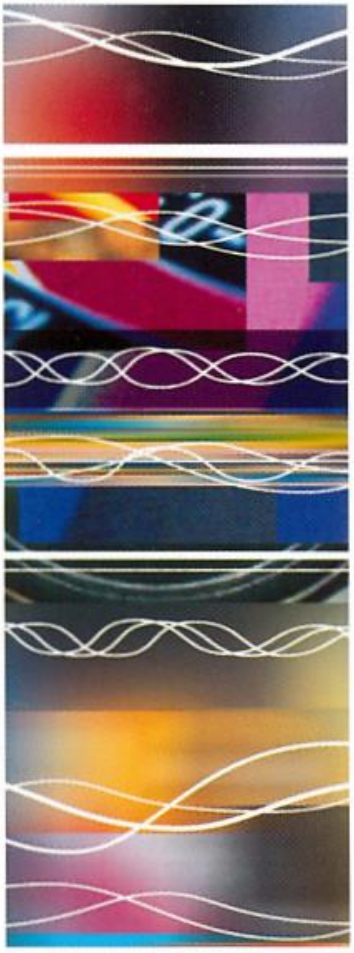
INTERNATIONAL BROADCAST STANDARDS TESTS



Correct alignment and monitoring of programme material is of paramount importance for broadcast engineers and organisations. 'International Broadcast Standards Tests' provides a convenient source of international reference and measurement signals.

1-8	**Alignment signals**
9-17	**System test signals**
18-30	**VU meter (IEC268-17) test signals**
31-43	**PPM meter (IEC268-10) generic test signals**
44-49	**PPM meter (IEC268-10) Type I specific test signals**
50-57	**PPM meter (IEC268-10) Type II specific test signals**
58-67	**Phase meter test signals**
68-91	**Loudness meter test signals**
92-96	**Peak/rms test signals**
97-99	**Other signals**

All tracks digitally generated by Dr. John Emmett, BPR Ltd, except tracks 98-99 digitally recorded for Canford Audio by BBC Radio Production Resources:

Studio:	B15, BBC Broadcasting House (reverberation time 0.2s)
Microphone:	Neumann U87, cardioid setting
Reader:	Peter Donaldson

Track 98 Text by Washington Irving, edited by Simon Kahn
Track 99 Shipping Forecast by permission of The Met.Office
Mastered by *BITS & PIECES*, engineer Simon Kahn

02-598

TRACK LISTING

Alignment Tracks

1	1kHz	-18dBFS	Line-up	(EBU R49)	L interrupted, R continuous	02:00
2	1kHz	-20dBFS	Line-up	(SMPTE RP-155)		02:00
3	1kHz	-14dBFS	Line-up	(recording studios etc.)		02:00
4	1kHz	-12dBFS	CD exchange alignment level(EBU R89)			02:00
5	1kHz	-18dBFS	GLITS line-up		L&R different periods, see text	02:00
6	1kHz	-18dBFS	Left	Dual language line-up		02:00
	(400Hz	-18dBFS	Right)			
7	Pink noise		-20dB mean level,(SMPTE RP-155) 20Hz - 20kHz		L&R non-coherent	02:00
8	Pink noise		-18dB quasi-peak,(EBU/ITU) band limited		-3dB @ 200Hz, 5kHz, L&R non-coherent	02:00

System Test Tracks

9	1kHz	-18dBFS	ITU BS645 Alignment Level (AL)			02:00
10		-9dBFS	ITU BS645 Permitted Maximum Level (PML), @AL+9dB), pulsed 80Hz, 1kHz, 5kHz, 10kHz			02:00
11		-10dBFS	ITU BS645 Permitted Maximum Level (PML), @AL+8dB), pulsed 80Hz, 1kHz, 5kHz, 10kHz			02:00
12		-30dBFS	ITU BS645 Measurement Level (ML), @AL-12dB		1kHz, then sweeps 40Hz to 16kHz	02:00
13	80Hz	0dBFS	Pulses			00:30
14	80Hz	+1dBFS	Pulses			00:30
15			Digital silence			01:00
16	1kHz	-78dB FS	No dither		Alternating L/R at 1 second intervals	01:00
17			Line test sequence (EBU R27) repeated, (no ident)		L&R differ, see Figure 2	02:00

VU Tests, (IEC 60268-17)

18	1kHz	-14dBFS	Reference level	(To set 0VU)		00:30
19	31.5Hz	-14dBFS	LF check	(0VU)		00:10*
20	16kHz	-14dBFS	HF check	(0VU)		00:10*
21	1kHz	-11dBFS	Scale check	(+3VU)		00:10*
22	1kHz	-17dBFS	Scale check	(-3VU)		00:10*
23	1kHz	-24dBFS	Scale check	(-10VU)		00:10*
24	1kHz	-34dBFS	Scale check	(-20VU)		00:10*
25	1kHz	-14dBFS	Dynamic response		265ms on, 1s off (see text)	00:10*
26	1kHz	-14dBFS	Dynamic response		270ms on, 1s off (see text)	00:10*
27	1kHz	-14dBFS	Dynamic response		330ms on, 1s off (see text)	00:10*
28	1kHz	-14dBFS	Dynamic response		1s on, 300ms off	00:10*
29			IEC reversibility test	positive phase, 0VU level		00:10*
30			IEC reversibility test	nagative phase, 0VU level		00:10*

PPM Tests (IEC 60268-10)

31	1kHz	-9dBFS	IEC reference level	(Type I scale = 0dB, Nordic and IIb = +9dB)		00:30
32	1kHz	-10dBFS	IEC reference level	(Type IIa, BBC Scale = "6")		00:30
33	1kHz	-18dBFS	Alignment Level	(Type I = -9dB, Nordic and IIb ="Test", BBC ="4")		00:10*
34	31.5Hz	-18dB FS	Alignment Level	(Type I = -9dB, Nordic and IIb ="Test", BBC ="4")		00:10*
35	16kHz	-18dBFS	Alignment Level	(Type I = -9dB, Nordic and IIb ="Test", BBC ="4")		00:10*
36	1kHz	-6dBFS	Scale check	(Nordic and IIb = +12dB, BBC ="7")		00:10*
37	1kHz	-14dBFS	Scale check	(Nordic and IIb = +4dB, BBC ="5")		00:10*
38	1kHz	-22dBFS	Scale check	(Nordic and IIb = -4dB, BBC ="3")		00:10*
39	1kHz	-26dBFS	Scale check	(Nordic and IIb = -8dB, BBC ="2")		00:10*
40	1kHz	-30dBFS	Scale check	(Nordic and IIb = -12dB, BBC ="1")		00:10*
41	1kHz	-49dBFS	Scale check	(Type I = -40dB, Nordic = -31dB)		00:10*
42		-18dBFS	IEC reversibility test	positive-phase, Alignment Level		00:10*
43		-18dBFS	IEC reversibility test	negative-phase, Alignment Level		00:10*

Specific to Type I Meters

44	80Hz	-12dBFS		Interrupted for 1.70s every 5s	00:30
45	10kHz	-12dBFS	Tone bursts	10ms every 5s	00:30
46	10kHz	-12dBFS	Tone bursts	5ms every 5s (ITU-T test)	00:30
47	10kHz	-12dBFS	Tone bursts	3ms every 5s	00:30
48	10kHz	-12dBFS	Tone bursts	0.4ms every 5s	00:30
49	5kHz		Tone bursts	Alternate -12dB/-2dB FS, 1.5ms every 3s	00:30

Specific to Type II Meters

50	80Hz	-6dBFS		Interrupted for 2.80s every 5s	00:30
51	10kHz	-10dBFS		100ms every 5s	00:30
52	10kHz	-10dBFS		10ms every 5s	00:30

53	10kHz	-10dBFS	Tone bursts		5ms every 5s	00:30
54	10kHz	-10dBFS	Tone bursts		1.5ms every 5s	00:30
55	10kHz	-10dBFS	Tone bursts		0.5ms every 5s	00:30
56	5kHz	-10dB/0dBFS	Tone bursts	Alternate -10dB/0dB FS	1.5ms every 3s	00:30
57	5kHz	-40dBFS	Tone bursts		5ms every 5s	00:30

Phase Meter Tests

58	918.75Hz	-18dBFS	R alternates -18/-38dB FS		In phase	00:20
59	918.75Hz	-18dBFS	R alternates -18/-38dB FS		R lags 45 deg	00:20
60	918.75Hz	-18dBFS	R alternates -18/-38dB FS		R lags 90 deg	00:20
61	918.75Hz	-18dBFS	R alternates -18/-38dB FS		R lags 135 deg	00:20
62	918.75Hz	-18dBFS	R alternates -18/-38dB FS		R lags 180 deg	00:20
63	918.75Hz	-18dBFS	R alternates -18/-38dB FS		In phase	00:20
64	918.75Hz	-18dBFS	R alternates -18/-38dB FS		R leads 45 deg	00:20
65	918.75Hz	-18dBFS	R alternates -18/-38dB FS		R leads 90 deg	00:20
66	918.75Hz	-18dBFS	R alternates -18/-38dB FS		R leads 135 deg	00:20
67	918.75Hz	-18dBFS	R alternates -18/-38dB FS		R leads 180 deg	00:20

Loudness Meter Tests (Thames/ITC (ISO 226))

68	1kHz	-18dBFS	Line up	0dBLD		00:15
69	63Hz	-5dBFS		0dBLD		00:15
70	80Hz	-8dBFS		0dBLD		00:15
71	100Hz	-11dBFS		0dBLD		00:15
72	125Hz	-14dBFS		0dBLD		00:15
73	160Hz	-17dBFS		0dBLD		00:15
74	200Hz	-20dBFS		0dBLD		00:15
75	250Hz	-21dBFS		0dBLD		00:15
76	315Hz	-21.5dBFS		0dBLD		00:15
77	400Hz	-22dBFS		0dBLD		00:15
78	500Hz	-22dBFS		0dBLD		00:15
79	630Hz	-21dBFS		0dBLD		00:15
80	800Hz	-19dBFS		0dBLD		00:15
81	1k25Hz	-18dBFS		0dBLD		00:15
82	1k6Hz	-19dBFS		0dBLD		00:15
83	2kHz	-21dBFS		0dBLD		00:15
84	2k5Hz	-23.5dBFS		0dBLD		00:15
85	3k15Hz	-26dBFS		0dBLD		00:15
86	4kHz	-27dBFS		0dBLD		00:15
87	5kHz	-26dBFS		0dBLD		00:15
88	6k3Hz	-21dBFS		0dBLD		00:15
89	8kHz	-15dBFS		0dBLD		00:15
90	10kHz	-12dBFS		0dBLD		00:15
91	Pink noise		-24dB Mean	0dBLD	L&R non-coherent	00:15

Peak/RMS Tests

92	100Hz**	-18dBFS peak, RMS = -18dB FS, mean = -18dB FS		00:30
93	100Hz**	-18dBFS peak, RMS = -19.5dB FS, mean = -21dB FS		00:30
94	100Hz**	-18dBFS peak, RMS = -21dB FS, mean = -24dB FS		00:30
95	100Hz**	-18dBFS peak, RMS = -28dB FS, mean = - 38dB FS		00:30
96	Pink noise	18dBFS true peak, mean = -30dB FS	L&R non-coherent	00:30

Other Signals

97	440 Hz -18dBFS	Tuning "A"	02:00
98		Male speech, Prose, not limited	05:00
99		Male speech, "Shipping forecast" limited to UK MPL (AL+8dB)	05:00

NOTES:
All tracks have the same signal on left and right channels, unless otherwise stated.
*These tracks are 20 seconds in length on the DAT media.
**110Hz on 48kHz-sampled media