

Purpose of Special Temporary Authority

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ARRL High Speed Multimedia Working Group

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This application proposes wide bandwidth tests of new image transmissions in the Amateur Service, in existing Amateur Radio allocations, for an initial period of six months. The tests are to be conducted by John B. Stephensen, whose Amateur Radio callsign is KD6OZH. Mr. Stephensen is a member of the ARRL HSMM Working Group, an ad hoc committee appointed by ARRL, the National Association for Amateur Radio to study and make recommendations regarding the incorporation of new, high-speed multimedia in the Amateur Radio Service. The experiments would be conducted under the direct supervision of Mr. John B. Stephensen, whose Amateur Radio callsign is KD6OZH.

The purpose of this experimentation is to demonstrate and refine a radio system capable of maximum VHF range carrying a moving image at up to 384 kbit/s. The range is expected to greatly exceed that possible with systems such as IEEE 802.11b and other unlicensed spectrum users operating under Part 15 of the rules. If this system proves successful, consideration will be given to petitioning the FCC for use of up to 200 kHz bandwidth in the 6-meter (50-54 MHz) amateur band and to make the modems thus developed available to licensed radio amateurs for use in amateur allocations above 50 MHz. The outcome of this project may have potential applications in other radio services, but its express purpose is to conduct experimentation and technical development in the Amateur Radio Service.

The STA is necessary because Sections 97.305(c) and 97.307(f)(2) of the Commission's Rules do not permit experimental image emissions with a bandwidth up to 200 kHz in the band 50.3-50.8 MHz. Therefore, the experiments cannot be conducted as intended in the specified band without a grant of Special Temporary Authority.

This course of experimentation is consistent with both ARRL national voluntary band plans and applicable local band plans in the Fresno, California area. Specifically, in those band plans, the segment 50.3-50.6 MHz is designated for "all modes" and the segment 50.6-50.8 MHz is designated for "nonvoice communications."

Particulars of Operation

FREQUENCY		POWER		EMISSION	MODULATING SIGNAL	NECESSARY BANDWIDTH (kHz)
(A)	(B)	(C)	(D)	(E)	(F)	(G)
50.3-50.8 MHz	1.5 kW	1.5 kW	Peak	200KD1DEF	384 kbit/s max	200 kHz

The number of OFDM subcarriers will range from 33 to 131 with a subcarrier spacing of 1, 2 or 4 kHz and a symbol rate of 800, 888.9, 941.2, 1600, 177.8 or 3200 bauds. Modulation of individual subcarriers will be either QPSK or 8PSK. The frequency difference between the upper and lower subcarriers will be between 64 and 168 kHz.

The necessary bandwidth was calculated based on the maximum subcarrier spacing and the symbol rates.

The type of operation for these experiments will be base and mobile. The fixed location is the location of Mr. Stephensen's Amateur station at his residence:

3064 E Brown Ave
Fresno, CA 93703-1229
Lat: 36d 46m 30s N Lon: 119d 46m 22s W

The mobile area of operation will be the San Joaquin Valley and adjacent foothills of the Diablo Range and Sierra Nevada mountain ranges between the cities of Stockton and Tehachapi, California. The area is bounded by 38 degrees W north latitude on the north, 35 degrees N latitude on the south, 122 degrees W longitude on the west and 118 degrees W longitude on the east.

A directional antenna will be used. It will be a Yagi-type, with 6 dBd of forward gain, aimed in direction of a mobile unit.

The person who can best handle inquiries regarding this application is Mr. John B. Stephenson, at 559-229-8182 at all times of the day and night. kd6ozh@comcast.net