

HFIA HIGH FREQUENCY INDUSTRY ASSOCIATION

Wideband HF Channel Availability Working Group

**Marriott Courtyard Hotel
Brussels, Belgium
September 23, 2015**

THIS INFORMATION IS NOT EXPORT CONTROLLED

THIS INFORMATION IS APPROVED FOR RELEASE WITHOUT EXPORT RESTRICTIONS IN ACCORDANCE WITH A REVIEW OF THE INTERNATIONAL TRAFFIC IN ARMS REGULATIONS (ITAR), 22CFR 120-130, AND THE EXPORT ADMINISTRATION REGULATIONS (EAR) 15 CFR 730-774.

Goals

- Under the auspices of the HF Industry Association (HFIA), collaboratively field a substantial number of HF wideband channel availability measurement stations in diverse locations worldwide (as far as possible)
- Use common hardware, (SDR and antenna), collection software, and analysis software so that results can be easily and accurately compared between all sites
- Share the collected data and analysis results among all members of the HFIA

Agenda

- **Introductions / sign in**
- **Review of February 2015 meeting**
- **Current Software Distribution**
- **Break**
- **Presentations**
 - HF Spectrum Availability in Central and Western United States - Rockwell
 - Channel Availability results in western NY, Summer 2015 - Harris
 - HF Spectrum Availability in France – Rockwell
 - Noise Floor Variability: Analysis of long term spectrum records - Thales
 - A few words from our colleague, Harald Wickenhaeuser
- **Break**
- **General Discussion / Issues**
- **Plans moving forward**



WIFI Information

- WIFI

- courtyard_conference

- Connect to Internet – Voucher Option
 - Code: HFIA23SEP

Review of February 2015 Meeting

- Clifton Labs Active Antenna operational checkout – how to make sure the antenna is gathering viable measurements. OIP verification of the antenna to ensure measured noise floor isn't being inflated by excessive IMD.
- Clifton Labs Antenna deployment review – Mount 1-2m above ground level, proper grounding, RF choke mounted some distance away from the antenna and high pass filter.
- Collection frequency dwell time changes (1m per 1MHz increase from 1s, as discussed by Thales).
- Channel availability metric threshold selection and intended channel traffic profile as an input to this determination.
- Proposed noise floor determination technique(s) discussion.
- Consideration of known allocated bands in channel availability results.
- Consideration of strong signal FFT spreading.
- Antenna factor for derivation of a field strength measurement

Review of February 2015 Meeting

- Sharing and storage of collected results.
- Upcoming software release
- Impulsive noise (1ms to 100ms) can affect noise level estimation
- Review of collection and processing code graciously offered by Joe Lahart – Rockwell Collins.

Antenna Info

Antenna: http://www.cliftonlaboratories.com/z1501_active_antenna.htm

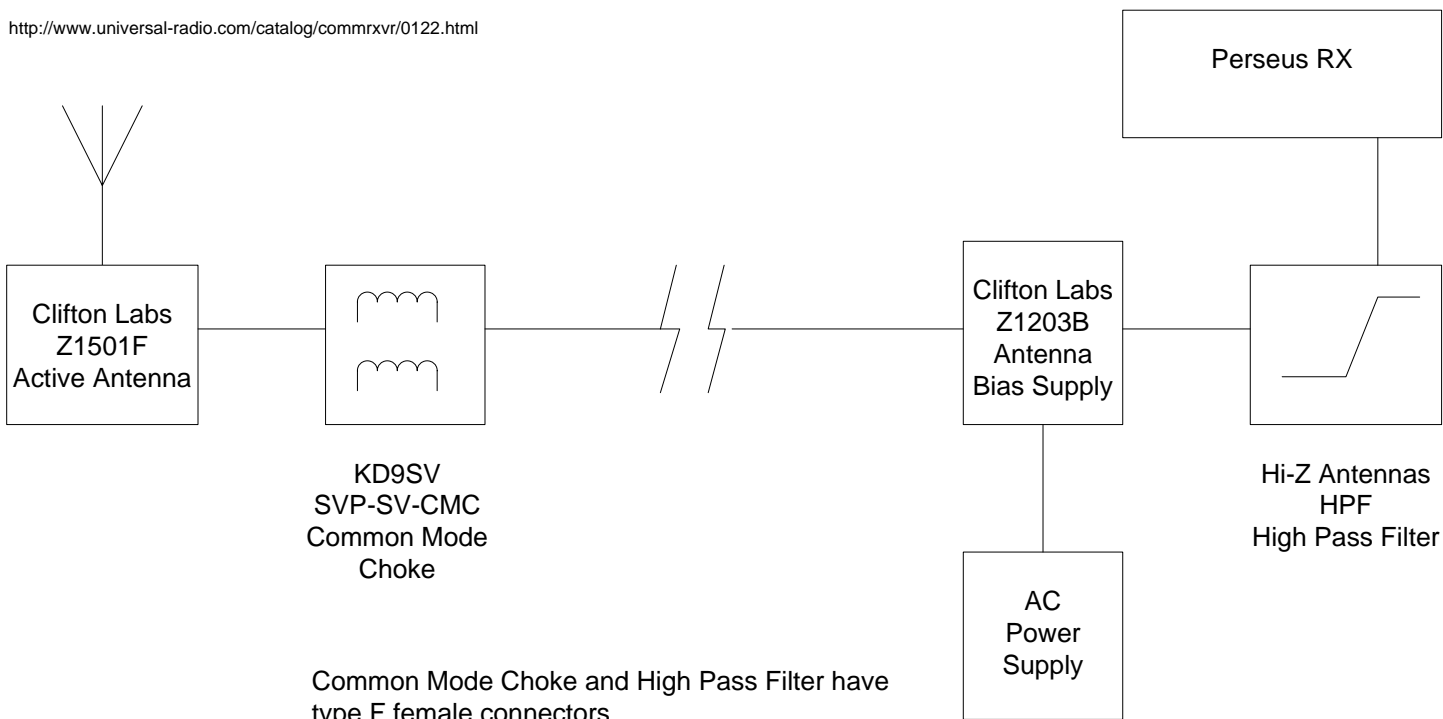
Choke: <http://www.dxengineering.com/search/product-line/kd9sv-products-sv-cmc-common-mode-choke?autoview=SKU&keyword=kd9sv&sortBy=Default&sortorder=Default>

Filter: <http://www.dxengineering.com/search/product-line/hi-z-antennas-high-pass-filters?autoview=SKU&keyword=hi-z%20hpf&sortBy=BestKeywordMatch&sortorder=Ascending>

Perseus receivers can be obtained from a number of vendors, such as:

<http://www.ssbusa.com/perseus.html>

<http://www.universal-radio.com/catalog/comrxvr/0122.html>



Common Mode Choke and High Pass Filter have type F female connectors.

Clifton Labs antenna can be ordered with BNC, N, or F connectors.

Perseus has BNC connector

Current Software Distribution Distribution06302015

- **Collection Software**
 - WBHF_Channel_Availability_Measurement_06302015.exe
 - WBHF_Channel_Availability_Measurement_06302015.c, FFT2.Cpp, FFT2.H

- **Channel Availability Processing**
 - Analysis/Availability/process06302015.c
 - Analysis/Availability/r06302015.bat
 - Analysis/Availability/run06302015.bat
 - Analysis/Availability/WBHFCHAV_Template_06302015.XLS
 - Analysis/Availability/WBHFCHAV_Template_06302015.XLSM

- **Python Utility to plot individual collection files**
 - Analysis/Python/HFSpectrum06302015.py

- **Matlab (and C) processing to create video**
 - Analysis/Matlab/convert06302015.c
 - Analysis/Matlab/video06302015.m

- **Contact Bill Furman for software distribution zip file wfurman@harris.com**

BREAK

Member Presentations

- HF Spectrum Availability Update - Rockwell
- Channel Availability results in western NY, Summer 2015 - Harris
- UK
- Canada
- A few words from our colleague, Harald Wickenhaeuser

BREAK

General Discussion / Issues

Plans Moving Forward

**Next meeting:
Will be announced via email
and HFIndustry.com
Very Likely – Feb 16th
San Diego, Ca**