









































8.0 Field Strength of Spurious Radiation, FCC 2.1053

8.1 Test Procedure

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT.

The frequency range up to tenth harmonic of each of the three fundamental frequency (low, middle, and high channels) was investigated.

The spurious emissions attenuation was calculated as the difference between Field strength in dBuV/m at the fundamental frequency (See Section 3) and at the spurious emissions frequency.

8.2 Test Equipment

EMCO 3115 Horn Antenna
HP 8566B Spectrum Analyzer
Tektronix 2782 Spectrum Analyzer
Low Pass Filter
Preamplifier

8.3 Test Results

Test Result:	Passed, refer to the attached
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Data Sheet No	Description
8.3.a	Radiated Emissions FCC 15B
8.3.b	Radiated Emissions Receiver LO & Harmonics
8.3.c	Radiated Emissions Harmonics, AMPS Low Channel
8.3.d	Radiated Emissions Harmonics, AMPS Mid Channel
8.3.e	Radiated Emissions Harmonics, AMPS High Channel
8.3.f	Radiated Emissions Harmonics, CDMA Low Channel
8.3.g	Radiated Emissions Harmonics, CDMA Mid Channel
8.3.h	Radiated Emissions Harmonics, CDMA High Channel
8.3.i	Radiated Emissions, Harmonics PCS Band Low Channel
8.3.j	Radiated Emissions, Harmonics PCS Band Mid Channel
8.3.k	Radiated Emissions, Harmonics PCS Band High Channel
8.3.l	Radiated Emission of Harmonics by Substitution Method

#8.3.a

Radiated Emissions Test Data												
Company:	Sharp Labs				Model #:	TQ-CX1			Standard	FCC § 15B		
EUT:	Tri mode Phone				S/N #:				Limits	2		
Project #:	J20046637				Test Date:	June 11, 2001			Test Distance	3 meters		
Test Mode:	Receive mode				Engineer:	Suresh.			Duty Relaxation	0 dB		
Number:	Antenna Used			Pre-Amp Used			Cable Used			Transducer Used		
	9	7	2	1	0	0	1	0	0	0		
Model:	EMCO 3104	EM LPA-25	EMCO 3143	HP 8447D	None	None	Site 2 3m	None	None	None		
Frequency	Reading	Detector	Ant. #	Amp #	Ant. Pol.	Ant. Factor	Pre-Amp	Insert. Loss	D. C. F.	Net	Limit @3m	Margin
MHz	dB(µV)	P/A/Q	#	#	H/V	dB(1/m)	dB	dB	dB	dB(µV/m)	dB(µV/m)	dB
38.40	34.4	Peak	9	1	V	10.4	27.5	0.8	0.0	18.1	40.0	-21.9
57.60	49.4	Peak	9	1	V	11.6	27.1	1.1	0.0	35.0	40.0	-5.0
249.30	41.2	Peak	7	1	V	13.3	29.6	2.8	0.0	27.7	46.0	-18.3
263.60	38.3	Peak	7	1	V	14.2	29.8	3.0	0.0	25.7	46.0	-20.3
211.27	51.4	Peak	7	1	V	11.4	29.4	2.0	0.0	35.4	43.5	-8.1
441.89	44.9	Peak	7	1	V	16.6	29.3	3.8	0.0	36.0	46.0	-10.0
960.00	42.3	Peak	7	1	V	23.5	29.7	6.1	0.0	42.2	54.0	-11.8
Notes:	a) D.C.F.:Distance Correction Factor b) Insert. Loss (dB) = Cable A + Cable B + Cable C . c) Net (dB) = Reading + Antenna Factor - Pre-amp + Insert. Loss. - Transducer Loss - Duty Relaxation (transmitter only). d) Negative signs (-) in Margin column signify levels below the limits. e) All other emissions not reported are below the equipment noise floor which is at least 20 dB below the limits.											

#8.3.b

Radiated Emissions Test Data												
Company: Sharp Labs Inc				Model #: TQ-CX1				Standard		FCC § 15B		
EUT: Tri mode Cell Phone				S/N #: Not labeled				Limits		2		
Project #: J20046637				Test Date: Jun14,2001				Test Distance		3 meters		
Test Mode: Receiver Local Oscillator				Engineer: Suresh K				Duty Relaxation		0 dB		
Number:	Antenna Used			Pre-Amp Used			Cable Used			Transducer Used		
	8	7	0	8	10	0	21	0	0	0		
Model:	EMCO 3115	EM LPA-25	None	CDI_P1 000	AFT1885 5	None	Grn_M+L	None	None	None		
Frequency	Reading	Detector	Ant. #	Amp #	Ant. Pol.	Ant. Factor	Pre-Amp	Insert. Loss	D. C. F.	Net	Limit @3m	Margin
MHz	dB(µV)	P/A/Q	#	#	H/V	dB(1/m)	dB	dB	dB	dB(µV/m)	dB(µV/m)	dB
1052.64	29.9	Peak	8	8	V	25.0	30.3	2.3	0.0	26.9	54.0	-27.1
2105.28	46.8	Peak	8	8	V	29.1	29.1	2.3	0.0	49.1	54.0	-4.9
1063.60	24.8	Peak	8	8	V	25.0	30.3	2.3	0.0	21.8	54.0	-32.2
2127.20	24.7	Peak	8	8	V	29.1	29.1	2.3	0.0	27.0	54.0	-27.0
1077.57	22.6	Peak	8	8	V	25.0	30.3	2.3	0.0	19.6	54.0	-34.4
2141.19	37.4	Peak	8	8	V	29.1	29.1	2.3	0.0	39.7	54.0	-14.3
Notes:	a) D.C.F.:Distance Correction Factor											
	b) Insert. Loss (dB) = Cable A + Cable B + Cable C .											
	c) Net (dB) = Reading + Antenna Factor - Pre-amp + Insert. Loss. - Transducer Loss - Duty Relaxation (transmitter only).											
	d) Negative signs (-) in Margin column signify levels below the limits.											
	e) All other emissions not reported are below the equipment noise floor which is at least 20 dB below the limits.											

#8.3.C

Radiated Emissions Test Data									
Company:	Sharp Labs				Model #:	TQ-CX1			
EUT:	Tri mode phone				S/N or FCC #:				
Project #:	J20042625				Test Date:	Jun 11, 2001			
Test Mode:	Transmitter@824.04MHzAMPS Mode				Engineer:	Suresh K			
	Antenna Used			Pre-Amp Used			Cable Used		
Number:	7	14	11		8	3	0	21	0
Model:	EM LPA-25	EMCO 3115	LPB-2520A		CDI_P1000	MC 15542	None	Grn_M+L	None
Frequency	Reading	Detector	Ant. #	Amp. #	Ant. Pol.	Ant. Factor	Pre-Amp	Insert. Loss	Net
MHz	dB(μV)	P/A/Q	#	#	H/V	dB(1/m)	dB	dB	dB(μV/m)
824.04	10.2.4	Peak	7	0	V	23.0	0.0	2.0	127.4
1648.08	36.9	Peak	14	0	V	26.6	0.0	3.0	66.5
1648.08	33.2	Ave.	14	0	V	26.6	0.0	3.0	62.8
2472.12	57.5	Peak	14	8	V	30.1	28.5	2.3	61.4
2472.12	54.8	Ave.	14	8	V	30.1	28.5	2.3	58.7
3296.16	53.7	Peak	14	8	V	31.3	27.9	2.5	59.6
3296.16	50.9	Ave.	14	8	V	31.3	27.9	2.5	56.8
4120.20	50.0	Peak	14	8	V	34.2	27.9	2.9	59.2
4120.20	48.0	Ave.	14	8	V	34.2	27.9	2.9	57.2
4944.24	52.9	Peak	14	8	V	33.9	28.1	3.2	61.9
4944.24	50.1	Ave.	14	8	V	33.9	28.1	3.2	59.1
5768.28	41.5	Peak	14	8	V	36.1	28.3	3.7	53.0
5768.28	36.9	Ave.	14	8	V	36.1	28.3	3.7	48.4
6592.32	38.1	Peak	14	8	V	36.4	28.0	4.2	50.7
6592.32	32.7	Ave.	14	8	V	36.4	28.0	4.2	45.3
7416.36	29.5	Peak	14	8	V	38.0	28.0	4.3	43.8
7416.36	25.9	Ave.	14	8	V	38.0	28.0	4.3	40.2
8240.40	29.9	Peak	14	8	V	37.9	27.2	4.8	45.4
8240.40	26.2	Ave.	14	8	V	37.9	27.2	4.8	41.7
Notes:	a) O.C.F.:Other Correction Factor								
	b) Insert. Loss = Cable A + Cable B + Cable C + Transducer.								
	c) Net = Reading + Antenna Factor - Pre-Amp + Insert. Loss.								
	d) Attn. = Field Strength (Fundamental) - Field Strength (Harmonics).								
	e) Negative signs (-) in Margin column signify levels below the limits.								

#8.3.d

<i>Radiated Emissions Test Data</i>									
Company:	Sharp Labs				Model #:	TQ-CX1			
EUT:	Trimode Phone				S/N or FCC #:				
Project #:	J20046637				Test Date:	Jun 11, 2001			
Test Mode:	Tx @835.02 AMPS Mode				Engineer:	Suresh			
	Antenna Used			Pre-Amp Used			Cable Used		
Number:	7	8	14	8	3	13	21	0	
Model:	EM LPA-25	EMCO 3115	EMCO 3115	CDI_P1 000	MC 15542	ACO/40 0	Grn_M+L	None	
Frequency	Reading	Detector	Ant. #	Amp. #	Ant. Pol.	Ant. Factor	Pre-Amp	Insert. Loss	Net
MHz	dB(µV)	P/A/Q	#	#	H/V	dB(1/m)	dB	dB	dB(µV/m)
835.02	100.8	Peak	7	0	V	23.3	0.0	2.0	126.1
1670.04	35.7	Peak	14	0	V	26.6	0.0	3.0	65.3
1670.04	31.3	Ave.	14	0	V	26.6	0.0	3.0	60.9
2505.07	55.3	Peak	14	8	V	30.4	28.5	2.3	59.5
2505.07	54.7	Ave.	14	8	V	30.4	28.5	2.3	58.9
3340.09	55.7	Peak	14	8	V	31.3	27.9	2.5	61.6
3340.09	55.0	Ave.	14	8	V	31.3	27.9	2.5	60.9
4175.11	49.7	Peak	14	8	V	34.2	27.9	2.9	58.9
4175.11	48.4	Ave.	14	8	V	34.2	27.9	2.9	57.6
5010.13	50.7	Peak	14	8	V	35.4	28.3	3.5	61.3
5010.13	49.0	Ave.	14	8	V	35.4	28.3	3.5	59.6
5845.15	38.2	Peak	14	8	V	36.1	28.3	3.7	49.7
5845.15	33.3	Ave.	14	8	V	36.1	28.3	3.7	44.8
6680.17	36.5	Peak	14	8	V	36.4	28.0	4.2	49.1
6680.17	33.0	Ave.	14	8	V	36.4	28.0	4.2	45.6
7515.19	35.6	Peak	14	8	V	37.8	28.0	4.6	50.0
7515.19	26.8	Ave.	14	8	V	37.8	28.0	4.6	41.2
8350.20	28.5	Peak	14	8	V	37.9	27.2	4.8	44.0
8350.20	23.2	Ave.	14	8	V	37.9	27.2	4.8	38.7
Notes:	a) O.C.F.: Other Correction Factor								
	b) Insert. Loss = Cable A + Cable B + Cable C + Transducer.								
	c) Net = Reading + Antenna Factor - Pre-Amp + Insert. Loss.								
	d) Attn. = Field Strength (Fundamental) - Field Strength (Harmonics).								
	e) Negative signs (-) in Margin column signify levels below the limits.								

#8.3.e

<i>Radiated Emissions: Test Data</i>									
Company	Sharp Labs				Model #:	TQ-CX1			
EUT:	Tri mode Cell Phone				S/N or FCC #:				
Project #:	J20046637				Test Date:	Jun14, 2001			
Test Mode:	Transmitter@ 848.97, AMPS Mode				Engineer:	Suresh			
	Antenna Used			Pre-Amp Used			Cable Used		
Number:	7	8	12	8	3	13	21	0	
Model:	EM LPA-25	EMCO 3115	EMCO 3104	CDI_P1 000	MC 15542	ACO/400	Grn_M+L	None	
Frequency	Reading	Detector	Ant. #	Amp. #	Ant. Pol.	Ant. Factor	Pre-Amp	Insert. Loss	Net
MHz	dB(μV)	P/A/Q	#	#	H/V	dB(1/m)	dB	dB	dB(μV/m)
848.97	100.6	Peak	7	0	V	23.3	0.0	2.0	125.9
1697.94	38.8	Peak	8	0	V	26.7	0.0	3.0	68.5
1697.94	35.7	Ave.	8	0	V	26.7	0.0	3.0	65.4
2546.91	54.6	Peak	8	8	V	30.6	28.5	2.3	59.0
2546.91	54.1	Ave.	8	8	V	30.6	28.5	2.3	58.5
3395.88	57.1	Peak	8	8	V	31.3	27.9	2.5	63.0
3395.88	55.9	Ave.	8	8	V	31.3	27.9	2.5	61.8
4244.85	41.5	Peak	8	8	V	34.5	27.9	2.9	51.0
4244.85	35.9	Ave.	8	8	V	34.5	27.9	2.9	45.4
5093.82	45.1	Peak	8	8	V	35.4	28.3	3.5	55.7
5093.82	43.3	Ave.	8	8	V	35.4	28.3	3.5	53.9
5942.79	38.5	Peak	8	8	V	36.6	28.3	3.7	50.5
5942.79	33.2	Ave.	8	8	V	36.6	28.3	3.7	45.2
6791.76	38.1	Peak	8	8	V	36.4	28.0	4.2	50.7
6791.76	33.3	Ave.	8	8	V	36.4	28.0	4.2	45.9
7640.73	35.2	Peak	8	8	V	37.8	27.8	4.6	49.8
7640.73	27.2	Ave.	8	8	V	37.8	27.8	4.6	41.8
8489.70	32.5	Peak	8	8	V	37.5	27.1	4.8	47.7
8489.70	20.8	Ave.	8	8	V	37.5	27.1	4.8	36.0
Notes:	a) O.C.F.:Other Correction Factor								
	b) Insert. Loss = Cable A + Cable B + Cable C + Transducer.								
	c) Net = Reading + Antenna Factor - Pre-Amp + Insert. Loss.								
	d) Attn. = Field Strength (Fundamental) - Field Strength (Harmonics).								
	e) Negative signs (-) in Margin column signify levels below the limits.								

#8.3.f

Radiated Emissions Test Data									
Company:	Sharp Labs				Model #:	TQ-CX1			
EUT:	Tri mode phone				S/N or FCC #:				
Project #:	J20042625				Test Date:	Jun 14, 2001			
Test Mode:	Transmitter @824.04MHz, CDMA Mode				Engineer:	Suresh K.			
	Antenna Used			Pre-Amp Used			Cable Used		
Number:	7	8	11	8	3	0	21	0	
Model:	EM LPA-25	EMCO 3115	LPB-2520A	CDI_P10 00	MC 15542	None	Grn_M+L	None	
Frequency	Reading	Detect or	Ant. #	Am p. #	Ant. Pol.	Ant. Factor	Pre-Amp	Insert. Loss	Net
MHz	dB(μV)	P/A/Q	#	#	H/V	dB(1/m)	dB	dB	dB(μV/m)
824.04	103.3	Peak	7	0	V	23.0	0.0	2.0	128.3
1648.08	30.3	Peak	8	0	V	26.7	0.0	3.0	60.0
1648.08	20.3	Ave.	8	0	V	26.7	0.0	3.0	50.0
2472.12	57.0	Peak	8	8	V	29.1	28.5	2.3	59.9
2472.12	50.1	Ave.	8	8	V	29.1	28.5	2.3	53.0
3296.16	53.7	Peak	8	8	V	31.3	27.9	2.5	59.6
3296.16	48.2	Ave.	8	8	V	31.3	27.9	2.5	54.1
4120.20	50.0	Peak	8	8	V	34.5	27.9	2.9	59.5
4120.20	48.0	Ave.	8	8	V	34.5	27.9	2.9	57.5
4944.24	52.9	Peak	8	8	V	34.0	28.1	3.2	62.0
4944.24	50.1	Ave.	8	8	V	34.0	28.1	3.2	59.2
5768.28	41.5	Peak	8	8	V	36.6	28.3	3.7	53.5
5768.28	36.9	Ave.	8	8	V	36.6	28.3	3.7	48.9
6592.32	38.1	Peak	8	8	V	36.4	28.0	4.2	50.7
6592.32	32.7	Ave.	8	8	V	36.4	28.0	4.2	45.3
7416.36	29.5	Peak	8	8	V	37.0	28.0	4.3	42.8
7416.36	25.9	Ave.	8	8	V	37.0	28.0	4.3	39.2
8240.40	29.9	Peak	8	8	V	37.5	27.2	4.8	45.0
8240.40	26.2	Ave.	8	8	V	37.5	27.2	4.8	41.3
Notes:	a) O.C.F.:Other Correction Factor								
	b) Insert. Loss = Cable A + Cable B + Cable C + Transducer.								
	c) Net = Reading + Antenna Factor - Pre-Amp + Insert. Loss.								
	d) Attn. = Field Strength (Fundamental) - Field Strength (Harmonics).								
	e) Negative signs (-) in Margin column signify levels below the limits.								

#8.3.g

Radiated Emissions Test Data									
Company:	Sharp Labs				Model #:	TQ-CX1			
EUT:	Trimode Phone				S/N or FCC #:				
Project #:	J20046637				Test Date:	Jun 11, 2001			
Test Mode:	Tx @835.02 CDMA Mode				Engineer:	Suresh K			
	Antenna Used			Pre-Amp Used			Cable Used		
Number:	7	8	14	8	3	13	21	0	
Model:	EM LPA-25	EMCO 3115	EMCO 3115	CDI_P1000	MC 15542	ACO/400	Grn_M+L	None	
Frequency	Reading	Detecto r	Ant. #	Amp #	Ant. Pol.	Ant. Factor	Pre-Amp	Insert. Loss	Net
MHz	dB(µV)	P/A/Q	#	#	H/V	dB(1/m)	dB	dB	dB(µV/m)
835.02	102.9	Peak	7	0	V	23.3	0.0	2.0	128.2
1670.04	34.4	Peak	14	0	V	26.6	0.0	3.0	64.0
1670.04	25.0	Ave.	14	0	V	26.6	0.0	3.0	54.6
2505.07	51.2	Peak	14	8	V	30.4	28.5	2.3	55.4
2505.07	43.2	Ave.	14	8	V	30.4	28.5	2.3	47.4
3340.09	48.3	Peak	14	8	V	31.3	27.9	2.5	54.2
3340.09	38.2	Ave.	14	8	V	31.3	27.9	2.5	44.1
4175.11	43.7	Peak	14	8	V	34.2	27.9	2.9	52.9
4175.11	34.5	Ave.	14	8	V	34.2	27.9	2.9	43.7
5010.13	45.6	Peak	14	8	V	35.4	28.3	3.5	56.2
5010.13	33.4	Ave.	14	8	V	35.4	28.3	3.5	44.0
5845.15	38.2	Peak	14	8	V	36.1	28.3	3.7	49.7
5845.15	25.1	Ave.	14	8	V	36.1	28.3	3.7	36.6
6680.17	37.6	Peak	14	8	V	36.4	28.0	4.2	50.2
6680.17	24.7	Ave.	14	8	V	36.4	28.0	4.2	37.3
7515.19	27.5	Peak	14	8	V	37.8	28.0	4.6	41.9
7515.19	22.0	Ave.	14	8	V	37.8	28.0	4.6	36.4
8350.20	28.5	Peak	14	8	V	37.9	27.2	4.8	44.0
8350.20	23.2	Ave.	14	8	V	37.9	27.2	4.8	38.7
Notes:	a) O.C.F.:Other Correction Factor								
	b) Insert. Loss = Cable A + Cable B + Cable C + Transducer.								
	c) Net = Reading + Antenna Factor - Pre-Amp + Insert. Loss.								
	d) Attn. = Field Strength (Fundamental) - Field Strength (Harmonics).								
	e) Negative signs (-) in Margin column signify levels below the limits.								

#8.3.h

Radiated Emissions Test Data									
Company:	Sharp Labs				Model #:	TQ-CX1			
EUT:	Tri mode Cell Phone				S/N or FCC #:	Not Labeled			
Project #:	J20046637				Test Date:	Jun 14, 2001			
Test Mode:	TX@848.97MHz				Engineer:	Suresh K.			
Number:	Antenna Used			Pre-Amp Used			Cable Used		
	7	8	12	8	3	13	21	0	
Model:	EM LPA-25	EMCO 3115	EMCO 3104	CDI_P10 00	MC 15542	ACO/400	Grn_M+L	None	
Frequency	Reading	Detector	Ant #	Amp #	Ant. Pol.	Ant. Factor	Pre-Amp	Insert. Loss	Net
MHz	dB(µV)	P/A/Q	#	#	H/V	dB(1/m)	dB	dB	dB(µV/m)
848.97	100.9	Peak	7	0	V	23.3	0.0	2.0	126.2
1697.94	31.6	Peak	8	0	V	26.7	0.0	3.0	61.3
1697.94	21.5	Ave.	8	0	V	26.7	0.0	3.0	51.2
2546.91	51.7	Peak	8	8	V	30.6	28.5	2.3	56.1
2546.91	44.0	Ave.	8	8	V	30.6	28.5	2.3	48.4
3395.88	49.0	Peak	8	8	V	31.3	27.9	2.5	54.9
3395.88	40.1	Ave.	8	8	V	31.3	27.9	2.5	46.0
4244.85	46.0	Peak	8	8	V	34.5	27.9	2.9	55.5
4244.85	39.4	Ave.	8	8	V	34.5	27.9	2.9	48.9
5093.82	42.5	Peak	8	8	V	35.4	28.3	3.5	53.1
5093.82	36.4	Ave.	8	8	V	35.4	28.3	3.5	47.0
5942.79	39.8	Peak	8	8	V	36.6	28.3	3.7	51.8
5942.79	34.1	Ave.	8	8	V	36.6	28.3	3.7	46.1
6791.76	37.6	Peak	8	8	V	36.4	28.0	4.2	50.2
6791.76	24.7	Ave.	8	8	V	36.4	28.0	4.2	37.3
7640.73	27.5	Peak	8	8	V	37.8	27.8	4.6	42.1
7640.73	22.0	Ave.	8	8	V	37.8	27.8	4.6	36.6
8489.70	28.5	Peak	8	8	V	37.5	27.1	4.8	43.7
8489.70	23.2	Ave.	8	8	V	37.5	27.1	4.8	38.4
Notes:	a) O.C.F.:Other Correction Factor								
	b) Insert. Loss = Cable A + Cable B + Cable C + Transducer.								
	c) Net = Reading + Antenna Factor - Pre-Amp + Insert. Loss.								
	d) Attn. = Field Strength (Fundamental) - Field Strength (Harmonics).								
	e) Negative signs (-) in Margin column signify levels below the limits.								

#8.3.i

Radiated Emissions Test Data									
Company:	Sharp Labs				Model #:	TQ-CX1			
EUT:	Tri mode Cell Phone				S/N or FCC #:				
Project #:	J20046637				Test Date:	Jun11, 2001			
Test Mode:	Tx@1851.25MHz CDMA				Engineer:	Suresh K			
	Antenna Used			Pre-Amp Used			Cable Used		
Number:	14	21	12	8	10	13	21	0	
Model:	EMCO 3115	3160-9	EMCO 3104	CDI_P100 0	AFT1885 5	ACO/400	Grn_M+L	None	
Frequency	Reading	Detector	Ant.	Amp	Ant. Pol.	Ant. Factor	Pre-Amp	Insert. Loss	Net
MHz	dB(µV)	P/A/Q	#	#	H/V	dB(1/m)	dB	dB	dB(µV/m)
1851.25	97.1	Peak	14	0	V	30.1	0.0	2.7	129.9
1851.25	94.1	Ave.	14	0	V	30.1	0.0	2.7	126.9
3702.54	38.6	Peak	14	0	V	32.5	0.0	2.7	73.8
3702.54	35.4	Ave.	14	0	V	32.5	0.0	2.7	70.6
5553.80	59.8	Peak	14	8	V	36.1	28.3	3.7	71.3
5553.80	53.0	Ave.	14	8	V	36.1	28.3	3.7	64.5
7405.04	51.8	Peak	14	8	V	38.0	28.0	4.3	66.1
7405.04	38.2	Ave.	14	8	V	38.0	28.0	4.3	52.5
9256.25	37.8	Peak	14	8	V	40.2	27.0	4.7	55.7
9256.25	25.8	Ave.	14	8	V	40.2	27.0	4.7	43.7
11107.50	42.0	Peak	14	10	V	40.7	39.9	5.6	48.4
11107.50	30.3	Ave.	14	10	V	40.7	39.9	5.6	36.7
12958.75	42.1	Peak	14	10	V	41.1	39.1	6.0	50.1
12958.75	30.5	Ave.	14	10	V	41.1	39.1	6.0	38.5
14810.00	39.5	Peak	14	10	V	41.1	37.4	6.8	50.0
14810.00	27.3	Ave.	14	10	V	41.1	37.4	6.8	37.8
16661.00	39.7	Peak	14	10	V	41.3	39.4	7.2	48.8
16661.00	27.9	Ave.	14	10	V	41.3	39.4	7.2	37.0
18512.50	29.2	Peak	21	10	V	40.2	36.1	7.6	40.9
18512.50	25.5	Ave.	21	10	V	40.2	36.1	7.6	37.2
Notes:	a) O.C.F.:Other Correction Factor								
	b) Insert. Loss = Cable A + Cable B + Cable C + Transducer.								
	c) Net = Reading + Antenna Factor - Pre-Amp + Insert. Loss.								
	d) Attn. = Field Strength (Fundamental) - Field Strength (Harmonics).								
	e) Negative signs (-) in Margin column signify levels below the limits.								

#8.3.J

Radiated Emissions Test Data										
Company:	Shap Labs					Model #:	TQ-CX1			
EUT:	Tri mode Cell Phone					S/N #:				
Project #:	J20046637					Test Date:	Jun 11, 2001			
Test Mode:	Transmitter@1880MHz					Engineer:	Suresh.			
	Antenna Used				Pre-Amp Used			Cable Used		
Number:	14	8	21		8	10	0	21	0	0
Model:	EMCO 3115	EMCO 3115	3160-9		CDI_P1 000	AFT1885 5	None	Grn_M+L	None	None
Frequency	Reading	Detector	Ant. #	Amp. #	Ant. Pol.	Ant. Factor	Pre-Amp	Insert. Loss	D. C. F.	Net
MHz	dB(μV)	P/A/Q	#	#	H/V	dB(1/m)	dB	dB	dB	dB(μV/m)
1880.00E+0	96.5	Peak	14	0	V	30.1	0.0	2.7	0.0	129.3
1880.00E+0	92.6	Ave.	14	0	V	30.1	0.0	2.7	0.0	125.4
3760.00E+0	29.5	Peak	14	8	V	32.5	27.8	2.7	0.0	36.9
3760.00E+0	26.7	Ave.	14	8	V	32.5	27.8	2.7	0.0	34.1
5640.00E+0	51.5	Peak	14	8	V	36.1	28.3	3.7	0.0	63.0
5640.00E+0	38.2	Ave.	14	8	V	36.1	28.3	3.7	0.0	49.7
7520.00E+0	51.8	Peak	14	8	V	37.8	28.0	4.6	0.0	66.2
7520.00E+0	34.2	Ave.	14	8	V	37.8	28.0	4.6	0.0	48.6
9400.00E+0	37.8	Peak	14	8	V	40.2	27.3	4.7	0.0	55.4
9400.00E+0	25.8	Ave.	14	10	V	40.2	38.3	4.7	0.0	32.4
1.13E+4	42.0	Peak	14	10	V	40.7	39.9	5.6	0.0	48.4
1.13E+4	30.3	Ave.	14	10	V	40.7	39.9	5.6	0.0	36.7
1.32E+4	42.1	Peak	14	10	V	40.7	39.2	6.1	0.0	49.7
1.32E+4	30.5	Ave.	14	10	V	40.7	39.2	6.1	0.0	38.1
1.50E+4	39.5	Peak	14	10	V	42.5	38.3	6.8	0.0	50.5
1.50E+4	27.3	Ave.	14	10	V	42.5	38.3	6.8	0.0	38.3
1.69E+4	39.7	Peak	14	10	V	41.3	39.4	7.2	0.0	48.8
1.69E+4	27.9	Ave.	14	10	V	41.3	39.4	7.2	0.0	37.0
1.88E+4	29.2	Peak	21	10	V	40.2	36.1	7.6	0.0	40.9
1.88E+4	25.5	Ave.	21	10	V	40.2	36.1	7.6	0.0	37.2
Notes	a) D.C.F.:Distance Correction Factor									
	b) Insert. Loss (dB) = Cable A + Cable B + Cable C									
	c) Net (dB) = Reading + Antenna Factor - Pre-amp + Insert. Loss. - Transducer Loss - Duty Relaxation (transmitter only).									
	d) Negative signs (-) in Margin column signify levels below the limits.									
	e) All other emissions not reported are below the equipment noise floor which is at least 20 dB below the limits									

#8.3.k

Radiated Emissions Test Data										
Company: Sharp Labs					Model #: TQ-CX1					
EUT: Tri mode Cell Phone					S/N #:					
Project #: J20046637					Test Date: Jun 11, 2001					
Test Mode: Transmitter@1908.75					Engineer: Suresh.					
		Antenna Used			Pre-Amp Used			Cable Used		
Number:	14	8	21		8	10	0	21	0	0
Model:	EMCO 3115	EMCO 3115	3160-9		CDI_P 1000	AFT18855	None	Grn_M+L	None	None
Frequency	Reading	Detector	Ant.	Amp.	Ant. Pol.	Ant. Factor	Pre-Amp	Insert. Loss	D. C. F.	Net
MHz	dB(μV)	P/A/Q	#	#	H/V	dB(1/m)	dB	dB	dB	dB(μV/m)
1909.75E+0	94.0	Peak	14	0	V	30.1	0.0	2.7	0.0	126.9
1909.75E+0	91.4	Ave.	14	0	V	30.1	0.0	2.7	0.0	124.2
3819.50E+0	30.5	Peak	14	8	V	32.5	27.8	2.7	0.0	37.9
3819.50E+0	27.7	Ave.	14	8	V	32.5	27.8	2.7	0.0	35.1
5729.15E+0	49.8	Peak	14	8	V	36.1	28.3	3.7	0.0	61.3
5729.15E+0	35.6	Ave.	14	8	V	36.1	28.3	3.7	0.0	47.1
7638.90E+0	48.1	Peak	14	8	V	37.8	27.8	4.6	0.0	62.7
7638.90E+0	34.2	Ave.	14	8	V	37.8	27.8	4.6	0.0	48.8
9548.75E+0	37.8	Peak	14	8	V	38.3	27.3	5.0	0.0	53.8
9548.75E+0	25.8	Ave.	14	10	V	38.3	38.3	5.0	0.0	30.8
1.15E+4	42.0	Peak	14	10	V	40.7	39.9	5.6	0.0	48.4
1.15E+4	30.3	Ave.	14	10	V	40.7	39.9	5.6	0.0	36.7
1.34E+4	42.1	Peak	14	10	V	40.7	39.2	6.1	0.0	49.7
1.34E+4	30.5	Ave.	14	10	V	40.7	39.2	6.1	0.0	38.1
1.53E+4	38.9	Peak	14	10	V	42.5	38.3	6.8	0.0	49.9
1.53E+4	27.3	Ave.	14	10	V	42.5	38.3	6.8	0.0	38.3
1.72E+4	38.4	Peak	14	10	V	42.2	38.8	7.5	0.0	49.3
1.72E+4	27.9	Ave.	14	10	V	42.2	38.8	7.5	0.0	38.8
1.91E+4	29.2	Peak	21	10	V	40.2	36.1	7.7	0.0	41.0
1.91E+4	25.5	Ave.	21	10	V	40.2	36.1	7.7	0.0	37.3
Notes:	a) D.C.F.:Distance Correction Factor									
	b) Insert. Loss (dB) = Cable A + Cable B + Cable C .									
	c) Net (dB) = Reading + Antenna Factor - Pre-amp + Insert. Loss. - Transducer Loss - Duty Relaxation (transmitter only).									
	d) Negative signs (-) in Margin column signify levels below the limits.									
	e) All other emissions not reported are below the equipment noise floor which is at least 20 dB below the limits.									

#8.3.1

Spurious Emissions Attenuation Measured by Substitution Method

Company: Sharp Labs EUT: Tri mode Cell Phone Model: TQ-CX1 AMPS mode

Frequency MHz	Field from EUT dBuv/m	Signal Generator Level required to generate same field as EUT; dBm	ERP DBm	Attenuation dBm	Limit dB	Margin
824.04	127.4		26.0	-		
1648.08	66.5	-49.30	-44.4	70.3	37.5	-36.5
2472.12	61.4	-47.60	-42.1	68.1	37.5	-31.6

Frequency MHz	Field from EUT dBuv/m	Signal Generator Level required to generate same field as EUT; dBm	ERP DBm	Attenuation dBm	Limit dB	Margin
835.02	126.1		24.8	-		
1670.04	65.3	-44.00	-39.1	63.9	37.5	-26.4
2505.06	59.5	-48.00	-42.50	67.3	37.5	-29.8

Frequency MHz	Field from EUT dBuv/m	Signal Generator Level required to generate same field as EUT; dBm	ERP DBm	Attenuation dBm	Limit dB	Margin
848.97	125.9		24.7	-		
1697.94	65.3	-44.00	-39.1	63.8	37.5	-26.3
2546.92	59.5	-48.00	-42.50	67.2	37.5	-29.7

Spurious Emissions Attenuation Measured by Substitution Method

Company: Sharp Labs EUT: Tri mode Cell Phone Model: TQ-CX1 CDMA mode

Frequency MHz	Field from EUT dBuv/m	Signal Generator Level required to generate same field as EUT; dBm	ERP DBm	Attenuation dBm	Limit dB	Margin
824.04	128.3		26.9	-		
1648.08	60.0	-49.30	-44.4	71.3	40	-31.3
2472.12	59.9	-47.60	-42.10	69.00	40	-29.0

Frequency MHz	Field from EUT dBuv/m	Signal Generator Level required to generate same field as EUT; dBm	ERP DBm	Attenuation dBm	Limit dB	Margin
835.02	128.2		26.9	-		
1670.04	64.0	-45.30	-40.4	67.3	40	-27.3
2505.06	55.4	-52.10	-46.6	73.5	40	-33.5

Frequency MHz	Field from EUT dBuv/m	Signal Generator Level required to generate same field as EUT; dBm	ERP DBm	Attenuation dBm	Limit dB	Margin
848.97	128.3		25.0	-		
1697.94	61.3	-48.00	-43.1	68.1	40	-28.1
2546.91	56.1	-51.40	-45.9	70.9	40	-30.9

Spurious Emissions Attenuation Measured by Substitution Method

Company: Sharp Labs EUT: Tri mode Cell Phone Model: TQ-CX1 PCS Band CDMA

Frequency MHz	Field from EUT dBuv/m	Signal Generator Level required to generate same field as EUT; dBm	ERP DBm	Attenuation dBm	Limit dB	Margin
1851.20	129.9		28.2	-		
3702.40	73.8	-35.50	-30.6	58.8	37.4	-24.4
5553.60	71.3	-36.20	-30.70	58.90	37.4	-21.9
7404.80	66.1	-38.60	-32.60	60.80	37.4	-14.3
9256.00	55.7	-48.10	-42.10	70.30	37.4	-23.9

Frequency MHz	Field from EUT dBuv/m	Signal Generator Level required to generate same field as EUT; dBm	ERP DBm	Attenuation dBm	Limit dB	Margin
1880.00	129.3		27.6	-		
3760.00	36.9	-72.40	-67.5	95.1	37.4	-57.1
5640.00	63.0	-44.50	-39.00	66.60	37.4	-29.2
7520.00	66.2	-38.50	-32.50	60.10	37.4	-13.7
9400.00	55.4	-48.40	-42.40	70.00	37.4	23.6

Frequency MHz	Field from EUT dBuv/m	Signal Generator Level required to generate same field as EUT; dBm	ERP DBm	Attenuation dBm	Limit dB	Margin
1909.70	126.9		25.1	-		
3819.40	37.9	-71.40	-66.5	91.6	37	-54.2
5729.10	61.3	-46.20	-40.70	65.80	37	-28.4
7638.80	62.7	-42.00	-36.00	61.10	37.4	-14.7
9548.50	53.8	-50.00	-44.00	69.10	37.4	-22.7

9.0 Line Conducted Emissions, FCC 15.107

9.1 Test Procedure

Test Not Applicable

Test procedure described in the ANSI C63.4 Standard was employed.

The EUT was connected to the DC power supply (HP Model No.), that was connected to the AC line through the LISNs.

Both HOT and NEUTRAL leads were tested.

9.2 Test Results - Line Conducted Emissions

Test not applicable, as EUT is Battery Operated

10.0 Frequency Stability vs Temperature, FCC 2.1055, 22.355

Frequency Tolerance: 2.5 ppm

10.1 Test Procedure

The equipment under test was connected to an external DC power supply and the RF output was connected to a frequency counter via feedthrough attenuators. The EUT was placed inside the temperature chamber. The DC leads, RF output cable, and external PTT cable exited the chamber through an opening made for that purpose.

After the temperature stabilized for approximately 20 minutes, the external PTT switch was activated, and the frequency output was recorded from the counter.

10.2 Test Equipment

Temperature Chamber, -50C to +100C

Hewlett Packard 5383A Frequency Counter

Goldstar DC Power Supply, GR303

10.3 Test Results

Test Result:	Passed
--------------	--------

Tx Frequency: 835.020 MHz
Tolerance: +/- 2091 Hz

Temperature (°C)	Frequency (MHz)	Difference (Hz)
50	835.020085	+85
40	835.019975	-25
30	835.019995	-5
20	835.019995	-5
10	835.019785	-215
0	835.019825	-175
-10	835.019620	-380
-20	835.019825	-175
-30	835.019825	-175

Note: The measured frequency stability vs. temperature for the US PCS band is identical (% difference) to the above table since the Tx frequency is locked to the same TCXO.

11.0 Frequency Stability vs Voltage, FCC 2.1055, 22.355

Frequency Tolerance: 2.5 ppm

11.1 Test Procedure

An external variable DC power supply was connected to the battery terminals of the equipment under test. The voltage was set to 115% of the nominal value and was then decreased until the transmitter light no longer illuminates; i.e., the battery end point. The output frequency was recorded for each battery voltage.

11.2 Test Equipment

Hewlett Packard 5383A Frequency Counter
DC Power Supply

11.3 Test Results.

Test Result:	Passed
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Tx Frequency: 835.02 MHz
Tolerance: +/- 2091 Hz

Supply (Battery) Volts	Frequency (MHz)	Difference (Hz)
3.3	835.019806	194
3.9	835.019846	164
4.5	835.019850	150
3.22	Battery end point	-

12.0 Miscellaneous Comments

None.