



Testing the Digital Standard: Smart Baby Monitor

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This post is part of a [series](#) that aims to assess the Digital Standard by testing the methodology with a few representative smart devices connected to the Internet of Things. You can view and download our full methodology to conduct your own assessments, and read our assessments of other devices as the project continues.

The Digital Standard

In 2018, New America's Open Technology Institute (OTI) launched a project to [educate people](#) about the [Digital Standard](#), a new framework for evaluating the privacy and security of internet-connected consumer products and software. The Standard was developed by a group of organizations, including [Ranking Digital Rights](#), in collaboration with [Consumer Reports](#). Building off this work, we're selecting a few representative products and apps and putting them through the tests that the Digital Standard describes. Our [methodology](#) will include exactly how we judged each indicator, including what information was needed in order to measure whether the indicator was met, where we looked for it and where we found it, and how we interpreted the inevitable vagueness and edge cases. Below you'll find information related to the third product in this series: a smart baby monitor.

The Smart Baby Monitor

The product for our third round of Digital Standard testing is a smart baby monitor, which is made by a well-known company that produces a wide variety of consumer electronic devices. The baby monitor consists of three components: a camera, handset, and mobile app. A wifi-connected device containing a camera, microphone, speaker, and thermometer is referred to generally in our tests as the "camera." Additionally, the baby monitor contains a wifi-connected handheld device generally referred to as the "handset" in our testing. The handset displays video and temperature information received from the camera on a screen, plays audio collected by a microphone located in the camera through a speaker, and contains a microphone which it uses to transmit audio back to be played by a speaker in the camera. The speaker in the camera could be used, for example, for a parent to speak to a child from another location in the home. However, the handset has no ability to record any audio or video data collected by the product, it only displays information collected by

the camera and the microphone. Finally, the baby monitor interfaces with a mobile app provided by the manufacturer. This app is used to send and receive data to/from this device and from similar baby monitors produced by the same manufacturer. Unlike the handset, which solely transmits and displays information, this app does have the ability to record and store audio and video data collected by the camera. The handset only displays information when it is physically located on the same wifi network as the camera, whereas the app allows users to see and hear audio and video data from any location.

Note: For the purposes of this project, we will not be revealing the manufacturer, service provider, or any other company or product names for the devices we are testing. Our goal is to develop and document a process to implement the Digital Standard, and we feel that publishing specific information about the products we are testing detracts from that process.

Terms of Service and Privacy Policy Documents

✓ Pass ⚠ Partial Pass ✗ Fail

— Terms of Service —

Indicator	Smart Baby Monitor	Final Results
<i>The company clearly discloses which terms of service apply to the product/service in question.</i>	<ul style="list-style-type: none"> The company website uses the term "terms of use" instead of terms of service. It specifies that the terms of use apply to use of the product website, product, or services. 	✓
<i>The terms of service are easy to find.</i>	<ul style="list-style-type: none"> The terms of use are available on the product website. They can be directly accessed there, or users can be directed to that web page when they create an account on the baby monitor app. The app specifies that by creating an account users are agreeing to the terms of service. 	✓
<i>The terms of service are available in the language(s) most commonly spoken by the company's users.</i>	<ul style="list-style-type: none"> We cannot tell from the website available to testers in which countries the product is sold. The website only lists the terms of use in English, however the website may show different languages when users' IP addresses locate them in non-English speaking countries. This is challenging for testers, and also does not recognize that users based in primarily English-speaking countries may speak languages other than English. 	⚠
<i>The terms of service are presented in an understandable manner.</i>	<ul style="list-style-type: none"> The terms of use are written in plain language, the important terms are defined, and the document is easy to follow. 	✓

— Privacy Policy —

Indicator	Smart Baby Monitor	Final Results
<i>The company clearly discloses which privacy policy applies to the product/service in question.</i>	<ul style="list-style-type: none"> The website's standard privacy policy states that it is applicable to information collected from users of the software offered on the site, to information collected by software downloaded to mobile devices, and software used by the connected devices produced by the company. The policy lists a range of connected devices beyond baby monitors that are also produced by the same company. The website also includes a supplemental California Privacy Notice, which applies to all the product-line's brands. 	✓

<p><i>The privacy policy is easy to find.</i></p>	<ul style="list-style-type: none"> Both the standard and California supplemental privacy policies are available and easy to find on the product website. 	<p>✓</p>
<p><i>The privacy policy is available in the language(s) most commonly spoken by the company's users.</i></p>	<ul style="list-style-type: none"> We cannot tell from the website available to testers in which countries the product is sold. The website only lists the privacy policy in English, however the website may show different languages when users' IP addresses locate them in non-English speaking countries. This is challenging for testers, and also does not recognize that users based in primarily English-speaking countries may speak languages other than English. 	<p>⚠</p>
<p><i>The privacy policy is presented in an understandable manner.</i></p>	<ul style="list-style-type: none"> The privacy documents use examples and contain definitions of terms, and although they contain significant legal language, they are comparatively clear. 	<p>✓</p>

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Terms of Service and Privacy Policy Change Notification

✓ Pass ⚠ Partial Pass ✗ Fail

— Terms of Service —

Indicator	Smart Baby Monitor	Final Results
<i>Commitment to notify users about changes to the terms of service.</i>	<ul style="list-style-type: none"> The product's terms of use do not indicate that the company will notify users about changes to the terms of use policy, but do state that an updated agreement will be posted on the site. The terms assert that any use of the site after the revised terms of use are posted constitutes an agreement with the modified terms. 	✗
<i>Disclosure of how users will be directly notified of changes to the terms of service.</i>	<ul style="list-style-type: none"> The product's terms of use do not indicate that the company will notify users about changes to the terms of use policy, but state that an updated agreement will be posted on the site. The terms assert that any use of the site after the revised terms of use are posted constitutes an agreement with the modified terms. 	✗
<i>Disclosure of timeframe for notification prior to changes to the terms of service coming into effect.</i>	<ul style="list-style-type: none"> The product's terms of use do not indicate that the company will notify users about changes to the terms of use policy. 	✗
<i>Maintains a public archive or change log of the terms of service.</i>	<ul style="list-style-type: none"> The product's terms of use do not indicate that the company will notify users about changes to the terms of use policy, but state that an updated agreement will be posted on the site. The terms assert that any use of the site after the revised terms of use is posted constitutes an agreement with the modified terms. The terms of use also do not provide any language or examples that indicate that there has or will be public documentation of policy changes. 	✗

— Privacy Policy —

Indicator	Smart Baby Monitor	Final Results
<i>Commitment to notify users about changes to the privacy policy.</i>	<ul style="list-style-type: none"> The product privacy policy indicates that before any "material" changes are made to the privacy policy, users will be notified by email prior to the changes becoming effective. The policy states that users will also be informed of any choices they may have with respect to these changes. 	✓
<i>Disclosure of how users will be directly notified of changes to the privacy policy.</i>	<ul style="list-style-type: none"> The product privacy policy indicates that before any "material" changes are made to the privacy policy, users will be notified by email prior to the changes becoming effective. 	✓

<p><i>Disclosure of timeframe for notification prior to changes to the privacy policy coming into effect.</i></p>	<ul style="list-style-type: none">• The product privacy policy indicates that before any "material" changes are made to the privacy policy, users will be notified by email prior to the changes becoming effective.• The policy does not provide a specific timeframe, other than "before" the changes becoming effective.	<p>✓</p>
<p><i>Maintains a public archive or change log of the privacy policy.</i></p>	<ul style="list-style-type: none">• No past terms of use or changes are documented in the terms of use or elsewhere on the product website, and the policy does not contain any commitment to retain documentation about past policies for consumer reference.	<p>✗</p>

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Process for Terms of Service Enforcement

✓ Pass ⚠ Partial Pass ✗ Fail

Indicator	Smart Baby Monitor	Final Results
<i>The company or organization clearly explains what types of activities it does not permit.</i>	<ul style="list-style-type: none"> The terms of use contain a list of prohibited activities, including separating any individual component, and modifying, reverse engineering, decompiling, or disassembling the product's software, or any component of the website or services it provides. 	✓
<i>The company or organization clearly explains why it may restrict a user's account.</i>	<ul style="list-style-type: none"> The terms of use contain a list of prohibited activities, however the policy does not specify that doing any of these things may lead to the company restricting the user's account. 	✗
<i>The company or organization clearly discloses the mechanisms it uses to identify accounts that violate the rules.</i>	<ul style="list-style-type: none"> The company does not disclose any mechanisms it uses to identify accounts that violate the terms of use. 	✗
<i>The company or organization clearly discloses whether any non-government and non-judicial entities receive priority consideration when identifying accounts to be restricted for violating the company's rules, and if so, how that priority status is conferred.</i>	<ul style="list-style-type: none"> The company does not disclose whether any non-government and non-judicial entities receive priority consideration when identifying accounts to be restricted for violating the company's rules, or how any priority status would be conferred. 	✗
<i>The company or organization clearly explains its process for enforcing its rules.</i>	<ul style="list-style-type: none"> The company does not disclose the mechanisms it uses to identify accounts that violate the terms of use, or to enforce any rules about the company's terms of use. 	✗
<i>The company or organization provides clear examples to help the user understand what the rules are and how they are enforced.</i>	<ul style="list-style-type: none"> The company does not provide any examples to help users understand what the rules are and how they are enforced. 	✗

Transparency About Terms of Service Enforcement

✓ Pass ⚠ Partial Pass ✗ Fail

Indicator	Smart Baby Monitor	Final Results
<i>The company or organization publishes data about the number of accounts it restricts or closes on its own initiative.</i>	<ul style="list-style-type: none"> • The company does not publish any data about the number of accounts it restricts or closes. • There is no information about reporting requirements and processes included in the product terms of use. • The company does not publish a transparency report. 	✗
<i>The company or organization publishes data about the number of accounts it restricts or closes as a result of a government request.</i>	<ul style="list-style-type: none"> • The company does not publish any data about the number of accounts it restricts or closes. • There is no information about reporting requirements and processes included in the product terms of use. • The company does not publish a transparency report. 	✗
<i>The company or organization publishes data about the number of accounts it restricts or closes as a result of a request from private third parties.</i>	<ul style="list-style-type: none"> • The company does not publish any data about the number of accounts it restricts or closes. • There is no information about reporting requirements and processes included in the product terms of use. • The company does not publish a transparency report. 	✗
<i>The company or organization clearly discloses that it notifies users when it restricts or closes user accounts.</i>	<ul style="list-style-type: none"> • The company does not publish any data about the number of accounts it restricts or closes. • There is no information about reporting requirements and processes included in the product terms of use. • The company does not publish a transparency report. 	✗

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Identity Policy

✓ Pass ⚠ Partial Pass ✗ Fail

Indicator	Smart Baby Monitor	Final Results
<i>The company does not require users to verify their identity with their government-issued identification, or with other forms of identification that could be connected to their offline identity.</i>	<ul style="list-style-type: none">• The company does not require users to verify their identity with their government-issued identification, or with other forms of identification that could be connected to their offline identity.• There is no requirement in the terms of service that customers use their legal names when registering accounts.	✓

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Security Oversight

✓ Pass ⚠ Partial Pass ✗ Fail

Indicator	Smart Baby Monitor	Final Results
<i>The company has systems in place to limit and monitor employee access to user information.</i>	<ul style="list-style-type: none"> The privacy policy and all other documentation available on the company website do not describe employee access policies, or identify ways that employees are limited from accessing user information. 	✗
<i>The company has an internal security team that conducts security audits on the company's products and services.</i>	<ul style="list-style-type: none"> The privacy policy and all other documentation available on the company website do not describe any internal review processes or audits, or indicate whether there are specific employees responsible for conducting them. 	✗
<i>The company commissions third-party security audits on its products and services.</i>	<ul style="list-style-type: none"> The privacy policy and all other documentation available on the company website do not describe any third-party review processes or audits. 	✗
<i>The company ensures that third-parties who process data on behalf of the company implement the required technical and organizational measures to protect user data.</i>	<ul style="list-style-type: none"> The privacy policy specifies that although affiliates or third-party companies may be used to fulfill customer inquiries or transactions, these organizations would have limited access to personal information. However, the policy does not specify any technical or organizational security measures or requirements for third-party processors. 	✗

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Third-Party Requests for User Data

✓ Pass ⚠ Partial Pass ✗ Fail

Indicator	Smart Baby Monitor	Final Results
<i>The company explains its process for responding to non-judicial government requests.</i>	<ul style="list-style-type: none"> The privacy policy states that the company may share information if required by law or legal proceedings (including court orders, subpoenas, statutes, and regulations), but does not detail any process for responding to these requests. 	✗
<i>The company explains its process for responding to court orders.</i>	<ul style="list-style-type: none"> The privacy policy states that the company may share information if required by law or legal proceedings (including court orders, subpoenas, statutes, and regulations), but does not detail any process for responding to these requests. 	✗
<i>The company explains its process for responding to requests from foreign jurisdictions.</i>	<ul style="list-style-type: none"> The privacy policy does not distinguish between domestic and foreign jurisdiction requests for user information, nor does it describe any process for responding to any such requests. 	✗
<i>The company explains its process for responding to requests made by private parties.</i>	<ul style="list-style-type: none"> The privacy policy does not describe any process for responding to requests for user information made by private parties. 	✗
<i>The company's explanations include the legal basis under which it may comply.</i>	<ul style="list-style-type: none"> The privacy policy does not provide any information about how the company complies with third-party requests for user data. 	✗
<i>The company commits to carry out due diligence on requests before deciding how to respond and to push back on unlawful requests.</i>	<ul style="list-style-type: none"> The privacy policy does not provide any information about any process to assess the legality of requests for user information or how the company determines its compliance with requests. 	✗
<i>The company provides guidance or examples of implementation of its process.</i>	<ul style="list-style-type: none"> There are no examples about how any information sharing processes may be implemented. 	✗

Data Control

✓ Pass ⚠ Partial Pass ✗ Fail

Indicator	Smart Baby Monitor	Final Results
<i>The definition of "user information" includes information collected from third-parties.</i>	<ul style="list-style-type: none"> The manufacturer's privacy policy does not include a definition of "user information," but does use other defined terms to describe the personal information that it collects. The definitions of these other terms do not mention any information collected about the user from third-parties. The section describing the data collected about users does not contain any indication that data is received from third parties. 	✓
<i>Users can control the collection of their information.</i>	<ul style="list-style-type: none"> The manufacturer's privacy policy states that the user has the ability to decline to provide personal information if they do not want to register for the use of the manufacturer's website. However, in order to activate and use the product, the user must create an account and provide personal information. There is no provision in the privacy policy for controlling the collection of this information. In addition, once the baby monitor is connected to the manufacturer's service (which is only required in order to use the smartphone app, and not the screen device sold along with the monitor), the manufacturer begins collecting a variety of different types of data from the device. The privacy policy does not provide information on controlling the collection of that data. 	✗
<i>Users can delete their information.</i>	<ul style="list-style-type: none"> The manufacturer's privacy policy only grants the ability to delete information to users located in California, pursuant to the California Consumer Privacy Act which establishes that right. Deletion of data is not mentioned elsewhere in the privacy policy. 	✗
<i>Users can control how their information is used to target advertising.</i>	<ul style="list-style-type: none"> The manufacturer's privacy policy states in a few places that they may use their customers' information to direct advertisements for other products or services to the user. The privacy policy is explicit in describing the case in which the advertisement is sent via email, where the user is informed of their ability to opt-out of the advertising (though it is not clear what effect doing so would have on other uses of their information). In all other cases, the user is given no information about controlling the use of their information for targeted advertising purposes. 	✗

Clear explanation of how users can control whether their information is used for targeted advertising.

- The manufacturer's privacy policy states in a few places that they may use their customers' information to direct advertisements for other products or services to the user.
- Aside from telling users that they may unsubscribe from promotional emails, however, the privacy policy does not inform users about how to control the use of their information for targeted advertising.

✘

Users can obtain a copy of their information.

- The manufacturer's privacy policy only grants the ability to obtain a copy of their information to users located in California, pursuant to the California Consumer Privacy Act which establishes that right.
- Portability of data is not mentioned elsewhere in the privacy policy.

✘

Disclosure of what user information users can obtain.

- The manufacturer's privacy policy only grants the ability to obtain a copy of their information to users located in California, pursuant to the California Consumer Privacy Act which establishes that right.
- Portability of data is not mentioned elsewhere in the privacy policy.

✘

Users can obtain their information in a structured data format.

- The manufacturer's privacy policy only grants the ability to obtain a copy of their information to users located in California, pursuant to the California Consumer Privacy Act which establishes that right.
- Portability of data is not mentioned elsewhere in the privacy policy.
- The privacy policy also does not indicate that any users, not even those in California, can obtain their information in a structured data format.

✘

Users can obtain all public-facing and private user information the company holds about them.

- The manufacturer's privacy policy only grants the ability to obtain a copy of their information to users located in California, pursuant to the California Consumer Privacy Act which establishes that right.
- Portability of data is not mentioned elsewhere in the privacy policy.

✘

Data Collection

✓ Pass ⚠ Partial Pass ✗ Fail

Indicator	Smart Baby Monitor	Final Results
<i>Disclosure of the type of user information collected.</i>	<ul style="list-style-type: none">The manufacturer's privacy policy describes the data that their services and devices collect both by category and by using common examples.	✓
<i>Disclosure of how user information is collected.</i>	<ul style="list-style-type: none">The manufacturer's privacy policy goes into some detail about how and when information that is collected is generated. Most personal information is gathered either by direct entry by the user or through transmission of generated information from the user's device to the manufacturer.	✓
<i>Test the product's sensors to determine whether they give clear indication when they become activated.</i>	<ul style="list-style-type: none">When powered, the camera portion of the baby monitor lights up two LEDs to indicate that the video camera and microphone are activated and potentially transmitting data.	✓

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Minimal Data Collection

✓ Pass ⚠ Partial Pass ✗ Fail

Indicator	Smart Baby Monitor	Final Results
<i>The user information collected is only that which is directly relevant and necessary for the service.</i>	<ul style="list-style-type: none">• Overall, the manufacturer of the baby monitor does a good job of keeping the amount of information collected to a minimum. However, there are a few pieces of information that the privacy policy says may be collected about the operation of the camera itself—such as the wireless network name, the temperature at the location of the monitor, and the status of motion detectors—the collection of which does not appear to be connected to the functionality of the service.• While the bulk of the information collected by the baby monitor is documented as related to the functioning of the product, without an explanation for the purpose of collection for these other types of data, the baby monitor does not get a full pass on this indicator.	⚠
<i>Product still works when all permissions not relevant to product's functionality are declined.</i>	<ul style="list-style-type: none">• All collection can be avoided by the user by refusing to use the mobile app, however recording of video and still photos would not be possible.	✓

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Data Use

✓ Pass ⚠ Partial Pass ✗ Fail

Indicator	Smart Baby Monitor	Final Results
<i>The company puts limits on the use of my data that are consistent with the purpose for which the data is collected.</i>	<ul style="list-style-type: none">• The manufacturer's privacy policy sets limits on the use of personal information that are consistent with the stated purposes for collection of that information.	✓
<i>The company explicitly discloses every way in which it uses my data.</i>	<ul style="list-style-type: none">• Usage of the product demonstrates behavior consistent with the uses of personal data described in the manufacturer's privacy policy and does not demonstrate behavior that falls outside the uses stated in the privacy policy.• The privacy policy states that information collected will be used "for the following purposes" implying that the subsequent list is exhaustive.	✓

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Data Retention and Deletion

✓ Pass ⚠ Partial Pass ✗ Fail

— **Criteria: The company retains data only as long as relevant and reasonably necessary to provide service to me.** —

Indicator	Smart Baby Monitor	Final Results
<i>The company on its own deletes outdated and unnecessary personal information, or renders that data to be reasonably de-identified.</i>	<ul style="list-style-type: none"> The manufacturer's privacy policy states that personal information will be kept only as long as is needed to fulfill the data uses described in the document. 	✓
<i>The company provides specific retention periods for different types of information that are reasonably scoped to get rid of outdated and unnecessary personal information.</i>	<ul style="list-style-type: none"> The company does not provide specific retention periods for different types of information. 	✗

— **Criteria: I can delete the data the company has about me that is not needed to provide the service.** —

Indicator	Smart Baby Monitor	Final Results
<i>The company offers easy-to-find and -use controls that allow users to delete data not necessary to render service.</i>	<ul style="list-style-type: none"> The mobile app that accompanies the baby monitor offers the ability to delete video and still images that have been recorded from the camera. However, the manufacturer does not provide any means to delete all other types of personal information. 	✗

— **Criteria: My account and information are deleted when I leave the service.** —

Indicator	Smart Baby Monitor	Final Results
<i>All user information is deleted when the user's service is terminated, or the service no longer operates.</i>	<ul style="list-style-type: none"> The manufacturer's privacy policy does not contain any information about the deletion of personal information either upon the termination of a user's service or the end of the service's operation. 	✗

Threat Notification

✓ Pass ⚠ Partial Pass ✗ Fail

Indicator	Smart Baby Monitor	Final Results
<i>The company will notify the relevant authorities without undue delay when a data breach occurs.</i>	<ul style="list-style-type: none">The manufacturer's legal documents do not contain any commitment to inform relevant authorities in the event of a data breach.	✗
<i>The company clearly discloses its process for notifying data subjects who might be affected by a data breach.</i>	<ul style="list-style-type: none">The manufacturer's legal documents do not contain any commitment to inform data subjects in the event of a data breach.	✗
<i>The company clearly discloses what kinds of steps it will take to address the impact of a data breach on its users.</i>	<ul style="list-style-type: none">The manufacturer's legal documents do not contain any information about what steps it will take to address the impact of a data breach on users.	✗

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User Notification About Third-Party Requests for User Information

✓ Pass ⚠ Partial Pass ✗ Fail

Indicator	Smart Baby Monitor	Final Results
<i>The company notifies users when government entities (including courts or other judicial bodies) request their user information.</i>	<ul style="list-style-type: none">The manufacturer's legal documents indicate that they may turn over users' information in response to a law enforcement request but do not commit to informing the user when that occurs.	✗
<i>The company notifies users when private parties request their user information.</i>	<ul style="list-style-type: none">The manufacturer's legal documents indicate that they may turn over users' information in response to a legal request by private parties but do not commit to informing the user when that occurs.	✗
<i>The company clearly discloses situations when it might not notify users, including a description of the types of government requests it is prohibited by law from disclosing to users.</i>	<ul style="list-style-type: none">The manufacturer's legal documents do not include any information about when the company will notify users of any requests for their data, or when it will refuse to do so.	✗

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Transparency Reporting

✓ Pass ⚠ Partial Pass ✗ Fail

Indicator	Smart Baby Monitor	Final Results
<i>The company lists the number of requests it receives by country.</i>	<ul style="list-style-type: none"> The manufacturer does not produce a transparency report that we could find. 	✗
<i>The company lists the number of requests it receives for stored user information and for real-time communications access.</i>	<ul style="list-style-type: none"> The manufacturer does not produce a transparency report that we could find. 	✗
<i>The company lists the number of accounts affected.</i>	<ul style="list-style-type: none"> The manufacturer does not produce a transparency report that we could find. 	✗
<i>The company lists whether a demand sought communications content or non-content or both.</i>	<ul style="list-style-type: none"> The manufacturer does not produce a transparency report that we could find. 	✗
<i>The company identifies the specific legal authority or type of legal process through which law enforcement and national security demands are made.</i>	<ul style="list-style-type: none"> The manufacturer does not produce a transparency report that we could find. 	✗
<i>The company includes requests that come from court orders.</i>	<ul style="list-style-type: none"> The manufacturer does not produce a transparency report that we could find. 	✗
<i>The company lists the number of requests it receives from private parties.</i>	<ul style="list-style-type: none"> The manufacturer does not produce a transparency report that we could find. 	✗
<i>The company lists the number of requests it complied with, broken down by category of demand.</i>	<ul style="list-style-type: none"> The manufacturer does not produce a transparency report that we could find. 	✗
<i>The company lists what types of government requests it is prohibited by law from disclosing.</i>	<ul style="list-style-type: none"> The manufacturer does not produce a transparency report that we could find. 	✗
<i>The company reports this data at least once per year.</i>	<ul style="list-style-type: none"> The manufacturer does not produce a transparency report that we could find. 	✗
<i>The data reported by the company can be exported as a structured data file.</i>	<ul style="list-style-type: none"> The manufacturer does not produce a transparency report that we could find. 	✗

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Governance

✓ Pass ⚠ Partial Pass ✗ Fail

Indicator	Smart Baby Monitor	Final Results
<i>Explicit and clearly articulated policy commitment to human rights, including freedom of expression and privacy.</i>	<ul style="list-style-type: none"> The baby monitor manufacturer has no language in any of its policies or other documentation expressing a commitment to human rights, including freedom of expression and privacy. 	✗
<i>The board of directors exercises formal oversight over how company practices affect freedom of expression and privacy.</i>	<ul style="list-style-type: none"> The baby monitor manufacturer has no language in any of its policies or other documentation describing board-level oversight processes relating to human rights, including freedom of expression and privacy. 	✗
<i>An executive-level committee, team, program or officer oversees how company practices affect freedom of expression and privacy.</i>	<ul style="list-style-type: none"> The baby monitor manufacturer has no language in any of its policies or other documentation describing executive-level oversight processes relating to human rights, including freedom of expression and privacy. 	✗
<i>A management-level committee, team, program or officer oversees how company practices affect freedom of expression and privacy.</i>	<ul style="list-style-type: none"> The baby monitor manufacturer has no language in any of its policies or other documentation describing management-level oversight processes relating to human rights, including freedom of expression and privacy. 	✗
<i>Provides employee, volunteers or other staff training on freedom of expression and privacy issues.</i>	<ul style="list-style-type: none"> The baby monitor manufacturer has no language in any of its policies or other documentation regarding employee, staff, or volunteer training processes relating to human rights, including freedom of expression and privacy. 	✗
<i>Maintains a whistleblower program through which employees, volunteers or other staff can report concerns related to how the company treats its users' freedom of expression and privacy rights.</i>	<ul style="list-style-type: none"> The baby monitor manufacturer has no language in any of its policies or other documentation describing an employee whistleblower program. 	✗

<p><i>As part of its decision-making, considers how laws affect freedom of expression and privacy in jurisdictions where it operates.</i></p>	<ul style="list-style-type: none"> The baby monitor manufacturer has no language in any of its policies or other documentation describing how it considers laws in the jurisdictions in which it operates, or how they impact freedom of expression and privacy in its decision-making processes. 	<p>✗</p>
<p><i>Regularly assesses free expression and privacy risks associated with existing products and services.</i></p>	<ul style="list-style-type: none"> The baby monitor manufacturer has no language in any of its policies or other documentation describing any assessment processes for existing products and services regarding risks to human rights, including freedom of expression and privacy. 	<p>✗</p>
<p><i>Assesses free expression and privacy risks associated with a new activity, including the launch and/or acquisition of new products or services or entry into new markets.</i></p>	<ul style="list-style-type: none"> The baby monitor manufacturer has no language in any of its policies or other documentation describing any assessment processes for new products, services, or activities regarding risks to human rights, including freedom of expression and privacy. 	<p>✗</p>
<p><i>Assesses free expression and privacy risks associated with the processes and mechanisms used to enforce its Terms of Service.</i></p>	<ul style="list-style-type: none"> The baby monitor manufacturer has no language in any of its policies or other documentation discussing or indicating that it conducts any evaluation of freedom of expression and privacy risks when enforcing its terms of service. 	<p>✗</p>
<p><i>Conducts in-depth due diligence wherever the company's risk assessments identify concerns.</i></p>	<ul style="list-style-type: none"> The baby monitor manufacturer has no language in any of its policies or other documentation disclosing that it conducts due diligence regarding concerns raised in any risk assessments in formal policy documents or in other communications that reflect official company policy. 	<p>✗</p>
<p><i>Senior executives and/or members of the company's board of directors review and consider the results of assessments and due diligence in decision-making for the company.</i></p>	<ul style="list-style-type: none"> The baby monitor manufacturer has no language in any of its policies or other documentation describing executive- or board-level review processes relating to conducting or using assessments of risks to human rights, including freedom of expression and privacy, and due diligence in decision-making. 	<p>✗</p>
<p><i>Conducts assessments on a regular schedule.</i></p>	<ul style="list-style-type: none"> The baby monitor manufacturer has no language in any of its policies or other documentation describing whether they conduct human rights impact assessments, or providing any timeline or interval for conducting assessments. 	<p>✗</p>

<p><i>The company initiates or participates in meetings with stakeholders that represent, advocate on behalf of, or are people directly and adversely impacted by the company's business.</i></p>	<ul style="list-style-type: none"> The baby monitor manufacturer has no language in any of its policies or other documentation describing consultation with stakeholders that represent, advocate on behalf of, or are people directly and adversely affected by the company's business. 	<p>✘</p>
<p><i>Clear disclosure of processes for receiving complaints.</i></p>	<ul style="list-style-type: none"> The baby monitor manufacturer has no language in any of its policies or other documentation describing a process for receiving human rights or privacy complaints. The company website does provide mechanisms for seeking support or assistance, including email and phone numbers for a customer support line, but not human rights or privacy complaints specifically. 	<p>✘</p>
<p><i>Clear disclosure of process for responding to complaints.</i></p>	<ul style="list-style-type: none"> The baby monitor manufacturer has no language in any of its policies or other documentation describing a process for responding to human rights or privacy complaints it receives. 	<p>✘</p>
<p><i>The company reports on the number of complaints received.</i></p>	<ul style="list-style-type: none"> The baby monitor manufacturer has no language in any of its policies or other documentation reporting indicating that it reports the number of human rights or privacy complaints it receives. 	<p>✘</p>
<p><i>The company provides evidence that it is responding to complaints.</i></p>	<ul style="list-style-type: none"> The baby monitor manufacturer has no language in any of its policies or other documentation providing evidence that it is responding to human rights or privacy complaints it receives. 	<p>✘</p>
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Open Source

✓ Pass ⚠ Partial Pass ✗ Fail

Indicator	Smart Baby Monitor	Final Results
<p><i>Software is open source, meaning published under a license approved and listed by the Open Source Initiative. (https://opensource.org/licenses/alphabetical)</i></p>	<ul style="list-style-type: none">• In the product's terms of use the manufacturer states that the web applications, mobile applications, or device firmware may contain open source software which is subject to licenses specific to that software.• The terms of use also details a formal process that users can follow if they want to request access to open source code.	<p>✓</p>

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Interoperability

✓ Pass ⚠ Partial Pass ✗ Fail

Indicator	Smart Baby Monitor	Final Results
<p><i>The manufacturer does not use software, copyright, or other devices to restrict the use of products and services that would otherwise be possible to use with your existing products (e.g., set-top boxes, third party applications, etc.).</i></p>	<ul style="list-style-type: none">• The manufacturer's terms of use prohibit people from using their software with other devices not made by the manufacturer and from modifying, reverse engineering, or decompiling the software, all of which would be methods that someone would likely use to create an interoperable product.• Other web searches did not reveal any information to suggest that the manufacturer was accepting of interoperability with its products.	<p>✗</p>

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Ownership

✓ Pass ⚠ Partial Pass ✗ Fail

Indicator	Smart Baby Monitor	Final Results
<p><i>The company does not retain any control or ownership over the operation, use, inputs, or outputs of the product after it has been purchased by the consumer.</i></p>	<ul style="list-style-type: none">• The baby monitor comes with a dedicated handset to interact with the camera and microphone that are both contained in the monitor. This handset is not connected to the internet and does not rely on the manufacturer to function. Therefore, its functionality cannot be altered after purchase.• However, the mobile app that can be used to control and receive video and audio from the baby monitor relies on servers maintained by the manufacturer in order to operate in the expected manner.• Through this requirement for the app, the manufacturer could exert control over the operation, use, or outputs of the product.	<p>✗</p>

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Resale

✓ Pass ⚠ Partial Pass ✗ Fail

Indicator	Smart Baby Monitor	Final Results
<i>If a consumer sells the product on the private market, the new owner has access to the full functionality of the original product.</i>	<ul style="list-style-type: none">• The manufacturer's publicly available documents do not contain instructions on how to perform a factory reset, and, while there is a process for moving the camera and handheld unit to a new wireless network, it does not appear to be possible to simply instruct the camera to "forget" the network it was on.• However, it is possible to remove the connection between the mobile app and the camera, leaving the camera ready to be attached to a different user's mobile app.• Between the ability to move WiFi networks and the ability to decouple the camera from one mobile app and connect it to a new one, a new owner would have the ability to access the full functionality of the baby monitor.	✓
<i>The company does not restrict the transfer of ownership.</i>	<ul style="list-style-type: none">• The manufacturer's legal documents do not attempt to restrict resale of the baby monitor.• The manufacturer's terms of sale explicitly grant the purchaser title to the physical devices sold (but not the software that accompanies it), implying a right to resell that property.	✓

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Functionality Over Time

✓ Pass ⚠ Partial Pass ✗ Fail

Indicator	Smart Baby Monitor	Final Results
<i>The product life cycle is communicated to the potential owner before purchase.</i>	<ul style="list-style-type: none"> The manufacturer gives no indication on any public-facing documentation of a product life cycle. 	✗
<i>Every feature of the product will continue to work the stated product life cycle; that is, the manufacturer will not 'brick' certain parts of the product during that time frame.</i>	<ul style="list-style-type: none"> The manufacturer of the baby monitor does not indicate that there is an expected life cycle for the baby monitor, and at least some of the features of the monitor rely on servers managed by the manufacturer in order to function. The manufacturer is therefore capable of removing some functionality from the baby monitor and gives no guarantee of the life cycle during which that will not happen. 	✗
<i>The manufacturer will not cease to support the functionality I come to expect during the product life cycle.</i>	<ul style="list-style-type: none"> The manufacturer of the baby monitor does not provide a life cycle for the product, and therefore does not promise to support its functionality through the life cycle. 	✗
<i>Replacement services will exist if the manufacturer ceases to support the functionality during the product life cycle.</i>	<ul style="list-style-type: none"> The baby monitor's manufacturer does not provide for a product life cycle, nor does it address the existence of replacement services should it cease to support the monitor's functionality. 	✗
<i>The company commits that, in the event the company is sold or acquired, the new owner will maintain the intended functionality for the full product life cycle.</i>	<ul style="list-style-type: none"> The baby monitor's manufacturer makes no claims about the actions of any future owner of the company. 	✗

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Privacy by Default

✓ Pass ⚠ Partial Pass ✗ Fail

Indicator	Smart Baby Monitor	Final Results
<i>Targeted advertising is off by default.</i>	<ul style="list-style-type: none">• The manufacturer states in its privacy policy that it may use personal information to send users advertisements about services or products that they may be interested in. This constitutes targeted advertising.• These advertisements are on by default, and the user must take action to turn them off.	✗
<i>User interface settings which are optimal for privacy are set by default.</i>	<ul style="list-style-type: none">• If the user decides to use only the included handset, then the manufacturer does not collect data that would require privacy settings.• If, however, the user downloads and connects the mobile app to the monitor, it does collect personal information, and in that case there are no settings that would allow users to control the collection of many of the kinds of data that the baby monitor collects.	✗

Best Build Practices

✓ Pass ⚠ Partial Pass ✗ Fail

Indicator	Smart Baby Monitor	Final Results
<i>The product was built with effectively implemented safety features.</i>	<ul style="list-style-type: none"> • Best build practice 1: The baby monitor Android app does generate warnings when run through the Integrated Development Environment (IDE) security checks, but does not generate errors. • Best build practice 2: The baby monitor Android app only declares one permission specific to the app, and it does use an "android:protectionLevel" statement, however it declares the permission as a development mode, rather than as signature based. This permission allows the app to receive messages from the vendor's cloud servers. However, because this permission is left in "developer" mode, a maliciously-modified derivative of the app could also gain that permission, because the app signing keys belonging to the app's commercial developer are not required to convince the Android system that the derivative app is genuine. • Best build practice 3: The baby monitor Android app mostly requires specific permissions which limit the use of various parts of the app's code to the app itself. However five places where permissions should be declared were missed, which leaves parts of the app's functionality open to use by other apps on the device. 	<p>✓ ✗ ✗</p>
<i>The software does not make use of unsafe functions or libraries.</i>	<ul style="list-style-type: none"> • The baby monitor Android app requests almost every permission available to apps in the Android system, including system-level permissions that it would not be granted unless a device is "rooted." The only app-specific permission that the app declares is not bound to registered versions of the app, but left in "development" mode, meaning anyone who builds a version/derivative of the app can trick the Android permissions system into giving the malignant derivative the same permission level as the registered app distributed by the vendor. 	✗
<i>The software is not overly complex.</i>	<ul style="list-style-type: none"> • The baby monitor Android app Java class tree (a representation of the function and structure of a Java program), is large and obfuscated in ways that make the code extremely hard to follow. While the tree contains some external libraries (pieces of code that can be referenced in other code) that perform tasks reasonably related to the basic functionality of the app itself, it is unclear why many libraries are included in a U.S. version of an app that has several regional variants, including releases for Australia, the European Union, and Japan. Furthermore, it is not clear that many of these libraries are properly implemented, as they trigger registration and validation errors when run through code validators. 	✗

Authentication

✓ Pass ⚠ Partial Pass ✗ Fail NA

— Criteria: A product has an authentication system that corresponds to the sensitivity of the user data it manages. —

Indicator	Smart Baby Monitor	Final Results
<i>If a product supports user accounts, it has an authentication system for accessing those accounts.</i>	<ul style="list-style-type: none"> The baby monitor handset does not support user accounts. The baby monitor Android app has an authentication system that supports user-created accounts, and requires the creation of such an account for any interaction with that baby monitor. 	NA ✓
<i>If a product is packaged with an account with default credentials, those credentials are unique to the instance of the product.</i>	<ul style="list-style-type: none"> While the baby monitor handset does require a secured wifi connection, it does not have any other user account or authentication system. The baby monitor Android app is not packaged with default credentials, instead users must create an account, which includes the creation of a password and the verification of an email address, in order to connect the app to the device. 	NA ✓
<i>If a product has an authentication system, the user must authenticate each time they want to use the product.</i>	<ul style="list-style-type: none"> The baby monitor handset does not have any user account or authentication system. The baby monitor Android app does not require logging in each time it connects with the device, even when the app is closed multiple times. When the device restarts, the baby monitor Android app does not force users to reauthenticate unless the user first signs out of the app. 	NA ✗
<i>If a product has an authentication system, it requires at least two pieces of information to authenticate users.</i>	<ul style="list-style-type: none"> The baby monitor handset does not have an authentication system. The monitor app requires an email address, which it verifies by sending a unique confirmation link that the user must visit in order to activate the account, as well as a password. 	NA ✓

<p>For products that handle sufficiently sensitive data, users can choose to use multi-factor authentication.</p>	<ul style="list-style-type: none"> Note: This device fails this indicator, as the indicator seeks only to clarify if multi-factor authentication is available to users, and in this case, it is not. However, authentication traditionally requires "something the user has and something the user knows." That is, a physical object, say a Debit/ATM card or a house key, and something that is remembered, like a PIN or the location of one's house. Access to information from the handset does require both physical possession as well as proximity to the same secured wifi network that the baby monitor camera is on (along with a password for that network). And while the handset does handle sensitive data, the inability to record information through, or store data on, the device combined with network-level safeguards may serve to minimize the types of risks that (multi-factor) authentication seeks to address to the point of near equivalency. The baby monitor handset handles sensitive data and does not have an authentication system. The baby monitor app handles sensitive data, including data collected through use of the device's remote camera and bi-directional microphone. The baby monitor app does not offer any form of multi-factor authentication. 	<p>XX</p>
<p>For products that handle sufficiently sensitive data, users can choose to use multi-factor authentication whenever the product is activated, or when a device is unrecognized.</p>	<ul style="list-style-type: none"> The baby monitor handset handles sensitive data and the handset does not have an authentication system. The baby monitor app handles sensitive data, including data collected through use of the device's remote camera and bi-directional microphone. The baby monitor app does not offer any form of multi-factor authentication. 	<p>XX</p>
<p>If the product uses a password/passphrase for authentication, it requires that passwords are at least 8 characters long.</p>	<ul style="list-style-type: none"> The baby monitor handset does not have an authentication system. The baby monitor Android app requires that passwords must be at least eight characters long. 	<p>NA ✓</p>

<p><i>If the product uses a password/passphrase for authentication, the password/passphrase may be at least 20 characters long.</i></p>	<ul style="list-style-type: none"> • The baby monitor handset does not have an authentication system. • The baby monitor Android app states that it allows passwords to be up to 20 characters in length, but does not limit input at 20 characters, or fail to validate passwords longer than 20 characters. 	<p>NA ✓</p>
<p><i>If the product uses a password/passphrase for authentication, it requires that passwords are reasonably complex.</i></p>	<ul style="list-style-type: none"> • The baby monitor handset does not have an authentication system. • The baby monitor Android app requires that a password be a minimum of eight characters, and contain at least one letter of each case, and a number. 	<p>NA ✓</p>
<p><i>If the product uses a password/passphrase for authentication, it allows all reasonable characters as input.</i></p>	<ul style="list-style-type: none"> • The baby monitor handset does not have an authentication system. • The monitor Android app allowed all of the symbols on the main two rows of symbols on the default Android English keyboard. 	<p>NA ✓</p>
<p><i>If the product uses a password/passphrase for authentication, it is compatible with popular password managers.</i></p>	<ul style="list-style-type: none"> • The baby monitor handset does not have an authentication system. • The baby monitor Android app allowed for the use of a password manager, as well as simple copy/paste for passwords. 	<p>NA ✓</p>
<p>— Criteria: A product that has an authentication system resists attempts to break it. —</p>		
Indicator	Smart Baby Monitor	Final Results
<p><i>The product allows users to be notified via an out-of-band medium when account security settings are changed.</i></p>	<ul style="list-style-type: none"> • The baby monitor handset does not have an authentication system or notification mechanism. • The baby monitor Android app does not allow for any type of out-of-band communication, such as by email or text message, to alert users of changes to security settings. 	<p>NA ✗</p>

<p><i>To change a password/passphrase/pin, a user must enter the previous password/passphrase/pin, or have access to a secondary system that is used to reset it.</i></p>	<ul style="list-style-type: none"> • The baby monitor handset does not have an authentication mechanism. • When a user is logged in to the baby monitor Android app, they are required to enter the old password in order to change the password. • When a user is not logged in to the baby monitor Android app, they are required to have access to the email address associated with the account in order to change the password. 	<p>NA ✓ ✓</p>
<p><i>The product notifies users when account security settings have changed.</i></p>	<ul style="list-style-type: none"> • The baby monitor handset does not have an authentication system. • The monitor Android app does not notify users when account security settings have changed. 	<p>NA ✗</p>
<p><i>If the product has an authentication system, it also has a system to prevent brute-force/dictionary attacks.</i></p>	<ul style="list-style-type: none"> • The baby monitor handset does not have an authentication system. • After 15 failed login attempts, the baby monitor Android app did not limit logins in any way, including common methods such as enforcing a timeout or locking the account. 	<p>NA ✗</p>

Encryption

✓ Pass ⚠ Partial Pass ✗ Fail NA

Indicator	Smart Baby Monitor	Final Results
<p><i>Transmission of user communications or information is encrypted by default.</i></p>	<ul style="list-style-type: none"> • <i>Note: For Part B of this indicator, all three components of the baby monitor (camera, handset, and app) were evaluated.</i> • <i>Note: While these tests and methodologies follow a convention of using "TLS" exclusively, "SSL" is still widely used to describe the general practice. While not recommended, this language is acceptable in light of the fact that the manufacturer is in fact using more current cryptographic schemes.</i> • <i>Test 1: The baby monitor manufacturer states that it uses SSL for data transfer of personally identifiable information, and encrypts data at rest in databases with restricted access.</i> • <i>Test 2: The baby monitor camera makes unencrypted User Datagram Protocol (UDP) connections to third-party servers every few minutes. It is not clear what data is sent, as it was obfuscated and attempts to decode it were not successful. This does not mean the data sent was encrypted, but there is no solid evidence whether this data in fact encrypted, or merely re-encoded in a format that we did not test. Further the connection itself is not encrypted. This could allow passive observation by anyone along the network path, which in turn could allow an attacker to gather up those communications in an attempt to decode the data later.</i> • <i>The baby monitor handset makes unencrypted User Datagram Protocol (UDP) connections to third-party servers every few minutes. Though the data sent is somehow obfuscated, and attempts to decode it were not successful, the connection itself is not encrypted. This could allow passive observation by anyone along the network path, which in turn could allow an attacker to gather up those communications in an attempt to decode the data later.</i> • <i>The baby monitor Android app uses TLS v 1.2 encryption by default for its connections, but makes some additional User Datagram Protocol (UDP) connections to third-party servers every few minutes via unencrypted connections. Though the data sent is somehow obfuscated, and our attempts to decode it were not successful, the connection itself is not encrypted. This could allow passive observation by anyone along the network path, which in turn could allow an attacker to gather up those communications in an attempt to decode the data later.</i> 	<p>Test 1: ✓ Test 2: ✗ ✗ ✗</p>

<p><i>Transmission of user communications or information is encrypted using unique keys.</i></p>	<ul style="list-style-type: none"> The baby monitor Android app uses unique keys when it is making secure connections. However the app does not encrypt all data that is sent 	<p>✗</p>
<p><i>Users can secure their content using end-to-end encryption.</i></p>	<ul style="list-style-type: none"> The baby monitor Android app does not provide an interface for enabling or disabling end-to-end encryption. Users cannot interact with each other, and have no options to change any security settings other than the user's own password. 	<p>NA</p>
<p><i>End-to-end encryption is enabled by default.</i></p>	<ul style="list-style-type: none"> The baby monitor Android app offers no ability for the user to change encryption settings. While the app does encrypt most communications, it also makes regular non-encrypted connections. The app does not inform users that it is encrypting the data that it does encrypt, nor does it inform the user when it switches from using encrypted connections to sending data "in the clear." We uncovered this behaviour only through our analysis of the network traffic to and from the device. 	<p>✗</p>
<p><i>User information and communications are encrypted by default when at rest.</i></p>	<ul style="list-style-type: none"> The baby monitor Android app allows users to save video output from the monitor camera. While the video does not seem to be written to the phone (it is likely that it is saved "in the cloud" but this was not explored for this test), the app saves a thumbnail of that video unencrypted on the device's SD card. Given that these would presumably be images of an infant's bedroom, this would be characterized as "user information" that could be easily found and obtained in the event of a device compromise. 	<p>✗</p>
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Known Exploit Resistance

✓ Pass ⚠ Partial Pass ✗ Fail NA

Indicator	Smart Baby Monitor	Final Results
— Browsers —		
<i>The software is secure against known bugs and types of attacks.</i>	<ul style="list-style-type: none"> The baby monitor handset connects directly to a media stream provided by the camera itself, and does not need a successful connection to third-party servers or the broader internet beyond a wifi network in order to establish a connection to the stream. In our analysis of traffic going to and from the handset we found no indication of any web browser activity. The baby monitor handset does not use a browser. 	NA
— Apps —		
<i>The software is secure against known bugs and types of attacks.</i>	<ul style="list-style-type: none"> Testing found that the baby monitor Android app, handset, and camera use a third-party service, in a manner undisclosed to the user, which brokers a direct video connection between the camera and the app. This service is used to find where both the paired camera and the app are located on the internet, while traversing firewall restrictions, to send a video feed directly from the camera to the app over the open internet. While such a function is plausibly necessary for the intended functionality of the monitor, in the past the use of the same third-party service was observed and documented by other researchers on many similar devices. They noted this behavior as a possible vulnerability for all devices reliant on this particular vendor. Similar devices, in this case, include home security cameras and doorbells, as well as a variety of other connected devices that allow direct connections between a mobile app and a sensor on different networks. Of primary concern is that the device regularly transmits data across regional/jurisdictional boundaries, despite many other parts of the service using regionally-specific servers. 	✗
— Connected Devices —		
<i>The software is secure against known bugs and types of attacks.</i>	<ul style="list-style-type: none"> Testing found that both the baby monitor camera and handset use a third-party service to broker connections between the Android app, camera, and handset. This service is used to traverse firewall restrictions, and send a video feed directly from the camera to the app, over the open internet. While such a function is plausibly necessary for the intended functionality of the monitor, in the past the use of the same third-party service was observed and documented by other researchers on many similar devices. They noted behavior as a possible vulnerability. Similar devices, in this case include home security cameras and doorbells, as well as a variety of other connected devices that allow direct connections between an app and a sensor on different networks. Of primary concern is that the device regularly transmits data across regional/jurisdictional boundaries, despite many other parts of the service using regionally-specific servers. 	✗

Vulnerability Disclosure Program

✓ Pass ⚠ Partial Pass ✗ Fail

Indicator	Smart Baby Monitor	Final Results
<i>The company has a mechanism (ex: a bug bounty program) through which security researchers can submit vulnerabilities they discover.</i>	<ul style="list-style-type: none"> The product's terms of use or other documentation available on the product website do not include any information about processes or mechanisms for disclosing found vulnerabilities to the company. 	✗
<i>The company discloses the timeframe in which it will review reports of vulnerabilities.</i>	<ul style="list-style-type: none"> The product's terms of use or other documentation available on the product website do not include any information about processes or mechanisms for disclosing found vulnerabilities, and do not include any information about timeframes for review. 	✗
<i>The company commits not to pursue legal action against security researchers.</i>	<ul style="list-style-type: none"> The product's terms of use specify limitations on the use of product software—including separating any individual component, and modifying, reverse engineering, decompiling, or disassembling—that describe common processes used by security researchers. The product's terms of use specify similar limitations for the use of the website or services, describing activities commonly used while conducting security research. The company also reserves the right to involve law enforcement as appropriate for criminal acts it becomes aware of. Criminal law in some jurisdictions can also prohibit activities commonly conducted by legitimate security researchers. 	✗

Security Over Time

✓ Pass ⚠ Partial Pass ✗ Fail

Indicator	Smart Baby Monitor	Final Results
<i>The product life cycle is communicated to the potential owner before purchase.</i>	<ul style="list-style-type: none">• The baby monitor manufacturer offers a limited, one-year parts and labor warranty on the operation of the physical device.• There is no statement describing a life cycle for updates to the app.	✗
<i>Software updates are authenticated.</i>	<ul style="list-style-type: none">• There is no process for authenticating updates described in available company documents.	✗
<i>Automatic software updates.</i>	<ul style="list-style-type: none">• The product's terms of use state that all web apps will be periodically updated when bug fixes, patches, and feature improvements are finalized. It states that this will be done automatically.• The product's terms of use state the company will also push out mobile app updates when bug fixes, patches, and feature improvements are finalized, and "highly recommends" that users enable automatic updating on their device.	✓
<i>Notification of software update.</i>	<ul style="list-style-type: none">• There is no information in any documentation available on the company website that describes a process for notifying users of software updates. However mobile app stores often have their own processes for notifying users that there may be updated versions of applications they have already installed.	✗

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Product Stability

Indicator	Smart Baby Monitor	Final Results
<p><i>The software is not susceptible to crashes.</i></p>	<ul style="list-style-type: none"> The baby monitor Android app was put through fuzz testing using an AFL (American Fuzzy Lop) based approach, using seed file sources gathered from many fuzzing projects undertaken by external actors (e.g. Cisco seed file repository), and tests written with broad code coverage in mind. After running the tests for multiple days, there was no evidence of reproducibility in crashing. However, it is possible that the fuzz testing did not cover enough of the codebase, and that more and/or differently targeted testing could uncover instability that was not revealed through our testing. 	<p><i>see details to the left and methodology for more info</i></p>
<p><i>If the program is forced to unexpectedly terminate, it shuts down in a safe and responsible fashion.</i></p>	<ul style="list-style-type: none"> The baby monitor Android app was put through fuzz testing for multiple days, and while a small number of crashes did occur, there was no evidence of reproducible crashing, or any indication that the system state was left vulnerable as a result of those seemingly random crashes. It is, of course, possible that differently crafted fuzzing tests, or more iterations, could uncover issues not found in this testing. 	<p><i>see details to the left and methodology for more info</i></p>
<p><i>The software is not vulnerable to algorithmic complexity attacks.</i></p>	<ul style="list-style-type: none"> The baby monitor Android app was put through fuzz testing, and fuzz tests written to test for complexity attacks. The app did not crash as a result of these inputs. However, it is possible that the fuzzing tests did not cover enough of the possible features that allow input, and that refined fuzzing tests could uncover an issue. 	<p><i>see details to the left and methodology for more info</i></p>