OPERATIONAL DESCRIPTION OF E966

The equipment under test (EUT) is the transmitter of E966 with multiband GSM (850/1900) ; WCDMA Band 2/4/5; 4G/FDD-LTE Band 2/4/5/7/17;

The majority of the phone circuitry consists: the VC7916-51 + VC7643-26 Power Amplifier \ the MT6177M RF transceiver \ MT6761V/WB Baseband Processor\ MT6357MRV/A+ MT6371P/A Power management unit. There is also a combination EMCP(KMQE60013M_B318,16GB+2GB). The system is powered by a rechargeable lithium-ion battery with a nominal voltage of 3.8 volts.

The direct receiver(RX) contains all active circuits for the complete receiver chain supporting 3G WCDMA, and 2G GSM/GPRS mode reception. The path contains a total of 10LNAs(low Noise Amplifier),in which Two SAWless Rx input ports PRX 9/10 support for GGE (B2, B3, B5, and B8), TDSCDMA and TDD LTE (B34 and B39),1+1 sets of I/Q output.

All transmitter characteristics are listed in this section. Typical specifications are for mid-band channel frequency and under typical operating conditions. Min/Max specifications are for extreme operating voltage and temperature conditions.

TXO	BAND Supported
4G	FDD-LTE Band2/4/5/7/17
3G	WCDMA Band2/4/5
2G	2, 8(GSM)

Direct Conversion transmitter (LTE/3G/8PSK) and DFM for GMSK

- Dedicated power detection circuits for power control over specific power range
- 2LB/2MB/1HB TX output port

• Hybrid DirectConversion (4G/3G/)/LowIF (GGE, DCHSDPA) receive

All LNAS have balanced inputs and fully itegrated. The quadrature LO signal are generated by a divide-by-2 divider for high band(HB) LNAs and a divide-by-4 divider for low band(LB) LNAs. The RF signal is down converted by high/low band quadrature direct-down-conversion mixers. The analog baseband filter is a circuit, and a DC offset cancellation circuit(DCOC).The low-pass filter is configured as a 2^{nd}-order Butterworth filter for 3G /4GFDD SC,3G /4G FDD DC. Receiver power ON/OFF sequence, LNA /band selection, total receiver gain including LNA, mixer and analog baseband and DCOC timing are controlled by digital circuit. In addition, IQ calibration is done by is done by injecting an offset frequency test tone generated by test tone generator(TTG) into the RX mixer. Addition on-the-fly IQ imbalance tracking may be

added in the DBB without changing the receiver design.

RF section also includes Bluetooth /WiFi/FM /GPS chips MT6631
Device features:
Bluetooth Features

- Compliant with Bluetooth 4.1+HS specification
- Bluetooth Piconet and Scatternet support
- support class1 operation with integrated power amplifier
- Receiver sensitivity: GFSK -94dBm；DQPSK -93dBm；8-DPSK -87.5dBm

The baseband processor handles all physical layer radio control signals and network interfaces. The 32 KHz clock oscillator operates the baseband IC from a backup battery when the main battery is removed. The baseband processor is a Dual-core device that splits the processing between a DSP core and an ARM ™ processor. The DSP handles the physical and layer 1 processing, while the ARM executes the layer 2 and layer 3 protocol and the man-machine interface (MMI). The Dual cores communicate through a dedicated block of dual port memory. It also communicates with the Subscriber Identity Module (SIM) through an interface to the mixed signal device. The baseband processor also communicates to the calibration system or external devices through a digital serial link that is available on the system connector. The other main signals on the system connector include the digital audio interface (DAI) and allows for an external battery charging voltage.

The MMI completes the phone design and includes the displays, keypads, vibration motor, speaker, microphone, and headset.

Hardware Version: Y6128A-V2.0
Software Version: Y6128A_E966_DMR_D01_2020081114

BLE
Operation Frequency:2402~2480 MHz
Modulation Type: GFSK
Antenna Designation: PIFA Antenna
Antenna Gain(Peak): 1.4dBi
BT5.0+EDR
Operation Frequency:2402~2480 MHz
Modulation Type: GFSK/π/4-DQPSK/8DPSK

Antenna Designation: PIFA Antenna
Antenna Gain(Peak): 1.4dBi
2.4GWIFI
Operation Frequency:
802.11b/g/n 20: 2412~2462 MHz
802.11n(40MHz):2422~2452MHz
Modulation Type:
802.11b(DSSS): CCK, DQPSK, DBPSK
802.11g(OFDM): BPSK, QPSK, 16-QAM,64-QAM
802.11n(OFDM): BPSK, QPSK, 16-QAM,64-QAM
Antenna Designation: PIFA Antenna
Antenna Gain(Peak):1.4dBi

5GWIFI
Operation Frequency:
IEEE 802.11a/ n(HT20)/ac(VHT20):5.180GHz-5.240GHz
IEEE 802.11n(HT40)/ac(VHT40): 5.190GHz-5.310GHz
IEEE 802.11ac(VHT80): 5.210GHz
IEEE 802.11a/ n(HT20)/ac(VHT20):5.260GHz-5.320GHz
IEEE 802.11n(HT40)/ac(VHT40):5.270GHz-5.310GHz
IEEE 802.11ac(VHT80): 5.290GHz
IEEE 802.11a/ n(HT20)/ac(VHT20):5.745GHz-5.825GHz
IEEE 802.11n(HT40)/ac(VHT40): 5.755GHz-5.795GHz
IEEE 802.11ac(VHT80): 5.775GHz
Modulation Type:
802.11a(OFDM): BPSK,QPSK,16-QAM,64-QAM
802.11n(OFDM): BPSK,QPSK,16-QAM,64-QAM
802.11ac(OFDM): BPSK,QPSK,16-QAM,64-QAM,256-QAM
Antenna Designation: PIFA Antenna
Antenna Gain(Peak): 1.4dBi

DFS
Operation Frequency:
IEEE 802.11a/ n(HT20)/ac(VHT20):5.260GHz-5.320GHz
IEEE 802.11n(HT40)/ac(VHT40):5.270GHz-5.310GHz
IEEE 802.11ac(VHT80): 5.290GHz
Modulation Type:
802.11a(OFDM): BPSK,QPSK,16-QAM,64-QAM

802.11n(OFDM): BPSK,QPSK,16-QAM,64-QAM
802.11ac(OFDM): BPSK,QPSK,16-QAM,64-QAM,256-QAM
Antenna Designation: PIFA Antenna
Antenna Gain(Peak): 1.4dBi

NFC
Operation Frequency:13.56 MHz
Modulation Type: FSK
Antenna Designation: PIFA Antenna
Antenna Gain(Peak):0dBi

PTT
Operation Frequency: 450.0125 ~ 469.9875MHz
Modulation Type: FM/4FSK
Antenna Designation: External Antenna
Antenna Gain(Peak): 1.8dBi

GSM/WCDMA
Tx Frequency:
GSM/GPRS/EDGE:
850: 824 MHz ~ 849MHz
1900: 1850 MHz ~ 1910MHz
WCDMA:
Band V: 824 MHz ~ 849 MHz
Band II: 1850 MHz ~ 1910 MHz
Band IV: 1710 MHz ~ 1755 MHz
GSM/GPRS/EDGE:
850: 869 MHz ~ 894 MHz
1900: 1930 MHz ~ 1990MHz
WCDMA:
Band V: 869 MHz ~ 894 MHz
Band II: 1930 MHz ~ 1990 MHz
Band IV: 2110 MHz ~ 2155 MHz
Antenna: PIFA Antenna
Antenna gain:
GSM 850: 0.3dBi, PCS 1900: 0.6dBi
WCDMA 850: 0.3dBi, WCDMA1900: 0.6Bi,
WCDMA1700: 0.7dBi

LTE

LTE Band 2:1850.7~1909.3MHz

LTE Band 4:1710.7~1754.3MHz

LTE Band 5:824.7~848.3MHz

LTE Band 7:2502.5~2567.5MHz

LTE Band 17:706.5~713.5MHz

LTE: QPSK/16QAM

Antenna: PIFA Antenna

LTE Band 2: 0.6dBi LTE Band 4: 0.7dBi

LTE Band 5: 0.3dBi LTE Band 7: 1.6dBi

LTE Band 17: 0.1dBi