2021

HSS Development

BOMB JAMMER
MJ-5
KEY FEATURES

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The purchaser must provide the following documents, required for the export license application.

1. An original of End User Certificate issued by the receiving government.
2. Other state authority that is authorized in the country of the end user to issue such end user cert.
3. A copy of a document (import license or similar) issue by the competent authority of the country of foreign counter party. Importer evidencing the right of the latter to perform this type of activity under the importers national legislation.
4. A document confirming the foreign trade deal (contract and/or PO). This document must contain names of parties, name of goods, technical parameters, quantity, terms of delivery, price, clause for NON-export.

Overview

HSS Development Inc. (“HSS”), in response to the purchaser (“Purchaser”), has prepared this proposal.

Brief introduction to HSS Development Inc. (HSS)

HSS was founded on the need to provide high-tech solutions to combat terrorist and criminal acts. HSS introduced its Electronic CounterMeasures in the early 1970’s with several detection and counter surveillance technologies.

HSS introduced RF Signal Analysis technologies, Radio Communication Testing Systems, and metrical Voice Analysis technologies in the 1970’s. HSS introduced RF CounterMeasures technology with the debut of the Bomb Ranger defeat systems in the late 70’s. With our radio wave detection technology in the early 1980’s, we were able to offer signal analysis, filtering, and analysis telemetry early on.

HSS is strong in RF technologies, Voice Analysis, and measurement applications. Today, HSS continues to develop and improve on test measurement technologies in RF, Voice, and Data technologies for both Law Enforcement and Communication mediums in order to solve difficult and challenging issues.

Custom Programmable Jammer
MJ-5

Programmable Jammers help users in the field choose which frequencies they want to block. Requiring no downtime for factory settings, these programmable RF Jammers are flexible and give the user better control over the RF environment.

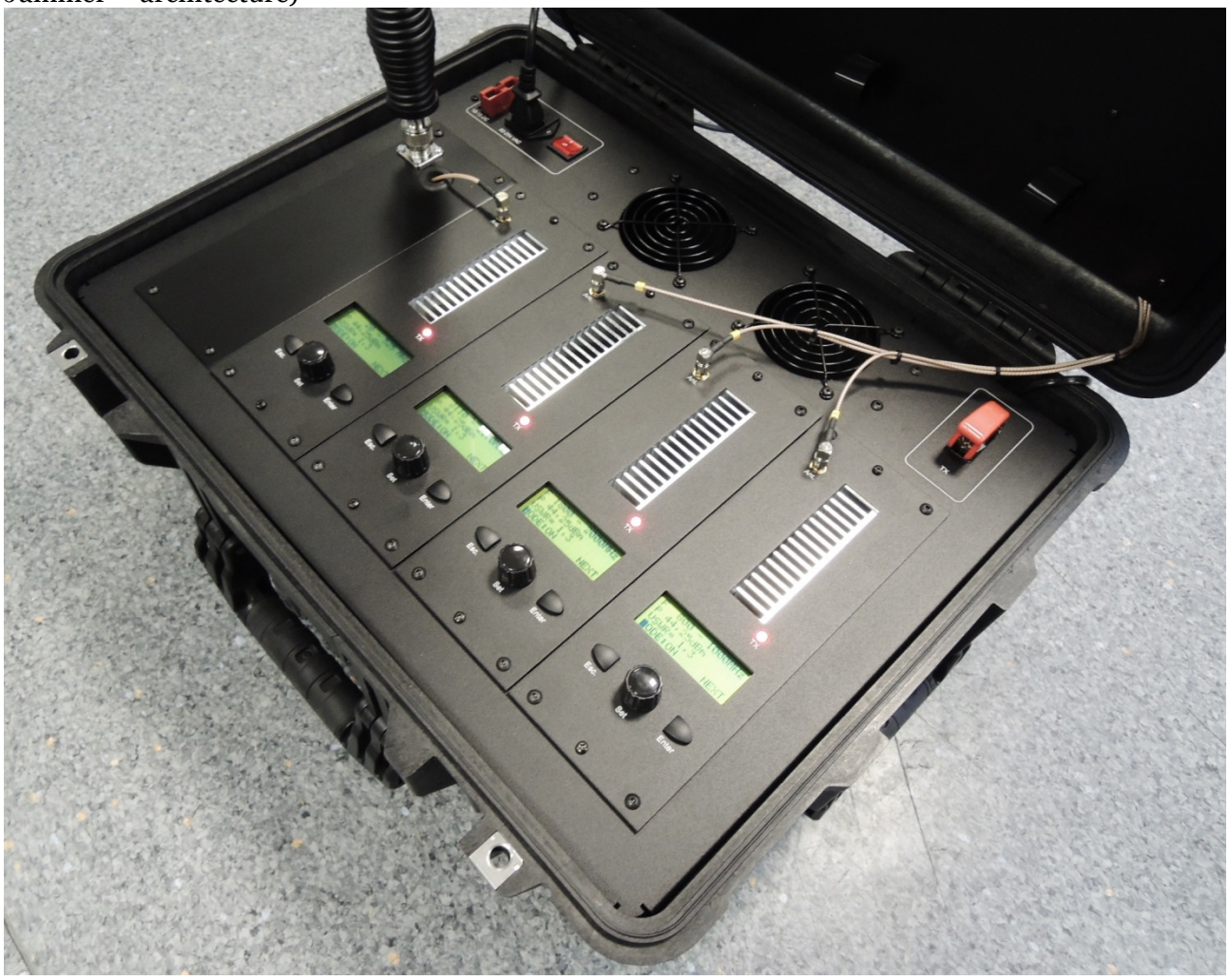
This High Powered Modular Jammer is programmable, with user selectable frequencies changed on the fly. This modular platform is flexible for users who know what they want to jam, with frequency ranges built into 4 different modules. A 5th module is left open for scalable and custom requirements. That means the user can have the system built to their frequency specifications desired. This is a Bomb Jammer™ that is switchable between 5 modules. By request, the system can be built with frequency coverage between 20 MHz and 6000 MHz depending on the user's requirements. Featuring user controlled output power, each module is capable of increasing and decreasing its power output level. Wherein the total output of 150 Watts can be radiated, each module has a 30 Watt power generation function.

Programmability:

HSS implemented programmable interactivity so that operational capabilities can be changed by the operator. Examples include:
1. Frequency Range
2. Self Diagnosis / System Status
3. Integrated Protection Redundancy

Frequency Range:
The frequency ranges can be set by the operator of the system to broadcast on-command to specific

frequencies. This permits demonstration capabilities for Spot Jamming as well as Full Frequency Jamming of each jamming module (This system has a total of 5 Jamming Modules). The concentration of RF jamming power is directed at the corresponding frequency band. This is vital to producing a jam-wave that is powerful enough to block frequencies without any degradation of the jamming signal. In other words, the system is able to focus its energy, showing a clean jam-wave that is efficient and reliable. This is the same efficiency factor is built into HSS Bomb Jammer™ technologies for deployments requiring professional technologies. For VHF-UHF frequency ranges, the MJ-5 is equipped with communication windows. These notches in the spectrum may be programmed or allocated if needed by the system operator. They are formed when the jamming signal is generated, and feature high precision + accuracy from Direct Digital Synthesis (a proprietary hybrid of DDS and PLL Stabilized technologies inherent in the Bomb Jammer™ architecture)



User Determined Settings

The system is able to accept commands from the user in order to show how flexible the operation can be under different conditions. This can be done without factory presets, and this ability was created for the user because so many environmental factors may be different with each location for demonstration.

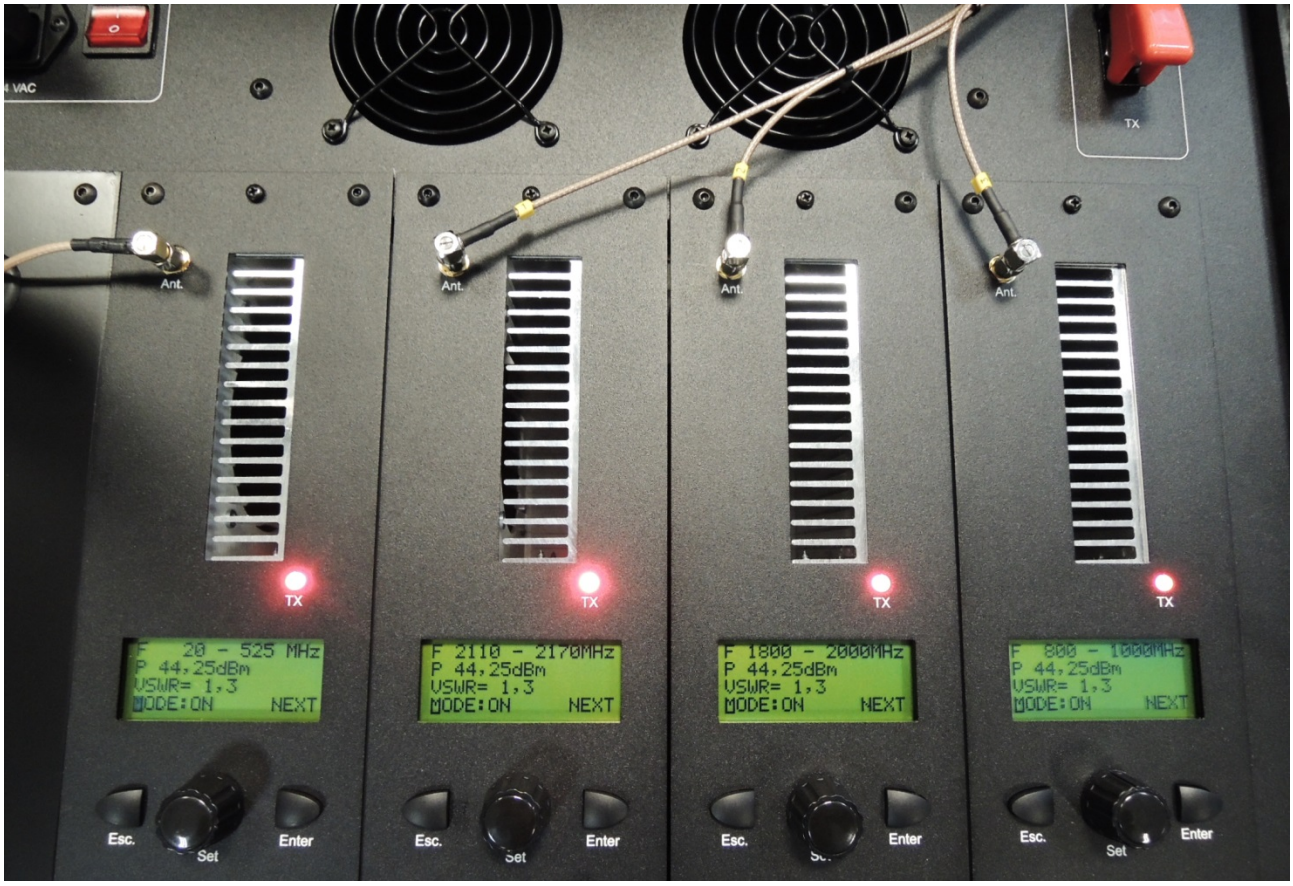
Communication Windows

User selected jamming can be created and modified at will. The user can choose how wide the

window(s) should be and what frequency the window(s) will be set to.

Output Power Control
The output power of RF jamming signals can be regulated. This is important in situation where the user needs to increase or decrease the coverage area. Because RF jamming from the MJ-5 may interfere with surrounding areas, the ability to limit or intensify the saturation levels of RF interference has been taken into account. This assures trouble-free operation of communications in neighboring areas (by limiting over-jamming through system designated settings)

The system's unique design permits multiple frequency memory recall functionality. These scenarios involve pre-programed user set frequencies that are stored directly into memory. On command, the user may recall which frequency to demonstrate RF jamming on. Because the system is user programmable, the user can change the parameters as desired in order to make presentations and demonstrations in different areas where field circumstances are different.



Self Diagnosis / System Status

When in use, the system can be manually operated or controlled by the user. However, the system employs an automated Self-Diagnostic capability so that the user can optimize the system's performance.

Because the system constantly analyzes and compares user programmed values to live results, an analytical baseline is generated where normal operational activity is categorized. This baseline extends to each module working within the system build. Should the system encounter a

discrepancy or problem where operating parameters deviate from normal expectations, a series of alerts will take place.

Should the conditions cause a “high alert”, the system is capable of self-adjustment or alerts the user that operational behavior needs to be looked at. If the alert does not require immediate attention, the system will continue operation in a satisfactory manner.

The user can review system status reports after usage. Post operational reviewing can be conducted by looking up log reports / message alert notifications within internal memory.

What could go wrong with a Bomb Jammer™ to require Self Diagnosis?
The number 1 cause for system alerts is due to user error. Improper connection of antennas (or disconnection) can lead to unnecessary issues.
□
With a modular design, the system is optimized to block communications on several spectral coverage ranges. When a module is powered down ‘unexpectedly’, it is a result of a disconnect to an antenna, or
if the system has overheated because of the high power levels in use, a temporary situation alerts the self-diagnosis feature to activate. This feature takes place as long as the process is detected.

When the system diagnostics are completed, the module examined goes back to its normal manner of operation. Self diagnostic actions are beneficial in order to insure a smooth
continuity for system performance and operation.

Technical Operation + Safety Parameters

The MJ-5 is a very powerful system. Powerful in that it makes a professional impact when an EOD Technician observes performance, and also when dealing with electrical power generation and emissions of energy levels. The system employs the following safety & performance capabilities:

1. Input voltage – The system has built-in protection in the event where the incoming power voltage is under or over the required level.

2. **Output voltage on DC/DC converter** – The system has special power amplifier protection in

order to regulate the power levels without incident.

3. **Output current on DC/DC converter** – The system also regulates the power converter and amplifier, protecting against electrical current issues.

4. **Thermal Alert & Reaction Control** - The system has a temperature control of DC/DC electronics, affording converter protection should a cooling fan failure occur.

5. **Thermal Alert & Reaction for Power Amplifiers**- The system has an automated warning and reaction procedure in the event that temperatures cause power amplifiers to overheat, protecting them by auto-shutdown protocols. This protects each module. When the temperature gets back to normal, the module switches on automatically.

6. **Power Amplifier Output Compensator** - Should the power amplifiers begin to fluctuate during operation, an automated application will trigger and balance-out each power amplifier. This self-correcting feature also has the ability to automatically switch off the module in order to protect the system.

7. **Antenna VSWR Adjustment** - Antenna protection able to handle issues when the set point is exceeded (broken cable, short cut in antenna). In this scenario, the safety feature will activate and the module will switch off in order to protect the amplifier.

8. **Digital Exciter Emergency Regulator** - Should the output level of the exciter encounter fluctuations, the safety protocol will correct the exciter, regulating the desired level to take place. If failing to do so, the module switches off automatically.

9. **Digital Exciter Protection** - Should the pre-programmed values of the exciter deviate at the frequency range level, a safety protocol will engage and automatically switch off the module.

These technical features employ a unique microprocessor that is able to handle the operation of each safety protocol under adverse environmental conditions. These microprocessors are integrated into each module in order to insure full control over the individual components within the module. Because RF Jamming requires a great deal of managing energy in an efficient manner, it is necessary to have these safety back up technologies on hand. These modules are flexible, and may also be integrated into various schematic .

Digital Exciter Features

The system management Core is able to control all operations in an efficient manner. This is necessary when dealing with programmable technologies in which the user may opt to direct RF jamming at will and change how the system should operate. In contrast, the system is also able to operate in an automated manner that is based on factory settings, should the user choose to use them.

1) The system is programmable during operation in terms of frequency and output power.

2) Complete self-diagnosis and submission of results to the controller are made available for data analyzing.

3) Increasing the sweeping speed of the frequency several times (up to ten (10) times) is the new normal operating parameter, an advanced technology when compared to the older generation (first generation) DDS exciters.

4) Recent testing suggests significant increases in radius of coverage, with 2 - 6 times on equal terms (same module with older generation exciters).

Shown here with a 5 band system build.

Technical Specifications:

Frequency Ranges	Output Power	# of programmable segments
Module 1: 25 MHz - 500 MHz	30 Watts	Module 1: 5 Frequency Bands
Module 2: 800 MHz - 1000 MHz	30 Watts	Module 2: 5 Frequency Bands
Module 3: 1800 MHz - 2000 MHz	30 Watts	Module 3: 5 Frequency Bands
Module 4: 2110 MHz - 2170 MHz	30 Watts	Module 4: 5 Frequency Bands
Modele 5: Custom request	30 Watts	Module 5: 5 Frequency Bands
Power Supply: 90 – 240 VAC, 10 – 15 VDC		
Antennas: External, Directional or Omni-directional		
Controlling and Programming: Built-In Console (terminal)		
Programmability:	User Selectable	
Total Output Power:	150 Watts	
Jamming Type: Proprietary hybrid of Barrage + Fast frequency sweep using PLL stabilized technologies (through DDS processing)		

Warranty Statement

HSS warrants this product has been manufactured using new parts and components and to be free from defects in materials and workmanship under normal use for a period of one year, herein known as *the period*, as follows:

Labor and Parts

1. For 1 year from the date of delivery, HSS will pay the labor charges at an authorized HSS service facility to repair any factory defect. After the 1 year period, purchaser must pay for all labor charges.

2. HSS will supply at no charge, new or rebuilt replacements for factory defective parts on an exchange basis for a three year period from the date of delivery.

3. To obtain warranty service during the warranty period, purchaser must return the parts of modules via prepaid freight to any authorized HSS service facility. There may be estimate fees at the time of evaluation for all items received by HSS should a repair or replacement be required.

Validity

1. This warranty does not cover any damage due to accident, misuse, abuse or negligence. This warranty is subject to the proper technical operation, maintenance and storage, in accordance with the supplied instructions. The warranty does not cover raw materials and small spare parts, which are replaced during technical maintenance if necessary (gaskets, bolts, nuts, pins, lamps fuses, etc.). This warranty shall be invalid if the product is subject to misuse or abuse, or if any repairs are attempted by anyone other than an authorized HSS factory service center technician.

2. This warranty is valid worldwide.

3. The Invoice to the purchaser is evidence of the date of purchase. Without such documentation this warranty may be invalid.

Liability

1. Repair or replacement as provided under this warranty is the exclusive remedy available to the purchaser. Correction of defects, in the manner and for The Period, shall constitute complete fulfillment of all liabilities and responsibilities of HSS to the purchaser with respect to the product, and shall constitute full satisfaction of all claims, whether based on contract, negligence, and strict liability or otherwise.

2. In no event shall HSS be liable, or in any way responsible for any damages or defects in the product which were caused by repairs or attempted repairs performed by anyone other than an authorized service facility technician. HSS shall not be liable for any incidental or consequential damages arising from the use of the product or for breach of any express or implied warranty on this product except to the extent prohibited by applicable law, any implied warranty of merchantability or fitness.