

CASE STUDY

T-Net Japan Led system improves safety and cuts cost



Mumbai International Airport Private Limited (GVK), INDIA



Chhatrapati Shivaji Maharaj International Airport (CSMIA) formerly Sahar International Airport, is the primary international airport serving the Mumbai Metropolitan Area, India. It is the second busiest airport in the country in terms of passenger traffic and international traffic after Delhi, and was the 35th busiest airport in the world by passenger traffic in 2015 according to Airports Council International. The airport is the busiest in the country in terms of cargo traffic.

It won the 2015 ASQ Best Airport Award in the 25-40 million passengers per annum category by Airports Council International. It has also won the "Best Airport in India and Central Asia" award at the Skytrax 2016 World Airport Awards. It is one of the two airports in India to have implemented Airport Collaborative Decision Making (A-CDM) to ensure timely takeoffs and landings.

PROJECT SUMMARY

Mumbai International Airport Limited (GVK)

- All Apron areas.
- No. Of T-Net Led fixture installed **455 nos.**
- Replacement of conventional metal halide fixture to new T-NET Led fixtures
- Energy saving by INR **93 Lac** per year.
- Maintenance cost saved by INR **30 Lac** per year.
- A faster payback of **2.7 years**
- Reduction in CO₂ emission totaling to **1370 tonnes** per year.
- Much better visibility for Flights and ground staff at night.



The airport is operated by Mumbai International Airport Limited (MIAL), a Joint Venture between the Airports Authority of India and the GVK Industries Ltd led consortium. The year 2006 witnessed a momentous change for the airports in India with the privatization of Mumbai's GVK Chhatrapati Shivaji International Airport (GVK CSIA). (GVK CSIA) was formed by GVK led consortium (74%) and Airports Authority of India (26%).



Large LED Lighting Equipment

THE PROJECT



Mumbai International Airport needed to upgrade the area lighting from the existing metal halide to be installed from scratch in the aircraft parking area or apron area, as it is also known. The lighting had to provide adequate light output, comply with the regulations of the Director General of Civil Aviation (DGCA) and ICAO, be able to withstand rough weather and not be a nuisance for either cabin crew or ground staff. Mr. G Venkatraman, AGM of Engineering and maintenance, Electrical Department at MIAL (GVK), says: "I asked T-NET

Japan along with Kripa Electronics India Limited to look into the possibilities of developing a long-life lighting system that would be a complete solution and comply with the government requirements."

We do have suppliers who offer similar products, but we have chosen the one who in addition to the perfect light quality, is specialised and reliable to deal with after sales support after several years, when we possible need service. T-NET Japan NV 1000 Series LED and KEI Lighting proved to be an excellent choice in terms of the demanded criteria.





Saving electricity with proper illumination to some of the critical apron areas in the airfield as per the DGCA and ICAO guidelines was the main objective of the Mumbai International Airport (GVK). There was a clear struggle to achieve a defined illumination level in a mid-way apron area from both sides of the mast. There have been suggestions from other competitors to install high-mast and illuminate the area with fixtures. It was a time-consuming and additional cost affair to install high-mast and fixtures on them apart from energy saving from other existing aprons. The said apron areas were struggling with the desired lux level output as per the guidelines laid for the apron. The present lux level was low and ICAO Airport audit was very much due for the year and about to take place.

Officials at Mumbai International Airport recognized a need for upgrading the apron lighting all together that solves their existing problem as well as that would optimize energy savings, while continuing to provide a safe and well-lit environment for its passengers and Pilots. After performing a mock-up of multiple competitive products with different lamp sources and analyzing their performance to find the best solution, they selected the T-NET Japan LED luminaire. This decision would not only lead to greater energy efficiency, but also cost savings of almost INR 93 Lacs each year.





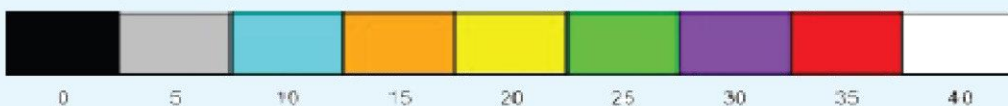
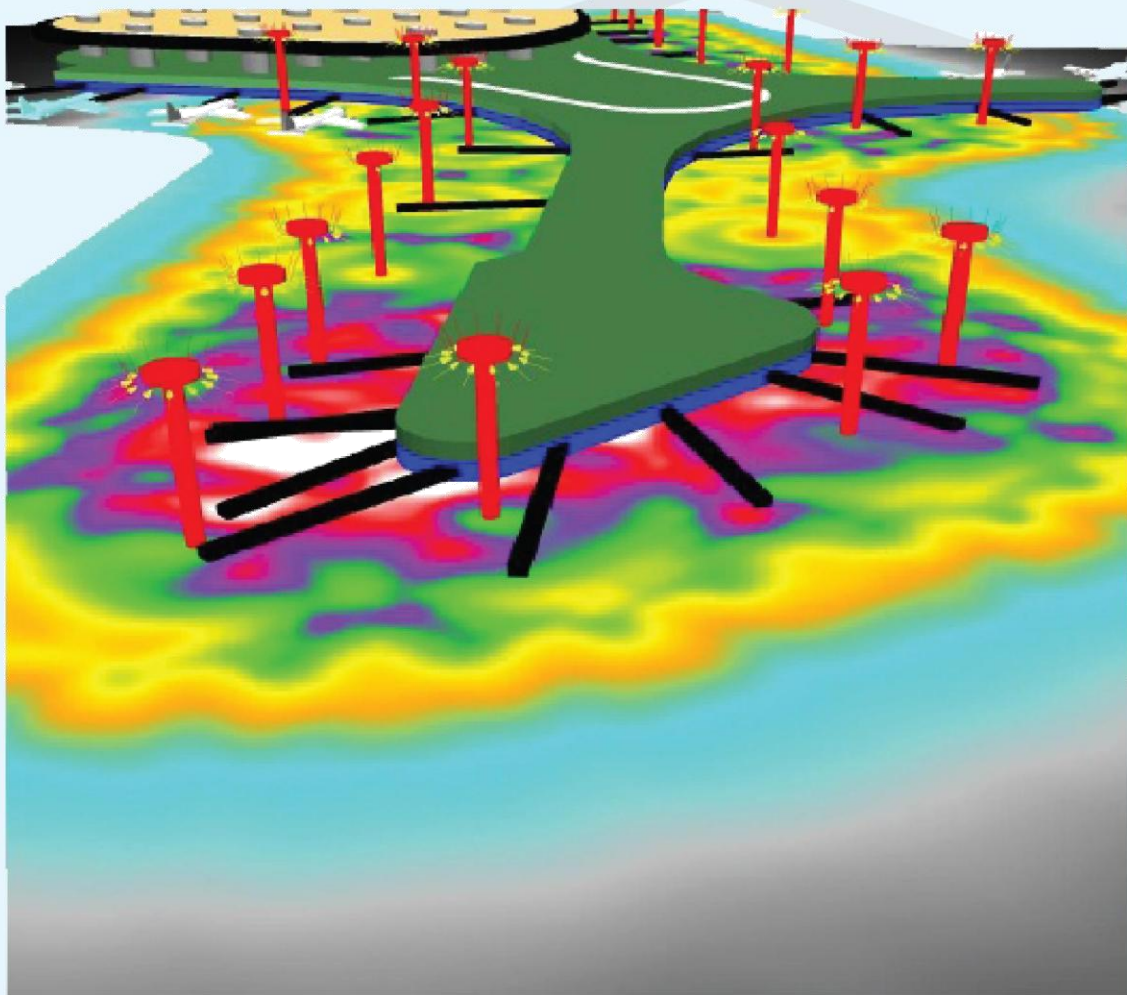
Large LED Lighting Equipment

THE DESIGN



After detail study of the existing lightingsystem of the airport with Airport engineering department and understanding their need, lighting stimulated software was used for effective output and result were generated through it. The desired out put initially was reviewed and verified by T-Net Japan,- Japanese team and then the same was presented to Mumbai International airport(GVK) for their approval. Design was made as per the ICAO standards Annex14 – (Chapter 5) for Apron lighting.

- Overall 455 nos. of NV1000 fixture of 30degree and 60degree from T-NET,Japan was proposed.
- Payback for the Project was 31 Months.



lx

“We sought to install one-for-one replacements that would improve lighting performance and outlast the old HID lighting that was costly to maintain. All things considered, after realizing the short payback timeframe and energy and maintenance savings, the decision was easy to make”

-G Venkataraman

AGM – Airside Engineering maintenance
Mumbai International Private Limited
(GVK)



Aiming to reduce the maintenance demand and implement a more sustainable, energy-efficient lighting solution, the Mumbai International airport consulted with KEI & T-NET Japan Led to suggest a more modern approach. After trying several other LED lighting solutions—each with significant failure issues or not achieving the desired output result for the typical requirement in some of the apron areas as per DGCA and ICAO—the airport ultimately chose the T-NET Japan LED in association with Kripa Electronics India Limited for flood light fixture based on their industry leading energy and maintenance performance, as well as the quality of light and aesthetic design of the fixture itself. Even better, facility engineers also discovered through their own internal ROI and energy analysis that the superior output and optics design of the T-NET Japan fixtures would actually enable them to significantly reduce the total number of fixtures while still dramatically improve the quality of light. In all, 600 existing 1000W Metal Halide fixtures were replaced in the Terminal by just 455 T-NET 270W LED flood lights, for a total reduction in fixture count by xxx units (nearly 60%).

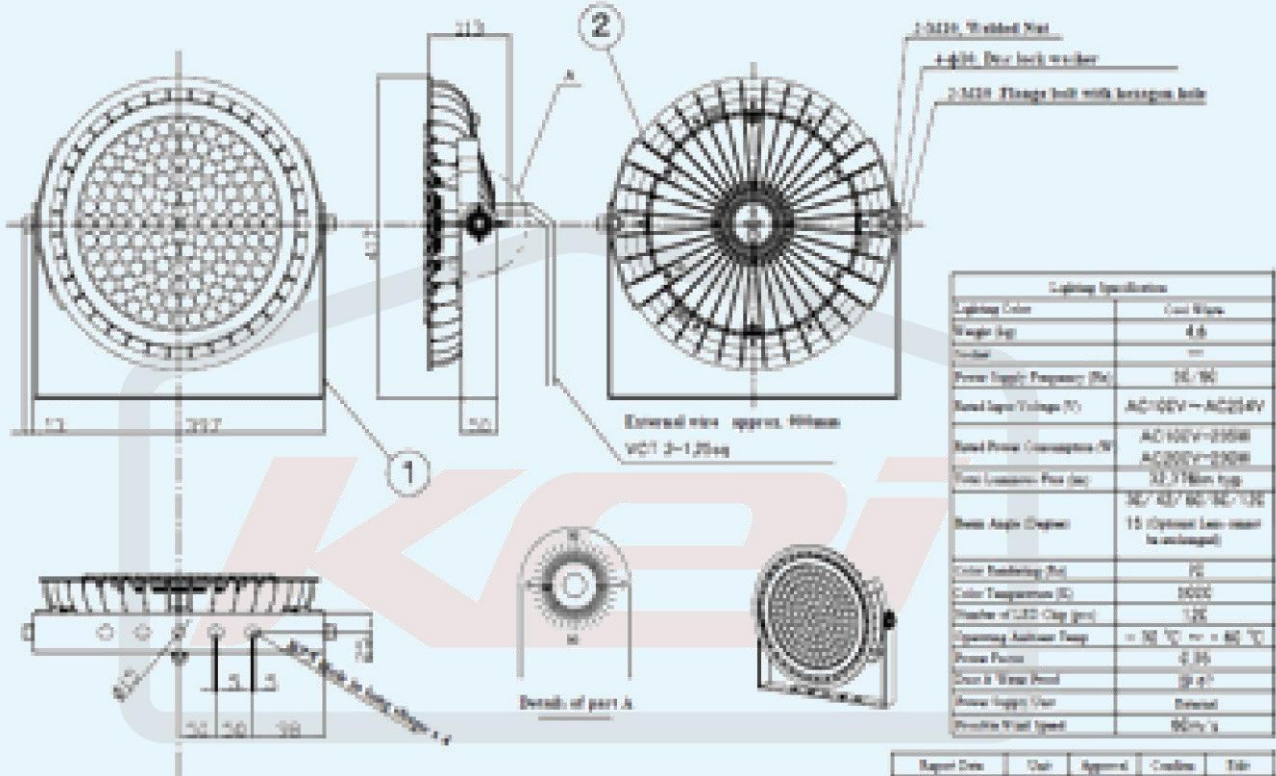
Implementation was carried out step by step in all the apron areas in International airport. Turn-key project from Designing, supply to installation was carried out. KEI had their dedicated installation team and was able to complete the installation under the given time. Time completion was important factor as the Airport ICAO audit was just next date from the date of completion given. Work for Domestic was started from 29th October 2015 and was completed on time 30th November 2015. International airport was started from 31st May 2016 and was completed on 31st July 2016.

RESULT ACHIEVED

Saving around 65%

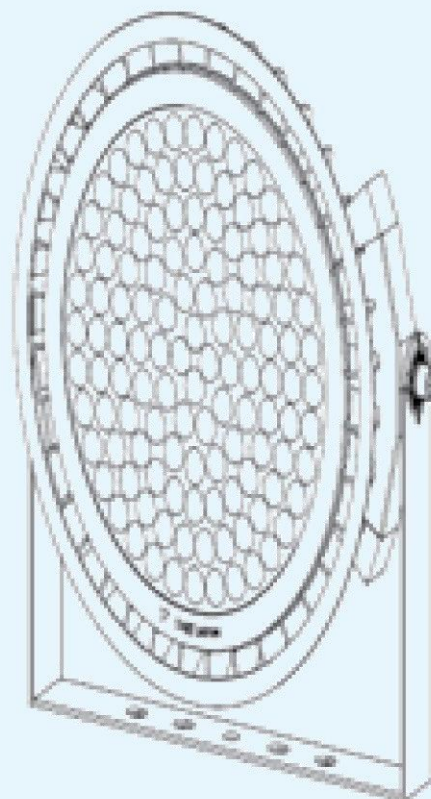
Better Lux as per the Airport standard

NV1000 used



- 1) Please definitely not to scratch the device and separate off the device
- 2) For your safety, please do not look at the LED lighting directly for long period.
- 3) Please turn off the power supply when handling, repairing and cleaning the device.
- 4) Please remove the lamp shade, as it will hinder the heat dissipation.

Report Date	Unit	Approved	Confirmed	Title
Dec.2023	mm	Spec	Design	Revision

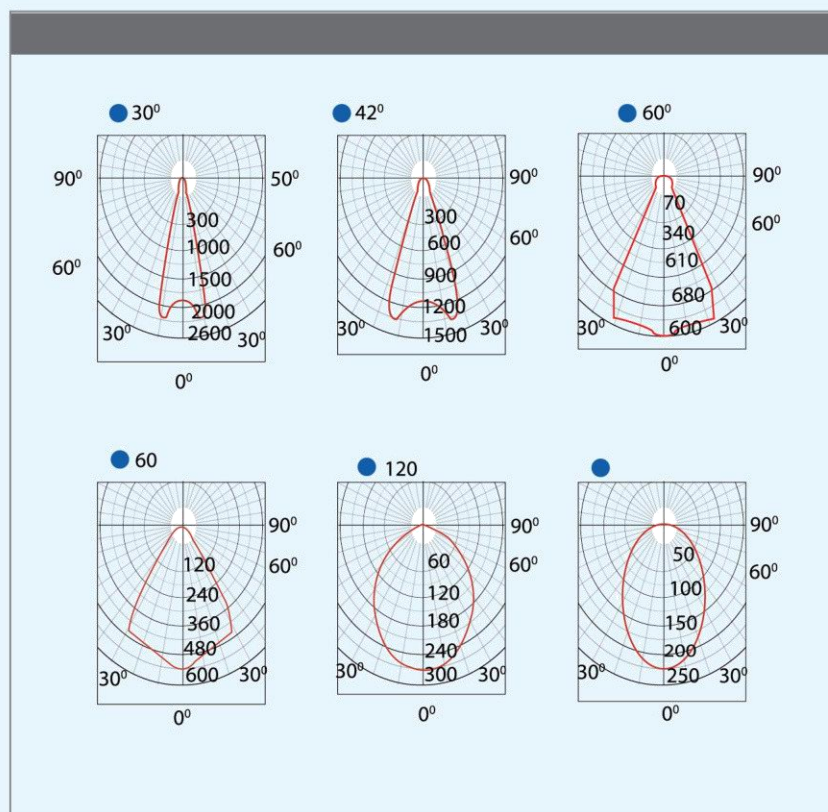
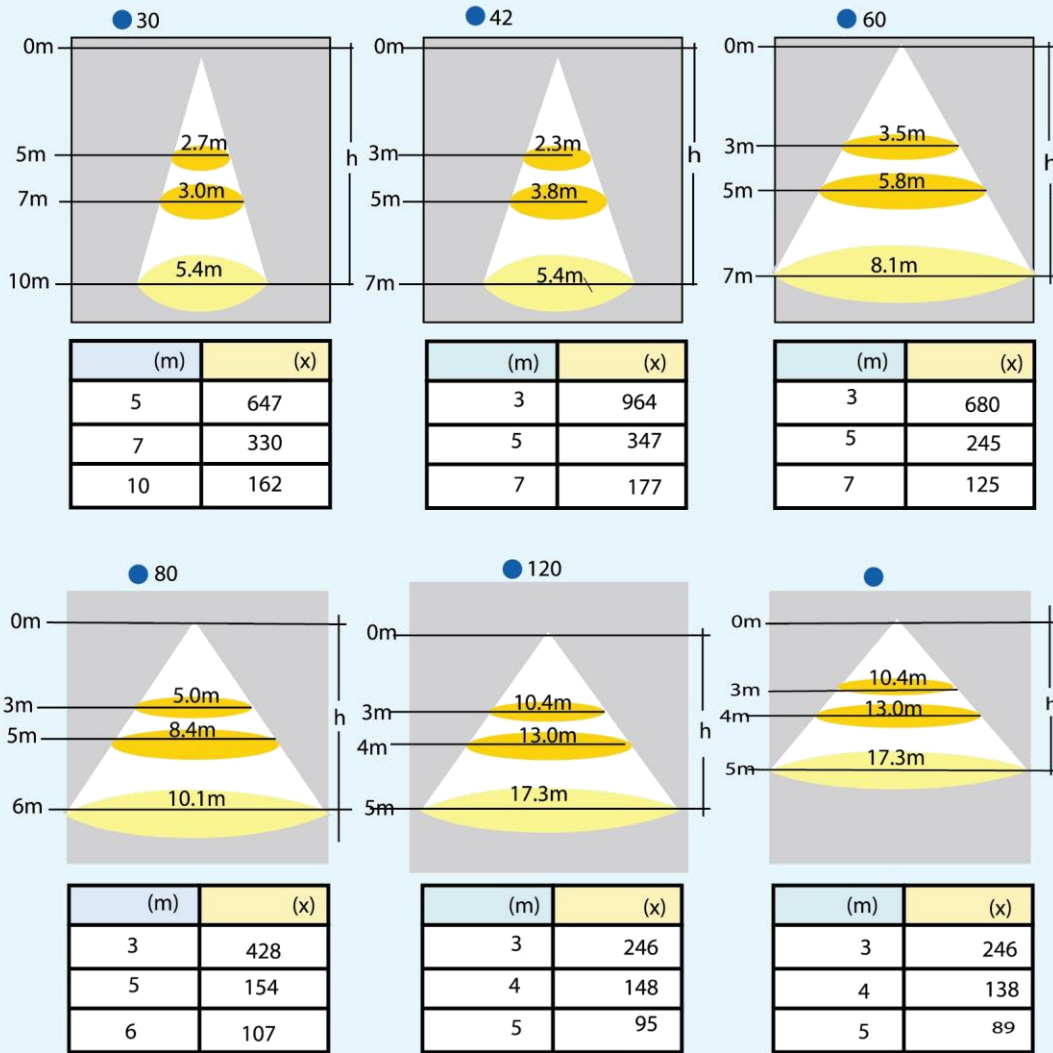


LENSES

TO ENHANCES THE OUTPUT



Large LED Lighting Equipment





Large LED Lighting Equipment

BENEFIT

ENERGY SAVING

INR 93 Lacs Per year



Maintenance Savings

INR 30 Lac per year

Faster Payback

2.7 Years



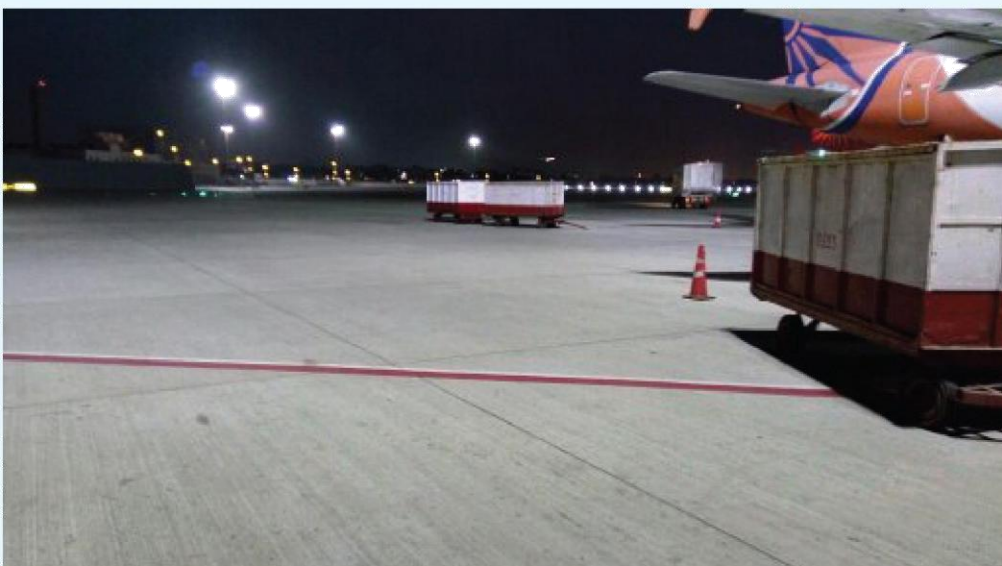
Better Visibility

At night for flight & ground staff

BEFORE



AFTER



ABOUT T-NET & KEI



T-net japan is a multi division Tokyo based corporation covering environment, energy,nuclear products and services. T-Net Japan new high energy Led Luminaires have been adopted more than 7700 companies around Japan and Eas Asia.Product being used for Indoor and out door facilities and locations as in Airports,sports venues,factories,warehouses,commercial buildings lobbies and hallways.



KEI lighting is a division of Kripa Electronics India limited the authorised and sole distributor and service provider for T-NET Japan LED pan India.KEI Audio, the other division is the India market leader for premium audio components for home theatre .Having 6 offices with Head office in Santacruz(west) ,Mumbai.KEI lighting has fulfilled service setup for electronics and lighting business.Lighting design and tech support provided by T-NET Japan exclusively.