

Modification request.

Documentation to support Form 442 file 0054-EX-ML-2003

Callsign WD2XDW

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Date – 13th August 2003

Each bullet point is either a description of why I wish to change the details of the Grant or a request for additional flexibility, but all within Part 5 bounds. Thank you.

1. Emission changes – The increased bandwidth request is to allow A1A CW ID at 10-15 wpm – old Emission grant limitation of 5Hz bandwidth did not allow the call sign to be sent at a readable speed and still be within the terms of the grant. Same for F1A FSK – FSK keying speeds were similarly affected.
2. Additional Frequencies – required to find clearer spaces between weak spurs from distant Loran C stations on 100Khz allowing better s/n resolution for slow speed low signal detection methods with FFT programs such as “Argo”
- 3a. A request is being made which is covered in terms of the Part 5 regulations in allowing communication between similarly granted Part 5 experimental stations conducting propagation/aerial/variable power/low signal modes within the same frequency allocation of this grant. I know of stations in Texas, S. Carolina and other East locations whose part 5 licenses are in process who have applied for the same spectrum.

Specifically, experimentation is underway looking at whether stations using the same low LF transmitting ERP's and omni-directional vertical arrays have propagation A to B, and B to A, that exhibit coherent ray paths i.e they traverse the same route and entail similar path loss, phase variation and fading patterns in a similar time domain.

There are past non-correlated examples of possible ducting, skewing and one-way propagation of LF (130-170Khz) signals under or around the D and E layers on some paths due to Ionospheric, Geomagnetic or even possible Meteorological variables. The ability to test, point to point from A to B and B to A within the same time frame and frequency domain, using slow bit rate data exchange is intriguing. The methodology would to transmit assigned call-signs or both call signs in CW (A1A) or F1A (DFCW) with additional variable bit lengths and low speeds carrier bursts.

It is likely that transmission periods for each station may vary from anything from 1 – 60 secs per bit burst. Each station is likely to have calibrated stepped carrier power control allowing further linear related field strength measurements.

- 3b. The band of frequencies assigned in this experimental grant are available to radio amateurs in a number of countries around the world; (assigned 135.7-137.8Khz)

Similar max ERP values, low signal modes of transmission/detection, and low % aerial efficiencies are used per the terms of their respective licenses

Given the different geographic and geomagnetic latitudes of these experimental sites it would give us an opportunity to further exchange data between this station and these amateur radio stations in accordance with all local and International regulations. This would entail be able to communicate using CW/DFCW/ (A1A or F1A) call-sign and data bit exchange as described in para 3a.. At all times this station would adhere to its grant allocation.

- . Since the end of July WD2XDW has been in “beacon” test mode here in Anchorage using slow speed data, keying its call sign in Morse-code at a rate of a “dot” every 6 seconds on a frequency of around 137.774 Khz

Thank you for your consideration

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