INVITATION FOR BIDS (IFB)
(DOMESTIC COMPETITIVE BIDDING UNDER e-PROCUREMENT)

(SINGLE STAGE TWO ENVELOPE BIDDING)

For

Supply, Erection & Commissioning of 20-meter high GI Polygonal High-Mast with luminaires & accessories at ±800 KV HVDC Station, Alipurduar.

SPECIFICATION NO.: **ER-II/KOL/CS/I-4331/GEM**

FUNDING: DOMESTIC

1.0 This invitation for bids follows the e-procurement notice (NIT) for the subject package is available on Central Public Procurement Portal (CPP) portal from the date of publication of GeM Bid. This shall also be available on GeM Portal & POWERGRID's website given at para 5.2.0 below on the same date.

2.0 Power Grid Corporation of India Ltd. (A Government of India Enterprise) incorporated under the Companies Act, 1956, having its Registered Office at B-9, Qutab Institutional Area, Katwaria Sarai, New Delhi-110016 (hereinafter referred to as 'POWERGRID'/'Owner') has decided to engage services for "**Supply, Erection & Commissioning of 20-meter high GI Polygonal High-Mast with luminaires & accessories at ±800 KV HVDC Station, Alipurduar**".

2.1 The procurement activities in respect of the aforesaid Project shall be carried out by the Owner himself and it intend to use domestic funding for eligible payments under the contract for the package as mentioned above. For the purpose of all procurement activities, the Owner shall also be referred to as 'Purchaser'.

3.0 POWERGRID, therefore, invites bids from eligible bidders for "**Supply, Erection & Commissioning of 20-meter high GI Polygonal High-Mast with luminaires & accessories at ±800 KV HVDC Station, Alipurduar"** through GeM portal

This Invitation for Bids extended through media, website or written communication or by any other means, and issuance of Bidding Documents shall not be construed to mean that the prospective bidders to whom the Invitation for Bids has been extended and /or Bidding Documents have been issued is deemed eligible bidder. The eligibility of the bidders shall be determined as per the provisions of Bidding Documents.

3.1 The scope of work covered under these Package include "**Supply, Erection & Commissioning of 20-meter high GI Polygonal High-Mast with luminaires & accessories at ±800 KV HVDC Station, Alipurduar"** as detailed in Bidding Documents.

3.2 The Duration of Contract for the entire scope of work shall be the period as specified in GeM Bid.

3.3 Bidding will be conducted through the Domestic Competitive Bidding procedures as per the provisions of GeM and the contract shall be executed as per the provisions of the Contract.

Bidders may note that the Owner has uploaded its 'Works & Procurement Policy and Procedure: Vol.-I & Vol.-II along with its Modification/Amendment on "Ineligibility of Firms for Participation in the Bidding Process" and on "Black-Listing of Firms / Banning of Business" on POWERGRID's website. Those bidders who wish to peruse the same may visit www.powergrid.in. However, it shall be noted that no other party, including the Bidder/ Contractor, shall derive any right from this 'Works & Procurement Policy and Procedure' documents or have any claim on the Owner on the basis of the same. The respective rights of Owner and Bidders/ Contractors shall be governed by the bidding documents/contracts signed between the Owner and the Contractor for the package. The provisions of bidding documents shall always prevail over that of 'Works & Procurement Policy and Procedure' documents in case of contradiction.

4.0 **The detailed Qualifying Requirement (QR) are:**

The Bidder should have experience of similar kinds of work i.e. Supply, Erection & Commissioning of GI Polygonal High Mast with luminaires & accessories in any POWERGRID substation or any other Central or State Govt Organization or reputed private sector organizations. Documentary evidence i.e Work order and completion certificate to be submitted.

5.0 In order to participate, the Bidder should have GeM registration.

6.0 The complete Bidding Documents including tender drawings (if any) are available at POWERGRID's website *http://www.powergrid.in* as well as on GeM portal *https://gem.gov.in*. Interested bidders can download the Bidding Documents and commence preparation of bids to gain time. However, in case of any contradiction between the Bidding Documents at POWERGRID's website and those at the portal, the latter shall prevail.

7.0 Important Instruction for participation in subject e-Tendering through GeM portal:

a) Bidders are requested to read the 'SLA (Service Level Agreement) and and Pre-Requisite Document' available on GeM portal before proceeding for submission of bids. It is important to note that bidders can submit their bids online through GeM portal only.

b) The bidding documents are meant for exclusive purpose of bidding against this specification and shall not be transferred to any parts or reproduced or used otherwise for any purpose other than for which they are specifically uploaded.

c) Bidders shall ensure that their bids complete in all respects are submitted online through GeM portal only. **No DEVIATION in this regard is acceptable**.

For proper uploading of the bids on the portal namely *https://gem.gov.in* (hereinafter referred to as the 'portal'), it shall be the sole responsibility of the bidders to apprise themselves adequately regarding all the relevant procedures and provisions as detailed at the portal, as and when required. The Employer in no case shall be responsible for any issues related to timely or properly uploading/submission of the bid in accordance with the relevant provisions of the Bidding Documents.

8.0 A single stage two envelope bidding procedure along will be adopted and will proceed as detailed in the Bidding Documents.

8.1 Bids must be uploaded under Single Stage Two Envelope Bidding Procedure on the portal **as per GeM portal at or before the date and time specified in the portal for bid submission**.

First Envelope i.e. Techno-Commercial Part shall be opened online on GeM Portal **as per the date and time specified in the portal for bid Technical opening**.

Second envelope i.e. Price Part of only those who successfully meets the qualifying requirement and technical specifications shall be opened online on the GeM portal.

No bidder shall upload Price details in the technical part of the bid else bid shall be considered non responsive and shall be rejected during technical evaluation.

The portal would not allow any late submission of bids through the portal after due date & time as specified.

9.0 **Bid security/EMD & EMD Exemption shall be applicable as per GeM bid & GTC**.
Under MSE category, only manufacturers for goods and Service Providers for Services are eligible for exemption from EMD. MSE registered as Traders are excluded from the purview of this Policy.

9.1 **AS PER MoP ORDER DT 16.11.2021, ONLY CLASS-I LOCAL SUPPLIERS ARE ELIGIBLE TO BID IN THIS CASE.**
This is in line with Public Procurement Policy – Make In India (PPP-MII) order 2017 and its revision dtd 16.11.2021.

'Local Content' means the amount of value added in India which shall be the total value of the item procured (excluding net domestic indirect taxes) minus the value of imported content in the item (including all customs duties) as a proportion of the total value, in percent.

'Class –I local supplier' means a supplier or service provider, whose goods, services or works offered for procurement, meets the minimum local content as prescribed for 'Class-I local supplier'. Presently, the local content requirement to categorize a supplier as 'Class-I local supplier' is **minimum 50%.**

Firms who are not 'Class-I local supplier' shall not be eligible to bid.

Further, Class-I Local suppliers have to submit self-certification on a Company's letter head regarding Minimum Local Content in line with PPP-MII order 2017 and its revision dtd 16.11.2021 as per format attached at Buyer added Bid Specific ATC documents.

Any false declaration regarding Local Content by the bidder shall be a transgression of Integrity Pact and action shall be taken in line with provisions of the Integrity Pact and in line with the provisions of the PPP-MII Order.

10.0 There shall not be a Pre-Bid meeting for this package.

11.0 ***POWERGRID reserves the right to cancel/withdraw this invitation for bids without assigning any reason and shall bear no liability whatsoever consequent upon such a decision.***

11.0 ***e-Reverse Auction (e-RA) shall not be conducted for the subject package.***

12.0 All the correspondence with regard to above shall be to the following address: (By Post/In Person)

Ch. Manager (CS)/ER-II
POWER GRID CORPORATION OF INDIA LIMITED,
CF-17, ACTION AREA-1C, NEW TOWN,
RAJARHAT, KOLKATA-700156
TEL NO. 033-23242847, 9709316005
Email: rajmangal599@powergrid.in, er2cnm@powergrid.in

For more information on POWERGRID, visit our site at
http://www.powergrid.in

-- End of Section-I (IFB) ----

Scope of Work

- Supplier must supply a 20M high mast shaft in two sections suitable for 50 m/sec wind speed as per Spec, with all accessories i.e. head frame, winch mounting bracket, luminaries' carriage suitable to install 12 nos. 350-watt Flood Light luminaries in symmetrical arrangement, raising & lowering system comprising of double drum winch, SS wire rope, trailing cable, connector, integral power tool motor, manual handle, junction box, lightening finial etc.

- Supplier must supply 12 nos. 350-watt LED Flood Light luminaries and 01 no. LED type Twin Dome Aviation Obstruction light of IP-66 protection with all drivers and fittings suitable for installation in high mast of repute brand or POWERGRID approved brand with minimum 05 years of replacement/repair warranty.

- Supplier must supply outdoor double door feeder pillar of IP-55 protection made with 14 SWG CRCA sheet, powder coated paint, having all required accessories like 32A TPN MCB, 22A TP contactor, 9A contactor, Digital Timer switch, LED panel indicators, Lower/Raise push buttons, 16A Power Socket, Panel light, space heater, cable glands & terminals etc. for automatic switching of luminaries and power tool control.

- Supplier must construct a shallow foundation with M20 grade concrete and foundation bolts made with special steel along with nuts, washer, anchor plate and common template for the High-Mast as per POWERGRID approved drawing and design at a location identified by Engineer-in-Charge or his representative in open store yard. All required materials, machinery and manpower should be arranged by the supplier.

- POWERGRID will provide a suitable location for safe storing of materials inside the plant.

- Supplier must provide an experienced service engineer or supervisor for the erection and commissioning of the high mast with the help of suitable tools and plants considering precaution to achieving all safety measures.

- During Installation and commissioning of high mast at site, POWERGRID will not be responsible for any accident or any consequential full/partial damages/losses to property/human for the negligence or incompetency in the field of such type of job and vendor will be hole responsible for that.

- Food & lodging may be provided to the service engineer/supervisor at guest house/field hostel on chargeable basis based on availability at the time of work, if required.

- A minimum 1-year warranty should be provided by the Supplier/Agency for the executed work after completion of the work. In case of any defects noticed within the warranty / defect liability period, the vendor should repair the same at his own cost. In case of failure of the vendor to undertake the repair works, same should be done by POWERGRID at risk and cost of the vendor.

- All necessary Transportation/boarding and lodging of the service team are deemed in the present scope of bidding. Further all the engaged team must have valid Workmen Insurance and shall comply against other statute points.

- The work shall be completed within 4 Months from the date of award of GeM Contract.

- Required water & power shall be provided by POWERGRID free of cost to the successful bidder for completion of the job. However, the successful bidder shall arrange the necessary piping and cabling arrangement for work at the exact point. Main point shall be identified by POWERGRID.

BOQ for Supply, Erection & Commissioning of 20-meter high GI Polygonal High-Mast with luminaires & accessories at ±800 KV HVDC Station, Alipurduar

Sl.no	Description of item	Unit	Qty
1	Supply of 20 M high Mast shaft in two sections suitable for 50 m/sec wind speed as per Spec, with head frame, winch mounting bracket, luminaries carriage suitable to install 12 nos 350 W Flood light luminaries in symmetrical arrangement.	Nos.	1.00
2	Supply of raising lowering system comprising of double drum winch, 6mm diameter Ss wire rope, trailing cable, connector, integral power tool motor, manual handle, junction box, lightening finial.	Nos.	1.00
3	Supply of foundation bolts manufactured from special steel along with nuts, washers, anchor plate and common template.	Set	1.00
4	Supply of LED Flood Lights Fitting 350 W (12 nos. per set).	Set	1.00
5	Supply of LED type single dome aviation obstruction light.	Nos.	1.00
6	Supply of outdoor, made of 14 SWG CRCA sheet, IP-55, stand mounted feeder pillar with 1 no. 32A TPN MCB incomer, single dial time switch, Approx. 22A TP contactor for automatic switching of luminaries, power tool control with 2 no 9A contactors (Approx.) and raise lower push button, Incoming 35sq. mm and out going 16 & 2.5 sq. mm terminals.	Nos.	1.00
7	Construction of shallow foundation with M20 grade concrete for the High Mast considering the safe soil bearing capacity at site as 10 T/sq mtr. at 2 meter depth with all materials and labour as per **Annexure-I**	Job	1.00
8	Erection of the High Mast with the help of suitable tools and plants, wiring of luminaires with all wiring materials like PVC sheathed flexible cable of suitable copper conductor cores of 1.5 sq. mm, lugs, MCB and all labour.	Job	1.00
9	Provision of GI pipe earthing for High Mast with 2.5 M long 40 mm dia GI Pipe including connection to High Mast earth terminal with 25 x 3 mm GI flats with all materials and labour. (2 nos. per mast required) (02 nos. per set).	Nos.	1.00
10	Installation of the Highmast feeder pillar by grouting the stand in concrete.	Nos.	1.00

Annexure-I

BOQ for Construction of shallow foundation with M20 grade concrete for the High Mast considering the safe soil bearing capacity at site as 10 T/sq mtr. at 2 meter depth with all materials and labour

Sl.no	Description of item	Unit	Qty
1	Earth work in excavation by mechanical means (Hydraulic excavator)/ manual means over areas (exceeding 30 cm in depth, 1.5 m in width aswell as 10 sqm on plan) including getting out and disposal of excavatedearth lead upto 50 m and lift upto 1.5 m, as directed by Engineer-incharge. 2.6.1 All kinds of soil	Cum	21.04
2	Centering and shuttering including strutting, propping etc. and removal of form for 5.9.1 Foundations, footings, bases of columns, etc. for mass concrete	Sqm	10.43
3	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level :1:4:8 (1 Cement : 4 coarse sand (zone-III) derived from natural sources : 8 graded stone aggregate 40 mm nominal size derived from natural sources)	Cum	0.57
4	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto plinth level : 5.22.6 Thermo-Mechanically Treated bars of grade Fe-500D or more.	Kg	183.19
5	Providing and laying in position specified grade of reinforced cement concrete, excluding the cost of centering, shuttering, finishing and reinforcement - All work up to plinth level : 1:1.5:3 (1 cement : 1.5 coarse sand (zone-III) derived from natural sources : 3 graded stone aggregate 20 mm nominal size derived from natural sources)	Cum	3.79
6	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.	Cum	16.87

Technical Specifications for Supply, Erection & Commissioning of 20-meter high GI Polygonal High-Mast with luminaires & accessories at ±800 KV HVDC Station, Alipurduar.

Sl. No.	Description	Specification
1	GENERIC	
	Height of High Mast Tower (in Meters)	20
	Installation and commissioning (Installation and commissioning work at multiple locations shall follow as per the guidelines of State/Central Govt rules and regulations as applicable)	Yes. Including Civil work at site
	Each pole shall be supply with suitable foundation bolts,nuts and washers, Instruction manuals	Yes
	Onsite warranty (in Years)	5
2	High mast System	
	Cross section of mast (no of sides)	20 sided polygon
	No of sections	2
	Effective length of each section (in m)	10.5
	Material construction: The mast shall be manufactured using special steel plates, conforming to	S355 grade as per BSEN 10025 :2019
	Bottom diameter (in mm) - Minimum	410
	Top diameter (in mm) - Minimum	150
	Plate thickness for top (in mm) - Minimum	3
	Plate thickness for Middle (in mm) - Minimum	4
	Plate thickness for Bottom (in mm) - Minimum	4
	Length of overlap for Top (in mm) - Minimum	600
	Length of overlap for Bottom (in mm) - Minimum	800
	Type of joints	Stress fit
	No of longitudinal welds / section (in Nos)	1
	Metal protection treatment of fabircated mast section	Hot dip galvanised
	Thickness of galvanisation	Average: 70 Micron
	Provision for cable termination	MCB Isolator
	Diameter of base plate (in mm) - Minimum	570
	Thickness of base plate (in mm) - Minimum	30
	Lantern carriage shall be fabricated suitably and hot dip galvanized for fixing and holding required no of floodlight fixtures and their control gear boxes	Yes

	Test Report from Central Government lab/NABL/ILAC accrediated lab and report shall furnish to buyer on demand	Yes
3	Lightning Finial	
	Heavy duty hot dip galvanized lightning finial shall be provided for each mast (in Nos)	1
	The lightning finial shall be provided at the center of the head frame (minimum length) in meters	1.2
	It shall be solidly bolted to the head frame to get a direct conducting path to the center of the earth through the mast	Yes
	The lightning finial shall not be provided on the lantern carriage under any circumstances in view of the safety of the system	Yes
4	Aviation Obstruction Lights	
	Aviation obstruction lights shall be provided on top of each mast(in Nos)	2
	Type	LED, Vertical stand
5	Earthing Terminals	
	Suitable length of earthing terminals shall be provided at a convenient location on the base of the mast, for lightning and electrical protection of the mast	Using 12 mm dia SS Bolts
6	Wind Load	
	Wind loadings as per	IS 875:1987 part 3 latest
	Gust Factor	1.15
	Maximum Wind load	50 m/sec
	The design Life of the mast shall be (in Years)	25
	The Test Report from Central Government lab/NABL/ILAC accrediated lab and report shall furnish to buyer on demand	Yes
7	Door Opening	
	An adequate door opening shall be provided at the base of the mast and the opening shall be such that it permits clear access to equipment like winches, cables, etc and also facilitate easy removal of the winch	Yes
	Type of locking arrangement for door	Pad lock

	Size of opening and closing door at base compartment of high mast (in mm) - Minimum	1200 x 300
8	Lantern Carriage	
	A fabricated Lantern Carriage shall be provided for fixing and holding the flood light fitting and control gear boxes	Yes
	The Lantern Carriage shall be of steel tube construction, the tubes acting as conduits for wire, with holes fully protected by grommets	Yes
	The Lantern Carriage shall be so designed and fabricated to hold the required number of flood light fitting and control gear boxes, and also have a perfect self balance	Yes
	The Lantern Carriage shall be fabricated in two / three halves and joined by bolted flanges with steel nuts to enable easy installation or removal from the erected mast	Yes
	The entire lantern carriage shall be hot dip galvanized after fabrication	Yes
	The inner lining of the carriage shall be provided with protective PVC arrangement, so that no damage is caused to the surface of the mast during raising and lowering operation of the carriage	Yes
9	Junction Box	
	Weather proof junction box shall be provided on the Carriage Assembly as required, from which the interconnections to the designed number of the flood light luminaries and associated control gears fixed on the carriages shall be made	Yes
	Ingress protection for Junction Box i.e. IP Class (as per IS/IEC:60529:2001 latest) Test Report from Central Government lab/NABL/ILAC accrediated lab and report shall furnish to buyer on demand	IP 65
	Junction Box material	Cast aluminium
	Cable connections from the top junction box to the individual luminaries and cable shall conforming to	IS: 694: 2010 latest
	No of core	5
	Cable category	FR
	Size of cable (in Sq mm)	4

	Conductor material shall be	Copper
10	Raising and lowering mechanism	
	For the installation and maintenance of the luminaries and lamps,it shall be necessary to lower and raise the Lantern Carriage Assembly	Yes
	To enable this, a suitable Winch Arrangement shall be provided, with the winch fixed at the base of the mast the specially designed head frame assembly at the top	Yes
11	Winch	
	The winch shall be of "Integral Power Tool" type with motor	Yes
	The winch shall have provision for manual operation in case of failure of the motor	Yes
	Minimum working load of winch (in Kg)	750
	Motor capacity - Minimum (in HP)	1.5
	Suitable rating and connecting copper cable also shall be provided for the motor	Yes
	The winch shall be type tested from a Central Govt Lab/NABL/ILAC acrreidated lab and the test certificate shall be furnished to buyer on demand. The test certificate shall include the maximum load operated by the winch	Yes
12	HEAD FRAME	
	The head frame is to be designed as a capping unit of the mast, shall be of welded steel construction, galvanized both internally and externally after assembly	Yes
	The top pulley shall be of appropriate diameter, large enough to accommodate the steel wire ropes and the multi-core electric cable	Yes
	The pulley block shall be made of non-corrodible material, and shall be of die-cast Aluminum Alloy (LM-6). Pulley made of synthetic materials such as plastic or PVC are not acceptable	Yes
	Self-lubricating bearings and steel shaft shall be provided to facilitate smooth and maintenance free operation for a long period	Yes

	The pulley assembly shall be fully protected by a canopy galvanized internally and externally. The head frame shall be provided with guides and stops with PVC buffer for docking the lantern carriag	Yes
13	Stainless Steel Wire Rope	
	The suspension system shall essentially be without any intermediate joint. The steel wire ropes shall be of suitable construction, the central core being of the same	Yes
	The overall diameter of the rope	>/=6 mm
	The breaking load of each rope shall be at full load as per the relevant standard	>/=2250Kg
	Grade / construction	AISI 316, 7/19 construction
	Number of ropes	3
	Torque- limiting device with load adjustment facility to protect the wire ropes	Yes
14	Electrical System, Cable and Cable Connections	
	A suitable terminal box shall be provided as part of the supply at the base compartment of the high mast for terminating the incoming cable	Yes
	At the top there shall be weather proof junction box to terminate the trailing cable	Yes
	The system shall have in - built facilities for testing the luminaires while in lowered position	Yes
	Electric cables shall used in the high mast system shall be	ISI Marked
	The trailing cable (from base compartment to top of the mast system junction box) conforming to	IS:7098 (Part 1):1988 latest
	No. of cores	5
	Size of cable (in Sq.mm)	4
	Cable shall be	**Armoured**
	Conudctor material shall be	Copper
	Cable Category	1
	Incoming power cable from feeder panel to base compartment of mast and cable shall conforming to	IS:7098 (Part 1):1988 latest
15	Feeder pillar Panel	
	Feeder pillar panel for each mast	Yes
	Feeder panel shall be suitable for	415 V, 3 phase, 4 wire, 50 Hz, AC
	The control panels shall be	Stand mounted

	Ingress protection for feeder pillar panel i.e IP Class (as per IS/IEC:60529:2001 latest).Test Report shall furnish from Central Government lab/NABL/ILAC accrediated lab to buyer on demand	IP 65
	It shall be fabricated out of	14 SWG CRCA sheet steel
	Thickness of sheet (in mm)	2
	The panels shall be given pre-treatment and powder coated and color shall be	Grey
	The stand shall be painted in	Black color
	Cable entry shall be at the	Bottom
	The panels shall have	knock outs of the required cable
	Laminated circuit diagram shall be pasted	inside of the door
	Feeder pillar shall have pad locking arrangement	Yes
	Earth terminal	12 mm dia. Bolts
	Panel shall have a sloping cover to avoid accumulation of dust	Yes
	Panel shall be provided with incoming & outgoing MCCB / MCB of appropriate rating and in desired quantity depending on total no of circuits in use	Yes
	Timer for automatic ON & OFF of lights with pilot lamps shall be provided	Yes
	Product Compare Toggle Switch for AUTO/OFF/MANUAL mode	Yes
	Bus bars material	Yes. Copper
	Cables used in the high mast system shall be	ISI Marked
	The incoming power cable (from feeder panel to base compartment) conforming to	IS:7098 (Part 1):1988 latest
	No of Cores	5
	Size of cable (in Sq.mm)	4
	Cable Shall be	Armoured
	The conductor material shall be	Copper
	cable category	1
16	LED FLOOD LIGHT LUMINAIRE	
	No. of Luminaires for each high mast lighting tower (in Nos)	12
	LED Luminaire conformity to IS:10322/Part5/Section5/2012 latest and IS: 16107 (Part 2/Sec 1):2012 latest	Yes
	Photo biological safety of LEDs used shall be as per IS:16108/2012 (exempt group)	Yes

	Types of LED Luminaire as per the IS: 16107(Part-2/ Sec-1)/2012	Type B
	Types of LED Modules as per the IS: 16103(Part2)/2012	Type 3
	LED Rating/System Wattage/Rated Power for each luminaire	350W
	Luminaire System Efficacy (Lumen/watt)	>/= 100 Lm/Watt
	Ingress Protection (IP Rating) as per IS:10322 (Part 1):1982 latest	IP66
	Mounting brackets (included)	Adjustable
	Input operating Voltage range and frequency	90 to 300 Volts AC at 50Hz+/-2Hz
	Automatic Higher Cut off voltage above 300 volt	Yes
	Rated voltage	230 V AC 50 Hz
	AC Power Factor at full load	≥ 0.95
	Driver Efficiency (in %age)	≥85
	Total Harmonics Distortion (in %age)	≤ 10
	The total circuit power shall not be more than 110 percent of the value declared by the manufacturer"	Yes
	LED chip Efficacy	≥130 Lm/Watt
	Colour temperature	6000K (+/- 500K)
	Working life for LED (Minimum 50,000 burning hours as per LM-80 report)	Yes
	Colour Rendering Index(CRI)	≥70
	Beam Angle	≥120
	Optic lense material (UV stabilised) (Write NA for without optic lense supply)	Poly carbonate lense
	Heat sink should be die-cast aluminium along with sufficient heat sink fins to dissipate heat effectively	Yes
	Capacitor shall be rated for a temperature of 105 deg celsius or better	Yes
	Junction temperature	< 85 degC
	Operating temperature range	- 10 deg C to + 50 deg C
	Operating Humidity Range	10 % to 95 % RH
	Short circuit Protection	Yes
	Over load protecton	Yes
	Over Voltage protection	Yes
	Reverse polarity	Yes
	High voltage test (1.5 KV for one minute between supply terminals and body of the unit)	Yes
	Insulation resistance between earth and current carrying part	>100 M ohm

	The luminaire shall be protected against surges and transients(Internal)	>/=5KV
	The luminaire shall be protected against surges and transients of >/=10KV (External)	Yes
	The Luminaires casing/housing (single piece housing) shall be pressure die casted aluminium alloy with higher thermal conductivity	Yes
	The luminaire body must be corrosion resistant epoxy powder coated	Yes
	All fastners must be of stainless steel	Yes
	The entire housing (both LED section and driver section) shall be dust and water proof protection as per IS:10322 (Part 1):1982latest	IP66
	Extruded silicon loop gasket shall be provided in the lantern body to ensure a weather proof seal between the UV Glass cover and the metal housing to exclude the entry of the dust,water,insects etc	Yes
	Luminaries light transparency should be of Toughened glass	Yes
	Toughned transparent glass cover thickness	>/=4 mm
	Toughned Glass shall not get discoloured, shall not suffer degration due to heat and ageing within warranty period	Yes
	Number of electronic control gear per luminaire (power supplies)	Any Value
	Driver components shall be industrial grade or above	Yes
	PCB shall be FR4 grade minimum 0.8 to 1.0 mm thick or more	Yes
	The Luminaires works on single phase three wires system (Phase, Neutral and Earth)	Yes
	Suitable connector shall be provided for LED connection between driver output and LED	Yes
	Length of ISI marked three core wire (shall be provided along with supply of material)	>/= 50 cm
	Light Source	SMD LED Chip as per LM80/IS16106
	Manufactures Name and and brand on the aluminium die cast body	Engraved / Embossed
	Manufacturer's name, model number, serial number	Yes

	Date of manufacture (month-year), and lot number as identification mark in side each unit and the out side of each packaging box	Yes
	The operation characteristics voltage and power be marked inside of each LED luminaire unit	Yes
	LED Make	OSRAM / NICHIA/CREE / SAMSUNG / SEOUL / LUMILED / PHILIPS / EDISON / SYSKA / LUMENMAX / EVERLIGHT / BRIDGELUX / NATIONSTAR / REFOND
17	CERTIFICATIONS	
	System must have EMI/EMC compliance as applicable (Test reports shall be furnish on demand by buyer/consignee)	Yes
	LM 79 (Photometry) (Ref IS:16106:2012) report from Central Government lab/NABL/ILAC accrediated lab Reports shall be furnish on demand by buyer (LM-79 report shall have total lumen output, power, PF, Current in Amps, CRI & CCT etc	Yes
	LM 80 & TM 21 (Part of LM 80) (Ref IS:16105:2012) Reports and Photo biological report for LED report from Central Government lab /NABL/ILAC accrediated lab Reports shall be furnish on demand by buyer (LM-80 report shall have and the Photo Biological report of the LED Chip being used in the luminaire)	Yes
	Availability of test Report from Central Government lab/NABL/ILAC accrediated lab to Indian Standrad IS:10322/part5/sec-5/2012andIS16107 (Part 2/Sec 1):2012	Yes
	DC or AC supplied electronic control gear for LED Module shall comlpy as per IS:15885 (Part 2/Sec 13)	Yes
	LED Luminaire for Flood Light shall comply with Complusory Registration (CRS) of BIS for safety as per IS 10322 (Part5/Section5): 2012 as applicable on the date	Yes

	Marking: All the products shall have marking details as per relevant BIS standard	Yes
	Seller shall furish all the test reports and certificates as per the technical specification to the purchase auhtority on demand	Yes