

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of:)
)
Digital Audio Broadcasting Systems) MM Docket No. 99-325
And Their Impact on the Terrestrial)
Radio Broadcast Service)
)
)
_____)

Further REPLY Comments of Timothy C. Cutforth

The following further reply comments are filed on behalf of Timothy C. Cutforth, P.E. (“T. Cutforth”) in response to the Commission’s Further Notice of Proposed Rulemaking and Notice of Inquiry in the above captioned matter.

THE LIMITED TRADEOFF IS A STAITJACKET

The NAB and many others state that they are willing to accept “the limited tradeoff” of additional first and second adjacent interference on the FM band and additional first and second adjacent interference (and perhaps beyond) both daytime and nighttime on the AM band as the necessary price of implementing the HD radio system. And both the commenters and the FCC have given us the impression that HD Radio as presently embodied is *the only possible way that digital broadcasting can be implemented in the USA.*

But don’t sell America short by limiting us to yesterday’s technology. One of the great things about American engineers is that they really get excited when they are told something cannot be done and get busy inventing a way to do it anyway. The Ibiqity system is a technological dinosaur that only packs a very small amount of data per kilocycle of bandwidth used and the long development lead time has already obsoleted the basic methodology. Wireless ISP’s are

providing greater service areas (and amazing data rates) with part 15 equipment than will be achieved by full power broadcasters on some AM channels. A noisy channel that can serve a few miles with 36k data rates taking up 30+ kHz is nothing to brag about.

THE PUBLIC HAS NOT YET SEEN THE REAL PRICE OF DIGITAL

Many of the comments have said in effect that since we are not sure what the real interference will be we will take digital at whatever price it costs us. We don't even *need to know* how much interference or coverage loss will result because digital is so wonderful it won't matter who has to pay the price. But not all broadcasters or listeners are willing to pay the price of digital if that price is to trash the present AM analog service with its hundreds of millions of in place receivers.

Many comment filed in this inquiry including those of Ibiqity and NAB confirm that the proposed IBIQUNITY HD RADIO system can and will cause interference to first and second adjacent facilities both daytime and nighttime where such interference does not now exist. However NO studies have been made to determine the effect on listeners to existing analog broadcasts either by station or in aggregate. Although the comments allude to the "fact" that "it will only interfere with listeners outside of the core listening areas" no uniform definition of listening outside of core listening areas has been tendered and no specific studies of the degradation to analog listening by operation of adjacent channel digital stations has been attempted except for percent availability for skywave secondary service. Are all CLASS A stations and all listeners equally willing to throw away that service for this perceived "advantage"? I think the record shows otherwise.

A SUBJECTIVE INTERFERENCE STANDARD IS REALLY NO STANDARD

Evidence has been provided based on physics calculations, on air testing, and simple observation of tests and on air HD station operations, all with the same results, interference will

be greater than exists under existing analog broadcasting. KPOF Radio suggests that protection of the 5 mV/m contour nighttime would seem adequate to them but note that they are NOW protected to their 2.5 mV/m 50%RSS Night Limit contour. Why would they want to throw away their interference rights? Allowing increases in interference levels without reference to analog allocations will destroy the allocations foundation that has served the US so well for over 50 years. I remind you that the US broadcasting system is based on NUMERICAL standards for allocations and without numerical standards we would not have been as successful in serving the public. I agree with D. Everist and WGN that HD RADIO operation at night as proposed will cause great damage to the AM Broadcast service presently provided to the public by analog AM broadcast services. Even a short time of operating without a solid standard for interference will cause serious damage to the public confidence that cannot be easily reversed even if the FCC does determine just how much new interference is acceptable.

I reiterate that an across the board authorization of night IBOC operation without full compliance with the FCC analog allocations rules is an abrogation of the duties of the FCC to control interference as required in the communications act.

PROOF OF EXCESSIVE FM BANDWIDTH & UNNECESSARY INTERFERENCE

The overwhelming call by public radio supporters for splitting the FM IBOC 96k data stream to provide a stereo 64k base channel and a 32k second audio channel is further proof that the HD Radio system need not use adjacent channels to provide enough digital data for stereo main channel operation. The NRSC study showing that there is no significant degradation if the main channel is reduced to 64k data rate confirms that the FM HD Radio IBOC implementation need not place data beyond the 100 kHz channel bandwidth to achieve digital stereo programming. Reducing the data rate by 33% will allow an FM IBOC embodiment to fit within

its own allocated channel and would eliminate unnecessary interference to adjacent channel stations. Additional interference and a reduction in the number of services available to the public is not a good trade for either AM or FM digital radio especially when the stated goal is to provide a digital service "as good as good analog FM stereo".

As a minimum I must demand that the FCC maintain interference levels no higher than authorized by the present AM and FM allocation standards both daytime and nighttime as measured by tests with actual listeners who hold no stock in Ibiquity and who are not employees of Ibiquity investors. It is irresponsible for the FCC or anyone else to propose to authorize operation of Ibiquity IBOC systems in either the FM band or the AM band until appropriate numerical allocations standards based on the actual signal characteristics of the system proposed are put in place to prevent and control new interferences.

Respectfully,

Timothy C. Cutforth P.E.

2 August, 2004

A handwritten signature in black ink that reads "Timothy C. Cutforth". The signature is written in a cursive style and is positioned to the right of the typed name. A vertical line is drawn to the right of the signature, extending from the top of the signature down to the bottom of the signature.