

# General Technical Description

## 1. Scope

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.

## 2. RF key components

The MT6177M is a multi-mode multi-band highly integrated transceiver in 40nm CMOS. This document describes the performance targets for the RF stand-alone chip to be embedded in the overall platform.

Key features:

Full multi-mode RF solution (GSM/WCDMA/LTE)

- Multi-band LTE/WCDMA

- 16QAM UL/16QAM DL(HSPA/LTE)

- 2G/3G/4G co-banding

- Supports Rx/D (1 Rx/D ports)

- Supports SR-LTE

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

- Dedicated power detection circuits for power control over specific power range

- 2LB/2MB/1HB TX output port

Hybrid Direct-Conversion (4G/3G/Low-IF(GGE,HSDPA)) receiver

- 1 Rx input ports

- 2 RXIF IQ outputs

Supports external LNA at Rx/P and Rx/D

Low supply current and operation directly from dual DC-DC converters

Supports RF Calibration features for key Rx and Tx specifications (image rejection, LO feed-through, IIP2, DC offset, RC corner)

Temperature measurement sub-system

## 3. Baseband

MT6762D is a highly integrated baseband platform incorporating both modem and application processing subsystem to enable 4G smart phone application, which integrated Bluetooth, WLAN and GPS modules.

The chip integrates a Quad-Core ARM cortex-A53 MP Core operating up to 2.0GHz, another Quad-Core ARM@1.5GHz, Cortex-A53 MP core; a powerful multi-standard video accelerator. The MT6762D interfaces to NAND flash memory, LPDDR3 for optimal performance and also supports booting from eMMC to minimize the overall BOM cost. In addition, an extensive set of interfaces are included to interface to cameras, touch-screen displays, and MMC/SD cards. The platform provides a powerful modem subsystem capable of supporting Category 14 TD-HSDPA downlink and Category 6 TD-HSUPA uplink data rates as well as Class 12 GPRS, DGE. The platform also embodies wireless communication device, including WLAN, Bluetooth and GPS. With four advanced radio technologies integrated into one single chip, MT6762D provides the best and most convenient connectivity solution among the industry. Advanced and sophisticated radio coexistence algorithms and hardware mechanisms are implemented with-in. It also supports

single antenna sharing among 2.4GHz antenna for Bluetooth, WLAN and 1.575GHz for GPS.

#### 4. Bluetooth, WIFI, GPS

MT6631 is a 4-in-1 connectivity RF chip which contains front-end of a2.4GHz Wi-Fi and Bluetooth transceiver, a 5GHz Wi-Fi transceiver, a GPSreceiver.

Supports GPS external LNA.

#### Only open the frequency bands listed below by the software:

##### RF Specification

##### BR+EDR

Operating Frequency	2402MHz~2480MHz
Modulation	GFSK, $\pi/4$ -DQPSK, 8-DPSK
Number of Channels	79 Channels
Antenna Type	FPC Antenna
Antenna Gain	2 dBi

##### BLE

Operating Frequency	2402MHz~2480MHz
Modulation	GFSK
Number of Channels	40 Channels
Antenna Type	FPC Antenna
Antenna Gain	2dBi

##### WIFI 2.4G

Operating Frequency	2412-2462MHz for 802.11b/g/11n(HT20); 2422-2452MHz for 802.11n(HT40);
Modulation	DSSS with DBPSK/DQPSK/CCK for 802.11b; OFDM with BPSK/QPSK/16QAM/64QAM for 802.11g/n;
Number of Channels	11 channels for 802.11b/g/11n(HT20); 7 channels for 802.11n(HT40);
Antenna Type	FPC Antenna

Antenna Gain	2 dBi
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Wi-Fi 5.2G

IEEE 802.11 WLAN Mode Supported	<input checked="" type="checkbox"/> 802.11a/n/ac (20MHz channel bandwidth) <input checked="" type="checkbox"/> 802.11n/ac (40MHz channel bandwidth) <input checked="" type="checkbox"/> 802.11ac (80MHz channel bandwidth)
Data Rate	802.11a: 6,9,12,18,24,36,48,54Mbps; 802.11n(HT20/HT40):MCS0-MCS15; 802.11ac(VHT20):MCS0-MCS8; 802.11ac(VHT40/VHT80):MCS0-MCS9;
Modulation	OFDM with BPSK/QPSK/16QAM/64QAM/256QAM for 802.11a/n/ac;
Operating Frequency Range	<input checked="" type="checkbox"/> 5180-5240MHz for 802.11a/n(HT20)/ac(VHT20); 5190-5230MHz for 802.11n(HT40)/ac(VHT40); 5210MHz for 802.11ac(VHT80)
Number of Channels	<input checked="" type="checkbox"/> 4 channels for 802.11a/n20/ac20 in the 5180-5240MHz band ; 2 channels for 802.11 n40/ac40 in the 5190-5230MHz band ; 1 channels for 802.11 ac80 in the 5210MHz band ;
Antenna Type	FPC Antenna
Antenna Gain	2dBi

GSM/WCDMA

Operating Frequency	<input checked="" type="checkbox"/> GSM850: TX824.2MHz~848.8MHz /RX869.2MHz~893.8MHz; <input checked="" type="checkbox"/> UMTS FDD Band V: TX826.4MHz~846.6MHz /RX871.4MHz~891.6MHz; <input checked="" type="checkbox"/> PCS1900: TX1850.2MHz~1909.8MHz /RX1930.2MHz~1989.8MHz; <input checked="" type="checkbox"/> UMTS FDD Band II: TX1852.4MHz~1907.6MHz /RX1932.4MHz~1987.6MHz; <input checked="" type="checkbox"/> UMTS-FDD Band IV:TX1710MHz~1755MHz /RX2110MHz~2155MHz
Modulation	<input checked="" type="checkbox"/> GMSK for GSM/GPRS; <input checked="" type="checkbox"/> 8PSK for EGPRS; <input checked="" type="checkbox"/> QPSK for UMTS bands;
Power Class	4, tested with power level 5(GSM 850) 1, tested with power level 0(GSM 1900) 3, tested with power control "all 1"(WCDMA Band II/IV/V)
GPRS Class	<input checked="" type="checkbox"/> Multi-Class12 <input checked="" type="checkbox"/> Only 4 timeslots are used for GPRS and EGPRS
Antenna Type	FPC Antenna

Antenna Gain	GSM 850: -1.8dBi; GSM:1900:0.5dBi Band II: 0.5 dBi; Band IV: 0.5dBi; Band V: -1.8dBi
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LTE

Frequency Range:	LTE FDD Band 2 Uplink: 1850MHz-1910MHz, Downlink: 1930MHz-1990MHz; LTE FDD Band 4 Uplink: 1710MHz-1755MHz, Downlink: 2110MHz-2155MHz; LTE FDD Band 5 Uplink: 824MHz-849MHz, Downlink: 869MHz-894MHz; LTE-FDD Band 7 Uplink: 2500MHz-2570MHz, Downlink: 2620MHz-2690MHz; LTE FDD Band 12 Uplink: 699MHz-716MHz, Downlink: 729MHz-746MHz; LTE FDD Band 17 Uplink: 704MHz-716MHz, Downlink: 734MHz-746MHz;
Type of Modulation:	QPSK/16QAM
Power Class	Class 3
Antenna:	FPC Antenna
Antenna gain:	Band 2:0.5dBi, Band 4: 0.5dBi, Band 5: -1.8dBi, Band 7: 1.5dBi, Band 12: -2.3dBi, Band 17: -2.3dBi

NFC

Operation Frequency:	13.56MHz
Modulation Type:	ASK
Number Of Channel	1CH.
Antenna Designation:	Induction coil