

## Tune up procedure

The output power setting of EUT is set in the factory and followed the max average level in below. There is no tune up procedure except factory default setting.

Connectivity:

**RF:**

WIFI

| Frequency | Mode     | Date Rate | Bandwidth (Mhz) | power(dBm) |
|-----------|----------|-----------|-----------------|------------|
| 2.4G      | 802.11b  | 1Mbps     | 20              | 17.5       |
|           | 802.11g  | 6Mbps     | 20              | 15.5       |
|           | 802.11n  | MCS0      | 20              | 15.5       |
|           |          | MCS0      | 40              | 15.5       |
| 5G        | 802.11a  | 6Mbs      | 20              | 18.5       |
|           | 802.11n  | MCS0      | 20              | 18.5       |
|           |          | MCS0      | 40              | 17.5       |
|           | 802.11ac | MCS0      | 20              | 18.5       |
|           |          | MCS0      | 40              | 18.5       |
|           |          | MCS0      | 80              | 17.5       |

BT

| Type        | GFSK | $\pi/4$ DQPSK | 8DPSK | Unit |
|-------------|------|---------------|-------|------|
| Transmitter | 10   | 8             | 8     | dBm  |

BLE

| Type        | GFSK | Unit |
|-------------|------|------|
| Transmitter | 1    | dBm  |

## WCDMA

|          |                   |
|----------|-------------------|
| WCDMA B2 | 23.5dBm $\pm$ 1dB |
| HSDPA    | 23dBm $\pm$ 1.5dB |
| HSUPA    | 23dBm $\pm$ 1.5dB |
| WCDMA B4 | 23.5dBm $\pm$ 1dB |
| HSDPA    | 23dBm $\pm$ 1.5dB |
| HSUPA    | 23dBm $\pm$ 1.5dB |
| WCDMA B5 | 23.5dBm $\pm$ 1dB |
| HSDPA    | 23dBm $\pm$ 1.5dB |
| HSUPA    | 23dBm $\pm$ 1.5dB |

## LTE

| LTE B2 |       |         |                 | LTE B4 |       |         |                 |
|--------|-------|---------|-----------------|--------|-------|---------|-----------------|
| 1.4MHz | QPSK  | 1 RB    | 23dBm $\pm$ 1dB | 1.4MHz | QPSK  | 1 RB    | 23dBm $\pm$ 1dB |
|        |       | 50% RB  | 23dBm $\pm$ 1dB |        |       | 50% RB  | 23dBm $\pm$ 1dB |
|        |       | 100% RB | 22dBm $\pm$ 1dB |        |       | 100% RB | 22dBm $\pm$ 1dB |
|        | 16QAM | 1 RB    | 22dBm $\pm$ 1dB |        | 16QAM | 1 RB    | 22dBm $\pm$ 1dB |
|        |       | 50% RB  | 22dBm $\pm$ 1dB |        |       | 50% RB  | 22dBm $\pm$ 1dB |
|        |       | 100% RB | 21dBm $\pm$ 1dB |        |       | 100% RB | 21dBm $\pm$ 1dB |
| 3MHz   | QPSK  | 1 RB    | 23dBm $\pm$ 1dB | 3MHz   | QPSK  | 1 RB    | 23dBm $\pm$ 1dB |
|        |       | 50% RB  | 22dBm $\pm$ 1dB |        |       | 50% RB  | 22dBm $\pm$ 1dB |
|        |       | 100% RB | 22dBm $\pm$ 1dB |        |       | 100% RB | 22dBm $\pm$ 1dB |
|        | 16QAM | 1 RB    | 22dBm $\pm$ 1dB |        | 16QAM | 1 RB    | 22dBm $\pm$ 1dB |
|        |       | 50% RB  | 21dBm $\pm$ 1dB |        |       | 50% RB  | 21dBm $\pm$ 1dB |
|        |       | 100% RB | 21dBm $\pm$ 1dB |        |       | 100% RB | 21dBm $\pm$ 1dB |
| 5MHz   | QPSK  | 1 RB    | 23dBm $\pm$ 1dB | 5MHz   | QPSK  | 1 RB    | 23dBm $\pm$ 1dB |
|        |       | 50% RB  | 22dBm $\pm$ 1dB |        |       | 50% RB  | 22dBm $\pm$ 1dB |
|        |       | 100% RB | 22dBm $\pm$ 1dB |        |       | 100% RB | 22dBm $\pm$ 1dB |
|        | 16QAM | 1 RB    | 22dBm $\pm$ 1dB |        | 16QAM | 1 RB    | 22dBm $\pm$ 1dB |
|        |       | 50% RB  | 21dBm $\pm$ 1dB |        |       | 50% RB  | 21dBm $\pm$ 1dB |
|        |       |         |                 |        |       |         |                 |

|       |       |         |           |       |       |         |           |
|-------|-------|---------|-----------|-------|-------|---------|-----------|
|       |       | 100% RB | 21dBm±1dB |       |       | 100% RB | 21dBm±1dB |
| 10MHz | QPSK  | 1 RB    | 23dBm±1dB | 10MHz | QPSK  | 1 RB    | 23dBm±1dB |
|       |       | 50% RB  | 22dBm±1dB |       |       | 50% RB  | 22dBm±1dB |
|       |       | 100% RB | 22dBm±1dB |       |       | 100% RB | 22dBm±1dB |
|       | 16QAM | 1 RB    | 22dBm±1dB |       | 16QAM | 1 RB    | 22dBm±1dB |
|       |       | 50% RB  | 21dBm±1dB |       |       | 50% RB  | 21dBm±1dB |
|       |       | 100% RB | 21dBm±1dB |       |       | 100% RB | 21dBm±1dB |
| 15MHz | QPSK  | 1 RB    | 23dBm±1dB | 15MHz | QPSK  | 1 RB    | 23dBm±1dB |
|       |       | 50% RB  | 22dBm±1dB |       |       | 50% RB  | 22dBm±1dB |
|       |       | 100% RB | 22dBm±1dB |       |       | 100% RB | 22dBm±1dB |
|       | 16QAM | 1 RB    | 22dBm±1dB |       | 16QAM | 1 RB    | 22dBm±1dB |
|       |       | 50% RB  | 21dBm±1dB |       |       | 50% RB  | 21dBm±1dB |
|       |       | 100% RB | 21dBm±1dB |       |       | 100% RB | 21dBm±1dB |
| 20MHz | QPSK  | 1 RB    | 23dBm±1dB | 20MHz | QPSK  | 1 RB    | 23dBm±1dB |
|       |       | 50% RB  | 22dBm±1dB |       |       | 50% RB  | 22dBm±1dB |
|       |       | 100% RB | 22dBm±1dB |       |       | 100% RB | 22dBm±1dB |
|       | 16QAM | 1 RB    | 22dBm±1dB |       | 16QAM | 1 RB    | 22dBm±1dB |
|       |       | 50% RB  | 21dBm±1dB |       |       | 50% RB  | 21dBm±1dB |
|       |       | 100% RB | 21dBm±1dB |       |       | 100% RB | 21dBm±1dB |

| LTE B5 |       |         |           | LTE B7 |       |         |           |
|--------|-------|---------|-----------|--------|-------|---------|-----------|
| 1.4MHz | QPSK  | 1 RB    | 23dBm±1dB | 5MHz   | QPSK  | 1 RB    | 23dBm±1dB |
|        |       | 50% RB  | 23dBm±1dB |        |       | 50% RB  | 22dBm±1dB |
|        |       | 100% RB | 22dBm±1dB |        |       | 100% RB | 22dBm±1dB |
|        | 16QAM | 1 RB    | 22dBm±1dB |        | 16QAM | 1 RB    | 22dBm±1dB |
|        |       | 50% RB  | 22dBm±1dB |        |       | 50% RB  | 21dBm±1dB |
|        |       | 100% RB | 21dBm±1dB |        |       | 100% RB | 21dBm±1dB |
| 3MHz   | QPSK  | 1 RB    | 23dBm±1dB | 10MHz  | QPSK  | 1 RB    | 23dBm±1dB |
|        |       | 50% RB  | 22dBm±1dB |        |       | 50% RB  | 22dBm±1dB |
|        |       | 100% RB | 22dBm±1dB |        |       | 100% RB | 22dBm±1dB |
|        | 16QAM | 1 RB    | 22dBm±1dB |        | 16QAM | 1 RB    | 22dBm±1dB |
|        |       | 50% RB  | 21dBm±1dB |        |       | 50% RB  | 21dBm±1dB |
|        |       | 100% RB | 21dBm±1dB |        |       | 100% RB | 21dBm±1dB |
| 5MHz   | QPSK  | 1 RB    | 23dBm±1dB | 15MHz  | QPSK  | 1 RB    | 23dBm±1dB |
|        |       | 50% RB  | 22dBm±1dB |        |       | 50% RB  | 22dBm±1dB |
|        |       | 100% RB | 22dBm±1dB |        |       | 100% RB | 22dBm±1dB |
|        | 16QAM | 1 RB    | 22dBm±1dB |        | 16QAM | 1 RB    | 22dBm±1dB |
|        |       | 50% RB  | 21dBm±1dB |        |       | 50% RB  | 21dBm±1dB |
|        |       | 100% RB | 21dBm±1dB |        |       | 100% RB | 21dBm±1dB |
| 10MHz  | QPSK  | 1 RB    | 23dBm±1dB | 20MHz  | QPSK  | 1 RB    | 23dBm±1dB |

|  |       |         |           |  |       |         |           |
|--|-------|---------|-----------|--|-------|---------|-----------|
|  |       | 50% RB  | 22dBm±1dB |  |       | 50% RB  | 22dBm±1dB |
|  |       | 100% RB | 22dBm±1dB |  |       | 100% RB | 22dBm±1dB |
|  |       | 1 RB    | 22dBm±1dB |  |       | 1 RB    | 22dBm±1dB |
|  | 16QAM | 50% RB  | 21dBm±1dB |  | 16QAM | 50% RB  | 21dBm±1dB |
|  |       | 100% RB | 21dBm±1dB |  |       | 100% RB | 21dBm±1dB |
|  |       |         |           |  |       |         |           |

| LTE B12 |       |         |           |  |  |  |  |
|---------|-------|---------|-----------|--|--|--|--|
| 1.4MHz  | QPSK  | 1 RB    | 23dBm±1dB |  |  |  |  |
|         |       | 50% RB  | 23dBm±1dB |  |  |  |  |
|         |       | 100% RB | 22dBm±1dB |  |  |  |  |
|         | 16QAM | 1 RB    | 22dBm±1dB |  |  |  |  |
|         |       | 50% RB  | 22dBm±1dB |  |  |  |  |
|         |       | 100% RB | 21dBm±1dB |  |  |  |  |
| 3MHz    | QPSK  | 1 RB    | 23dBm±1dB |  |  |  |  |
|         |       | 50% RB  | 22dBm±1dB |  |  |  |  |
|         |       | 100% RB | 22dBm±1dB |  |  |  |  |
|         | 16QAM | 1 RB    | 22dBm±1dB |  |  |  |  |
|         |       | 50% RB  | 21dBm±1dB |  |  |  |  |
|         |       | 100% RB | 21dBm±1dB |  |  |  |  |
| 5MHz    | QPSK  | 1 RB    | 23dBm±1dB |  |  |  |  |
|         |       | 50% RB  | 22dBm±1dB |  |  |  |  |
|         |       | 100% RB | 22dBm±1dB |  |  |  |  |
|         | 16QAM | 1 RB    | 22dBm±1dB |  |  |  |  |
|         |       | 50% RB  | 21dBm±1dB |  |  |  |  |
|         |       | 100% RB | 21dBm±1dB |  |  |  |  |
| 10MHz   | QPSK  | 1 RB    | 23dBm±1dB |  |  |  |  |
|         |       | 50% RB  | 22dBm±1dB |  |  |  |  |
|         |       | 100% RB | 22dBm±1dB |  |  |  |  |
|         | 16QAM | 1 RB    | 22dBm±1dB |  |  |  |  |
|         |       | 50% RB  | 21dBm±1dB |  |  |  |  |
|         |       | 100% RB | 21dBm±1dB |  |  |  |  |

| LTE B13 |  |  |  | LTE B66 |       |         |           |
|---------|--|--|--|---------|-------|---------|-----------|
| NA      |  |  |  | 1.4MHz  | QPSK  | 1 RB    | 23dBm±1dB |
|         |  |  |  |         |       | 50% RB  | 23dBm±1dB |
|         |  |  |  |         |       | 100% RB | 22dBm±1dB |
|         |  |  |  |         | 16QAM | 1 RB    | 22dBm±1dB |
|         |  |  |  |         |       | 50% RB  | 22dBm±1dB |
|         |  |  |  |         |       | 100% RB | 21dBm±1dB |
| NA      |  |  |  | 3MHz    | QPSK  | 1 RB    | 23dBm±1dB |
|         |  |  |  |         |       | 50% RB  | 22dBm±1dB |
|         |  |  |  |         |       | 100% RB | 22dBm±1dB |
|         |  |  |  |         | 16QAM | 1 RB    | 22dBm±1dB |
|         |  |  |  |         |       |         |           |

|         |       |         |           |         |       |         |           |
|---------|-------|---------|-----------|---------|-------|---------|-----------|
|         |       |         |           |         |       | 50% RB  | 21dBm±1dB |
|         |       |         |           |         |       | 100% RB | 21dBm±1dB |
| 5MHz    | QPSK  | 1 RB    | 23dBm±1dB | 5MHz    | QPSK  | 1 RB    | 23dBm±1dB |
|         |       | 50% RB  | 22dBm±1dB |         |       | 50% RB  | 22dBm±1dB |
|         |       | 100% RB | 22dBm±1dB |         |       | 100% RB | 22dBm±1dB |
|         | 16QAM | 1 RB    | 22dBm±1dB |         | 16QAM | 1 RB    | 22dBm±1dB |
|         |       | 50% RB  | 21dBm±1dB |         |       | 50% RB  | 21dBm±1dB |
|         |       | 100% RB | 21dBm±1dB |         |       | 100% RB | 21dBm±1dB |
| 10MHz   | QPSK  | 1 RB    | 23dBm±1dB | 10MHz   | QPSK  | 1 RB    | 23dBm±1dB |
|         |       | 50% RB  | 22dBm±1dB |         |       | 50% RB  | 22dBm±1dB |
|         |       | 100% RB | 22dBm±1dB |         |       | 100% RB | 22dBm±1dB |
|         | 16QAM | 1 RB    | 22dBm±1dB |         | 16QAM | 1 RB    | 22dBm±1dB |
|         |       | 50% RB  | 21dBm±1dB |         |       | 50% RB  | 21dBm±1dB |
|         |       | 100% RB | 21dBm±1dB |         |       | 100% RB | 21dBm±1dB |
| NA      |       |         |           | 15MHz   | QPSK  | 1 RB    | 23dBm±1dB |
|         |       |         |           |         |       | 50% RB  | 22dBm±1dB |
|         |       |         |           |         |       | 100% RB | 22dBm±1dB |
|         |       |         |           |         | 16QAM | 1 RB    | 22dBm±1dB |
|         |       |         |           |         |       | 50% RB  | 21dBm±1dB |
|         |       |         |           |         |       | 100% RB | 21dBm±1dB |
| NA      |       |         |           | 20MHz   | QPSK  | 1 RB    | 23dBm±1dB |
|         |       |         |           |         |       | 50% RB  | 22dBm±1dB |
|         |       |         |           |         |       | 100% RB | 22dBm±1dB |
|         |       |         |           |         | 16QAM | 1 RB    | 22dBm±1dB |
|         |       |         |           |         |       | 50% RB  | 21dBm±1dB |
|         |       |         |           |         |       | 100% RB | 21dBm±1dB |
| LTE B25 |       |         |           | LTE B26 |       |         |           |
| 1.4MHz  | QPSK  | 1 RB    | 23dBm±1dB | 1.4MHz  | QPSK  | 1 RB    | 23dBm±1dB |
|         |       | 50% RB  | 23dBm±1dB |         |       | 50% RB  | 23dBm±1dB |
|         |       | 100% RB | 22dBm±1dB |         |       | 100% RB | 22dBm±1dB |
|         | 16QAM | 1 RB    | 22dBm±1dB |         | 16QAM | 1 RB    | 22dBm±1dB |
|         |       | 50% RB  | 22dBm±1dB |         |       | 50% RB  | 22dBm±1dB |
|         |       | 100% RB | 21dBm±1dB |         |       | 100% RB | 21dBm±1dB |
| 3MHz    | QPSK  | 1 RB    | 23dBm±1dB | 3MHz    | QPSK  | 1 RB    | 23dBm±1dB |
|         |       | 50% RB  | 22dBm±1dB |         |       | 50% RB  | 22dBm±1dB |
|         |       | 100% RB | 22dBm±1dB |         |       | 100% RB | 22dBm±1dB |
|         | 16QAM | 1 RB    | 22dBm±1dB |         | 16QAM | 1 RB    | 22dBm±1dB |
|         |       | 50% RB  | 21dBm±1dB |         |       | 50% RB  | 21dBm±1dB |
|         |       | 100% RB | 21dBm±1dB |         |       | 100% RB | 21dBm±1dB |
| 5MHz    | QPSK  | 1 RB    | 23dBm±1dB | 5MHz    | QPSK  | 1 RB    | 23dBm±1dB |
|         |       | 50% RB  | 22dBm±1dB |         |       | 50% RB  | 22dBm±1dB |
|         |       | 100% RB | 22dBm±1dB |         |       | 100% RB | 22dBm±1dB |
|         | 16QAM | 1 RB    | 22dBm±1dB |         | 16QAM | 1 RB    | 22dBm±1dB |

|         |       |         |           |       |       |         |           |
|---------|-------|---------|-----------|-------|-------|---------|-----------|
|         |       | 50% RB  | 21dBm±1dB |       |       | 50% RB  | 21dBm±1dB |
|         |       | 100% RB | 21dBm±1dB |       |       | 100% RB | 21dBm±1dB |
| 10MHz   | QPSK  | 1 RB    | 23dBm±1dB | 10MHz | QPSK  | 1 RB    | 23dBm±1dB |
|         |       | 50% RB  | 22dBm±1dB |       |       | 50% RB  | 22dBm±1dB |
|         |       | 100% RB | 22dBm±1dB |       |       | 100% RB | 22dBm±1dB |
|         | 16QAM | 1 RB    | 22dBm±1dB |       | 16QAM | 1 RB    | 22dBm±1dB |
|         |       | 50% RB  | 21dBm±1dB |       |       | 50% RB  | 21dBm±1dB |
|         |       | 100% RB | 21dBm±1dB |       |       | 100% RB | 21dBm±1dB |
| 15MHz   | QPSK  | 1 RB    | 23dBm±1dB | 15MHz | QPSK  | 1 RB    | 23dBm±1dB |
|         |       | 50% RB  | 22dBm±1dB |       |       | 50% RB  | 22dBm±1dB |
|         |       | 100% RB | 22dBm±1dB |       |       | 100% RB | 22dBm±1dB |
|         | 16QAM | 1 RB    | 22dBm±1dB |       | 16QAM | 1 RB    | 22dBm±1dB |
|         |       | 50% RB  | 21dBm±1dB |       |       | 50% RB  | 21dBm±1dB |
|         |       | 100% RB | 21dBm±1dB |       |       | 100% RB | 21dBm±1dB |
| 20MHz   | QPSK  | 1 RB    | 23dBm±1dB | NA    |       |         |           |
|         |       | 50% RB  | 22dBm±1dB |       |       |         |           |
|         |       | 100% RB | 22dBm±1dB |       |       |         |           |
|         | 16QAM | 1 RB    | 22dBm±1dB |       |       |         |           |
|         |       | 50% RB  | 21dBm±1dB |       |       |         |           |
|         |       | 100% RB | 21dBm±1dB |       |       |         |           |
| LTE B41 |       |         |           | NA    |       |         |           |
| 5MHz    | QPSK  | 1 RB    | 23dBm±1dB | NA    |       |         |           |
|         |       | 50% RB  | 22dBm±1dB |       |       |         |           |
|         |       | 100% RB | 22dBm±1dB |       |       |         |           |
|         | 16QAM | 1 RB    | 22dBm±1dB |       |       |         |           |
|         |       | 50% RB  | 21dBm±1dB |       |       |         |           |
|         |       | 100% RB | 21dBm±1dB |       |       |         |           |
| 10MHz   | QPSK  | 1 RB    | 23dBm±1dB | NA    |       |         |           |
|         |       | 50% RB  | 22dBm±1dB |       |       |         |           |
|         |       | 100% RB | 22dBm±1dB |       |       |         |           |
|         | 16QAM | 1 RB    | 22dBm±1dB |       |       |         |           |
|         |       | 50% RB  | 21dBm±1dB |       |       |         |           |
|         |       | 100% RB | 21dBm±1dB |       |       |         |           |
| 15MHz   | QPSK  | 1 RB    | 23dBm±1dB | NA    |       |         |           |
|         |       | 50% RB  | 22dBm±1dB |       |       |         |           |
|         |       | 100% RB | 22dBm±1dB |       |       |         |           |
|         | 16QAM | 1 RB    | 22dBm±1dB |       |       |         |           |
|         |       | 50% RB  | 21dBm±1dB |       |       |         |           |
|         |       | 100% RB | 21dBm±1dB |       |       |         |           |
| 20MHz   | QPSK  | 1 RB    | 23dBm±1dB | NA    |       |         |           |
|         |       | 50% RB  | 22dBm±1dB |       |       |         |           |
|         |       | 100% RB | 22dBm±1dB |       |       |         |           |
|         | 16QAM | 1 RB    | 22dBm±1dB |       |       |         |           |

|  |  |         |           |  |  |  |  |
|--|--|---------|-----------|--|--|--|--|
|  |  | 50% RB  | 21dBm±1dB |  |  |  |  |
|  |  | 100% RB | 21dBm±1dB |  |  |  |  |