

INCREASING CONTACT HOURS FOR LANGUAGE LABORATORY PRACTICE THROUGH FM SUB-CARRIER RADIO TRANSMISSIONS

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The language laboratory is the traditional location used for taped practice of pattern drills and the dissemination of taped cultural information. Much has been written on the type of material for which the language laboratory is suited. This paper will not attempt to add to that literature. Instead, it will describe a method of providing additional and supportive practice time and cultural entertainment programs to the student by means of a subsidiary service made available by a campus FM radio station. Arendt (1972) discusses the youth of today growing up in an electronic media world, and the school's need to make use of this media. Scott (1970) points out that "our instructional tapes . . . must successfully compete with interesting TV and radio fare in order to reach our already overstimulated students" (p. 308). Smith (1972) writes of the potential which radio recordings provide as "an excellent means of extending the learner's language world beyond the language classroom and laboratory" (p. 232). Cole (1965) suggests that such a system would contain an "almost unlimited possibility for language overlearning and enrichment" (p. 363).

The system to be described was born out of the following conditions within the language program at Georgia Tech:

- 1- Six languages are offered, i.e., French, German, Hebrew, Spanish, Russian, and English as a Second Language (ESL).
- 2- The total enrollment in these languages is just over 1100 (Fall quarter, 1976).
- 3- Although our department possesses a small language laboratory (28 positions), it does not have a formal language lab requirement. We can only suggest (strongly) that our students make use of the tapes in the lab. This is accomplished by testing them on the lab material, which does, in fact, bring the students into the lab.
- 4- The ESL program meets five days per week and uses the lab extensively. The other language classes meet only three days per week.
- 5- French, German, Spanish and Russian have four-year sequences, which creates a scheduling problem for the use of the lab, since our course offerings are many in addition to the high student population.
- 6- Due to a lack of full-time personnel the lab is available to the students on a limited schedule, averaging only four hours a day, five days per week.

- 7- The average course load for our students is twenty-one contact hours per week. This figure includes total weekly lecture and laboratory time, and ranges from twelve to thirty-three hours per week! Unfortunately, our students simply do not have time to engage in extended periods of language lab practice due to their other class and laboratory commitments.

To overcome these problems, the author, in cooperation with the campus FM radio station, has developed and implemented a system by which the tape recordings of the language lab (both pattern practice and cultural material) can be transmitted on a twenty-four hour basis, across campus and into the dormitories, so that the students may listen to a particular tape while sitting in their rooms or in the dormitory lounges. A listening room is also available in the library. This system makes use of Subsidiary Communications Authorization (SCA) FM Sub-Carrier radio transmissions.

Many FM radio stations have, as part of their equipment, an SCA unit which transmits music or educational programs without interruptions for advertisements. Commercial institutions subscribe to the service to provide background music to their employees or customers. One such unit is available at WREK, Tech's campus station, and is being used by the Department of Modern Languages.

Tapes from the language laboratory are transferred onto cassettes owned by the radio station. Each tape is timed so that a master schedule can be compiled for all levels of study for each language. The cassettes are placed into the automatic equipment at the station, and are aired according to the master schedule. Live broadcasts from the station's sound studio are also possible. A list of programs is distributed to the students. In addition, we hope to have the schedule published in the Tech newspaper. The student merely consults the listing to find out at what time a particular tape is to be broadcast. The tapes are repeated at several intervals during the broadcast day, so that the student can choose a listening time convenient for his particular schedule. The master schedule is revised weekly, to include new material and re-entry of previously covered material.

The block diagram in Figure 1 describes in simple terms the process of SCA transmission and reception. The automatic cassette equipment at the station feeds the programs into the SCA generator, which in turn is fed into the on-the-air transmitter, where it is impressed on a sub-carrier channel within the total bandwidth of the FM transmitter (see Figure 2). The SCA channel has the same power rating as the regular FM program channel, however, the SCA channel is completely separate from, and causes no interference to, the normal programming of the station. Since FM receivers or tuners which are purchased by the general public cannot receive SCA transmissions without a special adapter or receiver, such a

unit must be provided at the receiving end of the process. The SCA sub-carrier signal is received by a SCA unit in the dormitory, and is then fed into a low-power amplitude modulated transmitter. The signal proceeds through the RF Distributor System¹ to the various points of the dormitory and can now be received by a standard AM radio which the student has in his room. An alternate possibility is for the student to have his own SCA receiver or adapter with which he could receive the SCA signals directly. The listening room in the Tech library utilizes such a receiver.

The greatest use of the daily program format is the transmission of pattern drills within the first year program using the commercially prepared tapes which accompany the texts. Permission to air the tapes was, in each case, first obtained from the publisher. Additional tapes are prepared by the individual teachers, including folksongs, students' productions of radio plays, and cultural material about the daily life in the foreign countries.

The SCA signal as re-transmitted to the individual rooms in the dormitories must not exceed the confines of the university complex, in accordance with FCC regulations, since it could interfere with regular AM broadcast stations. The actual audience potential, therefore, would seem to be limited to those students living on campus, and would be useless to commuter students. The commuters have stated that they do, in actuality, listen to the programs in dormitory lounges and the library listening room. In addition, a student could use an SCA receiver off campus by listening directly to the FM station on the sub-carrier frequency, since SCA transmissions carry as far as the transmissions of the regular program channel.

The Department of Modern Languages at Tech is the only user of the SCA system at this writing. As other departments indicate a desire to utilize it, part of the broadcast day will have to be relinquished. The College of Sciences and Liberal Studies has proposed a full-scale University-wide program utilizing SCA.² Some of the contemplated uses for the future are (a) course credit by SCA radio, much in the manner of educational TV courses; (b) taped conversations containing analysis and criticism of topical subjects, as an implement to classroom lectures; and (c) the development of special programming for shut-ins within the community-at-large.

The system as described in this paper is an adjunct to the language laboratory, and can be utilized at any campus FM radio station which is capable of transmitting the sub-carrier. The FM-to-AM converter is the only piece of equipment which must be acquired. The engineers at the station can build the unit with a minimum outlay of money. One unit must be installed in each dormitory location. The unit in use at Tech is modelled after that described by Wood (1970). This article gives

complete instructions for building the unit, including schematic diagram and a parts list. Another SCA unit and its construction has been described by Green (1971).

We are presently conducting a survey to determine the most popular hours for listening. This survey will be conducted over a two-quarter period, since many Tech students are co-ops who attend classes one quarter and work in industry the next quarter. Present data, however, seem to indicate that the SCA transmissions are being utilized **more than** the language laboratory itself. Students have indicated spending more time with the language tape recordings than before the SCA system was inaugurated.

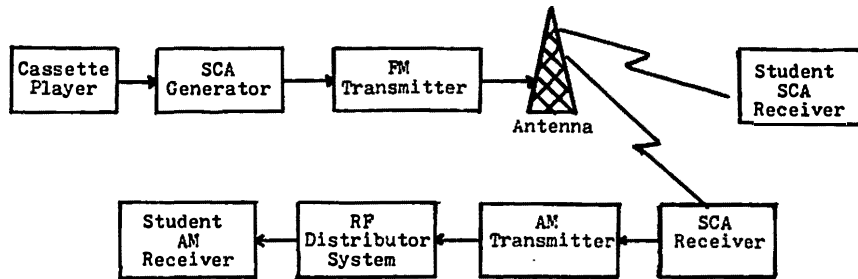


Figure 1. Block Diagram of the Subsidiary Communications Authorization (SCA) Transmission and Reception Process.

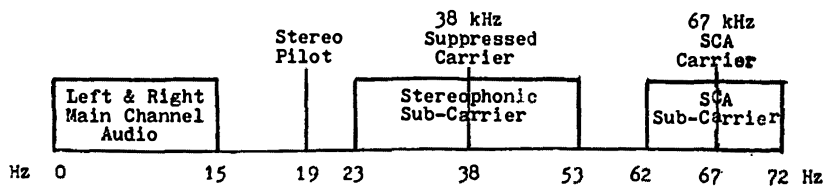


Figure 2. Typical Bandwidth Allocation of an FM Transmitter Showing SCA Sub-Carrier (not drawn to scale).

Footnotes

¹The RF Distributor System can be one of two types: (a) the carrier-current system, which makes use of permanent wiring in the building to each individual room, or (b) a small antenna system which transmits a low-level signal to the student's AM radio.

²See William H. Eberhardt, "Elementary College Science from an Advanced Standpoint: Conversations by FM Audio," COSALS Ehite Paper, Georgia Institute of Technology, Atlanta, Georgia 30332 (Mimeo.).

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