

INCH-POUND

A-A-59513
15 March 2004

COMMERCIAL ITEM DESCRIPTION
GENERATOR, SIGNAL
10 MHz to 26.5 GHz

The General Services Administration has authorized the use of this commercial item description (CID) by all federal agencies.

1. SCOPE. This Commercial Item Description (CID) describes a synthesized sweep/signal generator capable of generating signals over the frequency range of 10 MHz to 26.5 GHz with analog sweep capabilities with high stability time-base. The This CID is meant as a minimum requirement for a synthesized sweep/signal generator, herein referred to as synthesizer, in which only those manufacturers that meet or surpass the following requirements are supplied per this CID.

2. SALIENT CHARACTERISTICS

2.1 The equipment shall be capable of operation within the accuracies, limits, and specifications herein.

2.2 The equipment covered by this CID shall be commercially available equipment and may modified to the extent necessary to meet the following description. The equipment shall be Class 3, in accordance with MIL-PRF-28800.

2.3 Order of Precedence. In the event of a conflict between the text of this CID and the references cited herein (except for associated detail specifications, specification sheets or MS standards) the text of this CID shall take precedence. Nothing in this CID, however, shall supersede applicable laws and regulations unless a specific exemption has been obtained.

Comments, suggestions, or questions on this document should be addressed to WR-ALC/LEEC, Robins AFB, GA 31098-1611. Since contact information can change, you may want to verify the currency of this address information using the ASSIST online database at www.dodssp.daps.mil.

AMSC N/A

FSC 6625

2.4 Safety. The equipment shall be UL (underwriters Laboratories) listed and approved and/or shall comply with the safety requirements of MIL-PRF-28800 for the classification stated herein.

2.5 Frequency. The synthesizer shall have a frequency range of 10 MHz to 26.5 GHz with a minimum resolution of 1 Hz.

2.6 Output Power. The synthesizer shall provide the following minimum output power capability: +8 to -100 dBm from 10 MHz to 26.5 GHz.

2.7 Output Level Flatness. Variation of the output levels of the synthesizer shall not exceed the following specifications:

- +/- 0.7 dB for 10 MHz to 2.0 GHz
- +/- 1.0 dB for 2.0 GHz to 6.6 GHz
- +/- 1.2 dB for 6.6 GHz to 12.3 GHz
- +/- 1.5 dB for 12.3 GHz to 18.6 GHz
- +/- 1.8 dB for 18.6 GHz to 26.5 GHz

2.8 Modulation. No modulation capability is required for the synthesizer.

2.9 Time Base. The synthesizer shall have an internal 10 MHz time base with an aging rate = 5×10^{-10} parts per day. The synthesizer shall also be capable of utilizing an external time base. The synthesizer shall have a rear panel BNC connector capable of accepting 5 MHz and 10 MHz external time bases.

2.10 Time Base Output. The synthesizer shall have a rear panel 10 MHz time base output.

2.11 Harmonics. The harmonic content of the output of the synthesizer shall not exceed the following specifications:

- < -30 dBc for 10 MHz to 2 GHz
- < -60 dBc for 2 GHz to 20 GHz
- < -40 dBc for 20 GHz to 26.5 GHz

2.12 Sub-harmonics and Multiples. All sub-harmonics and multiples of sub-harmonics of the output signal of the synthesizer shall not exceed -60 dBc.

2.13 Spurious Outputs. The non-harmonically related spurious emissions shall be < -60dBc for RF frequencies from 10 MHz to 26.5 GHz.

2.14 Single Sideband Phase Noise. At a 1 kHz offset from the carrier, when measured in a 1 Hz bandwidth in the CW mode, single sideband phase noise shall be as follows:

Frequency Range	Frequency Offset (Hz)	dBc (Hz)
10MHz to 1050MHz	100	-95
1050MHz to 26.5GHz	100	-65
10MHz to 1050MHz	1k	-119
1050MHz to 26.5GHz	1k	-88
10MHz to 1050MHz	10k	-122
1050MHz to 26.5GHz	10k	-98
10MHz to 1050MHz	100k	-119
1050MHz to 26.5GHz	100k	-92

2.15 Output Connector. The synthesizer's output connector shall be Type K female and two Type K male to Type N(f) adapters shall be supplied. The adapters are not to be used when connecting the synthesizer to the down converter as a local oscillator. The Type K male to Type N(f) adapters will only be utilized when using the synthesizer as a stand alone source at frequencies below 18 GHz.

2.16 Radio Frequency (RF) Cable. A Type K male on one end and WSMA female cable to connect the synthesizer, when it is being used as a local oscillator, to the down converter shall be supplied. When in this configuration the down converter is on top of the synthesizer, and its input is on the left side of the instrument.

2.17 Dimensions and Weight. The synthesizer/local oscillator shall be designed for mounting in a standard 19 inch EIA electronic equipment rack. The depth of the synthesizer/local oscillator, from the back of the front panel shall not exceed 22 inches. No controls or fittings shall project more than 1 1/2 inches from the face of the front panel. The height shall be 8.75 inches. The weight of the synthesizer shall not exceed 50 pounds.

2.18 Digital Input/Output Capability. The synthesizer/local oscillator shall include an IEEE-488-1987 standard I/O interface. The Interface Function subset implemented shall have or exceed the following capabilities:

INTERFACE FUNCTION MINIMUM ACCEPTABLE SUBSET

Source Handshake	SH1
Acceptor Handshake	AH1
Talker	T6
Listener	L4
Remote Local	RL1
Parallel Poll	PP0
Device Clear	DC1
Device Trigger	DT1
Service Request	SR1

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The instrument shall use bi-directional data transmission in ASCII coded format.

2.19 Power Consumption. An assembled power cord for 110 to 120 volt operation shall be provided with each AC powered instrument. Each AC powered instrument shall have an AC power switch and a front panel indication when AC power is applied. The power consumption of the synthesizer shall not exceed 500 Watts.

2.20 Rack-mount Capability. The synthesizer shall be furnished with rack mount kit for mounting in a standard 19 inch Electronic Industries Association (EIA) rack. The rack mount kit for the synthesizer shall include front handles, rack ears, chassis slides for a 20-inch depth synthesizer rack.

2.20 Manuals. The synthesizer shall be delivered with operator, maintenance, and illustrated parts manuals. Format and quantity shall be as specified in the contract or order.

3. REGULATORY REQUIREMENTS

3.1 The offeror/contractor is encouraged to use recovered materials to the maximum extent practicable, in accordance with paragraph 23.403 of the Federal Acquisition Regulation (FAR).

4. PRODUCT CONFORMANCE

4.1 Product Conformance. The products provided shall meet the salient characteristics of this CID, conform to the producer's own drawings, specifications, standards and quality assurance practices, and be the same product offered for sale in the commercial market. The government reserves the right to require proof of such conformance.

4.2 Metric Products. Products manufactured to metric dimensions will be considered on an equal basis with those manufactured using inch-pound units, provided they fall within the specified tolerances using conversion tables contained in the latest revision of Federal Standard No. 376, and all other requirements of this CID are met. If a product manufactured to metric dimensions exceeds the tolerances specified in the inch/pound units, a request should be made to the contracting officer to determine if the product is acceptable.

4.3 The contracting officer has the option of accepting or rejecting the product.

5. **PACKING**. Preservation, packing, and marking shall be as specified in the contract or order.

6. NOTES.

6.1 Sources of documents.

6.1.1 Military Specifications, Standards, and Handbooks referenced herein may be obtained from the Standardization Documents Order Desk, 700 Robbins Ave, Bldg 4, Section D, Philadelphia, PA 19111-5094.

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6.1.2 The Code of Federal Regulations (CFR) may be obtained from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC, 20402.

6.1.3 IEEE standards can be obtained from IEEE Customer Service Center, 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08855-1331, and U.S.A. Phone: 1-800-678-4333 (Toll-Free, USA & Canada), 1-732-981-0060 (Worldwide), Fax: 1-732-981-9667.

MILITARY INTERESTS

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