



FCC, VCCI, CISPR, CE, AUSTEL, NZ
UL, CSA, TUV, BSMI, DHHS, NVLAP

1366 BORDEAUX DRIVE, SUNNYVALE, CA 94089
PHONE: (408) 752-8166 FAX: (408) 752-8168

Project #: 000511a1
Report #: 0010230-1
Date& Time: 5/16/00 5:04 PM
Test Engr: KERWIN CORPUZ

KC

Company: E-RAE TESTING LAB
EUT Description: 900MHz CORDLESS HAND FREE MINI PHONE(WHF7000)
Test Configuration: EUT ONLY
Type of Test: FCC CLASS B
Mode of Operation: NORMAL (TONE)

☐ Data Entry
 ☒ External Preamp
 ☐ FCC_A
 ☒ FCC_B
 ☐ EN_A
 ☐ EN_B
 ☐ EN11B_G2

Freq. (MHz)	Reading (dBuV)	AF (dB)	Closs (dB)	Pre-amp (dB)	Level (dBuV/m)	Limit FCC_B	Margin (dB)	Pol (H/V)	Az (Deg)	Height (Meter)	Mark (P/Q/A)
39.36	37.40	13.24	0.85	27.89	23.60	40.00	-16.40	3mV	0.00	1.00	P
53.68	37.30	7.60	1.01	27.90	18.02	40.00	-21.98	3mV	0.00	1.00	P
64.42	37.60	6.66	1.07	27.89	17.45	40.00	-22.55	3mV	0.00	1.00	P
114.52	39.80	13.64	1.47	27.79	27.12	43.50	-16.38	3mV	0.00	1.00	P
143.16	38.20	12.87	1.68	27.73	25.02	43.50	-18.48	3mV	0.00	1.00	P
171.79	37.60	11.87	1.82	27.59	23.70	43.50	-19.80	3mV	0.00	1.00	P

DIGITAL DEVICE; 3.579MHz: Measured Noise Floor, there are no emissions found on X, Y, Z AXIS.

SCAN 30 - 1000 MHz, VERTICAL AND HORIZONTAL POLARIZATION.

Total data #: 6
V.1a



1366 BORDEAUX DRIVE, SUNNYVALE, CA 94089
PHONE: (408) 752-8166 FAX: (408) 752-8168

Project #: 0010230-1
Report #: 000509A2
Date & Time: 5/16/00 5:45 PM
Test Engr: KERWIN CORPUZ

KC

Company:	E-RAE TESTING LAB
EUT Description:	900MHz CORDLESS HAND FREE MINI PHONE(WHF7000)
Test Configuration :	EUT ONLY
Type of Test:	FCC 15.249
Mode of Operation:	NORMAL(TONE)

Data Entry	External Preamp	FCC_A	FCC_B	EN_A	EN_B	EN11B_G2
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Freq. (MHz)	Reading (dBUV)	AF (dB)	Closs (dB)	Pre-amp (dB)	Level (dBUV/m)	Limit FCC_B	Margin (dB)	Pol (H/V)	Az (Deg)	Height (Meter)	Mark (P/Q/A)
"HAND SET"											
ADDED FERRITE BEAD (FAIR-RITE, part:2643022401) ONTO WIRE BETWEEN ANTENNA AND PCB.											
Z axis; fLOW											
925.26	88.60	21.54	4.72	28.46	86.40	94.00	-7.60	3mH	300.00	1.20	P
925.31	75.30	20.83	4.72	28.46	72.39	94.00	-21.61	3mV	180.00	1.00	P
Z axis; fHIGH											
927.26	87.00	21.55	4.72	28.45	84.82	94.00	-9.18	3mH	300.00	1.20	P
927.26	87.00	20.84	4.72	28.45	84.11	94.00	-9.89	3mV	350.00	1.00	P
Y axis; fLOW											
925.31	87.10	21.54	4.72	28.46	84.90	94.00	-9.10	3mH	270.00	1.30	P
925.31	78.50	20.83	4.72	28.46	75.59	94.00	-18.41	3mV	180.00	1.00	P
Y axis; fHIGH											
927.26	84.80	21.55	4.72	28.45	82.62	94.00	-11.38	3mH	0.00	1.30	P
927.26	78.20	20.84	4.72	28.45	75.31	94.00	-18.69	3mV	315.00	1.00	P
X axis; fLOW											
925.31	80.80	21.54	4.72	28.46	78.60	94.00	-15.40	3mH	45.00	1.30	P
925.31	84.50	20.83	4.72	28.46	81.59	94.00	-12.41	3mV	0.00	1.50	P
X axis; fHIGH											
927.26	78.10	21.55	4.72	28.45	75.92	94.00	-18.08	3mH	90.00	1.30	P
927.26	84.40	20.84	4.72	28.45	81.51	94.00	-12.49	3mV	270.00	1.00	P
"BASE SET"											
ADDED WIRE WITH FERRITE BEAD (FAIR-RITE, part:2643022401) BETWEEN ANTENNA AND PCB.											
EUT's antenna at vertical position; fLOW											
902.81	90.30	21.35	4.67	28.51	87.81	94.00	-6.19	3mH	300.00	1.30	P
902.81	82.00	20.68	4.67	28.51	78.83	94.00	-15.17	3mV	315.00	1.00	P
fHIGH											
904.76	94.30	21.37	4.67	28.51	91.83	94.00	-2.17	3mH	300.00	1.30	P
904.76	85.50	20.69	4.67	28.51	82.35	94.00	-11.65	3mV	315.00	1.00	P
EUT's antenna at horizontal position; fLOW											
902.81	90.50	21.35	4.67	28.51	88.01	94.00	-5.99	3mH	300.00	1.30	P
902.81	80.30	20.68	4.67	28.51	77.13	94.00	-16.87	3mV	260.00	1.00	P
fHIGH											

904.76	94.20	21.37	4.67	28.51	91.73	94.00	-2.27	3mH	315.00	1.30	P
904.76	84.10	20.69	4.67	28.51	80.95	94.00	-13.05	3mV	225.00	1.00	P

COMPLIANCE CERTIFICATION SERVICES, INC.													
Radiated Emissions 15.249(a-d)						10-May-00 Kenwin Corpuz A-Site (1.0 Meter)							
E-RAE TESTING LAB 900MHz CORDLESS HANDS FREE MINI PHONE (M/N: WHF7000)													
fo= 927.26 MHz (HIGH), HANDSET (Z axis worse case at horizontal, X axis worse case at vertical)													
F(MHz)	READING		AF	CL	AMP	DIST	HPF	TOTAL		LIMIT		MARGIN	
	(dBuV)		(dB)	(dB)	(dB)	(dB)	(dB)	(dBuV/m)		(dBuV/m)		(dB)	
	Pk	Avg						Pk	Avg	Pk	Avg	Pk	Avg
1854H	49.5	43.2	27	3.24	-31.25	-9.5	0	38.99	32.69	74	54	-35	-21.3
1854V	51.8	47.6	27	3.24	-31.25	-9.5	0	41.29	37.09	74	54	-32.7	-16.9
2781H	46.7	38.4	30	3.6	-31.25	-9.5	1	40.55	32.25	74	54	-33.5	-21.8
2781V	51.7	48.7	30	3.6	-31.25	-9.5	1	45.55	42.55	74	54	-28.5	-11.5
3709H	46.1	38.9	33	4.86	-31.25	-9.5	1	44.21	37.01	74	54	-29.8	-17
3709V	56.1	54.3	33	4.86	-31.25	-9.5	1	54.21	52.41	74	54	-19.8	-1.59
4636H*	42.4	32.2	32.5	5.4	-31.25	-9.5	1	40.55	30.35	74	54	-33.5	-23.7
4636V	43.2	34.6	32.5	5.4	-31.25	-9.5	1	41.35	32.75	74	54	-32.7	-21.3
5563*	41.4	32.1	35.1	5.67	-31.25	-9.5	0	41.42	32.12	74	54	-32.6	-21.9
6490*	41.8	31.6	36.2	6.3	-31.25	-9.5	0	43.55	33.35	74	54	-30.5	-20.7
7418*	46.4	36	37.5	6.75	-31.25	-9.5	0	49.9	39.5	74	54	-24.1	-14.5
8345*	46.4	36.4	38	7.2	-31.25	-9.5	0	50.85	40.85	74	54	-23.2	-13.2
9272*	46.1	36.3	38.3	7.74	-31.25	-9.5	0	51.39	41.59	74	54	-22.6	-12.4
* Measured noise floor (worse case horizontal)													
NOTE: MEASURED HORIZONTAL (H) AND VERTICAL (V)													
DIST: Correction to extrapolate reading to 3m specification distance						ANALYZER SETTINGS							
1M measurement distance: -9.5dB						PEAK(Pk):		Res bw		Avg. bw			
AF: Antenna Factor; EMCO, 3115, S/N:2238						AVERAGE(Avg):		1MHz		1MHz			
AMP: Pre-amp gain; HP, 8449B, S/N:3008A00369								1MHz		10Hz			
CL: Cable loss (18ft)													
HPF: High pass filter insertion loss; FSY(1.6GHz), S/N:001 & FYS(4.6GHz), S/N:001													

COMPLIANCE CERTIFICATION SERVICES, INC.													
Radiated Emissions										10-May-00			
15.249(a-d)										Kenwin Corpuz			
E-RAE TESTING LAB										A-Site (1.0 Meter)			
900MHz CORDLESS HANDS FREE MINI PHONE (M/N: WHF7000)													
fo= 925.28 MHz (LOW), HANDSET (Z axis worse case at horizontal, X axis worse case at vertical)													
F(MHz)	READING		AF	CL	AMP	DIST HPF TOTAL		LIMIT		MARGIN			
	(dBuV)					(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)		
	Pk	Avg						Pk	Avg	Pk	Avg	Pk	Avg
1850H	49.4	45.3	27	3.24	-31.25	-9.5	0	38.89	34.79	74	54	-35.1	-19.2
1850V	53.1	50	27	3.24	-31.25	-9.5	0	42.59	39.49	74	54	-31.4	-14.5
2775H	47	39.7	30	3.6	-31.25	-9.5	1	40.85	33.55	74	54	-33.2	-20.5
2775V	51.1	46.4	30	3.6	-31.25	-9.5	1	44.95	40.25	74	54	-29.1	-13.8
3701H	46.1	38.4	33	4.86	-31.25	-9.5	1	44.21	36.51	74	54	-29.8	-17.5
3701V	53.1	50.7	33	4.86	-31.25	-9.5	1	51.21	48.81	74	54	-22.8	-5.19
4626H*	42.4	32.2	32.5	5.4	-31.25	-9.5	1	40.55	30.35	74	54	-33.5	-23.7
4626V	44.8	37	32.5	5.4	-31.25	-9.5	1	42.95	35.15	74	54	-31.1	-18.9
5551*	42	32.2	35.1	5.67	-31.25	-9.5	0	42.02	32.22	74	54	-32	-21.8
6477*	40.8	31.6	36.2	6.3	-31.25	-9.5	0	42.55	33.35	74	54	-31.5	-20.7
7402*	45.4	36.1	37.5	6.75	-31.25	-9.5	0	48.9	39.6	74	54	-25.1	-14.4
8327*	45.5	36.5	38	7.2	-31.25	-9.5	0	49.95	40.95	74	54	-24.1	-13.1
9252*	46.7	36.7	38.3	7.74	-31.25	-9.5	0	51.99	41.99	74	54	-22	-12
* Measured noise floor (worse case horizontal)													
NOTE: MEASURED HORIZONTAL (H) AND VERTICAL (V)										ANALYZER SETTINGS			
DIST: Correction to extrapolate reading to 3m specification distance										Res.bw		Avg. bw	
1M measurement distance: -9.5dB										PEAK(Pk):		1MHz	
AF: Antenna Factor; EMCO, 3115, S/N:2238										AVERAGE(Avg):		10Hz	
AMP: Pre-amp gain; HP, 8449B, S/N:3008A00369													
CL: Cable loss (18ft)													
HPF: High pass filter insertion loss; FSF(1.8GHz), S/N:001 & FYS(4.6GHz), S/N:001													

COMPLIANCE CERTIFICATION SERVICES, INC.													
Radiated Emissions 15.249(a-d)										10-May-00 Kerwin Corpuz A-See (1.0 Meter)			
E-RAE TESTING LAB													
900MHz CORDLESS HANDS FREE MINI PHONE (MN: WHF7000)													
f ₀ = 902.81 MHz (LOW), BASE SET (EUT's antenna at vertical worst case)													
F(MHz)	READING		AF (dB)	CL (dB)	AMP (dB)	DIST (dB)	HPF (dB)	TOTAL		LIMIT		MARGIN	
	(dBuV)							(dBuV/m)		(dBuV/m)		(dB)	
	Pk	Avg						Pk	Avg	Pk	Avg	Pk	Avg
1805H	49.8	43.7	27	3.24	-31.25	-9.5	0	39.29	33.19	74	54	-34.7	-20.8
1805V	52.7	48.9	27	3.24	-31.25	-9.5	0	42.19	38.39	74	54	-31.8	-15.6
2708H	49.4	45.2	30	3.6	-31.25	-9.5	1	43.25	39.05	74	54	-30.8	-15
2708V	55.3	53.3	30	3.6	-31.25	-9.5	1	49.15	47.15	74	54	-24.9	-6.85
3611H	48.7	43.6	33	4.86	-31.25	-9.5	1	46.81	41.71	74	54	-27.2	-12.3
3611V	54	51.8	33	4.86	-31.25	-9.5	1	52.11	49.91	74	54	-21.9	-4.09
4514H	45.2	36.5	32.5	5.4	-31.25	-9.5	1	43.35	34.65	74	54	-30.7	-19.4
4514V	47.5	42.1	32.5	5.4	-31.25	-9.5	1	45.65	40.25	74	54	-28.4	-13.8
5416H*	42.6	32.4	35.1	5.67	-31.25	-9.5	1	43.62	33.42	74	54	-30.4	-20.6
5416V	45.1	38.3	35.1	5.67	-31.25	-9.5	1	46.12	39.32	74	54	-27.9	-14.7
6319*	42.7	32.1	36.2	6.3	-31.25	-9.5	0	44.45	33.85	74	54	-29.6	-20.2
7222*	46.4	36.2	37.5	6.75	-31.25	-9.5	0	49.9	39.7	74	54	-24.1	-14.3
8125*	47	36.5	38	7.2	-31.25	-9.5	0	51.45	40.95	74	54	-22.6	-13.1
9028*	46.7	36.1	38.3	7.74	-31.25	-9.5	0	51.99	41.39	74	54	-22	-12.6
* Measured noise floor (worst case horizontal)													
NOTE: MEASURED HORIZONTAL (H) AND VERTICAL (V)										ANALYZER SETTINGS			
DIST: Correction to extrapolate reading to 3m specification distance										Res bw		Avg. bw	
1M measurement distance: -9.5dB										PEAK(Pk):		1MHz	
AF: Antenna Factor; EMC0, 3115, S/N:2238										AVERAGE(Avg):		10Hz	
AMP: Pre-amp gain; HP, 8449B, S/N:3008A00369													
CL: Cable loss (18ft)													
HPF: High pass filter insertion loss; FSY(1.8GHz), S/N:001 & FYS(4.6GHz), S/N:001													

COMPLIANCE CERTIFICATION SERVICES, INC.													
Radiated Emissions 15.249(a-d)										10-May-00 Kenwin Corpuz A-Site (1.0 Meter)			
E-RAE TESTING LAB													
900MHz CORDLESS HANDS FREE MINI PHONE (M/N: WHF7000)													
f _o = 904.76 MHz (HIGH), BASE SET (EUT's antenna at vertical worse case)													
F(MHz)	READING		AF	CL	AMP	DIST	HPF	TOTAL		LIMIT		MARGIN	
	(dBuV)							(dBuV/m)		(dBuV/m)		(dB)	
	Pk	Avg	(dB)	(dB)	(dB)	(dB)	(dB)	Pk	Avg	Pk	Avg	Pk	Avg
1809H	57.8	55.3	27	3.24	-31.25	-9.5	0	47.29	44.79	74	54	-26.7	-9.21
1809V	58.8	57.8	27	3.24	-31.25	-9.5	0	48.29	47.29	74	54	-25.7	-6.71
2714H	49.7	45.5	30	3.6	-31.25	-9.5	1	43.55	39.35	74	54	-30.5	-14.7
2714V	54	51.6	30	3.6	-31.25	-9.5	1	47.85	45.45	74	54	-26.2	-8.55
3619H	48.4	42.3	33	4.86	-31.25	-9.5	1	46.51	40.41	74	54	-27.5	-13.6
3619V	55.7	54	33	4.86	-31.25	-9.5	1	53.81	52.11	74	54	-20.2	-1.89
4523H	45.8	38.5	32.5	5.4	-31.25	-9.5	1	43.95	36.65	74	54	-30.1	-17.4
4523V	47.5	42.3	32.5	5.4	-31.25	-9.5	1	45.65	40.45	74	54	-28.4	-13.6
5428H*	43	32.8	35.1	5.67	-31.25	-9.5	1	44.02	33.82	74	54	-30	-20.2
5428V	45.6	37.8	35.1	5.67	-31.25	-9.5	1	46.62	38.82	74	54	-27.4	-15.2
6333*	41.6	32	36.2	6.3	-31.25	-9.5	0	43.35	33.75	74	54	-30.7	-20.3
7238*	45.9	36.1	37.5	6.75	-31.25	-9.5	0	49.4	39.6	74	54	-24.6	-14.4
8142*	45.6	36.5	38	7.2	-31.25	-9.5	0	50.05	40.95	74	54	-24	-13.1
9047*	45.3	36	38.3	7.74	-31.25	-9.5	0	50.59	41.29	74	54	-23.4	-12.7
* Measured noise floor (worse case horizontal)													
NOTE: MEASURED HORIZONTAL (H) AND VERTICAL (V)										ANALYZER SETTINGS			
DIST: Correction to extrapolate reading to 3m specification distance										Res BW		Avg BW	
1M measurement distance: -9.5dB										PEAK(Pk):		1MHz	
AF: Antenna Factor, EMC0, 3115, S/N:2238										AVERAGE(Avg):		10Hz	
AMP: Pre-amp gain; HP, 8449B, S/N:3008A00309													
CL: Cable loss (18ft)													
HPF: High pass filter insertion loss; FSY(1.8GHz), S/N:001 & FYS(4.6GHz), S/N:001													