August 9, 2010

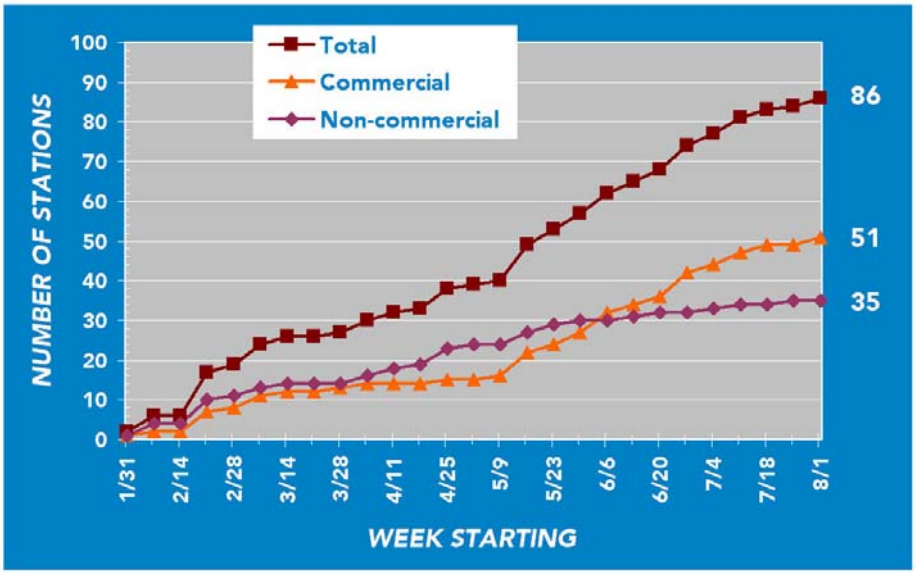
Radio TechCheck

NAB NATIONAL ASSOCIATION OF BROADCASTERS

The Weekly NAB Newsletter for Radio Broadcast Engineers

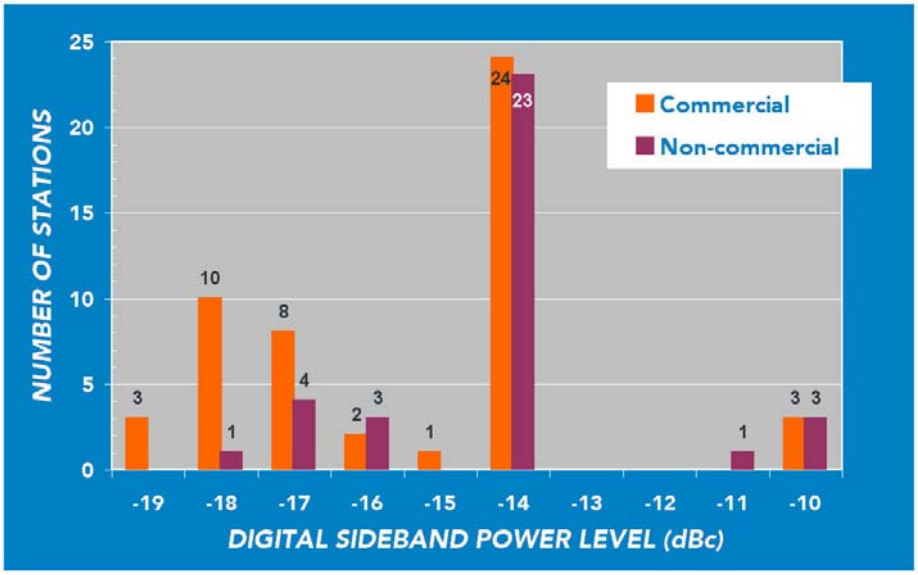
Update on Digital Power Increase for FM IBOC Stations

It's been six months since the FCC issued an Order authorizing FM in-band/on-channel (IBOC) digital radio stations to voluntarily increase digital power levels up to ten percent of analog power levels, and establishing interference mitigation and remediation procedures to promptly resolve complaints of interference to analog stations (see the February 1, 2010 issue of Radio TechCheck for additional information on the authorization Order). As of last week, 86 stations are currently operating with digital power levels in excess of 1 % (-20 dBc) of the analog signal power level, according to the Media Bureau's Consolidated Database System (CDBS) Electronic Filing System (www.fcc.gov/mb/elecfile.html).



The two graphs illustrate when stations have increased digital power (upper graph), and what increased power levels they are operating at (lower graph), for both commercial and non-commercial stations. Since the authorization, 51 commercial and 35 non-commercial stations have elected to operate at increased digital power. The table below lists the cities where these stations are located.

Not surprisingly, over half of these station (55 percent) are now operating at -14 dBc, which is the "blanket" authorized power level for most stations. All but "super-powered" stations (those operating in excess of their class limits) can increase to this power level simply by notifying the Commission (see below for details on notification).



Seven stations are now operating in excess of -14 dBc, with six of these having increased to the maximum allowed -10 dBc. Requests for operation with digital power in excess of -14 dBc (or in excess of -20 dBc for super-powered stations) requests must be filed electronically in CDBS. Applicants should use the "Engineering STA" form for this purpose and should check the boxes marked "Licensed antenna" and "with other variance." An explanation of the nature of the request should be included as a narrative attachment. The request must include an engineering showing in support of the request, as described in Paragraphs

15 – 20 of the Order.

Thirty-seven percent of stations operating at elevated digital power levels are operating below the -14 dBc blanket authorization value, including three super-powered stations. It's likely that many of these stations were able to increase their digital power without modifying their facilities, but not up to the -14 dBc level, and elected to implement a more modest increase as a result. For the super-powered stations, the maximum permissible increase is limited to the higher of either the original -20 dBc level or 10 dB below the maximum analog power that would be authorized for the class of the super-power FM station adjusted for the station's antenna height above average terrain, predicted in accordance with Section 73.211(b) of the Rules. In order for a licensee to determine if its FM station is, by definition, a super-powered FM station, the Bureau has provided an FM Super-Powered Maximum Digital ERP Calculator on the

STATE	CITY
AK	Anchorage (2)
AZ	Phoenix
CA	El Cajon
	Los Angeles
	Pasadena
	Pollock Pines
	Sacramento (3)
	San Diego
	San Francisco
	San Jose
	San Luis Obispo
CO	Colorado Springs
	Denver
	Durango
CT	Norwich
DC	Washington (2)

STATE	CITY
FL	Clermont
	Holmes Beach
	Safety Harbor
	St. Petersburg
	Tampa
	Union Park
	West Palm Beach
IN	Elkhart
	Greenfield
	Indianapolis
KY	Murray
LA	New Orleans
MA	Waltham
MD	Baltimore (2)
MI	Detroit
MO	Kirksville (2)
	St. Louis
NC	Clemmons
	Kinghtdale
NE	Hastings

STATE	CITY
NJ	Burlington
	Manahawkin
	Point Pleasant
	South Orange
NY	Ithaca (2)
	New Rochelle
	New York
	Patchogue
	Rochester (2)
OH	Beavercreek
	Cincinnati
	Columbus
	Dayton (2)
	Dublin
	Niles
	Springfield
OR	Eugene
	Gleneden Beach
	Portland (2)
	The Dalles
	Westin

STATE	CITY
PA	Avoca
	Philadelphia (2)
	Pittsburg
	Scranton
	Sharpsville
	Spartanburg
TN	Germantown
	Nashville
	Walden
TX	College Station
VA	Manassas
	Richmond
WA	Edmonds
	Seattle
WI	Kenosha
	Verona
	Wauwatosa
WY	Casper

Bureau's Audio Division Web page (www.fcc.gov/mb/audio/digitalFMpower.html).

FM stations which are planning to increase their digital power should refer to a Public Notice released by the Media Bureau on May 17, 2010 which provides guidance regarding operations with increased digital power. Some of the points discussed in the Public Notice include the following:

- **For power increases up to and including -14 dBc** – an electronic form for e-filing is being developed but is not yet ready; until e-filing is approved, FM licensees may notify the Commission of operation with increased digital power, within 10 days of commencement of operation, by letter. The information required in the letter of notification is as follows:
  - The date that operation with increased digital power commenced;
  - A certification that, except for the digital ERP, the IBOC facilities conform to the iBiquity specifications;
  - The name and telephone number of a technical representative the Commission can call in the event of interference;
  - Analog, digital and, if applicable, combined transmitter power output;
  - Analog and digital ERP; and
  - A certification that the notified operation will not cause human exposure to levels of radiofrequency radiation in excess of the limits in Section 1.1310 of the FCC Rules and is therefore categorically excluded from environmental processing pursuant to Section 1.1306(b) of the Commission's Rules. Any station that cannot so certify must submit

an environmental assessment ("EA") pursuant to Section 1.1311 and may not commence operation until such EA is ruled on by the Commission.

- **Stations already authorized for increased power by STA** – stations which have been granted STAs for operation with increased digital ERP are deemed to have complied with the required notification procedures. All such STAs carry expiration dates after the May 10, 2010, effective date of the Order, and thus, need not be extended.

- **Licensing of auxiliary antennas** – some licensees use auxiliary antennas to transmit digital signals. If the digital ERP permitted by the Order would exceed the licensed analog ERP of such an auxiliary antenna, a licensee must file an application for construction permit (Form 301 or 340) to increase power and file a covering license application (Form 302-FM) prior to commencing operations at the higher power level.

The full text of the clarification Public Notice is available on the FCC's web page at http://hraunfoss.fcc.gov/edocs_public/attachmatch/DA-10-866A1.pdf.

On Thursday, September 30 from 3:30 – 5:00 p.m. at the Radio Show there will be a full team of experts from iBiquity to answer all your questions about HD Radio. This is a rare chance to ask about the future of this technology, what new implementations are in the works, and what receiver manufacturers are doing. Get the real story on where AM digital is headed, increased digital power, interference concerns and new concepts and products that are planned for the very near future. This is only one of the *Ask the Experts* technical sessions at the Radio Show which will be held September 29 through October 1 in Washington, D.C. Additional information on registration and housing for the Radio Show is available on radioshowweb.com.

Proposals Now Being Accepted for 2011 NAB Broadcast Engineering Conference

Las Vegas Convention Center, Las Vegas, Nevada
Conferences April 9 – 14, 2011 // Exhibits April 14 – 11
--Deadline for all submissions is October 22--

NABSHOW™
Where Content Comes to Life™

The 2011 NAB Show will host the 65th NAB Broadcast Engineering Conference. This world-class conference addresses the most recent developments in broadcast technology and focuses on the opportunities and challenges that face broadcast engineering professionals around the world. Each year hundreds of broadcast professionals from around the world attend the conference. They include practicing broadcast engineers and technicians, engineering consultants, contract engineers, broadcast equipment manufacturers, distributors, R&D engineers plus anyone specifically interested in the latest broadcast technologies.

In order to be considered, proposals must explain what attendees can expect to learn from the paper, must not be a sales pitch, and should be no more than 200 words in length.

We will consider topics related to broadcast engineering, such as:

Television Engineering

- Data Broadcasting Technologies and Applications
- Television Standards Work
- Metadata Management
- Newsgathering and Field Production
- Television Transmission Systems and Maintenance
- 8VSB Enhancements
- Portable/Mobile Device Transmission and Reception
- Systems Integration
- Storage and Networking
- Broadband Technologies
- Automation Systems
- Production and Post
- Film Transfer
- Archival Technologies
- Set-top Box Technology
- Test and Measurement Techniques
- Media Asset Management
- Television Receiver Developments
- Optimizing RF Coverage
- Design and Building Studio and Transmission Facilities
- Transmitter and Antenna Technologies
- Security and Emergency Preparedness
- Broadcast Technical Standards
- Recording Technology
- Remote Systems Control
- Digital Television Developments Around the World
- Advanced Compression
- DTV Conversion - Translators and LPTV

Radio Engineering

- Digital Radio Developments Around the World
- Remote Control Systems
- HD Radio™ Implementation
- Centralcasting
- Audio and RF Test and Measurement Techniques
- New Receiver Technologies
- Automation Systems
- Data Broadcasting Technologies and Applications
- Security and Emergency Preparedness
- New Transmitter Technologies
- Optimizing RF Coverage
- AM Directional Antenna Systems
- Shortwave Broadcasting
- Broadband Technologies
- Interference Concerns
- Audio Coding Advancements
- Storage and Networking Studio Equipment Enhancements
- Audio Processing for Production and Broadcast Surround Sound
- AM and FM Propagation Analysis
- Remote Broadcasting
- Archival Technologies
- IP Audio

The NAB Broadcast Engineering Conference is a highly-technical conference where presenters deliver technical papers ranging over a variety of topics relevant to the broadcast and allied industries. Presentations are limited to thirty minutes in length, including five or ten minutes for questions from the audience. The conference rooms are equipped with audio visual equipment that will accommodate standard computer presentations.

Papers accepted for presentation at the 2011 NAB Broadcast Engineering Conference will be eligible for the NAB Best Paper Award. Established in 2010, the Best Paper Award honors the author(s) of a paper of exceptional merit published in the *NAB Broadcast Engineering Conference Proceedings*. The yearly proceedings, published as both a book and a CD-ROM is a compendium of these technical papers, and an important archive of the leading edge of broadcast engineering issues.

Technical paper proposals submitted for the 65th annual Broadcast Engineering Conference will be accepted until the October 22 deadline. If you have any questions, contact John Marino, VP NAB Science and Technology at (202) 429-5346.