

UMC-A12Q7-R User Manual

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Revision History

Issue Date	Version	Description
2017/08/31	0.1	Initial Issued

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1. Introduction

This User Manual of A12Q7-R module is to describe how to use the following sections for lab test by specific qualified engineers or technicians. Furthermore, this module is NOT intended for commercial use but designed as part of Smart Meter product and M2M devices which mainly provide 4G LTE WAN access capability.

FCC Interference Statement

This module complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This module may not cause harmful interference and (2) this module must accept any interference received, including interference that may cause undesired operation.

Radiation Exposure Statement

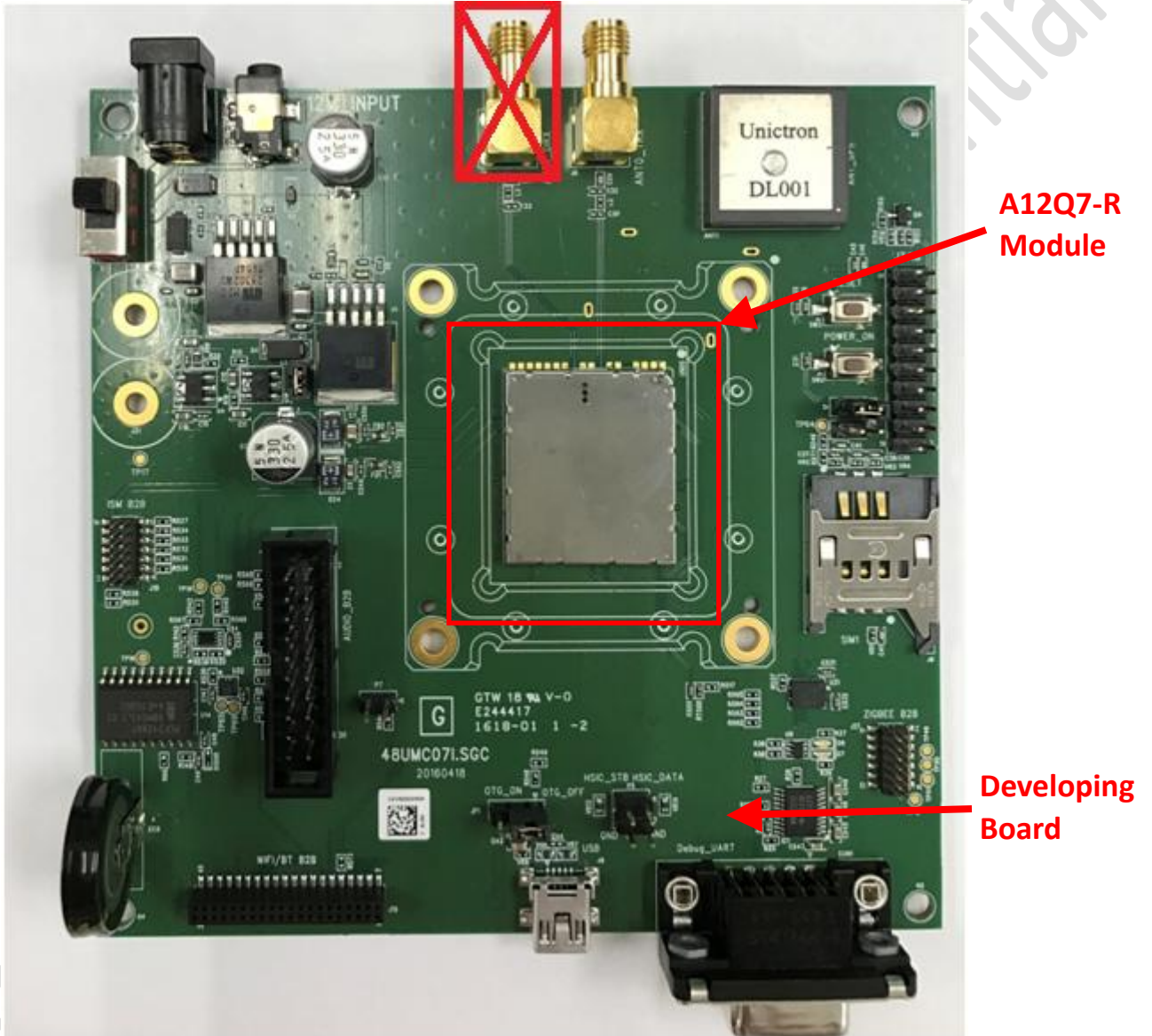
This module complies with FCC radiation exposure limits set forth for an uncontrolled environment. This module should be installed and operated with minimum distance of 20cm between radiator and human body.

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

2. Test Setup

2.1 Developing board

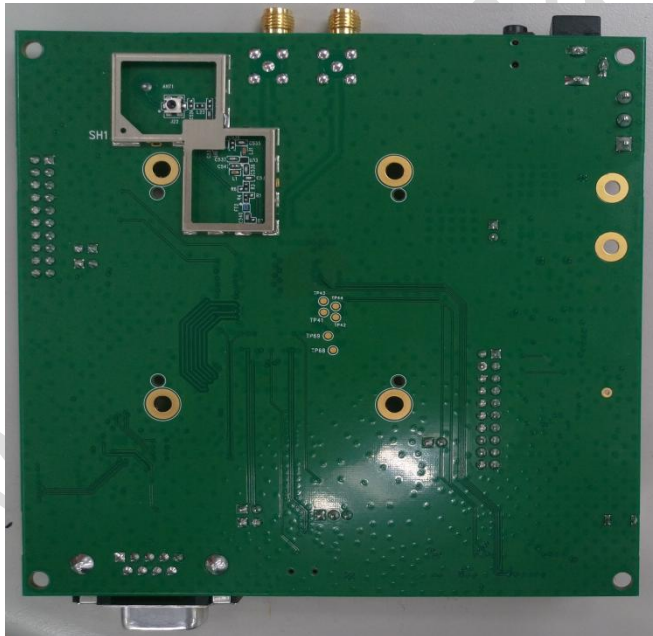
The location of A12Q7-R:



Top view:

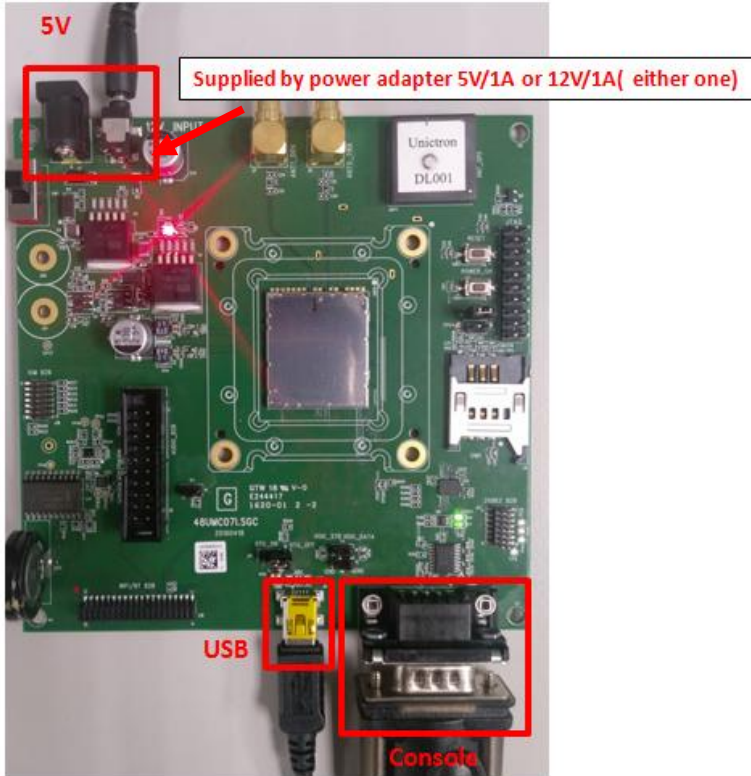


Bottom view:



2.2 HW connection and power on sequence

Connection:

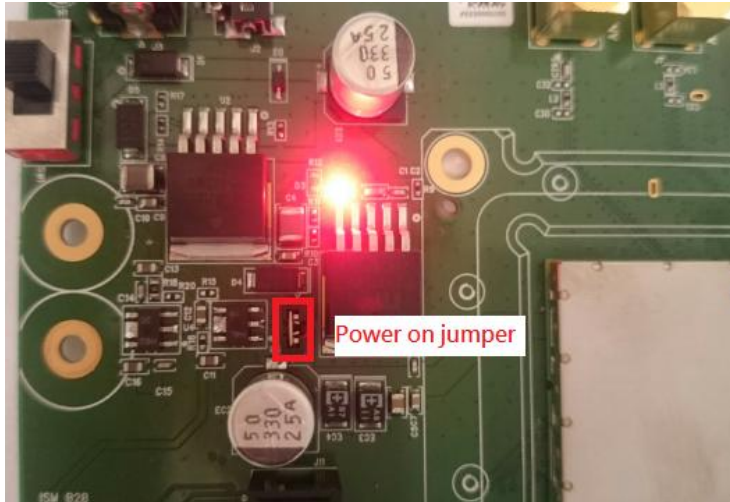


Procedures for powering on module:

Step1: Connecting DC12V/5V adapter to the DC jack and sliding the switch to the “ON state”



Step 2: Check if power LED lights on, which indicates external power supplies to the interface board

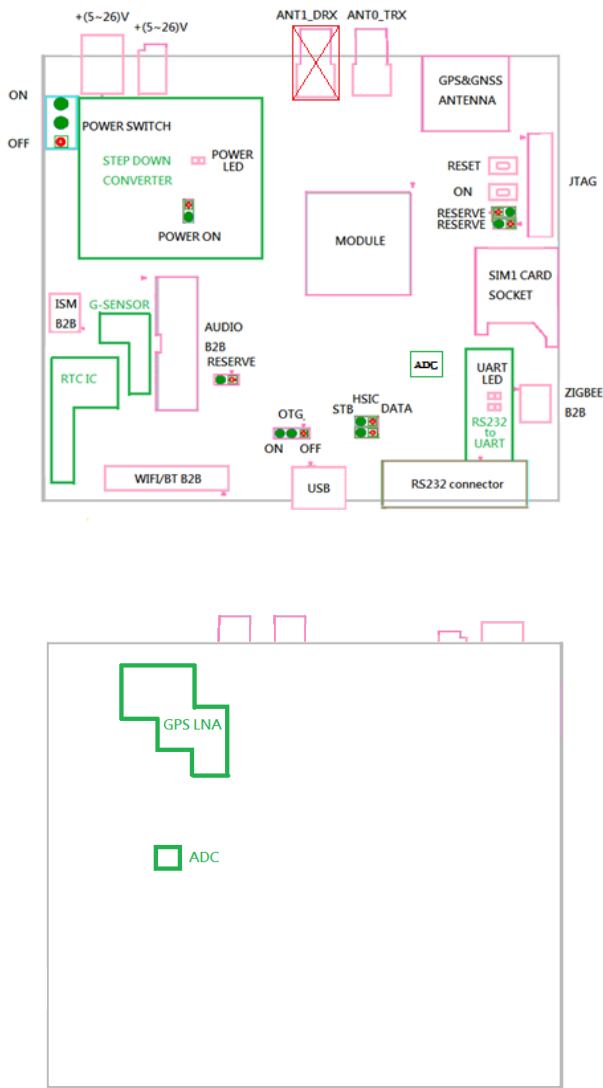


Step3: Press the button of power switch to enable module



2.3 Connectors and switches

The following pictures show the locations for all of connectors and switches. Please note that only ANT0_TRX connector works for RF connection. There is no diversity for Cat.M1.

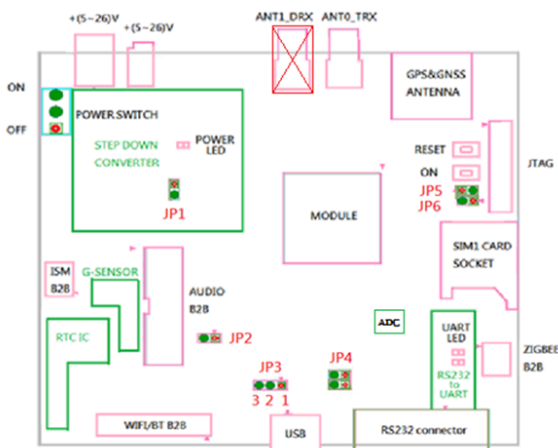


Connectors/functions	Description	Comment
ANT1_DRX	Reserved	N/A

WIFI/BT B2B	Reserved	N/A
G sensor	Reserved	N/A
Audio B2B	Reserved	N/A
RTC	Reserved	N/A

2.4 The configuration by adjusting jumpers

Below figure shows the location of each jumper on developing board. And the configurations for all of jumpers are addressed in below table. The testers can change it by their own according to different test conditions.



Jumper	Description	Comment
JP1	Module power	Provide LTE module power when JP1 had connection.
JP2	Force_USB_BOOT	N/A

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JP3	USB detection	Pin12: Enable USB detection, Pin23: Disable USB detection
JP4	HSIC	N/A
JP5	Power on	LTE module automatic power on when JP5 had connection.
JP6	Reserved	N/A

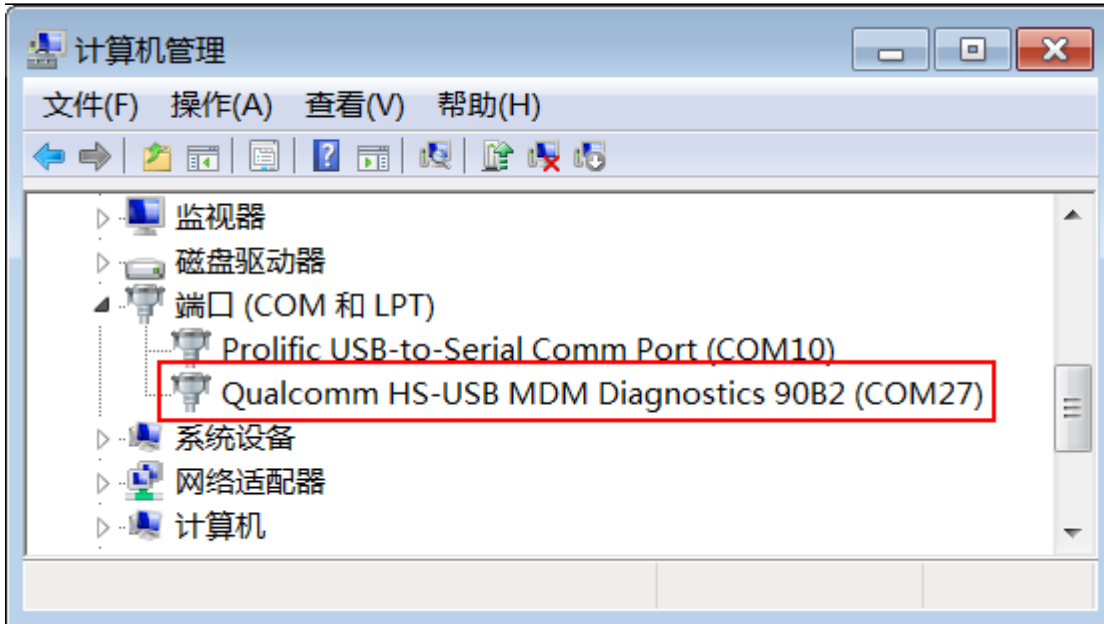
3. Interfaces

This module offers following interfaces to communicate with module. Before using USB emulated ports, it requires to install the Qualcomm's USB driver on your windows PC at first.

After driver installation is finished, device manager will show below USB emulated COM ports.

3.1 Qualcomm HS-USB MDM Diagnostics 90B2 (COM port)

This port is created for modem debugging purpose and used by Qualcomm PC tools to communicate with the module. Qualcomm's tool is protected by Qualcomm License.



3.2 Qualcomm HS-USB WWAN Adapter 90B2

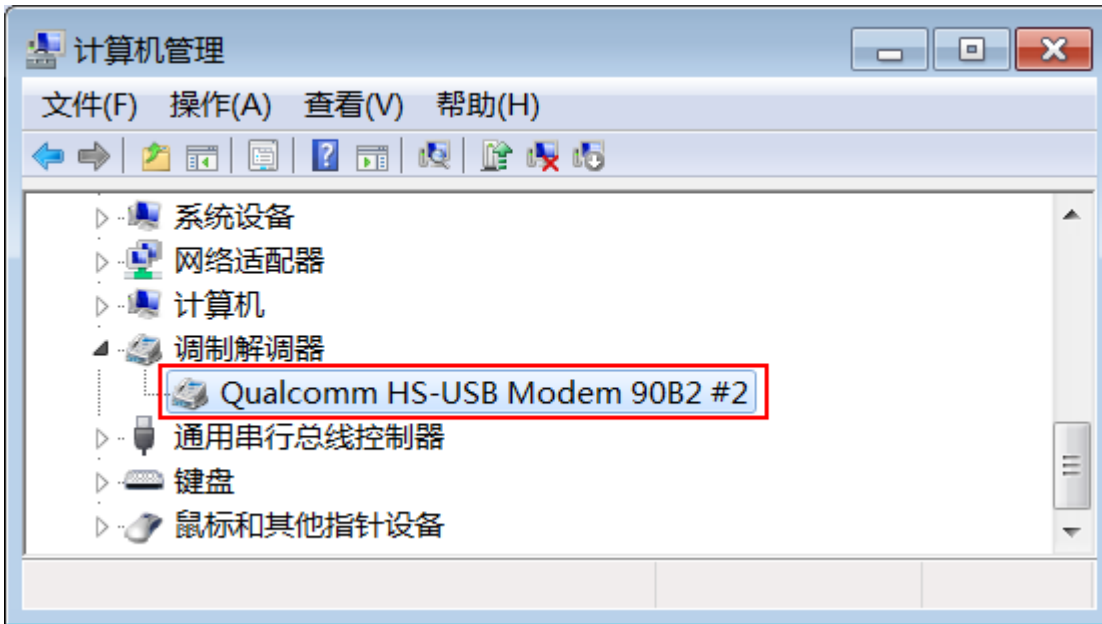
This port is created as a virtual network interface which could be used by PC to connect with Internet.

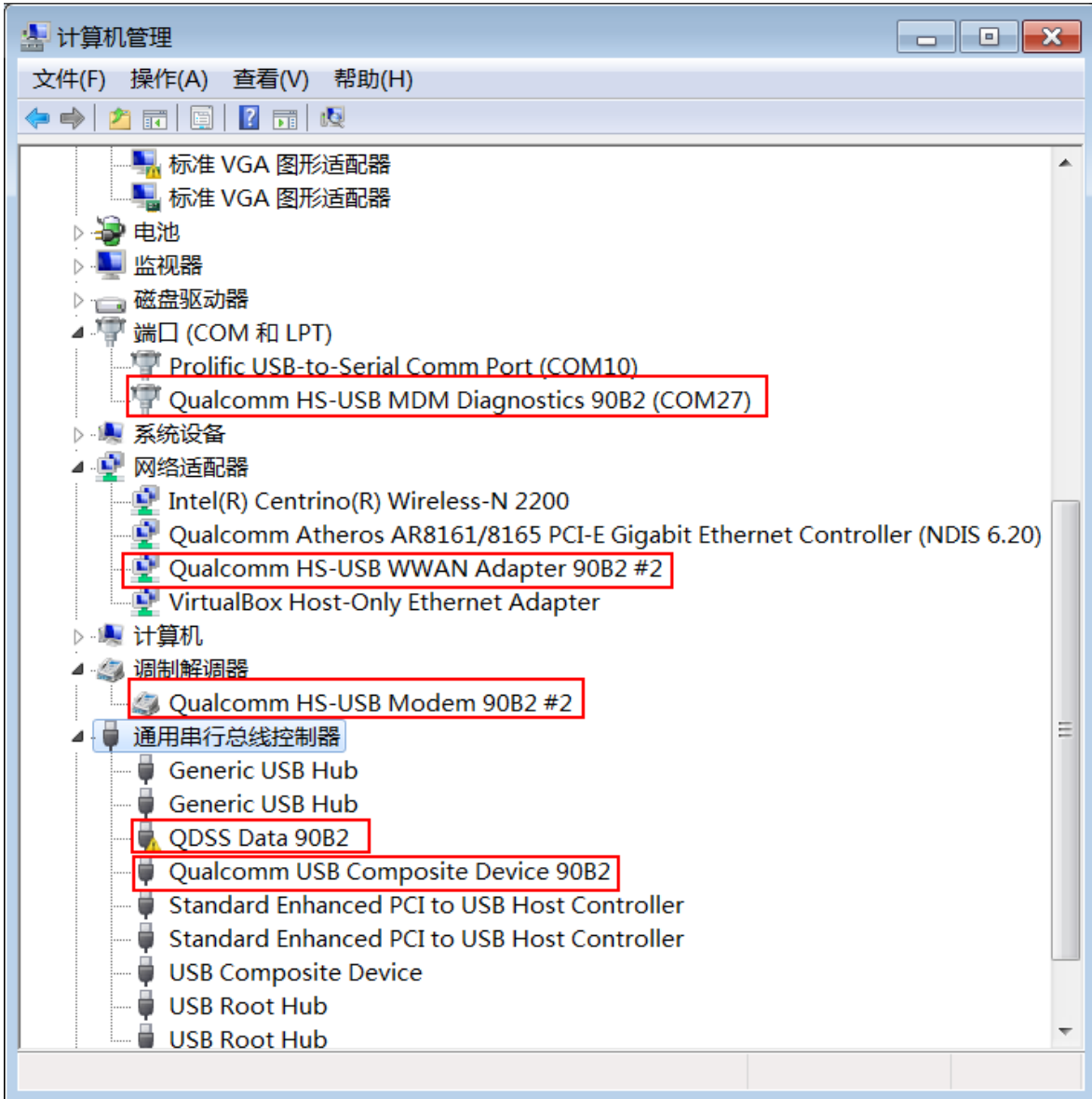


3.3 Qualcomm HS-USB Modem 90B2

This port is also called as modem port. Testers could use PC terminal tool to connect with the port and

send AT commands to control modem directly.





4. Federal Communication Commission Interference

Statement

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.

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 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 technician for help.

FCC Caution:

- Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.
- This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

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Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

This device is intended only for OEM integrators under the following conditions:

- 1) The antenna must be installed such that 20 cm is maintained between the antenna and users, and the maximum antenna gain allowed for use with this device is -4.39 dBi.
- 2) The transmitter module may not be co-located with any other transmitter or antenna.

As long as 2 conditions above are met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed.

IMPORTANT NOTE:

In the event that these conditions cannot be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID cannot be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

End Product Labeling:

This transmitter module is authorized only for use in device where the antenna may be installed such that 20 cm may be maintained between the antenna and users. The final end product must be labeled in a visible area with the following: "Contains FCC ID: NKR-LMA12Q7. The grantee's FCC ID can be used only when all FCC compliance requirements are met."

Manual Information to the End User:

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product which integrates this module. The end user manual shall include all required regulatory information/warning as show in this manual.

Appendix I

Environmental Setup

1. Windows 7 x64

The environment setup was tested on Windows 7 x64 successfully.

2. USB driver

QUD.WIN.1.1 Installer-10037.3 will be needed to be installed for the following ports:

- Qualcomm HS-USB MDM Diagnostics 90B2
- Qualcomm HS-USB MDM WWAN Adapter 90B2
- Qualcomm USB Composite Device 90B2
- QDSS Data 90B2
- Qualcomm HS-USB Modem 90B2