



Introduction

HUAWEI U8666E-51, U8666E-51 is a middle and high end dual mode mobile phone researched and developed independently by HUAWEI based on the MSM7225A chipset produced by QUALCOMM Incorporated. It supports HSDPA/UMTS/GPRS/GSM/EDGE frequency bands and Bluetooth module. Following introduce the Bluetooth function module.

Intended use statements

HUAWEI U8666E-51, U8666E-51 is a HSDPA/UMTS/GPRS/GSM/EDGE Mobile Phone with Bluetooth. It can only be work in the networks which it supports the HSDPA/UMTS/GPRS/GSM/EDGE technique. If there are no corresponding networks, the RF module of HUAWEI U8666E-51, U8666E-51 will not work and no any unwanted emission will be produced.

Bluetooth Frequency Range

2402MHz-2480MHz

Range of Operating Power

Bluetooth: <20dBm.

Antenna description

Technical parameters of the HUAWEI U8666E-51, U8666E-51 Mobile Phone Bluetooth antenna:

Item	Description
Frequency	2402MHz-2480MHz
Input impedance	50 Ohm
VSWR	≤ 3
Peak gain	$\geq -2.5\text{dBi}$
Rated power	1mW
Polarization	Linear

Bluetooth chip Applied voltages

Normal Voltage: 2.8V

Modulation Techniques

GFSK, $\pi/4$ -DQPSK, 8DPSK

Description of Frequency Hopping Technology



Frequency hopping is used in Bluetooth networks mainly as a spread spectrum technique and to reduce interference. The RF channel is changed in a pseudo-random way after each timeslot (i. e. after each 625 μ s, corresponding to a rate of approx 1600 hops per second), so that the whole available frequency spectrum can be used. A hopping sequence defines the order of the RF channels. This hopping sequence is determined by the Bluetooth device address of the master and must be used by all Bluetooth devices in the piconet. The timing is based on the clock of the Bluetooth master.

The following channels and frequency ranges are available in the different countries:

Europe/USA 2400 MHz to 2483.5 MHz, Channelk: $f_k = 2402+k$ MHz, $k = 0$ to 78

Japan 2471 MHz to 2497 MHz, Channelk: $f_k = 2473+k$ MHz, $k = 0$ to 22

France 2446.5 MHz to 2483.5 MHz, Channelk: $f_k = 2454+k$ MHz, $k = 0$ to 22

Spain 2445 MHz to 2475.5 MHz, Channelk: $f_k = 2449+k$ MHz, $k = 0$ to 22

Description of Digital Modulation Techniques

Bluetooth transceivers operate in the 2.4GHz ISM band. The frequency range is 2400MHz to 2483.5MHz (in most countries).The channel spacing is 1MHz,with an upper and lower guard band. Output power is also specified, Bluetooth uses GFSK(Gaussian Frequency Shift Keying), $\pi/4$ -DQPSK and 8DPSK as its modulation. The corresponding symbol rate is 1Mbps,2Mbps and 3Mbps.

The 2.4GHz band is part of the ISM (Industrial, Scientific, and Medical) license-free radio bands. Both Bluetooth and 802.11 operate with in the band. Additional frequencies of the ISM band include the 900MHz band, and 5.8GHz band. The un-licensed ISM band also means that devices need to short range so they do not interfere with other devices which may also be using the band.

Description RF test method

The computer sets HUAWEI U8666E-51, U8666E-51 to the Factory test mode and works at Bluetooth mode and sets the CMU200 to Bluetooth Analyzer mode.

HUAWEI U8666E-51, U8666E-51's Bluetooth chip connects with CMU200 through SMA interface or Antenna, and then all the Bluetooth RF performances can be tested.