



SIM7500_SIM7600 Series Jamming Detection_ Application Note

LTE Module

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About Document

Version History

Version	Date	Owner	What is new
V2.00	2020.8.6	Xiuyi Mei	Update the format
V3.00	2022.02.08	Haotain Wang	Update the format

Scope

This document applies to SIM7500 series and SIM7600 series.

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1 Introduction

1.1 Purpose of the document

This document provides a technical description of how to implement Jamming Detection for automotive devices.

1.2 Related documents

[1] SIM7500_SIM7600 Series_AT Command Manual

1.3 Conventions and abbreviations

Abbreviation	Description
JD	Jamming Detection

2 JD Overview

This chapter describes how Jamming Detection works.

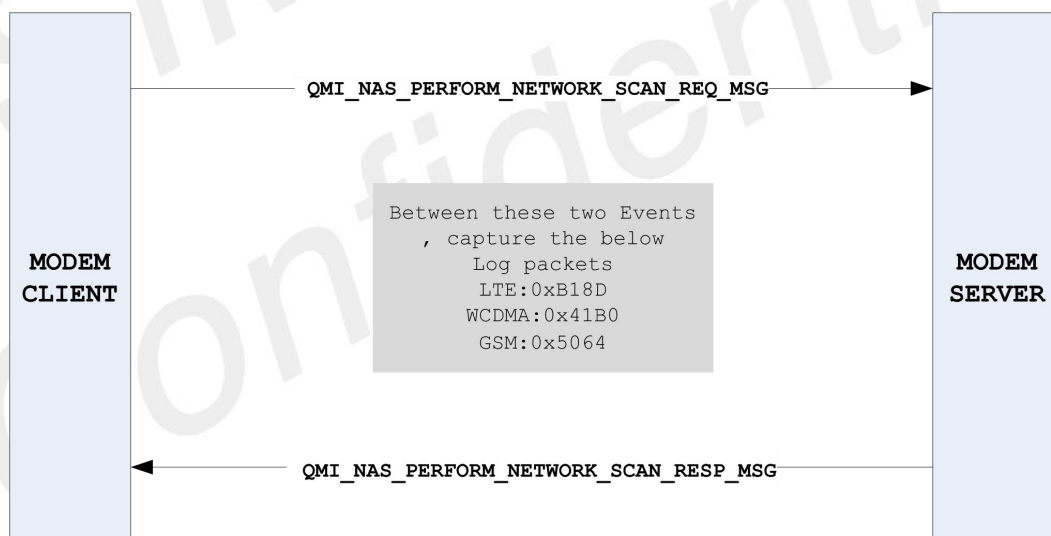
2.1 Feature Description

The following could imply the presence of a jammer.

- The User Equipment (UE) detects high RSSI on a frequency, but does not detect any cell
- PBCH decode fails

Jamming can be detected by implementing QMI_NAS_PERFORM_NETWORK_SCAN to scan LTE/WCDMA/GSM bands at a time.

The following block diagram illustrates the use of QMI API and the log packets used to infer possible jamming.

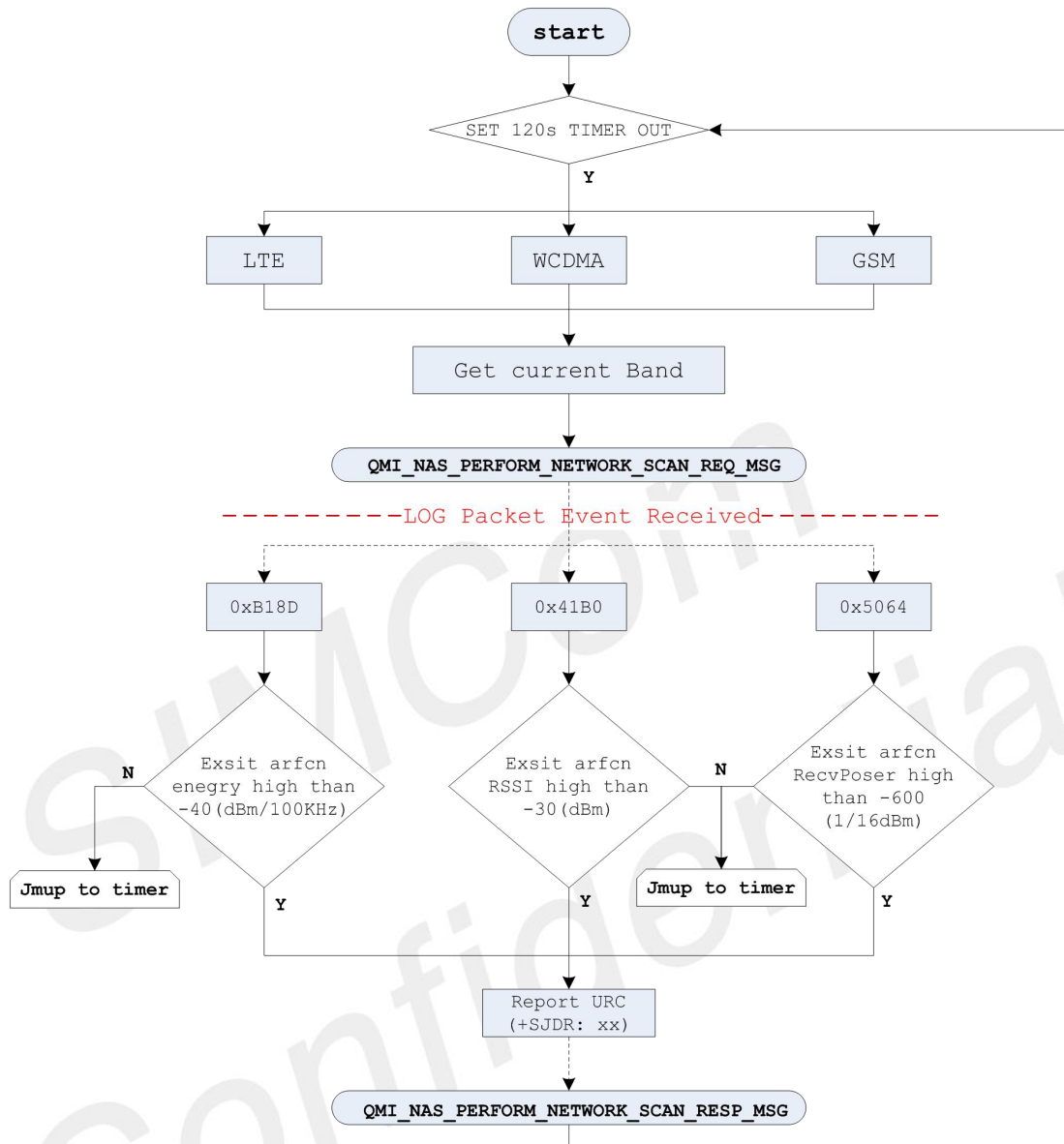


The value in Log packets can be used to get energy estimate.

If no cell is found on a band, no PLMN is reported. However, if the energy estimate is high, then it can be inferred as possible jamming.

2.2 Jamming Detection Methods

The jamming detection URC report methods as follow figure:



3 JD AT flow

```
// Init jamming detection parameters(QMI,timer)
AT+SJDR=1                                // Start jamming detection
OK

+SJDR:
QMI_NAS_GET_NET_SCAN_INIT_FINISHED
AT+SJDR=2                                //Send message, Start timer(120s), Get network para
OK

+SJDR: 30
+SJDR: 60                                // Detect jam, report URC
+SJDR: 80
+SJDR: 80
+SJDR: 100
AT+SJDR=0                                // Stop jamming and clean relevant settings
OK
```

NOTE

- 1) If you have executed "AT+SJDR=1" or " AT+SJDR=2", it not allowed execute again before input "AT+SJDR=0".
- 2) During jamming detection, the timer was set 120s, so the URC maybe not report continuously.