FOR PUBLIC CONSULTATION

IN CASE DMA.100203 – ARTICLE 6(7) – APPLE – IOS – SP – FEATURES FOR CONNECTED PHYSICAL DEVICES

On 18 December 2024, the Commission adopted its preliminary findings in case *DMA.100203 – Article 6(7) – Apple – iOS – SP – Features for connected physical devices*, setting out the proposed measures that Apple should implement to ensure effective interoperability with iOS for connected devices. The Commission is consulting interested third parties on these measures, ([1]) and in particular on their effectiveness, completeness, feasibility and implementation timelines. These measures are preliminary and might be adjusted subject to feedback from third parties and Apple as well as further investigative steps.

Table of Contents

EC - For public consultation

([1]) Pursuant to Article 8(6) of Regulation 2022/1925.

PROPOSED MEASURES

1. FEATURES FOR INTERACTIVITY

1.1. iOS Notifications

(1) Apple shall provide effective interoperability with the iOS notifications feature.

(2) The iOS notifications feature enables Apple's hardware and services, including Apple connected physical devices, to access, use, and transmit iOS notifications. An iOS notification is a message, icon or another symbol that iOS displays or can display on an iOS device, by showing an alert, playing a sound, or badging the icon of an app sending the iOS notification. iOS notifications can originate from different sources, including Apple's apps, third-party apps and the operating system iOS. iOS notifications include all notifications linked to an app developed for iOS, irrespective of whether they are locally generated by the iOS app on the iOS device or whether they are generated on the iOS app developer's server and transmitted to the Apple Push Notification Service ("APNs"). In the latter case, iOS notifications also include those notifications which are linked to an iOS app but sent directly from APNs to another Apple connected physical device (i.e., without passing through the iOS device). End users have access to iOS settings regarding iOS notifications, which include the possibility for end users to configure if and how, and which iOS notifications are forwarded to the connected physical device. The iOS device can directly transmit iOS notifications to the Apple connected physical device via Bluetooth. On the Apple connected physical device, end users can reply and interact with iOS notifications (e.g., to accept or decline a calendar invitation), with the reaction being reflected on the iOS device (e.g., in the calendar app).

(3) Apple shall implement an interoperability solution that provides third parties with access to the same iOS notifications feature described in the preceding paragraph as available to Apple, in a way that is equally effective as the solution available to Apple.

(4) Apple shall provide effective interoperability with all functionalities of the iOS notifications feature which are available to Apple's own connected physical devices, including, but not limited to, Apple Watch, Apple Vision Pro, as well as any future Apple connected physical devices. These functionalities are:

(a) Receiving iOS notifications on the connected physical device and responding to iOS notifications on the connected physical device so as to ensure that the response is registered and reflected by the iOS device,

(b) Selecting which iOS notifications are shown on each connected physical device within the companion app of the respective connected physical device or the iOS settings menu, and

(c) Displaying logos associated with the app posting the iOS notification and images, attachments and other metadata associated with the iOS notification on the connected physical device.

EC - For public consultation

(5) Apple shall grant access to additional functionalities to third parties to the extent required to enable effective interoperability with the iOS notifications feature described in paragraph (2) of this Document.

(6) Apple shall also provide effective interoperability with any future functionalities of the iOS notifications feature insofar and as soon as they are available to Apple's own connected physical devices. To the current knowledge of the Commission, these future functionalities are:

(a) prioritising certain notifications on top of the screen of the connected physical device (so called "Priority Notifications"), and

(a) showing a summary of non-emergency notification at scheduled times (so called "Summary Notifications").

(7) To provide third parties with an interoperability solution for the iOS notifications feature described in paragraph (2) of this Document that is equally effective as that available to any of Apple's own connected physical devices, Apple shall implement the following measures:

(a) Apple shall provide third-party iOS apps (e.g., the companion apps of the connected physical device) with the full and complete payload and metadata of all iOS notifications. The third party must then be able to decide whether and how an iOS notification is relayed to the third-party connected physical device.

(b) Apple shall ensure that third parties are free to decide which transport technology they use to relay the iOS notification to the connected physical device (e.g., Bluetooth only or other technologies such as infrastructure Wi-Fi, peer-to-peer Wi-Fi or cellular connections).

(c) Apple shall allow third parties to implement in their iOS app, or make available in iOS settings, functionality which allows end users to decide which iOS notifications from which apps are proxied to the third-party connected physical device.

(8) Apple shall ensure that any interoperability solution for iOS notifications does not require any changes or further implementation to apps posting notifications. To the extent the developer of an app sending notifications has foreseen certain functionalities or settings for the transmission and showing of its notifications on Apple's connected physical devices, in particular the Apple Watch, these must automatically and to the same extent be available to third parties.

(9) For future functionalities of or updates to the iOS notifications feature, Apple shall make them available to third parties no later than at the time they are made available to any Apple connected physical device.

(10) Apple shall implement the measures above in compliance with the measures for all features in Section 4 below.

(11) Apple shall implement the measures above in the next major iOS release, and in any case by the end of 2025 at the latest.

EC - For public consultation

1.2. Background Execution

(12) Apple shall provide effective interoperability with the background execution feature.

(13) The background execution feature consists in the ability to timely execute actions on and communicate with an iOS device with respect to Apple connected physical devices. The background execution feature allows Apple to access relevant iOS interfaces and resources regardless of whether an active end user interaction took place (e.g., after an iPhone is switched on, when the screens of the iPhone and/or connected physical device are locked). In particular, it allows Apple to ensure that the iOS device can: continuously scan for Bluetooth Low Energy (BLE) advertisement from connected physical devices; establish and maintain a connection with connected physical devices; have network access for purposes related to connected physical devices, e.g., to send and receive data via the internet.

(14) Apple shall allow third parties effective interoperability with the same background execution feature described in the preceding paragraph as available to Apple, in a way that is equally effective as the solution available to Apple.

(15) Apple shall provide interoperability with all functionalities of the background execution feature which are available to Apple's own connected physical devices, including, but not limited to, Apple Vision Pro, Apple Watch, as well as any future Apple connected physical devices. These functionalities are:

(a) Apple shall grant iOS companion apps, ([2]), iOS sister applications, ([3]) and relevant iOS processes the same background execution capabilities on iOS devices to execute actions with respect to third-party connected physical devices that Apple grants itself, including via iOS processes and iOS daemons, to execute actions with respect to Apple's connected physical devices. This includes any restrictions, time windows, and resource limitations.

(b) Any limitation on the background execution capabilities of third-party iOS companion apps, iOS sister applications, or relevant iOS processes as a result of a user action is only permissible if the user can take the same action with the same limiting effect regarding the same type of Apple connected physical device. This includes the action of a user terminating a companion or sister app in the app switching menu ("force-quitting") and the action of toggling the Wi-Fi or Bluetooth buttons, and the resulting impact on background execution with the connected physical device.

EC - For public consultation

([2]) An iOS companion app is an iOS application that facilitates the use of connected physical devices, such as the pairing between an iPhone and the connected physical device, setup of the connected physical device, controlling functionalities of the connected physical device, or offering services relating to the use of the connected physical device.

([3]) A sister application is an application that is designed to communicate with the same application on another device, with both applications being created by the same app developer. An iOS sister application is then an iOS application that is designed to communicate with the same application on a connected physical device. For example, a fitness application for a smartwatch may have an iOS sister application to synchronise fitness statistics.

(c) If Apple presents end users of third-party iOS companion apps or iOS sister applications with a choice regarding the level of background execution capabilities or background connection to a connected physical device, it must present the same choice in the same manner, including regarding time, place, and cadence, to end users of Apple's connected physical devices. Apple may only present end users with a specific choice (e.g., optimized time-constrained runtime) if Apple implements and offers this choice for its own connected physical device.

(d) The ability of the third-party iOS companion app or iOS sister application to make full use of its background execution capabilities, regardless of whether an active end user interaction took place (e.g., after an iPhone is switched on, when the screens of the iPhone and/or connected physical device are locked), comprising:

(1) to have the iOS device constantly listen for signals from the third-party connected physical device based on BLE and any other communication protocol that Apple uses for the purpose of scanning for advertisements from the connected physical device;

(2) to allow the iOS companion app or iOS sister app to establish and maintain a connection between the iOS device and the third-party connected physical device at any time to transmit data between the app and the third-party connected physical device;

(3) to allow the iOS companion app and iOS sister app network access on the iOS device, including to send and receive data from internet servers, for purposes related to the connected physical device.

(16) Apple shall grant access to additional functionalities to third parties to the extent required to enable effective interoperability with the background execution feature described in paragraph (13) of this Document.

(17) Apple shall implement the measures above in compliance with the measures for all features in Section 4 below.

(18) Apple shall implement the measures above in the next major iOS release, and in any case by the end of 2025 at the latest.

1.3. Automatic audio switching

(19) Apple shall provide effective interoperability with the automatic audio switching feature.

(20) The automatic audio switching feature consists in the ability of Apple's services to receive and use relevant data and information which is controlled or accessed by iOS to implement automatic audio switching functionality on Apple devices. Apple's audio switching functionality allows end users using Apple's own wireless headphones to automatically have the audio source (i.e., active Bluetooth connection) switch between two different Apple devices, such as an iOS device and an iPad.

EC - For public consultation

(21) Automatic audio switching on Apple devices relies on certain information from Apple and third-party applications on iOS, and from iOS. This includes the relevant audio type (e.g., media, call, notification). Relevant information also includes data and information on the current and previous audio route (e.g., local speakers, wired headphones, wireless headphones, car, etc.) the reason for selecting the current audio source (user action, iOS decision, random, etc.), and information on the upcoming audio source.

(22) Apple shall implement an interoperability solution that provides third parties with access to the same automatic audio switching feature described in the preceding two paragraphs as available to Apple, in a way that is equally effective as the solution available to Apple.

(23) This means that third parties must have access to the same data and information controlled or accessed by iOS that Apple uses to implement automatic audio switching functionality on Apple devices.

(24) Apple must make that data and information available to third parties at the same time as it is made available to the processes or services that implement the automatic audio switching functionality on Apple devices.

(25) This data and information that Apple uses to implement automatic audio switching functionality on Apple devices may change over time. Any such change constitutes an update of the automatic audio switching feature.

(26) Apple shall grant access to additional functionalities to third parties to the extent required to enable effective interoperability with the automatic audio switching feature described in paragraphs (20)-(21) of this Document.

(27) Apple shall implement the measures above in compliance with the measures for all features in Section 4 below.

(28) Apple shall implement the measures above in the next major iOS release, and in any case by the end of 2025 at the latest.

2. FEATURES FOR DATA TRANSFERS

2.1. High-bandwidth Peer-to-Peer Wi-Fi connection

(29) Apple shall provide effective interoperability with the high-bandwidth peer-to-peer ("P2P") Wi-Fi connection feature.

(30) The P2P Wi-Fi connection feature enables iOS devices to establish and use a P2P Wi-Fi connection with another Apple device that supports the same P2P Wi-Fi communication protocol. The P2P Wi-Fi connection connects devices to transfer data without an intermediary, meaning that the P2P Wi-Fi connection works independently of either of the involved devices being connected to any local infrastructure Wi-Fi or cellular network. Furthermore, the P2P Wi-Fi connection can work concurrently with an infrastructure Wi-Fi connection. This means that an iOS device can be connected to a connected physical device via a P2P Wi-Fi connection, while maintaining a connection with infrastructure Wi-Fi. Apple

EC - For public consultation

implemented and uses the P2P Wi-Fi communication protocols AWDL and Wi-Fi Aware on iOS devices.

(31) Apple shall implement an interoperability solution that provides third parties with access to the same high-bandwidth P2P Wi-Fi feature described in the preceding paragraph as available to Apple, in a way that is equally effective as the solution available to Apple.

(32) Apple shall provide interoperability with all functionalities of the high-bandwidth P2P Wi-Fi connection feature which are available to Apple's own connected physical devices, including, but not limited to, Apple Vision Pro, Apple Watch, as well as any future Apple connected physical devices. These functionalities are:

(a) Initiating a P2P Wi-Fi connection by discovering nearby connected physical devices and securely pairing with a nearby connected physical device via P2P Wi-Fi.

(b) Establishing a P2P Wi-Fi connection with high bandwidth, high speed, and low latency, that does not have a central coordinator, and that can be maintained for an unlimited amount of time.

(c) Establishing a P2P Wi-Fi connection that can run independently and concurrently to infrastructure Wi-Fi (e.g., via internet router or hotspot provided by the iOS device or connected physical device) via channel switching, as well as synchronization to improve the performance of channel switching.

(d) Establishing a P2P Wi-Fi connection that serves as a hotspot providing internet access to a connected physical device using the concurrent infrastructure Wi-Fi or cellular connection.

(e) Establishing multiple concurrent P2P Wi-Fi connections without discontinuing existing P2P Wi-Fi connections between an iOS device and connected physical devices.

(f) Establishing a P2P Wi-Fi connection automatically, meaning that the connection is established with no or limited (i.e., one-time) end user engagement.

(g) Allowing the P2P Wi-Fi connection between trusted devices to run in the background after initiation, without the need for the app(s) initiating the P2P Wi-Fi connection to be in the foreground.

(h) Allowing iOS applications to use the established P2P Wi-Fi connection.

(i) Disabling the P2P Wi-Fi connection automatically once the use case is completed in order to save battery power and Wi-Fi bandwidth.

(33) Apple shall grant access to additional functionalities to third parties to the extent required to enable effective interoperability with the P2P Wi-Fi connection feature described in paragraph (30) of this Document.

EC - For public consultation

(34) Apple shall also provide effective interoperability with any future functionalities of the P2P Wi-Fi connection feature insofar and as soon as they are available to Apple's own connected physical devices.

(35) The Commission preliminarily understands that access to a high-bandwidth P2P Wi-Fi connection could be made available to third-party connected physical devices in two alternative ways, which the Commission preliminarily considers to constitute effective interoperability solutions for the high-bandwidth P2P Wi-Fi connection feature.

(36) *As a first alternative,* Apple could make AWDL available to third-party connected physical devices on iOS. This means in practice that Apple shall:

(a) Allow third-party connected physical devices to establish an AWDL connection using an AWDL SDK, APIs, or similar, with an iOS device.

(b) Provide third-party device manufacturers with access to the relevant Wi-Fi specifications required to support AWDL, including supporting the different chipsets, operating systems, hardware capabilities, or host Wi-Fi software stacks required to implement the AWDL protocol on third-party connected physical devices.

(c) Provide third parties with the same connection metadata and allow third parties to configure the same parameters of the AWDL connection as Apple uses itself in its AWDL P2P Wi-Fi connection solution.

(37) For future functionalities of or updates to the AWDL implementation, Apple shall make them available to third parties no later than at the time they are made available to any Apple connected physical device.

(38) *As a second alternative,* Apple could make Wi-Fi Aware available to third-party developers to establish a high-bandwidth P2P Wi-Fi connection between iOS devices.

(39) Implementing a solution based on the use of Wi-Fi Aware means that Apple shall allow third-party connected physical devices access to the same functionalities of the P2P Wi-Fi connection feature as available to Apple's own connected physical devices. This means in practice that Apple shall:

(a) Implement Wi-Fi Aware in its iOS devices and iOS in accordance with the Wi-Fi Aware specification.

(b) Allow third-party iOS app developers to establish a Wi-Fi Aware connection between an iOS device and any third-party connected physical device that supports Wi-Fi Aware.

(c) Allow third-party iOS app developers to establish a Wi-Fi Aware connection on-demand, without further user intervention via the companion app or otherwise, or without more user intervention than is required between Apple devices for AWDL connections.

(d) Allow third-party connected physical devices to establish a Wi-Fi Aware P2P connection with an iOS device, while the iOS device can maintain an

EC - For public consultation

infrastructure Wi-Fi connection in parallel. Furthermore, Apple should allow iOS apps and third-party devices to implement a channel switching policy that is best for their use case.

(e) Allow third parties access to the same connection metadata and allow third parties to configure the same parameters of the Wi-Fi Aware connection as Apple uses itself in its P2P Wi-Fi connection solution.

(f) To the extent technically possible, ensure that the Wi-Fi chip of iOS devices, including legacy devices, have sufficient memory available to run two concurrent P2P Wi-Fi connections until Apple deprecates AWDL. According to Apple, this includes all iOS devices that were launched in 2018 or later (except for iPhone XR) that can upgrade to iOS 19.

(g) Continue to engage with Wi-Fi Alliance participants to further improve the Wi-Fi Aware standard.

(h) Update the iOS Wi-Fi Aware implementation to support the newest Wi-Fi Aware standard after its adoption by the Wi-Fi Alliance within a reasonable timeframe. For the avoidance of doubt, this includes supporting the newest 802.11 wireless communication standards (e.g., IEEE 802.11ax/Wi-Fi 6) if specified as part of Wi-Fi Aware.

(40) To the extent technically possible, Apple shall provide third parties with a Wi-Fi Aware implementation in a way that is equally effective as its own implementation of P2P Wi-Fi, whichever offers better quality or functionalities, to ensure that the same feature used by Apple's services is available to third parties. In case of continued use of both AWDL and Wi-Fi Aware, Apple must ensure that the solution made available to third-party connected devices is in no way inferior to the solution made available to Apple's connected devices. For future functionalities of or updates to the Wi-Fi Aware implementation, Apple shall make them available to third parties no later than at the time they are made available to any Apple connected physical device.

(41) Apple shall implement the measures above in compliance with the measures for all features in Section 4 below.

(42) Apple shall implement the measures above in the next major iOS release, and in any case by the end of 2025 at the latest.

2.2. AirDrop

(43) Apple shall provide effective interoperability with the AirDrop feature.

(44) The AirDrop feature consists in the ability of end users to exchange files between iOS devices and Apple connected physical devices using AirDrop. AirDrop allows end users to transfer files (or more generically "items"), such as photos, URLs, or documents, between nearby AirDrop-capable Apple devices, such as between iPhones, iPads, Mac computers, Apple Vision Pro and Apple Watches.

(45) Apple shall implement an interoperability solution that provides third parties with access to the same AirDrop feature described in the preceding paragraph as

EC non-public consultation

available to Apple, in a way that is equally effective as the solution available to Apple.

(46) Apple shall provide interoperability with all functionalities of the AirDrop feature which are available to Apple's own connected physical devices, including, but not limited to, Apple Vision Pro, Apple Watch, as well as any future Apple connected physical devices.

(47) Apple shall provide a protocol specification that gives third parties all information required to integrate, access, and control the AirDrop protocol within an application or service (including as part of the operating system) running on a third-party connected physical device in order to allow these applications and services to send files to, and receive files from, an iOS device.

(48) Apple shall allow third-party connected physical devices to discover nearby iOS devices using the communication protocols available to and used by AirDrop on iOS devices, including, but not limited to, BLE, NFC, or P2P Wi-Fi (AWDL or Wi-Fi Aware).

(49) Apple shall allow third-party connected physical devices to be discovered by AirDrop on nearby iOS devices in the same way Apple devices are discovered, using the communication protocols available to and used by AirDrop on iOS devices, including, but not limited to, BLE, NFC, or P2P Wi-Fi (AWDL or Wi-Fi Aware), as applicable.

(50) Apple shall allow third-party connected physical devices to be displayed in the iOS Share Sheet and in the AirDrop list of destinations, under the same conditions as Apple's connected physical devices.

(51) Apple shall allow third-party connected physical devices (and applications and services running on them) to transfer files to the iOS device using the communication protocols available to and used by AirDrop on iOS devices, including, but not limited to, BLE, infrastructure Wi-Fi or P2P Wi-Fi (AWDL or Wi-Fi Aware).

(52) Apple shall enable AirDrop on iOS devices to transfer files to third-party connected physical devices (and applications and services running on them) using the communication protocols available to the iOS device and the third-party connected device.

(53) Apple shall treat Apple's and third-party connected physical devices and applications and services running on them in the same way as regards sharing files via AirDrop, including regarding connection speed and latency, file type (including URLs), file size limitations, and background execution.

(54) Apple shall provide third parties with the same metadata, including on the iOS application in the context of which the file was transferred via AirDrop, as iOS provides to receiving Apple devices.

(55) Apple shall treat files received from sending third-party connected physical devices in the same way as files from sending Apple devices on the receiving iOS device, including opening received files in associated iOS applications and storage location and labelling shared files as "Shared With You".

EC - For public consultation

(56) Apple shall allow third-party connected physical devices (and applications and services running on them) to use the Everyone mode that is available to Apple's connected physical devices when sharing files with iOS devices via AirDrop.

(57) Apple shall allow third-party connected physical devices (and applications and services running on them) to use the Contacts Only mode that is, or will be, available to Apple's connected physical devices when sharing files with iOS devices via AirDrop. This means that third-party connected physical devices should be able to identify nearby Apple devices as mutual contacts and vice versa.

(58) In addition, the interoperability solution must not require any changes or further implementation from developers of apps supporting the sharing of content, or their end users. To the extent the developer of an app has foreseen that certain content can be shared by the user via AirDrop to Apple's connected physical devices, this must automatically and to the same extent be available to third parties offering connected physical devices so that users benefit of a comparable experience.

(59) Apple shall grant access to additional functionalities to third parties to the extent required to enable effective interoperability with the AirDrop feature described in paragraph (44) of this Document.

(60) For future functionalities of or updates to the AirDrop feature, Apple shall make them available to third parties no later than at the time they are made available to any Apple connected physical device.

(61) Apple shall implement the measures above in compliance with the measures for all features in Section 4 below.

(62) Apple shall implement the measures above in the next major iOS release, and in any case by the end of 2025 at the latest.

(63) [Confidential - implementation timing regarding Contacts Only mode]

2.3. AirPlay

(64) Apple shall provide effective interoperability with the AirPlay feature.

(65) The AirPlay feature consists in the ability of Apple connected physical devices to interoperate with Apple's media casting iOS feature AirPlay. This enables end users on iOS devices to cast audio, video and screen content from an iOS device to Apple connected devices and from Apple connected devices to iOS devices.

(66) Apple shall implement an interoperability solution that provides third parties with access to the same AirPlay feature described in the preceding paragraph as available to Apple, in a way that is equally effective as the solution available to Apple.

(67) Apple shall make available the possibility for a third-party connected physical device to become an AirPlay receiver, i.e., allowing the iOS device to cast content to a receiving third-party connected physical device, to all interested third parties independently of the product category, for video, audio, and screen mirroring;

(68) Apple shall make available the possibility for a third-party connected physical device to become an AirPlay sender, i.e., allowing a sending third-party connected

EC - For public consultation

physical device to cast content to a receiving iOS device, to all interested third parties independently of the product category, for video, audio, and screen mirroring;

(69) Apple may only impose reasonable, strictly necessary and proportionate technical or contractual conditions on third parties in that regard. To the extent a third-party connected physical device must meet technical requirements to be able to act as an AirPlay sender or receiver, these requirements must:

(a) be general in their application, transparent and publicly available,

(b) be fair, reasonable and non-discriminatory towards all interested third parties,

(c) not be more restrictive than is technically necessary for a connected physical device to effectively operate as an AirPlay receiver or sender, and

(d) not be more restrictive than those that apply for Apple's own connected physical devices (i.e., Apple's own connected physical devices may not be subject to more favourable requirements and criteria).

(70) Apple must conclude any process to accept third-party physical connected physical devices as an AirPlay audio receiver within 60 business days or an AirPlay video receiver within 120 business days, unless the delay is caused solely by the third party or Apple demonstrates that it received an unusually high number of requests (e.g., immediately following the adoption of the decision in these proceedings).

(71) AirPlay must not discriminate between Apple's and third-party connected physical devices. This includes but is not limited to (i) access to the AirPlay user interface, (ii) device discovery, (iii) casting initiation, (iv) communication protocols used, (v) background execution, (vi) audio / image quality, (vii) connection speed and latency, (ix) support for DRM-protected content, (x) hardware feature use, and (xi) audio / video remote control (e.g., volume, pausing).

(72) Apple shall enable third-party connected physical devices that want to act as an AirPlay sender to discover iOS devices that can act as AirPlay receivers using the communication protocols available to and used by AirPlay on iOS devices, including, but not limited to, BLE or a local network.

(73) Apple shall make the P2P Wi-Fi communication protocol, that it must implement to achieve effective interoperability with the P2P Wi-Fi feature, available for AirPlay casting sessions with third-party devices. The usage of this protocol should guarantee optimal connection speed and latency, and therefore optimal audio and image quality.

(74) Apple shall grant access to additional functionalities to third parties to the extent required to enable effective interoperability with the AirPlay feature described in paragraph (65) of this Document.

(75) For the purpose of ensuring that effective interoperability continues in the future, third parties must also have access to any future feature functionalities and updates of the AirPlay feature insofar and as soon as they are available to Apple's own devices. For example, if Apple updates AirPlay to stream video at higher

EC - For Public Consultation

resolution, or to allow end users to initiate casting of the currently playing video via an AI assistant, these updates should be made available to third parties as well.

(76) Apple shall implement the measures above in compliance with the measures for all features in Section 4 below.

(77) Apple shall implement the measures above with respect to the AirPlay receiver functionality in the next major iOS release, and in any case by the end of 2025 at the latest. Apple shall implement the measures above with respect to the AirPlay sender functionality within 12 months of the date of the notification of a final decision in this case.

2.4. Close-range wireless file transfer services

(78) Apple shall provide effective interoperability with the features for close-range wireless file transfer services.

(79) The features for close-range wireless file transfer services allow Apple to offer feature-rich close-range wireless file transfer services, including AirDrop. Close-range wireless file transfers services, such as AirDrop, allow iOS devices to transfer files, such as photos or documents, between nearby devices. Furthermore, close-range wireless file transfer services encompass the ability to pair nearby devices and have access to several communication protocols to transfer files (e.g., P2P Wi-Fi, infrastructure Wi-Fi).

(80) Apple shall implement an interoperability solution that provides third parties with access to the same features for close-range wireless file transfer services described in the preceding paragraph as available to Apple, in a way that is equally effective as the solution available to Apple.

(81) Apple shall allow third parties effective interoperability with the same features for close-range wireless file transfer services controlled by iOS and their functionalities as available to Apple's own connected physical devices (including via AirDrop), including, but not limited to, Apple Watch, Apple Vision Pro, as well as any future Apple connected physical devices. Apple shall implement an interoperability solution that is equally effective as the solution available to Apple. To that end, Apple shall make the following features available to third-party close-range wireless file transfer solutions:

(a) **Accessibility.** The ability of close-range wireless file transfer services to be displayed and easily accessible in Apple and third-party products and services on iOS device as available to Apple.

(b) **Advertisement and device discovery.** The ability of close-range wireless file transfer services to use a communication protocol to discover and be discovered by nearby devices as available to Apple.

(c) **Trusted devices.** The ability of close-range wireless file transfer services to establish trust with another device and subsequently filter incoming file transfer requests based on whether the shared file is being sent from a device that is trusted as is available to Apple.

EC - For public consultation

(d) **Protocols.** The ability of close-range wireless file transfer services to establish and use the most appropriate available connection between an iOS device and an Apple or non-Apple connected physical device via a communication protocol or file sharing protocol that is based on a communication protocol.

(e) **Background execution.** The ability of close-range wireless file transfer services to initiate, execute, and continue file sharing in the background.

(f) **File context.** The ability of close-range wireless file transfer services to launch the application from which a file was shared using a close-range wireless file transfer service and store the file in that application.

(82) To provide third parties with an interoperability solution for iOS features of close-range wireless file transfer services that is equally effective as that available to any of Apple's own connected physical devices, Apple shall implement the following measures.

(83) **Accessibility.**

(a) Apple shall allow third-party iOS applications that offer close-range wireless file transfers to be displayed in the iOS Share Sheet under the same conditions as Apple's wireless file transfer feature, namely AirDrop, is displayed.

(b) Apple shall allow third-party iOS applications to launch the close-range wireless file transfer by tapping on the respective service in the iOS Share Sheet, which ultimately allows the end user to use the solution without the need to open the third-party iOS application in the foreground.

(c) Apple shall allow third-party applications to trigger the system UI responsible for the file transfer in the sending or receiving iOS device, provided that the receiving device has the application installed. This may include triggering device pairing. Furthermore, user prompts shown to the end user using a third-party solution should be the same as when using an Apple solution such as AirDrop, both on the sending and the receiving device.

(d) In the event that the close-range wireless file transfer application is not installed on the receiving device, Apple shall allow the sending device to discover the receiving device, and shall allow the user of the receiving device to be informed of an incoming file and to be guided to the default app store in order to facilitate the installation of the close-range wireless file transfer application.

(e) Apple shall allow the user to set the preferred behaviour in settings for third-party close-range file transfer applications, including selecting between "Everyone" and "Contacts only". Apple shall apply the same measures to these settings as it applies to AirDrop settings; in particular, Apple shall apply the same default settings.

(84) **Advertisement and device discovery.**

EC - For public consultation

(a) Apple shall allow third-party close-range wireless file transfer iOS applications to discover nearby Apple and non-Apple connected physical devices using protocols that include, but are not limited to, BLE, a P2P Wi-Fi connection, and NFC.

(b) Apple shall allow third-party connected physical devices to discover nearby iOS devices for close-range wireless file transfers using protocols that include, but are not limited to, BLE, a P2P Wi-Fi connection, and NFC.

(c) Apple shall allow third-party iOS applications access to the iOS feature that scans for advertisements for close-range wireless file transfers from nearby connected physical devices, regardless of whether an active end user interaction took place (e.g., after an iPhone is switched on, when the screens of the iPhone and/or connected physical device are locked).

(85) **Trusted devices.**

(a) Apple shall allow third-party close-range wireless file transfer iOS applications to permanently trust a device, e.g., by means of pairing with a pin code, such that future file transfers do not require re-establishing this trust. Third-party iOS applications should not be required to show any different prompts than Apple's solutions, such as AirDrop, are required to show. If Apple would develop a solution to pre-share pairing codes with less end user friction, this solution would also need to be made available to third parties.

(b) Apple shall allow third-party close-range wireless file transfer iOS applications to limit device discovery of nearby connected physical devices to devices that the end user has previously trusted, regardless of whether the trusted device is an Apple or third-party device, based on the user's choice for the device discovery mode.

(c) Apple shall allow third-party close-range wireless file transfer iOS applications to automatically trust other connected physical devices if they belong to the same user, regardless of whether the trusted device is an Apple or third-party device.

(d) Allowing third-party close-range wireless file transfer iOS applications to automatically trust connected physical devices from contacts, including, but not limited to, through access to contact information from the Contacts database subject to end user consent.

(86) **Protocols.**

(a) Apple shall allow third-party close-range wireless file transfer iOS applications to use any communication protocol available to Apple, which includes but is not limited to, BLE, infrastructure Wi-Fi, cellular network and P2P Wi-Fi connection, to transfer files between the iOS device and nearby Apple or third-party physical devices (and vice-versa). For P2P Wi-Fi communication protocols, this may require making available the relevant protocol, namely AWDL or Wi-Fi Aware.

EC - for public consultation

(b) Apple shall allow third-party close-range wireless file transfer iOS applications to integrate their own file transfer protocols based on communication protocols.

(c) Apple shall allow third-party iOS applications that offer wireless file transfers to change the communication protocol, for instance in the case where a faster alternative communication channel is available, and providing third-party iOS applications with the relevant information in order to make such a decision.

(d) Apple shall allow third-party iOS applications that offer wireless file transfers to continue file sharing if the devices involved in the file transfer move out of wireless range, and provide the relevant connection metadata to indicate that the devices moved out of wireless range.

(87) **Background execution.**

(a) Apple shall allow third-party close-range wireless file transfer iOS applications with the same background execution abilities as are available to Apple's products, such as AirDrop. This includes, but is not limited to, the ability to launch the file sharing protocol without needing to open the iOS application (e.g., via the iOS Share Sheet).

(b) Apple shall allow third-party close-range wireless file transfer iOS applications to continue receiving and sending files that are being transferred in the background after the transfer started, meaning that the application from which a file was initially transferred does not need to remain in the foreground.

(88) **File context.**

(a) Apple shall allow third-party iOS applications to store received files from an Apple or third-party connected physical device in the respective iOS application corresponding to the application from which it was sent, provided that that application is installed on the receiving iOS device, including, but not limited to, access to the relevant metadata in order to do so.

(b) Apple shall allow third-party iOS applications that offer wireless file transfers to send the relevant metadata alongside the file that is sent from an Apple device to an Apple or third-party connected physical device, such that the receiving device can open the file in the respective application corresponding to the application from which it was sent, provided that the application is installed on the receiving device.

(c) For instances in which the iOS application corresponding to the application from which a file was sent is not installed on the receiving iOS device, and subject to end user consent, Apple shall allow a third-party iOS application to trigger the opening of the default app store on the receiving device to lead the end user to the respective application.

(d) Apple shall allow third-party iOS applications to tag files transferred via their file transfer service with the same "Shared With Me" tag as available to iOS features such as AirDrop. In particular, the files shared via a third-party

EC - For public consultation

service should be similarly visible as search results as files are that were transferred via AirDrop.

(89) Apple shall grant access to additional functionalities to third parties to the extent required to enable effective interoperability with the features for close-range wireless file transfer services described in paragraph (79) of this Document.

(90) For future functionalities of or updates to the iOS features used for close-range wireless file transfer services, Apple shall make them available to third parties no later than at the time they are made available to any Apple connected physical device.

(91) Apple shall implement the measures above in compliance with the measures for all features in Section 4 below.

(92) Apple shall implement the measures above in the next major iOS release, and in any case by the end of 2025 at the latest.

2.5. Media casting

(93) Apple shall provide effective interoperability with features for media casting.

(94) The features for media casting allow Apple to offer feature-rich media casting solutions, including AirPlay. Media casting is the ability to cast audio, video, and mirror screens between an iOS device and a connected physical device. Casting can take place either from an iOS device to a connected physical device, or from a connected physical device to an iOS device. Alternatively, the iOS device can be used to initiate casting between a streaming server (e.g., YouTube) and a connected physical device. In this case the iOS device connects to the connected device and sets up the stream, but the media stream itself takes place directly between the streaming server and the receiving device. The iOS device may act as a remote control (e.g., volume control, playback speed, etc.).

(95) Apple shall implement an interoperability solution that provides third parties with access to the same features for media casting described in the preceding paragraph as available to Apple, in a way that is equally effective as the solution available to Apple.

(96) Apple shall allow third parties effective interoperability with the same features for media casting services controlled by iOS as available to Apple's own connected physical devices (including via AirPlay), including, but not limited to, Apple Watch, Apple Vision Pro, as well as any future Apple connected physical devices. Apple shall implement an interoperability solution that is equally effective as the solution available to Apple. To that end, Apple shall make the following features available to third-party casting solutions:

(a) **Accessibility:** The casting solution must be selectable in the same in-app picking menu as is used for AirPlay in supported apps. The casting solution must also be selectable directly from the Control Center picker as is used for AirPlay. The end user should be able to initiate and use the casting solution without the need to open the third-party casting application in the foreground, and in the case of using the Control Center picker without the need to open the media app in the foreground.

EC - For public consultation

(b) **Centralised availability**: Apple shall allow third-party casting providers to centrally provide their casting solution on iOS, e.g., through an extension, such that end users who install the casting solution can access the third-party casting provider in any third-party app that uses standard media playback APIs without the need for the third-party app developer to integrate an SDK in their applications.

(c) **Advertisement and discovery:** Apple must make available device discovery that allows compatible third-party devices to be discoverable on an iOS device, enabling that the sender iOS device shows these receivers in the casting pickers in the system UI and in apps, and make the iOS device discoverable by third-party devices, by enabling sender devices to listen for the iOS device's capabilities as a receiver.

(d) **Communication protocols:** The same communication protocols that are available to AirPlay must be available to the third-party casting solution. This includes but is not limited to Bluetooth, Infrastructure Wi-Fi, P2P Wi-Fi, NFC, and ultrawide band. Third-party casting solutions must be able to switch between available communication protocols, and have access to the required information to select the most suitable protocol. Third-party casting solution must also be allowed to integrate their own media streaming protocols based on communication protocols.

(e) **Controls:** The third-party casting solution must be able to implement the same hardware button functionality (e.g., volume controls) and lock screen controls (e.g., pause, fast forward, etc.) as AirPlay.

(f) **Execution:** The third-party casting solution must be provided the same system resources as AirPlay. The third-party casting solution should be able to maintain the same functionalities as AirPlay when the media application that initiated the casting is backgrounded or when the phone is locked.

(97) Interoperability for third-party casting solutions must be effective. To this end:

(a) Apple shall not impose limits or restrictions that may affect the audio, image or video quality achievable by third-party media casting solutions, such as inaccessibility of communication protocols, memory consumption or bandwidth limits, to the extent that these are not imposed on AirPlay.

(b) Apple shall not impose restrictions concerning the casting of DRM-protected content that go beyond those imposed on AirPlay.

(c) Apple shall not impose prompts or warning screens that prevent seamless initiation of media casting for third-party casting solutions, to the extent similar prompts are not in place for AirPlay.

(98) Apple shall grant access to additional functionalities to third parties to the extent required to enable effective interoperability with the features for media casting described in paragraph (94) of this Document.

(99) For the purpose of ensuring that effective interoperability continues in the future, third parties must also have access to any future feature functionalities and updates of the media casting feature insofar and as soon as they are available to Apple's

EC - For public consultation

AirPlay. For example, if Apple updates AirPlay to stream video at higher resolution, or to allow end users to initiate screen mirroring via an AI assistant, these updates should be made available to third parties as well.

(100) Apple shall implement the measures above in compliance with the measures for all features in Section 4 below.

(101) Apple shall implement the measures above in the next major iOS release, and in any case by the end of 2025 at the latest.

3. FEATURES FOR DEVICE SET-UP AND CONFIGURATION

3.1. Proximity-triggered pairing

(102) Apple shall provide effective interoperability with the proximity-triggered pairing feature.

(103) The proximity-triggered pairing feature enables the pairing and setup of Apple connected physical devices with an iOS device via a proximity-triggered procedure through a streamlined user-friendly process. Proximity-triggered pairing works out-of-the-box: there is no need for the user to install any application beforehand and the feature automatically works for any connected physical device for which Apple has implemented support, including the Apple Watch and AirPods.

(104) Apple shall implement an interoperability solution that provides third parties with access to the same proximity-triggered pairing feature described in the preceding paragraph as available to Apple, in a way that is equally effective as the solution available to Apple.

(105) Apple shall provide interoperability with all functionalities of the proximity-triggered pairing feature which are available to Apple's own connected physical devices, including, but not limited to, Apple Vision Pro, Apple Watch, as well as any future Apple connected physical devices. These functionalities are:

(a) the ability of a third-party connected physical device to establish a Bluetooth data connection with an iOS device for pairing purposes;

(b) the ability for the pairing process between the third-party connected physical devices and the iOS device to be triggered by the proximity of the connected physical device to the iOS device;

(c) the ability for the third-party connected physical device to be automatically discovered by the iOS device via the BLE protocol for the initiation of the pairing process without the need of the end user first downloading a third-party companion app;

(d) the ability to carry out the pairing and setup of the third-party connected physical device with the iOS device as a continuous and guided process starting with the proximity-triggered detection;

(e) the ability to make use of the same end user journey and ease of use for end users, including:

EC - For public consultation

(1) showing the same user prompts (in terms of, inter alia, number, content, format and design) as Apple for Apple's most comparable own connected physical devices,

(2) showing the same information screens (in terms of, inter alia, number, content, format and design) as shown to users of the most comparable Apple connected physical device,

(3) limit the necessary user engagement to the same level as required for pairing the most comparable Apple connected physical device, including the number of prompts and information screens; in particular, where the end user is prompted to initiate the pairing process with a third-party connected physical device, the third-party companion app of the third-party connected physical device must be opened or downloaded automatically without an additional user prompt unless Apple shows an equivalent prompt for its own connected physical devices;

(f) the speed of pairing,

(g) the settings regarding device pairing, including the location of the settings (e.g., in iOS settings or in an app) and the scope of settings.

(106) Apple shall grant access to additional functionalities to third parties to the extent required to enable effective interoperability with the proximity-triggered pairing feature described in paragraph (103) of this Document.

(107) To enable out-of-the-box proximity-triggered device discovery, Apple shall integrate a mapping between third-party connected physical devices and the expected contents of their BLE advertisements, the relevant companion app(s), as well as other necessary metadata (including, but not limited to, transmission power or security keys) into iOS. To obtain the necessary metadata for this mapping, Apple may set up a program for third-party connected physical device manufacturers to register their connected physical devices for the purpose of making use of the proximity-triggered pairing feature.

(108) Apple shall also allow third parties to access any future functionalities and updates of the Wi-Fi Aware implementation no later than at the time they are made available to any Apple connected physical device.

(109) Apple shall implement the measures above in compliance with the measures for all features in Section 4 below.

(110) Apple shall implement the measures above in the next major iOS release, and in any case by the end of 2025 at the latest.

3.2. Automatic Wi-Fi connection

(111) Apple shall provide effective interoperability with the automatic Wi-Fi connection feature.

(112) The automatic Wi-Fi connection feature consists in the ability of Apple connected physical devices to access and use information about local infrastructure Wi-Fi

EC - For public consultation

networks saved on the iOS device, to allow them to join these networks easily and without friction. An iOS device transmits this information to Apple connected physical devices, such as the Apple Watch, which use this information to establish a local infrastructure Wi-Fi connection without the connected physical device having to scan for available Wi-Fi networks, without the user having to select a Wi-Fi network on that device, and without the end user having to enter the passcode for the selected Wi-Fi network on the device.

(113) Apple shall implement an interoperability solution that provides third parties with access to the same automatic Wi-Fi connection feature described in the preceding paragraph as available to Apple, in a way that is equally effective as the solution available to Apple.

(114) Apple shall make available to third-party connected physical devices Wi-Fi Network Information saved on the end user's iOS device. "Wi-Fi Network Information" consists of the following information for each Wi-Fi network that the end user connected to in the past on the iOS device: SSID (network name), BSSID (access point identifier), indication if the SSID is broadcasted or not, indication if Private Relay is enabled or not, and security configurations being the password and 802.11 WPA or RSN information elements.

(115) Apple shall provide third-party iOS companion apps with the Wi-Fi Network Information for transmission to third-party connected physical devices.

(116) Apple shall continuously share the Wi-Fi Network Information at the same cadence as it does for its own connected physical devices.

(117) Apple shall not impose any impediments to the process for sharing Wi-Fi Network Information, such as user permission prompts, to the extent that these are not in place for Apple's own connected physical devices.

(118) Apple shall grant access to additional functionalities to third parties to the extent required to enable effective interoperability with the automatic Wi-Fi connection feature described in paragraph (112) of this Document.

(119) Apple shall implement the measures above in compliance with the measures for all features in Section 4 below.

(120) Apple shall implement the measures above in the next major iOS release, and in any case by the end of 2025 at the latest.

3.3. NFC controller in Reader/Writer mode

(121) Apple shall provide effective interoperability with the NFC controller of iOS devices in Reader/Writer mode for third-party connected physical devices via Core NFC.

(122) The NFC controller consists of a chip integrated in iOS devices, ensuring communication between an iOS device and a connected physical device via NFC technology. NFC Reader/Writer mode is an NFC mode in which an active NFC device interacts with another NFC device that acts passively. Core NFC is a publicly documented framework that allows developers to program third-party applications that can access the NFC controller of iOS devices in Reader/Writer

EC - For public consultation

mode to write data to NFC tags, interact with protocol-specific tags and read NFC tags, including ISO 7816 and ISO 15693, FeliCa™, MIFARE® tags and NFC tags of Types 1 to 5 that contain NDEF data. The NFC Reader/Writer mode can be used to transfer payment-related data, such as AIDs and secure credentials, including payment-related tokens. It can also be used to read smart cards, including payment cards, including to verify card possession.

(123) Apple shall implement an interoperability solution that provides third parties with access to the same NFC controller in Reader/Writer mode feature described in the preceding paragraph as available to Apple, in a way that is equally effective as the solution available to Apple.

(124) To provide such access, Apple shall implement the following measures:

(a) Apple shall provide access to the NFC controller via Core NFC in Reader/Writer mode without AID restrictions, allowing third parties to interact with NFC devices via the NFC controller in Reader/Writer mode through Core NFC;

(b) Apple shall provide access to the NFC controller via Core NFC in Reader/Writer mode without AID restrictions, allowing third parties to transmit any APDU command referencing AIDs, in particular payment-related AIDs, from a third-party application to a connected physical device, including the SELECT command;

(c) Apple shall allow via Core NFC the transfer of secure credentials, including payment-related tokens, through the NFC controller in Reader/Writer mode of the iOS device to connected physical devices;

(d) Apple shall allow via Core NFC accessing the NFC controller in Reader/Writer mode to read smart cards, including payment cards, including to verify card possession.

(125) Apple shall grant access to additional functionalities to third parties to the extent required to enable effective interoperability with the NFC controller in Reader/Writer mode feature described in paragraph (122) of this Document.

(126) For future functionalities of or updates to the NFC controller in Reader/Writer mode feature, Apple shall make them available to third parties no later than at the time they are made available to any Apple connected physical device.

(127) Apple shall implement the measures above in compliance with the measures for all features in Section 4 below.

(128) Apple shall implement the measures above in the first iOS release (minor or "dot" release or major release) that is released three months after the date of notification of this Decision, and in any case by the end of 2025 at the latest.

4. MEASURES FOR ALL FEATURES

(129) According to Article 6(7) of Regulation (EU) 2022/1925, the interoperability provided pursuant to Article 6(7) of that Regulation needs to be effective. This means that interoperability solutions must be granted in a technically sound and

EC - For public consultation

workable manner for third parties without any undue obstacles. To achieve such effectiveness, there are a number of measures and principles that the Commission preliminarily considers Apple has to implement for each of the 11 features listed in this Document.

(130) In the implementation of the specified measures, Apple may take strictly necessary, proportionate and duly justified measures to ensure that interoperability does not compromise the integrity of the operating system, hardware and software features. Moreover, pursuant to article 8(1) of Regulation 2022/1925, the gatekeeper shall ensure that the implementation of any measures pursuant to Article 6(7) of Regulation 2022/1925 complies with applicable law, in particular Regulation (EU) 2016/679, Directive 2002/58/EC, legislation on cybersecurity, consumer protection, product safety, as well as with the accessibility requirements.

(131) Apple shall implement the following measures for each of the 11 features set out in this Document:

(a) Apple shall make available the interoperability solutions and measures implemented to allow for effective interoperability with the 11 features set out in this Document to all providers of services and providers of hardware, to the extent they indicate, including through the use of APIs, an interest in making use of the features listed in this Document.

(b) Apple shall not impose any restrictions on the type or use case of the software application and connected physical device that can access or make use of the features listed in this Document.

(c) Apple shall not undermine effective interoperability with the 11 features set out in this Document by behaviour of a technical nature. In particular, Apple shall actively take all the necessary actions to allow effective interoperability with these features.

(d) Apple shall not impose any contractual or commercial restrictions that would be opaque, unfair, unreasonable, or discriminatory towards third parties or otherwise defeat the purpose of enabling effective interoperability. In particular, Apple shall not restrict business users, directly or indirectly, to make use of any interoperability solution in their existing apps via an automatic update. In any event, any restrictions imposed by Apple shall not be more restrictive than those applied to Apple's own services and hardware, i.e., Apple's own services and hardware may not be subject to more favourable requirements and criteria.

(e) Apple shall ensure that any interoperability solution implemented for the features listed in this Document is equally effective and provided under equal conditions to the interoperability solutions available to its own services and hardware, specifically Apple's own connected physical devices including, but not limited to, Apple Watch, AirPods, Apple Vision Pro, as well as any future Apple connected physical device. Apple shall apply such equal effectiveness and equal conditions across all dimensions, including, but not limited to, the end user journey, ease of use for end users, device and software setup, data transmission speed, and energy consumption. An integrity measure pursuant to Article 6(7) second subparagraph of Regulation (EU) 2022/1925 cannot be considered strictly necessary and proportionate if

EC - For public consultation

it seeks to achieve a higher level of integrity than the one that Apple requires or accepts in relation to its own services or hardware.

(f) As regards the end user journey and the ease of use for end users, Apple shall not add friction that end users of Apple services and Apple connected physical devices are not subject to. In particular, Apple shall refrain from adding friction by:

(1) offering choices to the end user in a non-neutral manner, including in permission prompts for third-party connected physical devices,

(2) setting a system default to not grant a permission with respect to third-party connected physical devices,

(3) requiring end users to process multiple successive permission prompts that could be presented in a single prompt,

(4) requiring switching between apps or apps and the iOS settings to configure a connected physical device,

(5) misrepresenting any risks of using the connected physical device towards the end user,

(6) using deceptive design pattern or dark patterns that steers users to not grant a permission.

(g) Apple shall ensure that for the features listed in this Document and the respective interoperability solutions end users can grant any required user permissions in a frictionless way:

(1) From inside the application itself or with a simple system prompt; or

(2) Following a link to the relevant item in the system settings (so-called "deep-linking"). In this case, Apple shall ensure that the user does not need to continue onto additional screens to change the specific setting, that the relevant item can be clearly highlighted, and that the user can be visually guided to return to the application.

(h) Apple shall provide the interoperability solutions and measures implemented to allow for effective interoperability with the features listed in this Document free of charge, irrespective of their beneficiary, application, product and use case. Apple shall also not charge any fees indirectly for any of the measures set out in this Document.

(i) Apple shall make available complete, accurate and well-documented frameworks and APIs to the extent access to such frameworks or APIs is relevant for the implementation of the measures set out in this Document. Apple shall maintain these frameworks and APIs in line with Apple's internal processes and policies so that effective access to these frameworks and APIs for the purpose of maintaining effective interoperability is ensured over time.

(j) Apple shall provide reasonable technical assistance to business users to implement effective interoperability with the features listed in this Document.

EC - For public consultation

(k) Apple shall also ensure that all interoperability solutions implemented to address the measures set out in this Document are subject to Apple's usual practices, including beta testing.

(l) Should Apple make changes to a feature listed in this Document, including with new feature functionalities or updates, Apple shall take the following measures:

(1) Apple shall inform third parties of the addition of new feature functionalities or updates of the relevant feature as soon as Apple has taken the decision to add these feature functionalities or updates.

(2) Apple shall make available beta versions of the updated interoperability solution and provide updated documentation of new feature functionalities or updates to the relevant feature to third parties as soon as Apple has developed a sufficiently stable implementation of these new feature functionalities or updates.

(3) Apple shall make available the updated interoperability solution and documentation for the relevant feature no later than at the time the new or updated feature functionalities are made available to any Apple connected physical device.

(m) The Commission intends to impose on Apple the obligation to communicate to the Commission within one month of the date of notification of a decision in this case all the measures that it intends to take to comply with the decision in sufficient detail to enable the Commission to make a preliminarily assessment as to whether the measures comply with the decision. In particular, Apple shall describe in detail the interoperability solution it intends to make available, explain how this solution addresses all of the measures required by the decision and establishes effective interoperability under equal conditions to that available to Apple's own services and products.

(n) The Commission intends to impose on Apple the obligation to communicate to the Commission all the measures that Apple has taken to comply with the decision, upon expiry of the implementation deadline for each feature. Under this obligation, Apple shall describe the interoperability solution made available to third parties including all technical details and potential APIs. Apple shall provide the Commission with a non-confidential version of this report for publication.

(o) Under the reporting obligation, Apple shall describe in detail every measure it has adopted or plans to adopt to ensure that the integrity of iOS is not compromised, explaining why such measure is strictly necessary and proportionate. Apple shall provide the Commission with a non-confidential version of this report for publication.

****

EC - For public consultation