

EXHIBIT NO. 1
Metricom Research and Experimentation Narrative
FCC Form 442 Question 10

Background

Metricom has been producing spread spectrum radio products for over 8 years. These products are certified under §15.247 of the Commission's rules, which allow for both frequency hopping and direct sequence spread spectrum. Metricom uses frequency hopping its method of spreading.

There are new high-speed data communications technologies being developed at Metricom that will require the use of a 902 to 928 MHz transceiver in conjunction with a 2400 to 2483.5 MHz transceiver within the same equipment enclosure. Both transceivers will make use of frequency hopping spread spectrum. By using both bands within the Metricom wireless networking system, net user data rates will be achieved to the level of 128 kb/s. FCC certification and deployment of product is planned to occur within the next two years.

10. (a)

The program of research and development is composed of:

- Placement of up to 500 streetlight-mounted and building-mounted transceivers over the San Francisco-San Jose Bay area of California for testing.
- The transceivers will work on both 902-928 MHz as well as 2400-2483.5 MHz:
 1. Power output on each band will be 1-watt (+30 dBm) maximum.
 2. Hopping channel bandwidth will be 160 kHz and 320 kHz (dynamically selected).
 3. Channel data rate will be dynamic but will range from 100 kb/s to 600 kb/s.
 4. Modulation will vary from FSK through 32 QAM.
 5. Directional antennas will be used as well as omnidirectional. If the directional gain is greater than +6 dBi on the 2400 MHz band, then the transceiver output power will be reduced by 1 dB for every 3 dB of excess antenna gain above +6 dBi (in order to meet §15.247).
 6. The modulation content will be digital data in the form of packets.
- The design of the transceivers will meet all FCC rules for Part 15 equipment with the intention of receiving certification under §15.247.

10. (b)

The objectives sought are:

- Transceiver testing in the intended operational environment (outdoor, pole and building mounted).

potentially residential environment

- Wireless data network performance verification.
- User end-device testing (transceivers used with laptop computers and handheld computers).
- User performance verification.

status
T/H ?
Cant ?
yes

10. (c)

This program will contribute to the development and expansion to the state of the radio art by extending wide area and metropolitan area radio frequency networks to speed and performance levels that have not been available in the past. New technologies based on digital modulation techniques applied to both 900 MHz and 2.4 GHz spread spectrum radio systems will be implemented.