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FCC PART 80

TEST REPORT

| | |
|----------------------|--|
| APPLICANT | GUIDANCE NAVIGATION |
| | 4 DOMINUS WAY MERIDAN BUSINESS PARK |
| | LEICESTER, LE19 1RP UK |
| FCC ID | VYMRADASCAN |
| MODEL NUMBER | RADASCAN |
| PRODUCT DESCRIPTION | NAVIGATION RADAR |
| DATE SAMPLE RECEIVED | 1/04/2008 |
| DATE TESTED | 1/16/2008 |
| TESTED BY | NAM NGUYEN |
| APPROVED BY | MARIO DE ARANZETA |
| TIMCO REPORT NO. | 26UT8TestReport.doc |
| TEST RESULTS | <input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAIL |

THE ATTACHED REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL
WITHOUT THE WRITTEN APPROVAL OF TIMCO ENGINEERING, INC.



Test Certificate # 0955-01



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GENERAL REMARKS

The attached report shall not be reproduced except in full without the written permission of Timco Engineering Inc.

The test results relate only to the items tested.

Summary

The device under test does:

- fulfill the general approval requirements as identified in this test report
- not fulfill the general approval requirements as identified in this test report

Attestations

This equipment has been tested in accordance with the standards identified in this test report. To the best of my knowledge and belief, these tests were performed using the measurement procedures described in this report.

All instrumentation and accessories used to test products for compliance to the indicated standards are calibrated regularly in accordance with ISO 17025 requirements.



Testing Certificate # 0955-01

I attest that the necessary measurements were made, under my supervision, at:

Timco Engineering Inc.
849 NW State Road 45
Newberry, FL 32669



Authorized Signatory Name:

Mario de Aranzeta C.E.T.
Compliance Engineer / Lab. Supervisor

Date: 2/7/08

GENERAL INFORMATION

DUT Specification

| | |
|----------------------------|---|
| DUT Description | NAVIGATION RADAR |
| FCC ID | VYMRADASCAN |
| Model Number | RADASCAN |
| Serial Number | N/A |
| Operating Frequency | 9.2-9.3 GHz |
| No. of Channels | Single |
| Type of Emission | Swept CW |
| Modulation | FM |
| DUT Power Source | <input type="checkbox"/> 110-120Vac/50- 60Hz |
| | <input checked="" type="checkbox"/> DC Power (24 Vdc) |
| | <input type="checkbox"/> Battery Operated Exclusively |
| Test Item | <input type="checkbox"/> Prototype |
| | <input checked="" type="checkbox"/> Pre-Production |
| | <input type="checkbox"/> Production |
| Type of Equipment | <input checked="" type="checkbox"/> Fixed |
| | <input type="checkbox"/> Mobile |
| | <input type="checkbox"/> Portable |
| Antenna | narrow beamwidth parabolic reflector 28 dBi gain |
| Antenna Connector | SMA |

| | |
|-----------------------------|--|
| Test facility | Timco Engineering, Inc. 849 NW State Road 45, Newberry, FL 32669 |
| Test Condition | The DUT was tested in the laboratory in an environment with normal temperature and humidity. The temperature was 26°C with a relative humidity of 50%. |
| Modifications | None |
| Test Exercise | The DUT was placed in continuous transmit mode of operation |
| Applicable Standards | ANSI/TIA 603-C;2004 , FCC CFR 47 Part 90 |

Applicant: GUIDANCE NAVIGATION LTD.

FCC ID: VYMRADASCAN

Report: G\GUIDANCE\26UT8\26UT8TestReport.doc

EQUIPMENT LIST

| Device | Manufacturer | Model | Serial Number | Cal/Char Date | Due Date |
|---------------------------------------|-----------------------------|---------------|--------------------------|----------------|----------|
| 3/10-Meter OATS | TEI | N/A | N/A | Listed 3/20/07 | 3/19/10 |
| 3-Meter OATS | TEI | N/A | N/A | Listed 1/11/06 | 1/10/09 |
| 3-Meter Semi-Anechoic Chamber | Panashield | N/A | N/A | Listed 5/11/07 | 5/10/10 |
| Analyzer Tan Tower Spectrum Analyzer | HP | 8566B Opt 462 | 3138A07786 3144A20661 | CAL 11/30/07 | 11/30/09 |
| Analyzer Tan Tower RF Preselector | HP | 85685A | 3221A01400 | CAL 11/30/07 | 11/30/09 |
| Analyzer Tan Tower Quasi-Peak Adapter | HP | 85650A | 3303A01690 | CAL 11/30/07 | 11/30/09 |
| Analyzer Tan Tower Preamplifier | HP | 8449B-H02 | 3008A00372 | CAL 11/30/07 | 11/30/09 |
| Antenna: Biconnical | Electro-Metrics | BIA-25 | 1171 | CAL 7/18/07 | 7/18/09 |
| Antenna: Log-Periodic | Electro-Metrics | LPA-25 | 1122 | CAL 12/1/06 | 12/1/08 |
| Antenna: Double-Ridged Horn | Electro-Metrics | RGA-180 | 2319 | CAL 7/18/07 | 7/18/09 |
| LISN | Electro-Metrics | ANS-25/2 | 2604 | CAL 10/5/06 | 10/5/08 |
| Termaline Wattmeter | Bird Electronic Corporation | 611 | 16405 | CAL 3/15/07 | 3/15/09 |

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TEST PROCEDURE

Power Line Conducted Interference: The procedure used was ANSI/TIA 603-C:2004 using a 50uH LISN. Both lines were observed with the UUT transmitting. The bandwidth of the spectrum analyzer was 10 kHz with an appropriate sweep speed.

Bandwidth 20 dB: The measurements were made with the spectrum analyzer's resolution bandwidth (RBW) = 1 MHz and the video bandwidth (VBW) = 3 MHz and the span set as shown on plot.

Power Output: The RF power output was measured at the antenna feed point using a peak power meter.

Antenna Conducted Emissions: The RBW = 100 kHz, VBW = 300 kHz and the span set to 10.0 MHz and the spectrum was scanned from 30 MHz to the 10th Harmonic of the fundamental. Above 1 GHz the resolution bandwidth was 1 MHz and the VBW = 3 MHz and the span to 50 MHz.

Radiation Interference: The test procedure used was ANSI/TIA 603-C:2004 using an Agilent spectrum receiver with pre-selector. The bandwidth (RBW) of the spectrum receiver was 100 kHz up to 1 GHz and 1 MHz above 1 GHz with an appropriate sweep speed. The VBW above 1 GHz was 3 MHz. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The ambient temperature of the UUT was 76°F with a humidity of 55%.

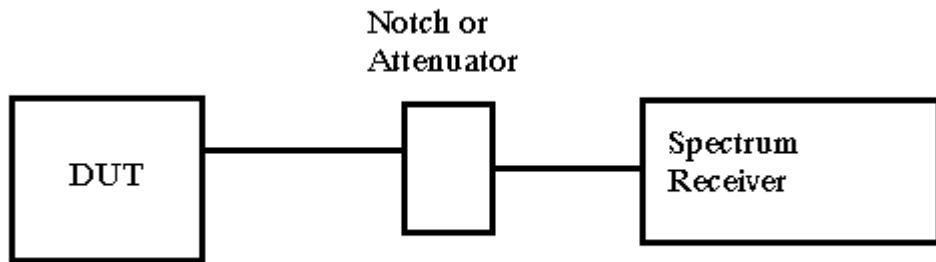
RF POWER OUTPUT

Rule Part No.: Part 2.1046(a), Part 80

Test Requirements:

Method of Measurement: RF power is measured by connecting a 50-ohm, resistive wattmeter to the RF output connector. With a nominal voltage, and the transmitter properly adjusted the RF output measures:

Test Setup Diagram:



Test Data:

OUTPUT POWER: 1.62 Watts

OUTPUT POWER (radiated): 1022 Watts EIRP

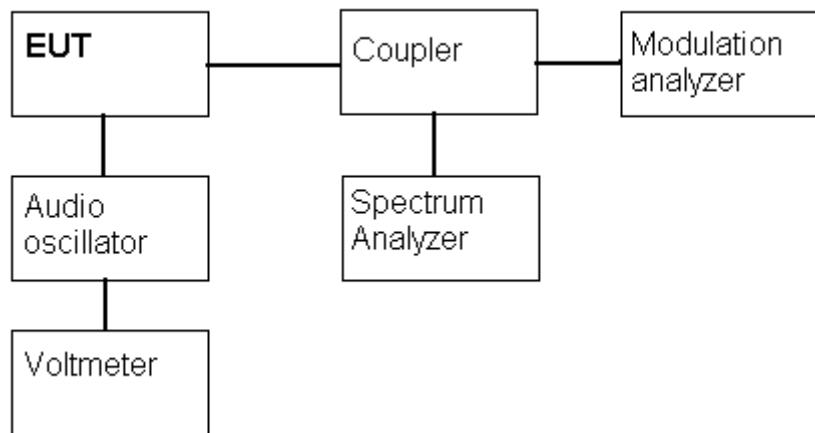
Part 2.1033 (C)(8) DC Input into the final amplifier

FOR POWER SETTING INPUT POWER: $(24.0V)(1.20A) = 28.8$ Watts

MODULATION CHARACTERISTICS

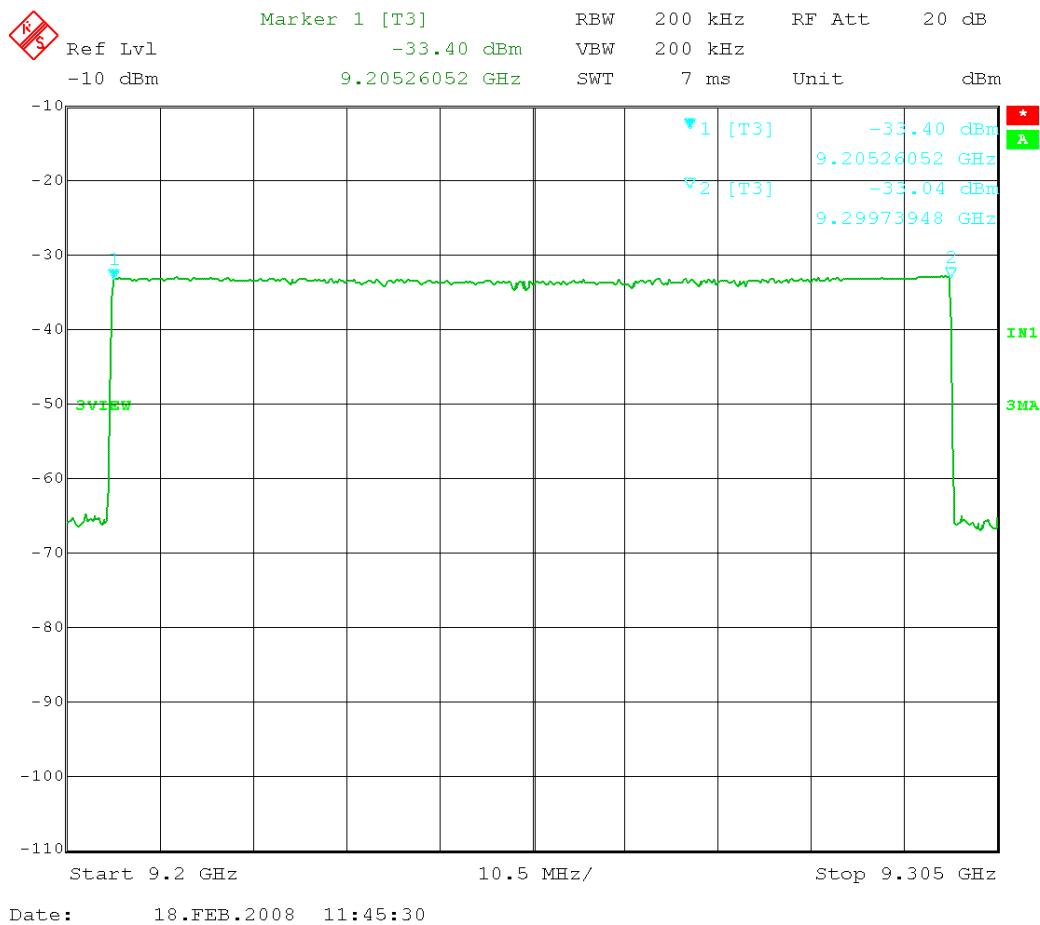
Method of Measurement: ANSI/TIA 603-C:2004

Test Setup Diagram:



The modulation consists of a rampwave changing the carrier frequency continuously from 9200-9300 MHz. The emission designator will be F0N.

OCCUPIED BANDWIDTH PLOT



The emission mask for this device requires that the emission only need stay in the band.

SPURIOUS EMISSIONS AT ANTENNA TERMINALS (CONDUCTED)

Rule Part No.: Part 2.1051(a)

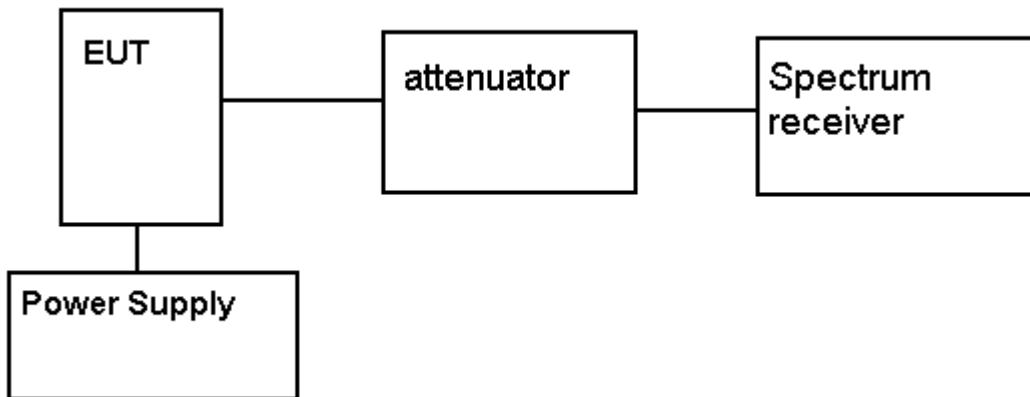
Requirements: $43 + 10\log(\text{mean power})$
 $43 + 10\log (1.62) = 45.10 \text{ dB}$

Method of Measurement: The spectrum was scanned from 0.4 to at least the 10th harmonic of the fundamental or 40 GHz. The measurements were made in accordance with standard ANSI/TIA 603-C:2004.

Test Data:

| Tuned Freq. (MHz) | Emission Freq. MHz | dB below carrier |
|------------------------------|-----------------------------------|-----------------------------|
| 9301.70 | 18603.40 | 61.73 |
| | 27905.10 | 72.75 |
| | 37206.80 | 70.63 |
| | | |
| | | |
| | | |
| | | |

Method of Measuring Conducted Spurious Emissions



METHOD OF MEASUREMENT: The procedure used was TIA/EIA-603-C:2004

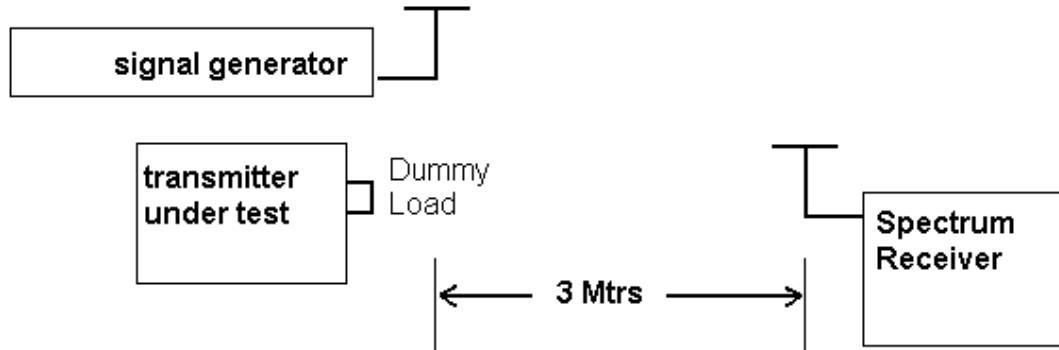
FIELD STRENGTH OF SPURIOUS EMISSIONS

Rule Parts. No.: Part 2.1053

Requirements: The FCC limits for radiated emissions are the same as previously stated for the conducted emissions.

METHOD OF MEASUREMENT: The tabulated data shows the results of the radiated field strength emissions test. The spectrum was scanned from 30 MHz to at least the tenth harmonic of the fundamental or 40 GHz. This test was conducted per ANSI/TIA 603-C:2004 using the substitution method.

Test Setup Diagram:



Test Data:

| Emission Frequency MHz | Ant. Polarity | dB below Carrier (dBc) |
|------------------------|---------------|------------------------|
| 9302.25 | 0 | 0 |
| 18603.40 | V | 48.95 |
| 27905.10 | H/V | NE |
| 37206.80 | H/V | NE |

FREQUENCY STABILITY

Rule Parts. No.: Part 2.1055, Part 80

Requirements: Emission need only remain in the band.

Method of Measurements: ANSI/TIA 603-C:2004

Test Data:

| Assigned Frequency (Ref. Frequency) (MHz) | | 9301.905436 |
|--|------------------------|----------------------------------|
| Temperature (°C) | Frequency (MHz) | Frequency Stability (PPM) |
| -30 | 9296.345513 | -597.7 |
| -20 | 9297.112613 | -515.2 |
| -10 | 9299.534708 | -254.8 |
| 0 | 9301.088535 | -87.8 |
| +10 | 9301.728611 | -19.0 |
| +20 | 9301.905436 | 0.0 |
| +30 | 9301.384092 | -56.0 |
| +40 | 9300.119386 | -192.0 |
| +50 | 9298.561111 | -359.5 |

| Assigned Frequency (Ref. Frequency) (MHz) | | Frequency Stability (PPM) |
|--|------------------------|----------------------------------|
| % Battery | Frequency (MHz) | Frequency Stability (PPM) |
| -15% | 9301.902565 | -0.31 |
| 0 | 9301.905436 | 0 |
| +15% | 9301.932013 | 2.86 |

The temperature stability of this device was measured without the temperature stabilization circuitry in the radome operating. This was required to be able to obtain reading from the device below 5 °C. In normal operation the lowest temperature obtainable would be 5 °C.