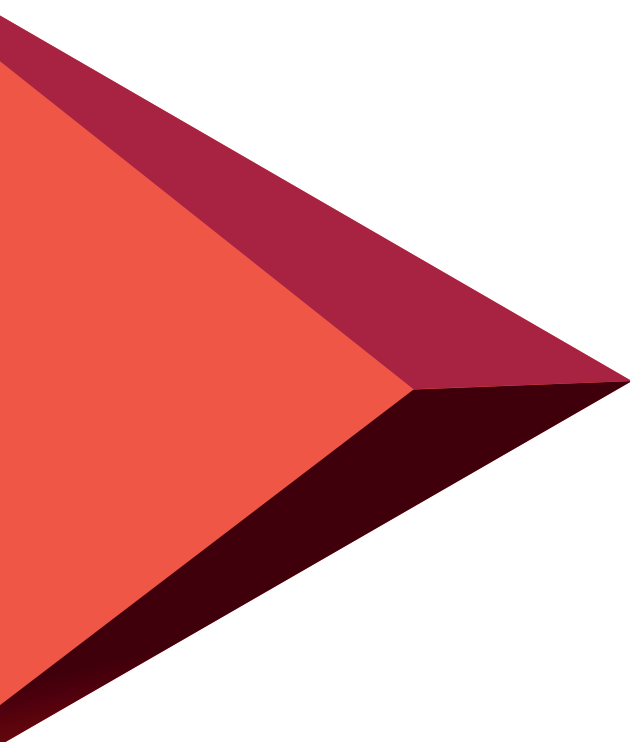


# RF - SCIENCE

Radio Frequency for Scientific Applications



# Scientific & Special Solutions

# Radio Frequency for Scientific Applications

The RF-SCIENCE Division expands Itelco activity on Scientific Radio Frequency applications.

Based in Orvieto (Italy), Itelco is a leading player in the international broadcasting industry with worldwide installations in more than 130 countries.

Supported by a heritage of continuously developed technologies, special applications, like high power Radio Frequency (RF) amplifiers for particle accelerators, are a deeply regarded company business line.

Radio Frequency (RF) devices are fundamental components in modern particle accelerators. Accelerator based scientific research is progressing thanks to a constant technological effort to move forward the frontier for particles energy or beam intensity; in both cases highly reliable and efficient RF High Power Amplifiers (HPA) are mandatory.

CERTIFICATIONS: Quality System UNI EN ISO 9001:2015



## RF Amplifiers

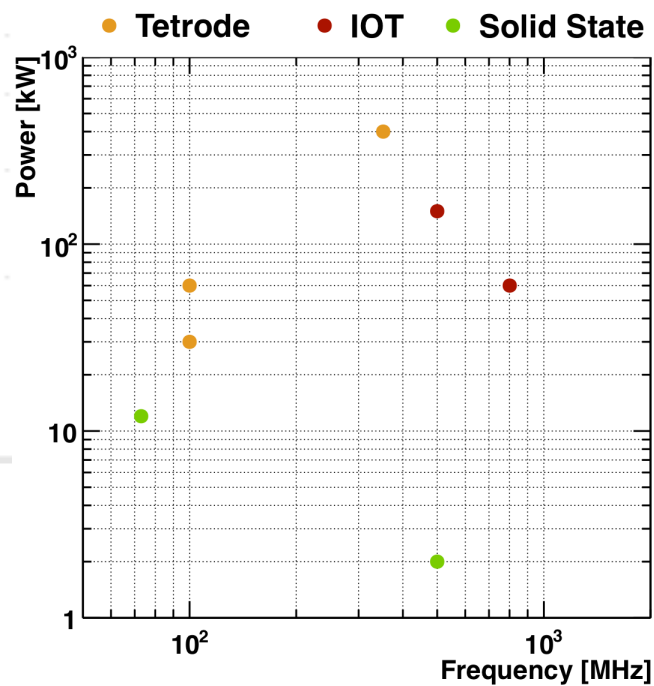


### CUSTOM PRODUCTS


Itelco can provide customer specific RF amplifier solutions with a range of technologies spanning from solid state devices to Inductive Output Tubes (IOT), Tetrodes and Klystrons.

The possible RF frequencies of the projects cover the VHF and the UHF bands with output power rating up to several hundreds of kW.

Depending on the particular solution the device can be equipped with air or liquid cooling system.



Power vs Frequency for some IMS installations



R&D, staffed by a pool of more than 30 highly qualified engineers and technicians, is constantly designing new and innovative solutions.

An intensive definition phase, including accurate demand analysis and customer involvement, ensures products that are tailored to suit client needs. The concurrent involvement of

## RESEARCH & DEVELOPMENT

all functional business areas from development, manufacturing, quality assurance right through marketing and service considerably shortens the time between conception and marketable product.

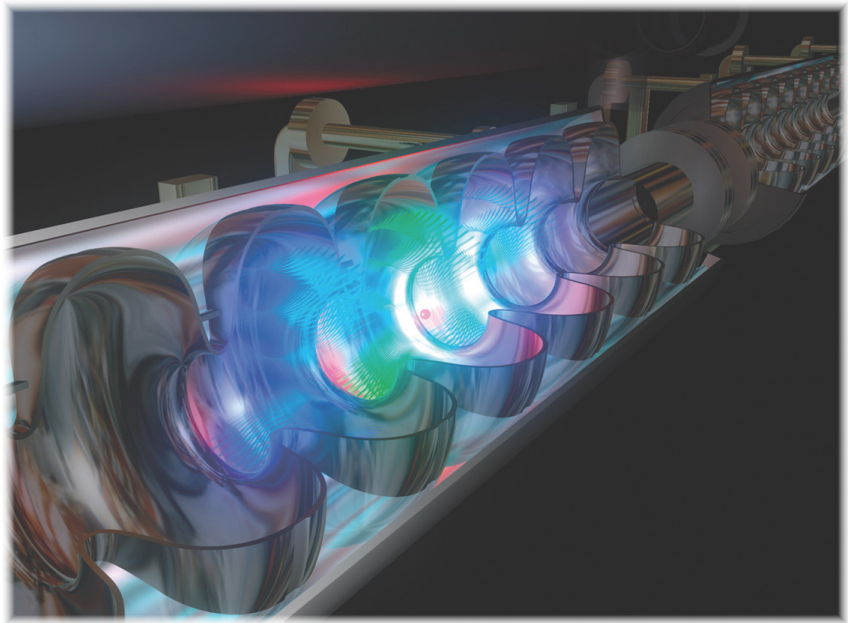
## INTEGRATION

ITELCO System Integration amalgamates the company's departments and business units. The system engineering team interfaces with each business unit to provide application oriented and problem specific solutions.



## Scientific Applications

Research activities which can make use of Itelco RF amplifiers span from fundamental or particle physics at the highest energy accelerators to extremely intense synchrotron light sources or matter studies with neutrons.



## INSTALLATIONS

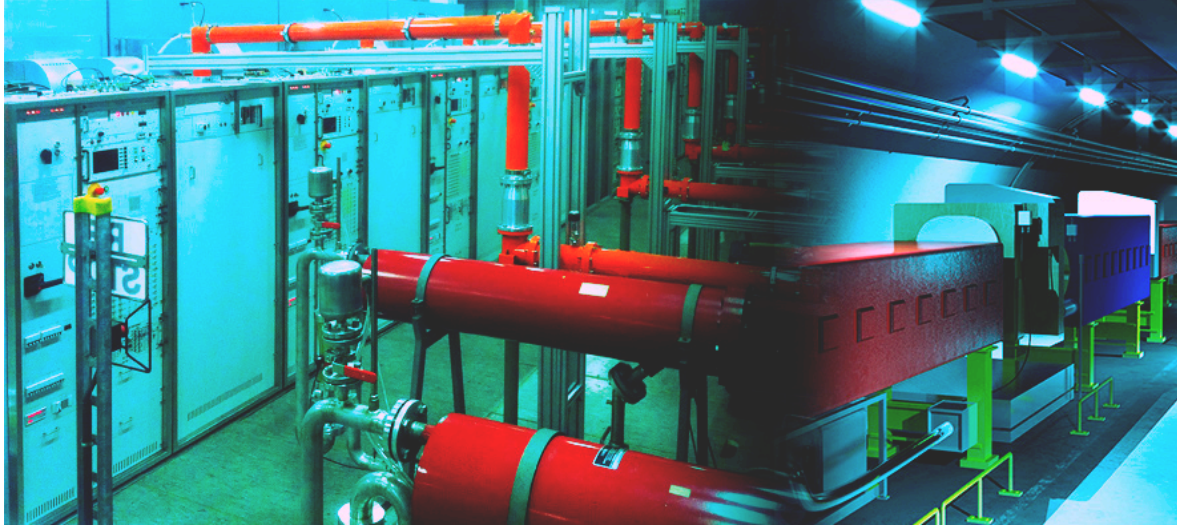
Examples of our RF-HPA installations for scientific applications include world-class facilities:

Customer	Country	Application	Power [kW]	Freq. [MHz]	Technology	Date
Uppsala University	Sweden	European Spallation Source	400 pk	352	Terode	2015
CERN	Switzerland	Super Proton Synchrotron	60 CW	801	IOT	2011-2013
MAX Lab	Sweden		30 CW	100	Tetrode	several years
SESAME	Jordan	Synchrotron Light Source	2 CW	500	Solid State	2008
LNF	Italy		12 CW	73	Solid State	2007
ELETTRA	Italy	Synchrotron Light Source	150 CW	500	IOT	2006



## Installation Examples

CERN



CERN (European Centre for Nuclear Research), near Geneva, is the largest particle physics laboratory in the world with about 10000 people coming from all around the world.

The 27 km ring of the Large Hadron Collider (LHC) is the world's largest and most powerful particle accelerator.

CERN researches focus on the fundamental constituents of matter with a range of experiments investigating physics from cosmic rays to supersymmetry.

Itelco provided 9 RF HPA to CERN:

IOT Technology

801 MHz

8 x 60 kW CW

CERN amplifier



## Installation Examples

UPPSALA UNIVERSITY



UPPSALA  
UNIVERSITET

Uppsala University amplifier is the test bench for ESS (European Spallation Source) one of the biggest research center in the world that is under construction in Lund, Sweden.

Itelco provided 1 RF HPA Uppsala University:

Tetrode Technology

400 kW PK

352 MHz







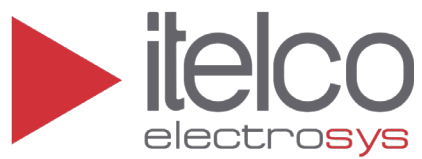
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Certifications:  
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