

Environmental Protection Act / RF Radiation Compliance (Table 2)

The Rules require that an addition to any multiple use site must not contribute non-ionizing RF Radiation in excess of the total limits for each class of service in either of the two selected environments.

In the case of FM, this limit is 1,000 microwatts for the controlled, or worker environment, or 200 microwatts for the uncontrolled, or public, environment per square centimeter at 2 meters above ground level.

The attached Radiofrequency Electromagnetic Exposure Analysis Table 2 specifically lists all potential sources of radiation and estimates the power density expected to occur at a distance of 10 meters from the base of the tower, the maximum power density expected from each source, the maximum distance from the base of the tower to the point of maximum power density for each source, and the total worst case (sum of all maximum power densities from all sources, at most distant maximum occurring power density). The power density values are in units of microwatts per square meter at a height of 2 meters above ground level. These levels are also expressed relative to the maximum allowable limit of each of the two environments.

W277BG proposes to operate at 0.038 kW with its antenna located at 68 meters above ground level. A 1-bay Shively 6812B-1 Series antenna is proposed. At 10 meters from the base of the tower, W277BG would contribute 0.33 microwatts per square centimeter at 2 meters above ground level. W277BG would contribute a maximum of 0.35 microwatts per square centimeter at 2 meters above ground level at a point that is 17.8 meters from the base of the tower.

Considering all current and proposed facilities operating from the proposed site, the total contribution of all potential sources of radiation at 10 meters from the base of the tower (controlled environment) is less than 0.33 microwatts per square centimeter at 2 meters above ground level which is only 0.033% of the ANSI limit for the controlled environment.

For the uncontrolled environment, the sum of all individual source maximum power densities is 0.35 microwatts per square centimeter at 2 meters above ground level. This represents a worst-case power density level that is less than 0.18% of the ANSI limit for the uncontrolled environment.

Given that access within 10 meters to the site is restricted by a locked fence, and given that no more than 0.35 microwatts per square centimeter at 2 meters above ground level is predicted to occur at any point beyond 17.8 meters from the base of the tower, the total radiation contributed by W277BG would be less than the ANSI limit for all points in both the controlled and the uncontrolled environments. Therefore, this proposal is fully compliant with the provisions of OST Bulletin #65 as recently amended.

Further to the requirements and intentions of the FCC, W277BG will post appropriate signs at entrances to the property, on the walls and doors of buildings containing transmitters, and on fences warning the public and workers of the potential hazard.

W277BG will require that the power to the antenna be reduced as necessary to accommodate workers or will discontinue operation, if necessary, for this purpose.

Table 2.

Radiofrequency Electromagnetic Exposure Analysis for W277BG

Source	Height AGL(m)	Antenna type	Bays	Horizontal ERP (kw)	Vertical ERP (kw)	Power Density $\mu\text{W}/\text{cm}^2$ at 2 meters AGL				
						at 10 meters distance	% controlled environment limit (1000 $\mu\text{W}/\text{cm}^2$)	Max. PD	% uncontrolled environment limit (200 $\mu\text{W}/\text{cm}^2$)	Distance to maximum PD (m)
W277BG	68	SHIV6812B	1	0.038	0.038	0.330	0.0330%	0.3500	0.18%	17.8
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The proposed facility is excluded from environmental processing under 47. C.F.R. Section 1.1306 (i.e., The facility will not have a significant environmental impact and complies with the maximum permissible radiofrequency electromagnetic exposure limits for controlled and uncontrolled environments).

In the absence of specific antenna information, the EPA dipole, single element model is assumed (worst case)

Calculations made using FCC FM Model v2.10 Beta