62A.4 Register settings

62A.4.1 MCM register settings

Tables 62A-5 through 62A-7 contain the MCM register settings required to implement the profiles described in this Annex. The referenced registers are defined in 45.5.

Table 62A-5 contains the MCM tone group definitions to be used in order to support the band plan profiles desribed in 62A.3.2. For each of the listed tone groups, the Tone Active and/or Tone Direction bits in the 10P MCM tone control parameter register shall be set according to the use indicated in the first column of the table.

Table 62A-5—MCM register settings implementing bandplan profiles

Band Allocation	Band Plan A 10P MCM Tone Group Register		Band Plan B 10P MCM Tone Group Register		Band Plan C 10P MCM Tone Group Register		Band Plan Ann. F 10P MCM Tone Group Register	
	lower	upper	lower	upper	lower	upper	lower	upper
0 (upstream, downstream or not used)	0x0007	0x001F	0x0007	0x001F	0x0007	0x001F	0x0007	0x001F
1D (downstream)	0x0021	0x0365	0x0021	0x02B7	0x0021	0x0243	0x0021	0x0365
1U (upstream)	0x0367	0x04B5	0x02B9	0x049E	0x0245	0x0365	0x0367	0x04B5
2D (downstream)	0x04B7	0x07B2	0x04A0	0x0662	0x0367	Fx	0x04B7	0x07B2
2U (upstream)	0x07B4	0x0ADE	0x0664	0x0ADE	Fx	0x0ADE	0x07B4	0x0ADE

Unlike the other parameters governed by the profiles specified in the Annex, PSDs are typically defined by means of a functional expression, rather than a set of values. Transmit PSDs and Reference PSDs typically vary for each individual tone. A pseudo-C procedure for setting a PSD profile and a Reference PSD profile is shown below. It assumes the existence of the functions getPSDLevel(float frequencyInKHz) and getReferencePSD(float frequencyInKHz) specifying the transmit PSD and Reference PSD respectively, both expressed as a floating-point value in dBm/Hz. Registers are addressed by means of pointers ToneGroupRegister, ToneControlParameterRegister and ToneControlActionRegister.

```
for (short tone=0;tone<2048;tone++) {
    ToneGroupRegister[0] = tone; // set lower bound of tone group
    ToneGroupRegister[1] = tone; // set upper bound of tone group to the same value
    short TxPSD = floor(4*(getPSDLevel(tone*4.3125)+100)) & 0x01FF; // convert to 9-bit value
    ToneControlParameterRegister[1] &= 0xFFFC; // clear first two bits of PSD level
    ToneControlParameterRegister[2] &= 0x01FF; // clear remaining 7 bits of PSD level
    ToneControlParameterRegister[1] |= TxPSD >> 7; // store first two bits of PSD level
    ToneControlParameterRegister[2] |= (TxPSD << 9) & 0xFE00; // store remaining 7 bits of PSD level
    short RefPSD = floor(4*(getReferencePSD(tone*4.3125)+100)) & 0x01FF; // convert to 9-bit value
    ToneControlParameterRegister[2] &= 0xFFE0; // clear Reference PSD level
    ToneControlParameterRegister[2] |= RefPSD; // store Reference PSD level
    *ToneControlActionRegister |= 0x0020; // refresh contents of the selected tones' entries in table
}
*ToneControlActionRegister |= 0x0002; // activate PSD level setting as in ToneControlParameterRegister
*ToneControlActionRegister |= 0x0001; // activate UPBO Ref. PSD level setting as in ToneControlParameterRegister
```

Functions specifying standard transmit PSDs can be found in the documents referenced in 62A.3.3. Functions specifying UPBO Reference PSDs can be found in Table 62A-2.

Table 62A-6 contains the MCM tone group definitions to be used in order to support the band notch profiles desribed in 62A.3.5. For each of the listed tone groups, the Tone Active bit in the 10P MCM tone control parameter register shall be cleared to activate the corresponding band notch.

Table 62A-6—MCM register settings implementing band notch profiles

Band Notch Profile	10P MCM Tone Group Register	
	lower	upper
1	0x01A3	0x01A7
2	0x01A3	0x01D0
3	0x01B9	0x01BB
4	0x032B	0x033D
5	0x032B	0x0371
6	0x032B	0x03A0
7	0x0364	0x0366
8	0x036E	0x0372
9	0x0656	0x066E
10	0x0656	0x069D
11	0x0925	0x0932

Table 62A-7 contains the MCM register settings for the payload rate profiles listed in 62A.3.6. When operating under a payload rate profile, the minimum and maximum data rates in the 10P MCM upstream/downstream data rate configuration registers shall be set to the same value.

62A.4.2 SCM register settings

Editor's note: SCM register settings for all profiles to be added here.

Table 62A-7—MCM register settings implementing payload rate profiles

Profile (payload rate in Mb/s)	Downstream Data Rate Configuration Register setting (bits 15:0)	Upstream Data Rate Configuration Register setting (bits 15:0)
2.5	0x0027	0x0027
5	0x004E	0x004E
7.5	0x0075	0x0075
10	0x009C	0x009C
12.5	0x00C3	0x00C3
15	0x00EA	0x00EA
25	0x0186	0x0186
35	0x0222	0x0222
50	0x030D	0x030D
70	0x0445	no profile defined
100	0x061A	no profile defined