

# **GSM Fixed Wireless Phone**

## **Technical Specifications**

**MW-19**

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## 1 Overview

MW19 is a kind of GSM Fixed Wireless Telephone products. MW19 provides even higher reliability and quality for the customers so as to better satisfy the needs of the customers as it has reached the strict requirements of the telecommunication-level communication device standards.

## 2 Abbreviation

Abbreviation	Its Original English Name
DTMF	Dual Tone Multiple Frequency
EFR	Enhanced Full Rate
EFS	Embedded File System
EMC	Electro Magnetic Compatibility
FR	Full Rate
FWP	Fixed Wireless Phone
GSM	Global System for Mobile communication
IWF	Inter-work Function
IMPS	Instant Message& Presentation Service
LCD	Liquid Crystal Display
LED	Low Emitting Diode
MC	Message Center
MMI	Man Machine Interface
MIDI	Musical Instrument Digital Interface
MTBF	Mean Time Between Failures
MTTR	Mean Time To Repair
OEM	Original Equipment Manufacturer
PIN	Personal Identification Number
PLMN	Public Land Mobile Network
RAM	Random Access Memory
RF	Radio Frequency
ROM	Read Only Memory
RSSI	Receive signal strength indicator
SIM	Subscriber Identified Module
SMS	Short Message Service
SMT	Surface Mount Technology
UI	User Interface

### 3 Appearance and structure

Item	MW19	Notes
Appearance		Color:White and Black
Material	ABS (Acrylonitrile Butadiene Styrene)	
Dimension	185mm×155mm×30/19mm	
Logo	VETTEL & HOMEPHONE	
Weight	=<500g	Weight of the whole package
Power plug	4.6V DC input (inside: positive; outside: negative)	DC-470-2.0
Data interface plug	RJ11 to DATA Port	
Receiver interface	RJ11, 4P4C	Connected with the receiver

### 4 Functions

#### 4.1 Basic functions

Items	Description	Notes
Voice	Urgent call	Yes
	Outbound telephone	Yes
	Inbound telephone	Yes
	Caller display	Yes
	Redial	Yes
	Hand-free call	Yes
	All call history query	60
	Received call history query	20
	Dialed call history query	20
	Missed call history query	20
	Call transfer	Need support from network
	Call waiting	Need support from network
SMS	Receiving/Sending SMS	Receiving memory capacity is 100 SMS.

Display	Display signal (strong or weak)	5 lattice
	Display electric quantity of battery and charge	5 lattice
	Time/week/date display	24 hour mode
	SMS display	icon
	LCD back line color	green
Sound	Ring adjustable	It has 12 kinds of rings. Its volume is divided into 7 grades and it is adjustable
	Keystroke volume switch	
	Receiver volume adjustable	Its volume is divided into 7 grades and it is adjustable
	Hand-free sound volume adjustable	Its volume is divided into 7 grades and it is adjustable

#### 4.2 Advanced functions

Items	Description	Notes
SIM card	SIM card	The voltage for the SIM card is 3V
Telephone directory	Support to save 100 set telephone numbers	
Cell lock	available	
SIM-FWP Interlocking function	available	
Calculator	available	
Alarm	available	

#### 4.3 Product model

Model	Illustration	Notes
MW19	GSM900MHz、GSM1800MHz	

### 5 The technical specifications of the main part of MW19

#### 5.1 Communications protocols & technical criteria

<u>Access method</u>	GSM (Global System for Mobile communication)
GSM protocol	ETSI GSM Phase 2+
Voice encoding	AMR, HR, FR, EFR

## 5.2 RF receiving

### 5.2.1 Frequency requirements

GSM900	935-960MHz
GSM1800	1805-1880MHz

### 5.2.2 Requirements on receiving sensitivity

$\leq -104\text{dBm}$  (FER $\leq 2.4\%$ )

### 5.2.3 Requirements on Reception Congestion Properties

Frequency range	GSM900	GSM1800
In-band (915-980)MHz		
$600\text{kHz} \leq  f-f_0  \leq 800\text{kHz}$	-43dBm	-43 dBm
$800\text{kHz} \leq  f-f_0  \leq 1.6\text{MHz}$	-43 dBm	-43 dBm
$1.6\text{MHz} \leq  f-f_0  \leq 3\text{MHz}$	-33 dBm	-33 dBm
$3\text{MHz} \leq  f-f_0 $	-23 dBm	-26 dBm
Out of band		
GSM900 > (980-12750) MHz	0 dBm	0 dBm
GSM1800 > (1980-12750) MHz		

### 5.2.4 AM restriction properties

	level (dBm)		
	M1	M2	M3
GSM900	-34	-29	-24
GSM1800	-33	-28	-23

### 5.2.5 Effective input signal level of the receiver

GSM900	-102dBm ~ -15dBm
GSM1800	-102dBm ~ -23dBm

## 5.3 Radio frequency emission

### 5.3.1 Requirements on frequency tolerance and phase error

Frequency tolerance	$\leq 1 \times 10^{-7}$
Root-mean-square value of phase error (RSM)	$\leq 5^\circ$
Peak value for phase error	$\leq 20^\circ$

### 5.3.2 Emission frequency band

GSM900	890-915MHz
GSM1800	1710-1785MHz

### 5.3.3 Emission output power

GSM900	33 dBm $\pm$ 2 dBm
GSM1800	30 dBm $\pm$ 2 dBm

### 5.3.4 Emission power control

In line with the requirements of GB/T15844.2-1995.

### 5.3.5 Emission power—time envelope diagram

Output power is that at the module interface, 0dB reference is equal to its Pmax or Pmin, the envelope diagram of the carrier frequency power should meet the requirements in fig 1. (power/ time distribution).

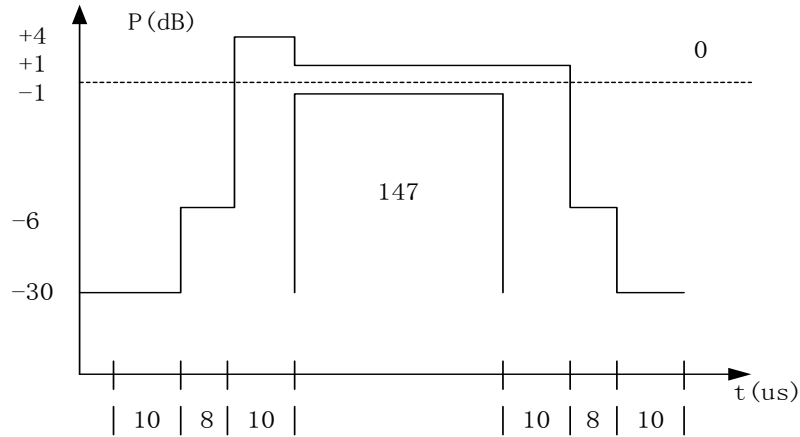


图1 功率/时间分布。

power/ time distribution

### 5.3.6 Radio spectrum output

Modulation spectrum: The frequency spectrum, which is brought by continuous modulation and broadband noise, the power level of the modulation spectrum should not surpass the limitations listed in the table below.

GSM900:

Power level dBm	The maximum level at the specified offset (dB)								
	Measuring bandwidth 30kHz						Measuring bandwidth 100kHz		
	0	100	200	250	400	600 ~ 1200	1200 ~ 1800	1800 ~ 6000	$\geq$ 6000
$\leq$ 33	0	+0.5	-30	-33	-60	-60	-60	-63	-71

GSM1800:

Power level dBm	The maximum level at the specified offset (dB)								
	Measuring bandwidth 30kHz						Measuring bandwidth 100kHz		
	0	100	200	250	400	600~1200	1200~1800	1800~6000	≥6000
≤30	0	+0.5	-30	-33	-60	-60	-60	-65	-73

**5.3.7 Switchover of transient frequency spectrum**

Frequency spectrum is generated on the adjacent frequency band of the nominal carrier frequency due to switchover of the transient frequency, the power level of the frequency spectrum should not surpass the values listed in the table below or its maximum value is not greater than -36dBm.

Frequency offset (KHz)	Power (dBm)	
	GSM900	GSM1800
400	-23	-23
600	-26	-26
1200	-32	-32
1800	-36	-36

**5.3.8 Stray radiation**

The test should be conducted at the end of the antenna.

In-band stray radiation: Within the relevant receiving emission frequency bands, the stray radiation should not surpass the limitations listed in the table below.

GSM900		GSM1800	
Emission frequency band (890-915) MHZ	Receiving band (935-960) MHZ	Emission frequency band (1710-1785) MHZ	Receiving band (1805-1880) MHZ
≤-59dBm	≤-57 dBm	≤-53 dBm	≤-47 dBm

OOB stray radiation: Beyond the relevant receiving emission frequency bands, the stray radiation should not surpass the limitations listed in the table below.

GSM900		GSM1800	
Less than 1GHZ	Greater than 1GHZ	Less than 1GHZ	Greater than 1GHZ
≤-36 dBm	≤-30 dBm	≤-36 dBm	≤-30 dBm

**5.4 Antenna**

Sequence number	Indices items	Index	Notes

1	Frequency range	GSM900: 880MHz~960MHz GSM1800: 1710MHz~1880MHz	Exposed antenna
2	Impedance	50ohm	
3	VSWR	GSM900:< 2.5: 1(all band, all phase) GSM1800:< 2.5: 1(all band, all phase)	
4	Gain	GSM900: >+3 dBi GSM1800:>+5 dBi	
5	Directional diagram	All directional	

## 5.5 Power

### 5.5.1 Input voltage

State	Maximum voltage	Typical voltage	Minimum voltage
Power supplied by the power adaptor	4.8 VDC	4.6VDC	4.4VDC
Power supplied by batteries	4.2VDC	3.6VDC	3.3VDC

### 5.5.2 Power consumption

Items	Specifications	Notes
Maximum power consumption	3.8W	
Typical power consumption when talking	1.6W	Signal strength: -80dBm
Standby power consumption	0.12W	Signal strength: -80dBm

## 5.6 Working conditions

Operating temperature: -10°C ~+ 55°C

Storing temperature: -40°C ~+ 70°C

Moisture: Less than 95%

## 6 Technical specifications of the accessory

### 6.1 Power adaptor

Items		Technical specifications
Types		Switch mode power supply
Input	Voltage	AC70-300V
	Frequency	50/60Hz
	Maximum input voltage	<300mA

Efficiency		>70%
Output	Voltage	4.6VDC
	Electrical current	700mA
Dimension (Length X width X height)		73.6mm X 46mm X 29mm
Weight		<60g
Output plug		DC-470-2.0
The length of the power line		1630±50mm

## 6.2 Battery

Items	Technical specifications	Notes
Type	Li-ion battery	
Volume	1500mAH	
Voltage	Nominal: 3.7V	
Call time	>=4 hours	Signal strength-75dBm
Standby time	>=100 hours	Signal strength-75dBm

## 7 Reference

- Q/ZX 23.001-1998
- Q/ZX 23.003-1999
- MIL—HDBK—217F
- Q/ZX 23.009
- Q/ZX 23.014-2000
- Q/ZX 73.1300-2002
- Q/ZX 04.001
- Q/ZX 04.121-2000
- Q/ZX 04.005-2001
- GB 4798.2-1996
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- Q/ZX 18.001-2000
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- GSM03.22 Functions Related to Mobile Station (MS) in Idle Mode and Group Receive Mode
- EN 301 344 Digital cellular telecommunications system (Phase 2+);General Packet  
GSM04.04 Layer 1; General requirements
- GSM04.07 Mobile radio interface signalling layer 3;General aspects
- GSM04.08 Mobile radio interface layer 3 specification
- GSM04.10 Mobile radio interface layer 3 ; Supplementary services specification ;  
general aspects
- GSM04.11 Point-to-point short message service support on mobile radio interface
- GSM04.60 Mobile Station(MS)-Base Station System(BSS) interface;Radio Link  
Control/Medium Access Control(RLC/MAC) protocol;
- GSM05.02 Multiplexing and multiple access on the radio path
- GSM 05.08 Radio subsystem link control
- EN55022:1994+A1:1995 Limits and methods of radio disturbance characteristics of  
information technology equipment
- EN61000-3-2:1995 Disturbance in supply system:harmonics
- EN61000-3-3:1995 Disturbance in supply system: voltage fluctuations
- IEC801-2 Category A Electrostatic discharge
- IEC801-3 Category A Radiated, radio-frequency,electromagnetic field
- IEC801-4 Category A Electrical fast transient/burst
- IEC60950 EN6GB4798.1-86 Safety of information technology equipment

## 8 One set of product model MW19

No.	Number	Number	Notes
1	Main part of the telephone	1	LCD (128×64)
2	Antenna	1	$\geq 3\text{dBi}$
3	Handle	1	
4	Handle curve	1	
5	Power adaptor	1	Input: 70~300VAC, 50/60Hz, 0.2A AC output: 4.6VDC/700mA
6	Li-ion battery	1	1500mAH
7	User manual	1	
8	Quality certificate	1	