



Dedicated to innovation in aerospace



EC/EASA - Air Crew Data Collection Campaign

FTL training module

Training module data collection campaign



Overview FTL Data Collection Campaign

- ✓ Voluntary participation
- ✓ Data collection via the CrewAlert Lite app (iOS) and Actiwatch
- ✓ **Survey code** required in the CrewAlert Lite app
- ✓ Total of **14 consecutive days**, starting with a period of 2 days off
 - Enter and maintain your flight duties and sleep/wake history
 - If invited - Wear an Actiwatch (Note: not all participants will be asked to wear an Actiwatch)
 - Score your alertness (KSS & SP) daily at duty start, cruise (only long-haul), and 15 min prior to top of descent on each flight
 - For pilots only - Test your reaction time (NPI) at duty start and 15 min prior to top of descent on the final flight
- ✓ Don't give in if you miss out on a few data points – the data is still useful
- ✓ **Upload your CrewAlert data** at the end of the collection period

Background to the EU FTL Research Study

The European Committee (EC) together with EASA has set up a research study to perform **a review of the effectiveness of the flight and duty time limitations and rest requirements** applicable as of 18 February 2016.

The objective is to **collect aircrew data on fatigue, alertness, workload and sleep** to determine whether these rules provide sufficient protection from potential consequences of aircrew fatigue. If necessary, recommendations will be drafted for changes to the rules.

This review of the Flight Time Limitations (FTL) is being performed by a study team with the Netherlands Aerospace Centre NLR, in collaboration with Stockholm University, German Aerospace Centre DLR, and Jeppesen.

The EC is paying for the costs of this study

Data Collection Campaign

- ✓ The FTL data collection campaign asks your **participation for 14 days**
- ✓ Each day you are asked – during your normal flight duties and during days off – to regularly fill in two different rating scales, to continuously wear an Actiwatch (if provided to you), to maintain your flight duties and sleep/wake history, and to perform a reaction time test (if cockpit crew)
- ✓ In total this takes about **15 minutes of your time per day**
- ✓ The assessments are performed on the CrewAlert Lite application. For this you need the availability of an **iPhone, iPad or iPod Touch**
- ✓ The data collection is never to conflict with the performance of your duties

Usage and Storage of your Data

- ✓ The gathered data will remain confidential and anonymous since your name is irrelevant to the needs of the research study
- ✓ At the end of the 14 day study period you need to upload your data
- ✓ The data will be transferred (via encrypted technology) over a Wi-Fi connection and stored in a password-protected central database that can be accessed by study team members only
- ✓ The collected datasets will not be disclosed to third parties during or after the study's lifetime or beyond

Setting up the CrewAlert Lite App

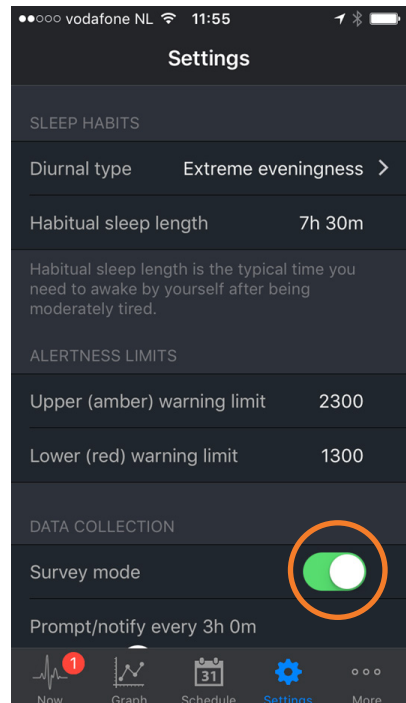
Installing CrewAlert

- ✓ Make sure that you have Internet access
- ✓ Install CrewAlert Lite from the iTunes Appstore
 - For finding CrewAlert Lite on an iPad; please toggle for searching for iPhone apps
 - If you are already using CrewAlert Lite, update your version
 - No need to use the Pro version
- ✓ Please follow the instructions on the required settings on the following pages

CrewAlert settings

Go to "Settings" at the bottom of your screen

- ✓ Set your "Default time base" and "Home base time zone"
- ✓ Fill in your "Transfer Times"
- ✓ Fill in your "Sleep Habits"
- ✓ Toggle "Data Collection" in "Survey mode"
- ✓ Complete your "Demographic Information"



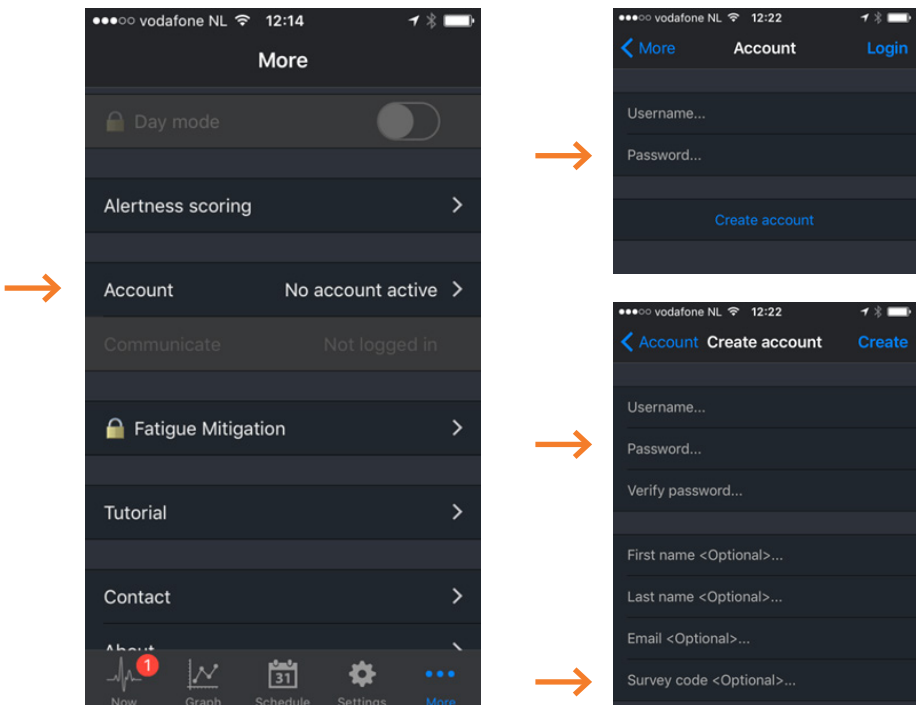
SETTINGS ONLY NEED TO BE FILLED IN ONCE AT THE START OF THE DATA COLLECTION

Creating an account

Go to “More” at the bottom of your screen

- ✓ Create an “Account”
- ✓ Fill in *any* username and password
 - No need to fill in “First name”, “Last name” or “Email”
 - Note that the password is NOT the same as your “Survey code”
 - Do not use characters in CAPS for the password
- ✓ Insert the “Survey code” that you received
 - If you have not received a survey code after signing up, please contact the principal investigator via henk.van.dijk@nlr.nl

THE SURVEY CODE IS REQUIRED TO FILTER DOWN THE DATASET
TO THE FTL STUDY



Actiwatch operating instructions

How to handle the Actiwatch

NOT ALL PARTICIPANTS WILL BE ASKED TO WEAR THE ACTIWATCH

- ✓ Wear it for the full 14-day period
- ✓ Wear it on the wrist of your preference
- ✓ Press the button each time you plan to sleep or take a nap

- ✓ The watch is water resistant but ... take it off when you take a shower
- ✓ It records data on an internal chip, it does not transmit data
- ✓ After the 14 days, hand it in to your FTL airline coordinator or send it to NLR



Daily data collection













Start with 2-days off duty!

- ✓ Day 1 is used for familiarization with the CrewAlert app and the different measures; day 2 is to gather baseline measures

- ✓ During off-duty, besides keeping a sleep/wake log and (if invited) wearing the Actiwatch, you are asked three times a day (morning, afternoon, evening) to:
 - Rate your level of sleepiness and fatigue on the two rating scales (KSS & SP)
 - If cockpit crew - Measure your alertness with the 5-min response time test (NPI)

NOTE: THE NPI TEST IS ONLY REQUIRED IF YOU ARE A PILOT

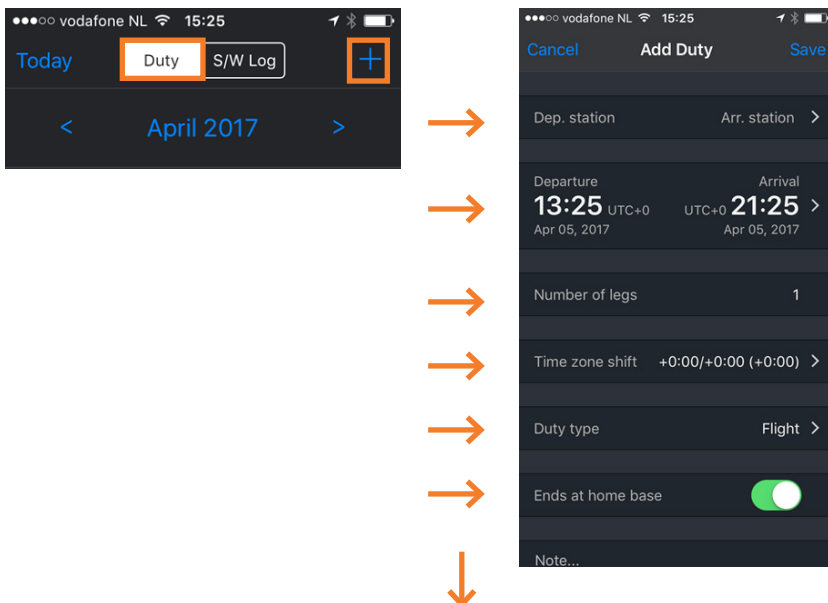
During each of the 14 days you will be asked to do the following:

 <p>After you wake up</p>	<ul style="list-style-type: none"> ✓ Fill in the sleep/wake log on the app ✓ Rate your level of sleepiness and fatigue on the two rating scales (KSS & SP) ✓ <i>Pilots only:</i> Measure your alertness with the 5-min reaction time test (NPI) 	
 <p>During your flight duty</p>	<ul style="list-style-type: none"> ✓ Rate the KSS & SP in cruise (only long-haul) and 15 min prior the top of descent of each flight ✓ <i>Pilots only:</i> Perform the NPI 15 min prior the top of descent of your final flight of that day 	
 <p>Planning a nap</p>	<ul style="list-style-type: none"> ✓ <i>If invited:</i> Press the button on the Actiwatch, indicating that you are going to sleep ✓ Fill in the sleep/wake log, after taking a nap 	 
 <p>After your flight duty</p>	<ul style="list-style-type: none"> ✓ Fill in your achieved flight duty of that day 	
 <p>When going to sleep</p>	<ul style="list-style-type: none"> ✓ Fill in the sleep/wake log ✓ <i>If invited:</i> Press the button on the Actiwatch 	 

1. Fill in Duty - CrewAlert

Go to "Schedule" at the bottom of your screen

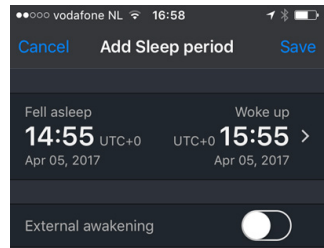
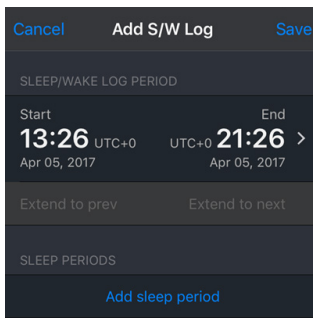
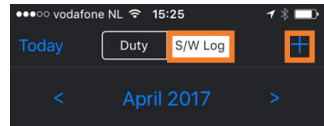
- ✓ Toggle to "Duty"
- ✓ Click on "+" to add your latest duty
 - Fill in your "Dep. & Arr. station"
 - Fill in time start ("Departure") and end ("Arrival") of your duty
 - Fill in the "Number of legs" within this duty
 - Change "Time zone shift" if relevant
 - Change "Duty type" if relevant
 - Toggle to green if your duty "Ends at home base"
 - Fill in "Note..." in case you filed in sick/not fit-to-fly
 - Update "No in-flight sleep" if relevant
 - Rate your mental effort ("RSME") within this duty
 - Toggle the "Contributing Factors" if relevant (appears after certain level of RSME Mental Effort)



2. Fill in Sleep/Wake Log - CrewAlert

Go to "Schedule" at the bottom of your screen

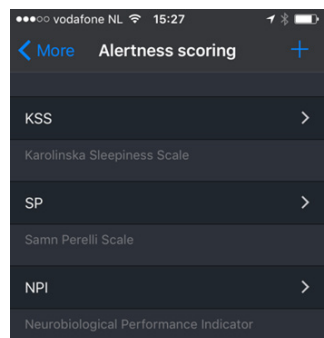
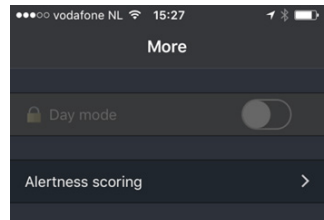
- ✓ Toggle to "S/W Log"
- ✓ Click "+" to add your latest sleep period
 - The S/W Log start and end time define the period of sleep and wake during which you wish to keep a record (i.e. the 14-day period of this campaign)
- ✓ "Add sleep period" within your S/W Log
 - Fill in time you "Fell asleep"
 - Fill in time you "Woke up"



3. Rate your Alertness - CrewAlert

Go to "More" at the bottom of your screen

- ✓ Click "Alertness scoring"
 - Rate the "KSS"
 - Rate the "SP"
 - Execute the "NPI":
 - click "start" and react to the stimulus as quickly as possible for 5 min by touching the black dot
 - (only required for pilots)



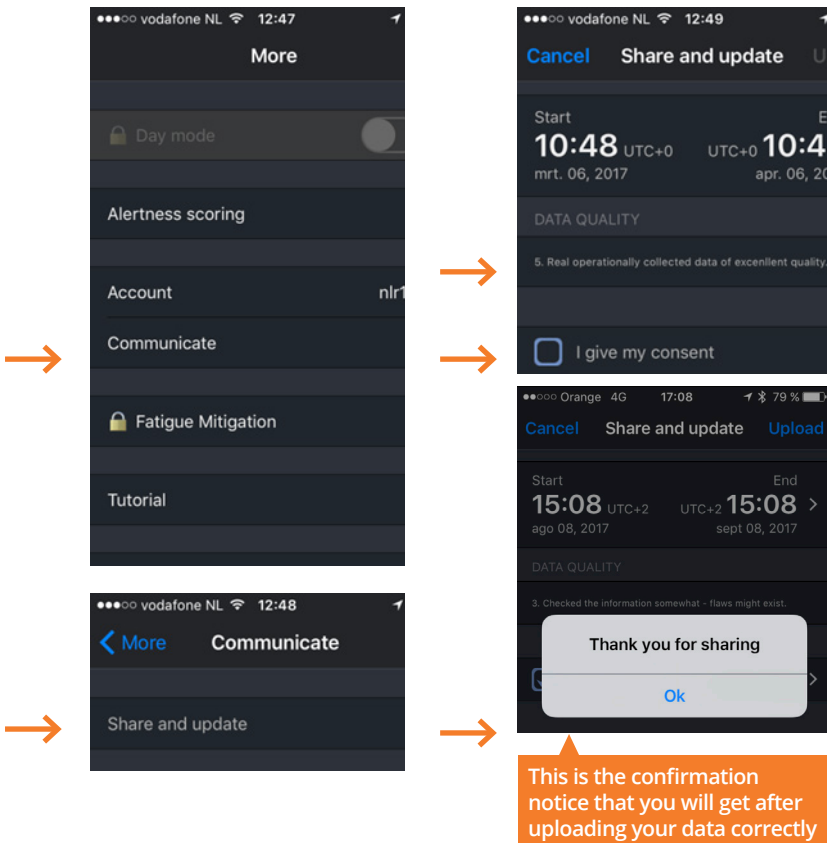
Data upload

Uploading your CrewAlert Data

Go to "More" at the bottom of your screen

- ✓ Click "Communicate"
- ✓ Click "Share and update"
- ✓ Select from "Data Quality" the fitting description of your data
- ✓ Give your consent to share your data with the study team
- ✓ Your data will not be used if you do not provide consent for this

PLEASE SHARE YOUR DATA AT THE END OF THE 14-DAYS PERIOD



Actiwatch Data

- ✓ The data is stored on the Actiwatch itself, uploading is not necessary
- ✓ The number of available Actiwatches is limited due to budgetary constraints

PLEASE RETURN THE ACTIWATCH AS SOON AS POSSIBLE AT THE END OF THE 14-DAYS PERIOD TO YOUR FTL CONTACT OR TO NLR

COMMON MISTAKES:



- ✓ **Thinking a sleep/wake log equals sleep.**
A sleep/wake log explains sleep and wake to CrewAlert and contains only wake as default. Sleep periods need to be added inside the log to record your actual sleep. (Logged sleep periods are blue in the Graph tab)
- ✓ **Not confirming in-flight sleep with a sleep/wake log.**
- ✓ **Feeding in the wrong date or time reference.**
Normally you will spot errors in data by a duty turning red. Please investigate and try to correct duties and sleep.
- ✓ **Entering every flight.**
It is enough to enter each duty: first departure, last arrival, number of flights. This is much quicker!
- ✓ **Becoming tired of collecting data.**
Take a break in the collection during days off or reduce workload by feeding in less (like skipping NPI). Duties, sleep, SP, and KSS have the highest priority.



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**Use the return envelope provided by you at distribution.
Please return to:**

Netherlands Aerospace Center NLR
Attn: Dr Henk van Dijk
P.O. Box 90502
1006 BM Amsterdam
The Netherlands

THANK YOU FOR PARTICIPATING!

If you have any questions, please contact the principal investigator
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