



Digital DC Update Broadcast Technology and Policy

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EVP & CTO

October 12, 2022



ADVOCACY. EDUCATION. INNOVATION.





TECHNOLOGY DEPARTMENT



Zoom Meeting



We improve lives through broadcast technology and broadcaster innovation.



P110

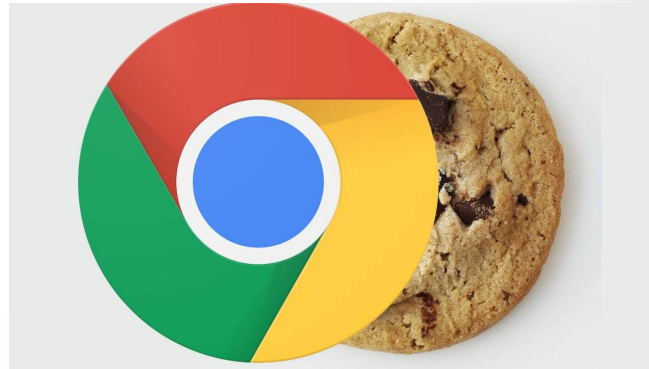
NAVIGATING BROADCASTING



Third Party Cookies

How much ad revenue is based on cookies?

- a. \$100M
- b. \$1B
- c. \$90B
- d. \$1T





First-Party Data Program

3rd Party Cookies = \$90B Problem*

- Foundation for programmatic ads
- Google estimates 50-60% of revenue hinges on 3rd Party Data
- McKinsey estimates publishers could lose \$10B
- Chrome Browser = 66% Market Share
 - Apple & Firefox already deprecating



*IAB, eMarketer, Statista



Metadata Digital Dash Best Practices

- Maximize your brand in the vehicle
- Provide superior user experience
- Earn new revenue
 - Services like QUU have advertising solutions



<https://www.nab.org/innovation/autolnitiative.asp>

Android Automotive

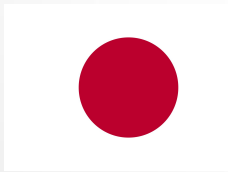
- Android Automotive is the system that manages the automotive experience
- ABI research: 36 million vehicles will be shipped with Android Automotive in 2030
- Will be in vehicles from Ford, Audi, GM, Groupe PSA, Volvo, Renault, Nissan, Mitsubishi and others





Initiative Participants

- Audacy
- Bauer Media
- BBC
- Beasley Media Group
- Commercial Radio Australia
- Cox Media Group
- iHeartMedia
- Ford Motor Company
- NAB
- New York Public Radio
- NPR
- Salem Media Group
- SWR
- TBS Radio
- Volkswagen / Audi
- Xperi
- WorldDAB





The Road to ATSC 3.0





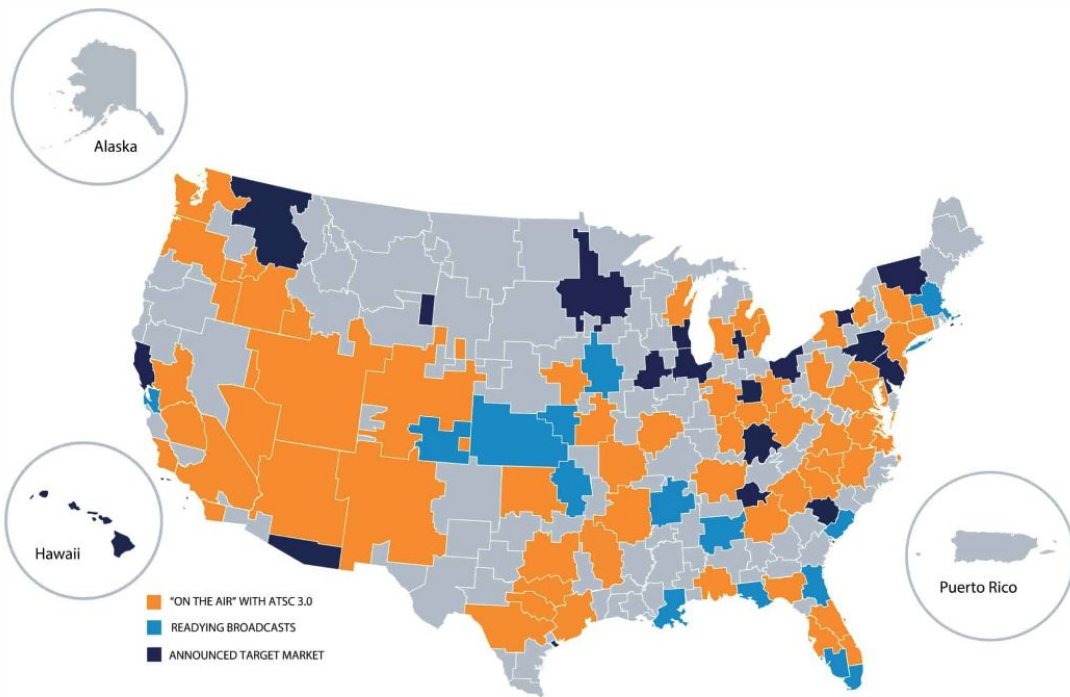
ATSC 3.0 Transition

287 Channels

68 Stations

55 Markets

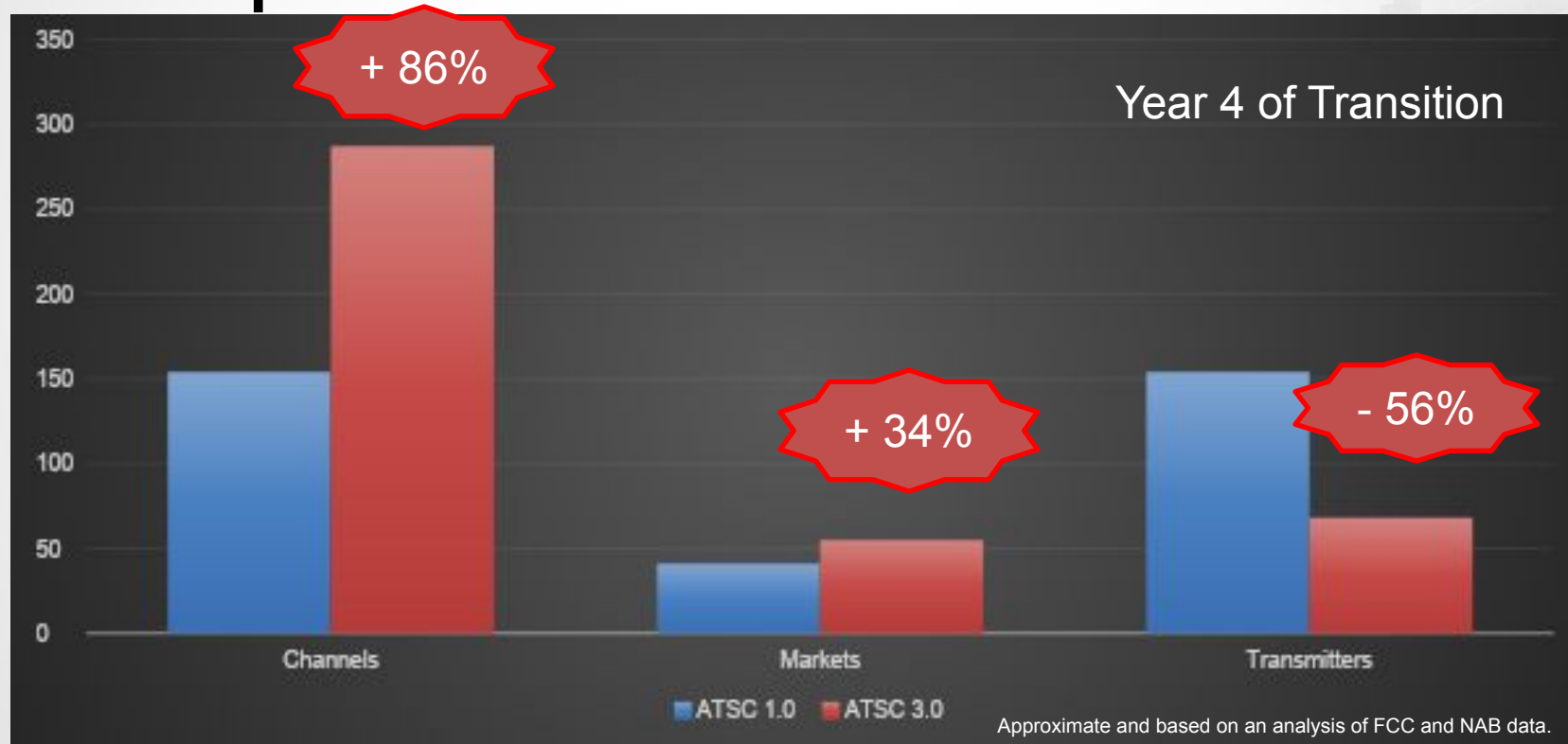
>51% USTVHH



*As of October 7, 2022



Compared to Last Transition

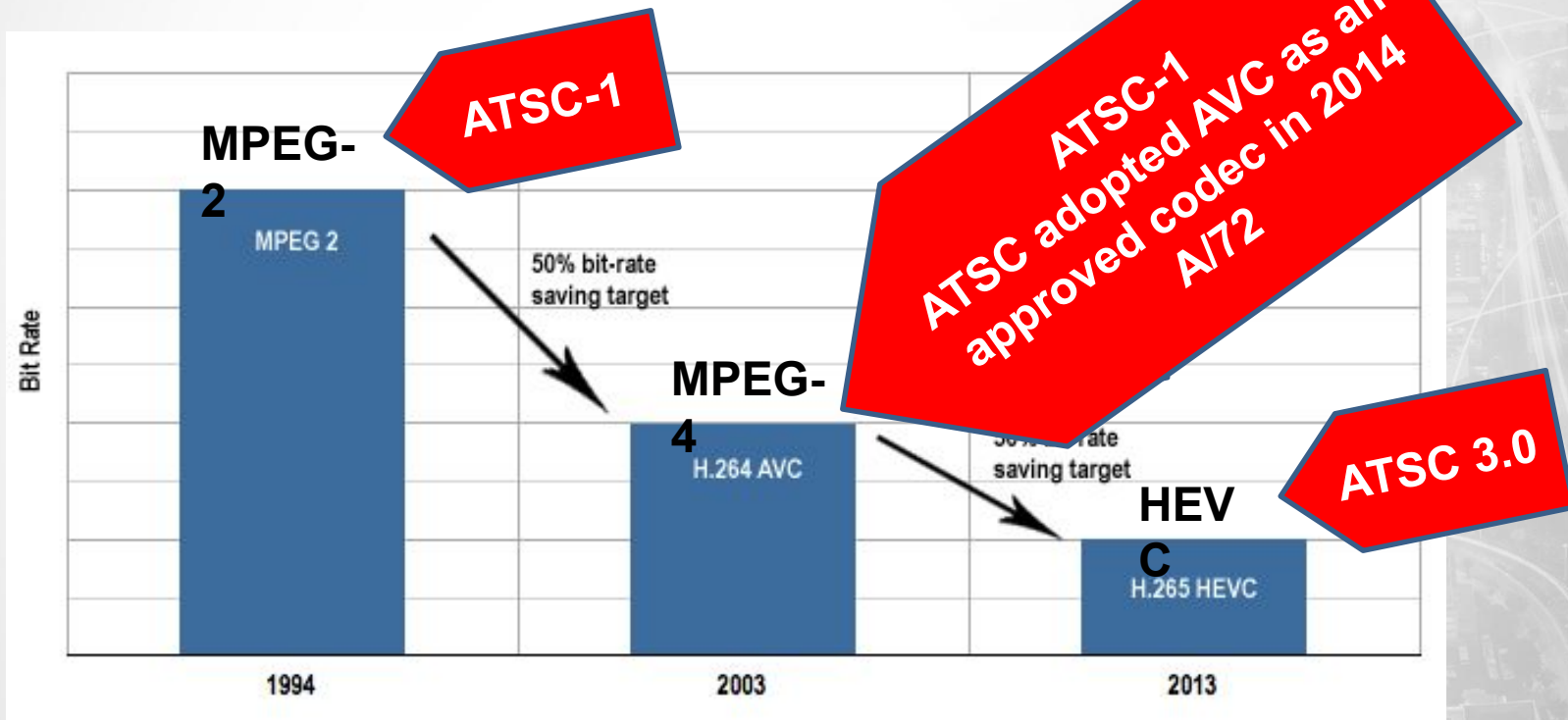




TRANSITION & TOOLS



Video Compression Coding Evolution



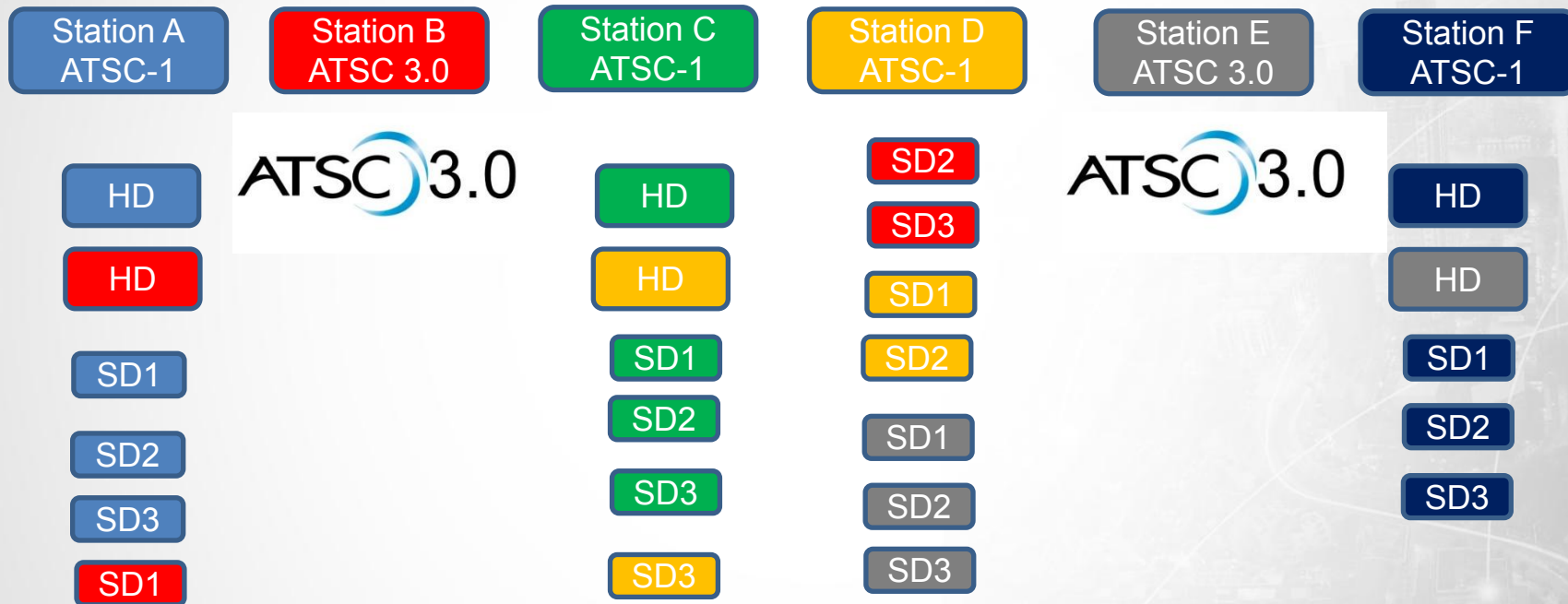


Typical Broadcast Service Lineup

Station A ATSC-1	Station B ATSC-1	Station C ATSC-1	Station D ATSC-1	Station E ATSC-1	Station F ATSC-1
HD	HD	HD	HD	HD	HD
SD1	SD1	SD1	SD1	SD1	SD1
SD2	SD2	SD2	SD2	SD2	SD2
SD3	SD3	SD3	SD3	SD3	SD3

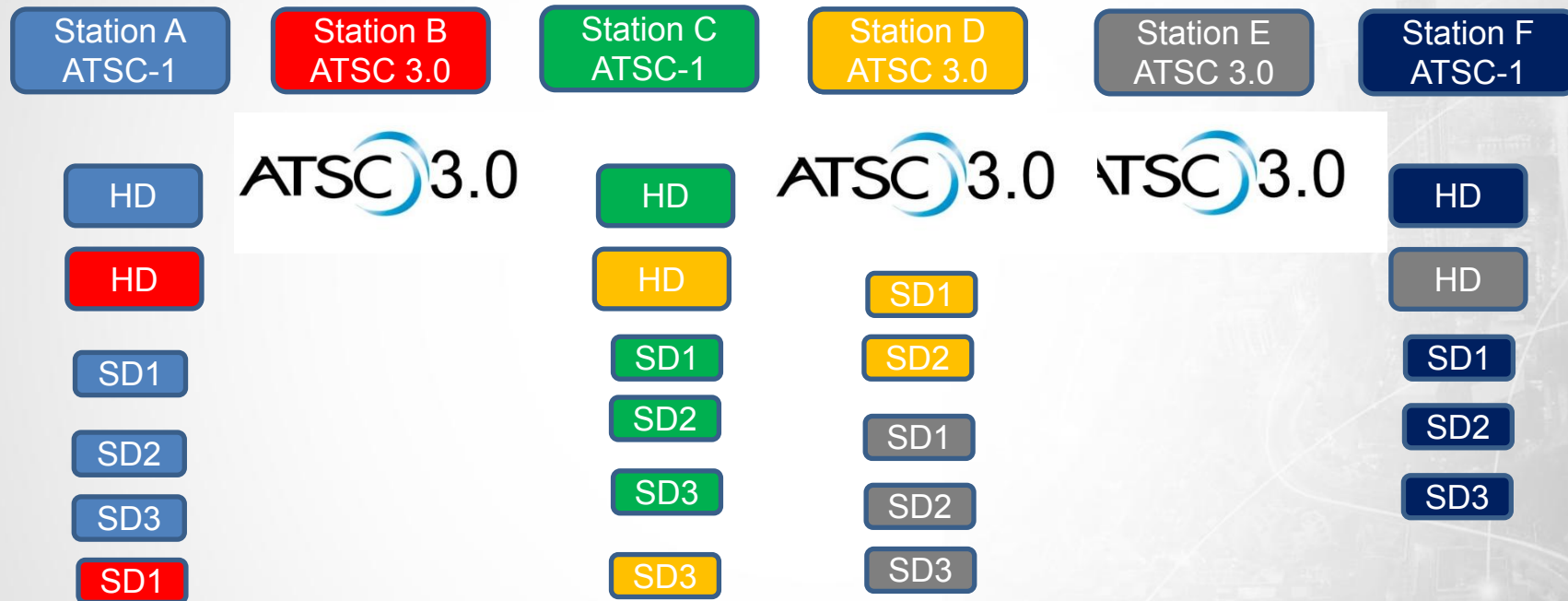


Maximum Channel Sharing Using MPEG-2





Maximum Channel Sharing Using MPEG-4 for Diginets





Considerations

- Diginets **ONLY**
- OTA Receivability
- Diginet Affiliate Agreements
- Cable Agreements and IRD (if applicable)



Consumer Facing Logo for ATSC 3.0 Products



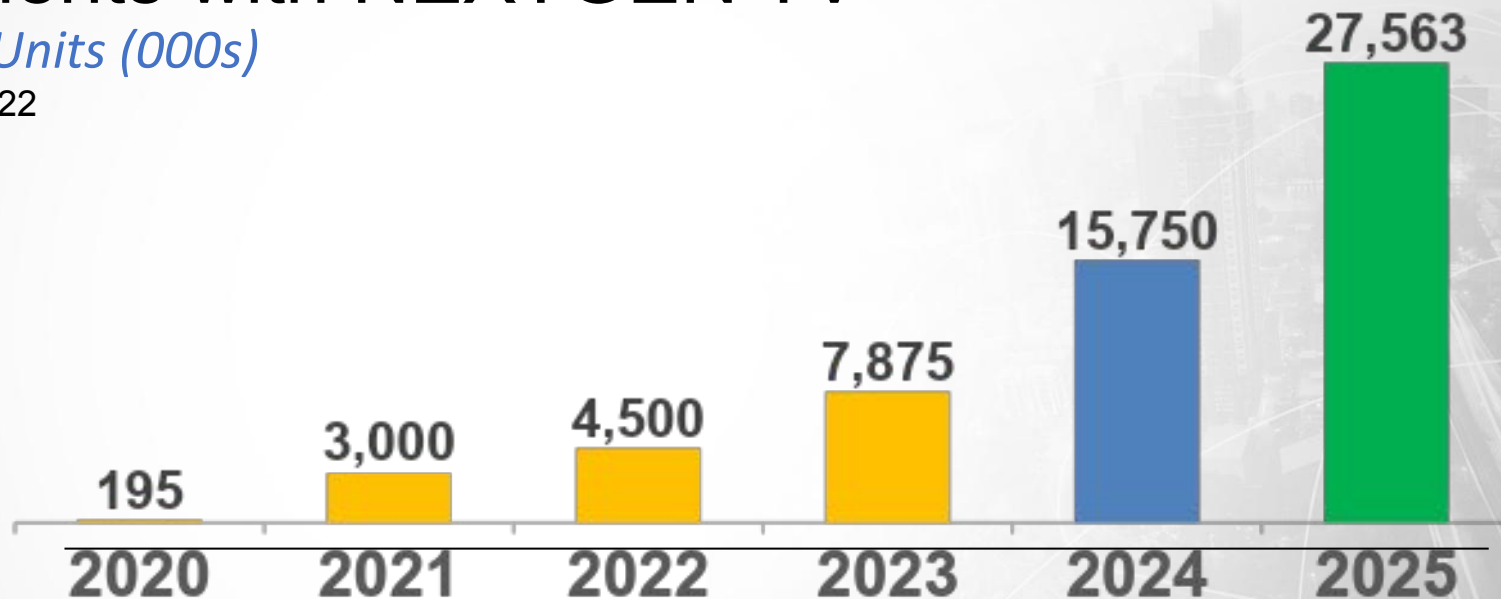
Announced in September 2019



TV Shipments with NEXTGEN TV

U.S. Market – Units (000s)

Source: CTA July 2022

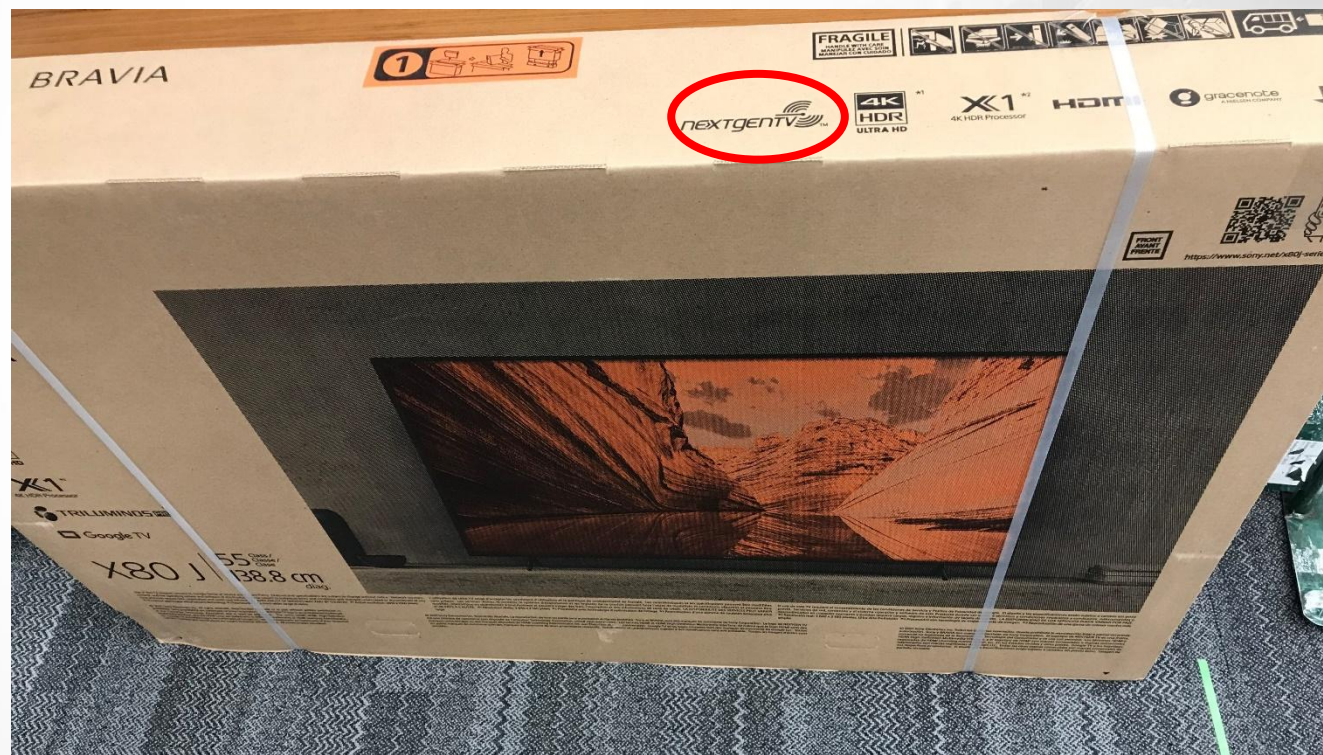


	Introduction			Inflection Point	Maturation
% Unit Growth (YoY)	1438	50	75	100	75
% of Total TV	6	11	20	41	74



The Logo Is Being Used

- On Packaging
- On Products
- In Promos
- At Point-of-Sale
- Hisense, LG, Samsung, Sony (others coming)



ATSC 3.0 Test Repository

</

Currently:

- almost 400 tests in repository
- Almost 200 tests are required for logo certification





CBS THIS MORNING
SATURDAY

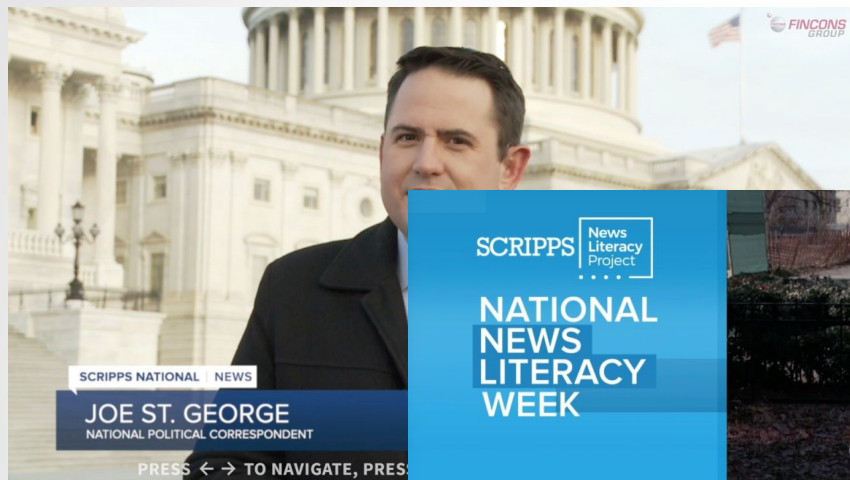
The Dish **▶** **CBS THIS MORNING SATURDAY**

BIO **RECIPES**

+ Videos


EXIT





SCRIPPS News Literacy Project

NATIONAL NEWS LITERACY WEEK

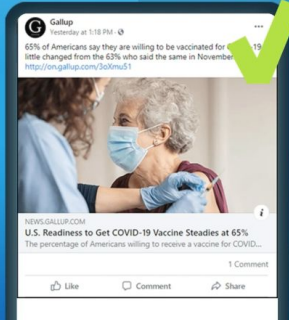


Easily reveal
Download:
To download, scan
smartphone's ca

SCRIPPS News Literacy Project

NATIONAL NEWS LITERACY WEEK

News Lit Quiz: Should you share it?



FINCONS GROUP



WRONG

This is a Facebook post from Gallup, a widely respected analytics company known for its public opinion polls. The post cites two findings in support of its claim and includes a link to a story with more details and context.

↑ PLAY ALONG



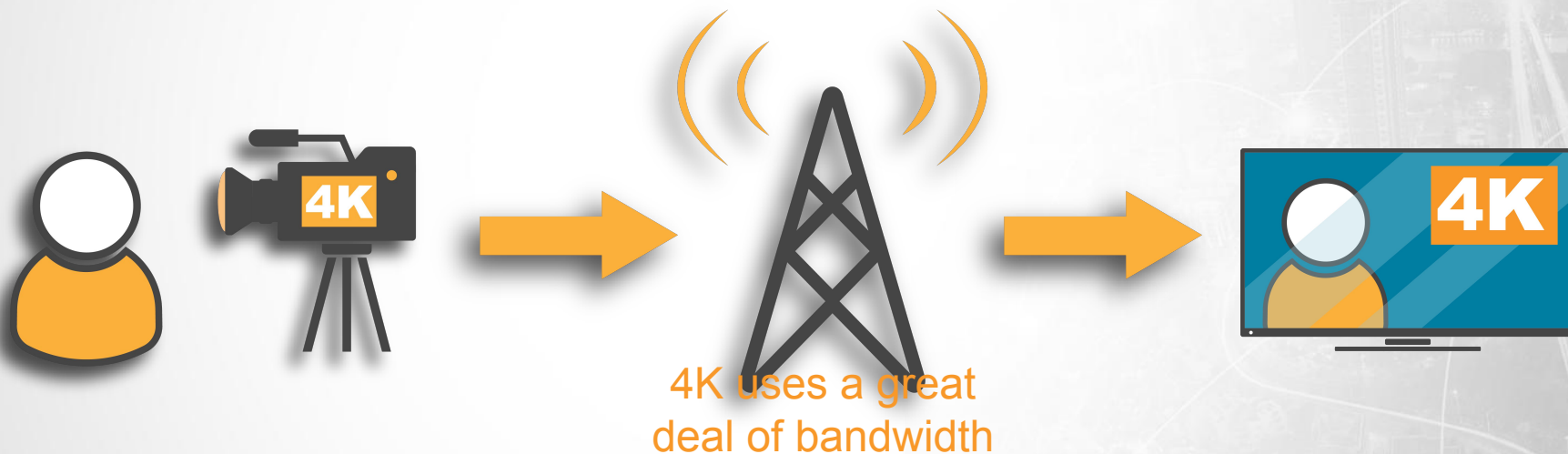


SHVC Demo at NAB Show



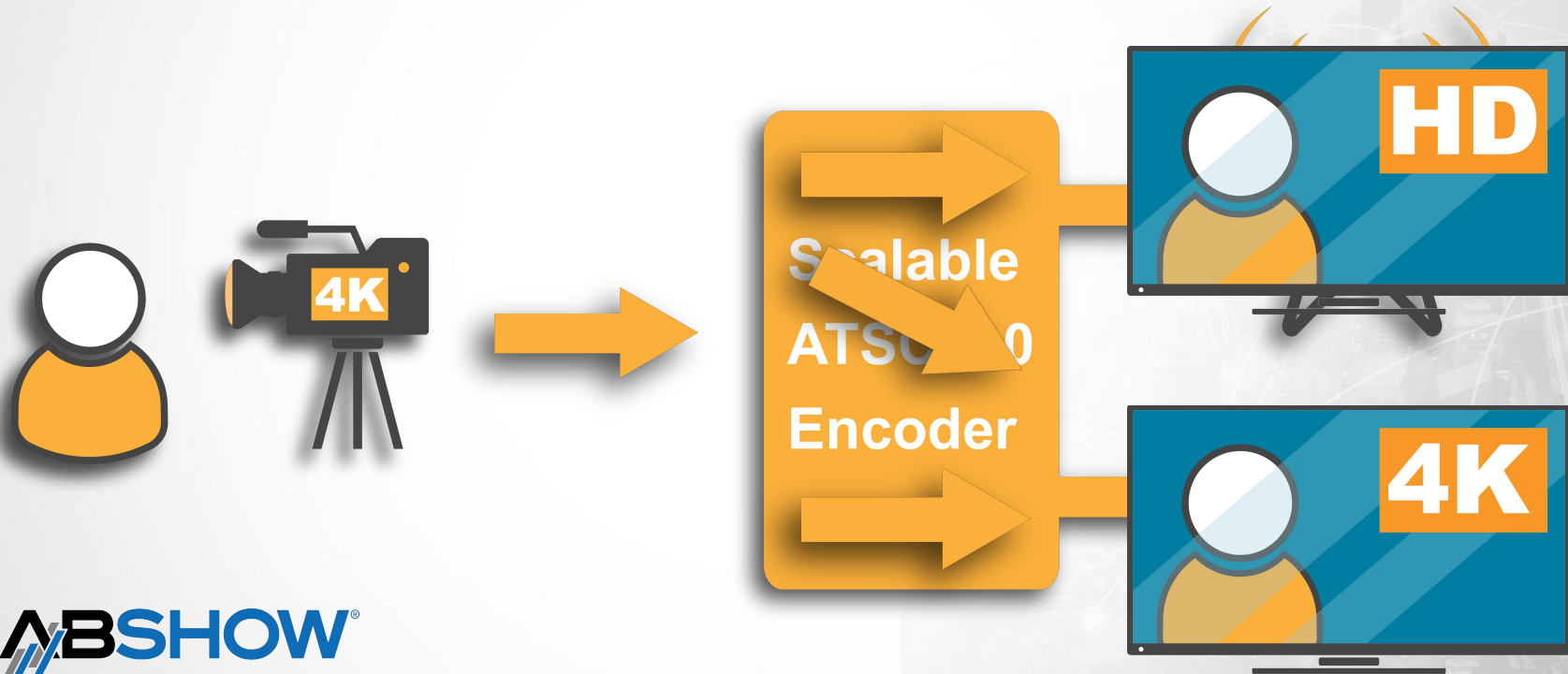


UHD Broadcast





Broadcast & Broadband





RESOURCES





NextGen TV TxID Table

- Tool to uniquely identify transmitters (FP & LP)
- IDs are regionally unique to channel number
- Excellent for SFNs where multiple transmitters will otherwise have the same physical layer attributes
- ATSC Standard has this as an optional field
- Multiple search options or CSV download

<https://txid.nabpilot.org/>



Search

☒ United States ☒ Canada ☒ Mexico

State

Callsign

Facility ID

Channel

TxID

Sort

☐ State, City

☐ Callsign

☐ Channel

☐ TxID

☒ Ascending

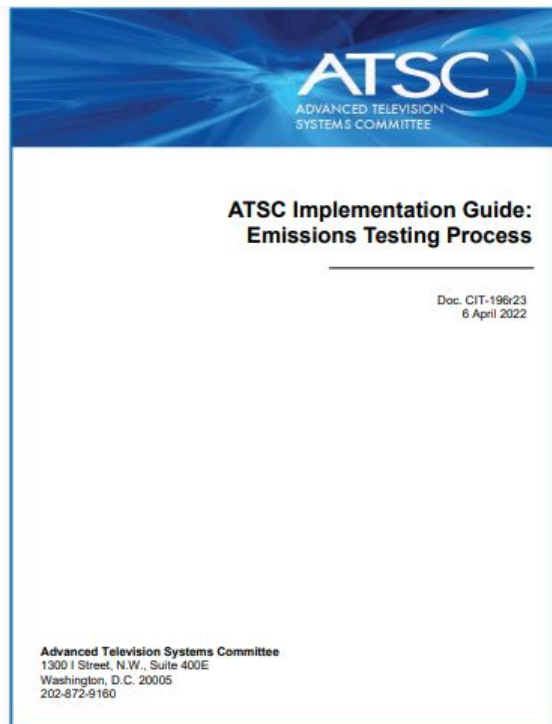
☐ Descending

Refresh

Callsign Facility ID	Service Country	City State	Latitude Longitude	Channel TxID Values
WIWN 60571	DTV US	FOND DU LAC WI	43-05-46.2 N 87-54-15.0 W	5 256 - 383
WSAW-TV 6867	DTV US	WAUSAU WI	44-55-14.2 N 89-41-28.7 W	7 0 - 127
WMVS 42663	DTV US	MILWAUKEE WI	43-05-46.2 N 87-54-15.0 W	8 128 - 255
WKBT-DT 74424	DTV US	LA CROSSE WI	44-05-28.0 N 91-20-17.0 W	8 256 - 383
WAOW 64546	DTV US	WAUSAU WI	44-55-14.2 N 89-41-28.7 W	9 0 - 127
WISC-TV 65143	DTV US	MADISON WI	43-03-21.0 N 89-32-06.0 W	11 384 - 511
WLUK-TV 4150	DTV US	GREEN BAY WI	44-24-32.0 N 87-59-31.0 W	12 0 - 127
WMOW 84503	DTV US	CRANDON WI	45-34-23.4 N 88-53-58.7 W	13 0 - 127



ATSC 3.0 Emissions Checklist



- Developed by ATSC 3.0 Conformance Implementation Team
- Emission-side complement to the receiver conformance certification program; not an emission certification program
- Released April 6 2022
- Available free on ATSC website



Host Station Manual



- Developed by Pearl TV
- Based on their experience in the Phoenix Model Market
- Version 12 with new updates prior to NAB Show
- Available free on Pearl TV website
<https://pearltv.com/station-resources/>



ATSC 3 Security Authority



Signal Signing, App Signing and Content
Encryption for ATSC 3.0 Broadcasts



ATSC 3.0 - Brings Internet Security Features to OTA Broadcasts

The ATSC 3.0 standard provides three fundamental cyber-security features to protect broadcasters and viewers in this Internet age:

- **Signal signing** ensures the signal being received is from an FCC licensed broadcaster and that the information received has not been tampered with. Because 3.0 is essentially a broadband system, this authentication technology is derived from the TLS security (HTTPS) we experience on the Internet today.
- **Application signing** has the same purpose and uses the same authentication technology as signal signing, but applied to OTA-delivered applications. Applications must be signed by the author/developer and separately by any broadcaster transmitting the app OTA. Since applications frequently collect consumers' personal information as part of the sign-up process, it is especially important that consumers be able to trust their authenticity before installing them.
- **Content security** utilizes the same encryption technology used by Internet streaming services. Until now, OTA broadcasters have been at a disadvantage compared to cable & satellite operators, who can and do encrypt their signals to prevent signal and content theft.



OTHER DATA OPPORTUNITIES



RTK Datacasting – Enhanced GPS







ATSC 3 – Broadcast Positioning System (BPS)

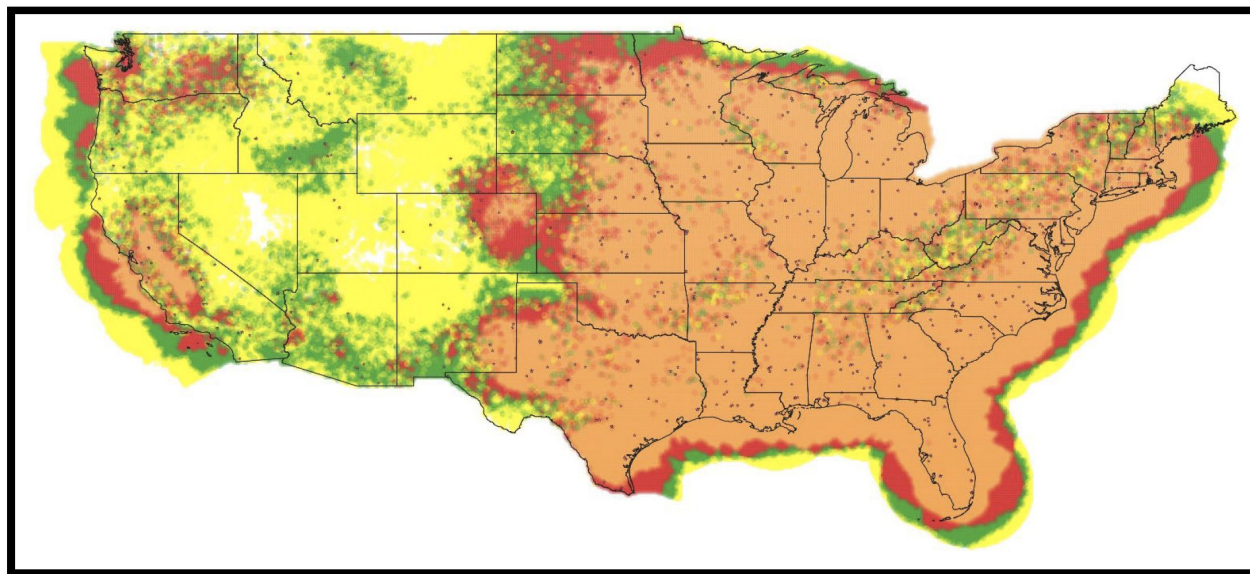


FIGURE 2: CONUS AREAS COVERED BY ONE OR MORE FULL-POWER UHF TV STATION WITH PLANNING FACTOR VALUES GIVEN IN TABLE 1. THE NUMBER OF STATIONS COVERING ARE INDICATED BY SHADING WITH YELLOW (1—3 STATIONS), GREEN (4—6), RED (7—10), AND ORANGE (11 OR GREATER).



First Responder Paging System

1. **2017 PILOT Innovation Challenge Winner**
2. **DHS Small Business Innovation Research Grant**
3. **2022 Best Paper**
"ATSC 3.0 as a Use Case for Public Safety Communications – Development Milestones"
 - Fred Engel, PBS North Carolina
 - Red Grasso, NC Dept. of Information Technology
 - Chris Lamb and Tony Sammarco, Device Solutions Inc.



ATSC 3 – Multiple Market File Delivery



Figure VII.1 Lake Michigan to Canada Core PLP Baseband Packet reception



CONNECTED CARS & RADIO

XPERI[®]



STRONG SUPPORT FROM AUTO INDUSTRY FOR OVER 15 YEARS

All 44 major brands offer factory-installed HD Radio Technology



412

HD Radio available
vehicle models

193

HD Radio standard
vehicle models

ALL MAJOR AUTO BRANDS OFFER FACTORY-INSTALLED HD RADIO TECHNOLOGY

NEW CARS DELIVERED IN THE U.S.
IN 2021 WITH FACTORY-INSTALLED
HD RADIO RECEIVERS

Over
57
Percent

CARS ADDED IN 2021 IN THE U.S.
WITH HD RADIO RECEIVERS
(INCLUDING AFTERMARKET)

Over
9
Million

RUNNING TOTAL
HD RADIO-EQUIPPED CARS ON THE
ROAD (INCLUDING AFTERMARKET)

Over
85
Million

HYUNDAI RECEIVERS



VW PRESETS





HD Radio Emergency Alerts

FUTURE APPLICATION

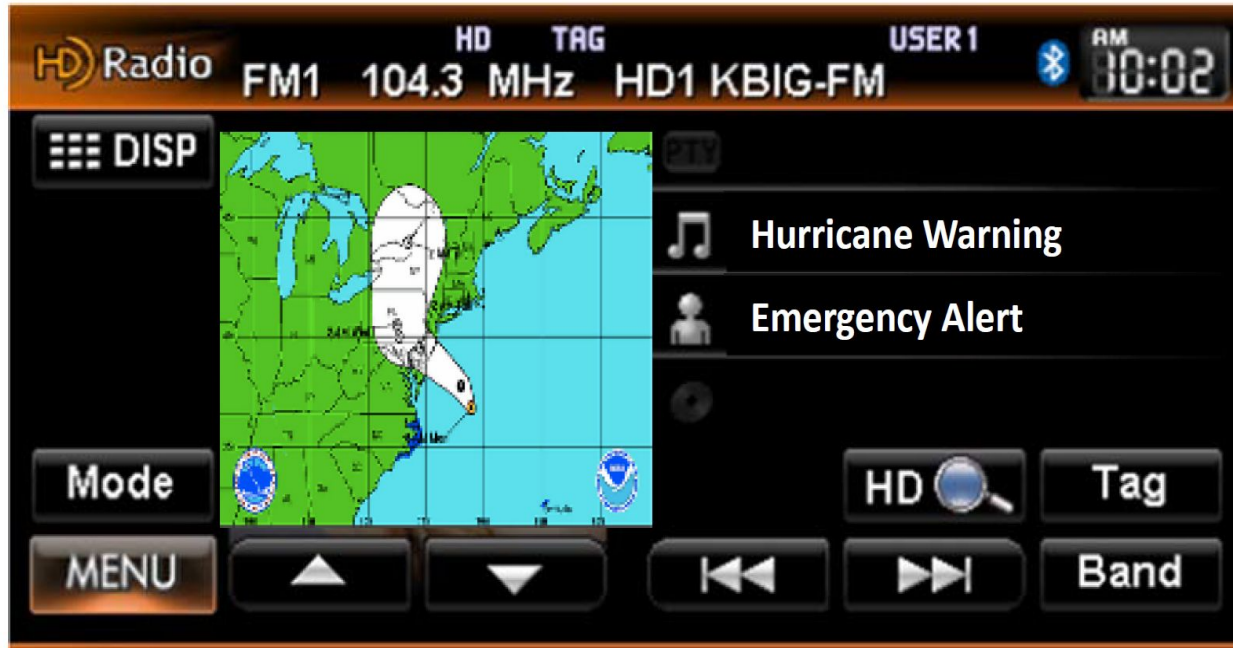
MULTIMEDIA AND

GRAPHIC CAPABILITY

DISPLAYING A MAP AND

DOPPLER RADAR IN AN

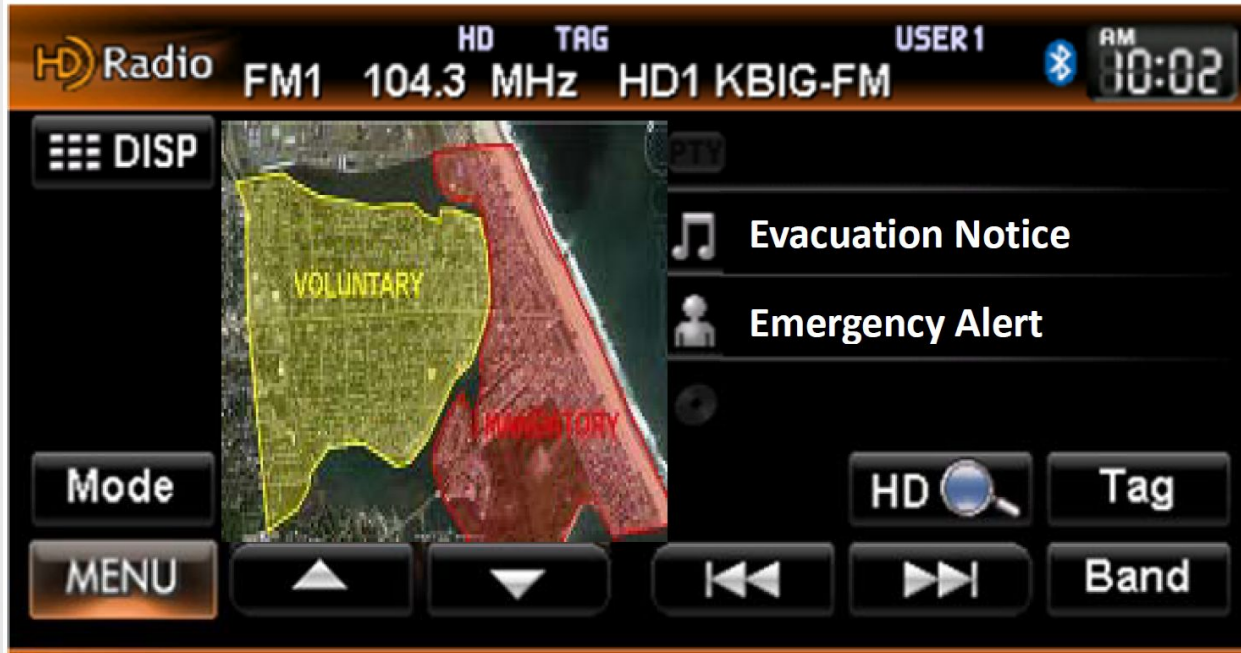
EMERGENCY





HD Radio Emergency Alerts

FUTURE APPLICATION



MULTIMEDIA AND

GRAPHIC CAPABILITY

DISPLAYING EMERGENCY

EVACUATION

NOTIFICATION

WITH MAP OF AREA

AFFECTED

NEW REVENUE OPPORTUNITIES



VISUAL ADVERTISING



HD RADIO CONSUMER EXPERIENCE

ARTIST & ADVERTISER EXPERIENCE IMAGES



enhanced ads

INCREASE IMPACT



Ad imagery appears on in-vehicle displays while the driver hears the ad on the radio

VISUAL ADVERTISING

1,000+
Radio stations
already use

Omni

Audacy

BEASLEY
MEDIA GROUP, LLC

CMG
COX MEDIA GROUP

SALEM
MEDIA GROUP

SUMMIT
MEDIA

CRISTA
Media

cherry
creek
Media

RADIO
ONE
THE URBAN MEDIA SPECIALIST

HUBBARD
RADIO

BONNEVILLE
INTERNATIONAL

Reynolds Radio





Making Radio Look
as Good as it Sounds

- One top 20 market activated in **December 2021** and has already generated almost **\$200,000** in new revenue.



DTS AUTOSTAGE



DTS AUTOSTAGE & MERCEDES

1 VEHICLE, 5 SCREENS!



DTS AUTOSTAGE



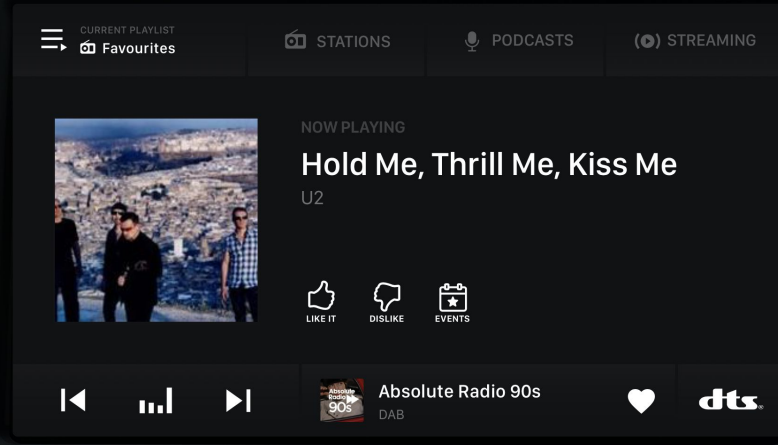
BROADCAST



DISCOVERY



ENGAGEMENT



INSIGHTS



GLOBAL



EXTENDABLE

- ▶ Open to all broadcasters
- ▶ Ensures broadcaster control and prominence – free of charge and capital investment
- ▶ Competitive response to BIG TECH's push into the car
- ▶ Global and reliable platform for all OEMs



DTS AutoStage FEATURES

Powering Next-Gen In-Car Experiences

DTS CONNECTED RADIO - STANDARD



STATION DATA

- ✓ Station name + slogan
- ✓ Alternative frequencies
- ✓ Streaming URL
- ✓ Genre
- ✓ Additional images (slide show)
- ✓ Support: speech input / phoneme
- ✓ Social Media

LIVE DATA RADIO

- ✓ Song recognition
 - ✓ fingerprinting - locally
 - ✓ fingerprinting – server side
- ✓ Non music related metadata
- ✓ Push notification – live content
- ✓ Live content for non listened station

MEDIA USAGE REPORT

- ✓ Usage Report
- ✓ Radio reception

STATION LOGO

- ✓ EU, NA, Asia
- ✓ Div. resolution + formats
- ✓ Multiple query options

SONG DATA

- ✓ Cover Art + Artist Images
- ✓ Metadata
- ✓ Tivo ID (Spotify, Apple, Amazon, etc)
- ✓ Mood & Tone
- ✓ LyricFind support

SONG RECOGNITION

- ✓ Text search for media
- ✓ Fingerprinting
- ✓ Song position at time x

STATION FOLLOWING



EXTENDED COVERAGE AREA

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





Thank You!



@NABCTO