

ATDI

ICS manager/eManager Spectrum Management Solution

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Today's Agenda

- 1 **Introducing ATDI**
- 2 **Spectrum-sharing strategy: Area-wide apparatus licenses (AWLs) in 26-28 GHz**
- 3 **ICS Monitoring-SDRN Control**
Integrated spectrum monitoring and big data control
- 4 **ICS RF Allocations**
Creating and publishing Frequency allocation tables
- 5 **Q&A**

About Us

RADIO NETWORK PLANNING AND MODELLING, SPECTRUM MANAGEMENT AND OPTIMISATION SOFTWARE SOLUTIONS

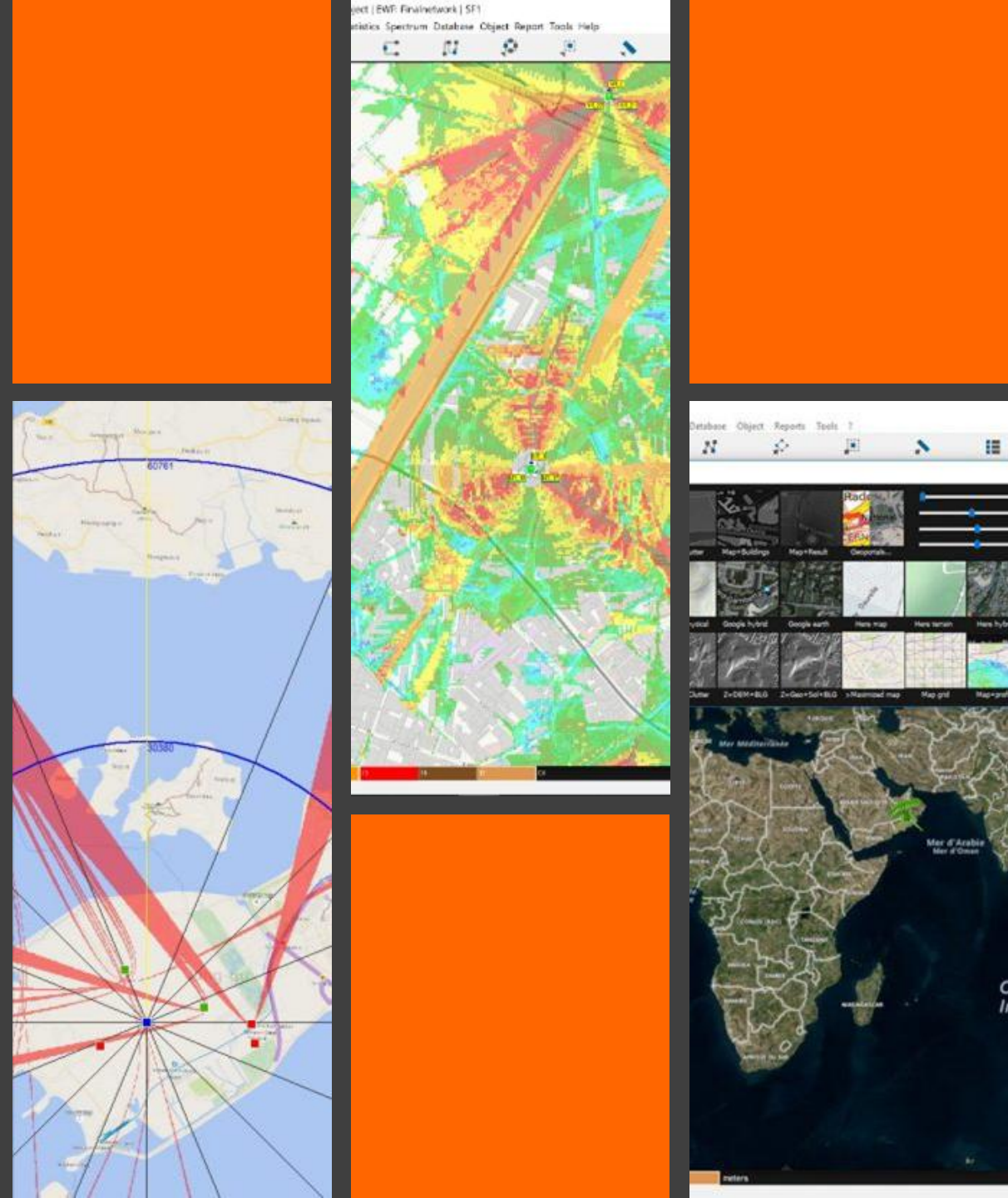
OUR SUCCESS REFLECTS OUR CUSTOMERS SUCCESS AND ENABLES THEM TO STAY COMPETITIVE IN A RAPIDLY CHANGING MARKET

ATDI are global leaders in the development and implementation of automated spectrum management solutions.

For over three decades we have backed nearly 100 spectrum regulation authorities. Our solutions continue to evolve to meet the growing needs of civil and defence regulators, in line with ITU guidelines.

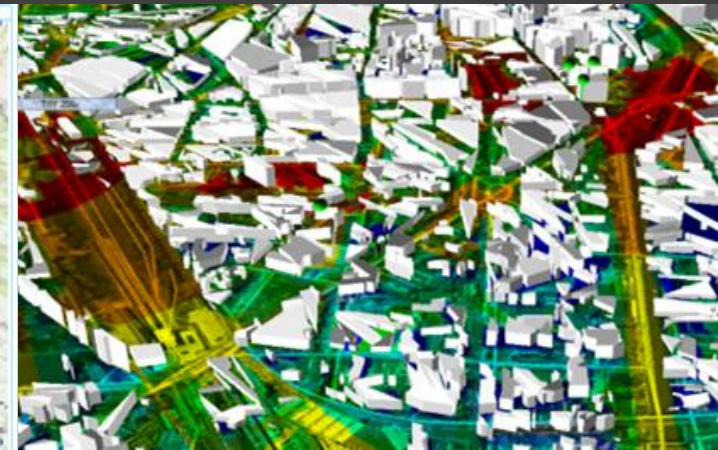
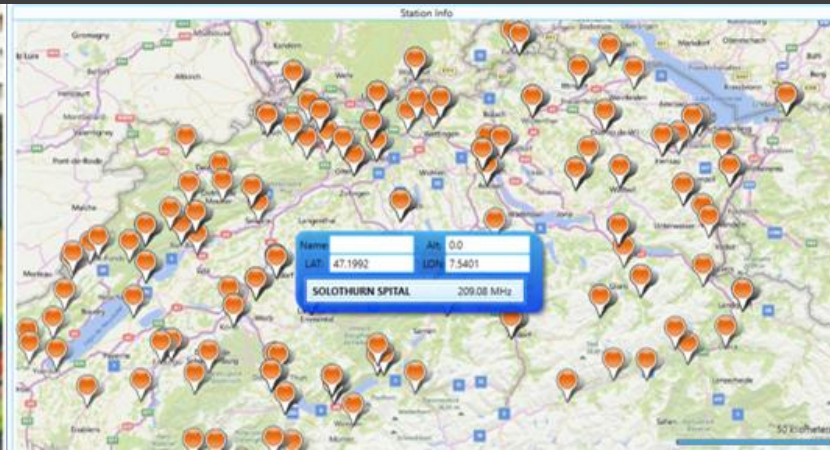
We help spectrum managers control and optimise spectrum, enable frequency sharing and automate resource-intensive processes.

- 1. Proven – 70% of our custom is repeat business**
- 2. Experience - 100 spectrum managers / regulators - Repeat custom - Proven ability to adapt solutions**
- 3. Ethos – Experience – Innovation – Challenge ideas can support change**



Our Values & Contributions

- Dedicated R&D to enable we stay ahead of the game
- Solutions compatible with ITU regulations. Contributions to industry organisations including VP of ITU-R and ITU-D.
- Our team has an excellent understanding of our customers needs – how – discussions/industry experience and a desire to find the best fit (solution) for the end user
- Our team – built from diverse backgrounds enable us to draw from a wealth of knowledge and understanding of the industry and its requirements
- Work in partnership with our end users to ensure both pre-production, throughout project rollout and beyond.



Our Offices Global Footprint

- Allows us to leverage different time zones > Provide support around the clock > Fast response times
- Draw resources from across the group to support larger projects > leverage expertise > ensuring we offer the very best services to our end users
- Shared experiences – combining many years experience across the group. At every stage of the project (from project outset to going live) we aim to learn and improve our services. To do that we carry out regular internal project reviews and a group review at handover.



Automated Spectrum Management Solution

No two user requirements are the same

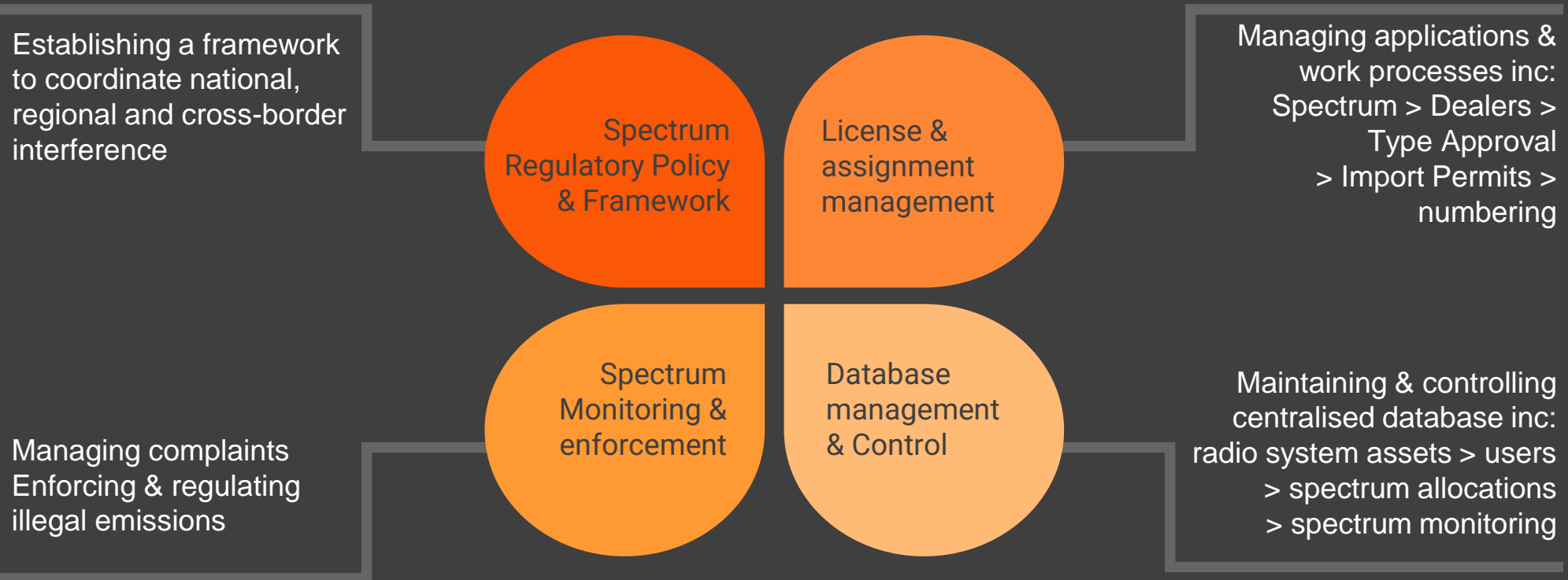
Our solutions allow the user to define their processes and procedures. Custom modifications offer flexibility and ensure the solution meets the end-user needs.

Our solutions allow spectrum managers to:

- **Control** the use of spectrum
- **Minimise** interference
- **Automate** frequency allocations and frequency sharing
- **Support** emerging technologies
- **Coordinate** the use of wireless spectrum with neighbours and other administrations
- **Manage** back-office functions for admin, licensing and billing
- **Make** data exchanges with end-users
- **Interface** with monitoring solutions
- **Support** spectrum re-farming and auctions

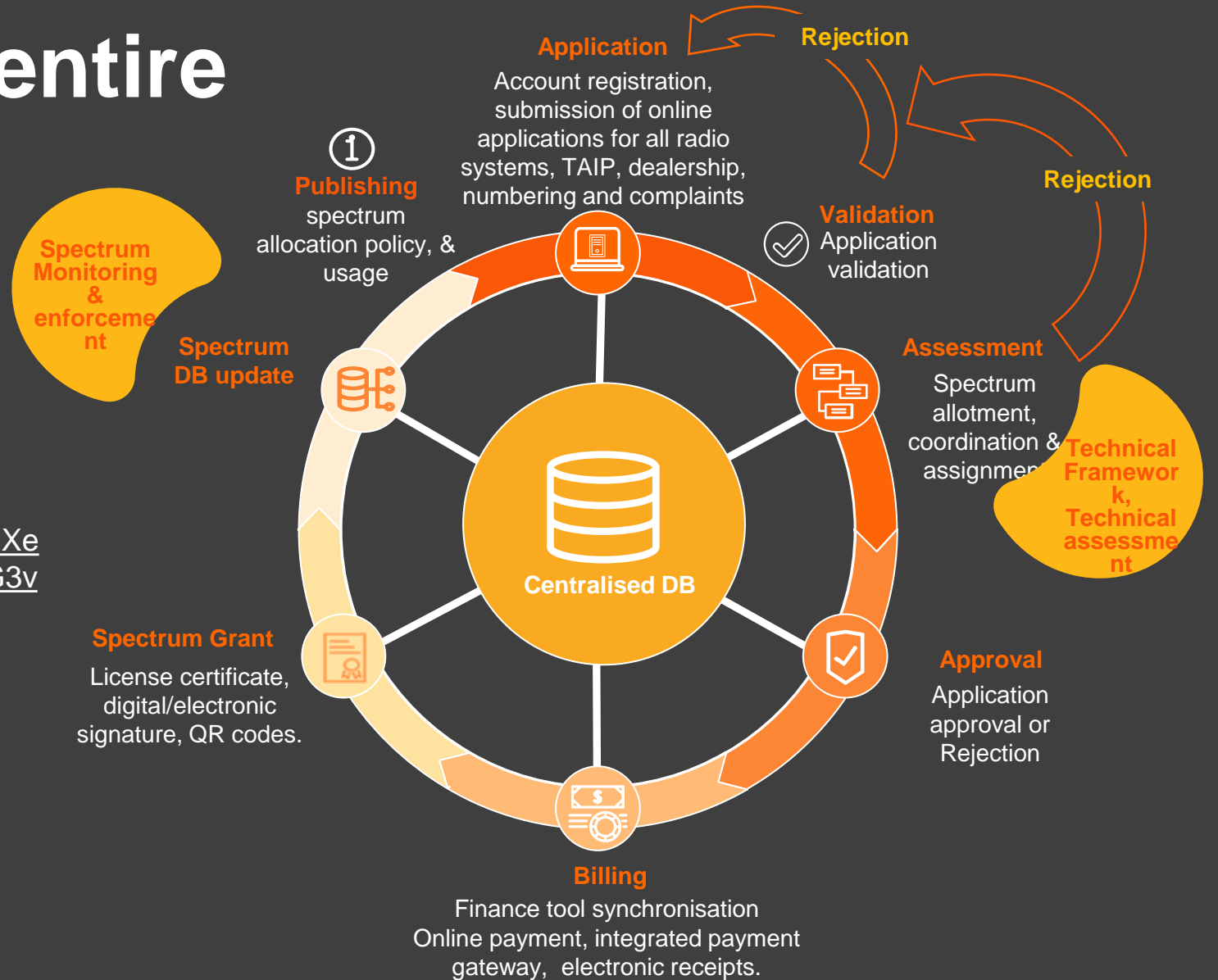
ASMS

Supports the entire spectrum regulation lifecycle



ASMS Supports the entire spectrum management lifecycle

Watch the solution demonstration:
<https://www.youtube.com/watch?v=qSdjJXevtns&list=PLap6vGTQpFveiKO3piYLSOG3vKI-luD8X&index=3>



Our Services



Training

Customised training service online or onsite.



Support

24/7 global technical support via phone, email and web-conference



System Customisation

Business analysis, system design, architecture, customisation, integration, and configuration.



Spectrum consulting

Provide professional consulting services in spectrum engineering and management to solve any spectrum issues.



Cartographic data

Medium to High resolution DTM and Clutter library.
Cloud base digital map image streaming and cache support.



System Deployment & Maintenance

Support on Go-Live, Testing, and bug fixing.
On-going maintenance support with software updates.

ICS Manager/eManager

A flexible solution that meets the current and future needs of regulators in all areas related to spectrum management

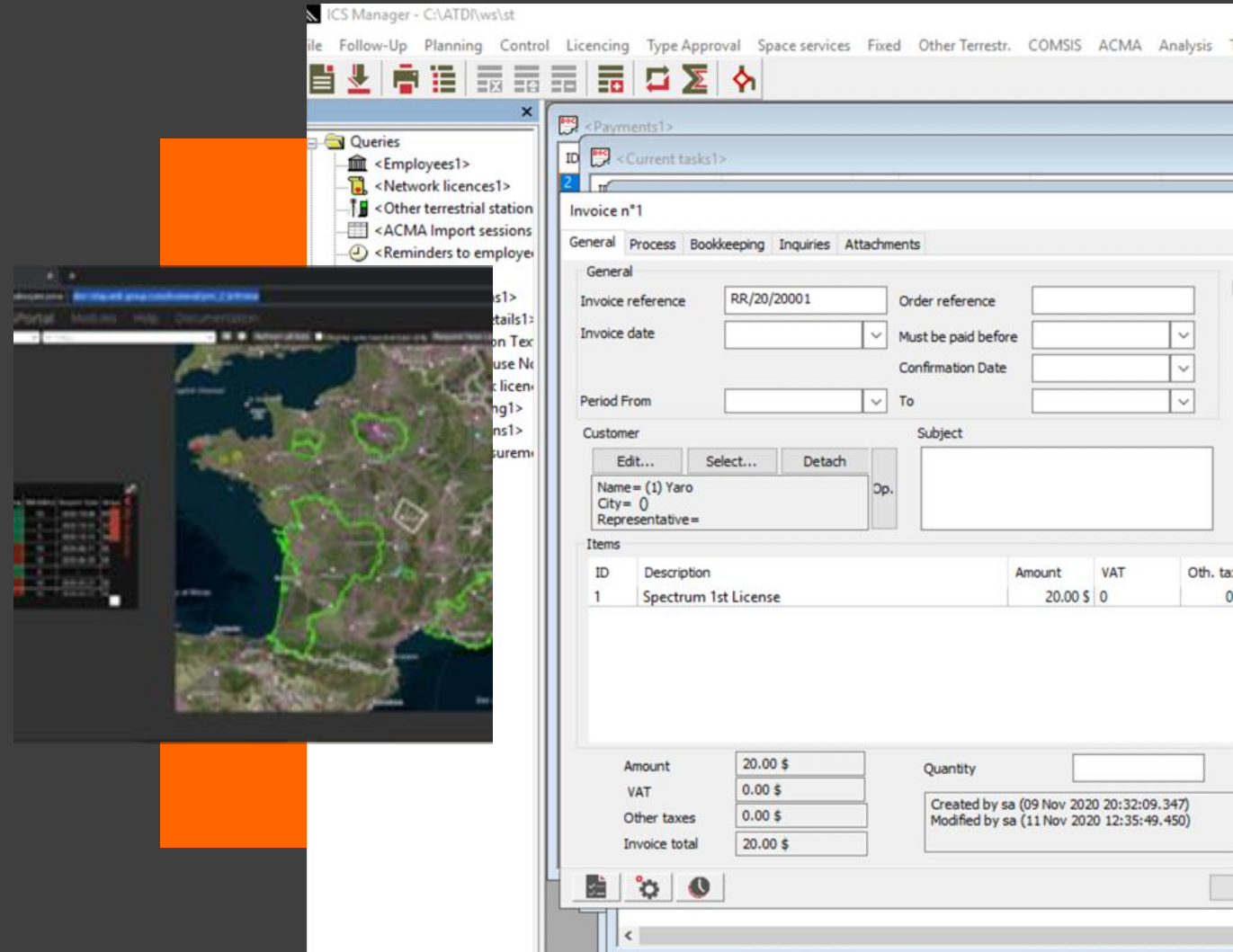
ICS manager/eManager

A flexible **SOLUTION** to meet current and future **NEEDS OF REGULATORS** in all areas related to spectrum management and monitoring.

Its' powerful data engine manages all data related to spectrum management, while continuously monitoring the coherence of the data.

ICS MANAGER ALLOWS THE IMPLEMENTATION OF AUTOMATED PROCESSES FOR THE PURPOSES OF:

- Allocations and Applications Management
- Channeling Plans & Channel Allotments Management Operational Management for all Services
- International Coordination Management for all Services Notification Management
- Licensing Management
- Billing Management
- Workflow Management
- Internal System Management
- Technical Analyses Management with HTZ communications
- Monitoring Interface



ICS manager/eManager

Customizable User Interface: ICS eManager is a flexible web-platform supporting any browsers and device type.

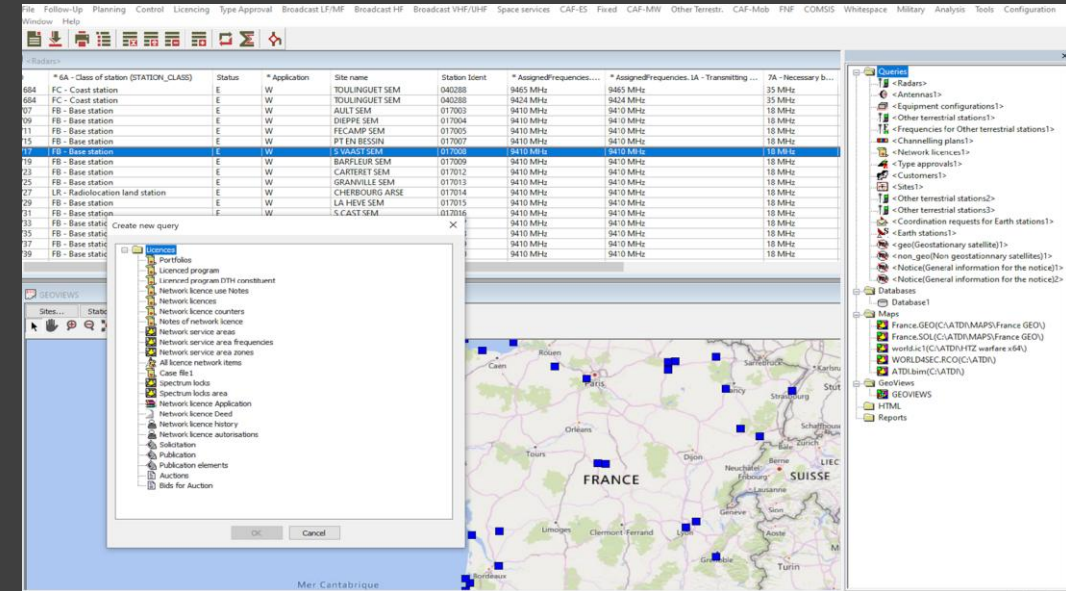
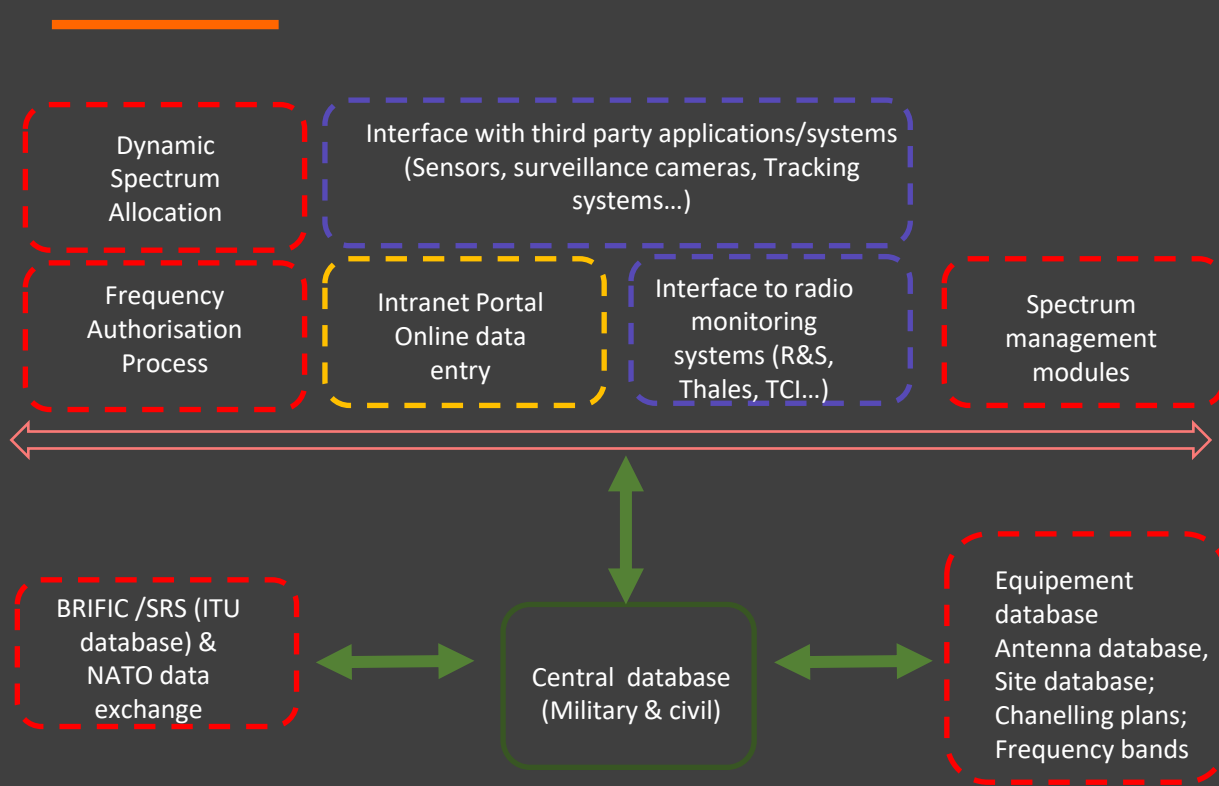
The User Interface customisation uses the corporate identification and supports the main use of the web-service.

- Account Management with SSO and Self-care Portal (External) and Business Applications Portal (Internal)
- Online applications
- Notification & reminders
- Billing
- License certificates
- Electronic Signature
- Electronic T&Cs
- Adaptative design

The screenshot displays the ICS eManager web interface. On the left, a navigation menu includes 'Billing', 'Import permits', and 'Dealer licences'. Below this is a login form with fields for 'Username' and 'Password', and buttons for 'Log in', 'Remember me', 'Forgot password', 'Change password', and 'Subscribe'. The main content area shows a table titled 'Operating Licence Applications' with columns for Title, Application Type, Sub-category, Status, Created, Applied, and Decision. The table lists various applications such as 'Revoke Frequency', 'Renewal License', 'Add Frequency', 'Remove Equipment', and 'New License'.

Title	Application Type	Sub-category	Status	Created	Applied	Decision
OL-FR-S00156	Revoke Frequency		Applied	03.11.2020	03.11.2020	
OL-FR-S00154	Revoke Frequency		Applied	02.11.2020	02.11.2020	
OL-FR-S00153	Revoke Frequency		Applied	02.11.2020	02.11.2020	
OL-RN-S00126	Renewal License		Applied	30.10.2020	30.10.2020	
OL-FA-S00125	Add Frequency	Radio Determi...	Applied	30.10.2020	30.10.2020	
OL-ER-S00124	Remove Equipment		Applied	30.10.2020	30.10.2020	
OL-NE-S00114	New License	Ship Station	Draft	27.10.2020		
OL-NE-S00112	New License	Microwave Fix...	Draft	27.10.2020		
OL-EA-S00099	Add Equipment		Draft	27.10.2020		
OL-EA-S00098	Add Equipment		Draft	27.10.2020		
OL-EA-S00097	Add Equipment		Draft	27.10.2020		
OL-NE-S00096	New License	Base Station (...)	Draft	27.10.2020		
OL-NE-S00090	New License	Aircraft Station	Draft	26.10.2020		
OL-NE-S00089	New License	TVRO	Draft	26.10.2020		
OL-NE-S00088	New License	Ship Station	Draft	26.10.2020		
OL-NE-S00087	New License	Coastal Station	Draft	26.10.2020		
OL-RN-S00085	Renewal License		Applied	26.10.2020	30.10.2020	
OL-RN-S00081	Renewal License		Draft	26.10.2020		

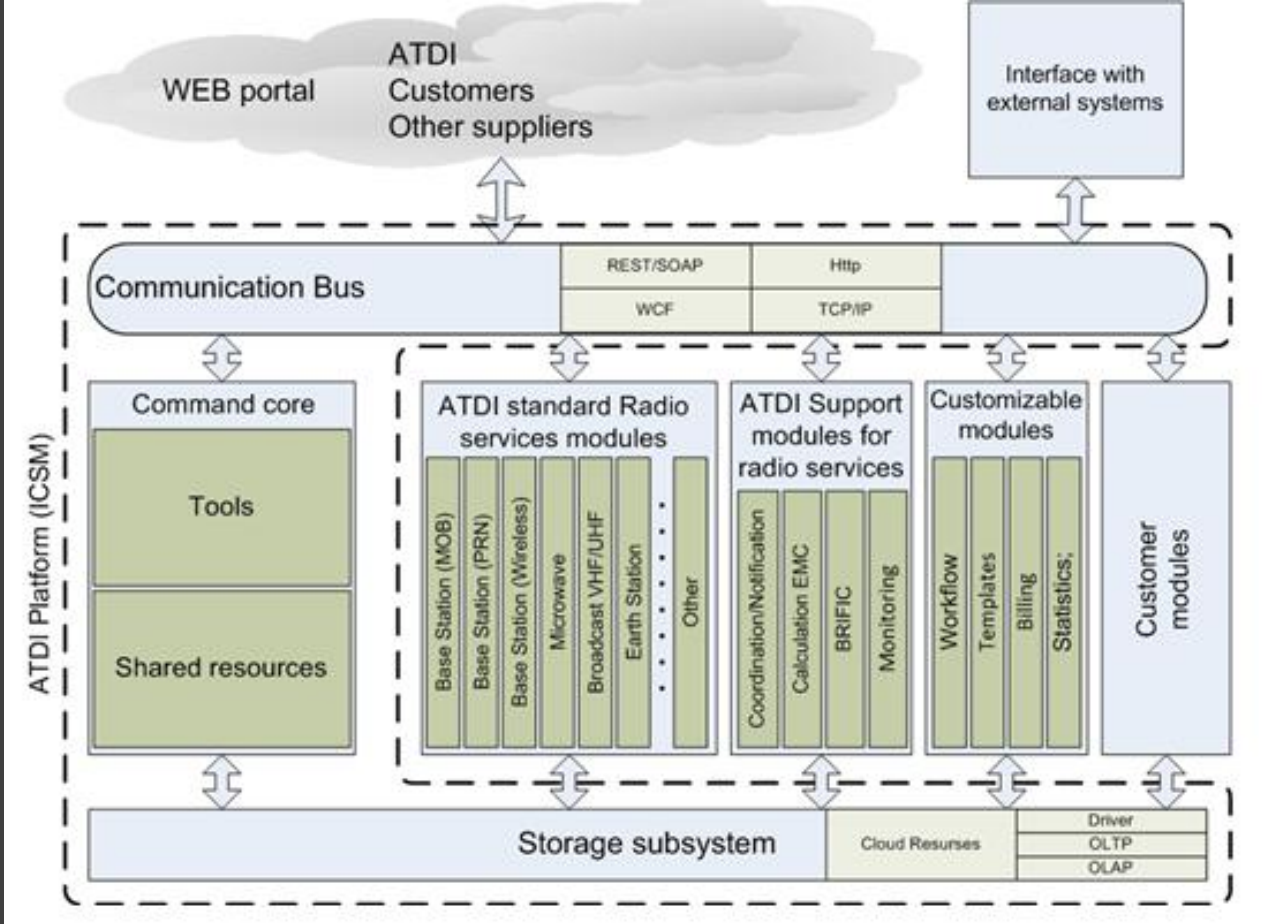
ICS manager/e-Manager



ICS manager

Multi-service orientated architecture

- Command core contains instrumental services to manage applications servers
- Service modules that are components of subject-matter logic which can be distributed
- The Communications BUS is an intermediate layer providing connectivity between all service modules and with the clients



Multi-service orientated architecture

Client-Service architecture

Server: SQL Server

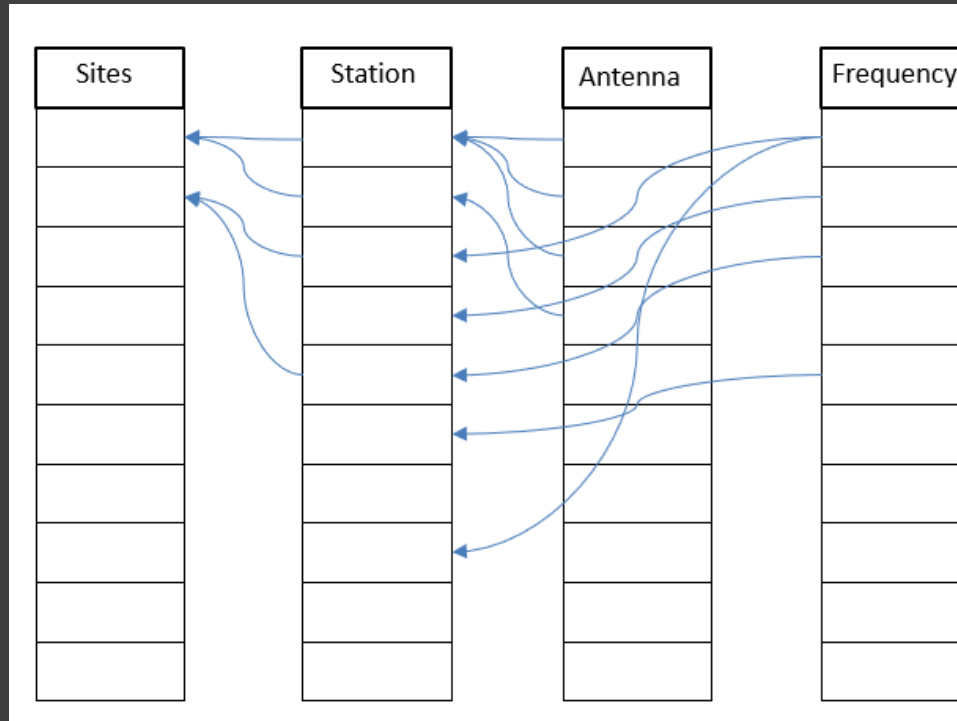
Client: desktop application on laptops/desktops

- Support for concurrent users accessing the database
- Ability to lock tables
- Ability to control access levels (Read/Write/Modify): configurable access levels depending on the tasks and rules defined by the Spectrum Authority (technical, administrative, financial)
- GIS capabilities
- API for 3rd party development and integration: CRM-Systems, financial systems, document, and cartographic management systems
- Reporting: customizable reporting templates to generate reports
- Track changes: system log on any changes in the data

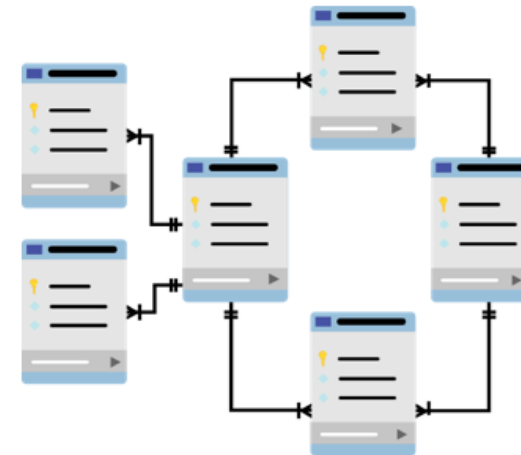


Multi-service orientated architecture

Relational tables in ICS manager



ICS manager database



Graphical User Interface

Each module has a user-friendly graphical interface. The user can access the functions and menu items either via toolbars or menus. The GUI can be customised and adapted to the specific needs and requirements of each user. Menu and sub-menus can be configure (display or hide) for each user in order to simplify the Graphical User Interface.

ID	Code	*Name	Longitude	Latitude	Ref. EW	Ref. NS	Ref.
3	10000002	Optus 50m Lattice Tower 71 Eastward Road Utakarra	114° 38' 03.34" E	28° 46' 39.58" S	114.63426	-28.77766	4DEC
110	10000114	Optus monopole Taree Cundlettown 17301 Pacific Hig	152° 32' 00.74" E	31° 54' 06.88" S	152.53354	-31.90191	4DEC
192	10000002	Optus/Vodafone Site Water Tank Blooms Rd NORTH WAR	145° 13' 19.23" E	37° 43' 42.78" S	145.22207	-37.72855	4DEC
347	10000377	Optus COW - Splendour in the Grass LOT 46 Jones Ro	153° 31' 04.91" E	28° 28' 19.3" S	153.518031	-28.472028	4DEC
366	10000396	Optus site Light pole Intersection of Pittwater Ro	151° 17' 42.63" E	33° 42' 36.33" S	151.295176	-33.710091	4DEC
369	10000399	Optus Light Pole Intersection of Pittwater Road an	151° 17' 44.63" E	33° 42' 36.36" S	151.29573	-33.7101	4DEC
453	10000484	Optus COW city2surf Campbell Parade Bondi Beach	151° 16' 43.81" E	33° 53' 22.27" S	151.278836	-33.88952	4DEC
468	100005	Optus Site Midlands Highway SPRING HILL TIER	147° 15' 48.28" E	42° 24' 53.71" S	147.263412	-42.41492	4DEC
587	10000620	Unngarra Optus 60m tower 176 Mount Hill Rd Unngarra	136° 03' 40.69" E	34° 09' 39.33" S	136.061304	-34.160925	4DEC
597	10000631	Optus Monopole Scott Street Parramatta Park	145° 45' 56.3" E	16° 55' 47.73" S	145.76564	-16.929924	4DEC
666	100007	Optus Site KELCEY TIER	146° 19' 38.5" E	41° 12' 38.72" S	146.327361	-41.210755	4DEC
674	10000707	optus monopole Bonegilla 42 McIntoshs Road Bonegill	146° 59' 39.12" E	36° 08' 01.75" S	146.9942	-36.13382	4DEC
1054	100011	Optus Site off White Hills Road SULLOCKS HILL	146° 04' 41.19" E	41° 08' 39.57" S	146.078107	-41.144326	4DEC
1350	100014	Optus Site off Mole Creek Road GARDNERS RIDGE	146° 32' 11.74" E	41° 32' 26.08" S	146.536594	-41.540577	4DEC
1431	10001480	Optus Lattice tower, Port Victoria Lot 1, Kuhn Ter	137° 29' 18.43" E	34° 29' 37.35" S	137.488453	-34.493708	4DEC
1451	100015	Optus Site KELLYS LOOKOUT	146° 46' 31.32" E	41° 18' 13.08" S	146.775368	-41.303633	4DEC
1650	10001699	Optus 30m Concrete Monopole 121 Hamilton-Port Fair	142° 13' 19.96" E	38° 22' 48.61" S	142.22221	-38.38017	4DEC
1651	10001700	Optus 45m Concrete Monopole 341 Cretton Avenue Mill	142° 09' 35.08" E	34° 09' 52.94" S	142.159744	-34.164706	4DEC
1848	100019	Optus Site Water Reserve Grinter St West RIVERSIDE	147° 06' 23.51" E	41° 25' 39.67" S	147.106531	-41.427896	4DEC
1854	10001906	Optus IBC 101 Munibung Road CARDIFF	151° 38' 15.17" E	32° 56' 24.81" S	151.637547	-32.940225	4DEC
1855	10001907	Optus IBC Unit 3 5-7 Meridian Place BELLA VISTA	150° 56' 52.29" E	33° 44' 02.08" S	150.947858	-33.733912	4DEC
1861	10001913	Optus IBC 47 Mary Street KINGSTON	153° 07' 19.03" E	27° 39' 26.27" S	153.121952	-27.657297	4DEC
1862	10001914	Optus IBC 289 Wellington Pde South EAST MELBOURNE	144° 58' 33.34" E	37° 48' 58.51" S	144.975929	-37.816253	4DEC
1978	10002033	Longerengon optus monopole 229 Longerengon Road Lo	142° 18' 12.82" E	36° 40' 09.84" S	142.30356	-36.6694	4DEC
2032	10002089	Goomeri optus monopole 21, Olive St Goomeri	152° 03' 41.31" E	26° 10' 44.95" S	152.061475	-26.179152	4DEC
2044	10002106	Wondai optus lattice tower Scott Street WONDAI 460	151° 52' 50.71" E	26° 19' 38.38" S	151.880753	-26.327327	4DEC
2045	10002107	Nuriootpa Township optus monopole 5-9 Tanunda Road	138° 59' 42.65" E	34° 28' 37.16" S	138.99518	-34.47699	4DEC
2079	10002141	optus tower Ballan 20 OLD BALLANEE ROAD BALLAN 334	144° 13' 44.26" E	37° 35' 26.48" S	144.22896	-37.59069	4DEC
2269	10002331	Lancelin Township optus site 52281 Collins Way Lan	115° 20' 05.86" E	31° 00' 55.22" S	115.33496	-31.01534	4DEC
2402	10002464	Orford optus 35 monopole 1 Mary St Orford	147° 51' 57.6" E	42° 33' 59.11" S	147.866	-42.56642	4DEC
2448	10002510	Mount Direction optus monopole 71 Bullocks Head Ro	147° 00' 34.02" E	41° 14' 02.76" S	147.00945	-41.2341	4DEC
2491	10002553	DEVONPORT WEST Optus monopole 23 Hillcrest Rd., De	146° 19' 52.7" E	41° 11' 01.46" S	146.331305	-41.183738	4DEC
2697	10002760	Jolimont COW Optus cnr Alexandra Ave and Linlithgo	144° 58' 27.84" E	37° 49' 20.95" S	144.974401	-37.822485	4DEC
2736	100028	Optus Site Roebourne Road Reservior OTAGO	147° 17' 52.12" E	42° 48' 04.51" S	147.29781	-42.801254	4DEC
2788	10002851	Optus COW temp site Alfred Street North Sydney 200	151° 12' 44.25" E	33° 50' 54.16" S	151.212291	-33.848379	4DEC
2800	10002863	Optus COW Alexandra Garden South Yarra	144° 58' 30.52" E	37° 49' 21.71" S	144.975144	-37.823696	4DEC
2801	10002864	Optus COW 41 Alfred Street South Milsoms Point	151° 12' 42.05" E	33° 50' 49.78" S	151.21168	-33.84716	4DEC
2802	10002865	Optus COW, Port Macquarie Golf Course 698 Ocean Dr	155° 05' 00.88" E	31° 28' 53.54" S	155.091691	-31.48154	4DEC
2808	10002871	Batchelor optus tower 923 Batchelor Rd, Batchelor.	131° 02' 41.83" E	13° 02' 59.09" S	131.044954	-13.049747	4DEC
2809	10002872	Lake Bennett optus tower 5915 Sturt Highway, Coom	131° 08' 37.2" E	12° 59' 10.18" S	131.143666	-12.98616	4DEC

Active software components

Select active software components
Menu commands and queries from deactivated components will be hidden.

- Group
- Internal
- Overview
- Spectrum planning
- Spectrum management
- Shared resources
- Assignments
- ITU-R
- Specific
- Initial import

- Monitoring
- Inspections
- Complaints
- Customers
- AeroNaval Certificates
- RadioAmateur Certificates
- LandMobile Certificates
- Licences
- Billing
- Sites
- Type approval
- Coordination
- Notification
- Technical analysis
- Studios
- Phone Numbers
- Whitespaces

OK Cancel

Menu configuration

- File
- Map
- Coverage
 - Network calculation
 - Network interference
 - Network planning
 - Network analysis
 - Network report
 - Traffic
 - Handover
 - Station candidates
 - Station polygon
 - Search sites
 - Coverage modification
 - Vectorizer coverage...
- Microwave
- Multipoint
- Subscriber
- Satellite
 - Satellite database...
 - Database location...
 - Import satellites...
 - Satellite to stations (P2P)...
 - Station to satellite (P2P)...
 - Station to satellite constellation...
 - Satellite constellation to station...
 - Satellite C/I map...
 - Satellite PFD map...
 - Direct mode GSO
 - Radar

Selected popup/command

Show

Show all

Hide (all)

LEGEND :

- Green -> Visible command
- Red -> Hidden command
- Blue -> Required command

Smart treeview expansion

Reset to full menu

C:\Users\Samin\AppData\Local\AppConfADMIN.men

Save Cancel

Graphical User Interface

Clients list

ICS Manager - D:\ownCloud\ATDI PTY\1- Customer demo\Transport NSW\RLDB - [Clients]

File Follow-Up Planning Control Licencing Fixed Other Terrest. COMSIS Analysis Tools Configuration Window Help

Queries
 Clients
 Sites
 Active licenses by Sydney train
 <Network licences2>
 Transport NSW Spectrum
 Antennas
 Employees
 DTRS
 DTRS Licenses
 1800 Devices
 <Microwave links1>

ID	Code	* Name	R..	City	Province
10608	510769	Optus Mobile Pty Limited		NORTH RYDE	NSW
10623	512112	Optus Mobile Pty Limited		NORTH RYDE	NSW
11892	1103276	Optus Mobile Pty Limited		NORTH RYDE	NSW
12002	1134840	Optus Vision Investments		NORTH RYDE	NSW
16125	1149289	Optus Mobile Pty Limited		NORTH RYDE	NSW
22920	20006748	OPTUS VISION MEDIA PT		NORTH SYDNEY	NSW
23157	20007562	Optus Mobile Pty Limited		NORT	
23161	20007569	Optus Mobile Pty Limited		NORT	
23163	20007586	Optus Mobile Pty Limited		NORT	
24767	20014145	Optus Satellite Network Pty Limited		Macq	
25414	20017363	Optus Mobile Pty Limited		MACQ	
25415	20017373	Optus Mobile Pty Limited		MACQ	
29209	20033708	OPTUS FIXED INFRASTRUCTURE PTY LIMITED		NORT	

Filter...
 Clear filter
 Sort ascending
 Sort descending
 Statistics...
 Save Bitmaps...

Query list Query view

Access/edit client records

ICS Manager - D:\ownCloud\ATDI PTY\1- Customer demo\Transport NSW\RLDB - [Clients]

File Follow-Up Planning Control Licencing Fixed Other Terrest. COMSIS Analysis Tools Configuration Window Help

ID	Code	* Name	R..	City	Province	Customer type
10608	510769	Optus Mobile Pty Limited		NORTH RYDE	NSW	
10623	512112	Optus Mobile Pty Limited		NORTH RYDE	NSW	
11892	1103276	Optus Mobile Pty Limited		NORTH RYDE	NSW	

Customer n°11892

General Representative Address Contacts Process Invoice Address Relations Custom Licences Inquiries Allotments Appears in Attachments

Spectrum...

Networks

ID	Status	Type	Type description	Radiocom syst...	Identifier	Start date	Stop date	LIC_Service area	Fa...
11280	Gran	Spectrum	2 GHz Band		10143562	12 Oct 2017	11 Oct 2032		
17240	Gran	Spectrum	1800 MHz Band		10231258	30 May 2017	17 Jun 2028		
72516	Gran	Spectrum	1800 MHz Band		10231258	30 May 2017	17 Jun 2028		
72522	Gran	Spectrum	1800 MHz Band		9263448	18 Jun 2013	17 Jun 2028		

GeoViews
 DTRS sites

Duplicates and dependencies...
 Developer

Graphical User Interface

Graphical query design

Joint columns

- City
- Subprovince
- Province
- Invoiced city
- Invoiced subprovince
- Invoiced province
- Amateur
- Each contact
- Import source
- Import operation
- Each attached document

Fields

- Fax number
- E-mail
- Pager number
- Telex number
- Remark on identification
- Web page address
- Web login
- Password
- Old Passwords
- Bad password count
- Date Last password change

Field	Title	Format	W..	Order	Condition
ID	ID	Auto	106		
Customer code	Code	Auto	94		
Customer Name	Name	Auto	326		Like *OPTUS*
Representative lastname	Representative	Auto	25		
City	City	Auto	124		
Province (PROVINCES)	Province	Auto	62		
Customer type (USER_TYPE)	Customer type	Auto	130		

Drag-drop to current view

Hint : Drag and drop!

Count show DB Names Distinct records alphabetical order

Clear All cond. Change... Delete Clear Order. Clear cond. Copy Paste Save and exit Cancel and exit

Graphical User Interface

License management (View)

ICS Manager - D:\ownCloud\ATDI PTY,1- Customer demo\Transport NSW\RRLDB - [Optus licenses]

File Follow-Up Planning Control Licencing Fixed Other Terrest. COMSIS Analysis Tools Configuration Window Help

ID	Status	Type	Type description	Radiocom syst...	Owner	Identifier	Start date
52076	Gran	Land Mobile	Ambulatory System		DEPT OF PREMIER & CABINET	1192770/2	17 Apr 2018
40901	Gran	Land Mobile	Land Mobile System -> 30MHz		SYDNEY TRAINS	1141360/1	27 Apr 2018
1978	Gran	Broadcast Service Licence	Subscription Television Broadcasting		TELSTRA PAY TV PTY LTD	10008835/1	01 Sep 2003
2010	Gran	Broadcast Service Licence	Subscription Television Broadcasting		PRIMESTAR COMMUNICATIONS AUSTR	10008867/1	08 Feb 2001
1987	Gran	Broadcast Service Licence	Subscription Television Broadcasting		Northgate Cable Television Pty Ltd	10008844/1	13 Oct 1995
1986	Gran	Broadcast Service Licence	Subscription Television Broadcasting		Northgate Cable Television Pty Ltd	10008843/1	13 Oct 1995
1985	Gran	Broadcast Service Licence	Subscription Television Broadcasting		Northgate Cable Television Pty Ltd	10008842/1	13 Oct 1995
1984	Gran	Broadcast Service Licence	Subscription Television Broadcasting		Northgate Cable Television Pty Ltd	10008841/1	13 Oct 1995
1983	Gran	Broadcast Service Licence	Subscription Television Broadcasting		Northgate Cable Television Pty Ltd	10008840/1	13 Oct 1995
1982	Gran	Broadcast Service Licence	Subscription Television Broadcasting		Northgate Cable Television Pty Ltd	10008839/1	13 Oct 1995
1981	Gran	Broadcast Service Licence	Subscription Television Broadcasting		Northgate Cable Television Pty Ltd	10008838/1	13 Oct 1995
1989	Gran	Broadcast Service Licence	Subscription Television Broadcasting		Northgate Cable Television Pty Ltd	10008846/1	13 Oct 1995
1979	Gran	Broadcast Service Licence	Subscription Television Broadcasting		Northgate Cable Television Pty Ltd	10008836/1	13 Oct 1995
1990	Gran	Broadcast Service Licence	Subscription Television Broadcasting		Northgate Cable Television Pty Ltd	10008847/1	13 Oct 1995
1977	Gran	Broadcast Service Licence	Subscription Television Broadcasting		TELSTRA PAY TV PTY LTD	10008834/1	01 Sep 2003
1976	Gran	Broadcast Service Licence	Subscription Television Broadcasting		TRANSACT BROADCASTING PTY LTD	10008833/1	22 Jan 2003
1975	Gran	Broadcast Service Licence	Subscription Television Broadcasting		TRANSACT BROADCASTING PTY LTD	10008832/1	22 Jan 2003
1974	Gran	Broadcast Service Licence	Subscription Television Broadcasting		TRANSACT BROADCASTING PTY LTD	10008831/1	22 Jan 2003
1973	Gran	Broadcast Service Licence	Subscription Television Broadcasting		TRANSACT BROADCASTING PTY LTD	10008830/1	22 Jan 2003
1972	Gran	Broadcast Service Licence	Subscription Television Broadcasting		TRANSACT BROADCASTING PTY LTD	10008829/1	22 Jan 2003
1971	Gran	Broadcast Service Licence	Subscription Television Broadcasting		TRANSACT BROADCASTING PTY LTD	10008828/1	22 Jan 2003
1970	Gran	Broadcast Service Licence	Subscription Television Broadcasting		TRANSACT BROADCASTING PTY LTD	10008827/1	22 Jan 2003
1980	Gran	Broadcast Service Licence	Subscription Television Broadcasting		Northgate Cable Television Pty Ltd	10008837/1	13 Oct 1995
1999	Gran	Broadcast Service Licence	Subscription Television Broadcasting		SELECTRA PTY. LTD.	10008856/1	25 Nov 1997
2095	Gran	Broadcast Service Licence	Subscription Television Broadcasting		SELECTRA PTY. LTD.	10008952/1	25 Nov 1997
2008	Gran	Broadcast Service Licence	Subscription Television Broadcasting		PRIMESTAR COMMUNICATIONS AUSTR	10008865/1	08 Feb 2001
2007	Gran	Broadcast Service Licence	Subscription Television Broadcasting		PRIMESTAR COMMUNICATIONS AUSTR	10008864/1	08 Feb 2001
2006	Gran	Broadcast Service Licence	Subscription Television Broadcasting		PRIMESTAR COMMUNICATIONS AUSTR	10008863/1	08 Feb 2001
2005	Gran	Broadcast Service Licence	Subscription Television Broadcasting		PRIMESTAR COMMUNICATIONS AUSTR	10008862/1	08 Feb 2001
2004	Gran	Broadcast Service Licence	Subscription Television Broadcasting		PRIMESTAR COMMUNICATIONS AUSTR	10008861/1	08 Feb 2001
2003	Gran	Broadcast Service Licence	Subscription Television Broadcasting		SELECTRA PTY. LTD.	10008860/1	25 Nov 1997
2002	Gran	Broadcast Service Licence	Subscription Television Broadcasting		SELECTRA PTY. LTD.	10008859/1	25 Nov 1997
1988	Gran	Broadcast Service Licence	Subscription Television Broadcasting		Northgate Cable Television Pty Ltd	10008845/1	13 Oct 1995
2000	Gran	Broadcast Service Licence	Subscription Television Broadcasting		SELECTRA PTY. LTD.	10008857/1	25 Nov 1997

License management (Filter)

License queries

- ❖ Simultaneous filters on multiple columns
- ❖ Filter by licensee
- ❖ Filter by type/status

Column

Title of column: Retrieved Ascending Rank

Column width (pixels): Descending

Field description: Displayed

Formatting: Auto - Not formatted

Style:

Column colorization:

Greater than...

Greater or equal to...

Less than...

Less or equal to...

Equal to...

Different from...

Like...

Not Like...

Null or empty

Not empty

ID	Status	Type	Type description	Radiocom syst...	Owner	Identifier	Start date
17	04 Dec 20				DEPT OF P		
3	26 Sep 20				SYDNEY TI		
18	26 Sep 20				TELSTRA P		
3	26 Sep 20				PRIMESTA		
18	26 Sep 20				Northgate		
3	26 Sep 20				Northgate		
18	26 Sep 20				Northgate		
7	13 Oct 20				Northgate Cable Television Pty Ltd		100
7	17 Oct 2018				Northgate Cable Television Pty Ltd		100
					Northgate Cable Television Pty Ltd		100
					Northgate Cable Television Pty Ltd		100

ADVANCED SOLUTIONS IN RADIOCOMMUNICATIONS

Graphical User Interface

License management (Filter+stats)

ID	Status	Type	Type description	Radiocom syst...	* Owner	Identifier	Start date	* Stop date
25157	Surr	Fixed	Point to Point		Optus Mok	340963/1	04 Dec 2017	04 Dec 2017
7864	Gran	PTS	PMTS Class B		Optus Mok	094267/32	10 Jul 2018	26 Sep 2018
7865	Gran	PTS	PMTS Class B		Optus Mok	094268/35	21 Aug 2018	26 Sep 2018
7866	Gran	PTS	PMTS Class B		Optus Mok	094269/34	30 Jul 2018	26 Sep 2018
7867	Gran	PTS	PMTS Class B		Optus Mok	094270/35	06 Aug 2018	26 Sep 2018
7868	Gran	PTS	PMTS Class B		Optus Mok	094271/33	30 Jul 2018	26 Sep 2018
7869	Gran	PTS	PMTS Class B		Optus Mok	094272/38	06 Aug 2018	26 Sep 2018
9485	Gran	Fixed	Point to Point		Optus Mok	118274/1	14 Sep 2017	13 Oct 2018

Statistics by owner

Owner	Count
Optus Mobile Pty Limited	1367
OPTUS FIXED INFRASTRUCTURE PTY LIMITED	2
Optus Satellite Network Pty Limited	57

Statistics by license stop date

Stop Date	Count
27 Feb 2019	7
28 Feb 2019	10
01 Mar 2019	5
02 Mar 2019	1
04 Mar 2019	2
05 Mar 2020	8

Graphical User Interface

ADVANCED SC

ID	Code	*Name
3	10000002	Optus 50m Lattice T
110	10000114	Optus monopole, T
192	100002	Optus/Vodafone Sit
347	10000377	Optus COW - Splen
366	10000396	Optus site Light pol
369	10000399	Optus Light Pole In
453	10000484	Optus COW city2su
468	100005	Optus Site Midland
587	10000620	Ungarra Optus 60m
597	10000631	Optus Monopole Sc
666	100007	Optus Site KELCEY
674	10000707	optus monopole Bc
1054	100011	Optus Site Off Whit
1350	100014	Optus Site off Mole
1431	10001480	Optus Lattice tower
1451	100015	Optus Site KELLYS L
1650	10001699	Optus 30m Concret
1651	10001700	Optus 45m Concret
1848	100019	Optus Site Water Re
1854	10001906	Optus IBC 101 Mun
1855	10001907	Optus IBC Unit 3 5-
1861	10001913	Optus IBC 47 Mary
1862	10001914	Optus IBC 289 Welli
1978	10002033	Longerenong optus
2032	10002089	Goomeri optus mor
2044	10002106	Wondai optus lattic
2045	10002107	Nuriootpa Townsh
2079	10002141	optus tower Ballan
2269	10002331	Lancelin Township
2402	10002464	Orford optus 35 m
2448	10002510	Mount Direction op
2491	10002553	DEVONPORT WEST

Sites (Filter+stats)

Latitude (D6)	Radius	City	Info ...	Province (PROVINCES)
				WA
				NSW
				VIC
				NSW
				NSW
				NSW
				TAS
				SA
				QLD
				TAS
				NSW
				TAS
				TAS
				SA
				TAS
				VIC
				VIC
				TAS
				NSW
				NSW
				QLD
				VIC
				VIC
				QLD
				QLD
				SA
				VIC
				WA
				TAS
				TAS
				TAS
				VIC

Edit Query... Sites for mobile and other terrestrial stations

Sites for mobile and other terrestrial stations n*1054 -- Optus Site Off White Hills Road SULLOCKS HILL

Position Administrative History Custom Appears in Attachments

Identification

Code: 100011 Aliases: C

Name of site: Optus Site Off White Hills Road SUL

45 chars Prefix... Check...

Geographical coordinates

Metric (EW,NS)

Longitude - Latitude: 146° 04' 41.19" 41° 08' 39.57"

Reference (EW,NS): 4DEC 146.078107 -41.144326

Convert from... Convert to... Help...

Find address...

Polygon

Input vertex with the mouse Close the polygon

Details

Country: [Dropdown]

Responsible administration: [Dropdown] ITU Region:

Altitude above sea level...: 235 m **OK** 246 m

Radius: [Input] ITU code: [Input]

Dist. to border: Out of map for all .FTR map files

Protection distance(m): [Input]

Buttons: Save and exit, Cancel and exit, Save changes

Graphical User Interface

- Support for custom fee calculation formula
- By license type
- By frequency range
- By expiry date
- By number of ports
- By designated areas
- Others

Graphical User Interface

Reporting (custom templates)

ICS Manager - D:\ownCloud\ATDI PTY\1- Customer demo\Transport NSW\RLDB - [Optus licenses]

File Follow-Up Planning Control Licencing Fixed Other Terrestr. COMSIS Analysis Tools Configuration Window Help

ID	Status	Type	Type description	Radiocom syst...	* Owner
25376	Gran	Fixed	Point to Point		Optus Mobile Pty Limited
11748	Gran	Fixed	Point to Point		Optus Mobile Pty Limited
11746	Gran	Fixed	Point to Point		
11750	Gran	Fixed	Point to Point		
11751	Gran	Fixed	Point to Point		
11752	Gran	Fixed	Point to Point		
11753	Gran	Fixed	Point to Point		
11754	Gran	Fixed	Point to Point		
11755	Gran	Fixed	Point to Point		
11749	Gran	Fixed	Point to Point		
11787	Gran	Fixed	Point to Point		
11789	Gran	Fixed	Point to Point		
11790	Gran	Fixed	Point to Point		
11786	Gran	Fixed	Point to Point		
25410	Gran	Fixed	Point to Point		
25422	Gran	Fixed	Point to Point		
75417	Gran	Fixed	Point to Point		

Queries

- Clients
- Sites
- Active licenses by Sydney train
- <Network licences2>
- Transport NSW Spectrum
- Antennas
- Employees
- DTRS
- DTRS Licenses
- 1800 Devices
- <Microwave links1>
- DTRS sites
- <All sites1>
- Optus

Merge records...
Delete Selection...
New Record...
Query... F2
Search >
Batch update >
Print...
Create reminder...
Report...
Input by report...

Reporting (custom templates)

report - Compatibility Mode - Saved

License reporting

Client number	20017363
Licensee	Optus Mobile Pty Limited
License type	Fixed

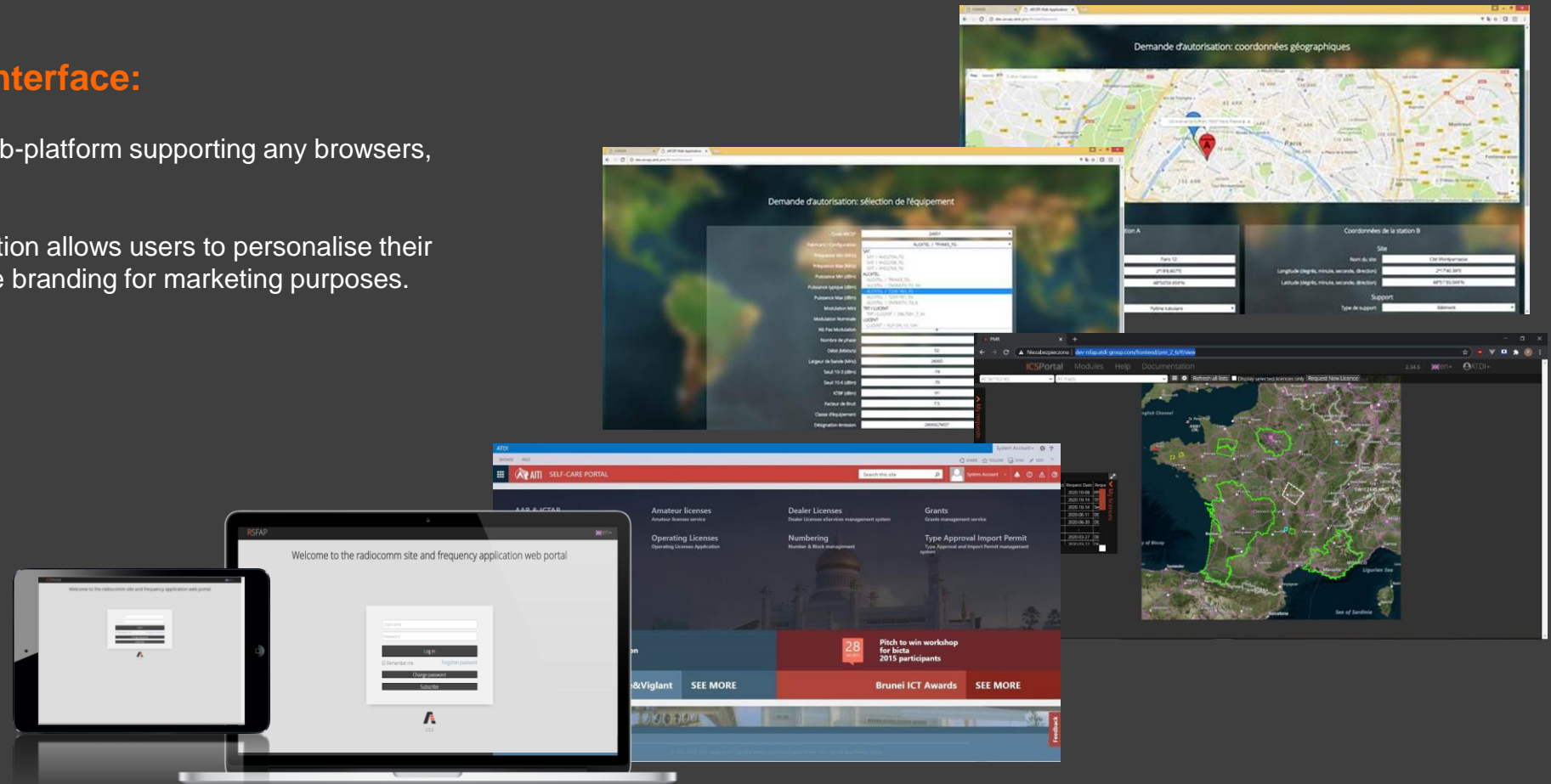
License number:	10342795/1
Start date:	08 Dec 2017
Stop date:	07 Dec 2018
Fees:	
Client number	20017373
Licensee	Optus Mobile Pty Limited
License type	Fixed

Web-service Interface

Customisable User Interface:

ICS eManager is a flexible web-platform supporting any browsers, and device type

The User Interface customisation allows users to personalise their portal with their own corporate branding for marketing purposes.



Web-service Interface

Workflow synchronisation

Front-end portal automatically synchronises with HTZ Communications for spectrum engineering and ICS manager for database control.

Manual intervention required to approve each critical part of the workflow.

Data synchronised at database level, and shared across applications.

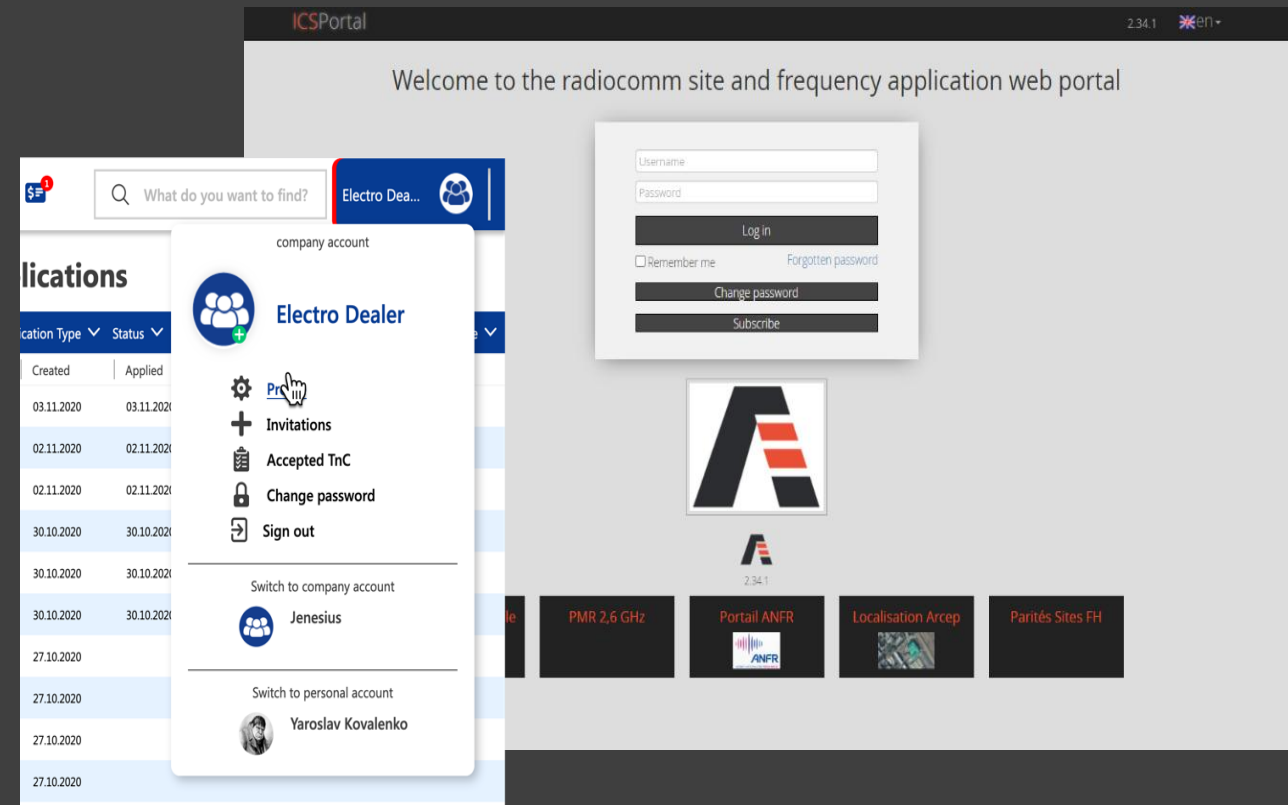
Data automatically verified at system level, during application process.

Regulator verifies application before acceptance.

Web-service Interface

Account Management :

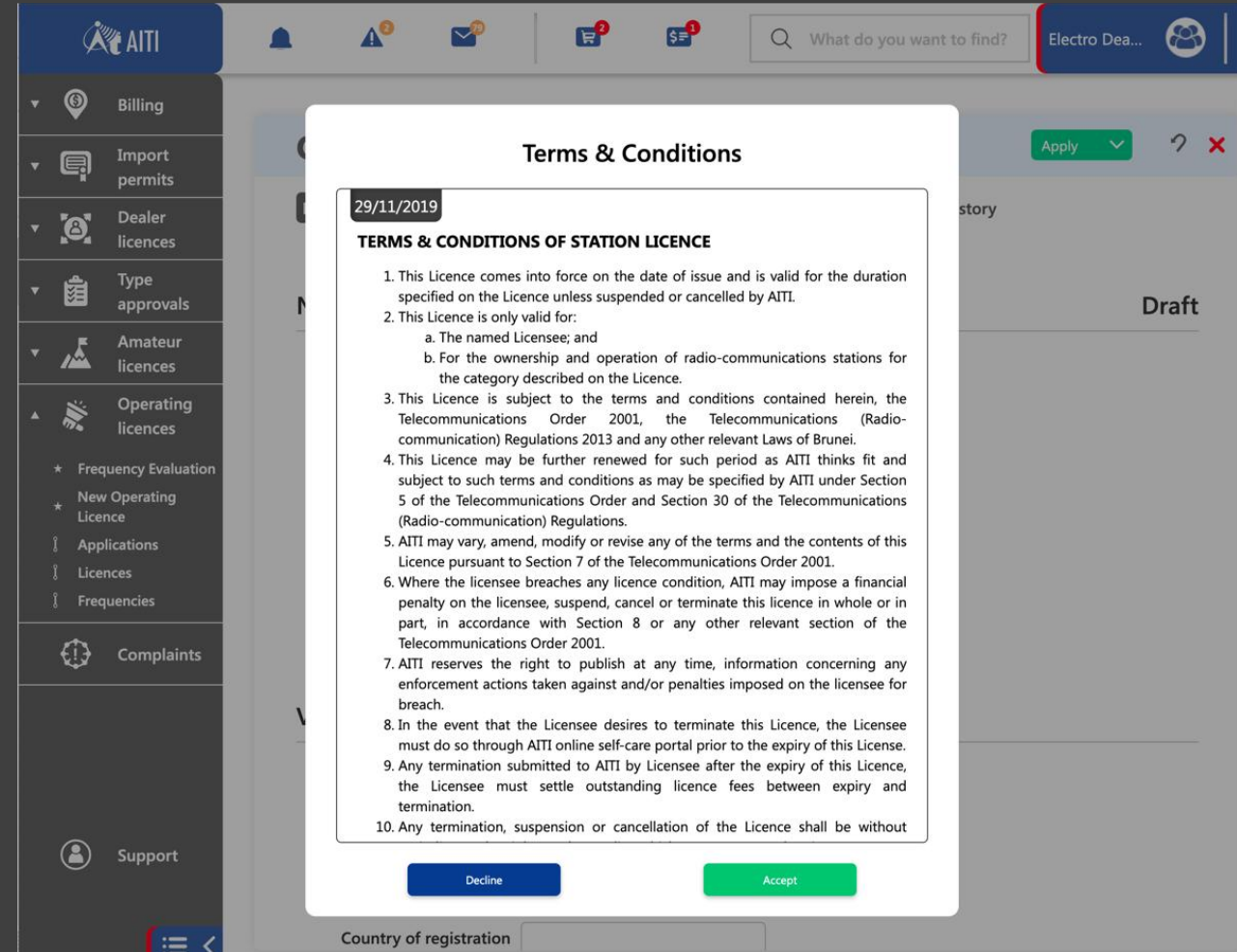
- The portal or gateway allows external licensees to self-manage their accounts and register applications and check the assessment status
- The regulator can assign a corporate account for each company licensee with account administrator rights. The account administrator can control the access of internal users for application submissions
- The service features login screen with the ability to Sign in, Sign up, Restore password
- The solution features a menu entry on main screen with items to edit user/organisation profile, create new organisation, and change password.



Web-service Interface

Legal documents and consent management

- The system interfaces with ICS e-Manager to control versions of Master Agreement, with the most recent, and historical versions stored in regulators' database. These are available for the regulatory system administrator to update.
- By default, the system requires the Customer to accept the Master Agreement, before continuing to work with the web-service. If the Customer doesn't accept the Master Agreement, the system re-displays the agreement after the Customer login and requires its acceptance or the user is refused access. Date and time of the Acceptance is stored in the database.



Web-service Interface

Application management:

- Technical parameters can be manually or batch imported from a .csv template
- Data is automatically validated including antenna pattern files and other materials, plus photos can be uploaded and validated.
- The geographical interface validates/modifies the position and height of antenna.

MW_UK_ST_CAM_17G / MW / ADD / MW_UK_ST_CAM_17G / STRATFORD SQUARE <-> CAMBERWELL

General **Positions** Antennas & Setting Attachments

Q - Type A<->B
Station A Station B

Select position	Clear	Q	0990220001	1	Q	0990220002	2	Clear	Select position
0990220001		STRATFORD SQUARE		0990220002		CAMBERWELL			
WGS-84 (0° 0' 29.07" E 51° 32' 52.74" N) (11 m)		WGS-84 (0° 5' 45.41" W 51° 28' 8.10" N) (13 m)							
38 - Building		38 - Building							
14 - Care facility		14 - Care facility							
SMITH		NORTON							
11 - Orange and White		3 - Gray							
A - 24h		A - 24h							
Locality		Locality							
Maryland Square		Cutcombe Rd							
E15 1HE		SE5 9R							
LONDON		LONDON							
G - United Kingdom of G		91 - Essonne							
91 - Essonne		91 - Essonne							
Grand Est		Outremer							
20 m		12 m							

The user can select different layers to display positions on map

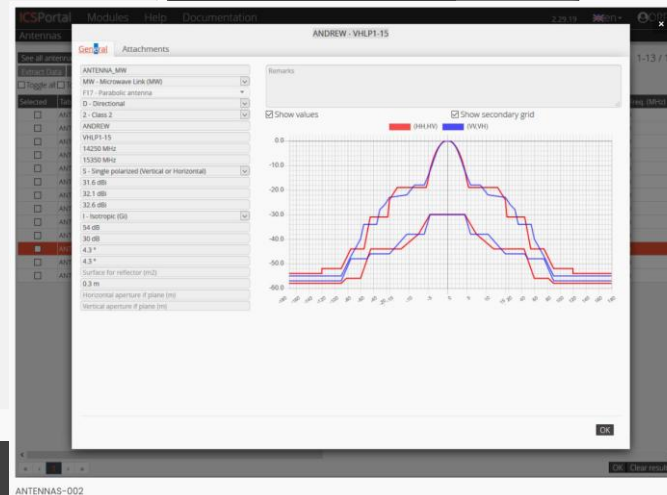
Layer type selection

OK Cancel

ICSPortal Modules Help Documentation 2.29.16

OLIVIER MAZUQUES, welcome to ATDI Ecole 2784 frequency use portal
Roles: Fee, Holder, Operator

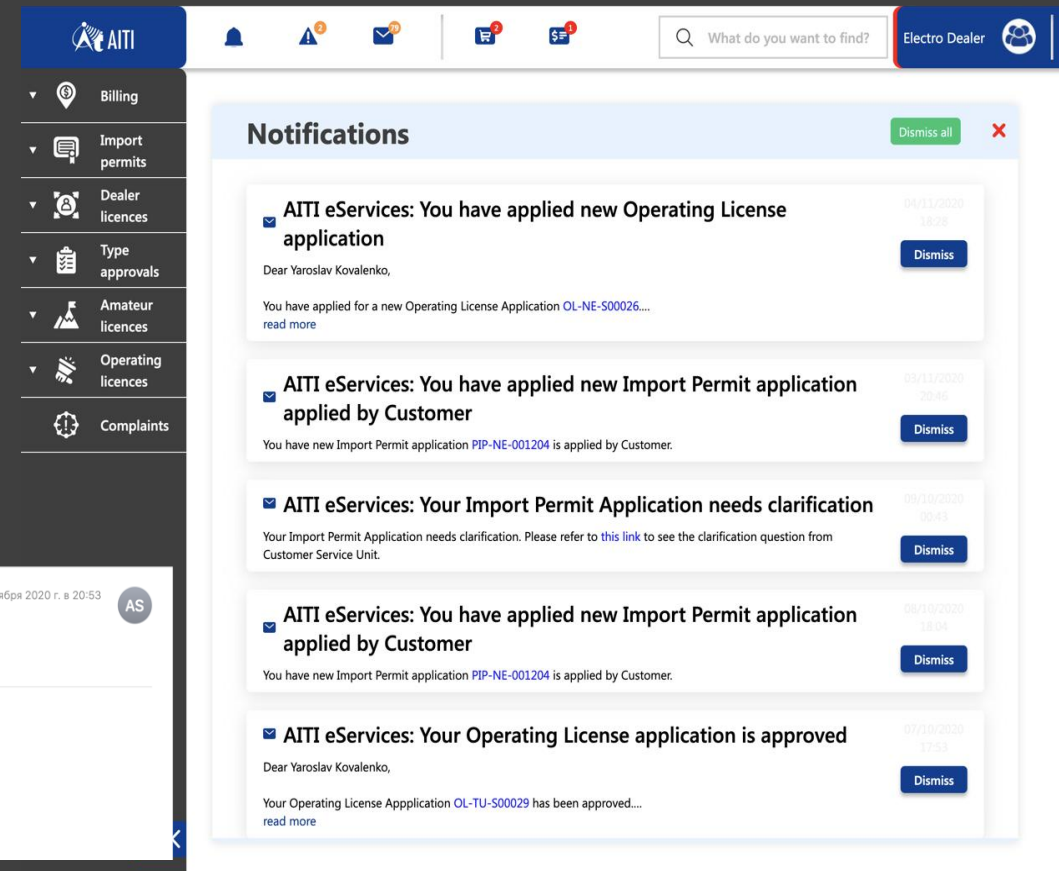
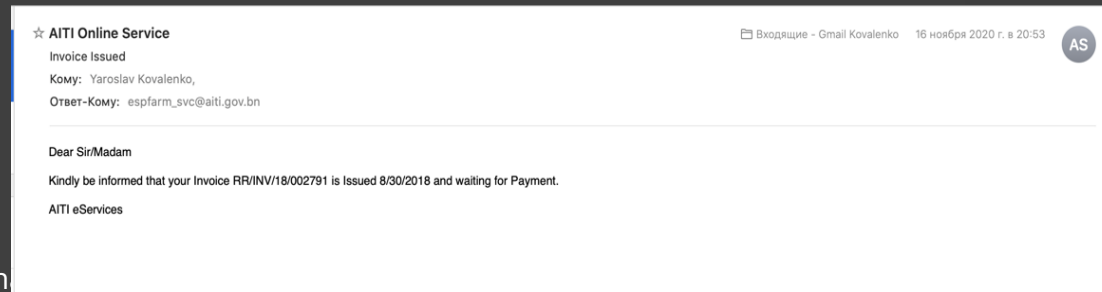
- MW Links Applications**: Module that allows the user to draft, submit, follow a Frequency application for Microwave links.
- ES Applications**: Module that allows the user to draft, submit, follow a Frequency application for Earth Station.
- Antennas**: Module that allows the user to create new antennas and/or consult all antennas table.
- Tx/Rx Equipment configuration**: Module that allows the user to consult all equipment configurations table.
- Fees**: Module that allow the user to to consult all fees.
- Surveys**: Module that allows to fill and manage surveys.
- PMR 2.6 GHz**: PMR 2.6 GHz TDD.



Web-service Interface

Notifications, Reminders and Alerts

- Issued by email
- Displayed on the organisations web portal page. UI notifications may be marked as 'Dismissed' to make them disappear from users view.
- System administrators can generate and send an arbitrary notification to the customers.



Web-service Interface

Billing, Payment and Finance Integration

- Synchronizes with any third-party finance tool
- Secure online payments using any integrated payment gateway for mobile, credit card, bank transfer, etc.
- Generates electronic receipts.

The screenshot displays the ATDI web-service interface. On the left, a sidebar menu includes 'Billing', 'Quotation', 'Invoices', 'Payments', 'Fee Calculator', 'Import permits', and 'Dealer'. The main content area is split into two panels.

The top panel shows a 'MasterCard' payment form titled 'ENTER YOUR CARD DETAILS'. It includes fields for Card Number (5473500160001018), Expiry Date (12 / 25), and Security Code (101). A purchase amount of BND \$930.00 is displayed. Below the form is a 'pay' button and a 'MasterCard SecureCode' section with an authorization statement: 'I hereby authorise the debit to my MasterCard Account in favour of Authority of Info-Communications Technology Industry of Brunei Darussalam'.

The bottom panel displays an 'Invoice RR/INV/21/000011 (Issued)'. It includes a 'Pay Online (\$0)' button and a summary table:

	Paid sum	To be paid	Amount
	\$0	\$930	\$930

Below the summary is a section for 'OL-NE-S00244 (Invoiced)' with details: Application: OL-NE-S00244, Approved date, and Amount: \$930. A table lists the fees:

Fee Title	Unit Price	Year Factor	Freq Cnt	Total Qty	Amount
Station Assignment Fee: Radiosystem RST	25	1		2	50
Application Fee: All other frequencies - Bandwidth X ≤ 25 kHz	290	1	2	2	580
Usage Fee: Medium Term - Price per channel (Rule 3b)	75	1	2	4	300

At the bottom of the invoice section, there is a 'Print form' area with a link to 'Invoice document', and creation/modification dates of 11.02.2021, 00:50. Below this is a 'Payments' table with columns: ID, Title, Receipt Date, Method, Amount, and Status.

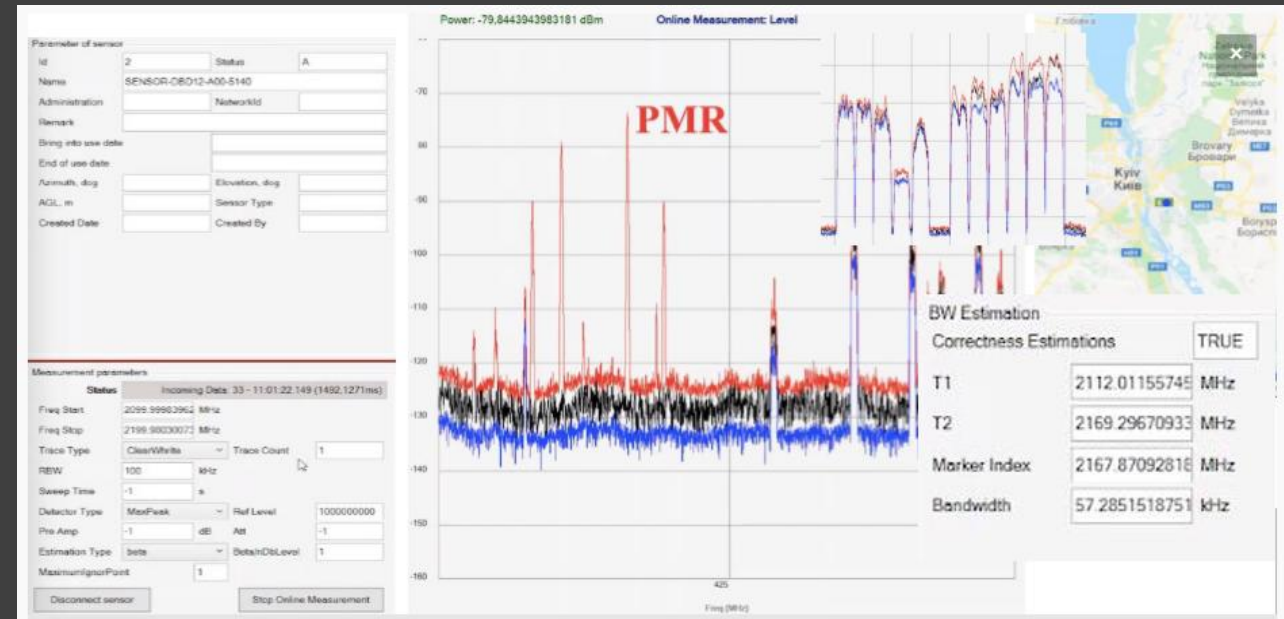
Complementary Solution 1

Integrated spectrum monitoring and big data control

ICS Monitoring SDRN which assesses spectrum use, monitors emissions and regulations the control of license emissions

ICS Monitoring - SDRN Control

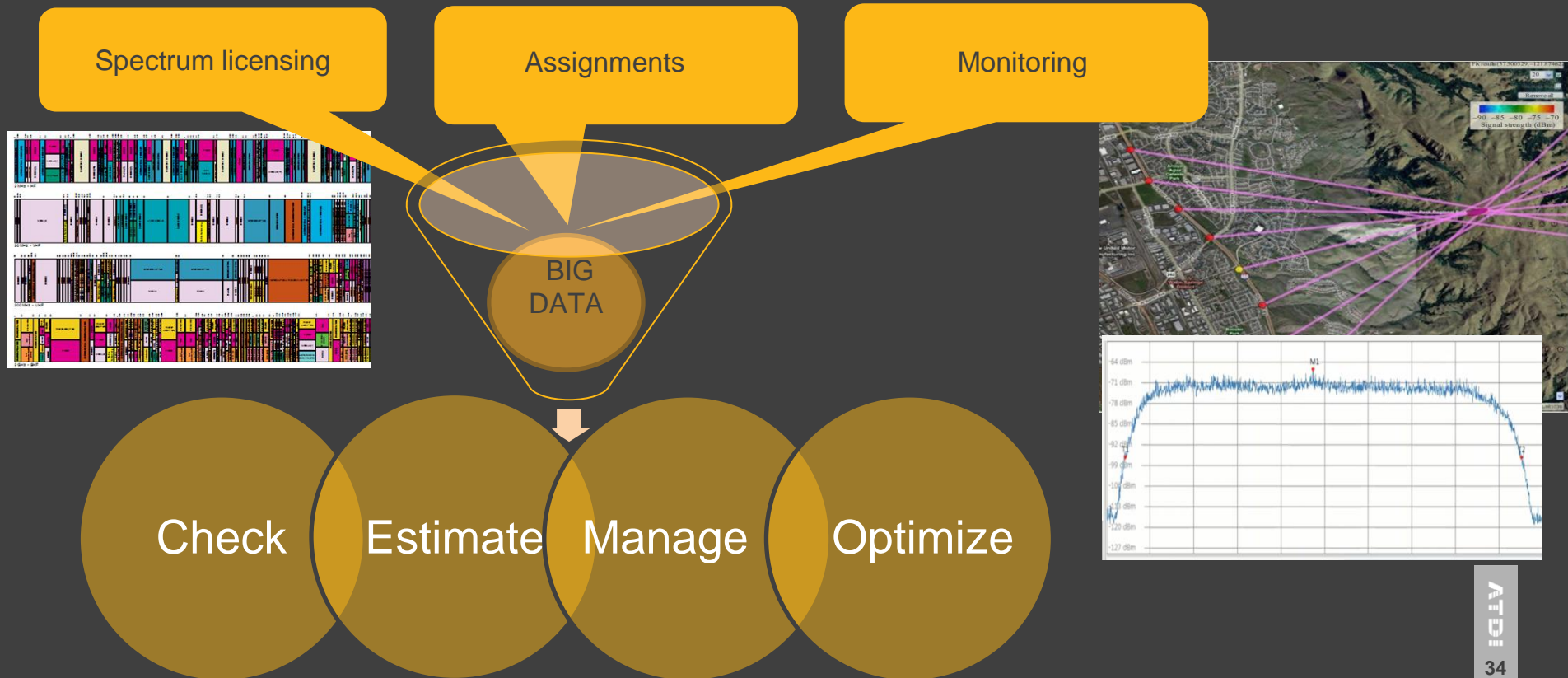
- Full and real-time integration with licensed equipment database
- Automated storage of electromagnetic situation measurements and analysis data
- Establishes spectrum reference situation based on measurement results and propagation modelling
- Real-time spectrum analysis without interruption from measurements already launched
- Background mode measurements require no human intervention
- Integrated GIS (map layers and terrain data)
- Spectrum Occupancy measurements
- Detection of unauthorised emissions by comparing spectrum emissions with spectrum masks from authorised transmitters
- Licensed transmitter data collection and storage
- Compares spectrum emissions with reference spectrum masks
- Bandwidth measurements
- Frequency band scanning
- Localisation of unauthorised emissions
- Hybrid localisation (TDOA / AOA / POA / RSSI)
- HOMING (Machine learning algorithm – HTZ required)



PROCESSING

ICS Monitoring - SDRN Control

GATHERING BIG AMOUNT OF DATA FROM VARIOUS SOURCES



ICS Monitoring - SDRN Control

- ONE SINGLE SYSTEM GATHERING:
 - SPECTRUM MANAGEMENT AND INVENTORY DATA - ICS MANAGER
 - MEASUREMENTS - ICS MONITORING/SDRN CONTROL
 - EMISSIONS ANALYSIS BASED ON INVENTORY AND MEASUREMENTS - HTZ COMMUNICATIONS & HTZ WARFARE
- MULTITASK MEASUREMENTS
- INDEPENDENCY FROM MEASUREMENT EQUIPMENT
- MULTITHREADING IN MEASUREMENT DATA PROCESSING
- REPEATED USAGE OF MEASUREMENT DATA TO OBTAIN THE NECESSARY INFORMATION
- FLEXIBILITY AND SCALABILITY
- AUTOMATIC POST-PROCESSING OF MEASUREMENT RESULTS

Solution demonstration

Watch it on YouTube:

<https://youtu.be/1hmy9TKS4oY>



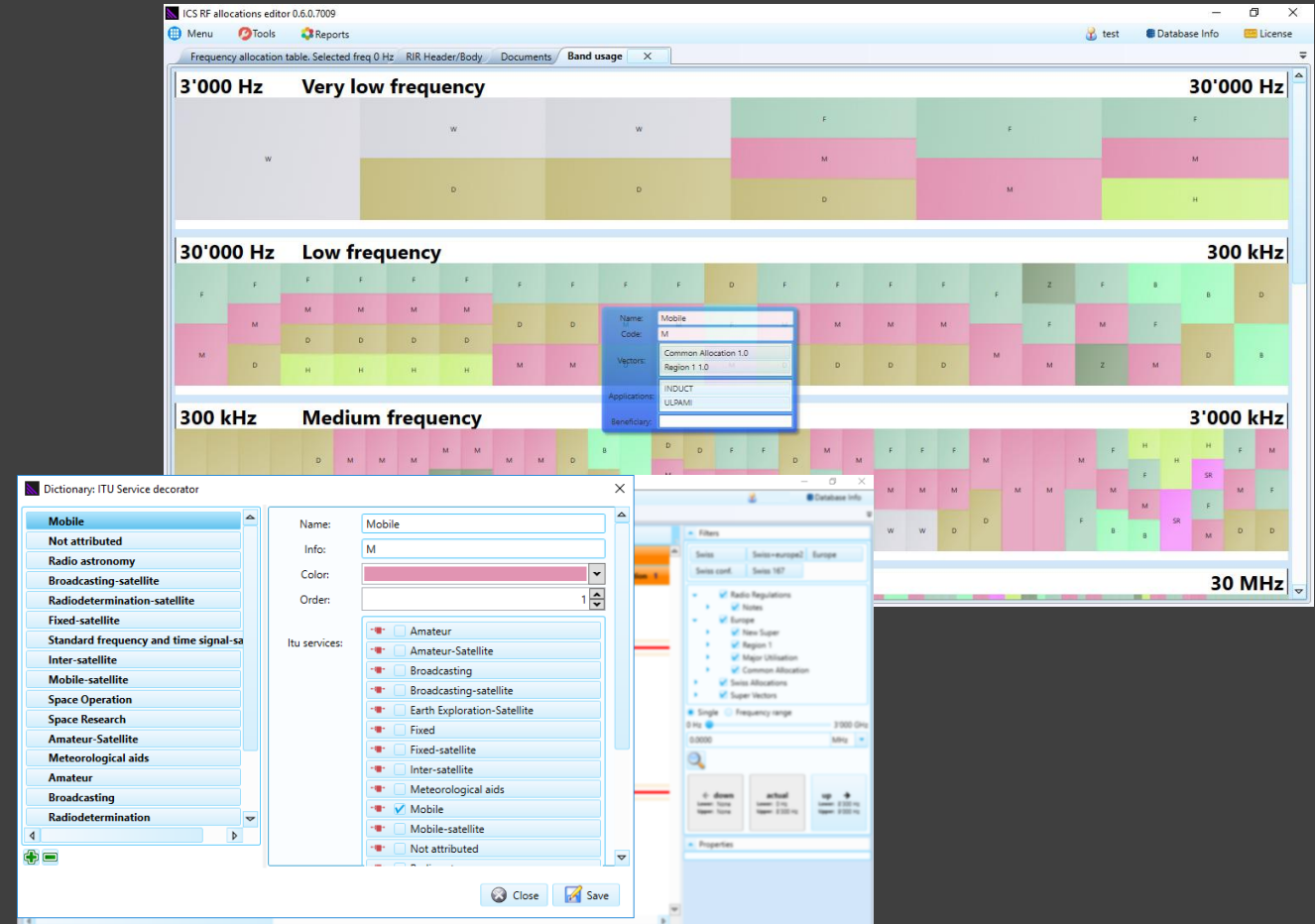
Complementary Solution 2

Spectrum Allocations Chart Editor

Reviewing ICS RF Allocations to build and publish detailed documentation about a country's FAT in an easy-to-use spectrum allocation chart management solution

ICS RF Allocations

- Frequency allocation table display in a customisable matrix containing radio regulations and national allocation tables for all countries
- Show and filter data for all countries
- Add new records per frequency band such as ITU service, footnotes, hyperlinks, text, documents, EFIS applications
- Assemble reports based on Frequency Allocation Table (FAT)
- Interface Regulations (RIR) and other documents
- Export allocations and applications (XML EFIS format)
- Display and edit the Radio Interface Regulations with customisable filters
- Edit Radio Interface Regulations (RIR) headers and body separately
- Review Radio Interface Regulations (RIR) history table
- Report Radio Interface Regulations (RIR) data as PDF, XLS or HTML
- Detect documents and RIR not referenced by any frequency band
- Identify errors in hyperlinks within a frequency band



ICS RF Allocations

- Edit services and footnotes
- Modify existing records and track changes through a life cycle
- Alters text styles according to record state
- Create reports with or without highlighted changes
- Create and publish clear representations of specific applications within the same frequency band using floating windows
- Display simultaneously several frequency bands
- Report in DOCX, XLS or HTML formats
- Create a library of documents such as annexes, appendices, RIR

Station Info

Name: SOLOTHURN SPITAL Alt: 0.0
 LAT: 47.1992 LON: 7.5401
 209.08 MHz

ICS FAT Editor Alpha 0.5.3.4814

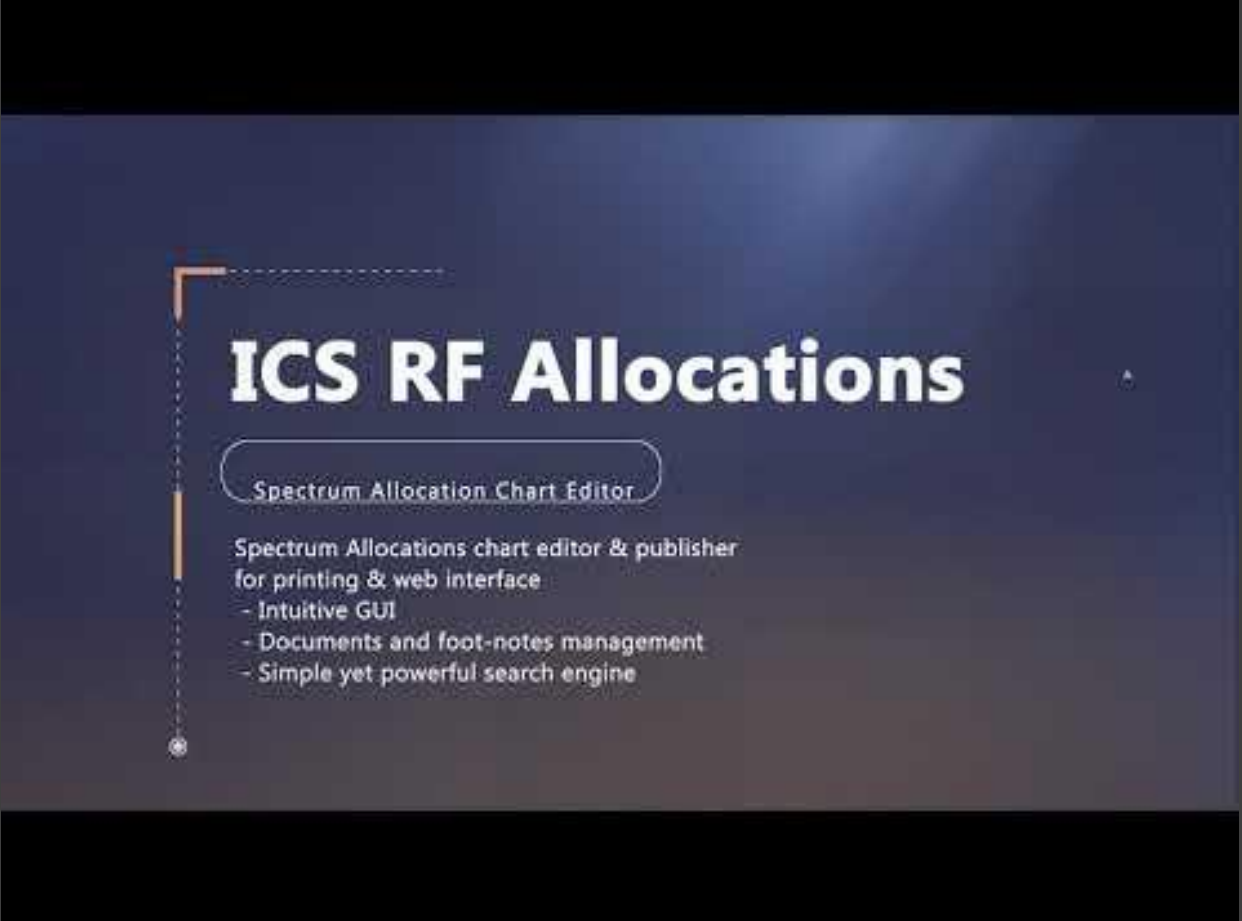
Frequency allocation table. Selected freq range from 694.00 MHz to 790.00 MHz. RIR Header/Body Documents

Actions	Name	Version
Active	Annex 1	250.24
Active	Annex 2	8.0.7
Active	Annex 4	9.0.8
Active	Appendix 1	14.0.13
Active	Appendix 2	5.0.4

Solution demonstration

Watch it on YouTube:

https://www.youtube.com/watch?v=Xa31W_CSXVc



The screenshot shows a software interface with a dark blue background. The main title is "ICS RF Allocations" in large white font. Below it, a rounded rectangle contains the text "Spectrum Allocation Chart Editor". Further down, there is a description: "Spectrum Allocations chart editor & publisher for printing & web interface". Below this description is a bulleted list of features:

- Intuitive GUI
- Documents and foot-notes management
- Simple yet powerful search engine

Annex

Use cases and references

References


Active customers in Civil Regulatory sector

Authority	Country	Spectrum Planning	Spectrum MGT
EUROPE			
OFCOM	United Kingdom	YES	YES
ANCOM	Romania	YES	YES
MITYC	Spain	YES	YES
Ministry of Transportation and Telecommunication	Greece	YES	YES
Ukrainian Radio Frequency Center	Ukraine	YES	YES
State Communications Inspection	Moldova	YES	YES
RATEL	Serbia	YES	YES
State Communications Inspection	Belarus	YES	YES
Ministry of Telecoms	Kazakhstan	YES	YES
RAK	Bosnia & Herzegovina	YES	YES
ANFR, National Frequencies Agency	France	YES	YES
CSA (Broadcast regulator of France)	France	YES	NO
ARCEP	France	YES	YES
Ministère intérieur	France	YES	YES
CNGF	France	YES	YES
BAKOM, Switzerland Spectrum Authority	Switzerland	YES	YES
Comreg	Ireland	YES	NO
Telecommunication Ministry	Cyprus	YES	NO
MCA, Regulator of Malta	Malta	YES	YES
CRC, Communication Regulation Commission	Bulgaria	YES	YES
PFS (Post and Telecoms Authority)	Iceland	YES	NO
Vinnustovnurin, Faroe Islands regulator	Faroe Islands	YES	NO
Servei de Telecomunicacions d'Andorra	Andorra	YES	YES
NKOM	Norway	YES	YES
Generalitat de Catalunya (STSI – Catalunya – Spain)	Spain	YES	NO
Secretaria de Estado de Telecomunicaciones (SETSI – Spain)	Spain	YES	NO
Agency for Telecommunications, Broadcasting and Post (ATRP)	Slovenia	YES	YES
RRT	Lithuania	YES	YES
Ministry of Telecoms/DRI	Azerbaijan	YES	YES
GNCC	Georgia	YES	NO
EKIP	Montenegro	YES	YES
ILR	Luxembourg	YES	YES
Gouvernement Princier	MONACO	YES	NO
UKE (Polish Authority of Communication)	Poland	YES	NO
ENKOM	Switzerland	YES	NO

Authority	Country	Spectrum Planning	Spectrum MGT
Americas			
MINTIC	Columbia	YES	YES
SMA	Jamaica	YES	NO
MOC, Ministry Of Communication	Caribbean	YES	NO
Industry Canada (Regulator)	Canada	YES	NO
Asia & Oceania			
OFCA	Hong Kong	YES	NO
CTT	Macau	YES	NO
AITI	Brunei Darussalam	YES	YES
SARFT, People's Republic of China	China	YES	NO
KCA, Korea Communications Agency	South Korea	YES	YES
ARFM	Vietnam	YES	NO
CRC	Mongolia	YES	NO
MPT	Laos	YES	YES
UNICON	Uzbekistan	YES	NO
NICTA	Papua New Guinea	YES	YES
MBIE	New Zealand	YES	NO
MCMC	Malaysia	YES	NO
OPT	New Caledonia	YES	NO
Africa			
NCC, Nigerian Communication Commission,	Nigeria	YES	NO
Botswana Telecommunications Authority –	Botswana	YES	NO
CA	Kenya	YES	YES
ARTP	Niger	YES	YES
POTRAZ	Zimbabwe	YES	YES
Regulator of Guinea Conakry	Guinea Conakry	YES	YES
ZICTA	Zambia	YES	NO
AIGF	Ivory Coast	YES	NO
Middle-East & North Africa			
ASBU, Arab States Broadcasting Union,	Tunisia	YES	NO
GCC Telecom Bureau - Gulf Cooperation Council Telecom Bureau	Gulf	YES	NO
ANBA, Algerian National Broadcast Authority, ASBU member	Algeria	YES	YES
TDA (Algeria Broadcast Authority)	Algeria	YES	YES
NTRA	Egypt	YES	NO
ARTP	Guinée	YES	YES


References

Use Cases 1

Customer	Description
 <p><u>L'Autorité</u> de régulation des électroniques et des Postes</p> <p>France</p> <p>Project: Automated Civil Spectrum Management System</p>	<p>Project overview:</p> <p>ARCEP is the French regulatory Authority responsible for issuing licenses, authorisations and managing interference and Quality of Service complaints for fixed, mobile and space services. In a recent audit, the ATDI solution was nominated the best ROI across the organisation.</p> <p>ATDI has worked in partnership with ARCEP for two decades to support their ongoing needs as a regulator, allowing them to optimise the solution to improve efficiency and effectiveness. ARCEP manage and maintain a database of transmitters and licenses and handle recurring administrative tasks such as the management and licensing of fixed and satellite services (VSAT), as well as PMR services in the 2.6 GHz band, billing and fee calculations. ANFR has two distinct licence applications; one for handling stations and the other for frequency assignments, coordination and notifications. The ATDI solution covers every aspect of their spectrum licensing management.</p> <p>The aim of the solution is to simplify ARCEP's processes through automated workflows which were customised to ARCEP's specific requirements. These workflows guide the user through the complete licensing process with ease. This simplified solution not only improved license application times but the overall efficiency of the organisation. HTZ communications (ATDI's radio planning and spectrum engineering tool) is used regularly by ARCEP's engineers to carry out various tasks like coexistence calculations between systems, automatic frequency assignment and interference analysis.</p> <p>The solution also includes an e-Licensing web portal for online applications, called ICS e-Manager. This facilitates online requests and manages licence applications (ADD/MOD/RENEW/SUPP) for fixed services (microwave links), PMR frequency allocations in 2.6 GHz TDD band and features an online fee calculator. The aim of this web portal is to dematerialise application requests for the creation, modification, deletion and renewal of frequencies. The overall impact of this software implementation was:</p> <ul style="list-style-type: none"> • Less paper • Reduction in errors as the operator checks the sites, equipment, and antennas before sending. <p>The project is covered by an ongoing maintenance contract and ATDI supplied extensive training courses for both the spectrum engineering and spectrum management functions.</p>


References

Use Cases 2

Customer	Description
 <p>Authority for Info-communications Technology Industry (AITI)</p> <p>Brunei Darussalam</p> <p>Project: Implementation of Backoffice system to improve efficiency & service delivery</p>	<p>Project Overview:</p> <p>The Brunei national regulator upgraded its back-office systems to improve efficiency and service delivery. AITI has implemented an e-Service solution to transform its paper-based processes into an electronic format. The web-based solution was developed by ATDI for internal/intranet business web portals to manage their regulatory business processes.</p> <p>This solution aimed to automate interfaces with external applications and improve overall effectiveness and efficiency in the internal licensing process for any services, frequency/spectrum, and type approval, import permit, amateur radio, numbering, and complaint management.</p> <p>Several external existing systems integrations were implemented:</p> <ul style="list-style-type: none"> • Spectrum regulation and resource management: ATDI's Automated Spectrum Management System featuring ICS manager + HTZ Communications. • Financial platform: MS Dynamics GP • Online payment integration with the local bank payment system using credit card and EFT options. • Bruneian customs office business web portal for seamless data exchange on Type Approval and Import Permit. <p>Following the initial deployment in 2017, further developments to the business workflows and policies have been implemented, including improvements to the user experience through technologies like QR code and digital signatures. Further changes include improvements to business processes following the new regulatory rules/policies and enhancing the UX/UI.</p> <p>The 2nd phase delivery was completed at the beginning of 2021 and AITI received both training and support for the new system.</p> <p>Supplied continuous training and system maintenance support to date.</p> <p>100% of the project was completed by ATDI</p>

References

Use Cases 3

Customer	Description
 <p data-bbox="988 815 1304 868">Ukraine State Centre of Radio Frequencies (UCRF)</p> <p data-bbox="988 921 1075 943">Ukraine</p> <p data-bbox="988 1001 1289 1092">Project: Automated Radio Frequency Management System</p>	<p data-bbox="1335 616 1536 639">Project Overview:</p> <p data-bbox="1335 656 2430 708">For the past decade UCRF, the national spectrum regulator for Ukraine, has worked in partnership with ATDI to define workflows to improve their license applications process.</p> <p data-bbox="1335 722 2430 802">The overall system supported functions to process applications including technical analysis, invoicing, fee calculations, license renewals, international coordination and ITU notifications. These were deployed via a standard workflow manager.</p> <p data-bbox="1335 816 2430 919">ATDI's solution is fully integrated with a public-facing portal that provides e-services for citizens of the country, network operators and government bodies. The integration process with the public portal is based on two application servers, one (ICS web query) working in the local area network of regulatory authority and providing a program firewall, which manages the data requests from the second (web portal).</p> <p data-bbox="1335 933 2430 985">The system interfaces with an external government service for user authentication, allowing access to profiles and the data related to companies, organisations and physical persons through secured channels.</p> <p data-bbox="1335 999 2430 1102">The supplied system covers every aspect of spectrum management, automates routine processes and interfaces with external governmental services such as the authentication service, registry of private persons and companies. The system also features customisable workflows, reports and integration with engineering modules for the technical assessment of applications.</p>

Thank you!



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