A state-of-the-art automated spectrum management system

ICS manager is the only platform on the market that is flexible enough to meet current and future needs of regulators in all areas related to spectrum management and control.

ICS manager key functions:

- Validation of new services to avoid interfering with existing systems according to ITU plans, regional plans and national plans,
- Management of administrative procedures in accordance with the national, regional and international rules and processes in force,
- Spectrum optimization and frequency sharing,
- Secure administrative and technical data storage as a basis for calculating and collecting license fees,
- Efficient information exchange and sharing with stakeholders,
- Interface with spectrum monitoring systems.

ITU recommendations at the heart of ICS manager

ICS manager is based on the guidelines of recommendation ITU-R SM.1370-1.

It offers:

- Upgradeable spectrum management database (SMDB) structure,
- A secure relational SMDB with direct management of access rights and user profiles,
- Standalone or client server installation,
- Powerful data exchange functions for efficient and easy interaction with operators and other regulators,
- Report editing tools for a customized approach to each service,
- Dedicated data input interfaces and enhanced display functions for effortless handling of everyday spectrum management tasks.

With the following main features:

- Multilingual environment,
- Project management with individual workspaces for each user,
- Fully integrated cartographic management (DTM, maps, geographical coordinate systems),
- Fully configurable and programmable process controls following custom workflows,
- Web-based access to most features and functions via a secure front-office,
- Synchronized access to external tools: radio planning tool (ICS telecom), spectrum monitoring and billing systems,
- Modules adapted to each field of activity/service: broadcasting including ITU-R T01-T04,TB1-TB5, coordination and notifications according to Geneva 06, microwave, earth stations including APS4/III, FWA stations, GSM, coordination of fixed services, coordination of mobile services, Vilnius 2005 agreement (HCM), notification including T11-T17,
- Import from standard SMDB: BRIFIC, SRS, HCM, TVA, TVD, etc.

Extended applications for regulators

ICS manager is the backbone of a regulator’s spectrum management division. Its powerful data engine manages all data related to spectrum management easily and hierarchically, while continuously monitoring the coherence of the data. Its process control engine allows the implementation of automated processes for:

- License management, operational management,
- Calculation of fees following the technical and administrative parameters of the frequency assignments and the licenses,
- Generation of documents (report, invoices, receipts), billing, and payment follow-up,
- International notification, international coordination,
- Spectrum monitoring,
- Spectrum planning, frequency assignments,
- Zone allotments or band attributions,
- Management of data: antennas, equipment, site, frequency plans, allocation charts (foot notes, services...) etc.
Interface with monitoring system

ATDI has developed interfaces that allow the operator to retrieve information from the ICS manager database and directly initiate measurements via any monitoring system. Measurements can be launched in response to a user complaint, as part of routine monitoring, or generated at random in the ICS manager. These measurements can be performed manually or automatically by the network of measurement stations. For any transmitter in its database, ICS manager can initiate measurements to one or several measurement stations and store the results. The comparison of the licensed parameters with the measured parameters can then trigger an inspection.

Complete digital mapping functionalities

A proper spectrum management largely relies on an accurate calculation of coverage areas, as well as accurate definitions of areas, for example in the case of fees calculation, or spectrum trading.

ICS manager provides compressions functions to optimize the access and display times of very large raster maps located on remote computers. Multi-map layers can be used: virtual maps containing maps of different areas, with different resolutions, and different projections systems.

Co-existence of wireless technologies

ICS manager, used in conjunction with ICS telecom, enables regulators to dig deeply into issues of co-existence of networks and technologies, as it applies to their own country’s rules, situation, and even geography. ATDI’s advanced system has been instrumental in conducting numerous studies related to spectrum management and interference mitigation: digital broadcast plans for the digital switchover, LTE/DVB-T co-existence studies, spectrum allocation between mobile operators in the same country, microwave/satellite interference, FM/aeronautical systems co-existence, wind turbine interference to radio links.

Online access to ATDI’s spectrum management system

ICS manager has flexible three-tier architecture, allowing the regulator to offer a number of e-government services, such as:

- Online issuing, renewal, modification, transfer and termination of existing and new licenses,
- Online application for licenses,
- Online fee calculation based on the pricing policy of the authority,
- Online printing of license, technical amendments and invoice documents,
- Online EMC analyses,
- Online billing/payment status information,
- Online tracing of the licensing process.

Features and data may be selectively available to the public, authorized users such as operators, and to the regulator’s staff, on a roles and privileges basis. The interface is customizable to allow the integration of the front-end with other online services of the regulator, and to allow familiar look and feel to the users.

Spectrum mapping and the digital dividend

ICS manager includes all functions and data structures to manage the process of spectrum refarming. This includes detailed scenario analysis, technical and financial simulations, and actual implementation of the outcomes of the refarming process. ATDI’s platform is used extensively in planning for the digital dividend in the broadcast sector.