

1	-	9
10	-	19
20	-	26
27	-	31
32	-	47

AUDIO TEST DISC UPA-CD

CD Player / DAT Recorder Test Signals

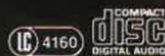
Tape Deck Test Signals

Amplifier Test Signals

Automatic Line Test Sequences

Various Measurement Signals

Total time 57'16"



UPA-CD 852.8400.02



ROHDE & SCHWARZ



Audio Test Disc



Caution:
Many tracks are recorded at much higher levels than
conventional program sources!

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Manufactured by da music Germany



ROHDE & SCHWARZ

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Achtung:

Diese CD muß mit äußerster Vorsicht verwendet werden, um Verstärker und Lautsprecher nicht zu zerstören. Die auf-gezeichneten Pegel sind wesentlich höher als bei üblichen Programmquellen.

Caution:

This CD must be used with utmost care to avoid destruction of amplifiers or loudspeakers. Many tracks are recorded at much higher levels than conventional program sources!

Track/Ind. Time	Duration	Frequency	Level/dB	Channel	Purpose
34	60 s	White Noise uncorr.	-20	L+R	Noise Measurements
35	60 s	White Noise correl.	-20	L+R	"
36	60 s	Pink Noise uncorr.	-20	L+R	"
37	60 s	Pink Noise correl.	-20	L+R	"
38	60 s	Noise for Pol Test	-20	L+R	Polarity Test for Speakers
39	60 s	9 kHz + 11 kHz, 1:1	-9	L+R	Difference Tone
40	60 s	13 kHz + 14 kHz, 1:1	-3	L+R	"
41	60 s	19 kHz + 20 kHz, 1:1	-3	L+R	"
42	60 s	60 Hz + 7 kHz, 4:1	-2	L+R	SMPTE Intermodulation
43	60 s	Square-Wave 100 Hz	-2	L+R	Step Response
44	60 s	Square-Wave 1 kHz	-2	L+R	"
45.1	19 s	Burst 300 ms/1,5 s	-6	L+R	Volume Indicator Test
.2	00:19 30 s	Burst 300 ms/2,5 s	-6	L+R	"
.3	00:49 25 s	Burst 10 ms/2,5 s	-6	L+R	"
.4	01:14 27 s	Burst 5 ms/2,5 s	-6	L+R	"
.5	01:41 23 s	Burst 3 ms/2,5 s	-6	L+R	"
.6	02:04 24 s	Burst 1 ms/2,5 s	-6	L+R	"
7.	02:28 26 s	Burst 0,4 ms/2,5 s	-6	L+R	"
46	60 s	Tone-Burst 1 kHz	-40/0	L+R	Compressor Test
47	30 s	Halfwaves 440 Hz	-7	L+R	Polarity Test for Lines
Total Time 57:16					

Track/Ind. Time	Duration	Frequency	Level/dB	Channel	Purpose
33.1	18 s	1/3 Oct. Noise			
		40 Hz	-20	L+R	Loudspeaker Measurement
.2 00:18	20 s	50 Hz	-20	L+R	"
.3 00:38	15 s	63 Hz	-20	L+R	"
.4 00:53	15 s	80 Hz	-20	L+R	"
.5 01:08	10 s	100 Hz	-20	L+R	"
.6 01:18	10 s	125 Hz	-20	L+R	"
.7 01:28	8 s	160 Hz	-20	L+R	"
.8 01:36	7 s	200 Hz	-20	L+R	"
.9 01:43	5 s	250 Hz	-20	L+R	"
.10 01:48	5 s	315 Hz	-20	L+R	"
.11 01:53	5 s	400 Hz	-20	L+R	"
.12 01:58	5 s	500 Hz	-20	L+R	"
.13 02:03	5 s	630 Hz	-20	L+R	"
.14 02:08	4 s	800 Hz	-20	L+R	"
.15 02:12	5 s	1 kHz	-20	L+R	"
.16 02:17	5 s	1,25 kHz	-20	L+R	"
.17 02:22	5 s	1,6 kHz	-20	L+R	"
.18 02:27	5 s	2 kHz	-20	L+R	"
.19 02:32	4 s	2,5 kHz	-20	L+R	"
.20 02:36	5 s	3,15 kHz	-20	L+R	"
.21 02:41	5 s	4 kHz	-20	L+R	"
.22 02:46	5 s	5 kHz	-20	L+R	"
.23 02:51	4 s	6,3 kHz	-20	L+R	"
.24 02:55	5 s	8 kHz	-20	L+R	"
.25 03:00	5 s	10 kHz	-20	L+R	"
.26 03:05	6 s	12,5 kHz	-20	L+R	"
.27 03:11	5 s	16 kHz	-20	L+R	"

AUDIO TEST DISC

- 1 - 9** *CD Player / DAT Recorder Test Signals*
S/N, Dynamic Range, Linearity, Frequency Response
Distortion, Phase, Crosstalk, IMD, Output Impedance
- 10 - 19** *Tape Deck Test Signals*
S/N, Wow & Flutter, Frequency Response, Distortion
versus Level, Crosstalk, IMD, Output Impedance
- 20 - 26** *Amplifier Test Signals*
S/N, Frequency Response, Distortion, Phase, Crosstalk,
IMD, Output Impedance
- 27 - 31** *Automatic Line Test Sequences*
Five different sequences for testing Stereo and
Mono Lines
- 32 - 47** *Various Measurement Signals*
Multifrequency, Noise (1/3 oct., white, pink, polarity),
difference tone, square-waves, bursts, half-waves

Die Audio-Test-Disc UPA-CD 852.8400.02 dient zum Prüfen sämtlicher Audio-Komponenten. In vielen Fällen kann ein hochwertiger CD-Spieler zusammen mit dieser Audio-Test-Disc einen speziellen Generator für Prüfzwecke ersetzen wie z. B. zur Erzeugung von Tonbursts zur Prüfung von Aussteuerungsmessern. Nähere Anwendungshinweise finden Sie in den von Rohde & Schwarz herausgegebenen Applikationsschriften. Passend zu den auf der Audio-Test-Disc aufgezeichneten Signalen wurden von Rohde & Schwarz Meßprogramme entwickelt, die die vollautomatische Messung aller Qualitätsparameter von CD-Spielern, DAT-Recordern, Tonbandgeräten usw. ermöglichen. Nach Einlegen und Starten der Disc und des Meßprogrammes wird ein komplettes Protokoll erzeugt. Alle Messungen werden mit dem Audio Analyzer UPA 4 durchgeführt, der mit dem Spezialfilter UPA-B 4 1002.1200.04 ausgestattet wird. Die Steuerung des Gerätes erfolgt mit einem Process-Controller aus der PSA-/PAT-Familie.

- Messungen an CD-Spielern:
Durch einfaches Abspielen dieser CD werden alle Qualitätsparameter gemessen.
- Messungen an DAT-Recordern:
Hierzu wird die komplette Testsequenz 1-9 digital auf ein DAT-Band überspielt. Auf dieser Audio-Test-Disc ist aus diesem Grunde das Copy-Inhibit-Bit grundsätzlich nicht gesetzt, um die digitale Kopie zu ermöglichen. Es sind die gleichen Messungen wie an einem CD-Spieler möglich.
- Messungen an Tonbandgeräten:
Es werden entweder die Tracks 10 - 19 mit dem zu prüfenden Gerät aufgezeichnet und dann gemessen (Aufnahme + Wiedergabe-Test) oder es wird auf einem hochwertigen Gerät ein Bezugsband erzeugt, das zur Messung dient (Wiedergabe-Test). Rauschunterdrückungssysteme werden pegelabhängig geprüft.
- Messungen an Verstärkern, Mischpulten, Equalizern usw.:
Der CD-Spieler mit der Audio-Test-CD wird als Testquelle verwendet.
- automatische Tonleitungsmessungen:
Übertragungsstrecken der Rundfunkanstalten müssen einer ständigen Qualitätskontrolle unterworfen werden, um den hohen Qualitätsansprüchen der Zuhörer gerecht zu werden. Da viele Sendestationen unbemannt arbeiten, muß der Meßvorgang vollautomatisch von der Zentrale aus gestartet werden können. Die Audio-Test-Disc enthält einige Meßfolgen für die automatische Messung von Mono- und Stereoleitungen, siehe hierzu auch die entsprechende Applikationsschrift.
- verschiedene Meßsignale:
neben einem Multifrequenzsignal zur schnellen Frequenzgangmessung sind hier Terzrauschsignale zur Lautsprechermessung, weißes und rosa Rauschen, Polaritätstest, verschiedene Differenztonsignale sowie Tonbursts zur Prüfung von Aussteuerungsmessern vorhanden.

4e Quick Mono Test with Multifrequency

Track/Ind. Time	Duration	Frequency	Level/dB	Channel	Purpose
31	1,5 s	2 kHz	-6	L+R	Signalling Sequence
00:01	1 s	1,6 kHz	-6	L+R	"
00:02	1 s	1,25 kHz	-6	L+R	"
00:03	1,5 s	1 kHz	-16	L+R	Reference
00:05	6 s	Multifrequency	-8,2	L+R	Frequency Response
00:11	7 s	60 Hz	0	L+R	Distortion
00:18	5 s	1 kHz	0	L+R	"
00:23	2 s	Silence	--	L+R	Sound Weighted and Unwtd.

5. Various Measurement Signals

Track/Ind. Time	Duration	Frequency	Level/dB	Channel	Purpose
32	180s	Multifrequency 52,5 Hz, 315 Hz, 3,15 kHz, 6,3 kHz, 10,08 kHz, 12,6 kHz Level - 12 dB each Sum Level RMS	-4,2	L+R	Frequency Response

4c Precision Mono Test with Sweep

Track/Ind. Time	Duration	Frequency	Level/dB	Channel	Purpose
29	1,5 s	1,6 kHz	-6	L+R	Signalling Sequence
00:01	1 s	2 kHz	-6	L+R	"
00:02	1 s	1,25 kHz	-6	L+R	"
00:03	1,5 s	1 kHz	-6	L+R	Reference
00:05	37 s	Sweep 0.02 - 20 kHz	-6	L+R	Frequency Response
00:42	8 s	40 Hz	0	L+R	Distortion
00:50	7 s	100 Hz	0	L+R	"
00:57	6 s	200 Hz	0	L+R	"
01:03	5 s	500 Hz	0	L+R	"
01:08	4 s	1 kHz	0	L+R	"
01:12	4 s	5 kHz	0	L+R	"
01:16	4 s	7 kHz	0	L+R	"
01:20	4 s	16 kHz	0	L+R	"
01:24	3 s	Silence	--	L+R	Sound Weighted and Unwtd.

4d Quick Stereo Test with Multifrequency

Track/Ind. Time	Duration	Frequency	Level/dB	Channel	Purpose
30	1,5 s	2 kHz	-6	L+R	Signalling Sequence
00:01	1 s	1,25 kHz	-6	L+R	"
00:02	1 s	1,6 kHz	-6	L+R	"
00:03	1,5 s	1 kHz	-16	L+R	Reference and Level Diff.
00:05	11 s	Multifrequency	-8,2	L+R	Frequency Response
00:16	14 s	60 Hz	0	L+R	Distortion
00:30	7 s	1 kHz	0	L+R	"
00:37	4 s	2 kHz	-6	L	Crosstalk
00:41	4 s	2 kHz	-6	R	"
00:45	4 s	Silence	--	L+R	Sound Weighted and Unwtd.

The Audio Test Disc UPA-CD 852.8400.02 serves for testing all audio components. In many cases, a high-quality CD player together with this test disk can be used instead of a special test generator, eg for generating sound bursts for measurements on volume meters. Further instructions are given in the R & S application notes. Rohde & Schwarz developed test programs matching the signals on the audio test disc and permitting a fully automatic measurement of all quality parameters of CD players, DAT recorders, tape recorders etc. After inserting and starting the disc and the test program, a complete protocol is generated. All measurements are carried out with the Audio Analyzer UPA 4 with Customized Filter UPA-B4, 1002.1200.04. The instrument is controlled with a process controller of the PSA/PAT family.

- Measurements on CD players:
All parameters are measured by simply running this CD.
- Measurements on DAT recorders:
The complete test sequence 1 to 9 is stored on a DAT band. To be able to make this digital copy, the copy inhibit bit is not set on this audio test disc. The same measurements are possible as on a CD player.
- Measurements on tape recorders:
Either tracks 10 to 19 are recorded on the instrument to be tested and then measured (recording + replay test) or a reference tape is produced on a high-quality instrument, which is then used for measurements (replay test). Noise suppression systems are tested as a function of the level.
- Measurements on amplifiers, mixer consoles, equalizers, etc.:
The CD player with the audio test CD is used as test source.
- Automatic measurements on audio lines:
Transmission links of radio broadcasting companies must be subject to a permanent quality control in order to comply with the quality demands of the listener. Since many stations are unattended, the test procedure must be fully automatic and be started from the control centre. The audio test disc comprises a few sequences for automatic measurement of mono and stereo lines, see also respective application note.
- Various test signals:
In addition to a multi frequency signal for fast measurement of frequency response, one-third octave noise signals for measurements on loudspeakers, white and pink noise, polarity test, various differential tones as well as sound bursts for testing volume meters are available.

1. CD Player/DAT Recorder Test Signals

Track/Ind.	Time	Duration	Frequency	Level/dB	Channel	Purpose
1		20 s	1 kHz	0	L+R	Reference Level and Pitch
2		20 s	Silence	--	L+R	Signal to Noise Ratio
3		30 s	1 kHz	-60	L+R	Dynamic Range
4.1		3 s	2 kHz	0	L+R	D/A Linearity Test
	00:03	10 s	1 kHz	-20	L+R	"
.2	00:13	3 s	2 kHz	0	L+R	"
	00:16	10 s	1 kHz	-30	L+R	"
.3	00:26	3 s	2 kHz	0	L+R	"
	00:29	10 s	1 kHz	-40	L+R	"
.4	00:39	3 s	2 kHz	0	L+R	"
	00:42	10 s	1 kHz	-50	L+R	"
.5	00:52	3 s	2 kHz	0	L+R	"
	00:55	10 s	1 kHz	-60	L+R	"
.6	01:05	3 s	2 kHz	0	L+R	"
	01:08	10 s	1 kHz	-70	L+R	"
.7	01:18	3 s	2 kHz	0	L+R	"
	01:21	10 s	1 kHz	-80,1	L+R	"
.8	01:31	3 s	2 kHz	0	L+R	"
	01:34	10 s	1 kHz	-85,2	L+R	"
.9	01:44	3 s	2 kHz	0	L+R	"
	01:47	10 s	1 kHz	-89,5	L+R	"
.10	01:57	3 s	2 kHz	0	L+R	"
	02:00	10 s	1 kHz	-91,2	L+R	"
5.1		72 s	Sweep 0.02 - 20 kHz	0	L	Frequency Response Left
.2	01:12	72 s	Sweep 0.02 - 20 kHz	0	R	Frequency Response Right

4b Stereo Test with stepped Frequencies

Track/Ind. Time	Duration	Frequency	Level/dB	Channel	Purpose
28	1,5 s	1,6 kHz	-6	L+R	Signalling Sequence
00:01	1 s	1,25 kHz	-6	L+R	"
00:02	1 s	2 kHz	-6	L+R	"
00:03	1,5 s	1 kHz	-6	L+R	Reference and Level Diff.
00:05	5 s	40 Hz	-6	L+R	Frequency Response
00:10	4 s	80 Hz	-6	L+R	"
00:14	4 s	200 Hz	-6	L+R	"
00:18	3 s	500 Hz	-6	L+R	"
00:21	2 s	820 Hz	-6	L+R	"
00:23	2 s	2 kHz	-6	L+R	"
00:25	2 s	3 kHz	-6	L+R	"
00:27	2 s	5 kHz	-6	L+R	"
00:29	2 s	6,3 kHz	-6	L+R	"
00:31	2 s	9,5 kHz	-6	L+R	"
00:33	2 s	11,5 kHz	-6	L+R	"
00:35	2 s	13,5 kHz	-6	L+R	"
00:37	2 s	15 kHz	-6	L+R	"
00:39	14 s	60 Hz	0	L+R	Distortion
00:53	7 s	1 kHz	0	L+R	"
01:00	5 s	2 kHz	-6	L	Crosstalk
01:05	5 s	2 kHz	-6	R	"
01:10	5 s	Silence	--	L+R	Sound Weighted and Unwtd.

4. Automatic Line Test Sequences

4a Precision Stereo Test with Sweep

Track/Ind. Time	Duration	Frequency	Level/dB	Channel	Purpose
27	1,5 s	1,25 kHz	-6	L+R	Signalling Sequence
00:01	1 s	1,6 kHz	-6	L+R	"
00:02	1 s	2 kHz	-6	L+R	"
00:03	1,5 s	1 kHz	-6	L+R	Reference and Level Diff.
00:05	76 s	Sweep 0.02 - 20 kHz	-6	L+R	Frequency Response
01:21	20 s	40 Hz	0	L+R	Distortion and Phase
01:41	17 s	100 Hz	0	L+R	"
01:58	17 s	200 Hz	0	L+R	"
02:15	15 s	500 Hz	0	L+R	"
02:30	10 s	1 kHz	0	L+R	"
02:40	7 s	5 kHz	0	L+R	"
02:47	7 s	7 kHz	0	L+R	"
02:54	7 s	16 kHz	0	L+R	"
03:01	5 s	315 Hz	-6	L	Crosstalk
03:06	5 s	315 Hz	-6	R	"
03:11	5 s	2 kHz	-6	L	"
03:16	5 s	2 kHz	-6	R	"
03:21	5 s	12,5 kHz	-6	L	"
03:26	5 s	12,5 kHz	-6	R	"
03:31	5 s	Silence	--	L+R	Sound Weighted and Unwtd.

Track/Ind. Time	Duration	Frequency	Level/dB	Channel	Purpose
6.1	29 s	20 Hz	0	L+R	Distortion and Phase
.2	00:29	25 s 40 Hz	0	L+R	
.3	00:54	25 s 100 Hz	0	L+R	
.4	01:19	25 s 200 Hz	0	L+R	
.5	01:44	20 s 500 Hz	0	L+R	
.6	02:04	10 s 1 kHz	0	L+R	
.7	02:14	10 s 5 kHz	0	L+R	
.8	02:24	10 s 7 kHz	0	L+R	
.9	02:34	10 s 10 kHz	0	L+R	
.10	02:44	10 s 16 kHz	0	L+R	
.11	02:54	10 s 18 kHz	0	L+R	
.12	03:04	25 s 20 kHz	0	L+R	
7.1	10 s	1 kHz	0	L	Crosstalk
.2	00:10	10 s 1 kHz	0	R	
.3	00:20	10 s 10 kHz	0	L	
.4	00:30	10 s 10 kHz	0	R	
.5	00:40	10 s 20 kHz	0	L	
.6	00:50	10 s 20 kHz	0	R	
8	20 s	400 Hz + 7 kHz, 4:1	0	L+R	Intermodulation Distortion
9	16 s	1 kHz	0	L+R	Output Impedance

2. Tape Deck Test Signals

Track/Ind. Time	Duration	Frequency	Level/dB	Channel	Purpose
10	20 s	400 Hz	-10	L+R	Reference and Level Diff.
11	20 s	Silence	--	L+R	Signal to Noise Ratio
12	55 s	3,15 kHz	-10	L+R	Wow & Flutter

Track/Ind. Time	Duration	Frequency	Level/dB	Channel	Purpose
13.1	37 s	Sweep 0.02 - 20 kHz	-10	L	Frequency Response
.2	00:37	37 s	-10	R	"
14.1	37 s	Sweep 0.02 - 20 kHz	-20	L	"
.2	00:37	37 s	-20	R	"
15.1	37 s	Sweep 0.02 - 20 kHz	-30	L	"
.2	00:37	37 s	-30	R	"
16.1	18 s	400 Hz	-30	L+R	Distortion versus Level
	00:18	2 s	-30	L+R	"
.2	00:20	13 s	-20	L+R	"
	00:33	2 s	-20	L+R	"
.3	00:35	13 s	-16	L+R	"
	00:48	2 s	-16	L+R	"
.4	00:50	13 s	-13	L+R	"
	01:03	2 s	-13	L+R	"
.5	01:05	13 s	-10	L+R	"
	01:18	2 s	-10	L+R	"
.6	01:20	13 s	-8	L+R	"
	01:33	2 s	-8	L+R	"
.7	01:35	13 s	-7	L+R	"
	01:48	2 s	-7	L+R	"
.8	01:50	13 s	-6	L+R	"
	02:03	2 s	-6	L+R	"
.9	02:05	13 s	-4	L+R	"
	02:18	2 s	-4	L+R	"
.10	02:20	13 s	-2	L+R	"
	02:33	2 s	-2	L+R	"
.11	02:35	13 s	0	L+R	"
17.1	15 s	1 kHz	-10	L	Crosstalk
.2	00:15	10 s	-10	R	"
.3	00:25	10 s	-10	L	"
.4	00:35	10 s	-10	R	"

Track/Ind. Time	Duration	Frequency	Level/dB	Channel	Purpose
18	20 s	400 Hz + 7 kHz, 4:1	-10	L+R	Intermodulation Distortion
19	19 s	1 kHz	-10	L+R	Output Impedance

3. Amplifier Test Signals

Track/Ind. Time	Duration	Frequency	Level/dB	Channel	Purpose
20	10 s	1 kHz	0	L+R	Reference Level
21	20 s	Silence	--	L+R	Signal to Noise Ratio
22.1	72 s	Sweep 0.02 - 20 kHz	0	L	Frequency Response
.2	01:12	72 s	0	R	"
23.1	29 s	20 Hz	0	L+R	Distortion and Phase
.2	00:29	25 s	0	R+L	"
.3	00:54	25 s	0	L+R	"
.4	01:19	25 s	0	L+R	"
.5	01:44	20 s	0	L+R	"
.6	02:04	10 s	0	L+R	"
.7	02:14	10 s	0	L+R	"
.8	02:24	10 s	0	L+R	"
.9	02:34	10 s	0	L+R	"
.10	02:44	10 s	0	L+R	"
.11	02:54	10 s	0	L+R	"
.12	03:04	25 s	0	L+R	"
24.1	10 s	1 kHz	0	L	Crosstalk
.2	00:10	10 s	0	R	"
.3	00:20	10 s	0	L	"
.4	00:30	10 s	0	R	"
.5	00:40	10 s	0	L	"
.6	00:50	10 s	0	R	"
25	20 s	400 Hz + 7 kHz, 4:1	0	L+R	Intermodulation Distortion
26	16 s	1 kHz	0	L+R	Output Impedance