

HONEYWELL INTERNATIONAL INC

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/LTE

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 (DC 3.8V).
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:

GSM		
Mode	Maximum Tune-up (dBm)	
	GSM850	PCS1900
GSM (GMSK, 1Tx Slot)	31.50~33.50	26.00~28.00
GPRS (GMSK, 1Tx Slot)	31.50~33.50	26.00~28.00
GPRS (GMSK, 2Tx Slot)	31.50~33.50	26.00~28.00
GPRS (GMSK, 3Tx Slot)	31.00~33.00	26.00~28.00
GPRS (GMSK, 4Tx Slot)	31.00~33.00	26.00~28.00
EGPRS (8PSK, 1Tx Slot)	25.00~27.00	22.00~24.00
EGPRS (8PSK, 2Tx Slot)	25.00~27.00	22.00~24.00
EGPRS (8PSK, 3Tx Slot)	24.50~26.50	21.50~23.50
EGPRS (8PSK, 4Tx Slot)	24.50~26.50	21.50~23.50

WCDMA			
Mode	Maximum Tune-up (dBm)		
	WCDMA Band II	WCDMA Band IV	WCDMA Band V
AMR 12.2Kbps	19.50~21.50	20.50~22.50	21.50~23.50
RMC 12.2Kbps	19.50~21.50	20.50~22.50	21.50~23.50
HSDPA Subtest-1	19.00~21.00	19.50~21.50	20.50~22.50
HSDPA Subtest-2	18.50~20.50	19.00~21.00	20.00~22.00
HSDPA Subtest-3	18.50~20.50	19.00~21.00	20.00~22.00
HSDPA Subtest-4	18.50~20.50	19.00~21.00	20.00~22.00
HSUPA Subtest-1	18.00~20.00	17.50~19.50	18.50~20.50
HSUPA Subtest-2	18.50~20.50	18.00~20.00	19.00~21.00
HSUPA Subtest-3	19.00~21.00	18.50~20.50	19.50~21.50
HSUPA Subtest-4	18.00~20.00	17.50~19.50	18.50~20.50
HSUPA Subtest-5	19.50~21.50	19.50~21.50	20.50~22.50

LTE				
Fequency Band	Band-width(MHz)	Modulation	RB allocation	Maximum Tune-up (dBm)
LTE Band 2	1.4	QPSK	1	21.50~23.50
			3	21.50~23.50
			6	20.50~22.50
		16QAM	1	21.00~23.00
			3	21.50~23.50
			6	19.50~21.50
	3	QPSK	1	21.50~23.50
			8	20.50~22.50
			15	20.50~22.50
		16QAM	1	21.00~23.00
			8	20.00~22.00
			15	19.50~21.50
	5	QPSK	1	21.50~23.50
			12	20.50~22.50
			25	20.50~22.50
		16QAM	1	21.00~23.00
			12	19.50~21.50
			25	19.50~21.50
	10	QPSK	1	21.50~23.50
			25	20.50~22.50
			50	20.50~22.50
		16QAM	1	21.00~23.00
			25	19.50~21.50
			50	19.50~21.50
	15	QPSK	1	21.50~23.50
			38	20.50~22.50
			75	20.50~22.50

		16QAM	1	21.00~23.00
			38	19.50~21.50
			75	19.50~21.50
	20	QPSK	1	21.50~23.50
			50	20.50~22.50
			100	20.50~22.50
		16QAM	1	21.00~23.00
			50	19.50~21.50
			100	19.50~21.50

LTE				
Fequency Band	Band-width(MHz)	Modulation	RB allocation	Maximum Tune-up (dBm)
LTE Band 4	1.4	QPSK	1	22.00~24.00
			3	22.00~24.00
			6	21.00~23.00
		16QAM	1	21.50~23.50
			3	21.00~23.00
			6	20.00~22.00
	3	QPSK	1	22.00~24.00
			8	21.00~23.00
			15	21.00~23.00
		16QAM	1	21.50~23.50
			8	20.00~22.00
			15	20.00~22.00
	5	QPSK	1	22.00~24.00
			12	21.00~23.00
			25	21.00~23.00
		16QAM	1	21.00~23.00
			12	20.00~22.00
			25	20.00~22.00
	10	QPSK	1	22.00~24.00
			25	21.00~23.00
			50	21.00~23.00
		16QAM	1	21.50~23.50
			25	20.00~22.00
			50	20.00~22.00
	15	QPSK	1	22.00~24.00
			38	21.00~23.00
			75	21.00~23.00

		16QAM	1	21.00~23.00
			38	20.00~22.00
			75	20.00~22.00
	20	QPSK	1	22.00~24.00
			50	21.00~23.00
			100	21.00~23.00
		16QAM	1	21.00~23.00
			50	20.00~22.00
			100	20.00~22.00

LTE				
Fequency Band	Band-width(MHz)	Modulation	RB allocation	Maximum Tune-up (dBm)
LTE Band 5	1.4	QPSK	1	22.50~24.50
			3	22.00~24.00
			6	21.00~23.00
		16QAM	1	22.00~24.00
			3	21.50~23.50
			6	20.50~22.50
	3	QPSK	1	22.50~24.50
			8	21.50~23.50
			15	21.50~23.50
		16QAM	1	22.00~24.00
			8	20.50~22.50
			15	20.50~22.50
	5	QPSK	1	22.50~24.50
			12	22.50~23.50
			25	22.50~23.50
16QAM		1	22.50~23.50	
		12	20.50~22.50	
		25	20.50~22.50	

	10	QPSK	1	22.50~24.50
			25	22.50~23.50
			50	22.50~23.50
		16QAM	1	22.00~24.00
			25	20.50~22.50
			50	20.50~22.50

LTE				
Fequency Band	Band-width(MHz)	Modulation	RB allocation	Maximum Tune-up (dBm)
LTE Band 7	5	QPSK	1	22.00~24.00
			12	21.00~23.00
			25	21.00~23.00
		16QAM	1	21.00~23.00
			12	20.00~22.00
			25	20.00~22.00
	10	QPSK	1	22.00~24.00
			25	21.00~23.00
			50	21.00~23.00
		16QAM	1	21.00~23.00
			25	20.00~22.00
			50	20.00~22.00
	15	QPSK	1	22.00~24.00
			38	21.00~23.00
			75	21.00~23.00
		16QAM	1	21.50~23.50
			38	20.00~22.00
			75	20.00~22.00
	20	QPSK	1	22.00~24.00
			50	21.00~23.00
			100	21.00~23.00

		16QAM	1	21.50~23.50
			50	20.00~22.00
			100	20.00~22.00

LTE				
Fequency Band	Band-width(MHz)	Modulation	RB allocation	Maximum Tune-up (dBm)
LTE Band 26	1.4	QPSK	1	22.50~24.50
			3	22.00~24.00
			6	21.00~23.00
		16QAM	1	21.50~23.50
			3	22.00~24.00
			6	20.00~22.00
	3	QPSK	1	22.50~24.50
			8	22.00~24.00
			15	21.50~23.50
		16QAM	1	21.50~23.50
			8	21.50~23.50
			15	20.00~22.00
	5	QPSK	1	22.50~24.50
			12	21.00~23.00
			25	21.00~23.00
		16QAM	1	21.50~23.50
			12	21.00~23.00
			25	20.00~22.00
	10	QPSK	1	22.50~24.50
			25	21.50~23.50
			50	21.50~23.50
		16QAM	1	22.00~24.00
			25	21.50~23.50
			50	20.00~22.00

LTE				
Fequency Band	Band-width(MHz)	Modulation	RB allocation	Maximum Tune-up (dBm)
LTE Band 41	5	QPSK	1	22.00~24.00
			12	21.00~23.00
			25	21.00~23.00
		16QAM	1	21.50~23.50
			12	21.00~23.00
			25	20.00~22.00
	10	QPSK	1	22.00~24.00
			25	21.00~23.00
			50	21.00~23.00
		16QAM	1	22.00~24.00
			25	21.00~23.00
			50	20.00~22.00
	15	QPSK	1	22.00~24.00
			38	21.00~23.00
			75	21.00~23.00
		16QAM	1	21.50~23.50
			38	21.00~23.00
			75	20.00~22.00
	20	QPSK	1	22.00~24.00
			50	21.00~23.00
			100	21.00~23.00
16QAM		1	21.00~23.00	
		50	20.00~22.00	
		100	20.00~22.00	

BT/WIFI

1. Connect EUT with RS Spectrum Analyzer through RF cable.
2. For WIFI Select connectivity - > WIFI- Tx
3. For BT Select connectivity - > Bluetooth- Tx Only test
4. Set the TX frame parameters mode,rate,power,pocket type.
5. Click TX start.

WIFI 2.4G	
Mode	Maximum Tune-up (dBm)
802.11b	12.50~14.50
802.11g	10.50~12.50
802.11n(HT20)	9.00~11.00

Bluetooth	
Mode	Maximum Tune-up (dBm)
GFSK	7.00~9.00
$\pi/4$ QPSK	7.00~9.00
8DPSK	7.50~9.50
GFSK(BLE)	-2.00~0.00

Company Stamp: **HONEYWELL INTERNATIONAL INC**

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