

Experimental License for
Interconnected Business Band
Emergency Voice Radio Network

The purpose of this experimental radio license is to apply my 30 years of experience with Business Band, Military, and Amateur radio communications systems to develop an interconnected (linked / cross-band) UHF, VHF and HF radio system. This system will be used to determine the best configuration to apply for a business band license for use while involved in farming, transportation, and mineral exploration activities on the south slope of the Uinta Mountains located in the North Eastern corner of Utah.

The network will consist of a 10 watt UHF-FM voice repeater on R467.15 / T467.15 PL 141.3 Hz, with a 3 db gain omni directional antenna on a 35 foot antenna mast located at 510 E. 500 N. Duchesne, UT. This UHF repeater will have a remote base station on VHF-FM voice with 30 watts into an 11 element 12 dB gain antenna up about 30 feet with LMR200 coax with about 1.5dB loss. This VHF base station will be used to access a VHF repeater on a proposed frequency of 151.955 input and 159.855 output. (I have done 5 months of frequency surveys on the FCC database and using scanning receivers to locate and identify locations of radio networks in the Uinta Basin, in order to select the best frequencies to prevent interference with Public Service and Business Radio Nets.) The VHF repeater will be located at my parents cabin located just over the hill 10 miles north of Duchesne, UT. The VHF repeater is necessary to overcome the attenuation of the many hills in the area that prevents the use of a UHF-FM General Mobile Radio System repeater. The repeater would use 110 watt crystal controlled GE mobile radio on transmit and a Hamtronics receiver, preamp, etc. The VHF repeater antenna would be a 7.2 dB gain co linier vertical up on a 40 foot tower. A 7 watt Hand held radio would be used at the cabin to access the repeater as well as 50 and 100 watt mobile radios in and around 35 mile radius. Low power 1 and 2 watt GMRS hand held radios would be used for mobile remote access to the VHF mobile radios while out of the vehicles.

An 800 watt High Frequency base station would be used on 2 to 25 MHz proposed frequencies of 2292, 2298, and 4637.5 KHz with an inverted vee antenna up about 40 feet. Two 100 watt High Frequency mobile radios will be used on the 2 to 25 MHz frequencies to contact the base station in addition to proposed HF-FM frequencies of 29.71; 29.73; 29.75, etc for mobile to mobile operation. The HF voice radios are necessary for emergency wide area coverage out to about 60 miles in deep mountain and river canyon / valleys where cellular and satellite phones are not usable. Mobile to Mobile communications in winding mountain and canyon roads require high power 29.7 MHz radio equipment to talk around the corners of the hills, etc.

It may be possible to eliminate the UHF repeater in Duchesne if the VHF repeater in Sundance West allows effective communications from 10 to 25 watt mobile radios from the deep river valley where Duchesne is located. 4 or 5 watt UHF hand held radios would be needed on 462/467 business band or GMRS frequencies to access the VHF repeater from the VHF mobile remote system.

As soon as the final network configuration is determined, an application for a business band license can be submitted.

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