



RAEM1 Wi-Fi Module User Guide

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RAEM1 Wi-Fi Module



Product Information

The RAEM1 Wi-Fi Module is a device that allows for wireless connectivity and configuration of sensors. It comes with a magnetic base antenna, an ethernet cable and power adapter, and a sensor with a magnetic holder. The device operates on a frequency range that needs to match the sensor for proper functioning.

Product Usage Instructions

1. Before the hardware connection, read the RAEM1 label to identify the matching power adaptor and sensor type.
2. Connect all the parts to RAEM1 and plug the power adaptor into a wall outlet.
3. Turn on the power switch. The POWER light should become solid, and after a few minutes, the RUN light will start flashing every second to indicate device operation.
4. The device is now ready to operate and connect.
5. To connect to the RAEM1 configuration software, there are three communication modes available: Ethernet, Wi-Fi Hotspot mode, and Wi-Fi Router mode.
6. **Ethernet Connection:**
 1. Plug the Ethernet cable from the RAEM1 to a computer. If multiple RAEM1 devices need to be connected, connect them to a switch and then to a computer.
 2. Change some computer settings:
 - Open Control Panel >> Network and Internet >> Network Connections.
 - Choose the local area connection, right-click, and choose Properties. Then choose Configure...
 - In the Advanced Tab, choose Speed & Duplex. On the Value drop-down menu, select 100Mbps Full Duplex.
 - Configure Ethernet IPv4:
 - Choose Internet Protocol Version 4 (TCP/IPv4) and click Properties.
 - In the pop-up window, check "Use the following IP address:". Enter the IP address as 192.168.0.XX (XX can be any two digital numbers). The subnet mask is 255.255.255.0. The default gateway is 192.168.0.1.







3. Before using the software, turn off all firewall and anti-virus programs.
4. Start the RAEM1 Configuration software. Make sure to allow access if a firewall warning window pops up.
5. Once the software is opened, the devices should show in the Device List with their IP addresses and IDs.
Choose a device to view or modify its configuration settings.

7. **Wi-Fi Hotspot Mode:** The factory default Wi-Fi mode of RAEM1 is Hotspot mode. It releases a Hotspot for connection with the following information:

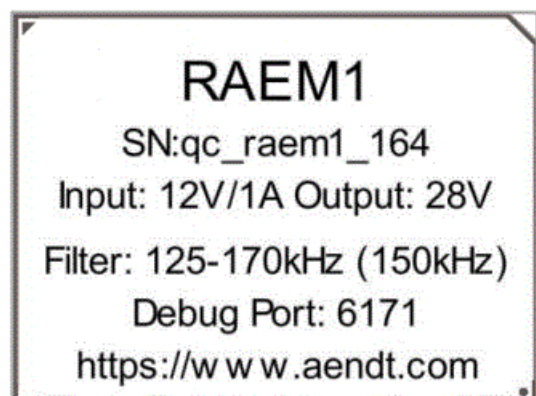
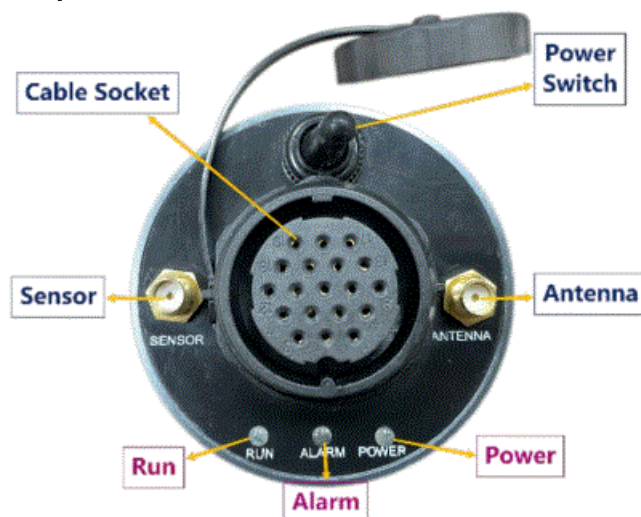
- Hotspot Name: qc_raem1_test_xxxx_5g
- Hotspot Password: 88888888
- Device IP Address: 192.168.100.1

When the computer searches for and connects to the RAEM1 Hotspot, the device should be shown in the Device List in the RAEM1 Configuration software. Now the device can be configured.

What's included

		
RAEM1 with magnetic base	Antenna with magnetic base	Connector with Ethernet cable and power
		
Sensor and magnetic holder	Sensor Coaxial cable	12V power adaptor

RAEM1 Top Part Details:



Setup

1. Before the hardware connection, please read the RAEM1 label to figure out the matching power adaptor and sensor. The sensor type is normally the integral sensor with a built-in preamplifier. The preamp voltage is supplied through the "Sensor". The analog filter in RAEM1 also requires the sensor frequency range to match. If mismatching the sensor, it may cause some damage to the sensor or not fully functioning. So please pay attention to the label.



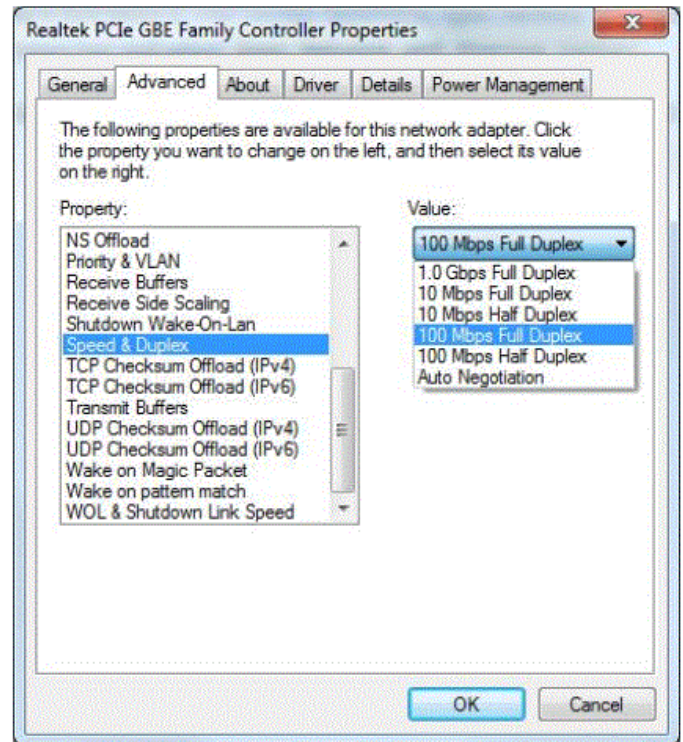
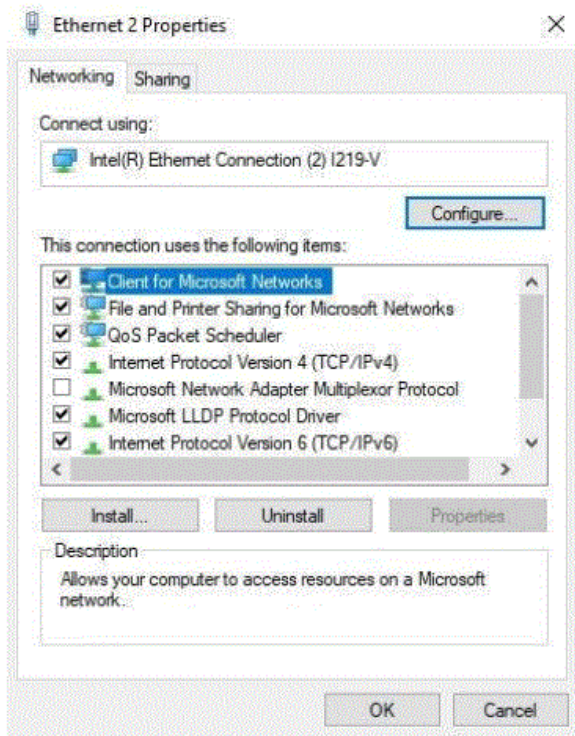
2. connect all the parts to RAEM1. Connect the power adaptor to the wall outlet.
3. turn on the power switch. When it starts, the "POWER" light is solid on. After a few minutes, the "RUN" light starts flashing every second to indicate the device is operating.
4. the device is now ready to operate and to connect.

Connect to Configuration Software

The device can connect to the RAEM1 configuration software through three communication modes, Ethernet, Wi-Fi Hotspot mode and Wi-Fi Router mode.

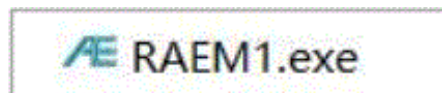
Ethernet Connection

1. Plug the Ethernet cable from the RAEM1 to a computer. If there are multiple RAEM1 to connect, connect them to a switch and then to a computer.
2. Some computer settings need to be changed in order to connect:
Ethernet Duplex Mode: open "Control Panel" >> "Network and Internet" >> "Network Connections". Choose the local area connection. Right click and choose "Properties" and then choose "Configure..". In the "Advanced" Tab, choose "Speed & Duplex". On the "Value" drop-down menu, select "100Mbps Full Duplex".

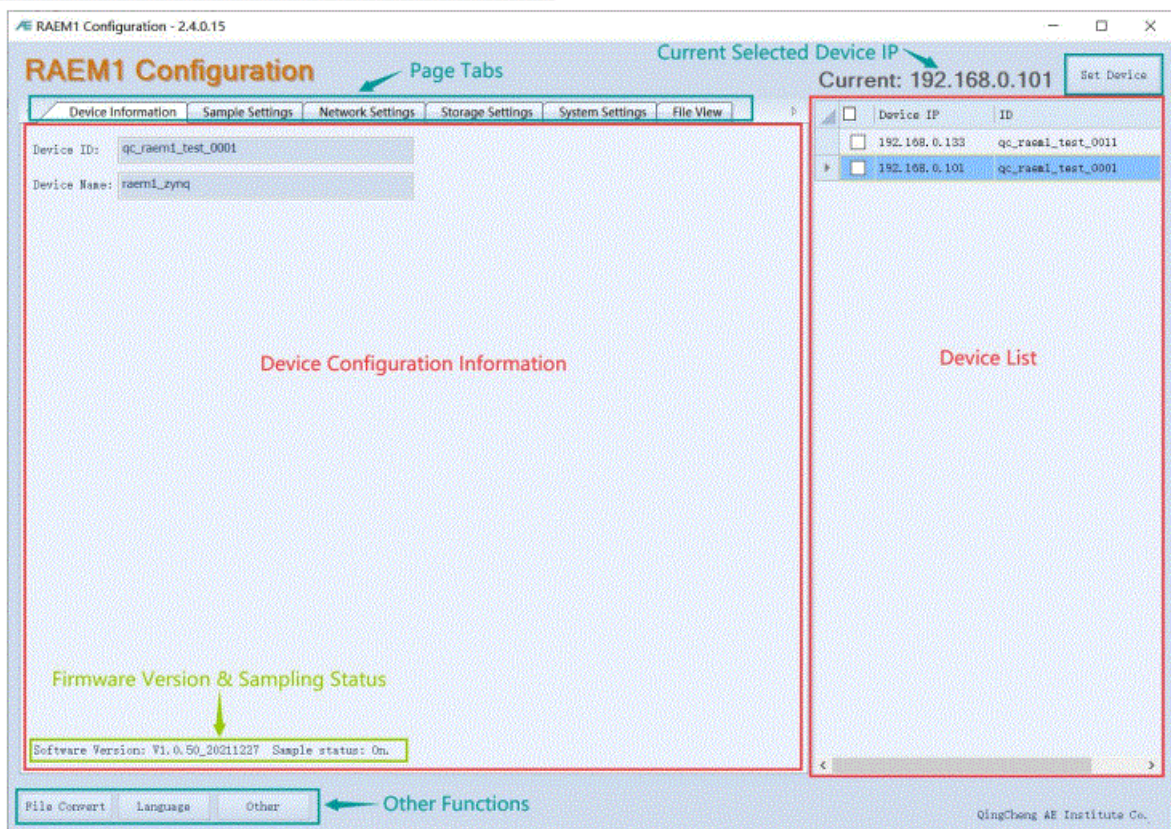
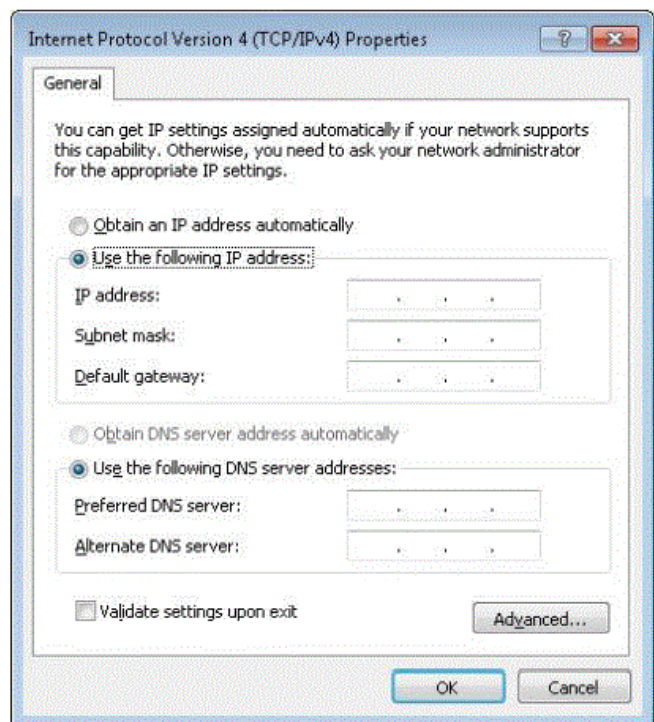
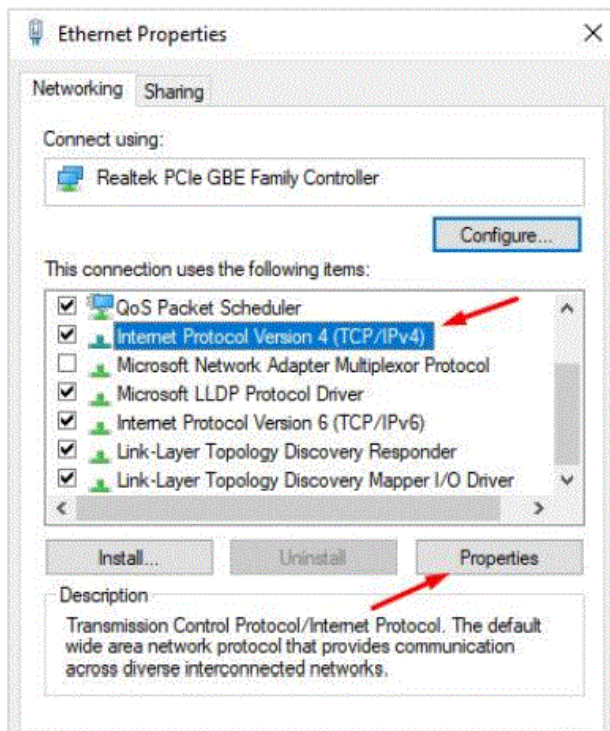


Configure Ethernet IPv4: choose “Internet Protocol Version 4 (TCP/IPv4)”, and then click “Properties”. In the pop-up window, check “Use the following IP address:”. Then enter the “IP address:” as 192.168.0.XX (XX can be any two digital numbers). “Subnet mask:” is 255.255.255.0. “Default gateway” is 192.168.0.1.

3. Before using the software, please turn off all firewall and anti-virus programs. Check the user’s manual for details.
4. Start the RAEM1 Configuration software. The software has 32-bit and 64-bit versions and it runs in Windows 10 and below system. For the first time running, it might pop up a firewall warning window. It must check both thand the public network options and then click “Allow access”.



5. Once the software is opened, the devices should show in the “Device List” with the IP address (192.168.0.101) and their own ID. Now you can choose a device and view or modify their configuration settings. Please see the user’s manual for more details.



Wi-Fi Hotspot Mode

The factory default Wi-Fi mode of REAM1 is Hotspot mode. REAM1 releases a Hotspot for connection. The Hotspot information is as listed in the table below.

Hotspot Name	qc_raem1_test_xxxx_5g
Hotspot Password	88888888
Device IP Address	192.168.100.1

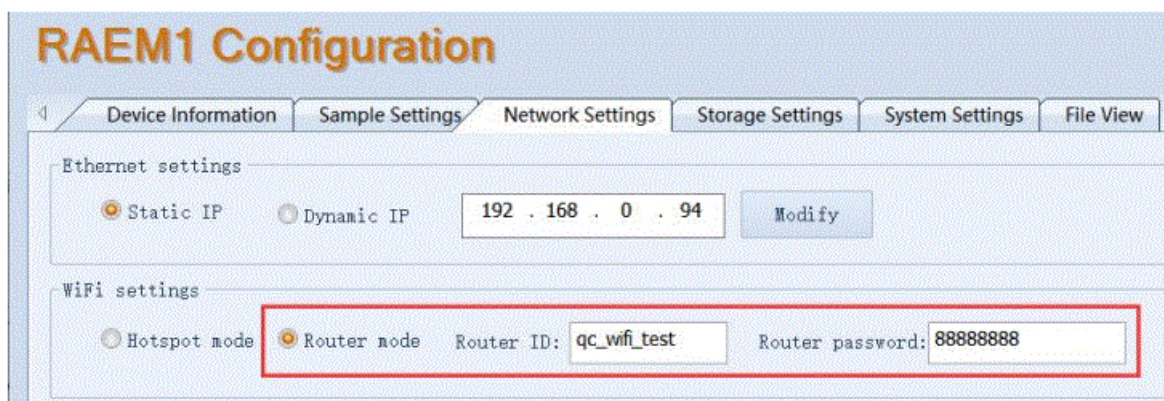
When the computer searches for and connects to the RAEM1 Hotspot, the device should be shown in the "Device

List” in the RAEM1 Configuration software (see Step 3 -5 in Page 2 above). Now the device can start to be configured.

Wi-Fi Router Mode

Use Wi-Fi Router mode if you want to connect multiple RAEM1 at the same time wirelessly, or want RAEM1 to connect to the cloud servers. Because the RAEM1 is in Hotspot mode by default, you need to change the RAEM1 to Router mode.

1. Find out the router name, password, and the router IP address that you want the RAEM1 to connect to
Because the Ethernet mode uses the network segment 192.168.0.xx (i.e. subnet 0). The Wi-Fi router must be a non-zero subnet to avoid communication conflicts.
2. Connect RAEM1 to the RAEM1 Configuration software using either Ethernet or Hotspot mode. Tick the checkbox next to the device in the Device List.
3. Under “Network Settings”, change the WiFi settings to “Router mode” and then enter the router ID and password. Then click “Set Device” button on the top right corner.



4. Right-click on the device ID and select “Reboot” to make the changes take effect. Once the device finishes rebooting, it will automatically connect to the router.
5. Connect the computer to the router and open the software. It should show all the RAEM1 in the device list in the software now.

Follow the user's manual for more details and further operations.

Data Access and Display

RAEM1 starts data collection since turned on. Based on the data storage settings and the set desired destination, the data can be accessed locally or over the cloud servers.

Local Access

Access the RAEM1 data packages through the RAEM1 Configuration software. Before data collection, please check the RAEM1 configurations to make sure it is configured to store data in the local memory. Under the “Storage Settings”, enable the “Save Wave” and “Save Param”.

Device Information | Sample Settings | Network Settings | **Storage Settings**

Data Storage

Save Wave: Yes

Save Param: Yes

Upload original data: No

After data collection, you can connect the RAEM1 to the configuration software and view the data files of the RAEM1 under the “File View” tab. Right click on the files to download, delete or convert formats.

Index	File name	File size
1	qc_raem1_4G_05_ae_ndt_1641523047.zip	111.50 KB
2	qc_raem1_4G_05_ae_ndt_1641523112.zip	121.50 KB
3	qc_raem1_4G_05_ae_ndt_1641523117.zip	311.50 KB
4	qc_raem1_4G_05_ae_ndt_1641523122.zip	287.50 KB
5	qc_raem1_4G_05_ae_ndt_1641523127.zip	115.50 KB

Download from the Cloud

If the RAEM1 can upload data to the cloud through a Wi-Fi router, it can access data from the cloud server.

Qingcheng IoT Platform

All RAEM1 can upload data to the Qingcheng IoT platform. Make sure to enable “Save Wave”, “Save Param”, “Upload original data” under the “Storage Settings” in the RAEM1 Configuration software. It may take some time for the data to upload to the cloud.

Data Storage

Save Wave: Yes

Save Param: Yes

Upload original data: **Yes**

It can also configure the RAEM1 through the Qingcheng IoT Platform. Please see the user’s manual for more details.

Alibaba Cloud

RAEM1 can also upload real-time data to the Alibaba Cloud by configuring RAEM1 with the Aliyun key and secret. In Alibaba Cloud, it displays the acoustic emission parameters in real time but not for downloads. You can also configured the RAEM1 remotely through Alibaba Cloud. Please see the user’s manual for more details.

Report data

Report interval: 3000 (ms)

Data report server: QC Aliyun Mode

Aliyun key: a1FweZJydVd Aliyun sec: 24403c45a54488bc6cb32528bcbc7541 Modify

AWS S3

RAEM1 can also upload data to AWS S3. Just need to set up your AWS S3 account and enter the storage tank information in the REAM1 configuration settings. Then you can see the uploaded RAEM1 data packages in the AWS S3 buckets.

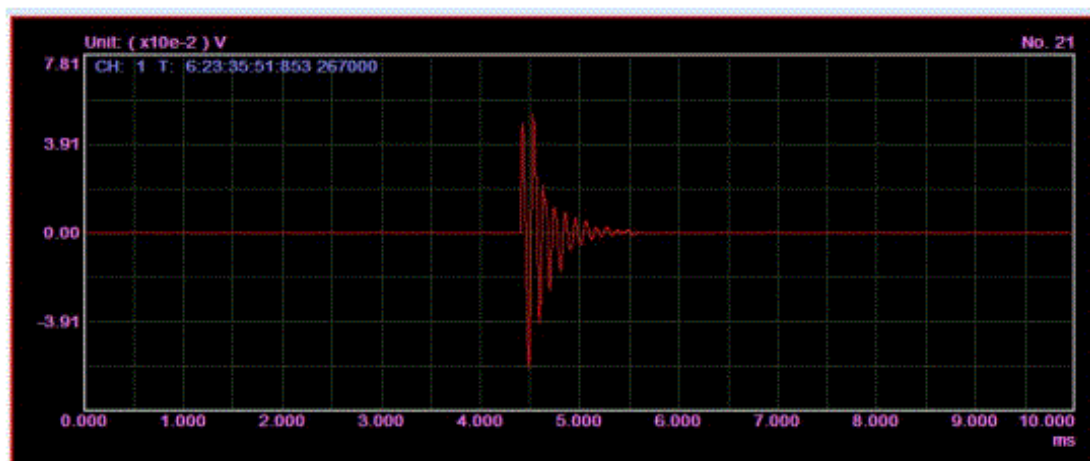
AWS Paramer			
AWS Enable:	Enable		
AWS Key:	AKIAXVYJDPFQB4HU2Y7M	AWS Sec:	nTXmhD9TYIzQVHz6iax0tELM9
AWS region	ap-southeast-1	AWS bucket name:	test-bucket-20220117

Real-time Data Analysis

RAEM1 can also display and analyze data in real-time using SWAEU3H(RAEM1) software through Ethernet cable and Wi-Fi. Before connecting to U3H(RAEM1), make sure that "Send U3H", "Send Wave" and/or "Send Param" are enabled in the configurations. Also importantly, set the "Address type" to "Use IP" and enter the target PC IP address that the RAEM1 should send to. Inside the U3H(RAEM1) "Sample Settings" enter the IP address same as the target IP address above. So it should be able to connect to the U3H and send data.

U3H Server					
Send U3H:	Yes	Send Wave:	Yes	Send Param:	Yes
Address type:	Use IP	Address:	192 . 168 . 0 . 157	Port:	9504


No	Arrival time(dd:hh:mm:s...	AE cha...	Amplit...	Counts	Duration(us)	Energy(KpJ)	Rise
10	6:23:35:31:664 100000	1	95.2	23	1348	57142.525	
11	6:23:35:31:667 241000	1	60.1	35	610	27.418	
12	6:23:35:31:670 604000	1	58.9	10	239	18.840	
13	6:23:35:35:088 760000	1	95.6	19	1456	52214.099	
14	6:23:35:36:207 796000	1	94.2	36	1345	25639.810	
15	6:23:35:36:871 860000	1	95.5	18	1520	58513.934	
16	6:23:35:43:266 453000	1	95.5	27	1490	38946.721	
17	6:23:35:44:039 742032	1	95.5	35	1397	44770.026	



Please follow the user's manual for detailed setups. If you have any questions, please don't hesitate to contact us.

- Email: sales2@ae-ndt.com
- Cell/WeChat: 19128609186
- Website: www.aendt.com

Documents / Resources

	AE RAEM1 Wi-Fi Module [pdf] User Guide RAEM1 Wi-Fi Module, RAEM1, Wi-Fi Module, Module
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References

-  [Find Your Dream Tech Job with NDT | Boston's #1 Tech Recruiter](#)
-  [Acoustic Emission, Vibration Monitoring and Condition Monitoring Systems in NDT industry | QingCheng Ltd.](#)