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Dolby Laboratories

	Dolby Digital 5.1	Dolby Digital Plus 5.1	Dolby 5.1 + JOC Atmos
Transparent bitrate	640kbit	320kbit	768kbit

Rightmark Audio Analyzer

ASRock B550 Steel Legend (ALC1220)

RightMark Audio Analyzer test report

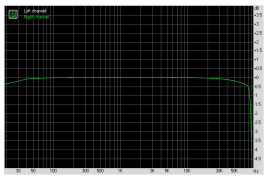
Testing device	[HDA] Realtek ALC1220
Sampling mode	24-bit, 192 kHz
Interface	MME
Testing chain	External loopback (line-out - line-in)
RMAA Version	6.4.5

20 Hz - 20 kHz filter	OFF
Normalize amplitude	ON
Level change	-0.2 dB / -0.2 dB
Mono mode	OFF
Calibration singal, Hz	1000
Polarity	correct/correct

Summary

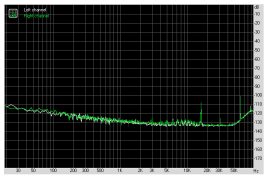
Frequency response (from 40 Hz to 15 kHz), dB	+0.00, -0.08	Excellent
Noise level, dB (A)	-99.0	Excellent
Dynamic range, dB (A)	99.3	Excellent
THD, %	0.00333	Very good
THD + Noise, dB (A)	-66.3	Good
IMD + Noise, %	0.025	Good
Stereo crosstalk, dB	-90.7	Excellent
IMD at 19 kHz, %	0.027	Good
General performance		**Very good**

Frequency response



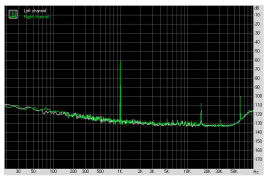
	Left	Right
From 20 Hz to 20 kHz, dB	-0.36, +0.00	-0.36, +0.00
From 40 Hz to 15 kHz, dB	-0.08, +0.00	-0.08, +0.00

Noise level



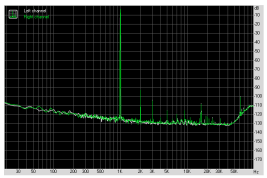
	Left	Right
RMS power, dB	-85.0	-85.0
RMS power (A-weighted), dB	-99.4	-98.7
Peak level, dB FS	-72.1	-71.6
DC offset, %	-0.0	-0.0

Dynamic range



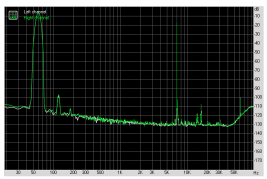
	Left	Right
Dynamic range, dB	+85.0	+85.0
Dynamic range (A-weighted), dB	+99.4	+98.9
DC offset, %	-0.00	-0.00

THD + Noise (at -3 dB FS)



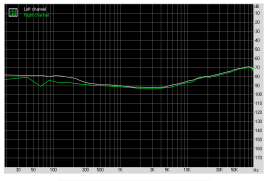
	Left	Right
THD, %	0.00320	0.00345
THD + Noise, %	0.01946	0.01926
THD + Noise (A-weighted), %	0.00466	0.00502

Intermodulation distortion



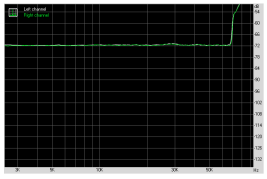
	Left	Right
IMD + Noise, %	0.02429	0.02476
IMD + Noise (A-weighted), %	0.00335	0.00362

Stereo crosstalk



	Left	Right
Crosstalk at 100 Hz, dB	-78	-84
Crosstalk at 1000 Hz, dB	-89	-90
Crosstalk at 10000 Hz, dB	-84	-86

IMD (swept tones)



	Left	Right
IMD + Noise at 5000 Hz,	0.02642	0.02576
IMD + Noise at 10000 Hz,	0.02713	0.02649
IMD + Noise at 15000 Hz,	0.02717	0.02668

Gigabyte 990X Gaming SLI (ALC1150)

RightMark Audio Analyzer test report

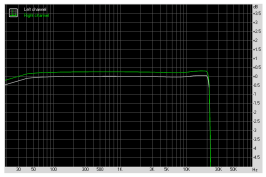
Testing device	[MME] Wave mapper - Gigabyte 990X Gaming SLI (ALC1150)
Sampling mode	24-bit, 192 kHz
Interface	MME
Testing chain	External loopback (line-out - line-in)
RMAA Version	6.4.5

20 Hz - 20 kHz filter	OFF
Normalize amplitude	ON
Level change	0.3 dB / 0.6 dB
Mono mode	OFF
Calibration singal, Hz	1000
Polarity	correct/correct

Summary

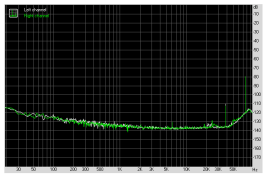
Frequency response (from 40 Hz to 15 kHz), dB	+0.06, -0.11	Very good
Noise level, dB (A)	-104.3	Excellent
Dynamic range, dB (A)	104.2	Excellent
THD, %	0.00870	Very good
THD + Noise, dB (A)	-78.8	Average
IMD + Noise, %	0.032	Good
Stereo crosstalk, dB	-95.1	Excellent
IMD at 10 kHz, %	0.037	Good
General performance		**Very good**

Frequency response



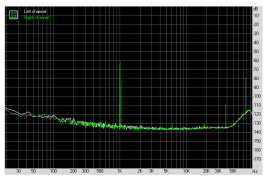
	Left	Right
From 20 Hz to 20 kHz, dB	-0.45, +0.06	-0.21, +0.31
From 40 Hz to 15 kHz, dB	-0.11, +0.06	+0.14, +0.31

Noise level



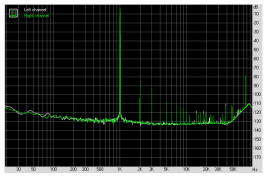
	Left	Right
RMS power, dB	-79.1	-79.3
RMS power (A-weighted), dB	-104.2	-104.4
Peak level, dB FS	-67.2	-68.1
DC offset, %	-0.0	-0.0

Dynamic range



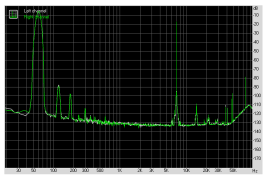
	Left	Right
Dynamic range, dB	+79.4	+79.0
Dynamic range (A-weighted), dB	+104.0	+104.3
DC offset, %	+0.00	+0.00

THD + Noise (at -3 dB FS)



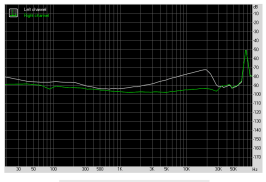
	Left	Right
THD, %	0.00925	0.00815
THD + Noise, %	0.02974	0.02854
THD + Noise (A-weighted), %	0.01221	0.01078

Intermodulation distortion



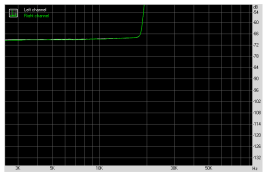
	Left	Right
IMD + Noise, %	0.03216	0.03107
IMD + Noise (A-weighted), %	0.00593	0.00542

Stereo crosstalk



	Left	Right
Crosstalk at 100 Hz, dB	-85	-91
Crosstalk at 1000 Hz, dB	-92	-98
Crosstalk at 10000 Hz, dB	-76	-94

IMD (swept tones)



	Left	Right
IMD + Noise at 5000 Hz,	0.03585	0.03501
IMD + Noise at 10000 Hz,	0.03736	0.03677
IMD + Noise at 15000 Hz,	0.02897	0.02944

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