dreaMS^MD
Instructions for Use

SOFTWARE MEDICAL DEVICE TO ASSESS NEUROLOGICAL FUNCTIONS IN PERSONS WITH MULTIPLE SCLEROSIS IN THE FOLLOWING DOMAINS: MOVEMENTS, BALANCE, DEXTERITY and VISION.

Software version: 2.0 | Document version 1.0

CE

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Symbols in the dreaMS^{MD} SaMD and in these instructions for use follow the European standard EN ISO 15223-1:2016.

CE	CE Mark
Manufacturer symbol	Manufacturer
Caution symbol	Caution - Please consult the accompanying documents

Table of Contents

1.   Introduction

These instructions for use (IfU) are intended for persons diagnosed with Multiple Sclerosis (PwMS) and who have been prescribed dreaMS^{MD} by their Healthcare Provider (HCP).

dreaMS^{MD} is a Software as Medical Device designed to assess neurological functions in PwMS with a focus in the following domains: Movements, Balance, Dexterity and Vision.

dreaMS^{MD} has been developed, manufactured, and tested according to the most demanding quality criteria with the goal of improving the lives of persons diagnosed with Multiple Sclerosis.

1.1.   About this document and product

Before using this software for the first time, you must read these IfU. When obtaining a different version of dreaMS^{MD} than the one defined on the cover page of this document the user is bound to check that version's specific IfU.

Healios has made every effort to ensure that these IfU are as accurate as possible. However, Healios assumes no liability for any inaccuracies, out-datedness, incompleteness, or omissions that may have occurred. The software user must ensure to use the most recent version of this document corresponding to the software version in use. Healios provides the user with new versions of the IfU whenever published.

Manufacturer	Healios AG, Postfach, 4001 Basel, Switzerland
Licensor & distributor	Healios AG, Postfach, 4001 Basel, Switzerland, www.healios.io
Product	dreaMS^{MD} is a software device to assess neurological functions in persons with Multiple Sclerosis in the following domains: Movements, Balance, Dexterity and Vision. dreaMS^{MD} is a class I Medical Device.
Disclaimer	Please note that the information herein after is subject to change without notice.
Language	This document is also available in German, French, Italian
Safety & clinical performance	Our summary of safety and clinical performance can be found at www.dreams.care
Digital instructions for use	This document is provided digitally. Please consult www.dreams.care to ensure you are using the most current IfU for the version of dreaMS^{MD}

Software Lifecycle	2021-05-06 Version 2.0

1.2.   Intended Use

dreaMS^{MD} is a Software as Medical Device designed to assess neurological functions in PwMS with a focus in the following domains: Movements, Balance, Dexterity and Vision.

dreaMS^{MD} is a Software-based Medical Device designed for persons diagnosed with Multiple Sclerosis (PwMS), made available by HCP via the Healios Platform.

dreaMS^{MD} uses smartphone sensor technology to collect data from PwMS and processes these data using regulated algorithms. This is done through performing the below 10 tests that are available through the users' smartphone. The technology uses signal processing and feature extraction algorithms to analyse Inertial Measurement Unit (IMU) sensors data.

dreaMS^{MD} reports measurements to the treating HCP who accesses the data through the Healios Platform on their web browser.

dreaMS^{MD} is used by PwMS at home, without support of professional medical staff or a Healthcare Provider. The PwMS may obtain support from a family member or other caregiver but should perform the test him-/herself. Not following test instructions may lead to incorrect results.

Name	Short description	Basis
Promenade	Walk briskly for 2-minutes, without a break.	Inspired by Expanded Disability Status Scale (EDSS) ambulation score
Spanish Stairs	Walk up and down a set of stairs, answer a few questions regarding the exercise.	Inspired by Activities of Daily Living (ADL) and EDSS motor function and endurance
Swiss Guard	Make a U-turn after each 5 steps taken.	Inspired by clinical assessment of walking and balance
Musical Chairs	Stand-up and sit-down on a chair for 30 seconds.	Inspired by Timed Up & Go, reflects Activities of Daily Living (ADL).
Butler	Keep your arm up for 10 seconds each, first with eyes open and then with eyes closed.	Inspired by the Romberg test

Penguin	Stand with arms along the body for 10 seconds, first with eyes open, then with eyes closed.	Inspired by the Romberg test
Catch-A-Cloud	Touch the moving cloud with your index finger as often as possible.	Dexterity, inspired by 9HPT
Confetti	Keep phone in hand and bend the arm so that the tip of the nose touches the bullseye on the screen, with each arm separately, eyes open and closed.	Inspired by clinical "Finger-To-Nose" test
Fog	Keep phone in hand and swipe in the direction of the open side of the letter C.	Inspired by standard contrast sensitivity test
Eagle Eye	Keep phone in hand and swipe in the direction of the open side of the letter E.	Inspired by standard visual acuity test

2.   Getting Started with dreaMS^{MD}

PwMS first needs to be prescribed dreaMS^{MD} by their HCP through the Healios platform in order to gain access. Opening dreaMS^{MD} on their smartphone, PwMS will be able to visualise the 10 tests and complete them according to the schedule prescribed by their HCP. Each test has the same introduction screen as shown below:

1.   Watch the video instructions.
2.   Check the time estimated and the level of effort required.
3.   Review instructions to see how to perform the test.
4.   Main warning for the test.
5.   Start the test.
6.   Read the dreaMS^{MD} Product Label.

Healios strongly recommends PwMS to read the available instructions before performing each test. We also recommend completing the tests in an environment where PwMS can focus and minimise interruptions.

3.   Adverse Events

An adverse event is defined as any untoward medical occurrence, unintended disease or injury, or untoward clinical signs. There are no known adverse events related to the use of dreaMS^{MD}. Potential adverse events include personal injury if PwMS is unfit or test is performed in unsafe environment, risk related to misinterpretation of results or frustration because of PwMS inability to perform or complete the test. To minimize potential risk HCP and PwMS should read the warnings and precautions for every test.

4.   Technical requirements

4.1.   Smartphone for PwMS

dreaMS^{MD} is designed to run on iOS and Android mobile apps, which can be downloaded from the Apple Store and Google Play Store after you have registered the PwMS via the Healios platform.

For dreaMS^{MD} to be able to provide reliable and complete results, the PwMS smartphone will have to meet minimum requirements in terms of e.g. capacity and sensors available on the phone.

A number of dreaMS^{MD} tests require that you allow additional permissions to your smartphone device, e.g. the device camera.

Minimum device requirements	
iOS	Android
- iPhone 6 and later - iOS 11 or later 1GB RAM (automatically covered by range above) 500MB storage capacity available	- OS version 5.0 (API 21) or later - Access to Google Play services 2GB RAM 500MB storage capacity available - Sensors: GPS, Accelerometer, Gyroscope, Magnetometer, Step Detector - Front camera

Devices not compatible Please note that the below list may not be complete, and is subject to regular updates on www.dreams.care	
Manufacturer	Model
Alcatel	7 Tetra ZIP LTE
Apple	iPhone 1st generation through iPhone 5s
Caterpillar	All
DORO	All

Emporia	All
Gigaset	All
Huawei	Mate 10 Lite MateXs P10 P40 lite P Smart Y6
LG Electronics	Aristo 2 K20 Plus K40 Rebel 4 Risio 3 Stylo 3 Plus Tribute Dynasty
Motorola	Moto E4 Moto E5 Play
OPPO	Models before 2020
Ruggear	All
Samsung	Galaxy A3 Galaxy J6
Wiko	View Lite 3 Y60 Y81

5.   Safety and warranty

5.1.   Risks and Benefits

All known and foreseeable risks have been reduced as much as possible and no unacceptable risk has been identified. Potential benefits include tracking measurements in key domains outside of the clinical setting and supporting informed consultations between HCP and PwMS. Overall, the potential benefit of the device far exceeds the probable known and foreseeable risks.

5.2.   Warranty

Please refer to the No Warranties section in the dreaMS^{MD} Terms of Use.

5.3.   Warnings and precautions

As a medical device manufacturer, Healios is legally required to inform the users of our products of any safety precautions which should be considered when operating these products. The following section contains a summary of the important technical safety features of dreaMS^{MD}.

We advise that you consult with your HCP if you believe there are elements of the dreaMS^{MD} tests that are not suitable for you. We encourage that you perform the dreaMS^{MD} tests on a regular basis, as prescribed by your HCP.

dreaMS^{MD} is designed to improving care and treatment for PwMS. It should not be interpreted as a replacement for the care and expertise that provided by your treating HCP.

dreaMS^{MD} tests should only be used as an additional tool for measuring neurological functions and are not intended to be used as a stand-alone diagnostic device nor to manage changes in the disease status.

Each test will come with warnings and precautions. These are outlined in more detail in sections 5 of the IfU.

6.   dreaMS^{MD} tests

6.1.   dreaMS^{MD} Promenade test

Name	Short description	Basis
Promenade	Walk briskly for 2-minutes, without a break.	Inspired by EDSS Ambulation assessment

Intended use

dreaMS^{MD} Promenade test assesses locomotion functions but does not provide an interpretation or a clinical implication.

Contraindications

dreaMS^{MD} Promenade may not be suitable for PwMS with severe balance (equilibrium) issues or PwMS that are no longer able to walk without walking aid or help (typically observed in PwMS with EDSS 6 or more).

Test instructions

Step1	Find an open space where you can walk for 2 minutes without having to make sharp turns (large circles are okay). Do not start if you are not able to go outside or cannot find a big enough space indoors
Step 2	Please only perform this test when you feel confident that you can finish it without taking a break or losing your balance. Use walking aids if needed
Step 3	Press Start. Your phone will show a countdown of 5 seconds, place your phone in your front right pocket. Use a waist band if you do not have front pockets. Please do not press the home, standby or off button when you place the phone in your pocket, leaving the app open and the screen on. Walk briskly for 2 minutes without running, do not make sharp or U-turns
Attention!	Please do not take breaks if possible. Do not take you phone out of your pocket before the test is completed

Warnings and Precautions

⚠️	Perform the test as often as recommended by your HCP. Please note that self-testing at home does not replace your regular visits with your HCP
⚠️	Possible risk of falling, make sure there is enough space to perform the test and be careful of any obstacles
⚠️	Persons suffering from severe visual impairment (corrected near vision <0.5) may not get reliable or meaningful results
⚠️	This activity may not be suitable for PwMS with severe balance (equilibrium) issues (typically observed in PwMS with EDSS 6 or more)
⚠️	Use walking aids if needed, as indicated in the instructions in the app
⚠️	Persons suffering from, or with a recent history of, fainting or losing consciousness should not perform this activity

6.2.   dreaMS^{MD} Spanish Stairs test

Name	Short description	Basis
Spanish Stairs	Walk up and down a set of stairs, answer a few questions regarding the exercise.	Inspired by ADL and EDSS Ambulation assessment

Intended use

dreaMS^{MD} Spanish Stairs test assesses the walking functions when ascending and descending a flight of stairs but does not provide an interpretation or a clinical implication of the measurements.

Contraindications

dreaMS^{MD} Spanish Stairs test may not be suitable for PwMS with severe balance (equilibrium) issues or PwMS that are no longer able to walk (typically observed in PwMS with EDSS 6 or more).

Test instructions

Step 1	Find a staircase with 8-14 steps and a handrail (spiral staircases are not suitable). Please only perform this test when you feel confident you can finish it without taking a break or losing your balance. Use walking aids if needed
Step 2	Press 'Start'. Your phone will show a countdown of 5 seconds, place your phone in your front right pocket. Use a waist band if you do not have front pockets. Please do not press the 'home' or 'off' button when you place the phone in your pocket, leaving the app open and the screen on
Step 3	Walk up the stairs down again at a normal pace (swiftly, without rushing). One step at a time, do not skip steps
Step 4	At the bottom of the stairs, take your phone out of your pocket, press 'Finish' and fill out the short survey
Attention!	Do not take breaks if possible

Warnings and Precautions

⚠️	Perform the test as often as recommended by your HCP. Please note that self-testing at home does not replace your regular visits with your HCP
⚠️	Possible risk of falling, make sure there is enough space to perform the test and be careful of any obstacles
⚠️	Persons suffering from severe visual impairment (corrected near vision <0.5) may not get reliable or meaningful results

⚠️	This activity may not be suitable for PwMS with severe balance (equilibrium) issues (typically observed in PwMS with EDSS 6 or more)
⚠️	Use walking aids if needed, as indicated in the instructions in the app
⚠️	Persons suffering from, or with a recent history of fainting or losing consciousness should not perform this activity

6.3.   dreaMS^{MD} Swiss Guard test

Name	Short description	Basis
Swiss Guard	Make a U-turn after each 5 steps taken.	Inspired by clinical assessment of walking and balance

Intended use

dreaMS^{MD} Swiss Guard test assesses the U-turn function but does not provide an interpretation or a clinical implication of the measurements.

Contraindications

dreaMS^{MD} Swiss Guard test may not be suitable for PwMS with severe balance (equilibrium) issues or PwMS that are no longer able to walk (typically observed in PwMS with EDSS 6 or more).

Test instructions

Step 1	Find an area with at least 4-5 meters walking space. Please only perform this test when you feel confident you can finish it without taking a break or losing your balance. Use walking aids if needed
Step 2	Press 'Start'. Your phone will show a countdown of 5 seconds, place your phone in your front right pocket. Use a waist band if you do not have front pockets. Please do not press the 'home' or 'off' button when you place the phone in your pocket, leaving the app open and the screen on
Step 3	When you hear the start signal, walk 5 steps in one direction, then turn around (U-turn, 180°) and repeat for half a minute. You can freely choose the direction of the turns
Attention!	Please do not take breaks if possible. Do not take your phone out of your pocket before it beeps and vibrates once the test is completed.

Warnings and Precautions

⚠️	Perform the test as often as recommended by your HCP. Please note that self-testing at home does not replace your regular visits with your HCP
⚠️	Possible risk of falling, make sure there is enough space to perform the test and be careful of any obstacles
⚠️	Persons suffering from severe visual impairment (corrected near vision <0.5) may not get reliable or meaningful results

⚠️	This activity may not be suitable for PwMS with severe balance (equilibrium) issues (typically observed in PwMS with EDSS 6 or more)
⚠️	Use walking aids if needed, as indicated in the instructions in the app
⚠️	Persons suffering from, or with a recent history of fainting or losing consciousness should not perform this activity

6.4.   dreaMS^{MD} Musical Chairs test

Name	Short description	Basis
Musical Chairs	Stand-up and sit-down on a chair for 30 seconds.	Inspired by Timed Up & Go, reflects Activities of Daily Living (ADL).

Intended use

dreaMS^{MD} Musical Chairs test assesses the PwMS standing up and sitting down function but does not provide an interpretation or a clinical implication of the measurements.

Contraindications

dreaMS^{MD} Musical Chairs test may not be suitable for PwMS with severe balance (equilibrium) issues or PwMS that are no longer able to walk (typically observed in PwMS with EDSS 6 or more).

Test instructions

Step 1	Use a firm chair without wheels in a clear and safe area. Please only perform this test when you feel confident that you can finish it without taking a break or losing your balance
Attention!	Possible risk of falling, be careful
Step 2	Press Start. Your phone will show a countdown of 5 seconds, place your phone in your front right pocket. Use a waist band if you do not have front pockets. Please do not press the home or off button when you place the phone in your pocket, leaving the app open and the screen on
Step 3	When you hear the start signal, stand up and sit down as often as possible in 30 seconds
Attention!	Please do not take breaks if possible. Do not take your phone out of your pocket before it beeps and vibrates once the test is completed

Warnings and Precautions

⚠️	Perform the test as often as recommended by your HCP. Please note that self-testing at home does not replace your regular visits with your HCP
⚠️	Possible risk of falling, make sure there is enough space to perform the test and be careful of any obstacles
⚠️	Persons suffering from severe visual impairment (corrected near vision <0.5) may not get reliable or meaningful results
⚠️	This activity may not be suitable for PwMS with severe balance (equilibrium) issues (typically observed in PwMS with EDSS 6 or more)

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⚠️	Persons suffering from, or with a recent history of fainting or losing consciousness should not perform this activity
⚠️	Use a firm chair without wheels in a clear and safe area

6.5.   dreaMS^{MD} Butler test

Name	Short description	Basis
Butler	Keep your arm up for 10 seconds each, first with eyes open and then with eyes closed.	Inspired by the Romberg test

Intended use

dreaMS^{MD} Butler test assesses the balance and kinetic tremor functions but does not provide an interpretation or a clinical implication of the measurements.

Contraindications

dreaMS^{MD} Butler test may not be suitable for PwMS with severe balance (equilibrium) issues or PwMS that are no longer able to walk (typically observed in PwMS with EDSS 6 or more).

Test instructions

Step 1	Find a space where you can stand freely with your arms stretched out. Keep your feet together. If that feels uneasy you may move them a bit further apart to be stable. Please only perform this test when you feel confident you can finish it without taking a break or losing your balance
Step 2	Press 'Start'. Your phone will show a countdown of 5 seconds. Hold your phone flat in your right hand with your arm fully straight. Lift the right hand to shoulder height, turn your palm outward so it faces up. Hold with your eyes open for 10 seconds. When indicated, close your eyes and hold for another 10 seconds. When indicated, change to your left hand and repeat
Attention!	Your phone will signal or vibrate at each change and when the test is completed

Warnings and Precautions

⚠️	Perform the test as often as recommended by your HCP. Please note that self-testing at home does not replace your regular visits with your HCP
⚠️	Possible risk of falling, make sure there is enough space to perform the test and be careful of any obstacles
⚠️	This activity may not be suitable for PwMS with severe balance (equilibrium) issues (typically observed in PwMS with EDSS 6 or more)
⚠️	Persons suffering from, or with a recent history of fainting or losing consciousness should not perform this activity

6.6.   dreaMS^{MD} Penguin test

Name	Short description	Basis
Penguin	Stand with arms along the body for 10 seconds, with eyes open, then with eyes closed.	Inspired by the Romberg test

Intended use

dreaMS^{MD} Penguin test assesses the balance functions but does not provide an interpretation or a clinical implication of the measurements.

Contraindications

dreaMS^{MD} Penguin test may not be suitable for PwMS with severe balance (equilibrium) issues or PwMS that are no longer able to walk (typically observed in PwMS with EDSS 6 or more).

Test instructions

Step 1	Find a space you can stand freely. Keep your feet together. If that feels uneasy you may move them a bit further apart to be stable. Please only perform this test when you feel confident you can finish it without taking a break or losing your balance
Step 2	Press 'Start'. Your phone will show a countdown of 5 seconds, place your phone in your front right pocket. Use a waist band if you do not have front pockets. Please do not press the 'home' or 'off' button when you place the phone in your pocket, leaving the app open and the screen on. Keep your arms next to your body. Stand still for 10 seconds with your eyes open. When indicated, close your eyes and stand still for another 10 seconds

Warnings and Precautions

⚠️	Perform the test as often as recommended by your HCP. Please note that self-testing at home does not replace your regular visits with your HCP
⚠️	Possible risk of falling, make sure there is enough space to perform the test and be careful of any obstacles
⚠️	This activity may not be suitable for PwMS with severe balance (equilibrium) issues (typically observed in PwMS with EDSS 6 or more)
⚠️	Persons suffering from, or with a history of fainting or losing consciousness should not perform this activity

6.7.   dreaMS^{MD} Catch-A-Cloud test

Name	Short description	Basis
Catch-A-Cloud	Touch the moving cloud with your index finger as often as possible.	Dexterity, inspired by 9 Hole Peg Test (9HPT)

Intended use

dreaMS^{MD} Catch-A-Cloud test assesses the dexterity function but does not provide an interpretation or a clinical implication of the measurements.

Contraindications

Not suitable for PwMS suffering from severe visual impairment (corrected near vision <0.5).

Test instructions

Step 1	Perform this test seated. Do not rest your elbow on the arm of the chair or a table top
Attention!	Hold your phone in your non-dominant hand. Do not put your phone down. Touch the moving cloud with the index finger of your other hand as often as possible

Warnings and Precautions

⚠️	Perform the test as often as recommended by your HCP. Please note that self-testing at home does not replace your regular visits with your HCP
⚠️	Persons suffering from severe visual impairment (corrected near vision <0.5) may not get reliable or meaningful results
⚠️	Persons suffering from, or with a history of fainting or losing consciousness should not perform this activity

6.8.   dreaMS^{MD} Confetti test

Name	Short description	Basis
Confetti	Keep phone in hand and bend the arm so that the tip of the nose touches the bullseye on the screen, with each arm separately, eyes open and closed.	Inspired by clinical "Finger-To-Nose" test

Intended use

dreaMS^{MD} Confetti test assesses dexterity functions but does not provide an interpretation or a clinical implication of the measurements.

Contraindications

Not suitable for PwMS suffering from severe visual impairment (corrected near vision <0.5).

Test instructions

Step 1	Perform this test seated. Do not rest your elbow on the arm of the chair or a tabletop. Keep your right arm stretched at your eyes' height with the screen facing you
Step 2	Press Start. Your phone will show a countdown of 5 seconds. The aim is to touch the centre of the bullseye with the tip of your nose. Bend your right arm to touch the bullseye with your nose, stretch again fully and repeat for 15 seconds. When indicated, close your eyes and repeat for another 15 seconds. When indicated, change to your left hand and repeat
Attention!	Your phone will signal or vibrate at each change and when the test is completed

Warnings and Precautions

⚠️	Perform the test as often as recommended by your HCP. Please note that self-testing at home does not replace your regular visits with your HCP
⚠️	Persons suffering from severe visual impairment (corrected near vision <0.5) may not get reliable or meaningful results

6.9.   dreaMS^{MD} Fog test

Name	Short description	Basis
Fog	Keep phone in hand and swipe in the direction of the open side of the letter C	Inspired by standard contrast sensitivity test

Intended use

The dreaMS^{MD} Fog test assesses the (corrected) near vision contrast functions but does not provide an interpretation or a clinical implication of the measurements.

Contraindications

Not suitable for PwMS suffering from severe visual impairment (corrected near vision <0.5).

Test instructions

Step 1	Perform this test seated. Always use glasses or contact lenses if needed. Please always use the same pair of glasses
Step 2	Find a comfortable position with your arm to keep the phone 40 cm from your eyes (phone will guide you). For example, you could put your elbow on a table top or on your knee. Please always use the same position when performing the test
Step 3	Swipe with the index finger of your dominant hand in the direction of the opening of the letter C: up, down, left or right. The letters will gradually become dimmer until you are no longer able to see clearly. Do this first with your right eye closed, then with your left eye closed

Warnings and Precautions

⚠️	Perform the test as often as recommended by your HCP. Please note that self-testing at home does not replace your regular visits with your HCP
⚠️	Persons suffering from severe visual impairment (corrected near vision <0.5) may not get reliable or meaningful results

6.10.   dreaMS^{MD} Eagle Eye test

Name	Short description	Basis
Eagle Eye	Keep phone in hand and swipe in the direction of the open side of the letter E	Inspired by standard visual acuity test

Intended use

dreaMS^{MD} Eagle eye test assesses the (corrected) near vision acuity functions but does not provide an interpretation or a clinical implication of the measurements.

Contraindications

Not suitable for PwMS suffering from severe visual impairment (corrected near vision <0.5).

Test instructions

Step 1	Perform this test seated. Always use glasses or contact lenses if needed. Please always use the same pair of glasses
Step 2	Find a comfortable position with your arm to keep the phone 40 cm from your eyes (phone will guide you). For example, you could put your elbow on a table top or on your knee. Please always use the same position when performing the test
Step 3	Swipe with the index finger of your dominant hand in the direction of the opening of the letter E: up, down, left or right. The letters will gradually become smaller until you are no longer able to see clearly. Do this first with your right eye closed, then with your left eye closed

Warnings and Precautions

⚠️	Perform the test as often as recommended by your HCP. Please note that self-testing at home does not replace your regular visits with your HCP
⚠️	Persons suffering from severe visual impairment (corrected near vision <0.5) may not get reliable or meaningful results

7.   dreaMS_{MD} Product Label

CE	
dreaMS^{MD}	Version 2.0 2021-05-06
eIFU: www.dreams.care	
[factory symbol]	©Healios AG Postfach 4001 Basel Switzerland support@healios.io
Intended purpose: dreaMS^{MD} assesses neurological functions in the 4 following domains, Movement, Balance, Dexterity and Vision, and reports results to the Healthcare Provider.	

8.   Contact and Support

Troubleshooting issues and general feedback can be sent to Healios via e-mail at: support@healios.io. Please include anonymised screenshots of any issue encountered but not covered in this user manual.

You can also call Healios for support from Monday to Friday, during office hours, and not on Swiss national holidays: +41 61 539 19 54

Appendix 1: Open-source software licenses

This document represents the status of the dependencies for each dreaMS^{MD}. Note that each subsystem, especially for iOS and Android, may contain libraries affecting non-medical device components.

Frontend - iOS (Swift)			
Library	Version	License	Link
IQKeyboardManagerSwift	6.5.6	MIT	https://github.com/hackiftekhar/IQKeyboardManager
Moya	13.0.1	MIT	https://github.com/Moya/Moya
KeychainSwift	19.0.0	MIT	https://github.com/evgenyneu/keychain-swift
InputMask	6.1.0	MIT	https://github.com/RedMadRobot/input-mask-ios
FSCalendar	2.8.2	MIT	https://github.com/WenchaoD/FSCalendar
FlagPhoneNumber	0.8.0	Apache 2.0	https://github.com/iziz/libPhoneNumber-iOS
EVFaceTracker	1.1.0	MIT	https://github.com/evermeer/EVFaceTracker
JGProgressHUD	2.2	MIT	https://github.com/JonasGessner/JGProgressHUD
SwipeCellKit	2.7.1	MIT	https://github.com/JonasGessner/JGProgressHUD
DataCompression	3.6.0	Apache 2.0	https://github.com/mw99/DataCompression

Firebase/Messaging	7.10.0	Apache 2.0	https://github.com/firebase/firebase-ios-sdk
Firebase/InstanceID	7.10.0	Apache 2.0	https://github.com/firebase/firebase-ios-sdk
Firebase/Crashlytics	7.10.0	Apache 2.0	https://github.com/firebase/firebase-ios-sdk
Firebase/Analytics	7.10.0	Apache 2.0	https://github.com/firebase/firebase-ios-sdk
RealmSwift	10.7.2	Apache 2.0	https://github.com/realm/realm-cocoa
CVS.swift	2.4.3	MIT	https://github.com/yaslab/CSV.swift
OAuthSwift	2.1.0	MIT	https://github.com/OAuthSwift/OAuthSwift
Bugsnag	6.8.3	MIT	https://github.com/bugsnag/bugsnag-cocoa
RxSwift	6.1.0	MIT	https://github.com/ReactiveX/RxSwift
RxCocoa	6.1.0	MIT	https://github.com/ReactiveX/RxSwift
RxDataSources	5.0.0	MIT	https://github.com/RxSwiftCommunity/RxDataSources
ReachabilitySwift	5.0.0	MIT	https://github.com/ashleymills/Reachability.swift
ZIPFoundation	0.9.11	MIT	https://github.com/weichsel/ZIPFoundation

MobileRTC.framework	5.2.42037.1112	https://github.com/zoom/zoom-sdk-ios/blob/master/LICENSE.pdf	https://github.com/zoom/zoom-sdk-ios

Frontend - Android (Kotlin)			
Library	Version	License	Link
CircleImageView	3.1.0	Apache 2.0	https://github.com/hdodenhof/CircleImageView
Retrofit	2.9.0	Apache 2.0	https://github.com/square/retrofit
Firebase Messaging	20.3.0	Apache 2.0	https://github.com/firebase/firebase-android-sdk/tree/master/firebase-messaging
Firebase Crashlytics	17.4.1	Apache 2.0	https://github.com/firebase/firebase-android-sdk, https://github.com/firebase/firebase-android-sdk/tree/master/firebase-crashlytics
play-service-fitness	19.0.0	Google's service for fitness	
play-services-auth	18.1.0	Google's service for authentication	
play-services-location	17.0.1	Google's service for location	
Flexbox	2.0.1	Apache 2.0	https://github.com/google/flexbox-layout
navigation-fragment	2.3.0	Google's service for navigation	

Joda time	2.9.9	Apache 2.0	https://github.com/JodaOrg/joda-time
google.mlkit:face-detection	16.0.1	Apache 2.0	https://developers.google.com/ml-kit/vision/face-detection/android
NetworkResponseAdapter	3.0.1	Apache 2.0	https://github.com/haroldadmin/NetworkResponseAdapter
Mobile RTC	5.2.41727.0928	https://github.com/zoom/zoom-sdk-ios/blob/master/LICENSE.pdf	https://github.com/zoom/zoom-sdk-android
Realm	7.0.1	Apache 2.0	https://github.com/realm/realm-java

Backend - PHP			
Microservice - API Gateway			
Library	Version	License	Link
aws/aws-sdk-php-symfony	2.0	Apache 2.0	https://github.com/aws/aws-sdk-php-symfony
enqueue/messenger-adapter	0.2.2	MIT	https://packagist.org/packages/sroze/messenger-enqueue-transport
enqueue/sqs	0.9.12	MIT	https://github.com/php-enqueue/sqs
nelmio/api-doc-bundle	3.4	MIT	https://github.com/nelmio/NelmioApiDocBundle
php-translation/symfony-bundle	0.9.1	MIT	https://github.com/php-translation/symfony-bundle
phpoffice/phpspreadsheet	1.10	MIT	https://github.com/PHPOffice/PhpSpreadsheet
ramsey/uuid	3.8	MIT	https://github.com/ramsey/uuid
sensio/framework-extra-bundle	5.1	MIT	https://github.com/sensiolabs/SensioFrameworkExtraBundle
sentry/sentry-symfony	3.0	Apache 2.0	https://github.com/getsentry/sentry-symfony
Microservice - Auth			
abraham/twitteroauth	1.1	MIT	https://github.com/abraham/twitteroauth

aws/aws-php-sns-message-validator	1.5	Apache 2.0	https://github.com/aws/aws-php-sns-message-validator
aws/aws-sdk-php-symfony	2.0	Apache 2.0	https://github.com/aws/aws-sdk-php-symfony
doctrine/doctrine-bundle	1.11	MIT	https://github.com/doctrine/DoctrineBundle
doctrine/orm	2.6	MIT	https://github.com/doctrine/orm
lexik/jwt-authentication-bundle	2.6	MIT	https://github.com/lexik/LexikJWTAuthenticationBundle
phpunit/phpunit	7.0	Copyright (c) 2001-2021, Sebastian Bergmann https://github.com/sebastianbergmann/phpunit/blob/master/LICENSE	https://github.com/sebastianbergmann/phpunit
ramsey/uuid	3.8	MIT	https://github.com/ramsey/uuid
sentry/sentry-symfony	3.0	Apache 2.0	https://github.com/getsentry/sentry-symfony
Microservice - Engine			
abraham/twitteroauth	1.1	MIT	https://github.com/abraham/twitteroauth
aws/aws-sdk-php-symfony	2.0	Apache 2.0	https://github.com/aws/aws-sdk-php-symfony
djchen/oauth2-fitbit	1.1	MIT	https://github.com/djchen/oauth2-fitbit
enqueue/messenger-adapter	0.2.2	MIT	https://packagist.org/packages/sroze/me

			ssenger-enqueue-transport
enqueue/sqs	0.9.12	MIT	https://github.com/php-enqueue/sqs
facebook/graph-sdk	5.7	Copyright © 2017	https://github.com/facebookarchive/php-graph-sdk
google/apiclient	2.7	Apache 2.0	https://github.com/googleapis/google-api-php-client
joshcam/mysqli-database-class	2.9	Copyright © 2013	https://github.com/ThingEngineer/PHP-MySQLi-Database-Class
knpuniversity/oauth2-client-bundle	1.31	MIT	https://github.com/knpuniversity/oauth2-client-bundle
monolog/monolog	1.22	MIT	https://github.com/Seldaek/monolog
phpoffice/phpspreadsheet	1.9	MIT	https://github.com/PHPOffice/PhpSpreadsheet
ramsey/uuid	3.8	MIT	https://github.com/ramsey/uuid
sensio/framework-extra-bundle	5.1	MIT	https://github.com/sensiolabs/SensioFrameworkExtraBundle
sentry/sentry-symfony	3.0	Apache 2.0	https://github.com/getsentry/sentry-symfony
Microservice - Precard Manager			
Doctrine/orm	2.7	MIT	https://github.com/doctrine/orm
ramsey/uuid	3.8	MIT	https://github.com/ramsey/uuid

sentry/sentry-symfony	3.0	Apache 2.0	https://github.com/getsentry/sentry-symfony
Microservice - Test Manager			
beberlei/doctrineextensions	1.2	Copyright (c) 2010-2020, Benjamin Eberlei	https://github.com/beberlei/DoctrineExtensions
doctrine/orm	2.7	MIT	https://github.com/doctrine/orm
firebase/php-jwt	5.1	Copyright © 2011, Neuman Vong	https://github.com/firebase/php-jwt
ramsey/uuid	3.8	MIT	https://github.com/ramsey/uuid
sentry/sentry-symfony	3.0	Apache 2.0	https://github.com/getsentry/sentry-symfony
Microservice - User			
aws/aws-php-sns-message-validator	1.5	Apache 2.0	https://github.com/aws/aws-php-sns-message-validator
aws/aws-sdk-php-symfony	2.0	Apache 2.0	https://github.com/aws/aws-sdk-php-symfony
doctrine/orm	2.7	MIT	https://github.com/doctrine/orm
ramsey/uuid	3.8	MIT	https://github.com/ramsey/uuid
sentry/sentry-symfony	3.0	Apache 2.0	https://github.com/getsentry/sentry-symfony

Backend - Python			
Microservice - Processor			
Library	Version	License	Link
Numpy	1.18.1	3-clause BSD	https://github.com/numpy/numpy
Scipy	1.4.1	3-clause BSD	https://github.com/scipy/scipy
Pandas	0.25.1	3-clause BSD	https://github.com/pandas-dev/pandas
Transform3d	0.3.1	2-clause BSD	https://github.com/matthew-brett/transforms3d
Ruptures	1.0.3	2-clause BSD	https://github.com/deepcharles/ruptures/
Boto3	1.13.8	Apache 2.0	https://github.com/boto/boto3
Botocore	1.16.8	Apache 2.0	https://github.com/boto/botocore
Python-dotenv	0.13.0	Copyright © 2014, Saurabh Kumar	https://github.com/theskumar/python-dotenv
Requests	2.23.0	Apache 2.0	https://github.com/psf/requests
Pylint	2.5.2	GPL-2.0	https://github.com/PyCQA/pylint
Pylint-runner	0.5.4	MIT	https://github.com/MasterOdin/pylint_runner
Pyts	0.11.0	3-clause BSD	https://github.com/johannfaouzi/pyts
Scikit-learn	0.23.1	3-clause BSD	https://github.com/scikit-learn/scikit-learn

Dask	2.19.0	3-clause BSD	https://github.com/dask/dask/
Sentry-sdk	0.16.2	2.clause BSD	https://github.com/getsentry/sentry-python
Coverage	5.3	Apache 2.0	https://github.com/nedbat/coveragepy