

**Exhibit # 1****Harmonix Corp. 59.05 – 64GHz Experimentation Program**

**Overview:** The basic intent of this experimentation program is to optimize the performance of the Harmonix GigaLINK™ radio product for range and bandwidth. The initial GigaLINK™ offering from Harmonix is under technical review for unlicensed operation under FCC Part 15, (FCCID # O27-00-00-30-30). Harmonix Corp. wishes to evaluate newer circuit designs and antenna configurations for the purposes of developing longer range and higher data rate versions for FCC Part 15 unlicensed certification. The EMC corporate campus in Hopkinton, MA will provide the testing site for practical application tests at very high data rates. Restricted roof access and 24 hr. monitored security will insure undisturbed testing and safety from unintended exposure. In addition, this location will provide a practical model for high data rate transmissions within a corporate campus environment. Testing will be performed under the direct control of Harmonix Corp.

**Antenna Configuration Testing:**

All testing will be performed utilizing equipment similar, but not necessarily identical, in design but operating within the same frequency band and transmit power constraints as the FCC Part 15.255 products. This will establish a control model for direct evaluation of new antenna configurations.

We will attempt to increase the range of our system by incrementally evaluating higher directivity antennas while maintaining compliance with the accepted MPE (maximum permissible exposure) limits of Part 15, CFR 47, Section 1.1307. With each incremental antenna test, receive levels will be recorded and long term Bit Error Rate tests made in order to evaluate reliability under actual field conditions.

The time required to complete the antenna testing will be determined by the lead-time of the purchased prototype antennae. Each antenna configuration will be tested over a period of several weeks to determine long-term reliability and Bit Error Rate Performance under examination of immunity and possibility of various interferences.

**Preliminary Antenna Configuration Test Plan:**

| <b><u>Antenna Description</u></b><br><b><u>Period</u></b>            | <b><u>Gain</u></b> | <b><u>Beamwidth</u></b> | <b><u>Range</u></b> | <b><u>Minimum Active Test</u></b> |
|----------------------------------------------------------------------|--------------------|-------------------------|---------------------|-----------------------------------|
| Single 13" Parabola (diplexed)                                       | 38dBi              | 1.7 degrees             | 800M                | 2 Weeks OC3                       |
|                                                                      |                    |                         | 600M                | 6 Weeks OC12                      |
| Single 18" Parabola (diplexed)                                       | 42dBi              | 1.3 degrees             | 1,000M              | 2 Weeks OC3                       |
|                                                                      |                    |                         | 800M                | 6 Weeks OC12                      |
| Single 24" Parabola (diplexed)                                       | 48dBi              | 1.0 degrees             | 1,200M              | 2 Weeks OC3                       |
|                                                                      |                    |                         | 1,000M              | 6 Weeks OC12                      |
| Dual 13" Parabola (non-diplexed)                                     | 38dBi              | 1.7 degrees             | 1,200M              | 2 Weeks OC3                       |
|                                                                      |                    |                         | 1,000M              | 6 Weeks OC12                      |
| Dual 18" Parabola (non-diplexed)                                     | 42dBi              | 1.3 degrees             | 1,400M              | 2 Weeks OC3                       |
|                                                                      |                    |                         | 1,200M              | 6 Weeks OC12                      |
| Dual 24" Parabola (non-diplexed)                                     | 48dBi              | 1.0 degrees             | 1,600M              | 2 Weeks OC3                       |
|                                                                      |                    |                         | 1,400M              | 6 Weeks OC12                      |
| <b>Total Testing Program Length, subject to antenna availability</b> |                    |                         |                     | <b>48 Weeks</b>                   |

Test points:

- 1.) IF Monitor detected voltages, characterized for receive level in dBm.
- 2.) Long-term Bit Error Rate test using HP 37737C Coms. Analyzer

**Data Rate (Gigabit Ethernet, OC48) Testing:**

Harmonix Corp. intends to develop GigaLINK radio products capable of Gigabit Ethernet (1,000Mbps) and OC48 (2,488Mbps) data rate. Harmonix will design and bench test RF modulator circuitry to enable the current GigaLINK™ product to achieve these higher data rates. This circuit design effort will run concurrently with the antenna testing and culminate with a complete test of all antenna configurations with the expanded data rate radio transceivers.

| <u>Antenna Description</u>                                      | <u>Gain</u> | <u>Beamwidth</u> | <u>Range</u> | <u>Minimum Active Test</u> |
|-----------------------------------------------------------------|-------------|------------------|--------------|----------------------------|
| Single 13" Parabola (diplexed)                                  | 38dBi       | 1.7 degrees      | 400M         | 2 Weeks 1,000 SX           |
|                                                                 |             |                  | 200M         | 6 Weeks OC48               |
| Single 18" Parabola (diplexed)                                  | 42dBi       | 1.3 degrees      | 800M         | 2 Weeks 1,000SX            |
|                                                                 |             |                  | 400M         | 6 Weeks OC48               |
| Single 24" Parabola (diplexed)                                  | 48dBi       | 1.0 degrees      | 1,000M       | 2 Weeks 1,000SX            |
|                                                                 |             |                  | 600M         | 6 Weeks OC48               |
| Dual 13" Parabola (non-diplexed)                                | 38dBi       | 1.7 degrees      | 1,200M       | 2 Weeks 1,000SX            |
|                                                                 |             |                  | 800M         | 6 Weeks OC48               |
| Dual 18" Parabola (non-diplexed)                                | 42dBi       | 1.3 degrees      | 1,400M       | 2 Weeks 1,000SX            |
|                                                                 |             |                  | 1,000M       | 6 Weeks OC48               |
| Dual 24" Parabola (non-diplexed)                                | 48dBi       | 1.0 degrees      | 1,600M       | 2 Weeks 1,000SX            |
|                                                                 |             |                  | 1,200M       | <u>6 Weeks OC48</u>        |
| Total Testing Program Length, subject to circuit design success |             |                  |              | <b>48 Weeks</b>            |

Test points:

- 1.) IF Monitor detected voltages, characterized for receive level in dBm.
- 2.) Long-term Bit Error Rate test using HP 37737C Coms. Analyzer

**Summary:**

Harmonix Corp. created the GigaLINK™ family of point-to-point millimeter wave radio products to enable very broadband data transport over shorter ranges ( $\leq 1$  Mile).

The unique oxygen absorption properties of this frequency range (59-64GHz) make it ideal for dense deployments while minimizing interference and exposure to dangerous RF levels. The testing sequence detailed above will determine the range and data rate performance envelopes possible with our technology and modulation technique. The testing shown will be performed under close supervision with terminal locations chosen to minimize un-intended exposure to RF energy. Narrow beamwidth antennae will focus the radiation on to the intended receiver while minimizing the radiation side lobes.

The intended result of these two testing sequences will be a full characterization of the relationships between antenna directivity, antenna gain, RF path range, attainable fade margin, measured power and exposure levels for wideband signal transmission in the 59.05 – 64 GHz band under actual environmental conditions.

While we estimate that this testing can be completed in less than two years, several factors beyond our control may apply. Antenna tests concurrently with multiple data rates may be possible if circuit tests progress quickly. The testing sequence will also be adjusted in response to actual antenna delivery timing and test results may influence the course of testing. Also, antenna configurations initially found to be unusable may not be tested at higher data rates.

Harmonix is prepared to begin testing immediately upon issuance of an experimental license and complete testing as quickly as possible.