

LIFI-MULTICELL

*THE **WORLD'S FIRST** SMART ORCHESTRATOR
FOR INTERFERENCE-FREE **LIFI NETWORKS***

+ WHAT IS LIFI-MULTICELL?

LiFi is a great alternative to WiFi. But there is still a technical challenge to address before being massively deployed: interference management between light sources.

At CES 2020, CEA-Leti will showcase the first-ever multi-cell solution with centralized management of interference between lighting zones.

This solution offers a number of advantages that promise to give LiFi the boost it deserves:

- The ability to cover large infrastructures
- Uninterrupted connectivity on the move
- High data-transmission rates: 150 Mb/s over distances up to 3 meters by LED
- Fair allocation of resources between interfered and non-interfered users

LIFI-MULTICELL @ CES 2020

See for yourself how smart the network really is!

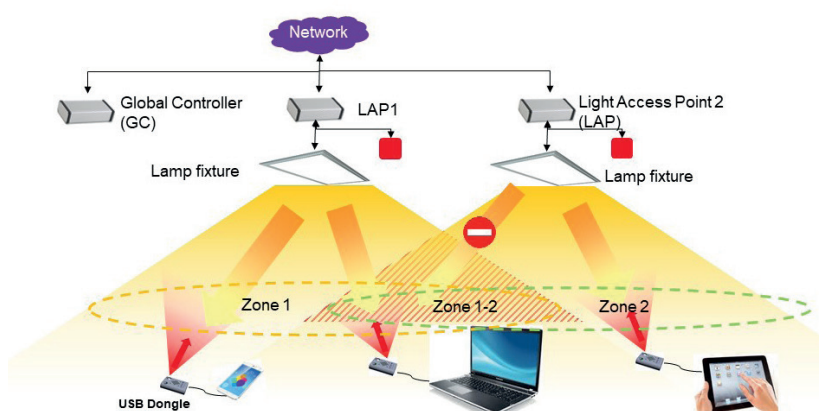
Turn the table to create interference. When the tablet enters an area with interference, the orchestrator detects the presence of interference, reports it on the table, and optimizes the time slots allocated to users to mitigate the interference.

In an auto-configuration mode, the orchestrator can be automatically hosted by one of the light sources of the network.

+ WHAT'S NEW?

LiFi-multicell proposes a smart LiFi network orchestrator that can be hosted on any commercially available lightbulb. It automatically detects all situations of interference and optimizes data transmission rates for each peripheral. The system also manages—asymmetrically and independently—uplink/downlink interference.

CHARACTERISTICS	LIFI-MULTICELL	SINGLE-CELL SOLUTIONS
Detection and management of interference	+++	--
Latency	++	++
Mobility	++	-
Ease of implementation	+++	--
Aggregated network transmission speeds	++	---



KEY FACTS

- Embedded software technology
- Full configurability of the maximum number of supported access points
- Very low reconfiguration latency
- Asymmetric management of uplink/downlink interference
- Automatic network discovery when adding/removing access points
- Facilitation of network operation by providing network map

CEA

French Alternative Energies and Atomic Energy Commission
91191 Gif-sur-Yvette Cedex | France
www.cea.fr

APPLICATIONS

LiFi-multicell is the first-ever technology to enable massive rollout of LiFi, making it the ideal solution for:

- Lighting manufacturers
- Internet service providers
- Smart-home stakeholders

LIFI-MULTICELL & MOBILITY

LiFi-multicell is the first- ever smart interference orchestrator. It can enhance existing solutions by supporting users mobility within a network of light sources to ensure optimal data rates among users.

+ WHAT'S NEXT?

CEA-Leti researchers are working on additional smart-mobility management features for LiFi-multicell. These will further increase data transmission speeds for users on the move and allow users to benefit from the best access point.

The goal is to work with a manufacturer to develop a solution fitting perfectly to market demand.

INTERESTED IN THIS TECHNOLOGY?

Dimitri Ktenas
Email: dimitri.ktenas@cea.fr
+33 4 38 78 34 04