Venus 20-US-4G-PCIE-M2, Venus 20-CN-4G-NA-M2, and Venus 20-US-4G-NA-M2 are Engineering control equipments in the GSM/UMTS/LTE system. The GSM frequency band includes GSM850 and GSM900 and DCS1800 and PCS1900. but only GSM850/1900 test data included in this report. The UMTS frequency band are band I /II /IV/V/VI/VIII/XVIIII, but only band II and Band IV and Band V test data included in this report. The LTE frequency band is Band I/II/III/IV /V/VII/VIII/XII/XIII/XVIII/XVIIII/XX/XXV/XXVI/XXVIII/XXXVIII/XXXVIIII/XXXX/XXXXI, but only Band II/IV /V/VII/XII/XIII/XXV/XXVI/XXXVIII/XXXXI test data included in this report. The Engineering control equipments implements such functions as RF signal receiving/transmitting, LTE/UMTS and GPRS/EDGE protocol. Externally it provides micro SD card interface and USIM card interface. The EUT is powered by DC 12V/12.5A. For more detailed features description, please refer to the user's manual.

1) Power Supply

Working Voltage : DC 12V, provided by power adaptor.

2) Main System

MCU board's main chip is STM32F407VET6, responsible for program files and data storage. A frequency of 25MHz and a frequency of 32.768 kHz clock signals are used as the basic clock signal.

NX board uses NVIDIA's JetsonXavierNX module. Jetson Xavier NX delivers up to 21 TOPS for running modern AI workloads.etson Xavier NX integrated 6 core ARM 64-bit processor, 6 core up to 1.4ghz, integrated L2 6MB + L3 4MB cache, There is also 8GB 1600MHz 128bit LPDDR4x memory (write bandwidth 51.2GB/s) and 16GB eMMC storage.

All chips and all crystals are described in the table below：

U1_MCU	BQ24725A	battery charge management
U9	STM32F407VET6	STM32 Series 32-Bit 512 KB Flash 192 KB RAM ARM Based Microcontroller - LQFP-100
U10	FM25F01-SO-U-G	FLASH 1Mb (128K x 8)Non-Volatile SPI - Dual I/O
U11	LAN8720A-CP-TR	2/2 Transceiver Full RMII 24-QFN (4x4)
U15,U16,U17,U18	74LVC1T45W6-7	Voltage Level Translator Bidirectional 1 Circuit 1 Channel - SOT-26
Y1,Y3	E3SB25E00000DE	crystal 25M
Y2	X1A000061000200	CRYSTAL 32.768K
HBU1	RTS5411-GR	USB3.0 HUB 4PORT QFN-76 9X9MM RTS5411-GR REALTEK
HBX1	X322512MSB4SI	CRYSTAL 12M，3225
MY2	JYXT32S4-020.00000-91C4B0	crystal 20MHz 3225
PU2,PU4,PU7	SY8368AQQC	SY8368AQQC
PU3,PU8	APL5932AKAI-TRG	Ultra Low Dropout (0.23V Typical) Linear Regulator
U1	ALC5616-CGT	low power audio codec for

		mobile device
U2,U4,U6,U8,U15,U16,U17,U24	APL3511CBI-TRG	1A load switch
U5	M24C02-RMN6TP	2kb I2C EEPROM
U14	WK2132	SPI to dual UART port
U18	RTL8305NB-CG	5 port 100M switch RTL8305NB
U20	TXB0108PWR	8-Bit Bidirectional Voltage-Level Translator with Auto-Direction Sensing
U21,U23	XL485CS	RS-485/RS-422
U22	ST202ECDR	TTL to RS232
U31	ASM1042A-48	2 ports USB3.0 xHCI Rev1.0 Host Controller
Y1_NX	X322525MSB4SI	CRYSTAL 25M，3225
Y2_NX	X322516MLB4SI	CRYSTAL 16M，3225

3）4G

BC8420-G is an LTE CAT4 4G wireless routing board developed based on Quectel EG25-G module, supporting standard 4-wire,The Ethernet interface can realize fast and convenient access to the operator's 4G wireless network for customer terminal equipment.Supply voltage range: 5V ~ 16V, typical supply voltage: DC12V/1A, Connection form: 2pin terminal with 1.25mm pitch

The 4G communication board uses a 25MHz crystal oscillator 7M25000033：XTAL CRY 25MHz ± 10PPM 12pF -40 to +85℃ 3225 H0.8mm
H1102NL：10/100BASE-T Single Port Magnetic; TR 1:1; / -40 to +85℃ / RoHS / SOP16;
MP2233DJ：Up to 16V input 3A Output 1.4MHz High-Efficiency Synchronous Step-Down Converter / -40 to +125℃ / TSOT-23-8, H:1.0mm / RoHS
SGM706-SYS8G/TR：Low-Cost, Microprocessor Supervisory Circuit / -40 to +85℃ / SOIC-8
SGM2036-3.3YN5G/TR：300mA, Low Power, Low Dropout,RF Linear Regulators,SOT-23-5,-40℃ to +85℃ Operating Temperature
SR9900A：Ultra-low power USB 2.0 to 10/100m fast Ethernet control circuit,QFN24-04x04,0℃ to +70℃ Operating Temperature
SGM7222YWQ10：High-Speed USB2.0 DPDT Analog Switch / -40 to +85℃ / UQFN10
102314442：SIM Card / Push-push Nano SIM CARD With Detect Switch，-40 to +85℃

Eg25-g module supports the following frequency bands:
LTE-FDD(with receive diversity):
B1/B2/B3/B4/B5/B7/B8/B12/B13/B18/B19/B20/B25/B26/B28
LTE-TDD(with receive diversity): B38/B39/B40/B41
WCDMA(with receive diversity): B1/B2/B4/B5/B6/B8/B19
GSM 850/900/1800/1900 MHz