

Chapter	F2	F3	F4	F5	F6	F7	F8
6TESTS and DIAGRAMS Statement of Attestation							

Transmitter
Spectrum
Measurement
of
Fundamental
s and
Harmonics
[Refer to
Sections
2.985 and
2.991]

The
transmitter
was
connected to
the spectrum
analyzer
through a
100 watt
30db 50 ohm
pad and a
10db 50
ohm. The
transmitter
was keyed at
1 MHz
intervals
from 118.000
MHz to
136.975
MHz. The
transmitter
was
modulated
with a 2500
Hz tone
sufficient to
produce 85%
modulation.

All
measurement
s were made
in dbm
references.
The

fundamentals
were
measured
first and then
plus and
minus
25Khz.

Harmonics
up to the 5th
harmonics
were made
and recorded.

Harmonics
up to the 10th
harmonics
were
explored and
found to
exceed the
requirements
by more than
20db.

Transmitter

Under

Test
30 db

100 watt

Attenuation
10db

Attenuation
Spectrum

Analyzer

TRANSMIT
TER
POWER
MEASURED
IN dbm
[Refer to
Sections
2.985 and

2.991]

F1

118.000	+33	-01	-54	-41	-59	-55	-73
119.000	+33	-13	-53	-41	-58	-56	-72
120.000	+33	-15	-52	-41	-58	-56	-72
121.000	+33	-15	-52	-43	-58	-57	-71
122.000	+33	-15	-51	-44	-57	-58	-70
123.000	+33	-08	-52	-44	-57	-59	-69
124.000	+33	-05	-51	-45	-57	-61	-68
125.000	+33	-00	-41	-46	-57	-65	-67
126.000	+33	+02	-52	-46	-57	-65	-67
127.000	+33	-15	-53	-46	-57	-61	-68
128.000	+33	-15	-53	-46	-57	-61	-68
129.000	+33	+02	-54	-47	-57	-58	-69
130.000	+33	+02	-51	-48	-57	-57	-70
131.000	+33	-05	-52	-48	-58	-61	-73
132.000	+33	-08	-51	-48	-58	-64	-74
133.000	+31	-15	-50	-49	-58	-66	-74
134.000	+31	-13	-52	-49	-60	-68	-77
135.000	+31	-15	-51	-50	-61	-69	-76
136.000	+31	-15	-53	-51	-61	-70	-76
136.975	+31	-15	-54	-51	-60	-72	-80
	F2	F3	F4	F5	F6	F7	F8

AWOS 760

VHF

Transmitter

Occupied

Bandwidth

Measurement

s

[Refer to

section

2.989]

25 Khz
spectrum
monitored
with carrier
modulated at
85% with
2500 Hz

900427.dwg
This test was
made at
118.000
Mhz,
123.450
Mhz,
130.000
Mhz, and
136.975 Mhz
with similar

test results.

All of which

exceed the

requirements

of .5% of

Section 2.989

of

Commission'

s

rules. Transmi

tter

Modulation

Characteristic

s

[Required by

Section 2.987

(d) and

87.73(a)]

Modulation

of the

transmitter in

normal use

resulted in

modulation

peaks of at

least 70%

and did not

exceed 100%

Transmitter

modulation

characteristic

s of audio

frequencies

from 100hz

to 5000hz

were

measured as

follows per

section

2.987(a).

Hz

100 50

300 60

500 75

800 80

1000 85

1200 85

1400 85

1600 85

1800 85

2000 85

2200	85						
2400	85						
2600	85						
2800	85						
3000	85						
3500	75						
4000	65						
4500	60						
5000	50						
FIELD STRENGTH	F2	F3	F4	F5	F6	F7	F8

OF

SPURIOUS

RADIATIO

N

[Refer to

Section

2.993]

The unit was

set up on a

revolving

stand and

operated

under

Normal

standby

conditions

three (3)

meters from

the receiving

dipole

antennas

which were

constructed

as illustrated

in Drawing

number

900428. The

antenna was

then

connected to

a spectrum

analyzer and

an analysis of

the

frequencies

from 20 MHz

to 1000 MHz

was made.

As indicated

in table 6.1

no spurious

radiations

were found

which exceeded radiation measurement requirements.

BALUM
CONSTRUC
TION FOR
FIELD
STRENGTH
MEASURE
DIPOLE
ANTENNAS

Frequency_
Range_Mhz

25-65	34.3	43.3	25'				
65-180	14.2	16.25	8'				
180-400	6.125	7.5	3'				
400-1000	2.7	3.0	1.5'				

F2

F3

F4

F5

F6

F7

F8

The constructed dipoles were made of one inch PVC Pipe with the dipole wire taped to them. The wires were then cut to the proper length for each frequency tested.

Field Strength of Spurious Radiation

Table 6.1

Frequency_
Mhz

20	+/- 5Mhz	<-100
25	+/- 5Mhz	<-100
30	+/- 5Mhz	-90.6
35	+/- 5Mhz	-95.6
40	+/- 5Mhz	-95.6
45	+/- 5Mhz	-92.6
50	+/- 5Mhz	<-100
55	+/- 5Mhz	<-100
60	+/- 5Mhz	<-100

FREQUENC	F2	F3	F4	F5	F6	F7	F8
65	+/- 5Mhz	<-100					
70	+/- 5Mhz	<-100					
75	+/- 5Mhz	<-100					
80	+/- 5Mhz	<-100					
90	+/- 10Mhz	<-100					
100	+/- 10Mhz	<-100					
110	+/- 10Mhz	<-100					
120	+/- 10Mhz	<-100					
130	+/- 10Mhz	-91.6					
140	+/- 10Mhz	<-100					
150	+/- 10Mhz	-98.6					
160	+/- 10Mhz	<-100					
170	+/- 10Mhz	<-100					
180	+/- 10Mhz	<-100					
190	+/- 10Mhz	<-100					
200	+/- 50Mhz	<-100					
225	+/- 50Mhz	<-100					
250	+/- 50Mhz	-96.1					
275	+/- 50Mhz	-93.1					
300	+/- 50Mhz	-91.1					
350	+/- 50Mhz	<-100					
400	+/- 50Mhz	-97.1					
450	+/- 50Mhz	-95.1					
500	+/- 50Mhz	<-100					
550	+/- 50Mhz	<-100					
600	+/- 50Mhz	<-100					
650	+/- 50Mhz	<-100					
700	+/- 50Mhz	-95.1					
750	+/- 50Mhz	<-100					
800	+/- 50Mhz	<-100					
850	+/- 50Mhz	<-100					
900	+/- 50Mhz	<-100					
1000	+/- 50Mhz	<-100					

Y

STABILITY

TEST

[Refer to
Section 2.995

(a) (2)]

The unit was
tested in a
temperature
controlled
test chamber.

The
temperature
was lowered
to -30
degrees
centigrade
and raised to
+60 degrees

centigrade.
Measurement
of transmit
frequency at
each 10
degree
multiple.

The
frequency did
not vary
more than
.001% over
the
temperature
range.

At
temperatures
under 25
degrees
centigrade,
the unit
remained off
at all times
except during
brief times
when
transmit and
receive test
were made.

This assured
that the
components
were chilled
to the
maximum.

At
temperatures
over 25
degrees
centigrade,
the unit was
left on at all
times. This
assured that
the
components
were heated
to the
maximum.

Variations of
frequency
versus
change in

temperature
measurement
s are as
follows per
section2.995:

Degrees_Cel

sius

-30	121.5005
-20	121.5005
-10	121.5004
0	121.5004
+10	121.5000
+20	121.5000
+30	121.5000
+40	121.4999
+50	121.4998
+55	121.4995
+60	121.4995

F2	F3	F4	F5	F6	F7	F8
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Maximum
frequency
deviation is
.001%.

VARIATIO
NS OF
PRIMARY
SUPPLY
VOLTAGE
[Refer to
Section 2.995
(d)(1)]

The primary
voltage was
varied from
10.2v to
13.8v and the
transmit
frequency
was
monitored.
The transmit
frequency did
not vary
more .001%.

Statement of
Compliance

This equipment has been tested in accordance with the requirements contained in the appropriate commission regulations. To the best of my knowledge, these test were performed using measurement procedures consistent with industry or Commissions standards and demonstrate that the equipment complies with the appropriate standards. Each unit manufactured, imported or marketed, as defined in the Commission's regulations, will conform to the sample(s) tested within the variations that can be expected due to quantity production and testing on a

statistical basis. I further certify that the necessary measurements were made by the engineering department of Val Avionics, Ltd. Located at 3280 25th street SE in Salem, Oregon.

James L.
Harr, Chief
Engineer

Revision History

F1

F1	F2	F3	F4	F5	F6	F7	F8
		Page 28	Added text to first paragraph				
		Page 29	Added reference sections to table				
		Page 30	Added				

			Transmitter Occupied Bandwidth Measurement s
1	08/24/98	Chapter 1	Added Field Strength of Spurious Radiation
		Page 32	Added Table 6.1
		Page 33	Added Frequency Stability Test to include ranges of -30 to +60
		Page 34	Added Text from 12v to 15.8v to 10.2v to 13.8v
		Page 35	Corrected Text from 12v to 15.8v to 10.2v to 13.8v
		Page 1	Added Text General Information
		Page 2	Added Text Remove & Information Replace
		Page 3	Added Text Remove & to Installation Replace
		Page 6	Added Pin Add Assignment Diagram