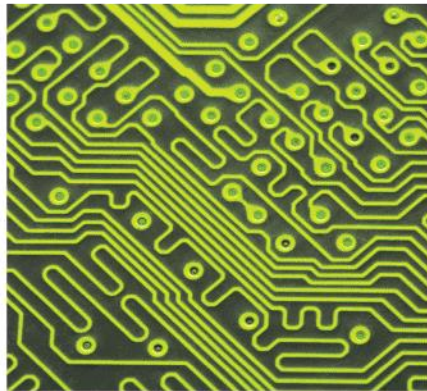


# FLEXTRONICS X



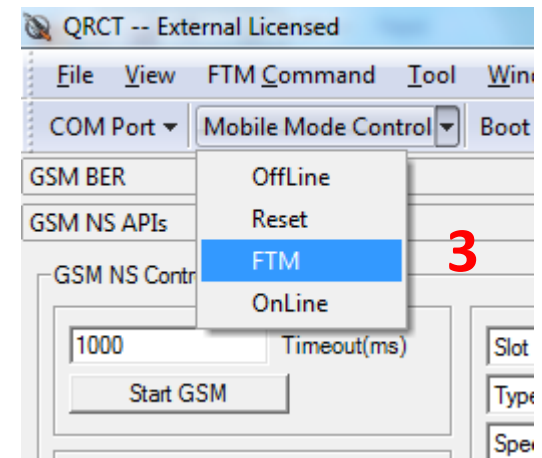
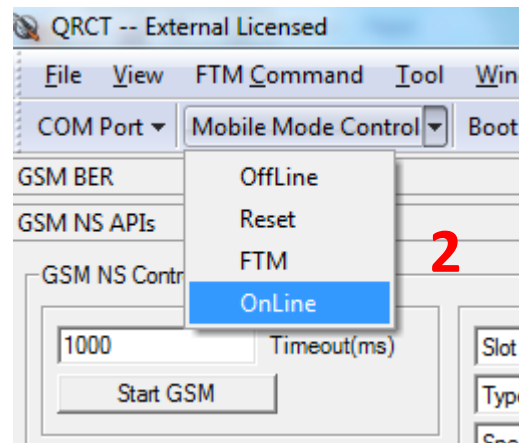
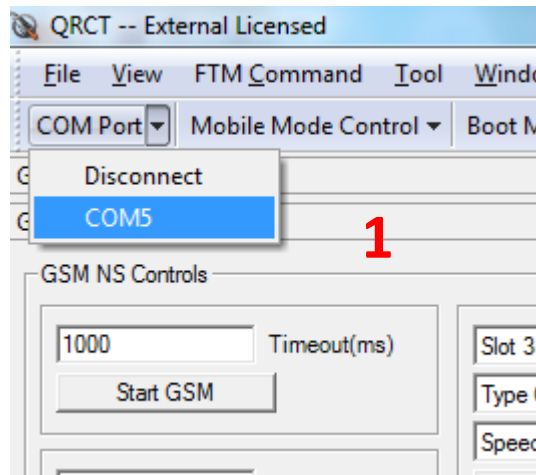
CONFIDENTIAL

## LTE – Non-Signaling\_RX\_TX

Jun 24, 2015

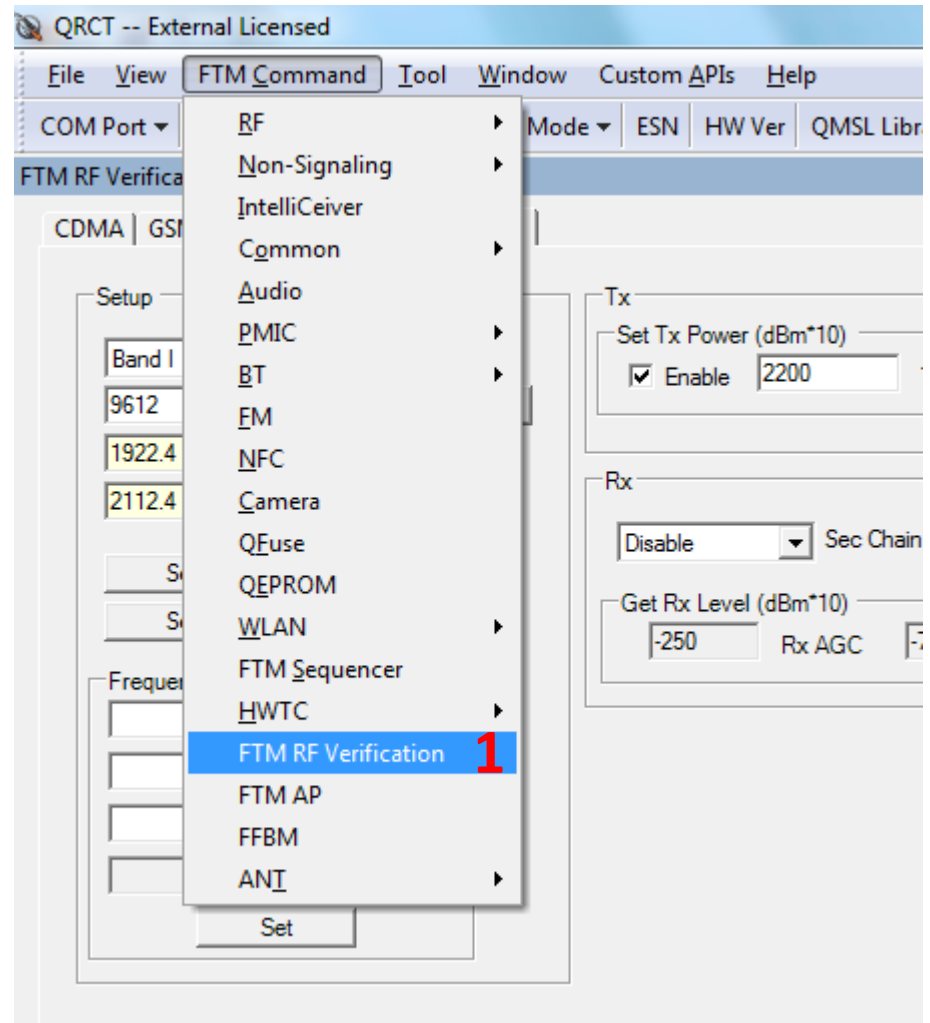
PRODUCT ENGINEERING – FABIO MULLER

# 1 – Abrir o QRCT e estabelecer a comunicação conforme mostrado abaixo:



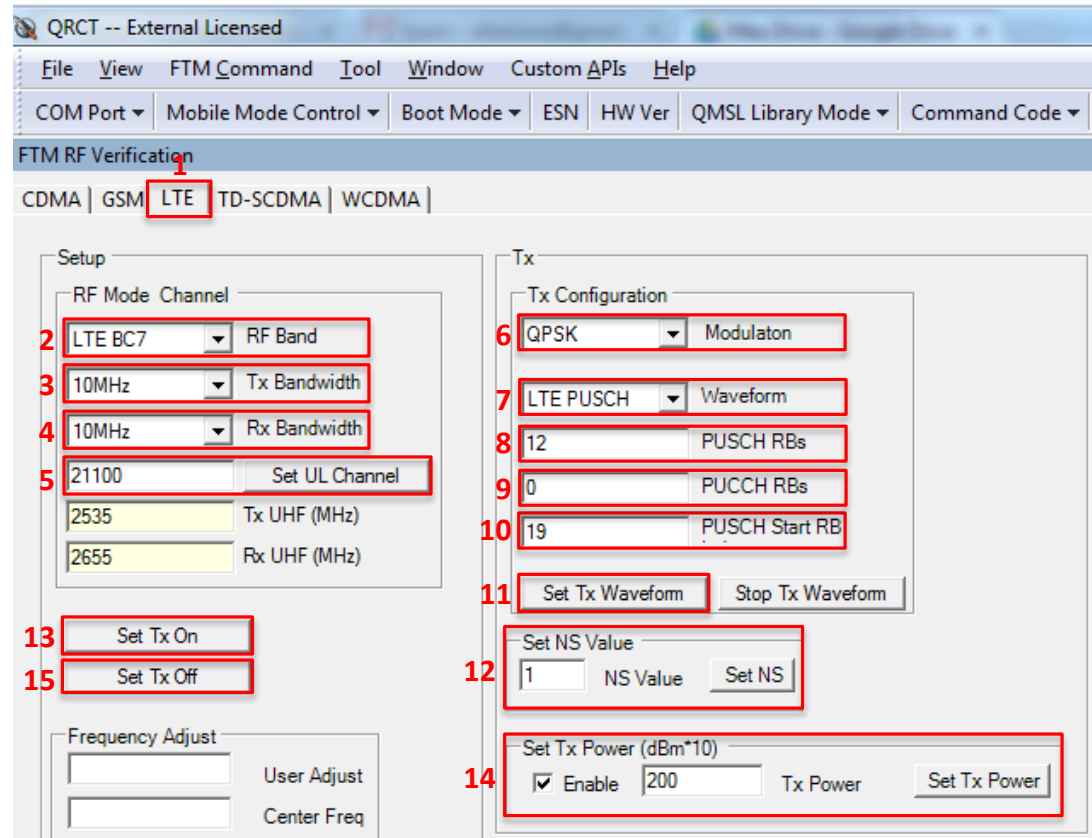
## 2 – Em “FTM Command” selecionar a ferramenta abaixo:

### 1 – FTM RF Verification



# 3 – Setup do LTE\_TX

- 1 – Selecionar à Aba “LTE”
- 2 – RF Band – Escolher a Banda do Teste (Banda 7)
- 3 – Tx Bandwidth – 10MHz
- 4 – Rx Bandwidth – 10MHz
- 5 – Set UL Channel – Canal de TX do Teste
- 6 – Modulation – QPSK
- 7 – Waveform – LTE PUSCH
- 8 – PUSCH RBs – “12”
- 9 – PUCCH RBs – “0”
- 10 – PUSCH Start RB – “19”
- 11 – Set Tx Waveform
- 12 – Set NS Value – “1”
- 13 – Set Tx On
- 14 – Set Tx Power (dBm\*10):
  - Clicar em Enable
  - Ajustar a Potencia desejada multiplicada por 10
  - Set Tx Power
- 15 – Para desligar a Transmissão clicar em - Set Tx Off



## 4 – Setup do LTE\_RX

- 1 – Selecionar à Aba “LTE”
- 2 – RF Band – *Escolher a Banda do Teste (Banda 7)*
- 3 – Tx Bandwidth – *10MHz*
- 4 – Rx Bandwidth – *10MHz*
- 5 – Set UL Channel – *Canal de TX do Teste*
- 6 – Sec Chain:
  - *Main Antenna – Disable*
- 7 – Expected DL Level:
  - *Setar o valor que foi ajustado no Equipamento*
- 8 – Set LNA State
- 9 – Get Rx Level (dBm\*10):
  - *Clicar em “Get”*
  - *A resposta da potencia está multiplicada por 10*

QRCT -- External Licensed

File View FTM Command Tool Window Custom APIs Help

COM Port Mobile Mode Control Boot Mode ESN HW Ver QMSL Library Mode Command Code

FTM RF Verification

CDMA GSM **LTE** TD-SCDMA WCDMA

Setup

RF Mode\_Channel

2 LTE BC7 RF Band

3 10MHz Tx Bandwidth

4 10MHz Rx Bandwidth

5 21100 Set UL Channel

2535 Tx UHF (MHz)

2655 Rx UHF (MHz)

Set Tx On

Set Tx Off

Frequency Adjust

User Adjust

Center Freq

Enable XO

Total Adjust

Set

Tx

Tx Configuration

QPSK Modulation

1MHz offset CW Waveform

PUSCH RBs

PUCCH RBs

PUSCH Start RB

Set Tx Waveform Stop Tx Waveform

Set NS Value

NS Value Set NS

Set Tx Power (dBm\*10)

Enable Tx Power Set Tx Power

Rx

6 Disable Sec Chain

7 -66 Expected DL Level (dBm)

5 LNA State

8 Set LNA State

9 Get Rx Level (dBm\*10)

-619 Rx AGC -619 dBm\*10 Get

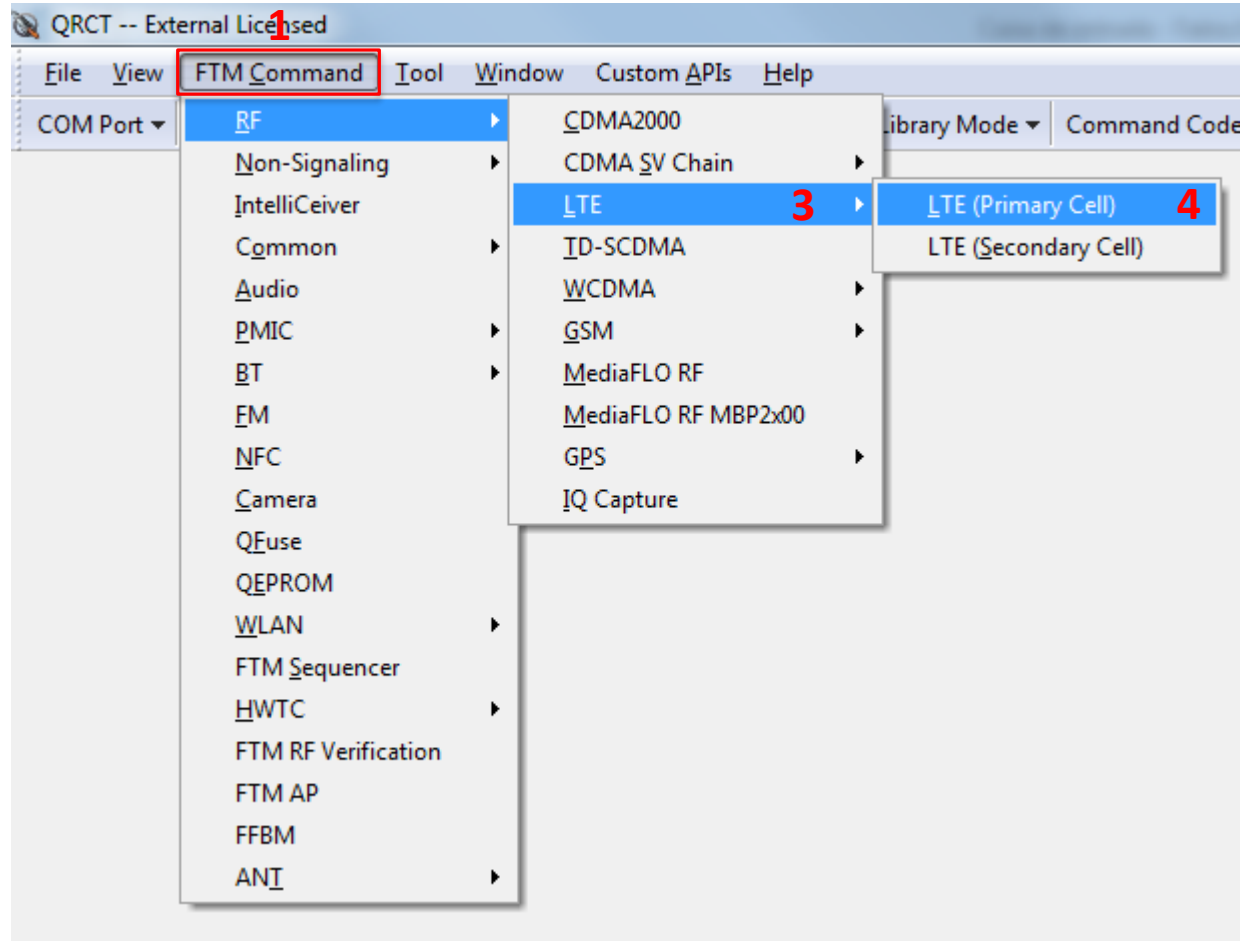
# 5 – Setup do LTE\_RX\_DIVERSITY

1 – FTM Command

2 – RF

3 – LTE

4 – LTE (Primary Cell)



## 6 – Setup do LTE\_RX\_DIVERSITY

1 – RF Band – Escolher a Banda do Teste (Banda 7)

2 – Tx Bandwidth – 10MHz

3 – Rx Bandwidth – 10MHz

4 – Set UL Channel – Canal de TX do Teste

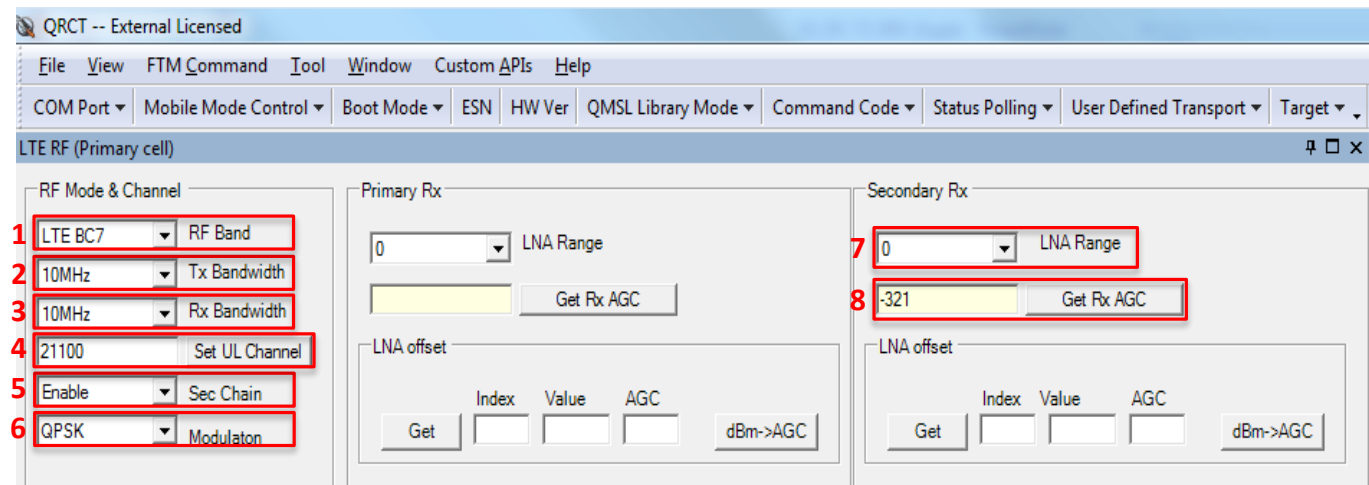
5 – Sec Chain:

– Diversity Antenna – Enable

6 – Modulation – QPSK

7 – Ajustar o LNA Range

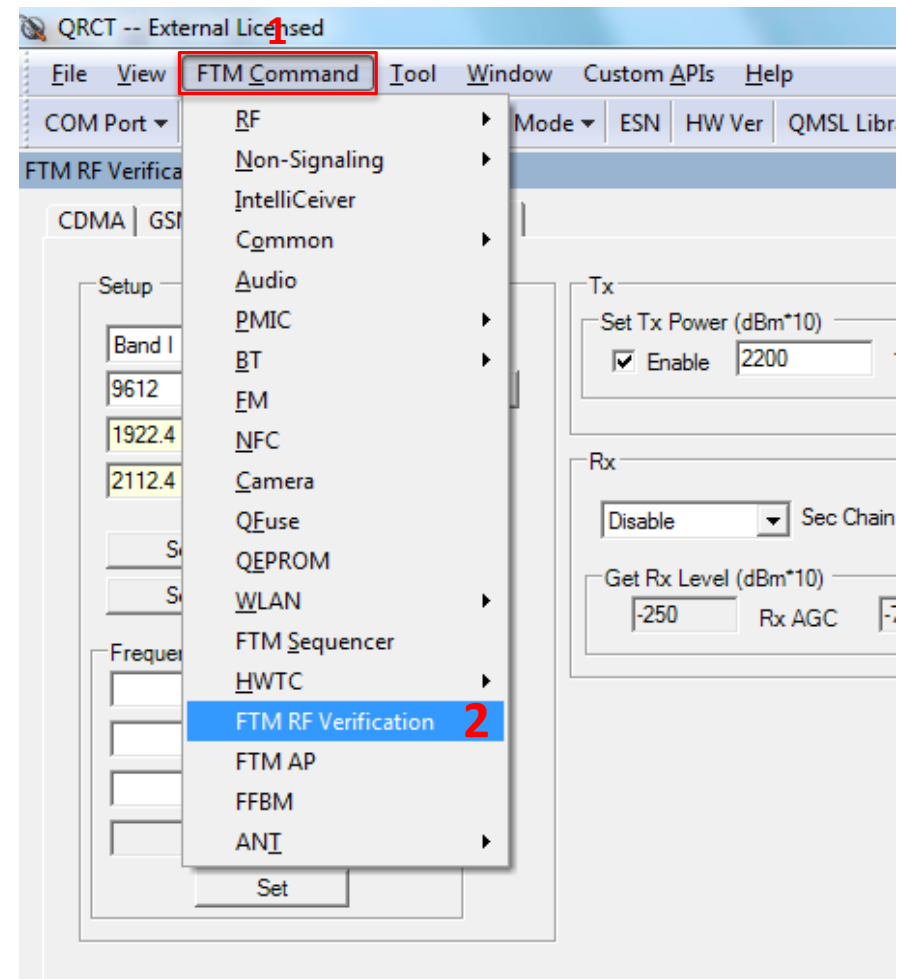
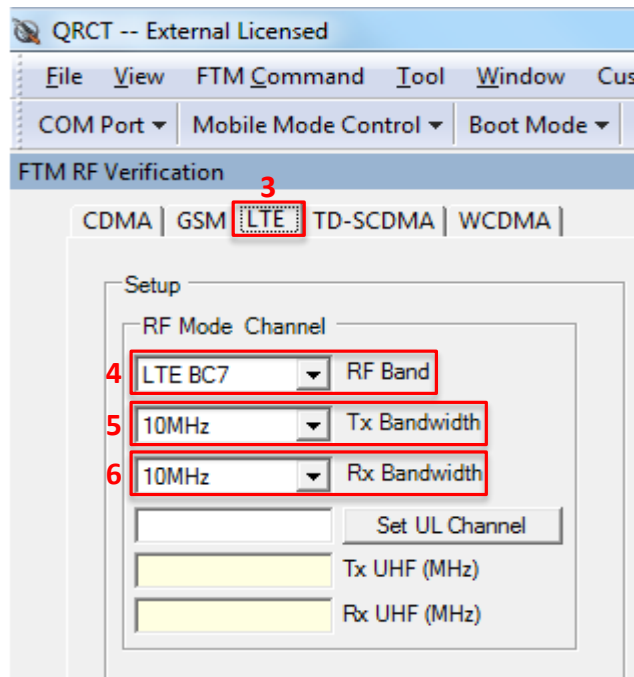
8 – Get RX AGC





# 7 – LTE\_NS\_CALL\_SETUP – Setup do SET\_MODE\_ID

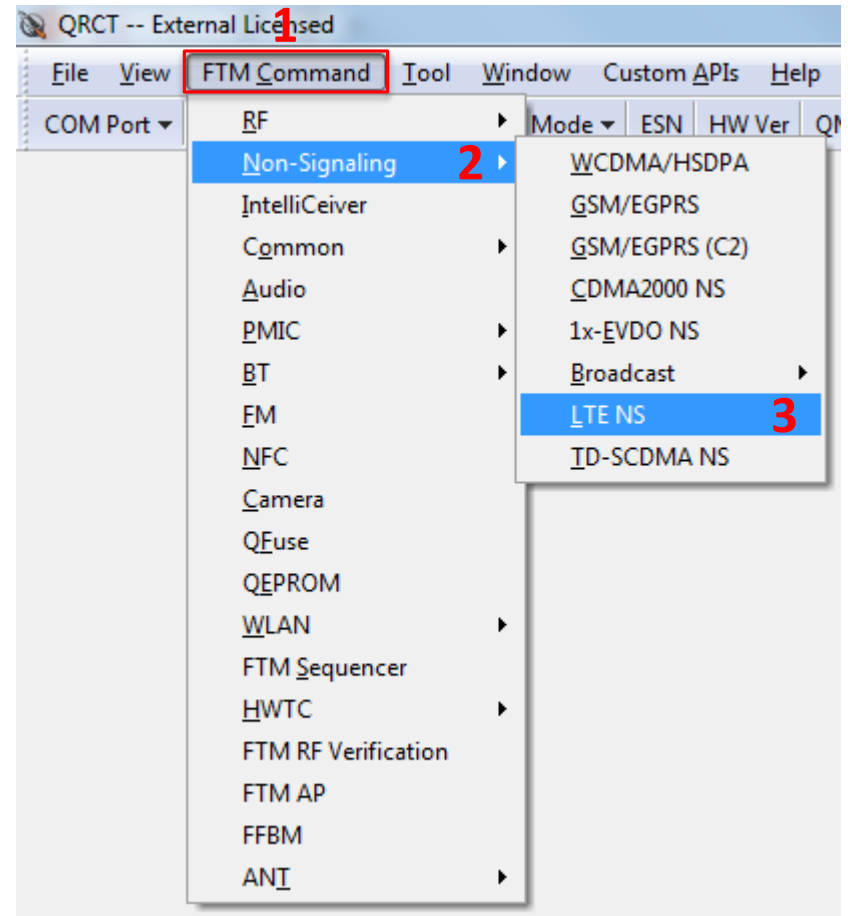
- 1 – FTM Command
- 2 – FTM RF Verification
- 3 – Selecionar à Aba “LTE”
- 4 – RF Band – Escolher a Banda do Teste  
(Banda 7)
- 5 – Tx Bandwidth – 10MHz
- 6 – Rx Bandwidth – 10MHz





# 8 – LTE\_NS\_CALL\_SETUP

- 1 – FTM Command
- 2 – Non-Signaling
- 3 – LTE NS



# 9 – LTE\_NS\_CALL\_SETUP

## 1 – Enable LTE NS

## 2 – LTE RF Band :

– Escolher a Banda do Teste (Banda 7)

## 3 – Downlink Channel

## 4 – Acquire DL

## 5 – Start LTE NS Data Path:

– C-RNTI (base 10) – “14”

– Downlink LCID – “1”

– UE Max Tx Power Limit – “23”

– Network Sig Value – “1”

– Uplink LCID – “2”

– Clicar em Start DataPath

## 6 – Configure UL waveform:

– Override – “Yes”

– Chain - “0”

– Start RB – “19”

– Num RBs – “12”

– MCS – “6:QPSK,TBS-6”

– Clicar em Configure

## 7 – Configure UL Level:

– Chain – “0”

– Mode – “1”

– Level – “230” (Potencia multiplicada por 10)

– Clicar em Configure

The screenshot shows the 'LTE Non-Signaling' configuration window. It is divided into several sections:

- Enable & Disable LTE NS mode:** Includes a status dropdown (0 - Success), 'Enable LTE NS' (1), 'Acquire DL' (4), 'Disable LTE NS', and 'Enter LTE IDLE' buttons.
- Acquire LTE NS Downlink Signal:** Includes a status dropdown (0 - Success), 'LTE RF Band' dropdown (2) set to 'LTE BC7', and 'Downlink Channel' dropdown (3) set to '3100'. There are also 'Clear Status' buttons.
- Start LTE NS Data Path:** Includes a status dropdown (0 - Success), 'Start Data Path' button, and fields for 'C-RNTI (base 10)' (14), 'Downlink LCID' (1), 'Uplink LCID' (2), and 'UE Max Tx Power Limit' (23). There is also a 'NetworkSig Value' field (1) and a 'Conf. 1' dropdown.
- Is LTE Call Up?:** Includes a 'Query' button and a status dropdown (0 - Success).
- Throughput:** Includes 'Start Log' and 'Stop Log' buttons, and a 'Throughput Measurement' section with 'Count' (100), 'Timeout (ms)' (6000), 'T-put(kbps)' (465.652173913044), and 'T-put(%)' (11.6459627329193). There are 'Measure' and 'Default' buttons.
- Configure UL waveform (6):** Includes 'Override' (Yes), 'Chain' (0), 'Start RB' (19), 'Num RBs' (12), 'MCS' (6:QPSK,TBS-6), and 'Status' (0 - Success). There is a 'Configure' button.
- Configure UL Level (7):** Includes 'Chain' (0), 'Mode' (1), 'Level' (230), and 'Status' (0 - Success). There is a 'Configure' button.
- DL Level:** Includes 'Chain' (0), 'Rx AGC' (-323), 'dBm\*10' (-323), and 'Status' (0 - Success). There is a 'Get' button.

At the bottom right, there is a checkbox for 'TDD SubFrame Config.' which is currently unchecked.

# 10 – LTE\_NS\_CALL\_SETUP

## Finalizando a Chamada:

- 1 – Disable LTE NS

**LTE Non-Signaling**

Enable & Disable LTE NS mode  
0 - Success Status  
Enable LTE NS Clear Status  
**1 Disable LTE NS** Enter LTE IDLE

Acquire LTE NS Downlink Signal  
0 - Success Status LTE RF Band: LTE BC7  
Acquire DL Clear Status 3100 Downlink Channel

Start LTE NS Data Path  
0 - Success Status  
Start Data Path Clear Status  
Conf. 1  
14 C-RNTI (base 10) 1 NetworkSig Value  
1 Downlink LCID 2 Uplink LCID  
23 UE Max Tx Power Limit

Is LTE Call Up?  
Query 0 - Success Status

Throughput  
Start Log Stop Log  
Throughput Measurement  
100 Count 465.652173913044 T-put(kbps)  
6000 Timeout (ms) 11.6459627329193 T-put(%)  
Measure Default

Configure UL waveform  
Yes Override  
0 Chain  
19 Start RB  
12 Num RBs  
6:QPSK,TBS-6 MCS  
0 - Success Status  
Configure

Configure UL Level  
0 Chain  
1 Mode  
230 Level  
0 - Success Status  
Configure

DL Level  
0 Chain  
-323 Rx AGC  
-323 dBm\*10  
0 - Success Status  
Get

TDD SubFrame Config.

# Thank you

