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The Metropolitan Area's approach towards 5G

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5G is the new generation of mobile communications with disruptive technological innovations such as high speed connectivity, low latency, wide bandwidth, new frequency bands and new access technologies.

- ✓ Improved broadband: to achieve higher speed and better coverage in all types of environments (indoor, urban, rural...)
- ✓ Mass communications between devices: complete connectivity of objects through machine-to-machine (M2M) applications (sensors and actuators that are part of the Internet of Things)
- ✓ Low latency and high reliability communications: aimed at the industrial IoT

Main **objectives** of the implementation of 5G in the Metropolitan Area:

- **Smart Cities:** Greater capacity in the services that the Metropolitan Area offers to municipalities, companies and citizens
- **Digital Government:** More efficient management, gaining proximity to the citizen

Some of the most important challenges in implementing 5G in smart city building:

- It is difficult to implement smart urban planning 5G as a whole, it must be focused "down up" and build micro-units of smart cities.
- Operators need to redesign their role in the model, focusing on the use of all resources, their integration and the provision of high quality services.

5G at AMB - Pilot test Metropolitan beaches

The AMB aims to carry out a pilot test of the implementation of 5G technology in public spaces, in an area of high concentration of users at a specific time of the year.

Gavà beach: 1700m long



Consumo de Tráfico	Escenarios	Capacidad Por Celda	Capacidad Total en Playa	Personas Hora Cargada en Playa*	Usuarios x MNO**	Factor uso ***	Capacidad Real / Usuario	Grado de Servicio
MUY ALTO	Pico Verano (Fin Semana)	116 Mbps	696 Mbps	6.250	0,4	20%	1,4 Mbps	OK
ALTO	Media Verano	116 Mbps	696 Mbps	1.563	0,4	10%	11 Mbps	OK
BAJO	Invierno	116 Mbps	696 Mbps	37	0,4	10%	150 Mbps	OK

5G at AMB – Pilot test Metropolitan beaches

- Same equipment on public roads shared by all operators (Technical Room).
- Same antenna shared by all operators, integrated in the Integral Modular Column AMB.
- Lower visual impact of implementation.



5G Module (Technical Room)



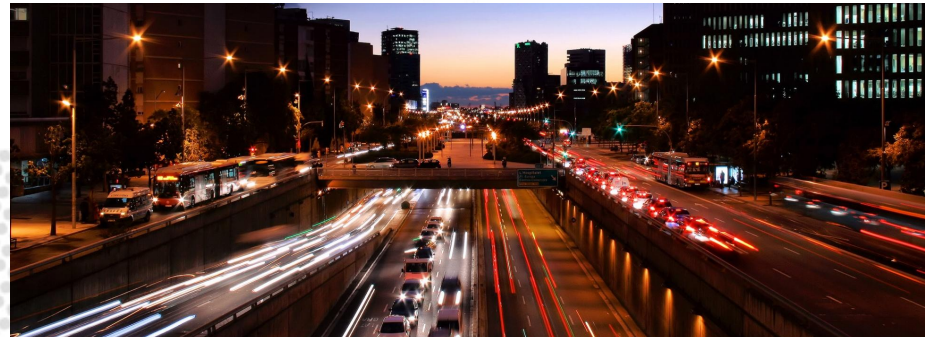
IMC AMB. Integral Modular Column



Technical Closet

5G at AMB - Summary of technical data

- **Area of action:** Gavà Beach - 1700m delimited by a beach promenade and dunes
- **IMC:** The 5G antenna will be integrated in one of every 2 columns (300m) sending a one-way signal and avoiding overlap and interference. 12 IMCS will be placed.
- **5G cells:** 116Mbps capacity with an actual capacity of 1.4Mbps for each user on a busy summer weekend.
- **Technical room:** In this room the teams of operators will be concentrated, connecting to a Master Unit that is in charge of managing the multioperator service. 4 Fiber Optic cables will come out of this room for each remote unit in the technical cabinets that will be located every 300m.
- **Fiber optic cabling:** The extension of the cabling will be carried out by a ditch in the sand, avoiding the lifting of pavements with a minor impact of civil works.
- **Technical closet:** There are two remote units and an electrical panel, from where a ditch will be run through the sand to the column, with a pull of 6 coaxial cables of FO of ½ "and the power supply. The maximum distance between these remote units and the 5G antenna will be 50 m.





Thank You