APPENDIX 1

CDMA 1xEV-DO

CDMA 1xEV-DO has enjoyed one of the fastest growths in mobile broadband globally since its launch in 2003. With a graceful evolution to Revision A, 1xEV-DO continues its leadership to be the first to deliver commercial-grade mobile broadband access for real-time revenue-generating applications such as mobile VoIP, Push to Talk, Push to See, video telephony / conferencing, social networking, fasters music/video/data downloads & and uploads, location based services, mobile TV to name a few. 1xEV-DO Revision A is the first 3G mobile broadband access technology providing services with data rates up to 3.1 Mbps from the network to the user device / handset and up to 1.8 Mbps peak rates from the user to the network or another user device.

1xEV-DO requires a network operator to dedicate a single CDMA channel (1.25 MHz) exclusively to packet data traffic. The system uses the same chip rate and emission filters as are used in cdma2000 and IS-95 CDMA systems, so it is spectrally identical to the legacy systems.

In CDMA 1X EV-DO, the idle-mode mobility management procedures are handled by the route update protocol, and it uses the distance-based location update approach. In 1X EV-DO, each cell broadcasts its latitude, longitude, and a parameter called ‘RouteUpdateRadius’. An idle mode mobile, as it moves from cell to cell, monitors these three parameters. After each cell change, the mobile computes the distance between the site
locations of the current cell and the cell in which it last sent a location update message. If this distance is greater than the RouteUpdateRadius parameter broadcast in the cell in which it last sent a location update message, the mobile sends another update to the network. Otherwise, the mobile does not send a location update message. To perform this operation, the mobile would have to store the latitude, longitude, and RouteUpdateRadius parameters of the last cell in which it did a location update operation. The distance computed is the distance between the site locations, and it does not depend on the location of the mobile within the serving site. The latitude and longitude information broadcast by each cell is used for computing this distance.

Advantages of CDMA 1X EV-DO’s dynamic distance-based location update strategy includes reduced location update load, distribution of location update cost across all the cells, absence of ping-pong effect, no requirement for GPS or similar device at mobile to track its position and route update radius ‘r’ can be configured to suit the mobility characteristics of the user.