Specification

Scope

The equipment under test is a dual sim-card Three module quad band smart phone. This document is shown and provided the more detail information about the platform used in. The basic description for the Baseband and RF section are also included.

PMU

BG95 is a power management system chip optimized for 3G/4G, especially based on the Spreadtrum BG95 system solution. BG95 cIntegrated 7 DC-DCs and 26 low dropout regulators (LDOs),,which are optimized for specific 3G subsystems. All the chipset in the platform power though this chip.Support standby mode with small deep-sleep current.

Baseband

BG95 is a highly integrated application processor with embedded TD-LTE, LTE FDD, TD-SCDMA/HSPA(+), WCDMA/DC-HSDPA. It consists of Dual-coreARM Cortex TM -A75 processor and Six-core ARM Cortex TM -A55 processor as application processor,which includes a NEON multimedia processing engine, ARM Mali BG95 as 3D graphics accelerator,multi-standard multi-media accelerators and advanced audio subsystem. The specially optimized architecture of BG95 can achieve high performance and low power for a lot of applications. Proprietary architectures and algorithms were developed for low power ASIC design and power management. Unique techniques are used for noise suppression/cancellation, echo suppression/cancellation algorithm. Overall, UMS512 chip set presents a high cost-effective platformfor six mode Android mobile devices.

The multi-standard video accelerator and an advanced audio subsystem are also included to provide advanced multimedia application and services such as streaming Audio and video，a multitude of decoders and encoders such as H.264and MPEG-4。Audio supported includes FR，HR，EFR，AMR FR，and AMR HR vocoders，polyphonic ringtones and advanced audio functions such as echo cancellation，hands-free speakphone operation and noise cancellation。

WCN

ESP32 is a chip that includes the WiFi baseband core and their RF. It's the highest level of integration for a mobile system with integrated 802.11b/g/n and single stream 802.11n, Smart ready mode, It also includes on-chip 2.4GHz CMOS power amplifiers.
Implemented advanced power saving technology, the chip can satisfy the mobile devices which require minimal power consumption and compact pcb size.

RF

BG95 is a highly integrated, single-die radio transceiver chip that supports 3G WCDMA, HSDPA, HSUPA. Implemented in low cost bulk CMOS, it is optimized to meet the challenges of today's small form factor, power efficient, high performance cellular handsets. The BG95 has total of 7 single-ended transmit ports, 12 primary and 12 diversity single-ended receive ports. The BG95 provides connectivity multiple bands of operation. The BG95 offers a cost competitive and small footprint radio solution for multi-mode, multi-band applications with the highest performance at the lowest power.

The linear transceiver architecture of BG95 is utilized for 3G systems, offering excellent performance and design margins over 3GPP requirements.

PA

The BG95 is a multi-mode multi-band front-end module (FEM) delivering both the power amplification and antenna switching functions. With the state-of-the-art integration

design and advanced GaAs technology, this FEM supports both quad-band

The BG95 is a 42-pin power amplifier module developed for high linearity applications.

With advanced InGaP HBT technology, the module supports multi-band WCDMA&TD-SCDMA&FDD-LTE&TDD-LTE application, including WCDMA Band5, FDD-LTE Band5, TDD-LTE Band 41

. The SPM6743-11 meets the stringent linearity requirements of LTE QPSK specifications, as well as those of 16QAM modulation.

The BG95 is self contained with three GaAs power amplifiers for low, mid and high bands, a CMOS controller, a SOI 3P4T switch, a SP5T switch ,a SP7T switch and input & output matching networks. The GaAs PA provides RF amplification in linear mode, while the CMOS controller provides regulated voltage through MIPI RFFE interface. The integrated SOI switch supports band selection and Tx/Rx function. The module is fully matched to 50 ohms at all RF ports.

BT:

ESP32 chip and Bluetooth 5.0. The whole Bluetooth protocol architecture can be divided into three parts: the bottom hardware module, the middle protocol layer and the high-end application layer. The external circuit consists of antenna RF matching circuit, power filter circuit and output circuit, KEY function key PIO circuit and LED indicator lamp

Operating Frequency Band (RF):

WiFi: IEEE 802.11b/g/n 20: 2412-2462MHz/ 11 channel

IEEE 802.11n 40: 2422-2452MHz/ 7 channel

Bluetooth: 2402-2480MHz

FDD-LTE BAND 2:1850-1910MHz

FDD-LTE BAND 4:1710-1755MHz

FDD-LTE BAND 12: 699-716MHz

FDD-LTE BAND 13: 777-787MHz

Modulation mode：

WiFi: DSSS, OFDM

Bluetooth: GFSK

LTE: QPSK, 16QAM

Maximum of Antenna Gain：

LTE BAND 2: 3.49dBi

LTE BAND 4: 3.83dBi

LTE BAND 12: -3.93dBi

LTE BAND 13: -1.63dBi

Bluetooth:1.2dBi

WIFI: 1dBi

Ratings:

Ratings: DC 12V