FCC
TEST REPORT

Prepared for :

LLD TEK, LLC

11322 Bellaire Blvd., Suite 111, Houston, TX 77072, United States

FCC ID: 2ANMJ-P80

Product:	**Thermal Printer**
Trade Name:	**N/A**
Model Name:	**P80, P58I, P58II, P58III, P80260, P58KC, P80230, P76**
Date of Test:	**Jun. 20, 2017 ~ Jun. 27, 2017**
Date of Report:	**Jun. 27, 2017**
Report Number:	**HUAK170620096-E**

Prepared By :

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TEST REPORT VERIFICATION

Applicant	:	LLD TEK, LLC
Address	:	11322 Bellaire Blvd., Suite 111, Houston, TX 77072, United States
Manufacturer	:	Shenzhen Great River Industrial Company Limited
Address	:	Room 401-412, Xin Dong Xing Business Center, No.38, Liuxian 3nd. Road, Xin'an Street, Bao'an District, Shenzhen, China
EUT Description	:	Thermal Printer
(A) Model No.	:	P80
(B) Serial No.	:	P58I, P58II, P58III, P80260, P58KC, P80230, P76
(C) Power Supply	:	DC24V, 2A form Adapter with AC 120V/60Hz

Standards..... FCC Part 15 Subpart B
ANSI C63.4:2014

This device described above has been tested by HUAK, and the test results show that the equipment under test (EUT) is in compliance with Part 15 of FCC Rules. And it is applicable only to the tested sample identified in the report.

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Test Result..... **Pass**

Date of Test:	**Jun. 20, 2017 ~ Jun. 27, 2017**
Prepared by:	Chris Yao
	Project Engineer
Reviewed by:	Judy Qin
	Project Supervisor
Approved by:	
	Technical Director

1 . TEST SUMMARY 4
1.1 TEST FACILITY 5
1.2 MEASUREMENT UNCERTAINTY 5
2 . GENERAL INFORMATION 6
2.1 GENERAL DESCRIPTION OF EUT 6
2.2 DESCRIPTION OF TEST MODES 7
2.3 DESCRIPTION OF TEST SETUP 8
2.4 DESCRIPTION TEST PERIPHERAL AND EUT PERIPHERAL 9
2.5 MEASUREMENT INSTRUMENTS LIST 10
3 . EMC EMISSION TEST 11
3.1 CONDUCTED EMISSION MEASUREMENT 11
3.1.1 POWER LINE CONDUCTED EMISSION 11
3.1.2 TEST PROCEDURE 12
3.1.3 TEST SETUP 12
3.1.4 EUT OPERATING CONDITIONS 12
3.1.5 TEST RESULTS 13
3.2 RADIATED EMISSION MEASUREMENT 15
3.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT 15
3.2.2 TEST PROCEDURE 15
3.2.3 TEST SETUP 16
3.2.4 EUT OPERATING CONDITIONS 16
3.2.5 TEST RESULTS 17
3.2.6 TEST RESULTS(Above 1GHz) 19
4 . EUT TEST PHOTO 20

1. TEST SUMMARY

Test procedures according to the technical standards:

EMC Emission				
Standard	Test Item	Limit	Judgment	Remark
FCC Part 15 Subpart B ANSI C63.4:2014	Conducted Emission	Class B	PASS	
	Radiated Emission	Class B	PASS	

NOTE:

(1) 'N/A' denotes test is not applicable in this Test Report

(2) For client's request and manual description, the test will not be executed.

1.1 TEST FACILITY

Test Firm : QTC Certification & Testing Co., Ltd.
Certificated by FCC, Registration No.: 588523

Address 2nd Floor,B1 Building,Fengyeyuan Industrial Plant, Liuxian 2st. Road, Xin'an Street, Bao'an District, Shenzhen, China

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement **y ± U**，where expended uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of **k=2**，providing a level of confidence of approximately **95** %.

A. Conducted Measurement :

Test Site	Method	Measurement Frequency Range	U，(dB)	NOTE
C01	ANSI	150 KHz ~ 30MHz	3.2	

B. Radiated Measurement :

Test Site	Method	Measurement Frequency Range	U，(dB)	NOTE
A01	ANSI	30MHz ~ 1000MHz	4.7	

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	Thermal Printer
Model Name	P80
Serial No	P58I, P58II, P58III, P80260, P58KC, P80230, P76
Model Difference	All model's the function, software and electric circuit are the same, only with a product color and model named different. Test sample model: P80.
Product Description	The EUT is a Thermal Printer Operating frequency: 45MHz Connecting I/O port: N/A Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.
Power Source	DC24V, 2A form Adapter with AC 120V/60Hz
Power Rating	DC24V, 2A form Adapter with AC 120V/60Hz

2.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

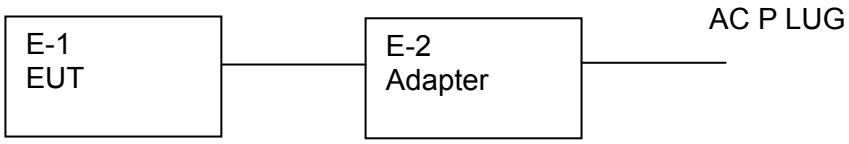
Pretest Mode	Description
Mode 1	Running

For Conducted Test	
Final Test Mode	Description
Mode 1	Running

For Radiated Test	
Final Test Mode	Description
Mode 1	Running

2.3 DESCRIPTION OF TEST SETUP

Mode 1:



2.4 DESCRIPTION TEST PERIPHERAL AND EUT PERIPHERAL

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
E-1	Thermal Printer	N/A	P80	N/A	EUT
E-2	AC Adapter	N/A	P60EA240200	N/A	

Item	Shielded Type	Ferrite Core	Length	Note

Note:

(1) The support equipment was authorized by Declaration of Confirmation.

(2) For detachable type I/O cable should be specified the length in cm in『Length』column.

(3) “YES” is means “shielded” “with core”; “NO” is means “unshielded” “without core”.

2.5 MEASUREMENT INSTRUMENTS LIST

2.5.1 CONDUCTED TEST SITE

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	LISN	R&S	ENV216	101313	Jul. 06, 2018
2	LISN	EMCO	3816/2	00042990	Jul. 06, 2018
3	50Ω Switch	ANRITSU CORP	MP59B	6200983704	Jul. 06, 2018
4	Test Cable	N/A	C01	N/A	Jul. 06, 2018
5	Test Cable	N/A	C02	N/A	Jul. 06, 2018
6	Test Cable	N/A	C03	N/A	Jul. 06, 2018
7	EMI Test Receiver	R&S	ESCI	101160	Jul. 06, 2018
8	Passive Voltage Probe	ESH2-Z3	R&S	100196	Jul. 06, 2018
9	Triple-Loop Antenna	EVERFINE	LIA-2	11020003	Jul. 06, 2018
10	Absorbing Clamp	R&S	MDS-21	100423	Jul. 08, 2018

2.5.2 RADIATED TEST SITE

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Bilog Antenna	TESEQ	CBL6111D	31216	Jul. 06, 2018
2	Test Cable	N/A	R-01	N/A	Jul. 06, 2018
3	Test Cable	N/A	R-02	N/A	Jul. 06, 2018
4	EMI Test Receiver	R&S	ESCI-7	101318	Jul. 06, 2018
5	Antenna Mast	EM	SC100_1	N/A	N/A
6	Turn Table	EM	SC100	060531	N/A
7	50Ω Switch	Anritsu Corp	MP59B	6200983705	Jul. 06, 2018
8	Spectrum Analyzer	Aglient	E4407B	MY45108040	Jul. 06, 2018
9	Horn Antenna	EM	EM-AH-10180	2011071402	Jul. 06, 2018
10	Amplifier	EM	EM-30180	060538	Jul. 06, 2018

3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *
0.50 -5.0	73.00	60.00	56.00	46.00
5.0 -30.0	73.00	60.00	60.00	50.00

Note:

(1) The tighter limit applies at the band edges.

(2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

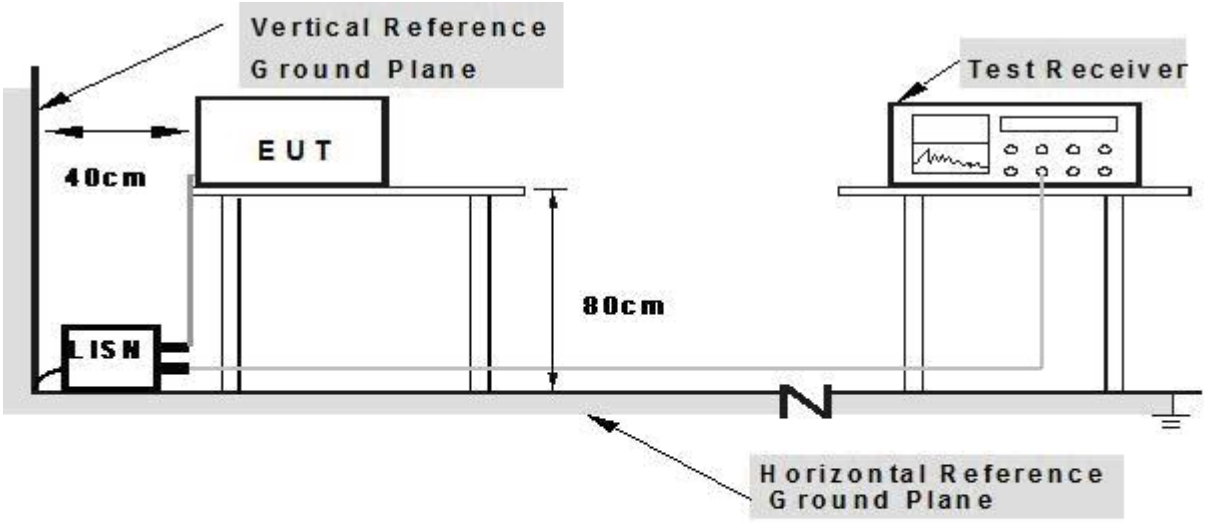
The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

3.1.2 TEST PROCEDURE

a. The EUT was placed 0.4 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
d. LISN at least 80 cm from nearest part of EUT chassis.
e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.1.3 TEST SETUP



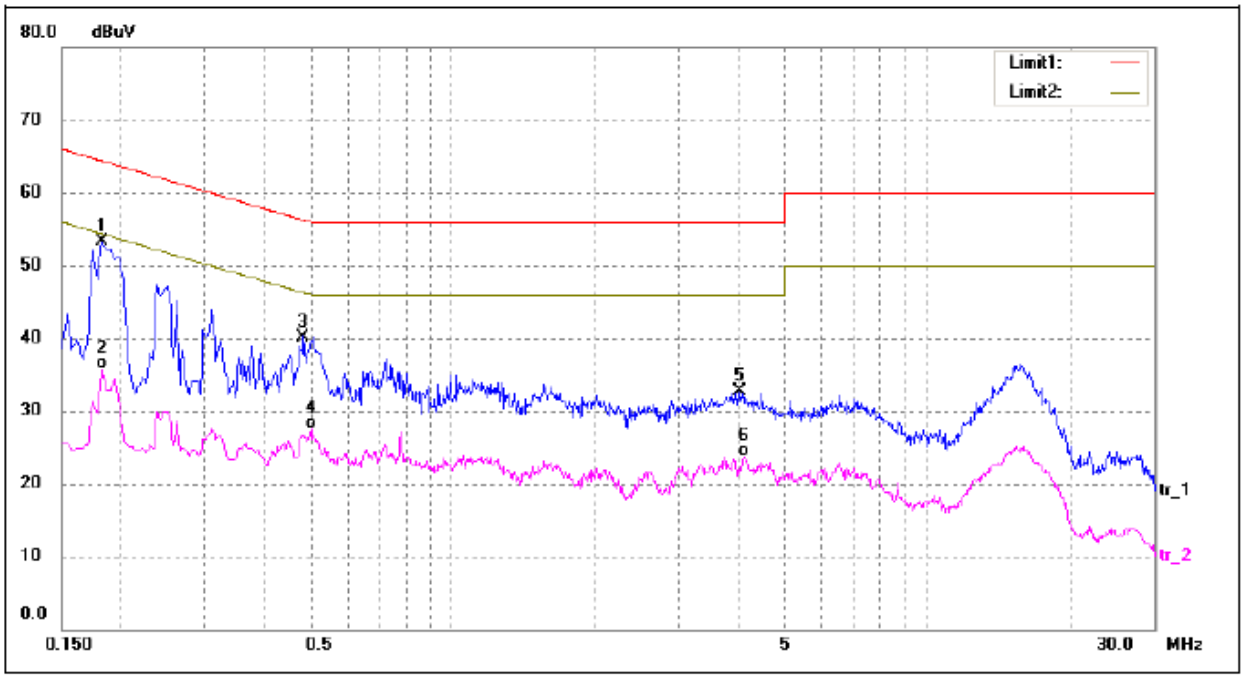
Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

3.1.4 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of **2.3** Unless otherwise a special operating condition is specified in the follows during the testing.

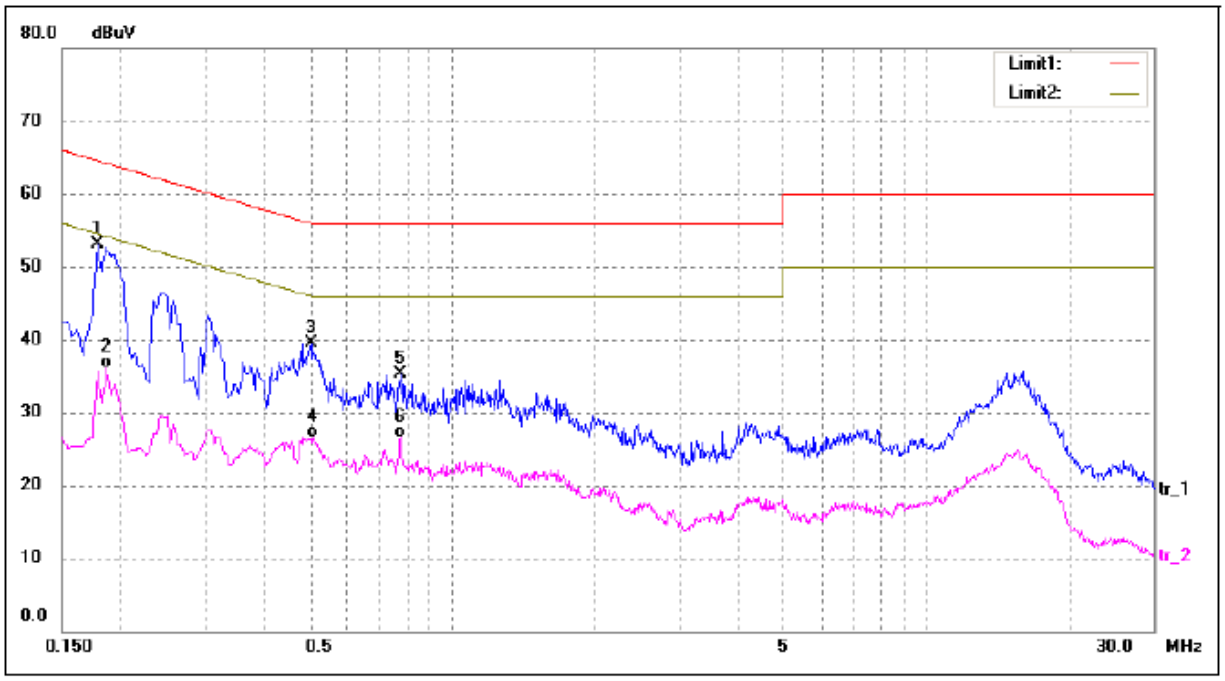
3.1.5 TEST RESULTS

EUT：	Thermal Printer	Model Name. ：	P80
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	1010hPa	Test Date：	2017-06-24
Test Mode：	Running	Phase：	L
Test Voltage ：	120V/60Hz		



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1*	0.1820	40.77	12.50	53.27	64.39	-11.12	peak
2	0.1820	23.18	12.50	35.68	54.39	-18.71	AVG
3	0.4860	27.70	12.50	40.20	56.24	-16.04	peak
4	0.5020	15.05	12.50	27.55	46.00	-18.45	AVG
5	4.0420	19.65	13.00	32.65	56.00	-23.35	peak
6	4.1220	10.78	13.00	23.78	46.00	-22.22	AVG

EUT :	Thermal Printer	Model Name. :	P80
Temperature :	26 ℃	Relative Humidity :	54%
Pressure :	1010hPa	Test Date :	2017-06-24
Test Mode :	Running	Phase :	N
Test Voltage :	120V/60Hz		



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1*	0.1780	40.52	12.50	53.02	64.58	-11.56	peak
2	0.1860	23.65	12.50	36.15	54.21	-18.06	AVG
3	0.5020	27.09	12.50	39.59	56.00	-16.41	peak
4	0.5100	13.98	12.51	26.49	46.00	-19.51	AVG
5	0.7780	22.60	12.78	35.38	56.00	-20.62	peak
6	0.7780	13.82	12.78	26.60	46.00	-19.40	AVG

3.2 RADIATED EMISSION MEASUREMENT

3.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

FREQUENCY (MHz)	Class A (at 10m)	Class B (at 3m)
	dBuV/m	dBuV/m
30 ~ 88	39.0	40.0
88 ~ 216	43.5	43.5
216 ~ 960	46.5	46.0
Above 960	49.5	54.0

Notes:

(1) The limit for radiated test was performed according to as following: FCC PART 15B /ICES-003.

(2) The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

3.2.2 TEST PROCEDURE

a. The measuring distance of at 10 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.

b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.

c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

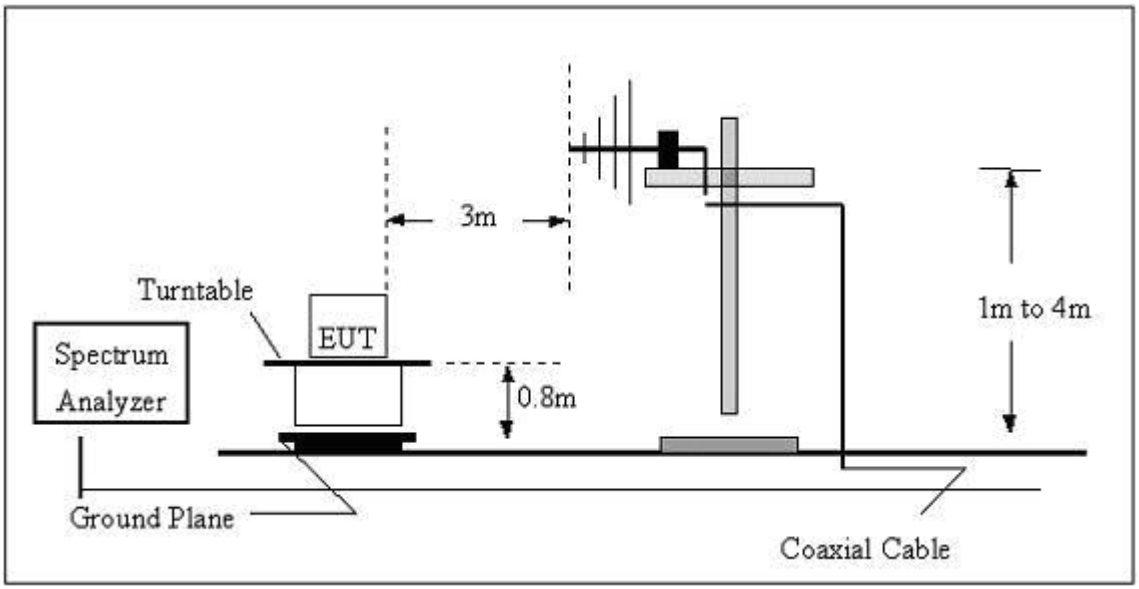
d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured, above 1G Average detector mode will be instead.

e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP(AV) Limits and then no additional QP Mode measurement performed.

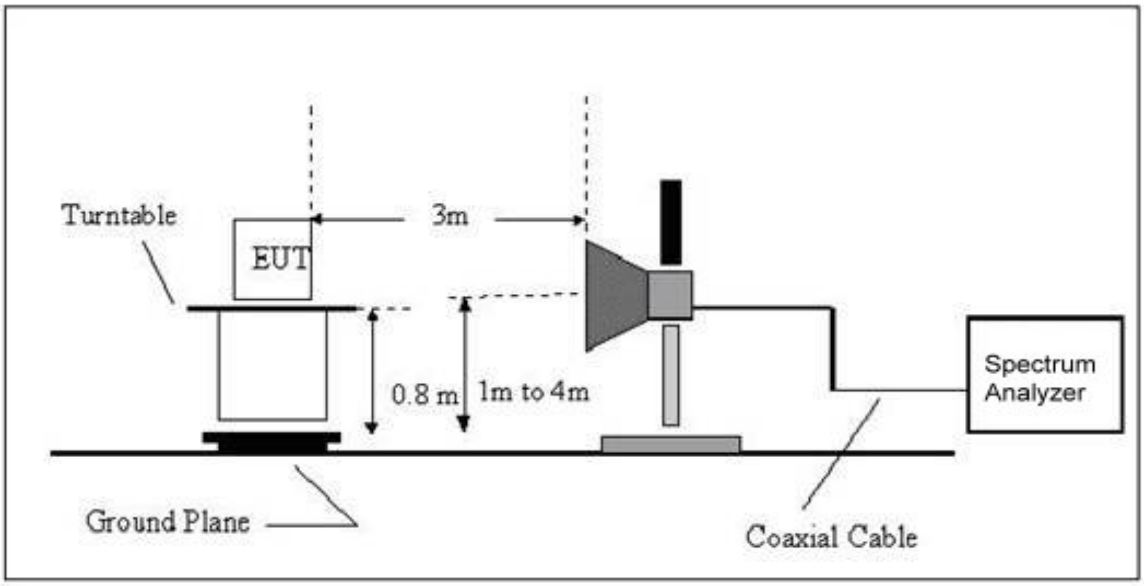
f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.2.3 TEST SETUP

(A) Radiated Emission Test Set-Up Frequency Below 1 GHz



(B) Radiated Emission Test Set-Up Frequency Above 1GHz

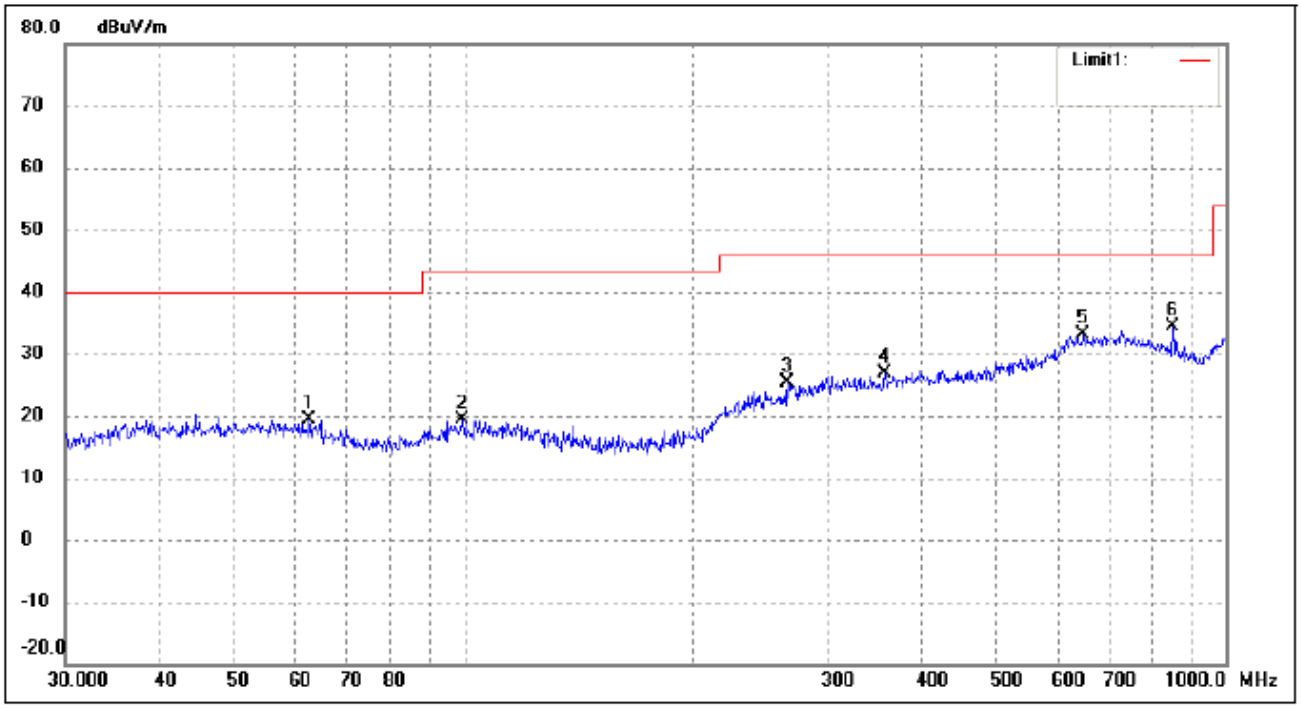


3.2.4 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of **2.3** Unless otherwise a special operating condition is specified in the follows during the testing.

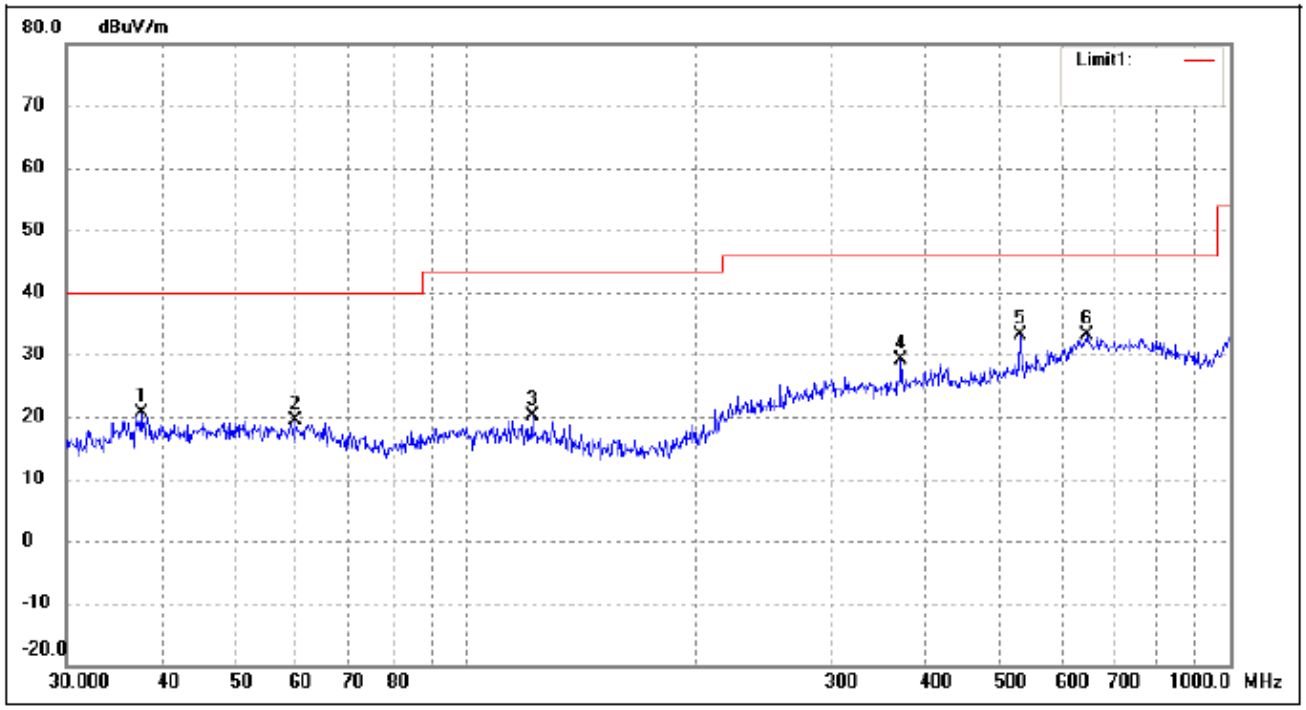
3.2.5 TEST RESULTS

EUT :	Thermal Printer	Model Name :	P80
Temperature :	24 ℃	Relative Humidity :	54%
Pressure :	1010 hPa	Test Date :	2017-06-24
Test Mode :	Running	Polarization :	Horizontal
Test Power :	120V/60Hz		



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	62.6507	14.95	4.49	19.44	40.00	-20.56	210	100	peak
2	99.5281	14.47	4.86	19.33	43.50	-24.17	227	100	peak
3	265.6757	15.34	10.10	25.44	46.00	-20.56	52	100	peak
4	356.6758	14.96	11.82	26.78	46.00	-19.22	97	100	peak
5	649.6597	15.17	17.84	33.01	46.00	-12.99	50	100	peak
6	851.0353	18.58	15.83	34.41	46.00	-11.59	112	100	peak

EUT :	Thermal Printer	Model Name :	P80
Temperature :	24 ℃	Relative Humidity :	54%
Pressure :	1010 hPa	Test Date :	2017-06-24
Test Mode :	Running	Polarization :	Vertical
Test Power :	120V/60Hz		



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( )	Height (cm)	Remark
1	37.5479	15.98	4.57	20.55	40.00	-19.45	164	100	peak
2	59.8588	14.30	5.03	19.33	40.00	-20.67	217	100	peak
3	121.9755	15.42	4.65	20.07	43.50	-23.43	67	100	peak
4	370.7023	17.34	11.84	29.18	46.00	-16.82	305	100	peak
5	530.1014	19.24	13.84	33.08	46.00	-12.92	177	100	peak
6	647.3856	15.18	17.90	33.08	46.00	-12.92	321	100	peak

3.2.6 TEST RESULTS(Above 1GHz)

EUT：	Thermal Printer	Model Name ：	P80
Temperature：	24 ℃	Relative Humidity：	54%
Pressure：	1010 hPa	Test Date：	N/A
Test Mode ：	N/A		
Test Power ：	N/A		

Note:

1) N/A - denotes test is not applicable in this test report

2) There was not any unintentional transmission in standby mode

4. **EUT TEST PHOTO**

Radiated Measurement Photos

Conducted Measurement Photos