SPECTRUM

2023

News Magazine - Special Edition Broadcast

LS telcom
Smart Spectrum Solutions

Global Spectrum Experience

//Nationwide Network Rollout in Asia

Remarkable FM Project Successfully Executed by LS telcom

This project in Asia marked LS telcom's largest FM radio endeavor to date, showcasing their achievement in designing and integrating broadcast transmitters and associated equipment on a manufacturer agnostic basis. The successful execution of this ambitious project further solidifies LS telcom's position as a leader in the field.

LS telcom provided, installed and commissioned a large number of transmitter stations with transmitter equipment. Most of the transmitter stations had been also provided with new antenna systems. The transmitter configurations varied from N+1 to 1+1 to dual exciter configurations. Not only transmitter equipment was provided, but LS telcom also demonstrated its expertise in setting up a cutting-edge Network Operations Centre in the capital city. This center enabled seamless communication with transmitter stations across the country, offering real-time status updates for all transmitters. The project's complexity extended to various transmitter configurations, requiring precise switching mechanisms during specific fault conditions. LS telcom rose to the challenge by designing logic for these configuration switches and rigorously testing each setup.

Additionally, LS telcom skillfully tackled audio program feed arrangements, despite facing the lack of information on the formats and coding of the different audio streams.

With their comprehensive expertise, LS telcom is well-prepared to tackle the challenges of modern broadcasting, cementing its status as a leading player in the industry.

Expanding Horizons: CHIRplus_BC's Exciting Developments and Future Plans

In the evolving landscape of telecommunications, where innovation is the compass guiding the industry forward, LS telcom's CHIRplus_BC is an example of excellence. With an expanding customer base and an unwavering commitment to customer satisfaction, CHIRplus_BC has solidified its status as athe perfect solution for broadcast planning across the globe. With a thriving clientele boasting ongoing maintenance contracts, CHIRplus_BC's influence spans far and wide. The tool has already been embraced by more than 150 customers across over 70 countries, a testament to its adaptability and reliability in diverse environments. This widespread adoption underscores the significance of a solution that transcends borders.

In 2023, by placing customer feedback a-specific input at the forefront, CHIRplus_BC has sculpted an impressive array of improvements that align precisely with user needs. At the heart of this enhancement journey is a refined Graphical User Interface (GUI) that simplifies interactions and makes the tool even more intuitive and user-friendly. Furthermore, CHIRplus_BC has embraced the latest vector import and export formats, including the likes of ArcInfo shape, MapInfo mif/tab, and kml/kmz formats, made possible by harnessing the power of GDAL libraries. This strategic upgrade ensures seamless integration with modern data formats, positioning CHIRplus_BC as a cutting-edge solution.

CHIRplus_BC's dedication to progress is characterized epitomized by its commitment to staying updated with the latest trends and standards. This is evident through the incorporation of the latest revisions of propagation models for frequencies- Rec. ITU-R P. 1812, P.530, and P.452, guaranteeing that users have access to the most accurate data for their planning endeavors. Additionally, the integration of the most recent industry recommendations and planning guidelines on prominent technologies such as DAB+, DVB-T2, ATSC 3.0, and LTE-MBMS underscores CHIRplus_BC's mission to belong-standing position as an industry leader, equipping clients with the latest integral tools they need to navigate the future of broadcasting.

The broadcast planning landscape demands efficiency and precision. CHIRplus_BC has risen to the occasion by enhancing its macro language with an expanded set of commands. This supplement streamlines the automation of planning tasks, paving the way for enhanced accuracy and time savings.

A recent surge of interest in Digital Radio Mondiale (DRM) within HF shortwave broadcasting has triggered a flurry of related developments within CHIRplus_BC. Notable enhancements include an update to the latest revision of Rec. ITU-R P. 530, the introduction of a Delay Spread feature for both test points and area calculations, and support for specific HF antenna import formats such as VOACAP. These updates reaffirm CHIRplus_BC's dedication to staying ahead of the curve.
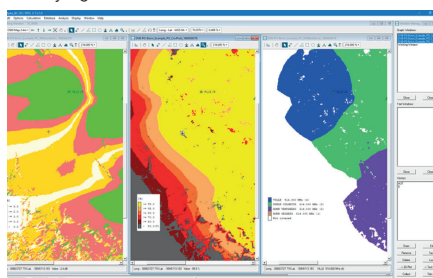
A Glimpse into the Future: Roadmap 2023/2024

As the industry continues to push boundaries, CHIRplus_BC remains at the forefront of innovation. The roadmap for the coming years includes the development of a true "5G Broadcast" mode, in line with the 3GPP 5G Release 17 introduced in 2022. This mode, labeled NR-MBS (New Radio Multicast Broadcast Single Frequency Network), reflects CHIRplus_BC's commitment to embracing novel technologies. In addition, the Intermodulation Calculation feature will receive a comprehensive update, accommodating extended maximum orders and a higher number of combined signals. This improvement is poised to yield better output, reporting and analysis, effectively addressing the complexity of intermodulation products. Furthermore, CHIRplus_BC's ATSC 3.0 calculation engine has been fortified with enhanced capacity, E-minimum field strength calculations, and more detailed protection ratios for ATSC3.0 versions versus ATS3.0 and ATSC1.0 . With these enhancements LS telcom aims to empower users with even greater accuracy and planning capabilities.

Client-Centric Innovation: Fueling success, CHIRplus_BC's trajectory is shaped by the voices of its users . By continuously considering customer wishes and suggestions, the tool has emerged as a true ally for broadcasters worldwide. The commitment of LS telcom to keeping industry recommendations and planning guidelines up to date ensures that CHIRplus_BC remains a cornerstone of efficient and effective broadcast planning.

Detailed information on the new features added to CHIRplus_BC can be found in our regular Update Notes. ∎

DVB-T2 SFN coverage optimization for ANTINA in Buenos Aires, Argentina

Broadcast technology is advancing, and with it, the importance of ensuring optimum coverage without interference. In the bustling cityscape of Buenos Aires, the need for uninterrupted, high-quality broadcast is undeniable.

LS telcom provided its client ANTINA, a prominent wireless cable operator in Buenos Aires, a simulation and evaluation of radio networks, based on specific input data and mathematical algorithms for the calculation of radio propagation, dependent on each frequency studied. ANTINA, who is currently offering terrestrial TV as a wireless cable operator in the Buenos Aires region, commissioned LS telcom a study to optimize its existing SFN (Single Frequency Network) DVB-T2 network in this specific region of the country. For those unfamiliar, an SFN is a broadcast network where several transmitters send the same signal simultaneously over the same frequency channel.

In Buenos Aires, ANTINA's current setup comprised 4 SFN transmitters one of which will be replaced, also adding coverage in a currently uncovered area in the southern expanse of the city. The objective of the study was to minimize possible co-channel interference to the ISDB-T networks in Uruguay (Rio de la Plata) and La Plata (located southwest of Buenos Aires), by analyzing different antenna patterns and coverage to meet the specific demand for ANTINA's needs. LS telcom, equipped with its expertise in radio network simulation and evaluation, helped to determine the perfect location for the new transmitter, ensuring maximum coverage and minimum interference.

After studying and analyzing different antenna patterns and their resultant coverage, LS telcom determined the best location out of the five proposed by ANTINA, and recommendations were provided to minimize interference in the crucial regions of Uruguay and La Plata.

As the broadcast landscape continues to evolve, partnerships like that between ANTINA and LS telcom underscore the significance of expertise, innovation, and meticulous planning in ensuring seamless and superior broadcasting experiences for viewers ∎

About Antina Televisión

Antina is an Argentine company of Telcom Ventures Group, that provides Paid TV through UHF spectrum, being the market share leader in several locations in the Buenos Aires metropolitan area. Telcom Ventures has well-known expertise in the wireless telecommunications industry in the United States and other countries.

Find out more: **www.antina.com.ar**

The Frankfurt Drive Test using LS OBSERVER

Broadcasting has witnessed tremendous growth and transformation over the years. A comprehensive drive test for multiple broadcast frequencies was conducted, revolving around the installation of a new transmitting antenna in Frankfurt. The goal was straightforward: ascertain if the new antenna provides equal or superior coverage compared to the old one.

To achieve utmost precision, a portable unit (PPU) of the LS OBSERVER radio monitoring system was integrated into a dedicated measurement vehicle. This ensured a rigorous data collection throughout the test. The vehicle was equipped with an omni antenna and a GPS antenna affixed to its roof for accurate tracking and signal detection during the entire process. The drive test spanned an impressive 9+ hours, covering the intricacies of the urban environment of Frankfurt am Main, Germany, and extending into its distant surroundings.

An important facet of this project was the LS OBSERVER system's capability to record everything consistently to its expansive local storage. The result was 60 GB of recorded data which covered the complete FM range. The extensive data garnered during the drive test was subjected to meticulous scrutiny using the Central Monitoring Software (CMS). This software not only visualized the field strength along the drive test route for both pre and post-antenna installation measurements but also allowed for a side-by-side comparison of the two. This comparative analysis was pivotal in evaluating the differences, highlighting areas of improvement, and ultimately determining the efficacy of the new antenna installation. Ensuring that the broadcasting spectrum provides optimal coverage is a challenge, especially in dynamic urban environments like Frankfurt. The recently conducted drive test provides invaluable insights into the broadcasting landscape. ∎
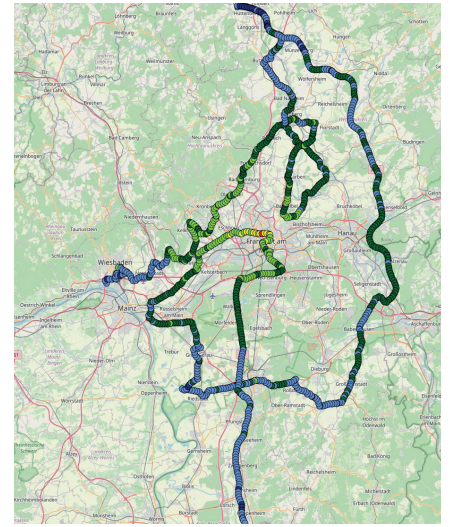
Example for Drive Test Result Mapping in LS OBSERVER

The importance of UAS Broadcast Measurement for ATSC 3.0 Networks

As the over the air broadcast television market in the United States moves forward after the recent repack, there is a growing momentum among broadcasters to transition the networks from the existing ATSC 1.0 standard to ATSC 3.0. With ATSC 3.0, broadcasters move to an all-IP infrastructure and with it the chance to expand their markets beyond standard content broadcast. A number of markets are emerging to leverage the available IP bandwidth available across the broad coverage area.

The transition to ATSC 3.0 is not without its challenges. The high tower, high power infrastructure of the ATSC 1.0 deployments in the United States does not fit the ideal architectural model for a high density Single-Frequency-Network (SFN). To maximize usage, multi-site deployments are required to maximize the available IP throughput capability of the ATSC 3.0 technology. This is driving a densification of ATSC 3.0 sites and in turn requiring more sophisticated testing methods to verify network performance. The tighter tolerances and interference mitigation in the ATSC 3.0 infrastructure make it imperative to have a complete understanding of the network performance from each site. With this information, networks can be tuned properly to deliver the maximum bandwidth across the coverage area.

Responding to this requirement, LS telcom has adapted the award winning UAS Broadcast Measurement service to include specific measurements and data collection related to ATSC 3.0 operation. While the traditional UAS Broadcast Measurement provides the pattern, power level, and down tilt verification, the newly added measurement procedures add in capabilities specific to the ATSC 3.0 operation. The specific payload provides collection of and demodulation of ATSC 3.0 signals allowing broadcasters to measure the signals at the antenna site as well as perform spot check measurements from ground level to hundreds of feet above the ground. The data allows broadcasters to measure the site performance as well as verify the balance of signals and timing at various points in the network. When combined with the CHIRplus_BC toolset, broadcasters can overlay the measured ASTC 3.0 performance of the network with the projected performance. By comparing the data sets, the network configuration and resulting IP throughput can be optimized thereby maximizing the value of the ATSC 3.0 operation. ∎

Drone-based broadcast measurements

ARCOM updates Population Maps for improved Broadcasting Coverage

As part of the additional services provided under the "OPF" platform maintenance contract, ARCOM, the Audiovisual and Digital Communication Regulatory Authority in France (formerly CSA), has commissioned LS telcom, as it does every year, to update the population maps based on the INSEE census for 2022. This update enables to calculate with the tools CHIRplus_BC software for FM, DAB+ and digital terrestrial television the ratio of the population covered by the services as closely as possible to demographic trends. ARCOM has also ordered this year a new set of maps with 5 m accuracy. This higher resolution will enable ARCOM to improve the accuracy of its coverage calculations, particularly for digital terrestrial television services. ◼

Height: 690 m
Land Use: Urban
Population: 21/100 m²
Conductivity: 6.0 mS/m
Rain Rate: 29.0 mm/h
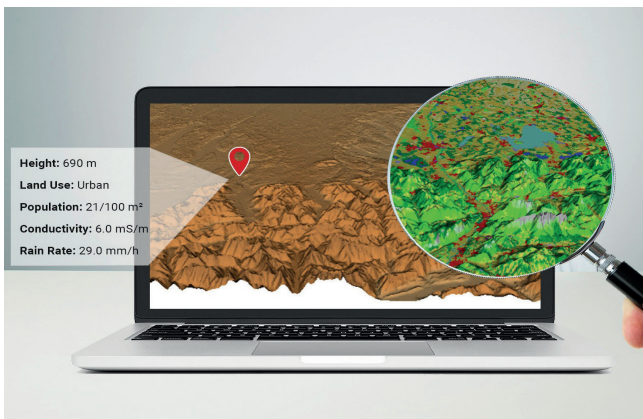
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Latest NEWS

ON AIR/Germany purchases CHIRplus_BC license

The company ON AIR support GmbH in Marxzell, Germany, purchased the broadcast planning tool, CHIRplus_BC. The comprehensive package acquired by ON AIR includes the T-DAB module, digital mapping data and training.

BitPath/US purchases CHIRplus_BC license

BitPath was established to monetize excess bandwidth in ATSC 3.0 networks. The company is providing a bandwidth exchange across the United States facilitating third party access to the forward IP capacity across the broadcast coverage area. Applications such as IoT device and digital signage updates as well as augmented GPS capabilities are just a few of the unique applications being implemented thus far.

The BitPath deal further expands the LS telcom footprint with large scale ATSC 3.0 operations in the United States.

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Download the Trainings Calendar on our website:
https://www.lstelcom.com/en/ls-training-academy

Upcoming Broadcast Training courses:

- ◼ Broadcast Planning Tool CHIRplus_BC – on request
- ◼ FM, DAB, TV and 5G Broadcast Antennas (13.11.2023)
- ◼ DVB-T2 – 2nd Generation Digital Video Broadcast (14. – 16.11.2023)
- ◼ DVB-T2 – Measurement Technology in Theory and Practice (16. – 17.11.2023)