

ECP Audio T4 JJ ECC81 32R unbal 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 2 3 4 - THD+N minus 2nd and 3rd harmonics	✓
A05 THD+N vs Freq	✓
A06 THD+N vs Ampl	✓
A07 Noise, SNR	✓
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	✓

KEY: ✓ = Test passes, ✗ = Test fails, OK = Test has run but has no limit checking, (✗) = Test has failed to run or has not completed, [N] = Test passes but is not required, [X] = 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 2/4/2020 10:17:52 PM

Generator Settings	
Channel A:	sine, 0 dBu at 1000 Hz
Channel B:	sine, 0 dBu at 1000 Hz

Signal Analyzer Readings		
RMS amplitude (Channel A)	0.002 dBu	< 3 dBu > -3 dBu
RMS amplitude (Channel B)	-0.003 dBu	< 3 dBu > -3 dBu
Inter-channel phase	-0.02 °	< 10 ° > -10 °

CTA Readings		
Gain (Channel A RMS)	0.002 dB	< 3 dB > -3 dB
Gain (Channel B RMS)	-0.003 dB	< 3 dB > -3 dB
Settings: Generator relative, 22 Hz - 22 kHz, unweighted RMS with 1/3rd octave band-pass filter at the generator frequency		

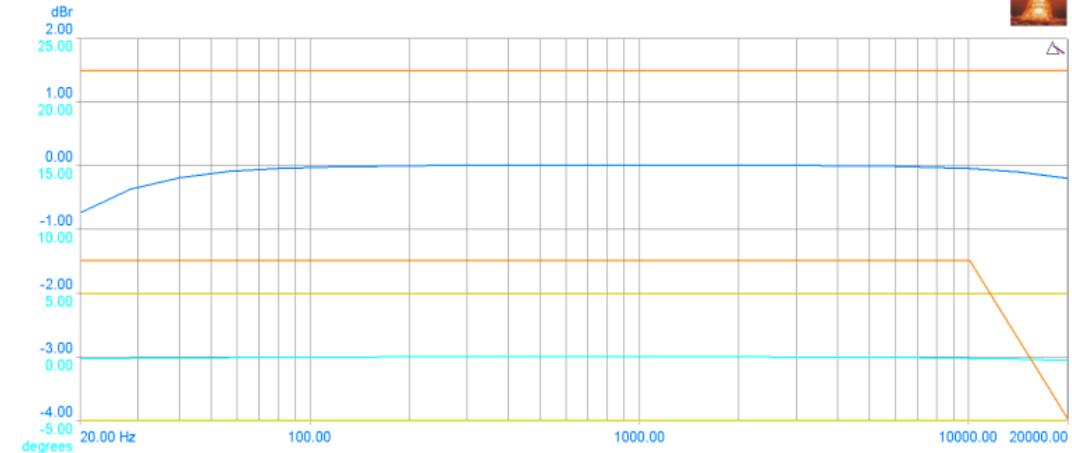
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A02 Ampl, Phase vs Freq: **PASSED**

Measured at 2/4/2020 10:17:55 PM

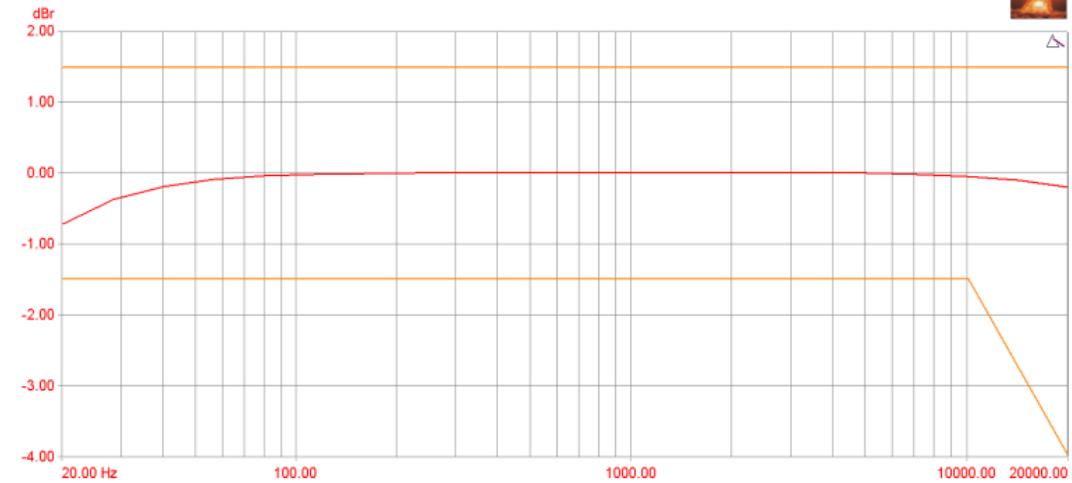
Generator Settings	
Channel A:	sine, -3 dBFS at 1000 Hz
Channel B:	sine, -3 dBFS at 1000 Hz

Frequency Response and Inter-channel Phase



Line	Name	Points	Log X	Log Y	Cursor X	Cursor Y
—	Sweep of Ch A RMS ampl	21	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
—	Max limit: Sweep of Ch A RMS ampl	5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
—	Min limit: Sweep of Ch A RMS ampl	5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
—	Sweep of Phase	21	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
—	Max limit: Sweep of Phase	5	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
—	Min limit: Sweep of Phase	5	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Frequency Response and Inter-channel Phase



Line	Name	Points	Log X	Log Y	Cursor X	Cursor Y
—	Sweep of Ch B RMS ampl	21	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
—	Max limit: Sweep of Ch B RMS ampl	5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
—	Min limit: Sweep of Ch B RMS ampl	5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

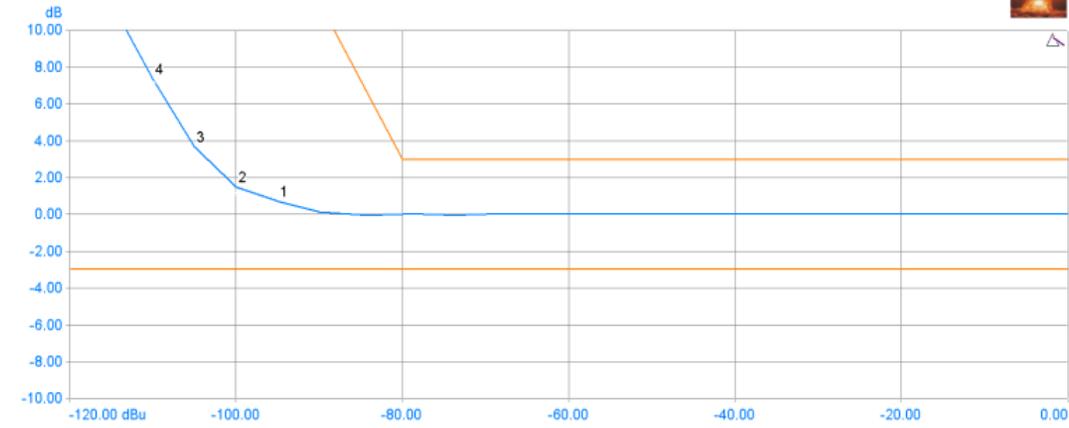
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A03 Gain vs Ampl: **PASSED**

Measured at 2/4/2020 10:18:01 PM

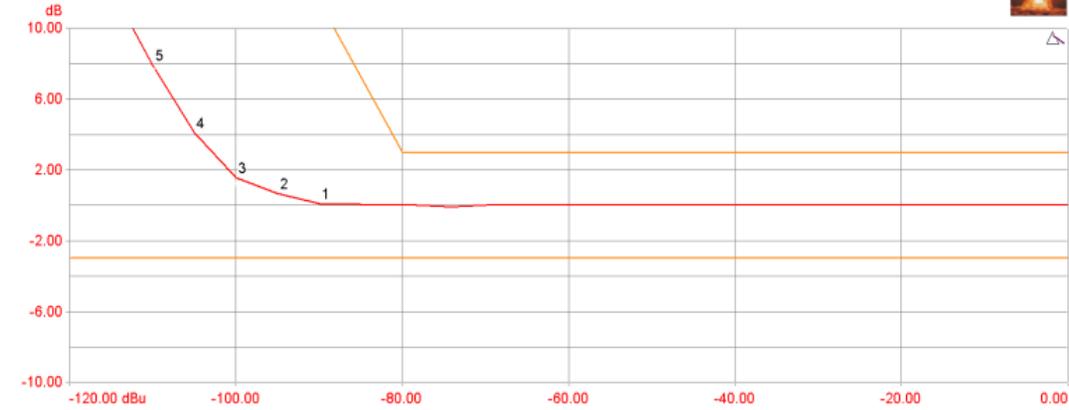
Generator Settings	
Channel A:	sine, 0 dBu at 1000 Hz
Channel B:	sine, 0 dBu at 1000 Hz

Gain vs Amplitude

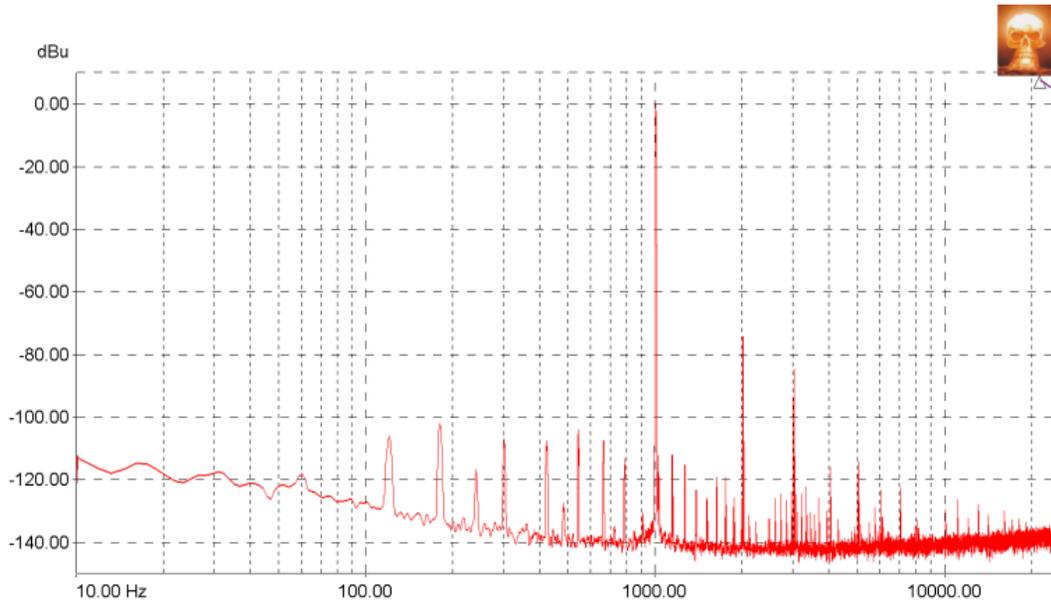
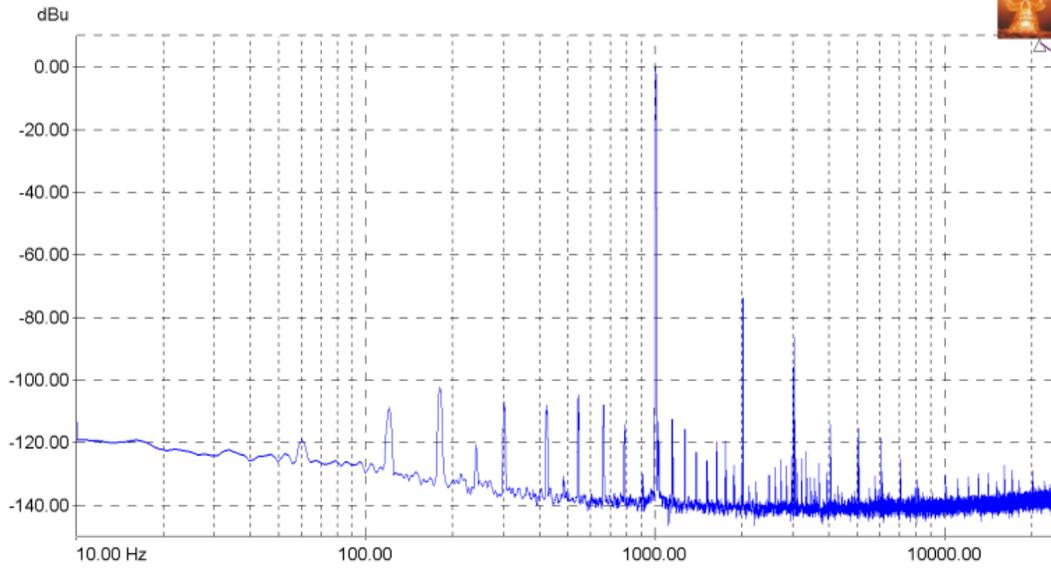


Line	Name	Points	Log X	Log Y	Cursor X	Cursor Y	CommentLabel
1	Sweep of CT Det : Gain : Ch A	25	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0	0	1: Sweep timed out
2							2: Sweep timed out
3							3: Sweep timed out
4							4: Sweep timed out
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Gain vs Amplitude



Line	Name	Points	Log X	Log Y	Cursor X	Cursor Y	CommentLabel
1	Sweep of CT Det : Gain : Ch B	25	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0	0	1: Sweep timed out
2							2: Sweep timed out
3							3: Sweep timed out
4							4: Sweep timed out
5							5: Sweep timed out
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FFT Detector Readings		
THD (Channel A)	0.02086 %	< 200 % > 0 %
THD (Channel B)	0.01986 %	< 200 % > 0 %
FFTD 1 Settings: Self relative, 22 Hz - 22 kHz, unweighted with band-pass notch filters from the 2nd to 10th harmonics		
2nd Harmonic Distortion (Channel A)	0.02035 %	< 200 % > 0 %
2nd Harmonic Distortion (Channel B)	0.01904 %	< 200 % > 0 %
FFTD 2 Settings: Self relative, 22 Hz - 22 kHz, unweighted with band-pass notch filter at the 2nd harmonic		
3rd Harmonic Distortion (Channel A)	0.00459 %	< 200 % > 0 %
3rd Harmonic Distortion (Channel B)	0.00565 %	< 200 % > 0 %
FFTD 3 Settings: Self relative, 22 Hz - 22 kHz, unweighted with band-pass notch filter at the 3rd harmonic		
4th Harmonic Distortion (Channel A)	0.00019 %	Not limit checked.
4th Harmonic Distortion (Channel B)	0.00016 %	Not limit checked.
FFTD 4 Settings: Self relative, 22 Hz - 22 kHz, unweighted with band-pass notch filter at the 4th harmonic		
5th Harmonic Distortion (Channel A)	0.00017 %	Not limit checked.
5th Harmonic Distortion (Channel B)	0.00019 %	Not limit checked.
FFTD 5 Settings: Self relative, 22 Hz - 22 kHz, unweighted with band-pass notch filter at the 5th harmonic		
4+HD + N (Channel A)	0.00161 %	< 0.05 % > 0 %
4+HD + N (Channel B)	0.00169 %	< 0.05 % > 0 %
FFTD 6 Settings: Self relative, 22 Hz - 22 kHz, unweighted with band-reject notch filters, fundamental to the 3rd harmonic		
Hum (Channel A)	0.00015 %	< 0.017783 % > 0 %
Hum (Channel B)	0.00020 %	< 0.017783 % > 0 %
FFTD 7 Settings: Self relative, 22 Hz - 22 kHz, unweighted with window notch (14 bins) band-pass filter at 60 Hz		
Noise (residual) (Channel A)	0.00158 %	< 0.017783 % > 0 %
Noise (residual) (Channel B)	0.00166 %	< 0.017783 % > 0 %
FFTD 8 Settings: Self relative, 22 Hz - 22 kHz, unweighted with band-reject notch filters, fundamental to the 10th harmonic		

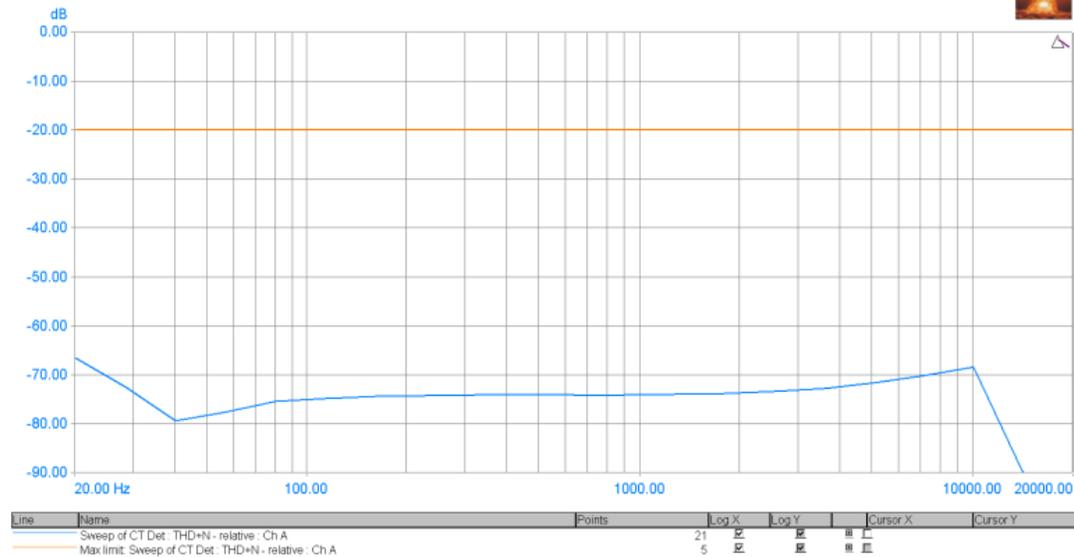
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A05 THD+N vs Freq: PASSED

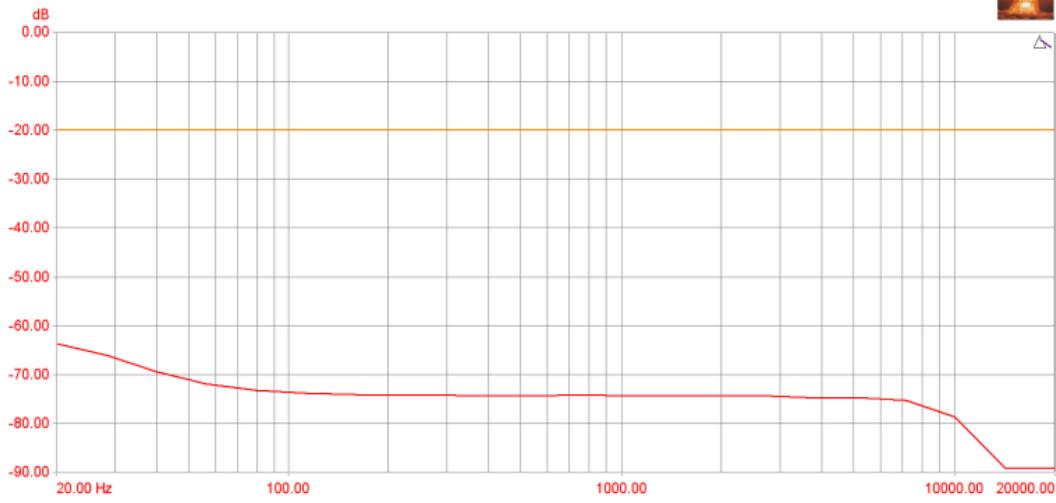
Measured at 2/4/2020 10:19:23 PM

Generator Settings	
Channel A:	sine, 0 dBu at 1000 Hz
Channel B:	sine, 0 dBu at 1000 Hz

THD+N vs Frequency



THD+N vs Frequency



Line	Name	Points	Log X	Log Y	Cursor X	Cursor Y
1	Sweep of CT Det : THD+N - relative : Ch B	21	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Max limit: Sweep of CT Det : THD+N - relative : Ch B	5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

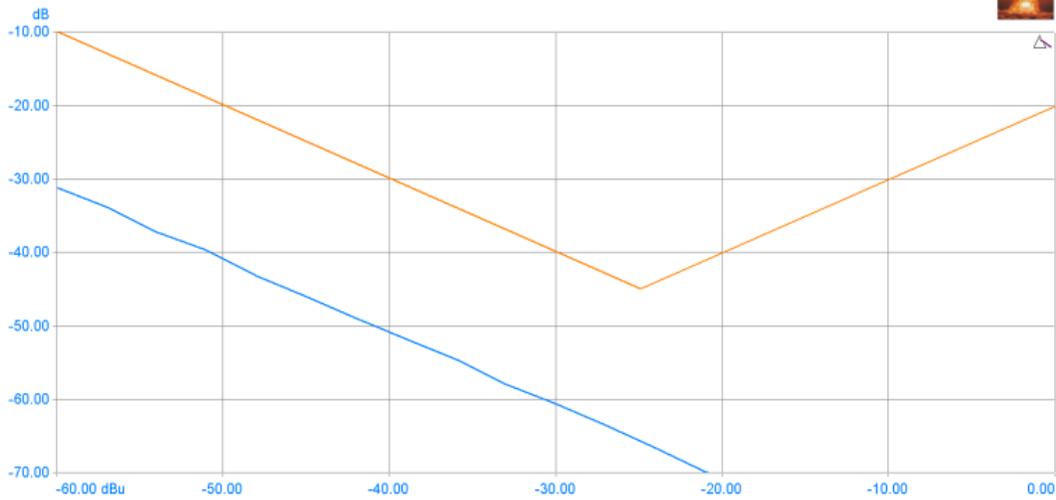
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A06 THD+N vs Ampl: PASSED

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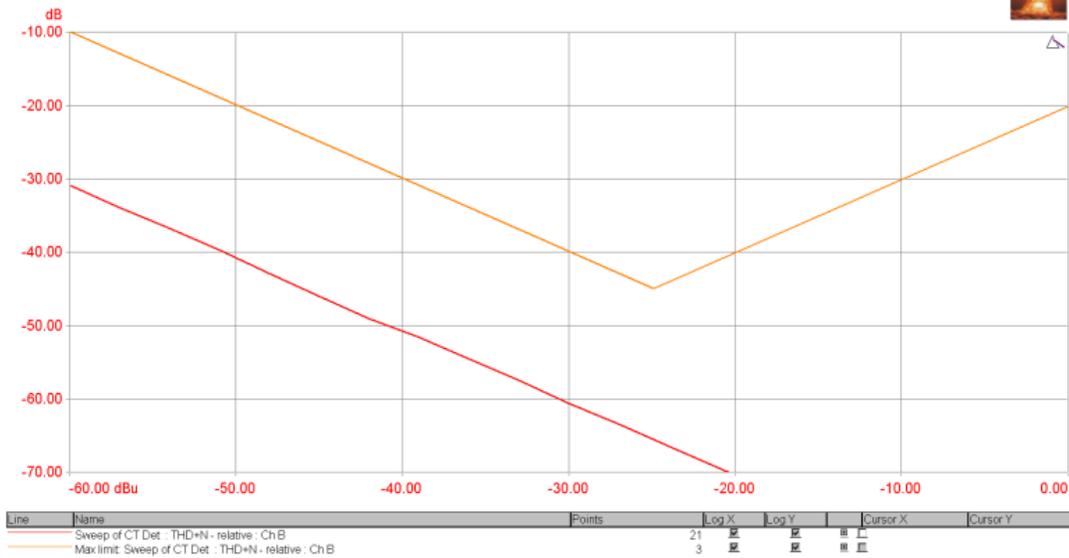
Generator Settings	
Channel A:	sine, 0 dBu at 1000 Hz
Channel B:	sine, 0 dBu at 1000 Hz

THD+N vs Amplitude



Line	Name	Points	Log X	Log Y	Cursor X	Cursor Y
1	Sweep of CT Det : THD+N - relative : Ch A	21	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Max limit: Sweep of CT Det : THD+N - relative : Ch A	3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

THD+N vs Amplitude



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A07 Noise, SNR: PASSED

Measured at 2/4/2020 10:19:42 PM

Generator Settings	
Channel A:	sine, -60 dBFS at 1000 Hz
Channel B:	sine, -60 dBFS at 1000 Hz

FFT Detector Readings		
Noise (unweighted) (Channel A)	-108.673 dBr	< 200 dBr > -200 dBr
Noise (unweighted) (Channel B)	-108.222 dBr	< 200 dBr > -200 dBr
FFTD 1 Settings: 22 Hz - 22 kHz, unweighted with window notch (14 bins) band-reject filter at the generator frequency		
SNR (Channel A)	-109.248 dBr	< 200 dBr > -200 dBr
SNR (Channel B)	-108.821 dBr	< 200 dBr > -200 dBr
FFTD 2 Settings: 22 Hz - 22 kHz, unweighted with 1/3rd octave band-reject filter at the generator frequency		

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A08 Crosstalk A to B: PASSED

Measured at 2/4/2020 10:19:45 PM

Generator Settings	
Channel A:	sine, 0 dBu at 1000 Hz
Channel B:	sine, 0 dBu at 1000 Hz

CTA Readings		
Cross-talk (Channel B RMS)	-76.251 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 2/4/2020 10:19:47 PM

Generator Settings	
Channel A:	sine, 0 dBu at 1000 Hz
Channel B:	sine, 0 dBu at 1000 Hz

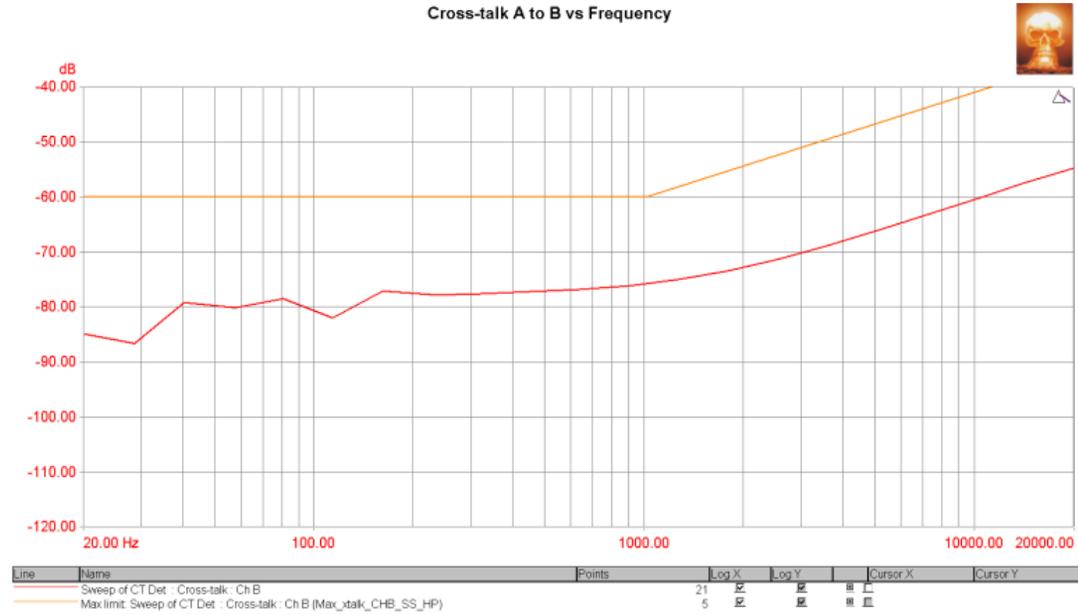
CTA Readings		
Cross-talk (Channel A RMS)	-75.004 dB	< -45 dB
Settings: Channel relative, 22 Hz - 22 kHz, unweighted RMS with 1/24th octave band-pass filter at the opposite channel generator frequency		

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A10 Crosstalk A to B vs Freq: PASSED

Measured at 2/4/2020 10:19:49 PM

Generator Settings	
Channel A:	sine, 0 dBu at 1000 Hz
Channel B:	sine, 0 dBu at 1000 Hz

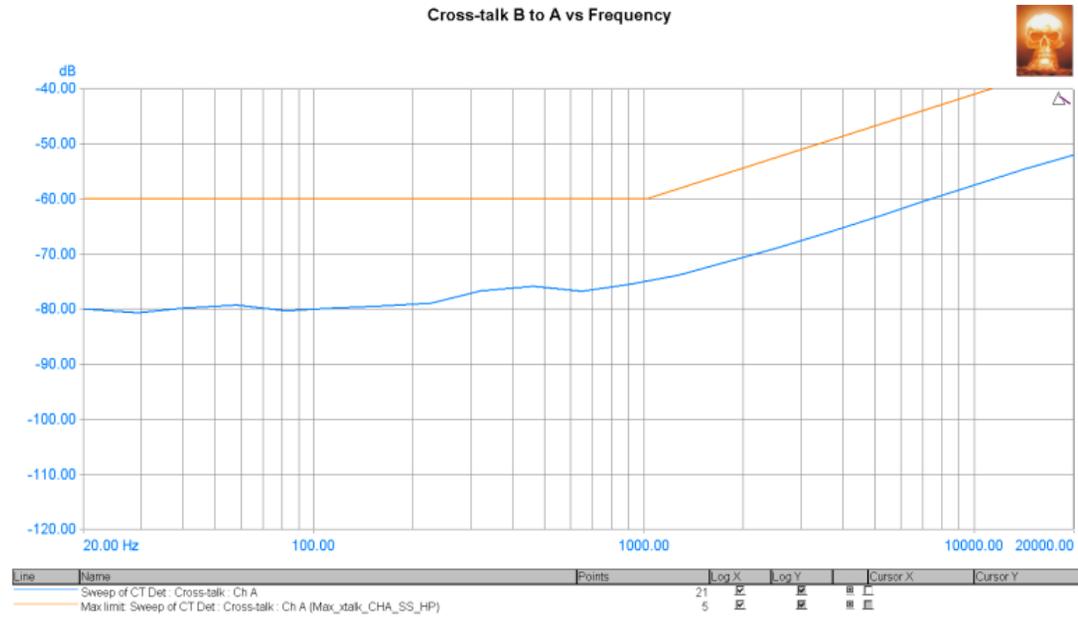


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A11 Crosstalk B to A vs Freq: PASSED

Measured at 2/4/2020 10:19:56 PM

Generator Settings	
Channel A:	sine, 0 dBu at 1000 Hz
Channel B:	sine, 0 dBu at 1000 Hz



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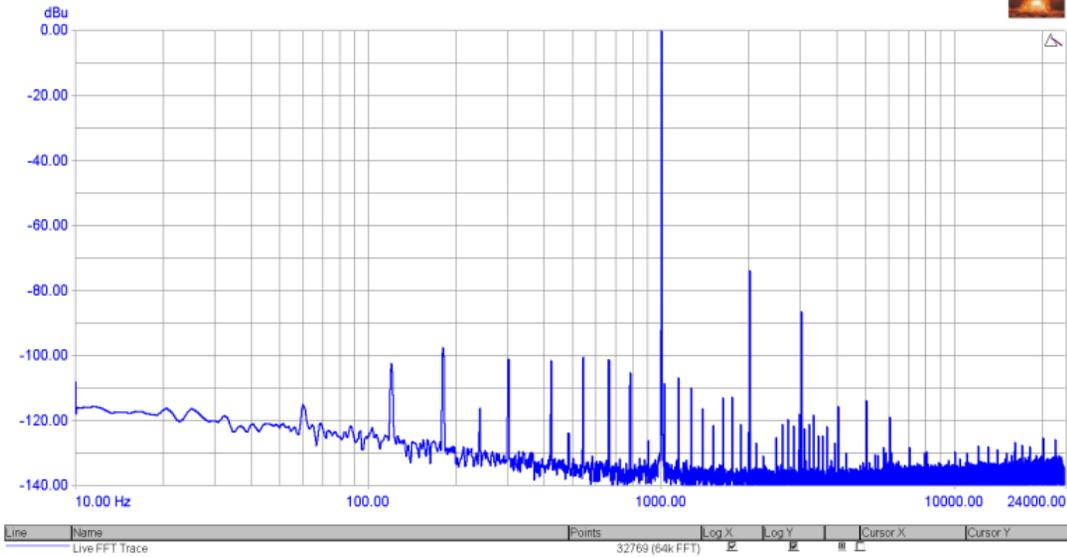
A12 FFT 1000 Hz THD+N: PASSED

Generator Settings	
Channel A:	sine, 0 dBu at 1000 Hz
Channel B:	sine, 0 dBu at 1000 Hz

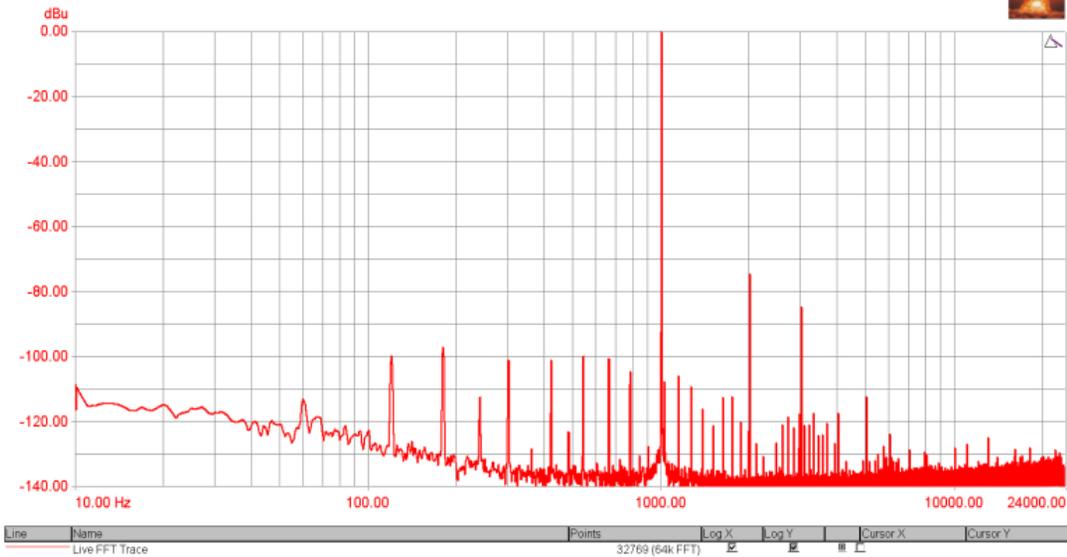
Signal Analyzer Readings		
RMS amplitude (Selected : Ch A)	0.002 dBu	Not limit checked.
RMS amplitude (Non-selected : Ch A)	-0.002 dBu	Not limit checked.

CTA Readings		
THD+N - relative (Selected : Ch ARMS)	0.01972 %	< 5 % > 0 %
THD+N - relative (Non-selected : Ch ARMS)	0.01896 %	< 5 % > 0 %
Settings: Self relative, 22 Hz - 22 kHz, unweighted RMS with 1/3rd octave band-reject filter at the input frequency		

FFT 1000 Hz THD+N



FFT 1000 Hz THD+N

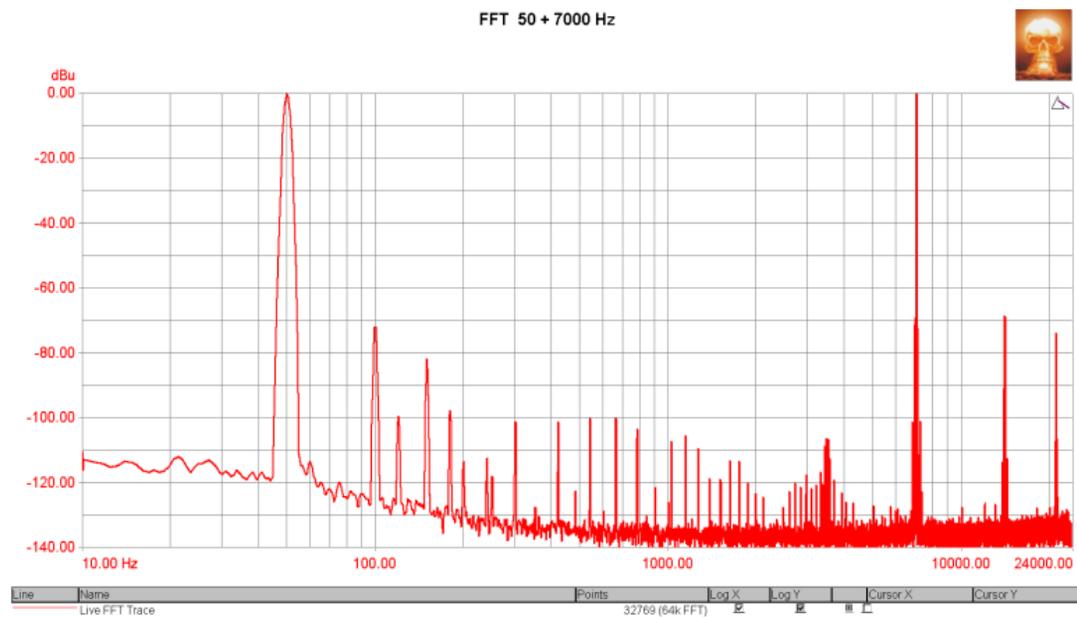
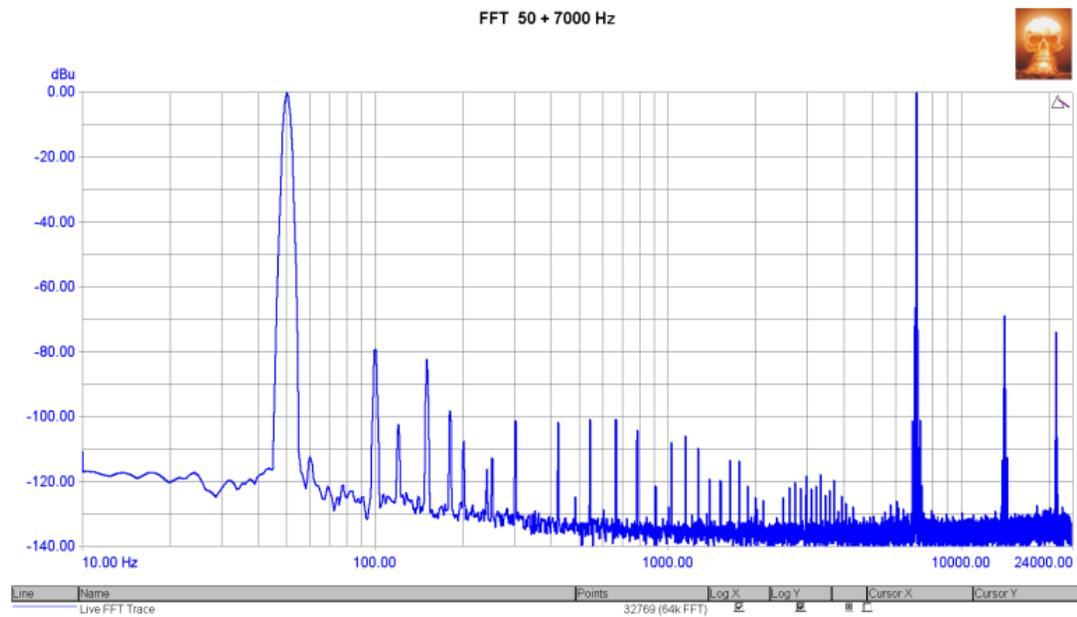


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A13 FFT 50+7000Hz: PASSED

Generator Settings	
Channel A:	Twin-tone, 0 dBu at 50 Hz and 1 amplitude ratio at 7000Hz
Channel B:	Twin-tone, 0 dBu at 50 Hz and 1 amplitude ratio at 7000Hz

Signal Analyzer Readings		
RMS amplitude (Channel A)	2.930 dBu	Not limit checked.
RMS amplitude (Channel B)	2.920 dBu	Not limit checked.



FFT Detector Readings		
IMD SMPTE-DIN (Channel A)	0.05214 %	< 7 % > 0 %
IMD SMPTE-DIN (Channel B)	0.04243 %	< 7 % > 0 %
FFT 1 Settings: Self relative, 22 Hz - 22 kHz, unweighted with intermodulation notch band reject		

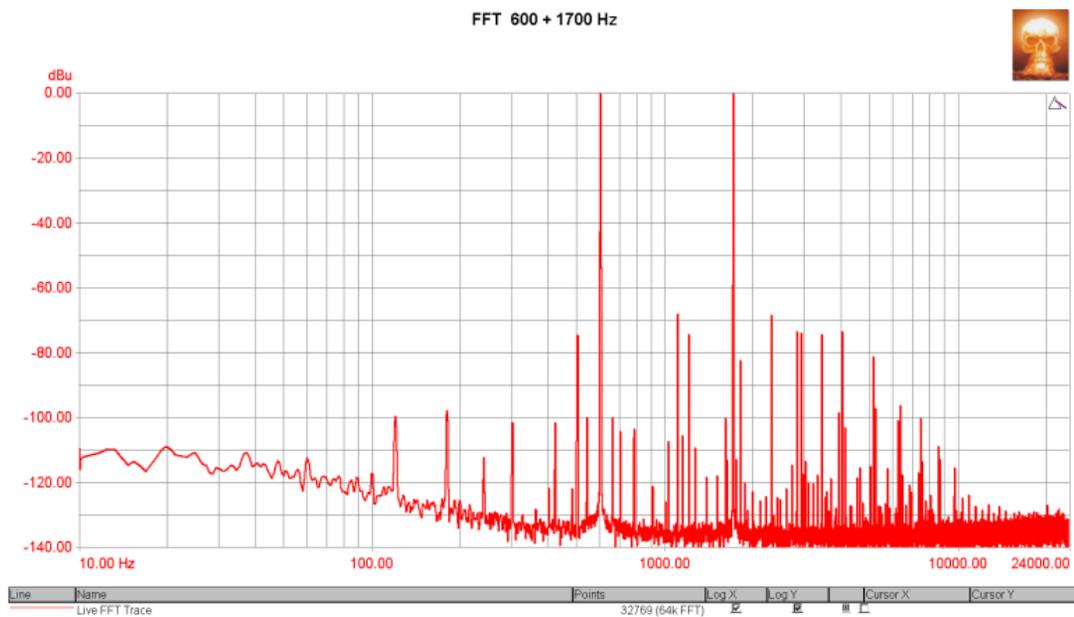
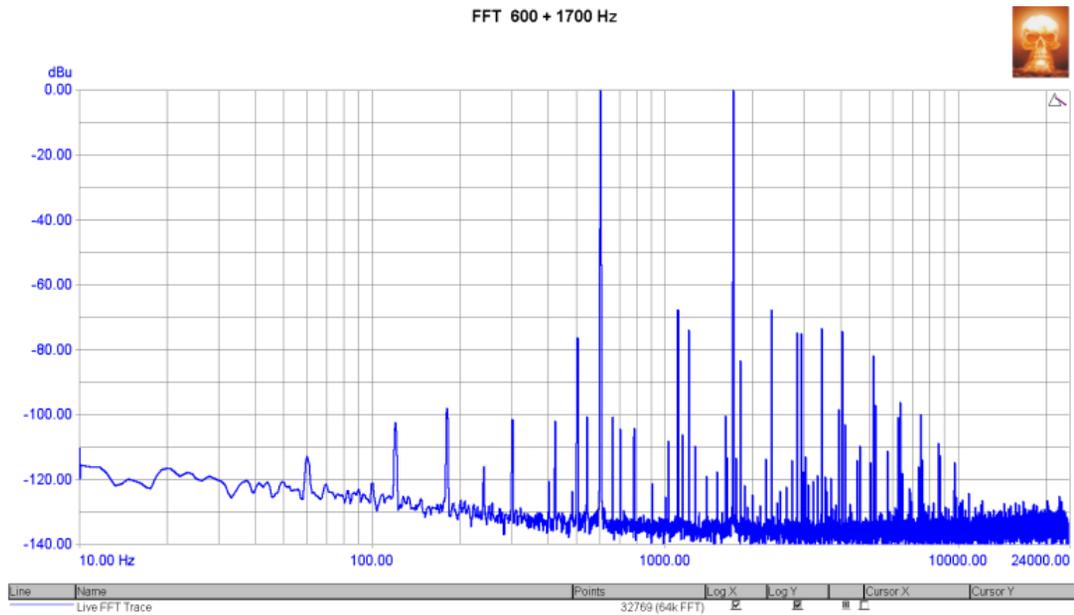
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A14 FFT 600+1700 Hz: PASSED

Measured at 2/4/2020 10:20:48 PM

Generator Settings	
Channel A:	Twin-tone, 0 dBu at 600 Hz and 1 amplitude ratio at 1700Hz
Channel B:	Twin-tone, 0 dBu at 600 Hz and 1 amplitude ratio at 1700Hz

Signal Analyzer Readings		
RMS amplitude (Channel A)	2.992 dBu	Not limit checked.
RMS amplitude (Channel B)	2.989 dBu	Not limit checked.



FFT Detector Readings		
IMD SMPTE-DIN (Channel A)	0.04362 %	< 7 % > 0 %
IMD SMPTE-DIN (Channel B)	0.04112 %	< 7 % > 0 %
FFT 1 Settings: Self relative, 22 Hz - 22 kHz, unweighted with intermodulation notch band reject		

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A15 FFT 19+20 KHz: PASSED

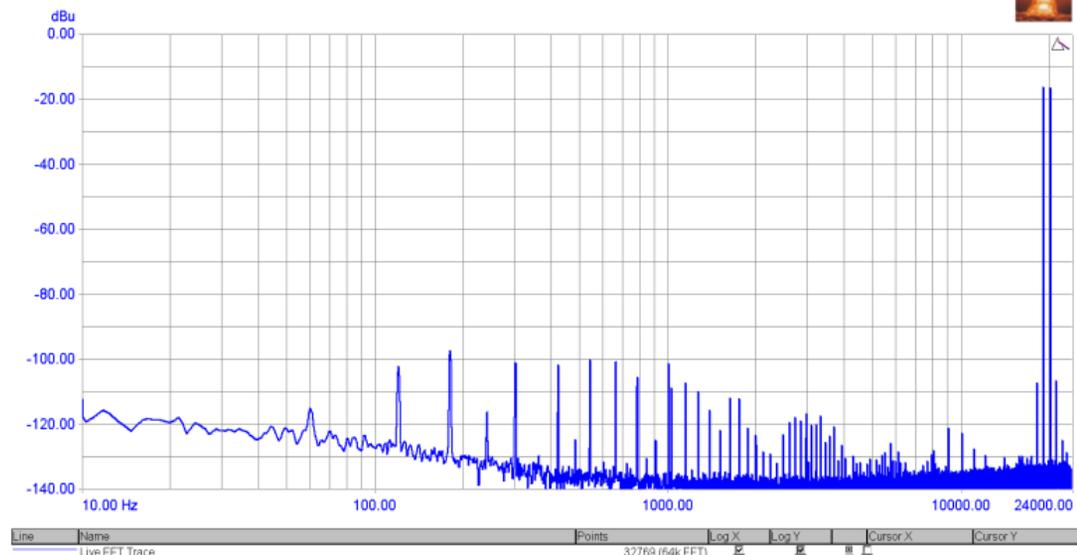
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Generator Settings	
Channel A:	Twin-tone, -16 dBu at 19000 Hz and 1 amplitude ratio at 1000 Hz offset
Channel B:	Twin-tone, -16 dBu at 19000 Hz and 1 amplitude ratio at 1000 Hz offset

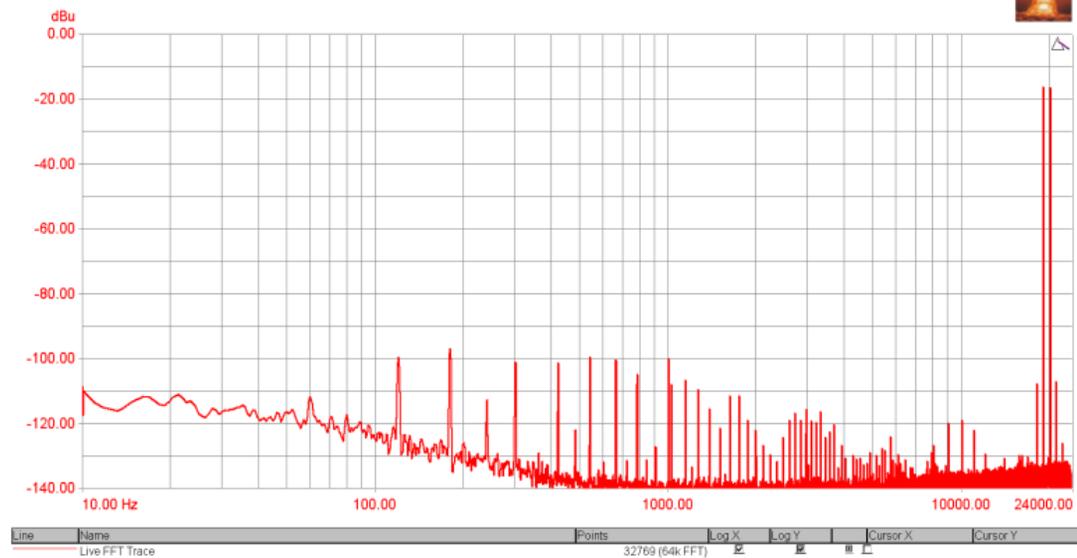
Signal Analyzer Readings		
RMS amplitude (Channel A)	-13.240 dBu	Not limit checked.
RMS amplitude (Channel B)	-13.235 dBu	Not limit checked.

CTA Readings		
IMD CCIF (Channel A RMS)	0.00409 %	< 1 %
IMD CCIF (Channel B RMS)	0.00485 %	< 1 %
Settings: Self relative, 22 Hz - 22 kHz, unweighted RMS with 1/24th octave band-pass filter at the intermodulation difference frequency		

FFT 19 + 20 KHz



FFT 19 + 20 KHz



FFT Detector Readings		
IMD CCIF (Channel A)	0.00394 %	< 1 %
IMD CCIF (Channel B)	0.00457 %	< 1 %
FFT 1 Settings: Self relative, 22 Hz - 22 kHz, unweighted with window notch (14 bins) band-pass filter at the intermodulation difference frequency		

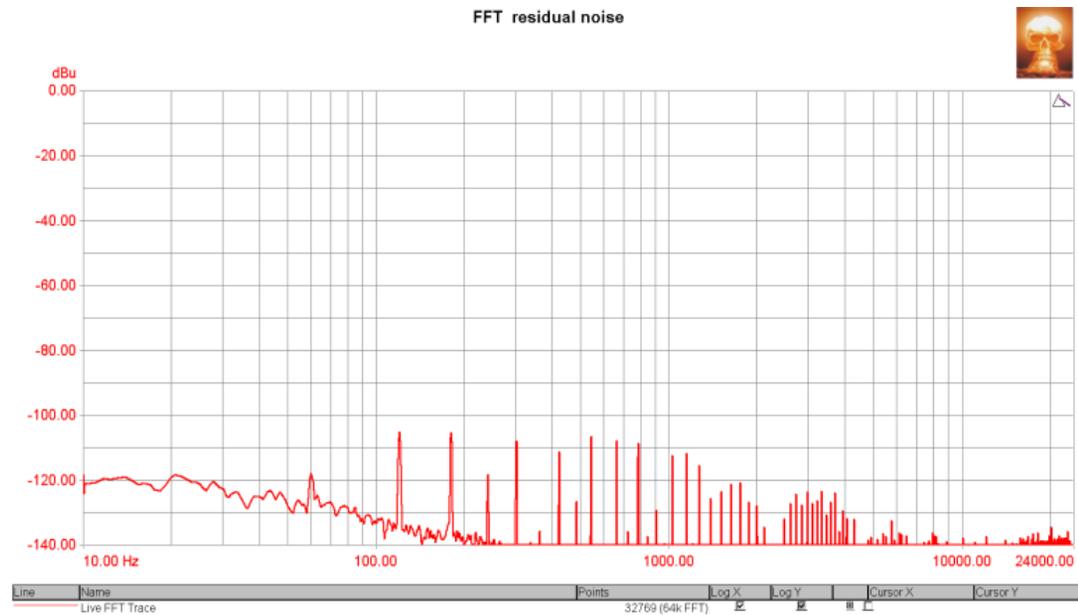
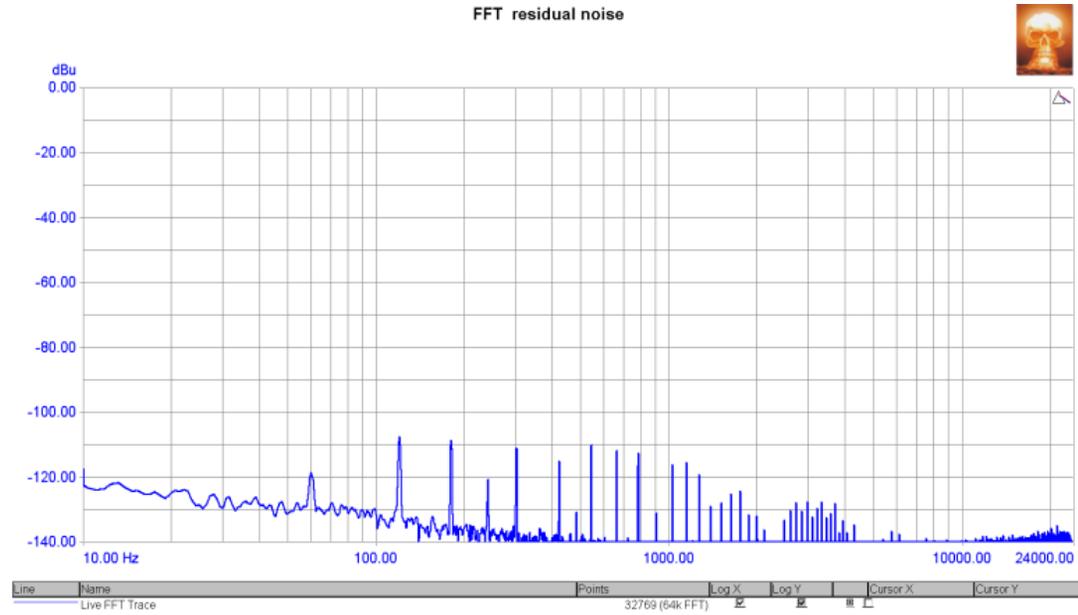
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A16 FFT residual noise: PASSED

Measured at 2/4/2020 10:21:34 PM

Generator Settings	
Channel A:	Off
Channel B:	Off

Signal Analyzer Readings		
RMS amplitude (Channel A)	-91.540 dBu	Not limit checked.
RMS amplitude (Channel B)	-89.777 dBu	Not limit checked.



FFT Detector Readings		
Noise (residual) (Channel A)	-98.368 dBu	< -80 dBu > -140 dBu
Noise (residual) (Channel B)	-96.630 dBu	< -80 dBu > -140 dBu

FFTD 1 Settings: 22 Hz - 22 kHz, unweighted with band-reject notch filters, fundamental to the 10th harmonic