

# RSRP and RSRQ

**Reference Signals Received Power (RSRP)** and **Reference Signal Received Quality (RSRQ)** are key measures of signal level and quality for modern LTE networks. In cellular networks, when a mobile device moves from cell to cell and performs cell selection/reselection and handover, it has to measure the signal strength/quality of the neighbor cells. In the procedure of handover, the LTE specification provides the flexibility of using RSRP, RSRQ, or both.

**RSRP** - Reference Signal Received Power is an [RSSI](#) type of measurement. It is the power of the LTE Reference Signals spread over the full bandwidth and narrowband. A minimum of -20 dB [SINR](#) (of the S-Synch channel) is needed to detect RSRP/RSRQ.

**RSRQ** - Reference Signal Received Quality: Quality considering also RSSI and the number of used Resource Blocks (N)  $RSRQ = (N * RSRP) / RSSI$  measured over the same bandwidth. RSRQ is a C/I type of measurement and it indicates the quality of the received reference signal. The RSRQ measurement provides additional information when RSRP is not sufficient to make a reliable handover or cell reselection decision.

You can find more information on **RSRP** and **RSRQ** values in the [4G \(LTE\)](#) section of the [Mobile Signal Strength Recommendations](#) page.

## RSRP

RSRP	Signal strength	Description
$\geq -80$ dBm	Excellent	Strong signal with maximum data speeds
-80 dBm to -90 dBm	Good	Strong signal with good data speeds
-90 dBm to -100 dBm	Fair to poor	Reliable data speeds may be attained, but marginal data with drop-outs is possible. When this value gets close to -100, performance will drop drastically
$\leq -100$ dBm	No signal	Disconnection

## RSRQ

RSRQ	Signal quality	Description
$\geq -10$ dB	Excellent	Strong signal with maximum data speeds
-10 dB to -15 dB	Good	Strong signal with good data speeds
-15 dB to -20 dB	Fair to poor	Reliable data speeds may be attained, but marginal data with drop-outs is possible. When this value gets close to -20, performance will drop drastically
$\leq -20$ dB	No signal	Disconnection