
Dun Young

LiteOn Automotive 

Wi-Fi Rear View Camera System APP User Manual

Please read this manual thoroughly before
Installing this system.

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- 1. Safety Information*
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1/3/2014

Version : 2.0

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1. Safety Information



WARNING

Failure to heed important instructions below can result in death or serious injury.

USE ONLY IN CARS WITH A 12 VOLT NEGATIVE GROUND.

Check with your dealer if you are unsure. Failure to do so may result in fire, etc.

BEFORE WIRING, DISCONNECT THE CABLE FROM THE NEGATIVE BATTERY TERMINAL.

Failure to do so may result in electric shock or injury caused by electrical shortages.

DO NOT DISASSEMBLE OR ALTER ANY PARTS OF

Doing so may result in an accident, fire or electrical shock.

KEEP SMALL OBJECTS SUCH AS SCREWS OUT OF REACH FROM CHILDREN.

Swallowing them may result in serious injury. If swallowed, consult a physician immediately.

DO NOT USE BOLTS OR NUTS IN THE BRAKE OR STEERING SYSTEMS TO MAKE GROUND CONNECTIONS.

Bolts or nuts used for the brake or steering systems (or any other safety-related system), or tanks should NEVER be used for installation or ground connections. Using such parts could disable control of the vehicle and result in fire, etc.

DO NOT DAMAGE PIPE OR WIRING WHEN DRILLING HOLES.

When drilling holes in the chassis for installation, take precautions so as not to contact, damage or obstruct pipes, fuel lines, tanks or electrical wiring. Failure to take such precautions may cause fire.

MAKE THE CORRECT CONNECTIONS.

Failure to make the proper connections may result in fire or product damage.

CHECK THAT THE CAMERA MOUNTING BRACKET IS ATTACHED SECURELY AND THAT THE SCREWS ARE TIGHT BEFORE DRIVING.

Failure to do so may result in an accident.

WHEN INSTALLING THE CAMERA OR WHEN CHECKING IF IT IS INSTALLED SECURELY, DO SO AFTER PARKING THE CAR IN A SAFE PLACE AND ON AN EVEN LEVEL BY TURNING OFF THE ENGINE AND APPLYING THE HAND BRAKE.

Failure to do so may result in an accident.

WHEN USING A DRILL TO MAKE A HOLE, TAKE PRECAUTIONS BY WEARING GOGGLES TO AVOID FRAGMENTS FROM INJURING THE EYES.

Failure to do so may result in injury.

THE DRIVER MUST VISUALLY CHECK BEHIND AND AROUND THE CAR WHEN PUT IN REVERSE.

The rearview camera assists the driver in checking conditions behind the car. The camera uses a wide-angle lens; therefore, the actual distance is shorter than in what appears on the screen.



WARNING

Failure to heed important instructions below can result in death or serious injury.

HAVE THE WIRING AND INSTALLATION DONE BY EXPERTS.

The wiring and installation of this apparatus requires specific technical skills. To ensure safety, always contact an experienced or professional mechanic to have the work done.

STOP USE IMMEDIATELY IF A PROBLEM APPEARS.

Failure to do so may cause personal injury or damage to the product. Return it to your authorized dealer or to the nearest ServiceCenter for repair.

USE SPECIFIED ACCESSORY PARTS AND INSTALL THEM SECURELY.

Be sure to use only the specified accessory parts. Use of other than designated parts may damage this apparatus internally or may not securely install the apparatus in place. This may cause parts to become loose, resulting in product failure and safety hazard.

ARRANGE THE WIRING SO IT IS NOT CRIMPED OR PINCHED BY A SHARP METAL EDGE.

This will prevent crimping and damaging to the wiring. If wiring passes through a hole in metal, use a rubber grommet to prevent the wire's insulation from being cut by the metal edge of the hole.

EXCEPT FOR THE REARVIEW CAMERA ITSELF, DO NOT ATTACH ANY PARTS TO AREAS WHICH WILL GET WET OR WHERE THERE IS A LOT OF HUMIDITY OR DUST.

Failure to do so may result in fire or damage.

DO NOT ATTACH THE CAMERA MOUNTING BRACKET TO FLUOROCARBON RESIN FINISHED CAR BODIES OR GLASS.

Doing so could weaken the adhesive strength between the bracket and the mounting surface and cause the bracket to fall off, resulting in accidents, injury or damage to the car body.

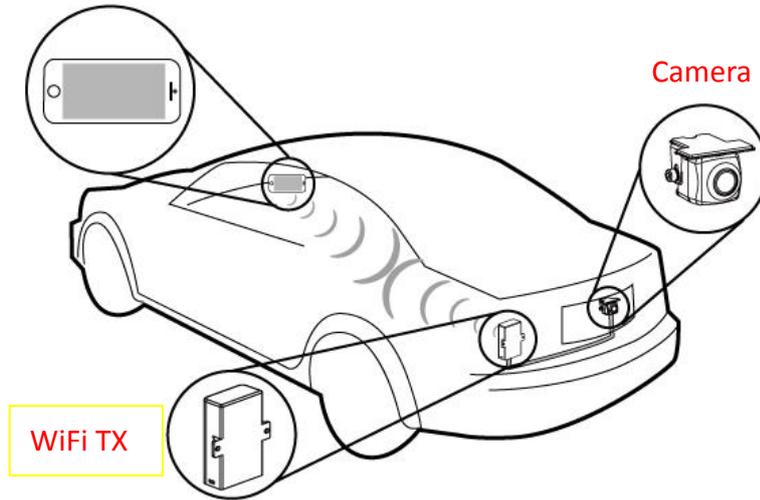
DO NOT ATTACH THE CAMERA MOUNTING BRACKET TO ANY SURFACE WHERE THE ENTIRE ADHESIVE SURFACE CANNOT BE APPLIED.

Doing so could weaken the adhesive strength between the bracket and the mounting surface and cause the bracket to fall off, resulting in accidents, injury or damage to the car.

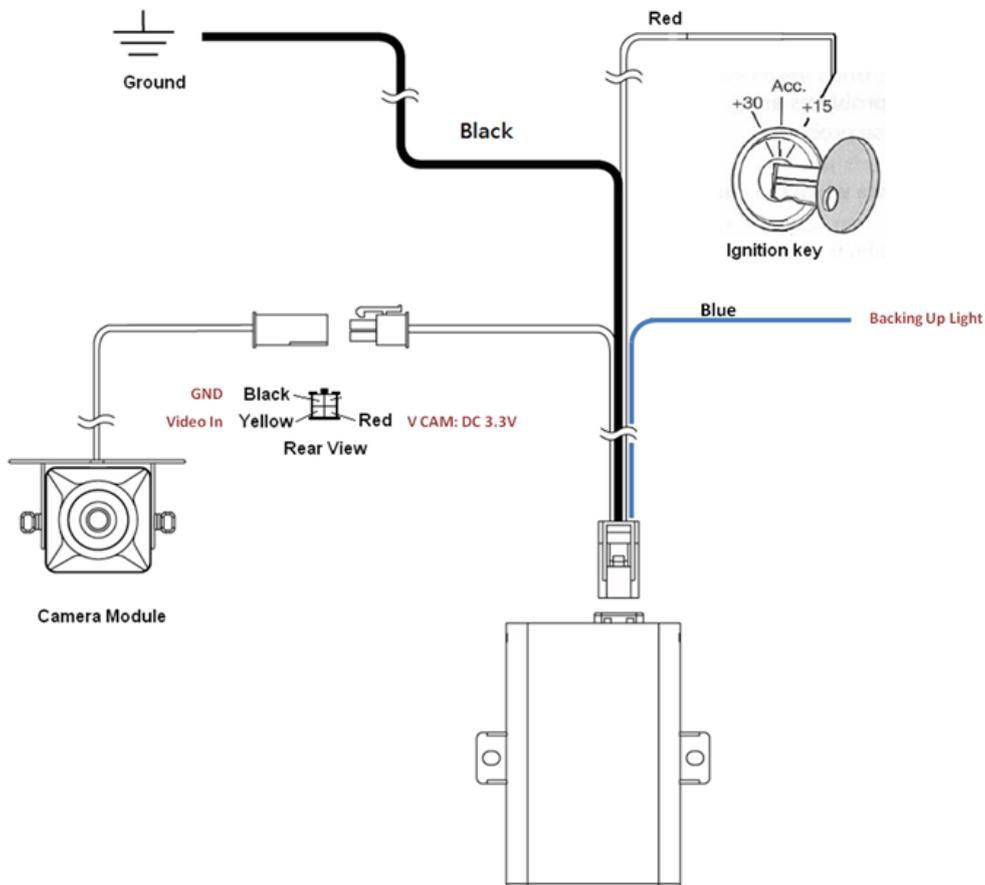
2. Introduction

2.1 Introduction

The document explains APP operation for Android / iOS. Please make sure smart phone is connected to internet before software installation , because APP needs downloaded from APP store (iOS) or GooglePlay (Android).You can refer [Installation Manual](#) for further details about vehicle installation.



2.2 Installation Diagram



3. Specification

WiFi TX	
Item	Specification
RF Operation Frequency	2.412~2.462 GHz
Radio Protocol	IEEE 802.11b
Total Channels	11
Default Channel	3
Max Current	150mA /12V (include camera)
Power Source	ACC / IGN 12V
Reverse Trigger Signal	Reverse light
Operation Temperature	-30°C~+70°C
Storage Temperature	-40°C~+85°C
Transmission Range	20m (Open Space)
Video Encoder	H.264
Video Resolution	HVGA (640x240 pixels)
Connection Limit	Only allow one way streaming
Dimensions (W x H x D) mm	78 x 50.8 x 25 (mm)
Certification	CE 、 FCC 、 E-Mark

Camera	
Item	Specification
Sensor Type	CMOS
Output Image	NTSC
Aperture Diaphragm	F=2.15
Focal Length	f=1.02mm
Gain Control	Automatic
White Balance	Automatic
Minimum luminance	0.1 lux
Field Angle	Horizontal 138°, Vertical 114°
Operating Temperature	-40°C~+85°C
Storage Temperature	-40°C~+85°C
Ingress Protection	IP67
Dimensions (W x H x D) mm	25 x 25 x 38 mm
Certification	CE 、 FCC 、 E-Mark

4. Install iOS APP - PCam

A. Installation

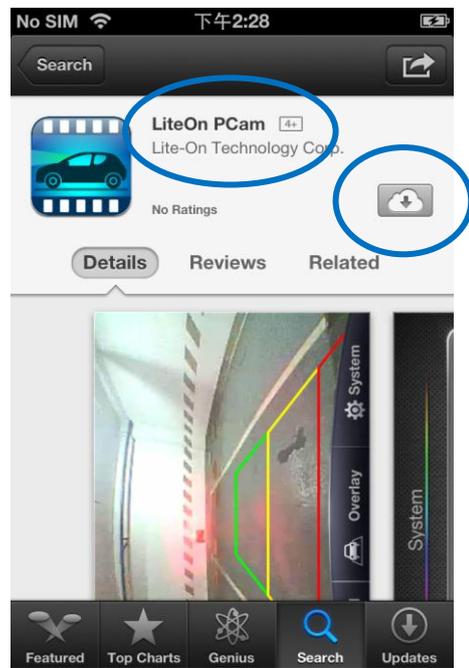
- **Step 1**

Please make sure your iPhone connects to the internet and then click “AppStore”.



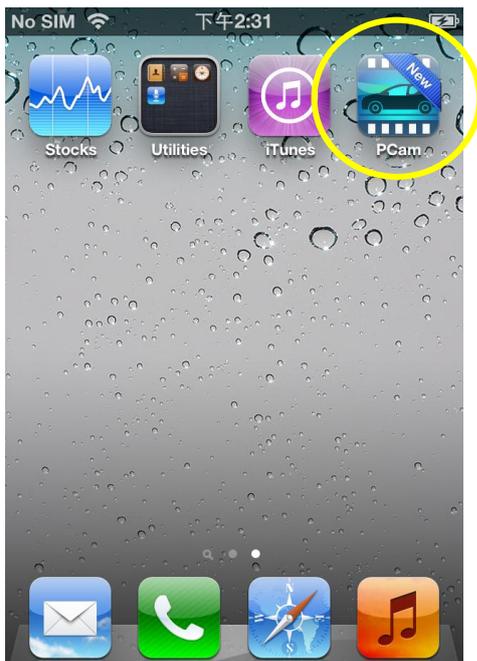
- **Step 2**

Search “PCam” and click cloud ico to install it.



- **Step 3**

After installation is complete , “PCam” appears on your phone.



B. Play

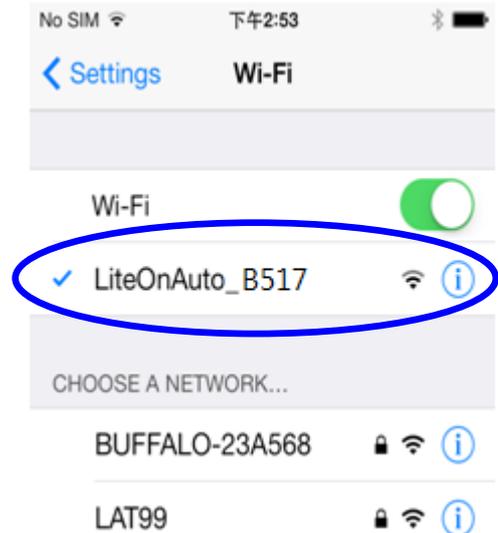
- **Step 1**

Check MAC ID on WiFi TX. The last 4 characters are parts of string of WiFi TX SSID. For example , the MAC id is “001DC912B517” , so the mapping of WiFi TX SSID is “LiteOnAuto_B517”



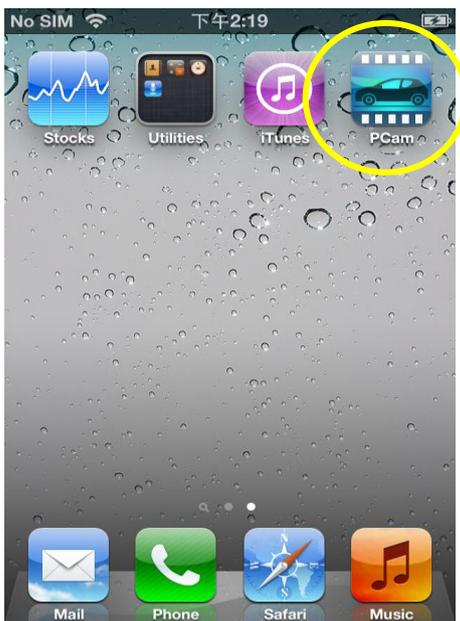
- **Step 2**

Make sure WiFi TX is correctly install on your car and turn IGM/ACC on. Let your phone connect mapping SSID of WiFi TX.



- **Step 3**

Make sure WiFi connection is complete , and launch “PCam”



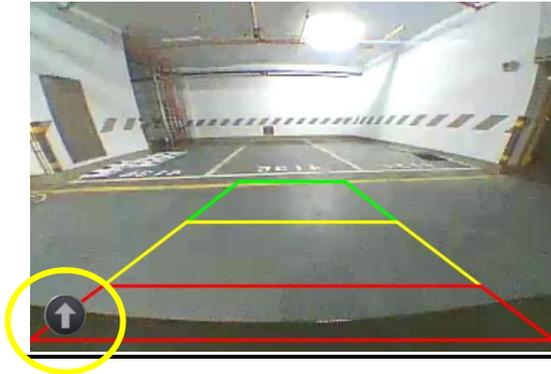
- **Step 4**

After successful launch , image appears on your phone.



C. Function Of Popup Menu

- **Step 1**
Touch left bottom arrow to echo popup menu when video plays.



- **Step 2**
When button touched , it echoes popup menu . The function includes “reload” 、”overlay” and “setup”



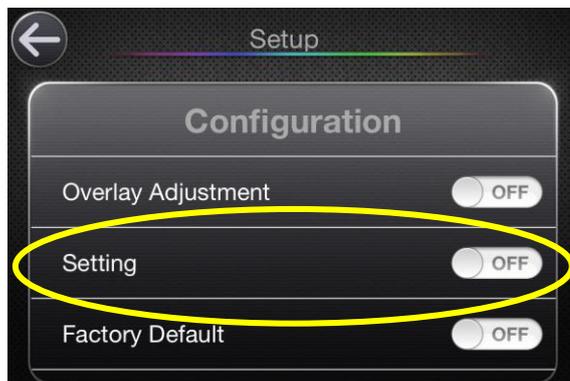
- **Step 3**
Opposite function as below :
 - ✓ **Reload :**
Force to reconnect WiFi TX
 - ✓ **Overlay :**
Enable or disable overlay display.
 - ✓ **Setup :**
Entry point for system setting.

D. Encryption

- **Step 1**
After successful launch , touch “Setup” button to enter main setting page.



- **Step 2**
Touch “Setting” switch to enter WiFi encryption setting.



- **Step 3**
WiFi TX supports security for WEP or WPA2 , touch password field to key in encryption key , there is only allowed 10 chars (0~9) input for WEP or WPA.



- **Step 4**
After key in complete , touch “SET” button to apply this setting. PCam prompts you to reboot WiFi TX and re-launch PCam (system reboot).



- **Step 5**

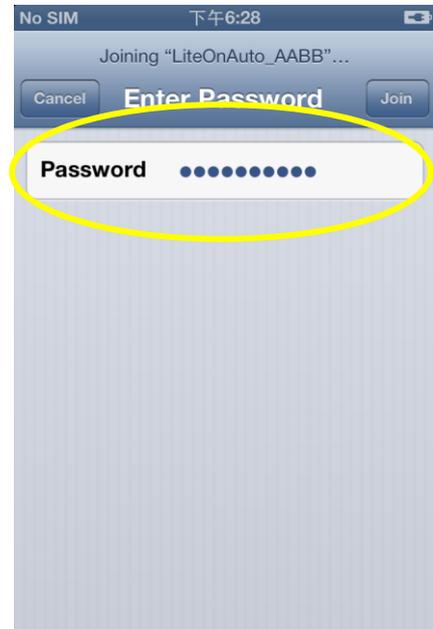
After system reboot complete , you must to set connection again . Please enter WiFi setting utility for your phone.

Home button → Settings → WiFi



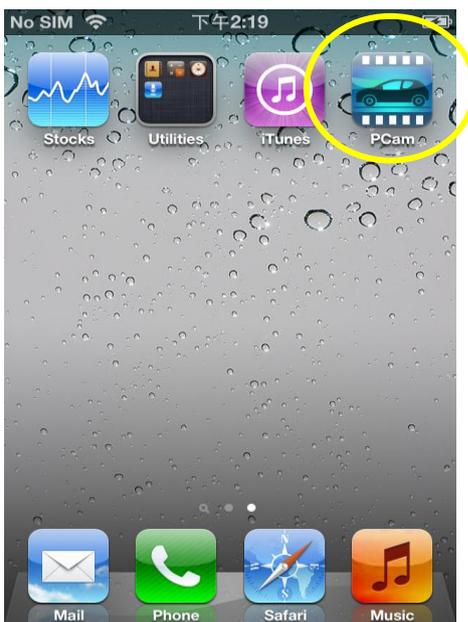
- **Step 6**

It may ask you input password for certification.



- **Step 7**

Launch PCam again , image should appear on your screen.



D. Channel Setting

- **Step 1**

Video has poor quality or image drop may due to air interference. If there are too many WiFi device coexists in the same channel, it causes this problem. So we recommend making channel setting in this situation

- **Step 3**

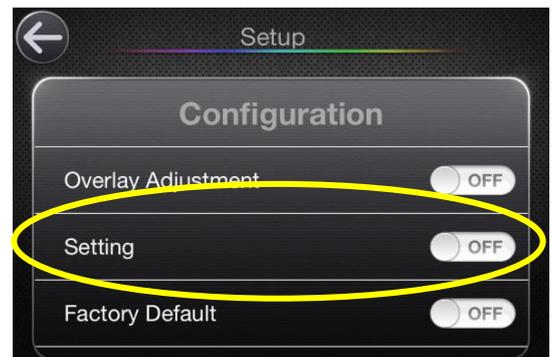
Choice one of channel item what you want to swap. In our experience , channel 3、8、9 has lower interference than channel 1、6、11 , This is due to default channel of 802.11b/g/n WiFi home AP system is 1、6、11 。



- **Step 2**

Enter main setting page and touch “setting” item.

Popup menu → Setup → Setting



- **Step 4**

After key in complete , touch “SET” button to apply this setting. PCam prompts you to reboot WiFi TX and re-launch PCam. Please make sure WiFi correctly connected before PCam launched.



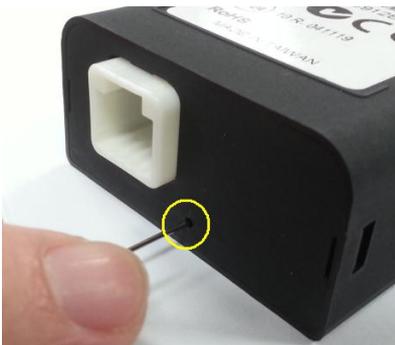
D. Factory Default

This function lets WiFi TX return factory default setting. There are two way to execute this function , one is hardware base factory default button which located on WiFi TX cap housing , and the other is software base for remote setting over air.

After “Factory Default” , the encryption becomes “none” and channel returns “3”.

- **Step 1 (Hardware Button)**

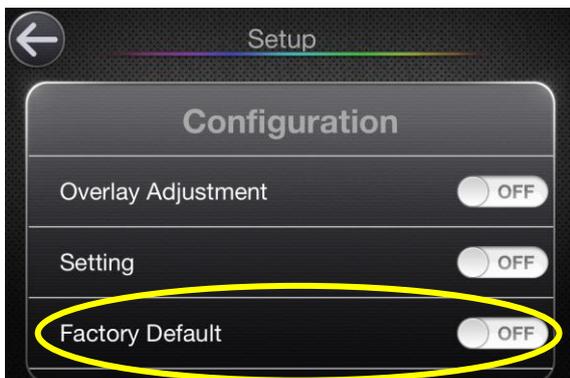
A factory default button is located on the cap of TX housing , press this button over 5 sec and release , the WiFi TX will restore factory default setting.



- **Step 2 (or Remote Setting)**

Please follow these steps

Popup menu → Setup → Factory Default



- **Step 3**

Click “OK”



- **Step 4**

Reboot WiFi TX , and press “Home” key to exit PCam

F. Overlay Setting

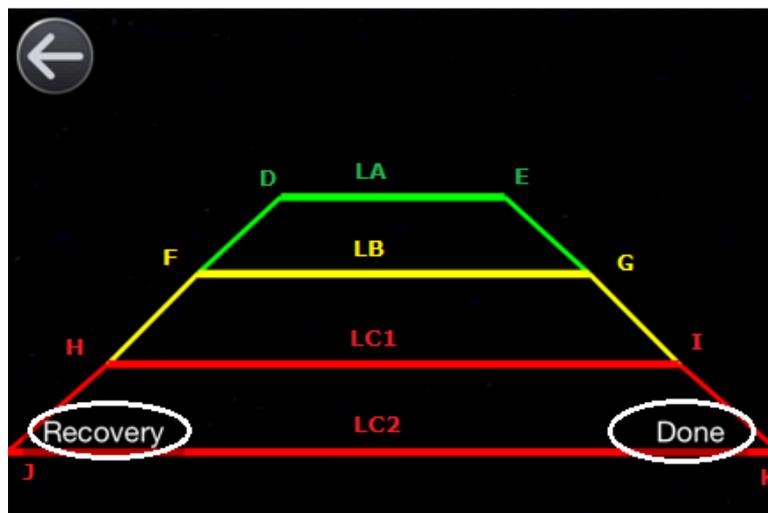
Overlay is adjustable to fit car , please follow these steps to adjust one.

Popup Menu → Setup → Overlay Adjustment

The function allows user to adjust overlay , It helps you to evaluate the distance between rear car and opposite obstacle. **THIS FUNCTION IS FOR ASSISTANCE PUROSE ONLY.** Please park your car carefully when overlay is enabled.

Operation as shown below table :

Pattern	Operation
LA	Touch node D and E simultaneously to adjust the width LA
LB	Touch node F and G simultaneously to adjust the width LB
LC1	Touch node H and J simultaneously to adjust the width LC1
LC2	Touch node J and K simultaneously to adjust the width LC2
Trapezoid D · E · G · F	Shift LA · LB to adjust the height of trapezoid D · E · G · F
Trapezoid F · G · I · H	Shift LB · LC1 to adjust the height of trapezoid F · G · I · H
Trapezoid H · I · K · J	Shift LC1 · LC2 to adjust the height of trapezoid H · I · K · J



LC2 represents width of rear bumper and user should let LC2 overlap the bumper by adjusting camera angle. Real distance between LA and LC2 should equal 1.5 m. The gap between LA and LB is 0.5 m (real environment) · LB to LC1 is 0.5 m and LC1 to LC2 is 0.5 m. After setting complete , press "done" to save overlay or "recover" to restore default overlay

5. Install Android APP- PCam

A. Installation

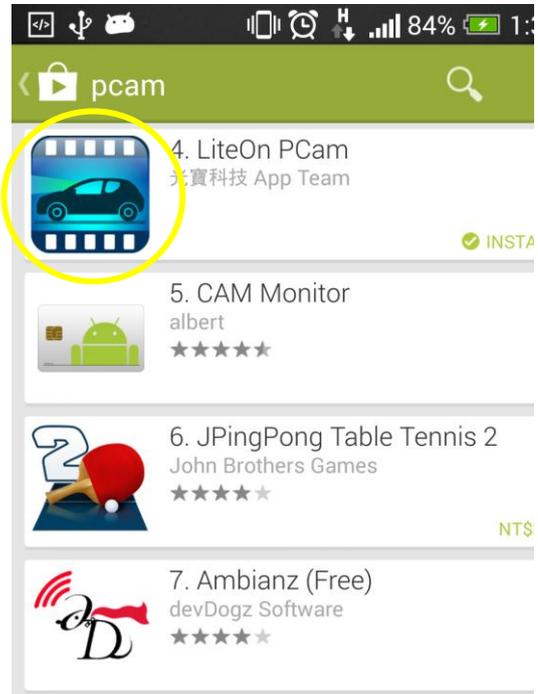
- **Step 1**

Please make sure internet connected and launch "Play Store" on your phone.



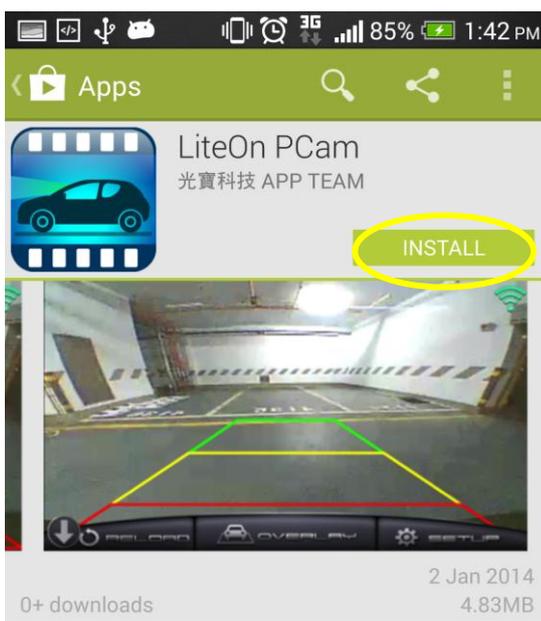
- **Step 2**

Search keyword "PCam" on store.



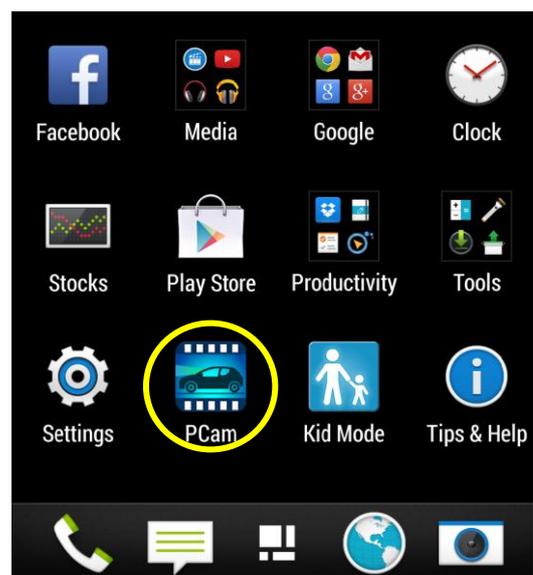
- **Step 3**

Clicks install command and exit when installation complete.



- **Step 4**

After install success , "PCam" appears on phone.



B. Play

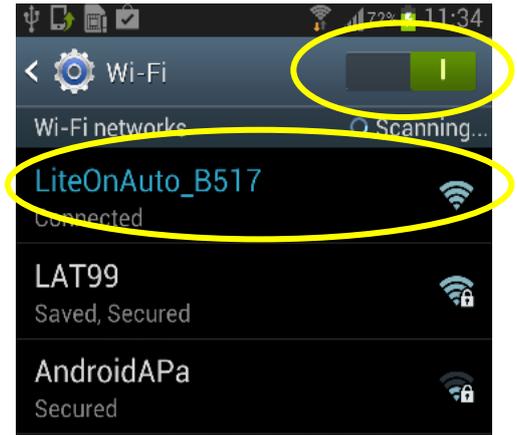
- **Step 1**

Each TX has own unique “SSID” and MAC , SSID is composed part of MAC string. The naming syntax of SSID is LiteOnAuto_XXXX , ”XXXX” is the last 4 chars of MAC. You can find MAC on WiFi TX label. For example as below , the MAC is “001DC912B517” , so the correct SSID is “LiteOnAuto_B517”.



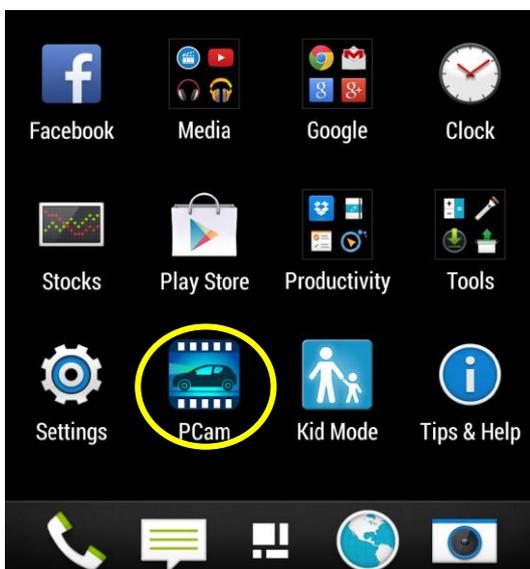
- **Step 2**

First play , power on WiFi TX and launch WiFi setting utility on your phone , please make sure connect to correct SSID , and press “Back” button on your phone to return desktop. ◦



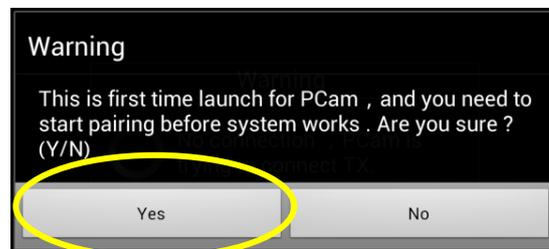
- **Step 3**

Launch PCam.



- **Step 4**

First launch , it appears pairing hint and click “YES” to be continue.



B. Function Of Popup Menu

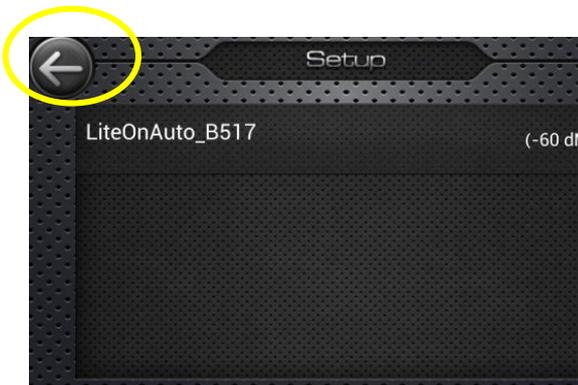
- **Step 5**

Click correct item of WiFi TX SSID and wait 2 sec. This procedure locks PCam and WiFi TX pairing record.,



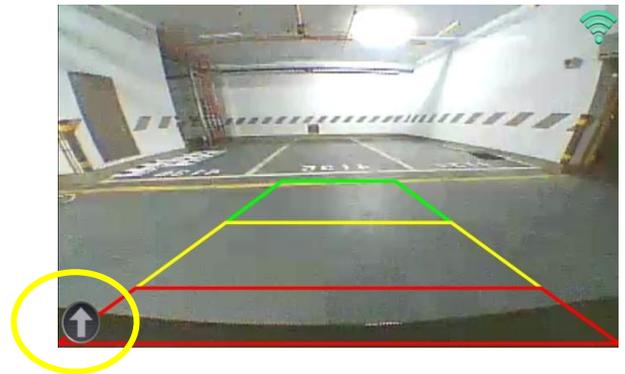
- **Step 6**

When step 5 is complete, touch left top arrow to return main view, and video should be appear.



- **Step 1**

You can touch left bottom arrow to echo popup menu when video plays.



- **Step 2**

When button touched, it echoes popup menu. The function as below :

- ✓ **RELOAD :**
Force to reconnection and reload video when links failure
- ✓ **OVERLAY :**
Enable or disable overlay display
- ✓ **SETUP :**
Entry point for system setting

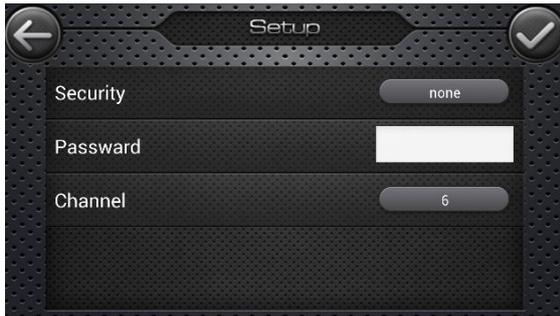


C. Encryption

- **Step 1**

PCam has encryption for WiFi communication, the default setting is none, please follow these steps to reach security setting page.

Popup menu → Setup → Settings



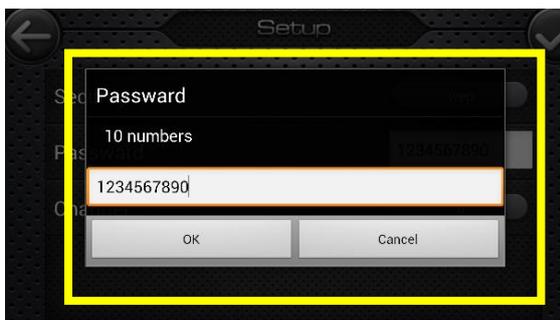
- **Step 2**

Touch security field to select encryption policy, WEP or WPA can be choice.



- **Step 3**

Touch password field to key in encryption key, there is only allowed 10 chars (0~9) input for WEP or WPA.

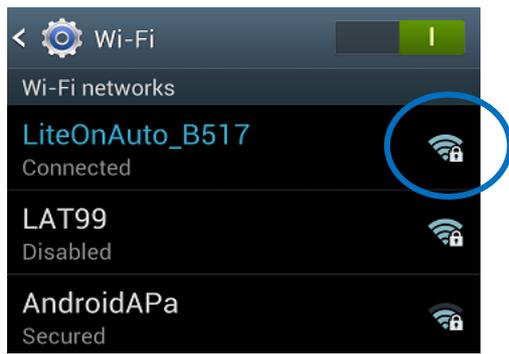


- **Step 4**

Press ✓ to confirm this setting.



- **Step 5**
Reboot TX , and press “Back” key to exit PCam.
- **Step 6**
Launch WiFi setting utility to check connection return. It appears a “lock” symbol to indicate encryption state.



- **Step 7**
Press “Home” key to go back desktop and launch PCam , the video should be appear. If you need to erase these setting , please execute “Factory Default” and execute step 5 to step 7 again.

D. Channel Setting

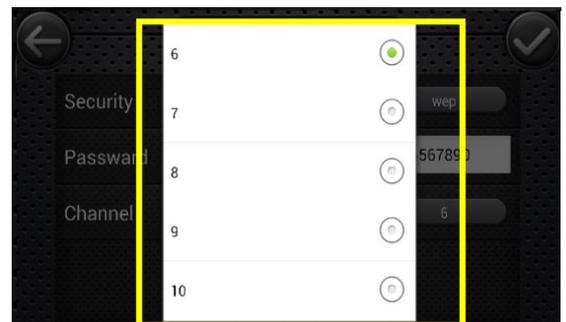
Video has poor quality or image drop may due to air interference. If there are too many WiFi device coexists in the same channel, it causes this problem. So we recommend making channel setting in this situation

In our experience , channel 3 、 8 、 9 has lower interference than channel 1 、 6 、 11 , This is due to default channel of 802.11b/g/n WiFi AP system is 1 、 6 、 11 .

- **Step 1**
Follow these steps to echo channel setting page. Popup menu → Setup → Channel

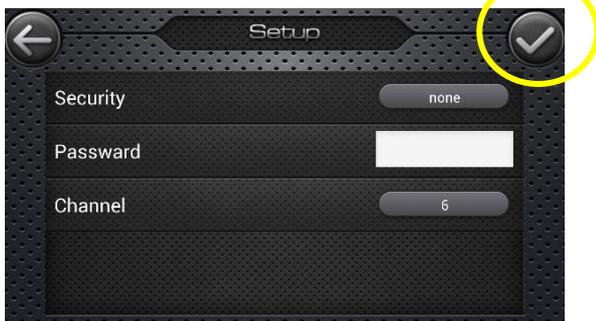


- **Step 2**
Click channel item to select one.



- **Step 3**

Press ✓ to confirm this setting.

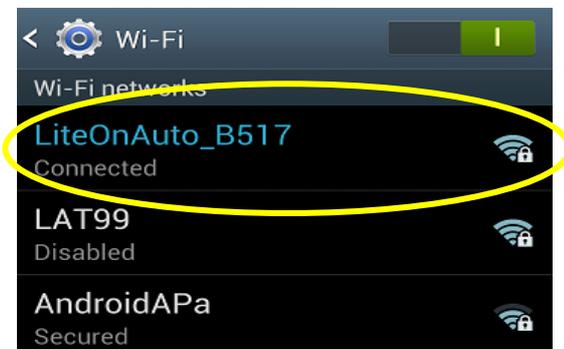


- **Step 4**

Reboot TX , and press “Home” key to exit PCam.

- **Step 5**

Launch WiFi setting utility to check connection. And launch PCam again , video should be appear.



E. Factory Default

This function lets WiFi TX return factory default setting. There are two way to execute this function , one is hardware base factory default button which located on WiFi TX cap housing , and the other is software base for remote setting over air.

After “Factory Default” , the encryption becomes “none” and channel returns “3”.

- **Step 1 (Hardware Button)**

A factory default button is located on the cap of TX housing , press this button over 5 sec and release , the WiFi TX will restore factory default setting.

- **Step 2 (or Remote Setting)**

Please follow these steps
 Popup menu → Setup → Factory Default



- **Step 3**

Click “OK” to accept this setting , reboot TX , and press “Home” key to exit PCam. You need to make sure WiFi connected before PCam re-launched.

F. Backup Trigger

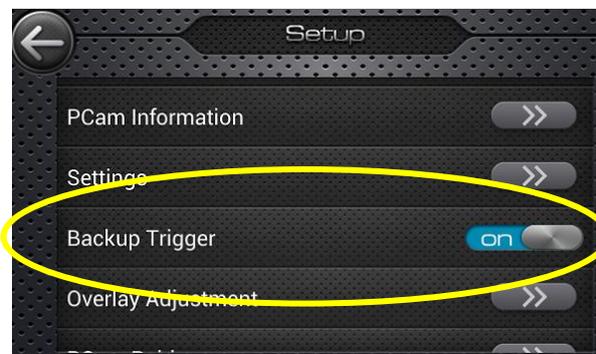
PCam supports auto pop out rear image from background when reverse gear triggered. Please make sure finish “Pairing” procedure and WiFi connected when backup trigger enabled.

In normal state , even you close PCam , it detect reverse gears signal over air , and it pops out rear image without manual clicking PCam.

- **Step 1**

Once success installation and pairing , PCam hides in background and wait reverse gear trigger. If “Backup Trigger” enables , PCam auto pop out video when reverse gear engage. The setting path as below :

Popup menu → Setup → Backup Trigger



- **Step 2**

You can launch PCam even reverse gear off , it acts as “E-Mirror(rear view camera)” to show rear view status.

G. PCam Pairing

- **Step 1**

Re-pairing is necessary when PCam connects to another TX. The setting as below :

Popup menu → Setup → PCam Pairing



- **Step 2**

Select current one , and click left arrow button on left up corner.



- **Step 3**

If image does not appear over 10 sec. Please Reboot WiFi TX , and press “Back” key to exit PCam. You need to enter WiFi setting utility for your phone to make sure connection correctly established and re-launch PCam again.

H. Overlay Setting

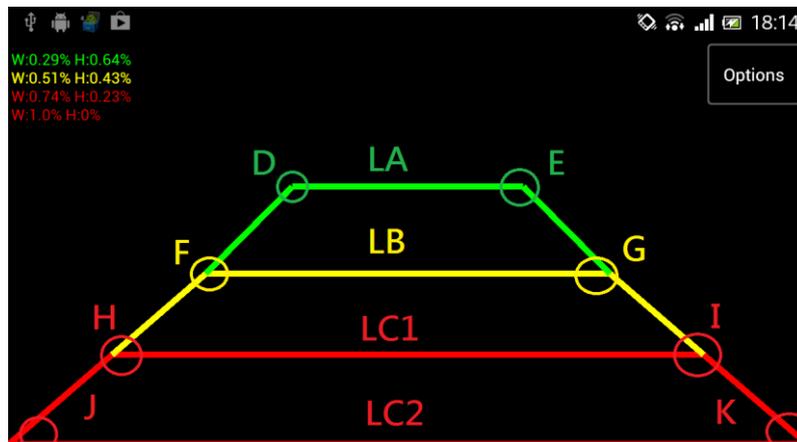
Overlay is adjustable to fit car , please follow these steps to adjust one.

Popup Menu → Setup → Overlay Adjustment

The function allows user to adjust overlay , It helps you to evaluate the distance between rear car and opposite obstacle. **THIS FUNCTION IS FOR ASSISTANCE PUROSE ONLY.** Please park your car carefully when overlay is enabled.

Operation as shown below table :

Pattern	Operation
LA	Touch node D and E simultaneously to adjust the width LA
LB	Touch node F and G simultaneously to adjust the width LB
LC1	Touch node H and J simultaneously to adjust the width LC1
LC2	Touch node J and K simultaneously to adjust the width LC2
Trapezoid D、E、G、F	Shift LA、LB to adjust the height of trapezoid D、E、G、F
Trapezoid F、G、I、H	Shift LB、LC1 to adjust the height of trapezoid F、G、I、H
Trapezoid H、I、K、J	Shift LC1、LC2 to adjust the height of trapezoid H、I、K、J



LC2 represents width of rear bumper and user should let LC2 overlap the bumper by adjusting camera angle. Real distance between LA and LC2 should equal 1.5 m. The gap between LA and LB is 0.5 m (real environment) , LB to LC1 is 0.5 m and LC1 to LC2 is 0.5 m. After setting complete , press "options" to "save" , "recover" or restore default overlay.

I. PCam Information

- **Step 1**

It shows current SSID when PCam connected. The setting path as below :

Popup menu → Setup → PCam Information



J. About

- **Step 1**

It shows SW version for current TX and APP.

Popup menu → Setup → About

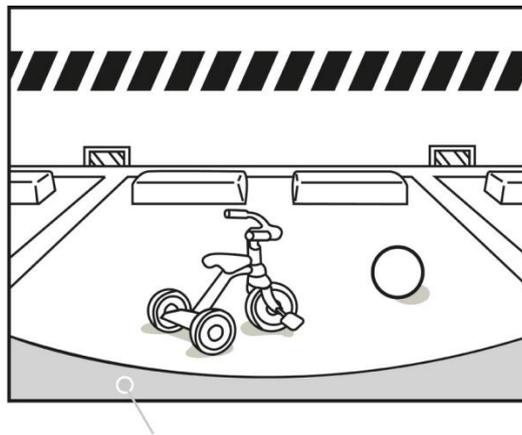


6. Trouble Shooting

Q1 : Distance inaccuracy from rear image

A :

Based on camera is positioned, it may cause some distance inaccuracy from your display. Please allow part of the car bumper to be showed on the display. Camera should be placed in the canter of the car. This system is just an assistance , you must also check your surroundings for car parking.



The bumper or the rear side of the vehicle

Q2 : Internet disabled when APP launched

A :

WiFi is default routing for internet in Android / iOS system. If your system works , internet service may be suspend. You may manual set static IP when WiFi TX connects , and internet may consist with our system. This is only available in iOS system. The setting as below :



Q3 : The smart phone causes different video latency.

A :

The performance of your smart phone is an important factor for video latency and stability. We suggest that the smart phone should be dual-core above. Other applications that are running on your smart phone may need to access WiFi and CPU resources which affect the stability of the system. Please be careful while driving when operating the system.

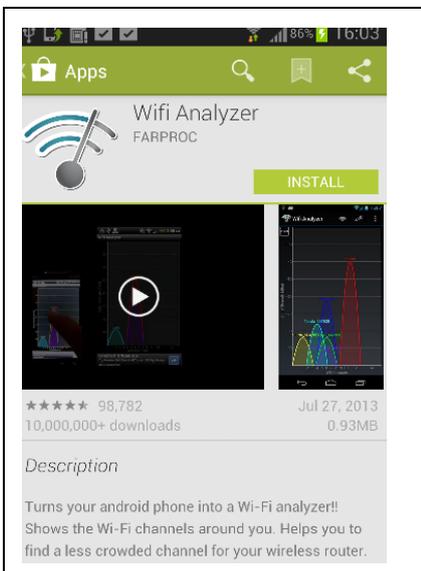
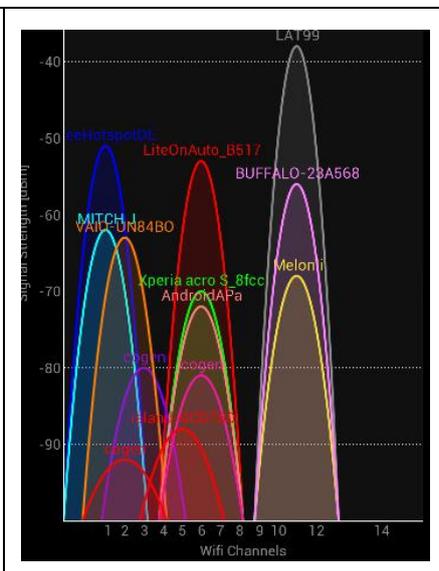
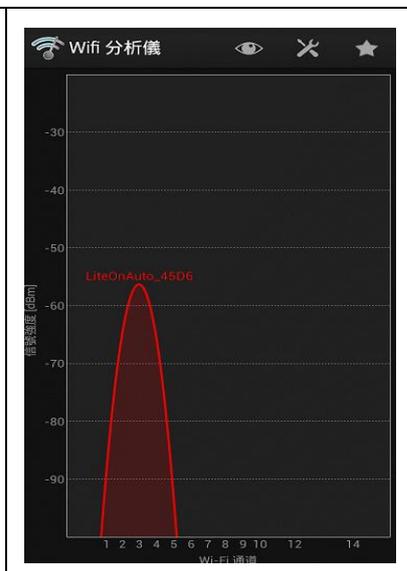
Regarding the smart phone OS that we recommend you following below table for better performance.

OS	Android	iOS
APP Name	PCam	PCam
Support OS Version	4.0 above	6.0 above

Q4 : How to find better channel for WiFi video transmission?

A :

Video has poor quality or image drop may due to air interference. If there are too many WiFi device coexists in the same channel, it causes this problem. The case most happen in office · school etc · so we recommend this system better works in vehicle (sedan) or change communication channel for app. Some third party free APP help you find better channel, for example “WiFi Analyzer” as show below. You can use this tool to find good channel which nobody used and set it to WiFi TX.

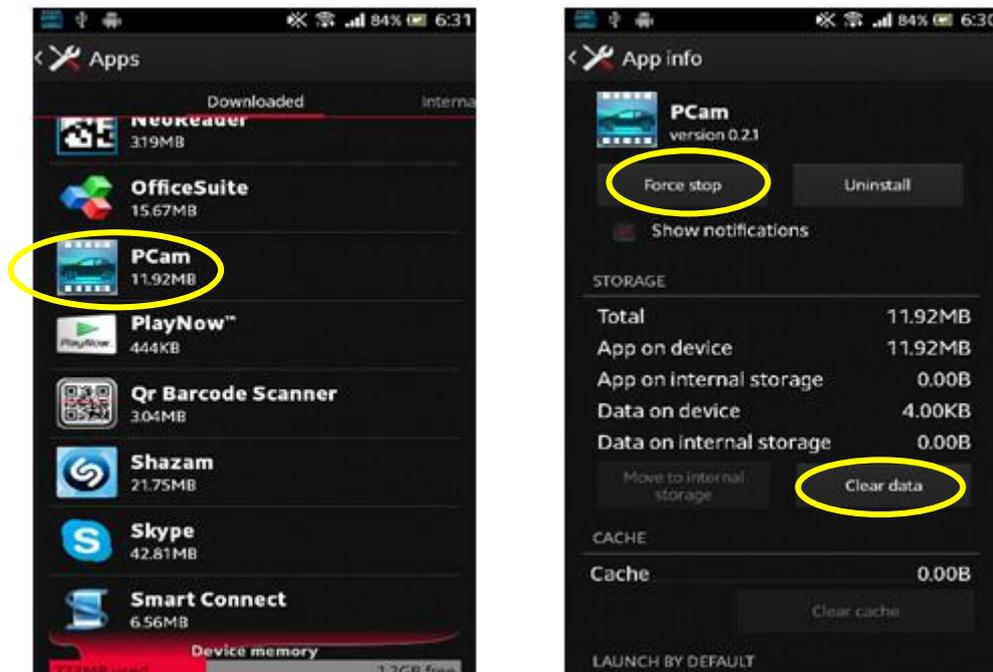
		
	<p>Much channel interference in office environment.</p>	<p>Clean channel. · best communication quality</p>

Q5 : I can search WiFi TX on my phone , but when I launch app , the image does not appear.

A :

Please follow these steps to clean APP cache and reset system.

1. (Android) Press “Home” key → settings →Apps→select “PCam”
2. Click “Force stop” and “Clear Data”



3. Reboot WiFi TX → make sure WiFi connected with your phone →launch app

NOTE

NOTE

Dealers address details:

More demonstration video is on Youtube :

http://www.youtube.com/channel/UC5_gM5MZDKAh4clFxLC2QnQ

DunYoungLiteOn Automotive

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