EC2x&EG2x-G&EG9x Series
USB Descriptor Introduction

LTE Standard Module Series

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About the Document

Revision History

Version	Date	Author	Description
-	2020-09-08	Zoffy YU	Creation of the document
1.0	2020-10-12	Zoffy YU	First official release
1.1	2021-02-13	Zoffy YU	1. Added the applicable modules EG21-G, EG25-G, EG91 series and EG95 series. 2. Updated the product identifier of the device descriptor (Table 4).

Contents

Table Index

1 Introduction

This document mainly introduces the USB descriptors of Quectel LTE Standard EC2x series, EG2x-G and EG9x series modules. Host identifies USB devices (modules) through descriptors, including device descriptor, configuration descriptor, interface descriptor, endpoint descriptor, and string descriptor (optional).

1.1. Applicable Modules

Table 1: Applicable Modules

Module Series	Module
EC2x	EC21 series
	EC25 series
	EC20-CE
EG2x-G	EG21-G
	EG25-G
EG9x	EG91 series
	EG95 series

2 Overview

The overview of the USB descriptors is as follows.

Table 2: USB Descriptor Overview

USB Descriptors	Functions	Remarks
Device descriptor	Describes the general information of the USB device, including all device configurations, such as the USB protocol version number used by the USB device, device type, and other device parameter information	A device has only one device descriptor.
Configuration descriptor	Describes the configuration information of a specific USB device, such as the number of supported interfaces, method of power supply etc.	A device can have multiple configuration descriptors. The number of interfaces supported by a configuration is determined by the *bNumInterfaces* of the configuration descriptor.
Interface descriptor	Describes a specific interface of one specific configuration	When a configuration supports multiple interfaces, all endpoint descriptors of that interface are often returned as part of a configuration descriptor. The interface descriptor cannot be accessed directly using *GetDescriptor()* or *SetDescriptor()*.
Endpoint descriptor	Describes the general information of USB endpoints	Each endpoint in the USB device has its own endpoint descriptor, whose number is determined by the *bNumEndpoint* of the interface descriptor.
String descriptor (optional)	Saves some text information such as supplier name and product serial number	● The string descriptor consists of three fields in a fixed order. The total length of the descriptor is not fixed, and varies with the number of strings and the length of the information. ● Optional. If a string descriptor is

	not supported, all string descriptor indexes in the device, configuration, and interface descriptors must be 0.

When the Host is connected to the EC2x series, EG2x-G and EG9x series modules, the module defaults to display 6 ports (see 0–5 as shown in the table below). All supported USB ports have different functions, see the table below for details.

Table 3: Module USB Interface Description

Interface No.	Interface Name	Description
0	DM interface	Diagnose port.
1	Modem interface	For PPP connection and AT command transmission
2	NMEA interface	For GPS NMEA sentence outputting
3	AT interface	For AT command transmission
4	USB net interface	For network driver
5	ADB interface	Android debug bridge
6	Audio control interface	For audio controlling
7	Microphone interface	For microphone
8	Loudspeaker interface	For loudspeaker
9	ADB interface	Android debug bridge

For the interface descriptors of USB interfaces, see ***Chapter 3.3***.

NOTE

Interfaces 6, 7, 8 and 9 are not listed by default, and can be enabled with **AT+QCFG="usbcfg"**. For detailed information about this command, see ***document [1]***.

3 USB Descriptors

EC2x series, EG2x-G and EG9x series modules are USB composite communication devices. After the module's USB driver is installed in the Windows or Linux operating system, the operating system automatically reads the device descriptor and configuration descriptor of the module, and at the same time creates a specified interface based on the interface descriptor of the configuration descriptor.

This chapter introduces the device descriptor, configuration descriptor, interface descriptor and endpoint descriptor of the EC2x series, EG9x series and EG2x-G modules (the string descriptor does not need to be used).

NOTE

EC2x series, EG2x-G and EG9x series modules support the configuration network card dialing methods as ECM, RNDIS, NDIS and MBIM. The Linux system can automatically read the descriptor information, and the Windows system needs to install the above drivers before it can automatically read.

3.1. Device Descriptor

This chapter introduces the USB device descriptor of EC2x series, EG2x-G and EG9x series modules.

Table 4: USB Device Descriptor

Parameter	Meaning	Value		
		Decimal	Hex	Description
bLength	Descriptor size; Unit: byte	18	0x12	18 bytes
bDescriptorType	Descriptor type	1	0x01	Device descriptor
bcdUSB	Version number of the USB specification that the device is compliant for.	512	0x0200	USB version 2.0
bDeviceClass	Device class code	239	0xEF	Hybrid device

bDeviceSubClass	Device subclass code. Assigned by device class code		2	0x02	2
bDeviceProtocol	Protocol code		1	0x01	IAD - Interface Association Descriptor
bMaxPacketSize0	Maximum packet size allowed for endpoint zero (0). Unit: byte.		64	0x40	64 bytes
idVendor	Vendor identifier		11388	0x2C7C	Quectel Wireless Solutions Technologies Co., Ltd
idProduct	Product identifier	EC21 series	289	0x121	EC21
		EC25 series	293	0x125	EC25
		EC20-CE	288	0x120	EC20
		EG21-G	289	0x121	EG21
		EG25-G	293	0x125	EG25
		EG91 series	401	0x191	EG91
		EG95 series	405	0x195	EG95
bcdDevice	Device factory number		792	0x0318	792
iManufacturer	Index of the string descriptor describing the manufacturer		1	0x01	1
iProduct	Index of the string descriptor describing the product		2	0x02	2
iSerialNumber	Index of the string descriptor containing device's serial number		0	0x00	0
bNumConfigurations	Number of device configuration descriptors		1	0x01	1

3.2. Configuration Descriptor

This chapter introduces the USB configuration descriptor of EC2x series, EG2x-G and EG9x series modules.

Table 5: USB Configuration Descriptor

Parameter	Meaning	Value		
		Decimal	Hex	Description
bLength	Descriptor size; Unit: byte	9	0x09	9 bytes
bDescriptorType	Descriptor type	2	0x02	Configuration descriptor
wTotalLength	Total length of data returned for this configuration. Unit: byte.	428	0x01AC	428 bytes
bNumInterface	Number of interfaces supported by this configuration	10	0x0A	10 interfaces
bConfigurationValue	Configuration value. Only used when the system software of a USB device driver needs it.	1	0x01	Configuration 1
iConfiguration	Index of the string descriptor describing this configuration	0	0x00	No string descriptor
bmAttributes	USB device characteristics	224	0xA0	224
bmAttributes.Reserved D7	The 7th byte of *bmAttributes* is reserved	1	0x01	1
bmAttributes.SelfPowered	Whether to power the USB device through USB_VBUS	1	0x00	Yes
bmAttributes.RemoteWakeup	Remote wakeup mode	1	0x01	1
bmAttributes.Reserved D4..0	The 4th byte of *bmAttributes* is reserved	0	0x00	0
bMaxPower	Amount of power required in this configuration when the USB device is fully operational, expressed in units of 2 mA.	250	0xFA	500 mA

3.3. Interface Descriptors

This chapter introduces the USB interface descriptors of EC2x series, EG2x-G and EG9x series modules.

3.3.1. Interface 0 (DM Interface)

Table 6: Interface Descriptor of Interface 0

Parameter	Meaning	Value		
		Decimal	Hex	Description
bLength	Descriptor size. Unit: byte.	9	0x09	9 bytes
bDescriptorType	Descriptor type	4	0x04	Interface descriptor
bInterfaceNumber	Interface number	0	0x00	0
bAlternateSetting	Used to identify different interface descriptors of the same interface	0	0x00	0
bNumEndpoints	Number of endpoints used by the interface	2	0x02	2 endpoints
bInterfaceClass	Interface class code	2	0x02	2
bInterfaceSubClass	Interface subclass code	6	0x06	6
bInterfaceProtocol	Interface protocol code	0	0x00	0
iInterface	Index of the string descriptor describing the interface	0	0x00	0

3.3.1.1. Endpoint Descriptor 0

Table 7: Endpoint Descriptor 0 of Interface 0

Parameter	Meaning	Value		
		Decimal	Hex	Description
bLength	Descriptor size. Unit: byte.	7	0x07	7 bytes
bDescriptorType	Descriptor type	5	0x05	Endpoint descriptor

bEndpointAddress	Endpoint address	129	0x81	Direction = IN EndpointID = 129
bmAttributes	Endpoint transfer type expressed in two-bitmap	2	0x02	TransferType = Bulk
wMaxPacketSize	The maximum packet size that this endpoint can send or receive. Unit: byte.	512	0x0200	512 bytes
bInterval	The interval between polling endpoints when a data transmission interruption occurs. Unit: milliseconds.	0	0x00	0

3.3.1.2. Endpoint Descriptor 1

Table 8: Endpoint Descriptor 1 of Interface 0

Parameter	Meaning	Value		
		Decimal	Hex	Description
bLength	Descriptor size. Unit: byte.	7	0x07	7 bytes
bDescriptorType	Descriptor type	5	0x05	Endpoint descriptor
bEndpointAddress	Endpoint address	1	0x01	Direction = OUT EndpointID = 1
bmAttributes	Endpoint transfer type expressed in two-bitmap	2	0x02	TransferType = Bulk
wMaxPacketSize	The maximum packet size that this endpoint can send or receive. Unit: byte.	512	0x0200	512 bytes
bInterval	The interval between polling endpoints when a data transmission interruption occurs. Unit: milliseconds.	0	0x00	0

3.3.2. Interface 1 (NMEA Interface)

Table 9: Interface Descriptor of Interface 1

Parameter	Meaning	Value		
		Decimal	Hex	Description
bLength	Descriptor size. Unit: byte.	9	0x09	9 bytes
bDescriptorType	Descriptor type	4	0x04	Interface descriptor
bInterfaceNumber	Interface number	1	0x01	1
bAlternateSetting	Used to identify different interface descriptors of the same interface	0	0x00	0
bNumEndpoints	Number of endpoints used by the interface	3	0x03	3 endpoints
bInterfaceClass	Interface class code	255	0xFF	255
bInterfaceSubClass	Interface subclass code	0	0x00	0
bInterfaceProtocol	Interface protocol code	0	0x00	0
iInterface	Index of the string descriptor describing the interface	0	0x00	0

3.3.2.1. Endpoint Descriptor 0

Table 10: Endpoint Descriptor 0 of Interface 1

Parameter	Meaning	Value		
		Decimal	Hex	Description
bLength	Descriptor size. Unit: byte.	7	0x07	7 bytes
bDescriptorType	Descriptor type	5	0x05	Endpoint descriptor
bEndpointAddress	Endpoint address	131	0x83	Direction = IN EndpointID = 131
bmAttributes	Endpoint transfer type expressed in two-bitmap	3	0x03	TransferType = Interrupt
wMaxPacketSize	The maximum packet size	10	0x0A	10 bytes

	that this endpoint can send or receive. Unit: byte.			
bInterval	The interval between polling endpoints when a data transmission interruption occurs. Unit: milliseconds.	9	0x09	9 ms

3.3.2.2. Endpoint Descriptor 1

Table 11: Endpoint Descriptor 1 of Interface 1

Parameter	Meaning	Value		
		Decimal	Hex	Description
bLength	Descriptor size. Unit: byte.	7	0x07	7 bytes
bDescriptorType	Descriptor type	5	0x05	Endpoint descriptor
bEndpointAddress	Endpoint address	130	0x82	Direction = OUT EndpointID = 130
bmAttributes	Endpoint transfer type expressed in two-bitmap	2	0x02	TransferType = Bulk
wMaxPacketSize	The maximum packet size that this endpoint can send or receive. Unit: byte.	512	0x0200	512 bytes
bInterval	The interval between polling endpoints when a data transmission interruption occurs. Unit: milliseconds.	0	0x00	0

3.3.2.3. Endpoint Descriptor 2

Table 12: Endpoint Descriptor 2 of Interface 1

Parameter	Meaning	Value		
		Decimal	Hex	Description
bLength	Descriptor size. Unit: byte.	7	0x07	7 bytes

bDescriptorType	Descriptor type	5	0x05	Endpoint descriptor
bEndpointAddress	Endpoint address	2	0x02	Direction = OUT EndpointID = 2
bmAttributes	Endpoint transfer type expressed in two-bitmap	2	0x02	TransferType = Bulk
wMaxPacketSize	The maximum packet size that this endpoint can send or receive. Unit: byte.	512	0x0200	512 bytes
bInterval	The interval between polling endpoints when a data transmission interruption occurs. Unit: milliseconds.	0	0x00	0

3.3.3. Interface 2 (AT Interface)

Table 13: Interface Descriptor of Interface 2

Parameter	Meaning	Value		
		Decimal	Hex	Description
bLength	Descriptor size. Unit: byte.	9	0x09	9 bytes
bDescriptorType	Descriptor type	4	0x04	Interface descriptor
bInterfaceNumber	Interface number	2	0x02	2
bAlternateSetting	Used to identify different interface descriptors of the same interface	0	0x00	0
bNumEndpoints	Number of endpoints used by the interface	3	0x03	3 endpoints
bInterfaceClass	Interface class code	255	0xFF	255
bInterfaceSubClass	Interface subclass code	0	0x00	0
bInterfaceProtocol	Interface protocol code	0	0x00	0
iInterface	Index of the string descriptor describing the interface	0	0x00	0

3.3.3.1. Endpoint Descriptor 0

Table 14: Endpoint Descriptor 0 of Interface 2

Parameter	Meaning	Value		
		Decimal	Hex	Description
bLength	Descriptor size. Unit: byte.	7	0x07	7 bytes
bDescriptorType	Descriptor type	5	0x05	Endpoint descriptor
bEndpointAddress	Endpoint address	133	0x85	Direction = IN EndpointID = 133
bmAttributes	Endpoint transfer type expressed in two-bitmap	3	0x03	TransferType = Interrupt
wMaxPacketSize	The maximum packet size that this endpoint can send or receive. Unit: byte.	10	0x0A	10 bytes
bInterval	The interval between polling endpoints when a data transmission interruption occurs. Unit: milliseconds.	9	0x09	9 ms

3.3.3.2. Endpoint Descriptor 1

Table 15: Endpoint Descriptor 1 of Interface 2

Parameter	Meaning	Value		
		Decimal	Hex	Description
bLength	Descriptor size. Unit: byte.	7	0x07	7 bytes
bDescriptorType	Descriptor type	5	0x05	Endpoint descriptor
bEndpointAddress	Endpoint address	132	0x84	Direction = IN EndpointID = 132
bmAttributes	Endpoint transfer type expressed in two-bitmap	2	0x02	TransferType = Bulk
wMaxPacketSize	The maximum packet size that this endpoint can send or receive. Unit: byte.	512	0x0200	512 bytes

bInterval	The interval between polling endpoints when a data transmission interruption occurs. Unit: milliseconds.	0	0x00	0

3.3.3.3. Endpoint Descriptor 2

Table 16: Endpoint Descriptor 2 of Interface 2

Parameter	Meaning	Value		
		Decimal	Hex	Description
bLength	Descriptor size. Unit: byte.	7	0x07	7 bytes
bDescriptorType	Descriptor type	5	0x05	Endpoint descriptor
bEndpointAddress	Endpoint address	3	0x03	Direction = OUT EndpointID = 3
bmAttributes	Endpoint transfer type expressed in two-bitmap	2	0x02	TransferType = Bulk
wMaxPacketSize	The maximum packet size that this endpoint can send or receive. Unit: byte.	512	0x0200	512 bytes
bInterval	The interval between polling endpoints when a data transmission interruption occurs. Unit: milliseconds.	0	0x00	0

3.3.4. Interface 3 (Modem Interface)

Table 17: Interface Descriptor of Interface 3

Parameter	Meaning	Value		
		Decimal	Hex	Description
bLength	Descriptor size. Unit: byte.	9	0x09	9 bytes
bDescriptorType	Descriptor type	4	0x04	Interface descriptor
bInterfaceNumber	Interface's number	3	0x03	3

bAlternateSetting	Used to identify different interface descriptors of the same interface	0	0x00	0
bNumEndpoints	Number of endpoints used by the interface	3	0x03	3 endpoints
bInterfaceClass	Interface class code	255	0xFF	255
bInterfaceSubClass	Interface subclass code	0	0x00	0
bInterfaceProtocol	Interface protocol code	0	0x00	0
iInterface	Index of the string descriptor describing the interface	0	0x00	0

3.3.4.1. Endpoint Descriptor 0

Table 18: Endpoint Descriptor 0 of Interface 3

Parameter	Meaning	Value		
		Decimal	Hex	Description
bLength	Descriptor size. Unit: byte.	7	0x07	7 bytes
bDescriptorType	Descriptor type	5	0x05	Endpoint descriptor
bEndpointAddress	Endpoint address	135	0x87	Direction = IN EndpointID = 135
bmAttributes	Endpoint transfer type expressed in two-bitmap	3	0x03	TransferType = Interrupt
wMaxPacketSize	The maximum packet size that this endpoint can send or receive. Unit: byte.	10	0x0A	10 bytes
bInterval	The interval between polling endpoints when a data transmission interruption occurs. Unit: milliseconds.	9	0x09	9 ms

3.3.4.2. Endpoint Descriptor 1

Table 19: Endpoint Descriptor 1 of Interface 3

Parameter	Meaning	Value		
		Decimal	Hex	Description
bLength	Descriptor size. Unit: byte.	7	0x07	7 bytes
bDescriptorType	Descriptor type	5	0x05	Endpoint descriptor
bEndpointAddress	Endpoint address	134	0x86	Direction = IN EndpointID = 134
bmAttributes	Endpoint transfer type expressed in two-bitmap	2	0x02	TransferType = Bulk
wMaxPacketSize	The maximum packet size that this endpoint can send or receive. Unit: byte.	512	0x0200	512 bytes
bInterval	The interval between polling endpoints when a data transmission interruption occurs. Unit: milliseconds.	0	0x00	0

3.3.4.3. Endpoint Descriptor 2

Table 20: Endpoint Descriptor 2 of Interface 3

Parameter	Meaning	Value		
		Decimal	Hex	Description
bLength	Descriptor size. Unit: byte.	7	0x07	7 bytes
bDescriptorType	Descriptor type	5	0x05	Endpoint descriptor
bEndpointAddress	Endpoint address	4	0x04	Direction = OUT EndpointID = 4
bmAttributes	Endpoint transfer type expressed in two-bitmap	2	0x02	TransferType = Bulk
wMaxPacketSize	The maximum packet size that this endpoint can send or receive. Unit: byte.	512	0x0200	512 bytes

bInterval	The interval between polling endpoints when a data transmission interruption occurs. Unit: milliseconds.	0	0x00	0

3.3.5. Interface 4 (USB Net Interface)

Table 21: Interface Descriptor of Interface 4

Parameter	Meaning	Value		
		Decimal	Hex	Description
bLength	Descriptor size. Unit: byte.	9	0x09	9 bytes
bDescriptorType	Descriptor type	4	0x04	Interface descriptor
bInterfaceNumber	Interface's number	4	0x04	4
bAlternateSetting	Used to identify different interface descriptors of the same interface	0	0x00	0
bNumEndpoints	Number of endpoints used by the interface	3	0x03	3 endpoints
bInterfaceClass	Interface class code	255	0xFF	255
bInterfaceSubClass	Interface subclass code	255	0xFF	255
bInterfaceProtocol	Interface protocol code	255	0xFF	255
iInterface	Index of the string descriptor describing the interface	0	0x00	0

3.3.5.1. Endpoint Descriptor 0

Table 22: Endpoint Descriptor 0 of Interface 4

Parameter	Meaning	Value		
		Decimal	Hex	Description
bLength	Descriptor size. Unit: byte.	7	0x07	7 bytes

bDescriptorType	Descriptor type	5	0x05	Endpoint descriptor
bEndpointAddress	Endpoint address	137	0x89	Direction = IN EndpointID = 137
bmAttributes	Endpoint transfer type expressed in two-bitmap	3	0x03	TransferType = Interrupt
wMaxPacketSize	The maximum packet size that this endpoint can send or receive. Unit: byte.	8	0x0008	8 bytes
bInterval	The interval between polling endpoints when a data transmission interruption occurs. Unit: milliseconds.	9	0x09	9 ms

3.3.5.2. Endpoint Descriptor 1

Table 23: Endpoint Descriptor 1 of Interface 4

Parameter	Meaning	Value		
		Decimal	Hex	Description
bLength	Descriptor size. Unit: byte.	7	0x07	7 bytes
bDescriptorType	Descriptor type	5	0x05	Endpoint descriptor
bEndpointAddress	Endpoint address	136	0x88	Direction = IN EndpointID = 136
bmAttributes	Endpoint transfer type expressed in two-bitmap	2	0x02	TransferType = Bulk
wMaxPacketSize	The maximum packet size that this endpoint can send or receive. Unit: byte.	512	0x0200	512 bytes
bInterval	The interval between polling endpoints when a data transmission interruption occurs. Unit: milliseconds.	0	0x00	0

3.3.5.3. Endpoint Descriptor 2

Table 24: Endpoint Descriptor 2 of Interface 4

Parameter	Meaning	Value		
		Decimal	Hex	Description
bLength	Descriptor size. Unit: byte.	7	0x07	7 bytes
bDescriptorType	Descriptor type	5	0x05	Endpoint descriptor
bEndpointAddress	Endpoint address	2	0x02	Direction = OUT EndpointID = 2
bmAttributes	Endpoint transfer type expressed in two-bitmap	2	0x02	TransferType = Bulk
wMaxPacketSize	The maximum packet size that this endpoint can send or receive. Unit: byte.	512	0x0200	512 bytes
bInterval	The interval between polling endpoints when a data transmission interruption occurs. Unit: milliseconds.	0	0x00	0

3.3.6. Interface 5 (ADB Interface)

Table 25: Interface Descriptor of Interface 5

Parameter	Meaning	Value		
		Decimal	Hex	Description
bLength	Descriptor size. Unit: byte.	9	0x09	9 bytes
bDescriptorType	Descriptor type	4	0x04	Interface descriptor
bInterfaceNumber	Interface's number	5	0x05	5
bAlternateSetting	Used to identify different interface descriptors of the same interface	0	0x00	0
bNumEndpoints	Number of endpoints used by the interface	2	0x02	2 endpoints

bInterfaceClass	Interface class code	255	0xFF	255
bInterfaceSubClass	Interface subclass code	66	0x42	66
bInterfaceProtocol	Interface protocol code	1	0x01	1
iInterface	Index of the string descriptor describing the interface	7	0x07	7

3.3.6.1. Endpoint Descriptor 0

Table 26: Endpoint Descriptor 0 of Interface 5

Parameter	Meaning	Value		
		Decimal	Hex	Description
bLength	Descriptor size. Unit: byte.	7	0x07	7 bytes
bDescriptorType	Descriptor type	5	0x05	Endpoint descriptor
bEndpointAddress	Endpoint address	6	0x06	Direction = IN EndpointID = 6
bmAttributes	Endpoint transfer type expressed in two-bitmap	2	0x02	TransferType = Bulk
wMaxPacketSize	The maximum packet size that this endpoint can send or receive. Unit: byte.	512	0x0200	512 bytes
bInterval	The interval between polling endpoints when a data transmission interruption occurs. Unit: milliseconds.	0	0x00	0

3.3.6.2. Endpoint Descriptor 1

Table 27: Endpoint Descriptor 1 of Interface 5

Parameter	Meaning	Value		
		Decimal	Hex	Description
bLength	Descriptor size. Unit: byte.	7	0x07	7 bytes

bDescriptorType	Descriptor type	5	0x05	Endpoint descriptor
bEndpointAddress	Endpoint address	138	0x8A	Direction = IN EndpointID = 138
bmAttributes	Endpoint transfer type expressed in two-bitmap.	2	0x02	TransferType = Bulk
wMaxPacketSize	The maximum packet size that this endpoint can send or receive. Unit: byte.	512	0x0200	512 bytes
bInterval	The interval between polling endpoints when a data transmission interruption occurs. Unit: milliseconds.	0	0x00	0

3.3.7. Interface 6 (Audio Control Interface)

Table 28: Interface Descriptor of Interface 6

Parameter	Meaning	Value		
		Decimal	Hex	Description
bLength	Descriptor size. Unit: byte.	9	0x09	9 bytes
bDescriptorType	Descriptor type	4	0x04	Interface descriptor
bInterfaceNumber	Interface's number	6	0x06	6
bAlternateSetting	Used to identify different interface descriptors of the same interface	0	0x00	0
bNumEndpoints	Number of endpoints used by the interface	0	0x00	0
bInterfaceClass	Interface class code	1	0x01	1
bInterfaceSubClass	Interface subclass code	1	0x01	1
bInterfaceProtocol	Interface protocol code	0	0x00	0
iInterface	Index of the string descriptor describing the interface	8	0x08	8

3.3.8. Interface 7 (Microphone Interface)

Table 29: Interface Descriptor of Interface 7

Parameter	Meaning	Value		
		Decimal	Hex	Description
bLength	Descriptor size. Unit: byte.	9	0x09	9 bytes
bDescriptorType	Descriptor type	4	0x04	Interface descriptor
bInterfaceNumber	Interface's number	7	0x07	7
bAlternateSetting	Used to identify different interface descriptors of the same interface	0	0x00	0
bNumEndpoints	Number of endpoints used by the interface	1	0x01	1 endpoint
bInterfaceClass	Interface class code	1	0x01	1
bInterfaceSubClass	Interface subclass code	2	0x02	2
bInterfaceProtocol	Interface protocol code	0	0x00	0
iInterface	Index of the string descriptor describing the interface	0	0x00	0

3.3.8.1. Endpoint Descriptor 0

Table 30: Endpoint Descriptor 0 of Interface 7

Parameter	Meaning	Value		
		Decimal	Hex	Description
bLength	Descriptor size. Unit: byte.	9	0x09	9 bytes
bDescriptorType	Descriptor type	5	0x05	Endpoint descriptor
bEndpointAddress	Endpoint address	139	0x8B	Direction = IN EndpointID = 139
bmAttributes	Endpoint transfer type expressed in two-bitmap	5	0x05	TransferType = Isochronous

wMaxPacketSize	The maximum packet size that this endpoint can send or receive. Unit: byte.	2047	0x07FF	2047 bytes

3.3.9. Interface 8 (Loudspeaker Interface)

Table 31: Interface Descriptor of Interface 8

Parameter	Meaning	Value		
		Decimal	Hex	Description
bLength	Descriptor size. Unit: byte.	9	0x09	9 bytes
bDescriptorType	Descriptor type	4	0x04	Interface descriptor
bInterfaceNumber	Interface's number	8	0x08	8
bAlternateSetting	Used to identify different interface descriptors of the same interface	0	0x00	0
bNumEndpoints	Number of endpoints used by the interface	0	0x00	0
bInterfaceClass	Interface class code	1	0x01	1
bInterfaceSubClass	Interface subclass code	2	0x02	2
bInterfaceProtocol	Interface protocol code	0	0x00	0
iInterface	Index of the string descriptor describing the interface	13	0x0D	13

3.3.10. Interface 9 (ADB Interface)

Table 32: Interface Descriptor of Interface 9

Parameter	Meaning	Value		
		Decimal	Hex	Description
bLength	Descriptor size. Unit: byte.	9	0x09	9 bytes
bDescriptorType	Descriptor type	4	0x04	Interface descriptor

bInterfaceNumber	Interface's number	9	0x09	9
bAlternateSetting	Used to identify different interface descriptors of the same interface	0	0x00	0
bNumEndpoints	Number of endpoints used by the interface	2	0x02	2 endpoints
bInterfaceClass	Interface class code	255	0xFF	255
bInterfaceSubClass	Interface subclass code	66	0x42	66
bInterfaceProtocol	Interface protocol code	1	0x01	1
iInterface	Index of the string descriptor describing the interface	7	0x07	7

3.3.10.1. Endpoint Descriptor 0

Table 33: Endpoint Descriptor 0 of Interface 9

Parameter	Meaning	Value		
		Decimal	Hex	Description
bLength	Descriptor size. Unit: byte.	7	0x07	7 bytes
bDescriptorType	Descriptor type	5	0x05	Endpoint descriptor
bEndpointAddress	Endpoint address	8	0x08	Direction = OUT EndpointID = 8
bmAttributes	Endpoint transfer type expressed in two-bitmap	2	0x02	TransferType = Bulk
wMaxPacketSize	The maximum packet size that this endpoint can send or receive. Unit: byte.	512	0x0200	512 bytes
bInterval	The interval between polling endpoints when a data transmission interruption occurs. Unit: milliseconds.	0	0x00	0

3.3.10.2. Endpoint Descriptor 1

Table 34: Endpoint Descriptor 1 of Interface 9

Parameter	Meaning	Value		
		Decimal	Hex	Description
bLength	Descriptor size. Unit: byte.	7	0x07	7 bytes
bDescriptorType	Descriptor type	5	0x05	Endpoint descriptor
bEndpointAddress	Endpoint address	140	0x8C	Direction = IN EndpointID = 140
bmAttributes	Endpoint transfer type expressed in two-bitmap	2	0x02	TransferType = Bulk
wMaxPacketSize	The maximum packet size that this endpoint can send or receive. Unit: byte.	512	0x0200	512 bytes
bInterval	The interval between polling endpoints when a data transmission interruption occurs. Unit: milliseconds.	0	0x00	0

4 Appendix References

Table 35: Related Documents

Document Name
[1] Quectel_EC2x& EG2x-G&EG9x&EM05_Series_QCFG_AT_Commands_Manual

Table 36: Terms and Abbreviations

Abbreviation	Description
ADB	Android Debug Bridge
CDC	Communications Device Class
ECM	Ethernet Networking Control Model
GPS	Global Positioning System
IAD	Interface Association Descriptor
LTE	Long-Term Evolution
NMEA	NMEA (National Marine Electronics Association) 0183 Interface Standard
PPP	Point to Point Protocol
RNDIS	Remote Network Driver Interface Specification
USB	Universal Serial Bus