



STANDARD IBOC (In-Band On-Channel)
OVERVIEW

WORKSHOP RADIO DIGITAL
January 22nd, 2025

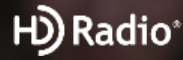


**WHY IS IT IMPORTANT TO ADOPT A DIGITAL
RADIO STANDARD IN BRAZIL?**



WHO WE ARE

XPERI[®]



100B+

Devices Powered by
Xperi Technologies



2000+

Employees
Worldwide



1400+

Engineers
and R&D



38

Global Offices

**Xperi invents, develops and delivers technologies
that create extraordinary experiences.**



HOW HAS HD RADIO EVOLVED SINCE ITS COMMERCIAL LAUNCH IN 2002

400M+
PEOPLE

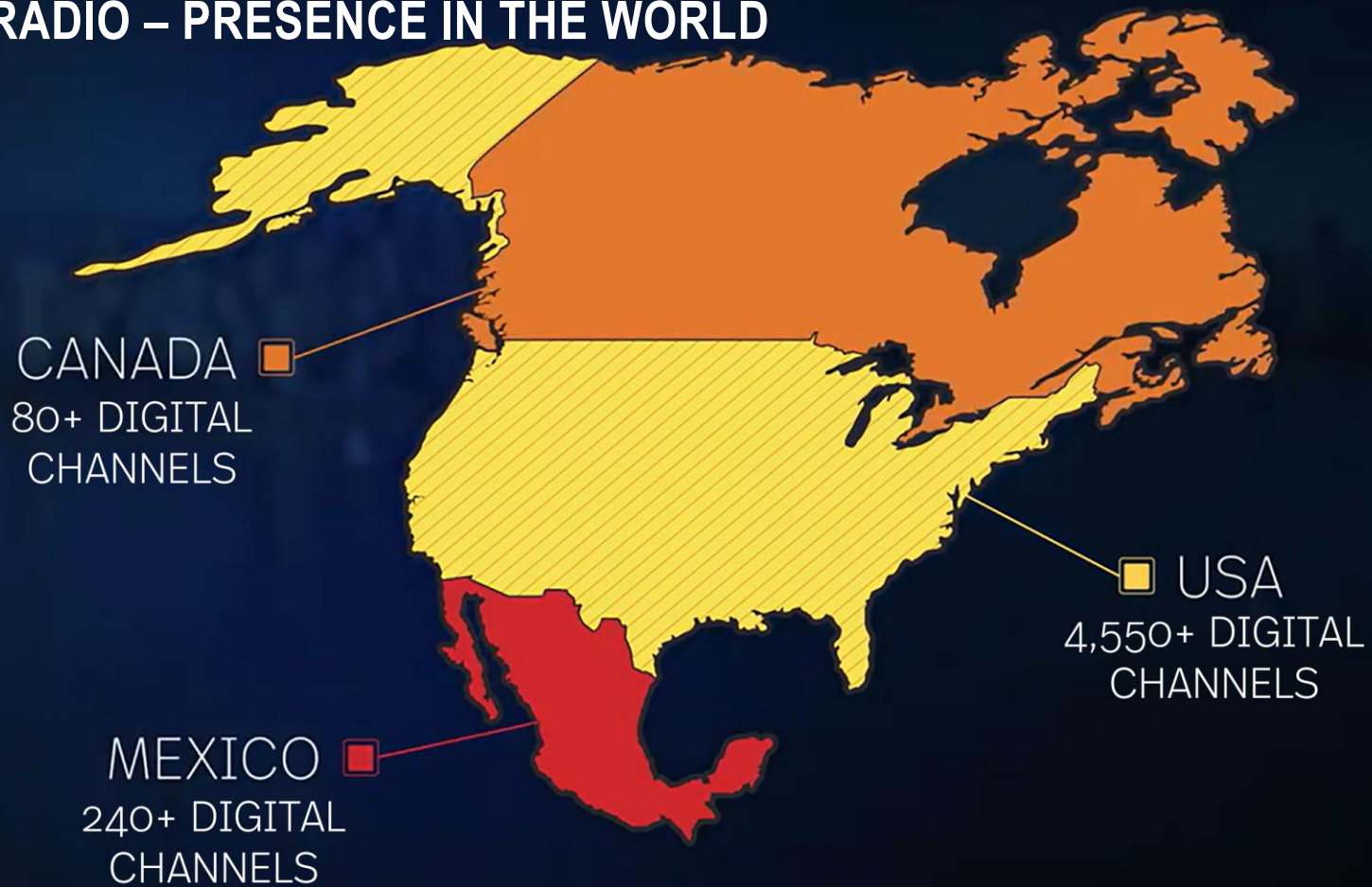
4,700+
PROGRAMMING
CHANNELS



THE DIGITAL RADIO STANDARD WITH MORE
COVERAGE IN THE WORLD.

HD Radio is the most successfully deployed digital radio system worldwide, reaching nearly 400 million people with more than 4,700 channels of digital programming in North America.

HD RADIO – PRESENCE IN THE WORLD



MILLIONS OF DIGITAL RECEIVERS
ARE ON THE MARKET

1 RPT
Over 5,000
radio models
certified since
2002

HD RADIO – STRONG SUPPORT FROM AUTO INDUSTRY



110 million

Cars with factory-installed HD Radio

413

Car models with digital receiver

193

Car models with HD Radio as standard equipment

40+

Xperi Global OEM and Supplier Partners

OEM



TIER 1



HD RADIO RECEIVER PRODUCTS



Radio product models for home, car, portable, and phone.

5,000+ individual receiver models have been manufactured.

80-point product certification process ensures conformance to specifications.

International testing and Field Application Engineer support teams.



HD RADIO INTEGRATED IN ANDROID SMARTPHONE





USA POPULATION
COVERED

85+

BILLION
LISTENING
HOURS IN CARS

An aerial, high-angle view of a city street during the day. The street is multi-laned with several cars driving. On the left, there is a building with a distinctive white, grid-like facade and a blue parking sign. On the right, there is a modern multi-story office building with many windows. The overall scene is captured in a slightly desaturated, blue-tinted color palette. The text 'LOW IMPLEMENTATION COSTS' is overlaid in the center in a bright yellow, sans-serif font.

LOW IMPLEMENTATION COSTS

HD RADIO COST REDUCTION

PARTNERING WITH MANUFACTURERS TO BRING DOWN THE COST OF HD RADIO IMPLEMENTATION



GEN II – 2002

- ≈ \$45K; HD1 Only
- Low volume – High cost
- Developer level configuration
- Challenging to set up
- Linux-based exciter (limited life)
- Projected life: ≈ 8 -10 years



GEN III – 2008

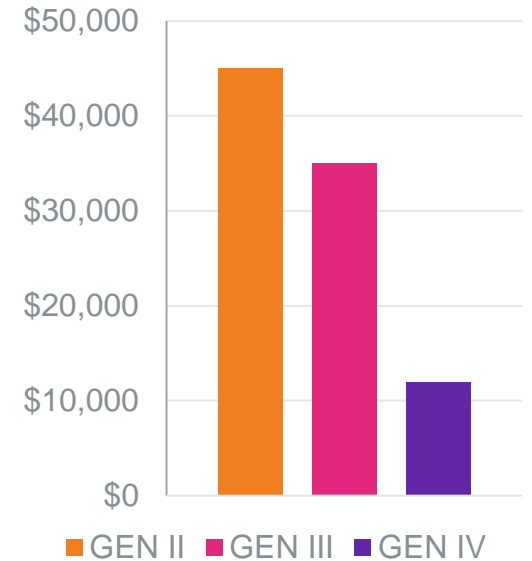
- ≈ \$35K; HD1 – HD4 + Data
- Improved stability
- Improved setup
- DSP-based Exporter & Engine
- Windows-based Importer
- Projected life: ≈ 10 -12 years



GEN IV – 2017

- ≈ \$12K; HD1 – HD4 + Data
- Low cost / Low complexity
- Ease of setup
- Drop down menu configuration
- Dual core ARM 9 / FPGA
- Projected life: ≈ 12 -15 years

EQUIPMENT COSTS



CERTIFIED HD RADIO MANUFACTURERS





LICENSE

GO

**HD RADIO ROYALTIES
LICENSES VALID FOR THE LIFE OF THE
EQUIPMENT**

HD RADIO TECHNOLOGY



REGULATORY MILESTONES

- 1999** FCC initiates rulemaking on Digital Radio
- 2001** ITU endorses IBOC AM below 30MHz
- 2002** FCC approves IBOC as sole U.S. solution for AM & FM digital broadcasting
- 2002** ITU adopts System C (HD Radio FM) as digital broadcast option
- 2005** National Radio Systems Committee adopts IBOC standard based on HD Radio system
- 2007** National Technical Committee in the Philippines released guidelines for digital radio approving HD Radio
- 2010** FCC adopts digital power increase for FM
- 2011** Mexico officially approves and adopts HD Radio Technology as their digital broadcast standard
- 2016** NABA drafts North American Digital Radio Standard
- 2020** FCC adopts voluntary transition to All Digital AM
- 2020** Telecom Regulatory Authority of India published recommendations allowing operations of HD Radio
- 2021** Implementation of the Mexican Standard NMX-I-325-NYCE-2021 regarding the AM and/or FM Radio Receivers – IBOC Technology
- 2023** FCC Notice of Proposed Rulemaking for FM high-power digital
- 2024** ISED BPR-3 establishes format IBOC (HD Radio) technical rules for Canada



ADVENTAGES OF IMPLEMENTING HD RADIO TECHNOLOGY



ALBUM COVER



STATION INFO

104.3 -1 WZFT-FM-HD1

Justin Bieber / Nicki  Beauty And A Beat
HD Radio

PROGRAM INFO

◀ Tune ▶ ⏪ Seek ⏩ TAG

MULTICAST CHANNELS



NEW AUDIENCES A PROFITABLE BUSINESS

MULTICAST CHANNELS

91.3 FM



HD1 - TOP 40

HD2 - JAZZ

HD3 - NEWS

HD4 - SPORTS



HD2



HD3

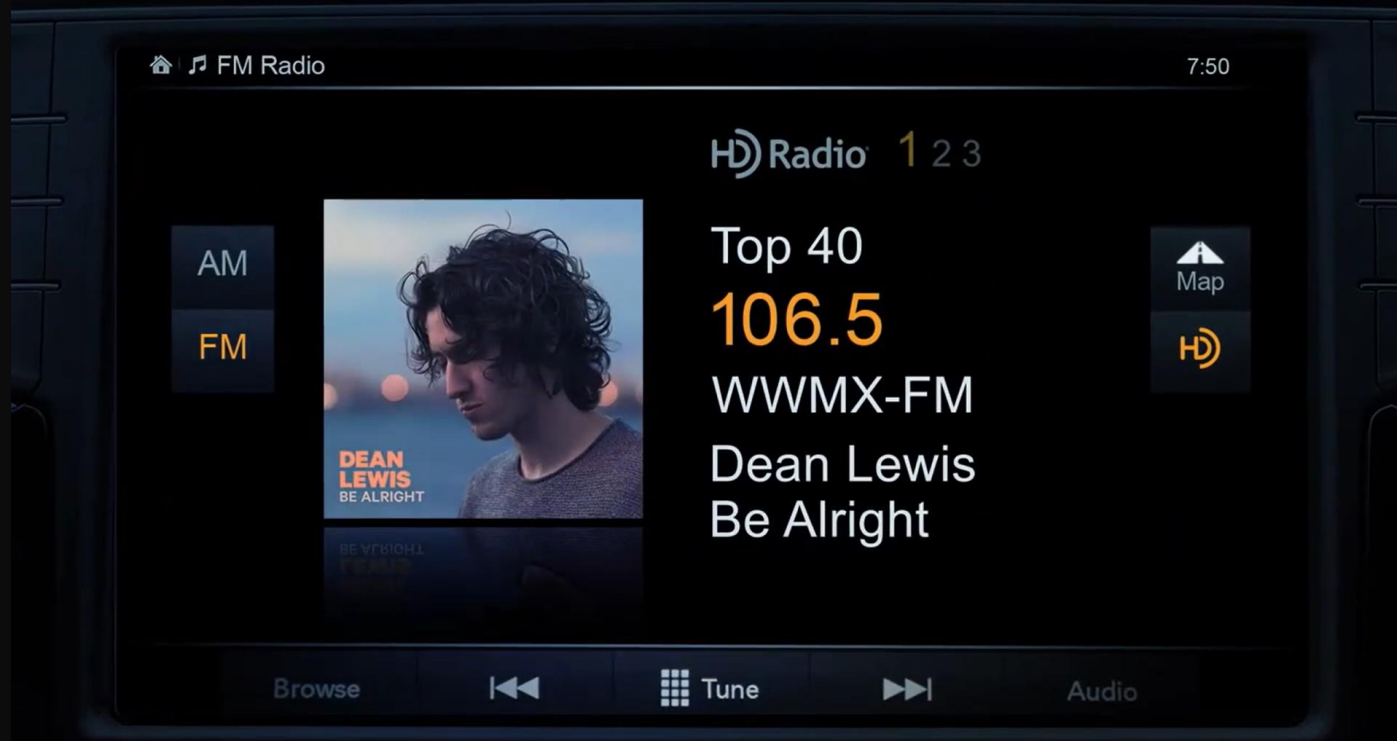


HD4

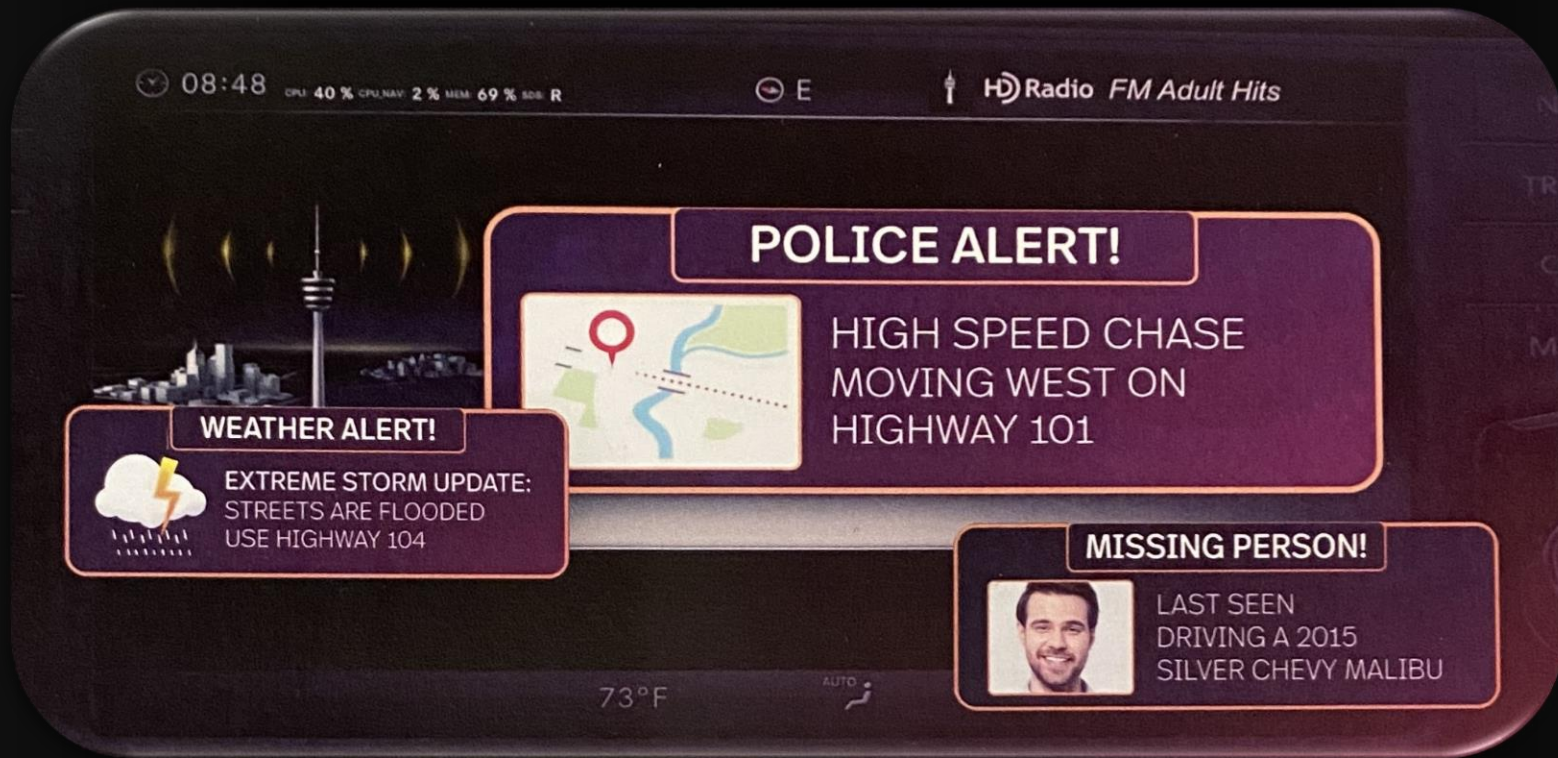
HD RADIO METADATA SERVICES




Images related to the broadcast can be displayed on the in-car display, such as album cover art, station logos and of course advertiser logos



EMERGENCY ALERTS



97.7 WXYZ-FM

 Belmont Auto
Stop in and browse
our huge selection!



ENHANCED ADS
INCREASE IMPACT

INCREASED ADVERTISING RECALL





ARE THERE CONDITIONS
FOR HD RADIO TO BE
IMPLEMENTED IN BRAZIL?

XPERI BUILDS TECHNOLOGY SOLUTIONS AND ECO-SYSTEMS

Automotive



Transmission Equipment Mfrs.



Broadcasters



HD RADIO IS ON THE RISE



THE VOICE OF BROADCASTERS

“

From an advertising, sales, and revenue perspective, HD Radio technology is something that works for our stations and that all broadcasters should explore

”

*Adrián Laris Director of
El Heraldo Radio
(México)*



THE VOICE OF BROADCASTERS



“

HD Radio has allowed **us to offer excellent audio quality and display information in text and images from our advertisers**, which has given us a competitive advantage over our competitors.

”

*Patricio Zorrilla Owner of Ultra
Radio
(México)*



THE VOICE OF BROADCASTERS

“

We could continue traditionally doing radio expecting the same results, or we can meet the expectations and needs of the new generation of radio listeners. **HD Radio has allowed us to meet those expectations**

”

*Peter Booker President of
DBG
(US)*



THE VOICE OF BROADCASTERS

“

As a college radio station, we have **46,000 students/early adopters as potential listeners.** That's why we decided to create local content with local **bands in our HD2 channel**

”

*Ben Downs General Manager
of Candy 95.1 FM
(US)*



IN CONCLUSION...

 HD Radio®

HD RADIO



- ✓ . . . Provides enhanced audio quality for both AM and FM
- ✓ . . . Provides additional new business opportunities
- ✓ . . . Provides new marketplace growth possibilities
- ✓ . . . Provides potential current and future new revenue sources
- ✓ . . . Provides unlimited ways to target and deliver new audiences
- ✓ . . . Provides natural line extensions for your brand
- ✓ . . . Provides new and growing ROI through additional revenue sources

The background features a central dark purple area with four rounded, overlapping shapes extending towards the corners. The top shape is a gradient from light green to dark green. The bottom shape is a solid purple. The left and right shapes are a gradient from dark purple to bright pink. The word "Thanks" is centered in the dark purple area.

Thanks