

CPAT FLEX DSG1 Lite User Manual



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DSG1 Lite User Manual

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1. General Information

1.1 About this Manual

This manual describes the components, installation and operation of the CPAT FLEX DSG1 Lite unit.

You will find important safety information in this manual. We strongly recommend that all users read this manual. Use of this product other than for its intended application may compromise the unit's safety features.

1.2 Explanation of Symbols Used

The following symbols are used in this manual:

Symbol Explanation



Caution. Indicates that operations or procedures, if carried out without caution, may cause personal injury or damage to the unit.



Note. Indicates additional information about the product.

1.3 Certifications

This section describes the certifications that the DSG1 Lite complies with.

1.3.1 Test Specifications

CISPR11/EN55011 (2015) A1 (2016), Class B.

FCC part 15 (2018) subpart B, Class B.

ICES-003 (2016), Class B.

IEC61000-4-2 (2008) / IEC61000-4-3 (2006) A1 (2007) A2 (2010) / IEC61000-4-5 (2014).

Electrical equipment for measurement, control and laboratory use – EMC requirements – Part 1: Generic requirements.

1.3.2 Compliance

This Class B digital apparatus complies with Canadian ICES-003(2016).

This Class B digital apparatus also complies with European CISPR11 (2015) A1 (2016).

This digital apparatus complies with IEC61000-4-2 (2008).

This digital apparatus complies with IEC61000-4-3 (2006) A1 (2007) A2 (2010).

This digital apparatus complies with IEC61000-4-5 (2014) criterion B.

1.3.3 Note

This device may not cause harmful interference.

This device must accept any interference received, including interference that may cause undesired operation.



NOTE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if it is not installed and used in accordance with the instruction manual, it may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.



NOTE

Any modifications made to this device that are not approved by Effigis Geo-Solutions Inc. may void the authority granted to the user by the FCC to operate this equipment.

1.4 Technical Support

The Effigis Technical Support Service is available from Monday through Friday from 9:00 AM to 5:00 PM Eastern Time.

Toll free from U.S. and Canada: + 1-888-495-6577

International: + 1-514-495-0018

Fax questions anytime to: + 1-514-495-4191

cpat@effigis.com

1.5 Calibration

Your DSG1 Lite unit has been tested in the factory, and is ready to use.

However, if the unit suffers damage or is repaired, it is recommended that the unit be tested by an authorized Effigis service center.

For more information on calibration services, please contact your Effigis representative.

1.6 Effigis Web Site

The Effigis Web site contains product specifications, information, press releases, brochure download and Frequently Asked Questions (FAQs). Please visit our Web site at: effigis.com.

2. System Components

2.1 Product Overview

This section describes the DSG1 Lite unit, including its accessories.

The DSG1 Lite is a portable dual-band signal generator, which inserts a high level dual-frequency signal to perform a “pressure test” from the customer drop feed. The DSG1 Lite operates simultaneously in both aeronautical and LTE bands using only one RF output. The DSG1 Lite operates at fixed frequencies of 126 MHz (Mid-band) and 612 MHz (LTE-band) to cover both bands.

The DSG1 Lite provides a:

- High output RF level in Mid and LTE bands to facilitate the detection of any leakage inside the customer premise’s installation.
- Design to feed the DRV3 and DRV3 Lite leakage detector.
- Rechargeable Li-Ion battery power pack.

2.2 Initial Verification

Your DSG1 Lite unit is charged and ready to use right out of the box. Upon delivery, visually inspect each item for any damage that may have occurred during shipping. If you see any signs of physical damage, please contact Effigis at:

- Callers from the U.S. and Canada can dial + 1-888-495-6577 (toll-free number).
- International callers can dial + 1-514-495-0018.

If there are no apparent signs of physical damage, turn on the unit by pressing the button for approximately three (3) seconds and make sure the unit boots up properly.

Check that your package contains all the standard items as well as any accessories you may have ordered. If you ordered the DSG1 Lite Digital Signal Generator kit, the following items are included:

- DSG1 Lite unit
- AC/DC adapter, compatible with 110V/220V and 50/60 Hz power distribution networks.
- DSG1 Operation Manual (this manual).



Figure 1: DSG1 Lite, and AC/DC adapter

If any of the standard accessories are lost or damaged, you can order a replacement for the DSG1 Lite. Please quote the following part numbers when placing an order:

<u>Part No.</u>	<u>Accessory Description</u>
150-00034-001	DSG1 Lite - Portable Signal Generator
110-00005-001	DSG1 Lite AC/DC adapter
100-00010-001	DSG1 Operation Manual (this manual)
110-00010-001	+12 VDC power supply
113-00005-001	DSG1 Lite Strap

To order, please contact Effigis at + 1-888-495-6577 or + 1-514-495-0018

3. Setup

The DSG1 Lite uses fixed frequencies and tagged modulation.

The table below details the operational parameters of DSG1 Lite:

Band	Parameter	Values
Mid	Frequency	126 MHz
	Mode	AM 32 Hz
	Output level	50 dBmV (High) 30 dBmV (Low)
LTE	Frequency	612 MHz
	Mode	AM 32 Hz
	Output level	50 dBmV (High) 30 dBmV (Low)
Both	Transmit carriers	Yes
	AM modulation depth	2 dB



CAUTION!

The DSG1 High output level is set at 50 dBmV. It must not be connected to a live cable network in order to avoid interference with current channel lineup.



CAUTION!

Even if the case resists splashing, this device is not waterproof. Do not leave it exposed in the rain or in any environment conducive to liquid immersion.



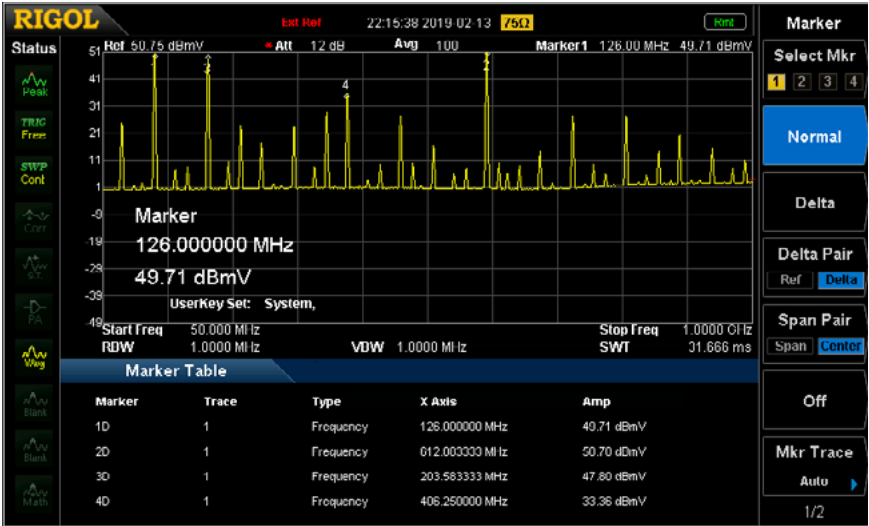
NOTE

Suggested F connector tightening torque is 10 inch-pounds. Maximum torque is 15 inch-pounds.



NOTE

In addition to producing a dedicated signal at 126 MHz and 612 MHz, the DSG1 Lite will generate harmonics at 252 MHz, 378 MHz, etc. The RF levels of these harmonics are lower in level than the main signals, but must be taken into consideration if RF measurements are recorded while the DSG1 transmits.



Harmonics levels based on 126 & 612 MHz at 50 dBmV



NOTE

A pad may be required at the output of the DSG1 Lite, especially if there is some active equipment connected to the cable drop feed (set-top box, cable-modem, etc.). In this situation, use a pad of sufficient attenuation value to bring the output level of the DSG1 below the maximum RF input level specified by the manufacturer of the active equipment(s) connected.

4. System Operation

4.1 Power On

To power the DSG1 Lite, press the power button on the front panel, and then release it. You should see the power LED (surrounding the power button) and the battery LED turned on.

4.2 LED Information

The two front panel LEDs indicate the status of the unit.

POWER:

- When the power LED is steadily lit RED or GREEN, the DSG1 Lite is powered up.
- When the power LED is OFF, the DSG1 Lite power is shut down.
- RED means a Low level output. GREEN means High level output. Press the Power button briefly to toggle between Low and High level.

BATTERY:

- The battery LED is ON when the 12 VDC charger is plugged. It is:
 - ORANGE when the battery is charging.
 - GREEN when the battery is fully charged.
- When the battery LED is RED, there is a problem with the battery pack.

4.3 Auto-Shutdown

There is a self auto-shutdown feature that will automatically turn off the device after ~1H of operation from the time it has been powered on.

This timer is available from rev 1.7, contact dealer for more details.



CAUTION!

Turning OFF the Power will briefly toggle the alternative output mode (High or Low level) before shutting down. Make sure you disconnect the DSG1 Lite prior turning it off if injecting at High level might be harmful with current channel lineup.

5. System Maintenance

5.1 Charging the Battery

The DSG1 Lite can operate on battery power for hours when fully charged.

To maintain good battery health and ensure the extended battery life, you must follow these recommendations when charging the battery:

1. Only use or replace battery packs provided by Effigis.
2. Only use or replace chargers provided by Effigis. The DSG1 Lite status LED will turn green when the battery pack is fully charged.
3. Charge the DSG1 Lite at room temperature. Do not charge the unit in a physical location where temperature extremes occur during charging.

5.2 Cleaning the Equipment

Your DSG1 Lite unit can be cleaned using a damp cloth. Do not immerse the unit in water. Avoid solvents and commercial cleaners.

5.3 Preventive Maintenance

The technician shall perform regular visual inspections of the RF connector for loose or broken connectivity, which could affect the performance of the system. If any replacement parts are required, please contact Effigis for more information.

Appendix A – Specifications

A.1 System Specifications

Modulator type	Dual-band digital signal modulator
Output type	Single "F" 75 Ohm female connector
Frequency output 1 of 2	Fixed at 126 MHz (Mid-band)
Frequency output 2 of 2	Fixed at 612 MHz (LTE-band)
Frequency stability	±5 kHz
Modulated signal	32 Hz AM tag
Output level from each RF output	High (green): 50±2 dBmV at 126 MHz / 50±2 dBmV at 612 MHz Low (red): 30±2 dBmV at 126 MHz / 30±2 dBmV at 612 MHz
Transmission status display	Through an illuminated Power button
Battery charge/status display	Through an LED located below DC connector
Setup	Built-in

A.2 Electrical Specifications

Power adapter	+12VDC 1.2A max
Battery	Pack of 2 rechargeable 7.2VDC lithium-ion batteries of 2000 mAh ~0.3A
AC battery charger	Input: 100-240V ~50-60Hz 0.7A Output: +12VDC 1.66A Transient overvoltage II Rated pollution degree 2
Mains supply voltage fluctuations	Up to ±10 % of the nominal voltage
Operation time	10 hrs. continuous on battery power
Operating temperature	-20°C to +40°C (-4°F to +104°F)
Charging temperature	0° to 45° C / 32° to 110° F
Battery charge time	2.45 hrs. for full charge
Auto-Shutdown	1Hour ± 5 minutes
Storage temperature	-20°C to +45°C (-4°F to +113°F)

A.3 Physical Specifications

Dimensions	4 cm x 12 cm x 13 cm / 1.5" x 4.7" x 5.1" [H x W x D]
Weight	17 ounces / 500 g
Recommended use	Indoor use or outdoor use without exposure to direct sunshine or a wet location.
Maximum relative humidity	80% for temperatures up to 31°C (88°F) decreasing linearly to 50% relative humidity at 40°C (104°F).

Appendix B – Our Services

Effigis offers a portfolio of services to deploy and support purchased equipment through its Customer Support organization. Customer Support is standard with every product sale and consists of a phone technical support during business hours, repair and calibration center.

B.1 Customer Support

Customer Support is available with the sale of every Effigis product. Customer Support services includes:

- Product and Service Literature
- Technical Assistance (business hours)
- Equipment Repair (under Warranty Repair and Calibration Services)
- Equipment Return Authorizations

Contact a Customer Support representative through your local distributor or by accessing the <http://effigis.com/cpat-flex-support/> for information on calibration and warranty policies.

B.1.1 Equipment Return Instructions

Please contact your local Customer Support location via telephone for Return Authorization to accompany your equipment. For each piece of equipment returned for repair, attach a tag that includes the following information:

- Owner's name, address and telephone number
- Serial number, product type and model
- Warranty status (if you are unsure of the warranty status of your instrument, contact Effigis's Customer Support)

-
- A detailed description of the problem or service requested
 - The name and telephone number of the person to contact regarding questions about the repair
 - The return authorization (RA) number

If possible, return the equipment using the original shipping container and materials. If the original container is not available, the unit should be carefully packed so that it will not be damaged in transit; when needed, appropriate packing materials can be obtained by contacting Effigis's Customer Support. Effigis is not liable for any damage that may occur during shipping. The customer should clearly mark the Effigis's issued RA or reference number on the outside of the package and ship it prepaid and insured to Effigis.

Equipment repaired or replaced under warranty will be returned at Effigis's expense to Customer (Canada/USA) or Effigis's representative (all other countries).

All other non-warranty repairs will be returned at Customer's expense to Customer (Canada/USA) or Effigis's representative (all other countries).

B.2 Limited Product Warranty

B.2.1 Hardware

Effigis warrants to the original end user (Customer) that the new Effigis branded products will be free from defects in workmanship and materials, under normal use, for one (1) year from the date of original shipment.

Effigis warrants repaired products for ninety (90) days from the date of shipment. Any Product repaired or replaced under warranty is only warranted for the period of time remaining in the original warranty for the Product.

Any third party products, including software, included with Effigis products are not covered by this Effigis warranty, and Effigis makes no representations or warranties on behalf of such third parties. Any warranty on such products is from the supplier or licensor of the Product.

B.2.2 Software

Effigis warrants to the Customer that new Effigis branded software and firmware will perform in substantial conformance to program specifications for a period of ninety (90) days from the date of original shipment. Effigis warrants the media containing software against failure during the warranty period.

Effigis makes no warranty or representation that the operation of the software products will be uninterrupted or error free, or that all defects in the software products will be corrected.

B.2.3 Exclusions

This warranty excludes:

- Damage to the physical surface of the Product, including cracks or scratches to any part.
- Damage caused by misuse, neglect, improper installation or testing, unauthorized attempts to open, repair, or modify the Product, or any other cause beyond the range of the intended use.
- Use of the Product with any non-recommended device or service if such device or service causes the problem.
- Installation or maintenance of Product by someone other than Effigis or persons certified by Effigis.
- Changes to the Customer environment in which Product was installed.
- Damage caused by accident, fire, power changes, other hazards, or acts of nature.
- Consumable Product or parts thereof (e.g., parts with an expected useful life of less than ninety (90) days, such as certain batteries).
- Product not returned in accordance with Effigis' RA procedure.

B.2.4 Refurbished Parts and Prior Testing

The Product may incorporate reconditioned or refurbished parts or subassemblies and may have been used in testing prior to sale.

B.2.5 Exclusive Remedies

If any Product materially fails to conform to the limited warranty set forth in this Section (Limited Warranty), and actually fails during the applicable warranty period and under normal use, Effigis shall, at its sole discretion, (i) repair or replace the non-conforming Product to remedy the nonconformity identified by the Customer in accordance with this Section (Limited Product Warranty); or (ii) issue a credit to the Customer for the amounts paid for the Product in exchange for return of the non-conforming Product, in which case Customer's licences to any firmware shall be automatically revoked. The Customer hereby transfers to Effigis title and ownership of any parts that Effigis replaces.

B.2.6 Disclaimer

THE REMEDIES EXPRESSLY PROVIDED IN THIS SECTION WILL BE THE CUSTOMER'S SOLE AND EXCLUSIVE REMEDIES AND SHALL BE IN LIEU OF ANY OTHER RIGHTS OR REMEDIES THE CUSTOMER MAY HAVE AGAINST EFFIGIS WITH RESPECT TO ANY NON-CONFORMANCE OF PRODUCTS. EXCEPT AS SPECIFIED IN THIS LIMITED PRODUCT WARRANTY, EFFIGIS MAKES NO EXPRESS REPRESENTATIONS OR WARRANTIES WITH REGARD TO ANY PRODUCT.

EFFIGIS DISCLAIMS ALL IMPLIED WARRANTIES, CONDITIONS, AND REPRESENTATIONS INCLUDING, BUT NOT LIMITED TO, ANY WARRANTIES OR CONDITIONS OF MERCHANTABILITY, SATISFACTORY QUALITY, FITNESS FOR A PARTICULAR PURPOSE, AND NON-INFRINGEMENT, REGARDLESS OF THE LEGAL THEORY ON WHICH SUCH IMPLIED WARRANTY MAY BE BASED, INCLUDING, BUT WITHOUT LIMITATION, CONTRACT, COURSE OF DEALING, USAGE, OR TRADE PRACTICE.

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