31-band EQ values for selected FR targets and over-ear headphones v2

																			-ear ne				0 1-17		-1.5	2 214	017	1017	40 =14	4016	2017
HP model / dB→	20	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1K	1.25K	1.6K	2K	2.5K	3.15K	4K	5K	6.3K	8K	10K	12.5K	16K	20K
Room gains:													_														_				
Bruel & Kjaer OptHF RG	2.5	2.7	2.9	3	3	3		2.9	2.8	2.7		2.2	2		1.6	1.5		0.9	0.6	0.3		-0.3	-0.5	-1.1		-1.6	-2	-2.2	-2.6	-3.1	-3.6
1dB/oct room gain	5	4.7		4.1	3.8			2.8	2.6	2.1		1.5	1.1	8.0	0.5	0.2	-0.8					-1.7	-2.1		-2.7	-3	-3.4	-3.8	-4.2	-4.7	-5
0.9dB/oct room gain	4.5	4.3		3.6	3.3	3		2.5	2.2	1.7		1.3	1	0.7	0.3		-0.3					-1.8		-2.5		-3	-3.3	-3.7	-4	-4.3	-4.5
oole realistic room gn	0	0	0	0	0	2	1.8	1.7	1.5	1.3	1.1	1	0.7	0.5	0.3	0.2	0.1	-0.2	-0.3	-0.6	-0.6	-0.7	-0.8	-0.8	-0.9	-1	-1.3	-1.7	-2.4	-3.6	-5
ardrum meas.:																															
oiffuse field (H&M)	0	0	0	0	0	0	0	0	0	0.5	8.0	1	1.2	1.5	2	3	3.5	4	5	8	11	15.5	15.5	13	10.5	10	9.5	7	4	0	-3.6
oiffuse field (B&K)	0	0.3	0.5	0.2	0.3	0.2	0.5	0.3	0.2	0.3	0	0.4	1	1.3	2.5	2.5	4	5	4.7	5.7	10	15	17.3	15	11.6	10.7	2.3	4.2	9.2	0	-4.5
Inknown recent DF Or	0	0	0	0	0	0	0	0	0	0	0.2	0.4	8.0	1.4	2.2	2.9	3.6	4.1	5.4	8	12	14.9	15	13.5	11.2	9.5	9.2	7.4	6	5.8	5.9
larman linear speaker	-0.3	-0.7	-0.5	-0.3	-0.5	-0.3	-0.7	-0.3	-0.3	0.2	0	0.3	8.0	1.2	1.8	2.3	3.1	3.6	4.7	6.9	9.5	13.7	14.6	13	11.2	9.9	7.3	4.6	0	-4.7	-2.7
ear resonance at 45°	0	0.1	0.2	0.2	0.3	0.3	0.7	0.8	1	1.4	1.7	2.2	2.9	3.7	4.9	5.8	6.3	6.2	6.7	9.5	15	20.5	19.4	18	17.4	13.5	12.3	3	9	0	-4.5
lead gain at 45°	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.7	1.3	2	2.8	3.4	3.9	4.2	4.5	4.7	4.9	5.1	5.3	5.5	5.6	5.7	5.9	6	6
orso+neck gain at 45°	0	0	0	0	0	0	0.4	0.7	1.2	1.3	1.7	2.1	2.4	2.7	2.8	2.7	1.6	0		-1.4	0	0	0	0	0	0	0	0	0	0	0
Concha gain at 45°	0	0			0	0	0. 1	0.7	0	0.0	0	0		0	0	0	٠.٥	0	0	0.1	0.7	2	3.7	6.7	9.4	8.5	1.7	-7.2	-5.2	3.2	9
	0	0	0	0		0	0	0	0	0	0		0			•	0 5	0.6				1.0									
inna flange gain at 45°	0	0	0		0	0	0	0	0	0	0	0	0	0.1	0.2	0.4	0.5	0.6	0.5	0.7	1.2	1.8	2.8	3.1	1.2	0.8	0.9	0.6	3.8	2.3	2.3
ar canal+drum at 45°	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0.3	0.6	1.3	2.1	3.3	5.3		11.2	8	3	1.2	-1.1	0	5	7.5	4	0
lead+torso at 45°	0	0	0	0	0	0	0.4	0.7	1.2	1.3	1.7	2.1	2.5	3.4	4.1	4.7	4.4	3.4	2.5	2.8	4.5	4.7	4.9	5.1	5.3	5.5	5.6	5.7	5.9	6	6
otal ear gain at 45°	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0.5	1	1.8	2.7	3.8	6.1	10.3	15	14.5	12.8	11.8	8.2	2.6	-1.6	6.1	9.5	11.3
otal resonance at 45°	0	0	0	0	0	0	0.4	0.7	1.2	1.3	1.7	2.1	2.5	3.7	4.6	5.7	6.2	6.1	6.3	8.9	14.8	19.7	19.4	17.9	17.1	13.7	8.2	4.1	12	15.5	17.3
R target curves)																															
n. speaker+BK	-0.4	-0.6	-0.2	0.1	-0.1	0.1	-0.3	0	-0.1	0.3	-0.1	-0.1	0.2	0.4	0.8	1.2	1.6	1.9	2.7	4.6	6.9	10.8	11.5	9.3	7.4	5.7	2.7	-0.2	-5.2	-10.4	-8.9
n. speaker+1dB/oct	2.9	2.2	2.2	2	1.5	1.4	0.7	0.7	0.5	0.5	0.1	0	0.1	0.2	0.5	0.7	0.5	1.3	2.6	3.9	6.2	10.2	10.7	8.8	6.7	5.1	2.1	-1	-6	-11.2	-9.5
n. speaker+0.9dB/oct	2.7	2.1	2	1.8	1.3			0.7	0.4	0.4	0	0.1	0.3	0.4	0.6	0.8	1.3		2.2	4.1		10.4	11.1	9	6.9	5.4	2.5	-0.6		-10.5	
arman 2018 Or	5.6	6.1	6	5.8	5.4	4.8		3.2	2	0.9		0.1	0.6	1			1.9		2.8	4.7	7.4	9.7		10.5	8.6	6.9	4.6	1.5	-3.1	-6.2	-15
	4.8	J. 1	<i>F</i>		4.5			2.4					0.6			1.7			2.8		7.4	9.7		10.5	8.6			1.5	-3.1	-6.2	-15
larman 18 bass-1		5	5			4			1.4	0.5				1			1.9			4.7						6.9	4.6				
arman 18 bass-2	3.8	4	4	3.75		3		1.7	1	0.35		0.1	0.6	1		1.7			2.8	4.7	7.4	9.7		10.5	8.6	6.9	4.6	1.5	-3.1	-6.2	-15
arman 18 bass-3	2.9	3	3	2.8	2.5				0.65	0.3		0.1	0.6	1			1.9		2.8	4.7	7.4	9.7		10.5	8.6	6.9	4.6	1.5	-3.1	-6.2	-15
arman 18 bass-4	1.9	2	2	1.9	1.75	1.5	1.25	0.85	0.5	0.2	0.1	0.1	0.6	1	1.3	1.7	1.9	2.1	2.8	4.7	7.4	9.7	10.7	10.5	8.6	6.9	4.6	1.5	-3.1	-6.2	-15
arman 18 bass-5	0.95	1	1	0.95	0.85	0.7	0.55	0.35	0.2	0.15	0.1	0.1	0.6	1	1.3	1.7	1.9	2.1	2.8	4.7	7.4	9.7	10.7	10.5	8.6	6.9	4.6	1.5	-3.1	-6.2	-15
arman 18 bass-6	0	0	0	0	0	0	0	0	0	0	0.1	0.1	0.6	1	1.3	1.7	1.9	2.1	2.8	4.7	7.4	9.7	10.7	10.5	8.6	6.9	4.6	1.5	-3.1	-6.2	-15
arman 18 linear bass	0.2	0.5	0.5	0.3	0	-0.3	-0.1	0.2	0.2	0.2	0.1	0.2	8.0	1.2	1.7	2	2.2	2.3	3.2	5.2	7.7	10	10.9	10.6	8.9	7.2	4.8	1.6	-3	-7	-22
arman 2013	4	3.8	3.9	4	3.7	3.6	2.6	2.2	1.2	0.6	0	0	0.7	1.1	1.3	1.4	2.1	2.6	3.3	5.2	7.6	11.3	12.2	10.2	8	6.4	3.6	0.6	-4.3	-8.8	-25
ymotic target Cr	0	0	0	0	0	0	0	0	0	0	0.2	0.3	0.5	0.9	1.1	1.8	2.6	3.4	4	6.3	9.2	12.8	12.3	9.4	7.9	4.7	3.8	1.3	-1.2	-3.2	-5.7
ptimum HiFi Or	-0.1	-0.1	0.3	0.2	0	-0.2	-0.1	0	0.1	0.1				0.5		1		1.6	2.4	4.2	6.8	9	9.9	9.4	7.5	5.5	3	-0.3	-3.5		-10.5
rinacle IEF target	0	0			0		0	0	0	0	0	0	0	0	0	0	0.5	1.5	3.7	3.2	5.5	7.7	8.8	8.5	6.6	5	5.3	-0.4	-4.9		
					1			_		0.7																					
vg of 24 neutral HPs	-1.8	-0.6	0.1	0.6	I	1.1	1.4	1.6	1.4	0.7	0.2	-0.1	-0.3	-0.3	-0.2	0.1	0.7	1.4	2.1	3.4	5.1	7.8	9.1	7.3	6.3	4.2	3.6	-3	-3.8	-5.1	-9.2
leadphones)																															
byss Diana Phi Cr	-4.9	-4.3						-4.1						-4.1	-3.7	-3	-1.4	0	-1.5	2.6	3.9	5.7	3.5	2.1	0.9	-0.7	-2.2	-6.5	-6.6	-9.3	-5.8
KG K361 Or	1.6	2.2	2.5	2.8	1.8	-0.3	-0.4	0	0.2	0.5	-1.9	-3.3	-3.9	-3.6	-2.8	-2.1	-0.8	0	1.8	3.7	5.4	6.1	6.6	-0.4	0.2	1.5	-1.1	-3.7	-7.4	-11.1	-13.8
KG K371 Or	5.7	5.9	5.3	4.9	3.2	0.9	1	0.9	0.6	-0.3	-0.8	-1.8	-1.8	-1.8	-1.5	-1.1	-0.6	0	0.7	2.3	4.2	7.3	7.3	2	4.2	4.3	3	-3.3	-6.2	-15	-16.5
KG K553 Or	7.8	7	5.4	4.3	4.8	4	5.1	6.4	5	3.2	2.5	2.4	1.9	8.0	-0.1	-0.8	-0.6	0	2.1	4.2	4.9	8.8	8.4	3.9	5.8	3.7	2.7	-1.5	-1.8	-7.9	-14.6
KG K601 Or	-9	-7.5	-6	-5	-5	-5	-2.5	-2	-1	-1	-1	-1	-1	-1	-1	-1	-1	0	2	6	10	13.5	11.5	10.5	5	6	7	-9	-7	-3	-10
KG K612 Or	-5.8	-4.8	-3.6	-2.8	-2.8	-3.2	-2	-1.3	-1	-0.9	-0.8	-0.8	-1	-0.9	-1.1	-1.3	-0.7	0	0.7	5.1	8.7	11.2	10.7	8.4	5.1	7.4	5.2	-5.5	-1.5	-6.8	-13
KG K701 Rt	-6	-4	-4	-3	-2.5	-2	-2	-1.5	-1	-1	-1	-1	-1	-1	-1	-2	-1.5	0	1.5	4	9	13	11.5	7.5	6.5	9.5	10	-1	1	-10	-7
KG K712 Or	1	2	2.8	3.4	3.9	4.2	4.3	4.3	3.9	3.9	4.4	4.6	4.6	4.5	4.1	3.1	1.8	0	-2.1	2.1	7.3	8.2	6.6	9.1	10.3	8.7	6.8	-5.2	1.8	-3.4	-11.1
KG Q701 Rt	-5	-4	-3	-2	-1.5	-1	-1	-0.5	0	0	0	0	0	0	-0.5	-1	-0.5	0	1	4	9	12	9.5	7	6.5	10	9	-3	3	-11	-7
udeze LCD-1 Or	-5.1	-4.8				-2.8				_	-2.1					-1.2		0	-0.9	-2.1	-0.8	4.9	8.5	5.7			-1.5	-5.4	-6.8		<u> </u>
udeze LCD-1 Cl																															
	-5	-4.8		-2.9							-2.8							0	0.8	0.2	2.2	4.5	1.7		-2.2	1.5	0.1	-13	-4.4		
udeze LCD-2 Or	-3.3						-1.8									-0.4	0	U	-0.3	1.5	1.5	2.6	4			2.8	-1.8	-2.2		-11.1	
udeze LCD-X IF	-4.7	-4.3					-1.3										0.2	0	0.3	1.7	3.9	5.5	5.9	5.3	2.5	1.1	-5.1	-0.5	-1.4	-2.6	-0.7
udeze LCD-X Cr2	-5.2	-4.6	-4.3	-3.7	-3.3	-2.6	-2.5	-2.5	-2.4	-2.2	-2	-1.6	-1.2	-1.3	-0.8	0.7	0.6	0	-2.6	-3.2	-2	-1.7	-3.4	-4.3	2.7	1.2	-3.4	-10.3	-3.5	-4.4	-6.8
udio-T M40x Rt	-0.3	1.2	2.7	3.8	4.3	4.2	3.2	3.7	4.3	2.9	1.1	-1.6	-3.8	-3.7	-3.2	-2.2	-1.4	0	2.2	3.8	5.3	7.2	8.3	6.1	3.4	0.9	7.7	4.6	-1.1	1.3	-9.1
udio-T M40x Or	-14.2	-10.7	-7.4	-4.2	-1.5	-0.3	8.0	1.4	3.1	2.7	2.7	1.8	0	-0.5	-0.4	0	0.2	0	2	3.7	5.6	8.3	9.6	9.6	7	6.8	8.5	8.0	-2.5	-3.7	-8.2
udio-T M50x Or	-5.7	-2.7	-0.2	1.1	1.2	0.9	0.3	1.8	1.5	1.5	0.2	-2.7	-3.7	-2.3	-0.9	-0.3	-0.2	0	1.3	2.8	6.4	10.4	11	10.5	7.2	4.4	7.5	-1.8	3.7	2.3	-8.4
udio-T M50x Cr	3.8	5.1	5.4	6.4	5.7	4.4	3.3	2.1	2.5	1.8	-0.7	-2.7	-3.4	-1.5	-0.5	0.1	0.8	0	0	1.5	6.6	10.5	9.8	7.8	3.1	3.8	3.6	-0.5	-3.2	-1.2	-11.2
udio-T M50x Cr2	1	1.7	2.3	2.9	2.7	1.3	2.3	2.8	3.2	2.6	0.9	-1.4	-1.4	-1.4	-1.4	-0.4	0.2	0	0.3	1.4	4	6.3	7.4	7.5	5.1	3.5	1.3	-1.9	-2.9	-8.8	-7.9
udio-T MSR7b Cr2	-1.5	1	2.2	3.3	3.9	3.7	3.9	4.6	3.8	2.2	-1.1	-4.2	-3.9	-2.3	-1.4	-0.5	-0.1	0	0.7	2.7	5.4	6.9	4.7	6.2	6.4	4.8	2.5	-1.3	-5.2	-17.1	-10.3
udio-T M70x Cr2	-0.6	0.8				-1.9		4.3				0.4			-0.3		-1	0	1.5	4.2	7.6	9.4		10.7	10	7.5	6	1.3			
udio-T R70x Cr2	-7.5	-3.9	-		0.0			0.8	0.7	0.5							-0.6	0	0.5	2.8	4	7.1	7.4	6.8	1.6	4.1	-0.5	-10			-20.7
udioQ Nighthawk IF	8.4	8.3		8			7.4			7.9								0	1.6	5.2	5.8	5.6	8.4	5		3.9	4.6	5	-1.9	-10.7	
																		0		0.2		0.0									
ırora Borealis Re	-7.4	-6.7				-2.4		-2.5			-3.2				-3.4			U	0.3	U	0.9	3	3.3	3.6	3.3	0.8	-2.7	-13.7	-12.7		-14.7
rora Borealis Or	-9	-7					-2.1		-3.2			-4	-4.1		-3.6			0	0.1	0	1	2	3.5	3.6	3	0	-2	-13	-13	-11	
eats Solo HD IF	8.4	8	7.4	6.5	4.7	0.5	9	7	5.5	4	1.9	1	0	-3.7	-3.9	-2.2	-0.8	0	0.3	0	0.2	1.5	5.1	4.8	0.5	-10.5	-11.5	-8.5	-15.5	-19.5	-19.5
ats Solo3 Wireless Rt	10	10	10	9.5	9.5	9.5	9	9	8.5	8	7	5	2	1	0.5	-0.5	-1	0	2	4.5	7	10	14	9	7	6	7	2	-3	-8	-13
y DT 770/80 Or	-9.2	-7.3	-5.9	-5.1	-5.3	-5.3	-7	4.8	7.3	4.6	3.2	2.2	1.4	8.0	0.2	-0.2	-0.2	0	1.5	3.7	7.3	8.3	6	2.3	2.5	4	5.9	-2.3	1.7	-9.9	-20.6
ey DT 770/250 Or	5.8	6.5	7	7.2	7	6.2	3.8	-2.7	2.4	-0.2	-6.4	-6.1	-4	-2.9	-2.3	-2.3	-1.4	0	-0.8	1.2	3.9	6.6	3.4	6.1	6.1	9.2	5	-0.9	4.3	-1.7	-10.8
ey DT 880/250 IF	-5.3						-0.7				8.0						0.2	0	0	1.1		5.6	9.6				4.1				
ey DT 880 Or	-5.8	-5.1					-3.5				-1.5							0	0.3	2.2	5.3	8.5	10.1			10.5	3.5	-7.1	-2.5	-6.5	
ey DT 990/250 Or	-2.8	-1.4		1.3		2.9					1.3							0	1.6	2.8		8.8				10.8	11.5	4.2	7.1	2.4	
																		0													
ey DT 1770 L pads Rt	5.7			5.1			7.1				1.3										-0.1	2.1	2.7				5.6	0.1			-26.4
	-2.7	-1.9	-1.3	-0.7			0.4									0.1		0	1.2	3.1	4.9	8.5	7.7		7		12.7	1.2	1.9	2.2	
ey DT 1990 A pads Or						0.0	2.5	20	29	2.9	26	23	17	0.0	_	0.1	0.1	0	0.0	2.7	5.3	7.6	8.7	8.4	6.4	71	0.4	0.0	0.4		4.0
ey DT 1990 A pads Or		1.8	2.3	2.6	2.8	2.8	2.5	2.9	2.0		2.0	2.0	1.7	0.9	U	-0.1	-0.1	U	0.6	2.1	3.3	7.0	0.7	0.4	0.4	7.4	9.4	0.2	0.4	-7.4	-4.2
ey DT 1990 A pads Or ey DT 1990 B pads Cr2 ey TYGR 300 R Cr2		1.8 0.8					2.7								-0.7			0	1.5	2.8	4.3	6.1	7.4				6.8	0.2	-1		

			_																												
Bose QC25 Or	-1.6	1.1	3	3.7	3.3	2.5	1.9	1.4	0.9	0.4	-0.1	-0.8	-1.4	-1.9	-1.8	-1.6	-0.3	0	2.9	3.7	64	8.5	0.5	10.1	3.6	8.5	-4	-5.2	-1.7	-11.8	-18.5
Bose QC35 II active Cr2	5.7	5.6	6	6.6	6.5	6.4	6	5.1	4.5	3.9	3.3	3	2.5	1.6	1.7	1.6	1	0	0.3	3.1	6.6	10.2	11.4	12.3	10.4	12	5.1	-4	0.4	-16.4	-13.2
Bose QC35 II passive Cr2	-3.8	-2.1	-1.8	-0.6	-2.2	-1.6	1.7	4.1	5.9	3.7	-0.3	-3.6	-5.9	-6.1	-4.9	-2.8	-0.4	0	-1.7	-4.6	-3.1	1.7	3.3	6.3	4.5	4.4	-7.7	-9.1	-5.7	-19.3	-13.7
Creative Aur Live 2 IF	4.7	5.4	5.8	6	6	5.7	4.8	4.9	4.4	3.8	3.6	2.9	1.7	-0.7	-0.3	0.2	0.8	0	-1.2	-2.8	-2.4	0.3	1.9	2.7	-1.4	-3	-2.3	2.1	-12.1	-8.5	-9.2
DCA Aeon 1 Closed Or	0.9	1	1.2	1.3	1.3	0.3	0.6	n	-1 3	-2.8	-1 5	_1	-0.7					0	1.4	2.3	2.4	4.3	6.7	6.3	1.7	2.3	3.7	-2.5	-2.8		-9
DCA Aeon 2 Closed Or	5.1	5.4	5.6	5.4	5.2	4.6	4.4	5.4		1.9		1.2					0.6	0	1.4		1.7	3.3	4.2	3.1	5.6	7.1	4.4	-8.6	-0.4	-0.1	-2.9
																		_													
DCA Aeon 2 Open Cr2	4.9	5.2	5.2	5.1	4.9	4.7	5.6	6.1	6.1	5.5	4.7	3.9	3.2	2.3	2.6	1.1	0.7	0	-0.4	1.6	4.6	7.4	6	2.5	7.2	7.7	4.6	-8.5	-1.2	1.5	-2.7
DCA Aeon 2 Noire Or	3	3.2	3.4	4.4	4.3	4.3	5.4	6	4.5	8.0	-0.9	0.3	0.7	1	0.8	0.3	0.1	0	1.8	4.1	6.2	7.6	10.3	9	9.6	9.2	8.5	1.9	1.7	6.3	-2.3
D+Fos Purpleheart Or	-4.2	-1.1	0.3	0.9	8.0	0.4	0	-0.4	-0.7	-1.1	-1.5	-1.6	-1.9	-2.4	-3.1	-2.8	-1.7	0	0.6	2.6	4.4	6.3	1.3	2.2	6.9	0.9	-2.2	-0.3	2.5	-7.6	-13.3
Drop-THX Panda Cr2	1	1.2	1.3	1	1.4	1.4	2.2	3.7	3.9	3.4	2.4	1.4	0.6	0	1	1.7	1.3	0	0.3	-0.8	-0.8	2.2	5.1	5.2	3	6.4	1.4	-11.1	-4.7	-16.5	-16
Focal Clear Or	-4	-3.3	-2.7	-2.2	-1.9	-1.6	-1.5	-1.5	-1.7	-2	-2.3	-2.6	-2.7	-2.8	-2.7	-2.3	-1.3	0	2.1	2.8	3.2	5.1	7.4	2.5	1.9	0.9	-4.4	-10.2	-2	-5.6	-13.4
Focal Clear Re	-5.1	-3		1.2	2.2		4.1	4.9	5.1		4.8						0.6	0	_1	-1.7		1.7	5	7.1	9.7	10.8	1.1		3.5	-6.9	-4.6
																		0				_									
Focal Clear Mg Re (est)	-5.5	-3.8		-2.1		-1.1	-0.9			-1.4								U	2.3	1.9	1.8	4	6.2	2.1	0.5	1.5		1.5	-6.9		-16.9
Focal Elear IF	-3	-2	-1.5	-1	-0.5	0	0	0	0	-0.5	-1	-1.2	-1.5	-2	-1.5	-1.2	-0.5	0	1	3	5	6	8	2	-2	-4	-7	-2	-6	-9	-7
Focal Elear Or	-3.2	-2.3	-1.8	-1.3	-0.9	-0.7	-0.4	-0.4	-0.5	-0.7	-0.9	-1.1	-1.3	-1.4	-1.3	-1	-0.6	0	1.2	2.6	2	4.4	5.7	-0.1	0	1.4	-6.9	-9.8	-8.9	-8.9	-11.1
Focal Elear Rt	-7.5	-6.2	-4.8	-3.3	-2.2	-1.2	-0.6	-0.5	-0.4	-0.6	-1.1	-1.6	-1.8	-2	-1.8	-1.5	-0.8	0	1.3	3.1	4.8	7.2	7.9	-2.4	-4	0.2	2.7	-6.4	-4.2	-6.9	-3
Focal Elegia Or	-0.1	0	-0.1	-0.7	-0.8	-0.9	1.2	1.5	-2.8	-3.6	-3.3	-2.1	-1.2	-1.1	-0.8	-0.9	-0.5	0	0.5	3.1	2.7	5.5	4	-6.8	-3.1	0.1	0.1	-8.9	-2.9	-10.6	-8.5
Focal-Drop Elex Or	-4	-29	-25	-19	-1.5	-12	-1	-1	-12	-1.5	-1 8	-2 1	-2 4	-2 5	-2 4	-2 1	-12	0	1.5	2.4	2.4	4	6.2	3.8	2.1	0.9	-1.9	-8.8	-7.1	-9.4	-9.6
-																						4.6									
Focal-Drop Elex Re	-5	-3.5	-2.9	-2.2			-1.3										-1.3	0	1.3	2.5	3.2	4.6	6.6	1.5		0.1	2.2		-6.6		-14.4
Focal Radiance Re	1.3	0.7	1.3	0.2	-2	-2.1	0.1	1.5	2.6	1.2	-1.8	-3.3	-3.5	-3	-2.7	-1.6	-0.6	0	0.2	2.5	3.3	2.8	1.1	2.4	1.6	-7.5	-9	-11.9	-5.4	4.5	-13.5
Focal Utopia Or	-5.5	-4.9	-4.4	-3.9	-3.5	-3.2	-2.9	-2.7	-2.7	-2.6	-2.7	-2.8	-2.9	-3	-2.9	-2.4	-1.4	0	1.6	1	0.2	5.8	6.2	5.9	4.1	3.4	-2.6	-5.3	-7.9	-5.2	-5.7
Focal Utopia Re	-3.4	-2.2	-1.5	-0.9	-0.7	-0.4	-0.4	-0.2	-0.4	-0.7	-1.1	-1.4	-1.7	-2.1	-2	-1.9	-1.1	0	1.6	0.4	8.0	4.8	5.7	5.1	-0.2	-1.7	-2.1	-13.2	-8.7	-6.2	-14
Fostex Purpleheart Or	-4.2	-1.1	0.3	0.9	0.8	0.4	0	-0.4	-0.7	-1.1	-1.5	-1.6	-1.9	-2.4	-3.1	-2.8	-1.7	0	0.6	2.6	4.4	6.3	1.3	2.2	6.9	0.9	-2.2	-0.3	2.5	-7.6	-13.3
Grado SR60e Or	-12	-9.7	-7	-4.2		-0.6	0.1			-1.2								0	0.9		15.4		10.2			6.5	5.5	-2	-4.8		-14.9
Grado SR225e Rt	-9.7				-1.6					-1.2					-1.5				1.1			13.7	11.4		7.4	5.8	9	10.5		-11	
																		0						6.3					3.8		
Hifiman Ananda Rt	-3.5	-2.8		-1.4			-0.7	-1			-1.1							0	-1.4			8	9.6	6.2	3.3	3.8	6.4	-7.9	-1.2		
Hifiman Arya Or	-0.8	-0.8	-0.8	-0.8	-0.8	-0.7	-0.6	-0.6	-0.4	-0.2	-0.8	-1	0.5	-0.9	1.2	-0.5	-,8	0	0.1	-1.3	1.3	7.3	8.8	4.3	10	7.7	5.5	-3.1	2.3	-11.5	-10.1
HiFiman-Drop HE4XX IF	-2.4	-1.3	-0.4	-0.2	-0.1	0.6	0.5	0.3	0.1	-0.1	0.1	-0.2	0.1	0.3	-0.1	0.4	-0.1	0	-0.5	-0.4	0.9	6.4	11.4	7.9	5.1	5.6	4.2	2.8	-2.7	-10.7	-5
Hifiman-Drop HE4XX Or	-11.4	-8.7	-6.6	-4.2	-2.6	-1.4	-0.8	-1	-1.5	-1.6	-1.9	-2	-2.2	-1.9	-2.5	-2.6	-1.3	0	0.3	-1.4	-0.5	7.6	10.8	7.3	1.9	6.1	7.1	-4.2	-10.1	1.8	-11.1
Hifiman Sundara IF	-3.3	-2.6	-2.1	-2	-2	-1.4	-1.3	-1.5	-1.8	-1.9	-1.7	-1.5	-1.2	-0.9	-1.3	-0.8	0.2	0	-0.7	-0.9	0.3	4.8	11.4	8.9	7.1	-0.2	0.1	-6.3	1.7	-10.7	-9.2
Hifiman Sundara Or	-3.3	-23	-19	-16	-1.6	-1 4	-1 4	-1 4	-16	-1 8	-1 8	-1 6	-1.5	-1.5	-1.5	-0.5	0.3	0	-0.9	-1.2	-0.3	5.6	10.4	10.2	8.1	0.8	2.5	-5	0.3	-3.5	-17.2
	-4.4																	0	0.5							3.9	6.7	-1.8			
Hifiman Sundara Rt					-0.6												1.1	0		1.1	2.2	6.1	10.1	8.5	8.4				0		
Hifiman Sundara 2020 Rs	-5.1	-4.1	-3.3	-2.3	-1.8	-1.4	-1.7	-1.9	-2.1	-2.1	-1.9	-1.8	-1.8	-1.4	-2.4	-1.1	-0.3	0	0.9	0.6	3.6	4.5	6	6.3	5.4	2.3	-0.1	-2.1	-3.6	-6.6	-12.1
Koss Porta Pro Rt	-6.9	-4.7	-2.2	0.1	2	3.4	4.3	4.6	4.5	3.8	2.9	1.8	1.2	0.4	-0.1	-0.2	-0.3	0	1.4	4.2	7.2	9.3	8.7	-0.7	5.3	-1.5	0.6	0	-8.9	-15.3	-23.8
Koss KSC75 Cr2	-22.8	-19.3	-15.9	-12.1	-8.6	-5.4	-2.2	0.5	2.1	2.3	1.6	0.7	0.1	-0.4	-0.7	-0.4	-0.5	0	0.4	3.5	7.1	10.6	11	9.6	9.7	6.3	7	1	-0.7	-7.7	-5.8
Koss KSC75 Rt	-15.5	-12.9	-9.9	-7	-4.4	-1.8	0.3	1.3	1.7	1.3	0.5	0	-0.3	-0.7	-0.8	-0.7	-0.5	0	1.1	3.9	8.1	12.1	12	2.4	11.1	1.8	5.7	1.5	-3.8	-7.1	-9.5
Meze 99 Classics Or	9.7	10.4	10.9	11.2	11.3	11.2	10.5	9.3	9.4	9.6	9.3	7.5	2.6	-0.2	1.7	2.8	2.1	0	2	5.7	8	8.3	7.3	2.7	13.9	11	8.2	-6	6.8	-4.3	-14.1
Meze Empyrean Or	2.8	2.8	3	3.1		3		3.2			3	2.4		2.1			1.4	0		-1.3		3.8	7.1	8.4	6.2	3.4	0.5	-5.7	-4.7		-10.5
															0.7																
Monoprice M1060 Or	-1.8	-1./	-1.2		-0.4			-0.1			0.1						1.1	0	1.8	4.1	7.3	9.2	10.2	8.1	4.3	2	-5.7	-1.4	-4.9		
NAD Viso HP50 Or	4.2	4.4	4.4	4.2	3.7	2.7	1.8	4.5	3.8	3.3	2.9	2.5	1.5	1.1	0.7	0.4	0	0	1.3	2.9	4.8	6.6	8	7.9	9.4	7.5	7.7	-5.5	-5.7	-16.1	-13.6
Neumann NDH 20 Or	8.4	8.9	9.3	9.2	8.8	7.8	5.9	4.6	4.7	4.1	3.1	2.4	1.6	1.1	1.3	1.4	1	0	-1.4	-1.5	0	3.1	8.2	11.1	8.2	5	7.5	-3.9	-6.2	-8.4	-7.4
Oppo PM-3 Rt	3	2.4	1.8	1.2	0.9	1.4	2.2	2.6	2.7	2.3	1.4	0.1	-1.2	-1.5	-0.2	1.4	1.1	0	2.7	4.9	7.3	11.5	11.3	7.3	4.2	4.3	11.4	4.5	-4.5	-12.5	-13.1
Oppo PM-3 Or	2.1	1.6	1.1	0.7	-1	0.3	1.2	3.1	3	1.9	0	-2.2	-3.8	-3.6	-1.7	-0.2	0.1	0	1.3	3.3	5.9	9	9.9	7.8	4.9	6.9	5.3	-12.9	-2.4	14.3	-17.6
Philips SHP9500 Or	-10	-8.1	-6	-4.1	-2.6	-1.5	-1.1	-0.5	-0.5	-0.6	-0.2	-1.4	-1.7	-1.6	-1.5	-1.3	-0.6	0	0.8	1.5	2.2	4.7	8.3	9.5	10.8	12.4	-0.9	-0.2	1.6	-4.9	-16.6
Philips Fid. X2HR Or	-5	-3.1	_1	0.9	2.3	2.8		1.9	1		-1.1							0	-1	3.8	2.5	5.4	5.9		10.2	5.8		-3.5		-11.7	
-			-1						-									0	-	3.6							-0.3	_			
RAAL SR1a Re	-10	-9	-6.5	-5	-4		-2.4			-1.6	-0.7	-1	-0.5	-0.8	-0.7	-0.5	-0.3	0	3	7	10	9	8.5	5.2	9	7	1	-7	-7	-6	-22
Sendy Aiva Cr	-6.7	-6	-5.2	-4.2	-3.5	-3	-3.2	-3.3	-3.3	-3.4	-3.3	-3.1	-2.7	-2	-2	-1.7	0	0	-0.5	-6.3	-2.5	3.5	5.5	-0.3	-2.5	-1.2	-6.1	-3.8	-4.5	-5.5	-12
Senn-Drop PC38X HdFi	-5	-3.5	-2.5	-1.5	-0.7	-0.1	-0.6	-0.6	-0.7	-2	-2.2	-2.5	-2.5	-2.7	-2.5	-2	-1.3	0	1.3	2.5	3.1	5.5	7.4	7	7.3	1.6	-0.7	-3	-3	-7.5	-10
Senn HD 560S Cr2	-4	-1.8	-0.9	-0.1	0.2	-0.4	-1.1	-0.7	-1	-1.5	-2	-2.2	-2.4	-2.1	-1.8	-1.7	-0.8	0	0.9	1	1.9	5.1	7.7	5.7	6.4	0.4	0.4	-12.5	-13.8	-6.4	-9.5
Senn HD 58X Or	-5.7	-4.2	-2.9	-1.7	-0.9	-0.4	-1.2	0.3	0.4	0.2	0	-0.3	-0.4	-0.7	-0.7	-0.7	-0.6	0	1.1	1.5	1.9	3.3	6.3	6.1	7.5	0.8	-1.6	-7.3	-5.5	-11.9	-10.2
Senn HD 579 Cr2	-5.9	-4.2	-2.5	-1.1	-0.1			1.8			1.8					-0.1		0	0.8	2.7		7.6	11.1	8.4		4.8	2.5	-0.6	-5.1		-10.6
Senn HD 560S Or	-4.5	-3.1			-0.6		-1.4			-1.8						-1.8		0	1.1			4.9	8	7.4		2.5		-10.7	-9.4	-6.3	
																				_											
Senn HD 560S Re	-2.2						-1.1								-1.9			0	1.5	2	3.2	5.7	8.1	7.1		3.3	0.2		-5.4	-3.9	
Senn HD 580 IF	-8.6	-6.7								-0.5					-0.8			0	1.5	3.1		7.4	11.2	8.5		-3.4	-3.8	-0.7	-9.9		-4.9
Senn HD 599 Or	-7.5	-5.7	-3.9	-2.3	-1.4	-0.4	0.5	1.5	1.9	2	1.8	1.2	0.9	0.6	0.2	-0.2	-0.2	0	0.4	1.2	4.6	8.3	10.8	8.2	4.7	2.2	2.9	0	-7.7	-14.5	-9.6
Senn HD 599 Rt	-3.7	-2.5	-1.1	-0.1	8.0	1.7	2.2	2.7	3	2.8	2.3	1.7	1.2	0.5	0.2	0	-0.2	0	0	-0.7	2.9	6.7	10.4	7.7	5.4	2.9	2.3	-3.4	-5.1	-11.6	-7.7
Senn HD 600 Cr2	-11.5	-9.3	-7.5	-5.7	-4.6	-3.5	-2.1	-1.4	-1.1	-1.5	-1.2	-1.3	-1.5	-1.5	-1.4	-1.1	-0.7	0	1.4	2.9	4.3	7.2	9	7.4	5	-2.4	3.3	-7	-6.2	-9.7	-9.7
Senn HD 600 IF	-10.7	-8	-5.7	-3.8	-3.3	-0.6	0.1	1.3	1.7	1.7	1.3	1	0.2	0.2	0	0.1	0.3	0	1.5	2.5	4.3	6.8	11.3	8.6	5.5	-4.2	-5.8	0.6	-16.7	-13.5	-9.3
Senn HD 600 Or	-7.4	-5.9	-4.3			-2		-0.4		-0.5		-1.1						0	1.3	2.7	4.5	7.1	9.6	6.2	4.9	2.5	6.2	-4.9	-4.3		-10.5
Senn HD 650 Cr2	-10	-8.3	-6.4		-3.9	_												0	1.3	2.7	4.3	7.1	9.3	6.9	5.1	0.8	-0.5	-6.3	-9.5		-12.2
			_																												
Senn HD 650 Or	-6.7	-5.3			-2.3						0.8				0.1		0.5	0	1.3		3.8	6.7	9.1	5.7		2.7	0.9	-7.6	-7.2		-12.8
Senn-Drop HD 6XX IF	-9.3	-7.5	-6	-4.4	-3	-2.4	-1.3	0.2	0.6	0.9	0.9	0.5	0.2	-0.1	0.3	-0.2	0	0	1.7	2.7	3.7	6.3	10.1	7.5	2.7	-2.6	-5	-3.2	-4.8	-10.9	-8
Senn HD 800 Or	-3.6	-2.6	-1.8	-1.2	-1	-1.5	-0.4	0.2	0.3	0.5	0.5	0.4	0.4	0.3	0.2	0.2	0.3	0	-0.4	-0.3	1.8	4.9	6.9	8.5	10.2	10.2	5.8	-1.5	-0.2	-7.2	-9.1
Senn HD 800S Or	-4.1	-3.3	-2.6	-2	-1.8	-2	-1.1	-0.5	-0.3	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	0	0	-0.5	0.1	2.9	6.1	6.7	7.8	8	8	4.2	-3	1.4	-3	-11.6
Senn HE1 Orph 2 Or	0.2	0.7	0.2	1	1.6	0.7	0.2	-0.5	-1.2	-1.7	-2	-2	-1.8	-1.7	-1.7	-1	-0.9	0	-0.6	-1.2	1	5.5	7.3	5.8	4.9	4.6	0.9	-7	-2.6	-8.7	-7.8
Sony MDR-7506 Or	-0.2	1.4	3.4	4.8	5.5	5.2	3.8	3.4					1.3					0	0.7		6.5						5.7	2.4		-13.3	
Sony WH-1000XM3 Or																							7.5								
-																		-						_							
Sony WH-1000XM4 Cr2	8.6	9.1	9.1	8.7	_		7.5	8			4.1		0.9				0.8	0	1.1			5.2	7.4	9	9.8	3.7	6.9	-2.1	0.7	-11.5	
Superlux HD 681 Or	-13.5	-10.5	-7.5	-5.1	-3.6	-3.6	-3.8	-4.2	-4.5	-4.8	-5.1	-4.8	-4.5	-4.3	-3.8	-3	-1.2	0	0.6	1.5	5.3	8.2	7.7	2.6	10.4	4.4	5.6	-1.9	-4.1	-8.4	-14.8
Verum One Or	-4.4	-4.2	-3.7	-3.9	-3.6	-3.4	-3.3	-3.3	-3.3	-3.2	-3	-3.1	-3.2	-3.2	-2.3	-0.8	-1.4	0	-1.3	-0.8	0.5	4.5	6.9	3.4	4.4	0.1	-1.7	-7.2	-4.2	-11.3	-21
Warwick Sonoma 1 Or	-2.5	-2.4	-2.4	-2.7	-3	-0.9	-0.9	-2.4	-3.3	-3.8	-4	-4.1	-3.9	-3.5	-2.9	-1.1	-0.2	0	0.2	-0.1	2	5.7	5.9	5.1	3.3	-2.4	0.9	-0.4	-8.6	-9.2	-12.7
ZMF Aeolus Cr	-3.3	-2.5			-1.7													0		-1.8		4.6	3.5	-8	-3	-3	-1.9	-2		-16.7	
ZMF Aeolus p-suede Cr2					-5.7													0	-1.2			2.2	2.7			-0.8		-7.3		-15.1	
-							-0.4	_										-						-1							
ZMF Atticus Eikn-sue Cr					-0.5		2	3			2.5				-0.5		0.9	0		-1.1			3.6	1.2		1.6				-14.3	
ZMF Auteur Teak Cr	-5.2	-3.9	-2.8	-2	-1.6	-1.8	-2	-2.7	-2.6	-3.2	-2.9	-3.4	-3.3	-3.1	-2.8	-2.7	-1.5	0	-0.2	-0.9	1.6	7.1	7.8	1.9	3.3	-3.2	2.7	1.8	-5.3	-1.2	-5.2
			1.0	1.0	_1	-0 8	-0.9	-0.9	-1	-1.3	-2	-1.6	-1.6	-1.5	-1	-0.6	-0.2	0	0.9	2.2	3.2	6.6	7.8	6.1	8.6	1.1	3.6	-4.3	-11.5	-6.1	-13.6
ZMF Auteur p-lamb Cr2	-3.9	-2.9	-1.9	-1.2	- 1	0.0	0.0																								

ZMF Eikon lambskin Cr2	0.3	0.6	0.1	0.7	-0.9	1.3	2.3	2.8	2.1	1.1	0.4	0	-0.2	-0.2	-0.9	-0.1	0.4	0	-0.4	-4.6	-3	2.7	2.4	6.8	7.8	-1.3	-4.6	-2.6	-8.1	-8.6	-14.1
ZMF Vérité p-lamb Cr2	-5.8	-4.5	-3.6	-2.9	-2.5	-2.2	-1.5	-1.4	-1.4	-1.5	-1.4	-1.2	-0.9	-0.4	-0.3	-0.8	0	0	-0.9	1.1	3.8	6	-3	2.5	6.9	4.9	-7.1	-3.3	-6.5	-15	-5.4
ZMF Vérité Cl a-lamb Cr2	-0.9	0	0.5	0.9	0.4	1.1	2.2	2.9	2.5	0.5	-1	-0.9	-0.4	-0.1	-0.2	-0.6	0	0	-0.9	-0.9	1.2	5.3	-2.6	4	7.2	2.2	-1.2	-8.2	-10.4	-11.8	-13
Source abbreviations:																															
H&M = Hammershøi & Mø	ller, B	&K = Bı	rüel &	Kjær,	Or = C	Orator	y1990,	, IF = 1	InnerF	idelity	, Rt =	Rting	ıs, Cr	= Crin	acle's	1st m	eas. rig	g, Cr2	2 = Crin	acle's	2nd m	eas. ri	g, Re =	Resol	ve Rev	views, l	dFi =	Head-	Fi		