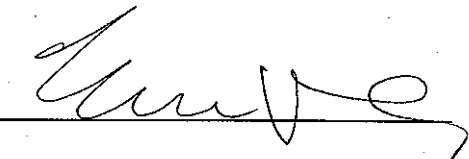



Report No.	AA515142
Specifications	FCC Part 15, Certification
Test method	ANSI C63.4 1992
Applicant	TopSeed Technology Corp.
Applicant address	9F-3, No. 16, Jain Ba Rd, Chung Ho City, Taipei Hsien, Taiwan 235, R.O.C.
Items tested	RF Flex Pointer-FSK
Model No.	TSAQ-901 (Sample # AA5142)
Results	Compliance (As detailed within this report)
Date	12/10/2002 (month / day / year) (Sample received) 12/16/2002 (month / day / year) (Test)
Prepared by	 Project Engineer
Authorized by	 General Manager (Frank Tsai)
Issue date	December 30, 2002 (month / day / year)
Modifications	None
Tested by	Training Research Co., Ltd.
Office at	1F, No. 255, Nan Yang Street, Hsichih, Taipei Hsien 221, Taiwan
Chamber at	1F, No. 255, Nan Yang Street, Hsichih, Taipei Hsien 221, Taiwan

Conditions of issue:

- (1) *This test report shall not be reproduced except in full, without written approval of TRC. And the test result contained within this report only relate to the sample submitted for testing.*
- (2) *This report must not be used by the client to claim product endorsement by NVLAP or any agency of U.S. Government.*

★ NVLAP LAB CODE: 200174-0

★ FCC ID: PTITSAQ-901

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Chapter 1 Introduction

1.1 Description of EUT

EUT	:	RF Flex Pointer-FSK
Model No.	:	TSAQ-901
FCC ID	:	PTITSAQ-901
Frequency Range	:	902 – 928 MHz
Operating Frequency	:	911.90 – 912.10 MHz
Power Type	:	Powered by 3V battery

1.2 Test method

All measurements contained in this report were performed according to the techniques described in Measurement procedure ANSI C63.4 – 1992.

During the measurement, the EUT set in 912MHz and continuously transmitting mode, which transmitted the maximum emissions.

The test placement as the photographs showed is the worst case emission placed. (If the emission is close to the ambient, the resolution BW and view resolution will be reduced and the data will be recorded by detection of maximum hold peak mode.)

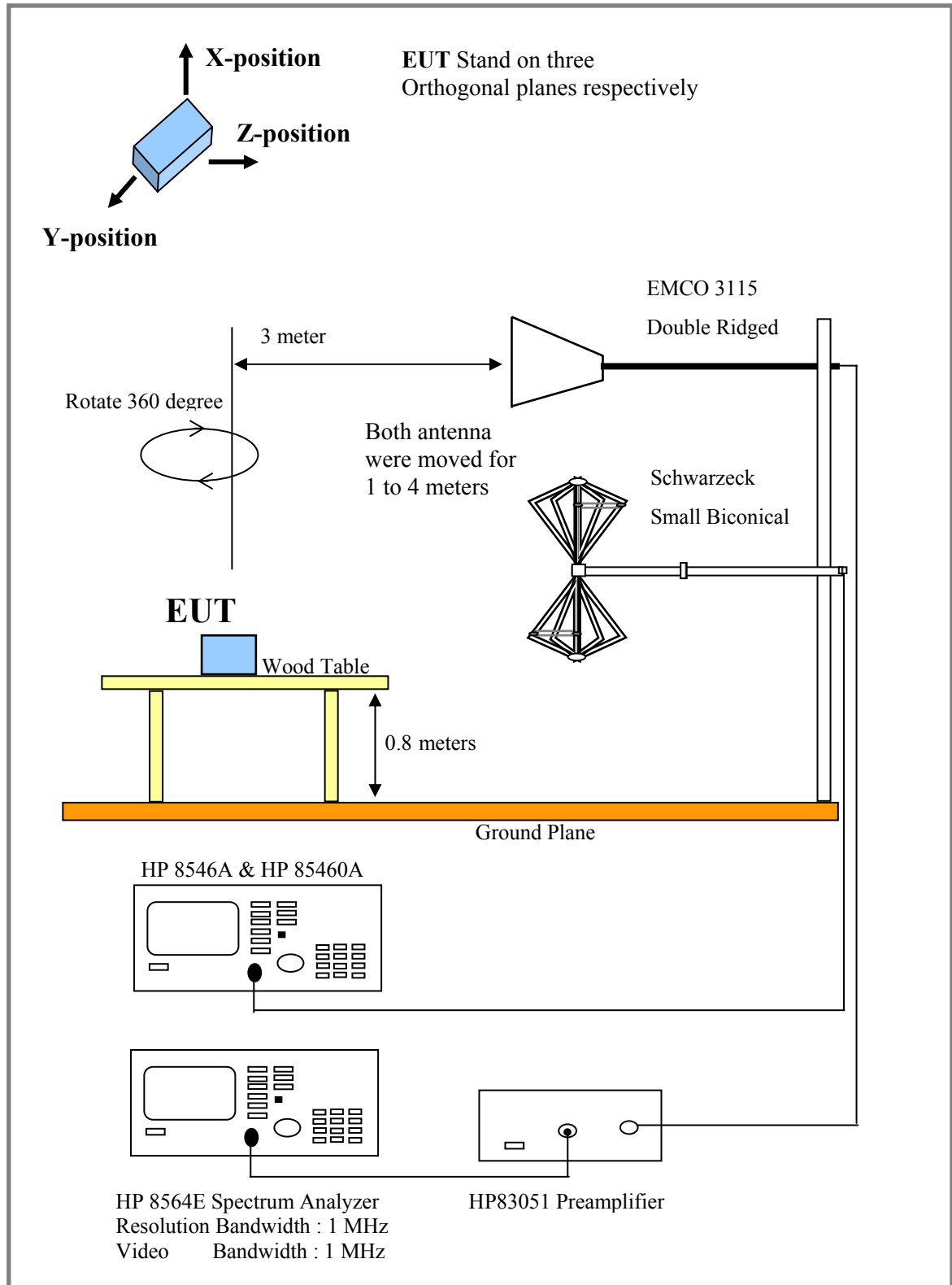
The testing configuration of test setup is showing in the next page.

1.3 List of support equipment

Put one 3V battery into the battery cell of EUT.

The EUT does not be connected with any product. The EUT itself forms a system, no support equipment is required for its normal operation

1.4 Configuration of test setup



Chapter 2 Conducted Emission Test

2.1 Test Condition and Setup

The EUT operates solely by the battery. According to the rule of section 15.207(c). The EUT exempt to the power line conducted test.

2.2 Test Result:

Test Result: N/A (not applicable)

Chapter 3 Radiated Emission Test

3.1 Test Condition and Setup (Harmonic and Spurious Emission)

Pretest: Prior to the final test, the EUT is placed in an anechoic chamber, and scan from 30MHz to 10GHz. The devices rotated through three orthogonal axes to determine which attitude and configuration produces the highest emission relative to the limit. This is done to ensure the radiation exactly emits form the EUT.

Final test: Final radiation measurements are made on a **3 – meter** anechoic chamber. The EUT's maximum emission of radiation is placed on a nonconductive table, which is 0.8m height, the top surface is 1.0 x 1.5 meter. All placements are according to ANSI C63.4 - 1992.

The field strength below 1GHz was measured by SCHWARZECK Small Biconical Antenna (model: UBAA9114 with BBVU9135) at 3 meter, and the EMCO Double Ridged Guide Antenna (model: 3115) was used in frequencies 1 to 10GHz at a distance of 3 meter.

Measure more than six top marked frequencies generated form pretest by computer step by step at each frequency. The EUT is rotated 360 degrees, and antenna is raised and lowered from 1 to 4 meters to find the maximum emission levels. The antenna is used with both horizontal and vertical polarization.

Appropriated preamplifier, which is made by TRC is used for improving sensitivity and precautions is taken to avoid overloading. The spectrum analyzer's 6dB bandwidth is set to 120 kHz, and the EUT is measured at quasi-peak mode.

If the emission is close to the frequency band of ambient, the tester will recheck the data and the corrected data will be written in the test data sheet. If the emission is just within the ambient, the data from shield room will be taken as the final data.

3.2 List of test Instrument

<u>Instrument Name</u>	<u>Model No.</u>	<u>Brand</u>	<u>Serial No.</u>	<u>Calibration Date</u>	
				<u>Last time</u>	<u>Next time</u>
EMI Receiver	8546A	H P	3520A00242	06/28/02	06/28/03
RF Filter Section	85460A	H P	3448A00217	06/28/02	06/28/03
Small Biconical	UBAA9114	Schwarzeck	127	05/07/02	05/07/03
	BBVU9135				
Switch/Control Unit (> 30MHz)	3488A	HP	N/A	11/20/02	11/20/03
Auto Switch Box (> 30MHz)	ASB-01	TRC	9904-01	11/20/02	11/20/03
Spectrum Analyzer	8564E	HP	US36433002	08/01/02	08/01/03
Microwave Preamplifier	83051A	HP	3232A00347	08/01/02	08/01/03
Horn Antenna	3115	EMCO	9704 – 5178	08/01/02	08/01/03
Anechoic Chamber (cable calibrated together)				05/20/02	05/20/03

The level of confidence of 95% , the uncertainty of measurement of radiated emission is ± 3.44 dB .

3.3 Harmonic and Spurious Emission Test Result

Test Conditions:

Testing room : Temperature : 22.7 ° C Humidity : 44.9 % RH

Table 1 30MHz to 10GHz [Antenna polarity: horizontal, EUT: X-axis]

Frequency	Reading Amplitude	Ant. Height	Table	Correction Factors	Corrected Amplitude	Class B Limit	Margin
MHz	dBμV	m	degree	dB/m	dBμV/m	dBμV/m	dB
912.00	58.21	1.00	68	22.87	81.08	94.00	-12.92
1825.00	46.07	1.00	331	1.87	47.94	53.96	-6.02
2732.50	42.74	1.00	147	8.32	51.06	53.96	-2.90

Table 2 30MHz to 10GHz [Antenna polarity: horizontal, EUT: Y-axis]

Frequency	Reading Amplitude	Ant. Height	Table	Correction Factors	Corrected Amplitude	Class B Limit	Margin
MHz	dBμV	m	degree	dB/m	dBμV/m	dBμV/m	dB
912.00	51.03	1.00	162	22.87	73.90	94.00	-20.10
1822.50	47.74	1.00	156	1.83	49.57	53.96	-4.39
2732.50	44.74	1.00	221	8.32	53.06	53.96	-0.90

Table 3 30MHz to 10GHz [Antenna polarity: horizontal, EUT: Z-axis]

Frequency	Reading Amplitude	Ant. Height	Table	Correction Factors	Corrected Amplitude	Class B Limit	Margin
MHz	dBμV	m	degree	dB/m	dBμV/m	dBμV/m	dB
912.00	54.74	1.00	360	22.87	77.61	94.00	-16.39
1825.00	45.57	1.00	96	1.87	47.44	53.96	-6.52
2732.50	40.07	1.00	7	8.32	48.39	53.96	-5.57

Table 4 30MHz to 10GHz [Antenna polarity: vertical, EUT: X-axis]

Frequency	Reading Amplitude	Ant. Height	Table	Correction Factors	Corrected Amplitude	Class B Limit	Margin
MHz	dBμV	m	degree	dB/m	dBμV/m	dBμV/m	dB
912.00	47.59	1.00	152	22.85	70.44	94.00	-23.56
1822.50	37.07	1.00	81	1.83	38.90	53.96	-15.06

Table 5 30MHz to 10GHz [Antenna polarity: vertical, EUT: Y-axis]

Frequency	Reading Amplitude	Ant. Height	Table	Correction Factors	Corrected Amplitude	Class B Limit	Margin
MHz	dBμV	m	degree	dB/m	dBμV/m	dBμV/m	dB
912.00	55.82	1.00	68	22.85	78.67	94.00	-15.33
1825.00	45.74	1.00	56	1.87	47.61	53.96	-6.35
2732.50	40.74	1.00	182	8.32	49.06	53.96	-4.90

Table 6 30MHz to 10GHz [Antenna polarity: vertical, EUT: Z-axis]

Frequency	Reading Amplitude	Ant. Height	Table	Correction Factors	Corrected Amplitude	Class B Limit	Margin
MHz	dBμV	m	degree	dB/m	dBμV/m	dBμV/m	dB
912.00	52.71	1.00	215	22.85	75.56	94.00	-18.44
1825.00	43.57	1.00	249	1.87	45.44	53.96	-8.52
2735.00	35.91	1.00	55	8.33	44.24	53.96	-9.72

- Note: 1. Margin = Amplitude – limit, *if margin is minus means under limit.*
 2. Corrected Amplitude = Reading Amplitude + Correction Factors
 3. Correction factor = Antenna factor + (Cable Loss – Amplitude gain)