Audi MIB2+
User Testing

TIANCHEN QIANG

October 2017

1 Overview

When the development of MIB2+ gets to the end, it is a good time to review the current system. By doing the user testing, the Audi HMI designers can have a better understanding on what problems the system has now and what improvements the system can be done in the future.

2 Goals

1. Define MIB2+ main problems
2. Generate an overview for MIB2+ each function
3. Summarize design concepts for in-vehicle infotainment system

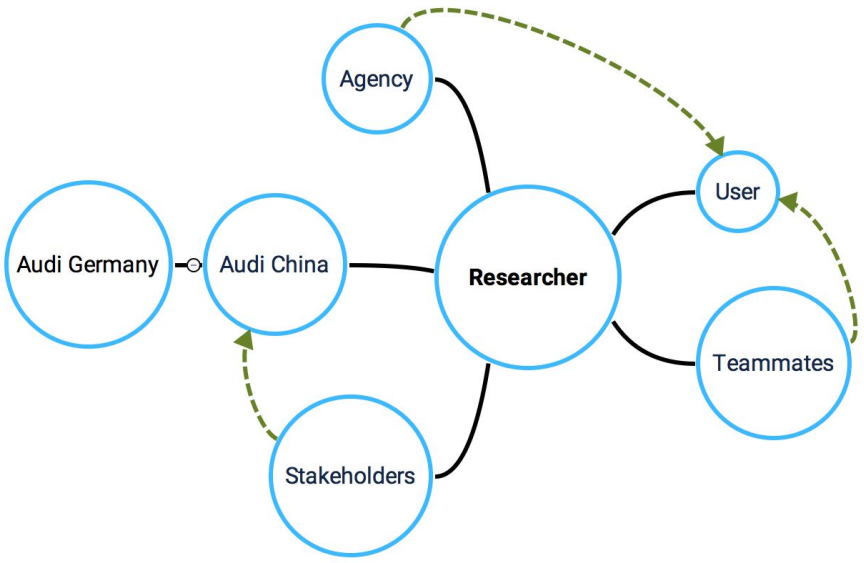
3 Durations

6 weeks.

4 Participants number

10 people.

5 People relationships

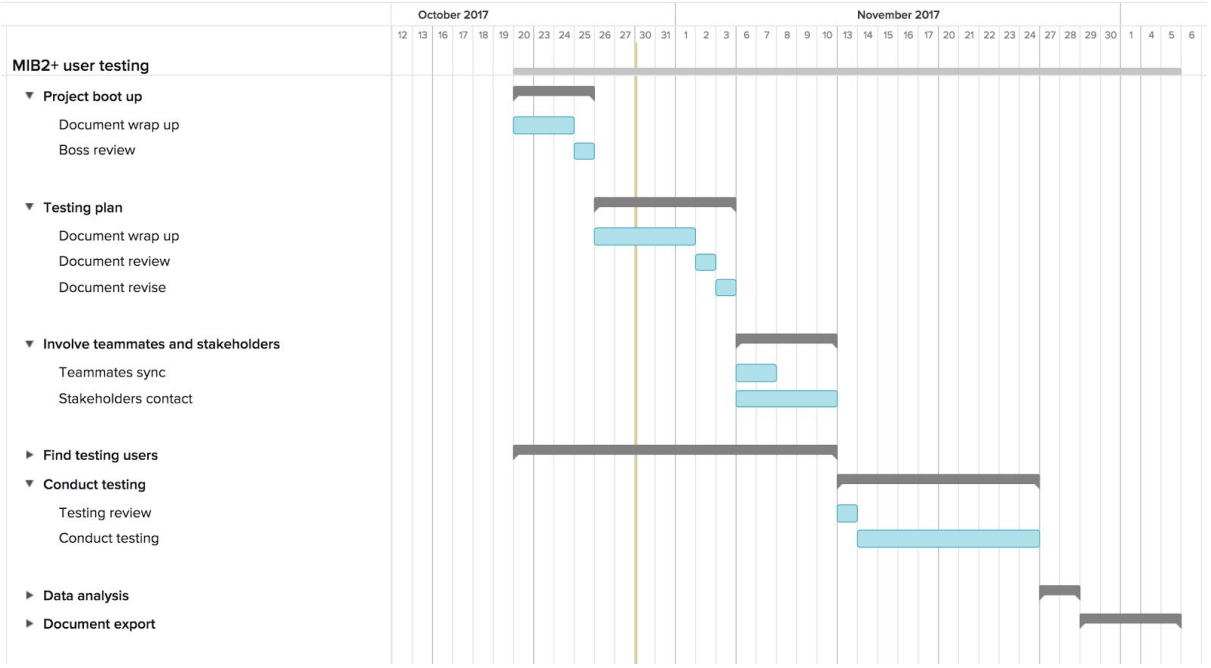


Key Points:

1. Chinese customer’s ideas
2. Function owner’s ideas

3. Agency’s cost fee
4. Manager’s ideas
5. Stakeholder(VW)’s ideas

6 Gantt chart



Key Points:

1. Testing location confirmation
2. Testing people schedule confirmation
3. Testing car booking
4. Testing document editing
5. Testing process recording
6. Testing report writing

7 Milestones

7.1 Project Boot Up - 10.25

Apply money from manager for this project. Confirm the agency which helps us to find 10 users. Consider potential risks for postponing the project.

7.2 Testing Plan - 11.3

When and where users will meet interviewers. Prepare the testing document. Involve teammates and managers to improve the document.

7.3 Find Testing People - 11.10

Finalize interviewing time and people. Think of back-up plan in case exceptional things happen.

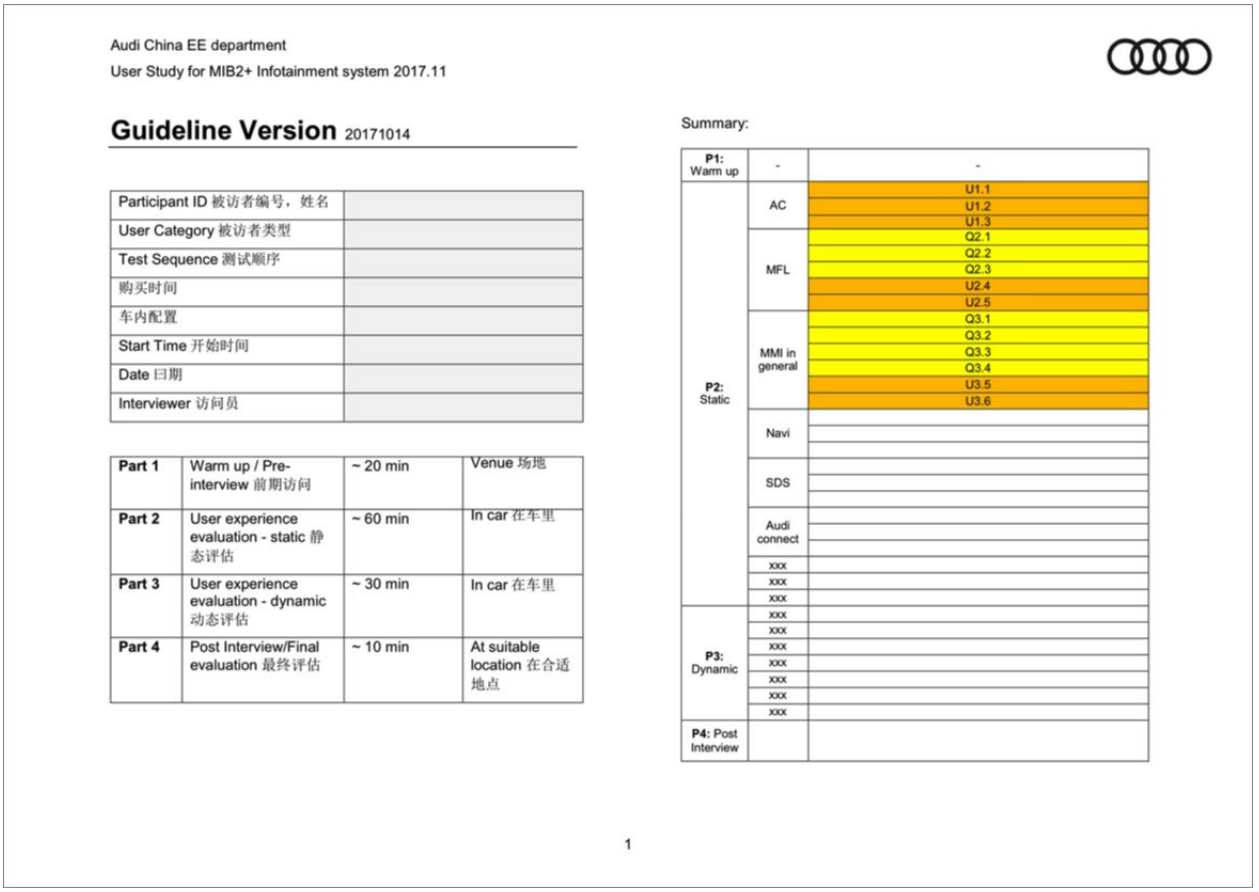
7.4 Conduct Testing - 11.23

Conduct testing and collect all data that we need for later analysis. Prepare car and camera.

7.5 Document Export - 11.30

Analyze user feedback and export analysis document to achieve project goal.

8 Testing guideline excerpts



Audi China EE department

User Study for MIB2+ Infotainment system 2017.11

Guideline Version 20171014

Participant ID 被访者编号，姓名	
User Category 被访者类型	
Test Sequence 测试顺序	
购买时间	
车内配置	
Start Time 开始时间	
Date 日期	
Interviewer 访问员	

Part 1	Warm up / Pre-interview 前期访问	~ 20 min	Venue 场地
Part 2	User experience evaluation - static 静态评估	~ 60 min	In car 在车里
Part 3	User experience evaluation - dynamic 动态评估	~ 30 min	In car 在车里
Part 4	Post Interview/Final evaluation 最终评估	~ 10 min	At suitable location 在合适地点

Summary:

P1: Warm up	-	-
P2: Static	AC	U1.1
		U1.2
		U1.3
	MFL	Q2.1
		Q2.2
		Q2.3
		U2.4
		U2.5
	MMI in general	Q3.1
		Q3.2
		Q3.3
		Q3.4
		U3.5
		U3.6
	Navi	
	SDS	
	Audi connect	
	xxx	
	xxx	
	xxx	
P3: Dynamic	xxx	
	xxx	
	xxx	
	xxx	
	xxx	
	xxx	
	xxx	
P4: Post Interview		

1

Section I: Warm up / Pre-interview (20min) 前期访问（20 分钟）

0. Introduction of the interviewer / the institute: 访问员自我介绍

INT Please provides the following information:

My name is ...and I work for Audi China..... We are conducting this usability study 自我介绍姓名，此次研究目的

I am looking forward to talking to you about a very interesting topic in the next two hours. The focus of this study lies on the evaluation of future in-car system, and it will help us to improve them in the future.接下来两个小时会和您讨论一个有趣的话题:我们会来评价一下现有车内的功能，以帮助我们未来的开发。

0.1 Description of the process: 描述流程

INT Please provides the following information:

The interview will consist of three parts: 访问分为三部分:

Part 1 includes the introduction and contains preparatory questions (20 min) 第一部分：简介和一些初步询问的问题（20 分钟)

Part 2 we will sit in test car and have you experience the different in-car system (60 min) 第二部分：在测试车内完成指定的测试项目（60 分钟)

Part 3 you will do a test drive on the specified route and perform some further tasks, our interviewer will guide you the direction of diving. (30 min) 第三部分：在指定的 线路上驾驶，同时完成一些测试项目；我们的访问员会指引您驾驶的路径。

Part 4 will include your final evaluations and some other topics (15 min) 第四部分：事后评估和一些其它相关话题（10 分钟）

The Interview will be audio- and video-recorded for analysis purposes only. The legal obligations regarding data protection and anonymity wHl be ensured.告知录音录像, 隐私保护相关内容。

Please tell us everything that comes to mind during the interview. Think out loud, there is no “right” and “wrong” answer Your feedback will help us to improve future cars.在整个访问过程中大声说出自己当时的想法，没有对错之分，您的想法会帮助我们改造我们的产品，请畅所欲言。

0.2 Demographics / Vehicle Statistics

Person related data 个人相关数据

a) Age 年龄_____岁

b) Gender 性别

1☐	Male 男
2☐	Female 女

c) Marriage status: Are you married? 您的婚姻状况是？

1☐	Married 已婚
2☐	Single 单身

d) Kids in household: How many kids (below 18 years) currently live in your household?

1☐	No kids 无小孩	
2☐	1 kid: _____	Age
3☐	2 kids: _____	Age
4☐	3 kids: _____	Age

e) Years of driving 驾龄: _____ 年

f) Profession 职业：_____

0.3 Vehicle usage 车辆使用

Average driving time every day _____ .平均一天您驾驶时间

1☐	<30 minutes
2☐	30-60 minutes
3☐	60-90 minutes
4☐	90-120 minutes
5☐	>2 hours

Section II: Static user experience evaluation - Intuitive impression and operation静态评估-直观感受和操作

ACT -> Please take the respondent to the Audi vehcle. 带被访者区车辆（静态测试）

ACT -> Please check the folloing: 检查：

1. Make sure all the systems are reset. 确保系统已重置。
2. Make sure the display is main menu. 确保在主菜单。
3. Make sure the smartphone is turned on and with power source. 确保手机开机并充电
4. Make sure the video recording system is power on and working properly. 确保视频录像设备已打开并正常工作。

ACT -> Please enter the car: 入车：

4. Power on the car 打开点火开关
5. Interviewer sits in the passenger seat 访问员坐在副驾驶座位
6. Remind respondent not to operate anything in the car untial interviewer told. 告知受访者先不要操作社内的任何设备，直到访问员要求开始操作。
7. Please adjust the seat to your most comfortable position, just like what you did in your own car.现在请您调节座椅，按照您平时开车时最喜欢的姿势来调节。

Please provide this information：请向被访问者说明：

- Now we would like to test some of the functions of the in-car system. I will ask you to perform individual tasks in a sequence.现在我们想要测试，下系统的一些功能。我会要 求您按顺序完成一些单项任务。
- As mentioned earlier, there is no right or wrong when you perform these tasks. We are not testing your skills; only the vehicle's operating system is being tested here. 正如之前提到的那样，在您进行操作的时候不存在正确或者错误的操作，我们并没有在测试您的技巧，这里仅仅是在测试车辆的操作系统。
- Very important: When you execute these tasks, please think out loud and express everything that comes to mind, whether it is negative or positive.非常重要的——点是，在您 进行这些任务的时候，请说出所有您脑海中思考的内容，无论是正面的还是负面的。

1 AC

1.1 U1.1: Turn on AC / Adjust temp. 打开空调 / 设定温度

"Please activate the air conditioning and adjust the temperature to a certain degree of your choice." "请打开空调，并调到您选择的温度。"

1.1.1 Observations 观察

Complete 完成情况	□ Instant Success 一 次成功 □ Success 成功 □ Failed 失败
Attemps 尝试路径 (3 max)	
Observation 访问员观察评分	Rating 访问员评级： 1□ No problems 没问题 2□ Irritation 有点犹豫 3□ Minor errors 小错误 4□ Massive errors 大错误 5□ Help from RA 需要访问员帮助 Problems can be tracked back to (MA)…问题的原因是（可多选）：
	1□ System 系统_____ 2□ Human c 操作者_____ 3□ No differentiation possible 无法区分

1.1.2 How would you rate your satisification of the functions tested? 您会如何评价对此项设置的满意度?

-2 Not satisfied at all 一点也不满意	-1 不太满意	0 中立	1 比较满意	2 Very satisfied 非常满意
□	□	□	□	□

1.1.3 Did you experience any difficulties? Please name obstacles and difficulties. What exactly needs to be improved? 您师傅遇到困难或者不方便的地方？请说出遇到的障碍和困难，或者改进的意见。

1.2 U1.2: Set to inner cycle / adjust wind direction 设置内循环 / 风向调节

"Now please use the Air inner cycle. Afterwards adjust the wind flow to the foot area." "现在请使用空气内循环。之后调节至脚部出风。"

1.2.1 Observations 观察

Complete 完成情况	□ Instant Success 一 次成功 □ Success 成功 □ Failed 失败

Attemps 尝试路径 (3 max)	
Observation 访问员观察评分	Rating 访问员评级： 1☐ No problems 没问题 2☐ Irritation 有点犹豫 3☐ Minor errors 小错误 4☐ Massive errors 大错误 5☐ Help from RA 需要访问员帮助 Problems can be tracked back to (MA)...问题的原因是（可多选）： 1☐ System 系统_____ 2☐ Human c 操作者_____ 3☐ No differentiation possible 无法区分

1.2.2 How would you rate your satisification of the functions tested? 您会如何评价对空调设置的满意度？

-2 Not satisfied at all 一点也不满意	-1 不太满意	0 中立	1 比较满意	2 Very satisfied 非常满意
☐	☐	☐	☐	☐

1.2.3 Did you experience any difficulties? Please name obstacles and difficulties. What exactly needs to be improved? 您师傅遇到困难或者不方便的地方？请说出遇到的障碍和困难，或者改进的意见。

1.3 U1.3: Check the AQI / Close AC / 查看空气质量指数 / 关闭空调

"Now please check the AQI and then close AC" "现在请尝试查阅空气质量指数，之后关闭空调。"

1.3.1 Observations 观察

Complete 完成情况	□ Instant Success 一次成功 □ Success 成功 □ Failed 失败
Attemps 尝试路径 (3 max)	
Observation 访问员观察	Rating 访问员评级：

评分	1☐ No problems 没问题 2☐ Irritation 有点犹豫 3☐ Minor errors 小错误 4☐ Massive errors 大错误 5☐ Help from RA 需要访问员帮助 Problems can be tracked back to (MA)...问题的原因是（可多选）： 1☐ System 系统_____ 2☐ Human c 操作者_____ 3☐ No differentiation possible 无法区分

1.3.2 How would you rate your satisification of the functions tested? 您会如何评价对此项设置的满意度？

-2 Not satisfied at all 一点也不满意	-1 不太满意	0 中立	1 比较满意	2 Very satisfied 非常满意
☐	☐	☐	☐	☐

1.3.3 Did you experience any difficulties? Please name obstacles and difficulties. What exactly needs to be improved? 您师傅遇到困难或者不方便的地方？请说出遇到的障碍和困难，或者改进的意见。

2 Multi-steering wheel 多功能方向盘

2.1 Q2.1: Now let us focus on the streering wheel; please try to describe to me the function of each button according to your understanding. 现在我们讨论一下方向盘，请根据您的理解描述每一个按键的功能。

Item	Understand correctly? (Y/N) 是否理解？	If not correct, record the respondents' understanding, and then explain the right function description. 如理解错误，记录被访者的理解，并解释正确功能。
1		仪表盘，切换选项
2		仪表盘视图显示切换
B		返回，上一级菜单
4		调出选项菜单
5		旋转/选择功能，按压确认
6		电话功能，通话.结束通话，迎话列表
7		语音对话 SDS
8		调节音，按下 MMI 静音
9		上一个/下一个曲 H
10 (* 自定		方向盘加热 *自定义键
11		重复上一次导航播报（确认）

2.2 Q2.2: Most used buttons/features 最常用的三个键/功能

1. _____
2. _____
3. _____

2.3 Q2.3: Which feature do you need to put on the steering wheel but currently is not available? 你最想放在方向盘上的操作/功能，而目前上面没有提供的是？

_____

2.4 U2.4 Please set the "*" key with function daylight nightlight map.请尝试通过方向盘或者MMI设置方向盘上的自定义按键*键的功能为日间地图夜间地图切换。

2.4.1 Observations 观察

Complete 完成情况	□ Instant Success 一次成功 □ 2nd time success 成功 □ 3rd time success 成功 □ Failed 失败
Attemps 尝试路径 (3 max)	1）长按*键选择 2）车辆 –> settings&service -> steering wheel buttons

Observation 访问员观察评分	Rating 访问员评级： 1□ No problems 没问题 2□ Irritation 有点犹豫 3□ Minor errors 小错误 4□ Massive errors 大错误 5□ Help from RA 需要访问员帮助 Problems can be tracked back to (MA)…问题的原因是（可多选）： 1□ System 系统_____ 2□ Human c 操作者_____ 3□ No differentiation possible 无法区分

2.4.2 How would you rate your satisification of the functions tested? 您会如何评价对空调设置的满意度？

-2 Not satisfied at all 一点也不满意	-1 不太满意	0 中立	1 比较满意	2 Very satisfied 非常满意
□	□	□	□	□

2.4.3 Did you experience any difficulties? Please name obstacles and difficulties. What exactly needs to be improved? 您师傅遇到困难或者不方便的地方？请说出遇到的障碍和困难，或者改进的意见。

2.5 U2.5 Please activate the map in kombi and zoom in and our on the map. 请在虚拟座舱屏幕（液晶仪表盘）上打开地图界面，然后将地图放大或者缩小。

2.5.1 你是否有虚拟驾驶舱？

a. 有
b. 没有

2.5.2 Observations 观察

Complete 完成情况	□ Instant Success 一次成功 □ 2nd time success 成功 □ 3rd time success 成功 □ Failed 失败
Attemps 尝试路径 (3 max)	
Observation 访问员观察评分	Rating 访问员评级： 1□ No problems 没问题 2□ Irritation 有点犹豫 3□ Minor errors 小错误 4□ Massive errors 大错误 5□ Help from RA 需要访问员帮助 Problems can be tracked back to (MA)…问题的原因是（可多选）： 1□ System 系统_____ 2□ Human c 操作者_____ 3□ No differentiation possible 无法区分

2.5.3 How would you rate your satisification of the functions tested? 您会如何评价对空调设置的满意度？

-2 Not satisfied at all 一点也不满意	-1 不太满意	0 中立	1 比较满意	2 Very satisfied 非常满意

☐	☐	☐	☐	☐

2.5.4 Did you experience any difficulties? Please name obstacles and difficulties. What exactly needs to be improved? 您师傅遇到困难或者不方便的地方？请说出遇到的障碍和困难，或者改进的意见。

Section III: Dynamic test 动态测试

10.2 Haptic feedback 触控反馈

Now please open a music while driving(haptic feedback is off). 请在行驶中播放一首歌曲(关闭触控反馈)。

10.2.1 Observations 观察

Complete 完成情况	□ Instant Success 一次成功 □ 2nd time success 成功 □ 3rd time success 成功 □ Failed 失败
Attemps 尝试路径 (3 max)	???
Observation 访问员观察评分	Rating 访问员评级： 1☐ No problems 没问题 2☐ Irritation 有点犹豫 3☐ Minor errors 小错误 4☐ Massive errors 大错误 5☐ Help from RA 需要访问员帮助 Problems can be tracked back to (MA)…问题的原因是（可多选）： 1☐ System 系统_____ 2☐ Human 操作者_____ 3☐ No differentiation possible 无法区分

10.2.2 How would you rate your satisification of the functions tested? 您会如何评价对此项设置的满意度？

-2	-1	0	1	2
Not satisfied at all 一点也不满意	不太满意	中立	比较满意	Very satisfied 非常满意

☐	☐	☐	☐	☐

10.2.3 Did you experience any difficulties? Please name obstacles and difficulties. What exactly needs to be improved? 您是否遇到困难或者不方便的地方？请说出遇到的障碍和困难，或者改进的意见。

10.3 Haptic feedback 触控反馈

Now please open a music while driving(haptic feedback is on). 请在行驶中播放一首歌曲(开启触控反馈)。

10.3.1 Observations 观察

Complete 完成情况	□ Instant Success 一次成功 □ 2nd time success 成功 □ 3rd time success 成功 □ Failed 失败
Attemps 尝试路径 (3 max)	???
Observation 访问员观察评分	Rating 访问员评级： 1☐ No problems 没问题 2☐ Irritation 有点犹豫 3☐ Minor errors 小错误 4☐ Massive errors 大错误 5☐ Help from RA 需要访问员帮助 Problems can be tracked back to (MA)…问题的原因是（可多选）： 1☐ System 系统_____ 2☐ Human 操作者_____ 3☐ No differentiation possible 无法区分

10.3.2 How would you rate your satisification of the functions tested? 您会如何评价对此项设置的满意度？

-2 Not satisfied at all 一点也不满意	-1 不太满意	0 中立	1 比较满意	2 Very satisfied 非常满意
☐	☐	☐	☐	☐

10.3.3 Did you experience any difficulties? Please name obstacles and difficulties. What exactly needs to be improved? 您是否遇到困难或者不方便的地方？请说出遇到的障碍和困难，或者改进的意见。

Is haptic feedback helpful for you to opereate touch screen? 触控反馈在驾驶时对你操作屏幕有没有帮助。
J. Yes. 有
K. No. 没有
L. I don't. 不知道

10.4 Locking mode 加锁模式

Now please read news and then start the car. 请先阅读新闻然后驾驶。

10.4.1 Observations 观察

Complete 完成情况	□ Instant Success 一次成功 □ 2nd time success 成功 □ 3rd time success 成功 □ Failed 失败
Attemps 尝试路径 (3 max)	???

Observation 访问员观察评分	Rating 访问员评级： 1☐ No problems 没问题 2☐ Irritation 有点犹豫 3☐ Minor errors 小错误 4☐ Massive errors 大错误 5☐ Help from RA 需要访问员帮助 Problems can be tracked back to (MA)…问题的原因是（可多选）： 1☐ System 系统_____ 2☐ Human 操作者_____ 3☐ No differentiation possible 无法区分

10.4.2 How would you rate your satisification of the functions tested? 您会如何评价对此项设置的满意度？

-2 Not satisfied at all 一点也不满意	-1 不太满意	0 中立	1 比较满意	2 Very satisfied 非常满意
☐	☐	☐	☐	☐

10.4.3 How do you feel about the locking of Keyboard, video, long text while you are driving? 您对驾驶时对键盘，视频和长文字加锁是什么看法？

Section IV Sum-up / Post-interveiw (20min)
总结 （20 分钟）

INT Please provide the following information: 提供以下信息

So now we are finished with doing the tasks. I would like to talk about your recent impression*现 在我们已经完成了所有任务，讨论一下您的感受和印象。*

1.Among all the features and functions we tested today, could you list the top 3 that you are most impressed? 在我们今天测试了这么多系统和功能之后，请您列举 3 个让您印象最深的。为什么是这三项？

1.

2.

3.

2.What do you really like about the system tested today, and do you dislike? What are the main pros and cons? Are there any important features, functionalities or controls which you perceive as not workable/functional?在今天测试的系统中，您喜欢哪些方面，不喜欢哪些方面？有哪些优点和缺点？有没有哪些重要的功能/特性的操作或控制按键您觉得是特别不好用的？

[INT] Important question! Please probe

3.Now please list the functions that you consider will be most helpful in your daily driving (5 most). 现在请您列举出您认为对您平时开车最具有帮助的功能和系统（最多 5 项）为什么您会选择这 5 项

1.

2.

3.

4.

5.

4.What else fucntions do you need particularly? 除此之外还有什么功能是您特别想要的？

5.If you could access explainations and recommendations of car features (e.g. how to use ACC, what services does Audi connect have, how can I change the ambient light color) via voice command, and even tutorial videos could be shown in the MMI screen. How useful do you think such a function would be? 在我们今天的测试中有些功能用起来会有点复杂，如果可以通过语音指令，来教你如何使用这些功能，比如使用 ACC 的步骤，调节氛围灯的步骤，甚至这些教学步骤会显示在中控屏幕上，帮你一步一步完成，这对您来说有帮助吗？需要吗？

Audi China EE department

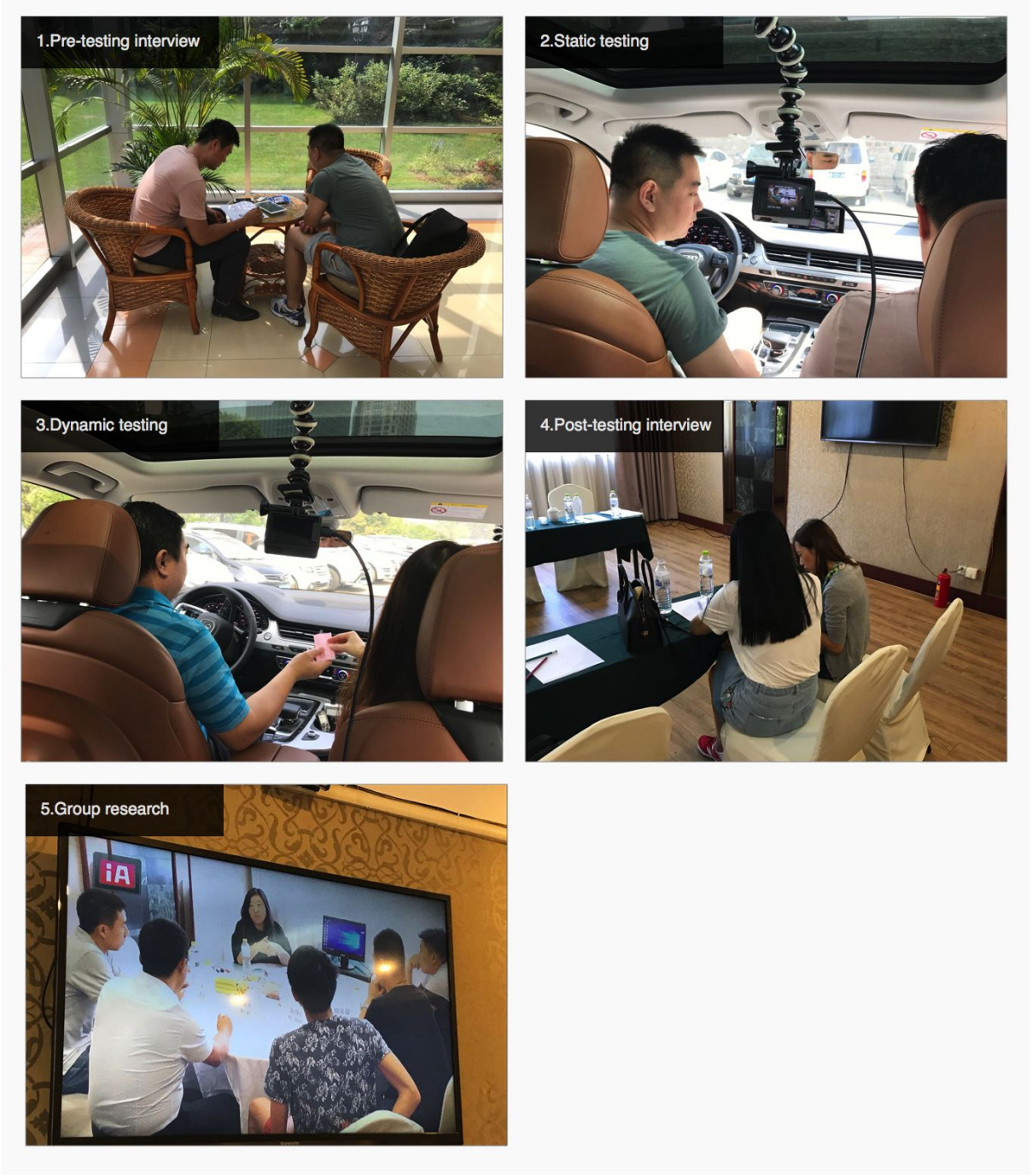
User Study for MIB2+ Infotainment system 2017.11

6. Which kind of customization service/feature do you want to have in your Infotainment system? 在车载系统中，你希望哪些功能和服务是可以定制化的?

7.SUS questionnaire 可用性测试量表

Questions 题目		Strongly Disagree 非常不同意	Disagree 不同意	Neatural 一般	Agree 同意	Strongly Agree 非常同意
1	I think that I would like to use this product frequently. 我愿意经常使用该产品	1	2	3	4	5
2	I found the product unnecessarily complex. 我认为该产品没必要这么复杂	1	2	3	4	5
3	I thought the product was easy to use. 我认为该产品很容易使用	1	2	3	4	5
4	I think that I would need the support of a technical person to to be able to use this product. 我认为需要有经验的人帮助我才能使用该产品	1	2	3	4	5
5	I found the various functions in the product were well integrated. 我发现该产品的多个功能结合的很好	1	2	3	4	5
6	I thought there was too much inconsistency in this product. 我发现该产品有太多不一致	1	2	3	4	5
7	I imagine that most people would learn to use this product very quickly. 我觉得大多数人可以很快的学会使用该产品	1	2	3	4	5
8	I found the product very awkward to use. 我觉得该产品使用起来很麻烦	1	2	3	4	5
9	I felt very confident using the product. 在使用该产品时，我感觉很自信	1	2	3	4	5
10	I needed to learn a lot of things before I could get going with this product. 为了用该产品我需要学习很多东西	1	2	3	4	5

9 Test recording



10 Data analysis

Key Points:

1. Average satisfaction rate
2. Completion rate
3. SUS model analysis

11 Document export excerpts

MIB2+ User Clinic

Jack. Joey. Bridge, C/EE-13, 201711

Audi China

Table of content

- I. Study design and sample structure
- II. General executive summary
- III. Detailed executive summary for each main testing area:
  - 01. AC
  - 02. Steering wheel buttons and FPK
  - 03. MMI in general
  - 04. Connectivity
  - 05. Media
  - 06. Navigation
  - 07. SDS
  - 08. Info service
  - 09. Radio (Online radio)
  - 10. ASI (Baidu Carlife)
  - 11. Grey service (APP download)
  - 12. RSE

Back UP

- i. Reference
- ii. Respondents Profile
- iii. SUS model
- Iv. Others

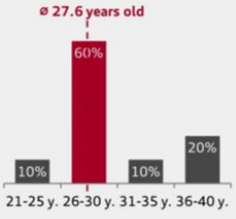
I. Study design and sample structure
Study background

- **Target:**
  1. Test MIB2+ system from end user's (real Audi customers)perspective.
  2. Find out potential problems in terms of usability and user- friendly experience.
  3. Propose improvements based on testing results.

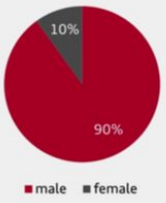
- **Time:** 2017.11.14(CW46.1) – 2017.12.08(CW49.5)
- **Testing environment:** Original D5 car with cluster 23/24 SW. ACB.
- **Participants:** 10 Real Audi users
- **Focus area:** Infotainment (AC / FPK / Navi / Media / Phone / Online service....)

I. Study design and sample structure
Participants samples (n=10)

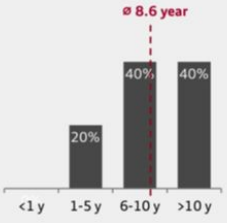
Age



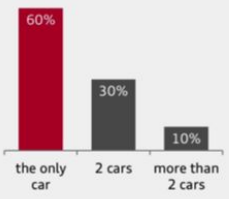
Gender



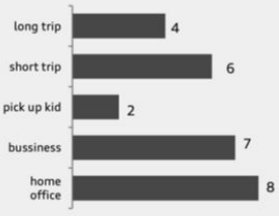
Years of driving



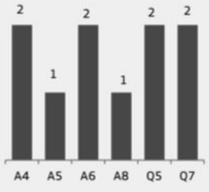
The only owned car?



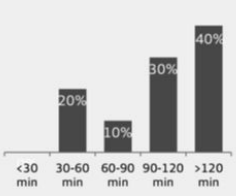
Main using scenario



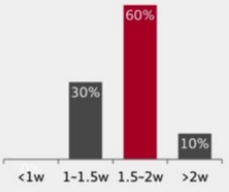
Owned Audi model



Driving hours per day



Driving distance per year



I. Study design and sample structure

Study process

- Content

Part	Content
0. Demographic Data	Gender, age, profession, vehicle usage, main usage scenarios, owned cars...
1. AC	Switch on AC, adjust temperature, set to inner cycle, adjust wind direction, close AC...
2. Steering wheel buttons	Understanding of the buttons on Steering wheel, frequently used buttons, set "*" key
3. MMI in general	Screen size, ergonomics, frequently used functions, massage, haptic feedback, Ambient light...
4. Connectivity	Play a song in mobile via Bluetooth connection, wifi connection
5. Media	Source change, music search
6. Navigation	Navigate to a destination, save as fav, change root criteria, POI & Parking lot search, Multi-destination...
7. SDS	Find a near by gas station, listen to a radio frequency, adjust AC
8. Info service	Find all the provided info service, interested ones, Tencent Mycar...
9. Radio	Online radio...
10. ASI	Baidu Carlife,
11. Grey service	search Car2x app on mobile
12. RSE	SDis, SCON

- Use cases

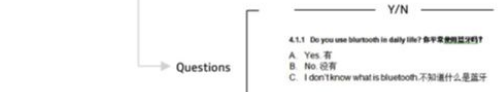
Use case

Observation

satisification

- Questions

Y/N



Multi-Selection

Open feedback

II. General executive summary

Users' comments - Good

The screen size of the system is satisfied for me.

The system really provides a lot of functions.

The virtual cockpit is very impressive. It looks very high tech and in good quality.

This system is far more advanced than the current system in my Audi.

I really enjoy the no-touch operation brought by SDS.

The combi provides a convenient way for me to check the navi information.

I like the touch screens

The MFL is safe for me to operate while driving. The provided functions are enough to use.

I love the online functions. The Tencent Mycar would be helpful for me.

The rear-seat SDIS tablet is well designed and helpful for me.

II. General executive summary
Users‘ comments - Bad

I always cannot distinguish the settings in Car and Settings.

It is strange to put “online radio“ is in Radio function, not in Media function.

I do not know to use which word to search the APP for remote control. And I can not tell which is the correct one

Don‘t like the haptic feedback. It takes big effor to use and it is unaccustomed

I don‘t know the * button on steering wheel. And I find the long press to set * by random test.

There is not hint provided on MMI after I send a location to car via WeChat.. (Prefers automatic switch or at least a notification on MMI)

The star icon to save a dest. in fav. is not obvious.

After switched the source to my phone, the playing music should directly switch to the ones which are currently playing on phone.

The hirachy of the menu is too complicated

The AQI page is hard to find. The indicator for the 2nd page is not clear and obvious enough.

II. General executive summary
General Insights(1)

79.2%

Average satisfaction

The general average satisfaction rate is **79.2%** out of 100%.

Users are **satisfied** with the MIB2+ system. The provided functions are really enough for them to use.

>> Details

3

Most frequently used functions

Radio, Media, Navigation are the most 3 frequently used functions in MMI by the users in their current Car.

>> Details

Wechat / Navigation APPs (Autonavi Map Baidu Map) / **Music APPs** (Podcast, Ximalaya FM, QQ Music) are the top 3 most frequently used apps on mobile when users are in Car.

The rest APPs are News APPs (Toutiao, QQ news), Shopping APPs(Taobao), Game APPs.

>> Details

II. General executive summary
General Insights(2)

4 Most satisfied functions	**MFL/FPK, Media, SDS, AC** are the most satisfied testing cases in the whole study. **Connectivity** and **online radio** related testing cases are the most un-satisfied ones. >> Details
3 Main complain packages	• 9/10 Users **cannot distinguish** the settings in **"Car" and in "Settings"** menu, which caused a lot of mistakes during the testing • 6/10 Users **do not like** the **haptic feedback** . Too much effort to use. Prefer to switch it off. • 6/10 The **menu hierarchy is complicated** and deep for users. Learning effort is big for new users. Some related settings are too hidden to find.
Help	The **Help content** and animation **are always ignored** by the users in the whole testing, even though sometimes they are helpful. Currently when users got questions or problems, users prefers to go to 4s shop, search in Baidu, check in User manual or in their drivers' group

II. General executive summary
General Insights(3)

FPK	**Users like the FPK** kombi very much. They think it is well designed and made in high quality and easy to use. And it is the benchmark in the industry. And the FPK is one of the factors which leads to purchasing for 2/10 Audi users.
Top 3 Impressive likes	The top 3 most likes after the whole testing are **FPK/MFL, Touch screens interaction, SDS.** Baidu Carlife, RSE, Tencent Mycar, Online FM... are also mentioned by some users as the most impressive likes. >> Details
Top 3 impressive dislikes	The top 3 most dislikes after the whole testing are **1) Haptic feedback, 2) Voice recognition is not accurate enough, 3) Menu hierachy is complex.** BT connection, some confused translations... are also mentioned by some users as the most impressive dislikes. >> Details

II. General executive summary
General Insights(4)

Navigation

The average ratio to for Navigation usage is **30%** in MMI and 70% on mobile phones.

Main reason is they think the map and traffic data on mobile phone is more up to date.

>> Details

Baidu Carlife

Compared with Baidu Carlife, more people 6/10 prefer to use Audi Navi.

Main reason is the resolution of Baidu Carlife is poor. And the map cannot be rendered in Kombi. Some users have the concern that the connection maybe not always that stable.

>> Details

Online radio

User complains a lot (9/10) about the entrance for online radio. They do not understand why the entrance is put into Radio.

>> Details

II. General executive summary
General Insights(5)

"Car2x"

Users do not know which is the correct APP for remote control. Most user tried to search the Audi APP by entering Chinese "奥迪".

Confused by the 2 apps "Audi MMI connect" and "Car2x". Do not know which is the correct one.

Media

Media is understandable and comprehensive to use for users.

One improvement: When there are more than one media source available, when users switch the Media source, users expects to directly switch the playing tracks.

SDS

SDS is understandable and comprehensive to use for users. And they like to use SDS functions, they think it is more easy and safe.

But currently, they think the recognition rate still can be improved.

>> Details

II. General executive summary
General Insights(6)

AC

AC is understandable and comprehensive to use for users.

AQI page is hard to find by users. And the **wind direction icon** is unclear in most users' (7/10) opinion.

>> Details

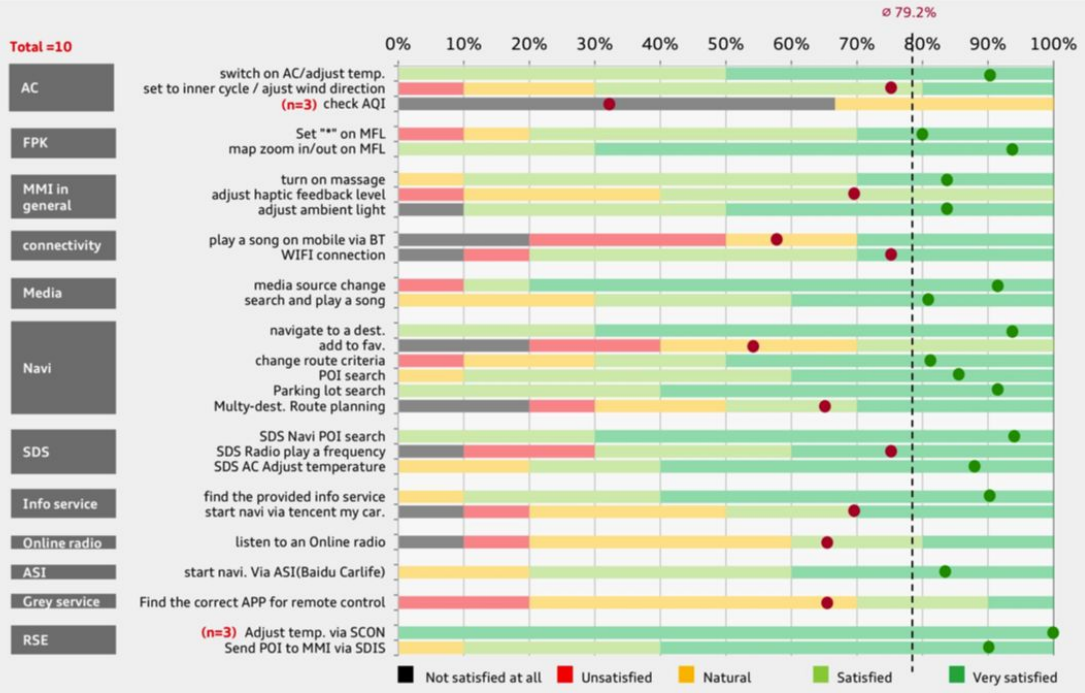
Connectivity

User think the BT and wifi connection are hard for new users.

Users prefer to have BT connection on top in the Connection settings. And the current setting on first position "Mobile phone networks" misled a lot of errors.

>> Details

II. General executive summary
Satisfaction rate for each test case (ø 79.2%)



II. General executive summary
Confusions/Complains in each function(1)

Online Radio 66.6

- 9/10 Tt is stange to put the entrance for online radio is in Radio function, not media function.
- 2/10 Radio means only AM and FM to us.

Grey service (APP download) 66.6

- 9/10 Do not know to use which word to search the APP for remote control
- 8/10 Do not know which is the correct APP for remote control

Connectivity 67.0

Bluetooth connection

- 2/10 The bluetooth connection is hard to find and use.
- 1/10 Find my device in the BT list after several times trial

Wifi connection

- 4/10 The wifi setting (password) is hard to find.
- 3/10 Tried to find the wifi setting in Car and Info service.
- 3/10 Current Data package 2GB/ year is not satisfied at all.

Navi 79.0

- 5/10 The star icon to save a dest. in fav. is not obvious.
- 4/10 The translation of the fav. "常用项目" is confusing.
- 3/10 The route criteria setting is hard to find
- 2/10 I do not know the long press feature to save them as fav.
- 2/10 It is hard for me to find the entrance for "Tour plan" (to add stopovers)
- 2/10 The tour plan entrance should be also provided in the detailed page before guidance starts
- 2/10 The design of the sorting icon based on rating is not good
- 2/10 The search icon disappear if I moved map. And then I do not know how to get the search button back.
- 1/10 The search speed is slow
- 1/10 The speed to active guidance is not fast.
- 1/10 The word proposals for Pinyin is not smart.
- 1/10 I do not like NDF

II. General executive summary
Confusions/Complains in each function(2)

MFL and FPK 79.3

Steering wheel buttons and FPK

- 7/10 don't understand the * button on steering wheel
- 7/10 find the long press to set * a function by random test. 3 of them even don't notice the pop up on MMI after the long press on *

Screens

- 2/10 Perfers to the 1 big screen concept more.
- 2/10 The screens could be bigger.
- 1/10 The angle of the screen could be towards driver a little bit.
- 1/10 Reflection problem should be considered, especially if the roof window is opened.
- 1/10 Finger tips problem should be considered.

Massage settings

- 2/10 Cannot distinguish the settings in Car and Settings.
- 2/10 The hard keys are not obvious.
- 1/10 Do not understand the massage mode "启用" and "停用"
- 1/10 The shoulder mode "肩部" is not consistent with the picture description

Haptic feedback

- 6/10 Don't like the haptic feedback. Oldschool, tired to use, unaccustomed
- 4/10 The hirachy of the haptic setting is too deep and too hidden.
- 4/10 Should not put the haptic setting in "Display and brightness". (confused by the Chinese translation 显示和亮度)
- 4/10 Cannot distinguish the settings in Car and Settings.
- 1/10 Needs some effort to learn

Ambient light settings

- 2/10 Cannot distinguish the settings in Car and Settings.
- 2/10 The ambient light setting is hard to find.
- 1/10 The translation of the light mode is not high tech or not in high quality. ex. "红色激情"...

II. General executive summary

Confusions/Complains in each function(3)

Info service 80.0

Tencent Mycar

- 4/10 There is not hint provided on MMI after I send a location to car via WeChat.. (Prefers automatic switch or at least a notification on MMI)
- 3/10 Send text and voice as location in wechat.
- 3/10 Confuesd by the instruction text in WeChat.

AC 83.0

- 7/10 The icon for wind direction adjustment is hard to understand.
- 2/10 The hint on the upper display for wind / temprature adjustment could be bigger
- 3/ 3 The AQI page is hard to find. The indicator is not clear and obvious enough.
- 1/10 There are too mach contents on the lower display, looks a little bit crowded and chaotic

ASI(Carlife) 84.0

- 2/10 The resolution of the carlife is too low.
- 2/10 Carlife could not be shown in Kombi.

SDS 85.3

- 8/10 The recognition is not accurate enough.
- 2/10 The response of the system is slow.
- 2/10 I do not know whether I can interrupt the system or not.
- 1/10 I need to speek slowly
- 1/10 I do not know where i should talk to.

Media 87.0

- 3/10 After switched the source to my phone from SD card, the playing music should be directly switched
- 2/10 Cannot search a song via initial Pinyin.
- 1/10 Search performance is not fast.

II. General executive summary

Q: The most likes after the whole testing?

N=4	FPK and MFL
N=3	Touch screen interaction method
N=3	Voice interaction function
N=2	Back-seat tablet
N=2	Baidu Carlife function
N=2	Environment light
N=2	Seat massage function
N=2	Comprehensive MMI functions
N=1	Tencent my car
N=1	Kombi UI
N=1	Easy control AC
N=1	Online FM

Q: The most dislikes after the whole testing?

N=4	Haptic feedback is troublesome
N=2	Voice recognition is not accurate enough
N=2	Menu hierarchy is complex
N=1	Bluetooth connection is difficult
N=1	The name of some selection items is unclear
N=1	Functions are repetitive
N=1	Functions operation is complex

Q: What Apps do you use while you are in car?

Total =10

N=10	WeChat
N=6	Navigation App (Amap, Baidu)
N=5	Media App (Podcast, Ximalaya FM, QQ Music)
N=3	News App (Toutiao news, Tencent news)
N=1	Taobao
N=1	Game App

Q: Where do you ask for help when you do not know how to use some functions?

Total =10

N=9	4s store
N=7	Search online (Baidu)
N=4	User manual
N=4	Driver group