

HONGKONG U-CLOUDLINK NETWORK TECHNOLOGY LIMITED

Tune up Procedure

I would like to confirm this device does not have tune up information, because the tune up is fixed by the manufacturer. Therefore, the user cannot tune up the device.

GSM/WCDMA

Based on the measurement result got by R&S CMW500 base station simulator (system tester), each mobile phone will be calibrated individually during manufacturing. The procedure is outlined below:

1. Set the voltage of power supply to nominal operating voltage (3.85Volts).
2. Set the R&S CMW500 to the specified channel and test mode.
3. The actual transmitted and received power is measured at several power levels.

The register values of each device are adjusted until the target is met. These values will be stored in the corresponding device. It is not possible for users to change the register value settings later on. The requirement of maximum transmitted power is listed in the table below. When the calibration complete, the maximum transmitted power of each device will be in the range is below.

Conducted power range is below:

Mode	Burst Average Power (dBm)	
	GSM850	PCS1900
GSM (GMSK, 1Tx Slot)	31.00~33.00	27.00~29.00
GPRS (GMSK, 1Tx Slot)	29.50~31.50	27.00~29.00
GPRS (GMSK, 2Tx Slot)	26.50~28.50	26.00~28.00
GPRS (GMSK, 3Tx Slot)	25.50~27.50	24.00~26.00
GPRS (GMSK, 4Tx Slot)	25.00~27.00	23.00~25.00
EGPRS (GMSK, 1Tx Slot)	27.00~29.00	25.00~27.00
EGPRS (GMSK, 2Tx Slot)	26.00~28.00	24.00~26.00
EGPRS (GMSK, 3Tx Slot)	25.00~27.00	23.00~25.00
EGPRS (GMSK, 4Tx Slot)	24.00~26.00	22.00~24.00

Mode	Burst Average Power (dBm)		
	WCDMA Band II	WCDMA Band IV	WCDMA Band V
AMR 12.2Kbps	21.00~23.00	21.50~23.50	21.00~23.00
RMC 12.2Kbps	21.00~23.00	21.50~23.50	21.00~23.00
HSDPA Subtest-1	21.00~23.00	21.50~23.50	21.00~23.00
HSDPA Subtest-2	21.00~23.00	21.50~23.50	21.00~23.00
HSDPA Subtest-3	21.00~23.00	21.00~23.00	21.00~23.00
HSDPA Subtest-4	21.00~23.00	21.00~23.00	20.00~22.00
HSUPA Subtest-1	21.00~23.00	21.50~23.50	20.00~22.00
HSUPA Subtest-2	21.00~23.00	21.50~23.50	20.50~22.50
HSUPA Subtest-3	21.00~23.00	21.00~23.00	21.00~23.00
HSUPA Subtest-4	21.00~23.00	21.00~23.00	20.50~22.50
HSUPA Subtest-5	21.00~23.00	21.00~23.00	20.00~22.00

LTE				
Frequency Band	Band-width(MHz)	Modulation	RB allocation	Maximum Tune-up (dBm)
LTE Band 2	1.4	QPSK	1	22.50
			3	22.50
			6	22.00
		16QAM	1	22.00
			3	21.50
			6	21.50
	3	QPSK	1	22.00
			8	22.00
			15	22.00
		16QAM	1	22.50
			8	22.50
			15	22.00
	5	QPSK	1	22.00
			12	22.00
			25	22.50
		16QAM	1	22.00
			12	22.50
			25	22.50
	10	QPSK	1	22.50
			25	22.50
			50	22.00
		16QAM	1	22.50
			25	22.50
			50	22.50
15	QPSK	1	23.00	
		38	22.50	
		75	22.00	
	16QAM	1	22.00	
		38	22.50	
		75	22.50	
20	QPSK	1	23.00	
		50	22.50	
		100	22.50	
	16QAM	1	23.00	
		50	22.00	
		100	22.50	

LTE				
Frequency Band	Band-width(MHz)	Modulation	RB allocation	Maximum Tune-up (dBm)
LTE Band 4	1.4	QPSK	1	22.50
			3	22.00
			6	22.00
		16QAM	1	22.50
			3	22.50
			6	21.50
	3	QPSK	1	22.50
			8	22.50
			15	22.00
		16QAM	1	23.00
			8	22.00
			15	22.00
	5	QPSK	1	22.50
			12	22.00
			25	22.00
		16QAM	1	22.50
			12	23.00
			25	23.00
	10	QPSK	1	22.50
			25	22.50
			50	22.50
		16QAM	1	22.50
			25	22.50
			50	22.50
15	QPSK	1	22.00	
		38	22.50	
		75	22.00	
	16QAM	1	22.50	
		38	22.00	
		75	21.50	
20	QPSK	1	23.00	
		50	23.00	
		100	22.00	
	16QAM	1	22.50	
		50	22.50	
		100	23.00	

LTE				
Fequency Band	Band-width(MHz)	Modulation	RB allocation	Maximum Tune-up (dBm)
LTE Band 5	1.4	QPSK	1	22.00
			3	22.50
			6	22.00
		16QAM	1	22.50
			3	22.00
			6	22.00
	3	QPSK	1	22.00
			8	22.50
			15	22.00
		16QAM	1	22.00
			8	22.00
			15	22.00
	5	QPSK	1	22.00
			12	21.50
			25	21.50
		16QAM	1	22.00
			12	22.00
			25	22.00
	10	QPSK	1	23.00
			25	23.00
			50	22.00
16QAM		1	22.50	
		25	23.00	
		50	22.50	

LTE				
Fequency Band	Band-width(MHz)	Modulation	RB allocation	Maximum Tune-up (dBm)
LTE Band 7	5	QPSK	1	22.00
			12	22.50
			25	22.00
		16QAM	1	22.50
			12	22.00
			25	22.00
	10	QPSK	1	23.00
			25	22.50
			50	22.00
		16QAM	1	22.00
			25	22.50
			50	22.50
	15	QPSK	1	23.00
			38	21.50
			75	22.00
		16QAM	1	22.00
			38	22.00
			75	21.50
	20	QPSK	1	23.00
			50	22.10
			100	22.50
16QAM		1	22.50	
		50	22.50	
		100	22.00	

LTE				
Frequency Band	Band-width(MHz)	Modulation	RB allocation	Maximum Tune-up (dBm)
LTE Band 12	1.4	QPSK	1	22.50
			3	22.50
			6	21.50
		16QAM	1	22.00
			3	22.00
			6	21.50
	3	QPSK	1	22.00
			8	22.50
			15	21.50
		16QAM	1	22.50
			8	22.50
			15	22.50
	5	QPSK	1	22.00
			12	22.50
			25	22.50
		16QAM	1	22.50
			12	22.50
			25	22.50
	10	QPSK	1	23.00
			25	22.50
			50	22.50
16QAM		1	21.50	
		25	22.00	
		50	21.50	

LTE				
Frequency Band	Band-width(MHz)	Modulation	RB allocation	Maximum Tune-up (dBm)
LTE Band 13	5	QPSK	1	22.50
			12	22.50
			25	21.50
		16QAM	1	22.50
			12	23.00
			25	22.50
	10	QPSK	1	23.00
			25	23.00
			50	22.50
		16QAM	1	23.00
			25	22.50
			50	22.50

LTE				
Frequency Band	Band-width(MHz)	Modulation	RB allocation	Maximum Tune-up (dBm)
LTE Band 17	5	QPSK	1	22.00
			12	22.50
			25	22.00
		16QAM	1	22.50
			12	22.50
			25	21.50
	10	QPSK	1	22.50
			25	22.10
			50	22.00
		16QAM	1	22.50
			25	22.50
			50	22.00

LTE				
Frequency Band	Band-width(MHz)	Modulation	RB allocation	Maximum Tune-up (dBm)
LTE Band 26	1.4	QPSK	1	22.00
			3	22.50
			6	22.00
		16QAM	1	22.50
			3	22.00
			6	21.50
	3	QPSK	1	22.00
			8	22.50
			15	22.00
		16QAM	1	22.00
			8	22.00
			15	21.50
	5	QPSK	1	22.00
			12	22.50
			25	21.50
		16QAM	1	22.00
			12	22.50
			25	21.50
	10	QPSK	1	22.50
			25	22.00
			50	22.00
		16QAM	1	22.00
			25	22.00
			50	22.50
15	QPSK	1	22.50	
		38	22.50	
		75	21.50	
	16QAM	1	22.00	
		38	22.50	
		75	22.50	

LTE MPR will follow up 3GPP setting as below:

Modulation	Channel bandwidth / Transmission bandwidth (NRB)						MPR (dB)
	1.4MHz	3.0MHz	5MHz	10MHz	15MHz	20MHz	
QPSK	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	0
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	1
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	1
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	2

WIFI/BT

1. Connect EUT with RS Spectrum Analyzer through RF cable.
2. phone function Dial(eg `*##3646633##`) into Engineer Mode
3. For WIFI Select connectivity - > WIFI- Tx
4. For BT Select connectivity - > Bluetooth- Tx Only test
5. Set the TX frame parameters mode, rate, power, packet type.
6. Click TX start.

WLAN	
Mode	Maximum Tune-up (dBm) Burst Average Power
802.11b	11.00~13.00
802.11g	5.10~7.10
802.11n(HT20)	5.00~7.00

Bluetooth	
Mode	Conducted power (dBm)
GFSK	3.5~5.5
$\pi/4$ QPSK	4.5~6.5
8DPSK	4.0~6.0
BLE	-3.0~-1.0

Company Stamp: **HONGKONG UCLOUDLINK NETWORK TECHNOLOGY LIMITED**

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