

RADIATED EMISSIONS

DATA

FOR

**Globalstar Analog Fixed User Terminal Phone
FCC ID: J9CGSAF2**

**QUALCOMM INCORPORATED
10300 Campus Point Drive
San Diego, CA 92121**

Report Date: 15 October 2004

Prepared by

**TÜV AMERICA, INC.
10040 Mesa Rim Road
San Diego, CA 92121-2912**

Measurement Requirements (CFR 47 Part 24, Paragraph 24.238(a) and Part 25)

Test Voltage: 12 Vdc

The following measurements were performed by TÜV America, Inc. 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.

Test Date: 13 October 2004

Reviewing Engineer:

A handwritten signature in black ink, appearing to read 'Jim Owen'.

Jim Owen
(EMC Manager)

Test Engineer:

A handwritten signature in black ink, appearing to read 'Stephen Rackleff'.

Stephen Rackleff
(EMC Engineer)

Emissions Test Conditions: SPURIOUS RADIATED EMISSIONS

The **SPURIOUS RADIATED EMISSIONS** measurements were performed at the San Diego Testing Facility:

- Test not applicable

■ - Roof (Small Open Area Test Site)

Test Equipment Used:

Model No.	Prop. No.	Description	Manufacturer	Serial No.	Date Cal'ed
3115	251	Double Ridge Horn Antenna	EMCO	2495	01/04
AMF-5D-010180-35-10P	719	PreAmplifier	Miteq	549460	VBU**
AA-190-10.00.0	7489	30' Cable	United Microwave	--	NCR*
Micropore 190	6788	3' Cable	United Microwave	AA-190-04-00.0	NCR*
Micropore 190	6787	3' Cable	United Microwave	AA-190-03.00.0	NCR*
8445B	6677	2 – 18 GHz Preselector	TUV America	--	VBU**
FF6549-2	781	High Pass Filter	Sage	006	VBU**
HP8566B	744	Spectrum Analyzer	Hewlett Packard	2618A02913	01/04

Remarks: One year calibration cycle for all test equipment and sites. (*) No Calibration Required. (**) Verified Before Use.

Technical Documentation

Test Data Sheets

and

Test Setups

Substitution Method

Purpose:

When FCC testing that is not Part 15, Substitution provides a verification by duplicating the energies required to simulate a reported response using similar set-up and equipment.

When to use it:

When testing to FCC licensing tests and when the reported margin is less than 20 dB from the specification.

Method:

Keep the same equipment set up for Receive. (see diagram)

Select from High Frequency OATS data those measurements that are less than 20 dB from margin. Note the frequency and the reported amplitude (maximum Horizontal vs Vertical antenna polarity) for each occurrence. List these frequencies on the Substitution Report Sheet.

Remove the EUT from the OATS.

Set up an antenna matching the receiving antenna for transmitting the simulated energy.

Connect this antenna to a signal generator capable of duplicating the frequencies selected.

Determine the insertion loss for this cable between the Substitution antenna and the signal generator for each frequency occurrence.

Use cable calibration tables.
Interpolate to get best value, round to tenth of a dB.
List these values on the Substitution Report Sheet.

Determine the Antenna Gain for each frequency occurrence.

Use antenna calibration table
Interpolate to get best value, round to tenth of a dB.
List these values on the Substitution Report Sheet.

Set the frequency on both the signal generator and the spectrum analyzer to the first frequency on the Report Sheet.

Set a nominal amplitude on the signal generator (start with -20 dBm, experience may suggest a different nominal amplitude.)

The task is to duplicate the OATS reported amplitude with this simulated amplitude.

Adjust the power level to obtain a duplicate of the reported amplitude.

Repeat setting the power level and maximizing antenna height, table rotation and peaking of the preselector (if used) to duplicate recorded amplitude in dBuV.

Record the signal generator amplitude in the Report Sheet.

Calculate Total EIRP and Margin:

$$\text{Total (EIRP)} = \text{Signal Generator} + \text{Horn Gain} - \text{Cable Loss}$$

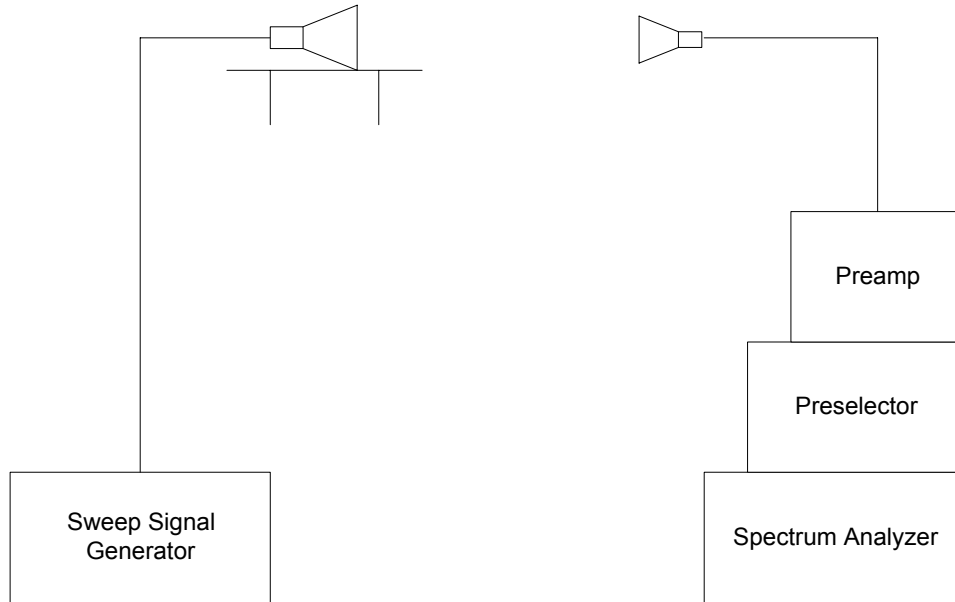
$$\text{Margin} = \text{Total} - \text{Spec}$$

Margin from Substitution should measure within 6 dB of reported Margin.

Qualcomm Substitution SC404643

Frequency MHz	target level dBuV	Horn Gain dBi	cable loss dB	Signal Generator dBm	Total (EIRP) dBm	Spec dBm	Margin dBm	
3221.4	63.6	8.585485	6.5	-37.12	-35.0	-13	-22.0	v
6442.8	51.2	14.10684	9.4	-42.3	-37.6	-13	-24.6	v
3233.76	57.9	8.618679	7.2	-42.58	-41.2	-13	-28.2	v
6467.52	49.5	14.29585	9.1	-45	-39.8	-13	-26.8	v
3250.58	62.1	8.661775	7.3	-32.5	-31.1	-13	-18.1	h
6501.16	48.9	14.53339	9.2	-45	-39.7	-13	-26.7	v

Test Setup for Substitution Method

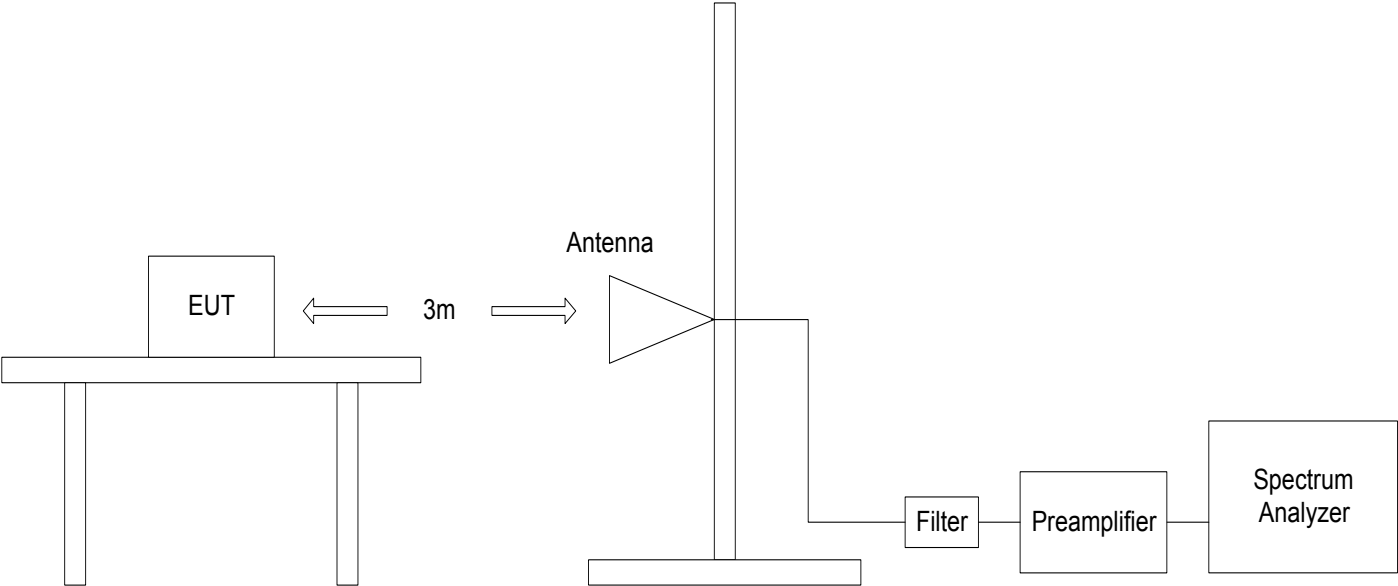


REPORT No: SC404643 TESTER: Stephen Rackley SPEC: FCC Part 25
 CUSTOMER: Qualcomm inc. TEST DIST: 3 Meters
 E U T: GSP- 2800 TEST SITE: Roof
 EUT MODE: TRX BICONICAL: 451
 DATE: 10/13/04 ERP/EIRP Factor 5.5 LOG: N/A
 NOTES: HORN: 251

Part 25 - RBW 30 kHz
 Part 25 - RBW 1 MHz Spurious Emissions
 CF = Antenna Factor + Cable Loss - Preamp/Filter Gain + Preselector Loss

FREQ (MHz)	VERTICAL (dBuV) pk	HORIZONTAL (dBuV) pk	CF (dB/m)	MAX LEVEL (dBm) pk	SPEC LIMIT (dBm) pk	MARGIN (dB) pk	EUT Rotation	Antenna Height	Notes	dBuV/m	dBuV/m
1610.7	91.9	88.5	32.5	29.2	-13.0	-13.2	200	1.5	Fundamental (Low Band)	124.4	32.5
3221.4	63.6	58.1	5.5	-26.2	-13.0	-20.1	70	1.5		69.1	5.5
4832.1	54.1	50.6	8.1	-33.1	-13.0	-20.1	160	2		62.2	8.1
6442.8	51.2	48.9	14.7	-29.4	-13.0	-16.4	160	1.5		65.9	14.7
8053.5	45.1	43.7	18.1	-32.0	-13.0	-19	0	1	noise floor	63.2	18.1
9664.2	44.5	44.7	20.1	-30.5	-13.0	-17.5	0	1	noise floor	64.8	20.1
11274.9	43.7	46.1	24.6	-24.6	-13.0	-11.6	0	1	noise floor	70.7	24.6
12885.6	49.8	48.1	24.3	-21.2	-13.0	-8.18	0	1	noise floor	74.1	24.3
14496.3	47.9	45.7	26.1	-21.3	-13.0	-8.26	0	1	noise floor	74.0	26.1
16107	47.8	45.2	33.3	-14.1	-13.0	-1.15	0	1	noise floor	81.1	33.3
1616.88	92.5	96.2	32.7	33.6			170	1.5	Fundamental (Mid Band)	128.9	32.7
3233.76	57.9	54.6	5.5	-31.8	-13.0	-18.8	90	1.3		63.4	5.5
4850.64	50.2	50.1	8.1	-36.9	-13.0	-23.9	90	1.4		58.3	8.1
6467.52	49.5	49	14.7	-31.1	-13.0	-18.1	80	1.2		64.2	14.7
8084.4	46.7	46.2	18.2	-30.4	-13.0	-17.4	0	1	noise floor	64.9	18.2
9701.28	45.7	44	20.2	-29.3	-13.0	-16.3	0	1	noise floor	65.9	20.2
11318.16	44.8	44	24.6	-25.9	-13.0	-12.9	0	1	noise floor	69.4	24.6
12935.04	48.8	46.7	24.2	-22.3	-13.0	-9.26	0	1	noise floor	73.0	24.2
14551.92	46.2	46.8	26.3	-22.1	-13.0	-9.13	0	1	noise floor	73.1	26.3
16168.8	46.3	46.2	35.9	-13.0	-13.0	-0.04	0	1	noise floor	82.2	35.9
1625.29	92	96.3	32.8	33.8			140	1.6	Fundamental (High Band)	129.1	32.8
3250.58	59.1	62.1	5.6	-27.6	-13.0	-14.6	200	1.6		67.7	5.6
4875.87	50.7	48.7	8.2	-36.3	-13.0	-23.3	160	1		58.9	8.2
6501.16	48.9	48.3	14.7	-31.7	-13.0	-18.7	160	1.7		63.6	14.7
8126.45	46.3	46.9	18.2	-30.2	-13.0	-17.2	0	1	noise floor	65.1	18.2
9751.74	48.6	47.3	20.4	-26.3	-13.0	-13.3	0	1	noise floor	69.0	20.4
11377.03	43.8	44.6	24.6	-26.1	-13.0	-13.1	0	1	noise floor	69.2	24.6
13002.32	48	48.5	24.1	-22.7	-13.0	-9.66	0	1	noise floor	72.6	24.1
14627.61	46.9	45.6	26.7	-21.7	-13.0	-8.68	0	1	noise floor	73.6	26.7
16252.9	42.7	42.5	39.5	-13.1	-13.0	-0.09	0	1	noise floor	82.2	39.5

Test Setup for Spurious Radiated Emissions



Photograph of Test Setup



Photograph of Test Setup

