



MINUTES

ROUNDTABLE

“COMPATIBILITY OF MOBILE PHONES AND VEHICLE HANDS-FREE TERMINALS”



GENERAL INFORMATION

Date and venue: 10 March 2017, ITU Headquarters, Geneva

Participated companies: Robert Bosch, Volvo Car Corporation, Sony Corporation, Hyundai MOBIS, Automated Vehicle Center, HEAD acoustics

Participants: Eight representatives of the participating companies, and two representatives of TSB

Web sources: www.itu.int/go/roundtable-hft-march17

BACKGROUND

Many phone users and car owners are concerned about the quality of hands-free communication through their mobile phones wirelessly connected with vehicle hands-free terminals (HFTs), as some mobile phones do not conform to the particular requirements specified in the Recommendations [ITU-T P.1100](#) and [ITU-T P.1110](#) for narrowband and wideband connections, respectively.

At the request of the automotive industry, ITU has organized three test events on performance assessment of mobile phones against Chapter 12 of the above ITU-T Recommendations. Mobile phones which successfully passed tests at the [first](#), [second](#) and [third](#) ITU test event (May 2014, May 2016 and November 2016, respectively) are listed in a “[Whitelist](#)” which has been used by automotive companies to recommend that their customers use whitelisted phones in their cars.

The Roundtable was organized in follow-up to these three ITU mobile phone test events. As evidenced by the results of these test events, the connectivity and voice quality of mobile phones wirelessly connected to vehicle hands-free terminals (HFTs) are still unresolved issues of key importance to the automotive industry.

OBJECTIVES

The event was organized to discuss among carmakers and phone vendors:

- possible approaches to address issues identified by the three ITU test events;
- potential future approaches to solving these issues on a global scale involving all market players (carmakers, HFT suppliers, phone vendors and network operators), including the feasibility of establishing a logo which may appear on a HFT’s display in a car when a ‘whitelisted’ phone connects to it.

AGENDA

1. Overview of current issues

- Overview of the outcomes of the ITU-T test events

- ITU-T requirements and tests specified in Chapter 12 of the Recommendations ITU-T P.1100 and ITU-T P.1110;
- Key issues and their implications for the automotive industry;
- Future actions to improve the connectivity and voice quality of mobile phones wirelessly connected to vehicle hands-free terminals;

2. Panel discussion

Note: all presentations are made publically available on the event's [web page](#).

KEY RESULTS OF THE EVENT

TSB gave an overview of the issue and general statistics of the last three ITU test events. In the presentation, TSB briefly highlighted the history of the issue, detailing the steps that ITU has taken to improve the situation. ITU has also produced a VIDEO about these test events (see [ITU web page](#) or YouTube <https://www.youtube.com/watch?v=9sU622H6ooY>).

HEAD acoustics gave an overview of the requirements and test procedures described in ITU-T P.1100 and ITU-T P.1110 which are verified regularly based on the outcomes of relevant ITU test events.

HEAD Acoustics also gave a detailed overview of the key faults identified at the test events. Sony commented that in the presentation “Key Issues and Their Implications for Automotive Industry” page 2-6 on speech delay, a pass/fail limit is indicated by dashed red lines while the specifications valid at the time of testing, did not specify this pass/fail criterion used in the slides. The slides were modified, taking this into account, by deleting the red lines.

Sony commented that Bluetooth profiles were initially designed to support wireless headsets, with the result that the AT commands used to manage signal processing sometimes cannot be used transparently by carmakers for their particular case. Moreover, the existing Bluetooth profiles are generic and do not focus on particular terminal devices (e.g. headsets, car’s HFT, etc.). The several standards available for short wireless connection are not equivalent and are used for different purposes: the mobile phone industry uses Bluetooth SIG standards while the automotive industry uses ITU-T Recommendations. In this regard, participants noted that both industries use existing Bluetooth profiles, highlighting the need to find a solution without changing the existing profile.

Some parameters identified in ITU-T P.1100 and ITU-T P.1110 were discussed in detail. It was noted that certain values of parameters required for cars will not be suitable for other wireless terminal devices. For instance, disabling the “Remote Audio Volume Control – RAVC” feature in the Bluetooth profile would not work for headsets which are not equipped with volume control buttons.

It was highlighted that, in general, there are no commands to turn off all signaling processing. The roundtable’s participants agreed that there may be a need to specify special commands for identifying the connected terminal device. It could be a command such as “WHO IS?” which allows the identification of the type of connected device (Answer: "I am a car").

Participants highlighted that many of the issues with mobile phones’ compatibility with car hands-free terminals remain unresolved, despite clear market need to improve voice quality in these scenarios.

Moreover, it was mentioned that solving this particular issue could be the first step toward enhanced cooperation between automotive and phone industries on new ICT technologies to be used in vehicles. CarPlay, ITS and self-driving cars may of mutual interest to these industries, driving future joint projects.

WAY FORWARD

The roundtable's participants identified potential approaches to improve the current situation:

New commands for Bluetooth profile

It was proposed to define/develop and standardize new commands for Bluetooth profile which allow the identification of the wirelessly connected terminal device, disable all signaling processing and provide nominal levels of key parameters. The issue should be addressed to Bluetooth SIG and can be driven by the phone industry.

Update ITU whitelist

As a way forward it was also suggested to continue the testing of mobile phones against ITU-T Recommendations through ITU test events, including on-demand testing.

More information is available at www.itu.int/go/phone_whitelist.

New certification scheme

Participants expressed their interest in establishing the new certification scheme on ITU-T P.1100 and P.1110. It was noted that ITU informed GCF about its wish to establish a joint certification scheme (CASC activity). To accelerate this approach, phone vendors are encouraged to submit relevant contributions to GCF requesting the establishment of this kind of certification scheme.

NOTE: ITU participated in the Steering Group (SG) of Global Certification Forum (GCF) and presented an overview of ITU's current activities on this subject in June 2016. GCF asked SIG Bluetooth whether they have similar activities in the interests of avoiding overlaps with other certification bodies. As yet, no feedback has been received.

Self certification was also suggested. This is since several years used e.g. for GSMA HD Voice logotype certification. This means that the manufacturers' own measurement results can be used as basis for certification, as guided by a license agreement. See also below.

Logo

Among the approaches discussed was an idea to establish a logo for carmakers, phone vendors and operators to highlight that a particular phone is ready to be used in a car ("Vehicle-Ready"). It was proposed to use approaches similar to those already seen on the ICT market (e.g. GSMA's "HD Voice").

To implement this approach, it was proposed to establish agreements between:

- ITU and phone vendor (ITU-Phone vendor)
- ITU and vehicle vendor (ITU-carmaker).

According to the proposed ITU-Phone vendor agreement, the whitelist would include all family members of a mobile phone (phones based on a single platform) found to pass the tests of ITU-T P.1100 and P.1110 by an ITU test event. As part of this agreement, phone vendors would need to guarantee that software updates

for these families of phones will not change measured parameters/values used for hands-free communications in a car. Phone vendors could potentially inform their customers about their phones' vehicle readiness by adding a special statement/logo (e.g. "Vehicle-Ready") to an OEM box and/or a phone's user manual.

According to the proposed ITU-carmaker agreement, vehicle vendors should be responsible for informing drivers whether or not their phone is vehicle ready and on the ITU whitelist. This information could potentially be presented on the HFT's display (e.g. "Vehicle-Ready").

To implement this procedure, ITU could potentially generate a unique code for phone vendors and provide a hash-function to vehicle vendors. In this regard, phone vendors would insert the assigned code into the software for a particular series of phones, and vehicle vendors would integrate the hash-function into HFT systems installed in their cars. The verification procedure assumes that a car's HFT system checks the code using the hash-function, using the result to inform a driver about the status of their phone (whitelisted or not whitelisted).

It was highlighted that a description of the code/hash-function procedure should become the subject of a contribution submitted to the ITU-T Conformity Assessment Steering Committee (CASC).

Should this approach be implemented, ITU would inform operators (ITU members) about this issue, requesting that they include the agreed logo/statement on whitelisted phones now on sale.

CONCLUSION

It was noted that products can be submitted to possible future test events and on-demand testing, to further populate the whitelist with new models of mobile phones compliant with ITU-T P.1100 and P.1110.

Participants agreed:

- To consider the possibility of developing new commands for Bluetooth profile which may help to identify the wirelessly connected terminal device, disable all signaling processing and provide nominal levels of key parameters;
 - To try to establish a joint ITU-GCF certification scheme on ITU-T P.1100 and P.1110 and request that phone vendors contribute to GCF;
 - To check whether it is possible to establish agreement between ITU, phone vendors and vehicle vendors on the implementation of a logo/statement (e.g. "Vehicle-Ready");
 - To submit a contribution to ITU-T CASC proposing that the hash-function procedure be used for the logo;
 - To update the interface of the current whitelist to make it more user-friendly (e.g. add pictures of the phones, remove detailed information about software, add some links to the product descriptions, etc.).
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