CLAIMS

1. A satellite communication device comprising:

an antenna for communicating with a satellite,

a power measurement apparatus configured to carry out a plurality of power measurements of an equivalent isotropically radiated power (EIRP) of the antenna;

a receiver configured to receive, periodically, an equivalent isotropically radiated power (EIRP) setpoint to be applied to a signal transmitted by said antenna, said EIRP setpoint being determined by a control equipment to reach a target link budget on a satellite link between said satellite communication device and another device of a same network;

a processor configured to:

compute an average, over a first time interval, of said plurality of power measurements,

compute an average, over a second time interval substantially identical to said first time interval, of EIRP setpoints in the second time interval,

compute a first error between the average of the EIRP setpoints,

compute a second error between the average of the plurality of power measurements,

compute a difference between the first error and the second error; and

a transmitter configured to transmit said difference to said control equipment, via said satellite.

2. The satellite communication device according to claim 1, comprising a high-power amplifier in which said power measurement apparatus is implemented, a power measurement in the plurality of power measurements being measured at an output of said high-power amplifier and corrected for a gain of the antenna.

3. The satellite communication device according to claim 2, comprising a radio frequency (RF) chain connected at an input thereof to the output of the high-power amplifier and at an output thereof to the antenna, the power measurement at the output of said high-power amplifier being further corrected for a gain of the RF chain.

4. The satellite communication device according to claim 1, wherein the power measurement at the output of the high-power amplifier is a peak power and said peak power is corrected for a peak factor of a modulation of the transmitted signal.

5. The satellite communication device according to claim 1, wherein the power measurement is corrected for a measurement bias depending on a power difference between a modulated carrier and an un-modulated carrier.

6. The satellite communication device according to claim 1, wherein said averages over the first and the second time intervals are sliding averages over a chosen time horizon.

7. A satellite communication system comprising:

at least one satellite communication device including an antenna for communicating with a satellite;

a measurement apparatus configured to carry out a plurality of measurements of an equivalent isotropically radiated power (EIRP) of the antenna;

a receiver configured to receive, periodically, an equivalent isotropically radiated power (EIRP) setpoint to be applied to a signal transmitted by said antenna, said EIRP setpoint being determined by a control equipment to reach a target link budget on a satellite link between said satellite communication device and another device of a same network;

a processor configured to:

compute an average, over a first time interval, of said plurality of power measurements,

compute an average, over a second time interval substantially identical to said first time interval, of EIRP setpoints in the second time interval,

compute a first error between the average of the EIRP setpoints,

compute a second error between the average of the plurality of power measurements, compute a difference between the first error and the second error; and

a transmitter configured to transmit difference to said control equipment, via said satellite,

the control equipment configured for controlling resources allocated within said satellite communication system, said control equipment comprising:

an additional processor configured to compute the equivalent isotropically radiated power setpoint as a function of the target link budget to be attained on the satellite link between a first communication device and a second communication device,

a control equipment transmitter configured to transmit the EIRP setpoint to said first communication device,

a control equipment receiver for receiving another error between said EIRP setpoint and the equivalent isotropically radiated power transmitted by said first communication device, said another error being transmitted by said first communication device, and

a resource management processor configured to allocate more or fewer communication resources to said first communication device or to other communication devices of the satellite communication system as a function of said another error.

8. The satellite communication system according to claim 7, wherein said resource management processor is configured to update a maximum admissible equivalent isotropically radiated power by adding said difference

received at the control equipment receiver to the maximum admissible equivalent isotropically radiated power.

9. The satellite communication system according to claim 8, wherein said resource management apparatus is configured to make the following resource allocation decisions:

if the EIRP setpoint transmitted to said first communication device is strictly below the maximum admissible equivalent isotropically radiated power, allocate available resources to said first communication device or to other communication devices of the satellite communication system,

if the EIRP setpoint transmitted to said first communication device is strictly above the maximum admissible equivalent isotropically radiated power, reduce the resources allocated to said first communication device.

10. The satellite communication system according to claim 7, wherein said control equipment includes a loop for slaving a power of said first communication device configured to adjust the EIRP setpoint transmitted to said first communication device as a function of the resources allocated to said first communication device and of a target signal-to-noise ratio measured on a link between said first communication device and said second communication device.

11. The satellite communication system according to claim 7, wherein the allocated communication resources are bit rate or spectral efficiency resources.

12. A method for controlling resources allocated within a satellite communication system including at least one satellite communication device and a control equipment for controlling the resources within said satellite communication system, said method comprising the following steps:

periodically computing an equivalent isotropically radiated power (EIRP) setpoint as a function of a target link budget to be attained on the satellite link between a first communication device and a second communication device,

carrying out a plurality of power measurements of the equivalent isotropically radiated power of an antenna of said first communication device,

computing an average, over a first time interval, of said plurality of power measurements,

computing an average, over a second time interval substantially identical to said first time interval, of said EIRP setpoints,

computing a first error between the average of the EIRP setpoints,

computing a second error between the average of the plurality of power measurements,

computing a difference between the first error and the second error, and

allocating more or fewer communication resources to said first communication device or to other communication devices of the satellite communication system as a function of said difference.

13. The method for controlling resources according to claim 12, further comprising:

a step of updating a maximum admissible equivalent isotropically radiated power by adding said difference to the maximum admissible equivalent isotropically radiated power.

14. The method for controlling resources according to claim 13, further comprising the following resource allocation decision step:

if the EIRP setpoint transmitted to said first communication device is strictly below the maximum admissible equivalent isotropically radiated power, allocate available resources to said first communication device or to other communication devices of the system,

if the EIRP setpoint transmitted to said first device is strictly above the maximum admissible equivalent isotropically radiated power, reduce the resources allocated to said first communication device.