## **Deceleration Calculator program manual.**

1. Download the program from the UNECE website <u>http://www.unece.org/</u>

After extracting from archive, run the program Calculator.exe and the following window will appear (figure 1):

- Deceleration calculator, Updated 11.12.2013		
Settings		
Type of Experiment: Loaded Tire 💌	Test Speed: 80	💌 kph
Drum Radius: 1,0000 m		
Data Load and Calculation		i Î
(insert data)	dω/dt at 80 kph	0,000000 s <sup>-2</sup>
NOTE.The data for insertion must be stored with 6 digits after point: 0.252448 0.505052 0.757734	in the text file in forr	mat of time in sec.
In this column each line corresponds to th revolutions .	e progressive total t	ime of rotating body

Figure 1. Main window of the program.

2. Push the button "Insert data" and choose the tyre from opened file list (figure 2). This file list is given as example and proposed for study with program features, but user also may load self-made test file from any directory.

The format of test data (.txt) files is given in Note 1 of main window above.

💫 data	▼ ● 후 🧐 磁・
PL of Machine NAMI-354 drum	n R=1m, I=1920kgm2, #2, j=0,014393±0,000721.txt
📄 PL of Machine NAMI-354 drum	n R=1m, l=1920kgm2,#1, j=0,014523±0,001008.txt
📄 PL of Machine VMI FMTM25 di	rum R=0,8538m, I=503kgm2, #2.txt
🖹 PL of Machine VMI FMTM25 di	rum R=0,8538m, V=80kph, I=503kgm2, #1, j=0,156947±0,000
PL of Tyre 185-65R14 p=0,22	MPa, Lm=416daN on machine NAMI-354, #1.txt
PL of Tyre 185-65R14 p=0,22	MPa, Lm=416daN on machine NAMI-354, #2.txt
PL of Tyre 225-70R15C p=0,4	5MPa, Lm=934daN on machine VMI FMTM25, #1, j=0,286832
PL of Tyre 225-70R15C p=0,4	SMPa, Lm=934daN on machine VMI FMTM25, #2, j=0,505751
PL of Tyre 315-80R22,5 p=0,8	33MPa, Lm=3337daN on machine VMI FMTM25.txt
📄 Tyre 185-65R14 p=0,22MPa, l	_m=416daN on machine NAMI-354, #1, j=0,034986±0,00032
📄 Tyre 185-65R14 p=0,22MPa, l	_m=416daN on machine NAMI-354, #2, j=0,035057±0,00035-
📄 Tyre 225-70R15C p=0,45MPa	, Lm=934daN on machine VMI FMTM25, #1.txt
Tyre 225-70R15C p=0,45MPa	, Lm=934daN on machine VMI FMTM25, #2, j=0,283142±0,00
📄 Tyre 315-80R22,5 p=0,83MPa	, Lm=3337daN on machine VMI FMTM25.txt

Figure 2. Window with list of experimental data files.

3. The program loads chosen file and next information will appear (figure 3) which contains:

3.1. Time array (roadwheel revolution number  $\alpha$ i, running time ti(s))

3.2. Results of calculation (3 constants of approximation A,B,  $T_{\Sigma}$ , value of deceleration  $d\omega/dt$ , estimation of quality of approximation by standard deviation  $\sigma$  and  $R^2$ )



Figure 3. Window with test results.

4. A user may push the button "Chart" and have the graph with lens among empirical points.

5. Usage of button "OK" return to main window.