

**Statement of Jeff Littlejohn  
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Clear Channel Communications  
Regarding AM IBOC Field observations**

Presented to the National Radio Systems Committee  
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**Introduction to Clear Channel Communications**

Clear Channel owns and/or operates 388 commercial AM radio stations in the United States. This represents 8.2% of all AM broadcast stations in the U.S.. Of these 388 stations, 73 are Class C (formerly Class IV) local stations, 18 are Class A clear channel stations. This ownership in Class A stations represents 25% of all U.S. clear channel stations. The balance of Clear Channel's 388 are Regional Class B & D stations.

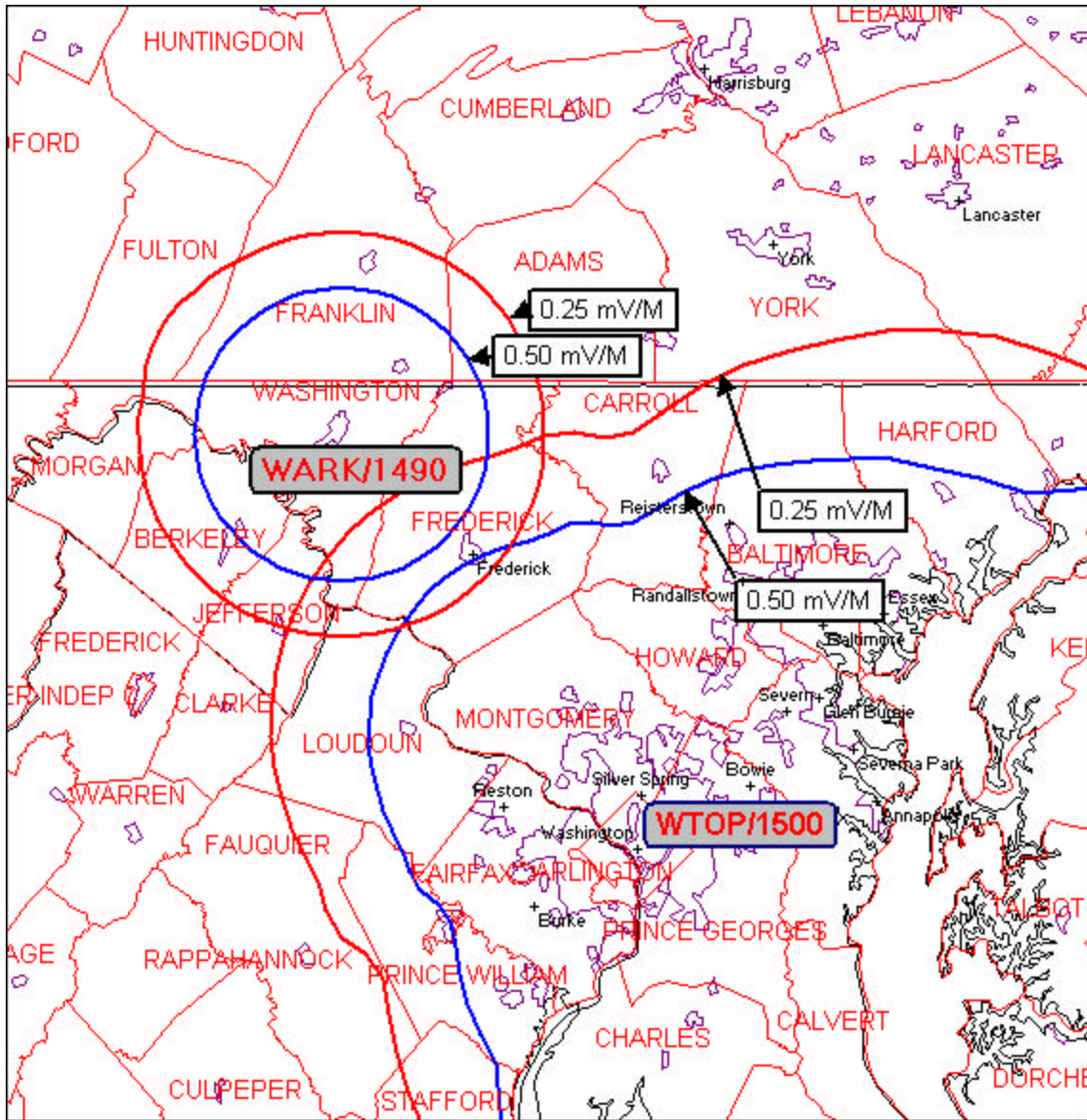
It should also be known that Clear Channel is an investor in Ibiquity Digital representing the combined initial investment of Clear Channel Communications, Jacor Broadcasting and Chancellor Media. Al Kenyon, Senior Vice President of Technology for Clear Channel, holds one of the nine seats on the Ibiquity Board of Directors.

Due to our heavy investment in AM radio stations and our investment in Ibiquity Digital, Clear Channel feels that it is uniquely qualified to offer comments on the impact of introducing a IBOC carrier to the existing AM band.

**Field Observations**

After reviewing the Ibiquity provided test results (Third Report to the NRSC, dated January 4<sup>th</sup>, 2002) Clear Channel became concerned that the impact to adjacent channel stations had not been adequately studied. I arranged with Glynn Walden and Rick Martinson, both of Ibiquity Digital, to observe the effects of adding IBOC carriers to WTOP-AM (1500 KHz – Washington, DC). Specifically, we wanted to understand the effects that adding these carriers would have on WARK-AM (1490 KHz – Hagerstown, MD).

On February 20<sup>th</sup>, 2002, I traveled to Frederick, MD along with the CEO of our Radio division, Randy Michaels. Frederick was chosen because it appeared to have overlap between the two first adjacent stations. See figure 1.



**Figure 1**

Ibiquity arranged to have Pat Malley, Ibiquity Technician, at the WTOP transmitter site. Pat would be able to turn on and off the Ibiquity carriers at our request. Rick Martinson and Glynn Walden drove one of the Ibiquity test vans to meet us at the Frederick Airport.

Starting at about 10:30 AM and continuing to about 2:00 PM we traveled to 8 different test sites. At each location we measured field strength using a Potomac AM field strength meter, then listened to WARK-AM, while Pat Malley switched the IBOC carriers on and off at WTOP-AM. The results of those tests are included in Figure 2.

Location #	Desired WARK - 1490	Undesired WTOP - 1500	D/U Ratio	Results
1	0.20 mV/M	0.80 mV/M	1 : 4	WARK was very listenable prior to adding IBOC on WTOP. With IBOC added to WTOP, WARK was completely hidden by "white noise" on all radios.
2	0.28 mV/M	0.50 mV/M	1 : 1.8	WARK was very listenable prior to adding IBOC on WTOP. With IBOC added to WTOP, WARK was hidden by "white noise" on the Sangean personal radio. All other radios had significant "white noise" added to the normal audio.
3	0.50 mV/M	0.17 mV/M	3 : 1	WARK was very listenable prior to adding IBOC on WTOP. With IBOC added to WTOP, WARK was listenable, but with a <u>significant</u> amount of white noise added into the normal audio.
4	0.26 mV/M	0.23 mV/M	1.1 : 1	WARK was very listenable prior to adding IBOC on WTOP. With IBOC added to WTOP, WARK was listenable, but with a <u>significant</u> amount of white noise added into the normal audio.
5	0.40 mV/M	0.70 mV/M	1 : 1.75	WARK was very listenable prior to adding IBOC on WTOP. With IBOC added to WTOP, WARK was listenable, but with a <u>significant</u> amount of white noise added into the normal audio.
6	0.75 mV/M	0.25 mV/M	3 : 1	WARK was very listenable prior to adding IBOC on WTOP. With IBOC added to WTOP, WARK was listenable, but with a <u>noticeable</u> addition of "white noise" added to the normal audio.
7	1.20 mV/M	0.10 mV/M	12 : 1	WARK was very listenable prior to adding IBOC on WTOP. With IBOC added to WTOP, WARK was not noticeably changed
8	0.43 mV/M	0.43 mV/M	1 : 1	WARK was very listenable prior to adding IBOC on WTOP. With IBOC added to WTOP, WARK was listenable, but with a <u>significant</u> amount of white noise added into the normal audio.

Figure 2

## **General Observations**

A variety of radios were used in this testing, including a Sangean CC Radio, a Sangean personal radio, a GE Super Radio, a Potomac FIM-41, a Sony ICF-SW07 with synchronous detection and a stock GM car stereo installed in the Ibiqity van. With the exception of the Sangean personal radio, all performed in a similar manner.

Most of our measurements were conducted outside of the protected contour of WARK, however, in every case an average listener would have found the WARK signal was very listenable on a standard car radio in the absence of the IBOC carriers on WTOP. Once IBOC was added to WTOP, an average listener would have noticed an objectionable difference at all test locations except location #7.

## **Concerns**

The current AM allocation rules require Co-Channel stations to provide 20:1 protections to each other and first adjacent channel stations to provide 2:1 protection to each other. While this works fine in an all-analog environment, it does not seem to be sufficient in the presence of IBOC. The energy above 10 KHz from the proposed Hybrid IBOC signal significantly exceeds the energy present in the current analog AM signal. For this reason, the amount of energy provided to a first adjacent station is significantly more detrimental than our current allocation rules allow for.

Class A stations currently receive nighttime protection to the 0.5 mV/M 50% sky wave signal. However, if the results found in our abbreviated field test are representative, we feel the impact of adding IBOC to existing AM band will have a profoundly deleterious effect and will effectively end sky wave listening. On the particular evening that we visited Washington, WLW (700) was broadcasting the Xavier Musketeers and WSM (650) was broadcasting the Vanderbilt game. Both stations had a very strong sky wave and the signal was very clear, however if WOR (710) or WFAN (660) were broadcasting Hybrid IBOC, neither game would have been listenable on the first adjacent channel.

## **Conclusions**

Based on our test results, we do not believe that section J of the Ibiqity report (Non-Host Compatibility) adequately depicts the deleterious impact of adding Hybrid AM IBOC to the existing AM band. While the report does reflect that first adjacent signals were impacted at a 10 dB D/U ratio, it does not point out the fact that our current allocations rules are based around 6 dB D/U protections for first adjacent stations and that in many cases, stations have grand-fathered interference that is 0 dB for first adjacent. Furthermore, the studies included in the test report do not contemplate the existence of

listening beyond the protected contour, however, as is illustrated in Figure 2, listening is quite acceptable on an average car radio well beyond the 0.5 mV contour.

Clear Channel is not proposing that its eight test locations should represent the full testing of IBOC impact on adjacent channel stations, rather, it should serve to illustrate that additional testing needs to be performed by the NRSC prior to issuing an opinion. This testing should include a real world study of how AM sky wave listening will be impacted by the addition of Hybrid AM IBOC. Toward that end, Clear Channel is working with Iiquity to install IBOC on WLW in Cincinnati. WLW produces a 50% sky wave that covers most of the Eastern United States and as a result the station should be illustrative of the impact that this additional energy will have on the existing service.

Adequate testing has not been done in order to judge the impact of adding IBOC to the AM band. However, if the results found in our abbreviated field test can be extrapolated to all situations, we feel the impact of adding IBOC to existing AM band will be profoundly deleterious.

The AM band is already suffering from the effects of urbanization and terrestrial noise along with the results of poor allocations policies in the past. The addition of Hybrid IBOC or any other similar scheme must be completely studied by the National Radio Systems Committee and the negative impact on the existing band must be completely understood before recommending a standard.