

Incident at AT&T Eagle River Facility

Date: November 16, 1998

Operation: Removal of 4 foot Waveguide Section

6 GHz

90 W

Waveguide: 2 x 4 cm

Average Power Density: 11.25 W/cm²

Flange separation: 0.5 – 0.75 inches

Distance to head: 12 – 15 Inches

Duration of exposure: 5 to 7 minutes

**Worker standing on ladder
with head 12 inches from waveguide**

**Co-worker detected meter pegging
when 60 inches from waveguide,
at level of worker's knees**

Meter pegged on all three scales ($> 200 \text{ mW/cm}^2$)

**Meter removed from area, recalibrated,
and pegged again.**

Narda EM Monitor, Model 8716

Probe: Isotropic conformal Field Probe, Model 8722B

**Meter and Probe Calibrated in Jan '98
Next calibration due in Jan '99**

Three Scales

Maximum Full Scale Reading: 200 mW/cm²

Assessment by Radiation Safety Officer

$$\begin{aligned} S(\text{mW/cm}^2) &= P / 40 \pi R^2 \\ &= 8 \text{ mW/cm}^2 \end{aligned}$$

Time averaged (over 5 min) = 6.7 mW/cm²

MPE: 5 mW/cm² (whole body)
20 mW/cm² (Partial Body - peak)

Worker: 50 Year old technician installer
Good interpersonal relationships
Good job satisfaction

Immediate post-Exposure Period:

**Burning Sensation on Left side of face,
Similar to sunburn.
Occurred immediately and lasted 2 days.**

Within 2-3 weeks:

Numbness in 3 fingers on left hand

Stumbling on left side, but no loss of balance

Left sided headaches

Loss of mental alertness

Delay in remembering things

Slight slurring of speech

Subsequent Problems:

Clinical Depression

Headaches

Clinical Tests

Ophthalmological & Neurological Exam - Negative
MRI of Brain – Negative
Pet Scan – Non-specific changes

Analysis by Bill Guy

Very detailed analysis of exposure to head and brain using sophisticated FDTD computer modeling.

**Conclusion (on third calculation):
9.5% over FCC regulations**

AT&T's Conclusion

No Overexposure

No financial compensation to worker

My Conclusions

Patient was overexposed

as evidenced by initial symptoms

Severe depression

**aggravated by company treatment,
but not physically related to
initial event.**