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CLASS II PERMISSIVE CHANGE

TEST REPORT FOR A 916.55 MHz TRANSCEIVER

Applicant: Trimble Navigation Ltd.
645 N. Mary Avenue
Sunnyvale, CA 94086

Model: "BoB"
FCC ID: JUP-7486-CIRAA
Original Grant: 9 May 2000

Operating Frequency: 916.55 MHz Fixed

Rule Part: 15.249

Used For: Short range GPS data distribution

Power Source: Internal rechargeable batteries

Test Location: Compliance Consulting Services
951F Monterey Road
Morgan Hill, CA 95087

All tests were performed by Compliance Certification Services, Morgan Hill, CA. The Trimble low power transceiver meets all emissions requirements in FCC Part 15.

THOMAS N. COKENIAS

7 April 2001

EXHIBITS

EXHIBIT A: Product Photographs

EXHIBIT B: Label Drawing

EXHIBIT C: User Manual

EXHIBIT D: Theory of Operation (Confidentiality Requested)

EXHIBIT E: Report of Measurements

EXHIBIT F: Schematics (Confidentiality Requested)

EXHIBIT G: Block Diagram (Confidentiality Requested)

EXHIBIT A: Product Photographs

- refer to separate attachments

EXHIBIT B: Label Drawing

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EXHIBIT E: Report of Measurements

TEST PROCEDURES

Radiated Emissions

Test Requirement: 15.205, 15.249

Measurement Equipment Used:

HP 8593EM Spectrum Analyzer

HP 8447 Preamplifier, .1 - 1300 MHz

HP 8449 Preamplifier, 1-26.5 GHz

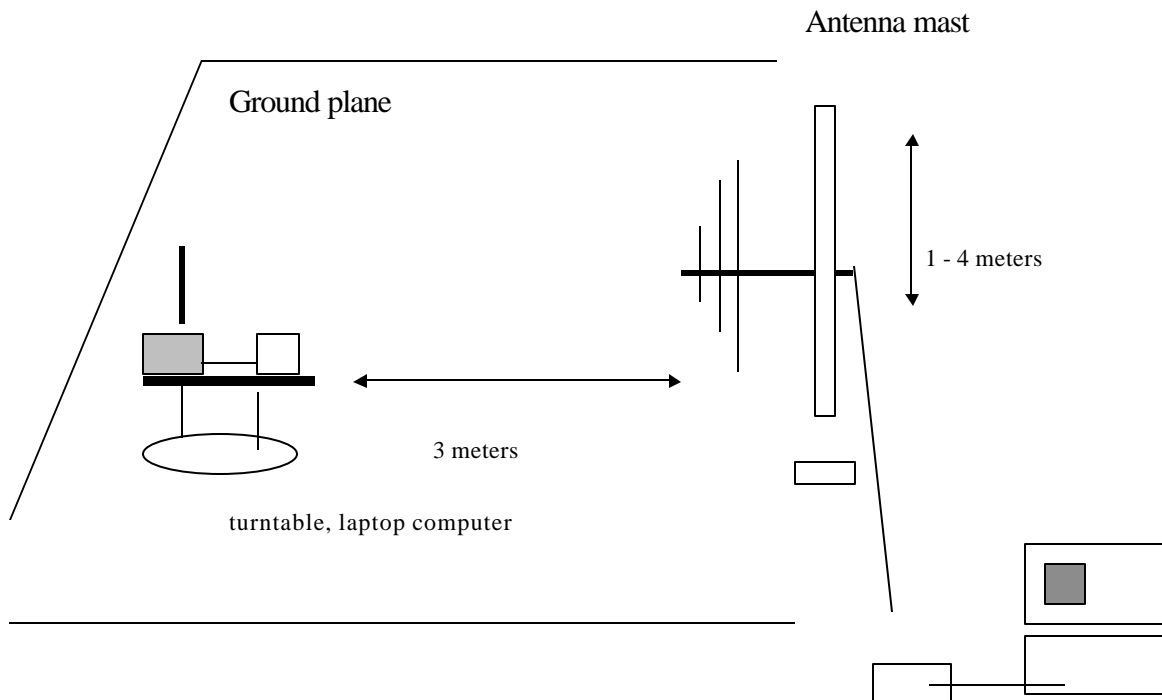
Chase Bilog Antenna, 30 - 2000 MHz

150' low loss coax (site A standard)

EMCO 3115 Double Ridged Horn antenna, 1 - 18 GHz

16 ft Flexco low loss cable (0.85 dB/ft at 26.5 GHz)

Test Set-up, 30 - 2000 MHz



Test Set-Up, 2000 - 9160 MHz

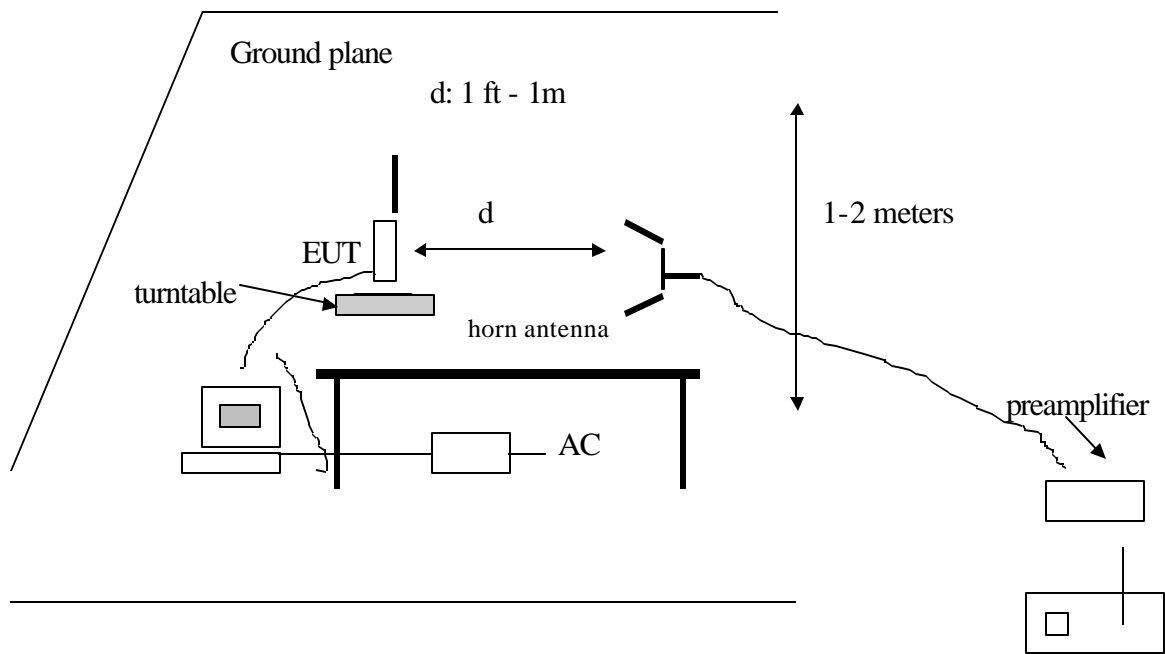


Fig. 1

spectrum analyzer

1. The EUT was placed on a wooden table resting on a turntable on the open air test site. The search antenna was placed 3m from the EUT. The EUT antenna was mounted vertically as per normal installation.
2. The turntable was slowly rotated to locate the direction of maximum emission at each emission falling in the restricted bands of 15.205.

3. Once maximum direction was determined, the search antenna was raised and lowered in both vertical and horizontal polarizations. The maximum readings so obtained are recorded in the data listed below.

Test Results: Refer to separate .xls for fundamental frequency and harmonic frequency emissions.



All emissions outside 902-928 MHz band were below 15.209 emissions limits.

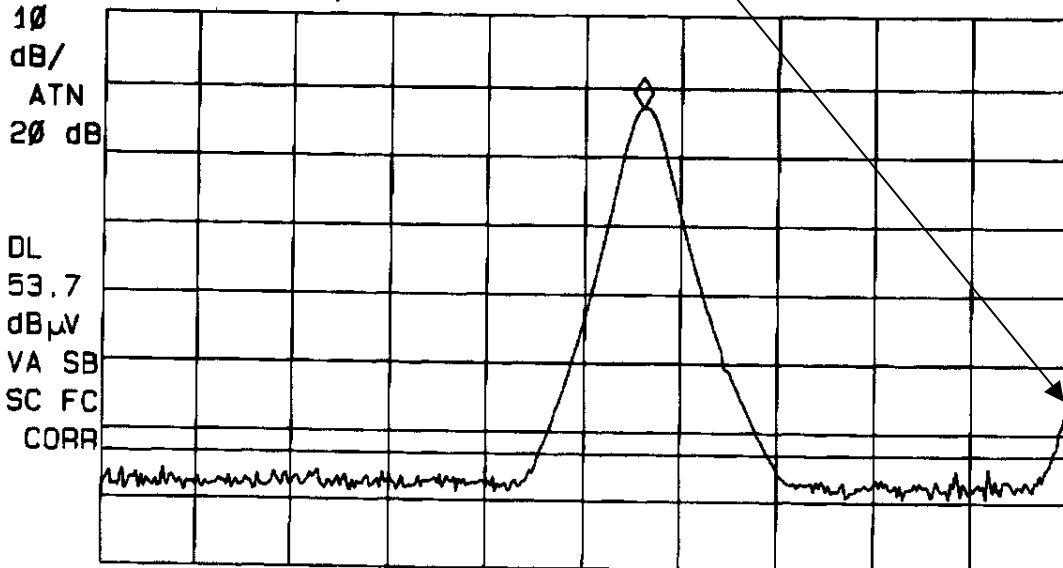
Out of Band Emissions, 50 dB below Carrier

(ambient signal)

12:12:37 FEB 20, 2001
TRIMBLE 15.249

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 916.56 MHz
103.71 dB μ V

LOG REF 117.0 dB μ V



START 902.00 MHz

#IF BW 1.0 MHz

#AVG BW 1 MHz

STOP 928.00 MHz

SWP 20.0 msec

AC Line Conducted Emissions

Test Requirement: 15.207

Measurement Equipment Used:

Rohde & Schwarz EMI Receiver ESHS-20

Fischer Custom Communication LISN, FCC-LISN-50/250-25-2

Test Set-up

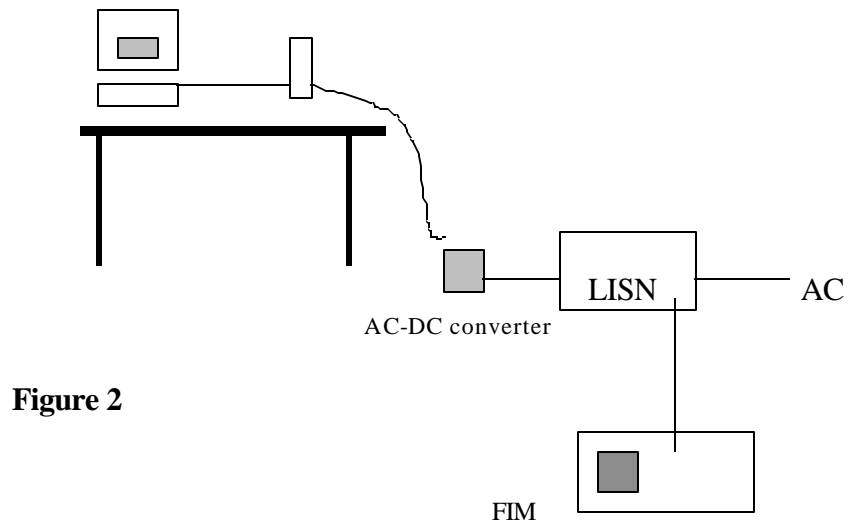


Figure 2

Test Procedure

1. The EUT was placed on a wooden table 40 cm from a vertical ground plane and approximately 80 cm above the horizontal ground plane on the floor. The EUT was set to transmit in a normal hopping mode.
2. Line conducted data was recorded for both NEUTRAL and HOT lines.

Test Results

Refer to attached graph.

THOMAS N. COKENIAS

9 April 2001

EXHIBIT F: Schematics (Confidentiality Requested)

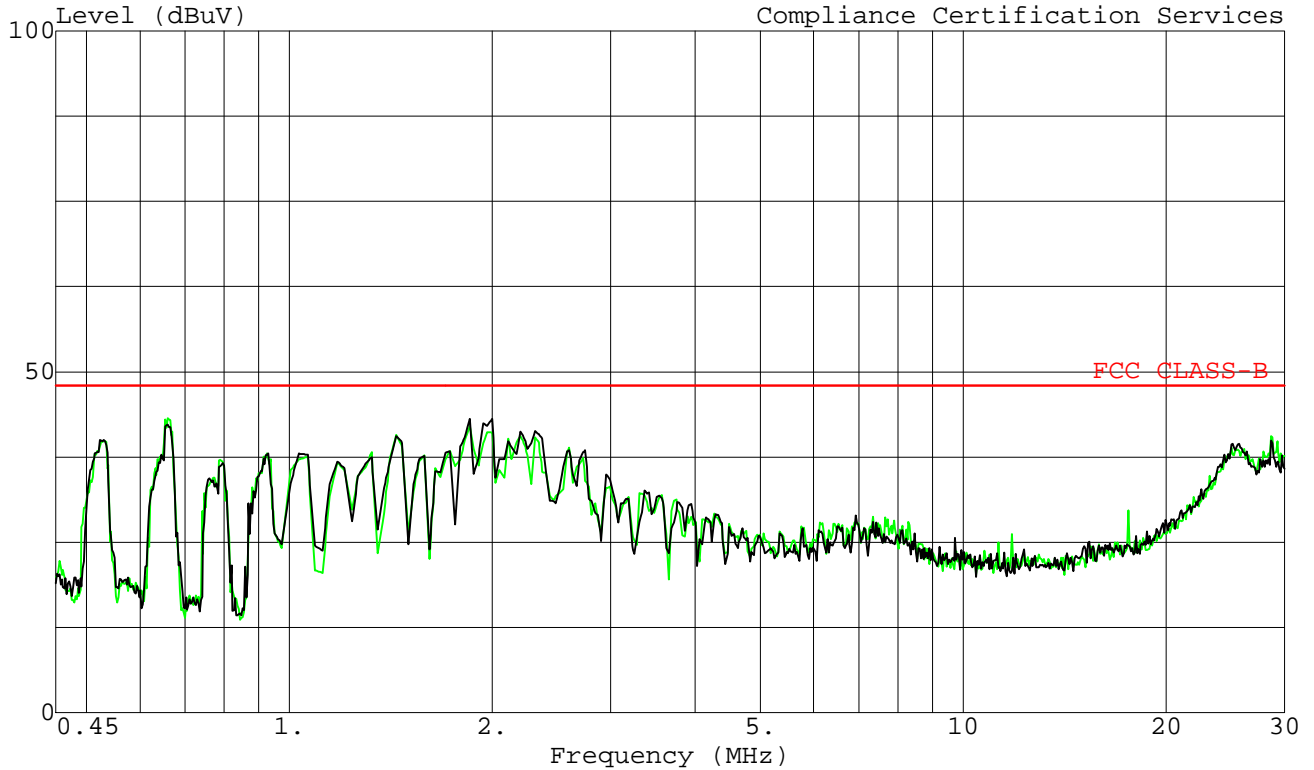
- refer to separate attachments

EXHIBIT G: Block Diagram (Confidentiality Requested)

- refer to separate attachment

COMPLIANCE ENGINEERING SERVICES, INC.													
Harmonic Emissions										2/20/01			
15.249(a)										Jesse Saldivar			
Trimble (BOB)										A site (1.0 Meter)			
$f_o = 916.2$ MHz													
F(MHz)	READING		AF	CL	AMP	DIST	HPF	TOTAL		LIMIT		MARGIN	
	(dBuV)							(dB)	(dB)	(dB)	(dB)	(dBuV/m)	
	Pk	Avg						Pk	Avg	Pk	Avg	Pk	Avg
2794	51.9	46.8	29	3.62	-32.1	-15.5	1	37.92	32.82	74	54	-36.08	-21.18
3665	44.29		31.8	5.03	-32.1	-15.5	1	34.52			54		-19.48
4582	43.42		32	5.63	-32.1	-15.5	1	34.45			54		-19.55
5498	44.27		31.2	6.03	-32.1	-15.5	1	34.9			54		-19.1
6414	43.79		34	6.63	-32.1	-15.5	1	37.82			54		-16.18
7330	48		37	7.03	-32.1	-15.5	1	45.43			54		-8.57
8246	48.69		37.1	8.04	-32.1	-15.5	1	47.23			54		-6.77
9162	45.54		38	8.44	-32.1	-15.5	1	45.38			54		-8.62
NOTE: ALL READINGS ARE VERTICAL										ANALYZER SETTINGS			
DIST: Correction to extrapolate reading to 3m specification distance										Res bw		Avg. bw	
1.5ft measurement distance: -15.56 dB										PEAK(Pk):		1MHz	
										AVERAGE(Avg):		10Hz	
AF: Antenna Factor													
AMP: Pre-amp gain													
CL: Cable loss													
HPF: High pass filter insertion loss (1.802GHz) FSY (S/N: 001)													

Data#: 7 File#: 01UTRIMB.EMI Date: 02-20-2001 Time: 19:09:11
 Level (dBuV) Compliance Certification Services



Trace: 3 Ref Trace:

Project No. : 01UTrimb
 Report No. : 010220LC
 Test Engr : Jesse Saldivar
 Company : Trimble Navigation LTD.
 EUT Description : 916.55MHz Fixed Short Range GPS data
 : Distribution radio
 Model : BoB FCC ID: JUP-4786-CIRAA
 EUT Config. : EUT/Laptop
 Type of Test : FCC 15.249
 Mode of Operation: TX
 : PEAK: L1(Black), L2(Green)
 : 115VAC, 60Hz