MEASUREMENT AND TECHNICAL REPORT

COLLETT ELECTRONICS
90 Durans Road
Winnipeg, MB R2J3T2

DATE: 01 July 2002

This Report Concerns:	Original Grant: X	Class II Change:
Equipment Type:	Platinum 900, Model 902	
Deferred grant requested per 47 CFR 0.457(d)(1)(ii)?	Yes: **Defer until:**	No: X
Company Name **agrees to notify the Commission by:** **of the intended date of announcement of the product so that the grant can be issued on that date.**	N/A	
Transition Rules Request per 15.37?	Yes:	*No: X

(*) FCC Part 2, Paragraphs 15.249(a); 15.209(a); 15.207(a)

Report Prepared by:

TÜV PRODUCT SERVICE
10040 Mesa Rim Road
San Diego, CA 92121-2912
Phone: 858 546 3999
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TÜV PRODUCT SERVICE 10040 Mesa Rim Road San Diego, CA 92121-2912 Phone 858 546 3999 FAX 858 546 0364

1 GENERAL INFORMATION

1.1 Product Description

EUT Description: 900MHz TRANSCEIVER
EUT Name: PLATINUM 900
Model No.: 902 Serial No.: 00012
Configurations to be tested: TRANSMIT AND RECEIVE

Power Requirements

Voltage: 5v DC

Typical Installation and/or Operating Environment

(ie. Hospital, Small Business, Industrial/Factory, etc.)

This transceiver is mounted on “Motorcycle” type helmets.

EUT Power Cable: Permanent, 1 meter

EUT Operating Modes to be Tested

1. Transmitting
2. Receive

EUT System Components

Description	Model #	Serial #	FCC ID #
Helmet Mounted Communicator	Platinum 900	0001	IL6MOD902

Oscillator Frequencies

Frequency	*Derived Frequency*	*Component # / Location*	*Description of Use*
13.945MHz		PCB 14	2nd Mixer
12.8MHz		PCB 14	Ref. Osc. for PLL
925.00MHz		PCB 900	Reciever Osc.
910.600MHz		PCB 900	Transmit Osc.

Power Supply: Collett

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1 GENERAL INFORMATION (continued)

1.2 Related Submittal/Grant

None

1.3 Tested System Details

The FCC IDs for all equipment, plus descriptions of all cables used in the tested system are:

None

1.4 Test Methodology

Purpose of Test: To demonstrate compliance with the ANSI C63.4 setup.

TEST	FCC CFR 47 #	PASS/FAIL
Radiated Emissions	15.249(a); 15.209(a); 15.109(a)	Pass
Conducted Emissions	15.107(a)	Not applicable - battery

Both Conducted and radiated testing were performed according to the procedures in FCC/ANSI C63.4 and CSA 108.8 - M1983. Radiated testing was performed at an antenna-to-EUT distance of 3 meters (1 - 25 GHz).

1.5 Test Facility

The open area test site and conducted measurement data were tested by:

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The Test Site Data and performance comply with ANSI 63.4 and are registered with the FCC, 7435 Oakland Mills Rd, Columbia Maryland 21046. All Measurement Data is acquired according to the content of FCC Measurement Procedure and ANSI C63.4, unless supplemented with additional requirements as noted in the test report.

2. SYSTEM TEST CONFIGURATION

2.1 Justification

The EUT was initially tested for FCC emission in the following configuration:

See Block Diagram.

2.2 EUT Exercise Software

None

2.3 Special Accessories

None

2.4 Modification

None

2.5 Configuration of Tested System

See Block Diagram.

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3 RADIATED EMISSION EQUIPMENT/DATA

The following data lists the significant emission frequencies, measured levels, correction factor (which includes cable and antenna corrections), the corrected reading, and the limit.

See following page(s).

See test setup photos for radiated emissions test setup.

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Equipment List for SC 203198

6/10/02

Test Equipment Used:

Model Number	Prop. #	Description	Manufacturer	Serial No.	Cal. Dates
Location: Roof 3-meter site					
FCC Part 15 para 15.249(a) Field Strength of Fundamental					
FCC Part 15 para 15.249(c) Non-spurious Emissions					
FCC Part 15 para 15.209 (a) Spurious Emissions					
hp8566B	407	Spectrum Analyzer	Hewlett Packard	2311A02209	11/13/02
3115	251	Antenna, Horn	Electro Mechanics Co	2595	12/1/03
PreAmp 2-20 GHZ	719	PreAmp	TUV PS	na	n.c.r.
Location: 3 Meter OATS -- Canyon 2					
For 15.249(a)					
LPB2520/A	738	Antenna, Biconical	Antenna Research	1169	6/28/02
ESVS30	6732	EMC Receiver	Rhode & Schwartz	833825/003	3/30/03

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REPORT No: SC203198 TESTER: Alan Laudani SPEC: FCC Part 15 para 15.249(a)

CUSTOMER: Collett Electronics TEST DIST: 3 Meters

E U T: Platinum 900 TEST SITE: Roof

EUT MODE: Transmit 910.6 BICONICAL: N/A

DATE: June 10, 2002 LOG: 243

NOTES: OTHER: NONE

above 1GHz: RBW & VBW 1 MHz for Pk; RBW 1MHz and VBW 10Hz for AVG

below 1GHz: RBW & VBW 100 kHz for Pk; RBW 100kHz and VBW 10Hz for AVG

CF = Antenna Factor + Cable Loss - Preamplifier Gain + Preselector Loss

v.beta1a

FREQ (MHz)	VERTICAL (dBuv) pk	av	HORIZONTAL (dBuv) pk	av	CF (dB/m)	MAX LEVEL (dBuV/m) pk	av	SPEC LIMIT (dBuV/m) pk	av	MARGIN (dB) pk	av	EUT Rotation	Antenna Height
910.6	51.6	51.2	49.4	48.8	23.547	75.15	74.7	114	94	-38.9	-19.3	0	1.3
909.6	51.6	51	50.7	50	23.552	75.15	74.6	114	94	-38.8	-19.4	10	1.2

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REPORT No: SC203198 TESTER: Alan Laudani SPEC: FCC Part 15 para 15.209(a)

CUSTOMER: Collett Electronics TEST DIST: 3 Meters

E U T: Platinum 900 TEST SITE: Roof

EUT MODE: Transmit BICONICAL: N/A

DATE: June 10, 2002 LOG: N/A

NOTES: CF = Antenna Factor + Cable Loss - Preamplifier Gain OTHER: 251

above 1GHz: RBW & VBW 1 MHz for Pk; RBW 1MHz and VBW 10Hz for AVG

No emissions found above 2nd Harmonic, noise levels reported to 6th Harmonic

No non-spurious emissions found per 15.249(c) -- SAW Replaced

v.beta1a

FREQ (MHz)	VERTICAL (dBuv) pk	VERTICAL (dBuv) av	HORIZONTAL (dBuv) pk	HORIZONTAL (dBuv) av	CF (dB/m)	MAX LEVEL (dBuV/m) pk	MAX LEVEL (dBuV/m) av	SPEC LIMIT (dBuV/m) pk	SPEC LIMIT (dBuV/m) av	MARGIN (dB) pk	MARGIN (dB) av	EUT Rotation	Antenna Height
1821.2	49.9	37.5	47	35.6	-8.0516	**41.85**	**29.4**	74	54	-32.2	-24.6	40	1
2731.8	49.9	37.1	46.1	35.7	-3.71188	**46.19**	**33.4**	74	54	-27.8	-20.6		
3642.4	46	32.9	46.6	35.3	-0.60128	**46**	**34.7**	74	54	-28	-19.3		
4553	46	34.6	46.4	35	-0.4622	**45.94**	**34.5**	74	54	-28.1	-19.5		
5463.6	44	33	44.2	33.2	4.03792	**48.24**	**37.2**	74	54	-25.8	-16.8		
1819.2	47	36.8	46.5	35.5	-8.0656	**38.93**	**28.7**	74	54	-35.1	-25.3	40	1
2728.8	45.6	38.5	45	34.4	-3.72208	**41.88**	**34.8**	74	54	-32.1	-19.2		
3638.4	45.4	34.1	45.4	33.3	-0.61248	**44.79**	**33.5**	74	54	-29.2	-20.5		
4548	46.2	34.9	46.5	35.1	-0.4752	**46.02**	**34.6**	74	54	-28	-19.4		
5457.6	43.6	33.2	43.8	33.4	3.99472	**47.79**	**37.4**	74	54	-26.2	-16.6		

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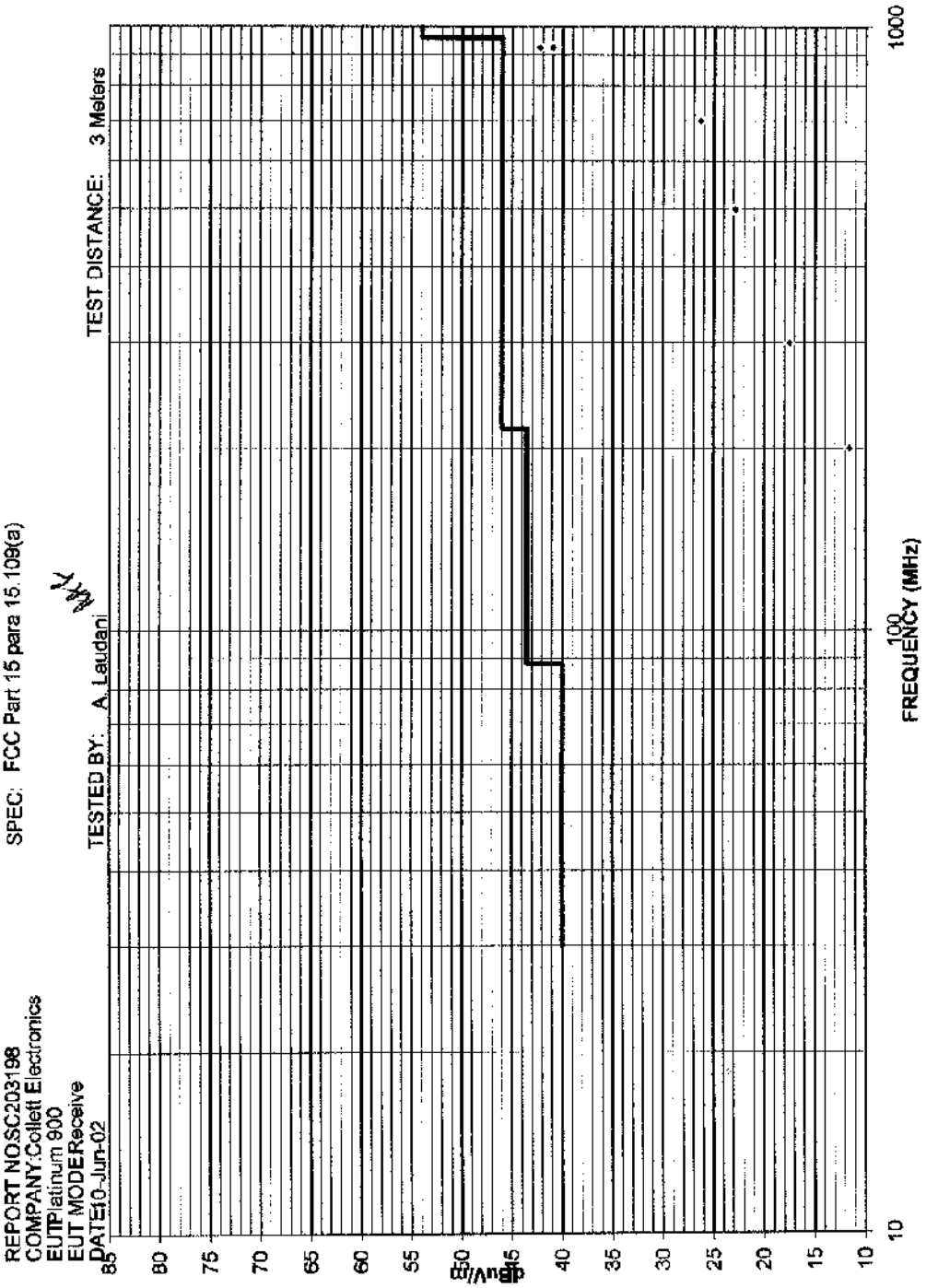
REPORT NO:SC203198
COMPANY:Collett Electronics
EUT:Platinum 900
EUT MODE:Receive
DATE:10-Jun-02
SPEC: FCC Part 15 para 15.109(a)
TESTED BY: A. Laudani
TEST DISTANCE: 3 Meters
dBuV/Angle
FREQUENCY (MHz)
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
10
100
1000

REPORT No: SC203198 SPEC: FCC Part 15 para 15.109(a)

CUSTOMER: Collett Electronics TEST DIST: 3 Meters

E U T: Platinum 900 TEST SITE: 1

EUT MODE: Receive BICONICAL: 738

DATE: 10-Jun-02 TESTED BY: A. Laudani LOG PERIODIC: 738

NOTES: Quasi-Peak with 120 KHz measurement bandwidth. RCVR: 6732

Temperature: 25 Relative Humidity: 41%

EUT MARGIN -3.7 dB at 924 MHz ver 1.8a

FREQUENCY (MHz)	VERTICAL measured (dBuv)	HORIZONTAL measured (dBuV)	CORRECTION FACTOR (dB/m)	MAXIMUM CORRECTED (dBuV/m)	SPECIFIED LIMIT (dBuV/m)	EUT MARGIN (dB)	EUT ROTATION (degrees)	ANTENNA HEIGHT (meters)
200.00	-2.3	-2.6	13.9	11.6	43.5	-31.9		
300.00	-0.3	-0.6	17.8	17.5	46	-28.5		
500.00	-1.2	-1.3	24.1	22.9	46	-23.1		
700.00	-1.2	-1.2	27.5	26.3	46	-19.7		
924.00	11.6	7.1	30.7	42.3	46	-3.7	290	1
925.00	10.3	6.9	30.7	41.0	46	-5.0	260	1

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Field Strength Calculation

If a preamplifier was used during the Radiated Emission Testing, it is required that the amplifier gain must be subtracted from the Spectrum Analyzer (Meter) Reading. In addition, a correction factor for the antenna , cable used and a distance factor, if any, must be applied to the Meter Reading before a true field strength reading can be obtained. In the automatic measurement, these considerations are automatically presented as a part of the print out. In the case of manual measurements and for greater efficiency and convenience, instead of using these correlation factors for each meter reading, the specification limit was modified to reflect these correlation factors at each frequency value so that the meter readings can be compared directly to the modified specification limit. This modified specification limit is referred to as the "Corrected Meter Reading Limit" or simply the CMRL, which is the actual field strength present at the antenna. The quantity can be derived in the following manner:

Corrected Meter Reading Limit (CMRL) = SAR + AF + CL - AG - DC

Where, SAR = Spectrum Analyzer Reading
AF = Antenna Factor
CL = Cable Loss
AG = Amplifier Gain (if any)
DC = Distance Correction (if any)

Assume the following situation: A meter reading of 29.4 dBuV was obtained from a Class A computing device measured at 83 MHz. Assume an antenna factor of 9.2 dB, a cable loss of 1.4 dB and amplifier gain of 20.0 dB at 83 MHz. The final field strength would be determined as follows:

CMRL = 29.4 dBuV + 9.2dB = 1.4 dB - 20 dB/M - 0.0 dB

CMRL = 20.0 dBuV/M

This result is well below the FCC and CSA Class A limit of 29.5 dbuV/m at 83 MHz.

For the manual mode of measurement, a table of corrected meter reading limit was used to permit immediate comparison of the meter reading to determine if the measure emission amplitude exceeded the specification limit at that specific frequency.

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4 CONDUCTED EMISSION EQUIPMENT/DATA

Not applicable - EUT battery operated.

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ATTESTATION STATEMENT

GENERAL REMARKS:

SUMMARY:

All tests were performed per CFR 47, *Part 15, Paragraphs 15.249(a); 15.209(a); 15.207(a)*

■ - Performed

The Equipment Under Test

■ - **Fulfills** the requirements of *Part 15, Paragraphs 15.249(a); 15.209(a); 15.207(a).*

- TÜV PRODUCT SERVICE, INC. -

Responsible Engineer:

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Responsible Chief Engineer:

Jim Owen
(EMC Engineer)

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