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SERVICE MANUAL, ELO PAY M100

Rev	Author	Date	Description
1	Boyd	27/11/2023	First version
2	Rey Liu		Update the Service Manual P/N



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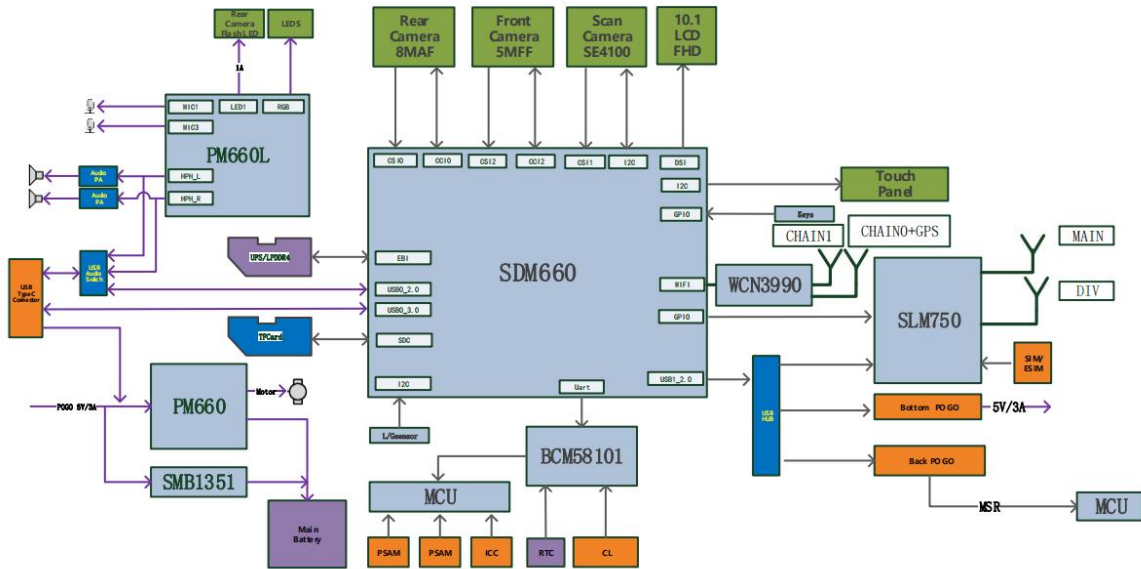
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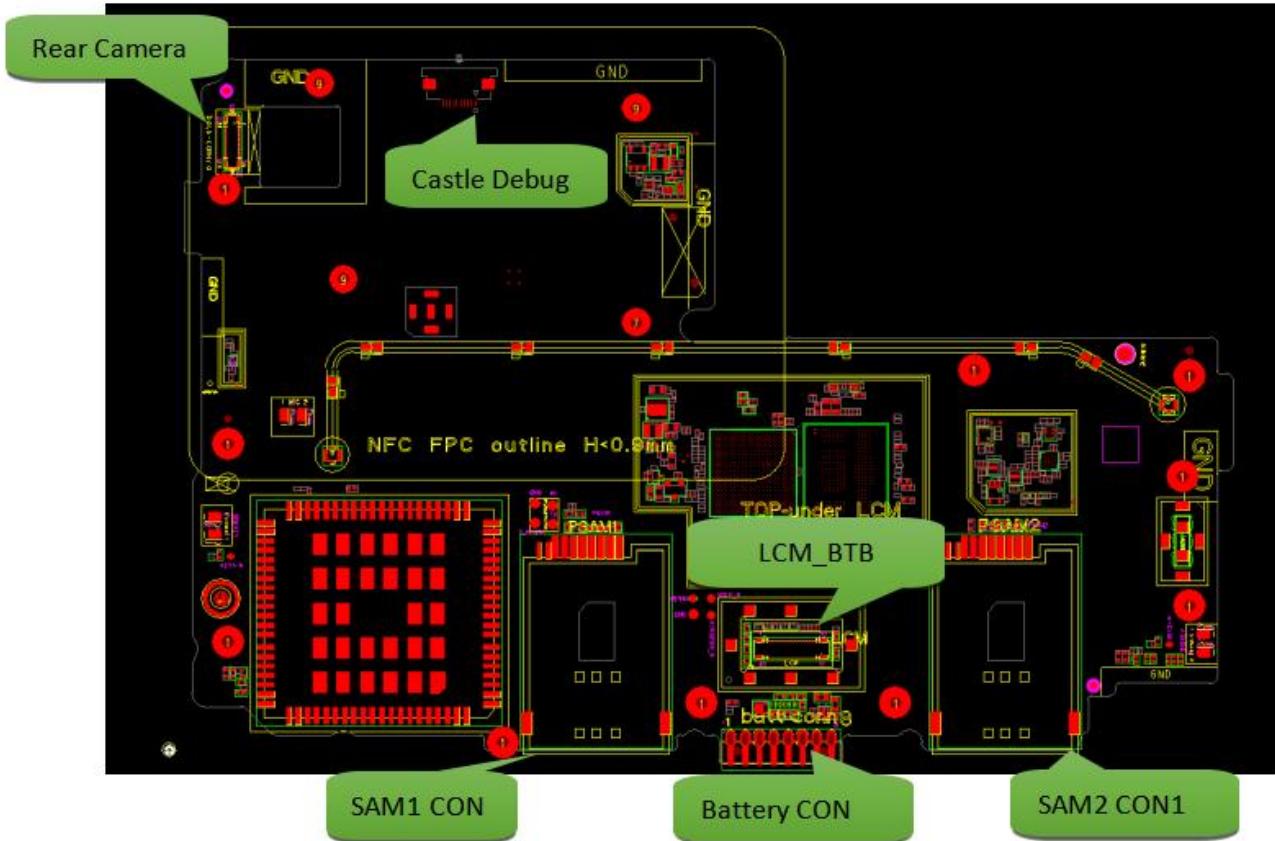
1. Product Specification Overview

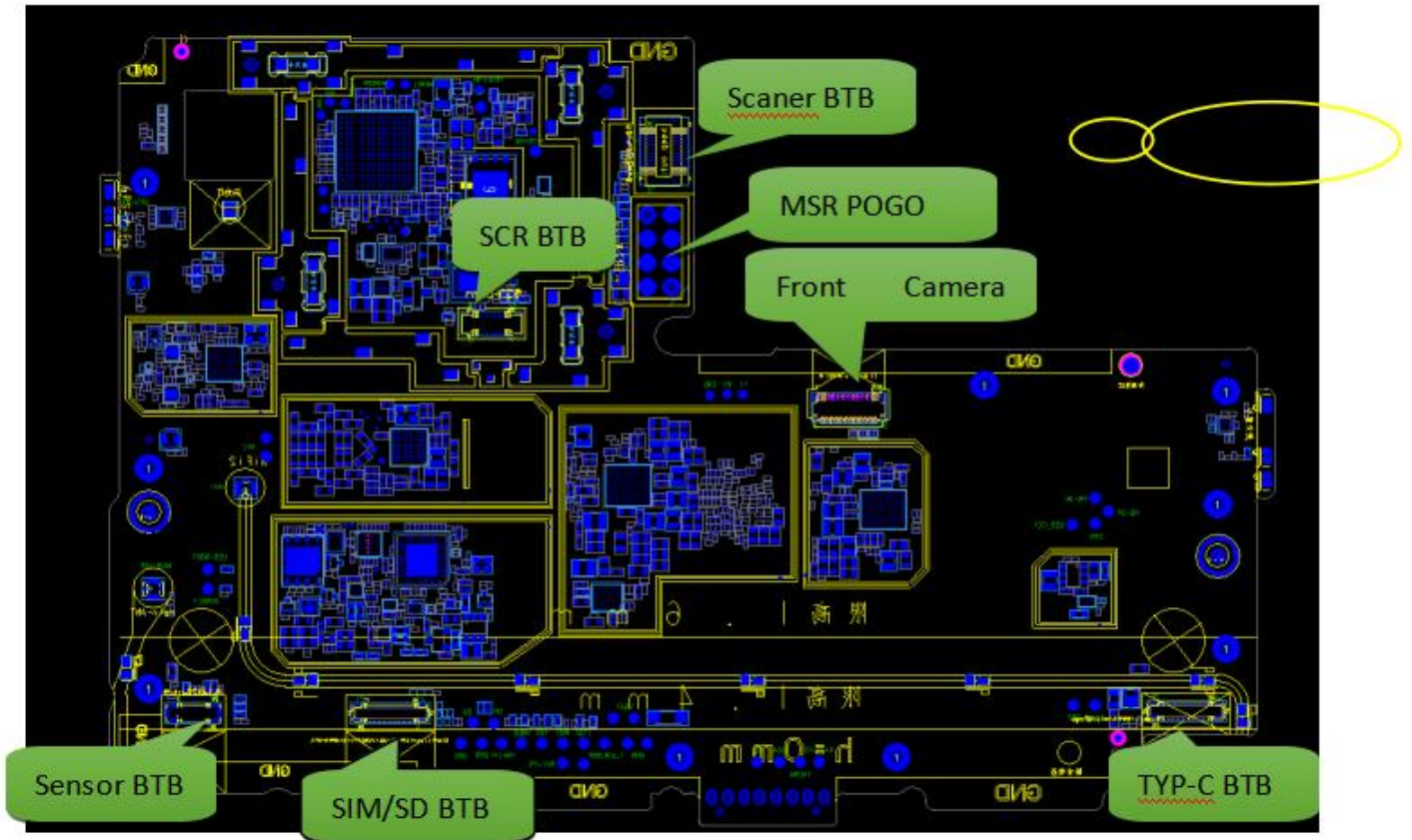
Model	ELO P/N	Description
EMC-M100C	E121593	EMC-M100C-S-A12-GMS-4G-6E-NA-BK
EMC-M100C	E121790	EMC-M100C-NS-A12-GMS-4G-6E-NA-BK
EMC-M100C	E287818	EMC-M100C-SM-A12-GMS-4G-6E-NA-BK
EMC-M100C	E121973	EMC-M100C-S-A12-GMS-4G-6E-EU-BK
EMC-M100C	E122179	EMC-M100C-NS-A12-GMS-4G-6E-EU-BK
EMC-M100C	E288007	EMC-M100C-SM-A12-GMS-4G-6E-EU-BK
EMC-M100	E121214	EMC-M100-S-A12-GMS-4G-6E-G-BK
EMC-M100	E121405	EMC-M100-NS-A12-GMS-4G-6E-G-BK
EMC-M100	E287625	EMC-M100-SM-A12-GMS-4G-6E-G-BK

2. System Block Diagram



2.1. System Connection





2.2. Wiring Schematic



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2.3. Scaler, EDID, FW Programming Procedures

SW: Download "QFILE" program, use type c & usb port line to connect the device with PC.

FW: Download whole .zip file, unzip them all, use QFILE,

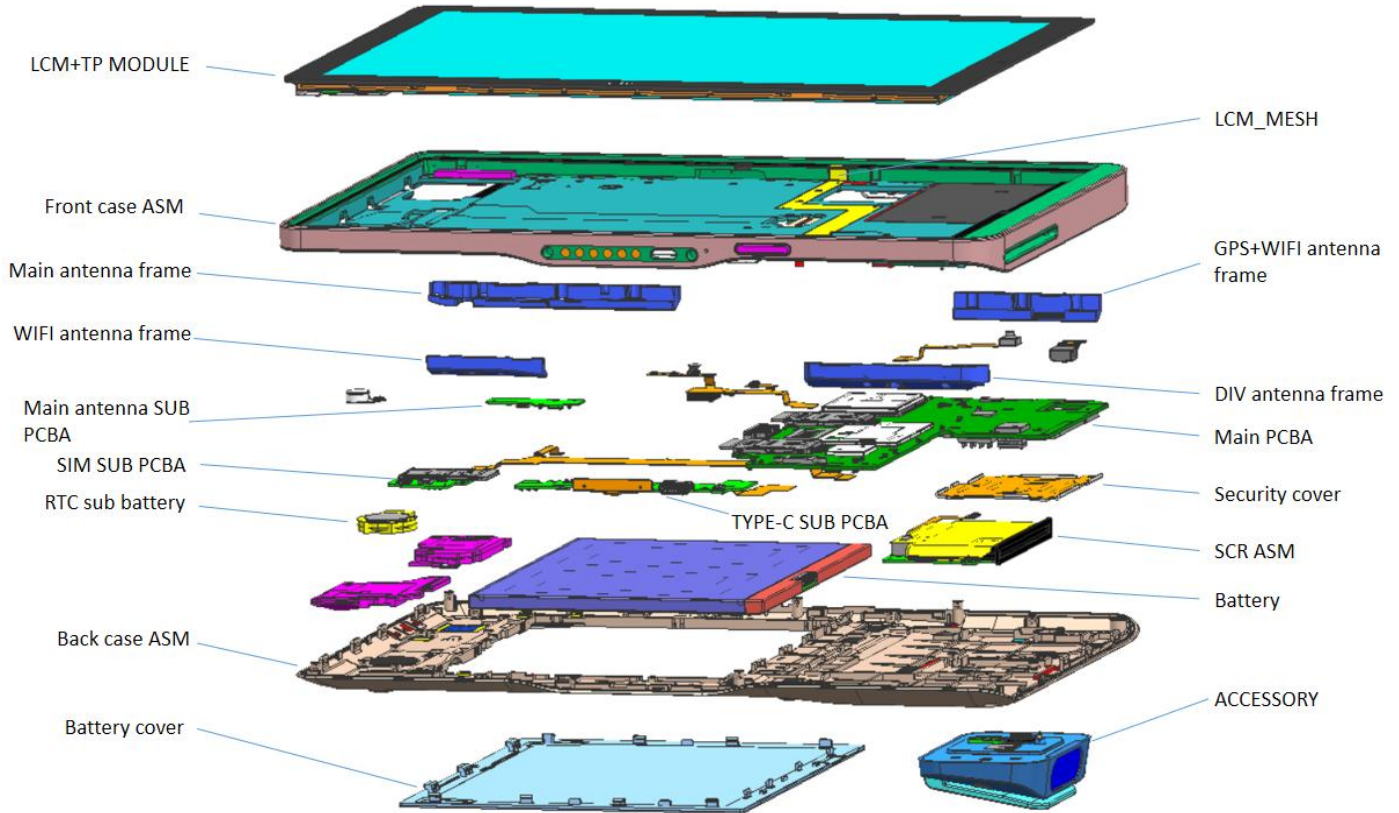
1. "Flat Build"
2. "Select Port"
3. "Browse"=> Choose unzip file
4. "Load XML" => Follow 2.5 setup

2.4. FW Programming

Half wipe:rawprogram0_split => "Download"

All wipe:rawprogram0_WIPE_PARTITIONS => rawprogram0_FFBM_split => rawprogram0_split => Click "Download" on each step

3. Mechanical Replacement Parts List (B.O.M) (ME)



List entire BOM

No.	Part Number	Description	Q'ty	Unit
1	120100135	LCM+TP MODULE	1	
2	3MT5780116	Front case ASM	1	
3	3MT5780203	Main antenna frame	1	
4	3MT5780704	WIFI antenna frame	1	



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5	MT5781AB	Main antenna SUB PCBA	1	
6	MT5781AA	SIM SUB PCBA	1	
7	130100167	RTC sub battery	1	
8	3MT5780115	Back case ASM	1	
9	3MT5780201	Battery cover	1	
10	3MT5781107	LCM_MESH	1	
11	3MT5780703	GPS+WIFI antenna frame	1	
12	3MT5780204	DIV antenna frame	1	
13	MT57864Q	Main PCBA	1	
14	MT5781AU	TYPE-C SUB PCBA	1	
15	3MT5780409	Security cover	1	
16	MT5781AT	SCR ASM	1	
17	130100171	Battery	1	
18	MT578MSA	ACCESSORY	1	



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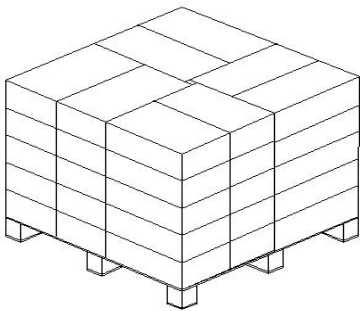
Screw torque SPEC

Thread	No	PN / Description	SPEC					Torque (Kgf-cm)	Where use	Unit Q'ty
			Material	Type	Head	Length (mm)	Surface			
M1.4	/		AISI-1018	Machine Screw	Pan(#1)	5.5	Electroplating Zn/BL	1± 0.1		3
M1.4	/		AISI-1018	Machine Screw	Pan(#1)	5	Electroplating Zn/BL	1± 0.1		4
M1.4	/		AISI-1018	Machine Screw	Pan(#1)	4	Electroplating Zn/BL	1± 0.1		33
M1.4	/		AISI-1018	Machine Screw	Pan(#1)	3	Electroplating Zn/BL	1± 0.1		31
M1.4	/		AISI-1018	Machine Screw	Pan(#1)	2	Electroplating Zn/BL	0.7± 0.1		3
M1.4	/		AISI-1018	Machine Screw	Flat(#1)	2	Electroplating Zn/BL	0.7± 0.1		2
M1.4	/		AISI-1018	Self-Tapping	FPH(0#)	4	Electroplating Ni	1 ±0.1		8
M2.5	/		AISI-1018	Machine Screw	FPH(0#)	5.5	Electroplating Ni	3 ±0.1		2

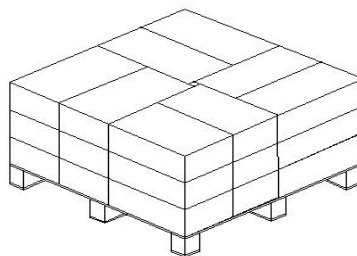
4. Packaging Specifications and Pallet Loading

(from a service perspective, what are the recommended shipping specifications)

1. put device ,cabel ,adapter into paper pulp ,then one box packs the paper plup
2. 4 pcs box in one big carton
3. added paper pad around inner carton to protect box
4. for airshipping : 8 cartons per layer on pallet 5layers per one pallet 160 pcs devices one pallet
for seashipping : 8 cartons per layer on pallet 3layers per one pallet 96 pcs devices one pallet



sea shipping pallet layout
1000*1000 pallet



air shipping pallet layout
1000*1000 pallet



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5. Trouble Shooting Guide

ISSUE	POSSIBLE CAUSES	SOLUTION
No display or touch activity	Unit is powered off	Press or toggle the power button to turn unit on
	Problem with power source	Fix/replace outlet or power strip Disconnect and connect power cable(s)
	Power cable is damaged	Replace cable
	Adapter is damaged	Replace Adapter
	Defective display	Replace display and reload display FW
	FPC not inserted in controller	Confirm FPC is installed correctly
	The mainboard software version is abnormal	Re-download the correct motherboard software version
	Connector structural damage or Main board damage	Replace the mainboard
No or reduced response	Driver not installed	Install driver



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touch capability	Defective controller	Replace touch controller
	Touch Screen is damaged	Replace screen. The screen and Bezel are a sub assembly.
	Incorrect Touch Firmware	Install correct firmware
	FPC not inserted in controller	Confirm FPC is installed correctly
No camera or camera function is abnormal	Incorrect camera firmware	Install correct firmware
	The camera module is damaged	Replace the camera module
	FPC not inserted in controller	Confirm FPC is installed correctly
	The mainboard software version is abnormal	Re-download the correct motherboard software version
	Connector structural damage or Main board damage	Replace the mainboard
The SD card cannot be recognized	The SD card is not formatted	Format the SD card
	SD card storage is beyond the scope of the product	Check the SD card storage size and replace it with an appropriate SD card
	The mainboard software version is abnormal	Re-download the correct motherboard software version



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	SD card seat structure is damaged	Replace the mainboard
Unable to connect to PC or external HUB	The USB cable is not properly assembled	Reinsert the USB cable
	The mainboard software version is abnormal	Re-download the correct motherboard software version
	The USB seat structure is damaged	Replace the mainboard
No G-sensor function	The mainboard software version is abnormal	Re-download the correct motherboard software version
	G-sensor is damaged	Replace the mainboard
No LEDs	The mainboard software version is abnormal	Re-download the correct motherboard software version
	LEDs damaged	Replace the mainboard
No sound	Speaker is not installed properly	Reinstall speaker
	The mainboard software version is abnormal	Re-download the correct motherboard software version
	Speaker damaged	Replace speaker
Key failure	The mainboard software version is abnormal	Re-download the correct motherboard software version
	Keys damaged	Replace the mainboard



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Mic failure	Secondary Mic fpc is not installed properly	Reinstall secondary Mic fpc
	The mainboard software version is abnormal	The mainboard software version is abnormal
	The main Mic or secondary Mic is damaged	Replace secondary Mic or replace the mainboard
LED indicators are not functional	Fpcs are not installed properly	Confirm FPC is installed correctly
	The mainboard software version is abnormal	The mainboard software version is abnormal
The ICC card function is abnormal	SCR LEDs and NFC LEDs are damaged	Replacing the Sensor Module Small Board
	The SCR component FPC is not installed properly	Check whether the SCR component FPC is properly installed, if not reinstalled correctly
	BCM58101 firmware is not downloaded or updated	Re-download or update firmware
	The SCR component's ICC card slot FPC is damaged	Replace SCR component
	The CA8003 or BCM58101 chip is damaged	Replace the mainboard
The mainboard software version is	Re-download the correct	



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	abnormal	motherboard software version
The PASM card function is abnormal	BCM58101 firmware is not downloaded or updated	Re-download or update firmware
	The PSAM card slot is damaged	Replace the mainboard
	The CA8003 or BCM58101 chip is damaged	Replace the mainboard
	The mainboard software version is abnormal	Re-download the correct motherboard software version
The MSR card function is abnormal	The MSR module is not installed properly	Check whether the MSR module is properly installed, if not reinstalled correctly
	The MSR module is damaged	Replace MSR component
	MSR fittings damaged	Replace the MSR fittings
	The mainboard software version is abnormal	Re-download the correct motherboard software version
TAMPER		
The WiFi connection is abnormal, or the WiFi signal is weak	The WiFi antenna is not properly fixed	Check whether the WiFi antenna is fixed properly. If not, refix the WiFi antenna
	WiFi antenna is damaged	Check whether the WiFi antenna is damaged. If



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		damaged , replace it with a new WiFi antenna
	WiFi signal is weak	Re-download the software version
	Mainboard WiFi antenna spring is broken	Check whether the WiFi antenna spring on the mainboard is damaged. If damaged, replace the mainboard
	The WiFi connection fails	Check whether the WiFi chip is damaged. If damaged, replace the mainboard
	The WiFi antenna sub board is damaged	Check whether the WiFi sub board is damaged. If damaged , replace the WiFi sub board
	The WiFi board is not fixed correctly	Check whether the WiFi board is fixed correctly. If not, refix the WiFi board
	The WiFi coaxial line is damaged	Check whether the WiFi coaxial line is damaged, if damaged, please replace the WiFi coaxial line
	The WiFi coaxial line is incorrectly fixed	Check whether the WiFi coaxial line is fixed correctly. If not,



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		refix the WiFi coaxial line
The NFC card cannot be recognized, or the NFC card is too close	The NFC antenna is incorrectly fixed	Check whether the NFC antenna is correctly fixed. If not, refix the NFC antenna
	The NFC antenna is damaged	Check whether the NFC antenna is damaged. If damaged, replace the NFC antenna
	Identify NFC card close	Re-download the software version or NFC firmware
	NFC card cannot be recognized	Check whether the NFC chip is damaged. If damaged, replace the mainboard
		Check whether the NFC spring is damaged. If damaged, replace the mainboard
	Check whether the security chip is damaged. If damaged, replace the mainboard	
4G network cannot be registered or signal is weak	The main antenna is not properly fixed	Check whether the main antenna is fixed properly. If not, refix the main antenna
	Main antenna is damaged	Check whether the main antenna is damaged. If



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		damaged , replace it with a new main antenna
	4G signal is weak	Re-download the software version
	Sub board main antenna spring is broken	Check whether the main antenna spring on the sub board is damaged. If damaged, replace the sub board
	The 4G registration fails	Check whether the 4G module is damaged. If damaged, replace the mainboard
	The main antenna sub board is damaged	Check whether the main sub board is damaged. If damaged , replace the main sub board
	The sub board is not fixed correctly	Check whether the sub board is fixed correctly. If not, refix the sub board
	The main coaxial line is damaged	Check whether the main coaxial line is damaged, if damaged, please replace the main coaxial line
	The main coaxial line is incorrectly fixed	Check whether the main coaxial line is fixed correctly. If not, refix the main coaxial line



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Warning

FCC

§ 15.19 This device complies with part 15 of the FCC Rules. 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 of the device.

§ 15.21 Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

§ 15.105 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.

Notice to Users in Canada for IC compliance: This equipment complies with the Class B limits for radio noise emissions from digital apparatus as established by the Radio Interference Regulations of Industrial Canada.



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RF Exposure Information (SAR)

This device meets the government's requirements for exposure to radio waves. This device is designed and manufactured not to exceed the emission limits for exposure to radio frequency (RF) energy.

The exposure standard for wireless devices employs a unit of measurement known as Specific Absorption Rate, or SAR. The SAR limit set by the FCC is 1.6 W/Kg. For body-worn operation, this device has been tested and meets the FCC RF exposure guidelines for use with an accessory that contains no metal and positions the device a minimum of 0 cm from the body. RF exposure compliance with any body-worn accessory that contains metal was not tested and certified and use of such body-worn accessory should be avoided. Any accessory used with this device for body-worn operation must keep the device a minimum of 0 cm away from the body.

The device for operation in the band 5150–5250 MHz is only for indoor use

L'appareil utilisé dans la bande 5150-5250 MHz est uniquement destiné à un usage intérieur



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IC Radiation Exposure Statement

This EUT is compliance with SAR for general population/uncontrolled exposure limits in IC RSS-102 and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528 and IEC 62209. This equipment should be installed and operated with minimum distance 0 cm between the radiator and your body. This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter.

Cet appareil est conforme aux limites d'exposition DAS incontrôlée pour la population générale de la norme CNR-102 d'Industrie Canada et a été

testé en conformité avec les méthodes de mesure et procédures spécifiées dans IEEE 1528 et IEC 62209. Cet appareil doit être installé et utilisé avec une distance minimale de 0 cm entre l'émetteur et votre corps. Cet appareil et sa ou ses antennes ne doivent pas être co-localisés ou fonctionner en conjonction avec tout autre antenne ou transmetteur.

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions: (1) This device may not cause interference. (2) This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: 1. L'appareil ne doit pas produire de brouillage ; 2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

5600-5650MHz is restricted to be used in Canada

CE:



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RF Exposure Information (SAR)

The exposure standard for wireless devices employs a unit of measurement known as Specific Absorption Rate, or SAR. The SAR limit set by the CE is 10g 2.0 W/Kg. For body-worn operation, this device has been tested and meets the CE RF exposure guidelines for use with an accessory that contains no metal and positions the device a minimum of 0 cm from the body. RF exposure compliance with any body-worn accessory that contains metal was not tested and certified and use of such body-worn accessory should be avoided. Any accessory used with this device for body-worn operation must keep the device a minimum of 0 cm away from the body.

Elo hereby declares that the radio equipment type, Elo handheld Computer, is in compliance with Directive 2014/53/EU. The full text of the EU Declaration of Conformity is available at the following internet address: www.elotouch.com

This device is designed and intended for indoor use only.

	AT	BE	BG	HR	CY	CZ	DK
	EE	FI	FR	DE	EL	HU	IE
	IT	LV	LT	LU	MT	NL	PL
	PT	RO	SK	SI	ES	SE	UK

This device is restricted to indoor use



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	CE Frequency band [MHz]	CE Maximum transmit power
Bluetooth BR/EDR/LE	2400-2483.5	< 20 dBm
2.4G Wifi	2400-2483.5	< 20 dBm
5G Wifi	5150-5350 5470-5725	< 23 dBm
5.8GWifi	5725-5850	<13.98 dBm
RFID	13.56	NA
GNSS	1559-1610	NA
WCDMA	Uplink : Band 1: 1920 ~ 1980MHz Band 5: 824 ~ 849MHz Band 8: 880~ 915MHz Downlink: Band 1: 2110 ~ 2170MHz Band 5: 869 ~ 894MHz Band 8: 925 ~ 960MHz	20.3dBm ~25.7dBm
LTE	Uplink : Band 1: 1920 ~ 1980MHz Band 3: 1710 ~ 1785MHz	20.3dBm ~25.7dBm



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	Band 5: 824 ~ 849MHz Band 7: 2500 ~ 2570MHz Band 8: 880 ~ 915MHz Band 20: 832 ~ 862MHz Band 40: 2300 ~ 2400MHz Downlink: Band 1: 2110 ~ 2170MHz Band 3: 1805 ~ 1880MHz Band 5: 869 ~ 894MHz Band 7: 2620~ 2690MHz Band 8: 925 ~ 960MHz Band 20: 791 ~ 821MHz Band 40: 2300 ~ 2400MHz	
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Note: WCDMA and LTE are only applicable to models EMC-M100C. The remaining parts, models EMC-M100 and EMC-M100C are completely identical