

RF allocations

**Frequency
Allocation Table
editor and
manager**



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:

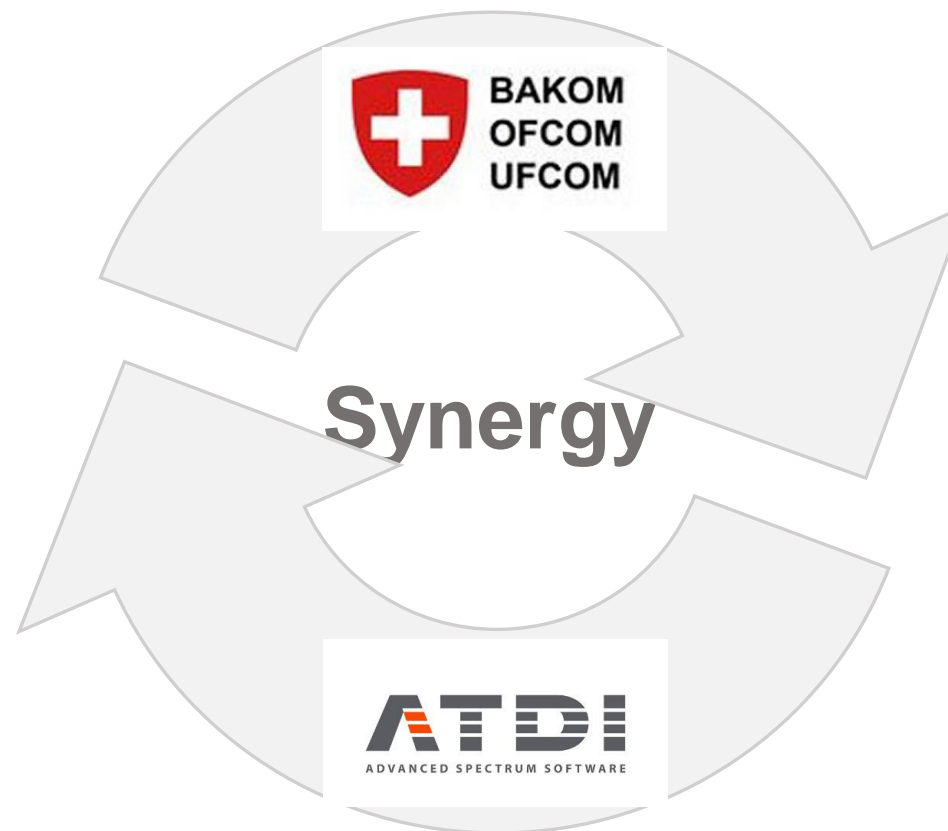
- Granting allocations
- Footnotes database management
- Document management
- Report generation and publishing
- Import/Export to EFIS

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



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

COMPATIBLE WITH:

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



FAT - Frequency Allocation Table
RIR – Radio Interface Regulations

[illegible]

The screenshot displays the ICS RF ALLOCATIONS 1.0.1.10960 software interface. The top navigation bar includes tabs for Main Tools, Reports and documents, Databases, Statistics, Import/Export, WWW, Settings, and Help. The 'Main Tools' tab is active, showing options like Refresh, Save All, Save RIR, Add Header, Report Header to HTML, Report Header, Display in browser, Header history, Header graph, RIR, UI Display Settings, Band overview, and Display Spectrum.

The main window shows a list of radio frequency allocations. A red box highlights the 'RIR Header/Body' tab in the top navigation bar. Below this, a table lists various communication systems, including 'Aeronautical communications', 'Aeronautical navigation', 'Aeronautical surveillance', 'Aeronautical emergency', 'Broadcasting (terrestrial)', 'SAP/SAB and ENG/OB', 'Point-to-Multipoint', 'Point-to-Point', 'GSM 900', 'GSM 1800', 'Digital cellular, IMT, MCA, MCV, GSM-R, UMTS, LTE', 'DECT, CT1 + CT2, Cordless telephone', 'Emergency, E-channel, Personal Location Beacon (PLB), PPDR, BBDR', 'Paging, wide area paging, on-site paging', 'PMR, PAMR, TETRA, TETRAPOL, PMR446, Trunking, data transmission, analogue voice', 'Intelligent Transport Systems, ITS', 'GMDSS, SMDSM, SMSSM, DSC, EPIRB', 'AIS; inland waterways communications', and 'Maritime radar, Inland waterway radar, RTE'.

The bottom of the screen shows a status bar with database and version information: Database: localhost, Version: WI-V2.5.8.27089 Firebird 2.5, Type: Firebird, Server: testgb.fdb, Database: localhost, Version: WI-V2.5.8.27089 Firebird 2.5.

The screenshot displays the ICS RF 10.1.10960 software interface. The top menu bar includes options like Main Tools, Reports and documents, Databases, Statistics, Import/Export, WWW, Settings, and Help. Below the menu, there are icons for Refresh, Save All, Save DOC, and Detach floating windows. The main window is divided into two panes. The left pane shows a table of documents with columns for Actions, Name, and Version. The right pane shows a version graph with two nodes: Annex 4 9.0.8 (yellow) and Annex 4 10.0.9 (green), connected by a dashed arrow pointing from the older version to the newer one. A date box labeled '2019-05-06' is positioned between the two nodes. The bottom status bar indicates the file type as Firebird, server as testdb.fdb, database as localhost, and version as WI-V2.5.8.27089 Firebird 2.5.

Actions	Name	Version
	Annex 1	25.0.24
	Annex 1	25.0.24
	Annex 2	8.0.7
	Annex 2	8.0.7
	Annex 4	9.0.8
	Annex 4	9.0.8
	Annex 4	10.0.9
State: Decorated When created: 06.05.2019 16:18 When obsolete:		
	Appendix 1	14.0.13
	Appendix 1	14.0.13
	Appendix 2	5.0.4
	Appendix 2	5.0.4

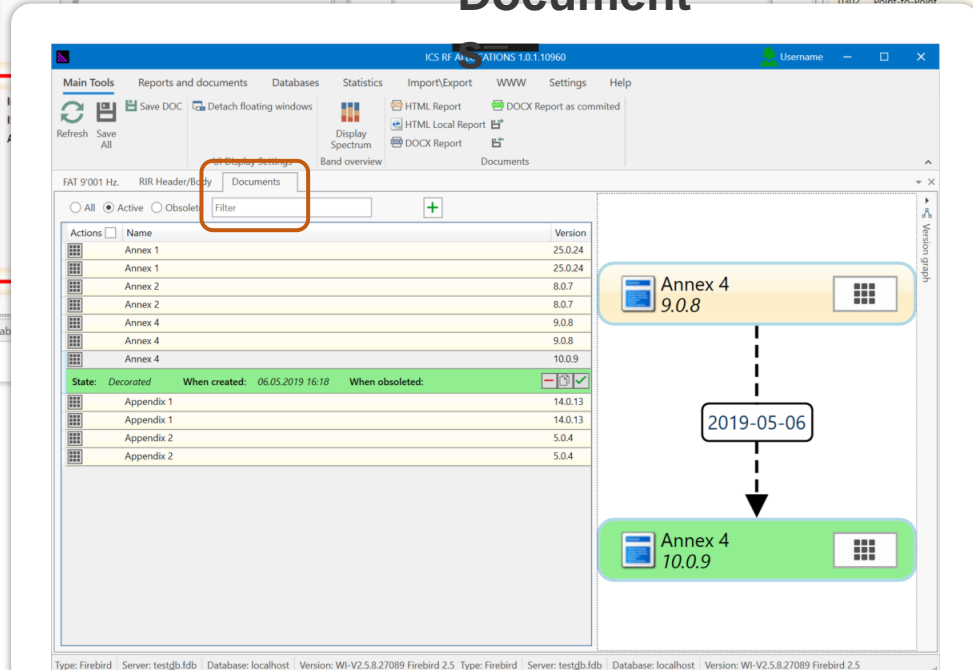
Version graph:

```

graph TD
    A[Annex 4 9.0.8] -.-> B[Annex 4 10.0.9]
    style A fill:#fff,stroke:#000,stroke-width:1px
    style B fill:#00ff00,stroke:#000,stroke-width:1px
  
```

2019-05-06

Type: Firebird Server: testdb.fdb Database: localhost Version: WI-V2.5.8.27089 Firebird 2.5 Type: Firebird Server: testdb.fdb Database: localhost Version: WI-V2.5.8.27089 Firebird 2.5



User interface - Frequency Allocation table

The screenshot displays the 'ICS RF ALLOCATIONS 1.0.1.10960' application. The main window shows a table for 'Europe' with the following columns: 'Region 1 1', 'Major Utilisation 1', 'Common Allocation 1', and 'Common Allocation 1.1'. Three frequency bands are highlighted with red boxes: '9'000 Hz', '11'300 Hz', and '14'000 Hz'. A brown oval highlights the 'Common Allocation 1.1' column. The right sidebar contains a frequency selection interface with a '0.009001 MHz' input, 'down' and 'up' buttons, and a 'Properties' panel with fields for 'Lower frequency', 'Upper frequency', 'Description', and 'Comment'. The status bar at the bottom shows 'Type: Firebird', 'Server: testdb.fdb', 'Database: localhost', and 'Version: WI-V2.5.8.27089 Firebird 2.5'.

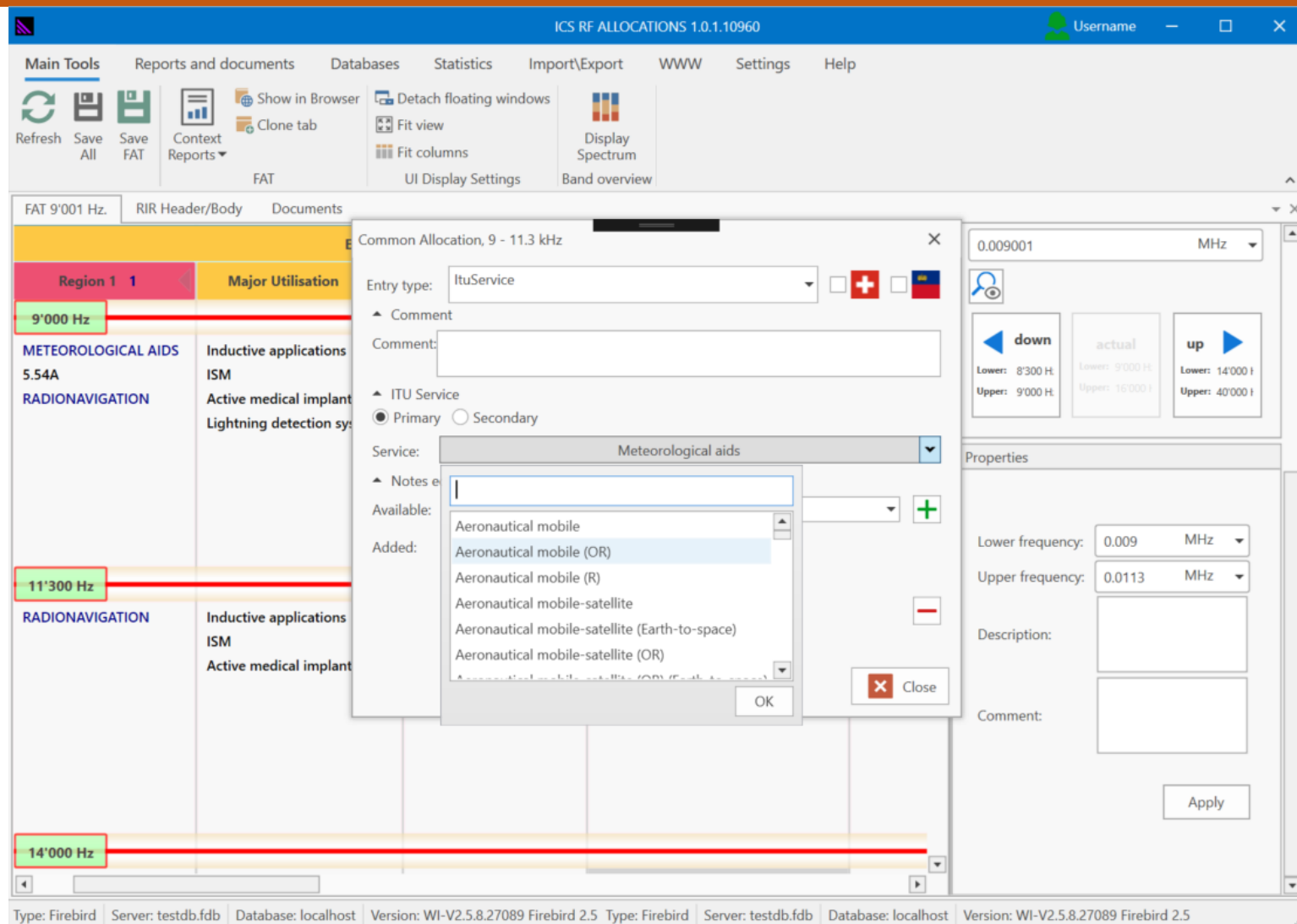
Region 1 1	Major Utilisation 1	Common Allocation 1	Common Allocation 1.1
9'000 Hz	METEOROLOGICAL AIDS 5.54A RADIONAVIGATION	Inductive applications ISM Active medical implants Lightning detection systems	METEOROLOGICAL AIDS 5.54A RADIONAVIGATION EU2
11'300 Hz	RADIONAVIGATION	Inductive applications ISM Active medical implants	RADIONAVIGATION EU2
14'000 Hz			

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.

Frequency Allocation Table – main screen

User interface - Frequency Allocation Table – edition



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

Frequency Allocation Table edition screen

User interface – FAT reports

DOCX
XLS

Major Utilisation	Common Allocation	EFIS	Strategy Confidential	National Allocation	Main Use	Civ/Mil	Notes
915 MHz	MOBILE Radiolocation 5.323 EU2 EU13 EU14	Non-specific SRDs Aids for hearing impaired RFID UWB applications	[SEPARATOR]	LAND MOBILE	915 - 918 MHz: SRD primary. 918 - 921 MHz / 873 - 876 MHz: GSM-R extension band primary.	CIV	915 - 918 MHz: Non-specific SRDs: [RIR1008-39]: 25 mW, 0.1% D.C. BW max. 200 kHz. [SEPARATOR] 915.2 - 918 MHz: Non-specific SRDs: [RIR1008-40]: 25 mW, 0.1% D.C. BW max. 200 kHz. [SEPARATOR] 916.1 - 916.5 MHz and 917.3 - 917.7 MHz: Non-specific SRDs: [RIR1008-41]: 100 mW, 1% D.C. BW max. 400 kHz. Indoor Digital Assistive Listening Device Systems: [RIR1009-19]: 10 mW, 25% D.C. BW max. 400 kHz. SRDs: [RIR1011-08]: 4 W, BW max. 400 kHz.
918 MHz		GSM-R UWB applications					
921 MHz	MOBILE Radiolocation 5.323 EU2 EU13 EU14	GSM-R UWB applications	[SEPARATOR]	LAND MOBILE	GSM-R primary.	CIV	921-925 MHz (DL) paired with 876-880 MHz Harmonised frequencies: Annex 1. GSM-R: [RIR0501-17], [SEPARATOR] GSM-R Repeater: [RIR0501-18], [SEPARATOR] ECC/DEC/DEC/DEC.
925 MHz			[SEPARATOR]	MOBILE except aeronautical mobile	925 - 960 MHz / 880 - 915 MHz: Digital cellular primary.	CIV	925-960 MHz (DL) paired with 880 - 915 MHz.

Selected data
range

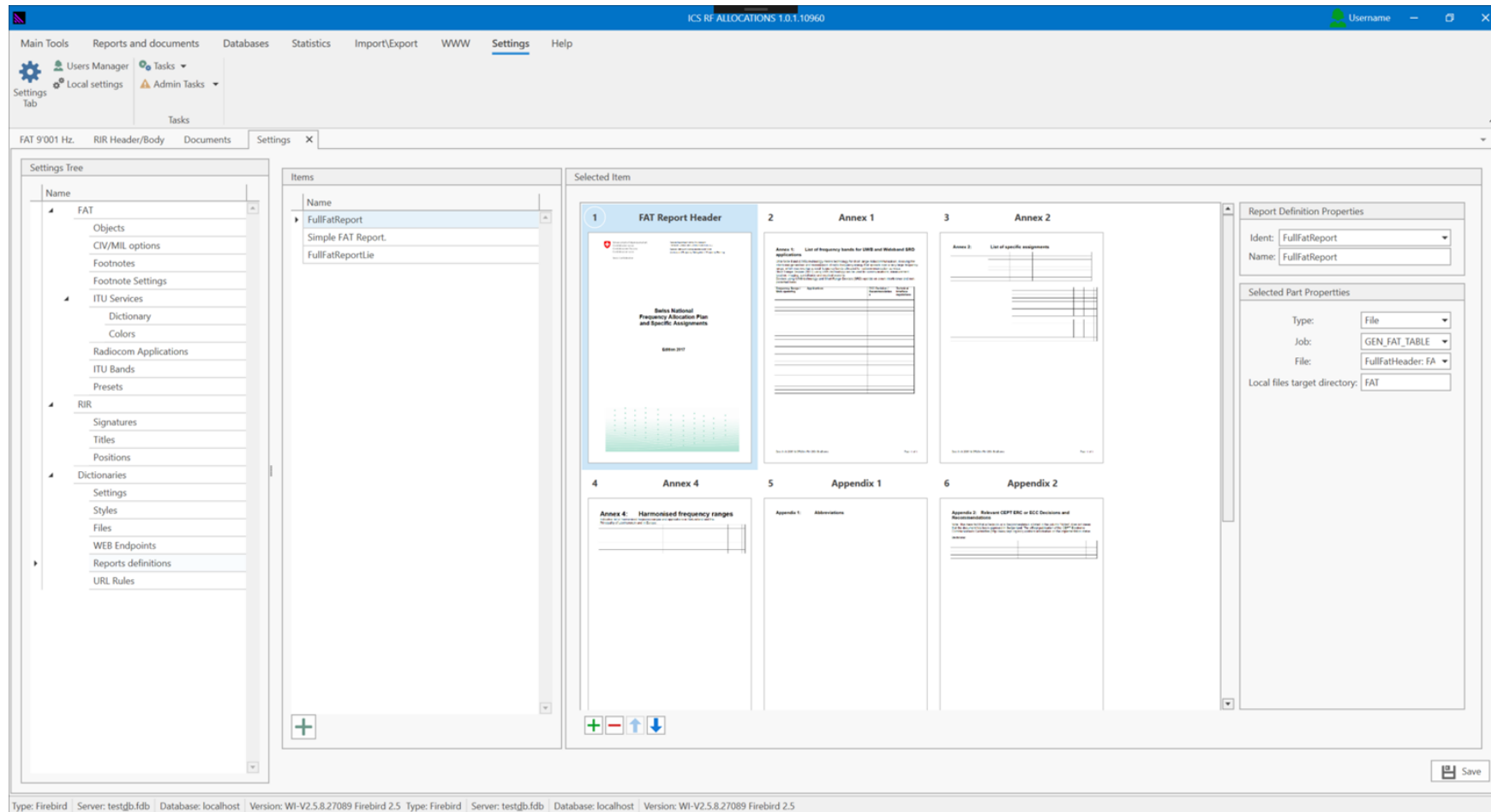
DOCX report

Frequency Band	Major Utilisation	Common Allocation	EFIS	Strategy Confidential	National Allocation	Main Use	Civ/Mil	Notes
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921 MHz	MOBILE Radiolocation 5.323 EU2 EU13 EU14	GSM-R UWB applications	[SEPARATOR]	LAND MOBILE	GSM-R primary.	CIV		921-925 MHz (DL) paired with 876-880 MHz Harmonised frequencies: Annex 1. GSM-R: [RIR0501-17], [SEPARATOR] GSM-R Repeater: [RIR0501-18], [SEPARATOR] ECC/DEC/DEC/DEC.
925 MHz			[SEPARATOR]	MOBILE except aeronautical mobile	925 - 960 MHz / 880 - 915 MHz: Digital cellular primary.	CIV		925-960 MHz (DL) paired with 880 - 915 MHz.

XLS
report

Frequency Band	Major Utilisation	Common Allocation	EFIS	Strategy Confidential	National Allocation	Main Use	Civ/Mil	Notes
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918 MHz		GSM-R UWB applications						
921 MHz	MOBILE Radiolocation 5.323 EU2 EU13 EU14	GSM-R UWB applications	[SEPARATOR]	LAND MOBILE	GSM-R primary.	CIV		921-925 MHz (DL) paired with 876-880 MHz Harmonised frequencies: Annex 1. GSM-R: [RIR0501-17], [SEPARATOR] GSM-R Repeater: [RIR0501-18], [SEPARATOR] ECC/DEC/DEC/DEC.
925 MHz			[SEPARATOR]	MOBILE except aeronautical mobile	925 - 960 MHz / 880 - 915 MHz: Digital cellular primary.	CIV		925-960 MHz (DL) paired with 880 - 915 MHz.

User Interface – Full FAT report definition



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

Full FAT report parametrising

User Interface – Full FAT report – example



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra


Swiss Confederation

Federal Department of the Environment
Transport, Energy and Communications DEK/EC

Federal Office of Communications OFCOM
Communications- und Medienkommission CMEK

Swiss National
Frequency Allocation Plan
and Specific Assignments

Edition 2020



Principles of spectrum management

National level

As radio frequencies are a limited resource (comparable with finite land reserves), efficient use of the resource is indispensable for the functioning of modern societies. The telecommunications Act therefore indicates 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, CG 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 settled via the international working group of the CEPT and the ITU. The settled 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. Allocation 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 8 March 2007 on Frequency Management and Radio-communication Licences (CG 784.102.1, FMR/LO), 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 NFAF, though which in future will also be subject to joint use.

The aforementioned activities are ultimately reflected in the NFAF, 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 2 FMR/LO describes the current design and the associated international orientation of the NFAF. The strategic orientation of Switzerland in relation to frequency allocation is based on the aforementioned article, specifically related to international developments. Participation in the relevant international working groups is therefore indispensable in order to take on-line and share 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 in 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 1990 (CG 0.184.453.1), specifically in Article 5 "Frequency allocation". 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 the international harmonisation (see 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 advocates Swiss interests in order to promote them on an international (regional and global) level.

Date: 01.01.2020 16:02 OFCOM/FM/1901/0001/0000

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Frequency Allocation plan						
Frequency Band	Radio Regulations	National Allocation	Main Use	Swiss Allocations	Notes	Strategy
0 - 0.3 MHz		not allocated 1.3.9	Inductive loop systems Various applications	CIV/MIL	WFO exclusively civilian use	The frequency band is no longer available for use in relation to civil use
0.3 - 0.9 MHz		METEOROLOGICAL AIDS 1.3.9	Inductive loop systems Various applications	CIV/MIL	Inductive loop systems METEOROLOGICAL AIDS	Future use by METEOROLOGICAL AIDS
0.9 - 1.34 MHz		METEOROLOGICAL AIDS 1.3.9	Short range devices Inductive loop systems Various applications	CIV/MIL	Short range devices Inductive loop systems METEOROLOGICAL AIDS	Future use by METEOROLOGICAL AIDS
1.3 - 1.4 MHz	EISD	ACKNOWLEDGMENT	Short range devices Inductive loop systems Various applications	CIV/MIL	ACKNOWLEDGMENT Short range devices Inductive loop systems METEOROLOGICAL AIDS	No major changes foreseen in use of these frequencies
1.4 - 16 MHz		Inductive applications within the band 3 - 145.5 kHz Various applications in the band 3 - 145.5 kHz 1.3.9	Inductive loop systems Various applications	CIV/MIL	Inductive loop systems Various applications METEOROLOGICAL AIDS	No major changes foreseen in use of these frequencies
16 - 19.95 MHz			Future	CIV/MIL	On the display 16-19.95 MHz Various applications METEOROLOGICAL AIDS	No major changes foreseen in use of these frequencies
19.95 - 20.05 MHz		STANDARD FREQUENCY AND TIME SIGNAL, CD 1.3.9	Short range devices Inductive loop systems	CIV/MIL	STANDARD FREQUENCY AND TIME SIGNAL, CD Short range devices Inductive loop systems	Testnetting
20.05 - 40 MHz		FIXED 1.3.9	Inductive applications within the band 3 - 145.5 kHz Various applications in the band 3 - 145.5 kHz	CIV/MIL	Short range devices Inductive loop systems METEOROLOGICAL AIDS	No major changes foreseen in use of these frequencies
40 - 70 MHz			Short range devices	CIV/MIL	Short range devices Inductive loop systems METEOROLOGICAL AIDS	No major changes foreseen in use of these frequencies
Date: 01.01.2020 16:02 OFCOM/FM/1901/0001/0000						
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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 Monitoring and Networks (WG Net) and its Project Team Emergency Services (PT ES) requesting the ECC to consider the possibility of hosting the database. The EENA request states that "until now, EENA has successfully managed the 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, Ireland, Ireland, 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 playing 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 study, 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 to PSAPs. 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 Net/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 Net/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.
- The questionnaire does not commit ECO, CEPT/ECC to go ahead with such a database.
- ECO, CEPT/ECC has no free to define terms and conditions, should the database project go ahead.
- The questionnaire is addressed to the national entities responsible for handling 112 emergency calls.

2.2 POTENTIAL USE CASES

The 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.

- 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 other the Table of Frequency Allocations in this Chapter or the other provisions of these Regulations, except in 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 recognise that the safety aspects of radio-navigation and other safety services require special measures to ensure that freedom from harmful interference, it is necessary therefore to take the 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.
5.43A	1(b) 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 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 other service or other station in the same service.
5.51	Administrations authorising the use of frequencies below 0.3 MHz shall ensure that no harmful interference is caused thereby to the services to which the bands above 0.3 MHz are allocated.
5.54	Administrations considering scientific research using frequencies below 0.3 MHz 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 0.3-1.1 kHz frequency band by stations in the meteorological aid service is limited to passive use only. In the band 0.3-1.1 kHz, meteorological aid stations shall not claim protection from stations of the radio-navigation service submitted for notification to the Bureau prior to 1 January 2013. For sharing between stations of the meteorological aid service and stations in the radio-navigation service submitted for notification after this date, the most recent version of Recommendation (ITU-R RS 188) should be applied.
5.56	The stations of services to which the bands 14-18.05 kHz and 20.05-70 kHz and in Region 1 also the bands 72.4 kHz and 80-85 kHz are allocated may transmit standard frequency and time signals. Such stations shall be afforded protection from harmful interference in America, Asia-Pacific, Europe, Africa, 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. (CORR-07)
5.60	In the bands 70-80 kHz (14-18.05 kHz in Region 1) and 110-130 kHz (112-130 kHz in Region 1), national radio-navigation 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 radio-navigation service in the band 80-110 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 F1C are authorised for stations of the fixed service in the bands allocated to this service between 145.5 kHz and 160 kHz in Region 1) and 160 kHz and 180 kHz in Region 1). Exclusively class C2B or C2B emissions are also authorised in the bands between 110 kHz and 160 kHz (145.5 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. g. 1.2) and shall not cause harmful interference to stations of the radio-navigation service operating in countries listed in No. 5.67. (CORR-07)

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Example – Full FAT report - European level - example



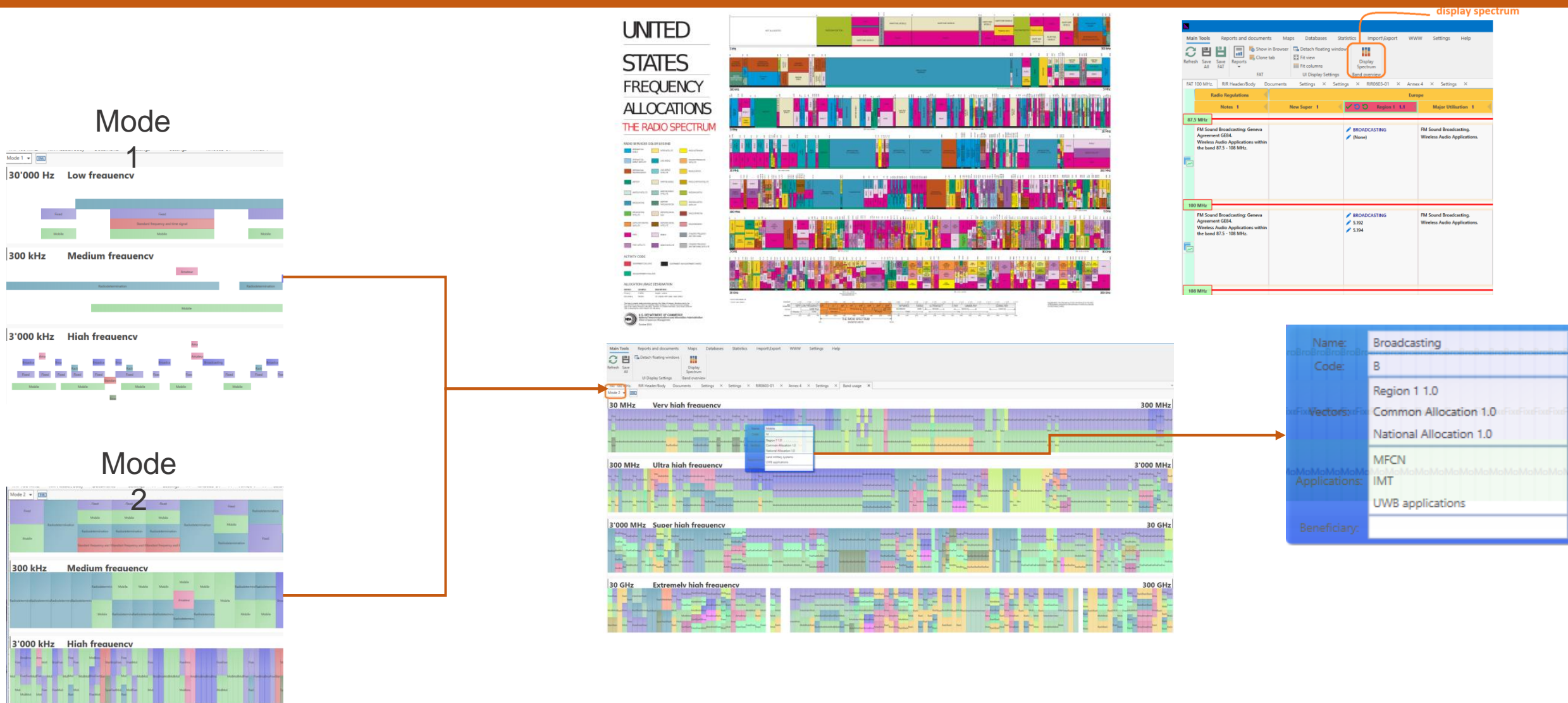
Electronic Communications Committee (ECC)
within the European Conference of Postal and
Telecommunications Administrations (CEPT)



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

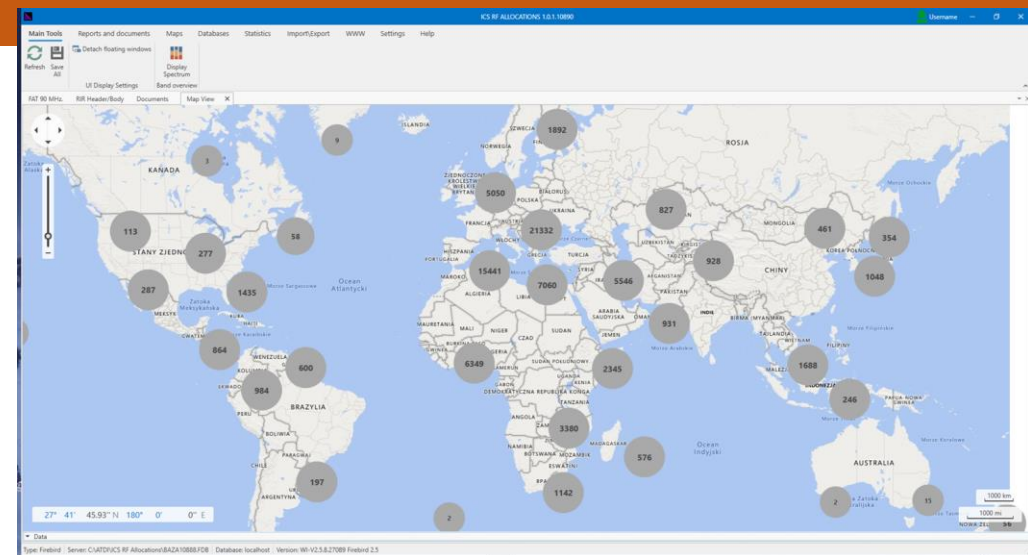
Approved March 2019

User Interface - Display spectrum – Example



Frequency Allocations on the Maps

Cartographic module displays stations locally regionally and globally



Export

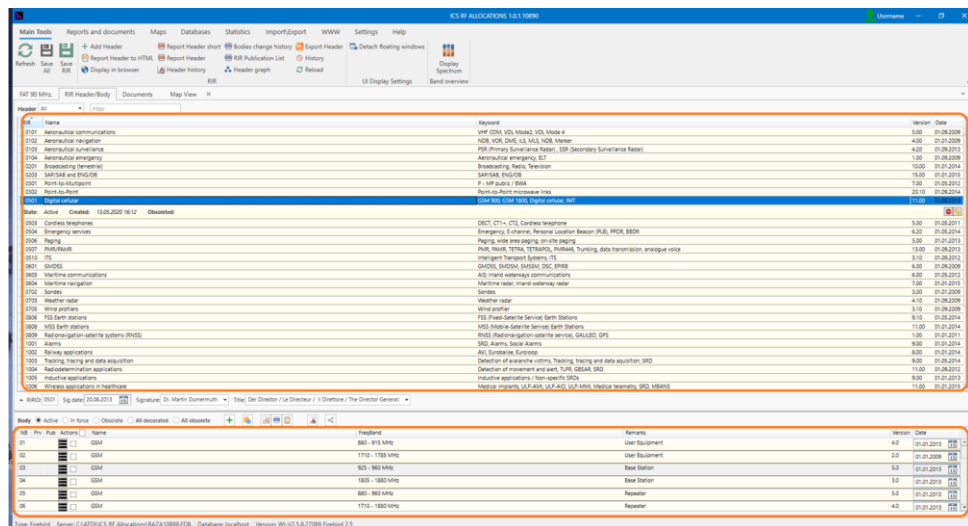
Stations list in selected range

A screenshot of the same software application window, but the map view is zoomed in to show a region of Europe, including parts of Poland, Czech Republic, and Slovakia. The circular markers are more prominent. The interface elements are the same as the global view.

ID	Table Name	Name	Lic Id	Adm	Classes	Standard	Lower Freq	Upper Freq	Site	Lat	Lon	Country	Address	City
4396656	fmbv_terra				MLA		87.4	87.6	RTN	10.41528	104.9985	MLA		
5365626	fmbv_terra				VTN		87.41	87.59	TRN	10.53472	107.4108	VTN		
5833699	fmbv_terra				VTN		87.41	87.59	BA	13.03333	80.36667	IND		
1501456	fmbv_terra				IND		87.4	87.6	MA	15.11667	-10.56667	MLI		
1202957	fmbv_terra				MU		87.35	87.65	DIE	18.91667	73	IND		
1202958	fmbv_terra				MU		87.35	87.65	YEL	19.57083	104.8056	VTN		
1501453	fmbv_terra				IND		87.4	87.6	MU	20.03333	2.25	MLI		
5833702	fmbv_terra				VTN		87.41	87.59	NG	21.58881	106.3601	VTN		
1202956	fmbv_terra				MU		87.35	87.65	BOA					
5833700	fmbv_terra				VTN		87.41	87.59	BAC					

Filtration

Radio Interface Regulations – RIRs



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

RIR's Header

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: <input type="text" value="Broadcasting"/>	-
2	Application	<input type="text" value="Broadcasting"/> Layers: <input type="text" value="Broadcasting (terrestrial)"/> <input type="text" value="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

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

The screenshot shows the 'Radio Interface Regulations' (RIR) edition screen. The interface is titled 'ICS RIR ALLOCATIONS 1.0.1.10960'. It features a menu bar with options: Main Tools, Reports and documents, Databases, Statistics, Import/Export, WWW, Settings, and Help. Below the menu bar is a toolbar with icons for Refresh, Save, RIR, Add Header, Report Header to HTML, Report Header, RIR Publication List, Header history, History, Reload, UI Display Settings, and Band overview. The main content area is divided into two sections: 'Header' and 'Body'. The 'Header' section contains a table with columns: RIR, Name, Keyword, Version, and Date. It lists various RIR entries such as 'Aeronautical communications', 'Aeronautical navigation', 'Aeronautical surveillance', 'Aeronautical emergency', 'Broadcasting (terrestrial)', 'SAP/SAB and ENG/OB', 'Point-to-Multipoint', 'Point-to-Point', 'Digital cellular', 'Cordless telephones', and 'Emergency services'. Below the table are input fields for Name (ENG, FRA, GER, ITA), Keyword, App for, Version, Date, Sig date, and Sort. The 'Body' section contains a table with columns: NB, Priv, Pub, Actions, Name, FreqBand, Remarks, Version, and Date. It lists various RIR entries such as 'Aeronautical communications', 'Aeronautical navigation', 'Aeronautical surveillance', 'Aeronautical emergency', 'Broadcasting (terrestrial)', 'SAP/SAB and ENG/OB', 'Point-to-Multipoint', 'Point-to-Point', 'Digital cellular', 'Cordless telephones', and 'Emergency services'. The interface is designed for editing and managing RIR allocations.

Radio Interface Regulations – edition screen

Radio Interface Regulation - report examples

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun Svizra

Swiss Confederation

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

Flugfunk
Communication aéronautique
Comunicazione aeronautica
Aeronautical communications

Schlüsselwörter:
Mots clés: **VHF COM, VDL Mode2, VDL Mode 4**
Parole chiavi:
Keywords:

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

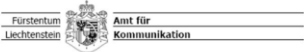
Federal Department of Environment,
Transport, Energy and Communications DETEC
Federal Office of Communications OFCOM
Equipment and International Frequency Management Division

Aeronautical

784.101.21 / RIR0101

Ausgabe :
Edition : **6.0**
Edizione :
Edition :
Gültig ab
Valable dès le
Valevole dal
Valid as of **13.06.2016**

Fürstentum Liechtenstein



Bestelladresse / Ordering address:

Amt für Kommunikation
Aulestrasse 51, P.O. Box 684, FL-9490 Vaduz, Liechtenstein
Internet: <http://www.ak.li.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 Channelling 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 © OFCOM (Swiss Federal Office of Communications)			

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 / RIR0201¹⁾
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.rdic (Template2017-04-21)

1 / 1

The screenshot shows the RIR software interface. The 'Main Tools' menu is open, highlighting several options: 'Add Header', 'Report Header short', 'Report Header to HTML', 'Report Header', 'Header history', 'Header graph', 'Export Header', 'History', 'Reload', 'Detach floating windows', 'Display Spectrum', and 'Band overview'. The 'RIR' tab is active, displaying a table of RIR entries. The table has columns for RIR, Name, Keyword, Version, and Date. The entries are as follows:

RIR	Name	Keyword	Version	Date
0101	Aeronautical communications	VHF COM, VDL Mode2, VDL Mode 4	5.00	01.09.2009
0102	Aeronautical navigation	NDB, VOR, DME, ILS, MLS, NDB, Marker	4.00	01.01.2009
0103	Aeronautical surveillance	PSR (Primary Surveillance Radar), SSR (Secondary Surveillance Radar)	4.20	01.09.2013
0104	Aeronautical emergency	Aeronautical emergency, ELT	1.00	01.09.2009
0201	Broadcasting (terrestrial)	Broadcasting, Radio, Television	10.00	01.01.2014

Radio Interfaces Regulations - Workflow process

RIR header/body
status

☒ Active ☐ In force ☐ Obsolete ☐ All decorated ☐ All obsolete

RIR
details

Broadcasting (terrestrial)

Name FRA: Emetteurs de radiodiffusion terrestre

Name GER: Terrestrische Rundfunksender

Name ITA: Emittenti di radiodiffusione terrestre

Keyword: Broadcasting, Radio, Television

App for: Terrestrial Broadcasting

Version: 10.00

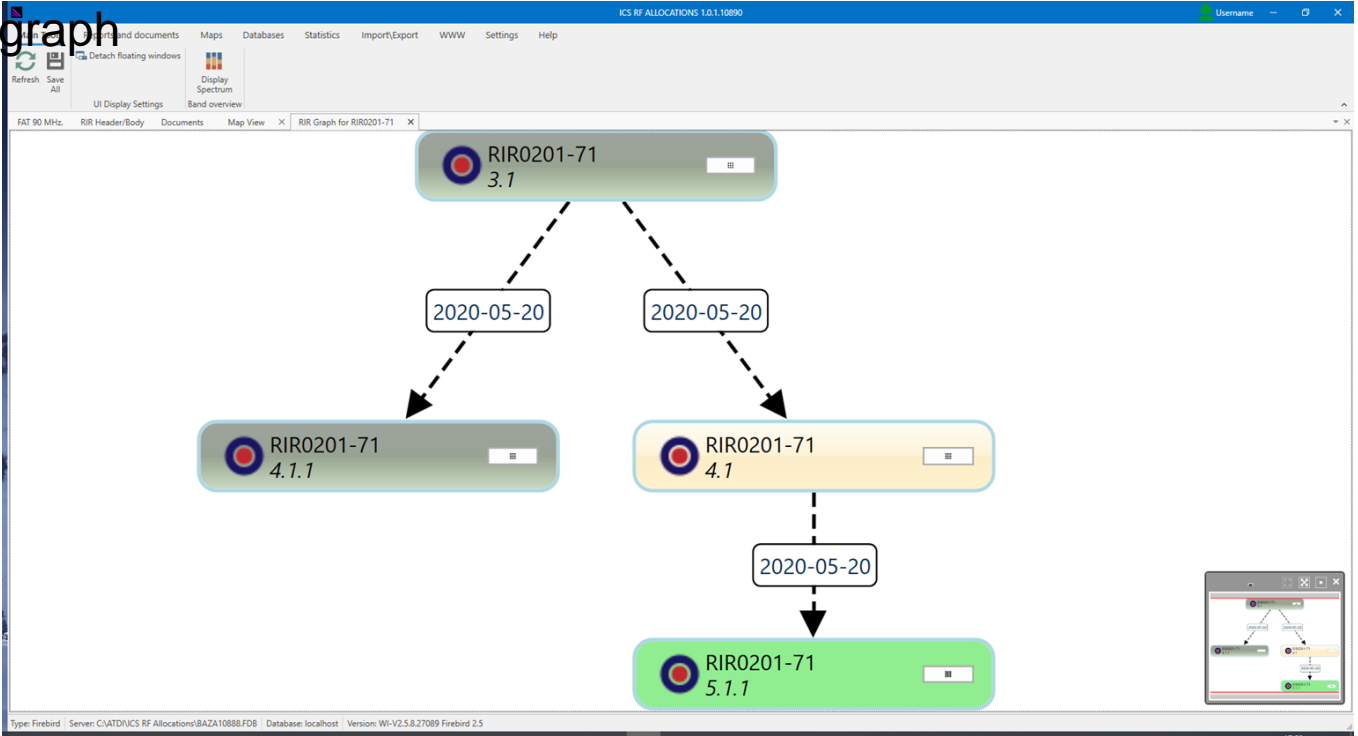
Date: 01.01.2014

Sig date: 17.12.2013

Sort: Broadcasting

RIRID: 0201 Sig date: 17.12.2013 Signature: Nancy Wayland Bigler Title: Bundesamt für Kommunikation

RIR body history



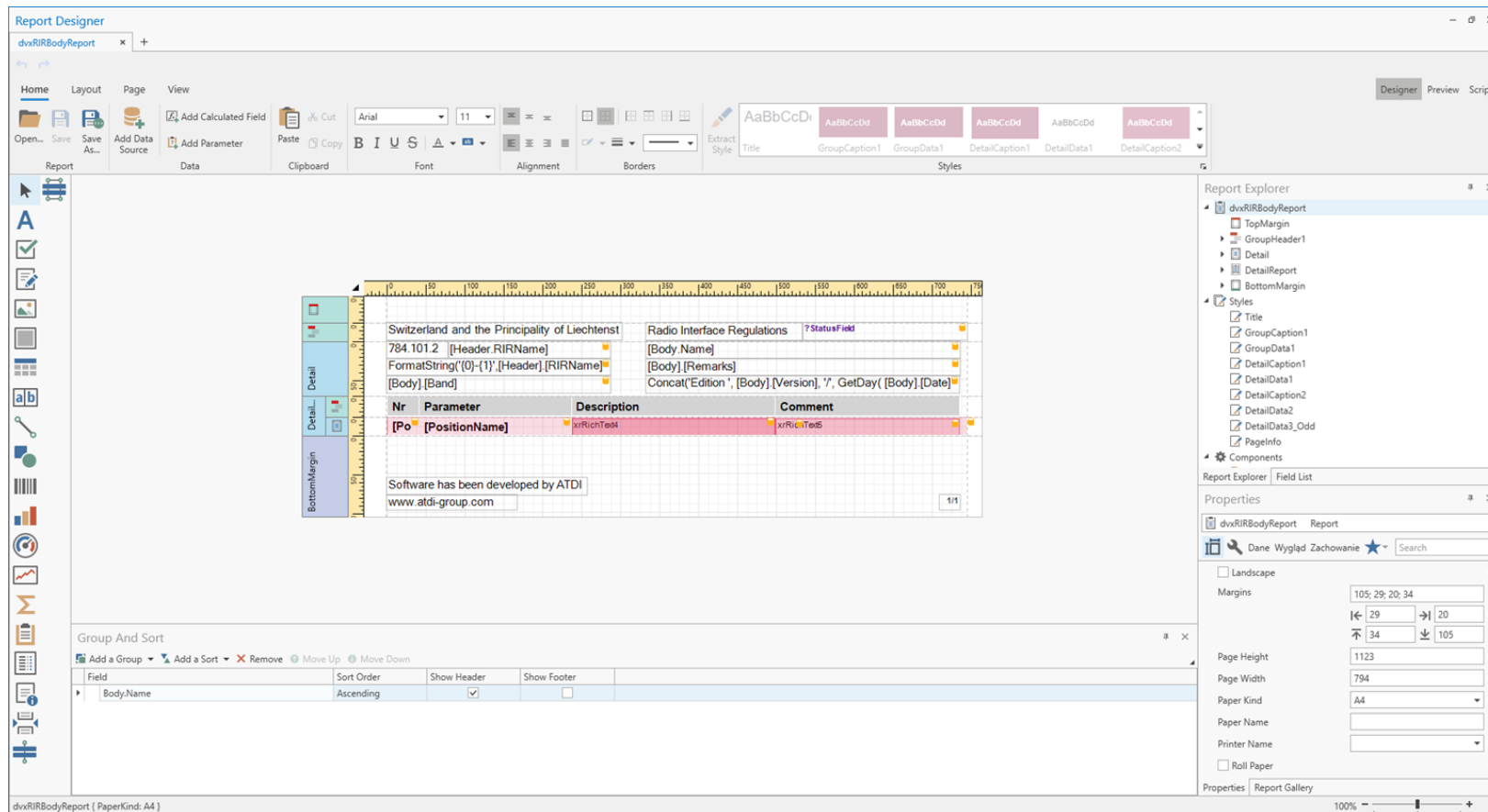
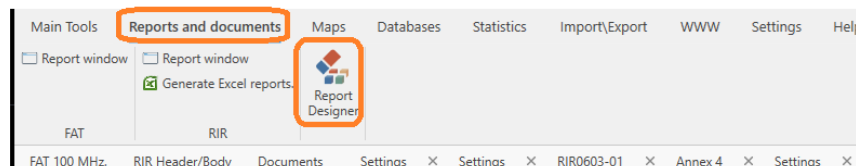
RIR publication
process

ID	P	Preview	Name	FreqBand	Remarks	Version	Date
71			DVB-T	470 - 782 MHz	Band IV / V (Channel 21 - 59)	4.1	01.01.2014
71			DVB-T	470 - 782 MHz	Band IV / V (Channel 21 - 59)	5.1.1	01.01.2014
72			DVB-T	174 - 782 MHz	Band III, IV, V, (Retransmitter)	3.1	01.01.2014
80			MWS	40.5 - 42.5 GHz	MWS (PMP) to end user	4.0	01.09.2013

State: Decorated (20.05.2020 17:50) Created: 20.05.2020 17:50 Obsolete: Update: 20.05.2020 17:50 Int. draft: Pub. draft: ☐ Notif WTO ☐ Anhang 2 ☐ Anhang 1 ☐ Intranet Draft ☐ Public Draft

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)

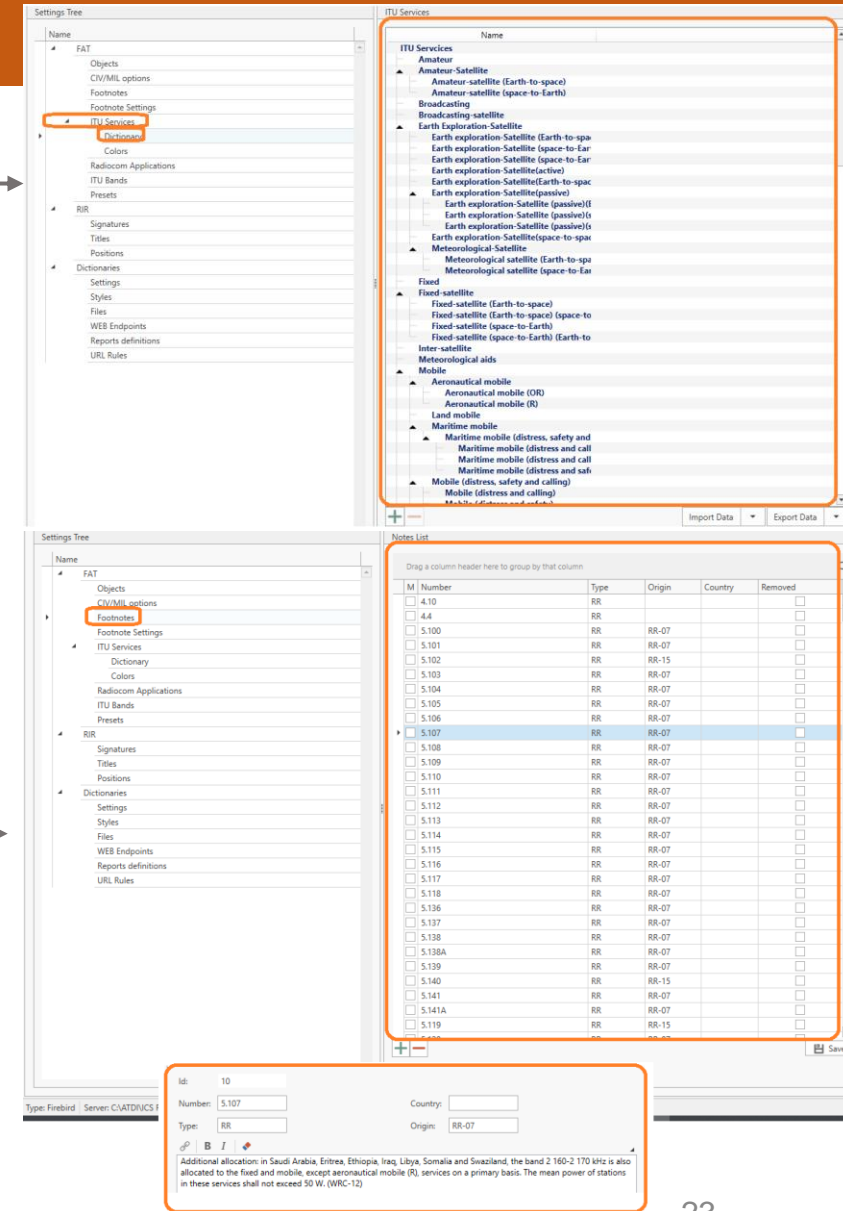
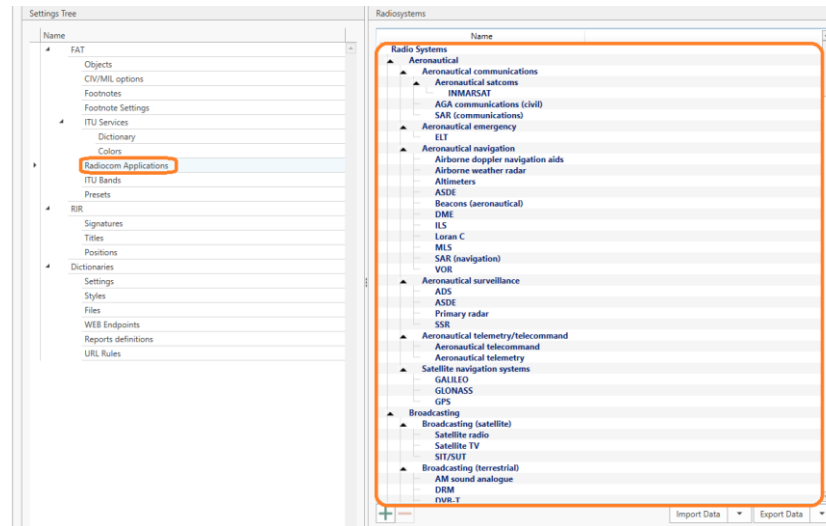
User interface – entries, collections and document library

Allocations

Applications

Footnotes

Documents
links



Document editor

Scope of the Annexes and Appendix creation:

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

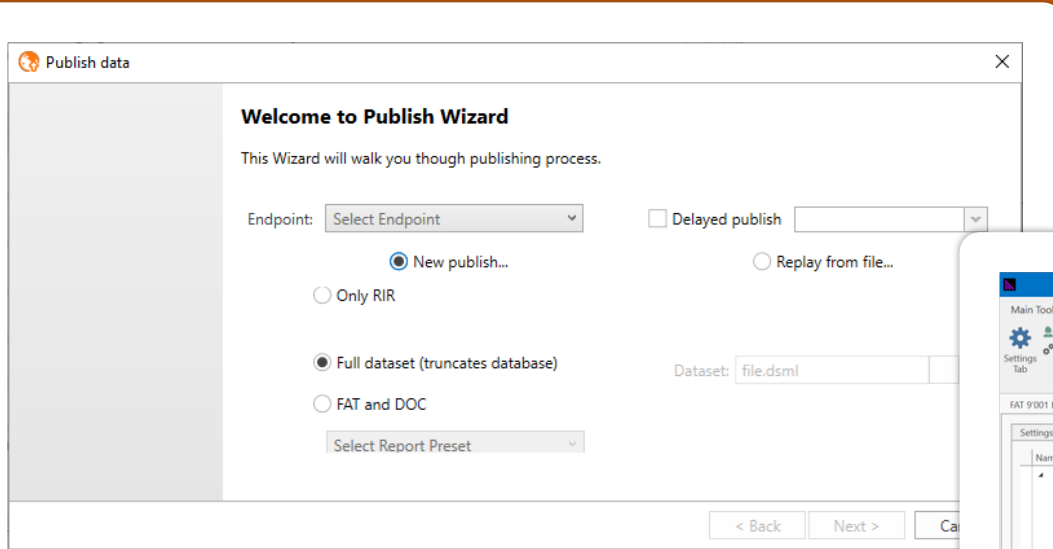
The screenshot displays the 'Document editor' window. The main area shows a document titled 'Annex 1' with a version of '25.0.24'. The document content includes a paragraph and a table. The paragraph describes Ultra Wide Band (UWB) technology. The table, titled 'New table', has four columns: 'Frequency Range / Main operating', 'Applications', 'ECC Decision / Recommendations', and 'Technical interface regulations'. The table contains six rows of data. A floating toolbar is visible in the bottom-left corner, showing icons for 'Text', 'Table', 'Section', and 'Cancel'. The right sidebar contains an 'Outline' panel and a 'Properties' panel.

Document editor window showing a table with the following data:

	Frequency Range / Main operating	Applications	ECC Decision / Recommendations	Technical interface regulations
0	148.5 – 5 000 kHz	Inductive applications	ERC/REC 70 -03	RIR1005-09
1	984 – 7 484 kHz	Eurobalise 4 234 kHz	ERC/REC 70 -03	RIR1002-04
2	516 – 8 516 kHz	Euroloop 4 516 kHz		RIR1002-03
3	5 000 – 30 000 kHz	Inductive applications	ERC/REC 70 -03	RIR1005-13
4	7 300 – 23 000 kHz	Euroloop 13 547 kHz	ERC/REC 70 -03	RIR1002-05
5	12 500 – 20 000 kHz	ULP active animal implantable devices (ULP-AID)	ERC/REC 70 -03	RIR1006-05

Document edition window

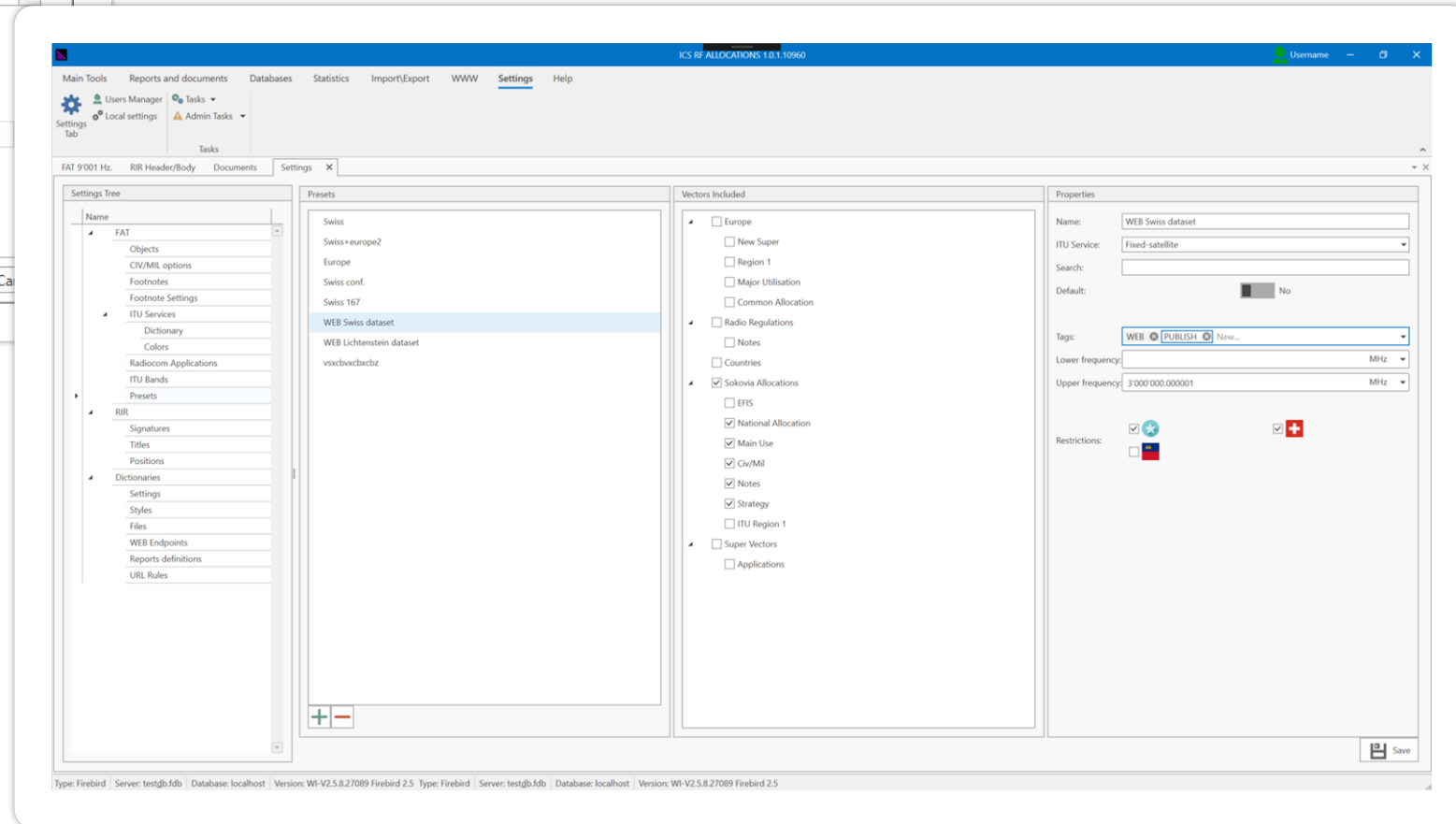
Publishing and website – defining parameters



Publishing module - Starting window

Publishing module:

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



Publishing settings parameters

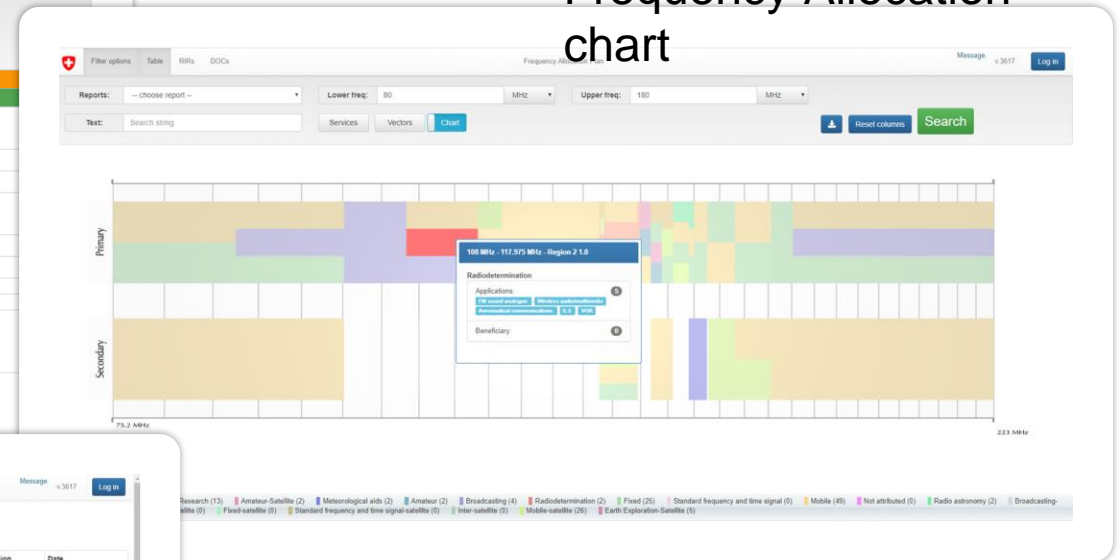
Publishing and website – published report examples

Frequency Allocation table

The screenshot shows the 'Frequency Allocation Plan' web interface. It includes a search bar, filters for 'Lower freq' (80 MHz) and 'Upper freq' (180 MHz), and a 'Search' button. The table displays frequency allocations for Region 2, with columns for 'Band', 'Region 2', 'Service', and 'Notes'. The table lists various frequency bands and their corresponding services, such as 'Broadcasting', 'Aeronautical Mobile', and 'Meteorological Satellite'.

Band	Region 2	Service	Notes
80-87.5 MHz	80-87.5 MHz	FIXED	Mobile except aeronautical mobile
87.5-100 MHz	BROADCASTING	BROADCASTING	PII sound analogue
100-108 MHz	BROADCASTING	BROADCASTING	Wireless audio/multimedia
108-117.975 MHz	AERONAUTICAL RADIONAVIGATION	AERONAUTICAL RADIONAVIGATION	PII sound analogue
117.975-121.45 MHz	AERONAUTICAL MOBILE (R)	AERONAUTICAL MOBILE-SATELLITE (R)	Aeronautical communications
121.45-121.85 MHz	AERONAUTICAL MOBILE (R)	AERONAUTICAL MOBILE (R)	ISL
121.85-136 MHz	AERONAUTICAL MOBILE (R)	AERONAUTICAL MOBILE (R)	VOR
136-137 MHz	AERONAUTICAL MOBILE (R)	AERONAUTICAL MOBILE (R)	GBAS
137-137.025 MHz	Fixed	METEOROLOGICAL-SATELLITE	Aeronautical communications
137.025-137.175 MHz	Fixed	METEOROLOGICAL-SATELLITE	Mobile except aeronautical mobile (R)
137.175-137.825 MHz	Fixed	METEOROLOGICAL-SATELLITE	Mobile except aeronautical mobile (R)

Frequency Allocation chart



The screenshot shows the 'Radio Interface Regulation' web interface. It includes a search bar, filters for 'Name', 'Freq from (MHz)', and 'Freq to (MHz)', and a 'Search' button. The table displays radio interface regulations, with columns for 'RIR Name', 'Frequency Band', 'Remarks', 'Version', and 'Date'. The table lists various radio interface regulations, such as '117.975 MHz - 137.175 MHz', '400-15 MHz - 1.683 GHz', and '1.683 GHz - 1.683 GHz'.

RIR Name	Frequency Band	Remarks	Version	Date
117.975 MHz - 137.175 MHz	117.975 MHz - 137.175 MHz			01.09.2009
400-15 MHz - 1.683 GHz	400-15 MHz - 1.683 GHz			01.01.2009
400-15 - 406 MHz	400-15 - 406 MHz	Max. 200 mW ERP	2.0	01.01.2009
400-15 - 406 MHz	400-15 - 406 MHz	Max. 300 mW ERP	2.0	01.01.2009
1.675 - 1.683 GHz	1.675 - 1.683 GHz	Max. 1.5 W ERP	2.0	01.01.2009
1.675 - 1.683 GHz	1.675 - 1.683 GHz	Max. 400 mW ERP	2.0	01.01.2009
1.605 MHz - 1.605 GHz	1.605 MHz - 1.605 GHz			01.09.2009
5.25 GHz - 5.85 GHz	5.25 GHz - 5.85 GHz			01.09.2009
121.45 MHz - 5.25 GHz	121.45 MHz - 5.25 GHz			01.05.2014
460 MHz - 2.69 GHz	460 MHz - 2.69 GHz			01.09.2013
1.164 GHz - 1.61 GHz	1.164 GHz - 1.61 GHz			01.01.2011
5.85 GHz - 30 GHz	5.85 GHz - 30 GHz			01.05.2014
16.18 MHz - 470 MHz	16.18 MHz - 470 MHz			01.01.2013
300 kHz - 5.091 GHz	300 kHz - 5.091 GHz			01.01.2009
3.41 GHz - 5.875 GHz	3.41 GHz - 5.875 GHz			01.09.2009
1.35 GHz - 85.875 GHz	1.35 GHz - 85.875 GHz			01.09.2014
9.3 GHz - 9.5 GHz	9.3 GHz - 9.5 GHz			01.01.2015
87.5 MHz - 80.2 GHz	87.5 MHz - 80.2 GHz			01.01.2015
121.45 MHz - 406.1 MHz	121.45 MHz - 406.1 MHz			01.09.2009
865.2 MHz - 2.424 GHz	865.2 MHz - 2.424 GHz			01.01.2015
26.96 MHz - 27.41 MHz	26.96 MHz - 27.41 MHz			01.05.2014
30 MHz - 12.4 GHz	30 MHz - 12.4 GHz			01.01.2014
870 MHz - 81 GHz	870 MHz - 81 GHz			01.09.2015

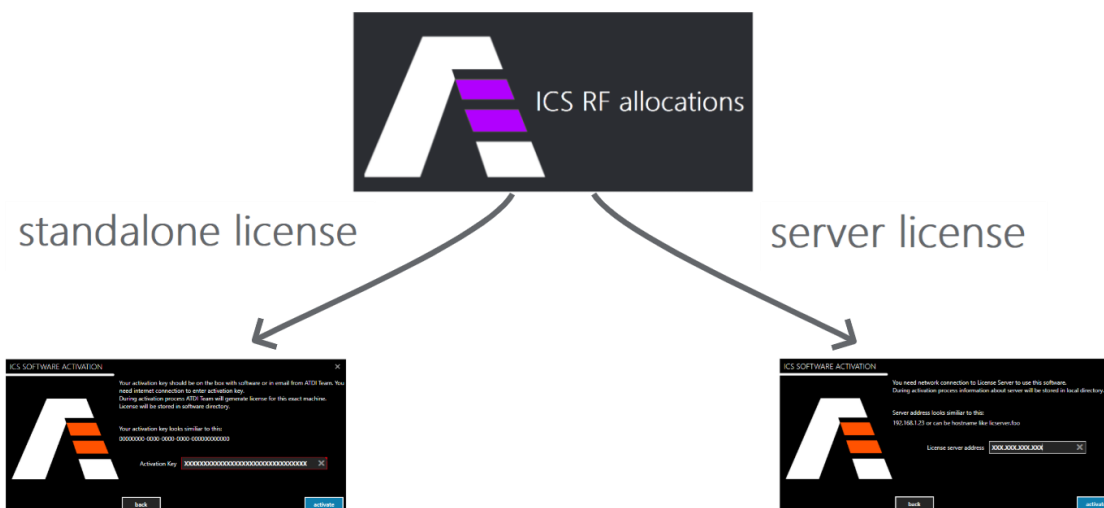
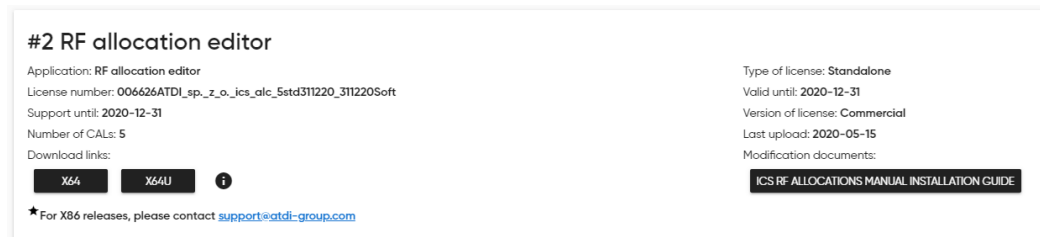
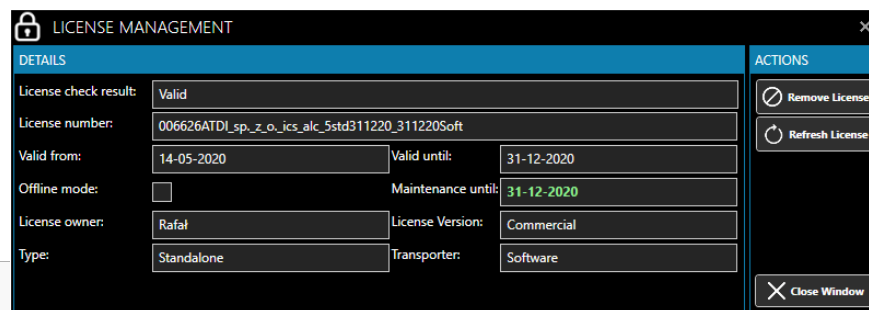
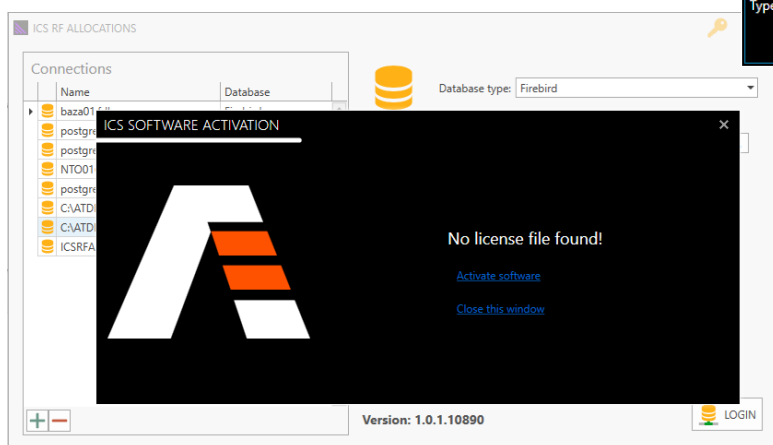
Radio Interface Regulation

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

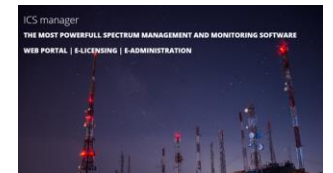
ATDI has over 30 years of experience in creating solutions for radio planning and automated spectrum management

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





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