**SPECIFICATION FOR PAINTING OF 60M HEIGHT SELF-SUPPORTING TOWER, REPLACEMENT OF AOL AND LIGHTNING ARRESTOR AT AKASHVANI UDIPI (KARNATAKA) ( Located at LPT Site )**

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1. **SCOPE:** The scope of the Tender includes carrying out following works as per specification stated subsequently:

i) Painting of 60m SS tower with two coat of Polyurethane Paint (alternate Orange and white Bands) and one coat of Zinc Chromate Polyurethane primer.

ii) Replacement of tower lights (AOL) and Lighting power supply cable for tower at LPT Site Udipi (Kamataka.)

iii) Supply and Installation of Lightning arrestor (LA) system on top of the Tower connecting the same to Earthing using copper strip of size 50x3 mm

vi) Dismantling of Existing TV VHF Antenna installed at Top of tower and de-hoisting the same to ground and packing.

v) Hauling up of 4 - bay Antenna and connecting with existing 15/8" RF Cable by providing 100mm Dia GI Pole and fixing the same on the Tower. Each of the Bay Antennas has to be hoisted on 100MM Dia Pole at 2.5M Distance from each other. Branch feeder Cables has to be connected between each of the Antenna and Splitter.

All necessary Clamps , Nuts and Bolts of SS should be provided for hoisting Antenna, branch Cable, splitters and 100MM Dia Pole : At between 50M and 60M.

**I. SPECIFICATIONS FOR PAINTING:**

**Painting of Steel Structure:** Painting of the 60m SS Tower shall be carried out as per following:

a) The tower shall be given one coat of Epoxy Red Oxide Zinc Phosphate Weldable primer (Two component) and two coats of Polyurethane Full Gloss Enamel (Two Pack) paint.

b) The tower shall be painted to have equal alternate bands of international orange and white colours with top and bottom bands painted in orange as per latest International Civil Aviation Organization Recommendations.

c) The paints used in painting shall be in accordance with IS: 13213 amended to date. Epoxy Red Oxide Zinc Phosphate Weldable primer (Two components) shall conform to IS: 14506 amended to date.

d) Painting shall be done in accordance with IS: 1477 Part I & II amended to date.

e) The minimum dry film thickness shall be 25 microns of each coat of Epoxy Red Oxide Zinc Phosphate Weldable primer (Two component) and 35 microns of each coat of Polyurethane Full Gloss Enamel (Two Pack) paint. The overall Dry Film Thickness (DFT) should not be less than 128 microns.

f) Primer and Paint should be from reputed brands like Berger/Asian Paint/Grand Polycoat.

**g) REPLACEMENT OF TOWER LIGHTS AND POWER CABLE AS PER ANNEXURE -I**

h) **PROTECTION AGAINST LIGHTNING:** The tower shall be provided with a suitably designed complete system of lightning protection in accordance with provision of IS:2309 (amended to date) The lightning protection system shall be got approved from All India Radio, before execution. Copper strip of size 50 mm × 3 mm is to be provided [wherever necessary] for Lightning Arrester from top of the tower to the ground along to 2Nos of Separate Earthing

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**2. GUARANTEE/ WARRANTEE: One year** from the date of completion of the work.

**3. GENERAL TERMS AND CONDITIONS:**

a. The bidder shall carryout the works with utmost care, not to damage any existing equipment. Bidder will be held responsible for any damages caused to property of AIR during the execution of the work and shall rectify such damages at his own cost.

b. The contractor shall insure himself and his workers deputed for work at AIR Site. This office does not take any responsibility for any mishap which may occur to him or any of his personnel/equipment during the course of work. The contractor has to submit the insurance for his Workers before commencement of the work.

c. All the safety precautions are to be ensured and safety tools/equipment are to be brought by the contractor.

d. The contractor is liable to compensate the department for any damages to All India Radio property or personnel during the execution of work.

e. The department has the right to accept or reject the quotation/quotations without

f. **Bidders advised to visit the site before offering their Bids.**

**G. DELIVERY PERIOD**: Work should be completed within 60 days from the date of Work Order.

**H. ELIGIBILITY**: Firm should have prior experience of painting of AIR/ DD towers of height 60 M and above and also have experience of hoisting 4 Bay antenna or 6 bay antenna system in the past 10 Years in AIR/DD Network. Associated Purchase orders and Work Completion certificates are to be provided.

**I. PAYMENT TERMS** : 100% payment will be made site wise on satisfactory completion of the work.

**ANNEXURE-I**

**SPECIFICATION FOR AVIATION OBSTRUCTION LIGHTS & POWER SUPPLY CABLES:**

1. LED based Aviation Obstruction Lights including flashing lights (with twin aviation obstruction light arrangement in 'ON' duty and 'STANDBY' mode with alarm monitoring) should be provided on top of the tower. The globes and their housings shall be strong, weather proof and of approved manufacturer. The twin AOL red flashing on the top level shall be of Medium Intensity (MI) Type B. Number of Tower lights in the tower shall be as follows:

   a) Two Numbers of MI Type B(red Flashing)are to be installed diagonally on 60M Platform
   **b)** There shall be two low intensity AOLs located diagonally at levels 40M**.**

   The aviation obstruction lighting arrangement and flashing arrangement shall be as per latest International Civil Aviation organization Recommendations.

2. Power supply load of the aviation lights shall be evenly distributed on all the three phases, in order to ensure that with failure of the single phase all the lamps at each level do not go off. The power supply cable for the lights shall conform to IS: 1554 amended to date or the power supply cables for the aviation lights shall be liberally rated and shall conform to the latest Indian Standard specifications.

3. 3 Core, 6 Sq.mm copper conductor (Stranded), XLPE insulated, sheathed, weatherproof, armored Power Supply cable for Multipoint powers sockets on each platform shall be supplied and laid & clamped to the cable rack. This cable shall be terminated in SP&N MCB of suitable rating in a suitable weather proof metal box at the tower base including the earthing etc. Power sockets with switches of suitable rating shall be provided and suitably mounted at each platform in weatherproof boxes.

4. Two Nos. 4 core, suitably rated, copper conductor, XLPE insulated, sheathed, weatherproof, armored power supply cable for AOL shall be provided and laid on vertical Cable Tray and fixed with cable clamps. This cable shall be terminated in TP &N MCB of suitable rating in a suitable weather proof metal box at the tower base including the earthing etc.

5. Distribution of supply to Aviation Obstruction Lights shall be through suitable weatherproof junction boxes with suitable mounting.

6. The successful tenderer shall provide Aviation Obstruction Lights as prescribed in latest International Civil Aviation Organization Recommendations.

7. A "Sun Switch" is required to be provided for AOL so that these are "ON" automatically, if sufficient sunlight is not available around tower. In no case, Sun Switch is to be installed inside a room or covered space.

8. The details of Power Supply arrangements for aviation obstruction lights shall be provided with the tender

9. The LED based AOL offered shall be approved by National Physical laboratory (NPL)/ ERTL / and test report for the same must be submitted with the offer as well as with the material.

10. The detailed circuit diagram of the AOL, No. of LEDs used, details of configuration of LEDs (series/ parallel arrangement etc.) should be submitted with the offer.

**SCHEDULE OF REQUIREMENTS/MATERIALS (UN-PRICED)**

**BILL OF MATERIALS**

| Sl. No | Description of Works | Quantity | Amount |
|---|---|---|---|
| 1 | Painting of Steel structure: ( **Drawing Annexure-II**) UDIPI- SS Tower 60M | 1 Job | |
| 2 | Replacement of tower lights and Power Cable as per **Annexure-I** | 1 Job | |
| 3 | **PROTECTION AGAINST LIGHTNING** The tower shall be provided with a suitably designed complete system of lightning protection in accordance with provision of IS:2309 (amended to date) The lightning protection system shall be got approved from All India Radio, before execution. Copper strip of size **50 mm × 3 mm** is to be provided [wherever necessary] for Lightning Arrester from top of the tower to the ground to 2Nos of separate earthing. | 1Job | |
| 4 | Dismantling VHF DD antenna from top of tower and de-hoisting to ground level and packing | 1Job | |
| 5 | Hoisting and installation of 4 Bay pole antenna/power divider at tower height between 50M and 60M and connecting of existing DD cable ( Size : 15/8" )/ branch feeder cables to antenna as stated in Scope | 1Job | |
| | **Total** | | |
| | **GST @18%** | | |
| | **Grand Total** | | |

Note: Firm has to quote for all the items seperately

# ANNEXURE- II : TOWER DIAGRAM