
DTMF

DTMF (Dual-tone Multi Frequency) is a tone composed of two sine waves of given frequencies. Individual frequencies are chosen so that it is quite easy to design frequency filters, and so that they can easily pass through telephone lines (where the maximum guaranteed bandwidth extends from about 300 Hz to 3.5 kHz). DTMF was not intended for data transfer; it is designed for control signals only. In GSM modules is a DTMF encoder included. The DTMF tones are controlled by AT commands. For encoding you have to use encoder chips or a DSP.

1209 Hz
1336 Hz
1477 Hz
1633 Hz
697 Hz
1
2
3
A
770 Hz
4
5
6
B
852 Hz
7
8
9
C
941 Hz
*
0
#
D

This table resembles a matrix keyboard. The X and Y coordinates of each code give the two frequencies that the code is composed of. Notice that there are 16 codes; however, common DTMF dialers use only 12 of them. The "A" through "D" are "system" codes. Most end users won't need any of those; they are used to configure phone exchanges or to perform other special functions.