

The most important thing we build is trust



ADVANCED ELECTRONIC SOLUTIONS

AVIATION SERVICES

COMMUNICATIONS AND CONNECTIVITY

MISSION SYSTEMS

CN-001 TM500 MTS Test Scripts (EXT-MUE GUI)

June 2016



主要内容

- 基本测试用例模板
- 典型测试用例模板
- 可选脚本配置
- 常见问题



基本测试用例模板



1500UE Non-CA UE

- 测试用例需求
 - 宏站单小区UDP业务容量规格测试
 - 1500 Non-CA UE
 - 天线配置2T2R
 - DL/UL UE Category 4
 - 不带信道模型（OMM）
 - RRC/NAS鉴权及安全模式都打开
 - PDN类型为IPv4且只配置一个APN
 - UE ATTACH成功后立即发起业务且一直在线做业务

1500UE Non-CA UE

- 基本脚本包含四部分

- **Init:** 搜索小区、解广播信道、启动RDA以及初始化UE/Cell配置。
- **ATTACH:** 定义信道和业务模型，UE入网。
- **DETACH:** 停止RDA，UE退网。
- **GetStats:** 查询关键统计信息。

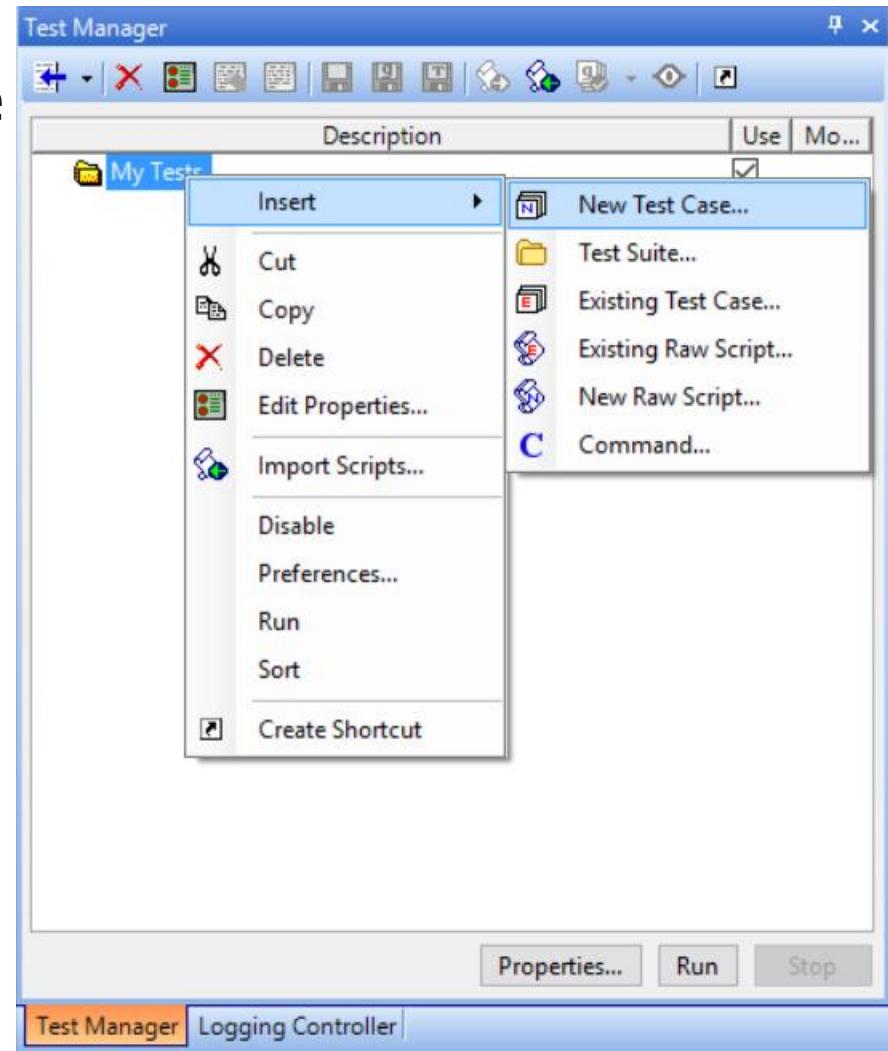
Description	Use	Mo...
My Tests	<input checked="" type="checkbox"/>	
MTS_Test_Script_Template	<input checked="" type="checkbox"/>	MTS
Init	<input checked="" type="checkbox"/>	
Configure Radio Contexts	<input checked="" type="checkbox"/>	
NAS_ENABLE_INDICATIONS_IN_MTS_MODE 1	<input checked="" type="checkbox"/>	
Calibrate Uplink Power Offset	<input checked="" type="checkbox"/>	
Start RDA Test Case	<input checked="" type="checkbox"/>	
Wait	<input checked="" type="checkbox"/>	
Select UE 0-1499	<input checked="" type="checkbox"/>	
Configure USIM	<input checked="" type="checkbox"/>	
Configure PHY Capabilities	<input checked="" type="checkbox"/>	
Configure RRC Capabilities	<input checked="" type="checkbox"/>	
Configure NAS Capabilities	<input checked="" type="checkbox"/>	
Configure NAS PLMN Selection	<input checked="" type="checkbox"/>	
Activate Configuration	<input checked="" type="checkbox"/>	
Define eNB Positions	<input checked="" type="checkbox"/>	
ATTACH	<input checked="" type="checkbox"/>	
Start MTS Scenario	<input checked="" type="checkbox"/>	
Activate Configuration	<input checked="" type="checkbox"/>	
DETACH	<input checked="" type="checkbox"/>	
GetStats	<input checked="" type="checkbox"/>	

Description	Use	Mo...
My Tests	<input checked="" type="checkbox"/>	
MTS_Test_Script_Template	<input checked="" type="checkbox"/>	MTS
Init	<input checked="" type="checkbox"/>	
ATTACH	<input checked="" type="checkbox"/>	
DETACH	<input checked="" type="checkbox"/>	
Stop RDA Test Case	<input checked="" type="checkbox"/>	
Wait	<input checked="" type="checkbox"/>	
RRC_TEST_UL_DELIVERY_INDICATIONS_REQUIRED 1	<input checked="" type="checkbox"/>	
Stop MTS Scenario	<input checked="" type="checkbox"/>	
Wait	<input checked="" type="checkbox"/>	
GetStats	<input checked="" type="checkbox"/>	
RSRP/SINR	<input checked="" type="checkbox"/>	
BLER	<input checked="" type="checkbox"/>	
Display UE Status	<input checked="" type="checkbox"/>	
Display KPI Statistics	<input checked="" type="checkbox"/>	
Display RACH Statistics	<input checked="" type="checkbox"/>	

创建测试用例

New Test Case

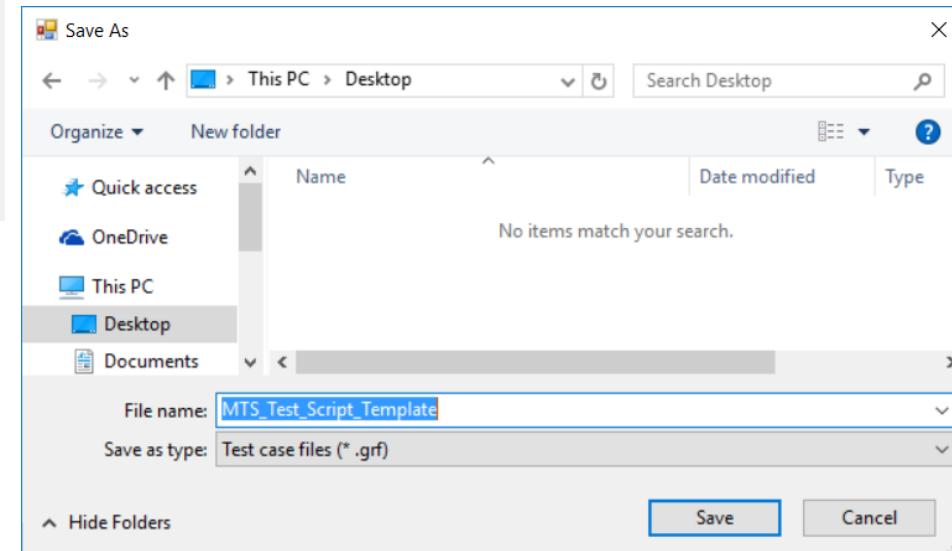
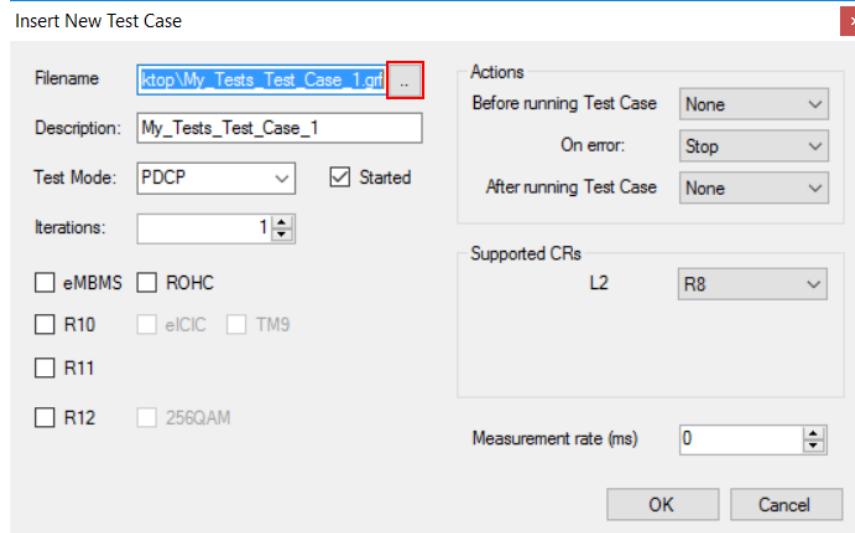
- 右键点击**My Tests**
- 选择**Insert -> New Test Case**



创建测试用例

New Test Case – File Name

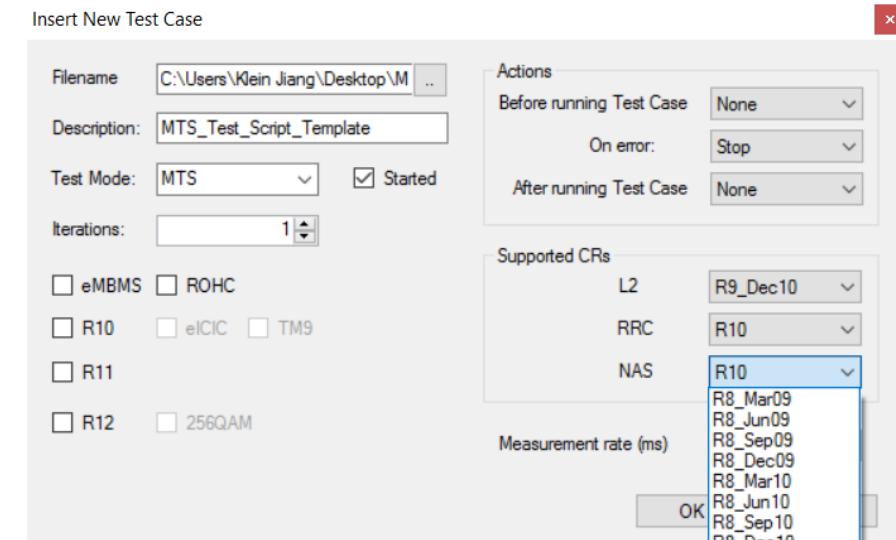
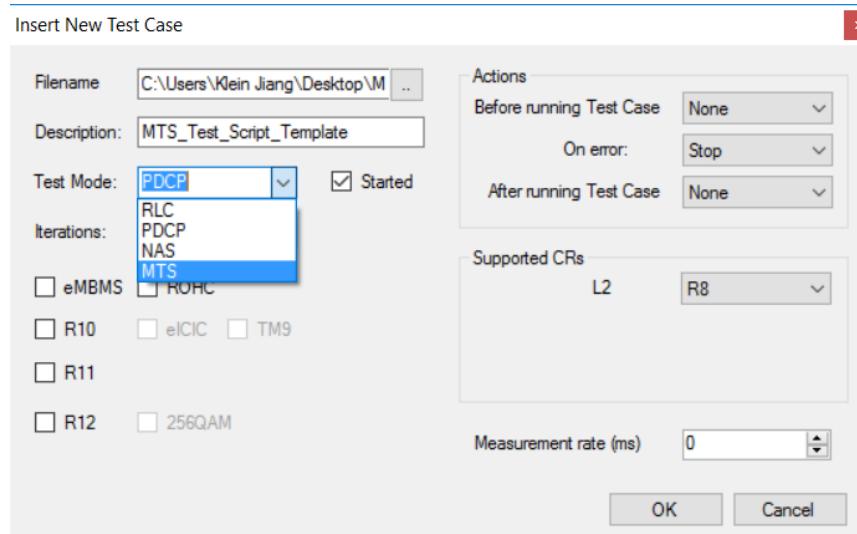
- 点击**Filename**右侧的小方框，定义脚本名称以及选择保存路径。



创建测试用例

New Test Case – Test Mode/Support CRs

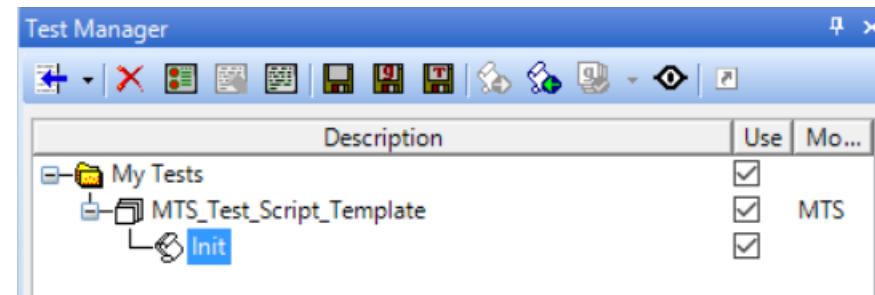
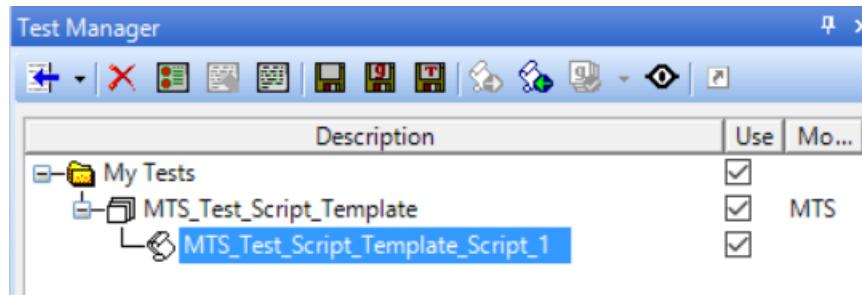
- **Description**自动更新为脚本文件名。
- 选择**Test Mode**为**MTS**。
- 根据测试需求，配置相应的**Support CRs** (L2/RRC/NAS)。



创建测试用例

New Test Case – Init

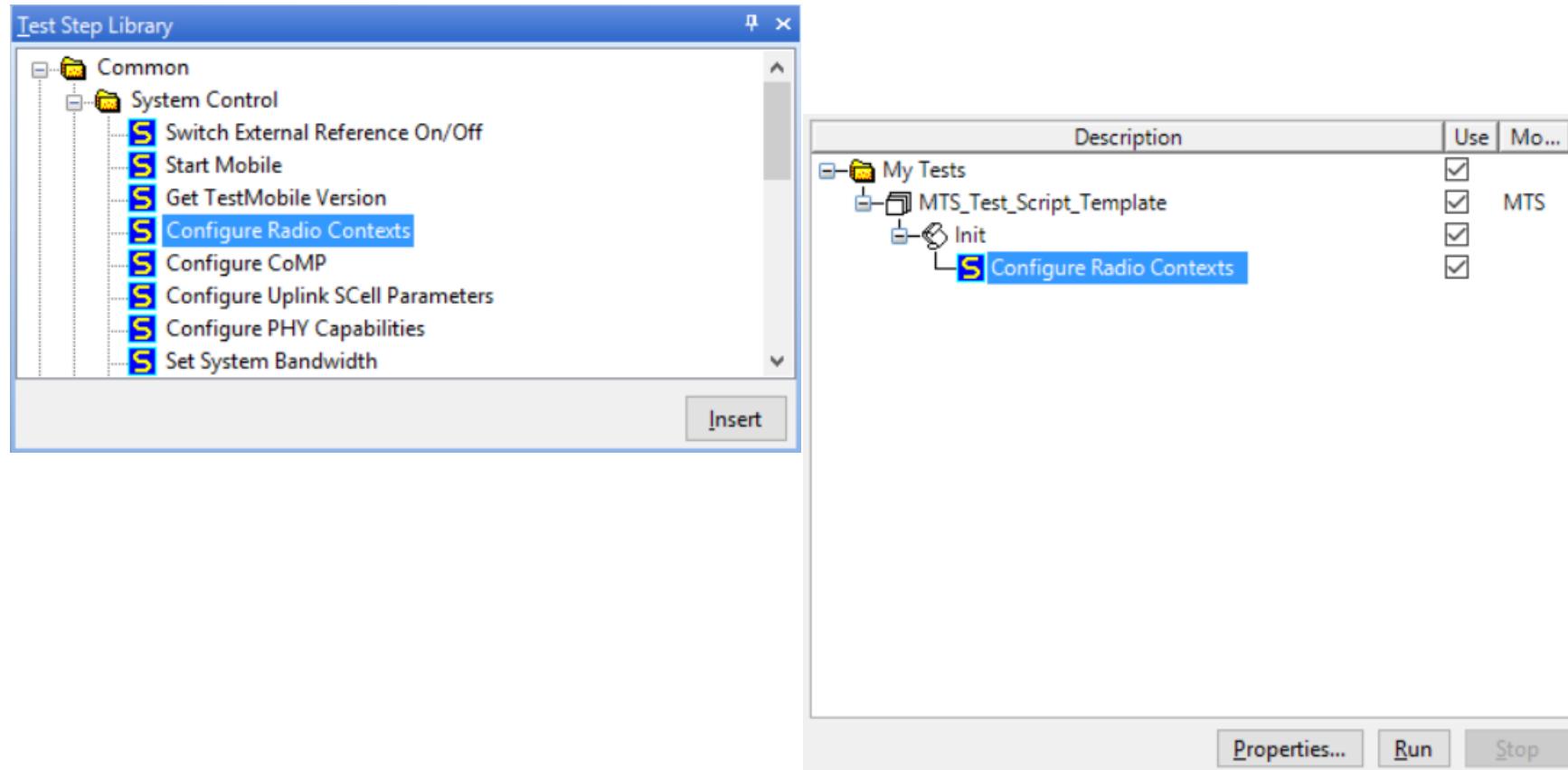
- 更新测试用例的第一个脚本的默认名为**Init.**



测试脚本Init

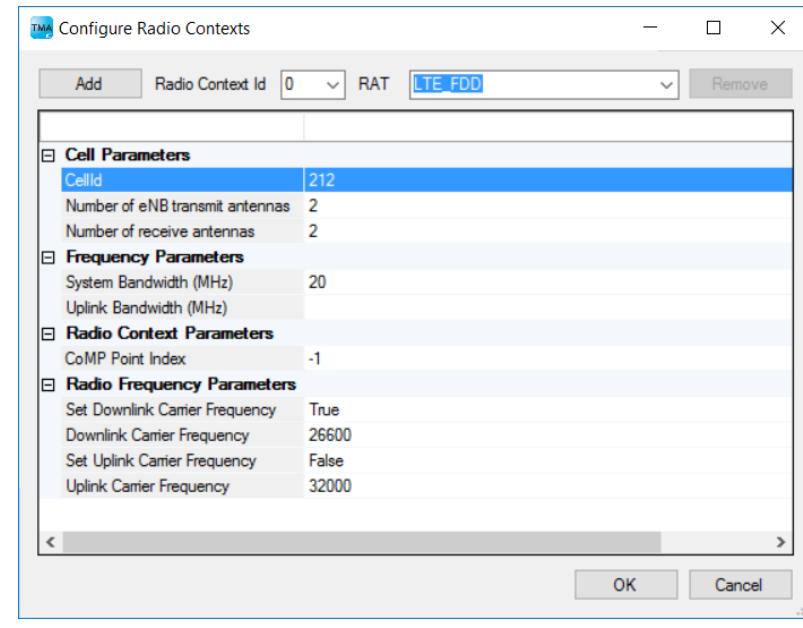
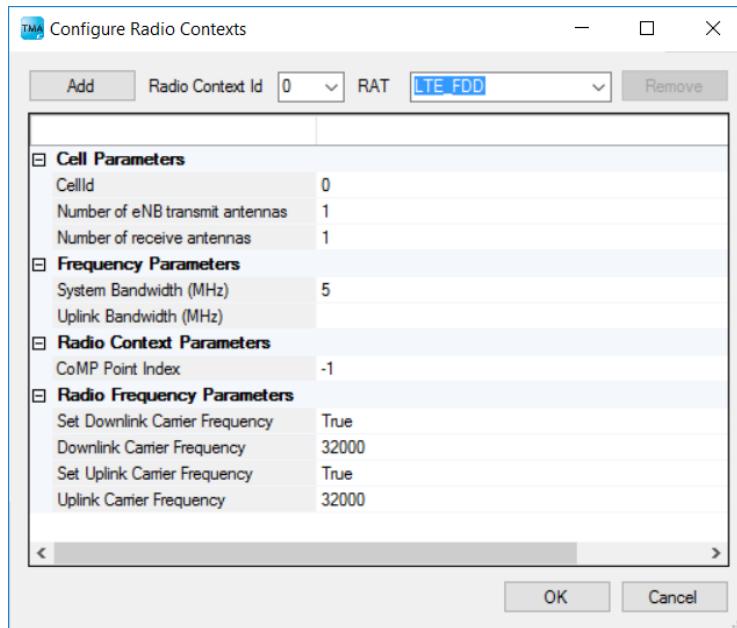
Configure Radio Contexts

- 从 **Test Step Library** 拖动或添加 **Configure Radio Contexts** 至脚本 **Init**.
- Configure Radio Contexts**



Configure Radio Contexts

- 功能：搜索小区和解广播信道，请更新如下默认配置：
 - RAT/CellId/Number of eNB transmit antennas/Number of receive antennas/System Bandwidth/Downlink Carrier Frequency
 - Set Uplink Carrier Frequency一般设置为False
 - 每个Radio Context对应一个小区，对于Non-CA的测试场景，只需要配置一个Radio Context。



NAS_ENABLE_INDICATIONS_IN_MTS_MODE

- 打印NAS指示的SETP命令

- Raw Command

SETP NAS_ENABLE_INDICATIONS_IN_MTS_MODE 1

- 点击Set description

SETP NAS_ENABLE_INDICATIONS_IN_MTS_MODE

Enable normal NAS indications to be output. These are indications such as:

I: CMPI MTE 0 EMM REGISTER IND: UE Id: 0

Selected PLMN: 26280F

Pdn Id: 0

EPS Bearer Id: 5

Access Point Name:

apn04gnnv01 ericssonse-mnc080-mcc262gprs

IPv4 Address: 192.168.0.1

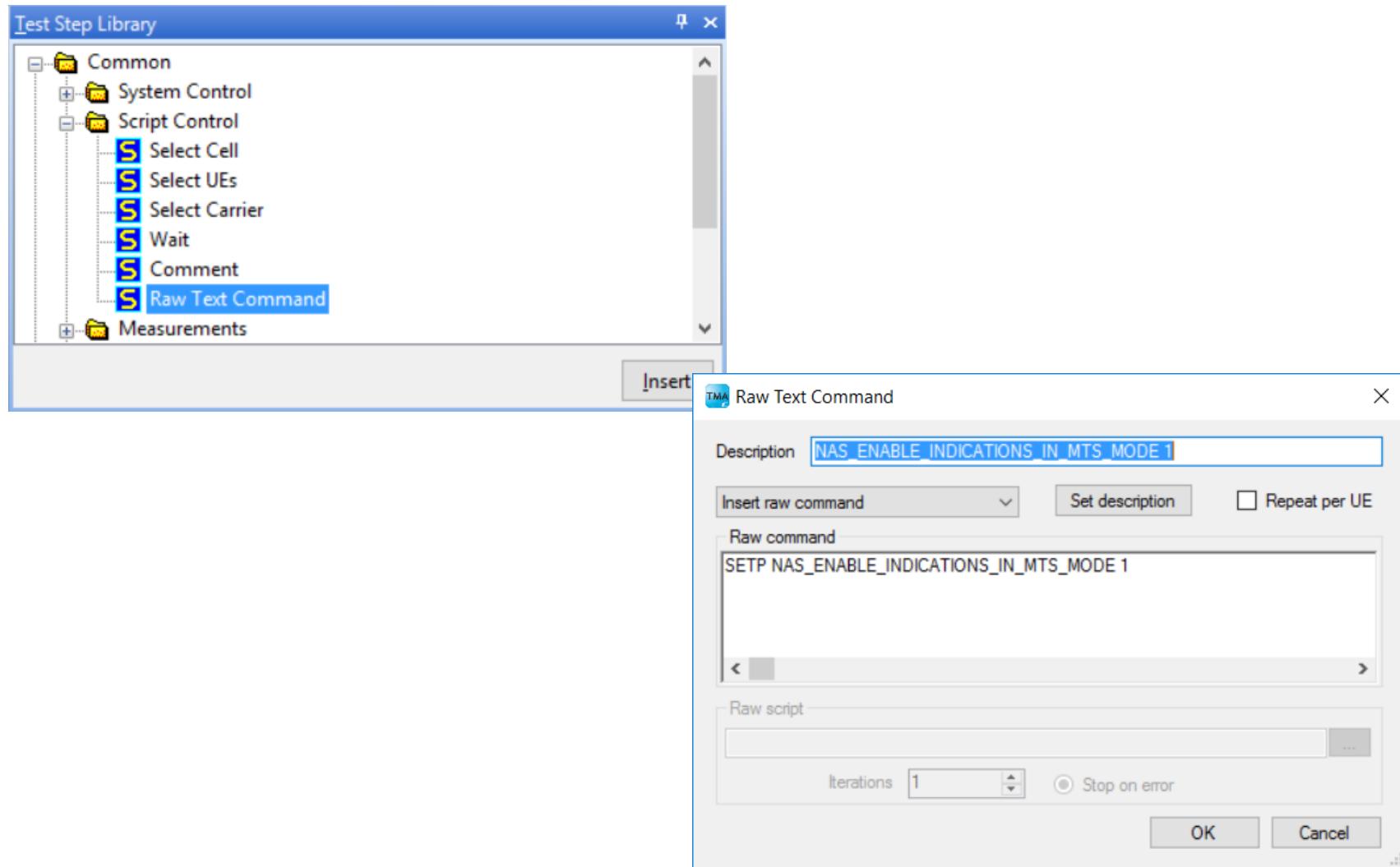
Attach Result: EPS Only

Mode: PS 2

Description	Use	Mo...
My Tests	<input checked="" type="checkbox"/>	
MTS_Test_Script_Template	<input checked="" type="checkbox"/>	MTS
Init	<input checked="" type="checkbox"/>	
Configure Radio Contexts	<input checked="" type="checkbox"/>	
S NAS_ENABLE_INDICATIONS_IN_MTS_MODE	<input checked="" type="checkbox"/>	

测试脚本Init

NAS_ENABLE_INDICATIONS_IN_MTS_MODE

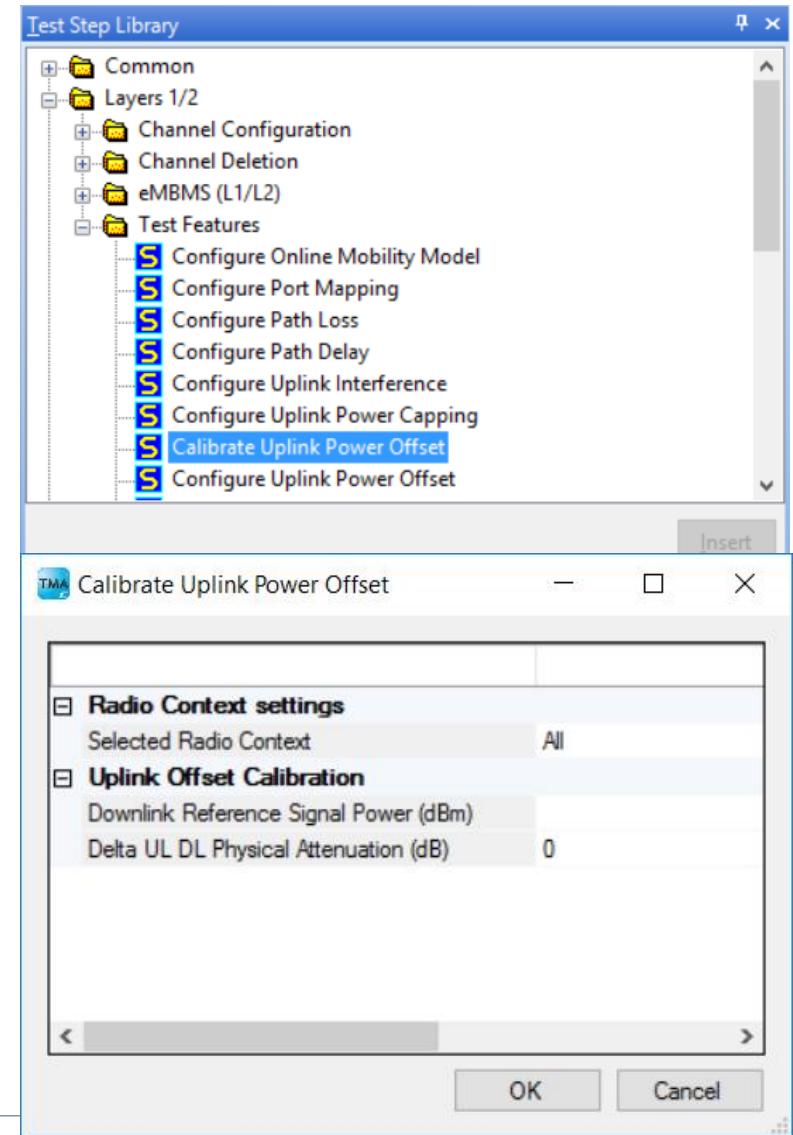


测试脚本Init

Calibrate Uplink Power Offset

- 功能：基于路损的上行功率补偿。
 - MTS模式下无需配置**Downlink Reference Signal Power**
 - **Delta UL DL Physical Attenuation:**
仅适用于Dedicated Mode的射频线连接模式。

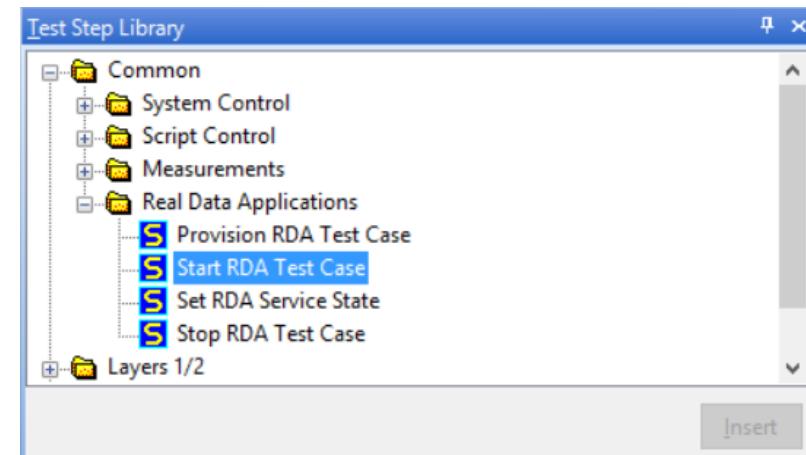
Description	Use	Mo...
My Tests	<input checked="" type="checkbox"/>	
MTS_Test_Script_Template	<input checked="" type="checkbox"/>	MTS
Init	<input checked="" type="checkbox"/>	
Configure Radio Contexts	<input checked="" type="checkbox"/>	
NAS_ENABLE_INDICATIONS_IN_MTS_MODE	<input checked="" type="checkbox"/>	
Calibrate Uplink Power Offset	<input checked="" type="checkbox"/>	



Start RDA Test Case

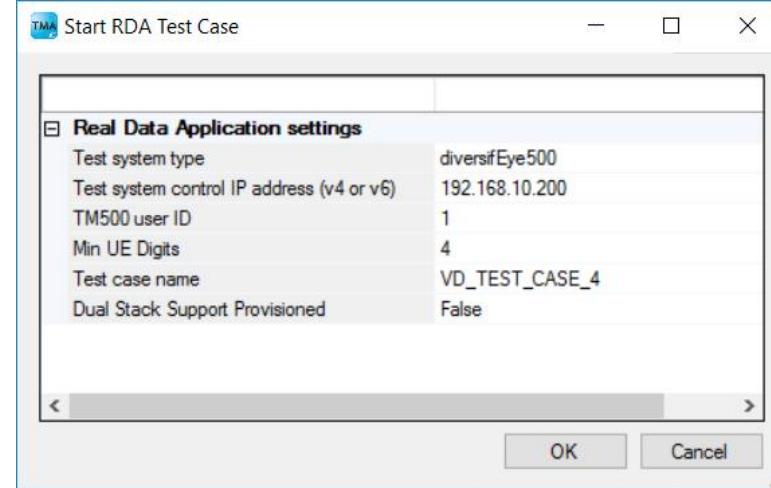
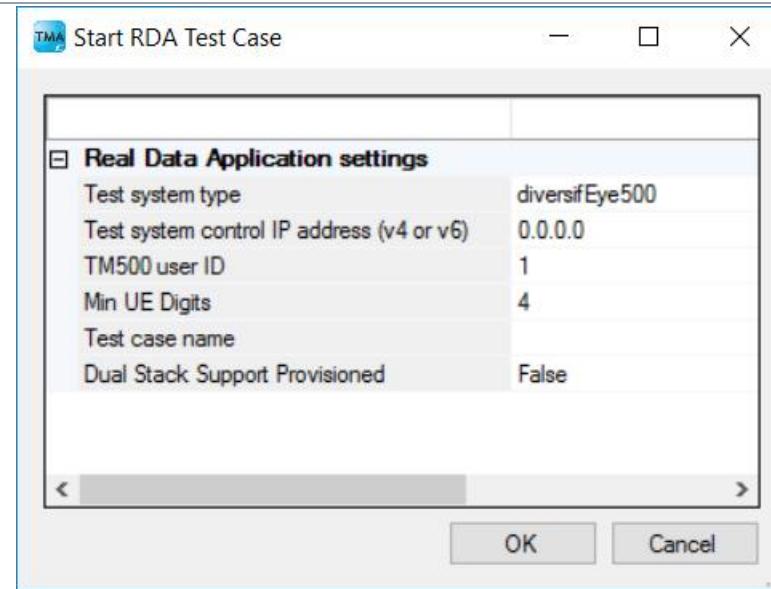
- 功能：通过TM500脚本自动调用RDA。

Description	Use	Mo...
My Tests	<input checked="" type="checkbox"/>	
MTS_Test_Script_Template	<input checked="" type="checkbox"/>	MTS
Init	<input checked="" type="checkbox"/>	
Configure Radio Contexts	<input checked="" type="checkbox"/>	
NAS_ENABLE_INDICATIONS_IN_MTS_MODE	<input checked="" type="checkbox"/>	
Calibrate Uplink Power Offset	<input checked="" type="checkbox"/>	
Start RDA Test Case	<input checked="" type="checkbox"/>	



Start RDA Test Case

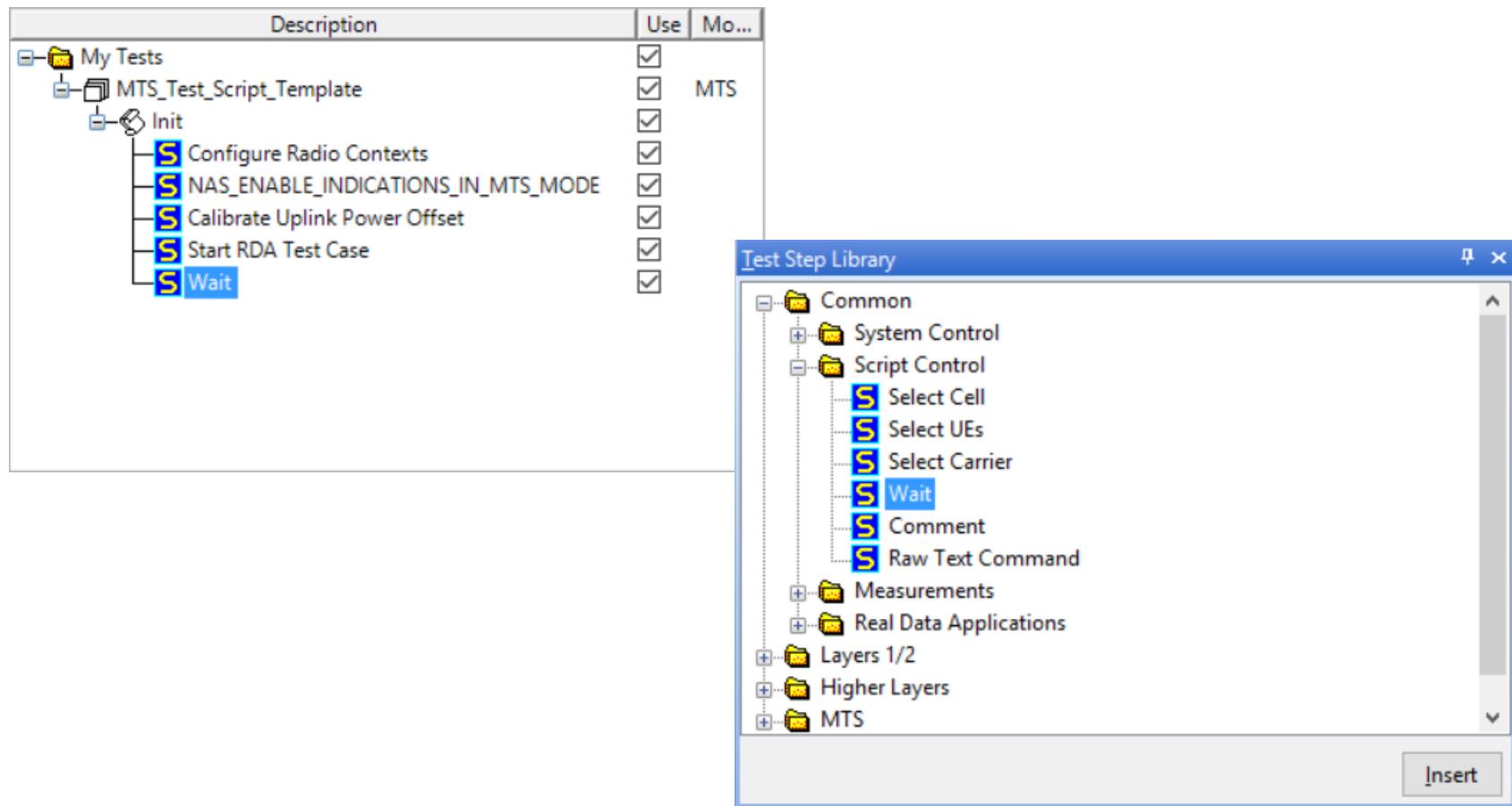
- 请更新如下默认配置
 - **Test system control IP address:** RDA控制口IP
 - **TM500 user ID:** RDA Partition
 - **Test case name:** RDA脚本



测试脚本Init

Wait

- 功能：等待TM500返回RDA启动成功的指示。

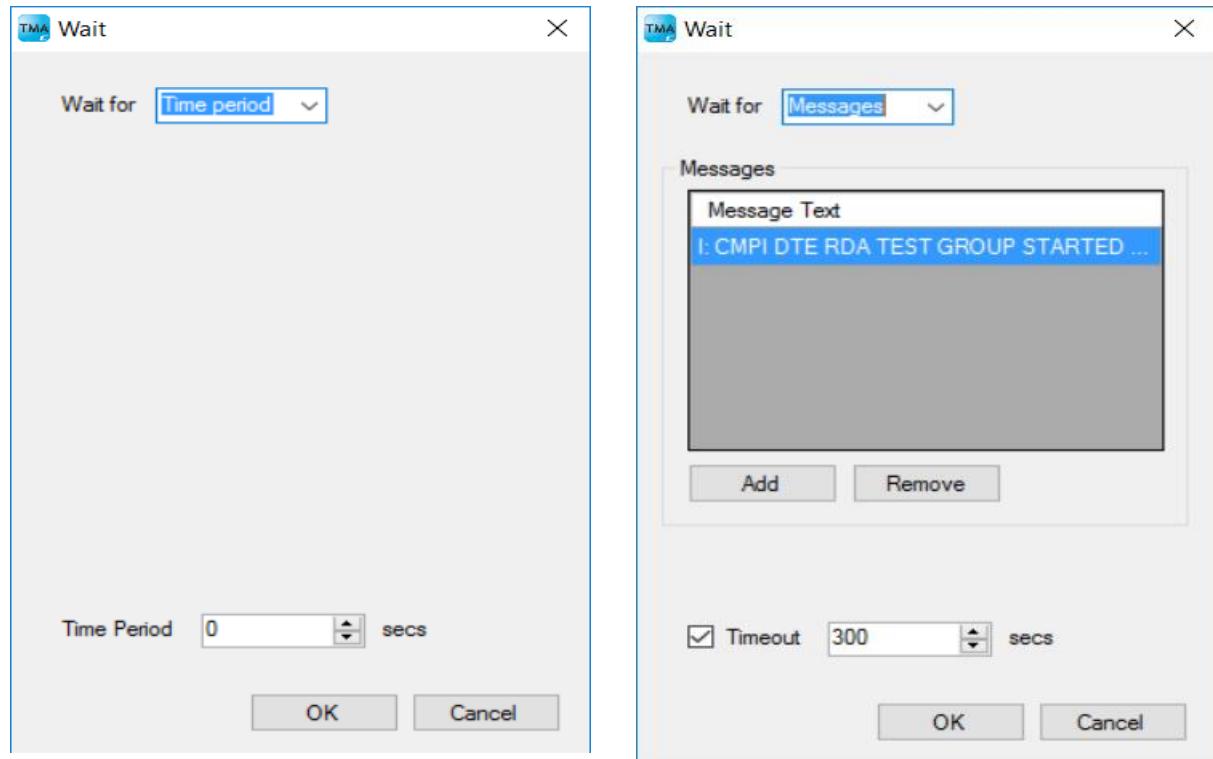


测试脚本Init

Wait

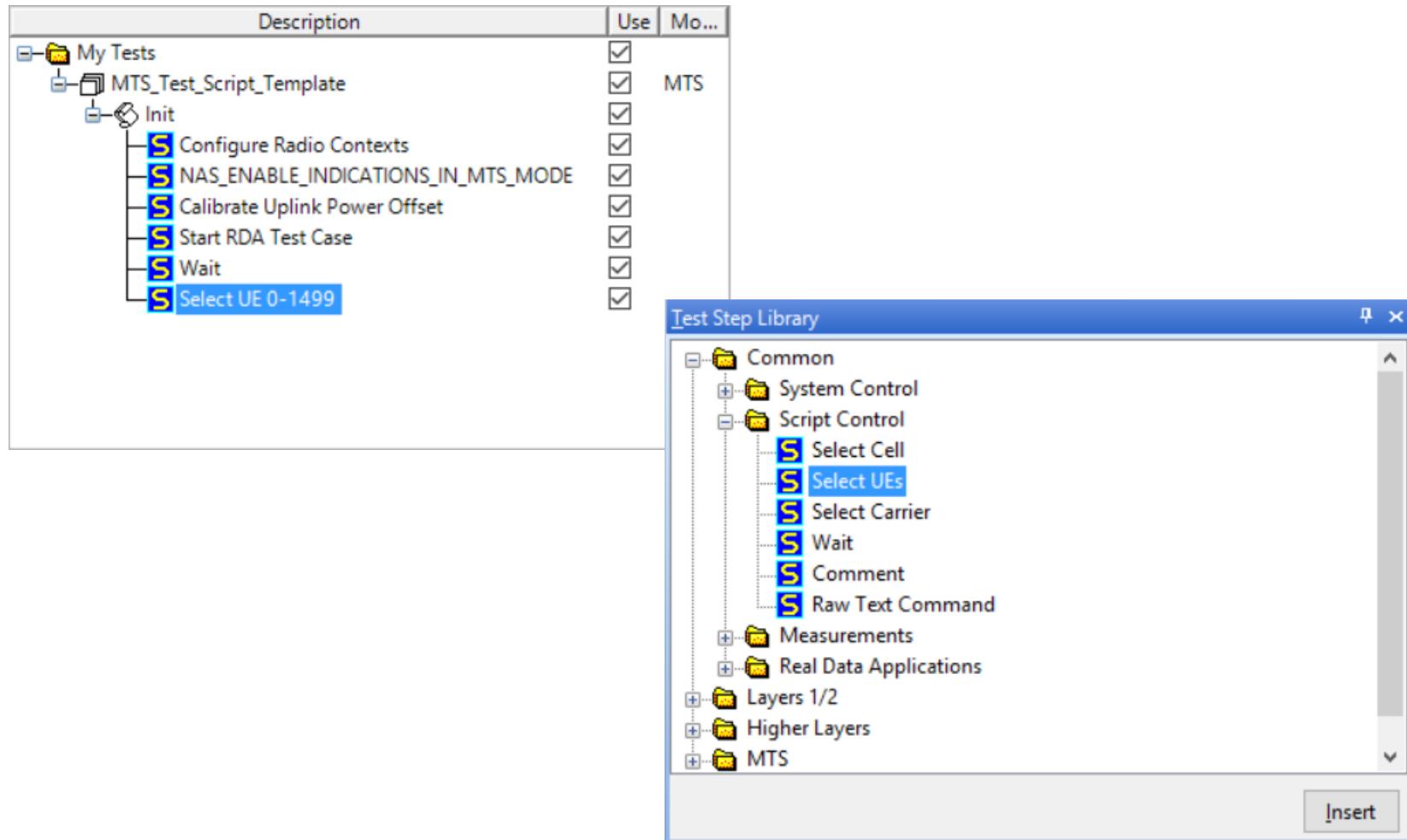
- 请更新如下默认配置

- Wait for:** Messages
- Message Text:** I: CMPI DTE RDA TEST GROUP STARTED IND:
- Timeout:** 300 secs



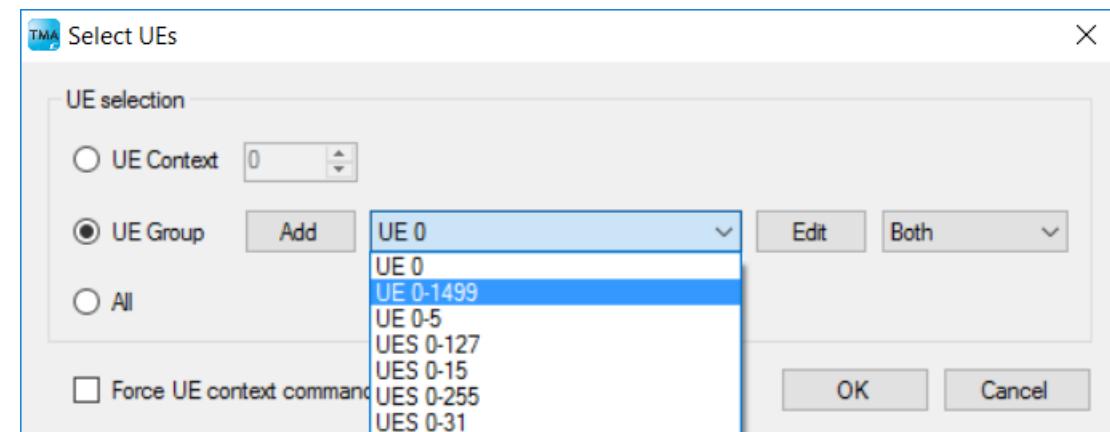
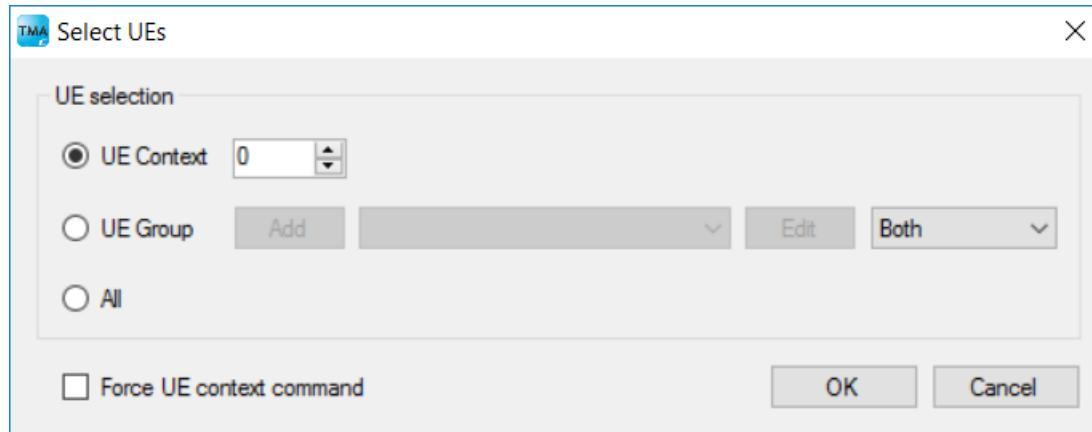
Select UEs

- 功能：定义紧随其后的UE相关的命令将适用于哪些UE。



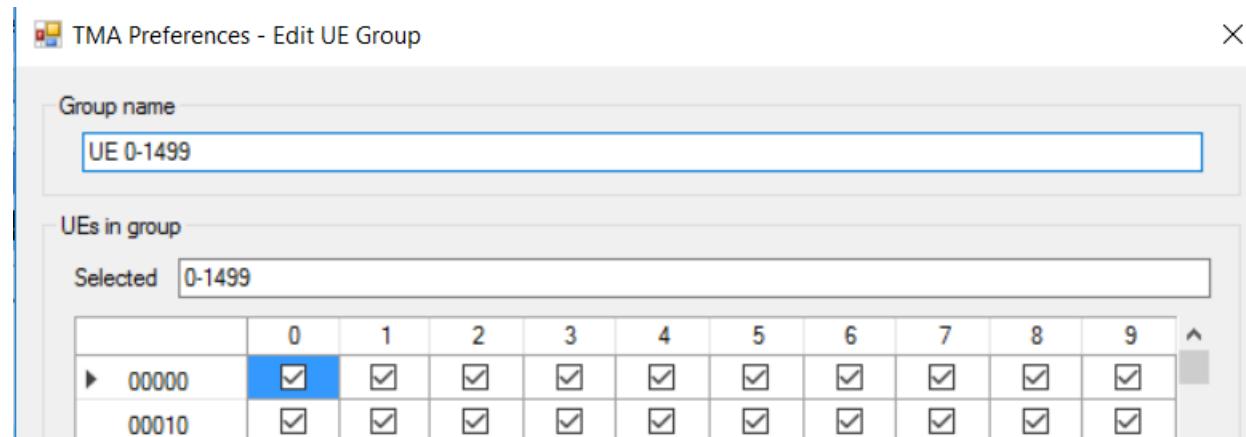
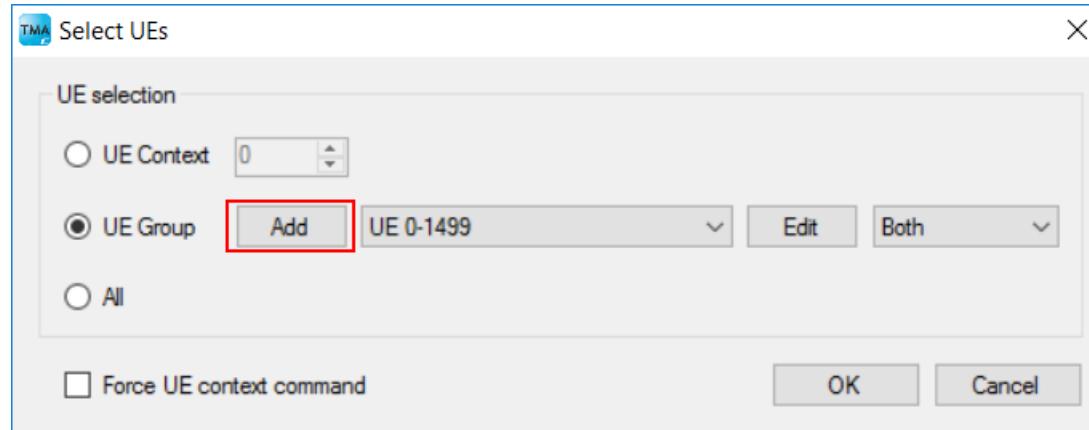
Select UEs

- 请更新如下默认配置
 - UE Context -> UE Group并根据需求选择适当的UE Group。



Select UEs

- 如果下拉列表没有合适的UE Group, 那么请点击“Add”添加。
 - **Selected:** 定义UE的范围。
 - **Group name:** 建议名字与UE范围一致, 避免歧义。



测试脚本Init

Configure USIM

- 功能：配置IMSI/Authentication Key/OP(OPc)等等。

The screenshot shows the Cobham Test Studio interface. On the left, there is a tree view of test steps under 'My Tests / MTS_Test_Script_Template / Init'. The 'Configure USIM' step is highlighted with a blue selection bar. To the right, a 'Test Step Library' window is open, displaying a hierarchical list of test steps. The 'NAS' category is expanded, showing various sub-steps including 'Configure USIM', which is also highlighted with a blue selection bar. An 'Insert' button is located at the bottom right of the library window.

Description	Use	Mo...
Configure Radio Contexts	<input checked="" type="checkbox"/>	
NAS_ENABLE_INDICATIONS_IN_MTS_MODE	<input checked="" type="checkbox"/>	
Calibrate Uplink Power Offset	<input checked="" type="checkbox"/>	
Start RDA Test Case	<input checked="" type="checkbox"/>	
Wait	<input checked="" type="checkbox"/>	
Select UE 0-1499	<input checked="" type="checkbox"/>	
Configure USIM	<input checked="" type="checkbox"/>	

Test Step Library

- Common
- Layers 1/2
- Higher Layers
 - NAS
 - Configure NAS Activation
 - Configure NAS Register
 - Configure NAS Deregister
 - Configure PDN
 - Delete PDN
 - Configure EPS Bearer Resource
 - Delete EPS Bearer Resource
 - Override EPS Bearer Data
 - Configure Emergency Call
 - Configure USIM

Insert

Configure USIM

- 请根据测试环境，主要更新如下默认配置

- Configure IMSI:** True

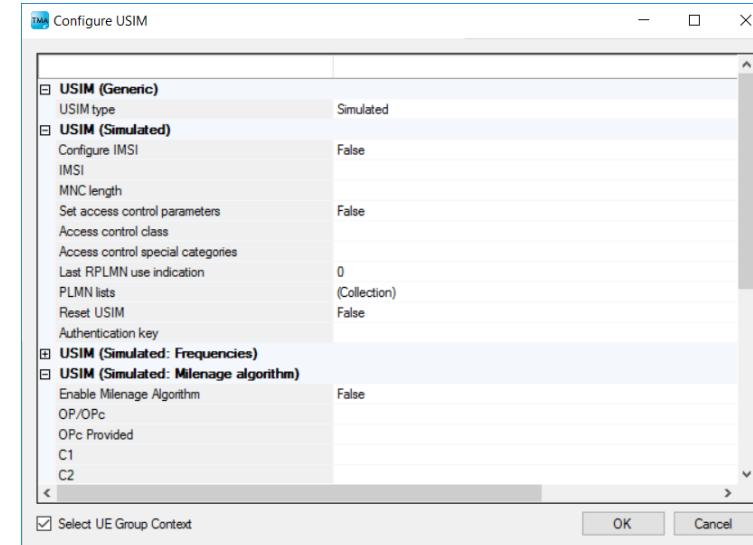
- IMSI:** 定义为表达式的格式，即“*起始IMSI + 1*”（例如：
302220800102187+1）

- Authentication Key**

- Enable Milenage Algorithm:** True

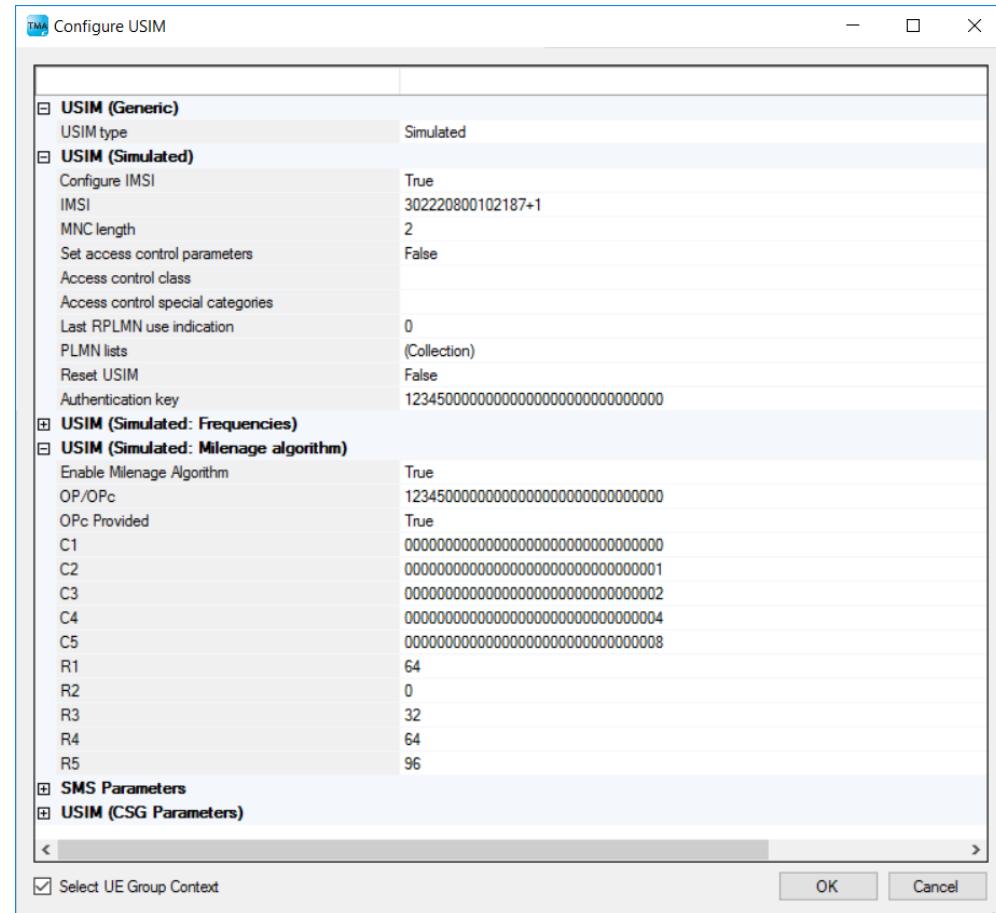
- OP/Opc**

- OPc Provided:** 如果测试环境配置是OPc的话，那么请置为True.



Configure USIM

- 请确保勾选左下角的“**Select UE Group Context**”。
- 某些测试用例，例如紧急呼叫，可能需要配置**Access control class**或**PLMN lists**。



测试脚本Init

Configure PHY Capabilities

- 功能：配置UE接收天线数以及上下行UE Category.

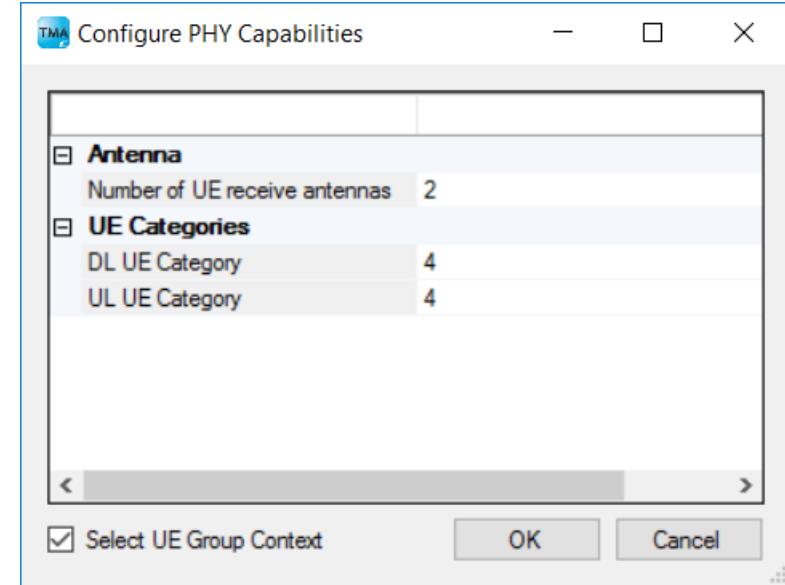
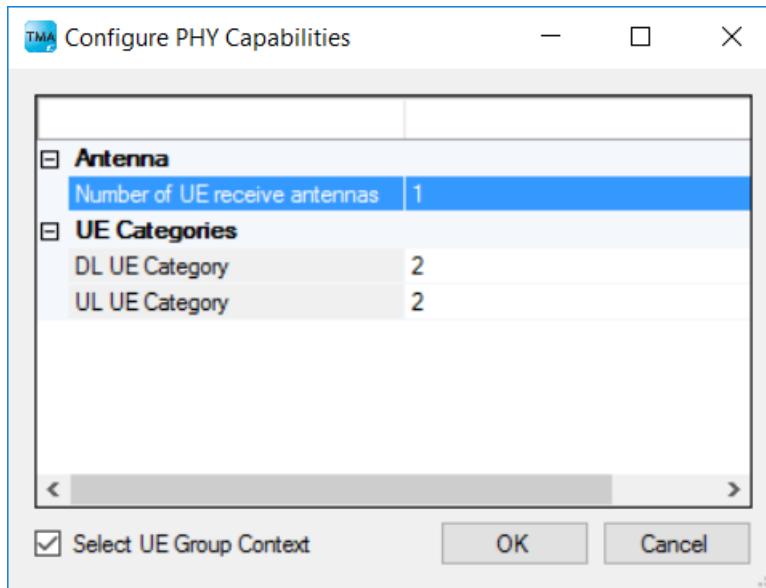
The screenshot shows the Cobham Test Studio interface with two main windows:

- Test Step Library:** A tree view of available test steps under the "Common" category, specifically under "System Control". The "Configure PHY Capabilities" step is highlighted in blue.
- Current Test Script:** A table showing the steps in the current test template. The "Configure PHY Capabilities" step is also present here, highlighted in blue.

Description	Use	Mo...
My Tests	<input checked="" type="checkbox"/>	
MTS_Test_Script_Template	<input checked="" type="checkbox"/>	MTS
Init	<input checked="" type="checkbox"/>	
Configure Radio Contexts	<input checked="" type="checkbox"/>	
NAS_ENABLE_INDICATIONS_IN_MTS_MODE	<input checked="" type="checkbox"/>	
Calibrate Uplink Power Offset	<input checked="" type="checkbox"/>	
Start RDA Test Case	<input checked="" type="checkbox"/>	
Wait	<input checked="" type="checkbox"/>	
Select UE 0-1499	<input checked="" type="checkbox"/>	
Configure USIM	<input checked="" type="checkbox"/>	
Configure PHY Capabilities	<input checked="" type="checkbox"/>	

Configure PHY Capabilities

- 请根据测试需求，更新如下默认配置
 - Number of UE receive antennas
 - DL/UL UE Category



测试脚本Init

Configure RRC Capabilities

- 功能：配置RRC安全模式，一般采用默认配置，即FullSecurityModeProcedure。

The screenshot displays the Cobham TMA software interface for test script configuration. On the left, the 'Test Step Library' pane shows a tree view of available steps categorized by layer: Common, Layers 1/2, Higher Layers, NAS, and APT. Under 'Higher Layers', several RRC-related steps are listed, including 'Acquire System Information', 'Configure RRC Capabilities', 'Configure RRC Cell Selection', 'Configure NAS Capabilities', 'Select Protocol Configuration Options', 'Configure UE EUTRA Capabilities', 'Configure NAS PLMN Selection', 'Configure NAS UE Identity', and 'Get RRC Measurement Configuration'. An 'Insert' button is located at the bottom right of this pane.

The main workspace shows a table titled 'Description' with columns for 'Use' and 'Mo...'. It lists the steps under the 'Init' section of the 'MTS_Test_Script_Template'. The 'Configure RRC Capabilities' step is highlighted with a blue selection bar at the bottom of the list. All steps in this list have the 'Use' checkbox checked.

A detailed dialog box for 'Configure RRC Capabilities' is open in the foreground. It shows a dropdown menu for 'RRCSecurityOptions' with the following options: 'FullSecurityModeProcedure' (selected), 'NoSecurityModeProcedure', 'IgnoreSecurityModeProcedure', and 'FullSecurityModeProcedure' (repeated). Below the dropdown is a checked checkbox for 'Select UE Group Context'.

测试脚本Init

Configure NAS Capabilities

- 功能：配置NAS鉴权、安全模式以及加密和完整性保护算法。

The screenshot shows the Cobham MTS Test Script Template interface. On the left, a tree view displays the test structure under 'My Tests' / 'MTS_Test_Script_Template' / 'Init'. The 'Configure NAS Capabilities' step is selected. On the right, the 'Test Step Library' window is open, showing the 'Higher Layers' section expanded. The 'NAS' folder is selected, and the 'Configure NAS Capabilities' step is highlighted. An 'Insert' button is visible at the bottom right of the library window.

Description	Use	Mo...
My Tests	<input checked="" type="checkbox"/>	
MTS_Test_Script_Template	<input checked="" type="checkbox"/>	MTS
Init	<input checked="" type="checkbox"/>	
Configure Radio Contexts	<input checked="" type="checkbox"/>	
NAS_ENABLE_INDICATIONS_IN_MTS_MODE	<input checked="" type="checkbox"/>	
Calibrate Uplink Power Offset	<input checked="" type="checkbox"/>	
Start RDA Test Case	<input checked="" type="checkbox"/>	
Wait	<input checked="" type="checkbox"/>	
Select UE 0-1499	<input checked="" type="checkbox"/>	
Configure USIM	<input checked="" type="checkbox"/>	
Configure PHY Capabilities	<input checked="" type="checkbox"/>	
Configure RRC Capabilities	<input checked="" type="checkbox"/>	
Configure NAS Capabilities	<input checked="" type="checkbox"/>	

Test Step Library

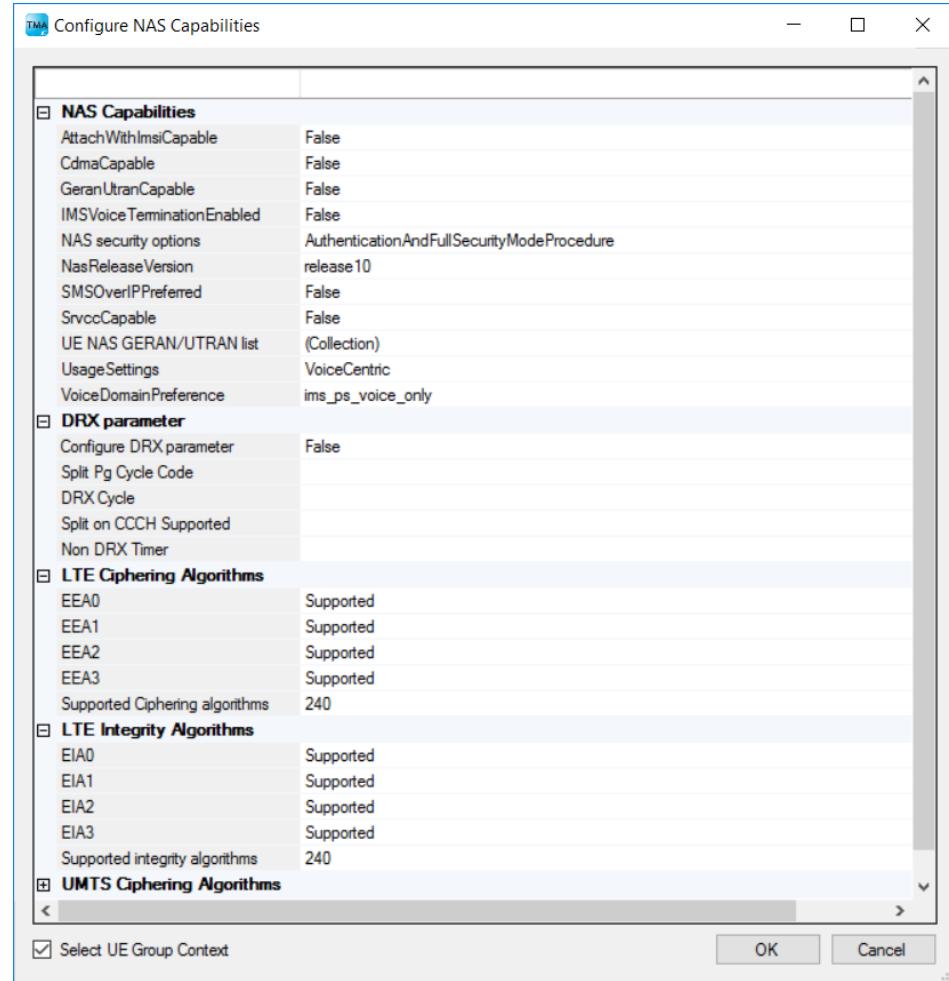
- Common
- Layers 1/2
- Higher Layers
 - NAS
 - Acquire System Information
 - Configure RRC Capabilities
 - Configure RRC Cell Selection
 - Configure NAS Capabilities
 - Select Protocol Configuration Options
 - Configure UE EUTRA Capabilities
 - Configure NAS PLMN Selection
 - Configure NAS UE Identity
 - Get RRC Measurement Configuration
 - APT

Insert

Configure NAS Capabilities

- 一般采用默认配置即可
 - NAS security options
 - LTE Ciphering Algorithms
 - LTE Integrity Algorithms
- NasReleaseVersion*的设置建议与用例属性的NAS保持一致。

Supported CRs	
L2	R9_Dec10
RRC	R10
NAS	R10



测试脚本Init

Configure NAS PLMN Capabilities

- 功能：配置NAS选择指定的PLMN.

The screenshot shows the Cobham MTS Test Script Template interface. On the left, a tree view displays the test structure under 'My Tests' / 'MTS_Test_Script_Template' / 'Init'. The 'Configure NAS PLMN Selection' step is highlighted with a blue selection bar. On the right, the 'Test Step Library' window is open, showing the 'Higher Layers' section expanded. Under 'NAS', the 'Configure NAS PLMN Selection' step is also highlighted with a blue selection bar. An 'Insert' button is visible at the bottom right of the library window.

Description	Use	Mo...
Configure Radio Contexts	<input checked="" type="checkbox"/>	
NAS_ENABLE_INDICATIONS_IN_MTS_MODE	<input checked="" type="checkbox"/>	MTS
Calibrate Uplink Power Offset	<input checked="" type="checkbox"/>	
Start RDA Test Case	<input checked="" type="checkbox"/>	
Wait	<input checked="" type="checkbox"/>	
Select UE 0-1499	<input checked="" type="checkbox"/>	
Configure USIM	<input checked="" type="checkbox"/>	
Configure PHY Capabilities	<input checked="" type="checkbox"/>	
Configure RRC Capabilities	<input checked="" type="checkbox"/>	
Configure NAS Capabilities	<input checked="" type="checkbox"/>	
Configure NAS PLMN Selection	<input checked="" type="checkbox"/>	

Test Step Library

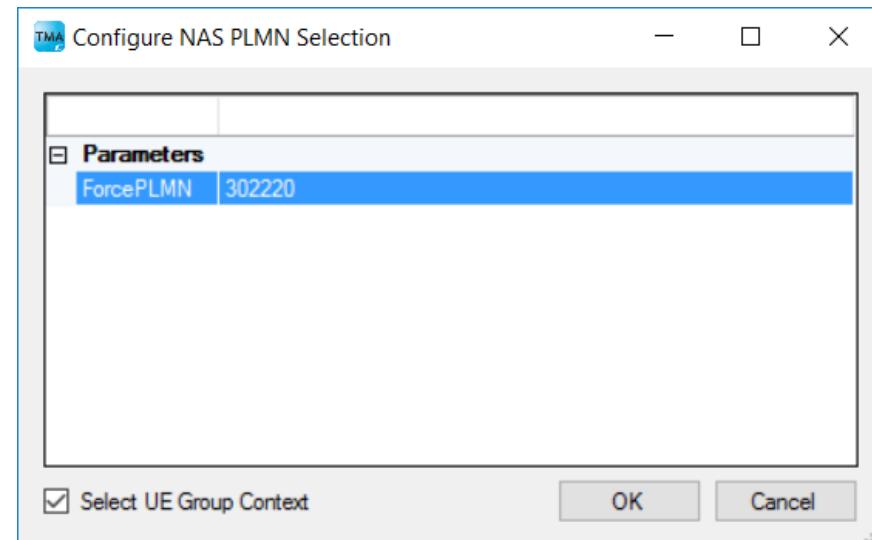
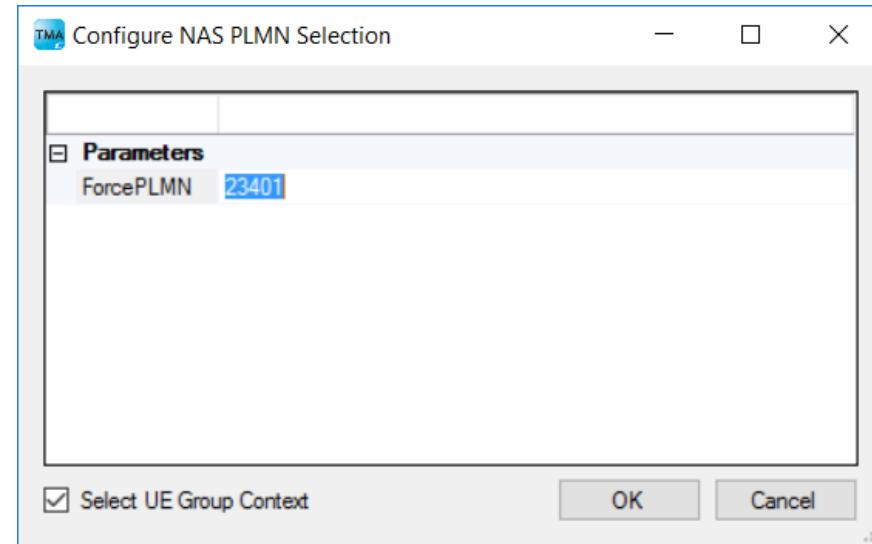
- Common
- Layers 1/2
- Higher Layers
 - NAS
 - Acquire System Information
 - Configure RRC Capabilities
 - Configure RRC Cell Selection
 - Configure NAS Capabilities
 - Select Protocol Configuration Options
 - Configure UE EUTRA Capabilities
 - Configure NAS PLMN Selection
 - Configure NAS UE Identity
 - APT

Insert

Configure NAS PLMN Capabilities

- 配置的PLMN需与SIB1广播的*plmn-Identity*一致。

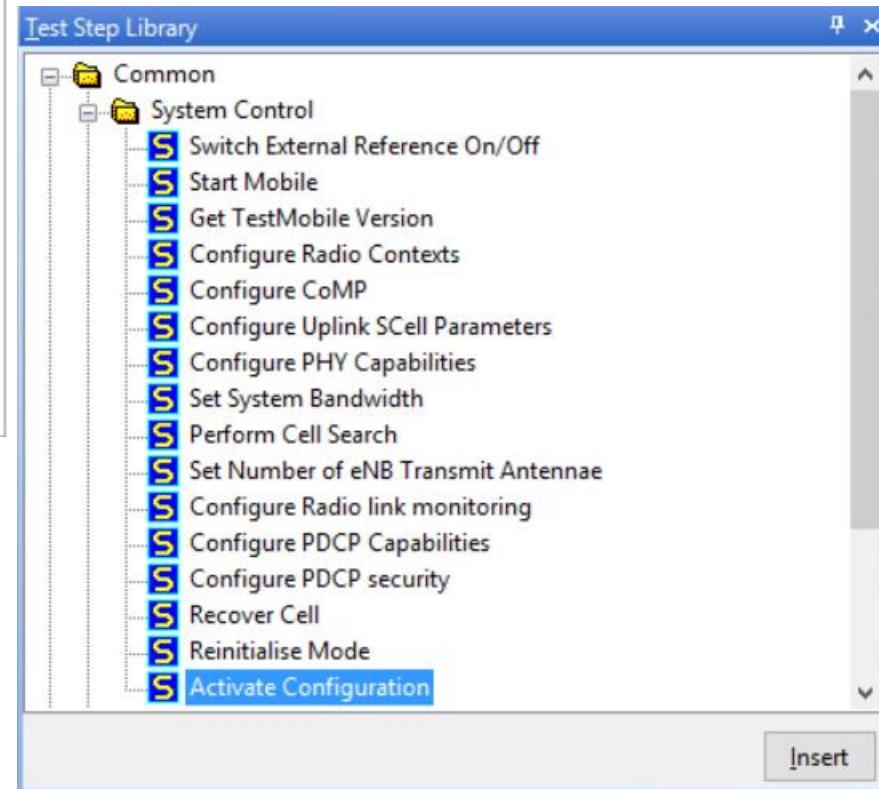
```
{  
    message c1 : systemInformationBlockType1 : {  
        cellAccessRelatedInfo {  
            plmn-IdentityList {  
                {  
                    plmn-Identity {  
                        mcc {  
                            3,  
                            0,  
                            2  
                        },  
                        mnc {  
                            2,  
                            2,  
                            0  
                        }  
                    },  
                    cellReservedForOperatorUse notReserved  
                }  
            }  
        }  
    }  
},
```



Activate Configuration

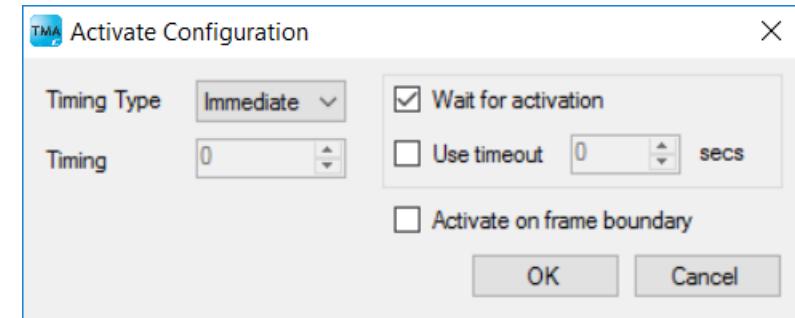
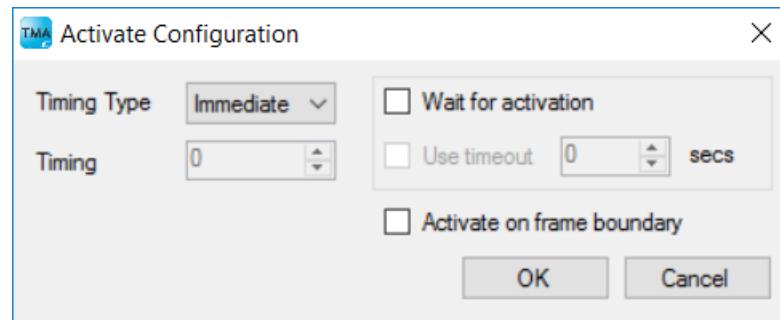
- 功能：使能之前的所有配置。

Description	Use	Mo...
My Tests	<input checked="" type="checkbox"/>	
MTS_Test_Script_Template	<input checked="" type="checkbox"/>	MTS
Init	<input checked="" type="checkbox"/>	
Configure Radio Contexts	<input checked="" type="checkbox"/>	
NAS_ENABLE_INDICATIONS_IN_MTS_MODE	<input checked="" type="checkbox"/>	
Calibrate Uplink Power Offset	<input checked="" type="checkbox"/>	
Start RDA Test Case	<input checked="" type="checkbox"/>	
Wait	<input checked="" type="checkbox"/>	
Select UE 0-1499	<input checked="" type="checkbox"/>	
Configure USIM	<input checked="" type="checkbox"/>	
Configure PHY Capabilities	<input checked="" type="checkbox"/>	
Configure RRC Capabilities	<input checked="" type="checkbox"/>	
Configure NAS Capabilities	<input checked="" type="checkbox"/>	
Configure NAS PLMN Selection	<input checked="" type="checkbox"/>	
Activate Configuration	<input checked="" type="checkbox"/>	



Activate Configuration

- 请勾选“Wait for activation”.



测试脚本Init

Define eNB Positions

- 功能：定义eNB相关信息，主要用于后续构建信道模型。

The screenshot shows the Cobham MTS Test Script Template interface. On the left, a tree view displays the test structure under 'My Tests' / 'MTS_Test_Script_Template' / 'Init'. The 'Define eNB Positions' step is highlighted with a blue selection bar. On the right, a 'Test Step Library' window is open, showing a list of steps categorized by layer: Common, Layers 1/2, Higher Layers, and MTS. The 'Define eNB Positions' step is listed under the MTS category. An 'Insert' button is visible at the bottom right of the library window.

Description	Use	Mo...
My Tests	<input checked="" type="checkbox"/>	
MTS_Test_Script_Template	<input checked="" type="checkbox"/>	MTS
Init	<input checked="" type="checkbox"/>	
Configure Radio Contexts	<input checked="" type="checkbox"/>	
NAS_ENABLE_INDICATIONS_IN_MTS_MODE	<input checked="" type="checkbox"/>	
Calibrate Uplink Power Offset	<input checked="" type="checkbox"/>	
Start RDA Test Case	<input checked="" type="checkbox"/>	
Wait	<input checked="" type="checkbox"/>	
Select UE 0-1499	<input checked="" type="checkbox"/>	
Configure USIM	<input checked="" type="checkbox"/>	
Configure PHY Capabilities	<input checked="" type="checkbox"/>	
Configure RRC Capabilities	<input checked="" type="checkbox"/>	
Configure NAS Capabilities	<input checked="" type="checkbox"/>	
Configure NAS PLMN Selection	<input checked="" type="checkbox"/>	
Activate Configuration	<input checked="" type="checkbox"/>	
Define eNB Positions	<input checked="" type="checkbox"/>	

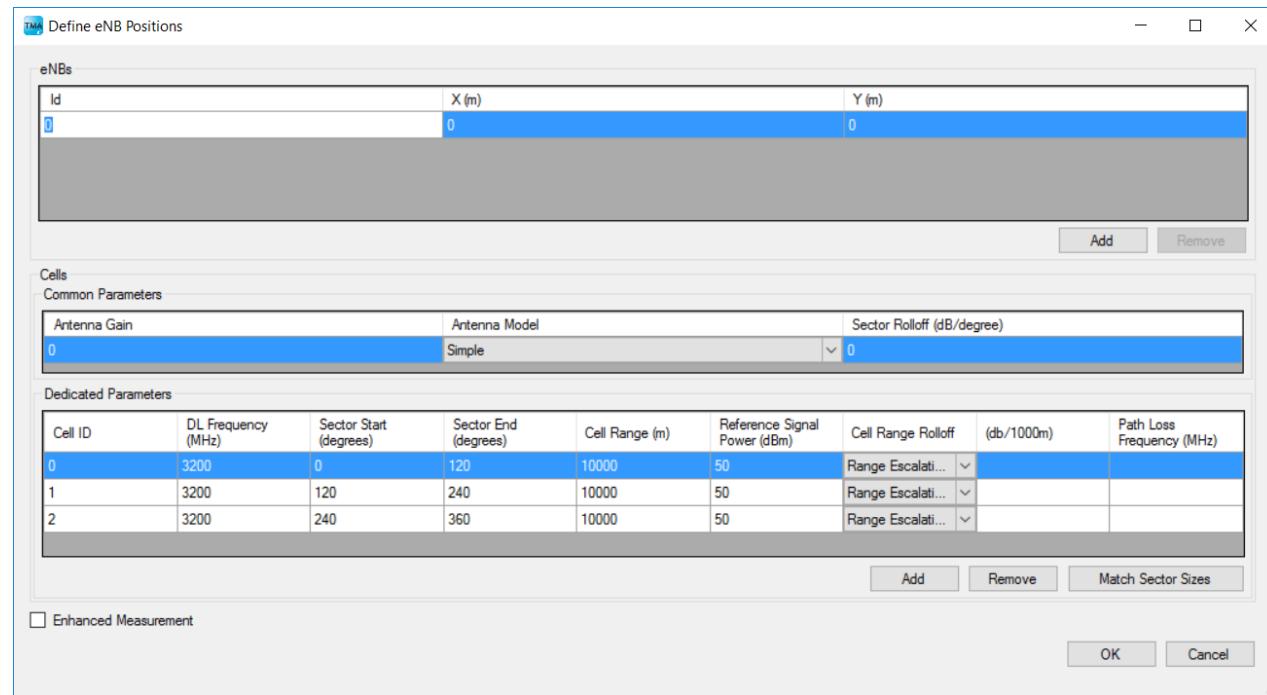
Test Step Library

- Common
- Layers 1/2
- Higher Layers
- MTS
 - Define eNB Positions
 - Start MTS Scenario
 - Pause MTS Scenario
 - Resume MTS Scenario
 - Stop MTS Scenario
 - Query MTS Scenario Status

Insert

Define eNB Positions

- 请根据测试需求和环境，相应更新如下配置
 - (X, Y)**: 如果是一个小区的测试场景，可用默认配置，即 (0, 0)。
 - Cell ID/DL Frequency**
 - Sector Start/End**: 一般可以配置为全向小区，即 (0, 360)。对于CA的测试场景，主辅小区可以完全重叠覆盖。



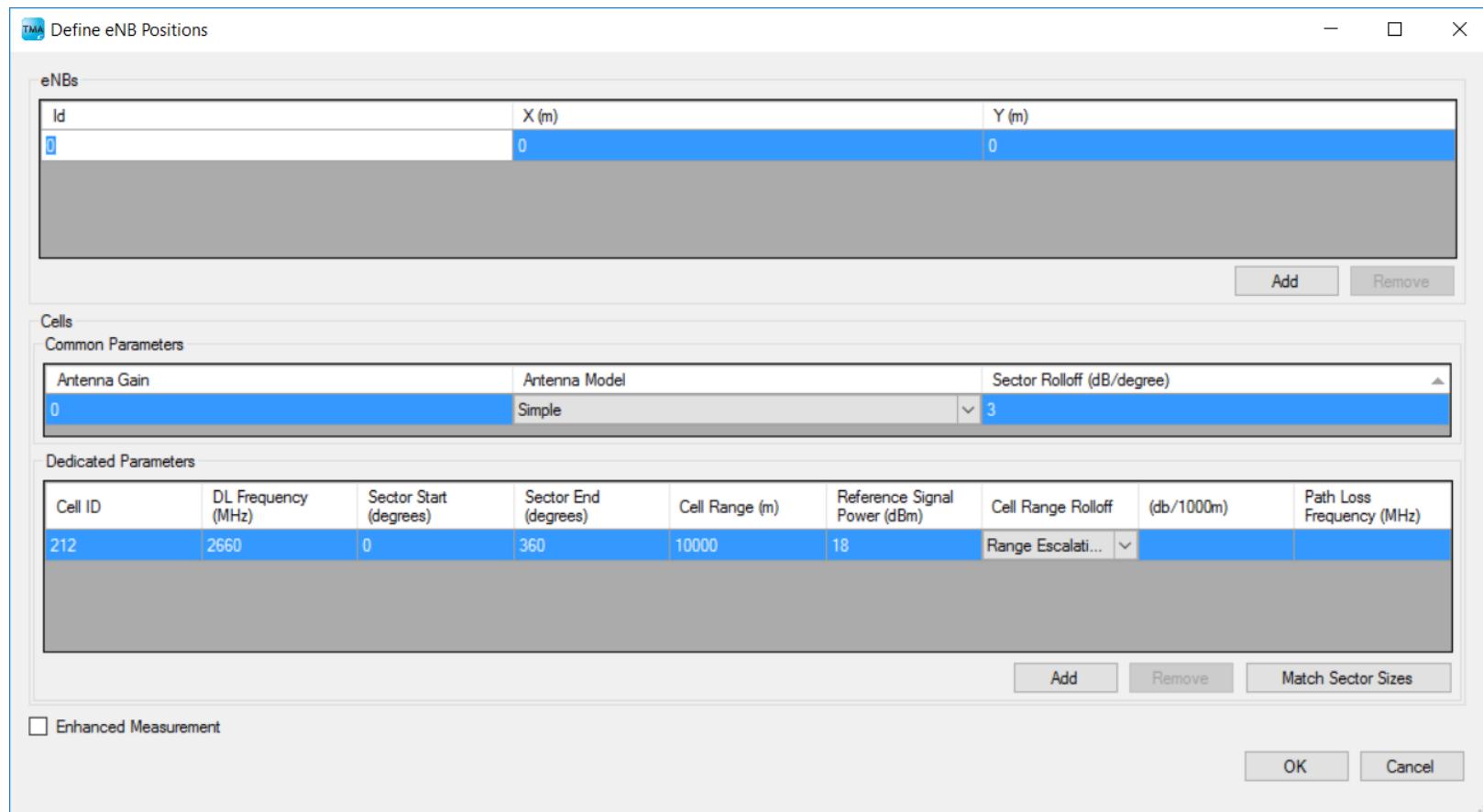
Define eNB Positions

- Reference Signal Power: 参考信号发射功率的配置建议与SIB2广播的 ***referenceSignalPower*** 一致。

```
message c1 : systemInformation : {
    criticalExtensions systemInformation-r8 : {
        sib-TypeAndInfo {
            sib2 : {
                radioResourceConfigCommon {
                    rach-ConfigCommon {
                        preambleInfo {
                            numberOfRA-Preambles n52,
                            preamblesGroupAConfig {
                                sizeOfRA-PreamblesGroupA n28,
                                messageSizeGroupA b56,
                                messagePowerOffsetGroupB dB10
                            }
                        },
                        powerRampingParameters {
                            powerRampingStep dB2,
                            preambleInitialReceivedTargetPower dBm-104
                        },
                        ra-SupervisionInfo {
                            preambleTransMax n10,
                            ra-ResponseWindowSize sf10,
                            mac-ContentionResolutionTimer sf64
                        },
                        maxHARQ-Msg3Tx 5
                    },
                    bcch-Config {
                        modificationPeriodCoeff n2
                    },
                    pcch-Config {
                        defaultPagingCycle rf128,
                        nB oneT
                    },
                    prach-Config {
                        rootSequenceIndex 1,
                        prach-ConfigInfo {
                            prach-ConfigIndex 6,
                            highSpeedFlag FALSE,
                            zeroCorrelationZoneConfig 10,
                            prach-FreqOffset 7
                        }
                    },
                    pdsch-ConfigCommon {
                        referenceSignalPower 18,
                        p-b 1
                    },
                }
            }
        }
    }
}
```

Define eNB Positions

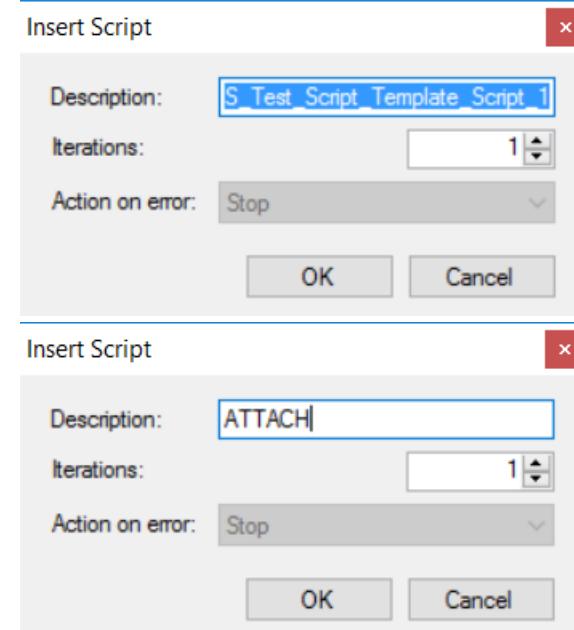
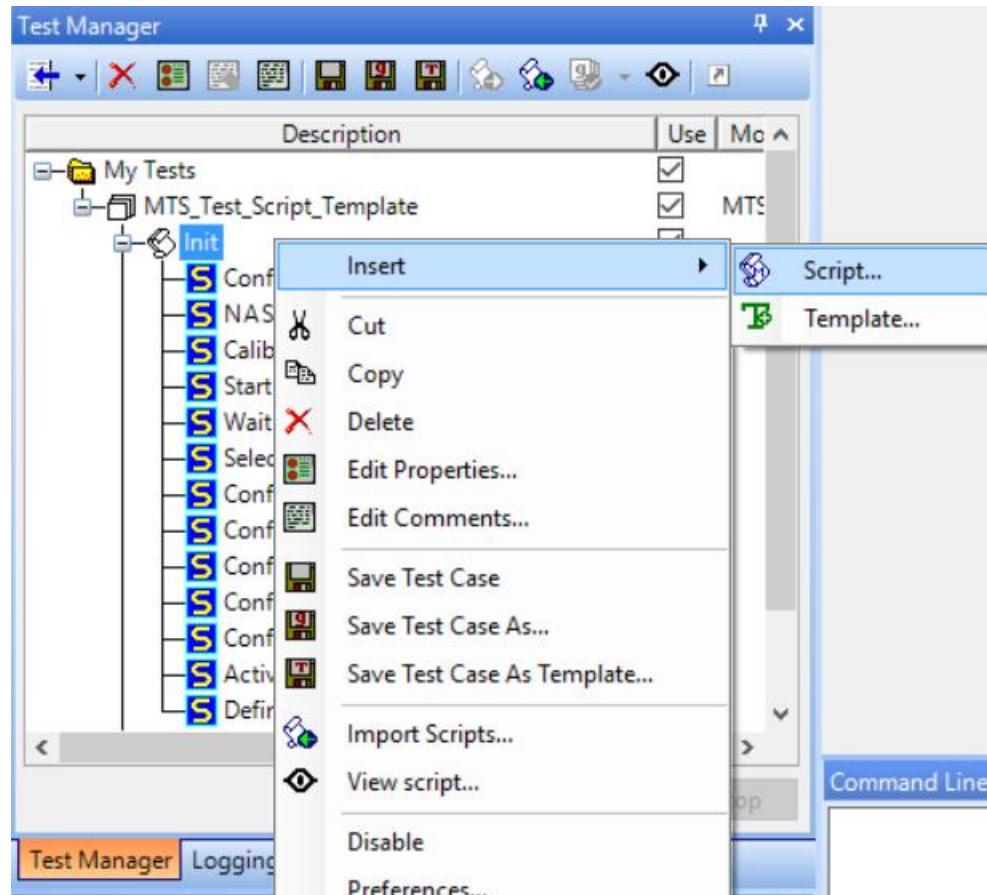
- Enhanced Measurement:** 如果是测试Small Cell, 请务必勾选此选项。



创建测试用例

New Test Case - ATTACH

- 右键点击**Init**, 选择Insert -> Script。
- 修改默认脚本名为ATTACH.



创建测试用例

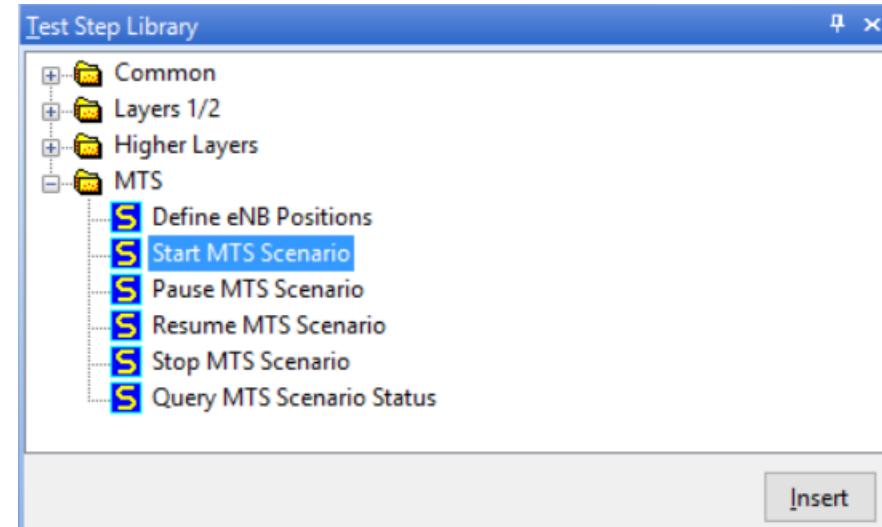
New Test Case - ATTACH

Description	Use	Mo...
My Tests	<input checked="" type="checkbox"/>	
MTS_Test_Script_Template	<input checked="" type="checkbox"/>	MTS
Init	<input checked="" type="checkbox"/>	
Configure Radio Contexts	<input checked="" type="checkbox"/>	
NAS_ENABLE_INDICATIONS_IN_MTS_...	<input checked="" type="checkbox"/>	
Calibrate Uplink Power Offset	<input checked="" type="checkbox"/>	
Start RDA Test Case	<input checked="" type="checkbox"/>	
Wait	<input checked="" type="checkbox"/>	
Select UE 0-1499	<input checked="" type="checkbox"/>	
Configure USIM	<input checked="" type="checkbox"/>	
Configure PHY Capabilities	<input checked="" type="checkbox"/>	
Configure RRC Capabilities	<input checked="" type="checkbox"/>	
Configure NAS Capabilities	<input checked="" type="checkbox"/>	
Configure NAS PLMN Selection	<input checked="" type="checkbox"/>	
Activate Configuration	<input checked="" type="checkbox"/>	
Define eNB Positions	<input checked="" type="checkbox"/>	
ATTACH	<input checked="" type="checkbox"/>	

Start MTS Scenario

- 功能：配置信道和业务模型。

Description	Use	Mo...
My Tests	<input checked="" type="checkbox"/>	
MTS_Test_Script_Template	<input checked="" type="checkbox"/>	MTS
Init	<input checked="" type="checkbox"/>	
S Configure Radio Contexts	<input checked="" type="checkbox"/>	
S NAS_ENABLE_INDICATIONS_IN_MTS_...	<input checked="" type="checkbox"/>	
S Calibrate Uplink Power Offset	<input checked="" type="checkbox"/>	
S Start RDA Test Case	<input checked="" type="checkbox"/>	
S Wait	<input checked="" type="checkbox"/>	
S Select UE 0-1499	<input checked="" type="checkbox"/>	
S Configure USIM	<input checked="" type="checkbox"/>	
S Configure PHY Capabilities	<input checked="" type="checkbox"/>	
S Configure RRC Capabilities	<input checked="" type="checkbox"/>	
S Configure NAS Capabilities	<input checked="" type="checkbox"/>	
S Configure NAS PLMN Selection	<input checked="" type="checkbox"/>	
S Activate Configuration	<input checked="" type="checkbox"/>	
S Define eNB Positions	<input checked="" type="checkbox"/>	
ATTACH	<input checked="" type="checkbox"/>	
S Start MTS Scenario	<input checked="" type="checkbox"/>	



Start MTS Scenario

- 请根据环境和需求，相应更新如下配置
— APN

Start MTS Scenario

ID	APN	PDN Type
0		IPv4

Add Remove

Applications

Application Name	APN	Bearer Allocation	Service Name Type	Bearers

Add Remove

Sequence Definition

Sequence Number 0 Add Remove

Duration (secs) 60 Time So Far 0 Total Time 60

Mobility Model Definition

Active Mobility Models

ID	Action
0	

Add Remove

Traffic Model Definition

Active Traffic Models

ID	Action
0	

Add Remove

Application Name	Delay Time (secs)	Duration (secs)	Repeat	Load Profile

Add Remove

OK Cancel

Advanced Settings

PDN Definition

ID	APN	PDN Type
0	cobham	IPv4

Add Remove

PDN Definition

ID	APN	PDN Type
0	cobham	IPv4

Add Remove

Start MTS Scenario

– Application

- *Application Name*必须与RDA脚本里的*Application Name*一致。
 - Bearer Allocation和Service Name Type用默认配置即可。

Applications				
Application Name	APN	Bearer Allocation	Service Name Type	Bearers

Applications					
Application Name	APN	Bearer Allocation	Service Name Type	Bearers	
DLUDP	cobham	▼	UseDefault...	▼	MTSProvisi...
ULDUP	cobham	▼	UseDefault...	▼	MTSProvisi...

Start MTS Scenario

- **Duration:** 单位是秒， 0表示无限长。UE将在超时后自动发起DETACH。

Sequence Number	0	Add	Remove		
Duration (secs)	60	Time So Far	0	Total Time	60

Sequence Number	0	Add	Remove		
Duration (secs)	0	Time So Far	0	Total Time	0

Start MTS Scenario

- **Active Mobility Models:** 此基本测试用例不要求信道模型，所以请移除此默认配置。

Mobility Model Definition

Active Mobility Models

ID	Action
0	

Add Remove

Mobility Model Definition

Active Mobility Models

ID	Action

Add Remove

Start MTS Scenario

- **Active Traffic Models**

- **Action:** Start

- 选择合适的Application Name; Delay Time, Duration以及Repeat用默认配置即可。

Traffic Model Definition

Active Traffic Models											
ID	Action										
0											
<table border="1"> <thead> <tr> <th>Application Name</th> <th>Delay Time (secs)</th> <th>Duration (secs)</th> <th>Repeat</th> <th>Load Profile</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Application Name	Delay Time (secs)	Duration (secs)	Repeat	Load Profile					
Application Name	Delay Time (secs)	Duration (secs)	Repeat	Load Profile							
<input type="button" value="Add"/> <input type="button" value="Remove"/>											
<table border="1"> <thead> <tr> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td></td> <td></td> </tr> </tbody> </table>											
<input type="button" value="Add"/> <input type="button" value="Remove"/>											

Traffic Model Definition

Active Traffic Models																
ID	Action															
0	Start															
<table border="1"> <thead> <tr> <th>Application Name</th> <th>Delay Time (secs)</th> <th>Duration (secs)</th> <th>Repeat</th> <th>Load Profile</th> </tr> </thead> <tbody> <tr> <td>DLUDP</td> <td>0</td> <td>Continuous</td> <td>False</td> <td></td> </tr> <tr> <td>ULUDP</td> <td>0</td> <td>Continuous</td> <td>False</td> <td></td> </tr> </tbody> </table>		Application Name	Delay Time (secs)	Duration (secs)	Repeat	Load Profile	DLUDP	0	Continuous	False		ULUDP	0	Continuous	False	
Application Name	Delay Time (secs)	Duration (secs)	Repeat	Load Profile												
DLUDP	0	Continuous	False													
ULUDP	0	Continuous	False													
<input type="button" value="Add"/> <input type="button" value="Remove"/>																
<table border="1"> <thead> <tr> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td></td> <td></td> </tr> </tbody> </table>																
<input type="button" value="Add"/> <input type="button" value="Remove"/>																

UE Group Config...

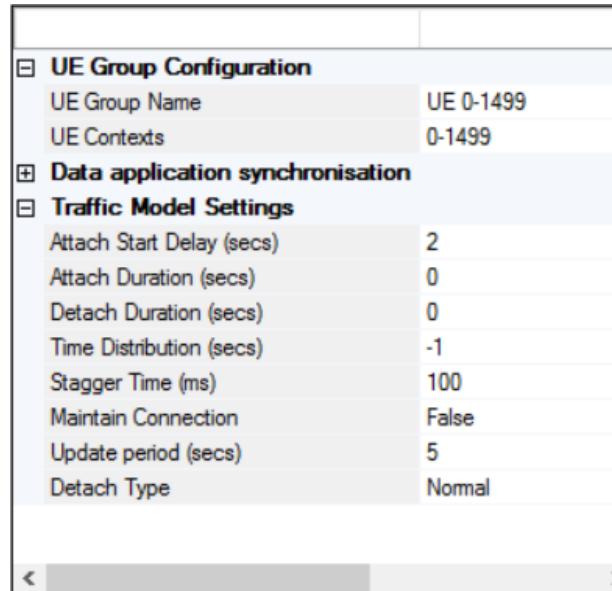
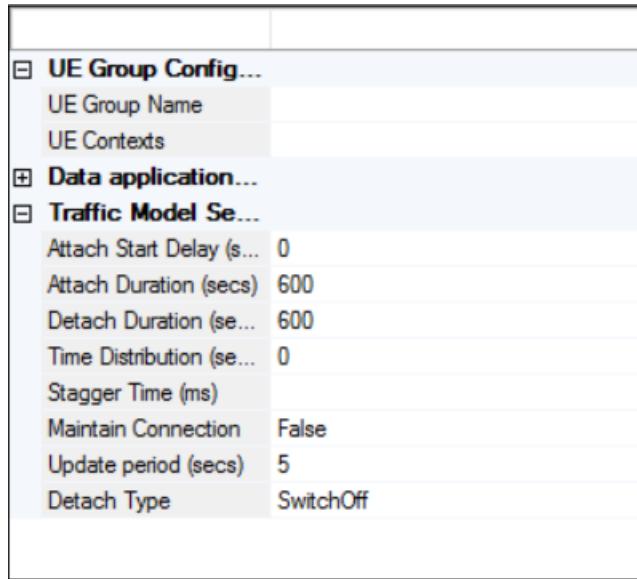
UE Group Name	UE 0-1499
UE Contexts	0-1499

Data application...

Sync Profile Start	False
Start Profile Delay (secs)	
Attach Sync Timeout (secs)	

Start MTS Scenario

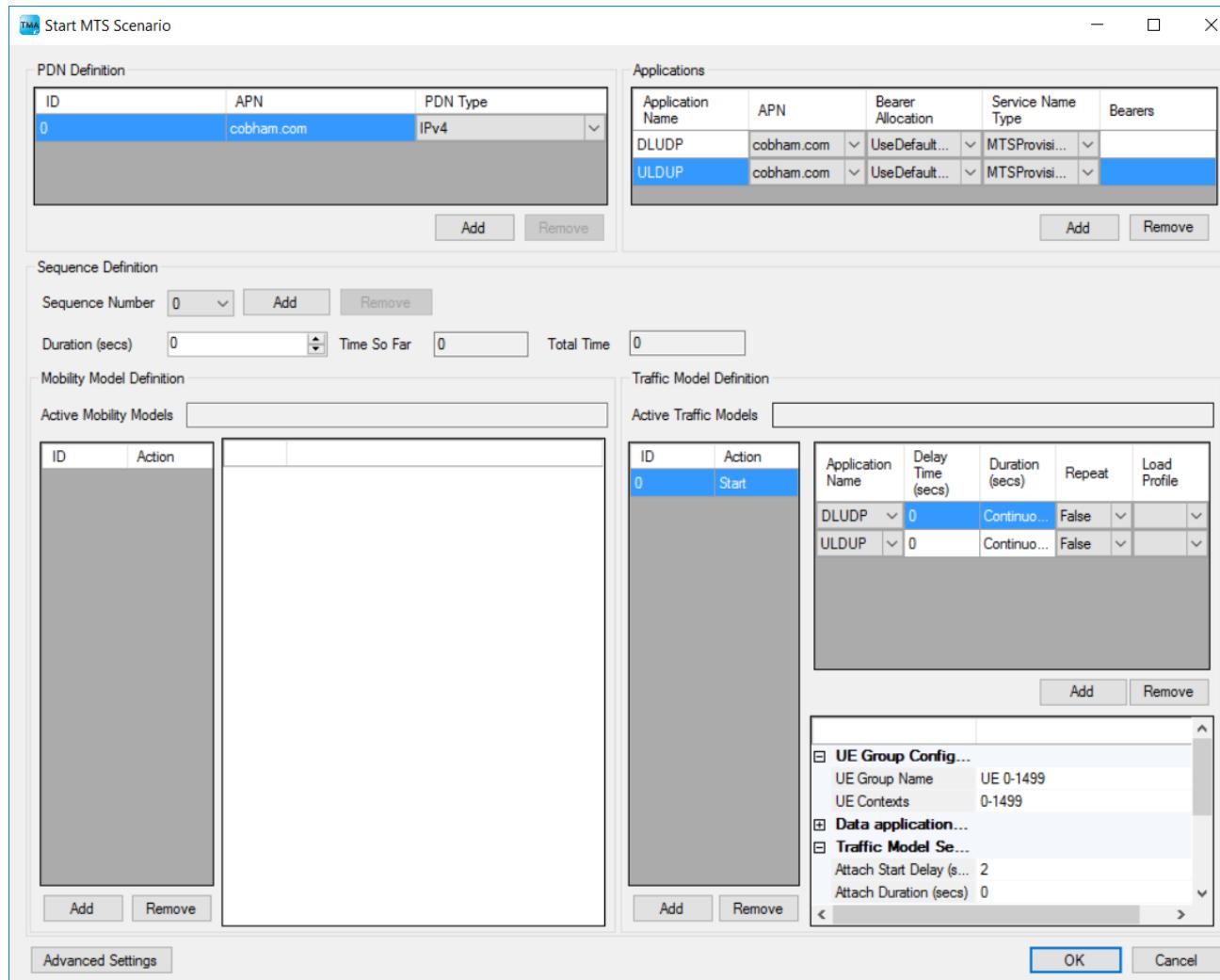
- **UE Group Name:** 请根据测试需求，选择或创建相应地UE Group.
- **Attach Start Delay:** 至少设置为2，以预留一定的时间使信道模型生效。
- **Attach & Detach Duration:** 设为为0，UE不主动发起DETACH.
- **Time Distribution:** 设置为-1，以便配置Stagger Time.
- **Stagger Time:** UE发起ATTACH的间隔。
- **Detach Type:** 建议更新为Normal.



测试脚本ATTACH

COBHAM

Start MTS Scenario

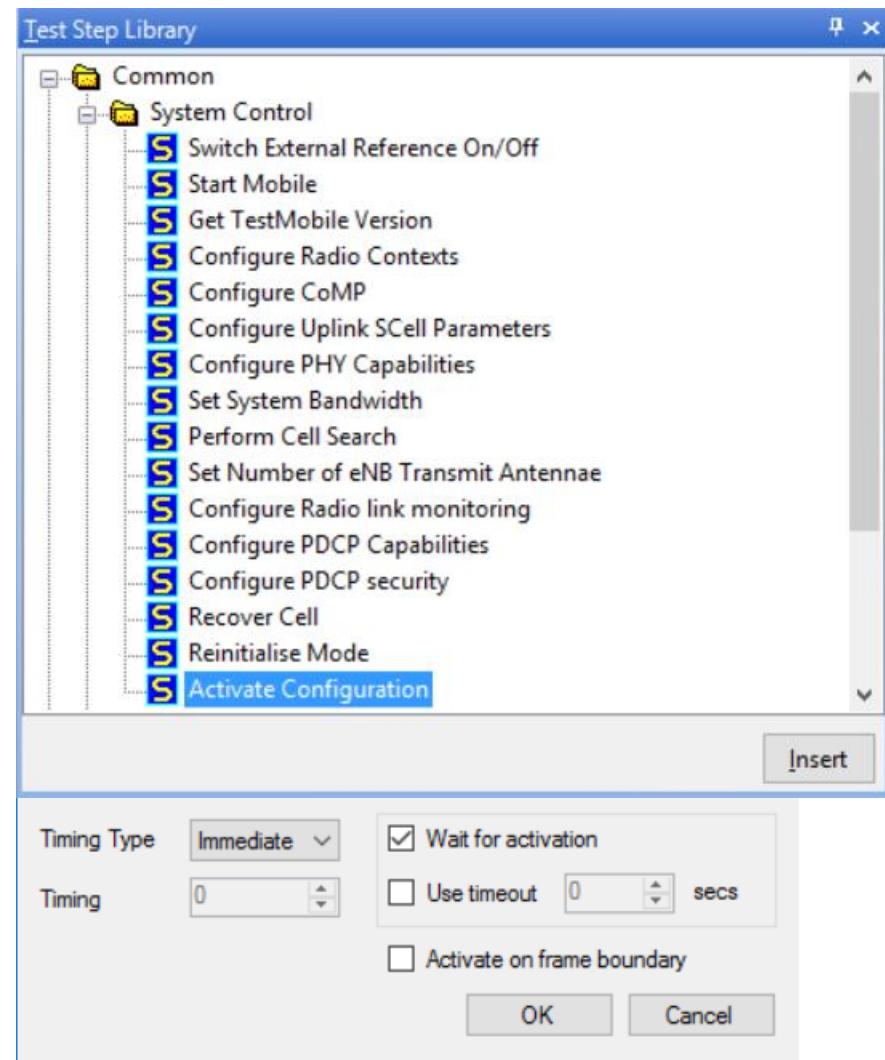


测试脚本ATTACH

COBHAM

Activate Configuration

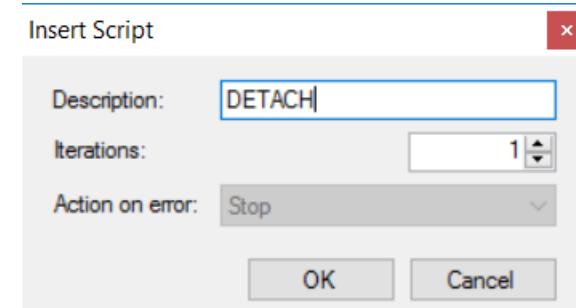
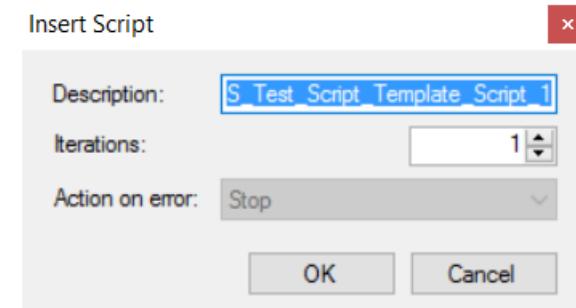
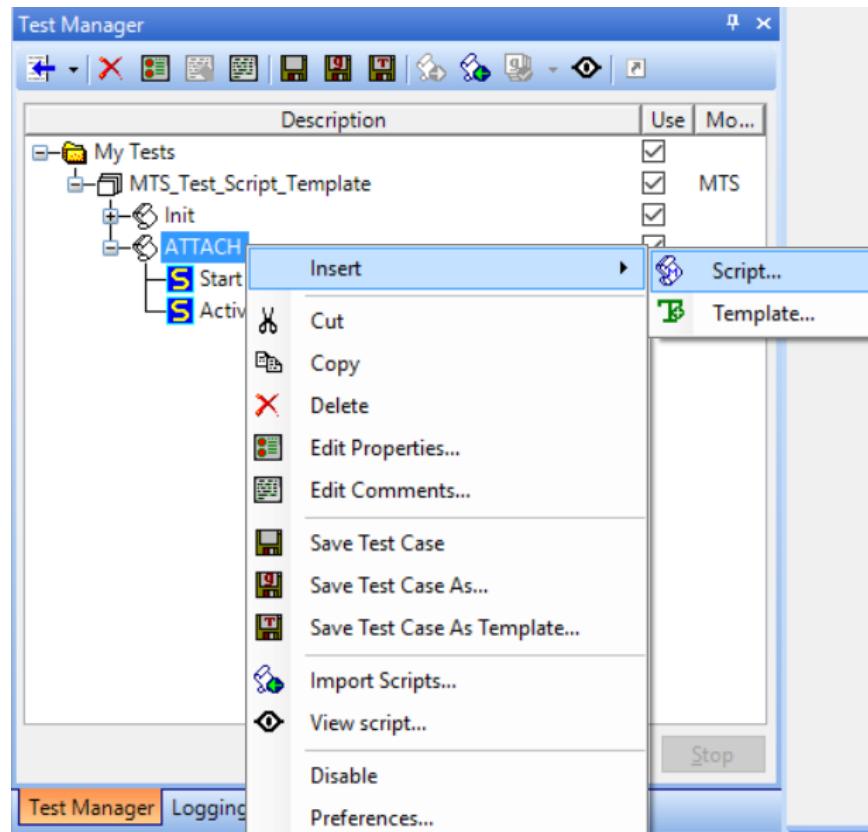
Description	Use	Mo...
My Tests		
MTS_Test_Script_Template		MTS
Init		
Configure Radio Contexts	✓	
NAS_ENABLE_INDICATIONS_IN_MTS_...	✓	
Calibrate Uplink Power Offset	✓	
Start RDA Test Case	✓	
Wait	✓	
Select UE 0-1499	✓	
Configure USIM	✓	
Configure PHY Capabilities	✓	
Configure RRC Capabilities	✓	
Configure NAS Capabilities	✓	
Configure NAS PLMN Selection	✓	
Activate Configuration	✓	
Define eNB Positions	✓	
ATTACH		
Start MTS Scenario	✓	
Activate Configuration	✓	



创建测试用例

New Test Case - DETACH

- 右键点击**ATTACH**, 选择Insert -> Script。
- 修改默认脚本名为DETACH.



创建测试用例

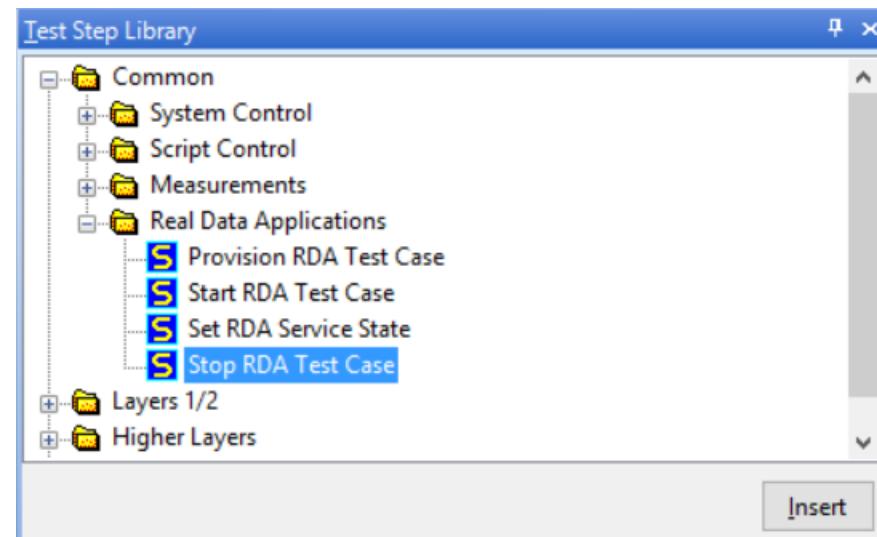
New Test Case - DETACH

Description	Use	Mo...
My Tests	<input checked="" type="checkbox"/>	
MTS_Test_Script_Template	<input checked="" type="checkbox"/>	MTS
Init	<input checked="" type="checkbox"/>	
S Configure Radio Contexts	<input checked="" type="checkbox"/>	
S NAS_ENABLE_INDICATIONS_IN_MTS_...	<input checked="" type="checkbox"/>	
S Calibrate Uplink Power Offset	<input checked="" type="checkbox"/>	
S Start RDA Test Case	<input checked="" type="checkbox"/>	
S Wait	<input checked="" type="checkbox"/>	
S Select UE 0-1499	<input checked="" type="checkbox"/>	
S Configure USIM	<input checked="" type="checkbox"/>	
S Configure PHY Capabilities	<input checked="" type="checkbox"/>	
S Configure RRC Capabilities	<input checked="" type="checkbox"/>	
S Configure NAS Capabilities	<input checked="" type="checkbox"/>	
S Configure NAS PLMN Selection	<input checked="" type="checkbox"/>	
S Activate Configuration	<input checked="" type="checkbox"/>	
S Define eNB Positions	<input checked="" type="checkbox"/>	
ATTACH	<input checked="" type="checkbox"/>	
S Start MTS Scenario	<input checked="" type="checkbox"/>	
S Activate Configuration	<input checked="" type="checkbox"/>	
DETACH	<input checked="" type="checkbox"/>	

Stop RDA Test Case

- 功能：停止RDA脚本运行。

Description	Use	Mo...
My Tests	<input checked="" type="checkbox"/>	
MTS_Test_Script_Template	<input checked="" type="checkbox"/>	MTS
Init	<input checked="" type="checkbox"/>	
ATTACH	<input checked="" type="checkbox"/>	
Start MTS Scenario	<input checked="" type="checkbox"/>	
Activate Configuration	<input checked="" type="checkbox"/>	
DETACH	<input checked="" type="checkbox"/>	
Stop RDA Test Case	<input checked="" type="checkbox"/>	



Wait

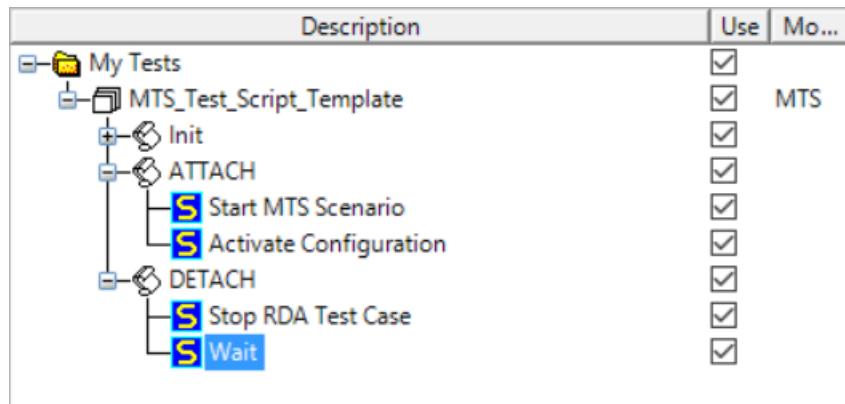
- 功能：等待TM500返回RDA成功停止的指示。

- 请更新如下默认配置

- Wait for:** Messages

- Message Text:** *I: CMPI DTE RDA TEST GROUP STOPPED IND:*

- Timeout:** 300 secs



RRC_TEST_UL_DELIVERY_INDS_REQUIRED

- 功能：尽可能保证运行Stop MTS Scenario时，所有UE都能成功发起DETACH.

- Raw Command

```
SETP RRC_TEST_UL_DELIVERY_INDS_REQUIRED 1
```

- 点击Set description

RRC_TEST_UL_DELIVERY_INDS_REQUIRED

Used to control whether the RRC expects a confirmation of SRB delivery from the PDCP.

```
SETP RRC_TEST_UL_DELIVERY_INDS_REQUIRED N
```

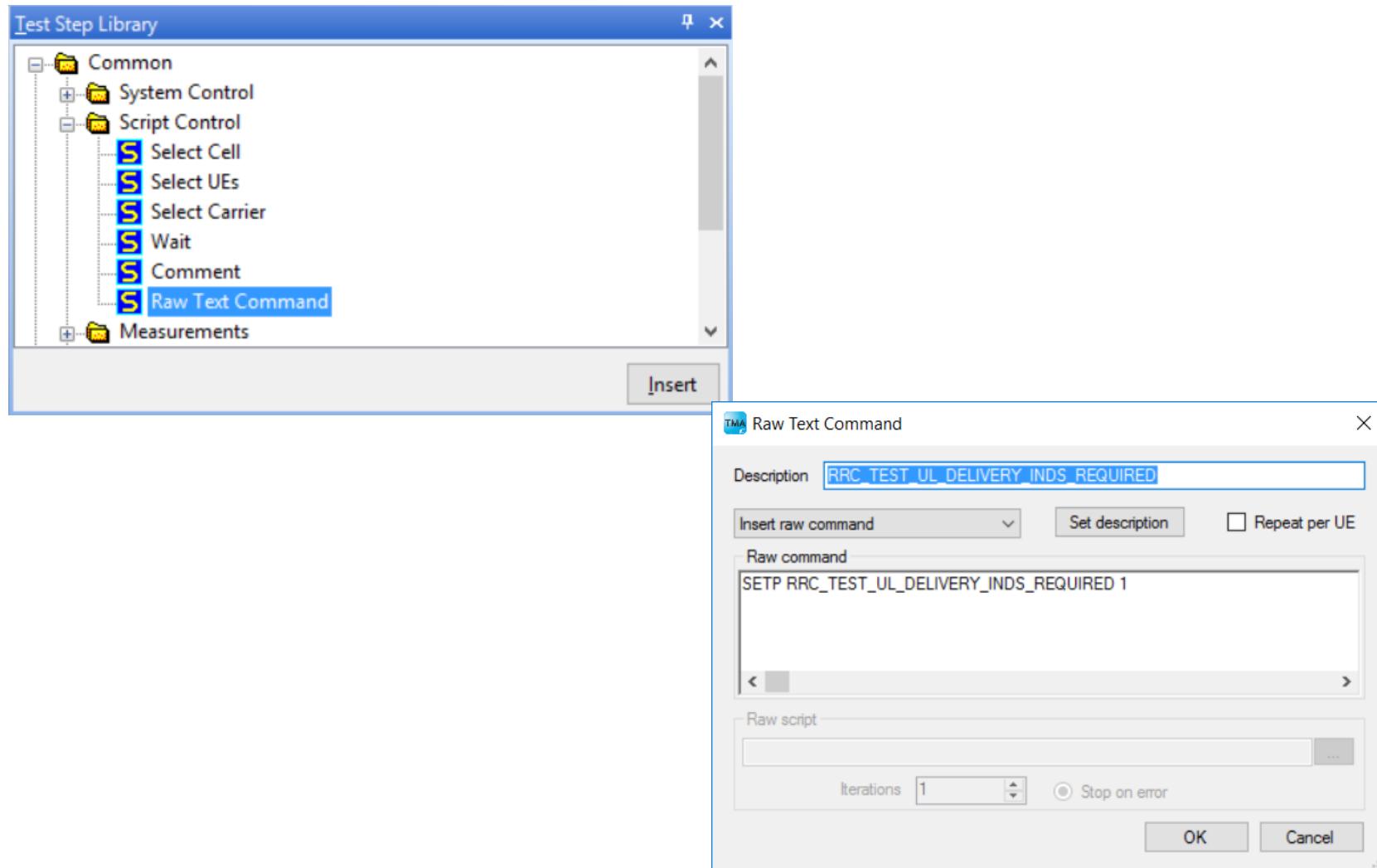
N = 0 (disable) or 1 (enable), default 0.

Description	Use	Mo...
My Tests	<input checked="" type="checkbox"/>	
MTS_Test_Script_Template	<input checked="" type="checkbox"/>	MTS
Init	<input checked="" type="checkbox"/>	
ATTACH	<input checked="" type="checkbox"/>	
Start MTS Scenario	<input checked="" type="checkbox"/>	
Activate Configuration	<input checked="" type="checkbox"/>	
DETACH	<input checked="" type="checkbox"/>	
Stop RDA Test Case	<input checked="" type="checkbox"/>	
Wait	<input checked="" type="checkbox"/>	
RRC_TEST_UL_DELIVERY_INDS_REQUIRED	<input checked="" type="checkbox"/>	

测试脚本DETACH

COBHAM

RRC_TEST_UL_DELIVERY_INDS_REQUIRED



Stop MTS Scenario

- 功能：UE发起DETACH.

The screenshot shows the Cobham MTS Test Script Template interface. On the left, a tree view displays a test scenario structure:

Description	Use	Mo...
My Tests	<input checked="" type="checkbox"/>	
MTS_Test_Script_Template	<input checked="" type="checkbox"/>	MTS
Init	<input checked="" type="checkbox"/>	
ATTACH	<input checked="" type="checkbox"/>	
Start MTS Scenario	<input checked="" type="checkbox"/>	
Activate Configuration	<input checked="" type="checkbox"/>	
DETACH	<input checked="" type="checkbox"/>	
Stop RDA Test Case	<input checked="" type="checkbox"/>	
Wait	<input checked="" type="checkbox"/>	
RRC_TEST_UL_DELIVERY_INDICATION_REQUIRED	<input checked="" type="checkbox"/>	
Stop MTS Scenario	<input checked="" type="checkbox"/>	

On the right, a "Test Step Library" window is open, showing a list of available test steps under the MTS category:

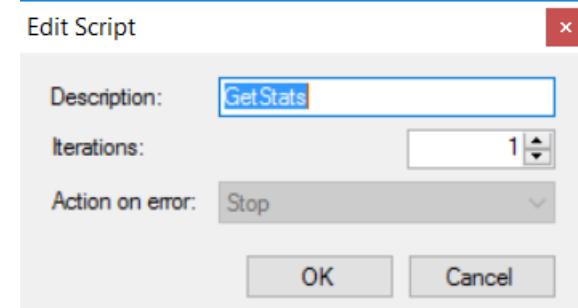
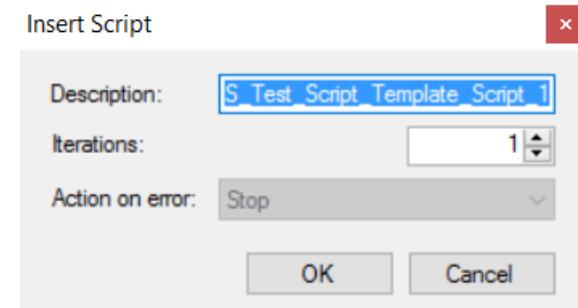
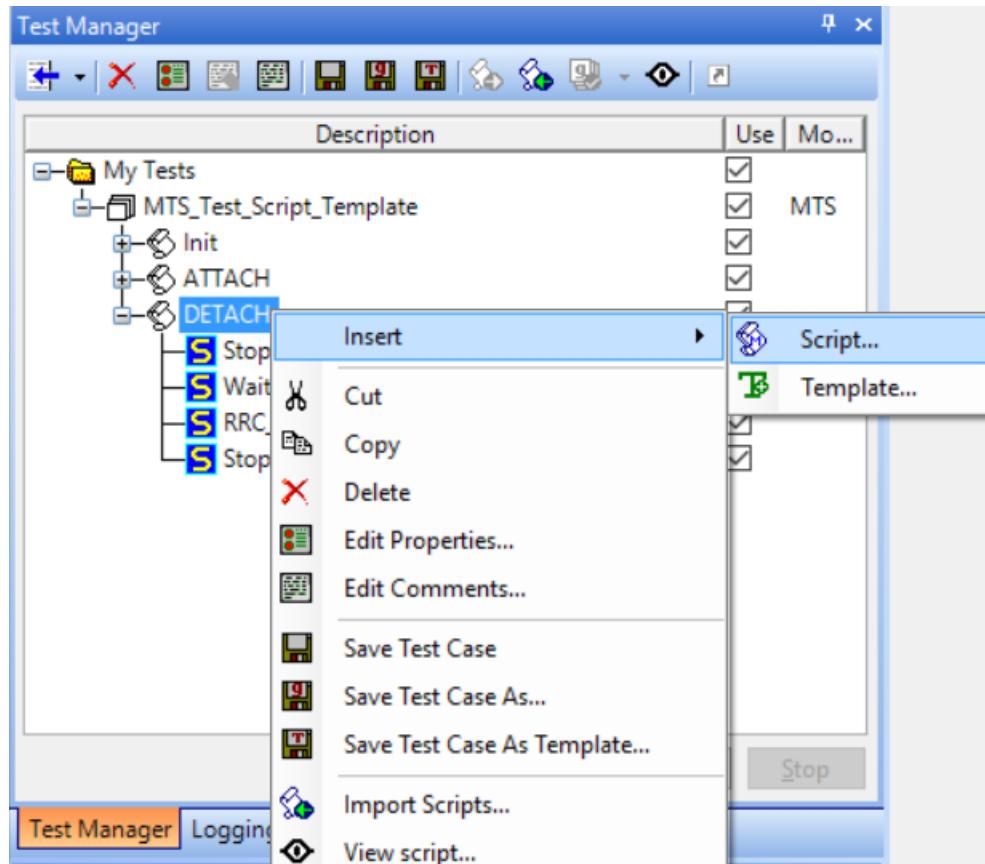
- Common
- Layers 1/2
- Higher Layers
- MTS
 - Define eNB Positions
 - Start MTS Scenario
 - Pause MTS Scenario
 - Resume MTS Scenario
 - Stop MTS Scenario
 - Query MTS Scenario Status

An "Insert" button is located at the bottom right of the library window.

创建测试用例

New Test Case - GetStats

- 右键点击**DETACH**, 选择Insert -> Script。
- 修改默认脚本名为GetStats.



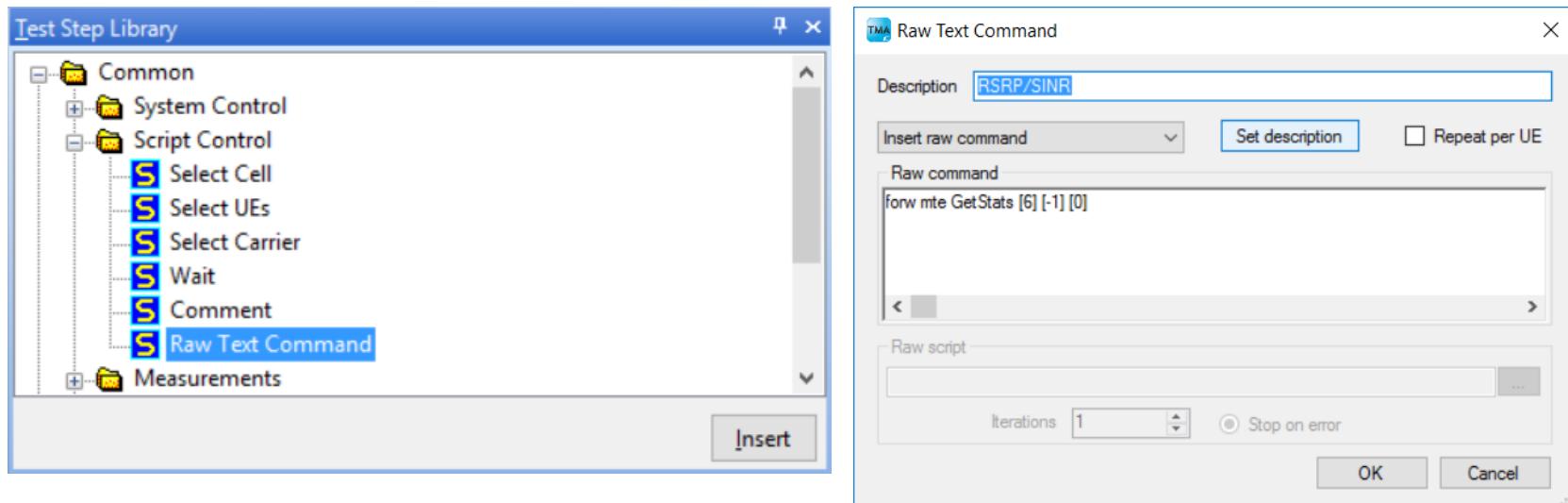
创建测试用例

New Test Case - GetStats

Description	Use	Mo...
My Tests	<input checked="" type="checkbox"/>	
MTS_Test_Script_Template	<input checked="" type="checkbox"/>	MTS
Init	<input checked="" type="checkbox"/>	
ATTACH	<input checked="" type="checkbox"/>	
DETACH	<input checked="" type="checkbox"/>	
Stop RDA Test Case	<input checked="" type="checkbox"/>	
Wait	<input checked="" type="checkbox"/>	
RRC_TEST_UL_DELIVERY_INDS_REQUIRED	<input checked="" type="checkbox"/>	
Stop MTS Scenario	<input checked="" type="checkbox"/>	
GetStats	<input checked="" type="checkbox"/>	

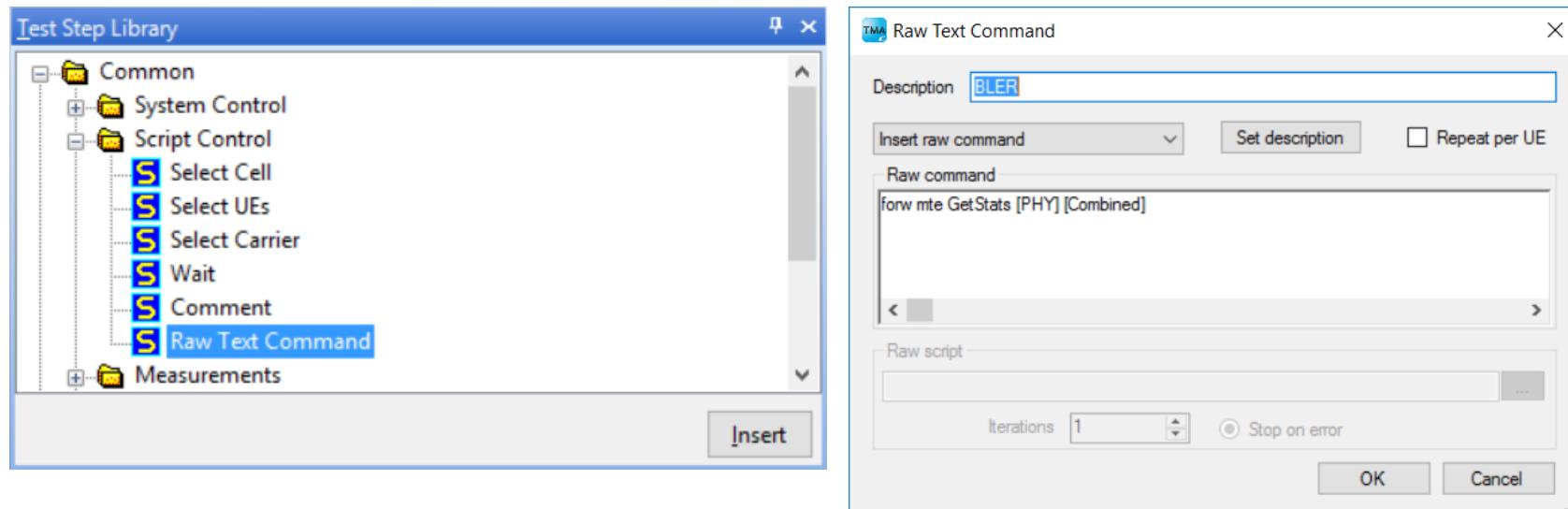
RSRP/SINR

- 功能：查询每个小区的RSRP/SINR
 - Raw command:** *forw mte GetStats [6] [-1] [0]*
 - Description:** RSRP/SINR



BLER

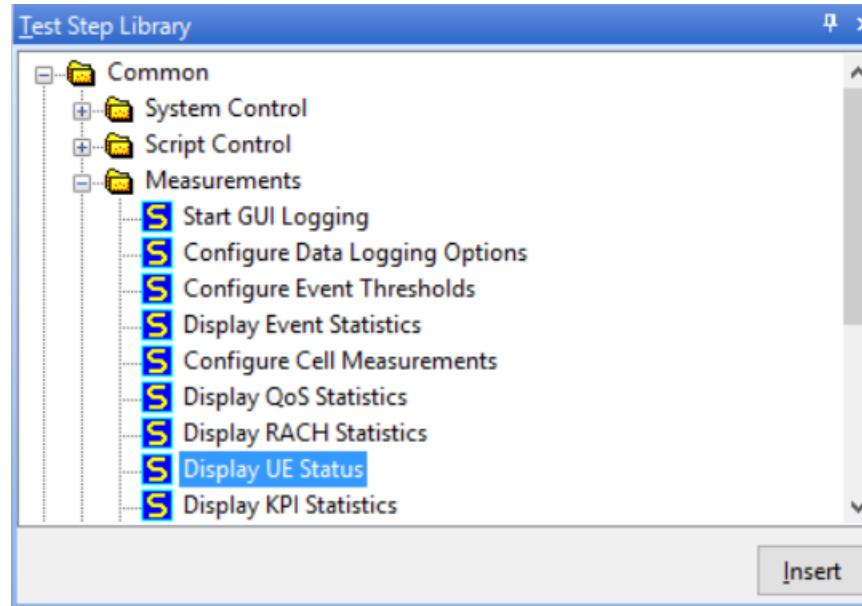
- 功能：查询每个小区的BLER以及物理层吞吐量。
 - Raw command:** *forw mte GetStats [PHY] [Combined]*
 - Description:** BLER



创建测试用例

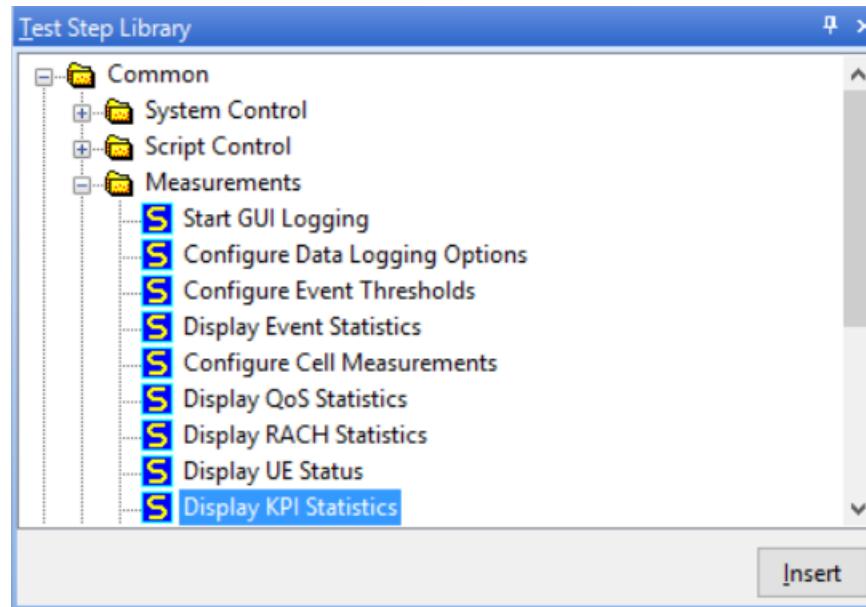
GetStats – Display UE Status

- 功能：查询UE的RRC/NAS/DTE/MTS Traffic/MTS Mobility状态。



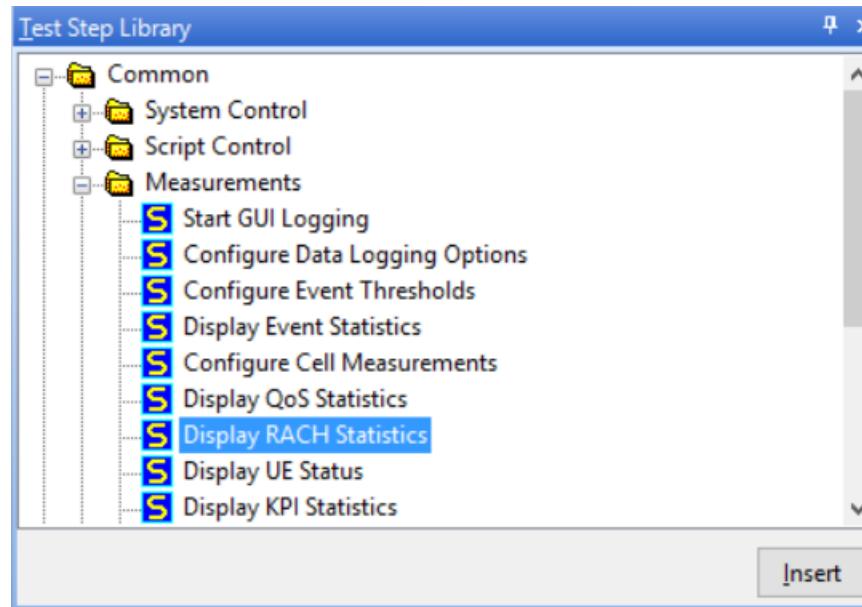
Display KPI Statistics

- 功能：查询RRC/NAS各项KPI.



Display RACH Statistics

- 功能：查询RACH相关的各项KPI.



Description	Use	Mo...
My Tests	<input checked="" type="checkbox"/>	
MTS_Test_Script_Template	<input checked="" type="checkbox"/>	MTS
Init	<input checked="" type="checkbox"/>	
ATTACH	<input checked="" type="checkbox"/>	
DETACH	<input checked="" type="checkbox"/>	
Stop RDA Test Case	<input checked="" type="checkbox"/>	
Wait	<input checked="" type="checkbox"/>	
RRC_TEST_UL_DELIVERY_INDICATION_REQUIRED	<input checked="" type="checkbox"/>	
Stop MTS Scenario	<input checked="" type="checkbox"/>	
Wait	<input checked="" type="checkbox"/>	
GetStats	<input checked="" type="checkbox"/>	
RSRP/SINR	<input checked="" type="checkbox"/>	
BLER	<input checked="" type="checkbox"/>	
Display UE Status	<input checked="" type="checkbox"/>	
Display KPI Statistics	<input checked="" type="checkbox"/>	
Display RACH Statistics	<input checked="" type="checkbox"/>	

- 至此，基本测试用例模板创建完成。
 - 对于UE级的配置，请确保勾选左下角的“Select UE Group Context”。
 - Configure USIM
 - Configure PHY Capabilities
 - Configure RRC Capabilities
 - Configure NAS Capabilities
 - Configure NAS PLMN Capabilities
 - UE级的配置还包括如下常用可选脚本配置
 - Configure UE ETURA Capabilities
 - Configure RRC Cell Selection

	Description	Use	Mo...
My Tests		<input checked="" type="checkbox"/>	
MTS_Test_Script_Template		<input checked="" type="checkbox"/>	MTS
Init		<input checked="" type="checkbox"/>	
Configure Radio Contexts	S	<input checked="" type="checkbox"/>	
NAS_ENABLE_INDICATIONS_IN_MTS_MODE 1	S	<input checked="" type="checkbox"/>	
Calibrate Uplink Power Offset	S	<input checked="" type="checkbox"/>	
Start RDA Test Case	S	<input checked="" type="checkbox"/>	
Wait	S	<input checked="" type="checkbox"/>	
Select UE 0-1499	S	<input checked="" type="checkbox"/>	
Configure USIM	S	<input checked="" type="checkbox"/>	
Configure PHY Capabilities	S	<input checked="" type="checkbox"/>	
Configure RRC Capabilities	S	<input checked="" type="checkbox"/>	
Configure NAS Capabilities	S	<input checked="" type="checkbox"/>	
Configure NAS PLMN Selection	S	<input checked="" type="checkbox"/>	
Activate Configuration	S	<input checked="" type="checkbox"/>	
Define eNB Positions	S	<input checked="" type="checkbox"/>	
ATTACH		<input checked="" type="checkbox"/>	
Start MTS Scenario	S	<input checked="" type="checkbox"/>	
Activate Configuration	S	<input checked="" type="checkbox"/>	
DETACH		<input checked="" type="checkbox"/>	
Stop RDA Test Case	S	<input checked="" type="checkbox"/>	
Wait	S	<input checked="" type="checkbox"/>	
RRC_TEST_UL_DELIVERY_INDICATIONS_REQUIRED	S	<input checked="" type="checkbox"/>	
Stop MTS Scenario	S	<input checked="" type="checkbox"/>	
Wait	S	<input checked="" type="checkbox"/>	
GetStats		<input checked="" type="checkbox"/>	
RSRP/SINR	S	<input checked="" type="checkbox"/>	
BLER	S	<input checked="" type="checkbox"/>	
Display UE Status	S	<input checked="" type="checkbox"/>	
Display KPI Statistics	S	<input checked="" type="checkbox"/>	
Display RACH Statistics	S	<input checked="" type="checkbox"/>	

- 选择脚本，然后点击右上角的小眼睛，可以查看脚本对应的命令。关于命令的详细介绍，请参阅 *TM500LTE_CommandReference.pdf*。

The screenshot shows the Cobham Test Manager interface. On the left is a tree view of a test script template named "MTS_Test_Script_Template". The template includes sections for INIT, ATTACH, DETACH, and GETSTATS, each containing various test steps like "Configure Radio Contexts" and "Calibrate Uplink Power Offset". A red box highlights the "View Script" button at the top right of the tree view.

On the right is a detailed view of the "Init" section's command script. The script is as follows:

```

# TMA child script
#####
# TEST STEP: Configure Radio Contexts #
#####

#--#
# set the cell information for a radio context
#--#
# PARAMETERS
# 1. Radio Context Id
# 2. Cell Id
# 3. DL carrier frequency
# 4. System Bandwidth
# 5. Number of eNB transmit antennas
# 6. Number of receive antennas
#
# 1 2 3 4 5 6
forw mte SetMueRadioContextCell 0 212 26600 20 [4] [] [4]
#--#


#####
# TEST STEP: Raw Text Command #
#####

#--#
SETP NAS_ENABLE_INDICATIONS_IN_MTS_MODE 1
#--#


#####
# TEST STEP: Calibrate uplink Power offset #
#####

#--#
# calibrate the UL power offset to be applied to the uplink physical chan#
#
# 1 2 3 4 5 6
forw mte PhyCalibrateUlPowerOffset
#--#
< >

```

At the bottom of the right panel, there is a "Wrap Text" checkbox and a "Close" button.

- 射频卡最大允许输入信号强度（RSSI）为-25dBm。
 - 搭建测试环境时，除了固定衰减器30dB衰减外，建议设置可调衰减器的初始衰减也为30dB，后续再做微调。
 - 建议下行主辅支路（TX1-RX1, TX2-RX2）RSRP为-60dBm，最大不应该超过-50dBm；交叉支路（TX1-RX2, TX2-RX1）尽可能小（例如：小于-100dBm）。
 - 实验室线缆连接的条件下，主辅支路SINR基本可以保证在30dB以上，交叉支路SINR最好小于0dB。
 - 完成小区搜索后（运行*Configure Radio Contexts*），可通过如下命令查询小区RSRP/SINR：

```
forw mte GetStats [6] [-1] [0]
```

```
21/05/15 19:07:26:059 forw mte GetStats [-EXT-STATS] [-1] [0]
21/05/15 19:07:26:075 C: FORW 0x00 Ok MTE GETSTATS [-EXT-STATS] [-1] [0, 1, 2, 3, 4, 5]
21/05/15 19:07:26:075 UE ID: - (Radio Context: 2 Cell ID: 80 DL Freq: 2660.0 MHz)
21/05/15 19:07:26:075 RSSI: -39.6 dBm
21/05/15 19:07:26:075 Reference Signal: (Tx1,Rx1) RSRP: -61 dBm/SC SIR: 36 dB RSRQ: 2.2 dB RSSI: -43.2 dBm
21/05/15 19:07:26:075 Reference Signal: (Tx1,Rx2) RSRP: -109 dBm/SC SIR: -2 dB RSRQ: -46.9 dB RSSI: -42.1 dBm
21/05/15 19:07:26:075 Reference Signal: (Tx2,Rx1) RSRP: -110 dBm/SC SIR: -2 dB RSRQ: -46.8 dB RSSI: -43.2 dBm
21/05/15 19:07:26:075 Reference Signal: (Tx2,Rx2) RSRP: -60 dBm/SC SIR: 37 dB RSRQ: 2.1 dB RSSI: -42.1 dBm
```

- 初次搭建测试环境时，请在运行完**Init**脚本之后，及时确认并确保RSRP/SINR满足上述需求后，再进行测试。

典型测试用例模板

- 远中近点/切换
- PS UE & VoLTE UE混合组网
- 上下行CA
- TM3/TM4 4x2/4x4 MIMO
- TM9 8x4 MIMO
- 紧急呼叫及接入控制



- 请参阅 *CN-006-OMM_Configurations.pptx.*

- #待补充

可选脚本配置

- Override RRC Band
- Override UE ETURA Capabilities
- Configure Uplink Timing
- 常用SETP命令
- Configure RRC Cell Selection



TM500 Radio Cards

- **TK599-C** 400 MHz - 4 GHz Multiband Radio (MBR)
 - The double height of this MBR imposes restriction for future expansion.
 - Manufacturing of this double height card is to be scaled down.
- **TK600-C** 400 MHz - 4 GHz Compact MBR (C-MBR)
 - This is functionally equivalent to TK599-C, but is half the size, enabling up to 4 C-MBRs to be fitted in one chassis (i.e. 2CC CA, 4x4 MIMO).
- **TK613-C** 400 MHz - 6 GHz (DL) MBR
 - This is the same size as TK599-C but includes support for up to 6 GHz Downlink.
 - Order this card if the customer requires 4 to 6 GHz support (LTE-U / LAA)

Overview

- 功能：根据测试需求，自定义3GPP标准（TS36.101 Table 5.7.3-1）频段或非标频段。
 - 请置于测试脚本最开始的位置，即 *Configure Radio Contexts* 之前（如右图所示）。
 - 可以定义多个标准或非标频段。
 - 需要用单独的 *Activate Configuration* 激活配置（如右图所示）。

Description	Use	Mo...
My Tests	<input checked="" type="checkbox"/>	
MTS_Test_Script_Template	<input checked="" type="checkbox"/>	MTS
Init	<input checked="" type="checkbox"/>	
Override RRC Band	<input checked="" type="checkbox"/>	
Activate Configuration	<input checked="" type="checkbox"/>	
Configure Radio Contexts	<input checked="" type="checkbox"/>	
NAS_ENABLE_INDICATIONS_IN_MTS_MODE 1	<input checked="" type="checkbox"/>	
Calibrate Uplink Power Offset	<input checked="" type="checkbox"/>	
Start RDA Test Case	<input checked="" type="checkbox"/>	
Wait	<input checked="" type="checkbox"/>	
Select UE 0-1499	<input checked="" type="checkbox"/>	
Configure USIM	<input checked="" type="checkbox"/>	
Configure PHY Capabilities	<input checked="" type="checkbox"/>	
Configure RRC Capabilities	<input checked="" type="checkbox"/>	
Configure NAS Capabilities	<input checked="" type="checkbox"/>	
Configure NAS PLMN Selection	<input checked="" type="checkbox"/>	
Activate Configuration	<input checked="" type="checkbox"/>	
Define eNB Positions	<input checked="" type="checkbox"/>	
ATTACH	<input checked="" type="checkbox"/>	
Start MTS Scenario	<input checked="" type="checkbox"/>	
Activate Configuration	<input checked="" type="checkbox"/>	
DETACH	<input checked="" type="checkbox"/>	
GetStats	<input checked="" type="checkbox"/>	

Override RRC Band

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Edit RRC bands

- 以Band 41为例。（注意：*DL/UL Frequency start & Bandwidth*的单位是100 KHz）

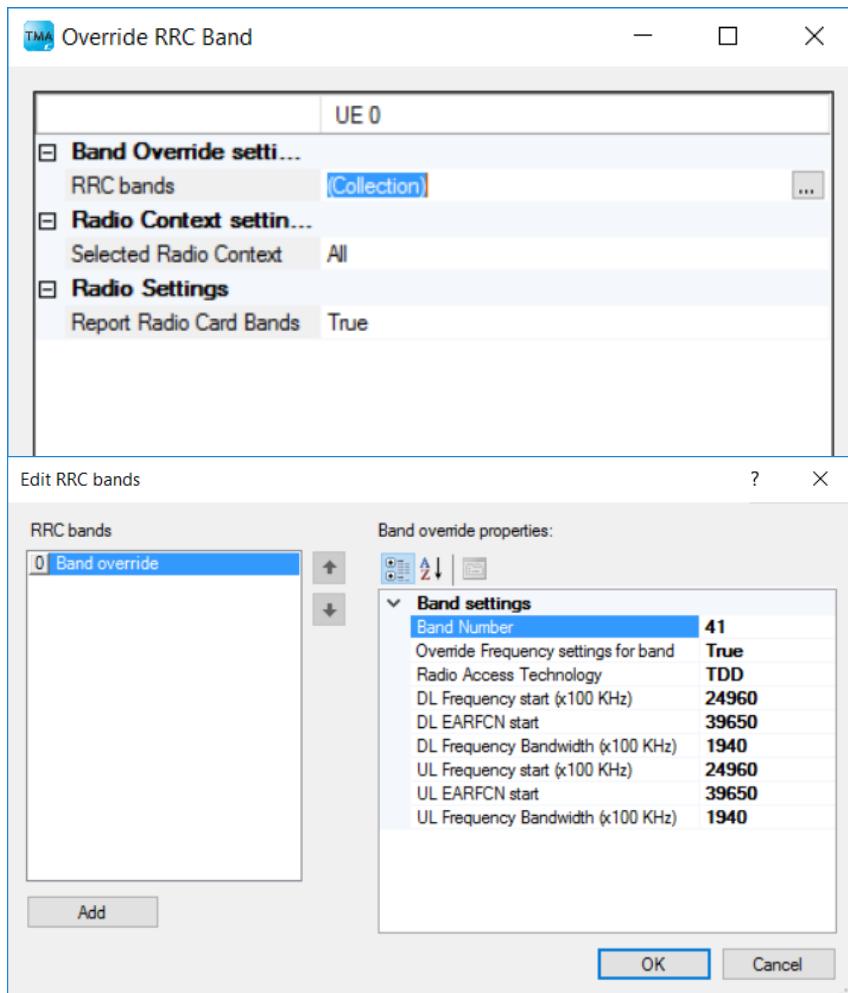
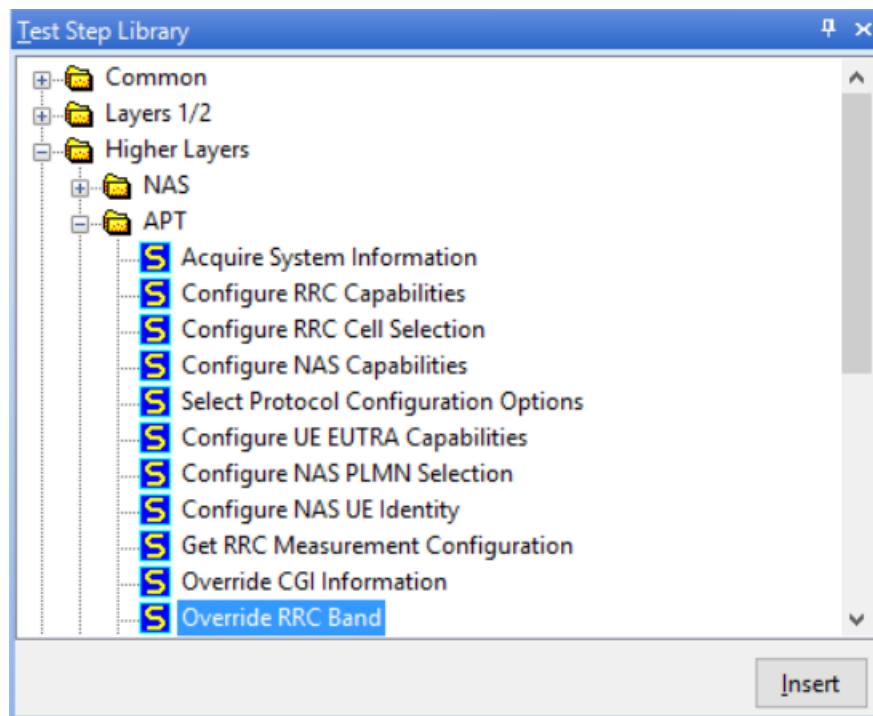


Table 5.7.3-1: E-UTRA channel numbers

E-UTRA Operating Band	Downlink			Uplink		
	F _{DL_low} (MHz)	N _{Offs-DL}	Range of N _{DL}	F _{UL_low} (MHz)	N _{Offs-UL}	Range of N _{UL}
1	2110	0	0 – 599	1920	18000	18000 – 18599
2	1930	600	600 – 1199	1850	18600	18600 – 19199
3	1805	1200	1200 – 1949	1710	19200	19200 – 19949
4	2110	1950	1950 – 2399	1710	19950	19950 – 20399
5	869	2400	2400 – 2649	824	20400	20400 – 20649
6	875	2650	2650 – 2749	830	20650	20650 – 20749
7	2620	2750	2750 – 3449	2500	20750	20750 – 21449
8	925	3450	3450 – 3799	880	21450	21450 – 21799
9	1844.9	3800	3800 – 4149	1749.9	21800	21800 – 22149
10	2110	4150	4150 – 4749	1710	22150	22150 – 22749
11	1475.9	4750	4750 – 4949	1427.9	22750	22750 – 22949
12	729	5010	5010 – 5179	699	23010	23010 – 23179
13	746	5180	5180 – 5279	777	23180	23180 – 23279
14	758	5280	5280 – 5379	788	23280	23280 – 23379
...						
17	734	5730	5730 – 5849	704	23730	23730 – 23849
18	860	5850	5850 – 5999	815	23850	23850 – 23999
19	875	6000	6000 – 6149	830	24000	24000 – 24149
20	791	6150	6150 – 6449	832	24150	24150 – 24449
21	1495.9	6450	6450 – 6599	1447.9	24450	24450 – 24599
22	3510	6600	6600 – 7399	3410	24600	24600 – 25399
23	2180	7500	7500 – 7699	2000	25500	25500 – 25699
24	1525	7700	7700 – 8039	1626.5	25700	25700 – 26039
25	1930	8040	8040 – 8689	1850	26040	26040 – 26689
26	859	8690	8690 – 9039	814	26690	26690 – 27039
27	852	9040	9040 – 9209	807	27040	27040 – 27209
28	758	9210	9210 – 9659	703	27210	27210 – 27659
29 ²	717	9660	9660 – 9769	N/A		
30	2350	9770	9770 – 9869	2305	27660	27660 – 27759
31	462.5	9870	9870 – 9919	452.5	27760	27760 – 27809
32 ²	1452	9920	9920 – 10359	N/A		

33	1900	36000	36000 – 36199	1900	36000	36000 – 36199
34	2010	36200	36200 – 36349	2010	36200	36200 – 36349
35	1850	36350	36350 – 36949	1850	36350	36350 – 36949
36	1930	36950	36950 – 37549	1930	36950	36950 – 37549
37	1910	37550	37550 – 37749	1910	37550	37550 – 37749
38	2570	37750	37750 – 38249	2570	37750	37750 – 38249
39	1880	38250	38250 – 38649	1880	38250	38250 – 38649
40	2300	38650	38650 – 39649	2300	38650	38650 – 39649
41	2496	39650	39650 – 41589	2496	39650	39650 – 41589
42	3400	41590	41590 – 43589	3400	41590	41590 – 43589
43	3600	43590	43590 – 45589	3600	43590	43590 – 45589
44	703	45590	45590 – 46589	703	45590	45590 – 46589
45	1447	46590	46590 – 46789	1447	46590	46590 – 46789
46 ⁴	5150	46790	46790 – 54539	5150	46790	46790 – 54539
...						
64			Reserved			
65	2110	65536	65536 – 66435	1920	131072	131072 – 131971
66 ⁵	2110	66436	66436 – 67335	1710	131972	131972 – 132671
67 ²	738	67336	67336 – 67535		N/A	
68	753	67536	67536 - 67835	698	132672	132672 - 132971
NOTE 1: The channel numbers that designate carrier frequencies so close to the operating band edges that the carrier extends beyond the operating band edge shall not be used. This implies that the first 7, 15, 25, 50, 75 and 100 channel numbers at the lower operating band edge and the last 6, 14, 24, 49, 74 and 99 channel numbers at the upper operating band edge shall not be used for channel bandwidths of 1.4, 3, 5, 10, 15 and 20 MHz respectively.						
NOTE 2: Restricted to E-UTRA operation when carrier aggregation is configured.						
NOTE 3: For ProSe the corresponding UL channel number are also specified for the DL for the associated ProSe operating bands i.e. ProSe_F _{UL} =F _{UL} and ProSe_F _{DL} =F _{UL} .						
NOTE 4: Requirements for uplink operations are not specified in this version of the specification.						
NOTE 5: The range 2180-2200 MHz of the DL operating band is restricted to E-UTRA operation when carrier aggregation is configured.						

Override UE EUTRA Capabilities

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Overview

- 功能：自定义UE上报的EUTRA，也可以自定义UTRA/GERAN_CS/GERAN_PS/CDMA2000能力。

- 建议置于紧跟 *Select UEs* 之后（如右图所示）。
- EUTRA -> UE Capability String
 - accessStratumRelease* 与脚本属性配置的 RRC 属性最好一致。



- ue-Category* 与 *Configure PHY Capabilities* 配置的 DL/UL UE Category 最好一致。

Description	Use	Mo...
My Tests	<input checked="" type="checkbox"/>	
MTS_Test_Script_Template	<input checked="" type="checkbox"/>	MTS
Init	<input checked="" type="checkbox"/>	
S Configure Radio Contexts	<input checked="" type="checkbox"/>	
S NAS_ENABLE_INDICATIONS_IN_MTS_MODE_1	<input checked="" type="checkbox"/>	
S Calibrate Uplink Power Offset	<input checked="" type="checkbox"/>	
S Start RDA Test Case	<input checked="" type="checkbox"/>	
S Wait	<input checked="" type="checkbox"/>	
S Select UE 0-1499	<input checked="" type="checkbox"/>	
S Configure UE EUTRA Capabilities	<input checked="" type="checkbox"/>	
S Configure USIM	<input checked="" type="checkbox"/>	
S Configure PHY Capabilities	<input checked="" type="checkbox"/>	
S Configure RRC Capabilities	<input checked="" type="checkbox"/>	
S Configure NAS Capabilities	<input checked="" type="checkbox"/>	
S Configure NAS PLMN Selection	<input checked="" type="checkbox"/>	
S Activate Configuration	<input checked="" type="checkbox"/>	
S Define eNB Positions	<input checked="" type="checkbox"/>	
ATTACH	<input checked="" type="checkbox"/>	
S Start MTS Scenario	<input checked="" type="checkbox"/>	
S Activate Configuration	<input checked="" type="checkbox"/>	
DETACH	<input checked="" type="checkbox"/>	
GetStats	<input checked="" type="checkbox"/>	

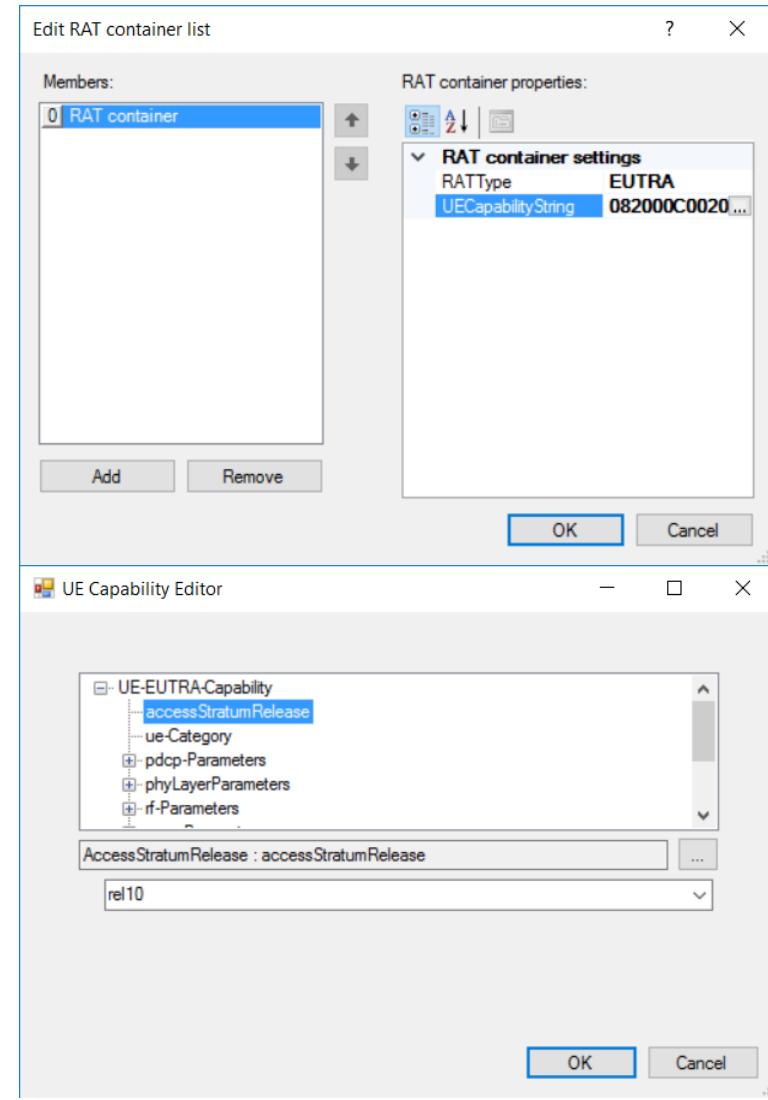
Override UE EUTRA Capabilities

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Edit RAT container list

- 直接点击 *UECapabilityString* 右侧的小方框编辑生成新的码流；或者是先填入已有的码流，然后再点击小方框，从而基于当前码流生成新的码流。

Description	Use	Mo...
My Tests	<input checked="" type="checkbox"/>	
MTS_Test_Script_Template	<input checked="" type="checkbox"/>	MTS
Init	<input checked="" type="checkbox"/>	
Configure Radio Contexts	<input checked="" type="checkbox"/>	
S NAS_ENABLE_INDICATIONS_IN_MTS_MODE 1	<input checked="" type="checkbox"/>	
S Calibrate Uplink Power Offset	<input checked="" type="checkbox"/>	
S Start RDA Test Case	<input checked="" type="checkbox"/>	
S Wait	<input checked="" type="checkbox"/>	
S Select UE 0-1499	<input checked="" type="checkbox"/>	
S Configure UE EUTRA Capabilities	<input checked="" type="checkbox"/>	
S Configure USIM	<input checked="" type="checkbox"/>	
S Configure PHY Capabilities	<input checked="" type="checkbox"/>	
S Configure RRC Capabilities	<input checked="" type="checkbox"/>	
S Configure NAS Capabilities	<input checked="" type="checkbox"/>	
S Configure NAS PLMN Selection	<input checked="" type="checkbox"/>	
S Activate Configuration	<input checked="" type="checkbox"/>	
S Define eNB Positions	<input checked="" type="checkbox"/>	
ATTACH	<input checked="" type="checkbox"/>	
S Start MTS Scenario	<input checked="" type="checkbox"/>	
S Activate Configuration	<input checked="" type="checkbox"/>	
DETACH	<input checked="" type="checkbox"/>	
GetStats	<input checked="" type="checkbox"/>	



Overview

- 背景介绍
 - 同一射频卡上的所有UE运用相同的Uplink Timing。
 - TM500默认的TA (Timing Advance MAC CE)处理机制：每张射频卡收到的第一个TA MAC CE（不论是哪个UE），将运用于该射频卡上的所有UE；TM500将忽略后续收到的所有TA MAC CE。
- 功能：配置射频卡上所有UE的Uplink Timing为某一固定值或是跟踪某一UE的TA MAC CE做动态调整。
- 建议置于*SETP*命令之后，*Start RDA Test Case*之前（请参阅下一页截图）。

Configure Uplink Timing

Configurations

The screenshot illustrates the configuration of uplink timing within a test script template. The left pane shows the 'Test Step Library' interface with a tree view of test steps categorized by type (S for Scenario, M for Method). The right pane shows the 'Configure Uplink Timing' dialog box.

Test Step Library:

- My Tests
 - MTS_Test_Script_Template
 - Init
 - S Configure Radio Contexts
 - S NAS_ENABLE_INDICATIONS_IN_MTS_MODE 1
 - S Calibrate Uplink Power Offset
 - S Configure Uplink Timing**
 - S Start RDA Test Case
 - S Wait
 - S Select UE 0-1499
 - S Configure USIM
 - S Configure PHY Capabilities
 - S Configure RRC Capabilities
 - S Configure NAS Capabilities
 - S Configure NAS PLMN Selection
 - S Activate Configuration
 - S Define eNB Positions
 - ATTACH
 - S Start MTS Scenario
 - S Activate Configuration
 - DETACH
 - GetStats

Configure Uplink Timing Dialog:

This dialog box allows setting up uplink timing parameters for a selected radio context.

Radio Context settings	Selected Radio Context: RadioContext0
Timing Adjustment settings	Uplink Timing Operation: FollowAdjustmentForUE Timing Adjustment amount: 0 UE to follow: 0

Buttons at the bottom: OK, Cancel.

Configure Uplink Timing

UL Timing Operation

- 请参阅Command Reference Manual (*TM500LTE_CommandReference.pdf*) **PhyConfigUITiming**章节了解更多细节。
- Uplink Timing Operation 6 (*Follow timing adjust for UE*)相对用得较多。

Parameter name	Type	Min	Max	Default
UL timing operation	Enum	0	6	5

Offset of uplink from downlink
0 =Reserved
1 =Hold to current value
2 =Reserved.
3 = Set to absolute value, follow subsequent timing adjust (option unavailable if any UL services are active)
4 = Adjust by set amount from current value, follow subsequent timing adjust.
Option '6' must have been selected and only a TA from the UE selected by option '6' is used.
5 = Use the next received timing adjust only. The TA applies to all UEs. This option is not available to be explicitly set in the MUE product, which by default uses the first received timing adjust.
6 = Follow timing adjust for UE. The TA for a specific UE is used and is applied to all UEs. Use the command with option '1' to hold the current value and to cancel the tracking of a specific UE.

L1 SETP Command

- 建议把 *SETP* 命令置于紧跟 *Configure Radio Context* 之后。
- 对于 L1 SETP 命令 (FORW L1) , 需要与 SETRADIOCONTEXT (*FORW L1 SETRADIOCONTEXT <Radio Context>*) 配合使用, 以指定该 L1 SETP 命令运用于哪个 Radio Context。
 - 如果 L1 SETRADIOCONTEXT 缺失的话, 那么 L1 SETP 命令默认只运用于第一个 Radio Context.
 - 对于多小区测试环境, 需要分别用 *SETRADIOCONTEXT* 指定后续 L1 SETP 命令适用于每一个小区。

SetFlagUseNCCEi

- 命令: *FORWL1 SETFLAGUSENCCEI 1*
- 对于TDD LTE且UE配置的*tdd-AckNackFeedbackMode*为*multiplexing*时,请根据eNB的具体实现, 确认是否需要在脚本添加此SETP命令。

SetFlagUseNCCEi

Selects Dec 09 or Mar 09 (Default) compliance for the calculation of n(1)PUCCH

Scope

This command should be used when no services are active.

Description

Configure ACK/NACK multiplexing and sub-frame n with M>1, n_CCE,i or n_CCE

It was n_CCE in TS36.213 V8.6.0 section 10.1 and has been changed to n_CCE,i in TS36.213 V9.0.1.

Syntax

FORWL1 SETFLAGUSENCCEI <PARAMETERS>

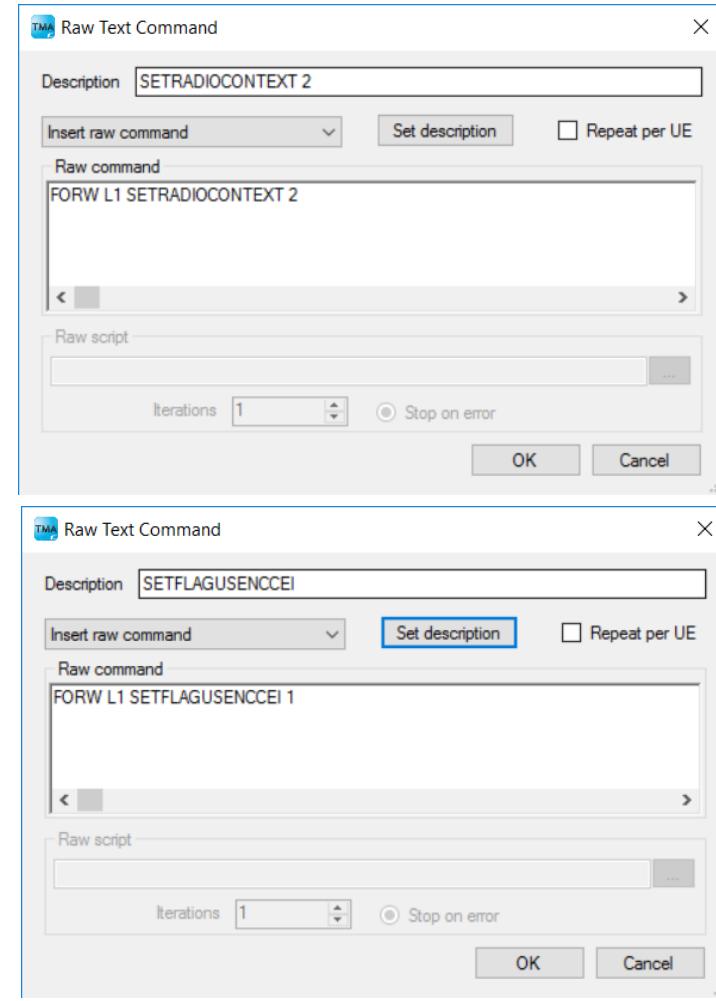
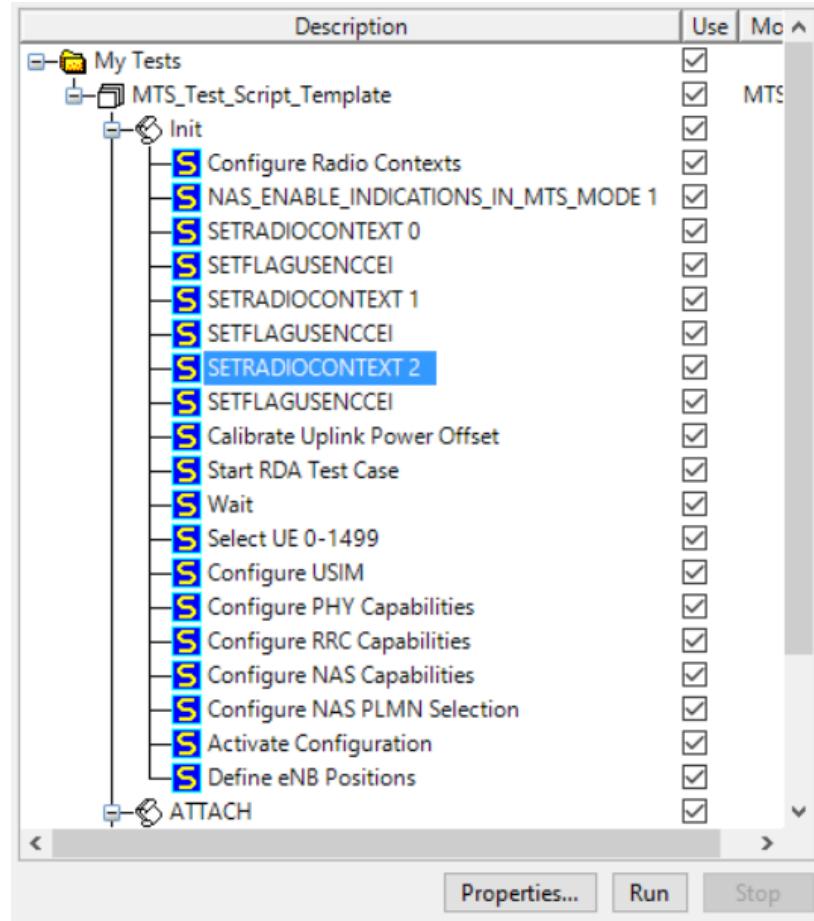
Request parameters

Parameter name	Type	Min	Max	Default
UseNCCEi	Bool	0	1	0
0 - Flag is set to FALSE and nCCE is used for calculating the value of n(1)PUCCH as per Sec 10.1 of 36.213 v8.5.0 (Mar 09) 1 - Flag is set to TRUE and nCCE,i is used for calculating the value of n(1)PUCCH as per Sec 10.1 of 36.213 v9.0.1 (Dec 09)				

常用SETP命令

SetFlagUseNCCEi

- 以三小区添加L1 SETP命令为例。



RRC_PUCCH_CLOSE_LOOP_POWER_CONTROL

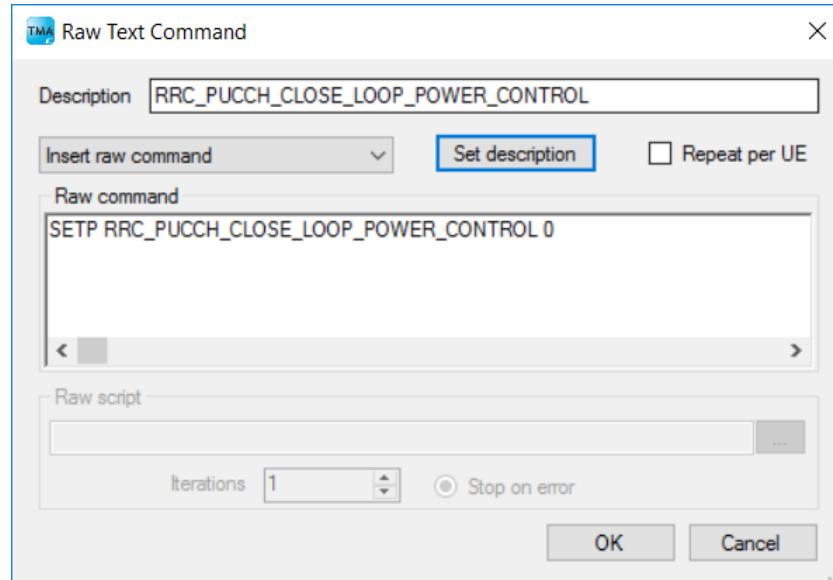
- 命令: *SETP RRC_PUCCH_CLOSE_LOOP_POWER_CONTROL 0*
- 功能: 关闭上行PUCCH/PUSCH闭环功控, UE将忽略收到的所有TPC, 不做任何上行功率调整。

RRC_PUCCH_CLOSE_LOOP_POWER_CONTROL

Used to enable/disable uplink closed loop power control.

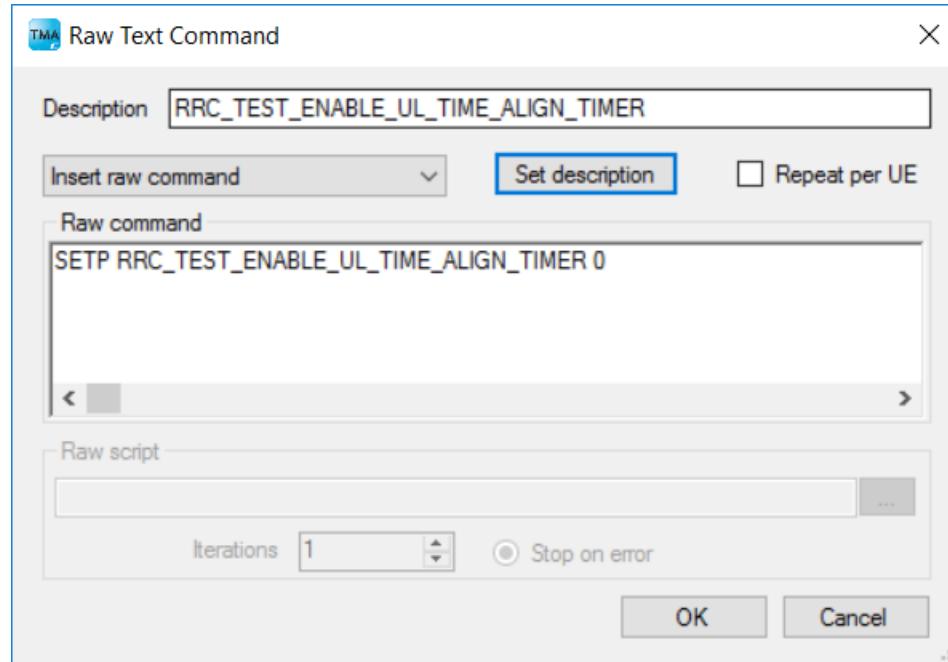
SETP RRC_PUCCH_CLOSE_LOOP_POWER_CONTROL N

N = 0 (disable) or 1 (enable), default 1.



RRC_TEST_ENABLE_UL_TIME_ALIGN_TIMER

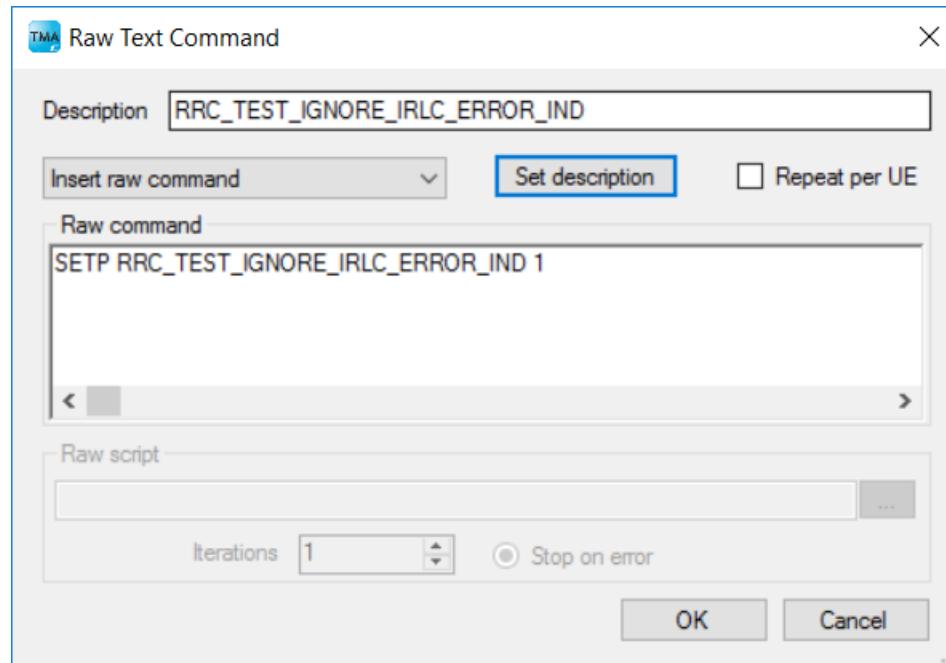
- 命令: *SETP RRC_TEST_ENABLE_UL_TIME_ALIGN_TIMER 0*
- 功能: TA超时以后, UE将释放CQI/SRS/SR资源但不发起RACH.



常用SETP命令

RRC_TEST_IGNORE_IRLC_ERROR_IND

- 命令: *SETP RRC_TEST_IGNORE_IRLC_ERROR_IND 1*
- 功能: 上行RLC达到最大重传次数后, UE不再发起RRC连接重建。



Configure RRC Cell Selection

Overview

- 功能：强制UE接入时选择某个小区入网。多小区测试场景时，如果小区间不相互重叠的话，可以通过配置Mobility Model来指定UE接入指定的小区。

The screenshot shows the Cobham Test Step Library interface. On the left, there is a tree view of test steps under 'My Tests' and 'MTS_Test_Script_Template'. The 'Configure RRC Cell Selection' step is highlighted. On the right, there are two windows: 'Test Step Library' and 'Configure RRC Cell Selection' dialog.

Test Step Library:

- Common
 - Layers 1/2
 - Higher Layers
 - NAS
 - APT
 - Configure RRC Cell Selection (highlighted)
 - Acquire System Information
 - Configure RRC Capabilities
 - Configure NAS Capabilities
 - Select Protocol Configuration Options

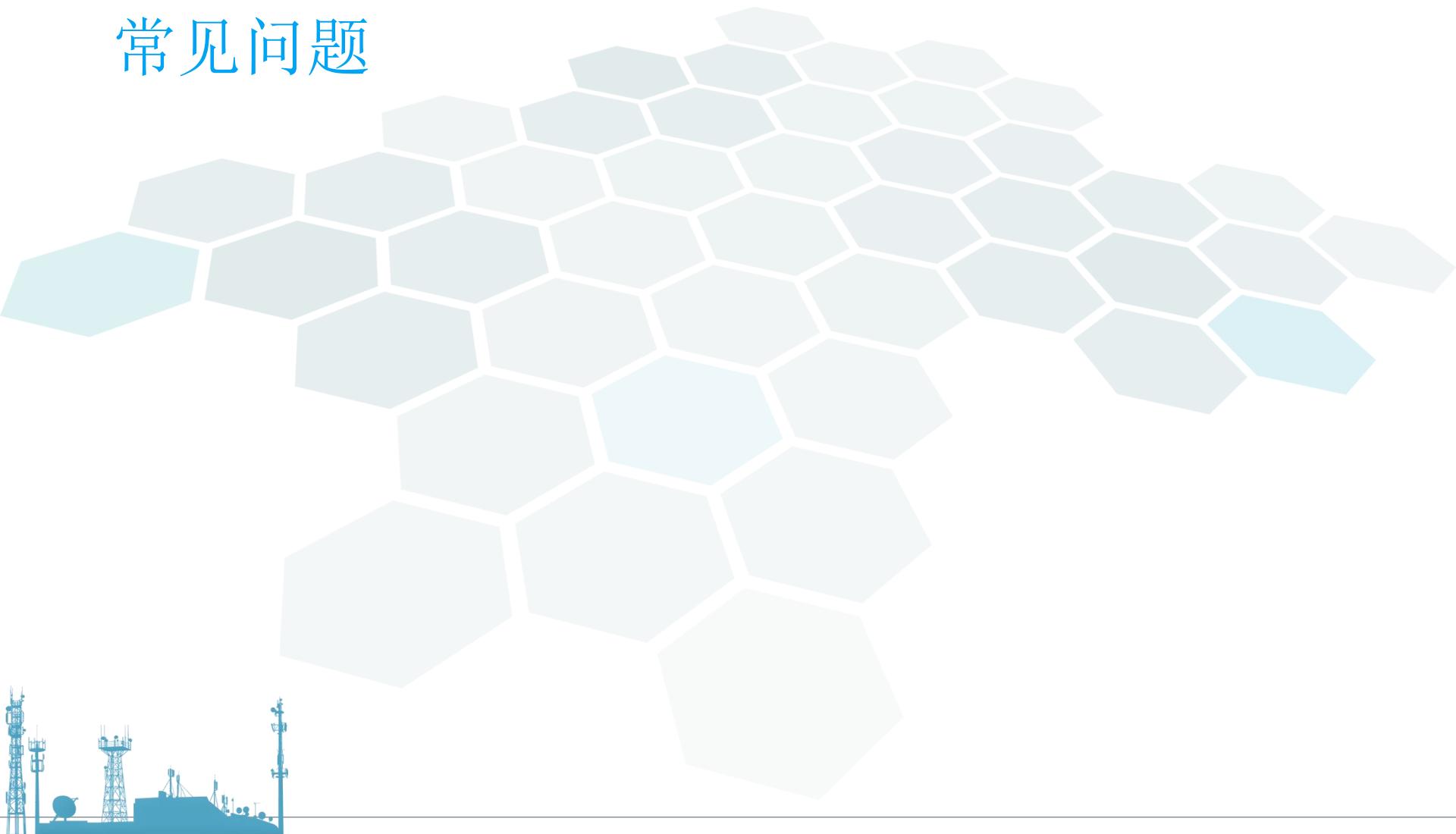
Configure RRC Cell Selection Dialog:

Cell Selection	Cell Selection Type	FixedFrequency
Fixed Frequency		
Downlink Frequency	26600	
Force Cell ID	False	
Cell ID		
Fix type		
Frequency List		
Frequency List Type		
Downlink Frequency List		

Select UE Group Context

OK Cancel

常见问题



- #待补充

- CN-006-OMM_Configurations.pptx
- TM500LTE_CommandReference.pdf
- TM500LTE_MTS.pdf

Change History



Connected – Seamless – Wireless