How to read external TX_power_related_table

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Introduction

Realtek WiFi driver has TX_power_by_rate_table and TX_power_limit_table which use to adjust output power and limit maximum output power in each channel with different transmit rate. Maximum transmit power depends on Government regulations which are FCC, ETSI and MKK. Realtek dongle has a factory default TX power_limit_table burned in efuse in production.

Customize TX power table provides a possibility for WiFi module maker to modify TX_power_by_rate_table(PHY_REG_PG.txt) and TX_power_limit_table (TXPWR_LMT.txt) after production for some reason.
Note!
■ External TX power table will be generated by agent who sells wifi chip to customer.
■ Encrypt TX_power_table is highly recommend to avoid end user to modify it. Unexpected TX power value may against Government regulation.
■ Store TX_power_by_rate_table and TX_power_limit_table in a read only partition is a good idea to avoid damage.

Configure steps

1. Load parameter from file – by modify Makefile.
    A. Modify the CONFIG_LOAD_PHY_PARA_FROM_FILE to y .
       Ex: CONFIG_LOAD_PHY_PARA_FROM_FILE = y
2. Copy file to specified folder:
    A. Make new folder according to your chip name.
       Ex: /lib/firmware/rtl8812a
    B. Move PHY_REG_PG.txt and TXPWR_LMT.txt to above folder.
3. 2 ways to decide if driver refer to external TX power table
    A. By change configuration

Step-1. Modify Makefile

Ex: CONFIG_CALIBRATE_TX_POWER_BY_REGULATORY = **y**

Driver will refer to PHY_REG_PG.txt and TXPWR_LMT.txt

Ex: CONFIG_CALIBRATE_TX_POWER_TO_MAX = **y**

Driver will refer to PHY_REG_PG.txt

Step-2.Modify file path in os_intfs.c

Ex: char *rtw_phy_file_path = "/lib/firmware/";

Or

B. By change load-time module parameter

$>insmod 8812au.ko rtw_tx_pwr_lmt_enable=1 rtw_tx_pwr_by_rate=1 rtw_phy_file_path="/lib/firmware/" rtw_decrypt_phy_file=0

4. Parameter Notes:

    A. rtw_tx_pwr_lmt_enable:

        i. rtw_tx_pwr_lmt_enable = 0; // 0: Disable

        ii. rtw_tx_pwr_lmt_enable = 1; // 1: Enable

        iii. rtw_tx_pwr_lmt_enable = 2; // 2: Depends on efuse

    B. rtw_tx_pwr_by_rate:

        i. rtw_tx_pwr_lmt_enable = 0; // 0: Disable

        ii. rtw_tx_pwr_lmt_enable = 1; // 1: Enable

        iii. rtw_tx_pwr_lmt_enable = 2; // 2: Depends on efuse

    C. rtw_phy_file_path:

        i. rtw_phy_file_path="/lib/firmware/", path /lib/firmware/ is the location of tx power related file.

    D. rtw_decrypt_phy_file:

        i. rtw_decrypt_phy_file = 0; //File is not encrypted

        ii. rtw_decrypt_phy_file = 1; //File is encrypted

5. Folder name for each supported chip.

    A. rtl8188e

    B. rtl8812a

    C. rtl8821a

    D. rtl8723b

    E. rtl8192e