Claims

1. A method performed by wireless communications network test equipment, comprising:

simulating (202) a wireless network for an application-carrying device (104) separate from the test equipment (102);

monitoring (204), by the test equipment (102), a wireless communications interface (134) between the simulated network and the application-carrying device(104), wherein the monitoring comprises

measuring (206) signaling data on a control plane and

measuring (208) application data on a user plane related to at least one application implemented on the application-carrying device (104),

measuring a power consumption (340) of the application-carrying device (104),

wherein the signaling data and the application data are measured on the basis of a common time reference (111) of the test equipment (102);

establishing cross-layer measurement data (300, 400) based on the measured signaling data and application data.

2. The method according to claim 1,
wherein the method additionally comprises
simulating (203) a positioning signal for the application-carrying device (104),
wherein the positioning signal comprises information allowing the application-carrying device (104) to determine a simulated position or several simulated positions successively, and

wherein the at least one application implemented on the application-carrying device (104) is a location based application using the simulated position or simulated positions as location input.

3. The method according to claim 2,
wherein the positioning signal is a satellite navigation signal, especially an AGPS signal and/or a GPS signal and/or a GLONASS signal and/or a GALILEO signal and/or a Beidou signal and/or a COMPASS signal and/or an IRNSS signal and/or a QZSS signal.

4. The method according to any of the claims 1 to 3,
wherein measuring the control plane signaling comprises measuring connection states (310, 312, 314, 426).

5. The method according to any of the claims 1 to 4,
wherein at least one of measuring the control plane signaling and providing the cross-layer measurement data comprises determining at least one message count (424) of a control plane signaling message transmitted over the wireless interface (134).

6. The method according to any one of the preceding claims,
wherein at least one of measuring the user plane application data and providing the cross-layer measurement data comprises determining at least one connection count (418) in the user plane over the wireless interface (134).

7. The method according to any one of the preceding claims,

wherein a common measuring phase for measuring signaling data and application data is triggered by the detection of a predefined control plane message (332).

8. The method according to any one of the preceding claims, comprising multiple monitoring phases (402, 404, 406) based on different network configurations (408, 410) of the simulated wireless network.

9. A computer program product comprising program code portions for performing the method according to any one of the preceding claims when the computer program product is executed on one or more computing devices (102).

10. Use of wireless communications network test equipment (102), for

simulating (108) a wireless network for an application-carrying device (104) separate from the test equipment (102);

monitoring, by the test equipment (106, 108, 110), a wireless communications interface (134) between the simulated network and the application-carrying device (104), wherein the monitoring comprises

measuring (108) signaling data on a control plane and

measuring (110) application data on a user plane related to at least one application implemented on the application-carrying device (104),

wherein the signaling data and the application data are measured on the basis of a common time reference (111) of the test equipment (102);

establishing (122) cross-layer measurement data based on the measured signaling data and application data; and

wherein the test equipment (102) comprises a separate hardware component (114) for measuring a power consumption of the application-carrying device.

11. The use according to claim 10,
wherein the test equipment is used for
simulating (203) a positioning signal for the application-carrying device (104),
wherein the positioning signal comprises information allowing the application-carrying device (104) to determine a simulated position or several simulated positions successively,
wherein the at least one application implemented on the application-carrying device (104) is a location based application using the simulated position or simulated positions as location input.

12. The use according to claim 11,
wherein the positioning signal is a satellite navigation signal, especially an AGPS signal and/or a GPS signal and/or a GLONASS signal and/or a GALILEO signal and/or a Beidou signal and/or a COMPASS signal and/or an IRNSS signal and/or a QZSS signal.

13. The use of any of the claims 10 to 12,
wherein the test equipment (102) comprises separate hardware components (108, 110) for respectively measuring the signaling data and the application data.

14. The use of any one of claims 10 to 13, wherein the test equipment (102) provides (116) communication of the application-carrying device (104) with at least one remote application server (120).

15. The use of any one of claims 10 to 14, wherein the test equipment (102) comprises a separate hardware component (112) for controlling a network configuration of the simulated wireless network.

16. Wireless communications network test equipment, comprising a control component (112) configured for automated control of the test equipment (102) for performing a method according to any one of claims 1 to 8.

17. Data set comprising cross-layer measurement data (300, 400) established according to the method of any one claims 1 to 8.