



The Hong Kong Standards and Testing Centre Ltd.

TEST REPORT

Date: 1998-06-23
No.: HM974/S04

APPLICANT: (CODE : 000023)

ALCO ELECTRONICS LTD.
5/F, Zung Fu Ind. Bldg., 1067,
King's Road, Quarry Bay,
Hong Kong

DATE OF SAMPLES RECEIVED: 1998.05.08

DATE OF TESTING: 1998.05.12 & 1998.06.18

DESCRIPTION OF SAMPLE(S):

A sample of product said to be:

Product: AM/CB/SW/FM-TV1/TV2/AIR-PBH-WB Multi-Band Receiver

Manufacturer:

1. Hau Kai Alco Electronics

2. Chang An Communisics Electronics Fty.

Band Combination:

AM/CB/SW/FM-TV1/TV2/AIR-PBH-WB

Model No./Brand Name :

2960/VENTURER, 12-795/RADIO SHACK

Rating:

120V a.c. 5W 60Hz

DC 6.0V('D' size battery x 4)

Origin:

China

INVESTIGATIONS REQUESTED:

Measurement to the relevant clauses of F.C.C. Rules and Regulations Part 15 Subpart C - Radio Receiver.

RESULT/REMARK: Please see attached sheet(s).

CONCLUSION:

From the measurement data obtained, the tested sample was considered to have COMPLIED after modification by customer with the requirement for the relevant clauses of Federal Communication Commission Rules for Radio Receivers.

TEST EQUIPMENT AUDIT: Please see Appendix A

Testing Engineer

Verify by

for Managing Director

Patrick Wong

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Date: 1998-06-23
No.: HM974/504

TEST SUMMARY

(A) Measurement of Radiated Emissions
(On CB, FM, TV1, TV2, AIR, PBH, WEATHER BAND)

Result -- Satisfactory
Data -- See the attached data

(B) Measurement of Line-Conducted Voltage
(On CB, FM, TV1, TV2, AIR, PBH, WEATHER BAND)

Result : Satisfactory
Data : (The spectrum was checked from 450KHz to 30KHz. All emissions were too low to be measurable and they were all more than 20dB below the permitted limit.)

Remark: IF = 10.70 MHz

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 Broad-band Antennas were used and both polarizations
 of emissions were measured.
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=====
 All data is within limits
 =====

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 SUMMARY
 =====

FCC Limit @	Field Strength (at 3m)	Meter Reading (including Antenna Factor) at 3m	Polarity	Freq. of the emission	Freq. to which tuned
100 $\mu\text{V/m}$	26.85 $\mu\text{V/m}$	28.58 dB($\mu\text{V/m}$)	Vertical	37.7 MHz	27.0 MHz

TEST REFERENCE: FCC Rules Part 15 Subpart C section 15.63(a)
 TEST CONDITION : Citizen Band (Build in antenna)
 TEST DATE : 1998.06.18

(A) Measurement of Radiated Interference

CITIZEN BAND

Date: 1998-06-23
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Remark: IF = 10.70 MHz

=====
 Broad-band Antennas were used
 =====
 All data is within limits
 =====
 SUMMARY
 =====

Freq. to which tuned	Freq. of the emission	Polarity	Meter Reading (including Antenna Factor) at 3m	Field Strength (at 3m)	FCC Limit @
MHz	MHz		dB(μ V/m)	μ V/m	μ V/m
108.3	119.0	Vertical	46.8	218.78	500
98.3	109.0	Vertical	46.5	211.35	500
88.3	99.0	Vertical	36.1	63.83	500

TEST DATE : 1998.06.18

TEST CONDITION : Normal

TEST REFERENCE: FCC Rules Part 15 Subpart C section 15.63(a)

(A) Measurement of Radiated Interference

FM BAND RADIO RECEIVER

No.: HM1974/504

Date:1998-06-23

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Remark: IF = 10.70 MHz

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Broad-band Antennas were used

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All data is within limits

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SUMMARY

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FCC Limit @	Field Strength (at 3m) $\mu\text{V/m}$	Meter Reading (including Antenna Factor) at 3m $\text{dB}(\mu\text{V/m})$	Polarity	Freq. of the emission MHz	Freq. to which tuned MHz
2035	138.04	42.8	Horizontal	292	
853	75.86	37.6	Horizontal	146	135.3
3830	56.89	35.1	Horizontal	399	
1609	158.49	44.0	Horizontal	266	
565	164.06	44.3	Horizontal	133	122.3
3090	74.13	37.4	Horizontal	357	
1500	125.89	42.0	Horizontal	238	
500	218.78	46.8	Vertical	119	108.3

TEST REFERENCE: FCC Rules Part 15 Subpart C section 15.63(a)
 TEST CONDITION : Air Band (Build in Antenna)
 TEST DATE : 1998.06.18

(A) Measurement of Radiated Interference

AIR BAND RECEIVER

Date:1998-06-23
 No.: HM974/504

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Remark: IF = 10.70 MHz

Broad-band Antennas were used

All data is within limits

SUMMARY

FCC Limit @	Field Strength (at 3m) $\mu\text{V/m}$	Meter Reading (including Antenna Factor) at 3m $\text{dB}(\mu\text{V/m})$	Polarity	Freq. of the emission MHz	Freq. to which tuned MHz
2100	94.41	39.5	Horizontal	295.3	
1500	97.72	39.8	Vertical	196.9	
500	125.89	42.0	Vertical	98.45	87.75
2213	79.43	38.0	Horizontal	369.8	
1660	218.78	46.8	Vertical	277.3	
1500	77.62	37.8	Vertical	184.9	
500	216.27	46.7	Vertical	92.45	81.75
2213	83.18	38.4	Vertical	329.8	
1500	278.61	48.9	Vertical	247.3	
1775	31.26	29.9	Vertical	164.9	
500	179.89	45.1	Horizontal	82.45	71.75
1928	84.14	38.5	Vertical	305.8	
1500	175.79	44.9	Vertical	229.3	
871	21.13	26.5	Vertical	152.9	
500	141.25	43.0	Horizontal	76.45	65.75
1718	149.62	43.5	Vertical	281.8	
1567	69.98	36.9	Horizontal	211.3	
670	16.98	24.6	Vertical	140.9	
500	221.31	46.9	Vertical	70.45	59.75

TEST DATE : 1998.06.18
 TEST CONDITION : TVI BAND (Build in Antenna)
 TEST REFERENCE: FCC Rules Part 15 Subpart C section 15.63(a)

(A) Measurement of Radiated Interference

TVI BAND RECEIVER

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TV2 BAND RECEIVER

(A) Measurement of Radiated Interference

TEST REFERENCE: FCC Rules Part 15 Subpart C section 15.63(a)
TEST CONDITION : TV2 BAND (Build in Antenna)
TEST DATE : 1998.06.18

FCC Limit @	Field Strength (at 3m) $\mu\text{V/m}$	Meter Reading (including Antenna Factor) at 3m $\text{dB}(\mu\text{V/m})$	Polarity	Freq. of the emission MHz	Freq. to which tuned MHz
1500	645.65	56.2	Horizontal	190.45	179.5
3000	113.50	41.1	Horizontal	380.90	185.75
1500	568.85	55.1	Horizontal	196.45	185.75
3273	116.14	41.3	Vertical	392.90	191.75
1500	512.86	54.2	Horizontal	202.45	191.75
3467	101.16	40.1	Horizontal	404.90	197.75
1500	478.63	53.6	Horizontal	208.45	197.75
3715	82.22	38.3	Horizontal	416.90	203.75
1500	518.80	54.3	Horizontal	214.45	203.75
3981	78.52	37.9	Vertical	428.90	209.75
1500	562.34	55.0	Horizontal	220.45	209.75
4266	77.62	37.8	Horizontal	440.90	215.75
1500	549.54	54.8	Horizontal	226.45	215.75
4500	112.20	41.0	Horizontal	452.90	

SUMMARY

All data is within limits

Broad-band Antennas were used

Remark: IF = 10.70 MHz



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VHF BAND RECEIVER

(A) Measurement of Radiated Interference

TEST REFERENCE: FCC Rules Part 15 Subpart C section 15.63(a)
 TEST CONDITION : PBH BAND (Build in Antenna)
 TEST DATE : 1998.06.18

FCC Limit @	Field Strength (at 3m) $\mu\text{V/m}$	Meter Reading (including Antenna Factor) at 3m $\text{dB}(\mu\text{V/m})$	Polarity	Freq. of the emission MHz	Freq. to which tuned MHz
2723	206.54	46.3	Horizontal	372.00	
1500	298.54	49.5	Horizontal	186.00	175.3
5000	90.16	39.1	Horizontal	512.00	
2239	350.75	50.9	Horizontal	342.00	
1413	660.69	56.4	Vertical	171.00	163.0
2000	113.50	41.1	Vertical	312.00	
1000	229.09	47.2	Horizontal	156.00	145.3

SUMMARY

All data is within limits

Broad-band Antennas were used

Remark: IF = 10.70 MHz

Remark: IF = 10.70 MHz

=====
 Broad-band Antennas were used
 =====

=====
 All data is within limits
 =====

SUMMARY

Freq. to which tuned	Freq. of the emission	Polarity	Meter Reading (including Antenna Factor) at 3m	Field Strength (at 3m)	FCC Limit @
MHz	MHz		dB(μ V/m)	μ V/m	μ V/m
163.0	173.70	Horizontal	56.1	638.26	1550
	347.40	Horizontal	48.2	257.04	2239
	521.10	Horizontal	36.7	68.39	5000

TEST REFERENCE: FCC Rules Part 15 Subpart C section 15.63(a)
 TEST CONDITION : WEATHER BAND RECEIVER (Build in Antenna)
 TEST DATE : 1998.06.18

(A) Measurement of Radiated Interference

WEATHER BAND RECEIVER

Date:1998-06-23
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NOTES FOR THE RADIATION MEASUREMENT

- (1) Test site facility:
Open field test site located at Taiipo (Hong Kong) with a metal ground plane on filed with the FCC pursuant to section 15.38 of the FCC rules (old rule).
- (2) Distance between the EUT and measuring antenna:
3 meters.
- (3) Measuring instruments:
CISPR Quasi-peak type field strength meter (25MHz - 1000MHz) 6 dB bandwidth set at 120KHz.

- (4) Measuring antenna:
Broad band antenna for the frequency range 25 - 1000 MHz, connected with 10 meters coaxial cable. Cable loss of the coaxial cable, included in the Antenna Factor for measurement data. The antenna are capable of measuring both horizontal and vertical polarization.

- (5) Frequency range scanned:
The frequency range from 25 MHz to 1000 MHz had been searched. Readings of the highest emissions relating to the limit were reported as above.

- (6) Arrangement of EUT:
During the test, the sample was operated at rated supply voltage and arranged for maximum emissions.

- (7) Measuring Procedure:
In accordance with the relevant sections of ANSI C63.4:1992.

- (8) Measuring Uncertainty:
The calculated uncertainty for measurement performed at 3M test distance are:-
30MHz to 200MHz = $\pm 3.7\text{dB}$, 300MHz to 1000MHz + 3.0dB/-2.7dB.

*** END OF DOCUMENT ***

CM = Corrective Maintenance
 N/A = Not Applicable

ABBREVIATIONS:

RF NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL
EM007	SPECTRUM ANALYZER	HP	HP85660B	314421192	28/05/98
EM008	SPECTRUM ANALYZER DISPLAY	HP	HP85662A	314420514	28/05/98
EM009	QUASI PEAK ADAPTOR	HP	HP85650A	3303A01702	28/05/98
EM010	RF PRESELECTOR	HP	HP85685A	3221A01410	28/05/98
EM011	ATTENUATOR/SWITCH	HP	HP11713A	2508A10595	28/05/98
EM012	PRE-AMPLIFIER	HP	HP8449B	3008A00262	28/05/98
EM013	CONTROLLER (COMPUTER), COLOR MONITOR, KEYBOARD & MOUSE FLOPPY DRIVE	HP HP HP	HP9000 HPA1097C HP9133L	6226A60314 3151J39517 2623A02468	CM
EM017	ANTENNA	ARA INC.	LPB-2513/A	1069	31/12/97
EM072	SIGNAL GENERATOR	HP	8640B	1948A11892	30/03/98
EM083	HKSTC OPEN AREA TEST SITE	HKSTC	N/A	N/A	16/02/98

Radiated Emission

TEST EQUIPMENT AUDIT

Date: 1998-06-23
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APPENDIX A

