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PRODUCT MODEL: NFC-I-SX-21548

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1 Overview

1.1 Background

The content described in this document applies to Geely Auto V216 (NSM) project.

1.2 Product function description

This product can provide starting the vehicle with NFC.

1.3 Product index function parameter

Num.	Technical index function	Design parameter value identification	Remark
1	Input voltage	9-16V	
2	Input current	0.2A(Max)	
3	Standby current	<60mA(average current)	
4	Sleep current	<0.1mA	
5	Effective distance of swiping a card	0~40mm	The distance is between the antenna and the NFC card
6	Effective area of swiping a card	130*75mm	20mm plane, the center point of the NFC card is within the range of the NFC module
7	Working frequency	13.56MHz	42dBuA/m at 10m
8	Working temperature	-35°C~+85°C	
9	Storage temperature	-40°C~+90°C	
10	Protection grade	IP52	
11	NFC communication protocol	ISO14443A	
12	Communication	CAN	

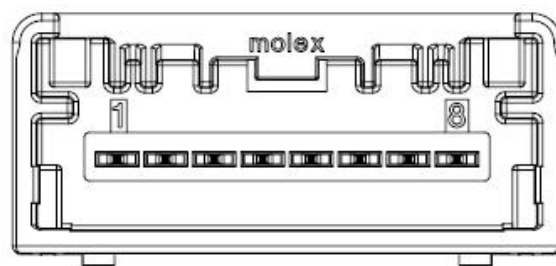
1.4 Connector model and interface definition

PCBConnector model	brand	Type of wire end connector	Brand
34793-0080	Molex	34791-0180	Molex

PINNum.	definition	Operating voltage	Operating current	Input/output	signal source
1	BAT-	GND	3A(max)	Input	Battery

2	CAN_H	2~4.5V	0.1A	I/O	Car
3	CAN_L	0.5~3V	0.1A	I/O	Car
4	NA	NA	NA	NA	
5	NA	NA	NA	NA	
6	NA	NA	NA	NA	
7	NA	NA	NA	NA	
8	BAT+	9~16V	3A(max)	Input	Battery

Connector diagram



1.5 Product design reference materials

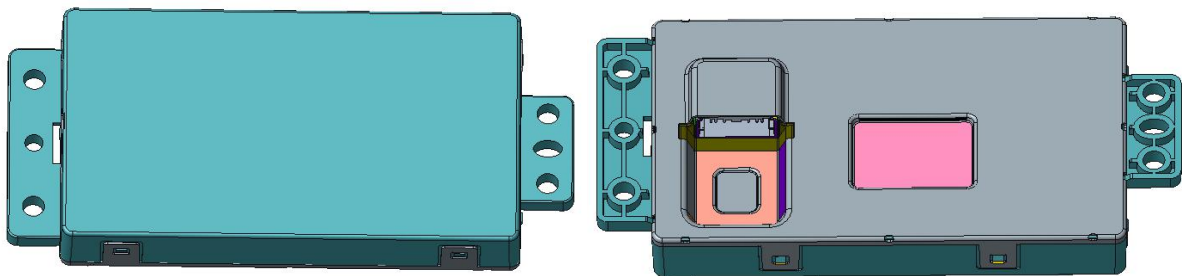
Normative reference documents	
Standard no.	name of the standard
ISO/IEC 17025	General requirements for the competence of testing and calibration laboratories
ISO 11452-1:2005/Amd.1: 2009	Road vehicles — Component test methods for electrical disturbances from narrowband radiated electromagnetic energy — Part 1: General principles and terminology
CISPR 25 3rd Ed	Limits and methods of measurement of radio disturbance characteristics for the protection of receivers used on board vehicles
SAE J551-5 Rev JAN2004	Performance Levels and Methods of Measurements of Magnetic and Electric Field Strength from Electric Vehicles, Broadband, 9 kHz To 30 MHz.
SAE J551-5 Rev MAY2012	Performance Levels and Methods of Measurements of Magnetic and Electric Field Strength from Electric Vehicles, Broadband, 150 kHz To 30 MHz.
MIL-STD-461F	United States Department of Defense Interface Standard, Requirements for the Control of Electromagnetic Interference Characteristics of Subsystems and Equipment
ISO 11452-1:2005 and Amd 1:2008	Road vehicles - Component test methods for electrical disturbances from narrowband radiated electromagnetic energy - Part 1: General principles and terminology

ISO 11452-2-2004	Road vehicles, Electrical disturbances by narrowband radiated electromagnetic energy - Component test methods Part 2 - Absorber-lined shielded enclosure
ISO 11452-4-2011	Road vehicles - Component test methods for electrical disturbances from narrowband radiated electromagnetic energy - Part 4: Harness excitation methods
ISO 11452-8-2007	Road vehicles -- Component test methods for electrical disturbances from narrowband radiated electromagnetic energy -- Part 8: Immunity to magnetic fields
ISO 11452-9-2012	Road vehicles -- Component test methods for electrical disturbances from narrowband radiated electromagnetic energy -- Part 9: Portable transmitters
ISO 7637-1-2002 and Amd 1:2008	Road vehicles, Electrical disturbance by conduction and coupling Part 1 - Definitions and general considerations
ISO 7637-3-2007	Road vehicles, Electrical disturbance by conduction and coupling Part 3: Electrical transient transmission by capacitive and inductive coupling
ISO 10605-2008 and Cor 1:2010	Road vehicles - Test methods for electrical disturbances from electrostatic discharge
ISO 16750-4-2010	Road vehicles — Environmental conditions and testing for electrical and electronic equipment — Part 4: Climatic loads

2 Product function description

2.1 Description of product structure

2.1.1 Appearance and requirements



The appearance should be clean and tidy, and there should be no dents, obvious scratches, cracks, deformations, burrs, mildew and other defects on the surface. Surface coating should not bubble, crack, fall off; Parts should be fastened without looseness.

2.1.2 Structural dimension/material/weight composition

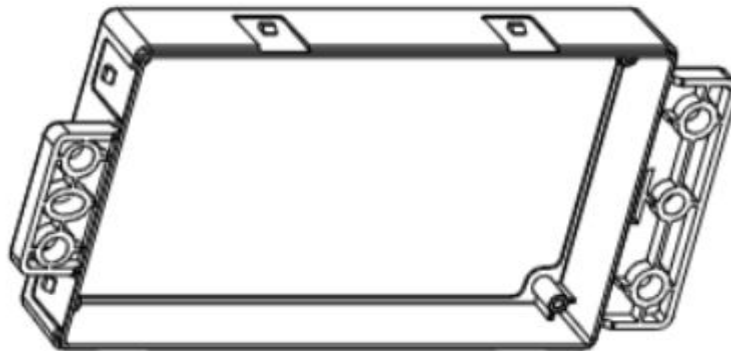
The main size of the wireless charging module (excluding the mounting foot and connector bulge) : 130*73*20mm (length * width * height). Overall size (including mounting feet and connector protrations) : 161*73*20mm (length * width * height).

The material, weight and quantity of materials used in the structure are shown in the following table:

NO.	name	material	weight (g)	quantity
1	Top cabinet	PC+ABS	34	1
2	Lower sink	SGCC	53	1
3	PCBA	Components	36	1
4	Antenna board	FR-4	10	1
5	Dam-board	PC+ABS	1	1
6	Triangle screw	C1018	1.5	4
Total weight	About140g			

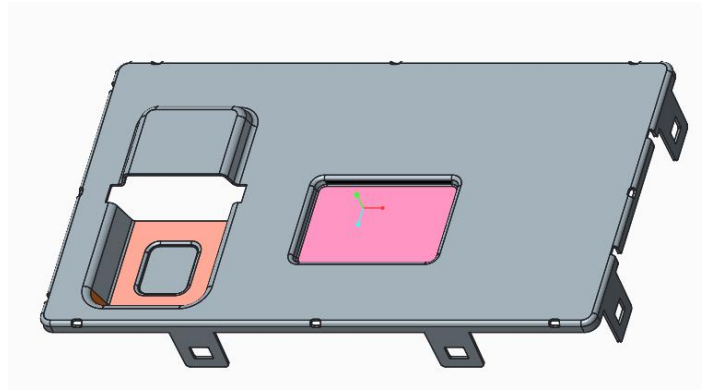
2.1.3 Top cabinet

PC+ABS material, matched with the lower shell to protect the internal structure of wireless charging.



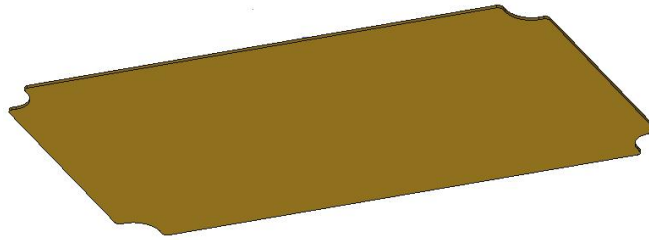
2.1.4 Lower sink

SGCC material is used to protect the wireless charging internal structure with the lower cover. It provides the installation frame, heat dissipation of the whole machine, IP protection for PCBA, and completes the coordination with the interior of the vehicle.



2.1.5 Antenna board

Provide transmitting power of RF field with coil.



2.1.6 Description of waterproof and dustproof module

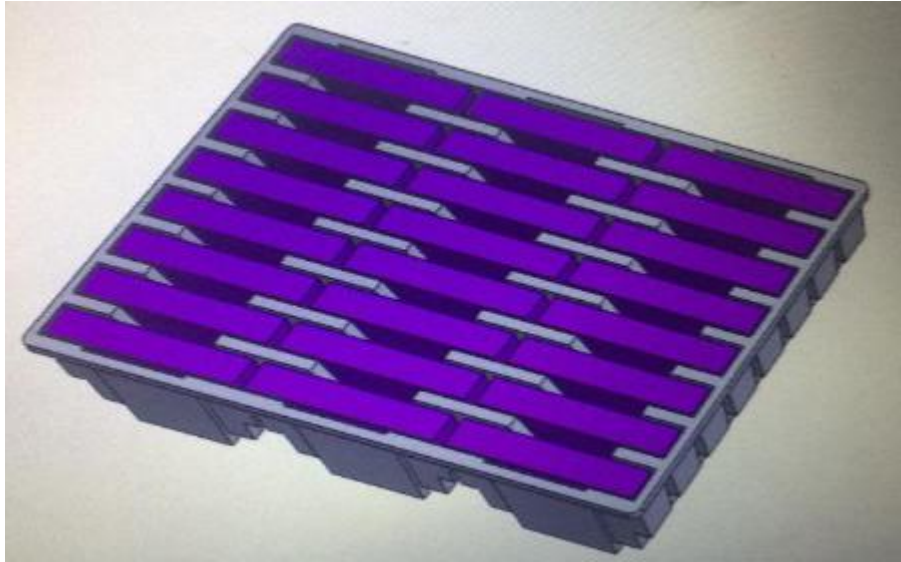
The flat upper cover and the lower shell are bonded by a snap structure, and the upper cover and the lower shell contact face to face, which plays a certain dust-proof and water-proof role.

2.1.7 Module installation instructions

After the module is located by two positioning columns on the interior panel, the remaining 4 holes are fastened by screwing in self-tapping screws.

3 Product packaging instructions

The specific packaging requirements entered by the customer shall prevail. If there is no mandatory requirement, the packing form is suggested to follow the general scheme of pulp mold and vertical insert as shown below. The outer packing carton is in the form of 0201 carton.



Packing form (pulp mold)



Outer packing (Type 0201)

4 EU&UKCA declaration of conformity

Hereby, Hefei Invispower Co.,Ltd declares that the radio equipment NFCR-INTERNAL (model: 6608092796) is in compliance with Directive 2014/53/EU.

Hereby, Hefei Invispower Co.,Ltd declares that the radio equipment NFCR-INTERNAL (model: 6608092796) is in compliance with UK Radio Equipment Regulations (SI 2017/1206).

5 FCC and ISEDstatement

This device complies with part 15 of the FCC rules and with RSS-Gen,RSS-216 rules of Canada. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

Any changed or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

FCC RF Radiation Exposure Statement: This equipment complies with FCC RF Radiation exposure limits set forth for an uncontrolled environment. This device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter. This equipment should be installed and operated with a minimum distance of 20cm between the radiator and your body.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

IDéclaration d'avertissement ISED

Son fonctionnement est soumis aux deux conditions suivantes:

- (1) Cet appareil ne doit pas provoquer d'interférences nuisibles, et
- (2) Cet appareil doit accepter toute interférence reçue, y compris les interférences pouvant entraîner un fonctionnement indésirable.

Les changements ou modifications non expressément approuvés par LG Vehicle Components Company pourraient annuler l'autorité de l'utilisateur à utiliser l'équipement.

Déclaration d'exposition aux radiations RF de l'ISED: Cet équipement est conforme aux limites d'exposition aux rayonnements RF de l'ISED définies pour un environnement non contrôlé. Cet

appareil et son antenne ne doivent pas être situés ou fonctionner conjointement avec une autre antenne ou un autre émetteur.

Cet équipement doit être installé pour fonctionner avec une distance minimale de 20cm entre le radiateur et le corps de l'utilisateur final.