

DTMF stands for Dual Tone Multi Frequency. It is also known as “Touch-Tones” (trademark). Two audio tones are used to represent each key on the touch pad. When a key is pressed, the column tone and row tone combine to generate a dual tone.

These frequencies were selected to avoid harmonics, which is to say that you can't get one of the frequencies from the sum or difference of any of the others. The tone frequencies generated must be accurate to within +/- 1.5%. In addition, the amplitude of the higher frequency must be as great as the lower frequency and can be as much as 4dB louder. The difference between the amplitudes of the two frequencies is referred to as the amount of "twist" express as + or - dB, higher to lower frequency.

Touch-Tone phones usually have 12 keys, although two way radios sometimes have the full set of 16. The four additional keys were part of the US Military's Autovon phone system. They were used to prioritize phone calls: **A** - Flash Override, **B** - Flash, **C** - Immediate, **D** - Pressing. These letter buttons (1633Hz) find a variety of other uses today in two way radio.

| High Tones | | | | |
|-------------------|---------------|---------------|---------------|------------------|
| 1209Hz | 1226Hz | 1477Hz | 1633Hz | |
| 1 | ABC 2 | DEF 3 | A | 697Hz |
| GHI 4 | JKL 5 | MNO 6 | B | 770Hz |
| PRS 7 | TUV 8 | WXY 9 | C | 852Hz |
| * | OPER 0 | # | D | 941Hz |
| | | | | Low Tones |