RADIATED EMISSIONS

DATA

FOR

QUALCOMM INCORPORATED
5775 Morehouse Drive
San Diego, CA 92121

Prepared by

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

Measurement Requirements (CFR 47 Part 22, Paragraph 22.917(b)(2) and Part 24, Paragraph 24.238(a))

The following measurements were performed by TÜV America. 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.

Jim Owen
EMC Manager

TÜV AMERICA, INC. 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.	Date Cal'ed
HP8566B	744	Spectrum Analyzer	Hewlett Packard	2618A02913	12/02
AMF-5D-010180-35-10P	719	PreAmp	TUV America	549460	NCR*
3115	251	Antenna, Horn	Electro Mechanics Co	2595	12/02
3146	244	Log Periodic Antenna	Electro Mechanics Co	1063	07/03
FF6549-2	783	2000 MHz High Pass Filter	Sage	008	NCR*
FF6549-1	778	900 MHz High Pass Filter	Sage	005	NCR*
HP8350B	6707	Sweep Signal Generator	Hewlett Packard	2749A09420	NCR*
3115	453	Antenna, Horn	Electro Mechanics Co	3564	12/02
CBL6111	461	Bilog Antenna	Chase Electronics Li	1291	NCR*
E4440A	6814	Spectrum Analyzer	Hewlett Packard	MY42510441	08/03
Customer Provided Equipment					
8542C	--	Power Meter	Gigatronics	1834580	10/03
80601A	--	Power Sensor	Gigatronics	1831257	01/03

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

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Technical Documentation

Test Data Sheets

and

Test Setups

TÜV AMERICA, INC. 10040 Mesa Rim Road San Diego, CA 92121-2912 Phone 858 546 3999 FAX 858 546 0364

Qualcomm Inc Substitution SC304652

Model Qset 2700
10/14/03
Mode Transmit PCS

Frequency MHz	target level dBuV/m	Horn Gain dBi	cable loss dB	Signal Generator dBm	Total (ERP) dBm	Spec dBm	Margin Subst. dBm
1649.7	80.9	7.4	4.9	-31.49	-29.0	-13	-16.0
1672.98	77	7.4	4.9	-32.48	-30.0	-13	-17.0
1696.62	77.5	7.5	4.9	-32.26	-29.7	-13	-16.7

Substitution Procedure:
1. Select emissions that pass with less than 20 dB margin, note the Target level -- reading on spectrum analyzer.
2. Duplicate this targeted reading with Signal Generator, allowing for antenna horn gain and cable insertion loss.
3. Compare calculated power output to specification.

Location: TUV 3-meter roof site: 23°C, R.H. 58%
Equipment used: 744, 719, 251, 244, 778, 6207, 453, CUSTOMER POWER METER

Tested by A. Laudani
A. Laudani

Reviewed by J. Owen
J. Owen

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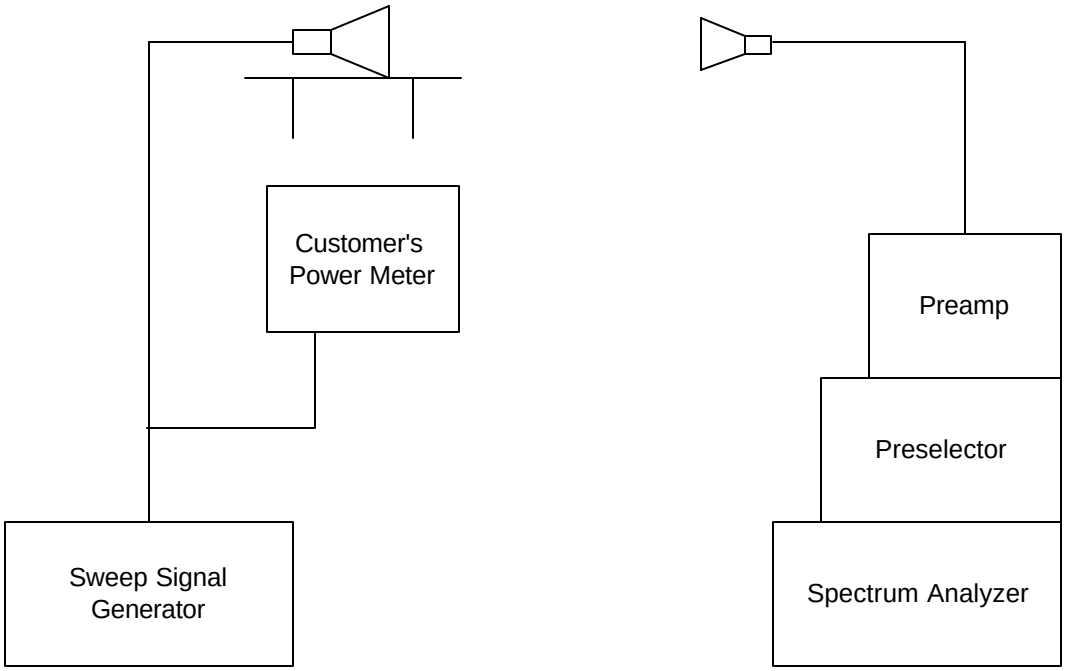
Test setup for Substitution Method



TÜV AMERICA, INC. 10040 Mesa Rim Road San Diego, CA 92121-2912 Phone 858 546 3999 FAX 858 546 0364

REPORT No: SC304652 TESTER: Alan Laudani SPEC: FCC Part 22 para 22.917(b)(2)

CUSTOMER: Qualcomm Inc. TEST DIST: 3 Meters

E U T: QSec 2700 TEST SITE: Roof

EUT MODE: Transmit CDMA BICONICAL: N/A

DATE: Oct. 14, 2003 ERP Factor 7 LOG: 244

NOTES: HORN: 251

RBW 1 MHz VBW 1 MHz Peak Measurements

18 °C 86 RH

CF = Antenna Factor + Cable Loss - Preamplifier Gain

v.beta1a

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
824.7	121.2				0.0	**23.8**								Fundamental (Low Band)
1649.4	80.9		64.5		-9.3	**-25.7**		-13.0		-12.7		289	1	
2474.1	50.3		47.2		-4.6	**-51.7**		-13.0		-38.7		127	1.2	
3298.8	45.4		46.3		-1.7	**-52.8**		-13.0		-39.8		173	1	
4123.5	46.5		46.3		0.2	**-50.7**		-13.0		-37.7			1	noise floor
4948.2	43.7		43.0		0.6	**-53.1**		-13.0		-40.1			1	noise floor
5772.9	43.4		44.9		5.1	**-47.4**		-13.0		-34.4			1	noise floor
6597.6	47.0		47.5		5.8	**-44.1**		-13.0		-31.1			1	noise floor
7422.3	46.1		46.5		8.2	**-42.6**		-13.0		-29.6			1	noise floor
8247	47.3		47.2		9.4	**-40.6**		-13.0		-27.6			1	noise floor
836.49	121.8				0.0	**24.4**								Fundamental (Mid Band)
1672.98	77.0		67.0		-9.1	**-29.4**		-13.0		-16.4		257	1	
2509.47	51.0		58.0		-4.5	**-43.8**		-13.0		-30.8		234	1	
3345.96	48.5		45.6		-1.6	**-50.4**		-13.0		-37.4		130	1.1	
4182.45	46.5		45.7		0.0	**-50.8**		-13.0		-37.8			1	noise floor
5018.94	44.5		45.3		0.8	**-51.2**		-13.0		-38.2			1	noise floor
5855.43	48.0		47.9		5.3	**-44.1**		-13.0		-31.1			1	noise floor
6691.92	47.3		47.4		6.1	**-43.8**		-13.0		-30.8			1	noise floor
7528.41	46.6		47.7		8.4	**-41.2**		-13.0		-28.2			1	noise floor
8364.9	47.7		46.8		9.7	**-40.0**		-13.0		-27.0			1	noise floor
848.31	122.4				0.0	**25.0**								Fundamental (High Band)
1696.62	77.5		73.3		-8.9	**-28.8**		-13.0		-15.8		251	1.2	
2544.93	59.9		59.2		-4.3	**-41.8**		-13.0		-28.8		230	1.5	
3393.24	46.5		48.3		-1.4	**-50.4**		-13.0		-37.4		171	1	
4241.55	46.9		46.8		-0.1	**-50.5**		-13.0		-37.5			1	noise floor
5089.86	44.5		44.0		1.3	**-51.5**		-13.0		-38.5			1	noise floor
5938.17	47.9		47.7		5.5	**-43.9**		-13.0		-30.9			1	noise floor
6786.48	46.3		47.7		6.5	**-43.2**		-13.0		-30.2			1	noise floor
7634.79	46.4		46.0		8.5	**-42.4**		-13.0		-29.4			1	noise floor
8483.1	46.5		45.9		10.0	**-40.9**		-13.0		-27.9			1	noise floor

REPORT No: SC304652 TESTER: Alan Laudani SPEC: FCC Part 24 para 24.238(a)

CUSTOMER: Qualcomm Inc. TEST DIST: 3 Meters

E U T: QSec 2700 TEST SITE: Roof

EUT MODE: Transmit PCS BICONICAL: N/A

DATE: Oct. 14, 2003 EIRP Factor 5.5 LOG: 244

NOTES: HORN: 251

18 °C 86 RH

Part 24 - RBW & VBW 1 MHz

CF = Antenna Factor + Cable Loss - Preamplifier Gain

v.beta1a

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
1851.25	119.4		0.0	**24.1**	-13.0	-41.8	100	1	Fundamental (Low Band)
3702.5	40.2	40.9	-0.4	**-54.8**	-13.0	-39.9		1	noise floor
5553.75	37.9	37.3	4.5	**-52.9**	-13.0	-36.2		1	noise floor
7405	37.7	37.9	8.2	**-49.2**	-13.0	-26.3		1	noise floor
9256.25	45.6	45.6	10.4	**-39.3**	-13.0	-24.8		1	noise floor
11107.5	44.3	43.9	13.1	**-37.8**	-13.0	-20.7		1	noise floor
12958.75	48.8	48.8	12.7	**-33.7**	-13.0	-16.3		1	noise floor
14810	49.8	49.4	16.1	**-29.3**	-13.0	-14.4		1	noise floor
16661.25	48.7	49.4	18.5	**-27.4**	-13.0				
1880	119.9		0.0	**24.6**	-13.0	-39	100	1	Fundamental (Mid Band)
3760	43.2	43.5	-0.3	**-52.0**	-13.0	-39.4		1	noise floor
5640	38	38.2	4.7	**-52.4**	-13.0	-28.5		1	noise floor
7520	45.3	45.3	8.4	**-41.5**	-13.0	-26.6		1	noise floor
9400	45.4	45.7	10.0	**-39.6**	-13.0	-24.1		1	noise floor
11280	45	44.4	13.2	**-37.1**	-13.0	-20.1		1	noise floor
13160	48.5	49	13.2	**-33.1**	-13.0	-15.1		1	noise floor
15040	49.8	50.1	17.0	**-28.1**	-13.0	-12.7		1	noise floor
16920	50.1	48.8	19.5	**-25.7**	-13.0				
1908.75	120.5		0.0	**25.2**	-13.0	-38.7	295	1	Fundamental (High Band)
3817.5	43.7	42.6	-0.1	**-51.7**	-13.0	-38.9		1	noise floor
5726.25	38.2	38.4	4.9	**-51.9**	-13.0	-28		1	noise floor
7635	45.7	45.1	8.5	**-41.0**	-13.0	-27.2		1	noise floor
9543.75	45.3	45.2	9.8	**-40.2**	-13.0	-24.7		1	noise floor
11452.5	44.3	44.3	13.3	**-37.7**	-13.0	-18.7		1	noise floor
13361.25	49.6	49.3	14.0	**-31.7**	-13.0	-16.3		1	noise floor
15270	48.6	48.5	17.3	**-29.3**	-13.0	-11.7		1	noise floor
17178.75	49.1	49.4	21.1	**-24.7**	-13.0				

Photograph of Test Setup

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Photograph of Test Setup

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Appendix

Supplemental Information

TÜV AMERICA, INC. 10040 Mesa Rim Road San Diego, CA 92121-2912 Phone 858 546 3999 FAX 858 546 0364

TÜV AMERICA

RADIATED RFI PRE-SCAN SHIELDED ROOM AT 1 METER

Test Report #: SC304652 Test Area: SR3

Test Method FCC 109(g) Date: 10-14-03

EUT Model #: QSEC 2700 EUT POWER: ☐ 230 Vac/50 Hz ☐ 120 Vac/60 Hz ■ Other:

EUT Description:

NOTES: Low, Mid, High Channel CDMA 30-1000 MHz No Emissions Detected
" " " " PCS 30-100 MHz N-E-D

FREQUENCY MHz	QUASI-PEAK dBuV	AVERAGE dBuV	FREQUENCY MHz	QUASI-PEAK dBuV	AVERAGE dBuV

Tested By: A. Landau. (Printed) (Signature)

Reviewed by: (Printed) (Signature)

NOTES: 1.

2.

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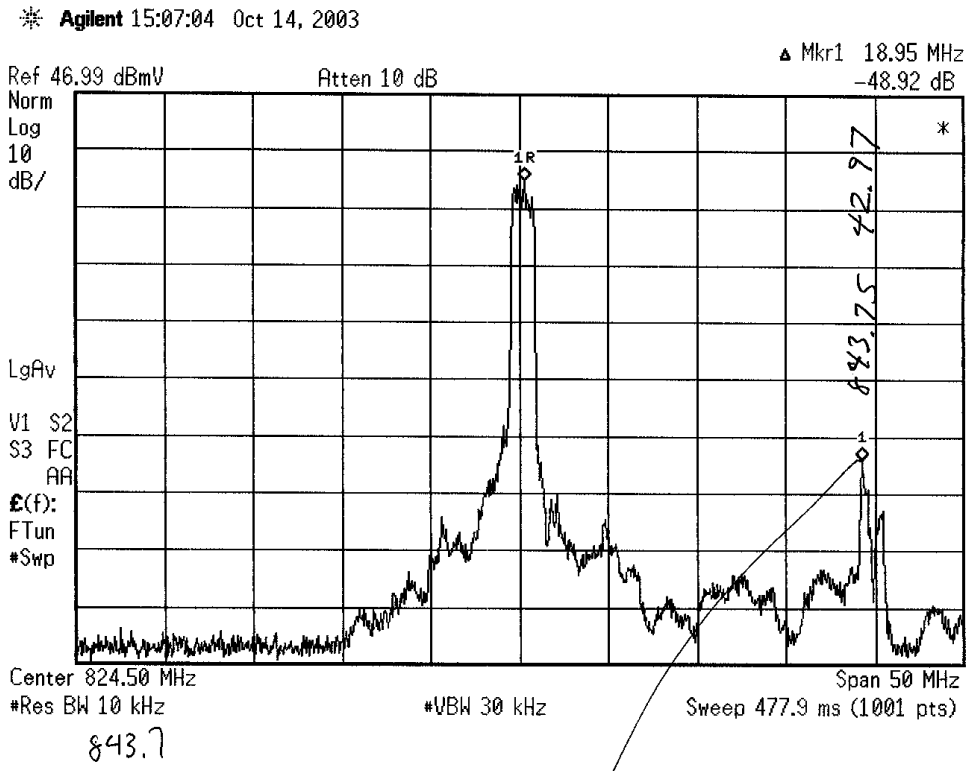

Spur within channel - moves to left side of Tx Emission on highest channels

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