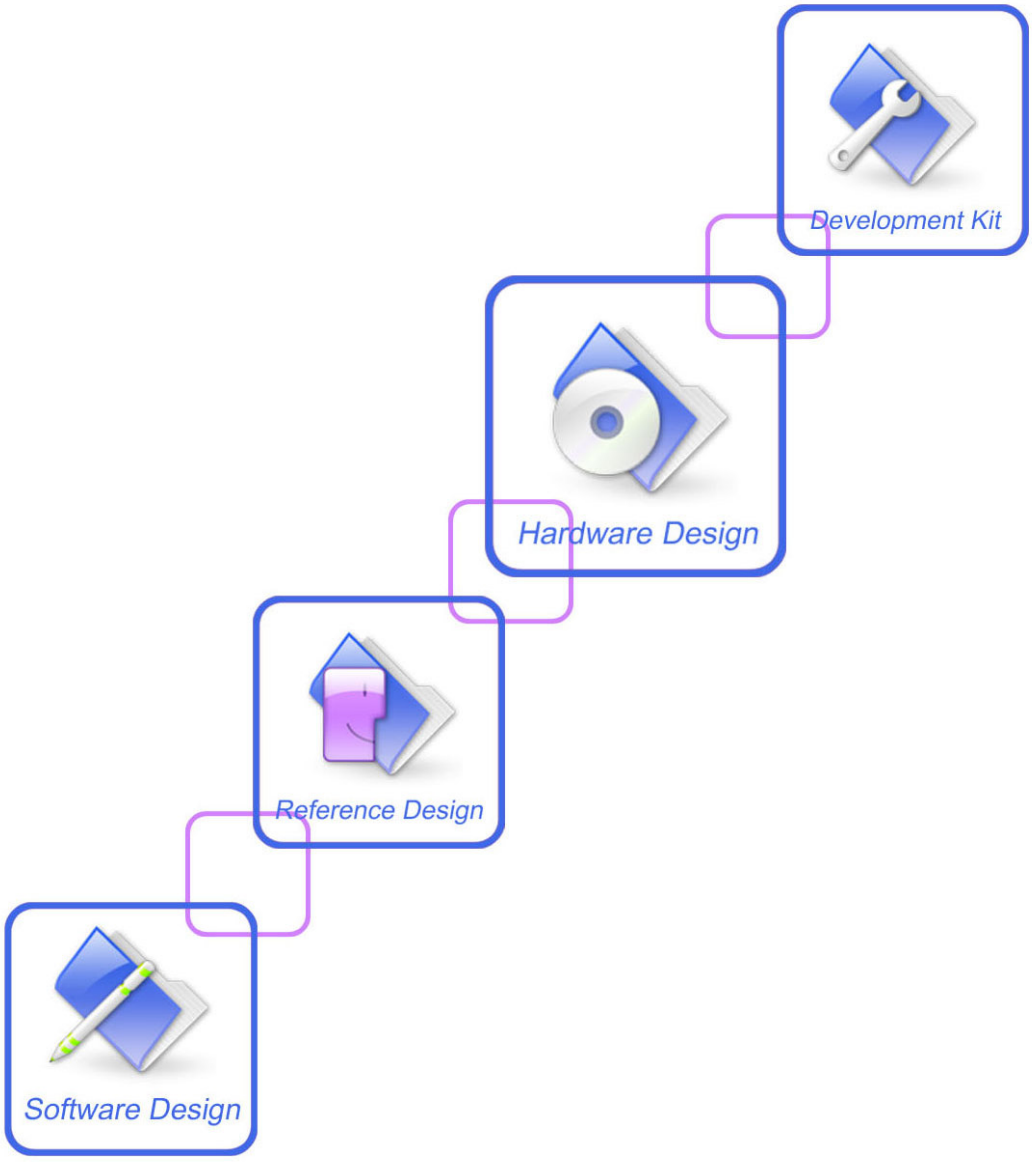
V-ME900 Mini PCI Express Card

V-ME900_V1.0



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General Notes

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Copyright

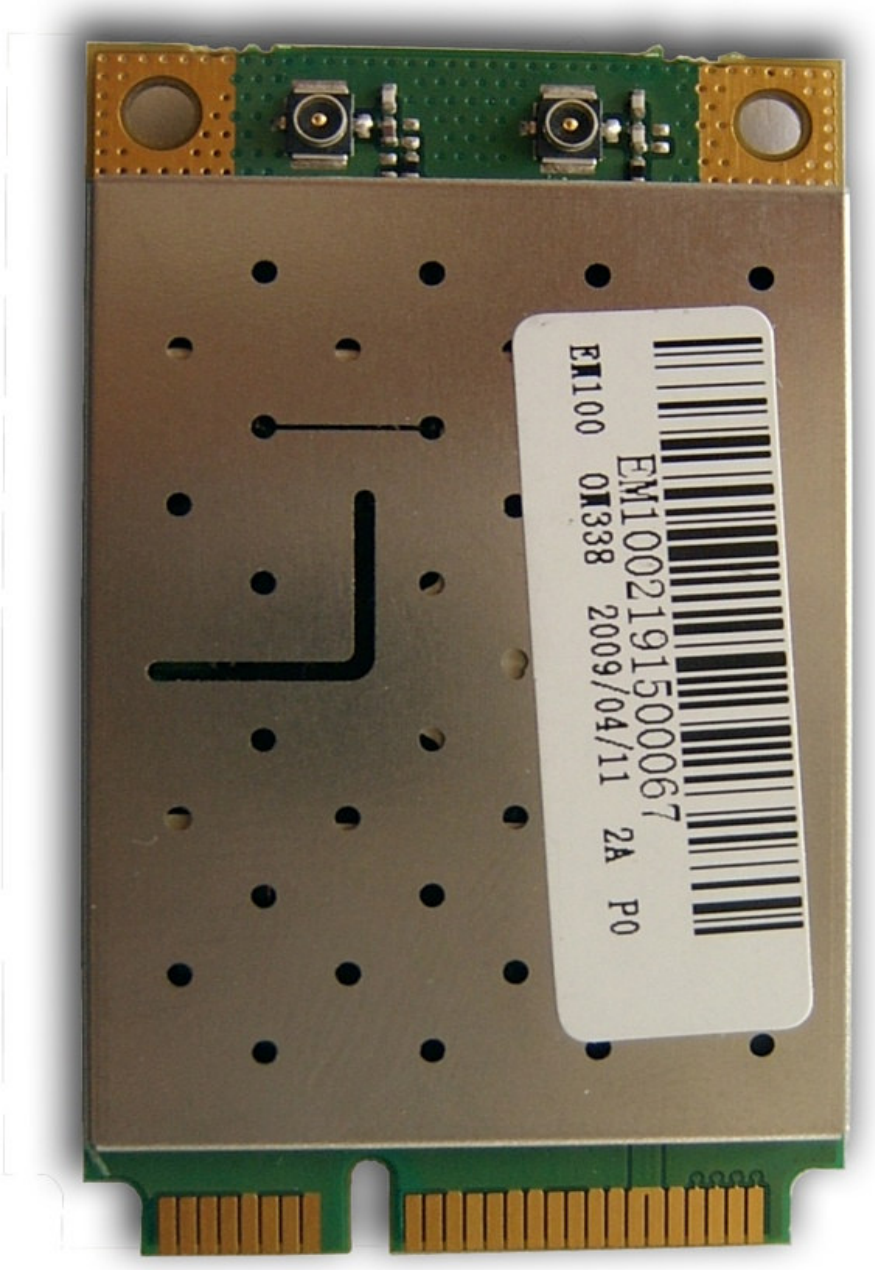
Version history

Data	Version	Description of change	Author
2010-10-9	01.00	Origin	

Table of Contents

1. Description

V-ME900 is a EVDO REV.A Mini PCI Express Card, it support BC0, BC1 dual band operation, GPSone can also be supported. To optimize data throughput at multipath condition, RX diversity is designed in for two bands.



2 . Standard

□《PCI Express Mini Card Electromechanical Specification Revision 1.2, October 26 2007》

□ IS-866(CDMA 1xEV-DO Rev A)
□ IS-866(CDMA 1xEV-DO Rev 0)
□ IS-856-A(CDMA 1xEV-DO Rev A)
□ IS-856(CDMA 1xEV-DO Rev 0)
□ IS-2000(CDMA 1xRTT)
□ IS-707-A Data
□ IS-683-A Service Provisioning
□ Microsoft WHQL
□ USB2.0

3 . General Specification

Item	Specification	Remarks
Interface type	PCI Express Mini Card	
Protocol	CDMA 2000 1x/ EVDO Release0/EVDO Release A	IS95A/B compatible
Chipset	QSC6085	
Frequency	CDMA BC0/BC1	
Data Service	CDMA2000 1X	DL:153.6KBPS UL: 153.6KBPS
	EVDO REV.0	DL:2.4MBPS UL: 153.6KBPS
	EVDO REV.A	DL:3.1MBPS UL: 1.8MBPS
RX Diversity	Support BC0 and BC1	
GPSone	Support	
OTASP	Support	IS-683
AT Command	Support	
RUIM	Standard 6 PIN Interface	
USB Interface	USB2.0	
Antenna	Integrated	
Supported OS	Widows XP/Vista/Win7	

	MAC OS 10.5/10.6 or above	
PST	Support	
Dimensions	51mm*30 mm *4.7 mm	
Weight	About 30g	
Operation temperature	-30~60℃	

4. Interface

Pin Definition

PIN#	NAME	definition	PIN#	NAME	definition
1	WAKE#	Reserved	2	3.3Vaux	VDD_3V3
3	COEX1	Reserved	4	GND	GND
5	COEX2	Reserved	6	1.5V	Reserved
7	CLKREQ#	Reserved	8	RUIM_PWR	RUSIM_POWER
9	GND	GND	10	RUIM_DATA	RUIM_DATA
11	REFCLK-	Reserved	12	RUIM_CLK	RUIM_CLK
13	REFCLK+	Reserved	14	RUIM_RESET	RUIM_RESET
15	GND	GND	16	RUIM_VPP	RUIM_VPP
17	Reserved	Reserved	18	GND	GND
19	Reserved	Reserved	20	W_DISABLE#	W_DISABLE_N
21	GND	GND	22	PERST#	PERST_N
23	PERn0	Reserved	24	+3.3Vaux	VDD_3V3
25	PERp0	Reserved	26	GND	GND
27	GND	GND	28	+1.5V	Reserved
29	GND	GND	30	SMB_CLK	Reserved
31	PETn0	Reserved	32	SMB_DATA	Reserved
33	PETn0	Reserved	34	GND	GND
35	GND	GND	36	USB_D-	USB Signal, D-
37	GND	GND	38	USB_D+	USB Signal, D+
39	+3.3Vaux	VDD_3V3	40	GND	GND
41	+3.3Vaux	VDD_3V3	42	LED_WWAN#	LED_WWAN_N
43	GND	GND	44	LED_WLAN#	Reserved
45	AUX_PCM_CLK	Optional	46	LED_WPAN#	Reserved
47	AUX_PCM_DOUT	Optional	48	+1.5V	Reserved
49	AUX_PCM_DIN	Optional	50	GND	GND
51	AUX_PCM_SYNC	Optional	52	+3.3Vaux	VDD_3V3

NOTE1:The interface of laptop side should meet electrical specification in《PCI Express Mini Card Electromechanical Specification Revision 1.2, October 26 2007》

NOTE2: If R-UIM card is used, ESD protection should be adopted at laptop side

Function Pin Description

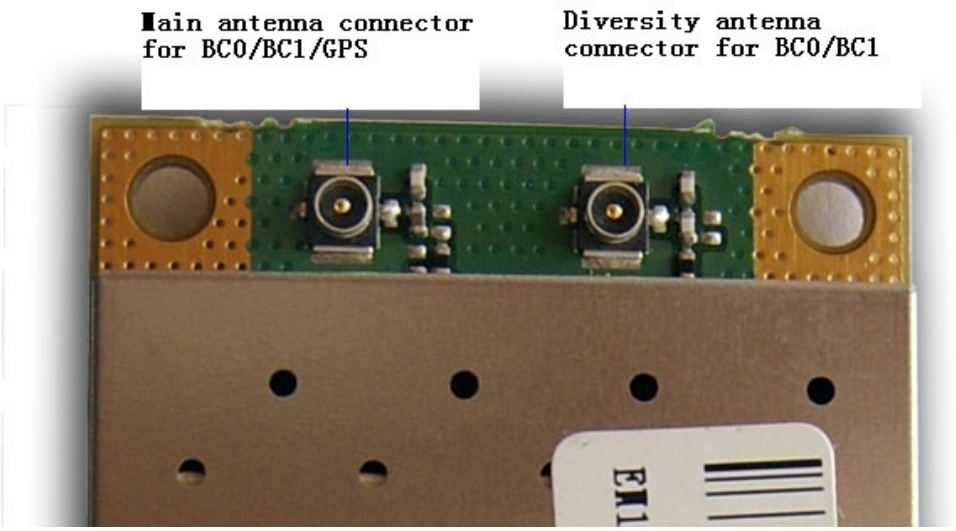
Pin	Name	Description
2,24,39,41,52	+3.3Vaux	3.3V DC supply rail from the PC side.
8	RUIM_PWR	Power source for external UIM/SIM
10	RUIM_DATA	UIM/SIM data signal.
12	RUIM_CLK	UIM/SIM clock signal.
14	RUIM_RESET	UIM/SIM reset signal.
16	RUIM_VPP	Power source for external UIM/SIM
20	W_DISABLE#	Logic input, For close wireless communications
22	PERST#	Logic input, Force hardware reset the card.
42	LED_WWAN#	Logic output, indicating the state of the card It can also at as a current sink to drive LED directly, it's drive current strength can be up to 40mA

Recommended Operating Condition

Parameter	Min	Type	Max	Unit
+3.3Vaux	3.3	3.4	3.5	V
Logic High	2.0	3.4	3.5	V
Logic low	-0.5	0	0.8	V
Operating Temp	-30	25	60	□

5. RF Connector Description

RF connector use Murata company's MM9329-2700RA1。



When connect antenna and RF connector on board, we recommend using Murata's RF cable MXTK92TK1000, length is decided by custom。

6. Antenna Performance Recommendation

Main Antenna

Frequency Band	824~894Mhz	1850~1990Mhz	1575.42MHz
VSWR in Free Space	<2:1	<2:1	<2:1
Peak Gain in Free Space	>0dBi	>0dBi	>0dBi
3-D Average Gain in Free Space	>-3 dBi	>-3 dBi	>-3 dBi
Antenna Efficiency	>50%	>50%	>50%

Diversity Antenna：

Frequency Band	869~894Mhz	1930~1990Mhz
VSWR in Free Space	<2:1	<2:1
Secondary-to-Primary Antenna Isolation	>15db	>15db
Average gain lower than main antenna	<5db	<5db

FCC Statement

FCC Part 15.105(b)

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.

FCC Part 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 that is received, including any interference that may cause undesired operation.

FCC Part 15.21

NOTE: THE MANUFACTURER IS NOT RESPONSIBLE FOR ANY RADIO OR TV INTERFERENCE CAUSED BY UNAUTHORIZED MODIFICATIONS TO THIS EQUIPMENT. SUCH MODIFICATIONS COULD VOID THE USER’S AUTHORITY TO OPERATE THE EQUIPMENT.

RF 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 transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

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
2) The transmitter module may not be co-located with any other transmitter or antenna,
3) For all products market in US, OEM has to limit the operation frequency by supplied firmware programming tool. OEM shall not supply any tool or info to the end-user regarding to Regulatory Domain change.

As long as 3 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 (for example, digital device emissions, PC peripheral requirements, etc.).

IMPORTANT NOTE: In the event that these conditions can not 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 can not 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: YHGV-ME900”.

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.