

Paradise Datacom Evolution/Quantum Satellite Modem Software Release Notes

Software Version V1.9.92a (1 November 2010):

Changes made since V1.9.87a:

1. Adds support for L-band hardware modifications (supported in modems manufactured from November 2010) that improve performance as follows:
 - Maximum input composite level: +10dBm
 - Wanted-to-composite level: $102-10 \log(\text{symbol rate})$. This gives a wanted to composite dynamic range of 26 to 62dB dependent on symbol rate.
 - Rx input signal level range: Minimum: $-130+10 \log \text{symbol rate}$; Maximum: $-80+10 \log(\text{symbol rate})$. Over 9.6ksps to 40Msps this gives an input range of -90dBm to -10dBm.
 - Improved Tx to Rx isolation, provided via screening of N-type connectors and additional grounding.
 - Transmit spurious: Harmonics improved by use of a balanced amplifier on final output stage, reducing the 2nd harmonic. The number of harmonic rejection filters has been increased from two bands to three.
 - Tx and Rx upper frequency range is now 2050MHz as standard.
 - Tx 10MHz maximum output level is now +3dBm (+/-1dBm).
 - Tx and Rx phase noise improved to be 3dB better than IESS-316 (at < 2048kbps).

NOTE THAT THE SOFTWARE IN L-BAND MODEMS MANUFACTURED FROM NOVEMBER 2010 CANNOT BE DOWNGRADED TO VERSIONS PRIOR TO 1.9.92a.

2. Adds OQPSK, 16APSK, 32APSK and 64QAM to FastLink Low-latency LDPC.
3. Fixes problem when moving from FastLink to SmartLink FECs, where SmartLink would not be configured correctly, preventing normal operation.
4. Fixes problem with routing mode when using IP traffic on the base modem.
5. Resolves problem whereby software allowed two features (Paired Carrier + FastLink) to be selected when there was insufficient hardware fitted – two 'mezzanine' cards are required to run both features (the fix prevents selection of both features when only one mezzanine card is fitted).
6. Disables access to the SCPC scrambler type when using a DVB-S2 service.
7. Updates rules for setting a default FEC rate to incorporate new FastLink modulation schemes.
8. Fixes Rx front-end AGC gain control when using SmartLink with Paired Carrier. At low data rates for two particular combinations of modulation and FEC rate this problems resulted in Paired Carrier not locking.
9. Fixes FastLink Eb/No and BER display (Eb/No was displayed incorrectly for Low Latency and Balanced modes).
10. Improves Fastlink 32APSK Eb/No performance (by adjusting carrier tracking algorithm).
11. Fixes menu selection bug allowing enabling of 'IP to Serial' when 'Aux=IP' but not enabled.
12. Fixes modem reset when selecting 16QAM with invalid FEC mode.
13. Fixes rounding errors in M&C P300 emulation mode.
14. Fixes bug with DVB-S2 pilot selection which was not being enabled correctly.
15. Allows 'add' PUP command (part of implementation of a global command to allow configurations to be built on remote modems) to work with existing configuration memories by

removing any duplicate of the parameter being added which is already in the configuration memory.

16. Modem watchdog timeout adjusted to prevents unnecessary timeout and consequent modem reboot when loading large configuration memories.
17. Modem internal BERT now recognizes 'Data/Clock stuck' as a sync loss.
18. The rules for detecting an invalid modem configuration on power up have changed. A configuration is not deleted unless the modem fails to start at least twice in a row (this is to prevent any unnecessary reversion to factory defaults on power up). Also two copies of the current configuration are now stored. Both are tried in turn before the modem reverts to factory defaults.
19. Adds support for an adaptive equalizer in Rx which removes inter-symbol interference caused by group delay at the edges of transponders, thereby allowing more throughput on the transponder. The feature is still at a pre-release stage in this version of software. Please contact Paradise Customer Technical Support should you wish to evaluate the equalizer.
20. Fixes a front panel freeze on 1:N redundancy switches caused by the configuration 'learn' process for traffic modems interacting with front panel operation. This happens very rarely depending on the 'learn' rate set in the switch.
21. Base modem now allows the ESC to be set to IP and the main channel to be set to IP and for the M&C port to be kept in the bridge. In this situation the ESC is connected to a second bridge (regardless of whether the M&C port is bridged or not). This allows packets coming in on the M&C Ethernet port to be bridged over the ESC channel while packets on the IP traffic port are bridged over the main channel, so long as the M&C and IP traffic are on different subnets. Previously this level of separation required the use of an IP traffic card.
22. Fixes problem whereby selection of PXE encapsulation forced the service to Closed Network. Now it is possible to select Closed Network + ESC as well.
23. Adds the ability to enable/disable SNMP from the front panel menus.
24. Fixes problem whereby the option to bridge the M&C port was not presented when using routing mode with an IP traffic card.
25. Fixes accuracy problem with display of BER information when using TPC 3/4 de-facto.
26. Fixes a problem that can cause a 1:N redundancy switch to reset in some circumstances.
27. Fixes a problem introduced in V1.9.91 whereby an L-band modem with two 'mezzanine' cards fitted (used for Paired Carrier, DVB-S2, FastLink LDPC and the new equalizer feature) would power up with a red Unit LED alarm.