

CHIRplus_BC: Empowering Broadcast Innovation

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// Drones Revolutionize Antenna Measurements

Smart Drone Solutions for Broadcast Antenna Measurements

With our 100 % subsidiary Colibrex, we propose reliable and economic antenna radiation measurement using drones.

The journey into broadcast antenna measurements began with the deployment of our RF measurement drone system, marking our first foray into this innovative application. Large antenna systems, especially those with multiple panels, varying power levels, and tilt angles, often exhibit radiation patterns that differ from theoretical or initial designs. These discrepancies can stem from a variety of factors, including installation issues (such as incorrect cable lengths or positioning), component aging, weather-related damage to elements like splitters, or simply because theoretical simulations cannot account for every real-world variable in a tower's immediate environment.

With over 1,000 antenna measurements conducted worldwide, we've also discovered that smaller antennas present unique challenges that make drone-based measurements invaluable, often being the only viable method. Considering that, on average, at least 20 % of current transmitting antennas do not radiate as intended, drone-based measurements have become essential for both operators and regulators! Additionally, in the context of broadcast, our drone system offers a significant advantage: the ability to analyze antenna performance following spectrum refarming due to the second digital dividend.

Our state-of-the-art drone-based measurement

system offers a comprehensive suite of capabilities designed to ensure precise and reliable broadcast antenna evaluations. We specialize in both horizontal and vertical radiation pattern measurements, providing key data on crucial parameters such as tilt, null fills, and Effective Radiated Power (ERP). Compared to conventional helicopter-based methods, our approach is not only cost-effective but also delivers exceptionally high accuracy. The precision of our flight positioning and orientation ensures extremely high reproducibility of measurements, allowing for consistent and reliable results.

One of the stand-out features of our service is the ability to export true antenna diagrams in electronic format, enabling seamless integration into existing systems. Additionally, we offer the possibility to perform new coverage simulations using our CHIRplus_BC software, ensuring that your network can be optimized based on

the most accurate and up-to-date data.

Our flexible deployment capabilities mean that we can measure high, medium, or low power transmission sites across a variety of environments. All measurements are conducted in full compliance with ITU guidelines, specifically following the recommendations of ITU Report ITU-R SM.2056.

With our advanced solutions, you can trust that your broadcast antennas are performing at their best, ensuring optimal coverage and efficiency. ■

Key Advantages of Smart Drone Solutions

Detect antenna installation errors

Determine radiation characteristics not visible by simulation (e.g. effect of mast)

Analyze potential performance changes following refarming

Verify the conformity to the granted license

CHIRplus_BC: Leading the Future of Broadcast Planning

At LS telcom, we take pride in our flagship product, CHIRplus_BC, which is trusted by over 150 customers in more than 70 countries. We're excited to introduce several new features and improvements that keep CHIRplus_BC at the cutting edge of broadcast planning technology.

Accelerating 5G and Enhancing LTE-MBMS

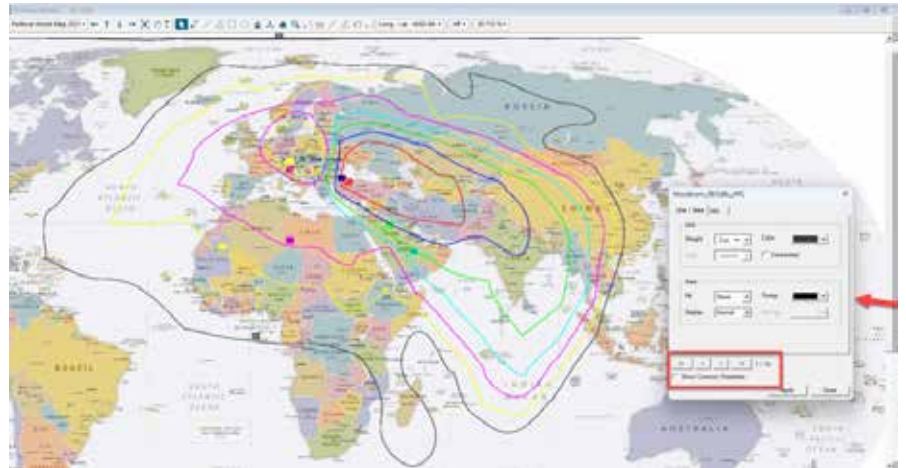
With the continued evolution towards 5G, CHIRplus_BC now offers user-modifiable protection ratios for 4G LTE-MBMS. This update allows for more precise interference management between LTE-MBMS and other broadcast systems, ensuring a smoother integration of new mobile technologies.

Advancing ATSC 3.0 Support

CHIRplus_BC's updated ATSC 3.0 calculation engine includes improved capacity and E-min calculations, as well as enhanced protection ratios for both ATSC 3.0 and ATSC 1.0. These updates enable more accurate network planning and interference mitigation for broadcasters adopting the latest TV standards.

HF DRM Innovations

In the realm of high-frequency Digital Radio Mondiale (HF DRM), we've introduced a new ground wave model for medium wave and updated our software to ITU-R Rec. P. 533-14, which includes a new graphical tool for delay spread analysis. Additionally, support for the VOACAP Type 13 HF antenna format has been added, expanding HF planning capabilities.



Enhanced GIS Capabilities

Speed Boost and Enhanced GIS Capabilities

One of the most significant enhancements in 2024 is a "power boost" for population analysis and masking operations, now over 20 times faster than before. In addition CHIRplus_BC now features significant updates to its GIS functions, including the adoption of the latest GDAL and PROJ versions. These enhancements improve raster and vector data import/export processes, ensuring that the graphical user interface is more intuitive and efficient.

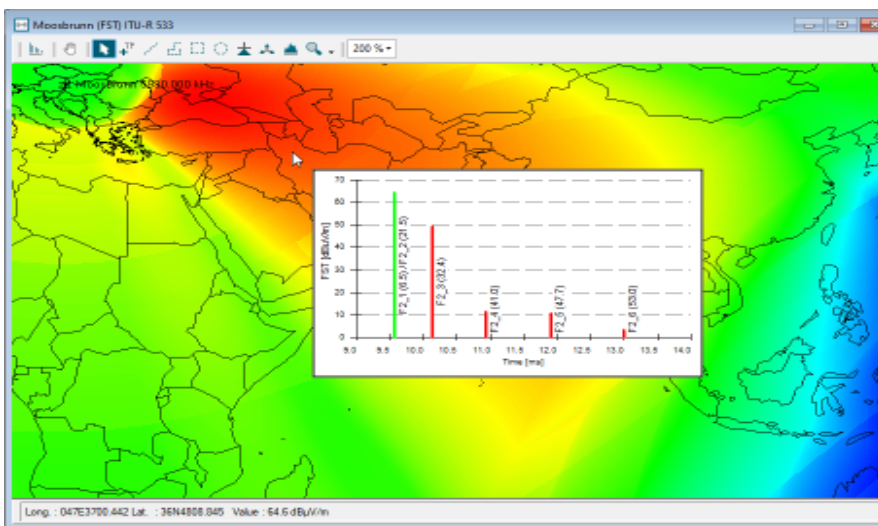
Advanced Intermodulation Calculator

We've also introduced a new intermodulation calculator that considers products up to the 9th order, with the ability to handle a greater number of combined signals. This improvement, along with the introduction of a more user-friendly interface and enhanced reporting features, makes it easier to analyze and mitigate potential interference issues.

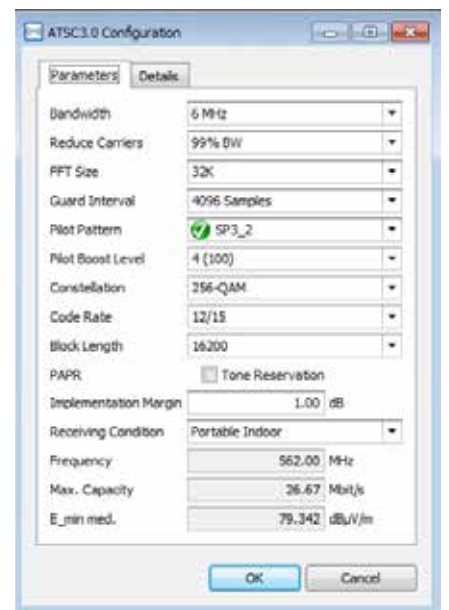
Expanded Support for Other Services and Macro Scripting

CHIRplus_BC now extends its capabilities to "Other Services" in and around broadcast frequency bands, supported by the latest ITU recommendations. Additionally, new macro commands have been added, enabling users to automate tasks in either a fully automatic or semi-automatic mode.

As we continue to innovate, our ongoing maintenance contracts ensure that our extensive customer base receives the best possible support and the latest updates. We're excited to see how these new features will empower broadcasters to achieve even greater success in the years ahead. ■



HF Field Strength Delay Spread



Advanced ATSC 3.0 Configurator

Radio Coverage Analysis for the Erection of a New Broadcasting Tower in Malta

The Broadcasting Authority of Malta, through its transmission site in Gharghur, is responsible for the provision of FM-based radio services. The existing tower also hosts mobile technologies, digital radio, and TV link communication in Malta.

LS telcom was awarded a contract by the Broadcasting Authority to conduct a radio coverage analysis, aimed at identifying the best potential locations for the erection of an alternative transmission tower in Malta. This alternative would substantially reduce the downtime during regular maintenance intervals, or critical failures, at the main transmission site in Gharghur. Key activities of the project included:

- Evaluation, comparison, and ranking of coverage for FM, DAB+, DVB-T, 2G, 3G, 4G, and 5G for both the main and potential transmission sites
- On-site surveys of selected locations to recommend the optimal alternative to the Gharghur tower
- Coordination analyses
- Meetings with other authorities and broadcast stakeholders in Malta.

The study and its recommendation is a key contribution document to proposals which the Broadcasting Authority will put forward to the Maltese Government regarding the planning of the possibility of locating a back up broadcast transmission tower in Malta. ■



FM Coverage Simulation

RADIOPLAY MEDIA AD Streamlines Operations with CHIRplus_BC

RADIOPLAY MEDIA AD, the largest radio group in Bulgaria, known for its portfolio of top radio brands, has recently enhanced its technical capabilities. The company has adopted CHIRplus_BC, our sophisticated network design, planning, and optimization software.

The LS telcom software dramatically improves efficiency by automating processes that previously took hours, now completing them in just seconds. With CHIRplus_BC, RADIOPLAY MEDIA is poised to further strengthen its operations and maintain its leading position in the Bulgarian radio industry. ■



Network Planning with CHIRplus_BC

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. ■



Broadcast Antenna

LS telcom Spectrum Summit 2024: Shaping the Future of Global Spectrum Management

In June, we hosted the 28th Spectrum Summit at our Lichtenau headquarters, successfully bringing together industry leaders and spectrum experts from 24 countries. Under the theme "Insights into the Future of Managing the Radio Spectrum," the event highlighted global collaboration in shaping spectrum management's future.

Alexander Kühn, from the Federal Network Agency Germany, opened the summit with a keynote on "WRC-23 and Beyond," setting the stage for engaging panel discussions on spectrum management's future. Sessions on AI-driven spectrum monitoring, private 5G solutions, and wireless network convergence emphasized innovation's crucial role.

The exhibition area showcased cutting-edge advancements, with live demonstrations of LS telcom's products and 5G private network solutions from SIEMENS, providing participants with hands-on experiences.

Roland Götz, COO of LS telcom, likened spectrum management to a symphony, where each success adds to the melody. The connections made at the summit have already sparked collaborations and innovations, highlighting the power of shared knowledge.

We thank all participants for their contributions and invite everyone to stay updated on our website for news on the upcoming Spectrum Summit 2025!



Highlights of the Spectrum Summit

// Level up your Skills!

LS telcom Training Academy

Visit our LS telcom Training Academy website! Whether it's on-line training, classroom sessions, e-learning modules, or free webinars, we have something for everyone! Even a "Customized Training" program tailored to your needs is no problem—just ask! The LS telcom Training Academy has expanded its offerings through a new partnership with Wray Castle, providing our customers with access to their industry-leading telecoms training. This collaboration allows us to offer even more specialized and advanced training solutions, ensuring that professionals stay at the forefront of industry developments.



Contact: IGaertner@LStelcom.com

Download the Training Calendar on our website:
<https://www.lstelcom.com/en/lst-training-academy>

Upcoming Broadcast Training courses:

- FM, DAB, TV and 5G Broadcast Antennas, 04.11.2024
- DVB-T2 – 2nd Generation Digital Video Broadcast, 05. - 07.11.2024
- DVB-T2 – Measurement Technology in Theory and Practice, 07. - 08.11.2024

LS telcom is a Member of...



For more information on products and solutions, please visit our website at www.LStelcom.com or contact us:

LS telcom AG
Im Gewerbegebiet 31-33
77839 Lichtenau
Germany

+49 7227 9535 600
+49 7227 9535 605
Info@LStelcom.com
www.LStelcom.com

Find us on



LS telcom
Smart Spectrum Solutions

Our worldwide subsidiaries:

Colibrex GmbH, Winnipeg Avenue B 112/A5, 77836 Rheinmünster, Germany | **LS telcom UK Limited**, Dowgate Hill House, 14-16 Dowgate Hill, London EC4R 2SU, UK | **LS telcom Australia Pty Ltd**, Suite 2A, 39 Brisbane Avenue, Barton ACT 2600, Australia | **LS of South Africa Radio Communications (Pty) Ltd.**, 131 Gelding Ave, Ruimsig, Roodepoort, 1724 Johannesburg, South Africa | **LS telcom SAS**, 47 boulevard de Sébastopol, 75001 Paris, France | **LS telcom Limited**, 1145 Hunt Club Road, Suite 100, Ottawa, ON K1V 0Y3, Canada | **RadioSoft Inc.**, 194 Professional Park Drive, Clarkesville, Georgia 30523, USA | **LST Middle East FZ-LLC**, Office 2118 (21st Floor), Dubai Media City, Dubai, United Arab Emirates | **Vision2Comm GmbH**, Im Gewerbegebiet 33, 77839 Lichtenau, Germany | **NG Networks Co., Ltd**, Room 1001, Building 3, No. 209, Zhuyuan Road, 215011 Suzhou, China | **LS telcom AG MKK**, Köztársaság út 11-13, 2600 Vác, Hungary | **LS Spectrum Solutions PVT Ltd.**, 515, Palm Spring Centre, Link Road, Malad (W), Mumbai- 400064, India | **Smart Spectrum Solutions Providers S.A.L.**, Office C83, Palm Plaza Center, Mtayleb – El-Maten, Lebanon