



Test Report Addendum

FCC Application for Certification

FCC ID: MCO1440

Applicant: TN Technologies
Applicant's Address: PO Box 800
Round Rock, Texas 78680
Model: 1440 Microwave Level Gauge
Serial Number: N/A
Project Number: 00446-10
Test Dates: 04 March, 2000 and 08 March, 2000

The required radiated harmonic emission measurements have been conducted on the above Level Gauge in accordance with §15.33(a)(2). Two separate tests were conducted in two different locations to verify that the EUT and equipment performed as reported herein. Test one was conducted at the manufacturers location on Saturday 04 March, 2000 and test two was conducted at the PTI laboratory on Wednesday 08 March, 2000. The emissions and noise floors obtained during the two tests agreed.

I believe the information reported herein to be true and accurate.

The **Model 1440 Microwave Level Gauge** was tested to and found to be in compliance with FCC Part 15 Subpart C for an Intentional Radiator.

The Level Gauge with the dielectric rod antenna was installed in the test tank as indicated in the enclosed photographs. Radiated emissions were measured at distances of 5 to 20 cm from the EUT seams and flanges while the EUT was parked (not sweeping) on 9.5503 GHz. Wide and narrow spans as well as resolution bandwidths down to 10 KHz were used to locate possible emissions. The EUT's shield cover was removed to enhance third harmonic radiation in order to verify operation and correct search frequency of the microwave measuring equipment. The radiated highest emissions generated by the above equipment are listed below:

MEASUREMENT RESULTS:

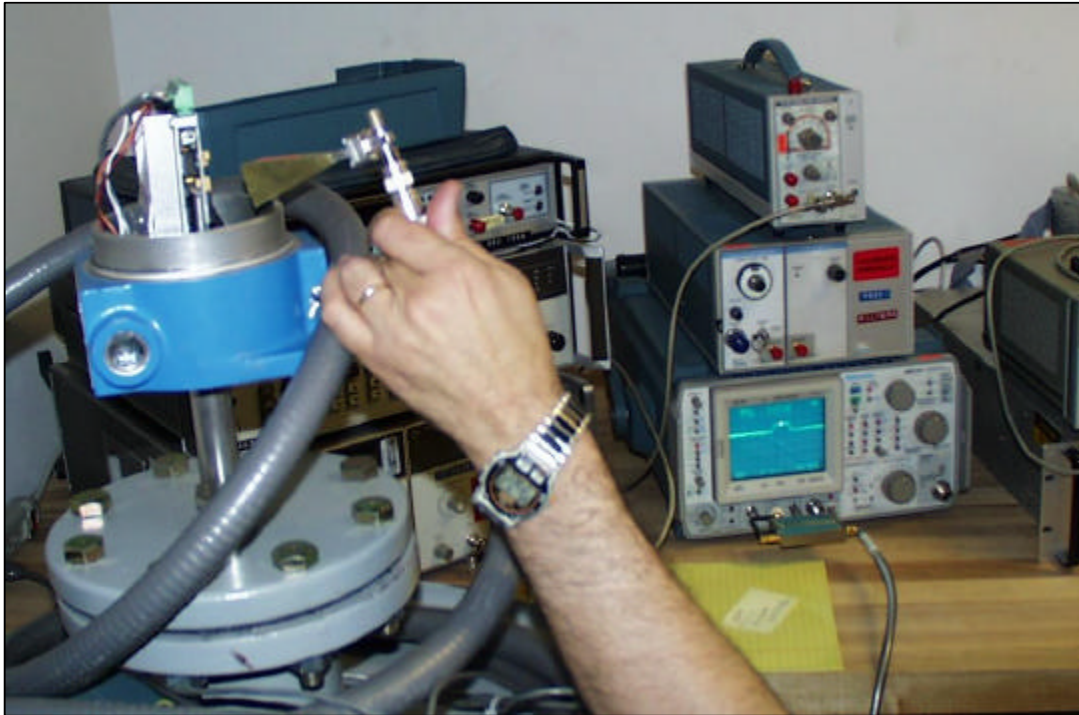
<u>Frequency</u> GHz	<u>Meas. Level</u> [□] (dBuV)	<u>Noise floor</u> or <u>signal</u>	<u>Antenna</u> <u>Factor</u>	<u>3m Limit</u> * (dBuV/m)	<u>Meas.</u> <u>dist.</u>	<u>Dist. Cor.</u> <u>Factor</u>	<u>Limit</u> <u>Margin</u>
28.651	26 _{100 KHz}	30 dBuV	41.4 dB	54	20 to 5 cm	24 to 36 dB	- 6.6 dB
38.201	27 _{100 KHz}	nf	43.1 dB	54	5 cm	36 dB	-19.9 dB
47.752	29 _{100 KHz}	nf	37.5 dB	54	5 cm	36 dB	-23.5 dB
57.302	27 _{100 KHz}	nf	38.5 dB	54	5 cm	36 dB	-24.5 dB

* Limit of §15.209 used because of swept emissions from the EUT possibly falling in the Bands of §15.205.

□ Measured level is corrected for IF cable loss and mixer conversion factor.

MEASUREMENT EQUIPMENT:

Tektronix 492BP, Spectrum Analyzer	A/N: 1031	Cal Due: Mar 2001
Tektronix WM490U, 40 GHz to 60 GHz mixer	A/N: 1056	Cal Due: Mar 2001
Millitech 5155, 26.5 GHz to 40 GHz mixer	A/N: 1152	Cal Due: Mar 2001
Millitech 26-40, 26.5 GHz to 40 GHz Horn	S/N: 031	Cal Due: Mar 2001
WL Gore 3m SMA to SMA IF Cable	S/N: 250239	Cal Due: Mar 2001
HP 436A Power Meter	A/N: 1086	Cal Due: May 2000
HP R8486D Power Sensor, 26-40 GHz	A/N: 50013	Cal Due: May 2000
Gigatronix 910-039 Synthesizer, 40 GHz	A/N: 1318	Cal Due: Feb 2001



26 to 40 GHz Investigation With Cover Removed to Identify Measurement Frequencies



40 to 60 GHz Investigation of Possible Emissions From The Flange

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CERTIFICATION:

This is to certify that the EUT represented in the enclosed photographs was tested as described in this report and produced the harmonic emission compliance performance that is reported herein.

Ben Bibb, NCE 10 March, 2000
Professional Testing (EMI), Inc.