AT&T Bell Laboratories

Report for Radio Station

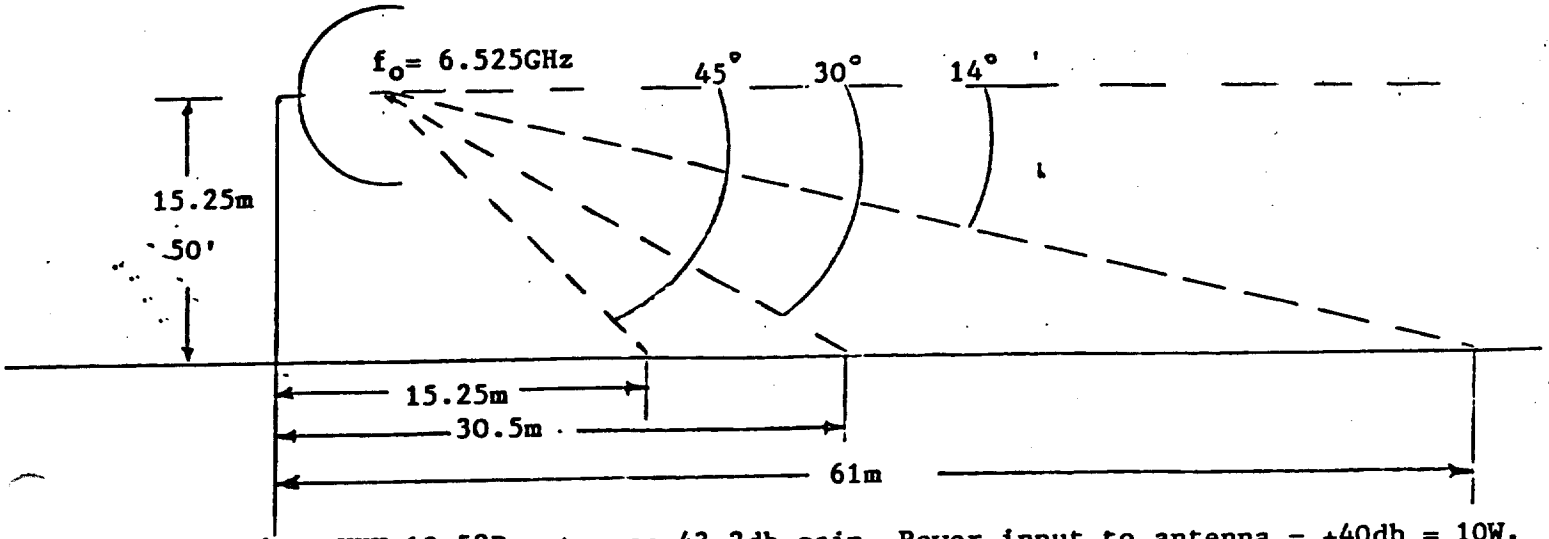
KB2XTG Continental USA

File # 9249-EX-R-87

Experimental XR MO

Continuing Distance Relationship to Microwave Propagation Tests utilizing 10M0A7W at 6.525GHz with input power to the antenna of +40db = 10watts.

KB2XTG File# 9249-EX-R-87 EXPERIMENTAL XD MO CONTINENTAL UNITED STATES 10M0A7W 6.525GHz



Tower mounted Andrew UHX 10-59D antenna; 43.2db gain. Power input to antenna = +40db = 10W.

Physical environment of the transmitting site:
Experimental radio antenna space is provided by our affiliated Common Carrier; this example is representative of such an installation. A six foot fence topped with barbed wire encloses the tower area; fifty foot on each side with lockable gate access. A lockable secure structure houses the electronics. The transmitter cabinets are interlocked and all accessable waveguide flanges are marked as to the possible leakage hazard. This example indicates a flat terrain: in most locations the tower is on a high point and the surrounding terrain falls off from it which might indicate a somewhat lower density reading than that of this worst case example.

In compliance with FCC Docket 79-144 and utilizing FCC OST Bulletin # 65: Calculation # 2, page # 8. $S = \frac{EIRP}{4\pi R^2}$ where: EIRP = equivalent (or effective) isotropic radiated power

Point A:

Radiation angle = 45°, Antenna gain at 45° = -55db + 43.2db = -11.8 b net gain.
R = Square root of $(1525cm)^2 + (1525cm)^2 = 2156.676cm$

$$S = \frac{EIRP}{4\pi R^2} = \frac{(40-11.8)db}{4\pi(2156.676cm)^2} = \frac{645mw}{58449485cm^2} = 1.096 \times 10^{-5} mw/cm^2$$

Point B:

Radiation angle = 30°, Antenna gain at 30° = -47db + 43.2db = -3.8db net gain.
R = Square root of $(1525cm)^2 + (3050cm)^2 = 3410.0cm$

$$S = \frac{EIRP}{4\pi R^2} = \frac{(40-3.8)db}{4\pi(3410.0cm)^2} = \frac{4369mw}{1.4612 \times 10^8 cm^2} = 2.99 \times 10^{-4} mw/cm^2$$

Point C:

Radiation angle = 14°, Antenna gain at 14° = -40.3db + 43.2db = +2.9db net gain.
R = Square root of $(1515cm)^2 + (6100cm)^2 = 6287.74cm$

$$S = \frac{EIRP}{4\pi R^2} = \frac{(40 + 2.9)db}{4\pi(6287.74cm)^2} = \frac{20000mw}{4.676 \times 10^8 cm^2} = 4.277 \times 10^{-5} mw/cm^2$$

Conclusion:
KB2XTG power densitys are well below the $5mw/cm^2$ level considered as the threshold of radio frequency radiation harmful to humans in all areas considered accessable.