



Digital Technology's (Continuing) Transformation of Radio and TV Broadcasting

Presented to:

MIDWEST  REGIONAL
BROADCASTERS CLINIC

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National Association of Broadcasters

Washington, DC

September 10, 2024



AI Radio demonstration

- Artist will.i.am is demonstrating AI radio using the “FYI” media platform
 - Generative AI
 - Powered by IBM



New Audio Platform From will.i.am Emphasizes Interactive AI

RAiDiO.FYI lets listeners chat with AI personas and personalize their own stations

BY RW STAFF
PUBLISHED: AUGUST 20, 2024



Musician and entrepreneur will.i.am has launched a media platform that nods to the power of radio but is AI-driven and accessed via a smartphone app.

The platform is called RAiDiO.FYI.

FYI is the name of a technology company founded by will.i.am that puts AI to work for creative professionals. RAiDiO.FYI is described as an “AI-infused interactive, conversational media platform that transforms radio as we know it into a new dimension.”



will.i.am photo by Sterling Hampton

AI Radio demonstration





Today's presentation

- Radio and TV digital transitions in the US – a brief history
- Trends in digital and hybrid radio
- Virtualization of radio's infrastructure
- Current regulatory topics of interest
- The Broadcast Positioning System (BPS)







Settings

Most watched

Channels

Movie

News

Sports

Comedy

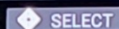
Drama

Sat, Sep 7

2:00 PM

3:00 PM

WUSA-HD 9.1 	◀ NWSL Soccer 30 CBS College Football Kickoff	00 College Football Today	30 College Football
Crime 9.2 	00 Heartland Homicide 19, Ivan Radocaj	00 A Killer's Mistake 5, Chacey Poynter	
Quest 9.3 	00 Speeders 15	30 Speeders	00 Brojects 12, The Ultimate Toboggan
NEST 9.4 	00 Ozzy and Jack's World Detour 3, Father Knows West	00 Ozzy and Jack's World Detour 4, Unidentified Flying Ozzy	
QVC 9.5 	00 Barefoot Dreams - California Style		
WBAL 11.1	◀ 2024 Paris Paralympics Coverage of medal races in swimming and track and field at the Paralympics, in...	00 Notre Dame Football: Colle... The Notre Dame football pregame s...	30 College Football The No. 5 Fighting Irish rumble their ...
WBAL-DT 11.1 	◀ 2024 Paris Paralympics	00 Notre Dame Football: Colle...	30 College Football
MeTV 11.2 	00 Bonanza 5, The Burma Rarity	00 Rawhide 16, Incident at Spider Rock	
Story 11.3 	00 Swamp Mysteries With Troy Landry 4, Devil Gator		00 Swamp Mysteries With Troy Landry 5, Dragons From Hell



Press and hold down: Favorites



Page up



Page down



Go to top



Current time



+1 day

Transition to digital TV

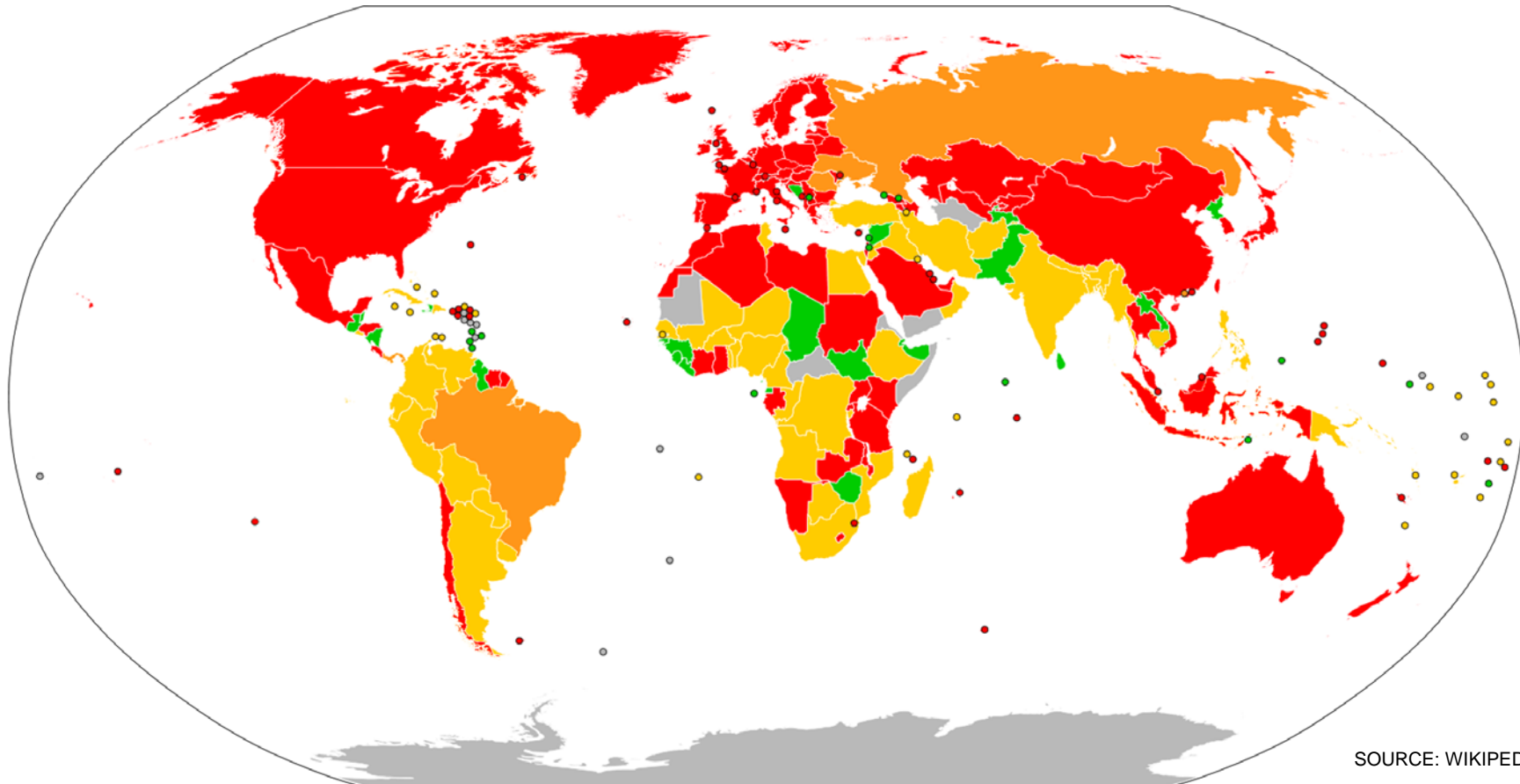


- US milestones:

- **1996** – FCC adopts ATSC digital television standard
- 2005 – Digital Transition and Public Safety Act of 2005 - set **transition deadline**, establish **converter box** program
- 2009 – **Mandatory US switchover** for full-service TV
- 2010 – National Broadband Plan revealed, reallocating 120 MHz of TV spectrum
- 2017 – Incentive auction completed, **ATSC 3.0 authorized** (voluntary)
- 2021 – US switchover for LPTV and TV translator services



WORLD MAP OF DIGITAL TELEVISION TRANSITION PROGRESS



SOURCE: WIKIPEDIA

■ TRANSITION COMPLETED
■ PARTIALLY COMPLETED

■ IN PROGRESS
■ NOT PLANNED OR IN EARLY STAGES

■ NO INFORMATION

Transition to digital radio



- US milestones:
 - 2001/02 – NRSC evaluation of AM and FM-band in-band/on-channel (IBOC) digital radio
 - **2002** – FCC authorizes use of AM and FM hybrid IBOC on a voluntary basis
 - 2004 – NPR Labs “Tomorrow Radio” project
 - 2005 – NRSC-5 Standard adopted
 - 2012-14 – NAB all-digital AM field test project
 - 2020 – FCC authorizes use of all-digital AM IBOC





Radio vs. TV digital transitions

- Voluntary vs. mandatory (for stations)
- Proprietary system (HD Radio) vs. industry standard (ATSC)

Parameter	 HD Radio [®]	 ATSC	Comments
Digital stations (% of total)	20%	100%	Voluntary for radio
Receiver penetration overall	30% (in cars)	100%	Radio penetration varies by market
Receiver penetration in new cars	50%	n/a	100% for DAB radios in Europe (mandated)
Connected device penetration	< 5%	74% in 2023	“Smart TV” “Hybrid radio”



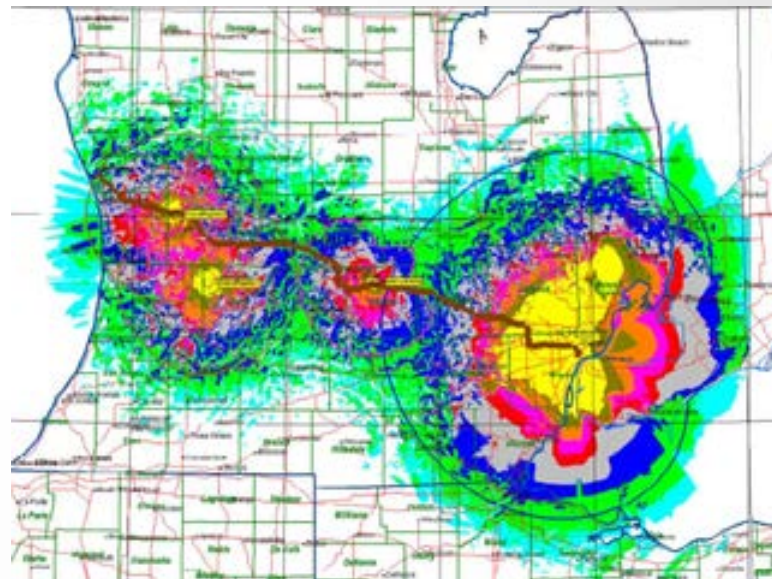
What was the impact?

- More consumer choice (“**multicasting**”)
- Improved picture and sound quality and metadata
- Impact on signal reception
 - Gradual degradation versus “cliff effect”
- Impact on plant design
 - IP audio and video distribution
 - HD2 translator feeds
- (TV) Reallocation of spectrum to other services



What about datacasting?

- TV: efforts underway to support mobile internet connectivity
 - 2022 test in Michigan demonstrated IP data delivery to moving vehicle across four transmitters using ATSC 3.0
- Radio:
 - Traffic data delivered to vehicles using HD Radio datacasting (iHeart, BTC)
 - Advanced FM modes offer additional throughput





HD Radio advanced mode testing

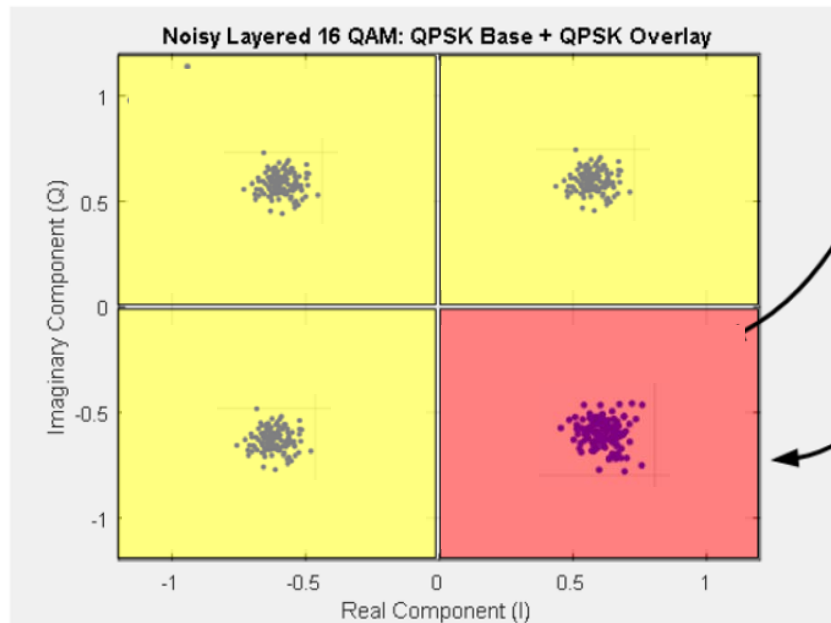
Mode	Backwards compatibility	Throughput (kbps)					Total	BW per sideband (kHz)	Comments
		P1	P2	P3	P4	S1			
MP1X QPSK	MP1	98			34		132	96.3	MP1XOV base only
MP1X 16-QAM	MP1	98			69		167	96.3	
DSB1 QPSK	no	114					114	96.3	Overlay for layered service modes
DSB1 16-QAM	no	229					229	96.3	
MS5 QPSK	no					114	114	96.7	No primary sidebands
MS5 QPSK	MP6	50	49			114	213	193.0	MP6 mode for primary sidebands
MS5 QPSK	no	229				114	343	193.0	DSB1 mode for primary sidebands

Layered (hierarchical) modulation modes:

Mode	Backwards compatibility	Throughput (kbps)					Total	BW per sideband (kHz)
		P1	P2	P3	P4	POV		
MP1XOV	MP1	98			34	114	246	96.3
MP6OV	MP6	50	49			114	213	96.3
DSB1OV	no	229				114	343	96.3

Layered (Hierarchical) Modulation

- Backward-compatible means of significantly enhancing capacity by simultaneously sending two service modes
- “Overlay” DSB1 QPSK on top of existing “Base” service mode
- Legacy receivers detect Base; Advanced receivers also detect Overlay for additional capacity



Advanced receivers detect QAM
MSBs (Base) and LSBs (Overlay)

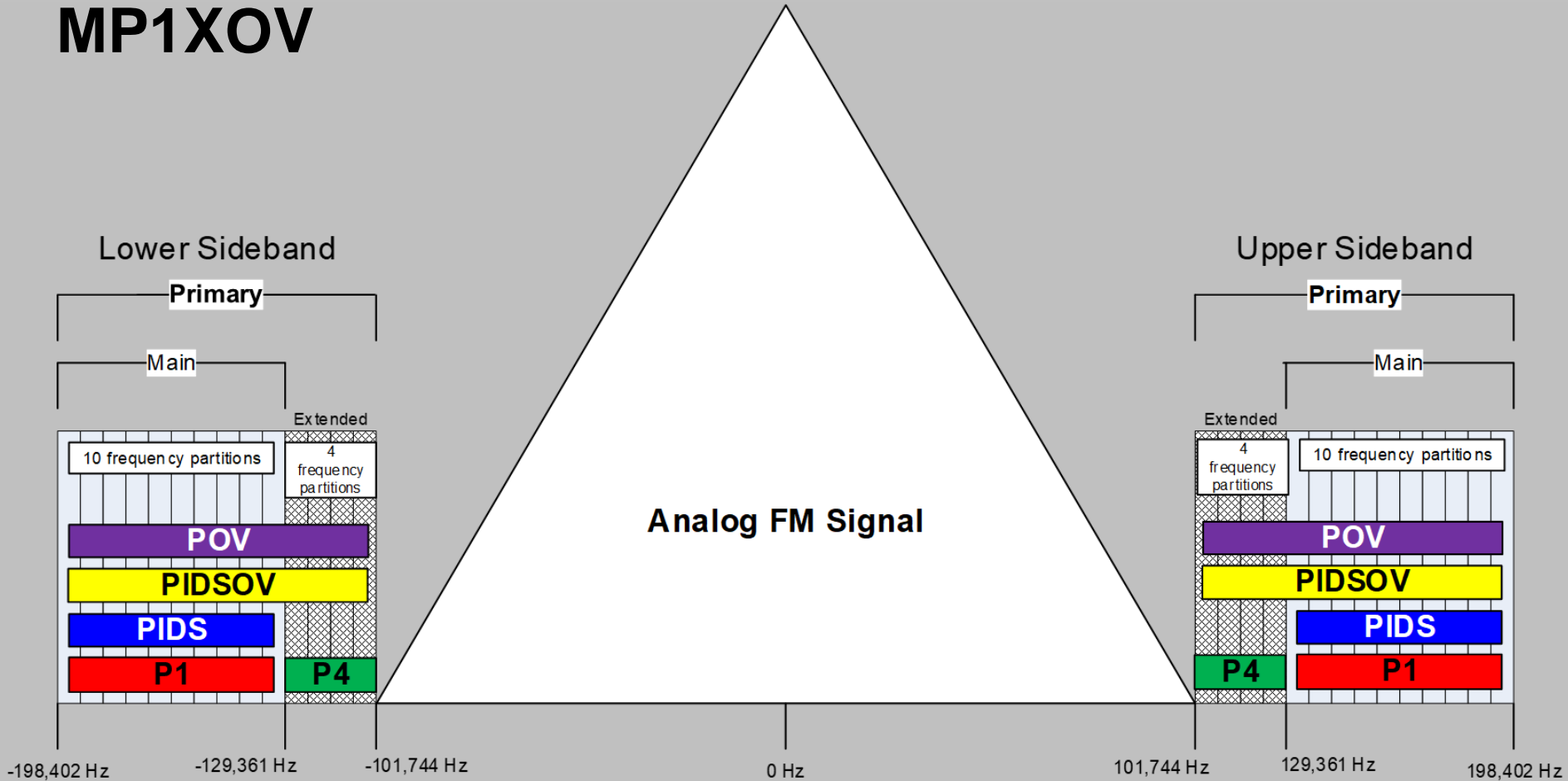
QAM MSB: $I = 1, Q = 0$
QAM LSB: $I = 1, Q = 1$

Legacy receivers detect
only QAM MSBs (Base)

QAM MSB: $I = 1, Q = 0$

Robustness:
Standard QPSK > Base >
Standard 16QAM > Overlay

MP1XOV





Digital transition #2

- Internet delivery of video and audio (“streaming”)
- TV:
 - Smart TVs and “apps”
 - Free ad-supported streaming TV (FAST)
- Radio:
 - Hybrid radio (DTS AutoStage, Radioplayer)
 - Internet radio in the vehicle
 - Podcasting

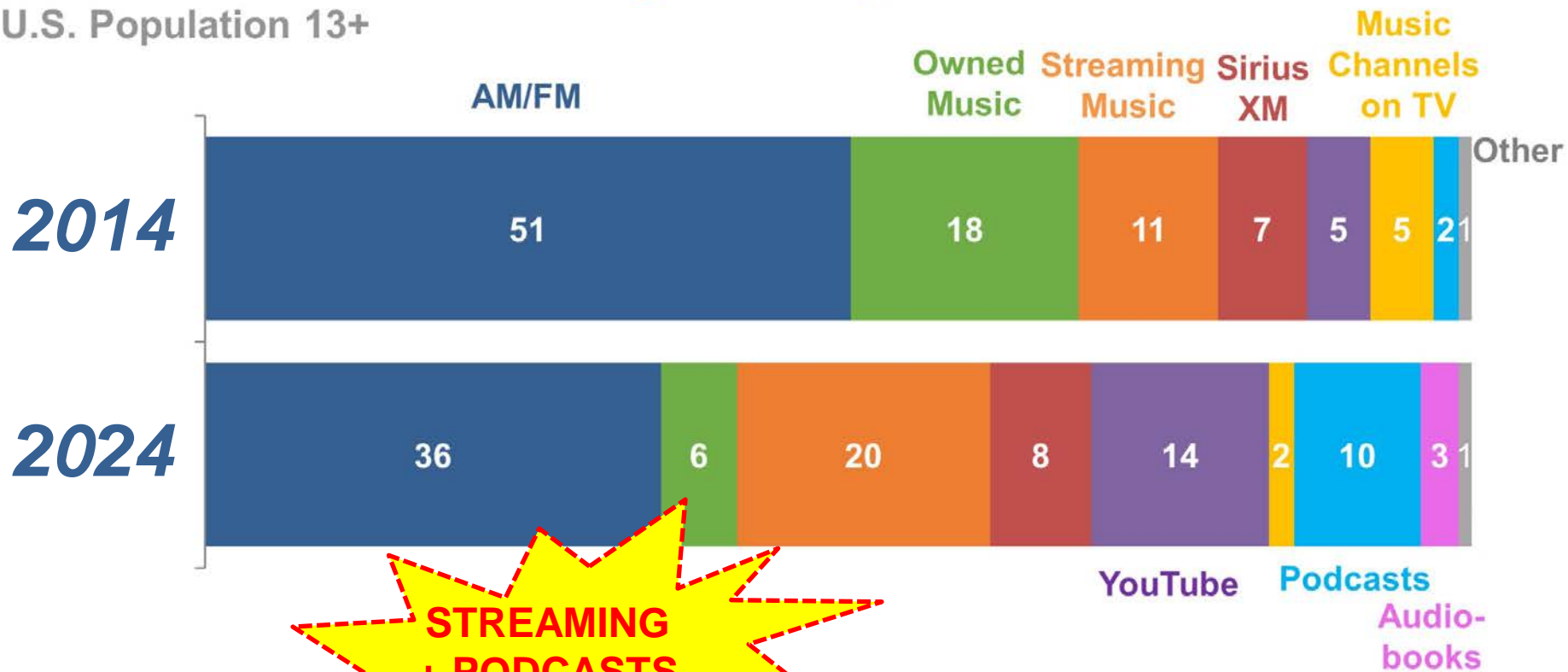


The **ROKU** Channel



Share of Audio Listening Time by Platform

U.S. Population 13+



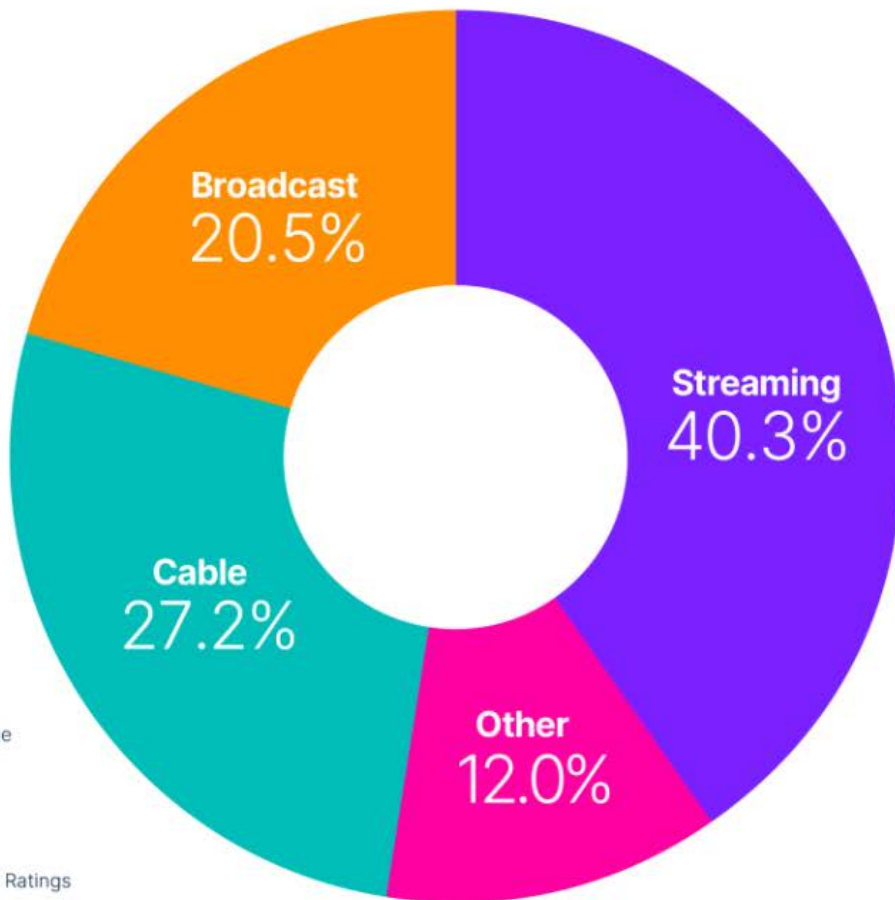
STREAMING + PODCASTS
13% TO 30%

The Gauge™

Nielsen's Total TV and Streaming Snapshot

June 2024

Total Day | Persons 2+



- 6.0% **Other Streaming**
- 9.9% **YouTube** Main
- 8.4% **NETFLIX**
- 3.1% **prime video**
- 3.0% **hulu** SVOD
- 2.0% **Disney+**
- 2.0% **tubi**
- 1.5% **Roku Channel**
- 1.4% **max**
- 1.2% **peacock**
- 1.1% **Paramount+**
- 0.8% **pluto tv**

Linear Streaming (VMVPD/MVPD) Apps have been removed from the Streaming category. They have also been removed from Other Streaming and Hulu and Youtube now reflect usage to Hulu SVOD and Youtube Main without their respective VMVPD's (Hulu Live and Youtube TV).

Methodology available @ www.nielsen.com/thegauge

Source: Nielsen National TV Panel Data plus Streaming Video Ratings

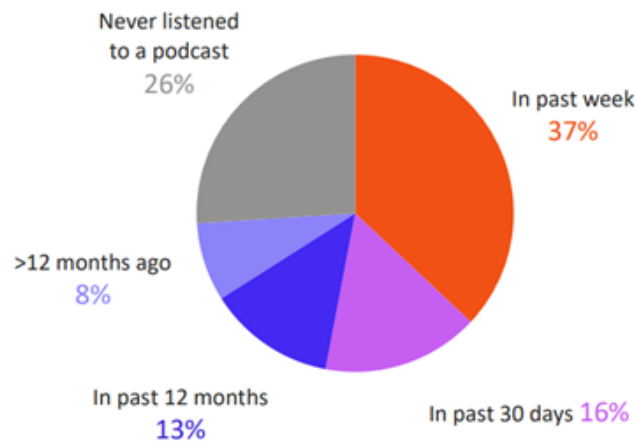
Percentages may not sum to 100 due to rounding

Copyright © 2024 The Nielsen Company

Thursday, September 5

Podcasting breaks 50% barrier, reaching a majority of American adults (Sounds Profitable)

“Podcasts now reach 53% of Americans 18+ every month – the first report of monthly consumption reaching the majority of adults in the US.”





What is the impact?

- More consumer choice
- Improved picture and sound quality and metadata
- **Interactivity and analytics**
- Revenue opportunities for automakers
 - “Pre-rolls”
 - Video and audio advertising
- “Cord-cutting”



Broadcasters and streaming

- For TV broadcasters – smart TVs
 - ATSC 3 compatible TVs combine OTA and streaming
 - Broadcasters are deploying Nextgen TV “apps”



[News](#) > [NextGen TV](#)

CES2024: 100+ NextGen TV Products Will Be Available to Consumers in 2024

By [George Winslow](#) published January 8, 2024

TCL joins Sony, Samsung, and Hisense with integrated NextGen TV receivers as lineup of receivers grows to include ADTH, Stavix, Zapperbox, and Zinwell

4



Press



to begin your experience



RESTART PROGRAM



Local



Entertainment



US & World



Sports



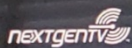
Weather



Alerts



Preferences

Powered with 



What is this

Powered with 



What is this

4

Other

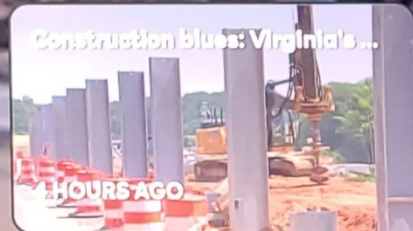
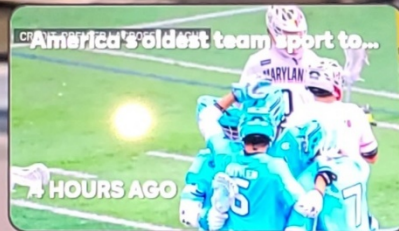
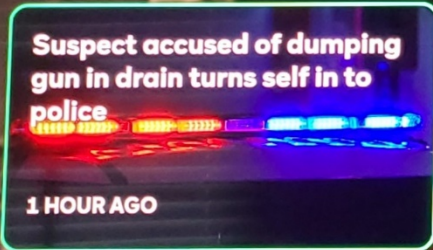
LIVE

Dateline 12:00PM - 1:00PM

Paris 2024 Summer Olympics



Local



Digital Originals





Broadcasters and streaming

- For radio broadcasters – streaming more problematic
 - Performance royalties for streaming music
 - Hybrid radio systems support streaming (service following) and non-linear content but mostly linear for now
- Valuable opportunities
 - Non-linear content (especially podcasts)
 - Interactivity
 - Listener analytics

STATION FOLLOWING

EXTENDED COVERAGE AREA

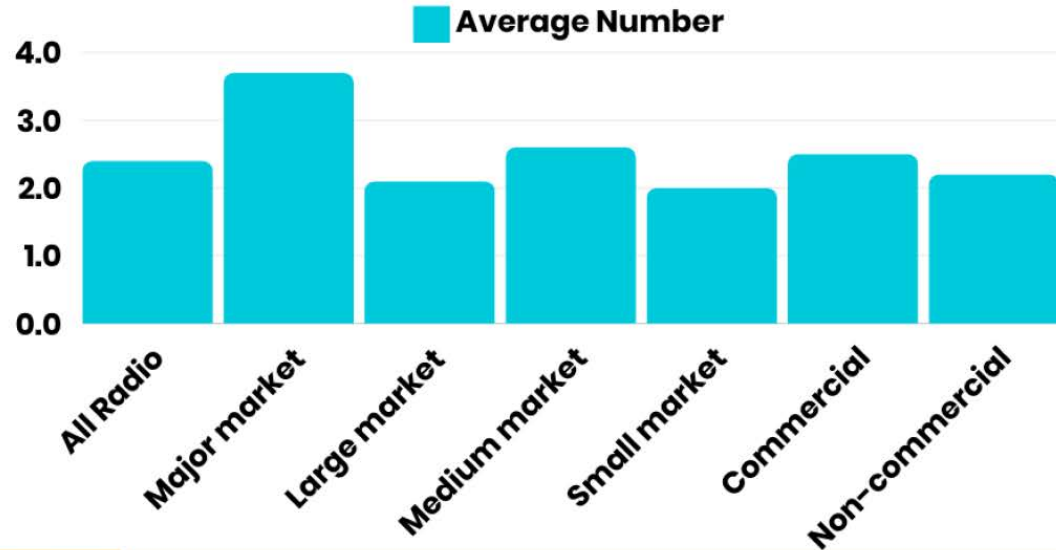


Seamless transition between over-the-air broadcast and IP content delivery.



RADIO PODCASTS **GAIN** POPULARITY

How many different podcasts do radio stations run per week?



INSIGHTS

- Podcasts get more attention on radio than TV stations
- The average number of radio podcasts is 2.4 this year
- Median number of podcasts is one, up from zero



Today's presentation

- Radio and TV digital transitions in the US – a brief history
- **Trends in digital and hybrid radio**
- Virtualization of radio's infrastructure
- Current regulatory topics of interest
- The Broadcast Positioning System (BPS)



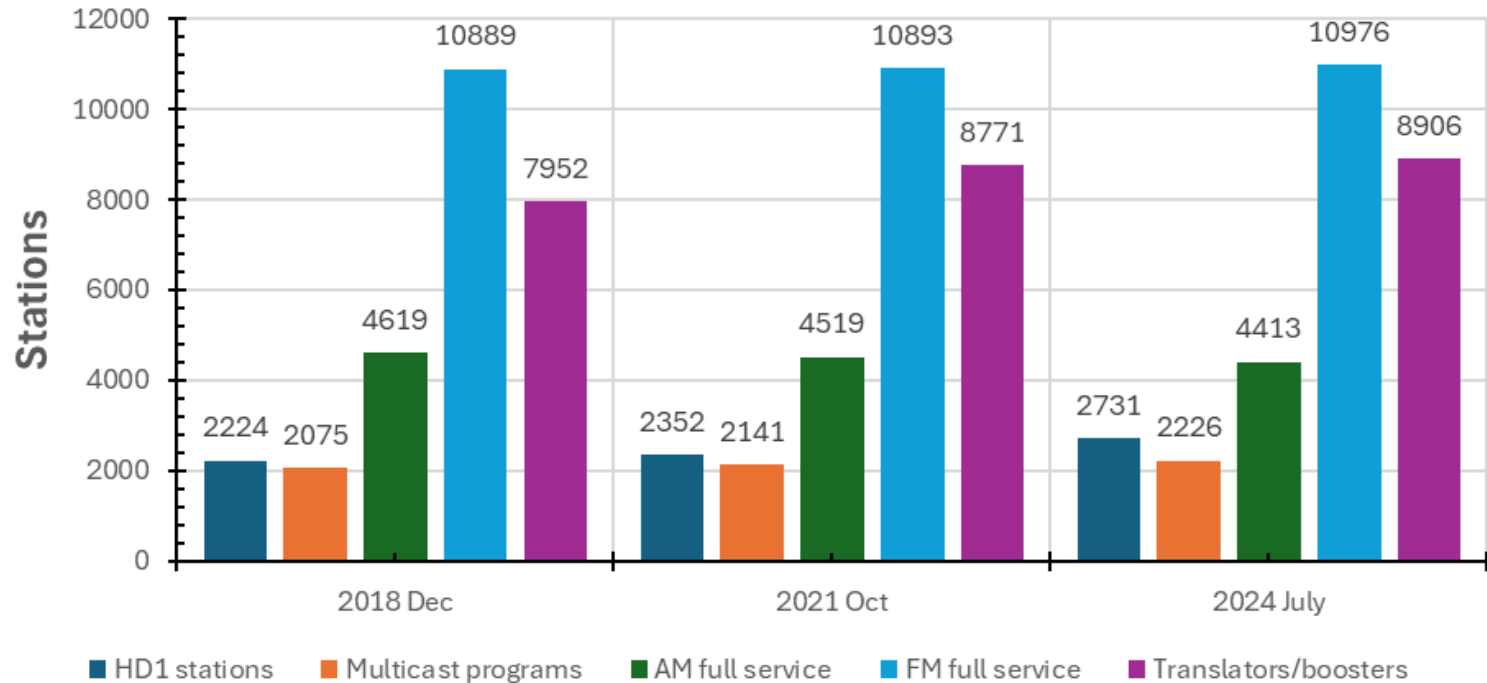


Trends in digital and hybrid radio

- Digital radio transition faces challenges
 - Receiver penetration is increasing BUT
 - Largest US automaker (GM) including digital radio only in select, high-end models
 - Broadcaster adoption is low and still around only 20%



Radio station adoption of digital radio 2018-2024





Trends in digital and hybrid radio

- Digital radio transition faces challenges
 - Receiver penetration is increasing BUT
 - Largest US automaker (GM) including digital radio only in select, high-end models
 - Broadcaster adoption is slow and still around only 20%
- Google's recent incorporation of HD Radio functionality within Android Automotive is an important step



- Digital radio
 - Receiver penetration
 - Largest US auto OEMs
 - End models
 - Broadcaster adoption

select, high-

- Google's recent...
Android Auto

personality within

2025 Ford Explorer – with Android Automotive O/S



Ford's new Android-powered infotainment system is finally coming to a Ford-branded vehicle. [The automaker's so-called Digital Experience](#), which debuted with the 2024 Lincoln Nautilus earlier this year, will power the new 2025 Ford Explorer SUV, the company announced today.

The 2025 Ford Explorer includes many of the Digital Experience's main features, including built-in Google Maps, Google Play Store, Google Assistant, wireless CarPlay and Android Auto, and digital HVAC controls. It doesn't have [the extravagant 48-inch panoramic screen setup](#) that the Lincoln Nautilus has, but from the looks of it, the main 13.2-inch touchscreen has the same interface. And the Explorer's 12.3-inch digital instrument cluster can project maps for the first time.



Trends in digital and hybrid radio

- Dashboard displays continue to increase in size
 - Radio needs to look as good as it sounds

TUNE IN



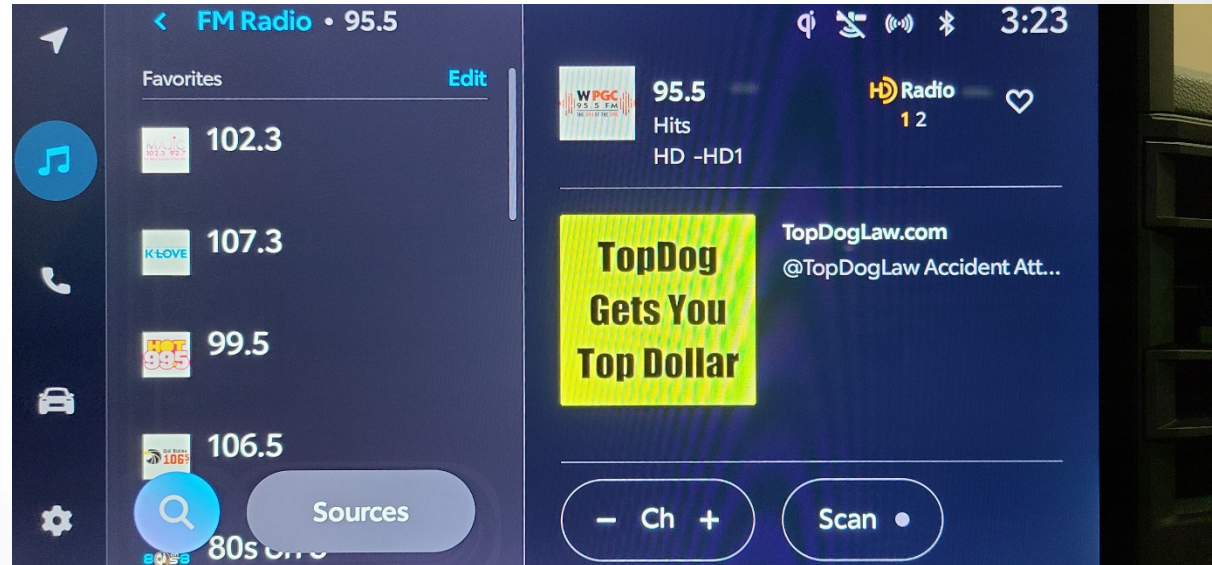
2025 Lincoln Navigator –
48" panoramic display





Trends in digital and hybrid radio

- More broadcasters earning revenue with metadata





Trends in digital and hybrid radio

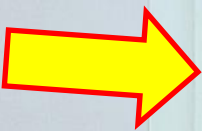
- Station lists are becoming the standard way to navigate and discover radio in the car
 - Good for multicast channels
 - Results are not always good
 - Hybrid radio station lists are outstanding

Navigation icons: Home, Music, Phone, Car, Settings

< Radio • FM Radio

10:35

All stations >	WPGC 95.5 FM THE DNA OF THE DNA 95.5	WHUR 96.3 96.3	QUIET STORM ALL DAY, EVERYDAY 96.3 HD2
Christian >	WABC Manuel University 96.3 HD3	97.1 WASH-FM 97.1	Feel It Live! 97.1 HD2
Classic >			
Classical >			
Country >			
Hot	94.7 WIAD-HD1 The Cars: Just What I Needed		HD 1



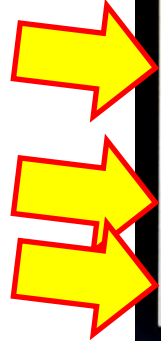
2023 Mercedes EQS 580 – now playing screen



The main infotainment screen displays the radio interface. At the top, there are navigation icons for camera, 4G LTE, and signal strength, along with the time 11:04. Below these are tabs for 'Favorites', 'SiriusXM', 'FM', and 'TuneIn Radio'. The 'FM' tab is active, showing a horizontal row of radio station logos including 93.1 WPOC, 93.3 WFLS, 93.9 WXPB, 94.7 DRIVE, 95.9 STALK, WHUR 96.3, 97.1 WASH-FM, LA MEGA, and 98 ROCK. A central album cover for 'the notorious B.I.G.' is displayed, with the text 'ready2die' below it. Below the album cover, the text reads '★ 95.5 FM | WPGC 95.5' and 'Now playing Big Poppa by Notorious B.I.G. on WPGC-FM'. At the bottom of the screen is a search bar with the word 'Search' and icons for list, play/pause, and settings.

The bottom control panel features two circular climate controls, each showing a temperature of 72°. Between them are icons for 'MAX' (Max Defrost), '1PM2.5' (Air Quality), and 'REAR' (Rear Window Defrost). Below these are buttons for 'AUTO' (Automatic Climate Control) and 'Climate M...' (Climate Menu).

2022 Hyundai Ioniq 5 – station lists



1:40 PM Mon, Dec. 5

FM AM SXM Presets

1:38 PM, Dec. 5

	FM 101.1 DC101 Washington DC's Alternative Rock	H 1	☆
	FM 101.1 104.7 WOKN-FM Smart People. News.	H 2	☆
	FM 101.9 Today's 101.9 Baltimore's at work variety from the 80's to now	H 1	☆
	FM 101.9 Praise 106.1 Bold and independent	H 2	☆
	FM 101.9 The Flashback Channel Flashback Channel	H 3	☆

FM H 1

93.9 WKYS (FM 93.9)

Tomorrow 2
Glorilla X Cardi B

2:00 PM Mon, Dec. 5

FM AM SXM Presets

1:58 PM, Dec. 5

	AM 1300 The Bet Baltimore Wagertainment for Every Fan	☆
	AM 1390 Radio Sputnik Telling the untold	☆
	AM 1470 FM 102.3 & AM 1470 WTRR The Greatest Hits of All Time / The Voice of Carroll County	☆
	AM 1500 Federal News Network WFED 1500 AM - Federal News Network	☆
	AM 1540 Radio Vida en Abundancia ¡Tu contacto al cielo!	☆

AM H 1

WWFD (AM 820)

Life's Been Good
Joe Walsh

2023 Chevy Traverse –
FM station lists



**NO HD
RADIO**

**NO
HYBRID
RADIO**



Trends in digital and hybrid radio

- Analytics from hybrid radio
 - Available to broadcasters who become “content partners” with Xperi
 - Radioplayer (not currently available in the US but is available in Canada) is developing analytics offering for its broadcaster partners



DTS Broadcaster Portal Onboarding

We are glad you've chosen to become a content partner. In a few short clicks you will take control of your stations and how your data is presented in DTS AutoStage enabled cars through the DTS Broadcaster Portal.

Continue with a login

Start onboarding →

Not ready to join yet? Read more about our award-winning [DTS AutoStage](#) here.





93Q WNTQ Syracuse, NY



This month (August)



Edit station →



LAST UPDATED ON: AUG 24, 2022

STATION METRICS



93Q
WNTQ • Syracuse, NY

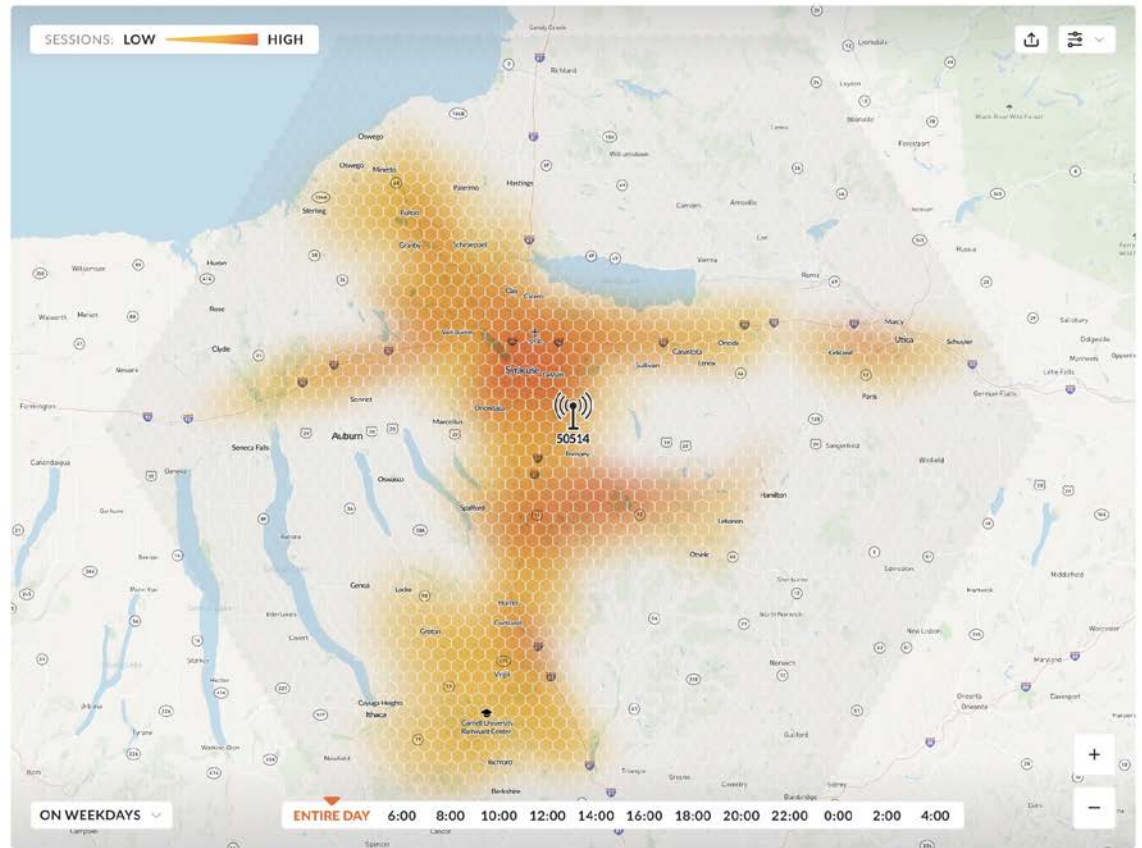
% Reach statistics

↑↓ Reach change

🕒 Day part activity

🗺️ Heatmap

📊 Top charts





Trends in digital and hybrid radio

- Gaming and video services being introduced
 - Xperi will be featuring gaming for the vehicle at the 2025 CES
 - VW will soon support multiplayer games using smartphones as controllers
 - BMW offers DTS Autostage video





Source: <https://www.engadget.com/transportation/vw-is-bringing-casual-multiplayer-games-to-evs-and-other-cars-090034594.html>

DTS AutoStage: Immersive Entertainment

DTS AutoStage

DTS AutoStage

HD Radio

DTS Audio

Music Metadata

DTS
AutoStage
Gaming

DTS AutoStage Video
powered by TiVo



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- **Virtualization of radio's infrastructure**
- Current regulatory topics of interest
- The Broadcast Positioning System (BPS)





Virtualization of radio's infrastructure

- Infrastructure has undergone its own digital transition
 - IP audio
 - Automation systems
 - etc.
- Latest transition is to a virtualized environment
 - NAB is involved through its work with the NAB Radio Technology Committee (NABRTC)



Virtualization of radio's infrastructure

- Example – Nielsen Portable People Meter (PPM) encoders
 - From hardware to software
- Certified vendors include:
 - ATC Labs - Orban - Thimeo - Wheatstone
 - RCS Sound Software - Telos/Omnia



Nielsen Radio Certified Vendors

OEM Vendor	Product	Product Version	AM	FM	HD	Internet Streaming	Domestic	International	Radio Encoding
ATC Labs	Perceptual SoundMax	2.12			✓	✓	✓	✓	1.1.7
	Sound+								



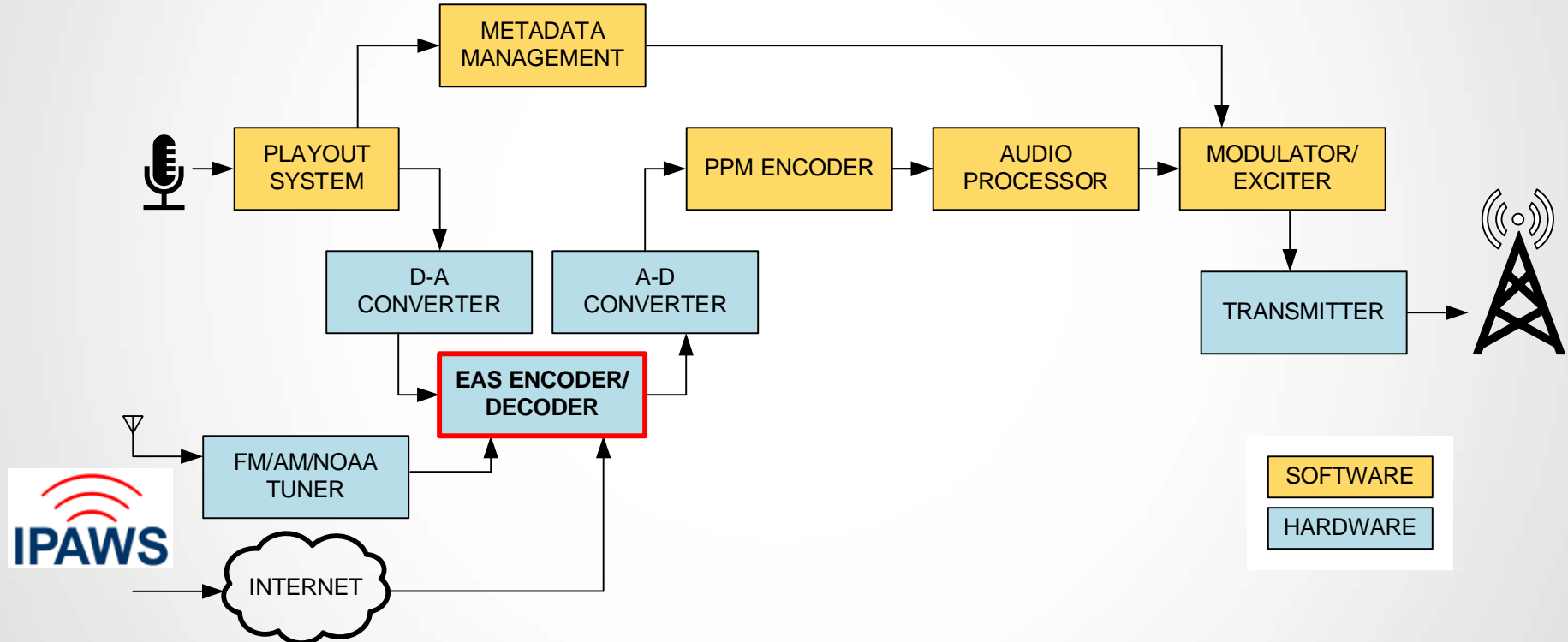
Virtualization of radio's infrastructure

- Example – EAS
 - Hardware EAS encoders/decoders are currently a requirement under FCC rules
 - This creates problems for broadcasters as many air chains are now implemented in software
- NAB is proposing that the FCC allow use of software-based EAS encoders/decoders
 - Host of benefits would be realized



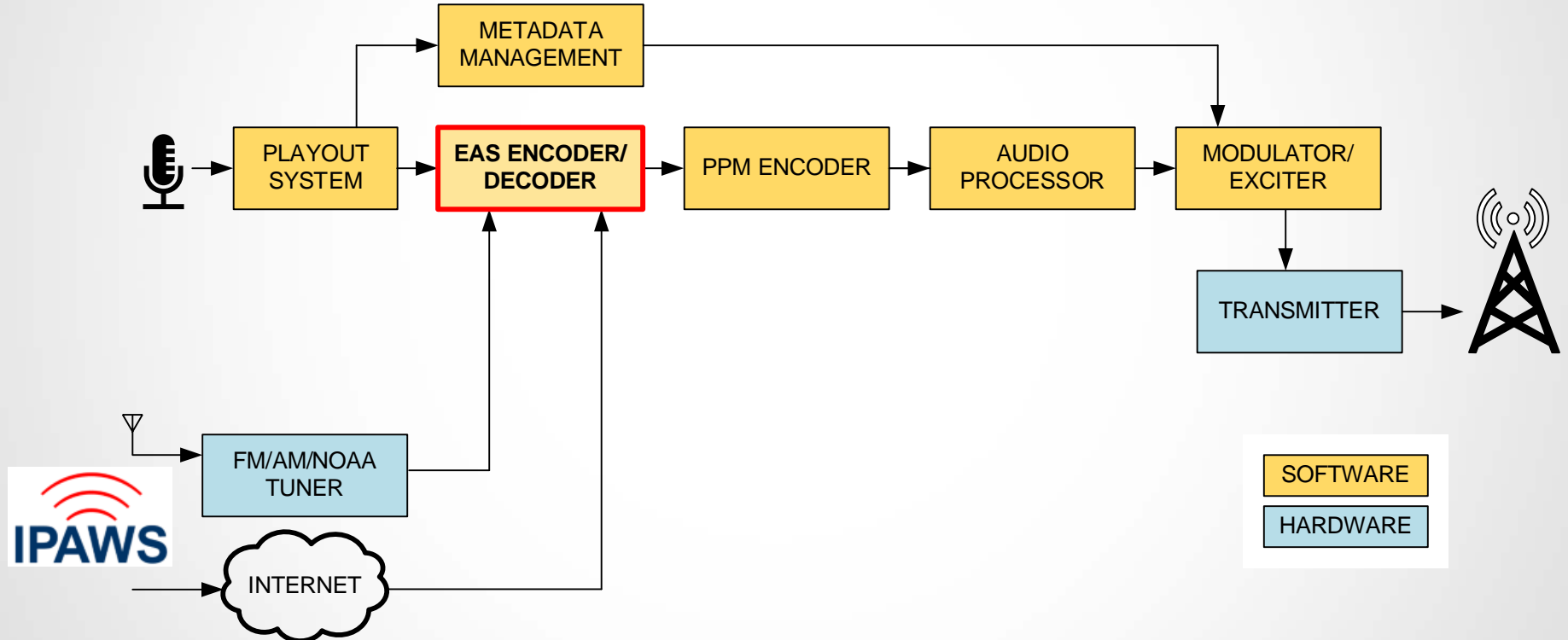


EXISTING





PROPOSED





Virtualization of radio's infrastructure

- Example – “next-gen transport”
 - NRSC and IEEE Broadcast Technology Society Standards Committee are pursuing draft standards for next-gen transport
 - Key attribute – MPX and HD Radio E2X data combined into a single IP stream
 - Eliminates timing problems (and the need for corrective action) relating to analog-digital blending



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FM digital power increase proceeding

- MB Docket No. 22-405
- FCC accepted comments and replies on FM digital power increase NPRM clarification in April 2024
 - Goals are to increase no. of stations that can operate at -10 dBc, allow for asymmetric sideband operations
- Later this month, FCC votes to authorize use of asymmetric sidebands
 - Experimental authorization no longer required



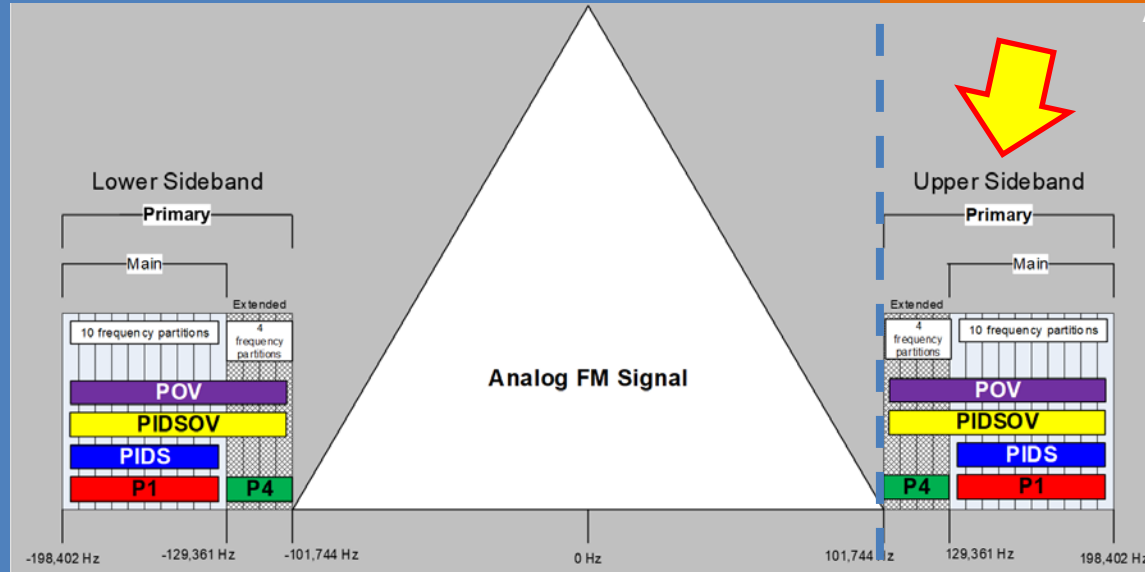
FM digital power increase proceeding

- Two principal objections to power increase portion of NPRM:
 - Press Communications (NJ) – **impact on class A stations**
 - “Aviation parties” – **FM interference into 108-118 MHz Aeronautical Radio Navigation Service (ARNS) band**
- This is the first time since IBOC was authorized in 2002 that any concerns have been expressed regarding ARNS
- Aviation parties include:
 - The Air Line Pilots Association International – The Boeing Company – Airlines for America
 - Garmin International, Inc. – Aviation Spectrum Resources, Inc. – General Aviation Manufacturers Assn.

Illustration of IBOC signal encroachment into ARNS band

FM
BROADCAST
BAND

AERONAUTICAL
RADIO
NAVIGATION
SERVICE
(ARNS)
BAND



107.6

107.7

107.8

107.9

108.0

108.1

108.2

Frequency in MHz



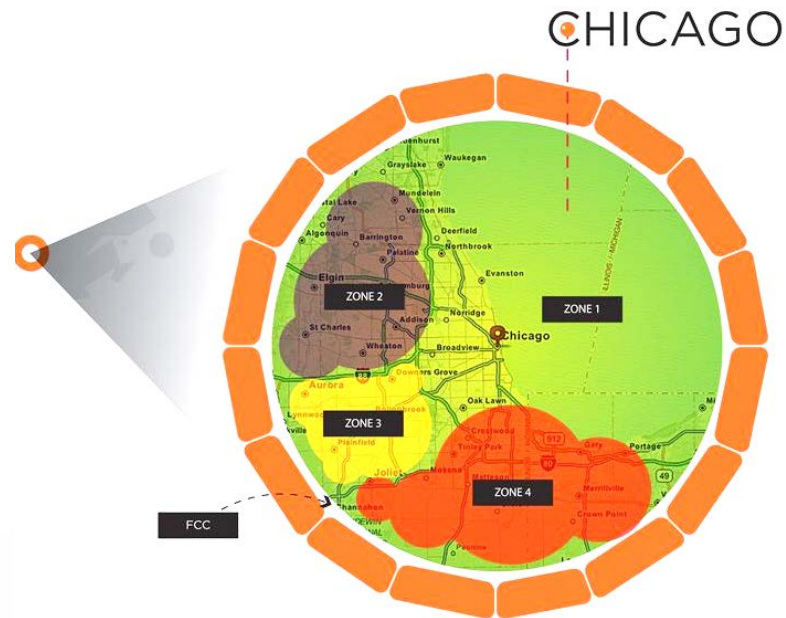
FM digital power increase proceeding

- NAB and Xperi are working with Aviation Parties to update test procedures
 - Developed HD Radio signal test vectors
 - Reviewing compatibility test plan (updated to include HD Radio)
- FCC action on digital power increase request likely a year or more away



FM booster content origination

- New rules effective May 16, 2024
- Process:
 - License booster(s)
 - File for experimental authority to originate programming
- No stations have yet filed for experimental authority to do this



SOURCE: RADIOWORLD, 11-18-2012



FM booster content origination

- Checked FCC License Management System (LMS) for booster applications since April

– Stations in table were mentioned in June and September RW articles as interested in Zonecasting



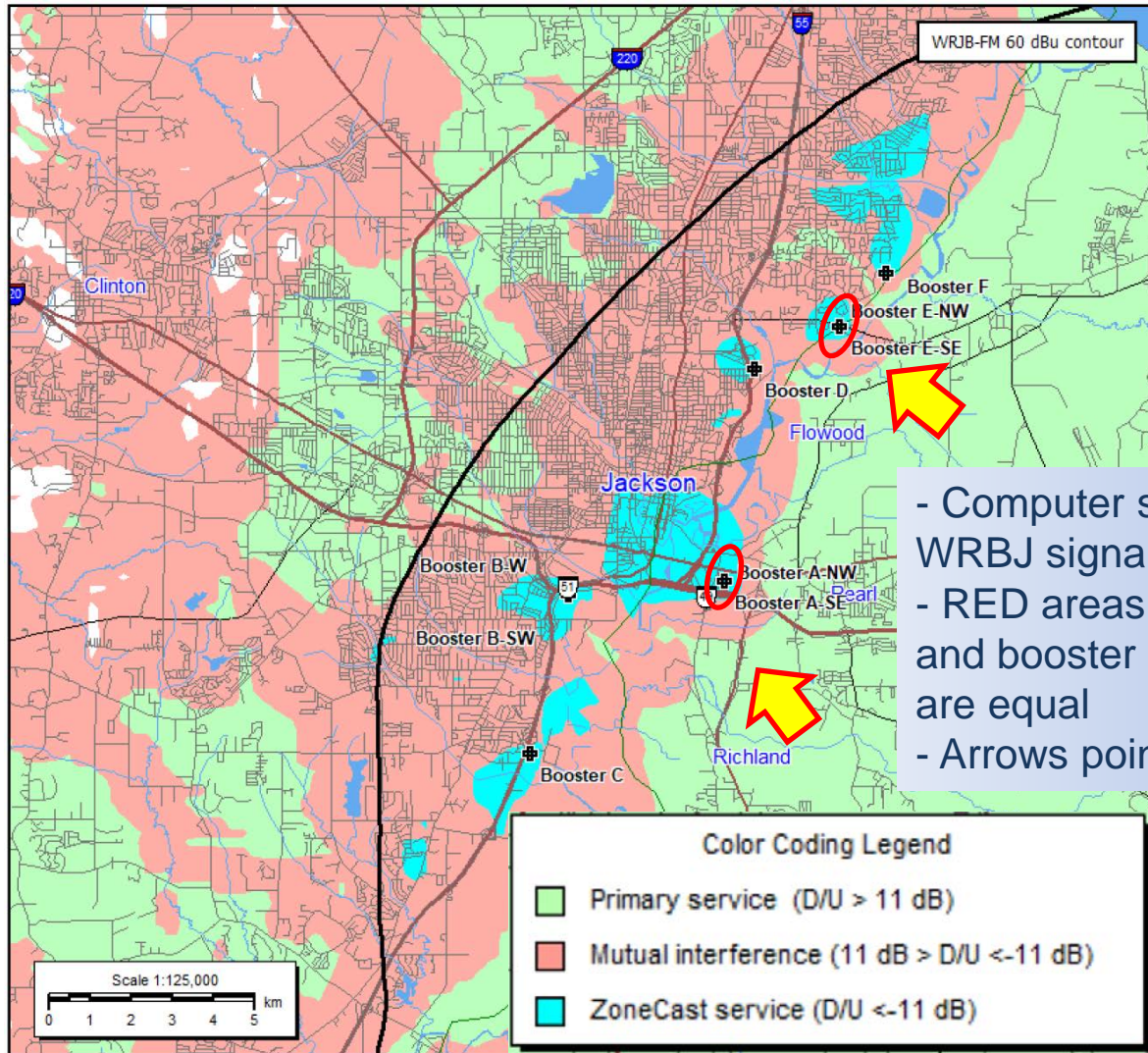
Licensing and Management System

No.	Call sign	# of boosters	Owner	City	State
1	KLCY	4	Ashley Communications, Inc.	Fort Duchesne	UT
2	KDDS	3	Bustos Media	Centralia	WA
3	KZTM	3	Bustos Media	Centralia	WA
4	WEIB	8	Cutting Edge Broadcasting, Inc.	Springfield	MA
5	KKFT	2	Evans Broadcast Company, Inc.	Stateline	NV
6	KRFN	3	Evans Broadcast Company, Inc.	Carson City	NV
7	KAFF	6	Great Circle Media	Sedona	AZ
8	KADD	7	Radio Activo 2, LLC	St. George	UT
9	WRBJ	5	Roberts Radio Broadcasting, LLC	Jackson	MS
10	WKTT	4	Rojo Broadcasting, LLC	Princess Anne	MD
11	KPKL	1	Spokane Broadcasting Company, LLC	Spokane	WA



FM booster content origination

- FCC is currently developing final rules for booster content origination
- NAB hopes to do interference testing in 2025
 - Would visit operational system
 - Would have to temporarily operate booster-originated content for more than 3 minutes per hour



- Computer simulation of WRBJ signals (*source: NAB/NPR*)
- RED areas are where main and booster signal strength are equal
- Arrows point to test sites



Today's presentation

- Radio and TV digital transitions in the US – a brief history
- Trends in digital and hybrid radio
- Virtualization of radio's infrastructure
- Current regulatory topics of interest

- **The Broadcast Positioning System (BPS)**





Broadcast Positioning System (BPS)

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Loss of GPS is Catastrophic

GPS can be jammed and spoofed

Power grid will fail

Cellular network will lose capacity

Financial trading will halt

Billions of dollars of economic loss





Executive Order by the President

- [Executive Order 13905](#) of February 12, 2020
- Strengthening National Resilience Through Responsible Use of Positioning, Navigation, and Timing (PNT) Services
 - The Director of the White House Office of Science and Technology Policy will develop a national plan for research and development (R&D) and pilot testing of **alternative PNT services**, reducing dependence on Global Navigation Satellite Systems (GNSS)



What is the Broadcast Positioning System (BPS)?



Time and position using ATSC 3.0 signals

ATSC

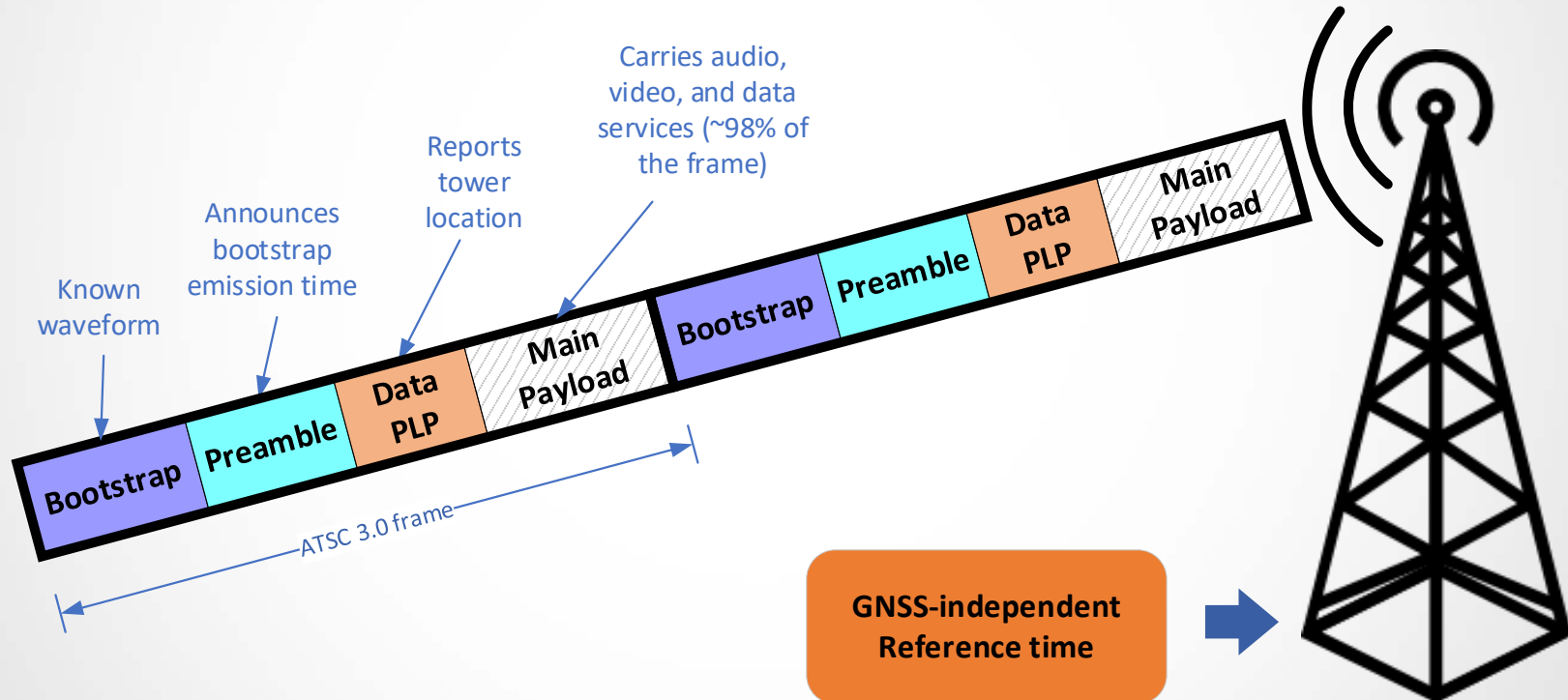
Compliant with ATSC 3.0 standard



Works without GPS, internet, or cellular connectivity



Concept





Advantages of BPS

Infrastructure is
already built

Global standard

Passive
consumer
service

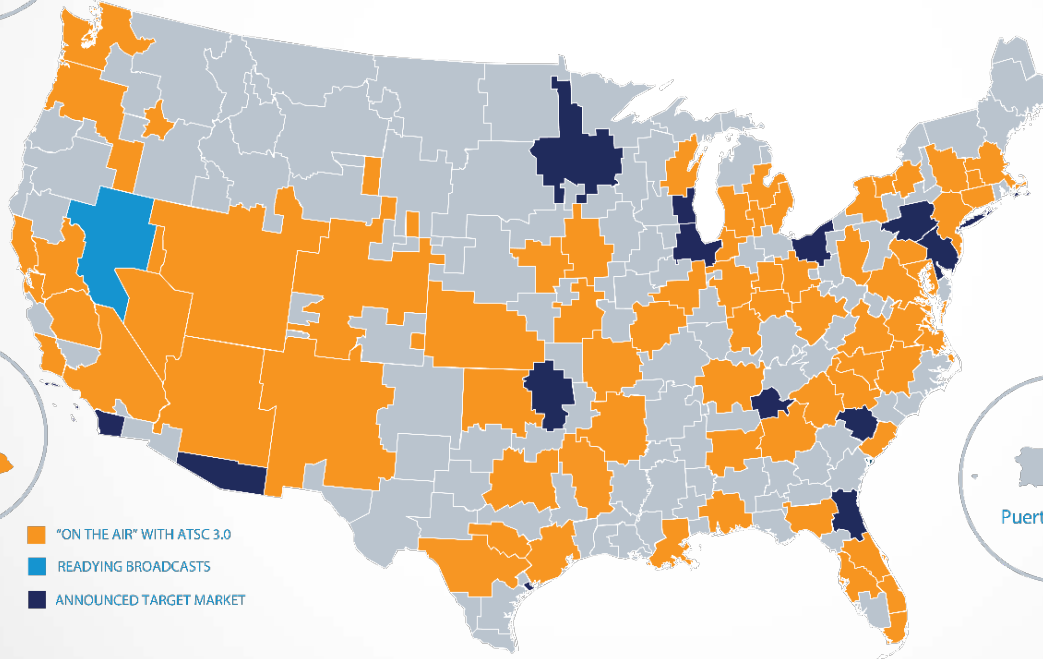
Independent

Frequency
diversity

Nationwide
coverage



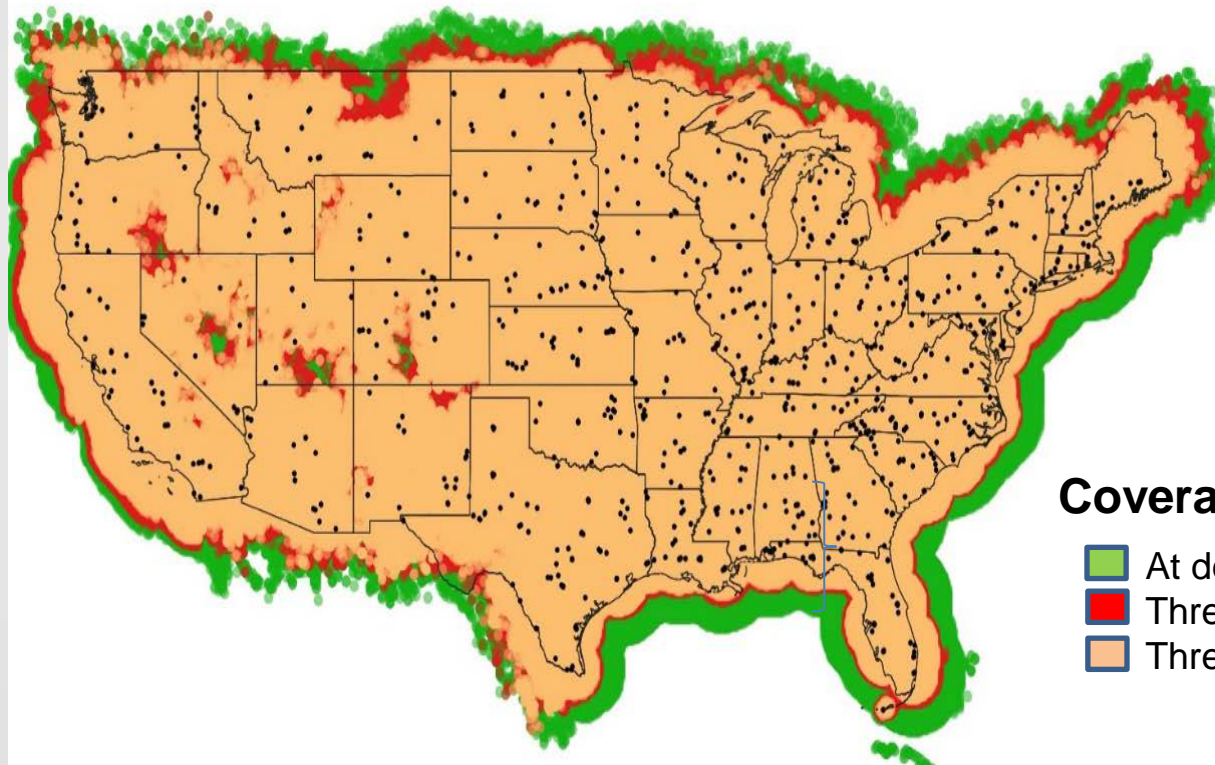
Current ATSC 3.0 Market Coverage






Source:
atsc.org



BPS (UHF & VHF) Coverage at Full Deployment



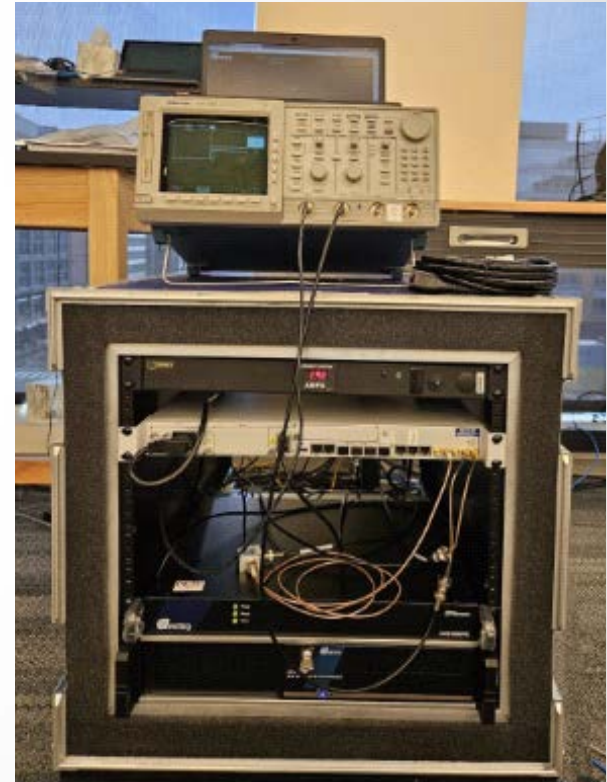
Coverage at 1.5 m antenna height:

-  At demodulation threshold (-5 dB SINR)
-  Threshold + 10 dB
-  Threshold + 20 dB



Broadcast Positioning System status

- Long list of accomplishments:
 - Developed transmission side BPS hardware and software, functional BPS receivers
 - Deployed BPS at WHUT (Washington, DC); it has been running 24/7 for 5 months, achieving 40 ns accuracy
 - Deployed BPS at KWGN (Nexstar station in Denver, CO), preparing for WNUV (Sinclair station in Baltimore, MD) deployment in September



NABII SHOW[®] NEW YORK

EXHIBITS: OCTOBER 9-10, 2024
EDUCATION: OCTOBER 8-10
JAVITS CENTER | NEW YORK, NY





2024 NAB Show NY



- October 8-10, 2024, Javits Center
 - Co-located with the AES Show 2024 NY



- Meetings (all in the Javits Center):
 - NRSC – Wednesday, October 9th, 2-4:30PM EDT (open to all)
 - NABRTC – Thursday, October 10th, 10:30AM-1PM EDT (NAB members only)
 - NABTVTC – Thursday, October 10th, 2-4PM EDT (NAB members only)



2024 NAB Show NY



- Exhibit hall is combined for NAB and AES events
- NAB sessions for radio:
 - Radio & Podcast Interactive Forum (paid, \$349 for an NAB member)
 - No radio technical sessions
 - 3 theaters on exhibit floor, 30+ presentations on various topics

5 Results for Radio & Podcast Interactive Forum



SESSION NAME (5)

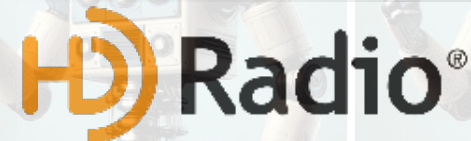
Wednesday, Oct 9

Time	Session/Event	Location
10:00 AM - 10:40 AM	It Takes a Team: How Talent Works Across the Team to Create Winning Shows	<u>3D09</u>
10:45 AM - 11:30 AM	How Marketing and Technology Work Together to Grow and Engage Audiences	<u>3D09</u>
12:30 PM - 1:20 PM	The New Playbook: Producing Innovative Sports and News Content	<u>3D09</u>
1:25 PM - 2:15 PM	Innovative Sound Design and Video Strategies for Radio and Podcasts	<u>3D09</u>
2:20 PM - 3:10 PM	Leveraging Data Insights to Improve Programming, Promotions and Bottom Lines	<u>3D09</u>



Summary

- Digital transitions are tough!
- Radio broadcasters need to:
 - Make sure their station looks as good as it sounds
 - Think about non-linear opportunities like podcasting
 - Make use of hybrid radio analytics
 - Consider virtualizing operations



- Thanks for inviting me today!



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