HFIA HIGH FREQUENCY INDUSTRY ASSOCIATION

Summary
Wideband HF Channel Availability Working Group

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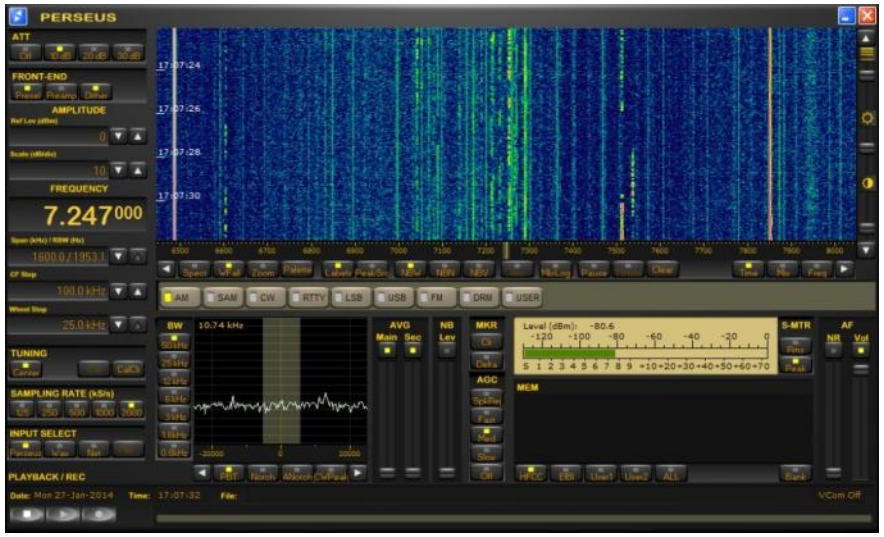
Goals

- 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

- Begin testing as soon as possible
- Present and compare results at next HFIA meeting

41 Participants !!!

Demonstration of the Perseus SDR and Clifton Labs Antenna



Discussion: Data Analysis Methodology

- CMA can be displayed as a 24 HR by 28 MHz Grid

	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
0	0.71	0.50	0.70	0.85	0.72	0.66	0.69	0.62	0.88	0.74	0.80	0.76	0.76	0.76	0.91	0.85	0.93	0.98	0.98	0.96	0.98	0.98	0.99	0.99	0.94	0.90	0.99	0.99
1	0.71	0.55	0.63	0.78	0.64	0.58	0.72	0.60	0.83	0.67	0.78	0.84	0.76	0.78	0.91	0.83	0.93	0.98	0.99	0.97	0.98	0.99	0.99	0.99	0.94	0.84	0.99	0.98
2	0.78	0.56	0.62	0.77	0.63	0.59	0.73	0.58	0.84	0.67	0.74	0.83	0.76	0.83	0.91	0.84	0.93	0.98	0.98	0.99	0.99	0.98	0.99	0.99	0.97	0.90	0.99	0.99
3	0.81	0.61	0.65	0.77	0.64	0.62	0.73	0.64	0.87	0.69	0.73	0.79	0.77	0.80	0.93	0.85	0.95	0.98	0.99	0.99	0.99	0.99	1.00	1.00	1.00	0.96	0.99	1.00
4	0.75	0.62	0.63	0.76	0.65	0.67	0.71	0.68	0.87	0.67	0.74	0.79	0.77	0.74	0.93	0.85	0.96	0.99	0.99	0.99	1.00	0.99	1.00	1.00	1.00	0.96	0.97	0.99
5	0.75	0.63	0.66	0.79	0.69	0.75	0.72	0.75	0.89	0.69	0.76	0.76	0.76	0.72	0.94	0.87	0.95	0.99	0.99	0.99	1.00	0.98	0.99	1.00	0.99	0.97	0.99	0.98
6	0.75	0.63	0.68	0.81	0.73	0.78	0.74	0.80	0.90	0.70	0.78	0.75	0.80	0.74	0.95	0.89	0.98	0.99	0.99	1.00	1.00	0.97	1.00	1.00	0.99	0.97	0.99	0.98
7	0.68	0.59	0.65	0.82	0.76	0.87	0.74	0.85	0.92	0.76	0.81	0.80	0.88	0.81	0.96	0.89	0.99	1.00	1.00	1.00	1.00	0.99	0.99	1.00	1.00	0.99	0.99	0.99
8	0.67	0.61	0.65	0.81	0.80	0.89	0.77	0.86	0.95	0.85	0.87	0.84	0.95	0.91	0.97	0.93	0.98	0.99	1.00	1.00	1.00	0.98	0.99	1.00	0.99	0.97	0.97	0.98
9	0.65	0.61	0.65	0.84	0.78	0.90	0.80	0.85	0.95	0.87	0.90	0.89	0.96	0.91	0.98	0.95	0.99	0.99	1.00	1.00	1.00	0.99	1.00	1.00	0.99	0.97	0.99	0.98
10	0.55	0.53	0.66	0.84	0.79	0.88	0.79	0.78	0.95	0.79	0.89	0.86	0.97	0.88	0.96	0.92	0.99	1.00	0.99	1.00	1.00	0.99	0.99	1.00	0.99	0.98	0.99	0.98
11	0.56	0.50	0.68	0.87	0.85	0.84	0.79	0.74	0.96	0.72	0.84	0.81	0.95	0.76	0.96	0.83	0.98	1.00	1.00	0.99	1.00	0.99	1.00	1.00	1.00	0.98	0.99	0.99
12	0.60	0.47	0.72	0.91	0.89	0.81	0.85	0.79	0.95	0.73	0.88	0.82	0.92	0.74	0.94	0.77	0.97	0.99	1.00	0.97	1.00	0.99	1.00	1.00	0.99	0.98	0.99	1.00
13	0.60	0.44	0.74	0.96	0.92	0.81	0.82	0.85	0.94	0.79	0.88	0.83	0.88	0.68	0.95	0.77	0.96	0.99	0.99	0.95	0.99	0.99	1.00	1.00	0.99	0.97	0.99	1.00
14	0.64	0.44	0.73	0.98	0.92	0.85	0.81	0.88	0.96	0.83	0.88	0.84	0.87	0.66	0.94	0.77	0.96	0.99	0.99	0.95	0.99	0.99	1.00	1.00	0.99	0.95	0.98	0.99
15	0.65	0.46	0.73	0.98	0.92	0.92	0.84	0.90	0.97	0.86	0.88	0.85	0.86	0.70	0.95	0.81	0.96	0.99	1.00	0.95	0.99	0.99	1.00	1.00	0.99	0.94	0.99	0.99
16	0.70	0.45	0.72	0.97	0.92	0.95	0.84	0.91	0.96	0.90	0.89	0.83	0.88	0.68	0.94	0.87	0.95	0.98	0.99	0.95	0.98	0.97	1.00	0.99	0.99	0.93	0.97	0.98
17	0.70	0.45	0.74	0.98	0.93	0.95	0.82	0.92	0.97	0.89	0.90	0.82	0.90	0.65	0.94	0.81	0.95	0.99	0.98	0.93	0.98	0.99	0.99	1.00	0.98	0.92	0.98	0.98
18	0.70	0.45	0.73	0.97	0.92	0.95	0.82	0.90	0.97	0.89	0.88	0.80	0.92	0.69	0.95	0.83	0.95	0.99	1.00	0.95	1.00	0.98	0.98	1.00	0.98	0.93	0.99	0.98
19	0.70	0.49	0.73	0.97	0.93	0.95	0.81	0.90	0.97	0.85	0.84	0.84	0.90	0.74	0.95	0.86	0.96	0.98	0.99	0.95	0.99	0.98	0.98	0.99	0.95	0.90	0.99	0.98
20	0.72	0.51	0.75	0.96	0.92	0.92	0.81	0.86	0.98	0.77	0.81	0.85	0.87	0.75	0.96	0.85	0.95	0.99	0.98	0.97	0.99	0.97	0.98	0.99	0.97	0.93	0.99	0.98
21	0.73	0.53	0.76	0.97	0.91	0.89	0.80	0.80	0.97	0.76	0.78	0.85	0.86	0.80	0.94	0.86	0.94	0.98	0.98	0.97	0.99	0.98	0.98	0.99	0.94	0.91	0.98	0.98
22	0.70	0.54	0.77	0.97	0.88	0.81	0.76	0.73	0.94	0.77	0.79	0.83	0.83	0.83	0.93	0.85	0.93	0.99	0.98	0.95	0.97	0.97	0.98	0.98	0.94	0.91	0.97	0.98
23	0.72	0.56	0.74	0.93	0.82	0.74	0.71	0.64	0.92	0.78	0.82	0.79	0.78	0.79	0.92	0.87	0.93	0.99	0.99	0.96	0.98	0.97	0.99	0.98	0.95	0.91	0.98	0.99

Discussion Highlights:

- Better characterization of antenna(s) used
- Agreement in antennas used necessary
- Polarization of antenna used (H) (V)?
- Position in sunspot cycle
- Definition and method of establishing noise-floor
- Consideration of threshold level, perhaps relative to Gaussian noise, Impulsive noise?
- Location, presel state in data file
- CMA availability metric for durations other than 2min
- Consideration of absolute dBm to id strong wideband usage

Discussion Highlights:

- Data collection extent
- Coordination of measurements
- Key Analysis parameters
  - Determination of noise floor (average 10 lowest bins in 1 MHz)
  - Determination of threshold (10dB)
  - Sampling duration and revisit (1 second, 1 minute)
  - Duration of availability to be considered (2 minutes)

Presentation Highlights:

- Suggestions and considerations (Thales)
- Process and licensing considerations (R&S)
- Participation plans (FFI)
- Measurements summary (Fra MOD)

Way Forward:

- Group will communicate via email
- Presentations will be on HFIA website
- Harris will provide data collection executable on request
- Harris will provide current analysis SW (C) on request
- Participants will begin preliminary experiments and measurements