RADIATED EMISSIONS

DATA

FOR

QUALCOMM, INC.
10300 Campus Point Drive
San Diego, CA 92121

Prepared by

TÜV PRODUCT SERVICE
10040 Mesa Rim Road
San Diego, CA 92121-2912

Measurement Requirements (CFR 47 Part 25, Paragraph 25.202)

The measurements which follow were performed by TÜV Product Service. To the best of my knowledge these tests were conducted in accordance with the procedures outlined in Part 2 of the Commission's Rules and Regulations. The data presented below demonstrates compliance with the appropriate technical standards.

Floyd R. Fleury
EMC Manager

TÜV PRODUCT SERVICE 10040 Mesa Rim Road San Diego, CA 92121-2912 Phone 858 546 3999 FAX 858 546 0364

Emissions Test Conditions: SPURIOUS RADIATED EMISSIONS

Roof (small open area test site)

The *Spurious Radiated Emissions* measurements were performed using the following equipment:

Test Equipment Used :

Model No.	Prop. No.	Description	Manufacturer	Serial No.	Cal Due Date
HP8566B	407	Spectrum Analyzer	Hewlett Packard	2311A02209	02/02
HP8445B	809	Automatic Preselector	Hewlett Packard	1442A01127	N/A*
AMF-3D-010180-35-10P	752	Amplifier 20 dB	Miteq	614344	N/A*
FF6548-2	781	2000 MHz High Pass Filter	Sage Laboratories	004	N/A*
3115	251	Double Ridge Antenna	EMCO	2495	10/01
AA-190-30.00.0	732	30 foot HFreq. Cable (1 - 18 GHz)	United Microwave Pro	--	N/A*
AA-190-06.00.0	657	High Freq. Cable	United Microwave Pro	--	N/A*

Remarks: (*) Verified

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FCC Part 25, Paragraph 25.202

Globalstar ODU and Globalstar AFUT

Low, mid and high channels tested. All emissions (spurious and harmonics) were greater than 20 dB below the limit. Frequency range investigated from lowest RF frequency generated up to the 10th harmonic.

Operating Mode: Transmit Full Power
RBW and VBW = 1 MHz for peak for fundamental and harmonics.
RBW and VBW = 30 kHz 20 video samples for average for fundamental.

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Testing Facilities

Certificates of Approval

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United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

ISO/IEC GUIDE 25:1990
ISO 9002:1987

Certificate of Accreditation

DEPARTMENT OF COMMERCE ★ UNITED STATES OF AMERICA ★

TUV PRODUCT SERVICE, INC.
SAN DIEGO, CA

is recognized under the National Voluntary Laboratory Accreditation Program for satisfactory compliance with criteria established in Title 15, Part 285 Code of Federal Regulations. These criteria encompass the requirements of ISO/IEC Guide 25 and the relevant requirements of ISO 9002 (ANSI/ASQC Q92-1987) as suppliers of calibration or test results. Accreditation is awarded for specific services, listed on the Scope of Accreditation for:

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

December 31, 2001
Effective through

David F. Alderman
For the National Institute of Standards and Technology

NVLAP Lab Code: 100268-0

NVLAP-01C (11-95)

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TÜV PRODUCT SERVICE

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National Institute of Standards and Technology NVLAP® National Voluntary Laboratory Accreditation Program

ISO/IEC GUIDE 25:1990
ISO 9002:1987

Scope of Accreditation

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

NVLAP LAB CODE 100268-0

TUV PRODUCT SERVICE, INC.
10040 Mesa Rim Road
San Diego, CA 92121-1034
Mr. R. Barry Wallen
Phone: 619-546-3999 Fax: 619-546-0364
E-Mail: bwallen@TUVps.com
URL: http://www.tuvps.com

NVLAP Code	*Designation / Description*
Emissions Test Methods:	
12/CIS22	IEC/CISPR 22:1993: Limits and methods of measurement of radio disturbance characteristics of information technology equipment
12/CIS22a	IEC/CISPR 22:1993: Limits and methods of measurement of radio disturbance characteristics of information technology equipment, Amendment 1:1995, and Amendment 2:1996.
12/CIS22b	CNS 13438:1997: Limits and Methods of Measurement of Radio Interference Characteristics of Information Technology Equipment
12/F01	FCC Method - 47 CFR Part 15 - Digital Devices
12/F01a	Conducted Emissions, Power Lines, 450 KHz to 30 MHz
12/F01b	Radiated Emissions

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NVLAP-01S (11-95)

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NVLAP LAB CODE 100268-0

TUV PRODUCT SERVICE, INC.

NVLAP Code	*Designation / Description*
12/T51	AS/NZS 3548: Electromagnetic Interference - Limits and Methods of Measurement of Information Technology Equipment
MIL-STD-462 : Conducted Emissions:	
12/A01	MIL-STD-462 Method CE01
12/A04	MIL-STD-462 Method CE02
12/A06	MIL-STD-462 Method CE03
12/A08	MIL-STD-462 Method CE04
12/A10	MIL-STD-462 Method CE06
12/A12	MIL-STD-462 Method CE07
MIL-STD-462 : Conducted Susceptibility:	
12/B01	MIL-STD-462 Method CS01
12/B02	MIL-STD-462 Method CS02
12/B04	MIL-STD-462 Method CS03/CS04/CS05/CS08
12/B05	MIL-STD-462 Method CS06

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NVLAP LAB CODE 100268-0

TUV PRODUCT SERVICE, INC.

NVLAP Code	*Designation / Description*
12/B06	MIL-STD-462 Method CS07
12/B07	MIL-STD-462 Method CS09
MIL-STD-462 : Radiated Emissions:	
12/D01	MIL-STD-462 Method RE01
12/D02	MIL-STD-462 Method RE02
12/D03	MIL-STD-462 Method RE03
MIL-STD-462 : Radiated Susceptibility:	
12/E01	MIL-STD-462 Method RS01
12/E02	MIL-STD-462 Method RS02
12/E03	MIL-STD-462 Method RS03 (Consult laboratory for field strengths available)
12/E04	MIL-STD-462 Method RS03 employing RADHAZ procedures for high level testing (Consult laboratory for field strengths available)

December 31, 2001
Effective through

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For the National Institute of Standards and Technology

NVLAP-01S (11-95)

TÜV PRODUCT SERVICE 10040 Mesa Rim Road San Diego, CA 92121-2912 Phone 858 546 3999 FAX 858 546 0364

REPORT No: SC104902 TESTER: Alan Laudani SPEC: 0

CUSTOMER: Qualcomm TEST DIST: 3 Meters Part 25.202

E U T: Globalstar ODU TEST SITE: Roof

EUT MODE: Transmitting BICONICAL: N/A

DATE: June 15, 2001 LOG: N/A

NOTES: Duty Cycle= 100% OTHER: 251

above 1GHz: RBW & VBW 1 MHz for Pk; RBW 1MHz and VBW 10Hz for AVG

cdma RBW 30kHz VBW 100 kHz

CF = Antenna Factor + Cable Loss - Preamplifier Gain + Preselector Loss

v.beta1a

FREQ (MHz)	VERTICAL (dBuv) pk	VERTICAL (dBuv) av	HORIZONTAL (dBuv) pk	HORIZONTAL (dBuv) av	CF (dB/m)	MAX LEVEL (dBuV/m) pk	MAX LEVEL (dBuV/m) av	SPEC LIMIT (dBuV/m) pk	SPEC LIMIT (dBuV/m) av	MARGIN (dB) pk	MARGIN (dB) av	EUT Rotation	Antenna Height	Notes
1616.88		95.8		85.9	30.6	**30.6**	**126.4**			30.6	126	0	1	without preselector or preamp
3233.76	38.6	19.7	37.5	19.4	37.4	**76.0**	**57.1**	102.2	82.2	-26.2	-25.1	0	1	with preselector and preamp
4850.64	37.2	19.4	37.2	19.4	40.8	**78.0**	**60.2**	102.2	82.2	-24.2	-22	0	1	noise floor
6467.52	43.1	23.2	43.2	23	42.5	**85.7**	**65.7**	102.2	82.2	-16.5	-16.5			noise floor
8084.4	43.9	23.2	42.2	23.1	46.0	**89.9**	**69.2**	102.2	82.2	-12.3	-13			noise floor
9701.28	42.4	23.2	43	23.2	47.1	**90.1**	**70.3**	102.2	82.2	-12.1	-11.9			noise floor
11318.16	43.8	23.8	43.1	23.8	49.3	**93.1**	**73.1**	102.2	82.2	-9.12	-9.12			noise floor
12935.04	47.9	28	47.2	28	49.7	**97.6**	**77.7**	102.2	82.2	-4.6	-4.5			noise floor
14551.92	48.9	28.7	48.7	28.5	51.1	**100.0**	**79.8**	102.2	82.2	-2.19	-2.39			noise floor
16168.8	49.2	28.9	48.3	28.8	51.8	**101.0**	**80.7**	102.2	82.2	-1.17	-1.47			noise floor
1610.73		96.6		83.1	30.6	**30.6**	**127.2**			30.56	127			
3221.46	38.3	19.7	38.3	19.6	37.4	**75.7**	**57.1**	102.2	82.2	-26.5	-25.1			noise floor
4832.19	36.9	19.5	37.7	19.6	40.8	**78.5**	**60.4**	102.2	82.2	-23.7	-21.8			noise floor
6442.92	43	23.3	43.1	23.1	42.6	**85.7**	**65.9**	102.2	82.2	-16.5	-16.3			noise floor
8053.65	43.7	23.2	44	23.1	45.9	**89.9**	**69.1**	102.2	82.2	-12.3	-13.1			noise floor
9664.38	43.1	23.3	42.8	23.3	47.1	**90.2**	**70.4**	102.2	82.2	-12	-11.8			noise floor
11275.11	43	23.7	44.2	23.8	49.2	**93.4**	**73.0**	102.2	82.2	-8.77	-9.17			noise floor
12885.84	47.4	28	48.2	28.1	49.8	**98.0**	**77.9**	102.2	82.2	-4.22	-4.32			noise floor
14496.57	48.2	28.6	48.7	28.9	51.0	**99.7**	**79.9**	102.2	82.2	-2.5	-2.3			noise floor
16107.3	50.1	28.9	48.2	28.9	51.9	**102.0**	**80.8**	102.2	82.2	-0.21	-1.41			noise floor

REPORT No: SC104902 TESTER: Alan Laudani MAL SPEC: 0 Part 25.202

CUSTOMER: Qualcomm TEST DIST: 3 Meters

E U T: Globalstar ODU TEST SITE: Roof

EUT MODE: Transmitting BICONICAL: N/A

DATE: June 15, 2001 LOG: N/A

NOTES: Duty Cycle= 100% OTHER: 251

above 1GHz: RBW & VBW 1 MHz for Pk; RBW 1MHz and VBW 10Hz for AVG

cdma RBW 30kHz VBW 100 kHz

CF = Antenna Factor + Cable Loss - Preamplifier Gain + Preselector Loss

v.beta1a

FREQ (MHz)	VERTICAL (dBuv) pk	VERTICAL (dBuv) av	HORIZONTAL (dBuv) pk	HORIZONTAL (dBuv) av	CF (dB/m)	MAX LEVEL (dBuV/m) pk	MAX LEVEL (dBuV/m) av	SPEC LIMIT (dBuV/m) pk	SPEC LIMIT (dBuV/m) av	MARGIN (dB) pk	MARGIN (dB) av	EUT Rotation	Antenna Height	Notes
1620.57		98.8		76.1	30.6	**30.6**	**129.4**			30.62	129	0	1	without preselector or preamp
3241.14	38.4	19.4	37.7	19.4	37.5	**75.9**	**56.9**	102.2	82.2	-26.3	-25.3	0	1	with preselector and preamp
4861.71	38	19.5	36.8	19.3	40.9	**78.9**	**60.4**	102.2	82.2	-23.3	-21.8	0	1	noise floor
6482.28	44.1	23.1	43.5	23	42.5	**86.6**	**65.6**	102.2	82.2	-15.6	-16.6			noise floor
8102.85	42.5	23.1	43	23.1	46.0	**89.0**	**69.1**	102.2	82.2	-13.2	-13.1			noise floor
9723.42	42.7	23.2	44	23.3	47.1	**91.1**	**70.4**	102.2	82.2	-11.1	-11.8			noise floor
11343.99	44.2	28	44.1	23.8	49.3	**93.5**	**77.3**	102.2	82.2	-8.69	-4.89			noise floor
12964.56	48.7	28	48.2	28	49.7	**98.4**	**77.7**	102.2	82.2	-3.84	-4.54			noise floor
14585.13	50.4	28.7	49.2	28.5	51.2	**101.6**	**79.9**	102.2	82.2	-0.61	-2.31			noise floor
16205.7	49.9	28.8	48.4	28.6	51.8	**101.7**	**80.6**	102.2	82.2	-0.51	-1.61			noise floor

REPORT No: SC104902 TESTER: Alan Laudani SPEC: 0 Part 25.202

CUSTOMER: Qualcomm TEST DIST: 3 Meters

E U T: Globalstar AFUT TEST SITE: Roof

EUT MODE: Transmitting BICONICAL: N/A

DATE: June 15, 2001 LOG: N/A

NOTES: Duty Cycle= 100% OTHER: 251

above 1GHz: RBW & VBW 1 MHz for Pk; RBW 1MHz and VBW 10Hz for AVG

cdma RBW 30kHz VBW 100 kHz

CF = Antenna Factor + Cable Loss - Preamplifier Gain + Preselector Loss

v.beta1a

FREQ (MHz)	VERTICAL (dBuv) pk	av	HORIZONTAL (dBuv) pk	av	CF (dB/m)	MAX LEVEL (dBuV/m) pk	av	SPEC LIMIT (dBuV/m) pk	av	MARGIN (dB) pk	av	EUT Rotation	Antenna Height	Notes
1620.57	98	82.9	92.4	75.4	30.6	**128.6**	**####**			128.6	114	0	1	without preselector or preamp
3241.14	29.2	10.5	29.5	10	37.5	**67.0**	**48.0**	102.2	82.2	-35.2	-34.2	0	1	with preselector and preamp
4861.71	27.9	9.6	27.4	9.5	40.9	**68.8**	**50.5**	102.2	82.2	-33.4	-31.7	0	1	noise floor
6482.28	33.5	13.3	34.1	13.1	42.5	**76.6**	**55.8**	102.2	82.2	-25.6	-26.4			noise floor
8102.85	33.4	13.2	34.4	4.4	46.0	**80.4**	**59.2**	102.2	82.2	-21.8	-23			noise floor
9723.42	33.2	13.2	33.8	4.4	47.1	**80.9**	**60.3**	102.2	82.2	-21.3	-21.9			noise floor
11343.99	34	13.7	33.8	13.8	49.3	**83.3**	**63.1**	102.2	82.2	-18.9	-19.1			noise floor
12964.56	38.3	18	38.2	17.9	49.7	**88.0**	**67.7**	102.2	82.2	-14.2	-14.5			noise floor
14585.13	40.7	18.6	39.5	18.6	51.2	**91.9**	**69.8**	102.2	82.2	-10.3	-12.4			noise floor
16205.7	39.6	18.8	39.8	18.8	51.8	**91.6**	**70.6**	102.2	82.2	-10.6	-11.6			noise floor

REPORT No: SC104902 TESTER: Alan Laudani SPEC: 0 Part 25.202

CUSTOMER: Qualcomm TEST DIST: 3 Meters

E U T: Globalstar AFUT TEST SITE: Roof

EUT MODE: Transmitting BICONICAL: N/A

DATE: June 15, 2001 LOG: N/A

NOTES: Duty Cycle= 100% OTHER: 251

above 1GHz: RBW & VBW 1 MHz for Pk; RBW 1MHz and VBW 10Hz for AVG

cdma RBW 30kHz VBW 100 kHz

CF = Antenna Factor + Cable Loss - Preamplifier Gain + Preselector Loss

v.beta1a

FREQ (MHz)	VERTICAL (dBuv) pk	VERTICAL (dBuv) av	HORIZONTAL (dBuv) pk	HORIZONTAL (dBuv) av	CF (dB/m)	MAX LEVEL (dBuV/m) pk	MAX LEVEL (dBuV/m) av	SPEC LIMIT (dBuV/m) pk	SPEC LIMIT (dBuV/m) av	MARGIN (dB) pk	MARGIN (dB) av	EUT Rotation	Antenna Height	Notes
1610.73	88.5	73.5	87.1	71.6	30.6	119.1	####			119.1	104	0	1.25	with preselector
1610.73	98.7	84.9	92.9	77.8	30.6	129.3	####			129.3	115	0	1.25	without preselector
3223.46	28.8	10.8	29.2	9.9	37.4	66.6	48.2	102.2	82.2	-35.6	-34	0	1	
4834.19	28.8	9.6	28.5	9.7	40.8	69.6	50.5	102.2	82.2	-32.6	-31.7	0	1	noise floor
6444.92	39	13.7	33	13.2	42.6	81.6	56.3	102.2	82.2	-20.6	-25.9			noise floor
8055.65	34.8	13.2	33.3	13.3	45.9	80.7	59.2	102.2	82.2	-21.5	-23			noise floor
9666.38	34.1	13.3	32.5	13.3	47.1	81.2	60.4	102.2	82.2	-21	-21.8			noise floor
11277.11	35.2	13.7	33	13.8	49.2	84.4	63.0	102.2	82.2	-17.8	-19.2			noise floor
12887.84	37.2	17.9	38.7	18.5	49.8	88.5	68.3	102.2	82.2	-13.7	-13.9			noise floor
14498.57	38.5	18.1	38.6	18.9	51.0	89.6	69.9	102.2	82.2	-12.6	-12.3			noise floor
16109.3	37.9	18	38	18.2	51.9	89.9	70.1	102.2	82.2	-12.3	-12.1			noise floor
1616.8	99.1	81.9	94	80.4	30.6	129.7	####			129.7	113	0	1	
3233.6	31.6	12.1	29.1	10.2	37.4	69.0	49.5	102.2	82.2	-33.2	-32.7	0	1	
4850.4	27.4	9.9	27.4	9.6	40.8	68.2	50.7	102.2	82.2	-34	-31.5			noise floor
6467.2	33.4	13.4	33.5	13.1	42.5	76.0	55.9	102.2	82.2	-26.2	-26.3			noise floor
8084	33.5	13.4	33	13.2	46.0	79.5	59.4	102.2	82.2	-22.7	-22.8			noise floor
9700.8	32.5	13.1	32.5	13.3	47.1	79.6	60.4	102.2	82.2	-22.6	-21.8			noise floor
11317.6	33.8	13.7	34	13.7	49.3	83.3	63.0	102.2	82.2	-18.9	-19.2			noise floor
12934.4	37.9	17.9	39.3	17.9	49.7	89.0	67.6	102.2	82.2	-13.2	-14.6			noise floor
14551.2	38.1	18.5	39.6	18.6	51.1	90.7	69.7	102.2	82.2	-11.5	-12.5			noise floor
16168	38.5	18.9	38.9	18.7	51.8	90.7	70.7	102.2	82.2	-11.5	-11.5			noise floor

Exhibit 14 Frequency Stability

The test results reported in the following 2 tables are abstracted from the conducted design verification test (DVT) results on 8 sample DVT RAU RF Boards as will be reported in the in-progress Fixed Phone RF Board Design Verification Test Plan, 80-98415-1 X3.

Table 1 presents the mean values of measured frequency variation in parts per million (ppm) at cold (-30° C), ambient, and hot (60° C) temperatures. Table 2 presents the minimum, maximum , and mean values over all temperatures for the 7 boards tested.

Test Equipment

Equipment	Serial Number	Cal Date	Cal Due
Leader DC Power Supply	DE14268	September 14, 2000	September 14, 2001
HP 8593EM Spectrum Analyzer	3412A00107	February 1, 2001	February 12, 2002

Table 1. Mean Variation in TX Frequency with Temperature

					Delta	
	-30 C	Ambient	60 C	Spec.	Amb. To Cold	Amb. To Hot
TX ppm	1.18	0.31	0.36	5.00	0.87	0.04

Table 2. Variation Range for TX Frequency over Temperature Range

	Data for Hot, Cold, Ambient			Test		Design
	Min.	Max.	Mean	Limit	Std. Dev.	Cpk
TX ppm	-0.49	2.30	0.65	5.00	0.78	1.9

Statistical Manufacturing Margin Cpk = (Average - spec. Limit) / 3*Sigma Value