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HMDG100 Mibile IED Jamming System

1. GENERAL

Terrorist threat is becoming a serious major global issue nowadays, meanwhile every country faces this issue we have to assure a way to encounter it today not tomorrow.

Besides the political, economical and legal topics, it is important to fight with terrorism by using technical weapons, for instance, to protect the important objectives with electronics equipment. The main objectives of HYDG100 Mobile IED (Improvised Explosive Device) Jamming System is jam against all remote control bombs in the range of 20MHz~3000MHz and the operation of data transfer & wiretapping device, to protect a VIP car fleet or a area (such as a conference premise) of explosion of these devices.

We hope that its advanced functions and excellent performances meet your requirements in achieving the objective of safeguarding VIP car fleets or designated areas.

2. INTRODUCTION

2.1 Functions

HMDG100 Mobile IED Jamming System is designed to generate jamming signals to prevent the remote-controlled explosive from attacking the protected objectives.

By conducting electromagnetic jamming in a specified frequency range, the system is able to meet the requirements such as escorting VIP car fleet, safeguarding designated area or supporting to remove the explosive; once required, this system can be used to block the public radio communication network in a pointed area.

The system is a high mobile developed one, which can accompany and escort the VIP car fleet with sufficient speed; by adjusting electromagnetic frequency and the transmission power, it can completely shield any electromagnetic signals in a certain area, to prevent the devices remotely controlled by wireless set from explosive.

The power supply required is generated and provided from inside the vehicle.

Fig. 1 Typical application scenario

2.2 Features

The system is distinguished by the main features as follows:

◊ *Wide frequency coverage(20 MHz ~3000MHz);*
◊ *Capable of jamming different types of emitter as follows:*
- *Civilian remote-controlled device;*
- *Amateur radio communication device;*
- *Digital trunk communication base station and its mobile station;*
- *GSM cellular phone;*
- *CDMA cellular phone;*
- *GPRS cellular phone;*
- *3G cellular phone;*
- *E net repeater;*
- *Walkie-talkie*

◊ *Wide protection area, one vehicle can protect a round area which has a diameter of 300 meters;*
◊ *Capability to keep a designated channel for own communication purpose during the jamming*
◊ *Suitable for dense and complex signal environment;*
◊ *Strong data memory capability;*
◊ *Flexible MMI for operation;*
◊ *Quick mobility of the carrier;*
◊ *Perfect camouflage capability.*
◊ *Built-in-test function, convenient for operation and maintenance;*
◊ *High reliability and good maintainability.*

3. SYSTEM COMPOSITION & BLOCK DIAGRAM

3.1 Composition of Equipment in Each Vehicle

HMDG100 Mobile IED Jamming System is installed in a type of commercial vehicle, which is modified to host the antennas and other units of the system. The system is composed of generator, control panel, accumulator, AC convertor, DC power distribution unit, jamming source, power amplifier and Tx antenna etc., as shown in Table 1.

SN.	Description	Q'ty
1	Jamming source module	30
2	Power amplifier module	30
3	Generator	1
4	Control box of generator	1
5	Accumulator	1
6	Power distribution box	1
7	High power frequency divider	4
8	Antenna	26
9	Antenna radome	1
10	Commercial vehicle	1
11	Control box	1

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3.2 System Operational Principle Block Diagram

The system operational principle block diagram is as Fig. 2. As per the characteristics of jamming objects, the jamming source will generate optimal signal, then to the amplifier for power amplification, finally transmit to the air via antennas. Power supply of the system adopts generator or accumulator, additionally with commercial power supply interface; and the power supply for the unit within the system is achieved via AC/DC converter.

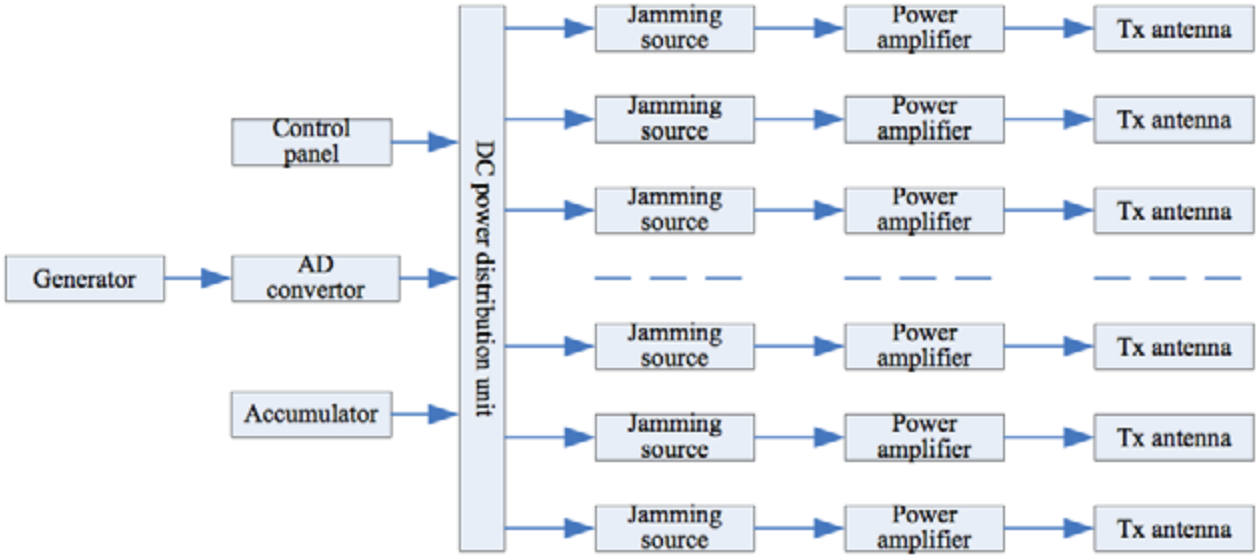

Fig. 2 System Block Diagram

3.3 System Layout

Fig. 3 System Layout Diagram

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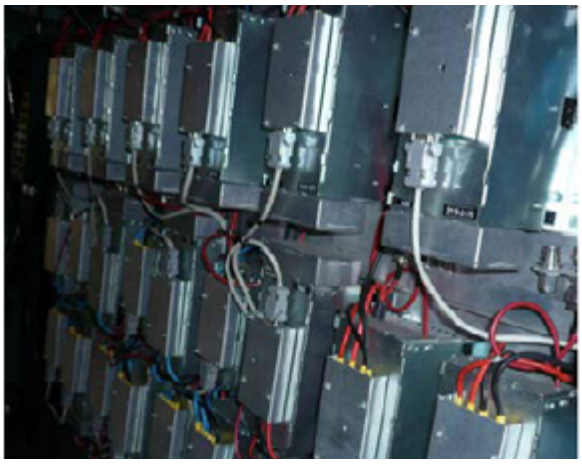

Fig. 4 Jamming Modules

Fig. 5 Power Supply

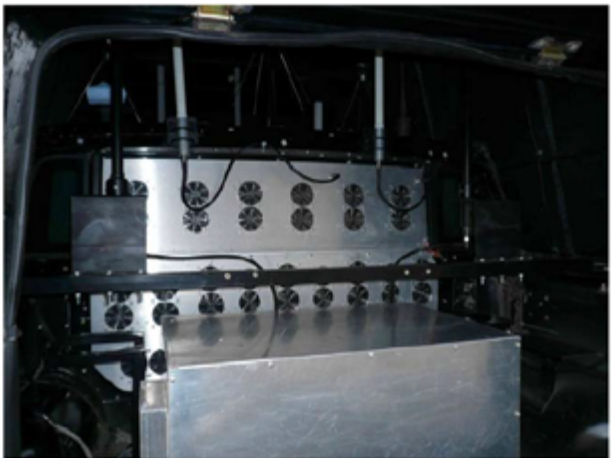

Fig. 6 Power Generator and Antennas (inner part)

3. TECHNICAL FEATURES

The technical features of HMDG100 Mobile IED Jamming System are as follows:

Table 2 System Technical Features

SN.	Frequency Band	Jamming Objects	Output Power (W)
1	20~28	Radio, wireless toys, cordless analog phone, CB	25
2	26~36	Radio, wireless toys, cordless analog phones, CB	25
3	36~50	Analog phone & alarming	25
4	50~66	Radio communication	25

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SN.	Frequency Band	Jamming Objects	Output Power (W)
5	66~68	Walkie-talkie (LB)	50
6	88~135	FM radio, radio control airplanes	25
7	135~155	Walkie-talkie (VHF)	80
8	155~175	Walkie-talkie (VHF)	80
9	175~300	Wildlife tracking collars, TV, RKE, TPMS	25
10	300~325	Walkie-talkie (UHF300)	50
11	325~350	Walkie-talkie (UHF300)	50
12	350~375	Walkie-talkie (UHF350)	50
13	375~400	Walkie-talkie (UHF350)	50
14	400~435	Cellular NMT, Walkie-talkie (UHF400), car alarming	80
15	435~470	Cellular CDMA450, Walkie-talkie (UHF450)	80
16	470~500	Walkie-talkie (UHF450)	80
17	500~530	Walkie-talkie (UHF500)	80
18	530~800	TV, RFID	50
19	800~850	TV, RFID Walkie-talkie TETRA (UHF800)	100
20	850~895	Cellular CDMA/TDMA, Walkie-talkie (UHF800)	100
21	925~945	Cellular GSM900	100
22	945~960	Cellular GSM900	100
23	895~1525	Emergency/Military GPS (L2)/wireless communication	25
24	1525~1670	925 ~ 945	100
25	1805~1840	Cellular HGSM1800/DCS	100
26	1840~1880	Cellular HGSM1800/DCS	100
27	1670~2400	Wireless communication/satellite	25
28	2110~2170	Cellular UMTS/WCDMA (3G)	100
29	2400~2500	WLAN, bluetooth, WiFi & satellite (global satellite)	25
30	2500~3000	Wireless communication/MMDS	20

5. TECHNICAL SPECIFICATIONS

5.1 Frequency Range

20 ~ 3000MHz

5.2 Spatial Coverage

Azimuth : 360° (for omni-directional antenna)
Elevation : 30° (for omni-directional antenna)

5.3 Jamming Mode

Noise jamming

5.4 Jamming Power of Transmitters

Not less than 1600 watt (total of jamming power)

5.5 Protection Area

a)For remote control: JCR (The Jamming and communication distance ratio) ≥ 1: 2;
b)For Walky-Talky device: JCR≥ 1: 5
a) For cellular phone: When the system and jamming objects are inter-visible, the jamming range is 200 meters as the signal power level is -76dBmi
b) For GPS: When the system and jamming objects are indivisible, the jamming range is 300 meters as the signal power level is -80dBmi
c) For Satellite phone: When the system and jamming objects are indivisible, the jamming range is 500 meters as the signal power level is -80dBmi
d) For WCDMA/3G: When the system and jamming objects are indivisible, the jamming range is 150 meters as the signal power level is -78dBmi
e) For WLAN / Bluetooth / Wi-Fi : When the system and jamming objects are indivisible, the jamming range is 300 meters

In case the range from the terrorist transmitter to explosive device is larger than the number mentioned above, the effective protection range by one vehicle shall be wider.

5.6 OPERATING CONDITIONS

◊ Environment temerature : -20°C ~ 50°C
◊ Relative humidity : Up to (95±3)% (30°C)

5.7 Power Consumption

7000W in maximum (DC+28V)

5.8 Power Supply Capacity of Accumulator

Power supply capacity of accumulator : 24V/200AH

5.9 Mobility

The system can operate normally while the carrier platform is traveling or parking.

5.10 Power Supply

Commercial power supply AV200V or provided by the diesel generator in the vehicle.
Duration: > 4hrs (at full load).