

HSPA MPR explanation

We, Samsung Electronics, hereby declare the samples evaluated in this application are equivalent to production samples. It is not unexpected to find some subtests as much as 2.5 dB more power reduction than the 3GPP recommended levels. Please refer to below comment of chipset company (TRIQUINT) regarding the power difference of HS test cases

Please see the following comment. If you have further request, please let me know. The recent chipsets implement an Enhanced MPR (E-MPR) software algorithm that also considers power compression (Scaling), a requirement per 3GPP 25.214 section 5.1.2.6, to generate a more accurate Cubic Metric (CM) value that is used to determine the magnitude of power reduction for HSPA signals.

The Enhanced MPR solution can introduce a deviation of the actual observed power reduction from the MPR target values configured for a device.

In the power scaling process defined by 3GPP TS 25.214, the channel beta values are modified as the transmitted signal approaches maximum power to ensure that the transmit power does not exceed the maximum rated transmit power and is also compliant with emissions requirements. The power scaling process considers the software-defined MPR target values based on the CM for the signal to be transmitted to determine the required power reduction for a given signal. The actual CM value of the signal transmitted after power scaling, however, is often different from the estimated CM value used in the power reduction algorithm.

Legacy MPR software uses an estimated CM value and does not compensate for power scaling. In this case the power reduction typically matches the MPR target values. Enhanced MPR takes into account the measured CM of the transmitted signal after power scaling and thus provides a more representative CM value to be used in the determination of required power reduction.

An accurate CM value is desirable as the goal of power reduction is to maintain compliance with emissions limits. By using a more accurate CM value, the E-MPR process minimizes the magnitudes of power reduction required to maintain emissions compliance whereas the legacy MPR software may incorporate a magnitude of power reduction that is higher than is required for emissions compliance.

There is no direct correlation between configuration settings and the power reduction since the hardware design contributes to the magnitude of power reduction. Regardless of legacy or E-MPR software, by design the HSPA transmitter power will not exceed the R99 maximum transmit power in device