



GOVERNMENT OF ARUNACHAL PRADESH
OFFICE OF THE DIRECTOR GENERAL OF POLICE
ITANAGAR

No. PHQ /WT/PP-180/2020

Dated Itanagar, the 8th Oct / 2020

TENDER NOTICE

On behalf of the Governor of Arunachal Pradesh, Director General of Police, Arunachal Pradesh, Itanagar invites Sealed Tender under two Bid systems (Technical & Financial Bid) from the manufacturers, authorised agents/ dealers/suppliers of reputed firms for entering into contract for supply of various WT equipments for SP(Telecom) Office ,Chimpu , Arunachal Pradesh . For details please visit our web site - www.arunpol.nic.in.

Sd/-
Director General of Police
Arunachal Pradesh
Itanagar


(Not to be published)

No. PHQ /WT/PP-180/2020

Dated Itanagar, the 13th Oct/ 2020

Copy to :-

1. The Director of Information and Public Relations, Govt. of Arunachal Pradesh, Naharlagun for information and wide Circulation. He is also requested to pass necessary order for publication of the above Tender Notice in one leading News paper of Arunachal Pradesh and one news paper of National Daily based in New Delhi.
2. The In-charge Computer Cell, PHQ, Itanagar. The tender notice along-with lists of equipments with Specifications may be uploaded in the website of Arunachal Pradesh Police.
3. Office copy


Superintendent of Police (Telecom)
Chimpu Itanagar
Superintendent of Police (Telecom),
SP (T) Office, Chimpu
Itanagar (A.P.)

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TENDER NOTICE

On behalf of the Governor of Arunachal Pradesh, Director General of Police, Arunachal Pradesh invites Sealed Tender under two Bid systems (Technical Bid & Financial Bid) from the manufacturers, authorized agents/dealers/suppliers of reputed firms for entering contract for supply of various WT Equipments for SP(Telecom) Office, Chimpu.

Sl no.	Name of equipment	Approx. amount earmark (in lakh)	Tender Fee (Non refundable)
1.	HF SET	9.86	Rs.1000/-
2.	HF set with all accessories (Digital)	16.00	
3.	Digital HF with all accessories compatible with smart plus	18.20	
4.	VHF Static sets with all accessories (Digital)	13.30	
5.	Digital VHF (Static LB) with all accessories including antenna and cable	8.00	
6.	VHF Handheld set with all accessories (Digital)	9.60	
7.	Digital VHF handheld(LB) with spare battery and charger	5.20	
8.	RF Out put meter	1.62	
9.	SMD Repairs tools kits	0.90	
10.	Illuminated magnifier for workshop	1.80	
11.	Portable solar charging system	9.60	
12.	Battery charger 12-36 V DC input 150-240 AC	2.40	
13.	AC Stabilizer 5 KVA input 150- 240 V AC or 100-240 VAC	1.60	
14.	AC Generator 2.4 KVA	4.80	
15.	Secondary battery 80 AHC	10.00	
16.	Self supported tower 60 feet	6.00	
17.	Chemical earthing	1.20	
18.	Secondary battery 150 AHC	5.46	
19.	Digital multimeter	0.26	
20.	5 KV Generator	1.50	

2. Critical date sheet :-

Sl.	Particulars	Date	Time
1	Date of publication of Tender	19/10/2020	-
2	Bid submission start date	From the date of publication onward 20/10/2020	
3	Bid submission end date	19/11/2020	1100 hrs .
4	Physical submission of earnest Money deposit/Bid Money and cost of Tender Documents (Tender fee).	With technical bids. However, the tenderer who want to obtain tender document from SP(Telecom) chimpu, tender fee (Bank Draft in favour of SP(Telecom)Chimpu , payable at SBI, Itanagar) may be furnished at the time of obtaining the tender documents.	
5	Pre-bid conference	06/11/2020	1600 hrs
6.	Date of Technical bid opening	19/11/2020	1130 hrs

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3. The Technical and Financial bids are to be sealed separately in two different envelopes and then both are to be kept in one envelope and sealed properly . The sealed tendered/ bids should be supercribed with "Tender for WT Equipments and Addressed to Superintendent of Police(Telecom) , Chimpu Itanagar , Arunachal Pradesh -791113".

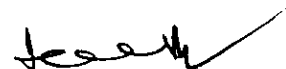
Envelope -1:- It shall contain scanned copies of eligibility information as under.

- a) Technical bid along with its specification leaflets, brochure, catalogue/literature, if any, of each tendered item.
- b) Tender documents duly completed and signed BUT without indication of the rates "Quoted".
- c) Earnest Money @ 2 % of estimated cost of the items being quoted from the list of items must be attached in form of DD/TDR/FDR of Nationalized Bank/Post offices duly pledged in favour of SP(Telecom) , Chimpu Itanagar .
- d) Attested copy of PAN No.
- e) Attested copy of firm Registration.
- f) Attested copy of firm GST Registration.
- g) Valid Trading license issued by competent authority for the tendered items.
- h) Letter of OEM Authorized Certificate.
- i) Laboratory test Certificate of item from OEM .
- j) Financially soundness certificate of firm from the concerned Branch Manager of Bank from where the firm operates.
- k) Attested copy of last three years Income tax return of the firms.
- l) Experience certificate of firm which must contain name designation, address, Phone No. , Fax No., Mail ID (if any) of Issuing Officer. The certificate should be countersigned by concerned OFFICE HEAD/DEPT. HEAD
- m) Items should not be Made in China or any way related to any Chinese company/Vendor.
- n) Any other relevant documents which the firm wishes to submit.

Envelope -2:- It shall contain documents on "Financial Bid". Financial bids shall be opened only of those bidders who have been declared technically qualified by the committee.

GENERAL INSTRUCTION:-

1. The tenders received after scheduled date & time will not be entertained. The tenderers or their representative may remain present at the time of opening of tenders.
2. Rates must be clearly written in figures as well as in words.
3. There should not be any cutting/over writing.
4. The Tenderer/Firms who fails to fulfill the eligibility conditions will be summarily rejected.
5. The representative of the firm should present with all the original documents at the time of opening the bids .
6. In case tender opening day is declared as holiday or bandh call at Itanagar, the tenders shall be received upto next working day till 1100 hrs and opened on the same day at 1130 hrs at the official chamber of DIGP(HQ) PHQ , Itanagar (A.P.)
 - a) The bidders should keep checking the website for any added/corrigenda to the notice/bidding documents till the date of submission of bids and the bidder should incorporate the same in his bid documents.
 - b) Conditional bids and the bids not meeting the qualifying criteria on the date of receipt of bids shall be summarily rejected.
 - c) Bids will be opened as per time & schedule mentioned.
 - d) Before submission of bids, bidders must ensure that scanned copy of all the necessary documents have been attached with bid.
 - e) The department will not be responsible for delay in submission due to any reason(s).
 - f) All the required information for the bid must be filled and submitted.
 - g) The details of EMD and other documents specified in the tender documents should be same as submitted (scanned copies) otherwise tender will summarily be rejected.
 - h) Technical compliance statement should be enclosed along with technical bid clearly specifying deviation, if any for all specifications mentioned in the tender.



7. The tender papers containing full details with specifications and terms and conditions can be obtained from Superintendent of Police (Telecom) Office , Chimpu Itanagar, on payment of tender fee of Rs. 1000/- (Non refundable through a bank draft in favour of the SP(Telecom) Chimpu , Arunachal Pradesh, Itanagar payable at S.B.I. Itanagar on any working day from 0930 hrs to 1600 hrs w.e.f. 20/10/2020 to 18/11/2020 The tender documents may also be download from our website. The tenderers downloading the documents from website are also required to submit a Bank Draft of Rs. 1000/- as tender fees. No other mode of payment will be accepted.
8. All firms have to submit earnest money as mentioned above along with their Technical Bid.
9. Successful tenderers will be required to deposit 5% of the total value of the articles to be supplied as performance security money within 15 days from the date of issue of letter of acceptance of tender. The successful tenders will have to enter into a "DEED OF AGREEMENT" stipulating the Terms and Conditions of the contract. Security deposit will be subject to forfeiture in case of non-fulfillment of any or all the Terms and Conditions of contract. Earnest Money of the successful tenderers will be forfeited to the Government in case of failure to furnish security money and execution of "DEED OF AGREEMENT".
10. All the tenders must be accompanied with earnest money @ 2(two) percent of the estimated cost of the items being quoted from the list of items enclosed as annexure. The earnest money deposit accepted in the form of DD/TDR/FDR from any of the commercial banks in an acceptable form, safeguarding the purchaser's interest in all respects. The earnest money deposit is normally to remain valid for a period of forty-five days beyond the final bid validity period. Tenders without earnest money will be summarily rejected. The tenderers are required to pledge earnest money deposit in the name of Supdt of Police (Telecom), Chimpu.
11. Rate should be quoted F.O.R SP(Telecom) Chimpu Itanagar. Rates quoted F.O.R other than SP(Telecom) Chimpu, Itanagar shall not be accepted. No packing or forwarding charges will be allowed. The rate of GST (as applicable) may be charged/quoted by the tenderers and the amount be clearly mentioned for all items. The rate should be quoted in Indian currency both in figure and words clearly. Tenders must be eligible and clear in all respect else the tenders shall be liable to be rejected.
12. The sealed tender should be sent by Registered post or put in the Tender Box kept in the office of the undersigned SP(Telecom),Chimpu,Itanagar (A.P) on any working day from 0930 hrs to 1600 hours.
13. Successful tenderers have to supply the items within 90(ninety) days from the date of issue of Supply order failing which 5 % of Security deposit will be forfeited and supply order cancelled OR sum equivalent to 0.5 % of delivery price of the delayed items for each week delayed or part thereof beyond the original contract delivery period will be recovered to a maximum of 10 % as a liquidated damages .
14. Any breakage or loss of any item will be at the supplier's risk.
15. If any item is found damaged or otherwise unacceptable at the time of delivery/inspection, the supplier will be required to remove the same from SP(Telecom) office , Chimpu Itanagar, Arunachal Pradesh at their own cost within 15 days.
16. Payment will be made to the supplier directly on completion of supplies and on receipt of stores by Demand draft Documents/vouchers/R.R.S bill etc. routed through bank will not be accepted.
17. The Director General of Police of Arunachal Pradesh, Itanagar shall have the right to ask the firms to demonstrate their items before the items are accepted. Hence, all are directed to bring a sample of each item being quoted for demonstration and complying.
18. List of equipments/items with description & specification is enclosed at Annexure- A. Total quantity will be decided based on rate quoted by the lowest firm .
19. Tenders will remain valid up to 31-03-2021.



20. All items to be supplied shall be on warranty for a period as mentioned by the manufacturing company. Where the warranty period has not been mentioned, the minimum warranty period shall be for one year (except consumable items).
21. Vendors are required to submit undertaking that they will provide **after sale service** for next 5(five) years from the date of delivery of the item.
22. The Director General of Police, Arunachal Pradesh, Itanagar reserves the right to reject the lowest or all or any of the tenders without assigning any reason thereof.
23. In case of any dispute, legal jurisdiction will be at Itanagar, Arunachal Pradesh.
24. In case of any query tenderers may contact at following phone no./mail ID.

Officers	Telephone	E-mail ID
Dy.Superintendent of Police(T)/PIng , Chimpu	9436288948	-

Note :- For more details visit Arunachal Police website website www.arunpol.gov.in

See eeh 13/10/20
Superintendent of Police (Telecom)
Chimpu ,Itanagar (A.P)

SI No.	Name of Equipment	Technical Specification
1	HF set (Analog)	<p>Frequency Range 2.0 MHz to 29.9999 MHz with 100 channel spacing and 10 Hz resolution</p> <p>Modes SSB(J3E) USB, LSB, AM, CW/MCW</p> <p>Preset 100 Channels or more</p> <p>Frequency Stability ± 0.3 PPM or better</p> <p>Built-in-test Front panel testing.</p> <p>Input Power + 12 V or 24 V $\pm 10\%$ DC Nominal & 230V $\pm 10\%$ AC</p> <p>Power Consumption $\leq 40W$ in Receive & $\leq 450W$ in Transmit</p> <p>EMI / EMC MIL-STD- 461/462C or FTSI or CISPR 22 or IEC 61000-4 Series (TEC/EMI/TEL-001/01 FEB-09) or latest standard</p> <p>Weight Less than 17 Kg</p> <p>Antenna Impedance 50 Ω Unbalanced</p> <p>Protection (i) Reverse Polarity protection (ii) Protection against high VSWR. (iii) Over Voltage and Under Voltage Protection</p> <p>Roles Fixed / Transportable</p> <p>Headphone Impedance Up to 600 Ω</p> <p>Cooling Built in Fan / Heat Sink</p> <p>VSWR Better than 1.5</p> <p>Visual display Front panel LCD/LED display or latest technology</p> <p>Interface RS-232 / USB</p> <p>Programming PC programming software and front panel programming with programming kit.</p> <p>TRANSMITTER</p> <p>RF Power 20W to 100W PEP (Low, Medium, High) As per user requirement with programmable feature.</p> <p>Spurious Emission ≤ 40 db below PEP</p> <p>Side Band Suppression ≥ 50db or better</p> <p>Carrier Suppression ≥ 40db or better</p> <p>Inter modulation distortion 30db minimum below PEP</p> <p>Audio Response Within 6dB from 350Hz to 2700Hz.</p> <p>Side Tone Level Better than 0.1 mV into 150Ω load for 5mV of audio input at 1 KHz.</p> <p>Modulation Sensitivity 1 to 10 mV at 1 KHz for full power under SSB mode.</p>

	RECEIVER	
	Receiver Sensitivity	-107dbm for 10db SINAD or better
	Image Rejection	≥70 db or better
	IF Rejection	≥70 db or better
	In band Inter Modulation Distortion	35 dB minimum below PEP
	Audio Response	Within ±6db from 350Hz to 2700Hz
	Audio Output	1W or more across loudspeaker
	Audio Frequency Harmonics Distortion	≤ 25 db or better
	Environmental Parameters:-	
	Operating Temperature	-30° C to +55° C
	Storage Temperature	-30° C to +60° C
	Humidity	95% non-condensing @ 40° C.
	Dust, Vibration, Shock & Altitude	MIL-STD-810F or better or JSS-55555 (As per laid down in Class 13 of JSS-55555, revision No.2)
	Features:-	Provision for data communication
	Selective calling	Digital FSK coding
	Scanning	5 channels per second or better
	Flash messages	Minimum 60 characters
	Inbuilt data Modem	MIL-STD-188-110A/B/C single tone ≥ 4800 bps
	Data Communication	
	RS-232 / USB control	The Radio set should have capability to operate at 4800 baud rate or better.
	Tuneable receiver	Continuous tuneable.
	Remote Operation	Capable to operate from remote location
	Audio input sockets	Mic and external socket.
	Squelch	Voice/Digital squelch
	Push to talk.	Suitable Microphone to be provided.
	ALE 2G / ALE 3G	ALE 2G as per Appendix "A" and ALE 3G as per Appendix "C" of MIL-STD-188-141B
	Data Terminal	Compatible with BEST, Selo BEST and SMART PLUS and other PC data terminal.
	Supplied Accessories:	Power Supply Unit 12V, 30A / Broad band Ant, RG213-30 mtr/Service Manual Long Wire Ant with ATU, RG213-30 mtr/ Programming Cable / Technical manual/ Data Cable for Data Terminal Desktop PC connectivity/ Headphone/Morse Key.

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2	HF set with all Accessories (Digital)	<table border="1"> <tr> <td>Frequency Range</td> <td>2.0 MHz to 29.9999 MHz with 500 Hz channel spacing and 10 Hz resolution</td> </tr> <tr> <td>Modes</td> <td>SSB(U3E) USB, LSB, AM, CW/MCW</td> </tr> <tr> <td>Preset</td> <td>100 Channels or more</td> </tr> <tr> <td>Frequency Stability</td> <td>± 0.3 PPM or better</td> </tr> <tr> <td>Built-in-test</td> <td>Front panel testing.</td> </tr> <tr> <td>Input Power</td> <td>+ 12 V or 24 V ± 10% DC Nominal & 230V ± 10% AC (through SMP5 12 VDC 30 Amp. With 1.5 metre cable length battery charging facility.</td> </tr> <tr> <td>Power Consumption</td> <td>≤ 40W in Receive & ≤ 450W in Transmit</td> </tr> <tr> <td>EMI / EMC</td> <td>MIL-5TD- 461/462C or ETSI or CISPR 22 or IEC 61000-4 Series (TEC/EMI/TEL-001/01 FEB-09) or latest standard</td> </tr> <tr> <td>Weight</td> <td>Less than 17 Kg</td> </tr> <tr> <td>Antenna Impedance</td> <td>50 Ω Unbalanced</td> </tr> <tr> <td>Protection</td> <td>(i) Reverse Polarity protection (ii) Protection against high VSWR. (iii) Over Voltage and Under Voltage Protection</td> </tr> <tr> <td>Roles</td> <td>Fixed / Transportable /Mobile</td> </tr> <tr> <td>Headphone Impedance</td> <td>Up to 600 Ω</td> </tr> <tr> <td>Cooling</td> <td>Built in Fan / Heat Sink</td> </tr> <tr> <td>VSWR</td> <td>Better than 1.5</td> </tr> <tr> <td>Visual display</td> <td>Front panel LCD/LED display or latest technology</td> </tr> <tr> <td>Interface</td> <td>RS-232 / USB</td> </tr> <tr> <td>Programming</td> <td>PC programming software and front panel programming.</td> </tr> <tr> <td colspan="2">TRANSMITTER</td> </tr> <tr> <td>RF Power</td> <td>20W to 100W PEP (Low, Medium, High) As per user requirement with programmable feature.</td> </tr> <tr> <td>Spurious Emission</td> <td>≤ 40 db below PEP</td> </tr> <tr> <td>Side Band Suppression</td> <td>≥ 50db or better</td> </tr> <tr> <td>Carrier Suppression</td> <td>≥ 40db or better</td> </tr> <tr> <td>Inter modulation distortion</td> <td>30db minimum below PEP</td> </tr> <tr> <td>Audio Response</td> <td>Within 6db from 350Hz to 2700Hz.</td> </tr> <tr> <td>Side Tone Level</td> <td>Better than 0.1 mW into 150Ω load for 5mV of audio input at 1 KHz.</td> </tr> <tr> <td>Modulation Sensitivity</td> <td>1 to 10 mV at 1 KHz for full power under SSB mode.</td> </tr> </table>	Frequency Range	2.0 MHz to 29.9999 MHz with 500 Hz channel spacing and 10 Hz resolution	Modes	SSB(U3E) USB, LSB, AM, CW/MCW	Preset	100 Channels or more	Frequency Stability	± 0.3 PPM or better	Built-in-test	Front panel testing.	Input Power	+ 12 V or 24 V ± 10% DC Nominal & 230V ± 10% AC (through SMP5 12 VDC 30 Amp. With 1.5 metre cable length battery charging facility.	Power Consumption	≤ 40W in Receive & ≤ 450W in Transmit	EMI / EMC	MIL-5TD- 461/462C or ETSI or CISPR 22 or IEC 61000-4 Series (TEC/EMI/TEL-001/01 FEB-09) or latest standard	Weight	Less than 17 Kg	Antenna Impedance	50 Ω Unbalanced	Protection	(i) Reverse Polarity protection (ii) Protection against high VSWR. (iii) Over Voltage and Under Voltage Protection	Roles	Fixed / Transportable /Mobile	Headphone Impedance	Up to 600 Ω	Cooling	Built in Fan / Heat Sink	VSWR	Better than 1.5	Visual display	Front panel LCD/LED display or latest technology	Interface	RS-232 / USB	Programming	PC programming software and front panel programming.	TRANSMITTER		RF Power	20W to 100W PEP (Low, Medium, High) As per user requirement with programmable feature.	Spurious Emission	≤ 40 db below PEP	Side Band Suppression	≥ 50db or better	Carrier Suppression	≥ 40db or better	Inter modulation distortion	30db minimum below PEP	Audio Response	Within 6db from 350Hz to 2700Hz.	Side Tone Level	Better than 0.1 mW into 150Ω load for 5mV of audio input at 1 KHz.	Modulation Sensitivity	1 to 10 mV at 1 KHz for full power under SSB mode.
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	Audio Response	Within ±6db from 350Hz to 2700Hz
	Audio Output	1W or more across loudspeaker
	Audio-Frequency Harmonics Distortion	≤ 25 db or better
	Environmental Parameters:-	
	Operating Temperature	-30°C to +55°C
	Storage Temperature	-30°C to +60°C
	Humidity	95% non-condensing @ 40°C.
	Dust,Vibration, Shock & Altitude	MIL-STD-810F or better or JSS-55555 :As per laid down in Class L3 of JSS-55555, revision No.2
	Features:-	
	Selective calling	Digital FSK coding
	Scanning	5 channels per second or better
	Flash messages	Minimum 60 characters
	Inbuilt Vocoder	MELP/CELP (1200/2400 bps) or better
	Inbuilt data Modem	data compatible with operating software to be provided.
	GPS Interface	yes
	Data Communication	Provision for data communication
	RS-232 / USB control	The Radio set should have capability to operate at 4800 baud rate or better
	Tuneable receiver	Continuous tuneable.
	Audio input sockets	Mic and external socket.
	Squelch	Voice/Digital squelch
	Push to talk.	Suitable Microphone to be provided.
	Audio socket	suitable Headgear should be provided.
	Communication Security	Yes (encryption facility)
	ALE 2G / ALE 3G	ALE 2G as per Appendix "A" and ALE 3G as per Appendix "C" of MIL-STD-188-141B
	Data Terminal	Compatible with data terminal equipment.
	Supplied Accessories:	SMPS: 12 V 30 Amp. DC with battery charging facility, Broad band Antenna, Programming Cable , Warranty : 2 years or more, Operating & Service Manual ,Data Cable for Data Terminal Desktop ,PC connectivity ,Headphone ,Morse Key for CW

Sl.	Name of Equipment	Technical Specification																																																						
3	Digital HF with all Accessories, Compatible with SMART PLUS	<table border="1"> <tr> <td>Frequency Range</td> <td>2.0 MHz to 29.9999 MHz with 500 Hz channel spacing and 10 Hz resolution</td> </tr> <tr> <td>Modes</td> <td>SSB[USB] USB, LSB, AM, CW/MCW</td> </tr> <tr> <td>Preset</td> <td>100 Channels or more</td> </tr> <tr> <td>Frequency Stability</td> <td>± 0.3 PPM or better</td> </tr> <tr> <td>Built-in-test</td> <td>Front panel testing.</td> </tr> <tr> <td>Input Power</td> <td>+ 12 V or 24 V ± 10% DC Nominal & 230V ± 10% AC (through SMPS 12 VDC 30 Amp. With 1.5 metre cable length battery charging facility.</td> </tr> <tr> <td>Power Consumption</td> <td>≤ 40W in Receive & ≤ 450W in Transmit</td> </tr> <tr> <td>EMI / EMC</td> <td>MIL-STD-461/462C or ETSI or CISPR 22 or IEC 61000-4 Series (TEC/EMI/TEL-001/01 FEB-09) or latest standard</td> </tr> <tr> <td>Weight</td> <td>Less than 17 Kg</td> </tr> <tr> <td>Antenna Impedance</td> <td>50 Ω Unbalanced</td> </tr> <tr> <td>Protection</td> <td>(i) Reverse Polarity protection (ii) Protection against high VSWR. (iii) Over Voltage and Under Voltage Protection</td> </tr> <tr> <td>Roles</td> <td>Fixed / Transportable</td> </tr> <tr> <td>Headphone Impedance</td> <td>Up to 600 Ω</td> </tr> <tr> <td>Cooling</td> <td>Built in Fan / Heat Sink</td> </tr> <tr> <td>VSWR</td> <td>Better than 1.5</td> </tr> <tr> <td>Visual display</td> <td>Front panel LCD/LED display or latest technology</td> </tr> <tr> <td>Interface</td> <td>RS-232 / USB</td> </tr> <tr> <td>Programming</td> <td>PC programming software and front panel programming.</td> </tr> <tr> <td colspan="2">TRANSMITTER</td> </tr> <tr> <td>RF Power</td> <td>20W to 100W PEP (Low, Medium, High) As per user requirement with programmable feature.</td> </tr> <tr> <td>Spurious Emission</td> <td>≤ 40 db below PEP</td> </tr> <tr> <td>Side Band Suppression</td> <td>≥ 50db or better</td> </tr> <tr> <td>Carrier Suppression</td> <td>≥ 40db or better</td> </tr> <tr> <td>Inter modulation distortion</td> <td>30db minimum below PEP</td> </tr> <tr> <td>Audio Response</td> <td>Within 6db from 350Hz to 2700Hz.</td> </tr> <tr> <td>Side Tone Level</td> <td>Better than 0.1 mW into 150Ω load for 5mV of audio input at 1 KHz.</td> </tr> <tr> <td>Modulation Sensitivity</td> <td>1 to 10 mV at 1 KHz for full power under SSB mode.</td> </tr> </table>	Frequency Range	2.0 MHz to 29.9999 MHz with 500 Hz channel spacing and 10 Hz resolution	Modes	SSB[USB] USB, LSB, AM, CW/MCW	Preset	100 Channels or more	Frequency Stability	± 0.3 PPM or better	Built-in-test	Front panel testing.	Input Power	+ 12 V or 24 V ± 10% DC Nominal & 230V ± 10% AC (through SMPS 12 VDC 30 Amp. With 1.5 metre cable length battery charging facility.	Power Consumption	≤ 40W in Receive & ≤ 450W in Transmit	EMI / EMC	MIL-STD-461/462C or ETSI or CISPR 22 or IEC 61000-4 Series (TEC/EMI/TEL-001/01 FEB-09) or latest standard	Weight	Less than 17 Kg	Antenna Impedance	50 Ω Unbalanced	Protection	(i) Reverse Polarity protection (ii) Protection against high VSWR. (iii) Over Voltage and Under Voltage Protection	Roles	Fixed / Transportable	Headphone Impedance	Up to 600 Ω	Cooling	Built in Fan / Heat Sink	VSWR	Better than 1.5	Visual display	Front panel LCD/LED display or latest technology	Interface	RS-232 / USB	Programming	PC programming software and front panel programming.	TRANSMITTER		RF Power	20W to 100W PEP (Low, Medium, High) As per user requirement with programmable feature.	Spurious Emission	≤ 40 db below PEP	Side Band Suppression	≥ 50db or better	Carrier Suppression	≥ 40db or better	Inter modulation distortion	30db minimum below PEP	Audio Response	Within 6db from 350Hz to 2700Hz.	Side Tone Level	Better than 0.1 mW into 150Ω load for 5mV of audio input at 1 KHz.	Modulation Sensitivity	1 to 10 mV at 1 KHz for full power under SSB mode.
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RECEIVER	
Receiver Sensitivity	-107dbm for 10db SINAD or better
Image Rejection	≥70 db or better
IF Rejection	≥70 db or better
In band Inter Modulation Distortion	35 dB minimum below PEP
Audio Response	Within ±6db from 350Hz to 2700Hz
Audio Output	1W or more across loudspeaker
Audio Frequency Harmonics Distortion	≤ 25 db or better
Environmental Parameters:-	
Operating Temperature	-30° C to +55° C
Storage Temperature	-30° C to +60° C
Humidity	95% non-condensing @ 40° C.
Dust, Vibration, Shock & Altitude	MIL-STD-810F or better or JSS-55555 :As per laid down in Class L3 of JSS-55555, revision No.2
Features:-	
Selective calling	Digital FSK coding
Scanning	5 channels per second or better
Flash messages	Minimum 60 characters
Inbuilt Vocoder	MELP/CELP (1200/2400 bps) or better
Inbuilt data Modem	data compatible with operating software to be provided.
GPS Interface	yes
Data Communication	Provision for data communication
RS-232 / USB control	The Radio set should have capability to operate at 4800 baud rate or better
Tunable receiver	Continuous tuneable.
Audio input sockets	Mic and external socket.
Squelch	Voice/Digital squelch
Push to talk.	Suitable Microphone to be provided.
Audio socket	suitable Headgear should be provided.
Communication Security	Yes (encryption facility)
ALE 2G / ALE 3G	ALE 2G as per Appendix "A" and ALE 3G as per Appendix "C" of MIL-STD-188-141B
Data	Compatible with SMART PLUS of Bharat Electronics Limited(BEL)
Supplied Accessories:	
SMPS: 12 V 30 Amp. DC with battery charging facility, Broad band Antenna, Programming Cable, Warranty : 2 years or more, Operating & Service Manual, Data Cable for Data Terminal Desktop PC connectivity, Headphone, Morse Key for CW, Data Cable to connect Radio with SMART PLUS	

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	User Manual with each radio sets provided free of cost in soft as well as hard copy	Yes
	Technical repairing & maintenance manual with complete block diagram, circuit layout etc in soft as well as hard copy	Yes
GENERIC	Interface	Ethernet port
	Weight	Up to 1500 gm
	Display	Indicator for transmit and receive
	Other features	Any applicable text(s)
SERVICE	Warranty	2 years or more
POWER SOURCE	Power Source	AC-230 Volts +/- 10%, 50Hz, 11.25V DC
SAFETY/CERTIFICATIONS	Protections	Reverse polarity protection
	EMI/EMC	ETSI EN301 489-1 & ETSI EN301 489-5
OPERATING CONDITION	Minimum Operating temperature	-30
	Maximum Operating temperature	55
	Minimum Storage temperature	-40
	Maximum Storage temperature	70
	Operating Humidity @ 40 Degree Celcius	95
Test Report	Test Report from Govt./NABL/ILAC accredited Lab to prove	

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5	Digital VHF (Static LB) with all accessories, including Antenna & Cable	<p>PERFORMANCE FEATURES</p> <table border="1"> <tr> <td>Frequency Range (MHz)</td> <td>66 - 88</td> </tr> <tr> <td>Types of Bandwidth</td> <td>VHF Full Band</td> </tr> <tr> <td>Technology</td> <td>Digital TDMA (2-slot)</td> </tr> <tr> <td>operating mode</td> <td>Dual standard (digital & analog)</td> </tr> <tr> <td>Operating selection</td> <td>Fully automatic for analog and digital</td> </tr> <tr> <td>Channel capacity</td> <td>Above 16</td> </tr> <tr> <td>Channel Spacing</td> <td>12.5</td> </tr> <tr> <td>Frequency Stability(+)</td> <td>0-1.5</td> </tr> <tr> <td>Air Interface Standard</td> <td>Open Standard DMR Tier-II</td> </tr> <tr> <td>VSWR (dB)</td> <td>Up to 1.5</td> </tr> <tr> <td>Duty cycle</td> <td>100</td> </tr> <tr> <td>Antenna Impedance</td> <td>50</td> </tr> <tr> <td>RF Power output</td> <td>Programmable</td> </tr> <tr> <td>RF Power output Range</td> <td>25 to 50 Watts</td> </tr> <tr> <td>FM Emission operation</td> <td>11K60F3E, 7K60FXE, 7K60FXD, 7K60FXW, 7K60F1W</td> </tr> <tr> <td>Data compatibility</td> <td>Voice, ID caller, SMS, Simplex, Repeater Range detection.</td> </tr> <tr> <td>Digital Modulation</td> <td>yes.</td> </tr> <tr> <td>Transmitter FM Hum/Noise (dB)</td> <td>4FSK</td> </tr> <tr> <td>Transmitter Modulation Limiting</td> <td>-999 - -40</td> </tr> <tr> <td>Transmitter Adjacent Channel Power (dbc)</td> <td>+/- 2.5 KHz @12.5KHz</td> </tr> <tr> <td>Audio Response</td> <td>-999 - -60</td> </tr> <tr> <td>Transmitter Audio Distortion</td> <td>+1,-3 dB</td> </tr> <tr> <td>Analog Receivers Sensitivity for 12dB SINAD</td> <td>Upto 0.3</td> </tr> <tr> <td>Digital Receiver Sensitivity at 5% BER</td> <td>Up to 0.3</td> </tr> <tr> <td>Image Rejection (dB)</td> <td>Above 60</td> </tr> <tr> <td>Receiver Adjacent Channel Selectivity (dB)</td> <td>Above 60</td> </tr> <tr> <td>Receiver Audio Distortion</td> <td>Up to 3</td> </tr> <tr> <td>Inter Modulation (dB)</td> <td>Above 70</td> </tr> <tr> <td>Antenna</td> <td>6 dB Gain Omni Directional</td> </tr> <tr> <td>Length of the RF Cable RG-217</td> <td>Above 45</td> </tr> <tr> <td>Programming kit</td> <td>yes</td> </tr> <tr> <td>Battery cable and mounting fixtures</td> <td>yes</td> </tr> </table> <p>TRANSMITTER</p> <p>RECEIVERS</p> <p>ACCESSORIES</p>	Frequency Range (MHz)	66 - 88	Types of Bandwidth	VHF Full Band	Technology	Digital TDMA (2-slot)	operating mode	Dual standard (digital & analog)	Operating selection	Fully automatic for analog and digital	Channel capacity	Above 16	Channel Spacing	12.5	Frequency Stability(+)	0-1.5	Air Interface Standard	Open Standard DMR Tier-II	VSWR (dB)	Up to 1.5	Duty cycle	100	Antenna Impedance	50	RF Power output	Programmable	RF Power output Range	25 to 50 Watts	FM Emission operation	11K60F3E, 7K60FXE, 7K60FXD, 7K60FXW, 7K60F1W	Data compatibility	Voice, ID caller, SMS, Simplex, Repeater Range detection.	Digital Modulation	yes.	Transmitter FM Hum/Noise (dB)	4FSK	Transmitter Modulation Limiting	-999 - -40	Transmitter Adjacent Channel Power (dbc)	+/- 2.5 KHz @12.5KHz	Audio Response	-999 - -60	Transmitter Audio Distortion	+1,-3 dB	Analog Receivers Sensitivity for 12dB SINAD	Upto 0.3	Digital Receiver Sensitivity at 5% BER	Up to 0.3	Image Rejection (dB)	Above 60	Receiver Adjacent Channel Selectivity (dB)	Above 60	Receiver Audio Distortion	Up to 3	Inter Modulation (dB)	Above 70	Antenna	6 dB Gain Omni Directional	Length of the RF Cable RG-217	Above 45	Programming kit	yes	Battery cable and mounting fixtures	yes
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		User Manual with each radio sets provided free of cost in soft as well as hard copy	Yes
		Technical repairing & maintenance manual with complete block diagram, circuit layout etc in soft as well as hard copy	Yes
		Interface	Ethernet port
		Weight	Up to 1500 gm
	GENERIC	Display	Indicator for transmit and receive
		Other features	Any applicable text(s)
	SERVICE	Warranty	2 years or more
	POWER SOURCE	Power Source	AC-230 Volts +/- 10%, 50Hz, 11.25V DC
	SAFETY/CERTIFICATIONS	Protections	Reverse polarity protection
		EMI/EMC	ETSI EN301 489-1 & ETSI EN301 489-5
		Min. & Max: Operating temperature	-30 & 55
		Min. & Max: Storage temperature	-40 & 70
	OPERATING CONDITION	Operating Humidity @ 40 Degree Celcius	95
		Test Report from Govt./NABL/ILAC accredited Lab to prove	

Sl.	Name of Equipment	Technical Specification
6	VHF Handheld with all accessories (Digital)	<p>PERFORMANCE FEATURES</p> <p>Frequency Range (MHz) 66 -88</p> <p>Types of Bandwidth VHF Full Band</p> <p>Display Yes</p> <p>Channel Capacity 1024</p> <p>Channel Spacing 12.5</p> <p>Frequency Stability (±) 0 - 1.5</p> <p>Technology Digital TDMA (2-slot)</p> <p>Air Interface Standard Open Standard DMR Tier-II</p> <p>Antenna Impedance 50</p> <p>RF Power output programmable</p> <p>RF Power output Range 1 to 5 Watts (VHF)</p> <p>FM Emission 11K0F3E,7K60FXE,7K60FXD,7K60FXW,7K60F1W</p> <p>Operation Voice, ID caller, SMS</p> <p>Digital Modulation 4FSK</p> <p>Transmitter FM Hum/Noise (dB) -999 - -40</p> <p>Transmitter Modulation Limiting +/- 2.5 KHz @12.5KHz</p> <p>Transmitter Adjacent Channel Power (dBc) -999 - -60</p>
		<p>TRANSMITTER</p>

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	Audio Response	+1,-3 dB
	Audio Distortion	Up to 3
RECEIVERS	Digital Vocoder	AMBE+2
	Analog Receiver's Sensitivity for 12dB SINAD	Up to 0.3
	Digital Receiver Sensitivity at 5% BER	Up to 0.3
	Receiver Adjacent Channel Selectivity (dB)	Above 60
	Inter Modulation (dB)	Above 70
	Receiver Audio Output	Above 500
	Receiver Rated Audio Distortion	Up to 3
	Antenna for Handheld Transreceiver	Rugged Flexible Helical
	Programming Kit	yes
	User Manual with each radio sets provided free of cost in soft as well as hard copy	yes
	Technical repairing & maintenance manual with complete block diagram, circuit layout etc in soft as well as hard copy	yes
ACCESSORIES	Battery Charger	Yes, No
	Input voltage	230 V \pm 10%, 50 Hz
	Output voltage	Any applicable text(s)
	Battery charger suitable for	Ni-Mh./Li – ION Lithium-ion, Li-polymer, Lithium Iron Phosphate (For extreme Temperature Operations), NA
	Charging time for standard mode	6 to 14hrs
	Charging time for rapid mode	1 to 3 hrs
	Number of charging pockets	1, 2, 6, NA
	Number of spare batteries with each Radio Set	Minimum 2
	Indicator	For all modes of charging status
	One good quality leather case with belt clip & shoulder strip	Yes, No
VARIOUS FEATURES	Simple Press to talk & Low Battery Alert	YES
	CTCSS or DCS	yes
	Mixed Mode Operation (analog & digital)	yes
	Signaling	2Tone, 5Tone, DTMF, Digital
	Busy Channel Lockout & Selective Call Decode	No
	Capable of VOX for hands-free operation	No

TEST REPORT DETAILS	If yes, handfree kit provided with radio set handfree kit variants PTT ID Encode Emergency SDS/SIREN Automatic Number Identification (ANI)/Caller ID Text message and predefined message Keypad If yes, Horizontal accuracy Time to first fix(TTFF) cold start Time to First Fix(TTFF) Hot start Capable of being Killed/ Unkilled Man down & Communication security Weight of hand held Transceiver with Battery Other features Chemistry of Battery	No Ear plug/ Headphone. Yes Yes Yes Yes Yes Yes Up to 10 Up to 2 Up to 20 Yes, No yes Up to 500 gm Any applicable text(s)
	Voltage rating of the Battery Capacity of Battery (mAh) Average Battery duty cycle 'S/5/90 for digital Transmission Average Battery duty cycle 'S/5/90 for analog Transmission EMI/EMC Protections Warranty	Above 8 Above 10 Above 10 Above 8 ETSI EN301 489-1 & ETSI , EN301 489-5 Reverse polarity & short circuit protection 2 Years or more
	Minimum & Maximum Operating temperature Minimum & Maximum Storage temperature Operating Humidity @40 degree C Dust test as per Vibration test as per Shock test as per Water Intrusion test as per Salt test, Rain test & Altitude test	-30 & 55 Degree Celcius -40 & 70 95 MIL-STD-810 F, MIL-STD-810 G, IP-67 MIL-STD-810 F, MIL-STD-810 G Mil-STD-810 F, Mil-STD-810 G MIL-STD-810 F, MIL-STD-810 G, IP-67 MIL-STD-810 F, MIL-STD-810 G

Sl.	Name of Equipment	Technical Specification	
7	Digital VHF (Handheld LB) with Spare battery & Charger	PERFORMANCE FEATURES	
		Frequency Range (MHz)	66 - 88
		Types of Bandwidth	VHF Full Band
		Display	Yes
		Channel Capacity	1024
		Channel Spacing	12.5
		Frequency Stability (±)	0 - 1.5
		Technology	Digital TDMA (2-slot)
		Air Interface Standard	Open Standard DMR Tier-II
		Antenna Impedance	50
		RF Power output	programmable
		RF Power output Range	1 to 5 Watts (VHF)
		FM Emission	11K0F3E, 7K60FXE, 7K60FXD, 7K60FXW, 7K60F1W
		Operation	Voice, ID caller, SMS
		Digital Modulation	4FSK
		Transmitter FM Hum/Noise (dB)	-999 - -40
		Transmitter Modulation Limiting	+/- 2.5 KHz @12.5KHz
		Transmitter Adjacent Channel Power (DBC)	-999 - -60
		Audio Response	+1,-3 dB
		Audio Distortion	Up to 3
		Digital Vocoder	AMBE+2
		Analog Receivers Sensitivity for 12dB SINAD	Up to 0.3
		Digital Receiver Sensitivity at 5% BER	Up to 0.3
		Receiver Adjacent Channel Selectivity (dB)	Above 60
		Inter Modulation (dB)	Above 70
		Receiver Audio Output	Above 500
		Receiver Rated Audio Distortion	Up to 3
		Antenna for Handheld Transreceiver	Rugged flexible Helical
		Programming kit	yes
		User Manual with each radio sets provided free of cost in soft as well as hard copy	yes
		Technical repairing & maintenance manual with complete block diagram, circuit layout etc in soft as well as hard copy	yes
		ACCESSORIES	



VARIOUS FEATURES	Battery Charger, Spare Battery & Good quality leather case with belt clip & shoulder strip	Yes
	Input voltage	230 V ± 10%, 50 Hz
	Output voltage	Any applicable text(s)
	Battery charger suitable for	Ni-Mh, /Li-ION Lithium-ion, Li-polymer, Lithium Iron Phosphate (For extreme Temperature Operations), NA
	Charging time for standard mode	6 to 14hrs
	Charging time for rapid mode	1 to 3 hrs
	Number of charging pockets	1, 2, 6, NA
	Number of spare batteries with each Radio Set	Minimum 2
	Indicator	For all modes of charging status
	Simple Press to talk & Low Battery Alert	YES
CTCSS or DCS	yes	
Mixed Mode Operation (analog & digital)	yes	
Signaling	2 Tone, 5Tone, DTMF, Digital	
Busy Channel Lockout & Selective Call Decode	No	
Capable of VOX for hands-free operation	No	
If yes, handfree kit provided with radio set	No	
handfree kit variants	Ear plug/ Headphone.	
PTT ID Encode	Yes	
Emergency SOS/SIREN	Yes	
Automatic Number Identification (ANI)/Caller ID	Yes	
Text message and predefined message	Yes	
Keypad	Yes	
If yes, Horizontal accuracy	Up to 10	
Time to first fix(TTFF) cold start	Up to 2	
Time to First Fix(TTFF) Hot start	Up to 20	
Capable of being Killed/ Unkilled	Yes, No	
Man down & Communication security	Yes	
Weight of hand held Transceiver with Battery	Up to 500 gm	
Chemistry of Battery	Ni-Mh, Lithium-ion, Li-polymer, Lithium Iron Phosphate(For extreme Temperature Operations)	
Voltage rating of the Battery	Any applicable numeric value	
Capacity of Battery (mAh)	Above 2500 mAh	
POWER SOURCE/BATTERY		
GENERIC		

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	Average Battery duty cycle 5/5/90 for digital Transmission	Above 10
	Average Battery duty cycle 5/5/90 for analog Transmission	Above 8
	EMI/EMC	ETSI EN301 489-1 & ETSI , EN301 489-5
SAFETY	Protections	Reverse polarity & short circuit protection
SERVICE	Warranty	2 Years or more
	Minimum & Maximum Operating temperature	-30 & 55 Degree Celcius
OPERATING Temp.	Minimum & Maximum Storage temperature	-40 & 70
	Operating Humidity @40 degree C	95
	Dust test as per	MIL-STD-810 F, MIL-STD-810 G, IP-67
	Vibration test as per	MIL-STD-810 F, MIL-STD-810 G
	Shock test as per	MIL-STD-810 F, MIL-STD-810 G
	Water Intrusion test as per	MIL-STD-810 F, MIL-STD-810 G, IP-67
	Salt test, Rain test & Altitude test	MIL-STD-810 F, MIL-STD-810 G
TEST REPORT DETAILS		

Sl No.	Name of Equipment	Technical Specification
8	RF output meter	<p>Frequency Range : 1.8 MHz to 200MHz, Power range : 0-100 W , Power Scale : 5/25/50/100 W</p> <p>Maximum Power : 100 W , Accuracy : Low power (AVG)+/- 10%,(PEP)+/- 15% , Maximum power for SWR : 1W</p> <p>Accuracy : High power : (AVG)+/- 5%,(PEP)+/- 10% , Input/output Impedance : 50 OHM ,Insertion loss Less than 0.1 Db</p> <p>Input/output Connectors 'M' or/and 'N' type, Testing function Forward/ Reverse power,PEP,VSWR</p> <p>Operating Manual , Accessories : 13.8 DC wire, Required DC supply cable</p> <p>Warranty: Minimum 1 year from reputed company, Inbuilt Sensing Element (Range:- 1.8 Mhz -- 200 MHz)</p> <p>Measurement cable from RF Output meter to HF/VHF Transceiver</p>
9	SMD Toolkits	<p>One Tool box,One Suction Tin Pump ,One Suction Tin Wire ,One Screwdriver Set (Contain 4 spare screwdriver Head)</p> <p>One Welding iron wire ,Five Soldering iron (LKB 3C 1.6 D) ,Six Engraving Knives (Handle and Blades)</p> <p>Two Tweezers (fine curved,fine tip straight) ,Temperature adjustable range 200°C – 450°C (Soldering Iron),Working voltage 220 v AC</p> <p>Suction tin pump and suction wire quick and easy solder residue Clearance</p> <p>Pliers : blade by-pass cutting method, which reduces effort and extends tool life as the cutting blades do not meet edge to edge. , Screwdriver set: 4 in 1 precision screwdriver to meet your different needs.</p> <p>Soldering iron gun stand : Convenient to hold your soldering iron,compatible with most pencil type soldering irons.</p> <p>Welding iron wire : 1 mm width, with a low melting point, usually used in iron soldering with bright and full soldering points.</p> <p>Engraving knife: it is ideal for versatile situation ,PCB circuit board, Mobile Phone film, soft wood, sculpture, pape and so on.</p> <p>Soldering stand: avoid burnt fingers ,Warranty : 1 year of a reputed manufacture/ company.</p> <p>Package included: 1x Pliers,1x soldering iron (60 W) , 1x Suction tin pump , 1x suction tin wire, 1x Screwdriver set (contain 4 spare screwdriver head)</p>

10	Illuminated magnifying glass for workshop	Material: Plastic, Metal, Glass, Acrylic. Size (LxWxH) : Approx. 200 x 100x175 cm/7.87 x3.94 x6.89 inch 3 Lens size : 2.5 x/90 mm, 7.5x/34 mm, 10 x/34 mm Power input : AC 100 -250V,50/60 Hz Power output : DC 4.8 V,500 mA Application: reading of value of spare parts/ SMD circuits.
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SI. 11 PORTABLE SOLAR CHARGING SYSTEM

The equipment consists of a Foldable Solar panel and Solar Chargeable backup , all packed in rucksack/ shoulder bag of following specifications.

SOLAR PANEL :

S.No.	Feature	Description
1	Type of Solar panel	Thin Film Foldable Solar Panel of minimum 40 Watt
2	Folded size	280 mm x 280 mm (+ 10%)
3	Operable Size	280 mm x 840 mm (+ 10%)
4	Weight of panel	less than 1 kg

SOLAR CHARGEABLE BACKUP :

S.No.	Feature	Description
1	AC Charging Input	230V AC 50 Hz
2	DC Charging input	Thin Film Foldable Solar Panel of min 40 Watt
3	Invertor	Minimum 350VA / 500 Watt sine wave
4	Output voltage	(a) AC 220V x 8 Amp x 3 output (3 pin) , (b) DC 5V 1Amp x 2 (Dual USB) , (c) DC 12V - 2Amp x 1
5	Battery	Sealed Maintenance Free Lithium Battery of minimum 12V-20 Ah (+ 10%)
6	Charging Time	8-10 Hours Solar / AC
7	Working temperature	-10 deg C to 45 Deg C
8	Protection	Overvoltage / under voltage / battery deep discharge Inbuilt protection against over load , short circuit
9	Alarm	Audio / visual alarm when low on battery / overload
10	Weight of solar charger	less than 4.25 kgs (including AC lead with 3 pin charging socket) (excluding solar panel and rucksack)
11	Dimensions	Compact, sleek, not exceeding 300 mm x 250 x 125 mm
12	Handle	Must have handle / Sling to lift the product.
13	Warranty	Minimum 1 year against any mfg defect of a reputed manufacturer/company/firm.

SI No.	Equipments	Technical specifications
12	Battery Charger 12-36 V DC Input 150-240AC	<p>Technical specifications</p> <p>Charger technology : Transformer Based</p> <p>Compatibility with battery type (User Selectable) : Lead acid</p> <p>Number of Independent charging stations (in numbers) : 3</p> <p>Input Voltage Range (VAC) : 170 volt to 240 volt (ISI MARKED POWER CORD TO BE PROVIDED)</p> <p>AC surge protection : AC surge protection at Input side with MOV (Metal Oxide Varistor)</p> <p>Digital display of output voltage and current : Yes</p> <p>LED Indication for Charging Status, Charged condition status and reverse polarity : yes</p> <p>Length of Charging Cable for each station. (metre) : Minimum 2 mtrs. Length (ISI MARKED Cable) with crocodile clip marking positive polarity and negative polarity.</p> <p>Size of Charging Cable for each station. (sq. mm) : min. 6 sq.mm as per IS:594 ISI MARKED FLEXIBLE Cu cable per station</p> <p>Battery/battery bank Voltage (Volts) : 12 Volts</p> <p>Capacity of the battery to be charged(User Selectable) (AHC) : 7 AH TO 120 AH</p> <p>Maximum Charger output current (Amp) : 12 Ampere</p> <p>Charging Cut-off Voltage per 12V battery (Volts) : 14.5 volt +/-0.2 volt</p> <p>Efficiency (%) : > / = 75%, Warranty : 1 year or more, Make : of reputed company/Manufacturer</p> <p>Reverse Polarity Protection : yes, Short Circuit Protection : yes</p> <p>Over Current Protection : yes</p> <p>Over voltage cut off protection : Over voltage protection at 280 volt at Input and automatic recovery at 270 volt when the voltage is reduced from 280 volt</p> <p>Cut-in voltage for charging a discharged battery (Volts) : Cut-in voltage shall be 10.5 Volt</p> <p>Cut-off voltage for charging a discharged battery (Volts) : Cut-off voltage shall be 14.5 V + / - 0.2 Volt</p> <p>Availability of Type Test Report from ISO/BSI marked or any lab test report to prove conformity to the specification : yes</p>
13	AC Generator 2.4 KVA	<p>Start and runs in Diesel/ Petrol, Output voltage : 230 v AC single phase 50 Hz Indian standard</p> <p>Fuel tank capacity: 6 litres and above, Power rating : 2.4 KVA, 4-STROKE, Engine oil : 1 ltr.</p> <p>Self start facility with 12 volt DC battery operating key system (Inbuilt)</p> <p>Fuel indicator window on the top of the fuel tank, AC 220 volt output socket 16 amp. With off/on switch</p> <p>Oil alert, overload alert , output indicator with display I monitor,</p> <p>Manual start system with pulling rope (inbuilt) , Warranty : 2 years or more .</p> <p>Carrying handle with pulling wheel , Type : of reputed manufacturer/company.</p>



SI No.	Equipments	Technical specifications
14	AC Stabilizer 5 KVA Input 150-240 VAC or 100-240 VAC	<p>Number of phases on output : Single</p> <p>Input voltage range per phase (Volt) : 150 VAC -240 VAC</p> <p>Output (Volt) (+/- 1%) : 220 Volt \pm 5%</p> <p>KVA rating (KVA) : No of Phase: Single, Rated KVA : 5</p> <p>CM/L No (BIS Marked if Yes must declare CM/L Number If No Write NA) : NA</p> <p>Warranty (Years) : 2 years or more from a reputed manufacturer /company.</p> <p>Number of phases on output : Single</p> <p>Input voltage range per phase (Volt) : 150 VAC -240 VAC with 1.5 metre long power cable with 16 amp. Top.</p> <p>Output 16amp. Socket for output operation.</p> <p>Front panel indicator power ON indicator lamp : LED switch</p> <p>Front panel circuit backup: 10amp MCB.</p> <p>Front panel voltmeter (150VAC -240 VAC) input/ output showing switch facilities.</p> <p>Type of cooling : Air-cooled</p> <p>Transformer (s) winding material : Copper</p> <p>Efficiency at rated output (%) : \geq 95%</p> <p>Power factor : \geq 0.95</p> <p>Continuous duty : Yes</p> <p>No load loss at minimum rated input (Watt), and maximum rated input voltage (Watt) : Yes</p> <p>Technical specifications</p> <p>Nominal Voltage of Battery (volts) : 12.0 Volt</p> <p>Rated Capacity at C20 discharge : 80 (AH)</p> <p>Warranty (Years) : 2 Years or more.</p> <p>Types: SMF from a reputed manufacturer.</p> <p>Nominal Voltage of Battery (volts) : 12.0 volt</p> <p>Battery Condition : Dry Charged</p> <p>Dimensions (L x W x H) (mm x mm x mm) : As per relevant IS Specifications</p> <p>Volume of Electrolyte (ml) : 4.1</p> <p>Weight of Dry Battery (Kg) shall be as per relevant IS Specifications , corresponding AH : yes</p> <p>No. of cells per Battery (No.) : 6 Cells for 12 Volt battery</p>
15.	Secondary battery 12 V 80 AHC	
SI No.	Equipments	

Sl. 16. 60 FEET FOUR LEGGED SELF SUPPORTED HOT DIP GALVANIZED TOWER WITH COMPLETE INSTALLATION INCLUDING FOUNDATION, EARTHING, LIGHTING ARRESTER, PHOTO SYNTHESIS SWITCHING AVIATION WARNING LIGHT ETC.

Technical Specifications :

- 1 Height 60 ft.
- 2 Construction Angular Square base.
- 3 Wind Velocity handling
Capacity 180 Km / hr, Approval certification from competent authority should be produced.
Operational = 180km/hr minimum , Survival = 225km/hr
- 4 Galvanization All members to be hot dip galvanized.
- 5 Bolts All Bolts be provided with washers
- 6 Dimensions Size at Top : Min 1 Mtr Square.
Size at Bottom : Approx. 1/6.Square Mtr. of total height of the mast.
- 7 Lighting Arrestor, Earthing and aviation light (Twin) sunset photosensor switch.
 - 1) Standard Copper Lighting Arrestor having pipe 5 feet length, 33.7mm Outer Diameter and 3.2mm thickness should be provided with suitable clamps.
 - 2) Copper connecting strip (Size 25mm×5mm) from arrestor to ear thing plate should be provided with suitable clamps.
 - 3) Flat Copper ear thing plate of size 400×400×6mm.
- 8 Platform To be provided on TOP Min. 1 Sq. Mtr with fall prevention safety system and reeling.
- 9 Ladder In Built on any one face.
- 10 Structural design approval Latest Structural design / drawing approval certificate should be produced along with tender document from Govt. recognized institute like various IITs, Structural Engineering Research Centre (SERC), Chennai, Govt. College of Engineering, Telecommunication Engineering center (TEC) etc .The approval should not be more than 5 years old. Corrosion factor should be taken into consideration.
- 11 Supply with installation The work is required to be done on turnkey basis i.e. including Supply, Erection and Foundation. Site for installation shall be mutually agreed and upon within 15 days of supply order and after proper ascertaining soil /ground, surface condition.
- 12 Foundation of mast the foundation structure design should be approved by local PWD authority and actual foundation should be carried out under the guidance and supervision of local PWD officer with co-ordination of local police wireless officer at city/district/range office. The charges incurred should be borne by the bidder. The satisfactory foundation work certificate from the local PWD authority be obtained by the bidder.
- 13 Warranty Minimum FIVE year on site comprehensive from the date of installation.
- 14 Aerial fitting clamps Hot dip Galvanized clamps, Qty. 06 each, for Yagi & 6db antenna, Microwave antenna.
- 15 Painting the tower shall be given two coats of paint in addition to primer coats after erection. The tower shall be painted to have equal alternate bands of international orange & white colors with top & bottom bands respectively, painted as per civil aviation regulation as approved by the client.
- 16 Installation date On the top of the bottom section date of erection (Installation) should be steel stamped on the metal Plate.
- 17 Top load 150 Kg.
- 18 Safety factor 4.



SI No.	Equipments	Technical specifications
17.	Chemical Earthing	<p>Type of Earthing:- Sealed maintenance free chemical filled earthing electrode.</p> <p>Diameter of the pipe: 76-80mm , Thickness of the pipe: 3.9 mm</p> <p>Length of the pipe:-2000 mm, Earthing electrode with G.I. Pipe-14 Kg or above</p> <p>Galvanized thickness: 80-100 micron, Type of Galvanizing: Hot dipped</p> <p>Size of the conductor :40x6 G.I. Strip</p> <p>Terminal diameter:-14 mm</p> <p>Chemical used in the pipe: CCM (Crystallize Conductive Mixture) Appx. Weight 8 Kg</p> <p>Back fill compound to enhance earthing effectiveness in appropriate quantity.</p> <p>It shall not depend on the continuous presence of water to maintain its conductivity.</p> <p>It should be a little alkaline in nature with pH value >7 but <9.</p> <p>It should have better hygroscopic properties to absorb moisture. It should absorb and release the Moisture in dry weather condition and help in maintaining the moisture around the earth electrode.</p> <p>It should have capacity to retain >10% moisture at 105°C.</p> <p>It should be a little alkaline in nature with pH value >7 but <9.</p> <p>It should have water solubility < 5%.</p> <p>It should be granular with granule size 0.1 mm to 3 mm.</p> <p>It should have non toxic, non reactive, non explosive & non corrosive.</p> <p>It shall be thermally stable between -10 degree centigrade to +60 degree centigrade ambient temperature.</p> <p>It shall not decompose or leach out with time.</p> <p>It shall not pollute the soil or local water level and meets environmental friendly requirement for landfill</p> <p>It should expand & swell considerably and removes entrapped air to create strong connection between earth electrode and soil.</p> <p>It should be diffuses into soil pores and creates conductive roots enlarging conductive zone of earth pit.</p> <p>It shall not require periodic charging treatment or replacement.</p> <p>It shall be suitable for any kind of electrode and all kinds of soils of different resistivity.</p> <p>It shall not cause burns, irritation to eye, skin etc.</p> <p>Minimum quantity of earth enhancement material to be supplied: For 300mm bore type earth pit – Min 50 kgs per pit.</p> <p>The Earth enhancement material shall be supplied in sealed, moisture proof bags. These bags shall be marked with ISO certified, Manufacturer's name or trade name, quantity, batch no & date of Manufacture.</p> <p>Warranty : minimum 1 year</p>

SI No.	Equipments	Technical specifications
18	Secondary battery 12 V 150 AHC	<p>Nominal Voltage of Battery (volts) : 12.0 Volt</p> <p>Rated Capacity at C20 discharge : 150 (AH)</p> <p>Warranty (Years) : 2 Years or more.</p> <p>Types: SMF from a reputed manufacturer.</p> <p>Nominal Voltage of Battery (volts) : 12.0 volt</p> <p>Battery Condition : Dry Charged</p> <p>Dimensions (L x W x H) (mm x mm x mm) : As per relevant IS Specifications</p> <p>Volume of Electrolyte (ml) : 4.1</p> <p>Weight of Dry Battery (Kg) shall be as per relevant IS Specifications . corresponding AH : yes</p> <p>No. of cells per Battery (No.) : 6 Cells for 12 Volt battery</p> <p>Technical specifications</p>
19	Digital Multimeter:	<p>Count: 4000 (3 1/2 Digit), Display: Back Light, Size: Small light weight design - Pocket Size,</p> <p>Voltage: DC: 1000 volts($\pm 0.8\% + 4$), AC: 750 volts($\pm 1.5\% + 4$)</p> <p>Current: DC: 10 A($\pm 1.5\% + 4$), AC: 10 A($\pm 2\% + 4$)</p> <p>Resistance, Capacitance, Duty Cycle (%) & Frequency measurement, Diode Test, Continuity test with buzzer & Data Hold, REL Measurement, Long battery life with auto power Off, 1 year warranty</p> <p>Included Test leads (Pair), Instruction manuals, Diode and continuity test with buzzer</p> <p>Technical specifications</p>
20	5 KV Generator	<p>Start and runs in Diesel/ Petrol.</p> <p>Output voltage : 230 v AC single phase 50 Hz Indian standard</p> <p>Fuel tank capacity: 6 litres and above.</p> <p>Power rating : 5 KVA , 4-STROKE , Engine oil : 1 ltr.</p> <p>Self start facility with 12 volt DC battery operating key system (inbuilt)</p> <p>Fuel indicator window on the top of the fuel tank</p> <p>AC 220 volt output socket 16 amp. With off/on switch</p> <p>Oil alert, overload alert , output indicator with display I monitor</p> <p>Manual start system with pulling rope (inbuilt)</p> <p>Warranty : 2 years or more.</p> <p>Carrying handle with pulling wheel.</p> <p>Type : of reputed manufacturer/company.</p>

