



# DEPLOYING ARTIST EXPERIENCE (ALBUM ART) VIA HD RADIO™

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# Part One:

# Introduction to Artist Experience



# Introduction



- HD Radio™
  - In the US, many broadcasters have employed HD Radio™, an In-Band On Channel (IBOC) digital transmission technology from iBiquity Digital Corporation as a method to provide digital transmission alongside analog transmission on the FM and AM bands.
  - Initial focus of many broadcasters implementing HD Radio was to provide digital audio delivery to consumers.
  - Emphasis on this has changed in recent years.



# Introduction



- HD Radio™
  - Flexible to use portions of the digital spectrum for data instead of audio.
  - The audio channels on HD Radio use adjustable bitrate codecs.
  - The bitrate of the audio channel can be reduced to accommodate data services.
  - FM data bandwidth:
    - 96 kb/s in MP1 mode
    - 124 kb/s in MP3 mode
    - Extended hybrid: 149 kb/s in MP11 mode
    - All digital mode: MP6 mode + MS4 and have 253.7kb/s
  - AM HD Radio system does not currently offer the framework for data services.
    - MA1 Core Only 20 kb/s, MA1 Full Hybrid 37kb/s, and MA3 All Digital mode offers nearly 40kb/s.



# Introduction



- Data Services via HD Radio™
  - An exciting and growing development in the industry.
  
- Artist Experience Defined
  - Concept dates back to the inception of Advanced Application Services (1999).
  - Using data bandwidth to deliver graphical images synchronized with the audio.
  - Sending relevant images of the current song on the air, such as album cover art.
  - Currently one of the most visible applications of data delivery via HD Radio™.



# Artist Experience Development



- Clear Channel Media and Entertainment worked with iBiquity on initial commercial efforts of this service.
- First implementations of Artist Experience in June 2010.
- Companies worked together to provide a proof of concept and an initial development of this new feature.
- End result of that effort included a commercial implementation offered by iBiquity to all broadcasters which became available in May 2011.



# Artist Experience Development



- CCME initial rollout took time, only offered on a limited number of stations so that development could be focused.
- Planning was needed to develop an internal solution for providing album art to many stations concurrently.
- Design needed to consider approximately 390 HD radio stations running Artist Experience.
- When coupled with HD2 formats, meant that the system had to simultaneously support approximately 780 individual audio channels.
- Needed to be scalable for any additional stations we decide to convert to HD Radio in the future.
- To date, there are no products on the market that scale to this level.



# Artist Experience Development



- CCME completed nationwide rollout of Artist Experience in September 2012.
- We have learned quite a bit in the process and continue to refine our implementation.
- Our hope to share this information with the industry to help assist other broadcasters and vendors in this endeavor.
- We feel AE is a good development for the radio broadcast industry.





# Available AE Receivers



- Receivers with Artist Experience support are being released to the marketplace.
  - Portable
  - Tabletop
  - Aftermarket Automotive
  - Original Equipment Manufacturer (OEM) Automotive – Factory Installed Car Radios



# Available AE Receivers



- OEM Automotive
  - BMW
  - Buick
  - Chevrolet
  - GMC
  - Lexus
  - Toyota
  - Volkswagen
- The number of receivers supporting AE continues to grow, and there is interest from most automotive manufacturers in implementing this feature.



# Available AE Receivers



- OEM Automotive
  - Consumers are used to the smartphone devices with interactivity and apps.
  - United States Department of Transportation mandating backup cameras in all vehicles starting in 2015-2017 (timeline TBD).
  - Most implementations require an LCD screen in the “center stack” of the dashboard – where the radio typically is.
  - Automotive Artist Experience offers a great listener benefit. It also gives terrestrial radio a visual element to help compete with so many other digital audio products, such as portable audio players, streaming websites and smartphone apps.



# Available AE Receivers



## OEM Automotive:

GMC Acadia

Chevrolet Traverse

Buick Enclave



# Available AE Receivers



**OEM Automotive:**  
Lexus



# Available AE Receivers



**OEM Automotive:**  
Toyota



Photo courtesy iBiquity Digital





# Available AE Receivers



**OEM Automotive:**  
Volkswagen

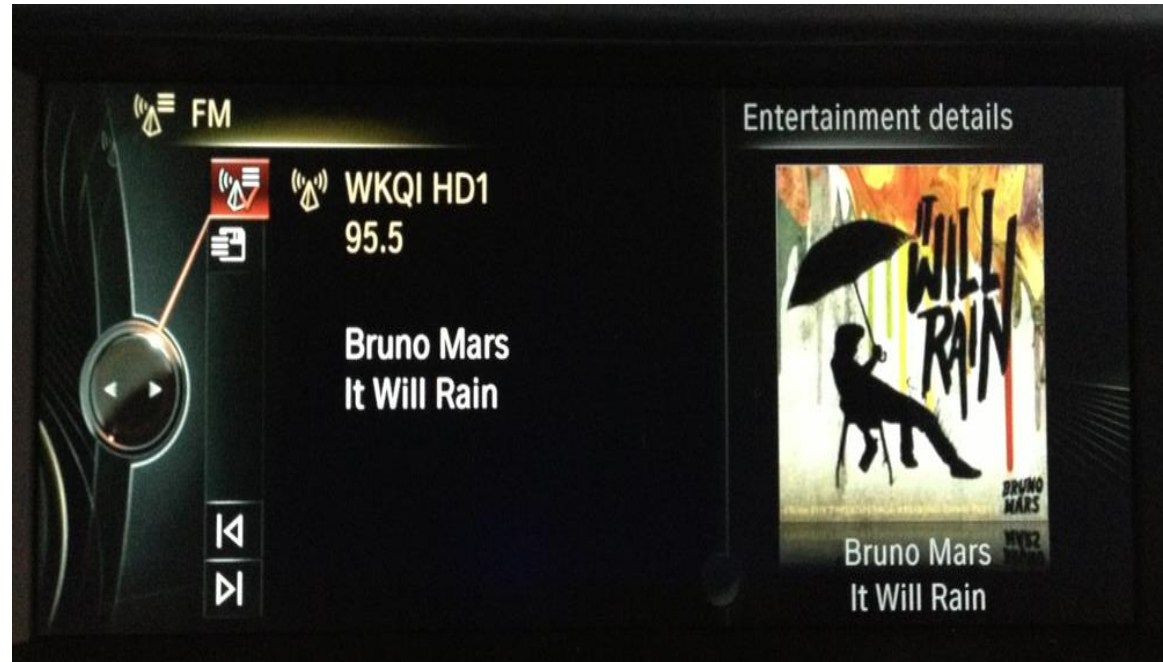


# Available AE Receivers



**OEM Automotive:**

BMW





# Available AE Receivers



## Aftermarket Automotive:

JVC (Upper)

Kenwood (Lower)



# Available AE Receivers



**Aftermarket Automotive:**  
Pioneer



# Available AE Receivers



## Aftermarket Automotive:

Sony



# Available AE Receivers



**Aftermarket Automotive:**  
Alpine





# Available AE Receivers



## Portable

Insignia



## Tabletop

Insignia



# Acknowledgements



- Special thanks to Jeff Detweiler, et. al. iBiquity Digital Corporation for providing additional details on Artist Experience to help further the education and understanding of this technology in the industry.
- Opinions contained in this presentation are not necessarily those of my employer, Clear Channel Media + Entertainment, iBiquity Digital, or the Society of Broadcast Engineers (SBE).

