

TONE CODING

1. INTRODUCTION

The "Spirit" Radio Pagers use two-tone sequential signaling. Two discrete audio tones are transmitted for a specific period of time. The tones are transmitted as follows:

TYPE OF PAGE	TRANSMISSION TIME		INTERPAGE GAP
	tone A	tone B	
Individual	1 sec	3 sec	1.3 sec
Group Call	0 sec	8 sec	3.0 sec

NOTE: Time between tones cannot exceed 10 ms.

Each pager in the system responds to a unique combination of tones that is determined by the active filters installed in the pager. There are 60 unique tone frequencies from which tones A and B may be selected. Each tone is assigned a code number. This number is usually referred to as the filter code and is stamped on the body of the active filter. The tone frequency is also stamped on the filter body.

The number that appears in the reset bar is the pager code number. The tone A and tone B active filter codes and frequencies can be determined from this number. Refer to the following paragraphs for descriptions of the various tone coding methods that can be used with the pagers.

Table 1A. General Encoding Method

FIRST DIGIT OF PAGER CODE	TONE GROUP FROM WHICH TONE A IS SELECTED	TONE GROUP FROM WHICH TONE B IS SELECTED
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8
9	9	9
A	10	10

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2. GENERAL AND MODIFIED GENERAL ENCODING METHODS

Each pager in the system is assigned a 3-digit pager code. The relationship between the code and the tone filters installed in the pager is established by the coding method.

The 60 available paging tone frequencies are divided into 6 groups of 10 tones each. These groups are numbered and designated tone group 1, tone group 2, etc. Table 2 shows the filter codes and frequencies.

Early model encoders and dial terminals (N1016, N1017, N1019, and N1055) employed the General Encoding Method. A Modified General Encoding Method is presently being used for all manual encoders with 100-call capacity or less. In the general encoding plan, the first digit of the 3-digit code determines the groups from which tone A and tone B are selected, as indicated in Table 1A. In the modified plan, the first digit of the 3-digit code determines the tone group from which both tone A and tone B are selected, as indicated in Table 1B.

In both code plans, the next 2 digits of the code identify tones A and B, respectively, as selected from the tone groups indicated in Table 2. To determine the tone frequencies or filter codes associated with a given pager, proceed as follows:

Table 1B. Modified General Encoding Method

FIRST DIGIT OF PAGE CODE	GROUP FROM WHICH TONE A IS SELECTED	GROUP FROM WHICH TONE B IS SELECTED
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6

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Table 2. Tone Groups

TONE NUMBER	TONE GROUP 1		TONE GROUP 2		TONE GROUP 3		TONE GROUP 4		TONE GROUP 5		TONE GROUP 6	
	FILTER CODE	FREQ. (Hz)	FILTER CODE	FREQ. (Hz)	FILTER CODE	FREQ. (Hz)	FILTER CODE	FREQ. (Hz)	FILTER CODE	FREQ. (Hz)	FILTER CODE	FREQ. (Hz)
1	111	349.2	131	390.4	128	285.5	141	335.6	151	584.6	161	1152.4
2	112	363.5	132	394.5	129	296.5	142	338.6	152	573.1	162	1185.2
3	113	369.9	133	399.1	130	304.7	143	348.6	153	581.9	163	1203.8
4	114	410.5	134	407.5	131	313.9	144	358.6	154	608.3	164	1251.4
5	115	415.7	135	416.6	132	323.9	145	368.1	155	622.1	165	1285.8
6	116	457.9	136	428.5	133	333.9	146	378.7	156	637.4	166	1321.2
7	117	483.5	137	442.9	134	346.9	147	389.3	157	653.2	167	1357.6
8	118	519.3	138	459.0	135	360.7	148	400.9	158	670.3	168	1395.0
9	119	539.6	139	478.1	136	376.2	149	413.9	159	688.2	169	1434.1
0	120	559.5	140	500.1	137	392.4	150	428.1	160	707.4	170	1474.5

1 Second or third digit of pager code; or third or fourth digit of pager code used in "Metro-Page" system.

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