

Filter-tuning solutions

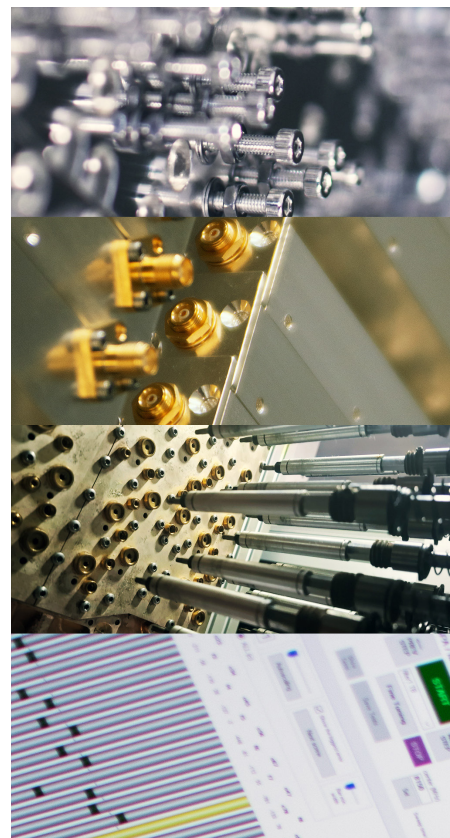
Filter Tuning Software (FTS) is a computer-aided powerful software suite for manual and automatic cavity filter tuning. This unique software is based on artificial intelligence algorithms and novel computational methods.

FTS gives the production greater manpower flexibility, high repeatability and vastly improved efficiency over traditional manual tuning. An intuitive interface allows for easy adaptation of new filter types and significant savings of tuning time.

Using AI algorithms FTS allows for precise tuning of microwave filters even for a tuning operator with limited experience. The software

prompts the operator which screws to turn by how much. Anyone after a short training can tune filters like an expert.

FTS can be installed on an external workstation or inside Windows-based VNAs. It can be integrated with standard industrial robots available on the market or with SpaceForest Multi-Head Tuning Robot. The automated tuning stations are dedicated to mass production, especially in the large production volumes or lack of experienced tuning operators.



Business areas

cellular networks / satellite telecommunication
public safety and critical communications / terrestrial microwave links / broadcasting



Applications

all types of cavity filters / multiplexers of great complexity / high frequency single and multimode filters / wireless telecommunication filters / high power filters



Benefits



assists in identifying filter design faults



one software applicable to all types of filters



reduction of training time and labor cost



no expert skills needed to tune filters



needed to tune filters

AUTOMATED FILTER TUNING SYSTEM



FTS can be integrated with automatic tuning stations dedicated to serial production or working in a restricted access environment, e.g. clean room. Since one operator can control several stations, the overall cost of tuning is significantly reduced.

FILTER TUNING MANIPULATOR



The Filter Tuning Manipulator is a Cartesian coordinate robot able to handle up to 4 different tuning heads. Making it a perfect choice for filters equipped with more than one type of tuning element.

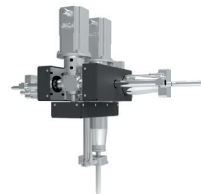
FILTER TUNING HEAD



FTH is a unique screwdriver equipped with independent nut locking and torque control system used with filters having tuning elements locked with a nut. Its flexibility allows the choice of tuning elements in terms of size and type, tightening torque range and filter layout.

- resilient to screw tilt and displacement
- screw height measurement system
- precise torque control

TRIPLE ROTARY TUNING HEAD



TRTH is dedicated to tuning up to 3 different types of screws (both self-locking and screws with nuts). Interoperable with standard industrial robots e.g. SCARA or multi-axis robots.

- continuous torque control of both bit and socket wrench
- quick head swap during tuning

FTS FILTER OPTIMIZER



FTS Filter Optimizer can be used as stand-alone software or integrated with other filter design software to optimize filters and optimally adapt the design to automatic tuning with FTS.

We support our customers at every stage of cooperation, from the concept and design, through the analyses and simulations, to the manufacturing and tuning.

We develop and commercialize innovative technologies in microwave systems, artificial intelligence, electronics, and rocketry.

We operate in line with ISO 9001:2015 and ISO 14001:2015 standards, focusing on high quality, sustainable growth, and social responsibility. Our strength lies in a highly skilled and ambitious team, committed to continuous improvement.



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