Table 2 provides an alternate method of translating from the ASCII character to its RADIX-50 equivalents.

RADIX-50 Value = The sum of the first character entry + the second character entry + the third character entry.

Example:

RADIX-50 Value of "EDL" = 017500 + 000240 + 000014 = 017754

A3. RADIX-50 to ASCII Conversion

To convert from the packed RADIX-50 value to the RADIX-50 octal equivalents of the three characters, C1, C2, and C3, the following rules are followed:

C1 = RAD-50 Value / 3100
C2 = [RAD-50 Value— ((RAD-50 Value / 3100) * 3100)] / 50
C3 = RAD-50 Value— ((RAD-50 Value / 50) * 50)

Example:

RADIX-50 Value = 74330 (SMP)

C1 = 74330 / 3100 = 23 = "S"
C2 = [74330— ((74330 / 3100) * 3100)] / 50 = 15 = "M"
C3 = 74330— ((74330 / 50) * 50) = 20 = "P"

All preceding numbers of A2 and A3 are octal values (see Table 2).

Table 2
Alternate Conversion of ASCII to RADIX-50

Single Character or First Character		Second Character		Third Character	
Space	000000	Space	000000	Space	000000
A	003100	A	000050	A	000001
B	006200	B	000120	B	000002
C	011300	C	000170	C	000003
D	014400	D	000240	D	000004
E	017500	E	000310	E	000005
F	022600	F	000360	F	000006
G	025700	G	000430	G	000007
H	031000	H	000500	H	000010
I	034100	I	000550	I	000011
J	037200	J	000620	J	000012
K	042300	K	000670	K	000013
L	045400	L	000740	L	000014
M	050500	M	001010	M	000015
N	053600	N	001060	N	000016
O	056700	O	001130	O	000017
P	062000	P	001200	P	000020
Q	065100	Q	001250	Q	000021
R	070200	R	001320	R	000022
S	073300	S	001370	S	000023
T	076400	T	001440	T	000024
U	101500	U	001510	U	000025
V	104600	V	001560	V	000026
W	107700	W	001630	W	000027
X	113000	X	001700	X	000030
Y	116100	Y	001750	Y	000031
Z	121200	Z	002020	Z	000032
$	124300	$	002070	$	000033
.	127400	.	002140	.	000034
Unused	132500	Unused	002210	Unused	000035
0	135600	0	002260	0	000036
1	140700	1	002330	1	000037
2	144000	2	002400	2	000040
3	147100	3	002450	3	00041
4	152200	4	002520	4	000042
5	155300	5	002570	5	000043
6	160400	6	002640	6	000044
7	163500	7	002710	7	000045
8	166600	8	002760	8	000046
9	171700	9	003030	9	000047

PROPOSED

SMPTE RECOMMENDED PRACTICE — RP 142

Channel Allocation for 1-Inch Type C Stereo Audio

1. *Scope*

This practice recommends the allocation of audio channels on 1-inch type C television tape recorders for the exchange of stereo program material between television organizations. It also recommends identification and marking of the reel and box. (See American National Standard for Video Recording — 1-in Type C Recorders and Reproducers — Frequency Response and Reference Level, ANSI/SMPTE 20M-1985.)

2. *Channel Allocation*

For stereo audio on television program material, channel 1 shall carry the discrete left (L) signal and channel 2 shall carry the right (R) signal. The terms "left" and "right" shall relate to the perspective of the viewer.

3. *Labels*

The tape reel and box shall be marked with an indication that the program material is recorded in stereo.

PROPOSED

SMPTE RECOMMENDED PRACTICE — RP 143

Specifications for Type U Audio Level and Multifrequency Test Film for 35-mm Striped Four-Track Release Print Audio Reproducers, Magnetic Type

1. *Scope*

1.1 This document specifies a type U audio frequency test film to be used for adjusting the mechanical and electrical parameters of 35-mm motion-picture magnetic audio reproducers intended for striped release prints perforated CS, operating at 24 frames (96 perforations) per second (approximately 90 ft [27 m] per minute [18 in or 457 mm per second]) for proper playback.

1.2 Type U Test Film. The International Organization for Standardization recognizes two reference levels for test films: Type U with a reference level of 185 nWb/m and Type E with a reference level of 320 nWb/m, in order to account for differing meter types in common use in the United States and Europe.

2. *Manufacturing*

2.1 Film Stock. Test films made to this practice shall be cut and perforated in accordance with American National Standard Dimensions for 35-mm Motion-Picture Film, CS-1870, ANSI PH22.102-1980.

2.2 Magnetic Coating

2.2.1 Full-Coat Film. For full-coat film, the coating shall extend from edge to edge of the film. The coating shall be on the same side as the striping specified in 2.2.2.

2.2.2 Stripe-Coat Film. For stripe-coat film, the striping shall be in accordance with American National Standard for Motion Picture Film (35-mm) — Four-Track Magnetic Sound Release Prints — Magnetic Striping, ANSI PH22.177-1982.

2.2.3 Magnetic Particle Orientation. The film may show a preferred direction for recording due to orientation of the magnetic particles within the coating during manufacture. The preferred direction is the direction which shows the greatest high-frequency sensitivity. If there is such a preferred direction, it shall be marked by means of an arrow faced in the preferred direction on the head and tail of the film.

2.3 Primary Characteristics of Test Film Records

2.3.1 Audio Record

2.3.1.1 Full-Coat Film. If the audio record is recorded on full-coat film, the recording shall extend from one edge of the film to the other.

2.3.1.2 Striped-Coat Film. If the audio record is recorded on striped-coat film, it shall be recorded with individual head elements in accordance with American National Standard Position, Dimensions and Reproducing Speed of Four Magnetic Sound Records on 35-mm Motion-Picture Release Prints, ANSI PH22.137-1981. The polarity of each head element shall be identical with all the other elements, and the gaps shall be in line.

2.3.2 Azimuth. The azimuth of the audio records shall be 90° ± 1′ to the reference edge of the film. The reference edge is defined in ANSI PH22.-177-1982.

2.3.3 Frequency Response of the Recorded Flux. With a constant amplitude vs frequency sine-wave signal applied to the input of the recording system, the relative characteristic of the recorded flux vs frequency decreases with increasing frequency corresponding to a combination of two curves: one falling with increasing frequency in conformity with the impedance of a series combination of a capacitance and a resistance having a time constant τ_1; and one falling with increasing frequency in conformity with the impedance of parallel combination of a capacitance and a resistance having a time constant τ_2. (See Appendix A4.)

This characteristic is given by the following equation:

$$L\Phi = C_o - 10 \log_{10} \left[\frac{1 + (2\pi\tau_2)^2 f^2}{1 + \frac{1}{(2\pi\tau_1)^2 f^2}} \right]$$

where $L\Phi$ is the flux level in dB, f is the frequency in Hertz for which $L\Phi$ is computed, τ_1 is a time constant of 3180 μs, τ_2 is a time constant of 35 μs, and C_o is a constant with a value of 0.19424 calculated to make $L\Phi = 0$ at the reference frequency of 1000 Hz. The approximate numerical values are given in Table 1. (See Appendix A6.)

Table 1
Frequency Response

Frequency	Level in dB
31.5 Hz	+ 5.28
40 Hz	+ 3.90
63 Hz	+ 1.93
125 Hz	+ 0.45
250 Hz	+ 0.35
500 Hz	+ 0.18
1 kHz	0
2 kHz	— 0.57
4 kHz	— 2.29
6.3 kHz	— 4.46
8 kHz	— 5.93
10 kHz	— 7.47
12.5 kHz	— 9.13
14 kHz	— 10.01
16 kHz	— 11.07

2.3.4 Signal Identification. Each test section and segment shall be preceded by voice announcement identifying the content at a level whose peak value does not exceed the peak value of the frequency series.

2.4 Test Sections

2.4.1 Reference Level. A 1000 Hz ± 2 percent sine-wave tone shall be recorded at a flux level of 185 nWb/m ± 11 nWb/m (± 0.5 dB) for a duration of approximately 30 seconds.

2.4.2 Azimuth. A 12.5 kHz ± 2 percent sine-wave tone shall be recorded at a relative flux level equal to the reference level with the frequency response specified in 2.3.3 applied for a duration of approximately 30 seconds.

2.4.3 Pink Noise. Pink noise shall be recorded for a duration of approximately 30 seconds. The pink noise test signal shall be recorded at such a level that there is a low statistical probability of peaks exceeding the peak-to-peak amplitude of the reference level. This condition can be verified by observing the pink noise signal on an oscilloscope connected to a playback preamplifier when compared with the peak-to-peak signal indicated by the reference level. The pink noise shall be recorded with the frequency response specified in 2.3.3.

2.4.4 Frequency Response. The 1000-Hz sine-wave tones for this section shall be recorded at the reference level (185 nWb/m ± 11 nWb/m absolute). The other sine-wave tones shall be recorded according to the frequency response specified in 2.3.3 at the flux levels in Table 1 with a tolerance on level according to 3.3. The following test-segment tones shall be recorded for a duration of approximately 10 seconds at the given frequencies ± 2 percent:

1000, 31.5, 40, 63, 125, 250, 500, 1000, 2000, 4000, 6300, 8000, 10 000, 12 500, 14 000, 16 000, 1000

3. *Calibration and Quality Control*

3.1 Flux Level. The reference level shall be determined by means of the calibrated short-gap ferromagnetic core reproducer technique described in American National Standard Method of Measuring Recorded Flux of Magnetic Sound Records at Medium Wavelengths, ANSI/IEEE 347-1982.

3.2 Method. The test film shall be calibrated for frequency response using a reproducing head with gap widths made in accordance with ANSI PH22.-137-1981.

3.3 Flux Level Variation with Frequency. The film flux level at each frequency from 31.5 Hz through 12.5 kHz shall be within ± 0.5 dB of the value specified in 2.3.3 when measured with an instrument specified in 3.8. (Flux level variation is defined for the purposes of this section as the average reading within each tone segment since variation with time is specified in 3.4.)

3.4 Flux Level Variation with Time. The flux levels shall not vary more than ± 0.5 dB within the length of each test segment when measured with a standard volume indicator conforming to American National Standard Volume Measurements of Electrical Speech and Program Waves, ANSI/IEEE 152-1953 (R1976).

3.5 Pink Noise. The level in each one-third octave band from 31.5 Hz to 12.5 kHz shall be the same within the limits given in 3.3.

3.6 Distortion. The total harmonic distortion of the recorded reference level tone (2.4.1) and the frequency response tones (2.4.4) shall not exceed 0.5 percent.

3.7 Flutter. The weighted peak flutter of the audio record shall not exceed ± 0.1 percent. Verfication of this section shall be made with the film stock to be used for making these test films, and measured in accordance with American National Standard Method for Measurement of Weighted Peak Flutter of Sound Recording and Reproducing Equipment, ANSI/IEEE 193-1982.

3.8 Level Measurements. Level measurements shall be made with an average-responding, rms-calibrated or a true-rms ac voltmeter having a frequency response of ± 0.1 dB over a minimum frequency range of 31.5 Hz to 16 kHz.