DOCKET FILE COPY ORIGINAL
RECEIVED
APR 27 1998
FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Before The
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of:	)	
	)	
Microstation Radio Broadcast Service et al.	)	RM Nos. 9208, 9242, and 9246
	)	
Petitions for Rulemaking To Create Various Low Power Radio Broadcast Services Including Event Broadcasting	)	

To: The Commission

COMMENTS OF THE NATIONAL HOCKEY LEAGUE
TO PROPOSE INDOOR ARENA EVENT BROADCASTING

The NATIONAL HOCKEY LEAGUE ("NHL"), by its attorney, herewith submits the following comments on the above-captioned petitions, in support of the institution of a rulemaking proceeding, to authorize the creation of indoor arena event broadcast stations. In support, the following is shown:

1. The NHL is a joint venture of the 26 member professional hockey clubs, organized as a not-for-profit unincorporated association. The NHL is not related to any of the Petitioners, and it advances, by way of these Comments, its own proposal that the FCC establish indoor arena event broadcasting, which the NHL would use on behalf of its member clubs.

2. Twenty (20) of the member clubs are located in the United States. That number will increase to twenty-one next

No. of Copies rec'd 0+9
List ABCDE

season with the addition of a professional hockey club in Nashville, Tennessee, and to twenty-four over the following three years, with additions in Atlanta, Columbus and Minneapolis. Six (6) of the member clubs are located in Canada.

3. Twenty of NHL members clubs currently play regular season home games in an indoor arena located in the United States. [1] These twenty (20) U.S. arenas have seating capacity of between 15,000 and 21,000 persons, with an average seating capacity of 19,000 persons per arena. During a typical hockey season, starting in September, each team might play ten (10) pre-season games and eighty-two (82) regular season games, followed by play off games. The season ends in June with the four (4) to seven (7) Stanley Cup final championship games. Stated another way, a member club might play 100 professional hockey games in a typical season.

4. For the hockey fan, his or her visit to the hockey game may last between three (3) and four (4) hours in the arena, excluding commuting time to and from the game. The NHL has observed that some of the fans in some NHL markets are relatively new to the game of hockey, and they are in the process of learning about the game, its rules, its players, its history, and its traditions. Furthermore, given the increasing price of

---

[1] In addition, exhibition and tournament games are played at various indoor arenas throughout the U.S. The NHL also conducts various other events, such as the players' draft, in indoor arenas.

tickets and the costs associated with attending a game, the NHL has also observed generally that whereas a season ticket use to represent a single person attending all of the home games, today a season ticket represents several different persons who split the games and share the cost of the ticket. Thus, over the course of a season, any given arena will attract to the home games a large number (perhaps over 250,000) different persons.

5. The FCC has invited public comment on the proposals to create an "event broadcasting" radio service. The NHL wholeheartedly endorses and proposes a concept of indoor arena event broadcasting and the adoption of rules to authorize this new radio service. The NHL believes that indoor arena event broadcasting will significantly enhance the experience of the millions of U.S. citizens who attend professional hockey games each year (representing multiple millions of listening hours).

6. These hockey fans currently have no radio service targeted to them in the arena to enhance their viewing experience at the games. The signals of the radio and TV stations that have been granted the rights to broadcast the hockey games typically do not penetrate the arena at all, or at best very poorly. Furthermore, those radio and TV broadcasts are not oriented to the needs and interests of the fan at the game, but to a listener or viewer located outside, and perhaps some distance, from the arena.

7. The NHL has observed that for some of its fans in some of the NHL markets English is not their first language. Many of the NHL's fans have no access to radio broadcast game coverage in their native languages. [2] There is currently no radio service available to fans attending the games to explain the calls of the referees and the rules of hockey; to provide information about services available inside or near the arena; to provide entertainment before the game, between periods and after the game; to provide transportation directions and information before they leave the arena; or to provide emergency information, to name just a few of the information services that are not available by radio.

8. The NHL believes that indoor arena event broadcasting offers an ideal technology to provide valuable information services to persons attending hockey games so as to enhance their experience at the event. The NHL also believes that indoor arena event broadcasting should be a commercially sponsored service, to underwrite the costs of providing and administering the service.

9. In furtherance of this, the NHL is in the process of preparing and will be requesting from the FCC an authorization

---

[2] Among other reasons, this is a reason why the NHL would want the ability to transmit **multiple** audio channels in each arena, and why the NHL believes that Indoor Arena Event Broadcasting should not be limited to a single audio channel at each event.

to undertake experimental trial indoor arena event broadcasts during the Stanley Cup finals. There will be between four (4) and seven (7) games in the series, in the two separate arenas of the competing teams, [3] starting in early June. The specific details of the experiment will be set forth more fully in the request. However, a critical element of the experiment will be limitation and control of the signal so that it stays within the confines of the arena and does not extend outside the arena, where it might interfere with full-service broadcast stations or other low powered radio services/devices. [4] The NHL would provide the FCC with a detailed written report of the results of this Stanley Cup event broadcast test. The NHL could submit this as Further Comments in this proceeding to assist the Commission in drafting a Notice of Proposed Rule Making and its proposed rules and regulations.

10. The NHL agrees with the points raised by petitioners that a critical element to the creation of "event broadcasting" is the conventional radio receiver and the use of

---

[3] The experiment would be limited to arenas located in the United States.

[4] Nevertheless, the NHL envisions that in addition to the indoor arena event broadcast service, "event broadcasting" has a very important role outside the arena to provide assistance and information to fans as they arrive at the arena, before the game, and as they leave the arena, after the game. The NHL would like to explore the development of this type of service as well, although the NHL recognizes that it raises additional issues beyond and different from those associated with in-arena transmissions that do not leave the building.

AM and FM radio broadcasting spectrum. The conventional radio receiver is inexpensive and readily available. A hockey fan can bring one to the game. He or she can buy or rent one at the game. Radios might be given away at the game as part of a promotion. AM and FM transmission technology is tried-and-true, relatively inexpensive and well understood.

11. The NHL does not believe that "event broadcasting" would make economic sense in non-broadcast spectrum. The receivers would be very expensive and have very limited usefulness outside the event service area, thereby severely limiting the benefit to the public. The transmission equipment would be more expensive and less reliable than broadcast equipment.

12. Ultimately, the issue is effective radiated power. An antenna will not be mounted on a tall structure outdoors. Instead, it will be mounted inside the arena and oriented for optimal signal reception by the persons located in the arena. Attachment 1 provides technical information about the theoretical design of an indoor arena event broadcast transmission system, including the frequency selection process, equipment currently available in the marketplace to conduct event broadcasts and power determination. All of this will be verified in the Stanley Cup Test. The NHL volunteers to serve as the frequency coordinator for the arena in each community where a member team

is located, to insure that a thorough frequency selection process is undertaken and to insure that the frequency is used properly.

13. In conclusion, the NHL submits that indoor arena event broadcasting would benefit the millions of Americans who attend hockey games each year, by providing them with a radio service that currently does not exist. The NHL believes that transmission systems can easily be designed and operated that prevent unwanted interference to full-service broadcast stations and other operations in the AM and FM frequency bands and that limit the service area to the arena complex. If the FCC creates the service proposed by the NHL, then the NHL will request the necessary permanent FCC license(s) or authorization(s) to provide this valuable public service.

WHEREFORE, the NHL urges the FCC to adopt a Notice of Proposed Rulemaking that proposes the creation of an Indoor Arena Event Broadcast Radio Service.

Respectfully Submitted,

NATIONAL HOCKEY LEAGUE

By Harold K. McCombs
Harold K. McCombs, Jr.

Its Attorney

April 27, 1998

DUNCAN, WEINBERG, MILLER & PEMBROKE, PC
Suite 800
1615 M Street, NW
Washington, DC 20036
202-467-6370
FAX: 467-6379

ATTACHMENT 1

The following technical information describes a typical indoor arena event broadcast transmission facility that the NHL would propose to use during a professional hockey game. While individual facilities might deviate somewhat from this description, because of the special attributes of each arena, the following serves as the theoretical model for the transmission facilities.

FM transmission facilities are usually the most convenient and versatile, and the FM frequency band would most likely be used in the first instance. However, the AM frequency band offers a valuable opportunity for indoor arena event broadcasting.

Frequency Selection

As the starting point, our research shows that radio frequency database companies like DataWorld can provide a frequency study, using the geographic coordinates of the arena, which will indicate the most likely and most desirable frequencies for that arena location. The technical staff will follow up the study with on-site monitoring of the frequency band to verify the information supplied by DataWorld. This will allow the technical staff to make a determination which frequencies would be the most desirable, from the perspective of causing and

receiving unacceptable interference, and to rank these desirable frequencies. Any given NHL event may require multiple frequencies. Accordingly, it is necessary to identify and rank more than one frequency.

Equipment

Crown FM 30 broadcast transmitter
(frequency and power agile)
Scala EMV-50N wide band single bay FM antenna
Bird watt meter
H.P. Frequency counter
100 feet of RG-58 cable
Various adapters
Ramsa 133R Mixer

Antenna Placement and Setup

The antenna will usually be placed in the catwalk in the ceiling of the arena, above the ice rink, but it could also be installed at any other available space inside the arena where the event is happening. Audio cable is run from the broadcast positions to the transmitter location. RG-58 cable is run from the transmitter to the antenna. Crown FM-30 transmitters have internal audio processing, built into the transmitter, used to control modulation.

Power

After setting the transmitters to the selected frequencies, the transmitters initially will be tuned to 5 Watts,

as measured via the front panel meters. Then the arena will be checked to make sure that there are no dead spots. If none are found, then the power will be reduced, because it has been observed that power in excess of 5 Watts can cause overloading of the front ends of radios and that less power is usually has a more desirable effect. The best results usually should be achieved with transmitter power of between three (3) and four (4) Watts. The technical staff will monitor the frequencies outside the arena to make sure that the signals cannot be received there.

Qualifications

The foregoing information was assembled and prepared by Douglas A. Lane. Mr. Lane has worked as a broadcast engineer since 1973. He has a First Class Radio Telephone license, which he obtained in 1974. He has worked as a broadcast or contract engineer for radio stations WJDA, Quincy; WHDH, Boston; WCOD, Hyannis; WSSH, Boston; WESX, Salem, and WEEI, Boston, all Massachusetts. Mr. Lane has had hands-on experience operating low power FM event broadcast transmission facilities.

CERTIFICATE OF SERVICE

I, Harold K. McCombs, Jr., do hereby certify that I have caused to be mailed, First Class postage prepaid, this 27th day of April, 1998, copies of the foregoing "Comments of the National Hockey League" to the following persons:

Mr. Nickolaus E. Leggett
Ms. Judith F. Leggett
1432 Northgate Square
No. 2A
Reston, Virginia 20190-3748

J. Rodger Skinner, Jr., President
TRA Communications Consultants, Inc.
6431 NW 65th Terrace
Pompano Beach, Florida 33067-1546

Harold K. McCombs

Harold K. McCombs, Jr.