Appendix A

A list of RFI Sources

From **http://www.aoc.nrao.edu/vla/interference/survey.shtml**,

The Celestri global broadband communications network is expected to be in operation by 2003.

Constellation Parameter for the Celestri System

Satellites:
63 LEO - 9 GEO -- 7 planes, each with 9 LEO satellites
Uplink:
28.6 - 29.1 and 29.5 - 30.0 GHz
Downlink:
18.8 - 19.3 and 19.7 - 20.2 GHz
Lifetime:
8 years (10 years expendables)

The Teledesic Network is a high-capacity broadband network that combines the global coverage and low latency of a low-Earth-orbit constellation of satellites, the flexibility and robustness of the Internet,

and "fiber-like" Quality of Service. Essentially an "Internet-in-the-Sky," the Teledesic Network brings affordable access to interactive broadband communication to all areas of the Earth, including those areas that could not be served economically by any other means.

Pre-production is to begin in 1999. The first satellite launch is scheduled for sometime in the year 2001. The entire constellation is scheduled to be operational in 2002.

Constellation Parameters for the Teledesic System

Constellation:
288 plus spares - 12 planes, each with 24 satellites.
Uplink:
28.6 - 29.1 GHz
Downlink:
18.8 - 19.3 GHz
Lifetime:
10 years

From CRAF Newsletter 1997/2: **http://www.nfra.nl/craf/nwsl9702.htm#cloud radar**

Cloud Radar at 3-mm Wavelength

The project:

A cloud-radar is one of the instruments investigated within the ESA Earth Observation Prepatory Program (EOPP). It is a potential candidate for a future Earth Observation mission. Such an active instrument is of high interest as it can provide data about the vertical profile within the cloud structure. It will most likely operate near 95 GHz, with a transmit power (pulsed) near to 1 kW, using a highly directive sensor (an antenna with about 2.5 m diameter reflector).

The frequency band near 95 GHz is of interest to other (passive) users: e.g. the radio astronomy community has strong interest in observations in the mm-wave domain. The spectral line observations are done to study the physical conditions within the source of the related line emission. This work is done at a number of mm-wave observatories spread all over the world.
mm-Wave radio telescopes make use of a ultra-sensitive wide band receivers. At present, mm-wave astronomical observations are done at frequencies up to about 1 THz. However, the unique information each spectral line provides about the physics and also the chemistry of the Universe implies that observations in one frequency domain cannot be a substitute for those in a different frequency domain. At present more than 100 different molecules have been detected and are subject to daily investigation.

The spectral line observations reveal not only the physical conditions within the radio source but also about the kinematics in the celestial object within which the source resides and about even the distance scale of the Universe as a whole (as derived from maser emission).

See also:
MMA Memo #76, Radio-Frequency Interference and the MMA

P.C. Crane [1]

January 22, 1992