



S E R V I C E A P P L I C A T I O N N O T E

Distributed Antenna Systems

Distributed Antenna Systems (DAS) for mobile networks

More than 80% of mobile data consumption takes place indoors where coverage is generally weaker than outdoors. In order to overcome this issue, indoor radio coverage systems are required. However they are more complex to implement. Raycap consults, designs and leads Distributed Antenna System (DAS) projects to successful completion, unlocking additional revenues for mobile network operators.



Raycap Approach

- Multi-operator and multi-technology system
- Vendor-independent, future-proof
- Easy installation, low footprint
- High quality-of-service

Mobile network operators wish to improve the satisfaction of their subscribers by improving radio coverage inside large structures, while at the same time trying to increase their revenues and minimize capital expenditures (CAPEX).

Raycap provides tailor-made services including design, procurement, project management and installation of a DAS infrastructure supporting multiple technologies and mobile operators for the optimum indoor mobile communication coverage.

Services

- Establish DAS specifications
- Indoor network design
- Procurement and delivery of materials
- Installation, commissioning and full documentation
- DAS project management
- Operation and maintenance
- After-sales support

Applications

- Airports
- Convention centers, museums
- Shopping malls, hotels
- Hospitals

Why Raycap?

- Customized solutions
- Experienced engineering team, dedicated tools and resources
- All mobile technologies (2G, 3G and LTE); as well as professional technologies (TETRA, GSM-R, FM break-in and VHF)
- Turn-key project capability
- Successful track record of high-profile projects in South Eastern Europe

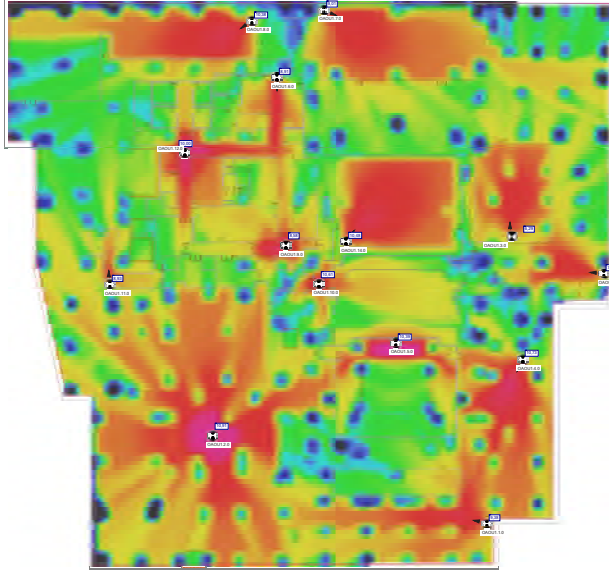
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I N N O V A T I N G S O L U T I O N S W O R L D W I D E



Case Study

- Indoor coverage of Stavros Niarchos Foundation Cultural Center (SNFCC)
- New facility for the Greek National Library and National Opera in Athens
- Construction: 2013-2015
- 28,000 m² auditorium with 4,000 visitor capacity
- 600 million euros budget
- Largest building construction project in South Eastern Europe in the last five years

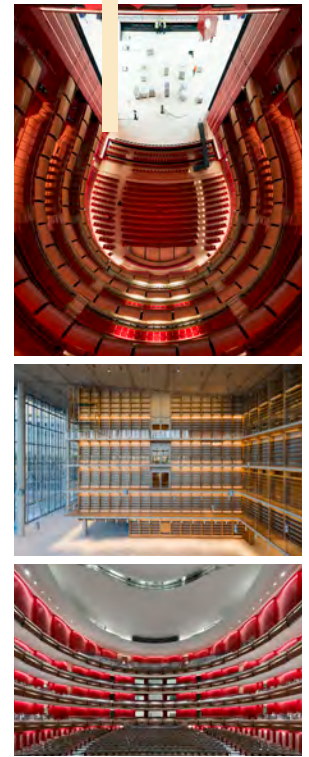


UMTS signal power level inside SNFCC Opera building.

For visitors to continue using their mobile devices inside the SNFCC building, a high performance, cost-effective solution for indoor coverage was required.

Raycap worked with all stake holders to deliver a multi-band DAS that supports three mobile operators as well as professional radio services. The budget and tight schedule were diligently respected by Raycap's Project Management team.

With a limited investment shared between mobile operators, the SNFCC DAS system enables thousands of daily visitors to have optimal mobility coverage throughout the building's eight upper floors, basement and parking lots, creating recurring additional revenue for mobile operators.



Stavros Niarchos Foundation Cultural Center (SNFCC)

SNFCC Mobile DAS in a few numbers:

- 1 master unit
- 8 remote units
- 130 antennas
- 5 km of RF coaxial cables

With over 25 years of experience in building telecom network infrastructure and 15 years in related services throughout Southern Europe, Raycap is a reliable partner for operators of mobile network infrastructure.

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