RF allocations

Frequency Allocation Table editor and manager

ATDI
ADVANCED SPECTRUM SOFTWARE

RF allocations is:

Frequency Allocations Table editor, manager and publisher

Smart application ensuring end–to–end process to manage national frequency allocation plans

- Effective coordination and management of National Frequency Allocation Table
- Provides integrated databases for Radio Interface Regulations (RIR), footnotes and documents
- Allows for quick and effortless data exchange with EFIS
- Features a reporting engine and publishing module which generates and publishes reports automatically
- Reports compatible with the data requirements of ITU

RF allocations as an enhancement tool:

Processes it supports:

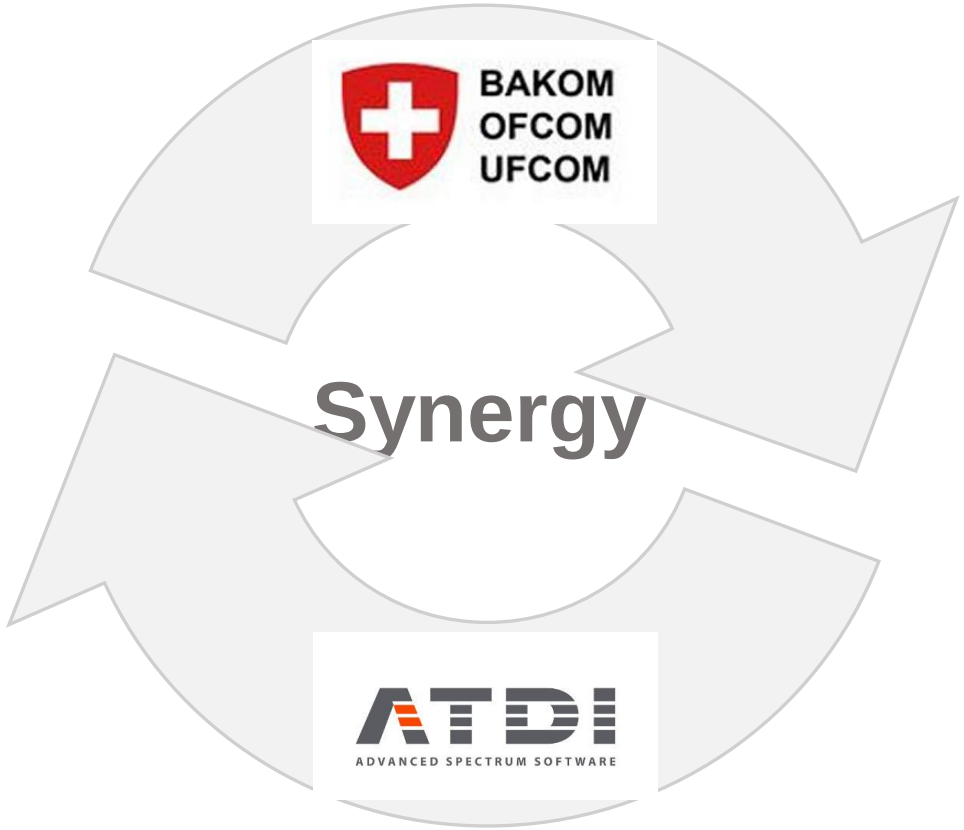
- Granting allocations
- Footnotes database management
- Document management
- Report generation and publishing
- Import/Export to EFIS

Replacing the following activities

- Running database for
  - frequency assignments
  - allocations
  - footnotes
  - documents
  - RIR’s
- Manual FAT table preparation
- Reports generation
- Simplifies the Intranet and Internet Content Management Systems (CMS) managing

RF allocations — with BAKOM (Switzerland)

As a result of a long term relationship with BAKOM – Swiss Regulator, ATDI was able to extract their requirements and challenges they faced as a regulator relating to Spectrum Management



RF allocations – structure & main functions

DATABASE FORMATS

- Oracle
- PostgreSQL

COMPATIBLE WITH:

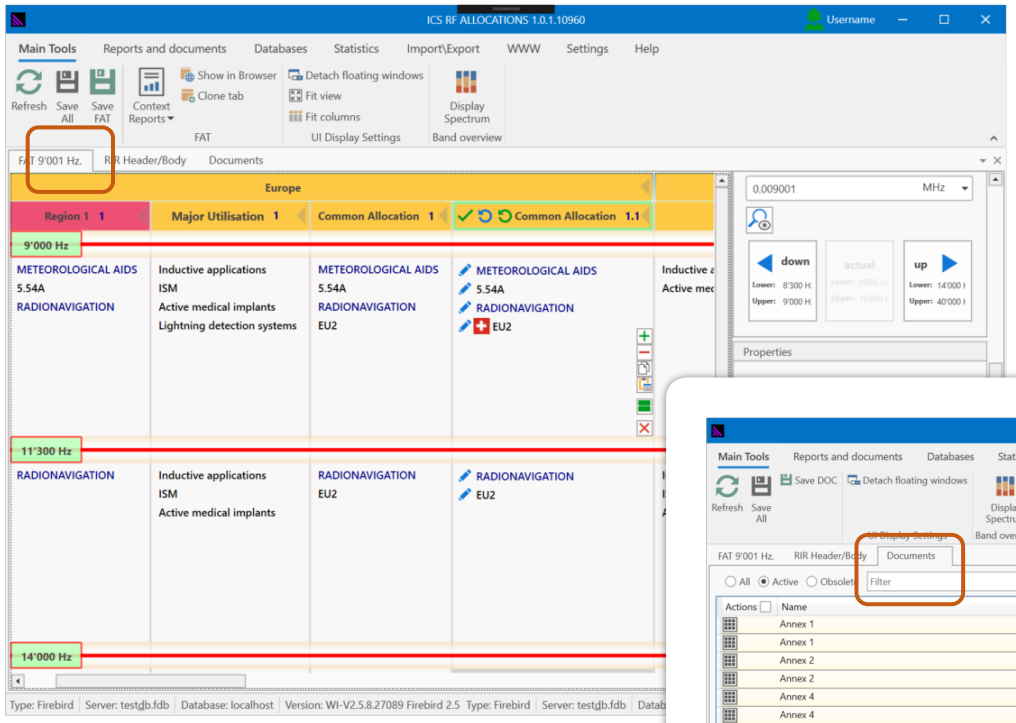
- BRIFIC of ITU
- ECO – EFIS of CEPT
- ICS Manager by ATDI
- Other options possible

END TO END SPECTRUM MANAGEMENT

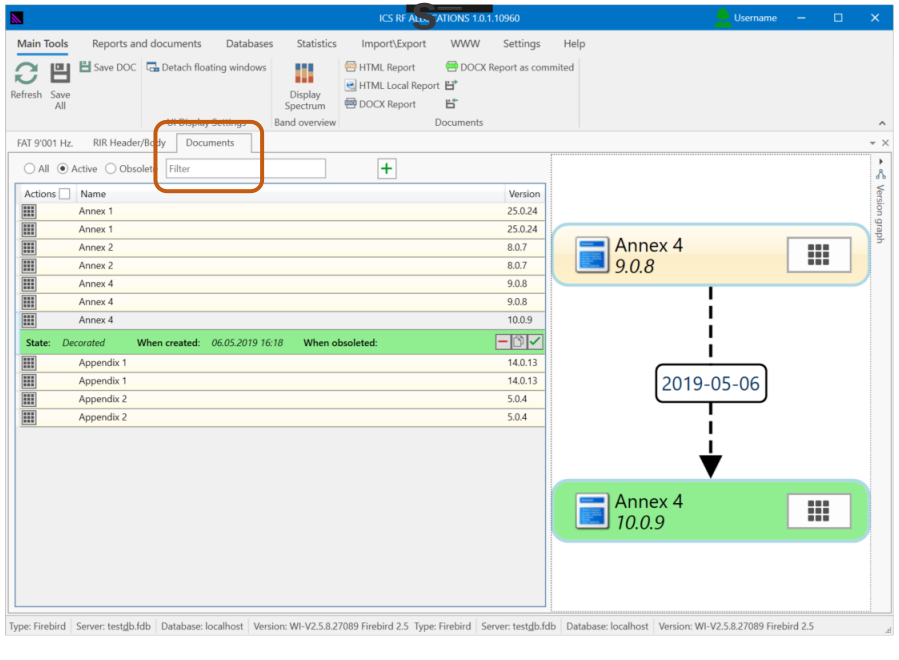
- Reporting module
  - Creating charts
  - Creating reports
- Frequency management
  - Spectrum data order
  - Version control
- Document edition management
  - Full change history
  - Multiple database connections
- User rights management
  - User accounts with permissions
- Import/export to EFIS
  - Fast data exchange
- Publishing module
  - Online publishing

User interface - Three functions

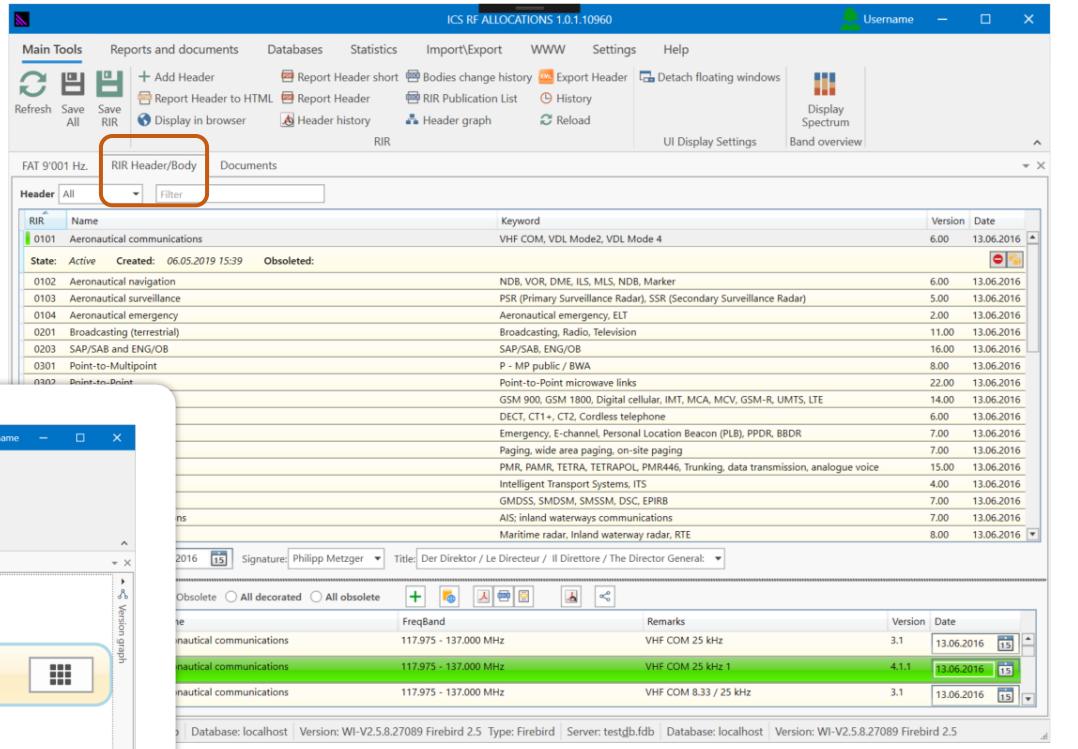
FAT - Frequency Allocation Table



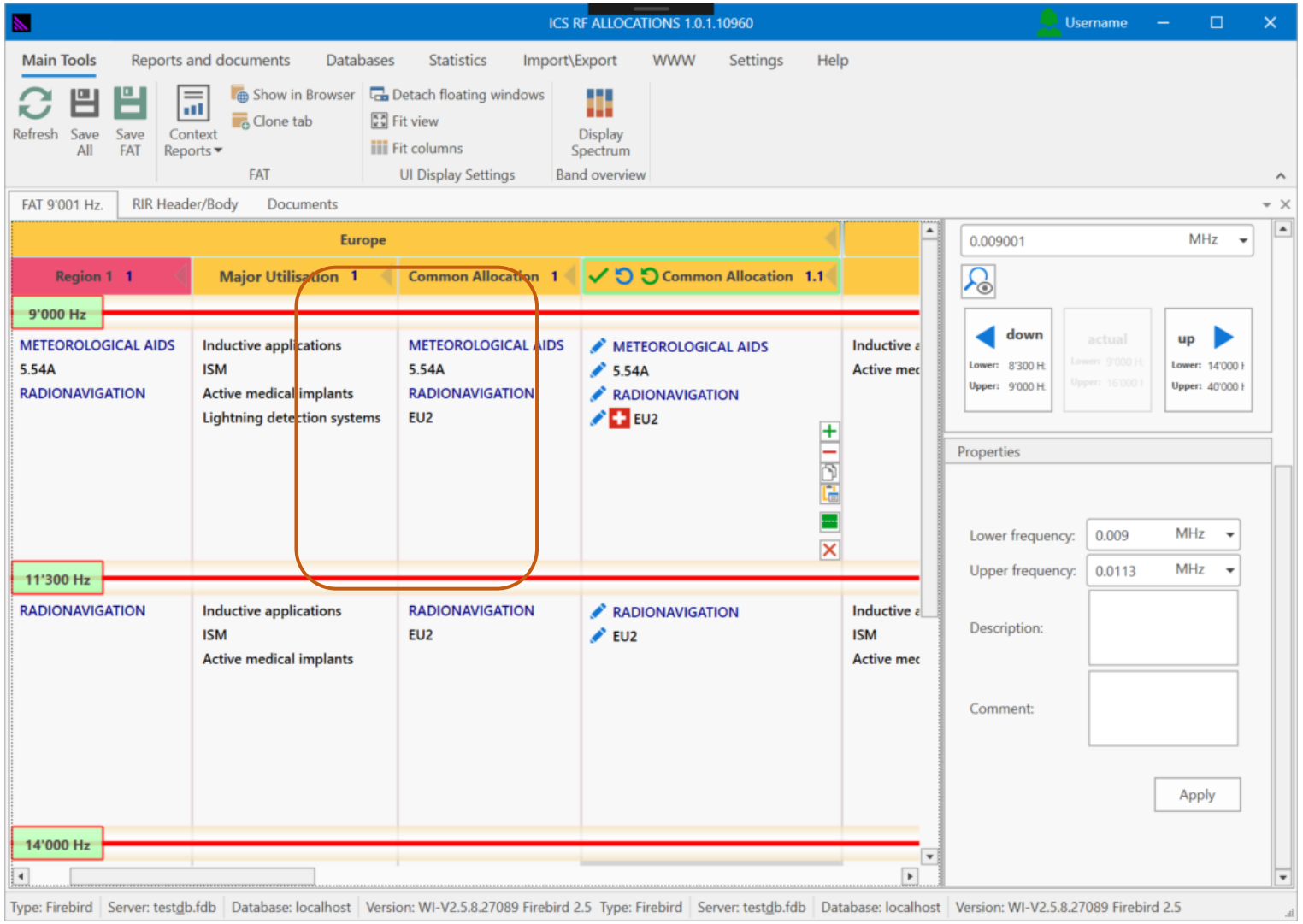
Document



RIR – Radio Interface Regulations



User interface - Frequency Allocation table

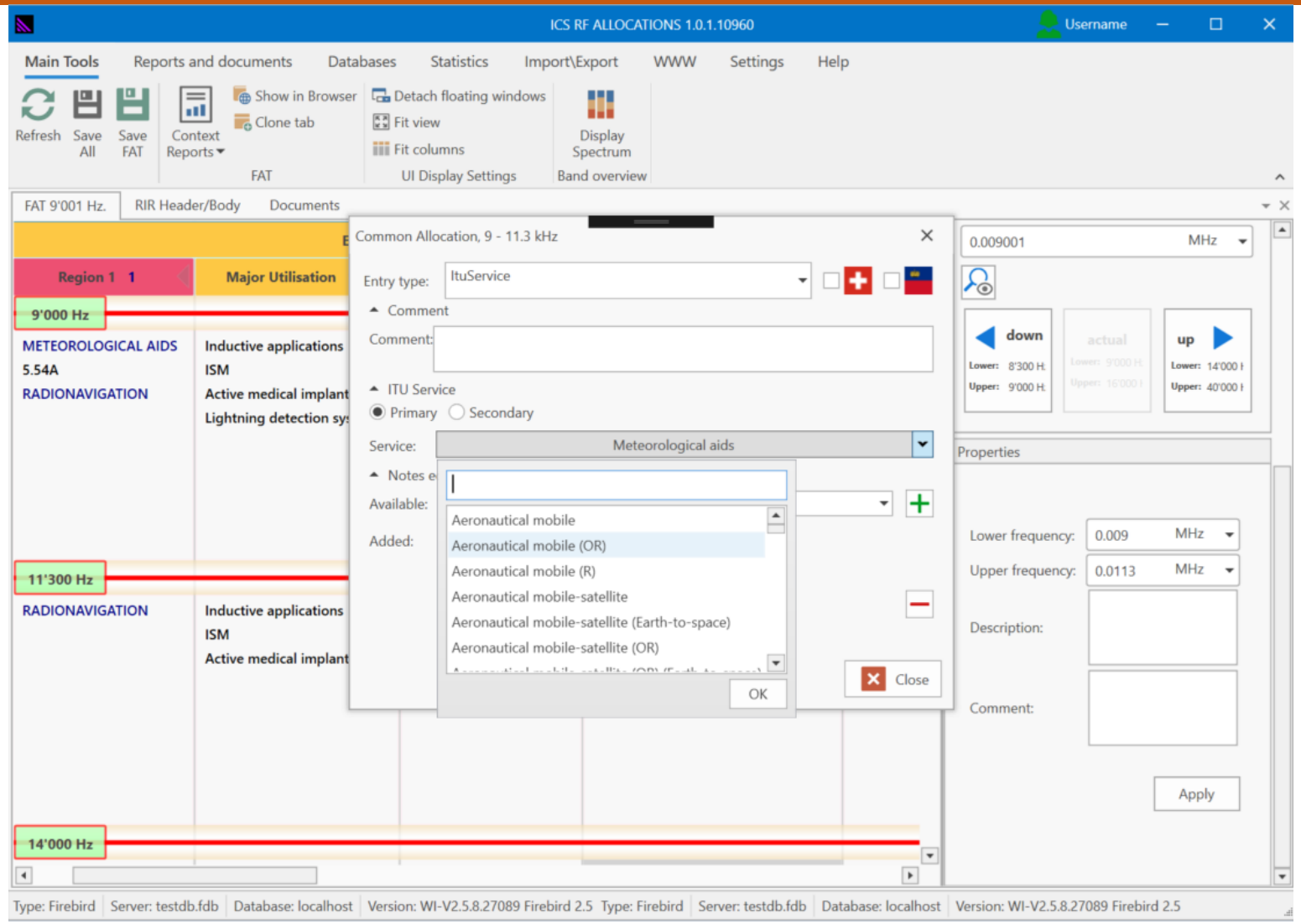


Frequency Allocation Table – main screen

Displays frequency bands per region

- Maintains frequency assignment plan effectively
- Optimises spectrum use
- Compliant with EU and ITU recommendations on efficient spectrum use
- Intuitive navigation and settings to generate the FAT reports.

User interface - Frequency Allocation Table – edition



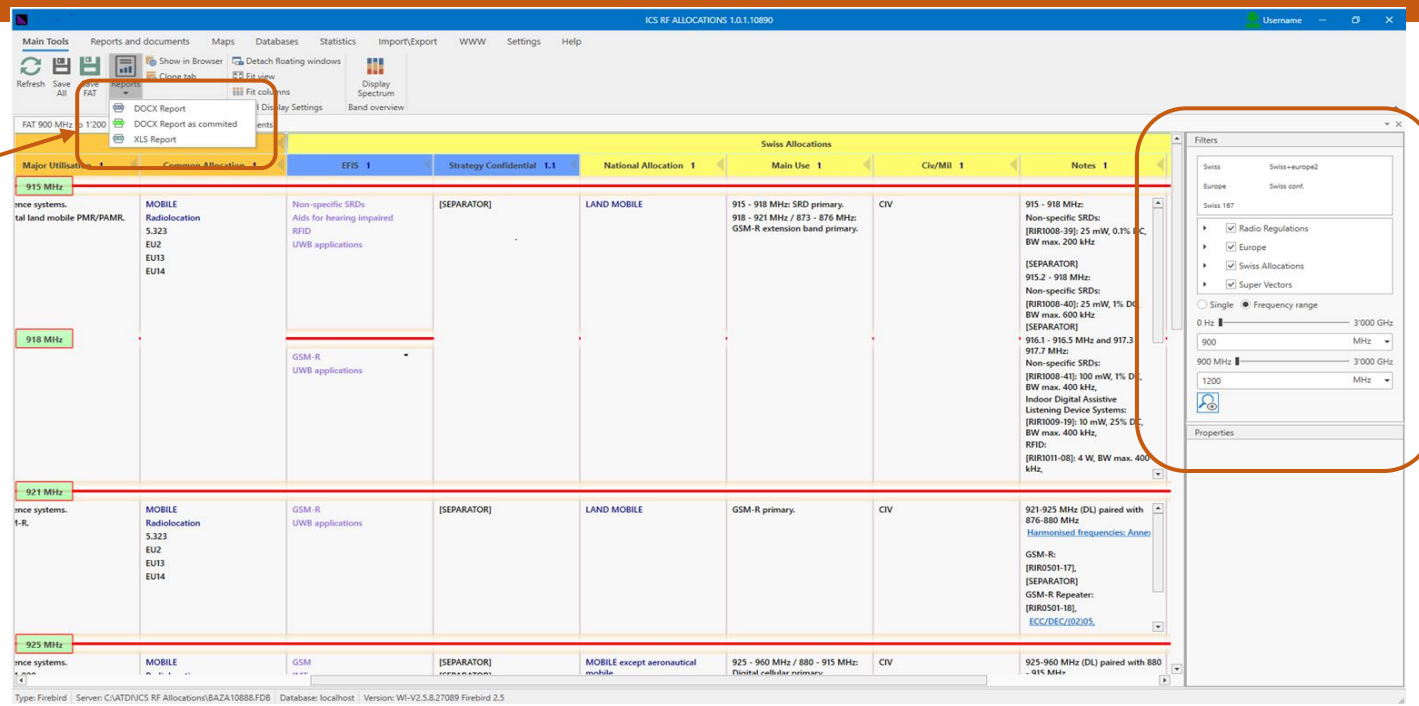
Frequency Allocation Table edition screen

Frequency Allocation Table edition

- Frequency bands – add new content
- Frequency bands - splitting and merging the consecutive ones
- Creating hyperlinks to Radio Interface Regulations
- CIV/MIL - Special frequency use status
- RIR - Technical interface regulations
- Adding Allocations – ITU services
- Applications (Radio systems)
- Footnotes adding and modifying

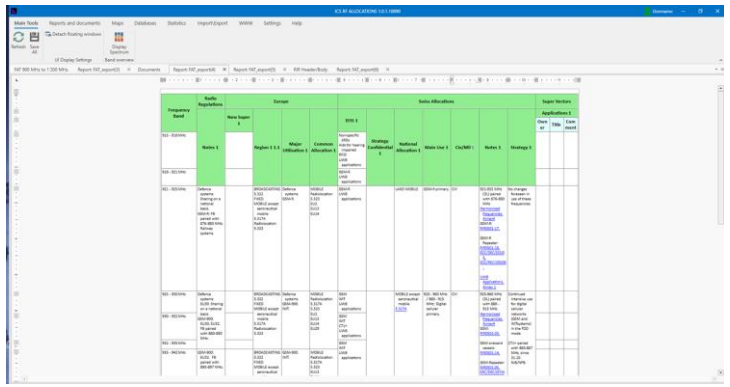
User interface – FAT reports

DOCX
XLS

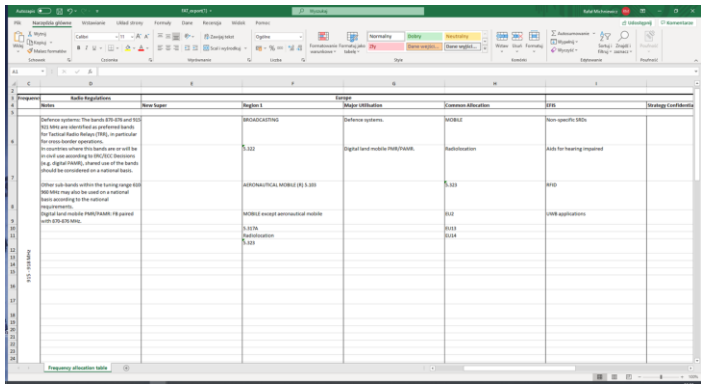


Selected data range

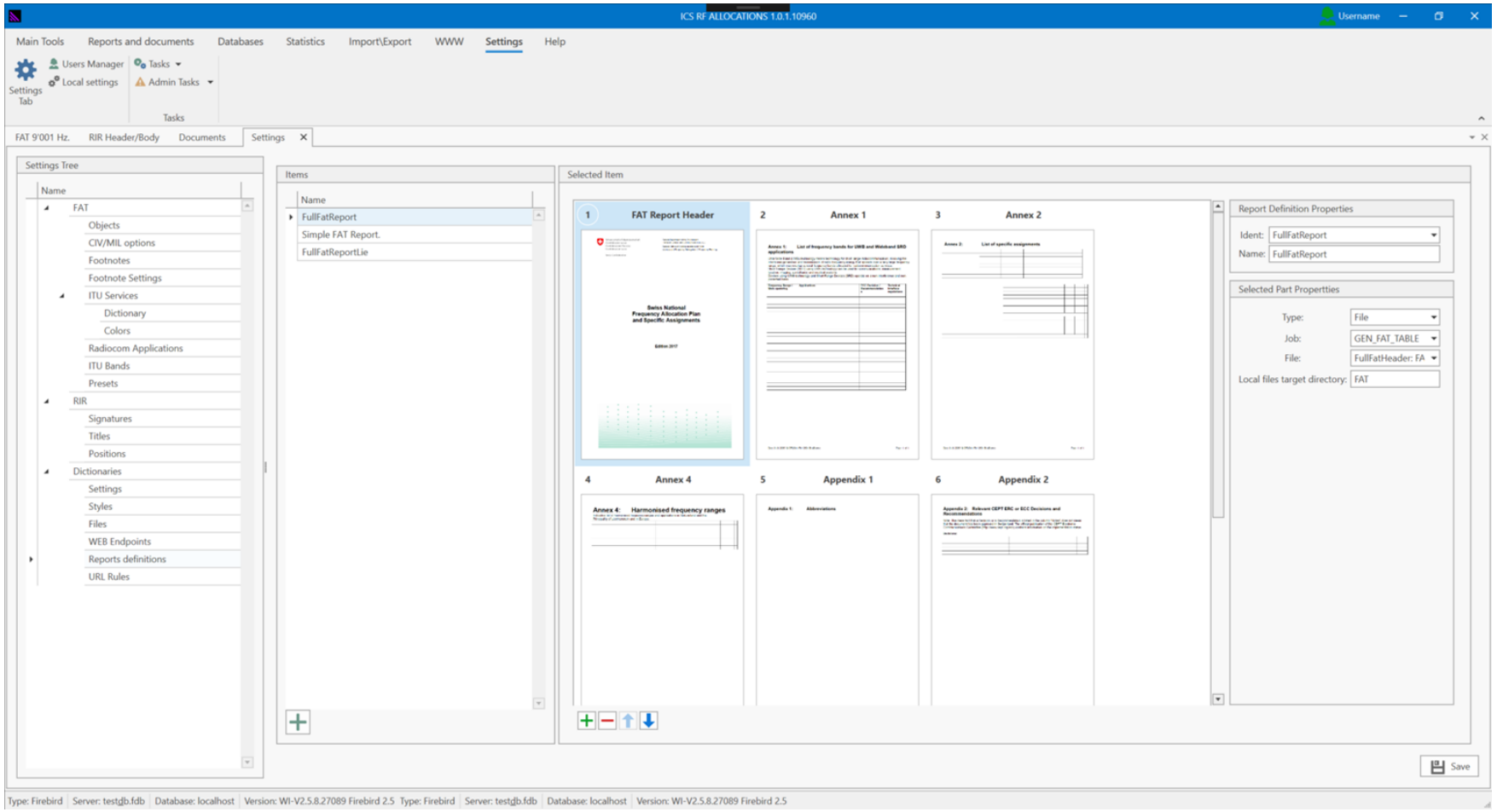
DOCX report



XLS report



User Interface – Full FAT report definition



Full FAT report parametrising

Full FAT report on overall status of spectrum use.

Full FAT report contains:

- frequency assignments
- Radio Interface Regulations
- footnotes
- documents
- all free entries

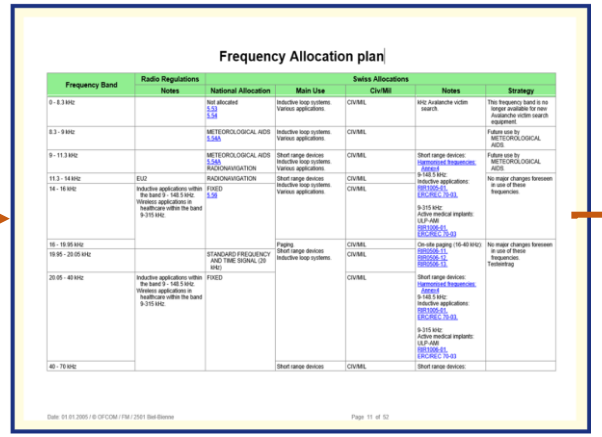
Generated automatically after pre-setting parameters.

Automatically published on the Authority's website

User Interface – Full FAT report – example


Swiss National
Frequency Allocation Plan
and Specific Assignments

Edition 2020


Frequency Allocation plan

Frequency Band	Radio Regulations Notes	Swiss Allocations National Allocation	Main Use	Civ/Mil	Notes	Strategy
0 - 8.3 kHz		Not allocated 5.53 5.54	Inductive loop systems. Various applications.	CIV/MIL	kHz Avalanche victim search.	This frequency band is no longer available for new Avalanche victim search equipment.
8.3 - 9 kHz		METEOROLOGICAL AIDS 5.54A	Inductive loop systems. Various applications.	CIV/MIL		Future use by METEOROLOGICAL AIDS
9 - 11.3 kHz		METEOROLOGICAL AIDS 5.54A RADIONAVIGATION	Short range devices Inductive loop systems. Various applications.	CIV/MIL	Short range devices: Harmonised frequencies: General 9-148.5 kHz Inductive applications: RIR1005-01 ERC/REC 70-03 9-315 kHz: Active medical implants: ULP-AMI RIR1006-01 ERC/REC 70-03	Future use by METEOROLOGICAL AIDS
11.3 - 14 kHz	EU2	RADIONAVIGATION	Short range devices Inductive loop systems. Various applications.	CIV/MIL		No major changes foreseen in use of these frequencies.
14 - 16 kHz	Inductive applications within the band 9 - 148.5 kHz. Wireless applications in healthcare within the band 9-315 kHz.	FIXED 5.56	Inductive loop systems. Various applications.	CIV/MIL		
16 - 19.95 kHz			Paging Short range devices Inductive loop systems.	CIV/MIL	On-site paging (16-40 kHz): RIR5006-11 RIR5006-12 RIR5006-13	No major changes foreseen in use of these frequencies. Testwertrag
19.95 - 20.05 kHz		STANDARD FREQUENCY AND TIME SIGNAL (20 kHz)		CIV/MIL		
20.05 - 40 kHz	Inductive applications within the band 9 - 148.5 kHz. Wireless applications in healthcare within the band 9-315 kHz.	FIXED		CIV/MIL	Short range devices: Harmonised frequencies: General 9-148.5 kHz Inductive applications: RIR1005-01 ERC/REC 70-03 9-315 kHz: Active medical implants: ULP-AMI RIR1006-01 ERC/REC 70-03	
40 - 70 kHz			Short range devices	CIV/MIL	Short range devices:	


Principles of spectrum management

National level

As radio frequencies are a **limited resource** (comparable with finite land reserves), efficient use of this resource is indispensable for the functioning of modern communication societies. The Telecommunications Act therefore includes a direct mandate for the body responsible for frequency management (OFCOM) to take appropriate measures in order to ensure efficient and interference-free use (see Art. 25 para. 1 TCA, CC 784.10).
Frequency regulation is fundamentally concerned with marrying the various interests of frequency users and manufacturers within the aforementioned legal mandate.

In order for frequency regulation to be as target-oriented as possible, the sometimes conflicting interests of the various frequency users must be recorded as accurately as possible and weighed against each other. The requirements of industry and the associated civil uses are largely tabled via the international working groups of the CEPT and the ITU. The tabled requirements are then examined by individual project groups; the relevant bodies then draw up and adopt appropriate basic documentation. These jointly developed principles then serve to allow European-wide and internationally harmonised use of frequency resources. The activity of these working groups is usually limited to civil frequency use. Discussion of military requirements does not take place within the bodies in question. To record the needs of military and civil defence (based on Article 3 paragraph 3 of the Ordinance of 9 March 2007 on Frequency Management and Radiocommunication Licences [CC 784.102.1; FMRLO]), OFCOM convened a permanent working group. This group deals with the coordination of frequency use in bands which are currently subject to joint use according to the NFAP though which in future will also be subject to joint use.

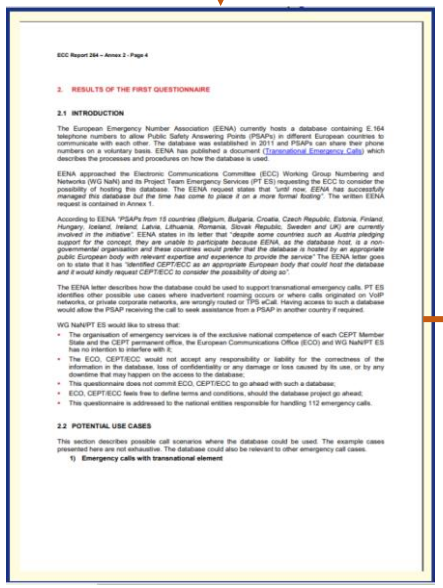
The aforementioned activities are ultimately reflected in the NFAP, which as mentioned above, must be considered as a legal basis document for the assignment of individual frequency rights by the relevant authorities.

Article 3, paragraph 3 FMRLO describes the content design and the associated international orientation of the NFAP. The strategic orientation of Switzerland in relation to frequency allocation is, based on the aforementioned article, specifically linked to international developments. Participation in the relevant international working groups is therefore indispensable in order to influence and shape frequency use.

As radio signals propagate across international borders, **cross-border agreements** regarding frequency use are vital both between neighbouring countries and between economic interest blocks on a global scale. The use of all frequency resources is harmonised at the international level at the **ITU World Radiocommunication Conferences** in order to ensure efficient and interference-free use of the frequency spectrum. The respective decisions of the World Radiocommunication Conferences are stipulated in the Radio Regulations of 17 November 1995 (CC 0.784.403.1), specifically in Article 5 "Frequency allocations". The decisions of the World Radiocommunication Conferences and related harmonisation efforts at the global level (ITU) are ultimately expressed in European bodies, such as the CEPT, which develops technical implementation scenarios. National frequency allocation and the resulting frequency use is ultimately derived from and determined by this international harmonisation (cf. following section on harmonisation).

International level

OFCOM analyses the spectrum requirements for existing and planned radio services in Switzerland. This is necessary for efficient and equitable planning and coordination of frequencies in order to avoid interference. It is also necessary because OFCOM represents Switzerland in international bodies in the frequency sector, where it safeguards Swiss interests in order to promote them on an international (regional and global) level.


ECC Report 264 – Annex 2 - Page 4

2. RESULTS OF THE FIRST QUESTIONNAIRE

2.1 INTRODUCTION

The European Emergency Number Association (EENA) currently hosts a database containing E.164 telephone numbers to allow Public Safety Answering Points (PSAPs) in different European countries to communicate with each other. The database was established in 2011 and PSAPs can share their phone numbers on a voluntary basis. EENA has published a document (Transnational Emergency Calls) which describes the processes and procedures on how the database is used.

EENA approached the Electronic Communications Committee (ECC) Working Group Numbering and Networks (WG NaN) and its Project Team Emergency Services (PT ES) requesting the ECC to consider the possibility of hosting this database. The EENA request states that *'until now, EENA has successfully managed this database but the time has come to place it on a more formal footing'*. The written EENA request is contained in Annex 1.

According to EENA *'PSAPs from 18 countries (Belgium, Bulgaria, Croatia, Czech Republic, Estonia, Finland, Hungary, Iceland, Ireland, Latvia, Lithuania, Romania, Slovak Republic, Sweden and UK) are currently involved in the initiative'*. EENA states in its letter that *"despite some countries such as Austria pledging support for the concept, they are unable to participate because EENA, as the database host, is a non-governmental organisation and these countries would prefer that the database is hosted by an appropriate public European body with relevant expertise and experience to provide the service"* The EENA letter goes on to state that it has *"identified CEPT/ECC as an appropriate European body that could host the database and it would kindly request CEPT/ECC to consider the possibility of doing so."*

The EENA letter describes how the database could be used to support transnational emergency calls. PT ES identifies other possible use cases where inadvertent roaming occurs or where calls originated on VoIP networks, or private corporate networks, are wrongly routed or TPS eCall. Having access to such a database would allow the PSAP receiving the call to seek assistance from a PSAP in another country if required.

WG NaN/PT ES would like to stress that:

- The organisation of emergency services is of the exclusive national competence of each CEPT Member State and the CEPT permanent office, the European Communications Office (ECO) and WG NaN/PT ES has no intention to interfere with it;
- The ECO, CEPT/ECC would not accept any responsibility or liability for the correctness of the information in the database, loss of confidentiality or any damage or loss caused by its use, or by any downtime that may happen on the access to the database;
- This questionnaire does not commit ECO, CEPT/ECC to go ahead with such a database;
- ECO, CEPT/ECC feels free to define terms and conditions, should the database project go ahead;
- This questionnaire is addressed to the national entities responsible for handling 112 emergency calls.

2.2 POTENTIAL USE CASES

This section describes possible call scenarios where the database could be used. The example cases presented here are not exhaustive. The database could also be relevant to other emergency call cases.

1) **Emergency calls with transnational element**


Appendix 3: Relevant Footnotes of Radio Regulations, Article 5 and relevant European-footnotes included in the European Common Allocation Table (ECA)

RR Footnote No	RR Footnote Text
4.4	Administrations of the Member States shall not assign to a station any frequency in derogation of either the Table of Frequency Allocations in this Chapter or the other provisions of these Regulations, except on the express condition that such a station, when using such a frequency assignment, shall not cause harmful interference to, and shall not claim protection from harmful interference caused by, a station operating in accordance with the provisions of the Constitution, the Convention and these Regulations.
4.10	Member States recognize that the safety aspects of radionavigation and other safety services require special measures to ensure their freedom from harmful interference; it is necessary therefore to take this factor into account in the assignment and use of frequencies.
5.43	1) Where it is indicated in these Regulations that a service or stations in a service may operate in a specific frequency band subject to not causing harmful interference to another service or to another station in the same service, this means also that the service which is subject to not causing harmful interference cannot claim protection from harmful interference caused by the other service or other station in the same service. (WRC-2000)
5.43A	1bis) Where it is indicated in these Regulations that a service or stations in a service may operate in a specific frequency band subject to not claiming protection from another service or from another station in the same service, this means also that the service which is subject to not claiming protection shall not cause harmful interference to the their service or other station in the same service. (WRC-2000)
5.53	Administrations authorizing the use of frequencies below 8.3 kHz shall ensure that no harmful interference is caused thereby to the services to which the bands above 8.3 kHz are allocated.
5.54	Administrations conducting scientific research using frequencies below 8.3 kHz are urged to advise other administrations that may be concerned in order that such research may be afforded all practicable protection from harmful interference.
5.54A	Use of the 8.3-11.3 kHz frequency band by stations in the meteorological aids service is limited to passive use only. In the band 9-11.3 kHz, meteorological aids stations shall not claim protection from stations of the radionavigation service submitted for notification to the Bureau prior to 1 January 2013. For sharing between stations of the meteorological aids service and stations in the radionavigation service submitted for notification after this date, the most recent version of Recommendation ITU-R RS.1881 should be applied. (WRC-12)
5.56	The stations of services to which the bands 14-19.95 kHz and 20.05-70 kHz and in Region 1 also the bands 72-84 kHz and 86-90 kHz are allocated may transmit standard frequency and time signals. Such stations shall be afforded protection from harmful interference. In Armenia, Azerbaijan, Belarus, Bulgaria, the Russian Federation, Georgia, Kazakhstan, Mongolia, Kyrgyzstan, Slovakia, Tajikistan and Turkmenistan, the frequencies 25 kHz and 50 kHz will be used for this purpose under the same conditions. (WRC-07)
5.60	In the bands 70- 90 kHz (70- 86 kHz in Region 1) and 110- 130 kHz (112- 130 kHz in Region 1), pulsed radionavigation systems may be used on condition that they do not cause harmful interference to other services to which these bands are allocated.
5.62	Administrations which operate stations in the radionavigation service in the band 90- 110 kHz are urged to coordinate technical and operating characteristics in such a way as to avoid harmful interference to the services provided by these stations.
5.64	Only classes A1A or F1B, A2C, A3C, F1C or F3C emissions are authorized for stations of the fixed service in the bands allocated to this service between 90 kHz and 160 kHz (148.5 kHz in Region 1) and for stations of the maritime mobile service in the bands allocated to this service between 110 kHz and 160 kHz (148.5 kHz in Region 1). Exceptionally, class J2B or J7B emissions are also authorized in the bands between 110 kHz and 160 kHz (148.5 kHz in Region 1) for stations of the maritime mobile service.
5.67A	Stations in the amateur service using frequencies in the band 135.7-137.8 kHz shall not exceed a maximum radiated power of 1 W (e.i.r.p.) and shall not cause harmful interference to stations of the radionavigation service operating in countries listed in No. 5.67. (WRC-07)

Example – Full FAT report - European level - example

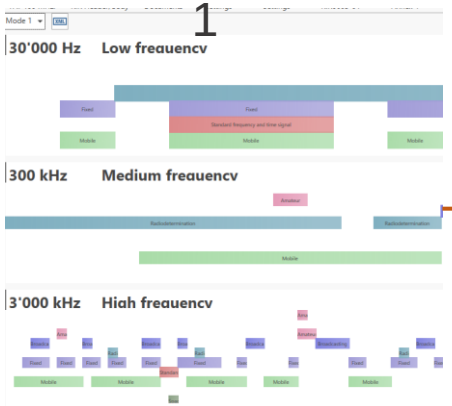
Electronic Communications Committee (ECC)
within the European Conference of Postal and
Telecommunications Administrations (CEPT)

THE EUROPEAN TABLE OF FREQUENCY ALLOCATIONS AND APPLICATIONS IN THE FREQUENCY RANGE 8.3 kHz to 3000 GHz (ECA TABLE)

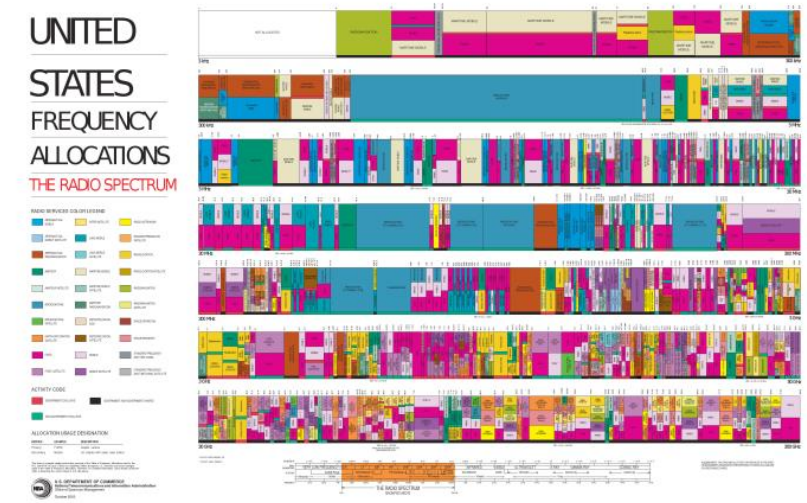
Approved March 2019

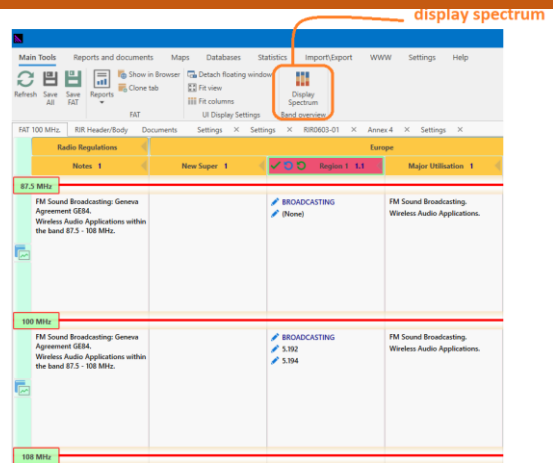
User Interface - Display spectrum – Example

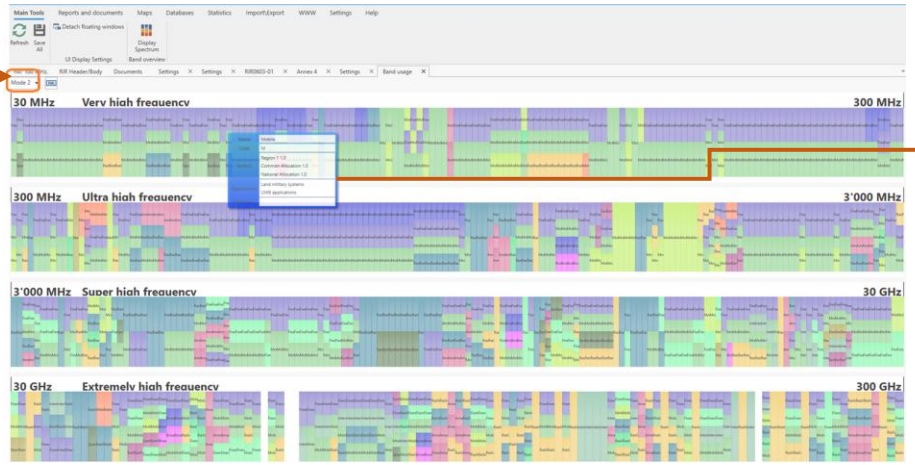
Mode 1

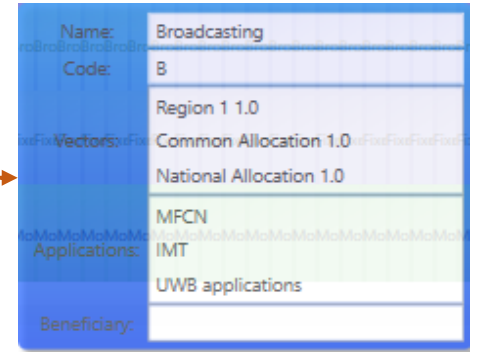


Mode 2



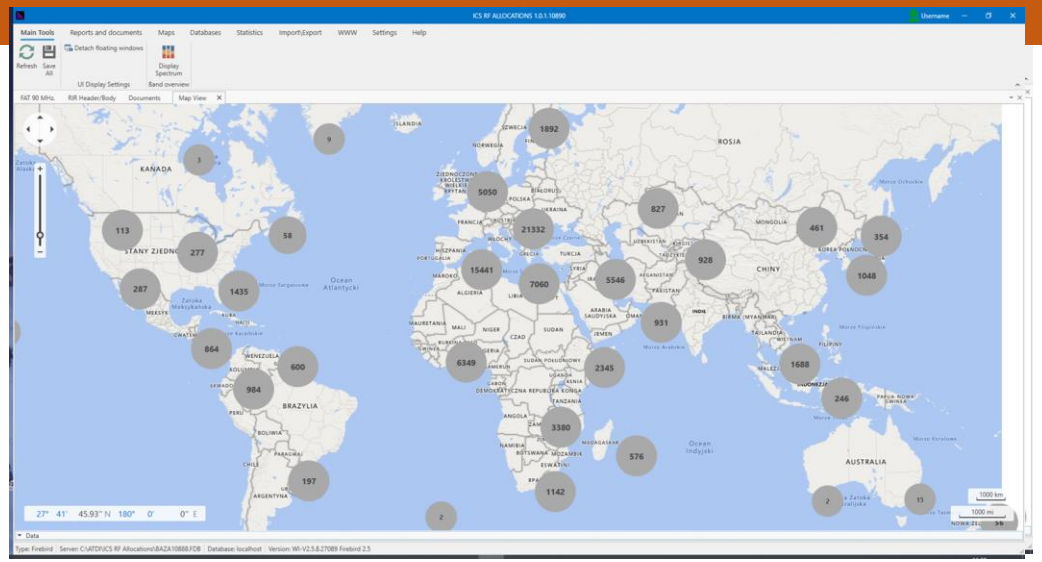






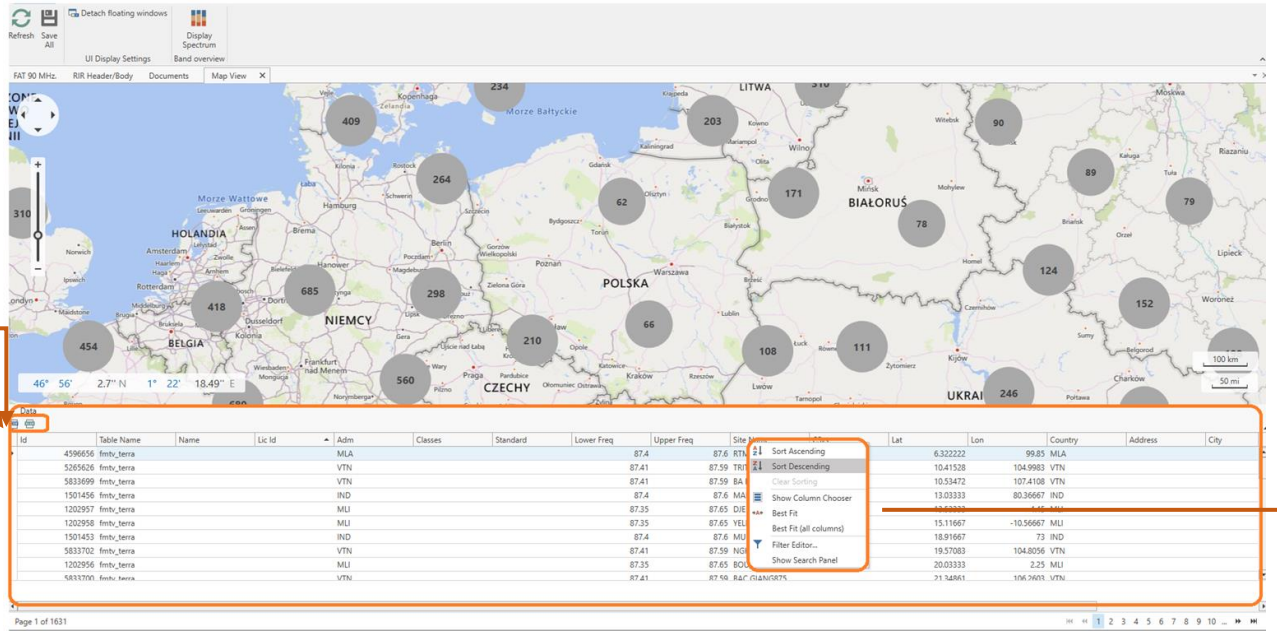
Frequency Allocations on the Maps

Cartographic module displays stations locally regionally and globally



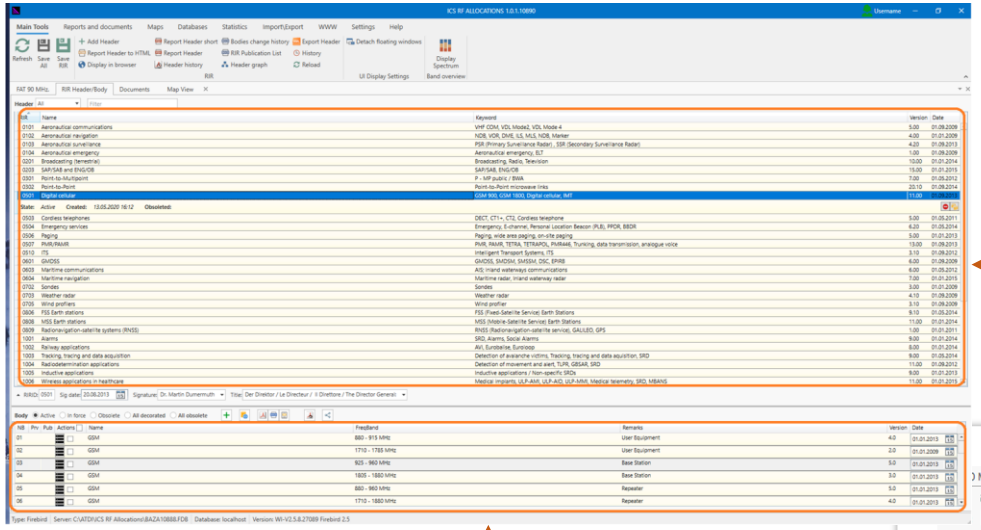
Export

Stations list in selected range



Filtration

Radio Interface Regulations – RIRs



RIR's Header

RIR's Body

EUROPEAN COMMISSION
Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs
and
Communications Networks Content & Technology Directorate-General

Notification of radio interface specifications and radio equipment classes

) MHz. | RIR Header/Body | Documents | Map View | RIR0201-71

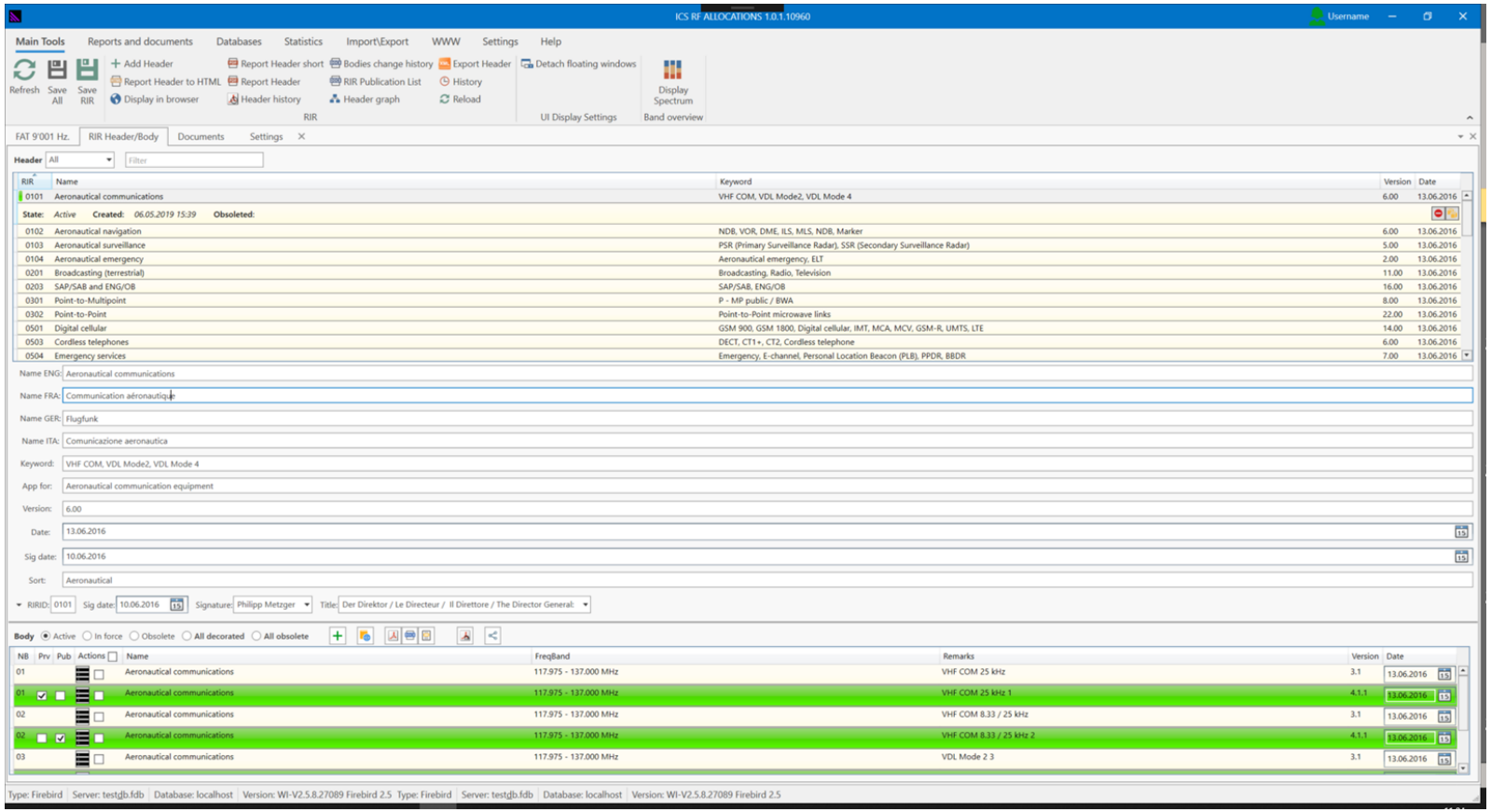
201 | Name ENG: Broadcasting (terrestrial) | NB: 71 | Name: DVB-T

Keyword: Broadcasting, Radio, Television | Frq. Band: 470 - 782 MHz

App for: Terrestrial Broadcasting | Remarks: Band IV / V (Channel 21 - 59)

No	Name	Description	Comments
1	Radiocommunication service	Service: Broadcasting	-
2	Application	Broadcasting Layers: Broadcasting (terrestrial) DVB-T	-
3	Frequency band	A: 470 - 582 MHz B: 582 - 782 MHz	Broadcasting band IV and V.
4	Channelling	8 MHz	Channel 21 - 34 and 35 - 59
5	Modulation / Occupied bandwidth	-	-
6	Direction / Separation	-	-
7	Transmit power / Power density	-	Transmit power limit according to license / individual assignment.
8	Channel access and occupation rules	-	-
9	Authorisation regime	Switzerland: License required. Liechtenstein: Individual assignment required.	-
10	Additional essential requirements	-	-
11	Frequency planning assumptions	EN 302 296	FINAL ACTS of Regional Radiocommunication Conference (RRC-06) Geneva, Switzerland.
12	Planned changes	-	-
13	Reference	EN 302 296 / EN 301 489-14 / EN 60215	Effective use of spectrum / EMC / Electrical safety / ECC Decisions / ECC Recommendations / Other Reference.
14	Notification number	G/TBT/N/CHE/170 2013/9504/CH	-
15	Remarks	-	-

User interface - Radio Interface Regulations



Radio Interface Regulations – edition screen

Radio Interface Regulations' edition

- Edit the header and body separately
- Keyword search
- Add hyperlinks
- Historical changes tracked

Radio Interface Regulation - report examples

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun Svizra

Swiss Confederation

Federal Department of Environment,
Transport, Energy and Communications DETEC

Federal Office of Communications OFCOM
Equipment and International Frequency Management Division

Technische Schnittstellen-Anforderungen
Prescriptions techniques d'interfaces
Prescrizioni tecniche relative alle interfaccie
Technical interface regulations

Aeronautical

784.101.21 / RIR0101

Flugfunk
Communication aéronautique
Comunicazione aeronautica
Aeronautical communications

Schlüsselwörter:
Mots clés:
Parole chiavi:
Keywords:

VHF COM, VDL Mode2, VDL Mode 4

Ausgabe :
Edition : **6.0**
Edizione :
Edition :

Gültig ab
Valable dès le **13.06.2016**
Valevole dal
Valid as of

Geltungsbereich: / Domaine d'application géographique: / Campo d'applicazione geografico: / Geographical scope:

Fürstentum Liechtenstein

Fürstentum Liechtenstein **Amt für Kommunikation**

Bestelladresse / Ordering address:

Amt für Kommunikation
Äulestrasse 51, P.O. Box 684, FL-9490 Vaduz, Liechtenstein
Internet: http://www.ak.llv.li

1 Frequenzeigenschaften und Funkparameter / Caractéristiques de fréquence et paramètres radio / Caratteristiche di frequenza e parametri radio / Frequency characteristics and radio parameters

RIR	Name	Frequency Band	Remarks	Edition	Date
0101-01	Aeronautical communications	117.975 - 137.000 MHz	VHF COM 25 kHz	3.1	13.06.2016
0101-01	INTERNAL DRAFT - Aeronautical communications	117.975 - 137.000 MHz	VHF COM 25 kHz 1	4.1.1	13.06.2016
0101-02	Aeronautical communications	117.975 - 137.000 MHz	VHF COM 8.33 / 25 kHz	3.1	13.06.2016
0101-02	DRAFT - Aeronautical communications	117.975 - 137.000 MHz	VHF COM 8.33 / 25 kHz 2	4.1.1	13.06.2016
0101-03	Aeronautical communications	117.975 - 137.000 MHz	VDL Mode 2 3	3.1	13.06.2016
0101-04	Aeronautical communications	117.975 - 137.000 MHz	VDL Mode 4	2.1	13.06.2016
0101-04	DRAFT - Aeronautical communications	117.975 - 137.000 MHz	VDL Mode 4 4	3.1.1	13.06.2016

Switzerland and the Principality of Liechtenstein

Radio Interface Regulation
Aeronautical

784.101.21 / RIR0101
Aeronautical communications

INTERNAL DRAFT - RIR0101-01
117.975 - 137.000 MHz

Aeronautical communications
VHF COM 25 kHz 1*(Old: VHF COM 25 kHz)*

Edition 4.1.1*(Old: 3.1)* / 13.06.2016

Nr	Parameter	Description	Comment
1	**Radiocommunication service**	Aeronautical mobile	-
2	**Application**	Aeronautical communications	Voice Communication, VHF COM 25 kHz / Data transmission (ACARS)
3	**Frequency band**	117.975 - 137.000 MHz	The Frequency 121.5 MHz shall be used only for emergency communication.
4	**Channelling**	25 kHz	-
5	**Modulation / Occupied bandwidth**	A3E	ACARS: MSK 2400 bps
6	**Direction / Separation**	-	-
7	**Transmit power / Power density**	Max. 250 W	-
8	**Channel access and occupation rules**	-	-
9	**Authorisation regime**	Switzerland: License required. Liechtenstein: Individual assignment required.	A License / individual assignment is not requested for the emergency frequency 121.500 MHz
10	**Additional essential requirements**	-	-
11	**Frequency planning assumptions**	ICAO Annex 10, Volume V	-
12	**Planned changes**	According AIC 010/2014 B.	From 01.01.2019 only 8.33 kHz Channeling is allowed (exceptions according AIC 010/2014 B).

Normative part: Nr 1 to 11 ; Informative part: Nr 12 to 15
1) RIR for similar and/or other applications are available under: https://www.bakom.admin.ch/bakom/en/home/frequenzen-antennen/nationaler-frequenzzuweisungsplan/schnittstellen-anforderungen.html
2) For explanations and legal status, please refer to basis document 784.101.21 / RIR0000

Radio Interfaces Regulations – reports

RIRs reports types:

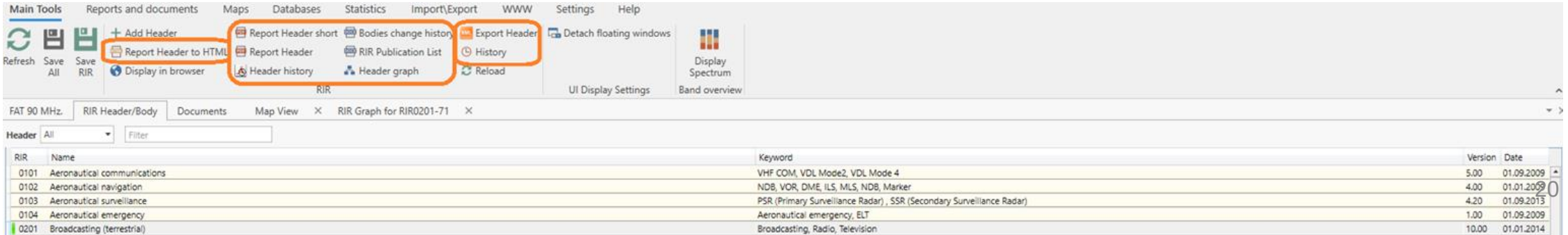
- Header
- Header short
- Header history
- Body changes history
- Body report
- RIR publications list
- Header graph
- History

Switzerland and the Principality of Liechtenstein | Radio Interface Regulation **Broadcasting** | 784.101.21 / RIR0201 [1] **Broadcasting (terrestrial)**

RIR0201-71	**DVB-T**	Edition 5.1.1 / 01.01.2014
470 - 782 MHz	Band IV / V (Channel 21 - 59)	

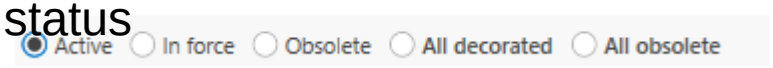
Nr	Parameter [2]	Description	Comments
1	**Radiocommunication service**	Broadcasting	-
2	**Application**	Satellite radio	-
3	**Frequency band**	A: 470 - 582 MHz B: 582 - 782 MHz	Broadcasting band IV and V.
4	**Channelling**	8 MHz	Channel 21 - 34 and 35 - 59
5	**Modulation / Occupied bandwidth**	-	-
6	**Direction / Separation**	-	-
7	**Transmit power / Power density**	-	Transmit power limit according to license / individual assignment.
8	**Channel access and occupation rules**	-	-
9	**Authorisation regime**	Switzerland: License required. Liechtenstein: Individual assignment required.	-
10	**Additional essential requirements**	-	-
11	**Frequency planning assumptions**	EN 302 296	FINAL ACTS of Regional Radiocommunication Conference (RRC-06) Geneva, Switzerland.
12	**Planned changes**	-	-
13	**Reference**	EN 302 296 / EN 301 489-14 / EN 60215	Effective use of spectrum / EMC / Electrical safety / ECC Decisions / ECC Recommendations / Other Reference.
14	**Notification number**	G/TBT/N/CHE/170 2013/9504/CH	-
15	**Remarks**	-	-

Normative part: Nr 1 to 11 ; Informative part: Nr 12 to 15
1) RIR for similar and/or other applications are available under: https://www.bakom.admin.ch/bakom/en/home/frequenzen-antennen/nationaler-frequenzzuweisungsplan/schnittstellen-anforderungen.html
2) For explanations and legal status, please refer to basis document 784.101.21 / RIR0000
(c) OFCOM (Swiss Federal Office of Communications)__BodyReport.rdlc (Template2017-04-21) 1 / 1

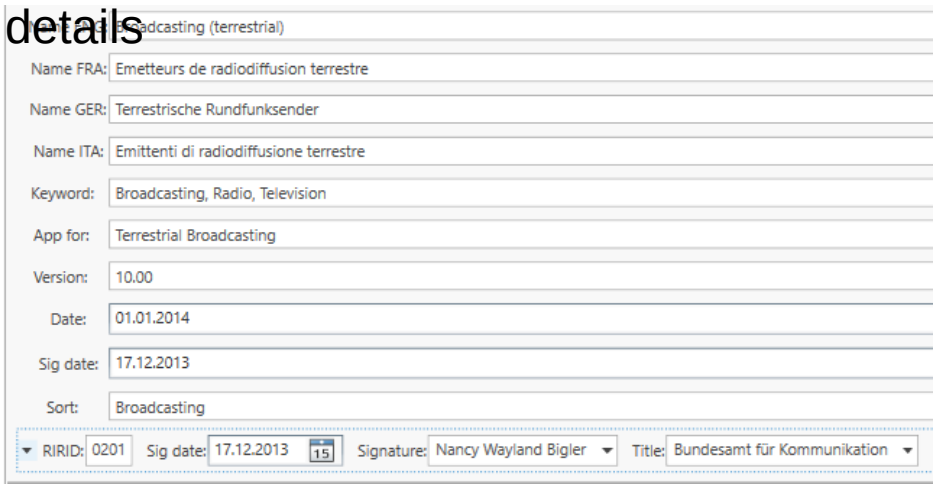


Radio Interfaces Regulations - Workflow process

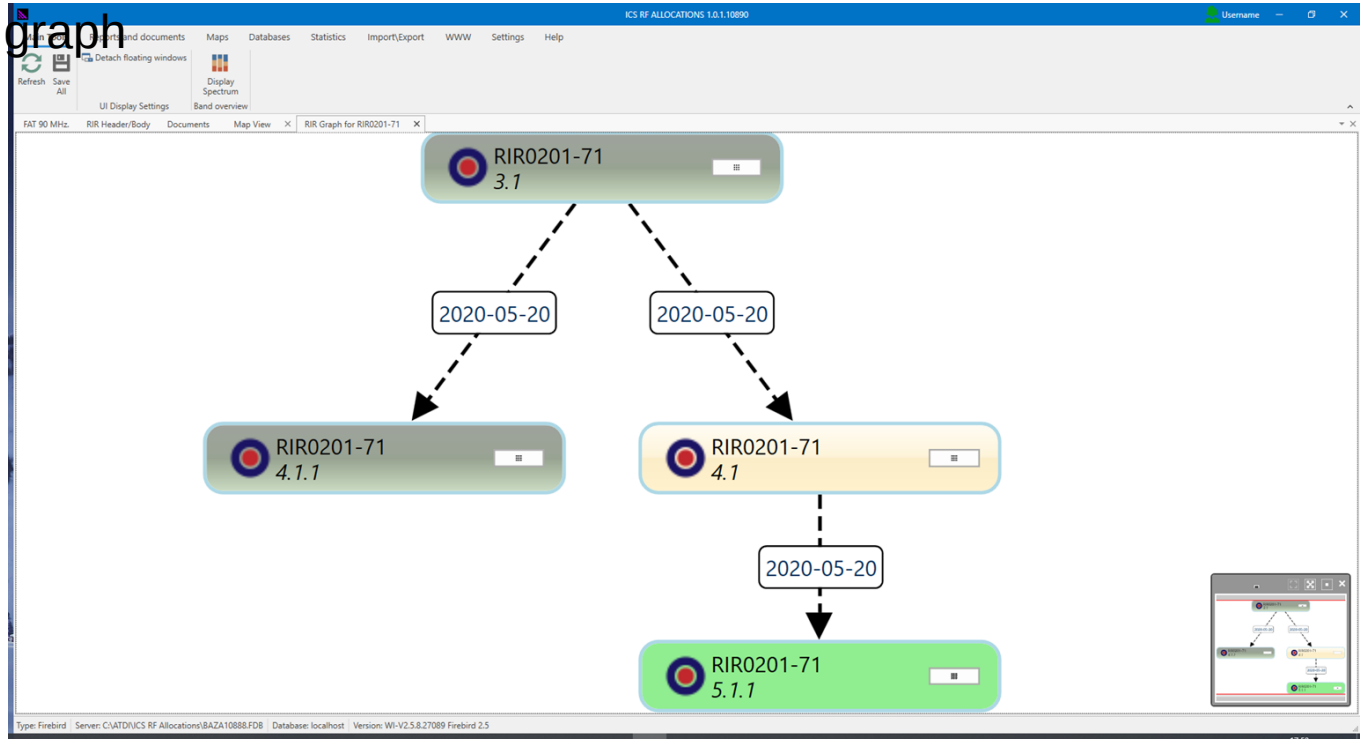
RIR header/body status



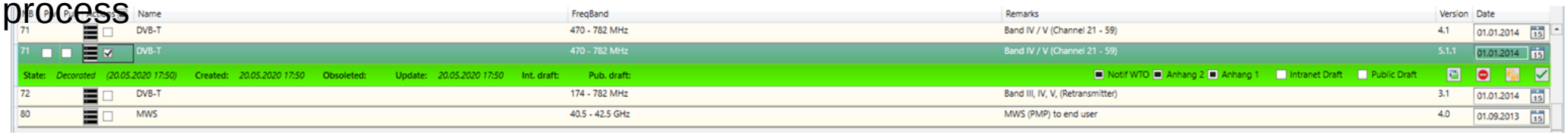
RIR details



RIR body history graph

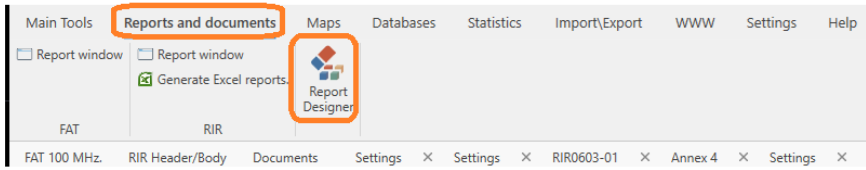


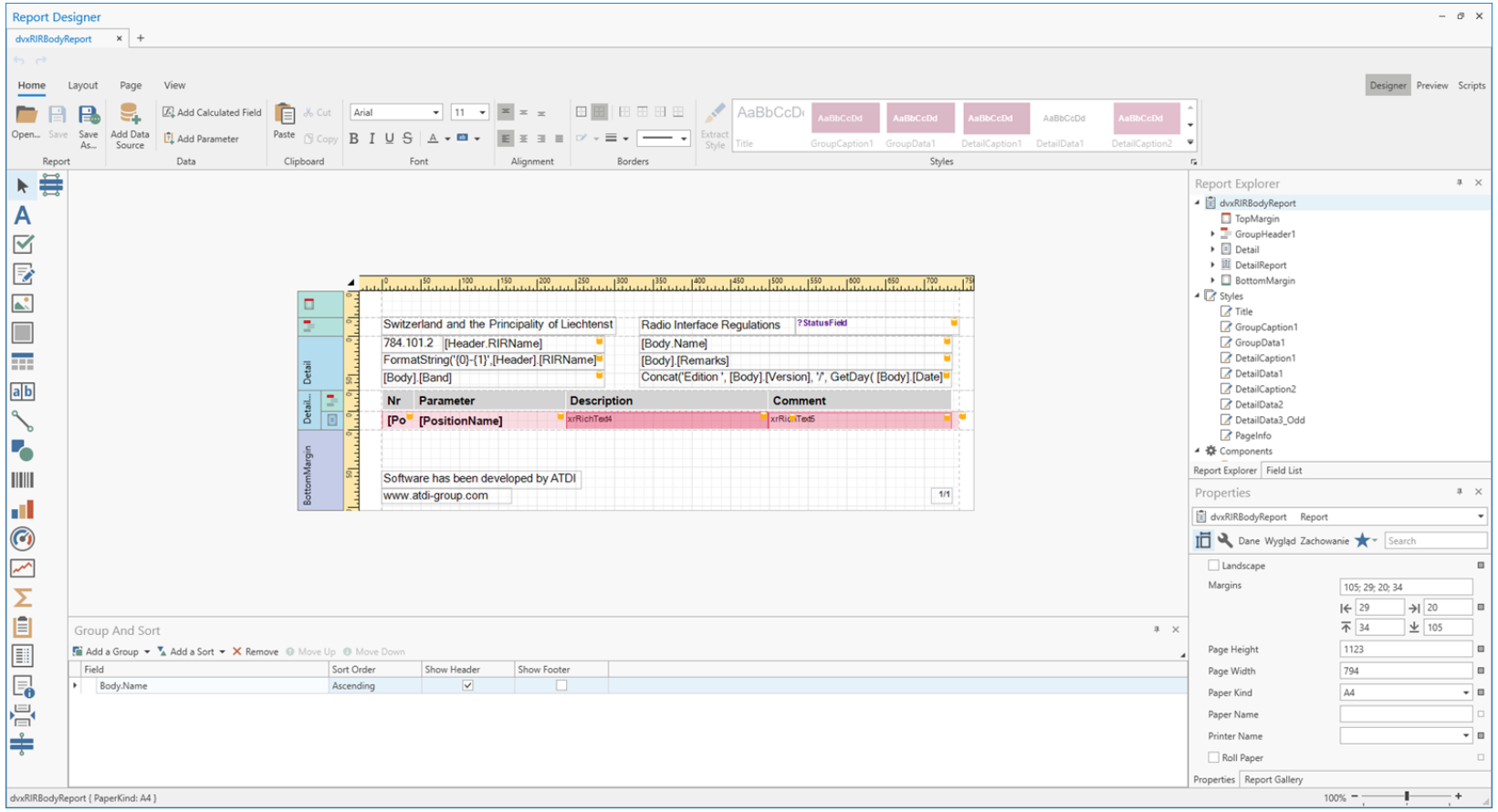
RIR publication process



Report designer

Editor for designing report templates





Reporting module provides large range parameter customisations:

- country
- frequency bands
- pre-defined vectors.

Available Output formats:

- pdf
- docx (Word)
- xml
- xls (Excel)

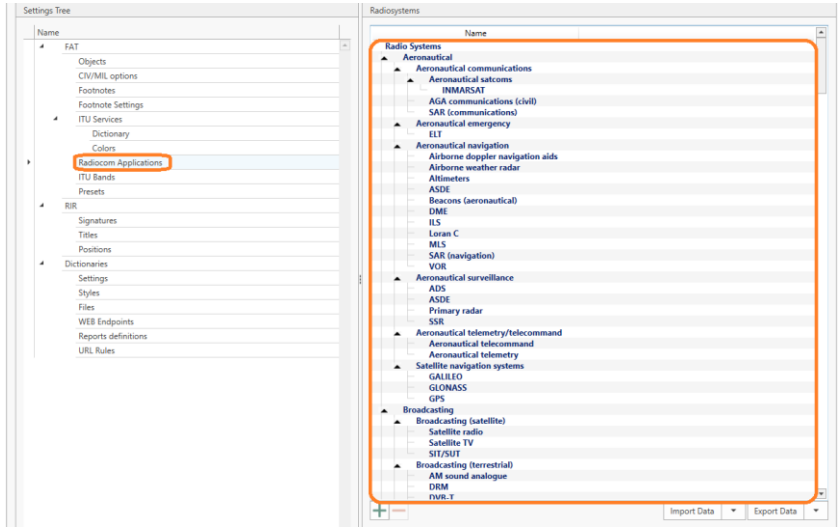
User interface – entries, collections and document library

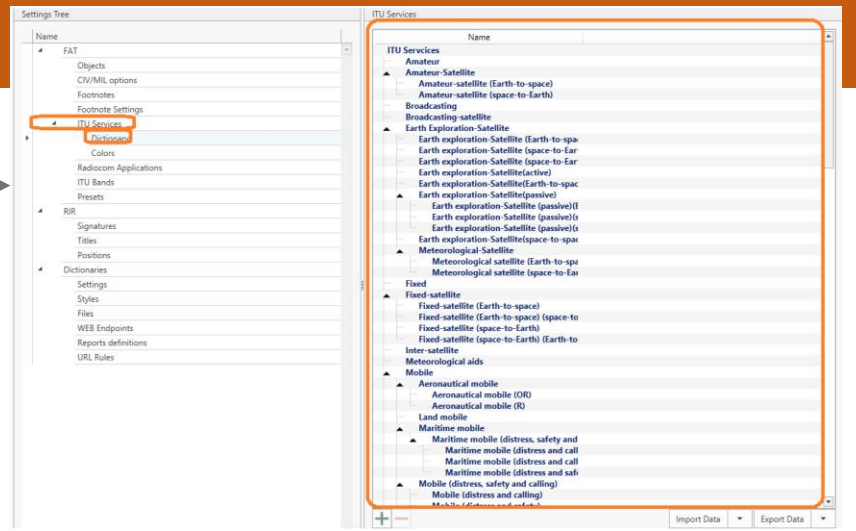
Allocations

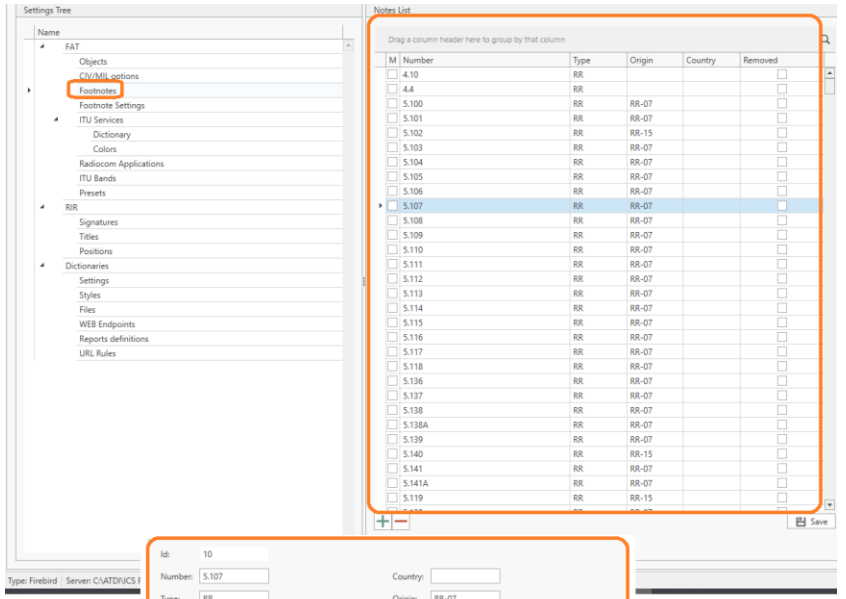
Applications

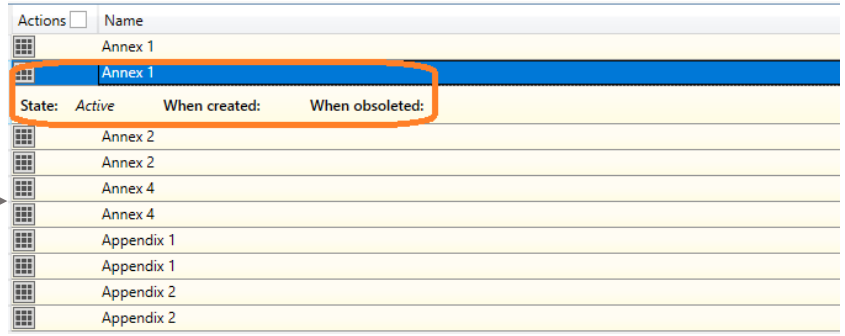
Footnotes

Documents links





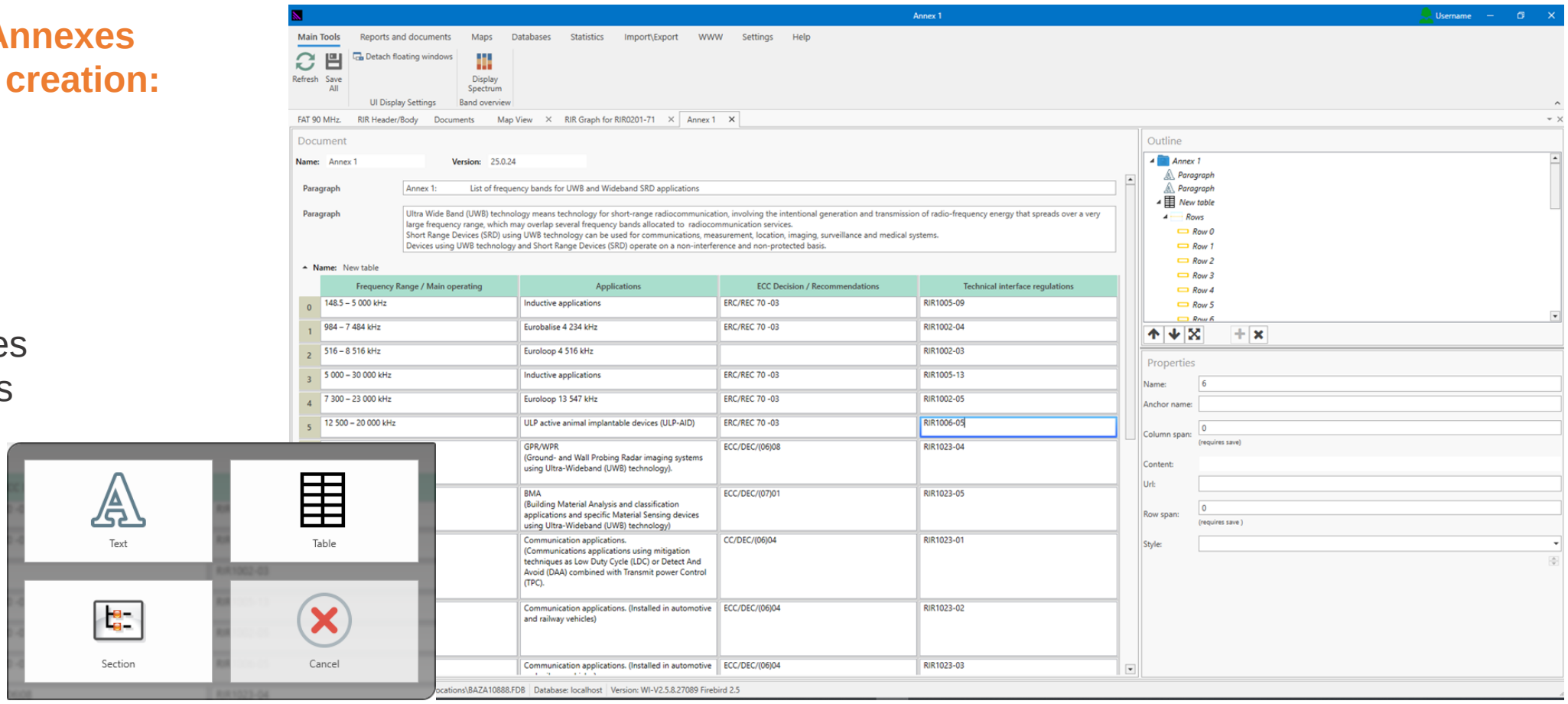




Document editor

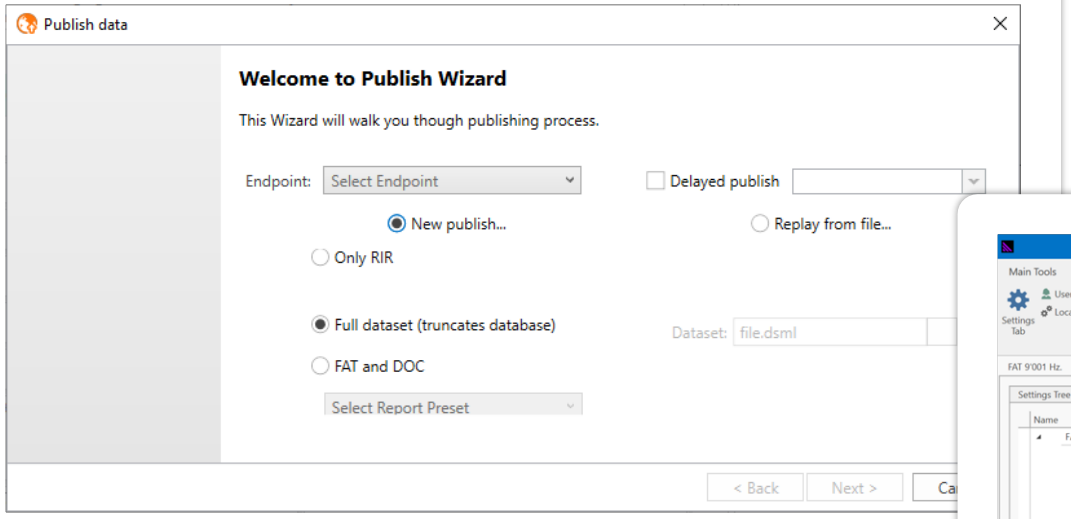
Scope of the Annexes and Appendix creation:

- texts
- tables
- sections
- anchors
- doc templates
- xls templates

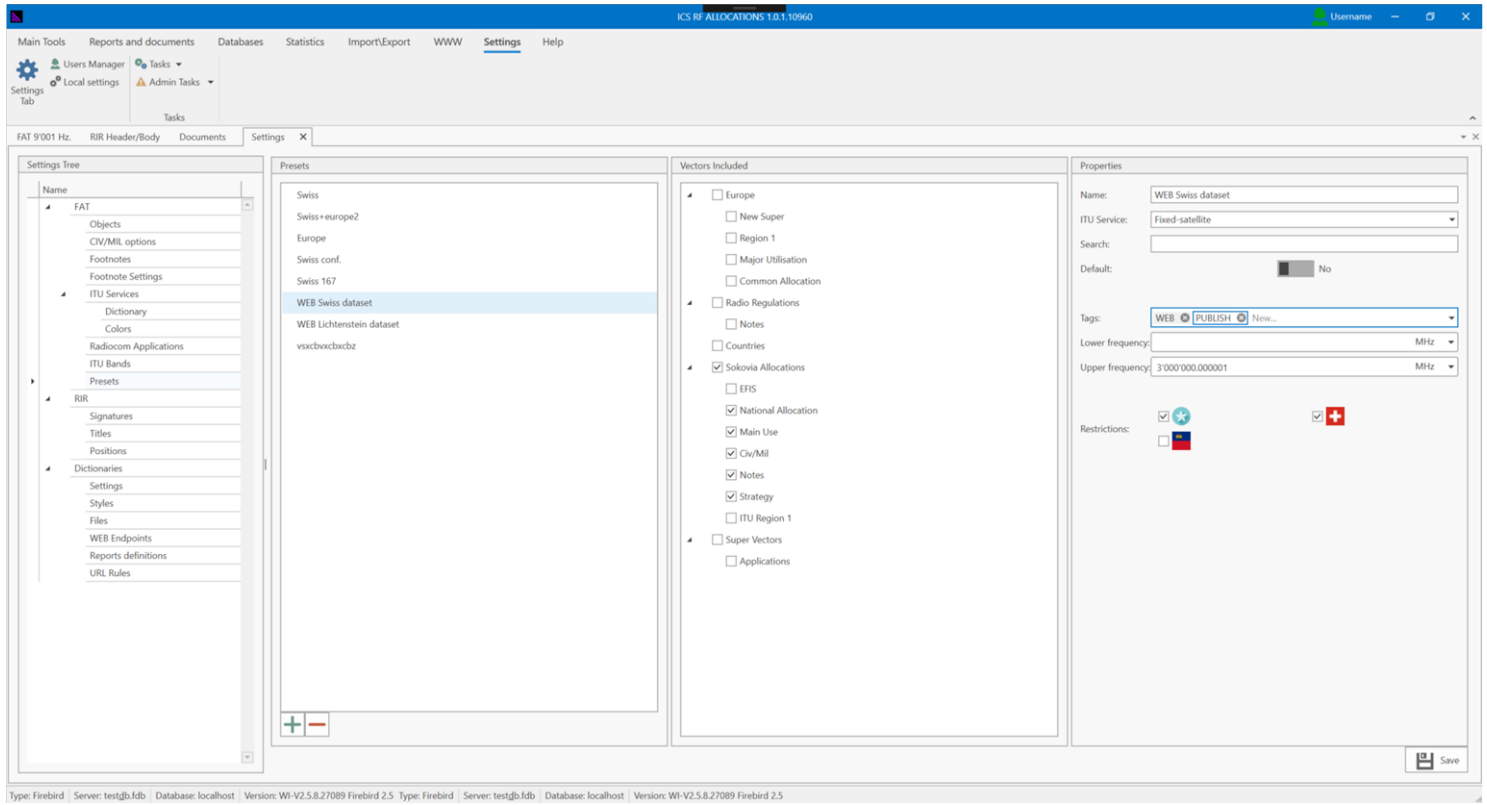


Document edition window

Publishing and website – defining parameters



Publishing module - Starting window



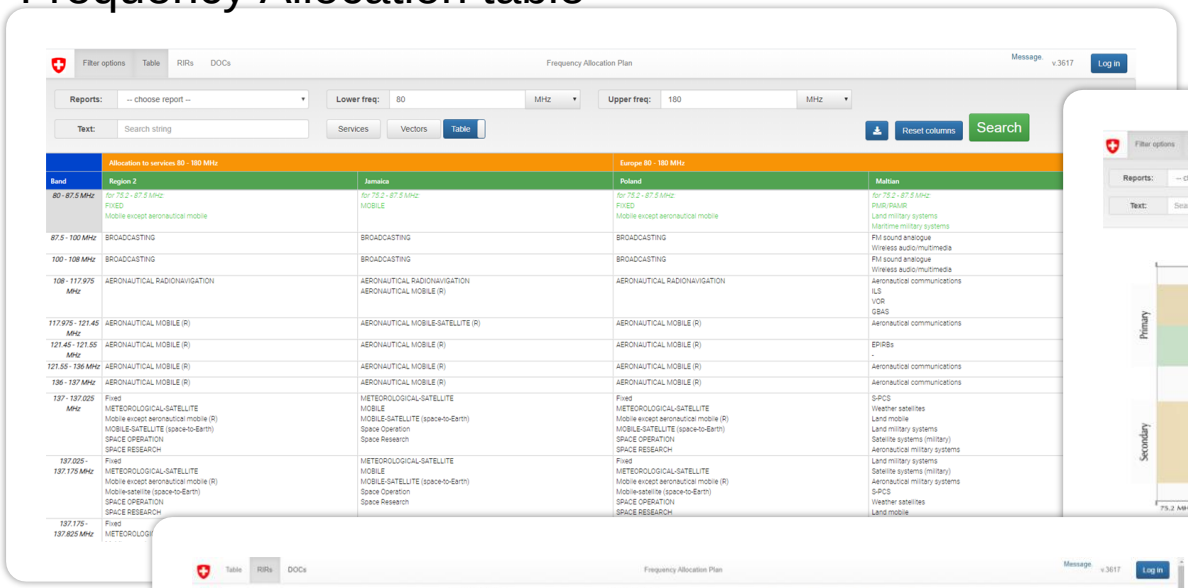
Publishing settings paratemeters

Publishing module:

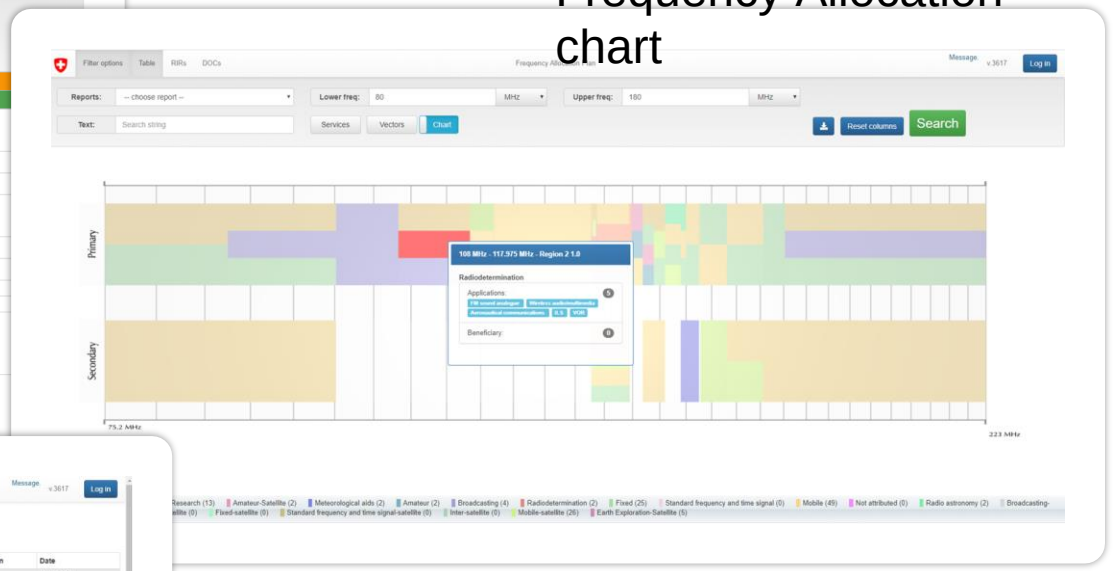
- Supports FAT and other report publishing on the website
- Extensive list of publishing settings available

Publishing and website – published report examples

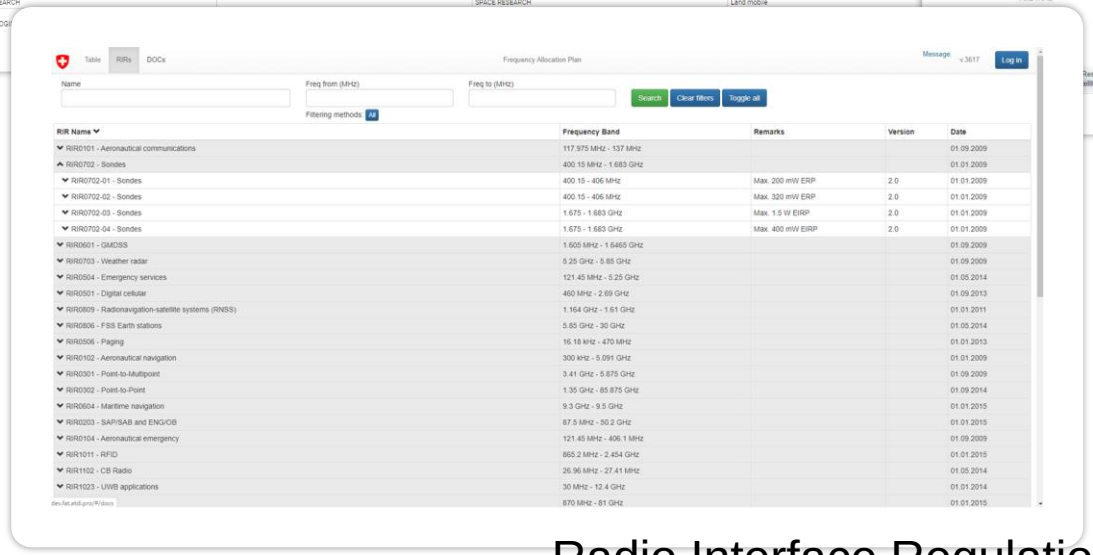
Frequency Allocation table



Frequency Allocation chart



Radio Interface Regulation

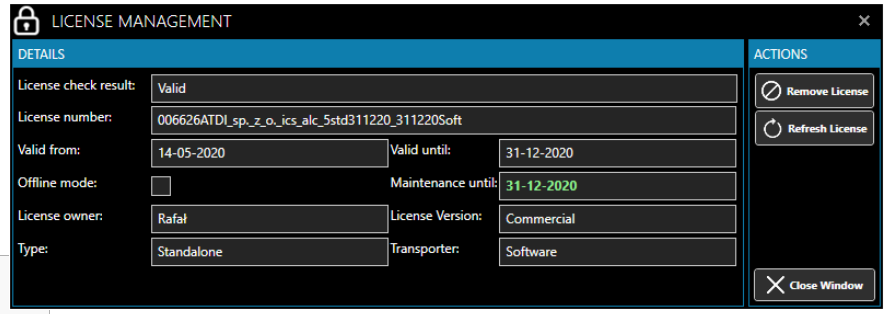


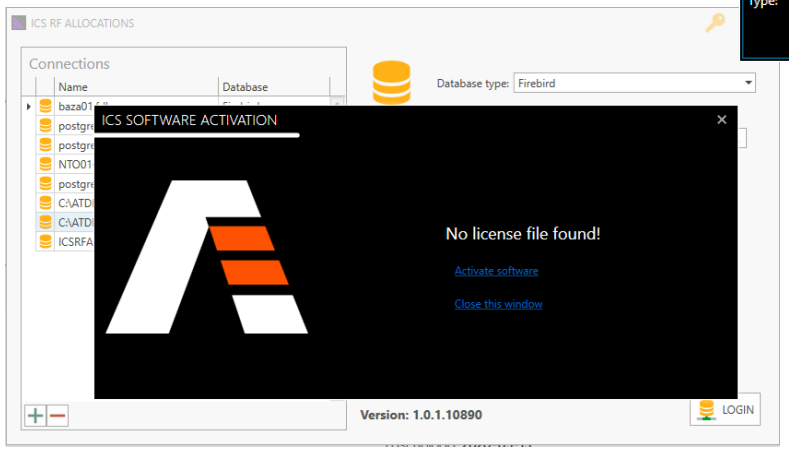
Benefits of RF allocations use

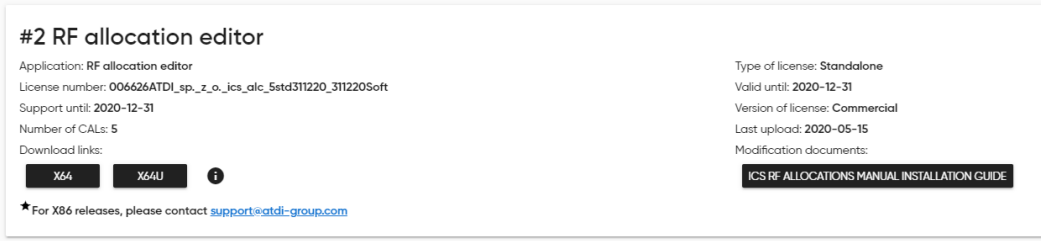
- RF allocation supports regulatory authorities to manage the national assignment plans
- Thanks to its wide range of functions, ICS RF Allocations offers real tangible savings such as – time savings and human resources previously associated to preparing the FAT
- Enables data consolidation
- Fulfils legal binding requirements for spectrum management
- **Easy – to – use** application with intuitive and user friendly interface

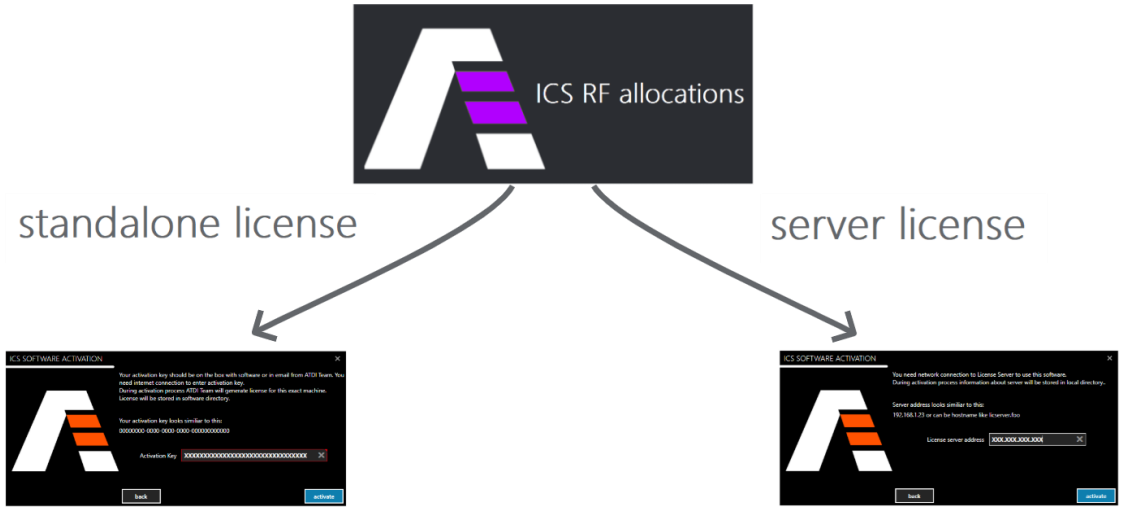
Licensing

- Common licensing mechanism for all ATDI applications
- CRM
- ATDI online customer panel
- Number of CALs per license







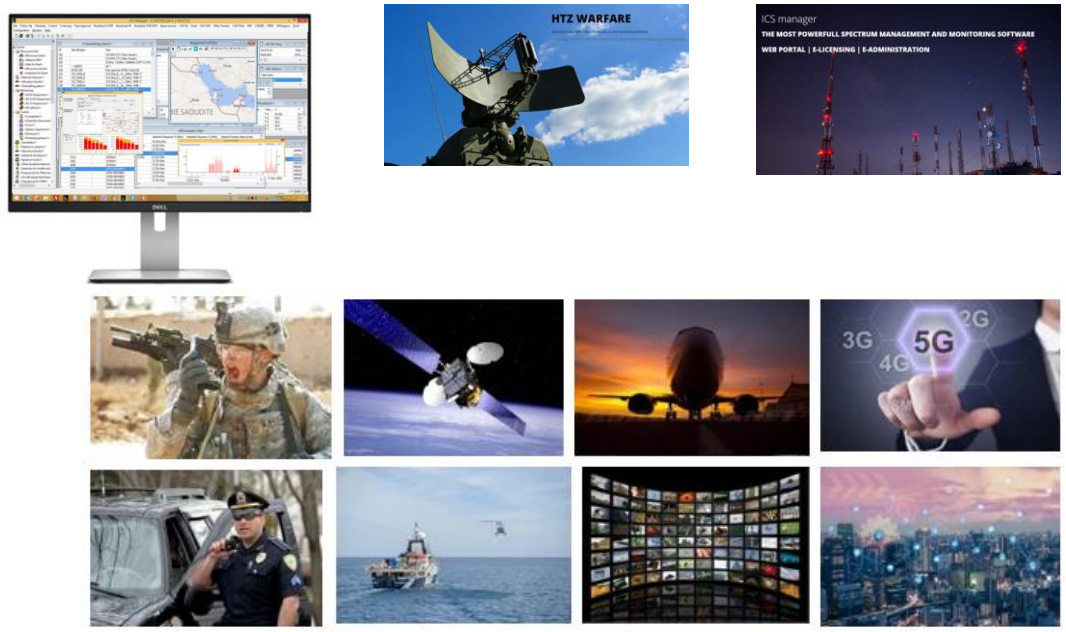


About us

ATDI has over 30 years of experience in creating solutions for radio planning and automated spectrum management

Leading position and expertise in:

- radio spectrum management
- radio planning and optimisation
- electronic warfare solutions
- high-tech software development
- knowledge and practice



Long-term cooperation with telecommunications players

- Telecom operators / Broadcasters
- Regulators / Civil Aviation Authorities
- Military forces / Emergency services
- Telecom Equipment Manufacturing/ Engineering Services consulting firms

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