



LumenServeTM

“We provide tower owners peace of mind....”

“We invented Obstruction Lighting as a Service (OLaaSTM) - Delivering tower owners a full range of lighting services with no upfront capital for qualified customers.”

“Fully managed monitoring and extended warranty - You choose how much we take care of your system, maintenance and compliance for you.”

“Reduce your tower lighting operating costs.”

“Our Guarantee: Eligible services include protection from any lighting Notice Of Violation or fine.”

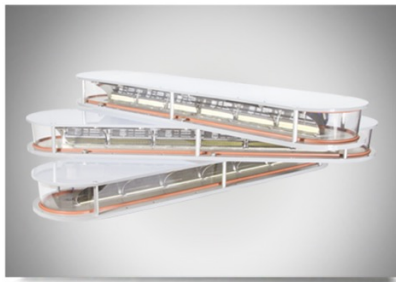
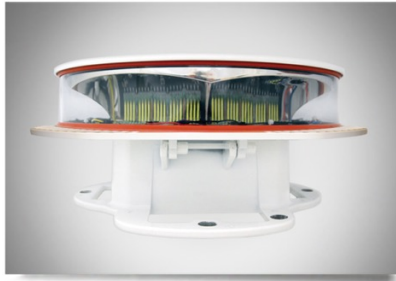
“Don’t change out your lightbulb – change your whole approach!”

LumenServe™

The cost of lighting a structure is very expensive using traditional flashtube technology. Unexpected bulb replacements can have a major impact on budgets. The FCC mandated tracking and reporting requirements must be met. Maintenance must be performed on a recurring basis and the structure owner absorbs the risk associated with compliance. Fines for non-compliance have made headlines.

The industry is shifting away from legacy flash tube technology to LED lighting solutions. The reasons for this are numerous: lower operating costs, improved reliability, and better performance. However, it takes capital to replace the lighting systems. Also, replacement of the lighting systems to LED technology does not eliminate the requirements of compliance including monitoring, reporting, and maintenance.

LumenServe™ is here to help you. LumenServe™ is a full service provider of tower lighting systems and solutions as a service for a monthly fee with no upfront capital. Not only will LumenServe™ replace legacy flashtube lighting systems with new state of the art LED lighting solutions, LumenServe™ will also monitor those systems 24/7 from two network operation centers (NOCs) using best in class monitoring solutions. Furthermore, LumenServe™ will ensure compliance with FCC/FAA regulations, and LumenServe™ will maintain and service the new LED system. This takes the hassle of lighting off of the plate of the tower owner and reduces the operating costs from legacy flashtube technologies.



A summary of the benefits of the LumenServe™ service:

- New, reliable LED technology benefits
- No upfront capital – Retrofit all your towers now
- Fixed monthly cost with no budget surprises
- No maintenance, repair, bulb replacement, or other unplanned expenditures
- Lower power consumption costs ~ 90%
- LumenServe™ takes care of compliance tracking and reporting
- LumenServe™ will guarantee tower owners protection from Notice of Violation under certain terms and conditions
- Improved site safety and community friendly lighting system utilizing patented optics
- Contract provides for renewals
- May be able to eliminate need and associated cost of painting your structures
- Eliminate cost of quarterly review of system
- Have the comfort of dual NOC monitoring for higher reliability
- Performance reports provided regularly to each customer
- Partnering with a “Go To” OLaaS™ company for all future needs



LumenServe™ Services

LumenServe™ provides Obstruction Lighting as a Service (OLaaS™) with four main services available:

1. New system replacement with Dialight™ LED lighting system
2. Compliance
3. Extended warranty and maintenance on Dialight™ LED lighting system
4. Dual NOC monitoring

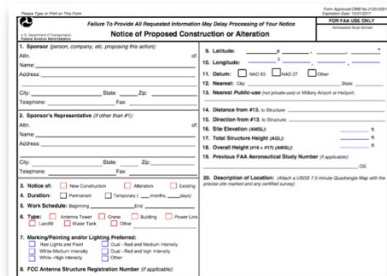
Lighting System Replacement With Dialight LEDs

Like all electronics, tower lighting systems have a useful life. At some point in time, those systems either become un-repairable or too expensive to maintain. LumenServe™ will perform all of the work necessary to replace the old lighting system with a new state of the art LED lighting system. This includes:

1. Draft any required FAA paperwork for new lighting determination
2. Decommission old tower lighting
3. Install new Dialight™ patented LED lighting system
4. Create and deliver project close out package with photos documenting installation

Draft FAA required paperwork for lighting change:

The FAA requires that changes to the marking system of a tower be processed and approved. There are required forms in order to process this approval. There are also deadlines that must be met such as advance submittal for lighting change forms. LumenServe™ will draft up the form and provide this to the tower owner for approval and submittal. The FAA requires that when installation of new lighting is to be started, notification must be given in advance. LumenServe™ provides this notification.



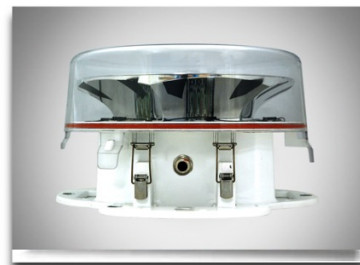
Decommission of Old Lighting System:

For a lighting replacement project, the old lighting system must be removed. LumenServe™ will decommission the old lighting system. As part of this process, the old lighting fixtures will be removed. All cabling from the old lighting system will also be removed from the tower. The old lighting electronics will be removed from its location whether that be in a shelter or on an H-Frame. All of the decommissioned materials and equipment will be properly disposed of.



Installation of New Dialight LED Lighting System:

Dialight™ provides the best in market LED obstruction lighting systems. LumenServe™ has selected Dialight™ as its partner and equipment provider. LumenServe™ is a certified installer of the Dialight™ LED obstruction lighting systems. All new systems are installed according to manufacturer's specifications. LumenServe™ is known for high quality installations and our installation will be formerly documented and quality checked.



Installation Close Out Documentation:

LumenServe™ technicians excel at providing a quality installation on our customer's towers. We are proud of the work our people perform. We will photo document the entire process and provide this to tower owners the installation that has been performed on their site. This is provided in a close out document that provides the installation work completed. This close out provides the tower owner not only the peace of mind that the work was performed properly, but also shows the exact as-built configuration installed.

Installed Lighting Info					
SITE NAME	Lat	DATE	6/12/15	Height	
Tower/Monopole Type:	Guyed				
Design Code	02LW 411 010 41	Serial #	1100005196	Mount Type & Height #	Top
		Side Light Mount # (A)	220	Center Line (C)	385
		Health Check	Pass	Alarm Status	None

Extended Warranty on Dialight LED Lighting

Tower marking systems, by nature, are exposed to the elements. Wind, storms, rain, snow, ice, and lightning batter the lighting system. These systems must be maintained for them to be effective at keeping our air traffic safe. LumenServe™ performs all of the necessary maintenance work including:

1. System Maintenance
2. System Service
3. Material and Equipment Replacement

System Maintenance:

The equipment will need maintenance during the term of the agreement. Critters will sneak into cabinets and birds will drop on lens. LumenServe™ will perform that maintenance including cabinet and lens cleaning.



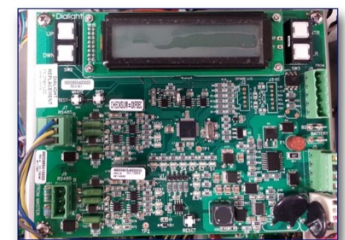
Node Status	● Node is Up.
Polling IP Address:	69.58.94.211
Dynamic IP:	No
Machine Type:	Net-snmp - Linux
DNS:	69.58.94.211.dsl.static.xxxx.com
System Name:	Mi-C5
Description:	Linux Mi-C5 3.18.0-bone
Location:	San Marcos, TX
Contact:	
SysObjectID:	1.3.6.2.4.1.8073.4.1.10
Last Boot:	Friday, March 25, 2016 10:38AM
Software Version:	10.14a
Hardware:	Physical
No of CPUs:	1
Telnet:	telnet://69.58.94.211
Web Browse:	http://69.58.94.211

System Software Service:

All of the lighting systems are run by firmware and software. LumenServe™ will keep the systems current on all firmware and software. Also, LumenServe™ will run diagnostics and health checks on the systems to ensure that they are in proper working order.

Material and Equipment Replacement:

There are many components to a LED lighting system. Occasionally, those components fail. LumenServe™ will replace any defective equipment or materials during the term of the agreement as part of the Extended Warranty. This includes all labor to perform the replacement.



LumenServe™ Dual NOC Monitoring

LumenServe™ provides monitoring services for almost any obstruction lighting solution. Federal regulation mandates that the lighting be monitored.

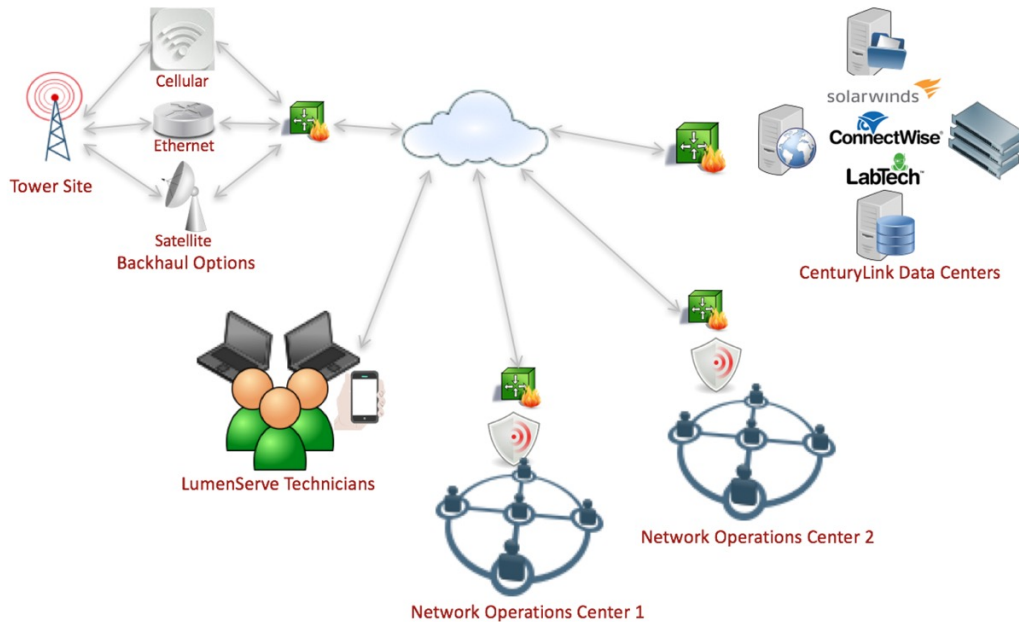
LumenServe's NOCs monitor thousands of network nodes throughout the United States utilizing best in class network monitoring applications. The following information can be monitored depending upon the lighting system:

1. Lighting system up/down
2. Lighting system performance
3. Many environmental factors
4. Security and surveillance
5. System health check

for Node
Ordered by:Node - Ascending

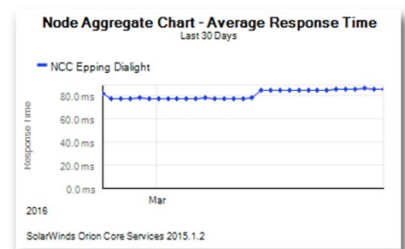
NODE	STATUS	AVERAGE RESPONSE TIME
NCC Epping ASA	Up	85 ms
NCC Epping Dialight	Up	85 ms
NCC Epping Watchdog	Up	85 ms
NCC Ray West ASA	Up	85 ms
NCC Ray West Dialight	Up	85 ms
NCC Ray West Watchdog	Up	85 ms
NCC Tioga ASA	Up	85 ms
NCC Tioga Dialight	Up	85 ms
NCC Tioga Watchdog	Up	87 ms
NCC Zahl ASA	Up	86 ms
NCC Zahl Dialight	Up	86 ms
NCC Zahl Watchdog	Up	86 ms

This monitoring is performed from two fully redundant NOCs, as well as the ability for remote monitoring, troubleshooting, and management. This monitoring is performed 24 x 7 x 365 and is available to field technicians through their hand held devices.



Reporting is a key component of the monitoring solution and is available to each LumenServe™ client. Reports include:

1. Uptime analysis
2. Availability of each node
3. Network latency and packet loss
4. Alerts and alarm status/history
5. Overall system health status



LumenServe™ Compliance

Federal regulations mandate that maintenance, audits, procedures and reporting requirements be met. Compliance is a must, and the operations team of the tower owner has to constantly worry that the tower is lit and in full compliance with proper procedure and documentation. LumenServe™ makes this pain free for the tower owner. LumenServe™ provides compliance for the following:

1. Daily logs
2. Quarterly audits
3. Annual inspections
4. Bi-Annual lens inspections
5. FAA outage notification (NOTAM)
6. Paint inspections

Availability Statistics for NCC Epping ASA		Availability Statistics for NCC Epping Dialight		Availability Statistics for NCC Epping Watchdog	
PERIOD	AVAILABILITY	PERIOD	AVAILABILITY	PERIOD	AVAILABILITY
Today	100.000 %	Today	100.000 %	Today	100.000 %
Yesterday	100.000 %	Yesterday	100.000 %	Yesterday	100.000 %
Last 7 Days	100.000 %	Last 7 Days	100.000 %	Last 7 Days	100.000 %
Last 30 Days	99.970 %	Last 30 Days	99.970 %	Last 30 Days	99.970 %
This Month	100.000 %	This Month	100.000 %	This Month	100.000 %
Last Month	99.201 %	Last Month	99.200 %	Last Month	99.200 %
This Year	100.000 %	This Year	100.000 %	This Year	100.000 %

Daily Logs:

Daily logs are the basis for compliance. Not only do regulations mandate them, but also it is an imperative tracking mechanism for the tower owner for proof of compliance. The Daily logs are tracked and maintained for the two year required period by LumenServe™.

Quarterly Audits:

Quarterly audits are required as a basis for insuring the lighting system is properly maintained. This is a significant cost for the tower owner as a technician has to travel to all of their sites once a quarter to inspect and maintain the lighting system. The maintenance also must be recorded. As technology has evolved, monitoring systems have been developed that allow the health of the lighting system be remotely evaluated. This has allowed waivers of the quarterly audits to be granted to some operators, however, the requirements are clear for this waiver. The requirements include dual NOCs, redundant systems and the ability to monitor 24 x 7 x 365. Most tower owners do not have this capability so they must perform the quarterly audit.

Even should the tower owner have a waiver for the quarterly audits, an on-site annual inspection must still be performed. This takes the same format as the quarterly inspections. There is no waiver for this requirement. LumenServe™ will perform this annual inspection and keep the log as part of the overall maintenance log of the lighting system.

QLI Test #1	Test Date: 2016-03-16	Status	Code	Description	Device	Board	Generated	Cleared
Clear	55 Beacon 25% Red Failure	Beacon					3/16/16 10:38	3/16/16 10:39
Clear	251 Transition to Red Night Mode	Main Controller					3/16/16 10:37	3/16/16 10:37
Clear	65 LED 20%	Side Marker					3/16/16 10:37	3/16/16 10:37
Clear	253 Transition to Day Mode	Main Controller					3/16/16 10:37	3/16/16 10:37
Clear	253 Transition to Day Mode	Main Controller					3/16/16 10:37	3/16/16 10:37
Clear	51 Monitor Board Comm	Spb Marker					3/16/16 10:36	3/16/16 10:37
Clear	52 Photocell Lost	Main Controller					3/16/16 10:36	3/16/16 10:37
Clear	46 All Markers Out	Side Marker					3/16/16 10:36	3/16/16 10:37
Clear	251 Transition to Red Night Mode	Main Controller					3/16/16 10:35	3/16/16 10:35
Clear	54 Beacon 25% White Failure	Beacon					3/16/16 10:35	3/16/16 10:35
Clear	44 Beacon Comm (R4461)	Beacon					3/16/16 10:34	3/16/16 10:34
Clear	56 Internal Beacon Comm (R5232)	Beacon					3/16/16 10:34	3/16/16 10:35
Clear	58 Beacon Sync Alarm	Beacon					3/16/16 10:33	3/16/16 10:35
Clear	122 QLI Start	Main Controller					3/16/16 10:33	3/16/16 10:40



Start Time	End Time	Deduct	Actual Hrs	Work Type
9:23 PM	9:28 PM	0.00	0.08	Services

Notes: Select a Standard Note

Contacted FAA to report Outage. Outage occurred at 9:09PM due to power loss at the site.
Estimated restore: 3/23/16 at 11:00AM.

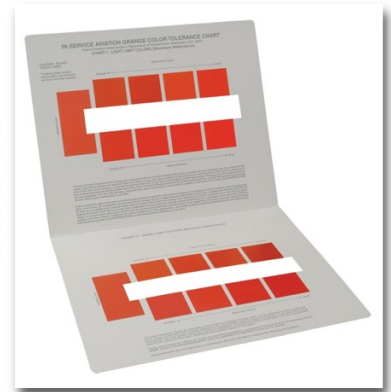
NOTAM Outage Reporting:

NOTAM outage reporting is fundamental to any service. Should an outage occur for a period greater than 30 minutes, a call must be placed to the FAA to report the outage. Once the outage is reported, a NOTAM is issued notifying the air traffic system that the light is out. This NOTAM has a shelf life that automatically expires. If the outage has been corrected within the window, the FAA must be called again to provide notification that the lighting system is functioning properly. If the lighting system is not functioning properly at the time of NOTAM expiration, the FAA must be notified again in order to have a new NOTAM issued. LumenServe™ handles all this process and all calls, plus the logs of the calls.



Paint Inspection:

If the tower is painted, the paint is part of the marking system. The FAA wants to ensure that this paint is highly visible. There are therefore requirements for this paint, as well as inspection requirements. Paint is prone to fade over time and can be covered by dirt and debris. Regulations mandate that the paint inspection be performed at the top of the tower where the paint is most prone to fade. LumenServe™ will perform the paint inspection and log the results.



About LumenServe™

LumenServe, Inc. ("LumenServe™") is an Obstruction Lighting As A Service - "OLaaS™" company with headquarters in Austin, Texas. The Company designs, engineers, builds, services, maintains, and operates obstruction lighting for its customers across the country. The company is an affiliate of Sherpa Broadband, Inc. www.sherpabroadband.com.



LumenServe™ serves its customers by designing, engineering, building, servicing, maintaining, and operating obstruction lighting systems. This is delivered as a service for a monthly fee. LumenServe™ takes the burden of obstruction lighting off of our clients, and provides tower owners with piece of mind.

Our team lives our Value System and is managed by a highly experienced Management Team and Board of Directors. This is a team of driven industry veterans that have extensive experience and success building businesses across a broad spectrum of telecom markets and technologies, including tower construction, wireless networks, fiber networks, cable TV, VoIP, IT, Security Access and Control Systems, and more. Collectively, the management team has raised in excess of \$500,000,000 in capital, run large and small organizations, public and private companies, and has extensive industry experience. The company has a team of qualified professionals, designers, engineers, IT specialists, and field technicians driven to help our customers be successful.

Our Value System:

Customer Service Obsession | Honesty & Integrity | We Get Things Done
| Efficiency Focused | Grateful For Our Successes

