Leq Documentation V1.1

Leq

😫 Leq32 - (sine100)						1
Signal	Proces	s List				
Channel Add >>	[0]	Ch 1	AWgt A\u(at	60.0s	Int	
[U] Lh I [1] Leq	111	Leq	Awgi	60.05	Inc	
Select All						
Clear						
Selected Duration : 60.000s						
Find Time : 60.000s						
Apply Weighting Channel Scaling	Sele	ect All	Clear		Delete	
C None		dit				
Awt Awt Pa/Unit						
					Process	
Integration Lime				-	o /	
0.001000 s 🗖 Do not Integrate				_	Lancel	
						=
Ready						

Leq is a single panel application that can generate a LEQ trace from an input signal. The stimulus can be in any unit but a scaling factor must be provided that will convert the signal to pascals.

The panel is divided into two groups – "Signal" and "Process List". When a signal object is dropped on the module the "Signal" group will be enabled with the last used parameters set.

SIGNAL GROUP OPTIONS

Channel Cursor Duration					
: 60	.000s				
: 0.0	200s				
: 60	.000s	Between Cursors			
n	r <u>SOr</u> n: 60 : 0.0 : 60	r <u>sor Duratic</u> n : 60.000s : 0.000s : 60.000s			

If the "Between Cursors" checkbox is checked then the Start and End times will reflect the time interval set between the dotted and solid cursors for the selected object. This will represent the interval over which the Leq will be calculated. The duration can be changed by using the "Trace" module.

If the "Between Cursors" is unchecked then the full signal channel duration will be used irrespective of cursor position.

Apply Weighting

Apply Weighting		
None		
C Awt		

Leq should be calculated with A-Weighting applied. If the signal is already weighted by the acquisition system then "None" should be selected. If A-Weight is required then the signal sample rate must be 44.1KHz or greater. This is to ensure that the digital A-weight filter complied with the IEC651 standard for a Type 1 filter.

If the sample rate is less than 44.1KHz then A-Weight filter will be disabled.

Channel Scaling

- Channel Scaling-	
10.000000	Pa/Unit

Used to convert the signal to Pascals. This is required to correctly calculate Leq. As part of the Leq calculation the signal will be divided by the reference 20uPa.

Integration Time

Integration Time	
0.001000	🔲 Do not Integrate

Specify the integration time for the Leq calculation. If an integration time of 1s is entered then a new Leq figure will be generated each second.

If the "Do not Integrate" option is checked then the

signal will not be integrated and an Leq will not be produced. Instead a new time trace will be produced that is weighted according to the weighting option selected. The combination of "Do Not Integrate" and "Awt" will allow the user to produce an a-weighted time signal.

List of Signal Channels



When a signal object is dropped on the LEQ module the list of available process channels will be displayed.

Add a channel



Select a channel, from the channel list, set the options you wish to apply and click on "ADD>>" to add this channel to the process list. This same channel can be processed multiple times with different processing options.

PROCESS GROUP OPTIONS



When a signal channel is added to the process list it will appear in the "Process List" listbox. Each entry will display the following information:

- Channel name
- Weighting that will be applied "AWgt" or "Lin"
- Process signal duration
- Whether integration will be used "Int" or "NoInt"

Entries in the process list can be selected using either the "Select All" or by clicking on the entries you wish to work with. When entries have been

selected the "Clear" and "Delete" buttons will be enabled.

Leg32 - (sine100) Signal Channel O Ch 1 I Leg Select All Clear Statt Time : 0.000s Statt Time : 60.000s End Time : 60.000s Apply Weighting Channel Scaling Channel Scaling Apply Weighting Channel Scaling Awt	Process List [0] Ch 1 AWgt 60.0s Int [11] Leg AWgt 60.0s Int Select All Clear Delete Edt
None Awt Integration Time O000000 s Do not Integrate	Edit Process Cancel

😫 Edit Process E	Intry	×
Event Number: 2		
Apply Weighting	Channel Scaling	
None	10.00000	
C Awt	Pa/Unit	
lute metion Time		
Integration Time		
0.001000	s 🔲 Do not Integrate	
	Save)
	Cancel	1

When a single entry is selected the "Edit...." Button will be enabled. This will invoke a dialog that will allow options relating to the process entry to be modified.

Any changes made to a process entry will be reflected in the Process List once "Save" is clicked.

PROCESSING DATA

When all process channels have been defined - click on the "Process" button to generate the LEQ traces. The process results will be added to the signal object as new channels.

🖳 Leq32 - (noise)	
_ Signal	Process List
Channel	[0] Ch 1 AWgt 49.9s NoInt
[0] Ch 1 Add >> 1	[1] Ch1 AWgt 49.9s Int
[1] Ch 1(A-wgt)	[2] Ch1 AWgt 49.9s Int
Channel Cursor Duration 49.856	
Apply Weighting Channel Scaling	
C Nore	
1.0 Pa/Init	Select All Clear Delete
(• Awt	
	E dit
Integration I ime	
10 Do not Integrate	Process
,	
	Lancel
Ready	
1	
Trace32 - (noise)	
Data View IPlot IPlay IStop Help	
Sample=5177 (MinMax)	
Ch 1 (V):	1 vit 0 000000
10000-	X1=0.000000s Y1=-9983.22266V
5000-	×2=49.856055s
5000	Y2=-4210.75049V
-3000-	
Ch 1(A-wgt) (V)	La bite da se la la contracta de la X1-o ococos
70000-	Y1=0.0V
/0000	×2=49,856055s ×2=0,6V
-70000-	
	nies – mosto pratina an achteorite ani ai an martai
Ch 1(4	
car ((A-wyg) (Y) a particular interaction in the same interaction in the second second second second second second second second	A state of the second state of
10000-	Y1=-2581.3V
n-	×2=49.856055s − ¥2=0.0V
10000	
-10000- بو مربع مربعة مرافظ براي المالية المالية والمراقع الأور بالبر وماي المتقادي استعماد المالية المرابعة المرافع	a loss of second large state, and a field a set of second and party susceptibility of
Leg(A-wat) (dBA) · IntTime=1 000000 ، المانية/	
167.72 167.72	×1=0.000000s
167.65-	
167.58	
Leq(A-wgt) (dBA) : IntTime=10.000000s A-Weight	
	×1=0.000000s
167.665-	YT=167.7dBA X2=49.856055s
	Y2=0.0dBA
167.660-	
0 10 20	30 40 50
l ime (s)	

Processed channels will be added to the signal object. Parameters relating to the processing will be displayed in the channel info line. If this is not displayed it can be turned on from the options menu within the Trace module.