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Before the
Federal Communications Commission
Washington, D.C. 20554

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

ORIGINAL
FILE

In the Matter of)
)
Amendment of Sections 90.621(c) and)
(d) of the Commission's Rules and)
Regulations Concerning Separations)
Between 800 and 900 MHz Land)
Mobile Radio Systems in the)
Business and General Category)
Radio Service Pools)

RM-8028

To: The Commission

COMMENTS OF AERONAUTICAL RADIO, INC.

Aeronautical Radio, Inc. ("ARINC"), by its attorneys, hereby supports the Petition for Rulemaking filed by the National Association of Business and Educational Radio, Inc. ("NABER"), in the above-captioned proceeding.¹ NABER has asked the Federal Communications Commission to amend its rules to provide 40/22 dBu contour separation between co-channel private land mobile radio stations in the Business and General Category Radio Services Pools.

ARINC submits that the proposed changes are needed (1) to protect systems that primarily use low-powered portables instead of mobiles; (2) to ensure service options required for the safety and convenience of the travelling

¹ Amendment of Sections 90.621(c) and (d) of the Commission's Rules and Regulations Concerning Separations Between 800 and 900 MHz Land Mobile Radio Systems in the Business and General Category Radio Service Pools, RM-8028, "Petition for Rulemaking of the National Association of Business Radio, Inc.," filed March 6, 1992 ("NABER Petition").

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public; and (3) to establish parity in the treatment of SMRS, Business and General Category licensees.

I. **BACKGROUND**

ARINC is the communications company of the air transport industry. It was organized by the civil aviation community in 1929 at the suggestion of the Federal Radio Commission. ARINC currently provides the aviation industry with various telecommunications services, including air-ground voice and data communications, aviation terminal use radio systems, and other inter- and intra-airline communications. Thus, ARINC and the airlines will be significantly affected by the decisions made in this proceeding.

Of particular relevance to this petition is ARINC's Trunked Radio Service ("ATRS"). ATRS systems are employed to meet the airlines' need for a local area radio service to facilitate the safe and efficient movement of aircraft and passengers at the nation's airports.² For example, ATRS

² This localized need, and aviation's willingness to share land mobile frequencies with other licensees not at the airports, is recognized in ten UHF frequency pairs set aside for air terminal use ("ATU") within fifty miles of the airports serving the nation's largest cities. See Section 90.75(c)(25) of the Rules; see also Business Radio Service (Operation on Air Transportation Frequencies), 51 Fed. Reg. 18331 (1986). The growth of air travel in the past decade and the increasing congestion at the nation's major airports has stretched the demand for this service beyond the limited ATU channels and led ARINC to establish 800 MHz shared radio systems (or ATRS) at those airports.

radios are used to coordinate activities involving passenger services, aircraft maintenance and preparation, baggage handling, fueling, security, and food preparation.

The nature of a typical hub and spoke airport intensifies these communications needs. Hub and spoke operations can involve landing 30 to 40 aircraft within a 15 minute period, allowing passengers and baggage to connect to other airplanes, resupplying and maintaining the aircraft, and then coordinating the departure of those aircraft during another 15 minute period. To accomplish these tasks, the airlines require reliable and instantaneous communications between personnel and usually generate hundreds of radio messages during such a 15 minute period.

On March 6, 1992, NABER filed a Petition for Rulemaking seeking to amend Sections 90.621(c) and (d) of the Commission's Rules, which establish a 40/30 dBu contour separation between co-channel 800 MHz private land mobile radio stations in the Business and General Category Radio Services Pools. However, as shown below, this standard does not adequately protect all co-channel systems and hampers licensees' ability to make minor modifications to their facilities.³ Accordingly, ARINC supports NABER's request for rulemaking to require increased protection, such as the 40/22 dBu separation criteria, for these stations.

³ See NABER Petition at 5.

II. **The 40/22 dBu Criteria Are Needed To Protect Systems That Use Portables Instead of Mobiles**

As NABER correctly notes, the 40/30 dBu spacing set out in the FCC's rules was appropriate when it was first adopted, but is now obsolete.⁴ When the agency established this criterion in Docket No. 18262,⁵ it determined that a 10 dB ratio between the desired signal and a co-channel undesired signal would assure protection from harmful interference. Assuming that mobiles of comparable effective radiated power ("ERP") were transmitting simultaneously from their respective system's 40 dBu contours, and the two systems were implemented with their 40 and 30 dBu contours mutually adjacent, their signals would each be received by their respective base stations at a level 10 dB above the interfering signal. Thus, the 40/30 dBu criteria were adequate for systems using comparably powered mobile units.

The 40/30 dBu criteria are inadequate, however, to protect low-power portable operations -- such as ARINC's ATRS -- from neighboring, relatively high-powered mobile systems. ATRS typically employs portables operating with 3 watts ERP or less. On the other hand, mobiles on typical co-channel systems operated by other Business Category service

⁴ Id.

⁵ See First Report and Order and Second Notice of Inquiry, 35 Fed. Reg. 8644 (June 4, 1970).

providers, or SMRS operators through intercategory sharing, employ mobiles operating with 30 watts ERP. Low-powered ATRS portables cannot achieve a 10 dB difference in signal when transmitting simultaneously with high-powered co-channel mobiles. Under these circumstances, the co-channel mobiles capture ARINC's base station facilities and prevent its portables from communicating.

This problem has become increasingly apparent as a result of technological and market changes in the industry. In the past, Business and General Category licensees were located more than 70 miles apart and often involved under-loaded single user or community repeater systems with defined coverage needs. By contrast, present-day systems must support wide-area service with heavier mobile loading. In addition, these systems now employ different types of equipment and applications which enable reliable land mobile communications to extend beyond those areas anticipated in 1974 when the 40/30 dBu criteria were developed.

These new systems have the potential to cause substantial interference to ARINC's operations. This is especially true given the differences between the lengthy messages transmitted over fully loaded co-channel systems and the typically short, four-second duration of ATRS messages that is characteristic of airport operations. A 20 second co-channel mobile transmission could preclude as many as five

ATRS messages, and the likelihood of this happening increases directly with the loading of the co-channel mobile system. The consequences of such missed ATRS messages can be severe, as an aircraft is capable of causing tremendous damage and loss of life if not properly handled and serviced while at the airport. It follows that the 40/30 dBu criteria no longer offer the level of interference protection needed to ensure the quality and reliability of service required for safe airport operations.

It is, thus, essential that services offered by ARINC as well as other similarly situated licensees obtain improved co-channel protection. The short-spacing criteria ideally should be amended to define the interference contour as 30 dBu minus the ratio of the powers of the mobile units involved. For instance, an applicant intending to use 30 watt mobiles in a co-channel system adjacent to an existing system using 3 watt portables should be required to show that its 20 dBu contour does not overlap the 40 dBu contour of the existing system. While this level of protection does not consider the fact that the gain of a mobile unit's antenna usually exceeds that of a hand-held portable, ARINC recognizes that the inclusion of that factor would result in a system that is unwieldy to administer. To reduce that burden, ARINC recommends that a flat 10 dB decrease in interfering contour be applied for any system using mobiles with

ERP in excess of 20 watts when short-spacing any system which uses portables for more than 75% of its authorized mobile/portable units. As a minimum, the agency should adopt the 40/22 dBu criteria proposed by NABER.

III. The NABER Criteria Protect Critical Service Options Needed by the Travelling Public

Adopting the increased protection for mobile systems that NABER seeks will ultimately enhance the provision of services in the public interest. Absent such revisions, licensees that are not adequately protected may find it difficult if not impossible to operate systems tailored to the individual needs of users. For example, ATRS is a system dedicated exclusively to airport operations with a full-time ARINC staff at every airport ready to respond to the airlines' service concerns. Unlike other service offerings, ATRS allows the airlines to reconfigure their systems on a dynamic and efficient basis to accommodate emergency traffic volumes and to provide the requisite speed, flexibility, reliability and penetration of service at the airport. The 40/22 dBu criteria will ensure the continuation of these important and innovative services tailored specifically to meet particular users' requirements.

**IV. The FCC Should Apply Standardized Criteria
for Similar Private Land Mobile Systems**

NABER's Petition should be granted for administrative and equity reasons as well. The FCC currently requires 40/22 dBu protection for SMRS systems.⁶ Applying the same standard here will ensure against disparate treatment between SMRS, Business and General Category systems. Indeed, 40/22 dBu contour separation would appear more warranted for Business and General Category licensees than for SMR licensees. SMR licensees serve mobiles almost exclusively, while Business Category licensees primarily serve portables. Furthermore, the usual power output of these various systems render interference less likely between mobile systems than between a portable system and mobile system. Thus, the rationale for granting 40/22 dBu protection to SMR systems is at least equally applicable to Business Category and General Category licensees.

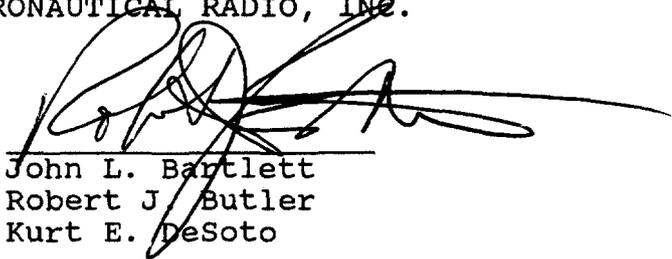
Moreover, NABER and the agency will likely find it more practicable to apply a single standard to SMRS, Business Category and General Category licensees. Finally, adopting standardized criteria will help meet the FCC's current goals to remove inconsistent provisions from its regulations.

⁶ Amendment of Part 90, 6 FCC Rcd 4929 (1991).

V. CONCLUSION

For the foregoing reasons, ARINC urges the Commission to issue a Notice of Proposed Rulemaking in this proceeding to amend the existing regulations to establish a 40/22 dBu contour separation requirement for Business and General Category Radio Services.

Respectfully submitted,
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August 12, 1992

CERTIFICATE OF SERVICE

I hereby certify that on this 12th day of August, 1992, I caused copies of the foregoing "Reply Comments of Aeronautical Radio, Inc.," in RM-8028 to be mailed via first-class, postage prepaid, to the following:

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