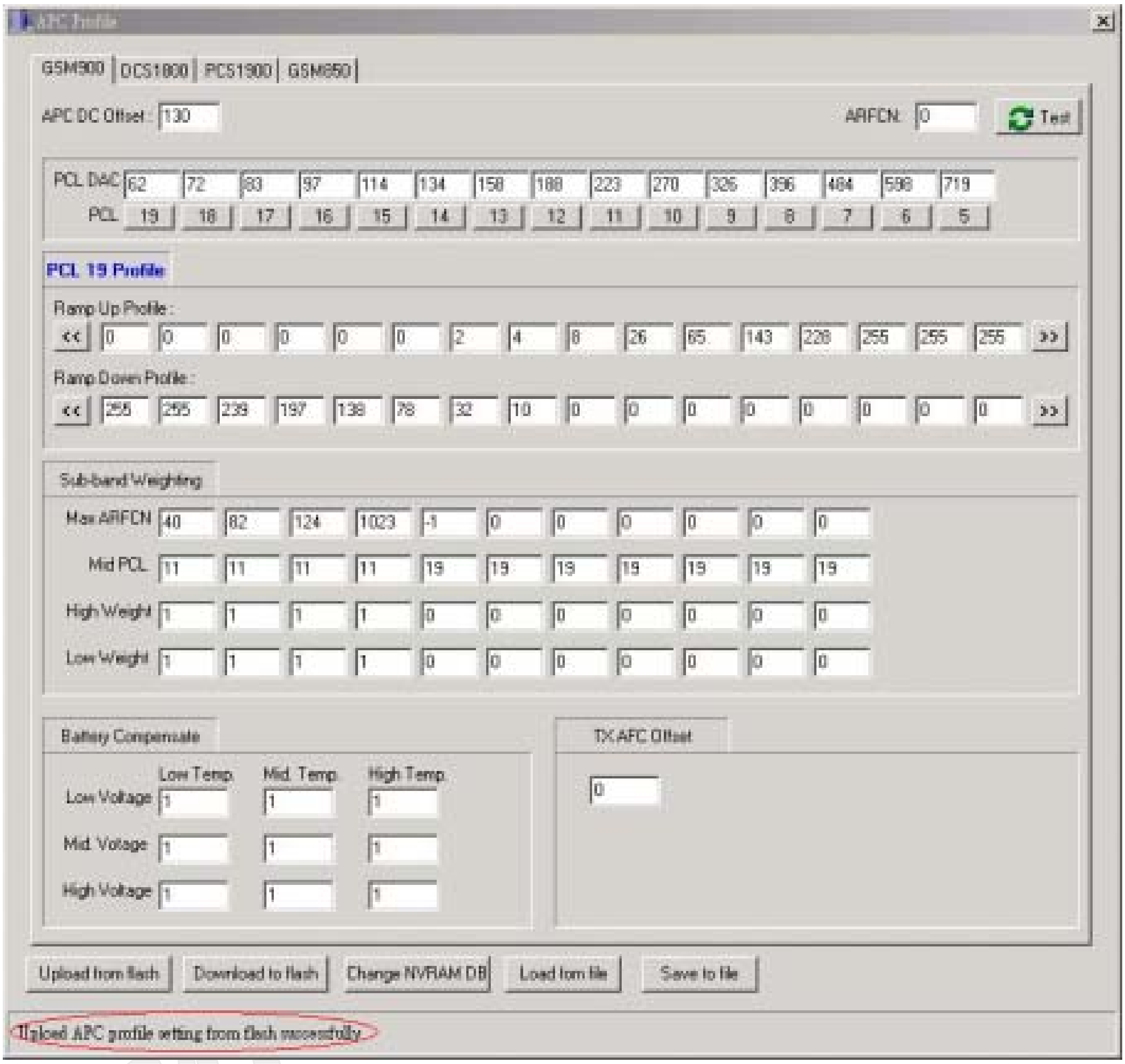

Figure 90 Ramp table result

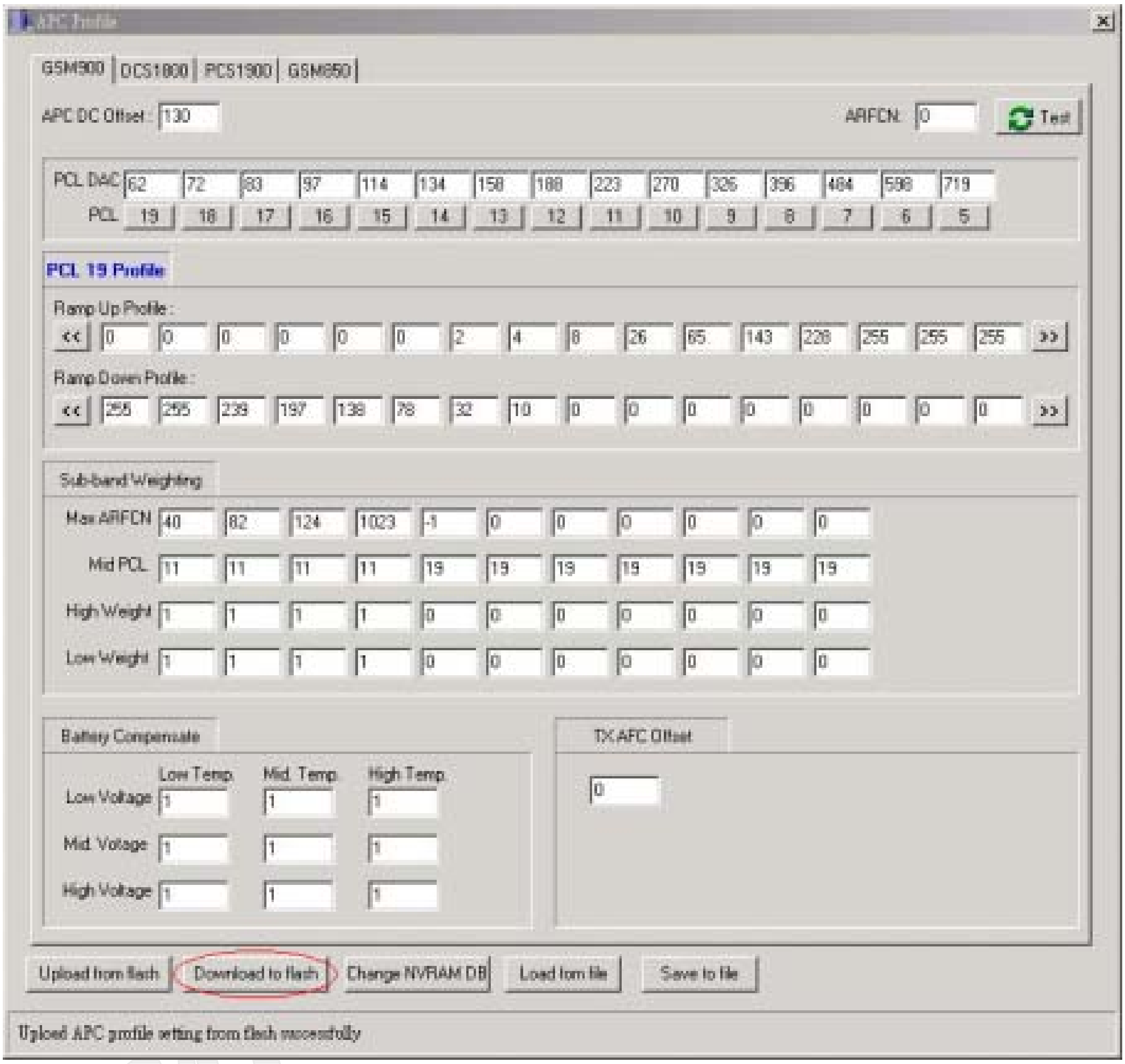

Figure 91 Click [Download to flash] button to save ramp table to flash.

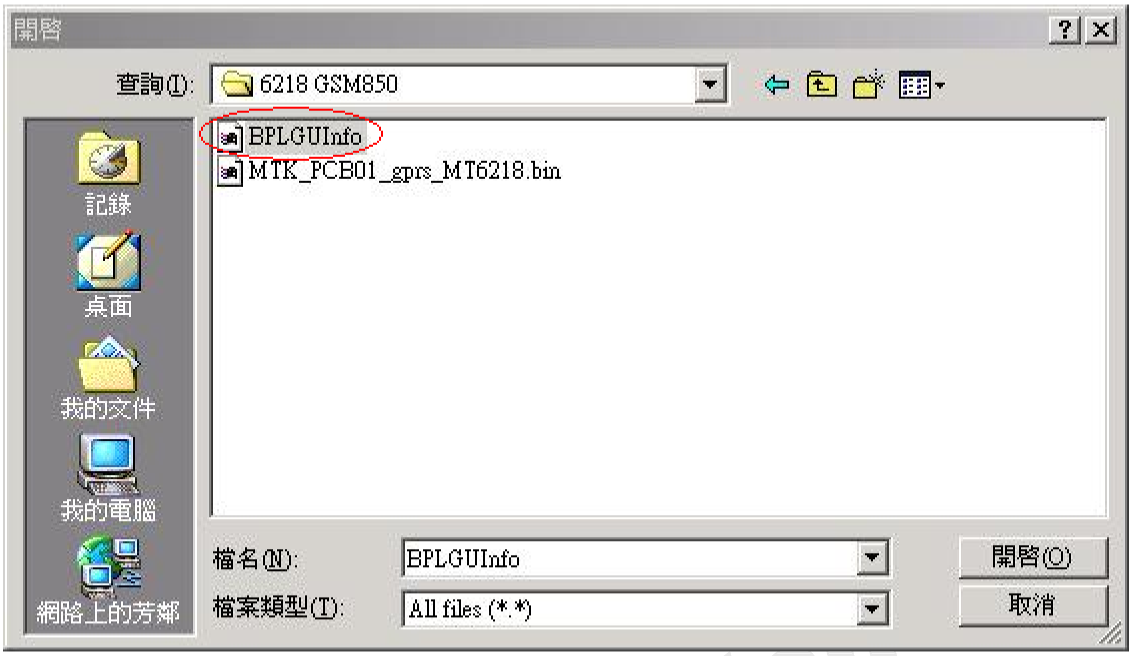

Figure 92 Select NVRAM database file if not selected before

User can click [Change NVRAM DB] to change NVRAM database file.

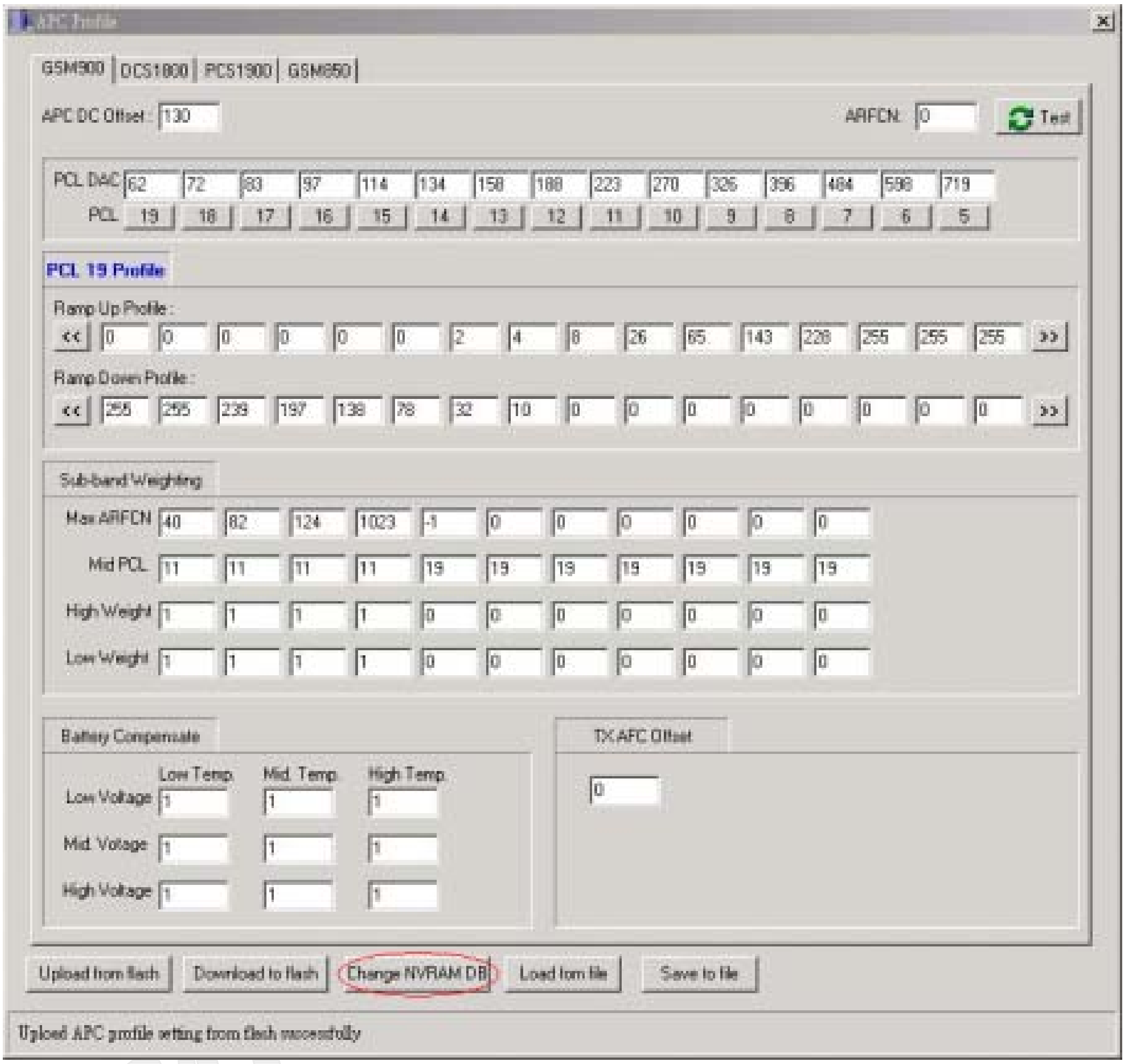

Figure 93 Click [Change NVRAM DB] button to change NVRAM database file

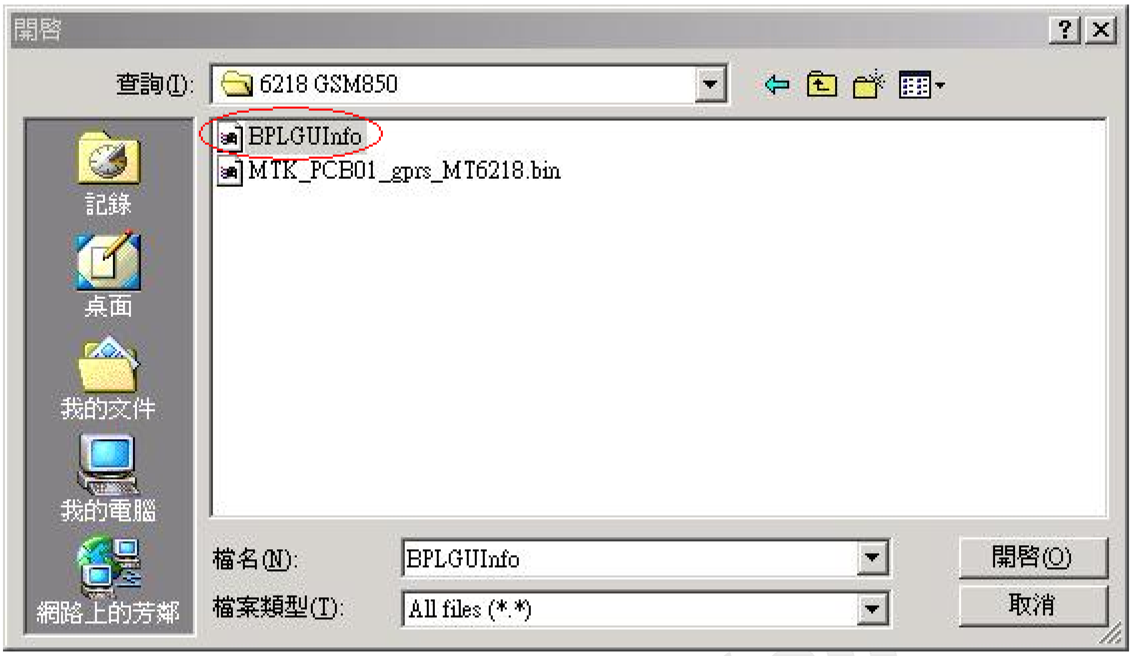

Figure 94 Select NVRAM database file

3.2.5.5.b Read and write the level ramp table in file

User can click [Load from file] button to read level ramp table from text file and click [Save to file] button to write level ramp table to text file. The tool can save it with path loss and AFC initial value in single or multiple files. Each value must be followed with a comma in the TX level, ramp up, ramp down field.

If user save the values in window below:

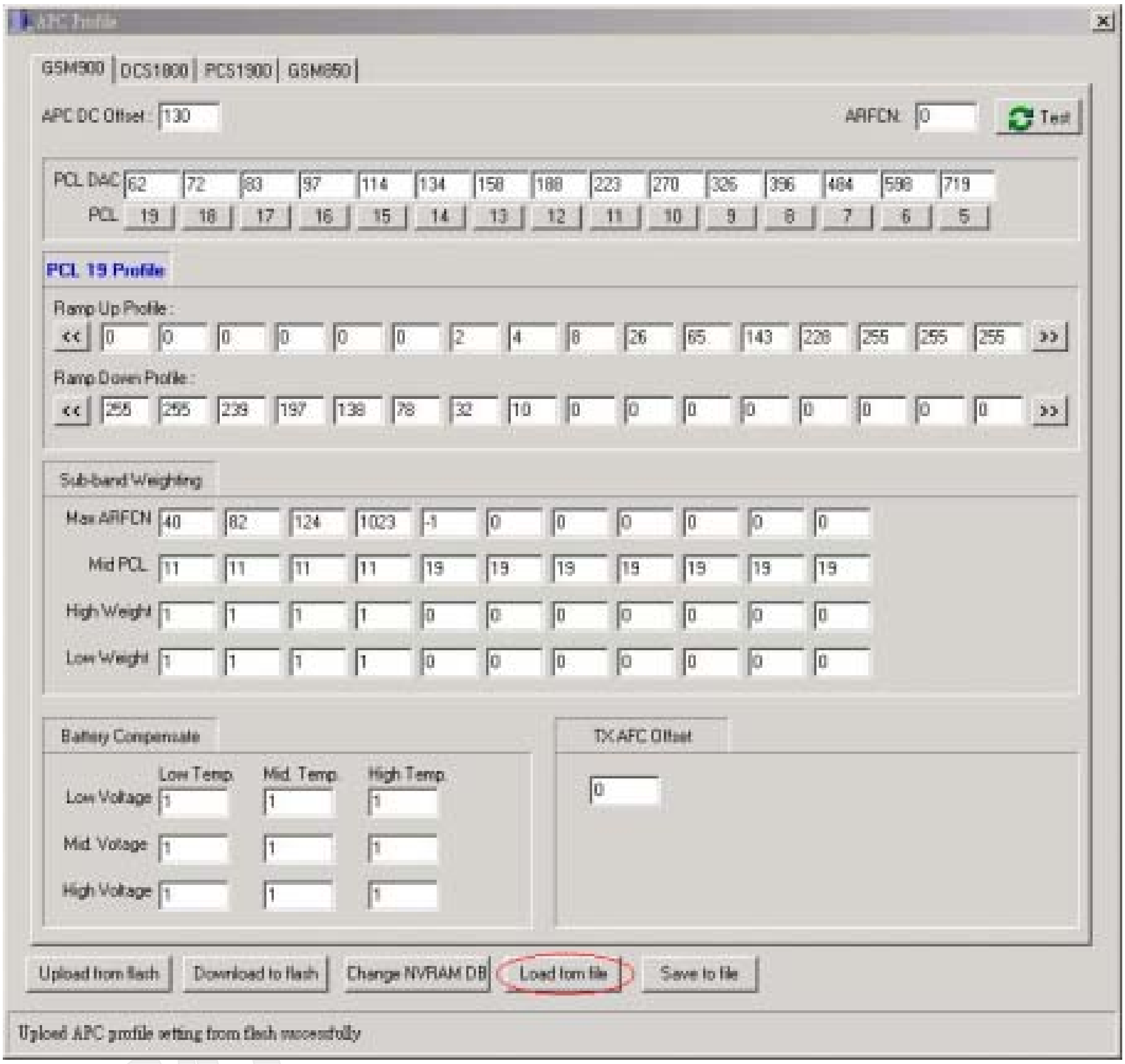

Figure 95 Click [Load from file] button to read ramp table from file

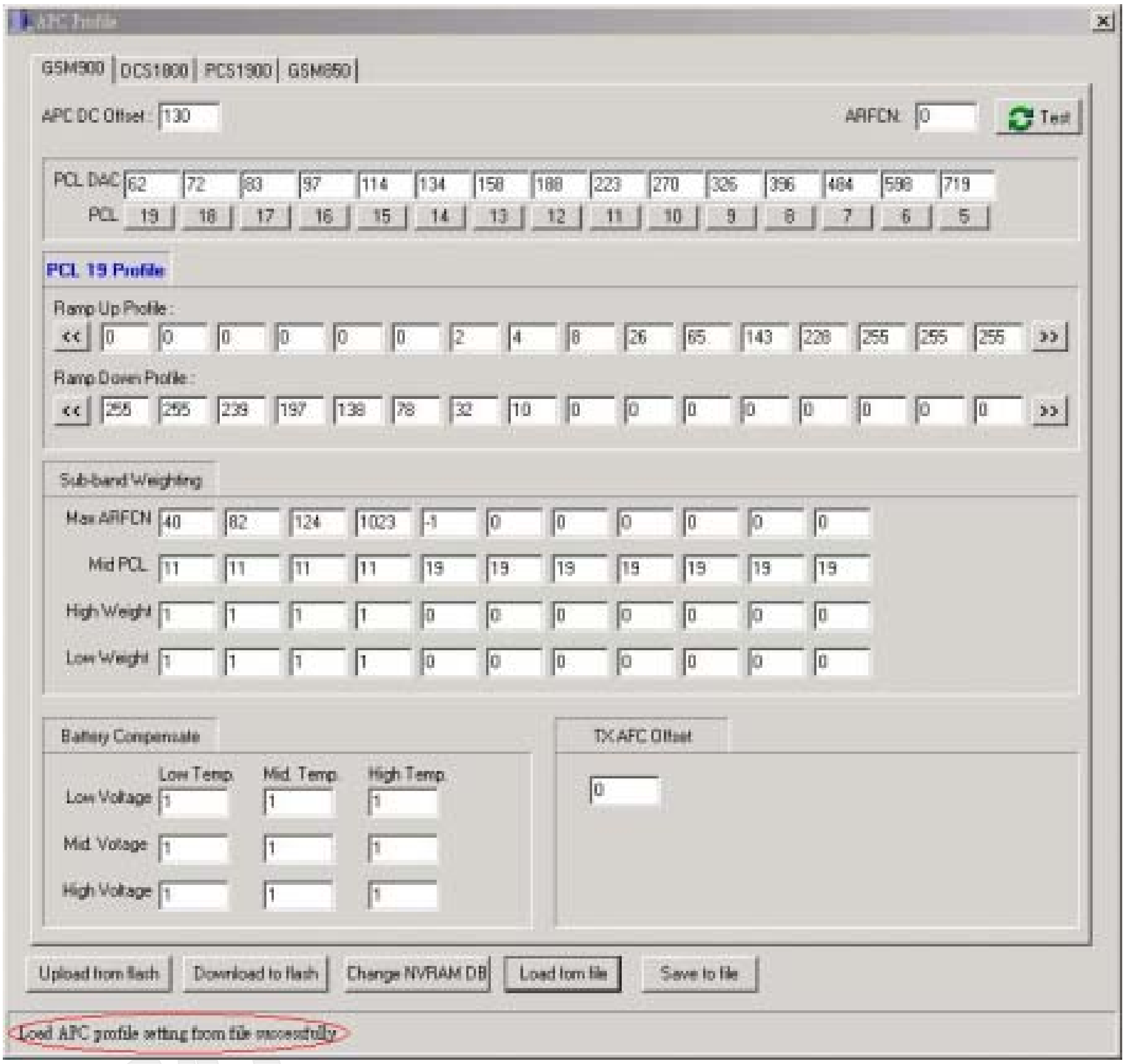

Figure 96 Ramp profile result

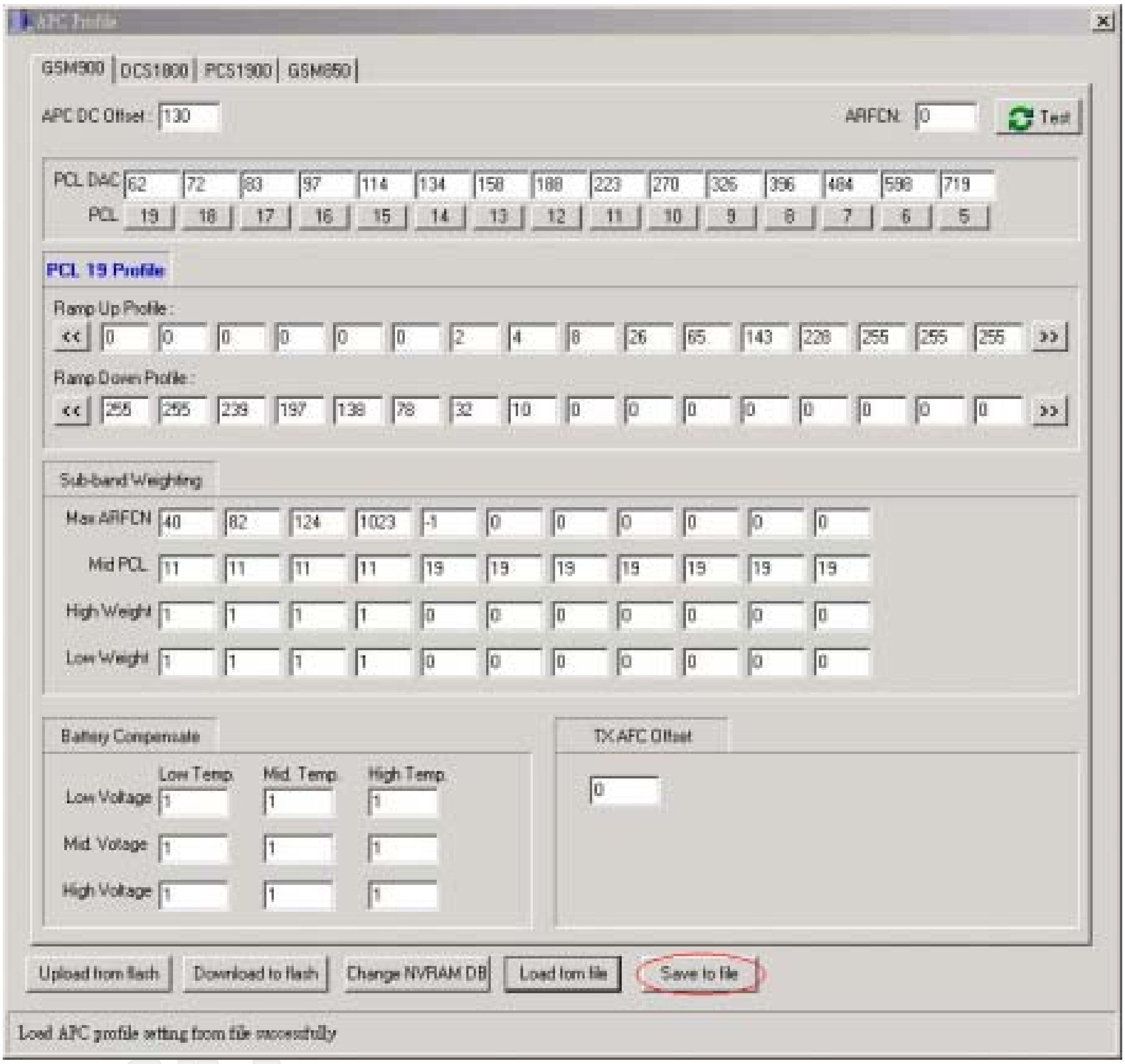

Figure 97 Click [Save to file] button to save ramp table to file

The tool will save a text file and following is the "GSM900 level, ramp" section in it. Each field is corresponding with same field name in the level and ramp window.

[GSM900 level, ramp]
APC dc offset=130
; APC dc offset : the field specify the pedestal value of the APC unit. The APC D/A converter
; is powered up biased on the offset value specified by the field.
TX power level=62,72,83,97,114,134,158,188,223,270,326,396,484,598,719,719
; profile 0 refer to PCL 19, profile 1 refer to PCL 18, ….., profile 14 refer to PCL 5
profile 0 ramp up=0,0,0,0,0,0,2,4,8,26,65,143,228,255,255,255
profile 0 ramp down=255,255,239,197,138,78,32,10,0,0,0,0,0,0,0,0
profile 1 ramp up=0,0,0,0,0,0,2,4,8,26,65,143,225,255,255,255
profile 1 ramp down=255,255,239,197,138,78,32,10,0,0,0,0,0,0,0,0
profile 2 ramp up=0,0,0,0,0,0,2,4,8,26,65,143,219,250,255,255
profile 2 ramp down=255,255,239,197,138,78,32,10,0,0,0,0,0,0,0,0
profile 3 ramp up=0,0,0,0,0,0,2,4,8,26,65,143,219,250,255,255

profile 3 ramp down=255,255,239,197,138,78,32,10,0,0,0,0,0,0,0,0
profile 4 ramp up=0,0,0,0,0,0,2,4,8,26,65,143,219,250,255,255
profile 4 ramp down=255,255,239,197,138,78,32,10,0,0,0,0,0,0,0,0
profile 5 ramp up=0,0,0,0,0,0,2,4,8,26,65,143,219,250,255,255
profile 5 ramp down=255,255,239,197,138,78,32,10,0,0,0,0,0,0,0,0
profile 6 ramp up=0,0,0,0,0,0,2,4,8,26,65,143,219,250,255,255
profile 6 ramp down=255,255,239,197,138,78,32,10,0,0,0,0,0,0,0,0
profile 7 ramp up=0,0,0,0,0,0,2,4,8,26,65,143,219,250,255,255
profile 7 ramp down=255,255,239,197,138,78,32,10,0,0,0,0,0,0,0,0
profile 8 ramp up=0,0,0,0,0,0,2,4,8,26,65,143,219,250,255,255
profile 8 ramp down=255,255,239,197,138,78,32,10,0,0,0,0,0,0,0,0
profile 9 ramp up=0,0,0,0,0,0,2,4,8,26,65,143,219,250,255,255
profile 9 ramp down=255,255,239,197,138,78,32,10,0,0,0,0,0,0,0,0
profile 10 ramp up=0,0,0,0,0,0,2,4,8,26,65,143,219,250,255,255
profile 10 ramp down=255,255,239,197,138,78,32,10,0,0,0,0,0,0,0,0
profile 11 ramp up=0,0,0,0,0,0,0,2,4,8,26,65,143,219,255,255
profile 11 ramp down=255,255,239,197,138,78,32,10,0,0,0,0,0,0,0,0
profile 12 ramp up=0,0,0,0,0,0,0,2,4,8,26,65,143,219,250,255
profile 12 ramp down=255,255,239,197,138,78,32,10,0,0,0,0,0,0,0,0
profile 13 ramp up=0,0,0,0,0,0,0,2,4,8,26,65,143,219,250,255
profile 13 ramp down=255,255,239,197,138,78,32,10,0,0,0,0,0,0,0,0
profile 14 ramp up=0,0,0,0,0,0,0,2,4,8,26,65,143,219,250,255
profile 14 ramp down=255,255,239,197,138,78,32,10,0,0,0,0,0,0,0,0
profile 15 ramp up=0,0,0,0,0,0,0,2,4,8,26,65,143,219,250,255
profile 15 ramp down=255,239,197,138,78,32,10,0,0,0,0,0,0,0,0,0
Subband max arfcn=40,82,124,1023,-1,0,0,0,0,0,0
Subband mid level=11,11,11,11,19,19,19,19,19,19,19
Subband high weight=1.000,1.000,1.000,1.000,0.000,0.000,0.000,0.000,0.000,0.000,0.0000
Subband low weight=1.000,1.000,1.000,1.000,0.000,0.000,0.000,0.000,0.000,0.000,0.0000
Battery compensate, low voltage, low temperature=1
Battery compensate, low voltage, mid temperature=1
Battery compensate, low voltage, high temperature=1
Battery compensate, mid voltage, low temperature=1
Battery compensate, mid voltage, mid temperature=1
Battery compensate, mid voltage, high temperature=1
Battery compensate, high voltage, low temperature=1
Battery compensate, high voltage, mid temperature=1
Battery compensate, high voltage, high temperature=1
CAP ID compensate=0

Note:

- APC dc offset : the field specify the pedestal value of the APC unit. The APC D/A converter is powered up biased on the offset value specified by the field.
- Subband mid level : the level below the [suband mid level] will be multiplied by [Subband low weight], and the level above [Subband mid level] will be multiplied by [Subband high weight].
- Subband high weight : each entry of the ramp profile of level above [Subband mid level] will be multiplied by [Subband high weight].
- Subband low weight : each entry of the ramp profile of level below [Subband mid level] will be multiplied by [Subband low weight].
- Battery compensate: These 3x3 array compensate the APC scaling factor under low/mid/high voltage/temperature.

- TX AFC Offset: the field specifies the crystal TX AFC Offset. Crystal TX AFC DAC = Crystal RX AFC DAC + TX AFC Offset.

3.2.5.6 Graphic ramp setting

User can click [Graphic ramp setting] button to show graphic ramp setting window.

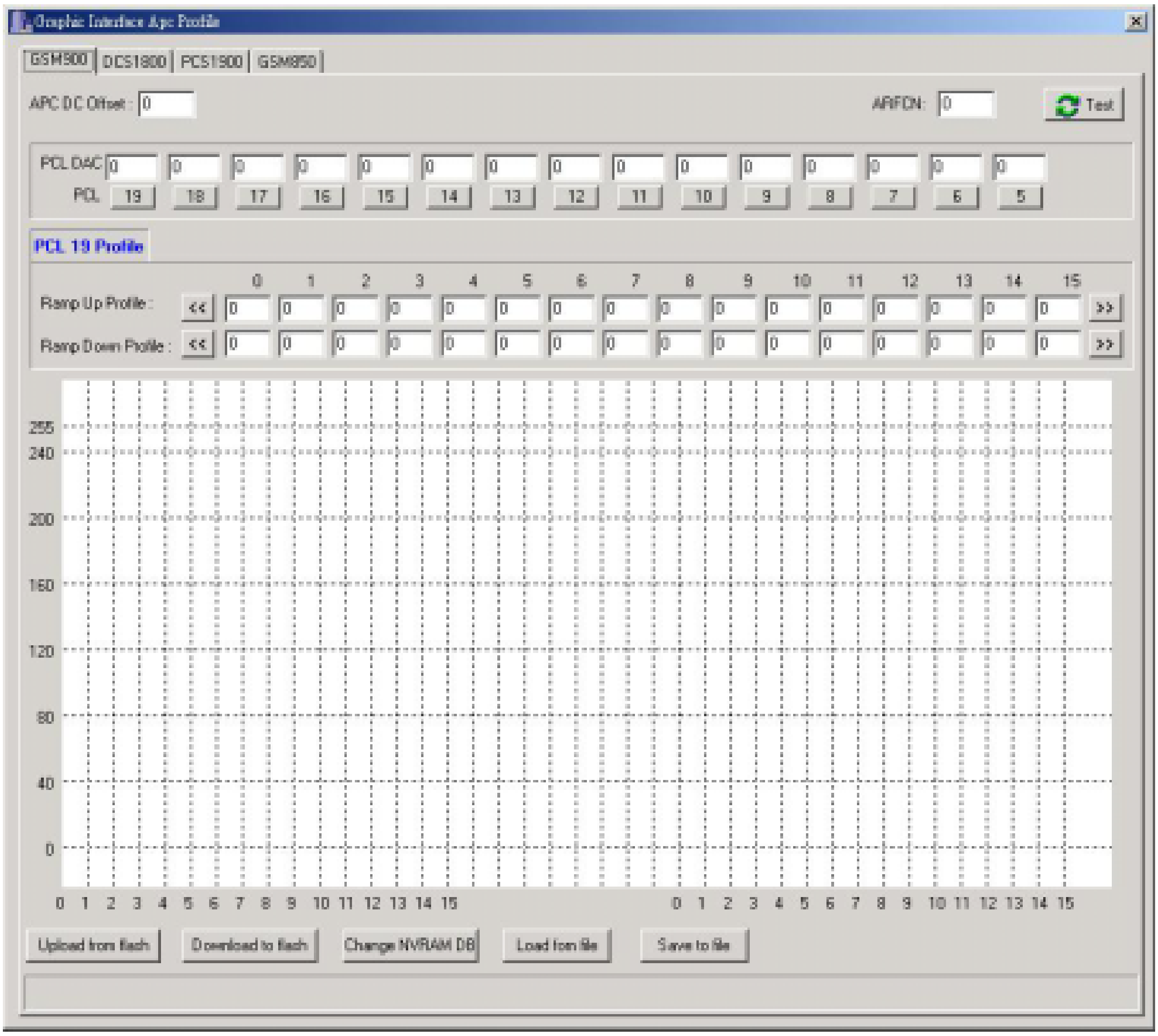

Figure 98 Graphic interface ramp profile window

3.2.5.6.a Graphic ramp profile tuning

Graphic ramp profile window is used for user to fine tune ramp profile. Power amplifier is turned on in this operation. User can input APC DC offset, ARFCN, and then click left button of mouse to drag ramp level (i.e. green point). After user end drag ramp level, TX level testing is started automatically and the caption of the button will change to [Stop]. User can click [Stop] button to stop it.

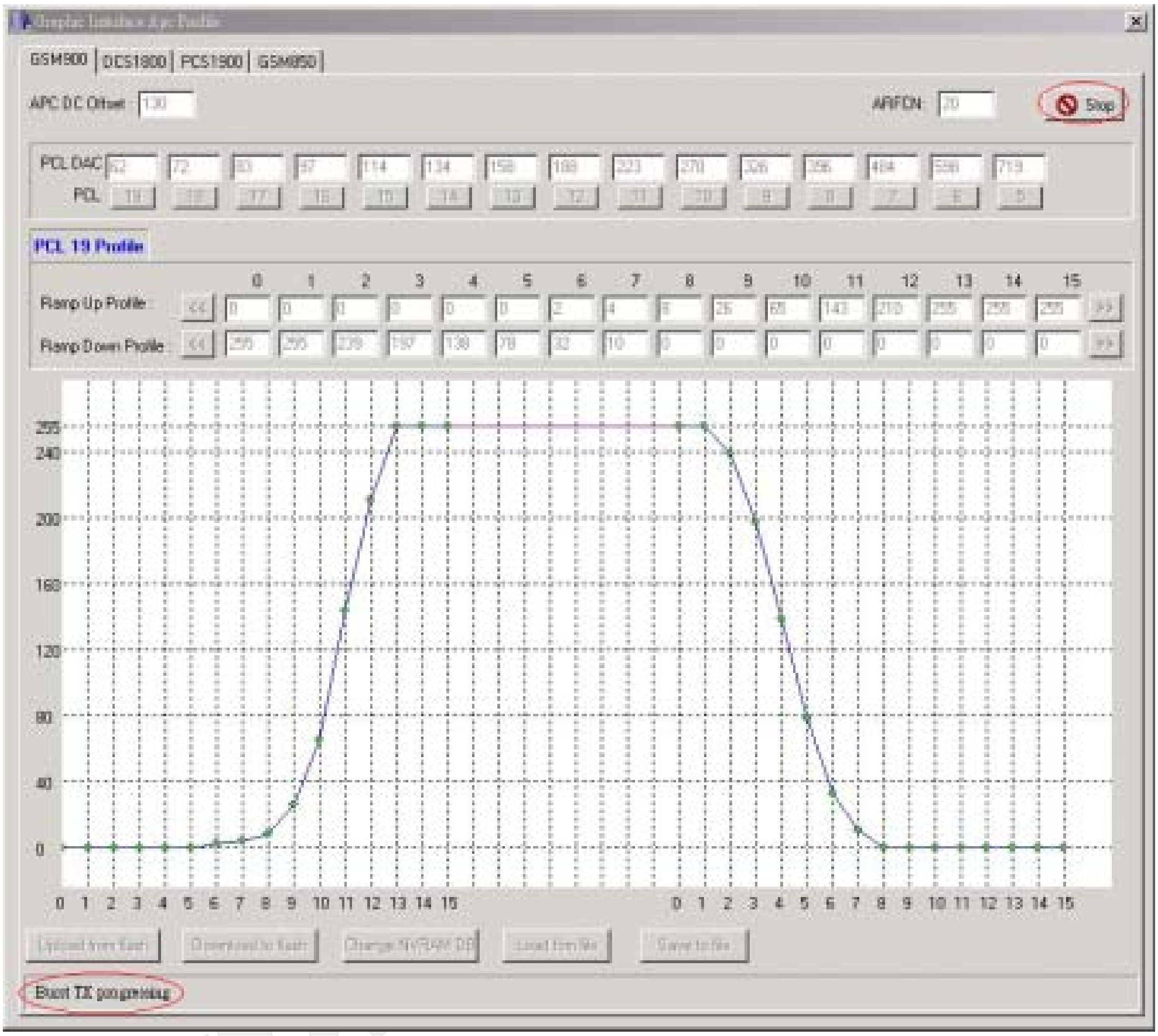

Figure 99 TX level testing is started automatically

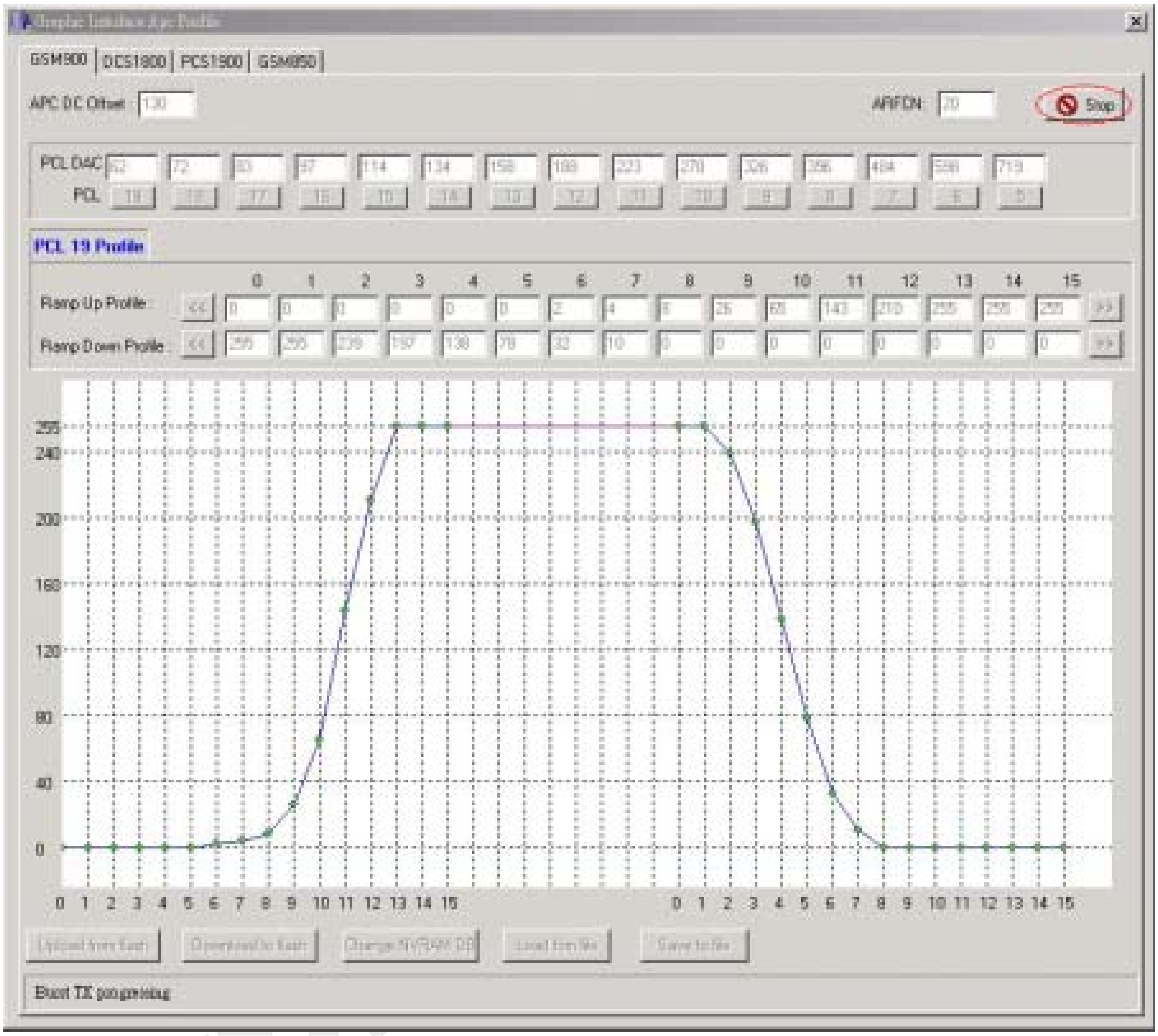

Figure 100 Click [Stop] button to stop testing

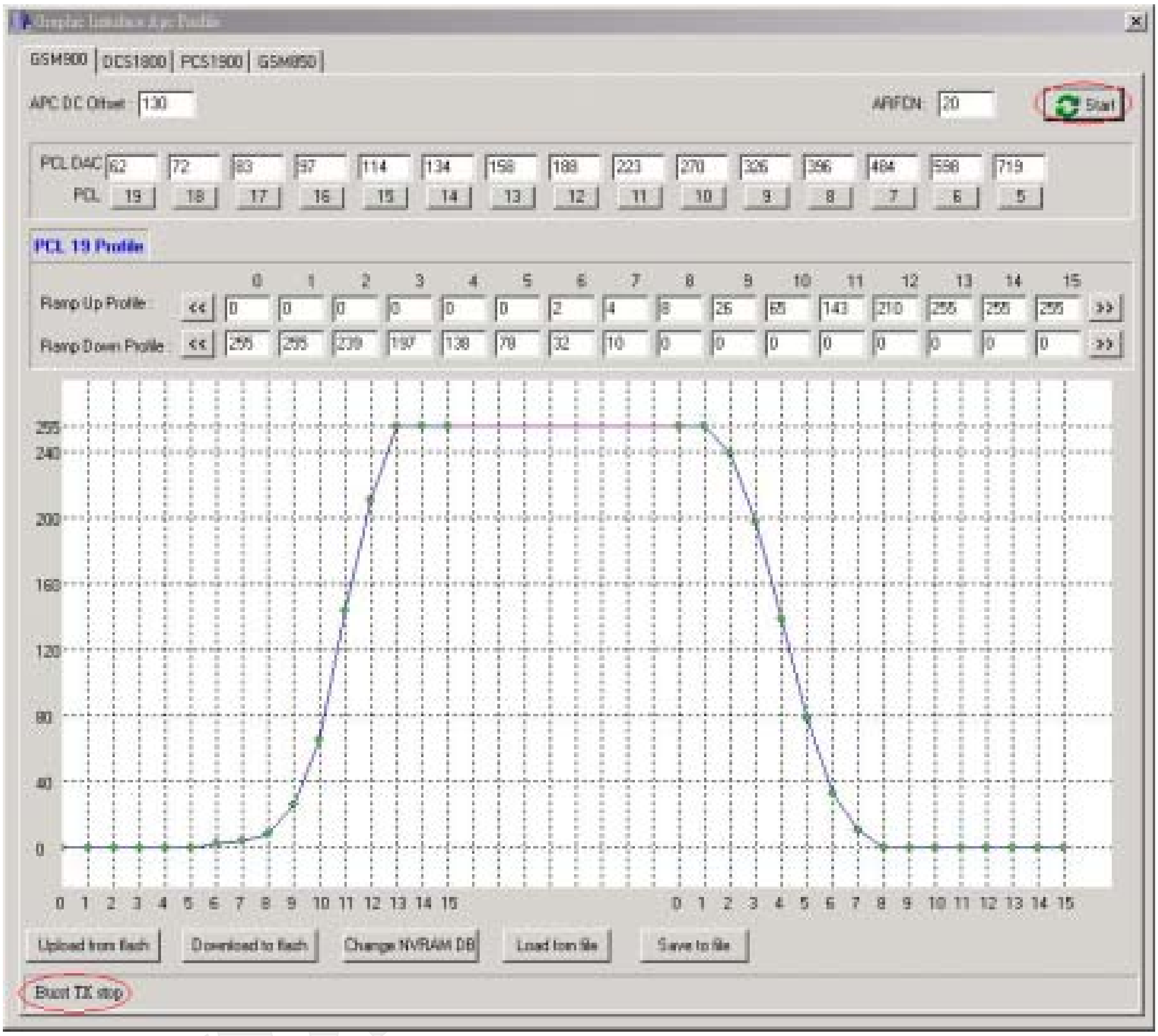

Figure 101 The caption of button will change to [Start]

3.2.5.6.b Read and write the level ramp table in flash

User can click [Upload from flash] button to read graphic ramp profile from flash and click [Download to flash] button to write graphic ramp profile to flash.

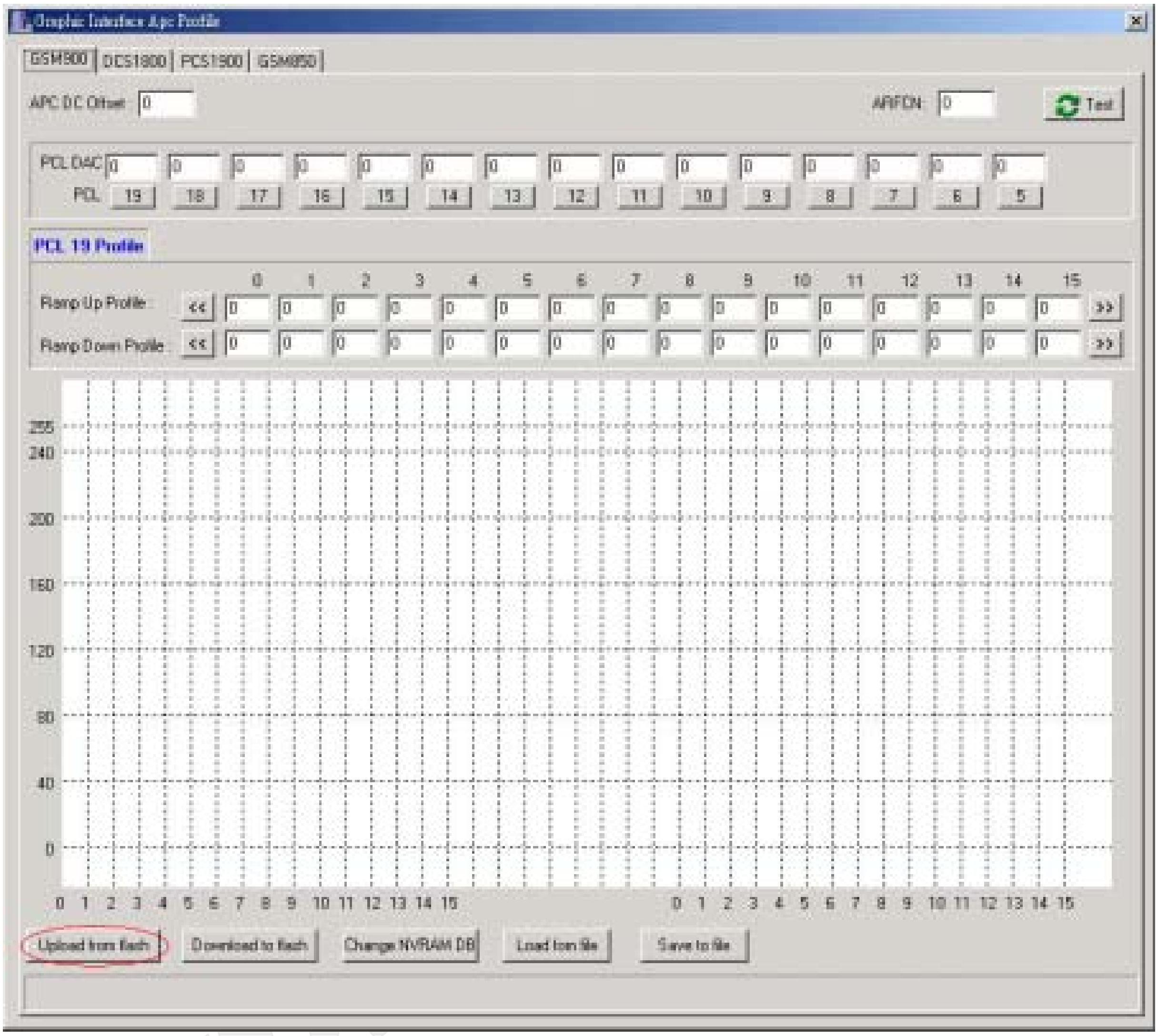

Figure 102 Click [Upload from flash] button to read graphic ramp profile from flash

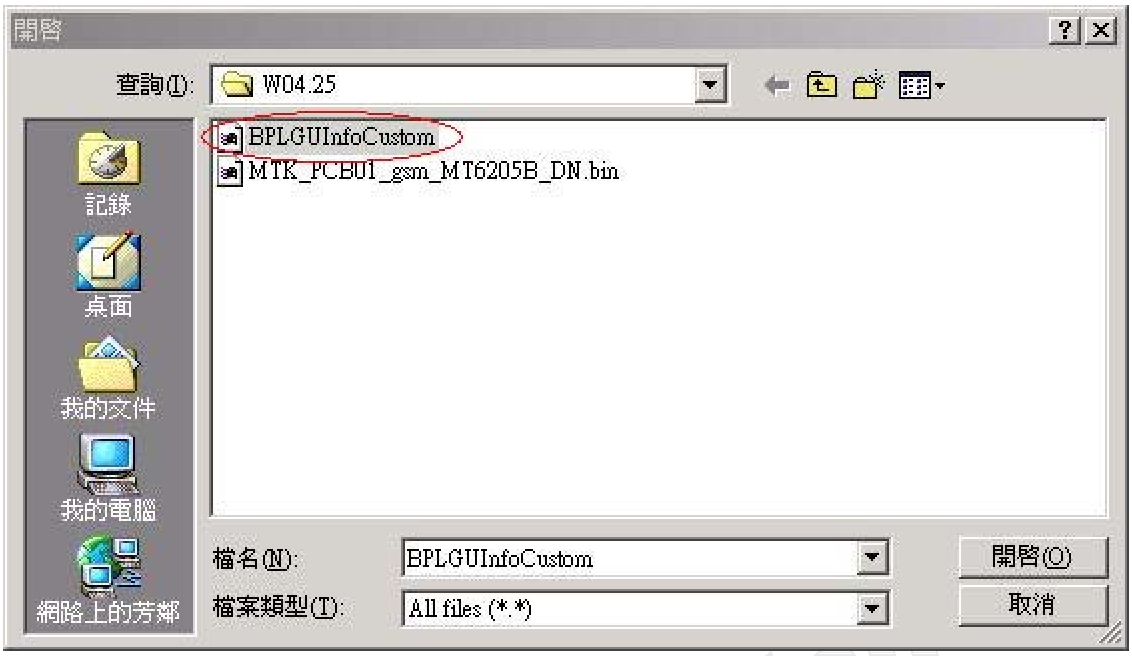

Figure 103 Select NVRAM database file if not selected before

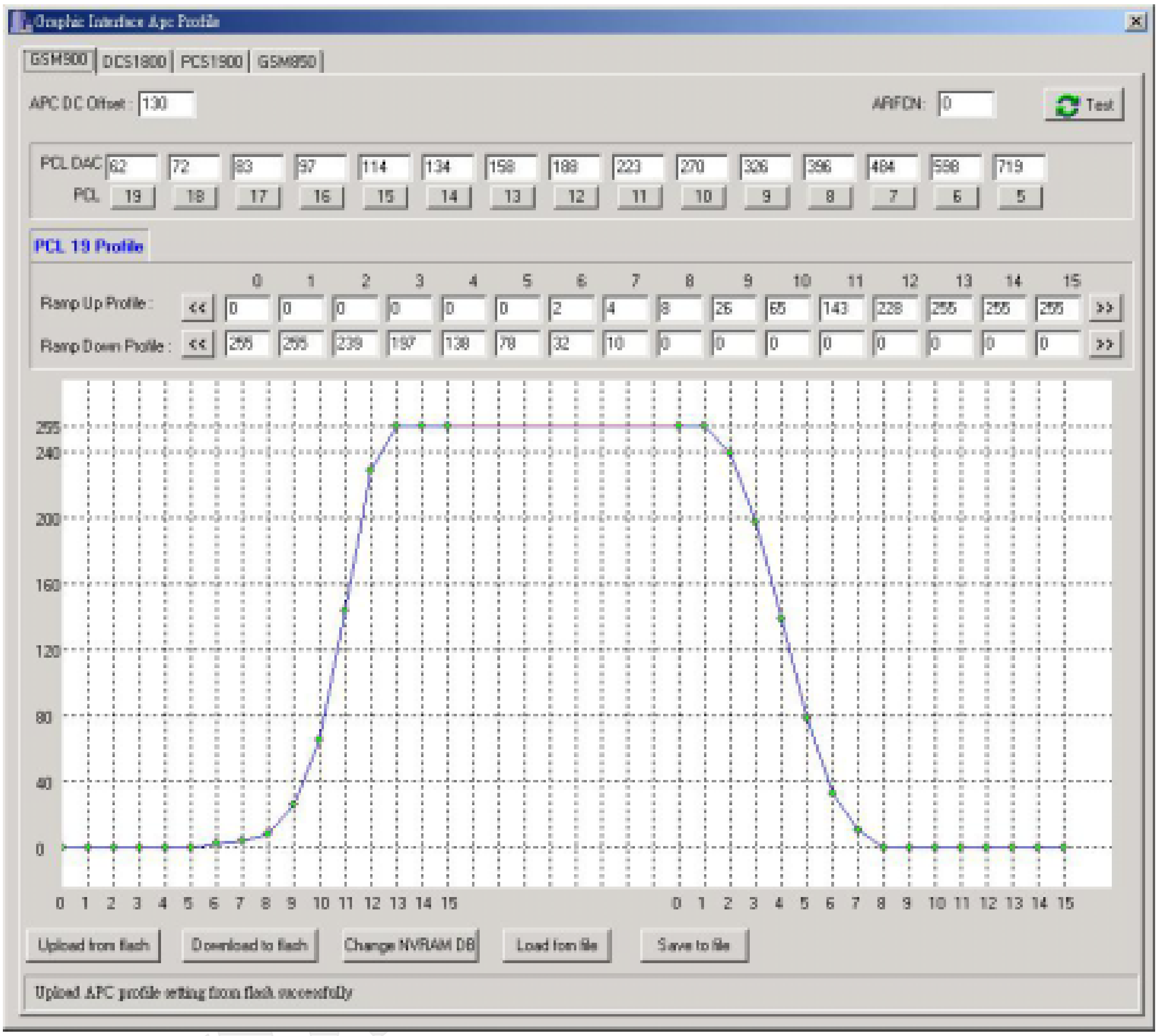

Figure 104 Graphic ramp profile result

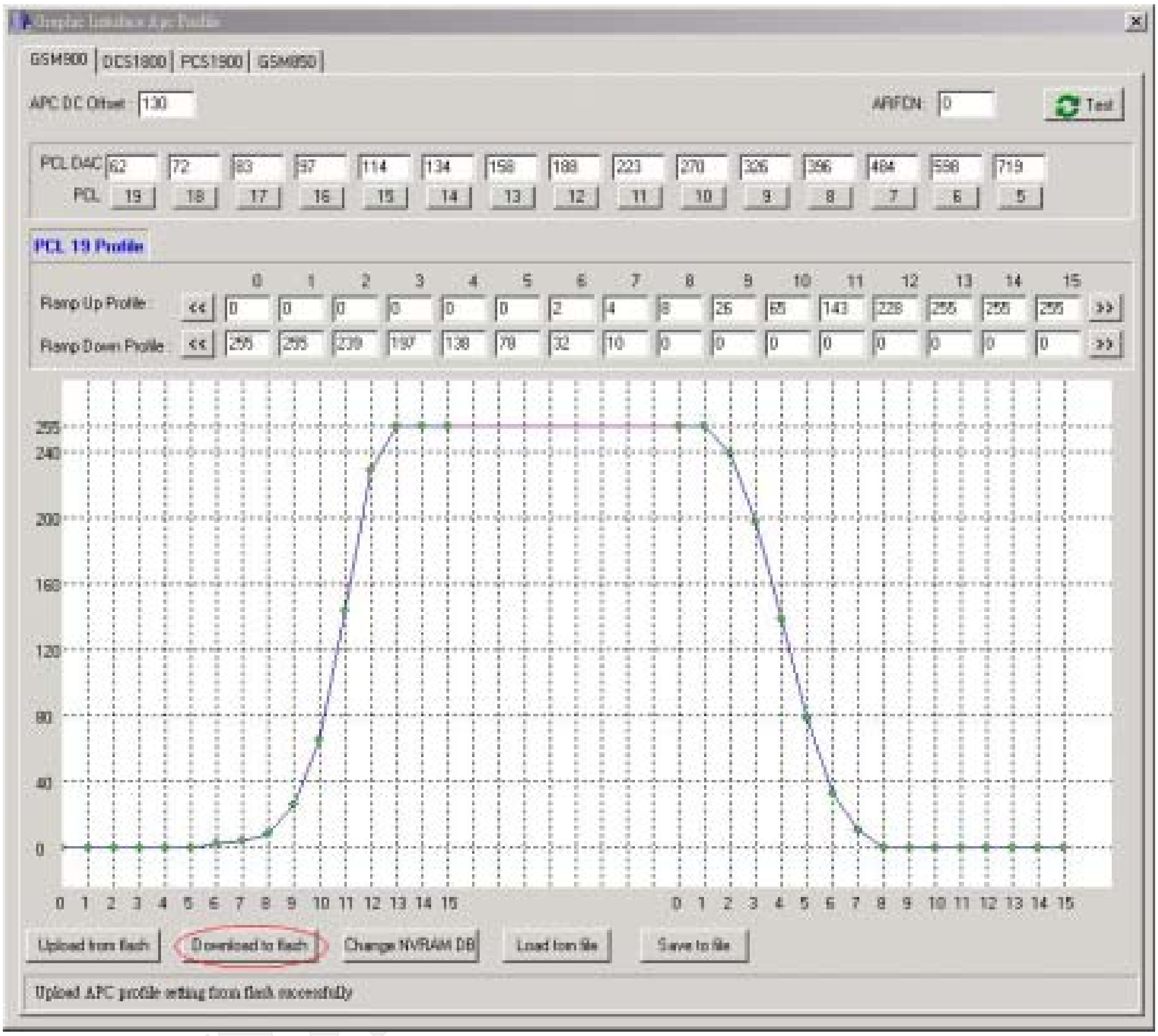

Figure 105 Click [Download to flash] to write graphic ramp profile to flash

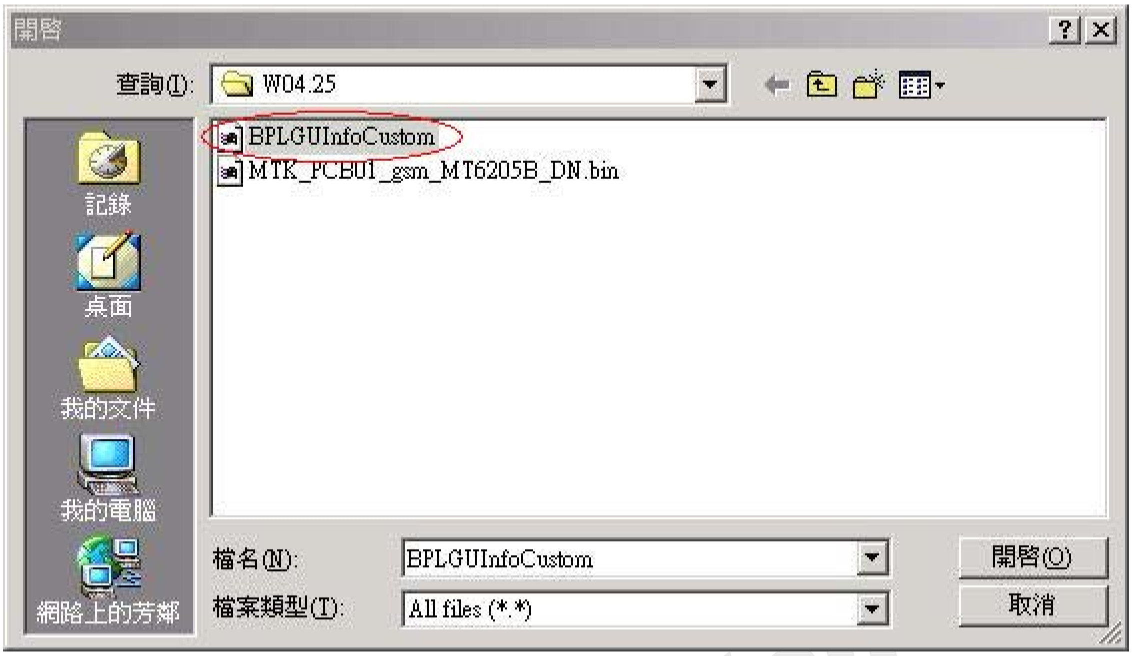

Figure 106 Select NVRAM database file if not selected before

User can click [Change NVRAM DB] button to change NVRAM database file.

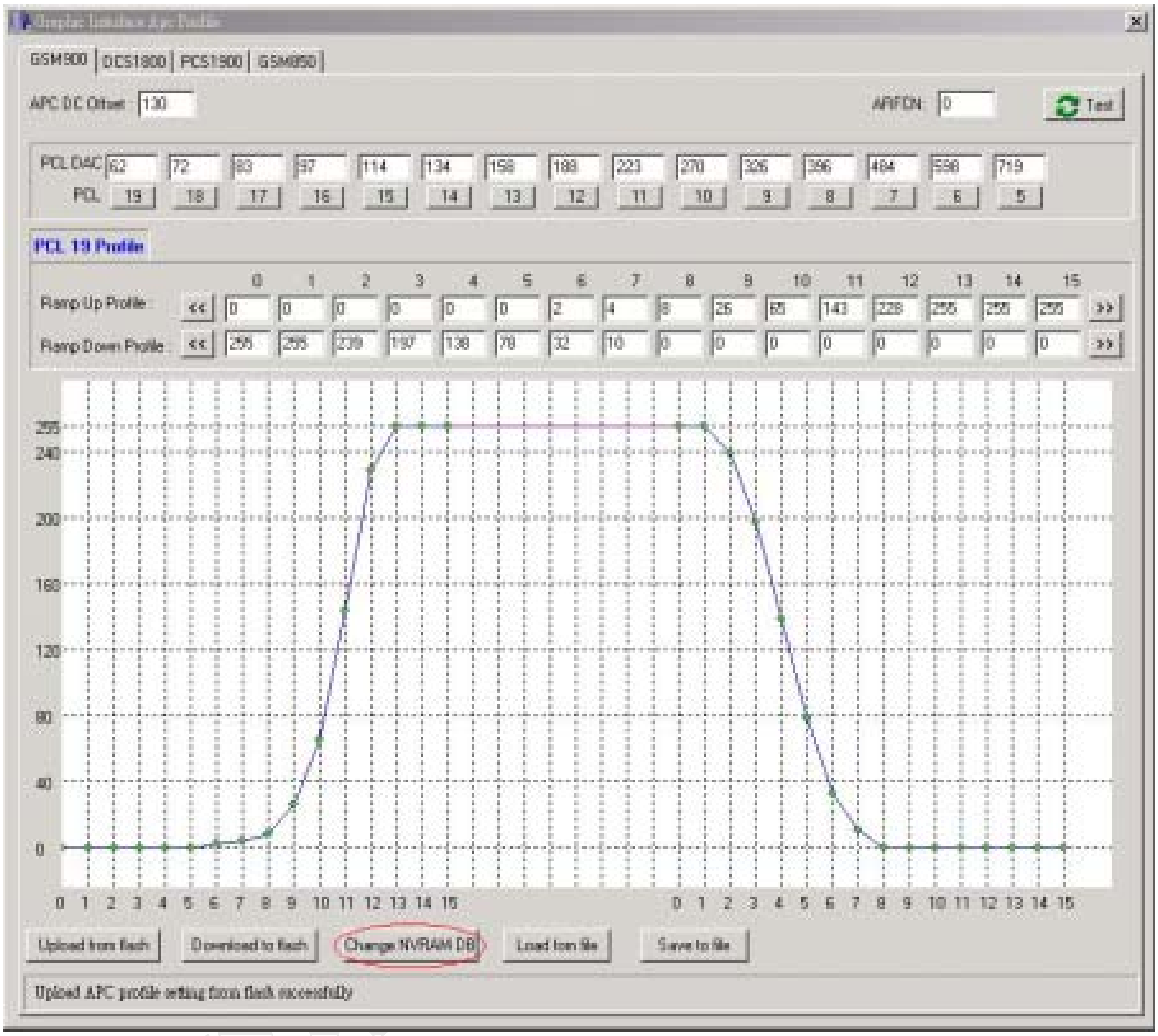

Figure 107 Click [Change NVRAM DB] button to change NVRAM database file

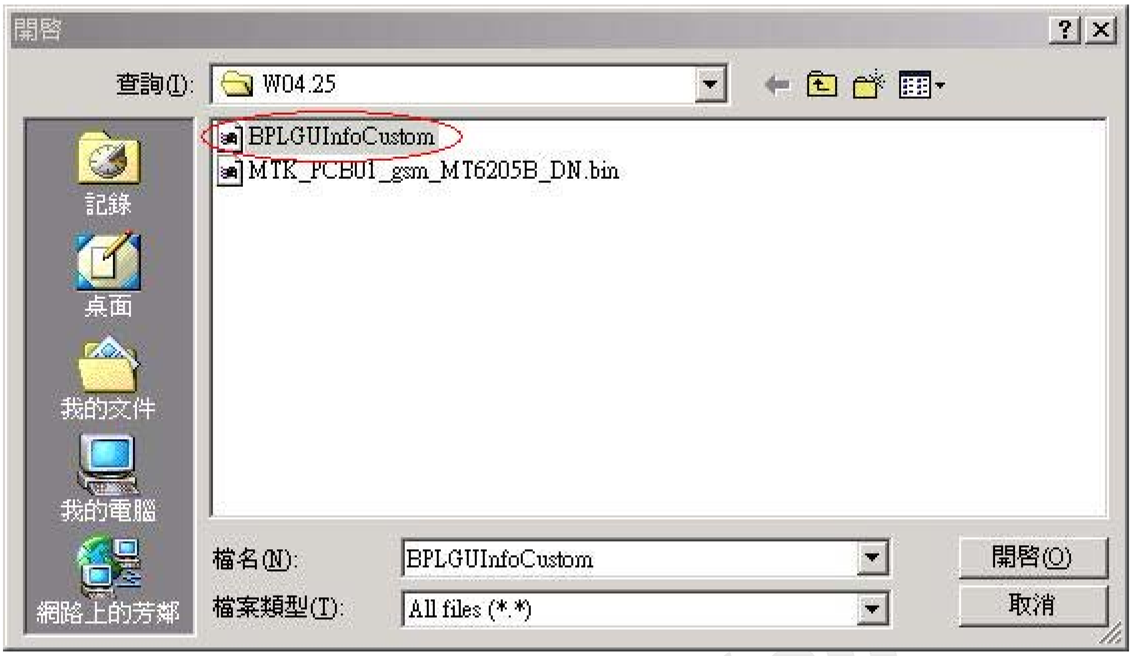

Figure 108 Select NVRAM database file

3.2.5.6.c Read and write the graphic ramp profile in file

User can click [Load from file] button to read graphic ramp profile from text file and click [Save to file] button to write graphic ramp profile to text file. The tool can save it with path loss and AFC initial value in single or multiple files. Each value must be followed with a comma in the TX level, ramp up, ramp down field.

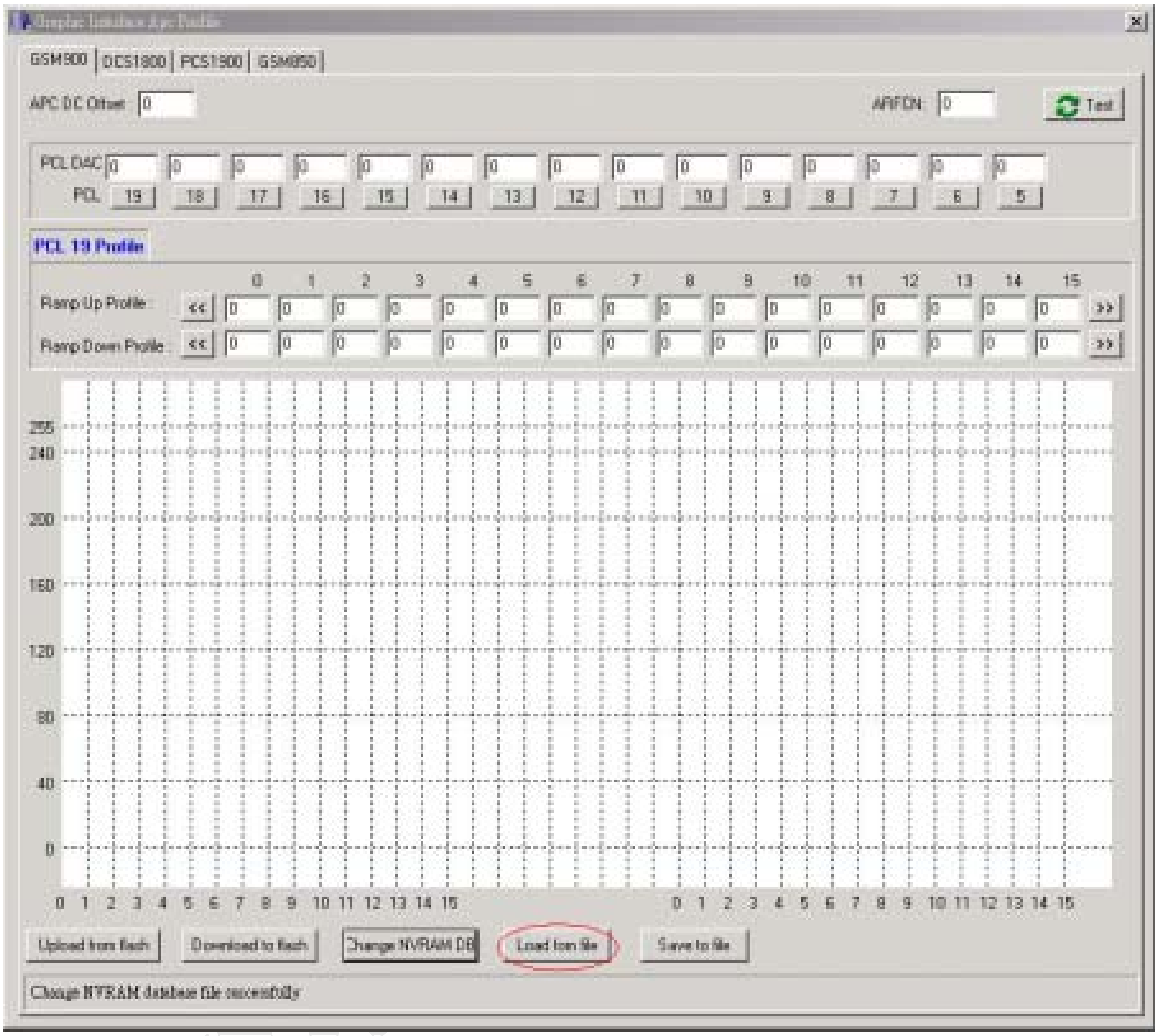

Figure 109 Click [Load from file] button to read graphic ramp profile from file

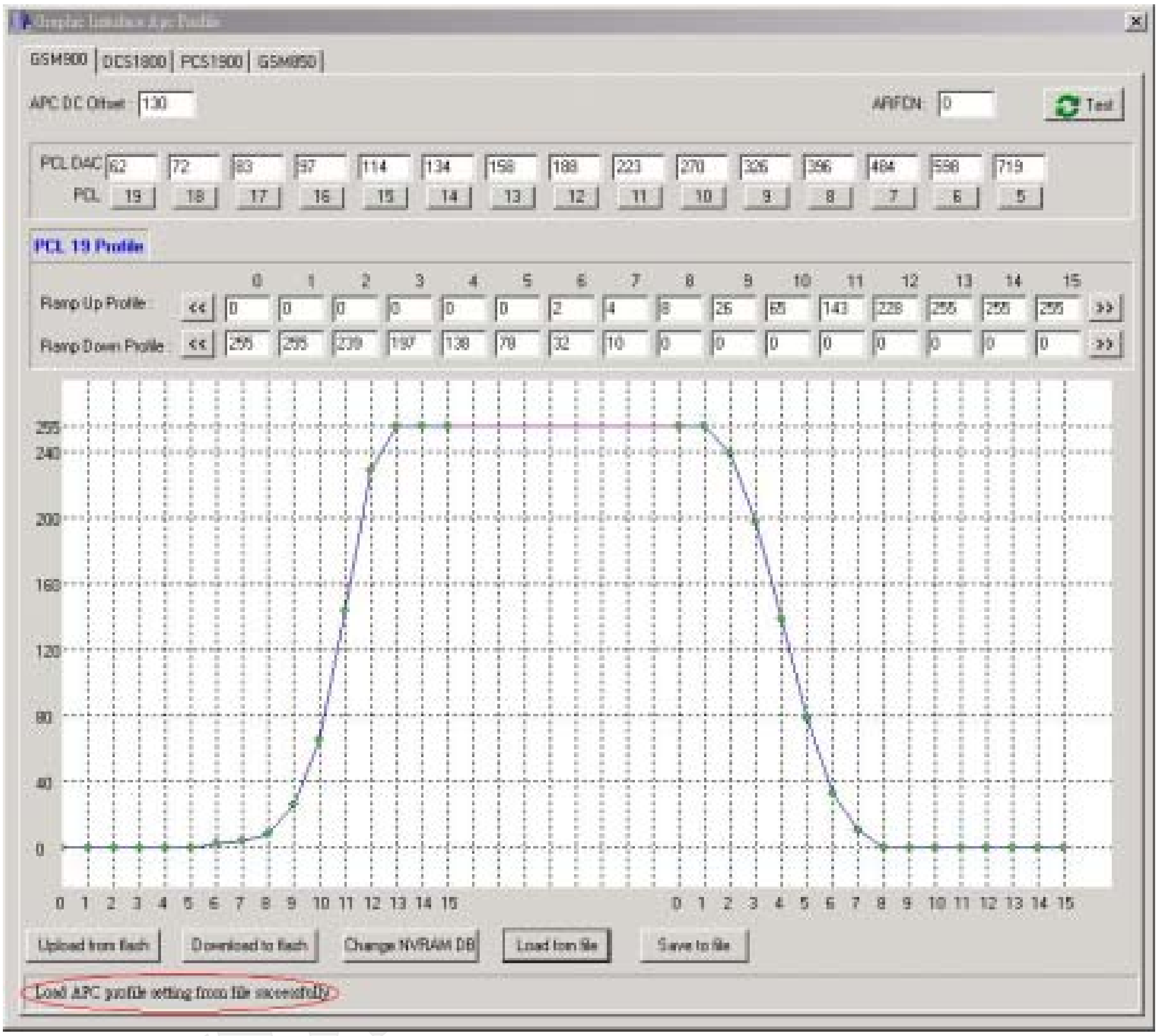

Figure 110 Graphic ramp profile result

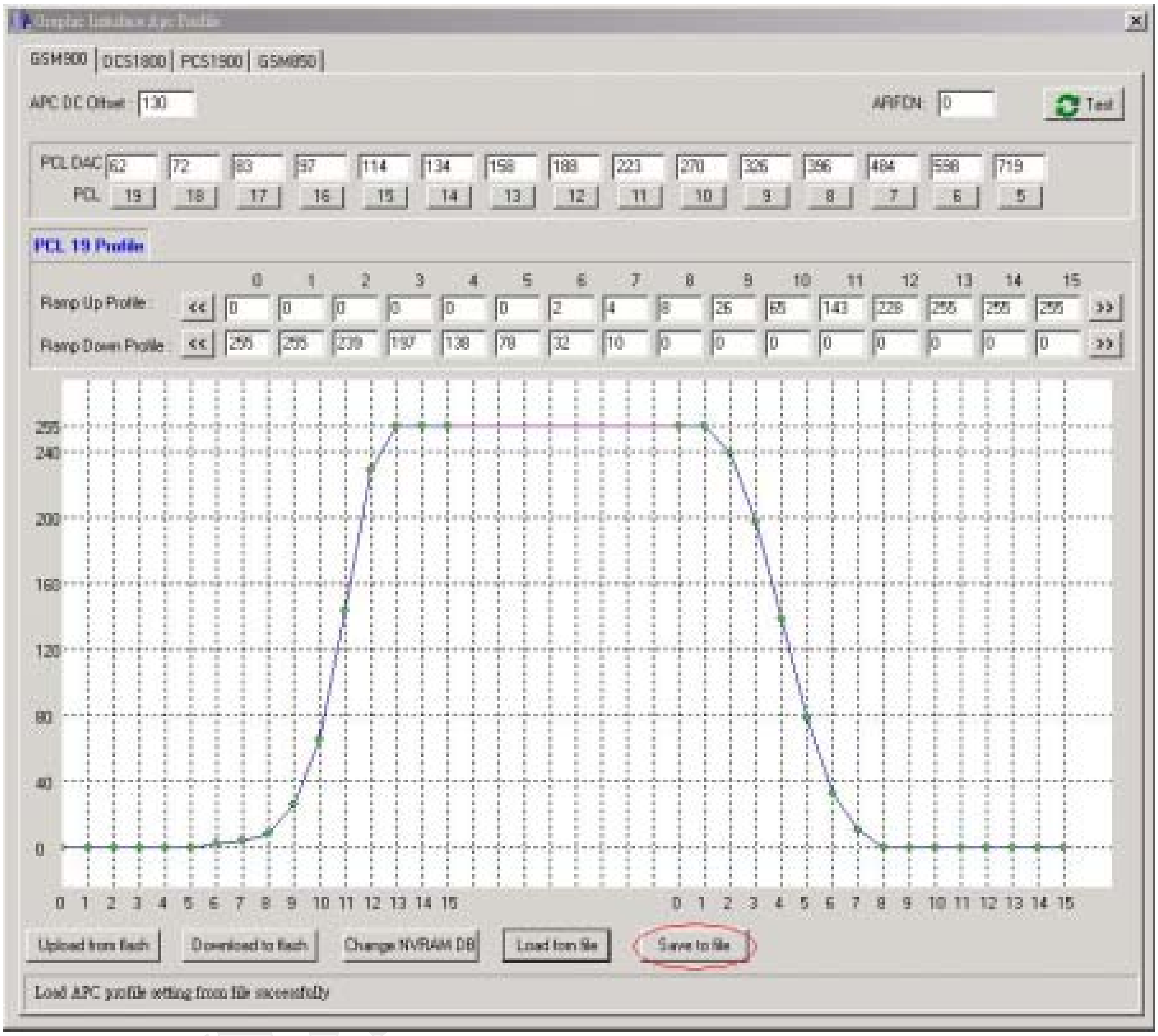

Figure 111 Click [Save to file] button to save graphic ramp profile to file

The following is a template file of graphic ramp profile. User will get this file after saving graphic ramp profile to file.

[GSM900 level, ramp]
APC dc offset=130
; APC dc offset : the field specify the pedestal value of the APC unit. The APC D/A converter
; is powered up biased on the offset value specified by the field.
TX power level=62,72,83,97,114,134,158,188,223,270,326,396,484,598,719,719
; profile 0 refer to PCL 19, profile 1 refer to PCL 18, ….., profile 14 refer to PCL 5
profile 0 ramp up=0,0,0,0,0,0,2,4,8,26,65,143,228,255,255,255
profile 0 ramp down=255,255,239,197,138,78,32,10,0,0,0,0,0,0,0,0
profile 1 ramp up=0,0,0,0,0,0,2,4,8,26,65,143,225,255,255,255
profile 1 ramp down=255,255,239,197,138,78,32,10,0,0,0,0,0,0,0,0
profile 2 ramp up=0,0,0,0,0,0,2,4,8,26,65,143,219,250,255,255
profile 2 ramp down=255,255,239,197,138,78,32,10,0,0,0,0,0,0,0,0
profile 3 ramp up=0,0,0,0,0,0,2,4,8,26,65,143,219,250,255,255
profile 3 ramp down=255,255,239,197,138,78,32,10,0,0,0,0,0,0,0,0
profile 4 ramp up=0,0,0,0,0,0,2,4,8,26,65,143,219,250,255,255
profile 4 ramp down=255,255,239,197,138,78,32,10,0,0,0,0,0,0,0,0

profile 5 ramp up=0,0,0,0,0,0,2,4,8,26,65,143,219,250,255,255
profile 5 ramp down=255,255,239,197,138,78,32,10,0,0,0,0,0,0,0,0
profile 6 ramp up=0,0,0,0,0,0,2,4,8,26,65,143,219,250,255,255
profile 6 ramp down=255,255,239,197,138,78,32,10,0,0,0,0,0,0,0,0
profile 7 ramp up=0,0,0,0,0,0,2,4,8,26,65,143,219,250,255,255
profile 7 ramp down=255,255,239,197,138,78,32,10,0,0,0,0,0,0,0,0
profile 8 ramp up=0,0,0,0,0,0,2,4,8,26,65,143,219,250,255,255
profile 8 ramp down=255,255,239,197,138,78,32,10,0,0,0,0,0,0,0,0
profile 9 ramp up=0,0,0,0,0,0,2,4,8,26,65,143,219,250,255,255
profile 9 ramp down=255,255,239,197,138,78,32,10,0,0,0,0,0,0,0,0
profile 10 ramp up=0,0,0,0,0,0,2,4,8,26,65,143,219,250,255,255
profile 10 ramp down=255,255,239,197,138,78,32,10,0,0,0,0,0,0,0,0
profile 11 ramp up=0,0,0,0,0,0,0,2,4,8,26,65,143,219,255,255
profile 11 ramp down=255,255,239,197,138,78,32,10,0,0,0,0,0,0,0,0
profile 12 ramp up=0,0,0,0,0,0,0,2,4,8,26,65,143,219,250,255
profile 12 ramp down=255,255,239,197,138,78,32,10,0,0,0,0,0,0,0,0
profile 13 ramp up=0,0,0,0,0,0,0,2,4,8,26,65,143,219,250,255
profile 13 ramp down=255,255,239,197,138,78,32,10,0,0,0,0,0,0,0,0
profile 14 ramp up=0,0,0,0,0,0,0,2,4,8,26,65,143,219,250,255
profile 14 ramp down=255,255,239,197,138,78,32,10,0,0,0,0,0,0,0,0
profile 15 ramp up=0,0,0,0,0,0,0,2,4,8,26,65,143,219,250,255
profile 15 ramp down=255,239,197,138,78,32,10,0,0,0,0,0,0,0,0,0
Subband max arfcn=40,82,124,1023,-1,0,0,0,0,0,0
Subband mid level=11,11,11,11,19,19,19,19,19,19,19
Subband high weight=1.000,1.000,1.000,1.000,0.000,0.000,0.000,0.000,0.000,0.000,0.0000
Subband low weight=1.000,1.000,1.000,1.000,0.000,0.000,0.000,0.000,0.000,0.000,0.0000
Battery compensate, low voltage, low temperature=1
Battery compensate, low voltage, mid temperature=1
Battery compensate, low voltage, high temperature=1
Battery compensate, mid voltage, low temperature=1
Battery compensate, mid voltage, mid temperature=1
Battery compensate, mid voltage, high temperature=1
Battery compensate, high voltage, low temperature=1
Battery compensate, high voltage, mid temperature=1
Battery compensate, high voltage, high temperature=1
CAP ID compensate=0

Note:

- APC dc offset : the field specify the pedestal value of the APC unit. The APC D/A converter is powered up biased on the offset value specified by the field.
- Subband mid level : the level below the [suband mid level] will be multiplied by [Subband low weight], and the level above [Subband mid level] will be multiplied by [Subband high weight].
- Subband high weight : each entry of the ramp profile of level above [Subband mid level] will be multiplied by [Subband high weight].
- Subband low weight : each entry of the ramp profile of level below [Subband mid level] will be multiplied by [Subband low weight].
- Battery compensate: These 3x3 array compensate the APC scaling factor under low/mid/high voltage/temperature.
- TX AFC Offset: the field specifies the crystal TX AFC Offset. Crystal TX AFC DAC = Crystal RX AFC DAC + TX AFC Offset.

3.2.6 AFC control

User can input ARFCN, AFC DAC value, Gain (dB) and Test Count and then click [Start] button to test AFC control. MS will detect the FB with the parameters set by user after the command from META is received. If MS detection more than one FB, META_LAB will show the FB detection count, otherwise it shows “Fail”.

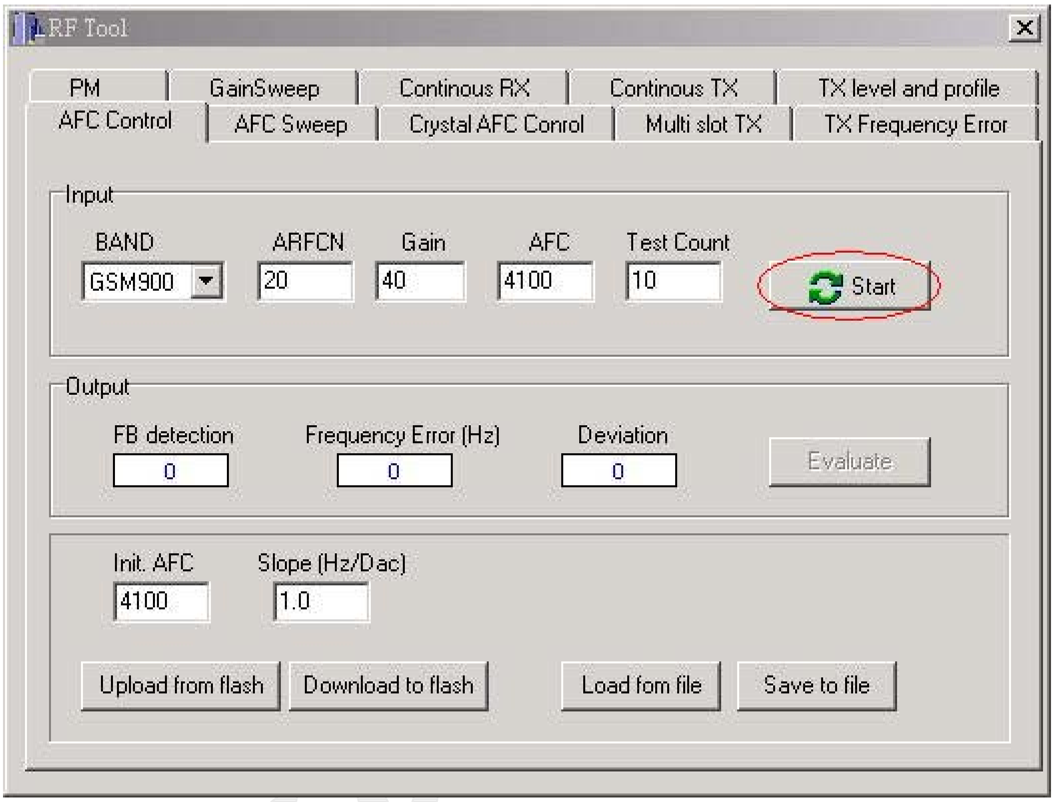

Figure 112 Click [Start] button to start testing

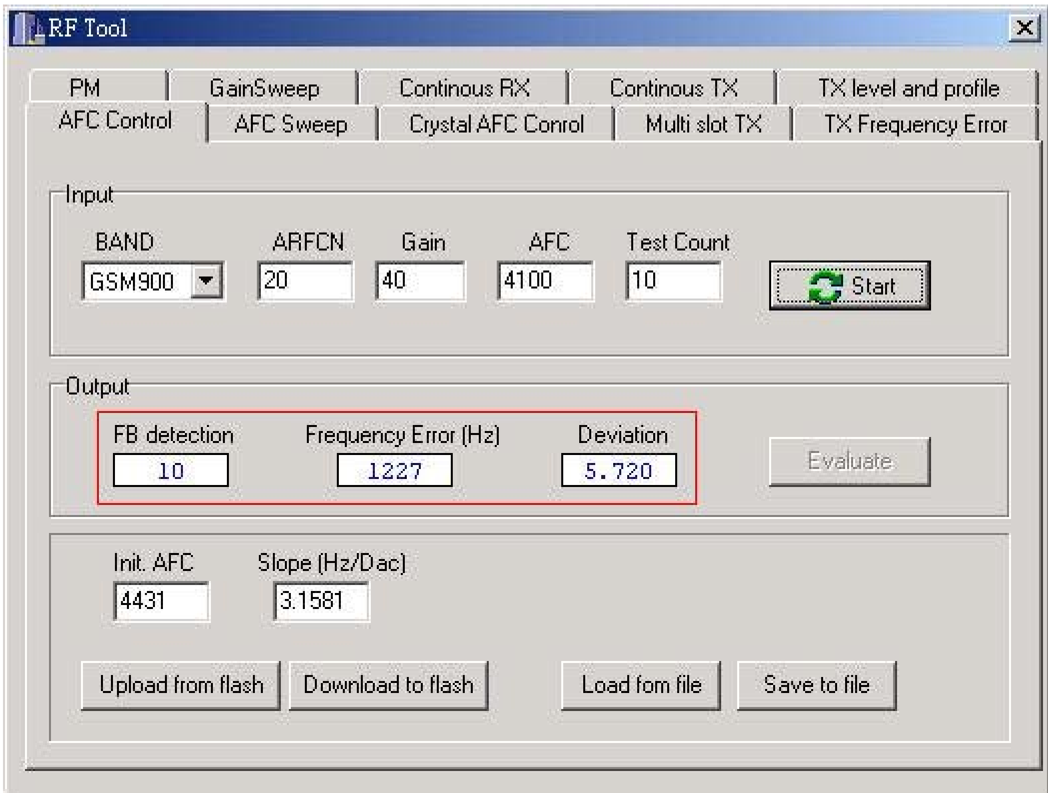

Figure 113 Measurement result of AFC control

- FB detection : It is the total FB detection count of MS among testing numbers.
- Frequency Error : It is the average frequency error of the total FB detection.
- Deviation : It is the deviation of the total FB detection.
  - Same as section 3.2.1 the value returned from target is the square of deviation. PC side program will get deviation from square root of the value returned from target. The user shall limit the test number to prevent deviation overflow if frequency error is large.

3.2.6.1 Upload and download the AFC value in flash

Following describes how to upload and download AFC value from and to flash. User can click [Upload from flash] button to read initial AFC and slope value from flash and click [Download to flash] button to write initial AFC and slope value to flash.

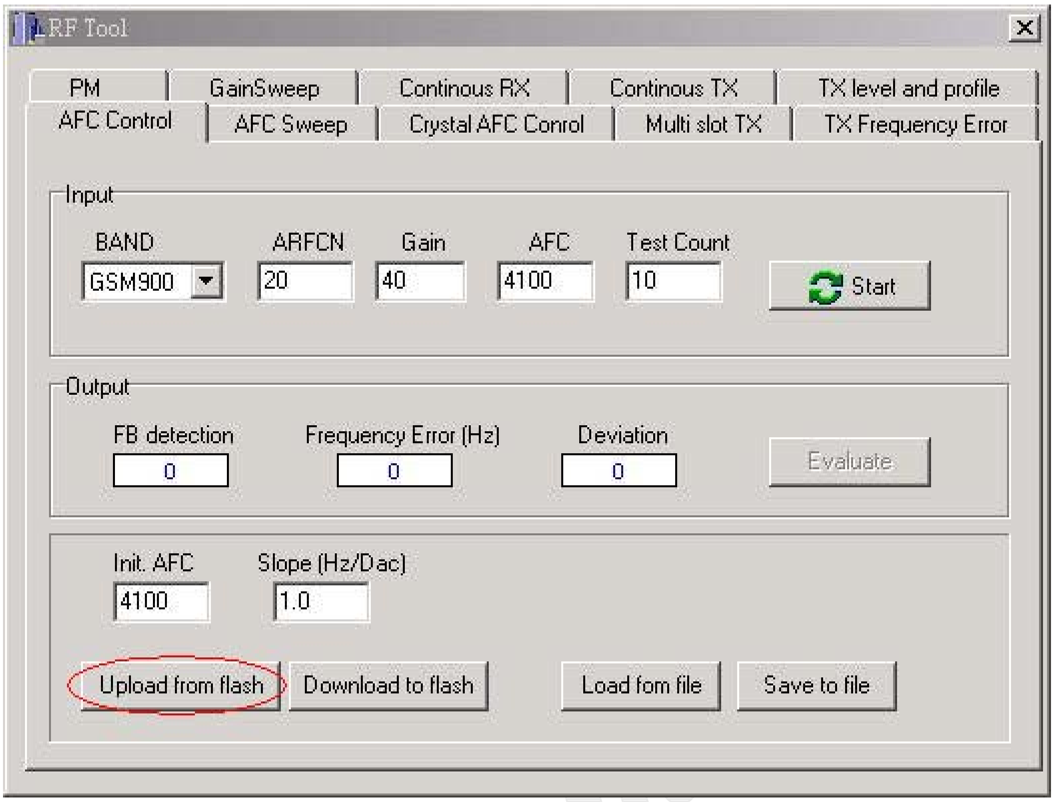

Figure 114 Click [Upload from flash] button to read value from flash

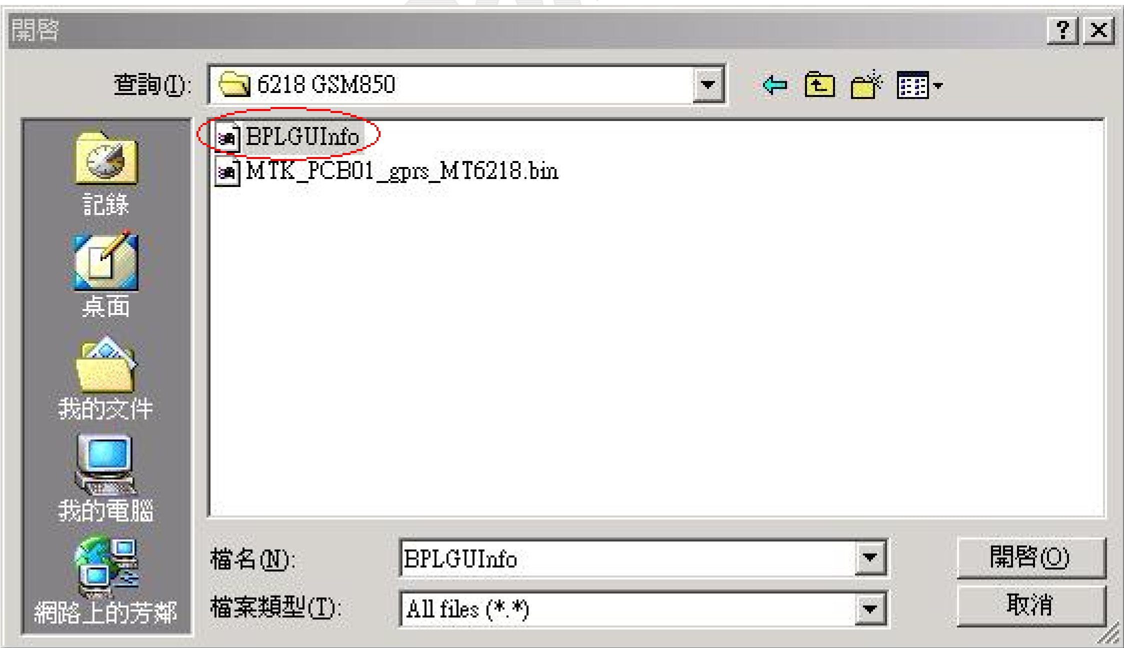

Figure 115 Select NVRAM database file if not selected before

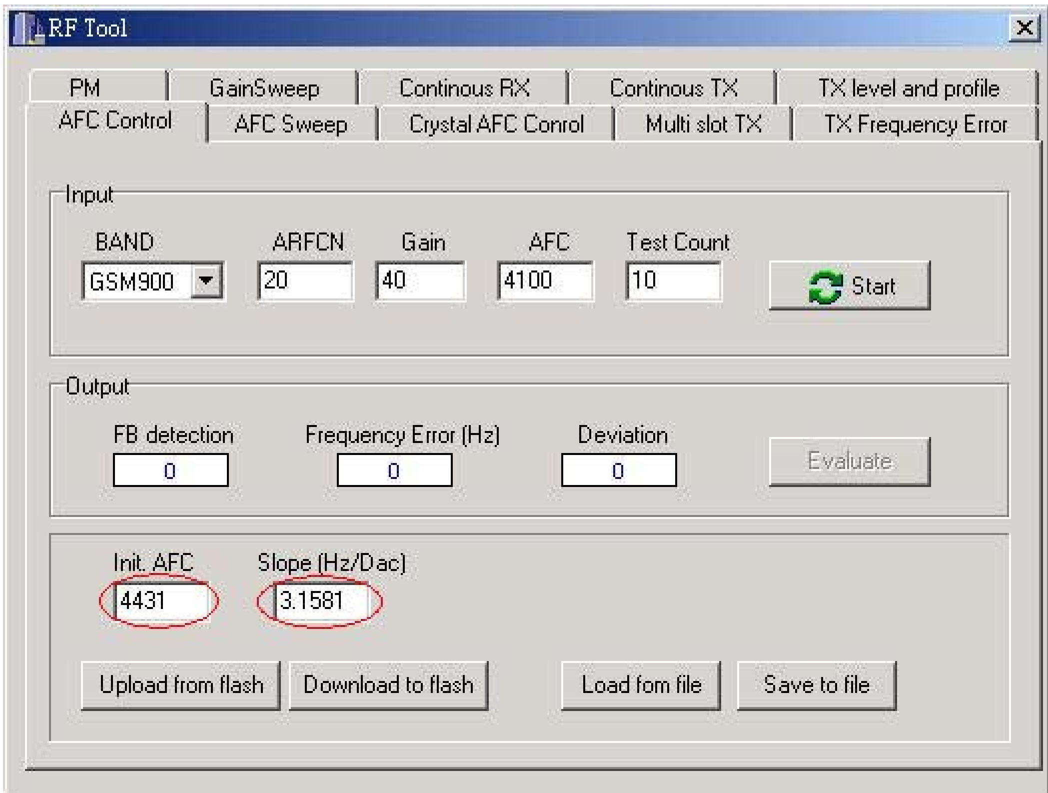

Figure 116 Result of AFC value

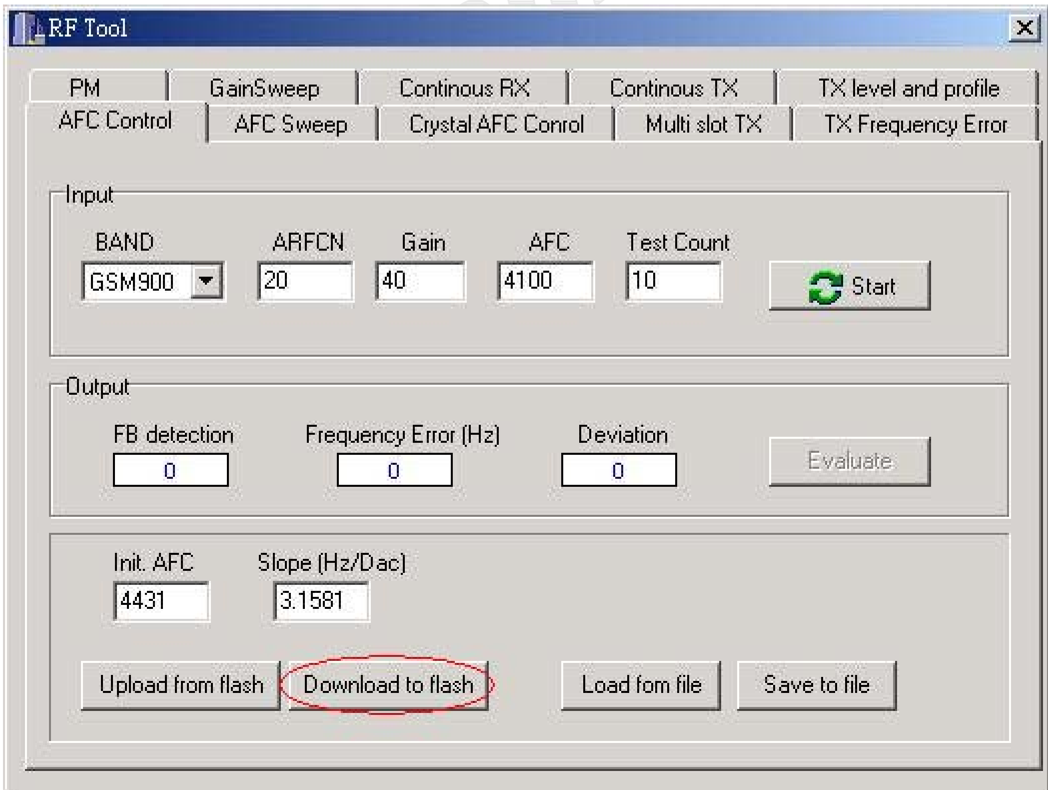

Figure 117 Click [Download to flash] button to write value to flash

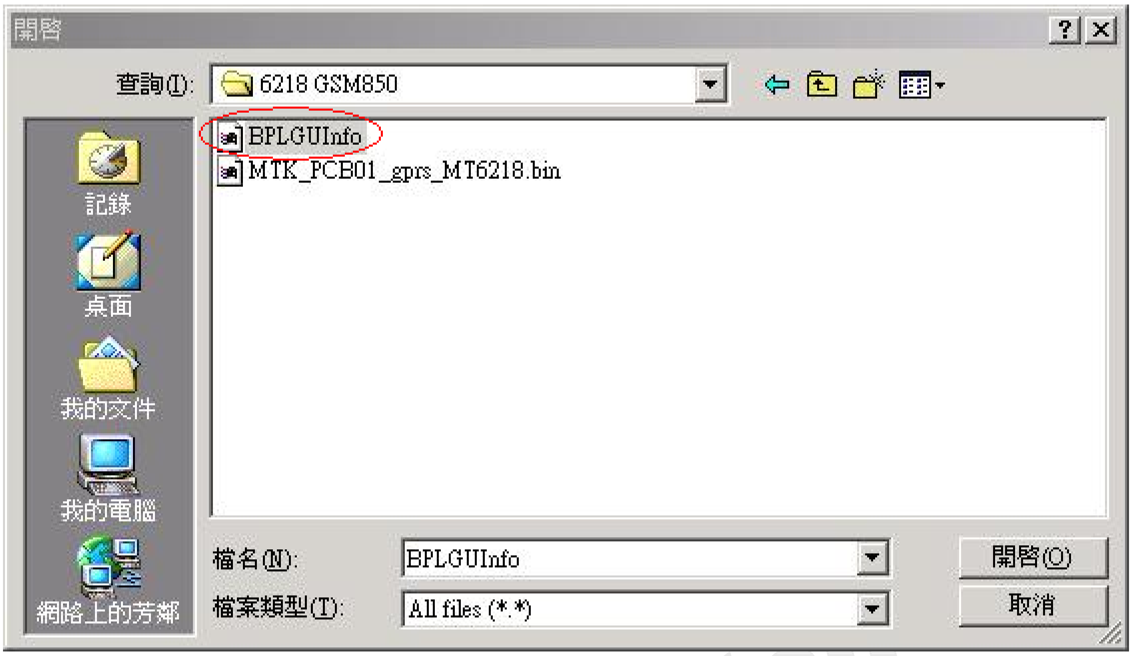

Figure 118 Select NVRAM database file if not selected before

3.2.6.2 Read and write the AFC value in file

User can click [Load from file] button to load initial AFC and slope value from file and click [Save to file] button to save initial AFC and slope value to file.

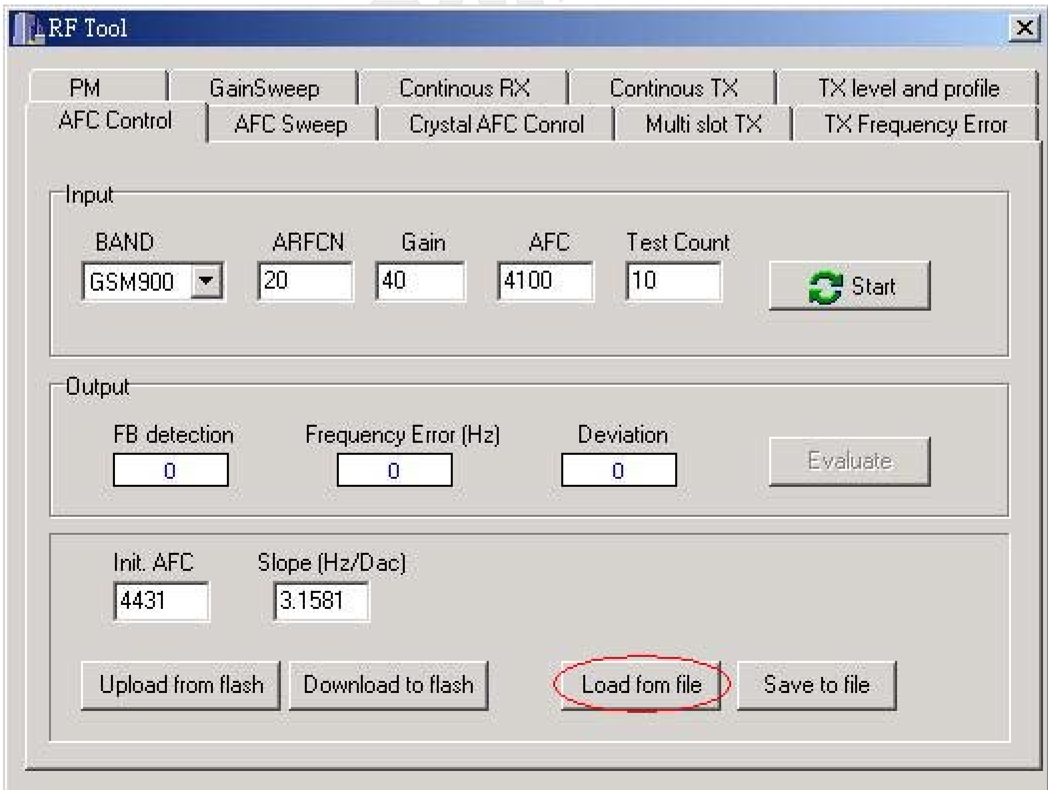

Figure 119 Click [Load from file] button to read value from file

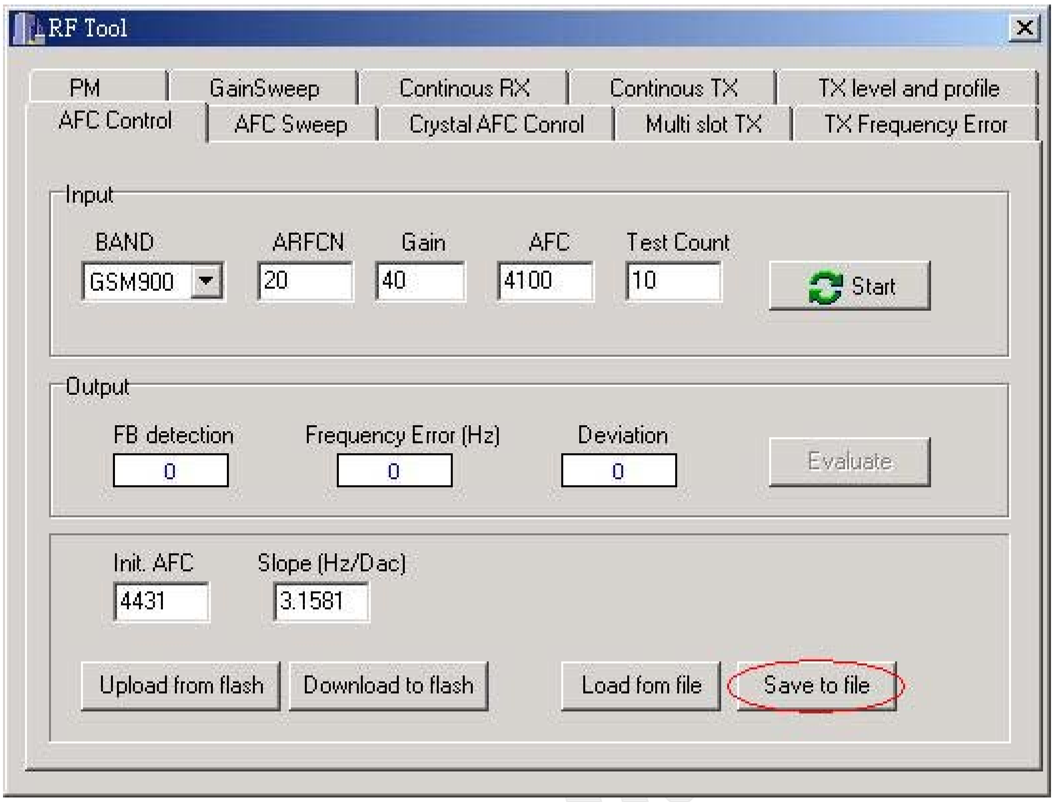

Figure 120 Click [Save to file] button to save value to file.

The following is a template file of AFC control. User will get the text file after saving initial value and slope. Please follow the file format if you want to change the value in file.

[AFC control]
Initial value = 4100
Slope = 2.8016

Note: Slope = $\overline{\Delta f_1} - \overline{\Delta f_2} \Big/ DAC_2 - DAC_1$, where DAC1 and DAC2 are AFC DAC value, and $\overline{\Delta f_1}$ and $\overline{\Delta f_2}$ are averaged frequency error measured at target side.

3.2.7 AFC sweep

AFC sweep is used for detection of FB of the indicated channel by the different AFC DAC value.

User can execute AFC sweep function by following steps:
1) Input Band, ARFCN, Gain (dB), Test Count, Min AFC DAC, Max AFC DAC and step AFC DAC.
2) Click Start button.
3) Meta will show the FB detection result: AFC DAC, frequency offset, deviation and FB detection ok number.
4) User can stop this operation by clicking [Stop] button.

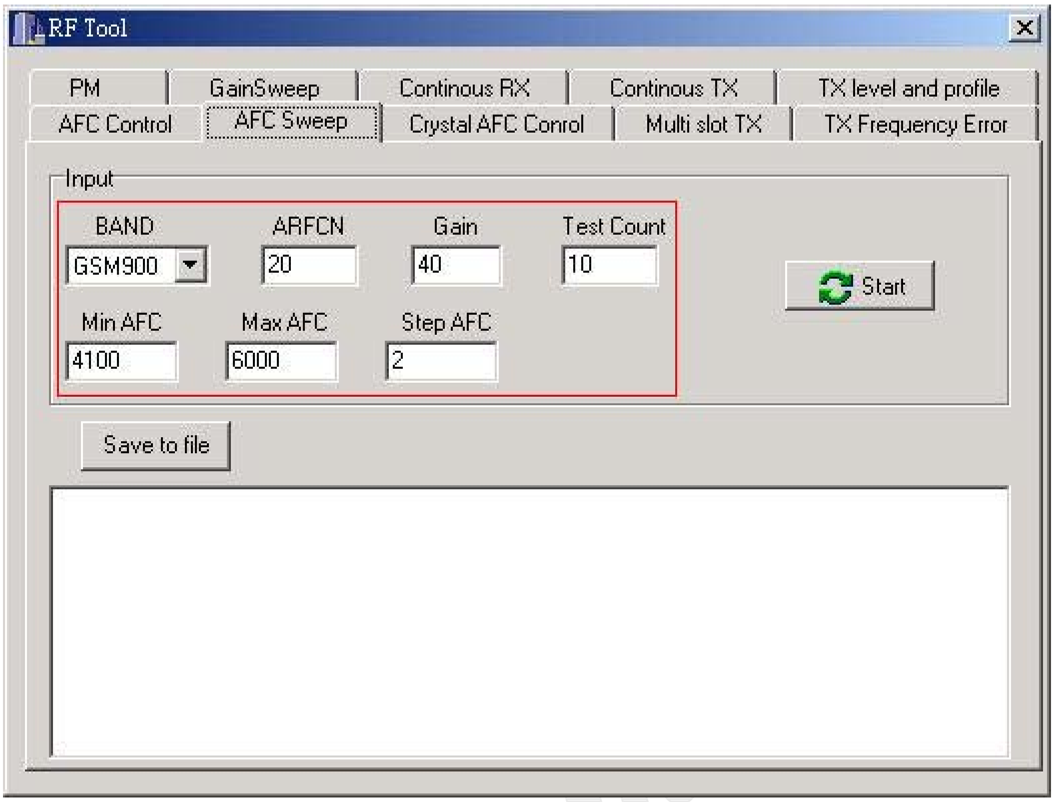

Figure 121 Input Band, ARFCN, Gain (dB), Test Count, Min AFC DAC, Max AFC DAC and step AFC DAC

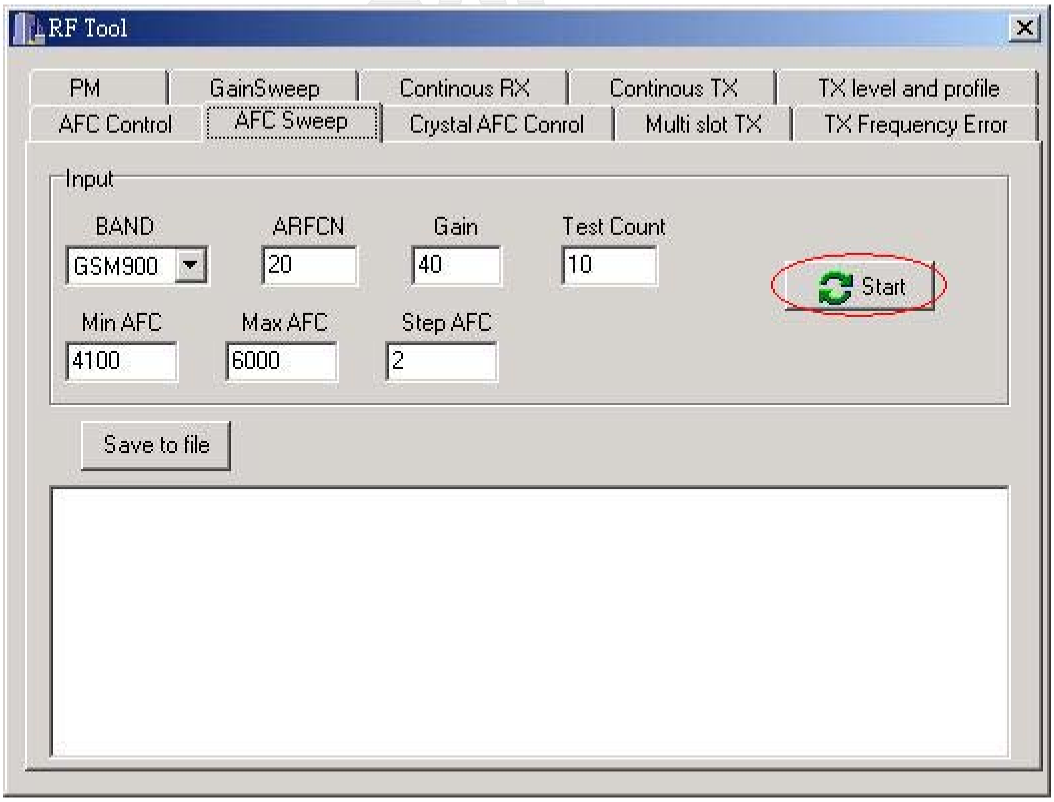

Figure 122 Click [Start] button

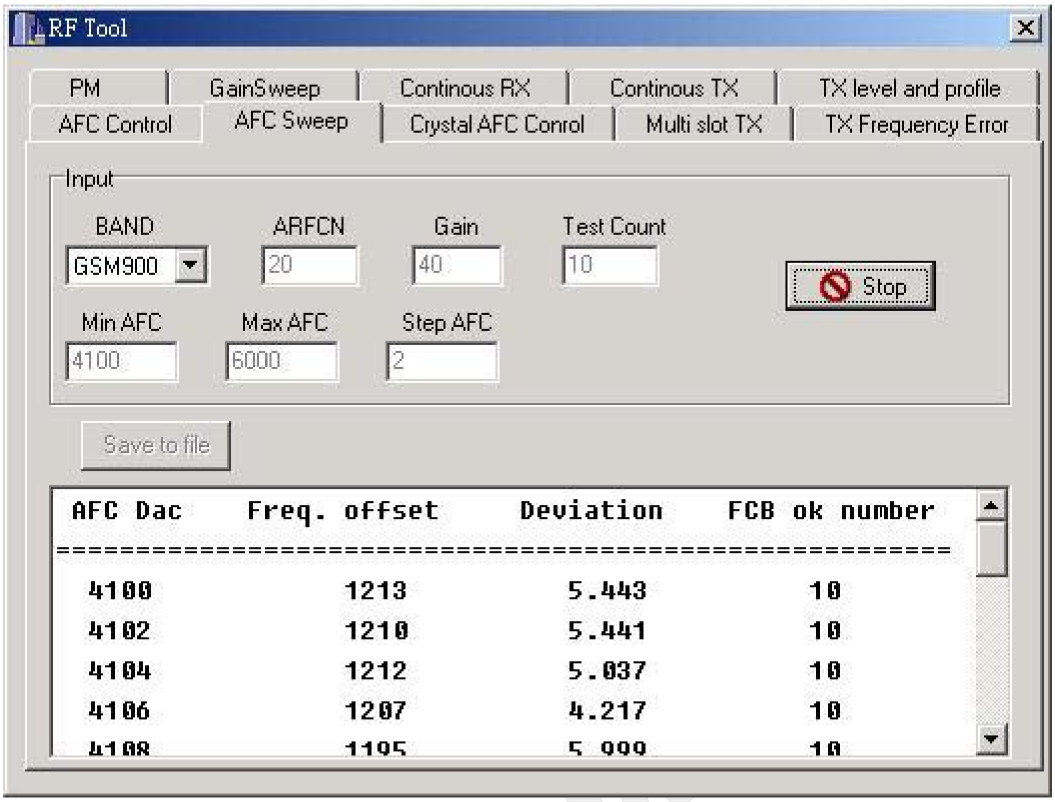

Figure 123 META shows AFC sweep result

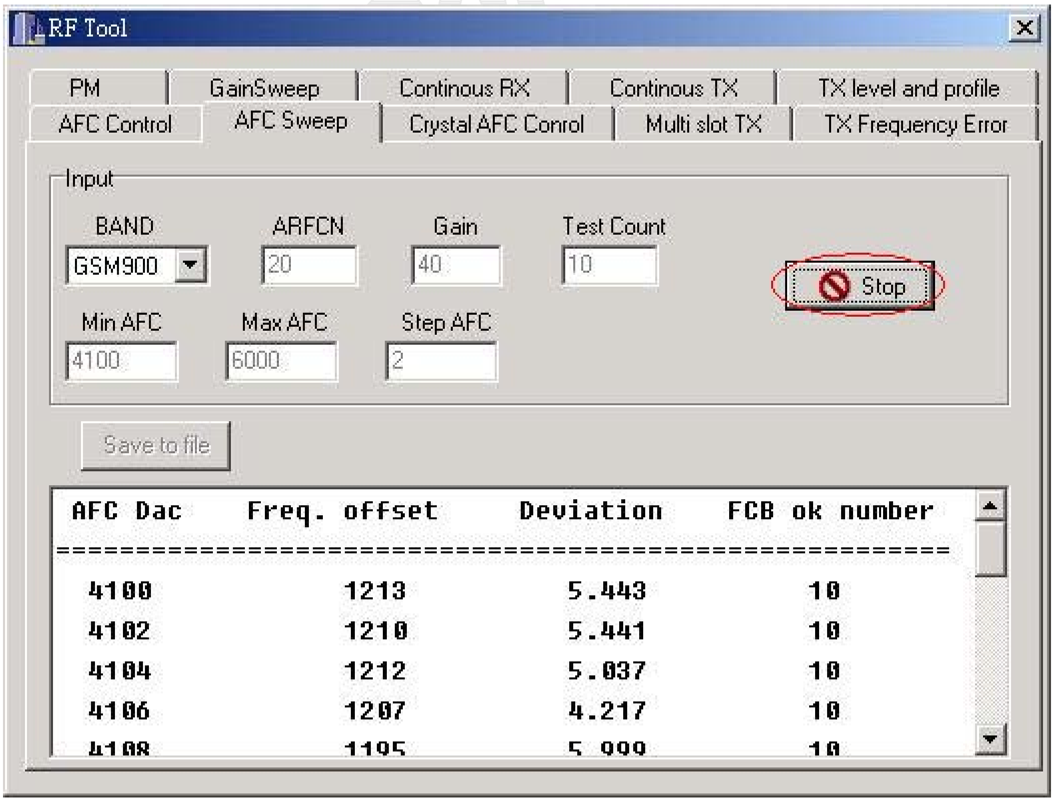

Figure 124 Click [Stop] button to stop AFC sweep operation

User can save AFC sweep result to text file by clicking [Save to file] button.

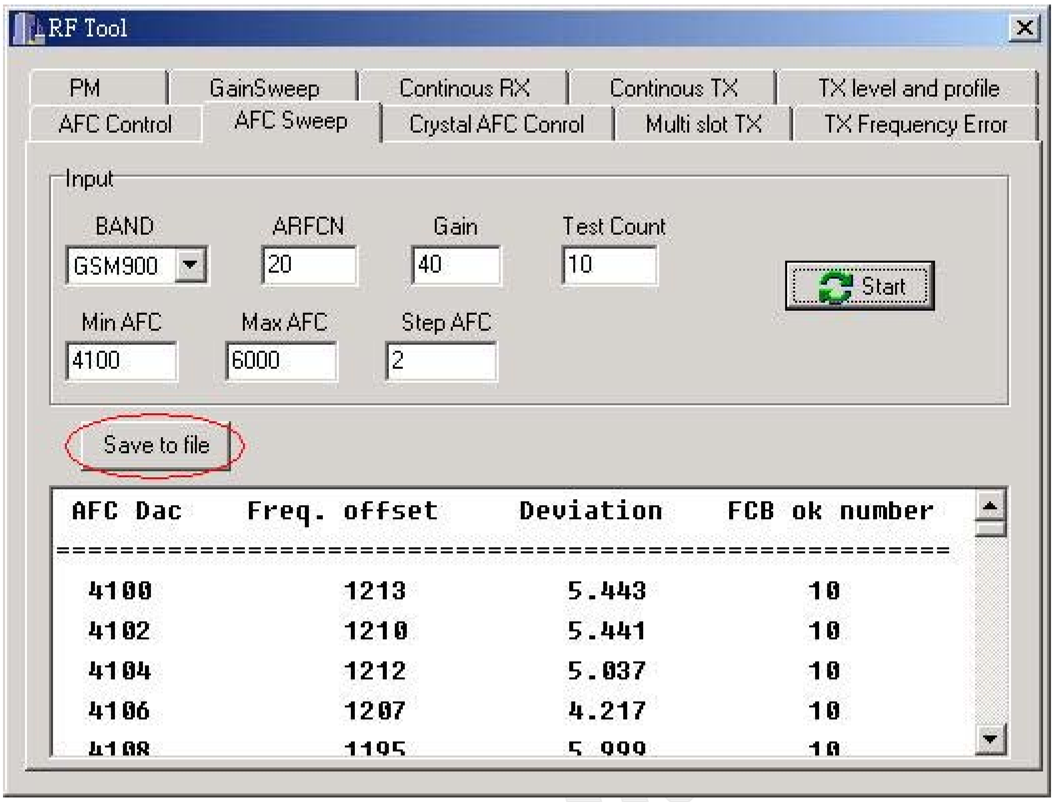

Figure 125 Click [Save to file] button to save AFC sweep result to text file

3.2.8 Crystal AFC control

Crystal AFC control window provides transmitting normal burst to test equipment for user to get TX frequency error, upload or download crystal AFC control value from or to flash and load or save crystal AFC control value in text file.

User can input Band, ARFCN, TSC(training sequence code), PCL(power control level), CAP ID and AFC chosen and then click [Start] button to start crystal AFC control. MS will transmit normal burst with the parameters set by user after the command from META is received. User can get TX frequency error from Agilent 8960 or other test equipment.

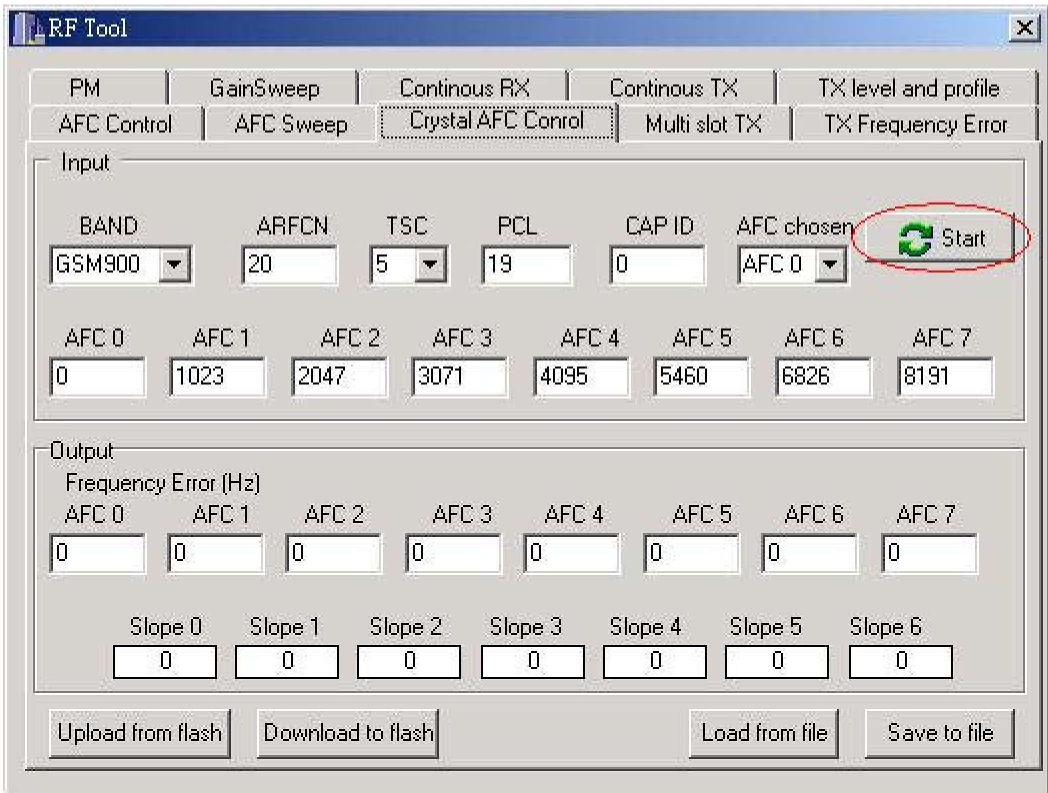

Figure 126 Click [Start] button to start crystal AFC control testing

3.2.8.1 Upload and download the crystal AFC value in flash

Following describes how to upload and download crystal AFC value from and to flash. User can click [Upload from flash] button to read CAP ID, AFC DAC, frequency and slope of AFC0 to AFC7 and from flash and click [Download to flash] button to write CAP ID, AFC DAC, frequency and slope of AFC0 to AFC7 to flash.

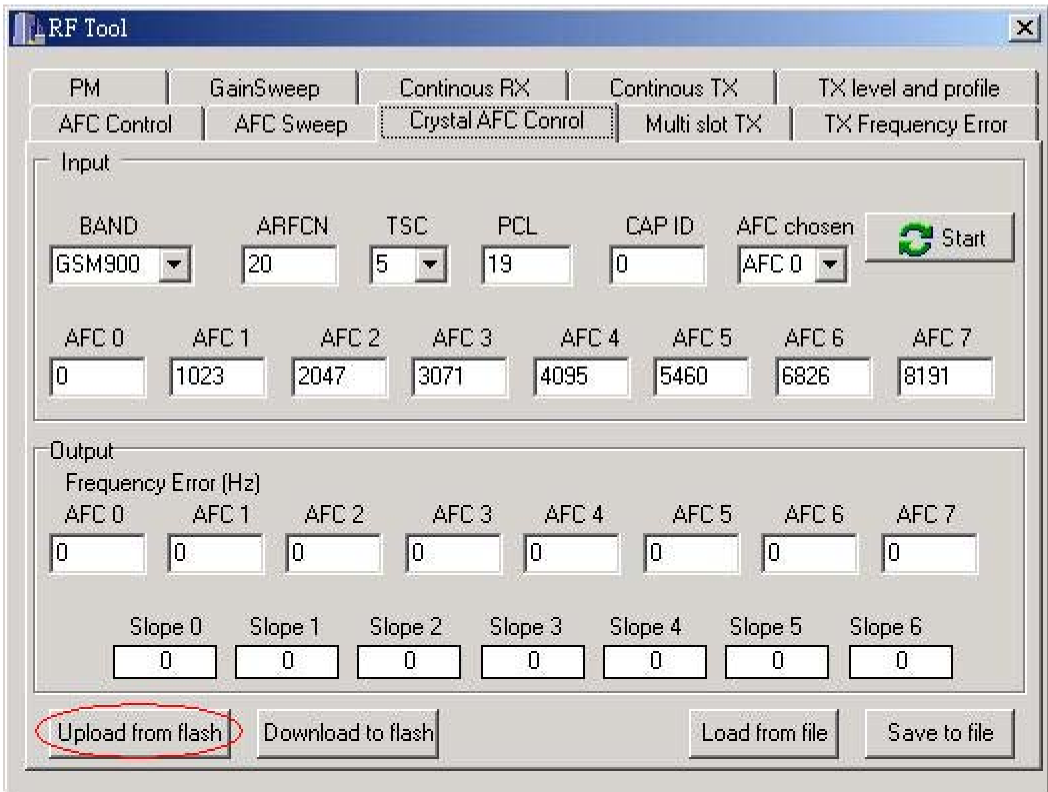

Figure 127 Click [Upload from flash] button to read crystal AFC control value from flash

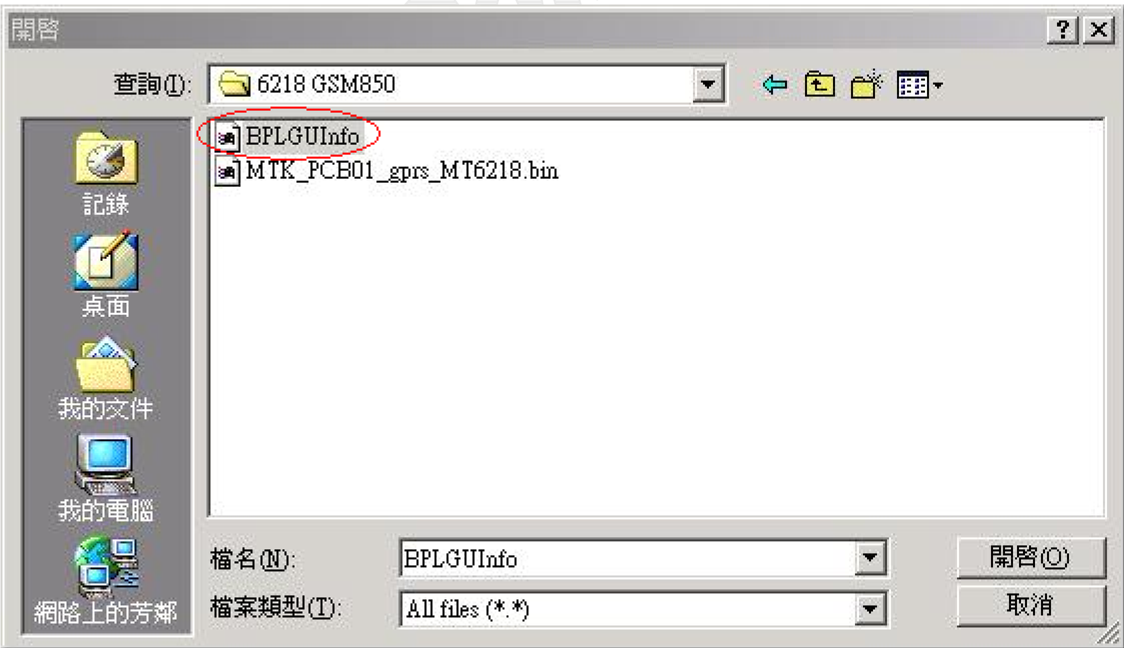

Figure 128 Select NVRAM database file if not selected before

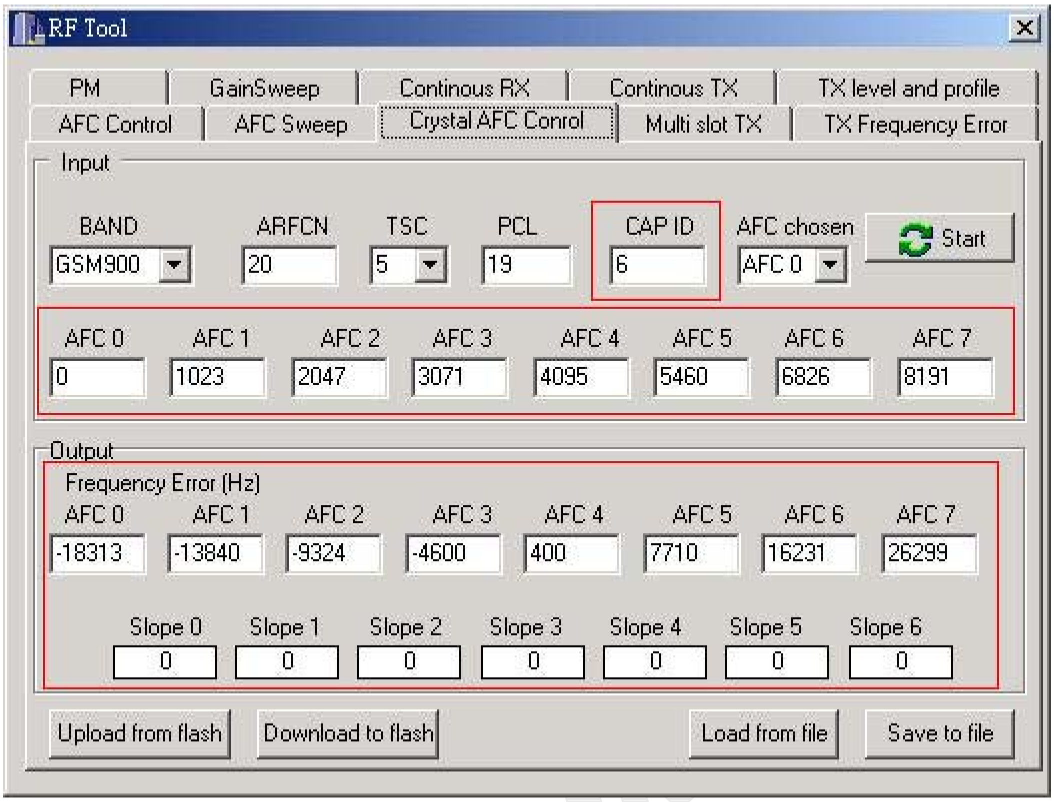

Figure 129 Result of uploading crystal AFC control value from flash

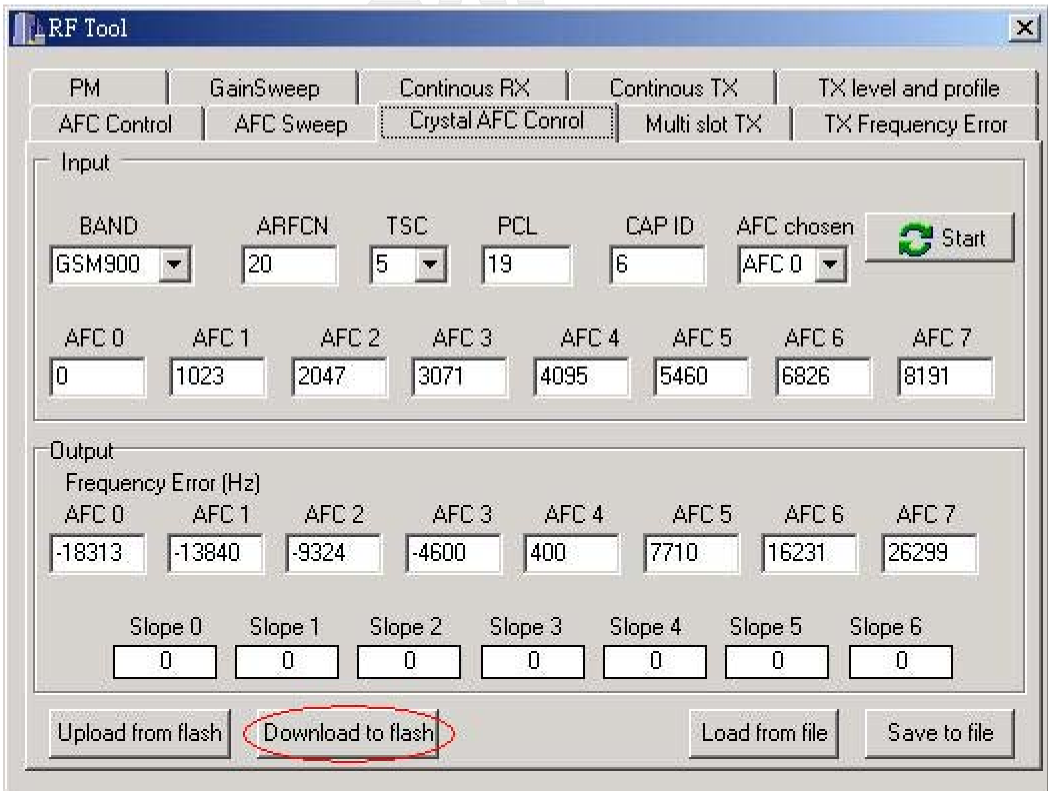

Figure 130 Click [Download to flash] button

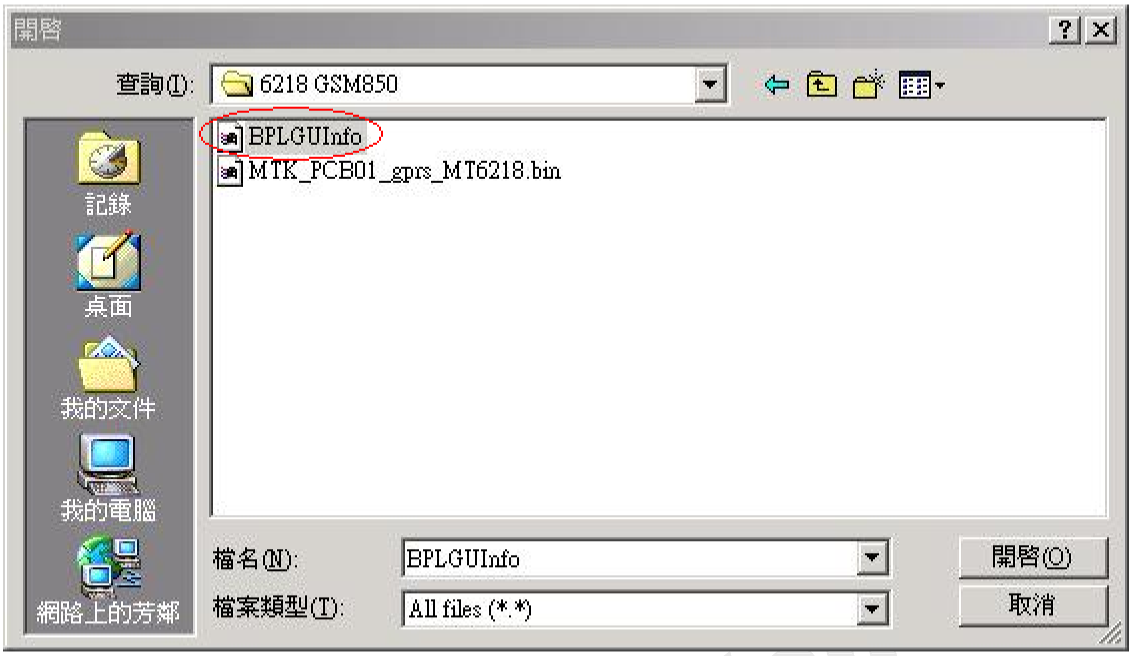

Figure 131 Select NVRAM database file if not selected before

3.2.8.2 Read and write crystal AFC control value in file

Following describes how to load and save crystal AFC value from and to text file. User can click [Load from file] button to read CAP ID, AFC DAC and frequency error of AFC0 to AFC7 from file and click [Save to file] button to write CAP ID, AFC DAC, frequency and slope of AFC0 to AFC7 to file.

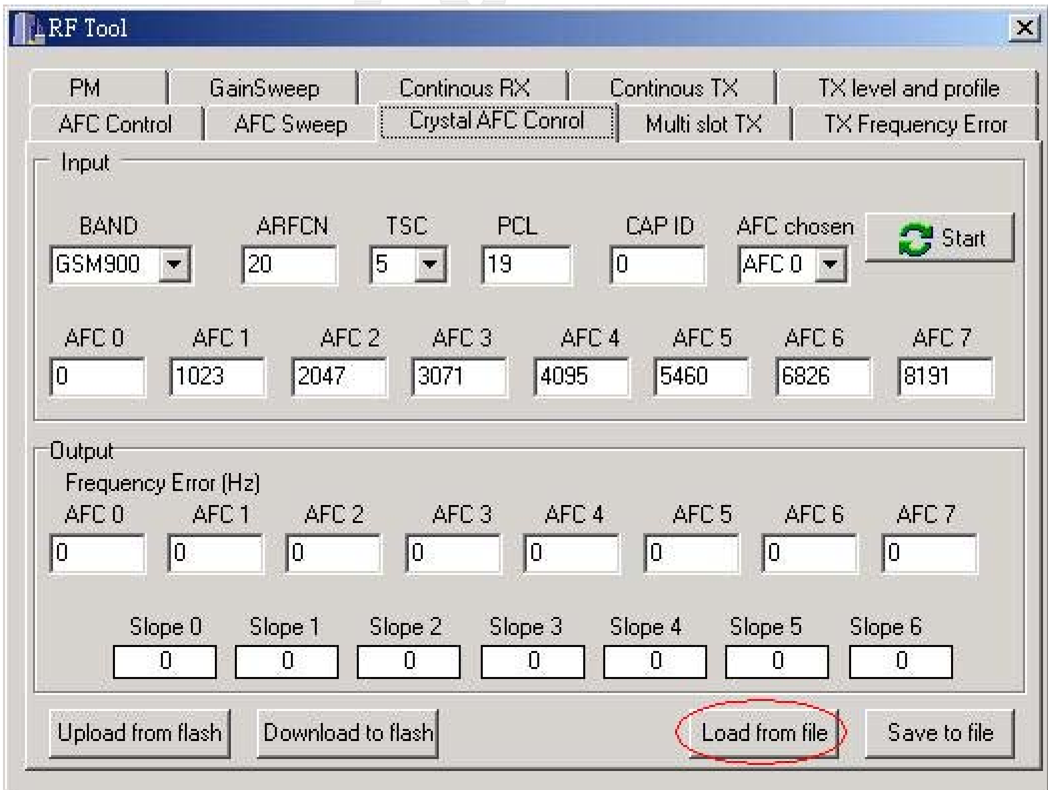

Figure 132 Click [Load from file] to read crystal AFC control value from file

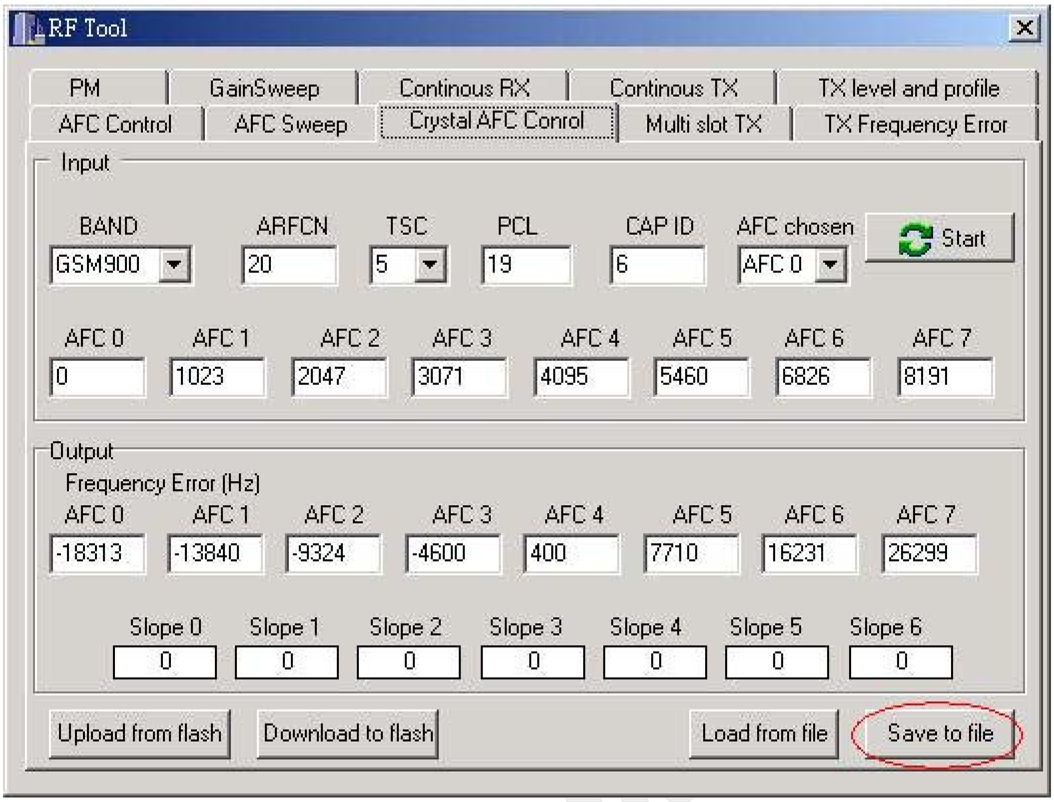

Figure 133 Click [Save to file] button to save crystal AFC control value to file

The following is a template of crystal AFC control file. User will get the text file after clicking [Save to file] button. Please follow the file format if you want to change the value in file.

[Crystal AFC control]
cap_id=6
AFC_DAC_0=0
AFC_DAC_1=1023
AFC_DAC_2=2047
AFC_DAC_3=3071
AFC_DAC_4=4095
AFC_DAC_5=5460
AFC_DAC_6=6826
AFC_DAC_7=8191
FREQ_ERR_0=-18313
FREQ_ERR_1=-13840
FREQ_ERR_2=-9324
FREQ_ERR_3=-4600
FREQ_ERR_4=400
FREQ_ERR_5=7710
FREQ_ERR_6=16231
FREQ_ERR_7=26299

3.2.9 Multi slot TX

This operation is used for user to fine tune multi-slot TX configuration and inter slot ramp profile. Power Amplifier is turned on in this operation and indicated bursts are transmitted. MS will start to transmit RF signal with parameters set by user after MS get the command from META. RF engineer can measure the transmitted power of MS by Agilent 8960 or other measurement instrument.

User can execute multi-slot TX function by following steps:

1) Input Band, ARFCN, TSC (training sequence code), TA (timing advance) and AFC DAC value.
2) Click time slot mask (at most 4 time slots are supported) and enter coding scheme and PCL of corresponding time slot.
3) Click [Start] button.
4) User can stop this operation by clicking [Stop] button.

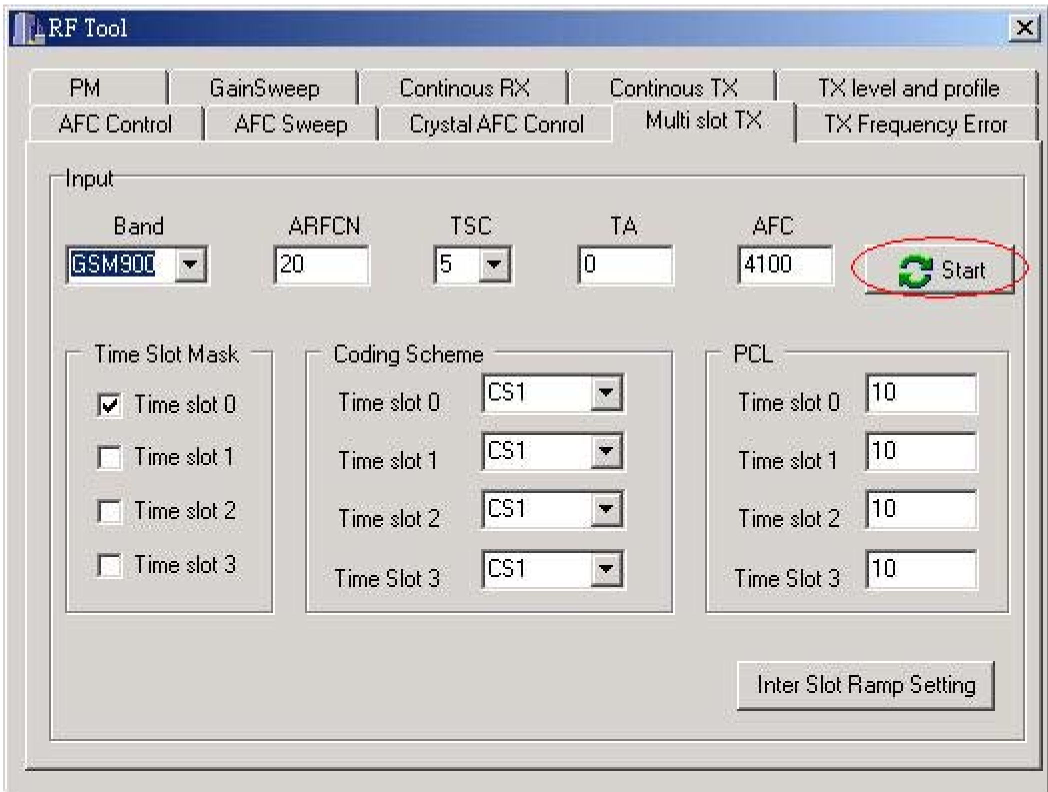

Figure 134 Click [Start] button to start multi slot TX testing

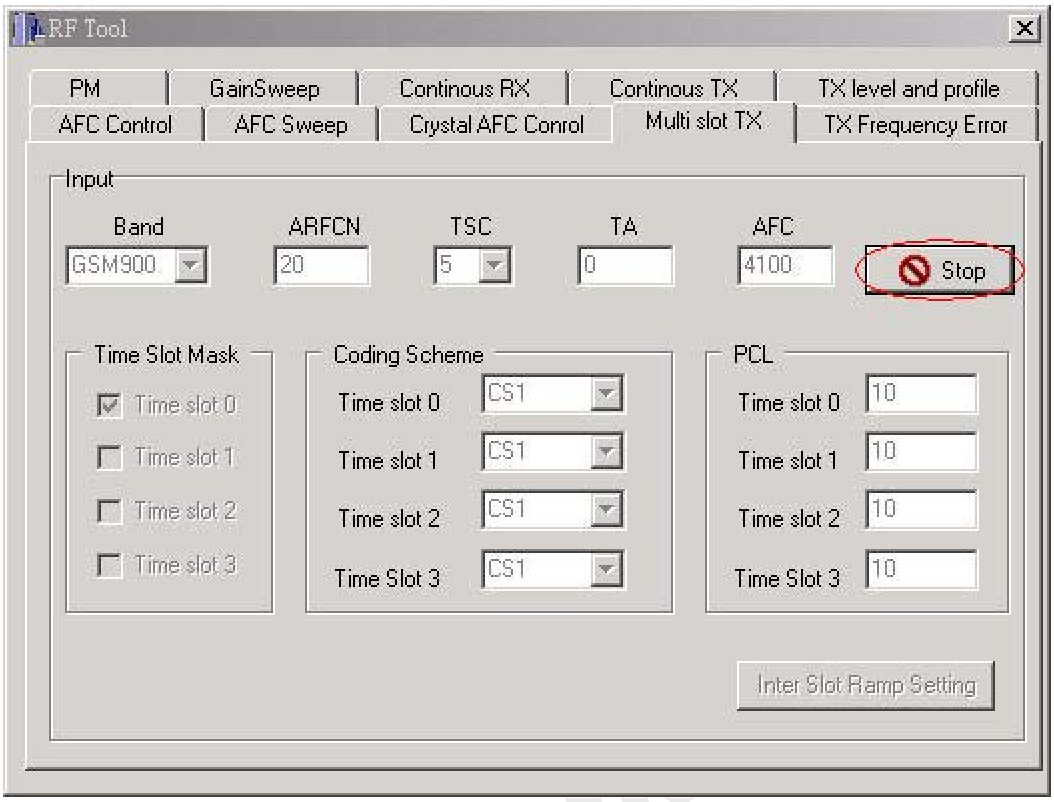

Figure 135 Click [stop] button to stop multi slot TX testing

3.2.9.1 Inter slot ramp setting

User can edit inter slot ramp using inter slot ramp window. User can click [Inter Slot Ramp Setting] button to show inter slot ramp window.

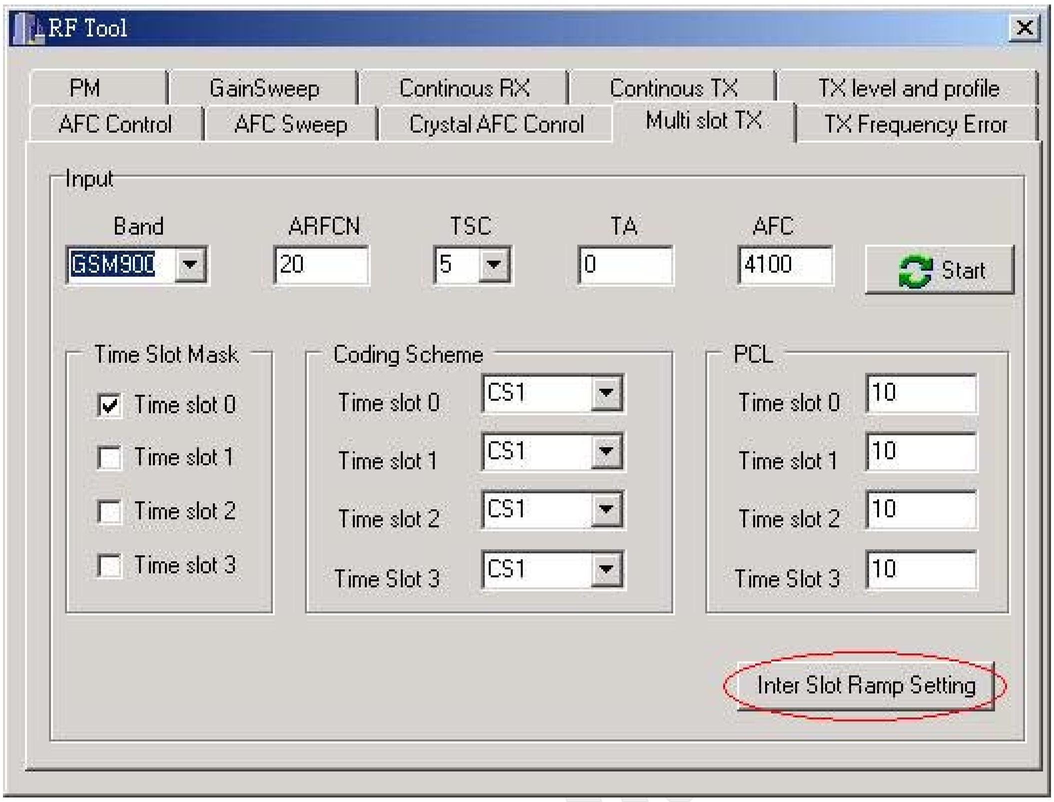

Figure 136 Click [Inter Slot Ramp Setting] button

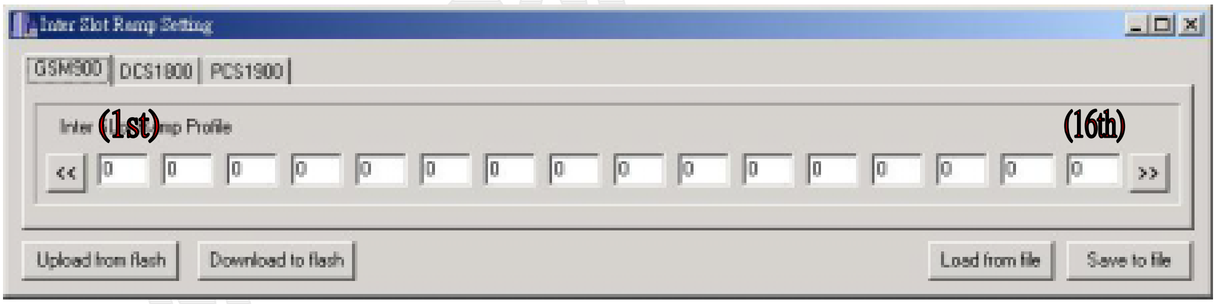

Figure 137 Inter slot ramp setting window

3.2.9.2 Upload and download inter slot ramp profile in flash

User can read inter slot ramp profile from flash by clicking [Upload from flash] button and write inter slot ramp profile to flash by clicking [Download to flash] button.

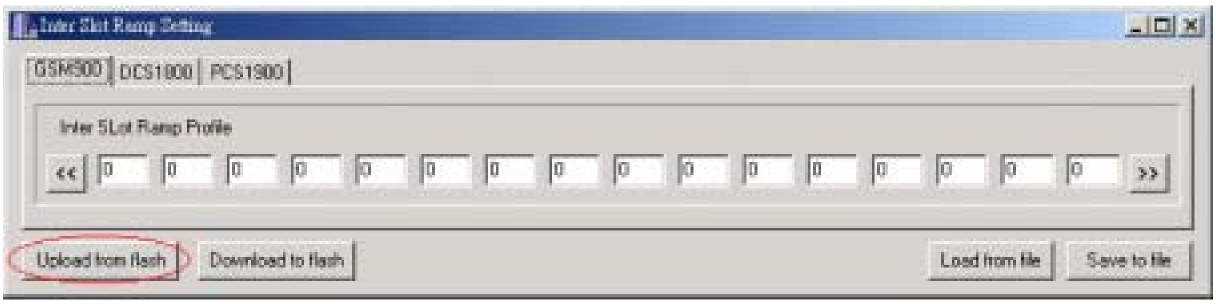

Figure 138 Click [Upload from flash] button to read inter slot ramp profile from flash

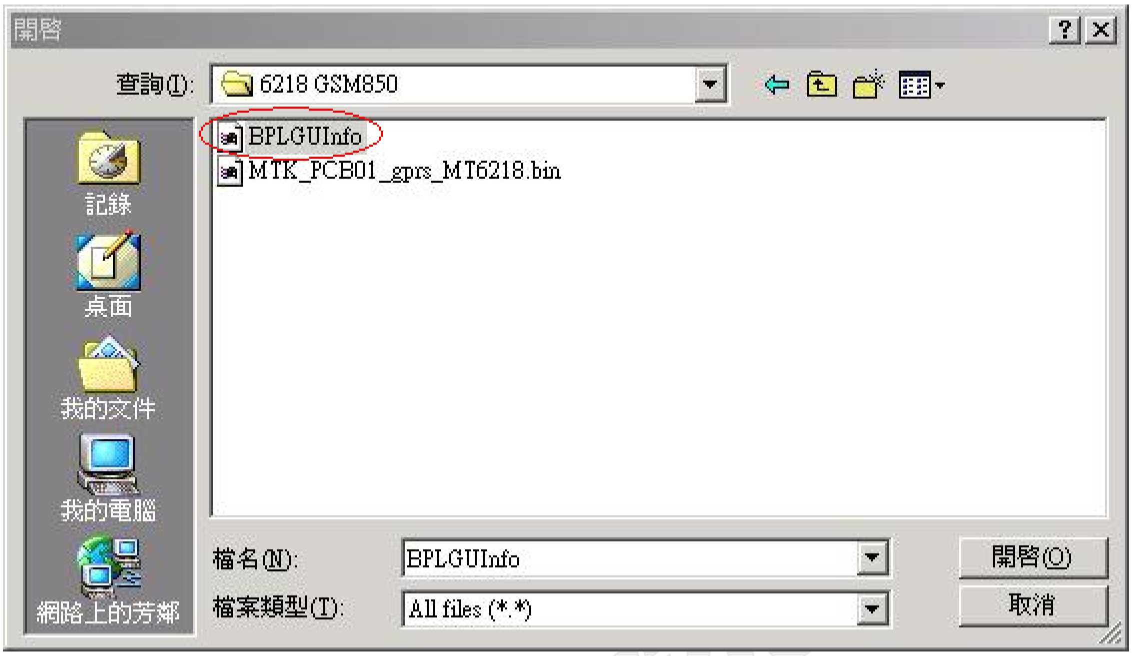

Figure 139 Select NVRAM database file if not selected before

Figure 140 Result of uploading inter slot ramp profile from flash

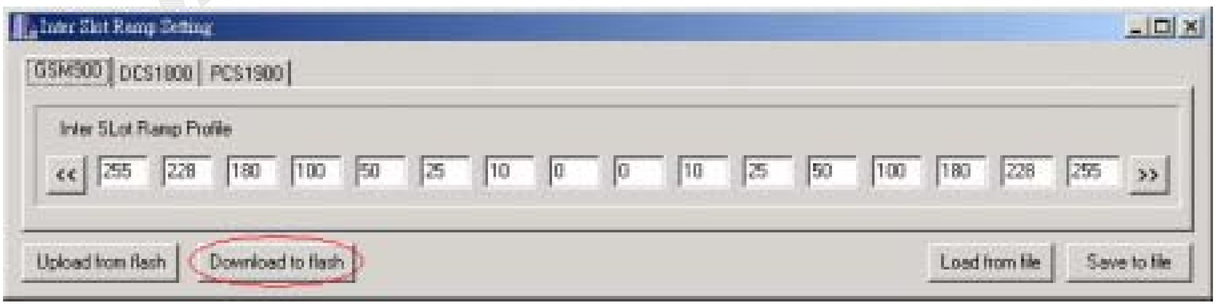

Figure 141 Click [Download to flash] button to download inter slot ramp profile to flash

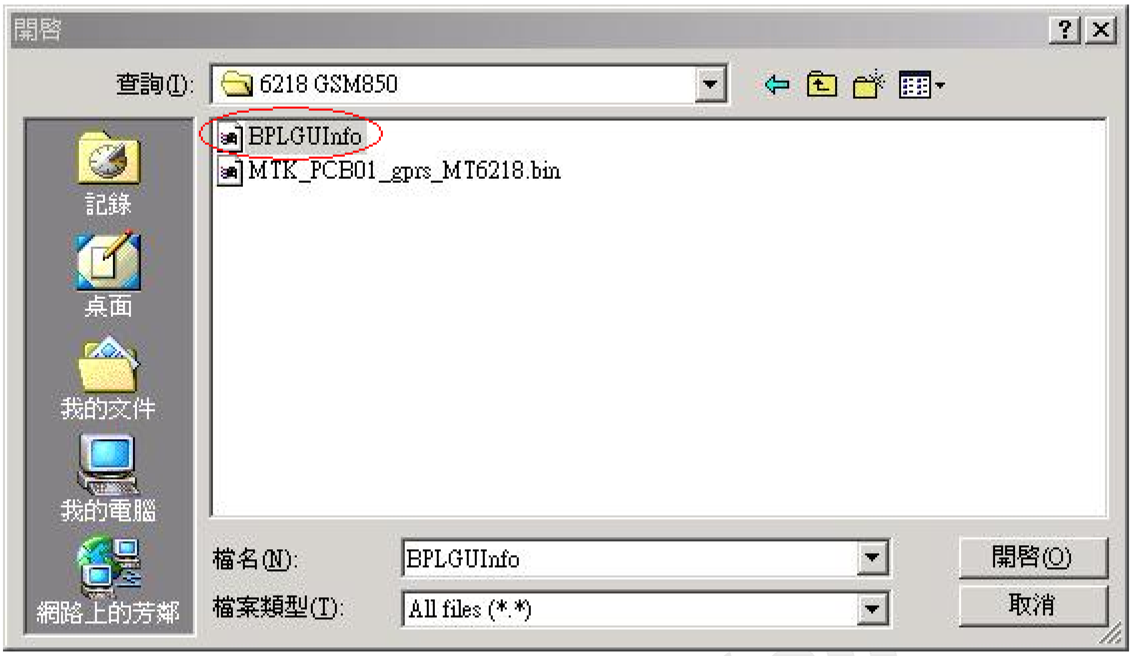

Figure 142 Select NVRAM database file if not selected before

3.2.9.3 Read and write inter slot ramp profile in file

User can read inter slot ramp profile by clicking [Load from file] button and write inter slot ramp profile in file by clicking [Save to file] button.

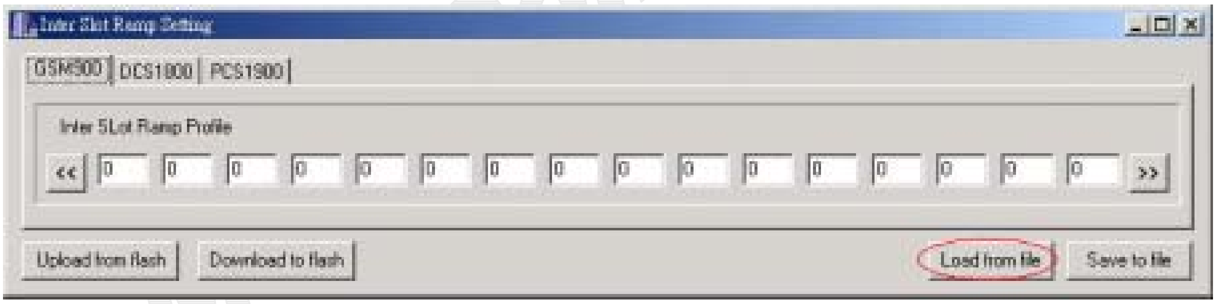

Figure 143 Click [Load from file] to read inter slot ramp profile from file

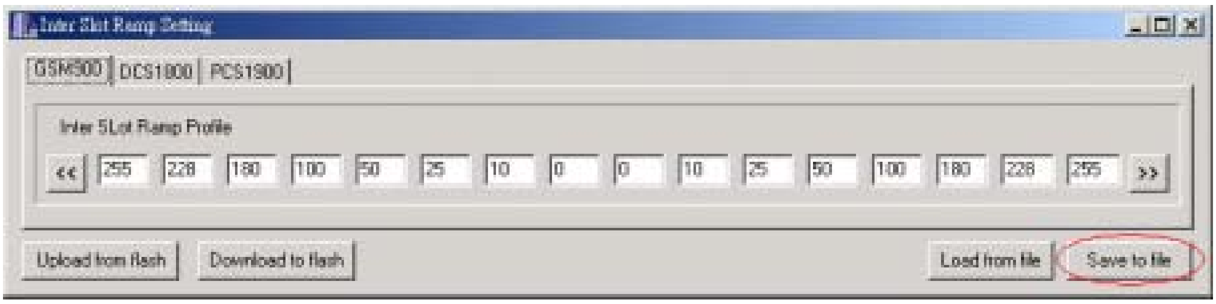

Figure 144 Click [Save to file] button to save inter slot ramp profile to file

The following is a template of inter slot ramp profile file. User will get the text file after clicking [Save to file] button. Each value must be followed with a comma. Please follow the file format if you want to change the value in file.

[GSM900 inter slot ramp]

inter slot ramp profile=255,228,180,100,50,25,10,0,0,10,25,50,100,180,228,255
[DCS1800 inter slot ramp]
inter slot ramp profile=255,228,180,100,50,25,10,0,0,10,25,50,100,180,228,255
[PCS1900 inter slot ramp]
inter slot ramp profile=255,228,180,100,50,25,10,0,0,10,25,50,100,180,228,255

3.2.10 TX frequency error

This operation is used for user to get TX frequency error periodically from Agilent 8960. User can execute TX frequency error function by following steps:

1) Input Band, ARFCN, TSC (training sequence code), PCL (power control level), AFC DAC value, period and ADC channel and select burst type.
2) Click [Setup log file name] button.
2) Click [Start] button.
3) User can stop this operation by clicking [Stop] button.

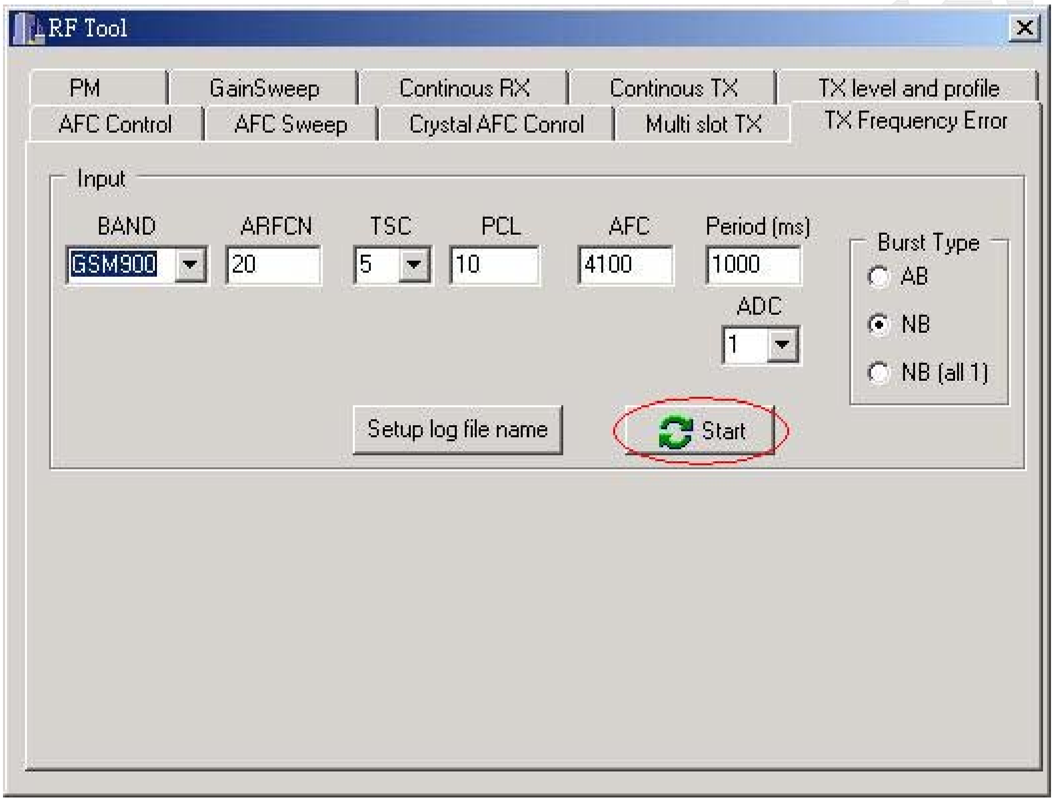

Figure 145 Click [Start] button to start getting TX frequency error

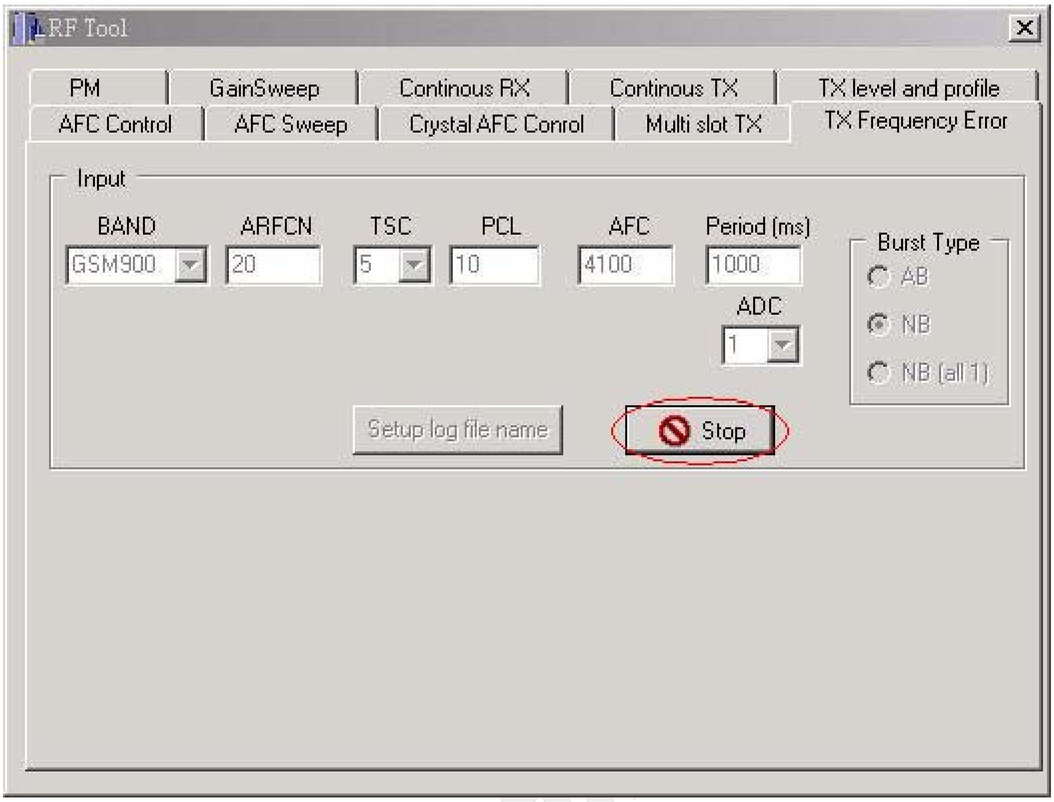

Figure 146 Click [stop] button to stop getting TX frequency error

3.2.11 Crystal AFC sweep

This operation is used for user to get TX frequency error periodically from Agilent 8960. User can execute crystal AFC sweep function by following steps:

1) Setup NVRAM database file, CFG file and log file.
2) Input Band, ARFCN, TSC (training sequence code), PCL (power control level), minimum CAP ID, maximum CAP ID, CAP ID step, minimum AFC DAC, maximum AFC DAC and AFC DAC step.
3) Click [Start] button.
4) User can stop this operation by clicking [Stop] button.

Note: CAP ID field is used to select index of CAP array (range: 0~63) in RF chip.

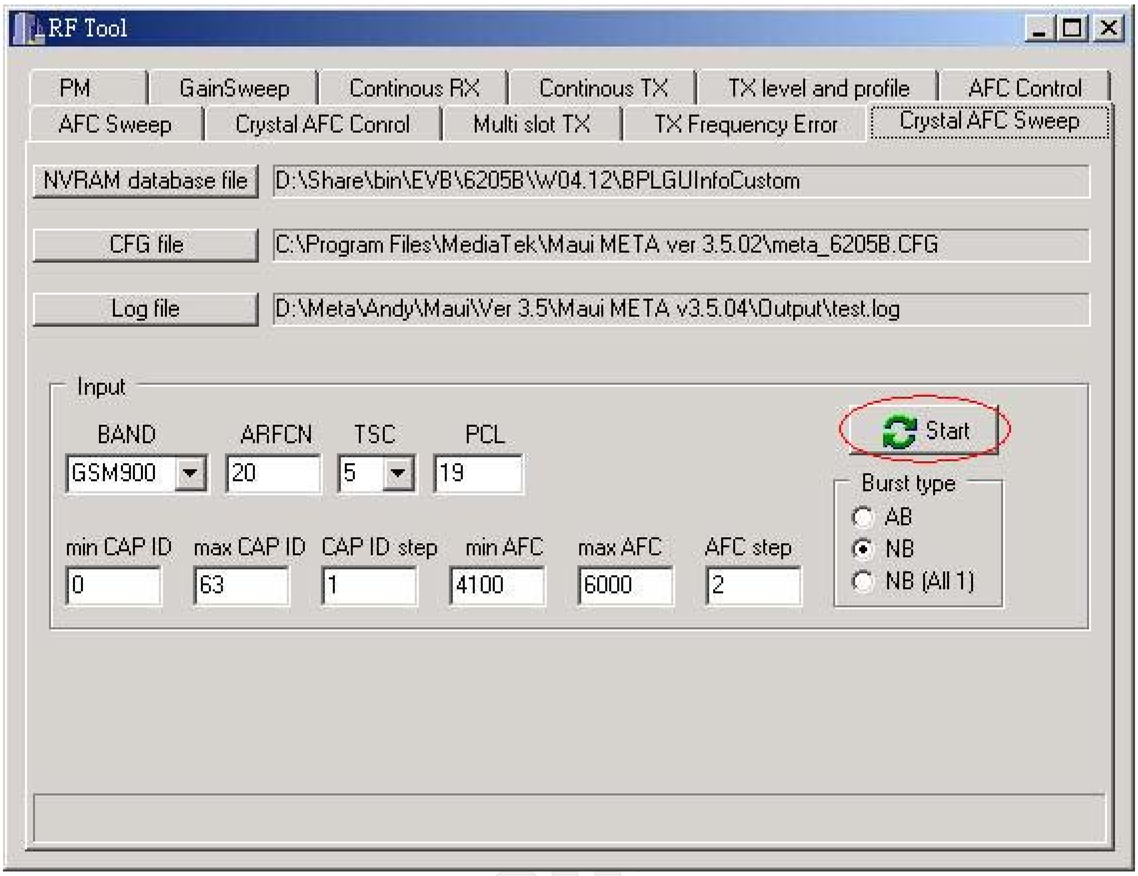

Figure 147 Click [Start] button to start crystal AFC sweep

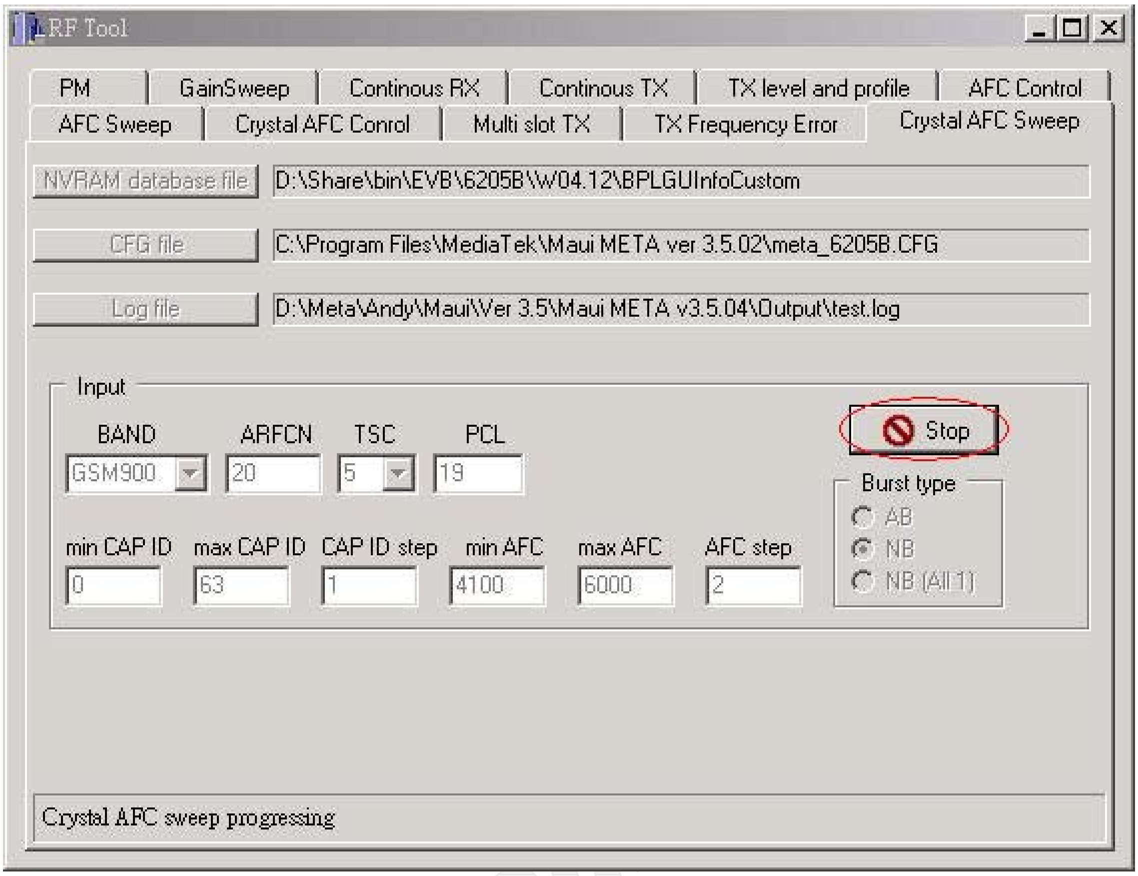

Figure 148 Click [Stop] button to stop crystal AFC sweep

3.3 NVRAM editor

The data saved in flash is constructed by many records. NVRAM editor can edit each value in each record in the flash. The tree at left side window will be automatic generated after opening the NVRAM database file. The window at the right side will display the data structure of the selected record read from NVRAM. User can switch to NVRAM editor by selecting [NVRAM editor] from main selection menu.

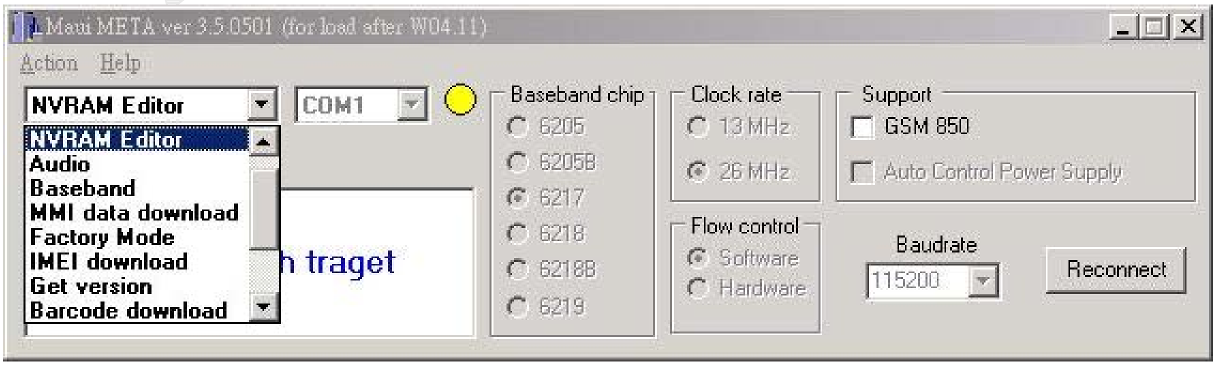

Figure 149 Select [NVRAM Editor] from main selection menu

3.3.1 Read from NVRAM

User can click [read from NVRAM] button to read one record from flash in MS.

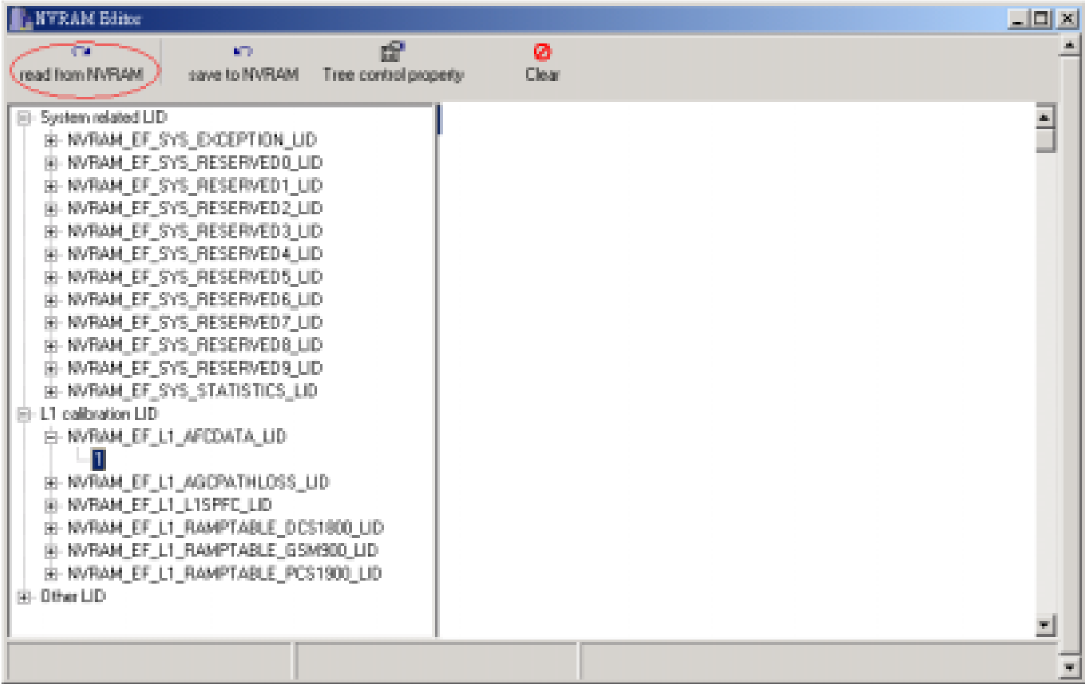

Figure 150 Click [read from NVRAM] button to read one record from flash

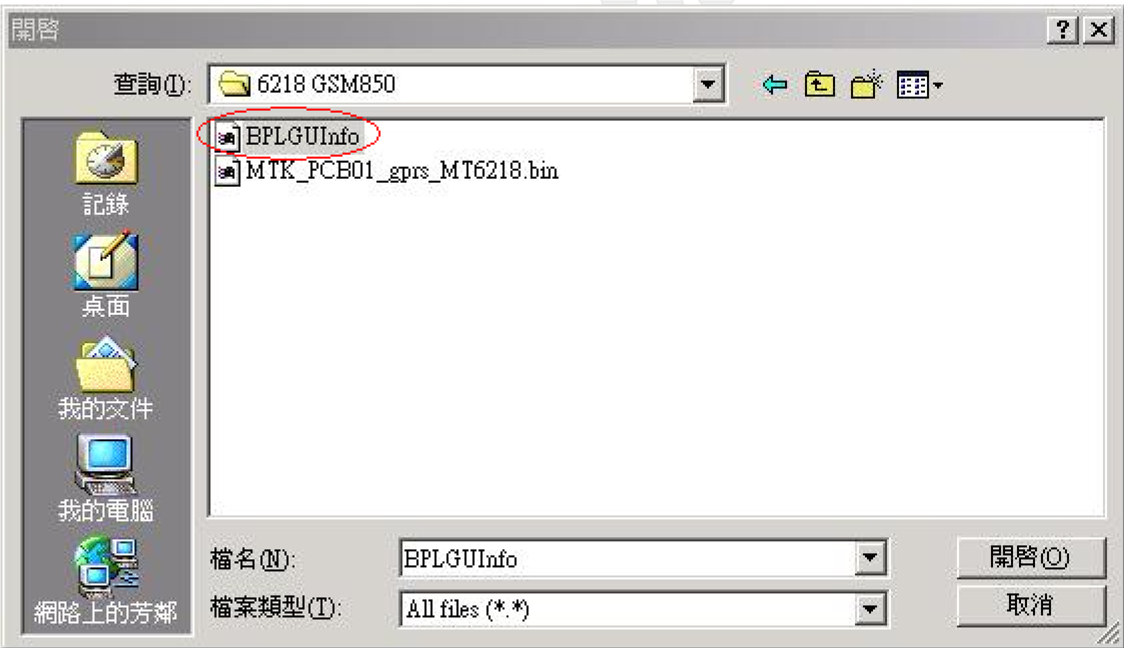

Figure 151 Select NVRAM database file if not selected before

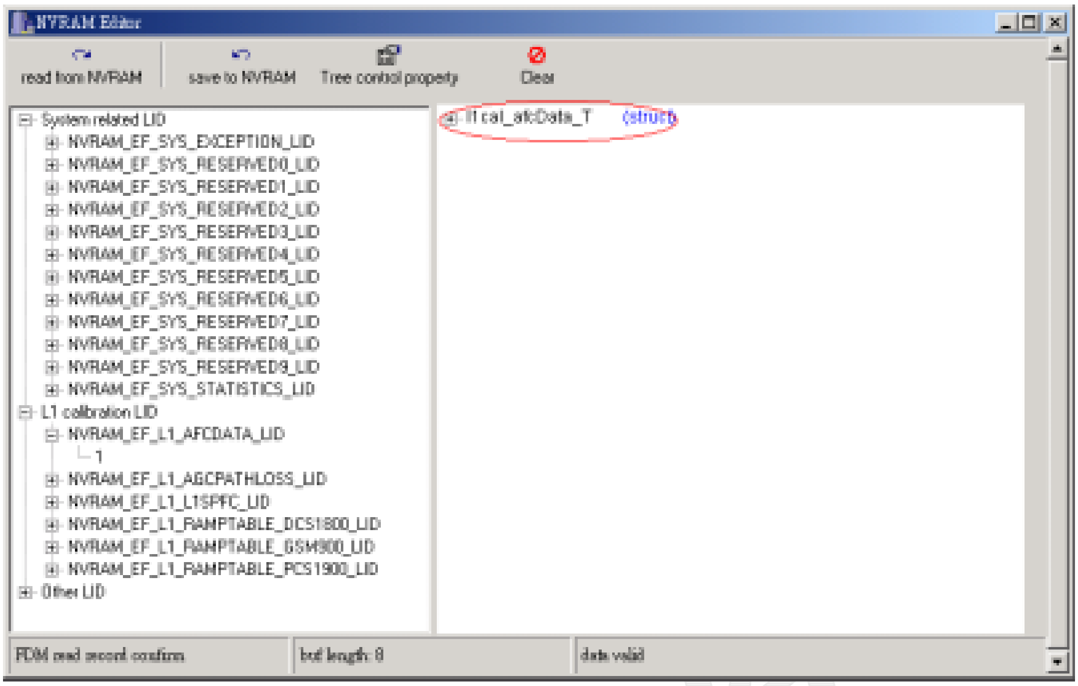

Figure 152 The record read from NVRAM is shown on the right side window

User can click the structure in the right side window to expend the data structure of the record.

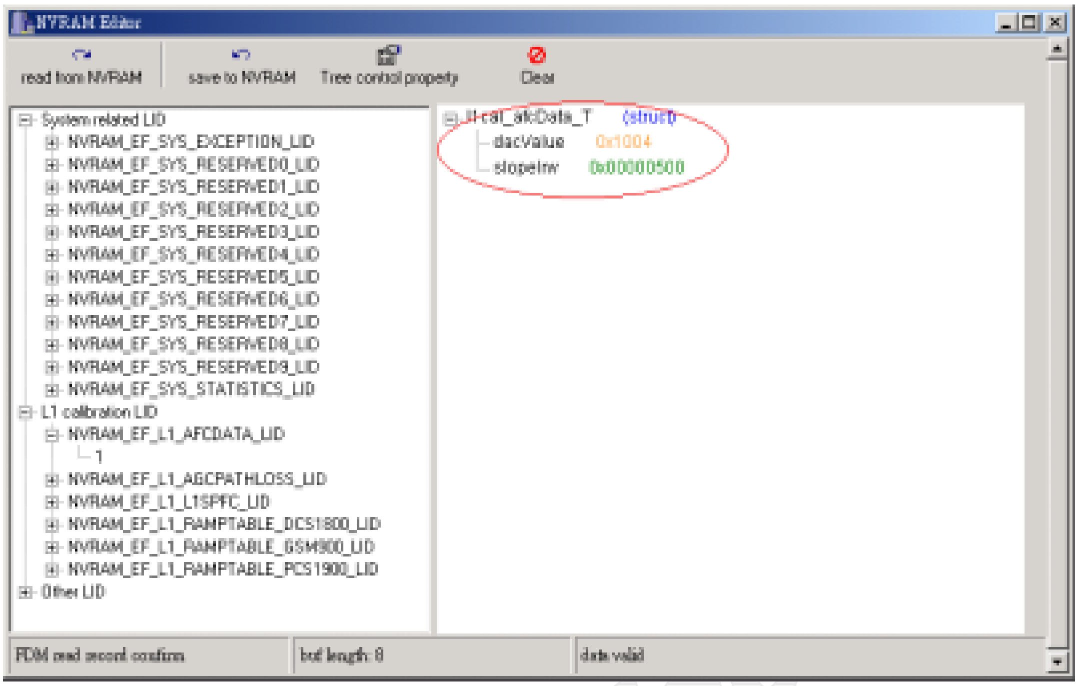

Figure 153 Data structure of the selected record

User can read another record from NVRAM using following steps:
Step 1. Select one record in the tree of the left side window.
Step 2. Click [read from NVRAM] button.

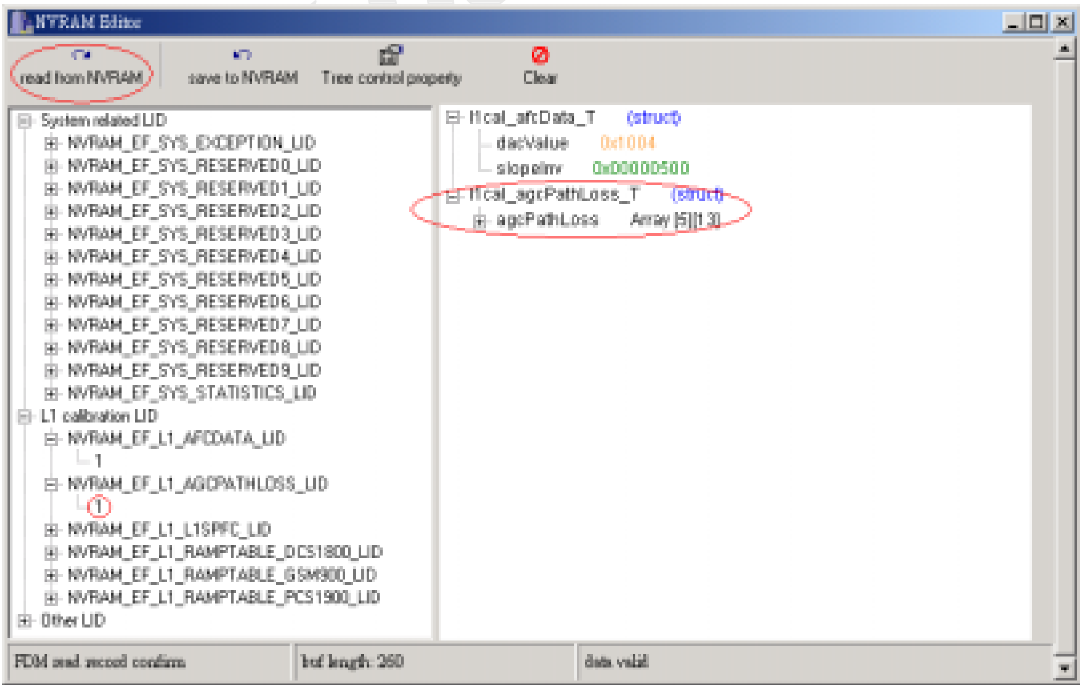

Figure 154 Read another record.

Click the structure you read at the right side window to expand the structure.

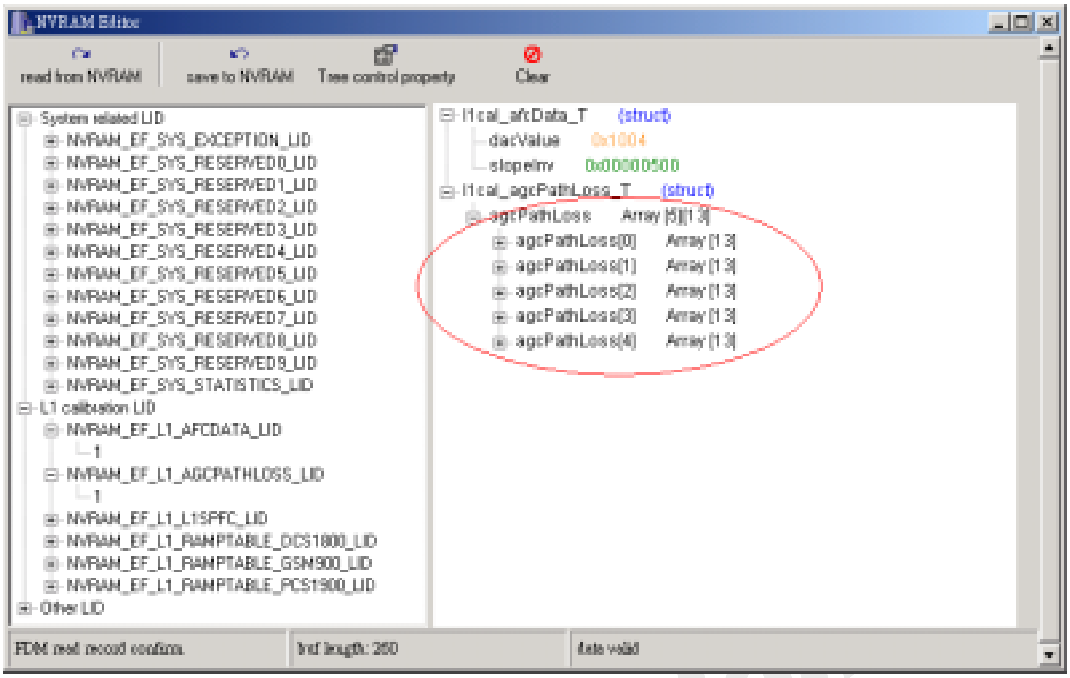

Figure 155 Show the data structure of the selected record

3.3.2 Editing the field in structure

User can select a field of the structure by clicking it. Then input value to the selected field.

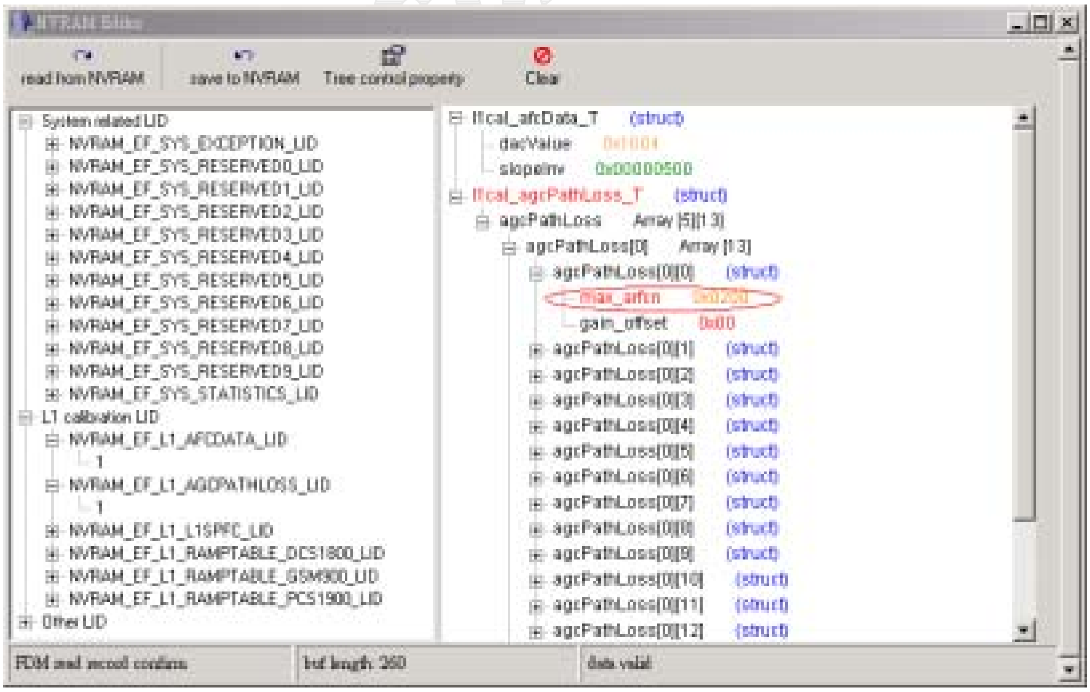

Figure 156 Select a field

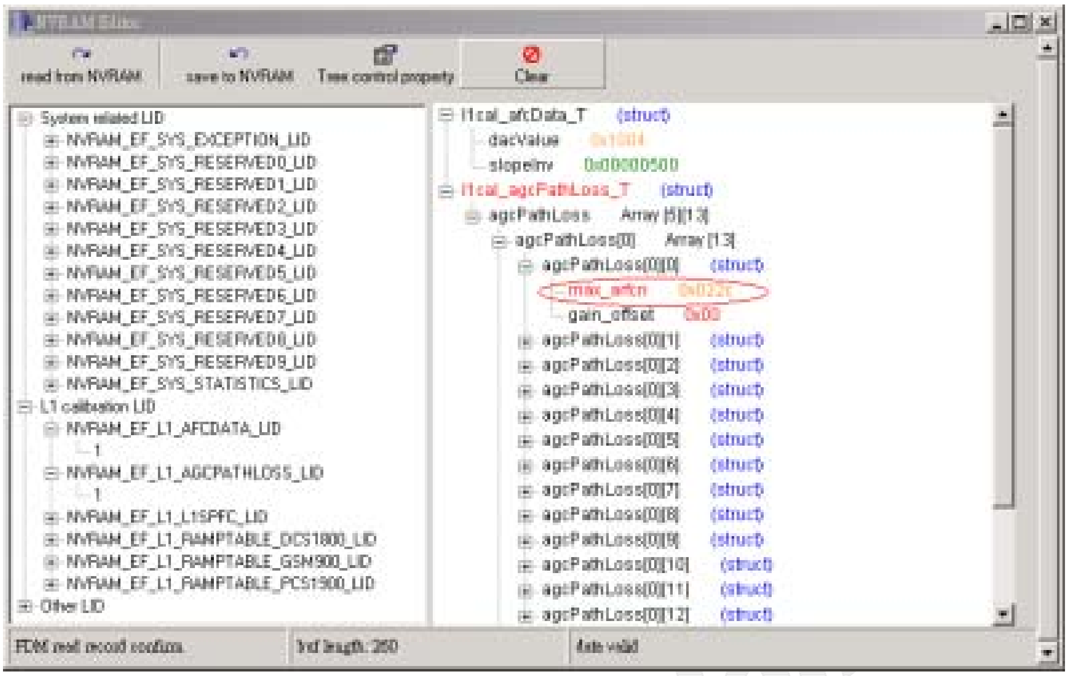

Figure 157 Change value of the field

The modified field and structure will change its color.

3.3.3 Save the record to NVRAM

User must select the record that he wants to save firstly and then click [Save to NVRAM] button to save the record.

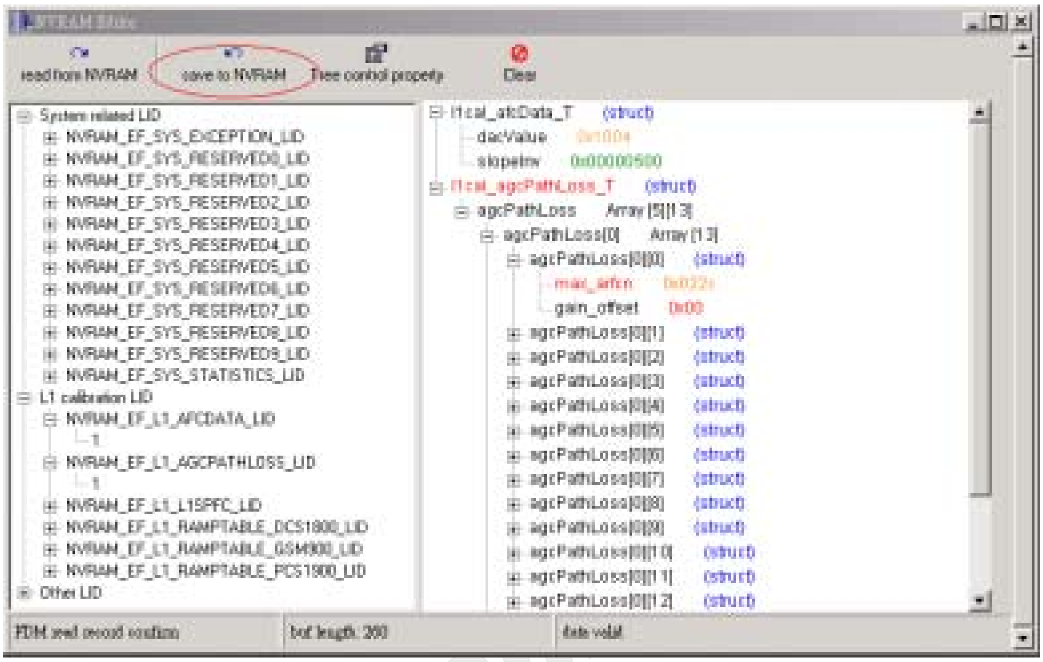

Figure 158 Save the selected record to flash

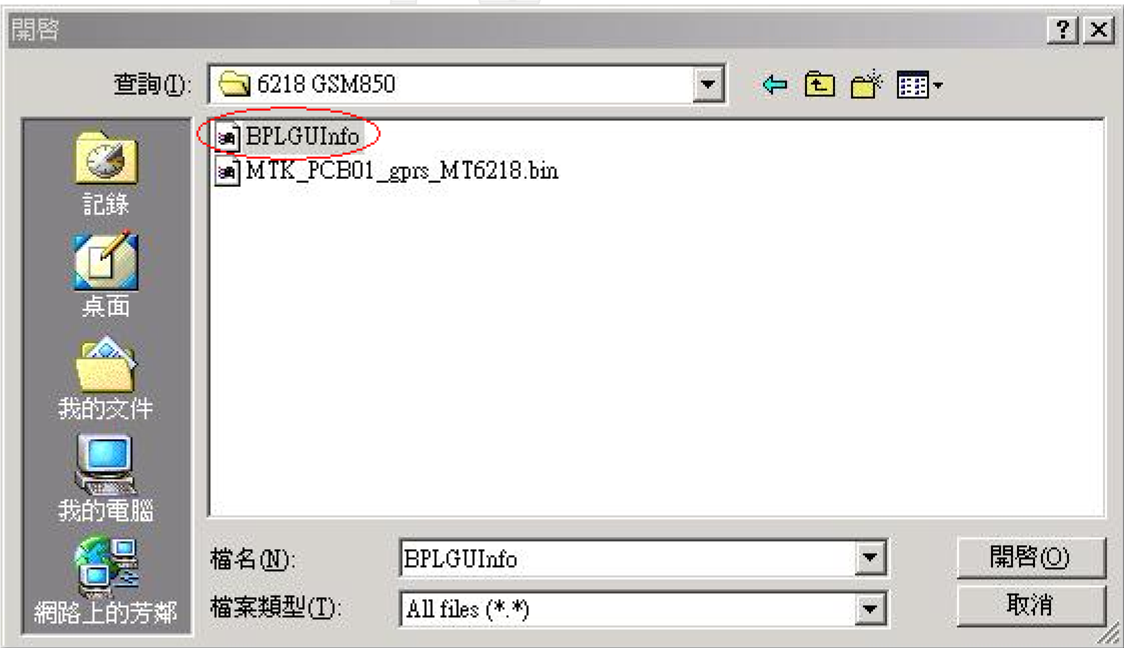

Figure 159 Select NVRAM database file if not selected before

3.3.4 Clear or remove a structure in NVRAM editor

User can click [Clear] button to remove a structure in NVRAM editor.

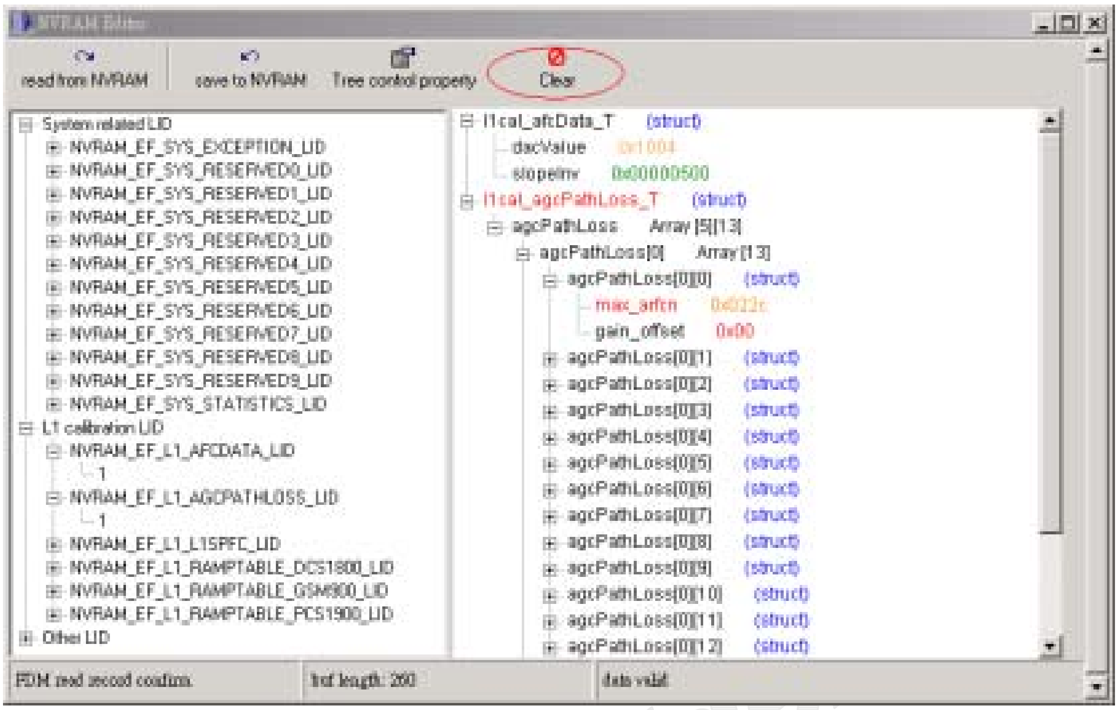

Figure 160 Clear one record in flash

If user wants to clear a modified record, NVRAM editor will pop-up a dialog to ask user to save it or not.

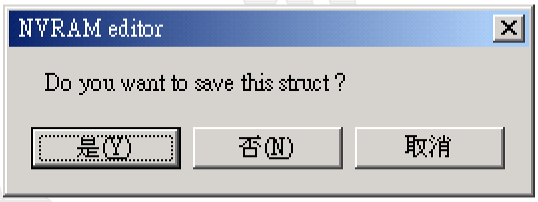

Figure 161 Save or not or cancel

3.3.5 NVRAM editor property setting

User can click [Tree control property] button to set colors of tree at the right side window.

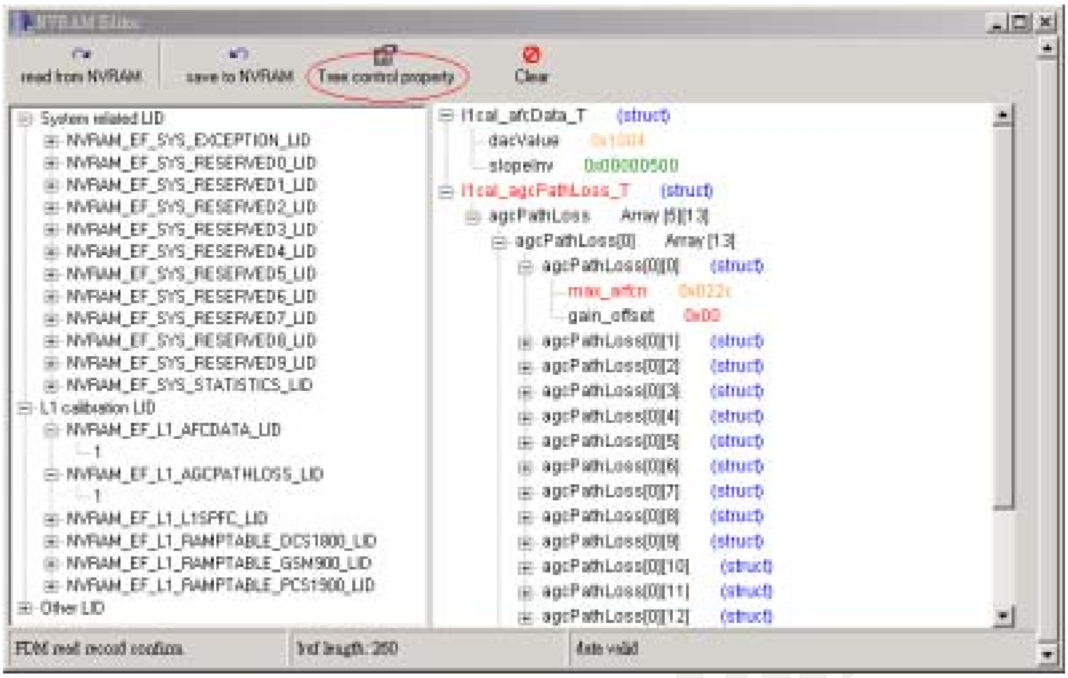

Figure 162 Click [Tree control property] button

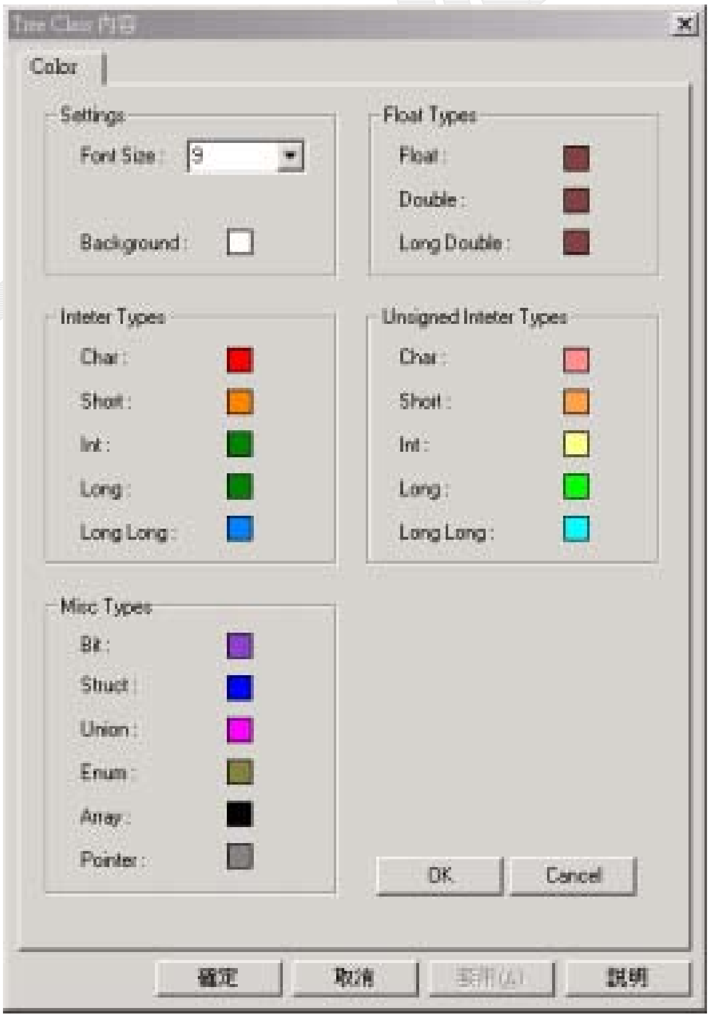

Figure 163 Tree control property window

User can click each little square to change the color of each type in NVRAM editor.

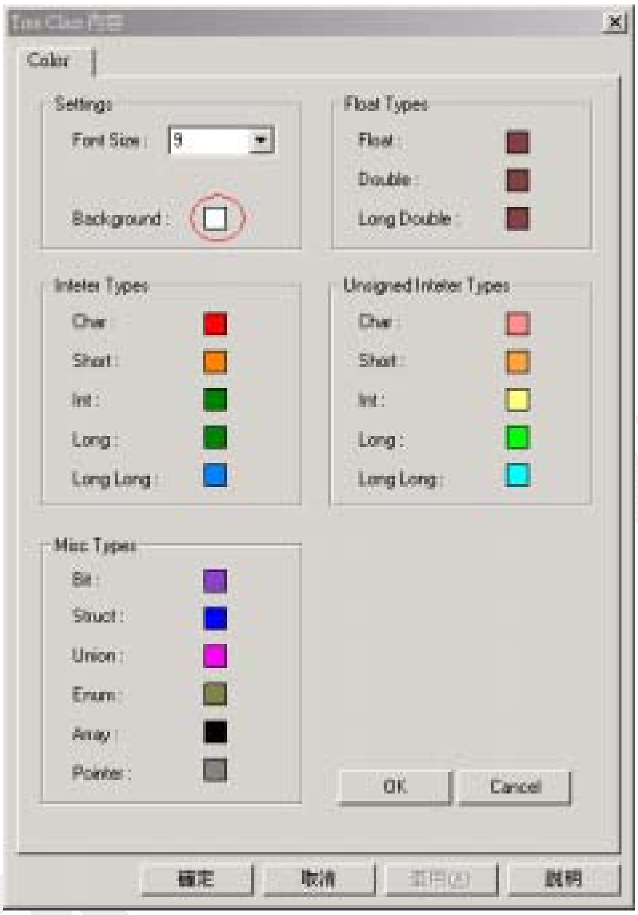

Figure 164 Set color of data type window

After user clicks the square, NVRAM editor will pop-up a little window to show all colors that user can select.

Figure 165 Select color window

3.4 Audio function

There are many audio functions supported by META. They are acoustic FIR-coefficient, additional output FIR-coefficient, AMR FIR-coefficient, melody FIR-coefficient, audio testing, ring composer, play song in FAT, play song using ID, customer volume setting, acoustic FIR tuning and melody FIR tuning. User can switch to audio function by selecting [Audio] from main selection menu.

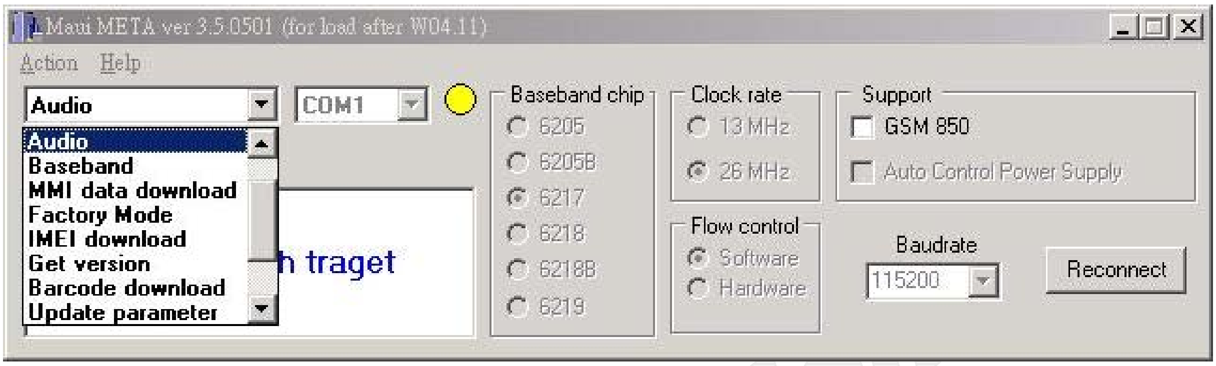

Figure 166 Select [Audio] from main selection menu

3.4.1 Acoustic FIR-coefficient

Acoustic FIR-coefficient window provides interface for user to read or write coefficient in flash, ini file or Matlab file and generating C file. User can click these 12 buttons shown on window to read coefficient from flash, write coefficient to flash, load coefficient from file and save coefficient to file. All values are in decimal format. The range of acoustic FIR coefficient is -32768 ~ 32767. There are four group of coefficient, they are handset input coefficient, handset output coefficient, earphone input coefficient and earphone output coefficient. There are 30 words in each group of coefficient. There are 5 parameters in echo suppression function. They are

Time energy gap: time-and-energy-gap constant for speakerphone application in loud-speaker mode.

Volume constant: gain constant for speakerphone application in loud-speaker mode.

Time energy gap 2: time-and-energy-gap constant for echo loss at maximum speaker volume in normal mode.

Volume constant 2: gain constant for echo loss at maximum speaker volume in normal mode.

Media playback max swing: the maximum output swing to ADC DAC.

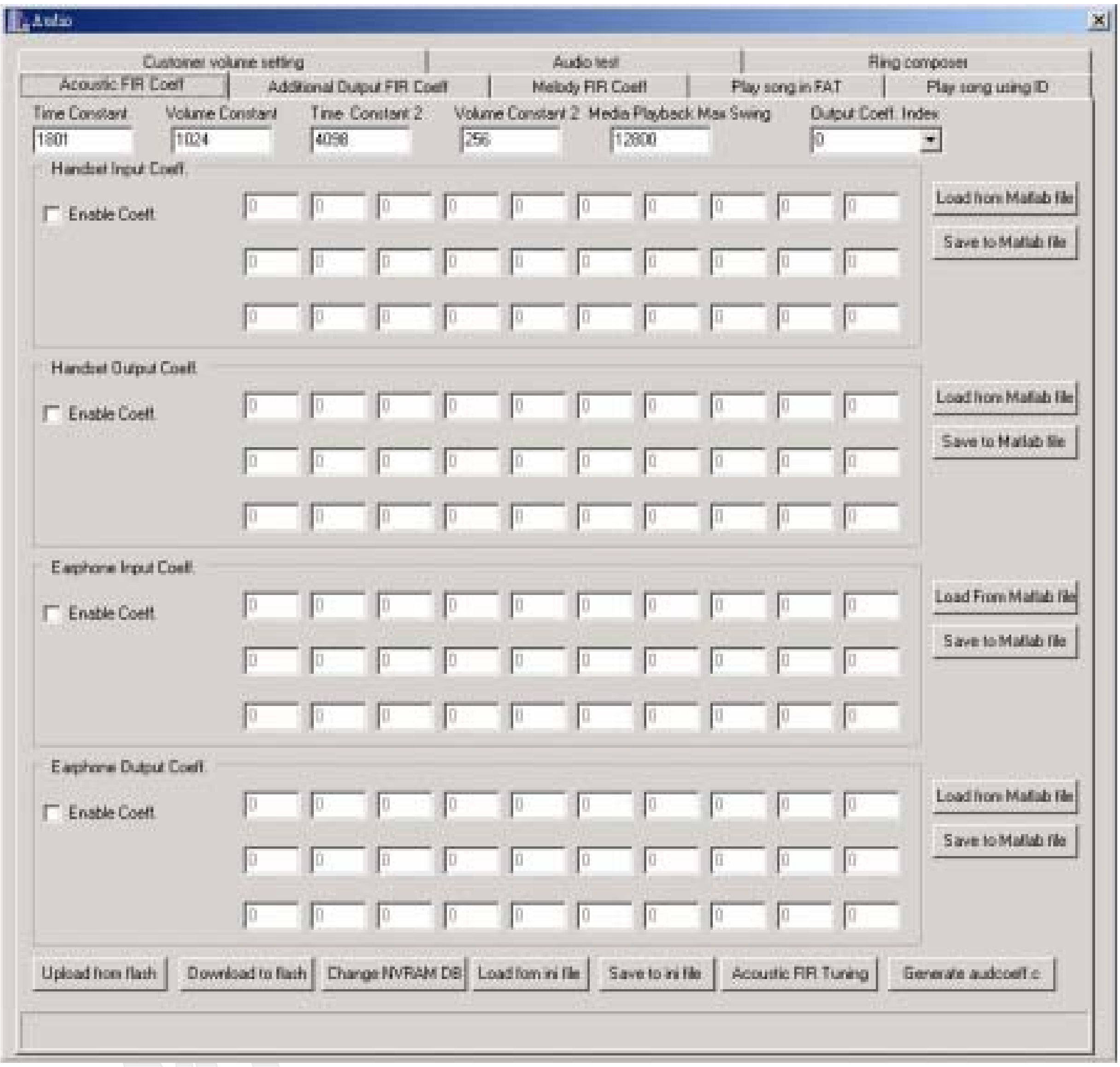

Figure 167 Acoustic FIR-Coefficient window

3.4.1.1 Upload and download acoustic FIR coefficient in flash

User can click [Upload from flash] button to read acoustic FIR coefficient from flash and click [Download to flash] button to write acoustic FIR coefficient to flash.

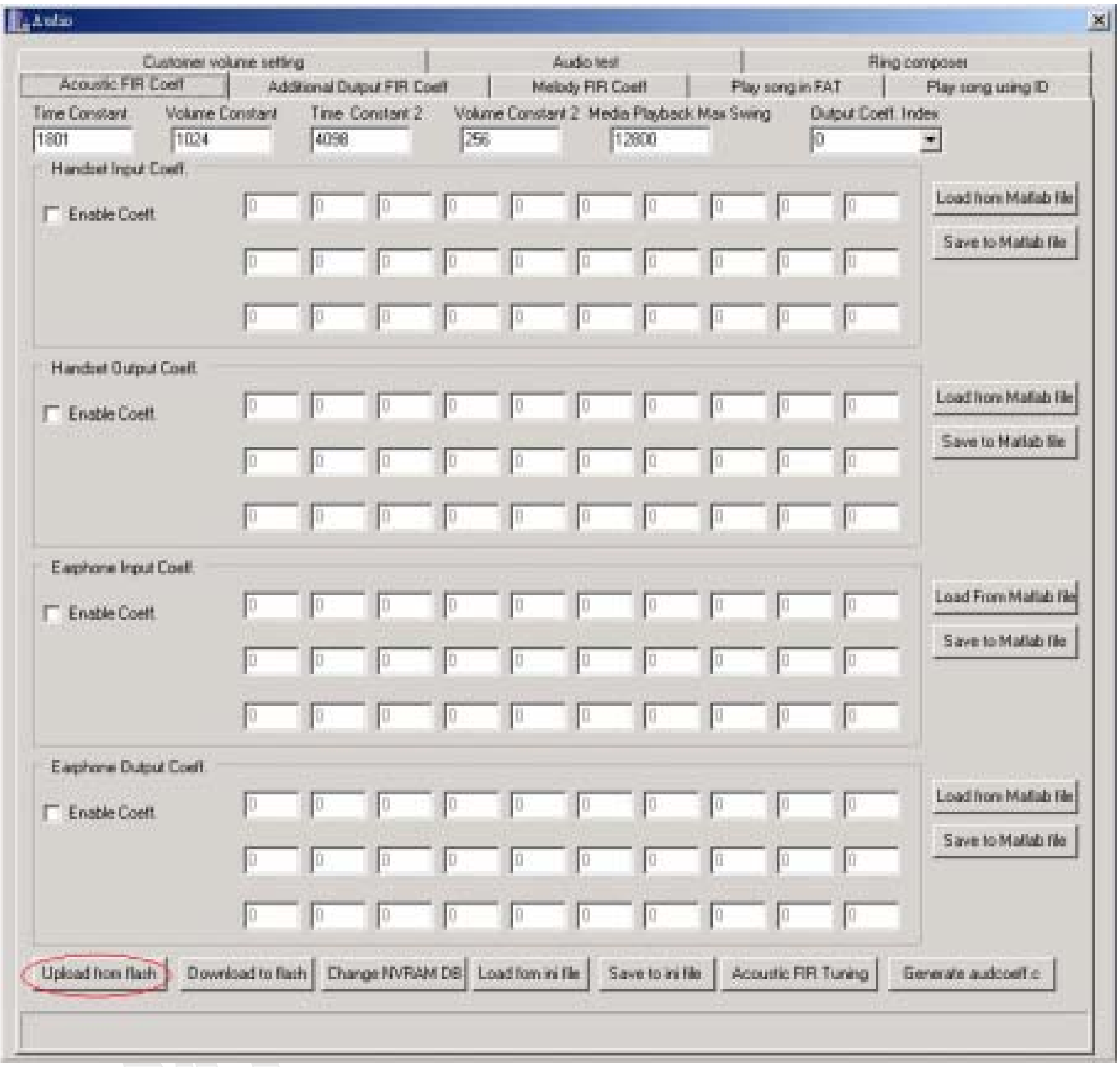

Figure 168 Click [Upload from flash] button to read coefficient from flash

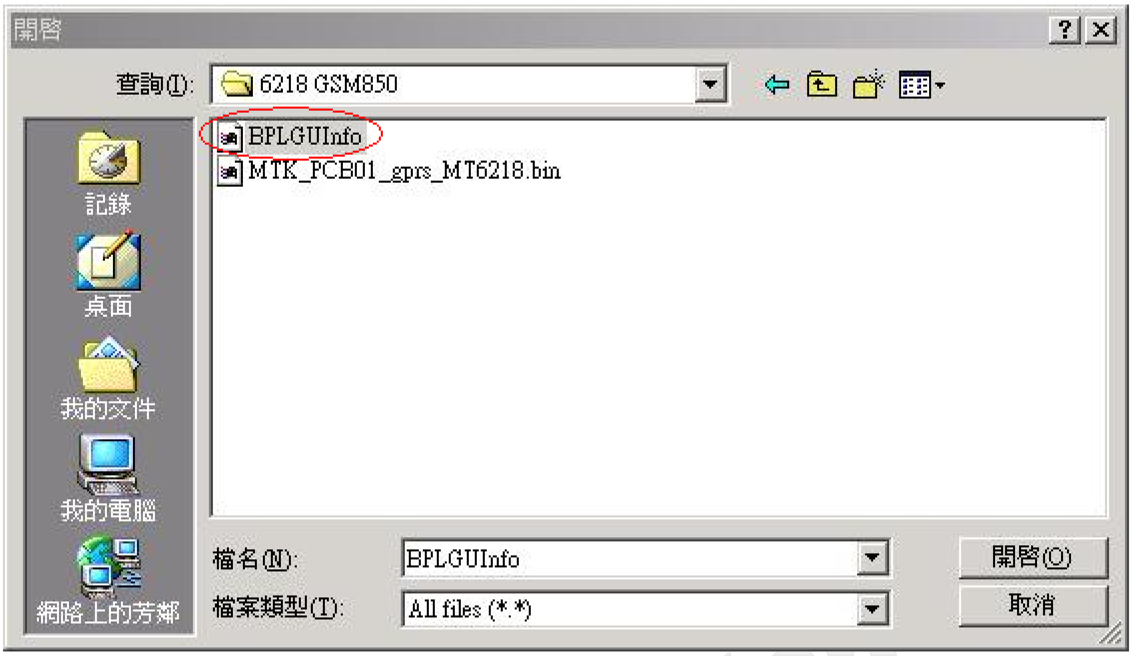

Figure 169 Select NVRAM database file if not selected before

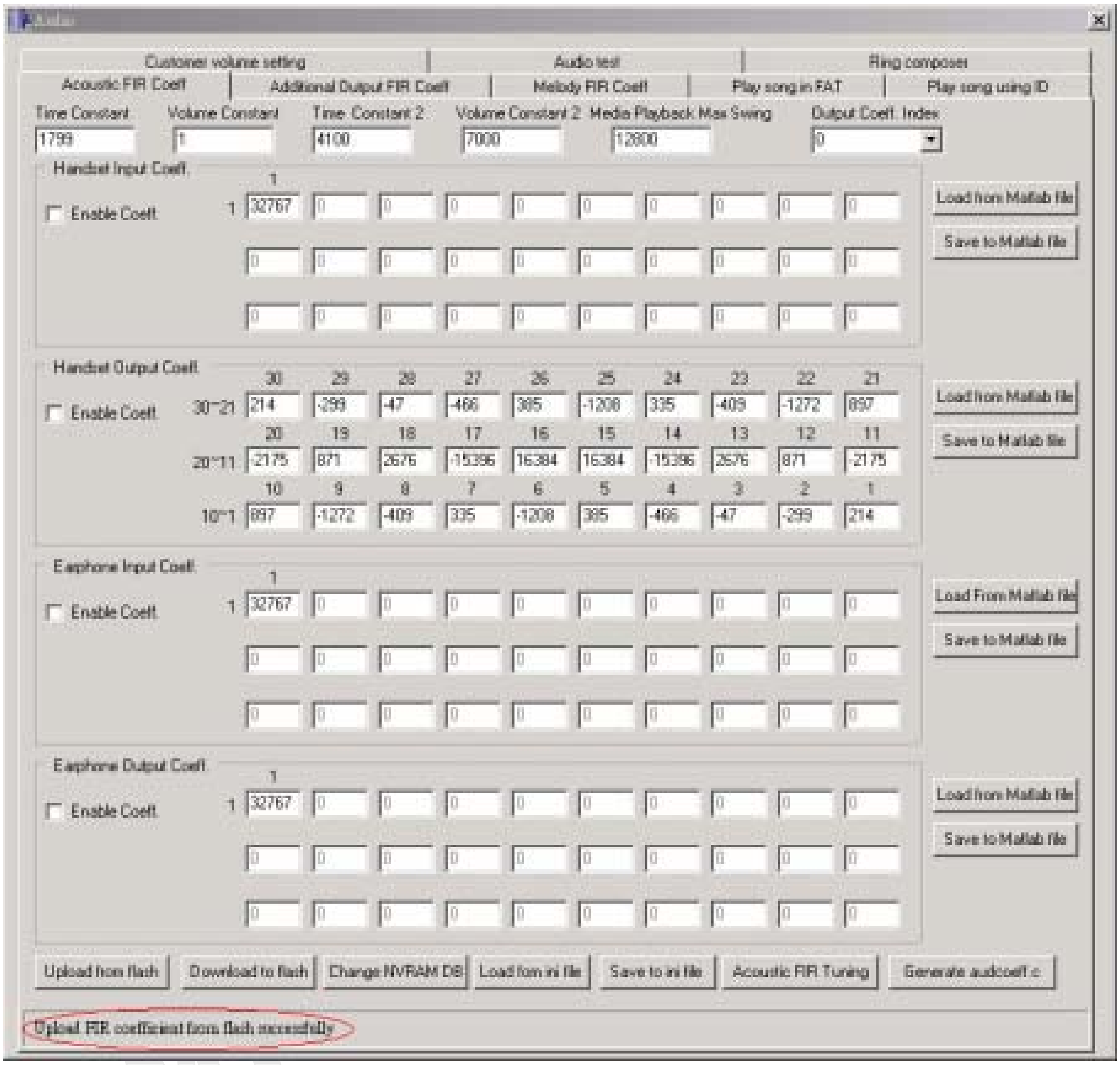

Figure 170 Result of upload acoustic FIR coefficient from flash

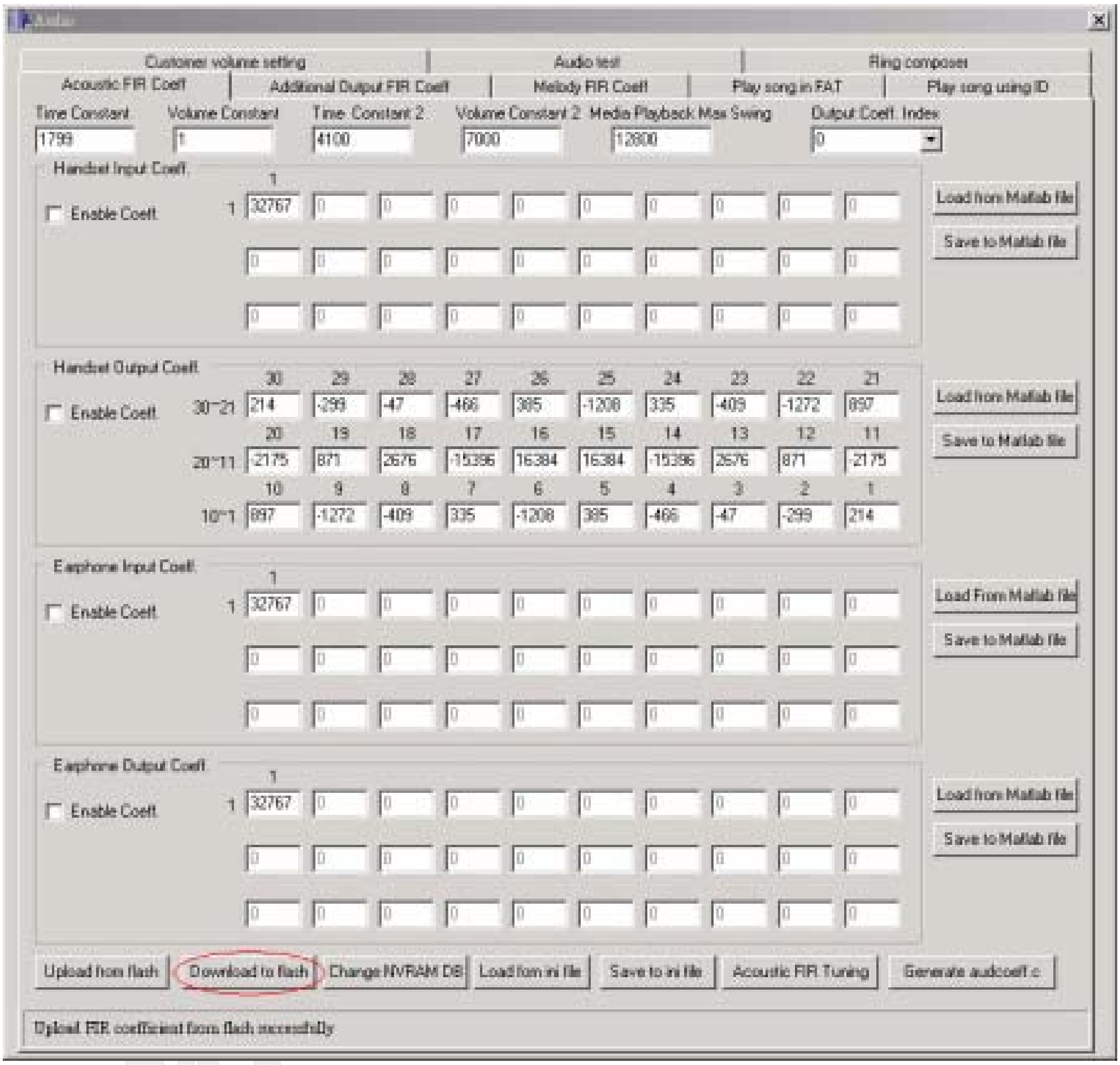

Figure 171 Click [Download to flash] button to save coefficient to flash

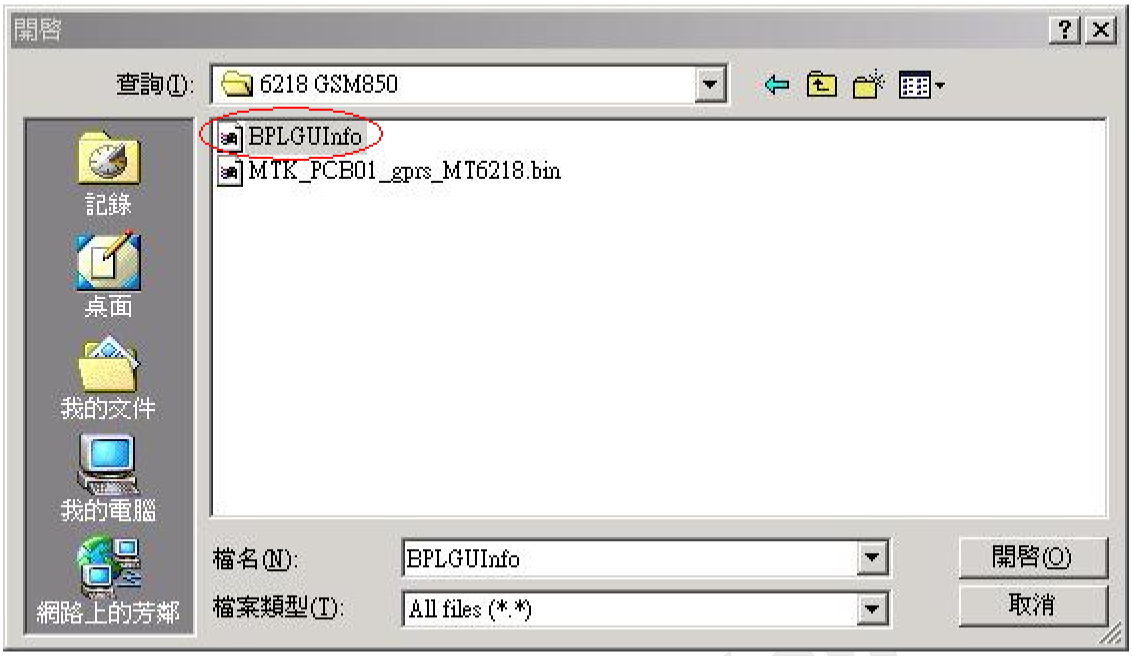

Figure 172 Select NVRAM database file if not selected before

User can click [Change NVRAM DB] button to change NVRAM database file.