provision to earth/ground the chassis/frame of the real time satellite-synchronized clock to a common/station earth. Such earthing/grounding connection shall be clearly labeled.

6.4 Clock Accuracy & Holdover

The device shall include a standard TCXO holdover oscillator with average accuracy of 36 μ s per day at constant temperature. An optional OCXO oscillator shall be offered with average accuracy of 5 μ s per day at constant or varied temperature between +10°C and +50°C.

6.5 Communications

6.5.1 Ethernet Ports

The real time satellite-synchronized clock shall include at least four standard Ethernet ports on the rear that are 10/100BASE-T standard and can be configured as single-mode or multimode LC fiber ports in pairs.

It shall also include one Ethernet port on the front for device management purposes. The front Ethernet management port shall support a DHCP server that is enabled by default and can be disabled. The port shall support HTTPS web interface configuration.

Each Ethernet port shall be equipped with indicator LEDs to display the status of the signal.

6.5.2 Serial Ports

The real time satellite-synchronized clock shall include at least four serial ports with a DB9 connector type.

6.6 Antenna, Surge Protector and Cable

An antenna shall be provided with the real time satellite synchronized clock. The antenna shall operate over a wide temperature range, from -50deg C to 80 deg C. It shall not be affected by electrical surges.

It shall have a IP68 or better enclosure rating and shall be suitable to be mounted in harsh outdoor environments.

The antenna shall be connected to the clock via a protected coaxial cable or fiber optic cable. Where required, surge protectors shall be provided.

Bidders shall provide rates for 10m, 15m, 20m and 25m cables for connecting the antenna to the real time satellite synchronized clock.

Bidders shall offer all accessories it feels may be used in mounting and connecting the antenna to the real time satellite synchronized clock.

6.7 LCD Display Screen and Indicators

The real time satellite-synchronized clock shall have a LCD display screen which shall display the present time, location data, satellite information, critical log events and other performance-related information.

In addition to the LCD display screen, indicators in the form of LEDs shall be provided, to show the status of device, port activity and time status. It shall also be possible to test the condition of LEDs through a single button provided on the front panel.

The LCD display screen visibility and operation shall not be impaired over the specified operating temperature range.

6.8 Processing Capabilities and Storage

The internal processor shall be of industrial grade and perform high speed processing. The device shall be equipped with internal memory of at least 512MB.

6.9 Software Package

The Bidder shall supply any driving or programming software for accessing the real time satellite-synchronized clock.

Any cost of licensing shall be borne by the Bidder and shall be included in the supply of the real time satellite-synchronized clock. The driving software shall not be restricted in any way and shall allow FEA to fully utilize the GPS clock. This shall include programming and testing the real time satellite-synchronized clock, carrying out diagnostic tests and troubleshooting to find cause of any failures.

The Bidder is required to provide any special cables or connections with the real time satellite-synchronized clock that will be used to connect for programming and testing purposes.

The Bidder shall provide a list of all software it produces with associated cost in its Bid that may be used in any way with the real time satellite synchronized clock, be it for programming, testing, maintenance or recording. This shall not apply to any software or tools produced by others.

6.10 Access Controls and Security

The real time satellite synchronized clock shall have mechanisms for managing electronic and physical access. The real time satellite synchronized clock shall have provision for unused communications ports to be disabled to prevent intrusion.

6.11 Design Reviews and Factory Inspections

The Bidder shall make allowance for one FEA Engineer to visit the factory where the clocks are manufactured to hold meetings on design, manufacture and testing of the clocks. The FEA Engineer will be required to carry out factory inspections and review designs where necessary. Such factory inspections shall be carried out once a calendar year for the period of contract.

7 TESTING

7.1 Testing Obligations

All equipment offered shall be fully type tested at the time of tendering and type test certificates shall be included with the tender regardless of whether such equipment has previously been supplied to FEA. Where equipment is offered of a similar design to that previously tested, consideration may be given to accepting previous type test reports.

Bidders shall state if such tests exist. Bidders may be requested (during the tender evaluation period) to substantiate their claims with written engineering evaluation. Such evaluation shall provide all relevant details so that FEA can establish the validity of existing type tests.

If there are any differences between the plant tested and that offered, the Bidder shall state clearly all the differences and shall include in his tender the particulars of identification detailed in relevant IEEE and IEC Standards.

Bidders will be required to demonstrate competency to ISO/IEC 17025 for their testing facilities.

7.2 Type Tests

The offered real time satellite synchronized clock shall be subjected to the following type tests.

Category	Type of Test	Requirement
Electromagnetic Compatibility Emissions	Emissions	IEC 60255-22-6:2001 IEC 61000-4-6:2008
Electromagnetic Compatibility Immunity	Conducted RF Immunity	IEC 60255-22-6:2001 IEC 61000-4-6:2008
	Digital Radio Telephone RF Immunity	ENV 50204:1995
	Electrostatic Discharge Immunity:	IEC 60255-22-2:2008 IEC 61000-4-2:2008 IEEE C37.90.3-2001
	Fast Transient/Burst Immunity	IEC 60255-22-4:2008 IEC 61000-4-4:2004
	Power Supply Immunity	IEC 60255-11:2008 IEC 61000-4-11:2004 IEC 61000-4-29:2000
	Radiated Radio Frequency Immunity	IEC 60255-22-3:2007 IEC 61000-4-3:2008 IEEE C37.90.2-2004
	Surge Withstand Capability Immunity	IEC 60255-22-1:2007 IEEE C37.90.1-2002
Environmental	Cold	IEC 60068-2-1:2007
	Damp Heat, Cyclic	IEC 60068-2-30:2005
	Dry Heat	IEC 60068-2-2:2007
	Vibration	IEC 60255-21-1:1988 IEC 60255-21-2:1988
Safety	Dielectric	IEC 60255-5:2000 IEEE C37.90-2005
	Impulse	IEC 60255-5:2000 IEEE C37.90:2005
	IP Code	IEC 60529:2001 + CRDG:2003
	Product Safety	C22.2 No. 14 - 95

7.3 Routine Tests

The Bidder shall provide a list of routine tests that will be carried out on the clock. This shall include:

- Check of clock hardware and internal components
- Communications port tests
- Equipment calibration tests
- Functional checks
- Checks on antenna and accessories

Samples of any Inspection and Test Plans used for routine tests shall be submitted with the Bid.

7.4 Witnessing of Tests

The Bidder shall make allowance for one FEA Engineer to carry out inspection of the manufacturing and testing environment once a year, the first straight after contract award, and to witness selected type tests and routine tests which shall be requested to be performed. All costs for the witnessing of such type tests shall be borne by the Bidder.

Where applicable, the Bidder shall give FEA not less than four (4) weeks' notice of when each and every type test will be carried out.

7.5 Test Certificates

An electronic copy and one printed copy of all test reports are to be provided to FEA. Type test reports shall be submitted once only, or whenever they are repeated.

8 RELIABILITY

8.1 Service Life

Bidders are required to comment on the reliability of the equipment and the performance of the materials offered for a service life of 35 years under the specified system and environmental conditions.

8.2 Spare Parts and Maintenance

The Supplier shall supply a list of recommended spare parts, special tools and appliances required for the whole of life operation and maintenance of the clock installation. The list, together with prices, shall be indicated in the appropriate schedule. The Supplier must also provide details (if required) of the recommended maintenance and the frequency at which it must be carried out. Details of the manufacturers repair capability and options shall be provided

8.3 Evidence in Support of Reliability

The Supplier shall indicate and provide updates to FEA the mean time between failures (MTBF) of the clocks and its components including the recommended maintenance regime and maintenance tasks and intervals. This regime shall be based on the mean time between failure (MTBF) and the critical failure modes identified by the failure mode, effects and criticality analysis (FMECA) of the equipment. Details substantiating the FMECA analysis shall be included in the offer.

Such comments will include evidence in support of the reliability and performance claimed including information on Failure Mode and Effect Analysis.

9 ENVIRONMENTAL CONSIDERATIONS

Bidders are required to comment on the environmental soundness of the design and material used in the manufacture of the items offered. In particular, comments should address such issues as recyclability and disposal at end of service life.

FEA will require, after the evaluation and award of the Tender, to visit the Supplier's factory for compliance checks on various Environmental protection practices in the design, manufacturing, testing and supply of clocks. The Bidder shall make allowance for such visits, at their cost.

The supplier must provide with the offer, full details, including composition and toxicological information, regarding the health and safety aspects of all the materials offered in their offer or supplied equipment regardless of content.

Recommended procedures must be provided for the safe handling, safe operation and maintenance of products supplied. The means of disposal of the materials must be clearly stated.

Material safety data sheets (MSDS) must be provided for materials that are supplied and subject to safety considerations in handling and use.

All equipment, packaging and all other accessories provided shall be asbestos free.

The above information is required as part of the offer and will be reviewed as part of the tender process.

10 PACKAGING AND MARKING

The packaging of items by the Bidder must ensure that they are capable of being delivered undamaged giving due consideration to the quantity, distance of transportation and the preferred method of handling at each location.

The Bidder shall take all necessary precautions to ensure safe handling of all clocks and associated accessories supplied.

11 QUALITY REQUIREMENTS

11.1 Quality System

Bidders are required to submit evidence that the design, manufacture and testing of the clocks are in accordance with ISO 9001.

Documentary evidence shall be provided concerning the level of Quality System Certification associated with the supplier and or manufacturer. This documentation shall include the Capability Statement associated with the Quality System Certification.

FEA will require, after the evaluation and award of the Tender, to visit the Supplier's factory for compliance checks on various quality management practices in the design, manufacturing, testing and supply of clocks.

12 STOCK AVAILABILITY

The Bidder is to advise if there will be any consignment stock-holding.

FEA intends to order at least three (3) real time satellite synchronized clocks per year for the contract period.

13 PRODUCT WARRANTY PERIOD

The Bidder is required to provide a minimum warranty period of ten (10) years from time of dispatch from factory shall be provided.

14 INFORMATION TO BE SUPPLIED BY THE BIDDER

14.1 Documentation to be Supplied with the Tender

To enable FEA to fully evaluate the clock offered, the Bidder will submit the following information with their tender:

- Dimensioned general arrangement drawings of clock, in metric units
- A schedule of drawings with all drawings provided
- Description of the principle of operation.
- Typical schematic diagrams for all items.
- Type test certificates for all equipment offered.
- List of tools and spares for maintenance and operation
- Typical installation and maintenance manuals
- End of service life disposal method
- Instruction, installation, operating and maintenance manuals.
- Evidence of quality management systems used in manufacture, testing and supply
- Evidence of Health, Safety and Environmental plans
- Evidence of financial ability to provide the level of service and support
- Origin of materials used in manufacture of the clock
- Detailed procedure for receiving, handling, lifting and storage
- Names and resumes of key team members who will be assigned to work with FEA upon successful award of the three-year supply contract (if Bidder is successful).
- A list of all departures of the tender from this Technical Specification
- Any other documentation as recommended by the Bidder.

Where sub-contractors are used, the Bidder shall provide the above information for the sub-contractors as well. Bidders may be asked to provide additional information during tender assessment period or following award of contract.

All information shall be provided in the English language. The Bidder must exercise reasonable diligence in the design of items in order to satisfy FEA's specific integration requirements between the Bidder's offered item and FEA's requirement for the item to be utilized.

14.2 Samples

Samples of typical units may be required during the tender assessment period. Sample will be required only from Bidders who have previously not supplied clocks to FEA.

When samples are required, production samples shall be delivered freight free, suitably packaged and labeled including reference to the Tender Number and purchase order number.

FEA may at its discretion either purchase the samples at the tendered price or return the samples to the respective Bidder after the contract has been awarded.

14.3 Training

Training material in the form of drawings, instructions and/or audio visuals shall be provided for all the items offered and accepted by FEA. This material shall include but is not limited to the following topics:

- Handling
- Storage
- Installation
- Programming, testing, troubleshooting and fault finding
- Maintenance program
- Environmental performance
- Electrical performance
- disposal

The Bidder shall also allow for one training of five days in a calendar year to provide training to 20 staff at FEA's Navutu office on the clock. All costs associated with travel and accommodation shall be borne by the Bidder for this training.

The Bidder shall provide unit rates for its trainers if FEA wants to have additional training sessions in one calendar year.

14.4 Engineering Services

FEA may require the Bidder or its staff to provide engineering services from time to time for application of clock in FEA's networks. The Bidder shall comment on the level of engineering services included in their Bid, and shall also provide unit rates of engineers or its staff it proposes who may provide the required engineering services. These services shall include programming of clocks for FEA use.

Tender Submission - Instruction to bidders

It is mandatory for Bidders to upload a copy of their bid in the **TENDER LINK** Electronic Tender Box no later than **4:00pm, on Wednesday 1st November 2017**

To register your interest and tender a response, view 'Current Tenders' at: <https://www.tenderlink.com/fea>

For further information contact The Secretary Tender Committee, by e-mail TDelairewa@fea.com.fj

In addition, hard copies of the tender, one original and one copy must be deposited in the tender box located at the FEA Head Office, 2 Marlow Street, Suva, Fiji no later than **4:00pm, on Wednesday 1st November 2017** - Addressed as

Tender – MR 260/2017 Preferred Supplier for Real Time Satellite Synchronized Clocks
The Secretary Tender Committee
Fiji Electricity Authority
Head Office
Suva
Fiji

Hard copies of the Tender bid will also be accepted after the closing date and time provided a soft copy is uploaded in the e-Tender Box and it is dispatched before the closing date and time.

Tenders received after **4:00pm** on the closing date of **Wednesday 1st November, 2017**

- Ø will not be considered.
- Ø Lowest bid will not necessarily be accepted as successful bid
- Ø **It is the responsibility of the bidder to pay courier chargers and all other cost associated with the delivery of the hard copy of the Tender submission including any Duties/Taxes. Hard copies of the Tender submission via Post Box will not be considered.**
- Ø **Local Bidders are requested to submit a:**
 - **Valid Tax Compliance Certificate**
 - **FNPF Compliance Certificate**

