

EMROAD PASSO A PASSO

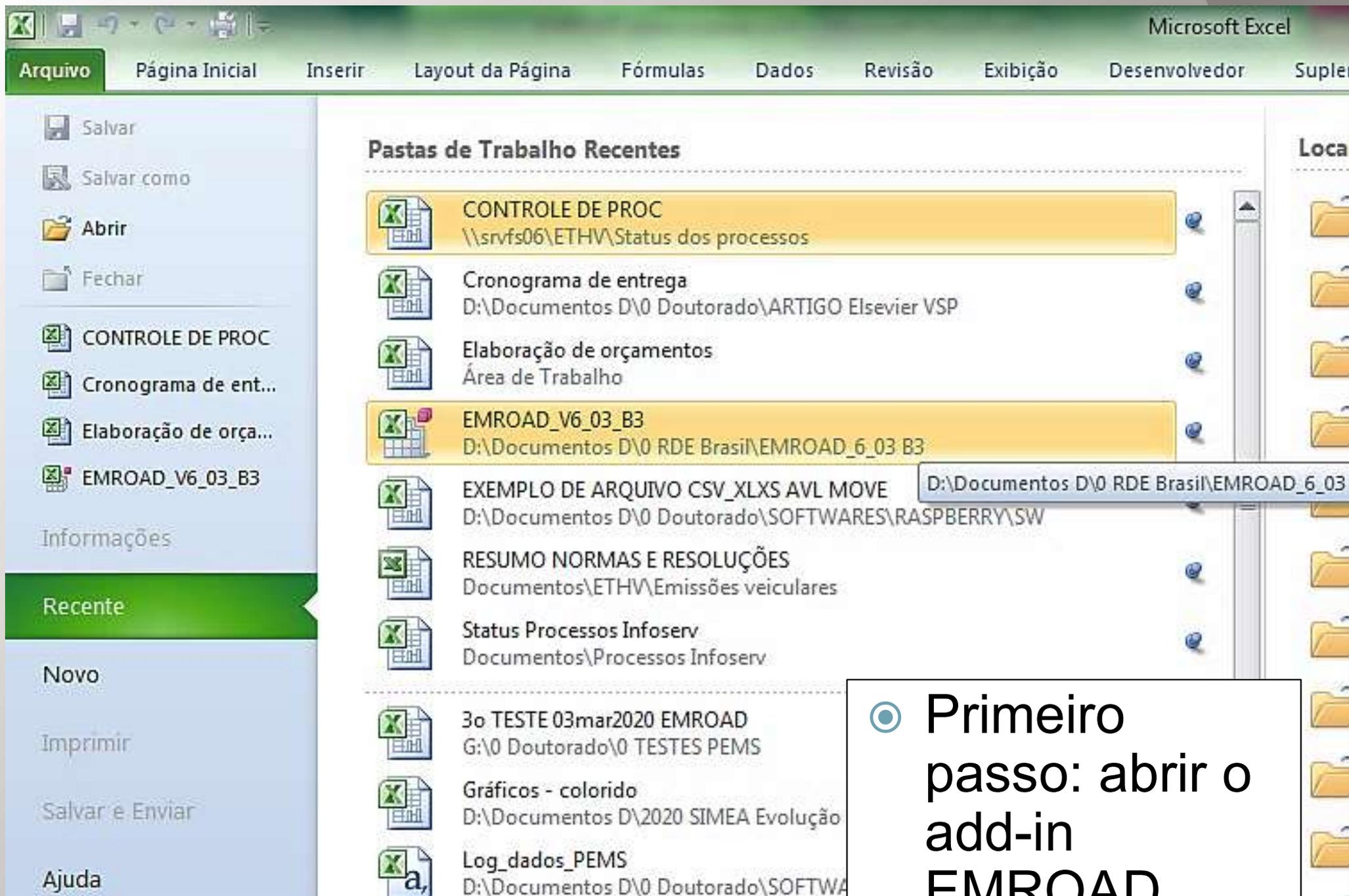
EMROAD VERSÃO 6_03_B3

André Forcetto – CETESB

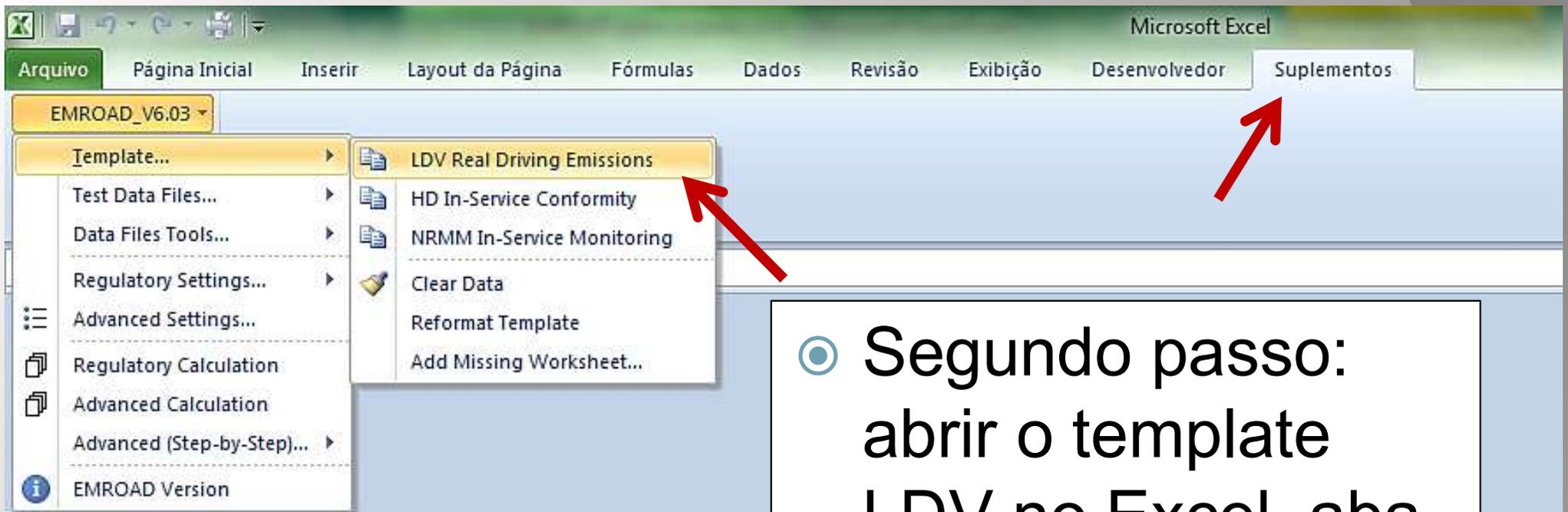
REVISÃO 2.1

Link para baixar o EMROAD 6_03_B2:

https://circabc.europa.eu/ui/group/f4243c55-615c-4b70-a4c8-1254b5eebf61/library/217673df-7a0b-48ba-a031-c5494c781d1d?p=1&n=10&sort=modified_DESC



○ Primeiro passo: abrir o add-in EMROAD



● Segundo passo:
abrir o template
LDV no Excel, aba
“Suplementos”

Arquivo | Página Inicial | Inserir | Exibição | Desenvolvedor | Suplementos

EMROAD_V6.03

TEST_REPORT

1

1 EMROAD VERSION: EMROAD_V6_03_B3_JRC

2 DATA QC

3 DATA FILE NAMES

4 PEMS

5 ECU

6 TEST ID

7

8

9 Start Time

10 End time

11 Duration

12 Distance

13 Average Speed

14 Average Temperature

15 Average humidity

16 Average Altitude

17 Altitude Min

18 Altitude Max

19

20 EV DRIVING

21 Distance driven EV

22 Distance driven EV

23

14 15 16 17 18 19 20 21 22 23

TEST REPORT / TEST DATA / DATA QC / CALCULATED

a) Digite o nome de sua escolha

b) Clicar em "Apply"

Terceiro passo: carregar os arquivos

DATA FILES

TEST ID: TESTE PEMS BRASIL [APPLY TEST ID]

DATA FILE: 3o TESTE 03mar2020 2.xlsx [SELECT DATA FILE]

ECU DATA FILE: NONE [SELECT ECU FILE]

MULTIPLE FILES

[OK] [CANCEL]

Microsoft Excel - TEMPLATE_V6_00_COMPLETE_RDE_LDVI

Arquivo | Página Inicial | Inserir | Layout da Página | Fórmulas | Dados | Revisão | Exibição | Desenvolvedor | Suplementos

EMROAD_V6.03

TEST_REPORT | EMROAD VERSION: EMROAD_V6_03_B3_JRC

1 | 2 | 3 | 4 | 5 | 6 | 7

1 EMROAD VERSION: EMROAD_V6_03_B3_JRC

2 DATA QC

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6 TEST ID

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9 Start Time

10 End time

11 Duration

12 Distance

13 Average Speed

14 Average Temperature

15 Average humidity

16 Average Altitude

17 Altitude Min m

18 Altitude Max m

19

20 EV DRIVING

21 Distance driven EV

22 Distance driven EV

23

DATA FILES

TEST ID: TESTE PEMS BRASIL [APPLY TEST ID]

DATA FILE: 3o TESTE 03mar2020 2.xlsx [SELECT DATA FILE]

ECU DATA FILE: NONE [SELECT ECU FILE]

MULTIPLE FILES

[OK] [CANCEL]

c) Selecciona o arquivo *.xls com dados brutos

d) Clicar em "OK"

Terceiro passo: carregar os arquivos

Microsoft Excel window: TEMPLATE_V6_00_COMPLETE_RDE_LDVI - Microsoft Excel

Menu: Arquivo | Página Inicial | Inserir | Layout da Página | Fórmulas | Dados | Revisão | Exibição | Desenvolvedor | Suplementos

Workbook: EMROAD_V6.03

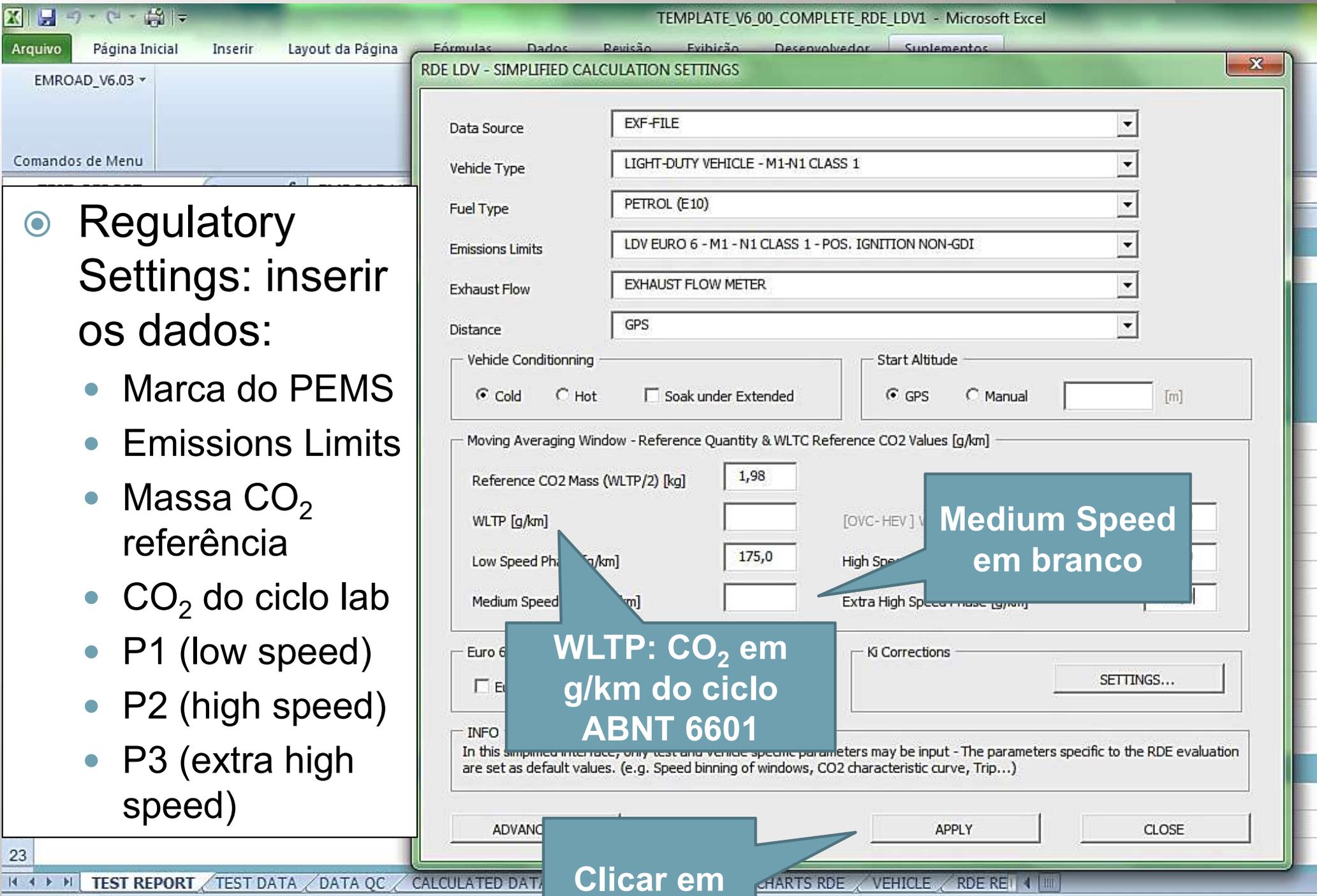
- Template...
- Test Data Files...
- Data Files Tools...
- Regulatory Settings...**
 - Light-Duty (RDE-LDV)
 - Heavy-Duty (ISC-HDV)
 - Non-Road (ISM - NRMM)
- Advanced Settings...
- Regulatory Calculation
- Advanced Calculation
- Advanced (Step-by-Step)...
- EMROAD Version

Worksheet: EMROAD_V6_03_B3_JRC

	2	3	4	5
		ANALYZERS	DATA QUALITY	DATA CHECKS
D:\Documentos D\O Doutorado\O TESTES PEMS\3o TESTE 03mar2020 2.xlsx				
NONE				
6	TEST ID	TESTE PEMS BRASIL		
7				
8				
9	Start Time	s		
10	End time	s		
11	Duration	s		
12	Distance	km		
13	Average Speed	km/h		
14	Average Temperature	°K		
15	Average humidity	%		
16	Average Altitude	m		
17	Altitude Min	m		
18	Altitude Max	m		
19				
20	EV DRIVING			
21	Distance driven EV	km		
22	Distance driven EV	%		
23				

Bottom navigation: TEST REPORT | TEST DATA | DATA QC | CALCULATED DATA | CHARTS TOTAL TRIP | CHARTS RDE | VEHICLE | RDE REI

⦿ Quarto passo:
Regulatory
Settings LDV



Regulatory Settings: inserir os dados:

- Marca do PEMS
- Emissions Limits
- Massa CO₂ referência
- CO₂ do ciclo lab
- P1 (low speed)
- P2 (high speed)
- P3 (extra high speed)

Medium Speed em branco

WLTP: CO₂ em g/km do ciclo ABNT 6601

Clicar em "Apply"

Microsoft Excel window: TEMPLATE_V6_00_COMPLETE_RDE_LDV1

Excel menu: Arquivo, Página Inicial, Inserir, Layout da Página, Fórmulas, Dados, Revisão, Exibição, Desenvolvedor, Suplementos

Worksheet: EMROAD_V6.03

Comandos de Menu: TEST_REPORT, fx, EMROAD VE

Table content:

1	EMROAD VERSION:	EMROAD_V6_03_B3_JRC
2	DATA QC	
3	DATA FILE NAMES	
4	PEMS	
5	ECU	
6	TEST ID	
7		
8		
9	Start Time	
10	End time	
11	Duration	
12	Distance	
13	Average Speed	
14	Average Temperature	
15	Average humidity	
16	Average Altitude	
17	Altitude Min	
18	Altitude Max	
19		
20	EV DRIVING	
21	Distance driven	
22	Distance driven	
23		

Excel tabs: TEST REPORT, TEST DATA, DATA QC, CALCULATED DATA, CHARTS TOTAL TRIP, CHARTS RDE, VEHICLE, RDE RE

Dialog Box: RDE LDV - SIMPLIFIED CALCULATION SETTINGS

Settings:

- Data Source: EXF-FILE
- Vehicle Type: LIGHT-DUTY VEHICLE - M1-N1 CLASS 1
- Fuel Type: PETROL (E10)
- Emissions Limits: LDV EURO 6 - M1 - N1 CLASS 1 - POS. IGNITION NON-GDI
- Exhaust Flow: EXHAUST FLOW METER
- Distance: GPS

Vehicle Conditioning: Cold, Hot, Soak under Extended

Start Altitude: GPS, Manual, [] [m]

Moving Averaging Window - Reference Quantity & WLTC Reference CO2 Values [g/km]

Reference CO2 Mass (WLTP/2) [kg]	1,98		
WLTP [g/km]	[]	[OVC- HEV] WLTP Charge Sustaining [g/km]	0,000
Low Speed Phase [g/km]	175,0	High Speed Phase [g/km]	155,0
Medium Speed Phase [g/km]	[]	Extra High Speed Phase [g/km]	155,0

Euro 6 - RDE Stage: Euro 6d, RDE3 [JRC]

Ki Corrections: [] SETTINGS...

INFO: In this simplified interface, only test and vehicle specific parameters may be input - The parameters specific to the RDE evaluation are set as default values. (e.g. Speed binning of windows, CO2 characteristic curve, Trip...)

Buttons: ADVANCED..., APPLY, CLOSE

Callout: Clicar em "Advanced"

Microsoft Excel window: TEMPLATE_V6_00_COMPLETE_RDE_LDV1

Menu: Arquivo | Página Inicial | Inserir | Layout da Página | Fórmulas | Dados | Revisão | Exibição | Desenvolvedor | Suplementos

Workbook: EMROAD_V6.03

Worksheet: TEST_REPORT

Advanced Settings Dialog Box:

- Tabs: GENERAL | CALCULATION STEPS | EXCLUSIONS | SEGMENTS | LIMITS | MOVING WINDOW | **ADVANCED**
- Buttons:
 - Time Alignment
 - Speed Ranges (For Trip Segmentation)
 - Corrections (Drift/Ki)
 - RDE-LDV CO2 Reference Curve
 - Data Ranges (For Data Screening)
 - MAW Binning
 - Upload Engine Maximum Power Curve...
 - RDE LDV Trip Limit Curves (V.A and RPA)
 - NRMM Working & Non Working Events
 - Advanced Regulatory Items
 - Workbook
- DATA SOURCE: EXF-FILE

Background Worksheet Content:

1	EMROAD VERSION: EMROAD_V6_03_B3_JRC
2	DATA QC
3	DATA FILE NAMES
4	PEMS
5	ECU
6	TEST ID
7	
8	
9	Start Time
10	End time
11	Duration
12	Distance
13	Average Speed
14	Average Temperature
15	Average humidity
16	Average Altitude
17	Altitude Min
18	Altitude Max
19	
20	EV DRIVING
21	Distance driven EV
22	Distance driven EV
23	

Quinto passo:
Advanced
Settings

Aba
"General"

Microsoft Excel window: TEMPLATE_V6_00_COMPLETE_RDE_LDVI1

Excel tabs: TEST_REPORT, EMROAD V

Excel content:

- 1 EMROAD VERSION: EMROAD_V6_03_B3_JRC
- 2 DATA QC
- 3 DATA FILE NAMES
- 4 PEMS
- 5 ECU
- 6 TEST ID
- 9 Start Time
- 10 End time
- 11 Duration
- 12 Distance
- 13 Average Speed
- 14 Average Temperature
- 15 Average humidity
- 16 Average Altitude
- 17 Altitude Min
- 18 Altitude Max
- 20 EV DRIVING
- 21 Distance driven EV
- 22 Distance driven EV

ADVANCED SETTINGS dialog box:

- GENERAL | CALCULATION STEPS | EXCLUSIONS | SEGMENTS | LIMITS | MOVING WINDOW | ADVANCED
- Vehicle-Engine Type: LIGHT-DUTY VEHICLE - M1-N1 CLASS 1
- Fuel Type: DIESEL (B7)
- Exhaust Flow: DIESEL (B7), PETROL (E10), CNG, ETHANOL (E85), LPG, **CUSTOM**, NONE
- Distance: NONE
- Fuel Rate: NONE
- Engine Torque: NONE
- DATA SOURCE: EXF-FILE

Selecione combustível "Custom"

O EMROAD abre uma janela para customizar o combustível

Densidade com ponto ("1.27"), não com vírgula ("1,29")

Clica em "Apply" e "Close"

○ Inserir os dados de combustível

Microsoft Excel: TEMPLATE_V6_00_COMPLETE_RDE_LDVI1

Suplementos

ADVANCED SETTINGS

Custom Fuel Properties

Custom Fuel Composition >
C(Beta) - H(Alpha) - O(Epsilon) - N(Delta) - S(Gamma)

Alpha	1,85	K_HC	0,000482
Beta	1	K_CO	0,000966
Gamma	0	K_CO2	0,001517
Delta	0	K_NO	0,001034
Epsilon	0	K_NO2	0,001586
Fuel Density	0,84	K_NOx	0,001586
Exh Density	1,2943	K_CH4	0,000553
		K_N2O	0,001517
		K_NH3	0,000586

APPLY CLOSE

Botão "Data Ranges"

Aba "GPS"

Alterar "Minimum Latitude" para -180

Clica em "Apply" e "Close"

The image shows a screenshot of the EMROAD software interface. The main window is titled 'ADVANCED SETTINGS' and has several tabs: 'GENERAL', 'CALCULATION STEPS', 'EXCLUSIONS', 'SEGMENTS', and 'ADVANCED'. The 'Data Ranges' dialog box is open, and the 'GPS' tab is selected. The 'GPS' section contains the following fields:

Field	Value	Field	Value
Minimum Latitude	-180	Maximum Latitude	180
Minimum Longitude	-80	Maximum Longitude	80
Minimum Vehicle Speed (Km/h)	0	Maximum Vehicle Speed (Km/h)	200

A red arrow points to the 'Minimum Latitude' field, which is highlighted with a callout box indicating it should be changed to -180. The 'Apply' and 'Close' buttons are also highlighted with a callout box indicating they should be clicked.

Arquivo | Página Inicial | Inserir | Layout da Página | Fórmulas | Dados | Revisão | Exibição | Desenvolvedor | Suplementos

EMROAD_V6.03

Comandos de Menu

TEST_REPORT | EMROAD V

1

1 EMROAD VERSION: EMROAD_V6_03_B3_JRC

2 DATA QC

3 DATA FILE NAMES

4 PEMS

5 ECU

6 TEST ID

7

8

9 Start Time

10 End time

11 Duratio

12 Distan

13 Averag

14 Averag

15 Averag

16 Average Altitude

17 Altitude Min

18 Altitude Max

19

20 EV DRIVING

21 Distance driven EV

22 Distance driven EV

23

ADVANCED SETTINGS

GENERAL | CALCULATION STEPS | EXCLUSIONS | SEGMENTS | LIMITS | MOVING WINDOW | ADVANCED

Workbook Settings

- Auto-reformat template for types of application
- Reporting Option (Always un checked except JRC)
- Delete results in TEST / PASS-FAIL / RDE REPORTS
- Debugging Mode Active
- Force Regulatory parameters for Regulatory Calculations
- Extract Data to EXF during BATCH
- Verify results against EU requirements

APPLY | CLOSE

EXF-FILE

Aba "Advanced"

Botão "Workbook"

Clica em "Apply" e "Close"

Desativar opção "Force regulatory parameters" e "Verify results"

Microsoft Excel window: TEMPLATE_V6_00_COMPLETE_RDE_LDV1

Menu: Arquivo, Página Inicial, Inserir, Layout da Página, Fórmulas, Dados, Suplementos

File: EMROAD_V6.03

Comandos de Menu: TEST_REPORT, EMROAD V

Worksheet: 1

Row 1: EMROAD VERSION: EMROAD_V6_03_B3_JRC

Row 2: DATA QC

Row 3: DATA FILE NAMES

Row 4: PEMS

Row 5: ECU

Row 6: TEST ID

Row 9: Start Time

Row 10: End time

Row 11: Duration

Row 12: Distance

Row 13: Average Speed

Row 14: Average Temperature

Row 15: Average humidity

Row 16: Average Altitude

Row 17: Altitude Min

Row 18: Altitude Max

Row 20: EV DRIVING

Row 21: Distance driven EV

Row 22: Distance driven EV

ADVANCED SETTINGS dialog box:

- Tabs: GENERAL, CALCULATION STEPS, EXCLUSIONS, SEGMENTATION, LIMITS, MOVING WINDOW, ADVANCED
- Buttons: Time Alignment, Speed Ranges (For Trip Segmentation)

Speed Ranges for Trip Segmentation dialog box:

- Low Speed or Urban Bin - Max Value [km/h]: 60
- Medium Speed or Rural Bin - Max Value [km/h]: 110
- Zero Speed Tolerance [km/h]: 1
- Urban Speed 1 [km/h]: 0
- Rural Speed 1 [km/h]: 0
- Buttons: APPLY, CLOSE

Botão "Speed Ranges"

Clica em "Apply" e "Close"

Alterar "Medium speed" para 110 km/h

Botão "CO2 Reference Curve"

ADVANCED SETTINGS

CO2 Characteristic Curve

Reference Cycles CO2 Values [g/km]

	CO2 [g/km]	Av. Speed [km/h]
Phase 1	175,000	25,820
Phase 2	1,000	39,300
Phase 3	155,000	41,030
Phase 4	155,000	110,000

Curve Type

Bi Linear (Intersect Point @ Phase 3)

Order 3 + Linear Phase 4

Custom

UPLOAD CURVE...

Curve Type and Tolerances

Tol_1H_MAW Bin 1[%]	45	Tol2_H[%]	100
Tol_1H_MAW Bins 2&3[%]	40	Tol2_L[%]	100
Tol_1L_MAW Bin 1[%]	25		
Tol_1L_MAW Bins 2&3[%]	25		

APPLY CLOSE

⦿ Inserir dados:

- Phase 1: 25,82 km/h
- Phase 2: não alterar
- Phase 3: 41,03 km/h
- Phase 4: não alterar

Clica em "Apply" e "Close"

Arquivo Página Inicial Inserir Layout da Página Fórmulas Dados

EMROAD_V6.03

TEST_REPORT

EMROAD VERSION: EMROAD_V6_03_B3_JRC

DATA QC

DATA FILE

PEMS

ECU

TEST ID

Start Time

End time

Duration

Distance

Average Speed

Average Temperature

Average humidity

Average Altitude

Altitude Min

Altitude Max

EV DRIVING

Distance driven EV

Distance driven EV

TEST REPORT TEST DATA DATA QC CALCULATED DATA CHARTS

Botão “MAW Binning”

- Inserir dados:
 - N. bins: 2
 - Bin 1: máx. 50
 - Bin 2: min. 50 / máx. 200
 - Bin 3: apagar

Clica em “Apply” e “Close”

Moving Averaging Window - Binning Settings

Binning Type

Vehicle Average Speed Engine Average Power

Binning Intervals

Automatic Manual

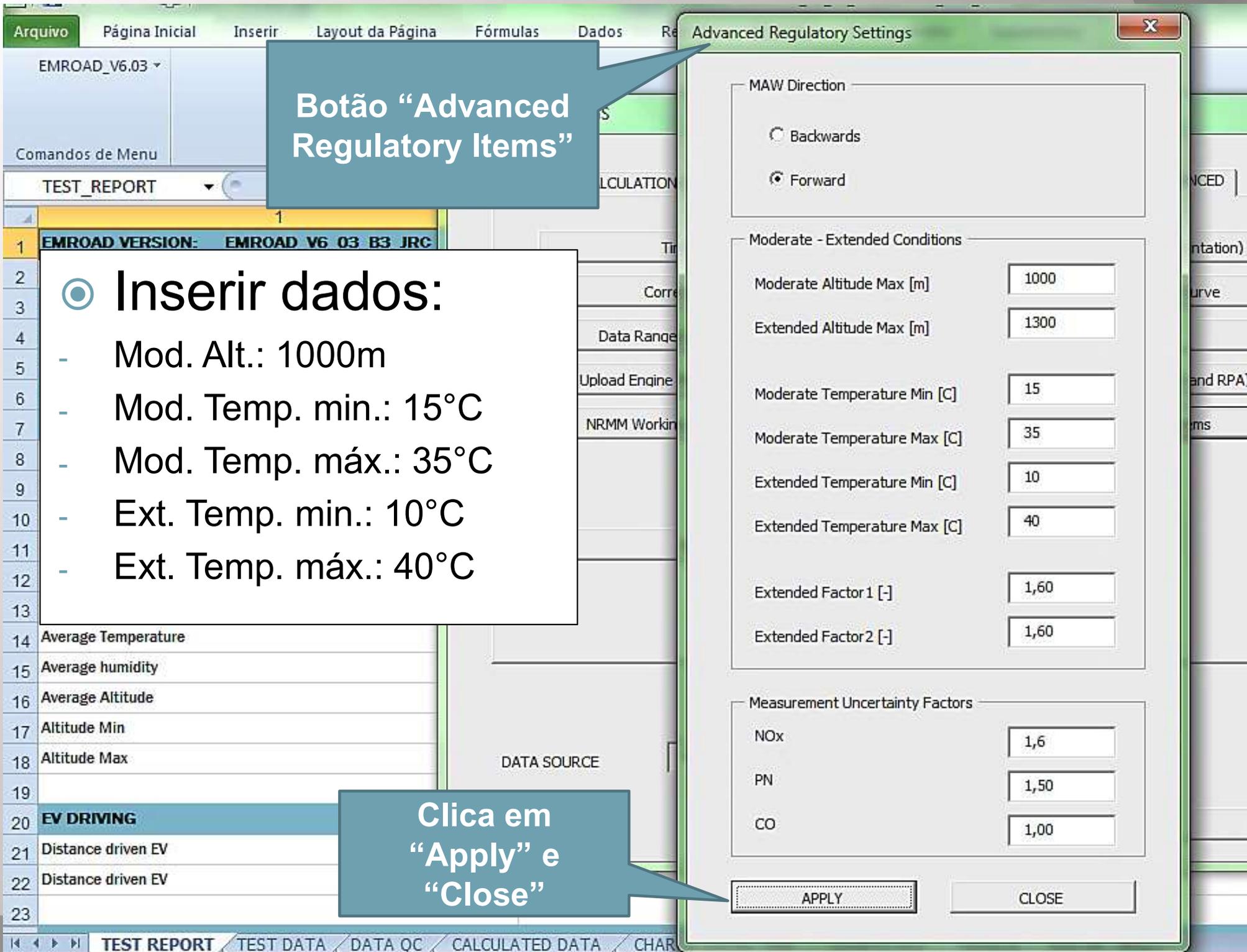
Number of Bins (Max. 10)

Min. Value

Max. Value

Bins	MIN=	MAX
Bin 1	<input type="text" value="0"/>	<input type="text" value="50"/>
Bin 2	<input type="text" value="50"/>	<input type="text" value="200"/>
Bin 3	<input type="text"/>	<input type="text"/>
Bin 4	<input type="text"/>	<input type="text"/>
Bin 5	<input type="text"/>	<input type="text"/>
Bin 6	<input type="text"/>	<input type="text"/>
Bin 7	<input type="text"/>	<input type="text"/>
Bin 8	<input type="text"/>	<input type="text"/>
Bin 9	<input type="text"/>	<input type="text"/>
Bin 10	<input type="text"/>	<input type="text"/>

APPLY CLOSE



TEMPLATE_V6_00_COMPLETE_RDE_LDV1 - Microsoft Excel

Arquivo | Página Inicial | Inserir | Layout da Página | Fórmulas | Dados | Revisão | Exibição | Desenvolvedor | Suplementos

EMROAD_V6.03

Comandos de Menu

TEST_REPORT | EMROAD V

1

1 EMROAD VERSION: EMROAD_V6_03_B3_JRC

2 DATA QC

3 DATA FILE NAMES

4 PEMS

5 ECU

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7

8

9 Start Time

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13 Average Speed

14 Average Temperature

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16 Average Altitude

17 Altitude Min

18 Altitude Max

19

20 EV DRIVING

21 Distance driven EV

22 Distance driven EV

23

TEST REPORT | TEST DATA | D

Pronto

CHARTS RDE | VEHICLE | RDE RE

ADVANCED SETTINGS

GENERAL | CALCULATION STEPS | EXCLUSIONS | SEGMENTS | LIMITS | MOVING WINDOW | ADVANCED

Time Alignment

Speed Ranges (For Trip Segmentation)

Corrections (Drift/K)

RDE-LDV CO2 Reference Curve

Data Ranges (For Data Screening)

MAW Binning

Upload Engine Maximum Power Curve...

RDE LDV Trip Limit Curves (V.A and RPA)

NRMM Working & Non Working Events

Advanced Regulatory Items

Workbook

DATA SOURCE: EXF-FILE

APPLY

Clica em "Apply" e "Close"

Fechar "Advanced Settings"

Volta ao Excel - EMROAD

Microsoft Excel window: TEMPLATE_V6_00_COMPLETE_RDE_LDVI - Micros...

Arquivo | Página Inicial | Inserir | Layout da Página | Fórmulas | Dados | Revisão | Exibição | Desenvolvedor | Suplementos

EMROAD_V6.03 ▾

Comandos de Menu

TEST_REPORT ▾ | fx | EMROAD VERSION: EMROAD_V6_03_B3_JRC

	1	2	3	4
1	EMROAD VERSION:	EMROAD_V6_03_B3_JRC		
2	DATA QC		ANALYZERS	DATA QUAL
3	DATA FILE NAMES			
4	PEMS	D:\Documentos D\0 Doutorado\0 TESTES PEMS\3o TESTE 03mar2020 2.xlsx		
5	ECU	NONE		
6	TEST ID	TESTE PEMS BRASIL		
7				
8				
9	Start Time	s		
10	End time	s		
11	Duration	s		
12	Distance	km		
13	Average Speed	km/h		
14	Average Temperature	°K		
15	Average humidity	%		
16	Average Altitude	m		
17	Altitude Min	m		
18	Altitude Max	m		
19				
20	EV DRIVING			
21	Distance driven EV	km		
22	Distance driven EV	%		
23				

TEST REPORT | TEST DATA | DATA QC | CALCULATED DATA | CHARTS TOTAL TRIP | CHARTS RDE | VEHICLE | RDE REI

Pronto | 90% | 13:17 | 04/03/2020

Microsoft Excel window: TEMPLATE_V6_00_COMPLETE_RDE_LDV1

Menu: Arquivo | Página Inicial | Inserir | Layout da Página | Fórmulas | Dados | Revisão | Exibição | Desenvolvedor | Suplementos

Dropdown menu: EMROAD_V6.03

- Template...
- Test Data Files...
- Data Files Tools...
- Regulatory Settings...
- Advanced Settings...
- Regulatory Calculation**
- Advanced Calculation
- Advanced (Step-by-Step)...
- EMROAD Version

Formula bar: EMROAD VERSION: EMROAD_V6_03_B3_JRC

	1	2	3	4	5	6	7	8
	AD_V6_03_B3_JRC							
			ANALYZERS	DATA QUALITY	DATA CHECKS			
			D:\Documentos D\O Doutorado\O TESTES PEMS\3o TESTE 03mar2020 2.xlsx					
			NONE					
6	TEST ID		TESTE PEMS BRASIL					
7								
8								
9	Start Time		s					
10	End time		s					
11	Duration		s					
12	Distance		km					
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15	Average humidity		%					
16	Average Altitude		m					
17	Altitude Min		m					
18	Altitude Max		m					
19								
20	EV DRIVING							
21	Distance driven EV		km					
22	Distance driven EV		%					
23								

Bottom tabs: TEST REPORT | TEST DATA | DATA QC | CALCULATED DATA | CHARTS TOTAL TRIP | CHA

○ Sexto e último passo: Clica em “Regulatory Calculation”

Microsoft Excel window: TEMPLATE_V6_00_COMPLETE_RDE_LDV1

File menu: EMROAD_V6.03

- Template...
- Test Data Files...
- Data Files Tools...
- Regulatory Settings...
- Advanced Settings...
- Regulatory Calculation**
- Advanced Calculation
- Advanced (Step-by-Step)...
- EMROAD Version

Formula bar: EMROAD VERSION: EMROAD_V6_03_B3_JRC

	1	2	3	4	5	6	7	8
	AD_V6_03_B3_JRC							
			ANALYZERS	DATA QUALITY	DATA CHECKS			
		D:\Documentos D\O Doutorado\O TESTES PEMS\3o TESTE 03mar2020 2.xlsx						
		NONE						
6	TEST ID	TESTE PEMS BRASIL						
7								
8								
9	Start Time		s					
10	End time		s					
11	Duration		s					
12	Distance		km					
13	Average Speed		km/h					
14	Average Temperature		°K					
15	Average humidity		%					
16	Average Altitude		m					
17	Altitude Min		m					
18	Altitude Max		m					
19								
20	EV DRIVING							
21	Distance driven EV		km					
22	Distance driven EV		%					
23								

Sheet tabs: TEST REPORT / TEST DATA / DATA QC / CALCULATED DATA / CHARTS TOTAL TRIP / CHA

○ Sexto e último passo: Clica em “Regulatory Calculation”