



**MEDIATEK**

# MT7986 Power Boost Application Note

2021/9/1 Leo Kuo

# Version History

Version	Date	Author (Optional)	Description
0.1	2021-9-1	Leo Kuo	Initial draft
1.0	2022-2-2	Micheal Su	Official release

# Outline

- ❑ Command Method
- ❑ Show Information Command Method

# Command Method

# Command Method

- **iwpriv ra0 set TxPowerBoostCtrl =[1]:[2]:[3]:[4]:[5]:[6]:[7]:[8]:[9]:[10]:[11]:[12]:[13]**
  - **Explanation:** this iwpriv command is used to boost power on each mode and rate.
  - **Parameters:**
    - Param[1]: band\_idx, (1-symbol format) band index (0: band0, 1: band1)
    - Param[2]: phy\_mode (1-symbol format) power category (0: CCK, 1: OFDM, 2: HT, 3: VHT, 4: HE)
    - Param[3]: bw (1-symbol format) bandwidth
      - for CCK/OFDM mode, 0: BW20
      - for HT/VHT mode, 0: BW20, 1: BW40, 2: BW80, 3: BW160
      - for HE mode, 0: RU26, 1: RU52, 2: RU106, 3: RU242, 4: RU484, 5: RU996, 6: RU996x2
    - Param[4]: pwr\_boost\_value\_num (1-symbol format) number of power boost value to indicate variable-length parameters append afterward.
    - Param4\_1 ~ Param 4\_N: pwr\_boost\_values (1-symbol format) power boost values, which N is defined by parameter "pwr\_boost\_value"
- **Example:**
  - **Band0 CCK boost 0.5dB power on each of rate**
    - iwpriv ra0 set TxPowerBoostCtrl=0:0:0:4:1:1:1:1
  - **Band1 OFDM boost 0.5db power on each of rate**
    - iwpriv rax0 set TxPowerBoostCtrl=1:1:0:8:1:1:1:1:1:1:1:1

# Show Information Command Method

# Show Information Command Method (1)

- 2.4G : iwpriv ra0 set TxPowerInfo=2
- 5G : iwpriv ra0 set TxPowerInfo=2
- Example:
  - 2.4GHz command:
  - iwpriv ra0 set TxPowerBoostCtrl=0:0:0:4:1:1:1:1 //CCK
  - iwpriv ra0 set TxPowerBoostCtrl=0:1:0:8:1:1:1:1:0:0:0:0 //OFDM
  - iwpriv ra0 set TxPowerBoostCtrl=0:2:0:8:2:2:0:0:0:0:0:0 //HT20
  - iwpriv ra0 set TxPowerBoostCtrl=0:2:1:8:3:3:0:0:0:0:0:0 //HT40
  - iwpriv ra0 set TxPowerBoostCtrl=0:3:0:8:3:2:0:0:0:0:0:0 //VHT20
  - iwpriv ra0 set TxPowerBoostCtrl=0:3:1:8:3:2:0:0:0:0:0:0 //VHT40
  - iwpriv ra0 set TxPowerInfo=2

# Show Information Command Method (2)

## • Original

```

[ 150.325329] -----
[ 150.333503] TX POWER INFO
[ 150.337680] -----
[ 150.345851] Band Index: 0, Channel Band: 2G ePAGain:0
[ 150.351157] -----
[ 150.359328] [CCK_01M]: 0x1e (030)
[ 150.362812] [CCK_02M]: 0x1e (030)
[ 150.366294] [CCK_05M]: 0x1e (030)
[ 150.369778] [CCK_11M]: 0x1e (030)
[ 150.373256] [OFDM_06M]: 0x1b (027)
[ 150.376826] [OFDM_09M]: 0x1b (027)
[ 150.380395] [OFDM_12M]: 0x1b (027)
[ 150.383966] [OFDM_18M]: 0x1b (027)
[ 150.387536] [OFDM_24M]: 0x1a (026)
[ 150.391106] [OFDM_36M]: 0x1a (026)
[ 150.394676] [OFDM_48M]: 0x18 (024)
[ 150.398245] [OFDM_54M]: 0x18 (024)
[ 150.401814] -----
[ 150.409984] [HT20_M00]: 0x1a (026)
[ 150.413554] [HT20_M01]: 0x1a (026)
[ 150.417118] [HT20_M02]: 0x1a (026)
[ 150.420688] [HT20_M03]: 0x18 (024)
[ 150.424258] [HT20_M04]: 0x18 (024)
[ 150.427828] [HT20_M05]: 0x18 (024)
[ 150.431398] [HT20_M06]: 0x17 (023)
[ 150.434972] [HT20_M07]: 0x16 (022)
[ 150.438542] [HT40_M00]: 0x1a (026)
[ 150.442111] [HT40_M01]: 0x1a (026)
[ 150.445681] [HT40_M02]: 0x1a (026)
[ 150.449246] [HT40_M03]: 0x18 (024)
[ 150.452815] [HT40_M04]: 0x18 (024)
[ 150.456385] [HT40_M05]: 0x17 (023)
[ 150.459955] [HT40_M06]: 0x17 (023)
[ 150.463525] [HT40_M07]: 0x16 (022)
[ 150.467095] [HT40_M32]: 0x1a (026)
[ 150.470665] -----
[ 150.478836] [VHT20_M00]: 0x1a (026)
[ 150.482492] [VHT20_M01]: 0x1a (026)
[ 150.486103] [VHT20_M02]: 0x1a (026)

```

TX POWER INFO

Band Index: 0, Channel Band: 2G ePAGain:0

CCK

OFDM

HT20

HT40

VHT20

## • Boost

```

[ 226.151853] -----
[ 226.160025] Band Index: 0, Channel Band: 2G ePAGain:0
[ 226.165330] -----
[ 226.173502] [CCK_01M]: 0x1f (031)
[ 226.176980] [CCK_02M]: 0x1f (031)
[ 226.180463] [CCK_05M]: 0x1f (031)
[ 226.183946] [CCK_11M]: 0x1f (031)
[ 226.187429] [OFDM_06M]: 0x1c (028)
[ 226.190999] [OFDM_09M]: 0x1c (028)
[ 226.194569] [OFDM_12M]: 0x1c (028)
[ 226.198139] [OFDM_18M]: 0x1c (028)
[ 226.201709] [OFDM_24M]: 0x1a (026)
[ 226.205273] [OFDM_36M]: 0x1a (026)
[ 226.208843] [OFDM_48M]: 0x18 (024)
[ 226.212413] [OFDM_54M]: 0x18 (024)
[ 226.215982] -----
[ 226.224152] [HT20_M00]: 0x1c (028)
[ 226.227723] [HT20_M01]: 0x1c (028)
[ 226.231293] [HT20_M02]: 0x1a (026)
[ 226.234863] [HT20_M03]: 0x18 (024)
[ 226.238433] [HT20_M04]: 0x18 (024)
[ 226.242003] [HT20_M05]: 0x18 (024)
[ 226.245573] [HT20_M06]: 0x17 (023)
[ 226.249137] [HT20_M07]: 0x16 (022)
[ 226.252707] [HT40_M00]: 0x1d (029)
[ 226.256277] [HT40_M01]: 0x1d (029)
[ 226.259847] [HT40_M02]: 0x1a (026)
[ 226.263417] [HT40_M03]: 0x18 (024)
[ 226.266987] [HT40_M04]: 0x18 (024)
[ 226.270558] [HT40_M05]: 0x17 (023)
[ 226.274127] [HT40_M06]: 0x17 (023)
[ 226.277697] [HT40_M07]: 0x16 (022)
[ 226.281262] [HT40_M32]: 0x1a (026)
[ 226.284831] -----
[ 226.293002] [VHT20_M00]: 0x1d (029)
[ 226.296569] [VHT20_M01]: 0x1c (028)
[ 226.300135] [VHT20_M02]: 0x1a (026)
[ 226.303702] [VHT20_M03]: 0x18 (024)
[ 226.307269] [VHT20_M04]: 0x18 (024)
[ 226.311286] [VHT20_M05]: 0x18 (024)

```

Band Index: 0, Channel Band: 2G ePAGain:0

CCK

OFDM

HT20

HT40

VHT20



# Show Information Command Method (3)

- **Example:**

- 5GHz command:
- iwpriv rax0 set TxPowerBoostCtrl=1:1:0:8:1:1:1:1:0:0:0:0 //OFDM
- iwpriv rax0 set TxPowerBoostCtrl=1:2:0:8:2:2:0:0:0:0:0:0 //HT20
- iwpriv rax0 set TxPowerBoostCtrl=1:2:1:8:3:3:0:0:0:0:0:0 //HT40
- iwpriv rax0 set TxPowerBoostCtrl=1:3:0:8:3:2:0:0:0:0:0:0 //VHT20
- iwpriv rax0 set TxPowerBoostCtrl=1:3:1:8:3:2:0:0:0:0:0:0 //VHT40
- iwpriv rax0 set TxPowerInfo=2

# Show Information Command Method (4)

## • Original

```

1542.175894] -----
1542.184067] TX POWER INFO
1542.188246] -----
1542.196417] Band Index: 1, Channel Band: 5G ePAGain:0
1542.201721] -----
1542.209891] [CCK_01M]: 0x16 (022)
1542.213369] [CCK_02M]: 0x16 (022)
1542.216852] [CCK_09M]: 0x16 (022)
1542.220336] [CCK_11M]: 0x16 (022)
1542.223819] [OFDM_06M]: 0x1a (026)
1542.227389] [OFDM_09M]: 0x1a (026)
1542.230959] [OFDM_12M]: 0x1a (026)
1542.234529] [OFDM_18M]: 0x1a (026)
1542.238099] [OFDM_24M]: 0x18 (024)
1542.241668] [OFDM_36M]: 0x18 (024)
1542.245232] [OFDM_48M]: 0x17 (023)
1542.248802] [OFDM_54M]: 0x16 (022)
1542.252371] -----
1542.260542] [HT20_M00]: 0x19 (025)
1542.264113] [HT20_M01]: 0x19 (025)
1542.267683] [HT20_M02]: 0x19 (025)
1542.271253] [HT20_M05]: 0x19 (025)
1542.274822] [HT20_M04]: 0x19 (025)
1542.278391] [HT20_M05]: 0x17 (023)
1542.281962] [HT20_M06]: 0x16 (022)
1542.285531] [HT20_M07]: 0x15 (021)
1542.289096] [HT40_M00]: 0x19 (025)
1542.292666] [HT40_M01]: 0x19 (025)
1542.296235] [HT40_M02]: 0x19 (025)
1542.299805] [HT40_M03]: 0x19 (025)
1542.303375] [HT40_M04]: 0x19 (025)
1542.306945] [HT40_M05]: 0x17 (023)
1542.310515] [HT40_M06]: 0x16 (022)
1542.314084] [HT40_M07]: 0x15 (021)
1542.317655] [HT40_M32]: 0x19 (025)
1542.321219] -----
1542.329390] [VHT20_M00]: 0x19 (025)
1542.333047] [VHT20_M01]: 0x19 (025)
1542.336704] [VHT20_M02]: 0x19 (025)
1542.340360] [VHT20_M05]: 0x19 (025)
1542.344016] [VHT20_M04]: 0x19 (025)
1542.347673] [VHT20_M05]: 0x17 (023)
1542.351329] [VHT20_M06]: 0x16 (022)
1542.354985] [VHT20_M07]: 0x15 (021)
1542.358642] [VHT20_M08]: 0x13 (019)
1542.362298] [VHT20_M09]: 0x13 (019)
1542.365955] [VHT20_M10]: 0x10 (016)
1542.369611] [VHT20_M11]: 0x10 (016)
1542.373263] [VHT40_M00]: 0x19 (025)
1542.376919] [VHT40_M01]: 0x19 (025)
1542.380575] [VHT40_M02]: 0x19 (025)
1542.384231] [VHT40_M03]: 0x19 (025)
1542.387888] [VHT40_M04]: 0x19 (025)

```

OFDM

HT20

HT40

VHT20

VHT40

## • Boost

```

2141.067512] -----
2141.075686] TX POWER INFO
2141.079865] -----
2141.088037] Band Index: 1, Channel Band: 5G ePAGain:0
2141.093343] -----
2141.101515] [CCK_01M]: 0x16 (022)
2141.104993] [CCK_02M]: 0x16 (022)
2141.108475] [CCK_09M]: 0x16 (022)
2141.111959] [CCK_11M]: 0x16 (022)
2141.115442] [OFDM_06M]: 0x1b (027)
2141.119012] [OFDM_09M]: 0x1b (027)
2141.122582] [OFDM_12M]: 0x1b (027)
2141.126151] [OFDM_18M]: 0x1b (027)
2141.129722] [OFDM_24M]: 0x18 (024)
2141.133286] [OFDM_36M]: 0x18 (024)
2141.136856] [OFDM_48M]: 0x17 (023)
2141.140426] [OFDM_54M]: 0x16 (022)
2141.143995] -----
2141.152165] [HT20_M00]: 0x1b (027)
2141.155735] [HT20_M01]: 0x1b (027)
2141.159304] [HT20_M02]: 0x19 (025)
2141.162875] [HT20_M03]: 0x19 (025)
2141.166444] [HT20_M04]: 0x19 (025)
2141.170015] [HT20_M05]: 0x17 (023)
2141.173585] [HT20_M06]: 0x16 (022)
2141.177150] [HT20_M07]: 0x15 (021)
2141.180720] [HT40_M00]: 0x1c (028)
2141.184290] [HT40_M01]: 0x1c (028)
2141.187860] [HT40_M02]: 0x19 (025)
2141.191434] [HT40_M03]: 0x19 (025)
2141.195004] [HT40_M04]: 0x19 (025)
2141.198577] [HT40_M05]: 0x17 (023)
2141.202146] [HT40_M06]: 0x16 (022)
2141.205716] [HT40_M07]: 0x15 (021)
2141.209281] [HT40_M32]: 0x19 (025)
2141.212849] -----
2141.221020] [VHT20_M00]: 0x1c (028)
2141.224677] [VHT20_M01]: 0x1b (027)
2141.228333] [VHT20_M02]: 0x19 (025)
2141.231991] [VHT20_M03]: 0x19 (025)
2141.235647] [VHT20_M04]: 0x19 (025)
2141.239304] [VHT20_M05]: 0x17 (023)
2141.242961] [VHT20_M06]: 0x16 (022)
2141.246618] [VHT20_M07]: 0x15 (021)
2141.250274] [VHT20_M08]: 0x13 (019)
2141.253931] [VHT20_M09]: 0x13 (019)
2141.257588] [VHT20_M10]: 0x10 (016)
2141.261239] [VHT20_M11]: 0x10 (016)
2141.264895] [VHT40_M00]: 0x1c (028)
2141.268552] [VHT40_M01]: 0x1b (027)
2141.272209] [VHT40_M02]: 0x19 (025)
2141.275865] [VHT40_M03]: 0x19 (025)

```

OFDM

HT20

HT40

VHT20

VHT40

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