Qualcomm
TECHNOLOGIES, INC

CMCC and CTA Test Summary

Application Note

80-NM982-1 D

October 30, 2014

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Qualcomm Technologies, Inc.
5775 Morehouse Drive
San Diego, CA 92121
U.S.A.

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Revision history

Revision	Date	Description
A	Mar 2014	Initial release
B	Jun 2014	Added CTA and DIME3.0 tips
C	Jul 2014	Added Subchapters 3.1, 3.2, 3.3 and 3.4 with more CMCC test requirement/plan/lab conformance result /NV/EFS configuration/DSDS/DSDS configuration. Update Subchapter 4.1.5 with more contents. Added Chapter 6. Added Chapter 7.5.2. Updated Chapter 8. Added Appendix B, C, D and E.
D	Oct 2014	Added Subchapter 3.6.

Note: There is no Rev. I, O, Q, S, X, or Z per Mil. standards.

1 Introduction

1.1 Purpose

This document summarizes the experience while passing CMCC and CTA test. Customers can refer to this document to do relative configurations and trouble shootings.

1.2 Scope

This document is applicable to DIME 2.0/DIME 3.0 and DIMEPM 1.0 products.

1.3 Conventions

Function declarations, function names, type declarations, and code samples appear in a different font, e.g., `#include`.

Code variables appear in angle brackets, e.g., `<number>`.

Commands to be entered appear in a different font, e.g., **`copy a:*.* b:`**.

Button and key names appear in bold font, e.g., click **Save** or press **Enter**.

If you are viewing this document using a color monitor, or if you print this document to a color printer, red typeface indicates data types, blue typeface indicates attributes, and green typeface indicates system attributes.

Parameter types are indicated by arrows:

- → Designates an input parameter
- ← Designates an output parameter
- ↔ Designates a parameter used for both input and output

Shading indicates content that has been added or changed in this revision of the document.

1.4 References

Reference documents are listed in Table 1-1. Reference documents that are no longer applicable are deleted from this table; therefore, reference numbers may not be sequential.

Table 1-1 Reference documents and standards

Ref.	Document	
Qualcomm Technologies		
Q1	*Application Note: Software Glossary for Customers*	CL93-V3077-1
Q2	*Enabling ZUC Algorithms in LTE Security capabilities*	80-NF455-1
Q3	*QDART NV Tool*	80-VN248-1
Q4	*GPSONE GEN 7 Engine (1X AND UMTS) Nonvolatile Cases Description*	80-VG439-1
Q5	*Application Note: Interoperability Issue on CMCC (NSN/MOT) Networks*	80-NL684-1
Q6	*TD-SCDMA NV/EFS Configuration*	80-NG442-1
Q7	*Coex EFS Dual Tech Operation*	80-NH099-1
Q8	*Consolidated CMCC LTE Terminal Test Plan Based on Ver 4.0*	80-NP554-1
Q9	*CMCC Device Config Testing Information*	80-NP425-1
Q10	*Modem SW Config Overview*	80-N5576-96
Q11	*CONFIGURING A UE USING BINARY MODEM CONFIGURATION*	80-NP686-1
Q12	*CMCC DM configuration*	80-NP460-3
Q13	*CMCC Requirement Table*	80-NR059-1
Q14	*KK PLATFORM CARRIER NEW CHANGE NOTES*	80-NN815-1
Q15	*Data Throughput Troubleshooting*	80-ND934-2
Q16	*Segment Loading Feature*	80-NL239-46
Q17	*FR 3624 – Support to Recover from Invalid SIM Caused by Abnormal Network Behavior*	80-NM709-1
Q18	*CTA Test Tips*	80-NP797-1
Q19	*CMCC FT Issues Solution*	80-NR044-1
Q20	*QRD8916 China Mobile (GSM/TDS) GPS/AGPS Configurations*	80-NP692-1
Q21	*LTE GCF 3.52.1 PTCRB 5.17 RESULTS FOR MSM8974 (LA.2.0), MSM8926 (LA.1.0) MSM8974/MSM8926 MPSS.DI.2.0*	80-NL695-3
Q22	*CMCC LAB CONFORMANCE TEST CASE RESULTS FOR MSM8974 (LA.2.0), MSM8926 (LA.1.0) USING MPSS.DI.2.0*	80-NL695-6
Q23	*CMCC LTE LAB CONFORM TEST CASE RESULT 8974(LA.30, 301) 9625(TN.30, LE.30) 8926(LA.20, 21) MPSS.DI.30*	80-NN532-8
Q24	*CMCC TD-SCDMA 8974 (LA30,LA301), 9625 (TN30,LE30), 8926 (LA20,LA21) 8974/9625/8926 USING MPSS.DI.3.0*	80-NN532-9
Q25	*CMCC LTE LAB CONFORMANCE TEST CASE RESULTS FOR MSM8916 (LA.1.0, LA.1.1) MSM8916 USING MPSS.DIMEPM.1.0*	80-NP748-4
Q26	*CMCC TDS-CDMA LAB CONFORMANCE TEST CASE RESULTS MSM8916 (LA.1.0, LA.1.1) MSM8916 USING MPSS.DIMEPM.1.0*	80-NP748-5
Q27	*Field Test Guide*	80-NN806-1
Q28	*PRESENTATION: FR1150 - EFS ITEM CONFIGURATION*	80-NE596-1
Q29	*APPLICATION NOTE: SGLTE/SVLTE+G DEVICE CONFIGURATION*	80-NM864-1

Ref.	Document	
Q30	*MPSS DI 20 Policy Manager Overview*	80_NJ017_14
Q31	*MBN VIDEO TRAINING*	VD80-NR263-1SC
Q32	*CMCC Precertification Lab - OEM Checklist*	80-NR877-1
Q33	*CMCC Power App*	80-NT266-1

1.5 Technical assistance

For assistance or clarification on information in this document, submit a case to Qualcomm Technologies, Inc. (QTI) at https://support.cdmatech.com/.

If you do not have access to the CDMATech Support Service website, register for access or send email to support.cdmatech@qti.qualcomm.com.

1.6 Acronyms

For definitions of terms and abbreviations, see [Q1].

2 Overview

This document includes the following contents:

- Firstly, introduce some key points to prepare for CMCC phone subimission.
- CMCC test has five categories:
  - Wireless communication
  - Field test
  - Service application
  - Software reliability
  - Hardware reliability

  Different settings for detailed test cases are introduced. Data throughput skill is explained in details to pass CMCC related test cases.
- CTA test is similar to CMCC test, so CMCC test is described in details. CTA chapter only lists the special test cases which are different from CMCC test.

For more details about CMCC test overview, please refer to Appendix B.

3 Prepare for CMCC/CTA Test

Before submitting phones to CMCC/CTA, customers need to submit CMCC requirement table, understand CMCC test plan, set NV/EFS/Policyfile to satisfy CMCC/CTA request.

3.1 CMCC requirement

CMCC asks customers to submit requirement table according to UE's support capability. [Q13] lists DIME3.0, DIME4.0 and DIMEPM1.0 chipset wireless capability.

3.2 CMCC test plan

[Q8] lists consolidated CMCC LTE Terminal Test Plan, which provides a detailed listing of the CMCC test plan, and detailed enumeration of the applicability of each test case and which UE variant must be used for each test case.

3.3 CMCC lab conformance result

Qualcomm has used MTP to test CMCC cases and get the test result below. Customers can use the following document to know Qualcomm MTP result for reference when testing the same cases in CMCC.

8926/8974 DIME2.0

- [Q21]LTE GCF 3.52.1 PTCRB 5.17 RESULTS FOR MSM8974 (LA.2.0), MSM8926 (LA.1.0) MSM8974/MSM8926 MPSS.DI.2.0
- [Q22]CMCC LAB CONFORMANCE TEST CASE RESULTS FOR MSM8974 (LA.2.0), MSM8926 (LA.1.0) USING MPSS.DI.2.0

8974/8926 DIME3.0

- [Q23]CMCC LTE LAB CONFORM TEST CASE RESULT 8974(LA.30, 301) 9625(TN.30, LE.30) 8926(LA.20, 21) MPSS.DI.30
- [Q24]CMCC TD-SCDMA 8974 (LA30,LA301), 9625 (TN30,LE30), 8926 (LA20,LA21) 8974/9625/8926 USING MPSS.DI.3.0

8916 DIMEPM1.0

- [Q25] CMCC LTE LAB CONFORMANCE TEST CASE RESULTS FOR MSM8916 (LA.1.0, LA.1.1) MSM8916 USING MPSS.DIMEPM.1.0
- [Q26] CMCC TDS-CDMA LAB CONFORMANCE TEST CASE RESULTS MSM8916 (LA.1.0, LA.1.1) MSM8916 USING MPSS.DIMEPM.1.0

3.4 QCN/EFS setting

If build is generated by MBN, no need to set NV/EFS as already included in MBN files. For how to generate MBN build, please refer to [Q9], [Q10], and [Q11].

If normal build is used, Qconfig tool and xml description files are provided to configure NV/EFS automatically. Please get these from your TAM or modem DRI.

Two methods are provided to read/write EFS file, one is in [Q7], another in the Appendix A .

Some recent new changes are as below.

1. For DIME3.0/DIMEPM1.0 onwards DSDX project, set UE to Single SIM mode (NV6876=1) for lab conformance testing.
2. Enable ZUC algorithm for CMCC lab test conformance test as CMCC add ZUC related test cases from May.15.2014 for lab conformance test. Please refer to the Qconfig tool to get ZUC setting.
3. Set NV3628/3629/4209 to 0 disable DTM for all CMCC lab/field test cases.
4. From DIME3.0, the final list of PLMNs that will be included in tdscdma_op_plmn_list as below:460-02, 460-00, 460-07, 001-01, 001-02, 002-101, 002-11, 001-11, 001-21, 004-31, 003-21, 466-02, 460-08, 316-002.

   The tdscdma_op_plmn_list binary file is as below.

```
            0  1  2  3  4  5  6  7  8  9  a  b  c  d  e  f
00000000h: 0E 64 F0 20 64 F0 00 64 F0 70 00 F1 10 64 F0 80 ;
00000010h: 00 F1 20 00 12 01 00 F2 11 00 F1 11 00 F1 12 64 ;
00000020h: F6 20 00 F3 12 00 F4 13 13 26 00 00 00 00 00 00 ;
00000030h: 00 00 00 00 00 00 00 00 00 00 00 00 00          ;
```

Figure 3-1 tdscdma_op_plmn_list binary file

5. Long time to to setup CSFB call.

   Skipping SI-13 could shorten CSFB call fall back time.

   If an L2G redirection occurs during a CSFB call, RR will camp on the target GSM cell after acquiring just SI1 and SI3, rather than waiting for all system information. The outstanding system information messages will be acquired after starting idle mode.

   Following NV/EFS configuration needs to be set to enable this feature.
   EFS fast_si_acq_during_csfb_control should be enabled.

   fast_si_acq_during_csfb_control=1
   Location: `/nv/case_files/modem/geran/grr/`

   DTM related NV3628/3629/4209 should be disabled.

```
NV3628 = 0x00
NV3629 = 0x00
NV4209 = 0x00
```

   with such NV/EFS case setting, SI-13 is skipped.

6. Segment loading feature on 8916.

   The segment loading is a modem software framework which aims at saving the modem memory budget on the fly. With segment loading, users can load a subset of features rather than loading all the available features. This results in saving the modem memory.

   For example, there is no carrier requirement for running both TD-SCDMA and WCDMA at the same time, and the device only needs to load either WCDMA or TD-SCDMA along with other RATs.

   Lab MBN use fixed segment loading, NV72542 is used to configure fixed segment loading on 8916.

   - 1= Excludes WCDMA from MBN
   - 2= Excludes TDSCDMA from MBN

   For example, with NV 72452= (1, 2) UE boots up in WCDMA mode.

   Commercial MBN uses the Automatic mode and with NV 72452= (1, 1) UE boots up in TDS mode.

   8916 MBNs has this NV set correctly. No additional settings are required for 8916 MBN build.

   For details, please refer to [Q16].

   If customer do not want to use segment loading feature, please refer to the respective release notes to disable segment loading feature by build command.

7. In DIME 3.0, SVLTE and SVDO bit will be set from policyman. NV 3446 must be set to (2, 0) to make TRM map to correct RF device.

8. For LTE+DSDS/DSDA on DIME3.0/DIMEPM1.0 onwards, refer to [Q6], [Q28] and [Q29] setting is as below.

Table 3-1 DSDS/DSDA NV/EFS Setting

FS item no.	NV/EFS item name	Single SIM	DSDS	DSDA	Comments
04398	NV_UIM_SELECT_DEFAULT_USIM_APP_I	0x00 - Windows Phone 0x01 – Other phone	0	0	To select the default provisioning application for multi-application cards: Dual SIM Set auto provision to OFF so that users must provision subscriptions for both subs through UI Single SIM 0x00 - Windows Phone 0x01 – Other phone Refer to [Q6]
06876	DUAL_STANDY_CFG_ITEMS	1	5	5	There are multiple items in this NV. active_subs: ☐ 1 – For single SIM test ☐ 2 – For dual SIM

					test dual_standby_pref ☐ 5 – Standby mode is auto Refer to [Q6]
06907	UIM_HW_SIM_CONFIG	0	1	1	☐ 0 – for single SIM ☐ 1 – for dual SIM Refer to [Q6]
70266	DEVICE_MODE	0	1	2	Set UE working mode ☐ 0 – For single SIM ☐ 1 – For DSDS ☐ 2 – For DSDA Refer to [Q6]
70210	uim_hw_config	For single card project: ☐ FALSE for hw_config.UIM[0].DISABLE_UIM TRUE for hw_config.UIM[1].DISABLE_UIM TRUE for hw_config.UIM[2].DISABLE_UIM	For dual card project: ☐ FALSE for hw_config.UIM[0].DISABLE_UIM FALSE for hw_config.UIM[1].DISABLE_UIM TRUE for hw_config.UIM[2].DISABLE_UIM	For dual card project: ☐ FALSE for hw_config.UIM[0].DISABLE_UIM FALSE for hw_config.UIM[1].DISABLE_UIM TRUE for hw_config.UIM[2].DISABLE_UIM	Refer to [Q28].
UI/android setting			1. Android™ configurations to enable Dual SIM UI adb root adb shell setprop persist.radio.multisim.config dsds adb shell sync adb reboot 2. Capability settings for each subscription (from UI) 1)Configure Subscription1 as Multimode Capability (includes all RATs, i.e., LTE, 1X, DO, G, W, T) and Subscription2 as GSM-only. 2)Configure Default Data Subscription on Subscription1	1. Android™ configurations to enable Dual SIM UI adb root adb shell setprop persist.radio.multisim.config dsda adb shell sync adb reboot 2. Capability settings for each subscription (from UI) 1)Configure Subscription1 as Multimode Capability (includes all RATs, i.e., LTE, 1X, DO, G, W, T) and Subscription2 as GSM-only. 2)Configure Default Data	Refer to [Q29].

				Subscription on Subscription1	
67218	IMS enable	0	0	0	IMS enable ☐ 1 – IMS enabled ☐ 0 – IMS disabled Refer to [Q29].
66472	SMS domain preference	0	0	0	SMS domain preference ☐ 1 – SMS over IMS preferred ☐ 0 – SMS over IMS not allowed Refer to [Q29].
66473	SMS Mandatory	0	0	0	SMS mandatory ☐ 1 – SMS is mandatory ☐ 0 – SMS is not mandatory Refer to [Q29].
65777	UE usage setting	0	0	0	UE usage setting ☐ 1 – Data-centric ☐ 0 – Voice-centric Refer to [Q29].
66048	Voice domain preference	0	0	0	Voice domain preference ☐ 0 – CS voice only ☐ 1 – IMS PS voice only ☐ 2 – CS voice preferred ☐ 3 – IMS PS voice preferred Refer to [Q29].
850 sub0:	Service Domain Preference	2	2	2	Service domain preference ☐ 2 – CS+PS ☐ 0 – CS only ☐ 1 – PS only Refer to [Q29].
850 sub1:	Service Domain Preference	0	0	0	Service domain preference ☐ 2 – CS+PS ☐ 0 – CS only ☐ 1 – PS only Refer to [Q29].
67275	NAS SRVCC Support	0	0	0	/nv/item_files/modem/nas/nas_srvcc_support Does not advertise SRVCC capabilities Refer to [Q29].
70323	Nas L2g Srvcc Support	0	0	0	/nv/item_files/modem/nas/nas_l2g_srvcc_support Does not advertise SRVCC capabilities Refer to [Q29].
LTE RRC FGI bits		0(bit9 and bit27)	0(bit9 and bit27)	0(bit9 and bit27)	/nv/item_files/modem/lte/rrc/cap/fgi Does not advertise SRVCC capabilities Refer to

for SRVCC (9 and 27)					solution#00020710
24597	RFNV_GSM_ENH_TEMP_COMP_ENABLE_I	0	0	0	0- disable the Enhanced Temp comp 1- enable the Enhanced Temp comp Refer to [Q29].

3.5 Policy file

For DIME2.0, please refer to [Q30]. For DIME3.0 onwards, please refer to [Q29].

3.5.1 SGLTE policy file

- Field testing

  Taking single card project as example, please go to modem build

  `\modem_proc\mmcp\policyman\configurations\Carrier\CMCC\SGLTE\CMCC_procured\carrier_policy.xml`

  Copy `carrier_policy.xml` to `EFS\policyman\carrier_policy.xml`.

  Default SGLTE phone `carrier_policy.xml` key contents.

```
<mcc_list name="sglte_mccs"> 460 </mcc_list>
<!-- These are the operators (IMSI PLMNs) for which SGLTE will be
allowed -->
<plmn_list name="sglte_operators"> 460-00 460-02 460-07 460-08
</plmn_list>
<!-- Define the OOS timer with a 5 minute interval -->
<!-- NOTE: Proper functioning of the SGLTE policy requires that there be
a timer named "oos". Do NOT rename this timer. -->
<define_timer name="oos" units="min" interval="5"/>
```

  For multi card project such SGLTE+G DSDA, SGLTE+G DSDS, CSFB+G DSDS etc, please find respective policy files from respective folders.

- Lab testing.

  Taking single card project as example, please go to modem build

  `\modem_proc\mmcp\policyman\configurations\Carrier\CMCC\SGLTE\test`

  Copy `carrier_policy.xml` to `EFS\policyman\ carrier_policy.xml`.

  For most of lab tests with SGLTE phone mode, the following contents need to be modified, the part shown as below:

```
<mcc_list name="sglte_mccs"> 001 002 003 004 005 006 007 008 009 010 011
012 246 316 440 460 466 </mcc_list>
```

```
<!-- These are the operators (IMSI PLMNs) for which SGLTE will be
allowed -->
<plmn_list name="sglte_operators"> 440-79 001-01 460-00 460-01 460-02
460-03 460-04 460-07 460-09 460-08 460-080 460-71 002-02 002-81 002-91
002-11 466-02 466-09 246-81 246-081 </plmn_list>
<!-- Define the OOS timer with a 20 minute interval -->
<!-- NOTE: Proper functioning of the SGLTE policy requires that there be
a timer named "oos". Do NOT rename this timer. -->

<define_timer name="oos" units="min" interval="20"/>
```

For multi card project such SGLTE+G DSDA, SGLTE+G DSDS, CSFB+G DSDS etc, please find respective policy files from respective folders.

3.5.2 CSFB

For single card project, some test cases need to set mode to CSFB. To set CSFB mode, deleting `EFS/policy` file directory is enough.

For multi card project, please refer to [Q9][Q29].

3.6 CMCC checklist

To clarify what customers need to do before submitting phones to CMCC, here is one consolidated check list from hardware/modem/apps/connectivity side. Some of contents below come from [Q32].

Table 3-2 CMCC checklist

Category	Checklist	Details (if have)
Devices /Accessories /Drivers		
	Devices. Quatity:5	2 devices for UE2, 1 devices for UE1, 1 devices for UE3, 1 devices for back up.
	RF cables. Quatity:6	OEM needs to supply sufficient RF cables per device to access all Main and Diversity ports for each technology.
	USB cables. Quatity:2	
	Dummy battery. Quatity:1	If battery is not removable, draw out two lines of positive and negative poles for Power.
	USB driver. Installed.	Required to support RMNET port for QMICM.
	Info on SIM card.	Information if nano SIM is required.
RF		
	OEM calibration tree and log	RF calibraiton xtt file and XML file, and QSPR log

Category	Checklist	Details (if have)
	RF Schematic	RF schematic diagram to help with any debugging
	Antenna Port Layout Picture	Explain how to connect the antenna ports in test
	Battery Pins Picture	Show how to use external power supply to power DUT
Wireless communicaiton		
	UE Configuration and review	Use MBN to configure devices for CMCC lab conformance test. There are three types of products that can be submitted to CMCC for certification. Please refer to [Q9]to configure phones with 3 types of MBN:UE1, UE2 and UE3. For how to load MBN into phones, please refer to [Q11] For every CMCC test items and respective MBN configuration, please refer to [Q8].
	Data Service on UI menu	Disable
	NFC on UI menu	Disable
	RF calibration	All devices should be well RF calibrated
	APN setting on UI Menu	No pre-defined APN like cmnet, cmwap etc.

Category	Checklist	Details (if have)
Field test	No.	Refer to document [Q19] for LTE field test issue and solution.
Data throughput		
	For Data Throughput test, it's highly recommended to keep the QMI/RmNet WWAN Adapter and provide the USB_WWAN drivers by default. For the LTE data throughput test, it's recommended to use QMICM/QMITestPro application to start the data call.	
	Qualcomm MSM8926 MTP adapters enumerated in Windows Device Manager use default usb composition 9025. For MSM8916 and MSM8939, the default usb composition is PID 9091.	
Service appplication		
WLAN	No.	Refer to chapter 7.2.3 for classical issue debugging.
AGPS	Refer to 7.3.1.1 for AGPS NV setting.	Refer to chapter 7.3 for classical issue debugging.
MIFI	No.	Refer to chapter 7.4 for classical issue debugging.
BT	No.	Refer to chapter 7.5 for classical issue debugging.
Software Reliability		
MTBF	Refer to B.4 for MTBF setting.	
Power consumption	Refer to B.3.2, B.3.3, B.3.4 for power comsumption setting. Refer to [Q33] for power test APK.	
Local performance	Refer to C.3 for local performance setting.	
Stress test	Refer to C.4 for stress test method.	
Abnormal test	Refer to C.5 for abnormal test method.	
Hardware reliability	No.	

4 Wireless Communication

For all lab tests, please disable supplementary service.

For wireless communication testing, please find fundamental information about mode setting for CMCC cases as the table below.

For details, please refer to [Q8].

Table 4-1 Mode setting for wireless communication test cases

	Test Case		CMCC Version	Mode Setting.	Comments
Wireless Communication (TD-SCDMA)	2G/3G protocol Conformance		V2.0-20130219	T+G mode	
	RRM Conformance		V2.0-20130219	T+G mode	
	TD internal protocol Conformance		V2.0-20130219	T+G mode	
	(U)SIM Compatibility		V2.5-20130815	SGLTE mode	Use default mode of submitted samples, no special requirement
	Basic Communication -- DSDS		V2.5-20130815	SGLTE mode	Use default mode of submitted samples, no special requirement
	Basic Communication -- DSDA		V2.5-20130815	SGLTE mode	Use default mode of submitted samples, no special requirement
	Basic Communication		V2.0-20130219	SGLTE mode	Use default mode of submitted samples, no special requirement
	Joint Detection		V2.0-20130219	SGLTE mode->T+G mode	Firstly, CMCC tried SGLTE mode to do testing, if having camp on issues, they will change mode to T+G/T
	RF Conformance		V2.0-20130219	SGLTE mode->T+G mode	Firstly, CMCC tried SGLTE mode to do testing, if having camp on issues, they will change mode to T+G/T
	IOT (A+F)		V2.0-20130219	SGLTE mode->T+G mode	if SGLTE mode cannot camp, they will change to T+G mode
	International Roaming(lab)		V1.0	default mode	From CMCC tester, they didn't change mode firstly, because no special requirement, if existing camp on issue, they can change to T+G mode
LTE Test	LTE FDD Conformance-V3.0	Protocol-FDD	V3.0	CSFB only	
		RF-FDD	V3.0	CSFB only	All FDD related TC should be covered only in CSFB mode.

	Test Case		CMCC Version	Mode Setting.	Comments
		RRM-FDD	V3.0	CSFB only	All FDD related TC should be covered only in CSFB mode.
		USIM-FDD	V3.0	CSFB only	The latest TC can be used CSFB mode.
	TD-LTE Conformance-V3.0	Protocol-TDD	V3.0	SGLTE/CSFB	For TDD-LTE only, SGLTE or CSFB will be OK IRAT part test in CSFB only mode
		RF-TDD	V3.0	Applicable for SGLTE	Both SGLTE and CSFB are applicable.
		RRM-TDD	V3.0	Partly applicable for SGLTE	TDD-FDD inter-mode, L2T CS fallback related and all L2G TCs should be covered only in CSFB mode.
		USIM-TDD	V3.0	SGLTE or CSFB	The latest TC can be used CSFB or SGLTE mode
	TD-LTE IOT (Single USIM Dual Standby Handset) -V2.0	NV-IOT	V2.0	SGLTE or CSFB	
		NV-IOT IPv6	V2.0	SGLTE/CSFB mode	For 2G\4G, 2G\3G IRAT TC need test with CSFB only mode. By now CMCC lab use SGLTE test all IPV6 TC include IRAT, and need have clarification if failed for IRAT about type 2 LTE mobile.
		Network Simulator IOT	V2.0	SGLTE or CSFB	The latest TC can be used CSFB or SGLTE mode
		NS-IOT Throughput	V2.0	SGLTE or CSFB	The latest TC can be used CSFB or SGLTE mode

4.1 TDSCDMA

4.1.1 USIM and user equipment compatibility

Set lab EHPLMN：460-00, 460-02, 460-07, 460-08, 466-02, 460-29, 001-01.

4.1.2 TDSCDMA RRM conformance

Use SGLTE phone, set mode pref to **T+G** and **CSFB** mode, Combined attach.

Problem description:

TDS RRM, UE fails to camp on network in 4G prefer mode, but succeed in 2G/3G mode.

Solution:

Lab Setup issue: TE limitation, need UE work in CSFB mode to send combined attach when in TDSCDMA.

Problem description:

TC4.3.11.1: TDSCDMA-GSM(GPRS), the measurement accuracy of carrier RSSI, the UE will have it greater than the upper limitation with 101 times during test2.

Solution:

RF issue could partially pass with very good calibration. It needs to do calibration ARFCN 20 instead of ARFCN 31 in the calibration tree.

4.1.3 TDSCDMA RF conformance

Problem description:

TDS RF, TC7.2.5 UL Close loop power control, TPC1 fails. TPC1 step gap is -0.02dB, expected scope is -0.5dB~-1.5dB.

Solution:

Calibration issue.

4.1.4 WCDMA International Roaming

Set UE mode to CSFB.

4.1.5 SIM reset feature

Due to abnormal network behavior, the UE receives the following rejection codes during the registration and authentication procedures: 4

□□□□□#2: IMSI_UNKNOWN_IN_HLR 5

□□□□□#3: ILLEGAL_MS 6

□□□□□#6: ILLEGAL_ME 7

□□□□□#7: GPRS_SERVICES_NOT_ALLOWED 8

□□□□□#8: GPRS_SERVICES_AND_NON_GPRS_SERVICES_NOT_ALLOWED 9

□□□□□AUTHENTICATION_REJECTED 10

□□□□□AUTHENTICATION_AND_CIPHERING_REJECT 11

These rejections can cause the SIM/USIM to become invalid for the CS and PS domains. While invalid, the UE experiences limited service until a power-cycle occurs.

Qualcomm provides workaround to fix this issue.

2.3 Configurations
NV case number – 70330
EFS location – /nv/case_files/modem/nas/t3245_timer
This NV case indicates the timer in seconds.

NV case number – 70189
EFS location – /nv/case_files/modem/nas/tdscdma_op_plmn_list

This NV case indicates the TD-SCDMA operator PLMN list. The HPLMN derived from IMSI 8 should be part of this PLMN list. See [Q2] for the format.

NV case number – 72510
EFS location: /nv/case_files/modem/nas/max_validate_sim_counter
This NV case indicates the SIM counter.
0 – 254 – Unsigned integer

NV case number – 69731
EFS location: /nv/case_files/modem/tdscdma/rrc/special_test_setting_enabled
This feature will not function when the NV is set to 1.

SIM card
The feature does not work when a test SIM is used, e.g., for the GCF test

For details, please refer to [Q17].

4.2 LTE

For LTE FDD RF/RRM test case, set UE mode to CSFB.

4.2.1 TD-LTE IOT

`carrier_policy.xml` should include **460** in sglte_mccs, **460-01** and **460-04** in SGLTE PLMN list.

Problem description:

LTE NV-IOT, FTP DL average PEAK rate is lower than expectation 40M bps

No solution finally. Always reproduces within unstable CMCC lab, the network configuration always changes.

Problem description:

NV-IOT UE can't register to 4G test cell.

From log, NV-IOT lab test APN(IMS2) doesn’t work as UI setting, and then NW rejects this PDN.

Solution: From UI, set APN to IMS2 again.

Problem description:

TD-LTE NV IOT IPV6, TD-LTE&TDS, TDS&GSM network reselection fails

Solution:

Configuration issue which needs the correct `carrier_policy.xml` with SGLTE Operator 460-01, and the NAS EFS file eia0_allowed and lte_nas_lsti_config. Refer to 0.

Problem description:

LTE throughput could not get to the target criteria. LTE throughput related test cases are in LTE NV IOT, LTE NS IOT and LTE field category.

Solution:

For Data Throughput test, it is highly recommended to keep the QMI/RmNet WWAN Adapter and provide the USB_WWAN drivers by default. For the LTE data throughput test, it is recommended to use QMICM/QMITestPro application to start the data call.

For details, please refer to Chapter 6 and [Q15].

Problem description:

NS-IOT Tput TC 10.2.5.3C, DIME 2.0 can only reach 33~34M in CMCC lab on Anite, but CMCC requests 48M to pass this case.

Solution:

PASS this TC 10.2.5.3C in CMCC Anritsu setup which failed earlier in Anite setup in CMCC lab. And CMCC has seen this positive results and double agree that all OEMs powered by Qualcomm will be validated on Anritsu setup for this test case later.

4.2.2 01-CMCC_LTE_Terminal_Test_Plan-TD-LTE Conformance

Problem description:

LTE RRM, UE fails to camp on network during test cases.

Solution:

Lab Setup issue: CMCC lab uses an incorrect automation script, always order UE to do something before it confirms to TE.

Problem description:

DUT has no action within 12 mins, the testing terminal should send RRC Connection Request immediately.

Solution:

Real network interference. Need to execute with a good shielding box or in shielding room.

Problem description:

TDSCDMA to LTE reselection optimization.

Solution:

NV 72584 (/nv/case_files/modem/tdscdma/l1/t2l_threshold_opt_params)was introduced in CR620521. The original issue was that T2L reselection was triggered but failed due to too relaxed T2L reselection criteria set by network. Thus, this NV allows OEM to change q_rxlevmin to a higher value if necessary. The default value of this NV should be -140 (the minimal value per spec), so that the network configured value should take effect as indicated below.

Actual q_rxlevmin = MAX(NV value, NW configured q_rxlevmin);

For example, in test case 8.2.2.6.1, network configures q_rxlevmin as -140 and threshx_high 46, so LTE cell RSRP of -94dbm will trigger T2L reselection.

Recommend value: -140.

Problem description:

CMCC Terminal TD-LTE RRM Conformance Test. 7.3.7 TDD. E-UTRAN TDD Radio Link Monitoring Test for Out-of-sync in DRX. Test case fails.

Solution:

This test cases is APN configuration mismatch (seen on any KK device), make sure we send a message to the customer stating that. For Anritsu test box, APN needs to be configured from both UE and using AT command as www.anritsu.com.

4.2.3 01-CMCC_LTE_Terminal_Test_Plan-LTE FDD Conformance-V3.0

4.2.3.1 RRM-FDD

To cover FDD/WCDMA PSHO TCs(LTE FDD RRM TC 5.2.1/5.2.7 etc.), it needs respectively remove the file `/nv/case_files/modem/nas/tdscdma_op_plmn_list`.

4.2.3.2 USIM-FDD

We need to set CSFB mode, and this two NVs need to be changed to the values below.

- NV 69674 GSTK Feature Bitmask =C6
- NV 65683 QMI CAT mode =2 Android.

4.2.4 03-CMCC_LTE_Terminal_Test_Plan-TD-LTE Field

For LTE field test, many UE/network side issues are found, mostly on LTE AS side, the issue and solution is summarized in [Q19].

4.3 Key points for LTE protocol test

- For SGLTE test, it needs vendor to prepare 3 types of phones.
  - UE1, SGLTE phone, data centric. Used for EPS only attach test.
  - UE2, CSFB phone, voice centric. Used for combined attach and IRAT test.
  - UE3, CSFB phone, voice centric. used for FDD/WCDMA PSHO Test Cases(LTE FDD RRM TC 5.2.1/5.2.7 etc.)

UE2 and UE3 diffenrence is that: Compared with UE2, UE3 lacks /nv/case_files/modem/nas/tdscdma_op_plmn_list.

For details, please refer to [Q8] and [Q9].

5 Field Test

- [Q27] summarizes field test experience.
- If saving logs to SD card, Please use Log Kit APK.
- Golden QXDM *.dmc and SD *.cfg Log mask, please contact your TAM or Modem DRI.
- QXDM-DMC to CFG File Conversion, please refer to Solution Number 00029179 in Salesforce.
- LTE field test issue and solution. Please refer to [Q19].

For field testing, it is better to capture both QXDM and AP side adb logs. Check the configuration for LTE product (CSFB or SGLTE) before testing.

Table 5-1 Test cases

CMCC scope		comments
Module	**Case**	
TDS	Domestic -- Beijing	
	Domestic -- Guangzhou	
	Domestic -- Hangzhou	
	Domestic -- Nanjing	
LTE	Domestic -- Guangzhou	
	Domestic -- Hangzhou	
	Domestic -- Shenzhen	
HSUPA	HSUPA --Beijing	

CMCC scope		comments
Module	**Case**	
IR	HK NA EU Japan Korea	Not all locations are mandatory, related to phone's price. International Roaming needs video recording before PA close.

6 Data Call Type for Data Throughput Test, QMI/RmNet Driver Installation and Debug Tips

6.1 Background

In Field/Lab Data Throughput test, some test cases failed with Windows Dial-up application or USB-Tethering/WiFi Hotspot (WiFi-Tethering). However, in the failed devices, there is no "Network adapters/Qualcomm HS-USB WWAN Adapter 9xxx" device under Windows "Device Manager". So the PC can't use the QMICM/QMITestPro to start QMI/RmNet data call.

In this chapter, firstly data call type is introduced, secondly introduces the QMITestPro and RmNet driver installation step by step. At last, some Data Throughput debug tips are summarized for troubleshooting.

6.2 Observations and analysis

6.2.1 Data call type

Currently Modem can support the following data call type on PC:

- Windows Dial-up Network(DUN) application: via AT command and Modem COM port
  - The "Modem COM port" should be enumerated for AT command.
  - PC gets the IP address assigned from Network;
  - The packet data is encapsulated with PPP. The frame is octet-based and this may degrade the LTE peak data throughput.

- QMICM/QMITestPro application: via QMI/RmNet WWAN adapter
  - The "Qualcomm WWAN adapter" is enumerated to Windows. QMI/RmNet driver should be installed for this adapter.
  - PC gets the IP address assigned from Network;
  - The packet data is encapsulated with Ethernet header, the frame is packet-based.

- USB/WiFi/BT Tethering: via Android application and RNDIS adapter
  - The “Remote NDIS adapter” is enumerated to Windows;
  - PC gets private IP address(192.x.x.x) from Android device;
  - The packet data is encapsulated with Ethernet header, the frame is packet-based;
  - The packet data is firstly routed from Modem to Linux for NAT, and then packet data is transferred to PC.

For data throughput test, especially for the LTE peak data throughput test, the second method **QMICM/QMITestPro application** data call type is highly recommended.

6.2.2 USB device enumeration

6.2.2.1 Default USB composition

The following example is: Qualcomm MSM8926 MTP adapters enumerated in Windows Device Manager use default usb composition 9025. For MSM8916 and MSM8939, the default usb composition is PID 9091.

Modem and Rmnet port can be used for data call. If Rmnet port is not present on USB composition, then it needs to change platform specific USB properties to add the interface.

1. Modem COM Port

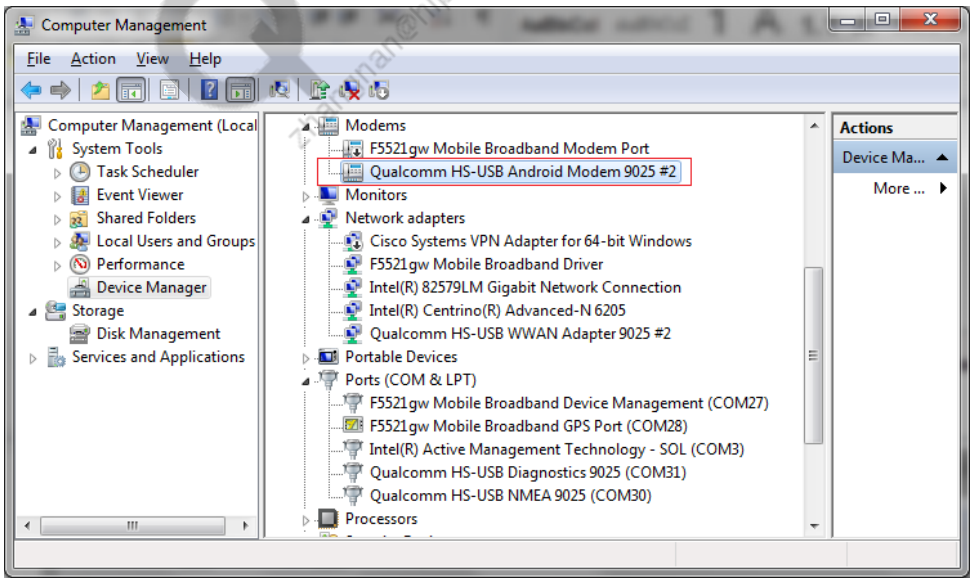


Figure 6-1 Modem Com Port

2. QMI/RmNet adapter

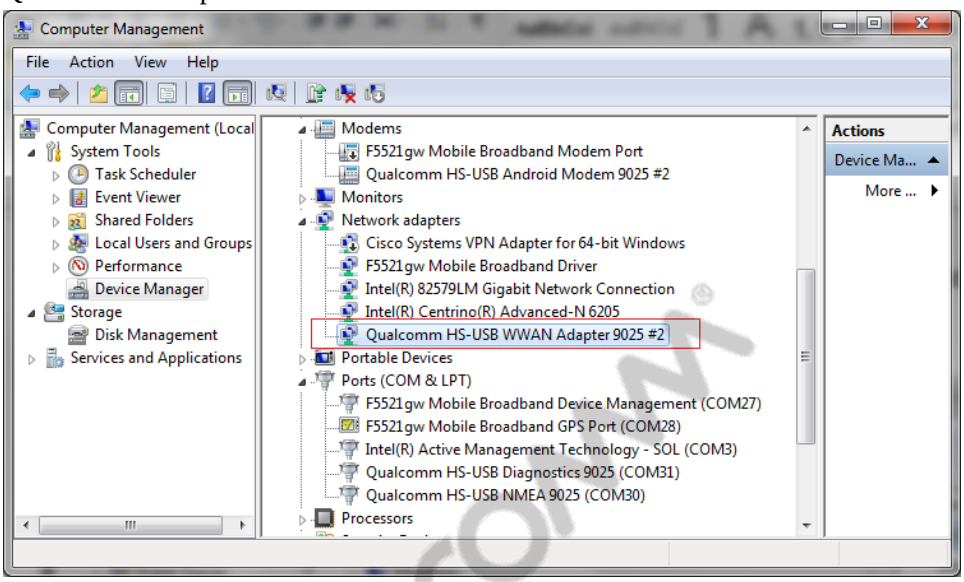


Figure 6-2 QMI/RmNet Adapter

6.2.2.2 RNDIS

RNDIS adapter:

To enable the USB-Tethering, the following menu should be set.

Menu Path:

- Android/Settings/Wireless & Networks/More…
- Tethering & portable hotspot/USB tethering (enable this checkbox)

Then RNDIS adapter below will be enumerated to Windows.

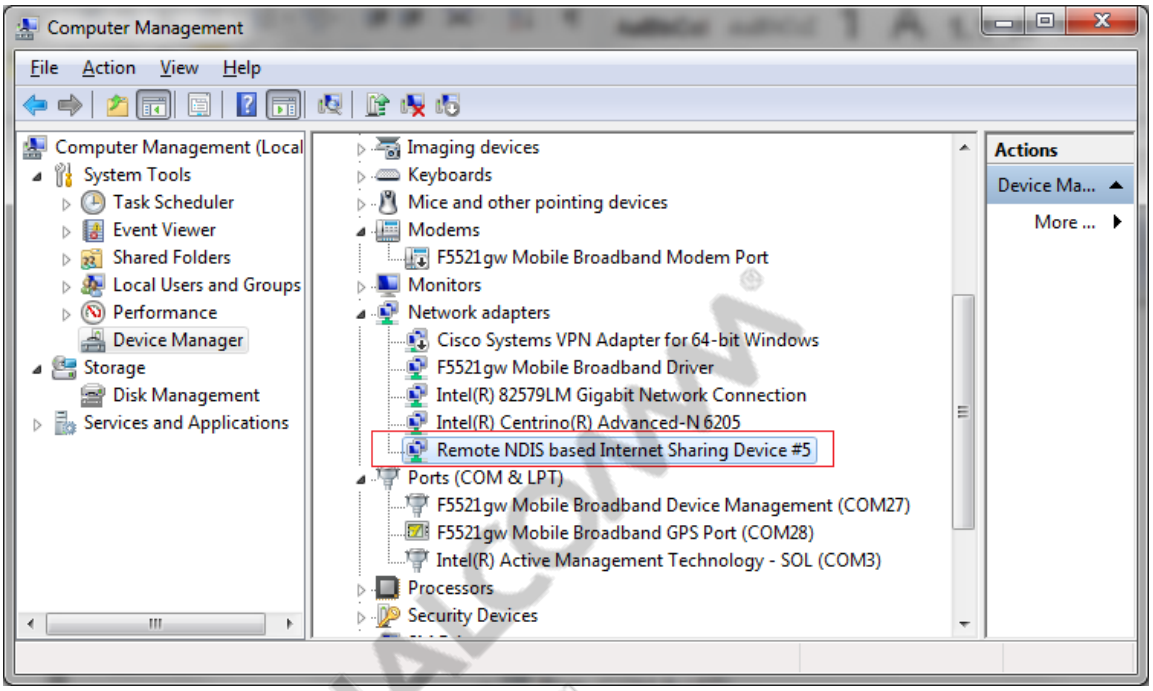


Figure 6-3 RNDIS Adapter

6.2.3 Recommendation for data throughput test

Qualcomm baseline enumerates two devices below by default:

- Modem COM port
- QMI/RmNet WWAN adapter (USB_WWAN driver needs to be installed)

To get the peak LTE data throughput, the QMICM/QMITestPro data call type is highly recommended. For this purpose, it's recommended to **keep above two devices by default** and provides the USB_WWAN driver.

6.3 USB driver and toolset user guide

6.3.1 USB_WWAN driver installation

Qualcomm provide USB_WWAN Driver for USB Modem, Serial and Rmnet interface. It's built for Windows XP, Windows Vista, Windows 7, and Windows 8 operating systems and are intended for use with Qualcomm USB Host hardware and firmware supporting all QUALCOMM VID/PIDs. Supported architectures include x86, x64, and ARM (Windows 8 serial driver only).

ODM vendors need to change driver INF to add vendor specific device IDs.

6.3.1.1 Rmnet/Modem/Serial interface driver installation

Windows 7 might not prompt for the driver installation when a USB device is plugged in.

Step 1: Open the device manager and manually install a driver for each device instance by right clicking on each device with the yellow warning icon and selecting "Update Driver Software…"

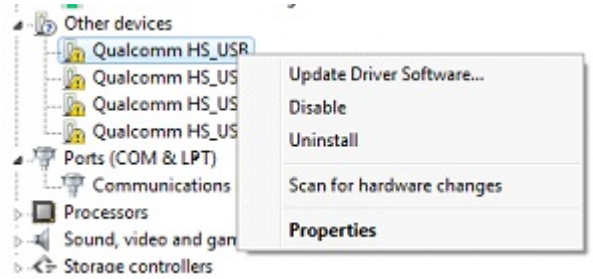


Figure 6-4 Device Manager

Step 2: Select "Browse my computer for driver software".

Figure 6-5 Browse my computer for driver software

Step 3: Select the path to the drivers for the intended operating system:

Figure 6-6 Select the path to the drivers for the intended operating system

Step 4: If meet warning because driver not verified, choose “install this driver software anyway”.

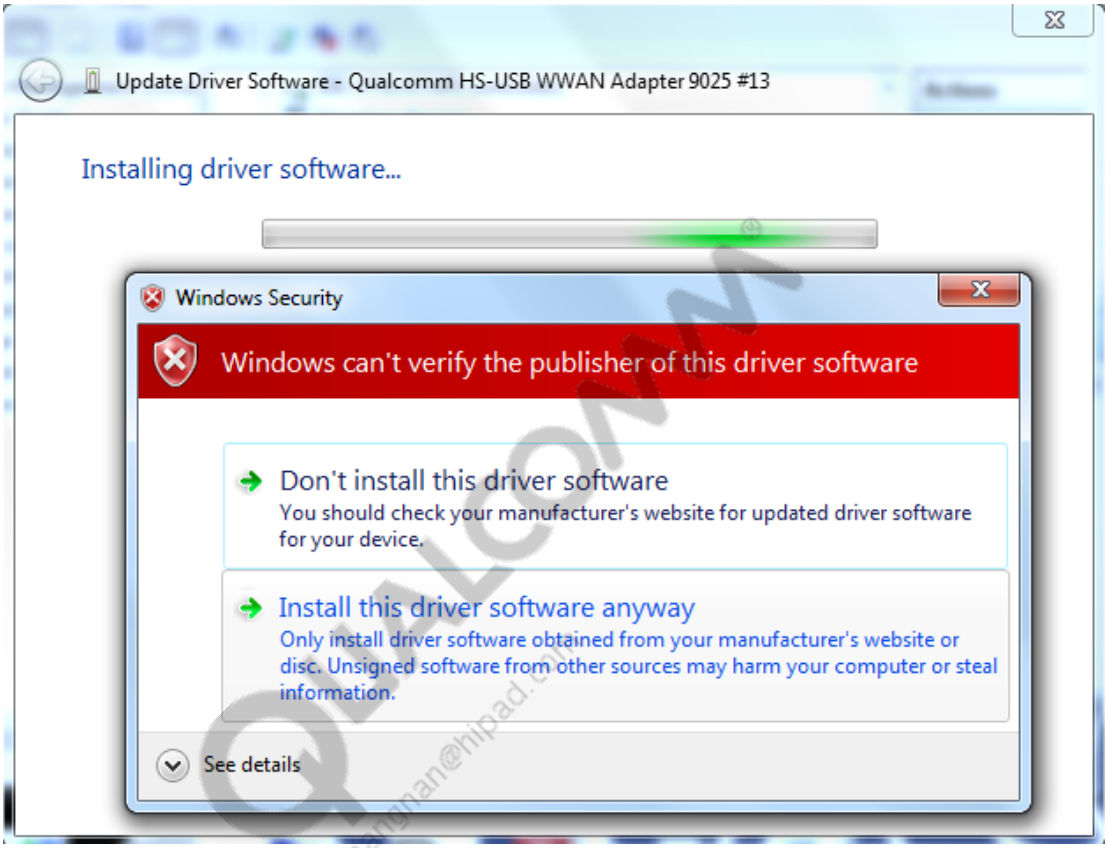


Figure 6-7 Install this driver software anyway

6.3.1.2 Filter driver installation

Filter driver is a mandatory driver that should be installed for external QMI clients to work, like QMI test pro.

Please follow the instructions below to identify the Qualcomm "USB Composite Device" to update it to the filter driver. If there are more than one "USB Composite Device" please go through each one to identify the right Qualcomm device.

Step 1: Go to Device Manager, Expand "Universal Serial Bus controllers" and for each "USB Composite Device" right click and go the properties:

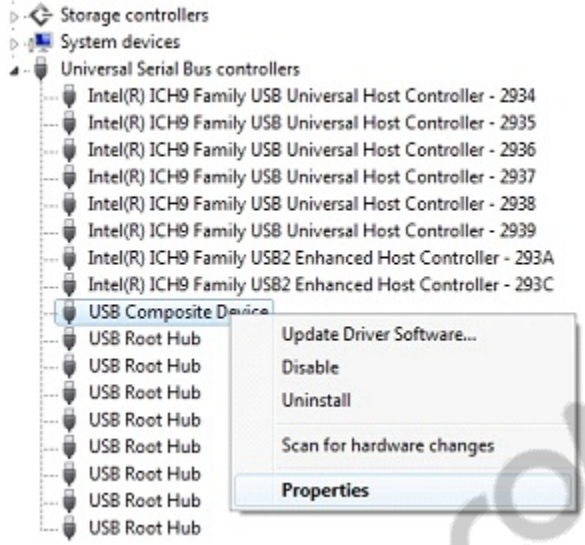


Figure 6-8 Device Manager Property

Step 2: Go to Details Tab and look at the "Hardware Ids" property and it should show the VID/PID of the device for Ex. USB\VID_05C6&PID_ in the Value box. Please identify the correct VID/PID of the Qualcomm Device

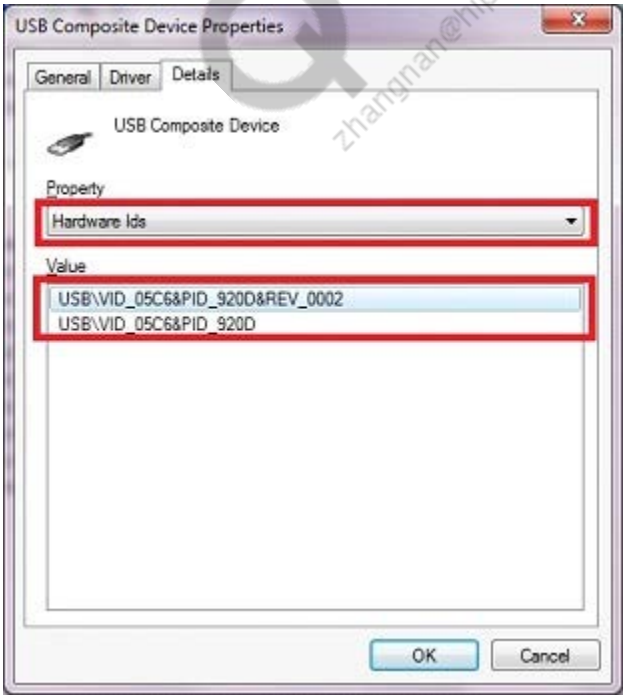


Figure 6-9 VID/PID of the device

Step 3: After Identifying do Driver update on the Identified "USB Composite Device"

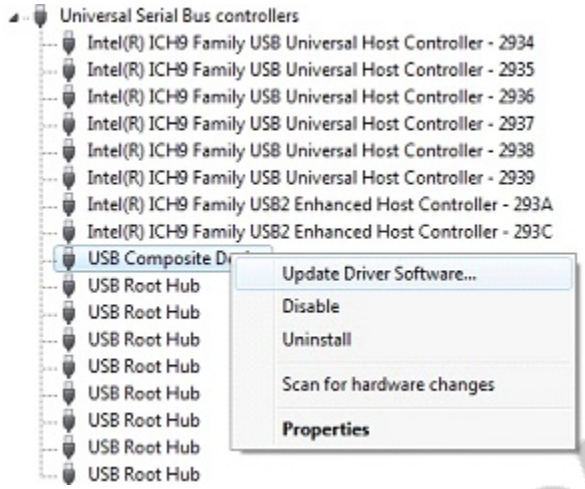


Figure 6-10 Device Manager USB Root Hub

Step 4: Follow the same instructions under 2.4.1 above by selecting the “Browse for driver software on your computer” -> “Search for driver software in this location” and entering the path to the drivers for the target operating system.

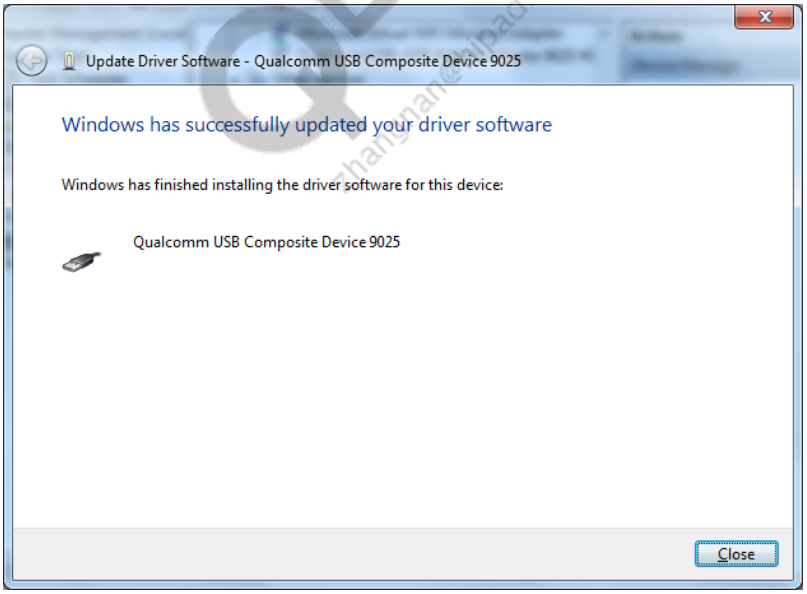


Figure 6-11 Find out the driver

Step 5: After updating the Composite device the QMI test pro tool can start communication with the device, below two red marked device should be present before use QMI test pro.

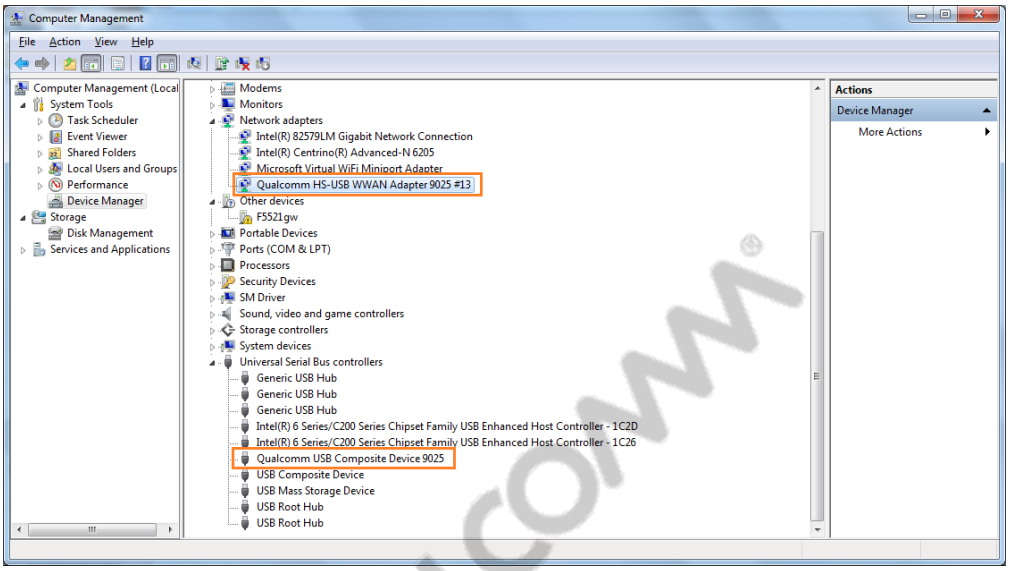


Figure 6-12 Device Manager

6.3.2 QMI test pro tool installation

Step 1: Run the setup.exe.

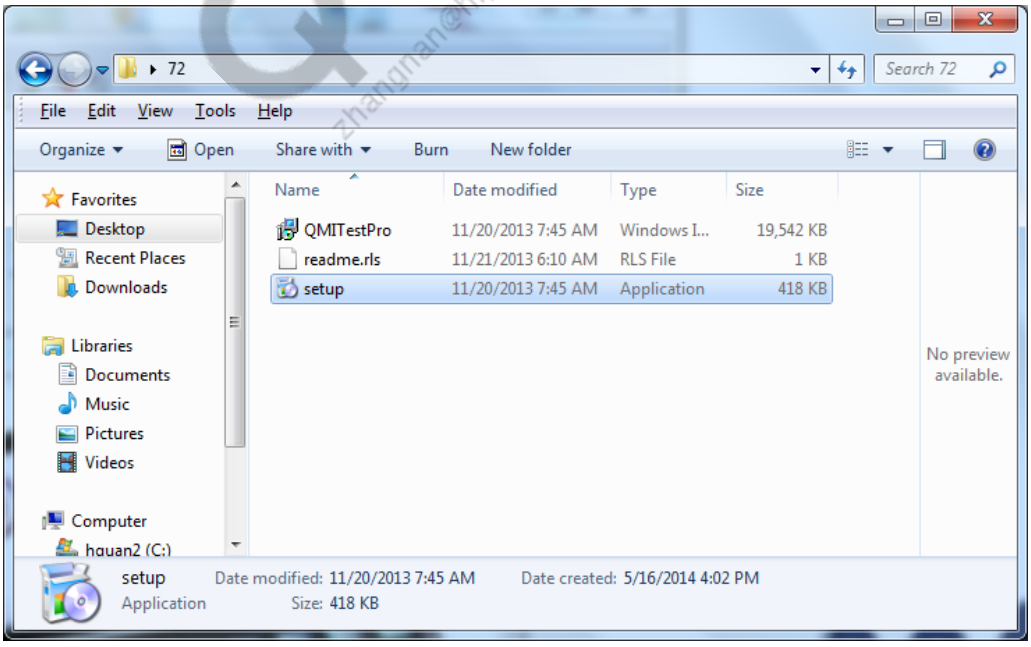


Figure 6-13 Setup

Step 2: Welcome Screen.

Figure 6-14 Welcome screen

Step 3: Agree the license agreement:

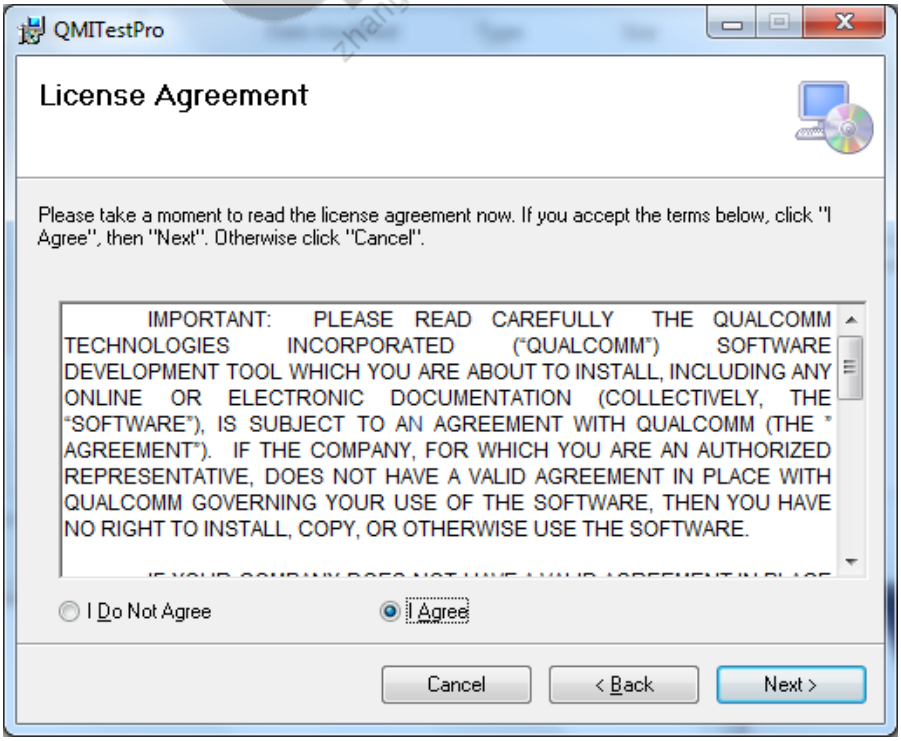


Figure 6-15 License agreement

Step 4: Press **Install** button on ready to Install Screen:

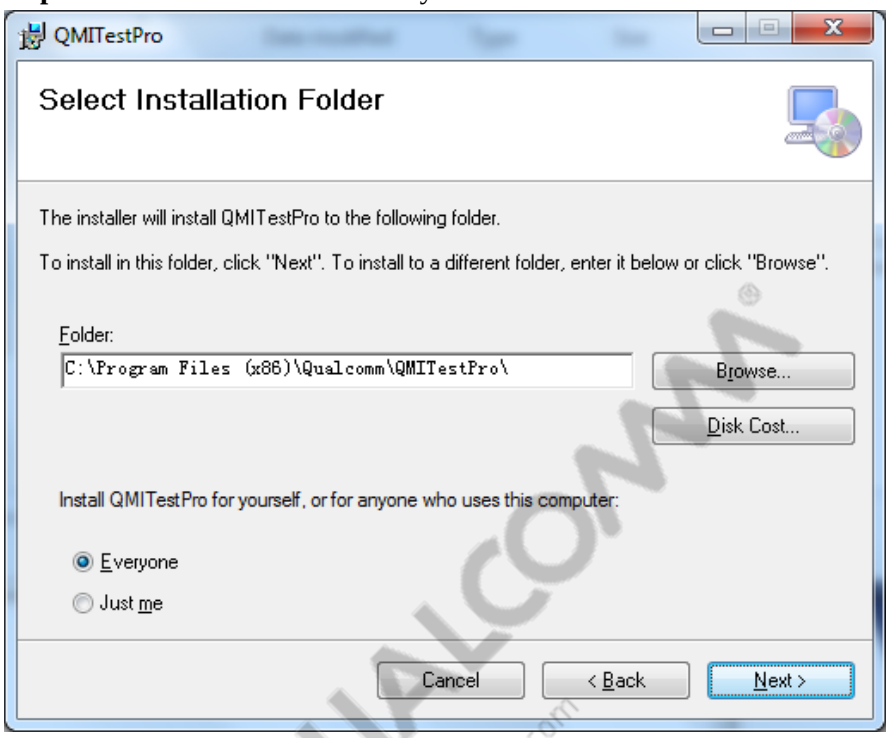


Figure 6-16 Select Installation Folder

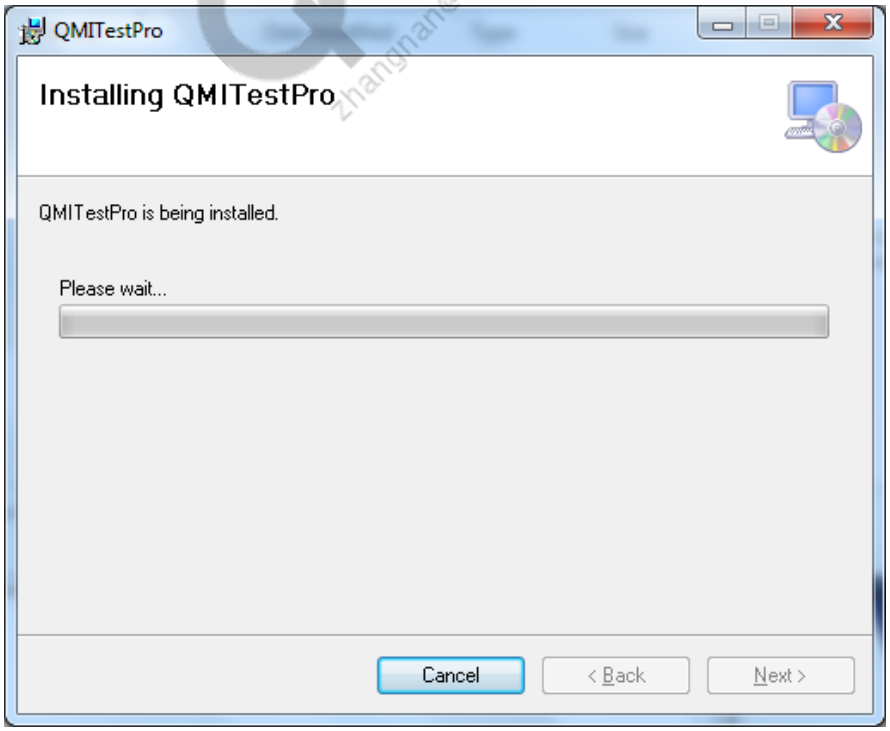


Figure 6-17 Installing QMITestPro

Step 5: Installation successfully complete:

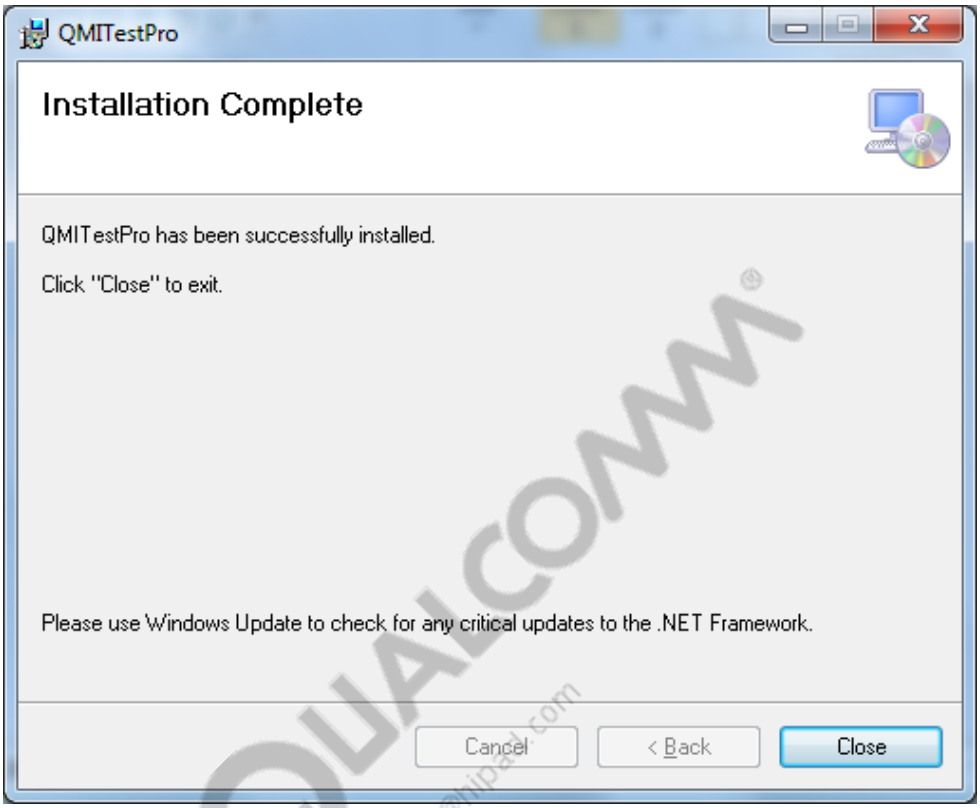


Figure 6-18 Installing QMITestPro Complete

6.3.3 QMI test pro dial up

Step 1: Run QMI test pro.

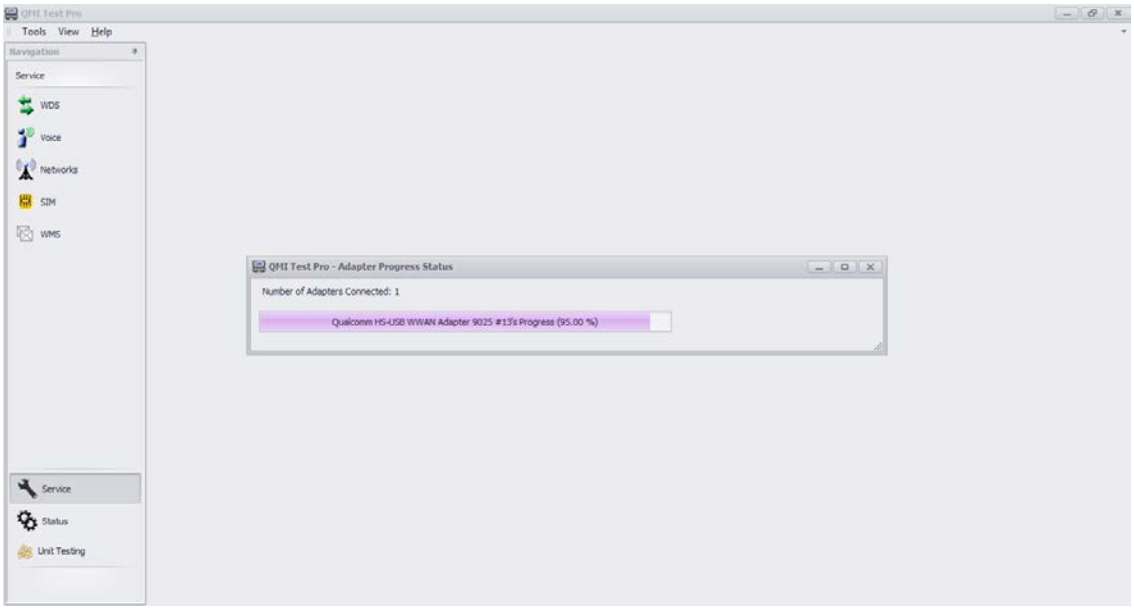


Figure 6-19 Run QMI test pro

Step 2: Select the available rmnet interface.

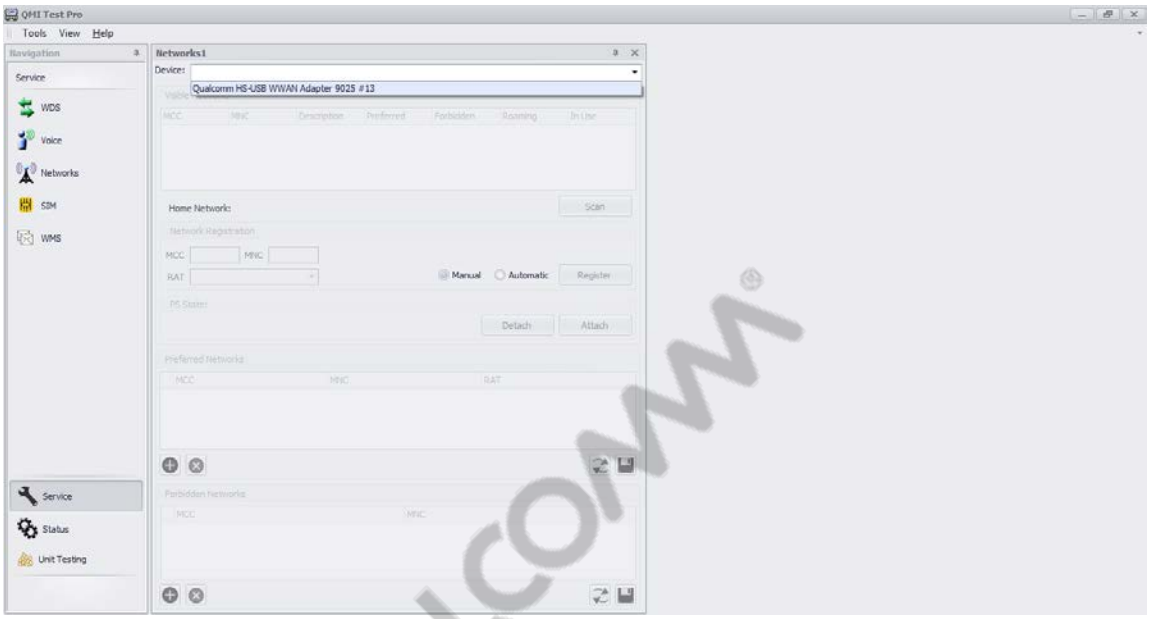


Figure 6-20 Select the available rmnet interface

Step 3: Configure parameters as per actual network (APN, Technology etc.), and click "Connect" button to start data call. After connected to network, the button will be changed to "Disconnect". This means the data call is setup successfully.

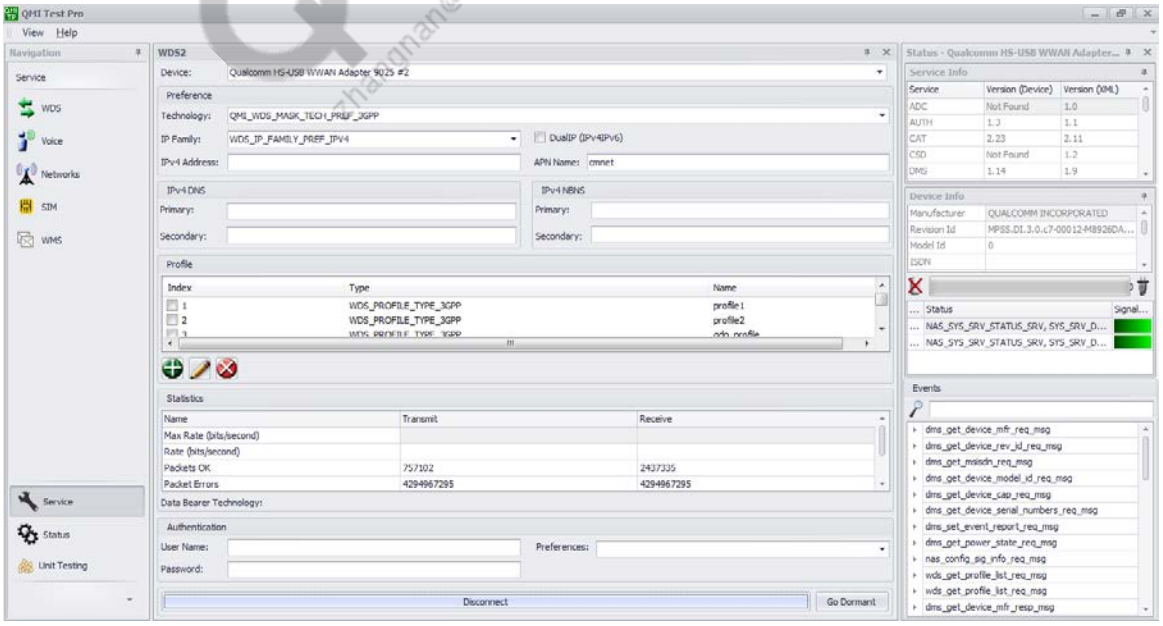


Figure 6-21 QMITestPro Setting

6.4 Summary

For Data Throughput test, it's highly recommended to **keep** the QMI/RmNet WWAN Adapter and provide the USB_WWAN drivers **by default**. For the LTE data throughput test, it's recommended to use QMICM/QMITestPro application to start the data call.

6.5 Appendix

When customer meets WiFi/USB-Tethering LTE Data Throughput issue, please refer to below two tips:

6.5.1 Compare with QMI/RmNet (QMI TestPro)

QMI/RMNet data call type bypass the AP. If the test result is good, then we can rule out any Modem issue (LTE layer can get high Data Throughput).

6.5.2 Stop thermal engine and set CPU to HIGH performance mode

Run below commands, and see if it can help to improve the Data Throughput.

The purpose is to force the CPU to HIGH performance mode (not degrade the CPU Frequency), to get high Data Throughput.

NOTE: This is for **debug purpose** to narrow down the root cause. Be caution the possible hot temperature after disable the Thermal Engine. Also set the CPU to performance mode will lock the CPU frequency to max frequence, which can increase the performance as well as power consumption. **Hence doesn't recommend to make this change for Mass Product software**.

```
adb root

// Stop mpdecision and Thermal Engine
stop mpdecision
stop thermal-engine

// Run "ps" cmd in ADB shell, make sure the above two process is NOT
running

// Make 4 core ONLINE always
echo 1 > /sys/devices/system/cpu/cpu0/online
echo 1 > /sys/devices/system/cpu/cpu1/online
echo 1 > /sys/devices/system/cpu/cpu2/online
echo 1 > /sys/devices/system/cpu/cpu3/online

// Run the "cat /sys/devices/system/cpu/cpu*/online" cmd, make sure
CPU is ONLINE

// Make 4 core CPU to high "performance" mode
echo "performance" >
```

```
/sys/devices/system/cpu/cpu0/cpufreq/scaling_governor
echo "performance" >
/sys/devices/system/cpu/cpu1/cpufreq/scaling_governor
echo "performance" >
/sys/devices/system/cpu/cpu2/cpufreq/scaling_governor
echo "performance" >
/sys/devices/system/cpu/cpu3/cpufreq/scaling_governor

// Run “cat /sys/devices/system/cpu/cpu*/cpufreq/scaling_governor”
cmd, make sure CPU is in “Performance” mode
```

6.5.3 Sample log analysis

6.5.3.1 How to check if the temperature is high or not

```
// Peridocially run below command during the Data Throughput test. So you
can get the temperature statistics
//
root@msm8226:/ # cat /sys/class/thermal/thermal_zone*/temp
cat /sys/class/thermal/thermal_zone*/temp
62   // sensor1 temp is higher than 60C
61
60
58  // sensor4 temp is lower than 60C
59
64
55133
42
44
```

6.5.3.2 How to check the CPU frequency

```
// Peridocially run below command during Data Throughput test. So you can
get the CPU frequency statistics
//
root@msm8226:/ # cat
/sys/devices/system/cpu/cpu*/cpufreq/cpuinfo_cur_freq
cat  /sys/devices/system/cpu/cpu*/cpufreq/cpuinfo_cur_freq
787200   // CPU0 is in 787MHz
787200
787200
      787200
```

6.5.3.3 How to get the Sensor Temperature and CPU Frequency from ADB log

```
// In ADB log, you can search below key words

// Sensor3 temperature is at 61C, it’s HOT
// CPU frequency is degraded to 384MHz, it’s low. This will degrade the peak Data Throughput
//
06-17 12:33:49.152 I/ThermalEngine(  227): Sensor:tsens_tz_sensor3:61000 mC
06-17 12:33:49.152 I/ThermalEngine(  227): ACTION: CPU - Setting CPU[0] to 384000
06-17 12:33:49.152 I/ThermalEngine(  227): ACTION: CPU - Setting CPU[1] to 384000
06-17 12:33:49.152 I/ThermalEngine(  227): ACTION: CPU - Setting CPU[2] to 384000
06-17 12:33:49.152 I/ThermalEngine(  227): ACTION: CPU - Setting CPU[3] to 384000
```

7 Service Application

7.1 Test cases

Table 7-1 Service application test cases

QRD CMCC Pretest scope		Comments
Module	**Case**	
Service and application	AGPS	The phone which are >= 800 RMB(or the screen is larger/equal to 4.5 inch), mandatory request. Push APGS Certification.
	Device Manager	SIM card ready(available for DM test, can apply by CMCC PoC) From 2014/2/1, new solution will be implemented.
	WLAN Function	Close all application which will cost extra power. WLAN RF exposed device with root enabled ready.
	WLAN RF	
	MMS	
	MMS Conformance	Lab pretest in CTTL, display issue is focused by tester
	MMS IOT	
	Local Function	
	Streaming	NV69731 set to 1 will lead the PDP issue, please set to 0 only for such testing. Partial cases only can be tested in CMCC lab, hard to book
	broadband Internet	NV69731 set to 1 will lead the PDP issue, please set to 0 only for such testing. Partial cases only can be tested in CMCC lab, hard to book
	CMMB Mobile TV	
	KJAVA	
	Video Telephone	
	NFC	

7.2 WLAN

Please refer to documents below for more detailed information:

- 80-VL975-20 QRD China Mobile (GSM/TDS) GPS/AGPS Configurations
- 80-VL975-21 QRD CMCC WLAN LTE Field Test
- 80-NP692-1 QRD8916 China Mobile (GSM/TDS) GPS/AGPS Configurations
- 80-NP692-2 QRD8916 CMCC WLAN LTE Field Test
- 80-VL975-22 QRD CMCC WLAN RF Test
- 80-VL975-23 QRD CMCC WLAN BT FM Function Test

7.2.1 Software configuration for RF test

1. DUT needs to be rooted.
2. Power Save and Roaming need to be disabled with the following config cases in `WCNSS_qcom_cfg.ini` as below.

Default `WCNSS_qcom_cfg.ini` location is under `/data/misc/wifi/.`

```
gEnableImps=0
gEnableBmps=0

FastRoamEnabled=0
```

3. Adb push the updated ini file back to DUT.
4. Turn off and on Wifi, and then WLAN RF test could be executed.

Note: Default WCNSS_qcom_cfg.ini location is under /data/misc/wifi/. If you can not find this file, please raise WLAN case to ask for it.

7.2.2 WAPI release process (IMPORTANT)

WAPI needs additional license and OEM must apply for related patches in project at early stage. It is too late to do that right before CTA test. Please follow the steps below to get the WAPI patches.

1. The customers create a case if they need the WAPI patch
2. Customer Engineering (CE) receives the request from the customers
3. CE informs product management and engineering
4. Product management works with legal to prepare a WAPI letter
5. The region obtains customer signatures
6. Product management gives the formal go-ahead to CE
7. CE requests SBA WAPI release to the customer
8. The customer receives the notification and can download the WAPI patch from the Qualcomm customer support website, Docs and Downloads

7.2.3 Typical WLAN software issues

7.2.3.1 WLAN does not work

Problem description:

When the CMCC runs WLAN RX RF performance test in protocol mode, after running a while and increasing the attenuation (to 61db)at the same time, the instrument will report the test failure.

(The CMCC uses WIFI instrument from Litepoint instead of M8860C now.)

Root cause&Solution:

The reason is the Powersave and Roaming function are default enabled in the DUT, but these function may lead to the instrument get no response from the DUT after running a while, hence the instrument will make wrong decision to disconnect with the DUT.

In order to avoid this unexpected test failing, the Powersave and roaming function need be disabled in the configuration file when do such test, attach the configuration file which disable such function and operation steps for your reference.

Detailed steps.

1. Push WCNSS_qcom_cfg.ini file into phone before testing wlan Rx sensitivity in signaling mode to close Power save mode

   ```
   adb root
   adb remount
   adb push WCNSS_qcom_cfg.ini /data/misc/wifi
   adb reboot
   ```

   With this WCNSS_qcom_cfg.ini file pushed in DUT, Power Save, all Scans, Roaming using the following parameters in the ini file are set to 0 (disabled):

   ```
   IMPS: gEnableImps=0
   BMPS: gEnableBmps=0
   FastTransitionEnabled=0
   FastRoamEnabled=0
   gEnableDFSChnlScan=0
   ```

2. Push WCNSS_qcom_wlan_nv.bin into phone before testing wlan Rx sensitivity to ensure the country code is China's. (Channel range is from ch1-ch13.)

   ```
   adb root
   adb remount
   adb push WCNSS_qcom_wlan_nv.bin /persist
   adb reboot
   ```

   How to modify country code in NV by QRCT.

   US setting

```
<DefaultCountryTable>
        <RegulatoryDomain Map="0:FCC,1:ETSI,2:JAP
        <CountryCode>
                <Value>85</Value>
                <Value>83</Value>
                <Value>73</Value>
        </CountryCode>
</DefaultCountryTable>
```

China Setting.

```
<DefaultCountryTable>
        <RegulatoryDomain Map="0:FCC,1:ETSI,2:JAP
        <CountryCode>
                <Value>67</Value>
                <Value>78</Value>
                <Value>73</Value>
        </CountryCode>
</DefaultCountryTable>
```

Note: If you have no WCNSS_qcom_wlan_nv.bin, please raise WLAN case to ask for it.

3. Disable GPS relative scanning. Three files are necessary to delete.

   /system/bin/lowi_test

   /system/bin/lowi-server

   /system/etc/lowi.conf

   ADB Command example:

```
U:\>adb root
restarting adbd as root

U:\>adb remount
remount succeeded

U:\>adb shell
root@msm8610:/ # cd system/bin
cd system/bin
root@msm8610:/system/bin # rm lowi_test
rm lowi_test
255|root@msm8610:/system/bin # rm lowi-server
rm lowi-server
root@msm8610:/system/bin # cd ../etc
cd ../etc
root@msm8610:/system/etc # rm lowi.conf
rm lowi.conf
1|root@msm8610:/system/etc # reboot
reboot
```

Figure 7-1 Android ADB disable GPS command

4. Android phone setting in UI to set phone always in wake mode.

   Setting->Display->Sleep

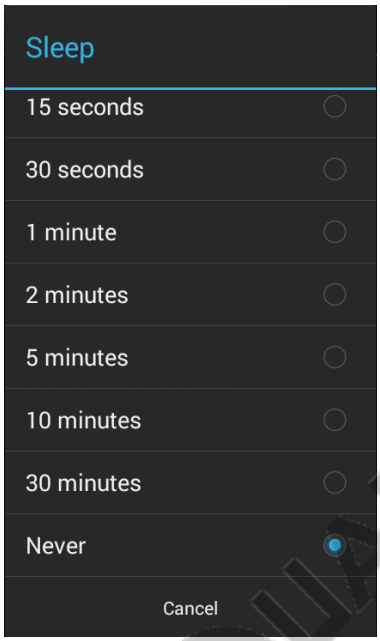
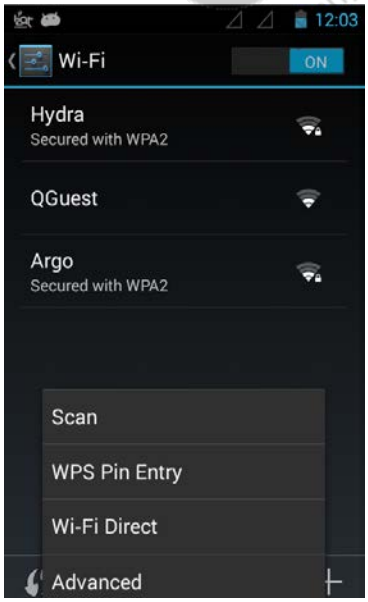


Figure 7-1 Android Sleep

5. Set WLAN after enabling WLAN function and connecting to AP in UI



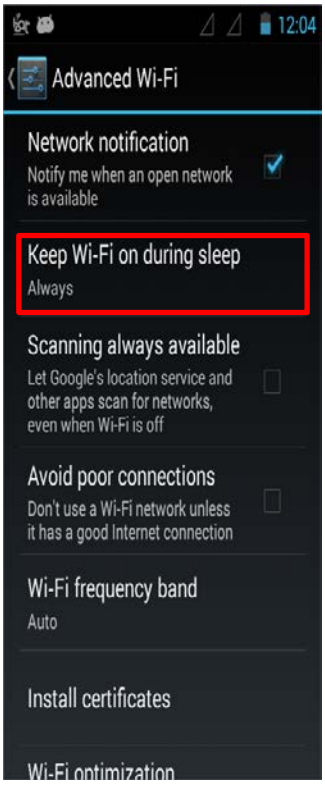


Figure 7-2 Android Wi-Fi

6. Please be sure to return to main screen after finishing the setting

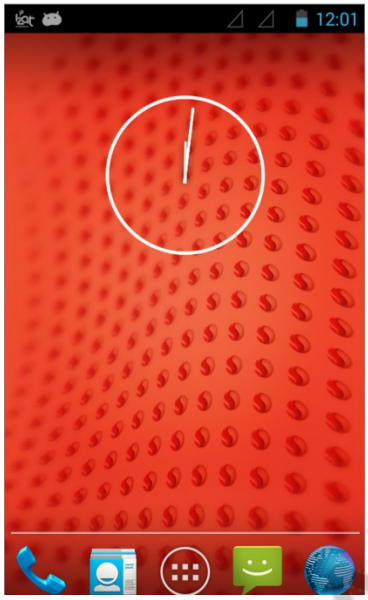
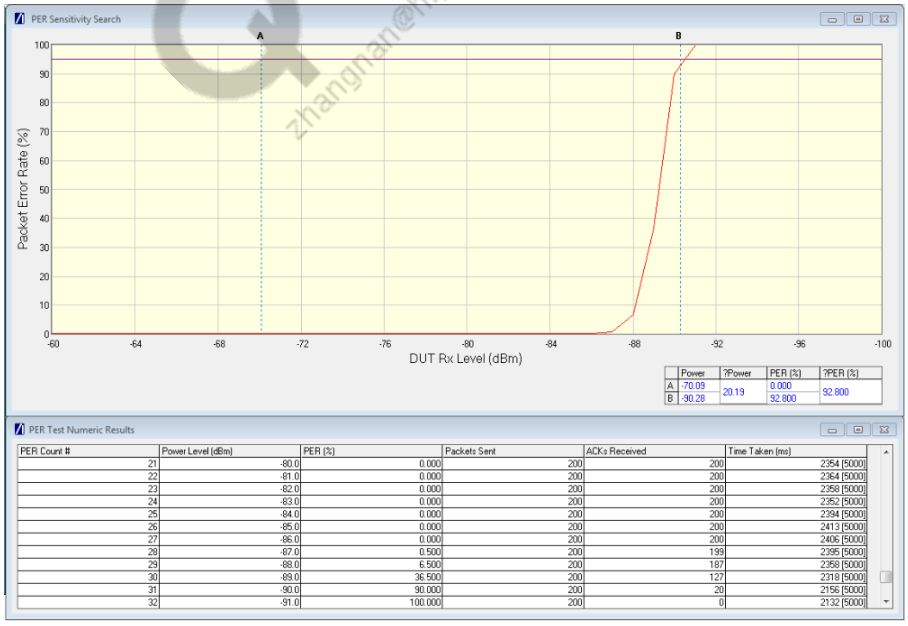


Figure 7-3 Android UI

7. Good result with these setting on 11b/11Mbps



PER Count #	Power Level (dBm)	PER (%)	Packets Sent	ACKs Received	Time Taken (ms)
21	-80.0	0.000	200	200	2354 [5000]
22	-81.0	0.000	200	200	2364 [5000]
23	-82.0	0.000	200	200	2358 [5000]
24	-83.0	0.000	200	200	2352 [5000]
25	-84.0	0.000	200	200	2394 [5000]
26	-85.0	0.000	200	200	2413 [5000]
27	-86.0	0.000	200	200	2406 [5000]
28	-87.0	0.500	200	199	2395 [5000]
29	-88.0	6.500	200	187	2358 [5000]
30	-89.0	36.500	200	127	2318 [5000]
31	-90.0	90.000	200	20	2156 [5000]
32	-91.0	100.000	200	0	2132 [5000]

Figure 7-5 Good result with these setting on 11b/11Mbps

BER bump without setting on 11b/11Mbps

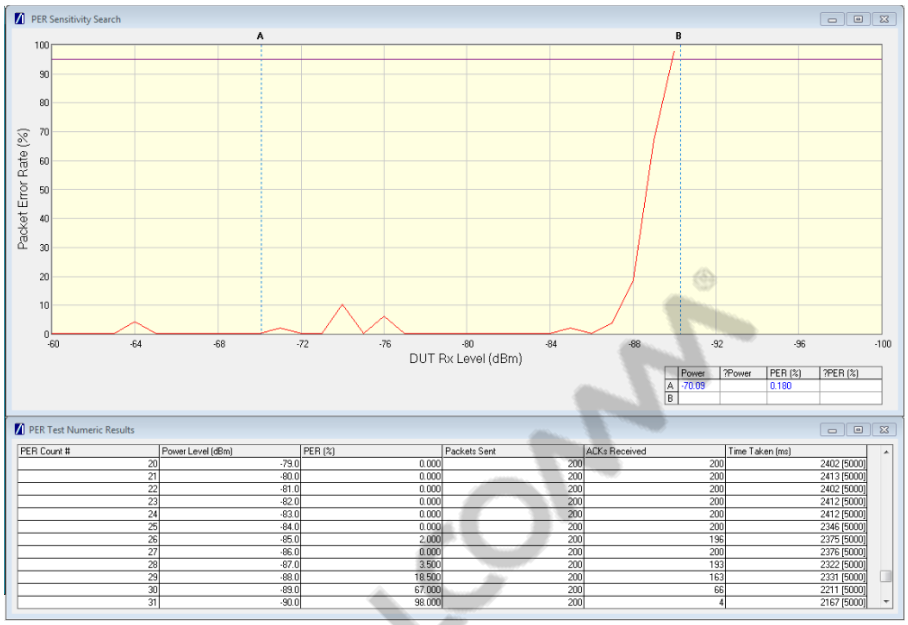


Figure 7-6 BER bump without setting on 11b/11Mbps

7.2.3.2 SoftAP FTP download throughput issue

Problem description:

DUT works as softAP and PC client connect to softAP. FTP download throughput could not meet CMCC requirements. This happens in Guangzhou CMCC ONLY

Solution:

This is Guangzhou CMCC network issue which tags the FTP data packets with different DSCP per packet basis. This causes bigger throughput fluctuation and there is a workaround from DUT side:

```
diff --git a/CORE/HDD/src/wlan_hdd_wmm.c
b/CORE/HDD/src/wlan_hdd_wmm.c
index a43898b..d2a8b4b 100644
--- a/CORE/HDD/src/wlan_hdd_wmm.c
+++ b/CORE/HDD/src/wlan_hdd_wmm.c
@@ -1785,7 +1785,8 @@ v_VOID_t hdd_wmm_classify_pkt (
hdd_adapter_t* pAdapter,
       }

       dscp = (tos>>2) & 0x3f;
-      userPri = hddWmmDscpToUpMap[dscp];
+      userPri = SME_QOS_WMM_UP_VI;

 #ifdef HDD_WMM_DEBUG
       VOS_TRACE(VOS_MODULE_ID_HDD, WMM_TRACE_LEVEL_INFO,
```

7.2.3.3 IOT test with some CMCC Guangzhou AP (CR#590602)

Problem description:

DUT could not connect to some AP in Guangzhou CMCC.

Solution:

Root cause is that DUT includes some flag in IE and AP does not honor it. Fix has been identified and would be included in future release. OEM could add the following code if it does not appear in their code base.

```
diff --git
a/CORE/MAC/src/pe/lim/limProcessMlmRspMessages.c
b/CORE/MAC/src/pe/lim/limProcessMlmRspMessages.c
index e5974dc..f02e964 100644
--- a/CORE/MAC/src/pe/lim/limProcessMlmRspMessages.c
+++ b/CORE/MAC/src/pe/lim/limProcessMlmRspMessages.c
@@ -706,6 +706,13 @@ limProcessMlmAuthCnf(tpAniSirGlobal
pMac, tANI_U32 *pMsgBuf)
                  caps &=
(~LIM_SPECTRUM_MANAGEMENT_BIT_MASK);
             }

+            /* Clear rrm bit if AP doesn't support it */
+            if(!(psessionEntry->pLimJoinReq-
>bssDescription.capabilityInfo
+                  & LIM_RRM_BIT_MASK))
+            {
+               caps &= (~LIM_RRM_BIT_MASK);
+            }
+
             pMlmAssocReq->capabilityInfo = caps;
            PELOG3(limLog(pMac, LOG3,
               FL("Capabilities to be used in
AssocReq=0x%X, privacy bit=%x shortSlotTime %x"),
diff --git a/CORE/MAC/src/pe/lim/limUtils.h
b/CORE/MAC/src/pe/lim/limUtils.h
index 72f9c44..526d577 100644
--- a/CORE/MAC/src/pe/lim/limUtils.h
+++ b/CORE/MAC/src/pe/lim/limUtils.h
@@ -68,6 +68,7 @@ typedef enum
 #define LIM_STA_ID_MASK                          0x00FF
 #define LIM_AID_MASK                                0xC000
 #define LIM_SPECTRUM_MANAGEMENT_BIT_MASK            0x0100
+#define LIM_RRM_BIT_MASK                            0x1000
 #if  defined (WLAN_FEATURE_VOWIFI_11R) || defined
(FEATURE_WLAN_CCX) || defined(FEATURE_WLAN_LFR)
 #define LIM_MAX_REASSOC_RETRY_LIMIT             2
 #endif
```

7.2.3.4 Roaming test and GUI showed rejected (CR#582883)

Problem description:

DUT could not connect to CMCC AP and Android GUI shows "**Rejected**".

Solution:

This is actually expected behavior. Under some weak AP signal area, DUT would keep trying to connect to AP but could not succeed. After several times retry Android framework would disable

the profile. When DUT moves closer to AP, it would not reconnect automatically as the profile has been disabled.

We could have the following workaround if CMCC requires:

```
diff --git
a/wifi/java/android/net/wifi/SupplicantStateTracker.java
b/wifi/java/android/net/wifi/SupplicantStateTracker.java
index e76eb17..c3b4bf8 100644
---
a/wifi/java/android/net/wifi/SupplicantStateTracker.java
+++
b/wifi/java/android/net/wifi/SupplicantStateTracker.java
@@ -99,8 +99,6 @@ class SupplicantStateTracker extends
StateMachine {
mWifiConfigStore.enableAllNetworks();
mNetworksDisabledDuringConnect = false;
}
- /* Disable failed network */
- mWifiConfigStore.disableNetwork(netId, disableReason);
```

7.2.3.5 EAP-SIM connection failure (CR#NA)

Problem description:

Sometimes DUT could not connect to AP with EAP-SIM authentication method.

Solution:

This is a general guide and there is no specific fix.

1. Make sure DUT has the latest patch EAP-SIM patch.
2. Change different card to try.
3. Test reference device and see if it is working normally.
4. If there is QMI response timeout in logcat log as "**E/wpa_supplicant(1097): eap_proxy_qmi_response_wait !QMI STATE 1 TIME_OUT**", the following timeout value could be increased to try:

```
diff --git a/src/eap_peer/eap_proxy.h
b/src/eap_peer/eap_proxy.h
+#define QMI_RESP_TIME_OUT                  650
```

5. If the above test results proves to be DUT issue, file a case for Qualcomm CE

7.2.3.6 Guideline for CMCC SoftAP FTP download test item(3.2.1).

1. Test point requirement (best point): LTE network SINR is greater than 25dB, RSRP is greater than -80dBm (this can be checked via QXDM).
2. USB tethering download speed (compare with reference device) should be above 60Mbps (ideally 70Mbps) consistently to ensure the LTE network status. This would give DUT better chance to achieve >35Mbps in softAP mode.
3. DUT should have the validated best WLAN RF performance.
4. If LTE camps on Band E (B40), fix the softAP channel to 11/12/13.
5. Use Omnipeek or inSSIDer to check Wifi environment status and select a cleanest channel.

6. Check the standalone Wifi TCP DL throughput with iperf which should be above 40Mbps (compare with reference device).
7. Try different laptops as client.

7.3 AGPS

China Mobile has deployed A-GPS SUPL1.0, for China Mobile customized handsets, A-GPS support is mandatory.

7.3.1 NV setting on modem side

7.3.1.1 Configure customization AGPS NV cases properly

Refer to [Q4] for details.

`NV 4707= 1` //configured as User Plane (SUPL).

`NV 1920 = 7` //standalone and user plane AGPS is supported. If it is USA market, set it to 0xFF7F.

`NV 3758 =1` // (Enable User Plane Secure Transport), CMCC SUPL server is security transport mechanism.

7.3.1.2 Inject SUPL Root certificate file

Put SUPL Root certificate file which is got from CMCC at `modem EFS/SUPL` folder with any name. `EFS/SUPL` folder may store at most 10 A-GPS SUPL certificates files.

1. During the testing phase, Customers may use Qualcomm QPST-> EFS explorer to drag certificates into modem `EFS/SUPL` folder.
2. During commercial launching, Customers also call Qualcomm location API on android to inject certificates files into modem `EFS/SUPL` folder from android side.

All SUPL Root certificate files must be DER encoding. You need to convert it to DER format if it is CER encoding certificate.

7.3.2 Android side setting

7.3.2.1 SUPL server address setting

Configure SUPL server address (SUPL_HOST and SUPL_PORT) in `Android /etc/gps.conf` file. This file is located at android build folder: `android\hardware\qcom\gps\etc`. SUPL server address is configured properly in `/etc/gps.conf`, which address will be written into NV4703 SUPL Server URL Address automatically while handset powers up.

For example:

In: `android\hardware\qcom\gps\etc\gps.conf`

- For CMCC live SUPL server in commercial network

```
# FOR SUPL SUPPORT, set the following
```

```
SUPL_HOST=221.176.0.55
SUPL_PORT=7275

# supl version 1.0
SUPL_VER=0x10000
```

- For CMCC lab SUPL server in CMCC BJ lab network(CMCC TA testing is run on the lab server in CMCC lab network)

```
# FOR SUPL SUPPORT, set the following
SUPL_HOST= 218.206.176.50
SUPL_PORT=7275

# supl version 1.0
SUPL_VER=0x10000
```

7.3.2.2 APN setting for AGPS

Add one SUPL type APN for AGPS in `data\etc\Apns-conf.xml`, we recommend strongly that adding one SUPL type into existing APN list, do not create one separate APN for SUPL type.

- For China Mobile live SUPL server, the SUPL type APN should be added into APN cmwap.

  For example:

```
<apn carrier="China Mobile" apn="cmwap" mcc="460" mnc="02" user=""
server="" password="" proxy="" port="" mmsproxy="" mmsport="" mmsc=""
type="default,supl"/>

<apn carrier="China Mobile GPRS" apn="cmwap" mcc="460" mnc="07" user=""
server="" password="" proxy="" port="" mmsproxy="" mmsport="" mmsc=""
type="default,supl"/>
```

- For CMCC lab SUPL server, OEM should get the right lab APN for AGPS. Add one SUPL type APN for AGPS on the APN in `data\etc\Apns-conf.xml`.

7.3.3 CMCC A-GPS log collection tool

Go to Qualcomm documents and downloads (DnD) web site to download the latest SnappperHS tool. SanpperHS is one Qualcomm AGPS call flow analysis and performance statistic tool.

Open SnapperHS->Setting menu, then follow settings below to collect CMCC A-GPS log "`gps.log`" while running A-GPS testing (MO/NI MSA and MSB). While A-GPS is started, the A-GPS log will be outputted into `gps.log file`. CMCC already has Qualcomm SnapperHS tool.

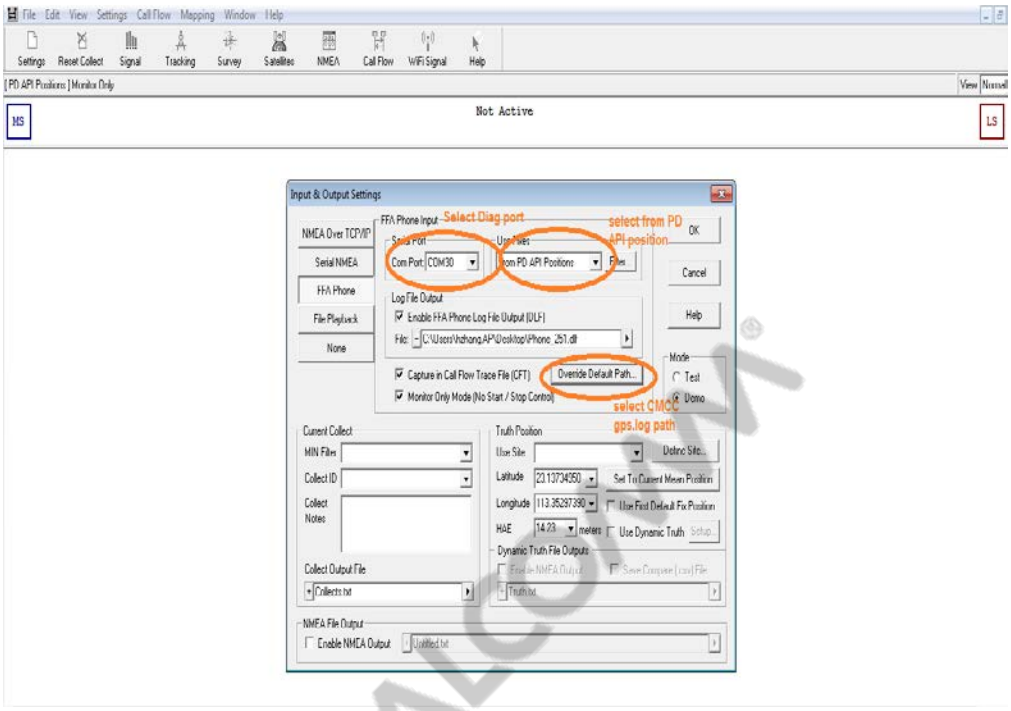


Figure 7-4 AGPS setting

7.3.4 Use Qualcomm GPS /A-GPS test tool ODLT to run set initiated MSA and MSB

Qualcomm GPS tool ODLT is released with CRM build.Iit is one GPS test tool with rich features, no extra installation needed. ODLT logo is shown in the list of applications if you load one Qualcomm baseline build.

- How to run cold start MSA

1. Options->Edit config->API selection: Loc API
2. Options->Edit config->fix parameters settings->Recurrence Type: Singleshot
3. Options->Edit config->fix parameters settings->preferred op mode: MS-assisted
4. Options->Edit config->assistance data deletion: Delete All.
5. Go back the menu one by one, select Save Config file as “CMCC_cold_MSA”.
6. Go back the menu one by one, start the testing. use SnapperHS tool to CMCC AGPS gps.log

- How to run cold start MSB

1. Options->Edit config->API selection: Loc API
2. Options->Edit config->fix parameters settings->Recurrence Type: App Track
3. Options->Edit config->fix parameters settings->preferred op mode: MS-based
4. Options->Edit config->assistance data deletion: Delete All.
5. Go back the menu one by one, select Save Config file as “CMCC_cold_MSB_Track”.

6. Go back the menu one by one, start the testing. use SnapperHS tool to CMCC AGPS gps.log

- How to run cold start standalone.

1. Options->Edit config->API selection: Loc API
2. Options->Edit config->fix parameters settings->Recurrence Type: App Track
3. Options->Edit config->fix parameters settings->preferred op mode: Standalone
4. Options->Edit config->assistance data deletion: Delete All.
5. Go back the menu one by one, select Save Config file as “CMCC_cold_ST_Track”.
6. Go back the menu one by one, start the testing. use SnapperHS tool to CMCC AGPS gps.log

7.3.5 CMCC A-GPS known SUPL server issue and workaround on handset side

Qualcomm strictly follow 3GPP and OMA to implement the SUPL A-GPS. But during SUPL IOT between Qualcomm and CMCC NSN SUPL server, Qualcomm finds one CMCC SUPL server issue. The Almanac provided by CMCC SUPL server has wrong PRN numbering. While Qualcomm verifies the consistence of Almanac and ephemeris provided by CMCC, consistence checking fails. So all Almanac and ephemeris provided by CMCC SUPL server will not be used in position calculation. This causes longer TTFF. So on handset side, customers have to apply one workaround. For more information, refer to [Q5] which can download from DnD website.

For CMCC live SUPL server, due to CMCC SUPL server loading issue, CMCC live SUPL server have very high refusing rate on SSL layer, SUPL request etc. This is known CMCC SUPL server issue , there is no way to solve it on handset side.

7.4 MIFI

These are the typical WLAN related issues when testing MiFi (MDM9x15+AR6003) at CMCC Hangzhou lab.

7.4.1 Throughput issue

Problem description:

End2end FTP download or upload cannot meet CMCC requirements.

Solution:

CMCC lab at Hangzhou is neither a shield room, nor a clean environment for WLAN. There is a lot of AP around there. We can only try to get the best throughput data by:

1. Disable softAP mode power save:
   ```
   #wmiconfig -i eth0 --power maxperf
   ```
2. Choose a most clean channel. Customer can use sniffer tool to collect the AP list in each channel and decide to use a most clean one.

3. Try to do the test when there is no much other testing around there. Such as do the testing at noon or night.

7.4.2 Ping response time cannot meet CMCC requirement

Problem description:

CMCC requires End2end ping response time < 30ms. Since LTE side needs spare ~20ms, so WLAN side can only cost ~10ms.

Solution:

To avoid long response time, we need to make sure the device located at the most clean channel and disable the softAP mode power save:

1. Disable softAP mode power save:
   ```
   #wmiconfig -i eth0 --power maxperf
   ```
2. Choose a most clean channel. Customer can use sniffer tool to collect the AP list in each channel and decide to use a most clean one.
3. Try to do the test when there is no much other testing around there. Such as do the testing at noon or night.

Besides, we are still working on this ping issue and will update the status once there is a solution.

7.5 BT_FM

7.5.1 Power consumption issue

This is the typical Bluetooth Software issues for CMCC test.

Problem description:

Power consumption is too high during file exchange over Bluetooth. Expected result is 150mA while actual power consumption is about 203mA

Solution:

You may do two changes to address this issue.

- First, you need to change the power class from default class 1 to class 2 to reduce Bluetooth RF power consumption.
- Second change is to reduce OBEX MTU. It will reduce the power consumption with the cost of taking more time to transfer a file.

To set power class to class 2, you need to set property "**qcom.bt.dev_power_class**" to "**2**" before turn on Bluetooth. You can do these steps:

1. Turn off Bluetooth from UI
2. In Adb shell, run this command:
   ```
   setprop qcom.bt.dev_power_class 2
   ```
3. Turn on Bluetooth

Do the change to reduce MTU size to 16k:

```
diff --git a/obex/javax/obex/ObexHelper.java
b/obex/javax/obex/ObexHelper.java
index 8ebd802..97d6d33 100644
--- a/obex/javax/obex/ObexHelper.java
+++ b/obex/javax/obex/ObexHelper.java
@@ -76,7 +76,7 @@ public final class ObexHelper {
* Temporary workaround to be able to push files to Windows 7.
* TODO: Should be removed as soon as Microsoft updates their driver.
*/
- public static final int MAX_CLIENT_PACKET_SIZE = 0xFC00;
+ public static final int MAX_CLIENT_PACKET_SIZE = 0x4000;
```

7.5.2 BT4.0/BLE direct mode test with AT4 system during BQB

1. BLE direct mode test
   - Most China BQB test labs adopt AT4 system form Agilent.
   - If OEMs want to do BT4.0 BQB, OEMs should verify their DUT BLE performance before entering TA lab.
   - As for how to do BLE direct mode test, please refer to **80-WL300-20**.
2. AT4 system BLE direct mode test
   - AT4 system sends DUT control HCI commands through the com port.
   - Generally, this com port connects with test lab's laptop with RS232 to USB adaptor cable. Then, another USB cable connects DUT with this laptop.
   - There is an .exe program tool running on the laptop during BLE test. This tool translates the AT4 DUT control HCI command to Btconfig HCI command.
   - OEM just makes sure Btconfig is workable on their DUT before entering test lab.
3. Btconfig in BlueDroid
   - btconfig is a similar tool as hcitool in Bluez.
   - btconfig is not mainlined yet. Customer should download the codes, compile and push by themselves.
   - Where to get?

     https://www.codeaurora.org/cgit/quic/la/platform/external/bluetooth/btconfig/tree/
   - How to use?
     - # adb remount
     - # adb push btconfig /system/bin
     - # adb shell chmod 777 /system/bin/btconfig
     - Turn off Bluetooth on UI.
     - Enjoy with btconfig!!!

8 Software Reliability

8.1 MTBF

For details, please refer to B.4.

8.2 Power consumption test

8.2.1 HW preparation

For details, please refer to B.3.2.

8.2.2 SW preparation

For details, please refer to B.3.3.

8.3 Local performance

DUT has enough power to make sure it's working; Insert 2G SD card, SD card contain the required test resources.

Phone settings: Setting-> Display->Sleep->Never or 30mins

Power on the DUT, wait 2 to 3 minutes, execute test case.

For details, refer to C.3.

8.4 Stress test

Perform the tasks in this order on the same DUT, don’t remove and reset in test, ensure that the memory usage can reach 80%.

SD card contain the required test resources.

Set Video duration to 30mins, repeat the test twice (Cer_Stress_1_06):

NOTE: Default value is 10 minutes, it needs to record for 60 minutes.

For details, refer to C.4.

8.5 Abnormal test (filled internal storage method)

Install a third-party application (if application is installed in the external storage, need to go to the settings->Apps->move the applications from SD card to internal storage).

When the install cannot continue, Use the backup application, restore MMS, SMS and contacts that make the internal storage to reach right size.

DUT contain the required test resources.

For details, refer to C.5.

9 Hardware Reliability

Table 9-1 Hardware test tems

Hardware Reliability.	OTA
	Mechanical Design
	Audio

10 CTA

10.1 CTA Test Tips

[Q18] provides check list for CTA test cases to help customers solve configuration or setup issues.

10.2 8916 DIMEPM1.0 CSFB+G DSDS check list for CTA

1. Definite Map of RF conductive port location. Please find it from RF test team.
2. Disclose the conductive RF ports for Lab test.
3. Enough Suitable RF cables.
4. Share USB driver and installation guidance, and enough USB port sharing, e.g. Network adapter USB port for throughput test via QMI dialup, dialog port for QXDM/QPST, Modem port for AT command.
5. There are two different builds. If builds are generated by MBN, NS/EFS is included inside, no extra NV/EFS need to be configured. If normal build is used, there are two QCN/EFS configuration, one is for field test/mass production, and another is for lab test. Please refer to 0.
6. Lab test uses different settings from field test. Below cases are for LTE protocol test.

    - Enable ZUC algorithm for CTA LTE protocol ZUC test cases, EFS files at location `/nv/case_files/modem/nas/lte_nas_ue_sec_capability`
    - Use more TDS OP PLMN as NV70189 present. EFS file at location `\nv\case_files\modem\nas\ tdscdma_op_plmn_list`
    - Use more TDS EHPLMN as NV65602 present, EFS file at location `\nv\case_files\modem\nas\EHPLMN`
    - Enable F3 log by setting **NV1892=5**, **1895=255**, **1962=255** in CTA only to ensure F3 log is in crash dump for debugging usage.
    - Other NVs, like **NV70302**, set it to **0** which means operator_null. By this, the CMCC FOP NAS feature is also disabled, to pass LTE protocol Test Case 13.1.3.
7. Use a correct PICS/PIXIT file, **80-NN720-x**.
8. UI setting, to confirm UI with CTA and DSDS config.

    - Settings/multi SIM setting, enable both SUB1 and SUB2.
    - Settings/more.../Mobile Networks/Select Subscription/Subscription 1/Network Mode, set to LTE/TDSCDMA/WCDMA/GSM.
    - Settings/more.../Mobile Networks/Select Subscription/Subscription 2/Network Mode, set to GSM Only.
    - Set Default Data Subscription (DDS) to Subscription 1.

9. For CSFB+G DSDS phone, while conformance test, just insert one (U) SIM on slot 1 and start test.
10. For phone which has 512M RAM which need Segment Loading feature, WCDMA test only could be done against simulator with non 460 Mobile country code. To test WCDMA, set **NV72542=1**, **2** for WCDMA segment loading. Default setting is TDSCDMA segment loading by setting **NV72542=1**, **1**.
11. Bands requirement of CTA is shown as below,

    - TD-LTE：Band 38 39 40 41(China Telecomm and China Unicom share part of Band 41)
    - TD-SCDMA: Band A+F
    - WCDMA：Band 1
    - GSM：900/1800MHz；
    - CDMA：Band 0
12. For all GCF or NS-IOT testing, test must be done in a shielded environment. This is done to prevent the UE from acquiring over-the-air/live network signals. Acquiring such live networks negatively impacts the outcome of the testing and may produce erroneous results.
13. Ensure very good RF calibration on all the test samples/UE variants being used.
14. Ensure that the primary and secondary RF ports of each RAT are connected to the test equipment correctly.
15. Any required cable loss is compensated correctly on the test equipment.
16. Follow the guidelines in Chapter 3 of [Q9] for the usage of the correct UE variant and PICS file for various testing conditions, as applicable.
17. For data throughput test, especially for the LTE peak data throughput test, QMICM/QMITestPro should be used to start QMI/RmNet data call.
18. To enable the CTTL security level 3, OEM need enable the prop: persist.sys.strict_op_enable, set it to ‘true’.

10.3 WCDMA

10.3.1 Test case 3GPP 34.123-1

The reason for handover failure is no measurement report. The test case is as below.

3GPP 34.123-1, 8.3.7.1、8.3.11.1、8.3.11.14 , 8.4.1.35.

Analysis and solution:

SGLTE Test RF Connection:

Normally, SGLTE phone has two RF transceivers and three antennas (not including GPS and WIFI). The first transceiver supports L/W/TDS and it has two antennas for primary TX/RX path and diversity RX path. The second transceiver only supports GSM quad bands and it only has one dedicate antenna for GSM TX/RX. So for testing such X2G IRAT case on SGLTE phone, we need to use power splitter to connect L/W/TDS primary antenna with GSM antenna together. Otherwise, even phone can measure some GSM RSSI, but would fail in FCCH and SCH

decoding. Thus, X2G IRAT case would fail.

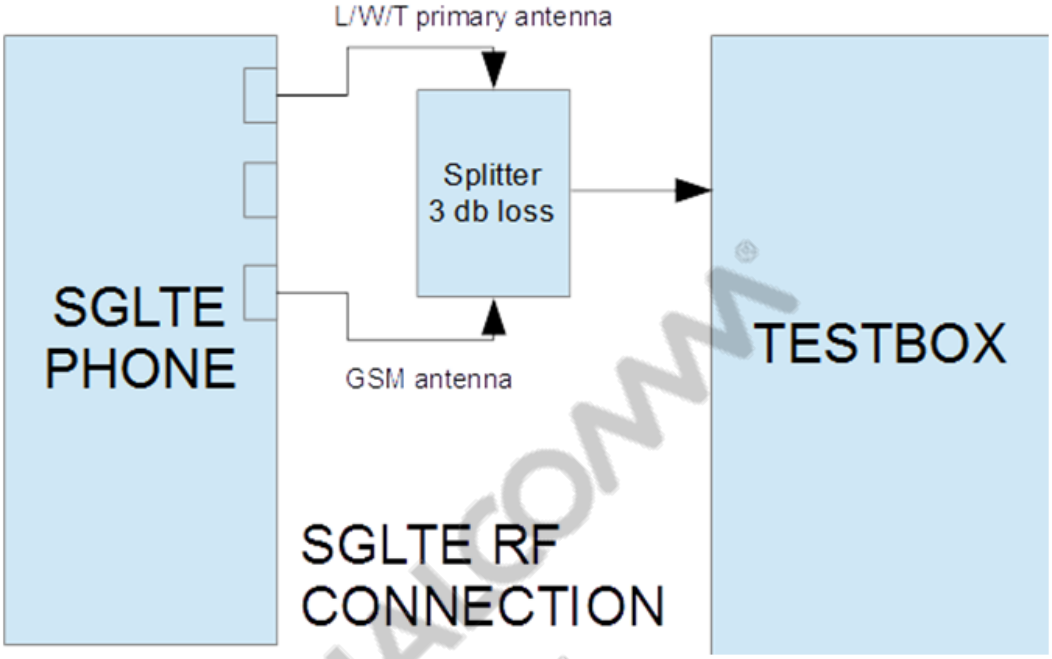


Figure 10-1 SGLTE Test RF Connection

10.4 TDSCDMA

10.4.1 TDSCDMA RRM conformance

CTA lab requires UE set to TDS, TDL, GSM mode + SGLTE mode to test TDS RRM cases.

Solution:

1. Set to TDS, TDL, GSM mode + SGLTE mode
2. In policy file `carrier_policy.xml`, Add **466** to **mcc_list** , add **466-02** to **plmn_list**.

```
<mcc_list name="sglte_mccs"> 001 002 003 004 005 006 007 008 009 010 011
012 316 440 460 466 </mcc_list>.
<plmn_list name="sglte_operators"> 466-02 440-79 001-01 460-00 460-01
460-02 460-03 460-04 460-07 460-09 460-08 460-080 460-71 002-02 002-81
002-91 002-11 466-09 246-81 246-081 </plmn_list>  .
```

10.4.2 TDSCDMA RF

10.4.2.1 HSDPA test part

This is only applicable to CTA testing.

For TDSCDMA RF lab conformance (HSDPA test part), if the device can’t do registration, it may be caused by the test SIM HPLMN (001, 01) and callbox doesn’t have integration

protection. It needs to set **NV 69731** to **0**, **NV 66011** to **0**, **NV 66013** to **1**. After passing such kind of case, it needs to change these three NVs back to original setting **NV69731** to **2**, **NV 66011** to **1**, **NV 66013** to **0**.

It depends on what kind of SIM card is used and if the callbox has integrity protection check.

For CMCC testing, don't need this setting.

10.5 TD-LTE

10.5.1 TDL protocol

10.5.1.1 TDL protocol 6.1.1.1 fails

Solution:

1. Remove the EFS file `/nv/case_files/modem/nas/ehplmn`. Or add **001-01 PLMN** to EFS file `/nv/case_files/modem/nas/ehplmn`.
2. This case needs to be test with a special-designed SIM card.
3. Set NV65605=0 and NV69731=2.

10.5.1.2 ZUC algorithm

CTA needs to enable ZUC, for details, please refer to [Q2], other lab and live test use default setting and don't need to enable ZUC.

Set **EIA3** and **EEA3** to **1** to enable ZUC algorithm. Please refer to 0, change efs `lte_nas_ue_sec_capability` to enable ZUC.

10.6 USIM NI-UICC

For CTA USIM NI-UICC part, UE in SGLTE home mode, needs to add **234 244 246** to "**sglte_mccs**" list, and meantime add **234-005 246-81 246-081** to "**sglte_operators**" list.

New **carrier_poilcy** list of lab testing is as below:

<mcc_list name="sglte_mccs"> 001 002 003 004 005 006 007 008 009 010 011 012 316 440 460 466 **234 244 246** </mcc_list>

`<plmn_list name="sglte_operators"> 466-02 440-79 001-01 460-00 460-01 460-02 460-03 460-04 460-07 460-09 460-08 460-080 460-71 002-02 002-81 002-91 002-11 466-09` **`246-81 246-081 234-005`** `</plmn_list>`

For all QRD platform, FPLMN is shown in UI after manual scan, but did not allow User to click it to camp. This has affect CTA test itmem. Relative CR is 651329.

10.7 Information security&function

QRD build provides security setting level 1 to 3 to set application operation permission:
UI->Settings ->Security ->App ops:
Three permission levels could be selected: Always ask /Allow/ Ignore.

10.8 WLAN BT RF (FTM mode)

10.8.1 Preparation before test

Before test, it needs to set the phone to disable hibernation. Specific methods such as:

Go to "**Settings**" -> "**Display**" -> "**sleep**", set the maximum time.

Before test, to confirm the WLAN must be off.

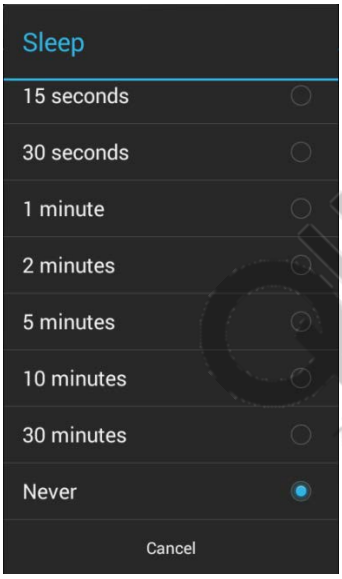


Figure 10-2 Sleep page

10.8.2 WLAN RF transmitter test procedure

1. After the phone is switched on, connect with the USB cable, then install the device driver. "ADB Interface" appears in Device Manager, then open a command line window, enter the command "adb root". Then it can enter adb test commands.
2. Enter FTM test mode

```
adb root
adb shell
ps | grep ptt
kill “ptt process ID”
ptt_socket_app –v –d –f
```

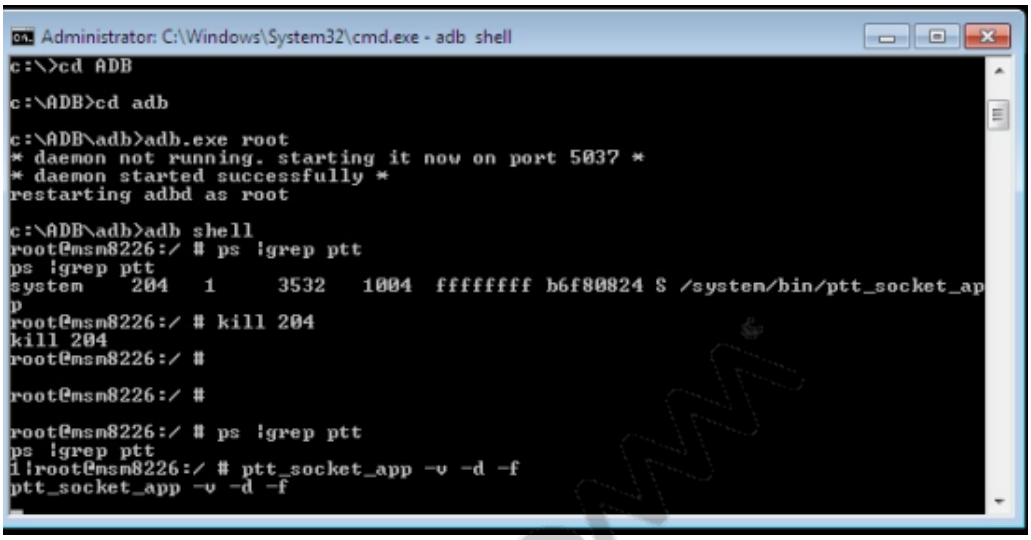


Figure 10-3 Command window

3. Set transmitter

   a. Open QPST to check COM port;

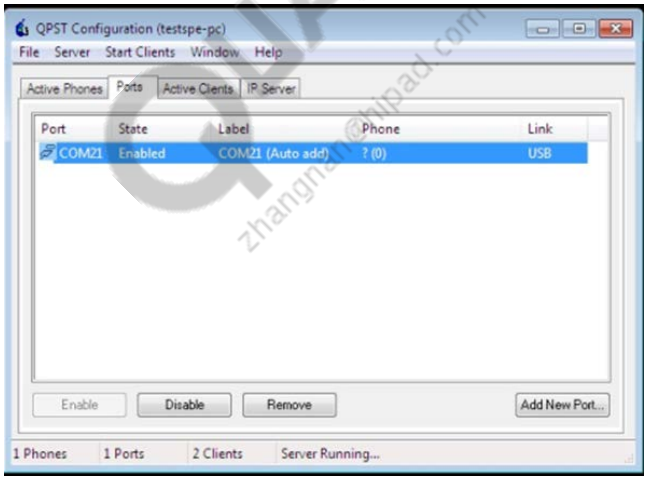


Figure 10-4 QPST Configuration

b. Open QRCT, select [**FTM Command**]→[**WLAN**]→[**WCN1312/WCN1314/WCN3660**];

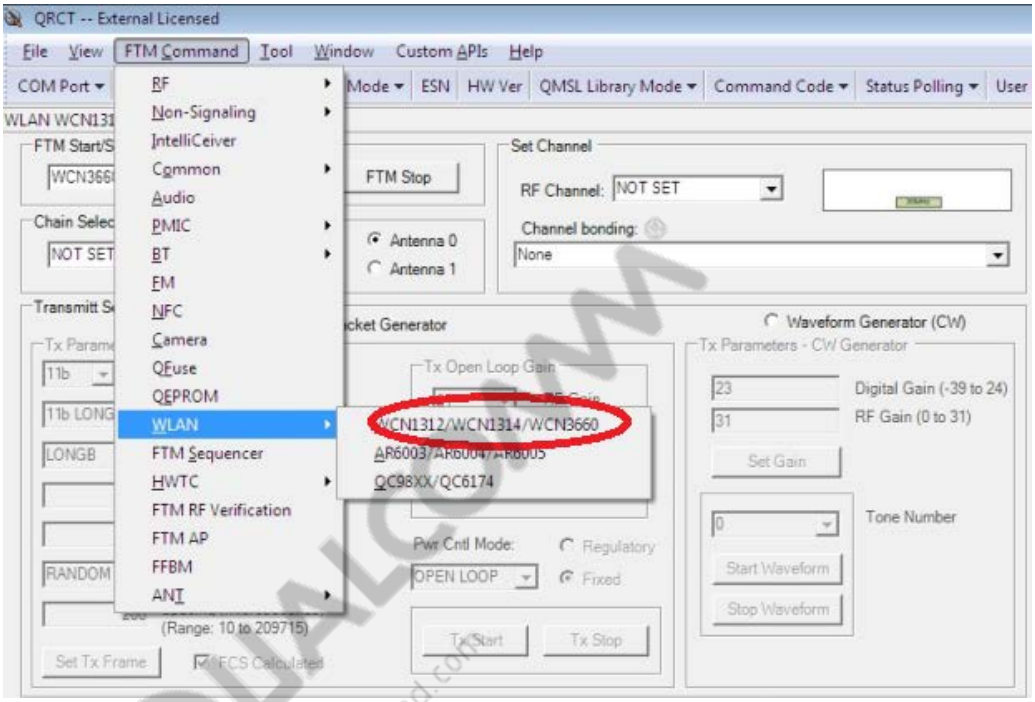


Figure 10-5 QRCT Configuration

c. Select COM port;

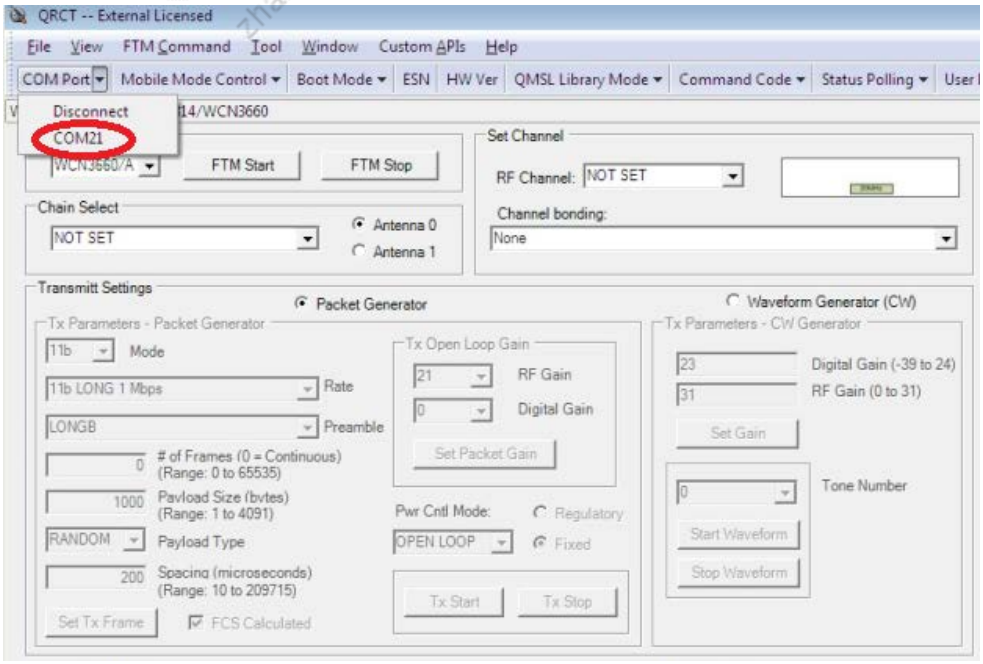


Figure 10-6 QRCT Configuration

d. Select MSM/MDM mode;

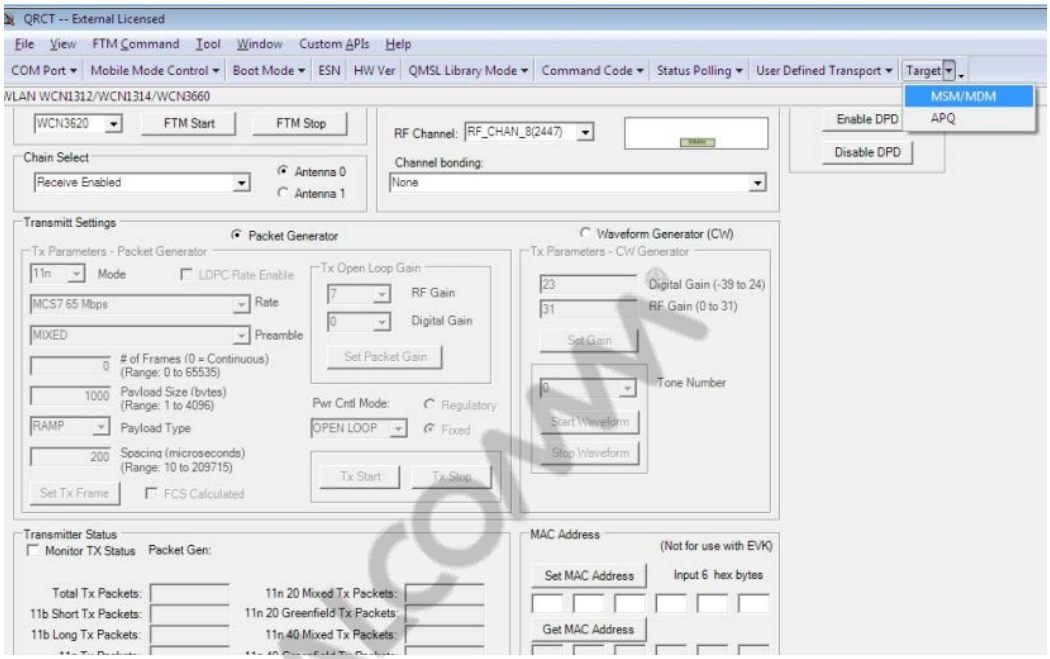


Figure 10-7 QRCT Configuration

e. Enable FTM mode, choose **WCN3620**, click **FTM Start**;

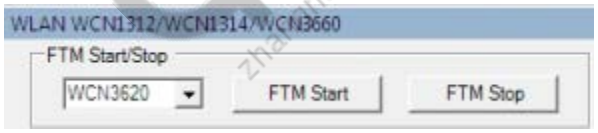


Figure 10-8 QRCT Configuration

f. Choose continuous transmit mode;

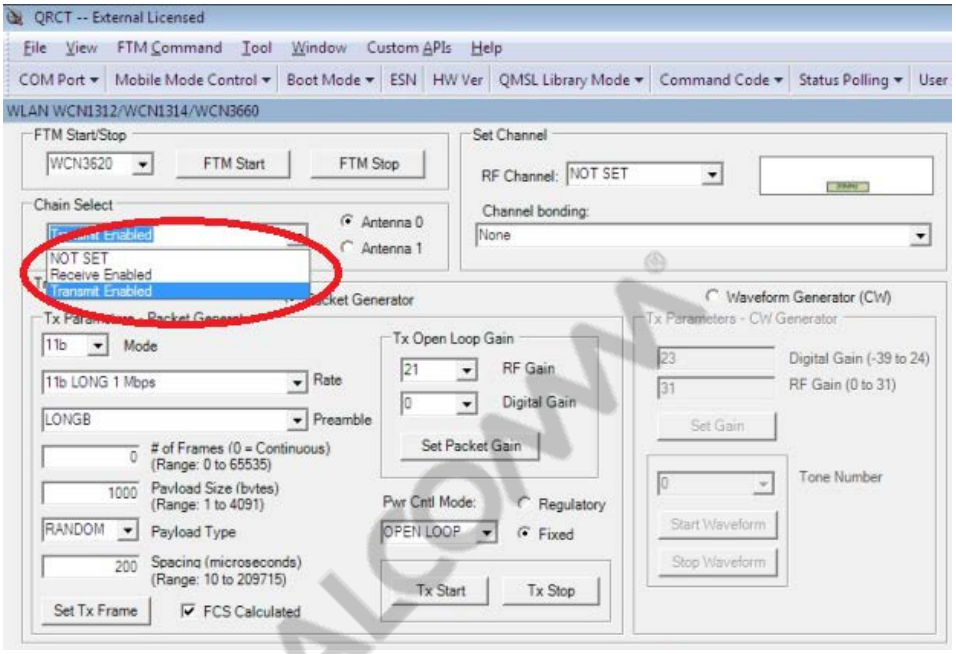


Figure 10-9 QRCT Configuration

g. Disable DPD;

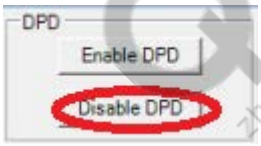


Figure 10-10 QRCT Configuration

h. Set SCPC and regulatory mode;

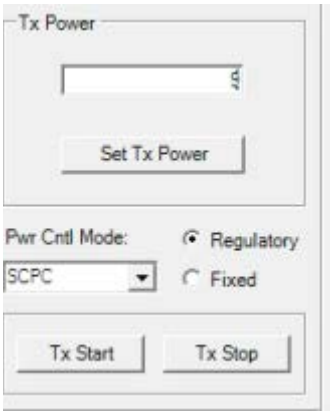


Figure 10-11 QRCT Configuration

i. Choose channel, PYH mode and rate;

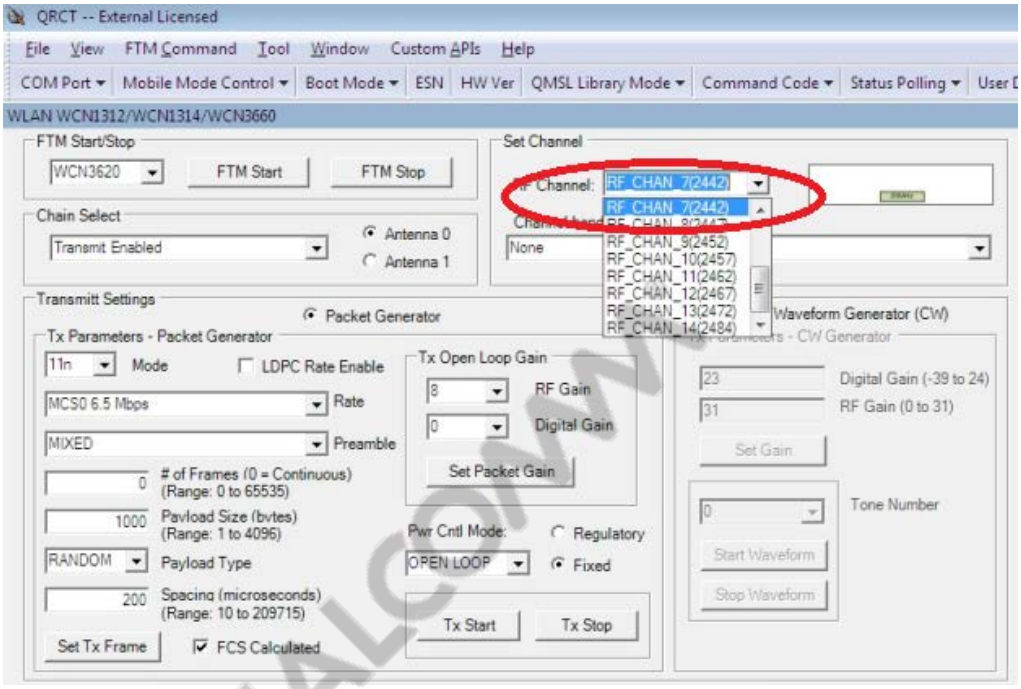


Figure 10-12 QRCT Configuration

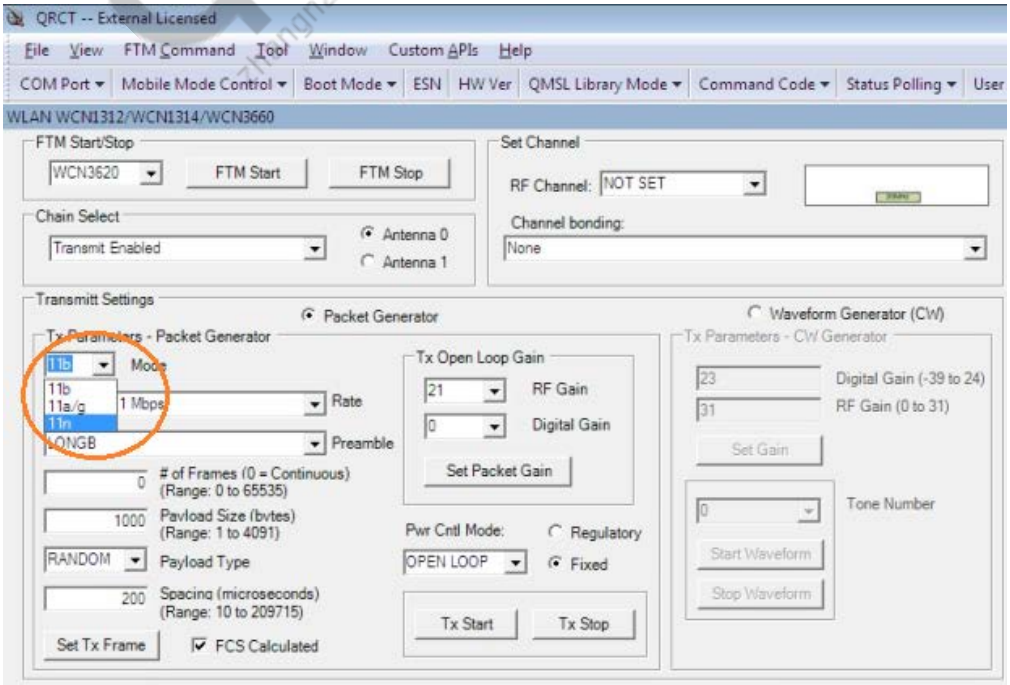


Figure 10-13 QRCT Configuration

j. In [**Tx Power**], set the target power value, click [**Set Tx Power**] (recommend for 802.11b mode, the target power value is set to 14-15 dBm. For 802.11g mode, the target power value is set to 12-13 dBm, this power value can be adjusted according to actual measured power value).

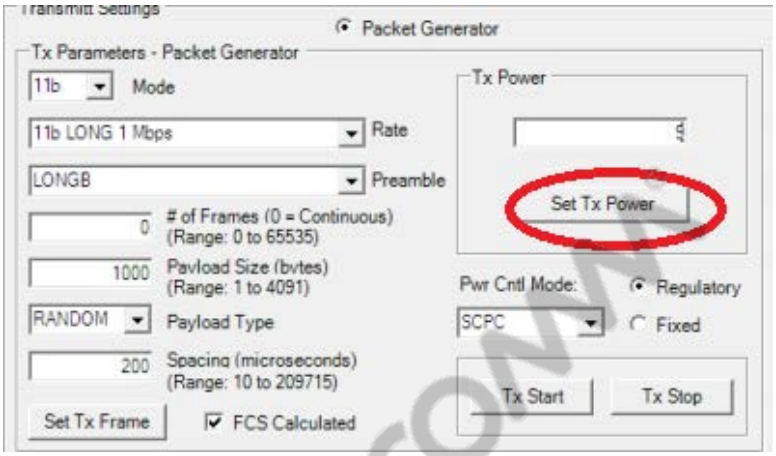


Figure 10-14 QRCT Configuration

k. Start transmitter;

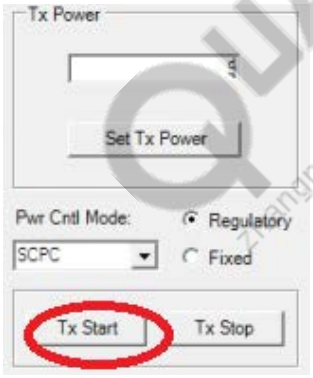


Figure 10-15 QRCT Configuration

l. The test completes, click [**Tx Stop**], stop the transmitter. If you replace [**RF Channel**], [**Wifi Mode**], [**Data Rate**], [**Tx Power**], you must click on [**Tx Stop**] firstly; then start again from **Step g** to set up;

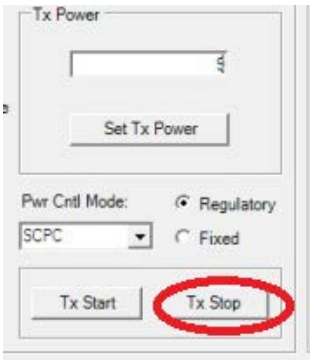


Figure 10-16 QRCT Configuration

10.8.3 WLAN RF receiver test procedure

1. After the phone is switched on, connect with the USB cable, then install the device driver. "**ADB Interface**" appears in Device Manager, then open a command line window, enter the command "`adb root`". Then it can enter adb test commands.
2. Enter FTM test mode

```
adb root
adb shell
ps | grep ptt
kill “ptt process ID”
ptt_socket_app –v –d –f
```

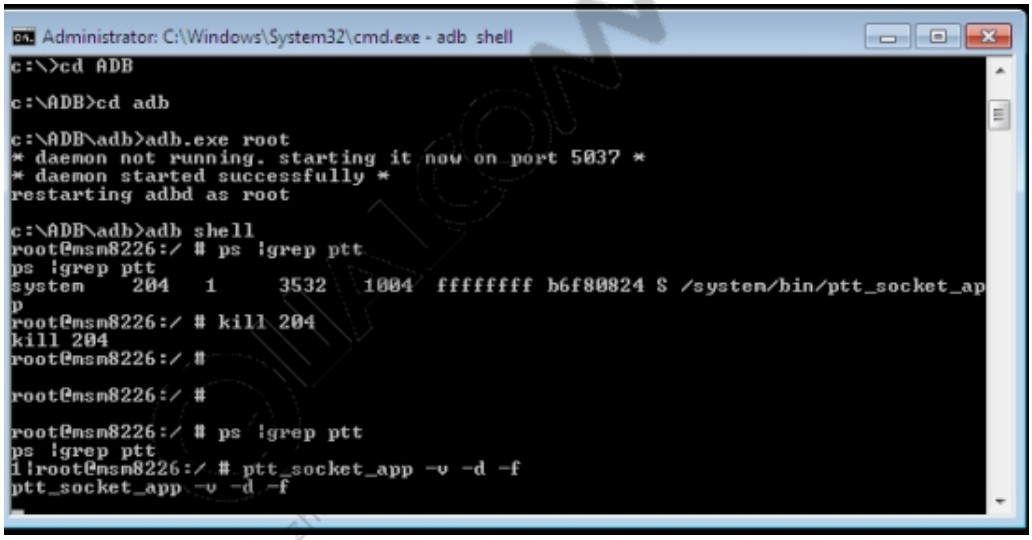


Figure 10-17 Command window

3. Receiver test
   a. Open QPST to check COM port

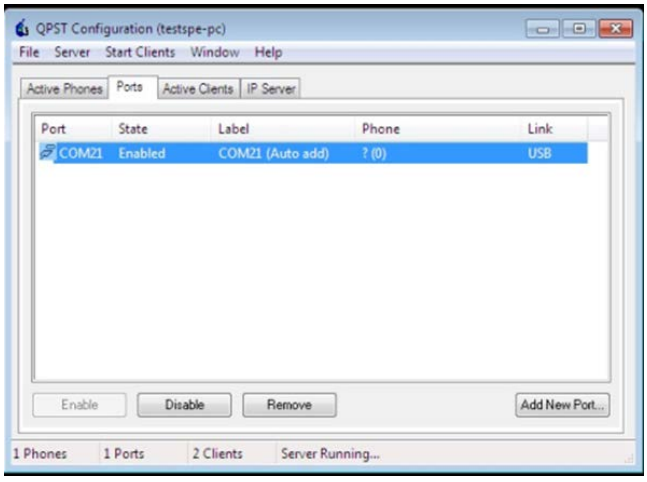


Figure 10-18 QPST Configuration

b. Open QRCT, select [FTM Command]→[WLAN]→[WCN1312/WCN1314/WCN3660];

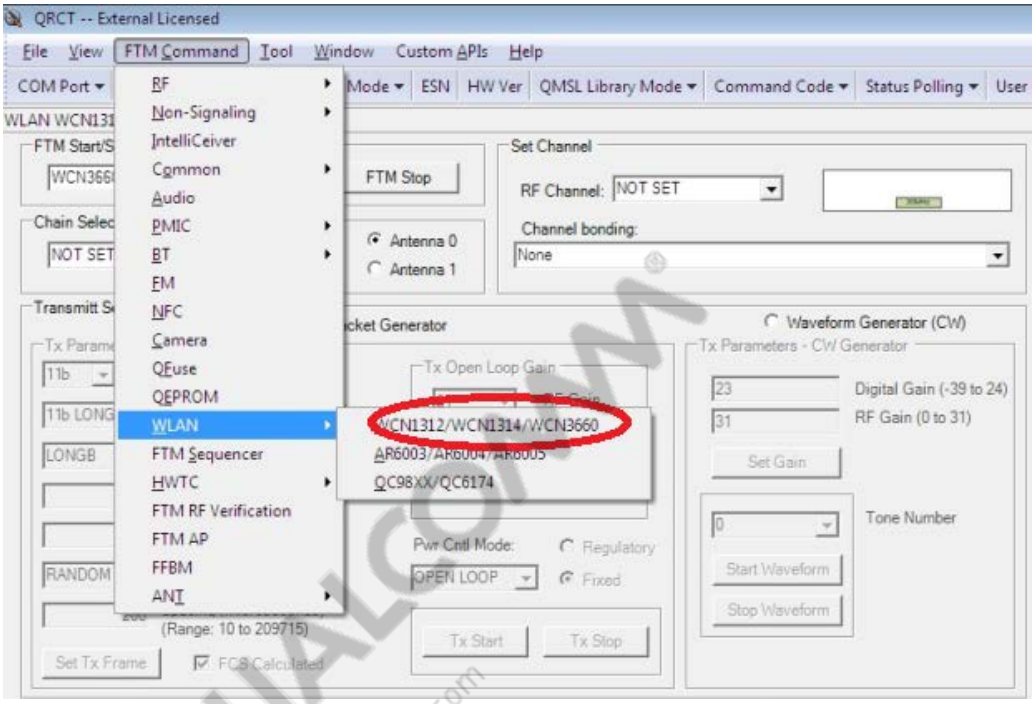


Figure 10-19 QRCT Configuration

c. Select COM port;

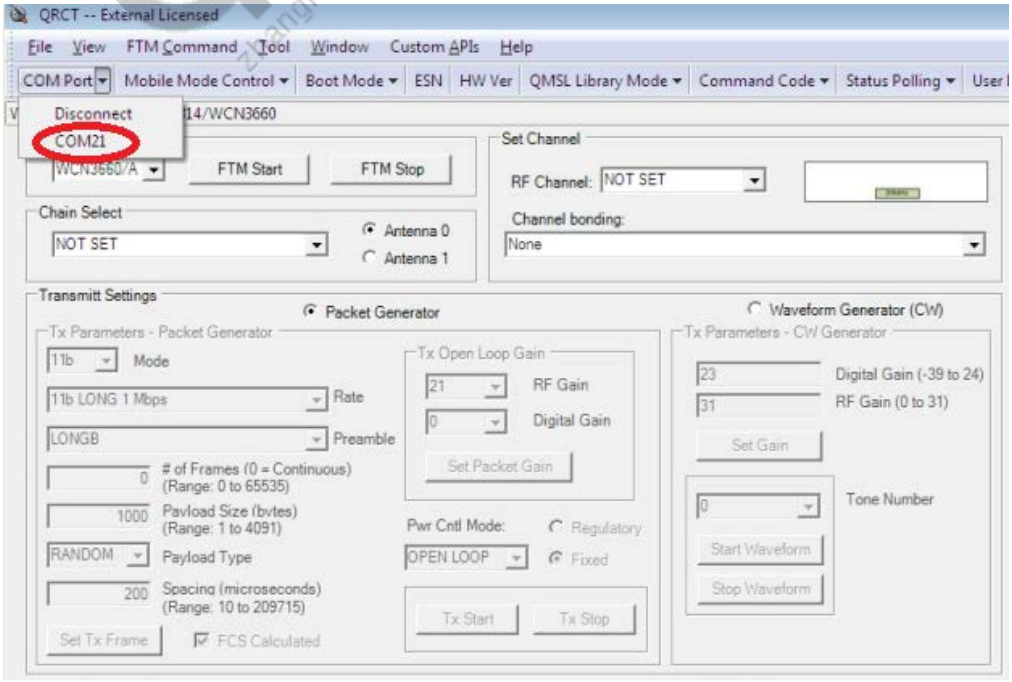


Figure 10-20 QRCT Configuration

d. Select MSM/MDM mode;

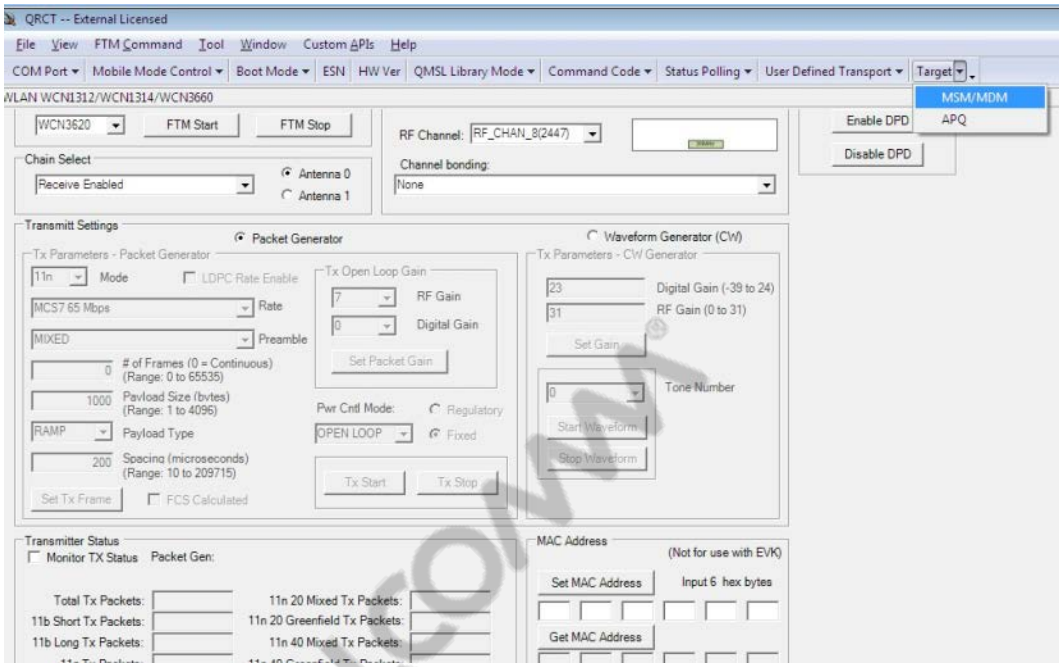


Figure 10-21 QRCT Configuration

e. Enable FTM mode, choose **WCN3620**, click on **FTM Start**;

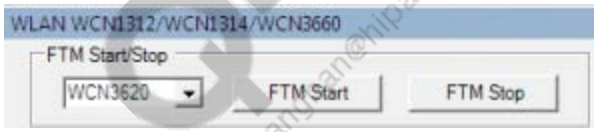


Figure 10-22 QRCT Configuration

f. Choose receiver mode

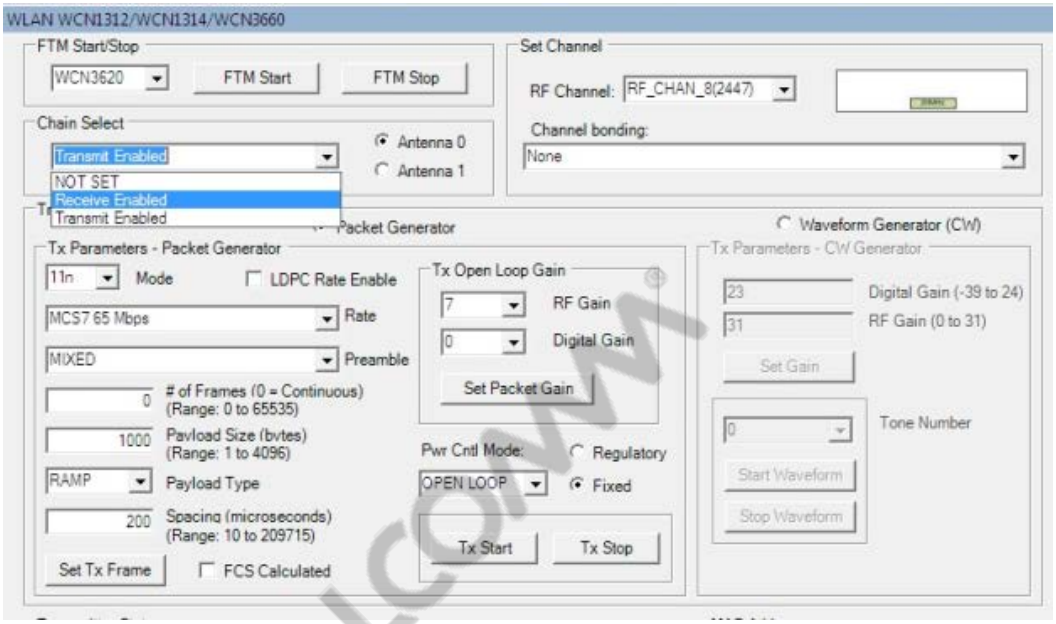


Figure 10-23 QRCT Configuration

g. Disable DPD ;

Figure 10-24 QRCT Configuration

h. Set test instruments litepoint IQ2010 to receive test mode;

i. Navigate to [**Receive Settings**] test module, click on [**Get RSSI**] to get the Wifi signal strength;

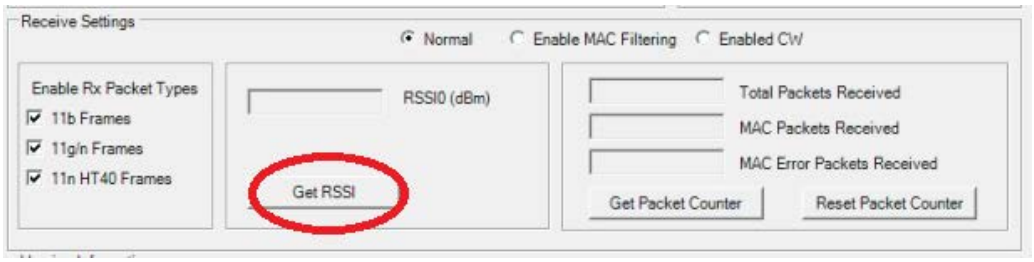


Figure 10-25 QRCT Configuration

j. Click on [**Reset Packet Counter**], empty this test, wait for 5s, click on [**Get Packet Counter**], complete packet capture, record the proportion of data in [**MAC Error Packets Received**] and [**Total Packets Received**], for 802.11b mode, the ratio required is less than 8%, for 802.11g mode, this ratio requires less than 10 %

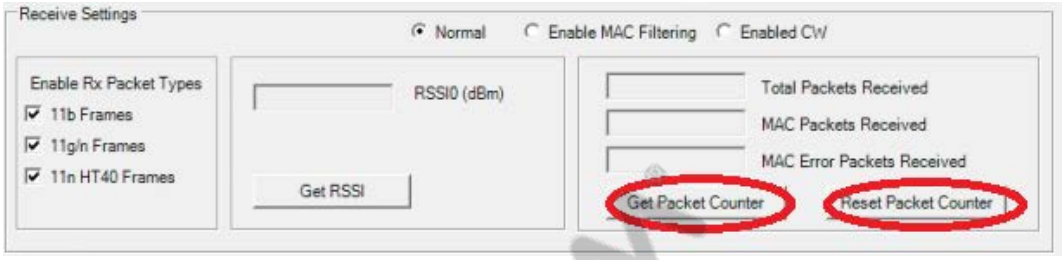


Figure 10-26 QRCT Configuration

Matters need attention:

- If the measuring power values is deflected from the actual goal of power, it indicates maybe there is problem in the control of phone by QRCT, it needs to restart the phone then restart testing.
- In the transmitter testing, if there is change for [**RF Channel**], [**Wifi Mode**], [**Data Rate**], [**Tx Power**], it must click [**Tx Stop**]. Back to B7 to reset, otherwise QRCT will fail to control the phone.
- In the transmitter testing, for 802.11b mode, it suggests that the target power value is set to **14 - 15 dBm**, for 802.11g mode, it suggests that the target power value is set to **13 - 14 dBm**, this power value can be adjusted according to actual measured power value

10.9 BT RF Test

10.9.1 BT RF transmitter test procedure

1. After the phone is switched on, connect with the USB cable, then install the device driver. "ADB Interface" appears in Device Manager, then open a command line window, enter the command "**`adb root`**". Then it can enter adb test commands.
2. Enter FTM test mode

   `adb root`

   `adb shell ftmdaemon -n`
3. Connect DUT by CBT, then control DUT to test.

10.10 WAPI

10.10.1 Certificate installation

1. Need to get CTA WAPI certificate for test (for example ASU.cer and ASUE.cer).
2. Copy the certificate to phone – the root directory of internal storage or SD card. Root Certificate named **ASU.cer**, user certificate named **ASUE.cer**.
3. WAPI certificate installation:

a. Enter “Setting”-> “WLAN”-> “Advanced” -> “Install WAPI Certificate”.

Figure 10-27 WLAN configuration

- “**New Folder**” to fill the display name on phone for WAPI certificate (for example WAPI)
- “**AS certificate**” to fill AS certificate name (for example ASU.cer)
- “**User Certificate**” to fill user certificate name (for example ASUE.cer)

b. Click **install**.

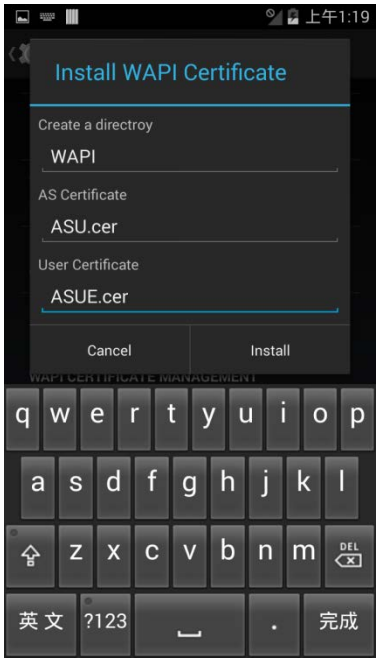


Figure 10-28 WLAN configuration

10.10.2 Certificate authentication

1. In the WLAN search list, select WAPI AP with WAPI CERT encryption, select installed WAPI Certificate in the pop-up window drop-down menu. Click "connect", mobile phone will connect to the WAPI AP.

Figure 10-29 WLAN configuration

2. Click on the connected WAPI AP, you can see the current connected WAPI AP encryption (WAPI-Cert), IP address etc.

Figure 10-30 WLAN configuration

Click on "cancel saving", it can be disconnected from the WAPI AP.

Figure 10-31 WLAN configuration

10.10.3 Certificate uninstallation

WAPI certificate uninstallation:

Enter the "Settings" - > "WLAN" > "Advanced" - > "uninstall WAPI certificate", choose to uninstall the WAPI certificate, click on the "uninstall" , then the certificate can be uninstalled successfully.

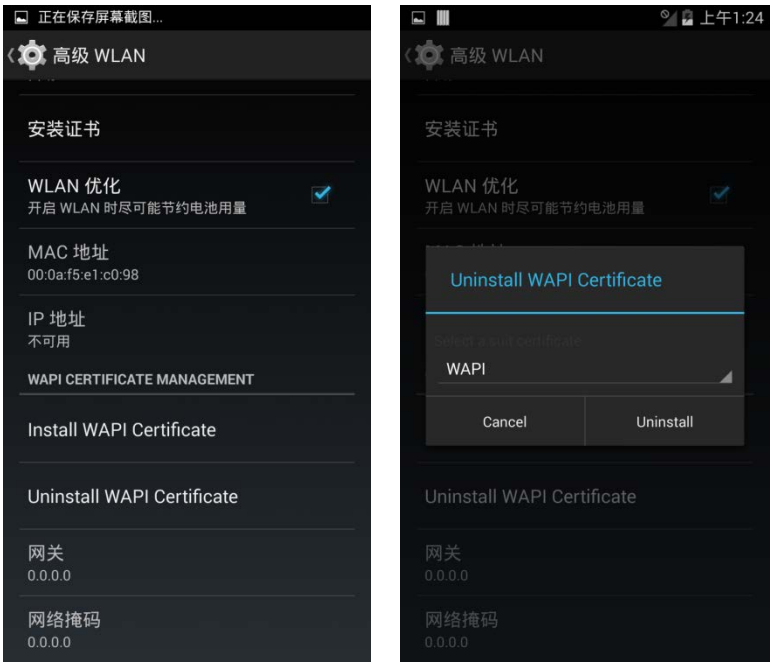


Figure 10-32 WLAN configuration

10.10.4 Performance test

1. No interference from other wireless signal in the environment
2. Set WAPI AP to 11b/11g mode
3. Install `iperf.apk` on phone
4. The phone connects to WAPI AP, check the IP address
5. Download performance test:

   Open iperf on phone, input "`iperf -s -i 1`", click "`run`". Open CMD window and enter `iperf.exe` directory by `cd` command on the PC which is connected by WAPI AP, then input "`iperf -c 'phone ip address'-t 120 -i 1`" , then enter. After 2 minutes, the download performance rate can be got.

6. Upload performance test:

   Open CMD window and enter `iperf.exe` directory by `cd` command on the PC which is connected by WAPI AP, then input "`iperf -s -i 1`". Open iperf on phone, input "`iperf -c 'PC IP address'-t 120 -i 1`", click "`run`", After 2 minutes, the upload performance rate can be got.

10.10.5 WAPI-PSK

In the WLAN search list, select WAPI AP with WAPI PSK encryption, in the drop-down menu, the password is sixteen hexadecimal HEX type or ASCII type selection. Enter a password, click "connect", then phone can be connected to the AP successfully.

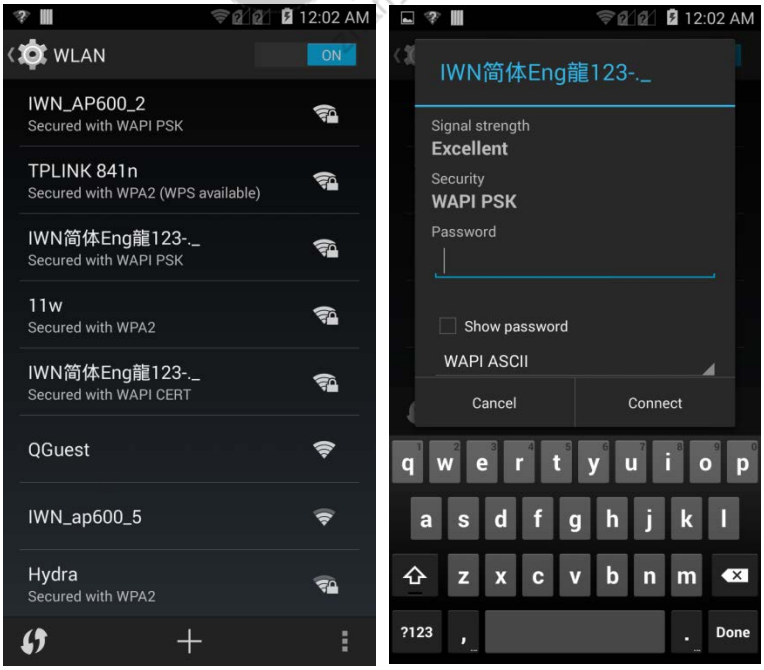


Figure 10-33 WLAN configuration

Figure 10-34 WLAN configuration

A Appendix

A.1 How to add EFS NV case

For the NV case which locates in "nv/case_files", the configuration has two key pointers:

- Configuration file:
  - xxx.conf
  - Location: /nv/case_files/conf/
  - Configure the NV file path
- NV file:
  - According to the NV file path on xxx.conf file, create the NV file in this folder.

There is an example below:

A.1.1 NV is configured, but NV EFS file is not created

NV Case: NV67229 (GERAN GFW Debug)

Location: /nv/case_files/modem/geran/grr/ gfw_debug

Check the c006Fnf file: "nv/case_files/conf/geran.conf", "gfw_debug" is configured as below:

```
/nv/case_files/gsm/gl1/gsm_commercial_recovery_restart
/nv/case_files/gsm/l1/l1_debug
/nv/case_files/gsm/l1/l1_q6_clock
/nv/case_files/modem/geran/gfw_debug
/nv/case_files/modem/geran/vamos_support
/nv/case_files/modem/geran/gfw_diag_group1
/nv/case_files/modem/geran/gfw_diag_group2
/nv/case_files/modem/geran/gfw_diag_group3
/nv/case_files/modem/geran/gfw_diag_group4
```

But there is no gfw_debug file in "/nv/case_files/modem/geran" as below:

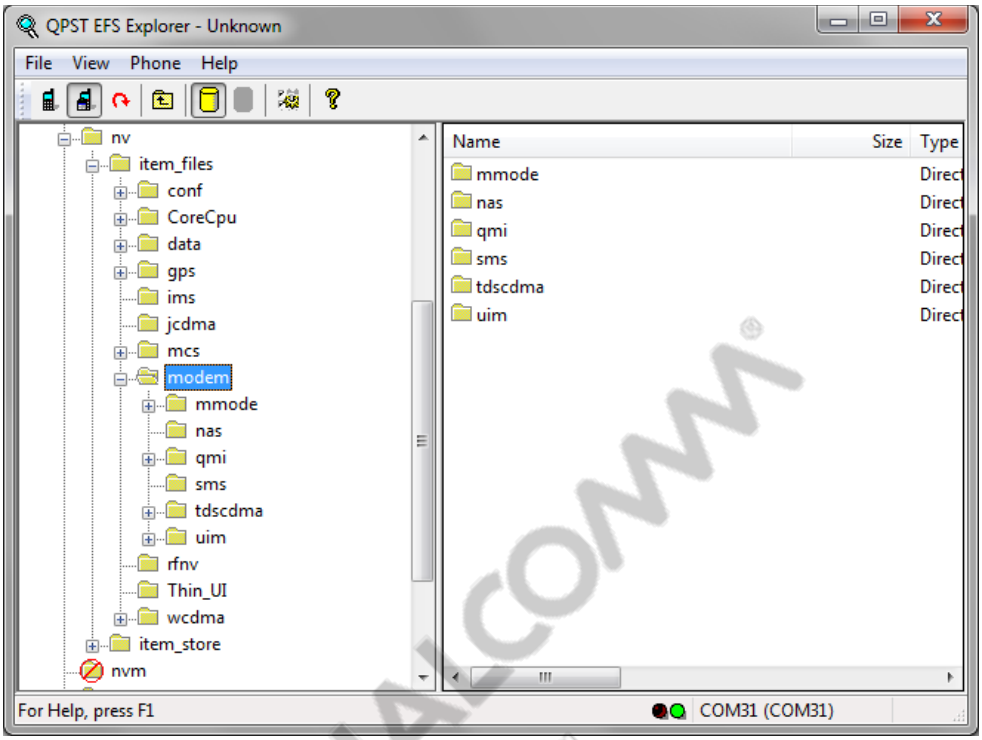


Figure 10-1 QPST EFS Explorer

So when reading NV67229 in QXDM, it prompts "**NV Status Error Received: No such file or directory**".

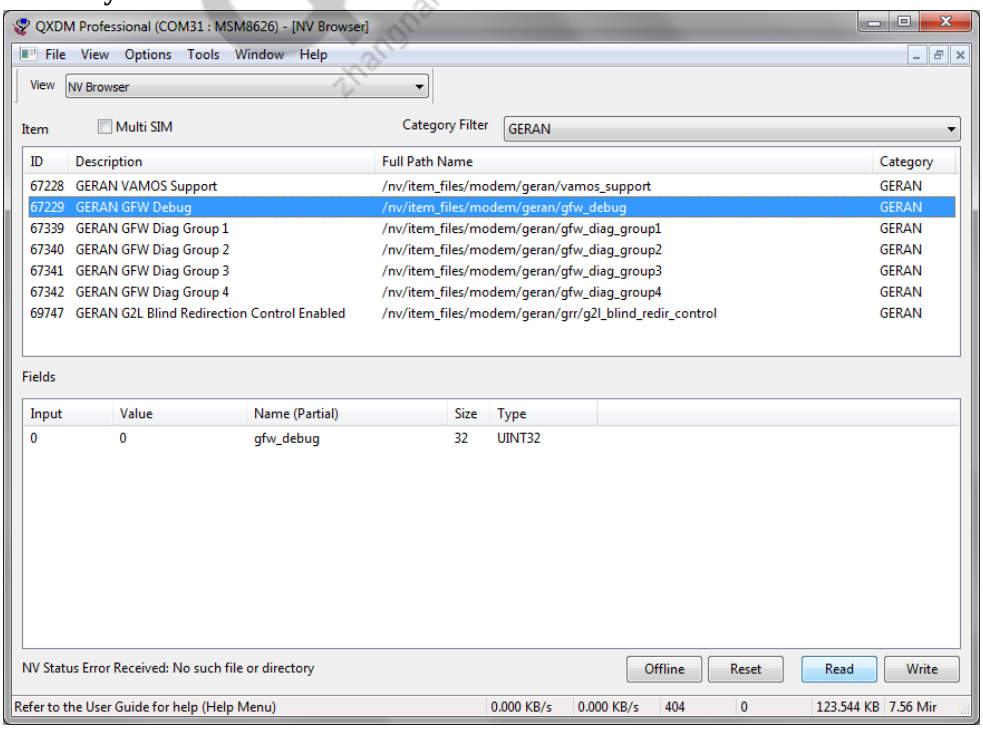


Figure 1-2 QXDM NV Browser

A.1.2 Not configured yet, can't read/write NV

NV Case: NV69747 (GERAN G2L Blind Redirection Control Enabled)

Location: `/nv/case_files/modem/geran/grr/g2l_blind_redir_control`

Check the conf file: "`nv/case_files/conf/geran.conf`", no "`g2l_blind_redir_control`"

Configurations are as below:

```
/nv/case_files/gsm/gl1/gsm_commercial_recovery_restart
/nv/case_files/gsm/l1/l1_debug
/nv/case_files/gsm/l1/l1_q6_clock
/nv/case_files/modem/geran/gfw_debug
/nv/case_files/modem/geran/vamos_support
/nv/case_files/modem/geran/gfw_diag_group1
/nv/case_files/modem/geran/gfw_diag_group2
/nv/case_files/modem/geran/gfw_diag_group3
/nv/case_files/modem/geran/gfw_diag_group4
```

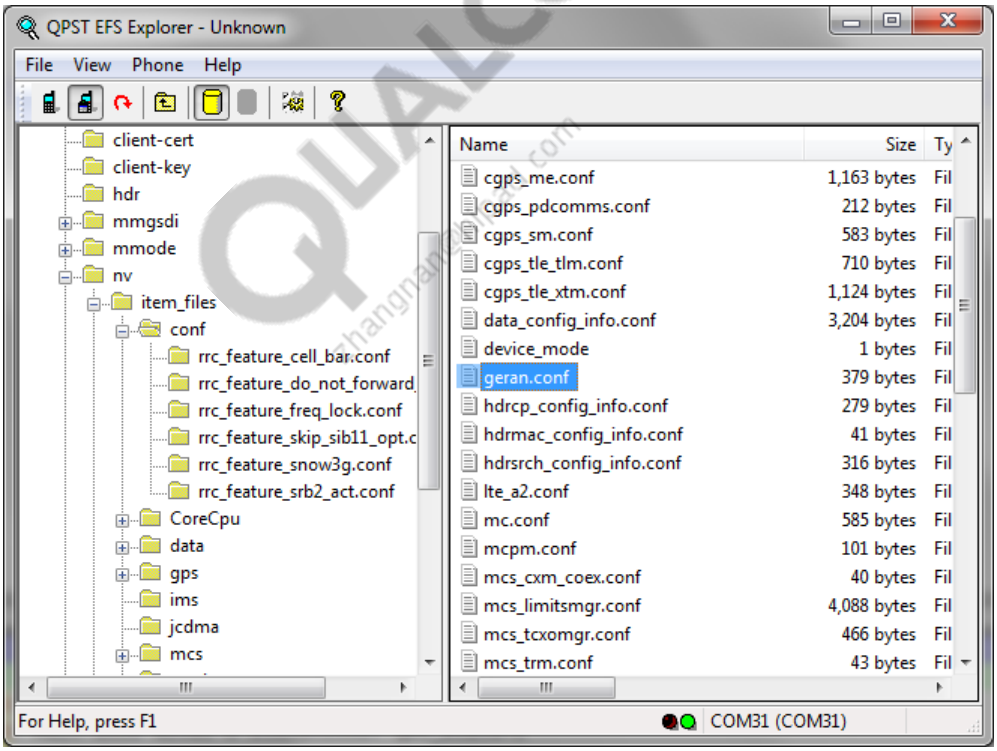


Figure 1-3 QPST EFS Explorer

So when reading the NV69747, QXDM prompts "**Attempting To Read NV Case Failed – EFS Case is not configured**".

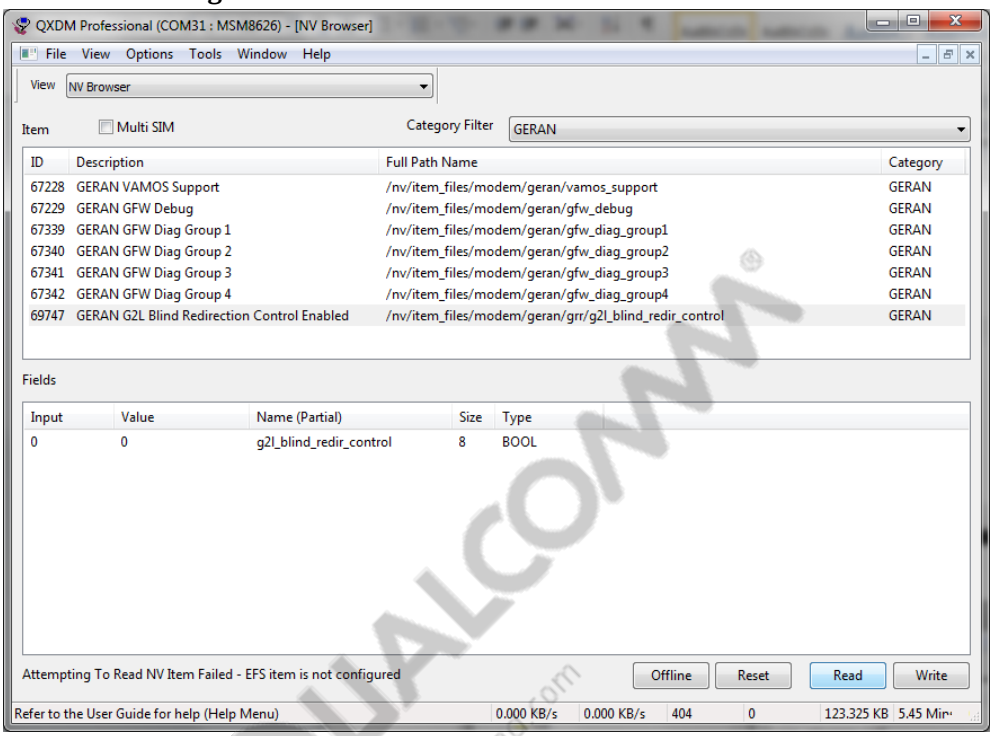


Figure 1-4 QXDM NV Browser

A.1.3 Add New EFS NV case

NV Case: NV69747 (GERAN G2L Blind Redirection Control Enabled)

Location: `/nv/case_files/modem/geran/grr/g2l_blind_redir_control`

1. Add RED font line below into "`nv/case_files/conf/geran.conf`"

```
/nv/case_files/gsm/gl1/gsm_commercial_recovery_restart
/nv/case_files/gsm/l1/l1_debug
/nv/case_files/gsm/l1/l1_q6_clock
/nv/case_files/modem/geran/gfw_debug
/nv/case_files/modem/geran/vamos_support
/nv/case_files/modem/geran/gfw_diag_group1
/nv/case_files/modem/geran/gfw_diag_group2
/nv/case_files/modem/geran/gfw_diag_group3
/nv/case_files/modem/geran/gfw_diag_group4
/nv/case_files/modem/geran/grr/g2l_blind_redir_control
```

2. Drag EFS file g2l_blind_redir_control into **“**/nv/case_files/modem/geran/grr/g2l_blind_redir_control**”**

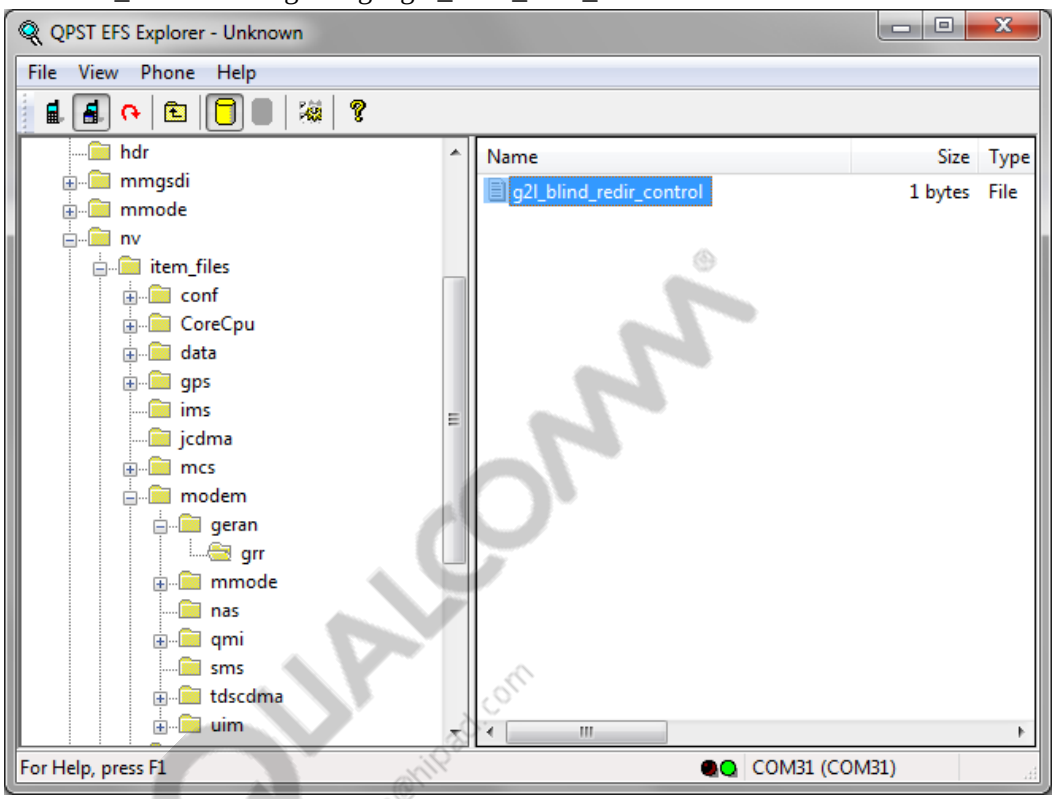


Figure 1-5 QPST EFS Explorer

3. After that, click the  to reboot the device.

4. Read the NV69747, it's OK now. The QXDM prompts "**NV Case Read**"

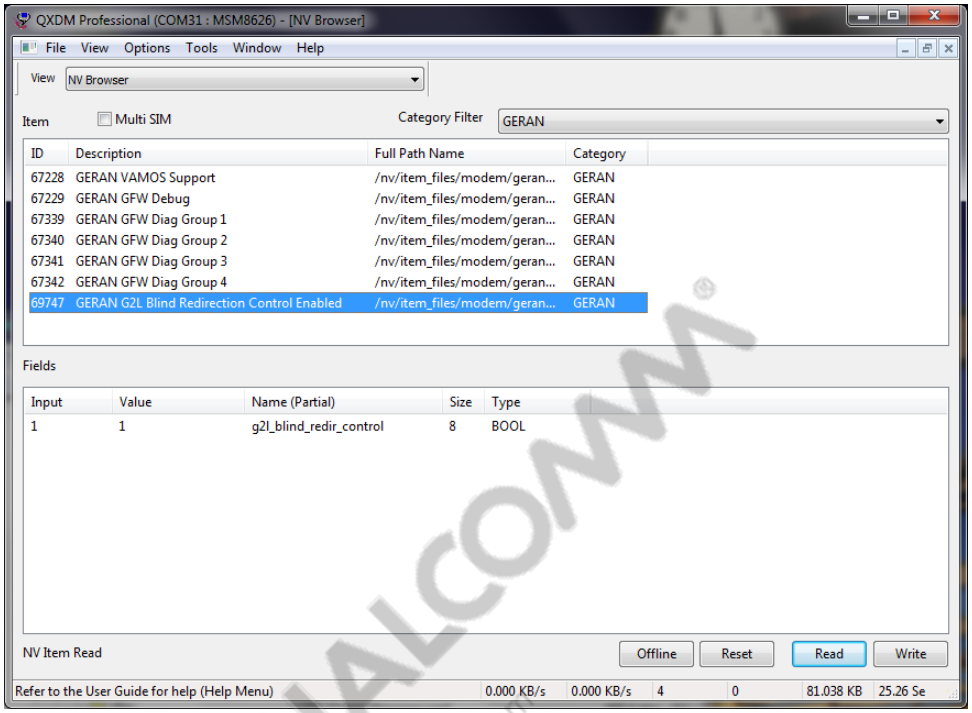


Figure 1-6 QXDM NV Browser

A.2 How to convert QCN to XML file for easy edit

Open QDART -> QRCT -> Tool -> NV Tools

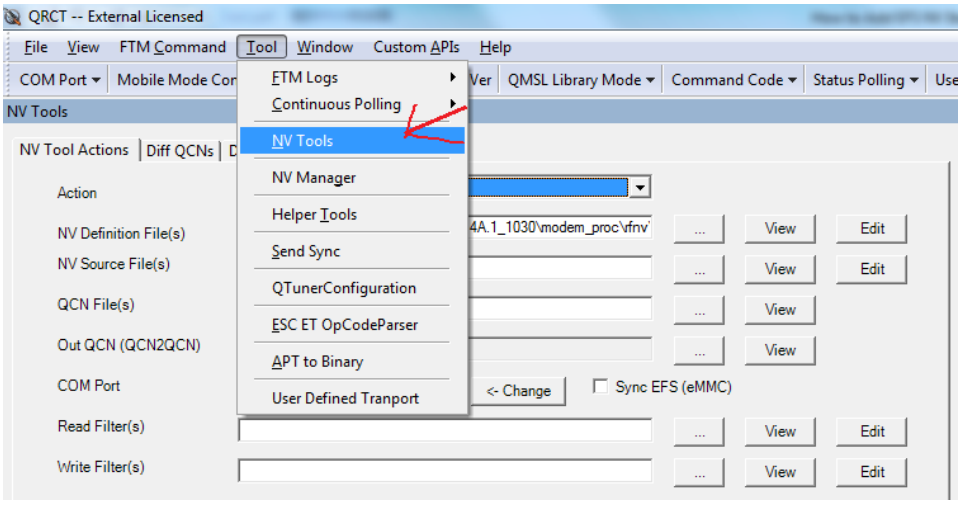


Figure 1-7 QRCT UI Appearance

Follow UI below to convert QCN file to XML file for editing.

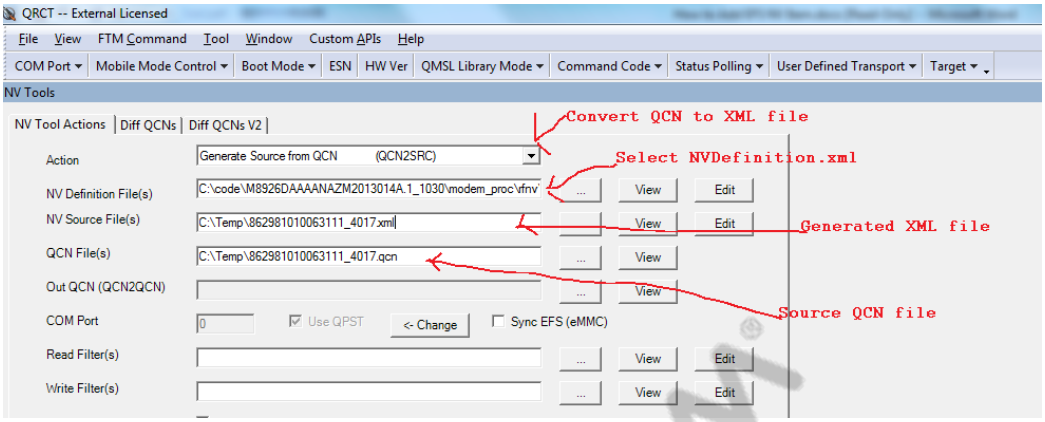


Figure 1-8 QRCT NV Tools

If protocol EFS file may not be included in `NVDefinition.xml`, it will cause EFS/NV case missing after conversion. Please refer to [Q3] to add EFS/NV cases in `NVDefinition.xml` to bypass this issue.

B CMCC 测试介绍

B.1 CMCC测试领域及涉及模块(仅作参考，以CMCC官方发布为准)

序号	测试领域	测试模块
1	无线通信	协议一致性、RRM一致性、射频一致性、机卡兼容、基础通信、网络IOT等
2	业务应用	彩信、宽带互联网、流媒体、DM、AGPS、本地功能、WLAN、客户端等
3	软件可靠性	业务交互、压力、异常、本地性能、MTBF、功耗等
4	硬件可靠性	OTA、音频、硬件结构等
5	外场	外场
6	用户体验	用户体验

Figure 1-9 CMCC test area and module

B.2 终端验收测试周期示意图(仅作参考，以CMCC官方发布为准)

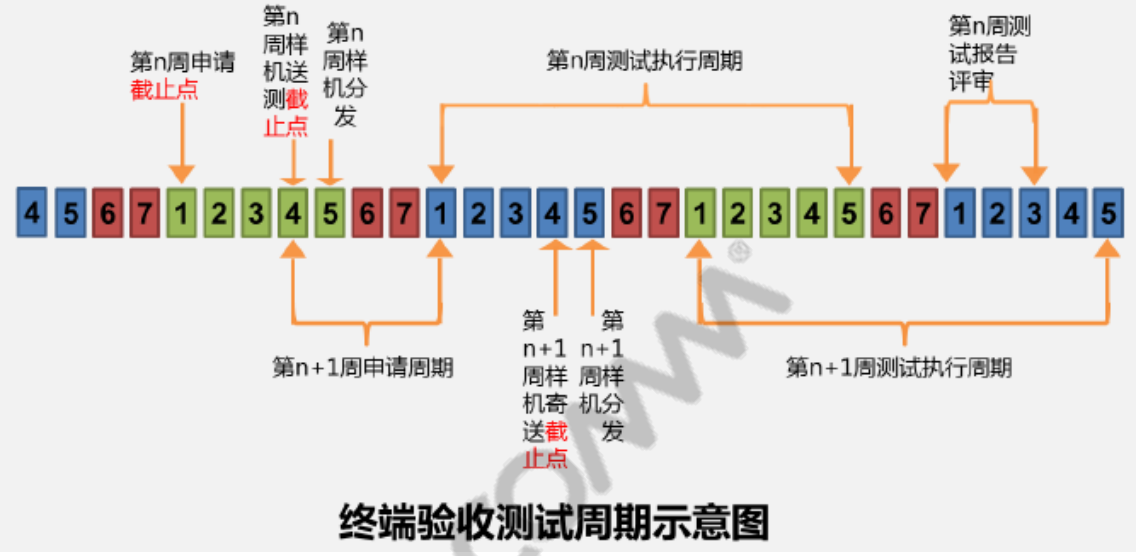


Figure 1-10 CMCC verification cycle

B.3 CMCC送测准备工作

B.3.1 送测时间

提前至少 1 周(5 个工作日)申请送测，周一受理申请，周三出受理结果，周四送样机

准备至少 140 台质量稳定，性能良好的机器

填写设备信息文档。请参考模板 80-NR059-1 CMCC QC 8916 Solution Compliance form。

B.3.2 送测设备

- 移动正式测试不接受外置天线。如果天线在后盖上，送测时务必将后盖打孔，以便假电池的电源线可以引出
- RF 必须进行校准
- 检查所有设备的飞行模式底电流
- 导入基本硬件 thermal 方案
- 保证送测电池电量为充满状态

B.3.3 送测软件

- 与 TAM 确认送测版本
- 关闭 SBL，Kernel 中的串口 log 功能

- AP 测编译配置使用 perf_defconfig
- 使能 SSR
- 保留开发模式，菜单位置为“设置->应用程序->开发”
- 需要配置的 usb 端口: mtp/diag/adb/rmnet
- 删除调试 APKS 及一些非必要的后台服务

```
/system/app/Logkit.apk
/system/app/com.qualcomm.qlogcat.apk
/system/xbin/qlogd
```

- 默认设置

  关闭数据业务及数据漫游

  关闭 NFC

  关闭 GPS 定位

- 背光设置

  在不影响正常使用的前提下，将默认背光亮度尽量调低

- WIFI 部分

  调整 WLAN DTIM（改变此值后请对 WIFI 性能进行验证）。

  device\qcom\ <TARGET>\WCNSS_qcom_cfg.ini

  Add gEnableModulatedDTIM = 3

  gMaxLIModulatedDTIM = 3

- Camera 部分
  - 将摄像应用中的人脸识别，自动对焦，自动降噪等选项默认值设置为关,
  - Focus mode: Infinity
  - Flash light: off
  - 尽量保证 camera sensor 预览输出大小与屏的尺寸匹配

B.3.4 其他配套资料

- 提供配套 USB ADB 驱动
- 提供本款手机专用的 PC 端 adb 工具
- 工程模式命令如#*#*1234#*#*
- RF Cable 线
- 提供进入开发人员菜单的说明，默认进入方式为：多次连续点击“设置->关于设备->版本号”

B.4 MTBF预测试

进行 CMCC 测试之前，需要进行 MTBF 预测试，可以联系第三方公司进行测试，或自行搭建测试环境。

MTBF 预测试非常重要， 预测试时需要录制视频，在送测前提供给 CMCC 进行审核。

自动化测试脚本模板由第三方测试公司或测试设备商提供，需要根据具体项目参数进行修改，并在送测前由专人到移动实验室进行试跑。

Table B-1 样机及文档检查表

条目	说明	位置	数量	厂家确认
手机		送审时提交	6	
数据线			0	
SIM 卡			0	
SD 卡			0	
脚本	完整脚本数据库			●
配置文件	手机链接所需的配置文件(以及相应的注册文件)等	无	N/A	●
资源	脚本所需的测试资源，包括彩信、邮件、音乐播放所需的文件	_attachment	1	●
驱动	PC 与手机连接的 USB 驱动			●
ADB 工具	本款手机专用 adb 工具。	adb.rar	1	●
注意事项	注意事项列表，记录终端执行脚本之前所需的设置，包括，资源放置在手机的什么位置，以及其他特殊要求	注意事项	N/A	●
视频文件一	每条测试用例的脚本在终端上运行 5 次，在运行前三次的过程中，做一次异常操作是脚本运行异常中断，要求脚本能正常输出错误 LOG 和相关截屏，并且异常中断后脚本可控制终端继续运行业务。 本类用例要求每条用例提供一段视频，同时提供对应的工具侧 log 文件。			●
视频文件二	用例要求录制一段终端执行一个完整循环的视频，要求终端可以自动化执行完所有用例。提供对应的视频和 log 文件。为保证 MTBF 的测试强度，要求一个循环测试完成时间不超过 8 小时。 本类视频如果文件过大，可分段录制。	.\	1	●

1 **Table B-2 MTBF 基本配置**

一、硬件准备和连接设备说明	
1	确认手机是否可以正常开机，手机测试开始时，电池充满电；
2	双击 DPInst.exe，安装驱动；手机在连接电脑时，会提示相关驱动的安装、更新，将路径选择到驱动的所在目录下
3	解压 ADB 工具压缩包，把下面的三个文件(adb.exe、AdbWinApi.dll、AdbWinUsbApi.dll)解压到工具指定目录；
4	打开手机调试模式(设置->应用程序->开发，打开 USB 调试)；
5	在命令窗口中执行 adb devices 查看 adb 与手机是否正确列出手机串号(IMEI 号)，如果没有执行 adb kill-server，然后再执行 adb devices 尝试；
6	在手机上安装 Comcat 的 AndroidService 服务
7	检查康凯特测试工具是否可正确识别手机。
8	查看测试用例的运行次数是否设置正确，可能部分不正确。查看邮箱的参数设置是否与手机中邮箱的设置保持一致
9	把测试手机平放在桌面上
二、测试资源放置说明	
1	将要测试的应用程序图标创建桌面快捷方式，统一放置在主桌面（放置样子图片 Main.bmp 在 A805L 预置条件文件夹下）,主桌面背景色为初始默认勿随意更改；
2	解压_attachment.rar，把解压后的_attachment 文件夹连同文件夹内的全部文件一并拷贝到 SD 卡根目录。
3	保证手机闪存及 SD 卡内没有视频、音频、图片文件，删除文件管理器中无用的文件和文件夹，重启手机，确保 sdcard 中自动生成有 COMCAT_DEVICE_KEY 文件；
三、设置基本应用信息	
1	手机设置数据连接为媒体设备状态，勾选已启用数据，APN 接入点为 CWNET；
2	设置手机屏幕不自动翻转，亮度最低，休眠时间永不
3	设置邮箱，将邮箱设置后的邮件全部清空掉（收件箱/已删除邮件/已发送里面/发件箱），收新邮件为永不，通知关闭 去掉邮箱中的提示（x 提示）
4	打开日历，点击日历左上角，选择日程，按菜单键,删除已有的各种活动，日历--设置--常规设置，通知无，默认提醒时间无
5	设置手机的时间为现在时间；日期格式设置为：2012-3-2；时间格式设置为：24 小时制；
6	输入法->Android 输入法(AOSP)
8	调整手机的声音到最低，以利于省电；
9	设置->WLAN 设置->手动输入 MTBF 测试用 wifi 及密码,高级--去掉 WLAN 至蜂窝网重选提示，蜂窝网至 WLAN 重选--自动连接，然后关掉 WiFi
10	情景模式设置为静音
12	检查一下闹钟，把已经添加的闹钟和默认闹钟全都删除。
13	清空电话，手工拨打一次 10086，保证电话中只有一个 10086 电话， 电话--设置--关掉距离传感器
14	浏览器中 设置-->常规-->设置主页-->空白页， 设置-->高级-->去掉以概览模式打开网页选项，下载路径：Sdcard/Download， 确保外置 sdcard 有 Music,Download,Pictures,Movies 文件夹，如没有，手工创建
15	相机->手动取消闪光灯，取消首次提示，删除所有照片，录像（_attachment 资源除外）
16	手动录音一次（检查手机存储里录音文件夹 SoundRecorder 是否出现）

17	设置-->位置信息 关闭
18	设置-->安全，屏幕锁定 无，设置，打开开发选项-->不锁定屏幕 打开
24	在浏览器中设置书签，名字及网址如下： **SOGOU** http://wap.sogou.com **TEXT** http://218.206.177.209:8080/waptest/fileDownLoad?file=Text&groupname=11&fenzu=WAP2.0 **MP3** http://218.206.177.209:8080/waptest/fileDownLoad?file=mp3 **JPG** http://218.206.177.209:8080/waptest/fileDownLoad?file=Picture&groupname=11&fenzu=WAP2.0 **3GP** http://218.206.177.209:8080/waptest/fileDownLoad?file=Video&groupname=11&fenzu=WAP2.0 **STREA** http://42.96.171.2/list/rtsp.jsp

1

C 软件可靠性测试

C.1 MTBF

请参见 B.4.

C.2 功耗测试

C.2.1 硬件准备

请参见 B.3.2.

C.2.2 软件准备

请参见 B.3.3.

NV 项检查

- 1027 (NV_MDSP_MEM_DUMP_ENABLED_I) = 0
- 1895 (NV_DIAG_DEBUG_DETAIL_I) = 0
- 1892 (NV_DIAG_DEBUG_CONTROL_I) = 0
- 1962 (NV_DIAG_DEBUG_MAX_FILES_I) = 0
- 4679 (NV_CLK_REGIME_TEST_CFG_I) = 16
- 4201 (NV_APPS_PWRC_DISABLE_I) = 0
- 3851(NV_WCDMA_RX_DIVERSITY_CTRL_I) = 0 ; the value depend on HW design, RX diversity.
- 3852(NV_WCDMA_EQUALIZER_CTRL_I) = 6
- 6235=0
- 6327=0
- 7157(NV_RODEM_OFF_DISPLAY_I) = 1
- 69745 (rxd_enable) = 0 ; the value depend on HW design, RX diversity.

C.3 本地性能

自测方法

在送测时准备确保手机电池充足，能正常工作，插 2G SD 卡，SD 卡内含所需测试资源文件；

在显示设置里，设置休眠时间为 30 分钟或者永不；确保测试过程中，手机不会暗屏；
手机开机后，等待 3 分钟左右，开始操作。

C.4 压力测试

自测方法

在同一部终端上顺序手动测试，中间不做主清除和重置，确保手机内存占用 80%；
SD 卡内含所需测试资源文件；
设置视频时长为 30 分钟，连续测两次 (Cer_Stress_1_06)。
-----默认设置时长是 10 分钟，需要录像 1 小时

C.5 异常测试：（填满手机内存的方法）

自测方法

安装第三方应用程序 (如果程序被安装在外部 SD 卡，需进入设置->应用->移动在 SD 卡上的程序到手机内存)；
当无法继续安装程序时，使用备份应用程序，恢复彩信，短信以及联系人，使得手机内存填充到规定空间大小。

D 用户体验

QMSS 针对用户体验的问题，提供了解决方案。请参见下表：

Table D-1 User experience

Summary	Description	AvailablePL
漫游场景开机选网的优先级从高至低为 TD-LTE、LTE FDD、WCDMA、GSM。	根据 3GPP 标准定义，按 USIM 卡定义的选网优先级选网。USIM 卡未定义优先级的情况下，中国大陆地区场景开机选网的优先级从高至低为 TD-LTE、TD-SCDMA、GSM，漫游场景开机选网的优先级从高至低为 TD-LTE、LTE FDD、WCDMA、GSM	MSM8916LA1.1
“紧急呼救”挂断后仍为锁屏状态， 无论有无 PIN 码锁，都回到 lock screen 界面	1、手机处于开机状态下 2、手机锁屏 3、选择“紧急呼叫” 【实际结果】“紧急呼救”挂断后直接进入主界面 【预期结果】“紧急呼救”挂断后仍为锁屏状态， 无论有无 PIN 码锁，都回到 lock screen 界面	MSM8916LA1.1
LTE 基本通信测试--紧急呼叫功能测试（针对 LTE 手机），当终端处于无网络的环境下，终端界面显示“紧急呼叫”的字样	LTE 基本通信测试--紧急呼叫功能测试（针对 LTE 手机），当终端处于无网络的环境下，终端界面显示“紧急呼叫”的字样	MSM8926LA2.1, MSM8916LA1.1

Summary	Description	AvailablePL
终端在编辑彩信时，添加一个附件后，添加附件选项依然存在并且能再次插入另一个附件。	【CMCC】【入库】【贵州】发送彩信时不能在同一条信息里插入多张图片 【操作步骤】 1、打开信息； 2、添加附件（图片或铃声）。 【实际结果】终端在编辑彩信时，添加一个附件后，添加附件选项消失 【预期结果】终端在编辑彩信时，添加一个附件后，添加附件选项依然存在并且能再次插入另一个附件。 根据如下测试例测试，步骤 3 和 4 不通过： 3. 编写一条单页彩信。彩信内容包括图片，声音，文字。 4. 加入彩信页面。每一页均需包括图片，声音，文字；要求在增加新的页时，至少在彩信的头部，中间和尾部各增加一页。 测试例: 文档名称：*.xls 用例编号： 彩信 1.3 此问题是涉及用例必选项的，具体用例如下： 对彩信的创建、编辑和预览 检验编辑多页彩信和预览功能 1. 支持彩信功能的终端； 2. 开通 3G/GPRS 功能的测试卡；3. 现网支持 3G/GPRS 业务、彩信业务；4. 被测型号彩信终端 1 台; 1. 进入彩信终端的彩信编辑菜单； 2. 编辑彩信的标题，输入的汉字直到不能输入为止。 3. 编写一条单页彩信。彩信内容包括图片，声音，文字。 4. 加入彩信页面。每一页均需包括图片，声音，文字；要求在增加新的页时，至少在彩信的头部，中间和尾部各增加一页。 5. 增加彩信页面，一共 20 页。 6. 设置每一页的背景色。 7. 对彩信的每张幻灯片设置播放时间。 8. 预览彩信，检查终端预览的彩信是否与用户期望实现的彩信一致。 9. 预览彩信，检查终端是否有手动播放和自动播放切换的功能。 1. 终端能完成彩信的编辑 2. 终端能否完成彩信的预览 3. 终端能否完成彩信的简体中文汉字的输入 4. 终端能否完成插入新的页 5. 终端支持编辑的彩信页数恰好 20 页 6. 终端完成彩信标题的编辑 7. 标题的字数支持恰好是 40 个字节(40 个英文字母，或 13 个汉字) 8. 终端能否完成对幻灯片背景色的设置(可选) 9. 终端能否完成对彩信每一页播放时间的设置(可选) 10. 终端预览的彩信是否与用户期望实现的彩信一致 11. 终端是否具有手动播放和自动播放切换功能	MSM8926LA2.1, MSM8916LA1.1

Summary	Description	AvailablePL
彩信有效期设置为最长，接收彩信时提示 3 天后到期。(信息有效期共有最长、一周、两天，三种设置)	彩信有效期设置为最长，接收彩信时提示 3 天后到期。(信息有效期共有最长、一周、两天，三种设置)	MSM8926LA2.1, MSM8916LA1.1
【CMCC1 反馈】本地网络_基本功能_终端卡 1 网络类型中 4G/3G/2G（3G 优先）模式使用异常	17.1 LTE 基本通信测试--终端向用户提供的网络模式为 4G/3G/2G 4G 优先，4G/3G/2G 3G 优先，3G 和 2G，不符合测试要求 终端向用户提供的网络模式为 4G/3G/2G 4G 优先，4G/3G/2G 3G 优先，3G 和 2G，测试要求如下： 1.支持设置为“只在 3G/2G 模式下工作”和“在 4G/3G/2G 多模式下工作”，默认为“在 4G/3G/2G 多模式下工作”。 2. “在 4G/3G/2G 多模式下工作”状态时，支持设置开机优选的工作模式为“4G 模式优先”或“3G/2G 模式优先”，默认为“4G 模式优先”。 6.4.1 LTE 基本通信（双卡双待）测试--网络选择策略测试，终端插入 SIM 卡作为主卡时，向用户提供了网络模式的功能选项 终端插入 SIM 卡作为主卡时，向用户提供了网络模式的功能选项，测试要求：当插入的是中国移动现网 SIM 卡且作为主卡槽时，要求网络模式采用 TD 优先的选网策略，不再向用户提供 GSM Only、TD Only 等功能选项。	MSM8926LA2.1, MSM8916LA1.1
【标题】被测终端无法修改短信中心号码（涉及必选项 2 条）。	【标题】被测终端无法修改短信中心号码（涉及必选项 2 条）。	MSM8926LA2.1, MSM8916LA1.1
终端与 2.0 标准终端日程备份还原兼容性失败	终端与 2.0 标准终端日程备份还原兼容性失败	MSM8926LA2.1, MSM8916LA1.1
编辑彩信调用拍摄视频，在达到 253K 时系统提示“已达到上限最大值”	操作步骤： 1.测试机编辑一条多页的彩信，包含图片、文字、视频、录音，填充文字直至彩信大小为 300k， 并且提示无法再添加文字为止 2.输入收信人发送该彩信 实际结果： 1.信息发送失败，收到移动短信提示：消息大小超过系统限制的 300K 期望结果： 1.可以成功发送 300K 大小的彩信	MSM8926LA2.1, MSM8916LA1.1
IPv6 测试--终端 IP 协议栈默认为 IPv4，测试要求默认为 IPv4v6 双栈	IPv6 测试--终端 IP 协议栈默认为 IPv4，测试要求默认为 IPv4v6 双栈	MSM8926LA2.1, MSM8916LA1.1
其他-非用例-计算器普通面板和高级面板两数字运算后，再次点击“=”时，运算结果会被清零。	【操作步骤】 手机处于开机状态下 【实际结果】进入计算器中，进行数字运算后，再次点击“=”时，运算结果会被清零。 【预期结果】计算器中，进行数字运算后，再次点击“=”时，运算结果会累加或数值不变，而不是被清除	MSM8926LA2.1, MSM8916LA1.1

Summary	Description	AvailablePL
其他-非用例-删除机主信息，机主照片还在	【操作步骤】 1.打开终端,在通讯录中创建机主的信息， 2.在下拉菜单中点“机主”按钮，拍照添加机主照片。 3.在通信录中删除机主信息。 4.在下拉菜单中点“机主”按钮处还能看到机主照片 ____________________________________ 【实际结果】在下拉菜单中点“机主”按钮处还能看到机主照片 ____________________________________ 【预期结果】在下拉菜单中点“机主”按钮处是空白，没有任何照片信息 ____________________________________ 【备注】"	MSM8926LA2.1, MSM8916LA1.1
基本通信-不插卡拨打 911 等紧急电话，通话记录都显示卡 1 拨出	基本通信-不插卡拨打 911 等紧急电话，通话记录都显示卡 1 拨出	MSM8926LA2.1, MSM8916LA1.1
飞行模式下容许单独打开 Wifi	飞行模式下容许单独打开 Wifi	MSM8916LA1.1
其他-非用例-关机后所设置的闹钟正常提醒后，在询问用户是否关机时，文字提示不准确	其他-非用例-关机后所设置的闹钟正常提醒后，在询问用户是否关机时，文字提示不准确	MSM8926LA2.1, MSM8916LA1.1
通知栏应支持提供快速设置开关（包括数据流量开关、WIFI 开关、GPS 开关、屏幕亮度调节开关、飞行模式、屏幕旋转、蓝牙、省电模式以及声音；	通知栏应支持提供快速设置开关（包括数据流量开关、WIFI 开关、GPS 开关、屏幕亮度调节开关、飞行模式、屏幕旋转、蓝牙、省电模式以及声音；	MSM8916LA1.1
解锁屏界面获取信息（来电、短信）应提供明显图标及个数提示，并可通过快捷键、点击或滑动直接进入查看和回复。	解锁屏界面获取信息（来电、短信）应提供明显图标及个数提示，并可通过快捷键、点击或滑动直接进入查看和回复。	MSM8916LA1.1
锁屏界面上提供快速进入未读短信、未接电话、相机以及待机屏幕	锁屏界面上提供快速进入未读短信、未接电话、相机以及待机屏幕	MSM8916LA1.1
终端终端无 SIM 卡时下拉菜单选择移动数据，可以开启和关闭，应置灰或提示无插入 SIM 卡。	终端终端无 SIM 卡时下拉菜单选择移动数据，可以开启和关闭，应置灰或提示无插入 SIM 卡。 ____________________________________【预置条件】终端无 SIM 卡 ____________________________________【操作步骤】待机->下拉菜单->选择“移动数据”。 ____________________________________【实际结果】可关闭和开启移动数据。 ____________________________________ 【预期结果】在无 SIM 卡时应置灰或提示无插入 SIM 卡。 ____________________________________	MSM8916LA1.1

Summary	Description	AvailablePL
终端编辑记事本输入字母时，超出了显示范围	编辑记事本输入字母时，超出了显示范围 【网络环境】现网 3G/18611086411 【操作步骤】记事本-新建-输入字母“J”时【实际结果】超出了显示范围【预期结果】显示在范围内 "	MSM8916LA1.1
终端搜索彩信的主题关键字不准确	终端搜索彩信的主题关键字不准确 【预置条件】彩信主题内容为“test” 【操作步骤】信息-搜索-输入“test” 【实际结果】终端搜索不到主题为“test”的彩信【预期结果】终端可以搜索到主题为“test”的彩信 "	MSM8916LA1.1
终端应用程序按字母排序时，拼音出现语法错误	【用户体验】应用程序按字母排序时，终端拼音出现语法错误 【操作步骤】所有应用程序界面-往左滑动选择“字母顺序”-观察应用程序排序【实际结果】 “调（tiao 二声）频收音机”位置错误【预期结果】按字母排序应该放在 T 的位置	MSM8916LA1.1
终端桌面小工具"流量"文字显示不全	桌面小工具""流量""文字显示不全 【操作步骤】 1、在桌面添加""流量""小工具【实际结果】历史流量显示不全【预期结果】正常【备注】"	MSM8916LA1.1
终端拨号器中切换通讯录非常不方便，且触摸区太小，不易切换到通讯录。	终端拨号器中切换通讯录非常不方便，且触摸区太小，不易切换到通讯录。	MSM8916LA1.1
终端音乐播放器没有退出功能	终端音乐播放器没有退出功能	MSM8916LA1.1
终端开关机的时候没有重新启动一项	开关机的时候，没有重新启动，只能开机或是关机，如果加上重新启动一项，就更方便了，现在很多手机都已经有此功能，手机如果在细节上更出彩，更人性化，就更能被消费者认可，也更容易被购买。	MSM8916LA1.1
终端上有 2 个 3rd party 应用已卸载但是重启后仍出现在屏幕上	终端上有 2 个 3rd party 应用已卸载但是重启后仍出现在屏幕上.	MSM8926LA2.1, MSM8916LA1.1
打开便携式热点，另一测试终端连接热点，被测终端需要有连接提示	【CMCC1 反馈】打开便携式热点，另一测试终端连接热点，被测终端无任何连接提示。 【标题】打开便携式热点，另一测试终端连接热点，被测终端无任何连接提示。 【网络环境】WLAN 【预置条件】终端开启数据连接。 【重现次数】10/10 【操作步骤】 1、终端打开便携式热点，另一终端连接热点； 【实际结果】第 1 步后，热点连接成功，被测终端无任何连接提示。 【预期结果】第 1 步后，热点连接成功，被测终端有连接提示。	MSM8916LA1.1
手机关闭 GPS 功能后，必须同时禁止 LBS NI 功能	通过设置->定位 关闭 定位功能后，需同时禁止 LBS NI， 即此时网络侧发起的定位也需要被 Reject	MSM8916LA1.1

Summary	Description	AvailablePL
支持以 Badge 方式显示未读信息（包含数量）和未接电话（数量）	【操作步骤】 1.终端正常操作，然后锁屏 2.用其他终端给测试终端发送短信或彩信 【实际结果】 第二步操作后，被测终端无显示提示多条未读彩信或短信 【预期结果】 被测终端正常显示多条未读彩信或短信	MSM8926LA2.1, MSM8916LA1.1

E DM Test Guide

NOTE: QMSS product lines support DM.

For more details, refer to Appendix A in [Q14].