

# SW51+ 30R low Z 0dBu TESTS 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, X = Test fails, OK = Test has run but has no limit checking, (X) = 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.

[Back to top](#)

## A01 Ampl, Phase, Gain: PASSED

Measured at 9/29/2019 7:34:16 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)	-0.205 dBu	< 3 dBu > -3 dBu
RMS amplitude (Channel B)	0.109 dBu	< 3 dBu > -3 dBu
Inter-channel phase	0.03 °	< 10 ° > -10 °

CTA Readings		
Gain (Channel A RMS)	-0.208 dB	< 3 dB > -3 dB
Gain (Channel B RMS)	0.106 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		

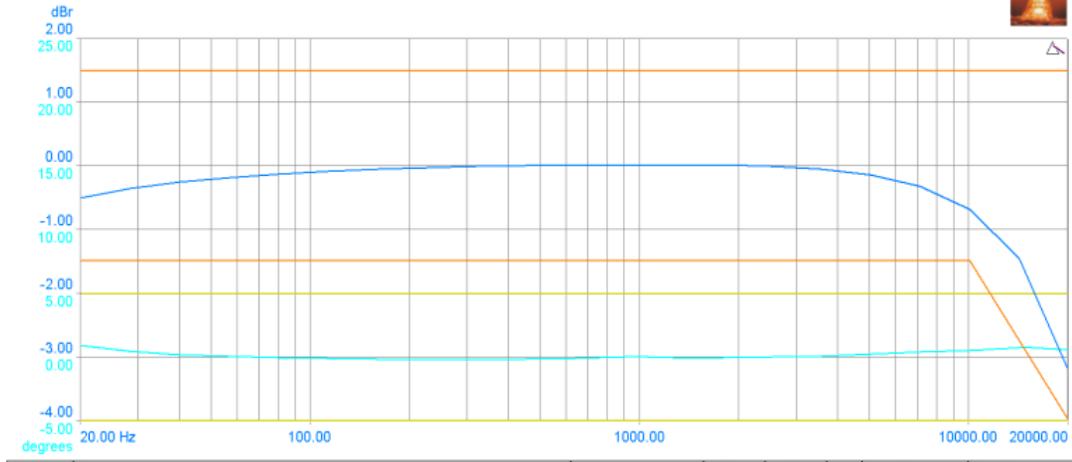
[Back to top](#)

## A02 Ampl, Phase vs Freq: PASSED

Measured at 9/29/2019 7:36:17 PM

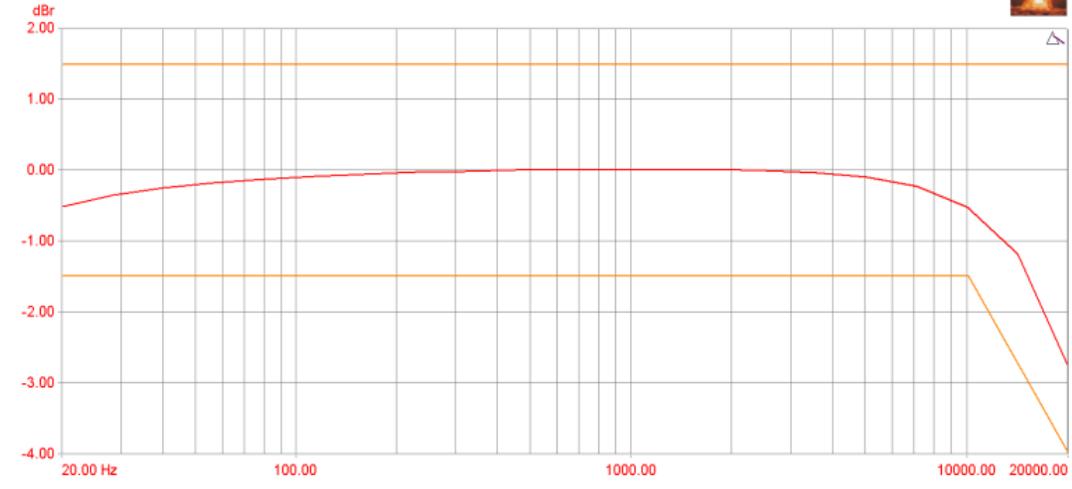
Generator Settings	
Channel A:	sine, -3 dBFS at 1000 Hz
Channel B:	sine, -3 dBFS at 1000 Hz

Frequency Response and Inter-channel Phase



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

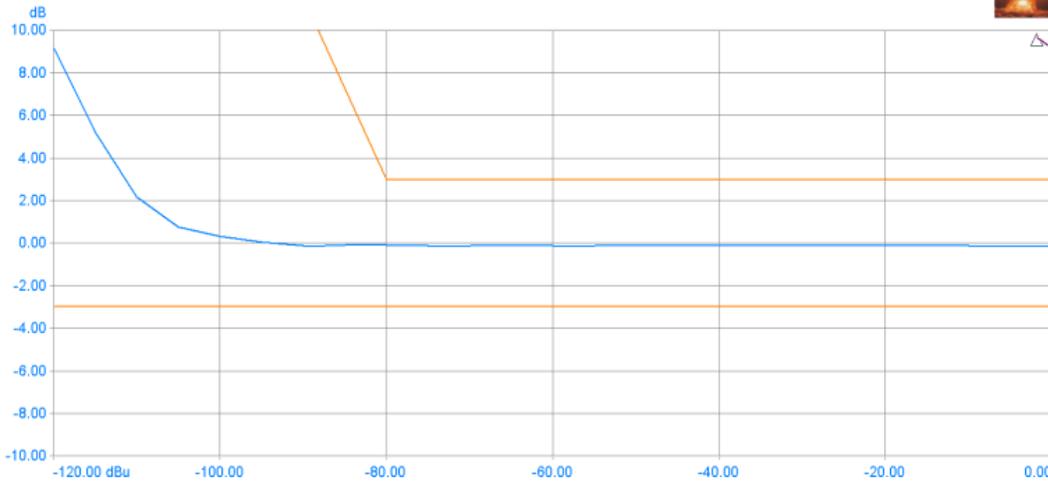
[Back to top](#)

A03 Gain vs Ampl: **PASSED**

Measured at 9/29/2019 7:36:29 PM

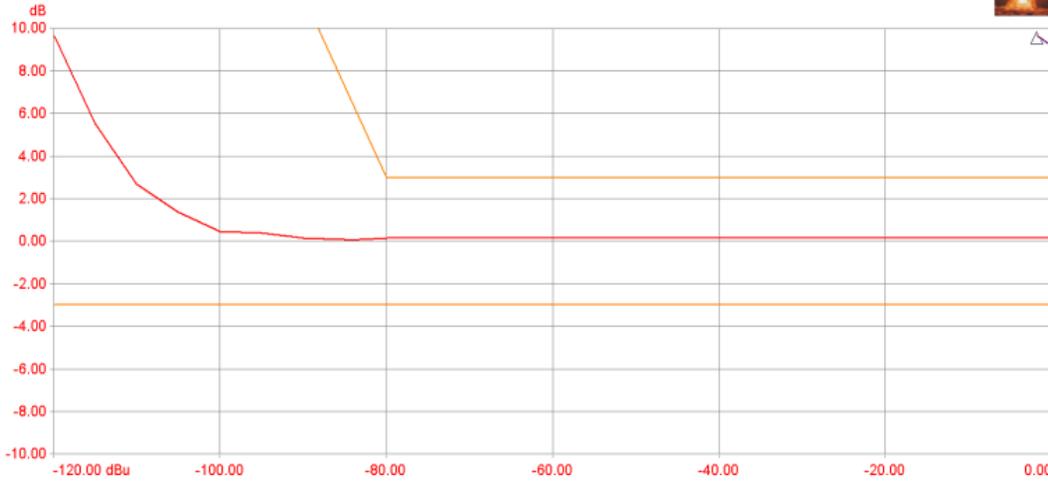
Generator Settings	
Channel A:	sine, 0 dBu at 1000 Hz
Channel B:	sine, 0 dBu at 1000 Hz

Gain vs Amplitude



Line	Name	Points	Log X	Log Y	Cursor X	Cursor Y
—	Sweep of CT Det : Gain : Ch A	25	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
—	Max limit Sweep of CT Det : Gain : Ch A	3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
—	Min limit Sweep of CT Det : Gain : Ch A	3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Gain vs Amplitude



Line	Name	Points	Log X	Log Y	Cursor X	Cursor Y
—	Sweep of CT Det : Gain : Ch B	25	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
—	Max limit Sweep of CT Det : Gain : Ch B	3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
—	Min limit Sweep of CT Det : Gain : Ch B	3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

[Back to top](#)

A04 THD+N,THD, nth-HD 2 3 4 - THD+N minus 2nd and 3rd harmonics: **PASSED**

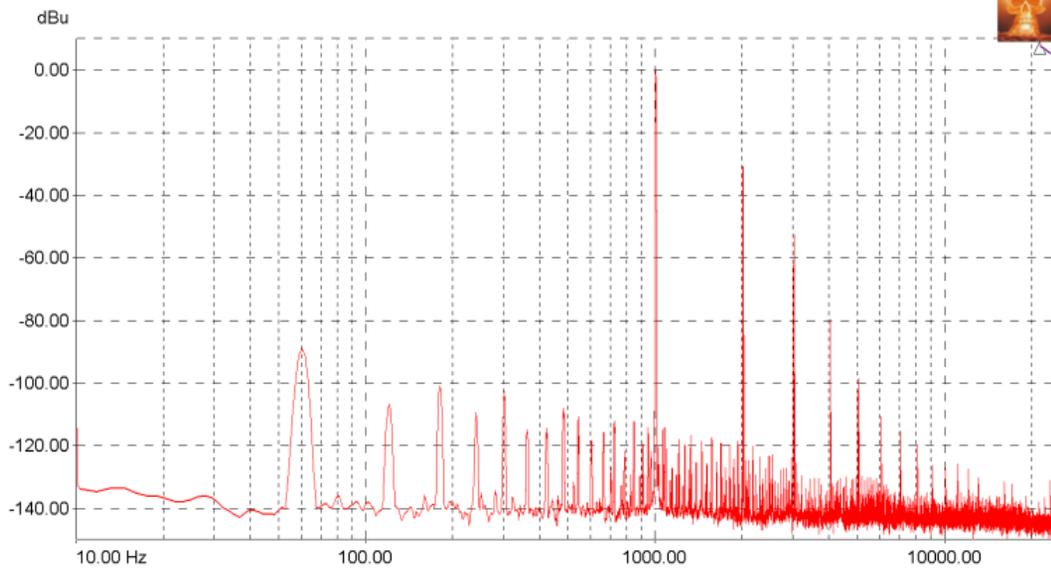
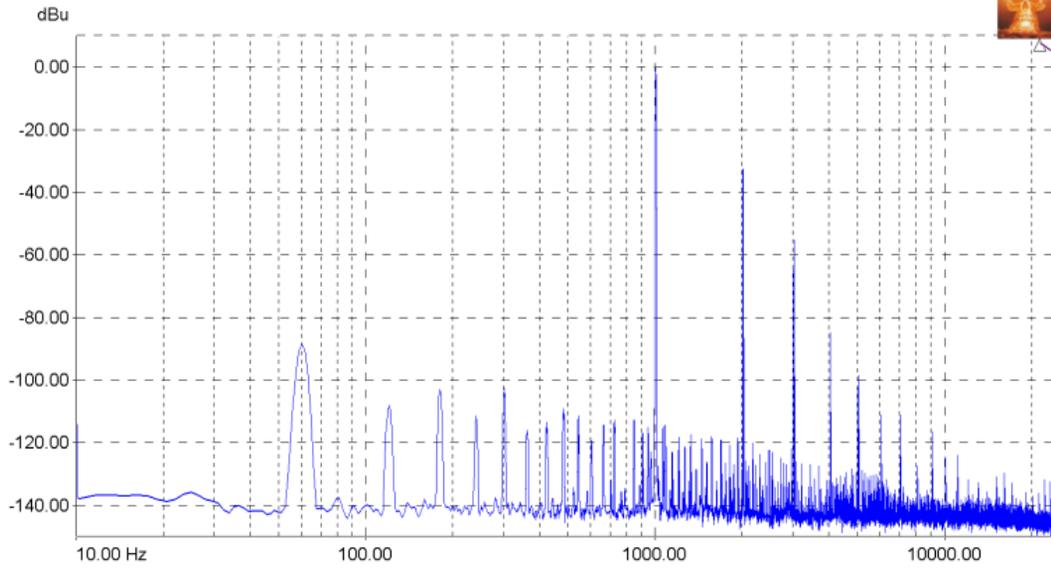
Measured at 9/29/2019 7:38:37 PM

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)	<b>-0.201 dBu</b>	Not limit checked.
RMS amplitude (Channel B)	<b>0.114 dBu</b>	Not limit checked.

CTA Readings		
THD+N - relative (Channel A RMS)	<b>2.26317 %</b>	< 200 % > 0 %
THD+N - relative (Channel B RMS)	<b>2.69996 %</b>	< 200 % > 0 %

Settings: Self relative, 22 Hz - 22 kHz, unweighted RMS with 1/3rd octave band-reject filter at the input frequency



FFT Detector Readings		
THD (Channel A)	2.42829 %	< 200 % > 0 %
THD (Channel B)	2.89282 %	< 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)	2.42237 %	< 200 % > 0 %
2nd Harmonic Distortion (Channel B)	2.88421 %	< 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)	0.16928 %	< 200 % > 0 %
3rd Harmonic Distortion (Channel B)	0.22284 %	< 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)	0.00582 %	Not limit checked.
4th Harmonic Distortion (Channel B)	0.01041 %	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)	0.00119 %	Not limit checked.
5th Harmonic Distortion (Channel B)	0.00116 %	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)	0.00718 %	< 0.05 % > 0 %
4+HD + N (Channel B)	0.01115 %	< 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)	0.00370 %	< 0.017783 % > 0 %
Hum (Channel B)	0.00342 %	< 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)	0.00400 %	< 0.017783 % > 0 %
Noise (residual) (Channel B)	0.00379 %	< 0.017783 % > 0 %
FFTD 8 Settings: Self relative, 22 Hz - 22 kHz, unweighted with band-reject notch filters, fundamental to the 10th harmonic		

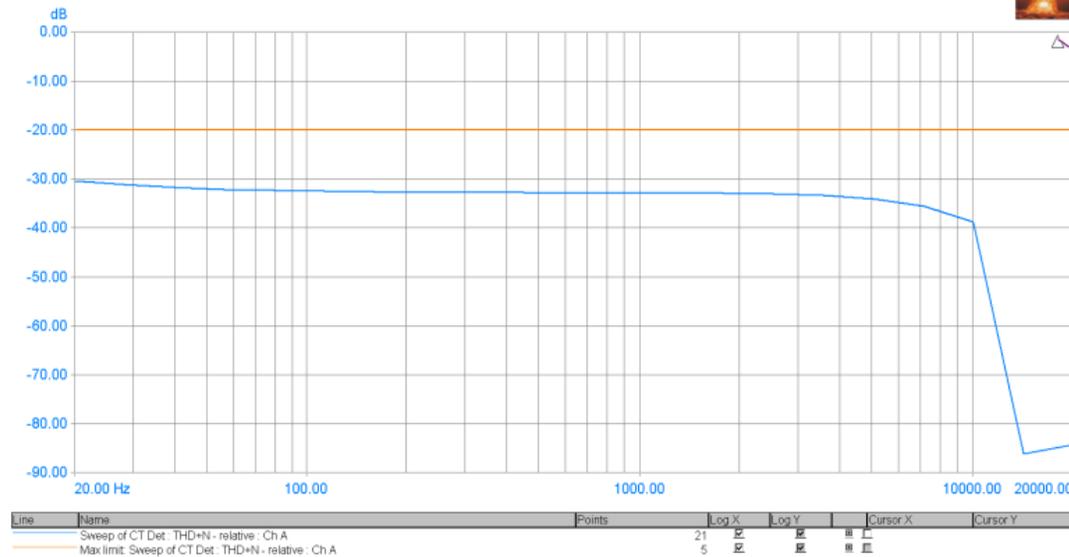
[Back to top](#)

### A05 THD+N vs Freq: PASSED

Measured at 9/29/2019 7:43:29 PM

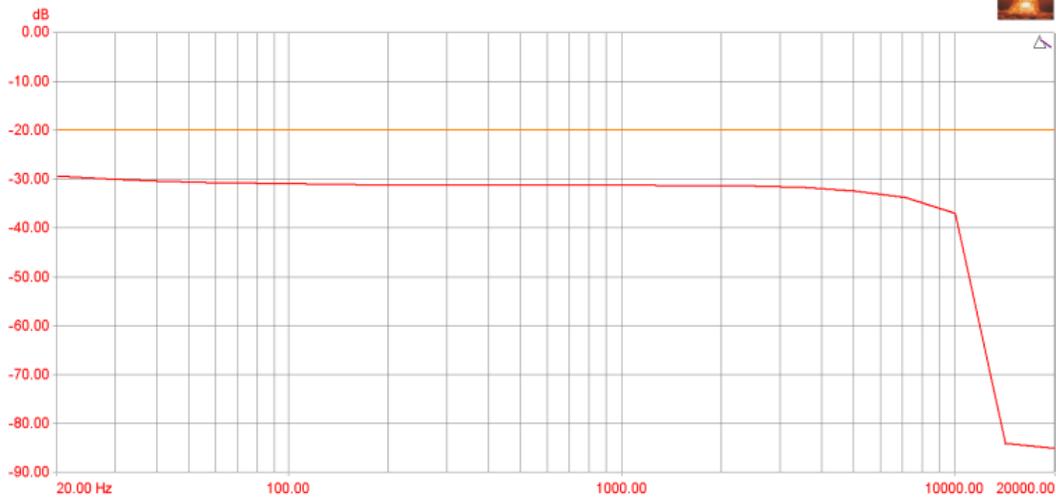
Generator Settings	
Channel A:	sine, 0 dBu at 1000 Hz
Channel B:	sine, 0 dBu at 1000 Hz

THD+N vs Frequency



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"/>		
2	Max limit: Sweep of CT Det: THD+N - relative: Ch A	5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		

### 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"/>

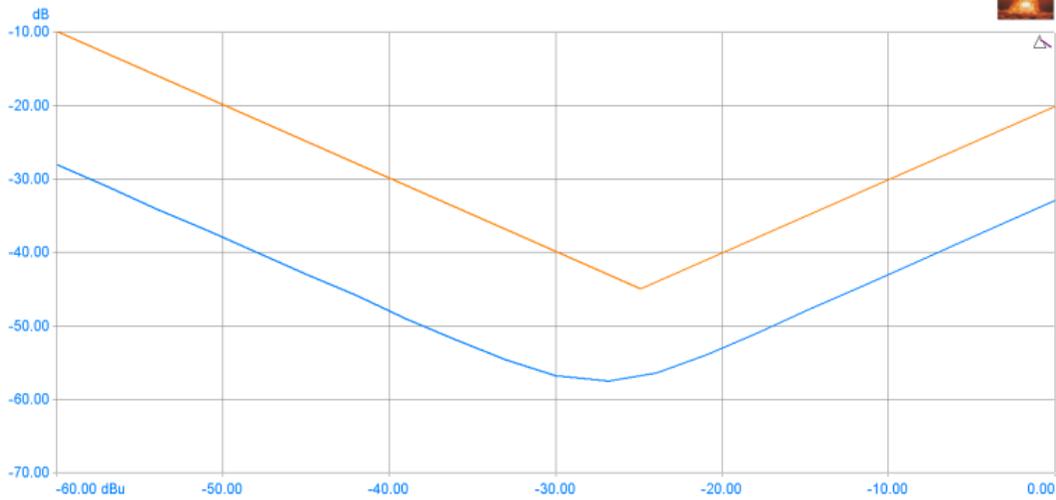
[Back to top](#)

### A06 THD+N vs Ampl: PASSED

Measured at 9/29/2019 7:48:25 PM

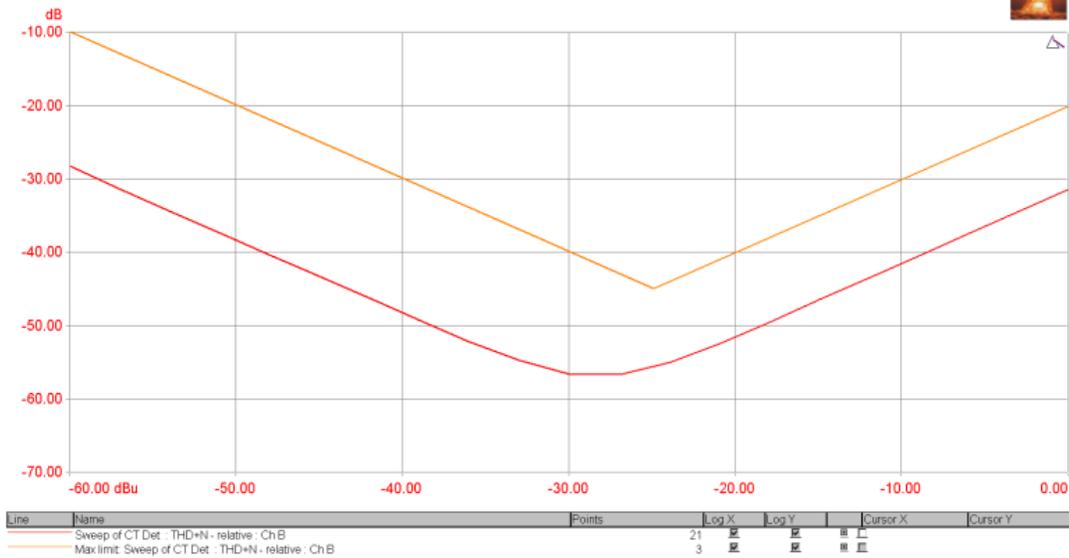
Generator Settings	
Channel A:	sine, 0 dBu at 1000 Hz
Channel B:	sine, 0 dBu at 1000 Hz

### 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



[Back to top](#)

### A07 Noise, SNR: PASSED

Measured at 9/29/2019 7:48:41 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)	-106.225 dBr	< 200 dBr > -200 dBr
Noise (unweighted) (Channel B)	-106.204 dBr	< 200 dBr > -200 dBr
FFT 1 Settings: 22 Hz - 22 kHz, unweighted with window notch (14 bins) band-reject filter at the generator frequency		
SNR (Channel A)	-106.299 dBr	< 200 dBr > -200 dBr
SNR (Channel B)	-106.276 dBr	< 200 dBr > -200 dBr
FFT 2 Settings: 22 Hz - 22 kHz, unweighted with 1/3rd octave band-reject filter at the generator frequency		

[Back to top](#)

### A08 Crosstalk A to B: PASSED

Measured at 9/29/2019 7:48:56 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)	-77.646 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		

[Back to top](#)

### A09 Crosstalk B to A: PASSED

Measured at 9/29/2019 7:50:15 PM

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

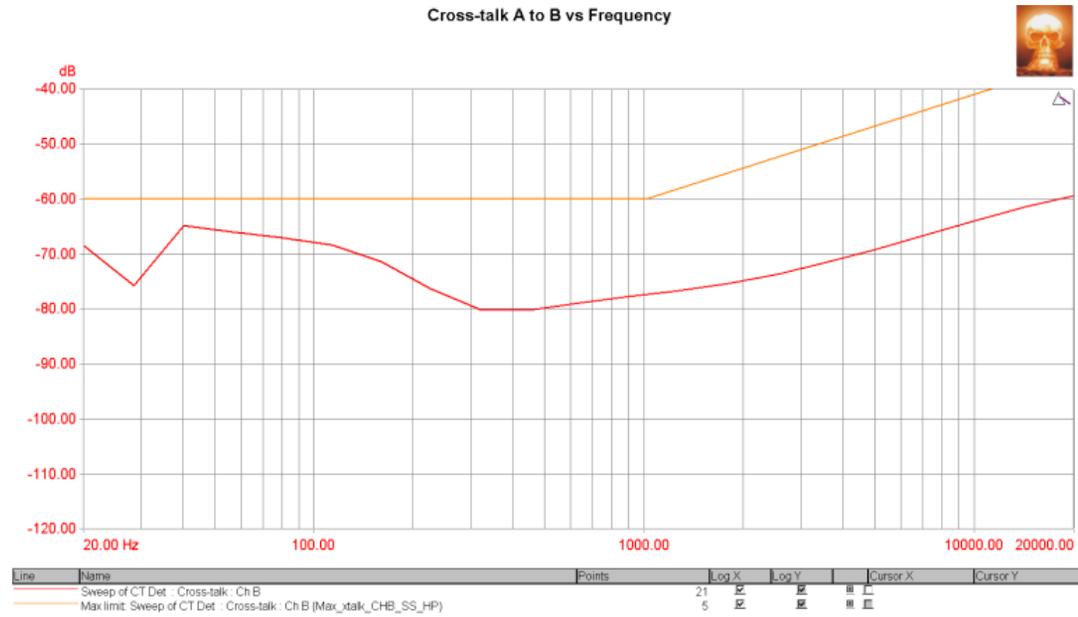
CTA Readings		
Cross-talk (Channel A RMS)	-77.178 dB	< -45 dB
Settings: Channel relative, 22 Hz - 22 kHz, unweighted RMS with 1/24th octave band-pass filter at the opposite channel generator frequency		

[Back to top](#)

A10 Crosstalk A to B vs Freq: PASSED

Measured at 9/29/2019 7:52:20 PM

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

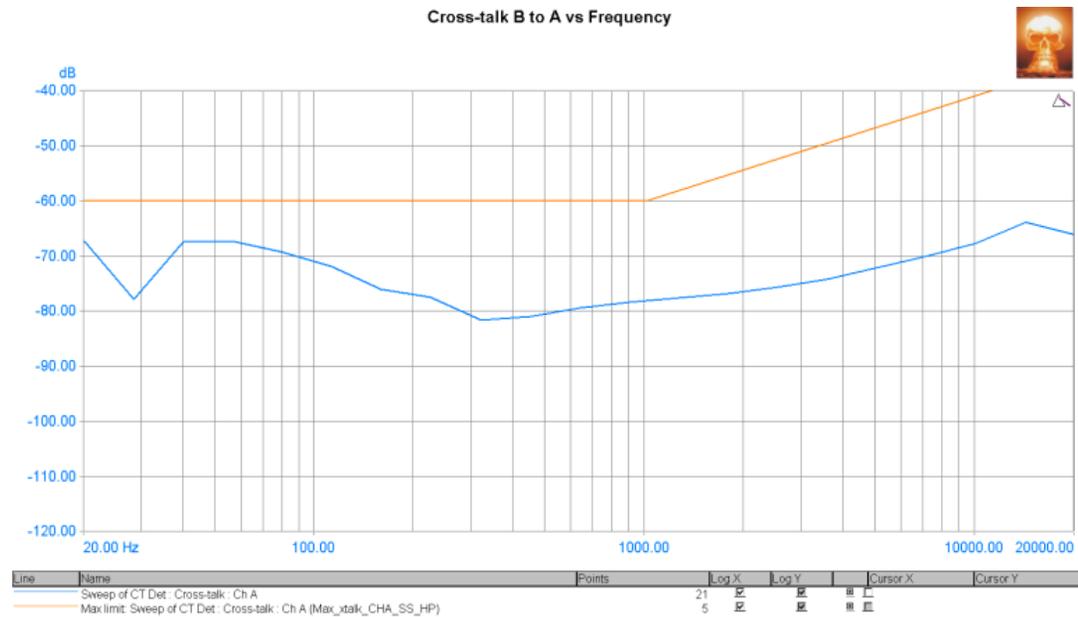


[Back to top](#)

A11 Crosstalk B to A vs Freq: PASSED

Measured at 9/29/2019 7:51:26 PM

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



[Back to top](#)

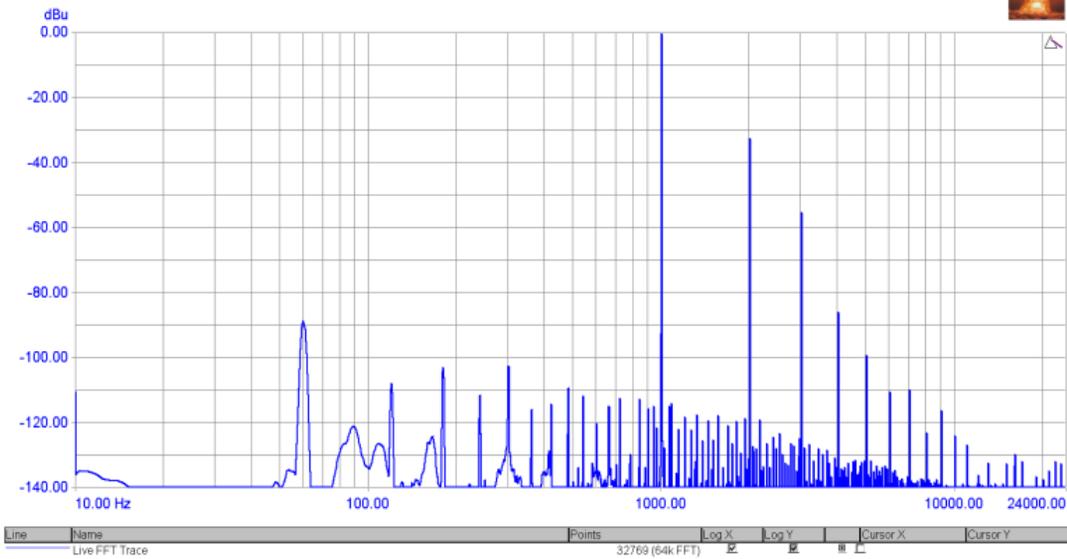
A12 FFT 1000 Hz THD+N: PASSED

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

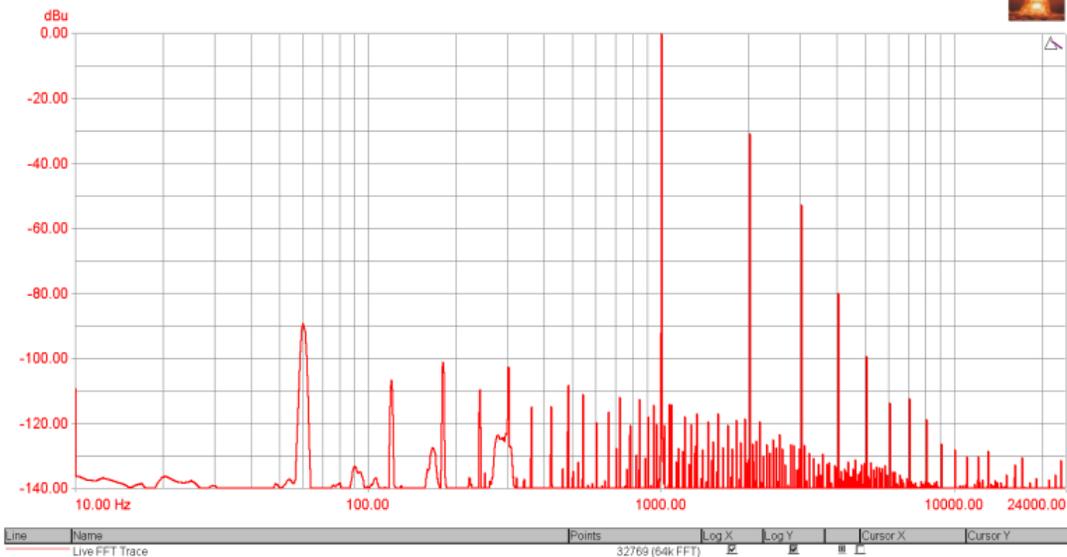
Signal Analyzer Readings		
RMS amplitude (Selected : Ch A)	-0.203 dBu	Not limit checked.
RMS amplitude (Non-selected : Ch A)	0.115 dBu	Not limit checked.

CTA Readings		
THD+N - relative (Selected : Ch ARMS)	2.26946 %	< 5 % > 0 %
THD+N - relative (Non-selected : Ch ARMS)	2.70594 %	< 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

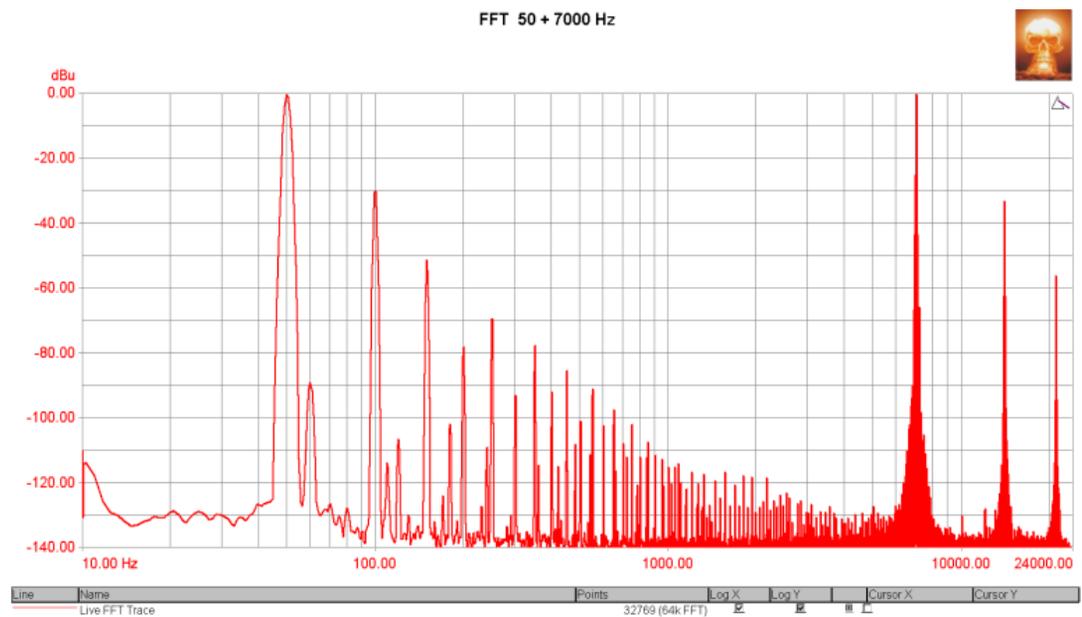
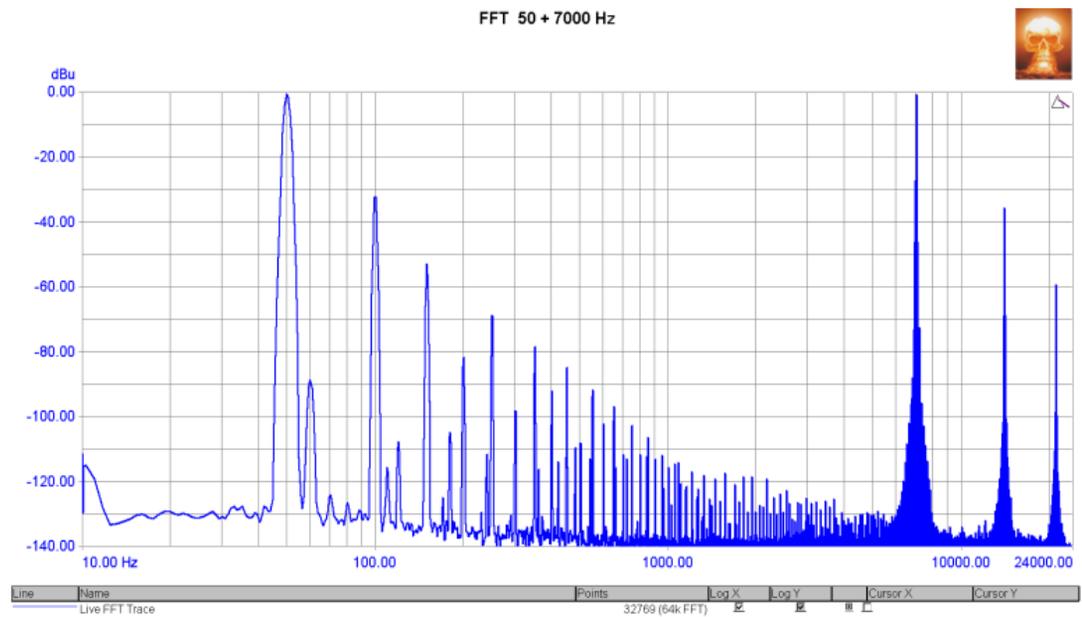


[Back to top](#)

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)	2.477 dBu	Not limit checked.
RMS amplitude (Channel B)	2.825 dBu	Not limit checked.



FFT Detector Readings		
IMD SMPTE-DIN (Channel A)	4.53337 %	< 7 % > 0 %
IMD SMPTE-DIN (Channel B)	5.51678 %	< 7 % > 0 %
FFT1 1 Settings: Self relative, 22 Hz - 22 kHz, unweighted with intermodulation notch band reject		

[Back to top](#)

**A14 FFT 600+1700 Hz: PASSED**

Measured at 9/29/2019 7:56:05 PM

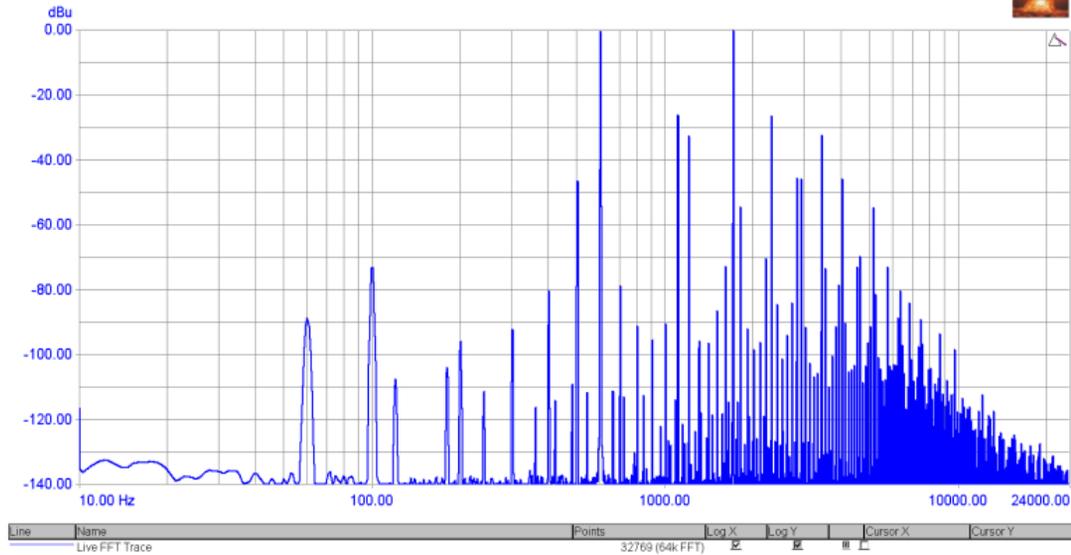
**Generator Settings**

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

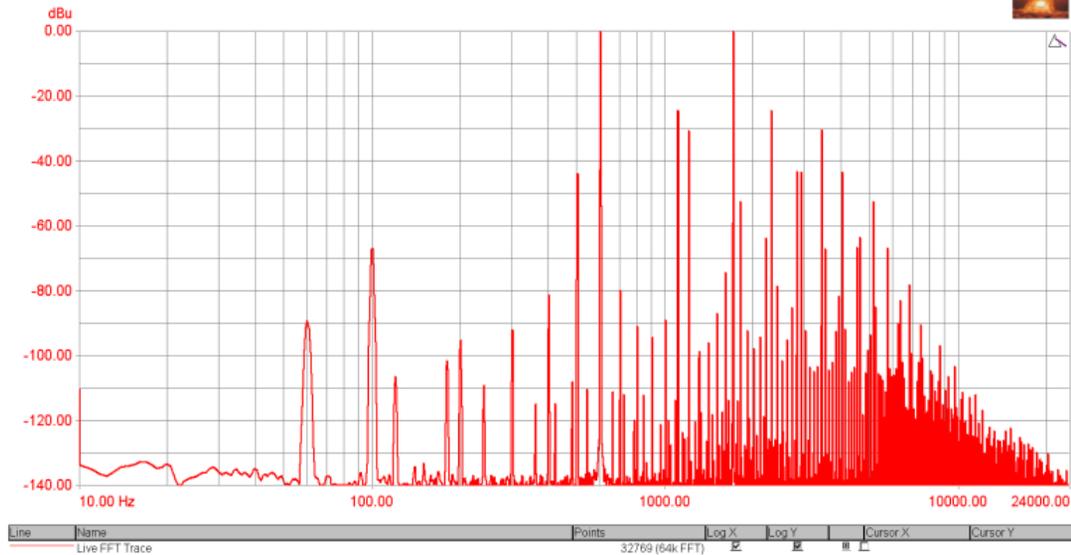
**Signal Analyzer Readings**

RMS amplitude (Channel A)	2.724 dBu	Not limit checked.
RMS amplitude (Channel B)	3.019 dBu	Not limit checked.

FFT 600 + 1700 Hz



FFT 600 + 1700 Hz



**FFT Detector Readings**

IMD SMPTE-DIN (Channel A)	5.26866 %	< 7 % > 0 %
IMD SMPTE-DIN (Channel B)	6.34048 %	< 7 % > 0 %
FFTD 1 Settings: Self relative, 22 Hz - 22 kHz, unweighted with intermodulation notch band reject		

[Back to top](#)

**A15 FFT 19+20 KHz: PASSED**

Measured at 10/7/2019 11:10:46 AM

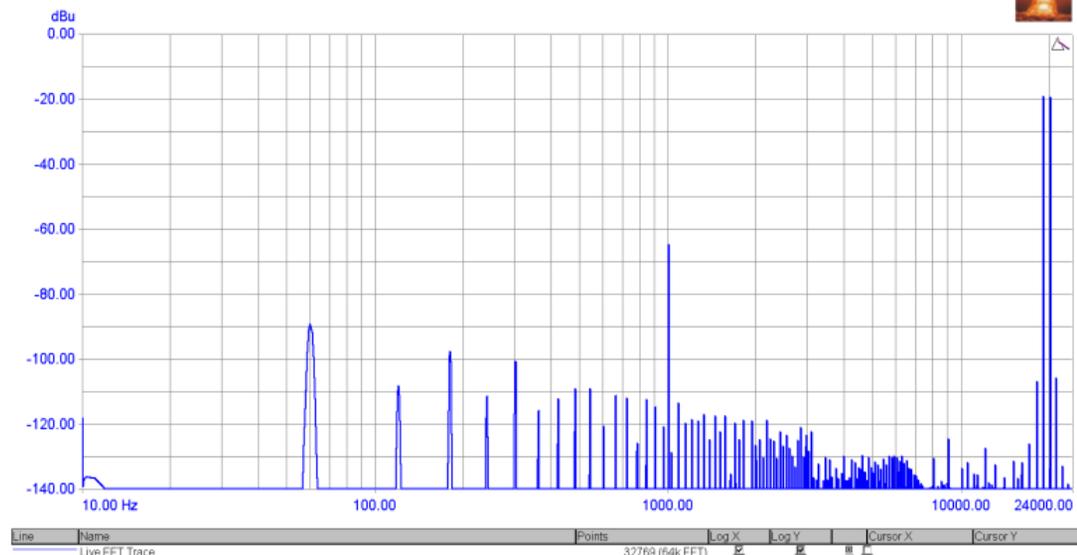
Generator Settings	
Channel A:	Twin-tone, -16 dBu at 19000 Hz and 1 amplitude ratio at 1000 Hz offset
Channel B:	Twin-tone, -16 dBu at 19000 Hz and 1 amplitude ratio at 1000 Hz offset

Signal Analyzer Readings		
RMS amplitude (Channel A)	-16.117 dBu	Not limit checked.
RMS amplitude (Channel B)	-15.328 dBu	Not limit checked.

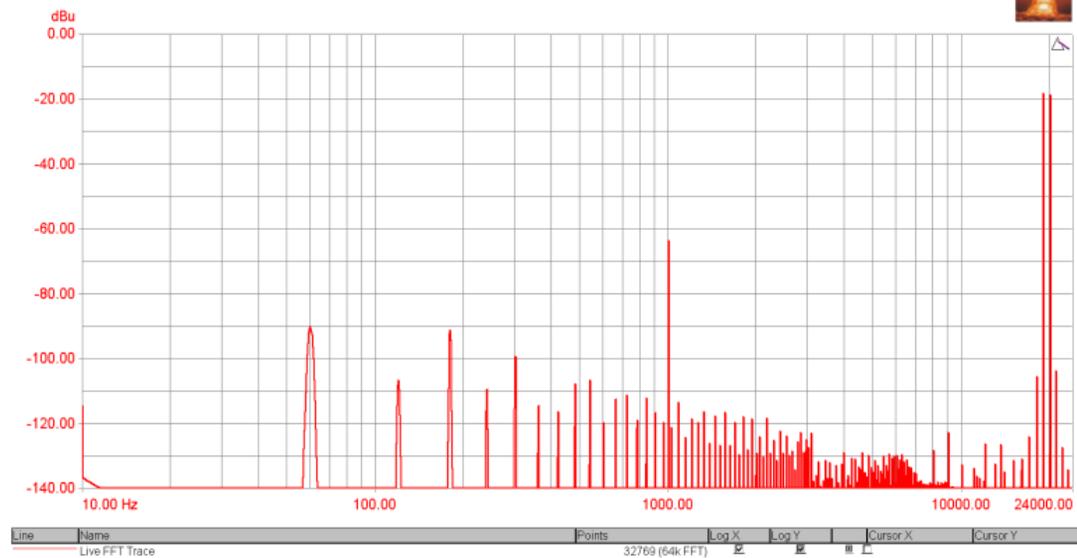
CTA Readings		
IMD CCIF (Channel A RMS)	0.37586 %	< 1 %
IMD CCIF (Channel B RMS)	0.39456 %	< 1 %

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)	0.37655 %	< 1 %
IMD CCIF (Channel B)	0.39418 %	< 1 %

FFT 1 Settings: Self relative, 22 Hz - 22 kHz, unweighted with window notch (14 bins) band-pass filter at the intermodulation difference frequency

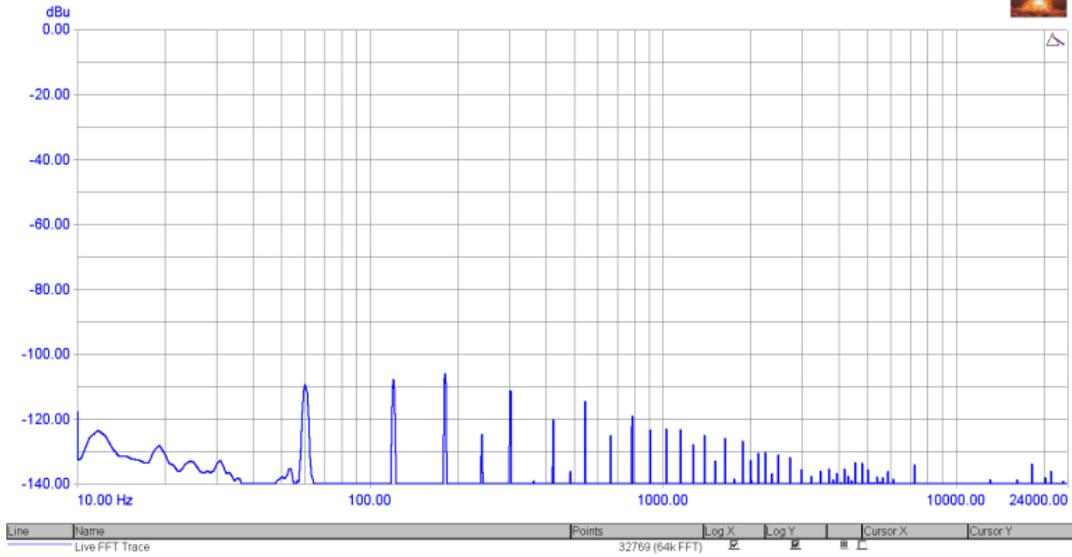
A16 FFT residual noise: PASSED

Measured at 9/29/2019 7:58:08 PM

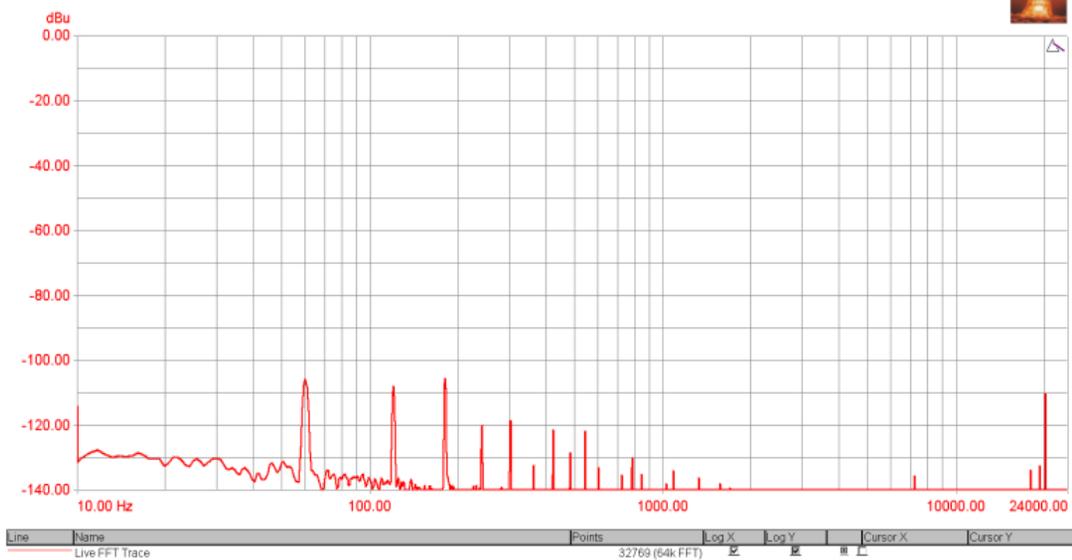
Generator Settings	
Channel A:	Off
Channel B:	Off

Signal Analyzer Readings		
RMS amplitude (Channel A)	-100.421 dBu	Not limit checked.
RMS amplitude (Channel B)	-97.383 dBu	Not limit checked.

FFT residual noise



FFT residual noise



FFT Detector Readings		
Noise (residual) (Channel A)	-100.661 dBu	< -80 dBu > -140 dBu
Noise (residual) (Channel B)	-100.107 dBu	< -80 dBu > -140 dBu

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