



**Hi3861 V100 / Hi3861L V100 RF**

## **Test Guide**

<b>Issue</b>	<b>01</b>
<b>Date</b>	<b>2020-04-30</b>

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# About This Document

## Purpose

This document describes the procedure of the RF non-signaling test and precautions for Hi3861 V100 and Hi3861L V100.

## Related Versions

The following table lists the product versions related to this document.

Product Name	Version
Hi3861	V100
Hi3861L	V100



## Intended Audience

The document is intended for:



- PCB hardware development engineers
- Software engineers
- Technical support engineers

## Symbol Conventions

The following table describes the symbols that may be found in this document.

Symbol	Description
	Indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.
	Indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.



Symbol	Description
 CAUTION	Indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.
NOTICE	Indicates a potentially hazardous situation which, if not avoided, could result in equipment damage, data loss, performance deterioration, or unanticipated results. NOTICE is used to address practices not related to personal injury.
 NOTE	Supplements the important information in the main text. NOTE is used to address information not related to personal injury, equipment damage, and environment deterioration.

## Change History

Issue	Date	Change Description
01	2020-04-30	This issue is the first official release. <ul style="list-style-type: none"><li>Updated the description of the 802.11b, 802.11g, and 802.11n sensitivity specifications and the description of packet transmission by the test instrument in <a href="#">1.3.2 Always RX Command Example</a>.</li></ul>
00B02	2020-04-03	<ul style="list-style-type: none"><li>Added the description of the value 2 in the <b>&lt;control&gt;</b> parameter description in <a href="#">1.2.1 Always TX Command</a>.</li><li>Updated the always RX command of 802.11n/channel 6 in <a href="#">1.3.2 Always RX Command Example</a>.</li></ul>
00B01	2020-01-15	This issue is the first draft release.



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# 1 AT Commands of the RF Test

## [1.1 AT Command Table](#)

## [1.2 Command Description](#)

## [1.3 Examples](#)

### 1.1 AT Command Table

Command	Description
AT+ALTX	Sets always TX.
AT+ALRX	Sets always RX.
AT+RXINFO	Queries always RX information.

### 1.2 Command Description

#### 1.2.1 Always TX Command

Format	AT+ALTX=<control>,<mode>,<bw>,<chn>,<rate>
Response	OK <i>or</i> ERROR



<b>Parameter Description</b>	<p><b>&lt;control&gt;</b>: enable</p> <p>0: disabled</p> <p>1: enabled</p> <p><b>2</b>: The DC signal is always transmitted (used for frequency offset measurement during CE certification).</p> <p><b>&lt;mode&gt;</b>: protocol type</p> <p>0: 802.11n</p> <p>1: 802.11g</p> <p>2: 802.11b</p> <p><b>&lt;bw&gt;</b>: bandwidth</p> <p>5: 5 MHz bandwidth</p> <p>10: 10 MHz bandwidth</p> <p>20: 20 MHz bandwidth</p> <p><b>&lt;chn&gt;</b>: channel ID. Value range: 1–14</p> <p><b>&lt;rate&gt;</b>: transmission rate, in Mbit/s</p> <p>802.11b supports 1, 2, 5.5, and 11.</p> <p>802.11g supports 6, 9, 12, 18, 24, 36, 48, and 54.</p> <p>802.11n supports 0, 1, 2, 3, 4, 5, 6, and 7, indicating MCS0–MCS7.</p>
<b>Example</b>	AT+ALRX=1,0,20,1,7
<b>Note</b>	The value range of <b>&lt;chn&gt;</b> varies according to the country or region. For China, the value range is 1-13.

## 1.2.2 Always RX Command

<b>Format</b>	AT+ALRX=<control>,<mode>,<bw>,<chn>,<mac_filter>
<b>Response</b>	OK <i>or</i> ERROR



<b>Parameter Description</b>	<b>&lt;control&gt;</b> : enable 0: disabled 1: enabled <b>&lt;mode&gt;</b> : protocol type 0: 802.11n 1: 802.11g 2: 802.11b <b>&lt;bw&gt;</b> : bandwidth 5: 5 MHz bandwidth 10: 10 MHz bandwidth 20: 20 MHz bandwidth <b>&lt;chn&gt;</b> : channel ID. Value range: 1-14 <b>&lt;mac_filter&gt;</b> : MAC address filtering enable 0: disabled 1: enabled
<b>Example</b>	AT+ALRX =1,0,20,6,0
<b>Note</b>	The value range of <b>&lt;chn&gt;</b> varies according to the country or region. For China, the value range is 1-13.

### 1.2.3 Always RX Query Command

<b>Format</b>	AT+RXINFO
<b>Response</b>	+ RXINFO:<pktnums> OK <i>or</i> ERROR
<b>Parameter Description</b>	<b>&lt;pktnums&gt;</b> : number of successfully received packets
<b>Example</b>	AT+RXINFO
<b>Note</b>	This command should be executed after the instrument sends packets. The current statistics will then be cleared.

## 1.3 Examples





## 1.3.1 Always TX Command Example

### NOTE

The default transmit power is the target power with a tolerance of 1.5 dB.

For example, the always TX command for transmitting data of 802.11n/20 MHz/channel 6/MCS7 is as follows:

```
AT+STARTSTA
AT+IFCFG=wlan0,down
AT+ALTx=1,0,20,6,7
AT+IFCFG=wlan0,up
```

## 1.3.2 Always RX Command Example

For example, the always RX command for receiving the data of 802.11n/channel 6 is as follows:

```
AT+MAC=8c:22:33:44:55:22
AT+STARTSTA
AT+IFCFG=wlan0,down
AT+ALRX=1,0,20,6,0
AT+IFCFG=wlan0,up
```

After each round of always RX, run the following command to read the number of parsed packets:

```
AT+RXINFO
```

### NOTE

- The 802.11b sensitivity specification is based on 8% PER of 1024 octet PSDU. The 802.11g sensitivity specification is based on 10% PER of the 1024 octet PSDU. The 802.11n sensitivity specification is based on 10% PER of 4096 octet PSDU.
- Ensure that the packets sent by the test instrument contain the actual MAC address (for example, **8c:22:33:44:55:22**). In addition, issue the **AT+MAC** command to ensure that the MAC address of the board is the same as the MAC address of the packets sent by the test instrument.



## 2 Precautions

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Before powering on the device under test (DUT), ensure that its RF port is connected to a 50-ohm load. Otherwise, the power is too high or too low.