

December 7, 2000

Federal Communications Commission
Equipment Approval Services
PO Box 358315
Pittsburgh, PA 15251-5315

Dear Sir/Madam:

Enclosed you will find an application for Certification of a 13.56MHz Portable RF ID Read/Write Terminal, Model NOVAS-120, Serial No. 450146, FCC ID: L7BNOVAS-120. This application is being filed by Retlif Testing Laboratories at the request, and with the approval of Global Data, Inc. The applicable Certification Filing Fee and 731 Form have been submitted.

I trust that you will find the enclosed application to be complete; however, should you have any questions or require any additional information, please feel free to contact us.

Very truly yours,

RETLIF TESTING LABORATORIES

Scott Wentworth
Manager

Enc. (as stated)

APPLICANT Global Data, Inc. Granite Communications 13 Columbia Drive, Suite 6 Amherst, NH 03031	MANUFACTURER SAME
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TEST SPECIFICATION: FCC Rules and Regulations Part 15, Subpart C, Para. 15.207, 15.209

TEST PROCEDURE: ANSI C63.4:1992

TEST SAMPLE DESCRIPTION

BRANDNAME: Global Data, Inc. MODEL: NOVAS-120

TRADE NAME WITH ID BOARD: NOVAS-RFID

EQUIPMENT UNDER TEST: 13.56MHz Portable RF ID Read/Write Terminal

POWER SOURCE: Rechargeable High Capacity NIMH 3.65VDC

Battery Pack - User Replaceable, External 120VAC, 60Hz Wall Mount Charger

FREQUENCY OF OPERATION: 13.56MHz

EMISSIONS DESIGNATOR: W2D

FCC ID: L7BNOVAS-120

APPLICABLE RULE SECTION: Part 15, Subpart C, Section 15.201 General Requirements and
15.207, 15.209, 15.215, and 15.225

TESTS PERFORMED

Frequency Stability/ Tolerance

Field Strength of Fundamental

Out of Band Emissions

Conducted Emissions

TEST SAMPLE OPERATION

The EUT is used in identification, and any type of application requiring portable remote gathering and

delivering of information. The NOVAS-120 transmitter will only transmit at 13.56MHz.

TEST SAMPLE / TEST PROGRAM

15.203 ANTENNA REQUIREMENT

The device uses a permanently attached loop antenna. The antenna is totally enclosed inside the case. No access to internal components by user.

15.205 RESTRICTED BANDS OF OPERATION

No emissions from the EUT were observed in any of the restricted bands.

15.207 CONDUCTED EMISSIONS

Limit of 250uV.

No emissions were observed in the excess of the limit.

15.209 RADIATED EMISSIONS

Fundamental Operation Band

13.553 - 13.567MHz

Out of Band, Spurious, Harmonics

9kHz - 30MHz Intentional Radiator

30MHz - 1000MHz Digital Device

No emissions were observed in excess of the limit with the EUT in the configuration which during preliminary evaluation produced the worst case emission levels.

The EUT was evaluated, operating as indicated.

1. Power from internal battery pack.
2. Internal battery pack charging with AC adaptor connected.
3. Orientation to each of the three axis during both power configurations.
4. The final test configuration was with the EUT on the test stand with the screen facing up and the flat end of the device facing the test antenna.

REPORT OF MEASUREMENTS

CALCULATIONS NEEDED DURING TEST PROGRAM:

1. Extrapolation of 3 meter reading to 30 meter
15.31 (F2) factor of 40dB/ Decade for frequencies below 30MHz
2. Conversion of dBuV/ m to uV/ m and uV/ m to dBuV/ m
 $20 \log uV = dBuV$ $uV = dBuV / 20 \times 1/\log$
3. Combining Readings and Factors
Basic math with special attention to designations

SAMPLE CALCULATION:

Extrapolate: 3meter reading to 30 meter limit
3 - 30 one decade = factor 40dB
Total = 40db factor
3m reading + distance & site factors = corrected reading @ 30m

SPECTRUM ANALYZER

Due to the nature of the emissions being measured, care was taken to ensure that the resolution bandwidth of the spectrum analyzer was adequate to provide accurate measurements.

STATEMENT OF COMPLIANCE

The 13.56MHz Portable RF ID Read/Write Terminal was tested at Retlif Testing Laboratories, NH. The test results shown on the enclosed data, and the body of information in this application indicate the full compliance of the EUT to the specified requirements.

EQUIPMENT LISTS

Frequency Tolerance

EN	Type	Manufacturer	Description	Model No.	Cal Date	Due Date
302	Temperature Chamber	Tenney Engineering	N/A	TJR	4/1/00	4/1/01
3117	Power Supply	B&K Precision	0-30 Vdc, 3.0 A	1630	2/23/00	2/23/01
4895	Spectrum Analyzer	Hewlett Packard	9kHz - 22GHz	8593EM	2/17/00	2/17/01
4997	Digital Thermometer	Omega	N/A		6/14/00	6/14/01
520N	Digital Multimeter	Wavetek	N/A	25XT	7/11/00	1/11/01

Fundamental Field Strength

EN	Type	Manufacturer	Description	Model No.	Cal Date	Due Date
3207	Loop Antenna, Active	EMCO	10 KHz - 30 MHz	6502	3/21/00	3/21/01
4895	Spectrum Analyzer	Hewlett Packard	9kHz - 22GHz	8593EM	2/17/00	2/17/01

Out of Band Emissions

EN	Type	Manufacturer	Description	Model No.	Cal Date	Due Date
3207	Loop Antenna, Active	EMCO	10 KHz - 30 MHz	6502	3/21/00	3/21/01
4202	Biconilog	EMCO	26 MHz - 2 GHz	3142	7/10/00	7/10/01
4895	Spectrum Analyzer	Hewlett Packard	9kHz - 22GHz	8593EM	2/17/00	2/17/01

Conducted Emissions

EN	Type	Manufacturer	Description	Model No.	Cal Date	Due Date
4027	LISN	Solar Electronics	10 KHz - 30 MHz	9252-50-R-24BNC	6/19/00	6/19/01
4028	Isolation Transformer	Acme	N/A	120x240	1/25/00	1/25/01
4050	Transient Limiter	Hewlett Packard	9 KHz - 200 MHz	11970K	12/20/99	12/20/00
4895	Spectrum Analyzer	Hewlett Packard	9kHz - 22GHz	8593EM	2/17/00	2/17/01

RETLIF TESTING LABORATORIES								
TABULAR DATA SHEET								
TEST METHOD: Field Strength of Fundamental								
CUSTOMER: Global Data, Inc.				JOB NO: R-3676N1				
TEST SAMPLE: 13.56 MHz Portable RF ID Read/Write Terminal								
MODEL NO: NOVAS-120				SERIAL NO: 450146				
TEST SPECIFICATION: FCC Part 15, Subpart C Paragraph: 15.225 & 15.31								
OPERATING MODE: Continuously Transceiving								
TECHNICIAN: T. Firkowski				DATE: 10/19/00				
NOTES: Detector Function: Quasi-Peak @ 3m								
TRANSMIT FREQUENCY	TEST FREQUENCY	ANTENNA/ EUT POSITION	METER READING	CORRECTION FACTOR	CORRECTED READING	CONVERTED TO 30m	CONVERTED READING	LIMIT @ 30 METERS
MHz	MHz	Polarization/ Axis	dBuV	dB	dBuV/m	dBuV/m	uV/m	uV/m
13.56	13.56	C/Y	53.08	10.53	63.61	23.61	15.15	10,000
DATA SHEET 1 of 1								
R-3676N1								

RETLIF TESTING LABORATORIES								
TABULAR DATA SHEET								
TEST METHOD: Out of Band Emissions								
CUSTOMER: Global Data, Inc				JOB NO: R-3676N1				
TEST SAMPLE : 13.56 MHz Portable RF ID Read/Write Terminal								
MODEL NO: NOVAS-120				SERIAL NO: 450146				
TEST SPECIFICATION: FCC Part 15, Subpart C Paragraph: 15.225 & 15.31								
OPERATING MODE: Continuously Transceiving								
TECHNICIAN: T. Firkowski				DATE: 10/19/00				
NOTES: Detector Function: Quasi-Peak @ 3m								
TRANSMIT FREQUENCY	TEST FREQUENCY	ANTENNA/ EUT POSITION	METER READING	CORRECTION FACTOR	CORRECTED READING	CONVERTED TO 30m	CONVERTED READING	LIMIT @ 30 METERS
MHz	MHz	Polarization/ Axis	dBuV	dB	dBuV/m	dBuV/m	uV/m	uV/m
13.56	27.12	---	---	---	---	---	---	30
								LIMIT @ 3 METERS
								uV/m
	40.68	---	---	---	---		---	100
	54.24	---	---	---	---		---	100
	67.80	---	---	---	---		---	100
	81.36	---	---	---	---		---	100
	94.92	---	---	---	---		---	150
	108.48	---	---	---	---		---	150
	122.04	---	---	---	---		---	150
	135.60	---	---	---	---		---	150
		---	---	---	---		---	150
	1000.00	---	---	---	---		---	500
DATA SHEET 1 of 1								R-3676N1

RETLIF TESTING LABORATORIES								
TABULAR DATA SHEET								
TEST METHOD: Conducted Emissions								
CUSTOMER: Global Data, Inc				JOB NO: R-3676N1				
TEST SAMPLE: 13.56 MHz Portable RF ID Read/Write Terminal								
MODEL NO: NOVAS-120				SERIAL NO: 450146				
TEST SPECIFICATION: FCC Part 15, Subpart C								
OPERATING MODE: Continuously Transceiving								
TECHNICIAN: T. Firkowski				DATE: 10/18/00				
NOTES: Peak Readings to Quasi-Peak Limit								
TEST FREQUENCY	LEAD TESTED	PEAK READINGS	QUASI-PEAK READINGS	LIMIT QUASI- PEAK				
MHz	HOT/NEUTRAL	dBuV	dBuV	dBuV				
0.45	H	43.0	---	48.0				
0.45	N	43.0	---	48.0				
		---	---	48.0				
30.00		---	---	48.0				
All signals not reported were greater than 20 db below the limit.								
DATA SHEET 1 of 1				R-3676N1				

Test Report No. R-3676N1
FCC ID: L7BNOVAS-120

