

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

Measurements

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	F2	F3	F4	F5	F6	F7	F8
STRENGTH							
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

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

FREQUENC	F2	F3	F4	F5	F6	F7	F8
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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
section 2.995:

**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

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

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