

Agenda Item:

Source: Nokia

Title: Definitions for BS output powers

Document for: Approval

1. Introduction

This document proposes new definitions for BS output power to be used instead of current 'total output power' definition.

Base station transmitter is designed to deliver certain output power with certain dynamic range. In practice, the actual output power of the BS depends on the network layout and loading and it changes dynamically. Current definition for 'total output power' can be misleading, as it is not clearly defined whether it is for one carrier of BS or for all carriers.

First of all, for the definitions in the specification there is a need to have a fixed reference level for output power. We propose *BS maximum output power, P_{max}* , to be used as a reference e.g. in dynamic range, power control range and modulation accuracy measurements. For the network planning purposes also a tolerance for P_{max} is needed. Therefore we propose a minimum requirement for P_{max} . Measurement (which is to be defined) is expected to be made with both SCH and one code channel and with SCH and several code channels, in such a way that the BS fulfils requirements of the radio interface upon the signal quality in the frequency and time-domain.

Furthermore, a definition for actual output power is needed in measurements as ACPR. We propose *BS output power, P_{out}* , to be defined. However, we do not expect there is a need for P_{out} tolerance or accuracy requirement.

2. Text proposal for S4.01B

6.2 *Base station maximum output power*

~~Total power is the mean power delivered to a load with resistance equal to the nominal load impedance of the transmitter.~~

Maximum output power, P_{max} , of the base station is the mean power level per carrier that the manufacturer has declared to be available at the antenna connector.

6.2.1 **Minimum requirement**

~~In normal conditions, the total~~ Base station maximum output power shall remain within $+2\text{TBD}$ dB and -2TBD dB of the manufacturer's rated power.

6.n *Base station output power*

Output power, P_{out} , of the base station is the mean power of one carrier delivered to a load with resistance equal to the nominal load impedance of the transmitter during one slot.

3. Conclusion

Definition and requirement for *BS maximum output power*, P_{max} , and definition for *BS output power*, P_{out} , have been proposed to be used in S4.01B.