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No.: HM101336

TEST REPORT

APPLICANT:

TIGER ELECTRONICS, INC.,
980 WOODLANDS PARKWAY,
VERNON HILLS,
IL 60061, U.S.A.

DATE OF SAMPLES RECEIVED: 1999-08-04

DATE OF TESTING: 1999-08-10 to 1999-09-02

DESCRIPTION OF SAMPLE(S):

A sample of product said to be:

Product:	Duplex Walkie Talkie
Manufacturer:	Tsuen Shing Enterprises Limited
Model Number:	90-003
Brand Name:	N/A
Rating:	9Vd.c. ("6F22" size battery × 1)
Origin:	CHINA

INVESTIGATIONS REQUESTED:

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

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 clause 15.109(a) and ANSI C63.4-1992 Section 12.1.1.1-2 for the Receiver Section and for the Transmitter Section with the clause 15.209 and 15.235 of Federal Communications Commission Rules and Regulations Part 15.

TEST EQUIPMENT AUDIT: Please see Appendix A

Testing Engineer	Verify by	Patrick Wong for Managing Director

T E S T S U M M A R Y

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UNINTENTIONAL RADIATOR

(A) Measurement of Radiated Emissions ..... Satisfactory

(B) Line Conducted Voltage Test. ..... Not applicable

*** INTENTIONAL RADIATOR*** :

(1) Measurement of Emission of RF energy on the carrier frequency..... Satisfactory

Measurement of the out-of band emissions including harmonics..... Satisfactory

(2) Measurement of Emission Within Band Edges..... Satisfactory

(3) Measurement of Line-Conducted Voltage onto AC Power Line..... Not applicable

T E S T D A T A

Please refer to the attached result sheets.

UNINTENTIONAL RADIATOR

(A) Measurement of Radiated Interference

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TEST REFERENCE: FCC Rules Part 15 Subpart B section 15.109(a)
TEST CONDITION : Normal
TEST DATE : 1999-09-02

Freq. to which tuned	Freq of the emission	Polarization H-V	Meter reading (at 3m)			Antenna factor	Field Strength (at 3m)		FCC limit @
MHz	MHz		dB(µV)		dB	dB(µV/m)	µV/m		µV/m
49.860	49.9	<	1.0	+	15.0	< 16.0	< 6		100
	99.7	<	1.0	+	12.2	< 13.2	< 5		150
	149.6	<	1.0	+	9.8	< 10.8	< 3		150
	199.4	<	1.0	+	11.5	< 12.5	< 4		150
	249.3	<	1.0	+	15.9	< 16.9	< 7		200
	299.1	<	1.0	+	17.0	< 18.0	< 8		200
	349.0	<	1.0	+	17.2	< 18.2	< 8		200
	398.8	<	1.0	+	18.8	< 19.8	<10		200
	448.7	<	1.0	+	19.7	< 20.7	<11		200
	498.6	<	1.0	+	20.6	< 21.6	<12		200
	548.4	<	1.0	+	22.2	< 23.2	<14		200
	598.3	<	1.0	+	23.4	< 24.4	<17		200
	648.1	<	1.0	+	23.5	< 24.5	<17		200
	698.0	<	1.0	+	25.0	< 26.0	<20		200
	747.8	<	1.0	+	26.2	< 27.2	<25		200
	797.7	<	1.0	+	27.2	< 28.2	<25		200
	847.5	<	1.0	+	27.2	< 28.2	<25		200
	897.5	<	1.0	+	27.2	< 28.2	<25		200
	947.2	<	1.0	+	27.8	< 28.8	<27		200
	997.1	<	1.0	+	28.5	< 29.5	<27		500

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==========SUMMARY==========

All data is within limits

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Broad-band Antennas were used and both polarizations of emissions were measured
Polarizations at highest reading indicated as:
H -- Horizontal V -- Vertical

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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 2.948 of the FCC Rules.

(2) Distance between the ET and measuring antenna:
3 meters.

(3) Measuring instrumentation:
CISPR Quasi-peak type field strength meter (25 MHz - 1000 MHz.). 6 dB bandwidth set at 120 KHz. Also, peak level of the fundamental emissions was measured in order to determine compliance with the 20dB peak to average limit specified in Section 15.35(b) of the FCC new Rules.

(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 polarizations.

(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 clauses of the FCC Rules Part 15 section 15.109(a) and ANSI C63.4:1992 section 12.1.1.1-2.

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

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.

** INTENTIONAL RADIATOR ***

(1) Measurement of Radiated Interference

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TEST REFERENCE: FCC Rules Part 15 Subpart Section 15.235(49.82-49.90 MHz)
TEST CONDITION : Normal
TEST DATE : 1999-08-10

Emission of RF energy on the carrier frequency -- 49.860 MHz
(PEAK VALUE)

Emission Frequency	Meter Reading	Polarization		Antenna Factor	Field Strength (at 3m)	FCC Limit	
MHz	dB(μV)	H-V		dB	dB(μV/m)	μV/m	μV/m
49.90	41.5	V	+	15.0	56.5	668.3	100000

Emission of RF energy on the carrier frequency -- 49.860 MHz
(AVERAGE VALUE)

Emission Frequency	Meter Reading	Polarization		Antenna Factor	Field Strength (at 3m)	FCC Limit	
MHz	dB(μV)	H-V		dB	dB(μV/m)	μV/m	μV/m
49.90	41.4	V	+	15.0	56.4	660.7	10000

... to be continued

*** INTENTIONAL RADIATOR ***

(1) Measurement of Radiated Interference . . Continued ..

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TEST REFERENCE: FCC Rules Part 15 Section 15.235(49.82-49.90 MHz)
TEST CONDITION : Normal
TEST DATE : 1999-08-10

The out-of-band emissions, including harmonics (25-1000 MHz)
(CISPR VALUE)

Emission Frequency	Meter Reading	Polarization	Antenna Factor	Field Strength (at 3m)		FCC Limit
MHz	dB(µV)	H-V dB	dB(µV/m)	µV/m	µV/m	
99.7	< 1.0		+ 12.2	< 13.2	< 4.6	150
149.6	< 1.0		+ 9.8	< 10.8	< 3.5	150
199.4	< 1.0		+ 11.5	< 12.5	< 4.2	150
249.3	< 1.0		+ 15.9	< 16.9	< 7.0	200
299.1	< 1.0		+ 17.0	< 18.0	< 8.0	200
348.8	< 1.0		+ 17.2	< 18.2	< 8.1	200
398.6	< 1.0		+ 18.8	< 19.8	< 9.8	200
448.5	< 1.0		+ 19.7	< 20.7	< 10.8	200
498.3	< 1.0		+ 20.6	< 21.6	< 12.0	200
543.1	< 1.0		+ 22.2	< 23.2	< 14.5	200
598.1	< 1.0		+ 23.4	< 24.4	< 16.6	200
647.8	< 1.0		+ 23.5	< 24.5	< 16.8	200
697.4	< 1.0		+ 25.0	< 26.0	< 20.0	200
747.8	< 1.0		+ 26.2	< 27.2	< 22.9	200
797.7	< 1.0		+ 27.2	< 28.2	< 25.7	200
847.5	< 1.0		+ 27.2	< 28.2	< 25.7	200
897.4	< 1.0		+ 27.2	< 28.2	< 25.7	200
947.2	< 1.0		+ 27.8	< 28.8	< 27.5	200
997.1	< 1.0		+ 28.5	< 29.5	< 29.9	500

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==========SUMMARY==========

All data is within limits

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Broad-band Antennas were used and both polarizations of emissions were measured.
polarizations at highest reading indicated as:
H -- Horizontal V -- Vertical

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*** INTENTIONAL RADIATOR ***

(2) Measurement of Emissions Within Band Edges.

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TEST REFERENCE: FCC Rules Part 15 section 15.235(49.82-49.90 MHz)
TEST CONDITION: Normal
TEST DATE : 1999-08-10

Please see the exhibit of the bandwidth.

RESULTS AND NOTES

L: FCC Lower Band Edge.....-> 49.820MHz
H: FCC Higher Band Edge.....-> 49.800MHz
C: Unmodulated carrier at frequency.....-> 49.891MHz
D: No. of dB from unmodulated carrier.....-> 40.80dB

SPECTRUM ANALYZER SETTINGS

Resolution bandwidth : 1.0KHz
Frequency span : 10.0KHz/div
No. of dB/div : 10.0dB/div

FCC Limit

Minimum No. of dB from unmodulated carrier required : 26.0dB

==========SUMMARY==========

All data is within limits

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** INTENTIONAL RADIATOR ***

(1) Measurement of Radiated Interference

==========

TEST REFERENCE: FCC Rules Part 15 Subpart Section 15.209
TEST CONDITION : Normal
TEST DATE : 1999-09-02

Emission of RF energy on the carrier frequency -- 49.430 MHz

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Emission Frequency MHz	Meter Reading (including antenna factor) dB(μV)	Polarization	Field Strength (at 3m) μV/m	FCC limit μV/m
*49.428	35.5	H	59.57	100
148.307	36.5	V	66.83	150
197.744	25.8	V	19.50	150
247.170	28.7	H	27.22	200
247.240	31.5	V	37.58	200
296.597	29.1	H	28.51	200
296.650	29.8	V	30.90	200

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- End -

========== SUMMARY ==========

All data is within limits

==========

Broad-band Antennas were used and both polarizations of emissions were measured.
polarizations at highest reading indicated as:
H -- Horizontal V -- Vertical

==========

Quasi-peak measurements were performed if the maximised measurements
were less than 6dB below the quasi-peak limit line.
Quasi-peak measurements are denoted by * in the table above.

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 2.948 of the FCC rules.

(2) Distance between the EUT and measuring antenna:
3 meters.

(3) Measuring instrumentations:
CISPR Quasi-peak type field strength meter (25 MHz - 1000 MHz). 6 dB bandwidth set at 120KHz. Also, peak level of the fundamental emissions was measured in order to determine compliance with the 20dB peak to average limit specified in Section 15.35(b) of the FCC new Rules.

(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 polarizations.

(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 clauses of the FCC Rules Part 15 section 15.209 & 15.235.

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

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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