高通协议技术期刊 –2015/01/09

Qualcomm Technologies, Inc.

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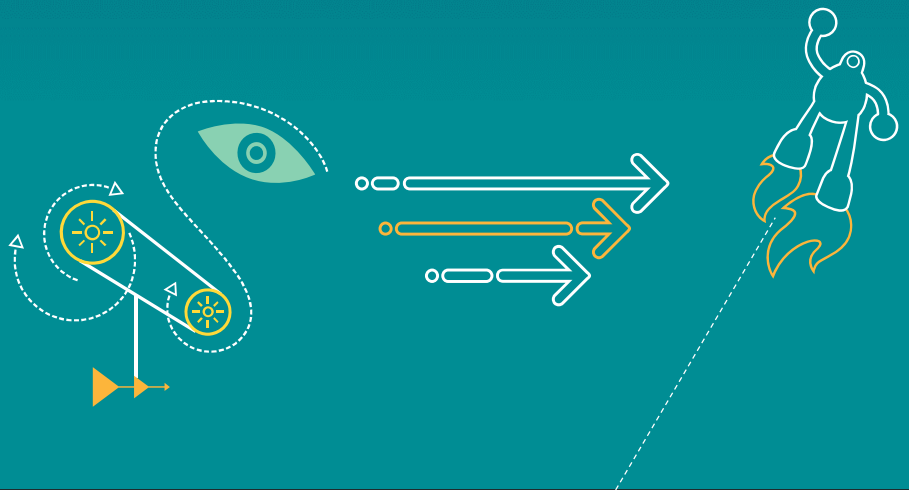

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Revision History

Revision	Date	Description
A	Jan 2015	Initial release

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

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8916/8936/9x30系统解决方案Solution

- 为了直观，便于检索，我们在Saleforce系统上编写了系统解决方案。包含各个技术领域，便于大家查找。
- 8916系统解决方案
- Solution Number: 00029134
- 链接： https://qualcomm-cdmatech-support.my.salesforce.com/50130000000VfUZ?srPos=0&srKp=501

- 8936/8939系统解决方案
- Solution Number: 00029333
- 链接：https://qualcomm-cdmatech-support.my.salesforce.com/50130000000Vg5B

- MDM9x30/9x35系统解决方案
- Solution Number 00029678
- https://qualcomm-cdmatech-support.my.salesforce.com/50130000000ViGQ

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MBN介绍

- MBN的设计需求，文档，实现方法, 请参阅Solution number:00029357.
- https://qualcomm-cdmatech-support.my.salesforce.com/50130000000VgDA?srPos=0&srKp=501

- 因为客户量产的版本可能不是高通最新的版本，但是MBN却随着软件版本不断的更新，所以推荐将高通最新软件版本的MBN，合入客户的版本中。

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CMCC双卡产品IMEI上报需求

- 需求：
- CMCC要求对于双卡产品，在国内，两个卡槽上报同样的IMEI号码；在国外，两个卡槽上报不同的IMEI号码。

- 解决方案：
- 我们有一个FR24405在跟踪这个需求。
- 临时的解决方案是，对于CMCC国内产品，客户自行在两个卡槽上写同样的IMEI号码。

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已知网络问题列表

- 下面这个表格总结了目前已知的网络问题。客户在进行外场测试时，可以参考如下表格，加快测试进度。

运营商	测试内容	原因	测试地点
CMCC	5.3.1 终端空闲态TD-LTE<->TD-SCDMA空闲态小区重选	TDS小区不满足重选条件	深圳： 会展中心
CMCC	5.3.1 终端空闲态TD-LTE<->TD-SCDMA空闲态小区重选	网络没有发TDS邻区SIB6	深圳： 福田区福华中心五路会展中心地铁站B出口控制室
CMCC	5.5.2 TD-LTE重定向至TD-SCDMA（R8重定向，支持异系统测量）	网络发起的是L2G的重定向	深圳： 福田区福华中心五路会展中心地铁站B出口控制室
CMCC	CSFB被叫失败。 主叫收到提示音“被叫已关机”或“被叫忙”。在菜户营桥附近出现概率在8~10%	分析log， 主叫侧信令过程正常。被叫侧由于TA发生变化，根据协议UE进行TA更新。UE始终不能收到寻呼。与核心网确认，此问题时由于核心网MRTF相关bug造成。核心网还在进一步深入分析	北京
CMCC	UE在CSFB话音结束后， 从GSM网络返回LTE网络，在RRC连接建立完成后，网络发起UE能力查询过程。造成返回时延增加约1.4s。	此过程中MME应保存UE能力并避免重新查询UE能力。目前还不能解释网络发起UE能力查询的原因。希望核心网厂家可以配合分析。	广州
CMCC	由于LTE网络未使能连接态DRX，使UE耗电较高。	由于用户使用某些突发性数据业务， 比如， 微信，QQ，当用户发送完短数据后，UE需要等待网络侧inactivity timer超时释放UE连接。由于未使能CDRX， 此阶段不能进入休眠状态。从而造成功耗相当较高	东莞
CMCC	当UE从2G重选到4G并发起TA更新过程。但网络拒绝TA更新。原因值为“no EPS bearer context activated”。从而造成UE不能驻留4G网络	相同TA更新过程在其他区域可以成功。怀疑4G核心网不能从2G核心网获得UE context而造成失败。 需要核心网厂商配合进一步确认。	南京
CMCC	TDS UE在进行随机接入过程失败造成UE在此小区不能建立呼叫。	UE发送UppCH, 但不能收到网络FPACH。经过网络分析FPACH发射功率过低，低于PCCPCH 20dB, 造成UE不能收到FPACH	河南新乡

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已知网络问题列表

CMCC	PS G to T 重选后速率恢复失败	当UE从2G重选到3G并发起GMM service request过程。但网络释放了RRC连接。在重试后网络拒绝。原因值为”no pdp context activated”。	南京
CMCC	TDS PS 业务掉线	NW 发送 PDPdeactivate request 原因值为 sm_cause_val = 36 (0x24) (Regular deactivation), PS业务掉线。	北京
CMCC	TDS物理信道重配失败	UE接收物理信道重配置后网络只发送特殊突发。UE接收不到任何下行数据或信令信息。造成无线 链路失败	南京
CMCC	TDS PDP 激活失败，彩信发送失败	在RB6建立过程中，网络触发跨RNC切换。由于RB6正在建立过程中，RB6信息没有传到目标RNC。造成RB6建立失败从而彩信发送失败。	南京
CMCC	CSFB到GSM后鉴权失败导致电话建立失败	发生的概率不高，大概1~2%，但是会导致电话建立失败。回落到GSM鉴权过程出现GMM_AUTHENTICATION_AND_CYPHERING_FAILURE原因为“MAC failure”	深圳
CMCC	LTE重定向到GSM，数据业务恢复慢	深圳特定地点的问题（何汶超市），当UE被网络重定向到GSM后，完成RAU过程，但是网络在大概10s后发起PDPmodify过程	深圳
CMCC	彩信发送失败	彩信发送失败，从HTTP层看，MMSC服务器返回错误信息HTTP RESET，TCP FIN,或者服务器不响应	北京
CU	手机无法注册GSM。	GSM网络 MSC和SGSN的版本是R97之前的版本，需要将NV1030和NV1031设置成2.	浙江椒州
CU	中国联通WCDMA网络，不支持紧急电话	中国联通WCDMA网络问题	深圳
CMCC	4.4.2 连接态CSFB性能测试：通话结束后，被叫手机无法即时回落到4G网络	UE 回到LTE后发起TAU，但被网络拒绝，原因值：#9 "UE identity cannot be derived by the network"	深圳：福田香梅北路

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快速搜网优化方案

为了满足CMCC/CT的找网时间限制要求，高通做了一些优化：先使用上次搜网的历史数据acq db快速搜网，然后再做全网搜索。为此，引入NV73502, /nv/item_files/modem/mmode/scan_scope_rule。
对于CMCC的项目，设置成15；
对于CT的项目，设置成16.

```
typedef enum scan_scope_rule_e {

  SYS_SCAN_SCOPE_RULE_FULL_BAND = 0,
  /**< Default scan_scope type i.e FULL_BAND for all searches */

  SYS_SCAN_SCOPE_RULE_ACQ_DB_BPLMN = BM(0),
  /**< ACQ_DB scan_scope type for BPLMN search */

  SYS_SCAN_SCOPE_RULE_ACQ_DB_OOS = BM(1),
   /**< ACQ_DB scan_scope type for OOS search */

  SYS_SCAN_SCOPE_RULE_ACQ_DB_RLF = BM(2),
   /**< ACQ_DB scan_scope type for RLF searches */

  SYS_SCAN_SCOPE_RULE_ACQ_DB_PWR_UP = BM(3),
   /**< ACQ_DB scan_scope type for RLF searches */

  SYS_SCAN_SCOPE_RULE_ACQ_DB_NO_TRM = BM(4),
   /**< ACQ_DB scan_scope when there is no TRM */

/** @cond  */
  SYS_SCAN_SCOPE_RULE_MAX = BM(5)
/** @endcond */
  } sys_scan_scope_rule_e_type;
```


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CT 4G card EVDO authentication failure issue

- **Issue:**
- Some CT 4G card met EVDO auth failure which caused data service can't setup.
- As per checked with CT. This is because some old 4G card only have one set of SIP_SS in the card, so card reject CHAP command when device requires for NAI index 01 (which mean 2nd set of SIP_SS).
- This is known issue of CT, some card vendor made such mistake for the first batch of 4G cards (the quantity is few according to CT). They have asked card vendor to provision 5 sets of SIP_SS after this issue happened.
- But for cards already released to market, this issue cannot be corrected.
-
- **Log Analysis:**
-
- Data Services/Medium 06:34:27.084 ps_ppp_auth.c 01483 dev 0 recieved CHAP challenge
- User Identity Module/High 06:34:27.085 mmgsdi.c 03794 Received MMGSDI_COMPUTE_IP_AUTH_REQ
- User Identity Module/High 06:34:27.085 mmgsdiutil.c 09166 SIP CHAP CHALLENGE : (16) 7B 38 DB 22 2A 77 EC 5D D5 FD ...
- User Identity Module/High 06:34:27.147 mmgsdi_cnf.c 04849 COMPUTE IP Auth Fail, status 1
- Data Services/Error 06:34:27.147 ps_ppp_auth.c 02476 chapi_uim_3gpd_calc_chap_resp_rpt: UIM 3GPD CHAP command failure status 1 and mmgsdi_status 1 are
- Data Services/High 06:34:27.147 ps_ppp_auth.c 02972 UIM-CHAP FAILURE
- Data Services/Error 06:34:27.147 ps_ppp_auth.c 03670 dev 0 CHAP resp calculation failed
-
- **Solution:**
- Enable use_3gpd_credentials_from_nv of NV67211

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How to disable segment loading on 8994

- **[Question]**
  How to disable segment loading on 8994?

  [Answer]
  You need to add extra heap size and configure NV item.

  [Detail]
  On the later 8994 build, the feature of FEATURE_SEGMENT_LOADING_SUPPORT_LOAD_ALL_RATS is turned on.
  With this feature, OEM can disable segment loading. I.e. deploy both TDS-CDMA and W-CDMA at the same time.

  Here is the steps an OEM needs to do
  1. Increase the modem heap size by 3.75M and make a build
  2. Make sure the NV 72542 is set to 0

  Note that if you set NV 72542 to 0 without heap expanding, modem will crash due to heap exhaustion.

  Please refer to the App note 80-NL239-46 for more details on this feature

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eMBMS support on 8916

- 8916 LA1.x with DPM1.0/1.0.1 can support eMBMS single SIM only
- 8916 LA2.0.2/2.1 with DPM2.0.2 can support eMBMS dual SIM but with tuneaway disablement, which means
  - eMBMS/1xSRLTE+G DSDS with tuneaway disablement
    - Tuneway to both GSM and 1x is disabled when eMBMS session is activated
    - Mobile terminated calls to both GSM and 1x will fail when eMBMS session is active
    - 1x or GSM mobile originated calls are possible when eMBMS session is active, and will result in suspension of the session
  - eMBMS/VoLTE+G DSDS with tuneaway disablement
    - Tuneway to GSM is disabled when eMBMS session is activated
    - Mobile terminated calls to GSM will fail when eMBMS session is active
    - GSM mobile originated calls are possible when eMBMS session is active, and will result in suspension of the session
    - VoLTE mobile originated or terminated calls are possible when eMBMS session is active

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分析和解决问题的SOP（Standard Operation Procedure）文档

为了帮助客户快速定位和解决问题，我们从各个技术方面做了总结。客户可以参考文档的流程图，做一些问题的分析。以下是部分文档列表，另外还有一些文档正在组织编写。

Audio no voice or voice noise	80-NJ378-1: WCDMA AUDIO ISSUE DEBUG OVERVIEW VD80-NJ378-1SC: VIDEO: WCDMA AUDIO ISSUE DEBUG OVERVIEW - SIMPLIFIED CHINESE
Data throughput	80-ND934-2，80-ND934-2EC DATA THROUGHPUT TROUBLESHOOTING
GSM OOS and call drop analysis	80-ND934- 1_B GSM_OOS_AND_MT_CALL_FAILURE_APPLICATION_NOTES

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联通卡ICCID命名规则

- 联通白卡的ICCID规则为：8986+01（接入网号）+Y1Y2（年份）+8+B1B2（省分代码、两位数字）+XXXXXXXX+F
- 第九位8标识白卡；
- 联通成卡的ICCID规则为：8986+01（接入网号）+Y1Y2（年份）+A+H0+A1A2A3（城市代码、三位数字）+XXXXXX+F
-
- 联通卡片ICCID 20位编码，成卡，白卡编码方式如上，第20位为Luhn校验位，在卡面上第20位为卡商代码F，
- F:供应商名称代码
- F=D 欧贝特 F=G 金普斯 F=S 雅斯拓 F=E 东信和平 F=T 大唐微电子
- F=W 北京握奇 F=H 北京华虹 F=C 上海柯斯 F=J 江西捷德
- F=Y 武汉天喻 F=N 江苏恒宝 F=L 楚天龙 F=其他保留以后使用

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References

Ref.	Document	
Qualcomm Technologies		
Q1	*Application Note: Software Glossary for Customers*	CL93-V3077-1
Standards		
S1	*Title*	Standard Number (June 2002)
Resources		
R1		

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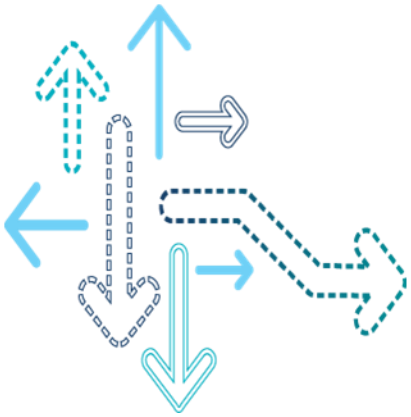

Questions?

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