



Cellular Transmission Solutions

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Multicarrier PCS Beamer Concise User-Guide

Document No. 913002900

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FCC Part 15A Compliance Statement

This device complies with part 15 of the FCC rule. Operation is subject to the following two conditions: (1) this device may not cause harmful interference , and (2) this device must accept any interference received , including interference that may cause undesired operation

Caution

Changes or Modifications not expressly approved by Celletra Ltd. could void the user's authority to operate the equipment"

NOTE

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate Radio Frequency energy and, if not installed and used in accordance with the instructions manual, may cause harmful interference to radio communication. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.



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1. Connect the RS232 adapter to the Beamer on one side and to the laptop computer on the other side. The connection to the Beamer is done with the supplied stereo cable, which is plugged into port J8 of the Beamer. The connection to the laptop is done with the RS232 connector. See the Beamer block diagram in Figure 6.
2. Connect J9 – the N-connector at the end of the Diplexer antenna cable - to a 50Watt load via a directional coupler. Alternatively, connect a 50Watt 30 dB attenuator.
3. To test the Transmit path, connect the CDMA signal source to J1 – the Tx Input connector. The signal level should initially be about -20 dBm to ensure a deep backoff operating point, which is at least 10 dB lower than the nominal.
4. Connect the supplied DC cable to port J7 on the Beamer. Connect the other end to a 24VDC power supply with a rating of at least 10 A. **To prevent damage to the unit under test make sure that the power supply is not current-limited.** The current consumption should be in the range of 3-4 A.
5. On the laptop Desktop, click on the shortcut icon of Rx_Test_2, a HPVVEE user-interface program. The window in Figure 1 will open up.
6. Select PCS and click OK. The window in Figure 2 will open up, except that the Unit ID number, on the upper-left corner of the window, will not be displayed yet.
7. Click on F1: Unit ID, on the top left corner and the window in Figure 3 will open up.
8. On the right side of this window a smaller “Select variable !” window will open up. Select “Read Unit id” and click OK. The Unit ID number will be displayed in the first row of the Unit Status column on the upper-left corner of the main window, as shown in Figure 2. The display of the Unit ID confirms communication with the Beamer.
9. To monitor the Beamer click on “Unit status” which is located in the lower-left part of the main window. The window in Figure 4 will open up. The following readings are displayed along the left- side of the main window:
 - a. Temp: The second number, after the comma, displays the internal temperature in $^{\circ}\text{C}$
 - b. In power: Input power as calibrated with three CDMA carriers
 - c. Out power: Output power as calibrated with three CDMA carriers
 - d. Tx, Rx Att’: State of the variable attenuators of the Tx and Main Rx paths, respectively, in dB. Display of the Diversity Rx path attenuation is not yet supported.
10. The HPVVEE user interface does not support alarm indications. However, the Beamer is self-protected in the event of:
 - a. Overtemperature: Shuts off at 85°C and resets at 65°C .
 - b. Overpower: Shuts off at 43 dBm three CDMA carrier output power.
 - c. Overcurrent: Shuts off at current equivalent to 43 dBm three CDMA carrier output power.
11. For nominal operation, the input signal level to the Beamer should be about -6 dBm. The typical DC consumption under this condition is 6-6.5 A @ 24 VDC input.
12. To disable the Tx power amplifier click on the Tx Amp toggle-switch, located in the lower-left area of the main window.

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13. To test the Main Rx path, disconnect J9, the Diplexer antenna connector, from the loads of the Tx test and connect J9 to a -30 dBm signal source. Connect J3, the Main Rx Out port, to the appropriate test load, e.g. spectrum analyzer.
14. To test the Diversity Rx path, connect J6, the Rx Diversity In port to the -30 dBm signal source and J5, the Rx Diversity Out port, to the test load.
15. To change the gain setting of any path, click on F4: Main Rx Attenuator, F5: Div. Rx Attenuator, or on F6: Tx Attenuator, as appropriate. In each case, a slide control will open up as illustrated in Figure 5. The slide can be moved by either sliding the Mouse over it or clicking on the Inc+ or Dec - buttons. When the desired attenuation is set click OK in the same window . The gain control range is 15.5 dB in 0.5 dB steps.

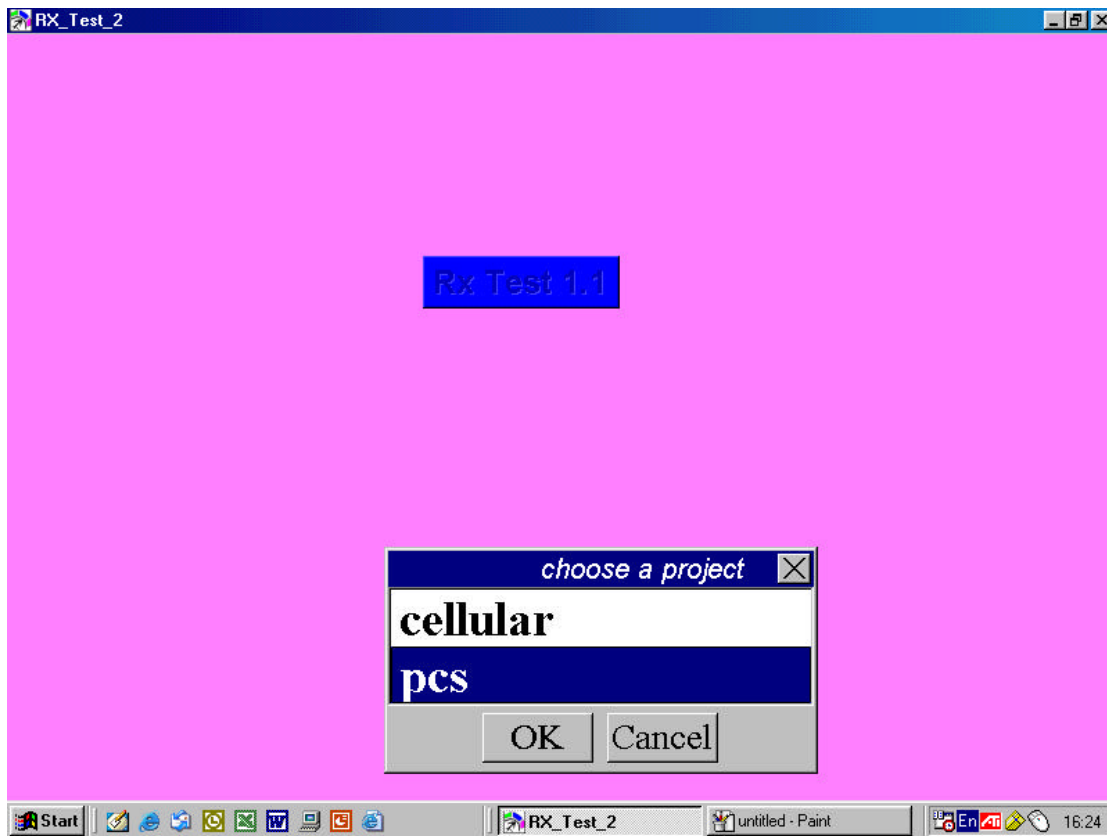


Figure 1

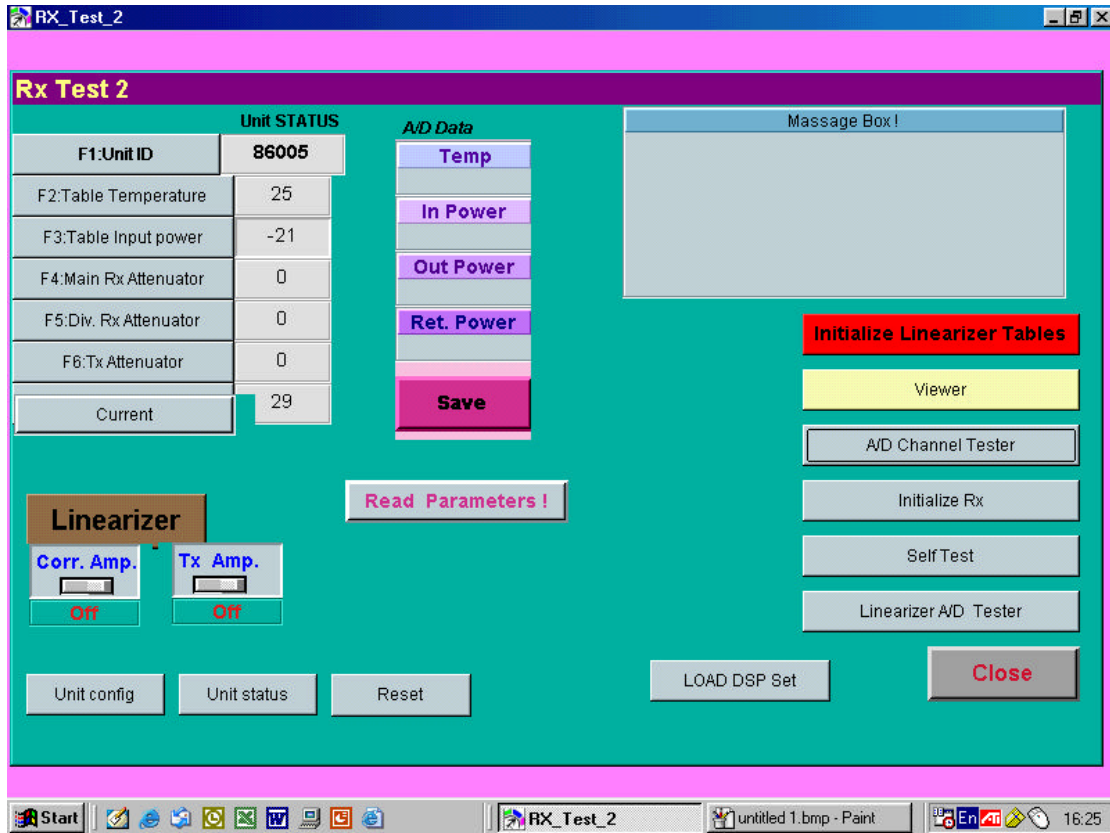


Figure 2

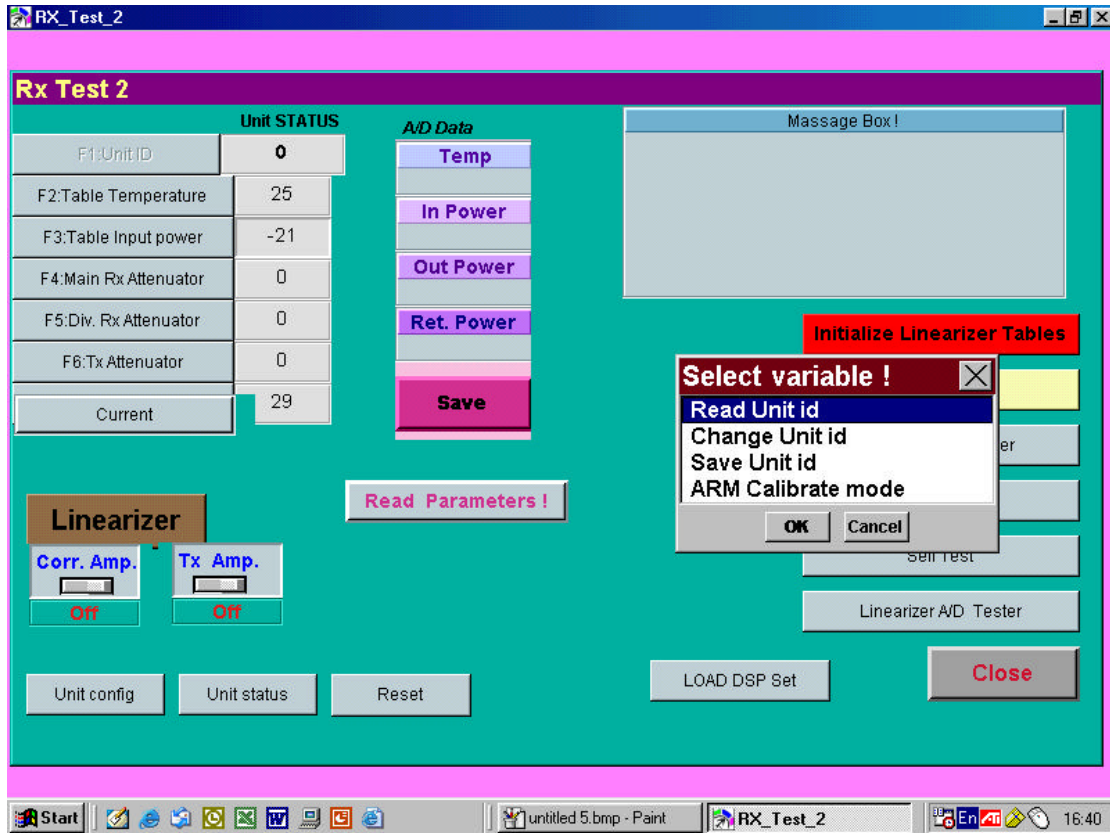


Figure 3

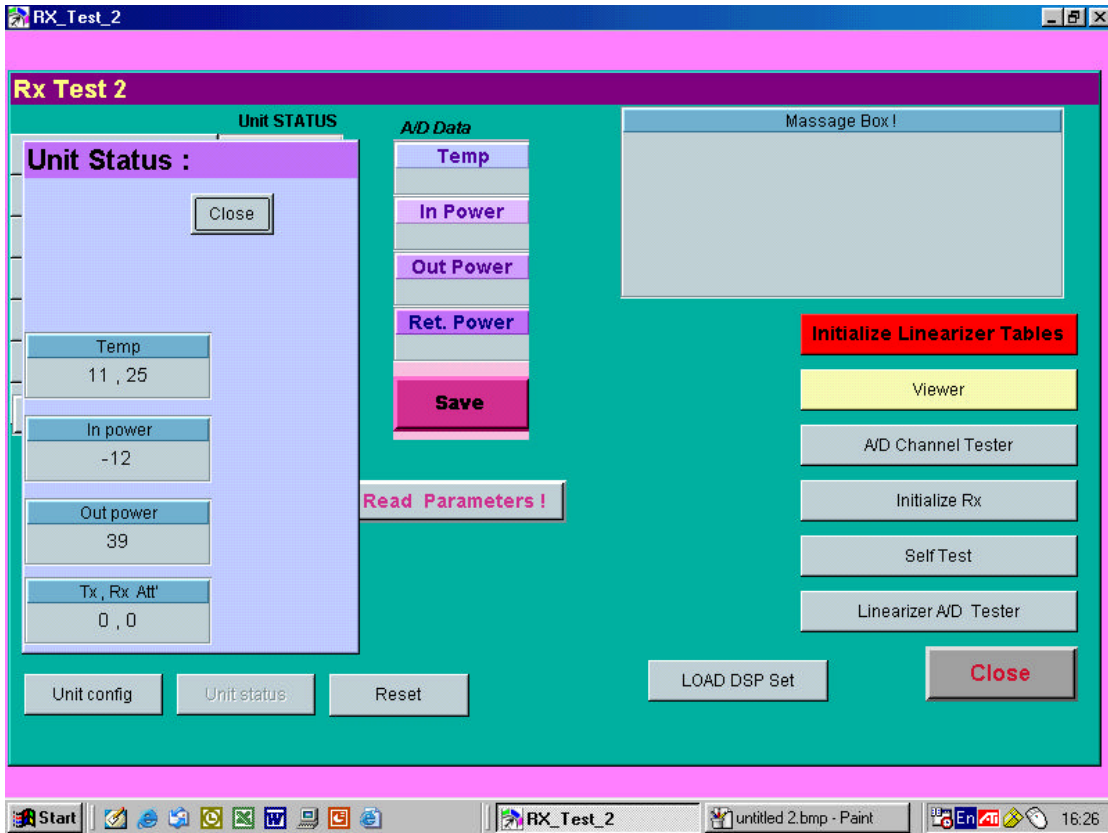


Figure 4

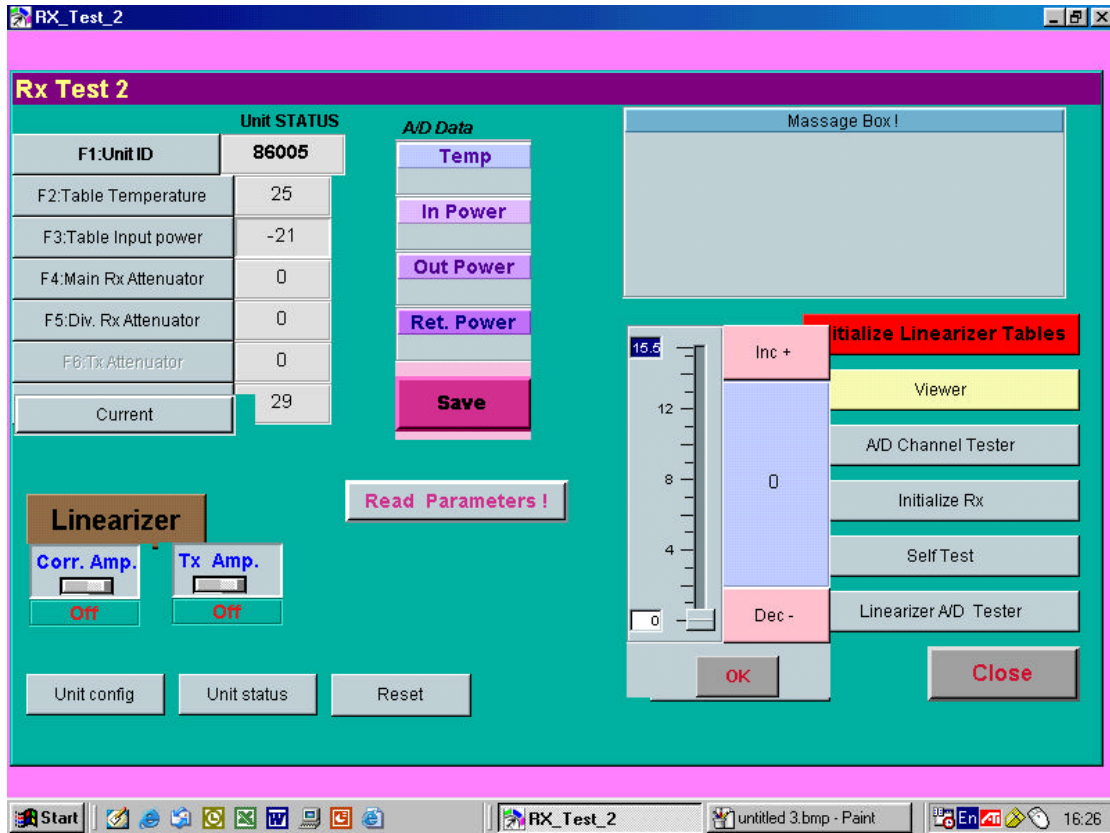


Figure 5

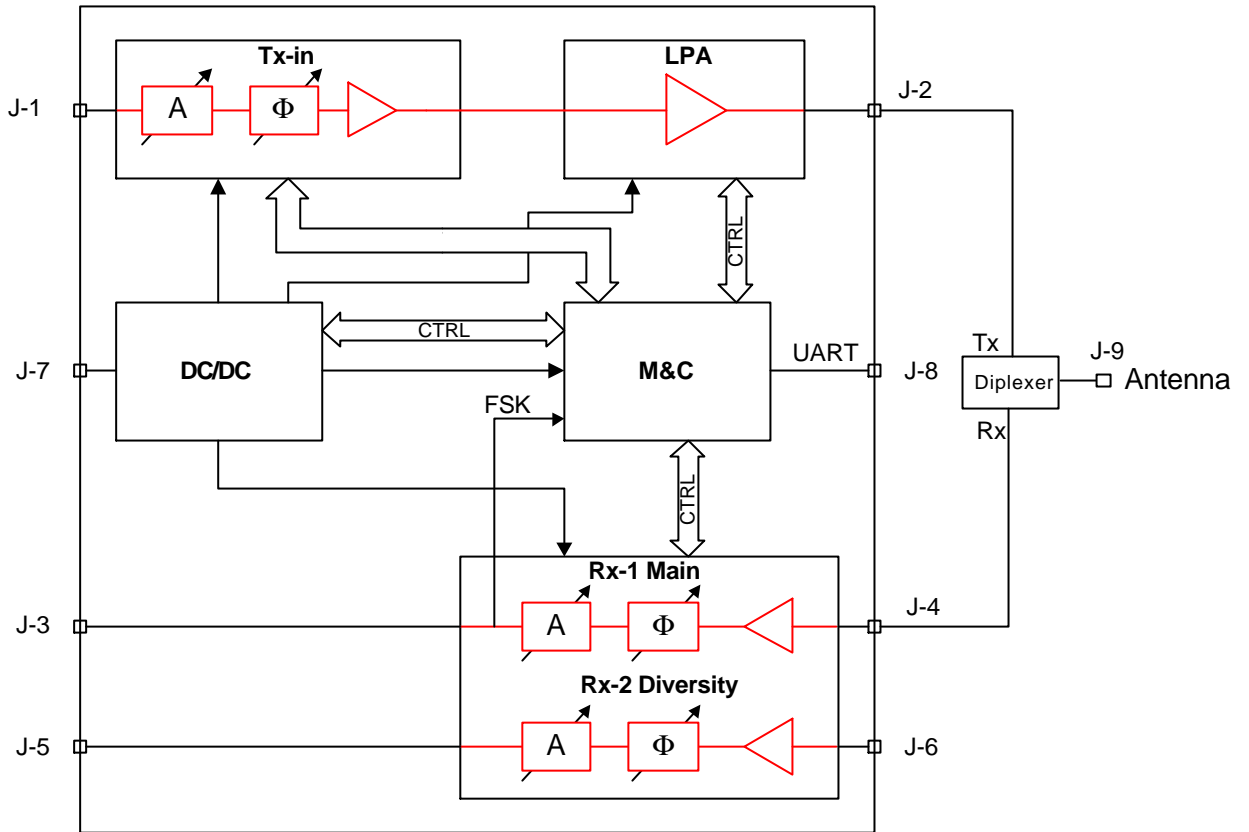


Figure 6