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

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

REPLY STATEMENT

As an experienced broadcast radio enthusiast, I, Kevin M. Tekel, hereby submit my support for Mr. John Pavlica, Jr.'s *Motion to Dismiss* the Commission's *Report and Order*, as adopted October 10, 2002, which currently allows the preliminary use of In-Band, On-Channel (IBOC) digital audio broadcasting (also known by the marketing name "HD Radio") on the AM and FM radio bands.

For over a decade, various attempts have been made at designing and implementing an IBOC system for the U.S. radio airwaves, but these attempts have been unsuccessful due to numerous flaws, and iBiquity's current IBOC system is no different. As currently designed and authorized, IBOC is an **inherently flawed** system that has the potential to cause great harm to the viability, effectiveness, and long-term success of existing analog AM and FM radio broadcasting services.

IBOC is a proprietary system

Currently, there is only **one** proponent of an IBOC system whose design has been submitted, studied, and approved -- that of iBiquity Digital Corporation (iBiquity). This is an unprecedented case of the use of a **proprietary** broadcasting system. Virtually all other enhancements to broadcasting services that have been introduced over the years have been borne out of competition between the designs of various proponents: AM Stereo, FM Stereo, color

television, multi-channel television sound, and most recently, High Definition television (HDTV).

Since the merger of USA Digital Radio, Inc. and Lucent Digital Radio, Inc. created iBiquity Digital Corporation in August 2000, iBiquity has been the sole proponent of an IBOC system, and furthermore, most of the research and documentation to support use of IBOC has come from iBiquity itself, with no objective third-party verification, and no competition to help foster the creation of a superior and more fully developed system.

The planned full-scale use of IBOC, leading to a "sunset" of analog AM and FM radio broadcasting in favor of digital-only signals, has the potential to create a **monumental change** in a broadcasting system that has been used for over 80 years, and such an important decision should **not** be placed at the whim of a single corporation and its radio industry cronies who are greedy to sell new equipment to thousands of radio stations and sell new receivers to millions of consumers.

At a time when the broadcasting industry is moving towards greater deregulation and consolidation, with companies such as Clear Channel and AOL/Time Warner owning and operating thousands of broadcast services across the country, this is a **very** large risk to take, as it may very well represent the final corporate take-over of the radio broadcasting industry and the end of independently owned radio stations. The public has already become disenfranchised from radio broadcasting, and is increasingly turning to alternative sources for auditory entertainment, such as satellite radio, on-line radio "web-casts", and personal "MP3" music collections as shared over the Internet. Therefore, any introduction of new technology to terrestrial radio broadcasting **must** be thoroughly researched and alternatives **must** be fully considered before a final decision is reached, as else the approval of a flawed system can lead to serious and potentially **irreversible** degradation in the popularity of radio amongst the listening public.

IBOC causes serious harm to existing analog radio reception

As currently designed, IBOC cannot be legitimately called "In-Band, **On-Channel**", as the sidebands that carry the primary digital data stream of the AM and FM IBOC signals are placed fully onto the **adjacent** channels, and thus cause serious harm to the reception of the first adjacent channels that surround the signal of a station using the IBOC system, as well as to the **second adjacent** channels surrounding an IBOC signal on the AM band.

I have personally listened to test broadcasts of IBOC in the New York City area on stations 710 WOR (AM) and 102.7 WNEW (FM), as well as on low-power experimental station WI2XAM as operated on 1700 kHz AM by iBiquity in Warren, NJ. In each case, serious interference to adjacent channels has been noticed, as a "buzzing" noise audible on 102.5 and 102.9 MHz surrounding WNEW's signal, and a large range of interference surrounding the signals of WOR and WI2XAM, causing harm to the reception of stations on neighboring frequencies, to the point of totally obliterating reception of distant signals that otherwise can be received with consistent clarity and freedom from interference.

Due to various receiver-based effects, which have **not been considered** by iBiquity, NRSC, or the FCC, the use of IBOC on the AM band causes harm to the reception of signals which far exceed the bandwidth nominally transmitted by the IBOC signal. In numerous locations ranging from 25 to 50 miles away from WOR's transmitter, and using numerous home, auto, and portable receivers, I have noticed interference present from WOR's IBOC signal across a **70 kHz** range -- all the way from 680 through 750 kHz on the AM dial. While WOR's engineers claim to be transmitting a fully "legal" signal in accordance with the IBOC specifications, this kind of "splatter" interference is caused by their signal over a much wider range.

In correspondence with WOR's engineers about this, they claim it is being caused by "front-end overload" of the receiver, but that does not explain why it has been observed on multiple radios up to **50 miles** away from WOR's transmitter, where the field strength of their signal is definitely not at a level that would cause front-end overload, nor was I using so-called "wide-band" receivers which would lack the selectivity to filter out WOR's signal from nearby

frequencies. Even on a highly selective automotive radio that uses a **3 kHz** ceramic filter in its AM tuner, this interference has been experienced.

This was especially apparent during WOR's nighttime IBOC tests, as conducted along with neighboring 700 WLW in Cincinnati, OH to study the effects of IBOC signals as propagated by nighttime "skywave" reception. In this case, not only did WOR's IBOC obliterate any chance of experiencing skywave reception of 700 WLW as well as 720 WGN from Chicago, IL, it also seriously interfered with normally clear skywave reception of Canadian stations 690 CINF and 730 CKAC from Montreal, Quebec, and even significantly harmed reception of **740** CHWO from Toronto, Ontario (which normally is received with nearly a **local-quality** signal at night here in New Jersey) and **750** WSB from Atlanta, GA, due to the aforementioned "splatter" type of interference, heard as a constant "scratchy" sound that is "kicked up" by WOR's audio modulation.

Similarly, nighttime IBOC tests from WI2XAM on 1700 kHz also nearly obliterated normally clear skywave reception of 1690 WPTX from Lexington Park, MD and also caused significant harm to local reception of 1680 WTTM from Princeton, NJ, as well as obviously obliterating any chance of hearing distant reception of 1700 WEUV from Huntsville, AL. It also seriously interfered with a local low-power "TIS" station in Manville, NJ that was in use on 1700 kHz less than 15 miles away from WI2XAM's transmitter.

Even during the **daytime**, 710 WOR's IBOC signal continues to cause harm to the reception of 690 WPHE from Phoenixville, PA, as well as 740 WGSM from Huntington, NY--and again, this is heard even on highly selective narrow-bandwidth AM receivers, so it cannot be blamed on the use of a low-selectivity "wide-band" receiver. **"Critical hours"** operation of IBOC has also not been considered in the current daytime-only allowance for IBOC transmissions; nighttime-type skywave propagation is often **equally strong** during the so-called "critical hours" just after sunrise and just before sunset, when it is technically in the "daytime", but nighttime AM signal propagation conditions are partially or fully in effect, especially in winter. Thus, even as currently limited to daytime hours, the use of IBOC on the AM band still

has the potential to cause interference to distant listeners who may be receiving the skywaves of a distant IBOC station on or near the frequency of their local stations.

Numerous other radio listeners throughout North America echo these concerns about IBOC causing serious harm to the reception of stations on neighboring frequencies, especially on the AM band. It is **unacceptable** to dismiss these complaints, as the AM and FM bands in the United States are currently being used at nearly their **full capacity**, with many situations where reception of stations operating on adjacent or second-adjacent channels is commonly practiced, even by average consumers who have no notion of **"DXing"** with the specific intent to listen to non-local signals, and choose their radio listening solely on the availability of stations and formats that they prefer.

Furthermore, **full-scale** implementation of IBOC on the AM and FM bands, with **every** station theoretically making use of it, would cause the **mutual destruction** of the reception of the vast majority of these signals, where interference-free reception would only be possible in very limited local areas -- similar to what has happened with "Class C" AM stations on the so-called **"graveyard"** channels, with hundreds of signals on a signal frequency combining to severely limit nighttime reception of these stations, often down to an effective radius of less than 10 miles. Therefore, use of the current AM and FM IBOC systems must be **immediately suspended**, until the time that either IBOC is re-designed to contain its digital signals entirely within a station's **own** frequency, or until other alternatives to IBOC can be considered and implemented.

IBOC unacceptably degrades the audio fidelity of existing AM receivers

By design, the current "hybrid" IBOC system purposely limits the transmitted audio bandwidth of the analog signal -- which is received by all existing radios -- to a maximum of 5 kHz, which is **half** of the nominal 10 kHz audio response that virtually all analog AM stations transmit. An optional mode of the IBOC system which allows an 8 kHz analog audio bandwidth is also available, but it is currently not being used by any stations using the IBOC

system, nor do there appear to be any plans to make use of it, especially for stations that primarily feature voice programming, where audio quality is supposedly not a high priority.

iBiquity has based the use of this limited bandwidth on **incomplete** and **unverified** research of the audio frequency response of current AM receivers. After testing only a **handful** of radios, they concluded that the average frequency response of a typical AM receiver only extends to 3 kHz. This conclusion cannot be verified because iBiquity did not publish the full details of the testing procedure used to generate this determination, nor did they test a **"control"** receiver which would provide an ideal frequency response, such as a "wide-bandwidth" consumer radio or a modulation monitor used by AM stations to observe their own signals with non-degraded quality. Therefore, it cannot be determined whether or not the tests made use of **NRSC pre-emphasis**, or if they **purposely** limited the bandwidth of the transmitted signal in order to skew the results and support IBOC's limited audio bandwidth.

NRSC pre-emphasis, as introduced in the late 1980s and made mandatory for use by AM Stereo stations in the early 1990s, plays an important role in determining the received audio quality from AM radios, as it emphasizes the high frequencies in a controlled manner, to provide an expanded audio frequency response from typical receivers as well as facilitate up to 10 dB of noise reduction on high quality **"AMAX"** receivers which are designed to perfectly match the transmitted pre-emphasis. If a transmitted AM signal does not make use of pre-emphasis, then the audio response of a receiver will **purposely** start declining at about 3 kHz, so that the treble is not unnaturally emphasized, which would create an unpleasant "tinny" sound.

Furthermore, even if a typical AM receiver only has faithful audio response up to less than 5 kHz, as iBiquity claims, that does not take into consideration the reduced, but **still audible** audio response that many of these receivers have all the way up to 10 kHz and beyond. There are many radios which use ceramic filters in the AM tuner which are designed an audio response flat to only 3 kHz or 4.5 kHz, but the "roll-off" of the response above this point is gradual enough that much higher frequencies are still audible if they are transmitted by AM stations.

In its *Report and Order*, the FCC noted that "virtually all the individuals who commented express concern about the loss of analog bandwidth." Clearly, this is an important issue, as until digital IBOC receivers would become widely and inexpensively available, **all** of a station's listeners will still be using conventional analog AM receivers, and will essentially have **half** of the audio quality taken away from them, especially for the many listeners who are using "wide-bandwidth" receivers, such as the popular **GE Superadio III** as well as many AM Stereo receivers certified to meet the **"AMAX"** quality standard, who will immediately notice the large loss of transmitted audio fidelity, and even on typical "narrow-bandwidth" AM receivers, it will cause a **further** degradation of the fidelity of AM radio audio, which is already generally considered to be very poor, to the point where it is unsuitable for enjoyable music listening and even makes clear intelligibility of voice programming a challenge.

IBOC flaunts the loopholes of analog-oriented broadcasting standards

As discussed above, the IBOC system works by placing its primary digital sidebands onto a station's **adjacent** channels. Normally, with analog AM and FM signals, this would be unheard of, as strict regulations are in place that limit a station's transmitted bandwidth; on FM, an analog station will cause virtually no interference to adjacent channels on a selective receiver, and on AM, the NRSC bandwidth regulations were enacted in the early 1990s to eliminate interference to second-adjacent-channel stations and to reduce interference to adjacent channels to a generally acceptable level.

However, IBOC is transmitted in a far different manner that conventional analog AM and FM signals. With analog signals, the amount of the interference to adjacent channels is a matter of transmitted audio modulation; if a station is broadcasting no audio, there will be no interference. Also, the peak intensity of this adjacent channel interference is only occasionally reached, during transient vocal or musical peaks, such as sibilants or strong percussion sounds.

On the other hand, IBOC transmits **continuous** digital sidebands that are essentially **"white noise"**, so that the received interference to nearby channels is also **continuous** in nature and is of an intensity that analog signals rarely reach. On AM, it can be shown through both spectrum analysis and field tests that transmitting an **unlimited** analog audio bandwidth, such as was common on AM stations before the enactment of the NRSC standards, causes **less** interference to adjacent and second-adjacent channels than an IBOC signal does, even though the IBOC signal does technically meet the NRSC bandwidth specification, while the unlimited-bandwidth analog signal would not.

This is because the NRSC AM bandwidth standard was **not** designed to accommodate **digital** transmissions in this manner. In fact, a separate and **more restrictive** NRSC bandwidth standard is defined for a so-called **"standard noise test signal"** -- essentially a special form of white noise transmitted for testing purposes, which mimics the effect of IBOC's continuous digital sidebands -- and, as currently approved, IBOC does **not** meet this more restrictive bandwidth specification unless the level of the primary digital sidebands is reduced by a

significant amount. Therefore, while the IBOC AM signal is allowed by the current NRSC bandwidth standards that apply to it, this is only because it **flaunts the loopholes** of regulations never designed to accommodate digital signals in this manner.

IBOC's digital audio quality is unacceptably poor, and potentially harmful

Through audio samples that have been made available for public listening, I and many other radio enthusiasts have had a chance to listen to IBOC as it would be heard on a (currently unavailable) digital receiver. But, despite claims of providing **"FM-quality"** on AM, and **"CD-quality"** audio on FM, the samples that have been provided so far, even using the latest version of the IBOC encoding system (as of early January 2003), do not even come **close** to these claims.

IBOC makes heavy use of **"lossy"** digital audio compression, which removes frequencies from the audio which are supposedly inaudible to the human ear, and synthesizes other parts of the audio spectrum to approximate the original audio content, in order to achieve a highly reduced data bit rate. This is the same basic way that the popular "MP3" music format works. However, IBOC compresses the audio content in a much more drastic manner, to the point that the quality of the IBOC audio on AM is **unacceptably poor**, with **clearly audible** degradation of the audio and annoying **"artifacts"** in the sound, such as false harmonics, incorrectly reproduced treble content, and an overall characteristic to the sound that is harshly unpleasant to the ears of any music listener, similar to what is heard from a low bit-rate RealAudio or Windows Media Audio "web-cast" over the Internet, or from digital mobile phones that often struggle to provide intelligible voice quality.

In its current form, IBOC's digital audio cannot even match up to that provided by existing AM radio, whose uncompressed analog audio, even when heard through the typical "muffled" sound of a narrow-bandwidth receiver, is clear, natural, and faithful to the original audio source, just as a common CD, cassette, or record would be. And for those listeners who have AM receivers that provide a superior frequency response, AM can actually provide true **"high fidelity"** audio, that is even subjectively superior to the highly-processed and often distorted audio that many **FM** stations transmit. And with the use of the C-Quam **AM Stereo**

system, AM can deliver faithful and accurate stereophonic audio, unlike low-bitrate digital compression systems similar to what IBOC uses for its digital audio, which often seriously degrade the quality and realism of the Left-to-Right stereo audio content in order to preserve better quality of the main monaural (center) audio content.

As heard in the audio samples provided by iBiquity, even the quality of the **FM** IBOC system's digital audio is **inferior** to that of existing analog FM Stereo radio. Digital compression "artifacts" are still immediately apparent in the audio, and prevent it from even coming close to being called **"CD-quality"**, a phrase which has already been tarnished by its use by other digitally compressed audio services, such as MP3, Windows Media Audio, MiniDisc, or the audio delivered by XM and Sirius satellite radio, which all both subjectively and objectively **cannot** deliver true **"CD-quality"** audio.

This is especially important to consider for **long-term** radio listening, such as background music that many people have on at home or work, where the collective effect of this inferior-quality audio not only will cause large annoyance from people used to hearing faithful audio reproduction, but may even be harmful to a person's **hearing**, as new studies indicate. Long-term exposure to digitally compressed audio, which works by selectively removing low-level audio frequencies, is thought to eventually "train" the ear so that it will fail to respond to these frequencies, even when they **are** present -- causing a loss of hearing sensitivity. While this research is still inconclusive, it is nevertheless relevant when a major broadcasting service that would have the potential to aggravate this effect may end up being in use for many years and may contribute to this problem on a large scale.

IBOC is not a worldwide standard

It is particularly important to consider that as of yet, the USA is the **only** country in the world which is seriously considering use of IBOC on the AM and FM bands. Many other countries, including much of western Europe and even **Canada**, have begun to use the "Eureka 147" digital audio broadcasting **(DAB)** system, which operates on a separate frequency range,

provides stations with uniform signal strength, and has the potential to deliver digital audio quality **far superior** to that of IBOC.

While the potential for use of DAB in the United States is still indeterminate, its advantages over IBOC are unquestionable. I have personally listened to audio samples of DAB, as "captured" as a bit-by-bit equivalent of the transmitted signal in MP2 digital audio format, and the audio quality is at least acceptable, and on average can be **truthfully** called at least "FM-quality", while the stations that use higher bit rates and less (or no) audio processing can be described as "**near-**CD-quality" -- unlike IBOC, which likely will still feature FM radio's typical highly processed audio, designed to provide a high apparent loudness and to minimize changes in volume level between different songs and different program material -- at the large expense of dynamic range and fidelity.

IBOC proponents claim that terrestrial radio needs to better compete with satellite radio services such as XM and Sirius. From a technical aspect alone, DAB is the **only** well-established system can achieve this. If the United States can allocate a suitable frequency range for DAB broadcasts, then the benefit to listeners, and indeed its attractiveness to consumers, will be unquestionably superior to that of IBOC being added to existing AM and FM stations.

Furthermore, use of IBOC would represent the abandonment of **international** AM and FM broadcasting standards. While the AM band does use different channel spacing in Europe and Asia, and the FM band is on a different frequency range in Japan, these differences are comparatively minor, and for many years, true "world-band" radios have been manufactured which can accommodate these differences literally at the flip of a switch. Meanwhile, the standards for AM Stereo and FM Stereo broadcasting are now internationally universal, as is the use of RDS on FM for delivery of text data and other additional features, even though RDS is far more popular in Europe than it is in North America. The establishment of IBOC as a USA-only system would only be a hindrance to its long-term success, in addition to all of its technical flaws as discussed above.

IBOC is a risk to public safety communications

The IBOC system is currently being proposed with an eventual **"sunset"** date, at which time all existing analog AM and FM radio broadcasting well cease in favor of incompatible fully-digital broadcasts, similar to the currently proposed "sunset" of analog TV broadcasting. This is a risk to public safety communications, because continued support for analog radio is a **key** feature of providing a consistently available method of communicating important information to the public, especially in the case of severe weather, natural and man-made disasters, and issues of local and national security -- a criteria which has become especially important in light of the unforgettable events of September 11, 2001, a time at which radio and TV stations received some of their highest ratings in **history**, as people were literally glued to these media sources to keep them informed and to provide a sense of togetherness and national security.

As it has existed for more than 80 years, analog radio broadcasting is the simplest and most commonly available form of communication and entertainment. New analog AM/FM radios can be purchased for as little as **$5.00** each, at a time when digital alternatives still cost hundreds of dollars even years after their introduction. It is simply unrealistic to expect that a full abandonment of analog radio (and indeed even TV) broadcasting can **ever** be achieved; it is simply too well-established on an international basis to be discarded in such a manner. Thus, even if IBOC or other digital broadcasting methods could receive full support from **everybody** in the broadcasting industry, the **indefinite** preservation of analog broadcasting still needs to be considered. Indeed, many technologies continue to be used even **decades** after their obsolescence; for example, you can still buy a new **black & white** TV set today (albeit usually a very small one), even **half a century** after color TV was standardized and introduced!

IBOC may be rendered unnecessary by improvements in existing analog radio

In this proceeding, the Commission has failed to consider alternative methods for providing higher-quality AM and FM radio service, such as the improved design of existing

analog AM Stereo and FM Stereo broadcasting and reception. While it is unquestionable that digital technology does have its advantages in terms of radio broadcasting, it does not necessarily have to be **transmitted** in digital form in order to receive these benefits. Receivers which use **Digital Signal Processing** (DSP) to improve the quality of existing analog AM and FM radio have already been in production for several years, and Motorola is currently developing a wide-scale approach to this technology with its new "Symphony" receiver design.

DSP-based reception of **analog** signals can achieve most, if not all, of the advantages that IBOC supposedly will provide: superior audio quality, improved resistance to atmospheric and man-made interference/static, improved reception of both local and distant signals, and the availability of auxiliary data services such as FM's **Radio Data System** (RDS) -- and this all can be achieved **without** changing the way that radio stations broadcast their signals, **without** causing harmful interference amongst stations, **without** degrading the quality of existing analog receivers, and **without** making use of controversial digitally compressed audio formats.

In particular, the AM band has the most to gain from this approach, and indeed, significant improvements to AM radio service have **already** been available for more than a decade, through the adoption of the uniform NRSC bandwidth and pre-emphasis standards, the approval of the **Motorola C-Quam** system as the single standard for **AM Stereo** broadcasting, and through the increased availability of **"AMAX"** receivers, which are designed to match up to these improvements and deliver the **highest quality** possible from existing analog AM radio.

While "AMAX" and AM Stereo have been both commonly considered **"failures"** in terms of their lack of mass popularity with consumers, that does not in any way remove them from being considered as **well-established** methods for providing the improved quality from AM radio that both listeners and broadcasters desire. **Hundreds** of stations across the USA and around the world continue to broadcast in AM Stereo, and **millions** of AM Stereo receivers -- many of which meet the "AMAX" quality standards -- have been manufactured and sold over the past 20 years, and **continue** to be available even today. High quality monaural "AMAX" receivers are also commonly available, such as the popular **GE Superadio III** which can be

found in many department stores at an affordable price and delivers AM reception and sound quality that has been highly praised over the past decade it has been in production. Indeed, if **everybody** had an AM radio which could match up to this quality, and if **everybody** could have a chance to receive AM Stereo broadcasts, then IBOC might not even been a consideration in the first place.

As has been proposed **numerous** times to the FCC over the past two decades, this approach to providing superior analog AM radio service will only be **fully** effective if some action is taken to either **mandate** or **seriously encourage** the production and availability of high quality receivers. The FCC has already taken the initiative by mandating the inclusion of such features as UHF TV tuning, "Expanded Band" AM tuning, closed captioning, and most recently the "V-Chip". Electronics manufacturers have already been making high-quality AM and AM Stereo receivers for many years, and if mandated, the cost to include such features into **every** radio would be **minimal**, and far less than the additional cost to include the complex and **proprietary** IBOC digital reception system.

IBOC is the wrong solution to radio's biggest problem

In addition to everything discussed above, another issue which has not been considered is that radio listeners are calling out for better **programming** from the radio, not just better quality from the signals they can receive -- and the approval of IBOC or any other method for improving the technical quality of radio service will **not** inherently achieve any benefit to the programming offered by radio stations if they do not take it upon themselves to truly connect with their listeners and broadcast not what is convenient to them, but rather what their **listeners desire** -- even if it means going against the trends of increased corporate ownership, automation, voice-tracking, national radio format consistency (such as Clear Channel's "Kiss FM" stations which do not simulcast each other, but essentially provide the same format across the country), and removal of nearly all local elements from the programming.

As an example of this, the growing popularity of satellite radio services is **not** simply

because of its consistent reception quality and digital audio. It is because satellite radio is delivering a wide variety of **new and unique radio programming**, much of which is commercial-free, and this is exactly what people are calling out for; indeed, many listeners will be extremely loyal to their "favorite" AM and FM radio station, even if the reception and/or sound quality provided by it is very poor -- and, on the other hand, even the strongest, clearest signals on the radio will not be tuned in if the listener does not desire their programming. Hopefully, radio stations are smart enough to not be under the delusion that IBOC alone will increase their popularity with listeners and advertisers, even despite all of the marketing hype that is currently being stirred up about "HD Radio".

Conclusion

As explained above, I join John Pavlica, Jr. and his other supporters in calling for the **immediate suspension** of IBOC broadcasts on the AM and FM bands, so that this system can either be redesigned -- hopefully though the competitive efforts of **multiple** companies -- so that its many inherent flaws can be remedied or at least reduced to a far more tolerable level, or so that it can be replaced with alternative methods for improving the technical quality of the existing analog AM and FM radio services.

And as the founder and manager of the premiere online resources dedicated to high quality AM Stereo radio broadcasting, I know that there are many people around the country and around the world who echo my concerns and support the ideas that I have presented. The topic of IBOC has been the most controversial in the history of the online AM Stereo Forum, where hundreds of members are having these same questions in their minds and have generally been **unimpressed** with the performance, practicality, and quality of the IBOC system as it is current established.

The Federal Communications Commission should not be **rushed** into issuing approval for a system whose benefits are highly questionable and whose detriments are very serious. Therefore, before IBOC can be approved and fully implemented, the radio industry as a whole needs to be **completely certain** that it is the system worthy of becoming the "future" of radio. As of yet, this certainty has **not** been achieved, and therefore except as necessary for testing and development purposes, the allowance for use of IBOC on the AM and FM bands must be **immediately suspended.**

Respectfully submitted,

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