



Common Amplifier Format

Rane MA 3

As Measured
As Given

General	
Serial #:	(21)883249
# Channels:	3
Topology:	Linear
Sample Rate:	NA
Mfg Website:	www.rane.com

Physical	
Height:	2 RU
Depth:	8.375/21.5 in./cm.
AC Mains:	120 VAC
Power Draw:	360 W Max
Weight:	13.6/30 kg/lbs
UL Wire Class:	2

Tested by	
Company:	www.etcinc.us
Tech:	Pat Brown
Date:	JUL 2014

Instrumentation	
Audio Precision APx515 Voltmeter	
Hioki 3334 Power Analyzer	
NTI XL2 SLM	
NTI MA220 Preamp	
ACO 7052 Microphone	

Ref	Plot	Specification	As Measured	As Given
1.1	A	Input Sensitivity (1 kHz, 8 ohms, user-selectable)	0.9 Vrms	1.0 dBu
1.2	A	Voltage Gain (Sensitivity-dependent)	27 dB	
1.3	A	Maximum Output Voltage	20 Vrms	28 Vpeak
1.4		Maximum Input Voltage (@ min sens)	9.8 Vrms	22.0 dBu
1.5	K	Noise Floor (20 Hz - 20 kHz)	-60 dBu	
1.6		Dynamic Range (1 kHz A-wtd)	90 dB	
1.7	C	Frequency Response Deviation (20 Hz - 20 kHz 4 ohms)	+/-0.3 dB	
1.8	G	Latency (1 kHz)	5.8 us	
1.9	I	CMRR @ 1 kHz (see Plot H)	62 dB	
1.10		Input Impedance (1 kHz)	26 kohms	
1.11		Damping Factor (50 Hz)	112	
1.12		Fan Noise	32 dBA-Slow (1 m front)	

Plots		I/O Matrix
A	Input vs. Output Level	
B	Frequency Response (20 Hz - 20 kHz)	Mono (1ch)
C	Frequency Response (2 Hz - 80 kHz)	Mono (2ch)
D	THD Ratio vs. Frequency	Mono (3ch)
E	IMD Difference Frequency Distortion	70V (all ch)
F	Excess Phase Response	
G	Group Delay vs. Frequency	
H	Crosstalk	
I	Common-Mode Rejection Ratio (CMRR)	
J	Noise Floor Spectrum	
K	Pin 1 Response	
M	Short-Circuit Behavior	

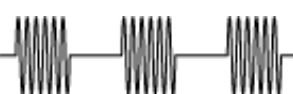
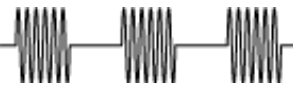




Links to Data

I/O Matrix

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Mode: Mono (3 ch)
Channels: 1
Line Vrms: 120



Ref	A	B	C	D	E	F	G	H	I	J	K	L	M		
	Audio (per channel)						Supply (total)			Thermal Output					
Stimulus	Stimulus	Crest Factor	Load R	dBu In	Vrms Out	Loading Eff. (dB)	Rated Watts	Meas. Watts	Meas. dBW	Amps	Watts	Power Factor	BTU/hr	kCal/hr	
2.1 	Burst	CEA2006 1 kHz	17	8	4.0	20	0	40	50	17					
				4	4.0	18	-1	60	81	19					
				2											
		1% THD													
2.2 	Burst	CEA2006 50 Hz	17	8	6.0	18	0		41	16					
				4	4.0	12	-4		36	16					
				2											
		1% THD													
2.3 	Tone	1 kHz 15 sec	3	8	1.0	20	0		50	17	1.0	90	0.75	136	34
				4	1.0	17	-1		72	19	1.6	150	0.78	264	67
				2											
2.4 	Tone	50 Hz 15 sec	3	8	1.0	20	0		50	17	1.0	92	0.77	145	36
				4	1.0	16	-2		64	18	1.5	142	0.79	267	67
				2											
2.5 	Noise*	Pink 60 sec	6	8	-2	9	0		10	10	0.6	53	0.73	145	36
				4	-2	8	-1		16	12	0.9	81	0.75	222	56
				2											
		1/4 Power													
2.6 	Noise*	Pink 60 sec	6	8	-7	7	0		6	8	0.5	46	0.72	135	34
				4	-7	7	0		12	11	0.8	72	0.75	204	51
				2											
		1/8 Power													

*Note: Peak limiters required the use of pre-clipped stimulus for noise tests. This is the intended behavior.

2.7	Inrush Current													
2.8	Idle ("On" but no signal)								0.26	20	0.65	69	17	
2.9	Standby									0				

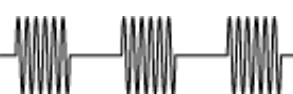
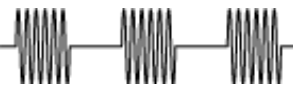




Ref A B C D E F G H I J K L M

I/O Matrix

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Mode: Mono (3 ch)
 Channels: 2
 Line Vrms: 120



Ref	A	B	C	D	E	F	G	H	I	J	K	L	M		
	Audio (per channel)						Supply (total)			Thermal Output					
Stimulus	Stimulus	Crest Factor	Load R	dBu In	Vrms Out	Loading Eff. (dB)	Rated Watts	Meas. Watts	Meas. dBW	Amps	Watts	Power Factor	BTU/hr	kCal/hr	
2.1 	Burst	CEA2006 1 kHz	17	8	5.4	18	0	40	41	16					
				4	5.4	17	0	60	72	19					
				2											
		1% THD													
2.2 	Burst	CEA2006 50 Hz	17	8	5.6	18	0		41	16					
				4	4.0	11	-4		30	15					
				2											
		1% THD													
2.3 	Tone	1 kHz 15 sec	3	8	1.0	19	0		45	17	1.8	166	0.77	260	65
				4	1.0	17	-1		72	19	2.9	275	0.79	445	112
				2											
2.4 	Tone	50 Hz 15 sec	3	8	1.0	18	0		41	16	1.7	157	0.77	260	65
				4	1.0	16	-1		64	18	2.7	259	0.80	448	113
				2											
2.5 	Noise	Pink 60 sec	6	8	-2	9	0		10	10	1.0	86	0.74	225	57
				4	-2	9	0		20	13	1.5	137	0.76	329	83
				2											
		1/4 Power													
2.6 	Noise	Pink 60 sec	6	8	-7	7	0		6	8	0.8	69	0.72	194	49
				4	-7	7	0		12	11	1.3	117	0.75	316	80
				2											
		1/8 Power													
2.7	Inrush Current														
2.8	Idle ("On" but no signal)										0.26	20	0.65	69	17
2.9	Standby											0			

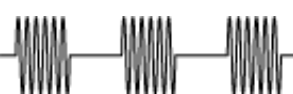
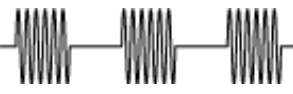




Ref A B C D E F G H I J K L M

I/O Matrix

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Mode: Mono (3 ch)
Channels: 3
Line Vrms: 120



Ref	A	B	C	D	E	F	G	H	I	J	K	L	M		
	Audio (per channel)						Supply (total)			Thermal Output					
Stimulus	Stimulus	Crest Factor	Load R	dBu In	Vrms Out	Loading Eff. (dB)	Rated Watts	Meas. Watts	Meas. dBW	Amps	Watts	Power Factor	BTU/hr	kCal/hr	
2.1 	Burst	CEA2006 1 kHz	17	8	6.0	19	0	40	45	17					
				4	6.0	17	-1	60	72	19					
				2											
		1% THD													
2.2 	Burst	CEA2006 50 Hz	17	8	6.0	16	0		32	15					
				4	6.0	13	-2		42	16					
				2											
		1% THD													
2.3 	Tone	1 kHz 15 sec	3	8	1.0	19	0		45	17	2.5	234	0.78	337	85
				4	1.0	16	-1		64	18	4.1	394	0.80	688	173
				2											
2.4 	Tone	50 Hz 15 sec	3	8	1.0	18	0		41	16	2.5	234	0.78	384	97
				4	1.0	15	-2		56	18	3.9	384	0.82	734	185
				2											
2.5 	Noise	Pink 60 sec	6	8	-2	9	0		10	10	1.3	115	0.74	290	73
				4	-2	9	0		20	13	2.2	203	0.77	486	123
				2											
		1/4 Power													
2.6 	Noise	Pink 60 sec	6	8	-7	7	0		6	8	1.1	95	0.72	262	66
				4	-7	7	0		12	11	1.9	173	0.76	466	117
				2											
		1/8 Power													
2.7	Inrush Current														
2.8	Idle ("On" but no signal)										0.26	20	0.65	69	17
2.9	Standby											0			

Ref A B C D E F G H I J K L M

Mode: with MT-6 Transformer Option

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Channels: 3

Units: Linear

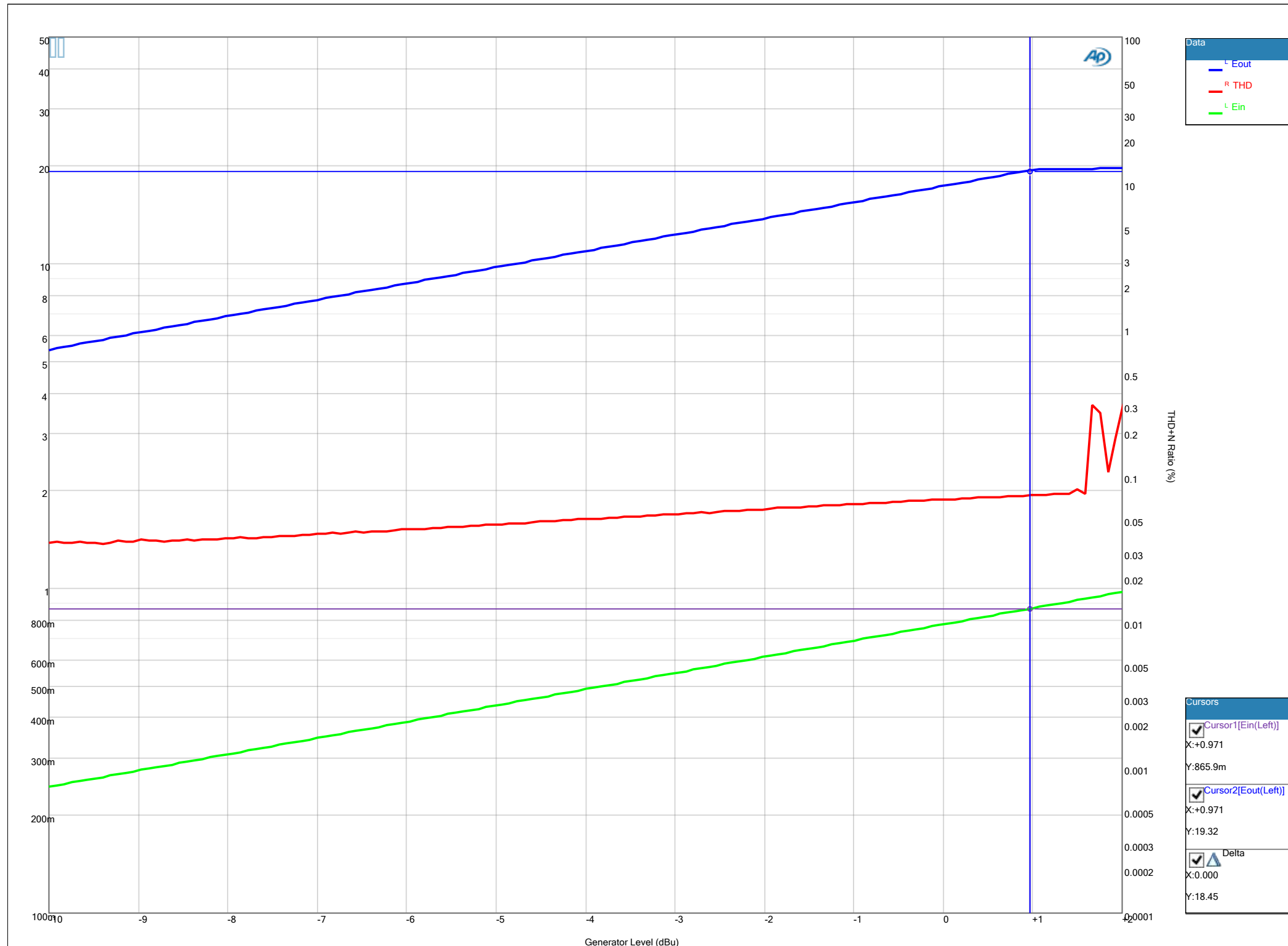
Line Vrms: 120

Ref	Stimulus	Stimulus	CF	Min Load R	Audio (per channel)			Supply (total)			Thermal Output		
					dBu In	Vrms Out	Meas. Watts	Rated Watts	Amps	Watts	PF	BTU/hr	kCal/hr
70 V (1 ch driven)													
1	Burst	CEA2006 1 kHz	17	125	3	74	44	40					
2	Noise	Pink 60 sec (1/4 pwr)	6	125	-5	35	10		0.6	52	0.72	143	36
3	Noise	Pink 60 sec (1/8 pwr)	6	125	-8	24	5		0.5	43	0.71	130	33
70 V (2 ch driven)													
4	Burst	CEA2006 1 kHz	17	125	3	73	43	40					
5	Noise	Pink 60 sec (1/4 pwr)	6	125	-5	35	10		1.0	83	0.73	150	38
6	Noise	Pink 60 sec (1/8 pwr)	6	125	-8	24	5		0.7	64	0.72	155	39
70 V (3 ch driven)													
7	Burst	CEA2006 1 kHz	17	125	3	72	41	40					
8	Noise	Pink 60 sec (1/4 pwr)	6	125	-5	35	10		1.2	107	0.74	330	83
9	Noise	Pink 60 sec (1/8 pwr)	6	125	-8	24	5		1.0	86	0.72	279	70

CF - Crest Factor
 PF - Power Factor

A Input vs. Output Voltage

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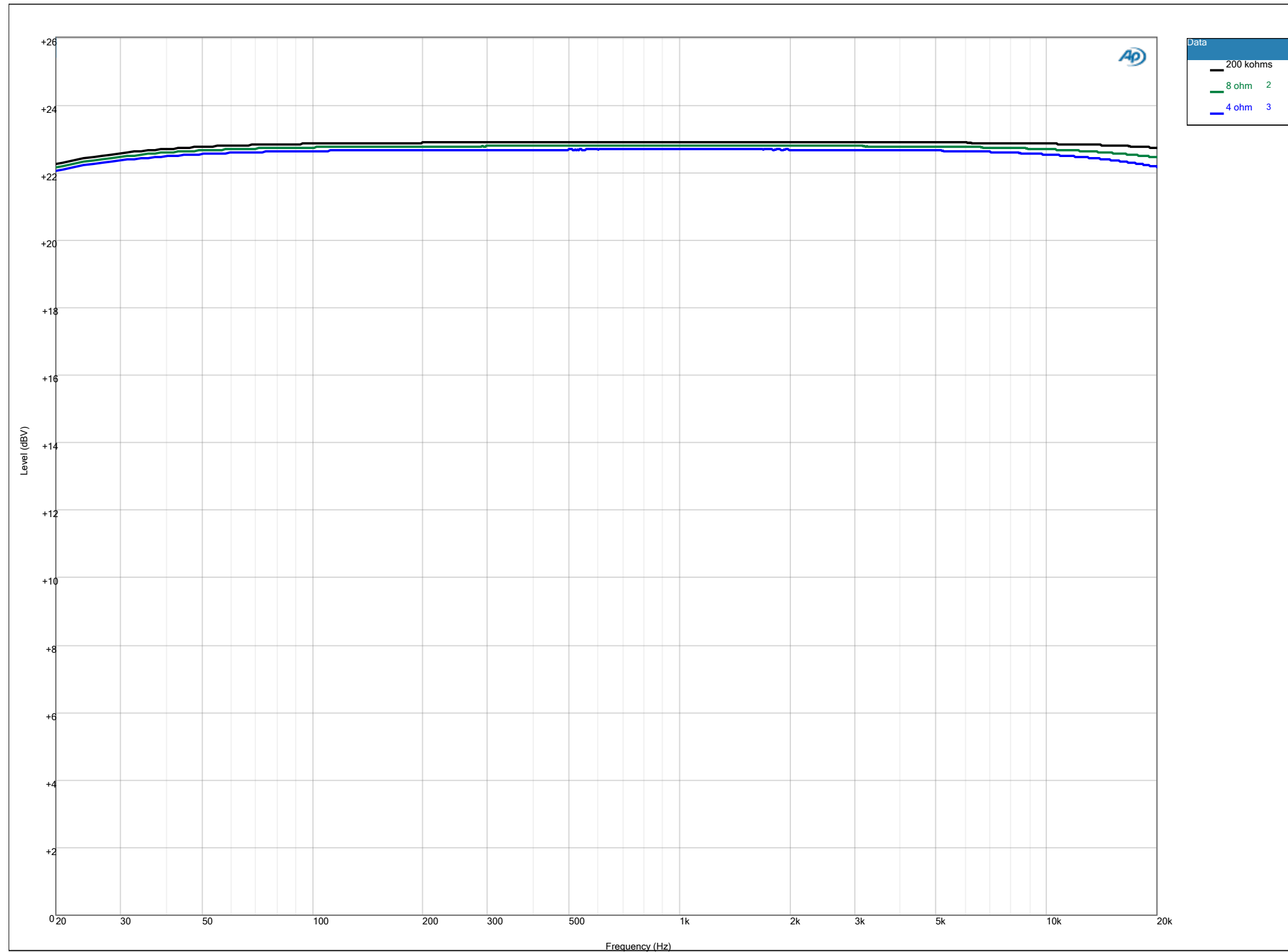


Note: The cursors are set for the determination of input sensitivity, maximum linear output voltage, and voltage gain.

See CAF Reference for measurement setup.

B Frequency Response Magnitude (20 Hz - 20 kHz at -3 dB re. rated sensitivity)

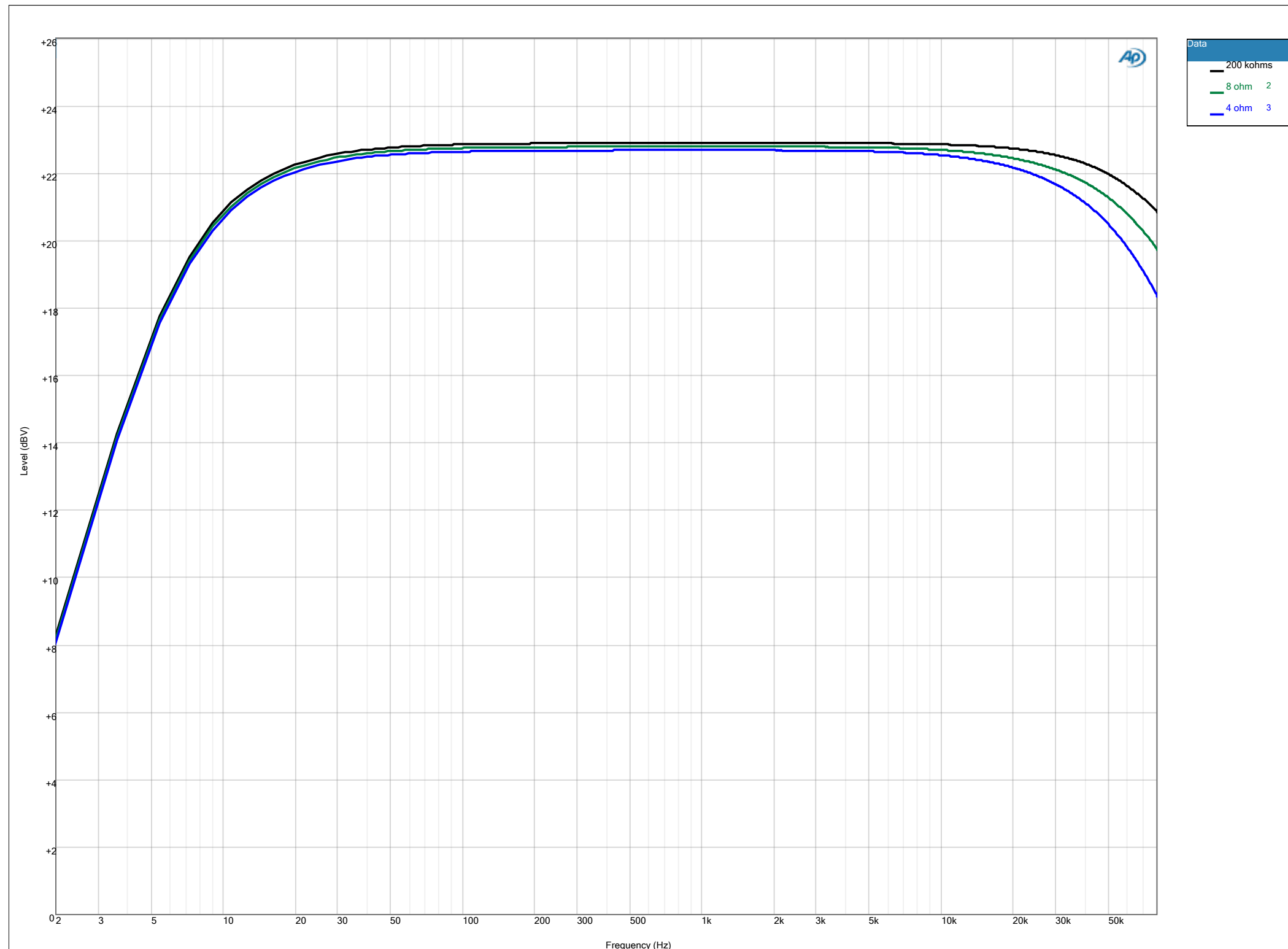
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See CAF Reference for measurement setup.

C Frequency Response Magnitude (2 Hz - 80 kHz at -3 dB re. rated sensitivity)

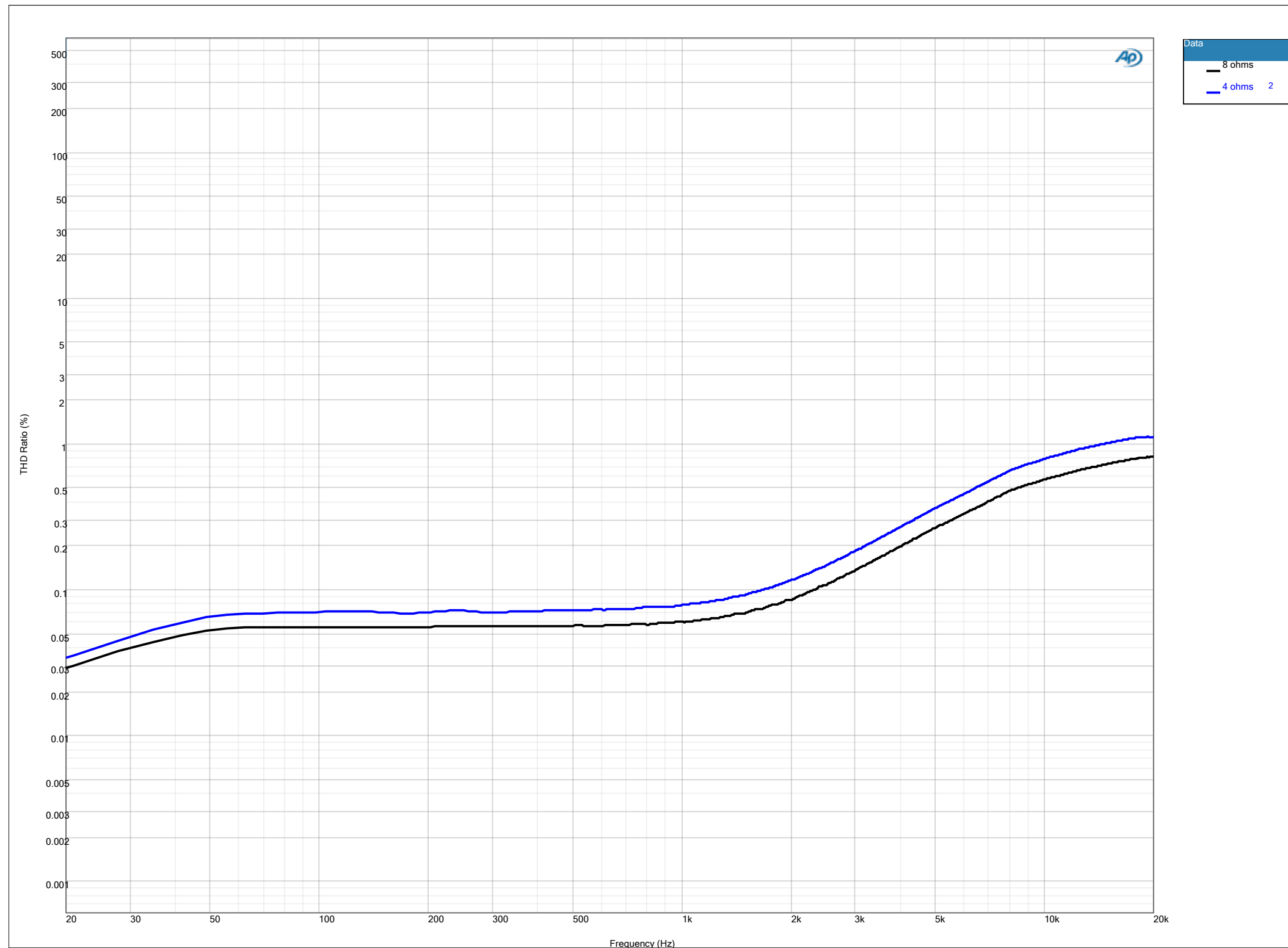
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See CAF Reference for measurement setup.

D THD Ratio vs. Frequency (20 Hz - 20 kHz at -3 dB re. rated sensitivity)

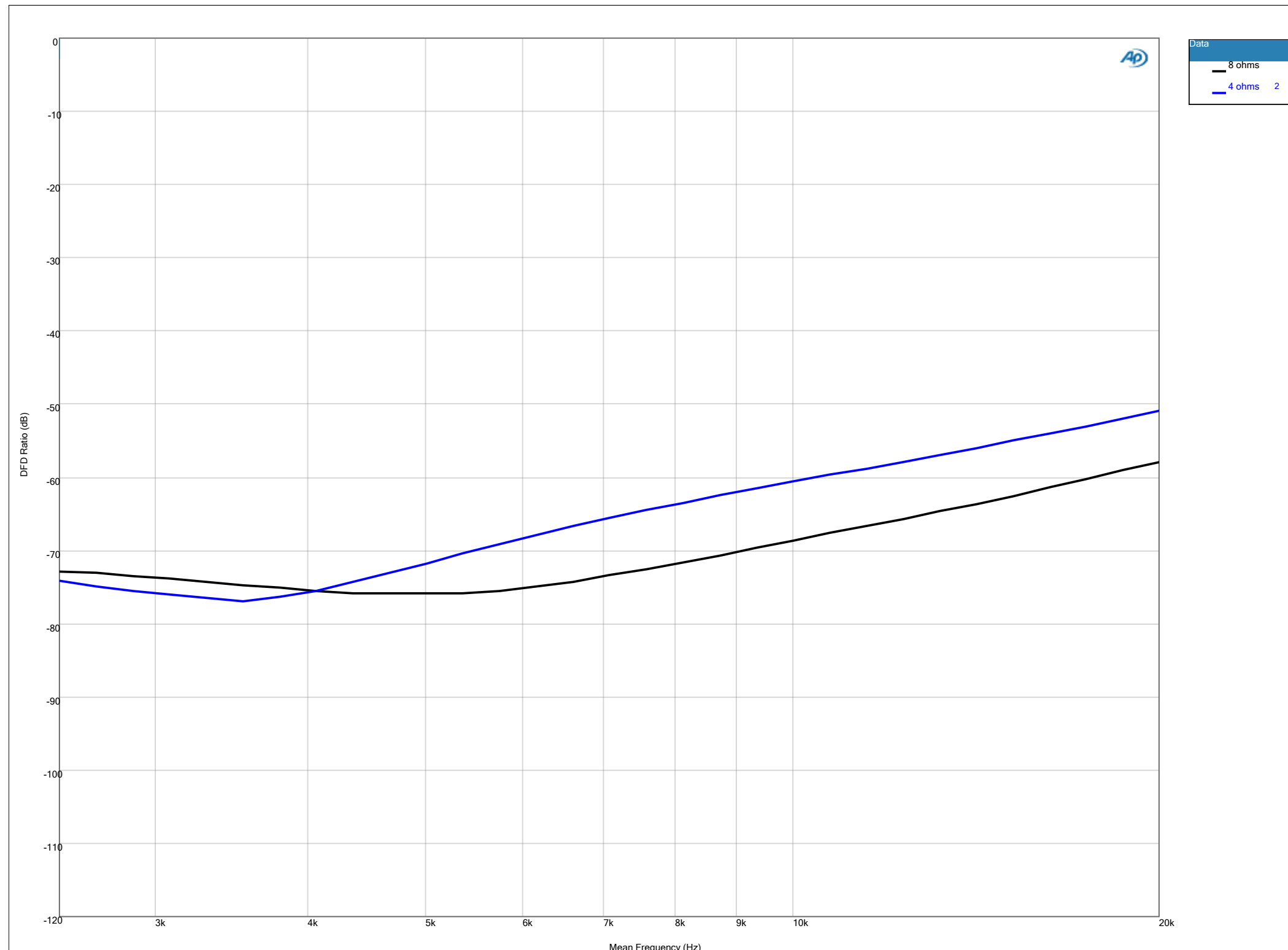
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See CAF Reference for measurement setup.

E IMD Difference Frequency Distortion (20 Hz - 20 kHz at -3 dB re. rated sensitivity)

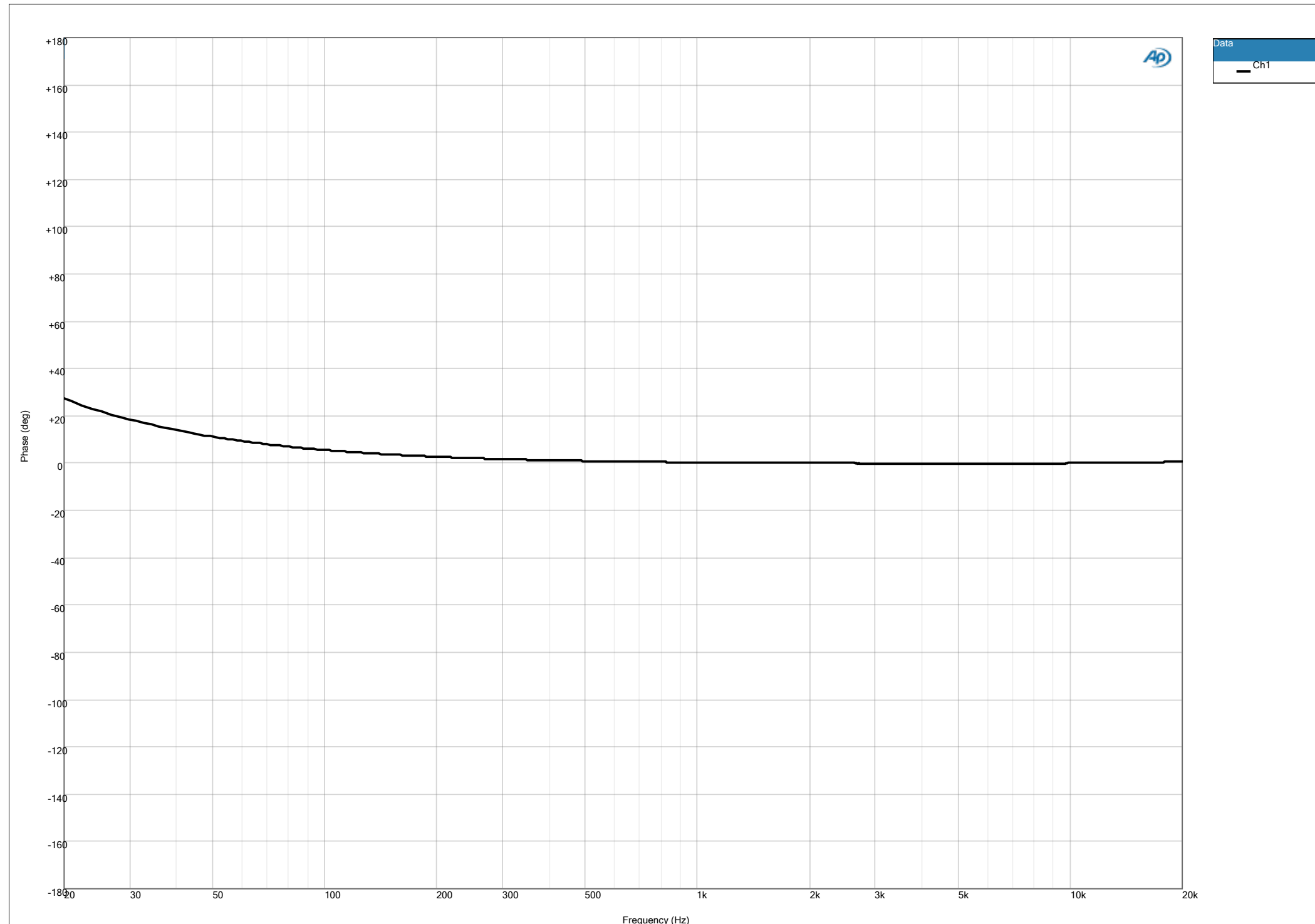
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See CAF Reference for measurement setup.

F Excess Phase (20 Hz - 20 kHz at -3 dB re. rated sensitivity)

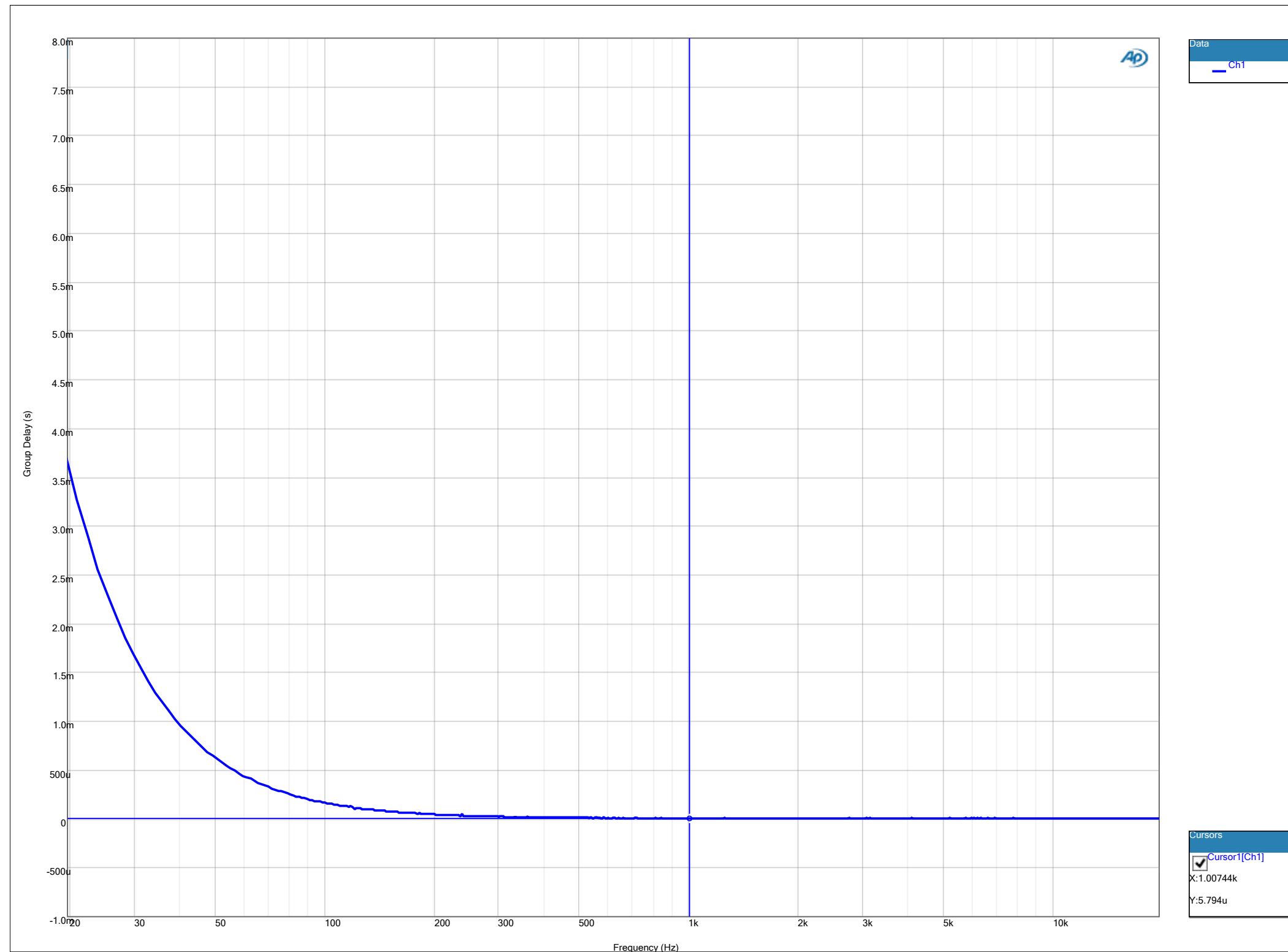
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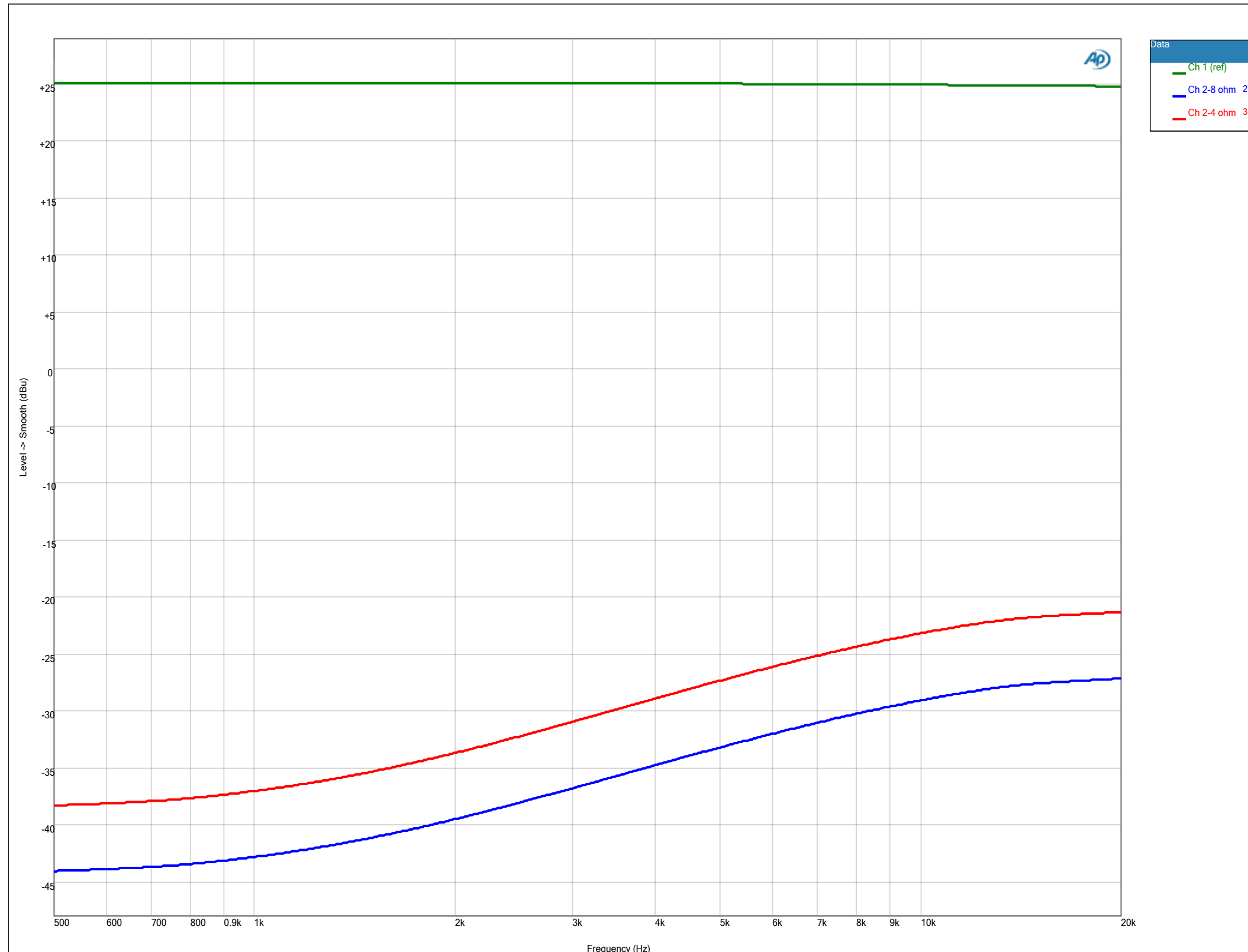
See CAF Reference for measurement setup.

G Group Delay (20 Hz - 20 kHz at -3 dB re. rated sensitivity)

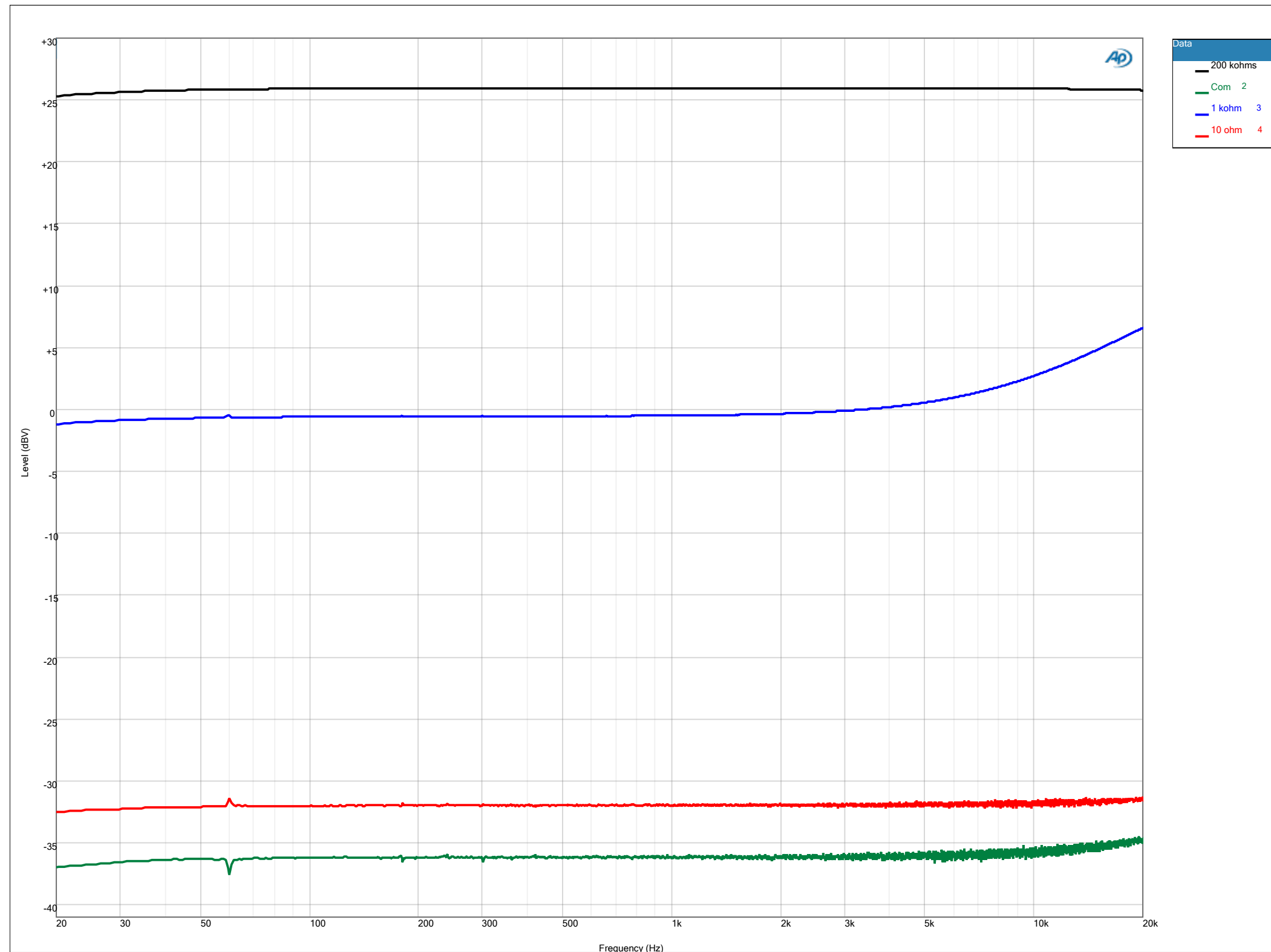
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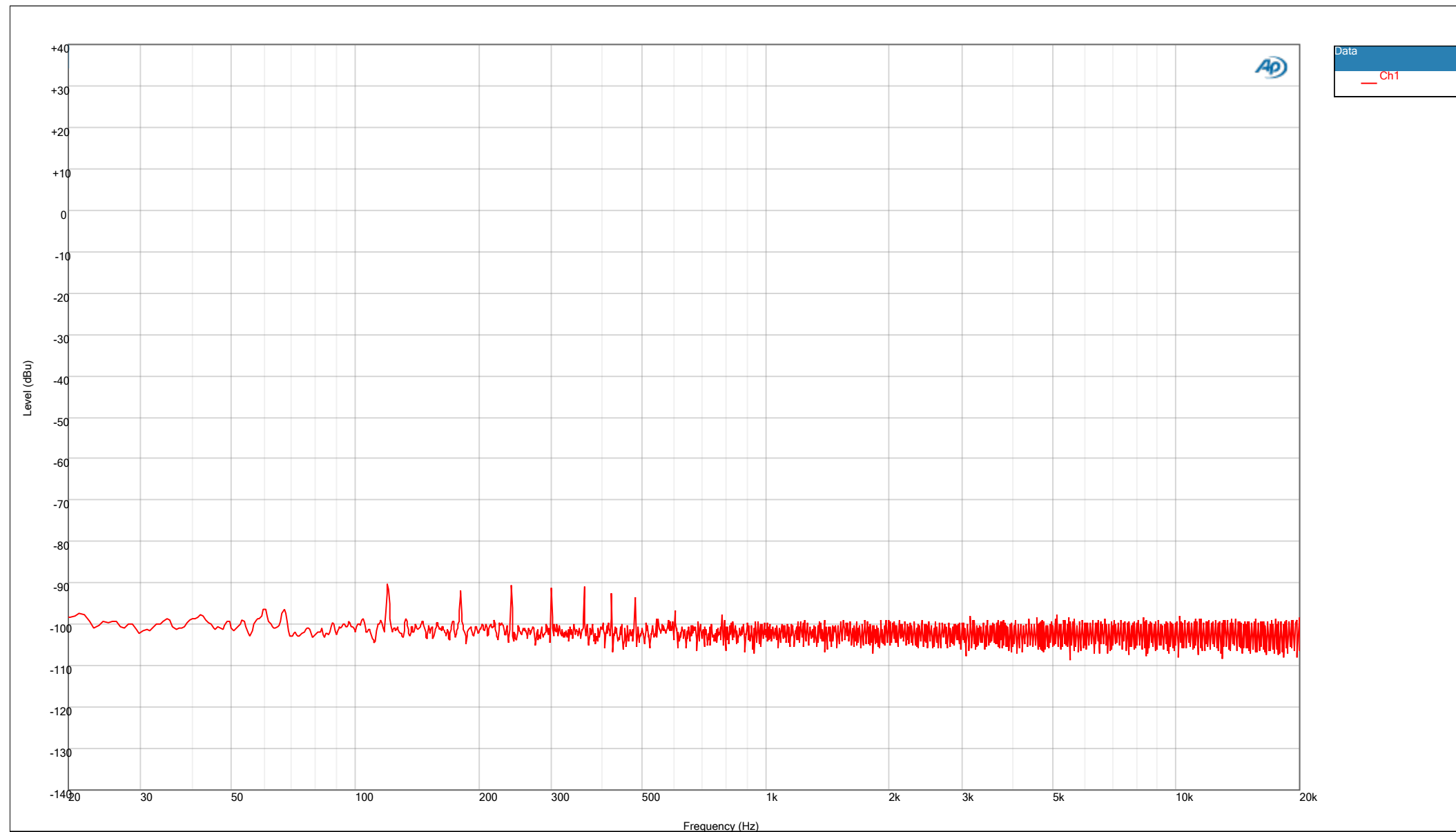
See CAF Reference for measurement setup.



See CAF Reference for measurement setup.

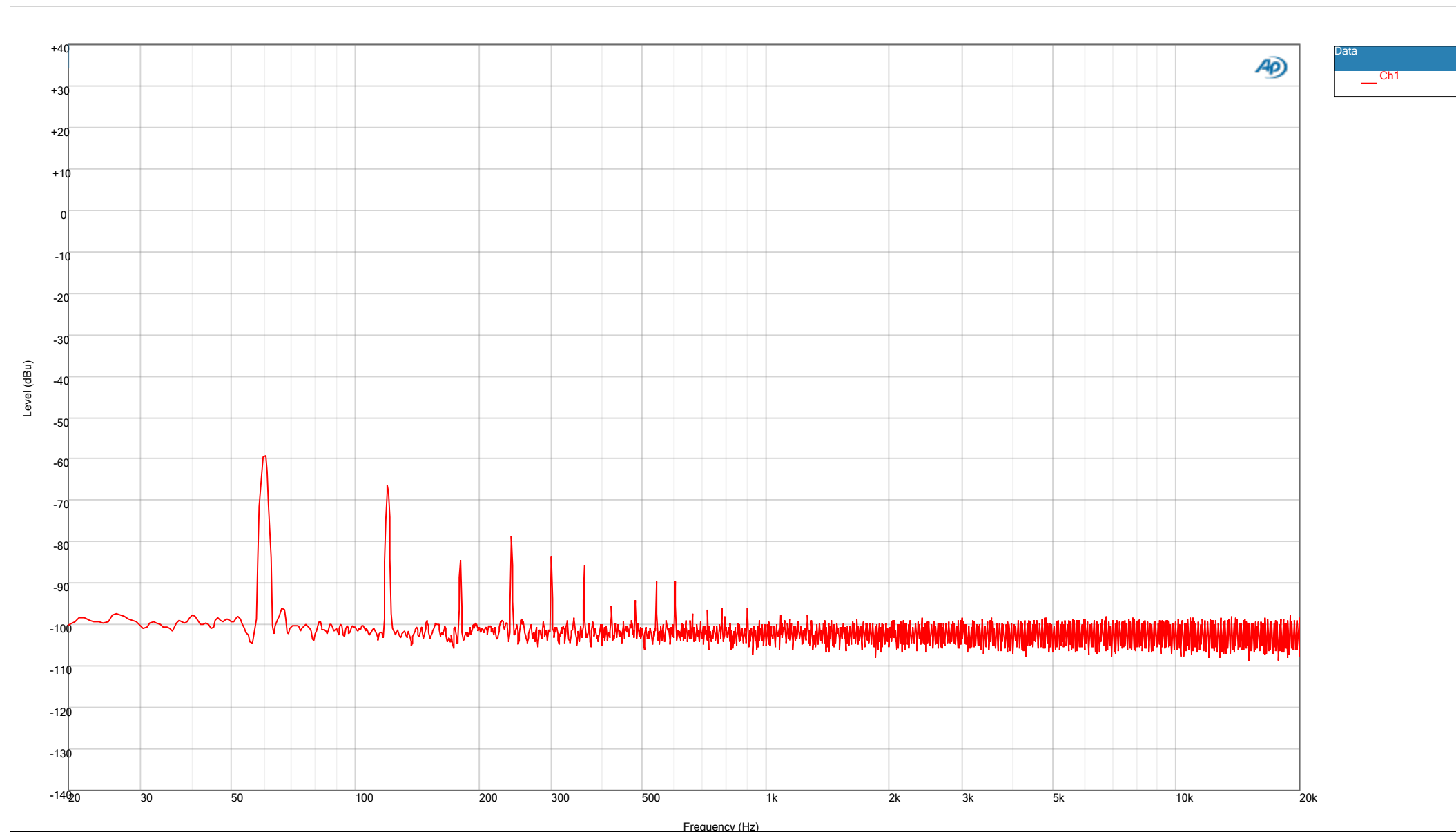


See CAF Reference for measurement setup.



FFT Size: 300k
#Averages: 20
Window: AP-Equiripple

See CAF Reference for measurement setup.

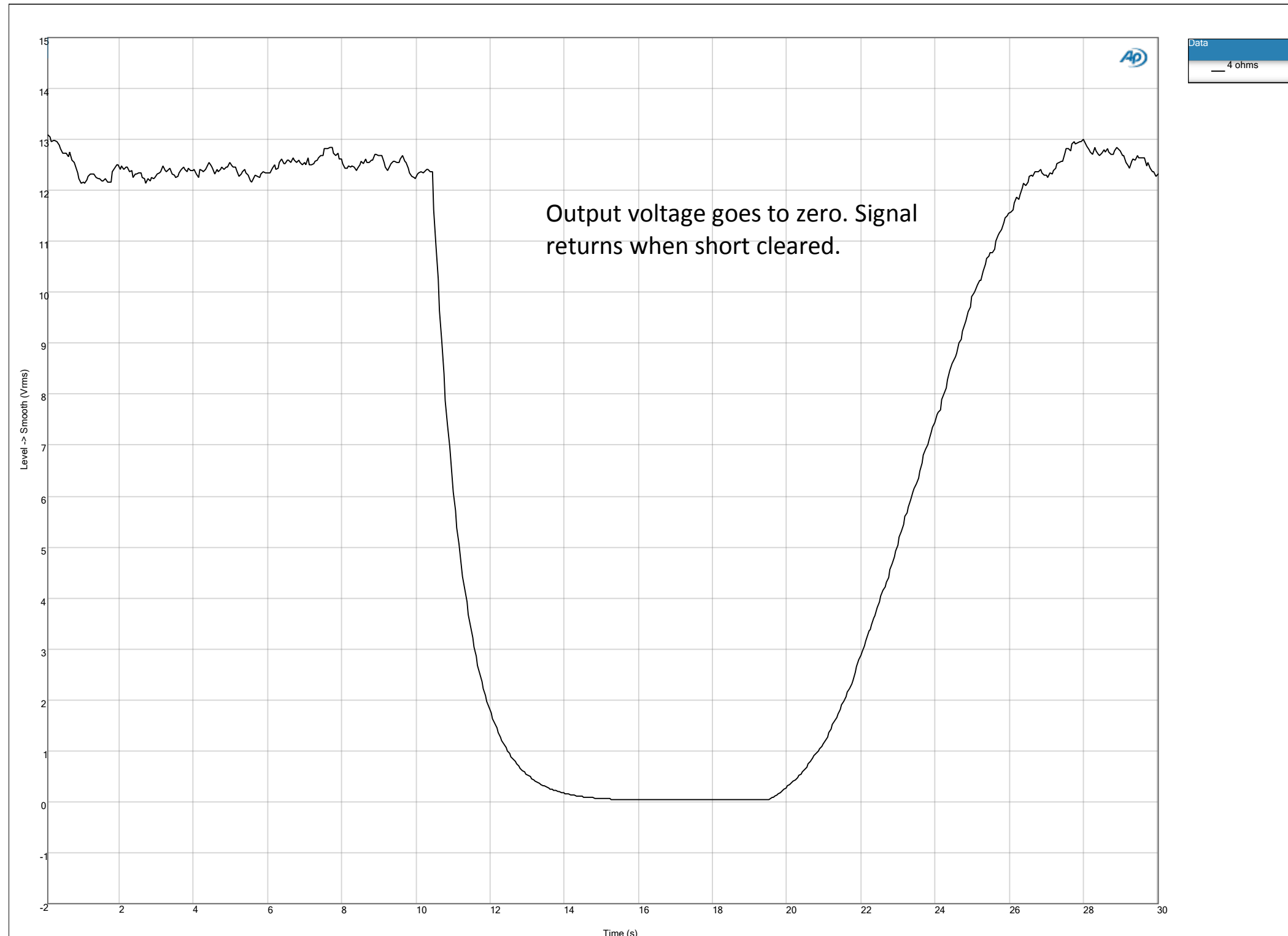


FFT Size: 300k
#Averages: 20
Window: AP-Equiripple

See CAF Reference for measurement setup.

NA

See CAF Reference for measurement setup.



See CAF Reference for measurement setup.