

Matrix XSP AES 44K SE 160 dBFS scale redux REPORT

Overall Result: PASS

| SUMMARY: | RESULT |
|------------------------------|--------|
| A01 Ampl, Phase, Gain | ✓ |
| A02 Ampl, Phase vs Freq | ✓ |
| A03 Gain vs Ampl | ✓ |
| A04 THD+N, THD, nth-HD | ✓ |
| A05 THD+N vs Freq | ✓ |
| A06 THD+N vs Ampl | ✓ |
| A07 Noise, DNR | ✓ |
| A08 Crosstalk A to B | ✓ |
| A09 Crosstalk B to A | ✓ |
| A10 Crosstalk A to B vs Freq | ✓ |
| A11 Crosstalk B to A vs Freq | ✓ |
| A12 FFT 1000 Hz THD+N | ✓ |
| A13 FFT 50+7000Hz | ✓ |
| A14 FFT 600+1700 Hz | ✓ |
| A15 FFT 19+20 KHz | ✓ |
| A16 FFT residual noise | ✓ |
| A17 FFT -90 dBFS | OK |
| A18 FFT -90 dBFS 16 bit | OK |
| A19 FFT imaging | OK |
| A20 FFT inferred jitter | OK |

KEY: ✓ = Test passes, ✗ = Test fails, OK = Test has run but has no limit checking, (✗) = Test has failed to run or has not completed, [✓] = Test passes but is not required, [✗] = Test fails but is not required, ? = Test is required but has not been run.
- = Test is not required.

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A01 Ampl, Phase, Gain: PASSED

Measured at 5/8/2020 11:25:31 AM

| Generator Settings | | |
|--------------------|-------------------------|--|
| Channel A: | sine, 0 dBFS at 1000 Hz | |
| Channel B: | sine, 0 dBFS at 1000 Hz | |

| Signal Analyzer Readings | | |
|---------------------------|-----------|-----------------------|
| RMS amplitude (Channel A) | 9.009 dBu | < 24 dBu > -20 dBu |
| RMS amplitude (Channel B) | 8.997 dBu | < 24 dBu > -20 dBu |
| Inter-channel phase | -0.00 ° | < 10 ° > -10 ° |

| CTA Readings | | |
|--|-----------|---------------------|
| Gain (Channel A RMS) | 0.006 dB | < 20 dB > -40 dB |
| Gain (Channel B RMS) | -0.006 dB | < 20 dB > -40 dB |
| Settings: Generator relative, 22 Hz - 22 kHz, unweighted RMS with 1/3rd octave band-pass filter at the generator frequency | | |

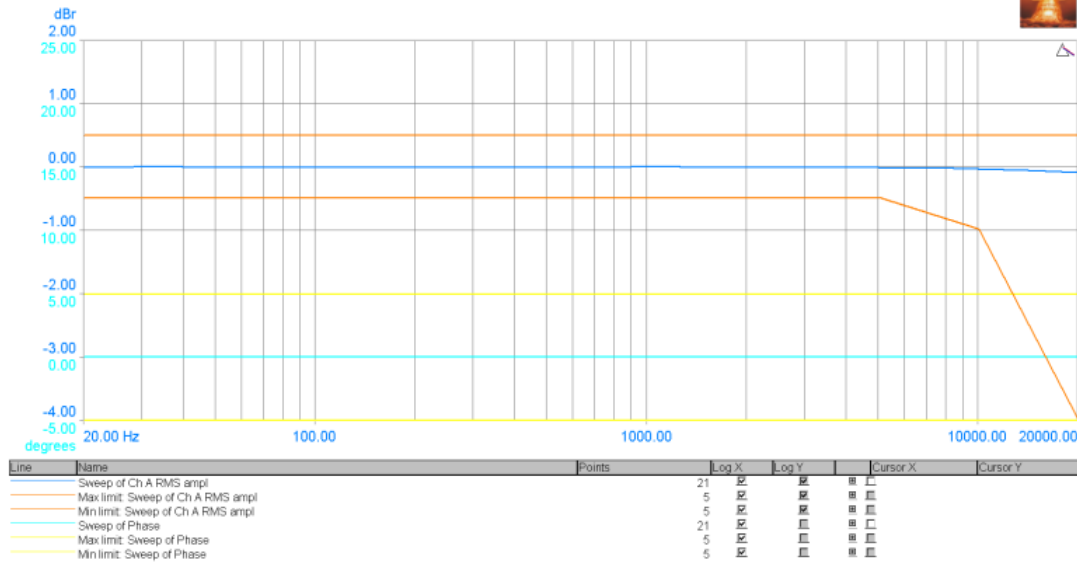
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A02 Ampl, Phase vs Freq: PASSED

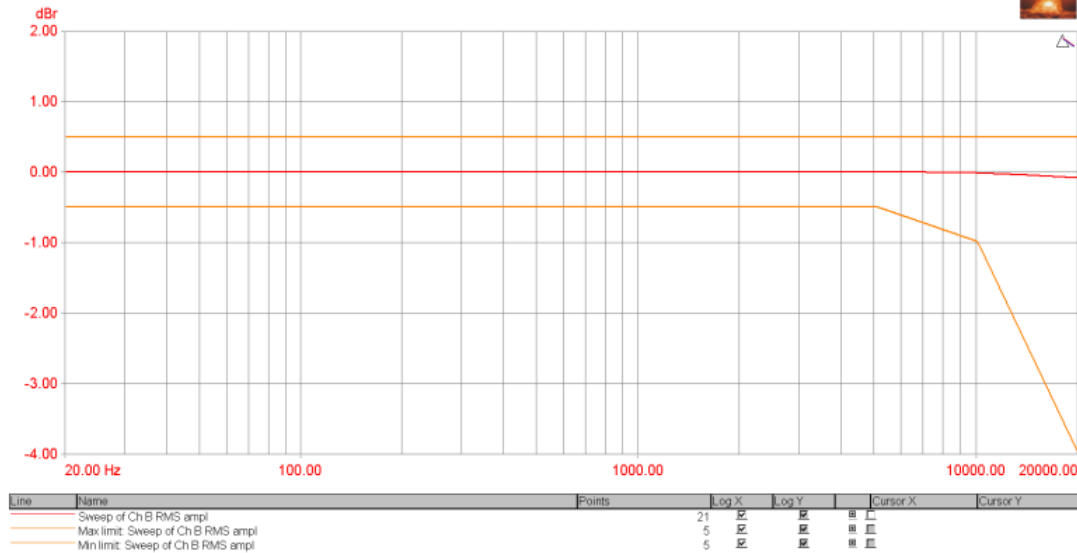
Measured at 5/8/2020 11:25:34 AM

| Generator Settings | | |
|--------------------|--------------------------|--|
| Channel A: | sine, -3 dBFS at 1000 Hz | |
| Channel B: | sine, -3 dBFS at 1000 Hz | |

Frequency Response and Inter-channel Phase



Frequency Response and Inter-channel Phase

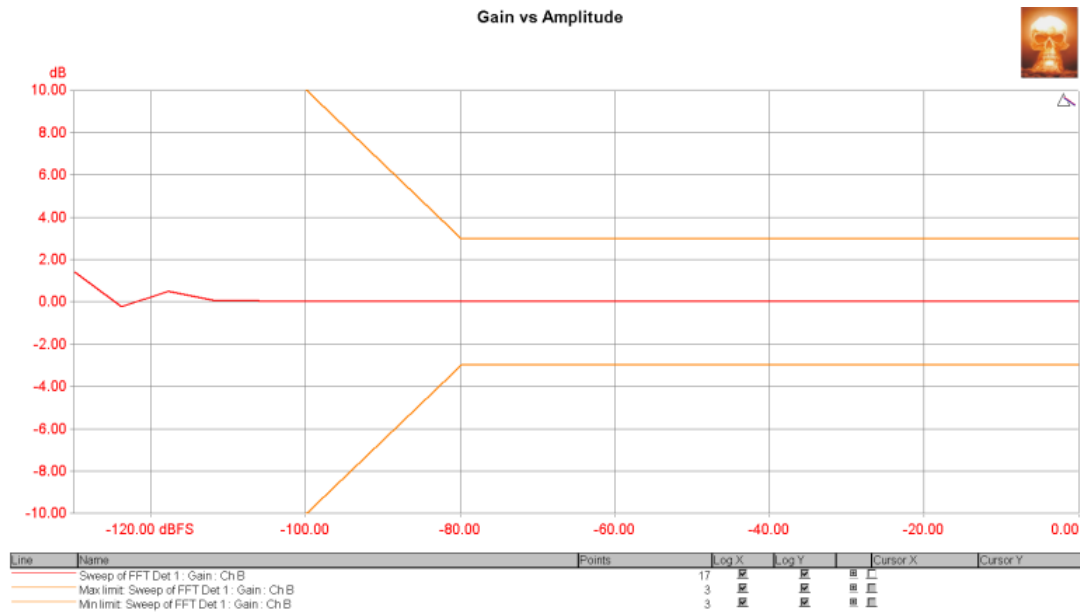
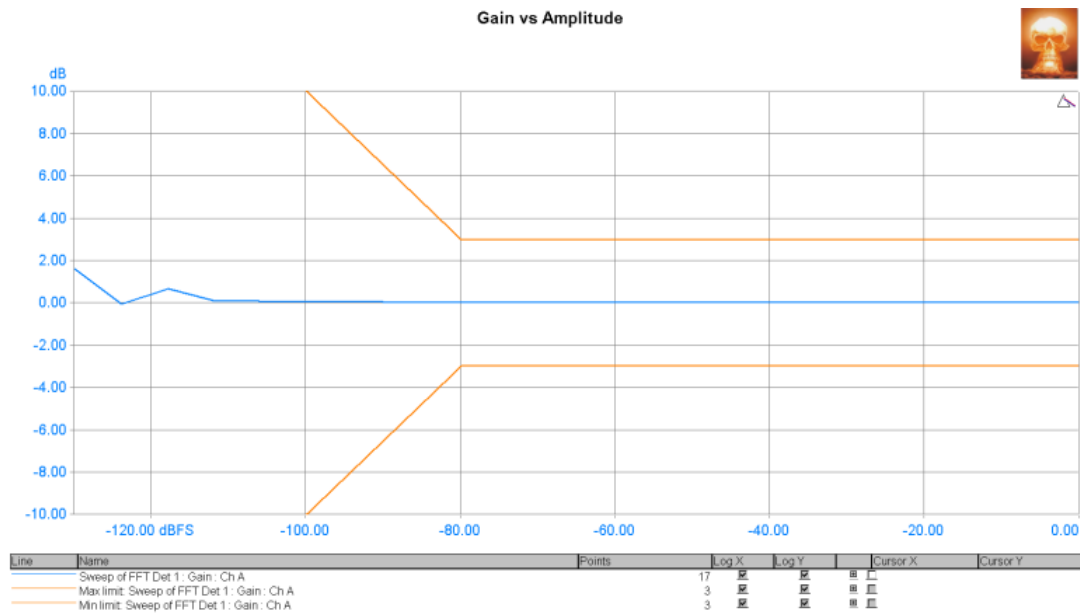


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A03 Gain vs Ampl: **PASSED**

Measured at 5/8/2020 11:25:41 AM

| Generator Settings | |
|--------------------|--------------------------|
| Channel A: | sine, -6 dBFS at 1000 Hz |
| Channel B: | sine, -6 dBFS at 1000 Hz |



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A04 THD+N,THD, nth-HD: PASSED

Measured at 5/8/2020 11:26:42 AM

| Generator Settings | |
|--------------------|-------------------------|
| Channel A: | sine, 0 dBFS at 1000 Hz |
| Channel B: | sine, 0 dBFS at 1000 Hz |

| CTA Readings | | |
|---|-----------|------------------|
| THD+N - relative (Channel A RMS) | 0.00057 % | < 200 % > 0 % |
| THD+N - relative (Channel B RMS) | 0.00037 % | < 200 % > 0 % |
| Settings: Self relative, 22 Hz - 20kHz AES17, unweighted RMS with 1/12th octave band-reject filter at the generator frequency | | |

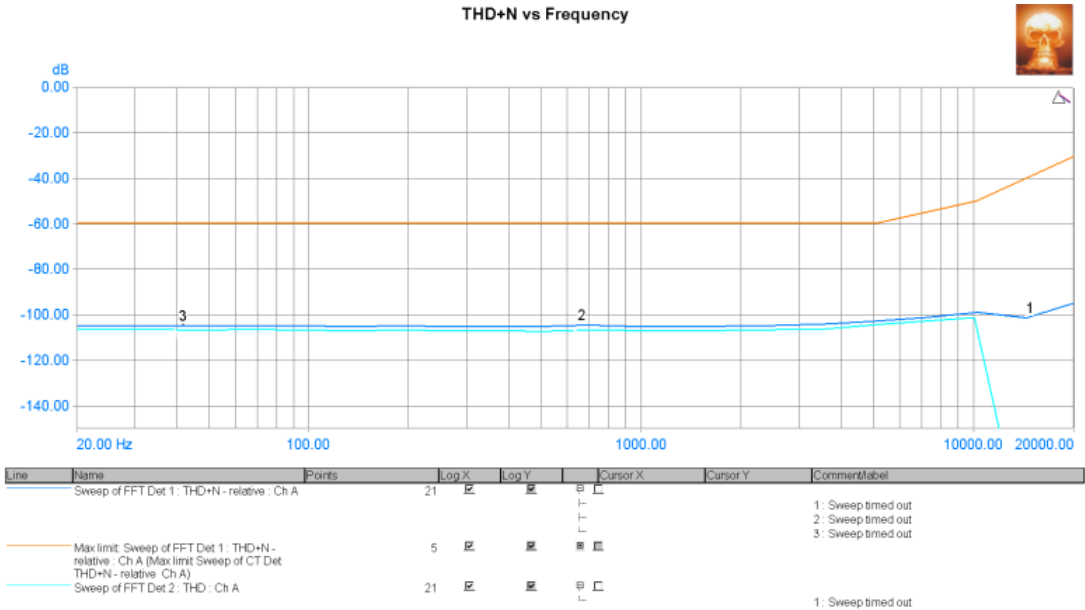
| FFT Detector Readings | | |
|---|-----------|------------------|
| THD (Channel A) | 0.00051 % | < 200 % > 0 % |
| THD (Channel B) | 0.00025 % | < 200 % > 0 % |
| FFTD 1 Settings: Self relative, 22 Hz - 20kHz AES17, unweighted with band-pass notch filters from the 2nd to 10th harmonics | | |
| 2nd Harmonic Distortion (Channel A) | 0.00031 % | < 200 % > 0 % |
| 2nd Harmonic Distortion (Channel B) | 0.00020 % | < 200 % > 0 % |
| FFTD 2 Settings: Self relative, 22 Hz - 20kHz AES17, unweighted with band-pass notch filter at the 2nd harmonic | | |
| 3rd Harmonic Distortion (Channel A) | 0.00038 % | < 200 % > 0 % |
| 3rd Harmonic Distortion (Channel B) | 0.00012 % | < 200 % > 0 % |
| FFTD 3 Settings: Self relative, 22 Hz - 20kHz AES17, unweighted with band-pass notch filter at the 3rd harmonic | | |
| THD+N - relative (Channel A) | 0.00051 % | < 200 % > 0 % |
| THD+N - relative (Channel B) | 0.00026 % | < 200 % > 0 % |
| FFTD 4 Settings: Self relative, 22 Hz - 20kHz AES17, unweighted with window notch (14 bins) band-reject filter at the input frequency | | |

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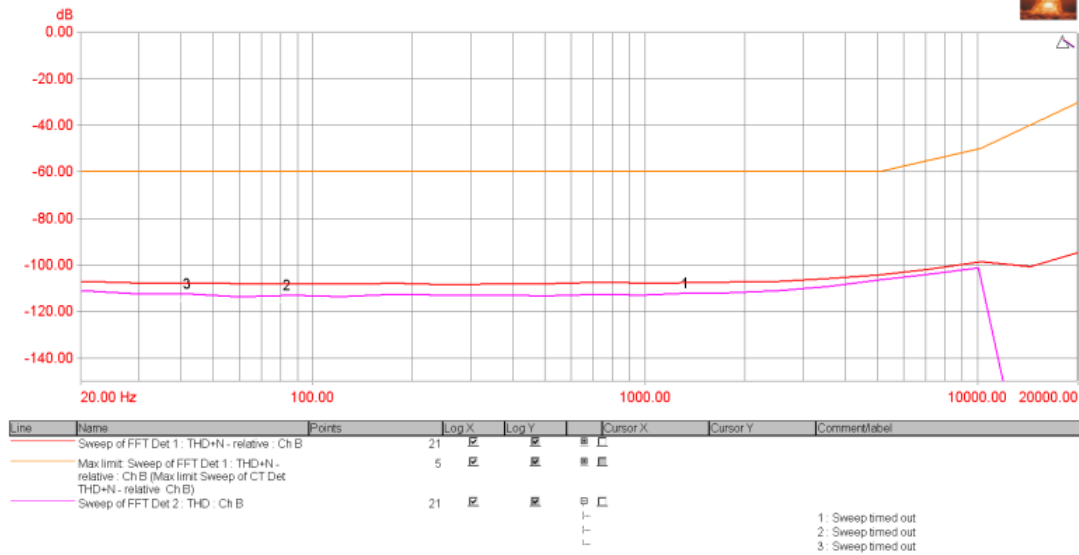
A05 THD+N vs Freq: PASSED

Measured at 5/8/2020 11:26:54 AM

| Generator Settings | |
|--------------------|--------------------------|
| Channel A: | sine, -3 dBFS at 1000 Hz |
| Channel B: | sine, -3 dBFS at 1000 Hz |



THD+N vs Frequency

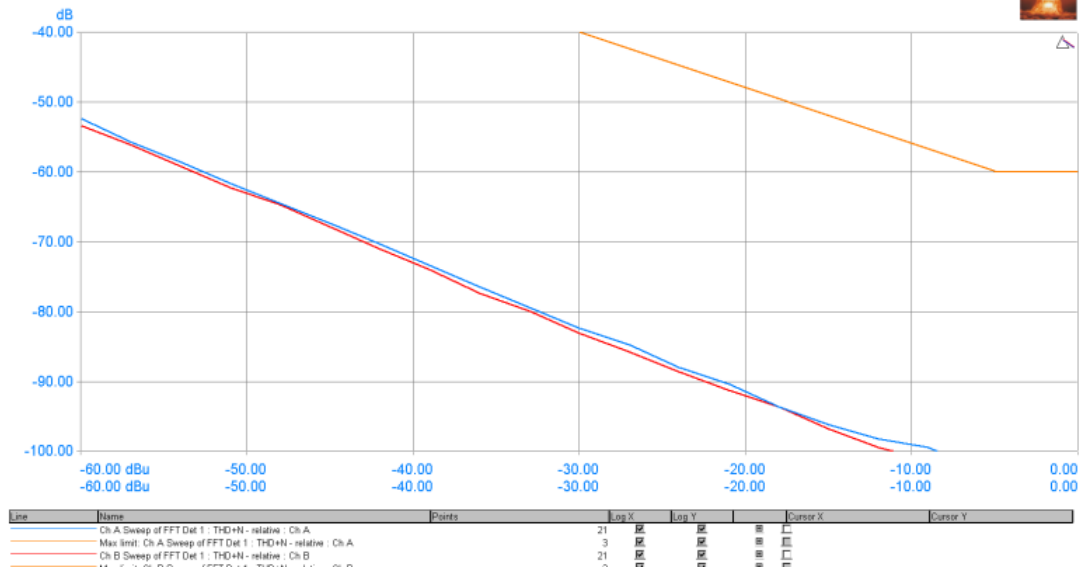

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A06 THD+N vs Ampl: PASSED

Measured at 5/8/2020 11:28:14 AM

| Generator Settings | |
|--------------------|--------------------------|
| Channel A: | sine, -3 dBFS at 1000 Hz |
| Channel B: | sine, -3 dBFS at 1000 Hz |

THD+N vs Amplitude


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A07 Noise, DNR: PASSED

Measured at 5/8/2020 11:28:51 AM

| Generator Settings | |
|--------------------|-------------------------------|
| Channel A: | sine, -60 dBFS at 1000.488 Hz |
| Channel B: | sine, -60 dBFS at 1000.488 Hz |

| FFT Detector Readings | | |
|---|--------------|---------------------|
| THD+N - relative (Channel A) | -74.657 dB | Not limit checked. |
| THD+N - relative (Channel B) | -75.731 dB | Not limit checked. |
| FFTD 1 Settings: Self relative, 22 Hz - 20kHz AES17, unweighted with 1/3rd octave band-reject filter at the generator frequency | | |
| Noise (residual) (Channel A) | -126.101 dBu | Not limit checked. |
| Noise (residual) (Channel B) | -127.107 dBu | Not limit checked. |
| FFTD 2 Settings: 22 Hz - 22 kHz, unweighted with band-reject notch filters, fundamental to the 10th harmonic | | |
| DAC DNR Residual Async | 135.105 dB | < 150 dB > 60 dB |
| DAC DNR Residual Async | 136.100 dB | < 150 dB > 60 dB |
| FFTD 3 Settings: User: DAC SNR Residual Async | | |

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A08 Crosstalk A to B: PASSED

Measured at 5/8/2020 11:29:09 AM

| Generator Settings | |
|--------------------|--------------------------|
| Channel A: | sine, -3 dBFS at 1000 Hz |
| Channel B: | sine, -3 dBFS at 1000 Hz |

| CTA Readings | | |
|--|-------------|----------|
| Cross-talk (Channel B RMS) | -144.662 dB | < -45 dB |
| Settings: Channel relative, 22 Hz - 22 kHz, unweighted RMS with 1/24th octave band-pass filter at the opposite channel generator frequency | | |

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A09 Crosstalk B to A: PASSED

Measured at 5/8/2020 11:29:14 AM

| Generator Settings | |
|--------------------|--------------------------|
| Channel A: | sine, -3 dBFS at 1000 Hz |
| Channel B: | sine, -3 dBFS at 1000 Hz |

| CTA Readings | | |
|--|-------------|----------|
| Cross-talk (Channel A RMS) | -151.183 dB | < -45 dB |
| Settings: Channel relative, 22 Hz - 22 kHz, unweighted RMS with 1/24th octave band-pass filter at the opposite channel generator frequency | | |

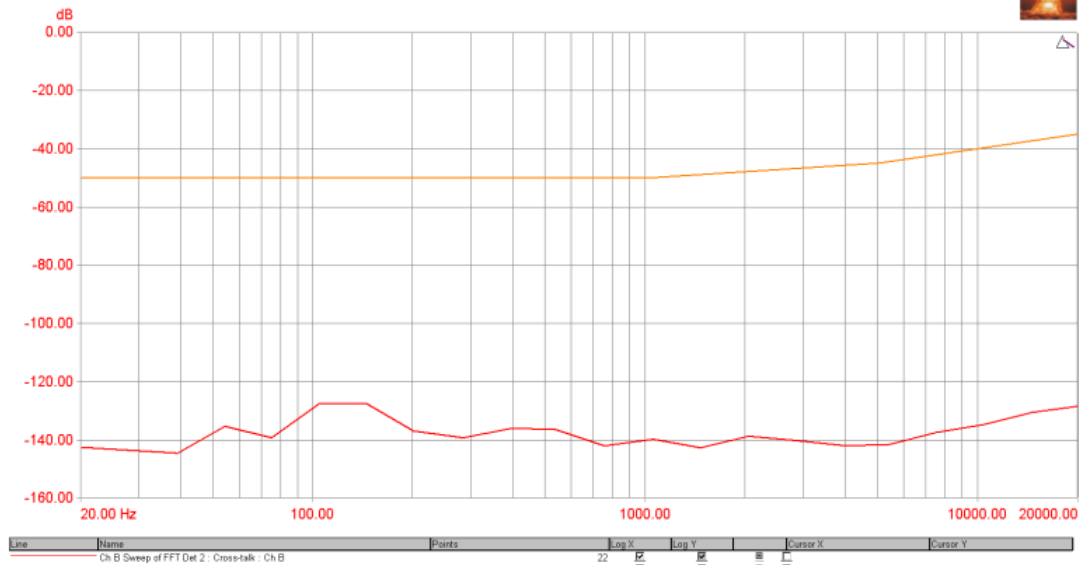
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A10 Crosstalk A to B vs Freq: PASSED

Measured at 5/8/2020 11:29:20 AM

| Generator Settings | |
|--------------------|--------------------------|
| Channel A: | sine, -3 dBFS at 1000 Hz |
| Channel B: | sine, -3 dBFS at 1000 Hz |

Cross-talk A to B vs Frequency

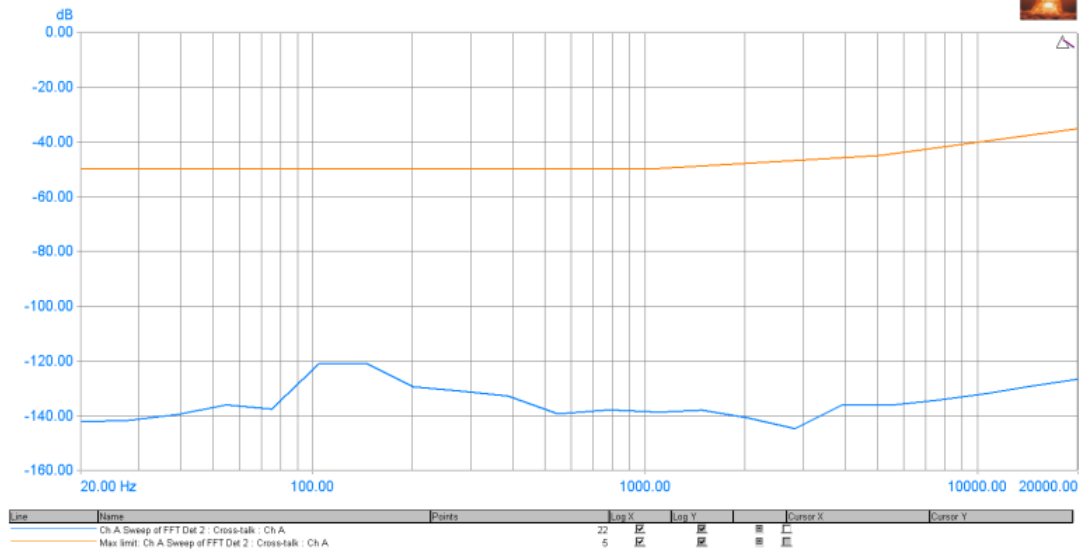

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A11 Crosstalk B to A vs Freq: PASSED

Measured at 5/8/2020 11:30:14 AM

| Generator Settings | |
|--------------------|--------------------------|
| Channel A: | sine, -3 dBFS at 1000 Hz |
| Channel B: | sine, -3 dBFS at 1000 Hz |

Cross-talk A to B vs Frequency


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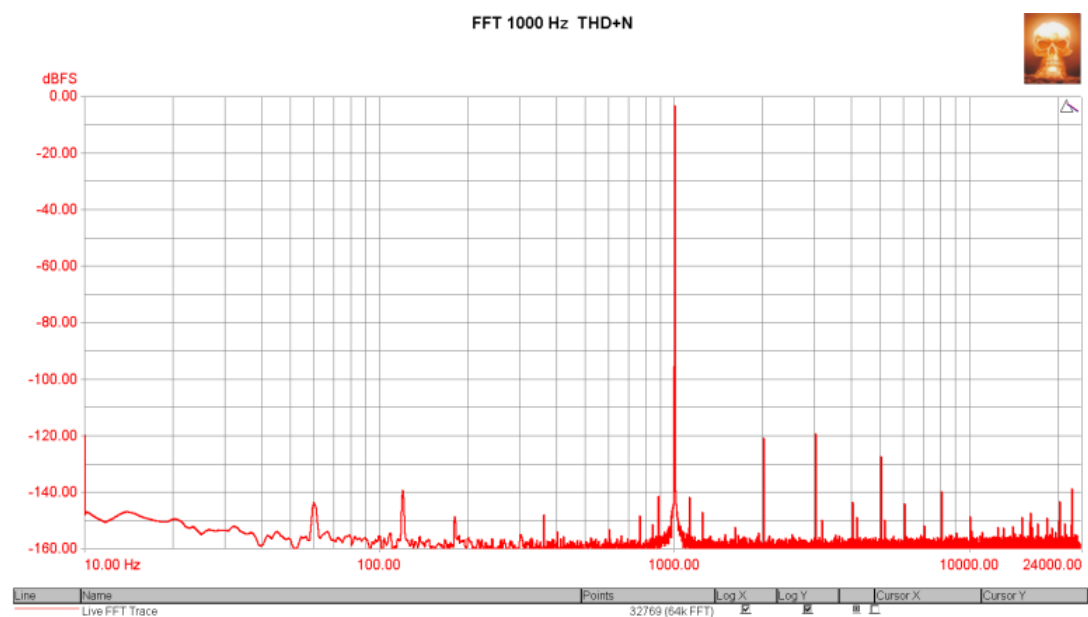
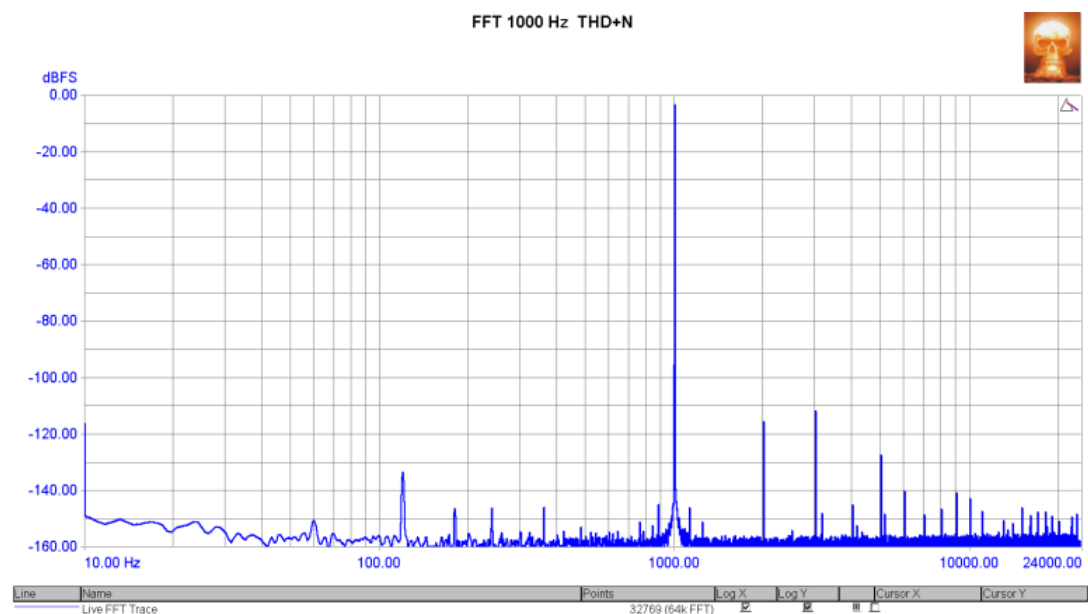
A12 FFT 1000 Hz THD+N: PASSED

Measured at 5/8/2020 11:31:06 AM

| Generator Settings | |
|--------------------|--------------------------|
| Channel A: | sine, -3 dBFS at 1000 Hz |
| Channel B: | sine, -3 dBFS at 1000 Hz |

| Signal Analyzer Readings | | |
|-------------------------------------|-----------|--------------------|
| RMS amplitude (Selected : Ch A) | 6.009 dBu | Not limit checked. |
| RMS amplitude (Non-selected : Ch A) | 5.997 dBu | Not limit checked. |

| CTA Readings | | |
|--|-----------|-----------------------------|
| THD+N - relative (Selected : Ch A RMS) | 0.00053 % | < 0.075 % > 0.00000001 % |
| THD+N - relative (Non-selected : Ch A RMS) | 0.00035 % | < 0.075 % > 0.00000001 % |
| Settings: Self relative, 22 Hz - 20kHz AES17, unweighted RMS with 1/3rd octave band-reject filter at the input frequency | | |



| FFT Detector Readings | | |
|---|-----------|--------------------|
| THD+N - relative (Channel A) | 0.00046 % | Not limit checked. |
| THD+N - relative (Channel B) | 0.00027 % | Not limit checked. |
| FFTD 1 Settings: Self relative, 22 Hz - 20kHz AES17, unweighted with window notch (14 bins) band-reject filter at the input frequency | | |

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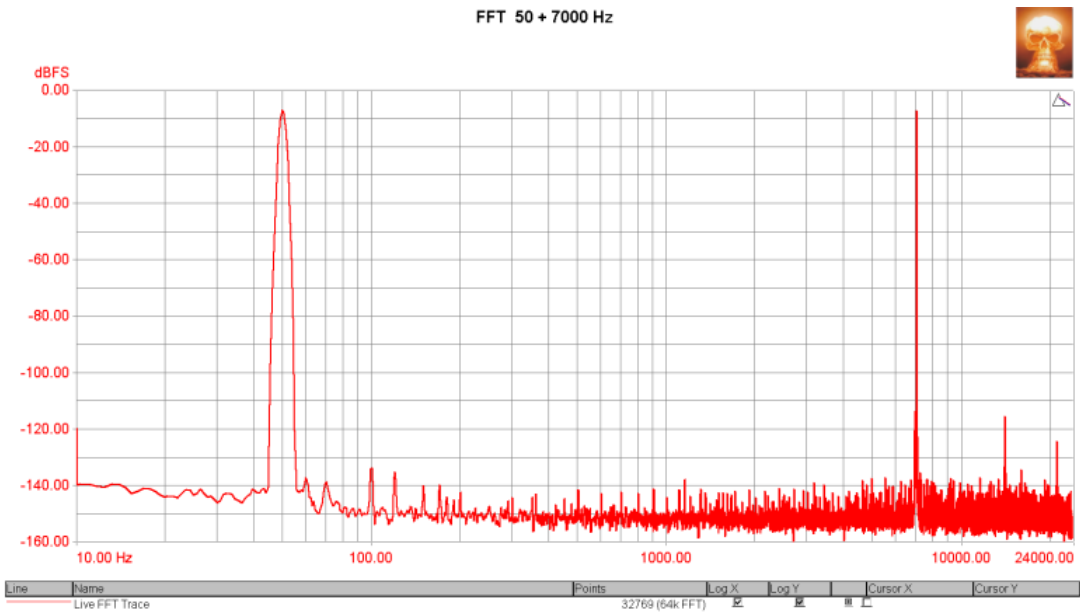
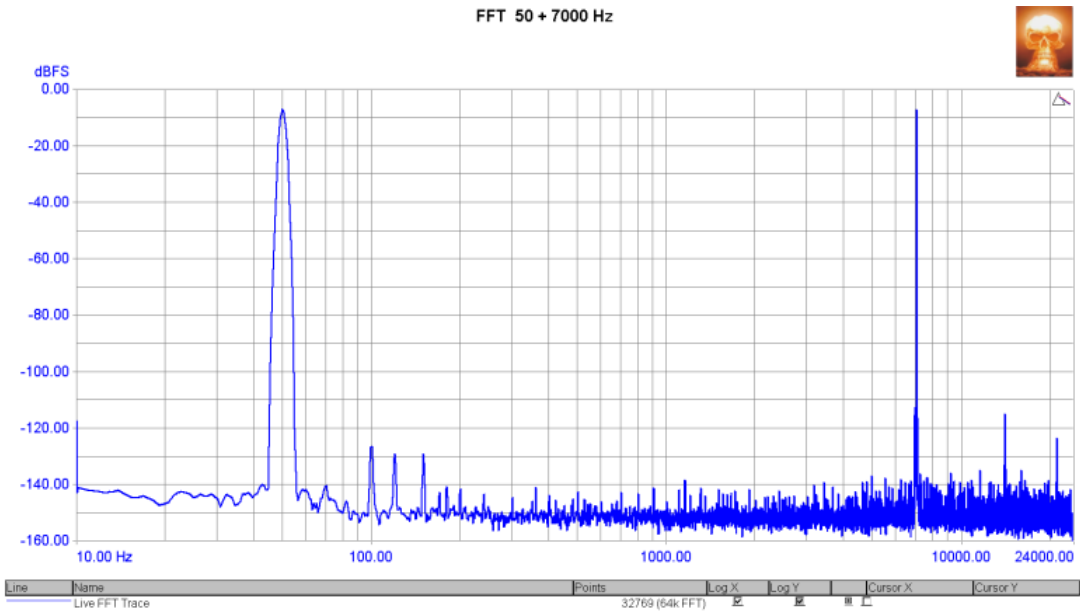
A13 FFT 50+7000Hz: PASSED

Measured at 5/8/2020 11:32:28 AM

| Generator Settings | |
|--------------------|---|
| Channel A: | Twin-tone, -7 dBFS at 50 Hz and 1 amplitude ratio at 7000Hz |
| Channel B: | Twin-tone, -7 dBFS at 50 Hz and 1 amplitude ratio at 7000Hz |

| Signal Analyzer Readings | | |
|---------------------------|-----------|--------------------|
| RMS amplitude (Channel A) | 5.012 dBu | Not limit checked. |
| RMS amplitude (Channel B) | 5.001 dBu | Not limit checked. |

| CTA Readings | | |
|---|-----------|-------------------|
| IMD SMPTE-DIN (Channel A RMS) | 0.00043 % | < 0.05 % > 0 % |
| IMD SMPTE-DIN (Channel B RMS) | 0.00023 % | < 0.05 % > 0 % |
| Settings: Self relative, 22 Hz - 22 kHz, unweighted RMS using SMPTE-DIN IMD demodulation. | | |



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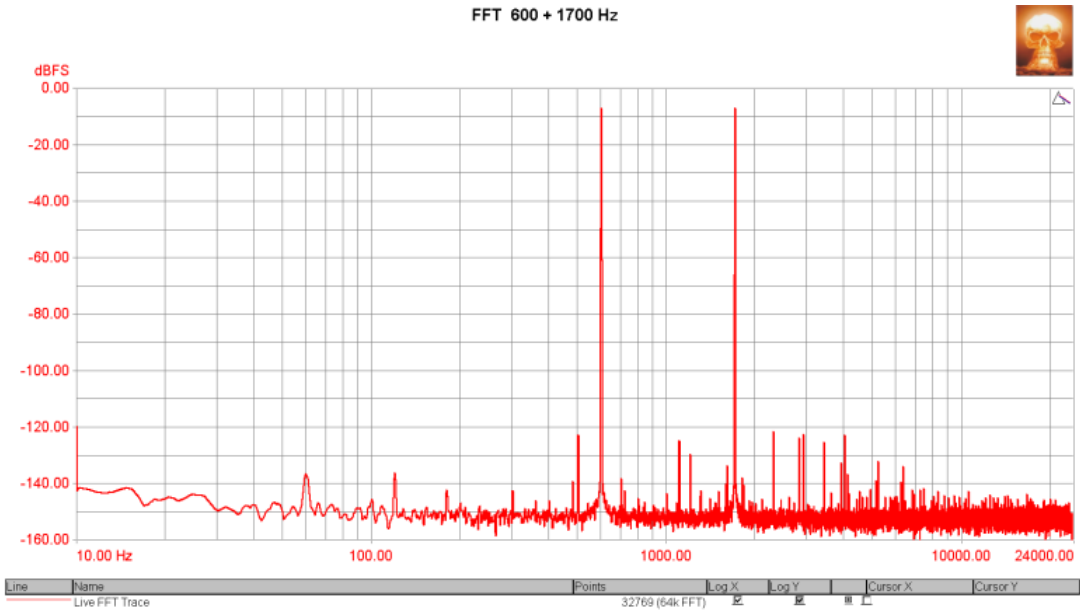
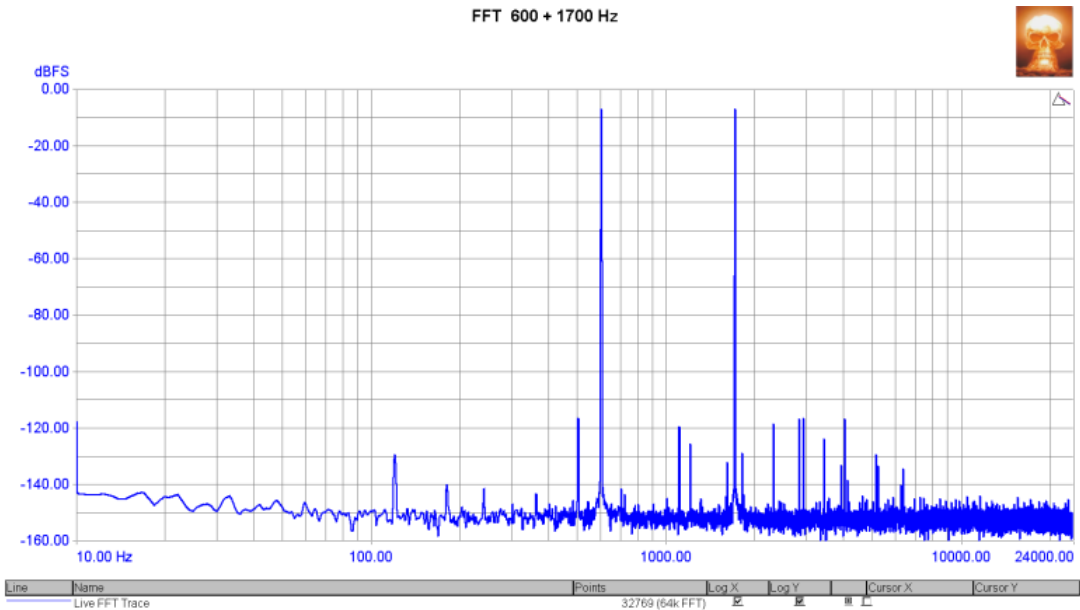
A14 FFT 600+1700 Hz: PASSED

Measured at 5/8/2020 11:32:50 AM

| Generator Settings | |
|--------------------|--|
| Channel A: | Twin-tone, -7 dBFS at 600 Hz and 1 amplitude ratio at 1700Hz |
| Channel B: | Twin-tone, -7 dBFS at 600 Hz and 1 amplitude ratio at 1700Hz |

| Signal Analyzer Readings | | |
|---------------------------|-----------|--------------------|
| RMS amplitude (Channel A) | 5.007 dBu | Not limit checked. |
| RMS amplitude (Channel B) | 4.997 dBu | Not limit checked. |

| CTA Readings | | |
|---|-----------|-------------------|
| IMD SMPTE-DIN (Channel A RMS) | 0.01276 % | < 0.02 % > 0 % |
| IMD SMPTE-DIN (Channel B RMS) | 0.01273 % | < 0.02 % > 0 % |
| Settings: Self relative, 22 Hz - 22 kHz, unweighted RMS using SMPTE-DIN IMD demodulation. | | |



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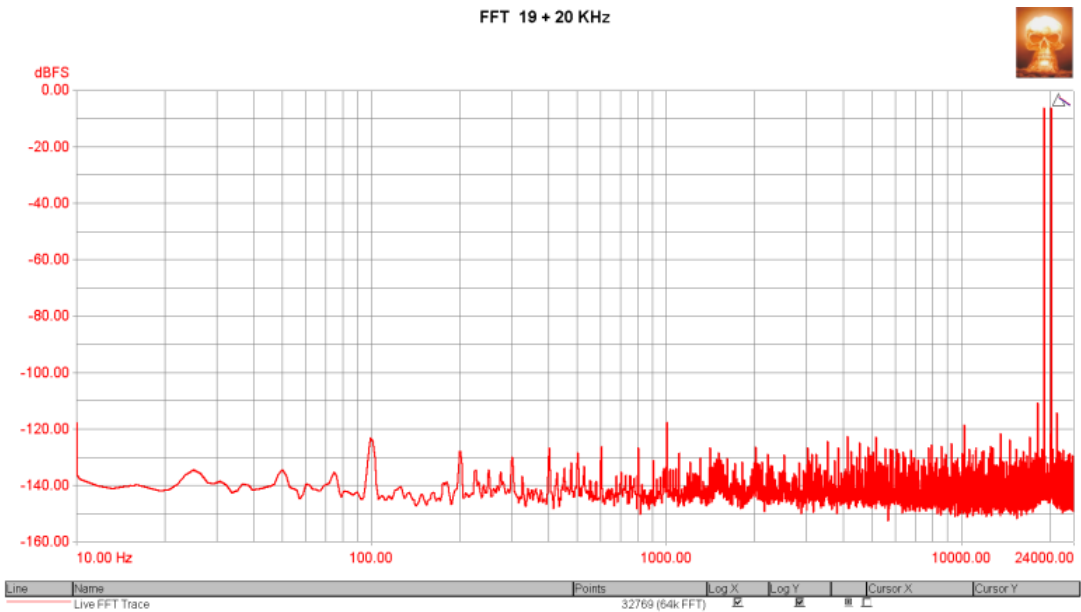
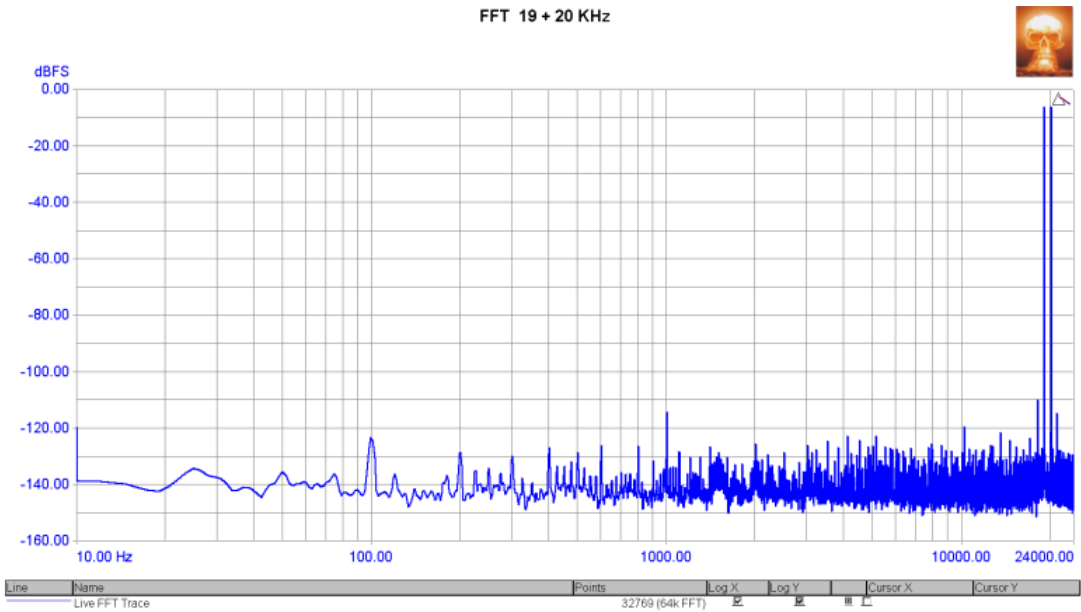
A15 FFT 19+20 KHz: PASSED

Measured at 5/8/2020 11:33:13 AM

| Generator Settings | |
|--------------------|---|
| Channel A: | Twin-tone, -6.03 dBFS at 19000 Hz and 0 dB offset at 1000 Hz offset |
| Channel B: | Twin-tone, -6.03 dBFS at 19000 Hz and 0 dB offset at 1000 Hz offset |

| Signal Analyzer Readings | | |
|---------------------------|-----------|--------------------|
| RMS amplitude (Channel A) | 5.921 dBu | Not limit checked. |
| RMS amplitude (Channel B) | 5.913 dBu | Not limit checked. |

| CTA Readings | | |
|---|-----------|---------|
| IMD CCIF (Channel A RMS) | 0.00046 % | < 0.1 % |
| IMD CCIF (Channel B RMS) | 0.00044 % | < 0.1 % |
| Settings: Self relative, 22 Hz - 22 kHz, unweighted RMS with 1/24th octave band-pass filter at the intermodulation difference frequency | | |



| FFT Detector Readings | | |
|---|-----------|---------|
| IMD CCIF (Channel A) | 0.00027 % | < 0.1 % |
| IMD CCIF (Channel B) | 0.00019 % | < 0.1 % |
| FFTD 1 Settings: Self relative, 22 Hz - 22 kHz, unweighted with window notch (14 bins) band-pass filter at the intermodulation difference frequency | | |

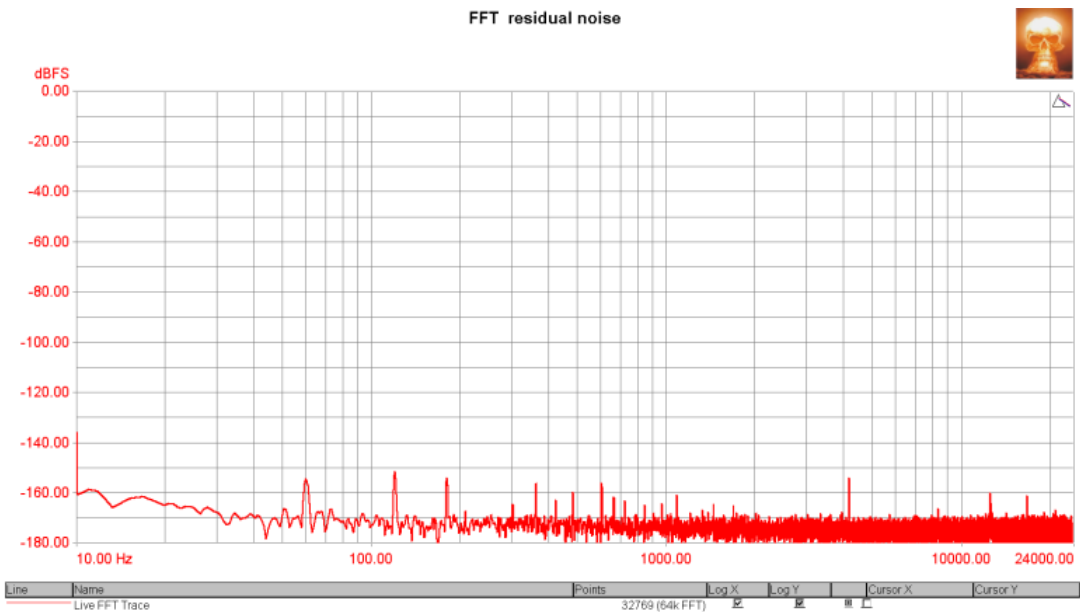
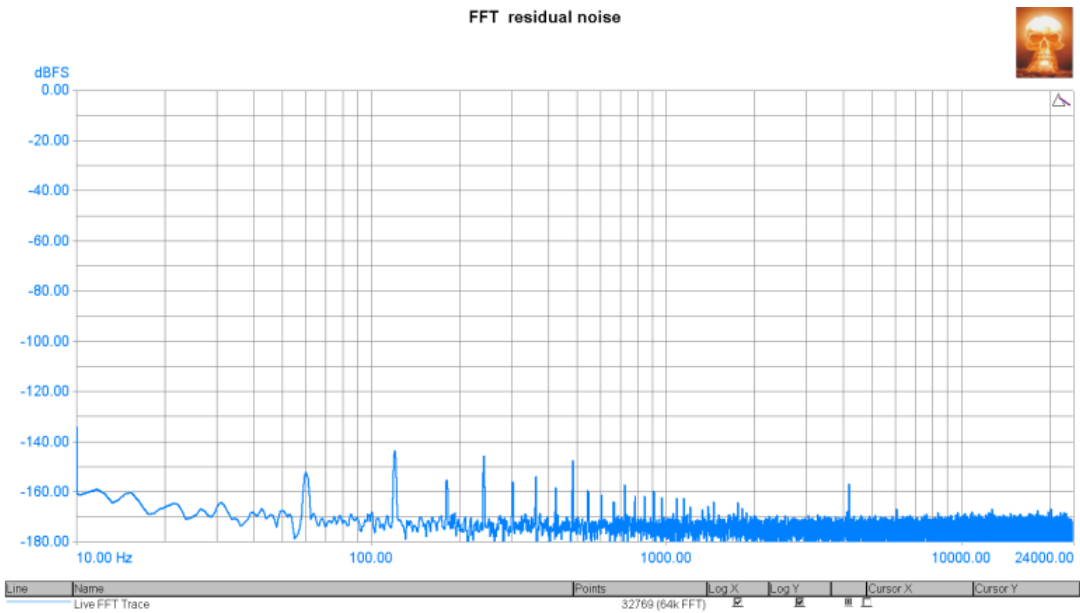
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A16 FFT residual noise: PASSED

Measured at 5/8/2020 11:33:34 AM

| Generator Settings | | |
|--------------------|--|-----|
| Channel A: | | Off |
| Channel B: | | Off |

| Signal Analyzer Readings | | |
|---------------------------|--------------|--------------------|
| RMS amplitude (Channel A) | -109.065 dBu | Not limit checked. |
| RMS amplitude (Channel B) | -111.657 dBu | Not limit checked. |



| FFT Detector Readings | | |
|--|---------------|---------------------------|
| Noise (residual) (Channel A) | -133.035 dBFS | < -60 dBFS > -150 dBFS |
| Noise (residual) (Channel B) | -133.231 dBFS | < -60 dBFS > -150 dBFS |
| FFTD 1 Settings: 22 Hz - 22 KHz, unweighted with band-reject notch filters, fundamental to the 10th harmonic | | |

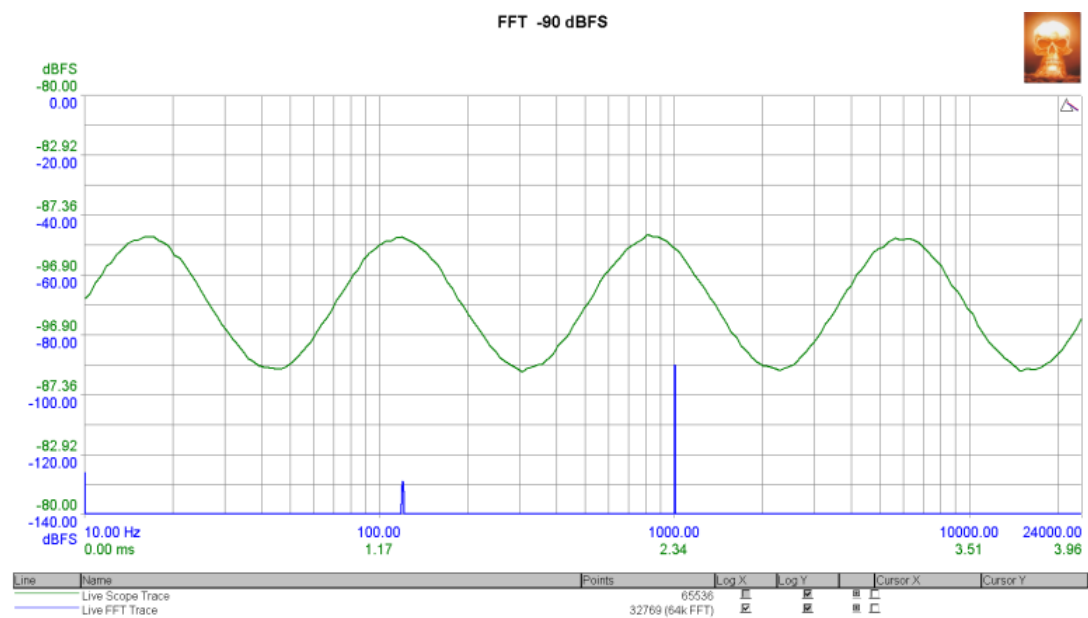
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A17 FFT -90 dBFS: Not limit checked.

Measured at 5/8/2020 11:35:35 AM

| Generator Settings | |
|--------------------|---------------------------|
| Channel A: | sine, -90 dBFS at 1000 Hz |
| Channel B: | sine, -90 dBFS at 1000 Hz |

| Signal Analyzer Readings | |
|---------------------------------|--------------------------------|
| RMS amplitude (Selected : Ch A) | -80.999 dBu Not limit checked. |



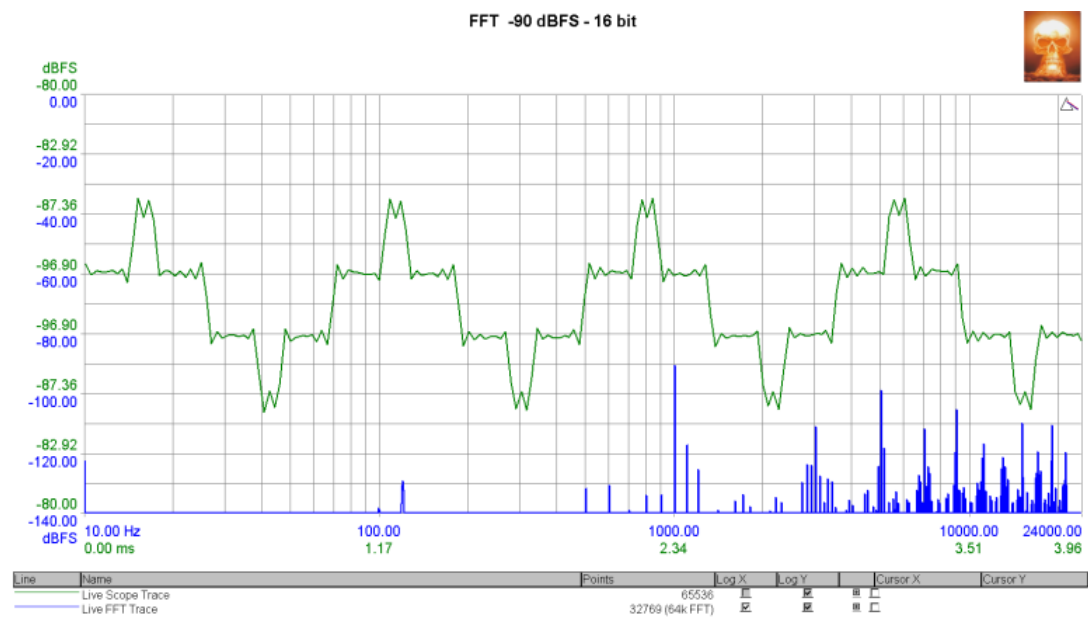
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A18 FFT -90 dBFS 16 bit: Not limit checked.

Measured at 5/8/2020 11:36:03 AM

| Generator Settings | |
|--------------------|---------------------------|
| Channel A: | sine, -90 dBFS at 1000 Hz |
| Channel B: | sine, -90 dBFS at 1000 Hz |

| Signal Analyzer Readings | |
|---------------------------------|--------------------------------|
| RMS amplitude (Selected : Ch A) | -80.635 dBu Not limit checked. |

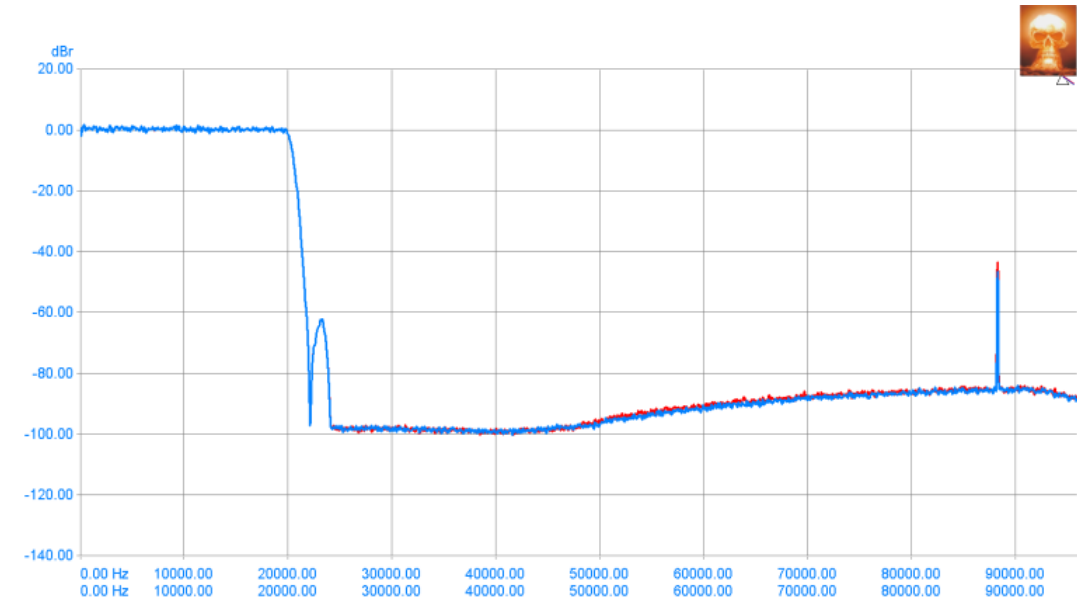


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A19 FFT imaging: Not limit checked.

Measured at 5/8/2020 11:36:17 AM

| Generator Settings | |
|--------------------|---------------------------------|
| Channel A: | white noise, -6 dBFS |
| Channel B: | white noise, -6 dBFS (inverted) |



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A20 FFT inferred jitter: Not limit checked.

Measured at 5/8/2020 11:36:51 AM

| Generator Settings | |
|--------------------|--------------------------------------|
| Channel A: | sine, -6 dBFS at 11025 Hz |
| Channel B: | sine, -6 dBFS at 11025 Hz (inverted) |

