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F-022 Tune-up Procedure

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This document describes output power control functions.

1. UTRA Power control

Output power controlled from -52dBm to +24dBm with 1.0dB step. The adjusted control voltage data were registered in the memory of IC401 (UBB4block) in order to control for following individual output power. Other output power control voltage is created from adjusted and registered data with linear interpolation method.

Table1. Output power list which has adjusted data in the memory

Adjusted output power lists (dBm)			
-52	-48	-44	-40
-36	-32	-28	-24
-20	-16	-12	- 8
- 4	0	4	8
12	16	20	24

IC 401 sends registered control data from TX1P (AC27PIN) and TX1N (AC26PIN) to IC111_L6PIN(TXDATA_P) and IC111_L7PIN(TXDATA_N) with Low voltage differential signaling method (LVDS). IC 111 converts that LVDS to analog signal which controls TX_AMP.

Mobile station (MS) has additional power monitor function and control function in IC 111 and IC315. When MS transmits +18dBm or more, following list shows output power of which adjusted data has been registered in the memory in advance on IC111.

Table2. High output power list which has adjusted data in the memory

Adjusted output power lists (dBm)			
+18	+20	+22	+24

IC 315 receive coupled RF detected data on C1(AMPOF) and B1(AMPDT) and converts from analogue to digital. Then IC 315 B2PIN (AMPOUT) sends those digital data to IC111 F11PIN(DET2). This data work in case of +18 (dBm), +20 (dBm), +22 (dBm), and +24 (dBm). Other output power control voltage is created registered data with linear interpolation method between +18(dBm) and +24(dBm). That voltage controls TX_AMPIN IC111 internally.

2. GSM/GPRS power control

2-1. GSM band (900MHz Band)

Output power is controlled from + 5dBm to +33dBm with 2.0dB step. The adjusted control voltage data were registered in the memory of IC401 (UBB4block) in order to control for following individual output power.

Table3. Output power list which has adjusted data in the memory

Adjusted output power lists (dBm)			
+ 5	+ 7	+ 9	+11
+13	+15	+17	+19
+21	+23	+25	+27
+29	+31	+33	

2-2. DCS band (1800MHz Band) and PCS band (1900MHz Band)

Output power is controlled from + 0dBm to +30dBm with 2.0dB step. The adjusted control voltage data were registered in the memory of IC401 (UBB4block) in order to control for following individual output power.

Table4. Output power list which has adjusted data in the memory

Adjusted output power lists (dBm)			
+ 0	+ 2	+ 4	+ 6
+ 8	+10	+12	+14
+16	+18	+20	+22
+24	+26	+28	+30

2-3. Output power Control description for GSM

This part describes output power control of GSM/GPRS 2-1 and 2-2 above.
IC 401 sends registered control data from TX1P (AC27 PIN) and TX1N (AC26 PIN) to IC111_L6PIN(TXDATA_P) and IC111_L7PIN(TXDATA_N) with Low voltage differential signaling method (LVDS). This signal also has PA control data which enable to activate PA.
IC111 converts that LVDS to analog signal. IC111_D9PIN(VRAMP) sends this converted signal to IC 291_14PIN (Vramp) to adjust output power.
According to IC401 and through enable signal in LVDS IC315_A4PIN(GPO0) sends GSM-TX EN signal to amplifier IC291_18PIN(TX_EN) in order to enable to transmit RF output signal.

3.EDGE power control

3-1.GSM band(900MHz Band)

Output power is controlled from + 5dBm to +27dBm with 2.0dB step. The adjusted control voltage data were registered in the memory of IC401 (UBB4block) in order to control for following individual output power.

Table4. Output power list which has adjusted data in the memory

Adjusted output power lists (dBm)			
+ 5	+ 7	+ 9	+11
+13	+15	+17	+19
+21	+23	+25	+27

3-2. DCS band (1800MHz Band) and PCS band (1900MHz Band)

Output power is controlled from + 0dBm to +26dBm with 2.0dB step. The adjusted control voltage data were registered in the memory of IC401 (UBB4block) in order to control for following individual output power.

Table4. Output power list which has adjusted data in the memory

Adjusted output power lists (dBm)			
+ 0	+ 2	+ 4	+ 6
+ 8	+10	+12	+14
+16	+18	+20	+22
+24	+26		

3-3. Output power Control description for EDGE

IC 401 sends registered control data from TX1P (AC27PIN) and TX1N (AC26PIN) to IC111_L6PIN(TXDATA_P) and IC111_L7PIN(TXDATA_N) with Low voltage differential signaling method (LVDS). IC 111 converts that LVDS to analog signal which controls TX_AMP.
According to IC401 and through enable signal in LVDS IC315_A4PIN(GPO0) sends GSM-TX EN signal to amplifier IC291_2PIN(TX_EN) in order to enable to transmit RF output signal.