FM Radio on Smartphones

May 16, 2017 – City of Toronto Executive Council Meeting

Presenter: Kirk Nesbitt
North American Broadcasters Association (NABA) FM Chip Working Group

– Chair – David Layer, NAB
– Looking to advance the cause of activating FM chips in smartphones
– Doing so in a way that brings value to consumers and to the broadcasting industry
– www.nabanet.com
NABA FM chip working group

• Who are we?
  – Canadian broadcasting: Bell Media, CBC/Radio Canada, Corus, Canadian Association of Broadcasters (CAB)
  – Mexican broadcasting: CIRT (“Mexico CAB or NAB”)
  – US broadcasting: Emmis, NAB, NPR, Xperi (HD Radio)
  – Data broadcast, etc.: HERE, Nautel
Canadian Association of Broadcasters

• The Canadian Association of Broadcasters (CAB) is the national voice of Canada’s private broadcasters, representing the vast majority of Canadian programming services, including private radio and television stations, networks, specialty, pay and pay-per-view services.

• The goal of the CAB is to represent and advance the interests of Canada’s private broadcasters in the social, cultural and economic fabric of the country.
How does FM radio on your smartphone work?

• A lot of smartphones have an FM chip already installed. On an FM-chip enabled smartphone, you need:
  ✓ Headset cord for antenna
  ✓ An FM radio app
• FM radio app example: NextRadio
  – NextRadio is an Android app that uses the FM chip
• Then you can listen to local FM radio on your smartphone
Benefits of FM radio in smartphones

- Instant access to local media
- Takes advantage of an increasingly popular resource, the smartphone that so many of us have with us at all times
- Can help offload traffic from mobile broadband network during times of emergency
- Using FM radios in smartphones greatly extends battery life (3-5x) compared to streaming over mobile broadband or WiFi
  - Important during serious or protracted emergencies
Benefits of FM radio in smartphones

• From 2015 NAB Broadcast Engineering Conference paper “FM Radio in Smartphones: A Look Under the Hood”

![Table 2 - Battery Life Comparison of FM Listening and Streaming Radio Listening on the Same Smartphone][1]

Sprint/NextRadio study, July 2013
Benefits of FM radio in smartphones

• Radio is the most reliable means of reaching the public during emergencies when power, Internet, television and telecommunication services may be unavailable.

• Radio plays a critical role to inform public; “What do I do next?” “Where can I get help?” “How can I offer help?”

• Radio is an essential link between local authorities and the communities they serve.
Canadian Context

• NABA, CAB and CBC met with CRTC staff in October 2016.
  – To discuss the benefits related to FM receivers in smartphones.
  – To present the NABA FM chip in smartphone data.
  – To explain that encouraging market place adoption is preferred over regulation.

• Broadcasters have been relaying Emergency Alert messages as part of the NPAS initiative since April 2015.

• In March 2017, the CRTC mandated mobile wireless operators to issue Emergency Alert messages beginning April 2018.

• Radio delivers in-depth information after an Alert is issued.
FM chips in smartphones – North America, 3Q 2016

**FM Chips in Smartphones - North America**

- **CANADA - 3Q 2016**
- **MEXICO - 3Q 2016**
- **UNITED STATES - 3Q 2016**

**PERCENTAGE OF TOP SELLING SMARTPHONES**

- FM chip activated
- FM chip easily activated
- Unknown
- No FM chip

- FM chip installed, not activated

**FM Chip Installed, not Activated**

- **Android**
  - 100.0%
  - 0.3%
  - 0.0%

- **Apple**
  - 100.0%
  - 94.3%
  - 0.0%
International Telecommunication Union - NABA contribution on FM chips

• NABA contribution to ITU on FM chips (Geneva)
  – To encourage activation of radio receivers in smart phones
• Contribution made October 2016, approval granted at meetings in March 2017
Recommendation from Working Group 2 to CSRIC:

- It is recommended that the FCC encourage the ongoing voluntary efforts between device manufacturers and the wireless industry toward enabling FM radio in smartphones to the extent commercially viable for all parties

This recommendation and the Working Group 2 report were adopted by CSRIC on September 14th, 2016
Regulatory

• Please note that the NABA Radio Committee and FM Chip Working Group (and its members) have advocated for a market-based approach
  – NOT government mandates

For more info, please contact NABA (contact@nabanet.com)
Supporting Materials and Examples

- US Safety Example; FCC/CSRIC
- Networks can fail in emergencies
- Next Radio
- NABA FM Chip in Smartphone Data
- FCC Chair Ajit Pai comments
The Communications Security, Reliability and Interoperability Council (CSRIC) makes recommendations to the FCC.
U.S. safety example – Federal Communications Commission (FCC)

- CSRIC studies ways to make communications systems secure, reliable, interoperable
CSRIC report

• Working Group 2 – Emergency Alerting Platforms
• Focusing on Wireless Emergency Alerts
• How can various platforms be leveraged to alert the public?
• FM chip in smartphones can keep the public informed and connected during times of emergency
CSRIC report


• Recommendation from Working Group 2 to CSRIC:
  – It is recommended that the FCC encourage the ongoing voluntary efforts between device manufacturers and the wireless industry toward enabling FM radio in smartphones to the extent commercially viable for all parties
• This recommendation and the Working Group 2 report were adopted by CSRIC on September 14th, 2016
Networks can fail in emergencies

- Cellular network failures happen
  - Loss of power, damage as a result of natural disasters
  - Congestion can be a factor
Networks can fail in emergencies

- Craig Fugate (former administrator, FEMA): “…smartphone became a brick…”
FM in smartphone use during emergencies

- Data from 2015 demonstrates that FM in smartphone listenership increases during an emergency

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>DATE</th>
<th>EVENT</th>
<th>LISTENING SESSION INCREASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brainerd, MN</td>
<td>July 12, 2015</td>
<td>Straight-line weather disaster</td>
<td>615%</td>
</tr>
<tr>
<td>Rochelle, IL</td>
<td>April 8, 2015</td>
<td>Tornadoes</td>
<td>151%</td>
</tr>
<tr>
<td>Oklahoma City, OK</td>
<td>May 6, 2015</td>
<td>Tornadoes and flash floods</td>
<td>254%</td>
</tr>
</tbody>
</table>

SOURCE: NEXT RADIO/EMMIS COMMUNICATIONS
NextRadio Canada

- Google PlayStore launch of the app in July 2016
- More than 1 million FM-enabled smartphones in Canada
- Canadian broadcasters starting to support services
- Viral growth trends are positive indicators:
  - 12,000 visitors to the freeradioonmyphone.ca website – consumers asking for FM-enabled smartphones in Canada
  - A list of compatible phones will continue to be updated on the http://nextradioapp.ca/ website
NextRadio

- Growth in smartphones with activated FM chip in **United States**

![Graph showing smartphone sales](image)

* FM radio activated by at least one major U.S. carrier using these phones.

Sources: Strategy Analytics and ABI Research
NextRadio Case Study

- NextRadio data from the Oklahoma City Earthquake, September 2016 found an increase in FM Smartphone listenership...
Oklahoma City Earthquake Findings

FM Smartphone Listening Usage

- **340% increase in listeners**
- **210% increase in total listening minutes**
- **180% increase in number of station tune-ins**
FM chip in smartphone data

• Working with NAB, obtain sales data on top-selling smartphones in Canada, U.S., and Mexico
  – Establish status of FM chip in these top-selling phones
  – Necessary for dialog with broadcasters and cellular carriers

• FM chip data for North America:
**FM Chip in Smartphone Data**

NABA is tracking the penetration of FM chips in smartphones for the North American market. Working with the National Association of Broadcasters (NAB), and using sales data compiled by research and consulting firm ABI Research, this data shows the extent of FM chip penetration in the top-selling smartphones for Canada, Mexico, and the U.S. on a quarterly basis.

As demonstrated by this data, most of the top-selling smartphones in all three countries include an FM chip which means that these devices can receive free, over-the-air FM radio signals, depending upon whether the FM chip is activated in the device. For a variety of reasons, these FM chip are often not activated, most notably in all of Apple’s iPhone products (which are top sellers). Broadcasters are working with smartphone device manufacturers and cellular carriers to increase the number of models that have the FM chip activated so that more analyzed, often by doing a “tear-down” of the phone, to establish the level of FM chip activation based upon these five categories:

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>DEFINITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>FM chip activated</td>
<td>FM chip is activated in these smartphones and available for use by consumers. Headset cord use is required since headset cord acts as FM antenna (audio is typically available either from smartphone speakers or headset).</td>
</tr>
<tr>
<td>FM chip easily activated</td>
<td>FM chip is activated on the same model in another country so no hardware changes would likely be required to activate in this country.</td>
</tr>
<tr>
<td>FM chip installed, not activated</td>
<td>FM chip is included in these smartphones but either a hardware or software modification would be required to activate the FM chip.</td>
</tr>
<tr>
<td>Unknown</td>
<td>Insufficient data on smartphone to be able to establish whether FM chip is installed.</td>
</tr>
<tr>
<td>No FM chip</td>
<td>FM chip not included in smartphone</td>
</tr>
</tbody>
</table>
FM chips in smartphones – North America, 3Q 2016
FM chips in smartphones – North America, 3Q 2016

**FM Chips in Smartphones - North America**

<table>
<thead>
<tr>
<th>Category</th>
<th>CANADA - 4Q 2015</th>
<th>CANADA - 1Q 2016</th>
<th>CANADA - 2Q 2016</th>
<th>CANADA - 3Q 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>FM chip activated</td>
<td>9.3%</td>
<td>30.8%</td>
<td>30.8%</td>
<td>16.8%</td>
</tr>
<tr>
<td>FM chip easily activated</td>
<td>47.4%</td>
<td>42.3%</td>
<td>42.3%</td>
<td>47.4%</td>
</tr>
<tr>
<td>FM chip installed, not activated</td>
<td>55.7%</td>
<td>36.6%</td>
<td>35.7%</td>
<td>55.7%</td>
</tr>
<tr>
<td>Unknown</td>
<td>6.2%</td>
<td>6.2%</td>
<td>6.2%</td>
<td>6.2%</td>
</tr>
<tr>
<td>No FM chip</td>
<td>10.0%</td>
<td>10.0%</td>
<td>10.0%</td>
<td>10.0%</td>
</tr>
<tr>
<td>No FM chip</td>
<td>18.0%</td>
<td>24.0%</td>
<td>24.0%</td>
<td>24.0%</td>
</tr>
</tbody>
</table>

PERCENTAGE OF TOP SELLING Smartphones
FM chips in smartphones – North America, 3Q 2016

![Chart showing percentage of top-selling smartphones with FM chips activated, FM chip easily activated, FM chip installed but not activated, unknown status, and no FM chip. The chart indicates the percentage for each category across different quarters in Mexico.]
FM chips in smartphones – North America, 3Q 2016

![Diagram showing the percentage of top selling smartphones with FM chips in North America from 4Q 2015 to 3Q 2016.](image-url)
“It seems odd that every day we hear about a new smartphone app that lets you do something innovative, yet these modern-day mobile miracles don’t enable a key function offered by a 1982 Sony Walkman. You could make a case for activating chips on public safety grounds alone.”
"The FCC has an expert advisory panel on public safety issues that has also advocated enabling FM radio chips on smartphones. It pointed out that, ‘[h]aving access to terrestrial FM radio broadcasts, as opposed to streaming audio services, may enable smartphone users to receive broadcast-based EAS alerts and other vital information in emergency situations—particularly when the wireless network is down or overloaded.’"

- FCC Chairman Ajit Pai, February 16th, 2017, NABA Future of Radio & Audio Symposium hosted by the National Association of Broadcasters (NAB), Washington, D.C.