Exhibit A – Concept of Operation
ThinKom Solutions, Inc.

ThinKom Solutions Inc has developed two ultra low-profile, broadband, highly efficient and affordable antenna systems for Coms-on-the Move (COTM), one based on patented Continuous Transverse Stub (CTS) technology and the other based on Variable Inclination Continuous Transverse Stub (VICTS) technology. The antenna systems operate in the Ku FSS frequency band (14.0GHz – 14.5GHz transmit and 11.7 – 12.2GHz receive). The systems will automatically search for and acquire the designated satellite and maintain precise pointing via automatic control of the azimuth, elevation and polarization angles.

The first system employs a CTS Flatplate Antenna which has a low height profile (~7") and a overall footprint (30" swept diameter), the second system, which has separate transmit and receive apertures also has a low height profile (<5") and an overall footprint of 42.5" x 30". Both of these systems are designed to be mounted on vehicles such as HMMVW's, SUV's and police vehicles (e.g. Crown Victoria's). The full motion tracking system allows high speed broadband connectivity on-the-move, thus allowing real-time streaming video from the vehicle to a remote operations center. There is strong demand for these products in support of national security, the war, disaster recovery and emergency services to provide data rates greater than 256 kbps up and 3 Mbps down. ThinKom has interest from several commercial organizations and government agencies to see the capability of these antenna systems over various regions within the CONUS.

An experimental license is required for ThinKom to refine these two antenna systems and the accompanying VSAT system parameters during operation. Many of the parameters cannot be effectively simulated in a lab environment. In addition, the live operations will allow ThinKom to detect and correct problems that were not anticipated.

The resolution of all potential problems is crucial to the success of this product in the military and commercial markets including Homeland Defense, Border Patrol and Emergency Services. Although there is a very strong desire for this capability, there is currently no affordable solution. Among the myriad of parameters which will be studied are network recovery, network throughputs, bandwidth requirements, etc.

ThinKom plans to deploy between 10 and 25 terminals in the field. Deployments of less than 5 may not provide an accurate measure of usage and operational profiles. This information is vital to development of an operational VSAT system by providing bandwidth requirements, hub resources, number of access queues, etc. In addition network problems / flaws many not manifest themselves if the network is lightly loaded with a small number of users.

ThinKom plans on testing a broad inventory of commercially available Non-Spread Spectrum Modems (NSSM) and Spread Spectrum Modems (SSM). The specific make and models include, but are not limited to, the iDirect 5100 NSSM, iDirect 8350 SSM, Hughes HX150 SSM, Comtech EF Data CDM-570L NSSM and L3-Linkabit MPM-1000

SSM. The satellites planned to be used for demonstration purposes include, but are not limited to, AMC6 (72°W), Galaxy 26 (93°W), Horizons 1 (127°W), and G-10R (123°W). There is a possibility that one of the service providers will have to provide new spectrum on other satellites in order to support the bandwidth required for a spread spectrum demonstration. These demonstrations will operate on a non-interfering basis. ThinKom will work with the satellite operators to make sure that operators and all carrier types are authorized and coordinated with other satellite operators.

Since the antenna systems will operate throughout CONUS communicating with satellites at orbital positions between 72° W to 127° W the antenna orientation in the horizontal and vertical planes will vary with earth station and satellite position. Table 1 below summarizes the range of pointing azimuth and elevation angles expected for CONUS operation.

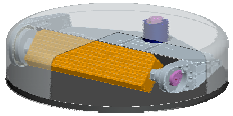
Area of Operation	Lat (N)	Lon (W)	Eastern Orbital Arc Position (deg. W.L.)	Eastern Azimuth (deg.)	Eastern Elevation Angle (deg.)	Western Orbital Position (deg. W.L.)	Western Azimuth (deg.)	Western Elevation Angle (deg.)
Southeast	25.0	80.0	72.0	161.6	59.4	127.0	248.5	30.7
Northeast	45.0	68.0	72.0	185.6	38.0	127.0	247.0	12.9
Southwest	32.0	117.0	72.0	117.9	28.3	127.0	198.4	51.2
Northwest	48.0	124.0	72.0	120.1	16.0	127.0	184.0	34.8

Table 1 – Range of Pointing Azimuth and Elevation Angles for CONUS Operation

The table and graphics below provide information on the two antenna system types being employed.

ThinKom SOTM Low-Profile CTS & VICTS Antenna Performance Characteristics

TKS-GMT21R16



TKS-GMTR6X24

ANTENNA PHYSICAL:		
Antenna Dimensions	42.5" x 25" x 4"	7" H x 30" Dia
Antenna Weight	138 lbs	120 lbs
Aperture Size	Rx (16" Dia.), Tx (20" Dia.)	6"x24"

ANTENNA ELECTRICAL:		
Electrical Interfaces	Power Supply 115/230 VAC, 50/60 Hz auto ranging	Power Supply 115/230 VAC, 50/60 Hz auto ranging
Power Consumption	50 Watts	50 Watts
Output/Input Impedence	50 Ohm (Type F Connector)	50 Ohm (Type F Connector)

ANTENNA RF CHARACTERISTICS:		
Tunable Bandwidth - Transmit	13.75 - 14.5 GHz	13.75 - 14.5 GHz
Tunable Bandwidth - Receive	10.95 - 12.75 GHz	10.7 - 12.75 GHz
Instantaneous Bandwidth - Transmit	> 100 MHz	750 MHz
Instantaneous Bandwidth - Receive	500 MHz	2050 MHz
G/T (mid-band)	10.5 dB/K @ 70° El, 6 dB/K @ 20° El	11 dB/K from +10° El to +90° El
Uplink EIRP (dBW) with 4W SSPA (Capable of handling 25W SSPA)	39.5 dBW @ 70 deg. Elevation, 34.8 dBW @ 20 deg Elevation	38 dBW from -10° El to 90° El
Data Rate - Downlink (via existing FSS satellites)	Up to 5 Mbps	Up to 10 Mbps
Data Rate - Uplink (via existing FSS satellites)	32 to 1024 Kbps	32 to 4096 Kbps
Polarization - Transmit	Single Adjustable Linear	Dual-Pol Linear
Polarization - Receive	Single Adjustable Linear, cross-polarized with transmit	Dual-Pol Linear
Cross Pol Isolation	> 25 dB	> 19 dB
Peak Sidelobe Level	< - 13 dB	< - 15 dB
Azimuth Beamwidth (14.25 GHz)	3.1°	1.7°
Azimuth Beam Scan Range	360° Continuous	360° Continuous
Elevation Beam Scan Range	20° - 70° elevation	20° - 70° elevation
IF Input/Output	950 - 1450 MHz	950 - 1450 MHz
VSWR (Tx)	1:1.5	1:1.5

TKS-GMT21R16 Demonstration Vehicle (TKS-GMTR6X24 Not Shown)