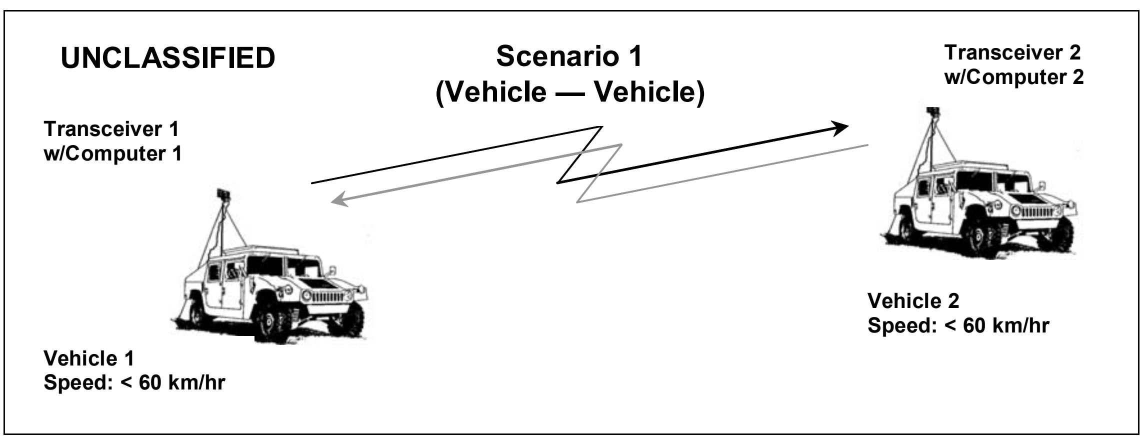
REFERENCE : FCC File #: 0190-EX-PL-2003
Exhibit #1 Text and Diagram

CenGen Inc. is supporting the DARPA Non-Line-Of-Sight Launch System (NLOS-LS). NLOS-LS is a program to develop network wireless communications between a "fleet" of missiles and ground controllers. The development involves phases of testing in simulated environments. The exact equipment in use for field-testing varies from test to test. The current phase of testing uses small, fixed wing aircraft to simulate the missiles and mobile test ground nodes. The power amplifier associated with this phase of the testing has a maximum output power of 6 watts and a maximum antenna gain of 3 dBi. So the maximum EIRP is 12 watts (10.8 dBW). The radio system does not have a model number because it is a developmental, proof-of-concept radio to support data exchanges between the missiles and the ground nodes.

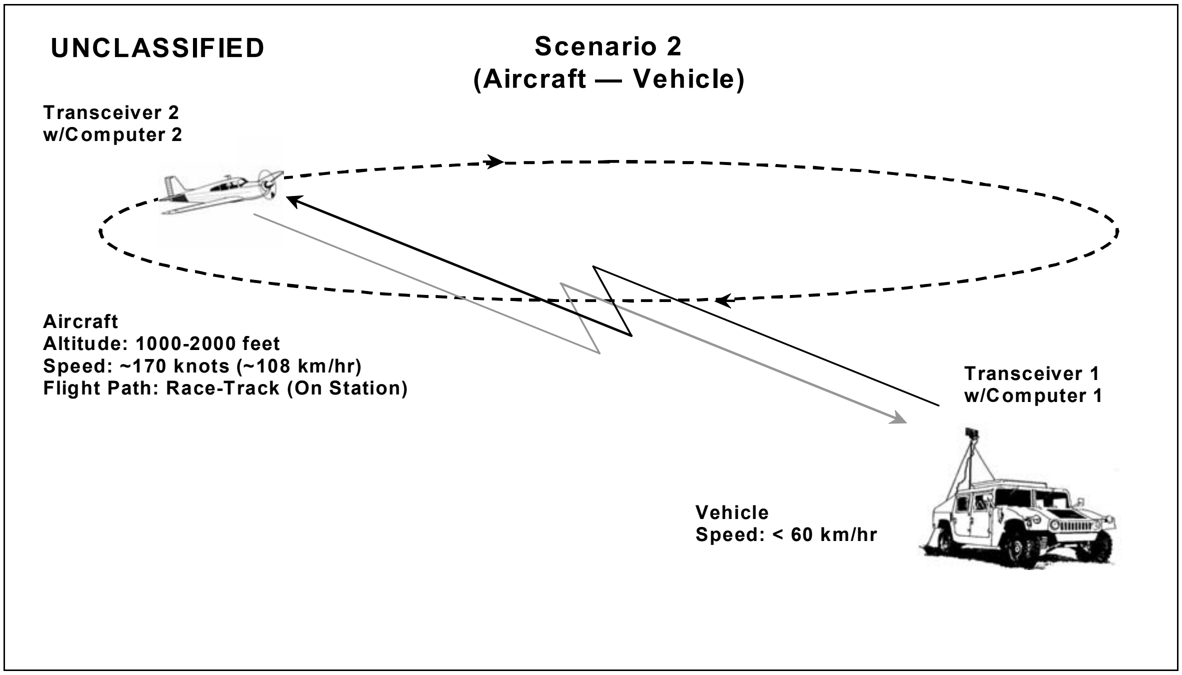
CenGen Inc. requests permission to use power amplifiers, directional antennas, fixed ground and mobile ground assets in the conduct of experimental efforts to address the above objectives. Power amplifiers up to 6 watts peak are desired to support testing in locations where propagation is difficult due to foliage or comparable line-of-sight limitations. Directional antenna, including advanced electronically scanned arrays, with beam width of no more than 90 degrees, effectively 3 dBi gain or less are planned and permission for their use is requested. All ground antenna placements will be below 6 meters in height or attached to pre-existing structures so no adverse impact to aviation is possible.

Permission is requested to use the above components in testing in the vicinity of Piedmont, TN (36 deg 01 min 33 sec North / 083 deg 31 min 40 sec West) and a radius of 100 km. Testing is planned to continue through Oct 2005 and permission is requested for this duration.

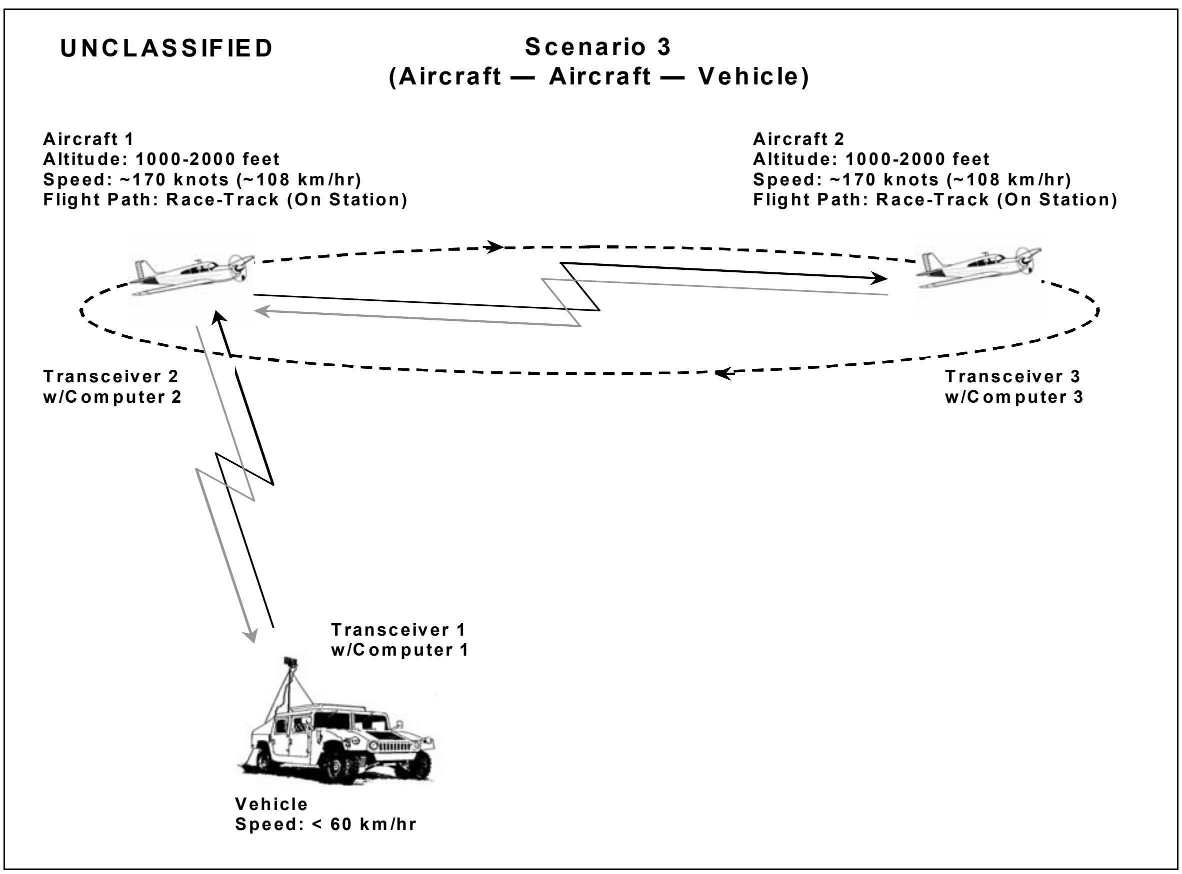
The following text and graphics represent the scenarios of the testing enviroment.



SCENARIO 1: DATA WILL BE TRANSFERRED BETWEEN THE COMPUTER CONTAINED WITHIN VEHICLE 1 TO THE COMPUTER CONTAINED WITHIN VEHICLE 2. DATA FROM EACH COMPUTER IS PASSED TO THE ACCOMPANYING VEHICULAR BORNE TRANSCEIVER VIA WIRED-LINKS. THE TWO TRANSCEIVERS WILL COMMUNICATE DIRECTLY TO ONE ANOTHER IN HALF DUPLEX MODE.



SCENARIO 2: DATA WILL BE TRANSFERRED BETWEEN THE COMPUTER CONTAINED WITHIN THE AIRCRAFT TO THE COMPUTER CONTAINED WITHIN THE VEHICLE. DATA IS PASSED TO THE VEHICULAR AND AIRCRAFT BORNE TRANSCEIVERS VIA WIRE LINKS BETWEEN THE RESPECTIVE COMPUTER AND TRANSCEIVER. THE TWO TRANSCEIVERS WILL COMMUNICATE DIRECTLY TO ONE ANOTHER IN HALF DUPLEX MODE.



SCENARIO 3: DATA WILL BE TRANSFERRED BETWEEN THE COMPUTER CONTAINED WITHIN THE AIRCRAFT 2 TO THE COMPUTER CONTAINED WITHIN THE VEHICLE VIA AIRCRAFT 1 (RELAY). DATA IS PASSED TO THE VEHICULAR AND AIRCRAFT BORNE TRANSCEIVERS VIA WIRE LINKS BETWEEN THE RESPECTIVE COMPUTER AND TRANSCEIVER. ALL THREE TRANSCEIVERS WILL COMMUNICATE TO ONE ANOTHER IN HALF DUPLEX MODE WITH AIRCRAFT 1 SERVING AS A RELAY.

Background Information Related the Activities of CenGen, Inc.

Consulting & Engineering Next Generation Networks (CenGen) Inc. is engaged in several government sponsored (e.g. Office of Naval Research (ONR), Defense Advanced Research Projects Agency (DARPA), etc.) and Internal Research and Development (IRAD) efforts to advance wireless communications. Objectives under investigation by CenGen Inc. include:

1) advances to support highly mobile users of wireless connectivity,
2) advanced usage of spectrum to improve spectral efficiency,
3) use of all layers of the protocol stack to improve efficiency and mobile user connectivity, and
4) advances in electronic scanned arrays (ESA, phased arrays, etc.) in particular to improve spectral reuse through directional antenna approaches.

CenGen Inc. has and anticipates contracts as well as IRAD funding to support data collection and measurement activities to substantiate, augment, and support modeling and simulation efforts and laboratory type efforts typically undertaken by the Original Equipment Manufacturer (OEM) of particular components of RF technology (i.e. Radios, transceivers, modems, antenna, ESA, protocol stacks, applications, etc.). Testing at any particular location or experiment site is typically a few weeks in duration; however locations change frequently to accommodate a variety of environmental, terrain, propagation, and experimental objectives.

The research and experimentation efforts support data collection in field environments. Advances in modulation techniques to counter multipath, jamming, and interference are being addressed as components of ongoing DARPA sponsored efforts. Advanced ESA to improve spectral efficiency via the use of directional antennas are being developed. Physical layer advances (i.e. modulation techniques and directional antennas) require advances in high layer protocols to enable effective network communication. Recent efforts have indicated that the use of higher layers to form networks consisting of directional antennas may enable significant spectral reuse. A simple example would be a three node network where the middle node can seamlessly relay for nodes on either side of it, allowing all nodes to transmit at lower power than if the end nodes would attempt to communicate directly (i.e. without the relay in the middle). The result of the lower power transmission could result in the frequency being available for reuse by other nodes at shorter distances than are in standard use today. Another example relevant to the FCC would be the more effective use of spectrum by enabling effective use of highly directional antennas to mitigate interference and/or increase range, potentially allowing spectral reuse to a significantly higher degree than is presently implemented. The impact of such a configuration is that higher layer protocols need to be advanced along with the physical layer changes and the impact on the applications (i.e. likely longer latency in the simple example above) need to be addressed, including advances to make the applications more tolerant to mobile wireless networks. If approval, this request will advance physical layer (e.g. radios, ESA), media access control layer, network layer, and application layer efforts presently being address in isolation by enabling them to be tested in a variety of field environments.