测试的软件版本

- internal version ZEV0_0
- external version A.00

测试中遇到的问题

1. PWM Output duty out of range

- 文档要求

> *PWM On Duty Error: +/- 3%*

Button Status	PWM On Duty
Initial	0%
P	10%
R	20%
N	30%
D	40%
Idle	50%
P-Release	70%
Fault	90%

- 实测情况

Button Status	PWM On Duty
P	PWM output duty is 13.2%,out of range [7%-13%].
R	PWM output duty is 23.2%,out of range [17%-23%]
N	PWM output duty is 33.2%,out of range [27%-33%].
D	PWM output duty is 43.2%,out of range [37%-43%].
Idle	PWM output duty is 53.2%,out of range [47%-53%].

Button Status	PWM On Duty
P-Release	PWM output duty is 73.2%,out of range [67%-73%].
Fault	PWM output duty is 93.2%,out of range [87%-93%].

详细测试数据及过程请参看附件内的Button Function文件夹。

2. Indicator Illumination部分文档描述有误

- 文档要求

> *p14 8.3.3处的描述为：When CAN Signal(CF_Vcu_GarSelDisp) is Timeout, SbW shall use the PWM input.When CAN Signal is timeout and PWM is fault or initial or Not-Display, SbW shall turn off SbW's highlight.*
> *p26 12.4.1处的描述为：If the gear position signal is timeout, SBW will turn all the indicators OFF. Once the gear position signal is available again, SBW should control the indicators accordingly again.*
> *这两处文档有矛盾的地方。*

- 实测情况
  从实际测试情况来看，p14 8.3.3处的描述是合乎实测的，建议相关同事将文档更新。
  详细测试数据及过程请参看附件内的testHighLightIndicatorBehavior文件夹。

3. Operation mode部分状态间切换不成立

- 文档要求
  p29 状态机图片

- 实测情况归类
  a. route：从Initialization mode到silence mode最后进入sleep

begining status	from init to silence method	silence result	from silence to sleep method	sleep result
$CF_Gway_DrvDrSw = close & IGN OFF when power on	set $CF_Gway_DrvDrSw = open then detect IGN OFF for 20s	TX stopped,LED turned off,entered	Disable Msg CGW1	go to sleep, but current =

begining status	from init to silence method	silence result	from silence to sleep method	sleep result
		silence，current = 25mA		1.132mA out of range
$CF_Gway_DrvDrSw = B-CAN Timeout & IGN OFF when power on	set $CF_Gway_DrvDrSw = open then detect IGN OFF for 20s	TX stopped,LED turned off,entered silence，current = 25mA	set $CF_Gway_DrvDrSw = close	go to sleep, but current = 1.124mA out of range
$CF_Gway_DrvDrSw = open & IGN OFF when power on	wait 20s then set $CF_Gway_DrvDrSw = close	TX stopped,LED turned off,entered silence，current = 1.131mA,directly go into the sleep mode,no through silence mode.	do nothing	current = 1.131mA out of range
$CF_Gway_DrvDrSw = close & IGN OFF when power on	set $CF_Gway_DrvDrSw = close	TX stopped,LED turned off,entered silence，current = 25mA	wait for 15s	go to sleep, but current = 1.143mA out of range
$CF_Gway_DrvDrSw = close & IGN OFF when power on	set $CF_Gway_DrvDrSw = close	TX stopped,LED turned off,entered silence，current = 25mA	Disable Msg CGW1 and wait 20s	go to sleep, but current = 1.141mA out of range
$CF_Gway_DrvDrSw = open & IGN OFF when power on	wait 20s then set $CF_Gway_DrvDrSw = B-CAN Timeout	TX stopped,LED turned off,entered	wait 15s then set $CF_Gway_DrvDrSw = close	go to sleep, but current

begining status	from init to silence method	silence result	from silence to sleep method	sleep result
		silence，current = 25mA		= 1.131mA out of range
$CF_Gway_DrvDrSw = open & IGN OFF when power on	wait 20s then set $CF_Gway_DrvDrSw = B-CAN Timeout	TX stopped,LED turned off,entered silence，current = 25mA	Disable Msg CGW1 and wait 20s	go to sleep, but current = 1.131mA out of range
$CF_Gway_DrvDrSw = close & IGN OFF when power on	set $CF_Gway_DrvDrSw = B-CAN Timeout	TX stopped,LED turned off,entered silence，current = 25mA	wait 15s then set $CF_Gway_DrvDrSw = close	go to sleep, but current = 1.124mA out of range
$CF_Gway_DrvDrSw = close & IGN OFF when power on	set $CF_Gway_DrvDrSw = B-CAN Timeout	TX stopped,LED turned off,entered silence，current = 25mA	Disable Msg CGW1 then wait 20s	go to sleep, but current = 1.124mA out of range

详细测试数据及过程请参看附件内的

checkOperationModeChangeFromIgnOnModeToInitModeToSilenceModeToSleep文件夹。

b. route：从IgnOn Mode到N-Park Mode到SilenceMode最后进入Sleep

from IgnOn to N-park to silence method	silence result	from silence to sleep method	sleep result
set ACC OFF, then IGN OFF, then set $CF_Gway_DrvDrSw = open, then wait 3min	TX stopped,LED turned off,entered silence，current = 25mA	set $CF_Gway_DrvDrSw = close	go to sleep, but current = 1.136mA out of range

from IgnOn to N-park to silence method	silence result	from silence to sleep method	sleep result
set ACC OFF, then IGN OFF, then set $CF_Gway_DrvDrSw = open, then wait 3min	TX stopped,LED turned off,entered silence，current = 25mA	Disable Msg CGW1	go to sleep, but current = 1.134mA out of range
set ACC OFF, then IGN OFF, then set $CF_Gway_DrvDrSw = B-CAN Timeout, then wait 3min	TX stopped,LED turned off,entered silence，current = 25mA	wait 15s,then set $CF_Gway_DrvDrSw = close	go to sleep, but current = 1.124mA out of range
set ACC OFF, then IGN OFF, then set $CF_Gway_DrvDrSw = B-CAN Timeout, then wait 3min	TX stopped,LED turned off,entered silence，current = 25mA	Disable Msg CGW1,then wait 20s	go to sleep, but current = 1.131mA out of range
set ACC OFF, then IGN OFF, then set $CF_Gway_DrvDrSw = close, then wait 3min	TX stopped,LED turned off,current = 1.125mA，directly go into the sleep mode,no through silence mode.	do nothing	current = 1.125mA out of range
set ACC OFF, then IGN OFF, then set $CF_Gway_DrvDrSw = close, then wait 3min	TX stopped,LED turned off,current = 1.131mA，directly go into the sleep mode,no through silence mode.	do nothing	current = 1.131mA out of range

详细测试数据及过程请参看附件内的

checkOperationModeChangeFromIgnOnModeToNParkModeToSilenceModeToSleep文件夹。

c. route：从IgnOn Mode到N-WASH Mode（经由N-PARK mode）到SilenceMode最后进入Sleep

from IgnOn to N-WASH	through N-PARK or not through N-PARK to silence	silence result	from silence to sleep method	sleep result
set ACC ON, then IGN OFF	set $CF_Gway_DrvDrSw = close, then wait 3min	TX stopped,LED turned off,entered silence，current = 25mA	wait 15s	current = 25.498mA, not in sleep mode

from IgnOn to N-WASH	through N-PARK or not through N-PARK to silence	silence result	from silence to sleep method	sleep result
set ACC ON, then IGN OFF	set $CF_Gway_DrvDrSw = close, then wait 3min	TX stopped,LED turned off,entered silence，current = 25mA	Disable Msg CGW1, then wait 20s	current = 25.5mA, not in sleep mode
set ACC ON, then IGN OFF	set ACC OFF,then set $CF_Gway_DrvDrSw = close, then wait 3min	TX stopped,LED turned off,current = 1.134mA，directly go into the sleep mode,no through silence mode.	do nothing	current = 1.134mA out of range
set ACC ON, then IGN OFF	set ACC OFF,then set $CF_Gway_DrvDrSw = close, then wait 3min	TX stopped,LED turned off,current = 1.136mA，directly go into the sleep mode,no through silence mode.	do nothing	current = 1.136mA out of range
set ACC ON, then IGN OFF	set $CF_Gway_DrvDrSw = open, then wait 3min	TX stopped,LED turned off,entered silence，current = 25mA	set $CF_Gway_DrvDrSw = close	current = 25.402mA, not in sleep mode
set ACC ON, then IGN OFF	set $CF_Gway_DrvDrSw = open, then wait 3min	TX stopped,LED turned off,entered silence，current = 25mA	Disable Msg CGW1	current = 25.489mA, not in sleep mode
set ACC ON, then IGN OFF	set ACC OFF,then set $CF_Gway_DrvDrSw = open, then wait 3min	TX stopped,LED turned off,entered silence，current = 25mA	set $CF_Gway_DrvDrSw = close	current = 1.125mA out of range
set ACC ON, then IGN OFF	set ACC OFF,then set $CF_Gway_DrvDrSw = open, then wait 3min	TX stopped,LED turned off,entered	Disable Msg CGW1	current = 1.141mA out of range

from IgnOn to N-WASH	through N-PARK or not through N-PARK to silence	silence result	from silence to sleep method	sleep result
		silence，current = 25mA		
set ACC ON, then IGN OFF	set $CF_Gway_DrvDrSw = B-CAN Timeout, then wait 3min	TX stopped,LED turned off,entered silence，current = 25mA	wait 15s, then set $CF_Gway_DrvDrSw = close	current = 25.482mA, not in sleep mode
set ACC ON, then IGN OFF	set $CF_Gway_DrvDrSw = B-CAN Timeout, then wait 3min	TX stopped,LED turned off,entered silence，current = 25mA	Disable Msg CGW1, then wait 20s	current = 25.488mA, not in sleep mode
set ACC ON, then IGN OFF	set ACC OFF,then set $CF_Gway_DrvDrSw = B-CAN Timeout, then wait 3min	TX stopped,LED turned off,entered silence，current = 25mA	wait 15s,then set $CF_Gway_DrvDrSw = close	current = 1.133mA out of range
set ACC ON, then IGN OFF	set ACC OFF,then set $CF_Gway_DrvDrSw = B-CAN Timeout, then wait 3min	TX stopped,LED turned off,entered silence，current = 25mA	Disable Msg CGW1, then wait 20s	current = 1.143mA out of range

- 实测情况小结

  a. 睡眠电流超限，大于1mA

  b. 在N-WASH模式下（即ACC ON时）无法按状态机的描述进入睡眠模式

  c. IGN off下当$CF_Gway_DrvDrSw = close时，3min后，不经过silence模式，直接进入睡眠模式

  d. init下当$CF_Gway_DrvDrSw = open时，20s关门后，不经过silence模式，直接进入睡眠模式

  e. 文档中Init模式到sleep模式的直接切换路径描述不清，和init到silence模式下的逻辑有重合之处，希望尽快更正

  详细测试数据及过程请参看附件内的checkOperationModeChangeFromIgnOnModeToNWashModeToSilenceModeToSleep文件夹。