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**DND Mode**

**Document Owner**

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# 概要/Overview

免打扰模式（Do-Not-Disturb Mode, 即DND Mode）是车载信息娱乐系统最大化减少对于用户产生声音和画面光线干扰的模式。免打扰模式对声音和画面都有影响。

Do-Not-Disturb Mode (DND Mode) is a mode in which the onboard infotainment system shall minimize its interference imposed by sound and image light on the user. DND mode affects both sound and image.

极简模式是与仪表极简模式联动的模式，仅对画面有影响。

The Stealth Mode, as a mode that is jointly operated with its counterpart of the instrument panel, affects the image only.

本文中的免打扰模式和极简模式仅适用于中控。关于仪表的模式定义，请参考仪表交互文档PIS-3053。

DND mode and Stealth mode defined in this spec only apply to the central control console. Please refer to PIS-3053 for all modes of cluster.

# 进入和退出/Entry and Exit

## 免打扰模式的进入和退出/Entry and Exit of DND mode

当VCS正常运行（在Run的工况下）时，用户长按系统Power键，或通过语音（PIS-2030）参考，中控即进入免打扰模式。

When VCS is working normally, if the user long press the Power key of the system, the central control console shall enter DND mode.

在INC的快捷按键中，增加免打扰模式的进入和退出方式。

Add DND mode in INC shortcut.

免打扰模式下，用户点击以下列明的硬按键可以退出免打扰模式并响应相关硬按键（具体按键配置以各项目为准；长按、短按和旋转相应按键都有效）：

In DND mode, the user can exit DND mode by tapping any of the following hard keys and respond to the hard key tapped (the specific configuration of keys shall be subject to each project; long pressing, short pressing and rotating the keys involved shall get responded):

1. FacePlate按键：

FacePlate Keys:

* 音量Up、Down键

Volume Up key and Volume Down key

* 系统Power键

System Power key

1. SWC按键：

SWC Keys:

* Phone键/~~VR键~~

Phone key/~~VR key~~

|  |  |  |  |
| --- | --- | --- | --- |
|  | Button | DND模式进入 | DND模式退出 |
| Faceplate | Volume Up&Down | - | X |
| Power | 长按(短按不进入）  Long Press(500ms) | X |
| SWC | Phone | - | X |
| VR | - | - |
| SWC\_VOL\_UP | - | X |
| SWC\_VOL\_Down | - | X |
| SWC\_Mute/Hangup | - | - |
| SWC\_Source | - | - |
| SWC\_Multi | - | - |
| SWC\_FavUp | - | - |

~~请注意，为了减少车内交谈引起的误唤醒干扰，免打扰模式下将不会通过唤醒词唤醒车机的语音助手。但~~CarPlay和CarLife的语音助手（Siri和小度）可以在免打扰模式下通过唤醒词唤醒，且唤醒时中控会退出免打扰模式。

Please note that, to reduce the false wake-up interference caused by in-vehicle conversation, local voice assistant shall not be wakened up through wake-up-word in DND mode. Voice assistant of CarPlay and CarLife (Siri & XiaoDu) could be wakened up through wake-up-word in DND mode, and DND shall be exited when they are wakened up.

当中控处于免打扰模式时，由于以下应用优先级高于DND，因此可以正常触发，画面或提示信息可正常显示，相应应用的声音也可正常播放：

When the central control console is in DND mode, since applications below are prior to DND, they can be triggered normally, with their image or prompt message displayed properly and the corresponding sound played as usual:

* APA自动泊车，功能参见PIS-2048\_APA

APA (Auto Parking Assist), see more in PIS-2048\_APA

* 倒车影像及360环视系统，功能参见PIS-2080\_Rear Viewing System和PIS-2019\_360 Surround Viewing System

Rear View Camera and 360 Surround View System, see more in PIS-2080\_Rear Viewing System and PIS-2019\_360 Surround Viewing System

* 安吉星A-Call和E-Call

OnStar A-Call and E-Call

* 空调，显示和操作参见PIS-2014\_HVAC。

Air conditioner, see PIS-2014\_HVAC for displaying and operating

* 触发语音助手

The voice assistant is triggered

当这些应用退出后，中控依然处于免打扰模式。在以上应用运行/画面显示时，不妨碍用户通过触发进入或退出DND的相关硬按键进入或退出DND模式。

After exiting these applications, the central control console shall still run in DND mode. When the above applications are running or the image corresponding to any of these applications is being displayed, it shall not hinder the user from entering/exiting DND mode by triggering the related hard keys for entering/exiting DND.

举例说明：当中控处于免打扰模式时，驾驶员切入R档倒车，由于倒车影像/360环视系统优先级高于DND，因此画面自动切换为倒车影像/360环视系统，声音处于免打扰模式（见3.1节）但允许该应用的声音。用户可以通过长按系统Power键退出免打扰模式，此时画面依然为倒车影像/360环视系统，声音恢复正常。

For example: if the reverse gear R is engaged when the central control console runs in DND mode, since Rear View Camera/360 Surround View System is prior to DND, the screen shall automatically be switched to Rear View Camera/360 Surround View System while the sound shall be subject to DND mode (see Section 3.1) but allow sound of this application. By long pressing the system’s Power key, the user can exit DND mode; however, the image shall still show Rear View Camera/360 Surround View System, and sound becomes normal.

电话功能（含蓝牙电话、CarPlay电话、CarLife电话）对DND的影响如下：

The impacts exerted by phone functions (including Bluetooth phone, CarPlay phone and CarLife phone) on DND are shown as follows:

* 当有电话呼入时，弹出通知信息并响起铃声。

When a call comes in, a notification message shall pop up, accompanied by a ringtone.

* 呼入后，如果用户接听电话，则退出DND模式。

After the call comes in, if the user answers it, it shall exit DND mode.

* 呼入后，如果用户挂断电话（未接听），则保持DND模式。

After the call comes in, if the user hangs it up (does not answer it), it shall maintain DND mode.

* 通话过程中，不妨碍用户主动进入或退出DND模式，不影响正常通话声音。

An ongoing call shall not hinder the user from entering/exiting DND mode, which shall not affect the normal call.

* 当用户呼出电话，中控退出DND模式。

When the user start a call, it shall exit DND mode.

VR语音功能因界面层级比普通界面高，VR唤醒以后对话框在DND界面之上，系统不退出DND模式，当系统通过语音需要跳转界面时，才退出DND模式。

Because the interface level of VR voice function is higher than ordinary interface, the dialog box will be on the DND interface after VR wake-up, and the system will not exit DND mode. When the system needs to jump to the interface through voice, it will exit DND mode.

另外，用户可以通过下滑手势进入INC，进入和退出INC不会退出DND模式，但若用户点击INC中的通知信息，则会退出DND。~~并且，点击入屏的按键也不会退出DND。~~

In addition, the central control can enter INC through slide gesture. Entering or quitting INC won’t exit DND mode, but DND shall exit if the user touch notifications in INC. Also, tapping the virtual keys won’t exit DND.

## 极简模式的进入和退出/Entry and Exit of Stealth mode

极简模式是与仪表极简模式联动的模式。极简模式的优先级低于免打扰模式。

The Stealth mode, as a mode that is jointly operated with its counterpart of the instrument panel, enjoys a priority lower than that of DND mode.

当仪表进入极简模式时，若中控满足以下条件，则立即进入极简模式。

Once the instrument panel enters Stealth mode, the central control console shall also enter Stealth mode immediately if the following conditions are met.

* ~~中控画面不处于导航应用所有相关界面~~

~~The image of central control console does not show the screen of navigation app~~

* 中控画面不处于CarPlay和CarLife投屏状态

CarPlay/CarLife is not projecting

* 不处于通话状态

Is not in a call

* 语音助手未在使用状态

The voice assistant is not in use

* 中控不处于免打扰模式

The central control console does not run in DND mode

当仪表处于极简模式且中控不处于极简模式时，中控满足以下所有条件则自动进入极简模式：

When the instrument panel is in Stealth mode but the central control console is not in that, once all the following conditions are met, the central control console shall automatically enter Stealth mode:

* 系统在*P\_STEALTH\_TIME*内没有检测到用户对中控屏进行触控

The system does not detect that the user touches the screen of the central control console during *P\_STEALTH\_TIME*

* 系统在*P\_STEALTH\_TIME*内没有检测到用户触发娱乐系统相关硬按键

The system does not detect that the user triggers any hard key of the entertainment system during *P\_STEALTH\_TIME*

* ~~中控画面不处于导航应用所有相关界面~~

~~The image of central control console does not show the screen of navigation app~~

* 中控画面不处于CarPlay和CarLife投屏状态

CarPlay/CarLife is not projecting

* 不处于通话状态

Is not in a call

* 语音助手未在使用状态

The voice assistant is not in use

* 中控不处于免打扰模式

The central control console does not run in DND mode

当中控处于极简模式时，中控满足以下任何一个条件则自动退出极简模式：

When the central control console is in Stealth mode, if any of the following conditions is met, the central control console shall automatically exit Stealth mode:

* 系统检测到用户对中控屏进行触控（入屏的按键及来电时挂断/忽略按钮除外）

The system detects that the user touches the screen of the central control console (not including the virtual keys of some functions and ignore button when there is an incoming call)

* 系统检测到用户触发了娱乐系统硬按键，此时系统需要响应相关硬按键

The system detects that the user triggers a hard key of the entertainment system; in this case, the system shall respond to the hard key triggered

* ~~触发语音助手~~

~~The voice assistant is triggered~~

* 仪表退出极简模式

The instrument panel exits Stealth mode

* 通过硬按键，中控进入免打扰模式

The central control console enters DND mode through hard key

特别地，电话功能（含蓝牙电话、CarPlay电话、CarLife电话）对极简模式的影响如下：

In particular, The impacts exerted by phone functions (including Bluetooth phone, CarPlay phone and CarLife phone) on Stealth mode are shown as follows:

* 当有电话呼入时，弹出通知信息并响起铃声。

When a call comes in, a notification message shall pop up, accompanied by a ringtone.

* 呼入后，如果用户接听电话，则退出极简模式。

After the call comes in, if the user answers it, it shall exit Stealth mode.

* 呼入后，如果用户挂断电话（未接听），则保持极简模式。

After the call comes in, if the user hangs it up (does not answer it), it shall maintain Stealth mode.

* 当用户呼出电话，中控退出极简模式。

When the user start a call, it shall exit Stealth mode.

其中，娱乐系统硬按键包括（具体按键配置以各项目为准）：

Specifically, the hard keys of the entertainment system cover (the specific configuration of keys shall be subject to each project):

|  |  |  |  |
| --- | --- | --- | --- |
|  | Button | 极简模式进入 | 极简模式退出 |
| Faceplate | Volume Up&Down | - |  |
| Power |  | 长按进入DND |
| SWC | Phone | - | X |
| VR | - | - |
| SWC\_VOL\_UP | - | - |
| SWC\_VOL\_Down | - | - |
| SWC\_Mute/Hangup | - | - |
| SWC\_Source | - | - |
| SWC\_Multi | - | - |
| SWC\_FavUp | - | - |

当中控处于极简模式时，部分应用可以正常触发，画面或提示信息可正常显示，相应应用的声音也可正常播放：

When the central control console is in Stealth mode, some applications can be triggered normally, with their image or prompt message displayed properly and the corresponding sound played as usual:

* APA自动泊车，功能参见PIS-2048\_APA

APA (Auto Parking Assist), see more in PIS-2048\_APA

* 倒车影像及360环视系统，功能参见PIS-2080\_Rear Viewing System和PIS-2019\_360 Surround Viewing System

Rear View Camera and 360 Surround View System, see more in PIS-2080\_Rear Viewing System and PIS-2019\_360 Surround Viewing System

* 安吉星A-Call和E-Call

OnStar A-Call and E-Call

* 空调，显示和操作参见PIS-2014\_HVAC。

Air conditioner, see PIS-2014\_HVAC for displaying and operating

* 触发语音助手

The voice assistant is triggered

当这些应用退出后，中控依然处于极简模式。在以上应用运行/画面显示时，不妨碍用户通过触发进入或退出DND的相关硬按键进入或退出DND模式。画面可能被全部或部分占用，若画面全部被占用，此时只对声音有影响。

After exiting these applications, the central control console shall still run in Stealth mode. When the above applications are running or the image corresponding to any of these applications is being displayed, it shall not hinder the user from entering/exiting DND mode by triggering the related hard keys for entering/exiting DND. The image is likely to be completely or partially occupied; in case the image is completely occupied, only the sound will be affected.

举例说明：当中控处于极简模式时，用户点击中控屏上APA自动泊车的虚拟按键，由于APA优先级高于极简模式（也高于免打扰模式），画面自动切换为APA，声音处于极简模式（见3.1节）。请注意此时并没有退出极简模式，因此当APA退出时，如果没有满足退出极简模式的条件，中控依然处于极简模式。

For example: if the user touch the virtual key APA on the central control console when it runs in Stealth mode, the screen shall automatically be switched to APA while the sound shall be subject to DND mode (see Section 3.1) since APA is prior to Stealth mode (also prior to DND mode). Note that Stealth mode does not exit during the process. When APA exits, the central control is still under Stealth mode if the condition to exit Stealth mode is not met.

语音功能因界面层级比普通界面高，VR唤醒以后对话框在极简界面之上，系统不退出极简模式，当系统通过语音需要跳转界面至APP时，才退出极简模式。

Because the interface level of VR voice function is higher than ordinary interface, the dialog box will be on the stealth mode interface after VR wake-up, and the system will not exit stealth mode. When the system needs to jump to the interface through voice, it will exit stealth mode.

用户若下滑进入INC，不退出极简模式。

If the central control enter INC through slide gesture, it will exit Stealth mode.

极简模式支持用户在该模式下能触发的所有功能，如唤醒语音助手。

All functions that are supported to be triggered by the user in this mode, for example, to wake up the voice assistant.

# 免打扰模式和极简模式的要求/Requirements of DND Mode and Stealth Mode

## **声音/Sound**

通常在免打扰模式下，车载信息娱乐系统应当禁止媒体音源的 ~~除下列以外的所有~~声音：

In DND mode under normal conditions, the onboard infotainment system shall disable media Audio，  ~~all sounds other than the following ones~~:

* ~~通话（含蓝牙电话、Carlife/CarPlay电话、OnStar电话），包括通话声音和来电铃声~~

~~Call (including Bluetooth Phone, CarLife/CarPlay Phone, Onstar Phone). It shall include call voice and ringtone.~~

* ~~Chime音~~

~~Chime~~

* ~~导航播报~~

~~Navigation Prompt~~

音频仲裁，可参考 PIS-2022.

此时如有更高优先级的应用插入，其对应的声音播放不受影响。更高优先级的应用包括APA等，具体参照2.1节。

If the applications which have higher priority intervene, their sound could play normally. See more applications which have higher priority like APA in chapter 2.1.

在极简模式下，所有声音不受影响，正常播放。

In Stealth mode, all sounds shall play normally.

## **画面/Image**

为降低对用户的干扰，在免打扰模式和极简模式中，画面上显示的信息应该尽量少，仅为用户提供最低限度的必要信息以及部分必要的快捷操作。

In order to reduce the interference to the user, in DND and Stealth mode, the information displayed on the screen should be as little as possible, and only provide the user with the minimum necessary information and some necessary shortcut operation.

~~免打扰模式和极简模式中都需要显示三个一些功能安全等级较高或使用频率较高的虚拟按键，按优先级排列如下包括：~~

~~In both DND mode and Stealth mode, the virtual keys of some functions with a higher safety level or a higher use frequency shall be displayed, which include:~~

* ~~LKA车道保持~~

~~LKA (Lane-keeping Assist)~~

* ~~HDC陡坡缓降~~

~~HDC (Hill Descent Control)~~

* ~~APA自动泊车~~

~~APA (Auto Parking Assist)~~

* ~~APA自动泊车 / UPA泊车辅助~~

~~APA (Auto Parking Assist) / UPA（Universal Park Assist）~~

* ~~LKA车道保持~~

~~LKA (Lane-keeping Assist)~~

* ~~HDC陡坡缓降~~

~~HDC (Hill Descent Control)~~

* ~~ESC/TCS 车身稳定系统~~

~~ESC/TCS （Electrical Stability Control /  Traction Control System）~~

* ~~Auto Hold 自动驻车~~

~~Auto Hold~~

* ~~Power Power Window Lock-Out 禁窗锁~~

~~Power Power Window Lock-Out~~

* ~~Drive Mode 驾驶模式 （GB Only）~~

~~Drive Mode （GB）~~

* ~~Front Fog Lamps 前雾灯~~

~~Front Fog Lamps~~

* ~~Rear Fog Lamps 后雾灯~~

~~Rear Fog Lamps~~

* ~~驾驶员设置同步（其中包含座椅位置、后视镜位置、HUD位置） （TBD）~~

~~Driver settings synchronization (including seat position, mirror position, HUD position) （TBD）~~

~~以上功能是否具备依赖车型配置，具体以总线信号为准，参考PIS-2045 Vehicle Control，具体功能请参考PIS-2045\_Vehicle Control第3.8章。~~

~~Whether the above functions are available shall be subject to the model configuration; please refer to Section II of PIS-2045\_Vehicle Control for details.~~

~~点击以上虚拟按键不会退出免打扰模式或极简模式。~~

~~Tapping the virtual keys above won’t lead to exit of DND or Stealth mode.~~

~~另外，用户可以通过下滑手势进入INC，进入和退出INC不会退出DND模式。INC中有所有入屏的按键。~~

* 免打扰模式中显示以下信息：

The following information shall also be displayed in both DND mode and Stealth mode:

* 时间

Time

* 日期

Date

此外还可以包含一些信息及用户体验相关的功能（不作为强制要求，包括但不限于以下信息和功能，具体参考交互文档设计）：

In addition, it can also contain some information and functions related to user experience (not as a mandatory requirement, including but not limited to the following information and functions; refer to the interactive document design for details):

* APP快捷入口
* AppTray Toggle
* 车外温度~~（详见PIS-2085 IPC SW Specification的3.2.1.14.28章节）~~

Outside Air Temperature

* 空调温度（详见PIS-2014\_HVAC的3.1.4章节）

Climate Temperature (see more in chapter 3.1.4 in PIS-2014\_HVAC)

* 方向盘加热（详见PIS-2045\_VehicleControl的3.10章节）

Heated Wheel (see more in chapter 3.10 in PIS-2045\_VehicleControl)

* 主副驾座椅加热通风（设置方式见PIS-2045 Vehicle Control 第3.4章）

Heat & Vent Seat (refer to Section 3.4 of PIS-2045 Vehicle Control for the setting method)

* ~~音频信息，即歌曲名称和艺术家（详见PIS-2025\_Media）或电台名称（详见PIS-2024\_Tuner）（仅用于极简模式，且有audio在播放，包括网络和本地音源）~~

~~Media Information, that is song names and artists (see more in PIS-2025\_Media) or tuner (see more in PIS-2024\_Tuner) (Only apply to stealth mode, and audio playing, including network source and local source)~~

* 极简模式中可显示以下信息：

The following information shall also be displayed in both DND mode and Stealth mode:

* 时间

Time

* 日期

Date

* 导航TBT（包含投屏导航TBT提示）

Navi TBT （Projection Navigation Promt）

* 音频信息，即歌曲名称和艺术家（详见PIS-2025\_Media）或电台名称（详见PIS-2024\_Tuner）（仅用于极简模式，且有audio在播放，包括网络和本地音源）

Media Information, that is song names and artists (see more in PIS-2025\_Media) or tuner (see more in PIS-2024\_Tuner) (Only apply to stealth mode, and audio playing, including network source and local source)

此外还可以包含一些信息及用户体验相关的功能（不作为强制要求，包括但不限于以下信息和功能，具体参考交互文档设计）：

In addition, it can also contain some information and functions related to user experience (not as a mandatory requirement, including but not limited to the following information and functions; refer to the interactive document design for details):

* APP快捷入口

AppTray Toggle

* 车外温度~~（详见PIS-2085 IPC SW Specification的3.2.1.14.28章节）~~

Outside Air Temperature

* 空调温度（详见PIS-2014\_HVAC的3.1.4章节）

Climate Temperature (see more in chapter 3.1.4 in PIS-2014\_HVAC)

* 方向盘加热（详见PIS-2045\_VehicleControl的3.10章节）

Heated Wheel (see more in chapter 3.10 in PIS-2045\_VehicleControl)

* 主副驾座椅加热通风（设置方式见PIS-2045 Vehicle Control 第3.4章）

Heat & Vent Seat (refer to Section 3.4 of PIS-2045 Vehicle Control for the setting method)

* ~~音频信息，即歌曲名称和艺术家（详见PIS-2025\_Media）或电台名称（详见PIS-2024\_Tuner）（仅用于极简模式，且有audio在播放，包括网络和本地音源）~~

~~Media Information, that is song names and artists (see more in PIS-2025\_Media) or tuner (see more in PIS-2024\_Tuner) (Only apply to stealth mode, and audio playing, including network source and local source)~~

# 系统需求/System Requirements

## 账号相关/Account

NA

## 应用内设置/In-application Setting

NA

## 外部调用/External Call

NA

## 数据维护/Data Maintenance

NA

## 版本升级/Version Upgrade

软件能力应当支持OTA升级，且跟随系统升级。

The software capabilities shall support OTA upgrade and upgrade with the system.

## 埋点需求/Event Tracking Requirements

NA

## 相关CAN信号/Related CAN Signals

NA

## 相关标定项/Related Calibration Items

|  |  |
| --- | --- |
| 相关标定项  Related calibration item | 描述  Description |
| *P\_STEALTH\_TIME* | 单位：秒  Unit: second  当仪表处于极简模式，用于标定多少时间内用户没有相关操作会导致中控进入极简模式。  When the instrument panel is in Stealth mode, it is used to calibrate the time within which the user does not conduct the related operation, then the central control console shall enter the Stealth mode.  默认值：10秒  Default: 10 seconds |
| *P\_DND\_MODE\_ENABLED* | 用于标定DND模式是否开启。 |
| *P\_STEALTH\_MODE\_ENABLED* | 用于标定极简模式是否开启。 |
|  |  |



**Revision Log**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Version** | **Date** | **CR** | **Section** | **Description** | **Author** |
| 0.0.3.0 | Nov 15th, 2020 | 74312 | 2.1、2.2、3.2、4.8 | 2.1、2.2 VR界面优先级提高，不退出DND/极简模式。  2.1 DND加入快捷按键中。  3.2 删除DND/极简模式的虚拟按键需求  导航TBT 增加Carplay TBT.  4.8 增加标定附件 | Wang Yixiao |
| 0.0.2.0 | Aug 20th, 2020 | 13751 | 2.2、3.1、3.2、2.1、4 | 新增极简模式-1/2.2/3.1/3.2  更新免打扰模式进入和退出条件-2.1/3.2  更新免打扰模式声音和画面要求-3.1/3.2  新增系统需求-4 | Wang Yixiao |
| 0.0.1.1 | Dec 10th, 2019 | 7371 | All | 更新双语版本 | Jie Gu |
| 0.0.1.0 | Jul 10th, 2019 |  | All | New creation | Jie Gu |