

Test Report

From

Kyocera Wireless Corp

FCC Part 22 & 24 Certification IC RSS-129 & 133

FCC ID: OVFKWC-KE4X4

Model: KE414, KE424c

STATEMENT OF CERTIFICATION

The data, data evaluation and equipment configuration represented herein are a true and accurate representation of the measurements of the sample's radio frequency interference emissions characteristics as of the dates and at the times of the test under the conditions herein specified.

Test performed by:	Kyocera Wireless Corp 10300 Campus Point Drive CA 92121		
Report	C. K. Li		
Prepared by:	Engineer, Staff		
Tests that required an OATS site were performed by TUV Product Services.			



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1 General Information

Applicant:	Kyocera Wireles	s Corp			
	10300 Campus Point Drive				
	San Diego CA 92	2121			
FCC ID:	OVFKWC-KE4X	4			
Product:	Dual-Band Tri-m	ode Cellular Pho	ne		
Model Number:	KE414		KE424c		
EUT Serial Number:	MXXZ		PVGW		
Туре:	[] Prototype, [X] Pre-Production,	[] Production		
Device Category:	Portable				
RF Exposure	General Populati	on / Uncontrolled			
Environment:					
Antenna:	Fixed Helix				
Detachable Antenna:	Yes				
External Input:	Audio/Digital Dat	a			
Quantity:	Quantity product	ion is planned			
FCC Rule Parts:	§22H	§22H	§22.901(d)	§24E	
Modes:	800 AMPS	800 CDMA	800 CDMA1X	1900 CDMA	
Multiple Access	FDMA	CDMA	CDMA	CDMA	
Scheme:					
TX Frequency (MHz):	824 - 849 824 - 849 824 - 849 1850 - 1910				
Emission	40K0F8W, 40K0F1D, 1M25F9W				
Designators:					
Max. Output Power (W)	0.326 ERP	0.338 ERP		0.427 EIRP	

2 Product Description

The phone is a single board Tri-mode 1XRTT product that integrates Assisted GPS capability to meet the emergency location requirements of the FCC's E911 Phase II mandate. The Tri-mode architecture is defined as 1900MHz (PCS CDMA), 800MHz (cellular CDMA and AMPS). The phone will support certain CDMA2000 radio-configurations (RC) as describes in Exhibit 2 (operation description).

Model KE414 and KE424C belong to the same equipment family. Both models are identical in term of RF, PCB design and construction. The only differences between them are the front housing cosmetic design, front housing metal bracket and the LCD display. KE414 and KE424C consist of a gray-scale LCD display and Color LCD display respectively.

3 Electronic Serial Numbers (ESN) Protection

The Trimode Phones,FCC ID: OVFKWC-KE4X4 uses ESN. The ESN is a unique identification number to each phone which is contained in the Numeric Assignment Module and is automatically transmitted to the base station whenever a call is placed. The ESN is stored in an EPROM and is isolated from fraudulent contact and tampering. Any attempt to change the ESN will render the portable phone inoperative.

The phone complies with all requirements for ESN under Part 22.919.



4 FCC Compliance Emergency 911

FCC § 22.921

When an emergency 911 call is originated by the user, the mobile will attempt to acquire any available system and originate the emergency call on that system, disregarding restrictions set by the roaming list. The FCC NPRM WT99-13, CC94-102 automatic analog A/B roaming option has been implemented for 911 emergency calls. Note that the KE414 and KE424C have Global Positioning System (GPS) support.

5 TTY compliance

FCC § 255 of the Telecom Act KE414 and424C have been designed for TTY Compliance with Cellular Compatibility Standard.

6 Transmitter RF Power Output

6.1 Conducted Power

	FCC:	§ 2.1046	IC:	RSS-129 §7.1, RSS-133 §6.2
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Measurement Procedures:

The RF output power was measured using a Giga-tronics 8541C Universal Power Meter and HP 8594E Spectrum Analyzer that has the CDMA personality option. Terminated to a resistive coaxial load of 50 ohms.

Mode	Frequency (MHz)	Channel	Power (dBm)	
			KE414	KE424C
AMPS	824.04	911	25.04	25.10
	936.49	383	25.10	25.13
	848.97	799	25.05	25.08
CDMA 800	824.70	1013	25.02	25.07
	836.52	384	25.01	25.03
	848.31	777	25.05	25.09
CDMA 1900	1851.25	25	23.10	23.02
	1880.00	600	23.05	23.05
	1908.75	1175	23.11	23.04



6.2 Radiated Power

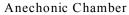
FCC: § 22.913, § 24.232 IC: RSS-129 §7.1 and §9.1, RSS-133 §6.2

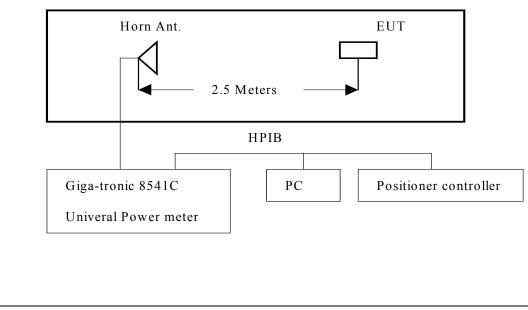


Measurement Procedures:

The EUT was positioned on a 2-axis non-conductive positioner inside a 10-meter anechoic chamber.

The EUT conducted power was set by the phone control software. During tests, the phone was rotated 360 degree in azimuth and elevation by an automated antenna measurement workstation. Maximum radiated power was recorded using a Giga-tronics 8541C Universal Power Meter. All measurement results are EIRP in dBm. For ERP, subtract 2.1 dB from the EIRP data.







Mode	Frequency (MHz)	Channe	Max. (dE	Ref.	
		I	KE414	KE424C	
AMPS	824.04	911	23.6	24.1	ERP
	936.49	383	24.2	24.4	
	848.97	799	25.0	24.8	
CDMA 800	824.70	1013	23.7	24.1	ERP
	836.52	384	24.2	24.5	
	848.31	777	25.1	25.3	
CDMA 1900	1851.25	25	25.2	26.3	EIRP
	1880.00	600	25.4	25.7	
	1908.75	1175	25.7	26.1	



7 Transmitter Modulation Requirement

7.1 Transmitter Audio Frequency Response

FCC:	§ 2.1047, § 22.915	IC:	RSS-129 §6.2		
Measurement Procedures:					
Meas	ured with HP8920 RF communication te	est se	t & HP 3588A spectrum analyzer.		
H tra H	perate the transmitter with the compres P8920 test receiver without de-emphas ansmitter external audio input port, vary z, and observe the input levels necessa eviation.	is. Ap the r	oply a sine wave audio input to the nodulating frequency from 100 to 3000		
de ol si	djust the audio input level to 20 dB grea eviation with 1 kHz tone. Vary the modu bserve the deviation while maintaining a pectrum analyzer to measure the output uput signal.	ulation a cons	n frequency from 3 kHz to 30 kHz and stant audio input level. Use the audio		

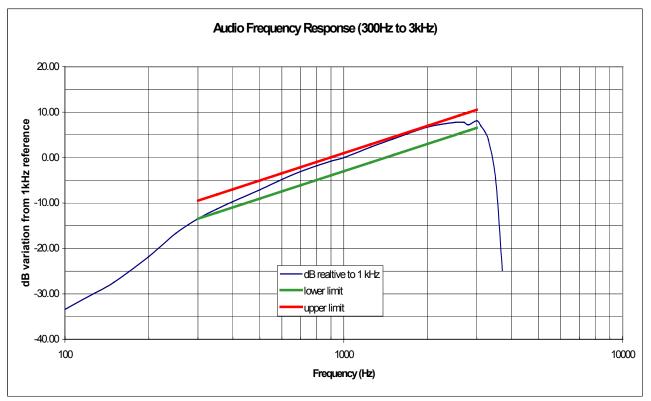
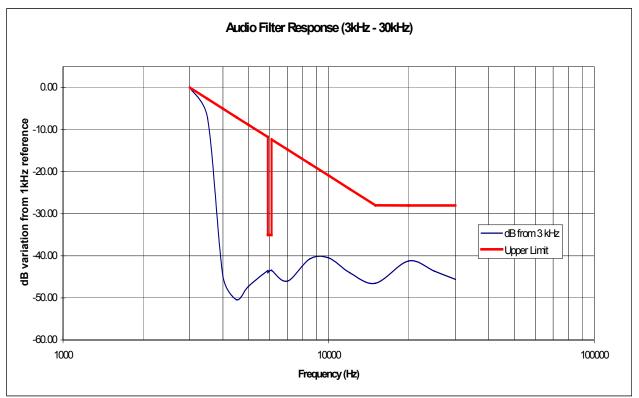


Figure 7.1 Audio Filter Characteristics (300-3000Hz)









7.2 Transmitter Modulation Deviation Limiting

FCC: § 2.1047(b), § 22.915(b)(c)	IC: RSS-129 §6.1
Measurement Procedures:	
Measured with HP8920 RF communicati	ion test set as an audio signal generator.
	AT disabled, and at three different modulating djust the audio input level from -20 dB to +20 dB erate 8kHz deviation at 1KHz.

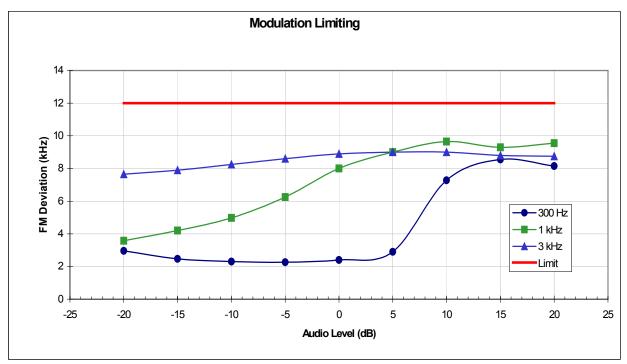


Figure 7.3 Modulation Deviation Limiting

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8 Occupied Bandwidth

FCC:	§ 2.1049, § 22.917(b)(d), § 24.238	IC:	RSS-129 §6.3, §8.1			
Measu	Measurement Procedures:					

The RF output of the EUT was connected to the input of the spectrum analyzer with sufficient attenuation. The spectrum with no modulation was recorded.

<u>For Analog:</u> The audio input signal was adjusted to as followings: (1) For combined voice and SAT, disable the compressor, modulate with a 2500 Hz sine wave 13.5 dB greater than that required to produce \pm 8 kHz peak deviation at 1000 Hz and a 6000 Hz SAT with \pm 2.0 kHz peak deviation. (2) For combined Signaling Tone and SAT, modulate with a 10 kHz ST with \pm 8 kHz peak deviation and a 6000 Hz SAT with \pm 2.0 kHz peak deviation. (3) For wideband data, modulate with a quasi-random 10 kbps data pattern with \pm 8 kHz peak deviation. (4) For voice only, disable the compressor, modulate with a 2500 Hz sine wave 13.5 dB greater than that required to produce \pm 8 kHz peak deviation at 1000 Hz. (5) For SAT only, modulate with a 6000 Hz SAT with \pm 2.0 kHz peak deviation. (6) For ST only, modulate with a 10 kHz ST with \pm 8 kHz peak deviation. (7) For combined SAT and DTMF, modulate with a 6000 Hz SAT with \pm 2.0 kHz peak deviation and one of the DTMF tones. All measurements were performed on middle channel.

For Digital: Modulate with full rate.

List of Figures

Figure	Mode	Description
8-1	AMPS	Voice
8-2		SAT
8-3		Voice + SAT
8-4		ST
8-5		SAT+ST
8-6		SAT + DTMF_9
8-7		10kb Wideband Data
8-8	CDMA 800	CDMA at RC1
8-9		CDMA 1X, F/R-FCH at RC3
8-10		CDMA 1X, F/R-FCH + F/R-SCH at RC3
8-11	CDMA 1900	CDMA at RC1
8-12		CDMA 1X, F/R-FCH at RC3
8-13		CDMA 1X, F/R-FCH + F/R-SCH at RC3
8-14]	Lower Band Edge @ CH25
8-15		Upper Band Edge @ CH1175

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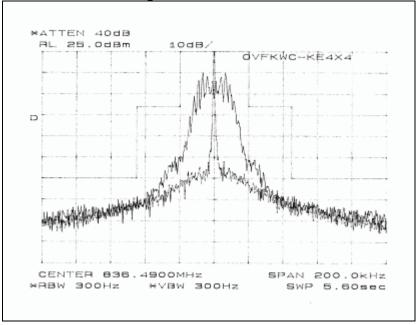


Figure 8-1 AMPS Voice

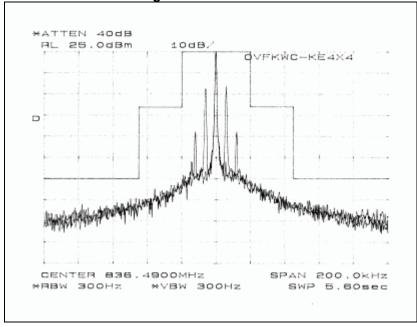


Figure 8-2 AMPS SAT



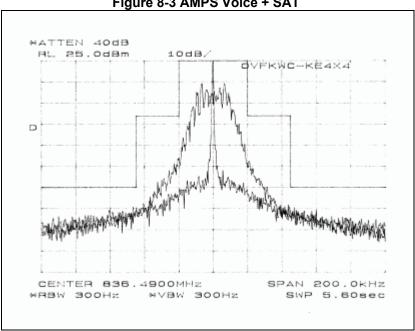


Figure 8-3 AMPS Voice + SAT

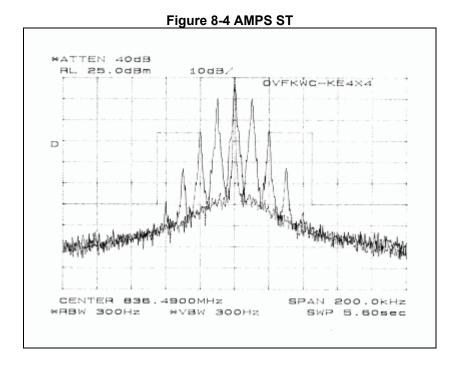




Figure 8-5 AMPS ST + SAT

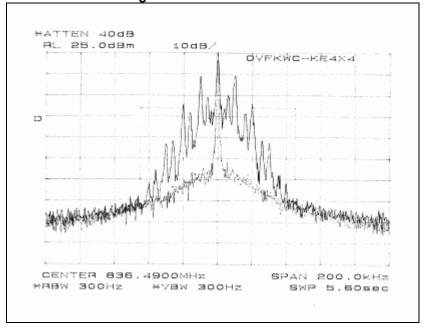
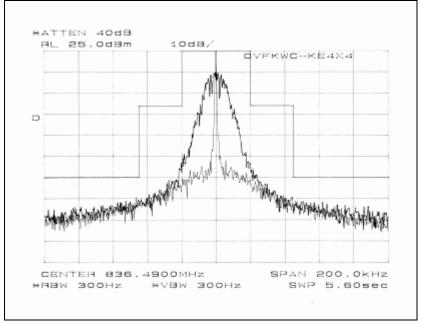
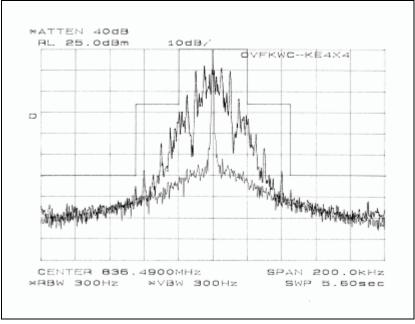


Figure 8-6 SAT + DTMF_9











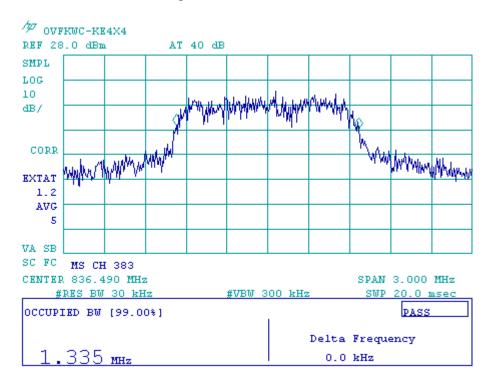


Figure 8-8 CDMA 800 at RC1



Measurement/Instrument Screen					
Control	Digital Average Power	Call Parms			
Digital Average		Cell Pouer			
Pouer Setup _V	Digital Average Power	-104.00 dBm/1.23 HHz			
	25.11 dBm				
		Cell Band US Cellular			
		US Cellular			
	Expected Nobile Power: 23.00 dBm/1.23 NHz	Channel			
	Continuous	383			
	TX Spurious Emissions				
0-1/1-	Pass	Protocol Rev			
Calibrate Digital Avg Pur	-0.885 MHz Offset 0.885 MHz Offset	6 (IS-2000)			
	-57.20 dBc -56.76 dBc				
Suan Ilindou	-57.20 dBc -50.70 dBc	Radio Config			
Suap Hindou Positions	-1.980 MHz Offset 1.980 MHz Offset	(Fud3, Rvs3)			
		S032 (+ F-SCH)			
	-65.64dBc -65.14dBc	FCH Service			
	Continuous	Option Setup _V			
	Background Active Cell Sys Type: IS-2000				
1 - 0 0	Connected + Data	1-00			
1 of 2	IntRef Offset L	1 of 3			

Figure 8-9a CDMA 800 1X at RC3 (F/R-FCH)

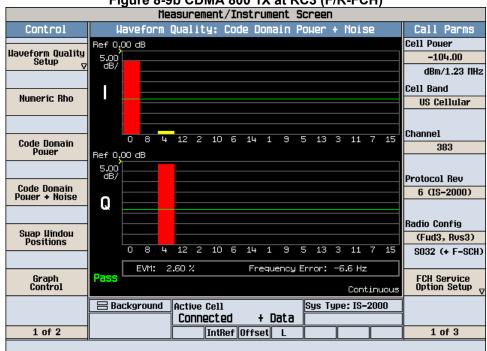
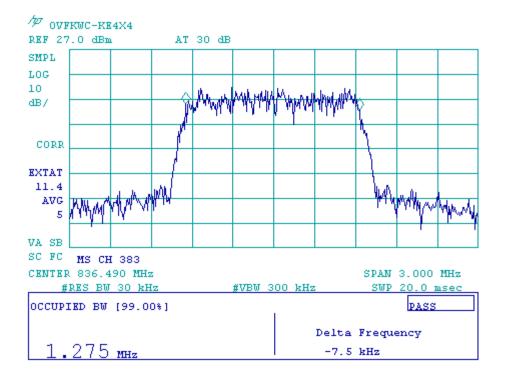


Figure 8-9b CDMA 800 1X at RC3 (F/R-FCH)

Figure 8-9c CDMA 800 1X at RC3 (F/R-FCH)

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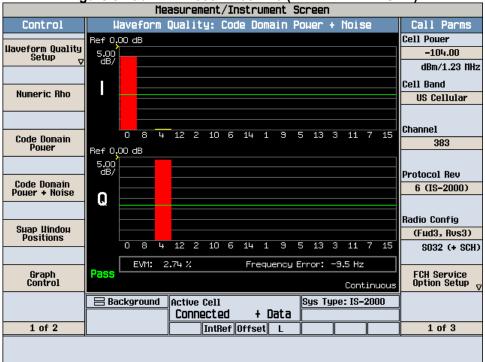




Measurement/Instrument Screen					
Control	Digital Average Power	Call Parms			
		Cell Pouer			
Digital Average Pouer Setup _v		-104.00			
V	Digital Average Power	dBm/1.23 fHz			
	25.10 dBm	Cell Band			
		US Cellular			
	Expected Hobile Pouer: 23.00 dBm/1.23 HHz	Channel			
	Continuo	383			
	TX Spurious Emissions	Protocol Rev			
Calibrate	Pass	6 (IS-2000)			
Digital Avg Pur	-0.885 MHz Offset 0.885 MHz Offset				
	-56.10 dBc -56.79 dBc	Radio Config			
Suap Uindou		(Fud3, Rvs3)			
Positions	-1.980 MHz Offset 1.980 MHz Offset	S032 (+ SCH)			
		0002 (+ 0017			
	-64.88dBc -65.50dBc	FCH Service			
	Continuo	0-1			
	Background Active Cell Sys Type: IS-2000				
	Connected + Data				
1 of 2	IntRef Offset L	1 of 3			

Figure 8-10a CDMA 800 1X at RC3 (F/R-FCH + F/R-SCH)

Figure 8-10b CDMA 800 1X at RC3 (F/R-FCH + F/R-SCH)





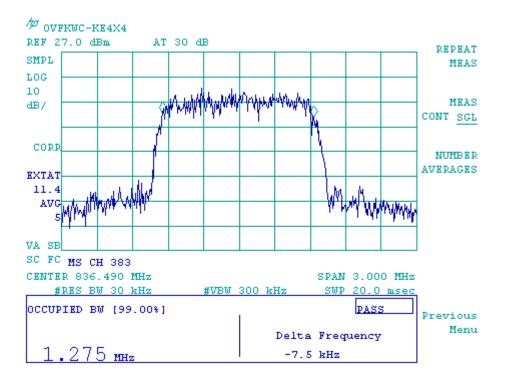


Figure 8-10c CDMA 800 1X at RC3 (F/R-FCH + F/R-SCH)



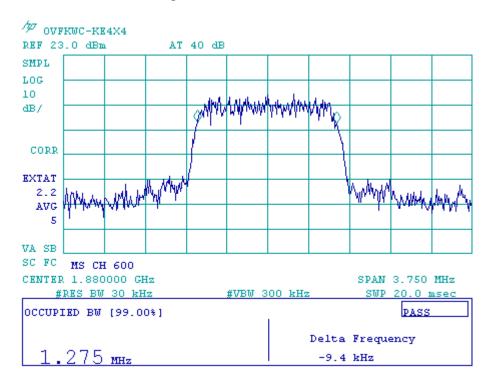


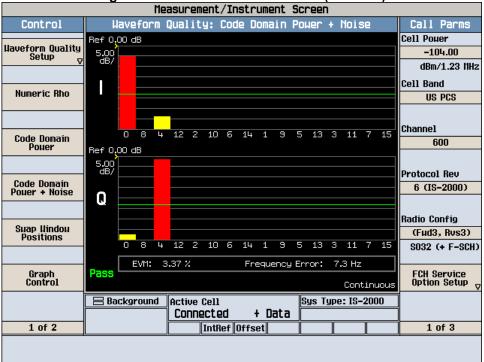
Figure 8-11 CDMA 1900 at RC1



	Measurement/Instrument Screen	
Control	Digital Average Power	Call Parms
Disidal Augusta		Cell Pouer
Digital Average Pouer Setup	Digital Querage Dever	-104.00
v	Digital Average Power	dBm/1.23 MHz
	22.97 dBm	Cell Band
		US PCS
	Expected Nobile Poyer: 23.00 dBm/1.23 NHz	
	Expected Hobite Foner. 20.00 dbii/1.20 Hitz	Channel
	Continuous	600
	TX Spurious Emissions	
	Pass	Protocol Rev
Calibrate Digital Avg Pur	-1.250 MHz Offset 1.250 MHz Offset	6 (IS-2000)
	-53.47 dBc -55.05 dBc	Radio Config
Suap Hindou Positions		(Fud3, Rvs3)
	-1.980 MHz Offset 1.980 MHz Offset	S032 (+ F-SCH)
	-66.66dBc -65.47dBc	
	Continuous	FCH Service Option Setup _V
	Active Cell Sys Type: IS-2000]
	Connected + Data	
1 of 2	IntRef Offset	1 of 3

Figure 8-12a CDMA 1900 1X at RC3 (F/R-FCH)

Figure 8-12b CDMA 1900 1X at RC3 (F/R-FCH)





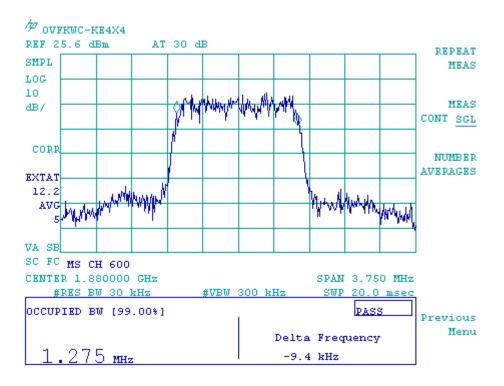
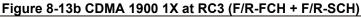


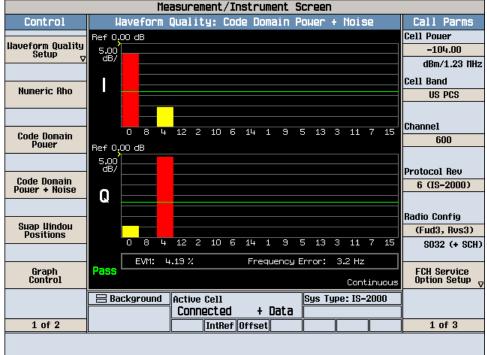
Figure 8-12c CDMA 1900 1X at RC3 (F/R-FCH)



	Measurement/Instrument Screen	
Control	Digital Average Power	Call Parms
Digital Average Pouer Setup _V	Digital Average Power 22.95 dBm	Cell Pouer -104.00 dBm/1.23 IHz Cell Band US PCS
	Expected Hobile Power: 23.00 dBm/1.23 HHz Continuous	Channe1 600
	TX Spurious Emissions	
Calibrate Digital Avg Pur	Pass -1.250 MHz Offset 1.250 MHz Offset	Protocol Rev <u>6 (IS-2000)</u>
Suap Hindou Positions	-53.93 dBc -54.97 dBc	Radio Config (Fud3, Rvs3)
	-1.980 MHz Offset 1.980 MHz Offset -66.45dBc -66.29dBc	S032 (+ SCH) FCH Service
	Continuous Background Active Cell Sys Type: IS-2000 Connected + Data	Option Setup _V
1 of 2	IntRef Offset	1 of 3

Figure 8-13a CDMA 1900 1X at RC3 (F/R-FCH + F/R-SCH)







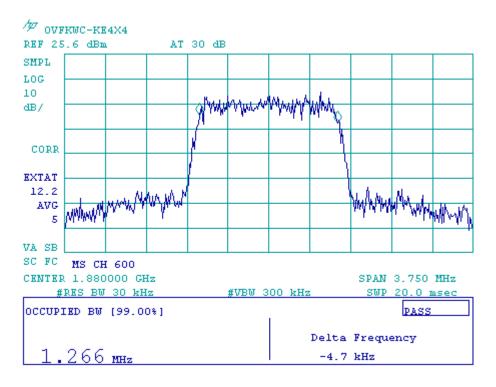


Figure 8-13c CDMA 1900 1X at RC3 (F/R-FCH + F/R-SCH)



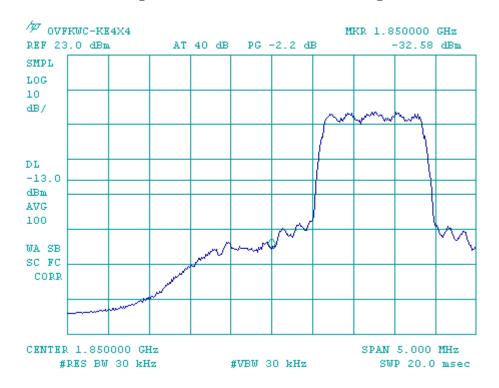
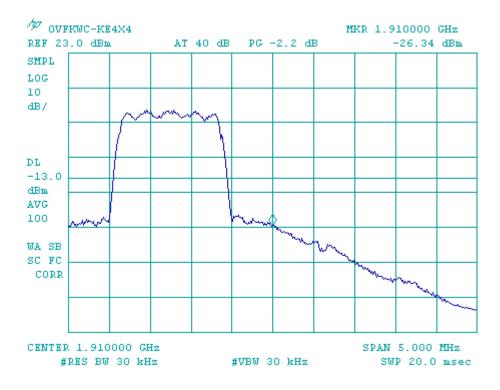


Figure 8-14 CDMA 1900 Lower Band Edge

Figure 8-15 CDMA 1900 Upper Band Edge





9 Spurious Emissions At Antenna Terminals

FCC: § 2.1051, § 22.917(e)(f), § 24.238 IC: RSS-129 §6.3, §8.1, RSS-133 §6.3 Measurement Procedures: IC: IC:

<u>Out of Band:</u> The RF output of the EUT was connected to the input of the spectrum analyzer with sufficient attenuation. The audio modulating signal was applied as in Section 5.0. The frequency spectrum was investigated from the lowest frequency signal generated up to at least the tenth harmonic of the fundamental.

Base Band: Spectrum was investigated from 869-894 MHz for Cellular.

List of Figures:

Figure	Mode	Channel	Plot Description
9-1	AMPS	991	Emissions in base station frequency range, 869 - 894 MHz
9-2			Conducted spurious emissions, 9kHz to 10GHz
9-3		383	Emissions in base station frequency range, 869 - 894 MHz
9-4	1		Conducted spurious emissions, 9kHz to 10GHz
9-5		799	Emissions in base station frequency range, 869 - 894 MHz
9-6	1		Conducted spurious emissions, 9kHz to 10GHz
9-7	CDMA 800	1013	Emissions in base station frequency range, 869 - 894 MHz
9-8			Conducted spurious emissions, 9kHz to 10GHz
9-9		383	Emissions in base station frequency range, 869 - 894 MHz
9-10	1		Conducted spurious emissions, 9kHz to 10GHz
9-11		777	Emissions in base station frequency range, 869 - 894 MHz
9-12			Conducted spurious emissions, 9kHz to 10GHz
9-13	CDMA	25	Conducted spurious emissions, 9kHz to 20GHz
9-14	1900	600	Conducted spurious emissions, 9kHz to 20GHz
9-15		1175	Conducted spurious emissions, 9kHz to 20GHz



EAK										
06										
0 B/										
L 80.0										
Bm										
A SB C FC	duwon n	mal had	NWWW	wester alle	ranghterd	howhite	ywhan	hamme	MMW	WWW
CORR										

Figure 9-1 AMPS - Emissions in base station frequency range (CH 991)



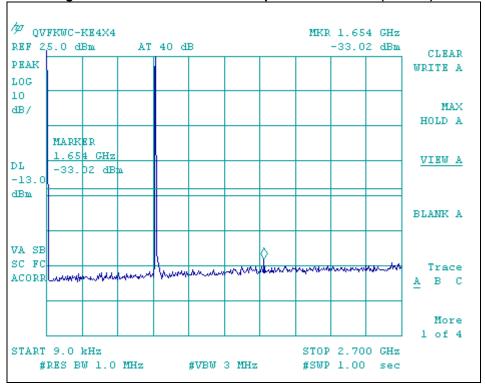


Figure 9-2a AMPS – Conducted Spurious Emission (CH 991)

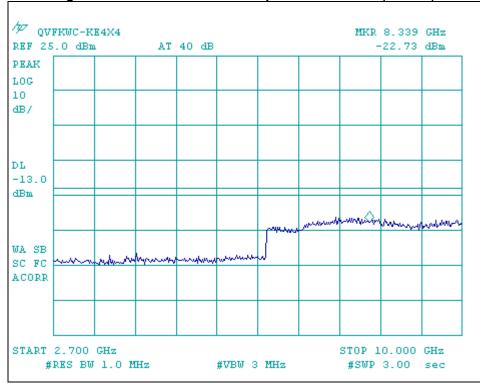


Figure 9-2b AMPS – Conducted Spurious Emission (CH 991)



	3.0 dE	ш	#AT	0 006					98.59	dibiti
PEAK LOG										
10G										
B/										
DL										
-80.0 dBm										
dBIII										
WA SB	Work Mas	Anne	n. Ash	. Alunh	A. homent	ha hina ka	Mm	mille	Monul	CAM
SC FC	11. A. M.	ም የገ ጥብ	wy y m	ч к Н	and a state	and sta	14 AM 14	1	1 17 OrV-	Min fr
ACORR										

Figure 9-3 AMPS - Emissions in base station frequency range (CH 383)



(EF 25	.0 dBn	<u>م</u>	AT	40 dB				-	32.62	dBm
PEAK										
00										
.0 1B7										
				4						
L 13.0										
Bm										
A SB										
				μ			A and an		A 2000	A
CORR	mound	honort	wan-mare	(Lithung	mound	when and				
TART	9.0 kH	Iz						STOP	2.700	GHz
#	RES BW	1.0 M	Hz		#VBW 3	MHz		#SWP	1.00	sec

Figure 9-4a AMPS – Conducted Spurious Emission (CH 383)

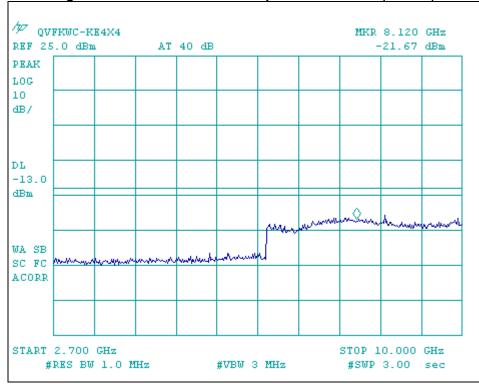


Figure 9-4b AMPS – Conducted Spurious Emission (CH 383)



EAK										
0G 0										
в/										
L 80.0										
Bm										
	1 .		l		k					
A SB C FC	MMM/W	YN WWW	WAMA	nashrin	haventy	NAMA	MM YM	MANN	MARINA	MWW
CORR										

Figure 9-5 AMPS - Emissions in base station frequency range (CH 799)



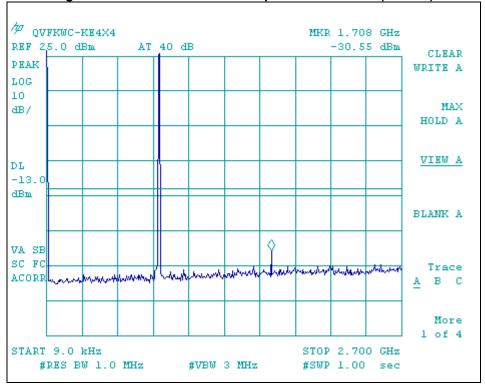


Figure 9-6a AMPS – Conducted Spurious Emission (CH 799)

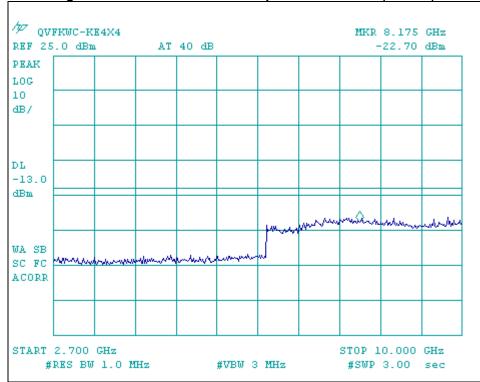


Figure 9-6b AMPS – Conducted Spurious Emission (CH 799)



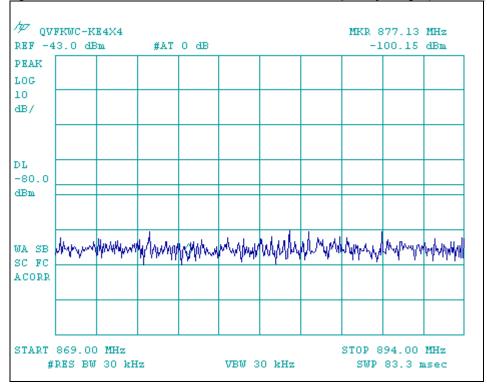


Figure 9-7 CDMA 800 - Emissions in base station frequency range (CH 1013)



	FKWC-K		AT	40 dB					1.654 33.81	
PEAK										
0G										
.0 BB/										
ш)										
L 13.0										
13.0 Bm										
A SB										
							Ŷ			
CORR	nom	mon	mount	man	whenhy	work	Mphan	water	han the second	Manual
TART	9.0 kH	Iz						STOP	2.700	GHz
		1.0 M	Hz		#VBW 3	MHz			1.00	

Figure 9-8a CDMA 800 – Conducted Spurious Emission (CH 1013)

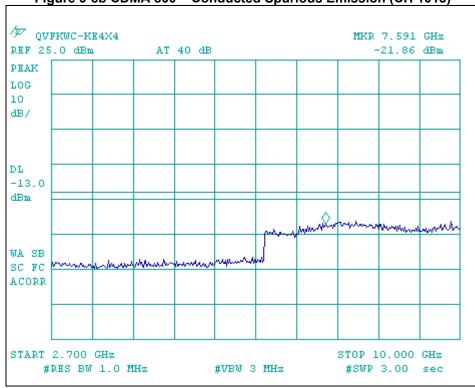


Figure 9-8b CDMA 800 – Conducted Spurious Emission (CH 1013)



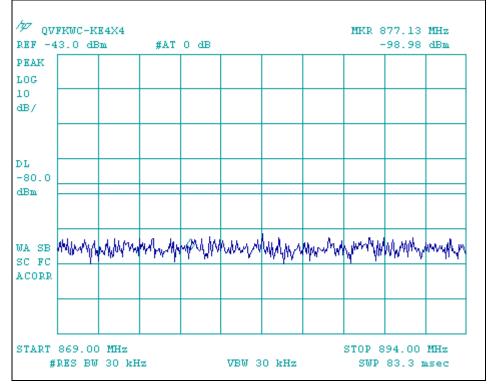


Figure 9-9 CDMA 800 - Emissions in base station frequency range (CH 383)



EF 25	.0 dBm	1	AT	40 dB				-	33,69	dBm
EAK										
06										
0 B/										
L				1						
13.0										
Bm										
A SB										
				Щ., —		. Alar	Adabase		aphine and an	Mundower
CORR.	hand	www.w	www.w	magnes	-Awardan	w~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~				
		-								
	9.0 kH	iz 1.0 M	W.e		#VBW 3	MHa			2.700	

Figure 9-10a CDMA 800 – Conducted Spurious Emission (CH 383)

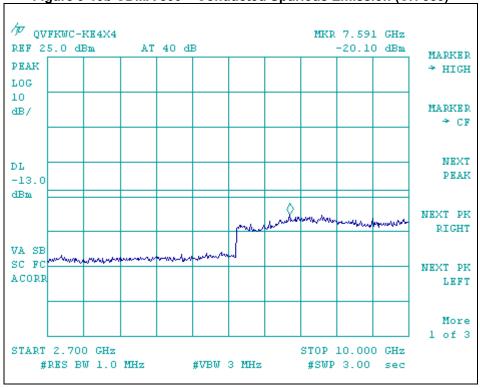


Figure 9-10b CDMA 800 – Conducted Spurious Emission (CH 383)



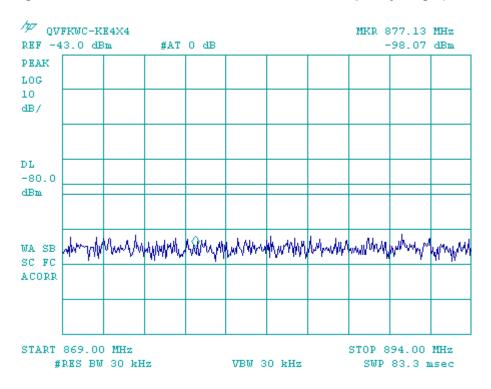


Figure 9-11 CDMA 800 - Emissions in base station frequency range (CH 777)



EAK										
06										
0 B/										
L 13.0										
Bm										
A SB C FC				Į.			\$			
CORR	mont	hand	mydawn	lhan	den fan Maria	www.	which	www.hrm	allenger, dar elenge	94,HW 1940

Figure 9-12a CDMA 800 – Conducted Spurious Emission (CH 777)

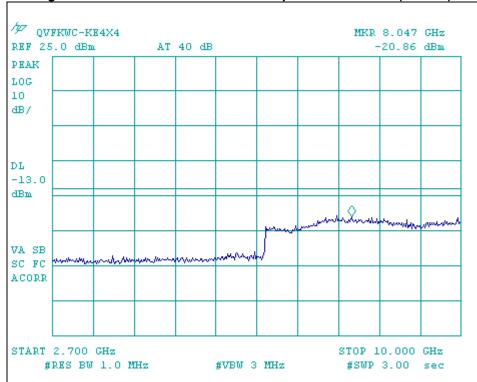
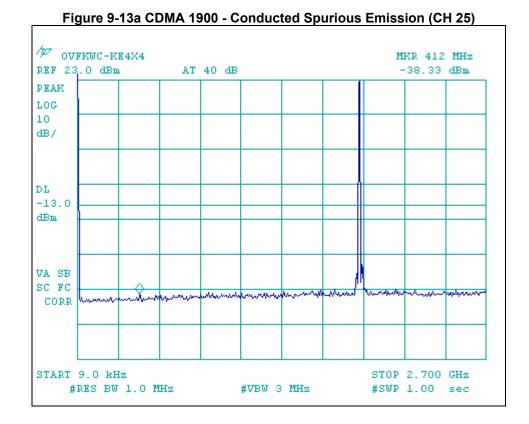


Figure 9-12b CDMA 800 – Conducted Spurious Emission (CH 777)





₩ OVFRWC-RE4X4 MKR 17.28 GHz REF 23.0 dBm AT 40 dB -24.90 dBm PEAK LOG 10 dB/ DL -13.0 dBm Â. marker $\sim \omega$ WA SB SC FC CORR START 2.70 GHz STOP 20.00 GHz #RES BW 1.0 MHz #VBW 3 MHz #SWP 3.00 sec

Figure 9-13b CDMA 1900 - Conducted Spurious Emission (CH 25)



	FKWC-K		AT	40 dB					1.283 39.51	
EAK										
06										
0 B/										
57										
L										
13.0										
Bm										
A SB										
C FC	much	mante	moun	num	mark	man	1. Marriell	mont	mm	mm
TART	9.0 kH	Iz						STOP	2.700	GHz
#	RES BW	1.0 1	Hz		#VBW 3	MHz		#SWP	1.00	sec

Figure 9-14a CDMA 1900 - Conducted Spurious Emission (CH 600)

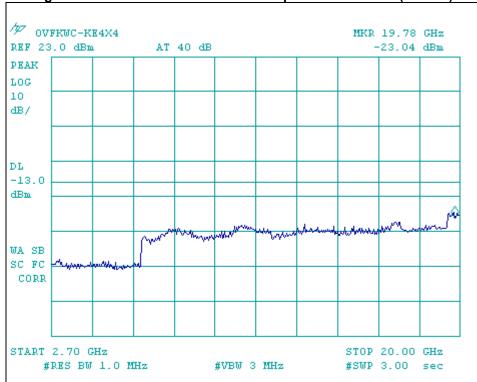


Figure 9-14b CDMA 1900 - Conducted Spurious Emission (CH 600)



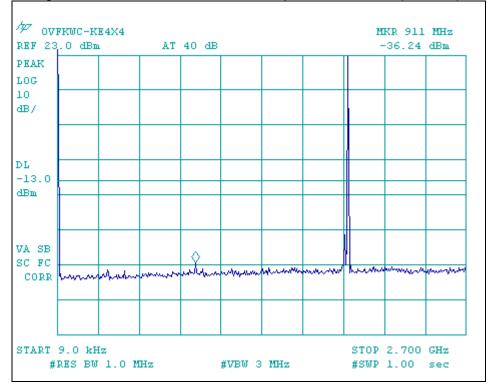


Figure 9-15a CDMA 1900 - Conducted Spurious Emission (CH 1175)

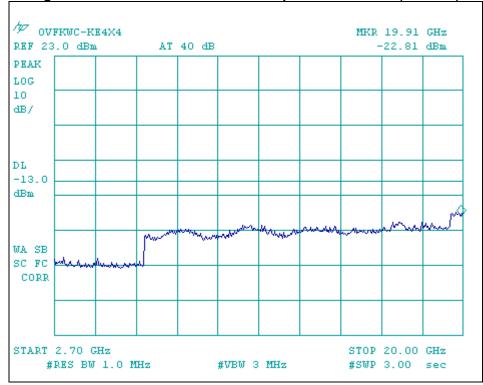


Figure 9-15b CDMA 1900 - Conducted Spurious Emission (CH 1175)



10 Transmitter Radiated Spurious Emissions Measured Data

FCC: § 2.4	1053, § 22.91, § 24.238	IC:	RSS-129 §8.1, RSS-133	3 §6.3
Measurement	Procedures:			

The radiated spurious emission test was performed at TUV in San Diego, California. The test report is attached in a separate attachment.

11 Receiver Spurious Emissions

FCC:	§ 15.109	IC:	RSS-129 §10, RSS-133 §9			
Measurement Procedures:						
The receiver radiated spurious emission test was performed at TUV in San Diego,						
The rece	niver radiated sourious emission test	wasr	performed at TLIV in San Diego			



12 Transmitter RF Carrier Frequency Stability

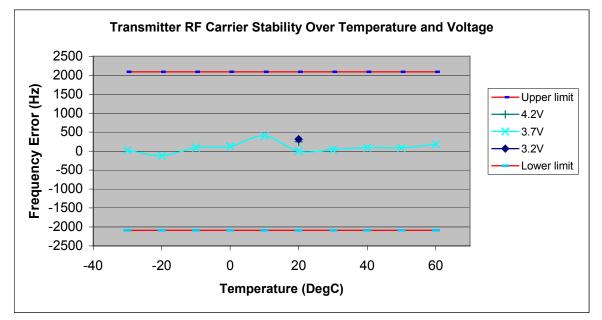
FCC:	§ 2.1055, § 22.355, § 24.235	IC:	RSS-129 §7.2 and §9.2, RSS-133 §7
Measure	ement Procedures:		

The EUT was placed in an environmental chamber. The RF output of the EUT was connected to a frequency counter via attenuator. A power supplier was connected as primary voltage supply.

12.1 AMPS Mode

Tx Frequency:	836.49 MHz	Voltage :	3.7V
Tolerance:	+/- 2.5 Ppm (+/- 2091 Hz)	Ch:	383

Temperature	Devia	Deviation of Carrier (Hz)			Specification (Hz)		
(°C)	3.2V (Battery endpoint)	3.7V	4.26V (115%)	Lower limit	Upper limit		
-30		22		-2091	2091		
-20		-120		-2091	2091		
-10		97		-2091	2091		
0		130		-2091	2091		
10		405		-2091	2091		
20	314	0	247	-2091	2091		
30		39		-2091	2091		
40		97		-2091	2091		
50		89		-2091	2091		
60		180		-2091	2091		

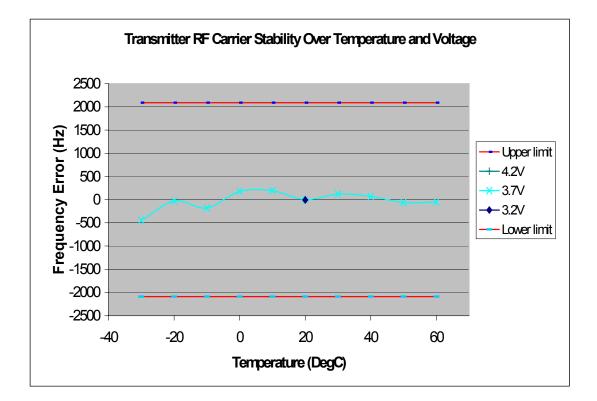




12.2 CDMA 800 Mode

Tx Frequency:	836.49 MHz	Voltage :	3.7V
Tolerance:	+/- 2.5 Ppm (+/- 2091 Hz)	Ch:	383

Temperature	Deviation of Carrier (Hz)			Specification (Hz)		
(°C)	3.2V (Battery endpoint)	3.7V	4.26V (115%)	Lower limit	Upper limit	
-30		-448		-2091	2091	
-20		-28		-2091	2091	
-10		-178		-2091	2091	
0		179		-2091	2091	
10		195		-2091	2091	
20	-8	0	0	-2091	2091	
30		119		-2091	2091	
40		69		-2091	2091	
50		-61		-2091	2091	
60		-51		-2091	2091	

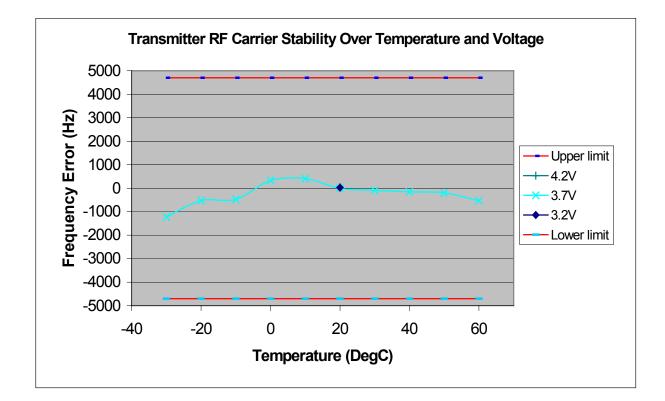




12.3 CDMA 1900 Mode

Tx Frequency:	1880.00 MHz	Voltage :	3.7V
Tolerance:	+/- 2.5 Ppm (+/-4700 Hz)	Ch:	600

Temperature	Devia	Deviation of Carrier (Hz)			tion (Hz)
(°C)	3.2V (Battery endpoint)	3.7V	4.26V (115%)	Lower limit	Upper limit
-30		-1225		-4700	4700
-20		-525		-4700	4700
-10		-475		-4700	4700
0		325		-4700	4700
10		408		-4700	4700
20	25	0	41	-4700	4700
30		-92		-4700	4700
40		-150		-4700	4700
50		-200		-4700	4700
60		-534		-4700	4700





13 Exposure of Humans to RF Fields (SAR)

The SAR Test Report is showed in a separate attachment as Exhibit 7.

14 Test Equipment

Description	Manufacturer	Model Number	Serial Number	Cal Due Date
Power Meter	Giga-tronics	8541C	1835203	01/04/04
Spectrum Analyzer	Hewlett Packard	8593EM	3710A00203	04/15/03
Spectrum Analyzer	Hewlett Packard	8594E	3810A06429	11/19/03
Wireless Communications Test Set	Agilent	8960	GB41251014	11/15/03
RF communication test set	Hewlett Packard	8920B	US35320824	12/21/03
Temperature Chamber	CSZ	Z2033	Z9343034	02/14/03