

# SATELLITE CONSTELLATION EXTRA MATERIAL (REVISED)

## COMMERCIAL CONSTELLATIONS

The satellite uplink listed on p. 34, **Matrix** is an average value of all the satellite constellations. For more realism and diversity the gamemaster may instead use the following values for each satellite constellation. Players and gamemasters should consult pp. 34-35 of **Matrix** for additional rules regarding satellite uplinks.

### **Angel SatCom**

**I/O Speed:** 800

**Base Bandwidth:** 50

One of the oldest and largest commercial satellite constellations, Angel SatCom has come under increasing competition in recent years as newer constellations have come online that outperform it and undersell it. In particular it has lost significant market share to the Tricom systems that offer much better performance at an attractive price.

The only advantage Angel currently has is the fact it has the highest density of comsats in the world, but that lead is quickly being eroded. Angel is considering a bold plan to upgrade its aging constellation, though noone is betting on its chances of becoming a competitor again anytime soon.

### **Renraku GlobalLink**

**I/O Speed:** 500

**Base Bandwidth:** 50

GlobalLink was a very popular service before the Arcology Shutdown in 2059. The fear of Deus and his possible tendrils into this system caused a plummet in subscription. GlobalLink has been offering insanely competitive rates and special bonuses but even that has not lured many users back. The fear of Deus is too high.

### **TriCom Global**

**I/O Speed:** 200

**Base Bandwidth:** 30

TriCom is a service owned and operated by TranSys Neuronet. The network is state of the art, has a high density, and available in both the "consumer" Global package and the "professional" Prime service (see below). It has become the primary competitor to Angel SatComs dominance, and is expected to overtake it in number of subscribers by next year.

### **Nova Teledyne**

**I/O Speed:** 300

**Base Bandwidth:** 30

Teledyne is a comparatively small constellation primarily intended to be a private communications network for Fuchi. When the company broke apart the Villiers faction seized the network and has become selling subscriptions to anyone willing to spend the nuyen, no questions asked. Of all the networks Teledyne has quickly acquired a reputation as the "shadiest" of the constellation providers, and several high profile decker attacks have been traced back to Teledyne ground stations, though so far the company has refused to cooperate with investigations.

### **TriCom Prime**

**I/O Speed:** 500

**Base Bandwidth:** 50

TriCom Prime is the professional version of the Global package. It uses the same satellites but works off of separate transponders. Security on the Prime transponders is borderline ridiculous. But the network has put

its reputation on the line in providing high speed, secure communications anywhere in the world at any time.

### **Ares SkyFire**

**I/O Speed:** 1,000

**Base Bandwidth:** 40

The SkyFire network is the most advanced satellite constellation currently in service. The network went online only two years ago, and has quickly become well known both for its speed and scarcity of active satellites. Ares hopes to expand the network threefold in the next two years, which would make it the second largest constellation provider, and a valid competitor to TriCom.

## **INDEPENDENT NETWORKS**

### **HackerNet**

**I/O Speed:** 1D6 x 50

**Base Bandwidth:** 5

HackerNet is an independent operator of several LEO comsats that they have acquired over the years. These satellites are of limited utility and power, and in most cases they were deactivated satellites that are just waiting to fall into the atmosphere.

Never ones to let technology go unused, HackerNet works with the Denver Data Haven in tracking down these unused satellites (and even a few satellites that ARE still being used but can 'spare' a few transponders. It then makes the information freely available over the shadownets for anyone who wants to use the satellites.

The low bandwidth and density is not only because the satellites are of limited utility, but also because the shadownets have first dibs on the channels and tend to hog them when they get the chance. Anyone with access to Shadowland can make a Etiquette (4) Test using the Decker specialization of the skill. A successful roll enables the decker to get an updated database of satellites, transponder codes and free Black Box decryption keys. This database will be good for a number of weeks equal to the number of successes the decker scored. After that the database will be out of date and worthless.

## **SATCOM RELIABILITY**

Communications through a satellite connection is not perfect, sunspots, random interference on the uplink channels, routing errors, latency, dropped connections, the list goes on. This, combined with harsh security is what ultimately prevents satellite communications from being strictly used by deckers. To simulate the somewhat unreliable nature of Sixth World high-speed satellite communications the following rules are recommended.

### **LOSING CONNECTION**

The user will not lose a satellite connection unless his signal is interfered with in some way (he starts moving, objects get in way of antenna, etc.). Gamemasters should require another Logon to RTG Test if the conditions of the users access change (essentially anything that would involve a modifier listed in the Satlink Connection Table (p. 35, **Matrix**). The user does not have to worry about the satellite he is connected to, as the user moves out of the footprint of one satellite he will be automatically handed off to another satellite in the same constellation without interruption.

## **SATCOM RESTRICTIONS**

Before using a satellite constellation the gamemaster may require the player to use a special “black box” decoder in order to properly send and receive signals on the constellation. Trying to access a satellite constellation without a valid black box means the characters Hacking Pool is halved (round down) since he must compensate for the constellation encryption in realtime.

### **Black Box Software**

**Multiplier:** Constellations Access Rating

**System Operations:** Logon to RTG (Specific satellite constellation)

Black Boxes are the generic term applied to special decryption utilities designed to defeat the constellation providers ever-changing security protocols, encryption, and frequency shifting algorithms. Each Black Box is specific to a constellation and will not work on any other. In addition it is not uncommon for Black Boxes to be made useless when the providers switch security algorithms. Valid subscribers are mailed new software or hardware cards to upgrade their systems. Deckers must start from scratch, it is not possible to simply upgrade an existing software package. Typically the constellation providers switch their security methods every 6 months.

A Black Box must have a Rating equal to the Control Rating of the constellation. Because of the time involved these programs are typically purchased from other, specialized deckers known as “Crunchers.”

Instead of instant obsolescence the gamemaster may instead apply the SOTA rules (p. 29, **Matrix**), with every point of program degradation resulting in a +1 TN modifier for all Logon to RTG System Operations made on that constellation.

### **STG SECURITY**

Constellation operators have an easier time of curtailing illegal access of their networks than the public grids do.

### **Account Validation**

Due to the strict security on all satellite grids the gamemaster should feel free to make a decker using a spoofed account conduct Access Tests at irregular intervals to simulate the grids account verification systems checking his access.

### **Trace IC**

Because of the unique nature of satellite communications it's not the satellites that run IC, it's the ground stations that actually route the connections onto the public grids. If a user starts racking up a security tally the ground station will notice. Noone wants to be known as a haven for criminals so the constellation provider will immediately begin looking for the connection. Treat this as a standard telco trace, but if successful not only are you immediately dumped from the network your Black Box software (if used) is immediately invalidated. The exact trigger step that this trace is triggered varies by ground station, specific network, and recent security problems. As a general rule roll 3D6. This will be the trigger step at which the trace is triggered. The trace will be of a rating equal to the networks Access Rating.

## **GEOSTATIONARY SATELLITES**

GEO satellites are less useful to most people, they are usually set up either as simple repeaters – broadcasting whatever is sent to them, or as relays between fixed points (such as between telecommunications centers). However, in certain rare instances it may be necessary to access a GEO satellite for a specific reason, such as to inject a pirate video feed into a DBS satellite.

### **CONTACTING GEO SATELLITES**

GEO satellites use a Density Rating for purposes of contact attempts, but the gamemaster is the final arbiter if the satellite is visible from the users current location. Most GEO satellites have a Density of +7 for purposes of the Logon to RTG Test. Many GEO satellites also have their uplink transponder locked to a specific area, if the user attempting access is outside that area contact is impossible.

Thus, in most cases a user attempting to access a GEO satellite must possess at least a portable dish antenna (for more information on satlink antennas, see **Satellite Interface**, p. 61, **Matrix**).

### **ACCESSING GEO SATELLITES**

For game purposes, connection attempts on a GEO satellite work in the same manner as a for a LEO constellation. The user must make a successful Logon to RTG Test. A successful Test on a comsat means he can then use it much like an LEO constellation and attempt to access any RTG within the satellites coverage, note that like LEO satellites certain areas are specifically excluded from many satellites coverage. Atzlan has threatened to destroy any satellite broadcasting without authorization on their territory for instance; so most satellites have the Aztlan region blocked from their transmission footprint.

Access to a DBS satellite means the user may attempt to control the satellites broadcasting capabilities (Control Test). This will last until the satellites owners figure out what is going on change the access codes through their control links, booting any intruders out. Treat this as a telco trace at a rating equal to the Access rating of the satellite.

### **Signal Lag**

GEO satellites have an enormous amount of signal lag (at least compared to what most users are used to). To represent this, a user may only use Tortoise Mode connections (p.42, **Matrix**) over a GEO satlink, and even then is at -4 Reaction.

### **BANDWIDTH**

Without access to a large ground station a user will be quite limited in the amount of data he can send. However, geostationary satellites are quite capable of very high downlink speeds (they are primarily used to beam trideo programming either to ground stations or subscribers over a very large area). For game purposes, a user has an I/O and Base bandwidth of 20 on GEO satellites.

### **Advanced Bandwidth Rule**

If the gamemaster wishes to better illustrate the capabilities of GEO satellites he can give the decker a split bandwidth, one that applies to uploads and is affected by his persona bandwidth, and the other, which represents the very high downlink speeds of the satellite. In this case the I/O bandwidth is suggested to be set at 10 for uploads, and 100 for pure downlink speeds.