


SOP - 24

Smoking Topography

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1. PURPOSE:

Aide memoire on the procedure for the use of a CReSS Pocket v3 smoking topography device, including data download and interpretation.

Please note that detailed instruction on the use of these devices is provided the **CReSS Pocket user manual** (version 20121010). New users should read this manual in full – the current SOP is not a substitute.

2. PERSONNEL REQUIRED AND LEVEL OF EXPERTISE:

- Investigator familiar with the CReSS Pocket user manual (version 20121010).

3. MATERIALS AND EQUIPMENT REQUIRED:

- Smoking topography device
- Disposable mouthpieces
- Batteries (CR123A)
- Cigarettes
- Smoke-grabber ashtray
- Laptop with CReSS pocket software installed (version 3.3.00)
- Syringe and tubing for calibration
- Sterilising liquid (e.g., Milton) and alcohol wipes

4. PROCEDURE:

4.1 Preliminary tasks

- Open CReSS software on laptop (Start menu > CReSS Desktop).
- Once software is open, click 'User' at top left of screen. Enter 'Admin' for username, and '9999' for password.
- Insert the battery into the device.
- Connect the device to the data cable (gently – port is delicate). Device should make a series of beeps.
- Check the serial number on the top of the screen on the right: it should be the serial number of the device connected. If not, disconnect and connect the device to the data cable again.
- Check "Communications": it must read "Enabled" (green background).
- Check "Authentication": it must read "Passed" (green background).
- Check "Cigs stored on device": it must read "0". If it does not refer to *Erasing data* section (4.6)

4.2 Calibrating the device

It is important to calibrate the device for each participant using the cigarette that will be smoked during the session.

- Connect device to data cable;
- Ensure all topography data AND study/participant assignment data are removed (see *section 4.6*);
- Place unlit cigarette in device;
- Connect the syringe to the "person" end of the mouthpiece, ensuring plunger is fully depressed before attaching;
- Press 'Calibration';
- Make a nice clean test "puff". Pull back syringe plunger smoothly yet swiftly, ensuring a quick stop at the end of the simulated puff. Aim for a "puff" of ~50ml.

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- Verify that puff volume recorded by software is consistent with the volume on the syringe. Accuracy should be +/- 2ml.
- If software reading is off by +/- 2ml, you will need to calibrate the device:
 - Remove the syringe, depress the plunger, and then reattach to device.
 - Press 'Calculate new scale factor'.
 - Repeat the test "puff" as above.
 - Enter volume as recorded on syringe when prompted, then press 'Calculate'.
 - Remove, depress and reattach syringe.
 - Perform another 2 test puffs to ensure readings on syringe and on screen are consistent (+/- 2ml).
- Remove syringe and cigarette from device.
- Disconnect device.

4.3. Pre-load the device (study and participant information; date/time sync)

- Click 'Library' then select 'Study'.
- Select study name from drop down menu, then click the check box next to the required participant number, then press 'Save' ('Study Information Saved' should appear in a green banner at the top of the screen).
- Press 'Configuration' and then select 'Date/Time'.
- Click the '<<' button in the centre of the screen.
- Return to 'Status' tab.
- The device is now prepared and ready for use. Disconnect.

4.4. Data saving

- Open CReSS software on laptop.
- Connect device to data cable.
- Click 'Upload topology'.
- Ensure 'Report Style 2' is selected (bottom left of screen).
- Click 'Export Workbook'.
- Select folder to save file to when prompted, and ensure file is appropriately named (e.g., P067_lab_150105). Data will save as an Excel file.
- Open saved file to ensure data have saved successfully.
- Proceed with erasing data (see section 4.6).

4.5 Data interpretation

Note that values recorded for your study should be taken from the saved Excel file. Do *not* use the values that are displayed on the CReSS software display screen (they may differ slightly).

Note that exported files contain both summary level information (first table in file, each row representing a single cigarette), and cigarette level information (consequent tables, each table representing a cigarette, and each row representing a single puff).

Check the start and end times of each cigarette as recorded in the .xml file to **make sure you're satisfied that each individual cigarette (as indexed by CigIndex) really is a different cigarette**. If there is less than 2 minutes between the end time of one cigarette and the start time of the consequent cigarette, it is possible that this is the same cigarette (it may have dropped out of the monitor – a common problem for roll-up smokers). If there is less than 2 minutes between cigarettes, refer to the puff counts recorded for the 2 (or more) cigarettes in question. If the puff count for either is ~ 5 or less (use your discretion), merge the 2 (or

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more). Highlight these rows in yellow and add a note in red text. An example of this situation is displayed below:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
6																	
7	CigIndex	PuffCount	TotalVolu	TotalPuff	PuffOverFlow	Abandone	StartTime	EndTime	TimeToFir	TimeToRe	Temperature(C)						
8		226	20	603.5	25345	No	No	30/07/2014 07:02	07:06	8399	13458	26					
9		227	19	606.1	29395	No	No	30/07/2014 07:42	07:46	38844	6418	27					
10		228	13	342.1	18153	No	No	30/07/2014 08:20	08:22	13823	7821	27					
11		229	17	492.8	24437	No	No	30/07/2014 08:56	09:00	6928	5806	27					
12		230	0	0	0	No	No	30/07/2014 10:12	10:12	0	26180	26	Count these 2 rows as 1 cigarette (Note start/end times and				
13		231	19	726	35547	No	No	30/07/2014 10:13	10:16	3238	6242	26					
14		232	14	473.6	22607	No	No	30/07/2014 10:41	10:45	5194	6547	28					
15		32255	21	784	42367	No	No	30/07/2014 11:00	11:34	7876	6223	27					
16		234	15	745.7	23526	No	No	30/07/2014 12:29	12:32	5960	6789	26					
17		235	16	685.3	35402	No	No	30/07/2014 13:07	13:09	19812	8653	27					
18		236	23	863.9	37943	No	No	30/07/2014 14:14	14:18	9065	5313	24					
19		237	10	341.1	20633	No	No	30/07/2014 15:31	15:33	11546	13285	24					
20		238	6	146.3	8680	No	No	30/07/2014 16:24	16:25	6687	9725	25	Count these 2 rows as 1 cigarette (Note start/end times and				
21		239	11	536.9	27918	No	No	30/07/2014 16:26	16:28	7956	8030	25					
22		240	16	849	34250	No	No	30/07/2014 17:18	17:20	4166	6428	25					
23		241	10	377.2	20533	No	No	30/07/2014 18:04	18:06	3460	4540	24					
24		242	0	0	0	No	No	30/07/2014 19:06	19:06	0	5631	24	Count these 4 rows as 1 cigarette (Note start/end times and				
25		243	2	15.5	1117	No	No	30/07/2014 19:06	19:07	6888	10229	24					
26		244	0	0	0	No	No	30/07/2014 19:07	19:07	0	5631	24					
27		245	1	44.9	2404	No	No	30/07/2014 19:07	19:07	8944	14872	25					
28		246	12	565.8	21999	No	No	30/07/2014 20:12	20:13	3440	6568	27					

Once satisfied with the above, record total number of cigarettes consumed if needed.

Next, go through the *individual cigarette level data* and **check that each puff (as indexed by PuffIndex) really is a puff**. To do this, examine the values in the 'Volume(ml)' column. If this value is 0, exclude the puff.

Record required outcome measures *after* these data checks/edits have been performed.

4.6. Erasing data

- To erase **topography data** from the device, click red 'Erase' button, and press 'yes' when pop-up warning appears.
- The erasing process can take a few minutes – be patient.
- Next, remove the **study/participant assignment data** (if you wish to test the same participant again, omit this step).
- Click 'Library' then select 'Study', then press 'Erase' (press yes when pop-up warning appears). If a subsequent error message appears, press OK (fine to ignore this).
- Disconnect device and proceed with cleaning/store.

4.7. Cleaning of Device

- Remove and dispose of removable clear plastic mouthpiece;
- Remove and store device battery (discard safely if <30% charge remaining);
- Thoroughly clean outer surface of device with small alcohol wipes (pre-injection swab size);
- Use screwdriver to carefully remove the black plastic mouthpiece (two small screws to be removed), ensuring the 2 black rubber 'O' rings under the mouthpiece are not dislodged;

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- Use alcohol wipe wrapped around tip of screwdriver to remove smoke residue from inside of mouthpiece (imperative that mouthpiece is removed from main body of device before this step is performed);
- Soak mouthpiece in Milton if required (this should be performed at least once a month) and allow to dry thoroughly;
- Reattach mouthpiece to main body of the device, ensuring 'O' rings are present and in the correct position;
- Return cleaned device to storage box ready for next use. Ensure battery is stored separately from device during storage.

5. TROUBLE SHOOTING:

Problem	Solution
Any problems	TARG Laboratory phone: 07957 334265 Will Gawned TARG administrator (0117) 33 17496 internal 17495 targ-admin@bristol.ac.uk