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Skype for Broadcasting

There are many ways to use the Internet for transmission of audio and video, and one of the most powerful (and popular) is to use "Skype." Skype (Luxembourg, www.skype.com) is software that millions of individuals and businesses use to make free video and voice calls, send instant messages and share files with other Skype users. Radio broadcasters can use Skype in a number of ways to support their on-air and Web-based offerings.

Skype was demonstrated at this year's NAB Broadcast Engineering Conference (BEC) in an interesting way. On Tuesday, April 21, in the "Antenna Solutions and Case Studies for Radio" session, Tom Ray, Vice President and Corporate Director of Engineering, Buckley Radio, gave his presentation remotely using a Skype audio and video connection (see photo). Since Skype supports a two-way connection, Tom was able to both see and hear attendees in the conference room as they were able to see and hear him – the video from Tom's location was placed on a flat-screen TV monitor behind the podium, giving him a "virtual presence" at the show. The video and audio quality of this Skype connection was excellent, and was low-latency enough to nicely support real-time, two-way audio communication.

Perhaps the most useful application of Skype for Boadcasters is for remote news gathering. Skype's "high quality video calling" service provides Skype's best video quality and offers video images with a resolution of 640x480 pixels (i.e. VGA quality) and up to 30 frames per second. This service offers radio broadcasters an opportunity to obtain, at relatively low cost, audio material for on-air use as well as companion video material suitable for use on a station's Website.

According to information in the "Skype usage FAQ for broadcast and other recordings," Skype recommends the latest version of Skype for Windows (Mac is supported, too, but not Linux-based systems), an optimized

Logitech High Quality Video webcam with the latest webcam software, a dual core processor PC and a fast broadband connection with at least 300 kbit/s uplink speed to support high quality video calling. For applications requiring only audio, a connection speed of at least 80 kbps will suffice.

Skype utilizes an “in-house best-of-breed speech and audio processing software” that allows for audio with superior speech quality and very low latency. Skype transmits twice the audio frequency range (up to 8 kHz) compared to traditional telephony (<4 kHz) resulting in improved audio quality over that obtained using a telephone connection. The Skype software automatically adjusts its bandwidth usage to the available bandwidth on the network. Quality of video and audio will be optimized for the available bandwidth but might vary greatly as the available bandwidth changes. Audio is prioritized over video to ensure a fluid conversation at all times.

To reduce latency, Skype recommends connecting to a fast broadband connection as close to the public Internet as possible, avoiding WiFi connections, keeping CPU utilization on the computer low, and avoiding firewalls and virus scanners. A good first test for the connection speed is to run www.speedtest.net to a desired location. The numbers for up- and downlink speed should be greater than 300 kbit/s (80 kbit/s for audio only) and the “ping time” (indicator for latency) should be as low as possible (typically 50-200ms).

A paper on “High Quality Video Calling” for broadcasters using Skype was given at the BEC and highlighted in the March 9, 2009 issue of NAB’s *TV TechCheck*. This paper is included in the *NAB Broadcast Engineering Conference Proceedings* which is available for purchase online from the NAB Store at www.nabstore.com. Additional information about Skype for broadcasting is available in the “Skype Usage FAQ for broadcasting and other recordings” on the Skype Webpage at http://download.skype.com/share/broadcast/SkypeUsageFAQ.zip.

FCC Releases Public Notice on FM IBOC at Elevated Power Levels

The Media Bureau of the FCC has released a Public Notice seeking comment on four issues relevant to the request made by a group of broadcasters back in June of 2008 (the “Joint Parties”) to allow for operation of the digital portion of an FM in-band/on-channel (IBOC) signal at elevated power levels. Comments will be due 21 days after publication of this Notice in the Federal Register and reply comments will be due 14 days after that.

This latest Public Notice follows an earlier Notice released in October of 2008 soliciting more general comments on the Joint Parties’ request as well as on two related technical studies. The Joint Parties have requested that the Commission increase the maximum permissible digital operating power of FM stations from the current level of 1 percent of a station's authorized analog power (-20 dBc) to a maximum of 10 percent of a station's authorized analog power (-10 dBc). Filed concurrently with and in support of the Joint Parties’ request was a technical report prepared by iBiquity Digital Corporation (background information on the iBiquity report is available in the June 16, 2008 issue of *Radio TechCheck*). In addition, National Public Radio submitted a Corporation for Public Broadcasting-supported research study on digital radio coverage and interference.

Four specific questions have been asked in this Public Notice:

1) Whether the Media Bureau should defer consideration of the Joint Parties’ requested power increase until the completion of and comment on the further NPR studies? [NPR is presently conducting studies related to this matter, and according to the Public Notice, NPR expects to present the results of these studies in September 2009.]
2) Whether the record in this proceeding, the real-world experience gained from over 1,400 FM stations operating for several years in the hybrid mode and the record of experimental authorizations at higher digital power levels warrant an increase in maximum digital operating power as proposed by the Joint Parties or support a provisional power increase of some lesser extent than that requested by the Joint Parties?
3) If the Commission does adopt a power increase, whether it should also establish standards to ensure the lack of interference to the analog signals of stations operating on first adjacent channels? Should such standards apply to, i.e., require the protection of, LPFM stations operating on first adjacent channels?
4) Finally, if the Commission does adopt a power increase, whether it should also establish more explicit procedures to resolve digital-into-analog interference complaints?

The full text of the FCC's Public Notice, which was released on May 22, 2009, is available on the Internet at http://hraunfoss.fcc.gov/edocs_public/attachmatch/DA-09-1127A1.pdf.