

Date:1999-05-18

No.: HM100820

TEST REPORT

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APPLICANT: (Code : CRF001)

CRYSTAL FIELD LTD.

UNIT 23, 16/F., GOLDFIELD IND. CENTRE,
1 SUI WO ROAD, FOTAN, N.T., HONG KONG.

DATE OF SAMPLES RECEIVED: 1999-05-12

DATE OF TESTING: 1999-05-13

DESCRIPTION OF SAMPLE(S):

A sample of product said to be:

Product: Multi-Band Radio Receiver
Manufacturer: CRYSTAL FIELD LTD.
Band Combination: AM/FM/WEATHER
Model Number: TT-8001R
Brand Name: TT SYSTEMS
Rating: 4.5Vd.c.("AA" size battery × 3)
7.5Vd.c. for Jack
Origin : CHINA

The AC/DC adaptor used for the tests was a Winstar NA1535 Universal adaptor.

INVESTIGATIONS REQUESTED:

Measurement to the relevant clauses of F.C.C. Rules and Regulations Part 15 Subpart B -
Unintentional Radiators.

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

CONCLUSION:

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

TEST EQUIPMENT AUDIT: Please see Appendix A

LAW MAN KIT
Testing Engineer

KITTY CHOY
Verify by

PATRICK WONG
Patrick Wong
for Managing Director

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TEST SUMMARY

- (A) Measurement of Radiated Emissions
(On FM & Weather BAND)

Result -- Satisfactory
Data -- See the attached data

- (B) Measurement of Line-Conducted Voltage
(On FM & Weather BAND)

Result -- Satisfactory
Data -- See the attached data

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FM BAND RADIO RECEIVER

(A) Measurement of Radiated Interference

TEST REFERENCE: FCC Rules Part 15 Subpart B section 15.109

TEST CONDITION :FM Broadcast Receiver

TEST DATE : 1999-05-13

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
88.3	99.0	Horizontal	28.4	26.3	150
98.3	109.0	Horizontal	29.6	30.2	150
108.3	119.0	Horizontal	30.7	34.3	150

=====SUMMARY=====

All Data is within limit

=====

Broad-band Antennas were used

=====

Remark: IF = 10.70 MHz

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*** WEATHER BAND RADIO RECEIVER***

(A) Measurement of Radiated Interference

TEST REFERENCE: FCC Rules Part 15 Subpart B section 15.109

TEST CONDITION : WEATHER BAND RECEIVER

TEST DATE : 1999-05-13

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
162.4	151.7	Horizontal	29.1	28.5	150
162.5	151.8	Horizontal	29.0	28.2	150

=====SUMMARY=====

All data is within limit

=====

Broad-band Antennas were used

=====

Remark: IF = 10.70 MHz

TEST REPORT

NOTES FOR THE RADIATION MEASUREMENT

(1) Test site facility:

Open field test site located at Taipo (Hong Kong) with a metal ground plane on filed with the FCC pursuant to section 15.109 of the FCC rules.

(2) Distance between the EUT and measuring antenna:

3 meters.

(3) Measuring instrumentations:

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 300MHz = $\pm 3.7\text{dB}$, 300MHz to 1000MHz = $3.0\text{dB}/-2.7\text{dB}$.

Remark: Purpose of this test is to provide the Applicant with the necessary test data of their device for the submission to FCC with application for Equipment Authorization under FCC Equipment Authorization Program. This test itself is not an Approval Test.

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FM BAND RADIO RECEIVER

(B) Measurement of Line-Conducted Voltage onto AC Power Line

TEST REFERENCE : FCC Rules Part 15 Subpart B Section 15.107(a)

(Class B)

TEST CONDITION : FM Broadcast Receiver

TEST DATE : 1999-05-13

(1) Between "Live" and "Ground"

Frequency Range of Emission	Maximum Measured Radio Noise		FCC Limit (Class B)
	MHz	$\text{dB}(\mu\text{V})$ μV	μV
0.45 - 0.8	35.47	61.24	250.00
0.8 - 1.6	11.53	3.77	250.00
1.6 - 3.0	9.78	3.08	250.00
3.0 - 5.0	0.00	1.00	250.00
5.0 - 7.0	0.00	1.00	250.00
7.0 - 9.0	0.00	1.00	250.00
9.0 - 11.0	0.00	1.00	250.00
11.0 - 13.0	0.00	1.00	250.00
13.0 - 15.0	0.00	1.00	250.00
15.0 - 17.0	0.00	1.00	250.00
17.0 - 19.0	0.00	1.00	250.00
19.0 - 21.0	0.00	1.00	250.00
21.0 - 23.0	0.00	1.00	250.00
23.0 - 25.0	0.00	1.00	250.00
25.0 - 27.0	0.00	1.00	250.00
27.0 - 30.0	0.00	1.00	250.00

- End -

SUMMARY

All data is within limits

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FM BAND RADIO RECEIVER

(B) Measurement of Line-Conducted Voltage onto AC Power Line

TEST REFERENCE : FCC Rules Part 15 Subpart B Section 15.107(a)
(Class B)

TEST CONDITION : FM Broadcast Receiver

TEST DATE : 1999-05-13

(1) Between "Neutral" and "Ground"

Frequency Range of Emission	Maximum Measured Radio Noise		FCC Limit (Class B)
MHz	dB(μV)	μV	μV
0.45 - 0.8	23.44	14.86	250.00
0.8 - 1.6	20.53	10.63	250.00
1.6 - 3.0	< 9.78	3.08	250.00
3.0 - 5.0	0.00	1.00	250.00
5.0 - 7.0	0.00	1.00	250.00
7.0 - 9.0	0.00	1.00	250.00
9.0 - 11.0	0.00	1.00	250.00
11.0 - 13.0	0.00	1.00	250.00
13.0 - 15.0	0.00	1.00	250.00
15.0 - 17.0	0.00	1.00	250.00
17.0 - 19.0	0.00	1.00	250.00
19.0 - 21.0	0.00	1.00	250.00
21.0 - 23.0	0.00	1.00	250.00
23.0 - 25.0	0.00	1.00	250.00
25.0 - 27.0	0.00	1.00	250.00
27.0 - 30.0	0.00	1.00	250.00

- End -

SUMMARY

All data is within limits

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WEATHER BAND RECEIVER

(B) Measurement of Line-Conducted Voltage onto AC Power Line

TEST REFERENCE : FCC Rules Part 15 Subpart B Section 15.107(a)
(Class B)

TEST CONDITION : Weather Band Receiver

TEST DATE : 1999-05-13

(1) Between "Live" and "Ground"

Frequency Range of Emission	Maximum Measured Radio Noise		FCC Limit (Class B)
MHz	dB(μV)	μV	μV
0.45 - 0.8	35.11	56.95	250.00
0.8 - 1.6	10.11	3.20	250.00
1.6 - 3.0	0.00	1.00	250.00
3.0 - 5.0	0.00	1.00	250.00
5.0 - 7.0	0.00	1.00	250.00
7.0 - 9.0	0.00	1.00	250.00
9.0 - 11.0	0.00	1.00	250.00
11.0 - 13.0	0.00	1.00	250.00
13.0 - 15.0	0.00	1.00	250.00
15.0 - 17.0	0.00	1.00	250.00
17.0 - 19.0	0.00	1.00	250.00
19.0 - 21.0	0.00	1.00	250.00
21.0 - 23.0	0.00	1.00	250.00
23.0 - 25.0	0.00	1.00	250.00
25.0 - 27.0	0.00	1.00	250.00
27.0 - 30.0	0.00	1.00	250.00

- End -

SUMMARY

All data is within limits

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WEATHER BAND RECEIVER

(B) Measurement of Line-Conducted Voltage onto AC Power Line

TEST REFERENCE : FCC Rules Part 15 Subpart B Section 15.107(a)
(Class B)

TEST CONDITION : Weather Band Receiver

TEST DATE : 1999-05-13

(1) Between "Neutral" and "Ground"

Frequency Range of Emission	Maximum Measured Radio Noise		FCC Limit (Class B)
MHz	dB(μV)	μV	μV
0.45 - 0.8	23.86	15.60	250.00
0.8 - 1.6	20.91	11.10	250.00
1.6 - 3.0	0.00	1.00	250.00
3.0 - 5.0	0.00	1.00	250.00
5.0 - 7.0	0.00	1.00	250.00
7.0 - 9.0	0.00	1.00	250.00
9.0 - 11.0	0.00	1.00	250.00
11.0 - 13.0	0.00	1.00	250.00
13.0 - 15.0	0.00	1.00	250.00
15.0 - 17.0	0.00	1.00	250.00
17.0 - 19.0	0.00	1.00	250.00
19.0 - 21.0	0.00	1.00	250.00
21.0 - 23.0	0.00	1.00	250.00
23.0 - 25.0	0.00	1.00	250.00
25.0 - 27.0	0.00	1.00	250.00
27.0 - 30.0	0.00	1.00	250.00

- End -

SUMMARY

All data is within limits

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NOTES FOR THE CONDUCTED POWER-LINE MEASUREMENT

- (1)LISN (Line Impedance Stabilization Network) used :
50 μ H LISN in accordance with Section of ANSI C63.4:1992.
- (2)Measurement Instrumentations:
CISPR quasi-peak type radio noise meter (9 KHz - 30 MHz), 6 dB bandwidth set at 9 KHz for measurement between 150 KHz & 30mhz.
- (3)Frequency range scanned :
The frequency range form 450 KHz to 30 MHz had been searched. Reading of the highest emissions relating to the limit were reported as above.
- (4)Configuration of EUT
Connection of equipment and operation conditions were same as those in the Radiation measurement.
- (5)Measurement procedure :
in accordance with the relevant sections of ANSI C63.4:1992 "FCC Methods of measurement of Radio Noise Emissions from Computing Devices".
- (6)Measuring Uncertainty:
The calculated uncertainty for conducted power-line measurement is = ± 2.3 dB.

Remark: Purpose of this test is to provide the Applicant with the necessary test data of their device for the submission to FCC with application for Equipment Authorization under FCC Equipment Authorization Program. This test itself is not an Approval Test.

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