How to check LTE and NR band?

The LTE and NR band could be set by below items:

1. Band NV:
LTE:
NV6828
NV65633 /nv/item_files/modem/mmode/lte_bandpref for B1-B64
NV73680 /nv/item_files/modem/mmode/lte_bandpref_extn_65_256 for B65-B256
NR:
SA: NV74087: /nv/item_files/modem/mmode/nr_band_pref
NSA: NV74213: /nv/item_files/modem/mmode/nr_nsa_band_pref

2. Policyman
The policyman have the rule to limited the band capability, e.g.
a. Carrier Policy xml
b. post.xml, generic_band_restrictions.xml, disable_sa_ndds.xml, disable_nsa_ndds.xml, china_msim_lna_protection and so on

3. Hardware_band_filtering.xml
EFS locatoin is /policyman/hardware_band_filtering.xml.

4. MDB
MDB is introduced in:
80-PN878-44 MDB User Guide

The MDB could be edited by GUI tool, or Python command
GUI tool is: KBA-190128201048 HE平台如何用MCFG GUI tool生成编辑MDB
Python command is introduced in above DCN 80-PN878-44(MDB User Guide)

The MDB is enabeled by default, it could be disabled by EFS ignore_mcc2bands_mdb
KBA-190924224323 Why EFS ignore_mcc2bands_mdb is present in HW MBN

5. nr5g_disable_mode
It has NV74308(/nv/item_files/modem/mmode/nr5g_disable_mode) and QMI API:
The detail is introduced in:
KBA-191007224344 How to disable 5G SA mode in SA/NSA supported PL

6. VOIMS
NR(SA band) will be disabled if VOIMS(NR) is disabled for voice centirc device.

7. AP
The band also can be set by AP, the QMI API is nas_set_system_selection_preference_req

8. RF capability
It's the LTE/NR band capability from RF.

Summary:
最终LTE/NR band能力取以上各项的交集

[Q&A]

[Q1] How to check SA band remove due to VOIMS(NR) disabled in log?

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It's a sample log: (note: it's CT card, so UE mode also switch to SRLTE)
// Disable VOIMS for both LTE and NR
07:01:22.654,cmpmprx.c,4967,2,MSGR RXD: sub 0, voims_state_chgd: 3->0, dds 0, current rat_cap 0x1200, internal_standby_pref 2,,
07:01:22.654,policyman_phone_events.c,2057,2,pref_update: changed_fields 0x0202, mode_pref 4668->4668, srv_domain_pref 2->2, volte_enabled 1->0,Sub-ID:1,
// SA Band Remove
07:01:22.656,cmsds_nr5g.c,1909,2,NR5G_REMOVAL: REMOVE SA BANDS: sub 0 stk 0 stk_cap 0x1214, lmtd_stk_cap 0x1214,Sub-ID:1,
07:01:22.656,cmsds_nr5g.c,1909,2,NR5G_REMOVAL: REMOVE SA BANDS: sub 0 stk 1 stk_cap 0x1214, lmtd_stk_cap 0x1214,Sub-ID:1,
// IMS reg failure with cause code 4(SYS_IMS_REG_END_CAUSE_VOLTE_OFF)
07:01:22.656,cmsds.c,5975,1,IMS_REG: Domsel:IMS registration is failed. cause code 4 backoff timer 0,Sub-ID:1,
07:01:22.656,cmsds.c,5767,1,Domsel:Permanent IMS reg failure,,
// Switch to SRLTE
07:01:22.656,cmsoa.c,1185,2,CMSOA: Switching CSFB -> SRLTE,Sub-ID:1,

[Q2] How to check NV65633 in log?
//s1 cmph_load_prst_phone_pref_on_sub() updates ph_ptr with persistent values from NV65633, pref_ptr->mode_band = prst_pref_ptr->mode_band;
00:33:02.721 cmph.c 12410 2 AS_ID 0, LOAD_PRST: prst mode_pref 0x200, mode_pref 0x200, hybr_pref 1, srv_domain 2 network_sel_mode_pref 0 Sub-ID:1
//s2 cmmsc_form_sub_data_simx() forms subscription info to send to mmoc. sub_data->mode_band = pref_info->mode_band;
00:33:02.721 cmmsc.c 4779 2 SUB MSC->MMOC: network_sel_mode_pref 0 camp_mode 0, voice_domain_pref 0 Sub-ID:1
//s3 cmmsc_form_sub_data_simx call cm_print_lte_band_mask_sub(&pref_info->mode_band.bands,)
00:33:02.721 cmutil.c 8081 2 bands: cgw 0x7fffffff ffffffff, bands: tds 0x00000000 0000003f, sub 0 Sub-ID:1
00:33:02.721 cmutil.c 8028 1 LTE bands 193_256: 0x4a000000 00000000, 129_192: 0x00000000 00000000, sub 0 Sub-ID:1
00:33:02.721 cmutil.c 8039 1 LTE bands 65_128: 0x00000000 0000004e, 1_64: 0x001147ff ffdf3fff, sub 0 Sub-ID:1 // NV65633 is 0x001147ff ffdf3fff

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