

## **IWG-1 Opposition to RCS Draft Proposal on AI 1.2 (10 GHz Band)**

The FWCC or Fixed Wireless Communications Coalition represents the users and manufacturers of fixed, point to point microwave frequency radios operating under the FCC's Part 101 rules.

The FCC's Part 101, 10.5 GHz band extends from 10.550 to 10.680 GHz. 80 MHz of this band overlaps the 10.6 to 10.68 GHz band shared with the EESS or Earth Exploration Satellite Service band allocation.

The primary applications for the 10.5 GHz band are for cell site interconnection and basic communications services for:

Cellular companies.

Public safety systems for police, fire and ambulance services.

Critical infrastructure providers including:

Oil and gas exploration and pipeline control.

Electrical energy transportation and grid control.

Railroad inventory management and signals control.

All of these services require very highly reliable communications systems typically engineered for 99.999% availability which is equivalent to less than 5 minutes outage per year.

The Part 101, 10.5 GHz band is particularly desirable, especially in metropolitan areas, because:

1. Spectrum is available even in congested areas. The FCC added 100 MHz of unused spectrum to the 10.5 GHz band in 1996.
2. This is the lowest frequency band in which the FCC allows the use of very popular small, 2 ft. antennas to reduce tower wind loading and improve visual aesthetics.
3. It has reasonably good propagation characteristics.

The propagation characteristics of the 10.5 GHz band are determined by the rain rate between the antennas.

Traditional microwave radio propagation improvement techniques such as space diversity or frequency diversity are ineffective against fading due to rain absorption.

Only greater transmitter power output or larger antennas will improve the path length or increase the reliability of a system limited by rain fading.

Calculations using industry accepted formulas show the 7 dB output power reduction suggested by the modifications to paragraph 5.482 will reduce a 10.5 GHz path length by approximately 27% for equivalent reliability.

Some additional 10.5 GHz facts supplied by FWCC members:

70% of the 10.5 GHz paths are located in metropolitan areas. This information was supplied by Comsearch along with a map (included) showing the metropolitan areas and 10.5 GHz systems.

The 10.5 GHz band usage has increased by 22% over the last 4 years and is approximately twice the growth rate of the other Part 101 frequency bands. This information was supplied by Doug Docherty and based on information from the FCC's universal license system.

Approximately 83% of the 10.5 GHz transmitters in the State of Massachusetts already exceed the 20 dBm or -10 dBW power output restriction being recommended by the modifications to paragraph 5.482.

Existing 10.5 GHz transmitters have power outputs up to +30 dBm or 1 Watt. This is 10 dB greater than the limitations suggested by the modifications to paragraph 5.482 and particularly useful to combat rain fading.

The maximum EIRP of the 10.6 to 10.68 GHz portion of the 10.5 GHz band is already 15 dB lower (+40 dBW) than other Part 101 frequency bands (+55 dBW).