

## Tune up procedure

Tune up procedure shall be over the power range or at specific operating power levels.

1. It must provide an operational voltage (3.5 ~ 4.35V DC) to turn on the device and on one certain channel in service mode by means of company proprietary software.
2. . The Base station simulator measures this device for their specific RF characteristics.
3. The maximum gains of each individual device are adjusted until the target value met.

RF average conduct power range:

### ► 1.1 GSM850

Output power of range:

GSM/GPRS (GMSK):

GSM: 32.5dBm±0.5dBm

1TXslots:32.0dBm±0.5dBm

2TXslots:31.5dBm±0.5dBm

3TXslots:30.0dBm±0.5dBm

4TXslots:29.5dBm±0.5dBm

EGPRS(8-PSK):

1TXslots:28.5dBm±0.5dBm

2TXslots:27.5dBm±0.5dBm

3TXslots:27.0dBm±0.5dBm

4TXslots:26.5dBm±0.5dBm

### ► 1.2 GSM1900

Output power of range:

GSM/GPRS (GMSK):

GSM: 30.0dBm±0.5dBm

1TXslot:29.5dBm±0.5dBm

2TXslots:28.5dBm±0.5dBm

3TXslots:27.0dBm±0.5dBm

4TXslots:26.5dBm±0.5dBm

EGPRS (8-PSK):

1TXslots:27.0dBm±0.5dBm

2TXslots:26.5dBm±0.5dBm

3TXslots:25.5dBm±0.5dBm

4TXslots:25.0dBm±0.5dBm

▶ 1.3 WCDMA 2

Output power of range:  
21.0dbm±1.0dbm

▶ 1.4 WCDMA 4

Output power of range:  
21.5dbm±1.0dbm

▶ 1.5 WCDMA 5

Output power of range:  
21.5dbm±1.0dbm

▶ 1.6 LTE B2

Output power of range:  
20.5dbm±1.0dbm

▶ 1.7 LTE B4

Output power of range:  
20.5dbm±1.0dbm

▶ 1.8 LTE B7

Output power of range:  
20.5dbm±1.0dbm

▶ 1.9 Wi-Fi(2.4G)

Output power of range:  
802.11b 14.0±1dbm  
802.11g 13.0±1dbm  
802.11n (HT20) 13.0±1dbm  
802.11n (HT40) 11.5±1dbm

▶ 1.10 Wi-Fi(5G)

Band1  
802.11a 15.0dbm±1.0dBm  
802.11n(HT20) : 14.0dbm±1.0dBm  
802.11n(HT40) 12.5dbm±1.0dBm  
802.11ac20M 11.5 dbm±1.0dBm  
802.11ac40M 11.5 dbm±1.0dBm

#### Band4

802.11a	14.5dbm±1.0dBm
802.11n(HT20):	13.5dbm±1.0dBm
802.11n(HT40)	13.0dbm±1.0dBm
802.11ac20M	12.0 dbm±1.0dBm
802.11ac40M	12.0dbm±1.0dBm

#### ► 1.11 BT

1Mbps Power	4.5dBm±1.0dBm
2Mbps Power	3.5dBm±1.0dBm
3Mbps Power	4.0dBm±1.0dBm

Then these appropriate gain settings are stored in each device individually. The user has no possibility to change these settings later on, and during manufacturing each device will be individual calibrated. The measurement is done in fully calibrated setup, which is based on the base station simulator. Furthermore, the highest power level is verified afterwards measurement on three channels (low, middle and high)