



SIM7070_SIM7080_SIM7090 Series_CRXFTM _Application Note

LPWA Module

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About Document

Version History

Version	Date	Owner	What is new
V1.00	2022.01.18	zhiqiang.bai	First Release

Scope

This document applies to the following products

Name	Type	Size(mm)	Comments
SIM7080G	CAT-M/NB	17.6*15.7*2.3	N/A
SIM7070G/SIM7070E	CAT-M/NB/GPRS	24*24*2.4	N/A
SIM7070G-NG	NB/GPRS	24*24*2.4	N/A
SIM7090G	CAT-M/NB	14.8*12.8*2.0	N/A

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1 Introduction

1.1 Purpose of the document

This document will depict the usage of AT+CRXFTM test the receiver and transmitter performance by SIM7070/SIM7080/SIM7090 under FTM (Factory Test Mode) so as to facilitate RF calibration. User can get useful information about the SIM7070/ SIM7080/SIM7090 function quickly through this document.

1.2 Related documents

[1] SIM7070_SIM7080_SIM7090 Series_AT Command Manual

1.3 Conventions and abbreviations

2 CRXFTM Introduction

The function is used to test the receiver and transmitter performance under FTM (Factory Test Mode) so as to facilitate RF calibration.

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3 AT Commands for CRXFTM

Command	Description
AT+CRXFTM	Test Receiver Performance

3.1 AT+CRXFTM Test Receiver Performance

AT+CRPMFTM Test Receiver Performance	
Test Command AT+CRXFTM=?	Response OK
Write Command Set parameter : AT+CRXFTM=<band>,<tx_bw>,<rx_bw>,<channel>,<lna_range>	Response +CRXFTM: SET SUCCESS! OK If error is related to ME functionality: +CME ERROR: <err>
Get rx_agc: AT+CRXFTM=<antenna>	+CRXFTM: <agc_val>,<agc_to_pwr> OK
Parameter Saving Mode	AUTO_SAVE
Max Response Time	-
Reference	

Defined Values

<band>	The band of receiver performance
101	LTE 1 Band
102	LTE 2 Band
103	LTE 3 Band
104	LTE 4 Band
105	LTE 5 Band
108	LTE 8 Band
112	LTE 12 Band
113	LTE 13 Band
114	LTE 14 Band

	118 LTE 18 Band 119 LTE 19 Band 120 LTE 20 Band 125 LTE 25 Band 126 LTE 26 Band 127 LTE 27 Band 128 LTE 28 Band 131 LTE 31 Band 166 LTE 66 Band 171 LTE 71 Band 172 LTE 72 Band 185 LTE 85 Band
	<p>SIM7070G/SIM7080G do not support band 31 and band 72. Please check bands that device supports according to the response of AT+CBANDCFG=?</p>
<channel>	<p>Frequency channel, the range is different, according to different band</p> <p>LTE 1: 18000~18599 LTE 2: 18600~19199 LTE 3: 19200~19949 LTE 4: 19950~20399 LTE 5: 20400~20649 LTE 8: 21450~21799 LTE 11: 22750~22949 LTE 12: 23010~23179 LTE 13: 23180~23279 LTE 14: 23280~23379 LTE 18: 23850~23999 LTE 19: 24000~24149 LTE 20: 24150~24449 LTE 25: 26040~26689 LTE 26: 26690~27039 LTE 27: 27040~27209 LTE 28: 27210~27659 LTE 31: 27760~27809 LTE 66: 131972~132671 LTE 71: 133122~133471 LTE 72: 133472~133521 LTE 85: 134002~134181</p>
<antenna>	0 main antenna
<tx_bw>	Tx band width: 0~2 0 1.4M 1 3M 2 5M
<rx_bw>	RX band width: 0~2

	0 1.4M
	1 3M
	2 5M
<lna_range>	Gain statag: 0~5.The recommended value is 0.
<agc_val>	The result of receiver check in LTE mode:-500~-1100
<agc_to_pwr>	LTE The range is between -50dBm and -110dBm

Example

AT+CRXFTM=?

OK

AT+CRXFTM=103,0,0,19301,0

+CRXFTM: SET SUCCESS!

OK

AT+CRXFTM=0

+CRXFTM: -501,-50

OK

4 CRXFTM Examples

4.1 Test Receiver Performance

```
AT+CFUN=5                                     // Change device to FTM mode and reboot it
OK
```

```
AT+CBANDCFG=?                                 // Query supported bands
+CBANDCFG:(CAT-M,NB-IOT),(1,2,3,4,5,8,12,1
3,14,18,19,20,25,26,27,28,66,71,85)
```

```
OK
```

```
AT+CRXFTM=103,0,0,19301,0                    // config test parameters: band 3 channel 19301
+CRXFTM: SET SUCCESS!
```

```
OK
```

```
AT+CRXFTM=0                                   // Get Rx AGC value
+CRXFTM: -501,-50
```

```
OK
```