

Notes:

This is a test of a representative sample. If you have measurements that differ significantly from these, first check your analyzer and setup carefully, and (ideally) see if you can replicate the results on another analyzer. If the odd results persist, contact info@schiiit.com so we can have a look.

Summary

ES9028 Card Jotunheim 2

Level and Gain	✓ PASSED
DC Level	✓ PASSED
Signal Analyzer	✓ PASSED
Frequency Response	✓ PASSED
Signal to Noise Ratio	✓ PASSED
THD+N	✓ PASSED
IMD Level Sweep (CCIF)	✓ PASSED
IMD Frequency Sweep (CCIF)	✓ PASSED
Crosstalk, One Channel Undriven	✓ PASSED
Stepped Level Sweep	✓ PASSED

ES9028 Card Asgard 3

Level and Gain	✓ PASSED
DC Level	✓ PASSED
Signal Analyzer	✓ PASSED
Frequency Response	✓ PASSED
Signal to Noise Ratio	✓ PASSED
THD+N	✓ PASSED
IMD Level Sweep (CCIF)	✓ PASSED
IMD Frequency Sweep (CCIF)	✓ PASSED
Crosstalk, One Channel Undriven	✓ PASSED
Stepped Level Sweep	✓ PASSED

Sequence Result:

Sequence Result: ✓ PASSED

APx Instrument

Instrument ID: 11571
Calibration Date: 3/23/2021
APx Version: 6.0.2.600.149330

ES9028 Card Jotunheim 2 : Signal Path Setup

Output Connector:	ASIO
Asio Device:	ASIO2WASAPI
Scaling Mode:	Digital
Output Sample Rate:	48.0000 kHz
Output Latency:	Auto
Buffer Size:	4800
Clock Source:	Internal clock
Input 1:	Analog Balanced
Input Bandwidth:	AC (<10 Hz) - 20 kHz (44.1 kHz SR)
Input EQ:	None
Channels:	2
Termination:	200 kohm
High Performance Sine Analyzer:	Disabled
Input 2:	None
Device Delay:	0.000 s
• References	
dBr G:	-20.000 dBFS
Shared Frequency Reference:	1.00000 kHz
Analog Input	
dBrA:	1.000 Vrms
dBrB:	1.000 Vrms
dBrA Offset:	0.000 dB
dBrB Offset:	0.000 dB
dB SPL1:	10.00 mVrms
dB SPL2:	10.00 mVrms
dB SPL1 Calibrator Level:	94.000 dB SPL
dB SPL2 Calibrator Level:	94.000 dB SPL
dBm (Input Power):	600.0 ohm
W(watts) (Input Power):	8.000 ohm
• DCX	
DCX is not detected.	
• Clocks	
Output Rate:	Track Output SR
Sync Out Level:	3.300 V

Sync Out Polarity: Normal
Timebase Reference: Internal
Jitter: Disabled
• Triggers
Source: Off
Input Logic Level: 3.300 V
Edge: Rising

ES9028 Card Jotunheim 2 : Level and Gain

Waveform: Sine
Generator Level: -0.000 dBFS
DC Offset: 0.000 D
Frequency: 1.00000 kHz
Low-pass Filter: Signal Path

RMS Level (8/25/2021 10:55:26.916 AM)

Ch1 3.854 Vrms
Ch2 3.855 Vrms

ES9028 Card Jotunheim 2 : DC Level

Waveform: Sine
Generator Level: $-\infty$ dBFS
DC Offset: 0.000 D
Frequency: 1.00000 kHz
Delay Time: 100.0 ms
Acquisition Time: 333.0 ms

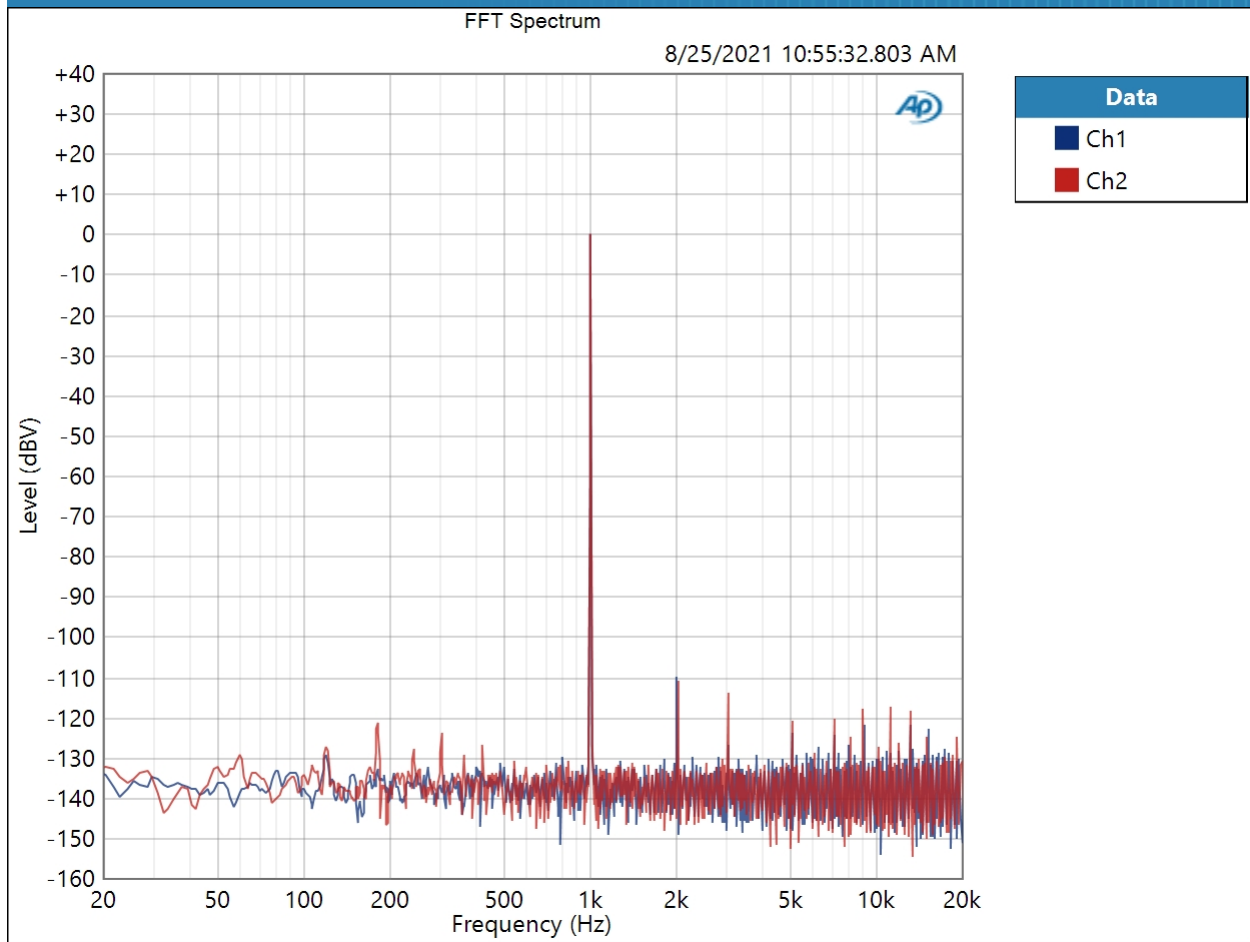
DC Level (8/25/2021 10:55:28.641 AM)

Ch1 2.090 mV
Ch2 -6.372 mV

ES9028 Card Jotunheim 2 : Signal Analyzer

Waveform: Sine
Generator Level: -12.000 dBFS
DC Offset: 0.000 D
Frequency: 1.00000 kHz
Secondary Source: None
Measured 1 8/25/2021 10:55:32 AM
Acquisition Type: Auto
Trigger: Free Run
Delay Time: 250.0 ms
Input Bandwidth: Use Signal Path
FFT Length: 32K
Averaging: Power
Averages: 3
Window: AP-Equiripple
Record Acquisition: False
Recording Type: Multiple Mono PCM (.wav)

FFT Spectrum (8/25/2021 10:55:32.803 AM)

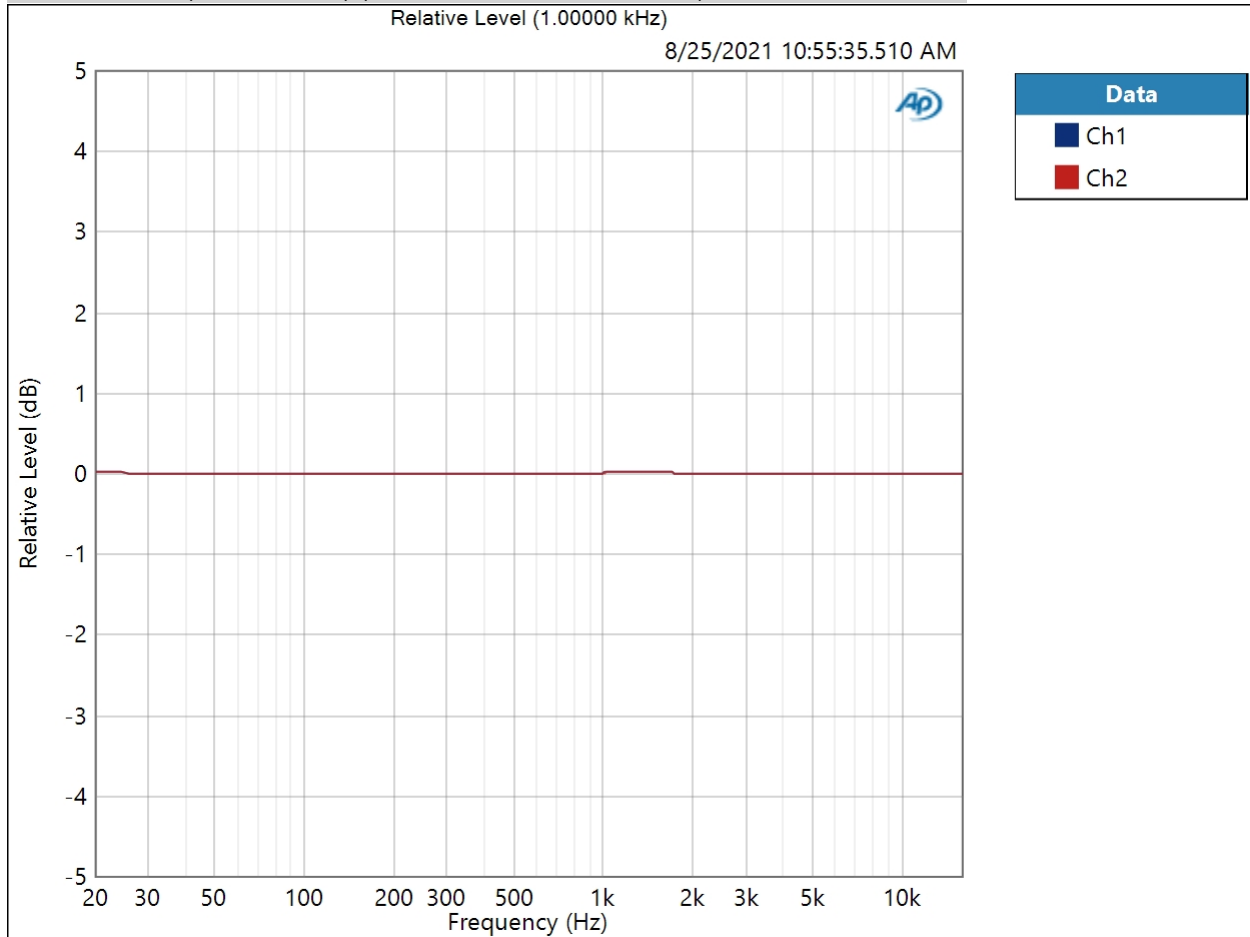


Result:  PASSED

ES9028 Card Jotunheim 2 : Frequency Response

Start Frequency: 20.0000 Hz
 Stop Frequency: 16.0000 kHz
 Generator Level: -20.000 dBFS
 DC Offset: 0.000 D
 EQ: None
 Pre-Sweep: 100.0 ms
 Sweep: 350.0 ms
 Extend Acquisition By: 1.000 s
 Secondary Source: None
 Measured 1 8/25/2021 10:55:35 AM

Relative Level (1.00000 kHz) (8/25/2021 10:55:35.510 AM)



Relative Level (1.00000 kHz) Parameters

Mode: Normalized at Reference

Ref Frequency: 1.00000 kHz

Result:  PASSED

Deviation (20.0000 Hz - 16.0000 kHz) (8/25/2021 10:55:35.510 AM)

Ch1 ± 0.017 dB

Ch2 ± 0.017 dB

Deviation (20.0000 Hz - 16.0000 kHz) Parameters

Min: 20.0000 Hz

Max: 16.0000 kHz

ES9028 Card Jotunheim 2 : Signal to Noise Ratio

Waveform: Sine

Generator Level: -0.000 dBFS

DC Offset: 0.000 D

Frequency: 1.00000 kHz

High-pass Filter: Elliptic

High-pass Frequency: 20 Hz

Low-pass Filter: Elliptic

Low-pass Frequency: 20 kHz

Weighting Filter: A-wt.

Signal to Noise Ratio (8/25/2021 10:55:37.927 AM)

Ch1 115.112 dB

Ch2 115.623 dB

ES9028 Card Jotunheim 2 : THD+N

Waveform: Sine
 Generator Level: -6.000 dBFS
 DC Offset: 0.000 D
 Frequency: 1.00000 kHz
 High-pass Filter: Elliptic
 High-pass Frequency: 20 Hz
 Low-pass Filter: Elliptic
 Low-pass Frequency: 20 kHz
 Weighting Filter: Signal Path
 Notch Tuning Mode: Measured Frequency

THD+N Ratio (8/25/2021 10:55:40.588 AM)

Ch1 0.000651 %
 Ch2 0.000665 %

THD Ratio (8/25/2021 10:55:40.588 AM)

Ch1 0.000368 %
 Ch2 0.000341 %

Noise Ratio (8/25/2021 10:55:40.588 AM)

Ch1 0.000536 %
 Ch2 0.000565 %

Distortion Product Ratio (8/25/2021 10:55:40.588 AM)

Channel	F	H2	H3	H4	H5	H6	H7	H8	H9	H10
	1.000k	2.000k	3.000k	4.000k	5.000k	6.000k	7.000k	8.000k	9.000k	10.00k
Ch1	-0.00	-109.91	-128.92	-120.91	-122.89	-129.17	-126.43	-130.75	-125.89	-129.11
Ch2	-0.00	-111.12	-127.10	-124.52	-120.09	-130.81	-125.67	-130.01	-128.25	-129.62

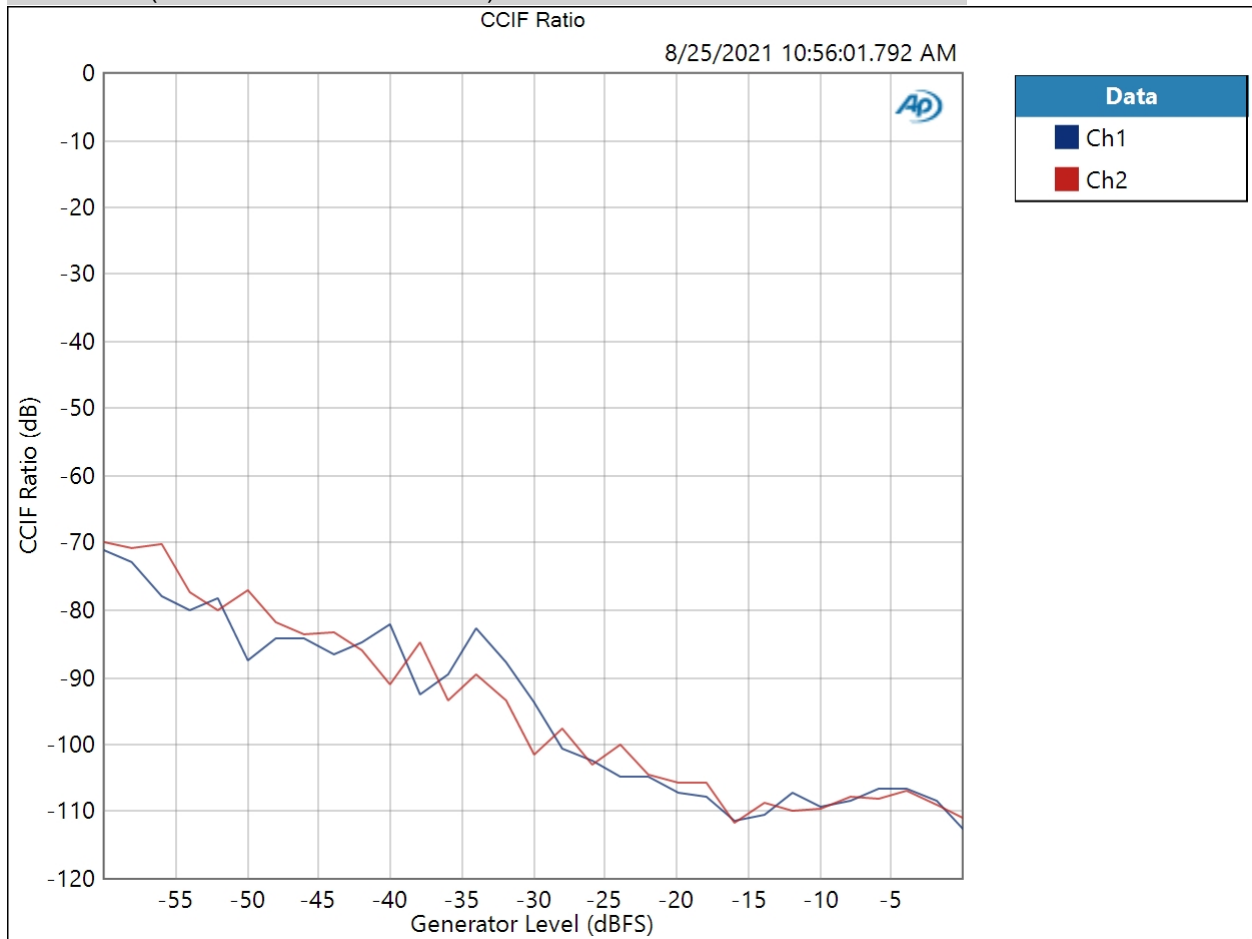
Distortion Product Ratio Parameters

Frequency Unit: Hz
 Ratio Unit: dB
 Channel: Ch1

ES9028 Card Jotunheim 2 : IMD Level Sweep (CCIF)

IMD Type: CCIF
 Mean Frequency: 12.5000 kHz
 Diff Frequency: 80.0000 Hz
 IMD Split: False
 Start Level: -60.000 dBFS
 Stop Level: -0.000 dBFS
 Step Type: Linear
 Number of Points: 31
 Step Size: +2.000 dBFS
 Mode: d2
 Measured 1 8/25/2021 10:56:01 AM

CCIF Ratio (8/25/2021 10:56:01.792 AM)

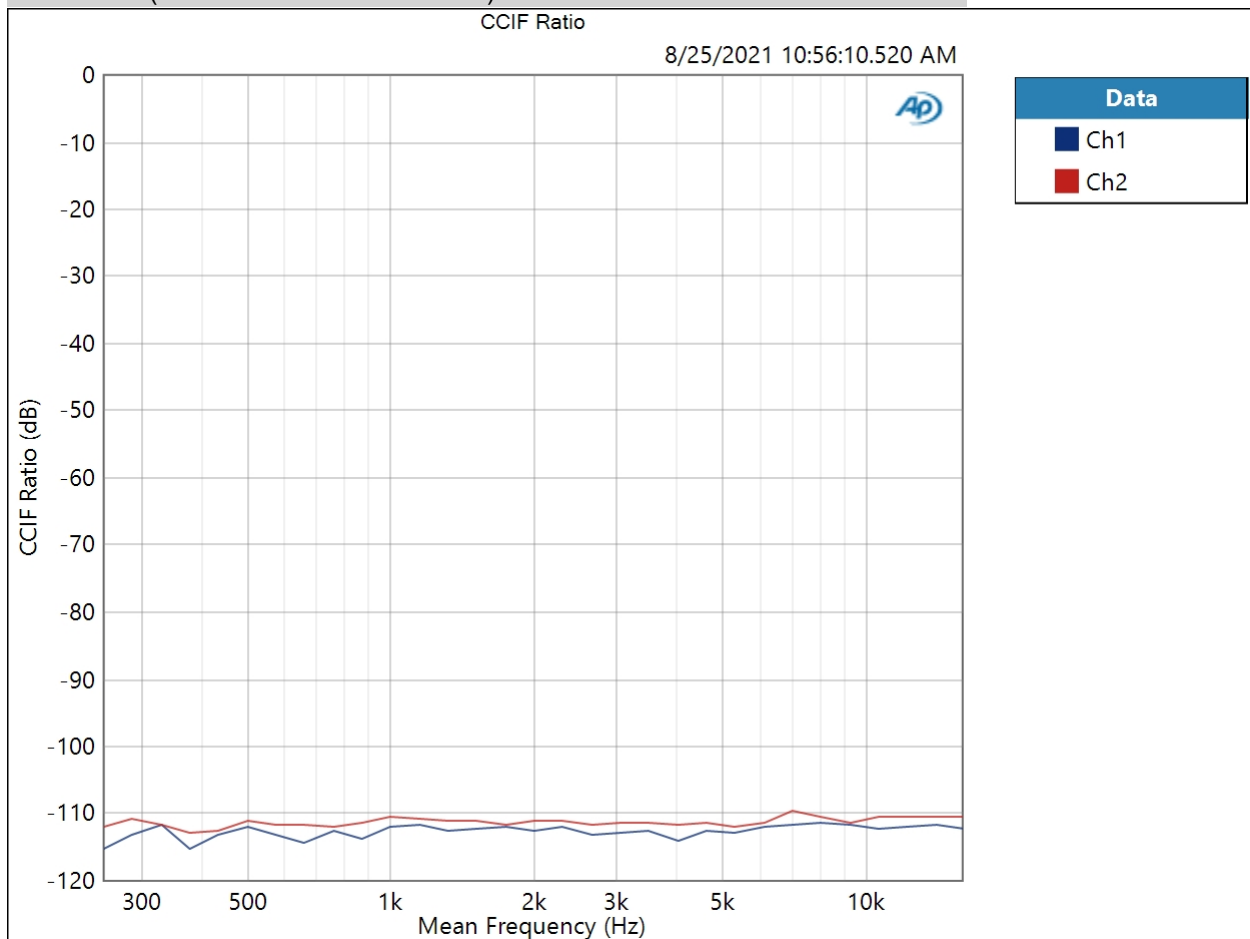


Result:  PASSED

ES9028 Card Jotunheim 2 : IMD Frequency Sweep (CCIF)

Generator Level: -0.000 dBFS
 DC Offset: 0.000 D
 Sweep Frequency: Mean Frequency
 Diff Frequency: 80.0000 Hz
 IMD Split: False
 Start Frequency: 15.9680 kHz
 Stop Frequency: 250.000 Hz
 Step Type: Logarithmic
 Number of Points: 31
 Mode: d2
 Measured 1 8/25/2021 10:56:10 AM

CCIF Ratio (8/25/2021 10:56:10.520 AM)



Result:  PASSED

ES9028 Card Jotunheim 2 : Crosstalk, One Channel Undriven

Waveform: Sine

Generator Level: -6.000 dBFS

DC Offset: 0.000 D

Frequency: 10.0000 kHz

Crosstalk (8/25/2021 10:56:17.676 AM)

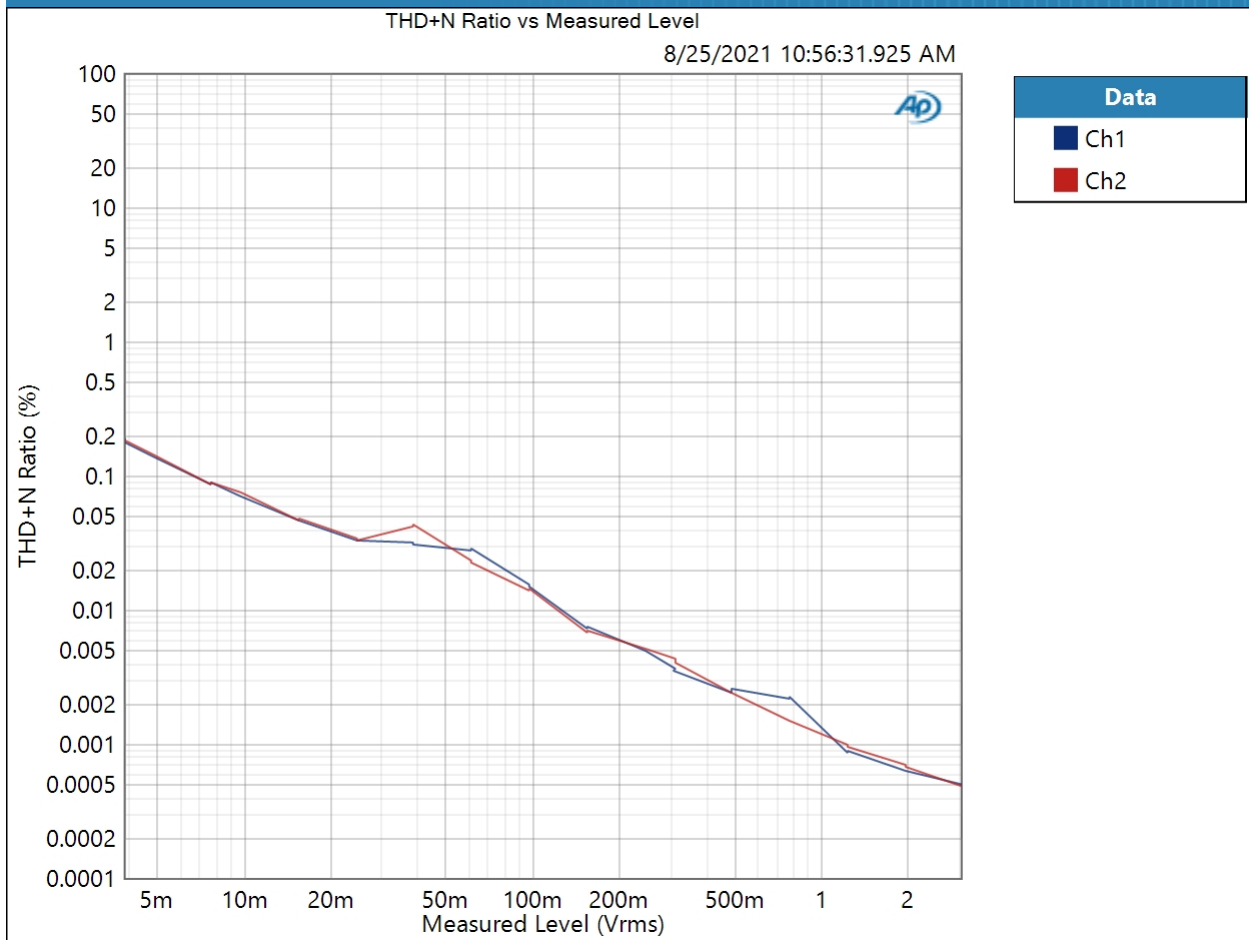
Ch1 121.944 dB

Ch2 120.274 dB

ES9028 Card Jotunheim 2 : Stepped Level Sweep

Waveform: Sine
Frequency: 1.00000 kHz
Start Level: -60.000 dBFS
Stop Level: -0.000 dBFS
Step Type: Linear
Number of Points: 31
Step Size: +2.000 dBFS
Offset: 0.000 D
High-pass Filter: Elliptic
High-pass Frequency: 20 Hz
Low-pass Filter: Elliptic
Low-pass Frequency: 20 kHz
Weighting Filter: Signal Path
Notch Tuning Mode: Generator Frequency
Measured 1 8/25/2021 10:56:31 AM

THD+N Ratio vs Measured Level (8/25/2021 10:56:31.925 AM)



Result: PASSED

ES9028 Card Asgard 3 : Signal Path Setup

Output Connector:	ASIO
Asio Device:	ASIO2WASAPI
Scaling Mode:	Digital
Output Sample Rate:	48.0000 kHz
Output Latency:	Auto
Buffer Size:	4800
Clock Source:	Internal clock
Input 1:	Analog Unbalanced
Input Bandwidth:	AC (<10 Hz) - 22.4k (48 kHz SR)
Input EQ:	None
Channels:	2
Termination:	100 kohm
High Performance Sine Analyzer:	Enabled
Input 2:	None
Device Delay:	0.000 s
• References	
dBr G:	-20.000 dBFS
Shared Frequency Reference:	1.00000 kHz
Analog Input	
dBrA:	1.000 Vrms
dBrB:	1.000 Vrms
dBrA Offset:	0.000 dB
dBrB Offset:	0.000 dB
dB SPL1:	10.00 mVrms
dB SPL2:	10.00 mVrms
dB SPL1 Calibrator Level:	94.000 dB SPL
dB SPL2 Calibrator Level:	94.000 dB SPL
dBm (Input Power):	600.0 ohm
W(watts) (Input Power):	8.000 ohm
• DCX	
DCX is not detected.	
• Clocks	
Output Rate:	Track Output SR
Sync Out Level:	3.300 V
Sync Out Polarity:	Normal

8/25/2021 10:56 AM

Timebase Reference: Internal
Jitter: Disabled
• Triggers
Source: Off
Input Logic Level: 3.300 V
Edge: Rising

ES9028 Card Asgard 3 : Level and Gain

Waveform: Sine
Generator Level: -0.000 dBFS
DC Offset: 0.000 D
Frequency: 1.00000 kHz
Low-pass Filter: Signal Path

RMS Level (8/25/2021 10:50:59.773 AM)

Ch1 2.015 Vrms
Ch2 2.016 Vrms

ES9028 Card Asgard 3 : DC Level

Waveform: Sine
Generator Level: $-\infty$ dBFS
DC Offset: 0.000 D
Frequency: 1.00000 kHz
Delay Time: 100.0 ms
Acquisition Time: 333.0 ms

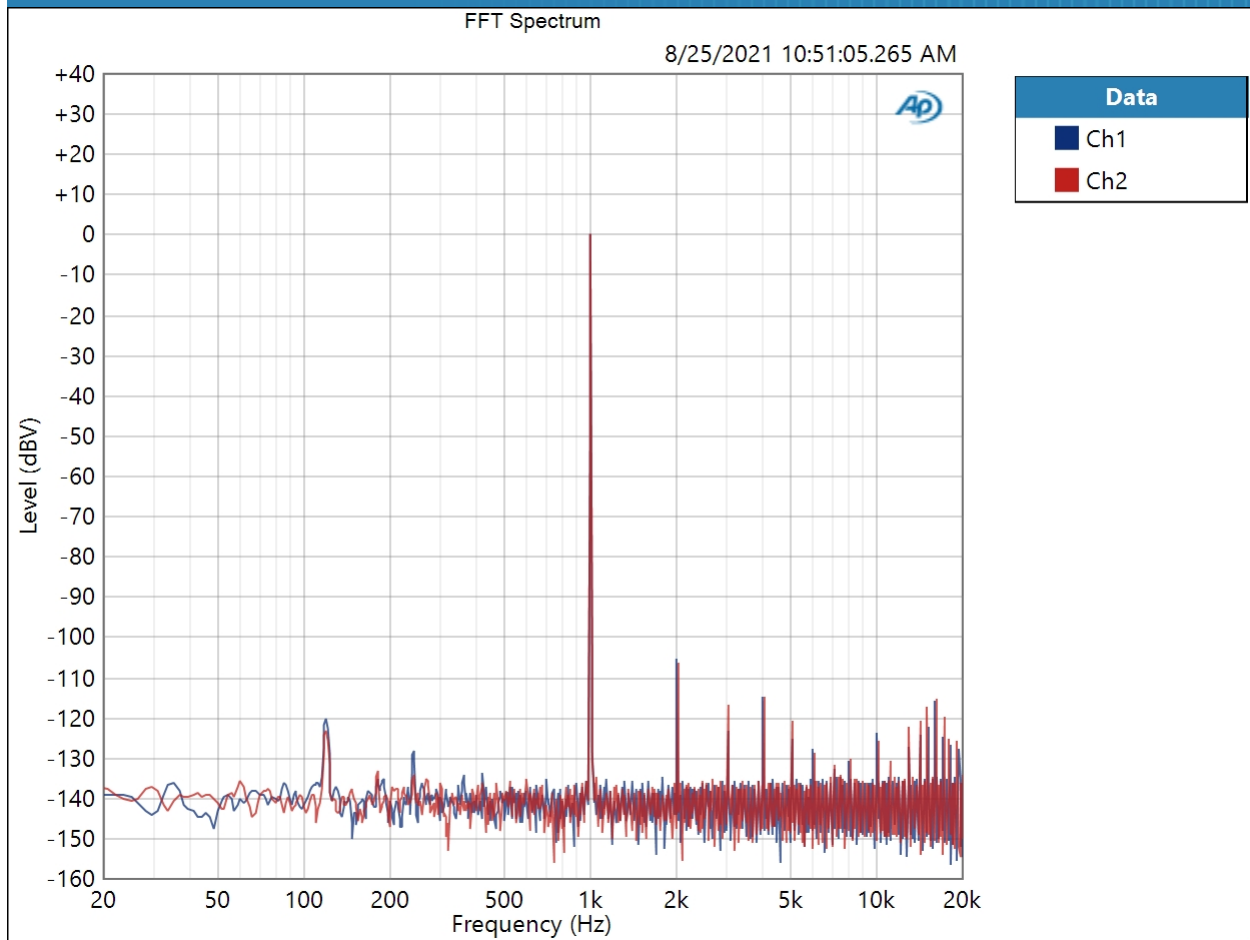
DC Level (8/25/2021 10:51:01.241 AM)

Ch1 -33.10 μ V
Ch2 1.101 mV

ES9028 Card Asgard 3 : Signal Analyzer

Waveform: Sine
Generator Level: -6.000 dBFS
DC Offset: 0.000 D
Frequency: 1.00000 kHz
Secondary Source: None
Measured 1 8/25/2021 10:51:05 AM
Acquisition Type: Auto
Trigger: Free Run
Delay Time: 250.0 ms
Input Bandwidth: Use Signal Path
FFT Length: 32K
Averaging: Power
Averages: 3
Window: AP-Equiripple
Record Acquisition: False
Recording Type: Multiple Mono PCM (.wav)

FFT Spectrum (8/25/2021 10:51:05.265 AM)

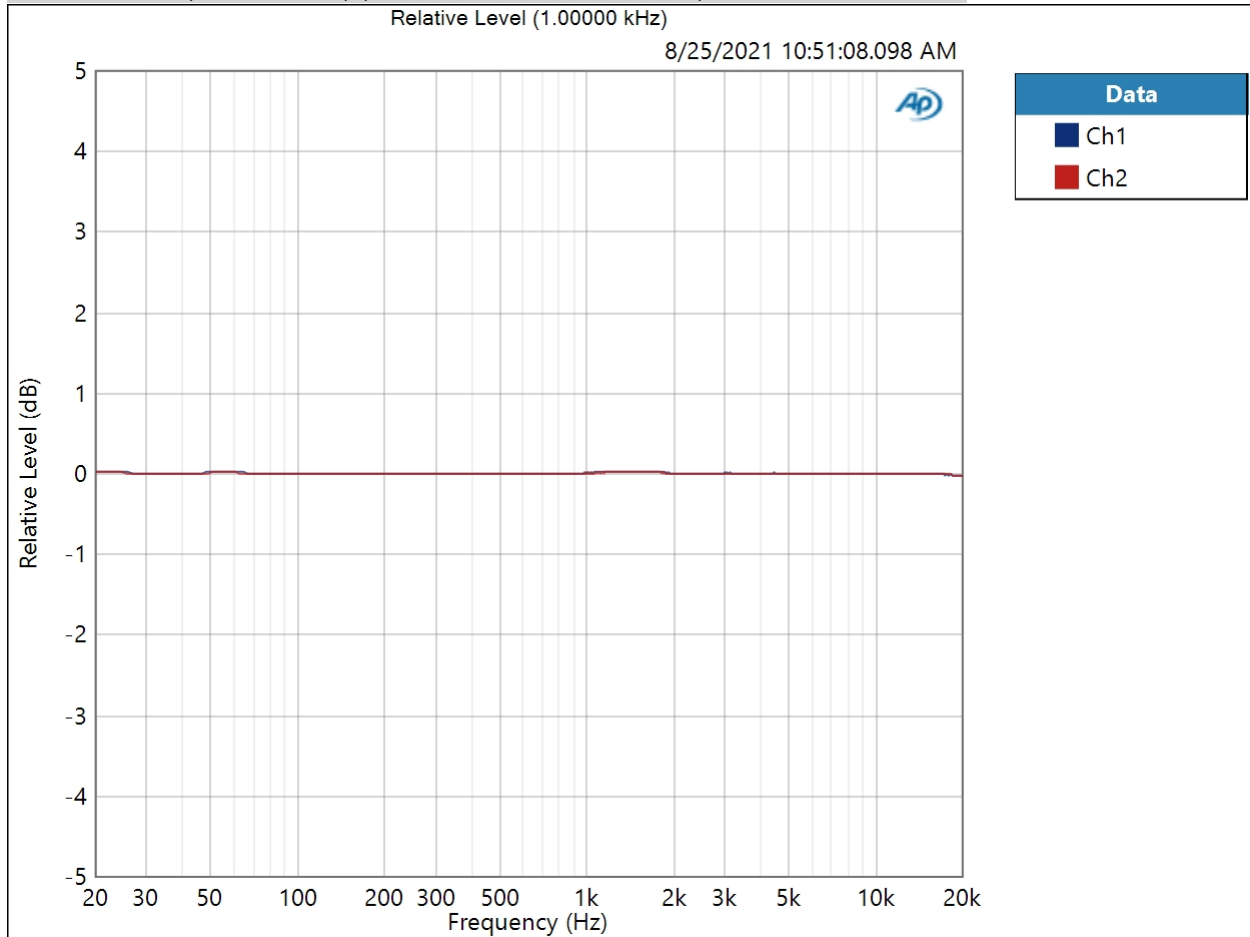


Result:  PASSED

ES9028 Card Asgard 3 : Frequency Response

Start Frequency: 20.0000 Hz
 Stop Frequency: 20.0000 kHz
 Generator Level: -20.000 dBFS
 DC Offset: 0.000 D
 EQ: None
 Pre-Sweep: 100.0 ms
 Sweep: 350.0 ms
 Extend Acquisition By: 1.000 s
 Secondary Source: None
 Measured 1 8/25/2021 10:51:08 AM

Relative Level (1.00000 kHz) (8/25/2021 10:51:08.098 AM)



Relative Level (1.00000 kHz) Parameters

Mode: Normalized at Reference

Ref Frequency: 1.00000 kHz

Result:  PASSED

Deviation (20.0000 Hz - 20.0000 kHz) (8/25/2021 10:51:08.098 AM)

Ch1 ± 0.020 dB

Ch2 ± 0.019 dB

Deviation (20.0000 Hz - 20.0000 kHz) Parameters

Min: 20.0000 Hz

Max: 20.0000 kHz

ES9028 Card Asgard 3 : Signal to Noise Ratio

Waveform: Sine

Generator Level: -0.000 dBFS

DC Offset: 0.000 D

Frequency: 1.00000 kHz

High-pass Filter: Elliptic

High-pass Frequency: 20 Hz

Low-pass Filter: Elliptic

Low-pass Frequency: 20 kHz

Weighting Filter: A-wt.

Signal to Noise Ratio (8/25/2021 10:51:10.360 AM)

Ch1 113.550 dB

Ch2 113.851 dB

ES9028 Card Asgard 3 : THD+N

Waveform: Sine
 Generator Level: -0.000 dBFS
 DC Offset: 0.000 D
 Frequency: 1.00000 kHz
 High-pass Filter: Elliptic
 High-pass Frequency: 20 Hz
 Low-pass Filter: Elliptic
 Low-pass Frequency: 20 kHz
 Weighting Filter: Signal Path
 Notch Tuning Mode: Measured Frequency

THD+N Ratio (8/25/2021 10:51:13.124 AM)

Ch1 0.000876 %
 Ch2 0.000814 %

THD Ratio (8/25/2021 10:51:13.124 AM)

Ch1 0.000801 %
 Ch2 0.000744 %

Noise Ratio (8/25/2021 10:51:13.124 AM)

Ch1 0.000356 %
 Ch2 0.000338 %

Distortion Product Ratio (8/25/2021 10:51:13.124 AM)

Channel	F	H2	H3	H4	H5	H6	H7	H8	H9	H10
	1.000k	2.000k	3.000k	4.000k	5.000k	6.000k	7.000k	8.000k	9.000k	10.00k
Ch1	-0.00	-102.33	-114.46	-124.80	-128.64	-137.02	-137.53	-127.44	-126.53	-131.25
Ch2	-0.00	-103.08	-117.21	-123.02	-124.57	-136.36	-127.14	-126.50	-121.13	-127.60

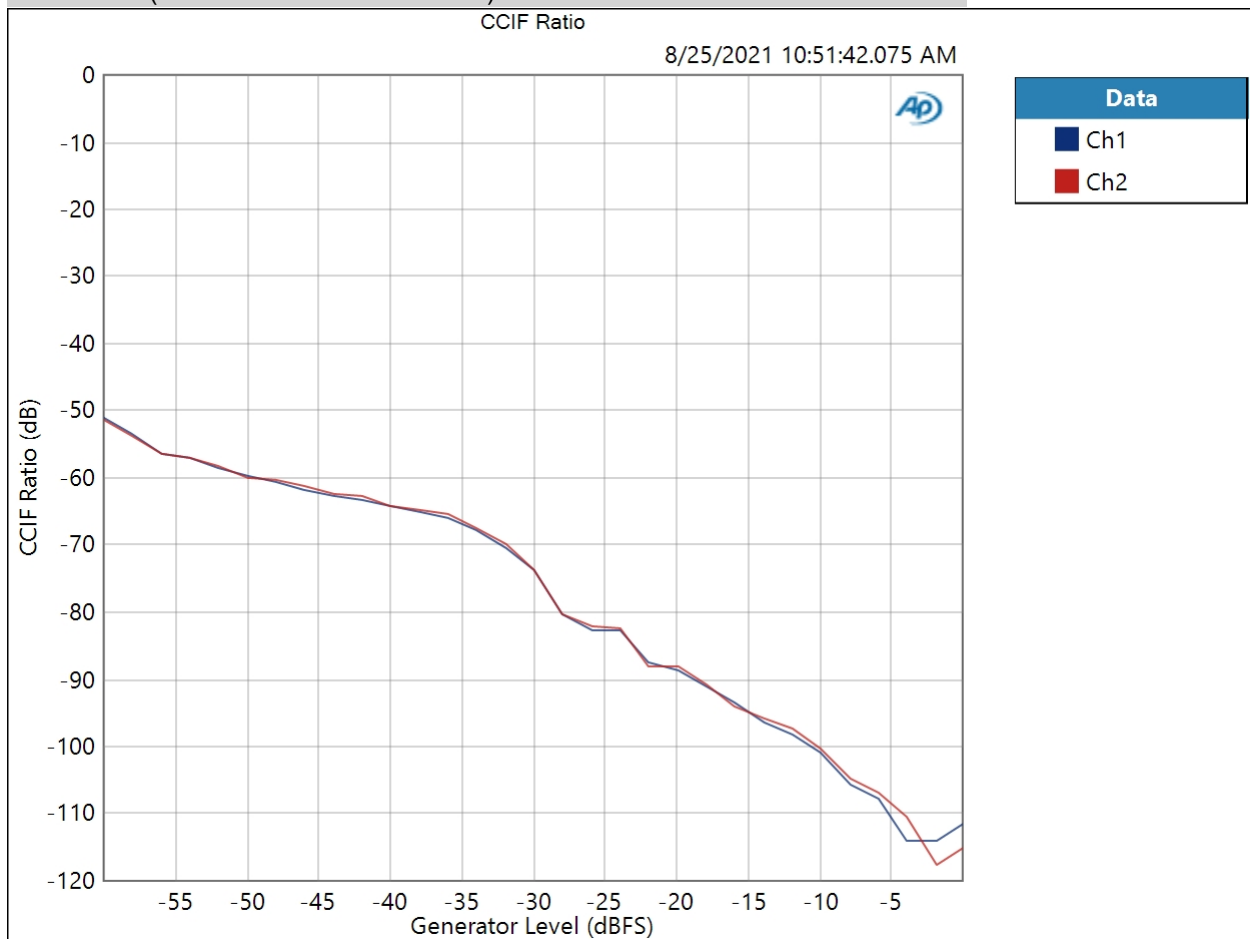
Distortion Product Ratio Parameters

Frequency Unit: Hz
 Ratio Unit: dB
 Channel: Ch1

ES9028 Card Asgard 3 : IMD Level Sweep (CCIF)

IMD Type: CCIF
 Mean Frequency: 12.5000 kHz
 Diff Frequency: 80.0000 Hz
 IMD Split: False
 Start Level: -60.000 dBFS
 Stop Level: -0.000 dBFS
 Step Type: Linear
 Number of Points: 31
 Step Size: +2.000 dBFS
 Mode: d2
 Measured 1 8/25/2021 10:51:42 AM

CCIF Ratio (8/25/2021 10:51:42.075 AM)

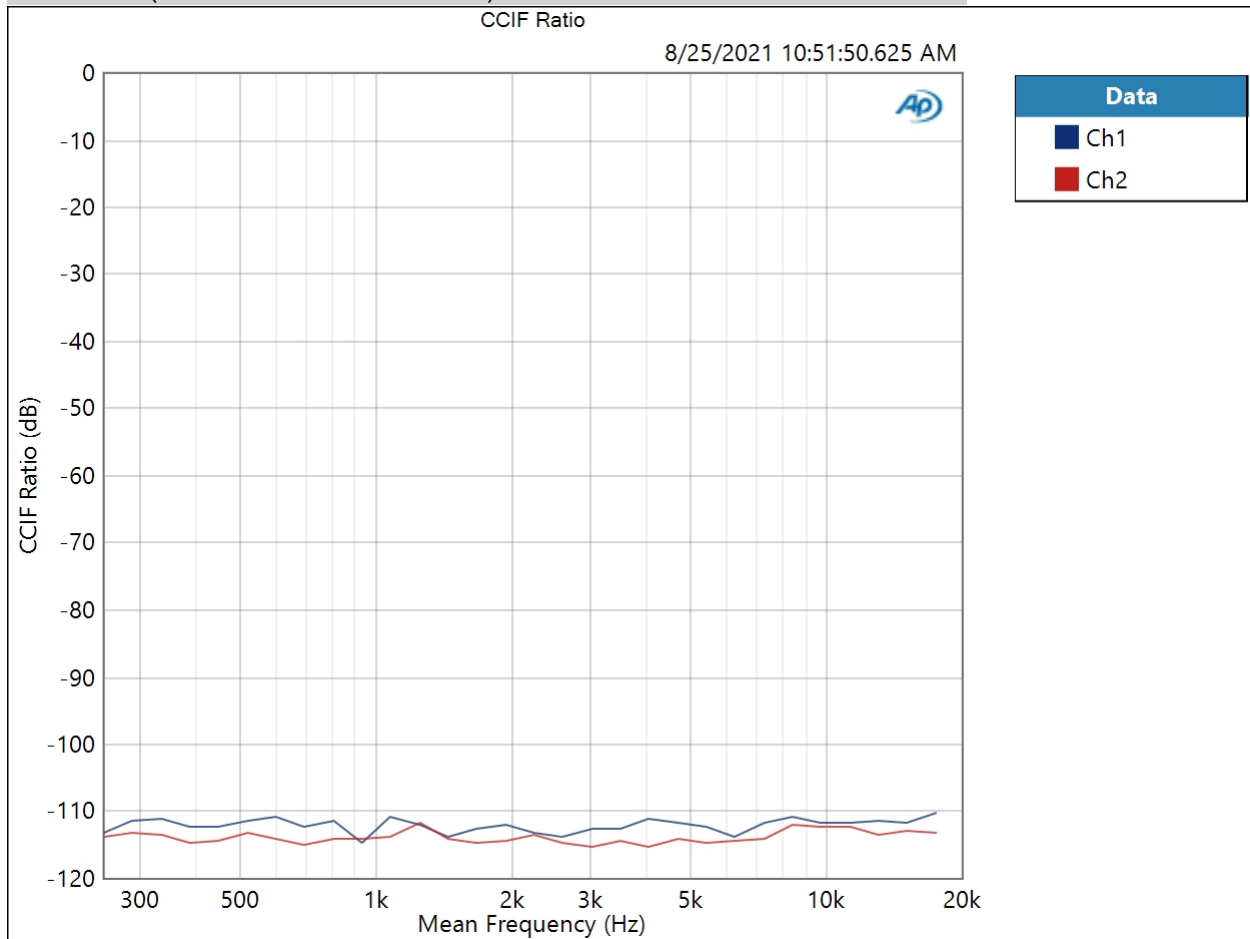


Result:  PASSED

ES9028 Card Asgard 3 : IMD Frequency Sweep (CCIF)

Generator Level: -0.000 dBFS
 DC Offset: 0.000 D
 Sweep Frequency: Mean Frequency
 Diff Frequency: 80.0000 Hz
 IMD Split: False
 Start Frequency: 20.0000 kHz
 Stop Frequency: 250.000 Hz
 Step Type: Logarithmic
 Number of Points: 31
 Mode: d2
 Measured 1 8/25/2021 10:51:50 AM

CCIF Ratio (8/25/2021 10:51:50.625 AM)



Result:  PASSED

ES9028 Card Asgard 3 : Crosstalk, One Channel Undriven

Waveform: Sine

Generator Level: -20.000 dBFS

DC Offset: 0.000 D

Frequency: 10.0000 kHz

Crosstalk (8/25/2021 10:51:52.832 AM)

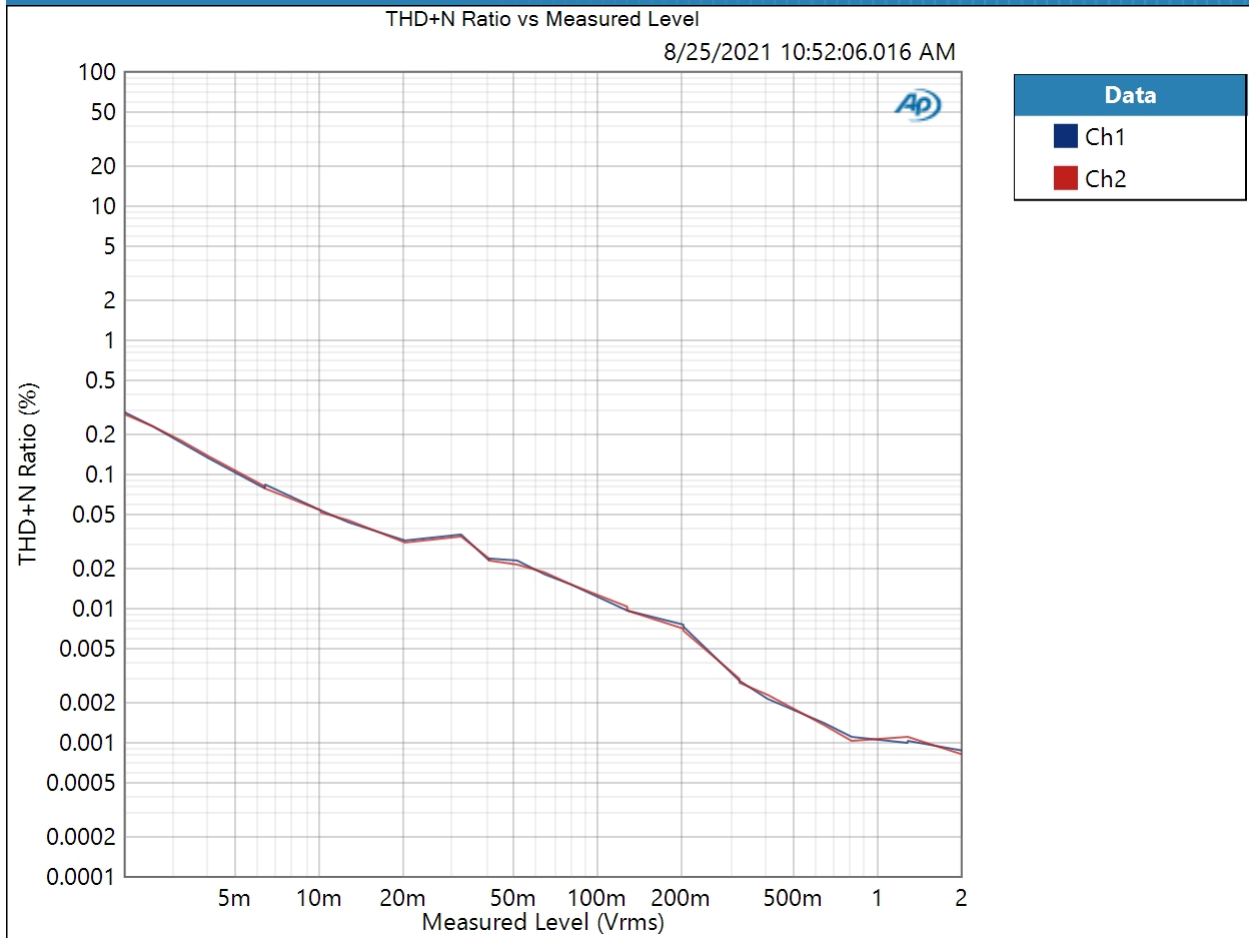
Ch1 81.821 dB

Ch2 86.598 dB

ES9028 Card Asgard 3 : Stepped Level Sweep

Waveform: Sine
Frequency: 1.00000 kHz
Start Level: -60.000 dBFS
Stop Level: -0.000 dBFS
Step Type: Linear
Number of Points: 31
Step Size: +2.000 dBFS
Offset: 0.000 D
High-pass Filter: Elliptic
High-pass Frequency: 20 Hz
Low-pass Filter: Elliptic
Low-pass Frequency: 20 kHz
Weighting Filter: Signal Path
Notch Tuning Mode: Generator Frequency
Measured 1 8/25/2021 10:52:06 AM

THD+N Ratio vs Measured Level (8/25/2021 10:52:06.016 AM)



Result: PASSED